CPRA Contract No. 2503-11-63

FEDERAL PROJECT SPONSOR

STATE PROJECT SPONSOR

STATE OF LOUISIANA
COASTAL PROTECTION AND
RESTORATION AUTHORITY
COASTAL ENGINEERING DIVISION

RIVER REINTRODUCTION INTO MAUREPAS SWAMP

PROJECT No. PO-29
ST. JOHN THE BAPTIST PARISH, LOUISIANA

Head Works
95% Structural Calculations Submittal (Volume 2 of 2)

September 2013

RIVER REINTRODUCTION INTO MAUREPAS SWAMP: HEAD WORKS STRUCTURAL CALCULATIONS

TABLE OF CONTENTS

VOLUME 1 OF 2:

SECTION 1. U-FRAME DESIGN GENERAL INFORMATION

SECTION 2. U-1 MONOLITH DESIGN

SECTION 3. U-2 MONOLITH DESIGN

SECTION 4. U-3 MONOLITH DESIGN

SECTION 5. U-4 MONOLITH DESIGN

SECTION 6. U-5 MONOLITH DESIGN

SECTION 7. U-6 MONOLITH DESIGN

VOLUME 2 OF 2:

SECTION 8. MONOLITH C-1 DESIGN

SECTION 9. CULVERT DESIGN GENERAL INFORMATION

SECTION 10. MONOLITHS C-2 THRU C-4 DESIGN

SECTION 11. MONOLITHS C-5 AND C-6 DESIGN

SECTION 8

MONOLITH C-1 DESIGN

SECTION 8 TABLE OF CONTENTS

PART 1. General Information

PART 2. SAP Model Overview & Load Input

PART 3. Pile Foundation Results (Part 1 of 2)

PART 4. Culvert Roof Design

PART 5. Equipment Room/Walkway Slab Design

PART 6. Interior Culvert Wall Design

PART 7. Exterior Culvert Wall Design

PART 8. Front & Back Headwall Design

PART 9. Base Slab Design

PART 10. Pile Foundation Results (Part 2 of 2)

PART 11. T-Wall Stem Design

PART 12. Column Design

PART 13. Steel Grating Walkway Selection

PART 14. Gate Hoist Support Beam Design

PART 15. Equipment Room Design

PART 16. Concrete Walkway (from T-Wall to Equipment Room) Design

PART 1

General Information

URS | Quality - *It's Good Business*

QMS Form 3-3 (MM)
Rev. 2013 QMS
Date: 28 Feb 2013

IE QMS - Americas

Detail Check - Calculations

Project Name	Maurepas Freshwater Diversion	**Client**	OCPR / USACE
Project Location	St John Parish, LA	**PM**	Naveen Chillara
Project Number	10001876	**PIC**	Mike Patorno

IDENTIFYING INFORMATION

(This section is to be completed by the Originator.)

Calculation Medium: *(Select as appropriate)*

☒ Electronic
☒ Hard-copy

File Name: Enter File Name.
Unique Identification: Enter Unique ID.
Number of pages *(including cover sheet)*: Enter number of pages.

Discipline:	Structural
Title of Calculation:	Structural Design & Detailing of Gated Intake Structure C-1
Calculation Originator:	Leah B. Read, PE
Calculation Contributors:	Jaya Yerubandi, PE (Equipment Room), Bob Grubb, PE (Gate Hoist Support Beam), Bryan Beckner, PE (Grating & Walkway)
Calculation Checker:	Bryan Beckner, PE, Leah Read, PE (Grating & Walkway)

DESCRIPTION & PURPOSE

Calculations design the pile foundation, slabs & walls for the intake structure

BASIS / REFERENCE / ASSUMPTIONS

Most references noted in Structural Design Criteria or on calculations package. Main references used are EM 1110-2-2104 (incl. Change 1), EM 1110-2-2502, EM 1110-2-2906, ETL 1110-2-355, ACI318-08, ASCE7-10

ISSUE / REVISION RECORD

Checker comments, if any, provided on: ☒ hard-copy ☐ electronic file ☒ Form 3-5

No.	Description	P	S	F	Originator Initials	Date	Checker Initials	Date
0	See Form 3-5. Some numbers, descriptions were updated as per Disposition comments.	☐	☐	☒	LBR	9/12/13	BCB	9/13/13
1	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.
2	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.
3	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.

For a given Revision, indicate either P (Preliminary), S (Superseding) or F (Final). If there are no revisions to the Initial Issue, check F (Final).

APPROVAL and DISTRIBUTION

☒ The below individuals assert that the Detail Check – Calculations is complete.

Leah Read	September 16, 2013
Originator Signature	**Date**
Bryan Beckner	September 18, 2013
Checker Signature	**Date**
[illegible]	9/29/2013
Project Manager (or Designee) Signature	**Date**

Distribution:

Project Central File – Quality File Folder
Other – Specify: Enter names here.

URS | Quality - *It's Good Business*

QMS Form 3-5 (MM)
Rev. 2013 QMS
Date: 28 Feb 2013

IE QMS – Americas

Comment and Disposition Form

Project Name	Reintroduction tof Maurepas Swamp - Headworks	**Client**	CPRA / USACE
Project Location	St. John the Baptist Parish, LA	**PM**	Naveen Chillara
Project Number	10001876	**PIC**	Mike Patorno

☒ Detail Check ☒ Calculation Check ☐ Coordination Review ☐ Bidability Review

☐ Independent Technical Review ☐ 3rd Party or Subconsultant Review ☐ Constructability Review ☐ Other: Enter information here.

Name of Deliverable Being Checked or Reviewed: Identify Work Product.

No. [a]	Portion [a]	Comment [a]	Disposition [b, c]	Response [b]	Verification [a]
6	Table	Verify Tailwater elevations and why there are 3 headwater elevations for low river and 2 for normal river.	A	Tailwater levels have been checked with the hydraulics team. Load Case descriptions were labeled in a somewhat confusing fashion (ie "Normal River", "Average River", etc). Labels have been changed to reference water flow levels, which is the basis for Headwater/Tailwater design levels.	OK
OP3, OP4, OP5	Internal Water Loads	The internal water pressure for Load Case OP3 uses the tailwater elevation and not the higher headwater elevation. Did you want to minimize the internal lateral water pressure because it acts as a resisting force to all the external lateral forces on the walls?	B	A note has been added to the "Notes on Loads" write-up to explain that using tailwater is a conservative approach b/c the lower water elevations provide less counterforce to the large soil forces on the exterior.	OK
OP4, OP5, OP6, OP7	Water Loads	The vertical water load on top of culvert should use the highest elevation of the headwater vs. tailwater to get the maximum vertical water load on culvert top slab.	B	Concur. Tailwater pressure was erroneously used to calculate vertical water force on the culvert roof. These numbers have been corrected. However, as a simplification in SAP, dry soil pressure is always used vertically on the culvert regardless of water elevation. This is allowable because the force of saturated soil + water always equals that of dry soil in the vertical direction.	OK
OP3-OP10	Uplift	Use tailwater elevations to calculate the uplift for pervious conditions as a more conservative approach because it would provide less resisting vertical force thereby increase pile loads.	B	The impervious condition provides a conservative downward force because only headwater on the flood side of the sheet pile is applied. This will produce max. pile reactions. The pervious condition is designed to produce a maximum uplift force by uniformly applying the headwater pressure. This will produce min. pile reactions. Also note that pervious uplift transitions from headwater to tailwater over the length of the channel, which is over 250' long. Therefore the tapering of the uplift along the slab is minimal.	OK

URS Quality - It's Good Business	QMS Form 3-5 (MM) Rev. 2013 QMS Date: 28 Feb 2013
IE QMS – Americas	Comment and Disposition Form

Number	Reference	Enter comment.	Disposition	Enter response to comment.	Verification

[a] Entries by Checker or Reviewer. [b] Entries by Originator.

[c] Dispositions: A = Have Incorporated/Will Incorporate; B = Have Clarified/Will Clarify; C = Delete Comment; D = Will Incorporate in Next Submittal; E = Comment Not Incorporated

Checker or Reviewer Signature:	[illegible]	Date:	September 13, 2013
Originator Signature:	Leah Read	Date:	September 13, 2013

Distribution:

Project Central File – Quality File Folder

Other – Specify: Enter names here.

GATED INTAKE STRUCTURE MONOLITH DESIGN

The intake monolith is located between the Inflow U-frame Monoliths and the Box Culverts and comprises an enclosed box culvert section and an open channeling section. It houses the three 10 foot by 10 foot sluice gates that will control the flow of water throughout the channel system. The main structure is 70 feet in length and 41 feet in width, with the bottom of the base slab at elevation -10.5 feet NGVD and a top walkway surface at 33.5 feet NGVD. The base slab is 3.5 feet thick and is the only portion of the monolith that extends beyond the 41-foot width (the base slab has a width of 45 feet, with a 2-foot lip extending out from both sides of the structure). The box culvert section is comprised of four walls and one roof slab, all 2.75 feet thick. The channeling section consists of walls that enclose the sluice gates and their machinery. Two 2.5-foot thick walls run the 41-foot width of the monolith. These will be herein referred to as the "front and back headwalls". The other four walls are an extension of the box culvert walls; they are 2.75 feet thick and run between the two headwalls to separate the three sluice gates. The headwalls rise from elevation 3 feet to elevation 33.5 feet NAVD88, and the four smaller connecting walls extend from elevation -7 feet to elevation 33.5 feet NAVD88. At elevation 33.5 feet NAVD88 there is a concrete and steel grating walkway that measures 16.5 feet by 41 feet and includes a small 2 foot thick concrete lip that extends outward 2 feet from the back headwall.

There are 63 HP16x101 piles beneath the intake monolith extending to a depth of 99.5 feet below the structure. The 49 piles on the protected side of the sheet pile cut-off are vertical. The remaining 14 piles on the river side of the sheet pile are a mixture of vertical piles and piles battered at 6V:1H towards the river.

Modeling

A 3-D SAP2000 model has been created to design this monolith. A 3-D model was employed because the culvert runs beneath the Mississippi River Levee at an angle, creating a skewed loading condition. The model is made of 4000psi concrete area & frame elements with thicknesses equal to their member sizes.

Joints connecting the frame elements are stiffened as per ETL 1110-2-355, which states that, "Rigid links are short members at joints that are stiffened to represent the behavior of wide supports. They are used to approximate real behavior at the intersections of thick concrete members. The length of the rigid link is generally half the distance between the joint and the face of the supporting concrete…A link should have a stiffness of at least ten times greater than that of the intersecting flexible member." The pertinent portions of the ETL explaining the rigid link method are included at the end of this section.

Design Options

The sizing and geometry of the sluice gates and culverts were determined by the hydraulic analyses after exploring many options for both the gates and the conveyance channels on a hydraulic level. The top elevation of the monolith was based on the height of the existing Mississippi River levee and the max flood stage for the area, which is elevation 23.73 feet NGVD.

A range of different piles were considered for this monolith. It was determined that steel H-piles would better withstand the lateral load applied to the structure through both stagnant and flowing water. Numerous sizes of steel H-piles were examined, and after pile capacity analysis and

monolith modeling was completed, H16x101 piles were deemed the most capable and cost effective option.

References and Publications

a. Corps of Engineers publications:

- EM 1110-2-2502, Retaining and Flood Walls, 29 Sept 89
- EM 1110-2-2104, Strength Design for Reinforced – Concrete Hydraulic Structures (including Change 1), 30 Jun 92 (original) & 20 Aug 03 (Change 1)
- EM 1110-2-2007, Structural Design of Concrete Lined Flood Control Channels, 30 Apr 95
- EM 1110-2-2902, Conduits, Culverts and Pipes
- Hurricane and Storm Damage Reduction System Design Guidelines (Updated 20 Mar 2012)

b. Technical publications:

- American concrete institute, Building Code Requirements for Structural Concrete (ACI 318-05) and Commentary (ACI 318R-05)
- Design of Reinforced Concrete (7th Edition) ACI 318-05 Code Edition. Jack C. McCormac and James K Nelson. John Wiley & Sons, Inc. USA: 2006.

c. Computer programs:

1. SAP 2000
2. Microsoft Excel

Design Criteria

Generally, all design criteria and conditions shall be according to the publications referenced above.

a. Material Weights:

Water	62.4	lb/ft^3
Concrete	150	lb/ft^3
Steel	490	lb/ft^3
Semi-Compacted Granular Fill	110	lb/ft^3
Fully-Compacted Granular Fill, Wet	120	lb/ft^3
Fully-Compacted Granular Fill, Effective	58	lb/ft^3
Fully-Compacted Clay Fill, Wet	115	lb/ft^3
Fully-Compacted Clay Fill, Effective	52.6	lb/ft^3

b. Design Stresses:

- Concrete – The allowable stresses used in the design of the intake monolith are dictated by the ACI 318-05 building code, except for strength reduction factor (Φ) for shear. A value of $\Phi = 0.85$ for shear was used. Also, strength requirements are increased by the hydraulic factor described in EM 1110-2-2104. Generally, 4000 psi concrete (28 day strength) is used throughout the project.

- Reinforcement – ASTM Grade 60 steel is used exclusively for reinforcing the culverts. Development lengths are based on the full yield strength of 60,000 psi.

- H16x101 steel piling – These piles are made of 50 ksi steel. The capacities of these piles are determined using the capacity curves supplied by the geotechnical analysis.
  - Piles are modeled with springs that are calculated with supplied geotechnical data. Axial springs are based on the equation:

    $$b_{33} = c_{33} * (A * E) / L$$

    where, b_{33} = axial pile stiffness spring (k/in)
    c_{33} = axial stiffness modifier coefficient (supplied by geotech analysis)
    A = cross-sectional area of the pile
    E = modulus of elasticity of the pile
    L = length of the pile

  - Lateral springs are based on the LPile Lateral Load vs. Displacement curve provided by the geotechnical analysis. For these springs, a lateral deflection is assumed (based on initial model runs or an engineering assumption) and the associated load is found. The calculated lateral spring is equivalent to this load divided by the correlated deflection. An iterative procedure is then used to calibrate the spring value so that the spring's source deflection is equivalent to the deflection of the model's piles. LPile information for up to a 30kip lateral load is available for use. For pile structural checks, the moment curve used is also taken from LPile output data

- PZ22 sheet pile – The sheet pile cutoff for the headworks system is completely encompassed in this monolith. It runs transversely 16 feet from the front edge of the slab, turns 90° 1.5 feet from either edge of the slab and ties into the Mississippi River Levee where the crown intersects the monolith. Sheet pile sizing and tip elevations as per the geotechnical analysis.

- Allowable Overstresses – The allowable overstress factors used in the gated intake structure monolith design are as follows:

Loading Condition	Allowable Overstress
Normal Operation	0%
Construction Cases	16.67%
Maintenance Dewatering Cases	33.33%
Design Flood Case (Design Check)	33.33%

Loading Conditions

Operational Load Cases are based on the various operating and non-operating conditions found in the hydraulic analysis of the headworks structure. Headwater and Tailwater elevations are determined by the hydraulics design. Soil forces from the skewed levee alignment are included. Uplift forces are simplified to create a maximum downward force situation (impervious case) and a maximum upward force situation (pervious case).

Maintenance Dewatering Cases were also considered. Instead of modeling every possible combination of empty and full culverts, the two scenarios that maximize culvert wall forces were chosen for the model. In the first option, the center box is dewatered while the two exterior boxes are flowing full with water pressure due to the Maximum River Stage. In the second, only one edge culvert is flowing full while the remaining two boxes are empty. These dewatering cases are also split into versions with and without uplift.

Please see the Design Criteria Tables on the following pages for detailed descriptions of each design load case.

URS

CPRA

Job: REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Project No. 10001876	
Description: Design Criteria and Load Analysis for Gated Intake Structure with 10ftx10ft Box culverts	Computed By: JY	Date: June-13
	Checked By: LBR	Date: July-13

Gated Intake Structure Monolith - C1 (Construction Load Cases - prior to normal operation of structure)

DESIGN LOAD CASES			Flood Elevations (NGVD)		Multipliers for Design	Service load multipliers for concrete serviceability, deflection, cracking and pile design: Strength Design U=Rf*Hf*(D+L+...) using EM-1110-2-2104 Single Load Factor Method											
LC No.	Load Case Name	Description/Applicable Loads	Head water ft	Tail water ft	Allowable Overstress	Reduction Factor (Rf)	Hydraulic Factor (Hf)	Dead (D)	Live (L)	Hydrostatic (H)	Uplift (U)	Wind (W)	Soil (S)	Settlement (ST)	Impact (I)	Truck (T)	Tandem (TM)
1a	**Construction**	Dead Load (Concrete & Gate)	-10.5	-10.5	16.67%	0.8571	1.3	1.7	1.7				1.7	1.7*			
		250 psf equipment surcharge															
		Lateral Load from Dry Back fill soil (to Top of Culvert)															
1b	**Construction + Top Soil**	Dead Load (Concrete & Gate)	-10.5	-10.5	16.67%	0.8571	1.3	1.7	1.7				1.7	1.7*			
		250 psf equipment surcharge															
		Top Levee Soil + Lateral Load from Dry Back fill soil (to Top of Levee)															
1c	**Construction + Uneven Fill**	Dead Load (Concrete & Gate)	-10.5	-10.5	16.67%	0.8571	1.3	1.7	1.7				1.7	1.7*			
		250 psf equipment surcharge															
		Lateral Load from Uneven Dry Backfill (to Top of Culvert) with 5ft Differential heights															

Notes:

1 Construction Load cases 1a to 1c assume a piezometer dewatering system is in place during construction and that the ground water is drawn to below the bottom of the stablization slab which is currently is El. -10.5.

2 Recommended that sacrificial dolphins be constructed on the upriver batture, between the levee and batture crest. This will prevent barge impact.

3 (*) on Settlement Loading: A copy of each load case is created and the forces due to settlement of fill are added. These load cases are denoted with "-ST" in the name (ex: LC 1a-ST is Load Case 1a plus the addition of settlement forces)

4 Wind during construction is neglected because the stresses due to hydraulic and soil forces far outweigh those of a 50psf wind force during construction (with its applicable 16% allowable overstress).

URS

CPRA

Job:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Project No.	10001801		
Description: Design Criteria and Load Analysis for Gated Intake Structure with 10ftx10ft Box culverts		Computed By:	JY	Date:	6/1/2013
		Checked By:	LBR	Date:	7/1/2013

Gated Intake Structure Monolith - C1 (Operating Load Cases)

DESIGN LOAD CASES			Flood Elevations (NGVD)		Multipliers for Concrete Design	Service load multipliers for concrete serviceability, deflection, cracking and pile design: Strength Design U=Rf*Hf*(D+L+...) using EM-1110-2-2104 Single Load Factor Method											
LC No.	Load Case Name	Description/Applicable Loads	Head water ft	Tail water ft	Allowable Overstress	Reduction Factor (Rf)	Hydraulic Factor (Hf)	Dead (D)	Live (L)	Hydrostatic (H)	Uplift (U)	Wind (W)	Soil (S)	Settlement (ST)	Impact (I)	Truck (T)	Tandem (TM)
OP1	**Minimum River Stage (Gates NOT Operating) (Impervious & Pervious)**	Dead Load (Concrete & Gate)	1.00	1.00	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP1a) & Pervious Uplift (OP1b)															
OP2	**~500 cfs Operation (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	3.80	3.80	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP2a) & Pervious Uplift (OP2b)															
OP3	**~1000 cfs Operation (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	4.90	4.60	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP3a) & Pervious Uplift (OP3b)															
OP4	**~1500 cfs Operation - Low Stage (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	6.70	5.80	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP4a) & Pervious Uplift (OP4b)															
OP5	**~2000 cfs Operatin - Low Stage (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	9.10	7.60	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP5a) & Pervious Uplift (OP5b)															
OP6	**~1500 cfs Operation - Medium Stage (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	9.90	5.80	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP6a) & Pervious Uplift (OP6b)															
OP7	**~2000 cfs Operatin - Medium Stage (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	9.90	7.60	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP7a) & Pervious Uplift (OP7b)															
OP8	**Maximum River Stage (Gates NOT Operating) (Impervious & Pervious)**	Dead Load (Concrete & Gate)	23.73	1.00	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP8a) & Pervious Uplift (OP8b)															
OP9	**~1500 cfs Operatin - High Stage (Gates Operating) (Impervious & Pervious)**	Dead Load Concrete	23.73	5.80	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP9a) & Pervious Uplift (OP9b)															

URS

CPRA

Job: REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Project No. 10001801	
Description: Design Criteria and Load Analysis for Gated Intake Structure with 10ftx10ft Box culverts	Computed By: JY	Date: 6/1/2013
	Checked By: LBR	Date: 7/1/2013

Gated Intake Structure Monolith - C1 (Operating Load Cases)

DESIGN LOAD CASES			Flood Elevations (NGVD)		Multipliers for Concrete Design	Service load multipliers for concrete serviceability, deflection, cracking and pile design: Strength Design U=Rf*Hf*(D+L+...) using EM-1110-2-2104 Single Load Factor Method											
LC No.	Load Case Name	Description/Applicable Loads	Head water ft	Tail water ft	Allowable Overstress	Reduction Factor (Rf)	Hydraulic Factor (Hf)	Dead (D)	Live (L)	Hydrostatic (H)	Uplift (U)	Wind (W)	Soil (S)	Settlement (ST)	Impact (I)	Truck (T)	Tandem (TM)
OP10	~2000 cfs Operation - High Stage (Gates Operating) (Impervious & Pervious)	Dead Load Concrete	23.73	7.60	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Load from gates being operated															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP10a) & Pervious Uplift (OP10b)															
OP11	Hurricane Condition (Gates NOT Operating) (Impervious & Pervious)	Dead Load (Concrete & Gate)	1.00	9.00	0%	1	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (OP11a) & Pervious Uplift (OP11b)															
DC A	Design Flood Load Case (Gates NOT Operating) Max Flood Elevation See Note 1 below	Dead Load (Concrete & Gate)	31.5	1.00	33.33%	0.75	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Water to Flowline + Freeboard, El.31.5															
		Impervious Uplift (DC Aa) & Pervious Uplift (DC Ab)															
		Top Levee Soil Submerged on Flood Side of Cutoff, Top Levee Soil Dry on Protected Side + Lateral Load from Dry Back fill soil (to Top of Levee)															
D1	Maintenance Dewatering Type 1 (Center Culvert Dewatered) (Impervious & Pervious)	Dead Load (Concrete & Gate)	23.73	23.73	33.33%	0.75	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Internal Water Pressure in Two Exterior Culverts from Max. River Stage															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (D1a) & Pervious Uplift (D1b)															
D2	Maintenance Dewatering Type 2 (One Edge Culvert in Operation) (Impervious & Pervious)	Dead Load (Concrete & Gate)	23.73	23.73	33.33%	0.75	1.3	1.7	1.7	1.7	1.7		1.7	1.7*			
		Internal Water Pressure in One Exterior Culvert from Max. River Stage															
		Vertical load from Top soil & Lateral Load from Back fill soil															
		Impervious Uplift (D2a) & Pervious Uplift (D2b)															

Notes:

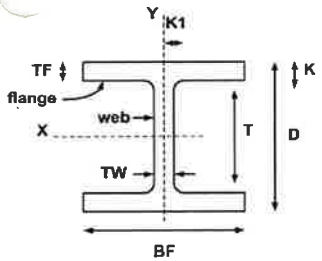
1 For Design Flood Load Case, the design water elevation = flowline water level + freeboard (EM 1110-2-2007, Struct. Design of Concrete Lined Flood Channels). This case is designed to mimic TOW Design Check Case A from the HSDRRS Guidelines for T-wall design.

2 Recommended that sacrificial dolphins be constructed on the upriver batture, between the levee and batture crest. This will prevent barge impact.

3 (*) on Settlement Loading: A copy of each load case is created and the forces due to settlement of fill are added. These load cases are denoted with "-ST" in the name (ex: OP1a-ST is Operational Case 1a plus the addition of settlement forces)

4 For the Hurricane Case (OP11), tailwater expected as per USACE analysis for existing river stages is EL 8.10. EL 9.0 is used because this is the top of the channel levees in the outflow canal, and therefore is the highest possible tailwater level. This creates a more conservative reverse head condition.

HP Shapes - US Standard Units



HP-Shape

AISC_Shape	W	A	d	d_{det}	b_f	b_{fdet}	t_w	t_{wdet}	$t_{wdet}/2$	t_f	t_{fdet}	k_{des}	k_{det}	k_1	$b_f/2t_f$	h/t_w	I_x	Z_x	S_x	r_x	I_y	Z_y	S_y	r_y	J	C_w	W_{no}	S_{w1}	Q_f	Q_w	r_{ts}	h_o
HP18X204	204	60.2	18.3	18 1/4	18.1	18 1/8	1.13	1 1/8	9/16	1.13	1 1/8	2.31	2 5/16	1 3/4	8.01	12.1	3480	433	380	7.60	1120	191	124	4.31	29.5	82500	77.7	397	82.3	212	5.03	17.2
HP18X181	181	53.2	18.0	18	18.0	18	1.00	1	1/2	1.00	1	2.18	2 3/16	1 11/16	9.00	13.6	3020	379	336	7.53	974	167	108	4.28	20.7	70400	76.5	344	72.3	185	4.96	17.0
HP18X157	157	46.2	17.7	17 3/4	17.9	17 7/8	0.870	7/8	7/16	0.870	7/8	2.05	2 1/16	1 5/8	10.3	15.6	2570	327	290	7.46	833	143	93.1	4.25	13.9	59000	75.3	293	62.3	159	4.92	16.8
HP18X135	135	39.9	17.5	17 1/2	17.8	17 3/4	0.750	3/4	3/8	0.750	3/4	1.93	1 15/16	1 9/16	11.9	18.2	2200	281	251	7.43	706	122	79.3	4.21	9.12	49500	74.5	249	53.5	136	4.85	16.8
HP16X183	183	54.1	16.5	16 1/2	16.3	16 1/2	1.13	1 1/8	9/16	1.13	1 1/8	2.31	2 5/16	1 3/4	7.21	10.5	2510	349	304	6.81	818	156	100.0	3.89	26.9	48300	62.2	285	65.4	169	4.55	15.4
HP16X162	162	47.7	16.3	16 1/4	16.1	16 1/8	1.00	1	1/2	1.00	1	2.18	2 3/16	1 11/16	8.05	11.9	2190	306	269	6.78	697	134	86.6	3.82	18.8	40800	61.6	248	57.8	149	4.45	15.3
HP16X141	141	41.7	16.0	16	16.0	16	0.875	7/8	7/16	0.875	7/8	2.06	2 1/16	1 5/8	9.14	13.6	1870	264	234	6.70	599	116	74.9	3.79	12.9	34300	60.5	212	50.0	128	4.40	15.1
HP16X121	121	35.8	15.8	15 3/4	15.9	15 7/8	0.750	3/4	3/8	0.750	3/4	1.93	1 15/16	1 9/16	10.6	15.9	1590	226	201	6.66	504	97.6	63.4	3.75	8.35	28500	59.8	178	42.8	109	4.34	15.1
HP16X101	101	29.9	15.5	15 1/2	15.8	15 3/4	0.625	5/8	5/16	0.625	5/8	1.81	1 13/16	1 1/2	12.6	19.0	1300	187	168	6.59	412	80.1	52.2	3.71	5.07	22800	58.8	145	35.3	89.3	4.27	14.9
HP16X88	88.0	25.8	15.3	15 3/8	15.7	15 11/16	0.540	9/16	5/16	0.540	9/16	1.72	1 3/4	1 7/16	14.5	22.0	1110	161	145	6.56	349	68.2	44.5	3.68	3.45	19000	57.9	123	30.2	76.2	4.21	14.8
HP14X117	117	34.4	14.2	14 1/4	14.9	14 7/8	0.805	13/16	7/16	0.805	13/16	1.50	1 1/2	1 3/50	9.25	14.2	1220	194	172	5.96	443	91.4	59.5	3.59	8.02	19900	49.9	149	38.0	96.3	4.15	13.4
HP14X102	102	30.1	14.0	14	14.8	14 3/4	0.705	11/16	3/8	0.705	11/16	1.38	1 3/8	1	10.5	16.2	1050	169	150	5.92	380	78.8	51.4	3.56	5.39	16800	49.2	128	33.0	83.3	4.10	13.3
HP14X89	89.0	26.1	13.8	13 7/8	14.7	14 3/4	0.615	5/8	5/16	0.615	5/8	1.31	1 5/16	15/16	11.9	18.5	904	146	131	5.88	326	67.7	44.3	3.53	3.59	14200	48.5	110	28.6	71.9	4.05	13.2
HP14X73	73.0	21.4	13.6	13 5/8	14.6	14 5/8	0.505	1/2	1/4	0.505	1/2	1.19	1 3/16	7/8	14.4	22.6	729	118	107	5.84	261	54.6	35.8	3.49	2.01	11200	47.8	88.0	23.3	58.3	4.00	13.1
HP12X84	84.0	24.6	12.3	12 1/4	12.3	12 1/4	0.685	11/16	3/8	0.685	11/16	1.38	1 3/8	1	8.97	14.2	650	120	106	5.14	213	53.2	34.6	2.94	4.24	7140	35.6	75.0	23.1	59.0	3.41	11.6
HP12X74	74.0	21.8	12.1	12 1/8	12.2	12 1/4	0.605	5/8	5/16	0.610	5/8	1.31	1 5/16	15/16	10.0	16.1	569	105	93.8	5.11	186	46.6	30.4	2.92	2.98	6160	35.2	65.5	20.4	51.9	3.38	11.5
HP12X63	63.0	18.4	11.9	12	12.1	12 1/8	0.515	1/2	1/4	0.515	1/2	1.25	1 1/4	7/8	11.8	18.9	472	88.3	79.1	5.06	153	38.7	25.3	2.88	1.83	5000	34.6	54.1	17.1	43.3	3.33	11.4
HP12X53	53.0	15.5	11.8	11 3/4	12.0	12	0.435	7/16	1/4	0.435	7/16	1.13	1 1/8	7/8	13.8	22.3	393	74.0	66.7	5.03	127	32.2	21.1	2.86	1.12	4080	34.2	44.7	14.3	36.2	3.29	11.4
HP10X57	57.0	16.7	9.99	10	10.2	10 1/4	0.565	9/16	5/16	0.565	9/16	1.25	1 1/4	15/16	9.03	13.9	294	66.5	58.8	4.18	101	30.3	19.7	2.45	1.97	2240	24.1	34.8	12.9	32.8	2.84	9.43
HP10X42	42.0	12.4	9.70	9 3/4	10.1	10 1/8	0.415	7/16	1/4	0.420	7/16	1.13	1 1/8	13/16	12.0	18.9	210	48.3	43.4	4.13	71.7	21.8	14.2	2.41	0.813	1540	23.4	24.7	9.41	23.7	2.77	9.28
HP8X36	36.0	10.6	8.02	8	8.16	8 1/8	0.445	7/16	1/4	0.445	7/16	1.13	1 1/8	7/8	9.16	14.2	119	33.6	29.8	3.36	40.3	15.2	9.88	1.95	0.770	578	15.4	14.0	6.50	16.6	2.26	7.58

CECALC.com
CIVIL ENGINEERING
CALCULATIONS

CECALC.com LLC - Copyright 2011 - all rights reserved.

14X117

$A_{14X117} := 196 \cdot in^2$

$Le_{14X117} := 150 \cdot ft$

$b_{33_14X117} := 5854.4 \cdot \frac{kip}{in}$

$c_{33_14X117} := \frac{b_{33_14X117} \cdot Le_{14X117}}{A_{14X117} \cdot E_{steel}} = 1.79$

From geotech analysis

16X88

$A_{16X88} := 256 \cdot in^2$

$Le_{16X88} := 150 \cdot ft$

$b_{33_16X88} := 6407.4 \cdot \frac{kip}{in}$

$c_{33_16X88} := \frac{b_{33_16X88} \cdot Le_{16X88}}{A_{16X88} \cdot E_{steel}} = 1.5$

16X101

$A_{16X101} := 256 \cdot in^2$

$Le_{16X101} := 150 \cdot ft$

$b_{33_16X101} := 6496.9 \cdot \frac{kip}{in}$

$c_{33_16X101} := \frac{b_{33_16X101} \cdot Le_{16X101}}{A_{16X101} \cdot E_{steel}} = 1.52$ ←

==========

LPile Plus for Windows, Version 6 (6.0.28)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

© 1985-2011 by Ensoft, Inc.
All Rights Reserved

==========

This copy of LPile is licensed to:

IH
URS

Serial Number of Security Device: 362999691
Company Name Stored in Security Device: URS Corporation

Files Used for Analysis

Path to file locations: C:\Ignacio Harrouch\Lake Maurepas Diversion Canal\2013\Pile Capacity Intake\L-Pile\
Name of input data file: LM-HP16 x 101.lp6d
Name of output report file: LM-HP16 x 101.lp6o
Name of plot output file: LM-HP16 x 101.lp6p
Name of runtime messeage file: LM-HP16 x 101.lp6r

Date and Time of Analysis

Date: September 6, 2013 Time: 9:12:39

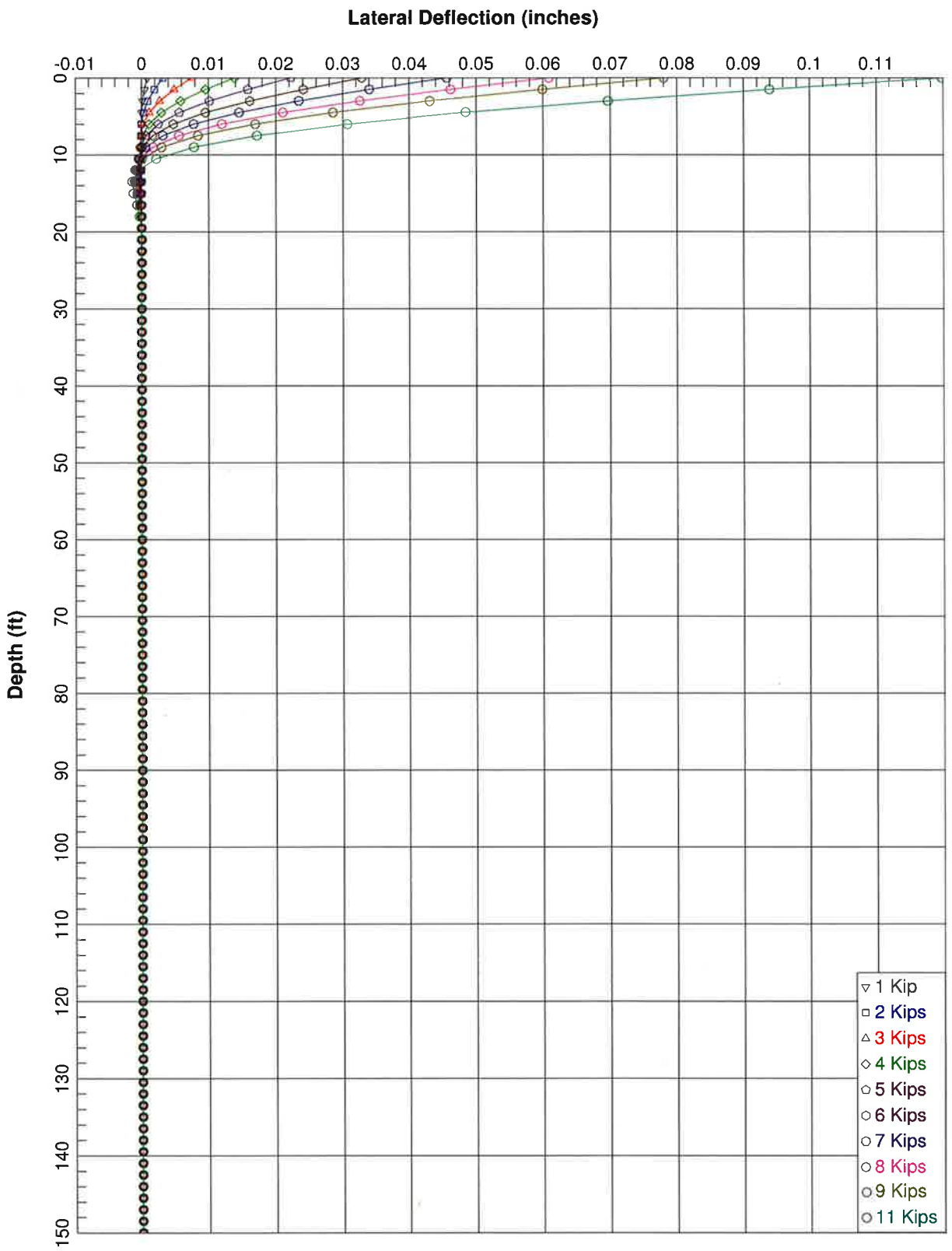
Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

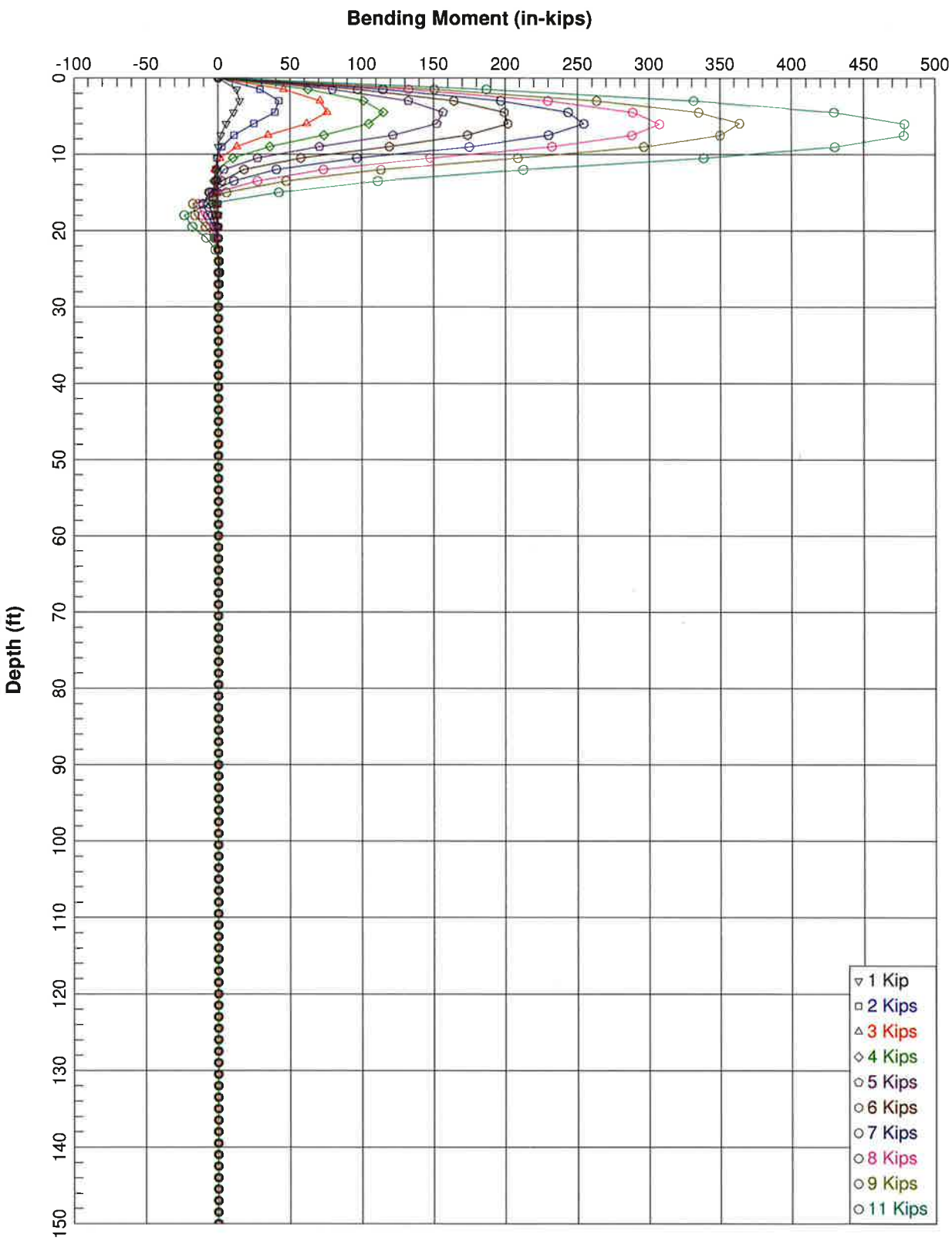
Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case No.	Load Type No.	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in-lbs	Maximum Shear lbs	Pile-head Rotation radians
1	1	V = 5000.0000	M = 0.000	275000.	0.02219710	156474.	5000.0000	-0.00035340
2	1	V = 10000.0000	M = 0.000	275000.	0.09734943	420681.	10000.0000	-0.00121316
3	1	V = 15000.	M = 0.000	275000.	0.23129802	753614.	15000.	-0.00249359
4	1	V = 20000.	M = 0.000	275000.	0.42428503	1133291.	20000.	-0.00415463
5	1	V = 25000.	M = 0.000	275000.	0.66119275	1580861.	25000.	-0.00611072
6	1	V = 30000.	M = 0.000	275000.	0.93115546	2074526.	30000.	-0.00829035
7	1	V = 35000.	M = 0.000	275000.	1.22748862	2626843.	35000.	-0.01064808

The analysis ended normally.



HP16x101 (Axial Load 275 Kips)

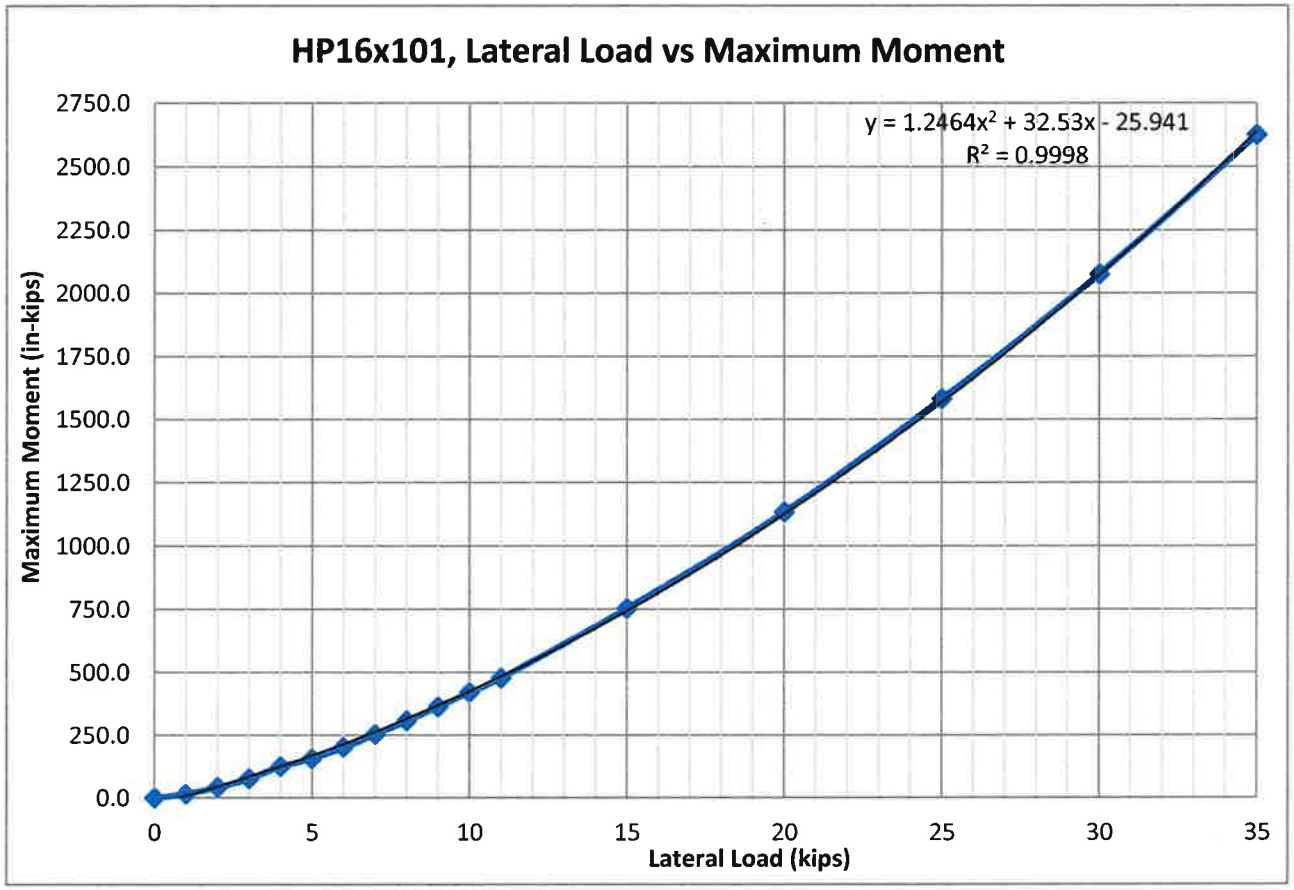


HP16x101 (Axial Load 275 Kips)

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	HP16x101 - Lateral Load vs. Maximum Moment	**Computed By:**	LBR	**Date:**	Sep-13	**Page:**	of
	For Pile Structural Check	**Checked By:**	bcb	**Date:**	Sep-13	**Sheet:**	of

Applied Lateral Load (kips)	Maximum Moment (in-kips)
0	0.0
1	15.0
2	42.0
3	76.0
4	124.5
5	157.0
6	202.0
7	253.5
8	308.0
9	363.5
10	420.7
11	478.0
15	753.6
20	1133.3
25	1580.9
30	2074.5
35	2626.8



SETTLEMENT LOAD REFERENCE

Read, Leah

From: Lelong, Bruce
Sent: Friday, July 26, 2013 9:58 AM
To: Read, Leah; Grubb, Bob; Yerubandi, Jaya
Subject: FW: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)
Attachments: document2013-07-25-161833.pdf — Attachment follows e-mails

Bruce R. Lelong, P.E. • Project Manager & Structures Dept. Manager
3500 N. Causeway Blvd. • Suite 900 • Metairie, LA • 70002 Bruce.Lelong@urs.com • Office 504.837.6326 • Direct 504.218.0854

-----Original Message-----
From: Brandstetter, Charles P MVN [mailto:Charles.P.Brandstetter@usace.army.mil]
Sent: Thursday, July 25, 2013 4:27 PM
To: Lelong, Bruce
Cc: Buenano, Ariel; Chillara, Naveen
Subject: RE: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First I want to apologize for not getting back to you sooner. Also, I called yesterday and spoke with Ariel about this and I told him to not use the formulas described for condition 3.

However, **after consultation with others in the Corps, it looks like these formulas are appropriate. Darryl did use this in the design of Canarvan and Davis Pond. I have attached his description of why this applied.**

Sorry for the confusion.

Charlie

-----Original Message-----
From: Lelong, Bruce [mailto:bruce.lelong@urs.com]
Sent: Thursday, July 18, 2013 10:19 AM
To: Brandstetter, Charles P MVN
Cc: Buenano, Ariel; Chillara, Naveen
Subject: RE: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)

Thanks Charlie

Bruce R. Lelong, P.E. . Project Manager & Structures Dept. Manager
[illegible]0 N. Causeway Blvd. . Suite 900 . Metairie, LA . 70002 Bruce.Lelong@urs.com . Office 504.837.6326 . Direct [illegible].218.0854

-----Original Message-----
From: Brandstetter, Charles P MVN [mailto:Charles.P.Brandstetter@usace.army.mil]
Sent: Thursday, July 18, 2013 9:16 AM
To: Lelong, Bruce
Cc: Buenano, Ariel; Chillara, Naveen
Subject: RE: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Bruce, I am looking into this, I didn't want you to think I was ignoring you.

-----Original Message-----
From: Lelong, Bruce [mailto:bruce.lelong@urs.com]
Sent: Tuesday, July 16, 2013 5:45 PM
To: Brandstetter, Charles P MVN
[illegible]: Buenano, Ariel; Chillara, Naveen
[illegible]ject: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures

Charlie,

As I mentioned to you today when I stopped by your office, we'd like guidance on the appropriateness of EM 1110-2902 CONDUITS, CULVERTS, AND PIPES, CHANGE 1, 31 MAR 98, for applying soil loads (vertical and horizontal) to the Maurepas Headworks structures. The EM "....provides (a) guidance on the design and construction of conduits, culverts, and pipes, and (b) design procedures for trench/embankment earth loadings, highway loadings, railroad loadings, surface concentrated loadings, and internal/external fluid pressures." It seems that generally this scope would apply to the headworks monoliths, and therefore we need to carefully consider the appropriateness of the guidance and follow it unless there is a good reason not to do so. Specifically, loadings are given in Chapter 2, Cast-in-place Conduits for Dams.

The specific aspect of the EM being considered is the specified vertical and lateral soil loadings on the structures. The EM, on p. 2-4, states, "direct measurements of such [soil] pressures [from overlying fill] have been made for small diameter pipes under relatively low fill heights. Until more data are available, the following loading should be used for rigid conduits and culverts for dams and levees and outlet conduits for interior drainage." The EM then defines three basic loading conditions based on two sets of parameters: the ratio of the trench width to the conduit diameter, and the height of overlying fill above natural grade. For the Maurepas Project, based on the conditions defined, the headworks structures would meet Condition 3, which is when the conduit is located within an embankment or when the situation does not meet the criteria of Conditions 1 and 2.

[illegible] Condition 3, there are two loading cases for applying soil load around the structure:
Initial Embankment Condition (Case 1) where weight of top soil is taken as 150% of the actual weight and lateral earth pressure coefficient as 0.5

* Final Embankment Condition (Case 2) where weight of top soil is taken as 100% of the actual weight and lateral earth pressure coefficient as 1.0

So the question is are these formulae appropriate or alternately should we use other loading values, such as at-rest lateral earth pressure coefficients based on surcharge from the column of soil and water at the outside face of the structure (taking sloping backfill into account as appropriate) and use a vertical surcharge pressure on top of the structure based on the column of soil and water directly over the roof of the structure? My opinion is that the EM does not apply, but please advise so we can design according to the NOD's requirements. FYI, on LA Ave Culvert Design we only applied the soil prism on top of the structure and used at-rest pressures on the walls and designed for Corps foundation and strength design criteria, but also checked the concrete structure per AASHTO LRFD Culvert Design Criteria. AASHTO has a soil interaction factor for overburden, which for the embankment condition is a maximum of 1.15 when the fill is compacted. Although we did not use a soil interaction factor when designing per Corps criteria, we found Corps criteria governed over AASHTO because the Corps load factors are larger.

Thanks in advance for you guidance,

Bruce

Bruce R. Lelong, P.E. * Project Manager & Structures Dept. Manager
3500 N. Causeway Blvd. * Suite 900 * Metairie, LA * 70002 Bruce.Lelong@urs.com <mailto:Bruce.Lelong@urs.com> * Office 504.837.6326 * Direct 504.218.0854

This e-mail and any attachments contain URS Corporation confidential information that may be proprietary or privileged. If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

cut-off under the sluice gate monolith as effective. Uplift condition 2 was derived by assuming the sheet pile cut-off as ineffective.

(5) Superimposed. In addition to the primary loads on the structure, the application of the following additional loadings were considered:

(a) Soil drag loads (D). Drag load due to differential settlement of the surrounding backfill with respect to the structure was incorporated into the design. The drag load applied to those monolith walls backfilled with sand was computed to be 0.5 times the lateral earth pressure, times the tangent of 20 degrees. For monolith C-2, which was backfilled with clay material, forming an impervious plug, an adhesion of 600 PSF was applied. In addition to the above loadings, a more conservative approach was included for the culvert monoliths. Here it was assumed that a greater settlement in the backfill material adjacent the culvert set up friction forces acting downward on the fill above the culvert. In modeling this effect, a contributary area of soil extending at a 45 degree angle from the top of the culvert was added to the column of fill directly over it.

(b) Silt Loads (S). Structural components were designed for silt deposits up to 12 feet in height, where applicable.

(c) Debris loads (DI). A uniform load of 1.5 kips per foot acting at the water line was applied to the applicable structural components.

(d) Boat impact (BI). A uniform load of 5.0 kips per foot in the direction of flow was applied 1 foot above the waterline.

(e) Wind loads (WI). A wind load of 50 psf was considered in the design of applicable structural components.

(f) Highway loads (H). A Louisiana Department of Transportation and Development HST-18 truck loading was considered in the design of its applicable structural component.

(g) Train loads (T). Cooper E-80 train loads were applied to the applicable structural components for permanent work. A Cooper E-65 load was used in the design of the temporary detour.

(6) Nomenclature of design cases. The design cases were given a nomenclature, which identifies the basic loading condition. The following example illustrates the method.

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	JY	Date:	June-13
		Checked By:	LBR	Date:	July-13

MONOLITH C1 - GATED INTAKE STRUCTURE DESIGN CRITERIA

References

Material

Water	62.4 lb/ft^3	
Concrete	150 lb/ft^3	
Steel	490 lb/ft^3	
Semi-Compacted Granular Fill	110 lb/ft^3	
Fully-Compacted Granular Fill, Wet	120 lb/ft^3	
Fully-Compacted Granular Fill, Effective	57.6 lb/ft^3	
Fully-Compacted Clay Fill, Wet	115 lb/ft^3	
Fully-Compacted Clay Fill, Effective	52.6 lb/ft^3	

Elevations

Datum Conversion: NAVD88 Elevation = NGVD Elevation - 0.217 ft — USGS

Pertinent Elevations

Inside Top of Culvert	3.00 ft NAVD 88	
Outside Top of Culvert	5.75 ft NAVD 88	
Invert of Culvert	-7.00 ft NAVD 88	
Bottom of Culvert	-10.50 ft NAVD 88	
Bottom of excavation	-10.50 ft NAVD 88	
Hurricane Surge	0.00 ft	(see NOAA SLOSH model)
Minimum River Stage	1.00 ft NAVD 88	USGS/USACE
Average River Stage	9.65 ft NAVD 88	USGS/USACE
Maximum River Stage	23.73 ft NAVD 88	USGS/USACE
Minimum Groundwater Table, *River Side*	1.00 ft NAVD 88	(riverside groundwater = river stage)
Average Groundwater Table, *River Side*	9.65 ft NAVD 88	(riverside groundwater = river stage)
Average Groundwater Table, *Protected Side*	5.20 ft NAVD 88	
Maximum Groundwater Table, *Protected Side*	8.10 ft NAVD 88	
Top of Levee elevation	31.50 ft NAVD 88 (at C-1, add 2')	33.5 USACE

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	JY	Date:	June-13
		Checked By:	LBR	Date:	July-13

MONOLITH C1 - GATED INTAKE STRUCTURE DESIGN CRITERIA

References

Operating Tailwater Stages

Condition	Head Water	Tail Water	Gate Structure Status
Low River - Not Operating	1.00 ft	1.00 ft	Gates Fully Open or Closed
Low River - Operating (~500 cfs)	3.80 ft	3.80 ft	Gates Fully Open
Low River - Operating (~1000 cfs)	4.90 ft	4.60 ft	Gates Fully Open
Normal River - Operating (~1500 cfs)	6.70 ft	5.80 ft	Gates Fully Open
Normal River - Operating (~2000 cfs)	9.10 ft	7.60 ft	Gates Fully Open
Average River - Operating (~1500 cfs)	9.90 ft	5.80 ft	Gates Partially Open
Average River - Operating (~2000 cfs)	9.90 ft	7.60 ft	Gates Partially Open
Max River - Not Operating	23.73 ft	1.00 ft	Gates Fully Closed
Max River - Operating (~1500 cfs)	23.73 ft	5.80 ft	Gates Partially Open
Max River - Operating (~2500 cfs)	23.73 ft	7.60 ft	Gates Partially Open

Non-Hurricane Tailwater Stages

Max Tailwater El.	7.6 ft NAVD 88
Min. Tailwater El.	1 ft NAVD 88

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	JY	Date:	6/1/2013
		Checked By:	LBR	Date:	7/1/2013

MONOLITH C1 - GATED INTAKE STRUCTURE DESIGN CRITERIA

References

Hurricane Tailwater Stages

	Tailwater El.1	Tailwater El.2	Tailwater El.3	Tailwater El.4
	(ft NAVD 88)	(ft NAVD 88)	(ft NAVD 88)	(ft NAVD 88)
100-yr storm	5.2	10.7	11.5	13.8
500-yr storm	7.3	13.3	14.2	16.5
1000-yr storm	8.1	14.3	15.1	17.4

Source: USACE/MVN/H&H Br

For top of Cofferdam: **Excerpt from Email dated**

Monday, February 14, 2011 12:36 PM, from Don Alette to Scott Slaughter: For use in development of the river side load cases, the Project Flood Flowline from the latest NOD flow line document "**Refined 1973 MR&T Project Flood Flow Line" dated June 1978** is between 27.3 and 27.6 ft msl (assume equal to 27.3 and 27.6 ft NGVD29) at the location of subject project, River Mile 144.1, as shown in the attachment "1973_Refined_Flowline...". Converting those elevations to NAVD88 (2004.65), using a CORPSCON conversion of -0.2 ft, yields a **Project Flood flowline in between 27.1 at River Mile 143.9 and 27.4 at River Mile 145.8.**

The required design grade for the top of the diversion structure (not including settlement or other similar allowances that may be required) is then the interpolated Project Flood flowline using the numbers shown above
plus an interpolated freeboard of 4.4 ft using the attachment "MRT freeboards...".

MRL Flowline

Flowline Stage, upstream	27.4 ft NAVD 88 at		145.8	USACE
Flowline Stage, downstream	27.1 ft NAVD 88 at		143.9	USACE
Interpolated Flowline at site	27.13 ft NAVD 88 at		144.1	USACE
Freeboard	4.4 ft			USACE
Theoretical top of drainage structure	31.53 ft NAVD 88	(use	33.5	assuming 2' thk. Equipment room base slab)

URS

Job:	Maurepas Freshwater Diversion	Project No.	10001876	Page	of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By:	LBR	Date:	August-13
		Checked By:		Date:	

References

Material

Water	62.4 lb/ft^3	
Concrete	150 lb/ft^3	
Steel	490 lb/ft^3	
Semi-Compacted Granular Fill	110 lb/ft^3	
Fully-Compacted Granular Fill, Wet	120 lb/ft^3	
Fully-Compacted Granular Fill, Effective	58 lb/ft^3	
Fully-Compacted Clay Fill, Wet	115 lb/ft^3	(soil weight provided by geotechnical analysis)
Fully-Compacted Clay Fill, Effective	52.6 lb/ft^3	(soil weight provided by geotechnical analysis)

Elevations

Datum Conversion: NAVD88 Elevation = NGVD Elevation - 0.223 ft

Top of Levee elevation	33.5 ft NAVD 88	
Top of River Road elevation	10.73 ft NAVD 88	
Top of Soil, C-6	8.0 ft NAVD 88	
Inside Top of Culvert	3.0 ft NAVD 88	
Outside Top of Culvert	5.75 ft NAVD 88	
Invert of Culvert	-7.0 ft NAVD 88	
Bottom of Culvert	-10.5 ft NAVD 88	
Average Ground Water Table	5.2 ft NAVD 88	
Maximum Ground Water Table	8.1 ft NAVD 88	
Maximum River Stage	23.73 ft NAVD 88	
Minimum River Stage	1.0 ft NAVD 88	(0.68 ft NAVD 88 rounded off to nearest decimal)

Concrete Design

Compressive Strength (f_c')	4000 psi, 28 day strength
Reinforcing, ASTM A615 Gr. 60 (f_y)	60 ksi
ACI 318-05:	
Strength reduction factor (φ)	0.75 for shear
EM1110-2-2104 including Change 1:	
Single Load Factor Method	1.7
Hydraulic Factor, shear and moment	1.3
Hydraulic Factor, direct tension	1.65

Loads

Concrete
- Unit weight of culvert
- Neglect weight of stability slab

Soil
Vertical - use unit weight
Horizontal - use unit weight x K_0

K_0 =	0.95 for clay	(K_0 value provided by geotechnical analysis)
Surcharge =	250 lbs/sf	AASHTO

Equations Used

Water Pressure (Lateral & Vertical):

*Water Pressure: $P = \gamma_{water} * Z_{water}$

Vertical Soil Pressure:

*Above water table: $P_y = \gamma_{fill,\ wet} * Z_{fill}$ (EM 1110-2-2502 Eq 3-39)

*Below water table: $P_y = \gamma_{fill,\ eff} * Z_{fill}$ (EM 1110-2-2502 Eq 3-40)

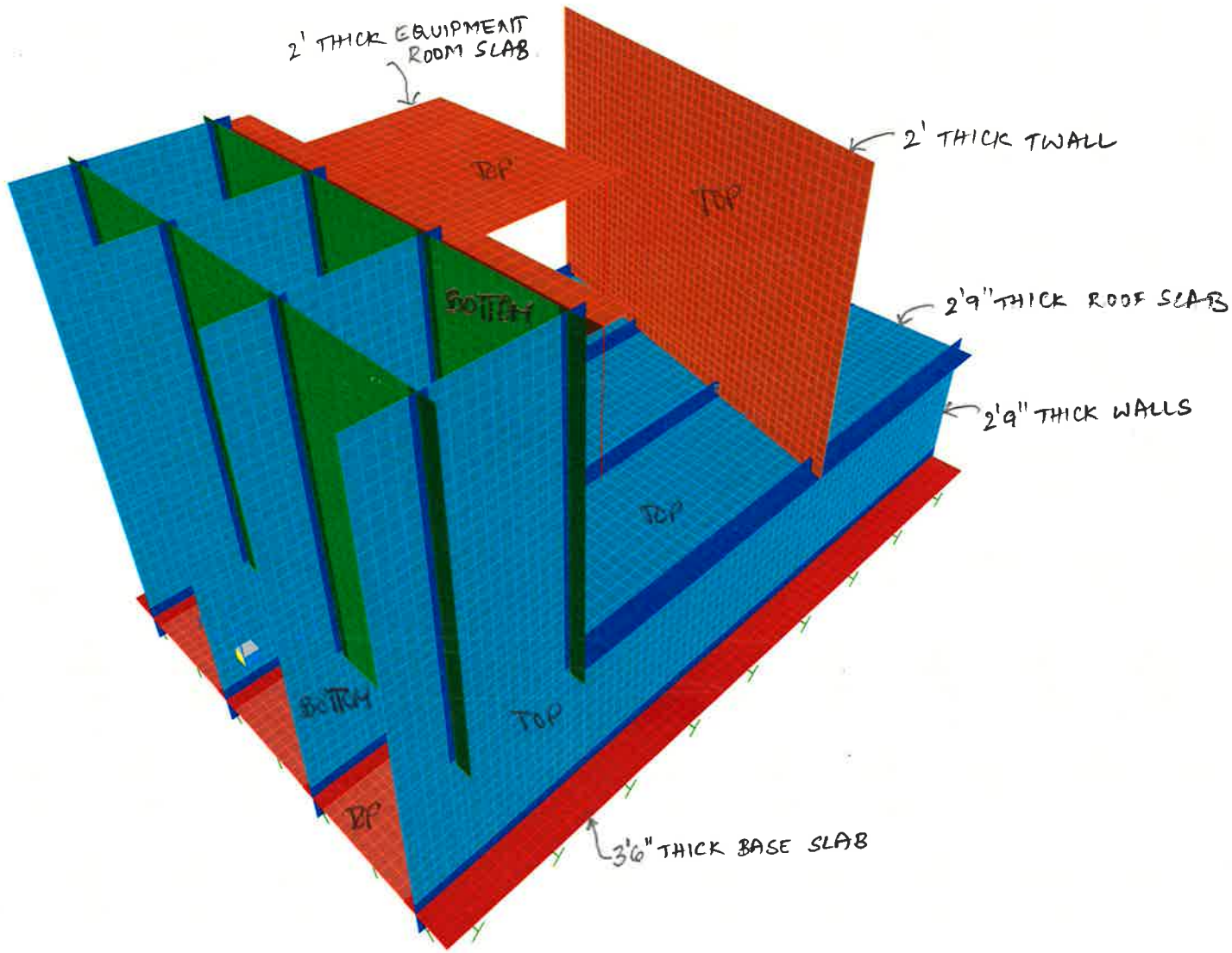
Lateral Soil Pressure Including Riprap:

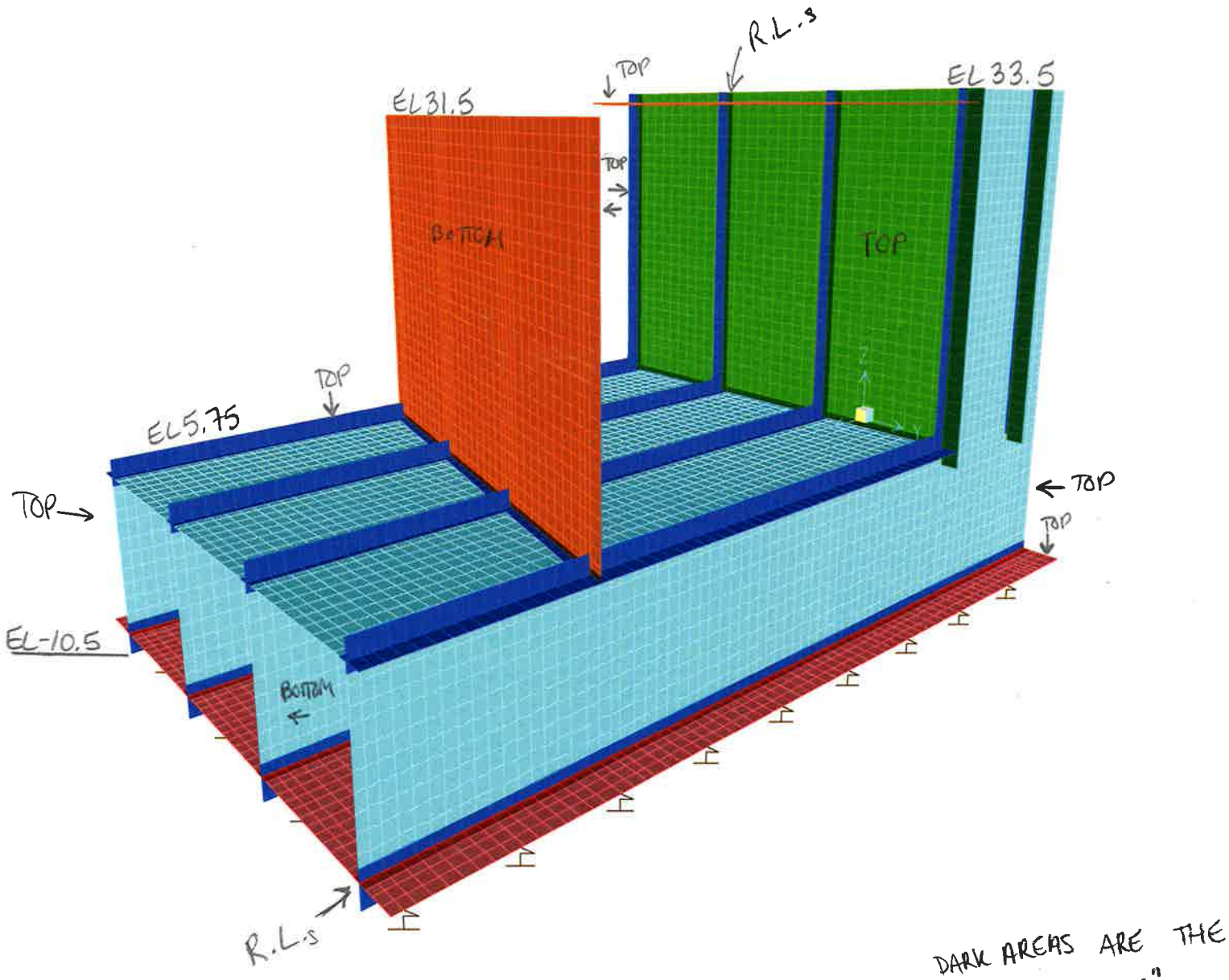
*Above water table: $P_y = K_0 * (q_{surch,\ const} + \gamma_{fill,\ wet} * Z_{fill})$ (EM 1110-2-2502 Eq 3-43)

*Below water table: $P_y = K_0 * (q_{surch,\ const} + \gamma_{fill,\ eff} * Z_{fill})$

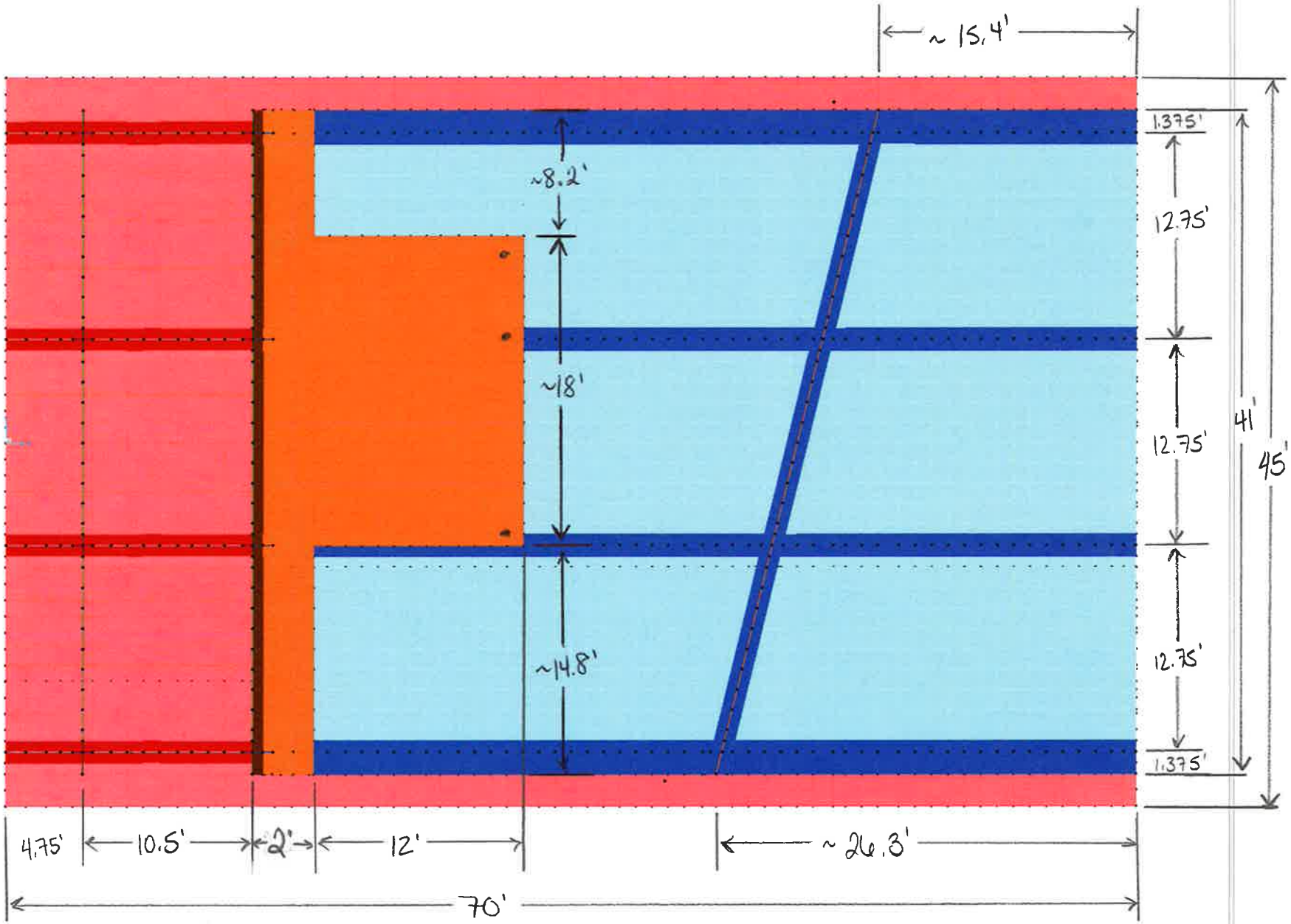
PART 2

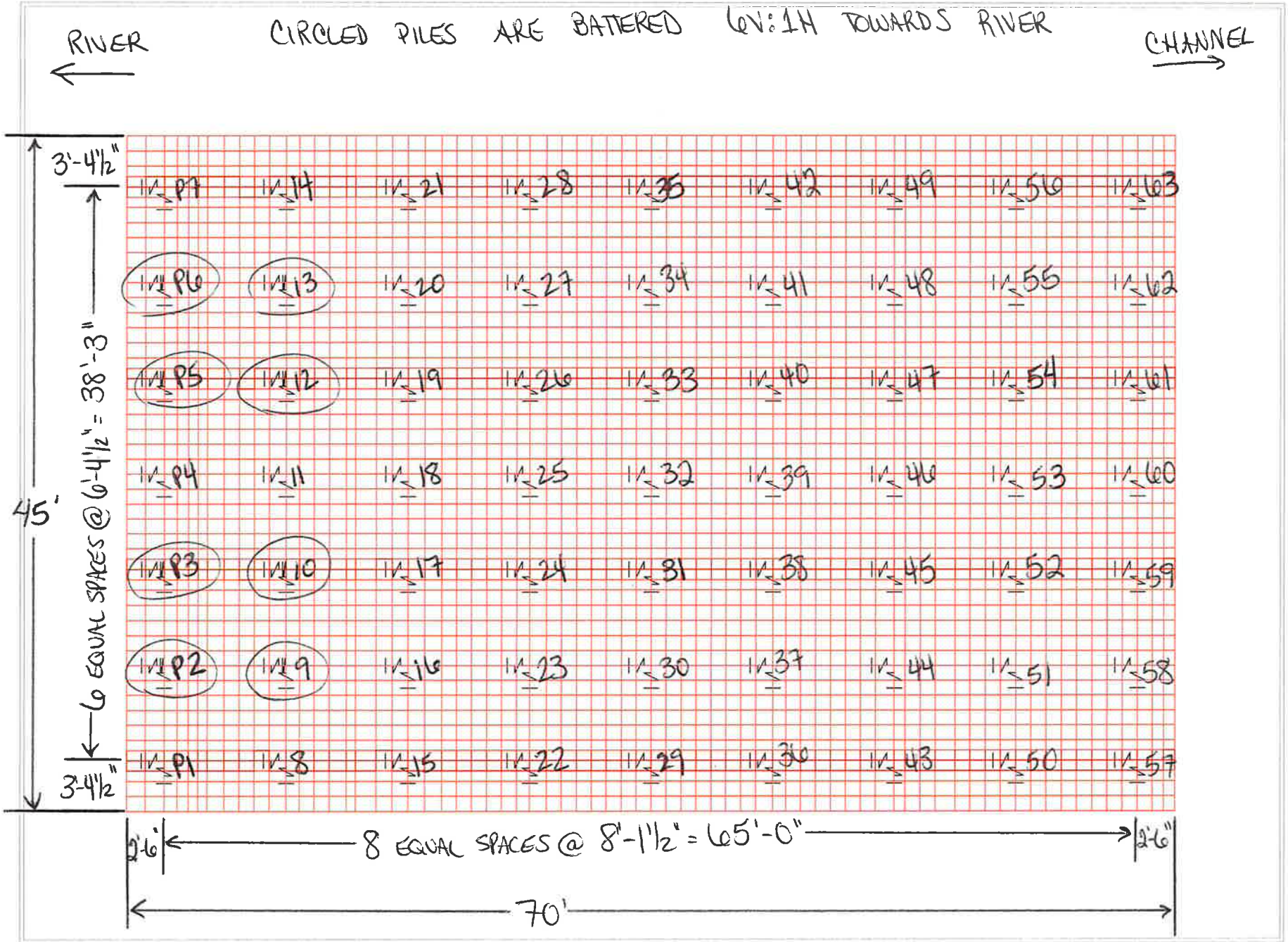
SAP Model Overview & Load Input


2' THICK EQUIPMENT ROOM SLAB
2' THICK TWALL
2'9" THICK ROOF SLAB
2'9" THICK WALLS
3'6" THICK BASE SLAB
TOP
BOTTOM
TOP
BOTTOM
TOP
TOP

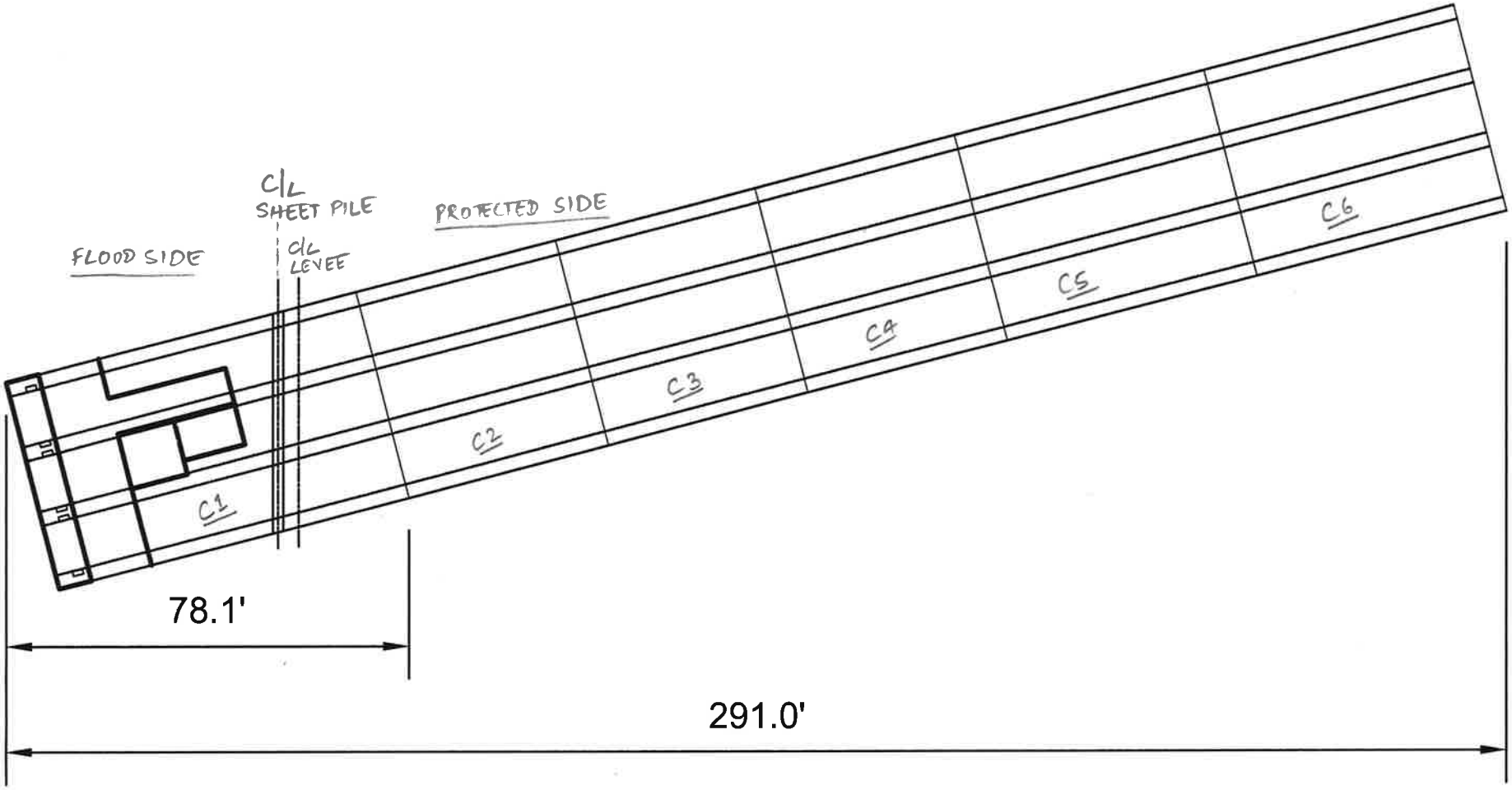


DARK AREAS ARE THE "RIGID LINKS"

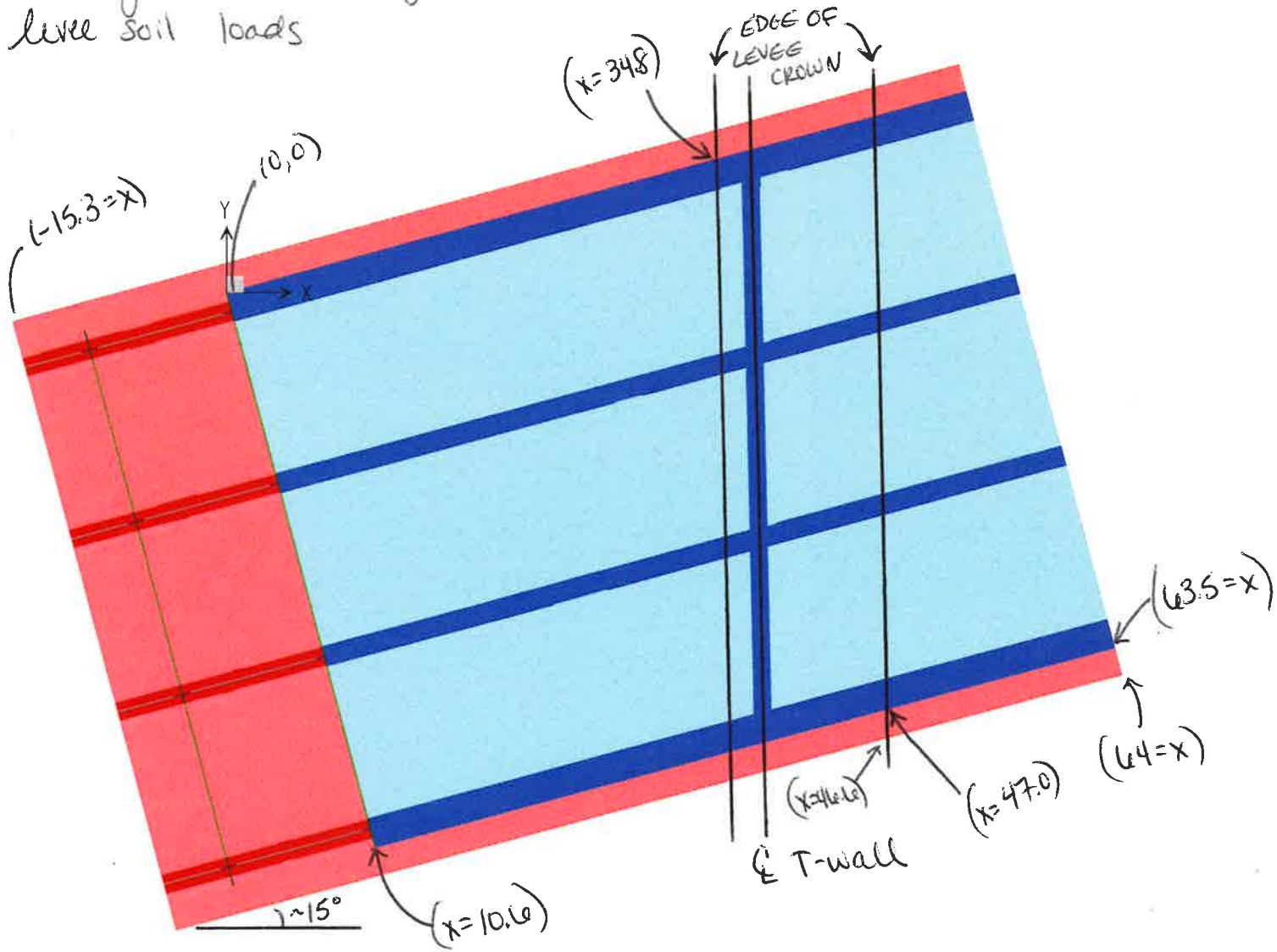

~ 15.4'
1.375'
12.75'
12.75'
12.75'
1.375'
41'
45'
~8.2'
~18'
~14.8'
4.75'
10.5'
2'
12'
~ 26.3'
70'


CIRCLED PILES ARE BATTERED 6V:1H TOWARDS RIVER
RIVER
CHANNEL
3'-4½"
45'
6 EQUAL SPACES @ 6'-4½" = 38'-3"
3'-4½"
P7 14 21 28 35 42 49 56 63
P6 13 20 27 34 41 48 55 62
P5 12 19 26 33 40 47 54 61
P4 11 18 25 32 39 46 53 60
P3 10 17 24 31 38 45 52 59
P2 9 16 23 30 37 44 51 58
P1 8 15 22 29 36 43 50 57
2'-6"
8 EQUAL SPACES @ 8'-1½" = 65'-0"
2'-6"
70'

LAYOUT OF CULVERT MONOLITHS C1 THRU C6 PERPENDICULAR TO SHEET PILE:



CSYS1 coordinate system mimics ∡ of levee in relation to Channel ℄ - used for levee soil loads



- For most impervious uplift loads, only the headwater pressures are input in the model on the flood side of the sheet pile cut-off. This creates a conservative condition because the smaller uplift forces from tailwater pressure are neglected, creating a larger overturning moment and a minimum overall uplift force.
    - The only exception to this is for the Hurricane Load Case OP11, where tailwater is higher in elevation than headwater. In this case, both headwater & tailwater uplift pressures are included.

- For pervious uplift cases, the uplift pressure has been simplified to a uniform value along the whole slab. This is allowable because the linear transition from headwater to tailwater pressure occurs along the length of the whole intake system, which is 274' from the sheet pile cut-off to the end of monolith C-6. The difference in pressure from the sheet pile location to the end of the monolith will always be minimal. Also, where the impervious uplift simplification creates a minimum overall uplift, this pervious uplift simplification will create a maximum overall uplift.

- Water forces are not applied to the rear headwall because this pressure will always equalize. Water levels on the river side of the headwall (between the front and back headwalls) will always match water levels within the soil on the flood side of the T-wall/sheet pile cut-off. The same theory applies to the interior culvert walls and the exterior walls on the river side of the sluice gates.
    - The only exception is for dewatering load cases. Dewatering bulkheads will restrict water from entering the space between the two headwalls; water force is applied to the outside of the rear headwall. Similarly, interior culvert walls will be loaded during dewatering conditions when the adjacent culvert is dewatered.

- Although the lateral soil pressure on the culvert walls will vary somewhat due to the changing levee soil height, a load equivalent to the maximum horizontal force of soil (from soil to the top of the levee) is applied to the whole wall.

- Dry soil pressures are consistently used in the vertical direction regardless of water elevation. The pressure of (saturated soil + water) will always equal that of dry soil. As a consequence of this, downward water forces on the culvert roof are not applied because they are encompassed in the dry soil force.
    - The only exception to this is for the Design Flood Case DC A, where the water elevation is to the top of protection (EL 31.5). The water level is much higher than portions of the levee soil, so vertical loads are broken up into downward water pressure & saturated levee soil pressure (on flood side of T-wall).

- Horizontally, there will be a slight difference between (saturated soil + water) and dry soil because of the inclusion of K_0. This will be accounted for by multiplying the lateral soil force by 1.0 / 0.95 = 1.053 (K_0 = 0.95) for load cases where water levels are at Maximum River Stage or higher. For the other load cases, the difference in lateral pressure from partially submerged soils

is minimal. Considering the lateral soil simplification described above (using max. soil height throughout), the small amount of lateral pressure neglected by using the dry soil load is accounted for in the use of the max soil height.

- Tailwater pressures are consistently used in the culverts beyond the sluice gates. Using tailwater elevations, which are generally lower than headwater, is a conservative approach because any internal pressure helps to counteract the large soil forces outside the culverts. No realistic amount of internal water pressure will completely counteract the levee soil load. Therefore, the design is aimed at maximizing the pressures pushing inward on the exterior walls.

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page:	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	LBR	Date:	July-13
		Checked By:	BCB	Date:	Sep-13

MONOLITH C1 - GATED INTAKE STRUCTURE

References

Construction Load Cases - 1a, 1b, 1c

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	
Surcharge =	0.25	ksf

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Outside Top of Base Slab =	-7.0	ft NAVD 88

Equipment Surcharge:

- Equipment surcharge on the top slab of the culvert (q)= 0.25 ksf

- Lateral effect due to surcharge load: $*p'_{hz} = K*q_{surcharge}$ (EM 1110-2-2502 Eq 3-43), using K_0 = 0.95

Elevation (ft NAVD 88)	Lateral Pressure (ksf)
22.0	0.238
5.75	0.238
-10.5	0.238

Soil Load (Dry Condition):

- Levee Soil on top of the culvert varies in height along the length

- Vertical Soil load on top of the culvert: Uniform vertical load at Levee crown = 3.191 ksf

- Vertical Soil load on slab lip, soil to T.O. Culvert = 1.466 ksf

- Vertical Soil load on slab lip, 5' below T. O. Culvert = 0.891 ksf

- Varying vertical load on each side of Levee crown:

	Coordinate along Length(ft)	El(ft)	Height to Culv. Roof (ft)	Pressure on Culv. Roof (k/ft)	
Flood Side	**0.0**	24.8	19.05	2.191	Levee Slope 4H:1V
	34.8	33.5	27.75	3.191	
Protected Side	**47.0**	33.5	27.75	3.191	Levee Slope 5.5H:1V
	63.5	30.5	24.75	2.846	

	Coordinate along Length(ft)	El(ft)	Height to Slab Lip (ft)	Pressure on Slab Lip (k/ft)	
Flood Side	**-15.3**	20.9	27.94	3.213	Levee Slope 4H:1V
	35.0	33.5	40.50	4.658	
Protected Side	**46.6**	33.5	40.50	4.658	Levee Slope 5.5H:1V
	64.0	30.3	37.34	4.294	

- Coordinates shown above are perpendicular to Levee (System CSYS1 in SAP)

- Lateral Soil Loads:

Soil to Top of Culvert

Elevation (ft NAVD 88)	Lateral Pressure (k/ft)
5.75	0.000
4.375	0.150
3.0	0.300
-7.0	1.393
-8.75	1.584
-10.5	1.775

Uneven backfill (5ft differential fill)

Elevation (ft NAVD 88)	Lateral Pressure (k/ft)
5.75	0.0
4.375	0.0
3.0	0.0
0.75	0.0
-7.0	0.847
-8.75	1.038
-10.50	1.229

Soil to Top of Levee

Elevation (ft NAVD 88)	Lateral Pressure (k/ft)	Lateral Pressure on Back Headwall (k/ft)
33.5	0.000	0.0
24.8	0.950	0.290
5.75	3.032	2.371
4.375	3.182	2.521
3.0	3.332	2.671
-7.0	4.425	3.764
-8.75	4.616	3.955
-10.5	4.807	4.146

Notes: - Lateral Soil Pressure on Back Headwall: As per the civil grading drawings and the calculations of soil levels using the levee slopes (tables above), the maximum soil elevation on the back headwall occurs at CSYS1, X = 10.6 (@ east edge of headwall). The elevation of soil at this point is EL 27.45. This soil height will be used across the full back headwall & on the tall sidewalls between the headwalls.

- Even though the levee soil height varies along the length of the culvert, the lateral soil pressure on the outer walls is calculated for the Max. levee soil height. This simplifies the model but is also a conservative modification.

Culvert outer wall Joint Pattern for lateral force due to Soil to top of Culvert:

Joint Pattern - "TOC Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	0.000
-10.5	1.775

Equations:

0 = C*5.75 + D
1.78 = C*-10.5 + D

C =	-0.1093
D =	0.6282

Culvert outer wall Joint Pattern for lateral force due to Soil to top of levee on Culvert (Side Walls):

Joint Pattern - "TOL Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
22.0	0.950
-10.5	4.807

Equations:

0.95 = C*22 + D
4.81 = C*-10.5 + D

C =	-0.1187
D =	3.5610

Culvert outer wall Joint Pattern for lateral force due to 5' differential soil fill:

Joint Pattern - "UE Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
0.75	0.000
-10.5	1.229

Equations:

0 = C*0.75 + D
1.23 = C*-10.5 + D

C =	-0.1093
D =	0.0819

Culvert outer wall Joint Pattern for lateral force due to Soil to top of levee (Back Headwall & Tall Sidewalls):

Joint Pattern - "TOL HW Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
27.5	0.000
-10.5	4.146

Equations:

0 = C*27.45 + D
4.15 = C*-10.5 + D

C =	-0.1093
D =	2.9989

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	LBR	Date:	July-13
		Checked By:		Date:	

Culvert Roof Slab Joint Pattern for Vertical load due to varying levee Soil:

Joint Pattern (in System CSYS1) - "Skewed Levee"

Equation: P=Ax+D where P = Pressure at Coordinate x
x = x coordinate of model
A & D = constants

x	P
0.0	2.191
34.8	3.191

Equations:

2.19 = A*0 + D
3.19 = A*34.8 + D

A =	0.0288
D =	2.1908

x	P
47.0	3.191
63.5	2.846

Equations:

3.19 = A*47 + D
2.85 = A*63.5 + D

A =	-0.0209
D =	4.1740

Base Slab Lip Joint Pattern for Vertical load due to varying levee Soil:

Joint Pattern (in System CSYS1) - "Skewed Levee"

Equation: P=Ax+D where P = Pressure at Coordinate x
x = x coordinate of model
A & D = constants

x	P
-15.3	3.213
35.0	4.658

Equations:

3.21 = A*-15.25 + D
4.66 = A*35 + D

A =	0.0288
D =	3.6513

x	P
46.6	4.658
64.0	4.294

Equations:

4.66 = A*46.6 + D
4.29 = A*64 + D

A =	-0.0209
D =	5.6319

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page:	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	LBR	Date:	July-13
		Checked By:	BCB	Date:	Sep-13

MONOLITH C1 - GATED INTAKE STRUCTURE
Low River Operational Cases: OP1, OP2 & OP3

References

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Culvert Invert =	-7.0	ft NAVD 88
Bottom of Culvert =	-10.5	ft NAVD 88

	Head Water	Tail Water
OP1	1.0	1.0
OP2	3.8	3.8
OP3	4.9	4.6

Loads : Low River Operational Condition:

	OP1	OP2	OP3
- Water pressure on top of the culvert =	0 ksf	0 ksf	0 ksf
- Water pressure on roof of the culvert from inside =	0 ksf	0.05 ksf	0.1 ksf
- Water pressure on top of the base slab culvert =			
Head Water Pressure	0.499 ksf	0.674 ksf	0.743 ksf
Tail Water Pressure	0.499 ksf	0.674 ksf	0.724 ksf

- Water Loads:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

Lateral Water Loads on outer walls from inside of culvert:

- Load case **OP1** is similar to **LC2**
- Load case **OP2**

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)
5.75	0.000
3.8	0.000
3.0	0.050
-7.0	0.674

- Load case **OP3**

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)
5.75	0.000
4.6	0.000
3.0	0.100
-7.0	0.724

Water forces on Wall thimble due to bearing of hydraulic gates when closed (Applied to dummy frame in SAP model):
- Forces on wall are applied from top of opening to invert elevation.

OP1 - No force on the walls, as the gates are open for this load case

OP2

Outer Walls -	Force (Fx) for 10ft opening	
Top	0.25	k/ft
Bottom	3.37	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	0.50	k/ft
Bottom	6.74	k/ft

(Inner walls takes loads from 2 gates on both sides)

OP3

Outer Walls -	Force (Fx) for 10ft opening	
Top	0.59	k/ft
Bottom	3.71	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	1.19	k/ft
Bottom	7.43	k/ft

(Inner walls takes loads from 2 gates on both sides)

MONOLITH C1 - GATED INTAKE STRUCTURE
Low River Operational Cases: OP1, OP2 & OP3

References

Water forces on Flood side Edge of Base Slab (Applied to dummy frame in SAP model):

OP1

Force (Fx) k/ft	Moment (My) k-ft/ft	
2.129	-0.223	(negligible moment)

OP2

Force (Fx) k/ft	Moment (My) k-ft/ft	
2.741	-0.223	(negligible moment)

OP3

Force (Fx) k/ft	Moment (My) k-ft/ft	
2.981	-0.223	(negligible moment)

Water force on River side edge of Roof Slab (Applied to dummy frame in SAP model):

OP2

Force (Fx) k/ft	Moment (My) k-ft/ft	
0.020	0.00	(negligible moment)

OP3

Force (Fx) k/ft	Moment (My) k-ft/ft	
0.113	-0.015	(negligible moment)

Uplift Loads:

OP1: (EL 1 - EL -10.5) * 0.0624 kcf = 0.718 ksf

OP2: (EL 3.8 - EL -10.5) * 0.0624 kcf = 0.892 ksf

OP3: (EL 4.9 - EL -10.5) * 0.0624 kcf = 0.961 ksf

URS

Job:	Reintroduction of Maurepas Swamp Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	LBR	Date:	July-13
		Checked By:	BCB	Date:	Sep-13

Culvert outer wall Joint Pattern for lateral **Water** load due to Operation Load case (OP2):

Joint Pattern - "OP2-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
3.0	0.050
-7.0	0.674

Equations:

0.05 = C*3 + D
0.67 = C*-7 + D

C =	-0.0624
D =	0.2371

Culvert outer wall Joint Pattern for lateral **Water** load due to Operation Load case (OP3):

Joint Pattern - "OP3-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
3.0	0.100
-7.0	0.724

Equations:

0.1 = C*3 + D
0.72 = C*-7 + D

C =	-0.0624
D =	0.2870

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No. 10001876	Page: of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By: LBR	Date: July-13
		Checked By: BCB	Date: Sep-13

MONOLITH C1 - GATED INTAKE STRUCTURE
Normal River Operational Load Cases: OP4 & OP5

References

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Culvert Invert =	-7.0	ft NAVD 88
Bottom of Culvert =	-10.5	ft NAVD 88

	Head Water	Tail Water
OP4	6.7	5.8
OP5	9.1	7.6

Load : Normal River Operational Condition:

	OP4	OP5
- Water press. on top of the culvert =	0.059 ksf	0.209 ksf
- Water press. on roof of the culvert from inside =	0.175 ksf	0.287 ksf
- Water press. on top of the base slab culvert =	0.855 ksf	1.005 ksf
Head Water Pressure	0.799 ksf	0.911 ksf
Tail Water Pressure		

Water Loads:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

Lateral Water Loads on outer walls from inside of culvert:

- Load case **OP4**

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)
5.8	0.000
3.0	0.175
-7.0	0.799

- Load case **OP5**

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)
7.6	0.000
3.0	0.287
-7.0	0.911

Water Load on T Wall:

OP4

Elevation (ft NGVD)	Lateral water pressure (k/ft)
6.7	0.000
5.75	0.059

OP5

Elevation (ft NGVD)	Lateral water pressure (k/ft)
9.1	0.000
5.75	0.209

Water forces on Wall thimble due to bearing of hydraulic gates when closed (Applied to dummy frame in SAP model):
- Forces on wall are applied from top of opening to invert elevation.

OP4

Outer Walls -	Force (Fx) for 10ft opening	
Top	1.154	k/ft
Bottom	4.274	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	2.309	k/ft
Bottom	8.549	k/ft

(Inner walls takes loads from 2 gates on both sides)

References

MONOLITH C1 - GATED INTAKE STRUCTURE
Normal River Operational Load Cases: OP4 & OP5

OP5

Outer Walls -	Force (Fx) for 10ft opening	
Top	1.903	k/ft
Bottom	5.023	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	3.806	k/ft
Bottom	10.046	k/ft

(Inner walls takes loads from 2 gates on both sides)

Water forces on Edges of Base Slab (Applied to dummy frame in SAP model):

	Force (Fx) k/ft	Moment (My) k-ft/ft	
OP4	3.374	-0.223	(negligible moment)
OP5	3.898	-0.223	(negligible moment)

Water forces on Edges of Roof Slab (Applied to dummy frame in SAP model):

	Force (Fx) k/ft	Moment (My) k-ft/ft	
OP4	0.399	-0.108	(negligible moment)
OP5	0.811	-0.108	(negligible moment)

Uplift Loads:

OP4	(EL 6.7 - EL -10.5) * 0.0624 kcf =	1.073 ksf
OP5	(EL 9.1 - EL -10.5) * 0.0624 kcf =	1.223 ksf

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No. 10001876	Page: of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By: LBR	Date: July-13
		Checked By: BCB	Date: Sep-13

MONOLITH C1 - GATED INTAKE STRUCTURE
Average River Operational Load Cases: OP6 & OP7

References

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Culvert Invert =	-7.0	ft NAVD 88
Bottom of Culvert =	-10.5	ft NAVD 88

	Head Water	Tail Water
OP6	9.9	5.8
OP7	9.9	7.6

Loads : Average River Operational Condition:

	OP6	OP7
- Water press. on top of the culvert =	0.259 ksf	0.259 ksf
- Water press. on roof of the culvert from inside =	0.175 ksf	0.287 ksf
- Water press. on top of the base slab culvert = Head Water Pressure	1.055 ksf	1.055 ksf
Tail Water Pressure	0.799 ksf	0.911 ksf

Water Loads:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

Lateral Water Loads on outer walls from inside of culvert:
- Load case **OP6** similar to **OP4** - Load case **OP7** similar to **OP5**

Water Load on T Wall:

OP6

Elevation (ft NGVD)	Lateral water pressure (k/ft)
9.9	0.000
5.75	0.259

OP7

Elevation (ft NGVD)	Lateral water pressure (k/ft)
9.9	0.000
5.75	0.259

Water forces on Wall thimble due to bearing of hydraulic gates when closed (Applied to dummy frame in SAP model):
- Forces on wall are applied from top of opening to invert elevation.

OP6 & OP7

Outer Walls -	Force (Fx) for 10ft opening	
Top	2.153	k/ft
Bottom	5.273	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	4.306	k/ft
Bottom	10.546	k/ft

(Inner walls takes loads from 2 gates on both sides)

Water forces on Edges of Base Slab (Applied to dummy frame in SAP model):

OP6 & OP7	Force (Fx) k/ft	Moment (My) k-ft/ft	
	4.073	-0.223	(negligible moment)

Water forces on Edges of Roof Slab (Applied to dummy frame in SAP model):

OP6 & OP7	Force (Fx) k/ft	Moment (My) k-ft/ft	
	0.948	-0.108	(negligible moment)

Uplift Loads:

OP6 & 7 (EL 9.9 - EL -10.5) * 0.0624 kcf = 1.273 ksf

MONOLITH C1 - GATED INTAKE STRUCTURE References

Max River Operational Load Cases : OP8, OP9 & OP10

Properties:

$\gamma_{concrete}$ =	0.15 kcf	Top slab thickness =	2.75 ft
γ_{water} =	0.0624 kcf	Bottom slab thickness =	4 ft
$\gamma_{soil\text{-}wet}$ =	0.115 kcf	Wall thickness =	2.75 ft
γ' =	0.0526 kcf	Top of levee =	33.5 ft NAVD 88
K_0, clay =	0.95	Top of culvert opening =	3.0 ft NAVD 88
		Outside Top of Culvert =	5.75 ft NAVD 88
		Culvert Invert =	-7.0 ft NAVD 88
		Bottom of Culvert =	-10.5 ft NAVD 88

	Head Water	Tail Water
OP8	23.73	1.0
OP9	23.73	5.8
OP10	23.73	7.6

Loads : Max River Operationa Condition:

		OP8	OP9	OP10
- Water press. on top of the culvert =		1.122 ksf	1.122 ksf	1.122 ksf
- Water press. on roof of the culvert from inside =		0 ksf	0.175 ksf	0.287 ksf
- Water press. on top of the base slab culvert =	Head Water Pressure	1.918 ksf	1.918 ksf	1.918 ksf
	Tail Water Pressure	0.499 ksf	0.799 ksf	0.911 ksf

Water Loads:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

Lateral Water Loads on outer walls from inside of culvert:

- Load case **OP8** similar to **LC2** - Load case **OP9** similar to **OP4** - Load case **OP10** similar to **OP5**

Water Load on T Wall:

	Elevation (ft NGVD)	Lateral water pressure (k/ft)
OP8		
OP9	23.73	0.000
OP10	5.75	1.122

Water forces on Wall thimble due to bearing of hydraulic gates when closed (Applied to dummy frame in SAP model):
- Forces on wall are applied from top of opening to invert elevation.

OP8, OP9 & OP10

Outer Walls -	Force (Fx) for 10ft opening	
Top	6.468	k/ft
Bottom	9.588	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	12.936	k/ft
Bottom	19.176	k/ft

(Inner walls takes loads from 2 gates on both sides)

Water forces on Edges of Base Slab (Applied to dummy frame in SAP model):

OP8, OP9 & OP10	Force (Fx) k/ft	Moment (My) k-ft/ft	
	7.094	-0.223	(negligible moment)

Water forces on Edges of Roof Slab (Applied to dummy frame in SAP model):

OP8, OP9 & OP10	Force (Fx) k/ft	Moment (My) k-ft/ft	
	3.321	-0.108	(negligible moment)

Uplift Loads:

OP8, 9 & 10 (EL 23.73 - EL -10.5) * 0.0624 kcf = 2.136 ksf

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	JY	Date:	6/1/2013
		Checked By:	LBR	Date:	7/1/2013

Intake Structure T wall Joint Pattern for **Water** load due to Operational Load case OP4:

Joint Pattern - "OP4-T Wall Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
6.7	0.000
5.75	0.059

Equations:

0 = C*6.7 + D
0.06 = C*5.75 + D

C =	-0.0624
D =	0.4181

Intake Structure T wall Joint Pattern for **Water** load due to Operational Load case OP5:

Joint Pattern - "OP5-T Wall Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
9.1	0.000
5.75	0.209

Equations:

0 = C*9.1 + D
0.21 = C*5.75 + D

C =	-0.0624
D =	0.5678

Intake Structure T wall Joint Pattern for **Water** load due to Operational Load cases OP6 & OP7:

Joint Pattern - "OP6,7-T Wall Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
9.9	0.000
5.75	0.259

Equations:

0 = C*9.9 + D
0.26 = C*5.75 + D

C =	-0.0624
D =	0.6178

Intake Structure T wall Jt Pattern for **Water** load due to Operational Load cases OP8, OP9 & OP10:

Joint Pattern - "OP8,9,10-T Wall Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
23.7	0.000
5.75	1.122

Equations:

0 = C*23.73 + D
1.12 = C*5.75 + D

C =	-0.0624
D =	1.4808

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	JY	Date:	6/1/2013
		Checked By:	LBR	Date:	7/1/2013

Intake Structure Culvert Outer Walls Joint Pattern for **Water** load due to Operation Load case (OP4):

Joint Pattern - "OP4-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
3.0	0.175
-7.0	0.799

Equations:

0.17 = C*3 + D
0.8 = C*-7 + D

C =	-0.0624
D =	0.3619

Intake Structure Culvert Outer Walls Joint Pattern for **Water** load due to Operation Load case (OP5):

Joint Pattern - "OP5-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
3.0	0.287
-7.0	0.911

Equations:

0.29 = C*3 + D
0.91 = C*-7 + D

C =	-0.0624
D =	0.4742

MONOLITH C1 - GATED INTAKE STRUCTURE
Hurrican Load Case: OP11

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	

	Head Water	Tail Water
OP11	1.0	9.0

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NGVD
Top of culvert opening =	3.0	ft NGVD
Outside Top of Culvert =	5.75	ft NGVD
Culvert Invert =	-7.0	ft NGVD
Bottom of Culvert =	-10.5	ft NGVD

Loads : Hurricane Condition:

	OP11
- Water press. on top of the culvert =	0.203 ksf
- Water press. on roof of the culvert from inside =	0.374 ksf
- Water press. on top of the base slab culvert =	
Head Water Pressure	0.499 ksf
Tail Water Pressure	0.998 ksf

Water Loads:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

Lateral Water Loads on outer walls from inside of culvert:

- Load case **OP11**

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)
9.0	0.000
3.0	0.374
-10.5	1.217

Water forces on Wall thimble due to bearing of hydraulic gates when closed (Applied to dummy frame in SAP model):
- Forces on wall are applied from top of opening to invert elevation.

Unlike other operational load cases, these forces are applied to the back (-X direction) of the sluice gates because tailwater is higher in elevation than headwater. Pressures are related to tailwater levels

OP11

Outer Walls -	Force (Fx) for 10ft opening	
Top	1.872	k/ft
Bottom	4.992	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	3.744	k/ft
Bottom	9.984	k/ft

(Inner walls takes loads from 2 gates on both sides)

Water forces on Edges of Base Slab (Applied to dummy frame in SAP model), **Riverside:**

OP11	Force (Fx) k/ft	Moment (My) k-ft/ft	
	2.129	-0.223	(negligible moment)

Water forces on Edges of Roof Slab (Applied to dummy frame in SAP model), **Riverside:**

OP11	Force (Fx) k/ft	Moment (My) k-ft/ft	
	0.00	0.000	(negligible moment)

Water forces on Edges of Base Slab (Applied to dummy frame in SAP model), **Landside:**

OP11	Force (Fx) k/ft	Moment (My) k-ft/ft	
	3.877	-0.223	(negligible moment)

Water forces on Edges of Roof Slab (Applied to dummy frame in SAP model), **Landside:**

OP11	Force (Fx) k/ft	Moment (My) k-ft/ft	
	0.794	0.000	(negligible moment)

Uplift Forces:

Flood Side of Sheetpile:	(EL 1 - EL -10.5) * 0.0624 kcf =	0.718 ksf
Protected Side of Sheetpile:	(EL 9 - EL -10.5) * 0.0624 kcf =	1.217 ksf

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	LBR	Date:	July-13
		Checked By:		Date:	

Intake Structure Culvert Outer Walls Joint Pattern for **Water** load due to Operation Load case (OP12):

Joint Pattern - "HUR-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
3.0	0.374
-10.5	1.217

Equations:

0.37 = C*3 + D
1.22 = C*-10.5 + D

C =	-0.0624
D =	0.5616

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page:	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	LBR	Date:	July-13
		Checked By:	BCB	Date:	Sep-13

MONOLITH C1 - GATED INTAKE STRUCTURE
Design Flood Case - DC A

References

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Culvert Invert =	-7.0	ft NAVD 88
Bottom of Culvert =	-10.5	ft NAVD 88
Head Water =	31.5	ft NAVD 88
Tail Water =	1.0	ft NAVD 88

Top Soil Vertical Loading:

- Vertical Soil load on top of the culvert: Uniform vertical load on flood side of levee crown = 1.460 ksf

Soil submerged on Flood side of the T-Wall, Soil Wet on Protected side

	Coords. along Length(ft)	El(ft)	Height(ft)	Pressure on Culvert Roof (K/ft)	
Flood Side	**0.0**	24.8	19.05	1.002	Levee Slope 4H:1V
	34.8	33.5	27.75	1.460	
Protected Side	**47.0**	33.5	27.75	3.191	Levee Slope 5.5H:1V
	63.5	30.5	24.75	2.846	

	Coords. along Length(ft)	El(ft)	Height(ft)	Pressure on ~~Culvert Roof~~ SLAB LIP (K/ft)	
Flood Side	**-15.3**	20.9	27.94	1.470	Levee Slope 4H:1V
	35.0	33.5	40.50	2.130	
Protected Side	**46.6**	33.5	40.50	4.658	Levee Slope 5.5H:1V
	64.0	30.3	37.34	4.294	

- Coordinates show above are perpendicular to Levee (System CSYS1 in SAP)

- Water Loads:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

- Water press. on top of the culvert between headwall and T-Wall = 1.607 ksf

- Water press. on top of the base slab of culvert = Head Water Pressure 2.402 ksf
  Tail Water Pressure 0.499 ksf

- Uplift at Bottom of Base Pressure on FS of Sheet Pile = 2.620 ksf (headwater uplift pressure)

Note: For the Impervious Uplift case, 2.62ksf load is applied only on Flood Side of sheet pile. For the Pervious Uplift case, 2.62ksf is applied to the whole base slab. In the pervious condition, this load decreases slightly past the sheetpile (transitions from Headwater to Tailwater pressure over the length of the Headworks Channel), but this reduction in pressure is minimal along the length of monolith C-1.

MONOLITH C1 - GATED INTAKE STRUCTURE
Design Flood Case - DC A

References

- Lateral Soil Loads:

- Lateral soil Load: $p'_{hz} = K_0 * \gamma_{wet}$

Elevation (ft NAVD 88)	Lateral soil pressure (k/ft)
33.5	0.000
22.0	1.256
5.75	3.032
4.375	3.182
3.0	3.332
-7.0	4.425
-8.75	4.616
-10.5	4.807

Notes: - Even though the levee soil is varying in height along the length of the culvert, the lateral soil pressure is calculated for max. soil height conservatively.
- The lateral soil pressure on the outer wall of the culvert is assumed to be due to dry soil irrespective of the change in water levels.
- The lateral water pressure due to external water elevation is not applied, since dry soil load was applied conservatively.

- Lateral Water Loads:

Lateral Water Loads on outer walls from inside of culvert:

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)	
3.0	0.00	
1.0	0.00	(tailwater elevation)
-7.0	0.499	

Lateral Water Loads on T Wall at Top of Culvert:

Elevation (ft NAVD 88)	Lateral water pressure (k/ft)
31.5	0.000
5.75	1.607

Water force on Flood side edge of Base Slab (Applied to dummy frame in SAP model):

DC A

Force (Fx) k/ft	Moment (My) k-ft/ft	
8.791	-0.32	(negligible moment)

Water force on Flood side edge of Roof Slab (Applied to dummy frame in SAP model):

DC A

Force (Fx) k/ft	Moment (My) k-ft/ft	
4.655	-0.11	(negligible moment)

Water forces on Wall thimble due to bearing of hydraulic gates when closed (Applied to dummy frame in SAP model):
- Forces on wall are applied from top of opening to invert elevation.

DC A

Outer Walls -	Force (Fx) for 10ft opening	
Top	8.892	k/ft
Bottom	12.012	k/ft

Inner Walls -	Force (Fx) for 10ft opening	
Top	17.784	k/ft
Bottom	24.024	k/ft

(Inner walls takes loads from 2 gates on both sides)

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	JY	Date:	6/1/2013
		Checked By:	LBR	Date:	7/1/2013

Intake Structure Culvert Outer Walls Joint Pattern for Water load due to Design Flood Load case:

Joint Pattern - "DC A-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
1.0	0.000
-7.0	0.499

Equations:

$$0 = C*1 + D$$
$$0.5 = C*-7 + D$$

C =	-0.0624
D =	0.0624

Intake Structure T Wall Joint Pattern for Water load due to Design Flood Load case:

Joint Pattern - "DC A-Lat Water" (applied to different elements w/in the same joint pattern name as above)

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
31.5	0.000
5.75	1.607

Equations:

$$0 = C*31.5 + D$$
$$1.61 = C*5.75 + D$$

C =	-0.0624
D =	1.9656

* FOR SATURATED SOIL ON FLOOD SIDE OF T-WALL (VERTICAL LOAD), CAN USE ORIGINAL "SKEWED LEVEE" PATTERN W/ A SCALE FACTOR.

$$\text{FORCE OF SOIL} = \text{"SKEWED LEVEE"} \times \frac{0.0526 \text{ PCF}}{0.115 \text{ PCF}}$$

$$= \text{"SKEWED LEVEE"} \times 0.45739$$

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No. 10001876	Page:	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By: LBR	Date:	July-13
		Checked By:	Date:	

MONOLITH C1 - GATED INTAKE STRUCTURE References

Dewatered Load Cases : D1 (Center Culvert Dewatered) & D2 (Two Outer Cuvlerts Dewatered)

Properties:

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NGVD
Top of culvert opening =	3.0	ft NGVD
Outside Top of Culvert =	5.75	ft NGVD
Culvert Invert =	-7.0	ft NGVD
Bottom of Culvert =	-10.5	ft NGVD

Note: Culverts are assumed to be Dewatered during High River Stages.

	Head Water	Tail Water
D1 & D2	23.73	23.73

Loads : Dewatered Condition:

		D1 & D2
- Water press. on top of the culvert =		1.122 ksf
- Water press. on roof of the culvert from inside =		1.294 ksf
- Water press. on top of the base slab culvert =	Head Water Pressure	1.918 ksf
	Tail Water Pressure	1.918 ksf
- Water press. at Bottom of the base slab culvert =		2.136 ksf (Up to Sheet Pile for Impervious Case whole base slab for Pervious Case)

Lateral Water Pressure on the Inner Walls of the Culvert:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

D1 & D2

Elevation (ft NGVD)	Lateral water pressure (k/ft)
3.0	1.294
-7.0	1.918

Water Load on T Wall:

*Water pressure: $P = (Z-Z_{water})*\gamma_{water}$ (EM 1110-2-2502 Sec 3-18)

D1 & D2

Elevation (ft NGVD)	Lateral water pressure (k/ft)
23.73	0.000
5.75	1.122

uplift forces match those of cases OP8, OP9, OP10 (2.136 ksf)

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001876	Page:	of
Description:	Design Criteria and Load Analysis for Intake Structure	Computed By:	LBR	Date:	July-13
		Checked By:		Date:	

Water forces on Edges of Walls (Applied to dummy frame in SAP model)

D1 Dewat. Culvert Walls -

	Force (Fx) for 10ft opening	
Top	6.47	k/ft
Bottom	9.59	k/ft

D2 Dewat. Culvert Outer Walls -

	Force (Fx) for 10ft opening	
Top	6.47	k/ft
Bottom	9.59	k/ft

D2 Dewat. Culvert Inner Walls -

	Force (Fx) for 10ft opening		(Inner walls takes loads from 2 gates on both sides)
Top	12.94	k/ft	
Bottom	19.18	k/ft	

Water forces on Edges of Base Slab (Applied to dummy frame in SAP model)

	Force (Fx) k/ft	Moment (My) k-ft/ft	
D1 & D2	7.09	-0.223	(negligible moment)

Water forces on Edges of Roof Slab (Applied to dummy frame in SAP model)

	Force (Fx) k/ft	Moment (My) k-ft/ft	
D1 & D2	3.32	-0.108	(negligible moment)

URS

Job:	Reintroduction of Maurepas Swamp - Head Works	Project No.	10001801	Page	of
Description:	Design Criteria and Load Analysis for Intake Structure SAP DATA	Computed By:	LBR	Date:	July-13
		Checked By:		Date:	

Intake Structure Culvert walls Joint Pattern for **Water** load due to Dewatered cases D1 & D2:

Joint Pattern - "DW-Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
3.0	1.294
-7.0	1.918

Equations:

1.29 = C*3 + D
1.92 = C*-7 + D

C =	-0.0624
D =	1.4808

URS

Page ____ of ____

Job: MAUREBIS | Project No.: 10001876 | Sheet ____ of ____

Description: C-1 SAP MODEL – DEAD LOAD CALIBRATION. | Computed by: LBK | Date: 8/2013

Checked by: BCB | Date: 9/2013

Reference

DEAD LOAD CALIBRATION:

SLAB: 45' WIDE × 70' LONG × 3.5' THICK × 150 PCF = 1,653,750 LB

FRONT WALLS: 16.5' WIDE × (33.5 − 7) HEIGHT × 2.75' THICK × 4 × 150 PCF = 1,102,612.5 LB

CULV. WALLS: (70' − 16.5) WIDE × 10' HEIGHT × 2.75' THICK × 4 × 150 PCF = 882,750 LB

CULV. ROOF: (70' − 16.5) LONG × 41' WIDE × 2.75' THICK × 150 PCF = 904,818.75 LB

TRANSVERSE FRONT WALLS: (33.5 − 3) HEIGHT × (10' OPENINGS × 3) × 2.5' THICK × 2 × 150 PCF = 686,250 LB

↳ 7.0. OPENINGS

T-WALL: ~42.5' LONG × (31.5 − 5.75') HEIGHT × 2' THICK × 150 PCF = 328,312.5 LB

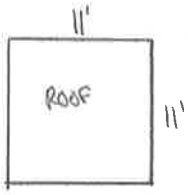
BR SLAB: [(18 × 12') + (41' × 2')] × 2' THICK × 150 PCF = 89,400 LB

Σ = 5,647,893.75 LB

Σ SAP DEAD LOAD REACTIONS = 5,650,059.95 LB

↳ DIFFERENCE OF 2166.2 LB, OR 0.04% → OK

- EQUIP. ROOM WEIGHT = 8' WALL HEIGHT × 0.5' THICK WALLS × 150 PCF = 600 LB/FT FOR WALLS.



ROOF WEIGHT = 11' × 11' × 0.5' THICK × 150 PCF = 9,075 LB / 44' = 206.25 LB/FT

∴ DEAD LOAD OF ROOM ≃ 806.25 LB/FT, SAY 810 LB/FT

- FROM WALKWAY CALCS, REACTION ON SUPPORT FROM WIDEST SECTION OF SPAN IS 9.2 K/FT – APPLY ACROSS WHOLE WALKWAY WIDTH

URS

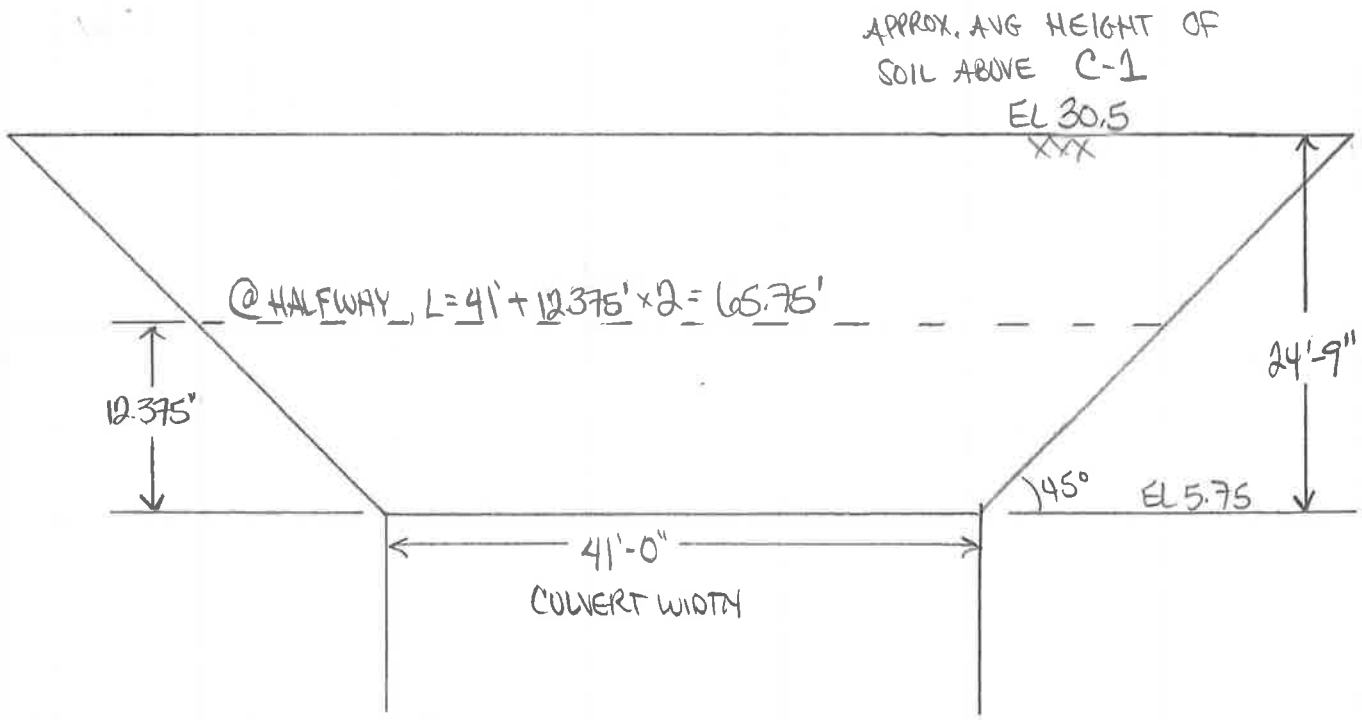
Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____

Sheet ____ of ____

Description: MONO C-1 - VERTICAL SOIL COLUMN MODIFICATION. | Computed by: LBR | Date: 8/2013

Checked by: BCB | Date: 9/2013

Reference



∴ TO ACCOUNT FOR CONTRIBUTORY AREA OF SOIL ADDING TO VERTICAL SOIL COLUMN, MULTIPLY VERT. SOIL FORCE BY:

$$\frac{65.75'}{41'} = \underline{\underline{1.60}} \checkmark$$

- AVG EL. OF SOIL:

$$\left[\frac{(EL\,33.5 + EL\,24.8)}{2} + \frac{(EL\,33.5 + EL\,30.5)}{2}\right] / 2$$

$$\sim EL\,30.5 \checkmark$$

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Description: Design Load Patterns Monolith C-1 **Computed By** LBR **Date:** Aug-13 **Page:** of

Checked By: BCB **Date:** Sep-13 **Sheet:** of

Load Pattern Name	Pattern Description
DEAD	Dead load of concrete structure
D_equiproom	Dead load of equipment room and walkway bridge (on top slab and T.O. Twall)
D_gates	Dead load of sluice gates when not in operation/motion
ST_TOC clay	Downdrag force on walls due to settlement of cohesive soils - soils to T.O. Culvert
ST_TOL clay	Downdrag force on walls due to settlement of cohesive soils - soils to T.O. Levee
ST_UE const	Downdrag force due to clay soils settling against walls for uneven backfill
LS_const_TOC	Construction surcharge loads (horizontal & vertical) for soil to T.O. Culvert
LS_const_TOL	Construction surcharge loads (horizontal & vertical) for soil to T.O. Levee
LS_const_UE	Construction surcharge loads (horizontal & vertical) for uneven backfill
S_leveetop	Vertical force of dry levee soil on top of culvert (1.0 scale factor)
S_satFS_leveetop	Vertical force of saturated levee soil on Riverside, Dry soil on Landside (1.0 scale factor)
S_const_TOC	Soil pressure (vert & horiz) from dry backfill during construction - soil to T.O. Culvert
S_const_UE	Soil pressure (vert & horiz) from dry uneven backfill during construction (5ft differential)
S_TOL	Soil pressure (horiz only) from dry backfill - clay soil to T.O. Levee
L_OP1water	Internal water pressure in culverts from Operation Case 1
L_OP2water	Internal water pressure in culverts from Operation Case 2
L_OP3water	Internal water pressure in culverts from Operation Case 3
L_OP4water	Internal water pressure in culverts from Operation Case 4
L_OP5water	Internal water pressure in culverts from Operation Case 5
L_OP6water	Internal water pressure in culverts from Operation Case 6
L_OP7water	Internal water pressure in culverts from Operation Case 7
L_OP8water	Internal water pressure in culverts from Operation Case 8
L_OP9water	Internal water pressure in culverts from Operation Case 9
L_OP10water	Internal water pressure in culverts from Operation Case 10
L_OP11water	Internal water pressure in culverts from Operation Case 11
L_DCAwater	Internal water pressure in culverts from Design Check A - Design Flood Case
L_1-dewater	Internal Pressure on walls & slabs from water flow in two exterior culverts - center culvert dewatered (max. river stage water level)
L_2-dewater	Internal Pressure on walls & slabs from water flow in one exterior culvert - center and edge culvert dewatered (max river stage water level)
L_equiproom	200psf floor live load on equipment room/walkway slab
L_gates	Live & dead load of sluice gates when in operation/motion
U_Imp_OP1	Impervious Uplift load from Operational Case 1
U_Per_OP1	Pervious Uplift load from Operational Case 1
U_Imp_OP2	Impervious Uplift load from Operational Case 2
U_Per_OP2	Pervious Uplift load from Operational Case 2
U_Imp_OP3	Impervious Uplift load from Operational Case 3
U_Per_OP3	Pervious Uplift load from Operational Case 3
U_Imp_OP4	Impervious Uplift load from Operational Case 4
U_Per_OP4	Pervious Uplift load from Operational Case 4
U_Imp_OP5	Impervious Uplift load from Operational Case 5
U_Per_OP5	Pervious Uplift load from Operational Case 5

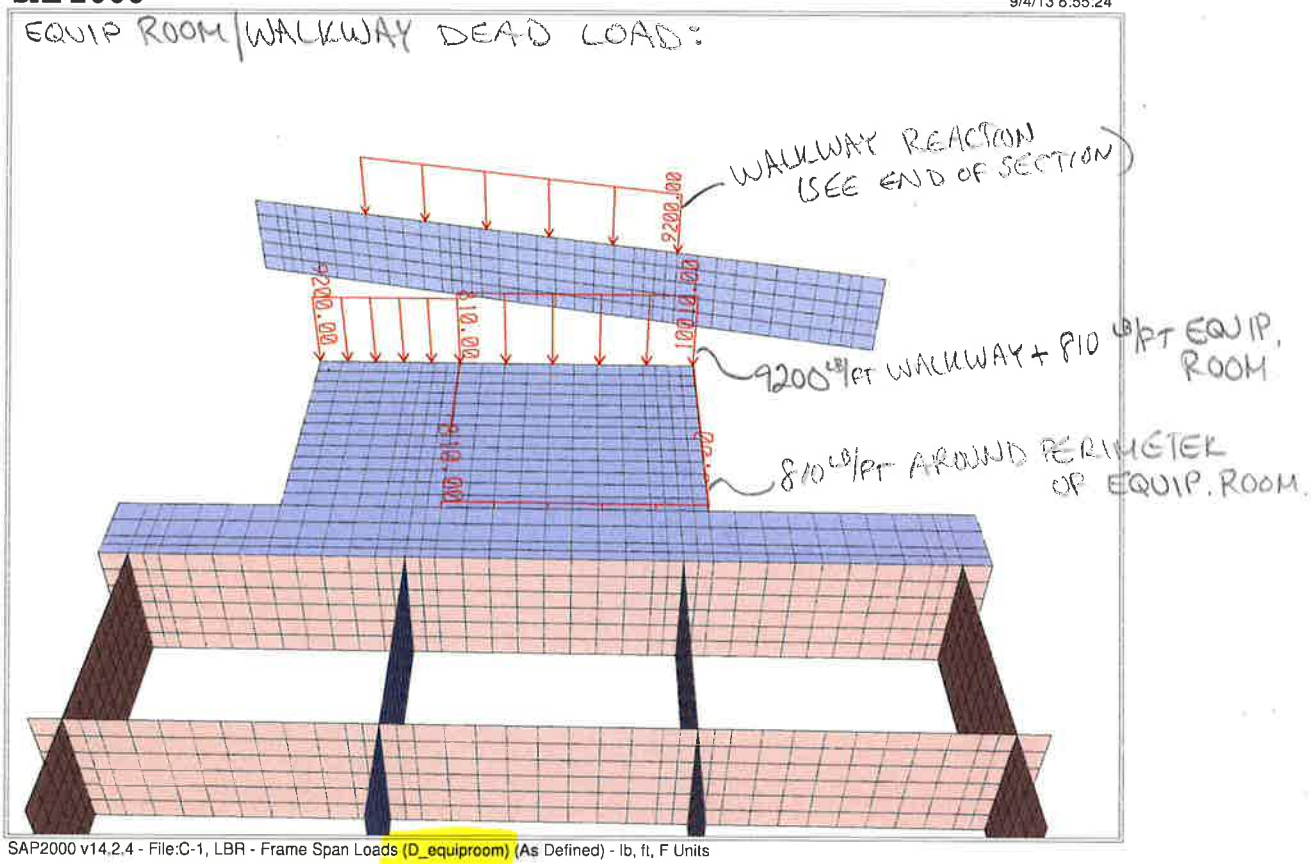
Load Pattern Name	Pattern Description
U_Imp_OP6,7	Impervious Uplift load from Operational Cases 6 & 7
U_Per_OP6,7	Pervious Uplift load from Operational Cases 6 & 7
U_Imp_OP8,9,10	Impervious Uplift load from Operational Cases 8, 9 & 10 AND Dewatering Cases
U_Per_OP8,9,10	Pervious Uplift load from Operational Cases 8, 9 & 10 AND Dewatering Cases
U_Imp_OP11	Impervious Uplift load from Operational Case 11
U_Per_OP11	Pervious Uplift load from Operational Case 11
U_Imp_DCA	Impervious Uplift load from Design Check A - Design Flood Case
U_Per_DCA	Pervious Uplift load from Design Check A - Design Flood Case

In the SAP model Load "Cases" and Load "Combinations" are created. The Load Cases are labeled 1a, 1b, etc. & are the superimposed addition of the patterns listed to the left. Pile reactions are taken from these Load Cases.

The Combinations include the hydraulic & safety factors as well as the allowable overstress. These Combinations are "COMBO_OP", which contains all the typical operations cases and "COMBO_OScases", which contains all the dewatering, construction & design flood cases. Shear & Moment results in the concrete members are taken from these Load Combinations.

SAP2000 9/4/13 8:55:24

EQUIP ROOM/WALKWAY DEAD LOAD:



SAP2000 v14.2.4 - File:C-1, LBR - Frame Span Loads (D_equiproom) (As Defined) - lb, ft, F Units

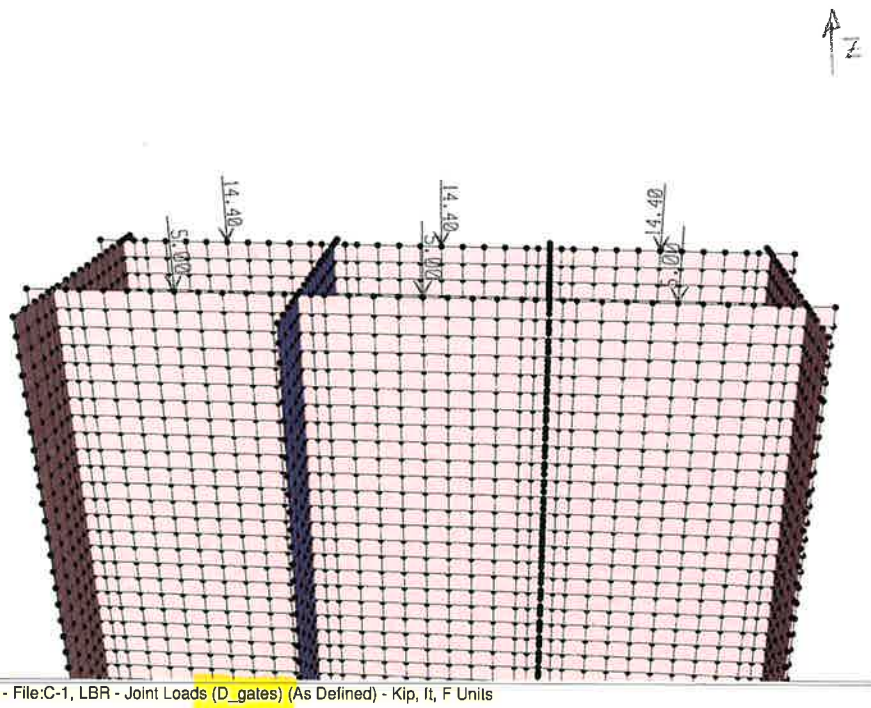
SAP2000 9/4/13 8:58:04

EQUIP ROOM SLAB LIVE LOAD:

SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_equiproom) - Kip, ft, F Units

SAP2000 9/4/13 16:58:38

GATES NOT MOVING (DEAD LOAD):

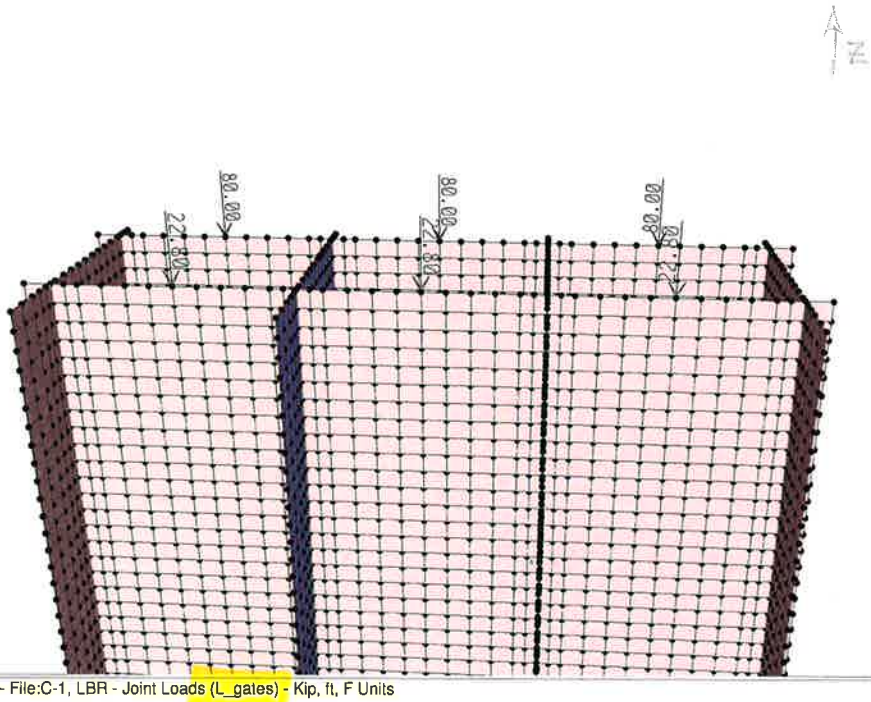


SAP2000 v14.2.4 - File:C-1, LBR - Joint Loads (D_gates) (As Defined) - Kip, ft, F Units

GATE REACTIONS COME FROM HOIST SUPPORT CALCULATIONS @ END OF THIS SECTION

SAP2000 9/4/13 16:58:02

GATES IN MOTION (WORST CASE):

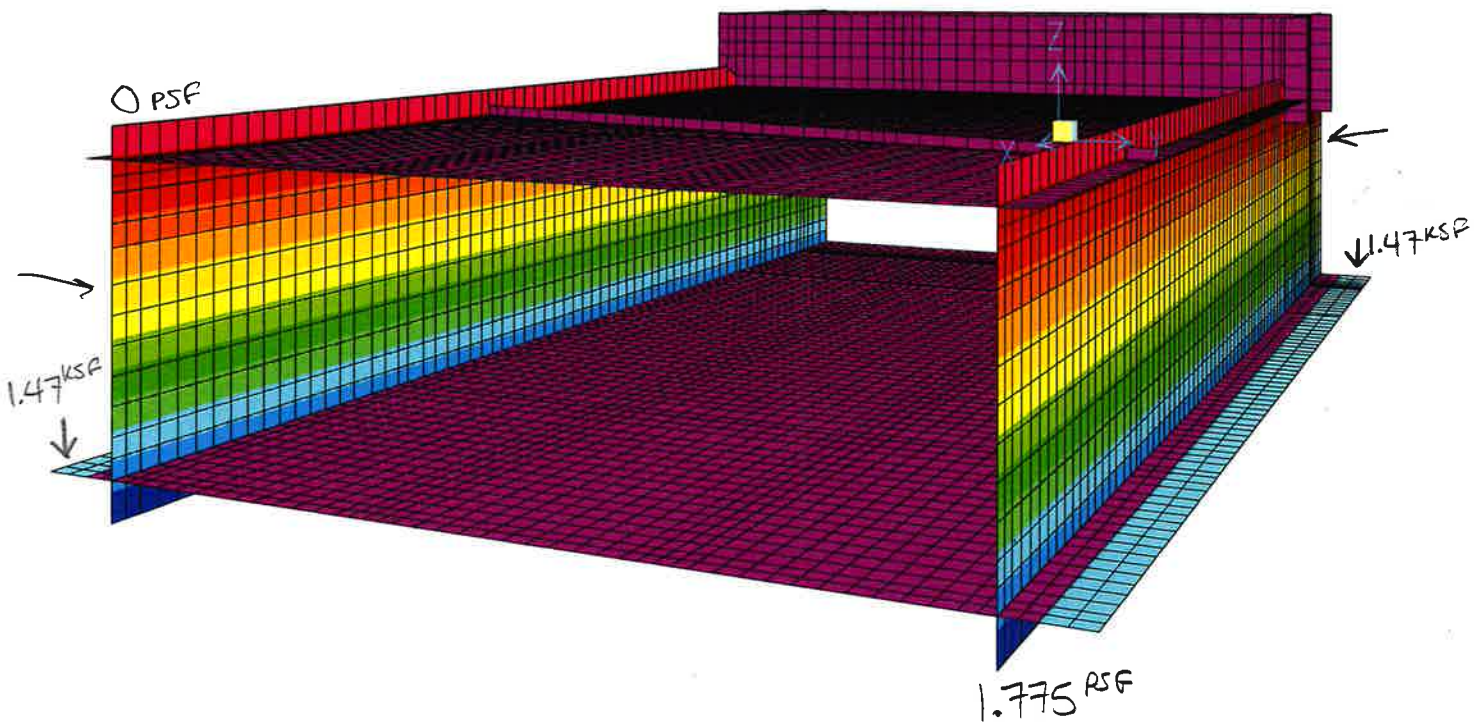


SAP2000 v14.2.4 - File:C-1, LBR - Joint Loads (L_gates) - Kip, ft, F Units

SAP2000

9/4/13 9:29:57

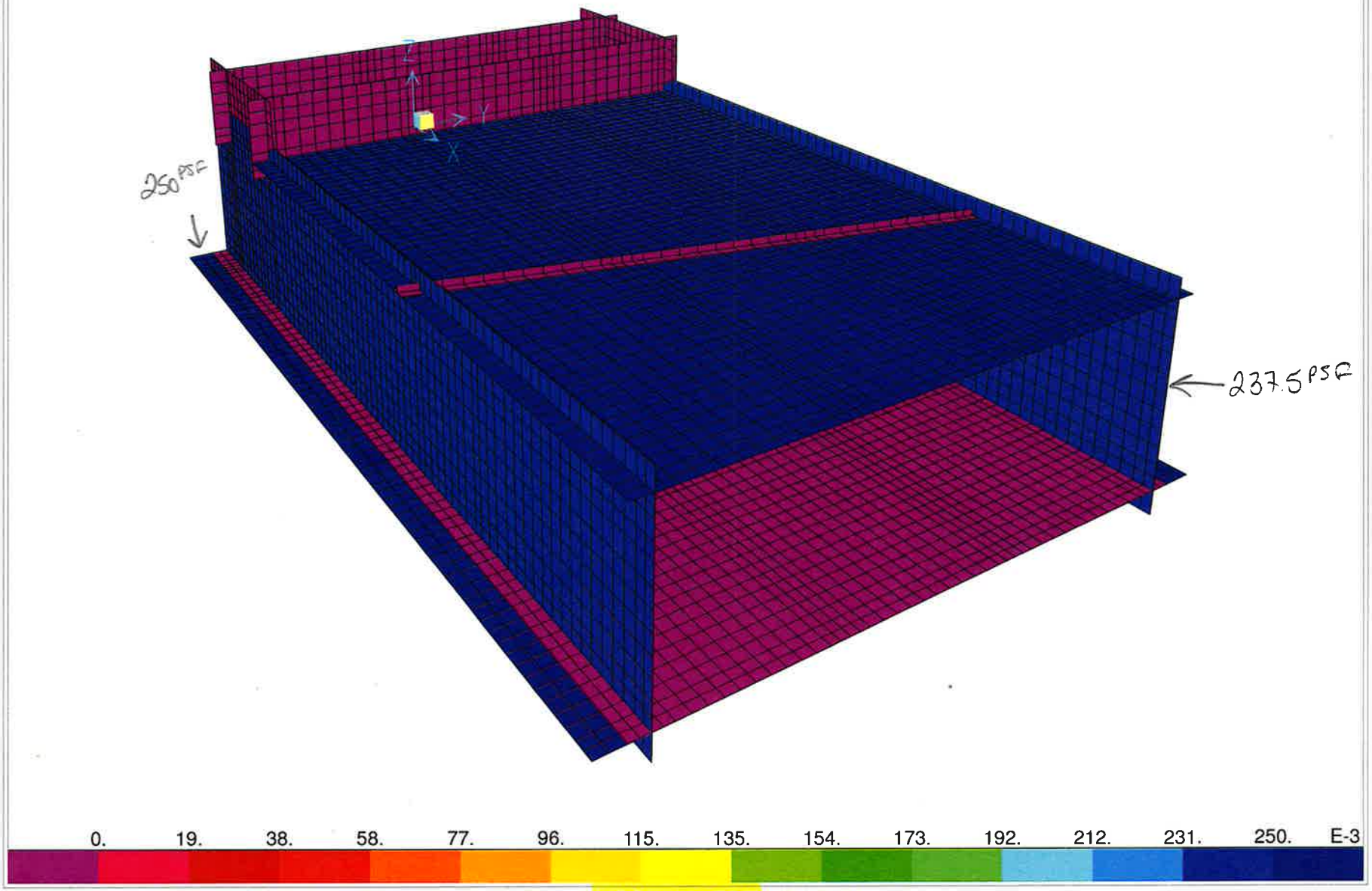
SOIL TO TOP OF CULVERT:



0.00 0.14 0.27 0.41 0.55 0.68 0.82 0.96 1.09 1.23 1.37 1.50 1.64 1.78

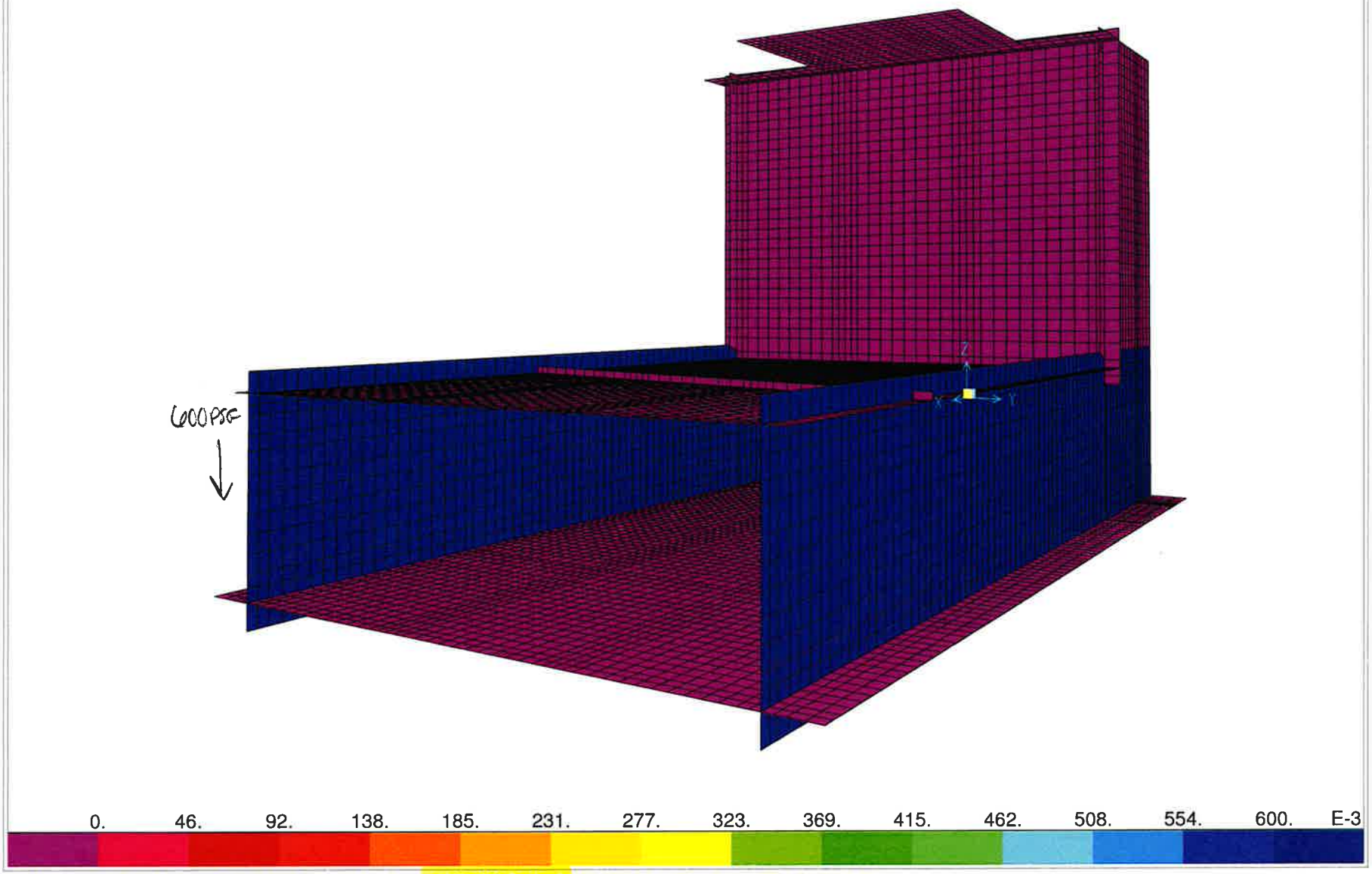
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (S_const_TOC) - Kip, ft, F Units

CONST. SURCHARGE, SOIL TO T.O. CULVERT:



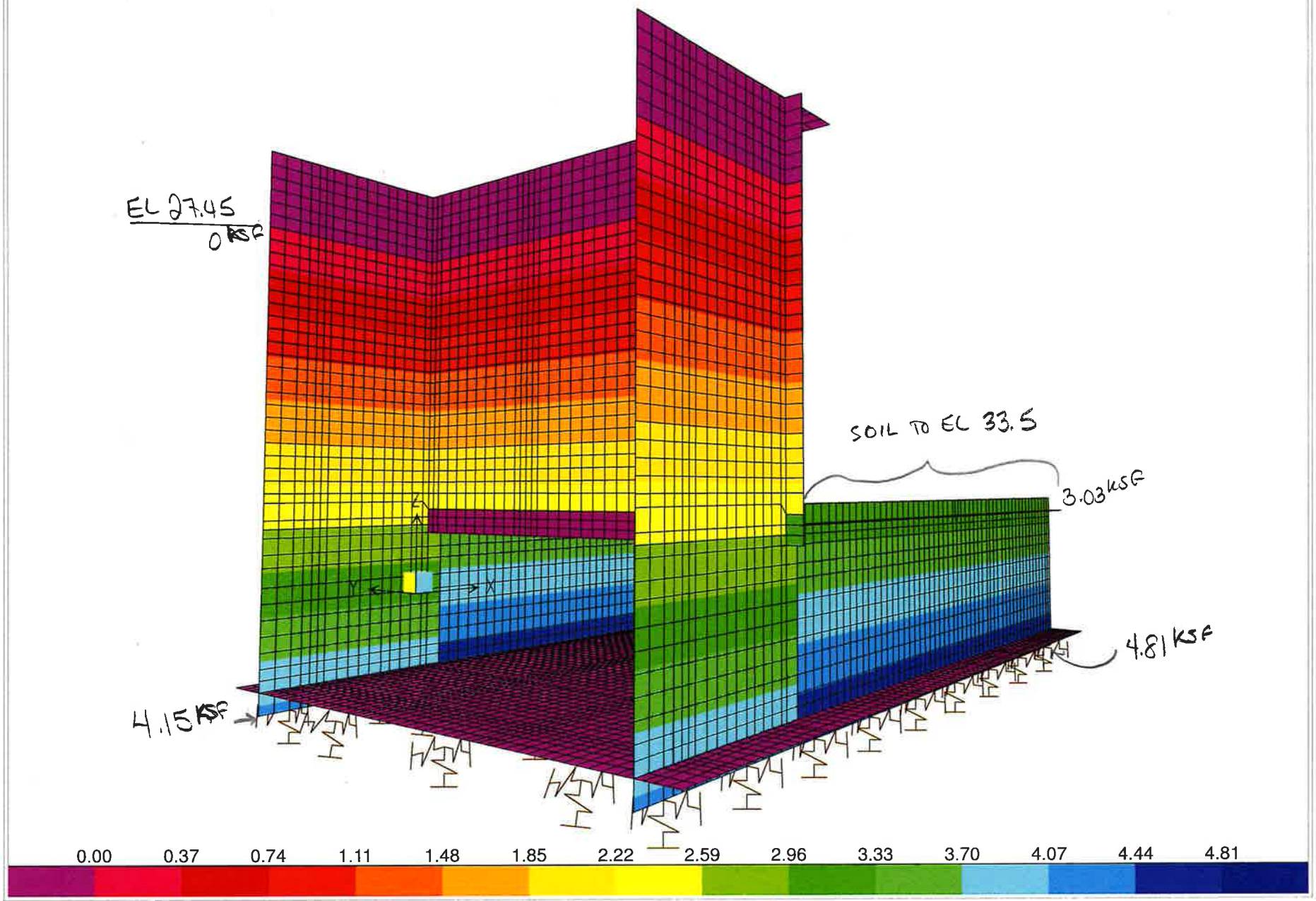
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (LS_const_TOC) - Kip, ft, F Units

SETTLEMENT DOWNDRAG, SOIL TO T.O. CULVERT:



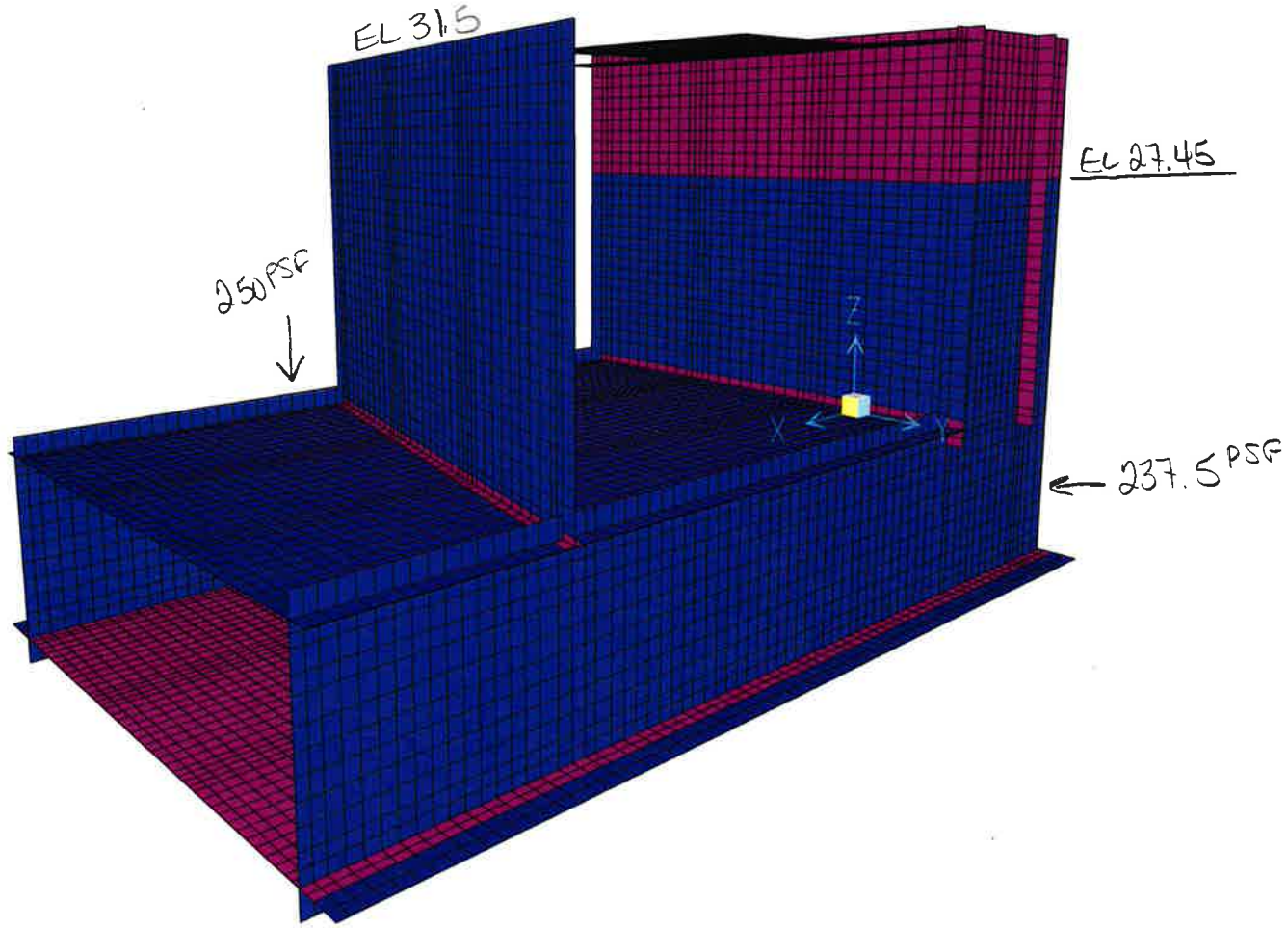
SAP2000 v14.2.4 - File:C-1, LBR - Area Uniform (ST_TOC clay) (GLOBAL - Gravity) - Kip, ft, F Units

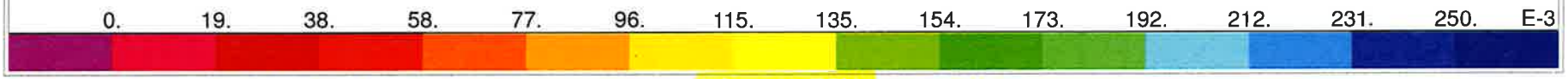
DRY SOIL TO FULL LEVEE HEIGHT (LATERAL):



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Area Surface Pressure - Face Top (S_TOL) - Kip, ft, F Units

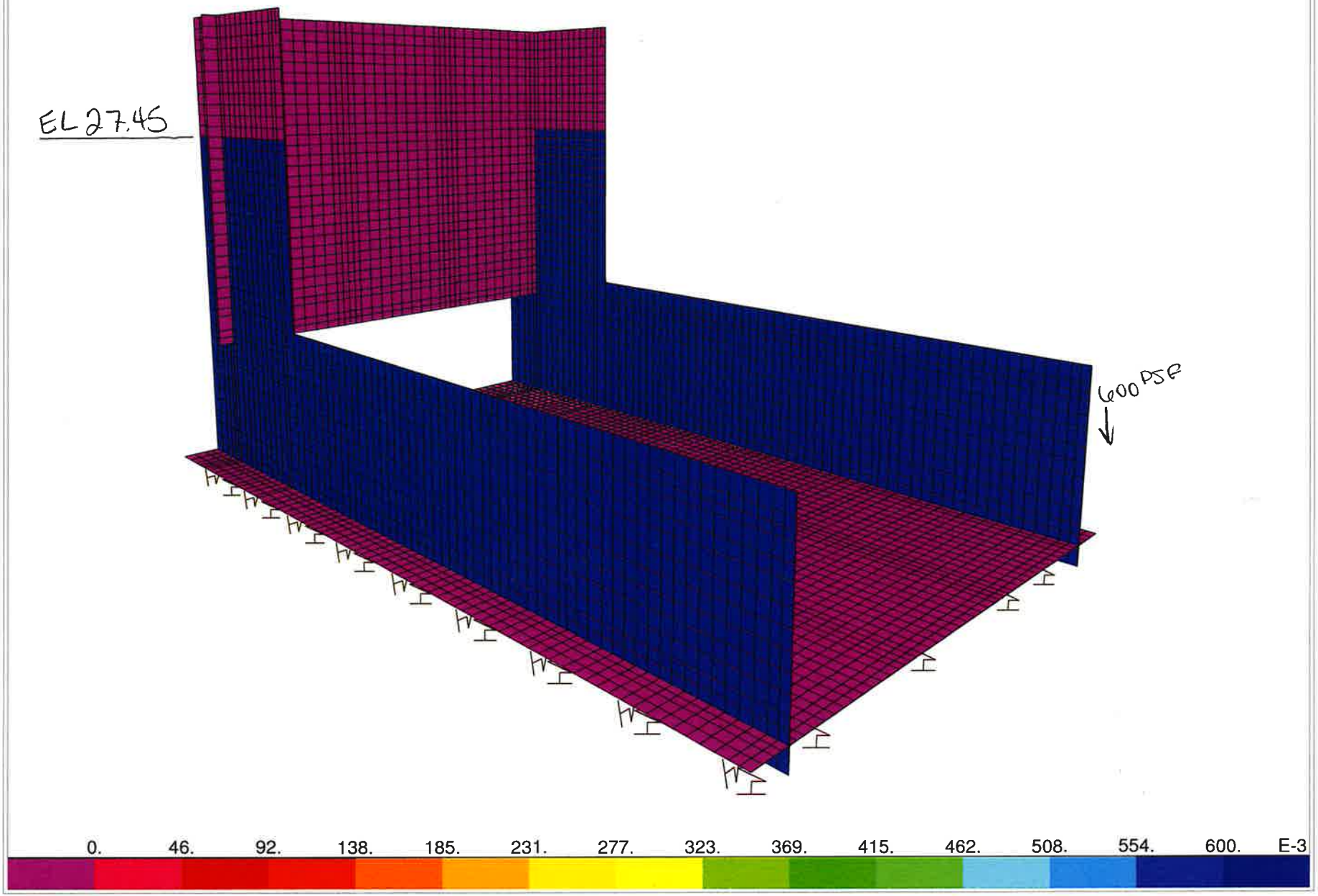
CONST. SURCHARGE, SOIL TO T.O. LEVEE:





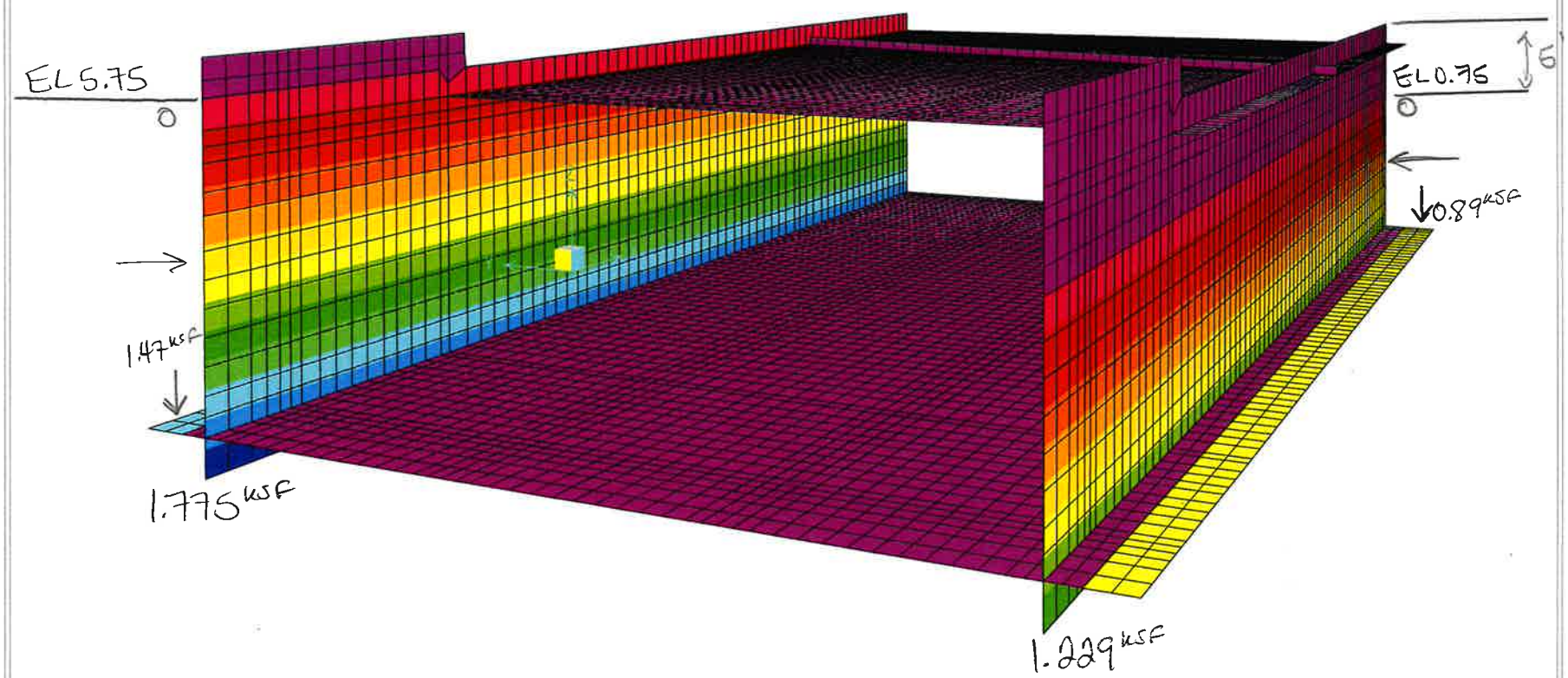
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (LS_const_TOL) - Kip, ft, F Units

SETTLEMENT DOWNDRAG, SOIL TO I.O. LEVEE:



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Area Uniform (ST_TOL clay) (GLOBAL - Gravity) - Kip, ft, F Units

UNEVEN CONSTRUCTION SOIL:



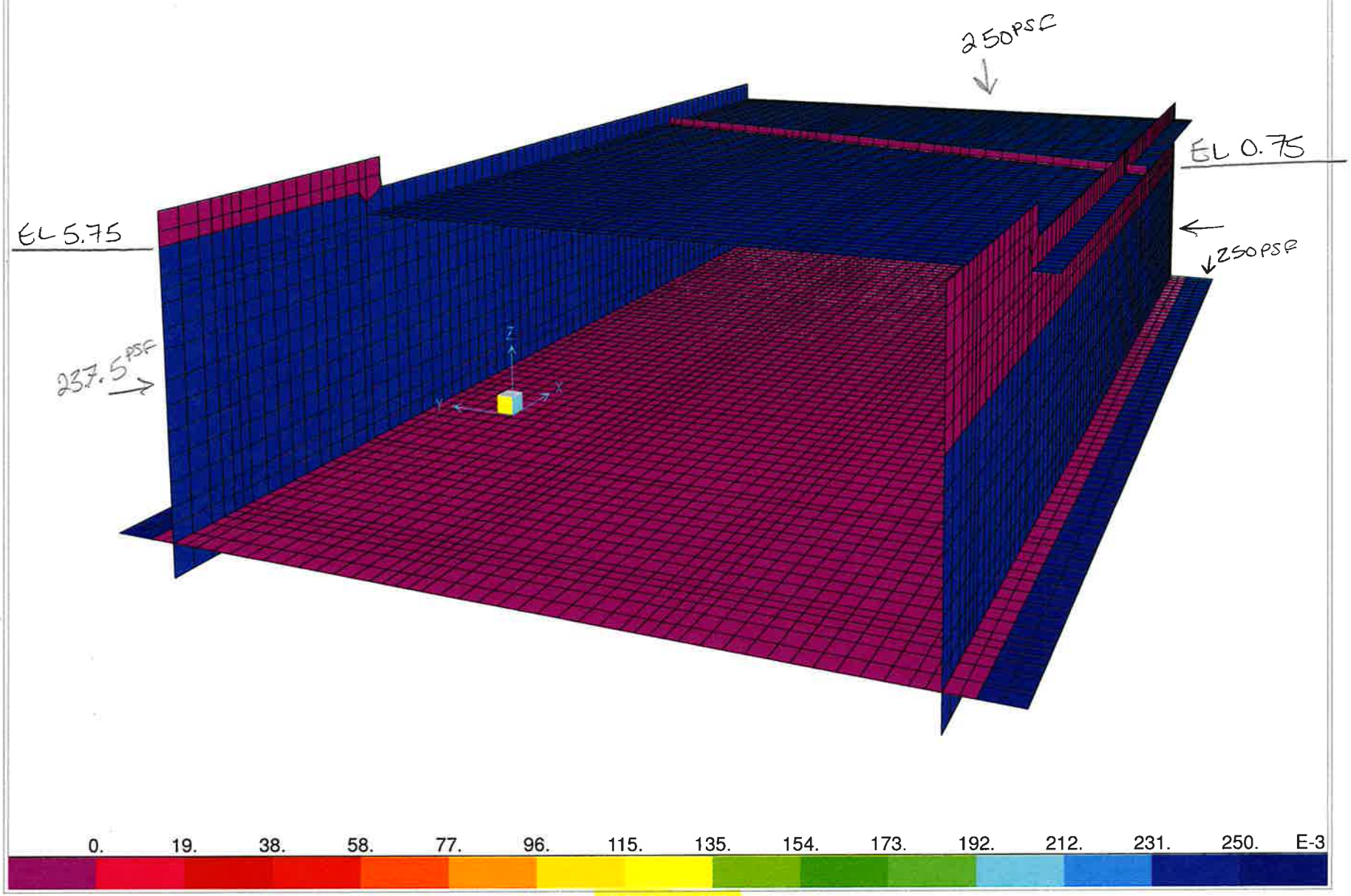
0.00 0.14 0.27 0.41 0.55 0.68 0.82 0.96 1.09 1.23 1.37 1.50 1.64 1.78

SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (S_const_UE) - Kip, ft, F Units

SAP2000

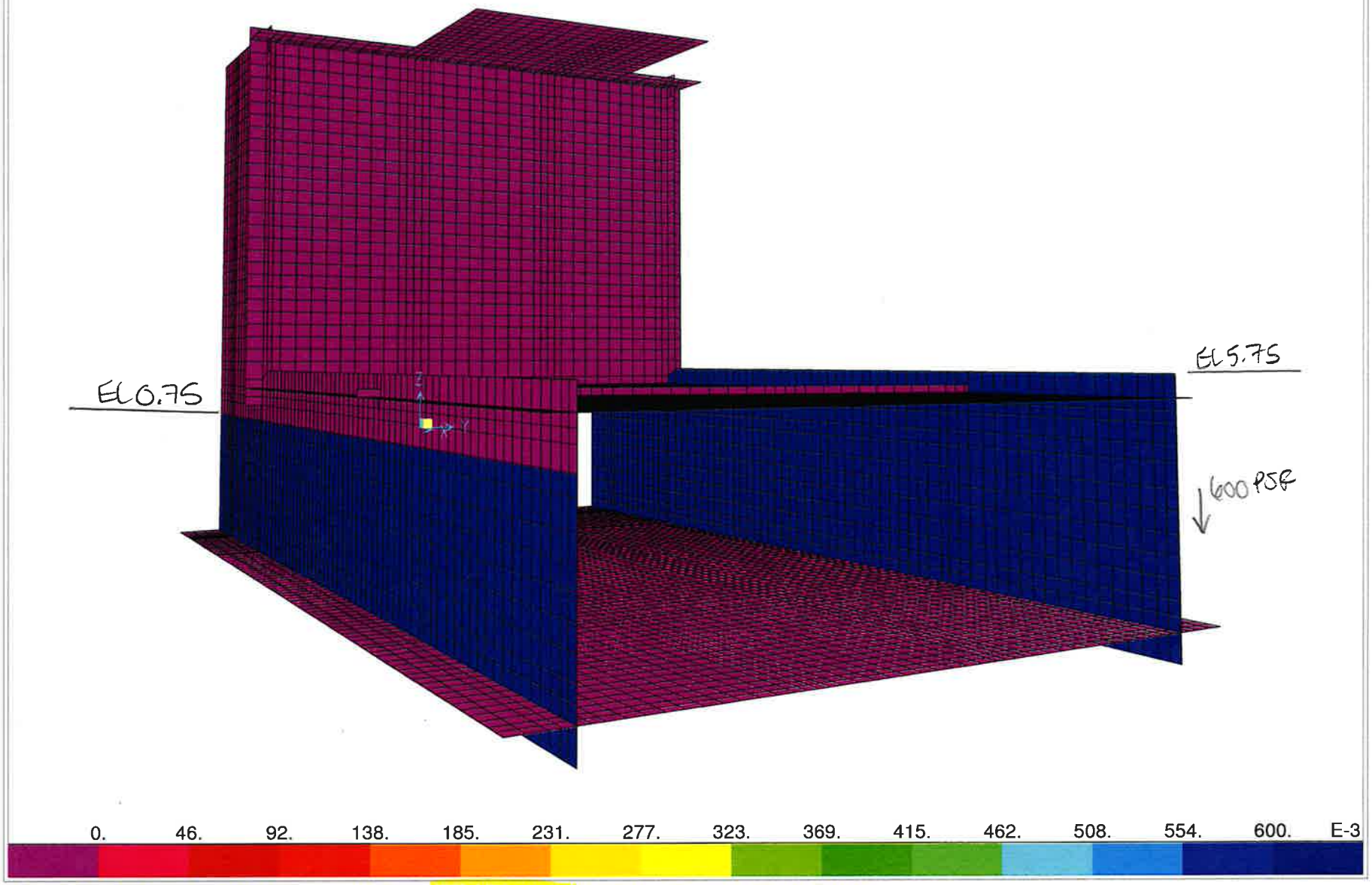
9/4/13 10:46:55

CONST. SORCHARGE, SOIL UNEVEN :



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (LS_const_UE) - Kip, ft, F Units

SETTLEMENT DOWNDRAG, SOIL UNEVEN:

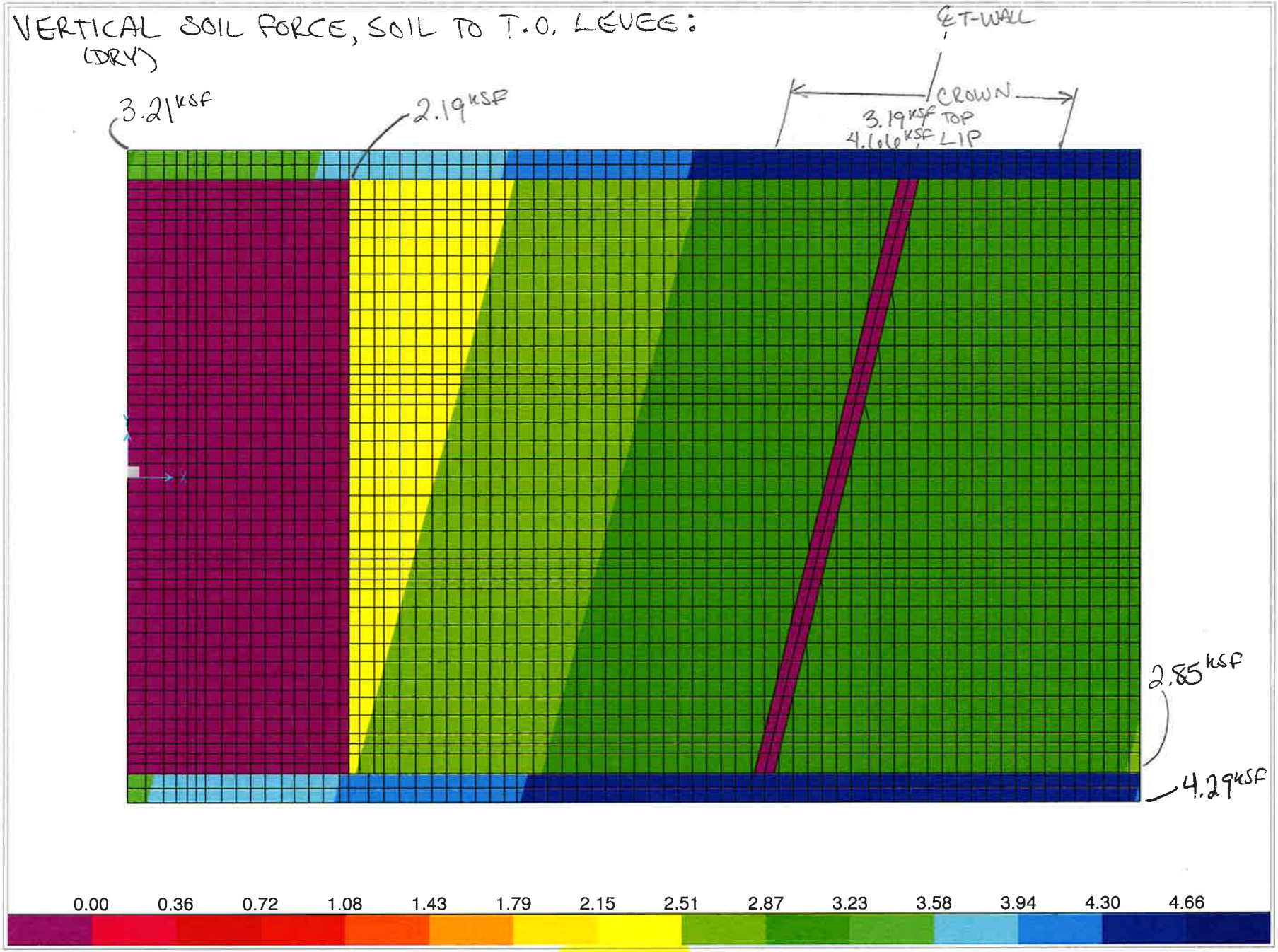


SAP2000 v14.2.4 - File:C-1, LBR - Area Uniform (ST_UE const) (GLOBAL - Gravity) - Kip, ft, F Units

SAP2000

9/4/13 10:28:30

VERTICAL SOIL FORCE, SOIL TO T.O. LEVEE:
(DRY)

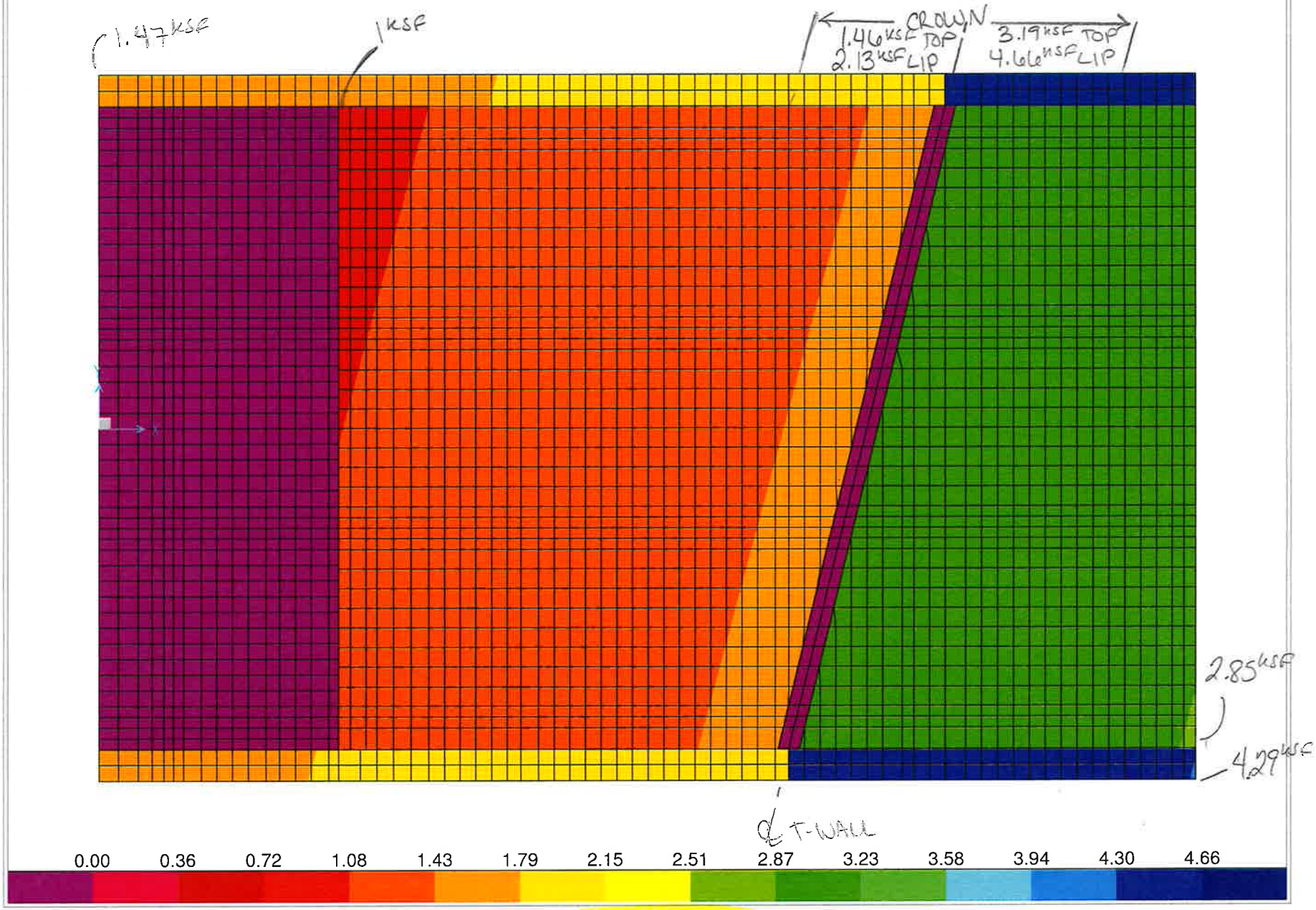


SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (S_leveetop) - Kip, ft, F Units

SAP2000

9/4/13 11:25:38

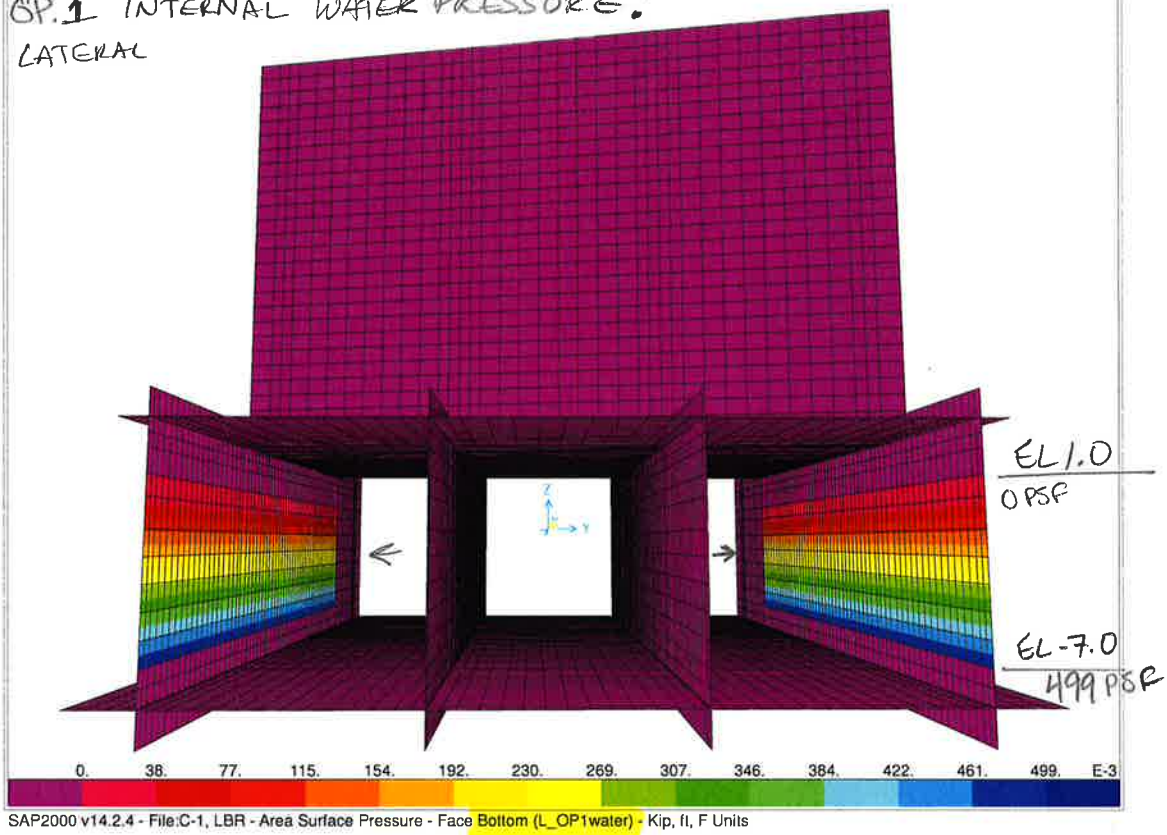
VERTICAL SOIL FORCE, SOIL TO T.O. LEVEE. SATURATED FLOOD SIDE: (SEE DC A)



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (S_satFS_leveetop) - Kip, ft, F Units

SAP2000 9/4/13 11:32:40

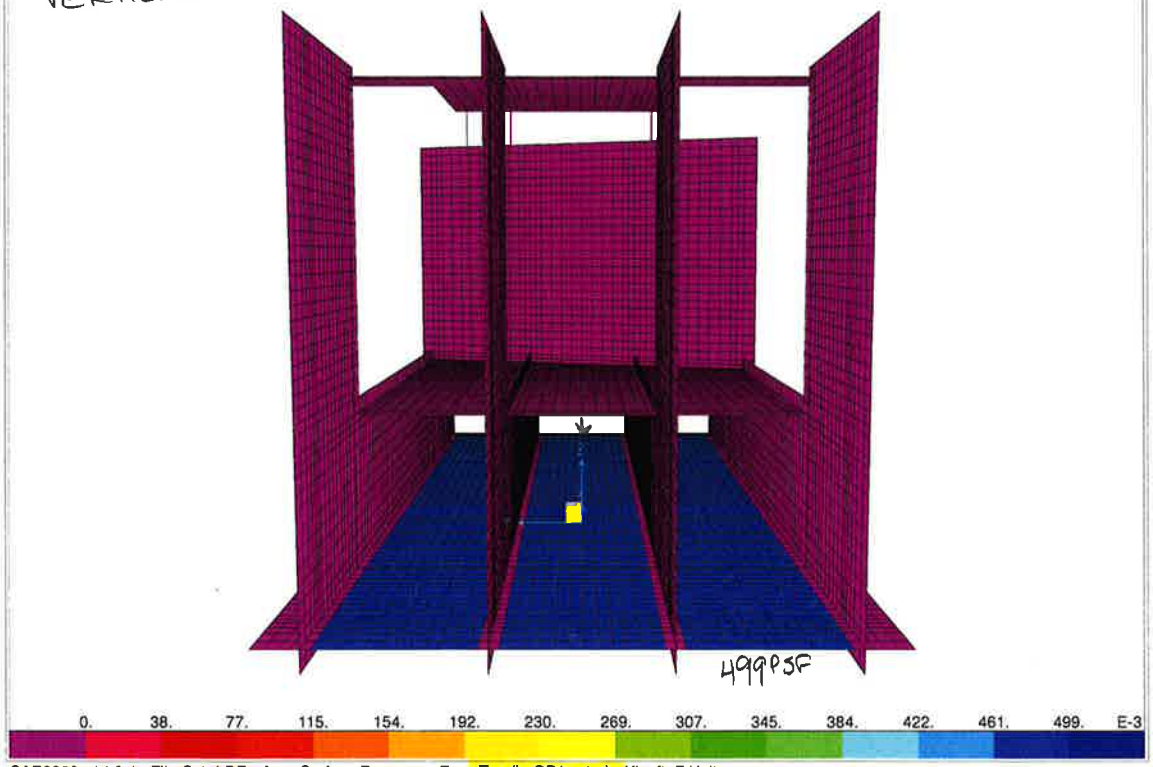
OP.1 INTERNAL WATER PRESSURE:
LATERAL



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP1water) - Kip, ft, F Units

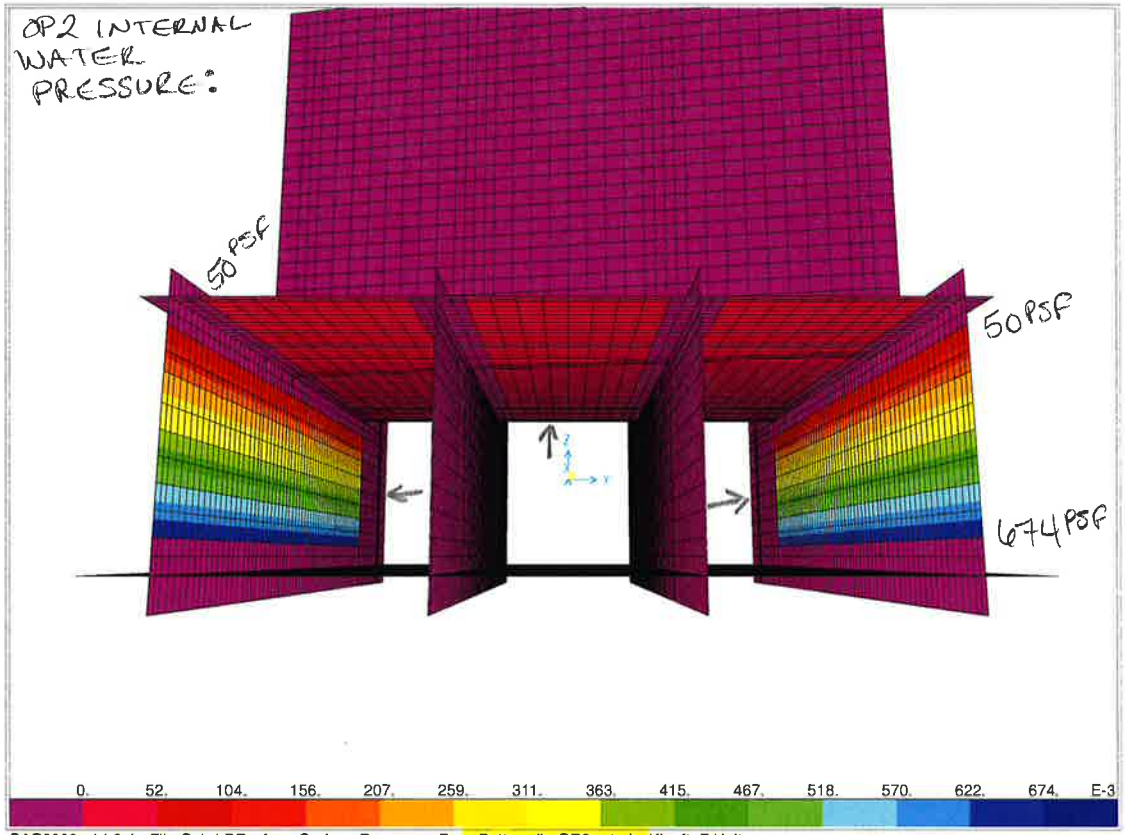
SAP2000 9/4/13 11:29:30

OP 1 INTERNAL WATER PRESSURE:
VERTICAL



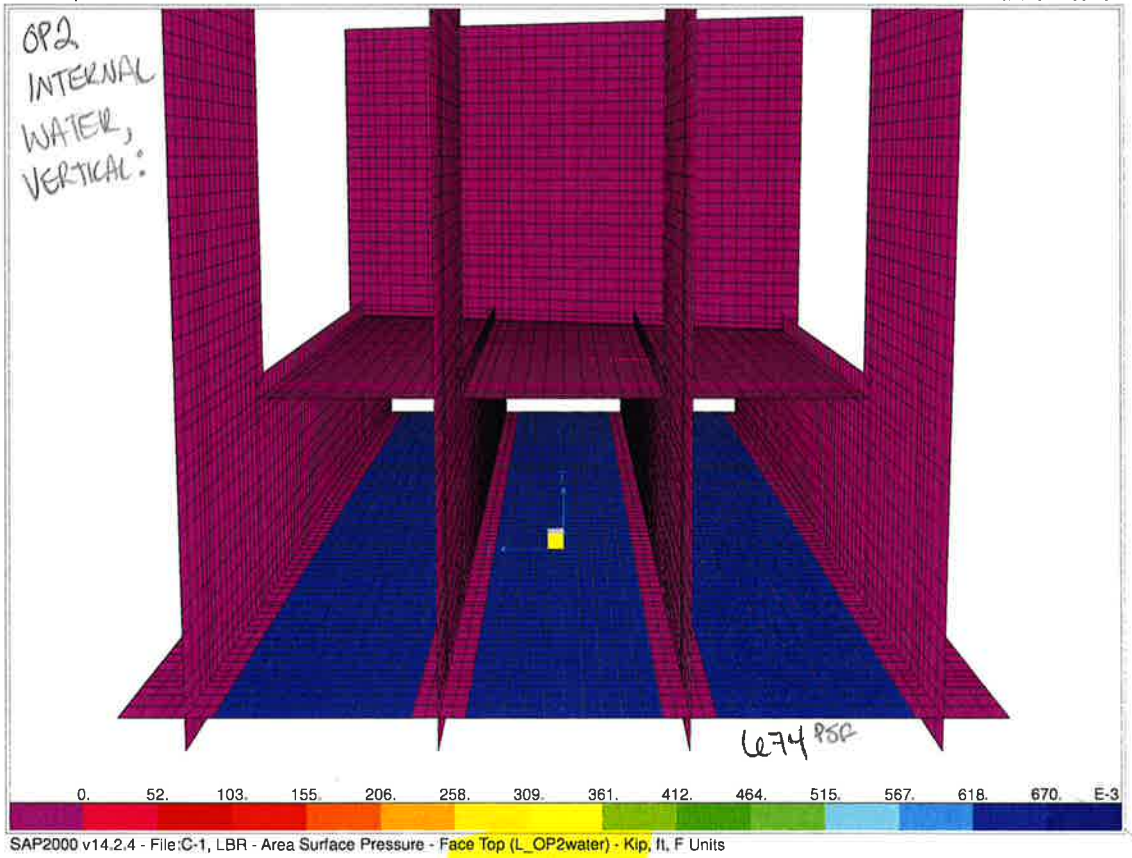
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP1water) - Kip, ft, F Units

SAP2000 9/4/13 11:44:29



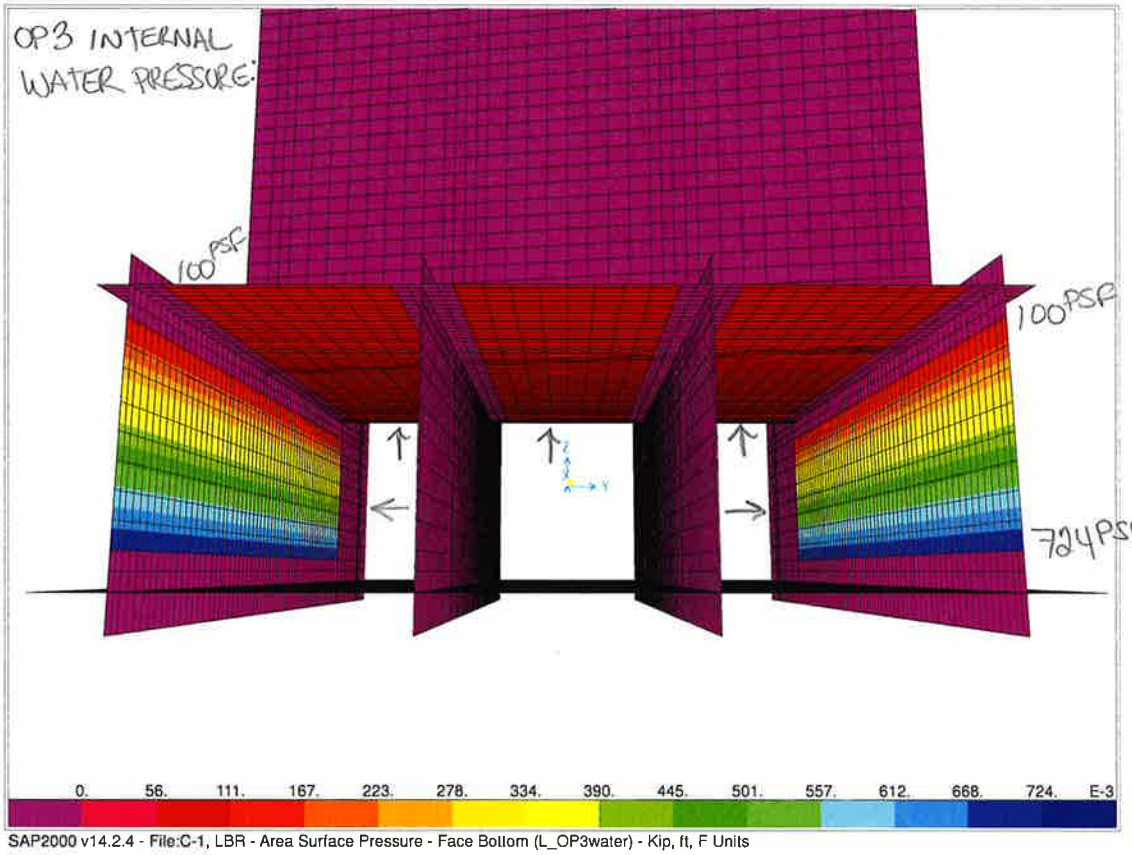
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP2water) - Kip, ft, F Units

SAP2000 9/4/13 11:36:46



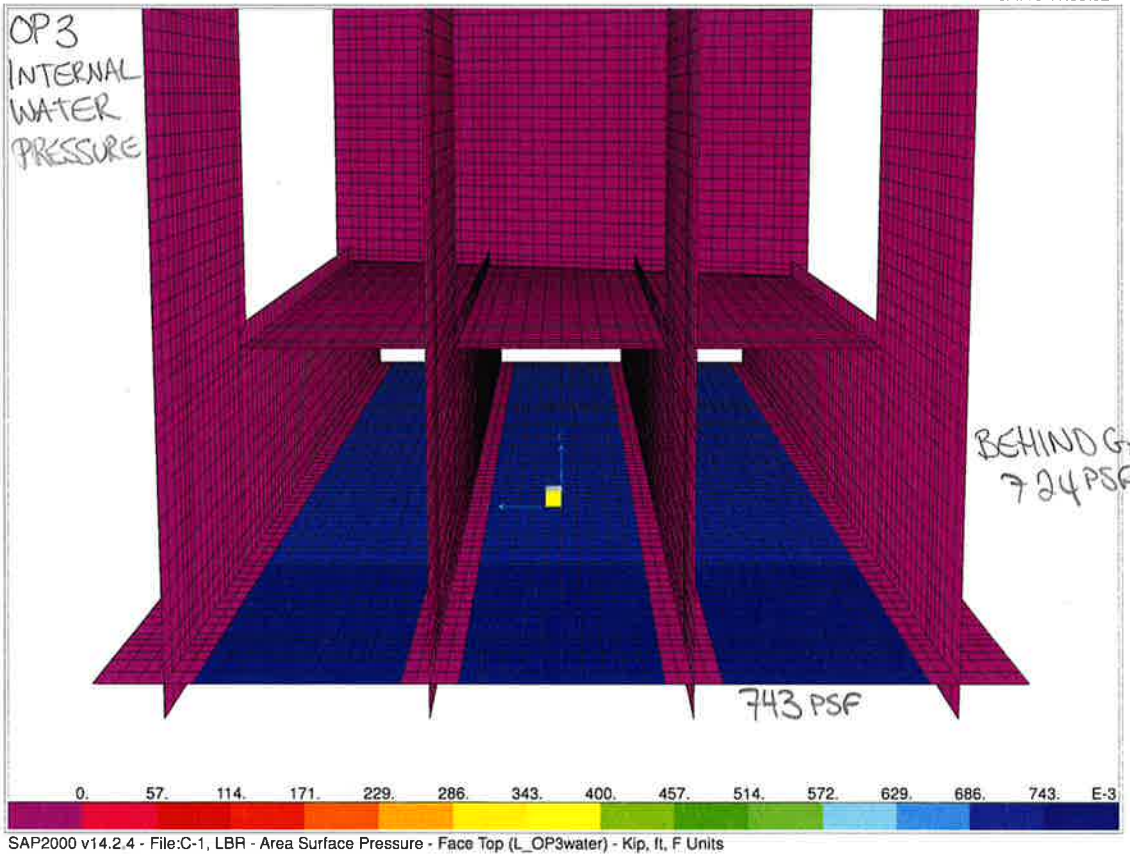
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP2water) - Kip, ft, F Units

SAP2000 9/4/13 11:45:29



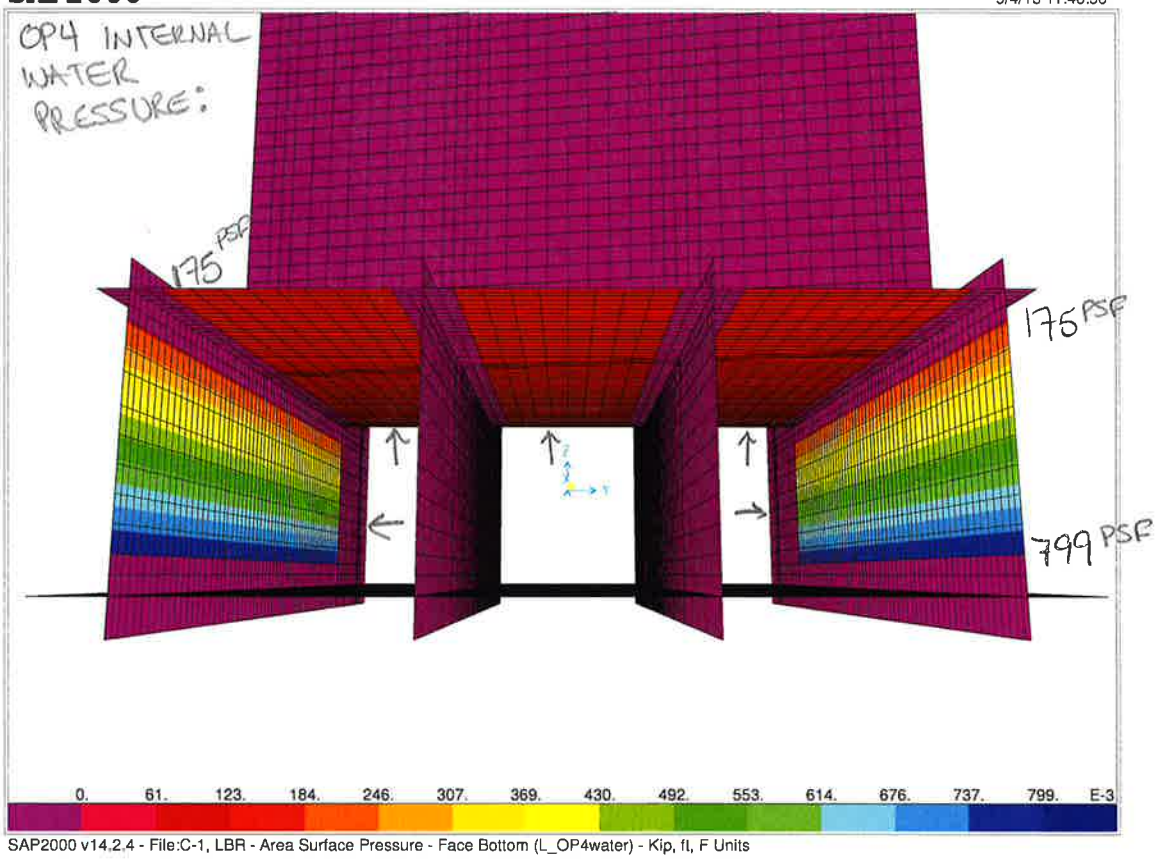
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP3water) - Kip, ft, F Units

SAP2000 9/4/13 11:38:02



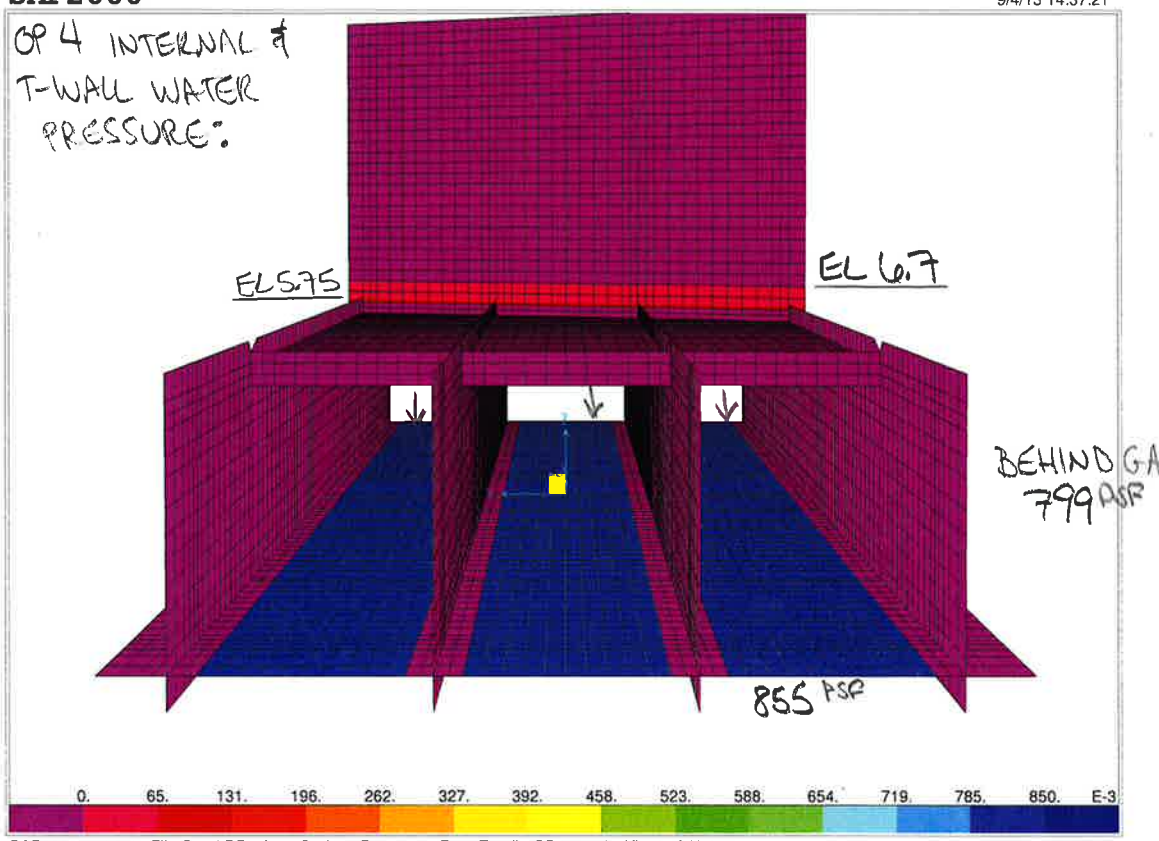
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP3water) - Kip, ft, F Units

SAP2000 9/4/13 11:46:56

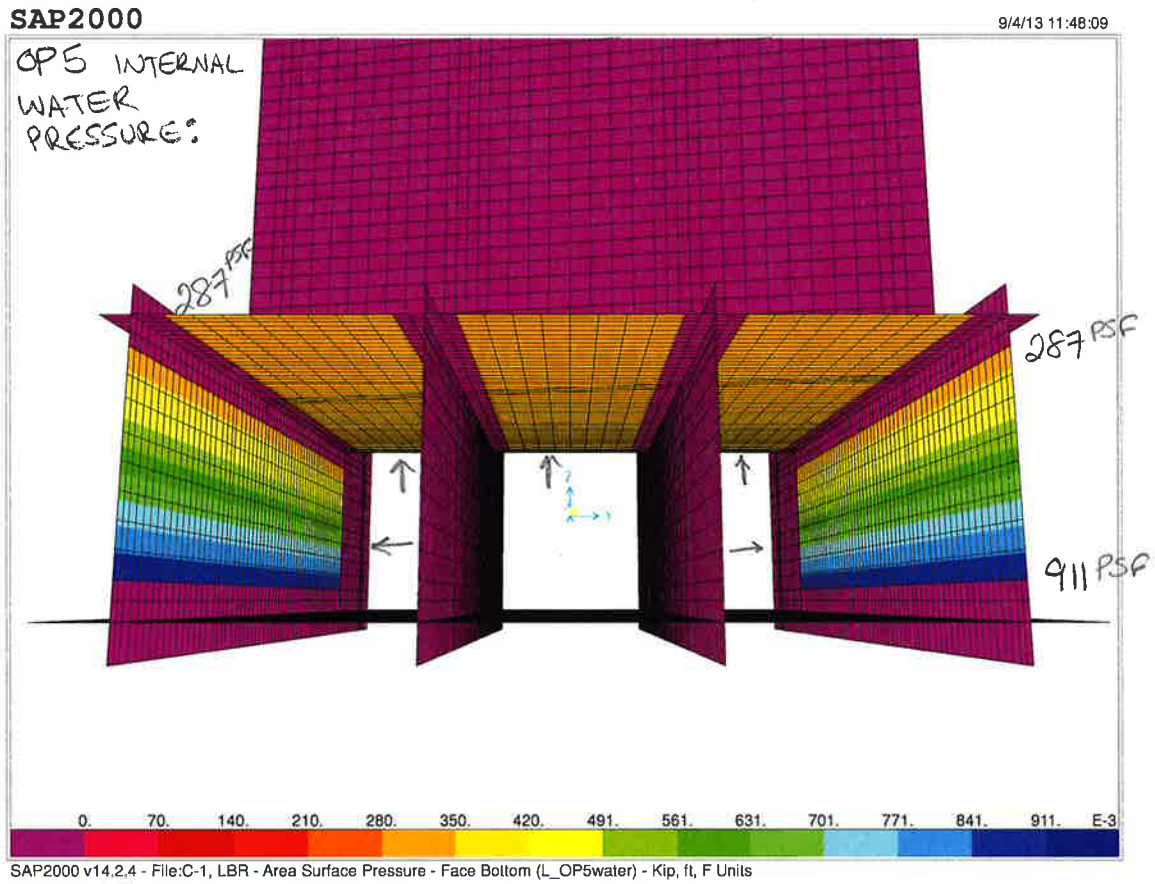


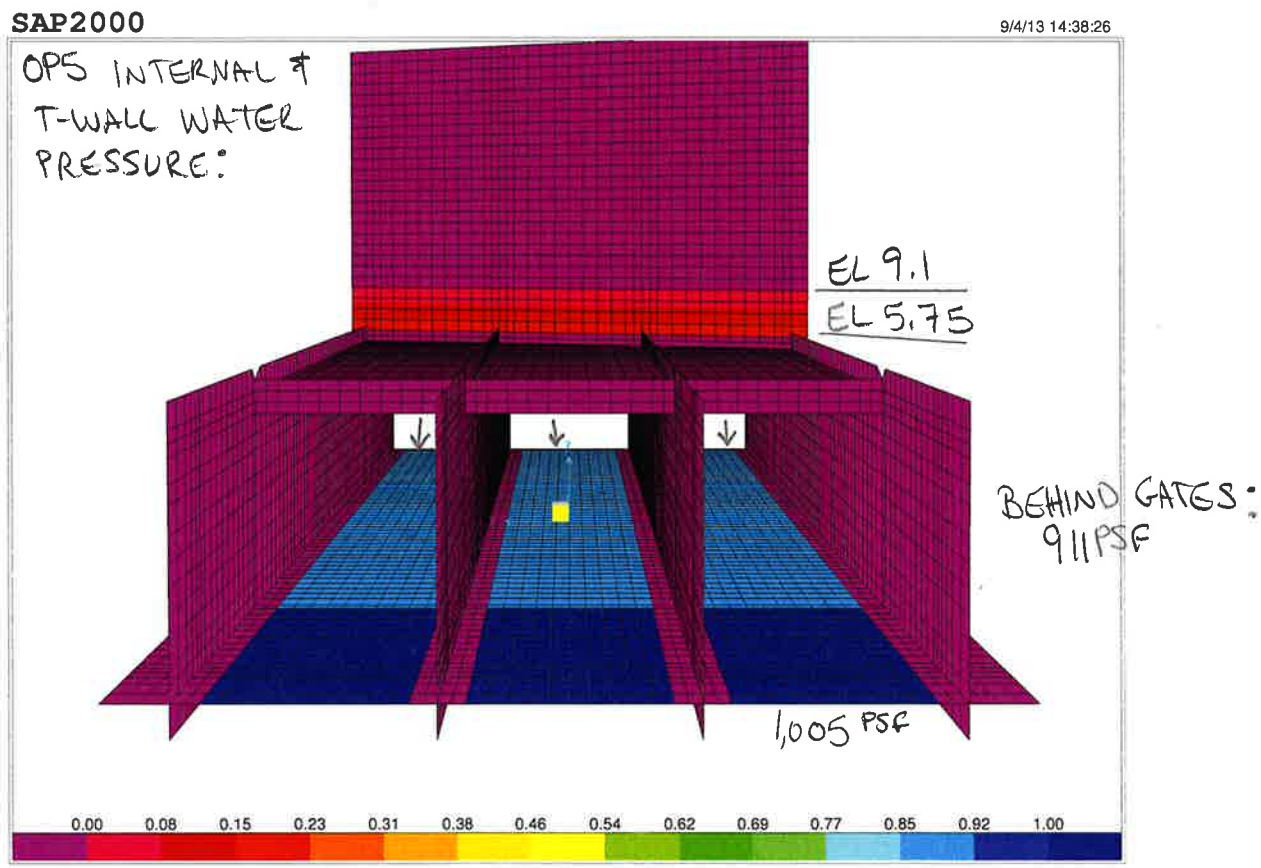
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP4water) - Kip, ft, F Units

SAP2000 9/4/13 14:37:21

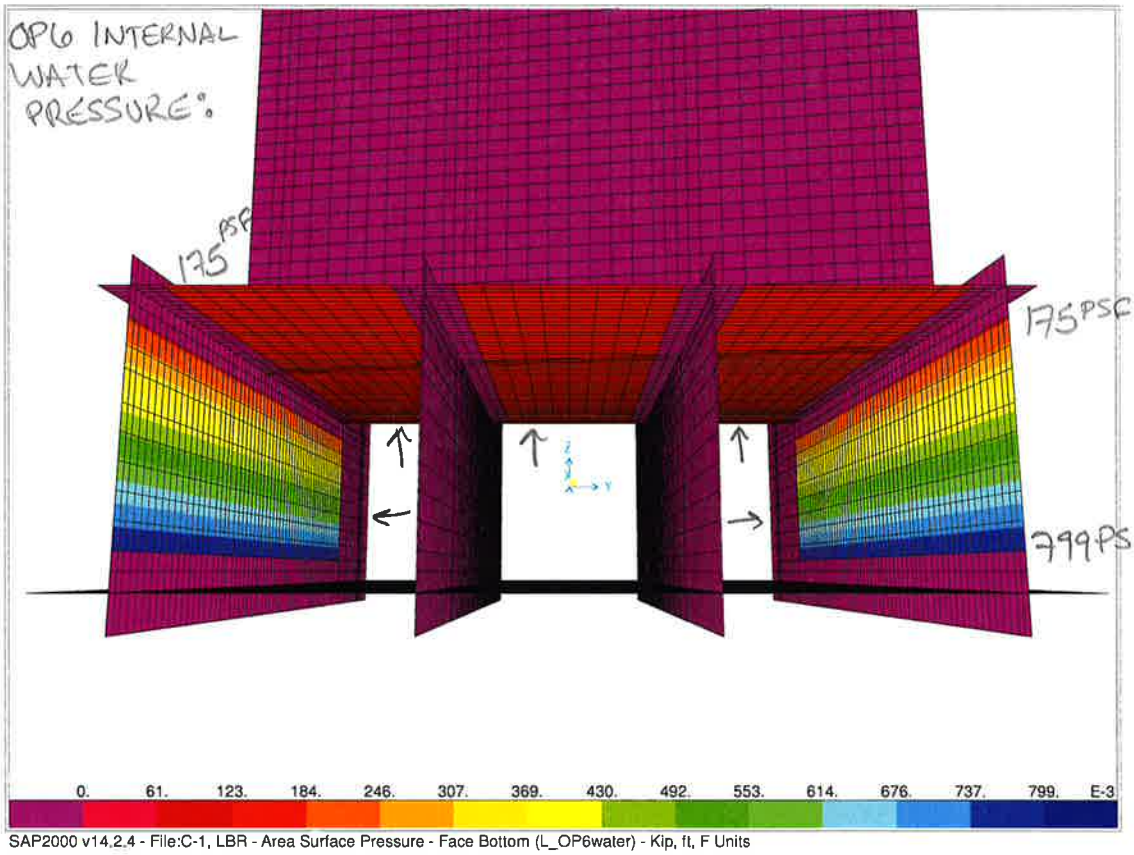


SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP4water) - Kip, ft, F Units


SAP2000
9/4/13 11:48:09
OP5 INTERNAL WATER PRESSURE:
287 PSF
287 PSF
911 PSF
0. 70. 140. 210. 280. 350. 420. 491. 561. 631. 701. 771. 841. 911. E-3
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP5water) - Kip, ft, F Units

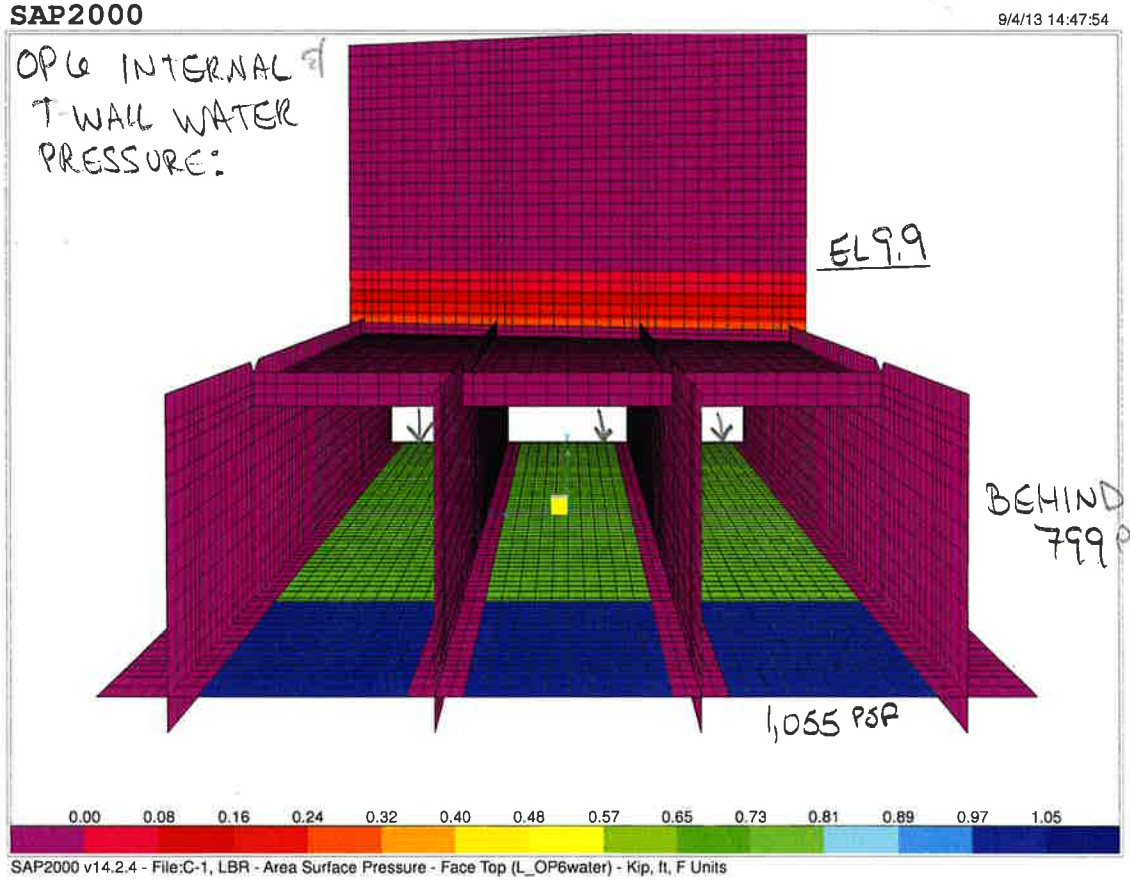

SAP2000
9/4/13 14:38:26
OP5 INTERNAL & T-WALL WATER PRESSURE:
EL 9.1
EL 5.75
BEHIND GATES: 911 PSF
1,005 PSF
0.00 0.08 0.15 0.23 0.31 0.38 0.46 0.54 0.62 0.69 0.77 0.85 0.92 1.00
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP5water) - Kip, ft, F Units

SAP2000 9/4/13 11:50:01



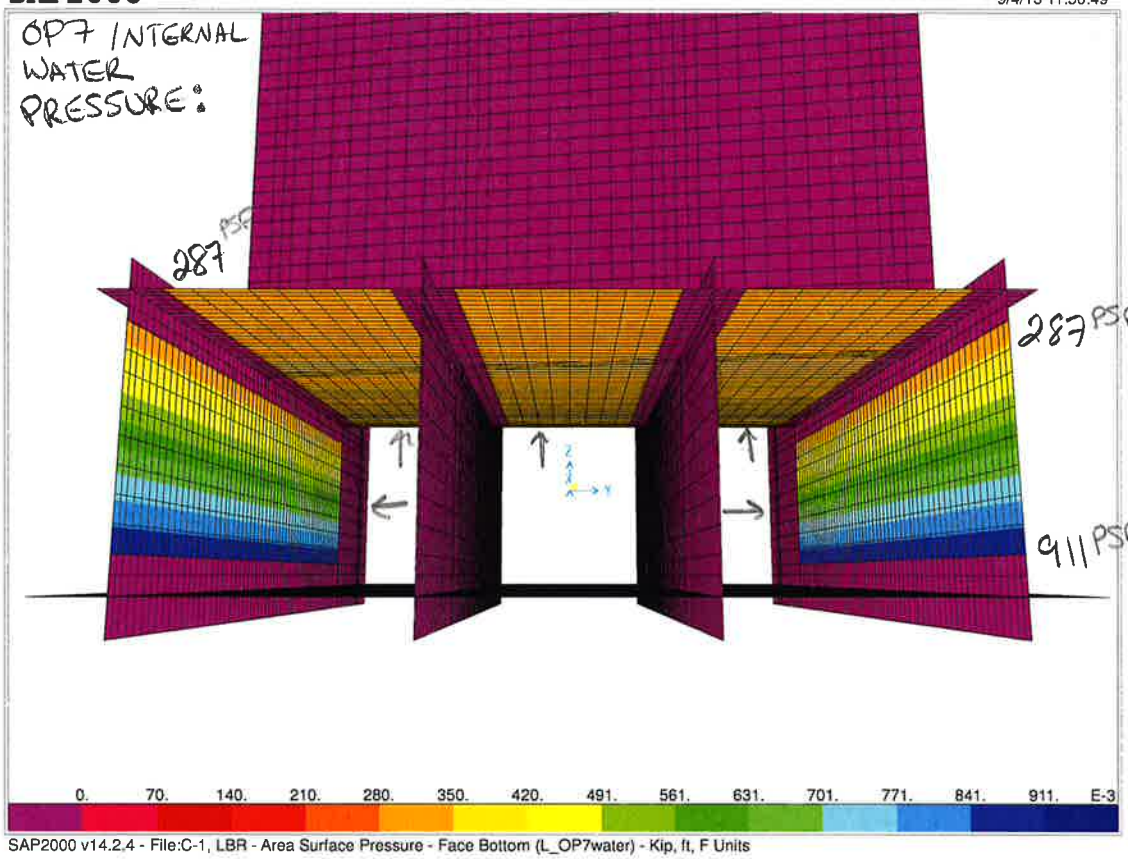
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP6water) - Kip, ft, F Units

SAP2000 9/4/13 14:47:54



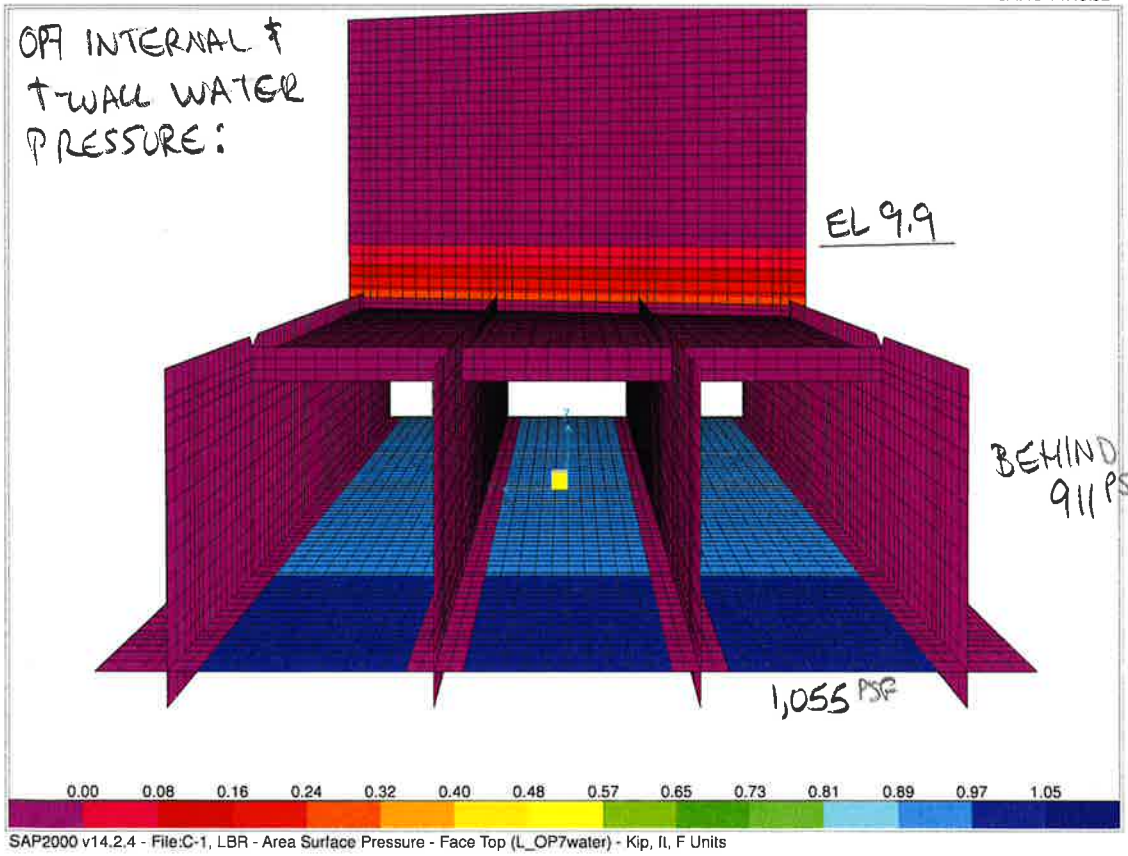
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP6water) - Kip, ft, F Units

SAP2000 9/4/13 11:50:49



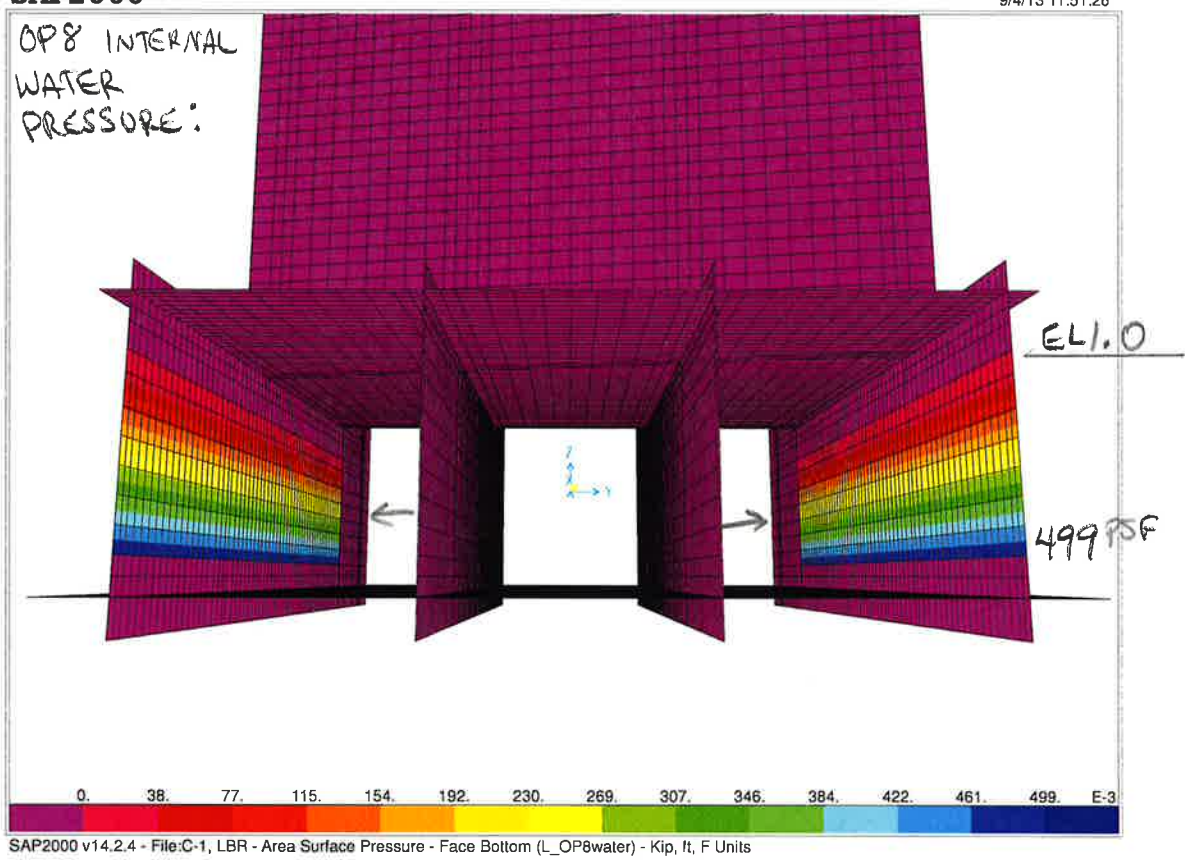
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP7water) - Kip, ft, F Units

SAP2000 9/4/13 14:48:52



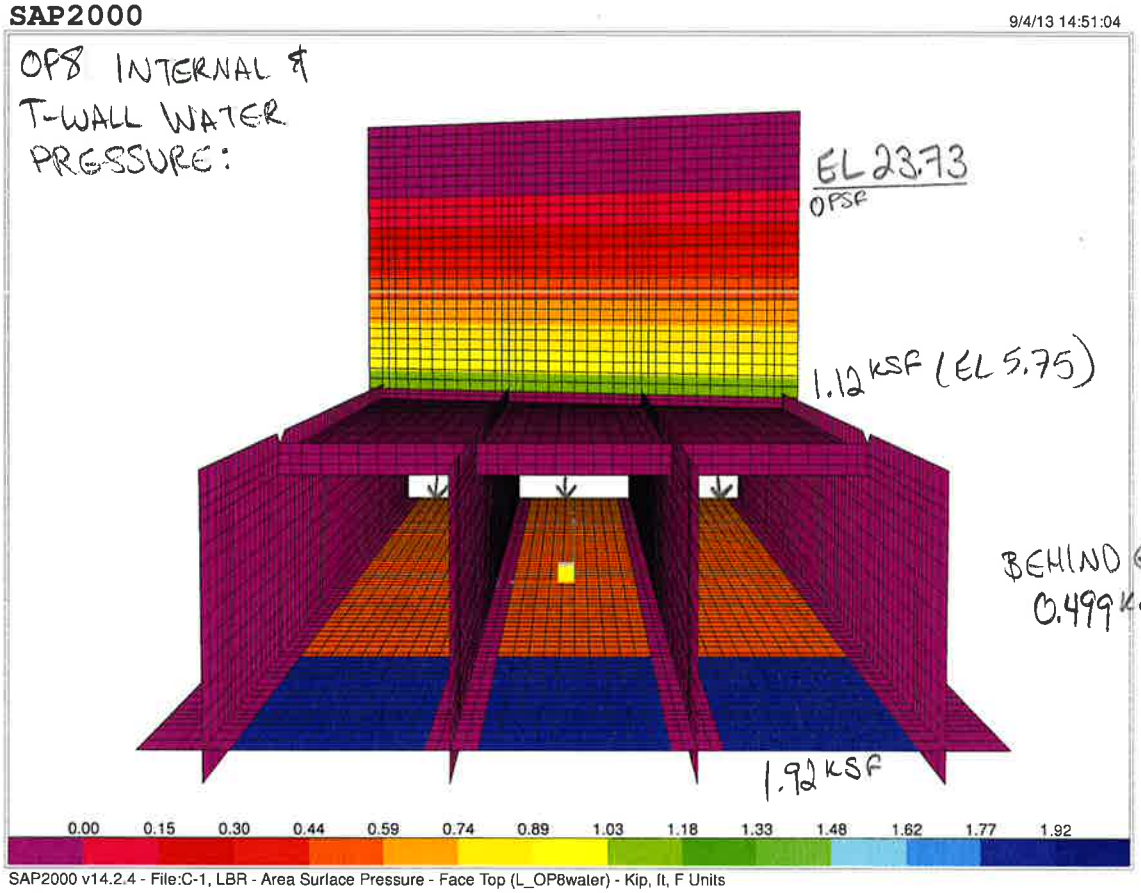
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP7water) - Kip, ft, F Units

SAP2000 9/4/13 11:51:26



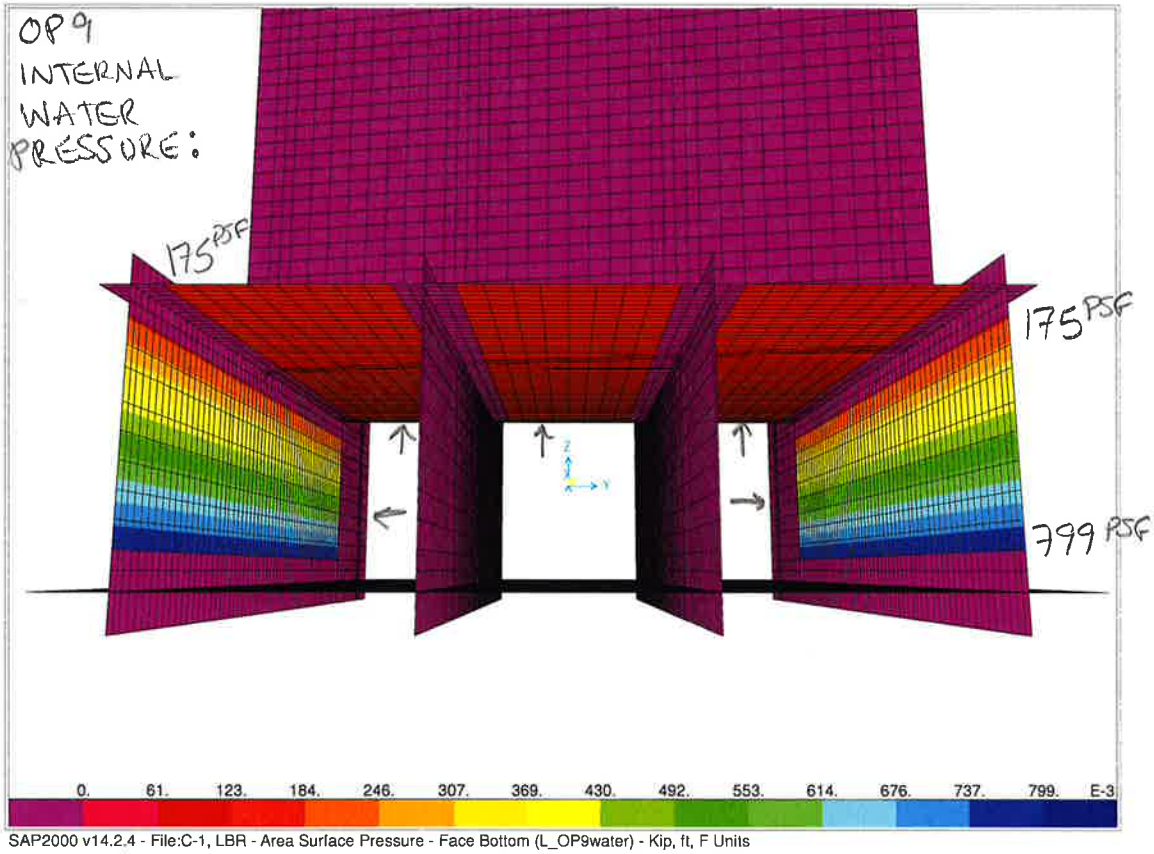
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP8water) - Kip, ft, F Units

SAP2000 9/4/13 14:51:04



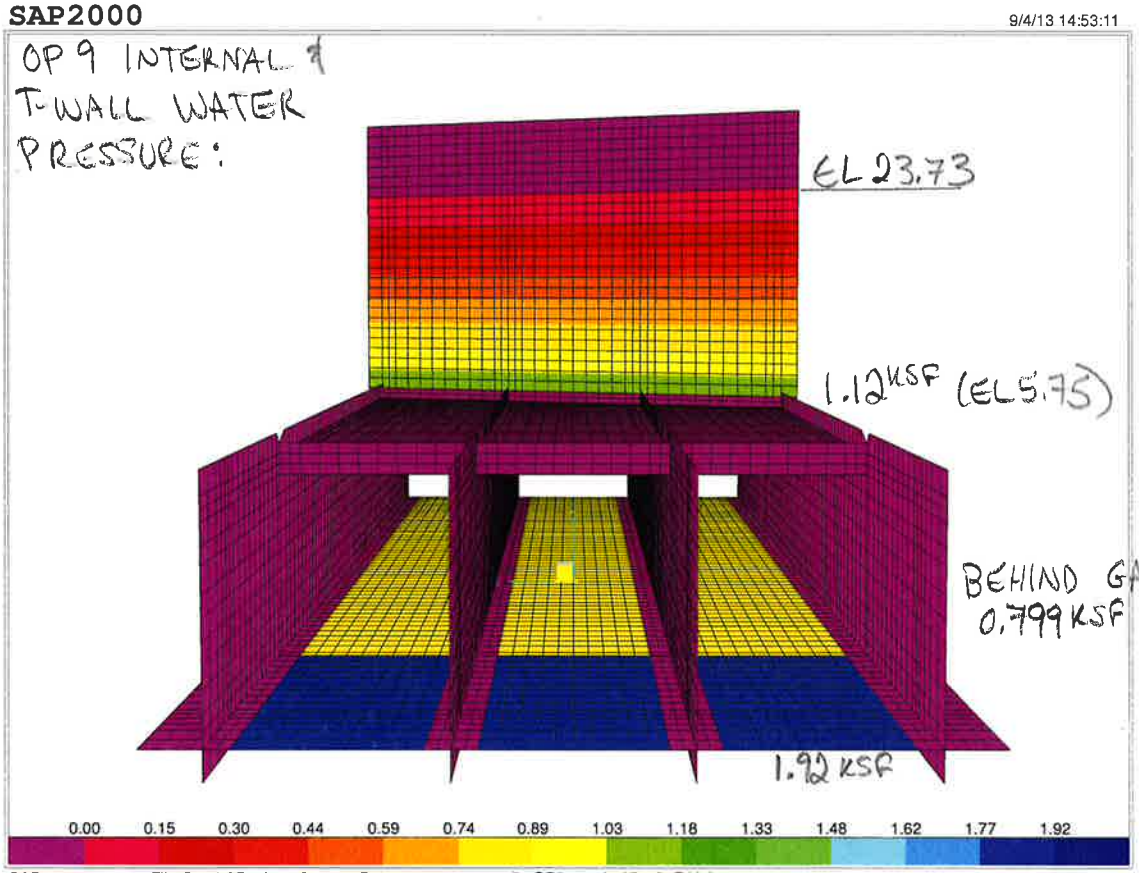
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP8water) - Kip, ft, F Units

SAP2000 9/4/13 11:52:21



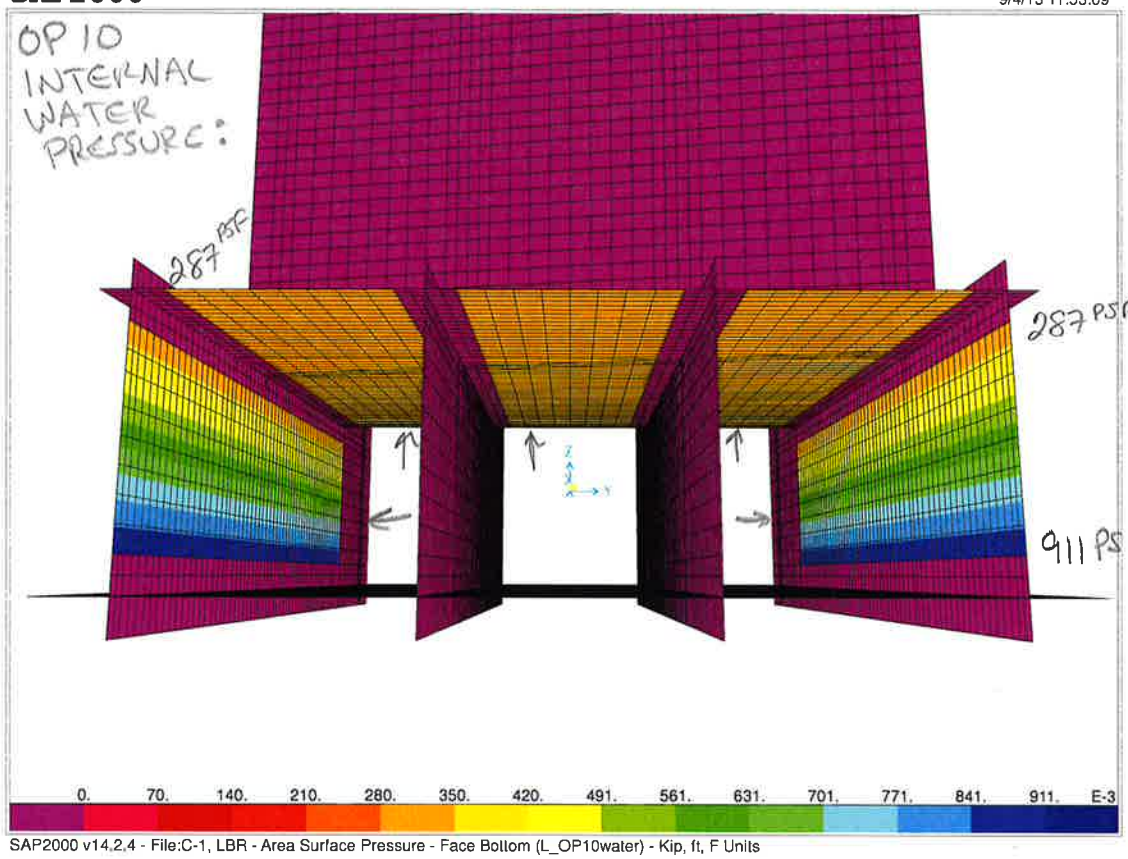
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP9water) - Kip, ft, F Units

SAP2000 9/4/13 14:53:11



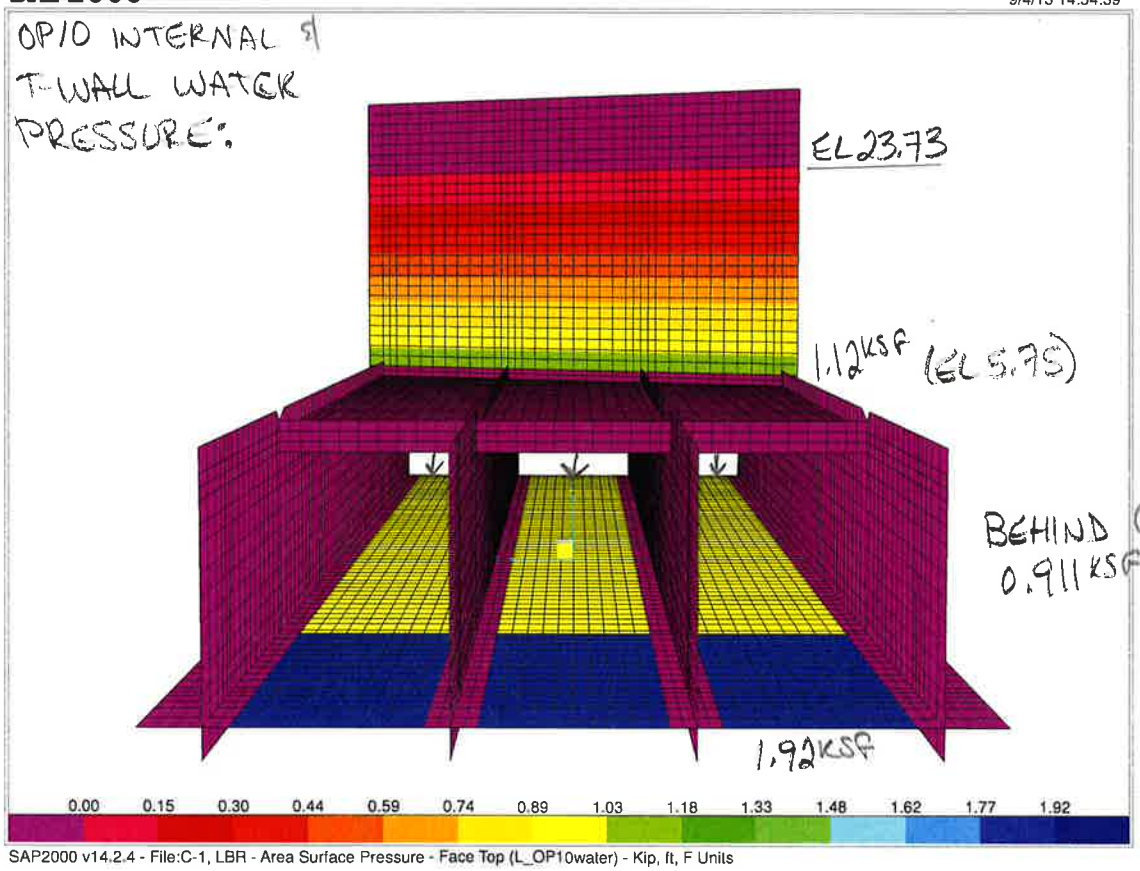
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP9water) - Kip, ft, F Units

SAP2000 9/4/13 11:53:09



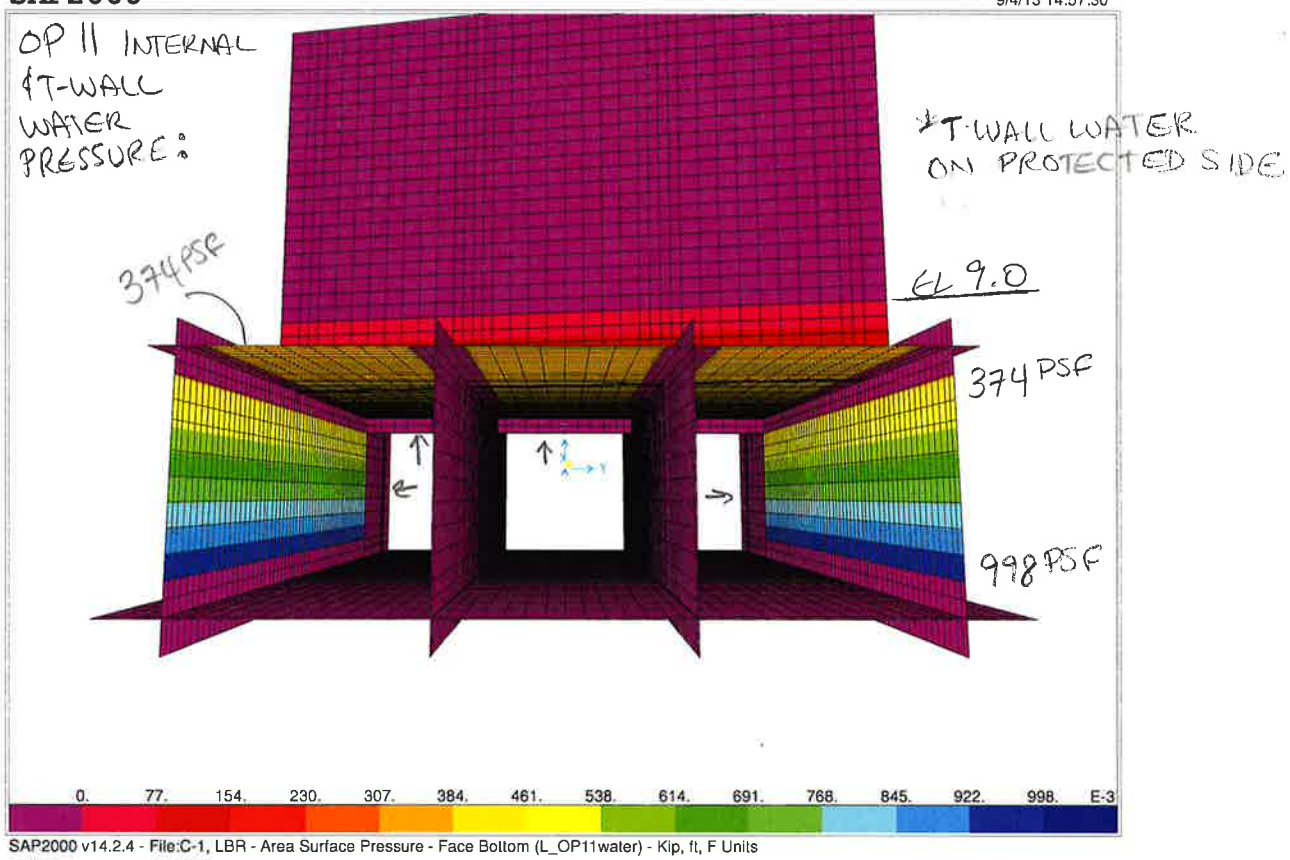
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP10water) - Kip, ft, F Units

SAP2000 9/4/13 14:54:39



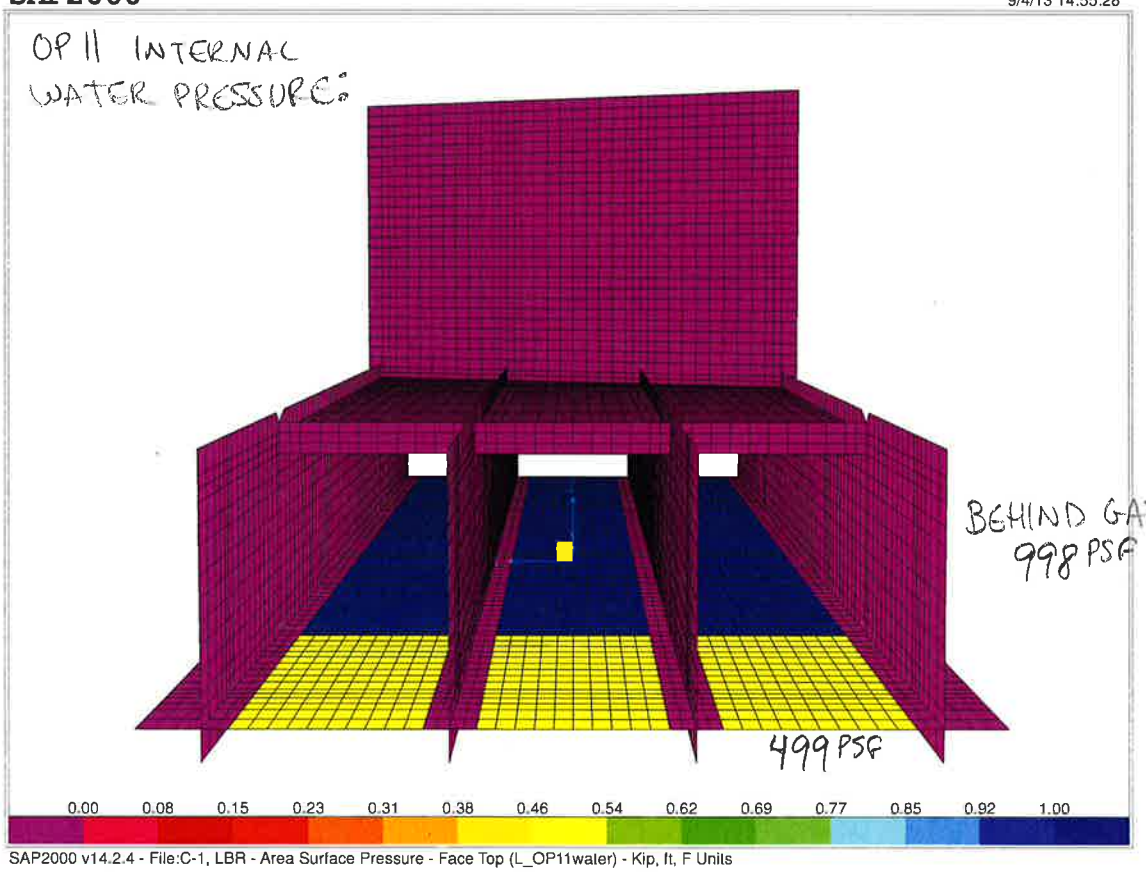
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP10water) - Kip, ft, F Units

SAP2000 9/4/13 14:57:30



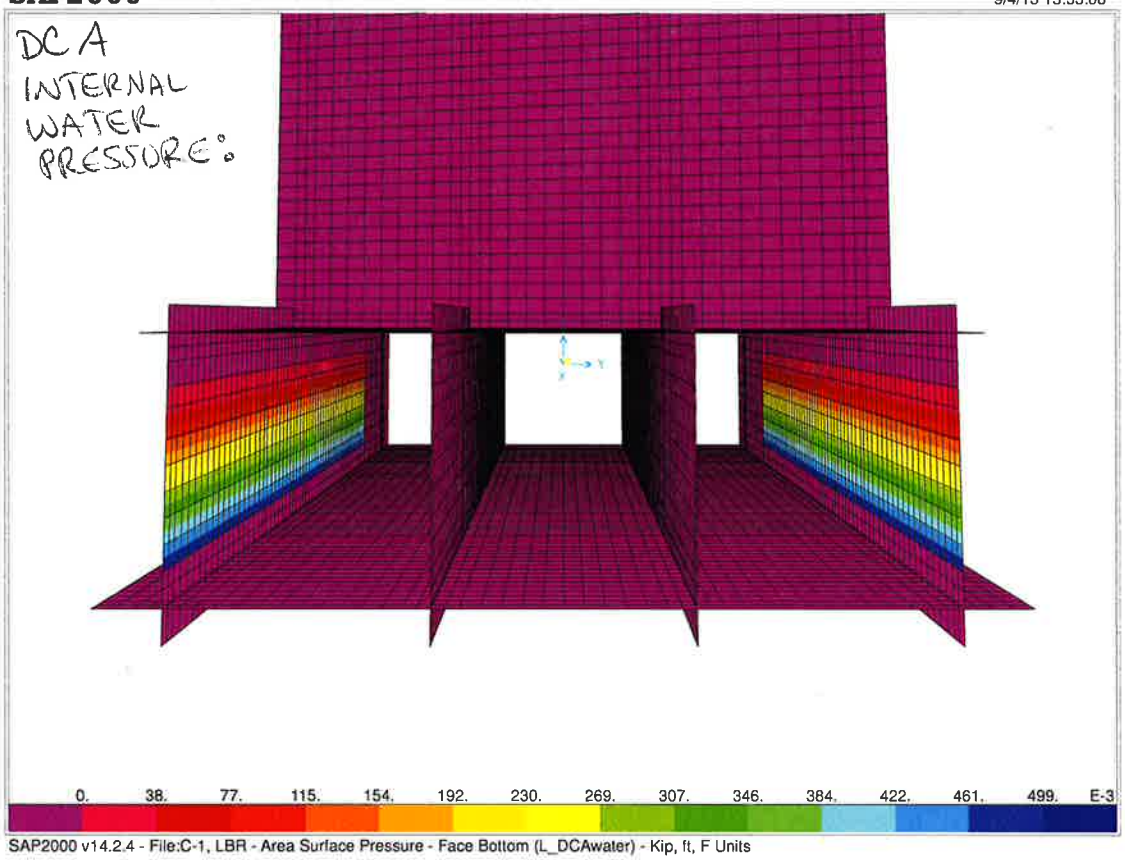
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_OP11water) - Kip, ft, F Units

SAP2000 9/4/13 14:55:28



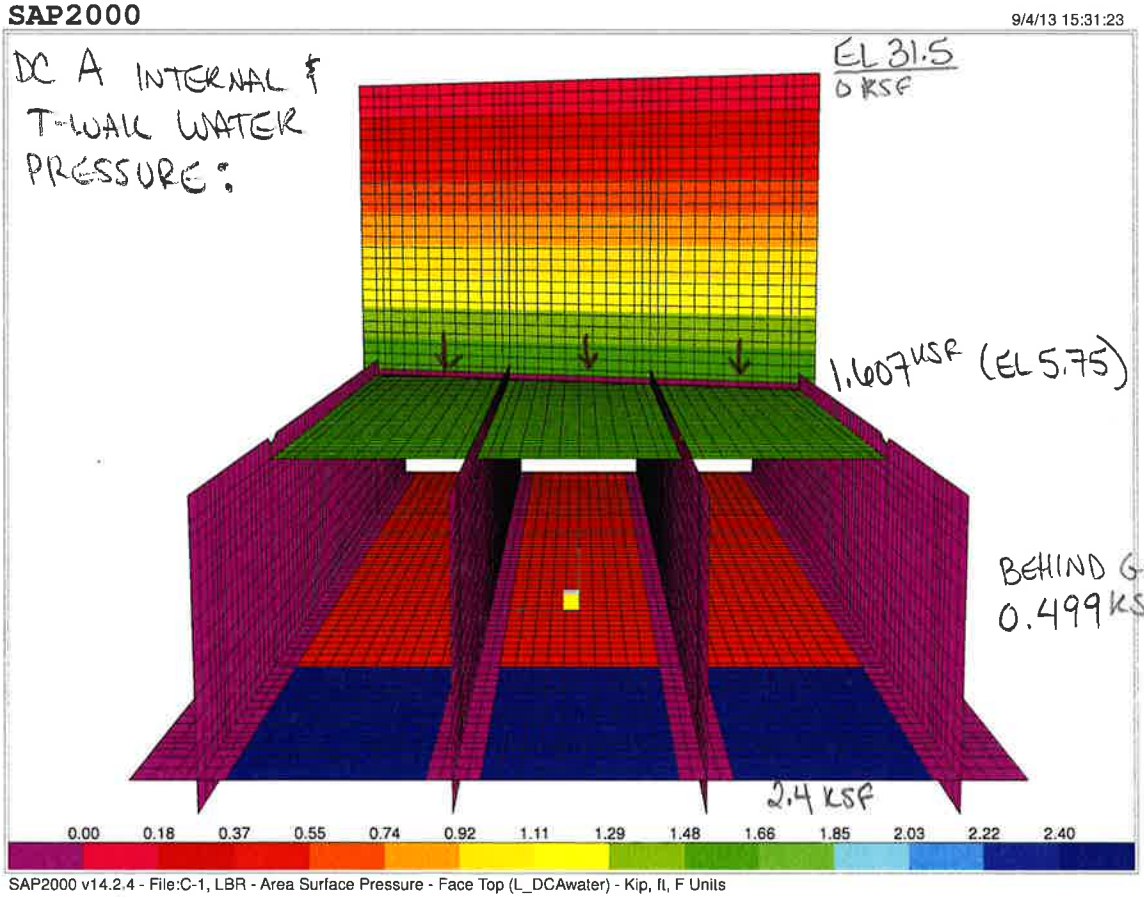
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_OP11water) - Kip, ft, F Units

SAP2000 9/4/13 15:33:08



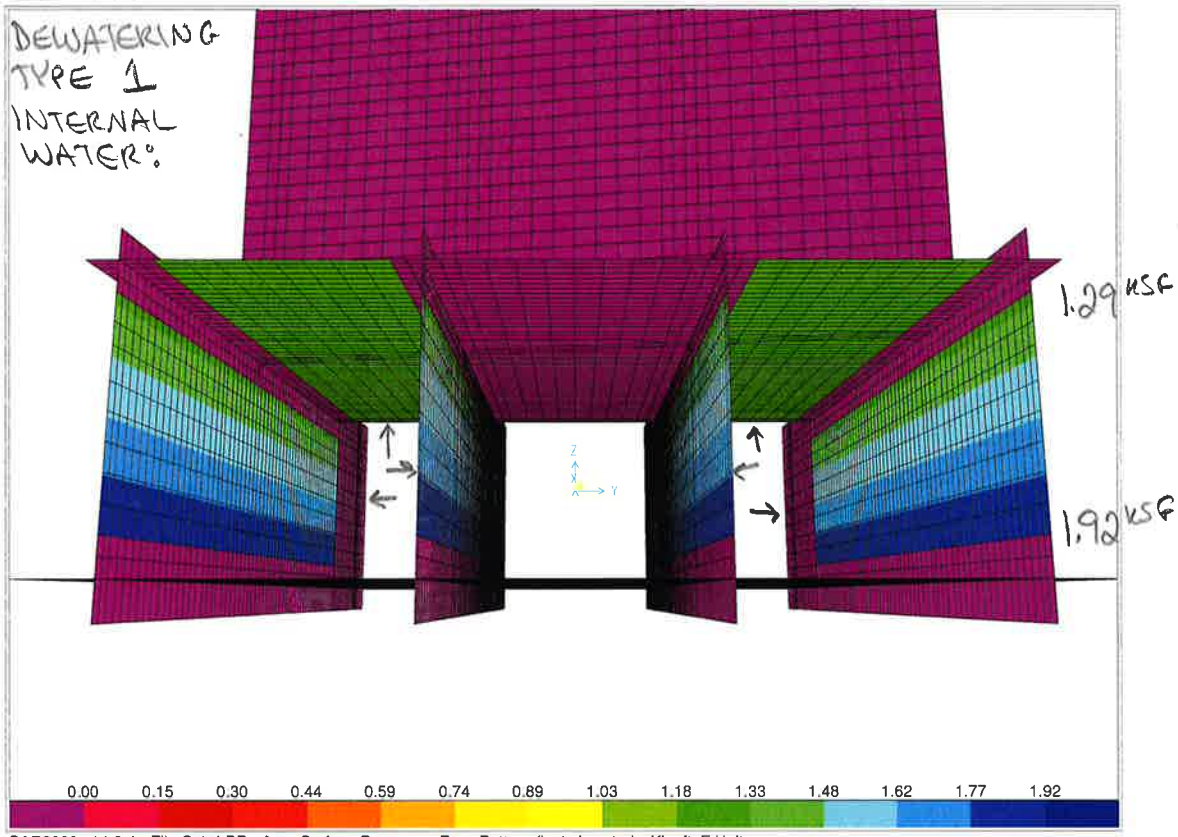
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_DCAwater) - Kip, ft, F Units

SAP2000 9/4/13 15:31:23



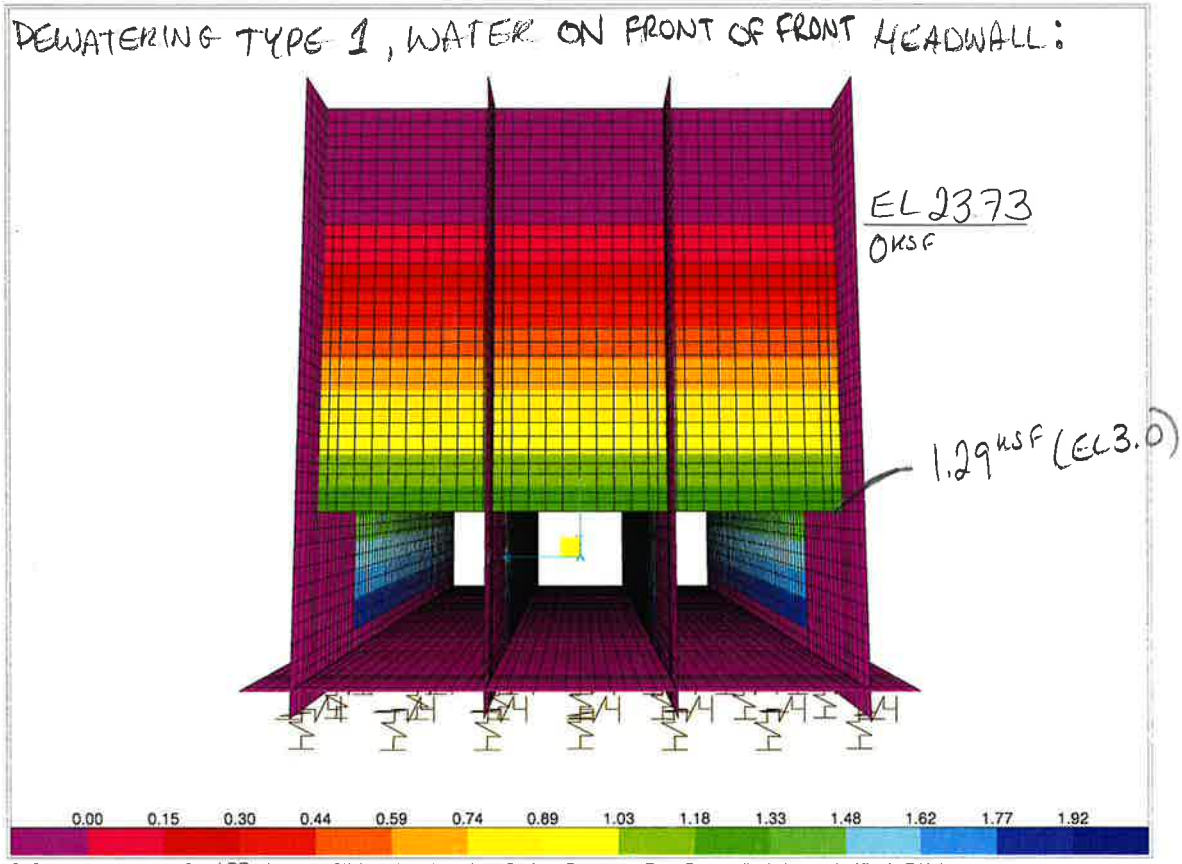
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_DCAwater) - Kip, ft, F Units

SAP2000 9/4/13 15:51:51



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_1-dewater) - Kip, ft, F Units

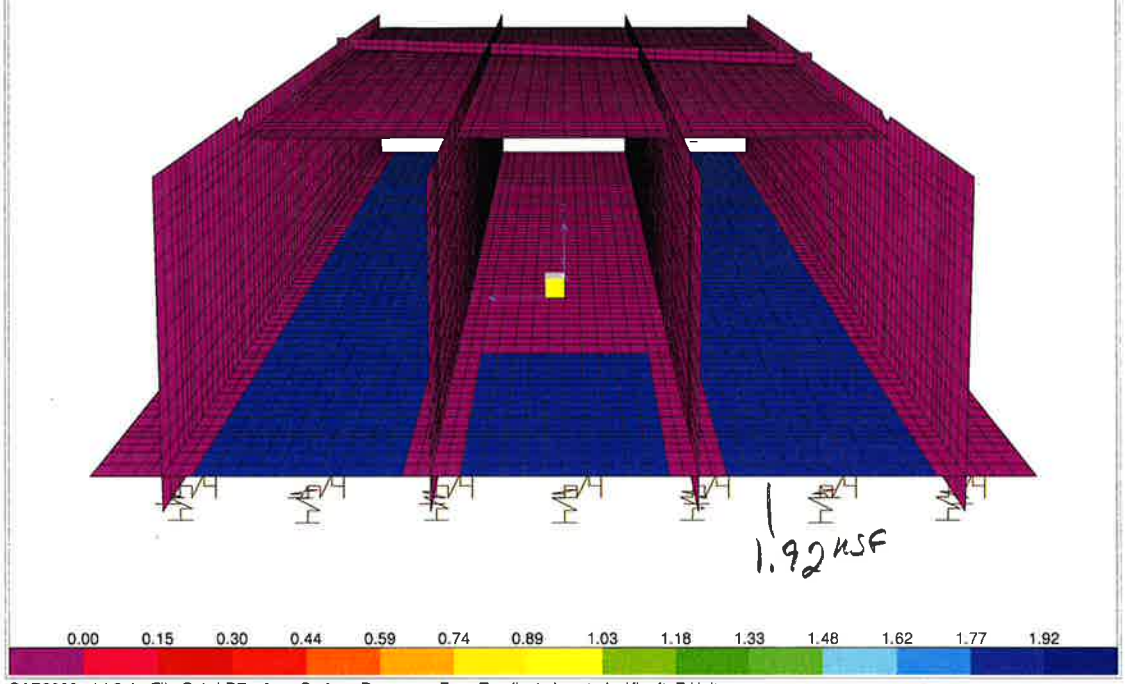
SAP2000 9/7/13 8:57:26



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Area Surface Pressure - Face Bottom (L_1-dewater) - Kip, ft, F Units

SAP2000 9/5/13 8:31:28

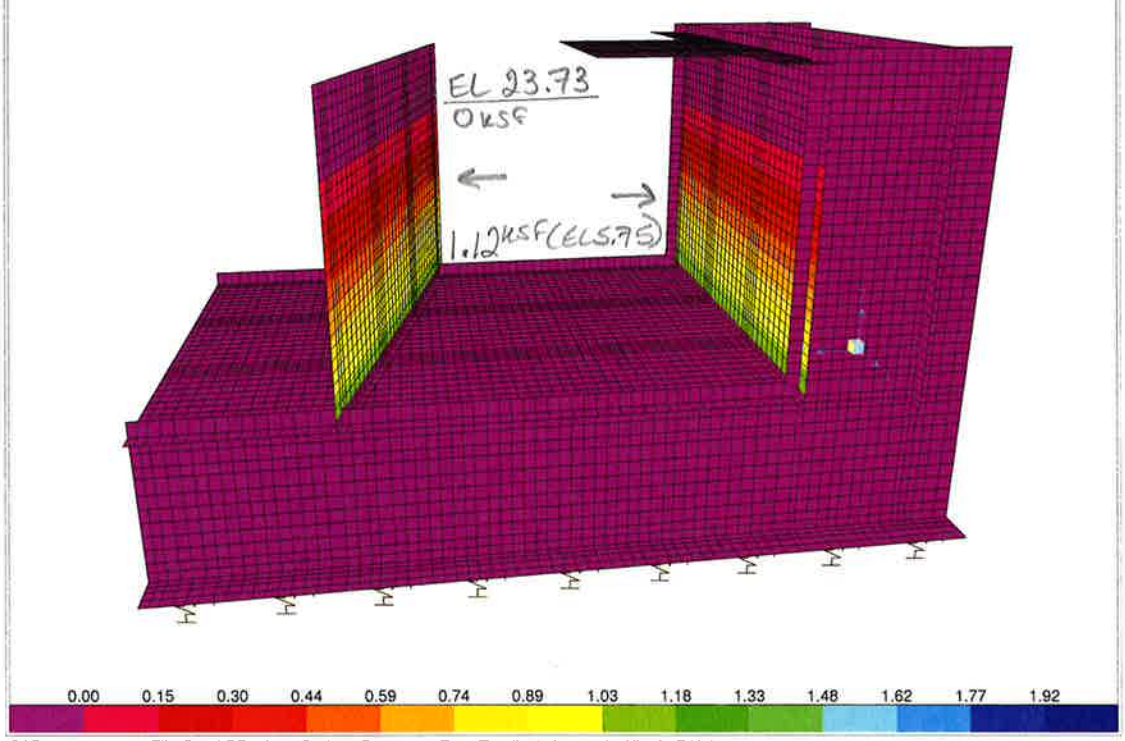
DEWATERING TYPE 1, DOWNWARD WATER INSIDE:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_1-dewater) - Kip, ft, F Units

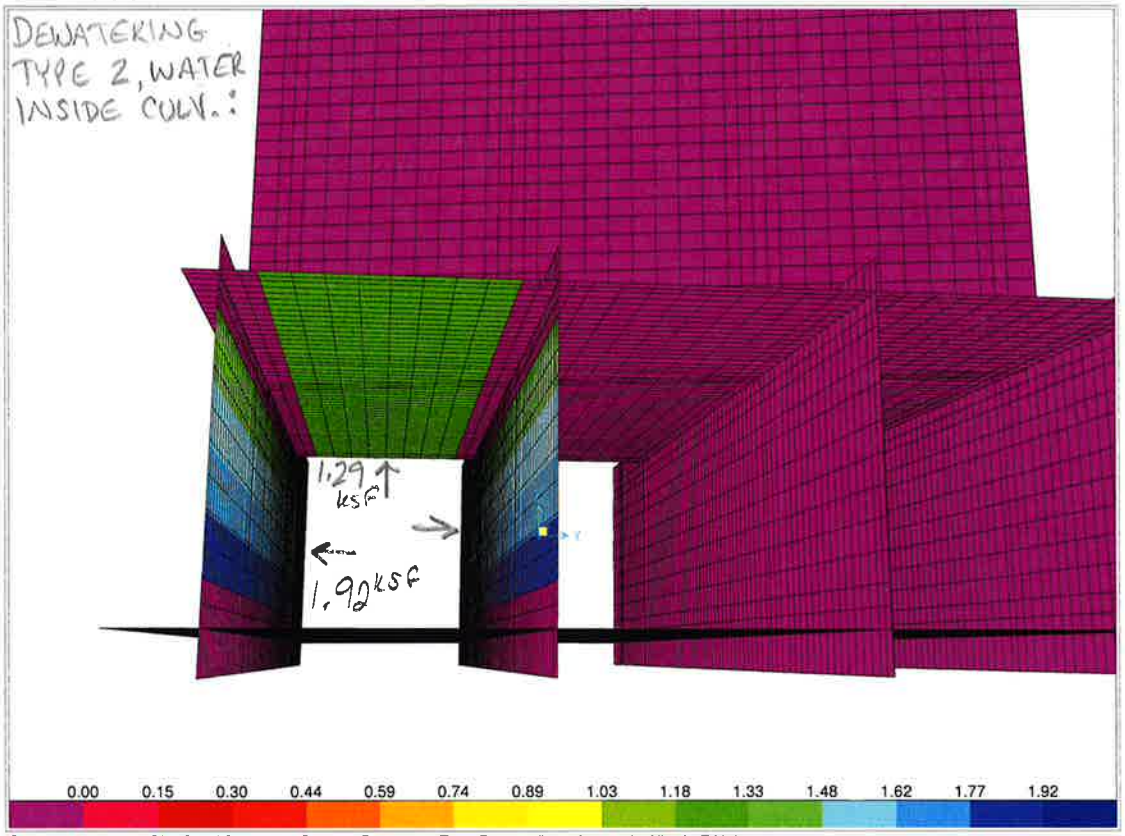
SAP2000 9/5/13 8:32:59

DEWATERING TYPE 1, WATER ON BACK HEADWALL & T-WALL:



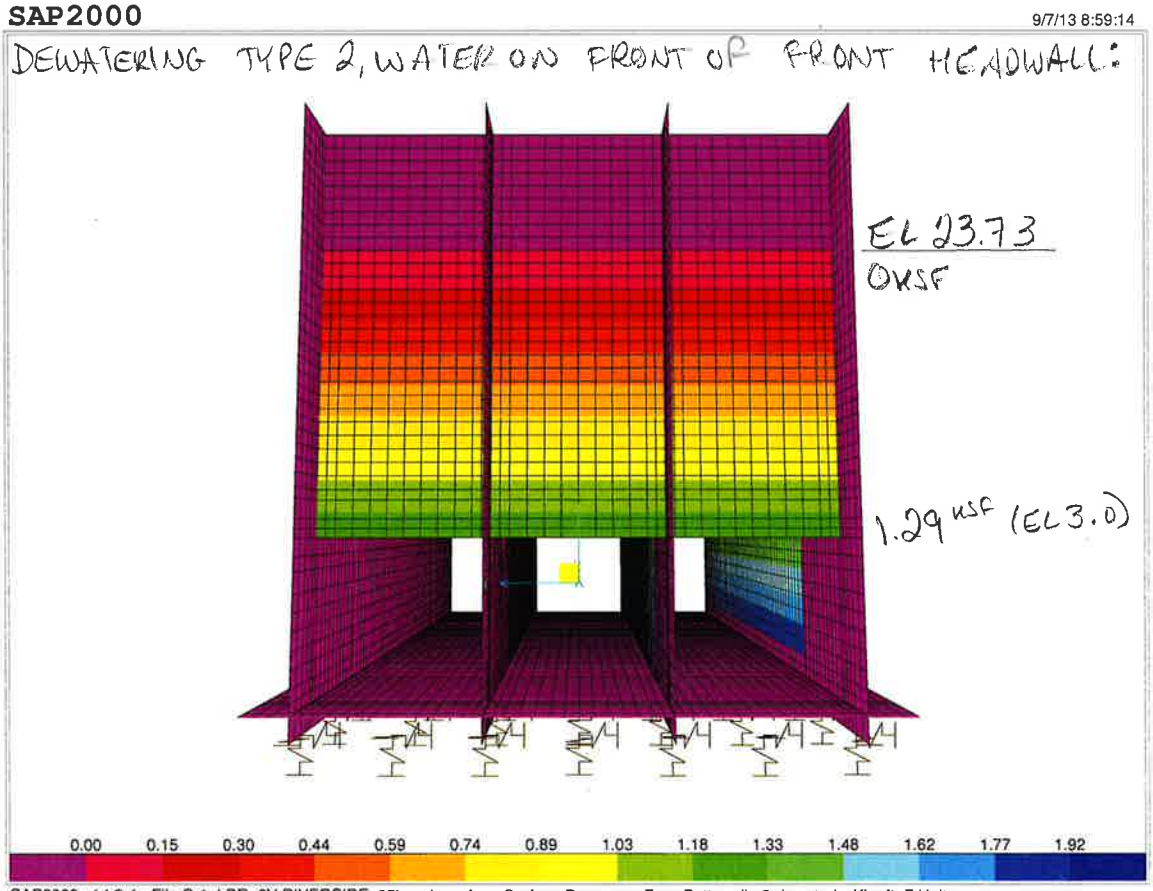
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_1-dewater) - Kip, ft, F Units

SAP2000 9/4/13 15:58:14



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (L_2-dewater) - Kip, ft, F Units

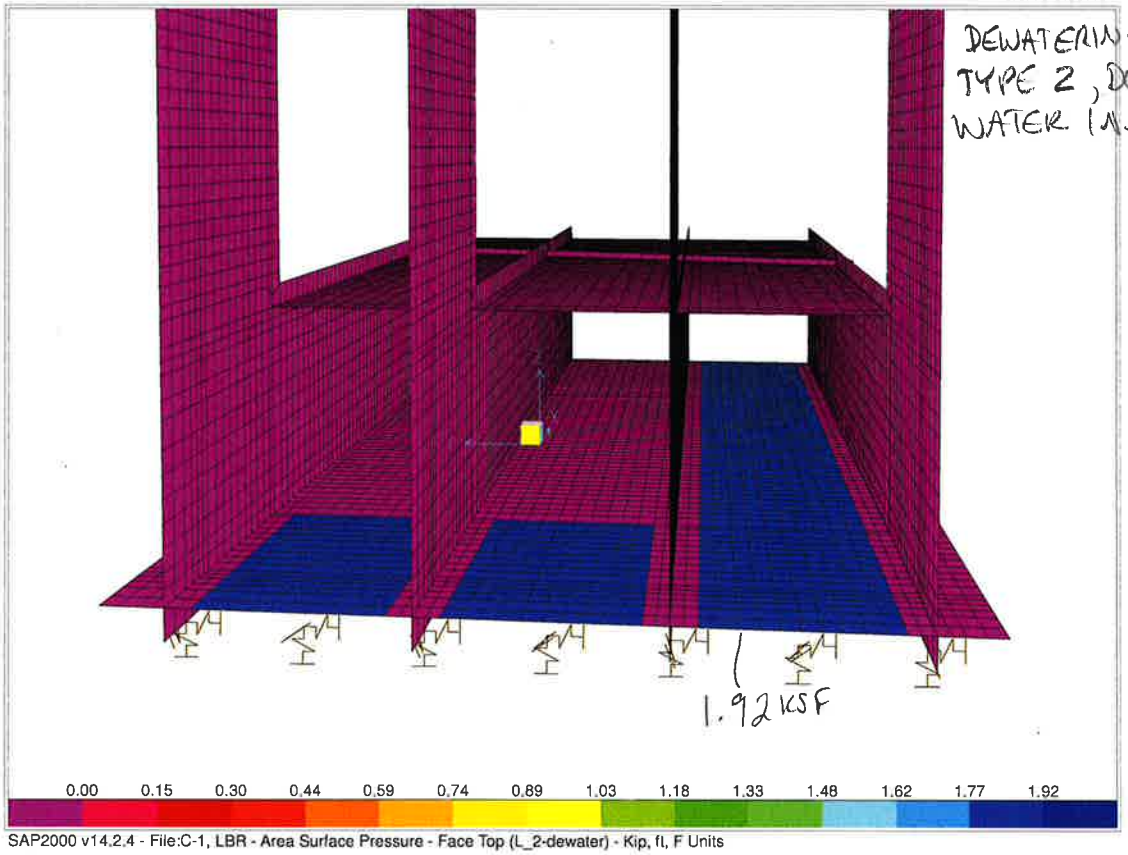
SAP2000 9/7/13 8:59:14



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Area Surface Pressure - Face Bottom (L_2-dewater) - Kip, ft, F Units

SAP2000

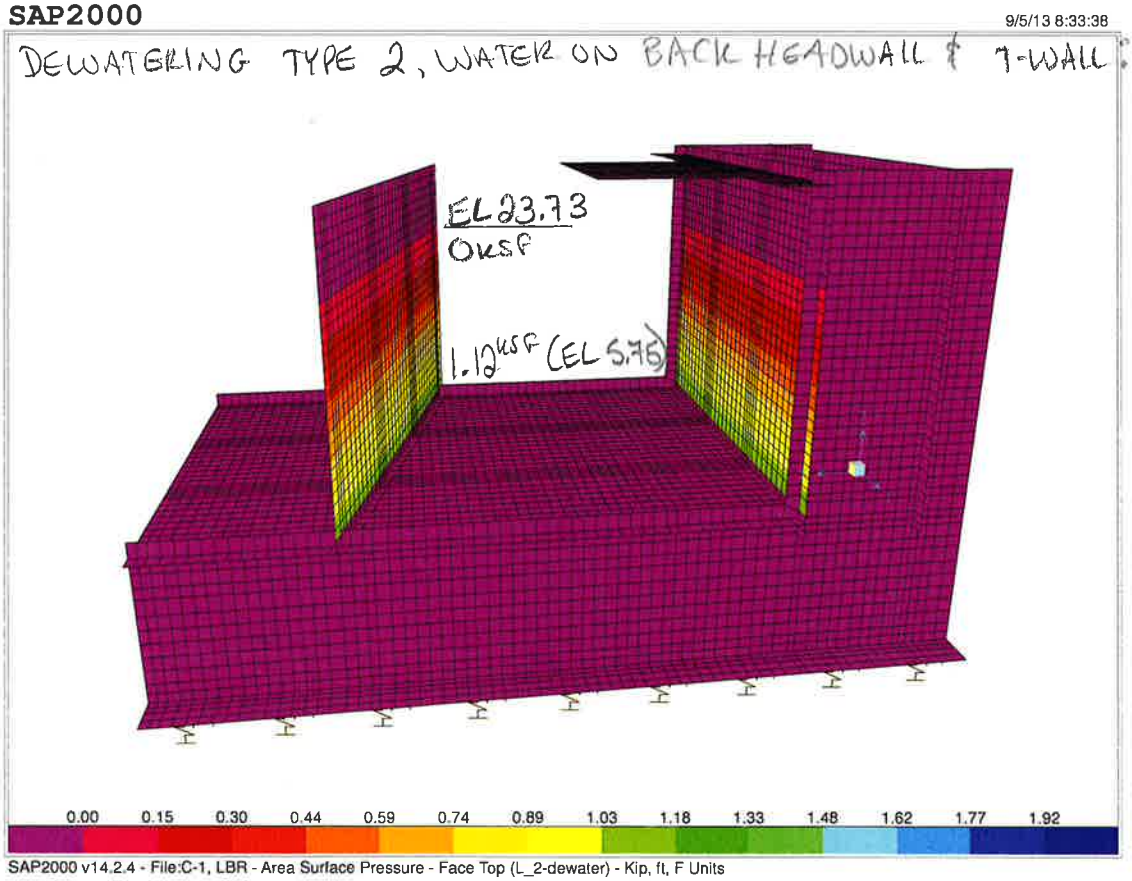
9/5/13 8:36:46



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_2-dewater) - Kip, ft, F Units

SAP2000

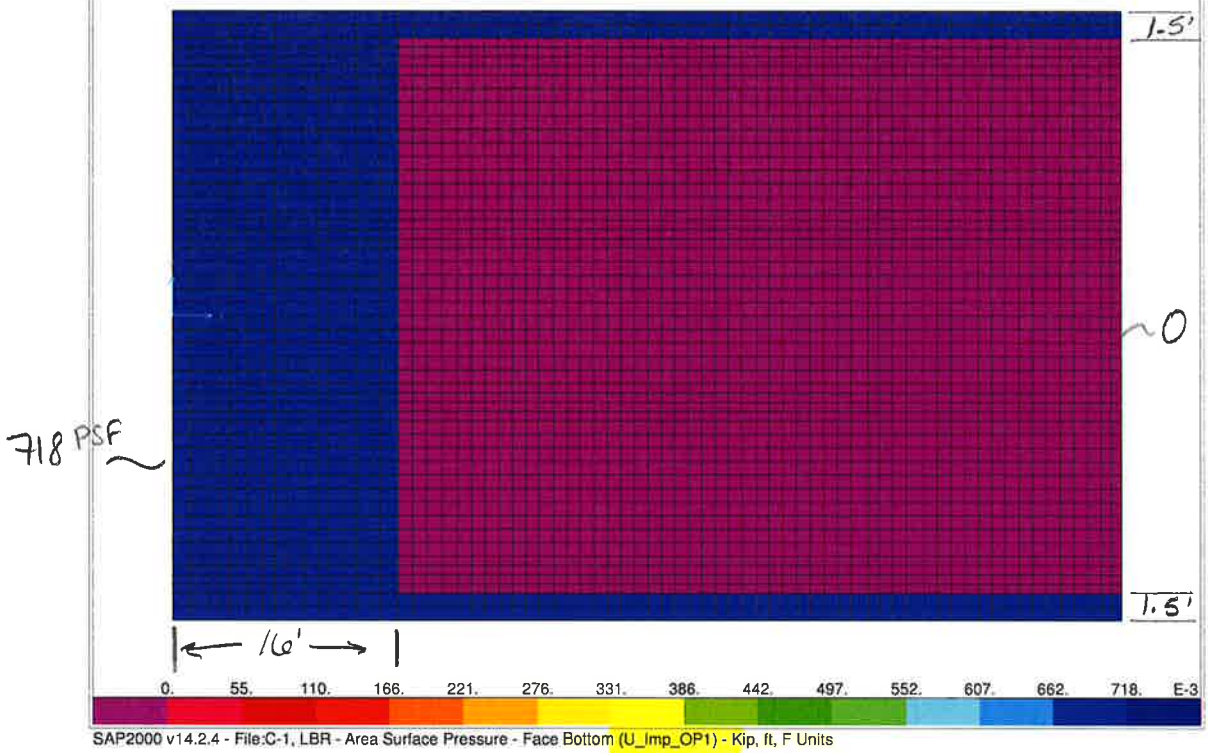
9/5/13 8:33:38



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Top (L_2-dewater) - Kip, ft, F Units

SAP2000 9/4/13 13:21:14

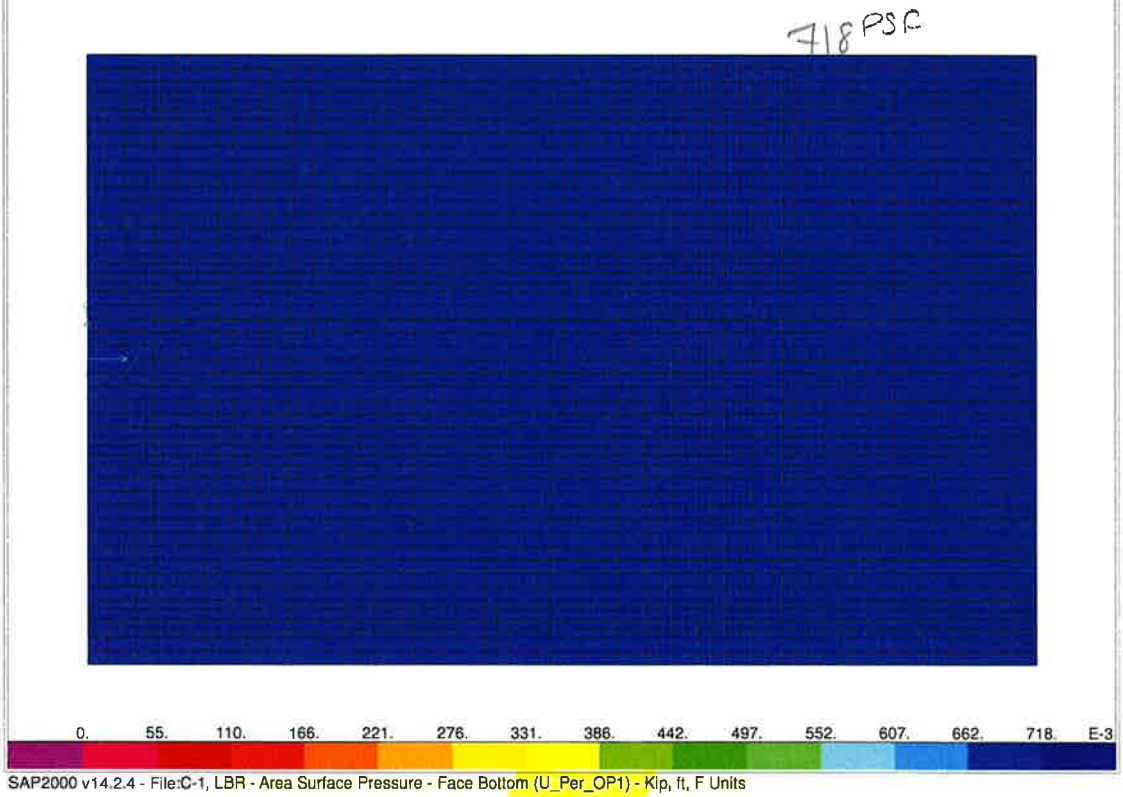
IMPERVIOUS UPLIFT, OP 1:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP1) - Kip, ft, F Units

SAP2000 9/4/13 13:21:48

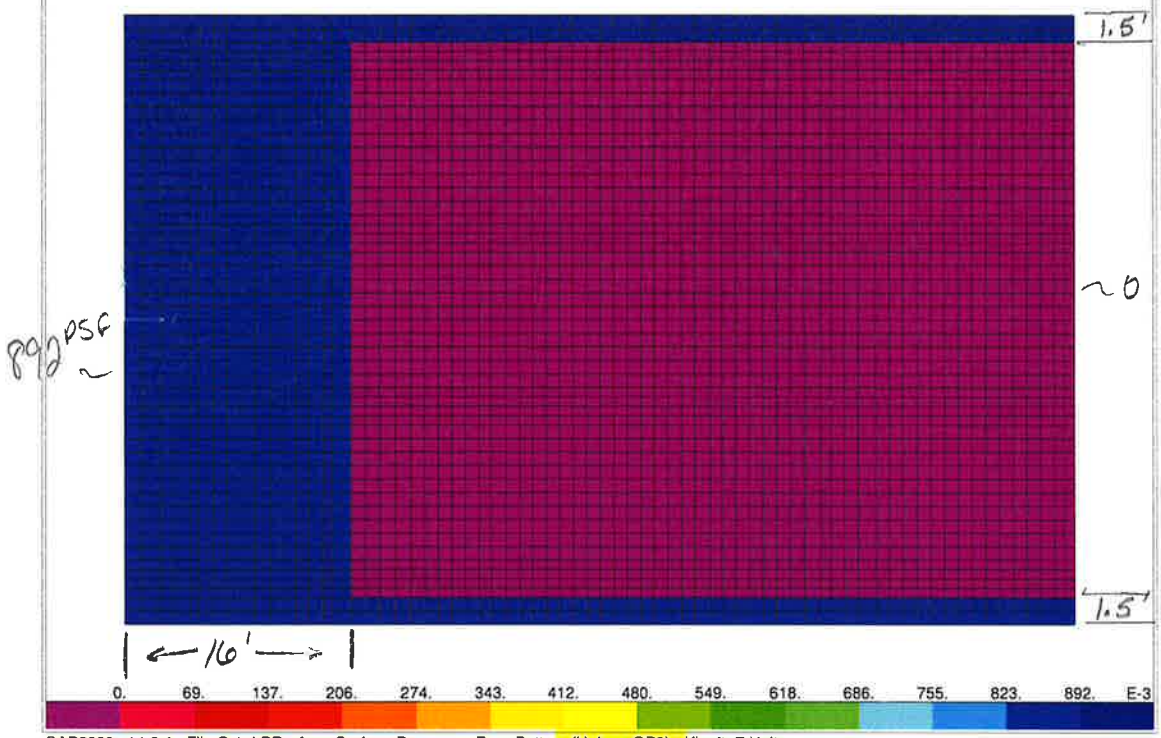
PERVIOUS UPLIFT, OP 1:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP1) - Kip, ft, F Units

SAP2000 9/4/13 13:22:18

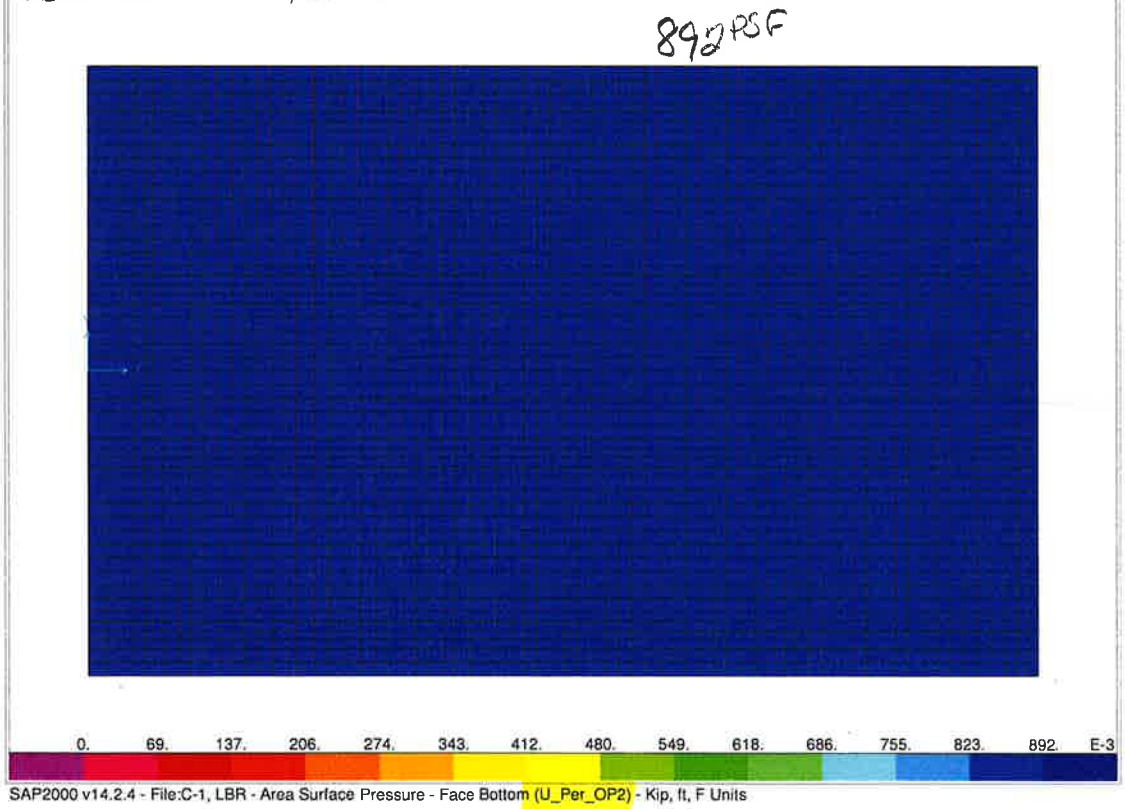
IMPERVIOUS UPLIFT, OP 2:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP2) - Kip, ft, F Units

SAP2000 9/4/13 13:22:43

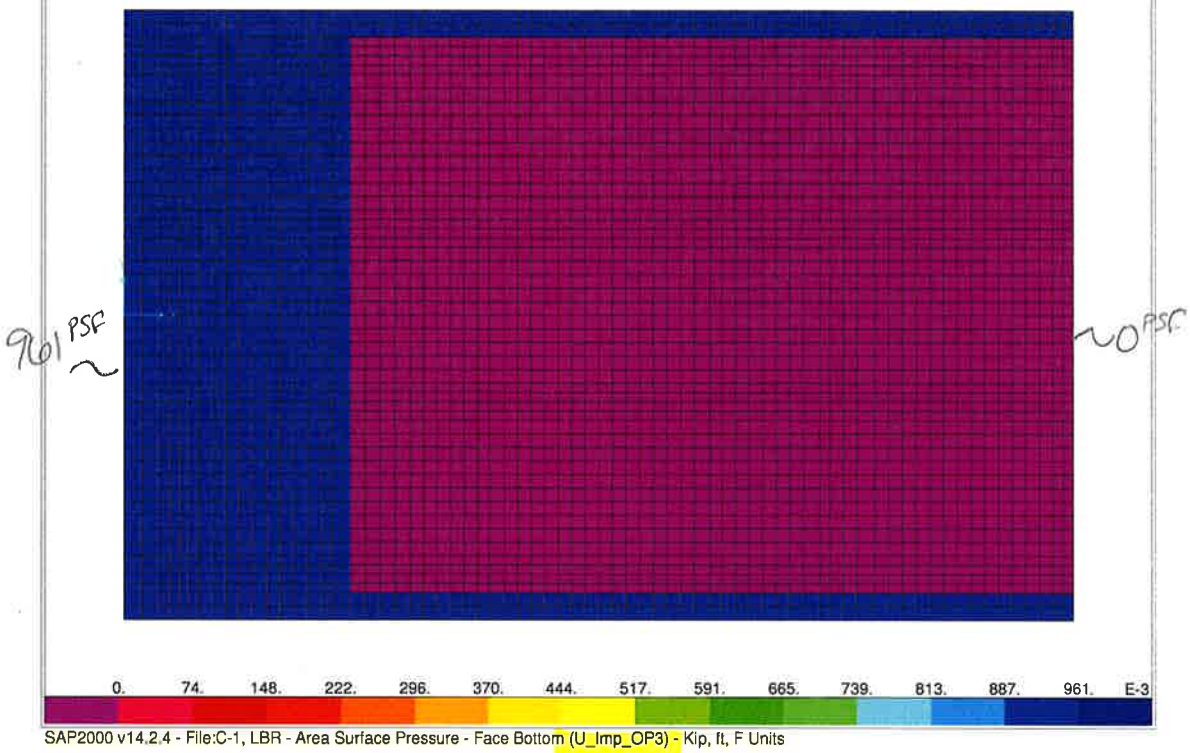
PERVIOUS UPLIFT, OP 2:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP2) - Kip, ft, F Units

SAP2000 9/4/13 13:23:03

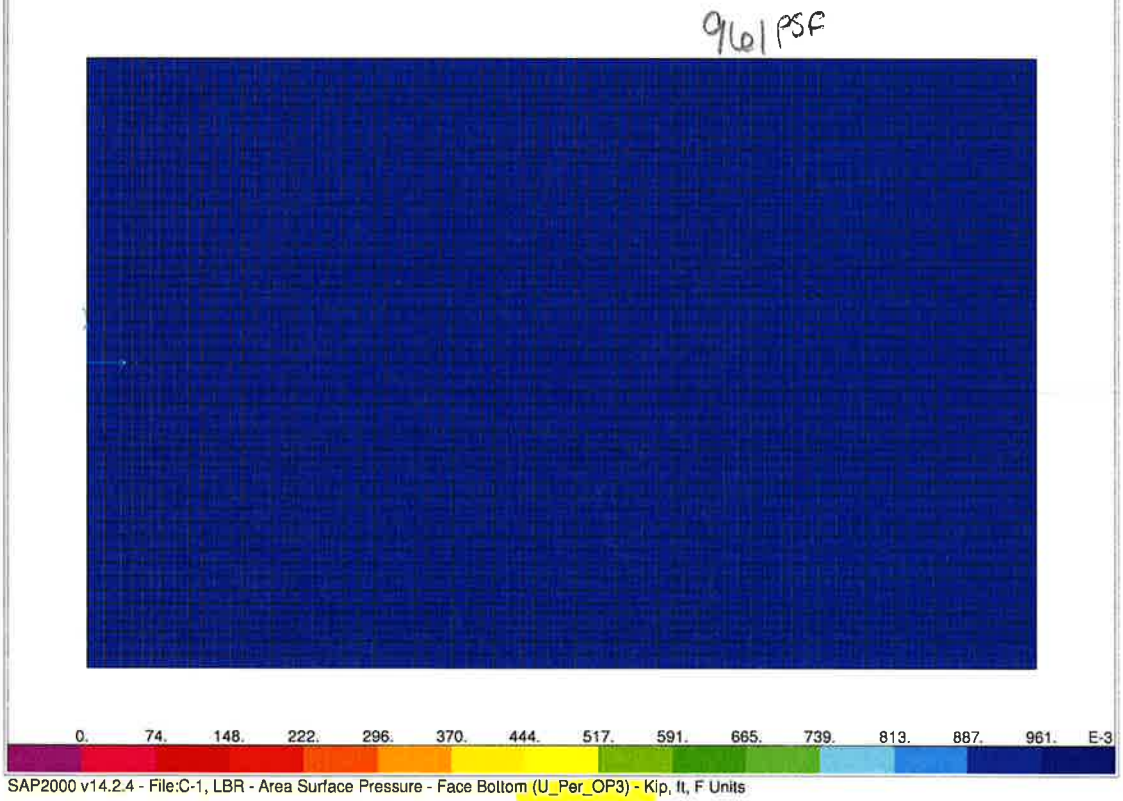
IMPERVIOUS UPLIFT, OP3:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP3) - Kip, ft, F Units

SAP2000 9/4/13 13:23:40

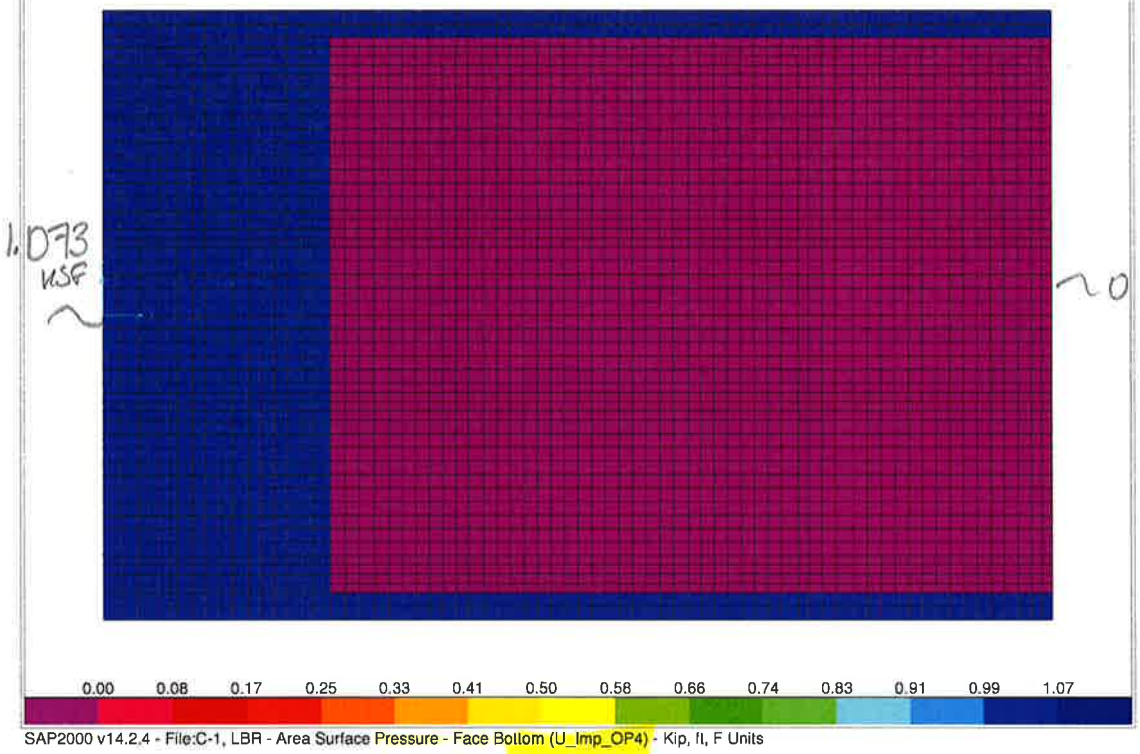
PERVIOUS UPLIFT, OP3:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP3) - Kip, ft, F Units

SAP2000 9/4/13 14:58:20

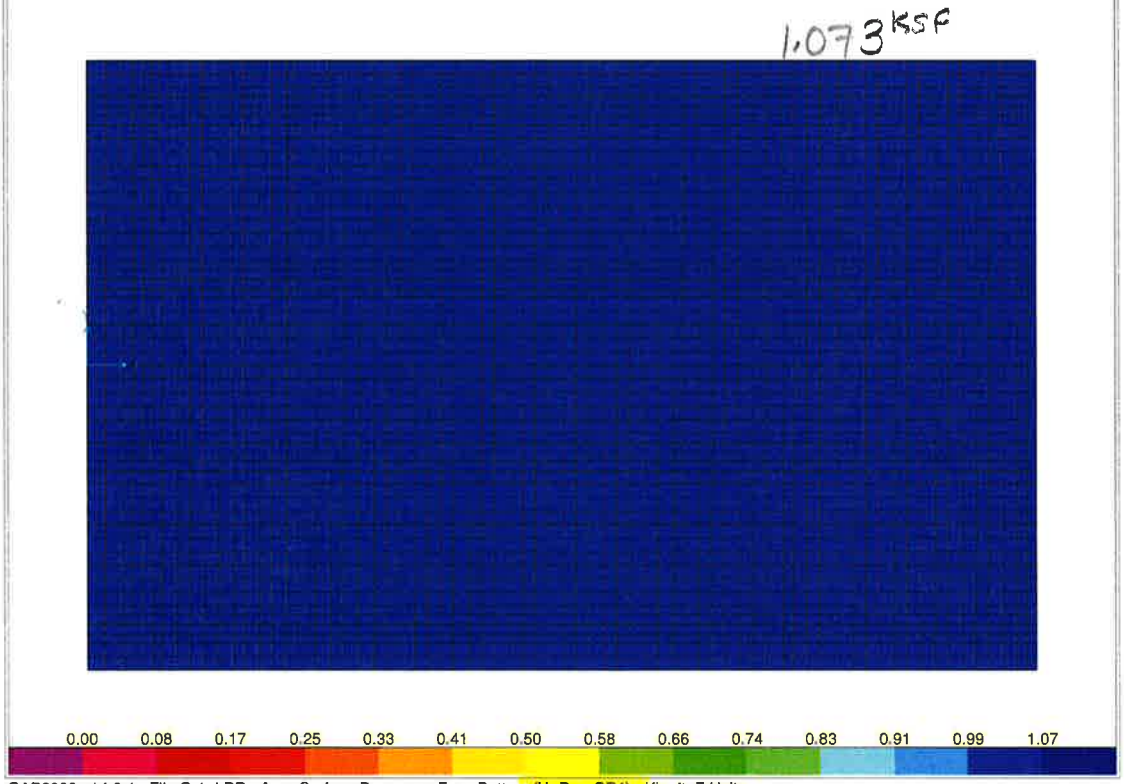
IMPERVIOUS UPLIFT, OP4:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP4) - Kip, ft, F Units

SAP2000 9/4/13 15:00:56

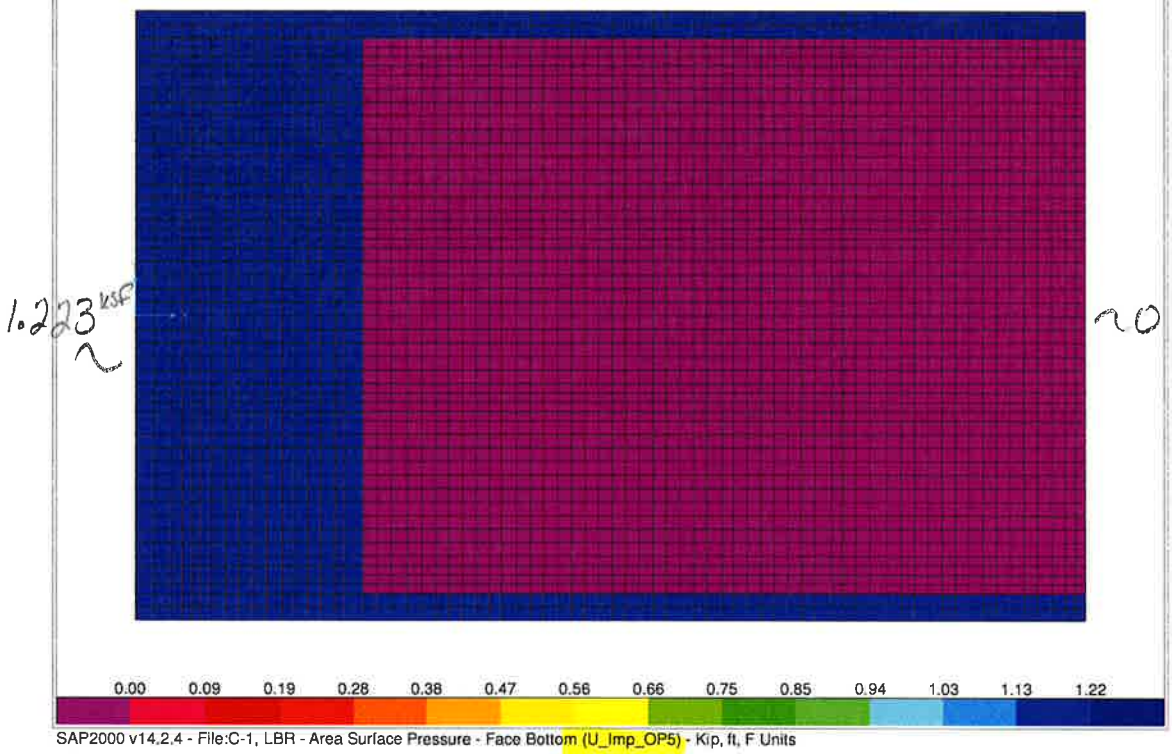
PERVIOUS UPLIFT, OP4:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP4) - Kip, ft, F Units

SAP2000 9/4/13 14:58:44

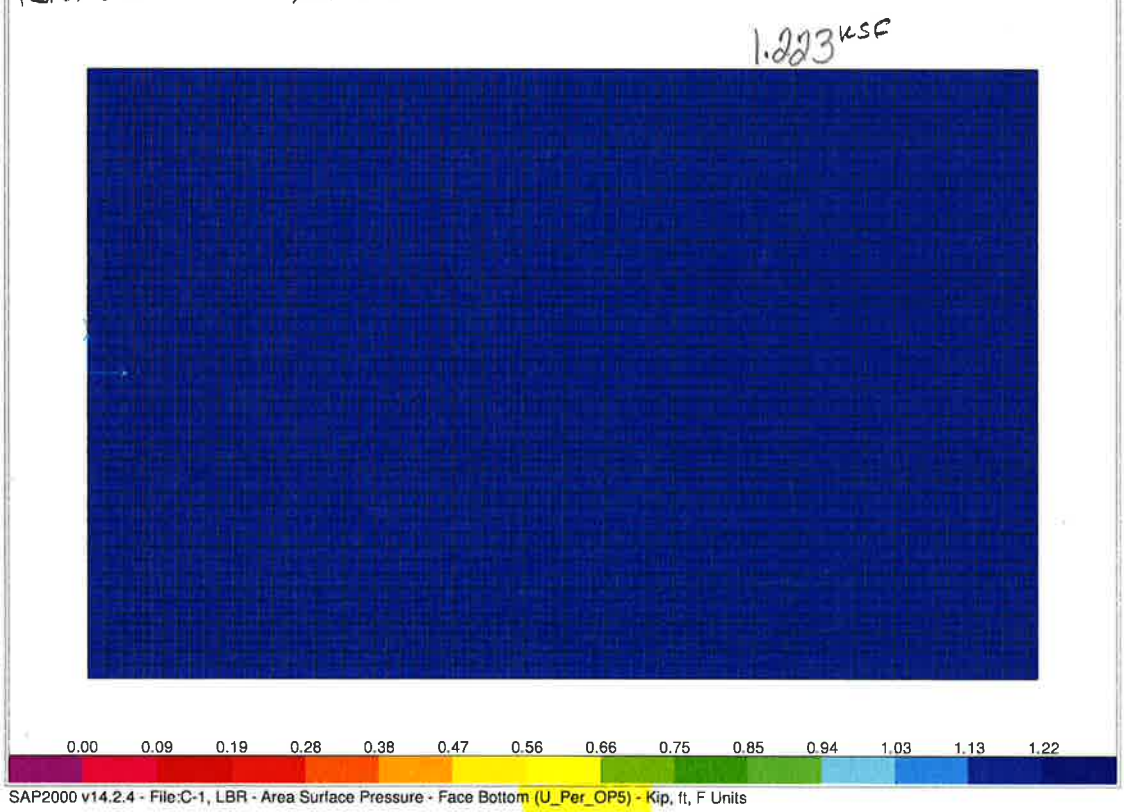
IMPERVIOUS UPLIFT, OP5:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP5) - Kip, ft, F Units

SAP2000 9/4/13 15:01:28

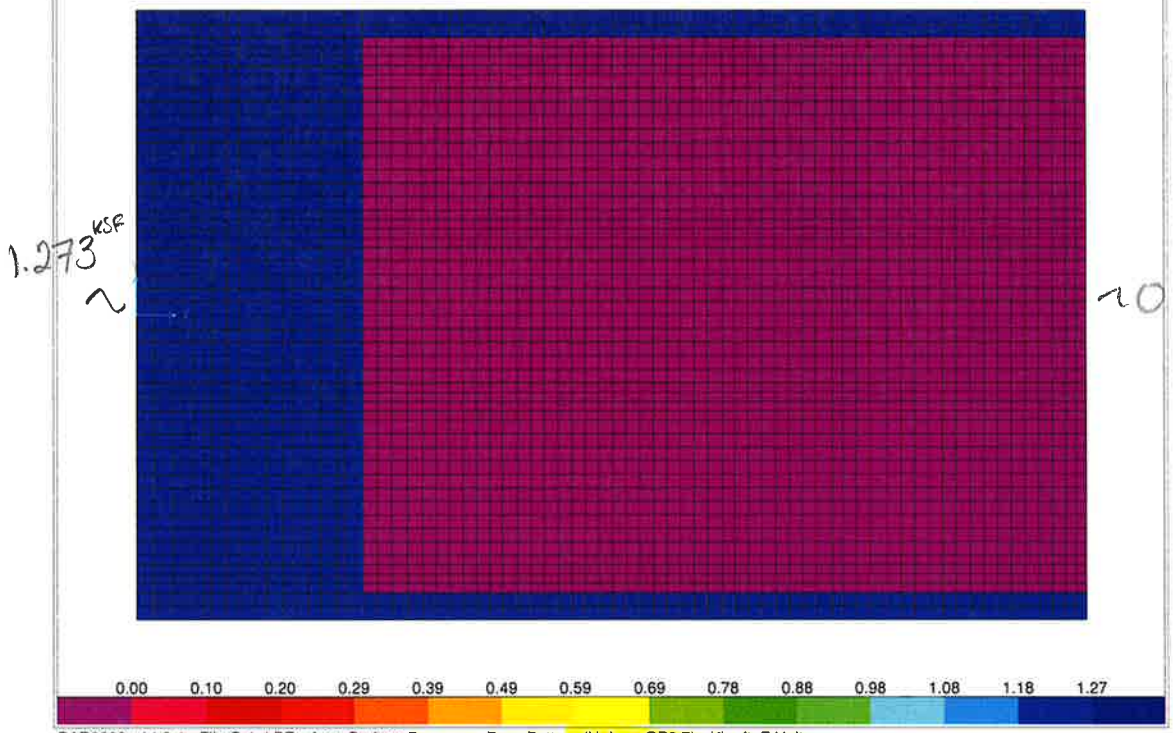
PERVIOUS UPLIFT, OP 5:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP5) - Kip, ft, F Units

SAP2000 9/4/13 14:59:08

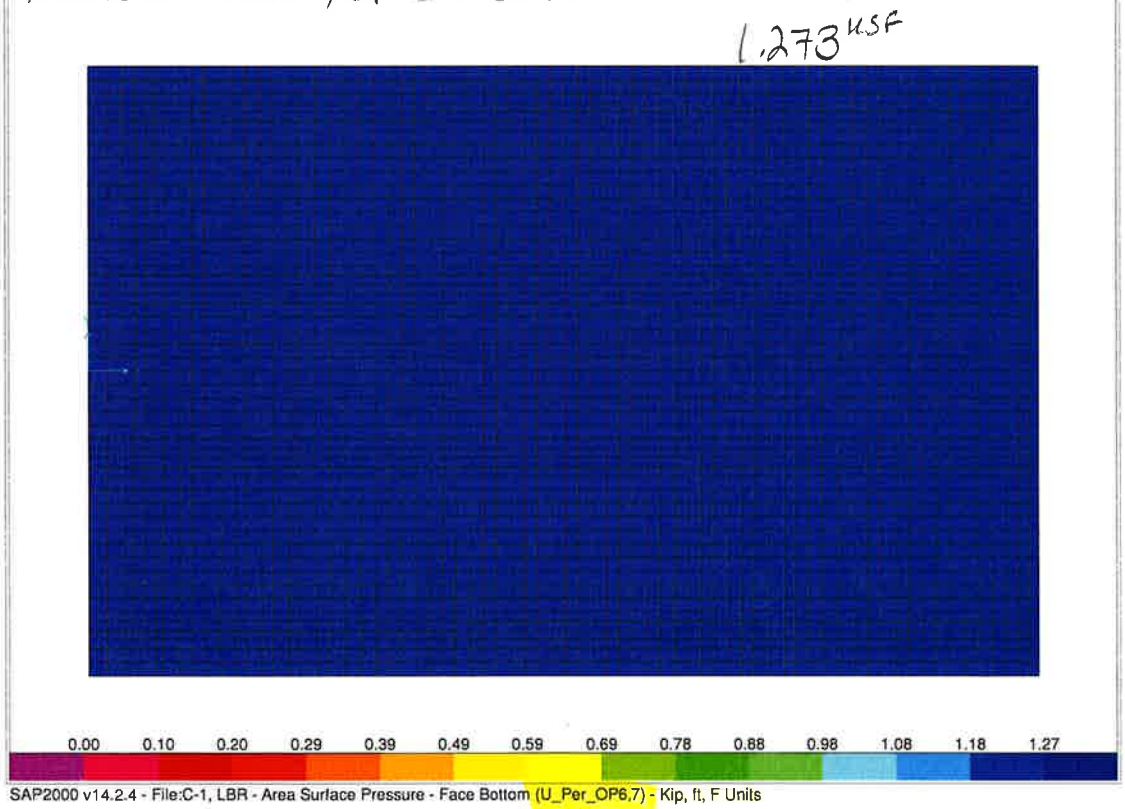
IMPERVIOUS UPLIFT, OP 6 & OP 7:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP6,7) - Kip, ft, F Units

SAP2000 9/4/13 15:01:46

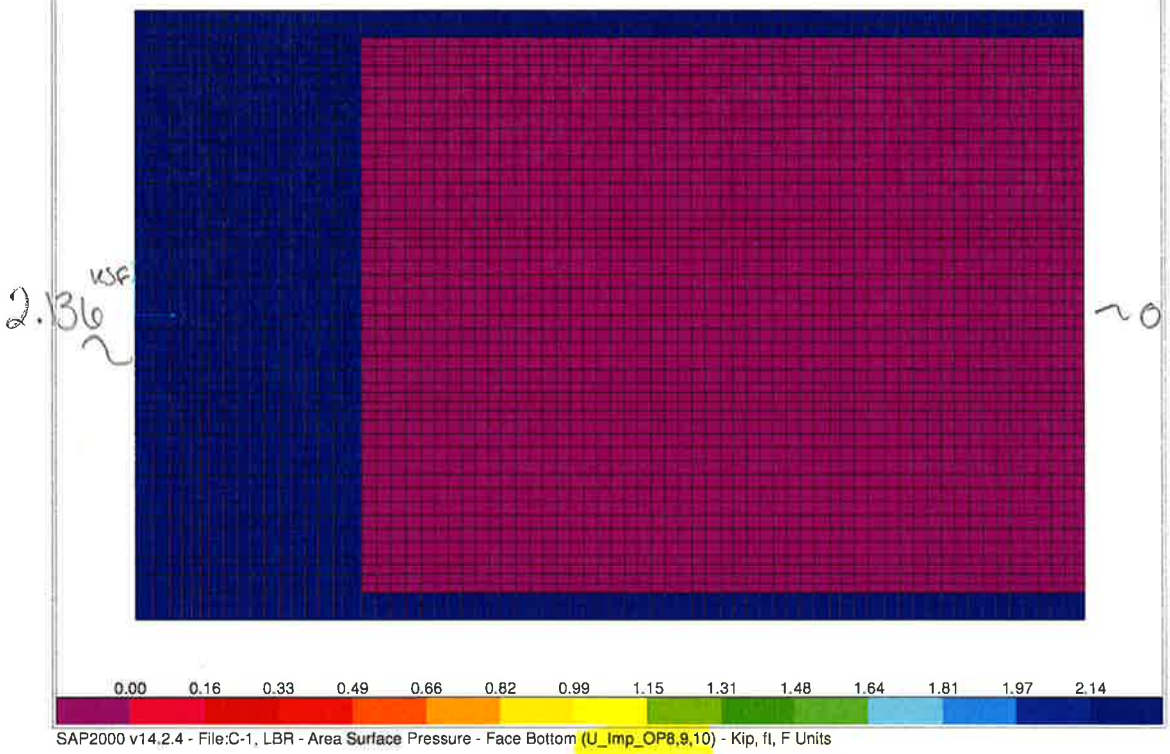
PERVIOUS UPLIFT, OP 6 & OP 7:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP6,7) - Kip, ft, F Units

SAP2000 9/4/13 14:59:25

IMPERVIOUS UPLIFT, OPS 8,9 & 10 & DEWATERING 1 & 2:



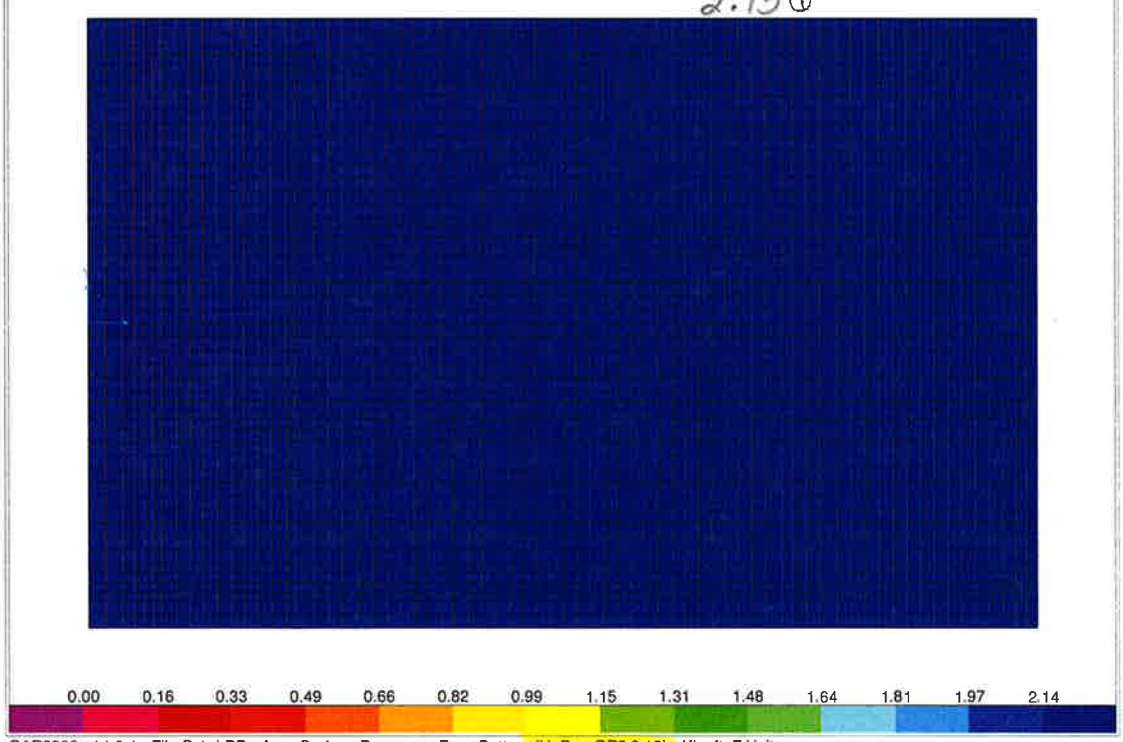
SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP8,9,10) - Kip, ft, F Units

+ Dewatering Cases

SAP2000 9/4/13 15:02:07

PERVIOUS UPLIFT, OPS 8,9 & 10 & DEWATERING 1 & 2:

2.136 ksf

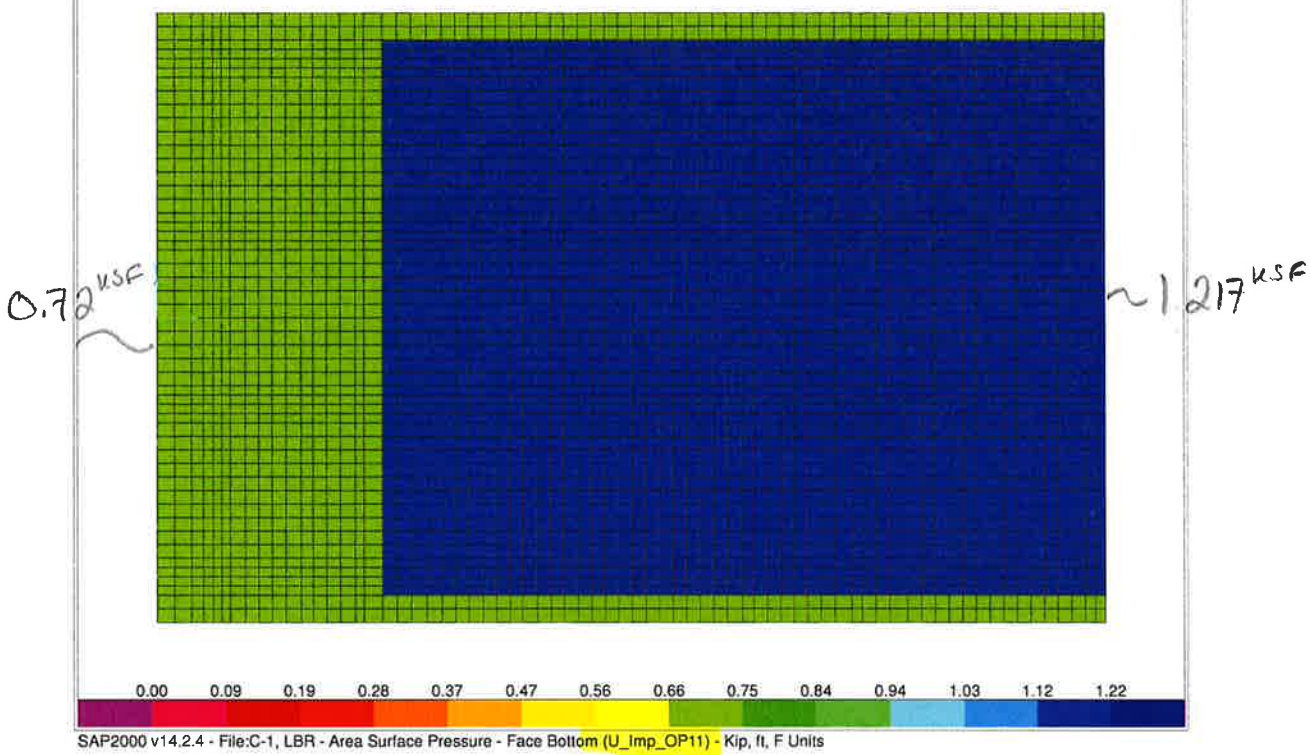


SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP8,9,10) - Kip, ft, F Units

+ Dewatering Cases

SAP2000 9/4/13 15:00:03

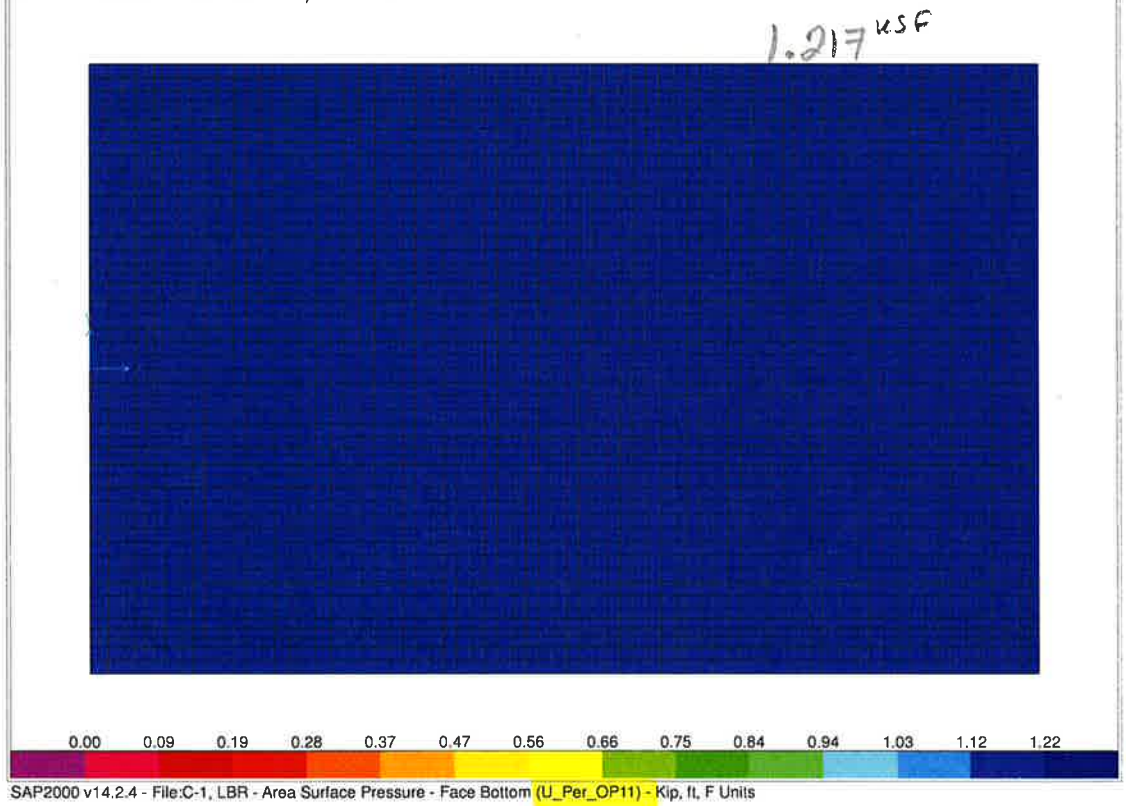
IMPERVIOUS UPLIFT, OP 11:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_OP11) - Kip, ft, F Units

SAP2000 9/4/13 15:02:39

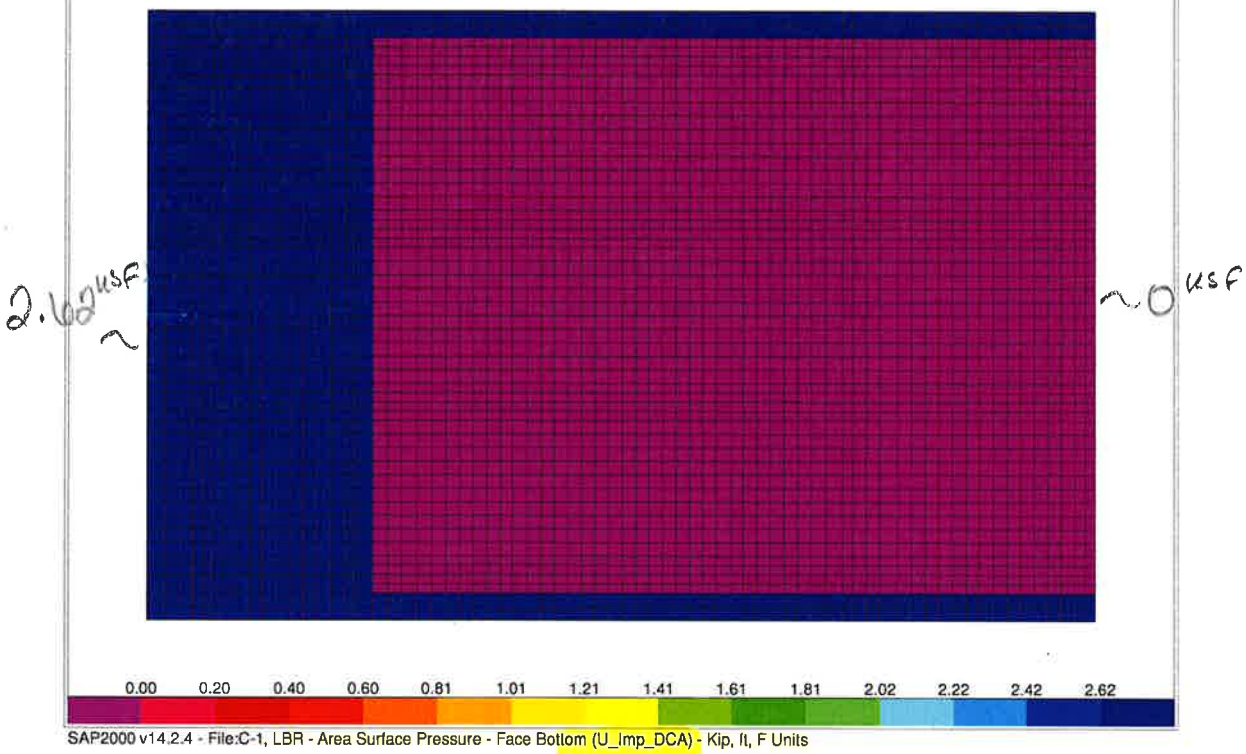
PERVIOUS UPLIFT, OP 11:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_OP11) - Kip, ft, F Units

SAP2000 9/4/13 15:36:10

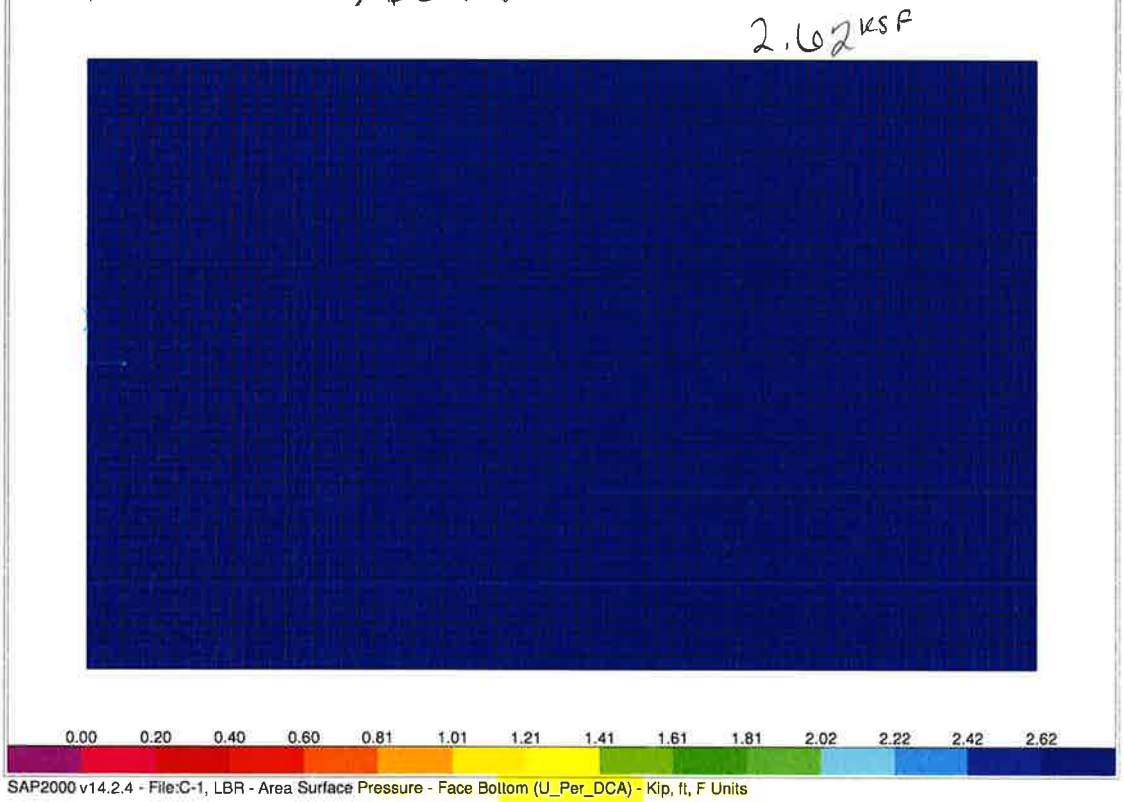
IMPERVIOUS UPLIFT, DCA:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Imp_DCA) - Kip, ft, F Units

SAP2000 9/4/13 15:06:44

PERVIOUS UPLIFT, DC A:



SAP2000 v14.2.4 - File:C-1, LBR - Area Surface Pressure - Face Bottom (U_Per_DCA) - Kip, ft, F Units

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Design Load Combinations	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Monolith C-1	**Checked By:**	BCB	**Date:**	Sep-13	**Sheet:**	of

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
1a	DEAD	1
	LS_const_TOC	1
	S_const_TOC	1
	D_equiproom	1
	L_equiproom	1
	D_gates	1
1b	DEAD	1
	LS_const_TOL	1
	S_TOL	1
	D_equiproom	1
	L_equiproom	1
	D_gates	1
	S_leveetop	1
1c	DEAD	1
	LS_const_UE	1
	S_const_UE	1
	D_equiproom	1
	L_equiproom	1
	D_gates	1
OP1a	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP1water	1
	U_Imp_OP1	1
OP1b	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP1water	1
	U_Per_OP1	1
OP2a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP2water	1
	U_Imp_OP2	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP2b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP2water	1
	U_Per_OP2	1
OP3a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP3water	1
	U_Imp_OP3	1
OP3b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP3water	1
	U_Per_OP3	1
OP4a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP4water	1
	U_Imp_OP4	1
OP4b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP4water	1
	U_Per_OP4	1
OP5a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP5water	1
	U_Imp_OP5	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP5b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP5water	1
	U_Per_OP5	1
OP6a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP6water	1
	U_Imp_OP6,7	1
OP6b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP6water	1
	U_Per_OP6,7	1
OP7a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP7water	1
	U_Imp_OP6,7	1
OP7b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP7water	1
	U_Per_OP6,7	1
OP8a	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_OP8water	1
	U_Imp_OP8,9,10	1

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Design Load Combinations	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Monolith C-1	**Checked By:**	BCB	**Date:**	Sep-13	**Sheet:**	of

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP8b	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_OP8water	1
	U_Per_OP8,9,10	1
OP9a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_OP9water	1
	U_Imp_OP8,9,10	1
OP9b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_OP9water	1
	U_Per_OP8,9,10	1
OP10a	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_OP10water	1
	U_Imp_OP8,9,10	1
OP10b	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_OP10water	1
	U_Per_OP8,9,10	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP11a	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP11water	1
	U_Imp_OP11	1
OP11b	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1
	L_OP11water	1
	U_Per_OP11	1
D1a	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_1-dewater	1
	U_Imp_OP8,9,10	1
D1b	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_1-dewater	1
	U_Per_OP8,9,10	1
D2a	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_2-dewater	1
	U_Imp_OP8,9,10	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
D2b	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1
	L_2-dewater	1
	U_Per_OP8,9,10	1
DC Aa	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_satFS_leveetop	1
	S_TOL	1.053
	L_DCAwater	1
	U_Imp_DCA	1
DC Ab	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_satFS_leveetop	1
	S_TOL	1.053
	L_DCAwater	1
	U_Per_DCA	1

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Design Load Combinations	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Monolith C-1	**Checked By:**	BCB	**Date:**	Sep-13	**Sheet:**	of

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
1a-ST	DEAD	1
	LS_const_TOC	1
	S_const_TOC	1
	D_equiproom	1
	L_equiproom	1
	D_gates	1
	ST_TOC clay	1
1b-ST	DEAD	1
	LS_const_TOL	1
	S_TOL	1
	D_equiproom	1
	L_equiproom	1
	D_gates	1
	S_leveetop	1.6
	ST_TOL clay	1
1c-ST	DEAD	1
	LS_const_UE	1
	S_const_UE	1
	D_equiproom	1
	L_equiproom	1
	D_gates	1
	ST_UE const	1
OP1a-ST	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP1water	1
	U_Imp_OP1	1
	ST_TOL clay	1
OP1b-ST	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP1water	1
	U_Per_OP1	1
	ST_TOL clay	1
OP2a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP2water	1
	U_Imp_OP2	1
	ST_TOL clay	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP2b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP2water	1
	U_Per_OP2	1
	ST_TOL clay	1
OP3a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP3water	1
	U_Imp_OP3	1
	ST_TOL clay	1
OP3b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP3water	1
	U_Per_OP3	1
	ST_TOL clay	1
OP4a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP4water	1
	U_Imp_OP4	1
	ST_TOL clay	1
OP4b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP4water	1
	U_Per_OP4	1
	ST_TOL clay	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP5a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP5water	1
	U_Imp_OP5	1
	ST_TOL clay	1
OP5b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP5water	1
	U_Per_OP5	1
	ST_TOL clay	1
OP6a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP6water	1
	U_Imp_OP6,7	1
	ST_TOL clay	1
OP6b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP6water	1
	U_Per_OP6,7	1
	ST_TOL clay	1
OP7a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP7water	1
	U_Imp_OP6,7	1
	ST_TOL clay	1

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Design Load Combinations	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Monolith C-1	**Checked By:**	BCB	**Date:**	Sep-13	**Sheet:**	of

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP7b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP7water	1
	U_Per_OP6,7	1
	ST_TOL clay	1
OP8a-ST	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_OP8water	1
	U_Imp_OP8,9,10	1
	ST_TOL clay	1
OP8b-ST	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_OP8water	1
	U_Per_OP8,9,10	1
	ST_TOL clay	1
OP9a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_OP9water	1
	U_Imp_OP8,9,10	1
	ST_TOL clay	1
OP9b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_OP9water	1
	U_Per_OP8,9,10	1
	ST_TOL clay	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
OP10a-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_OP10water	1
	U_Imp_OP8,9,10	1
	ST_TOL clay	1
OP10b-ST	DEAD	1
	D_equiproom	1
	L_gates	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_OP10water	1
	U_Per_OP8,9,10	1
	ST_TOL clay	1
OP11a-ST	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP11water	1
	U_Imp_OP11	1
	ST_TOL clay	1
OP11b-ST	DEAD	1
	D_equiproom	1
	D_gates	1
	L_equiproom	1
	S_TOL	1
	S_leveetop	1.6
	L_OP11water	1
	U_Per_OP11	1
	ST_TOL clay	1
D1a-ST	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_1-dewater	1
	U_Imp_OP8,9,10	1
	ST_TOL clay	1

TABLE: Case Load Assignments

Case	LoadName	LoadSF
Text	Text	Unitless
D1b-ST	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_1-dewater	1
	U_Per_OP8,9,10	1
	ST_TOL clay	1
D2a-ST	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_2-dewater	1
	U_Imp_OP8,9,10	1
	ST_TOL clay	1
D2b-ST	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_TOL	1.053
	S_leveetop	1.6
	L_2-dewater	1
	U_Per_OP8,9,10	1
	ST_TOL clay	1
DC Aa-ST	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_satFS_leveetop	1.6
	S_TOL	1.053
	L_DCAwater	1
	U_Imp_DCA	1
	ST_TOL clay	1
DC Ab-ST	DEAD	1
	D_gates	1
	D_equiproom	1
	L_equiproom	1
	S_satFS_leveetop	1.6
	S_TOL	1.053
	L_DCAwater	1
	U_Per_DCA	1
	ST_TOL clay	1

TABLE: Combination Definitions

ComboName	ComboType	CaseName	ScaleFactor
Text	Text	Text	Unitless
combo_OP	Envelope	OP1a	2.21
		OP1b	2.21
		OP2a	2.21
		OP2b	2.21
		OP3a	2.21
		OP3b	2.21
		OP4a	2.21
		OP4b	2.21
		OP5a	2.21
		OP5b	2.21
		OP6a	2.21
		OP6b	2.21
		OP7a	2.21
		OP7b	2.21
		OP8a	2.21
		OP8b	2.21
		OP9a	2.21
		OP9b	2.21
		OP10a	2.21
		OP10b	2.21
		OP11a	2.21
		OP11b	2.21
combo_OScases	Envelope	1a	1.8943
		1b	1.8943
		1c	1.8943
		D1a	1.6575
		D1b	1.6575
		D2a	1.6575
		D2b	1.6575
		DC Aa	1.6575
		DC Ab	1.6575

TABLE: Combination Definitions

ComboName	ComboType	CaseName	ScaleFactor
Text	Text	Text	Unitless
combo_OP-ST	Envelope	OP1a-ST	2.21
		OP1b-ST	2.21
		OP2a-ST	2.21
		OP2b-ST	2.21
		OP3a-ST	2.21
		OP3b-ST	2.21
		OP4a-ST	2.21
		OP4b-ST	2.21
		OP5a-ST	2.21
		OP5b-ST	2.21
		OP6a-ST	2.21
		OP6b-ST	2.21
		OP7a-ST	2.21
		OP7b-ST	2.21
		OP8a-ST	2.21
		OP8b-ST	2.21
		OP9a-ST	2.21
		OP9b-ST	2.21
		OP10a-ST	2.21
		OP10b-ST	2.21
		OP11a-ST	2.21
		OP11b-ST	2.21
combo_OScases-ST	Envelope	1a-ST	1.8943
		1b-ST	1.8943
		1c-ST	1.8943
		D1a-ST	1.6575
		D1b-ST	1.6575
		D2a-ST	1.6575
		D2b-ST	1.6575
		DC Aa-ST	1.6575
		DC Ab-ST	1.6575

PART 3

Pile Foundation Results (Part 1 of 2)

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

Numerous runs of the SAP model are performed to determine which pile type & combinations of batters should be used. After this initial foundation design the springs are calibrated. Below are results using springs calculated for monolith C-2 (vert. = 1216.1k/in, horiz. = 93.4k/in)

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	-2.60	-0.19	146.91
P2	1a	-4.39	-0.12	135.78 *
P3	1a	-4.43	-0.06	139.85 *
P4	1a	-2.59	-0.02	144.67
P5	1a	-4.46	0.03	141.78 *
P6	1a	-4.45	0.09	139.53 *
P7	1a	-2.62	0.16	152.92
P8	1a	-2.60	-0.18	138.76
P9	1a	-4.30	-0.11	128.22 *
P10	1a	-4.33	-0.06	131.88 *
P11	1a	-2.60	-0.01	137.15
P12	1a	-4.36	0.03	133.81 *
P13	1a	-4.36	0.09	131.98 *
P14	1a	-2.62	0.16	144.77
P15	1a	-2.60	-0.18	130.60
P16	1a	-2.60	-0.11	127.60
P17	1a	-2.61	-0.05	131.26
P18	1a	-2.60	-0.01	129.30
P19	1a	-2.61	0.04	133.24
P20	1a	-2.61	0.09	131.45
P21	1a	-2.62	0.16	136.62
P22	1a	-2.60	-0.17	122.45
P23	1a	-2.60	-0.10	119.66
P24	1a	-2.61	-0.05	123.17
P25	1a	-2.60	0.00	121.39
P26	1a	-2.61	0.04	125.15
P27	1a	-2.61	0.09	123.51
P28	1a	-2.62	0.17	128.47
P29	1a	-2.60	-0.17	114.29
P30	1a	-2.60	-0.10	111.74
P31	1a	-2.61	-0.05	115.08
P32	1a	-2.60	0.00	113.50
P33	1a	-2.61	0.04	117.06
P34	1a	-2.61	0.10	115.59
P35	1a	-2.62	0.17	120.32
P36	1a	-2.60	-0.16	106.13
P37	1a	-2.60	-0.09	103.82
P38	1a	-2.61	-0.04	106.99
P39	1a	-2.60	0.00	105.61
P40	1a	-2.61	0.05	108.98
P41	1a	-2.61	0.10	107.68
P42	1a	-2.62	0.17	112.17
P43	1a	-2.60	-0.16	97.98
P44	1a	-2.60	-0.09	95.89
P45	1a	-2.61	-0.04	98.90
P46	1a	-2.61	0.01	97.72
P47	1a	-2.61	0.05	100.89
P48	1a	-2.61	0.10	99.76
P49	1a	-2.62	0.18	104.02
P50	1a	-2.60	-0.16	89.82
P51	1a	-2.60	-0.08	87.96
P52	1a	-2.61	-0.03	90.80
P53	1a	-2.61	0.01	89.82
P54	1a	-2.61	0.06	92.80
P55	1a	-2.61	0.10	91.83
P56	1a	-2.62	0.18	95.87
P57	1a	-2.60	-0.15	81.66
P58	1a	-2.61	-0.07	79.80
P59	1a	-2.61	-0.03	82.71
P60	1a	-2.62	0.02	81.70
P61	1a	-2.61	0.06	84.70
P62	1a	-2.62	0.11	83.67
P63	1a	-2.62	0.18	87.71

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	12.62	-0.15	217.28
P2	1b	9.64	0.00	231.80 *
P3	1b	9.48	0.14	235.43 *
P4	1b	12.20	0.27	205.22
P5	1b	9.22	0.40	232.81 *
P6	1b	9.12	0.54	226.68 *
P7	1b	11.75	0.68	210.87
P8	1b	12.62	0.03	221.17
P9	1b	9.57	0.18	236.04 *
P10	1b	9.43	0.32	239.36 *
P11	1b	12.17	0.45	209.62
P12	1b	9.17	0.59	236.74 *
P13	1b	9.05	0.73	230.92 *
P14	1b	11.75	0.87	214.78
P15	1b	12.62	0.21	225.06
P16	1b	12.46	0.36	216.66
P17	1b	12.33	0.51	219.90
P18	1b	12.17	0.64	213.56
P19	1b	12.04	0.77	217.88
P20	1b	11.88	0.91	212.72
P21	1b	11.75	1.05	218.70
P22	1b	12.62	0.39	228.95
P23	1b	12.46	0.55	220.51
P24	1b	12.33	0.69	223.88
P25	1b	12.17	0.82	217.42
P26	1b	12.04	0.95	221.86
P27	1b	11.88	1.09	216.58
P28	1b	11.75	1.24	222.61
P29	1b	12.62	0.58	232.84
P30	1b	12.46	0.73	224.35
P31	1b	12.33	0.87	227.86
P32	1b	12.17	1.01	221.30
P33	1b	12.04	1.14	225.84
P34	1b	11.88	1.28	220.43
P35	1b	11.75	1.42	226.52
P36	1b	12.62	0.76	236.72
P37	1b	12.46	0.92	228.18
P38	1b	12.33	1.06	231.83
P39	1b	12.17	1.19	225.18
P40	1b	12.04	1.32	229.82
P41	1b	11.88	1.46	224.28
P42	1b	11.75	1.61	230.43
P43	1b	12.62	0.94	240.60
P44	1b	12.46	1.10	232.01
P45	1b	12.33	1.24	235.80
P46	1b	12.16	1.37	229.06
P47	1b	12.04	1.51	233.79
P48	1b	11.88	1.64	228.13
P49	1b	11.75	1.79	234.34
P50	1b	12.62	1.12	244.48
P51	1b	12.45	1.28	235.81
P52	1b	12.33	1.42	239.77
P53	1b	12.16	1.56	232.90
P54	1b	12.04	1.69	237.76
P55	1b	11.87	1.83	231.94
P56	1b	11.75	1.98	238.25
P57	1b	12.62	1.30	248.36
P58	1b	12.41	1.47	238.96
P59	1b	12.33	1.61	243.74
P60	1b	12.12	1.74	236.10
P61	1b	12.04	1.88	241.73
P62	1b	11.83	2.01	235.11
P63	1b	11.75	2.17	242.15

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1c	-2.59	9.51	151.52
P2	1c	-4.40	9.59	137.94 *
P3	1c	-4.42	9.64	140.47 *
P4	1c	-2.56	9.67	143.47
P5	1c	-4.39	9.71	138.76 *
P6	1c	-4.35	9.76	134.81 *
P7	1c	-2.58	9.81	145.61
P8	1c	-2.59	9.51	143.37
P9	1c	-4.31	9.59	130.39 *
P10	1c	-4.32	9.64	132.50 *
P11	1c	-2.58	9.67	135.95
P12	1c	-4.29	9.71	130.78 *
P13	1c	-4.26	9.76	127.26 *
P14	1c	-2.58	9.81	137.47
P15	1c	-2.59	9.50	135.22
P16	1c	-2.59	9.59	129.78
P17	1c	-2.59	9.63	131.85
P18	1c	-2.58	9.67	128.10
P19	1c	-2.58	9.71	130.11
P20	1c	-2.58	9.75	126.59
P21	1c	-2.58	9.81	129.33
P22	1c	-2.59	9.50	127.08
P23	1c	-2.59	9.59	121.85
P24	1c	-2.59	9.63	123.77
P25	1c	-2.58	9.67	120.19
P26	1c	-2.58	9.70	122.02
P27	1c	-2.58	9.75	118.66
P28	1c	-2.58	9.81	121.18
P29	1c	-2.59	9.50	118.93
P30	1c	-2.58	9.59	113.93
P31	1c	-2.59	9.63	115.68
P32	1c	-2.58	9.66	112.31
P33	1c	-2.58	9.70	113.93
P34	1c	-2.58	9.75	110.74
P35	1c	-2.58	9.80	113.04
P36	1c	-2.59	9.50	110.78
P37	1c	-2.58	9.58	106.01
P38	1c	-2.59	9.63	107.59
P39	1c	-2.58	9.66	104.42
P40	1c	-2.58	9.70	105.84
P41	1c	-2.58	9.74	102.83
P42	1c	-2.58	9.80	104.89
P43	1c	-2.59	9.50	102.63
P44	1c	-2.59	9.58	98.10
P45	1c	-2.59	9.62	99.51
P46	1c	-2.58	9.66	96.53
P47	1c	-2.58	9.70	97.75
P48	1c	-2.58	9.74	94.91
P49	1c	-2.58	9.80	96.75
P50	1c	-2.59	9.49	94.47
P51	1c	-2.59	9.58	90.17
P52	1c	-2.59	9.62	91.42
P53	1c	-2.58	9.66	88.63
P54	1c	-2.58	9.69	89.66
P55	1c	-2.58	9.74	86.98
P56	1c	-2.58	9.80	88.60
P57	1c	-2.59	9.49	86.32
P58	1c	-2.60	9.58	82.01
P59	1c	-2.59	9.62	83.33
P60	1c	-2.59	9.65	80.52
P61	1c	-2.58	9.69	81.57
P62	1c	-2.59	9.73	78.84
P63	1c	-2.58	9.79	80.46

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1a	12.23	-0.38	204.71
P2	OP1a	9.54	-0.25	220.59 *
P3	OP1a	9.51	-0.12	225.55 *
P4	OP1a	12.24	0.00	196.64
P5	OP1a	9.51	0.12	225.71 *
P6	OP1a	9.53	0.25	220.87 *
P7	OP1a	12.23	0.37	205.09
P8	OP1a	12.23	-0.38	210.32
P9	OP1a	9.45	-0.25	226.52 *
P10	OP1a	9.44	-0.12	231.19 *
P11	OP1a	12.22	0.00	202.73
P12	OP1a	9.44	0.12	231.35 *
P13	OP1a	9.44	0.25	226.81 *
P14	OP1a	12.23	0.38	210.72
P15	OP1a	12.23	-0.38	215.92
P16	OP1a	12.22	-0.25	209.52
P17	OP1a	12.23	-0.12	213.55
P18	OP1a	12.22	0.00	208.68
P19	OP1a	12.23	0.12	213.72
P20	OP1a	12.22	0.25	209.84
P21	OP1a	12.23	0.38	216.35
P22	OP1a	12.23	-0.38	221.52
P23	OP1a	12.21	-0.25	215.18
P24	OP1a	12.23	-0.12	219.26
P25	OP1a	12.21	0.00	214.35
P26	OP1a	12.23	0.12	219.43
P27	OP1a	12.21	0.25	215.51
P28	OP1a	12.23	0.38	221.97
P29	OP1a	12.23	-0.38	227.12
P30	OP1a	12.21	-0.25	220.70
P31	OP1a	12.23	-0.12	224.96
P32	OP1a	12.21	0.00	219.92
P33	OP1a	12.23	0.12	225.14
P34	OP1a	12.21	0.25	221.04
P35	OP1a	12.23	0.38	227.59
P36	OP1a	12.23	-0.38	232.72
P37	OP1a	12.21	-0.24	226.20
P38	OP1a	12.23	-0.12	230.66
P39	OP1a	12.21	0.00	225.48
P40	OP1a	12.23	0.12	230.84
P41	OP1a	12.21	0.24	226.56
P42	OP1a	12.23	0.38	233.21
P43	OP1a	12.23	-0.38	238.31
P44	OP1a	12.21	-0.24	231.71
P45	OP1a	12.23	-0.12	236.35
P46	OP1a	12.21	0.00	231.04
P47	OP1a	12.23	0.12	236.54
P48	OP1a	12.21	0.24	232.08
P49	OP1a	12.23	0.38	238.83
P50	OP1a	12.23	-0.38	243.90
P51	OP1a	12.21	-0.24	237.18
P52	OP1a	12.23	-0.12	242.04
P53	OP1a	12.21	0.00	236.56
P54	OP1a	12.23	0.12	242.23
P55	OP1a	12.21	0.24	237.57
P56	OP1a	12.23	0.38	244.44
P57	OP1a	12.23	-0.38	249.48
P58	OP1a	12.17	-0.24	242.00
P59	OP1a	12.23	-0.12	247.73
P60	OP1a	12.17	0.00	241.43
P61	OP1a	12.23	0.12	247.92
P62	OP1a	12.17	0.24	242.40
P63	OP1a	12.23	0.38	250.06

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1b	12.45	-0.38	194.85
P2	OP1b	9.87	-0.25	211.45 *
P3	OP1b	9.85	-0.12	216.18 *
P4	OP1b	12.45	0.00	186.95
P5	OP1b	9.84	0.12	216.33 *
P6	OP1b	9.87	0.25	211.73 *
P7	OP1b	12.45	0.38	195.23
P8	OP1b	12.45	-0.38	196.66
P9	OP1b	9.83	-0.25	213.66 *
P10	OP1b	9.82	-0.12	218.06 *
P11	OP1b	12.43	0.00	189.27
P12	OP1b	9.82	0.12	218.22 *
P13	OP1b	9.82	0.25	213.96 *
P14	OP1b	12.45	0.38	197.06
P15	OP1b	12.45	-0.39	198.48
P16	OP1b	12.43	-0.25	192.01
P17	OP1b	12.44	-0.12	195.98
P18	OP1b	12.43	0.00	191.19
P19	OP1b	12.44	0.12	196.14
P20	OP1b	12.43	0.25	192.33
P21	OP1b	12.45	0.38	198.90
P22	OP1b	12.45	-0.39	200.29
P23	OP1b	12.43	-0.25	193.84
P24	OP1b	12.44	-0.12	197.88
P25	OP1b	12.43	0.00	193.02
P26	OP1b	12.44	0.12	198.05
P27	OP1b	12.43	0.25	194.17
P28	OP1b	12.45	0.38	200.74
P29	OP1b	12.45	-0.39	202.10
P30	OP1b	12.43	-0.25	195.65
P31	OP1b	12.44	-0.12	199.78
P32	OP1b	12.43	0.00	194.88
P33	OP1b	12.44	0.12	199.96
P34	OP1b	12.43	0.25	195.99
P35	OP1b	12.45	0.38	202.57
P36	OP1b	12.45	-0.39	203.91
P37	OP1b	12.43	-0.25	197.46
P38	OP1b	12.44	-0.12	201.68
P39	OP1b	12.43	0.00	196.73
P40	OP1b	12.44	0.12	201.86
P41	OP1b	12.43	0.25	197.82
P42	OP1b	12.45	0.38	204.40
P43	OP1b	12.45	-0.39	205.71
P44	OP1b	12.43	-0.24	199.27
P45	OP1b	12.44	-0.12	203.57
P46	OP1b	12.42	0.00	198.58
P47	OP1b	12.44	0.12	203.76
P48	OP1b	12.43	0.25	199.64
P49	OP1b	12.45	0.39	206.23
P50	OP1b	12.45	-0.39	207.52
P51	OP1b	12.42	-0.24	201.04
P52	OP1b	12.44	-0.12	205.46
P53	OP1b	12.42	0.00	200.40
P54	OP1b	12.44	0.12	205.65
P55	OP1b	12.42	0.25	201.43
P56	OP1b	12.45	0.39	208.06
P57	OP1b	12.45	-0.39	209.32
P58	OP1b	12.39	-0.24	202.27
P59	OP1b	12.44	-0.12	207.35
P60	OP1b	12.39	0.00	201.67
P61	OP1b	12.44	0.12	207.55
P62	OP1b	12.39	0.24	202.66
P63	OP1b	12.45	0.39	209.89

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2a	10.01	-0.37	212.44
P2	OP2a	7.25	-0.25	223.38 *
P3	OP2a	7.22	-0.12	228.44 *
P4	OP2a	10.02	0.00	204.17
P5	OP2a	7.22	0.12	228.60 *
P6	OP2a	7.25	0.25	223.66 *
P7	OP2a	10.01	0.37	212.81
P8	OP2a	10.01	-0.37	217.10
P9	OP2a	7.17	-0.25	228.42 *
P10	OP2a	7.16	-0.12	233.16 *
P11	OP2a	10.00	0.00	209.39
P12	OP2a	7.16	0.12	233.32 *
P13	OP2a	7.17	0.25	228.71 *
P14	OP2a	10.01	0.37	217.50
P15	OP2a	10.01	-0.37	221.76
P16	OP2a	10.00	-0.24	215.33
P17	OP2a	10.01	-0.12	219.44
P18	OP2a	10.00	0.00	214.51
P19	OP2a	10.01	0.12	219.61
P20	OP2a	10.00	0.24	215.64
P21	OP2a	10.01	0.37	222.19
P22	OP2a	10.01	-0.37	226.42
P23	OP2a	10.00	-0.24	220.09
P24	OP2a	10.01	-0.12	224.21
P25	OP2a	9.99	0.00	219.30
P26	OP2a	10.01	0.12	224.38
P27	OP2a	10.00	0.24	220.42
P28	OP2a	10.01	0.37	226.87
P29	OP2a	10.01	-0.37	231.08
P30	OP2a	10.00	-0.24	224.70
P31	OP2a	10.01	-0.12	228.98
P32	OP2a	9.99	0.00	223.96
P33	OP2a	10.01	0.12	229.16
P34	OP2a	10.00	0.24	225.04
P35	OP2a	10.01	0.37	231.55
P36	OP2a	10.01	-0.37	235.73
P37	OP2a	10.00	-0.24	229.29
P38	OP2a	10.01	-0.12	233.74
P39	OP2a	9.99	0.00	228.61
P40	OP2a	10.01	0.12	233.92
P41	OP2a	10.00	0.24	229.65
P42	OP2a	10.01	0.37	236.23
P43	OP2a	10.01	-0.37	240.38
P44	OP2a	10.00	-0.24	233.88
P45	OP2a	10.01	-0.12	238.50
P46	OP2a	9.99	0.00	233.25
P47	OP2a	10.01	0.12	238.69
P48	OP2a	10.00	0.24	234.25
P49	OP2a	10.01	0.37	240.90
P50	OP2a	10.01	-0.37	245.03
P51	OP2a	9.99	-0.23	238.44
P52	OP2a	10.01	-0.12	243.25
P53	OP2a	9.99	0.00	237.86
P54	OP2a	10.01	0.12	243.44
P55	OP2a	9.99	0.24	238.82
P56	OP2a	10.01	0.37	245.58
P57	OP2a	10.01	-0.37	249.68
P58	OP2a	9.96	-0.23	242.34
P59	OP2a	10.01	-0.12	248.01
P60	OP2a	9.95	0.00	241.82
P61	OP2a	10.01	0.12	248.20
P62	OP2a	9.96	0.23	242.74
P63	OP2a	10.01	0.37	250.25

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2b	10.28	-0.38	200.17
P2	OP2b	7.67	-0.25	212.02 *
P3	OP2b	7.64	-0.12	216.80 *
P4	OP2b	10.28	0.00	192.14
P5	OP2b	7.64	0.12	216.95 *
P6	OP2b	7.66	0.25	212.30 *
P7	OP2b	10.28	0.38	200.55
P8	OP2b	10.28	-0.38	200.12
P9	OP2b	7.65	-0.25	212.44 *
P10	OP2b	7.64	-0.12	216.85 *
P11	OP2b	10.26	0.00	192.66
P12	OP2b	7.64	0.12	217.01 *
P13	OP2b	7.64	0.25	212.73 *
P14	OP2b	10.28	0.38	200.52
P15	OP2b	10.28	-0.38	200.08
P16	OP2b	10.26	-0.25	193.56
P17	OP2b	10.27	-0.12	197.59
P18	OP2b	10.26	0.00	192.76
P19	OP2b	10.27	0.12	197.76
P20	OP2b	10.26	0.25	193.88
P21	OP2b	10.28	0.38	200.50
P22	OP2b	10.28	-0.38	200.03
P23	OP2b	10.26	-0.24	193.57
P24	OP2b	10.27	-0.12	197.64
P25	OP2b	10.26	0.00	192.78
P26	OP2b	10.27	0.12	197.81
P27	OP2b	10.26	0.24	193.90
P28	OP2b	10.28	0.38	200.47
P29	OP2b	10.28	-0.38	199.97
P30	OP2b	10.26	-0.24	193.56
P31	OP2b	10.27	-0.12	197.68
P32	OP2b	10.26	0.00	192.83
P33	OP2b	10.27	0.12	197.86
P34	OP2b	10.26	0.24	193.91
P35	OP2b	10.28	0.38	200.45
P36	OP2b	10.28	-0.38	199.92
P37	OP2b	10.26	-0.24	193.56
P38	OP2b	10.27	-0.12	197.72
P39	OP2b	10.26	0.00	192.87
P40	OP2b	10.27	0.12	197.90
P41	OP2b	10.26	0.24	193.92
P42	OP2b	10.28	0.38	200.42
P43	OP2b	10.28	-0.38	199.86
P44	OP2b	10.26	-0.24	193.55
P45	OP2b	10.27	-0.12	197.75
P46	OP2b	10.26	0.00	192.91
P47	OP2b	10.27	0.12	197.94
P48	OP2b	10.26	0.24	193.92
P49	OP2b	10.28	0.38	200.39
P50	OP2b	10.28	-0.38	199.81
P51	OP2b	10.26	-0.24	193.51
P52	OP2b	10.27	-0.12	197.78
P53	OP2b	10.25	0.00	192.91
P54	OP2b	10.27	0.12	197.97
P55	OP2b	10.26	0.24	193.90
P56	OP2b	10.28	0.38	200.35
P57	OP2b	10.28	-0.38	199.75
P58	OP2b	10.23	-0.23	192.95
P59	OP2b	10.27	-0.12	197.82
P60	OP2b	10.22	0.00	192.40
P61	OP2b	10.27	0.12	198.01
P62	OP2b	10.23	0.24	193.35
P63	OP2b	10.28	0.38	200.32

* Denotes Pile Battered @ 6V:1H in -X Direction (towards the river)

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3a	9.50	-0.37	211.54
P2	OP3a	6.75	-0.25	221.49 *
P3	OP3a	6.72	-0.12	226.51 *
P4	OP3a	9.50	0.00	203.36
P5	OP3a	6.72	0.12	226.67 *
P6	OP3a	6.75	0.25	221.77 *
P7	OP3a	9.50	0.37	211.92
P8	OP3a	9.50	-0.37	216.32
P9	OP3a	6.67	-0.25	226.63 *
P10	OP3a	6.66	-0.12	231.33 *
P11	OP3a	9.48	0.00	208.68
P12	OP3a	6.66	0.12	231.49 *
P13	OP3a	6.67	0.24	226.92 *
P14	OP3a	9.50	0.37	216.72
P15	OP3a	9.50	-0.37	221.09
P16	OP3a	9.48	-0.24	214.74
P17	OP3a	9.49	-0.12	218.81
P18	OP3a	9.48	0.00	213.92
P19	OP3a	9.49	0.12	218.98
P20	OP3a	9.48	0.24	215.05
P21	OP3a	9.50	0.37	221.51
P22	OP3a	9.50	-0.37	225.86
P23	OP3a	9.48	-0.24	219.62
P24	OP3a	9.49	-0.12	223.70
P25	OP3a	9.48	0.00	218.83
P26	OP3a	9.49	0.12	223.87
P27	OP3a	9.48	0.24	219.95
P28	OP3a	9.50	0.37	226.31
P29	OP3a	9.50	-0.37	230.62
P30	OP3a	9.48	-0.24	224.33
P31	OP3a	9.49	-0.12	228.58
P32	OP3a	9.48	0.00	223.60
P33	OP3a	9.49	0.12	228.75
P34	OP3a	9.48	0.24	224.67
P35	OP3a	9.50	0.37	231.10
P36	OP3a	9.50	-0.37	235.39
P37	OP3a	9.48	-0.24	229.03
P38	OP3a	9.49	-0.12	233.45
P39	OP3a	9.48	0.00	228.35
P40	OP3a	9.49	0.12	233.63
P41	OP3a	9.48	0.24	229.39
P42	OP3a	9.50	0.37	235.88
P43	OP3a	9.50	-0.37	240.14
P44	OP3a	9.48	-0.23	233.73
P45	OP3a	9.49	-0.12	238.31
P46	OP3a	9.48	0.00	233.10
P47	OP3a	9.49	0.12	238.50
P48	OP3a	9.48	0.24	234.10
P49	OP3a	9.50	0.37	240.67
P50	OP3a	9.50	-0.37	244.90
P51	OP3a	9.48	-0.23	238.39
P52	OP3a	9.49	-0.12	243.17
P53	OP3a	9.47	0.00	237.82
P54	OP3a	9.49	0.12	243.36
P55	OP3a	9.48	0.23	238.77
P56	OP3a	9.50	0.37	245.45
P57	OP3a	9.50	-0.36	249.66
P58	OP3a	9.44	-0.23	242.40
P59	OP3a	9.49	-0.11	248.03
P60	OP3a	9.44	0.00	241.89
P61	OP3a	9.49	0.12	248.23
P62	OP3a	9.44	0.23	242.80
P63	OP3a	9.50	0.37	250.23

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3b	9.78	-0.38	198.33
P2	OP3b	7.20	-0.25	209.25 *
P3	OP3b	7.17	-0.12	213.96 *
P4	OP3b	9.79	0.00	190.39
P5	OP3b	7.17	0.12	214.12 *
P6	OP3b	7.20	0.25	209.53 *
P7	OP3b	9.78	0.38	198.71
P8	OP3b	9.78	-0.38	198.03
P9	OP3b	7.19	-0.25	209.41 *
P10	OP3b	7.18	-0.12	213.76 *
P11	OP3b	9.77	0.00	190.66
P12	OP3b	7.17	0.12	213.92 *
P13	OP3b	7.18	0.25	209.71 *
P14	OP3b	9.78	0.38	198.43
P15	OP3b	9.78	-0.38	197.72
P16	OP3b	9.77	-0.25	191.29
P17	OP3b	9.78	-0.12	195.28
P18	OP3b	9.77	0.00	190.50
P19	OP3b	9.78	0.12	195.45
P20	OP3b	9.77	0.24	191.60
P21	OP3b	9.78	0.38	198.15
P22	OP3b	9.78	-0.38	197.42
P23	OP3b	9.77	-0.24	191.04
P24	OP3b	9.78	-0.12	195.07
P25	OP3b	9.77	0.00	190.26
P26	OP3b	9.78	0.12	195.24
P27	OP3b	9.77	0.24	191.37
P28	OP3b	9.78	0.38	197.87
P29	OP3b	9.78	-0.38	197.11
P30	OP3b	9.77	-0.24	190.79
P31	OP3b	9.78	-0.12	194.85
P32	OP3b	9.77	0.00	190.06
P33	OP3b	9.78	0.12	195.03
P34	OP3b	9.77	0.24	191.13
P35	OP3b	9.78	0.38	197.59
P36	OP3b	9.78	-0.38	196.80
P37	OP3b	9.77	-0.24	190.53
P38	OP3b	9.78	-0.12	194.63
P39	OP3b	9.76	0.00	189.85
P40	OP3b	9.78	0.12	194.82
P41	OP3b	9.77	0.24	190.89
P42	OP3b	9.78	0.38	197.30
P43	OP3b	9.78	-0.38	196.49
P44	OP3b	9.77	-0.24	190.28
P45	OP3b	9.78	-0.12	194.41
P46	OP3b	9.76	0.00	189.63
P47	OP3b	9.78	0.12	194.60
P48	OP3b	9.77	0.24	190.65
P49	OP3b	9.78	0.38	197.01
P50	OP3b	9.78	-0.37	196.18
P51	OP3b	9.76	-0.23	189.99
P52	OP3b	9.78	-0.12	194.19
P53	OP3b	9.76	0.00	189.39
P54	OP3b	9.78	0.12	194.38
P55	OP3b	9.76	0.24	190.37
P56	OP3b	9.78	0.37	196.72
P57	OP3b	9.78	-0.37	195.87
P58	OP3b	9.73	-0.23	189.19
P59	OP3b	9.78	-0.11	193.96
P60	OP3b	9.73	0.00	188.64
P61	OP3b	9.78	0.12	194.16
P62	OP3b	9.73	0.24	189.59
P63	OP3b	9.78	0.37	196.43

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4a	8.54	-0.37	209.93
P2	OP4a	5.82	-0.24	217.99 *
P3	OP4a	5.79	-0.12	222.93 *
P4	OP4a	8.54	0.00	201.85
P5	OP4a	5.79	0.12	223.07 *
P6	OP4a	5.81	0.25	218.24 *
P7	OP4a	8.53	0.37	210.27
P8	OP4a	8.54	-0.36	214.98
P9	OP4a	5.74	-0.24	223.40 *
P10	OP4a	5.73	-0.11	228.03 *
P11	OP4a	8.52	0.00	207.44
P12	OP4a	5.72	0.12	228.17 *
P13	OP4a	5.73	0.25	223.66 *
P14	OP4a	8.53	0.37	215.34
P15	OP4a	8.54	-0.36	220.03
P16	OP4a	8.53	-0.23	213.80
P17	OP4a	8.53	-0.11	217.82
P18	OP4a	8.52	0.01	212.99
P19	OP4a	8.53	0.12	217.98
P20	OP4a	8.52	0.25	214.10
P21	OP4a	8.53	0.37	220.41
P22	OP4a	8.54	-0.36	225.07
P23	OP4a	8.52	-0.23	218.97
P24	OP4a	8.53	-0.11	222.98
P25	OP4a	8.52	0.01	218.17
P26	OP4a	8.53	0.13	223.14
P27	OP4a	8.52	0.25	219.27
P28	OP4a	8.53	0.37	225.48
P29	OP4a	8.54	-0.35	230.11
P30	OP4a	8.52	-0.23	223.95
P31	OP4a	8.53	-0.11	228.13
P32	OP4a	8.52	0.01	223.21
P33	OP4a	8.53	0.13	228.30
P34	OP4a	8.52	0.25	224.27
P35	OP4a	8.53	0.37	230.55
P36	OP4a	8.54	-0.35	235.15
P37	OP4a	8.52	-0.22	228.92
P38	OP4a	8.53	-0.10	233.28
P39	OP4a	8.52	0.01	228.23
P40	OP4a	8.53	0.13	233.45
P41	OP4a	8.52	0.25	229.25
P42	OP4a	8.53	0.37	235.61
P43	OP4a	8.54	-0.35	240.18
P44	OP4a	8.52	-0.22	233.88
P45	OP4a	8.53	-0.10	238.42
P46	OP4a	8.51	0.01	233.25
P47	OP4a	8.53	0.13	238.59
P48	OP4a	8.52	0.25	234.23
P49	OP4a	8.53	0.37	240.67
P50	OP4a	8.54	-0.34	245.22
P51	OP4a	8.52	-0.21	238.81
P52	OP4a	8.53	-0.10	243.55
P53	OP4a	8.51	0.02	238.23
P54	OP4a	8.53	0.13	243.73
P55	OP4a	8.51	0.25	239.17
P56	OP4a	8.53	0.37	245.72
P57	OP4a	8.54	-0.34	250.24
P58	OP4a	8.48	-0.21	243.09
P59	OP4a	8.53	-0.10	248.69
P60	OP4a	8.48	0.02	242.57
P61	OP4a	8.53	0.13	248.87
P62	OP4a	8.48	0.24	243.47
P63	OP4a	8.53	0.38	250.78

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4b	8.86	-0.38	195.18
P2	OP4b	6.32	-0.25	204.33 *
P3	OP4b	6.30	-0.12	208.92 *
P4	OP4b	8.86	0.00	187.37
P5	OP4b	6.29	0.12	209.06 *
P6	OP4b	6.32	0.25	204.57 *
P7	OP4b	8.85	0.38	195.52
P8	OP4b	8.86	-0.37	194.56
P9	OP4b	6.32	-0.24	204.18 *
P10	OP4b	6.30	-0.11	208.40 *
P11	OP4b	8.84	0.00	187.31
P12	OP4b	6.30	0.12	208.54 *
P13	OP4b	6.31	0.25	204.44 *
P14	OP4b	8.85	0.38	194.92
P15	OP4b	8.86	-0.37	193.94
P16	OP4b	8.84	-0.24	187.62
P17	OP4b	8.85	-0.11	191.54
P18	OP4b	8.84	0.01	186.83
P19	OP4b	8.85	0.12	191.70
P20	OP4b	8.84	0.25	187.92
P21	OP4b	8.85	0.38	194.33
P22	OP4b	8.86	-0.37	193.32
P23	OP4b	8.84	-0.23	187.06
P24	OP4b	8.85	-0.11	191.01
P25	OP4b	8.84	0.01	186.28
P26	OP4b	8.85	0.13	191.17
P27	OP4b	8.84	0.25	187.37
P28	OP4b	8.85	0.38	193.73
P29	OP4b	8.86	-0.36	192.70
P30	OP4b	8.84	-0.23	186.50
P31	OP4b	8.85	-0.11	190.48
P32	OP4b	8.84	0.01	185.76
P33	OP4b	8.85	0.13	190.64
P34	OP4b	8.84	0.25	186.82
P35	OP4b	8.85	0.38	193.13
P36	OP4b	8.86	-0.36	192.07
P37	OP4b	8.84	-0.22	185.93
P38	OP4b	8.85	-0.10	189.94
P39	OP4b	8.84	0.01	185.24
P40	OP4b	8.85	0.13	190.11
P41	OP4b	8.84	0.25	186.27
P42	OP4b	8.85	0.38	192.53
P43	OP4b	8.86	-0.36	191.44
P44	OP4b	8.84	-0.22	185.37
P45	OP4b	8.85	-0.10	189.40
P46	OP4b	8.84	0.01	184.72
P47	OP4b	8.85	0.13	189.57
P48	OP4b	8.84	0.25	185.71
P49	OP4b	8.85	0.38	191.93
P50	OP4b	8.86	-0.35	190.82
P51	OP4b	8.84	-0.22	184.77
P52	OP4b	8.85	-0.10	188.86
P53	OP4b	8.83	0.02	184.17
P54	OP4b	8.85	0.13	189.03
P55	OP4b	8.83	0.25	185.13
P56	OP4b	8.85	0.38	191.32
P57	OP4b	8.86	-0.35	190.19
P58	OP4b	8.81	-0.21	183.68
P59	OP4b	8.85	-0.10	188.31
P60	OP4b	8.80	0.02	183.12
P61	OP4b	8.85	0.13	188.49
P62	OP4b	8.80	0.25	184.05
P63	OP4b	8.85	0.39	190.72

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5a	7.08	-0.34	207.62
P2	OP5a	4.41	-0.23	212.77 *
P3	OP5a	4.37	-0.10	217.53 *
P4	OP5a	7.06	0.02	199.59
P5	OP5a	4.35	0.14	217.56 *
P6	OP5a	4.36	0.26	212.79 *
P7	OP5a	7.02	0.38	207.71
P8	OP5a	7.08	-0.33	212.97
P9	OP5a	4.32	-0.21	218.46 *
P10	OP5a	4.30	-0.09	222.92 *
P11	OP5a	7.04	0.03	205.48
P12	OP5a	4.28	0.15	222.95 *
P13	OP5a	4.28	0.27	218.49 *
P14	OP5a	7.02	0.39	213.09
P15	OP5a	7.08	-0.31	218.32
P16	OP5a	7.06	-0.19	212.25
P17	OP5a	7.06	-0.07	216.15
P18	OP5a	7.04	0.04	211.36
P19	OP5a	7.03	0.16	216.23
P20	OP5a	7.02	0.28	212.39
P21	OP5a	7.02	0.40	218.46
P22	OP5a	7.08	-0.30	223.67
P23	OP5a	7.06	-0.18	217.73
P24	OP5a	7.06	-0.06	221.61
P25	OP5a	7.04	0.06	216.87
P26	OP5a	7.03	0.17	221.69
P27	OP5a	7.02	0.29	217.88
P28	OP5a	7.02	0.41	223.84
P29	OP5a	7.08	-0.29	229.01
P30	OP5a	7.06	-0.16	223.00
P31	OP5a	7.06	-0.05	227.06
P32	OP5a	7.04	0.07	222.20
P33	OP5a	7.03	0.19	227.15
P34	OP5a	7.02	0.30	223.17
P35	OP5a	7.02	0.42	229.21
P36	OP5a	7.08	-0.27	234.35
P37	OP5a	7.06	-0.15	228.27
P38	OP5a	7.06	-0.03	232.51
P39	OP5a	7.03	0.08	227.52
P40	OP5a	7.03	0.20	232.60
P41	OP5a	7.02	0.31	228.45
P42	OP5a	7.02	0.43	234.57
P43	OP5a	7.08	-0.26	239.69
P44	OP5a	7.06	-0.13	233.52
P45	OP5a	7.06	-0.02	237.95
P46	OP5a	7.03	0.10	232.83
P47	OP5a	7.03	0.21	238.04
P48	OP5a	7.02	0.32	233.72
P49	OP5a	7.02	0.45	239.93
P50	OP5a	7.08	-0.24	245.02
P51	OP5a	7.05	-0.11	238.75
P52	OP5a	7.06	0.00	243.38
P53	OP5a	7.03	0.11	238.10
P54	OP5a	7.03	0.22	243.48
P55	OP5a	7.01	0.33	238.96
P56	OP5a	7.02	0.46	245.29
P57	OP5a	7.08	-0.23	250.35
P58	OP5a	7.02	-0.10	243.33
P59	OP5a	7.06	0.01	248.82
P60	OP5a	7.00	0.12	242.74
P61	OP5a	7.03	0.24	248.92
P62	OP5a	6.98	0.34	243.55
P63	OP5a	7.02	0.47	250.65

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5b	7.45	-0.36	190.80
P2	OP5b	4.98	-0.23	197.19 *
P3	OP5b	4.94	-0.10	201.56 *
P4	OP5b	7.42	0.02	183.08
P5	OP5b	4.92	0.14	201.59 *
P6	OP5b	4.94	0.26	197.21 *
P7	OP5b	7.39	0.39	190.90
P8	OP5b	7.45	-0.34	189.70
P9	OP5b	4.98	-0.21	196.55 *
P10	OP5b	4.96	-0.09	200.55 *
P11	OP5b	7.40	0.03	182.54
P12	OP5b	4.93	0.15	200.58 *
P13	OP5b	4.93	0.27	196.59 *
P14	OP5b	7.39	0.40	189.82
P15	OP5b	7.45	-0.33	188.59
P16	OP5b	7.42	-0.20	182.41
P17	OP5b	7.42	-0.07	186.20
P18	OP5b	7.40	0.04	181.55
P19	OP5b	7.40	0.16	186.27
P20	OP5b	7.38	0.28	182.55
P21	OP5b	7.39	0.41	188.73
P22	OP5b	7.45	-0.31	187.48
P23	OP5b	7.42	-0.18	181.36
P24	OP5b	7.42	-0.06	185.17
P25	OP5b	7.40	0.06	180.52
P26	OP5b	7.40	0.17	185.25
P27	OP5b	7.38	0.29	181.52
P28	OP5b	7.39	0.42	187.65
P29	OP5b	7.45	-0.30	186.37
P30	OP5b	7.42	-0.16	180.32
P31	OP5b	7.42	-0.05	184.14
P32	OP5b	7.40	0.07	179.52
P33	OP5b	7.40	0.19	184.23
P34	OP5b	7.38	0.30	180.49
P35	OP5b	7.39	0.43	186.56
P36	OP5b	7.45	-0.28	185.25
P37	OP5b	7.42	-0.15	179.27
P38	OP5b	7.42	-0.03	183.11
P39	OP5b	7.40	0.08	178.51
P40	OP5b	7.40	0.20	183.20
P41	OP5b	7.38	0.32	179.46
P42	OP5b	7.39	0.45	185.47
P43	OP5b	7.45	-0.27	184.14
P44	OP5b	7.42	-0.13	178.23
P45	OP5b	7.42	-0.02	182.08
P46	OP5b	7.40	0.10	177.51
P47	OP5b	7.40	0.21	182.17
P48	OP5b	7.38	0.33	178.43
P49	OP5b	7.39	0.46	184.38
P50	OP5b	7.45	-0.25	183.02
P51	OP5b	7.42	-0.12	177.16
P52	OP5b	7.42	0.00	181.04
P53	OP5b	7.40	0.11	176.48
P54	OP5b	7.40	0.22	181.14
P55	OP5b	7.38	0.34	177.37
P56	OP5b	7.39	0.47	183.28
P57	OP5b	7.45	-0.24	181.90
P58	OP5b	7.39	-0.10	175.61
P59	OP5b	7.42	0.01	180.00
P60	OP5b	7.37	0.12	174.97
P61	OP5b	7.40	0.24	180.11
P62	OP5b	7.35	0.35	175.83
P63	OP5b	7.39	0.48	182.19

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6a	6.55	-0.34	206.92
P2	OP6a	3.88	-0.22	210.96 *
P3	OP6a	3.84	-0.09	215.64 *
P4	OP6a	6.51	0.03	198.83
P5	OP6a	3.81	0.15	215.60 *
P6	OP6a	3.82	0.27	210.86 *
P7	OP6a	6.46	0.39	206.88
P8	OP6a	6.55	-0.32	212.46
P9	OP6a	3.80	-0.20	216.81 *
P10	OP6a	3.77	-0.07	221.20 *
P11	OP6a	6.49	0.05	204.88
P12	OP6a	3.74	0.16	221.17 *
P13	OP6a	3.74	0.29	216.72 *
P14	OP6a	6.46	0.40	212.44
P15	OP6a	6.55	-0.30	218.00
P16	OP6a	6.52	-0.17	211.84
P17	OP6a	6.51	-0.05	215.76
P18	OP6a	6.49	0.06	210.89
P19	OP6a	6.48	0.18	215.80
P20	OP6a	6.46	0.30	211.90
P21	OP6a	6.46	0.42	218.00
P22	OP6a	6.55	-0.28	223.53
P23	OP6a	6.52	-0.15	217.49
P24	OP6a	6.51	-0.03	221.40
P25	OP6a	6.49	0.08	216.56
P26	OP6a	6.48	0.20	221.44
P27	OP6a	6.46	0.32	217.56
P28	OP6a	6.46	0.44	223.56
P29	OP6a	6.55	-0.26	229.06
P30	OP6a	6.52	-0.13	222.94
P31	OP6a	6.51	-0.01	227.03
P32	OP6a	6.49	0.10	222.06
P33	OP6a	6.48	0.22	227.07
P34	OP6a	6.46	0.34	223.03
P35	OP6a	6.46	0.46	229.11
P36	OP6a	6.55	-0.24	234.58
P37	OP6a	6.52	-0.11	228.38
P38	OP6a	6.51	0.01	232.66
P39	OP6a	6.49	0.12	227.55
P40	OP6a	6.48	0.24	232.70
P41	OP6a	6.46	0.35	228.48
P42	OP6a	6.46	0.48	234.66
P43	OP6a	6.55	-0.22	240.11
P44	OP6a	6.52	-0.09	233.82
P45	OP6a	6.51	0.03	238.27
P46	OP6a	6.49	0.14	233.04
P47	OP6a	6.48	0.26	238.33
P48	OP6a	6.46	0.37	233.93
P49	OP6a	6.46	0.50	240.21
P50	OP6a	6.55	-0.20	245.63
P51	OP6a	6.52	-0.07	239.22
P52	OP6a	6.51	0.05	243.89
P53	OP6a	6.48	0.16	238.49
P54	OP6a	6.48	0.28	243.94
P55	OP6a	6.46	0.39	239.35
P56	OP6a	6.46	0.51	245.76
P57	OP6a	6.55	-0.18	251.14
P58	OP6a	6.48	-0.04	243.98
P59	OP6a	6.51	0.07	249.50
P60	OP6a	6.45	0.18	243.30
P61	OP6a	6.48	0.29	249.56
P62	OP6a	6.42	0.41	244.12
P63	OP6a	6.46	0.53	251.30

* Denotes Pile Battered @ 6V:1H in -X Direction (towards the river)

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP6b	6.93	-0.35	189.42	
P2	OP6b	4.48	-0.22	194.74	*
P3	OP6b	4.44	-0.09	199.01	*
P4	OP6b	6.89	0.03	181.65	
P5	OP6b	4.41	0.15	198.97	*
P6	OP6b	4.42	0.27	194.64	*
P7	OP6b	6.84	0.40	189.38	
P8	OP6b	6.93	-0.33	188.24	
P9	OP6b	4.48	-0.20	194.00	*
P10	OP6b	4.45	-0.07	197.92	*
P11	OP6b	6.87	0.05	181.00	
P12	OP6b	4.42	0.16	197.88	*
P13	OP6b	4.42	0.29	193.92	*
P14	OP6b	6.84	0.42	188.22	
P15	OP6b	6.93	-0.31	187.05	
P16	OP6b	6.90	-0.18	180.78	
P17	OP6b	6.89	-0.05	184.58	
P18	OP6b	6.87	0.06	179.85	
P19	OP6b	6.86	0.18	184.62	
P20	OP6b	6.84	0.31	180.84	
P21	OP6b	6.84	0.43	187.05	
P22	OP6b	6.93	-0.29	185.86	
P23	OP6b	6.90	-0.16	179.64	
P24	OP6b	6.89	-0.03	183.47	
P25	OP6b	6.87	0.08	178.72	
P26	OP6b	6.86	0.20	183.51	
P27	OP6b	6.84	0.32	179.71	
P28	OP6b	6.84	0.45	185.89	
P29	OP6b	6.93	-0.27	184.67	
P30	OP6b	6.90	-0.13	178.51	
P31	OP6b	6.89	-0.01	182.36	
P32	OP6b	6.87	0.10	177.64	
P33	OP6b	6.86	0.22	182.40	
P34	OP6b	6.84	0.34	178.60	
P35	OP6b	6.84	0.47	184.72	
P36	OP6b	6.93	-0.25	183.48	
P37	OP6b	6.90	-0.11	177.39	
P38	OP6b	6.89	0.01	181.24	
P39	OP6b	6.87	0.12	176.55	
P40	OP6b	6.86	0.24	181.29	
P41	OP6b	6.84	0.36	177.49	
P42	OP6b	6.84	0.49	183.56	
P43	OP6b	6.93	-0.23	182.28	
P44	OP6b	6.90	-0.09	176.26	
P45	OP6b	6.89	0.03	180.12	
P46	OP6b	6.87	0.14	175.46	
P47	OP6b	6.86	0.26	180.17	
P48	OP6b	6.84	0.38	176.38	
P49	OP6b	6.84	0.51	182.39	
P50	OP6b	6.93	-0.21	181.09	
P51	OP6b	6.90	-0.07	175.11	
P52	OP6b	6.89	0.05	179.00	
P53	OP6b	6.86	0.16	174.35	
P54	OP6b	6.86	0.28	179.05	
P55	OP6b	6.84	0.39	175.24	
P56	OP6b	6.84	0.53	181.22	
P57	OP6b	6.93	-0.19	179.89	
P58	OP6b	6.87	-0.05	173.49	
P59	OP6b	6.89	0.06	177.87	
P60	OP6b	6.83	0.18	172.76	
P61	OP6b	6.86	0.30	177.93	
P62	OP6b	6.81	0.41	173.63	
P63	OP6b	6.84	0.54	180.04	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP7a	6.55	-0.33	206.86	
P2	OP7a	3.88	-0.22	210.92	*
P3	OP7a	3.84	-0.09	215.60	*
P4	OP7a	6.51	0.03	198.81	
P5	OP7a	3.81	0.14	215.57	*
P6	OP7a	3.82	0.27	210.82	*
P7	OP7a	6.46	0.38	206.81	
P8	OP7a	6.55	-0.31	212.34	
P9	OP7a	3.80	-0.19	216.73	*
P10	OP7a	3.77	-0.07	221.12	*
P11	OP7a	6.49	0.05	204.82	
P12	OP7a	3.74	0.16	221.09	*
P13	OP7a	3.74	0.28	216.64	*
P14	OP7a	6.46	0.40	212.32	
P15	OP7a	6.55	-0.29	217.82	
P16	OP7a	6.53	-0.17	211.76	
P17	OP7a	6.51	-0.05	215.63	
P18	OP7a	6.49	0.06	210.83	
P19	OP7a	6.48	0.18	215.67	
P20	OP7a	6.46	0.30	211.82	
P21	OP7a	6.46	0.42	217.83	
P22	OP7a	6.55	-0.27	223.30	
P23	OP7a	6.52	-0.15	217.37	
P24	OP7a	6.51	-0.03	221.22	
P25	OP7a	6.49	0.08	216.47	
P26	OP7a	6.48	0.20	221.26	
P27	OP7a	6.46	0.32	217.44	
P28	OP7a	6.46	0.44	223.33	
P29	OP7a	6.55	-0.25	228.78	
P30	OP7a	6.52	-0.13	222.77	
P31	OP7a	6.51	-0.01	226.80	
P32	OP7a	6.49	0.10	221.92	
P33	OP7a	6.48	0.22	226.84	
P34	OP7a	6.46	0.33	222.86	
P35	OP7a	6.46	0.45	228.83	
P36	OP7a	6.55	-0.23	234.25	
P37	OP7a	6.52	-0.11	228.16	
P38	OP7a	6.51	0.01	232.38	
P39	OP7a	6.49	0.12	227.37	
P40	OP7a	6.48	0.24	232.42	
P41	OP7a	6.46	0.35	228.26	
P42	OP7a	6.46	0.47	234.33	
P43	OP7a	6.55	-0.21	239.72	
P44	OP7a	6.52	-0.08	233.55	
P45	OP7a	6.51	0.03	237.95	
P46	OP7a	6.49	0.14	232.80	
P47	OP7a	6.48	0.26	238.00	
P48	OP7a	6.46	0.37	233.66	
P49	OP7a	6.46	0.49	239.83	
P50	OP7a	6.55	-0.19	245.19	
P51	OP7a	6.52	-0.06	238.90	
P52	OP7a	6.51	0.05	243.51	
P53	OP7a	6.48	0.16	238.20	
P54	OP7a	6.48	0.27	243.57	
P55	OP7a	6.46	0.38	239.03	
P56	OP7a	6.46	0.51	245.32	
P57	OP7a	6.55	-0.17	250.65	
P58	OP7a	6.48	-0.04	243.61	
P59	OP7a	6.51	0.07	249.08	
P60	OP7a	6.45	0.18	242.97	
P61	OP7a	6.48	0.29	249.14	
P62	OP7a	6.42	0.40	243.75	
P63	OP7a	6.46	0.53	250.81	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP7b	6.93	-0.35	189.36	
P2	OP7b	4.48	-0.22	194.70	*
P3	OP7b	4.44	-0.09	198.98	*
P4	OP7b	6.89	0.03	181.63	
P5	OP7b	4.41	0.14	198.94	*
P6	OP7b	4.42	0.27	194.60	*
P7	OP7b	6.84	0.40	189.31	
P8	OP7b	6.93	-0.33	188.12	
P9	OP7b	4.48	-0.20	193.92	*
P10	OP7b	4.46	-0.07	197.84	*
P11	OP7b	6.87	0.05	180.94	
P12	OP7b	4.43	0.16	197.81	*
P13	OP7b	4.42	0.29	193.84	*
P14	OP7b	6.84	0.41	188.10	
P15	OP7b	6.93	-0.30	186.88	
P16	OP7b	6.90	-0.17	180.70	
P17	OP7b	6.89	-0.05	184.45	
P18	OP7b	6.87	0.06	179.80	
P19	OP7b	6.86	0.18	184.49	
P20	OP7b	6.84	0.30	180.76	
P21	OP7b	6.84	0.43	186.88	
P22	OP7b	6.93	-0.28	185.63	
P23	OP7b	6.90	-0.15	179.52	
P24	OP7b	6.89	-0.03	183.29	
P25	OP7b	6.87	0.08	178.63	
P26	OP7b	6.86	0.20	183.33	
P27	OP7b	6.84	0.32	179.59	
P28	OP7b	6.84	0.45	185.66	
P29	OP7b	6.93	-0.26	184.39	
P30	OP7b	6.90	-0.13	178.34	
P31	OP7b	6.89	-0.01	182.13	
P32	OP7b	6.87	0.10	177.49	
P33	OP7b	6.86	0.22	182.17	
P34	OP7b	6.84	0.34	178.43	
P35	OP7b	6.84	0.47	184.44	
P36	OP7b	6.93	-0.24	183.14	
P37	OP7b	6.90	-0.11	177.17	
P38	OP7b	6.89	0.01	180.96	
P39	OP7b	6.87	0.12	176.36	
P40	OP7b	6.86	0.24	181.01	
P41	OP7b	6.84	0.35	177.27	
P42	OP7b	6.84	0.48	183.22	
P43	OP7b	6.93	-0.22	181.90	
P44	OP7b	6.90	-0.09	175.99	
P45	OP7b	6.89	0.03	179.79	
P46	OP7b	6.87	0.14	175.22	
P47	OP7b	6.86	0.26	179.85	
P48	OP7b	6.84	0.37	176.11	
P49	OP7b	6.84	0.50	182.00	
P50	OP7b	6.93	-0.20	180.65	
P51	OP7b	6.90	-0.07	174.79	
P52	OP7b	6.89	0.05	178.62	
P53	OP7b	6.86	0.16	174.06	
P54	OP7b	6.86	0.27	178.68	
P55	OP7b	6.84	0.39	174.92	
P56	OP7b	6.84	0.52	180.77	
P57	OP7b	6.93	-0.18	179.40	
P58	OP7b	6.87	-0.04	173.12	
P59	OP7b	6.89	0.07	177.45	
P60	OP7b	6.83	0.18	172.43	
P61	OP7b	6.86	0.29	177.51	
P62	OP7b	6.81	0.41	173.26	
P63	OP7b	6.84	0.54	179.55	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP8a	-5.12	0.08	191.42	
P2	OP8a	-7.64	0.20	170.42	*
P3	OP8a	-7.89	0.31	172.20	*
P4	OP8a	-5.83	0.44	180.14	
P5	OP8a	-8.34	0.57	168.59	*
P6	OP8a	-8.53	0.69	163.37	*
P7	OP8a	-6.58	0.79	183.14	
P8	OP8a	-5.12	0.39	199.88	
P9	OP8a	-7.76	0.50	178.90	*
P10	OP8a	-8.00	0.62	180.60	*
P11	OP8a	-5.85	0.75	188.90	
P12	OP8a	-8.44	0.88	176.98	*
P13	OP8a	-8.65	1.00	171.85	*
P14	OP8a	-6.58	1.10	191.64	
P15	OP8a	-5.12	0.69	208.35	
P16	OP8a	-5.36	0.81	201.33	
P17	OP8a	-5.61	0.93	203.76	
P18	OP8a	-5.84	1.06	197.52	
P19	OP8a	-6.09	1.19	201.16	
P20	OP8a	-6.32	1.30	196.27	
P21	OP8a	-6.58	1.41	200.14	
P22	OP8a	-5.12	1.00	216.81	
P23	OP8a	-5.36	1.12	209.82	
P24	OP8a	-5.61	1.23	212.27	
P25	OP8a	-5.84	1.37	206.03	
P26	OP8a	-6.09	1.49	209.66	
P27	OP8a	-6.33	1.61	204.77	
P28	OP8a	-6.58	1.71	208.63	
P29	OP8a	-5.12	1.30	225.27	
P30	OP8a	-5.36	1.42	218.10	
P31	OP8a	-5.61	1.54	220.76	
P32	OP8a	-5.84	1.67	214.33	
P33	OP8a	-6.09	1.80	218.17	
P34	OP8a	-6.33	1.92	213.07	
P35	OP8a	-6.58	2.02	217.12	
P36	OP8a	-5.12	1.61	233.72	
P37	OP8a	-5.36	1.73	226.37	
P38	OP8a	-5.61	1.85	229.25	
P39	OP8a	-5.85	1.98	222.62	
P40	OP8a	-6.09	2.11	226.66	
P41	OP8a	-6.33	2.23	221.35	
P42	OP8a	-6.58	2.33	225.61	
P43	OP8a	-5.12	1.92	242.17	
P44	OP8a	-5.36	2.04	234.63	
P45	OP8a	-5.61	2.16	237.74	
P46	OP8a	-5.85	2.29	230.90	
P47	OP8a	-6.09	2.42	235.15	
P48	OP8a	-6.33	2.54	229.63	
P49	OP8a	-6.58	2.64	234.09	
P50	OP8a	-5.12	2.22	250.62	
P51	OP8a	-5.36	2.34	242.85	
P52	OP8a	-5.61	2.46	246.23	
P53	OP8a	-5.85	2.59	239.15	
P54	OP8a	-6.09	2.72	243.64	
P55	OP8a	-6.33	2.84	237.87	
P56	OP8a	-6.58	2.95	242.57	
P57	OP8a	-5.12	2.53	259.07	
P58	OP8a	-5.40	2.65	250.45	
P59	OP8a	-5.61	2.77	254.71	
P60	OP8a	-5.88	2.90	246.77	
P61	OP8a	-6.09	3.03	252.12	
P62	OP8a	-6.36	3.15	245.50	
P63	OP8a	-6.58	3.26	251.05	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP8b	-4.48	0.06	162.05	
P2	OP8b	-6.64	0.19	143.21	*
P3	OP8b	-6.89	0.31	144.31	*
P4	OP8b	-5.20	0.44	151.32	
P5	OP8b	-7.33	0.57	140.69	*
P6	OP8b	-7.53	0.69	136.16	*
P7	OP8b	-5.94	0.81	153.78	
P8	OP8b	-4.48	0.37	159.23	
P9	OP8b	-6.62	0.50	140.64	*
P10	OP8b	-6.85	0.62	141.53	*
P11	OP8b	-5.21	0.75	148.83	
P12	OP8b	-7.30	0.88	137.92	*
P13	OP8b	-7.51	1.00	133.59	*
P14	OP8b	-5.94	1.12	150.99	
P15	OP8b	-4.48	0.67	156.42	
P16	OP8b	-4.73	0.80	149.22	
P17	OP8b	-4.97	0.93	151.45	
P18	OP8b	-5.21	1.06	145.44	
P19	OP8b	-5.46	1.19	148.84	
P20	OP8b	-5.69	1.31	144.15	
P21	OP8b	-5.94	1.43	148.21	
P22	OP8b	-4.48	0.98	153.60	
P23	OP8b	-4.72	1.11	146.31	
P24	OP8b	-4.97	1.23	148.63	
P25	OP8b	-5.21	1.37	142.54	
P26	OP8b	-5.46	1.49	146.03	
P27	OP8b	-5.69	1.62	141.26	
P28	OP8b	-5.94	1.73	145.42	
P29	OP8b	-4.48	1.28	150.79	
P30	OP8b	-4.72	1.42	143.55	
P31	OP8b	-4.97	1.54	145.81	
P32	OP8b	-5.21	1.67	139.78	
P33	OP8b	-5.46	1.80	143.21	
P34	OP8b	-5.69	1.93	138.52	
P35	OP8b	-5.94	2.04	142.64	
P36	OP8b	-4.48	1.59	147.97	
P37	OP8b	-4.72	1.72	140.80	
P38	OP8b	-4.97	1.85	142.99	
P39	OP8b	-5.21	1.98	137.04	
P40	OP8b	-5.46	2.11	140.39	
P41	OP8b	-5.69	2.24	135.78	
P42	OP8b	-5.94	2.35	139.85	
P43	OP8b	-4.48	1.90	145.15	
P44	OP8b	-4.72	2.03	138.05	
P45	OP8b	-4.97	2.16	140.16	
P46	OP8b	-5.21	2.29	134.29	
P47	OP8b	-5.46	2.42	137.57	
P48	OP8b	-5.69	2.54	133.05	
P49	OP8b	-5.94	2.66	137.06	
P50	OP8b	-4.48	2.20	142.33	
P51	OP8b	-4.73	2.33	135.28	
P52	OP8b	-4.97	2.46	137.34	
P53	OP8b	-5.21	2.59	131.52	
P54	OP8b	-5.46	2.73	134.75	
P55	OP8b	-5.69	2.85	130.30	
P56	OP8b	-5.94	2.97	134.28	
P57	OP8b	-4.48	2.51	139.51	
P58	OP8b	-4.75	2.64	132.17	
P59	OP8b	-4.97	2.77	134.52	
P60	OP8b	-5.24	2.90	128.42	
P61	OP8b	-5.46	3.03	131.93	
P62	OP8b	-5.72	3.16	127.22	
P63	OP8b	-5.94	3.28	131.49	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP9a	-5.15	0.09	193.12	
P2	OP9a	-7.70	0.20	171.99	*
P3	OP9a	-7.95	0.32	173.87	*
P4	OP9a	-5.87	0.44	181.89	
P5	OP9a	-8.39	0.57	170.25	*
P6	OP9a	-8.59	0.69	164.94	*
P7	OP9a	-6.61	0.78	184.85	
P8	OP9a	-5.15	0.39	202.01	
P9	OP9a	-7.82	0.51	180.92	*
P10	OP9a	-8.06	0.62	182.69	*
P11	OP9a	-5.88	0.75	191.10	
P12	OP9a	-8.51	0.88	179.08	*
P13	OP9a	-8.71	0.99	173.88	*
P14	OP9a	-6.61	1.09	193.77	
P15	OP9a	-5.16	0.70	210.90	
P16	OP9a	-5.39	0.82	204.02	
P17	OP9a	-5.64	0.93	206.40	
P18	OP9a	-5.87	1.06	200.29	
P19	OP9a	-6.13	1.18	203.79	
P20	OP9a	-6.36	1.30	198.95	
P21	OP9a	-6.61	1.40	202.69	
P22	OP9a	-5.16	1.01	219.79	
P23	OP9a	-5.39	1.12	212.95	
P24	OP9a	-5.64	1.24	215.33	
P25	OP9a	-5.88	1.37	209.25	
P26	OP9a	-6.13	1.49	212.73	
P27	OP9a	-6.36	1.61	207.90	
P28	OP9a	-6.61	1.71	211.61	
P29	OP9a	-5.16	1.31	228.67	
P30	OP9a	-5.39	1.43	221.65	
P31	OP9a	-5.64	1.55	224.27	
P32	OP9a	-5.88	1.67	217.98	
P33	OP9a	-6.13	1.80	221.67	
P34	OP9a	-6.36	1.91	216.62	
P35	OP9a	-6.61	2.01	220.53	
P36	OP9a	-5.16	1.62	237.55	
P37	OP9a	-5.39	1.74	230.34	
P38	OP9a	-5.64	1.85	233.19	
P39	OP9a	-5.88	1.98	226.69	
P40	OP9a	-6.13	2.10	230.60	
P41	OP9a	-6.36	2.22	225.32	
P42	OP9a	-6.61	2.32	229.44	
P43	OP9a	-5.16	1.93	246.43	
P44	OP9a	-5.40	2.05	239.02	
P45	OP9a	-5.64	2.16	242.11	
P46	OP9a	-5.88	2.29	235.40	
P47	OP9a	-6.13	2.41	239.52	
P48	OP9a	-6.36	2.53	234.02	
P49	OP9a	-6.61	2.63	238.34	
P50	OP9a	-5.16	2.24	255.30	
P51	OP9a	-5.40	2.35	247.66	
P52	OP9a	-5.64	2.47	251.03	
P53	OP9a	-5.89	2.59	244.06	
P54	OP9a	-6.13	2.72	248.44	
P55	OP9a	-6.37	2.83	242.68	
P56	OP9a	-6.61	2.94	247.25	
P57	OP9a	-5.16	2.54	264.17	
P58	OP9a	-5.43	2.66	255.66	
P59	OP9a	-5.64	2.78	259.95	
P60	OP9a	-5.92	2.90	252.10	
P61	OP9a	-6.13	3.03	257.36	
P62	OP9a	-6.40	3.14	250.72	
P63	OP9a	-6.61	3.24	256.15	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	OP9b	-4.52	0.07	163.76	
P2	OP9b	-6.70	0.20	144.78	*
P3	OP9b	-6.94	0.32	145.97	*
P4	OP9b	-5.23	0.44	153.06	
P5	OP9b	-7.39	0.57	142.36	*
P6	OP9b	-7.59	0.69	137.73	*
P7	OP9b	-5.97	0.80	155.49	
P8	OP9b	-4.52	0.37	161.37	
P9	OP9b	-6.68	0.50	142.66	*
P10	OP9b	-6.91	0.62	143.62	*
P11	OP9b	-5.25	0.75	151.03	
P12	OP9b	-7.36	0.88	140.01	*
P13	OP9b	-7.57	1.00	135.62	*
P14	OP9b	-5.97	1.11	153.13	
P15	OP9b	-4.52	0.68	158.97	
P16	OP9b	-4.76	0.81	151.90	
P17	OP9b	-5.01	0.93	154.08	
P18	OP9b	-5.25	1.06	148.21	
P19	OP9b	-5.49	1.18	151.48	
P20	OP9b	-5.73	1.30	146.84	
P21	OP9b	-5.97	1.42	150.76	
P22	OP9b	-4.52	0.99	156.58	
P23	OP9b	-4.76	1.12	149.44	
P24	OP9b	-5.01	1.24	151.70	
P25	OP9b	-5.24	1.37	145.76	
P26	OP9b	-5.49	1.49	149.10	
P27	OP9b	-5.73	1.61	144.39	
P28	OP9b	-5.97	1.73	148.40	
P29	OP9b	-4.52	1.29	154.19	
P30	OP9b	-4.76	1.43	147.10	
P31	OP9b	-5.01	1.55	149.31	
P32	OP9b	-5.24	1.67	143.43	
P33	OP9b	-5.49	1.80	146.71	
P34	OP9b	-5.73	1.92	142.07	
P35	OP9b	-5.97	2.03	146.04	
P36	OP9b	-4.52	1.60	151.80	
P37	OP9b	-4.76	1.73	144.77	
P38	OP9b	-5.01	1.85	146.93	
P39	OP9b	-5.24	1.98	141.11	
P40	OP9b	-5.49	2.11	144.33	
P41	OP9b	-5.73	2.23	139.76	
P42	OP9b	-5.97	2.34	143.68	
P43	OP9b	-4.52	1.91	149.40	
P44	OP9b	-4.76	2.04	142.44	
P45	OP9b	-5.01	2.16	144.54	
P46	OP9b	-5.24	2.29	138.78	
P47	OP9b	-5.49	2.41	141.95	
P48	OP9b	-5.73	2.53	137.44	
P49	OP9b	-5.97	2.65	141.32	
P50	OP9b	-4.52	2.22	147.00	
P51	OP9b	-4.76	2.35	140.09	
P52	OP9b	-5.01	2.47	142.15	
P53	OP9b	-5.25	2.59	136.43	
P54	OP9b	-5.49	2.72	139.56	
P55	OP9b	-5.73	2.84	135.11	
P56	OP9b	-5.97	2.96	138.95	
P57	OP9b	-4.52	2.52	144.61	
P58	OP9b	-4.79	2.65	137.39	
P59	OP9b	-5.01	2.78	139.76	
P60	OP9b	-5.27	2.90	133.74	
P61	OP9b	-5.49	3.03	137.17	
P62	OP9b	-5.75	3.15	132.44	
P63	OP9b	-5.97	3.26	136.59	

* Denotes Pile Battered @ 6V:1H in -X Direction (towards the river)

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10a	-5.15	0.09	193.06
P2	OP10a	-7.70	0.20	171.95 *
P3	OP10a	-7.95	0.32	173.83 *
P4	OP10a	-5.87	0.44	181.86
P5	OP10a	-8.39	0.57	170.22 *
P6	OP10a	-8.59	0.68	164.90 *
P7	OP10a	-6.61	0.78	184.78
P8	OP10a	-5.15	0.40	201.90
P9	OP10a	-7.82	0.51	180.85 *
P10	OP10a	-8.06	0.62	182.61 *
P11	OP10a	-5.88	0.75	191.04
P12	OP10a	-8.51	0.87	179.00 *
P13	OP10a	-8.71	0.99	173.80 *
P14	OP10a	-6.61	1.09	193.65
P15	OP10a	-5.15	0.70	210.73
P16	OP10a	-5.39	0.82	203.94
P17	OP10a	-5.64	0.93	206.27
P18	OP10a	-5.87	1.06	200.23
P19	OP10a	-6.13	1.18	203.66
P20	OP10a	-6.36	1.30	198.87
P21	OP10a	-6.61	1.39	202.52
P22	OP10a	-5.15	1.01	219.56
P23	OP10a	-5.39	1.13	212.83
P24	OP10a	-5.64	1.24	215.15
P25	OP10a	-5.88	1.37	209.16
P26	OP10a	-6.13	1.49	212.55
P27	OP10a	-6.36	1.60	207.78
P28	OP10a	-6.61	1.70	211.38
P29	OP10a	-5.15	1.32	228.39
P30	OP10a	-5.39	1.43	221.48
P31	OP10a	-5.64	1.55	224.04
P32	OP10a	-5.88	1.67	217.84
P33	OP10a	-6.13	1.80	221.44
P34	OP10a	-6.36	1.91	216.45
P35	OP10a	-6.61	2.01	220.25
P36	OP10a	-5.15	1.63	237.22
P37	OP10a	-5.39	1.74	230.12
P38	OP10a	-5.64	1.86	232.92
P39	OP10a	-5.88	1.98	226.50
P40	OP10a	-6.13	2.10	230.32
P41	OP10a	-6.36	2.21	225.10
P42	OP10a	-6.61	2.32	229.10
P43	OP10a	-5.15	1.93	246.04
P44	OP10a	-5.39	2.05	238.75
P45	OP10a	-5.64	2.16	241.79
P46	OP10a	-5.88	2.29	235.16
P47	OP10a	-6.13	2.41	239.20
P48	OP10a	-6.36	2.52	233.75
P49	OP10a	-6.61	2.62	237.96
P50	OP10a	-5.15	2.24	254.86
P51	OP10a	-5.40	2.36	247.34
P52	OP10a	-5.64	2.47	250.66
P53	OP10a	-5.89	2.59	243.78
P54	OP10a	-6.13	2.72	248.07
P55	OP10a	-6.37	2.83	242.36
P56	OP10a	-6.61	2.93	246.81
P57	OP10a	-5.15	2.55	263.67
P58	OP10a	-5.43	2.67	255.30
P59	OP10a	-5.64	2.78	259.52
P60	OP10a	-5.92	2.90	251.77
P61	OP10a	-6.13	3.02	256.94
P62	OP10a	-6.40	3.13	250.35
P63	OP10a	-6.61	3.24	255.66

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10b	-4.52	0.07	163.69
P2	OP10b	-6.70	0.20	144.74 *
P3	OP10b	-6.94	0.32	145.94 *
P4	OP10b	-5.23	0.44	153.04
P5	OP10b	-7.39	0.57	142.32 *
P6	OP10b	-7.59	0.69	137.69 *
P7	OP10b	-5.97	0.80	155.42
P8	OP10b	-4.52	0.38	161.25
P9	OP10b	-6.68	0.51	142.58 *
P10	OP10b	-6.91	0.62	143.54 *
P11	OP10b	-5.24	0.75	150.97
P12	OP10b	-7.36	0.88	139.93 *
P13	OP10b	-7.57	0.99	135.54 *
P14	OP10b	-5.97	1.11	153.01
P15	OP10b	-4.52	0.68	158.80
P16	OP10b	-4.76	0.81	151.82
P17	OP10b	-5.01	0.93	153.95
P18	OP10b	-5.24	1.06	148.16
P19	OP10b	-5.49	1.18	151.35
P20	OP10b	-5.73	1.30	146.76
P21	OP10b	-5.97	1.41	150.59
P22	OP10b	-4.52	0.99	156.36
P23	OP10b	-4.75	1.12	149.32
P24	OP10b	-5.01	1.24	151.52
P25	OP10b	-5.24	1.37	145.67
P26	OP10b	-5.49	1.49	148.92
P27	OP10b	-5.72	1.61	144.27
P28	OP10b	-5.97	1.72	148.18
P29	OP10b	-4.52	1.30	153.91
P30	OP10b	-4.75	1.43	146.93
P31	OP10b	-5.01	1.55	149.08
P32	OP10b	-5.24	1.67	143.29
P33	OP10b	-5.49	1.80	146.49
P34	OP10b	-5.72	1.91	141.90
P35	OP10b	-5.97	2.03	145.76
P36	OP10b	-4.52	1.61	151.46
P37	OP10b	-4.75	1.74	144.55
P38	OP10b	-5.01	1.86	146.65
P39	OP10b	-5.24	1.98	140.92
P40	OP10b	-5.49	2.10	144.05
P41	OP10b	-5.72	2.22	139.54
P42	OP10b	-5.97	2.34	143.35
P43	OP10b	-4.52	1.91	149.01
P44	OP10b	-4.76	2.04	142.17
P45	OP10b	-5.01	2.16	144.21
P46	OP10b	-5.24	2.29	138.54
P47	OP10b	-5.49	2.41	141.62
P48	OP10b	-5.73	2.53	137.17
P49	OP10b	-5.97	2.64	140.93
P50	OP10b	-4.52	2.22	146.56
P51	OP10b	-4.76	2.35	139.77
P52	OP10b	-5.01	2.47	141.77
P53	OP10b	-5.25	2.59	136.15
P54	OP10b	-5.49	2.72	139.18
P55	OP10b	-5.73	2.84	134.79
P56	OP10b	-5.97	2.95	138.51
P57	OP10b	-4.52	2.53	144.11
P58	OP10b	-4.78	2.66	137.02
P59	OP10b	-5.01	2.78	139.33
P60	OP10b	-5.27	2.90	133.41
P61	OP10b	-5.49	3.02	136.75
P62	OP10b	-5.75	3.14	132.07
P63	OP10b	-5.97	3.26	136.09

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11a	18.98	-0.40	196.92
P2	OP11a	16.29	-0.27	226.93 *
P3	OP11a	16.28	-0.14	232.16 *
P4	OP11a	19.00	-0.02	189.02
P5	OP11a	16.30	0.10	232.44 *
P6	OP11a	16.32	0.23	227.46 *
P7	OP11a	19.04	0.37	197.57
P8	OP11a	18.98	-0.41	195.05
P9	OP11a	16.30	-0.28	225.67 *
P10	OP11a	16.30	-0.15	230.45 *
P11	OP11a	18.98	-0.03	187.79
P12	OP11a	16.32	0.09	230.73 *
P13	OP11a	16.33	0.22	226.21 *
P14	OP11a	19.04	0.35	195.72
P15	OP11a	18.98	-0.42	193.18
P16	OP11a	18.96	-0.29	186.74
P17	OP11a	18.99	-0.16	190.67
P18	OP11a	18.98	-0.04	186.16
P19	OP11a	19.01	0.07	190.92
P20	OP11a	19.00	0.20	187.22
P21	OP11a	19.04	0.34	193.87
P22	OP11a	18.98	-0.43	191.31
P23	OP11a	18.96	-0.29	184.97
P24	OP11a	18.99	-0.17	188.93
P25	OP11a	18.98	-0.05	184.40
P26	OP11a	19.01	0.06	189.18
P27	OP11a	19.00	0.18	185.46
P28	OP11a	19.04	0.32	192.02
P29	OP11a	18.98	-0.44	189.43
P30	OP11a	18.96	-0.30	183.20
P31	OP11a	18.99	-0.18	187.18
P32	OP11a	18.98	-0.07	182.69
P33	OP11a	19.01	0.05	187.44
P34	OP11a	19.00	0.17	183.71
P35	OP11a	19.04	0.31	190.17
P36	OP11a	18.98	-0.45	187.55
P37	OP11a	18.96	-0.31	181.43
P38	OP11a	18.99	-0.19	185.43
P39	OP11a	18.98	-0.08	180.98
P40	OP11a	19.01	0.03	185.69
P41	OP11a	19.00	0.15	181.95
P42	OP11a	19.04	0.29	188.31
P43	OP11a	18.98	-0.46	185.67
P44	OP11a	18.96	-0.32	179.66
P45	OP11a	18.99	-0.20	183.67
P46	OP11a	18.97	-0.09	179.28
P47	OP11a	19.01	0.02	183.94
P48	OP11a	19.00	0.14	180.19
P49	OP11a	19.03	0.28	186.46
P50	OP11a	18.98	-0.47	183.79
P51	OP11a	18.96	-0.33	177.86
P52	OP11a	18.99	-0.21	181.91
P53	OP11a	18.97	-0.10	177.54
P54	OP11a	19.01	0.01	182.19
P55	OP11a	19.00	0.12	178.41
P56	OP11a	19.03	0.26	184.60
P57	OP11a	18.98	-0.48	181.91
P58	OP11a	18.93	-0.33	175.56
P59	OP11a	18.99	-0.22	180.15
P60	OP11a	18.95	-0.11	175.30
P61	OP11a	19.01	-0.01	180.43
P62	OP11a	18.97	0.11	176.12
P63	OP11a	19.03	0.25	182.74

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11b	19.29	-0.40	178.07
P2	OP11b	16.84	-0.27	209.28 *
P3	OP11b	16.83	-0.13	214.33 *
P4	OP11b	19.31	-0.02	170.41
P5	OP11b	16.85	0.10	214.61 *
P6	OP11b	16.87	0.23	209.80 *
P7	OP11b	19.35	0.36	178.71
P8	OP11b	19.29	-0.41	178.94
P9	OP11b	16.81	-0.28	210.65 *
P10	OP11b	16.82	-0.15	215.32 *
P11	OP11b	19.30	-0.03	171.85
P12	OP11b	16.83	0.09	215.61 *
P13	OP11b	16.84	0.21	211.19 *
P14	OP11b	19.35	0.34	179.60
P15	OP11b	19.29	-0.42	179.80
P16	OP11b	19.28	-0.28	173.74
P17	OP11b	19.31	-0.16	177.40
P18	OP11b	19.29	-0.04	173.12
P19	OP11b	19.33	0.07	177.66
P20	OP11b	19.31	0.20	174.22
P21	OP11b	19.35	0.33	180.49
P22	OP11b	19.29	-0.42	180.67
P23	OP11b	19.28	-0.29	174.73
P24	OP11b	19.31	-0.17	178.41
P25	OP11b	19.29	-0.05	174.12
P26	OP11b	19.33	0.06	178.67
P27	OP11b	19.31	0.18	175.22
P28	OP11b	19.35	0.31	181.38
P29	OP11b	19.29	-0.43	181.53
P30	OP11b	19.28	-0.30	175.64
P31	OP11b	19.31	-0.18	179.41
P32	OP11b	19.29	-0.07	175.10
P33	OP11b	19.33	0.05	179.67
P34	OP11b	19.31	0.17	176.15
P35	OP11b	19.35	0.30	182.27
P36	OP11b	19.29	-0.44	182.39
P37	OP11b	19.28	-0.31	176.55
P38	OP11b	19.31	-0.19	180.41
P39	OP11b	19.29	-0.08	176.08
P40	OP11b	19.33	0.03	180.67
P41	OP11b	19.31	0.15	177.07
P42	OP11b	19.35	0.29	183.15
P43	OP11b	19.29	-0.45	183.25
P44	OP11b	19.27	-0.32	177.45
P45	OP11b	19.31	-0.20	181.40
P46	OP11b	19.29	-0.09	177.05
P47	OP11b	19.33	0.02	181.67
P48	OP11b	19.31	0.14	177.99
P49	OP11b	19.35	0.27	184.03
P50	OP11b	19.29	-0.46	184.10
P51	OP11b	19.27	-0.32	178.33
P52	OP11b	19.31	-0.21	182.39
P53	OP11b	19.29	-0.10	178.00
P54	OP11b	19.33	0.01	182.66
P55	OP11b	19.31	0.12	178.88
P56	OP11b	19.35	0.26	184.91
P57	OP11b	19.29	-0.47	184.96
P58	OP11b	19.25	-0.33	178.70
P59	OP11b	19.31	-0.22	183.38
P60	OP11b	19.27	-0.11	178.44
P61	OP11b	19.33	-0.01	183.65
P62	OP11b	19.29	0.10	179.26
P63	OP11b	19.35	0.24	185.79

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	-4.78	0.11	179.99
P2	D1a	-7.18	0.21	160.09 *
P3	D1a	-7.41	0.32	161.62 *
P4	D1a	-5.51	0.44	168.95
P5	D1a	-7.86	0.57	158.01 *
P6	D1a	-8.07	0.67	153.04 *
P7	D1a	-6.23	0.76	171.71
P8	D1a	-4.78	0.42	189.84
P9	D1a	-7.30	0.52	170.04 *
P10	D1a	-7.54	0.62	171.35 *
P11	D1a	-5.51	0.75	178.98
P12	D1a	-7.99	0.88	167.73 *
P13	D1a	-8.19	0.98	162.99 *
P14	D1a	-6.23	1.07	181.60
P15	D1a	-4.78	0.73	199.70
P16	D1a	-5.02	0.83	193.64
P17	D1a	-5.27	0.93	195.01
P18	D1a	-5.51	1.06	188.68
P19	D1a	-5.76	1.19	192.40
P20	D1a	-5.99	1.28	188.58
P21	D1a	-6.23	1.37	191.49
P22	D1a	-4.78	1.04	209.55
P23	D1a	-5.02	1.14	203.60
P24	D1a	-5.27	1.23	204.86
P25	D1a	-5.51	1.37	198.43
P26	D1a	-5.76	1.49	202.26
P27	D1a	-5.99	1.59	198.55
P28	D1a	-6.23	1.67	201.37
P29	D1a	-4.78	1.35	219.39
P30	D1a	-5.02	1.45	213.22
P31	D1a	-5.27	1.54	214.71
P32	D1a	-5.51	1.67	208.04
P33	D1a	-5.76	1.80	212.11
P34	D1a	-5.99	1.90	208.19
P35	D1a	-6.24	1.98	211.25
P36	D1a	-4.78	1.66	229.24
P37	D1a	-5.02	1.75	222.82
P38	D1a	-5.27	1.85	224.55
P39	D1a	-5.51	1.98	217.64
P40	D1a	-5.76	2.11	221.95
P41	D1a	-5.99	2.20	217.81
P42	D1a	-6.24	2.28	221.12
P43	D1a	-4.78	1.97	239.08
P44	D1a	-5.02	2.06	232.42
P45	D1a	-5.27	2.15	234.38
P46	D1a	-5.51	2.29	227.24
P47	D1a	-5.76	2.42	231.79
P48	D1a	-5.99	2.51	227.42
P49	D1a	-6.24	2.59	230.99
P50	D1a	-4.78	2.28	248.91
P51	D1a	-5.03	2.37	241.98
P52	D1a	-5.27	2.46	244.22
P53	D1a	-5.51	2.59	236.80
P54	D1a	-5.76	2.73	241.63
P55	D1a	-6.00	2.82	237.00
P56	D1a	-6.24	2.89	240.86
P57	D1a	-4.78	2.59	258.75
P58	D1a	-5.05	2.68	250.91
P59	D1a	-5.27	2.77	254.05
P60	D1a	-5.55	2.90	245.74
P61	D1a	-5.76	3.04	251.46
P62	D1a	-6.02	3.12	245.96
P63	D1a	-6.24	3.20	250.73

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	-4.14	0.09	150.62
P2	D1b	-6.18	0.21	132.88 *
P3	D1b	-6.41	0.32	133.73 *
P4	D1b	-4.87	0.44	140.13
P5	D1b	-6.86	0.57	130.11 *
P6	D1b	-7.07	0.68	125.84 *
P7	D1b	-5.60	0.78	142.35
P8	D1b	-4.14	0.40	149.19
P9	D1b	-6.16	0.52	131.78 *
P10	D1b	-6.39	0.62	132.28 *
P11	D1b	-4.88	0.75	138.91
P12	D1b	-6.84	0.88	128.67 *
P13	D1b	-7.05	0.98	124.73 *
P14	D1b	-5.60	1.09	140.95
P15	D1b	-4.14	0.71	147.77
P16	D1b	-4.39	0.82	141.53
P17	D1b	-4.64	0.93	142.69
P18	D1b	-4.88	1.06	136.61
P19	D1b	-5.12	1.19	140.09
P20	D1b	-5.36	1.29	136.46
P21	D1b	-5.60	1.39	139.56
P22	D1b	-4.14	1.02	146.34
P23	D1b	-4.38	1.13	140.09
P24	D1b	-4.64	1.23	141.22
P25	D1b	-4.87	1.37	134.94
P26	D1b	-5.12	1.50	138.62
P27	D1b	-5.35	1.60	135.04
P28	D1b	-5.60	1.69	138.16
P29	D1b	-4.14	1.33	144.91
P30	D1b	-4.38	1.44	138.67
P31	D1b	-4.64	1.54	139.75
P32	D1b	-4.87	1.67	133.49
P33	D1b	-5.12	1.80	137.16
P34	D1b	-5.35	1.90	133.64
P35	D1b	-5.60	2.00	136.76
P36	D1b	-4.14	1.64	143.48
P37	D1b	-4.38	1.75	137.26
P38	D1b	-4.64	1.85	138.28
P39	D1b	-4.87	1.98	132.06
P40	D1b	-5.12	2.11	135.69
P41	D1b	-5.35	2.21	132.24
P42	D1b	-5.60	2.30	135.37
P43	D1b	-4.14	1.95	142.05
P44	D1b	-4.38	2.05	135.84
P45	D1b	-4.64	2.15	136.81
P46	D1b	-4.87	2.29	130.63
P47	D1b	-5.12	2.42	134.22
P48	D1b	-5.35	2.52	130.84
P49	D1b	-5.60	2.61	133.97
P50	D1b	-4.14	2.26	140.62
P51	D1b	-4.39	2.36	134.41
P52	D1b	-4.64	2.46	135.33
P53	D1b	-4.88	2.59	129.17
P54	D1b	-5.12	2.73	132.75
P55	D1b	-5.36	2.82	129.43
P56	D1b	-5.60	2.91	132.56
P57	D1b	-4.14	2.57	139.19
P58	D1b	-4.41	2.67	132.64
P59	D1b	-4.64	2.77	133.86
P60	D1b	-4.90	2.90	127.39
P61	D1b	-5.12	3.04	131.27
P62	D1b	-5.38	3.13	127.68
P63	D1b	-5.60	3.22	131.16

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	-6.18	-1.59	185.44
P2	D2a	-8.92	-1.48	159.38 *
P3	D2a	-9.46	-1.38	157.73 *
P4	D2a	-7.91	-1.25	166.95
P5	D2a	-10.51	-1.13	147.52 *
P6	D2a	-11.01	-1.02	139.67 *
P7	D2a	-9.65	-0.92	162.00
P8	D2a	-6.18	-0.86	194.68
P9	D2a	-9.04	-0.75	168.73 *
P10	D2a	-9.58	-0.66	166.83 *
P11	D2a	-7.91	-0.52	176.32
P12	D2a	-10.62	-0.40	156.52 *
P13	D2a	-11.13	-0.28	148.72 *
P14	D2a	-9.65	-0.19	171.16
P15	D2a	-6.18	-0.12	203.91
P16	D2a	-6.75	-0.02	195.39
P17	D2a	-7.34	0.07	194.29
P18	D2a	-7.91	0.20	185.36
P19	D2a	-8.50	0.33	186.26
P20	D2a	-9.07	0.45	179.03
P21	D2a	-9.65	0.55	180.30
P22	D2a	-6.18	0.61	213.14
P23	D2a	-6.75	0.71	204.73
P24	D2a	-7.34	0.80	203.51
P25	D2a	-7.91	0.93	194.44
P26	D2a	-8.50	1.06	195.39
P27	D2a	-9.07	1.18	188.06
P28	D2a	-9.65	1.28	189.45
P29	D2a	-6.18	1.34	222.37
P30	D2a	-6.75	1.44	213.75
P31	D2a	-7.34	1.53	212.73
P32	D2a	-7.91	1.66	203.39
P33	D2a	-8.50	1.79	204.51
P34	D2a	-9.07	1.91	196.97
P35	D2a	-9.65	2.01	198.60
P36	D2a	-6.18	2.08	231.60
P37	D2a	-6.75	2.17	222.74
P38	D2a	-7.34	2.26	221.94
P39	D2a	-7.91	2.39	212.33
P40	D2a	-8.50	2.52	213.63
P41	D2a	-9.07	2.64	205.88
P42	D2a	-9.65	2.75	207.74
P43	D2a	-6.18	2.81	240.82
P44	D2a	-6.75	2.90	231.73
P45	D2a	-7.34	2.99	231.15
P46	D2a	-7.91	3.11	221.27
P47	D2a	-8.50	3.25	222.75
P48	D2a	-9.07	3.37	214.78
P49	D2a	-9.65	3.48	216.88
P50	D2a	-6.18	3.54	250.04
P51	D2a	-6.76	3.63	240.68
P52	D2a	-7.34	3.72	240.36
P53	D2a	-7.92	3.84	230.17
P54	D2a	-8.50	3.98	231.86
P55	D2a	-9.07	4.11	223.65
P56	D2a	-9.65	4.21	226.01
P57	D2a	-6.18	4.27	259.25
P58	D2a	-6.78	4.36	249.01
P59	D2a	-7.34	4.45	249.56
P60	D2a	-7.95	4.57	238.48
P61	D2a	-8.50	4.71	240.97
P62	D2a	-9.10	4.84	231.95
P63	D2a	-9.65	4.95	235.15

* Denotes Pile Battered @ 6V:1H in -X Direction (towards the river)

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b	-5.54	-1.61	156.07
P2	D2b	-7.92	-1.48	132.18 *
P3	D2b	-8.46	-1.38	129.84 *
P4	D2b	-7.27	-1.25	138.13
P5	D2b	-9.50	-1.13	119.62 *
P6	D2b	-10.01	-1.01	112.46 *
P7	D2b	-9.01	-0.90	132.64
P8	D2b	-5.54	-0.88	154.03
P9	D2b	-7.90	-0.75	130.47 *
P10	D2b	-8.43	-0.66	127.77 *
P11	D2b	-7.28	-0.52	136.25
P12	D2b	-9.48	-0.40	117.46 *
P13	D2b	-9.99	-0.28	110.46 *
P14	D2b	-9.01	-0.17	130.51
P15	D2b	-5.54	-0.14	151.98
P16	D2b	-6.12	-0.02	143.27
P17	D2b	-6.70	0.07	141.98
P18	D2b	-7.28	0.20	133.28
P19	D2b	-7.86	0.33	133.95
P20	D2b	-8.44	0.45	126.91
P21	D2b	-9.01	0.57	128.38
P22	D2b	-5.54	0.59	149.94
P23	D2b	-6.12	0.70	141.22
P24	D2b	-6.70	0.80	139.88
P25	D2b	-7.27	0.93	130.95
P26	D2b	-7.86	1.06	131.75
P27	D2b	-8.43	1.18	124.54
P28	D2b	-9.01	1.30	126.25
P29	D2b	-5.54	1.32	147.89
P30	D2b	-6.12	1.43	139.20
P31	D2b	-6.70	1.53	137.78
P32	D2b	-7.27	1.66	128.84
P33	D2b	-7.86	1.79	129.56
P34	D2b	-8.43	1.92	122.42
P35	D2b	-9.01	2.03	124.11
P36	D2b	-5.54	2.06	145.84
P37	D2b	-6.12	2.16	137.17
P38	D2b	-6.70	2.26	135.68
P39	D2b	-7.27	2.39	126.75
P40	D2b	-7.86	2.52	127.36
P41	D2b	-8.43	2.65	120.31
P42	D2b	-9.01	2.77	121.98
P43	D2b	-5.54	2.79	143.79
P44	D2b	-6.12	2.89	135.15
P45	D2b	-6.70	2.99	133.58
P46	D2b	-7.28	3.11	124.66
P47	D2b	-7.86	3.25	125.17
P48	D2b	-8.43	3.38	118.20
P49	D2b	-9.01	3.50	119.85
P50	D2b	-5.54	3.52	141.74
P51	D2b	-6.12	3.62	133.11
P52	D2b	-6.70	3.72	131.47
P53	D2b	-7.28	3.84	122.55
P54	D2b	-7.86	3.98	122.98
P55	D2b	-8.43	4.11	116.08
P56	D2b	-9.01	4.23	117.72
P57	D2b	-5.54	4.25	139.69
P58	D2b	-6.14	4.35	130.74
P59	D2b	-6.70	4.45	129.37
P60	D2b	-7.30	4.57	120.13
P61	D2b	-7.86	4.71	120.78
P62	D2b	-8.46	4.85	113.67
P63	D2b	-9.01	4.97	115.59

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	DC Aa	-15.18	0.61	162.31
P2	DC Aa	-17.44	0.71	119.90 *
P3	DC Aa	-17.93	0.81	118.07 *
P4	DC Aa	-16.68	0.94	147.11
P5	DC Aa	-18.86	1.07	109.48 *
P6	DC Aa	-19.29	1.17	103.22 *
P7	DC Aa	-18.23	1.23	141.94
P8	DC Aa	-15.18	1.25	176.83
P9	DC Aa	-17.63	1.35	134.03 *
P10	DC Aa	-18.12	1.45	132.29 *
P11	DC Aa	-16.69	1.59	161.54
P12	DC Aa	-19.04	1.71	123.70 *
P13	DC Aa	-19.47	1.81	117.31 *
P14	DC Aa	-18.23	1.88	156.46
P15	DC Aa	-15.18	1.89	191.35
P16	DC Aa	-15.67	2.00	183.58
P17	DC Aa	-16.20	2.10	183.69
P18	DC Aa	-16.68	2.23	175.90
P19	DC Aa	-17.22	2.36	177.19
P20	DC Aa	-17.70	2.46	170.96
P21	DC Aa	-18.23	2.52	170.99
P22	DC Aa	-15.18	2.54	205.86
P23	DC Aa	-15.67	2.64	197.92
P24	DC Aa	-16.20	2.74	198.10
P25	DC Aa	-16.69	2.87	190.22
P26	DC Aa	-17.22	3.00	191.60
P27	DC Aa	-17.70	3.11	185.29
P28	DC Aa	-18.23	3.17	185.51
P29	DC Aa	-15.18	3.18	220.37
P30	DC Aa	-15.67	3.28	212.04
P31	DC Aa	-16.20	3.38	212.51
P32	DC Aa	-16.69	3.52	204.29
P33	DC Aa	-17.22	3.65	206.00
P34	DC Aa	-17.70	3.75	199.41
P35	DC Aa	-18.23	3.82	200.03
P36	DC Aa	-15.18	3.82	234.88
P37	DC Aa	-15.67	3.92	226.14
P38	DC Aa	-16.20	4.03	226.92
P39	DC Aa	-16.69	4.16	218.34
P40	DC Aa	-17.22	4.29	220.40
P41	DC Aa	-17.70	4.40	213.52
P42	DC Aa	-18.23	4.46	214.55
P43	DC Aa	-15.18	4.46	249.39
P44	DC Aa	-15.67	4.56	240.24
P45	DC Aa	-16.20	4.67	241.32
P46	DC Aa	-16.69	4.81	232.39
P47	DC Aa	-17.22	4.94	234.80
P48	DC Aa	-17.70	5.05	227.62
P49	DC Aa	-18.23	5.11	229.07
P50	DC Aa	-15.18	5.10	263.89
P51	DC Aa	-15.68	5.20	254.29
P52	DC Aa	-16.20	5.32	255.71
P53	DC Aa	-16.69	5.45	246.39
P54	DC Aa	-17.22	5.58	249.19
P55	DC Aa	-17.71	5.69	241.68
P56	DC Aa	-18.23	5.76	243.58
P57	DC Aa	-15.18	5.75	278.39
P58	DC Aa	-15.71	5.84	267.71
P59	DC Aa	-16.20	5.96	270.11
P60	DC Aa	-16.72	6.09	259.78
P61	DC Aa	-17.22	6.23	263.59
P62	DC Aa	-17.74	6.34	255.14
P63	DC Aa	-18.23	6.40	258.09

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	DC Ab	-14.40	0.59	126.29
P2	DC Ab	-16.22	0.71	86.53 *
P3	DC Ab	-16.70	0.81	83.86 *
P4	DC Ab	-15.90	0.94	111.75
P5	DC Ab	-17.63	1.07	75.27 *
P6	DC Ab	-18.06	1.17	69.85 *
P7	DC Ab	-17.45	1.25	105.92
P8	DC Ab	-14.40	1.23	126.97
P9	DC Ab	-16.23	1.35	87.09 *
P10	DC Ab	-16.71	1.45	84.38 *
P11	DC Ab	-15.91	1.59	112.40
P12	DC Ab	-17.63	1.71	75.78 *
P13	DC Ab	-18.08	1.82	70.38 *
P14	DC Ab	-17.45	1.90	106.61
P15	DC Ab	-14.40	1.87	127.65
P16	DC Ab	-14.89	1.99	119.66
P17	DC Ab	-15.42	2.10	119.52
P18	DC Ab	-15.91	2.23	112.03
P19	DC Ab	-16.44	2.36	113.02
P20	DC Ab	-16.93	2.47	107.03
P21	DC Ab	-17.45	2.55	107.30
P22	DC Ab	-14.40	2.51	128.33
P23	DC Ab	-14.89	2.63	120.02
P24	DC Ab	-15.42	2.74	120.05
P25	DC Ab	-15.91	2.87	112.35
P26	DC Ab	-16.44	3.00	113.54
P27	DC Ab	-16.92	3.11	107.39
P28	DC Ab	-17.45	3.19	107.98
P29	DC Ab	-14.40	3.15	129.01
P30	DC Ab	-14.89	3.27	120.59
P31	DC Ab	-15.42	3.38	120.57
P32	DC Ab	-15.91	3.52	112.85
P33	DC Ab	-16.44	3.65	114.06
P34	DC Ab	-16.92	3.76	107.97
P35	DC Ab	-17.45	3.84	108.67
P36	DC Ab	-14.40	3.80	129.70
P37	DC Ab	-14.89	3.91	121.18
P38	DC Ab	-15.42	4.03	121.10
P39	DC Ab	-15.91	4.16	113.36
P40	DC Ab	-16.44	4.29	114.59
P41	DC Ab	-16.92	4.41	108.56
P42	DC Ab	-17.45	4.49	109.36
P43	DC Ab	-14.40	4.44	130.38
P44	DC Ab	-14.89	4.55	121.78
P45	DC Ab	-15.42	4.67	121.63
P46	DC Ab	-15.91	4.81	113.88
P47	DC Ab	-16.44	4.94	115.11
P48	DC Ab	-16.92	5.06	109.16
P49	DC Ab	-17.45	5.13	110.05
P50	DC Ab	-14.40	5.08	131.06
P51	DC Ab	-14.89	5.19	122.35
P52	DC Ab	-15.42	5.32	122.16
P53	DC Ab	-15.91	5.45	114.38
P54	DC Ab	-16.44	5.58	115.64
P55	DC Ab	-16.93	5.70	109.74
P56	DC Ab	-17.45	5.78	110.75
P57	DC Ab	-14.40	5.72	131.74
P58	DC Ab	-14.91	5.83	122.63
P59	DC Ab	-15.42	5.96	122.69
P60	DC Ab	-15.93	6.09	114.61
P61	DC Ab	-16.44	6.23	116.17
P62	DC Ab	-16.95	6.35	110.06
P63	DC Ab	-17.45	6.43	111.44

* Denotes Pile Battered @ 6V:1H in -X Direction (towards the river)

VERTICAL PILES

Vertical Reactions:
MAXIMUM REACTION = 278.39 kips
MINIMUM REACTION = 78.84 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 19.35 kips
MINIMUM REACTION = -18.23 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 9.81 kips
MINIMUM REACTION = -1.61 kips

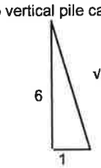
6V:1H PILES

Vertical Reactions:
MAXIMUM REACTION = 239.36 kips
MINIMUM REACTION = 69.85 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 16.87 kips
MINIMUM REACTION = -19.47 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 9.76 kips
MINIMUM REACTION = -1.48 kips

* Vertical reactions for piles battered at 6V:1H must be increased by a factor (hypotenuse/vertical length) to correspond to vertical pile capacity curves

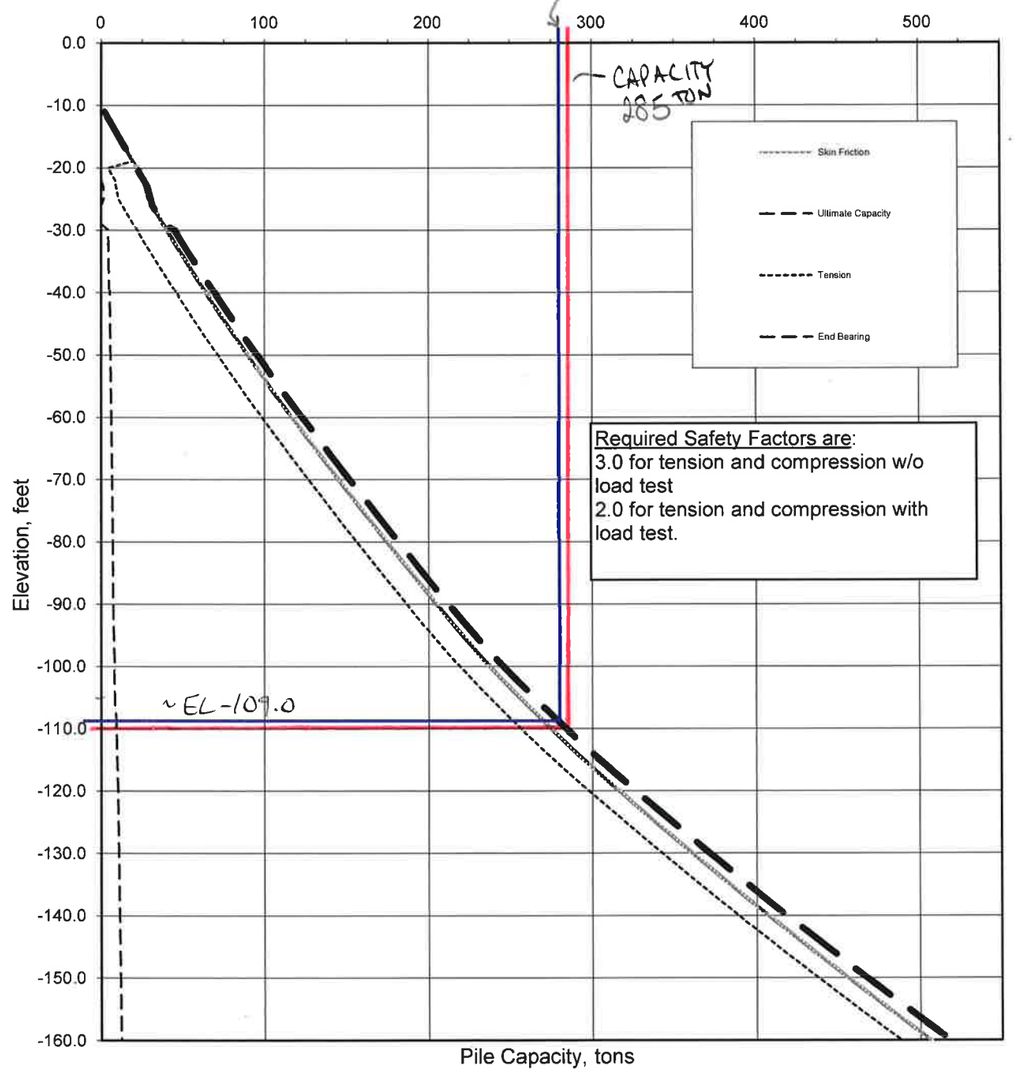


$\sqrt{(6^2+1^2)}$ = 6.083

Max. Vertical Reaction = 242.7 kips

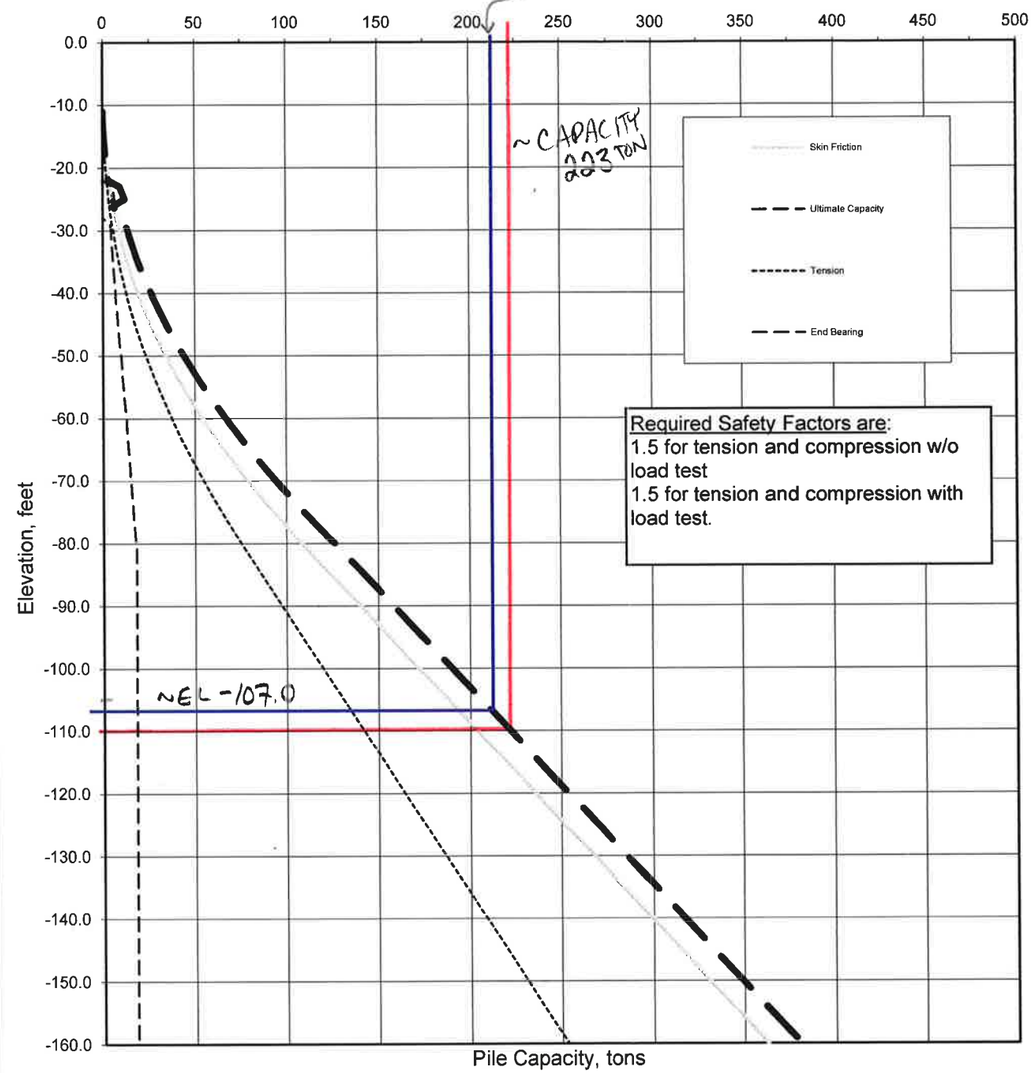
Undrained Strength Case with HP 16x101 Pile

279^k REQUIRED × 1 TON / 2 KIP × 2 (F.O.S) = 279 TON



Drained Strength Case with HP 16x101 Pile

279^k REQ. × 1 TON / 2 KIP × 1.5 (F.O.S.) = 209.25 TON



SET TIPS @ EL -110.0

C_ALLOW = 285 KIPS (UNDRAINED CONTROLS)

Notes:
1. Pile capacity curves represent axial resistance for a sigle pile and do not consider group effects.
2. Curves indicate Ultimate Capacity; the appropriate safety factors should be applied to arrive at the Allowable Capacity

Lake Maurepas Diversion Canal	Project No. 10001863	**Pile Capacities: Intake Structure HP - 16X101**	URS	Figure No. 6

URS

Job: Maurepas Freshwater Diversion
Description: C-1 Model Pile Springs

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

PILE/SPRING STIFFNESS INPUT IN SAP **HP16x101 Piles Used**

Axial Pile Stiffness (b33 = C33 (AE/L)):

Pile tip elevation required pile from the pile capacity curves = -110.0 NAVD88
Top of pile Elevation including 9" Pile embedment = (-10.5 + 0.75) ft = -9.75 NAVD88
Therefore, required length of pile = 100.25 ft

Axial stiffness modifier (C33) that for interaction between soil & pile = 1.52 (from geotech analysis)

Cross-section area of the pile 'A' = 29.9 in^2

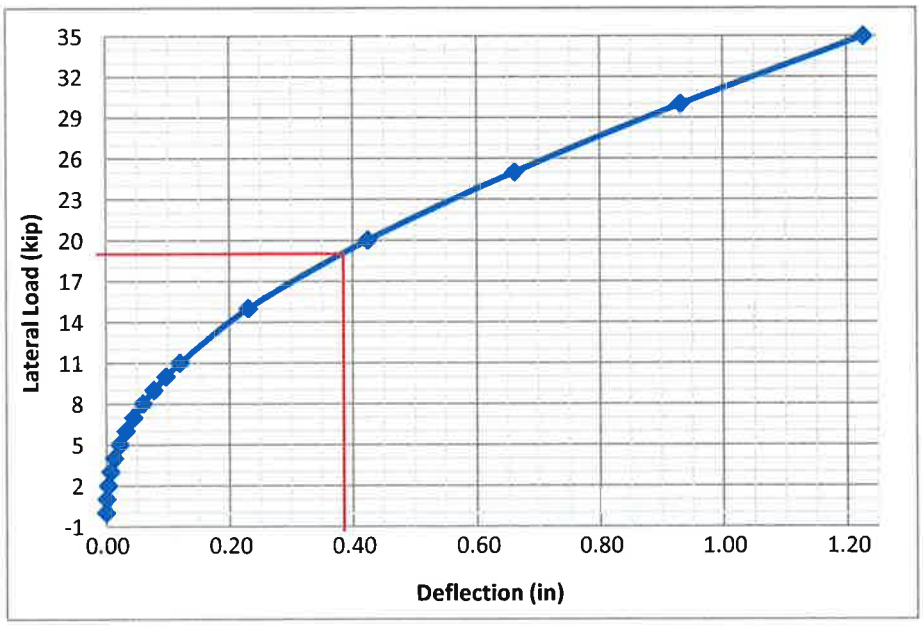
Modulus of Elasticity of the pile (E) = 29,000 ksi

Therefore, axial spring stiffness for SAP: b33 = C33 * (A*E/L) = 1095.6 k/in
= **13147 k/ft**

Lateral Pile Stiffness:

Lateral pile stiffness is determined from the L-Pile data attached (provided by geotech analysis).
Lateral pile stiffnesses for the loading curves are as follows:

Load curve (F)	Avg. Pile Head Deflection (x)	Stiffness (k = F/x)
(k)	(in)	(k/in)
0	0.00000	-
1	0.00090	1111.1
2	0.00300	666.7
3	0.00740	405.4
4	0.01380	289.9
5	0.02220	225.3
6	0.03290	182.4
7	0.04540	154.2
8	0.06040	132.5
9	0.07800	115.4
10	0.09735	102.7
11	0.11990	91.7
15	0.23130	64.9
20	0.42429	47.1
25	0.66119	37.8
30	0.93116	32.2
35	1.22749	28.5



Try using a spring corresponding to a 19k lateral load
19k/0.375" = 50.7 k/in = 608 k/ft

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	-2.64	-0.11	148.20
P2	1a	-3.72	-0.07	133.76 *
P3	1a	-3.74	-0.04	137.47 *
P4	1a	-2.64	-0.02	146.45
P5	1a	-3.76	0.01	139.40 *
P6	1a	-3.76	0.04	137.51 *
P7	1a	-2.66	0.08	154.21
P8	1a	-2.64	-0.10	139.80
P9	1a	-3.66	-0.07	125.90 *
P10	1a	-3.68	-0.04	129.24 *
P11	1a	-2.64	-0.01	138.62
P12	1a	-3.70	0.01	131.17 *
P13	1a	-3.70	0.04	129.66 *
P14	1a	-2.66	0.08	145.81
P15	1a	-2.64	-0.10	131.40
P16	1a	-2.64	-0.06	128.79
P17	1a	-2.65	-0.03	132.20
P18	1a	-2.65	-0.01	130.50
P19	1a	-2.65	0.02	134.18
P20	1a	-2.65	0.05	132.65
P21	1a	-2.66	0.09	137.41
P22	1a	-2.64	-0.10	123.00
P23	1a	-2.64	-0.06	120.58
P24	1a	-2.65	-0.03	123.86
P25	1a	-2.65	0.00	122.32
P26	1a	-2.65	0.02	125.84
P27	1a	-2.65	0.05	124.44
P28	1a	-2.66	0.09	129.02
P29	1a	-2.64	-0.09	114.60
P30	1a	-2.64	-0.05	112.39
P31	1a	-2.65	-0.03	115.51
P32	1a	-2.65	0.00	114.16
P33	1a	-2.65	0.02	117.49
P34	1a	-2.65	0.05	116.26
P35	1a	-2.66	0.09	120.62
P36	1a	-2.64	-0.09	106.19
P37	1a	-2.64	-0.05	104.20
P38	1a	-2.65	-0.02	107.16
P39	1a	-2.65	0.00	106.00
P40	1a	-2.65	0.03	109.15
P41	1a	-2.65	0.06	108.07
P42	1a	-2.66	0.10	112.22
P43	1a	-2.64	-0.08	97.79
P44	1a	-2.64	-0.04	96.01
P45	1a	-2.65	-0.02	98.81
P46	1a	-2.65	0.01	97.84
P47	1a	-2.65	0.03	100.80
P48	1a	-2.65	0.06	99.89
P49	1a	-2.66	0.10	103.82
P50	1a	-2.64	-0.08	89.38
P51	1a	-2.64	-0.04	87.81
P52	1a	-2.65	-0.01	90.46
P53	1a	-2.65	0.01	89.67
P54	1a	-2.65	0.04	92.45
P55	1a	-2.65	0.06	91.69
P56	1a	-2.66	0.10	95.42
P57	1a	-2.64	-0.07	80.98
P58	1a	-2.65	-0.03	79.41
P59	1a	-2.65	-0.01	82.11
P60	1a	-2.65	0.02	81.30
P61	1a	-2.65	0.04	84.10
P62	1a	-2.66	0.07	83.29
P63	1a	-2.66	0.11	87.02

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	12.26	0.04	210.69
P2	1b	10.39	0.12	242.11 *
P3	1b	10.24	0.20	245.30 *
P4	1b	11.83	0.27	199.62
P5	1b	9.97	0.34	242.30 *
P6	1b	9.85	0.42	236.25 *
P7	1b	11.39	0.50	204.39
P8	1b	12.26	0.22	215.62
P9	1b	10.34	0.31	247.37 *
P10	1b	10.20	0.38	250.26 *
P11	1b	11.82	0.46	204.99
P12	1b	9.93	0.53	247.27 *
P13	1b	9.80	0.60	241.51 *
P14	1b	11.39	0.68	209.35
P15	1b	12.26	0.41	220.55
P16	1b	12.10	0.49	212.89
P17	1b	11.97	0.57	215.65
P18	1b	11.82	0.64	209.97
P19	1b	11.68	0.71	213.66
P20	1b	11.53	0.79	208.99
P21	1b	11.39	0.87	214.30
P22	1b	12.26	0.59	225.48
P23	1b	12.10	0.67	217.79
P24	1b	11.97	0.75	220.68
P25	1b	11.82	0.82	214.86
P26	1b	11.68	0.89	218.69
P27	1b	11.53	0.97	213.91
P28	1b	11.39	1.05	219.25
P29	1b	12.26	0.77	230.41
P30	1b	12.10	0.86	222.66
P31	1b	11.97	0.93	225.71
P32	1b	11.81	1.00	219.77
P33	1b	11.68	1.08	223.72
P34	1b	11.53	1.15	218.78
P35	1b	11.39	1.23	224.20
P36	1b	12.26	0.95	235.33
P37	1b	12.10	1.04	227.52
P38	1b	11.97	1.12	230.73
P39	1b	11.81	1.19	224.69
P40	1b	11.68	1.26	228.74
P41	1b	11.53	1.34	223.66
P42	1b	11.39	1.42	229.15
P43	1b	12.26	1.13	240.25
P44	1b	12.10	1.22	232.38
P45	1b	11.97	1.30	235.75
P46	1b	11.81	1.37	229.60
P47	1b	11.68	1.44	233.77
P48	1b	11.53	1.52	228.54
P49	1b	11.39	1.60	234.09
P50	1b	12.26	1.32	245.18
P51	1b	12.10	1.41	237.21
P52	1b	11.97	1.48	240.77
P53	1b	11.81	1.55	234.48
P54	1b	11.68	1.63	238.78
P55	1b	11.52	1.70	233.38
P56	1b	11.39	1.78	239.04
P57	1b	12.26	1.50	250.09
P58	1b	12.08	1.59	241.46
P59	1b	11.97	1.66	245.78
P60	1b	11.79	1.74	238.78
P61	1b	11.68	1.81	243.80
P62	1b	11.50	1.88	237.65
P63	1b	11.39	1.97	243.98

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1c	-2.63	9.58	152.78
P2	1c	-3.72	9.63	135.96 *
P3	1c	-3.73	9.65	138.10 *
P4	1c	-2.61	9.67	145.23
P5	1c	-3.71	9.69	136.39 *
P6	1c	-3.69	9.72	132.80 *
P7	1c	-2.62	9.75	146.91
P8	1c	-2.63	9.58	144.39
P9	1c	-3.66	9.63	128.11 *
P10	1c	-3.66	9.65	129.88 *
P11	1c	-2.62	9.67	137.40
P12	1c	-3.65	9.69	128.16 *
P13	1c	-3.63	9.72	124.94 *
P14	1c	-2.62	9.75	138.52
P15	1c	-2.63	9.58	136.00
P16	1c	-2.63	9.62	130.99
P17	1c	-2.63	9.65	132.79
P18	1c	-2.62	9.67	129.28
P19	1c	-2.62	9.69	131.03
P20	1c	-2.62	9.71	127.75
P21	1c	-2.62	9.74	130.13
P22	1c	-2.63	9.58	127.60
P23	1c	-2.63	9.62	122.79
P24	1c	-2.63	9.65	124.45
P25	1c	-2.62	9.67	121.11
P26	1c	-2.62	9.69	122.69
P27	1c	-2.62	9.71	119.55
P28	1c	-2.62	9.74	121.75
P29	1c	-2.63	9.57	119.21
P30	1c	-2.63	9.62	114.61
P31	1c	-2.63	9.64	116.11
P32	1c	-2.62	9.66	112.95
P33	1c	-2.62	9.68	114.35
P34	1c	-2.62	9.71	111.37
P35	1c	-2.62	9.74	113.36
P36	1c	-2.63	9.57	110.82
P37	1c	-2.63	9.62	106.43
P38	1c	-2.63	9.64	107.77
P39	1c	-2.62	9.66	104.80
P40	1c	-2.62	9.68	106.01
P41	1c	-2.62	9.70	103.19
P42	1c	-2.62	9.74	104.97
P43	1c	-2.63	9.57	102.42
P44	1c	-2.63	9.62	98.25
P45	1c	-2.63	9.64	99.42
P46	1c	-2.62	9.66	96.64
P47	1c	-2.62	9.68	97.66
P48	1c	-2.62	9.70	95.02
P49	1c	-2.62	9.73	96.58
P50	1c	-2.63	9.57	94.03
P51	1c	-2.63	9.61	90.05
P52	1c	-2.63	9.64	91.08
P53	1c	-2.62	9.65	88.47
P54	1c	-2.62	9.68	89.32
P55	1c	-2.62	9.70	86.82
P56	1c	-2.62	9.73	88.18
P57	1c	-2.63	9.56	85.63
P58	1c	-2.63	9.61	81.66
P59	1c	-2.63	9.63	82.73
P60	1c	-2.63	9.65	80.11
P61	1c	-2.62	9.67	80.97
P62	1c	-2.62	9.70	78.44
P63	1c	-2.62	9.73	79.79

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1a	11.88	-0.21	198.18
P2	OP1a	10.24	-0.14	230.58 *
P3	OP1a	10.22	-0.07	235.27 *
P4	OP1a	11.88	0.00	190.98
P5	OP1a	10.22	0.06	235.43 *
P6	OP1a	10.23	0.14	230.86 *
P7	OP1a	11.88	0.20	198.57
P8	OP1a	11.88	-0.21	204.83
P9	OP1a	10.18	-0.14	237.52 *
P10	OP1a	10.17	-0.07	241.95 *
P11	OP1a	11.87	0.00	198.06
P12	OP1a	10.17	0.06	242.11 *
P13	OP1a	10.17	0.14	237.82 *
P14	OP1a	11.88	0.20	205.24
P15	OP1a	11.88	-0.21	211.48
P16	OP1a	11.87	-0.14	205.72
P17	OP1a	11.87	-0.07	209.29
P18	OP1a	11.87	0.00	205.02
P19	OP1a	11.87	0.06	209.46
P20	OP1a	11.87	0.13	206.04
P21	OP1a	11.88	0.20	211.91
P22	OP1a	11.88	-0.21	218.13
P23	OP1a	11.87	-0.13	212.42
P24	OP1a	11.87	-0.07	216.05
P25	OP1a	11.87	0.00	211.72
P26	OP1a	11.87	0.07	216.22
P27	OP1a	11.87	0.13	212.75
P28	OP1a	11.88	0.21	218.59
P29	OP1a	11.88	-0.21	224.78
P30	OP1a	11.87	-0.13	218.98
P31	OP1a	11.87	-0.06	222.81
P32	OP1a	11.87	0.00	218.34
P33	OP1a	11.87	0.07	222.98
P34	OP1a	11.87	0.13	219.32
P35	OP1a	11.88	0.21	225.25
P36	OP1a	11.88	-0.21	231.42
P37	OP1a	11.87	-0.13	225.53
P38	OP1a	11.87	-0.06	229.56
P39	OP1a	11.87	0.00	224.94
P40	OP1a	11.87	0.07	229.74
P41	OP1a	11.87	0.13	225.89
P42	OP1a	11.88	0.21	231.92
P43	OP1a	11.88	-0.21	238.06
P44	OP1a	11.87	-0.13	232.08
P45	OP1a	11.87	-0.06	236.31
P46	OP1a	11.86	0.00	231.55
P47	OP1a	11.87	0.07	236.49
P48	OP1a	11.87	0.13	232.45
P49	OP1a	11.88	0.21	238.58
P50	OP1a	11.88	-0.21	244.70
P51	OP1a	11.86	-0.13	238.59
P52	OP1a	11.87	-0.06	243.05
P53	OP1a	11.86	0.00	238.11
P54	OP1a	11.87	0.07	243.24
P55	OP1a	11.86	0.13	238.97
P56	OP1a	11.88	0.21	245.24
P57	OP1a	11.88	-0.21	251.33
P58	OP1a	11.84	-0.13	244.52
P59	OP1a	11.87	-0.06	249.80
P60	OP1a	11.84	0.00	244.09
P61	OP1a	11.87	0.07	249.99
P62	OP1a	11.84	0.13	244.91
P63	OP1a	11.88	0.21	251.90

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1b	12.09	-0.21	188.19
P2	OP1b	10.53	-0.14	221.60 *
P3	OP1b	10.51	-0.07	226.10 *
P4	OP1b	12.10	0.00	181.15
P5	OP1b	10.51	0.06	226.25 *
P6	OP1b	10.52	0.14	221.89 *
P7	OP1b	12.09	0.21	188.57
P8	OP1b	12.09	-0.21	191.07
P9	OP1b	10.50	-0.14	224.85 *
P10	OP1b	10.49	-0.07	229.04 *
P11	OP1b	12.08	0.00	184.48
P12	OP1b	10.49	0.06	229.20 *
P13	OP1b	10.49	0.14	225.15 *
P14	OP1b	12.09	0.21	191.48
P15	OP1b	12.09	-0.21	193.95
P16	OP1b	12.08	-0.14	188.13
P17	OP1b	12.09	-0.07	191.64
P18	OP1b	12.08	0.00	187.45
P19	OP1b	12.09	0.06	191.81
P20	OP1b	12.08	0.14	188.45
P21	OP1b	12.09	0.21	194.39
P22	OP1b	12.09	-0.21	196.84
P23	OP1b	12.08	-0.14	191.03
P24	OP1b	12.09	-0.07	194.62
P25	OP1b	12.08	0.00	190.34
P26	OP1b	12.09	0.07	194.79
P27	OP1b	12.08	0.14	191.36
P28	OP1b	12.09	0.21	197.29
P29	OP1b	12.09	-0.21	199.72
P30	OP1b	12.08	-0.13	193.90
P31	OP1b	12.09	-0.06	197.60
P32	OP1b	12.08	0.00	193.26
P33	OP1b	12.09	0.07	197.78
P34	OP1b	12.08	0.13	194.24
P35	OP1b	12.09	0.21	200.19
P36	OP1b	12.09	-0.21	202.59
P37	OP1b	12.08	-0.13	196.76
P38	OP1b	12.09	-0.06	200.58
P39	OP1b	12.08	0.00	196.17
P40	OP1b	12.09	0.07	200.76
P41	OP1b	12.08	0.13	197.12
P42	OP1b	12.09	0.21	203.09
P43	OP1b	12.09	-0.21	205.47
P44	OP1b	12.08	-0.13	199.62
P45	OP1b	12.09	-0.06	203.55
P46	OP1b	12.08	0.00	199.08
P47	OP1b	12.09	0.07	203.73
P48	OP1b	12.08	0.13	199.99
P49	OP1b	12.09	0.21	205.99
P50	OP1b	12.09	-0.21	208.34
P51	OP1b	12.08	-0.13	202.46
P52	OP1b	12.09	-0.06	206.52
P53	OP1b	12.08	0.00	201.96
P54	OP1b	12.09	0.07	206.71
P55	OP1b	12.08	0.13	202.84
P56	OP1b	12.09	0.21	208.88
P57	OP1b	12.09	-0.21	211.22
P58	OP1b	12.06	-0.13	204.79
P59	OP1b	12.09	-0.06	209.49
P60	OP1b	12.06	0.00	204.34
P61	OP1b	12.09	0.07	209.68
P62	OP1b	12.06	0.13	205.18
P63	OP1b	12.09	0.21	211.78

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2a	9.69	-0.21	207.07
P2	OP2a	8.02	-0.14	231.57 *
P3	OP2a	8.00	-0.07	236.33 *
P4	OP2a	9.70	0.00	199.69
P5	OP2a	8.00	0.06	236.49 *
P6	OP2a	8.01	0.13	231.86 *
P7	OP2a	9.69	0.20	207.45
P8	OP2a	9.69	-0.20	212.58
P9	OP2a	7.97	-0.14	237.43 *
P10	OP2a	7.96	-0.07	241.89 *
P11	OP2a	9.69	0.00	205.69
P12	OP2a	7.96	0.06	242.05 *
P13	OP2a	7.96	0.13	237.73 *
P14	OP2a	9.69	0.20	212.99
P15	OP2a	9.69	-0.20	218.10
P16	OP2a	9.69	-0.13	212.30
P17	OP2a	9.69	-0.06	215.95
P18	OP2a	9.69	0.00	211.61
P19	OP2a	9.69	0.06	216.12
P20	OP2a	9.69	0.13	212.61
P21	OP2a	9.69	0.20	218.53
P22	OP2a	9.69	-0.20	223.61
P23	OP2a	9.69	-0.13	217.91
P24	OP2a	9.69	-0.06	221.58
P25	OP2a	9.68	0.00	217.23
P26	OP2a	9.69	0.06	221.75
P27	OP2a	9.68	0.13	218.24
P28	OP2a	9.69	0.20	224.06
P29	OP2a	9.69	-0.20	229.11
P30	OP2a	9.69	-0.13	223.36
P31	OP2a	9.69	-0.06	227.21
P32	OP2a	9.68	0.00	222.74
P33	OP2a	9.69	0.06	227.38
P34	OP2a	9.68	0.13	223.70
P35	OP2a	9.69	0.20	229.59
P36	OP2a	9.69	-0.20	234.62
P37	OP2a	9.69	-0.13	228.80
P38	OP2a	9.69	-0.06	232.82
P39	OP2a	9.68	0.00	228.23
P40	OP2a	9.69	0.06	233.00
P41	OP2a	9.68	0.13	229.15
P42	OP2a	9.69	0.20	235.12
P43	OP2a	9.69	-0.20	240.12
P44	OP2a	9.68	-0.13	234.24
P45	OP2a	9.69	-0.06	238.44
P46	OP2a	9.68	0.00	233.73
P47	OP2a	9.69	0.06	238.62
P48	OP2a	9.68	0.13	234.60
P49	OP2a	9.69	0.20	240.64
P50	OP2a	9.69	-0.20	245.62
P51	OP2a	9.68	-0.13	239.64
P52	OP2a	9.69	-0.06	244.05
P53	OP2a	9.68	0.00	239.18
P54	OP2a	9.69	0.06	244.23
P55	OP2a	9.68	0.13	240.02
P56	OP2a	9.69	0.20	246.16
P57	OP2a	9.69	-0.20	251.12
P58	OP2a	9.66	-0.12	244.45
P59	OP2a	9.69	-0.06	249.65
P60	OP2a	9.66	0.00	244.06
P61	OP2a	9.69	0.06	249.84
P62	OP2a	9.66	0.13	244.84
P63	OP2a	9.69	0.20	251.68

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2b	9.96	-0.21	194.64
P2	OP2b	8.38	-0.14	220.42 *
P3	OP2b	8.36	-0.07	224.92 *
P4	OP2b	9.97	0.00	187.47
P5	OP2b	8.36	0.06	225.08 *
P6	OP2b	8.38	0.14	220.71 *
P7	OP2b	9.96	0.21	195.03
P8	OP2b	9.96	-0.21	195.47
P9	OP2b	8.36	-0.14	221.68 *
P10	OP2b	8.36	-0.07	225.84 *
P11	OP2b	9.96	0.00	188.80
P12	OP2b	8.35	0.06	226.00 *
P13	OP2b	8.36	0.13	221.98 *
P14	OP2b	9.96	0.21	195.88
P15	OP2b	9.96	-0.21	196.30
P16	OP2b	9.96	-0.14	190.44
P17	OP2b	9.96	-0.06	194.02
P18	OP2b	9.95	0.00	189.77
P19	OP2b	9.96	0.06	194.18
P20	OP2b	9.95	0.13	190.75
P21	OP2b	9.96	0.21	196.74
P22	OP2b	9.96	-0.21	197.13
P23	OP2b	9.96	-0.13	191.32
P24	OP2b	9.96	-0.06	194.95
P25	OP2b	9.95	0.00	190.65
P26	OP2b	9.96	0.06	195.12
P27	OP2b	9.95	0.13	191.65
P28	OP2b	9.96	0.21	197.59
P29	OP2b	9.96	-0.21	197.96
P30	OP2b	9.96	-0.13	192.18
P31	OP2b	9.96	-0.06	195.87
P32	OP2b	9.95	0.00	191.56
P33	OP2b	9.96	0.06	196.05
P34	OP2b	9.95	0.13	192.52
P35	OP2b	9.96	0.21	198.44
P36	OP2b	9.96	-0.21	198.79
P37	OP2b	9.96	-0.13	193.04
P38	OP2b	9.96	-0.06	196.80
P39	OP2b	9.95	0.00	192.46
P40	OP2b	9.96	0.06	196.98
P41	OP2b	9.95	0.13	193.39
P42	OP2b	9.96	0.21	199.28
P43	OP2b	9.96	-0.21	199.61
P44	OP2b	9.96	-0.13	193.89
P45	OP2b	9.96	-0.06	197.72
P46	OP2b	9.95	0.00	193.37
P47	OP2b	9.96	0.06	197.90
P48	OP2b	9.95	0.13	194.26
P49	OP2b	9.96	0.21	200.13
P50	OP2b	9.96	-0.21	200.43
P51	OP2b	9.95	-0.13	194.72
P52	OP2b	9.96	-0.06	198.63
P53	OP2b	9.95	0.00	194.24
P54	OP2b	9.96	0.06	198.82
P55	OP2b	9.95	0.13	195.10
P56	OP2b	9.96	0.21	200.97
P57	OP2b	9.96	-0.21	201.25
P58	OP2b	9.94	-0.13	195.07
P59	OP2b	9.96	-0.06	199.55
P60	OP2b	9.93	0.00	194.64
P61	OP2b	9.96	0.06	199.74
P62	OP2b	9.93	0.13	195.46
P63	OP2b	9.96	0.21	201.81

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3a	9.19	-0.20	206.45
P2	OP3a	7.52	-0.14	229.27 *
P3	OP3a	7.51	-0.07	233.97 *
P4	OP3a	9.19	0.00	199.14
P5	OP3a	7.51	0.06	234.13 *
P6	OP3a	7.52	0.13	229.55 *
P7	OP3a	9.19	0.20	206.84
P8	OP3a	9.19	-0.20	212.03
P9	OP3a	7.47	-0.13	235.18 *
P10	OP3a	7.46	-0.07	239.59 *
P11	OP3a	9.18	0.00	205.20
P12	OP3a	7.46	0.06	239.75 *
P13	OP3a	7.47	0.13	235.47 *
P14	OP3a	9.19	0.20	212.44
P15	OP3a	9.19	-0.20	217.60
P16	OP3a	9.18	-0.13	211.88
P17	OP3a	9.18	-0.06	215.51
P18	OP3a	9.18	0.00	211.20
P19	OP3a	9.18	0.06	215.68
P20	OP3a	9.18	0.13	212.20
P21	OP3a	9.19	0.20	218.03
P22	OP3a	9.19	-0.20	223.18
P23	OP3a	9.18	-0.13	217.56
P24	OP3a	9.18	-0.06	221.20
P25	OP3a	9.18	0.00	216.89
P26	OP3a	9.18	0.06	221.37
P27	OP3a	9.18	0.13	217.89
P28	OP3a	9.19	0.20	223.63
P29	OP3a	9.19	-0.20	228.75
P30	OP3a	9.18	-0.13	223.07
P31	OP3a	9.18	-0.06	226.89
P32	OP3a	9.18	0.00	222.46
P33	OP3a	9.18	0.06	227.06
P34	OP3a	9.18	0.13	223.42
P35	OP3a	9.19	0.20	229.23
P36	OP3a	9.19	-0.20	234.32
P37	OP3a	9.18	-0.13	228.58
P38	OP3a	9.18	-0.06	232.57
P39	OP3a	9.18	0.00	228.01
P40	OP3a	9.18	0.06	232.75
P41	OP3a	9.18	0.13	228.93
P42	OP3a	9.19	0.20	234.82
P43	OP3a	9.19	-0.20	239.88
P44	OP3a	9.18	-0.13	234.07
P45	OP3a	9.18	-0.06	238.24
P46	OP3a	9.18	0.00	233.57
P47	OP3a	9.18	0.06	238.43
P48	OP3a	9.18	0.13	234.44
P49	OP3a	9.19	0.20	240.40
P50	OP3a	9.19	-0.20	245.45
P51	OP3a	9.18	-0.12	239.54
P52	OP3a	9.18	-0.06	243.91
P53	OP3a	9.17	0.00	239.08
P54	OP3a	9.18	0.06	244.10
P55	OP3a	9.18	0.13	239.92
P56	OP3a	9.19	0.20	245.99
P57	OP3a	9.19	-0.20	251.01
P58	OP3a	9.16	-0.12	244.42
P59	OP3a	9.18	-0.06	249.58
P60	OP3a	9.16	0.00	244.02
P61	OP3a	9.18	0.06	249.77
P62	OP3a	9.16	0.13	244.81
P63	OP3a	9.19	0.20	251.57

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3b	9.48	-0.21	193.06
P2	OP3b	7.91	-0.14	217.25 *
P3	OP3b	7.90	-0.07	221.68 *
P4	OP3b	9.48	0.00	185.97
P5	OP3b	7.90	0.06	221.84 *
P6	OP3b	7.91	0.13	217.53 *
P7	OP3b	9.48	0.21	193.45
P8	OP3b	9.48	-0.21	193.60
P9	OP3b	7.90	-0.14	218.22 *
P10	OP3b	7.89	-0.07	222.31 *
P11	OP3b	9.47	0.00	187.01
P12	OP3b	7.89	0.06	222.47 *
P13	OP3b	7.89	0.13	218.51 *
P14	OP3b	9.48	0.21	194.01
P15	OP3b	9.48	-0.21	194.13
P16	OP3b	9.47	-0.13	188.33
P17	OP3b	9.48	-0.06	191.88
P18	OP3b	9.47	0.00	187.66
P19	OP3b	9.48	0.06	192.05
P20	OP3b	9.47	0.13	188.65
P21	OP3b	9.48	0.21	194.56
P22	OP3b	9.48	-0.21	194.66
P23	OP3b	9.47	-0.13	188.92
P24	OP3b	9.48	-0.06	192.51
P25	OP3b	9.47	0.00	188.25
P26	OP3b	9.48	0.06	192.68
P27	OP3b	9.47	0.13	189.25
P28	OP3b	9.48	0.21	195.11
P29	OP3b	9.48	-0.21	195.19
P30	OP3b	9.47	-0.13	189.48
P31	OP3b	9.48	-0.06	193.13
P32	OP3b	9.47	0.00	188.87
P33	OP3b	9.48	0.06	193.31
P34	OP3b	9.47	0.13	189.82
P35	OP3b	9.48	0.21	195.66
P36	OP3b	9.48	-0.21	195.71
P37	OP3b	9.47	-0.13	190.05
P38	OP3b	9.48	-0.06	193.75
P39	OP3b	9.47	0.00	189.48
P40	OP3b	9.48	0.06	193.93
P41	OP3b	9.47	0.13	190.40
P42	OP3b	9.48	0.21	196.21
P43	OP3b	9.48	-0.20	196.24
P44	OP3b	9.47	-0.13	190.61
P45	OP3b	9.48	-0.06	194.37
P46	OP3b	9.47	0.00	190.09
P47	OP3b	9.48	0.06	194.56
P48	OP3b	9.47	0.13	190.97
P49	OP3b	9.48	0.21	196.76
P50	OP3b	9.48	-0.20	196.76
P51	OP3b	9.47	-0.13	191.14
P52	OP3b	9.48	-0.06	194.99
P53	OP3b	9.47	0.00	190.67
P54	OP3b	9.48	0.06	195.18
P55	OP3b	9.47	0.13	191.52
P56	OP3b	9.48	0.20	197.30
P57	OP3b	9.48	-0.20	197.28
P58	OP3b	9.45	-0.12	191.21
P59	OP3b	9.48	-0.06	195.60
P60	OP3b	9.45	0.00	190.78
P61	OP3b	9.48	0.06	195.79
P62	OP3b	9.45	0.13	191.60
P63	OP3b	9.48	0.20	197.84

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4a	8.25	-0.20	205.35
P2	OP4a	6.60	-0.13	225.00 *
P3	OP4a	6.58	-0.06	229.61 *
P4	OP4a	8.25	0.00	198.12
P5	OP4a	6.58	0.07	229.74 *
P6	OP4a	6.59	0.14	225.24 *
P7	OP4a	8.24	0.20	205.70
P8	OP4a	8.25	-0.20	211.12
P9	OP4a	6.55	-0.13	231.09 *
P10	OP4a	6.54	-0.06	235.41 *
P11	OP4a	8.24	0.00	204.37
P12	OP4a	6.54	0.07	235.55 *
P13	OP4a	6.54	0.14	231.34 *
P14	OP4a	8.24	0.20	211.49
P15	OP4a	8.25	-0.19	216.88
P16	OP4a	8.24	-0.13	211.27
P17	OP4a	8.24	-0.06	214.86
P18	OP4a	8.24	0.01	210.58
P19	OP4a	8.24	0.07	215.01
P20	OP4a	8.23	0.14	211.57
P21	OP4a	8.24	0.20	217.28
P22	OP4a	8.25	-0.19	222.65
P23	OP4a	8.24	-0.12	217.15
P24	OP4a	8.24	-0.06	220.74
P25	OP4a	8.23	0.01	216.47
P26	OP4a	8.24	0.07	220.90
P27	OP4a	8.23	0.14	217.46
P28	OP4a	8.24	0.21	223.06
P29	OP4a	8.25	-0.19	228.41
P30	OP4a	8.24	-0.12	222.85
P31	OP4a	8.24	-0.05	226.61
P32	OP4a	8.23	0.01	222.22
P33	OP4a	8.24	0.07	226.77
P34	OP4a	8.23	0.14	223.17
P35	OP4a	8.24	0.21	228.85
P36	OP4a	8.25	-0.19	234.17
P37	OP4a	8.24	-0.11	228.53
P38	OP4a	8.24	-0.05	232.48
P39	OP4a	8.23	0.01	227.96
P40	OP4a	8.24	0.07	232.64
P41	OP4a	8.23	0.14	228.86
P42	OP4a	8.24	0.21	234.63
P43	OP4a	8.25	-0.18	239.92
P44	OP4a	8.24	-0.11	234.22
P45	OP4a	8.24	-0.05	238.34
P46	OP4a	8.23	0.01	233.70
P47	OP4a	8.24	0.08	238.51
P48	OP4a	8.23	0.14	234.56
P49	OP4a	8.24	0.21	240.40
P50	OP4a	8.25	-0.18	245.67
P51	OP4a	8.24	-0.11	239.86
P52	OP4a	8.24	-0.05	244.20
P53	OP4a	8.23	0.02	239.40
P54	OP4a	8.24	0.08	244.37
P55	OP4a	8.23	0.14	240.22
P56	OP4a	8.24	0.21	246.18
P57	OP4a	8.25	-0.18	251.43
P58	OP4a	8.22	-0.10	244.93
P59	OP4a	8.24	-0.04	250.05
P60	OP4a	8.21	0.02	244.52
P61	OP4a	8.24	0.08	250.23
P62	OP4a	8.21	0.14	245.30
P63	OP4a	8.24	0.21	251.95

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4b	8.57	-0.20	190.40
P2	OP4b	7.04	-0.13	211.58 *
P3	OP4b	7.02	-0.06	215.89 *
P4	OP4b	8.57	0.00	183.42
P5	OP4b	7.02	0.07	216.02 *
P6	OP4b	7.03	0.14	211.82 *
P7	OP4b	8.56	0.21	190.75
P8	OP4b	8.57	-0.20	190.54
P9	OP4b	7.03	-0.13	212.15 *
P10	OP4b	7.02	-0.06	216.11 *
P11	OP4b	8.56	0.00	184.05
P12	OP4b	7.01	0.07	216.25 *
P13	OP4b	7.02	0.14	212.40 *
P14	OP4b	8.56	0.21	190.91
P15	OP4b	8.57	-0.20	190.67
P16	OP4b	8.56	-0.13	184.98
P17	OP4b	8.57	-0.06	188.47
P18	OP4b	8.56	0.01	184.30
P19	OP4b	8.56	0.07	188.62
P20	OP4b	8.56	0.14	185.27
P21	OP4b	8.56	0.21	191.07
P22	OP4b	8.57	-0.20	190.80
P23	OP4b	8.56	-0.12	185.17
P24	OP4b	8.57	-0.06	188.70
P25	OP4b	8.56	0.01	184.50
P26	OP4b	8.56	0.07	188.86
P27	OP4b	8.56	0.14	185.48
P28	OP4b	8.56	0.21	191.22
P29	OP4b	8.57	-0.19	190.93
P30	OP4b	8.56	-0.12	185.34
P31	OP4b	8.57	-0.05	188.92
P32	OP4b	8.56	0.01	184.72
P33	OP4b	8.56	0.07	189.08
P34	OP4b	8.56	0.14	185.66
P35	OP4b	8.56	0.21	191.37
P36	OP4b	8.57	-0.19	191.06
P37	OP4b	8.56	-0.12	185.51
P38	OP4b	8.57	-0.05	189.14
P39	OP4b	8.56	0.01	184.94
P40	OP4b	8.56	0.07	189.31
P41	OP4b	8.56	0.14	185.85
P42	OP4b	8.56	0.21	191.52
P43	OP4b	8.57	-0.19	191.19
P44	OP4b	8.56	-0.11	185.68
P45	OP4b	8.57	-0.05	189.35
P46	OP4b	8.56	0.01	185.15
P47	OP4b	8.56	0.08	189.53
P48	OP4b	8.56	0.14	186.03
P49	OP4b	8.56	0.22	191.67
P50	OP4b	8.57	-0.19	191.31
P51	OP4b	8.56	-0.11	185.83
P52	OP4b	8.57	-0.05	189.57
P53	OP4b	8.56	0.02	185.34
P54	OP4b	8.56	0.08	189.74
P55	OP4b	8.55	0.14	186.19
P56	OP4b	8.56	0.22	191.82
P57	OP4b	8.57	-0.18	191.44
P58	OP4b	8.54	-0.11	185.52
P59	OP4b	8.57	-0.04	189.78
P60	OP4b	8.54	0.02	185.08
P61	OP4b	8.56	0.08	189.96
P62	OP4b	8.54	0.14	185.89
P63	OP4b	8.56	0.22	191.96

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5a	6.82	-0.18	203.82
P2	OP5a	5.19	-0.12	218.59 *
P3	OP5a	5.17	-0.05	223.00 *
P4	OP5a	6.79	0.02	196.62
P5	OP5a	5.15	0.08	223.00 *
P6	OP5a	5.15	0.15	218.57 *
P7	OP5a	6.76	0.21	203.93
P8	OP5a	6.82	-0.17	209.76
P9	OP5a	5.14	-0.10	224.83 *
P10	OP5a	5.12	-0.03	228.97 *
P11	OP5a	6.78	0.03	203.03
P12	OP5a	5.10	0.09	228.97 *
P13	OP5a	5.10	0.16	224.82 *
P14	OP5a	6.76	0.23	209.89
P15	OP5a	6.82	-0.15	215.69
P16	OP5a	6.81	-0.09	210.22
P17	OP5a	6.80	-0.02	213.70
P18	OP5a	6.78	0.04	209.45
P19	OP5a	6.78	0.11	213.78
P20	OP5a	6.76	0.17	210.37
P21	OP5a	6.76	0.24	215.85
P22	OP5a	6.82	-0.14	221.63
P23	OP5a	6.80	-0.07	216.28
P24	OP5a	6.80	-0.01	219.75
P25	OP5a	6.78	0.06	215.53
P26	OP5a	6.78	0.12	219.83
P27	OP5a	6.76	0.18	216.44
P28	OP5a	6.76	0.25	221.81
P29	OP5a	6.82	-0.12	227.56
P30	OP5a	6.80	-0.06	222.14
P31	OP5a	6.80	0.01	225.79
P32	OP5a	6.78	0.07	221.45
P33	OP5a	6.78	0.13	225.88
P34	OP5a	6.76	0.20	222.31
P35	OP5a	6.76	0.26	227.77
P36	OP5a	6.82	-0.11	233.49
P37	OP5a	6.80	-0.04	227.99
P38	OP5a	6.80	0.02	231.82
P39	OP5a	6.78	0.08	227.35
P40	OP5a	6.78	0.14	231.92
P41	OP5a	6.76	0.21	228.18
P42	OP5a	6.76	0.27	233.72
P43	OP5a	6.82	-0.10	239.42
P44	OP5a	6.80	-0.03	233.84
P45	OP5a	6.80	0.03	237.85
P46	OP5a	6.78	0.10	233.25
P47	OP5a	6.78	0.16	237.95
P48	OP5a	6.76	0.22	234.04
P49	OP5a	6.76	0.29	239.67
P50	OP5a	6.82	-0.08	245.34
P51	OP5a	6.80	-0.01	239.66
P52	OP5a	6.80	0.05	243.88
P53	OP5a	6.78	0.11	239.12
P54	OP5a	6.78	0.17	243.98
P55	OP5a	6.76	0.23	239.87
P56	OP5a	6.76	0.30	245.61
P57	OP5a	6.82	-0.07	251.27
P58	OP5a	6.78	0.00	244.89
P59	OP5a	6.80	0.06	249.91
P60	OP5a	6.76	0.12	244.41
P61	OP5a	6.78	0.18	250.01
P62	OP5a	6.74	0.24	245.11
P63	OP5a	6.76	0.31	251.56

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5b	7.19	-0.19	186.78
P2	OP5b	5.69	-0.12	203.30 *
P3	OP5b	5.67	-0.05	207.36 *
P4	OP5b	7.16	0.02	179.87
P5	OP5b	5.65	0.08	207.36 *
P6	OP5b	5.65	0.15	203.28 *
P7	OP5b	7.13	0.22	186.90
P8	OP5b	7.19	-0.17	186.30
P9	OP5b	5.69	-0.10	203.25 *
P10	OP5b	5.67	-0.03	206.98 *
P11	OP5b	7.15	0.03	179.88
P12	OP5b	5.65	0.09	206.98 *
P13	OP5b	5.64	0.16	203.24 *
P14	OP5b	7.13	0.23	186.44
P15	OP5b	7.19	-0.16	185.82
P16	OP5b	7.17	-0.09	180.25
P17	OP5b	7.17	-0.02	183.62
P18	OP5b	7.15	0.04	179.50
P19	OP5b	7.15	0.11	183.71
P20	OP5b	7.13	0.17	180.39
P21	OP5b	7.13	0.24	185.98
P22	OP5b	7.19	-0.14	185.34
P23	OP5b	7.17	-0.07	179.83
P24	OP5b	7.17	-0.01	183.23
P25	OP5b	7.15	0.06	179.09
P26	OP5b	7.15	0.12	183.31
P27	OP5b	7.13	0.19	179.99
P28	OP5b	7.13	0.26	185.52
P29	OP5b	7.19	-0.13	184.85
P30	OP5b	7.17	-0.06	179.39
P31	OP5b	7.17	0.01	182.83
P32	OP5b	7.15	0.07	178.70
P33	OP5b	7.15	0.13	182.92
P34	OP5b	7.13	0.20	179.57
P35	OP5b	7.13	0.27	185.05
P36	OP5b	7.19	-0.12	184.36
P37	OP5b	7.17	-0.04	178.96
P38	OP5b	7.17	0.02	182.43
P39	OP5b	7.15	0.08	178.31
P40	OP5b	7.15	0.15	182.52
P41	OP5b	7.13	0.21	179.15
P42	OP5b	7.13	0.28	184.59
P43	OP5b	7.19	-0.10	183.88
P44	OP5b	7.17	-0.03	178.53
P45	OP5b	7.17	0.03	182.02
P46	OP5b	7.15	0.10	177.92
P47	OP5b	7.15	0.16	182.12
P48	OP5b	7.13	0.22	178.72
P49	OP5b	7.13	0.29	184.12
P50	OP5b	7.19	-0.09	183.39
P51	OP5b	7.17	-0.01	178.07
P52	OP5b	7.17	0.05	181.62
P53	OP5b	7.15	0.11	177.50
P54	OP5b	7.15	0.17	181.72
P55	OP5b	7.13	0.23	178.28
P56	OP5b	7.13	0.31	183.65
P57	OP5b	7.19	-0.07	182.89
P58	OP5b	7.16	0.00	177.18
P59	OP5b	7.17	0.06	181.21
P60	OP5b	7.13	0.12	176.66
P61	OP5b	7.15	0.18	181.31
P62	OP5b	7.11	0.24	177.40
P63	OP5b	7.13	0.32	183.18

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6a	6.30	-0.17	203.41
P2	OP6a	4.68	-0.11	216.35 *
P3	OP6a	4.65	-0.04	220.66 *
P4	OP6a	6.25	0.03	196.14
P5	OP6a	4.62	0.09	220.59 *
P6	OP6a	4.62	0.16	216.18 *
P7	OP6a	6.21	0.22	203.38
P8	OP6a	6.30	-0.15	209.48
P9	OP6a	4.62	-0.09	222.70 *
P10	OP6a	4.60	-0.02	226.76 *
P11	OP6a	6.25	0.05	202.67
P12	OP6a	4.57	0.11	226.69 *
P13	OP6a	4.56	0.18	222.54 *
P14	OP6a	6.21	0.24	209.48
P15	OP6a	6.30	-0.13	215.56
P16	OP6a	6.28	-0.07	210.01
P17	OP6a	6.26	0.00	213.51
P18	OP6a	6.25	0.06	209.17
P19	OP6a	6.23	0.13	213.54
P20	OP6a	6.22	0.19	210.07
P21	OP6a	6.21	0.26	215.58
P22	OP6a	6.30	-0.11	221.63
P23	OP6a	6.28	-0.05	216.19
P24	OP6a	6.26	0.02	219.68
P25	OP6a	6.24	0.08	215.37
P26	OP6a	6.23	0.15	219.72
P27	OP6a	6.22	0.21	216.26
P28	OP6a	6.21	0.28	221.67
P29	OP6a	6.30	-0.09	227.70
P30	OP6a	6.28	-0.02	222.18
P31	OP6a	6.26	0.04	225.85
P32	OP6a	6.24	0.10	221.41
P33	OP6a	6.23	0.17	225.90
P34	OP6a	6.22	0.23	222.27
P35	OP6a	6.21	0.30	227.77
P36	OP6a	6.30	-0.07	233.76
P37	OP6a	6.28	0.00	228.16
P38	OP6a	6.26	0.06	232.02
P39	OP6a	6.24	0.12	227.44
P40	OP6a	6.23	0.19	232.06
P41	OP6a	6.22	0.25	228.26
P42	OP6a	6.21	0.32	233.85
P43	OP6a	6.30	-0.05	239.83
P44	OP6a	6.27	0.02	234.14
P45	OP6a	6.26	0.08	238.17
P46	OP6a	6.24	0.14	233.47
P47	OP6a	6.23	0.20	238.23
P48	OP6a	6.21	0.27	234.25
P49	OP6a	6.21	0.33	239.94
P50	OP6a	6.30	-0.03	245.89
P51	OP6a	6.27	0.04	240.08
P52	OP6a	6.26	0.10	244.33
P53	OP6a	6.24	0.16	239.46
P54	OP6a	6.23	0.22	244.39
P55	OP6a	6.21	0.28	240.21
P56	OP6a	6.21	0.35	246.02
P57	OP6a	6.30	-0.01	251.95
P58	OP6a	6.25	0.06	245.44
P59	OP6a	6.26	0.12	250.48
P60	OP6a	6.22	0.18	244.87
P61	OP6a	6.23	0.24	250.54
P62	OP6a	6.19	0.30	245.58
P63	OP6a	6.21	0.37	252.10

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6b	6.68	-0.18	185.67
P2	OP6b	5.19	-0.11	200.43 *
P3	OP6b	5.16	-0.04	204.38 *
P4	OP6b	6.64	0.03	178.71
P5	OP6b	5.13	0.09	204.31 *
P6	OP6b	5.13	0.16	200.26 *
P7	OP6b	6.59	0.23	185.65
P8	OP6b	6.68	-0.16	185.07
P9	OP6b	5.19	-0.09	200.23 *
P10	OP6b	5.17	-0.02	203.86 *
P11	OP6b	6.63	0.05	178.57
P12	OP6b	5.14	0.11	203.79 *
P13	OP6b	5.13	0.18	200.07 *
P14	OP6b	6.59	0.25	185.07
P15	OP6b	6.68	-0.14	184.46
P16	OP6b	6.66	-0.07	178.81
P17	OP6b	6.65	0.00	182.20
P18	OP6b	6.63	0.06	178.00
P19	OP6b	6.62	0.13	182.24
P20	OP6b	6.60	0.20	178.87
P21	OP6b	6.59	0.27	184.48
P22	OP6b	6.68	-0.12	183.85
P23	OP6b	6.66	-0.05	178.24
P24	OP6b	6.65	0.02	181.67
P25	OP6b	6.63	0.08	177.44
P26	OP6b	6.62	0.15	181.71
P27	OP6b	6.60	0.21	178.32
P28	OP6b	6.59	0.28	183.89
P29	OP6b	6.68	-0.10	183.24
P30	OP6b	6.66	-0.03	177.68
P31	OP6b	6.65	0.04	181.14
P32	OP6b	6.63	0.10	176.91
P33	OP6b	6.62	0.17	181.18
P34	OP6b	6.60	0.23	177.77
P35	OP6b	6.59	0.30	183.31
P36	OP6b	6.68	-0.08	182.63
P37	OP6b	6.66	-0.01	177.12
P38	OP6b	6.65	0.06	180.60
P39	OP6b	6.63	0.12	176.39
P40	OP6b	6.62	0.19	180.65
P41	OP6b	6.60	0.25	177.22
P42	OP6b	6.59	0.32	182.71
P43	OP6b	6.68	-0.06	182.01
P44	OP6b	6.66	0.01	176.56
P45	OP6b	6.65	0.08	180.06
P46	OP6b	6.63	0.14	175.87
P47	OP6b	6.62	0.20	180.11
P48	OP6b	6.60	0.27	176.67
P49	OP6b	6.59	0.34	182.12
P50	OP6b	6.68	-0.04	181.39
P51	OP6b	6.66	0.03	175.98
P52	OP6b	6.65	0.10	179.52
P53	OP6b	6.63	0.16	175.32
P54	OP6b	6.62	0.22	179.58
P55	OP6b	6.60	0.29	176.10
P56	OP6b	6.59	0.36	181.53
P57	OP6b	6.68	-0.02	180.78
P58	OP6b	6.64	0.05	174.96
P59	OP6b	6.65	0.12	178.98
P60	OP6b	6.61	0.18	174.35
P61	OP6b	6.62	0.24	179.04
P62	OP6b	6.58	0.31	175.10
P63	OP6b	6.59	0.38	180.93

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP7a	6.30	-0.17	203.34
P2	OP7a	4.68	-0.11	216.31 *
P3	OP7a	4.65	-0.04	220.63 *
P4	OP7a	6.26	0.03	196.12
P5	OP7a	4.62	0.09	220.55 *
P6	OP7a	4.62	0.16	216.14 *
P7	OP7a	6.21	0.22	203.32
P8	OP7a	6.30	-0.15	209.37
P9	OP7a	4.62	-0.09	222.63 *
P10	OP7a	4.60	-0.02	226.68 *
P11	OP7a	6.25	0.05	202.61
P12	OP7a	4.57	0.11	226.61 *
P13	OP7a	4.56	0.18	222.46 *
P14	OP7a	6.21	0.24	209.37
P15	OP7a	6.30	-0.13	215.39
P16	OP7a	6.28	-0.06	209.92
P17	OP7a	6.26	0.00	213.38
P18	OP7a	6.25	0.06	209.11
P19	OP7a	6.23	0.13	213.41
P20	OP7a	6.22	0.19	209.98
P21	OP7a	6.21	0.26	215.41
P22	OP7a	6.30	-0.11	221.41
P23	OP7a	6.28	-0.04	216.06
P24	OP7a	6.26	0.02	219.50
P25	OP7a	6.24	0.08	215.26
P26	OP7a	6.23	0.15	219.54
P27	OP7a	6.22	0.21	216.14
P28	OP7a	6.21	0.28	221.45
P29	OP7a	6.30	-0.09	227.42
P30	OP7a	6.28	-0.02	222.00
P31	OP7a	6.26	0.04	225.62
P32	OP7a	6.24	0.10	221.26
P33	OP7a	6.23	0.17	225.67
P34	OP7a	6.22	0.23	222.09
P35	OP7a	6.21	0.29	227.49
P36	OP7a	6.30	-0.07	233.44
P37	OP7a	6.28	0.00	227.94
P38	OP7a	6.26	0.06	231.74
P39	OP7a	6.24	0.12	227.24
P40	OP7a	6.23	0.18	231.79
P41	OP7a	6.22	0.25	228.04
P42	OP7a	6.21	0.31	233.53
P43	OP7a	6.30	-0.05	239.45
P44	OP7a	6.28	0.02	233.86
P45	OP7a	6.26	0.08	237.85
P46	OP7a	6.24	0.14	233.22
P47	OP7a	6.23	0.20	237.90
P48	OP7a	6.22	0.26	233.98
P49	OP7a	6.21	0.33	239.56
P50	OP7a	6.30	-0.03	245.45
P51	OP7a	6.27	0.04	239.76
P52	OP7a	6.26	0.10	243.96
P53	OP7a	6.24	0.16	239.17
P54	OP7a	6.23	0.22	244.01
P55	OP7a	6.21	0.28	239.88
P56	OP7a	6.21	0.35	245.59
P57	OP7a	6.30	-0.01	251.46
P58	OP7a	6.26	0.06	245.07
P59	OP7a	6.26	0.12	250.06
P60	OP7a	6.22	0.18	244.53
P61	OP7a	6.23	0.24	250.12
P62	OP7a	6.20	0.30	245.21
P63	OP7a	6.21	0.37	251.62

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP7b	6.68	-0.18	185.61
P2	OP7b	5.19	-0.11	200.39 *
P3	OP7b	5.17	-0.04	204.35 *
P4	OP7b	6.64	0.03	178.68
P5	OP7b	5.14	0.09	204.28 *
P6	OP7b	5.13	0.16	200.22 *
P7	OP7b	6.59	0.23	185.59
P8	OP7b	6.68	-0.16	184.95
P9	OP7b	5.19	-0.09	200.16 *
P10	OP7b	5.17	-0.02	203.79 *
P11	OP7b	6.63	0.05	178.51
P12	OP7b	5.14	0.11	203.71 *
P13	OP7b	5.13	0.18	200.00 *
P14	OP7b	6.59	0.25	184.95
P15	OP7b	6.68	-0.14	184.29
P16	OP7b	6.66	-0.07	178.72
P17	OP7b	6.65	0.00	182.07
P18	OP7b	6.63	0.06	177.93
P19	OP7b	6.62	0.13	182.11
P20	OP7b	6.60	0.19	178.79
P21	OP7b	6.59	0.26	184.31
P22	OP7b	6.68	-0.12	183.63
P23	OP7b	6.66	-0.05	178.12
P24	OP7b	6.65	0.02	181.49
P25	OP7b	6.63	0.08	177.33
P26	OP7b	6.62	0.15	181.53
P27	OP7b	6.60	0.21	178.19
P28	OP7b	6.59	0.28	183.67
P29	OP7b	6.68	-0.10	182.96
P30	OP7b	6.66	-0.02	177.51
P31	OP7b	6.65	0.04	180.91
P32	OP7b	6.63	0.10	176.77
P33	OP7b	6.62	0.17	180.95
P34	OP7b	6.60	0.23	177.60
P35	OP7b	6.59	0.30	183.03
P36	OP7b	6.68	-0.08	182.30
P37	OP7b	6.66	0.00	176.90
P38	OP7b	6.65	0.06	180.32
P39	OP7b	6.63	0.12	176.20
P40	OP7b	6.62	0.18	180.37
P41	OP7b	6.60	0.25	177.00
P42	OP7b	6.59	0.32	182.39
P43	OP7b	6.68	-0.06	181.63
P44	OP7b	6.66	0.02	176.29
P45	OP7b	6.65	0.08	179.74
P46	OP7b	6.63	0.14	175.63
P47	OP7b	6.62	0.20	179.79
P48	OP7b	6.60	0.27	176.40
P49	OP7b	6.59	0.34	181.74
P50	OP7b	6.68	-0.04	180.96
P51	OP7b	6.66	0.04	175.65
P52	OP7b	6.65	0.10	179.15
P53	OP7b	6.63	0.16	175.03
P54	OP7b	6.62	0.22	179.20
P55	OP7b	6.60	0.28	175.78
P56	OP7b	6.59	0.36	181.09
P57	OP7b	6.68	-0.02	180.29
P58	OP7b	6.64	0.06	174.59
P59	OP7b	6.65	0.12	178.55
P60	OP7b	6.61	0.18	174.01
P61	OP7b	6.62	0.24	178.61
P62	OP7b	6.58	0.30	174.73
P63	OP7b	6.59	0.37	180.45

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP8a	-5.13	0.25	194.31
P2	OP8a	-6.74	0.31	166.38 *
P3	OP8a	-6.99	0.38	167.40 *
P4	OP8a	-5.85	0.45	183.78
P5	OP8a	-7.44	0.52	163.17 *
P6	OP8a	-7.66	0.58	158.10 *
P7	OP8a	-6.58	0.63	186.23
P8	OP8a	-5.13	0.56	202.22
P9	OP8a	-6.81	0.62	174.29 *
P10	OP8a	-7.05	0.68	175.23 *
P11	OP8a	-5.86	0.75	191.96
P12	OP8a	-7.50	0.82	171.00 *
P13	OP8a	-7.72	0.89	166.00 *
P14	OP8a	-6.58	0.94	194.16
P15	OP8a	-5.13	0.86	210.12
P16	OP8a	-5.37	0.92	203.68
P17	OP8a	-5.62	0.99	205.81
P18	OP8a	-5.85	1.06	200.01
P19	OP8a	-6.10	1.13	203.26
P20	OP8a	-6.33	1.19	198.70
P21	OP8a	-6.58	1.25	202.10
P22	OP8a	-5.13	1.17	218.03
P23	OP8a	-5.37	1.23	211.61
P24	OP8a	-5.62	1.29	213.74
P25	OP8a	-5.85	1.37	207.96
P26	OP8a	-6.10	1.44	211.19
P27	OP8a	-6.34	1.50	206.64
P28	OP8a	-6.58	1.55	210.03
P29	OP8a	-5.13	1.47	225.93
P30	OP8a	-5.37	1.54	219.35
P31	OP8a	-5.62	1.60	221.67
P32	OP8a	-5.85	1.67	215.72
P33	OP8a	-6.10	1.74	219.12
P34	OP8a	-6.34	1.81	214.40
P35	OP8a	-6.58	1.86	217.95
P36	OP8a	-5.13	1.78	233.82
P37	OP8a	-5.37	1.84	227.09
P38	OP8a	-5.62	1.91	229.59
P39	OP8a	-5.86	1.98	223.47
P40	OP8a	-6.10	2.05	227.04
P41	OP8a	-6.34	2.11	222.14
P42	OP8a	-6.58	2.17	225.88
P43	OP8a	-5.13	2.08	241.72
P44	OP8a	-5.37	2.15	234.82
P45	OP8a	-5.62	2.21	237.50
P46	OP8a	-5.86	2.28	231.21
P47	OP8a	-6.10	2.35	234.96
P48	OP8a	-6.34	2.42	229.89
P49	OP8a	-6.58	2.48	233.80
P50	OP8a	-5.13	2.39	249.61
P51	OP8a	-5.38	2.45	242.51
P52	OP8a	-5.62	2.52	245.42
P53	OP8a	-5.86	2.59	238.92
P54	OP8a	-6.10	2.66	242.87
P55	OP8a	-6.34	2.72	237.60
P56	OP8a	-6.58	2.78	241.72
P57	OP8a	-5.13	2.69	257.50
P58	OP8a	-5.39	2.76	249.65
P59	OP8a	-5.62	2.82	253.33
P60	OP8a	-5.88	2.89	246.07
P61	OP8a	-6.10	2.97	250.79
P62	OP8a	-6.36	3.03	244.76
P63	OP8a	-6.58	3.09	249.63

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP8b	-4.49	0.24	164.56
P2	OP8b	-5.88	0.31	139.67 *
P3	OP8b	-6.12	0.38	140.09 *
P4	OP8b	-5.20	0.45	154.53
P5	OP8b	-6.58	0.52	135.86 *
P6	OP8b	-6.79	0.58	131.39 *
P7	OP8b	-5.93	0.64	156.48
P8	OP8b	-4.49	0.55	161.25
P9	OP8b	-5.86	0.62	136.58 *
P10	OP8b	-6.09	0.68	136.81 *
P11	OP8b	-5.21	0.75	151.52
P12	OP8b	-6.55	0.82	132.58 *
P13	OP8b	-6.77	0.89	128.30 *
P14	OP8b	-5.93	0.95	153.20
P15	OP8b	-4.49	0.85	157.94
P16	OP8b	-4.73	0.92	151.33
P17	OP8b	-4.97	0.99	153.28
P18	OP8b	-5.21	1.06	147.70
P19	OP8b	-5.45	1.13	150.73
P20	OP8b	-5.69	1.20	146.35
P21	OP8b	-5.93	1.26	149.92
P22	OP8b	-4.49	1.16	154.64
P23	OP8b	-4.72	1.23	147.94
P24	OP8b	-4.97	1.29	149.96
P25	OP8b	-5.21	1.37	144.32
P26	OP8b	-5.45	1.44	147.41
P27	OP8b	-5.69	1.50	142.97
P28	OP8b	-5.93	1.57	146.63
P29	OP8b	-4.49	1.46	151.33
P30	OP8b	-4.72	1.53	144.69
P31	OP8b	-4.97	1.60	146.64
P32	OP8b	-5.21	1.67	141.06
P33	OP8b	-5.45	1.74	144.09
P34	OP8b	-5.69	1.81	139.73
P35	OP8b	-5.93	1.87	143.35
P36	OP8b	-4.49	1.77	148.01
P37	OP8b	-4.72	1.84	141.45
P38	OP8b	-4.97	1.91	143.32
P39	OP8b	-5.21	1.98	137.82
P40	OP8b	-5.45	2.05	140.77
P41	OP8b	-5.69	2.12	136.51
P42	OP8b	-5.93	2.18	140.07
P43	OP8b	-4.49	2.07	144.70
P44	OP8b	-4.73	2.14	138.21
P45	OP8b	-4.97	2.21	139.99
P46	OP8b	-5.21	2.28	134.57
P47	OP8b	-5.45	2.35	137.45
P48	OP8b	-5.69	2.42	133.28
P49	OP8b	-5.93	2.49	136.78
P50	OP8b	-4.49	2.38	141.39
P51	OP8b	-4.73	2.45	134.95
P52	OP8b	-4.97	2.52	136.67
P53	OP8b	-5.21	2.59	131.31
P54	OP8b	-5.45	2.66	134.13
P55	OP8b	-5.69	2.73	130.03
P56	OP8b	-5.93	2.79	133.50
P57	OP8b	-4.49	2.68	138.08
P58	OP8b	-4.74	2.75	131.38
P59	OP8b	-4.97	2.82	133.35
P60	OP8b	-5.22	2.89	127.75
P61	OP8b	-5.45	2.97	130.80
P62	OP8b	-5.70	3.04	126.50
P63	OP8b	-5.93	3.10	130.21

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP9a	-5.17	0.25	196.05
P2	OP9a	-6.79	0.31	167.93 *
P3	OP9a	-7.04	0.38	169.03 *
P4	OP9a	-5.88	0.45	185.55
P5	OP9a	-7.49	0.52	164.80 *
P6	OP9a	-7.70	0.58	159.65 *
P7	OP9a	-6.61	0.63	187.96
P8	OP9a	-5.17	0.56	204.37
P9	OP9a	-6.86	0.62	176.28 *
P10	OP9a	-7.10	0.68	177.28 *
P11	OP9a	-5.89	0.75	194.18
P12	OP9a	-7.56	0.82	173.05 *
P13	OP9a	-7.77	0.88	168.00 *
P14	OP9a	-6.61	0.94	196.32
P15	OP9a	-5.17	0.86	212.70
P16	OP9a	-5.41	0.93	206.38
P17	OP9a	-5.65	0.99	208.46
P18	OP9a	-5.89	1.06	202.78
P19	OP9a	-6.14	1.13	205.91
P20	OP9a	-6.37	1.19	201.40
P21	OP9a	-6.61	1.24	204.67
P22	OP9a	-5.17	1.17	221.02
P23	OP9a	-5.41	1.23	214.74
P24	OP9a	-5.65	1.30	216.82
P25	OP9a	-5.89	1.37	211.18
P26	OP9a	-6.14	1.43	214.27
P27	OP9a	-6.37	1.50	209.77
P28	OP9a	-6.61	1.55	213.02
P29	OP9a	-5.17	1.48	229.35
P30	OP9a	-5.41	1.54	222.91
P31	OP9a	-5.65	1.60	225.17
P32	OP9a	-5.89	1.67	219.36
P33	OP9a	-6.14	1.74	222.63
P34	OP9a	-6.37	1.80	217.95
P35	OP9a	-6.61	1.86	221.37
P36	OP9a	-5.17	1.78	237.66
P37	OP9a	-5.41	1.85	231.06
P38	OP9a	-5.65	1.91	233.53
P39	OP9a	-5.89	1.98	227.53
P40	OP9a	-6.14	2.05	230.98
P41	OP9a	-6.37	2.11	226.11
P42	OP9a	-6.61	2.16	229.72
P43	OP9a	-5.17	2.09	245.98
P44	OP9a	-5.41	2.15	239.21
P45	OP9a	-5.65	2.21	241.87
P46	OP9a	-5.89	2.28	235.69
P47	OP9a	-6.14	2.35	239.33
P48	OP9a	-6.37	2.41	234.28
P49	OP9a	-6.61	2.47	238.06
P50	OP9a	-5.17	2.39	254.29
P51	OP9a	-5.41	2.46	247.32
P52	OP9a	-5.65	2.52	250.22
P53	OP9a	-5.89	2.59	243.82
P54	OP9a	-6.14	2.66	247.67
P55	OP9a	-6.37	2.72	242.40
P56	OP9a	-6.61	2.77	246.40
P57	OP9a	-5.17	2.70	262.60
P58	OP9a	-5.43	2.77	254.85
P59	OP9a	-5.65	2.83	258.56
P60	OP9a	-5.91	2.89	251.38
P61	OP9a	-6.14	2.96	256.02
P62	OP9a	-6.39	3.02	249.97
P63	OP9a	-6.61	3.08	254.74

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP9b	-4.52	0.24	166.29
P2	OP9b	-5.93	0.31	141.22 *
P3	OP9b	-6.17	0.38	141.72 *
P4	OP9b	-5.24	0.45	156.29
P5	OP9b	-6.62	0.52	137.49 *
P6	OP9b	-6.84	0.58	132.94 *
P7	OP9b	-5.97	0.64	158.21
P8	OP9b	-4.52	0.55	163.41
P9	OP9b	-5.91	0.62	138.58 *
P10	OP9b	-6.15	0.68	138.87 *
P11	OP9b	-5.24	0.75	153.74
P12	OP9b	-6.60	0.82	134.64 *
P13	OP9b	-6.82	0.89	130.30 *
P14	OP9b	-5.97	0.95	155.35
P15	OP9b	-4.52	0.85	160.52
P16	OP9b	-4.76	0.93	154.03
P17	OP9b	-5.01	0.99	155.92
P18	OP9b	-5.25	1.06	150.47
P19	OP9b	-5.49	1.13	153.37
P20	OP9b	-5.73	1.19	149.05
P21	OP9b	-5.97	1.25	152.49
P22	OP9b	-4.52	1.16	157.63
P23	OP9b	-4.76	1.23	151.07
P24	OP9b	-5.01	1.30	153.04
P25	OP9b	-5.24	1.37	147.53
P26	OP9b	-5.49	1.43	150.49
P27	OP9b	-5.72	1.50	146.11
P28	OP9b	-5.97	1.56	149.63
P29	OP9b	-4.52	1.47	154.74
P30	OP9b	-4.76	1.54	148.24
P31	OP9b	-5.01	1.60	150.15
P32	OP9b	-5.24	1.67	144.70
P33	OP9b	-5.49	1.74	147.60
P34	OP9b	-5.72	1.80	143.29
P35	OP9b	-5.97	1.87	146.77
P36	OP9b	-4.52	1.77	151.86
P37	OP9b	-4.76	1.84	145.42
P38	OP9b	-5.01	1.91	147.26
P39	OP9b	-5.24	1.98	141.88
P40	OP9b	-5.49	2.05	144.71
P41	OP9b	-5.72	2.11	140.48
P42	OP9b	-5.97	2.17	143.91
P43	OP9b	-4.52	2.08	148.97
P44	OP9b	-4.76	2.15	142.59
P45	OP9b	-5.01	2.21	144.36
P46	OP9b	-5.24	2.28	139.05
P47	OP9b	-5.49	2.35	141.82
P48	OP9b	-5.72	2.42	137.67
P49	OP9b	-5.97	2.48	141.05
P50	OP9b	-4.52	2.38	146.07
P51	OP9b	-4.76	2.45	139.75
P52	OP9b	-5.01	2.52	141.47
P53	OP9b	-5.25	2.59	136.21
P54	OP9b	-5.49	2.66	138.93
P55	OP9b	-5.73	2.72	134.84
P56	OP9b	-5.97	2.78	138.18
P57	OP9b	-4.52	2.69	143.18
P58	OP9b	-4.78	2.76	136.59
P59	OP9b	-5.01	2.83	138.58
P60	OP9b	-5.26	2.89	133.06
P61	OP9b	-5.49	2.96	136.03
P62	OP9b	-5.74	3.03	131.70
P63	OP9b	-5.97	3.09	135.32

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10a	-5.17	0.25	195.98
P2	OP10a	-6.79	0.32	167.89 *
P3	OP10a	-7.03	0.38	169.00 *
P4	OP10a	-5.88	0.45	185.52
P5	OP10a	-7.49	0.52	164.77 *
P6	OP10a	-7.70	0.58	159.61 *
P7	OP10a	-6.61	0.63	187.90
P8	OP10a	-5.17	0.56	204.26
P9	OP10a	-6.86	0.62	176.20 *
P10	OP10a	-7.10	0.68	177.21 *
P11	OP10a	-5.89	0.75	194.11
P12	OP10a	-7.55	0.82	172.98 *
P13	OP10a	-7.77	0.88	167.92 *
P14	OP10a	-6.61	0.94	196.20
P15	OP10a	-5.17	0.87	212.53
P16	OP10a	-5.41	0.93	206.29
P17	OP10a	-5.65	0.99	208.33
P18	OP10a	-5.89	1.06	202.71
P19	OP10a	-6.13	1.13	205.77
P20	OP10a	-6.37	1.19	201.31
P21	OP10a	-6.61	1.24	204.50
P22	OP10a	-5.17	1.17	220.80
P23	OP10a	-5.41	1.24	214.62
P24	OP10a	-5.65	1.30	216.64
P25	OP10a	-5.89	1.37	211.07
P26	OP10a	-6.13	1.43	214.09
P27	OP10a	-6.37	1.49	209.65
P28	OP10a	-6.61	1.55	212.80
P29	OP10a	-5.17	1.48	229.07
P30	OP10a	-5.41	1.54	222.73
P31	OP10a	-5.65	1.60	224.95
P32	OP10a	-5.89	1.67	219.21
P33	OP10a	-6.13	1.74	222.40
P34	OP10a	-6.37	1.80	217.77
P35	OP10a	-6.61	1.85	221.10
P36	OP10a	-5.17	1.79	237.34
P37	OP10a	-5.41	1.85	230.83
P38	OP10a	-5.65	1.91	233.25
P39	OP10a	-5.89	1.98	227.33
P40	OP10a	-6.13	2.04	230.70
P41	OP10a	-6.37	2.10	225.89
P42	OP10a	-6.61	2.16	229.39
P43	OP10a	-5.17	2.09	245.60
P44	OP10a	-5.41	2.15	238.93
P45	OP10a	-5.65	2.22	241.55
P46	OP10a	-5.89	2.28	235.45
P47	OP10a	-6.13	2.35	239.00
P48	OP10a	-6.37	2.41	234.00
P49	OP10a	6.61	2.46	237.68
P50	OP10a	-5.17	2.40	253.86
P51	OP10a	-5.41	2.46	246.99
P52	OP10a	-5.65	2.52	249.84
P53	OP10a	-5.89	2.59	243.53
P54	OP10a	-6.13	2.66	247.30
P55	OP10a	-6.37	2.72	242.08
P56	OP10a	-6.61	2.77	245.97
P57	OP10a	-5.17	2.70	262.11
P58	OP10a	-5.43	2.77	254.48
P59	OP10a	-5.65	2.83	258.14
P60	OP10a	-5.91	2.89	251.04
P61	OP10a	-6.13	2.96	255.59
P62	OP10a	-6.39	3.02	249.60
P63	OP10a	-6.61	3.08	254.25

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10b	-4.52	0.24	166.23
P2	OP10b	-5.93	0.31	141.18 *
P3	OP10b	-6.17	0.38	141.69 *
P4	OP10b	-5.24	0.45	156.26
P5	OP10b	-6.62	0.52	137.46 *
P6	OP10b	-6.84	0.58	132.90 *
P7	OP10b	-5.97	0.64	158.15
P8	OP10b	-4.52	0.55	163.29
P9	OP10b	-5.91	0.62	138.50 *
P10	OP10b	-6.14	0.68	138.79 *
P11	OP10b	-5.24	0.75	153.67
P12	OP10b	-6.60	0.82	134.56 *
P13	OP10b	-6.82	0.89	130.22 *
P14	OP10b	-5.97	0.95	155.24
P15	OP10b	-4.52	0.86	160.35
P16	OP10b	-4.76	0.93	153.94
P17	OP10b	-5.01	0.99	155.79
P18	OP10b	-5.24	1.06	150.40
P19	OP10b	-5.49	1.13	153.24
P20	OP10b	-5.73	1.19	148.96
P21	OP10b	-5.97	1.25	152.32
P22	OP10b	-4.52	1.16	157.41
P23	OP10b	-4.76	1.23	150.95
P24	OP10b	-5.01	1.30	152.86
P25	OP10b	-5.24	1.37	147.43
P26	OP10b	-5.49	1.43	150.31
P27	OP10b	-5.72	1.50	145.98
P28	OP10b	-5.97	1.56	149.41
P29	OP10b	-4.52	1.47	154.47
P30	OP10b	-4.76	1.54	148.07
P31	OP10b	-5.01	1.60	149.92
P32	OP10b	-5.24	1.67	144.55
P33	OP10b	-5.49	1.74	147.37
P34	OP10b	-5.72	1.80	143.11
P35	OP10b	-5.97	1.86	146.50
P36	OP10b	-4.52	1.77	151.53
P37	OP10b	-4.76	1.84	145.19
P38	OP10b	-5.01	1.91	146.98
P39	OP10b	-5.24	1.98	141.68
P40	OP10b	-5.49	2.04	144.43
P41	OP10b	-5.72	2.11	140.25
P42	OP10b	-5.97	2.17	143.58
P43	OP10b	-4.52	2.08	148.59
P44	OP10b	-4.76	2.15	142.32
P45	OP10b	-5.01	2.22	144.04
P46	OP10b	-5.24	2.28	138.81
P47	OP10b	-5.49	2.35	141.49
P48	OP10b	-5.72	2.41	137.39
P49	OP10b	5.97	2.48	140.67
P50	OP10b	-4.52	2.39	145.64
P51	OP10b	-4.76	2.46	139.43
P52	OP10b	-5.01	2.52	141.10
P53	OP10b	-5.25	2.59	135.92
P54	OP10b	-5.49	2.66	138.55
P55	OP10b	-5.73	2.72	134.51
P56	OP10b	-5.97	2.78	137.75
P57	OP10b	-4.52	2.69	142.70
P58	OP10b	-4.78	2.76	136.22
P59	OP10b	-5.01	2.83	138.16
P60	OP10b	-5.26	2.89	132.72
P61	OP10b	-5.49	2.96	135.61
P62	OP10b	-5.74	3.03	131.33
P63	OP10b	-5.97	3.09	134.83

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11a	18.50	-0.23	186.82
P2	OP11a	16.87	-0.16	242.37 *
P3	OP11a	16.86	-0.08	247.45 *
P4	OP11a	18.53	-0.02	179.83
P5	OP11a	16.88	0.04	247.76 *
P6	OP11a	16.90	0.12	242.95 *
P7	OP11a	18.56	0.19	187.47
P8	OP11a	18.50	-0.24	186.60
P9	OP11a	16.86	-0.17	242.73 *
P10	OP11a	16.87	-0.09	247.39 *
P11	OP11a	18.52	-0.03	180.17
P12	OP11a	16.88	0.03	247.70 *
P13	OP11a	16.89	0.10	243.31 *
P14	OP11a	18.56	0.18	187.27
P15	OP11a	18.50	-0.25	186.39
P16	OP11a	18.50	-0.18	180.60
P17	OP11a	18.52	-0.10	184.04
P18	OP11a	18.51	-0.04	180.17
P19	OP11a	18.54	0.02	184.29
P20	OP11a	18.53	0.09	181.08
P21	OP11a	18.56	0.16	187.08
P22	OP11a	18.50	-0.26	186.17
P23	OP11a	18.50	-0.19	180.48
P24	OP11a	18.52	-0.11	183.97
P25	OP11a	18.51	-0.05	180.04
P26	OP11a	18.54	0.01	184.22
P27	OP11a	18.53	0.08	180.97
P28	OP11a	18.56	0.15	186.88
P29	OP11a	18.50	-0.27	185.96
P30	OP11a	18.50	-0.19	180.34
P31	OP11a	18.52	-0.13	183.89
P32	OP11a	18.51	-0.07	179.96
P33	OP11a	18.54	-0.01	184.15
P34	OP11a	18.53	0.06	180.84
P35	OP11a	18.56	0.14	186.69
P36	OP11a	18.50	-0.28	185.74
P37	OP11a	18.50	-0.20	180.19
P38	OP11a	18.52	-0.14	183.81
P39	OP11a	18.51	-0.08	179.89
P40	OP11a	18.54	-0.02	184.07
P41	OP11a	18.53	0.05	180.71
P42	OP11a	18.56	0.13	186.49
P43	OP11a	18.50	-0.29	185.51
P44	OP11a	18.50	-0.21	180.05
P45	OP11a	18.52	-0.15	183.73
P46	OP11a	18.51	-0.09	179.81
P47	OP11a	18.54	-0.03	183.99
P48	OP11a	18.53	0.03	180.57
P49	OP11a	18.56	0.11	186.29
P50	OP11a	18.50	-0.30	185.29
P51	OP11a	18.50	-0.22	179.87
P52	OP11a	18.52	-0.16	183.64
P53	OP11a	18.51	-0.10	179.70
P54	OP11a	18.54	-0.04	183.91
P55	OP11a	18.53	0.02	180.41
P56	OP11a	18.56	0.10	186.09
P57	OP11a	18.50	-0.31	185.07
P58	OP11a	18.48	-0.23	179.24
P59	OP11a	18.52	-0.17	183.55
P60	OP11a	18.50	-0.11	179.14
P61	OP11a	18.54	-0.06	183.82
P62	OP11a	18.52	0.01	179.79
P63	OP11a	18.56	0.09	185.88

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11b	18.82	-0.23	167.80
P2	OP11b	17.33	-0.16	224.97 *
P3	OP11b	17.33	-0.08	229.90 *
P4	OP11b	18.85	-0.02	161.03
P5	OP11b	17.34	0.04	230.21 *
P6	OP11b	17.36	0.12	225.55 *
P7	OP11b	18.88	0.19	168.44
P8	OP11b	18.82	-0.24	170.35
P9	OP11b	17.30	-0.17	228.00 *
P10	OP11b	17.30	-0.09	232.58 *
P11	OP11b	18.84	-0.03	164.07
P12	OP11b	17.32	0.03	232.89 *
P13	OP11b	17.33	0.10	228.59 *
P14	OP11b	18.88	0.17	171.02
P15	OP11b	18.82	-0.25	172.91
P16	OP11b	18.82	-0.17	167.45
P17	OP11b	18.84	-0.10	170.65
P18	OP11b	18.84	-0.04	166.98
P19	OP11b	18.86	0.02	170.90
P20	OP11b	18.86	0.09	167.93
P21	OP11b	18.88	0.16	173.60
P22	OP11b	18.82	-0.26	175.46
P23	OP11b	18.82	-0.18	170.13
P24	OP11b	18.84	-0.11	173.36
P25	OP11b	18.83	-0.05	169.65
P26	OP11b	18.86	0.01	173.61
P27	OP11b	18.85	0.08	170.62
P28	OP11b	18.88	0.15	176.17
P29	OP11b	18.82	-0.27	178.01
P30	OP11b	18.82	-0.19	172.70
P31	OP11b	18.84	-0.13	176.06
P32	OP11b	18.83	-0.07	172.30
P33	OP11b	18.86	-0.01	176.32
P34	OP11b	18.85	0.06	173.20
P35	OP11b	18.88	0.13	178.74
P36	OP11b	18.82	-0.28	180.56
P37	OP11b	18.82	-0.20	175.27
P38	OP11b	18.84	-0.14	178.76
P39	OP11b	18.83	-0.08	174.94
P40	OP11b	18.86	-0.02	179.02
P41	OP11b	18.85	0.05	175.78
P42	OP11b	18.88	0.12	181.31
P43	OP11b	18.82	-0.29	183.10
P44	OP11b	18.82	-0.21	177.83
P45	OP11b	18.84	-0.15	181.46
P46	OP11b	18.83	-0.09	177.58
P47	OP11b	18.86	-0.03	181.72
P48	OP11b	18.85	0.03	178.36
P49	OP11b	18.88	0.11	183.88
P50	OP11b	18.82	-0.30	185.65
P51	OP11b	18.82	-0.22	180.37
P52	OP11b	18.84	-0.16	184.15
P53	OP11b	18.83	-0.10	180.19
P54	OP11b	18.86	-0.04	184.42
P55	OP11b	18.85	0.02	180.91
P56	OP11b	18.88	0.09	186.44
P57	OP11b	18.82	-0.31	188.19
P58	OP11b	18.80	-0.23	182.45
P59	OP11b	18.84	-0.17	186.84
P60	OP11b	18.82	-0.11	182.34
P61	OP11b	18.86	-0.06	187.11
P62	OP11b	18.84	0.00	183.00
P63	OP11b	18.88	0.08	189.01

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	-4.79	0.26	182.71
P2	D1a	-6.33	0.32	156.33 *
P3	D1a	-6.57	0.38	157.13 *
P4	D1a	-5.52	0.45	172.40
P5	D1a	-7.02	0.52	152.90 *
P6	D1a	-7.24	0.57	148.05 *
P7	D1a	-6.24	0.62	174.63
P8	D1a	-4.79	0.57	192.04
P9	D1a	-6.40	0.63	165.72 *
P10	D1a	-6.64	0.68	166.32 *
P11	D1a	-5.52	0.75	181.89
P12	D1a	-7.09	0.82	162.09 *
P13	D1a	-7.31	0.88	157.44 *
P14	D1a	-6.24	0.92	183.98
P15	D1a	-4.79	0.88	201.36
P16	D1a	-5.03	0.94	195.79
P17	D1a	-5.28	0.99	196.95
P18	D1a	-5.52	1.06	191.08
P19	D1a	-5.76	1.13	194.40
P20	D1a	-6.00	1.18	190.81
P21	D1a	-6.24	1.23	193.33
P22	D1a	-4.79	1.19	210.69
P23	D1a	-5.04	1.24	205.21
P24	D1a	-5.28	1.29	206.27
P25	D1a	-5.52	1.37	200.31
P26	D1a	-5.76	1.44	203.72
P27	D1a	-6.00	1.49	200.24
P28	D1a	-6.24	1.53	202.68
P29	D1a	-4.79	1.50	220.00
P30	D1a	-5.04	1.55	214.33
P31	D1a	-5.28	1.60	215.58
P32	D1a	-5.52	1.67	209.42
P33	D1a	-5.76	1.74	213.03
P34	D1a	-6.00	1.79	209.37
P35	D1a	-6.24	1.84	212.03
P36	D1a	-4.79	1.80	229.32
P37	D1a	-5.04	1.85	223.43
P38	D1a	-5.28	1.90	224.88
P39	D1a	-5.52	1.98	218.52
P40	D1a	-5.76	2.05	222.34
P41	D1a	-6.00	2.10	218.49
P42	D1a	-6.24	2.14	221.37
P43	D1a	-4.79	2.11	238.63
P44	D1a	-5.04	2.16	232.54
P45	D1a	-5.28	2.21	234.18
P46	D1a	-5.52	2.28	227.62
P47	D1a	-5.76	2.36	231.64
P48	D1a	-6.00	2.40	227.61
P49	D1a	-6.24	2.45	230.71
P50	D1a	-4.79	2.42	247.94
P51	D1a	-5.04	2.47	241.60
P52	D1a	-5.28	2.52	243.48
P53	D1a	-5.52	2.59	236.68
P54	D1a	-5.76	2.66	240.94
P55	D1a	-6.00	2.71	236.69
P56	D1a	-6.24	2.75	240.05
P57	D1a	-4.79	2.73	257.25
P58	D1a	-5.05	2.77	250.11
P59	D1a	-5.28	2.82	252.78
P60	D1a	-5.54	2.89	245.19
P61	D1a	-5.76	2.97	250.23
P62	D1a	-6.01	3.02	245.22
P63	D1a	-6.24	3.05	249.38

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	-4.15	0.25	152.96
P2	D1b	-5.47	0.32	129.62 *
P3	D1b	-5.70	0.38	129.81 *
P4	D1b	-4.87	0.45	143.14
P5	D1b	-6.15	0.52	125.58 *
P6	D1b	-6.38	0.57	121.35 *
P7	D1b	-5.59	0.63	144.88
P8	D1b	-4.15	0.56	151.07
P9	D1b	-5.45	0.63	128.02 *
P10	D1b	-5.68	0.68	127.90 *
P11	D1b	-4.87	0.75	141.45
P12	D1b	-6.14	0.82	123.68 *
P13	D1b	-6.36	0.88	119.74 *
P14	D1b	-5.59	0.94	143.02
P15	D1b	-4.15	0.87	149.18
P16	D1b	-4.39	0.93	143.44
P17	D1b	-4.63	0.99	144.42
P18	D1b	-4.87	1.06	138.77
P19	D1b	-5.12	1.13	141.87
P20	D1b	-5.35	1.18	138.46
P21	D1b	-5.59	1.24	141.16
P22	D1b	-4.15	1.18	147.29
P23	D1b	-4.39	1.24	141.54
P24	D1b	-4.63	1.29	142.49
P25	D1b	-4.87	1.37	136.67
P26	D1b	-5.12	1.44	139.94
P27	D1b	-5.35	1.49	136.57
P28	D1b	-5.59	1.54	139.29
P29	D1b	-4.15	1.48	145.40
P30	D1b	-4.39	1.54	139.67
P31	D1b	-4.63	1.60	140.55
P32	D1b	-4.87	1.67	134.76
P33	D1b	-5.12	1.74	138.00
P34	D1b	-5.35	1.80	134.71
P35	D1b	-5.59	1.85	137.43
P36	D1b	-4.15	1.79	143.51
P37	D1b	-4.39	1.85	137.80
P38	D1b	-4.63	1.90	138.61
P39	D1b	-4.87	1.98	132.87
P40	D1b	-5.12	2.05	136.06
P41	D1b	-5.35	2.10	132.85
P42	D1b	-5.59	2.15	135.56
P43	D1b	-4.15	2.10	141.62
P44	D1b	-4.39	2.16	135.93
P45	D1b	-4.63	2.21	136.67
P46	D1b	-4.87	2.28	130.98
P47	D1b	-5.12	2.36	134.13
P48	D1b	-5.35	2.41	131.00
P49	D1b	-5.59	2.46	133.70
P50	D1b	-4.15	2.41	139.73
P51	D1b	-4.39	2.46	134.04
P52	D1b	-4.63	2.52	134.73
P53	D1b	-4.87	2.59	129.07
P54	D1b	-5.12	2.66	132.19
P55	D1b	-5.35	2.71	129.12
P56	D1b	-5.59	2.76	131.83
P57	D1b	-4.15	2.72	137.83
P58	D1b	-4.40	2.77	131.84
P59	D1b	-4.63	2.82	132.79
P60	D1b	-4.89	2.89	126.86
P61	D1b	-5.12	2.97	130.25
P62	D1b	-5.36	3.02	126.96
P63	D1b	-5.59	3.07	129.96

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	-6.16	-1.42	189.36
P2	D2a	-8.03	-1.36	154.54 *
P3	D2a	-8.58	-1.31	151.69 *
P4	D2a	-7.87	-1.24	171.63
P5	D2a	-9.65	-1.18	140.00 *
P6	D2a	-10.18	-1.11	131.85 *
P7	D2a	-9.60	-1.06	166.24
P8	D2a	-6.16	-0.69	197.85
P9	D2a	-8.10	-0.64	163.11 *
P10	D2a	-8.64	-0.59	160.04 *
P11	D2a	-7.88	-0.51	180.25
P12	D2a	-9.72	-0.45	148.26 *
P13	D2a	-10.24	-0.38	140.15 *
P14	D2a	-9.60	-0.33	174.65
P15	D2a	-6.16	0.03	206.33
P16	D2a	-6.72	0.09	198.30
P17	D2a	-7.31	0.14	197.03
P18	D2a	-7.87	0.21	188.56
P19	D2a	-8.46	0.28	189.14
P20	D2a	-9.02	0.34	182.23
P21	D2a	-9.60	0.40	183.05
P22	D2a	-6.16	0.76	214.82
P23	D2a	-6.73	0.82	206.88
P24	D2a	-7.31	0.87	205.49
P25	D2a	-7.88	0.94	196.91
P26	D2a	-8.46	1.01	197.51
P27	D2a	-9.02	1.07	190.52
P28	D2a	-9.60	1.13	191.46
P29	D2a	-6.16	1.49	223.30
P30	D2a	-6.73	1.54	215.18
P31	D2a	-7.31	1.59	213.95
P32	D2a	-7.88	1.66	205.15
P33	D2a	-8.46	1.74	205.88
P34	D2a	-9.02	1.80	198.72
P35	D2a	-9.60	1.86	199.86
P36	D2a	-6.16	2.22	231.78
P37	D2a	-6.73	2.27	223.46
P38	D2a	-7.31	2.32	222.41
P39	D2a	-7.88	2.39	213.37
P40	D2a	-8.46	2.46	214.25
P41	D2a	-9.02	2.53	206.92
P42	D2a	-9.60	2.59	208.26
P43	D2a	-6.16	2.95	240.25
P44	D2a	-6.73	3.00	231.74
P45	D2a	-7.31	3.05	230.86
P46	D2a	-7.88	3.12	221.59
P47	D2a	-8.46	3.19	222.61
P48	D2a	-9.02	3.26	215.12
P49	D2a	-9.60	3.31	216.66
P50	D2a	-6.16	3.68	248.73
P51	D2a	-6.73	3.73	239.98
P52	D2a	-7.31	3.77	239.31
P53	D2a	-7.88	3.84	229.78
P54	D2a	-8.46	3.92	230.97
P55	D2a	-9.02	3.99	223.28
P56	D2a	-9.60	4.04	225.05
P57	D2a	-6.16	4.41	257.20
P58	D2a	-6.74	4.45	247.67
P59	D2a	-7.31	4.50	247.76
P60	D2a	-7.90	4.57	237.44
P61	D2a	-8.46	4.65	239.33
P62	D2a	-9.04	4.71	230.93
P63	D2a	-9.60	4.77	233.44

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	D2b	-5.51	-1.43	159.60	
P2	D2b	-7.17	-1.37	127.83	*
P3	D2b	-7.71	-1.31	124.37	*
P4	D2b	-7.23	-1.24	142.37	
P5	D2b	-8.79	-1.17	112.69	*
P6	D2b	-9.32	-1.11	105.15	*
P7	D2b	-8.95	-1.05	136.49	
P8	D2b	-5.51	-0.71	156.88	
P9	D2b	-7.15	-0.64	125.41	*
P10	D2b	-7.69	-0.59	121.62	*
P11	D2b	-7.23	-0.51	139.81	
P12	D2b	-8.76	-0.45	109.85	*
P13	D2b	-9.29	-0.38	102.45	*
P14	D2b	-8.95	-0.32	133.68	
P15	D2b	-5.51	0.02	154.15	
P16	D2b	-6.08	0.09	145.95	
P17	D2b	-6.66	0.14	144.50	
P18	D2b	-7.23	0.21	136.25	
P19	D2b	-7.81	0.28	136.61	
P20	D2b	-8.38	0.35	129.88	
P21	D2b	-8.95	0.41	130.87	
P22	D2b	-5.51	0.75	151.43	
P23	D2b	-6.08	0.81	143.22	
P24	D2b	-6.66	0.87	141.71	
P25	D2b	-7.23	0.94	133.27	
P26	D2b	-7.81	1.01	133.73	
P27	D2b	-8.37	1.08	126.85	
P28	D2b	-8.95	1.14	128.07	
P29	D2b	-5.51	1.48	148.70	
P30	D2b	-6.08	1.54	140.52	
P31	D2b	-6.66	1.59	138.93	
P32	D2b	-7.23	1.66	130.49	
P33	D2b	-7.81	1.74	130.85	
P34	D2b	-8.37	1.80	124.06	
P35	D2b	-8.95	1.87	125.26	
P36	D2b	-5.51	2.21	145.97	
P37	D2b	-6.08	2.27	137.82	
P38	D2b	-6.66	2.32	136.14	
P39	D2b	-7.23	2.39	127.72	
P40	D2b	-7.81	2.46	127.98	
P41	D2b	-8.37	2.53	121.28	
P42	D2b	-8.95	2.60	122.45	
P43	D2b	-5.51	2.94	143.24	
P44	D2b	-6.08	3.00	135.13	
P45	D2b	-6.66	3.05	133.35	
P46	D2b	-7.23	3.12	124.95	
P47	D2b	-7.81	3.19	125.10	
P48	D2b	-8.37	3.26	118.51	
P49	D2b	-8.95	3.33	119.64	
P50	D2b	-5.51	3.67	140.51	
P51	D2b	-6.08	3.72	132.42	
P52	D2b	-6.66	3.77	130.56	
P53	D2b	-7.23	3.84	122.17	
P54	D2b	-7.81	3.92	122.23	
P55	D2b	-8.38	3.99	115.71	
P56	D2b	-8.95	4.05	116.83	
P57	D2b	-5.51	4.40	137.78	
P58	D2b	-6.09	4.45	129.41	
P59	D2b	-6.66	4.50	127.77	
P60	D2b	-7.24	4.57	119.11	
P61	D2b	-7.81	4.65	119.35	
P62	D2b	-8.39	4.72	112.67	
P63	D2b	-8.95	4.78	114.02	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	DC Aa	-14.98	0.77	170.88	
P2	DC Aa	-16.53	0.83	107.73	*
P3	DC Aa	-17.02	0.88	104.72	*
P4	DC Aa	-16.48	0.95	156.24	
P5	DC Aa	-17.97	1.02	94.84	*
P6	DC Aa	-18.42	1.07	88.45	*
P7	DC Aa	-18.01	1.11	150.89	
P8	DC Aa	-14.98	1.41	183.86	
P9	DC Aa	-16.63	1.47	120.33	*
P10	DC Aa	-17.11	1.52	117.42	*
P11	DC Aa	-16.48	1.59	169.18	
P12	DC Aa	-18.06	1.66	107.53	*
P13	DC Aa	-18.52	1.71	101.01	*
P14	DC Aa	-18.01	1.75	163.88	
P15	DC Aa	-14.98	2.05	196.85	
P16	DC Aa	-15.47	2.11	189.56	
P17	DC Aa	-15.99	2.16	189.49	
P18	DC Aa	-16.48	2.23	182.03	
P19	DC Aa	-17.00	2.30	183.10	
P20	DC Aa	-17.49	2.36	177.10	
P21	DC Aa	-18.01	2.39	176.87	
P22	DC Aa	-14.98	2.69	209.84	
P23	DC Aa	-15.47	2.74	202.38	
P24	DC Aa	-15.99	2.80	202.36	
P25	DC Aa	-16.48	2.87	194.85	
P26	DC Aa	-17.00	2.94	195.96	
P27	DC Aa	-17.49	3.00	189.91	
P28	DC Aa	-18.01	3.03	189.86	
P29	DC Aa	-14.98	3.33	222.82	
P30	DC Aa	-15.47	3.38	215.02	
P31	DC Aa	-15.99	3.44	215.23	
P32	DC Aa	-16.48	3.51	207.44	
P33	DC Aa	-17.00	3.59	208.82	
P34	DC Aa	-17.49	3.64	202.56	
P35	DC Aa	-18.01	3.68	202.85	
P36	DC Aa	-14.98	3.97	235.80	
P37	DC Aa	-15.47	4.02	227.66	
P38	DC Aa	-15.99	4.08	228.09	
P39	DC Aa	-16.48	4.16	220.01	
P40	DC Aa	-17.00	4.23	221.67	
P41	DC Aa	-17.49	4.29	215.19	
P42	DC Aa	-18.01	4.32	215.83	
P43	DC Aa	-14.98	4.61	248.77	
P44	DC Aa	-15.47	4.66	240.29	
P45	DC Aa	-15.99	4.72	240.94	
P46	DC Aa	-16.48	4.80	232.58	
P47	DC Aa	-17.00	4.87	234.52	
P48	DC Aa	-17.49	4.93	227.82	
P49	DC Aa	-18.01	4.96	228.81	
P50	DC Aa	-14.98	5.25	261.75	
P51	DC Aa	-15.47	5.30	252.88	
P52	DC Aa	-15.99	5.36	253.80	
P53	DC Aa	-16.49	5.44	245.11	
P54	DC Aa	-17.00	5.51	247.37	
P55	DC Aa	-17.49	5.57	240.42	
P56	DC Aa	-18.01	5.60	241.79	
P57	DC Aa	-14.98	5.89	274.72	
P58	DC Aa	-15.49	5.94	264.90	
P59	DC Aa	-15.99	6.01	266.65	
P60	DC Aa	-16.50	6.08	257.09	
P61	DC Aa	-17.00	6.15	260.22	
P62	DC Aa	-17.51	6.21	252.47	
P63	DC Aa	-18.01	6.25	254.77	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	DC Ab	-14.18	0.76	134.38	
P2	DC Ab	-15.47	0.82	74.97	*
P3	DC Ab	-15.95	0.88	71.22	*
P4	DC Ab	-15.69	0.95	120.35	
P5	DC Ab	-16.90	1.02	61.34	*
P6	DC Ab	-17.36	1.07	55.69	*
P7	DC Ab	-17.21	1.12	114.40	
P8	DC Ab	-14.18	1.40	133.62	
P9	DC Ab	-15.46	1.46	74.09	*
P10	DC Ab	-15.95	1.52	70.30	*
P11	DC Ab	-15.69	1.59	119.58	
P12	DC Ab	-16.89	1.66	60.41	*
P13	DC Ab	-17.36	1.72	54.77	*
P14	DC Ab	-17.21	1.76	113.63	
P15	DC Ab	-14.18	2.04	132.85	
P16	DC Ab	-14.68	2.10	125.35	
P17	DC Ab	-15.19	2.16	125.06	
P18	DC Ab	-15.69	2.23	117.87	
P19	DC Ab	-16.21	2.30	118.67	
P20	DC Ab	-16.70	2.36	112.89	
P21	DC Ab	-17.21	2.40	112.87	
P22	DC Ab	-14.18	2.68	132.08	
P23	DC Ab	-14.68	2.74	124.28	
P24	DC Ab	-15.19	2.80	124.13	
P25	DC Ab	-15.69	2.87	116.78	
P26	DC Ab	-16.20	2.94	117.73	
P27	DC Ab	-16.70	3.00	111.82	
P28	DC Ab	-17.21	3.05	112.10	
P29	DC Ab	-14.18	3.32	131.31	
P30	DC Ab	-14.68	3.38	123.44	
P31	DC Ab	-15.19	3.44	123.20	
P32	DC Ab	-15.69	3.51	115.86	
P33	DC Ab	-16.20	3.59	116.79	
P34	DC Ab	-16.70	3.65	110.98	
P35	DC Ab	-17.21	3.69	111.34	
P36	DC Ab	-14.18	3.96	130.55	
P37	DC Ab	-14.68	4.02	122.61	
P38	DC Ab	-15.19	4.08	122.27	
P39	DC Ab	-15.69	4.16	114.95	
P40	DC Ab	-16.20	4.23	115.85	
P41	DC Ab	-16.70	4.29	110.15	
P42	DC Ab	-17.21	4.33	110.58	
P43	DC Ab	-14.18	4.60	129.78	
P44	DC Ab	-14.68	4.66	121.79	
P45	DC Ab	-15.19	4.72	121.34	
P46	DC Ab	-15.69	4.80	114.04	
P47	DC Ab	-16.20	4.87	114.92	
P48	DC Ab	-16.70	4.93	109.32	
P49	DC Ab	-17.21	4.97	109.82	
P50	DC Ab	-14.18	5.24	129.01	
P51	DC Ab	-14.68	5.30	120.94	
P52	DC Ab	-15.19	5.36	120.41	
P53	DC Ab	-15.69	5.44	113.12	
P54	DC Ab	-16.20	5.51	113.99	
P55	DC Ab	-16.70	5.58	108.48	
P56	DC Ab	-17.21	5.62	109.05	
P57	DC Ab	-14.18	5.88	128.25	
P58	DC Ab	-14.69	5.93	119.84	
P59	DC Ab	-15.19	6.01	119.48	
P60	DC Ab	-15.70	6.08	111.95	
P61	DC Ab	-16.20	6.15	113.05	
P62	DC Ab	-16.71	6.22	107.41	
P63	DC Ab	-17.21	6.26	108.29	

* Denotes Pile Battered @ 6V:1H in -X Direction

VERTICAL PILES

Vertical Reactions:
MAXIMUM REACTION = 274.72 kips
MINIMUM REACTION = 78.44 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 18.88 kips
MINIMUM REACTION = -18.01 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 9.75 kips
MINIMUM REACTION = -1.43 kips

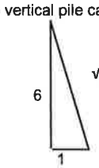
6V:1H PILES

Vertical Reactions:
MAXIMUM REACTION = 250.26 kips
MINIMUM REACTION = 54.77 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 17.36 kips
MINIMUM REACTION = -18.52 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 9.72 kips
MINIMUM REACTION = -1.37 kips

* Vertical reactions for piles battered at 6V:1H must be increased by a factor (hypotenuse/vertical length) to correspond to vertical pile capacity curves



$\sqrt{(6^2+1^2)}$ = 6.083

Max. Vertical Reaction = 253.7 kips

Maximum Vertical Reaction = 274.72 kips < $C_{allowable}$ = 285 kips - OK

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc. C-1 Model Pile Displacements **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	1a	0.0520	0.0021	-0.1353
P2	1a	0.0733	0.0014	-0.1221 *
P3	1a	0.0738	0.0008	-0.1255 *
P4	1a	0.0520	0.0003	-0.1337
P5	1a	0.0742	-0.0002	-0.1272 *
P6	1a	0.0741	-0.0008	-0.1255 *
P7	1a	0.0524	-0.0015	-0.1408
P8	1a	0.0520	0.0021	-0.1276
P9	1a	0.0722	0.0013	-0.1149 *
P10	1a	0.0726	0.0007	-0.1180 *
P11	1a	0.0522	0.0002	-0.1265
P12	1a	0.0730	-0.0002	-0.1197 *
P13	1a	0.0730	-0.0008	-0.1183 *
P14	1a	0.0524	-0.0016	-0.1331
P15	1a	0.0520	0.0020	-0.1199
P16	1a	0.0521	0.0012	-0.1175
P17	1a	0.0522	0.0007	-0.1207
P18	1a	0.0522	0.0002	-0.1191
P19	1a	0.0523	-0.0003	-0.1225
P20	1a	0.0523	-0.0009	-0.1211
P21	1a	0.0524	-0.0017	-0.1254
P22	1a	0.0520	0.0019	-0.1123
P23	1a	0.0521	0.0011	-0.1101
P24	1a	0.0522	0.0006	-0.1131
P25	1a	0.0522	0.0001	-0.1116
P26	1a	0.0523	-0.0004	-0.1149
P27	1a	0.0523	-0.0010	-0.1136
P28	1a	0.0524	-0.0018	-0.1178
P29	1a	0.0520	0.0018	-0.1046
P30	1a	0.0521	0.0010	-0.1026
P31	1a	0.0522	0.0005	-0.1054
P32	1a	0.0522	0.0000	-0.1042
P33	1a	0.0523	-0.0005	-0.1072
P34	1a	0.0523	-0.0010	-0.1061
P35	1a	0.0524	-0.0018	-0.1101
P36	1a	0.0520	0.0017	-0.0969
P37	1a	0.0521	0.0009	-0.0951
P38	1a	0.0522	0.0004	-0.0978
P39	1a	0.0522	-0.0001	-0.0968
P40	1a	0.0523	-0.0006	-0.0996
P41	1a	0.0523	-0.0011	-0.0986
P42	1a	0.0524	-0.0019	-0.1024
P43	1a	0.0520	0.0016	-0.0893
P44	1a	0.0521	0.0008	-0.0876
P45	1a	0.0522	0.0003	-0.0902
P46	1a	0.0522	-0.0002	-0.0893
P47	1a	0.0523	-0.0006	-0.0920
P48	1a	0.0523	-0.0012	-0.0912
P49	1a	0.0524	-0.0020	-0.0948
P50	1a	0.0520	0.0015	-0.0816
P51	1a	0.0521	0.0007	-0.0801
P52	1a	0.0522	0.0002	-0.0826
P53	1a	0.0522	-0.0002	-0.0818
P54	1a	0.0523	-0.0007	-0.0844
P55	1a	0.0523	-0.0012	-0.0837
P56	1a	0.0524	-0.0021	-0.0871
P57	1a	0.0520	0.0015	-0.0739
P58	1a	0.0522	0.0007	-0.0725
P59	1a	0.0522	0.0002	-0.0749
P60	1a	0.0523	-0.0003	-0.0742
P61	1a	0.0523	-0.0008	-0.0768
P62	1a	0.0525	-0.0013	-0.0760
P63	1a	0.0524	-0.0021	-0.0794

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	1b	-0.2418	-0.0008	-0.1923
P2	1b	-0.2050	-0.0024	-0.2210 *
P3	1b	-0.2020	-0.0040	-0.2239 *
P4	1b	-0.2334	-0.0054	-0.1822
P5	1b	-0.1967	-0.0068	-0.2212 *
P6	1b	-0.1944	-0.0083	-0.2156 *
P7	1b	-0.2247	-0.0098	-0.1866
P8	1b	-0.2418	-0.0044	-0.1968
P9	1b	-0.2040	-0.0060	-0.2258 *
P10	1b	-0.2012	-0.0076	-0.2284 *
P11	1b	-0.2331	-0.0090	-0.1871
P12	1b	-0.1959	-0.0104	-0.2257 *
P13	1b	-0.1933	-0.0119	-0.2204 *
P14	1b	-0.2247	-0.0134	-0.1911
P15	1b	-0.2418	-0.0080	-0.2013
P16	1b	-0.2387	-0.0097	-0.1943
P17	1b	-0.2360	-0.0112	-0.1968
P18	1b	-0.2331	-0.0126	-0.1916
P19	1b	-0.2304	-0.0140	-0.1950
P20	1b	-0.2274	-0.0155	-0.1908
P21	1b	-0.2247	-0.0171	-0.1956
P22	1b	-0.2418	-0.0116	-0.2058
P23	1b	-0.2387	-0.0133	-0.1988
P24	1b	-0.2360	-0.0148	-0.2014
P25	1b	-0.2330	-0.0162	-0.1961
P26	1b	-0.2304	-0.0176	-0.1996
P27	1b	-0.2274	-0.0191	-0.1952
P28	1b	-0.2247	-0.0207	-0.2001
P29	1b	-0.2418	-0.0152	-0.2103
P30	1b	-0.2387	-0.0169	-0.2032
P31	1b	-0.2360	-0.0184	-0.2060
P32	1b	-0.2330	-0.0198	-0.2006
P33	1b	-0.2304	-0.0212	-0.2042
P34	1b	-0.2274	-0.0227	-0.1997
P35	1b	-0.2247	-0.0243	-0.2046
P36	1b	-0.2418	-0.0188	-0.2148
P37	1b	-0.2387	-0.0205	-0.2077
P38	1b	-0.2360	-0.0220	-0.2106
P39	1b	-0.2330	-0.0234	-0.2051
P40	1b	-0.2304	-0.0248	-0.2088
P41	1b	-0.2274	-0.0263	-0.2041
P42	1b	-0.2247	-0.0279	-0.2092
P43	1b	-0.2418	-0.0224	-0.2193
P44	1b	-0.2387	-0.0241	-0.2121
P45	1b	-0.2360	-0.0256	-0.2152
P46	1b	-0.2330	-0.0270	-0.2096
P47	1b	-0.2304	-0.0285	-0.2134
P48	1b	-0.2274	-0.0299	-0.2086
P49	1b	-0.2247	-0.0316	-0.2137
P50	1b	-0.2418	-0.0260	-0.2238
P51	1b	-0.2387	-0.0277	-0.2165
P52	1b	-0.2360	-0.0292	-0.2198
P53	1b	-0.2330	-0.0306	-0.2140
P54	1b	-0.2304	-0.0321	-0.2179
P55	1b	-0.2273	-0.0335	-0.2130
P56	1b	-0.2247	-0.0352	-0.2182
P57	1b	-0.2418	-0.0296	-0.2283
P58	1b	-0.2383	-0.0314	-0.2204
P59	1b	-0.2360	-0.0328	-0.2243
P60	1b	-0.2326	-0.0343	-0.2179
P61	1b	-0.2304	-0.0357	-0.2225
P62	1b	-0.2269	-0.0371	-0.2169
P63	1b	-0.2247	-0.0388	-0.2227

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	1c	0.0519	-0.1890	-0.1394
P2	1c	0.0734	-0.1899	-0.1241 *
P3	1c	0.0735	-0.1904	-0.1261 *
P4	1c	0.0515	-0.1908	-0.1326
P5	1c	0.0732	-0.1912	-0.1245 *
P6	1c	0.0727	-0.1917	-0.1212 *
P7	1c	0.0516	-0.1923	-0.1341
P8	1c	0.0519	-0.1890	-0.1318
P9	1c	0.0723	-0.1899	-0.1169 *
P10	1c	0.0723	-0.1904	-0.1185 *
P11	1c	0.0517	-0.1907	-0.1254
P12	1c	0.0719	-0.1911	-0.1170 *
P13	1c	0.0716	-0.1917	-0.1140 *
P14	1c	0.0516	-0.1922	-0.1264
P15	1c	0.0519	-0.1889	-0.1241
P16	1c	0.0518	-0.1898	-0.1196
P17	1c	0.0518	-0.1903	-0.1212
P18	1c	0.0517	-0.1907	-0.1180
P19	1c	0.0517	-0.1911	-0.1196
P20	1c	0.0516	-0.1916	-0.1166
P21	1c	0.0516	-0.1922	-0.1188
P22	1c	0.0519	-0.1889	-0.1165
P23	1c	0.0518	-0.1898	-0.1121
P24	1c	0.0518	-0.1903	-0.1136
P25	1c	0.0517	-0.1906	-0.1105
P26	1c	0.0517	-0.1910	-0.1120
P27	1c	0.0516	-0.1915	-0.1091
P28	1c	0.0516	-0.1921	-0.1111
P29	1c	0.0519	-0.1888	-0.1088
P30	1c	0.0518	-0.1898	-0.1046
P31	1c	0.0518	-0.1902	-0.1060
P32	1c	0.0517	-0.1906	-0.1031
P33	1c	0.0517	-0.1910	-0.1044
P34	1c	0.0516	-0.1915	-0.1017
P35	1c	0.0516	-0.1921	-0.1035
P36	1c	0.0519	-0.1888	-0.1011
P37	1c	0.0518	-0.1897	-0.0971
P38	1c	0.0518	-0.1902	-0.0984
P39	1c	0.0517	-0.1905	-0.0957
P40	1c	0.0517	-0.1909	-0.0968
P41	1c	0.0516	-0.1914	-0.0942
P42	1c	0.0516	-0.1920	-0.0958
P43	1c	0.0519	-0.1887	-0.0935
P44	1c	0.0518	-0.1897	-0.0897
P45	1c	0.0518	-0.1901	-0.0907
P46	1c	0.0517	-0.1905	-0.0882
P47	1c	0.0517	-0.1909	-0.0891
P48	1c	0.0516	-0.1914	-0.0867
P49	1c	0.0516	-0.1920	-0.0881
P50	1c	0.0519	-0.1887	-0.0858
P51	1c	0.0518	-0.1896	-0.0822
P52	1c	0.0518	-0.1901	-0.0831
P53	1c	0.0517	-0.1904	-0.0808
P54	1c	0.0517	-0.1908	-0.0815
P55	1c	0.0517	-0.1913	-0.0792
P56	1c	0.0516	-0.1919	-0.0805
P57	1c	0.0519	-0.1887	-0.0782
P58	1c	0.0519	-0.1896	-0.0745
P59	1c	0.0518	-0.1900	-0.0755
P60	1c	0.0518	-0.1904	-0.0731
P61	1c	0.0517	-0.1908	-0.0739
P62	1c	0.0518	-0.1912	-0.0716
P63	1c	0.0516	-0.1919	-0.0728

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP1a	-0.2343	0.0041	-0.1809
P2	OP1a	-0.2019	0.0027	-0.2105 *
P3	OP1a	-0.2016	0.0013	-0.2147 *
P4	OP1a	-0.2343	0.0000	-0.1743
P5	OP1a	-0.2016	-0.0013	-0.2149 *
P6	OP1a	-0.2019	-0.0027	-0.2107 *
P7	OP1a	-0.2342	-0.0040	-0.1812
P8	OP1a	-0.2343	0.0041	-0.1870
P9	OP1a	-0.2007	0.0027	-0.2168 *
P10	OP1a	-0.2006	0.0013	-0.2208 *
P11	OP1a	-0.2341	0.0000	-0.1808
P12	OP1a	-0.2006	-0.0013	-0.2210 *
P13	OP1a	-0.2007	-0.0027	-0.2171 *
P14	OP1a	-0.2342	-0.0040	-0.1873
P15	OP1a	-0.2343	0.0041	-0.1930
P16	OP1a	-0.2341	0.0027	-0.1878
P17	OP1a	-0.2342	0.0013	-0.1910
P18	OP1a	-0.2341	0.0000	-0.1871
P19	OP1a	-0.2342	-0.0013	-0.1912
P20	OP1a	-0.2341	-0.0027	-0.1881
P21	OP1a	-0.2342	-0.0040	-0.1934
P22	OP1a	-0.2343	0.0041	-0.1991
P23	OP1a	-0.2341	0.0027	-0.1939
P24	OP1a	-0.2342	0.0013	-0.1972
P25	OP1a	-0.2340	0.0000	-0.1932
P26	OP1a	-0.2342	-0.0013	-0.1974
P27	OP1a	-0.2340	-0.0026	-0.1942
P28	OP1a	-0.2342	-0.0041	-0.1995
P29	OP1a	-0.2343	0.0041	-0.2052
P30	OP1a	-0.2341	0.0026	-0.1999
P31	OP1a	-0.2342	0.0013	-0.2034
P32	OP1a	-0.2340	0.0000	-0.1993
P33	OP1a	-0.2342	-0.0013	-0.2035
P34	OP1a	-0.2340	-0.0026	-0.2002
P35	OP1a	-0.2342	-0.0041	-0.2056
P36	OP1a	-0.2343	0.0041	-0.2112
P37	OP1a	-0.2341	0.0026	-0.2059
P38	OP1a	-0.2342	0.0013	-0.2095
P39	OP1a	-0.2340	0.0000	-0.2053
P40	OP1a	-0.2342	-0.0013	-0.2097
P41	OP1a	-0.2340	-0.0026	-0.2062
P42	OP1a	-0.2342	-0.0041	-0.2117
P43	OP1a	-0.2343	0.0041	-0.2173
P44	OP1a	-0.2340	0.0026	-0.2118
P45	OP1a	-0.2342	0.0013	-0.2157
P46	OP1a	-0.2340	0.0000	-0.2113
P47	OP1a	-0.2342	-0.0013	-0.2159
P48	OP1a	-0.2340	-0.0026	-0.2122
P49	OP1a	-0.2342	-0.0041	-0.2178
P50	OP1a	-0.2343	0.0041	-0.2233
P51	OP1a	-0.2340	0.0026	-0.2178
P52	OP1a	-0.2342	0.0013	-0.2218
P53	OP1a	-0.2340	0.0000	-0.2173
P54	OP1a	-0.2342	-0.0013	-0.2220
P55	OP1a	-0.2340	-0.0026	-0.2181
P56	OP1a	-0.2342	-0.0041	-0.2238
P57	OP1a	-0.2343	0.0041	-0.2294
P58	OP1a	-0.2336	0.0025	-0.2232
P59	OP1a	-0.2342	0.0013	-0.2280
P60	OP1a	-0.2336	0.0000	-0.2228
P61	OP1a	-0.2342	-0.0013	-0.2282
P62	OP1a	-0.2336	-0.0026	-0.2235
P63	OP1a	-0.2342	-0.0041	-0.2299

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP1b	-0.2386	0.0042	-0.1718
P2	OP1b	-0.2077	0.0028	-0.2023 *
P3	OP1b	-0.2074	0.0013	-0.2064 *
P4	OP1b	-0.2386	0.0000	-0.1653
P5	OP1b	-0.2074	-0.0013	-0.2065 *
P6	OP1b	-0.2076	-0.0027	-0.2025 *
P7	OP1b	-0.2385	-0.0041	-0.1721
P8	OP1b	-0.2386	0.0042	-0.1744
P9	OP1b	-0.2070	0.0027	-0.2052 *
P10	OP1b	-0.2069	0.0013	-0.2091 *
P11	OP1b	-0.2384	0.0000	-0.1684
P12	OP1b	-0.2069	-0.0013	-0.2092 *
P13	OP1b	-0.2070	-0.0027	-0.2055 *
P14	OP1b	-0.2385	-0.0041	-0.1748
P15	OP1b	-0.2386	0.0042	-0.1770
P16	OP1b	-0.2384	0.0027	-0.1717
P17	OP1b	-0.2385	0.0013	-0.1749
P18	OP1b	-0.2383	0.0000	-0.1711
P19	OP1b	-0.2385	-0.0013	-0.1751
P20	OP1b	-0.2383	-0.0027	-0.1720
P21	OP1b	-0.2385	-0.0041	-0.1774
P22	OP1b	-0.2386	0.0042	-0.1797
P23	OP1b	-0.2384	0.0027	-0.1744
P24	OP1b	-0.2385	0.0013	-0.1776
P25	OP1b	-0.2383	0.0000	-0.1737
P26	OP1b	-0.2385	-0.0013	-0.1778
P27	OP1b	-0.2383	-0.0027	-0.1747
P28	OP1b	-0.2385	-0.0041	-0.1801
P29	OP1b	-0.2386	0.0042	-0.1823
P30	OP1b	-0.2384	0.0027	-0.1770
P31	OP1b	-0.2385	0.0013	-0.1804
P32	OP1b	-0.2383	0.0000	-0.1764
P33	OP1b	-0.2385	-0.0013	-0.1805
P34	OP1b	-0.2383	-0.0027	-0.1773
P35	OP1b	-0.2385	-0.0041	-0.1827
P36	OP1b	-0.2386	0.0042	-0.1849
P37	OP1b	-0.2384	0.0026	-0.1796
P38	OP1b	-0.2385	0.0013	-0.1831
P39	OP1b	-0.2383	0.0000	-0.1791
P40	OP1b	-0.2385	-0.0013	-0.1832
P41	OP1b	-0.2383	-0.0027	-0.1799
P42	OP1b	-0.2385	-0.0041	-0.1854
P43	OP1b	-0.2385	0.0041	-0.1875
P44	OP1b	-0.2383	0.0026	-0.1822
P45	OP1b	-0.2385	0.0013	-0.1858
P46	OP1b	-0.2383	0.0000	-0.1817
P47	OP1b	-0.2385	-0.0013	-0.1860
P48	OP1b	-0.2383	-0.0026	-0.1825
P49	OP1b	-0.2385	-0.0042	-0.1880
P50	OP1b	-0.2385	0.0041	-0.1902
P51	OP1b	-0.2383	0.0026	-0.1848
P52	OP1b	-0.2385	0.0013	-0.1885
P53	OP1b	-0.2383	0.0000	-0.1843
P54	OP1b	-0.2385	-0.0013	-0.1887
P55	OP1b	-0.2383	-0.0026	-0.1851
P56	OP1b	-0.2385	-0.0042	-0.1907
P57	OP1b	-0.2385	0.0041	-0.1928
P58	OP1b	-0.2379	0.0026	-0.1869
P59	OP1b	-0.2385	0.0013	-0.1912
P60	OP1b	-0.2379	0.0000	-0.1865
P61	OP1b	-0.2385	-0.0013	-0.1914
P62	OP1b	-0.2379	-0.0026	-0.1873
P63	OP1b	-0.2385	-0.0042	-0.1933

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP2a	-0.1912	0.0040	-0.1890
P2	OP2a	-0.1581	0.0027	-0.2114 *
P3	OP2a	-0.1578	0.0013	-0.2157 *
P4	OP2a	-0.1912	0.0000	-0.1823
P5	OP2a	-0.1578	-0.0013	-0.2159 *
P6	OP2a	-0.1581	-0.0027	-0.2116 *
P7	OP2a	-0.1912	-0.0040	-0.1894
P8	OP2a	-0.1912	0.0040	-0.1940
P9	OP2a	-0.1571	0.0027	-0.2167 *
P10	OP2a	-0.1570	0.0013	-0.2208 *
P11	OP2a	-0.1910	0.0000	-0.1877
P12	OP2a	-0.1569	-0.0013	-0.2209 *
P13	OP2a	-0.1570	-0.0026	-0.2170 *
P14	OP2a	-0.1912	-0.0040	-0.1944
P15	OP2a	-0.1912	0.0040	-0.1991
P16	OP2a	-0.1911	0.0026	-0.1938
P17	OP2a	-0.1911	0.0013	-0.1971
P18	OP2a	-0.1910	0.0000	-0.1931
P19	OP2a	-0.1911	-0.0013	-0.1973
P20	OP2a	-0.1910	-0.0026	-0.1941
P21	OP2a	-0.1912	-0.0040	-0.1995
P22	OP2a	-0.1912	0.0040	-0.2041
P23	OP2a	-0.1910	0.0026	-0.1989
P24	OP2a	-0.1911	0.0013	-0.2022
P25	OP2a	-0.1910	0.0000	-0.1983
P26	OP2a	-0.1911	-0.0013	-0.2024
P27	OP2a	-0.1910	-0.0026	-0.1992
P28	OP2a	-0.1912	-0.0040	-0.2045
P29	OP2a	-0.1912	0.0040	-0.2091
P30	OP2a	-0.1910	0.0026	-0.2039
P31	OP2a	-0.1911	0.0013	-0.2074
P32	OP2a	-0.1910	0.0000	-0.2033
P33	OP2a	-0.1911	-0.0013	-0.2075
P34	OP2a	-0.1910	-0.0026	-0.2042
P35	OP2a	-0.1912	-0.0040	-0.2096
P36	OP2a	-0.1912	0.0040	-0.2141
P37	OP2a	-0.1910	0.0025	-0.2088
P38	OP2a	-0.1911	0.0012	-0.2125
P39	OP2a	-0.1910	0.0000	-0.2083
P40	OP2a	-0.1911	-0.0013	-0.2127
P41	OP2a	-0.1910	-0.0026	-0.2092
P42	OP2a	-0.1912	-0.0040	-0.2146
P43	OP2a	-0.1912	0.0040	-0.2192
P44	OP2a	-0.1910	0.0025	-0.2138
P45	OP2a	-0.1911	0.0012	-0.2176
P46	OP2a	-0.1910	0.0000	-0.2133
P47	OP2a	-0.1911	-0.0013	-0.2178
P48	OP2a	-0.1910	-0.0026	-0.2141
P49	OP2a	-0.1912	-0.0040	-0.2196
P50	OP2a	-0.1912	0.0040	-0.2242
P51	OP2a	-0.1910	0.0025	-0.2187
P52	OP2a	-0.1911	0.0012	-0.2228
P53	OP2a	-0.1909	0.0000	-0.2183
P54	OP2a	-0.1911	-0.0013	-0.2229
P55	OP2a	-0.1910	-0.0025	-0.2191
P56	OP2a	-0.1912	-0.0040	-0.2247
P57	OP2a	-0.1912	0.0040	-0.2292
P58	OP2a	-0.1906	0.0024	-0.2231
P59	OP2a	-0.1911	0.0012	-0.2279
P60	OP2a	-0.1906	0.0000	-0.2228
P61	OP2a	-0.1911	-0.0013	-0.2280
P62	OP2a	-0.1906	-0.0025	-0.2235
P63	OP2a	-0.1912	-0.0040	-0.2297

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP2b	-0.1965	0.0041	-0.1777
P2	OP2b	-0.1653	0.0027	-0.2012 *
P3	OP2b	-0.1650	0.0013	-0.2053 *
P4	OP2b	-0.1966	0.0000	-0.1711
P5	OP2b	-0.1649	-0.0013	-0.2054 *
P6	OP2b	-0.1652	-0.0027	-0.2014 *
P7	OP2b	-0.1965	-0.0041	-0.1780
P8	OP2b	-0.1965	0.0041	-0.1784
P9	OP2b	-0.1649	0.0027	-0.2023 *
P10	OP2b	-0.1648	0.0013	-0.2061 *
P11	OP2b	-0.1964	0.0000	-0.1723
P12	OP2b	-0.1648	-0.0013	-0.2063 *
P13	OP2b	-0.1649	-0.0027	-0.2026 *
P14	OP2b	-0.1965	-0.0041	-0.1788
P15	OP2b	-0.1965	0.0041	-0.1792
P16	OP2b	-0.1964	0.0027	-0.1738
P17	OP2b	-0.1965	0.0013	-0.1771
P18	OP2b	-0.1963	0.0000	-0.1732
P19	OP2b	-0.1965	-0.0013	-0.1772
P20	OP2b	-0.1963	-0.0026	-0.1741
P21	OP2b	-0.1965	-0.0041	-0.1796
P22	OP2b	-0.1965	0.0041	-0.1799
P23	OP2b	-0.1964	0.0026	-0.1746
P24	OP2b	-0.1965	0.0013	-0.1779
P25	OP2b	-0.1963	0.0000	-0.1740
P26	OP2b	-0.1965	-0.0013	-0.1781
P27	OP2b	-0.1963	-0.0026	-0.1749
P28	OP2b	-0.1965	-0.0041	-0.1803
P29	OP2b	-0.1965	0.0041	-0.1807
P30	OP2b	-0.1964	0.0026	-0.1754
P31	OP2b	-0.1965	0.0013	-0.1788
P32	OP2b	-0.1963	0.0000	-0.1748
P33	OP2b	-0.1965	-0.0013	-0.1789
P34	OP2b	-0.1963	-0.0026	-0.1757
P35	OP2b	-0.1965	-0.0041	-0.1811
P36	OP2b	-0.1965	0.0041	-0.1814
P37	OP2b	-0.1964	0.0026	-0.1762
P38	OP2b	-0.1965	0.0012	-0.1796
P39	OP2b	-0.1963	0.0000	-0.1757
P40	OP2b	-0.1965	-0.0013	-0.1798
P41	OP2b	-0.1963	-0.0026	-0.1765
P42	OP2b	-0.1965	-0.0041	-0.1819
P43	OP2b	-0.1965	0.0041	-0.1822
P44	OP2b	-0.1964	0.0026	-0.1770
P45	OP2b	-0.1965	0.0012	-0.1805
P46	OP2b	-0.1963	0.0000	-0.1765
P47	OP2b	-0.1965	-0.0013	-0.1806
P48	OP2b	-0.1963	-0.0026	-0.1773
P49	OP2b	-0.1965	-0.0041	-0.1827
P50	OP2b	-0.1965	0.0041	-0.1829
P51	OP2b	-0.1963	0.0025	-0.1777
P52	OP2b	-0.1965	0.0012	-0.1813
P53	OP2b	-0.1963	0.0000	-0.1773
P54	OP2b	-0.1965	-0.0013	-0.1815
P55	OP2b	-0.1963	-0.0026	-0.1781
P56	OP2b	-0.1965	-0.0041	-0.1834
P57	OP2b	-0.1965	0.0041	-0.1837
P58	OP2b	-0.1960	0.0025	-0.1780
P59	OP2b	-0.1965	0.0012	-0.1821
P60	OP2b	-0.1959	0.0000	-0.1777
P61	OP2b	-0.1965	-0.0013	-0.1823
P62	OP2b	-0.1959	-0.0026	-0.1784
P63	OP2b	-0.1965	-0.0041	-0.1842

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc. C-1 Model Pile Displacements **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP3a	-0.1812	0.0040	-0.1884
P2	OP3a	-0.1484	0.0027	-0.2093 *
P3	OP3a	-0.1481	0.0013	-0.2136 *
P4	OP3a	-0.1813	0.0000	-0.1818
P5	OP3a	-0.1480	-0.0013	-0.2137 *
P6	OP3a	-0.1483	-0.0026	-0.2095 *
P7	OP3a	-0.1812	-0.0040	-0.1888
P8	OP3a	-0.1812	0.0040	-0.1935
P9	OP3a	-0.1473	0.0027	-0.2147 *
P10	OP3a	-0.1472	0.0013	-0.2187 *
P11	OP3a	-0.1811	0.0000	-0.1873
P12	OP3a	-0.1472	-0.0013	-0.2188 *
P13	OP3a	-0.1473	-0.0026	-0.2149 *
P14	OP3a	-0.1812	-0.0040	-0.1939
P15	OP3a	-0.1812	0.0040	-0.1986
P16	OP3a	-0.1811	0.0026	-0.1934
P17	OP3a	-0.1812	0.0013	-0.1967
P18	OP3a	-0.1811	0.0000	-0.1928
P19	OP3a	-0.1811	-0.0013	-0.1969
P20	OP3a	-0.1811	-0.0026	-0.1937
P21	OP3a	-0.1812	-0.0040	-0.1990
P22	OP3a	-0.1812	0.0040	-0.2037
P23	OP3a	-0.1811	0.0026	-0.1986
P24	OP3a	-0.1812	0.0013	-0.2019
P25	OP3a	-0.1810	0.0000	-0.1980
P26	OP3a	-0.1811	-0.0013	-0.2021
P27	OP3a	-0.1810	-0.0026	-0.1989
P28	OP3a	-0.1812	-0.0040	-0.2041
P29	OP3a	-0.1812	0.0040	-0.2088
P30	OP3a	-0.1811	0.0026	-0.2036
P31	OP3a	-0.1812	0.0012	-0.2071
P32	OP3a	-0.1810	0.0000	-0.2030
P33	OP3a	-0.1811	-0.0013	-0.2073
P34	OP3a	-0.1810	-0.0026	-0.2039
P35	OP3a	-0.1812	-0.0039	-0.2092
P36	OP3a	-0.1812	0.0040	-0.2139
P37	OP3a	-0.1811	0.0025	-0.2086
P38	OP3a	-0.1812	0.0012	-0.2123
P39	OP3a	-0.1810	0.0000	-0.2081
P40	OP3a	-0.1811	-0.0013	-0.2124
P41	OP3a	-0.1810	-0.0025	-0.2090
P42	OP3a	-0.1812	-0.0039	-0.2143
P43	OP3a	-0.1812	0.0039	-0.2190
P44	OP3a	-0.1810	0.0025	-0.2136
P45	OP3a	-0.1812	0.0012	-0.2175
P46	OP3a	-0.1810	0.0000	-0.2132
P47	OP3a	-0.1811	-0.0013	-0.2176
P48	OP3a	-0.1810	-0.0025	-0.2140
P49	OP3a	-0.1812	-0.0039	-0.2194
P50	OP3a	-0.1812	0.0039	-0.2240
P51	OP3a	-0.1810	0.0025	-0.2186
P52	OP3a	-0.1812	0.0012	-0.2226
P53	OP3a	-0.1810	0.0000	-0.2182
P54	OP3a	-0.1811	-0.0013	-0.2228
P55	OP3a	-0.1810	-0.0025	-0.2190
P56	OP3a	-0.1812	-0.0039	-0.2245
P57	OP3a	-0.1812	0.0039	-0.2291
P58	OP3a	-0.1806	0.0024	-0.2231
P59	OP3a	-0.1812	0.0012	-0.2278
P60	OP3a	-0.1806	0.0000	-0.2227
P61	OP3a	-0.1811	-0.0013	-0.2280
P62	OP3a	-0.1806	-0.0025	-0.2234
P63	OP3a	-0.1812	-0.0039	-0.2296

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP3b	-0.1870	0.0041	-0.1762
P2	OP3b	-0.1560	0.0027	-0.1983 *
P3	OP3b	-0.1558	0.0013	-0.2023 *
P4	OP3b	-0.1870	0.0000	-0.1697
P5	OP3b	-0.1557	-0.0013	-0.2025 *
P6	OP3b	-0.1560	-0.0027	-0.1986 *
P7	OP3b	-0.1869	-0.0040	-0.1766
P8	OP3b	-0.1870	0.0041	-0.1767
P9	OP3b	-0.1558	0.0027	-0.1992 *
P10	OP3b	-0.1557	0.0013	-0.2029 *
P11	OP3b	-0.1868	0.0000	-0.1707
P12	OP3b	-0.1556	-0.0013	-0.2031 *
P13	OP3b	-0.1557	-0.0026	-0.1994 *
P14	OP3b	-0.1869	-0.0040	-0.1771
P15	OP3b	-0.1870	0.0041	-0.1772
P16	OP3b	-0.1868	0.0026	-0.1719
P17	OP3b	-0.1869	0.0013	-0.1751
P18	OP3b	-0.1868	0.0000	-0.1713
P19	OP3b	-0.1869	-0.0013	-0.1753
P20	OP3b	-0.1868	-0.0026	-0.1722
P21	OP3b	-0.1869	-0.0040	-0.1776
P22	OP3b	-0.1870	0.0041	-0.1777
P23	OP3b	-0.1868	0.0026	-0.1724
P24	OP3b	-0.1869	0.0013	-0.1757
P25	OP3b	-0.1868	0.0000	-0.1718
P26	OP3b	-0.1869	-0.0013	-0.1759
P27	OP3b	-0.1868	-0.0026	-0.1727
P28	OP3b	-0.1869	-0.0040	-0.1781
P29	OP3b	-0.1870	0.0041	-0.1782
P30	OP3b	-0.1868	0.0026	-0.1729
P31	OP3b	-0.1869	0.0013	-0.1763
P32	OP3b	-0.1868	0.0000	-0.1724
P33	OP3b	-0.1869	-0.0013	-0.1764
P34	OP3b	-0.1868	-0.0026	-0.1733
P35	OP3b	-0.1869	-0.0040	-0.1786
P36	OP3b	-0.1870	0.0040	-0.1786
P37	OP3b	-0.1868	0.0026	-0.1735
P38	OP3b	-0.1869	0.0012	-0.1768
P39	OP3b	-0.1868	0.0000	-0.1729
P40	OP3b	-0.1869	-0.0013	-0.1770
P41	OP3b	-0.1868	-0.0026	-0.1738
P42	OP3b	-0.1869	-0.0040	-0.1791
P43	OP3b	-0.1870	0.0040	-0.1791
P44	OP3b	-0.1868	0.0025	-0.1740
P45	OP3b	-0.1869	0.0012	-0.1774
P46	OP3b	-0.1867	0.0000	-0.1735
P47	OP3b	-0.1869	-0.0013	-0.1776
P48	OP3b	-0.1868	-0.0026	-0.1743
P49	OP3b	-0.1869	-0.0040	-0.1796
P50	OP3b	-0.1870	0.0040	-0.1796
P51	OP3b	-0.1867	0.0025	-0.1745
P52	OP3b	-0.1869	0.0012	-0.1780
P53	OP3b	-0.1867	0.0000	-0.1740
P54	OP3b	-0.1869	-0.0013	-0.1781
P55	OP3b	-0.1867	-0.0025	-0.1748
P56	OP3b	-0.1869	-0.0040	-0.1801
P57	OP3b	-0.1870	0.0040	-0.1801
P58	OP3b	-0.1864	0.0025	-0.1745
P59	OP3b	-0.1869	0.0012	-0.1785
P60	OP3b	-0.1864	0.0000	-0.1741
P61	OP3b	-0.1869	-0.0013	-0.1787
P62	OP3b	-0.1864	-0.0025	-0.1749
P63	OP3b	-0.1869	-0.0040	-0.1806

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP4a	-0.1627	0.0039	-0.1874
P2	OP4a	-0.1302	0.0026	-0.2054 *
P3	OP4a	-0.1299	0.0012	-0.2096 *
P4	OP4a	-0.1626	0.0000	-0.1808
P5	OP4a	-0.1298	-0.0013	-0.2097 *
P6	OP4a	-0.1300	-0.0027	-0.2056 *
P7	OP4a	-0.1625	-0.0040	-0.1877
P8	OP4a	-0.1627	0.0039	-0.1927
P9	OP4a	-0.1292	0.0025	-0.2109 *
P10	OP4a	-0.1290	0.0012	-0.2149 *
P11	OP4a	-0.1624	-0.0001	-0.1865
P12	OP4a	-0.1289	-0.0013	-0.2150 *
P13	OP4a	-0.1290	-0.0027	-0.2112 *
P14	OP4a	-0.1625	-0.0040	-0.1930
P15	OP4a	-0.1627	0.0038	-0.1980
P16	OP4a	-0.1625	0.0025	-0.1928
P17	OP4a	-0.1626	0.0011	-0.1961
P18	OP4a	-0.1625	-0.0001	-0.1922
P19	OP4a	-0.1625	-0.0014	-0.1963
P20	OP4a	-0.1624	-0.0027	-0.1931
P21	OP4a	-0.1625	-0.0040	-0.1983
P22	OP4a	-0.1627	0.0038	-0.2032
P23	OP4a	-0.1625	0.0024	-0.1982
P24	OP4a	-0.1626	0.0011	-0.2015
P25	OP4a	-0.1624	-0.0002	-0.1976
P26	OP4a	-0.1625	-0.0014	-0.2016
P27	OP4a	-0.1624	-0.0027	-0.1985
P28	OP4a	-0.1625	-0.0041	-0.2036
P29	OP4a	-0.1627	0.0037	-0.2085
P30	OP4a	-0.1625	0.0023	-0.2034
P31	OP4a	-0.1626	0.0010	-0.2068
P32	OP4a	-0.1624	-0.0002	-0.2028
P33	OP4a	-0.1625	-0.0014	-0.2070
P34	OP4a	-0.1624	-0.0027	-0.2037
P35	OP4a	-0.1625	-0.0041	-0.2089
P36	OP4a	-0.1627	0.0037	-0.2137
P37	OP4a	-0.1625	0.0023	-0.2086
P38	OP4a	-0.1626	0.0010	-0.2122
P39	OP4a	-0.1624	-0.0002	-0.2081
P40	OP4a	-0.1625	-0.0015	-0.2123
P41	OP4a	-0.1624	-0.0027	-0.2089
P42	OP4a	-0.1625	-0.0041	-0.2142
P43	OP4a	-0.1627	0.0036	-0.2190
P44	OP4a	-0.1625	0.0022	-0.2138
P45	OP4a	-0.1626	0.0010	-0.2175
P46	OP4a	-0.1624	-0.0003	-0.2133
P47	OP4a	-0.1625	-0.0015	-0.2177
P48	OP4a	-0.1624	-0.0028	-0.2141
P49	OP4a	-0.1625	-0.0041	-0.2194
P50	OP4a	-0.1627	0.0036	-0.2242
P51	OP4a	-0.1624	0.0021	-0.2189
P52	OP4a	-0.1626	0.0009	-0.2229
P53	OP4a	-0.1623	-0.0003	-0.2185
P54	OP4a	-0.1625	-0.0015	-0.2230
P55	OP4a	-0.1623	-0.0028	-0.2193
P56	OP4a	-0.1625	-0.0042	-0.2247
P57	OP4a	-0.1627	0.0035	-0.2295
P58	OP4a	-0.1621	0.0020	-0.2236
P59	OP4a	-0.1626	0.0009	-0.2282
P60	OP4a	-0.1620	-0.0004	-0.2232
P61	OP4a	-0.1625	-0.0016	-0.2284
P62	OP4a	-0.1620	-0.0028	-0.2239
P63	OP4a	-0.1625	-0.0042	-0.2300

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP4b	-0.1691	0.0040	-0.1738
P2	OP4b	-0.1388	0.0026	-0.1931 *
P3	OP4b	-0.1385	0.0012	-0.1970 *
P4	OP4b	-0.1690	0.0000	-0.1674
P5	OP4b	-0.1384	-0.0013	-0.1972 *
P6	OP4b	-0.1386	-0.0027	-0.1933 *
P7	OP4b	-0.1689	-0.0041	-0.1741
P8	OP4b	-0.1691	0.0040	-0.1739
P9	OP4b	-0.1386	0.0026	-0.1936 *
P10	OP4b	-0.1384	0.0012	-0.1973 *
P11	OP4b	-0.1688	-0.0001	-0.1680
P12	OP4b	-0.1383	-0.0013	-0.1974 *
P13	OP4b	-0.1384	-0.0027	-0.1939 *
P14	OP4b	-0.1689	-0.0041	-0.1743
P15	OP4b	-0.1691	0.0039	-0.1740
P16	OP4b	-0.1689	0.0025	-0.1688
P17	OP4b	-0.1690	0.0011	-0.1720
P18	OP4b	-0.1688	-0.0001	-0.1682
P19	OP4b	-0.1689	-0.0014	-0.1722
P20	OP4b	-0.1688	-0.0027	-0.1691
P21	OP4b	-0.1689	-0.0041	-0.1744
P22	OP4b	-0.1691	0.0039	-0.1742
P23	OP4b	-0.1689	0.0024	-0.1690
P24	OP4b	-0.1690	0.0011	-0.1722
P25	OP4b	-0.1688	-0.0002	-0.1684
P26	OP4b	-0.1689	-0.0014	-0.1724
P27	OP4b	-0.1688	-0.0027	-0.1693
P28	OP4b	-0.1689	-0.0042	-0.1745
P29	OP4b	-0.1691	0.0038	-0.1743
P30	OP4b	-0.1689	0.0024	-0.1692
P31	OP4b	-0.1690	0.0010	-0.1724
P32	OP4b	-0.1688	-0.0002	-0.1686
P33	OP4b	-0.1689	-0.0014	-0.1726
P34	OP4b	-0.1688	-0.0028	-0.1695
P35	OP4b	-0.1689	-0.0042	-0.1747
P36	OP4b	-0.1691	0.0038	-0.1744
P37	OP4b	-0.1689	0.0023	-0.1693
P38	OP4b	-0.1690	0.0010	-0.1726
P39	OP4b	-0.1688	-0.0002	-0.1688
P40	OP4b	-0.1689	-0.0015	-0.1728
P41	OP4b	-0.1688	-0.0028	-0.1696
P42	OP4b	-0.1689	-0.0042	-0.1748
P43	OP4b	-0.1691	0.0037	-0.1745
P44	OP4b	-0.1689	0.0022	-0.1695
P45	OP4b	-0.1690	0.0010	-0.1728
P46	OP4b	-0.1688	-0.0003	-0.1690
P47	OP4b	-0.1689	-0.0015	-0.1730
P48	OP4b	-0.1688	-0.0028	-0.1698
P49	OP4b	-0.1689	-0.0043	-0.1749
P50	OP4b	-0.1691	0.0037	-0.1746
P51	OP4b	-0.1689	0.0022	-0.1696
P52	OP4b	-0.1690	0.0009	-0.1730
P53	OP4b	-0.1688	-0.0003	-0.1692
P54	OP4b	-0.1689	-0.0015	-0.1732
P55	OP4b	-0.1687	-0.0028	-0.1699
P56	OP4b	-0.1689	-0.0043	-0.1751
P57	OP4b	-0.1691	0.0036	-0.1747
P58	OP4b	-0.1685	0.0021	-0.1693
P59	OP4b	-0.1690	0.0009	-0.1732
P60	OP4b	-0.1684	-0.0004	-0.1689
P61	OP4b	-0.1689	-0.0016	-0.1734
P62	OP4b	-0.1684	-0.0028	-0.1697
P63	OP4b	-0.1689	-0.0043	-0.1752

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP5a	-0.1345	0.0035	-0.1860
P2	OP5a	-0.1025	0.0023	-0.1995 *
P3	OP5a	-0.1020	0.0009	-0.2035 *
P4	OP5a	-0.1340	-0.0003	-0.1795
P5	OP5a	-0.1016	-0.0016	-0.2035 *
P6	OP5a	-0.1016	-0.0029	-0.1995 *
P7	OP5a	-0.1333	-0.0042	-0.1861
P8	OP5a	-0.1345	0.0033	-0.1915
P9	OP5a	-0.1014	0.0020	-0.2052 *
P10	OP5a	-0.1011	0.0006	-0.2090 *
P11	OP5a	-0.1338	-0.0006	-0.1853
P12	OP5a	-0.1007	-0.0019	-0.2090 *
P13	OP5a	-0.1006	-0.0032	-0.2052 *
P14	OP5a	-0.1333	-0.0044	-0.1916
P15	OP5a	-0.1345	0.0030	-0.1969
P16	OP5a	-0.1342	0.0017	-0.1919
P17	OP5a	-0.1341	0.0004	-0.1951
P18	OP5a	-0.1338	-0.0009	-0.1912
P19	OP5a	-0.1336	-0.0021	-0.1951
P20	OP5a	-0.1334	-0.0034	-0.1920
P21	OP5a	-0.1333	-0.0047	-0.1970
P22	OP5a	-0.1345	0.0027	-0.2023
P23	OP5a	-0.1342	0.0014	-0.1974
P24	OP5a	-0.1341	0.0001	-0.2006
P25	OP5a	-0.1338	-0.0011	-0.1967
P26	OP5a	-0.1336	-0.0024	-0.2007
P27	OP5a	-0.1334	-0.0036	-0.1976
P28	OP5a	-0.1333	-0.0049	-0.2025
P29	OP5a	-0.1345	0.0024	-0.2077
P30	OP5a	-0.1342	0.0011	-0.2028
P31	OP5a	-0.1341	-0.0002	-0.2061
P32	OP5a	-0.1337	-0.0014	-0.2021
P33	OP5a	-0.1336	-0.0026	-0.2062
P34	OP5a	-0.1334	-0.0039	-0.2029
P35	OP5a	-0.1333	-0.0052	-0.2079
P36	OP5a	-0.1345	0.0022	-0.2131
P37	OP5a	-0.1342	0.0008	-0.2081
P38	OP5a	-0.1341	-0.0004	-0.2116
P39	OP5a	-0.1337	-0.0016	-0.2075
P40	OP5a	-0.1336	-0.0029	-0.2117
P41	OP5a	-0.1334	-0.0041	-0.2083
P42	OP5a	-0.1333	-0.0054	-0.2133
P43	OP5a	-0.1345	0.0019	-0.2185
P44	OP5a	-0.1342	0.0005	-0.2134
P45	OP5a	-0.1341	-0.0007	-0.2171
P46	OP5a	-0.1337	-0.0019	-0.2129
P47	OP5a	-0.1336	-0.0031	-0.2172
P48	OP5a	-0.1334	-0.0043	-0.2136
P49	OP5a	-0.1333	-0.0057	-0.2188
P50	OP5a	-0.1345	0.0016	-0.2239
P51	OP5a	-0.1341	0.0002	-0.2187
P52	OP5a	-0.1341	-0.0010	-0.2226
P53	OP5a	-0.1337	-0.0022	-0.2183
P54	OP5a	-0.1336	-0.0034	-0.2227
P55	OP5a	-0.1333	-0.0046	-0.2189
P56	OP5a	-0.1333	-0.0059	-0.2242
P57	OP5a	-0.1345	0.0013	-0.2293
P58	OP5a	-0.1338	-0.0001	-0.2235
P59	OP5a	-0.1341	-0.0012	-0.2281
P60	OP5a	-0.1333	-0.0024	-0.2231
P61	OP5a	-0.1336	-0.0036	-0.2282
P62	OP5a	-0.1330	-0.0048	-0.2237
P63	OP5a	-0.1333	-0.0061	-0.2296

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP5b	-0.1418	0.0037	-0.1705
P2	OP5b	-0.1122	0.0023	-0.1856 *
P3	OP5b	-0.1118	0.0009	-0.1893 *
P4	OP5b	-0.1413	-0.0003	-0.1642
P5	OP5b	-0.1114	-0.0016	-0.1893 *
P6	OP5b	-0.1114	-0.0030	-0.1855 *
P7	OP5b	-0.1406	-0.0043	-0.1706
P8	OP5b	-0.1418	0.0034	-0.1700
P9	OP5b	-0.1121	0.0020	-0.1855 *
P10	OP5b	-0.1118	0.0007	-0.1889 *
P11	OP5b	-0.1411	-0.0006	-0.1642
P12	OP5b	-0.1114	-0.0019	-0.1889 *
P13	OP5b	-0.1113	-0.0032	-0.1855 *
P14	OP5b	-0.1406	-0.0046	-0.1702
P15	OP5b	-0.1418	0.0031	-0.1696
P16	OP5b	-0.1415	0.0017	-0.1645
P17	OP5b	-0.1414	0.0004	-0.1676
P18	OP5b	-0.1411	-0.0009	-0.1638
P19	OP5b	-0.1410	-0.0021	-0.1677
P20	OP5b	-0.1407	-0.0034	-0.1647
P21	OP5b	-0.1406	-0.0048	-0.1697
P22	OP5b	-0.1418	0.0028	-0.1692
P23	OP5b	-0.1415	0.0014	-0.1641
P24	OP5b	-0.1414	0.0001	-0.1672
P25	OP5b	-0.1411	-0.0011	-0.1635
P26	OP5b	-0.1410	-0.0024	-0.1673
P27	OP5b	-0.1407	-0.0037	-0.1643
P28	OP5b	-0.1406	-0.0051	-0.1693
P29	OP5b	-0.1418	0.0026	-0.1687
P30	OP5b	-0.1415	0.0011	-0.1637
P31	OP5b	-0.1414	-0.0001	-0.1669
P32	OP5b	-0.1411	-0.0014	-0.1631
P33	OP5b	-0.1410	-0.0026	-0.1670
P34	OP5b	-0.1407	-0.0039	-0.1639
P35	OP5b	-0.1406	-0.0053	-0.1689
P36	OP5b	-0.1418	0.0023	-0.1683
P37	OP5b	-0.1415	0.0009	-0.1633
P38	OP5b	-0.1414	-0.0004	-0.1665
P39	OP5b	-0.1411	-0.0016	-0.1628
P40	OP5b	-0.1410	-0.0029	-0.1666
P41	OP5b	-0.1407	-0.0041	-0.1635
P42	OP5b	-0.1406	-0.0055	-0.1685
P43	OP5b	-0.1418	0.0020	-0.1678
P44	OP5b	-0.1415	0.0006	-0.1629
P45	OP5b	-0.1414	-0.0007	-0.1661
P46	OP5b	-0.1410	-0.0019	-0.1624
P47	OP5b	-0.1410	-0.0031	-0.1662
P48	OP5b	-0.1407	-0.0044	-0.1631
P49	OP5b	-0.1406	-0.0058	-0.1681
P50	OP5b	-0.1418	0.0017	-0.1674
P51	OP5b	-0.1414	0.0003	-0.1625
P52	OP5b	-0.1414	-0.0009	-0.1658
P53	OP5b	-0.1410	-0.0022	-0.1620
P54	OP5b	-0.1410	-0.0034	-0.1659
P55	OP5b	-0.1406	-0.0046	-0.1627
P56	OP5b	-0.1406	-0.0060	-0.1676
P57	OP5b	-0.1418	0.0015	-0.1669
P58	OP5b	-0.1411	0.0000	-0.1617
P59	OP5b	-0.1414	-0.0012	-0.1654
P60	OP5b	-0.1407	-0.0024	-0.1612
P61	OP5b	-0.1410	-0.0036	-0.1655
P62	OP5b	-0.1403	-0.0048	-0.1619
P63	OP5b	-0.1406	-0.0063	-0.1672

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP6a	-0.1242	0.0034	-0.1857
P2	OP6a	-0.0922	0.0021	-0.1975 *
P3	OP6a	-0.0917	0.0008	-0.2014 *
P4	OP6a	-0.1234	-0.0005	-0.1790
P5	OP6a	-0.0911	-0.0018	-0.2013 *
P6	OP6a	-0.0911	-0.0031	-0.1973 *
P7	OP6a	-0.1224	-0.0044	-0.1856
P8	OP6a	-0.1242	0.0030	-0.1912
P9	OP6a	-0.0912	0.0017	-0.2033 *
P10	OP6a	-0.0908	0.0004	-0.2070 *
P11	OP6a	-0.1232	-0.0009	-0.1850
P12	OP6a	-0.0902	-0.0022	-0.2069 *
P13	OP6a	-0.0900	-0.0035	-0.2031 *
P14	OP6a	-0.1224	-0.0048	-0.1912
P15	OP6a	-0.1242	0.0026	-0.1967
P16	OP6a	-0.1238	0.0013	-0.1917
P17	OP6a	-0.1235	0.0000	-0.1949
P18	OP6a	-0.1232	-0.0013	-0.1909
P19	OP6a	-0.1229	-0.0025	-0.1949
P20	OP6a	-0.1226	-0.0038	-0.1917
P21	OP6a	-0.1224	-0.0051	-0.1968
P22	OP6a	-0.1242	0.0022	-0.2023
P23	OP6a	-0.1238	0.0009	-0.1973
P24	OP6a	-0.1235	-0.0004	-0.2005
P25	OP6a	-0.1232	-0.0017	-0.1966
P26	OP6a	-0.1229	-0.0029	-0.2006
P27	OP6a	-0.1226	-0.0042	-0.1974
P28	OP6a	-0.1224	-0.0055	-0.2023
P29	OP6a	-0.1242	0.0018	-0.2078
P30	OP6a	-0.1238	0.0005	-0.2028
P31	OP6a	-0.1235	-0.0008	-0.2061
P32	OP6a	-0.1231	-0.0020	-0.2021
P33	OP6a	-0.1229	-0.0033	-0.2062
P34	OP6a	-0.1226	-0.0045	-0.2029
P35	OP6a	-0.1224	-0.0059	-0.2079
P36	OP6a	-0.1242	0.0014	-0.2134
P37	OP6a	-0.1238	0.0001	-0.2083
P38	OP6a	-0.1235	-0.0012	-0.2118
P39	OP6a	-0.1231	-0.0024	-0.2076
P40	OP6a	-0.1229	-0.0037	-0.2118
P41	OP6a	-0.1226	-0.0049	-0.2083
P42	OP6a	-0.1224	-0.0062	-0.2134
P43	OP6a	-0.1242	0.0011	-0.2189
P44	OP6a	-0.1238	-0.0003	-0.2137
P45	OP6a	-0.1235	-0.0016	-0.2174
P46	OP6a	-0.1231	-0.0028	-0.2131
P47	OP6a	-0.1229	-0.0040	-0.2174
P48	OP6a	-0.1226	-0.0053	-0.2138
P49	OP6a	-0.1224	-0.0066	-0.2190
P50	OP6a	-0.1242	0.0007	-0.2244
P51	OP6a	-0.1237	-0.0007	-0.2191
P52	OP6a	-0.1235	-0.0019	-0.2230
P53	OP6a	-0.1231	-0.0032	-0.2186
P54	OP6a	-0.1229	-0.0044	-0.2231
P55	OP6a	-0.1225	-0.0056	-0.2192
P56	OP6a	-0.1224	-0.0070	-0.2246
P57	OP6a	-0.1242	0.0003	-0.2300
P58	OP6a	-0.1234	-0.0011	-0.2240
P59	OP6a	-0.1235	-0.0023	-0.2286
P60	OP6a	-0.1227	-0.0035	-0.2235
P61	OP6a	-0.1229	-0.0048	-0.2287
P62	OP6a	-0.1222	-0.0060	-0.2242
P63	OP6a	-0.1224	-0.0073	-0.2301

Job: Maurepas Freshwater Diversion
Desc. C-1 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP6b	-0.1318	0.0035	-0.1695	
P2	OP6b	-0.1024	0.0021	-0.1829	*
P3	OP6b	-0.1019	0.0008	-0.1865	*
P4	OP6b	-0.1310	-0.0005	-0.1631	
P5	OP6b	-0.1013	-0.0018	-0.1865	*
P6	OP6b	-0.1012	-0.0032	-0.1828	*
P7	OP6b	-0.1300	-0.0045	-0.1695	
P8	OP6b	-0.1318	0.0031	-0.1689	
P9	OP6b	-0.1023	0.0017	-0.1828	*
P10	OP6b	-0.1020	0.0004	-0.1861	*
P11	OP6b	-0.1308	-0.0009	-0.1630	
P12	OP6b	-0.1014	-0.0022	-0.1860	*
P13	OP6b	-0.1012	-0.0035	-0.1826	*
P14	OP6b	-0.1300	-0.0049	-0.1689	
P15	OP6b	-0.1318	0.0027	-0.1684	
P16	OP6b	-0.1314	0.0013	-0.1632	
P17	OP6b	-0.1312	0.0000	-0.1663	
P18	OP6b	-0.1308	-0.0013	-0.1625	
P19	OP6b	-0.1306	-0.0025	-0.1663	
P20	OP6b	-0.1302	-0.0039	-0.1633	
P21	OP6b	-0.1300	-0.0052	-0.1684	
P22	OP6b	-0.1318	0.0023	-0.1678	
P23	OP6b	-0.1314	0.0009	-0.1627	
P24	OP6b	-0.1312	-0.0004	-0.1658	
P25	OP6b	-0.1308	-0.0017	-0.1620	
P26	OP6b	-0.1306	-0.0029	-0.1659	
P27	OP6b	-0.1302	-0.0042	-0.1628	
P28	OP6b	-0.1300	-0.0056	-0.1678	
P29	OP6b	-0.1318	0.0020	-0.1672	
P30	OP6b	-0.1314	0.0005	-0.1622	
P31	OP6b	-0.1312	-0.0008	-0.1653	
P32	OP6b	-0.1308	-0.0020	-0.1615	
P33	OP6b	-0.1306	-0.0033	-0.1654	
P34	OP6b	-0.1302	-0.0046	-0.1623	
P35	OP6b	-0.1300	-0.0060	-0.1673	
P36	OP6b	-0.1318	0.0016	-0.1667	
P37	OP6b	-0.1314	0.0001	-0.1617	
P38	OP6b	-0.1312	-0.0012	-0.1648	
P39	OP6b	-0.1308	-0.0024	-0.1610	
P40	OP6b	-0.1306	-0.0037	-0.1649	
P41	OP6b	-0.1302	-0.0049	-0.1618	
P42	OP6b	-0.1300	-0.0064	-0.1668	
P43	OP6b	-0.1318	0.0012	-0.1661	
P44	OP6b	-0.1314	-0.0003	-0.1612	
P45	OP6b	-0.1312	-0.0015	-0.1643	
P46	OP6b	-0.1307	-0.0028	-0.1605	
P47	OP6b	-0.1306	-0.0040	-0.1644	
P48	OP6b	-0.1302	-0.0053	-0.1613	
P49	OP6b	-0.1300	-0.0067	-0.1662	
P50	OP6b	-0.1318	0.0008	-0.1656	
P51	OP6b	-0.1313	-0.0007	-0.1606	
P52	OP6b	-0.1312	-0.0019	-0.1639	
P53	OP6b	-0.1307	-0.0032	-0.1600	
P54	OP6b	-0.1306	-0.0044	-0.1639	
P55	OP6b	-0.1301	-0.0057	-0.1607	
P56	OP6b	-0.1300	-0.0071	-0.1657	
P57	OP6b	-0.1318	0.0004	-0.1650	
P58	OP6b	-0.1310	-0.0011	-0.1597	
P59	OP6b	-0.1312	-0.0023	-0.1634	
P60	OP6b	-0.1304	-0.0035	-0.1591	
P61	OP6b	-0.1306	-0.0048	-0.1634	
P62	OP6b	-0.1298	-0.0060	-0.1598	
P63	OP6b	-0.1300	-0.0075	-0.1651	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP7a	-0.1242	0.0034	-0.1856	
P2	OP7a	-0.0923	0.0021	-0.1974	*
P3	OP7a	-0.0917	0.0007	-0.2014	*
P4	OP7a	-0.1234	-0.0005	-0.1790	
P5	OP7a	-0.0911	-0.0018	-0.2013	*
P6	OP7a	-0.0911	-0.0031	-0.1973	*
P7	OP7a	-0.1224	-0.0044	-0.1856	
P8	OP7a	-0.1242	0.0030	-0.1911	
P9	OP7a	-0.0912	0.0017	-0.2032	*
P10	OP7a	-0.0908	0.0004	-0.2069	*
P11	OP7a	-0.1232	-0.0009	-0.1849	
P12	OP7a	-0.0902	-0.0021	-0.2068	*
P13	OP7a	-0.0900	-0.0035	-0.2031	*
P14	OP7a	-0.1224	-0.0047	-0.1911	
P15	OP7a	-0.1242	0.0026	-0.1966	
P16	OP7a	-0.1238	0.0013	-0.1916	
P17	OP7a	-0.1236	0.0000	-0.1948	
P18	OP7a	-0.1232	-0.0013	-0.1909	
P19	OP7a	-0.1230	-0.0025	-0.1948	
P20	OP7a	-0.1226	-0.0038	-0.1917	
P21	OP7a	-0.1224	-0.0051	-0.1966	
P22	OP7a	-0.1242	0.0022	-0.2021	
P23	OP7a	-0.1238	0.0009	-0.1972	
P24	OP7a	-0.1236	-0.0004	-0.2003	
P25	OP7a	-0.1232	-0.0017	-0.1965	
P26	OP7a	-0.1230	-0.0029	-0.2004	
P27	OP7a	-0.1226	-0.0042	-0.1973	
P28	OP7a	-0.1224	-0.0054	-0.2021	
P29	OP7a	-0.1242	0.0018	-0.2076	
P30	OP7a	-0.1238	0.0005	-0.2026	
P31	OP7a	-0.1236	-0.0008	-0.2059	
P32	OP7a	-0.1232	-0.0020	-0.2020	
P33	OP7a	-0.1230	-0.0033	-0.2060	
P34	OP7a	-0.1226	-0.0045	-0.2027	
P35	OP7a	-0.1224	-0.0058	-0.2076	
P36	OP7a	-0.1242	0.0014	-0.2131	
P37	OP7a	-0.1238	0.0000	-0.2080	
P38	OP7a	-0.1236	-0.0012	-0.2115	
P39	OP7a	-0.1232	-0.0024	-0.2074	
P40	OP7a	-0.1230	-0.0036	-0.2116	
P41	OP7a	-0.1226	-0.0049	-0.2081	
P42	OP7a	-0.1224	-0.0062	-0.2131	
P43	OP7a	-0.1242	0.0010	-0.2186	
P44	OP7a	-0.1238	-0.0004	-0.2135	
P45	OP7a	-0.1236	-0.0016	-0.2171	
P46	OP7a	-0.1232	-0.0028	-0.2129	
P47	OP7a	-0.1230	-0.0040	-0.2171	
P48	OP7a	-0.1226	-0.0052	-0.2136	
P49	OP7a	-0.1224	-0.0065	-0.2187	
P50	OP7a	-0.1242	0.0006	-0.2240	
P51	OP7a	-0.1237	-0.0008	-0.2188	
P52	OP7a	-0.1236	-0.0020	-0.2227	
P53	OP7a	-0.1231	-0.0032	-0.2183	
P54	OP7a	-0.1230	-0.0044	-0.2227	
P55	OP7a	-0.1226	-0.0056	-0.2190	
P56	OP7a	-0.1224	-0.0069	-0.2242	
P57	OP7a	-0.1242	0.0002	-0.2295	
P58	OP7a	-0.1234	-0.0012	-0.2237	
P59	OP7a	-0.1236	-0.0023	-0.2282	
P60	OP7a	-0.1228	-0.0035	-0.2232	
P61	OP7a	-0.1230	-0.0047	-0.2283	
P62	OP7a	-0.1222	-0.0059	-0.2238	
P63	OP7a	-0.1224	-0.0073	-0.2297	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP7b	-0.1318	0.0035	-0.1694	
P2	OP7b	-0.1024	0.0021	-0.1829	*
P3	OP7b	-0.1019	0.0007	-0.1865	*
P4	OP7b	-0.1310	-0.0005	-0.1631	
P5	OP7b	-0.1013	-0.0018	-0.1865	*
P6	OP7b	-0.1013	-0.0031	-0.1828	*
P7	OP7b	-0.1301	-0.0045	-0.1694	
P8	OP7b	-0.1318	0.0031	-0.1688	
P9	OP7b	-0.1024	0.0017	-0.1827	*
P10	OP7b	-0.1020	0.0004	-0.1860	*
P11	OP7b	-0.1308	-0.0009	-0.1629	
P12	OP7b	-0.1014	-0.0022	-0.1859	*
P13	OP7b	-0.1012	-0.0035	-0.1825	*
P14	OP7b	-0.1301	-0.0048	-0.1688	
P15	OP7b	-0.1318	0.0027	-0.1682	
P16	OP7b	-0.1314	0.0013	-0.1631	
P17	OP7b	-0.1312	0.0000	-0.1662	
P18	OP7b	-0.1308	-0.0013	-0.1624	
P19	OP7b	-0.1306	-0.0025	-0.1662	
P20	OP7b	-0.1302	-0.0038	-0.1632	
P21	OP7b	-0.1301	-0.0052	-0.1682	
P22	OP7b	-0.1318	0.0023	-0.1676	
P23	OP7b	-0.1314	0.0009	-0.1626	
P24	OP7b	-0.1312	-0.0004	-0.1657	
P25	OP7b	-0.1308	-0.0017	-0.1619	
P26	OP7b	-0.1306	-0.0029	-0.1657	
P27	OP7b	-0.1302	-0.0042	-0.1626	
P28	OP7b	-0.1301	-0.0056	-0.1676	
P29	OP7b	-0.1318	0.0019	-0.1670	
P30	OP7b	-0.1314	0.0005	-0.1620	
P31	OP7b	-0.1312	-0.0008	-0.1651	
P32	OP7b	-0.1308	-0.0020	-0.1613	
P33	OP7b	-0.1306	-0.0033	-0.1652	
P34	OP7b	-0.1302	-0.0045	-0.1621	
P35	OP7b	-0.1301	-0.0059	-0.1671	
P36	OP7b	-0.1318	0.0015	-0.1664	
P37	OP7b	-0.1314	0.0001	-0.1615	
P38	OP7b	-0.1312	-0.0012	-0.1646	
P39	OP7b	-0.1308	-0.0024	-0.1608	
P40	OP7b	-0.1306	-0.0036	-0.1646	
P41	OP7b	-0.1302	-0.0049	-0.1616	
P42	OP7b	-0.1301	-0.0063	-0.1665	
P43	OP7b	-0.1318	0.0011	-0.1658	
P44	OP7b	-0.1314	-0.0003	-0.1609	
P45	OP7b	-0.1312	-0.0016	-0.1641	
P46	OP7b	-0.1308	-0.0028	-0.1603	
P47	OP7b	-0.1306	-0.0040	-0.1641	
P48	OP7b	-0.1302	-0.0053	-0.1610	
P49	OP7b	-0.1301	-0.0067	-0.1659	
P50	OP7b	-0.1318	0.0007	-0.1652	
P51	OP7b	-0.1314	-0.0007	-0.1603	
P52	OP7b	-0.1312	-0.0020	-0.1635	
P53	OP7b	-0.1307	-0.0032	-0.1598	
P54	OP7b	-0.1306	-0.0044	-0.1636	
P55	OP7b	-0.1302	-0.0056	-0.1604	
P56	OP7b	-0.1301	-0.0070	-0.1653	
P57	OP7b	-0.1318	0.0003	-0.1646	
P58	OP7b	-0.1310	-0.0011	-0.1594	
P59	OP7b	-0.1312	-0.0023	-0.1630	
P60	OP7b	-0.1304	-0.0035	-0.1588	
P61	OP7b	-0.1306	-0.0047	-0.1630	
P62	OP7b	-0.1299	-0.0060	-0.1595	
P63	OP7b	-0.1301	-0.0074	-0.1647	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP8a	0.1013	-0.0049	-0.1774	
P2	OP8a	0.1330	-0.0062	-0.1519	*
P3	OP8a	0.1378	-0.0074	-0.1528	*
P4	OP8a	0.1153	-0.0088	-0.1677	
P5	OP8a	0.1468	-0.0102	-0.1489	*
P6	OP8a	0.1510	-0.0115	-0.1443	*
P7	OP8a	0.1298	-0.0125	-0.1700	
P8	OP8a	0.1013	-0.0110	-0.1846	
P9	OP8a	0.1343	-0.0122	-0.1591	*
P10	OP8a	0.1390	-0.0135	-0.1599	*
P11	OP8a	0.1155	-0.0149	-0.1752	
P12	OP8a	0.1480	-0.0162	-0.1561	*
P13	OP8a	0.1523	-0.0175	-0.1515	*
P14	OP8a	0.1298	-0.0186	-0.1772	
P15	OP8a	0.1013	-0.0170	-0.1918	
P16	OP8a	0.1059	-0.0182	-0.1859	
P17	OP8a	0.1108	-0.0195	-0.1879	
P18	OP8a	0.1154	-0.0209	-0.1826	
P19	OP8a	0.1203	-0.0223	-0.1855	
P20	OP8a	0.1249	-0.0235	-0.1814	
P21	OP8a	0.1298	-0.0246	-0.1845	
P22	OP8a	0.1013	-0.0230	-0.1990	
P23	OP8a	0.1060	-0.0243	-0.1931	
P24	OP8a	0.1108	-0.0255	-0.1951	
P25	OP8a	0.1155	-0.0269	-0.1898	
P26	OP8a	0.1203	-0.0283	-0.1928	
P27	OP8a	0.1250	-0.0296	-0.1886	
P28	OP8a	0.1298	-0.0307	-0.1917	
P29	OP8a	0.1013	-0.0290	-0.2062	
P30	OP8a	0.1060	-0.0303	-0.2002	
P31	OP8a	0.1108	-0.0316	-0.2023	
P32	OP8a	0.1155	-0.0330	-0.1969	
P33	OP8a	0.1203	-0.0344	-0.2000	
P34	OP8a	0.1250	-0.0356	-0.1957	
P35	OP8a	0.1298	-0.0367	-0.1989	
P36	OP8a	0.1013	-0.0350	-0.2134	
P37	OP8a	0.1060	-0.0363	-0.2073	
P38	OP8a	0.1108	-0.0376	-0.2096	
P39	OP8a	0.1155	-0.0390	-0.2040	
P40	OP8a	0.1203	-0.0404	-0.2072	
P41	OP8a	0.1250	-0.0417	-0.2028	
P42	OP8a	0.1298	-0.0428	-0.2062	
P43	OP8a	0.1013	-0.0411	-0.2206	
P44	OP8a	0.1060	-0.0423	-0.2143	
P45	OP8a	0.1108	-0.0436	-0.2168	
P46	OP8a	0.1155	-0.0450	-0.2110	
P47	OP8a	0.1203	-0.0464	-0.2145	
P48	OP8a	0.1250	-0.0477	-0.2098	
P49	OP8a	0.1298	-0.0488	-0.2134	
P50	OP8a	0.1013	-0.0471	-0.2278	
P51	OP8a	0.1060	-0.0484	-0.2214	
P52	OP8a	0.1108	-0.0497	-0.2240	
P53	OP8a	0.1155	-0.0511	-0.2181	
P54	OP8a	0.1203	-0.0525	-0.2217	
P55	OP8a	0.1250	-0.0537	-0.2169	
P56	OP8a	0.1298	-0.0549	-0.2206	
P57	OP8a	0.1013	-0.0531	-0.2350	
P58	OP8a	0.1064	-0.0544	-0.2279	
P59	OP8a	0.1108	-0.0557	-0.2312	
P60	OP8a	0.1159	-0.0571	-0.2246	
P61	OP8a	0.1203	-0.0585	-0.2289	
P62	OP8a	0.1254	-0.0598	-0.2234	
P63	OP8a	0.1298	-0.0609	-0.2279	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP8b	0.0885	-0.0047	-0.1502	
P2	OP8b	0.1160	-0.0061	-0.1275	*
P3	OP8b	0.1207	-0.0074	-0.1279	*
P4	OP8b	0.1026	-0.0088	-0.1410	
P5	OP8b	0.1297	-0.0102	-0.1240	*
P6	OP8b	0.1339	-0.0115	-0.1199	*
P7	OP8b	0.1170	-0.0127	-0.1428	
P8	OP8b	0.0885	-0.0108	-0.1472	
P9	OP8b	0.1156	-0.0122	-0.1247	*
P10	OP8b	0.1202	-0.0135	-0.1249	*
P11	OP8b	0.1027	-0.0149	-0.1383	
P12	OP8b	0.1292	-0.0162	-0.1210	*
P13	OP8b	0.1336	-0.0175	-0.1171	*
P14	OP8b	0.1170	-0.0188	-0.1398	
P15	OP8b	0.0885	-0.0168	-0.1442	
P16	OP8b	0.0932	-0.0182	-0.1381	
P17	OP8b	0.0980	-0.0195	-0.1399	
P18	OP8b	0.1027	-0.0209	-0.1348	
P19	OP8b	0.1075	-0.0223	-0.1376	
P20	OP8b	0.1122	-0.0236	-0.1336	
P21	OP8b	0.1170	-0.0248	-0.1368	
P22	OP8b	0.0885	-0.0228	-0.1411	
P23	OP8b	0.0932	-0.0242	-0.1350	
P24	OP8b	0.0980	-0.0255	-0.1369	
P25	OP8b	0.1027	-0.0269	-0.1317	
P26	OP8b	0.1075	-0.0283	-0.1345	
P27	OP8b	0.1122	-0.0296	-0.1305	
P28	OP8b	0.1170	-0.0309	-0.1338	
P29	OP8b	0.0885	-0.0288	-0.1381	
P30	OP8b	0.0932	-0.0302	-0.1321	
P31	OP8b	0.0980	-0.0315	-0.1338	
P32	OP8b	0.1027	-0.0330	-0.1288	
P33	OP8b	0.1075	-0.0344	-0.1315	
P34	OP8b	0.1122	-0.0357	-0.1275	
P35	OP8b	0.1170	-0.0369	-0.1308	
P36	OP8b	0.0885	-0.0348	-0.1351	
P37	OP8b	0.0932	-0.0362	-0.1291	
P38	OP8b	0.0980	-0.0376	-0.1308	
P39	OP8b	0.1027	-0.0390	-0.1258	
P40	OP8b	0.1075	-0.0404	-0.1285	
P41	OP8b	0.1122	-0.0417	-0.1246	
P42	OP8b	0.1170	-0.0430	-0.1278	
P43	OP8b	0.0885	-0.0408	-0.1321	
P44	OP8b	0.0932	-0.0423	-0.1261	
P45	OP8b	0.0980	-0.0436	-0.1278	
P46	OP8b	0.1027	-0.0450	-0.1228	
P47	OP8b	0.1075	-0.0464	-0.1255	
P48	OP8b	0.1122	-0.0478	-0.1216	
P49	OP8b	0.1170	-0.0490	-0.1248	
P50	OP8b	0.0885	-0.0469	-0.1291	
P51	OP8b	0.0932	-0.0483	-0.1232	
P52	OP8b	0.0980	-0.0496	-0.1247	
P53	OP8b	0.1028	-0.0511	-0.1199	
P54	OP8b	0.1075	-0.0525	-0.1224	
P55	OP8b	0.1122	-0.0538	-0.1187	
P56	OP8b	0.1170	-0.0551	-0.1218	
P57	OP8b	0.0885	-0.0529	-0.1260	
P58	OP8b	0.0935	-0.0543	-0.1199	
P59	OP8b	0.0980	-0.0557	-0.1217	
P60	OP8b	0.1030	-0.0571	-0.1166	
P61	OP8b	0.1075	-0.0585	-0.1194	
P62	OP8b	0.1125	-0.0599	-0.1155	
P63	OP8b	0.1170	-0.0611	-0.1189	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP9a	0.1020	-0.0050	-0.1789	
P2	OP9a	0.1340	-0.0062	-0.1533	*
P3	OP9a	0.1388	-0.0075	-0.1543	*
P4	OP9a	0.1160	-0.0088	-0.1694	
P5	OP9a	0.1478	-0.0102	-0.1504	*
P6	OP9a	0.1520	-0.0114	-0.1457	*
P7	OP9a	0.1305	-0.0125	-0.1716	
P8	OP9a	0.1020	-0.0110	-0.1865	
P9	OP9a	0.1353	-0.0123	-0.1609	*
P10	OP9a	0.1400	-0.0135	-0.1618	*
P11	OP9a	0.1162	-0.0149	-0.1772	
P12	OP9a	0.1490	-0.0162	-0.1580	*
P13	OP9a	0.1533	-0.0174	-0.1533	*
P14	OP9a	0.1305	-0.0185	-0.1792	
P15	OP9a	0.1020	-0.0171	-0.1941	
P16	OP9a	0.1066	-0.0183	-0.1884	
P17	OP9a	0.1115	-0.0195	-0.1903	
P18	OP9a	0.1161	-0.0209	-0.1851	
P19	OP9a	0.1210	-0.0222	-0.1879	
P20	OP9a	0.1256	-0.0235	-0.1838	
P21	OP9a	0.1305	-0.0245	-0.1868	
P22	OP9a	0.1020	-0.0231	-0.2017	
P23	OP9a	0.1067	-0.0243	-0.1960	
P24	OP9a	0.1115	-0.0256	-0.1979	
P25	OP9a	0.1162	-0.0269	-0.1927	
P26	OP9a	0.1210	-0.0283	-0.1956	
P27	OP9a	0.1257	-0.0295	-0.1915	
P28	OP9a	0.1305	-0.0306	-0.1944	
P29	OP9a	0.1020	-0.0291	-0.2093	
P30	OP9a	0.1067	-0.0304	-0.2035	
P31	OP9a	0.1115	-0.0316	-0.2055	
P32	OP9a	0.1162	-0.0330	-0.2002	
P33	OP9a	0.1210	-0.0343	-0.2032	
P34	OP9a	0.1257	-0.0355	-0.1989	
P35	OP9a	0.1305	-0.0366	-0.2021	
P36	OP9a	0.1020	-0.0352	-0.2169	
P37	OP9a	0.1067	-0.0364	-0.2109	
P38	OP9a	0.1115	-0.0376	-0.2131	
P39	OP9a	0.1162	-0.0390	-0.2077	
P40	OP9a	0.1210	-0.0403	-0.2108	
P41	OP9a	0.1257	-0.0416	-0.2064	
P42	OP9a	0.1305	-0.0426	-0.2097	
P43	OP9a	0.1020	-0.0412	-0.2245	
P44	OP9a	0.1067	-0.0425	-0.2183	
P45	OP9a	0.1115	-0.0437	-0.2208	
P46	OP9a	0.1162	-0.0450	-0.2151	
P47	OP9a	0.1210	-0.0464	-0.2184	
P48	OP9a	0.1257	-0.0476	-0.2138	
P49	OP9a	0.1305	-0.0487	-0.2173	
P50	OP9a	0.1020	-0.0472	-0.2321	
P51	OP9a	0.1067	-0.0485	-0.2257	
P52	OP9a	0.1115	-0.0497	-0.2284	
P53	OP9a	0.1163	-0.0511	-0.2225	
P54	OP9a	0.1210	-0.0524	-0.2261	
P55	OP9a	0.1257	-0.0536	-0.2213	
P56	OP9a	0.1305	-0.0547	-0.2249	
P57	OP9a	0.1020	-0.0533	-0.2397	
P58	OP9a	0.1071	-0.0545	-0.2326	
P59	OP9a	0.1115	-0.0558	-0.2360	
P60	OP9a	0.1166	-0.0571	-0.2294	
P61	OP9a	0.1210	-0.0584	-0.2337	
P62	OP9a	0.1261	-0.0596	-0.2282	
P63	OP9a	0.1305	-0.0607	-0.2325	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP9b	0.0892	-0.0048	-0.1518	
P2	OP9b	0.1169	-0.0062	-0.1289	*
P3	OP9b	0.1217	-0.0074	-0.1294	*
P4	OP9b	0.1033	-0.0088	-0.1427	
P5	OP9b	0.1307	-0.0102	-0.1255	*
P6	OP9b	0.1349	-0.0114	-0.1213	*
P7	OP9b	0.1177	-0.0127	-0.1444	
P8	OP9b	0.0892	-0.0108	-0.1491	
P9	OP9b	0.1166	-0.0122	-0.1265	*
P10	OP9b	0.1212	-0.0135	-0.1268	*
P11	OP9b	0.1035	-0.0149	-0.1403	
P12	OP9b	0.1302	-0.0162	-0.1229	*
P13	OP9b	0.1346	-0.0175	-0.1189	*
P14	OP9b	0.1177	-0.0187	-0.1418	
P15	OP9b	0.0892	-0.0168	-0.1465	
P16	OP9b	0.0939	-0.0182	-0.1406	
P17	OP9b	0.0987	-0.0195	-0.1423	
P18	OP9b	0.1035	-0.0209	-0.1373	
P19	OP9b	0.1083	-0.0222	-0.1400	
P20	OP9b	0.1129	-0.0235	-0.1360	
P21	OP9b	0.1177	-0.0247	-0.1392	
P22	OP9b	0.0892	-0.0229	-0.1439	
P23	OP9b	0.0939	-0.0243	-0.1379	
P24	OP9b	0.0987	-0.0256	-0.1397	
P25	OP9b	0.1034	-0.0269	-0.1347	
P26	OP9b	0.1083	-0.0283	-0.1374	
P27	OP9b	0.1129	-0.0296	-0.1334	
P28	OP9b	0.1177	-0.0308	-0.1366	
P29	OP9b	0.0892	-0.0289	-0.1412	
P30	OP9b	0.0939	-0.0303	-0.1353	
P31	OP9b	0.0987	-0.0316	-0.1370	
P32	OP9b	0.1034	-0.0330	-0.1321	
P33	OP9b	0.1083	-0.0343	-0.1347	
P34	OP9b	0.1129	-0.0356	-0.1308	
P35	OP9b	0.1177	-0.0368	-0.1340	
P36	OP9b	0.0892	-0.0349	-0.1386	
P37	OP9b	0.0939	-0.0363	-0.1327	
P38	OP9b	0.0987	-0.0376	-0.1344	
P39	OP9b	0.1034	-0.0390	-0.1295	
P40	OP9b	0.1083	-0.0403	-0.1321	
P41	OP9b	0.1129	-0.0416	-0.1282	
P42	OP9b	0.1177	-0.0429	-0.1314	
P43	OP9b	0.0892	-0.0410	-0.1360	
P44	OP9b	0.0939	-0.0424	-0.1302	
P45	OP9b	0.0987	-0.0437	-0.1318	
P46	OP9b	0.1034	-0.0450	-0.1269	
P47	OP9b	0.1083	-0.0464	-0.1294	
P48	OP9b	0.1129	-0.0477	-0.1257	
P49	OP9b	0.1177	-0.0489	-0.1287	
P50	OP9b	0.0892	-0.0470	-0.1333	
P51	OP9b	0.0939	-0.0484	-0.1276	
P52	OP9b	0.0987	-0.0497	-0.1291	
P53	OP9b	0.1035	-0.0511	-0.1243	
P54	OP9b	0.1083	-0.0524	-0.1268	
P55	OP9b	0.1129	-0.0537	-0.1231	
P56	OP9b	0.1177	-0.0549	-0.1261	
P57	OP9b	0.0892	-0.0531	-0.1307	
P58	OP9b	0.0942	-0.0544	-0.1247	
P59	OP9b	0.0987	-0.0557	-0.1265	
P60	OP9b	0.1037	-0.0571	-0.1214	
P61	OP9b	0.1083	-0.0584	-0.1242	
P62	OP9b	0.1132	-0.0597	-0.1202	
P63	OP9b	0.1177	-0.0610	-0.1235	

Job: Maurepas Freshwater Diversion
Desc. C-1 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP10a	0.1019	-0.0050	-0.1789
P2	OP10a	0.1340	-0.0062	-0.1532 *
P3	OP10a	0.1387	-0.0075	-0.1543 *
P4	OP10a	0.1160	-0.0088	-0.1693
P5	OP10a	0.1477	-0.0102	-0.1504 *
P6	OP10a	0.1519	-0.0114	-0.1457 *
P7	OP10a	0.1304	-0.0124	-0.1715
P8	OP10a	0.1019	-0.0111	-0.1864
P9	OP10a	0.1353	-0.0123	-0.1608 *
P10	OP10a	0.1400	-0.0135	-0.1617 *
P11	OP10a	0.1162	-0.0149	-0.1772
P12	OP10a	0.1490	-0.0162	-0.1579 *
P13	OP10a	0.1533	-0.0174	-0.1533 *
P14	OP10a	0.1304	-0.0185	-0.1791
P15	OP10a	0.1019	-0.0171	-0.1940
P16	OP10a	0.1066	-0.0183	-0.1883
P17	OP10a	0.1115	-0.0195	-0.1901
P18	OP10a	0.1161	-0.0209	-0.1850
P19	OP10a	0.1210	-0.0222	-0.1878
P20	OP10a	0.1256	-0.0234	-0.1837
P21	OP10a	0.1304	-0.0245	-0.1867
P22	OP10a	0.1019	-0.0231	-0.2015
P23	OP10a	0.1067	-0.0244	-0.1959
P24	OP10a	0.1115	-0.0256	-0.1977
P25	OP10a	0.1162	-0.0269	-0.1927
P26	OP10a	0.1210	-0.0283	-0.1954
P27	OP10a	0.1256	-0.0295	-0.1914
P28	OP10a	0.1304	-0.0305	-0.1942
P29	OP10a	0.1019	-0.0292	-0.2091
P30	OP10a	0.1067	-0.0304	-0.2033
P31	OP10a	0.1115	-0.0316	-0.2053
P32	OP10a	0.1162	-0.0330	-0.2001
P33	OP10a	0.1210	-0.0343	-0.2030
P34	OP10a	0.1256	-0.0355	-0.1988
P35	OP10a	0.1304	-0.0366	-0.2018
P36	OP10a	0.1019	-0.0352	-0.2166
P37	OP10a	0.1067	-0.0365	-0.2107
P38	OP10a	0.1115	-0.0377	-0.2129
P39	OP10a	0.1162	-0.0390	-0.2075
P40	OP10a	0.1210	-0.0403	-0.2106
P41	OP10a	0.1257	-0.0415	-0.2062
P42	OP10a	0.1304	-0.0426	-0.2094
P43	OP10a	0.1019	-0.0413	-0.2242
P44	OP10a	0.1067	-0.0425	-0.2181
P45	OP10a	0.1115	-0.0437	-0.2205
P46	OP10a	0.1162	-0.0450	-0.2149
P47	OP10a	0.1210	-0.0464	-0.2181
P48	OP10a	0.1257	-0.0475	-0.2136
P49	OP10a	0.1304	-0.0486	-0.2169
P50	OP10a	0.1019	-0.0473	-0.2317
P51	OP10a	0.1067	-0.0485	-0.2254
P52	OP10a	0.1115	-0.0497	-0.2280
P53	OP10a	0.1162	-0.0511	-0.2223
P54	OP10a	0.1210	-0.0524	-0.2257
P55	OP10a	0.1257	-0.0536	-0.2210
P56	OP10a	0.1304	-0.0546	-0.2245
P57	OP10a	0.1019	-0.0533	-0.2392
P58	OP10a	0.1070	-0.0546	-0.2323
P59	OP10a	0.1115	-0.0558	-0.2356
P60	OP10a	0.1166	-0.0571	-0.2291
P61	OP10a	0.1210	-0.0584	-0.2333
P62	OP10a	0.1260	-0.0596	-0.2278
P63	OP10a	0.1304	-0.0607	-0.2321

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP10b	0.0892	-0.0048	-0.1517
P2	OP10b	0.1169	-0.0062	-0.1289 *
P3	OP10b	0.1216	-0.0075	-0.1293 *
P4	OP10b	0.1033	-0.0088	-0.1426
P5	OP10b	0.1306	-0.0102	-0.1255 *
P6	OP10b	0.1349	-0.0114	-0.1213 *
P7	OP10b	0.1177	-0.0126	-0.1443
P8	OP10b	0.0892	-0.0108	-0.1490
P9	OP10b	0.1166	-0.0122	-0.1264 *
P10	OP10b	0.1212	-0.0135	-0.1267 *
P11	OP10b	0.1034	-0.0149	-0.1403
P12	OP10b	0.1302	-0.0162	-0.1228 *
P13	OP10b	0.1345	-0.0175	-0.1189 *
P14	OP10b	0.1177	-0.0187	-0.1417
P15	OP10b	0.0892	-0.0169	-0.1464
P16	OP10b	0.0939	-0.0183	-0.1405
P17	OP10b	0.0987	-0.0195	-0.1422
P18	OP10b	0.1034	-0.0209	-0.1373
P19	OP10b	0.1082	-0.0222	-0.1399
P20	OP10b	0.1129	-0.0235	-0.1360
P21	OP10b	0.1177	-0.0247	-0.1390
P22	OP10b	0.0892	-0.0229	-0.1437
P23	OP10b	0.0939	-0.0243	-0.1378
P24	OP10b	0.0987	-0.0256	-0.1395
P25	OP10b	0.1034	-0.0269	-0.1346
P26	OP10b	0.1082	-0.0283	-0.1372
P27	OP10b	0.1129	-0.0295	-0.1332
P28	OP10b	0.1177	-0.0307	-0.1364
P29	OP10b	0.0892	-0.0290	-0.1410
P30	OP10b	0.0939	-0.0303	-0.1351
P31	OP10b	0.0987	-0.0316	-0.1368
P32	OP10b	0.1034	-0.0330	-0.1319
P33	OP10b	0.1082	-0.0343	-0.1345
P34	OP10b	0.1129	-0.0356	-0.1306
P35	OP10b	0.1177	-0.0368	-0.1337
P36	OP10b	0.0892	-0.0350	-0.1383
P37	OP10b	0.0939	-0.0364	-0.1325
P38	OP10b	0.0987	-0.0377	-0.1342
P39	OP10b	0.1034	-0.0390	-0.1293
P40	OP10b	0.1082	-0.0403	-0.1318
P41	OP10b	0.1129	-0.0416	-0.1280
P42	OP10b	0.1177	-0.0428	-0.1311
P43	OP10b	0.0892	-0.0410	-0.1356
P44	OP10b	0.0939	-0.0424	-0.1299
P45	OP10b	0.0987	-0.0437	-0.1315
P46	OP10b	0.1034	-0.0450	-0.1267
P47	OP10b	0.1082	-0.0464	-0.1291
P48	OP10b	0.1129	-0.0476	-0.1254
P49	OP10b	0.1177	-0.0488	-0.1284
P50	OP10b	0.0892	-0.0471	-0.1329
P51	OP10b	0.0939	-0.0485	-0.1273
P52	OP10b	0.0987	-0.0497	-0.1288
P53	OP10b	0.1035	-0.0511	-0.1241
P54	OP10b	0.1082	-0.0524	-0.1265
P55	OP10b	0.1129	-0.0537	-0.1228
P56	OP10b	0.1177	-0.0549	-0.1257
P57	OP10b	0.0892	-0.0531	-0.1302
P58	OP10b	0.0942	-0.0545	-0.1243
P59	OP10b	0.0987	-0.0558	-0.1261
P60	OP10b	0.1037	-0.0571	-0.1211
P61	OP10b	0.1082	-0.0584	-0.1238
P62	OP10b	0.1132	-0.0597	-0.1199
P63	OP10b	0.1177	-0.0609	-0.1231

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP11a	-0.3649	0.0045	-0.1705
P2	OP11a	-0.3327	0.0031	-0.2212 *
P3	OP11a	-0.3326	0.0016	-0.2259 *
P4	OP11a	-0.3654	0.0004	-0.1641
P5	OP11a	-0.3330	-0.0009	-0.2261 *
P6	OP11a	-0.3333	-0.0023	-0.2217 *
P7	OP11a	-0.3660	-0.0038	-0.1711
P8	OP11a	-0.3649	0.0047	-0.1703
P9	OP11a	-0.3325	0.0033	-0.2215 *
P10	OP11a	-0.3326	0.0018	-0.2258 *
P11	OP11a	-0.3652	0.0006	-0.1645
P12	OP11a	-0.3330	-0.0006	-0.2261 *
P13	OP11a	-0.3332	-0.0021	-0.2221 *
P14	OP11a	-0.3660	-0.0035	-0.1709
P15	OP11a	-0.3649	0.0049	-0.1701
P16	OP11a	-0.3648	0.0035	-0.1648
P17	OP11a	-0.3652	0.0020	-0.1680
P18	OP11a	-0.3652	0.0008	-0.1644
P19	OP11a	-0.3656	-0.0004	-0.1682
P20	OP11a	-0.3656	-0.0018	-0.1653
P21	OP11a	-0.3660	-0.0033	-0.1708
P22	OP11a	-0.3649	0.0051	-0.1699
P23	OP11a	-0.3648	0.0037	-0.1647
P24	OP11a	-0.3652	0.0023	-0.1679
P25	OP11a	-0.3652	0.0011	-0.1643
P26	OP11a	-0.3656	-0.0001	-0.1681
P27	OP11a	-0.3656	-0.0015	-0.1652
P28	OP11a	-0.3660	-0.0030	-0.1706
P29	OP11a	-0.3649	0.0054	-0.1697
P30	OP11a	-0.3648	0.0038	-0.1646
P31	OP11a	-0.3652	0.0025	-0.1678
P32	OP11a	-0.3652	0.0013	-0.1643
P33	OP11a	-0.3656	0.0001	-0.1681
P34	OP11a	-0.3656	-0.0012	-0.1651
P35	OP11a	-0.3660	-0.0027	-0.1704
P36	OP11a	-0.3649	0.0056	-0.1695
P37	OP11a	-0.3648	0.0040	-0.1645
P38	OP11a	-0.3652	0.0027	-0.1678
P39	OP11a	-0.3652	0.0015	-0.1642
P40	OP11a	-0.3656	0.0004	-0.1680
P41	OP11a	-0.3656	-0.0010	-0.1649
P42	OP11a	-0.3660	-0.0025	-0.1702
P43	OP11a	-0.3649	0.0058	-0.1693
P44	OP11a	-0.3648	0.0042	-0.1643
P45	OP11a	-0.3652	0.0029	-0.1677
P46	OP11a	-0.3652	0.0018	-0.1641
P47	OP11a	-0.3656	0.0006	-0.1679
P48	OP11a	-0.3656	-0.0007	-0.1648
P49	OP11a	-0.3660	-0.0022	-0.1700
P50	OP11a	-0.3649	0.0060	-0.1691
P51	OP11a	-0.3648	0.0044	-0.1642
P52	OP11a	-0.3652	0.0032	-0.1676
P53	OP11a	-0.3651	0.0020	-0.1640
P54	OP11a	-0.3656	0.0009	-0.1679
P55	OP11a	-0.3655	-0.0004	-0.1647
P56	OP11a	-0.3660	-0.0019	-0.1698
P57	OP11a	-0.3649	0.0062	-0.1689
P58	OP11a	-0.3645	0.0046	-0.1636
P59	OP11a	-0.3652	0.0034	-0.1675
P60	OP11a	-0.3649	0.0022	-0.1635
P61	OP11a	-0.3656	0.0011	-0.1678
P62	OP11a	-0.3653	-0.0001	-0.1641
P63	OP11a	-0.3660	-0.0017	-0.1697

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP11b	-0.3713	0.0045	-0.1532
P2	OP11b	-0.3417	0.0031	-0.2053 *
P3	OP11b	-0.3417	0.0016	-0.2098 *
P4	OP11b	-0.3717	0.0004	-0.1470
P5	OP11b	-0.3421	-0.0009	-0.2101 *
P6	OP11b	-0.3424	-0.0023	-0.2059 *
P7	OP11b	-0.3724	-0.0037	-0.1537
P8	OP11b	-0.3713	0.0047	-0.1555
P9	OP11b	-0.3412	0.0033	-0.2081 *
P10	OP11b	-0.3413	0.0018	-0.2123 *
P11	OP11b	-0.3715	0.0006	-0.1498
P12	OP11b	-0.3416	-0.0006	-0.2126 *
P13	OP11b	-0.3418	-0.0020	-0.2086 *
P14	OP11b	-0.3724	-0.0034	-0.1561
P15	OP11b	-0.3713	0.0049	-0.1578
P16	OP11b	-0.3712	0.0034	-0.1528
P17	OP11b	-0.3716	0.0020	-0.1558
P18	OP11b	-0.3715	0.0008	-0.1524
P19	OP11b	-0.3719	-0.0004	-0.1560
P20	OP11b	-0.3719	-0.0018	-0.1533
P21	OP11b	-0.3724	-0.0032	-0.1584
P22	OP11b	-0.3713	0.0051	-0.1601
P23	OP11b	-0.3711	0.0036	-0.1553
P24	OP11b	-0.3716	0.0023	-0.1582
P25	OP11b	-0.3715	0.0011	-0.1549
P26	OP11b	-0.3719	-0.0001	-0.1585
P27	OP11b	-0.3719	-0.0015	-0.1557
P28	OP11b	-0.3724	-0.0029	-0.1608
P29	OP11b	-0.3713	0.0053	-0.1625
P30	OP11b	-0.3711	0.0038	-0.1576
P31	OP11b	-0.3716	0.0025	-0.1607
P32	OP11b	-0.3715	0.0013	-0.1573
P33	OP11b	-0.3719	0.0001	-0.1609
P34	OP11b	-0.3719	-0.0012	-0.1581
P35	OP11b	-0.3724	-0.0027	-0.1631
P36	OP11b	-0.3713	0.0055	-0.1648
P37	OP11b	-0.3711	0.0040	-0.1600
P38	OP11b	-0.3716	0.0027	-0.1632
P39	OP11b	-0.3715	0.0015	-0.1597
P40	OP11b	-0.3719	0.0004	-0.1634
P41	OP11b	-0.3719	-0.0009	-0.1604
P42	OP11b	-0.3724	-0.0024	-0.1655
P43	OP11b	-0.3713	0.0057	-0.1671
P44	OP11b	-0.3711	0.0042	-0.1623
P45	OP11b	-0.3716	0.0029	-0.1656
P46	OP11b	-0.3715	0.0018	-0.1621
P47	OP11b	-0.3719	0.0006	-0.1659
P48	OP11b	-0.3719	-0.0007	-0.1628
P49	OP11b	-0.3724	-0.0021	-0.1678
P50	OP11b	-0.3713	0.0059	-0.1694
P51	OP11b	-0.3711	0.0044	-0.1646
P52	OP11b	-0.3716	0.0032	-0.1681
P53	OP11b	-0.3715	0.0020	-0.1645
P54	OP11b	-0.3719	0.0009	-0.1683
P55	OP11b	-0.3719	-0.0004	-0.1651
P56	OP11b	-0.3724	-0.0019	-0.1702
P57	OP11b	-0.3713	0.0061	-0.1718
P58	OP11b	-0.3709	0.0046	-0.1665
P59	OP11b	-0.3716	0.0034	-0.1705
P60	OP11b	-0.3712	0.0022	-0.1664
P61	OP11b	-0.3719	0.0011	-0.1708
P62	OP11b	-0.3716	-0.0001	-0.1670
P63	OP11b	-0.3724	-0.0016	-0.1725

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	D1a	0.0946	-0.0052	-0.1668
P2	D1a	0.1249	-0.0064	-0.1427 *
P3	D1a	0.1295	-0.0074	-0.1434 *
P4	D1a	0.1088	-0.0088	-0.1574
P5	D1a	0.1385	-0.0102	-0.1396 *
P6	D1a	0.1429	-0.0113	-0.1351 *
P7	D1a	0.1231	-0.0122	-0.1594
P8	D1a	0.0946	-0.0113	-0.1753
P9	D1a	0.1263	-0.0124	-0.1513 *
P10	D1a	0.1309	-0.0135	-0.1518 *
P11	D1a	0.1089	-0.0149	-0.1660
P12	D1a	0.1399	-0.0162	-0.1479 *
P13	D1a	0.1442	-0.0173	-0.1437 *
P14	D1a	0.1231	-0.0182	-0.1679
P15	D1a	0.0946	-0.0174	-0.1838
P16	D1a	0.0993	-0.0184	-0.1787
P17	D1a	0.1042	-0.0195	-0.1798
P18	D1a	0.1088	-0.0209	-0.1744
P19	D1a	0.1137	-0.0223	-0.1774
P20	D1a	0.1183	-0.0233	-0.1742
P21	D1a	0.1231	-0.0242	-0.1765
P22	D1a	0.0946	-0.0234	-0.1923
P23	D1a	0.0993	-0.0245	-0.1873
P24	D1a	0.1042	-0.0255	-0.1883
P25	D1a	0.1088	-0.0269	-0.1828
P26	D1a	0.1137	-0.0283	-0.1859
P27	D1a	0.1183	-0.0293	-0.1828
P28	D1a	0.1231	-0.0302	-0.1850
P29	D1a	0.0946	-0.0295	-0.2008
P30	D1a	0.0993	-0.0305	-0.1956
P31	D1a	0.1042	-0.0315	-0.1968
P32	D1a	0.1088	-0.0330	-0.1911
P33	D1a	0.1137	-0.0344	-0.1944
P34	D1a	0.1183	-0.0354	-0.1911
P35	D1a	0.1231	-0.0362	-0.1935
P36	D1a	0.0946	-0.0356	-0.2093
P37	D1a	0.0993	-0.0366	-0.2039
P38	D1a	0.1042	-0.0376	-0.2053
P39	D1a	0.1088	-0.0390	-0.1995
P40	D1a	0.1137	-0.0404	-0.2029
P41	D1a	0.1183	-0.0414	-0.1994
P42	D1a	0.1231	-0.0422	-0.2021
P43	D1a	0.0946	-0.0416	-0.2178
P44	D1a	0.0993	-0.0426	-0.2122
P45	D1a	0.1042	-0.0436	-0.2137
P46	D1a	0.1089	-0.0450	-0.2078
P47	D1a	0.1137	-0.0465	-0.2114
P48	D1a	0.1183	-0.0474	-0.2077
P49	D1a	0.1231	-0.0482	-0.2106
P50	D1a	0.0946	-0.0477	-0.2263
P51	D1a	0.0994	-0.0487	-0.2205
P52	D1a	0.1042	-0.0496	-0.2222
P53	D1a	0.1089	-0.0511	-0.2160
P54	D1a	0.1137	-0.0525	-0.2199
P55	D1a	0.1184	-0.0534	-0.2160
P56	D1a	0.1231	-0.0542	-0.2191
P57	D1a	0.0946	-0.0538	-0.2348
P58	D1a	0.0996	-0.0547	-0.2283
P59	D1a	0.1042	-0.0557	-0.2307
P60	D1a	0.1093	-0.0571	-0.2238
P61	D1a	0.1137	-0.0585	-0.2284
P62	D1a	0.1186	-0.0595	-0.2238
P63	D1a	0.1231	-0.0602	-0.2276

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	D1b	0.0818	-0.0050	-0.1396
P2	D1b	0.1078	-0.0063	-0.1183 *
P3	D1b	0.1124	-0.0074	-0.1185 *
P4	D1b	0.0961	-0.0088	-0.1307
P5	D1b	0.1214	-0.0102	-0.1146 *
P6	D1b	0.1258	-0.0113	-0.1108 *
P7	D1b	0.1103	-0.0124	-0.1322
P8	D1b	0.0818	-0.0111	-0.1379
P9	D1b	0.1075	-0.0124	-0.1168 *
P10	D1b	0.1121	-0.0135	-0.1167 *
P11	D1b	0.0961	-0.0149	-0.1291
P12	D1b	0.1211	-0.0162	-0.1129 *
P13	D1b	0.1255	-0.0173	-0.1093 *
P14	D1b	0.1103	-0.0184	-0.1305
P15	D1b	0.0818	-0.0171	-0.1362
P16	D1b	0.0866	-0.0184	-0.1309
P17	D1b	0.0914	-0.0195	-0.1318
P18	D1b	0.0961	-0.0209	-0.1267
P19	D1b	0.1009	-0.0223	-0.1295
P20	D1b	0.1056	-0.0234	-0.1264
P21	D1b	0.1103	-0.0244	-0.1288
P22	D1b	0.0818	-0.0232	-0.1344
P23	D1b	0.0865	-0.0244	-0.1292
P24	D1b	0.0914	-0.0255	-0.1301
P25	D1b	0.0961	-0.0269	-0.1247
P26	D1b	0.1009	-0.0283	-0.1277
P27	D1b	0.1055	-0.0294	-0.1247
P28	D1b	0.1103	-0.0304	-0.1271
P29	D1b	0.0818	-0.0293	-0.1327
P30	D1b	0.0865	-0.0305	-0.1275
P31	D1b	0.0914	-0.0315	-0.1283
P32	D1b	0.0961	-0.0330	-0.1230
P33	D1b	0.1009	-0.0344	-0.1260
P34	D1b	0.1055	-0.0354	-0.1230
P35	D1b	0.1103	-0.0364	-0.1254
P36	D1b	0.0818	-0.0354	-0.1310
P37	D1b	0.0865	-0.0365	-0.1258
P38	D1b	0.0914	-0.0376	-0.1265
P39	D1b	0.0961	-0.0390	-0.1213
P40	D1b	0.1009	-0.0404	-0.1242
P41	D1b	0.1055	-0.0415	-0.1213
P42	D1b	0.1103	-0.0425	-0.1237
P43	D1b	0.0818	-0.0414	-0.1293
P44	D1b	0.0865	-0.0425	-0.1241
P45	D1b	0.0914	-0.0436	-0.1247
P46	D1b	0.0961	-0.0450	-0.1195
P47	D1b	0.1009	-0.0465	-0.1224
P48	D1b	0.1055	-0.0475	-0.1196
P49	D1b	0.1103	-0.0485	-0.1220
P50	D1b	0.0818	-0.0475	-0.1275
P51	D1b	0.0866	-0.0486	-0.1223
P52	D1b	0.0914	-0.0496	-0.1230
P53	D1b	0.0961	-0.0511	-0.1178
P54	D1b	0.1009	-0.0525	-0.1207
P55	D1b	0.1056	-0.0535	-0.1179
P56	D1b	0.1103	-0.0545	-0.1203
P57	D1b	0.0818	-0.0536	-0.1258
P58	D1b	0.0868	-0.0546	-0.1203
P59	D1b	0.0914	-0.0557	-0.1212
P60	D1b	0.0964	-0.0571	-0.1158
P61	D1b	0.1009	-0.0585	-0.1189
P62	D1b	0.1058	-0.0596	-0.1159
P63	D1b	0.1103	-0.0605	-0.1186

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	D2a	0.1214	0.0281	-0.1728
P2	D2a	0.1584	0.0269	-0.1411 *
P3	D2a	0.1692	0.0259	-0.1384 *
P4	D2a	0.1553	0.0245	-0.1567
P5	D2a	0.1904	0.0232	-0.1278 *
P6	D2a	0.2008	0.0219	-0.1203 *
P7	D2a	0.1893	0.0209	-0.1517
P8	D2a	0.1214	0.0137	-0.1806
P9	D2a	0.1597	0.0126	-0.1489 *
P10	D2a	0.1704	0.0116	-0.1461 *
P11	D2a	0.1554	0.0102	-0.1645
P12	D2a	0.1916	0.0088	-0.1353 *
P13	D2a	0.2021	0.0076	-0.1279 *
P14	D2a	0.1893	0.0065	-0.1594
P15	D2a	0.1214	-0.0007	-0.1883
P16	D2a	0.1326	-0.0018	-0.1810
P17	D2a	0.1441	-0.0028	-0.1798
P18	D2a	0.1553	-0.0042	-0.1721
P19	D2a	0.1668	-0.0055	-0.1726
P20	D2a	0.1780	-0.0068	-0.1663
P21	D2a	0.1893	-0.0078	-0.1671
P22	D2a	0.1214	-0.0151	-0.1961
P23	D2a	0.1327	-0.0161	-0.1888
P24	D2a	0.1441	-0.0171	-0.1876
P25	D2a	0.1553	-0.0185	-0.1797
P26	D2a	0.1668	-0.0199	-0.1803
P27	D2a	0.1779	-0.0212	-0.1739
P28	D2a	0.1893	-0.0222	-0.1748
P29	D2a	0.1214	-0.0294	-0.2038
P30	D2a	0.1327	-0.0305	-0.1964
P31	D2a	0.1441	-0.0314	-0.1953
P32	D2a	0.1553	-0.0328	-0.1872
P33	D2a	0.1668	-0.0342	-0.1879
P34	D2a	0.1779	-0.0355	-0.1814
P35	D2a	0.1893	-0.0366	-0.1824
P36	D2a	0.1214	-0.0438	-0.2116
P37	D2a	0.1327	-0.0448	-0.2040
P38	D2a	0.1441	-0.0458	-0.2030
P39	D2a	0.1554	-0.0471	-0.1948
P40	D2a	0.1668	-0.0486	-0.1956
P41	D2a	0.1780	-0.0499	-0.1889
P42	D2a	0.1893	-0.0510	-0.1901
P43	D2a	0.1214	-0.0582	-0.2193
P44	D2a	0.1327	-0.0592	-0.2115
P45	D2a	0.1441	-0.0601	-0.2107
P46	D2a	0.1554	-0.0614	-0.2023
P47	D2a	0.1668	-0.0629	-0.2032
P48	D2a	0.1780	-0.0642	-0.1963
P49	D2a	0.1894	-0.0654	-0.1978
P50	D2a	0.1214	-0.0726	-0.2270
P51	D2a	0.1327	-0.0735	-0.2190
P52	D2a	0.1441	-0.0745	-0.2184
P53	D2a	0.1554	-0.0758	-0.2097
P54	D2a	0.1668	-0.0773	-0.2108
P55	D2a	0.1780	-0.0786	-0.2038
P56	D2a	0.1894	-0.0797	-0.2054
P57	D2a	0.1214	-0.0869	-0.2348
P58	D2a	0.1330	-0.0879	-0.2261
P59	D2a	0.1441	-0.0888	-0.2261
P60	D2a	0.1557	-0.0901	-0.2167
P61	D2a	0.1668	-0.0917	-0.2184
P62	D2a	0.1783	-0.0930	-0.2108
P63	D2a	0.1894	-0.0941	-0.2131

Job: Maurepas Freshwater Diversion
Desc. C-1 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	D2b	0.1086	0.0283	-0.1457	
P2	D2b	0.1414	0.0270	-0.1167	*
P3	D2b	0.1521	0.0259	-0.1135	*
P4	D2b	0.1426	0.0245	-0.1299	
P5	D2b	0.1733	0.0232	-0.1029	*
P6	D2b	0.1837	0.0219	-0.0960	*
P7	D2b	0.1766	0.0207	-0.1246	
P8	D2b	0.1086	0.0139	-0.1432	
P9	D2b	0.1410	0.0126	-0.1145	*
P10	D2b	0.1517	0.0116	-0.1110	*
P11	D2b	0.1426	0.0102	-0.1276	
P12	D2b	0.1729	0.0088	-0.1003	*
P13	D2b	0.1833	0.0075	-0.0935	*
P14	D2b	0.1766	0.0063	-0.1220	
P15	D2b	0.1086	-0.0005	-0.1407	
P16	D2b	0.1200	-0.0017	-0.1332	
P17	D2b	0.1313	-0.0028	-0.1319	
P18	D2b	0.1426	-0.0042	-0.1244	
P19	D2b	0.1540	-0.0055	-0.1247	
P20	D2b	0.1653	-0.0068	-0.1185	
P21	D2b	0.1766	-0.0081	-0.1195	
P22	D2b	0.1086	-0.0148	-0.1382	
P23	D2b	0.1199	-0.0161	-0.1307	
P24	D2b	0.1313	-0.0171	-0.1293	
P25	D2b	0.1426	-0.0185	-0.1216	
P26	D2b	0.1540	-0.0199	-0.1221	
P27	D2b	0.1652	-0.0212	-0.1158	
P28	D2b	0.1766	-0.0224	-0.1169	
P29	D2b	0.1086	-0.0292	-0.1357	
P30	D2b	0.1199	-0.0304	-0.1283	
P31	D2b	0.1313	-0.0314	-0.1268	
P32	D2b	0.1426	-0.0328	-0.1191	
P33	D2b	0.1540	-0.0342	-0.1194	
P34	D2b	0.1652	-0.0356	-0.1132	
P35	D2b	0.1766	-0.0368	-0.1143	
P36	D2b	0.1086	-0.0436	-0.1332	
P37	D2b	0.1199	-0.0447	-0.1258	
P38	D2b	0.1313	-0.0458	-0.1243	
P39	D2b	0.1426	-0.0471	-0.1166	
P40	D2b	0.1540	-0.0486	-0.1168	
P41	D2b	0.1652	-0.0500	-0.1107	
P42	D2b	0.1766	-0.0512	-0.1118	
P43	D2b	0.1086	-0.0580	-0.1307	
P44	D2b	0.1199	-0.0591	-0.1233	
P45	D2b	0.1313	-0.0601	-0.1217	
P46	D2b	0.1426	-0.0614	-0.1140	
P47	D2b	0.1540	-0.0630	-0.1142	
P48	D2b	0.1652	-0.0643	-0.1082	
P49	D2b	0.1766	-0.0656	-0.1092	
P50	D2b	0.1086	-0.0723	-0.1283	
P51	D2b	0.1200	-0.0734	-0.1209	
P52	D2b	0.1313	-0.0744	-0.1192	
P53	D2b	0.1426	-0.0758	-0.1115	
P54	D2b	0.1540	-0.0773	-0.1116	
P55	D2b	0.1652	-0.0787	-0.1056	
P56	D2b	0.1766	-0.0800	-0.1066	
P57	D2b	0.1086	-0.0867	-0.1258	
P58	D2b	0.1202	-0.0878	-0.1181	
P59	D2b	0.1313	-0.0888	-0.1166	
P60	D2b	0.1429	-0.0901	-0.1087	
P61	D2b	0.1540	-0.0917	-0.1089	
P62	D2b	0.1655	-0.0931	-0.1028	
P63	D2b	0.1766	-0.0943	-0.1041	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	DC Aa	0.2954	-0.0152	-0.1560	
P2	DC Aa	0.3260	-0.0163	-0.0983	*
P3	DC Aa	0.3356	-0.0173	-0.0956	*
P4	DC Aa	0.3250	-0.0187	-0.1426	
P5	DC Aa	0.3543	-0.0201	-0.0866	*
P6	DC Aa	0.3634	-0.0211	-0.0807	*
P7	DC Aa	0.3552	-0.0218	-0.1377	
P8	DC Aa	0.2954	-0.0278	-0.1678	
P9	DC Aa	0.3280	-0.0289	-0.1098	*
P10	DC Aa	0.3376	-0.0299	-0.1072	*
P11	DC Aa	0.3251	-0.0314	-0.1544	
P12	DC Aa	0.3563	-0.0328	-0.0981	*
P13	DC Aa	0.3654	-0.0338	-0.0922	*
P14	DC Aa	0.3552	-0.0345	-0.1496	
P15	DC Aa	0.2954	-0.0404	-0.1797	
P16	DC Aa	0.3051	-0.0415	-0.1730	
P17	DC Aa	0.3154	-0.0426	-0.1730	
P18	DC Aa	0.3250	-0.0440	-0.1661	
P19	DC Aa	0.3353	-0.0454	-0.1671	
P20	DC Aa	0.3450	-0.0465	-0.1617	
P21	DC Aa	0.3552	-0.0472	-0.1614	
P22	DC Aa	0.2954	-0.0531	-0.1915	
P23	DC Aa	0.3052	-0.0541	-0.1847	
P24	DC Aa	0.3154	-0.0552	-0.1847	
P25	DC Aa	0.3251	-0.0567	-0.1778	
P26	DC Aa	0.3353	-0.0581	-0.1789	
P27	DC Aa	0.3450	-0.0592	-0.1733	
P28	DC Aa	0.3552	-0.0598	-0.1733	
P29	DC Aa	0.2954	-0.0657	-0.2034	
P30	DC Aa	0.3052	-0.0667	-0.1963	
P31	DC Aa	0.3154	-0.0679	-0.1964	
P32	DC Aa	0.3251	-0.0693	-0.1893	
P33	DC Aa	0.3353	-0.0707	-0.1906	
P34	DC Aa	0.3450	-0.0718	-0.1849	
P35	DC Aa	0.3552	-0.0725	-0.1851	
P36	DC Aa	0.2954	-0.0783	-0.2152	
P37	DC Aa	0.3052	-0.0793	-0.2078	
P38	DC Aa	0.3154	-0.0805	-0.2082	
P39	DC Aa	0.3251	-0.0820	-0.2008	
P40	DC Aa	0.3353	-0.0834	-0.2023	
P41	DC Aa	0.3450	-0.0845	-0.1964	
P42	DC Aa	0.3552	-0.0852	-0.1970	
P43	DC Aa	0.2954	-0.0910	-0.2271	
P44	DC Aa	0.3052	-0.0920	-0.2193	
P45	DC Aa	0.3154	-0.0932	-0.2199	
P46	DC Aa	0.3251	-0.0946	-0.2123	
P47	DC Aa	0.3353	-0.0960	-0.2141	
P48	DC Aa	0.3450	-0.0972	-0.2079	
P49	DC Aa	0.3552	-0.0978	-0.2088	
P50	DC Aa	0.2954	-0.1036	-0.2389	
P51	DC Aa	0.3052	-0.1046	-0.2308	
P52	DC Aa	0.3154	-0.1058	-0.2317	
P53	DC Aa	0.3252	-0.1072	-0.2237	
P54	DC Aa	0.3353	-0.1087	-0.2258	
P55	DC Aa	0.3450	-0.1099	-0.2194	
P56	DC Aa	0.3552	-0.1105	-0.2207	
P57	DC Aa	0.2954	-0.1162	-0.2508	
P58	DC Aa	0.3055	-0.1172	-0.2418	
P59	DC Aa	0.3154	-0.1185	-0.2434	
P60	DC Aa	0.3255	-0.1199	-0.2347	
P61	DC Aa	0.3353	-0.1214	-0.2375	
P62	DC Aa	0.3453	-0.1226	-0.2304	
P63	DC Aa	0.3552	-0.1232	-0.2325	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	DC Ab	0.2797	-0.0149	-0.1227	
P2	DC Ab	0.3051	-0.0163	-0.0684	*
P3	DC Ab	0.3147	-0.0173	-0.0650	*
P4	DC Ab	0.3094	-0.0187	-0.1098	
P5	DC Ab	0.3334	-0.0201	-0.0560	*
P6	DC Ab	0.3425	-0.0212	-0.0508	*
P7	DC Ab	0.3395	-0.0221	-0.1044	
P8	DC Ab	0.2797	-0.0276	-0.1220	
P9	DC Ab	0.3050	-0.0289	-0.0676	*
P10	DC Ab	0.3145	-0.0299	-0.0642	*
P11	DC Ab	0.3095	-0.0314	-0.1091	
P12	DC Ab	0.3332	-0.0328	-0.0551	*
P13	DC Ab	0.3424	-0.0338	-0.0500	*
P14	DC Ab	0.3395	-0.0347	-0.1037	
P15	DC Ab	0.2797	-0.0402	-0.1213	
P16	DC Ab	0.2896	-0.0415	-0.1144	
P17	DC Ab	0.2997	-0.0426	-0.1141	
P18	DC Ab	0.3095	-0.0440	-0.1076	
P19	DC Ab	0.3196	-0.0454	-0.1083	
P20	DC Ab	0.3294	-0.0465	-0.1030	
P21	DC Ab	0.3395	-0.0474	-0.1030	
P22	DC Ab	0.2797	-0.0528	-0.1206	
P23	DC Ab	0.2895	-0.0541	-0.1134	
P24	DC Ab	0.2997	-0.0552	-0.1133	
P25	DC Ab	0.3094	-0.0567	-0.1066	
P26	DC Ab	0.3196	-0.0581	-0.1075	
P27	DC Ab	0.3293	-0.0592	-0.1021	
P28	DC Ab	0.3395	-0.0601	-0.1023	
P29	DC Ab	0.2797	-0.0654	-0.1199	
P30	DC Ab	0.2895	-0.0667	-0.1127	
P31	DC Ab	0.2997	-0.0679	-0.1124	
P32	DC Ab	0.3094	-0.0693	-0.1057	
P33	DC Ab	0.3196	-0.0707	-0.1066	
P34	DC Ab	0.3293	-0.0719	-0.1013	
P35	DC Ab	0.3395	-0.0728	-0.1016	
P36	DC Ab	0.2797	-0.0781	-0.1192	
P37	DC Ab	0.2895	-0.0793	-0.1119	
P38	DC Ab	0.2997	-0.0805	-0.1116	
P39	DC Ab	0.3094	-0.0820	-0.1049	
P40	DC Ab	0.3196	-0.0834	-0.1057	
P41	DC Ab	0.3293	-0.0846	-0.1005	
P42	DC Ab	0.3395	-0.0854	-0.1009	
P43	DC Ab	0.2797	-0.0907	-0.1185	
P44	DC Ab	0.2895	-0.0919	-0.1112	
P45	DC Ab	0.2997	-0.0932	-0.1108	
P46	DC Ab	0.3095	-0.0946	-0.1041	
P47	DC Ab	0.3196	-0.0960	-0.1049	
P48	DC Ab	0.3293	-0.0973	-0.0998	
P49	DC Ab	0.3395	-0.0981	-0.1002	
P50	DC Ab	0.2797	-0.1033	-0.1178	
P51	DC Ab	0.2895	-0.1045	-0.1104	
P52	DC Ab	0.2997	-0.1058	-0.1099	
P53	DC Ab	0.3095	-0.1073	-0.1032	
P54	DC Ab	0.3196	-0.1087	-0.1040	
P55	DC Ab	0.3294	-0.1100	-0.0990	
P56	DC Ab	0.3395	-0.1108	-0.0995	
P57	DC Ab	0.2797	-0.1159	-0.1171	
P58	DC Ab	0.2898	-0.1171	-0.1094	
P59	DC Ab	0.2997	-0.1185	-0.1091	
P60	DC Ab	0.3097	-0.1199	-0.1022	
P61	DC Ab	0.3196	-0.1214	-0.1032	
P62	DC Ab	0.3296	-0.1227	-0.0980	
P63	DC Ab	0.3395	-0.1235	-0.0988	

VERTICAL PILES

Vertical Displacements:
MAXIMUM DEFLECTION = -0.0716 inch
MINIMUM DEFLECTION = -0.2508 inch

Horizontal (F1) Displacements:
MAXIMUM DEFLECTION = 0.3552 inch
MINIMUM DEFLECTION = -0.3724 inch

Horizontal (F2) Displacements:
MAXIMUM DEFLECTION = 0.0283 inch
MINIMUM DEFLECTION = -0.1923 inch

6V:1H PILES

Vertical Displacements:
MAXIMUM DEFLECTION = -0.0500 inch
MINIMUM DEFLECTION = -0.2284 inch

Horizontal (F1) Displacements:
MAXIMUM DEFLECTION = 0.3654 inch
MINIMUM DEFLECTION = -0.3424 inch

Horizontal (F2) Displacements:
MAXIMUM DEFLECTION = 0.0270 inch
MINIMUM DEFLECTION = -0.1917 inch

Maximum allowable vertical deflection is 0.5" (for load cases with no allowable overstress). Maximum deflection found is 0.25" - OK.

Maximum allowable horizontal deflection is 0.75" (for load cases with no allowable overstress). Maximum deflection found is 0.372" - OK.

Also note that the lateral deflection is very close to the assumed spring value of 0.375". The spring has converged.

* The remainder of the pile results are presented after the slab design b/c of the need to increase slab thickness by 1'. Rest of results include add'l slab weight.

PART 4

Culvert Roof Design

*** Given Information:** Notes / References

Culvert Roof Slab Thickness =	2.75	ft
Culvert Wall Thickness =	2.75	ft
Bottom Slab Thickness =	3.5	ft
Front & Back Headwall Thickness =	2.5	ft
T-Wall Thickness =	2	ft
Equipment Room/Walkway Slab Thickness =	2	ft
Design Width =	12	in
f'_c =	4	ksi
f_y =	60	ksi
ϕ, shear =	0.85	EM 1110-2-2104
ϕ, moment =	0.90	EM 1110-2-2104
ρ_{bal} =	0.0285	For f'_c = 4,000 psi & f_y = 60,000 psi

*** Culvert Roof Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	28.0	38.7	47.0	55.6	78.8	70.5
combo_OScases	25.9	34.1	40.6	51.0	69.7	63.8

* Shear taken at a distance 'd' = 28.44 inch from faces of culvert walls. Taken at face of T-wall, back headwall & column.

Max. Shear =	**38.7 kip**	
Bottom Moment, Primary =	**78.8 kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**70.5 kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**47.0 kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**55.6 kip-ft**	(-M11 controls top longitudinal reinforcement)

*** Reinforcing Limits:**

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.44 in #9 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'_c) * b * d) / f_y = 1.079 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.137 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.137 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'_c) * b * d

= 0.85 * 2 * √4000 * 12in * 28.436in

= 36,688 lb

ϕVc = 36.7kip < Vu = 38.7kip → Section NOT OK * SEE NOTE

* High shear forces are found around the 18"x18" column that intersects the roof over the west culvert and around the T-wall. These regions will be increased in thickness to accommodate the high shear. As can be seen by the SAP images (following this spreadsheet), shear does not exceed the capacity outside of these two zones. Settlement cases govern this shear design - please see Settlement Case Results for calculations related to how much added thickness is needed.

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Transverse Top Face:

* Will try **#7 @ 6"** to start: As, #7 @ 6" = 1.20 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.2 * 60ksi / (0.85 * 4ksi * 12in) = 1.765 in

$\phi Mn =$ 0.9 * 1.2in^2 * 60ksi * (28.436in - 1.765in / 2)
= 1785.5 kip-in/ft
= 148.79 kip-ft/ft

ϕMn = 148.8kip-ft > Mu = 70.5kip-ft → Use #7 @ 6"

Transverse Bottom Face:

* Will try **#7 @ 6"** to start: As, #7 @ 6" = 1.20 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.2 * 60ksi / (0.85 * 4ksi * 12in) = 1.765 in

$\phi Mn =$ 0.9 * 1.2in^2 * 60ksi * (28.436in - 1.765in / 2)
= 1785.5 kip-in/ft
= 148.79 kip-ft/ft

ϕMn = 148.8kip-ft > Mu = 78.8kip-ft → Use #7 @ 6"

Longitudinal Both Faces: * $M_{max, secondary}$ = 55.6 k-ft

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.0 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

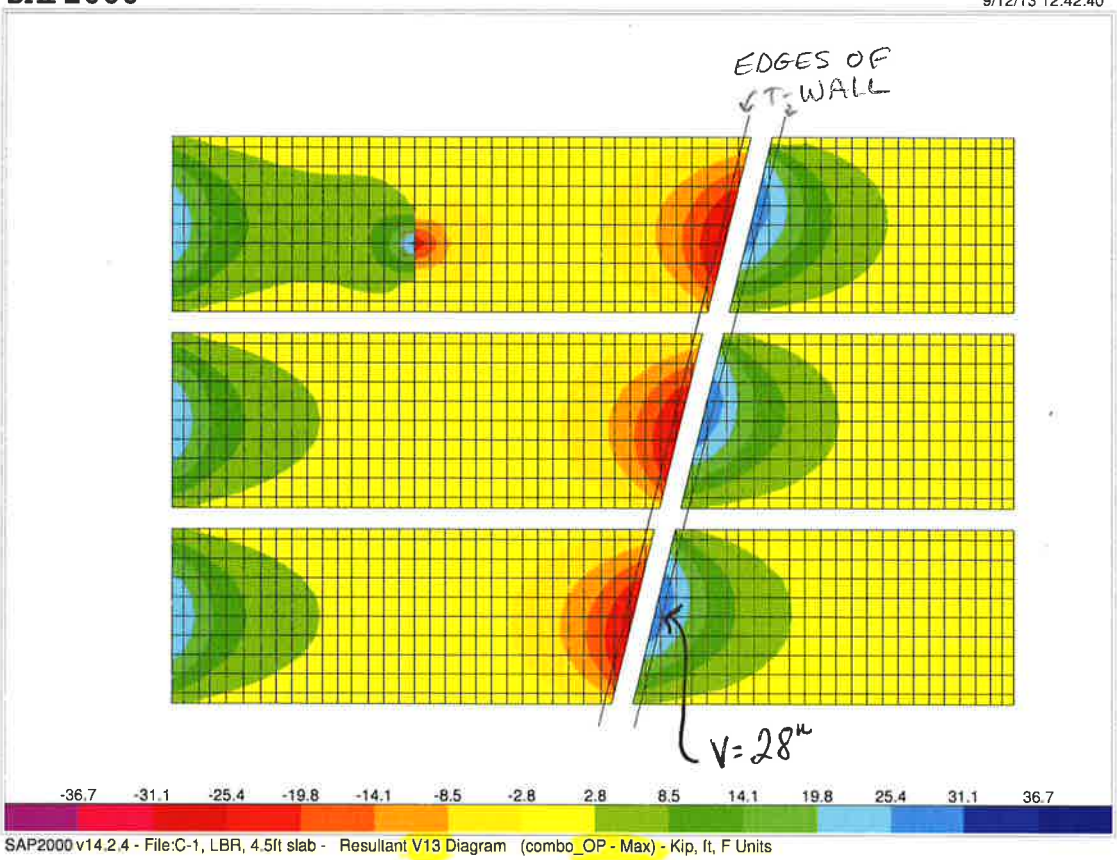
$\phi Mn =$ 0.9 * 1in^2 * 60ksi * (28.436in - 1.471in / 2)
= 1495.8 kip-in/ft
= 124.65 kip-ft/ft

55.6 x 1.33 = 74.1 k·ft

ϕMn = 124.7kip-ft > Mu = 55.6kip-ft → Use #9 @ 12"

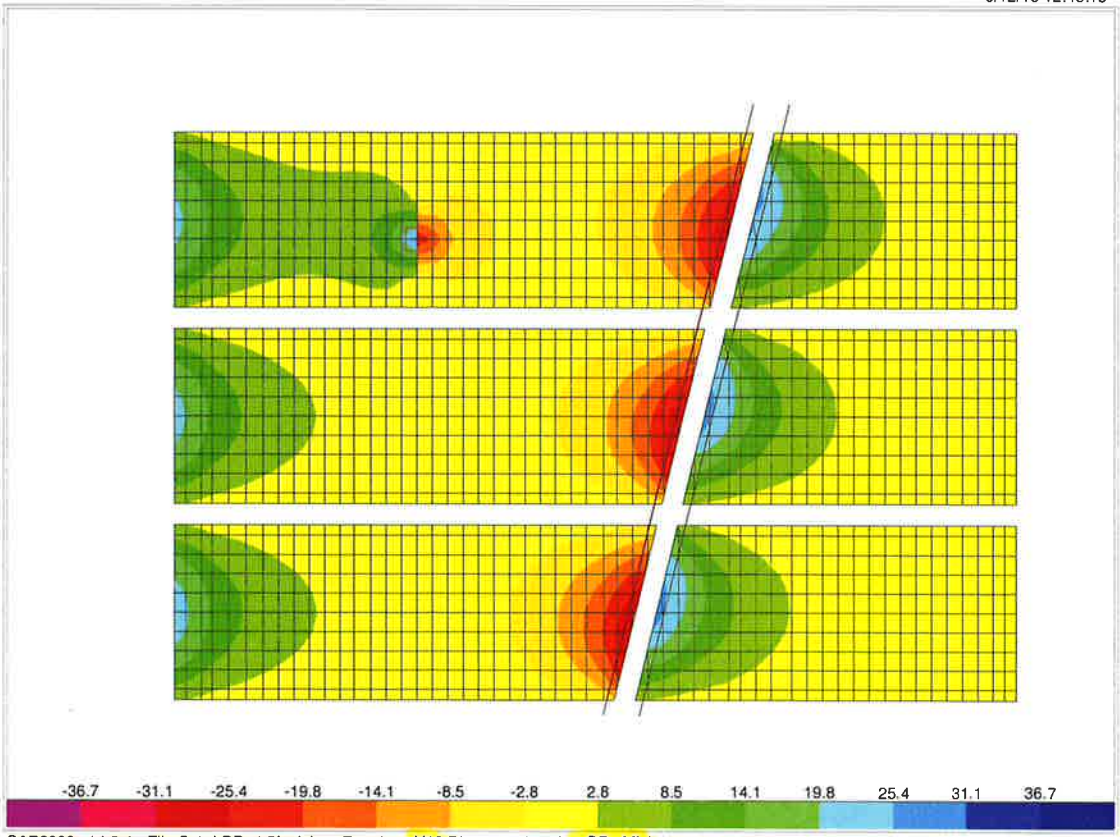
MINIMUM FLEXURE REBAR MAY BE NEGLECTED B/C OF ACI 318 10.5.3 ALLOWANCE WHEN ϕMn > 1.33 Mu

SAP2000 9/12/13 12:42:40



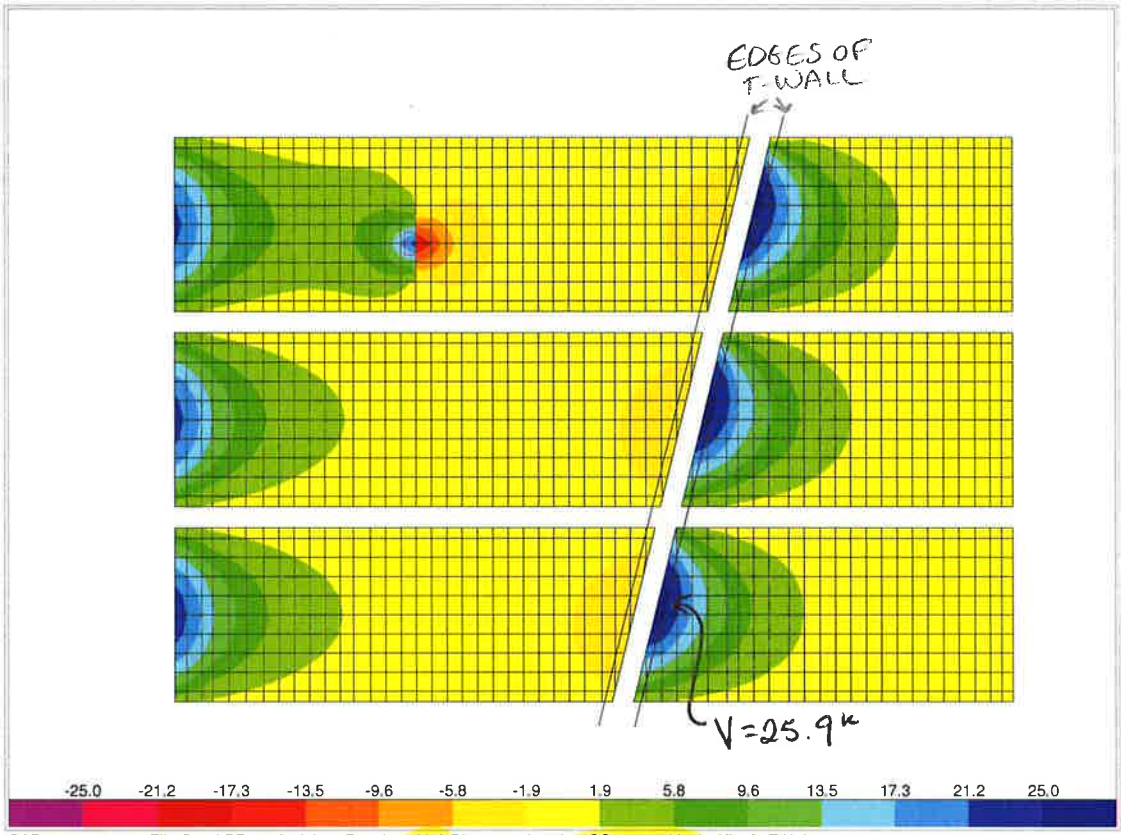
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 12:43:18



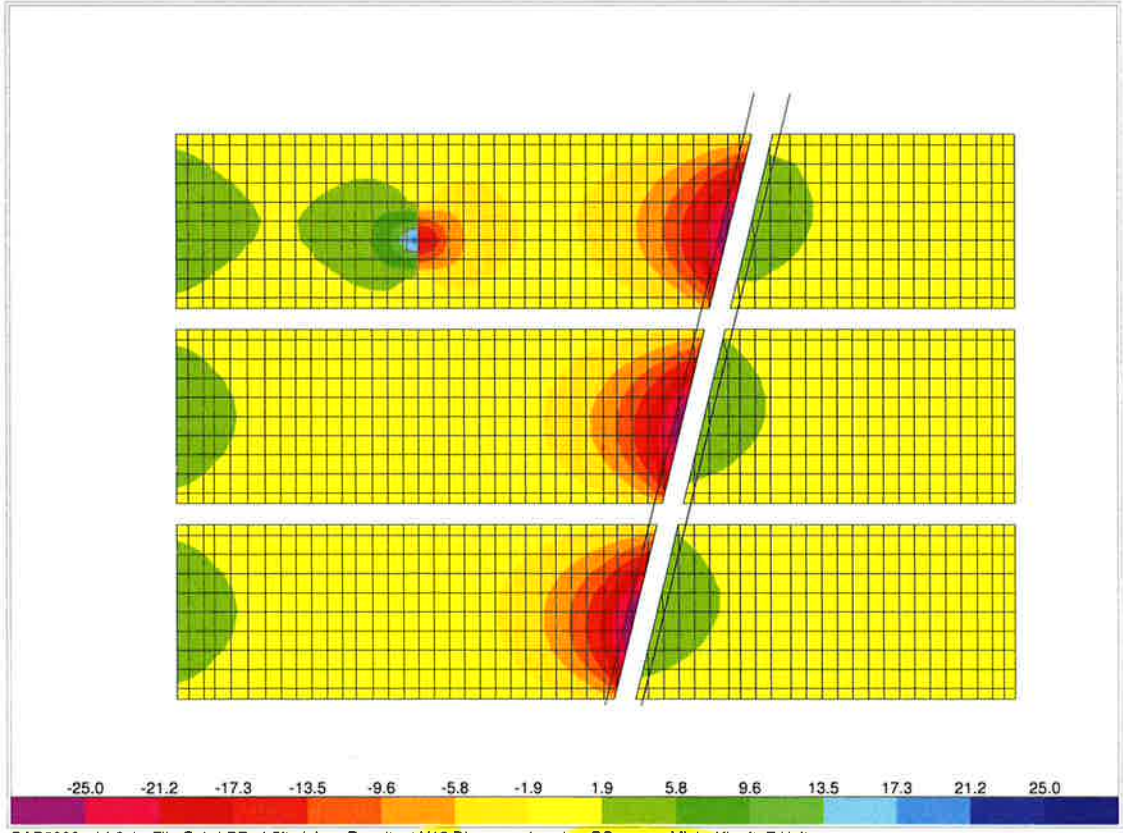
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 12:45:52



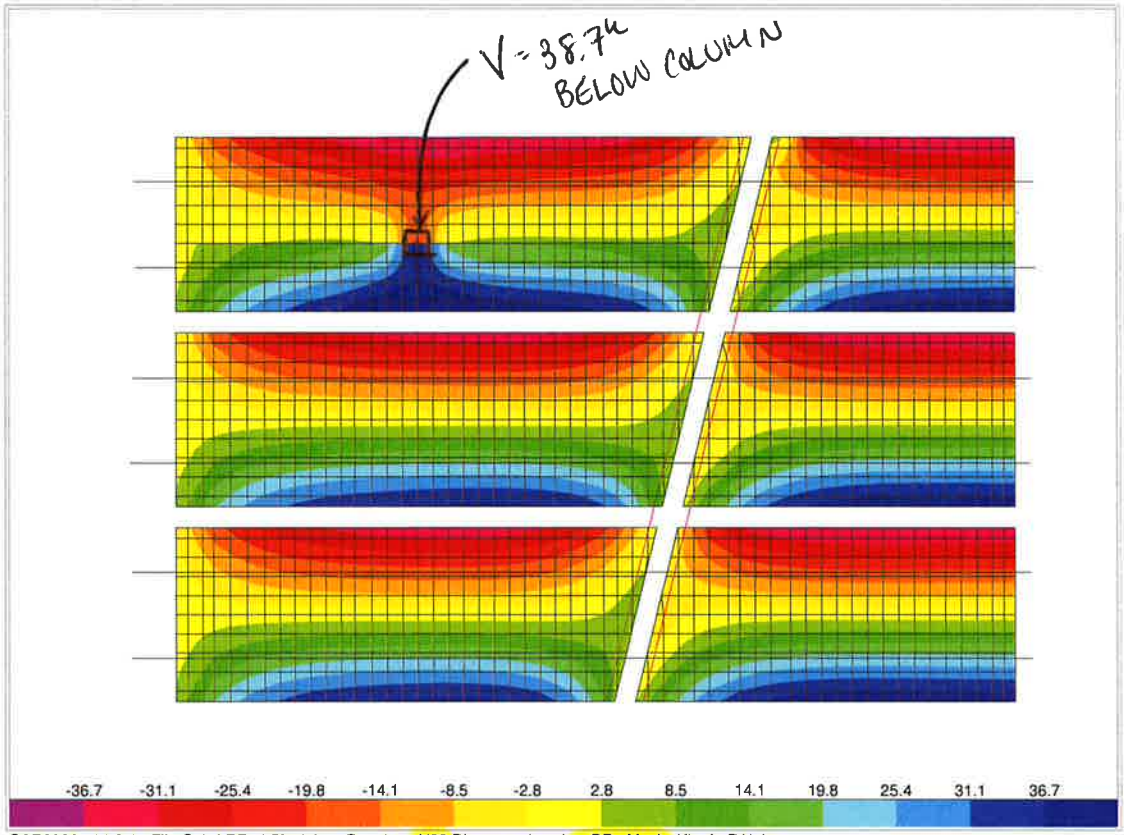
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 12:45:04



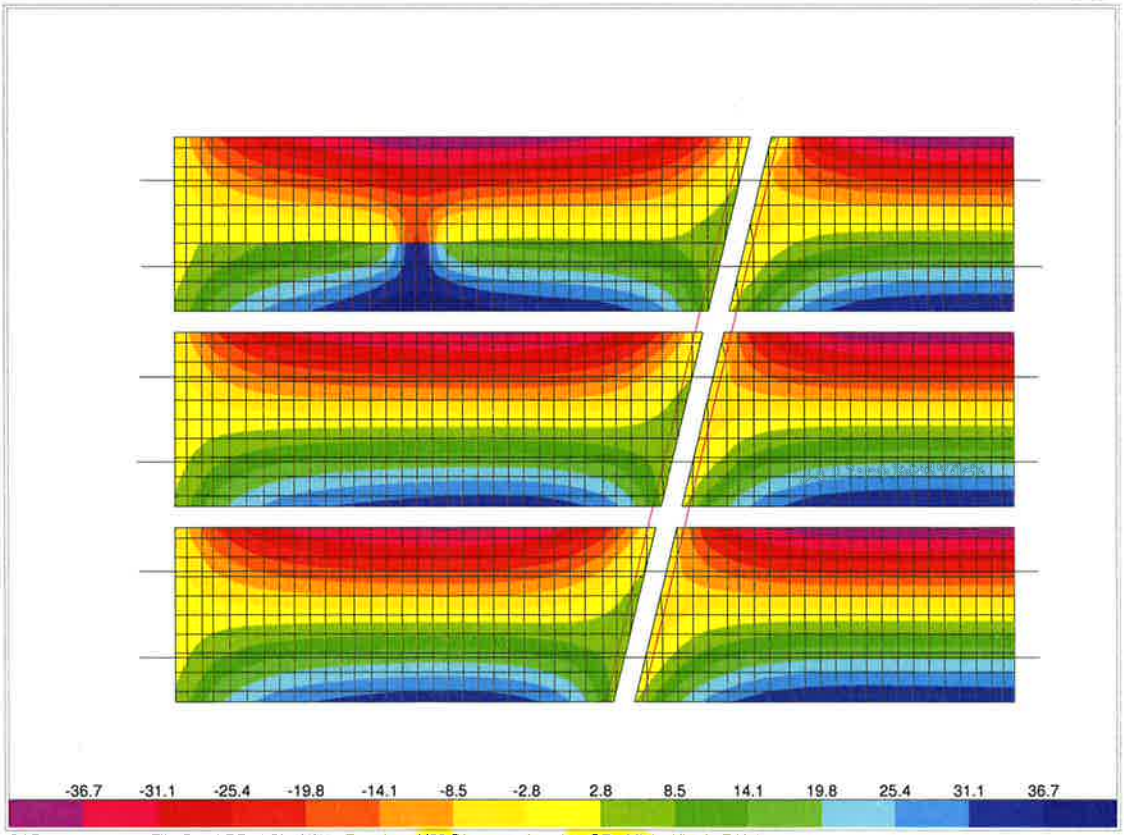
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/12/13 12:47:24



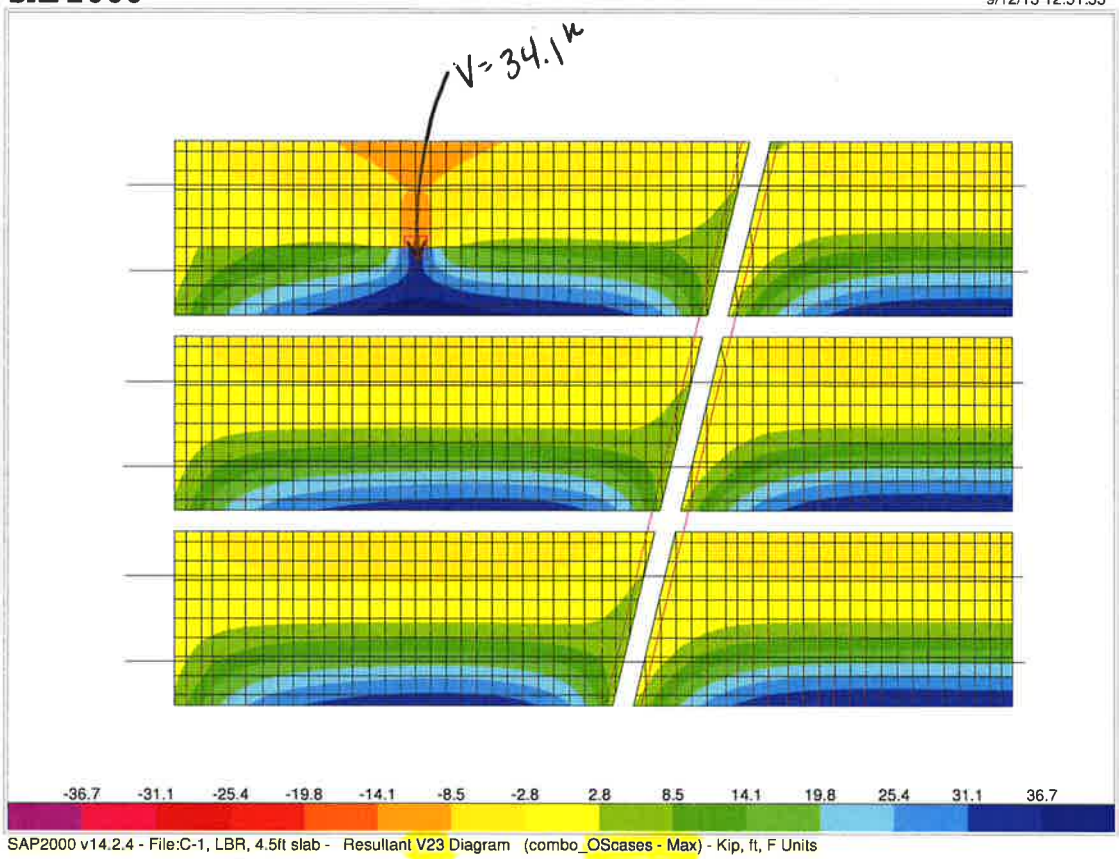
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 12:50:35



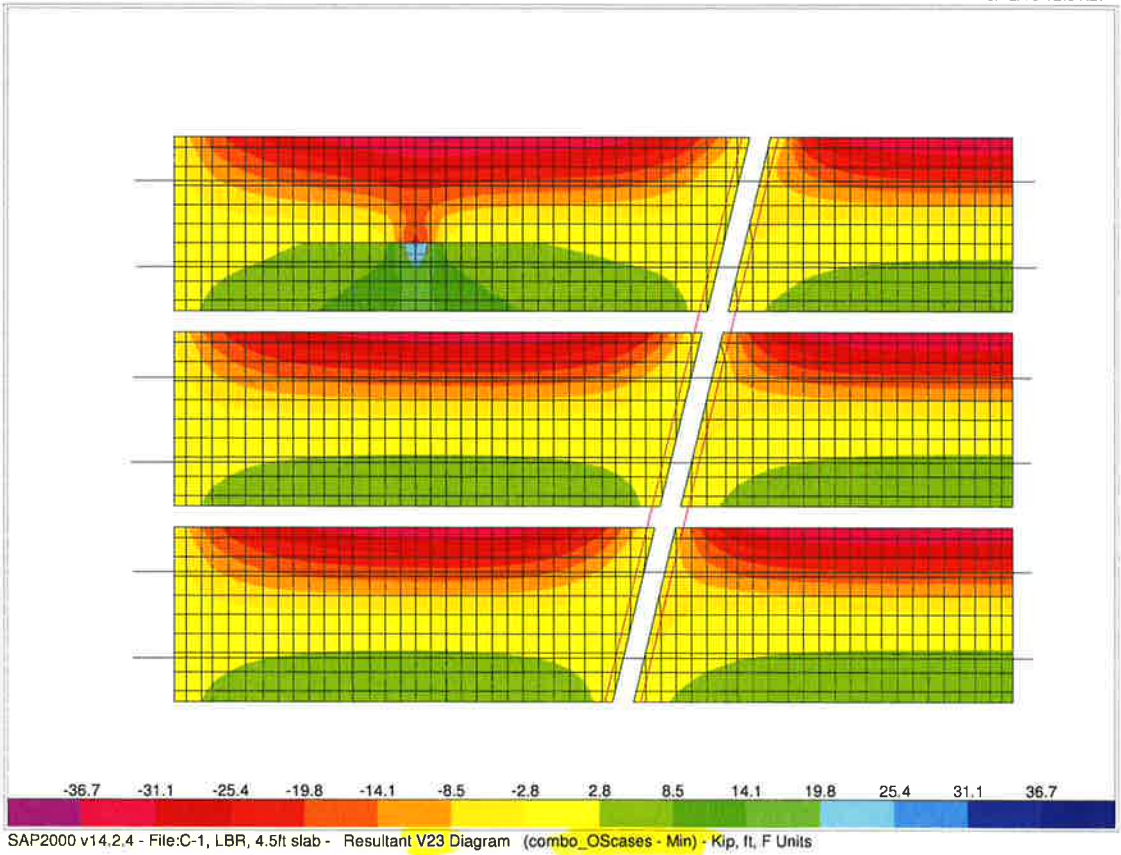
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 12:51:53



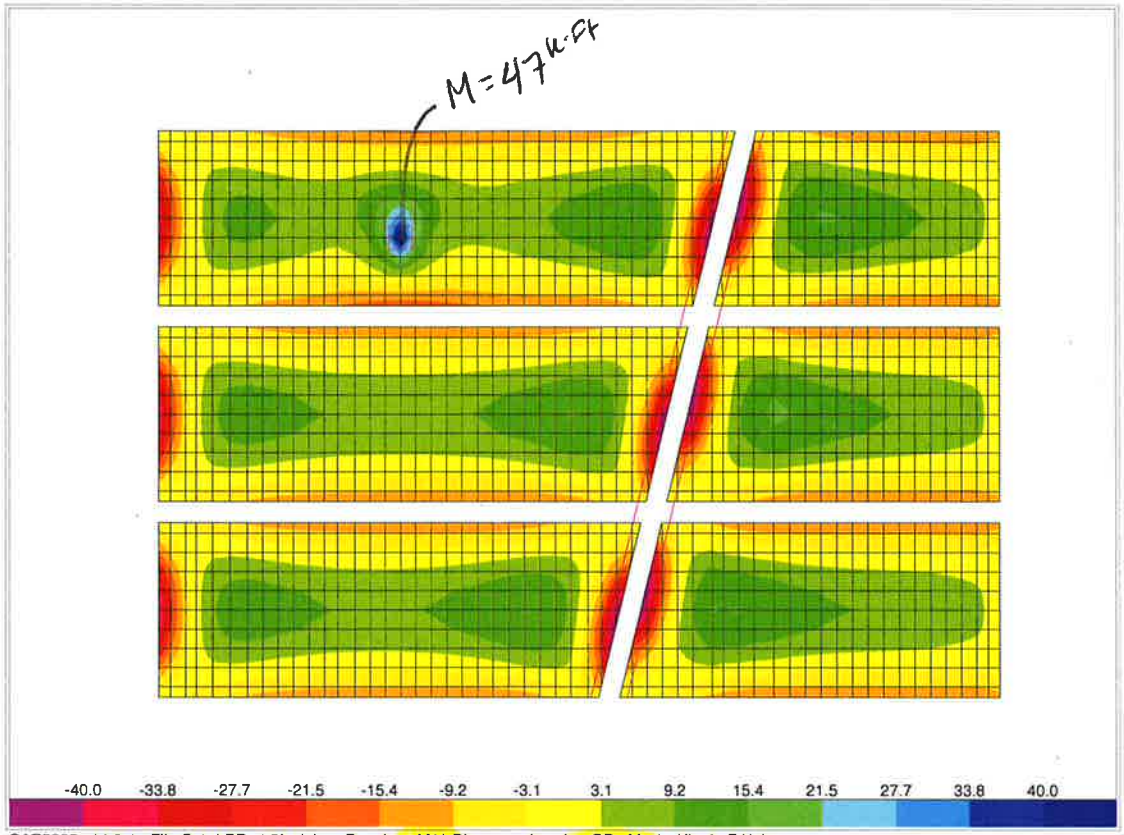
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 12:51:27



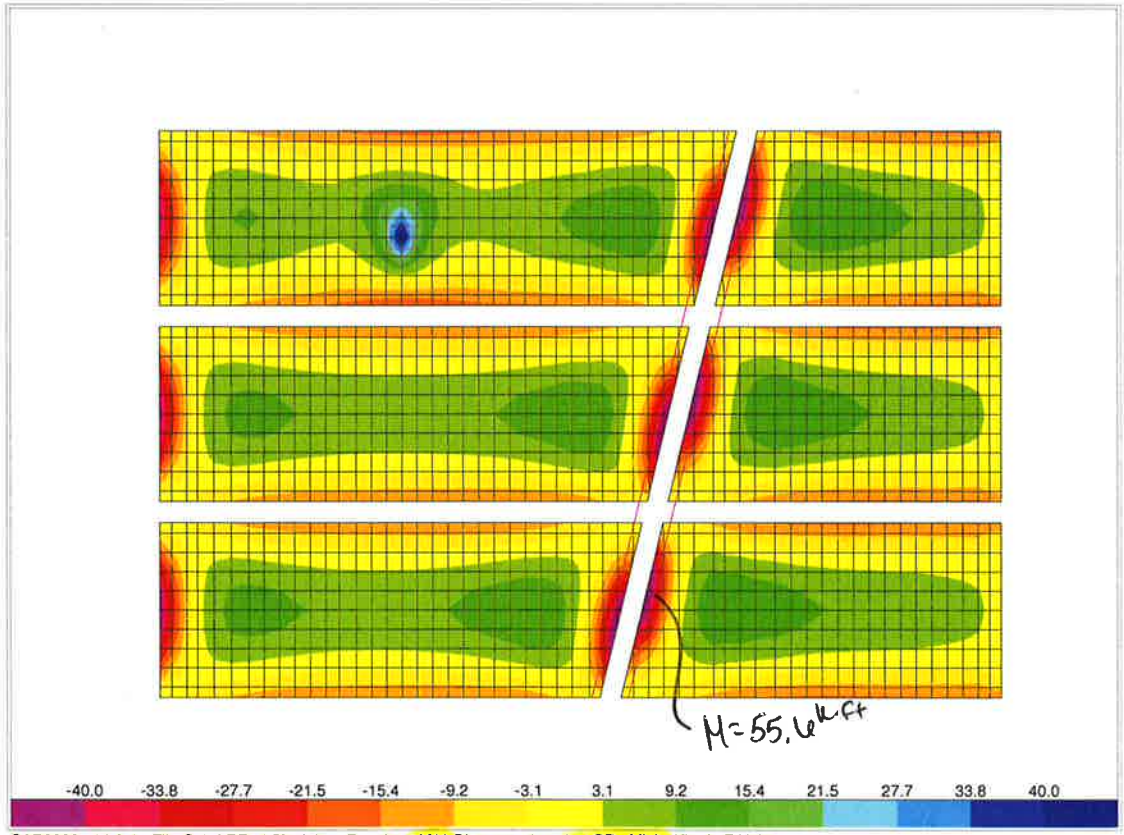
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:32:57



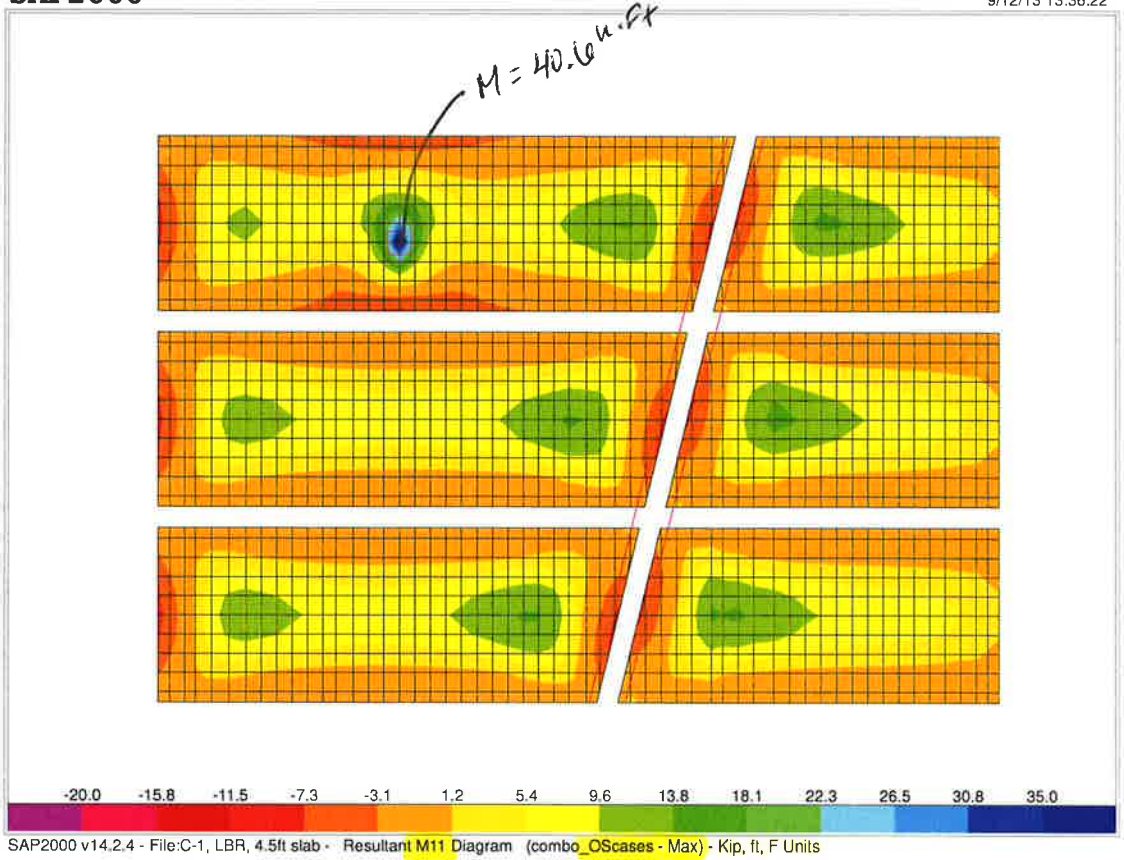
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:33:41



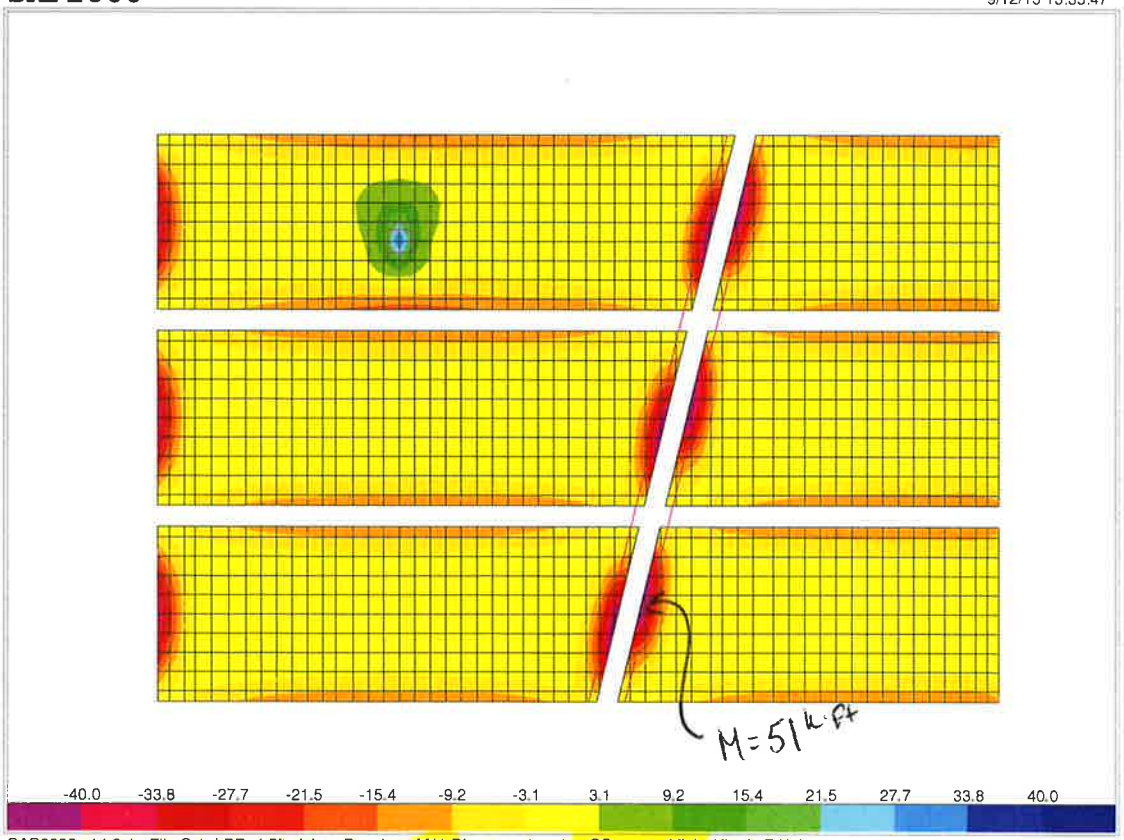
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:36:22



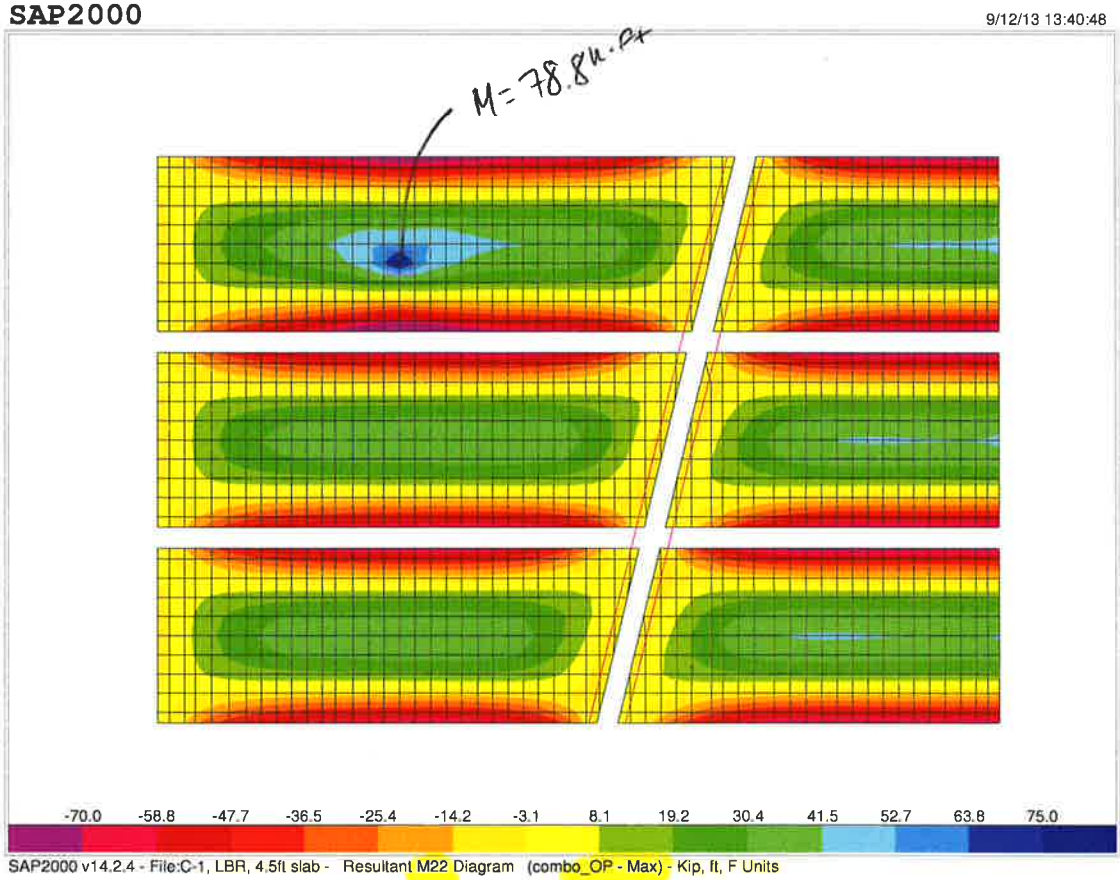
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:35:47



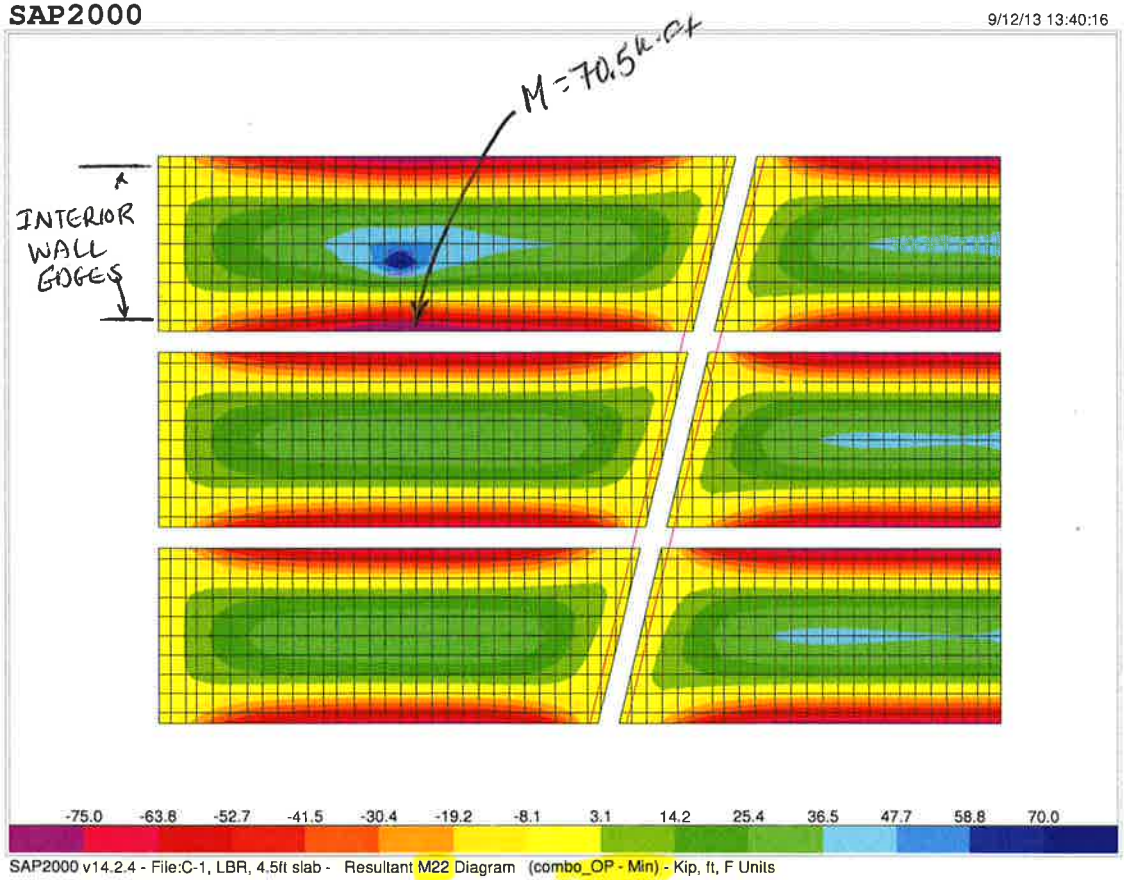
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:40:48



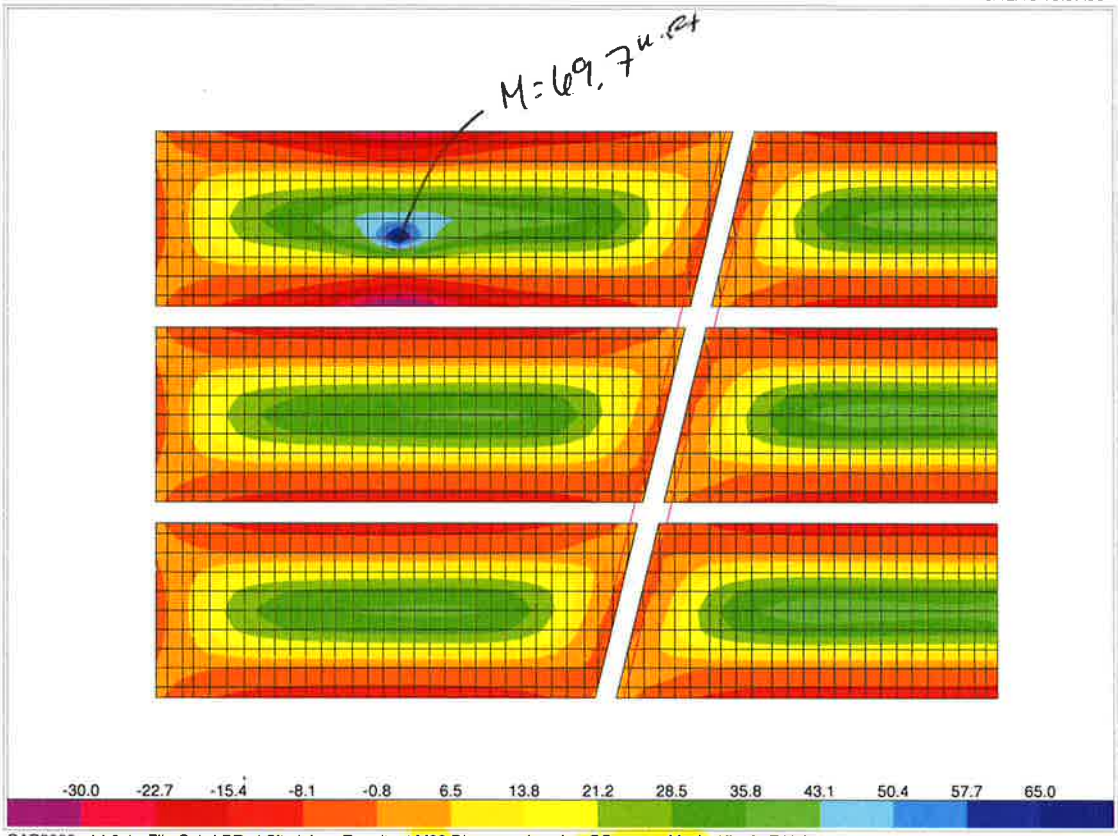
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:40:16



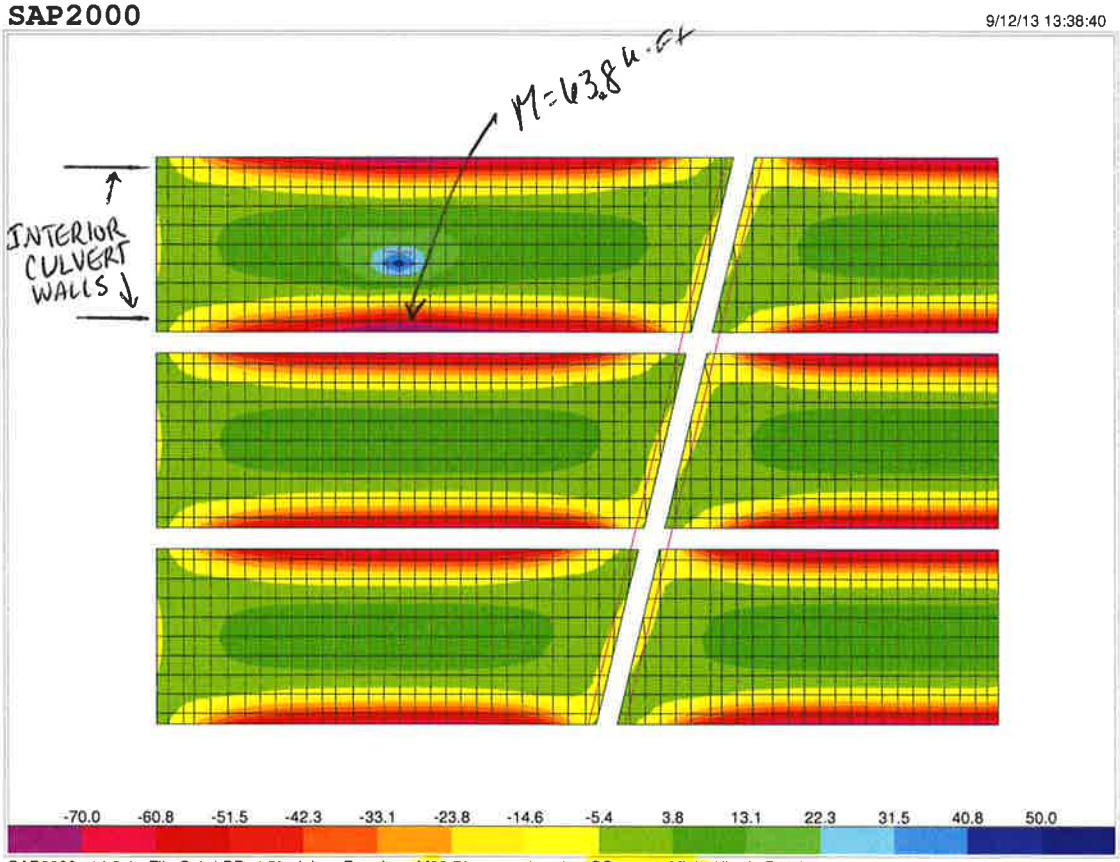
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:37:50



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:38:40



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

*** Given Information:** Notes / References

Culvert Roof Slab Thickness =	2.75	ft
Culvert Wall Thickness =	2.75	ft
Bottom Slab Thickness =	3.5	ft
Front & Back Headwall Thickness =	2.5	ft
T-Wall Thickness =	2	ft
Equipment Room/Walkway Slab Thickness =	2	ft
Design Width =	12	in
f'_c =	4	ksi
f_y =	60	ksi
ϕ, shear =	0.85	EM 1110-2-2104
ϕ, moment =	0.90	EM 1110-2-2104
ρ_{bal} =	0.0285	For f'_c = 4,000 psi & f_y = 60,000 psi

*** Culvert Roof Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP-ST	43.3	47.1	49.8	85.2	95.0	95.4
combo_OScases-ST	38.4	41.9	43.1	76.3	83.6	85.0

* Shear taken at a distance 'd' = 28.44 inch from faces of culvert walls. Taken at face of T-wall, back headwall & column.

Max. Shear =	**47.1 kip**	
Bottom Moment, Primary =	**95.0 kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**95.4 kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**49.8 kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**85.2 kip-ft**	(-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.44 in #9 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'_c) * b * d) / f_y = 1.079 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.137 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.137 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'_c) * b * d

= 0.85 * 2 * √4000 * 12in * 28.436in

= 36,688 lb

ϕVc = 36.7kip < Vu = 47.1kip → Section NOT OK * SEE NOTE

* High shear forces are found around the 18"x18" column that intersects the roof over the west culvert and around the T-wall. These regions will be increased in thickness to accommodate the high shear. As can be seen by the SAP images (following this spreadsheet), shear does not exceed the capacity outside of these two zones. An additional 9" will provide a capacity larger than the highest shear force (ϕV_c = 0.85*2*√(4000)*12"*37.44" = 48.3k > Vu = 47.1k).

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Transverse Top Face:

* Will try **#7 @ 6"** to start: As, #7 @ 6" = 1.20 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.2 * 60ksi / (0.85 * 4ksi * 12in) = 1.765 in

$\phi Mn =$ 0.9 * 1.2in^2 * 60ksi * (28.436in - 1.765in / 2)
= 1785.5 kip-in/ft
= 148.79 kip-ft/ft

ϕMn = 148.8kip-ft > Mu = 95.4kip-ft → Use #7 @ 6"

Transverse Bottom Face:

* Will try **#7 @ 6"** to start: As, #7 @ 6" = 1.20 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.2 * 60ksi / (0.85 * 4ksi * 12in) = 1.765 in

$\phi Mn =$ 0.9 * 1.2in^2 * 60ksi * (28.436in - 1.765in / 2)
= 1785.5 kip-in/ft
= 148.79 kip-ft/ft

ϕMn = 148.8kip-ft > Mu = 95kip-ft → Use #7 @ 6"

Longitudinal Both Faces: * $M_{max, secondary}$ = 85.2 k-ft

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.0 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

$\phi Mn =$ 0.9 * 1in^2 * 60ksi * (28.436in - 1.471in / 2)
= 1495.8 kip-in/ft
= 124.65 kip-ft/ft

85.2×1.33 = 113.6 k·ft

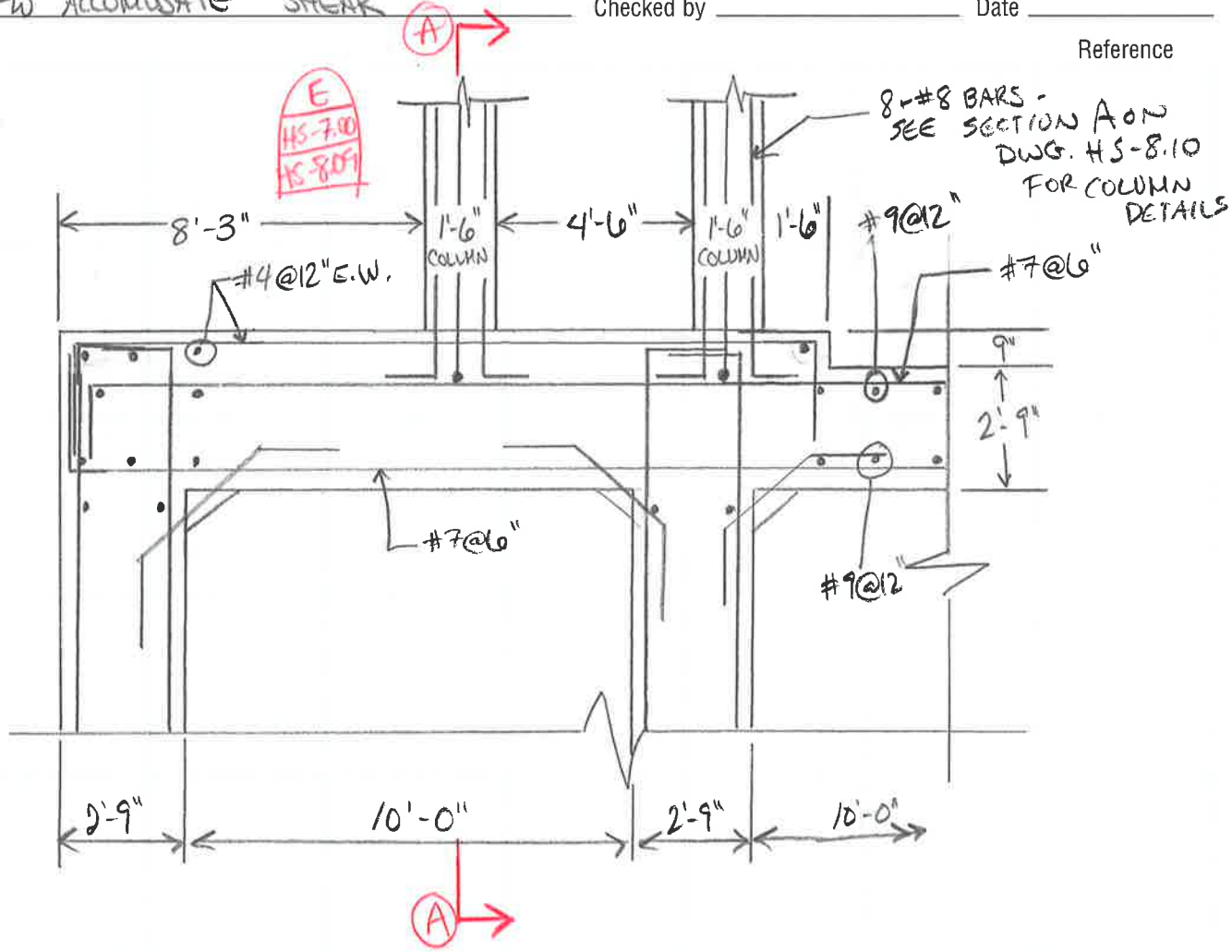
ϕMn = 124.7kip-ft > Mu = 85.2kip-ft → Use #9 @ 12"

MIN. FLEXURE REBAR MAY BE NEGLECTED B/C OF ACI 318 10.5.3 ALLOWANCE WHEN $\phi M_n > 1.33 M_u$

URS

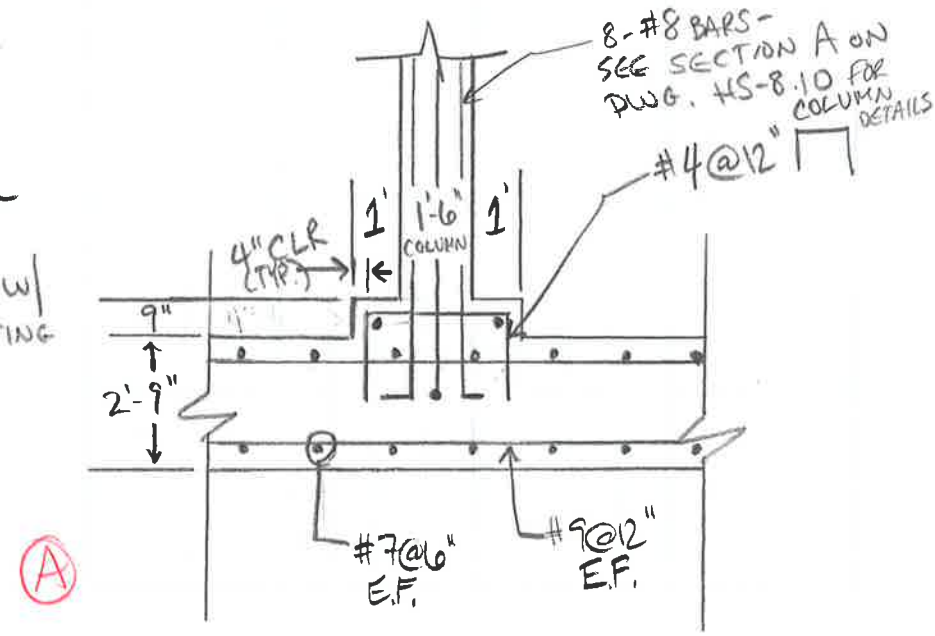
Job MAUREPAS | Project No. 10001876 | Page ___ of ___
Description CULVERT ROOF MODIFICATION TO ACCOMODATE SHEAR | Computed by LBR | Sheet ___ of ___
Checked by ___ | Date 9/2013 | Date ___

Reference

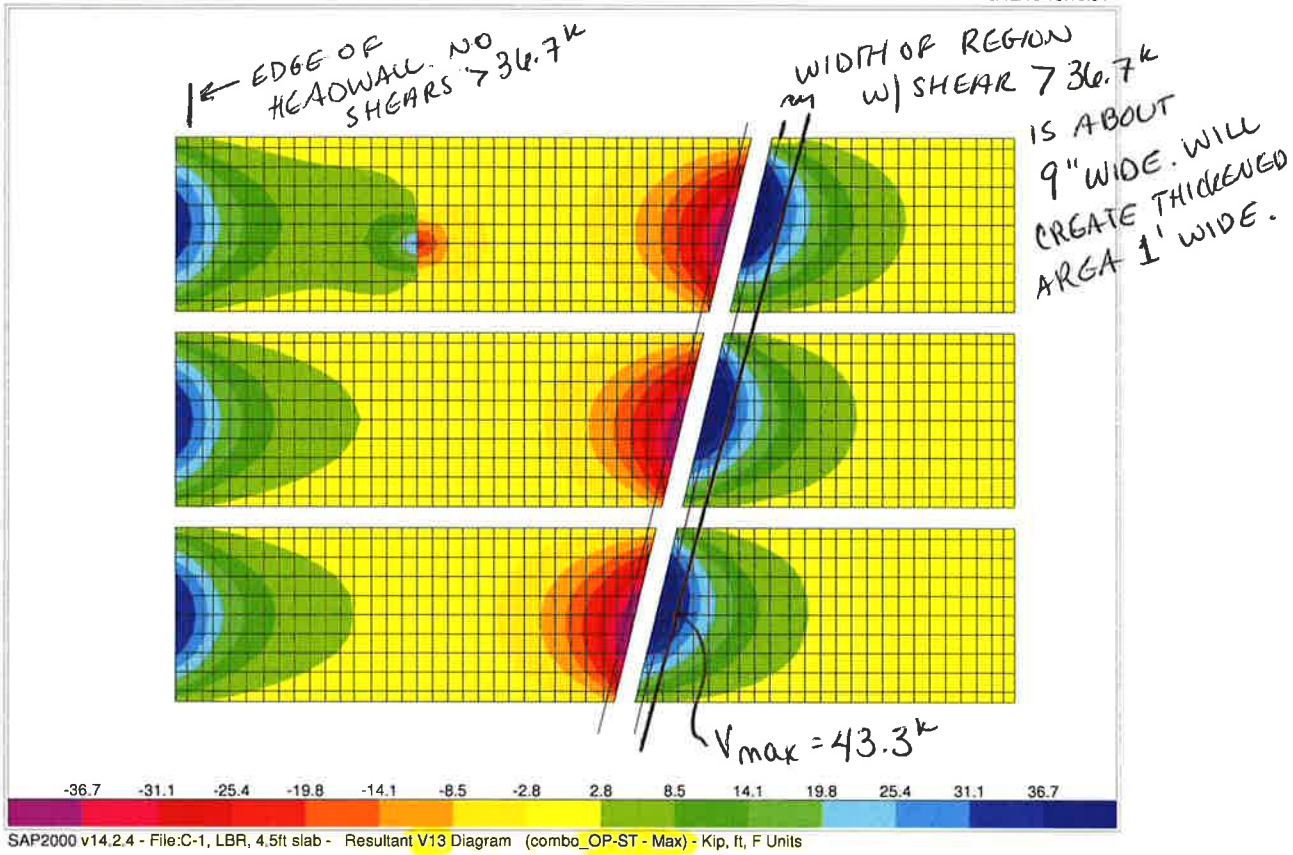


*CAN TAKE THE EDGE OF X-SECTION ON HS-8.03 (REBAR & CONC. MEMBER SIZES)

T-WALL DETAIL WILL BE SIMILAR, BUT W/ 2-0" INTERSECTING MEMBER:

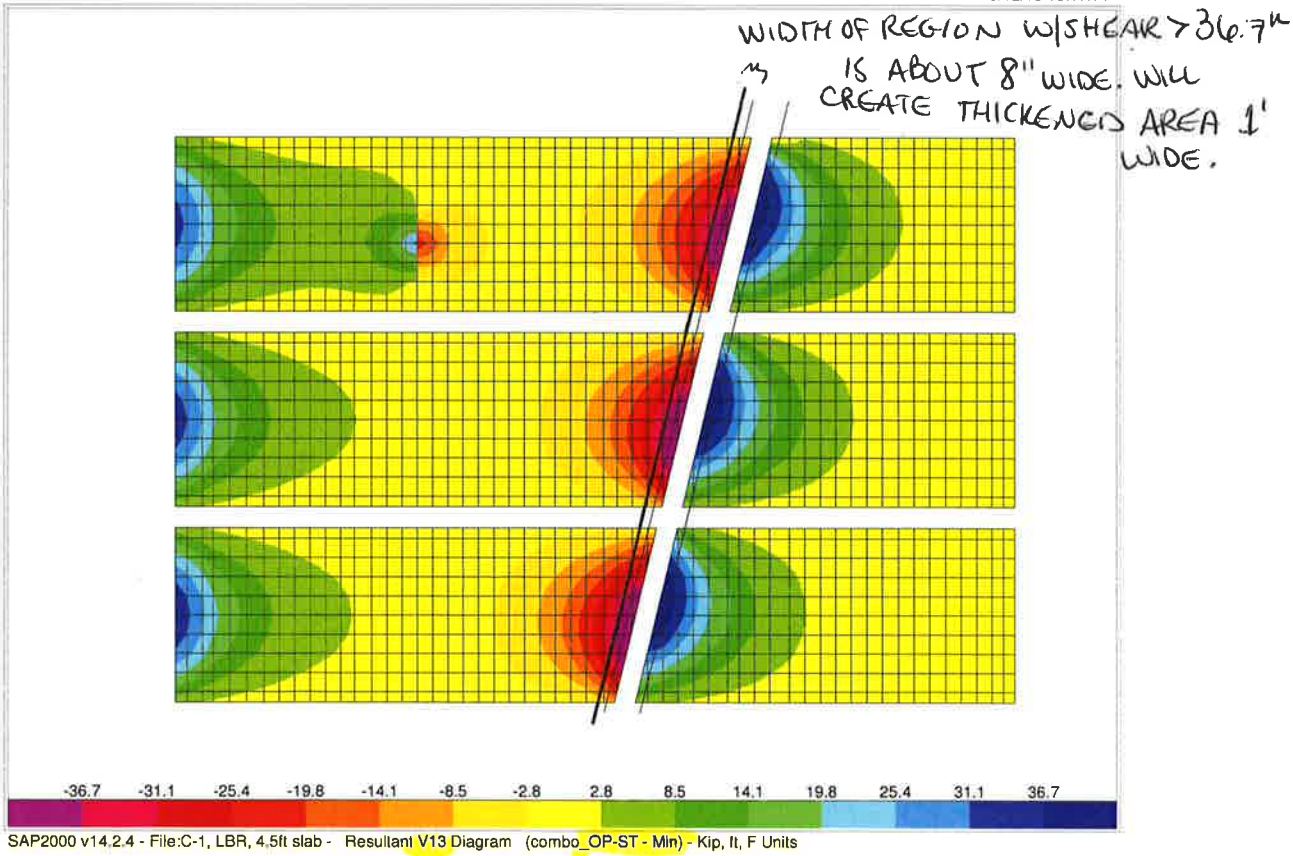


SAP2000 9/12/13 13:10:34



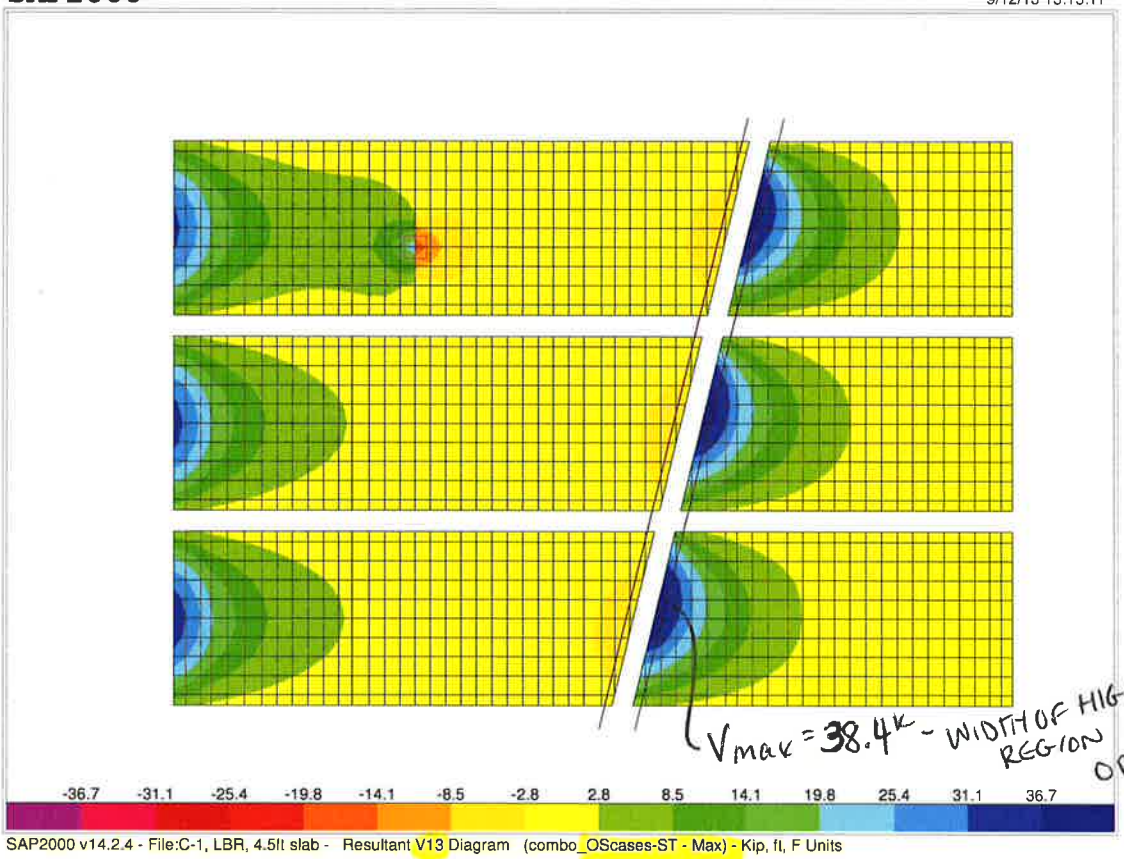
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:11:14



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

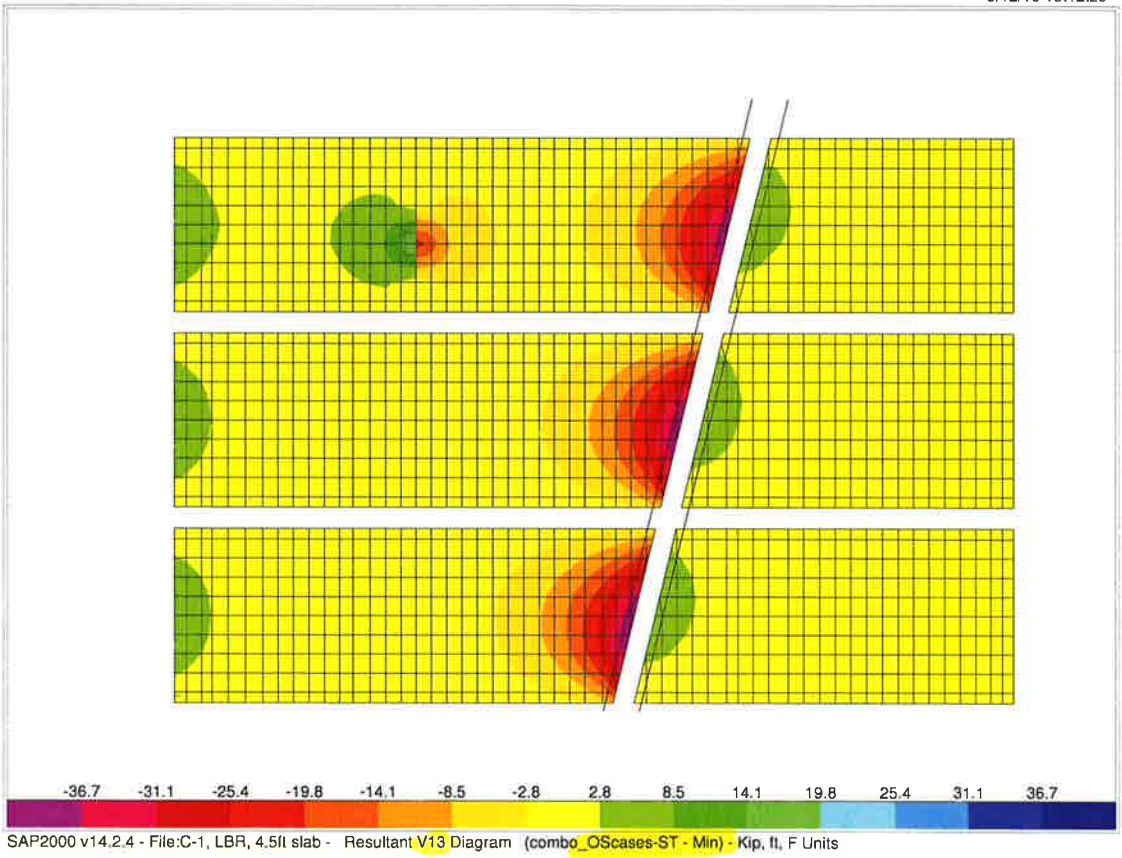
SAP2000 9/12/13 13:13:11



$V_{max} = 38.4^k$ - WIDTH OF HIGH-SHEAR REGION LESS THAN OP CASE

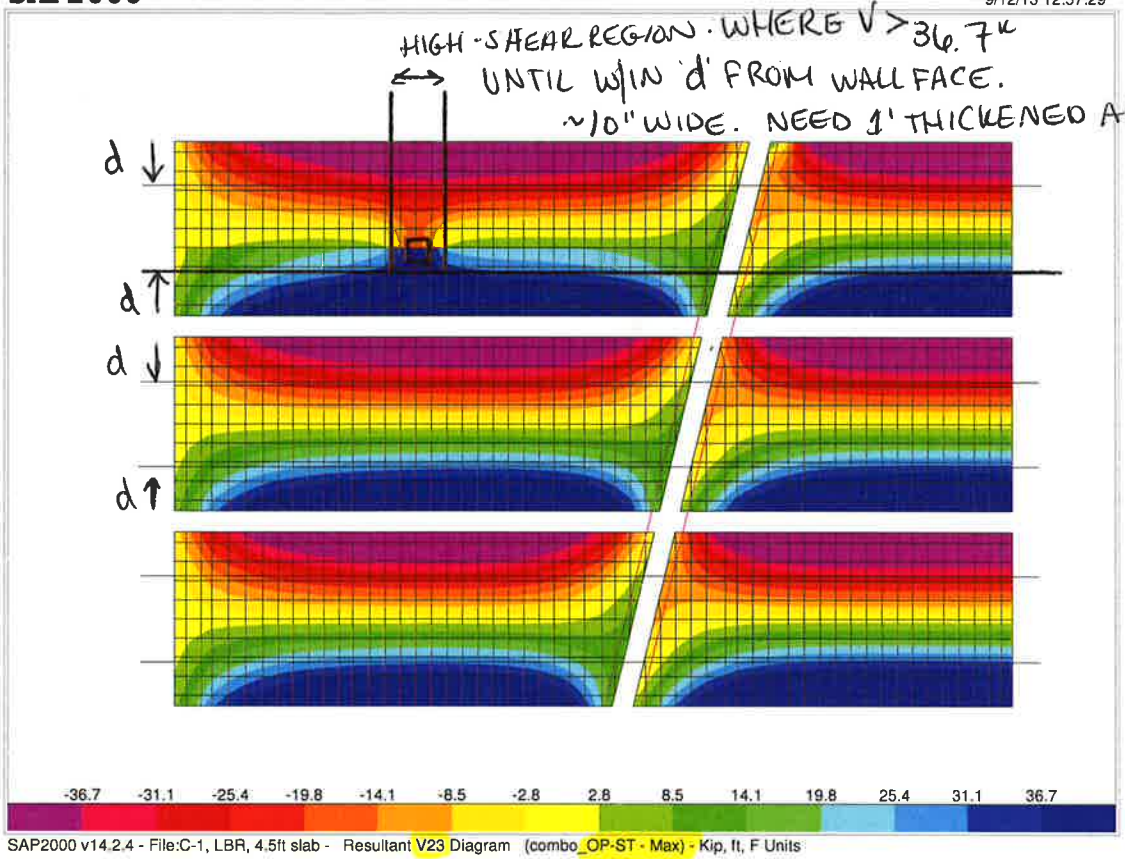
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:12:29



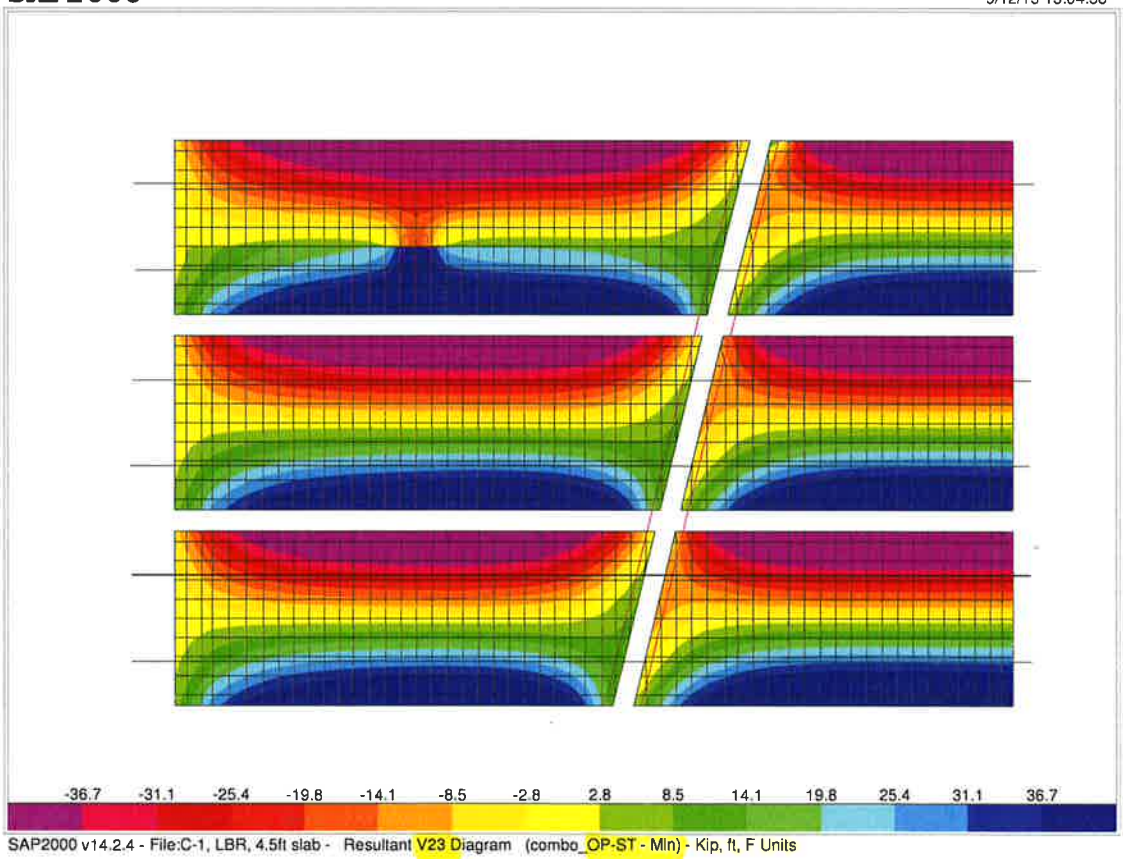
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 12:57:29



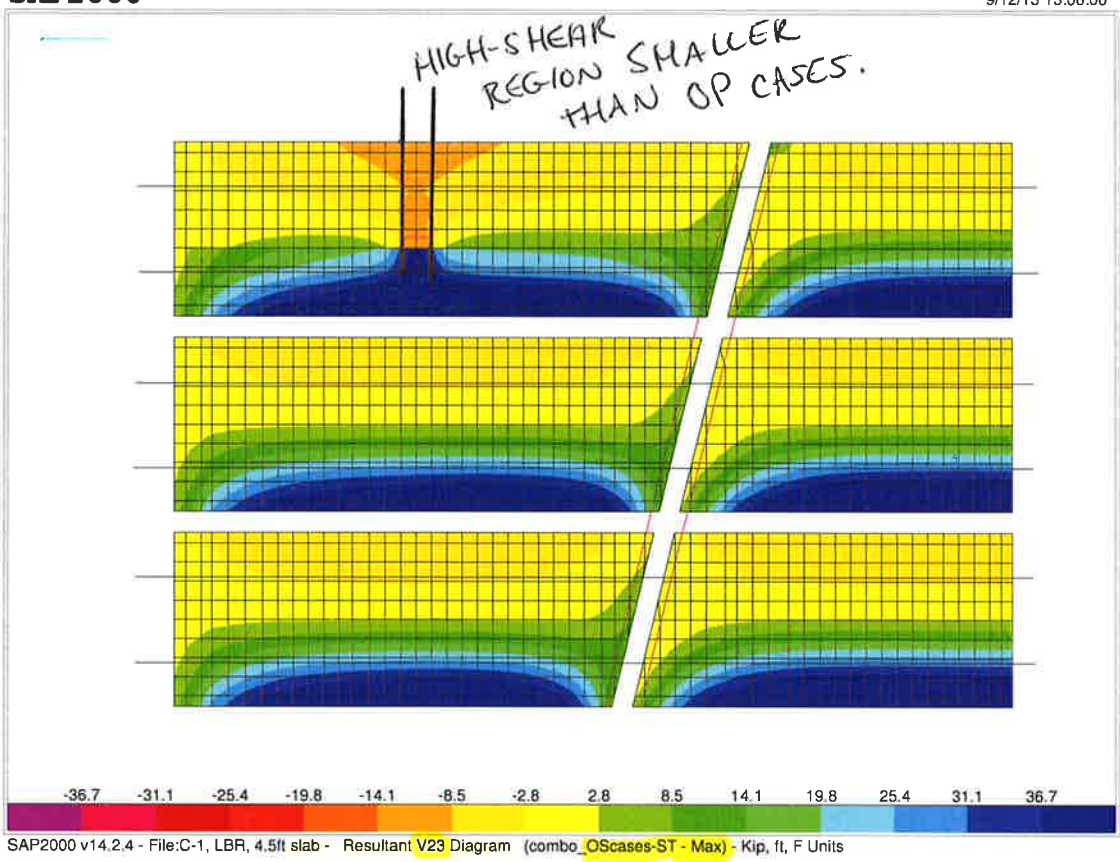
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:04:38



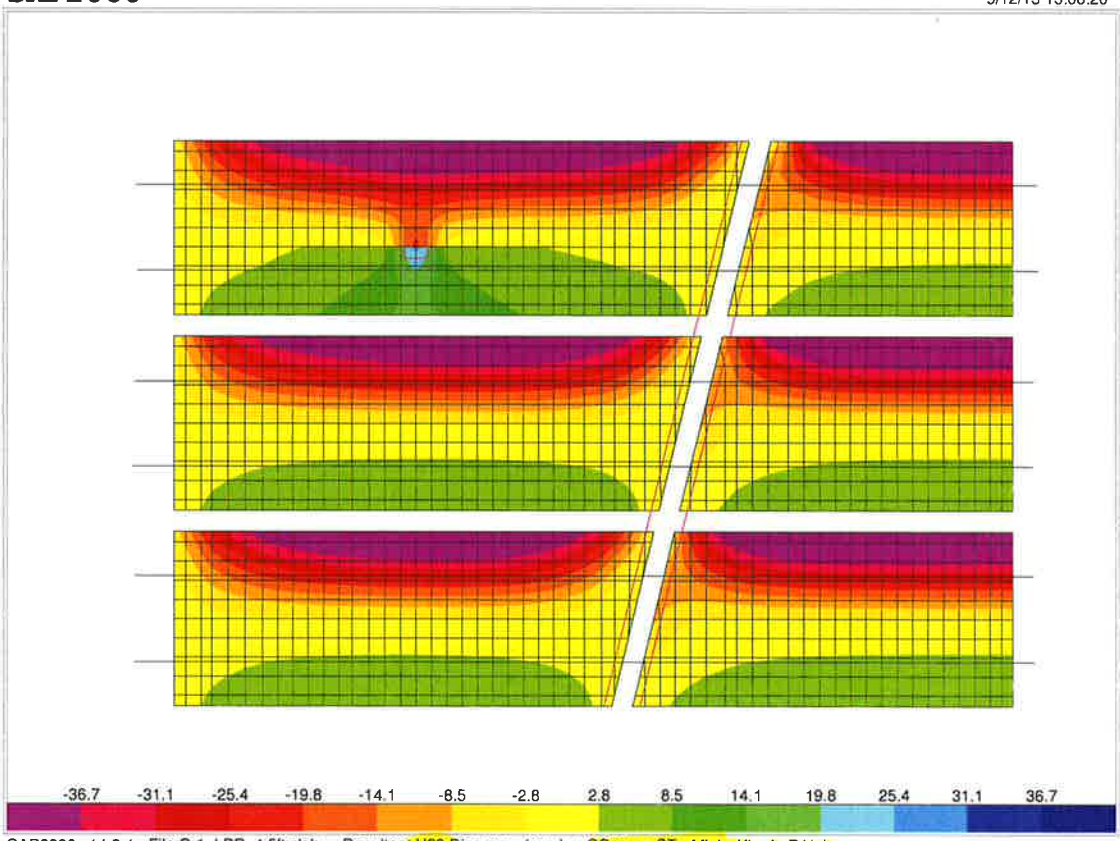
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:06:06



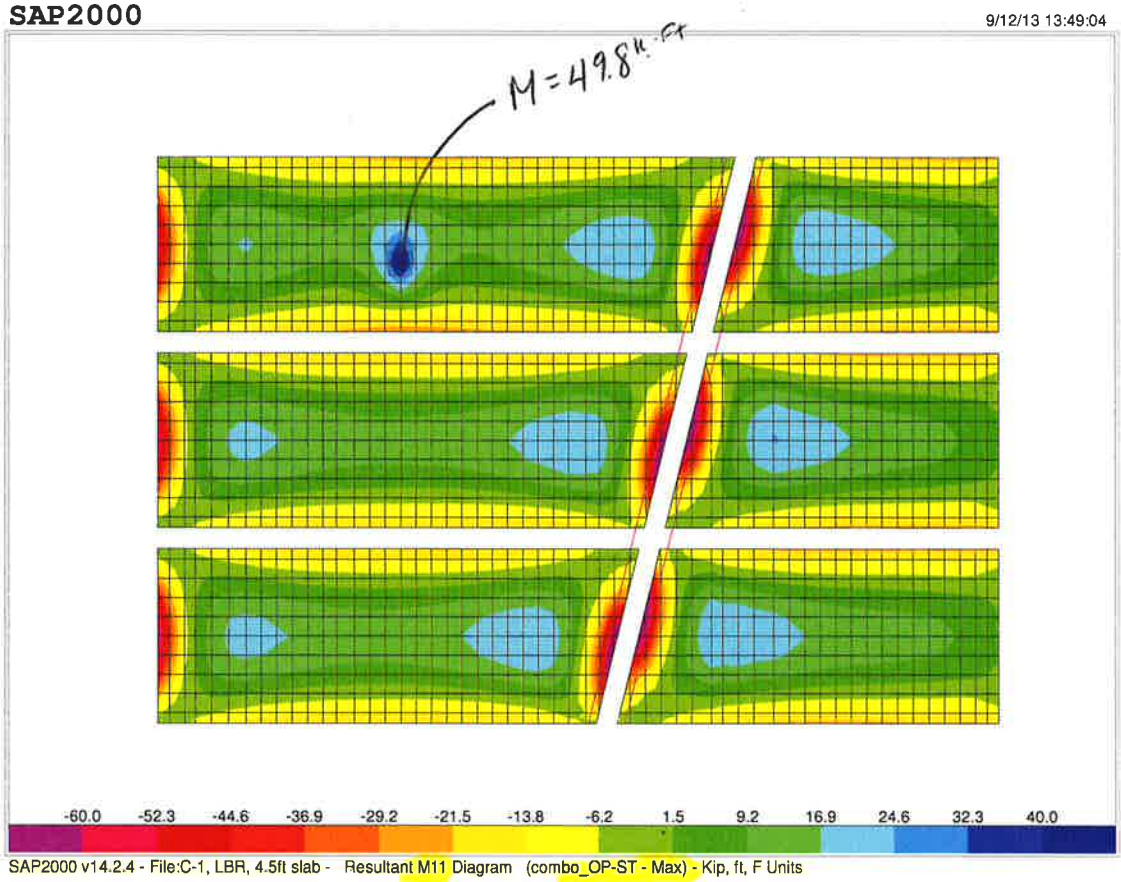
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:08:20



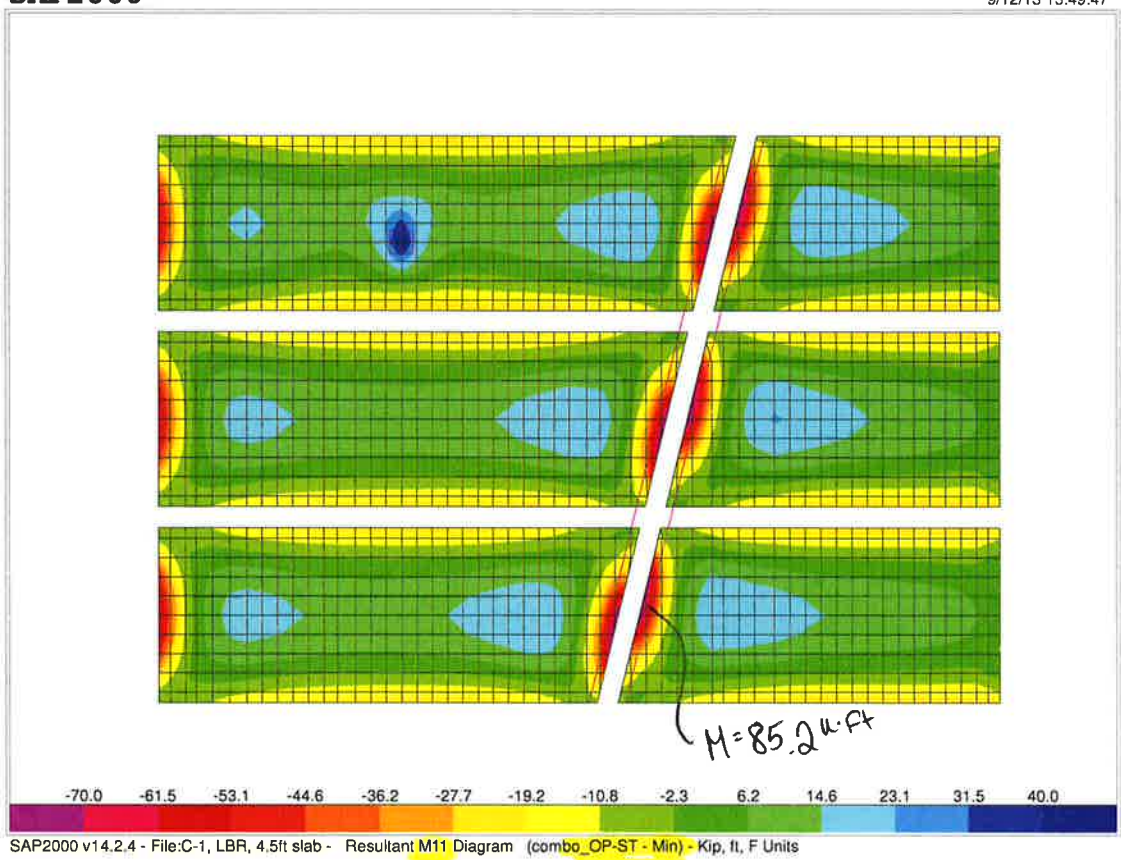
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:49:04



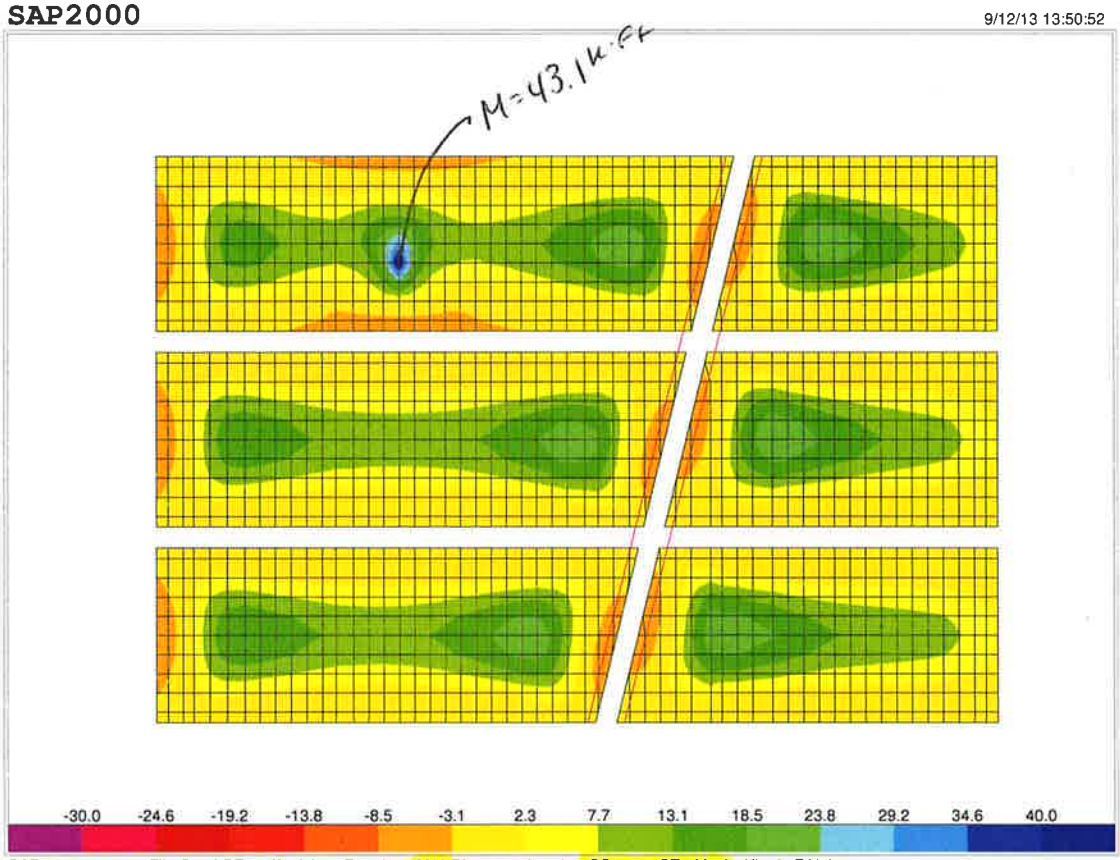
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:49:47



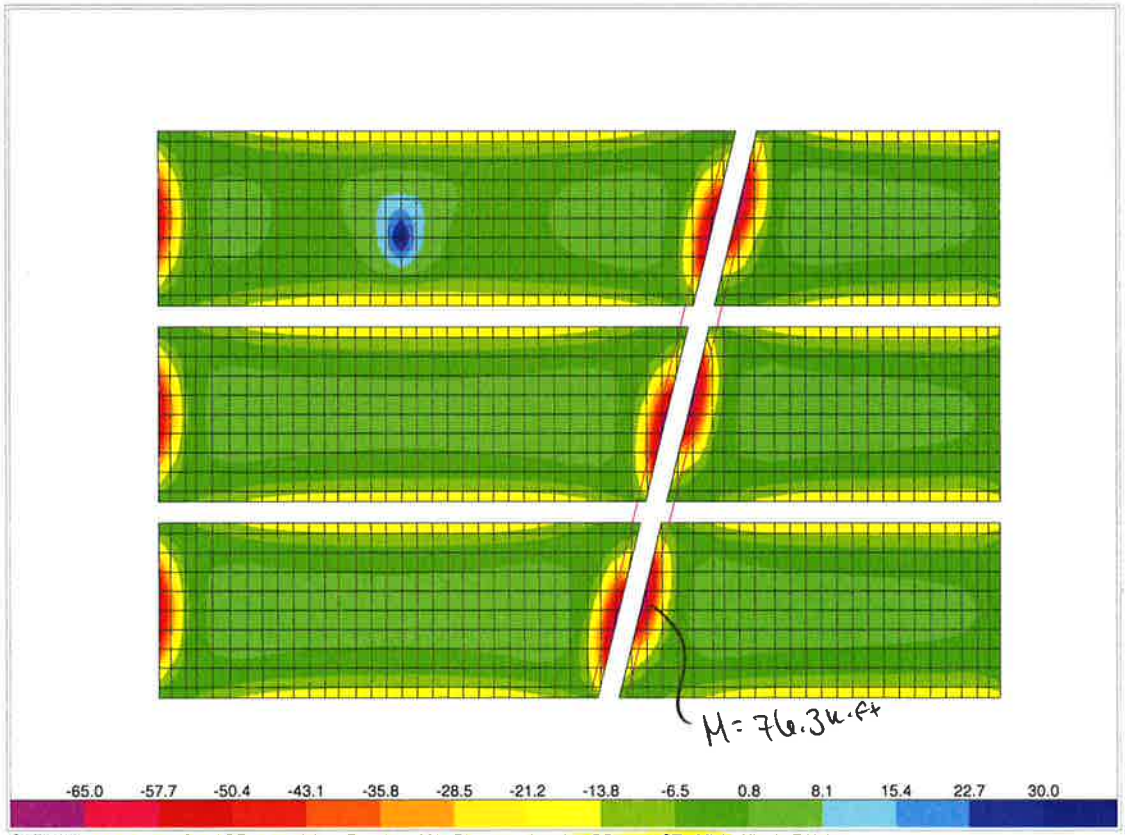
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:50:52



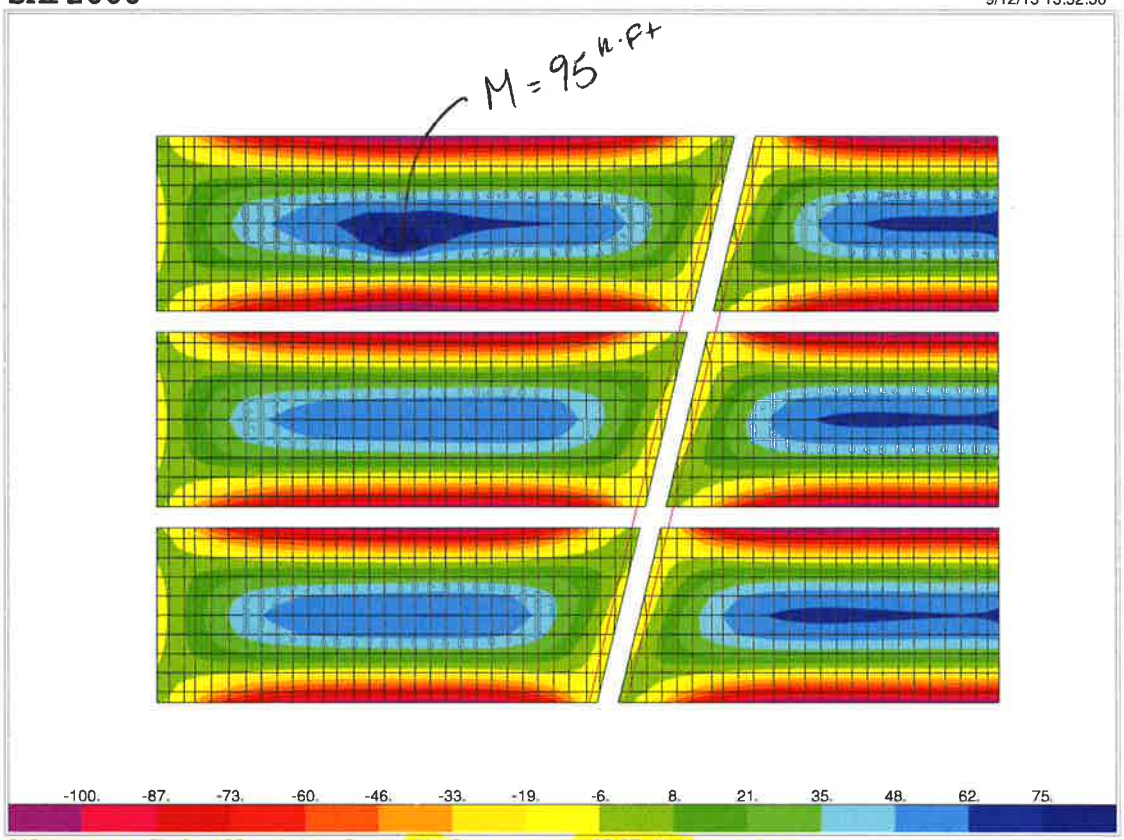
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:51:35



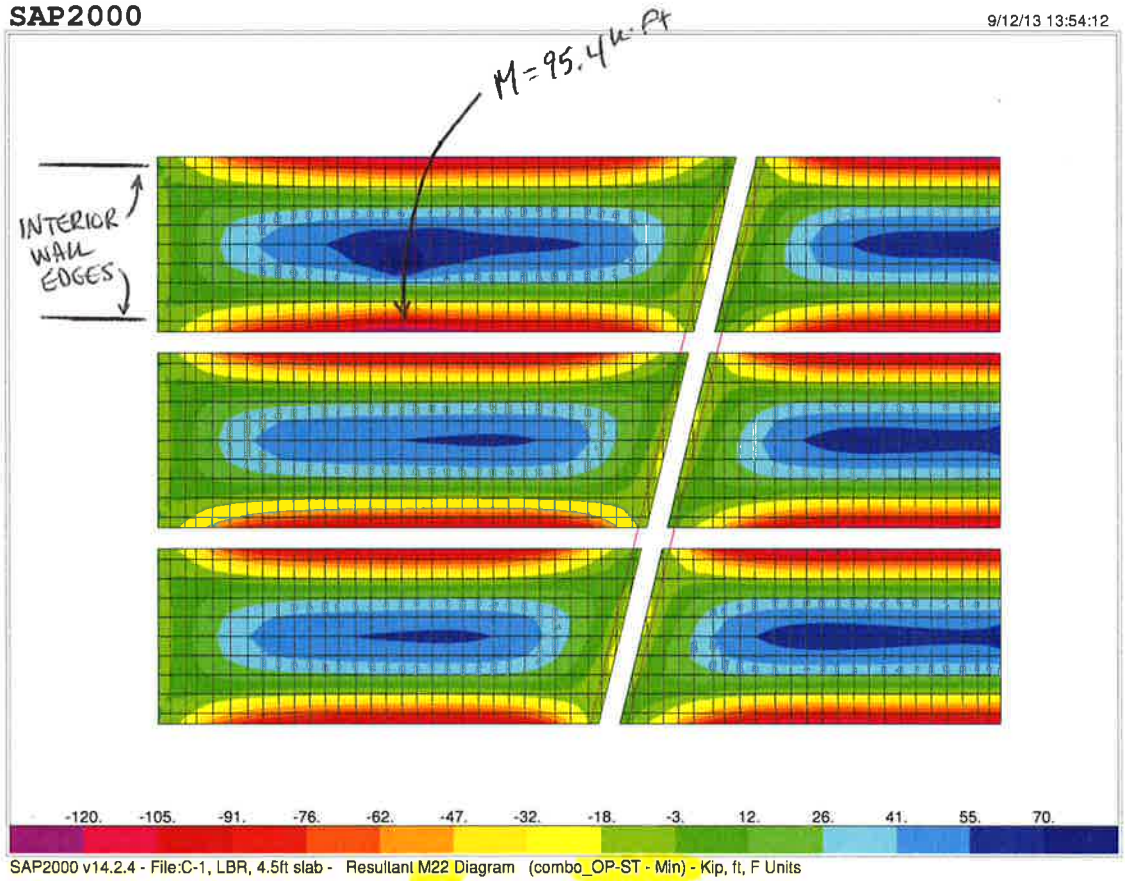
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:52:50



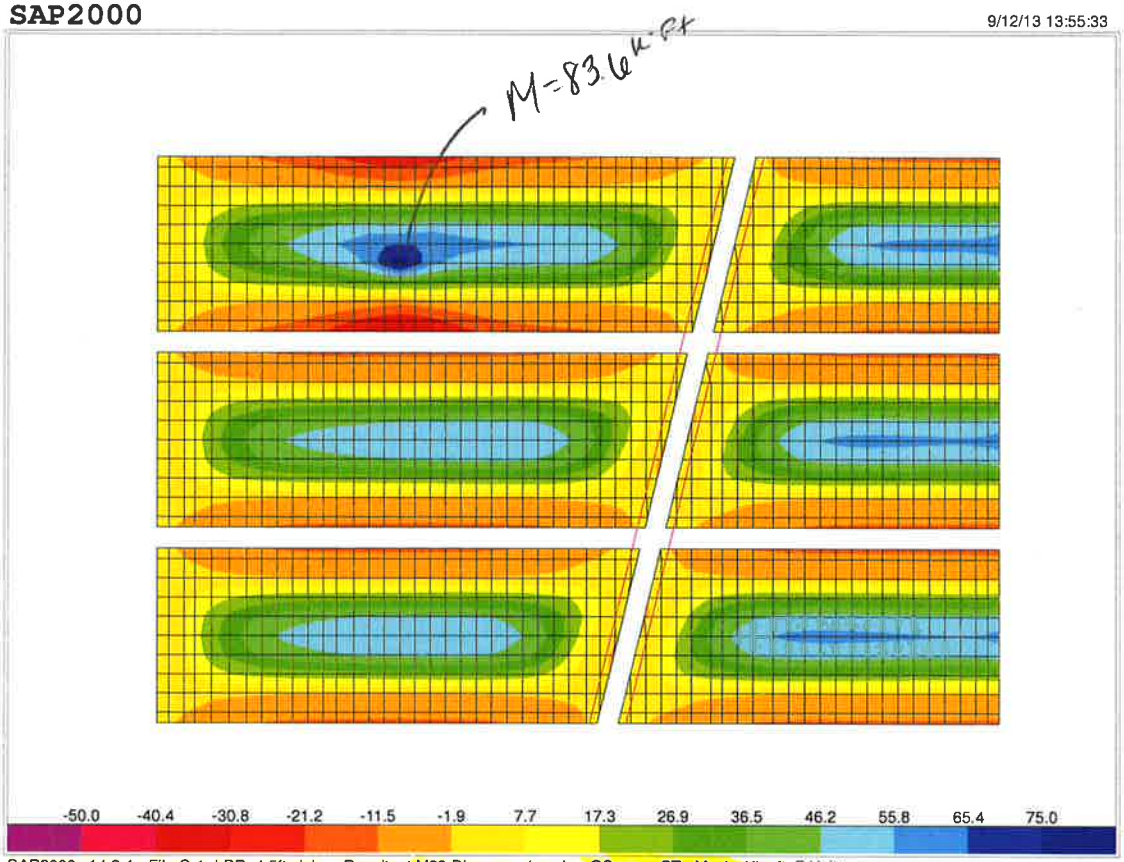
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:54:12



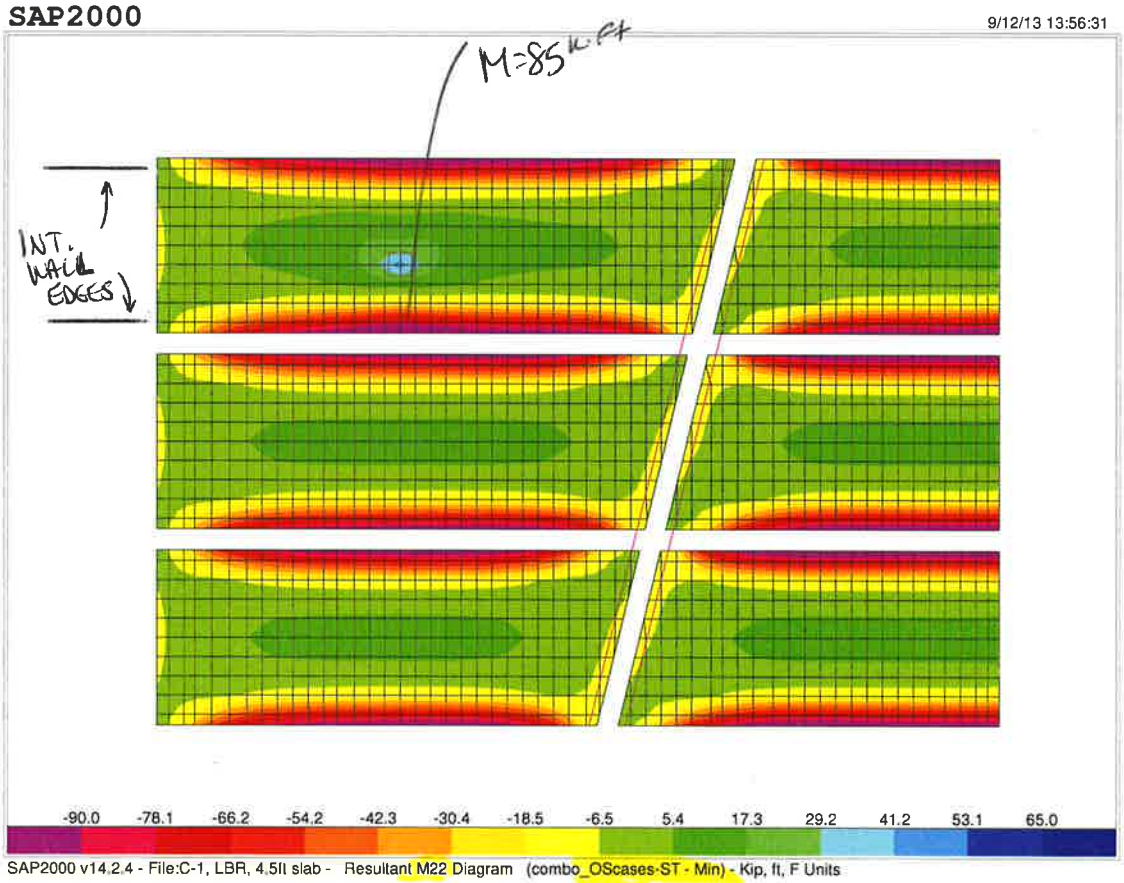
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 13:55:33



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/12/13 13:56:31



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

PART 5

Equipment Room/Walkway Slab Design

*** Walkway/Equipment Room Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	21.2	25.2	6.9	66.9	77.7	51.6
combo_OScases	18.5	22.5	5.9	57.4	67.0	44.4

* Shear taken at a distance 'd' = 19.5 inch from faces of wall & columns.
Added stiffness provided by equipment room walls is not being taken into account (conservative).

Max. Shear =	**25.2 kip**	
Bottom Moment, M22 =	**77.7 kip-ft**	(+M22 controls bottom Y-direction reinforcement)
Top Moment, M22 =	**51.6 kip-ft**	(-M22 controls top Y-direction reinforcement)
Bottom Moment, M11 =	**6.9 kip-ft**	(+M11 controls bottom X-direction reinforcement)
Top Moment, M11 =	**66.9 kip-ft**	(-M11 controls top X-direction reinforcement)

* Reinforcing Limits:

A_{gross} = 24in * 12in strip = 288 in^2

d = 24in - 4in cover - 1/2 bar diameter = 19.50 in #8 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 3.078 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 0.806 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'c) * b * d) / f_y = 0.740 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 0.780 in^2 ACI 318-02, 10.5, flexural member min.

Equip. Slab Summary:	**Max. Rebar =**	**3.078 in^2**	- half each face
	Min. T&S Rebar =	**0.403 in^2**	- per face
	Min. Flexural Rebar =	**0.780 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d
= 0.85 * 2 * √4000 * 12in * 19.5in
= 25,159 lb

ϕVc = 25.2kip > Vu = 25.2kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Y-Direction, Bottom Face:

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.00 in^2

a = A_s * f_y / (0.85 * f'c * b) = 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

ϕMn = 0.9 * 1in² * 60ksi * (19.5in - 1.471in / 2)
= 1013.3 kip-in/ft
= 84.44 kip-ft/ft

ϕMn = 84.4kip-ft > Mu = 77.7kip-ft → Use #9 @ 12"

All Remaining Reinforcement: * $M_{max, all\ directions}$ = 66.9 k-ft

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

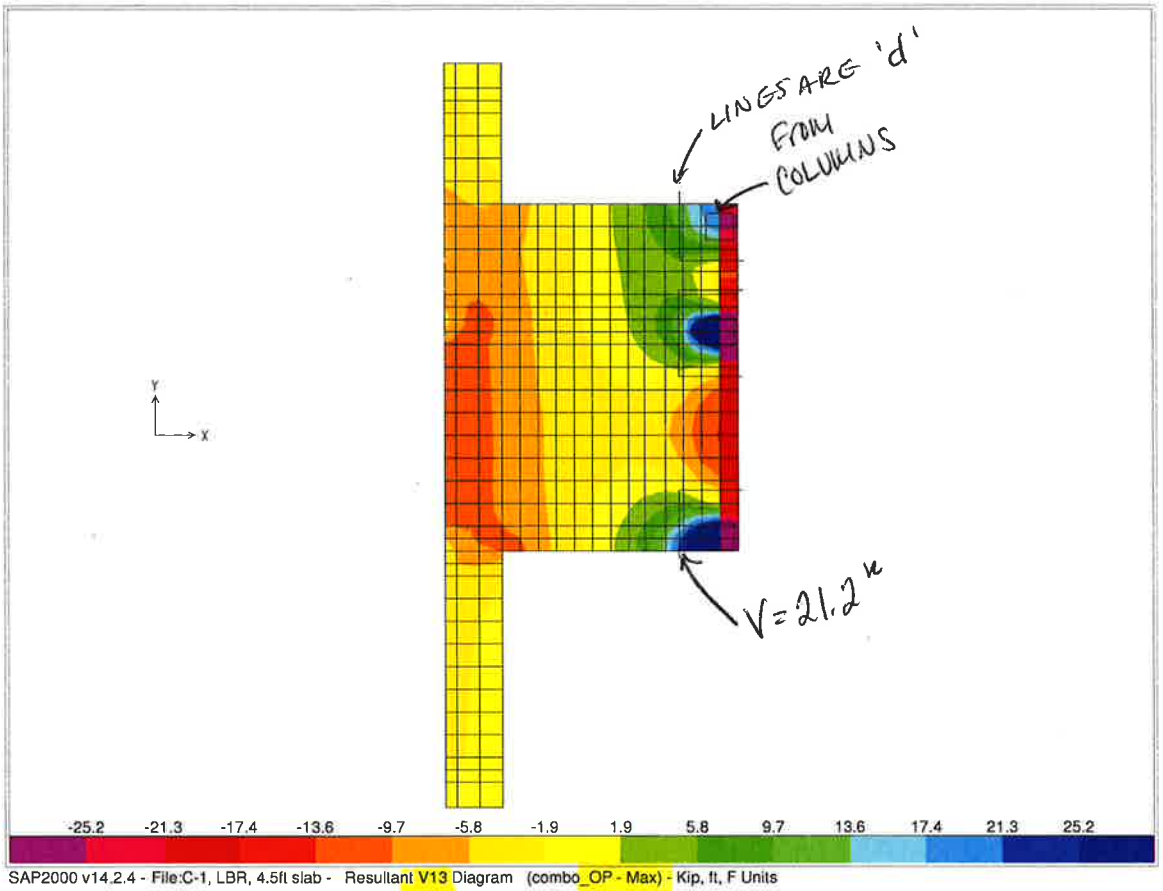
a = A_s * f_y / (0.85 * f'c * b) = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in² * 60ksi * (19.5in - 1.162in / 2)
= 807.09 kip-in/ft
= 67.26 kip-ft/ft

ϕMn = 67.3kip-ft > Mu = 66.9kip-ft → Use #8 @ 12"

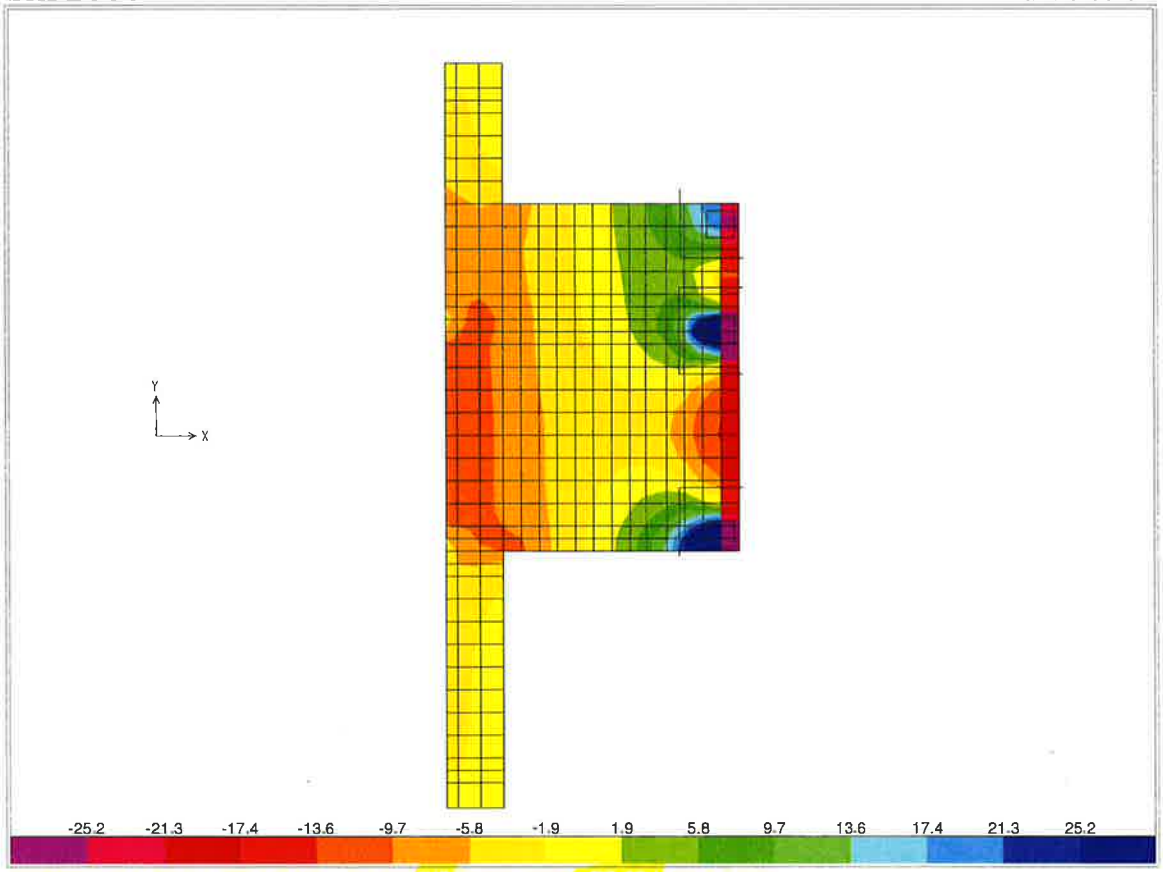
→ NO CHANGE IN RESULTS FOR SETTLEMENT CASES.

SAP2000 9/12/13 15:02:25



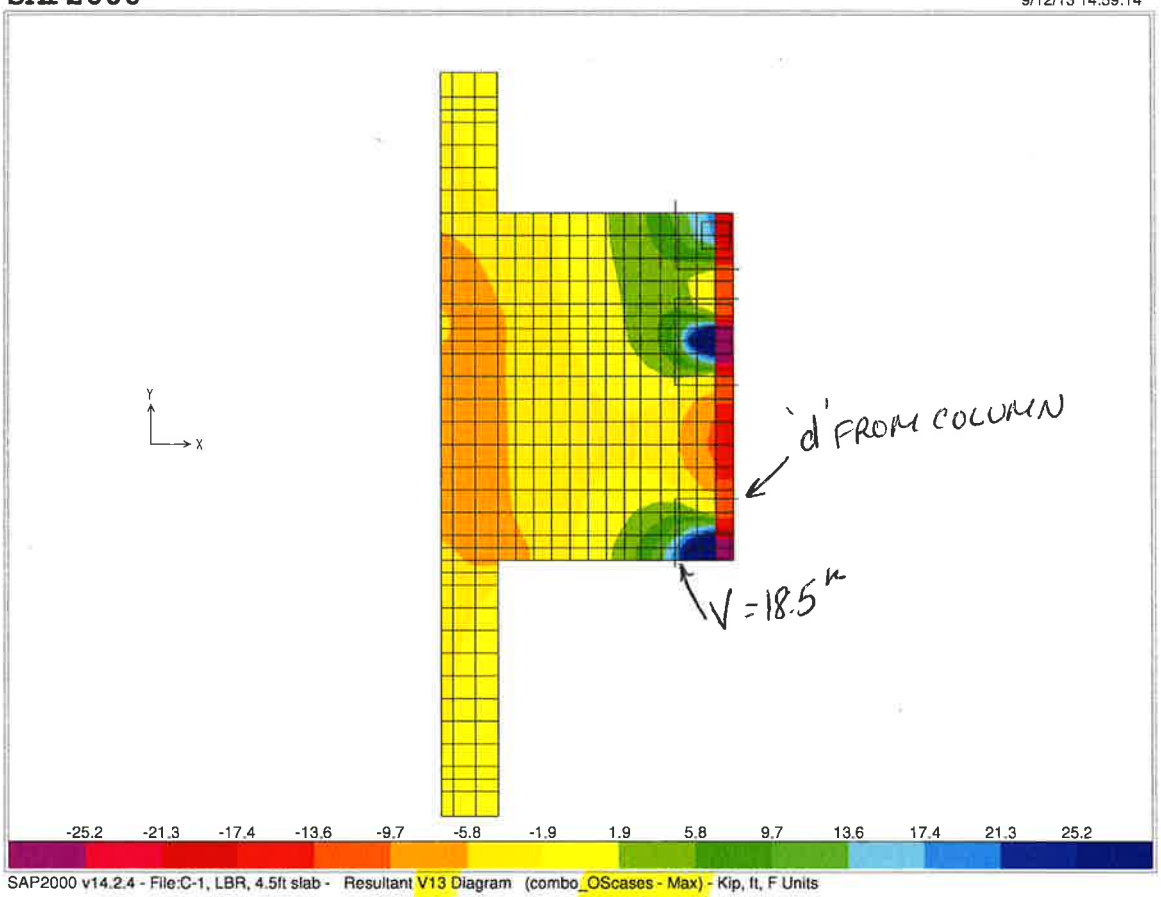
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 15:02:01



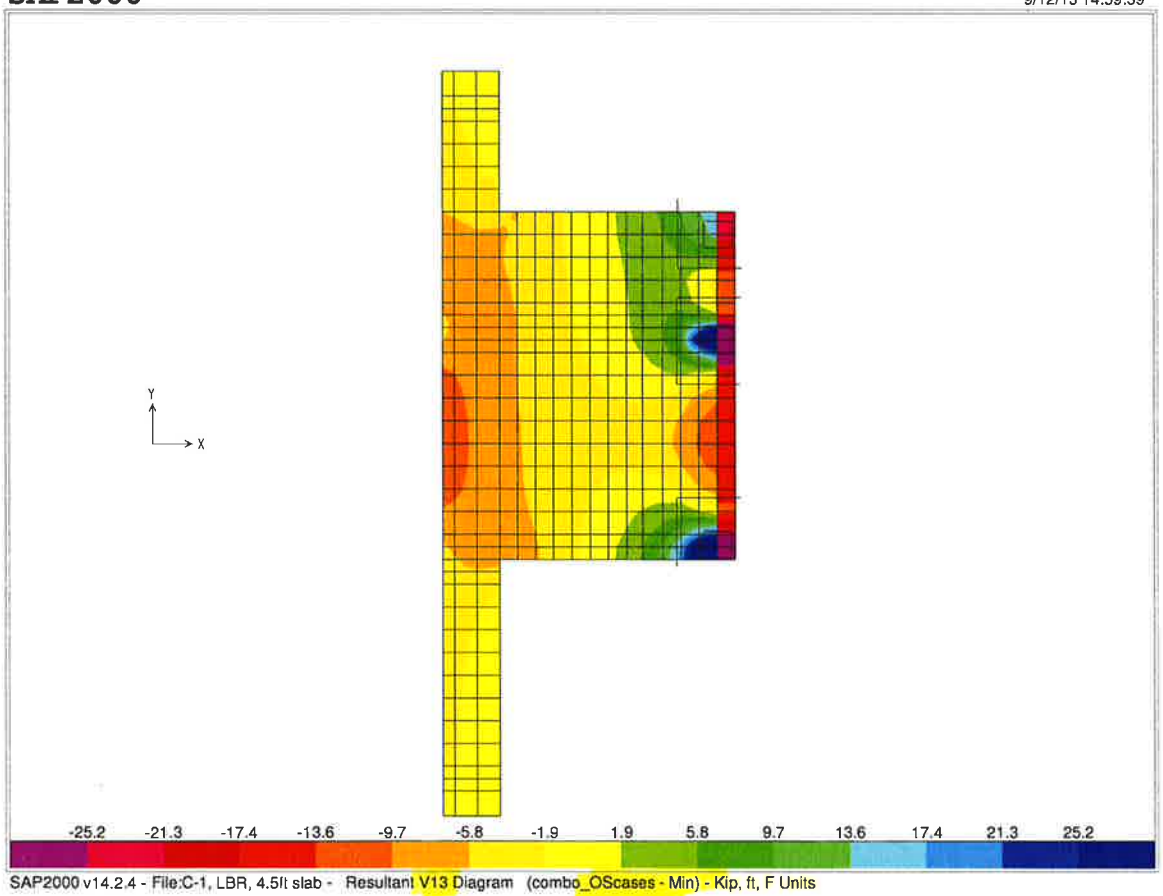
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 14:59:14



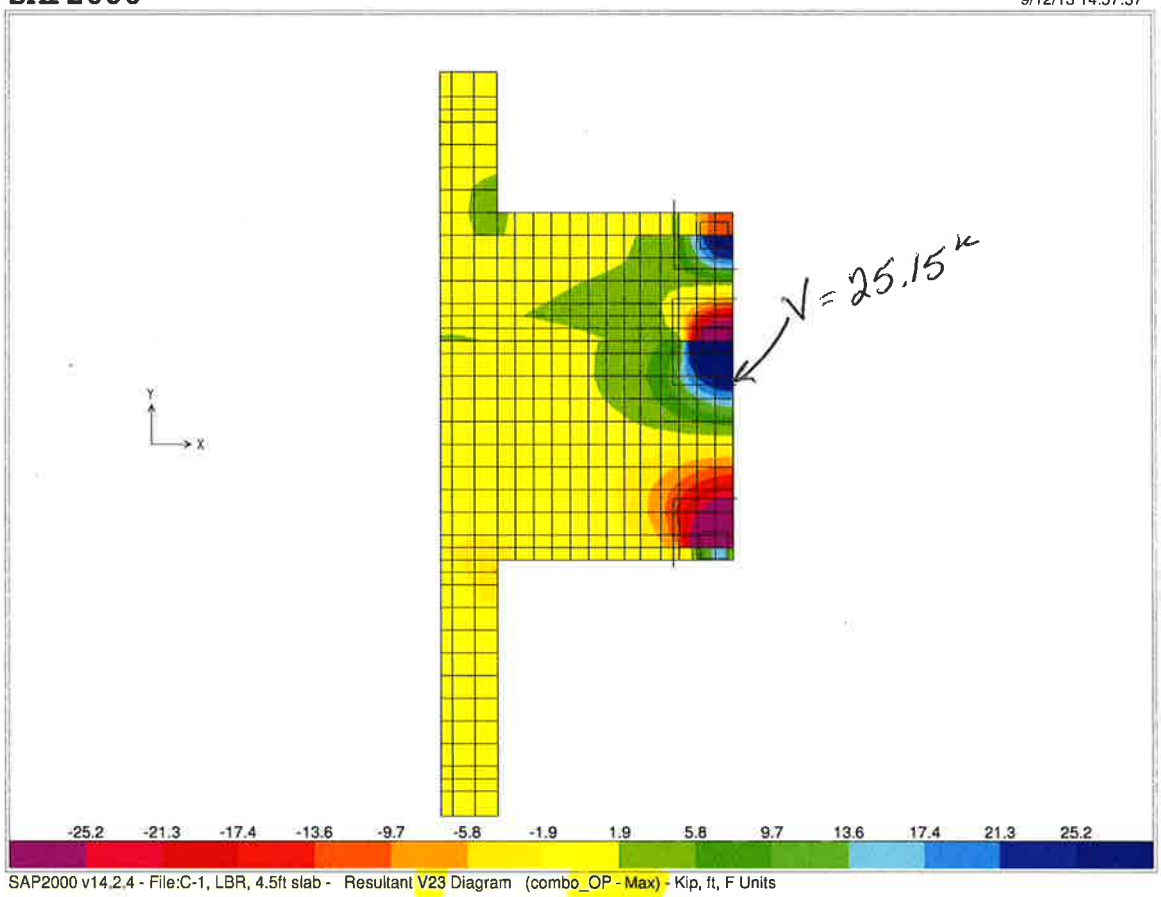
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 14:59:39



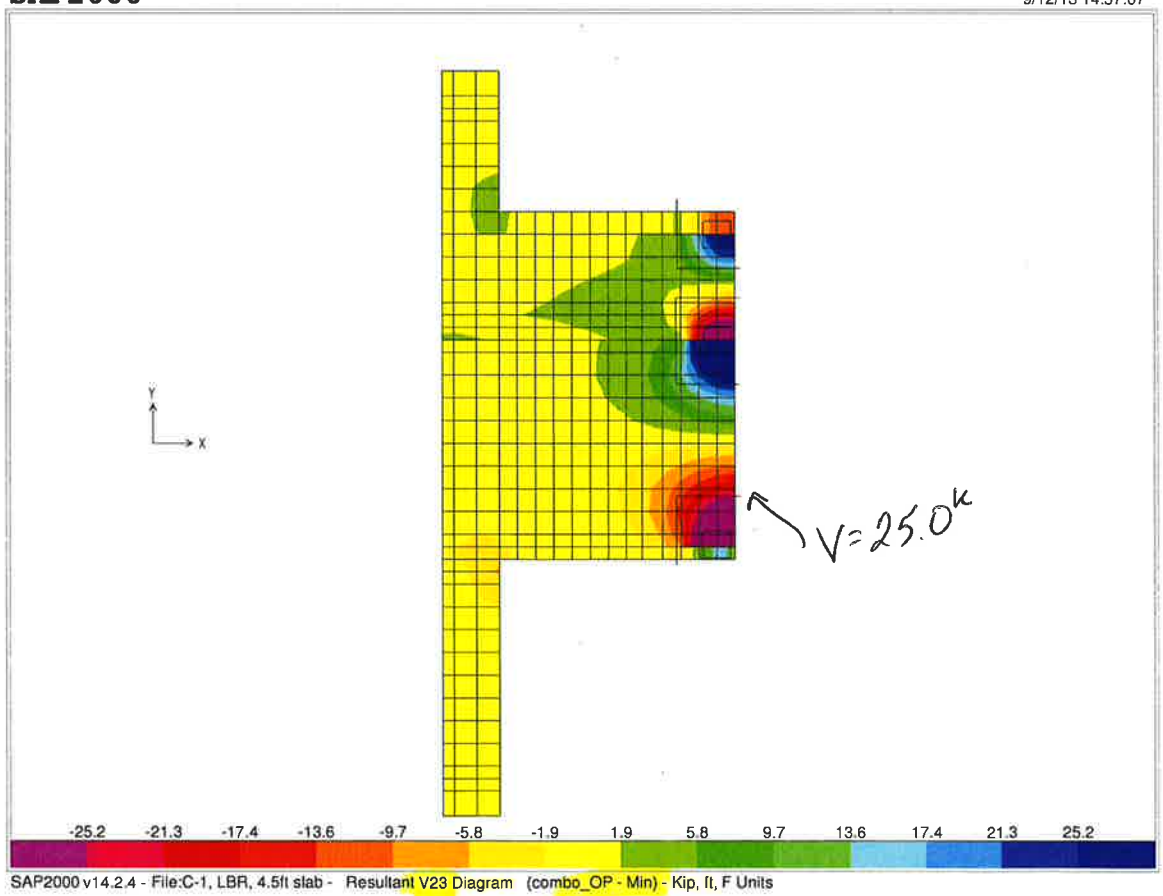
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/12/13 14:57:37



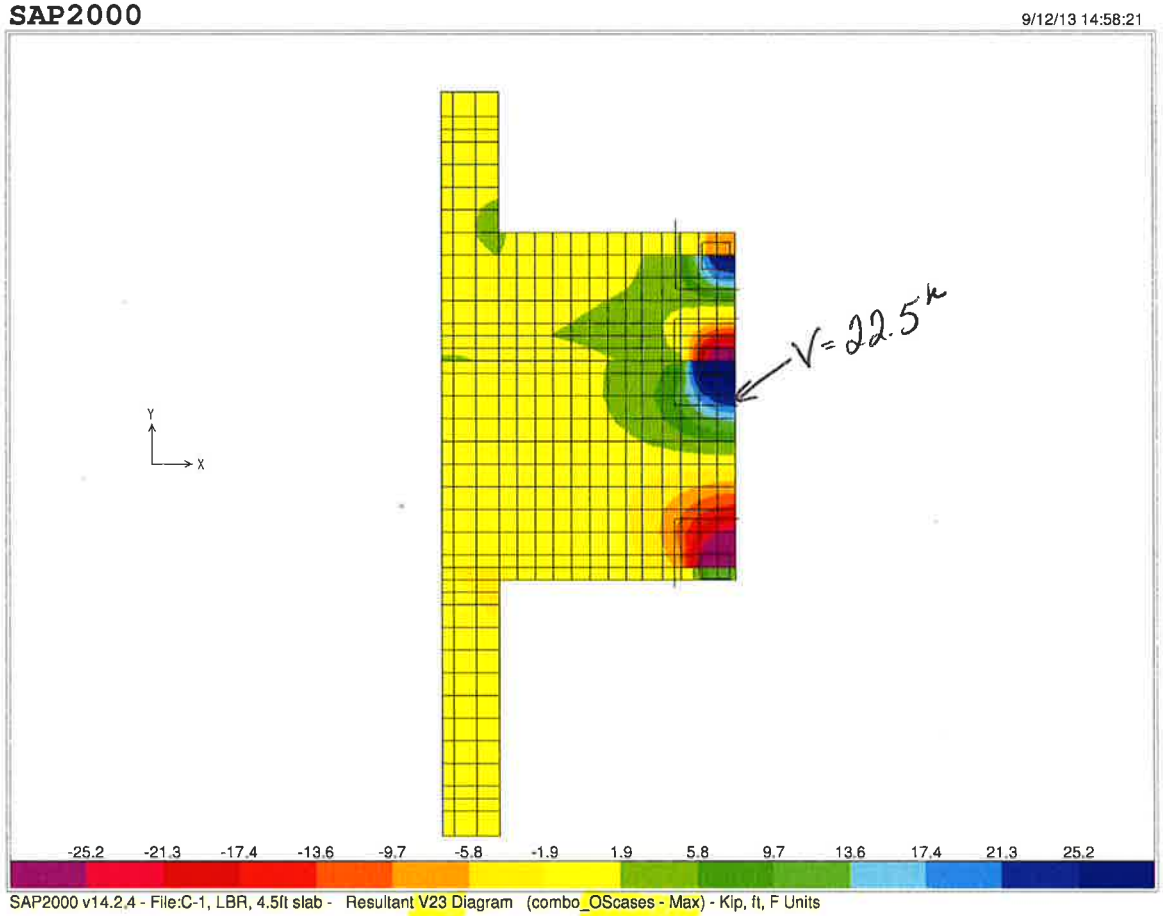
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 14:57:07



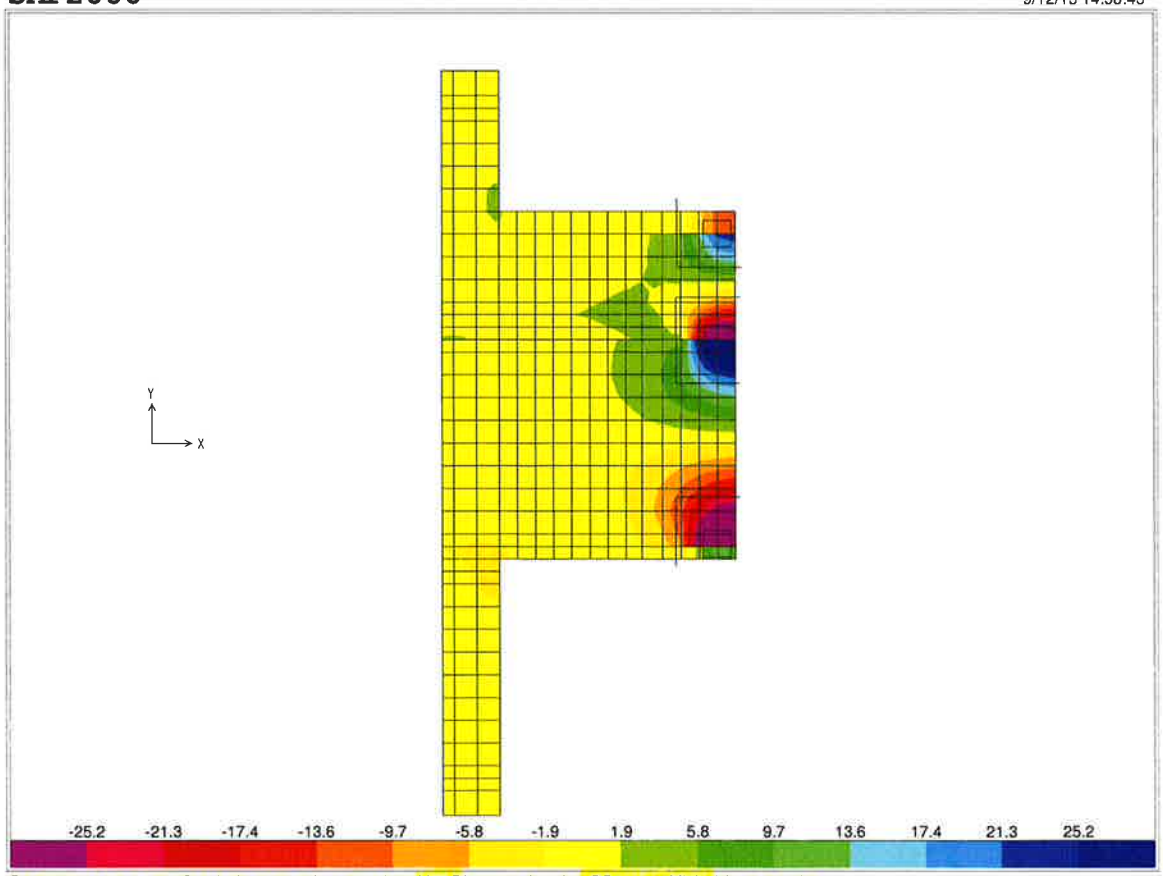
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 14:58:21



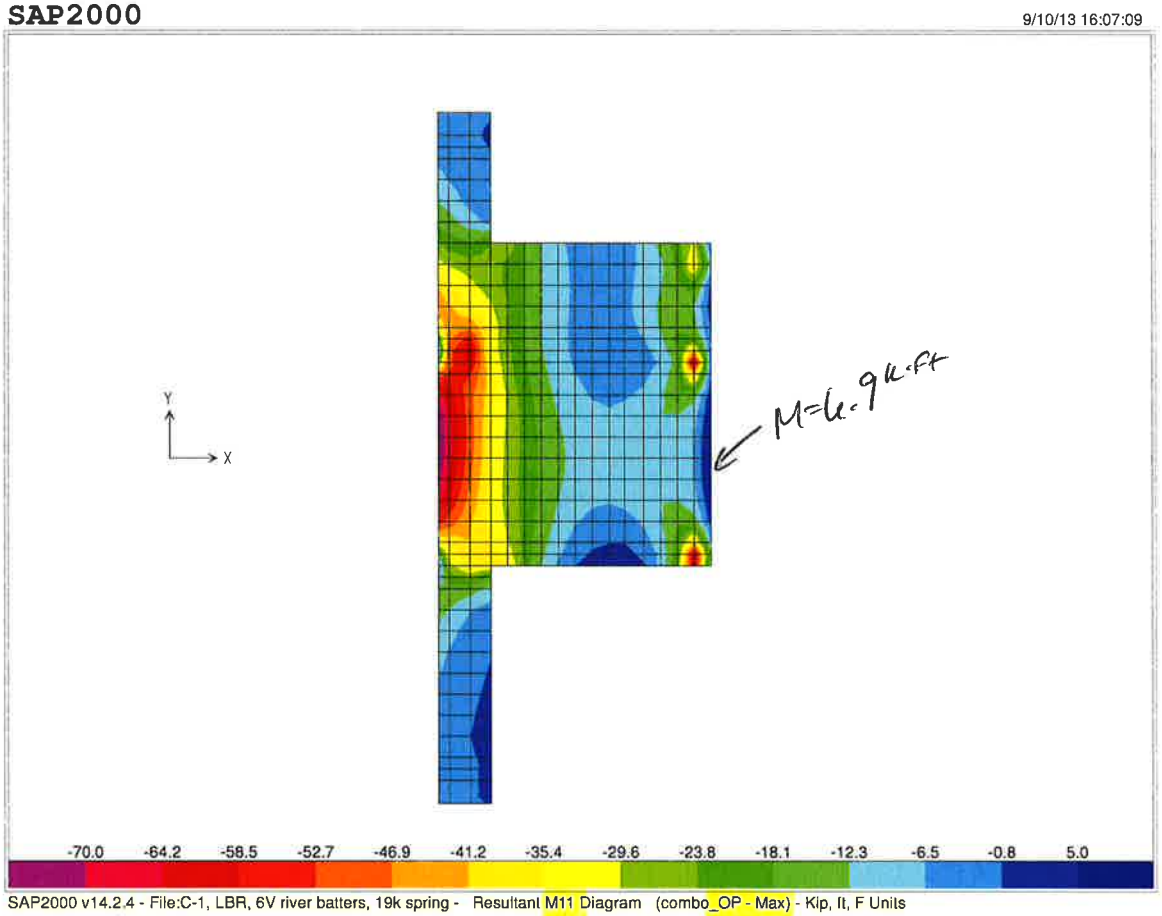
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 14:58:43



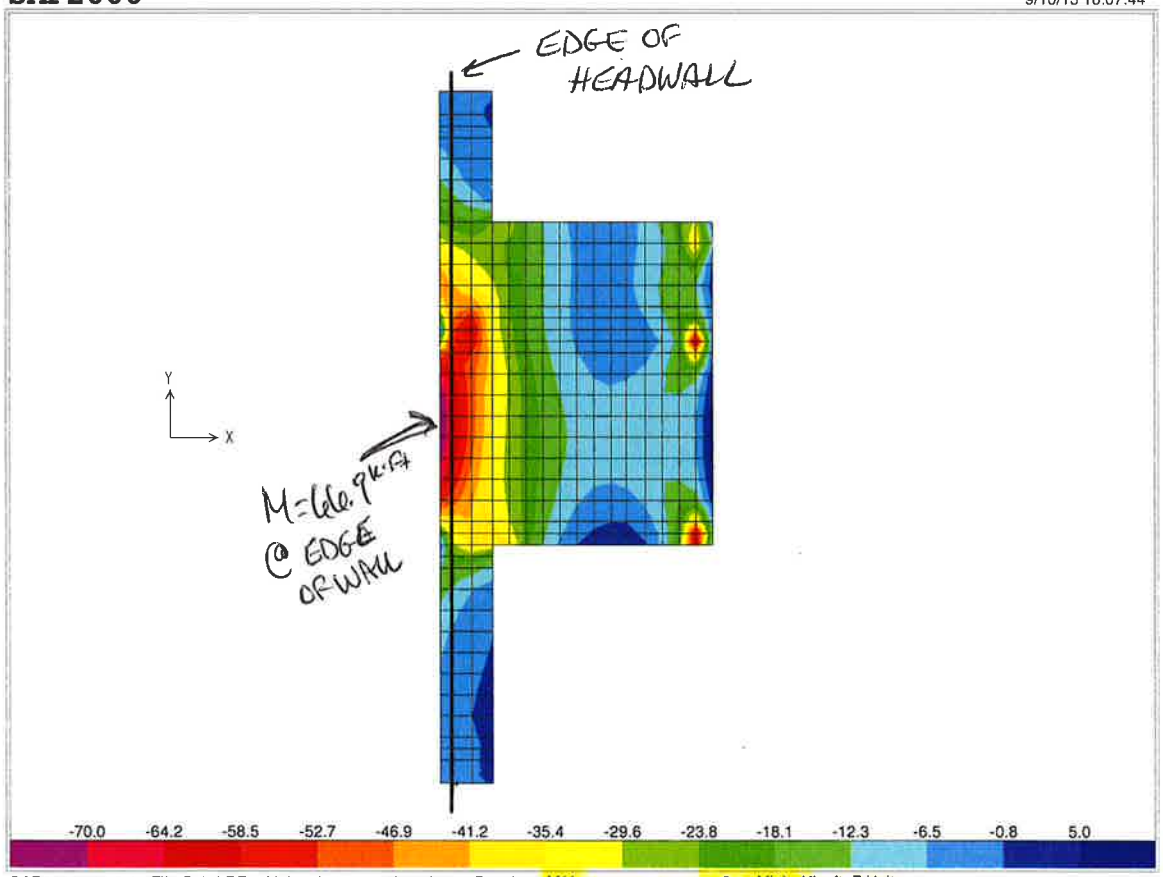
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/10/13 16:07:09



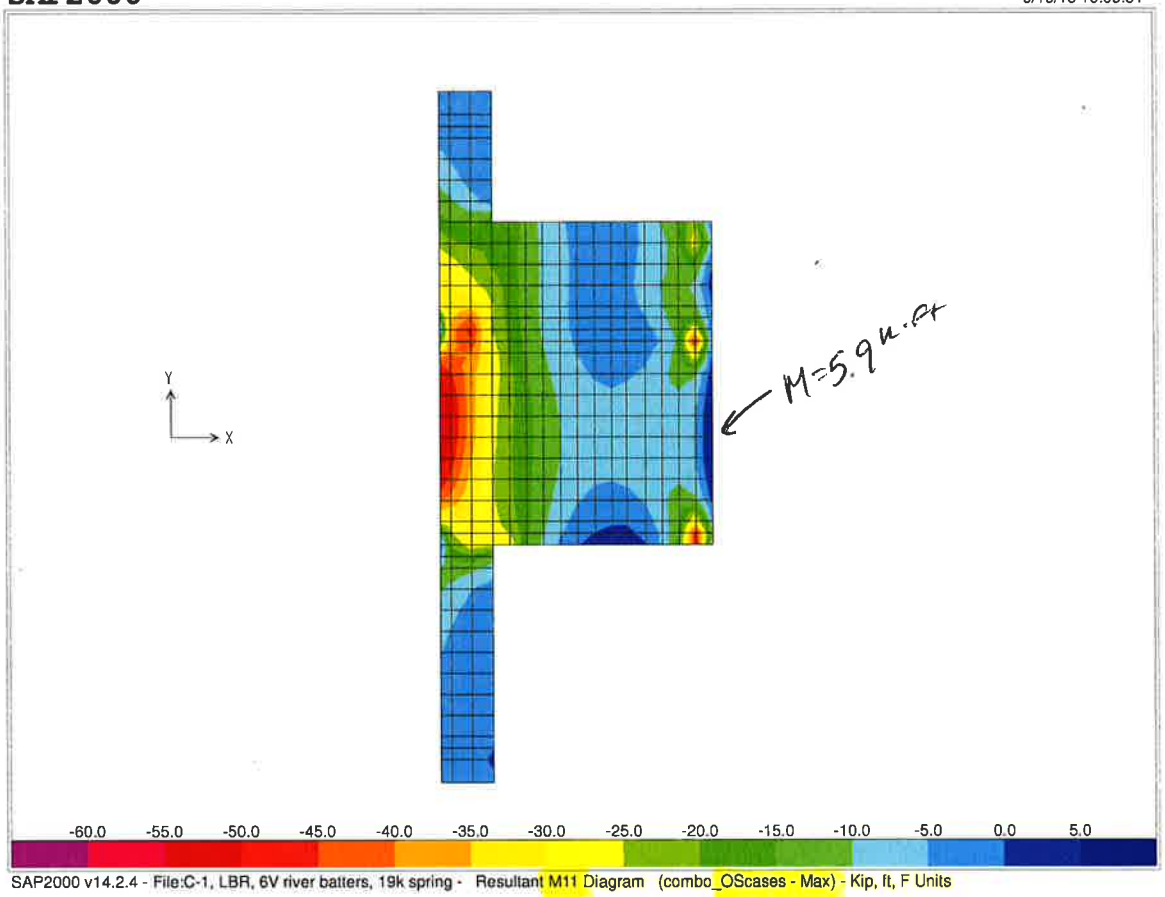
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 16:07:44



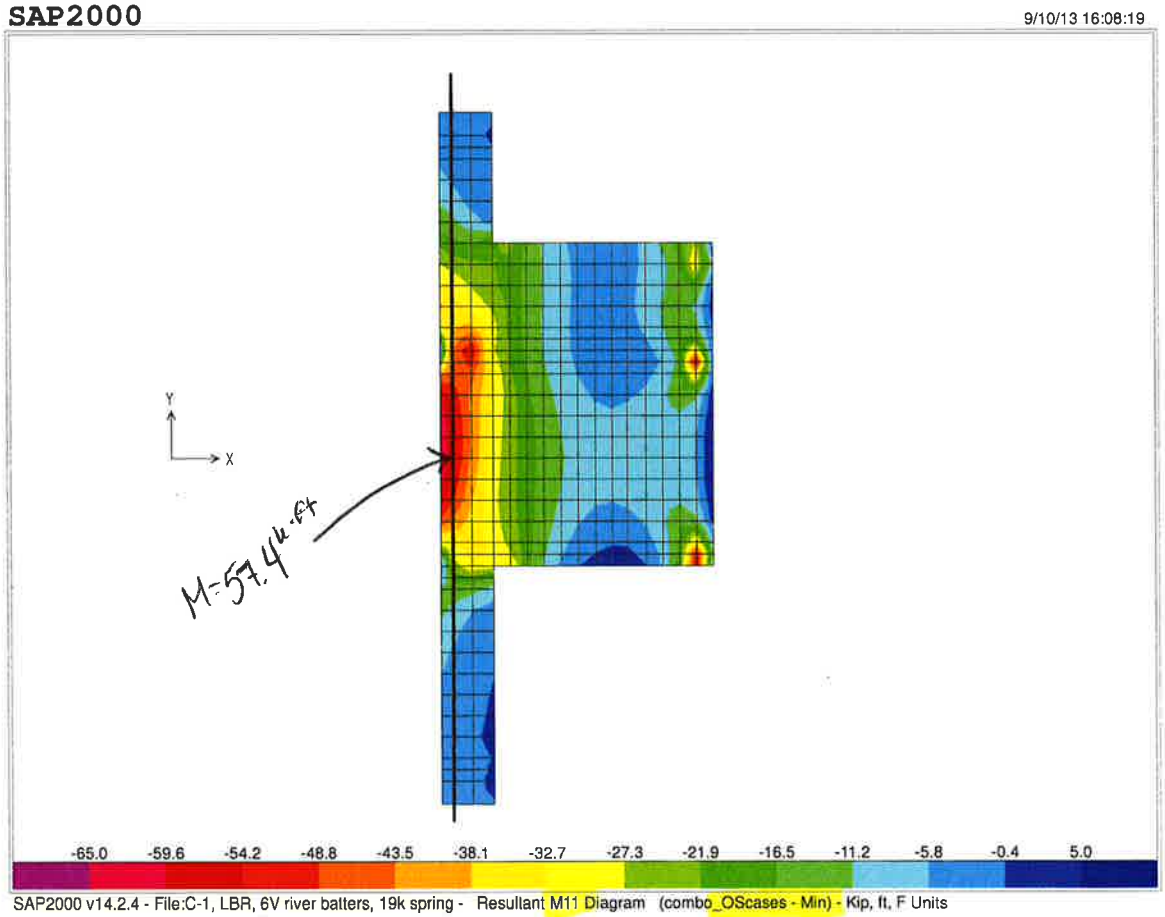
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 16:06:31



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

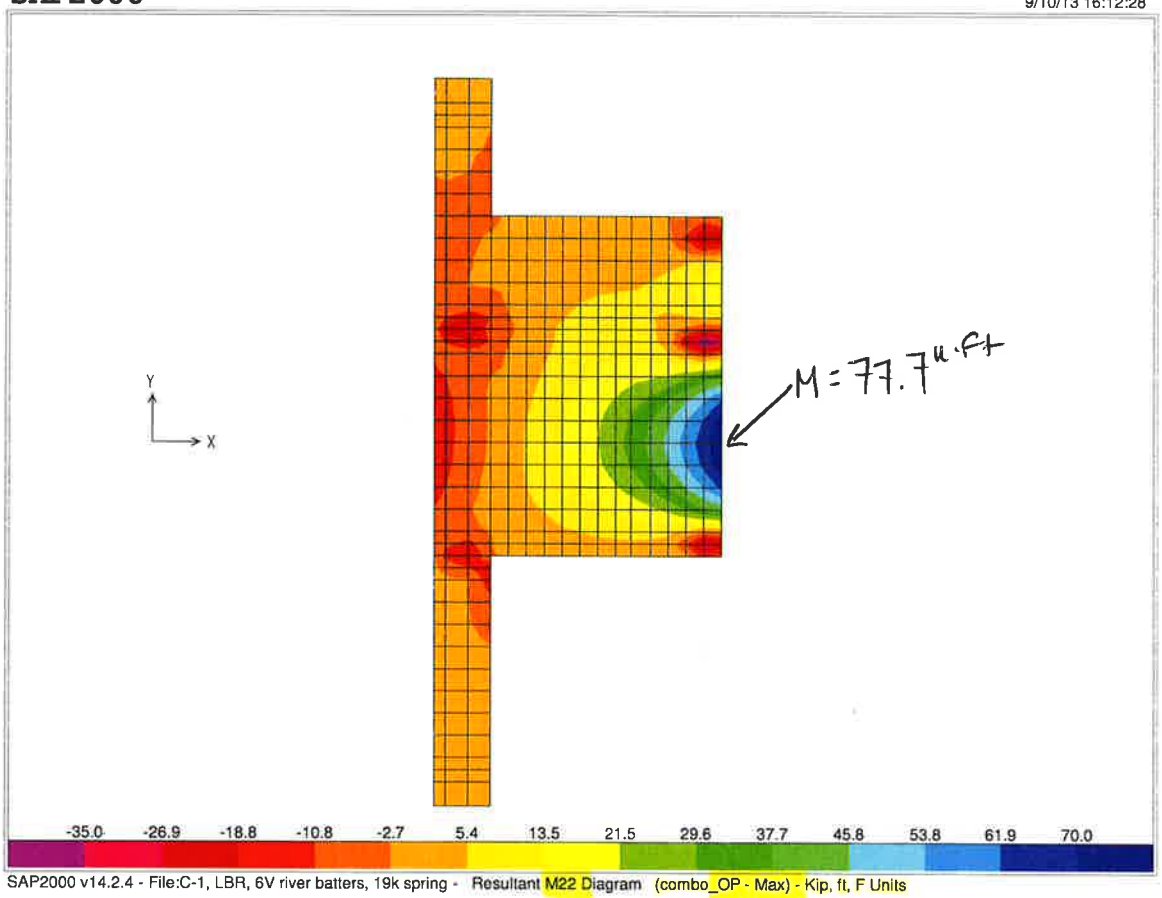
SAP2000 9/10/13 16:08:19



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000

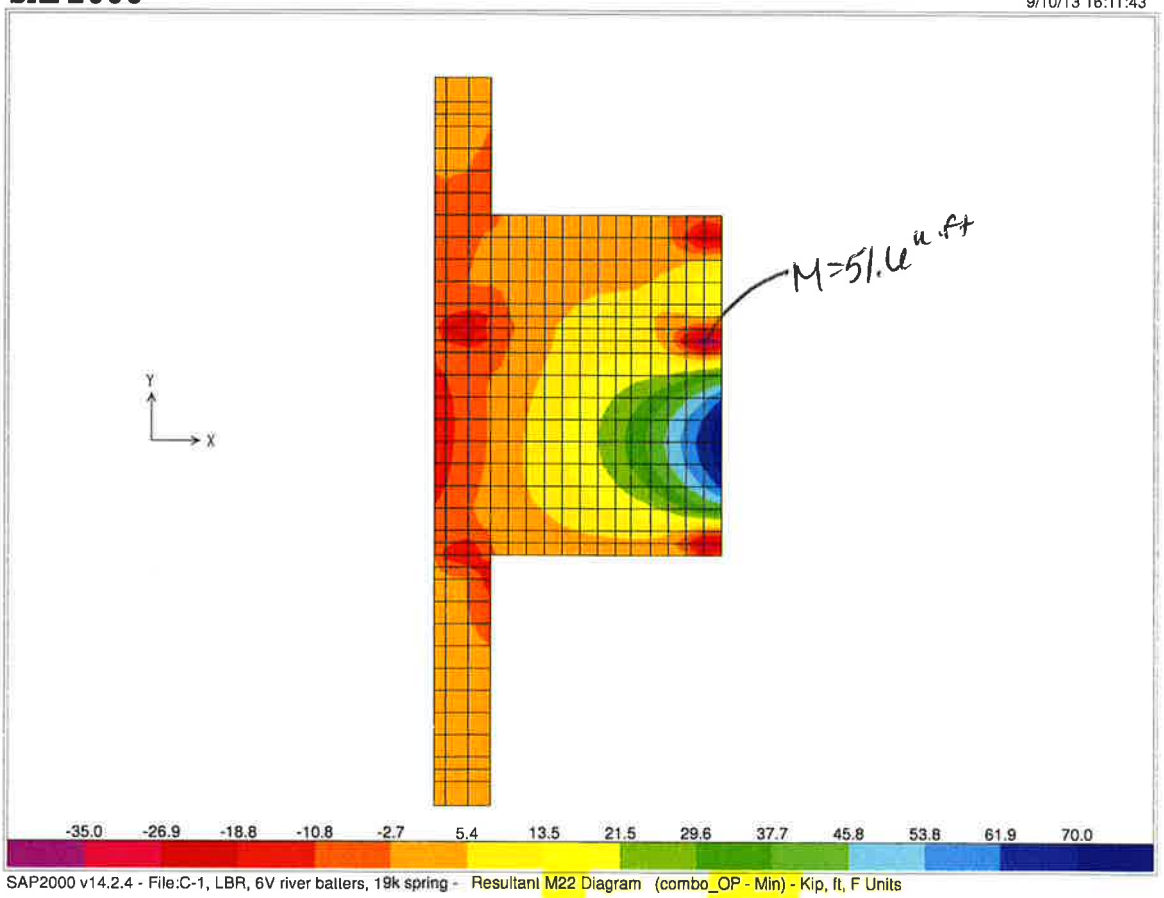
9/10/13 16:12:28



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

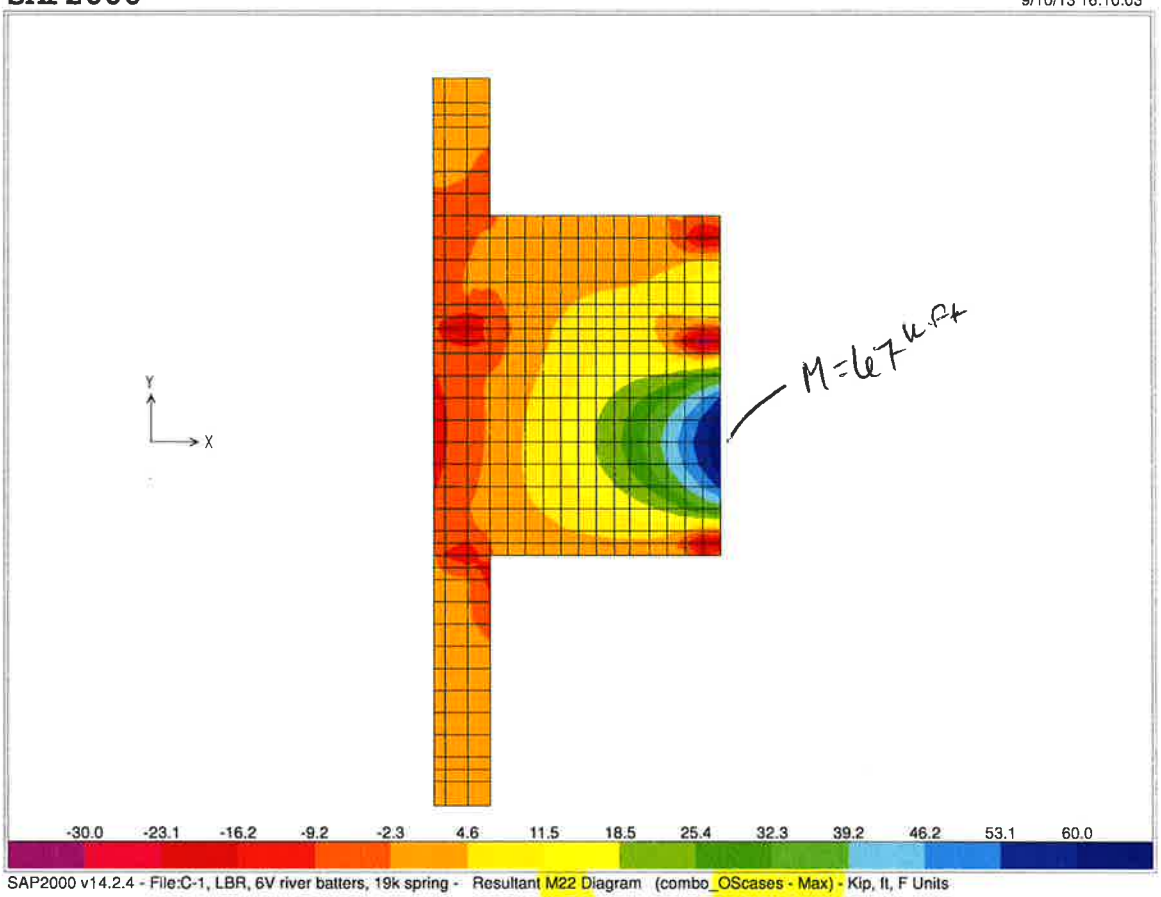
SAP2000

9/10/13 16:11:43



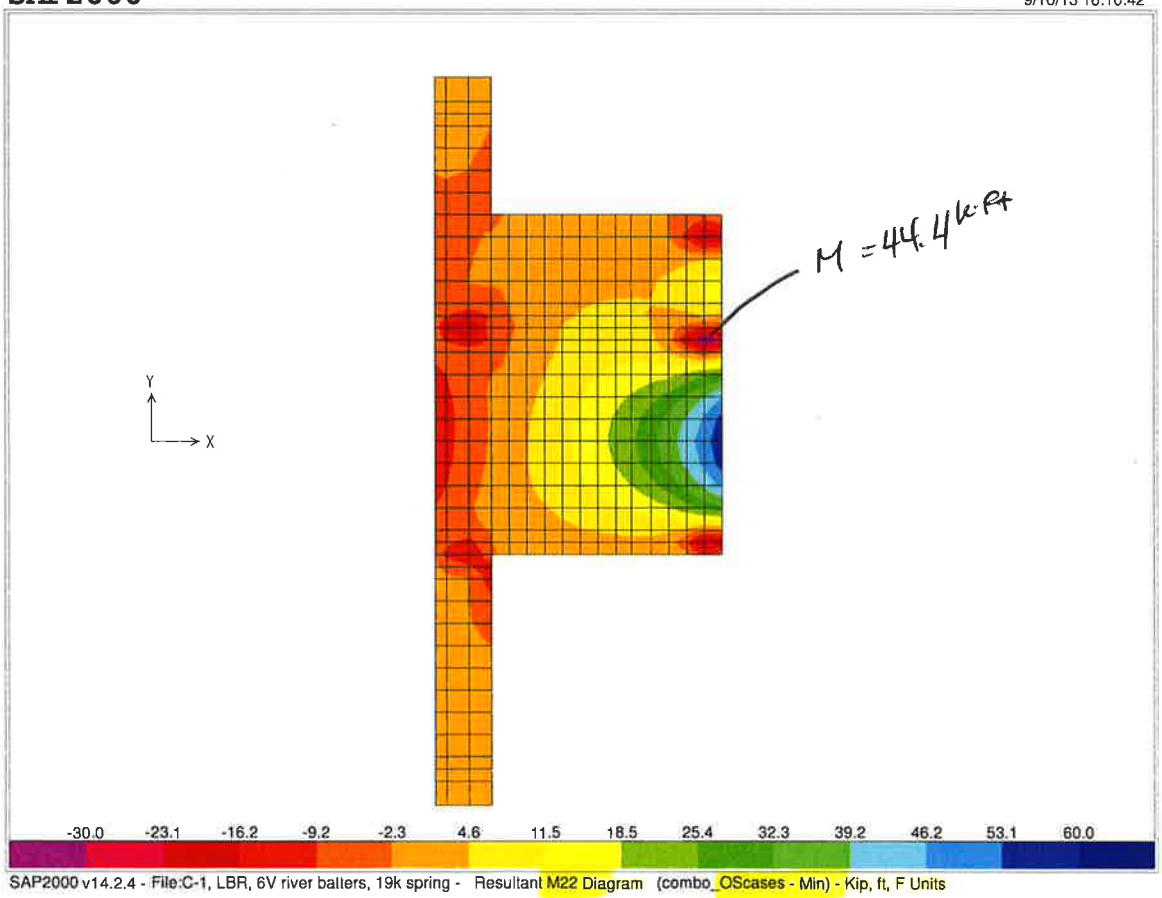
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 16:10:03



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 16:10:42



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

PART 6

Interior Culvert Wall Design

*** Interior Culvert Walls, Whole:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	3.0	3.1	16.5	14.9	16.6	13.0
combo_OScases	4.6	14.5	14.8	13.4	40.2	15.4

Max. Shear = 14.5 kip
Max. Moment, Primary = 40.2 kip-ft (M22, "primary" controls vertical reinforcement)
Min. Moment, Primary = 15.4 kip-ft
Max. Moment, Secondary = 16.5 kip-ft (M11, "secondary" controls horizontal reinforcement)
Min. Moment, Secondary = 14.9 kip-ft

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'c) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Int. Wall Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 14.5kip → Section OK ✓

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

All reinforcement: * $M_{max, all\ directions}$ = 40.2 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

a = A_s * f_y / (0.85 * f'c * b) = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

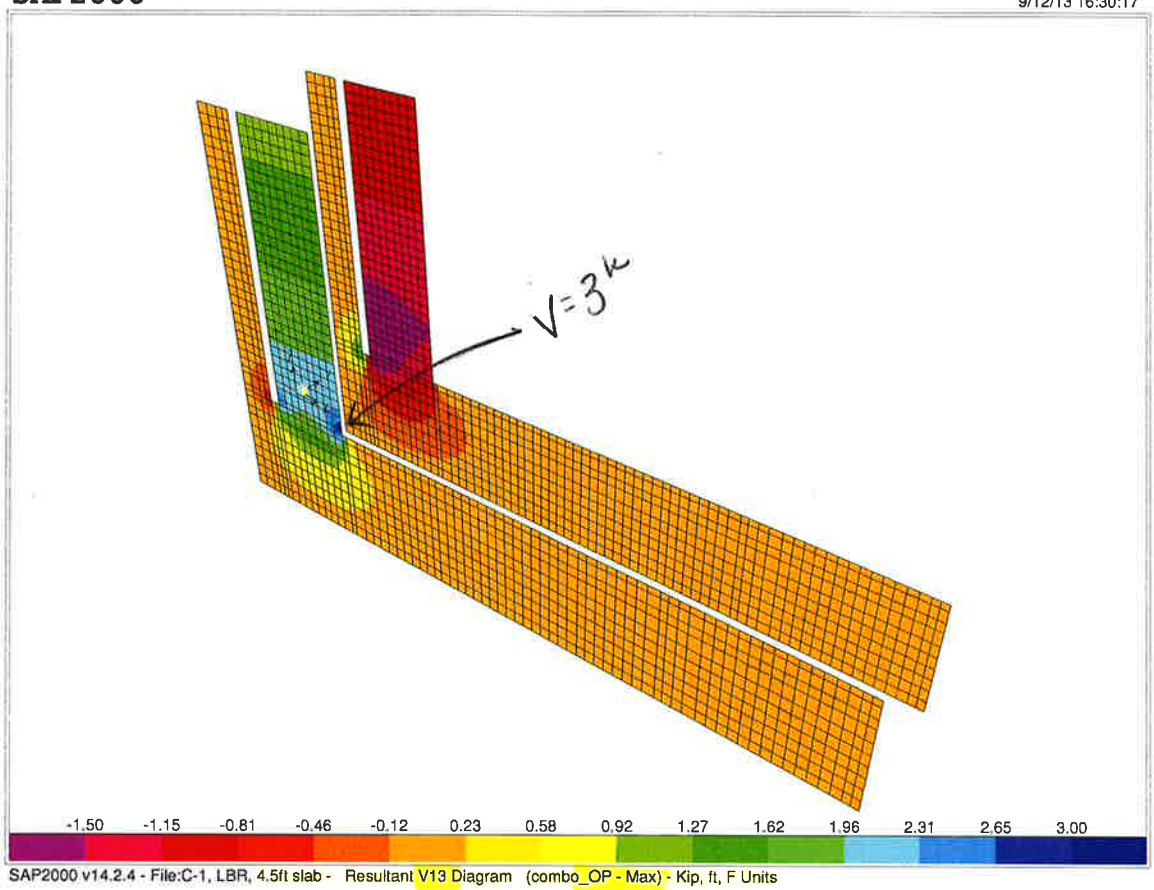
ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

40.2×1.33=53.6 k·ft

ϕMn = 75.4kip-ft > Mu = 40.2kip-ft → Use #7 @ 12" ✓

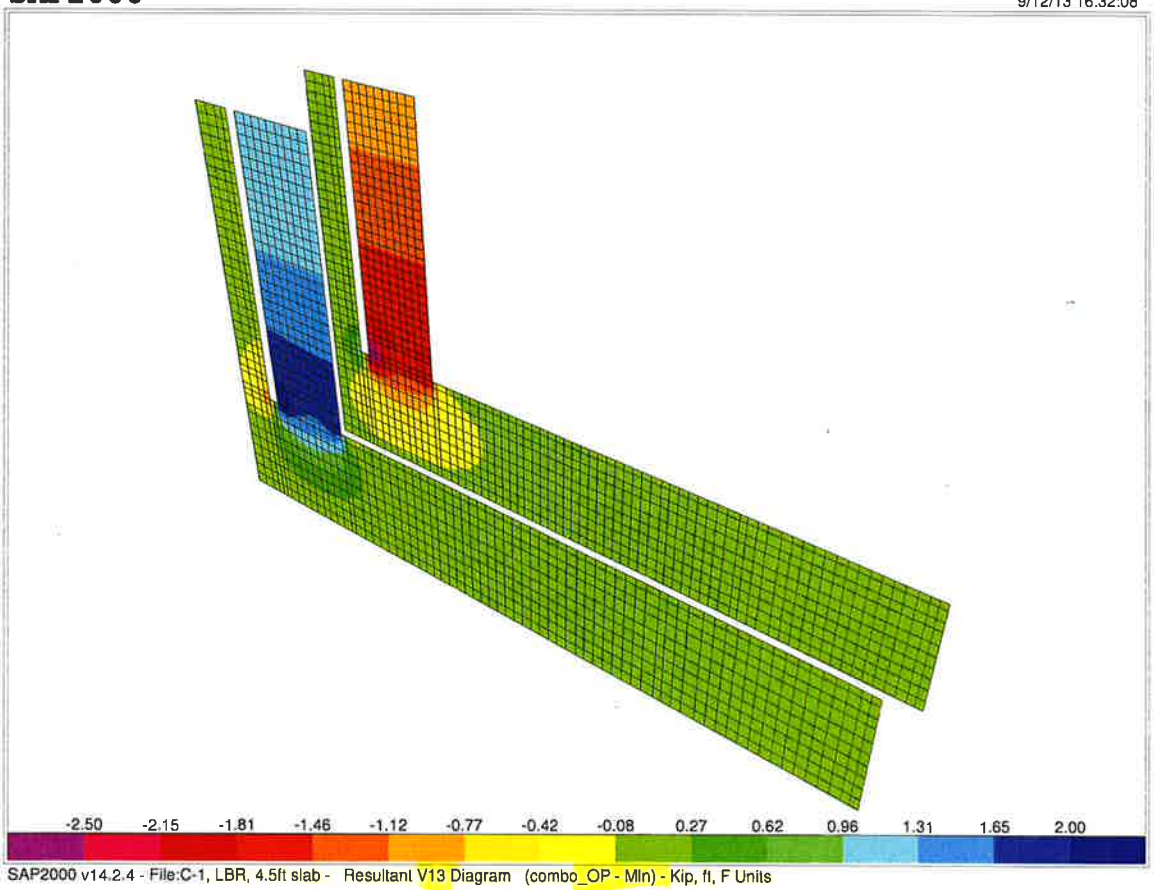
ACI 318 10.5.3, $\phi M_n > M_u \times 1.33$,
OK FOR FLEX. MINIMUM NEGLECTED

SAP2000 9/12/13 16:30:17



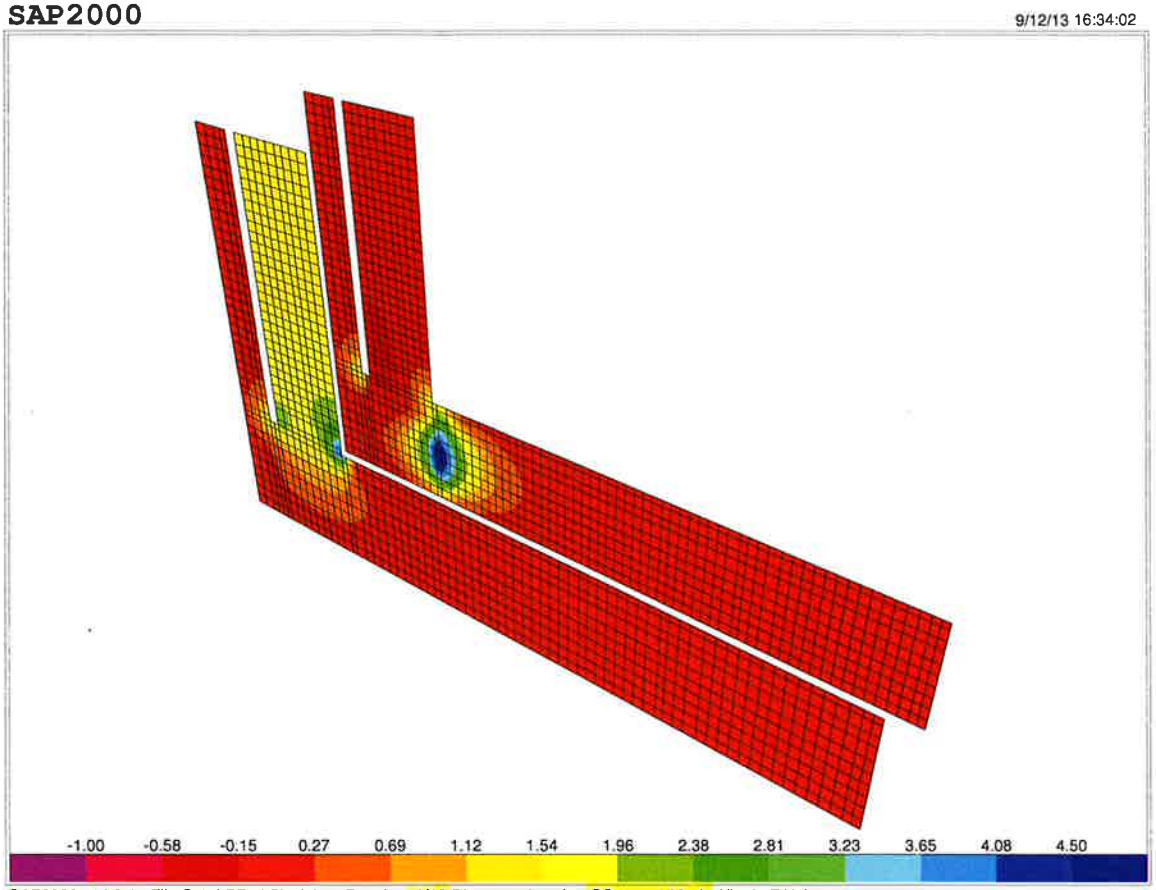
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 16:32:08



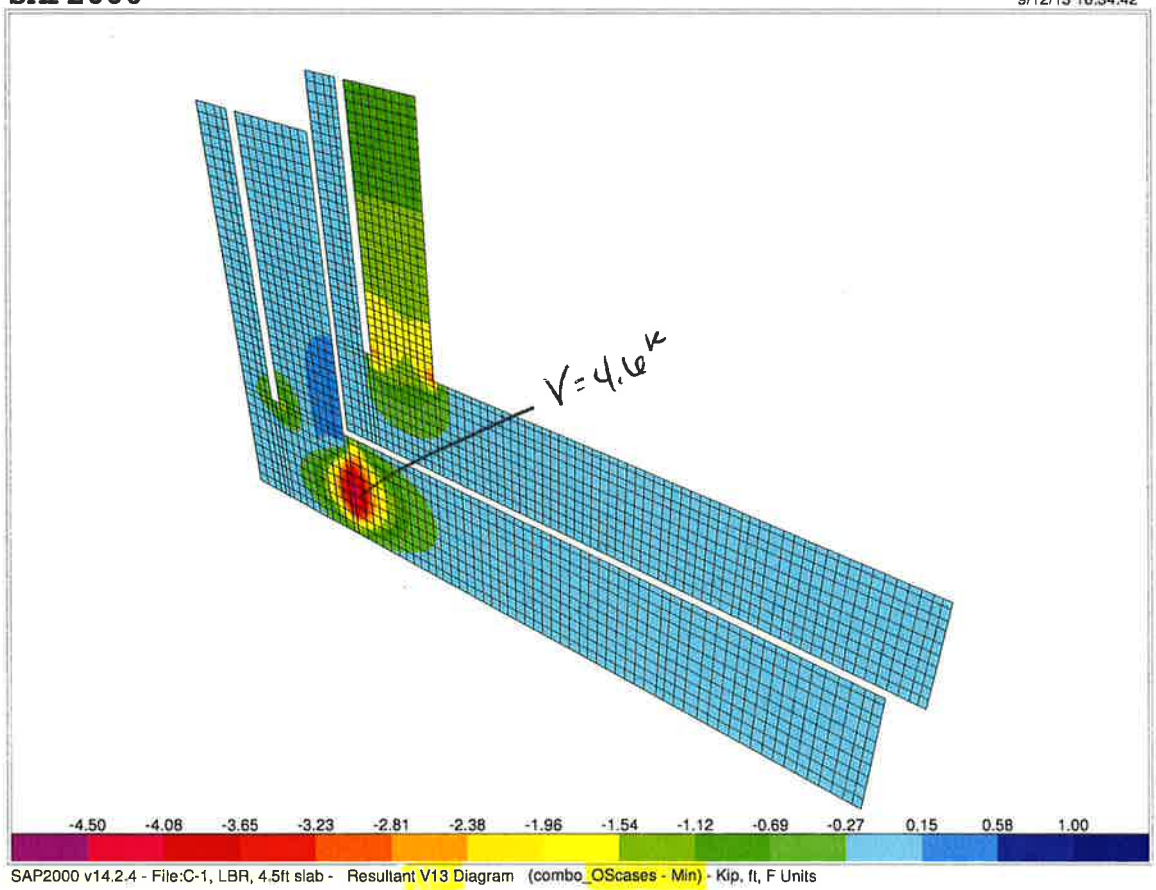
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 16:34:02



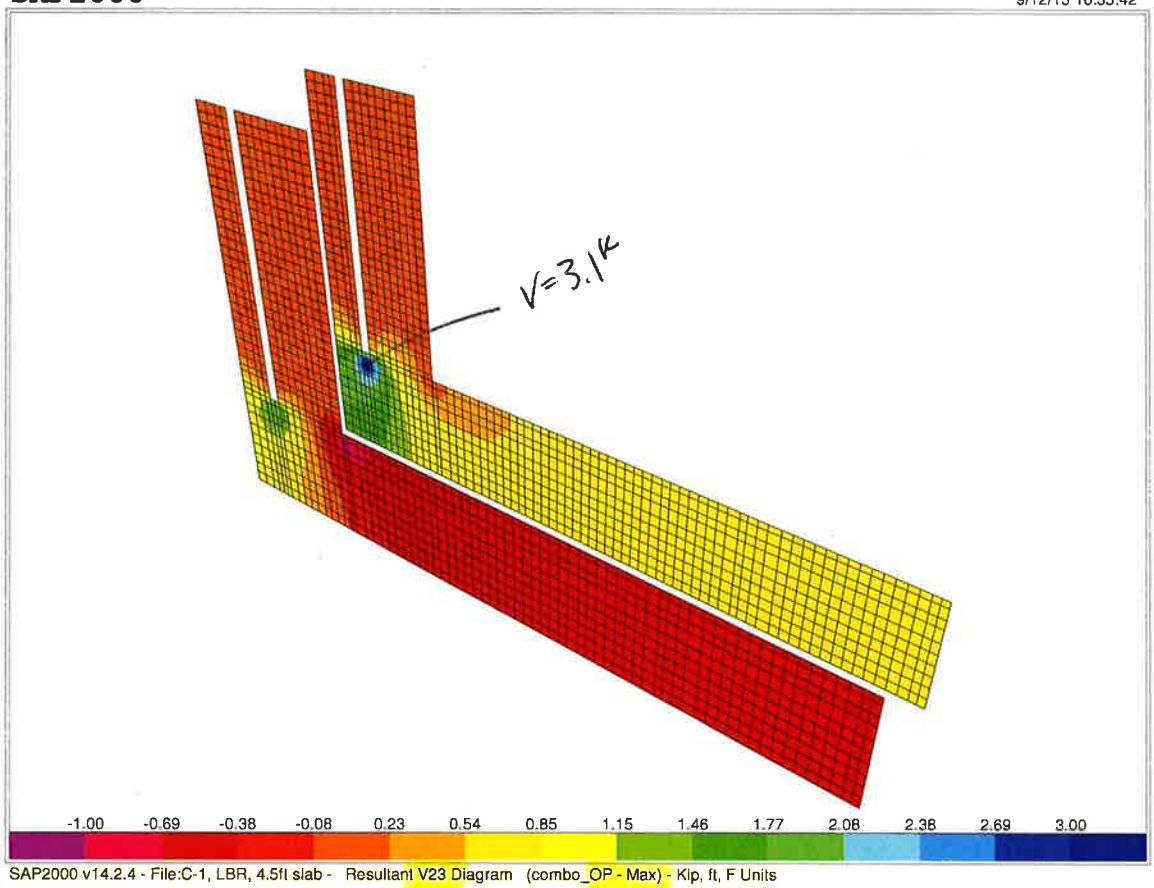
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 16:34:42



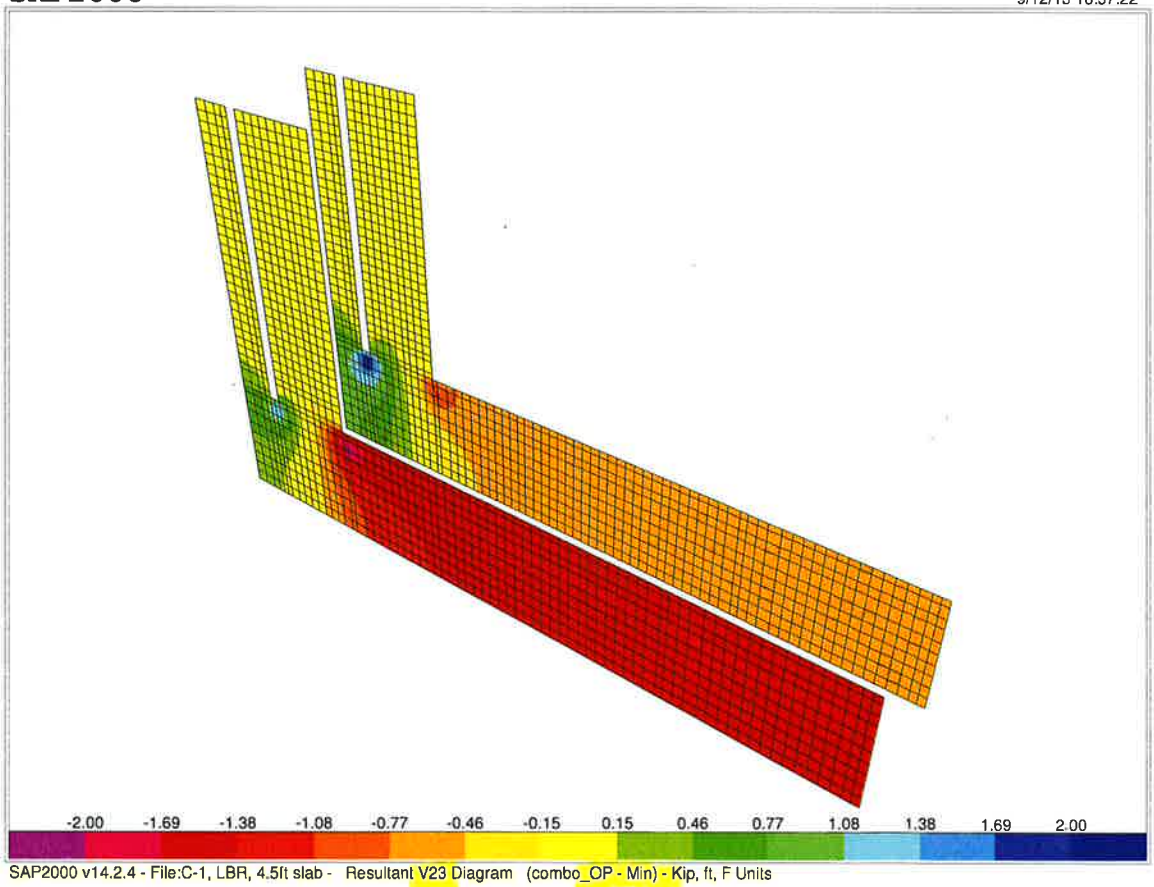
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/12/13 16:35:42



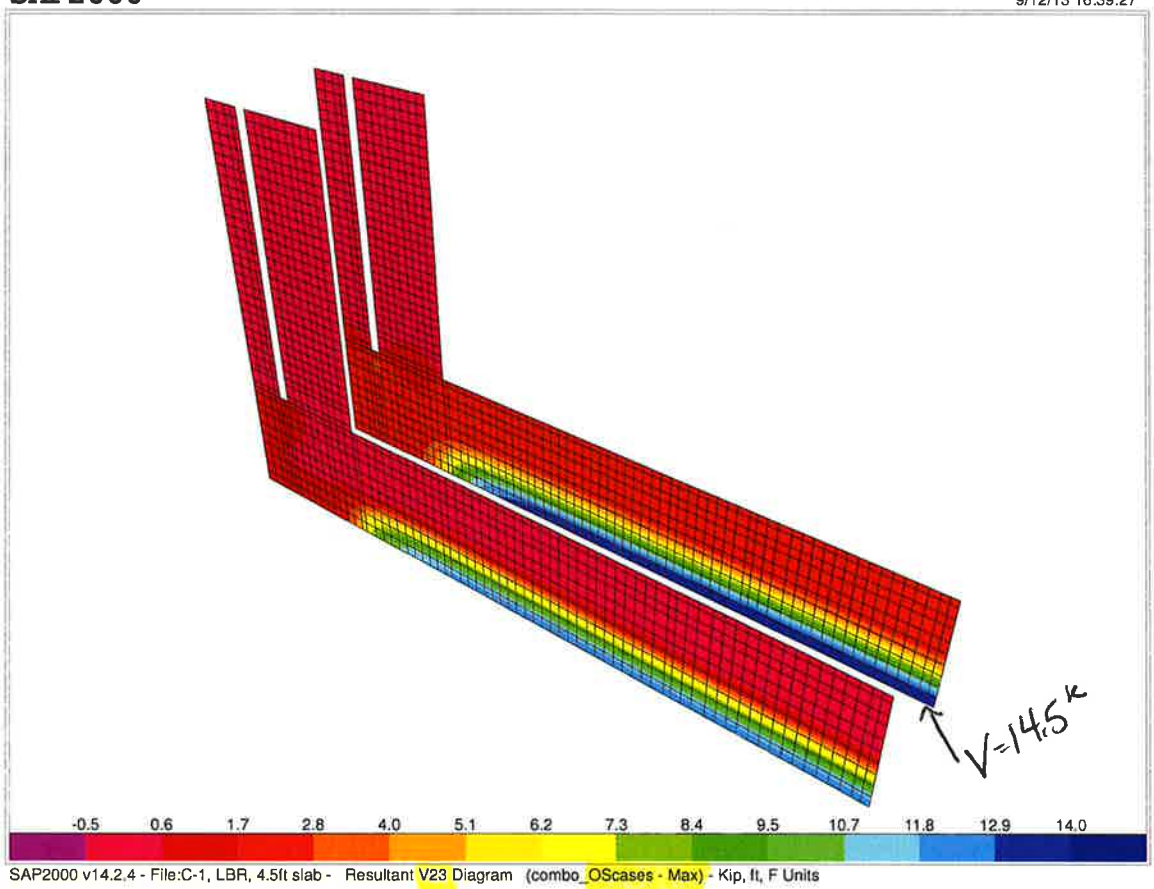
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/12/13 16:37:22



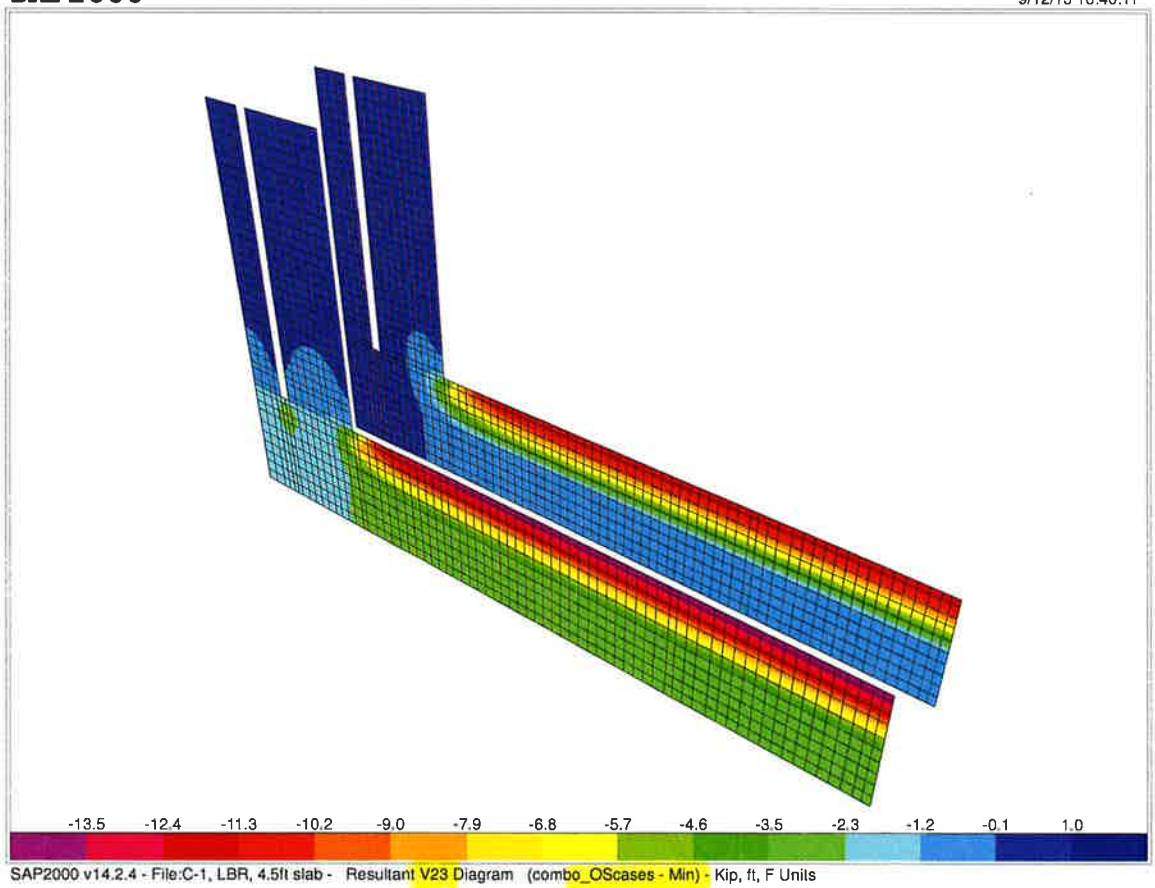
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/12/13 16:39:27



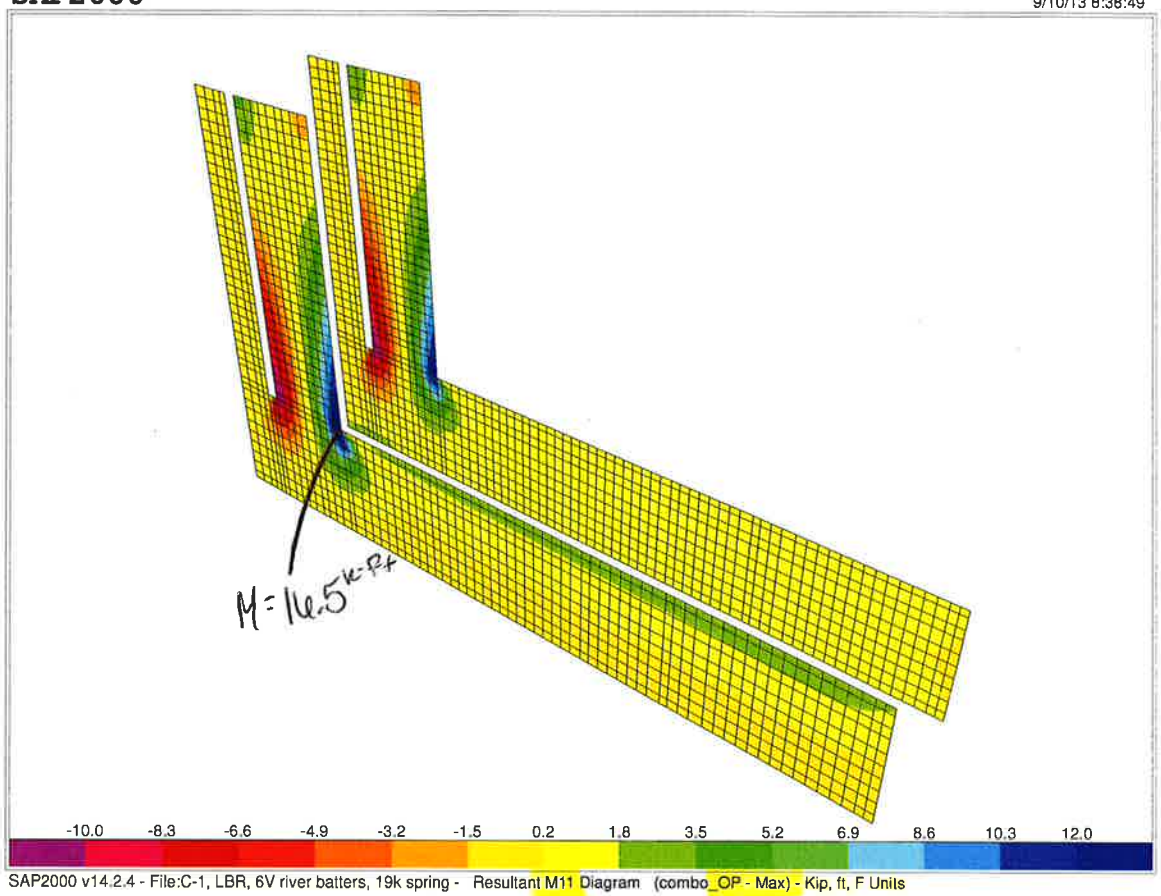
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/12/13 16:40:11



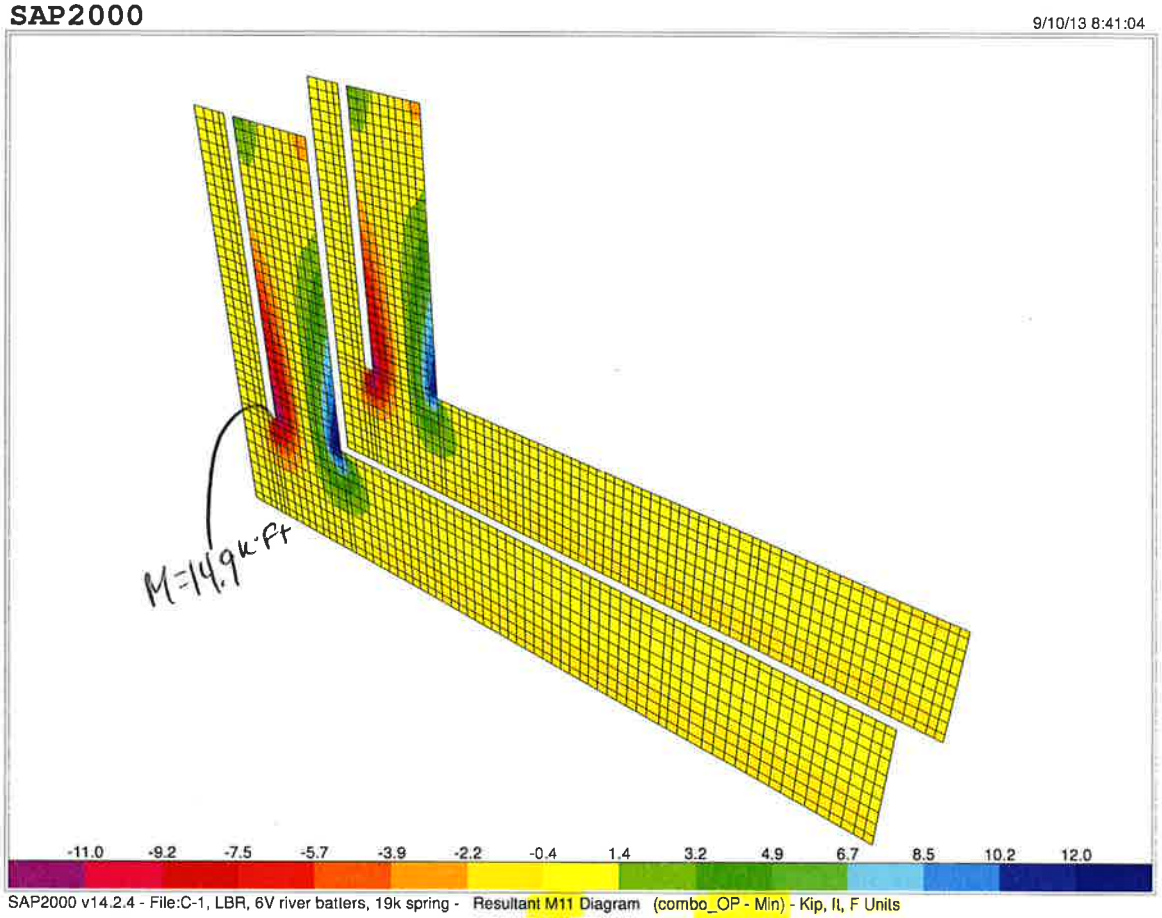
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:36:49



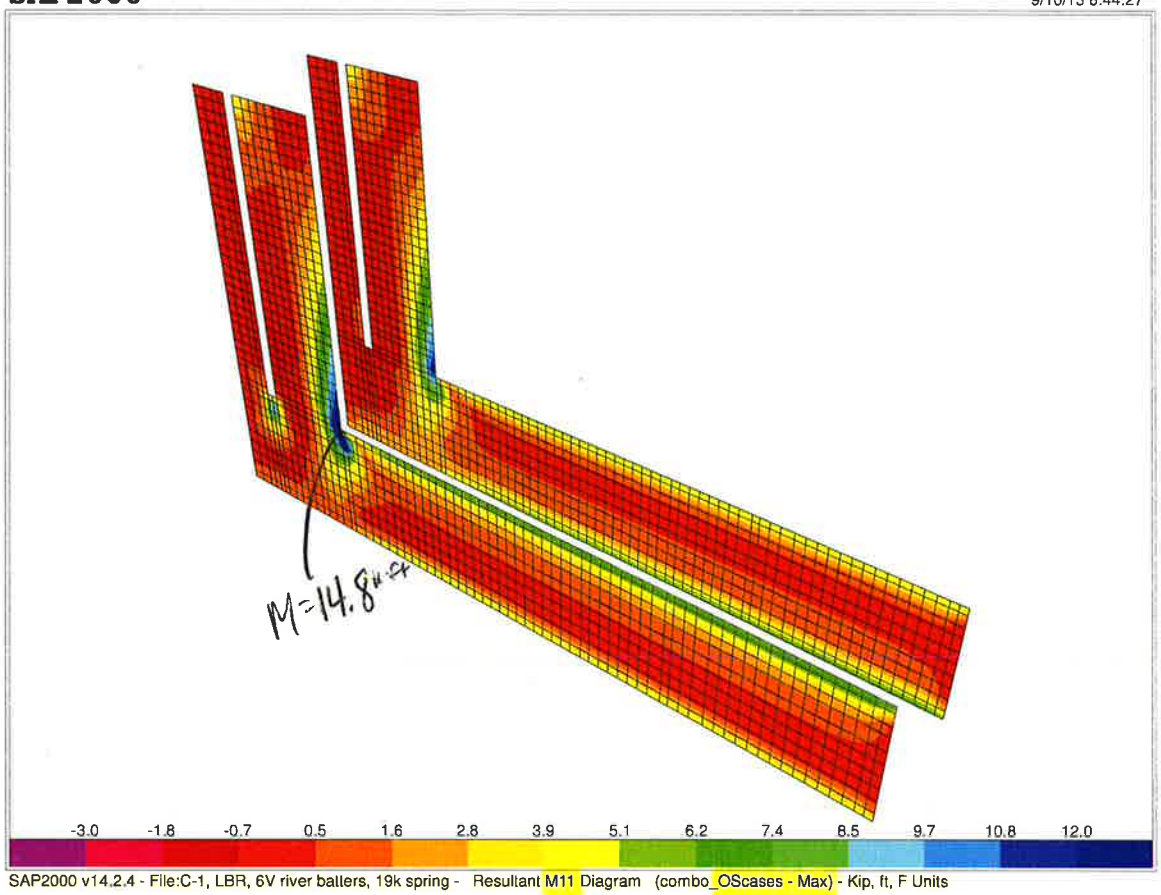
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:41:04



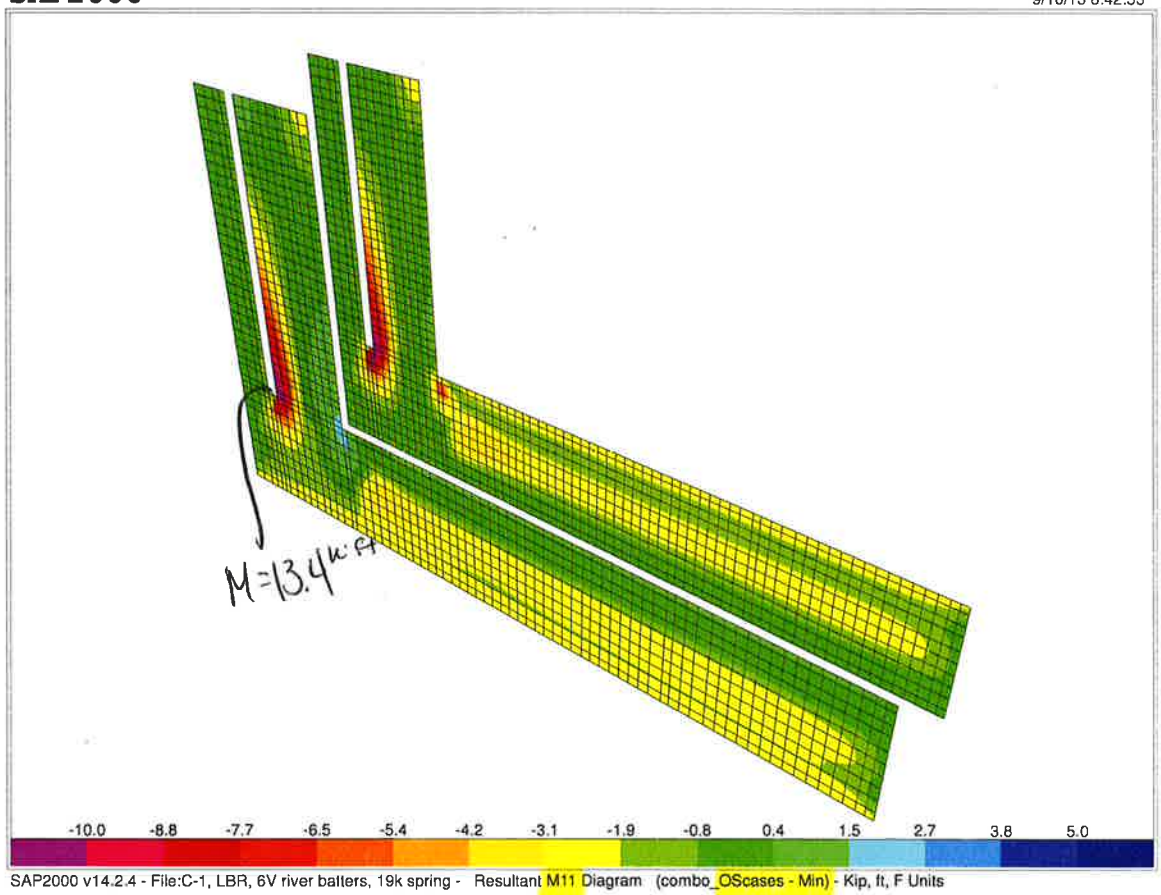
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:44:27



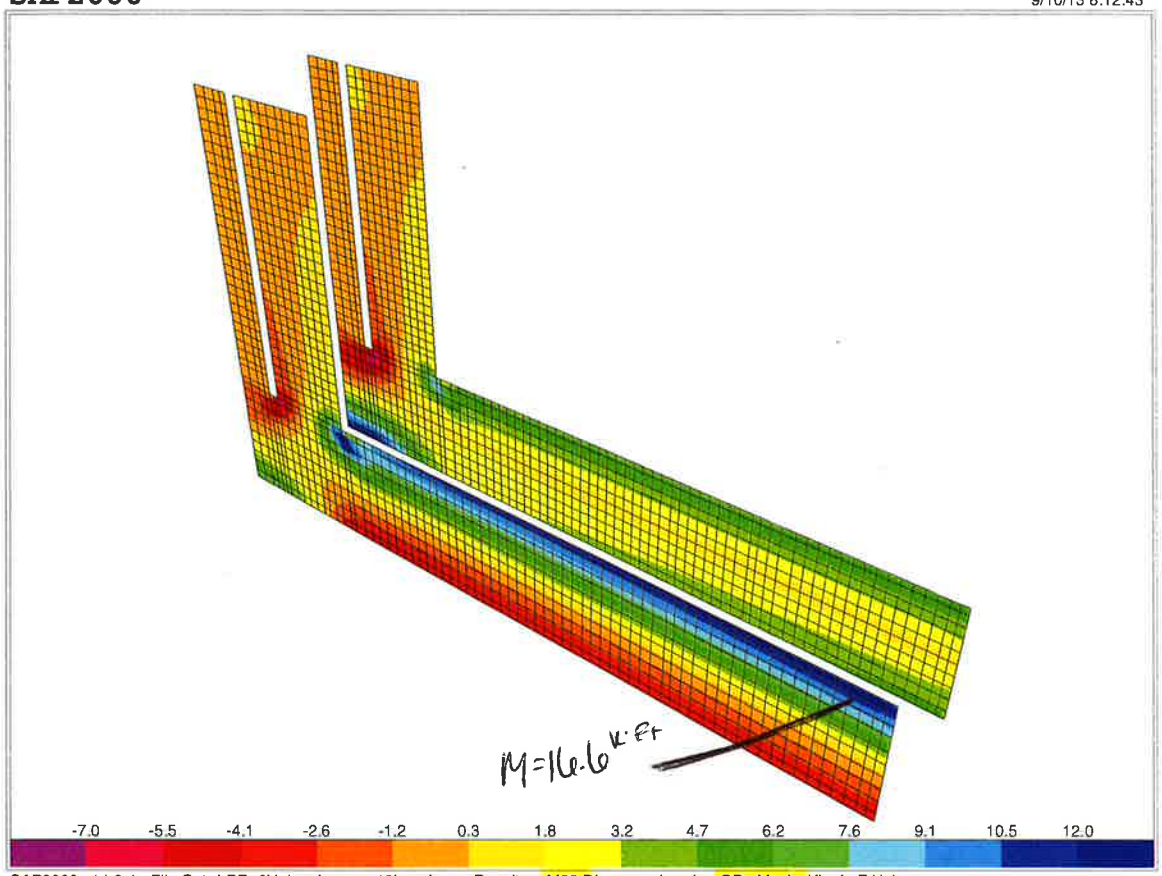
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:42:53



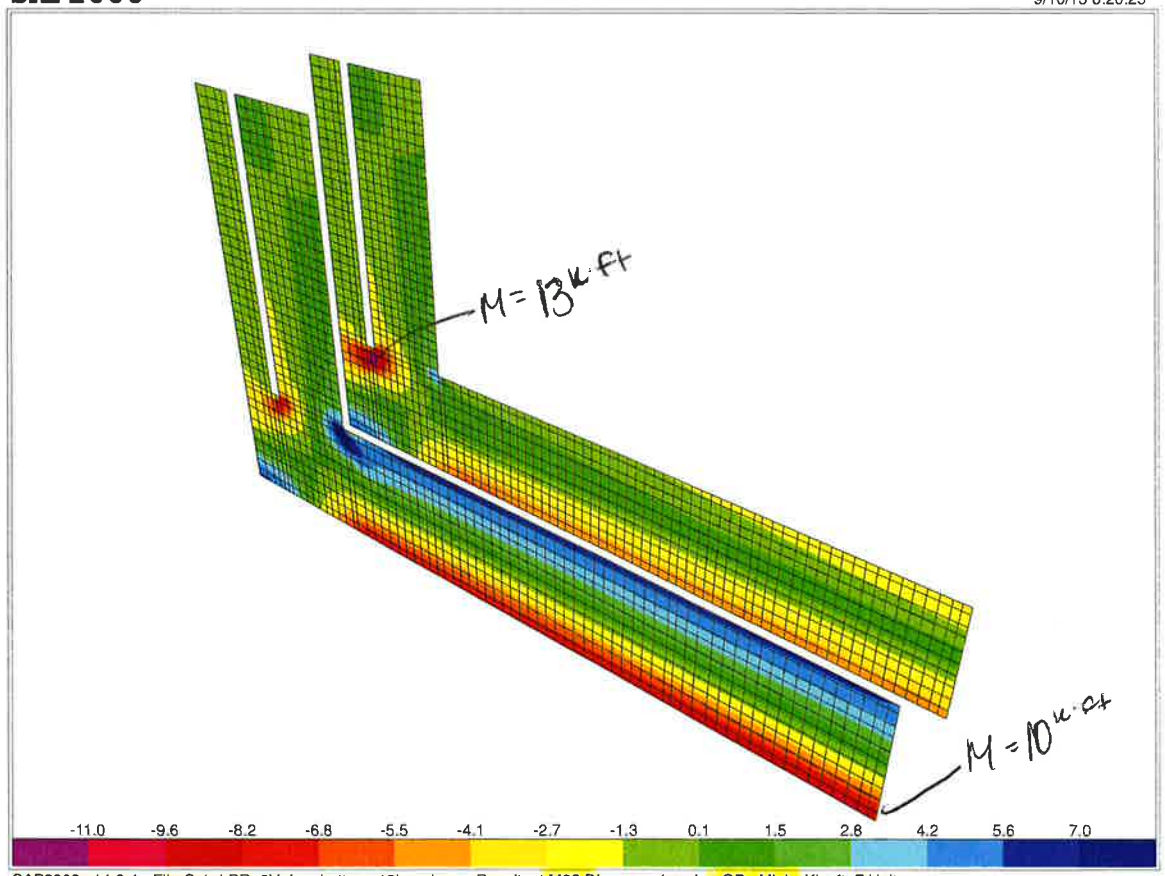
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:12:43



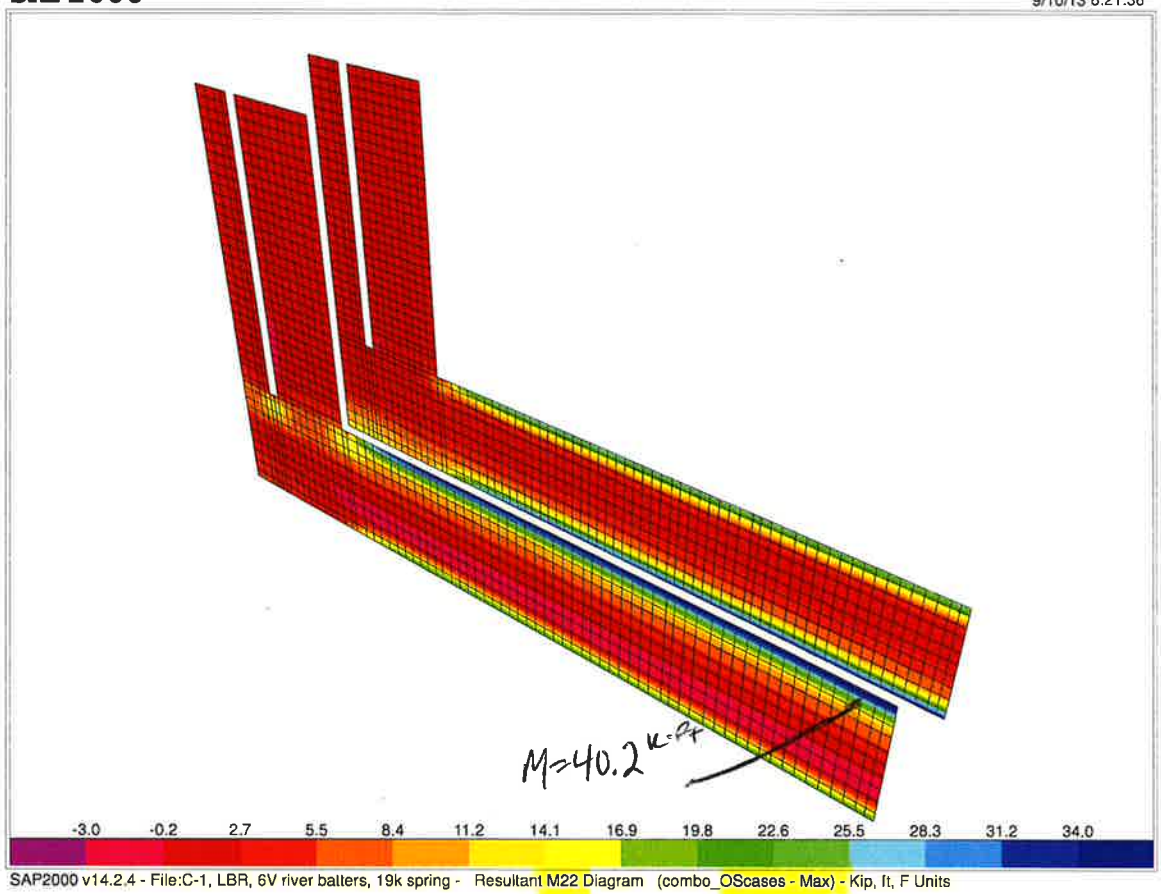
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:20:25



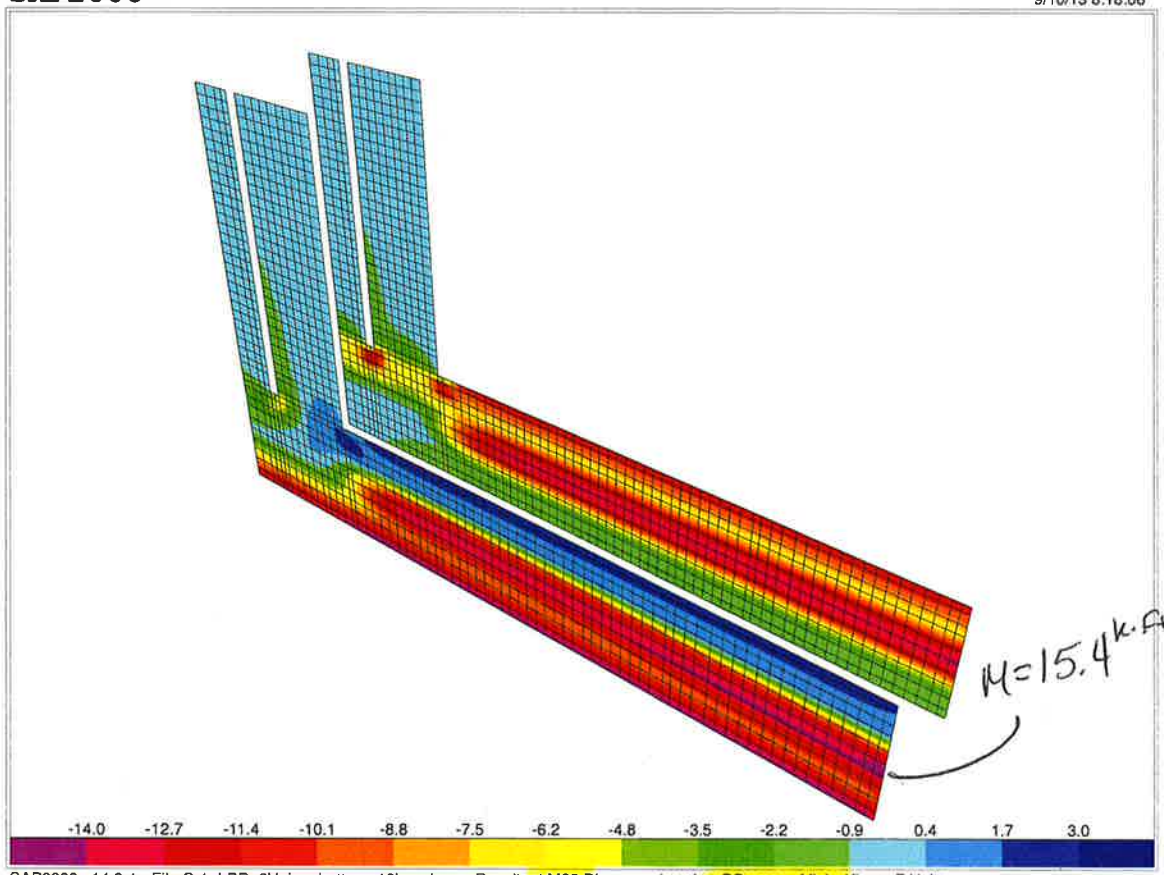
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:21:36



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:18:06



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

*** Interior Culvert Walls, Whole:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP-ST	3.2	3.1	18.0	16.0	14.6	14.0
combo_OScases-ST	4.6	14.3	16.0	14.4	41.0	15.5

Max. Shear = 14.3 kip
Max. Moment, Primary = 41.0 kip-ft (M22, "primary" controls vertical reinforcement)
Min. Moment, Primary = 15.5 kip-ft
Max. Moment, Secondary = 18.0 kip-ft (M11, "secondary" controls horizontal reinforcement
Min. Moment, Secondary = 16.0 kip-ft

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
(3 * √(f'c) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Int. Wall Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 14.3kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b
* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

All reinforcement: * $M_{max, all\ directions}$ = 41.0 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

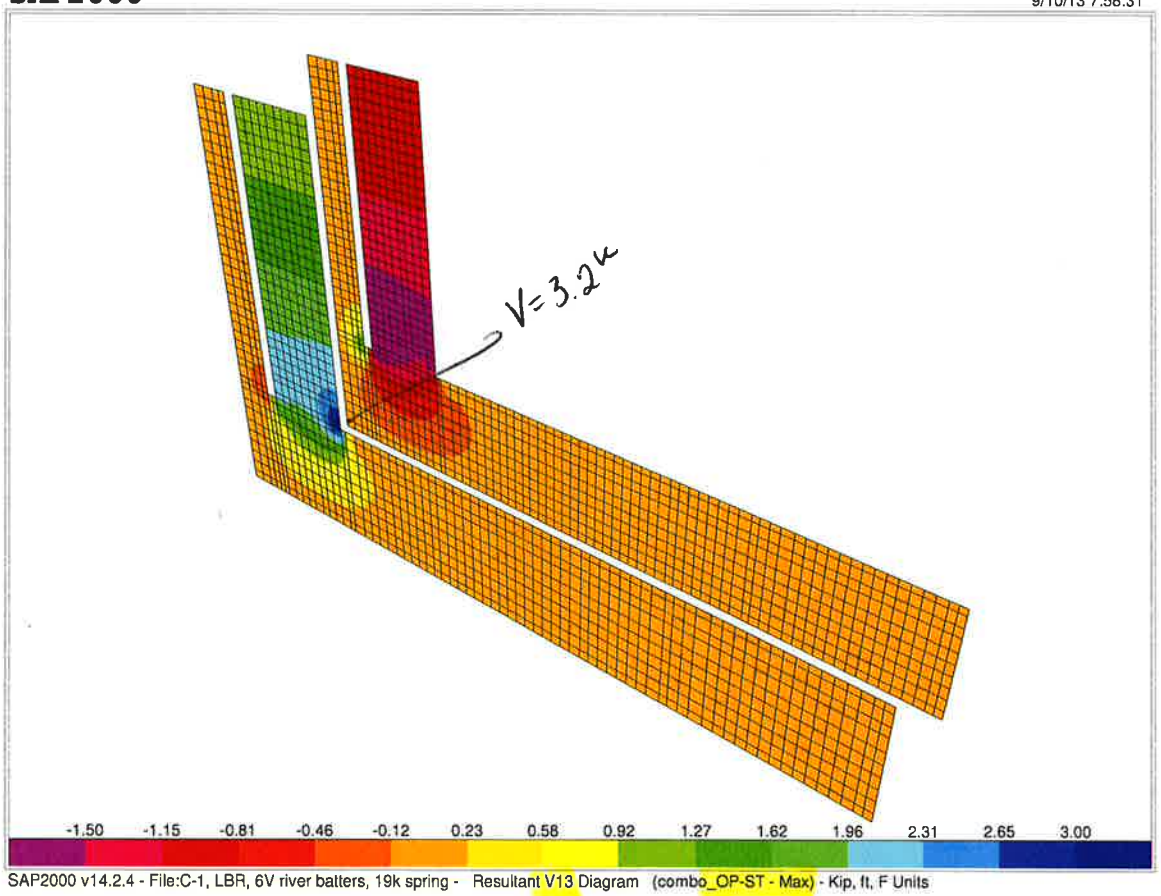
a = A_s * f_y / (0.85 * f'c * b) = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

41 k·ft × 1.33 = 54.7 k·ft

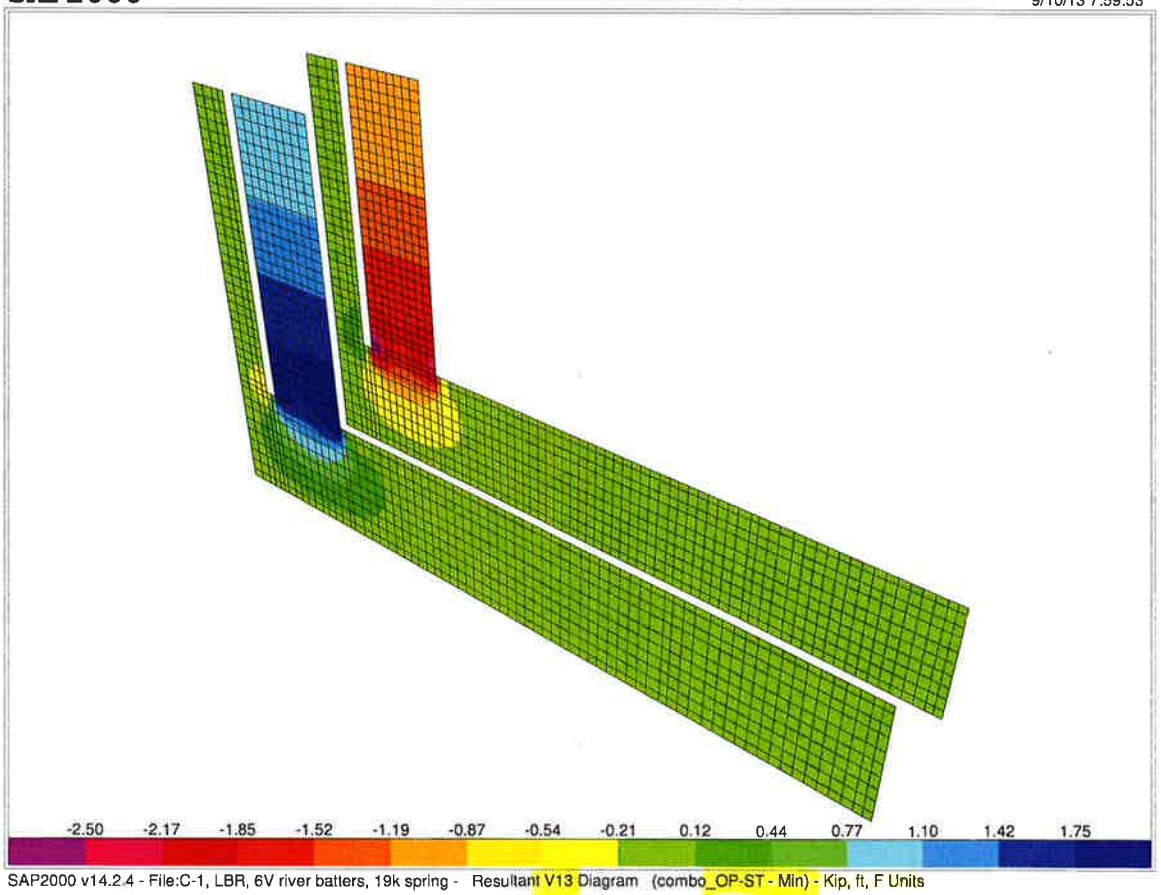
ϕMn = 75.4kip-ft > Mu = 41kip-ft → Use #7 @ 12"

SAP2000 9/10/13 7:58:31



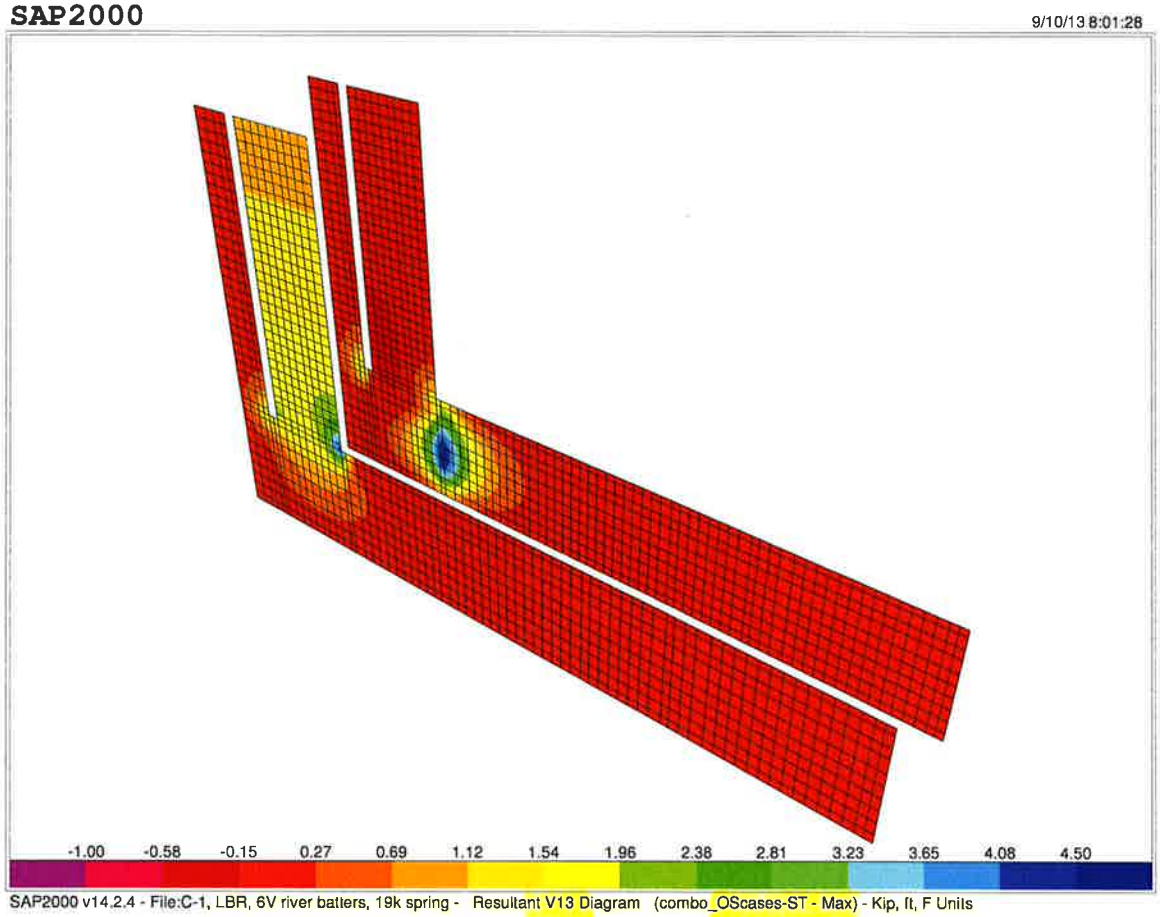
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 7:59:53



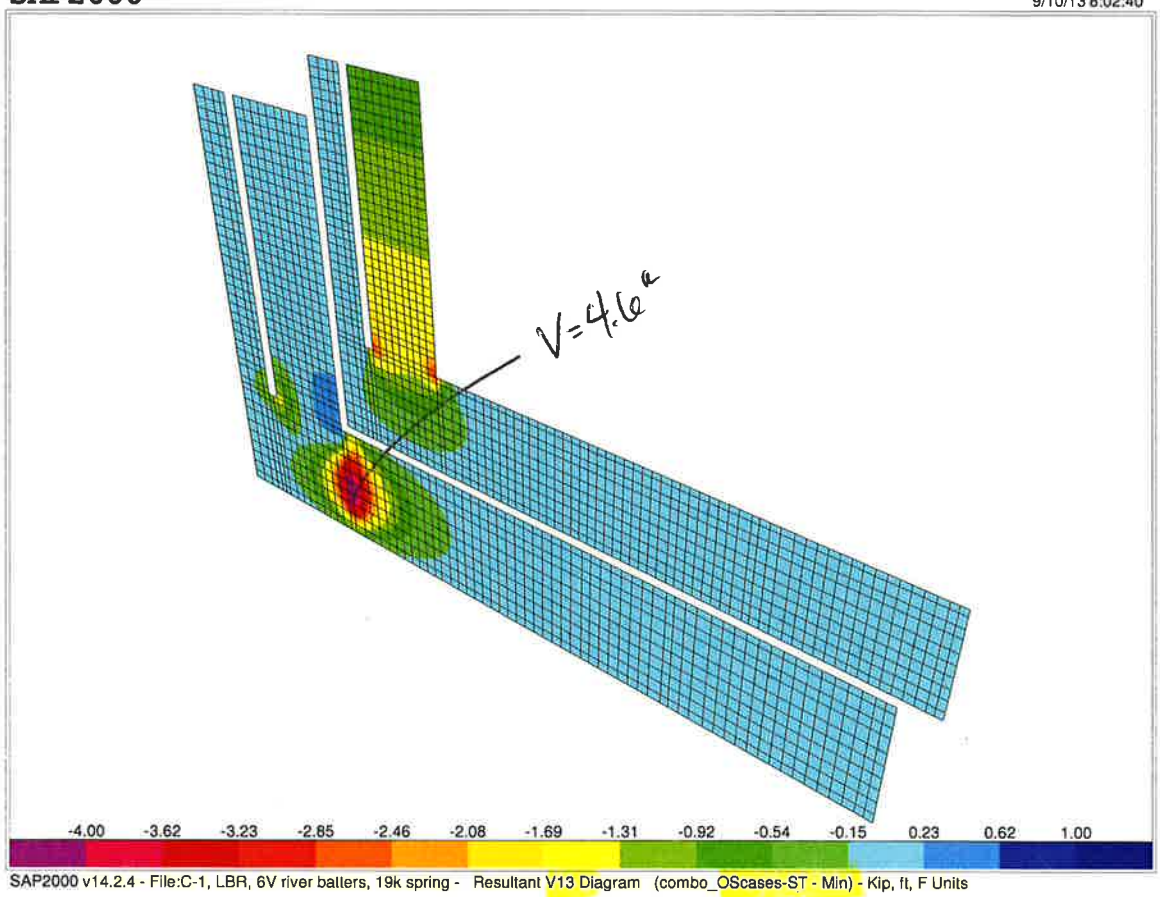
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:01:28



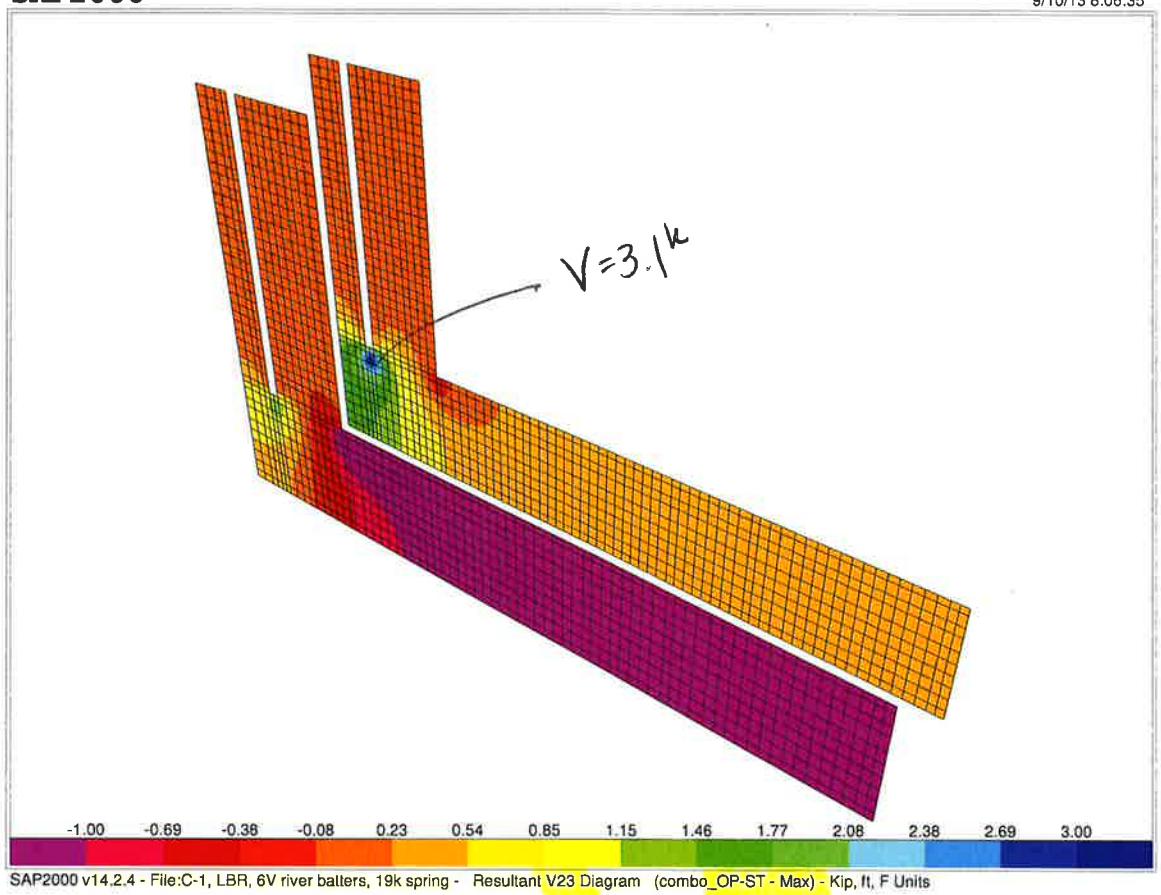
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:02:40



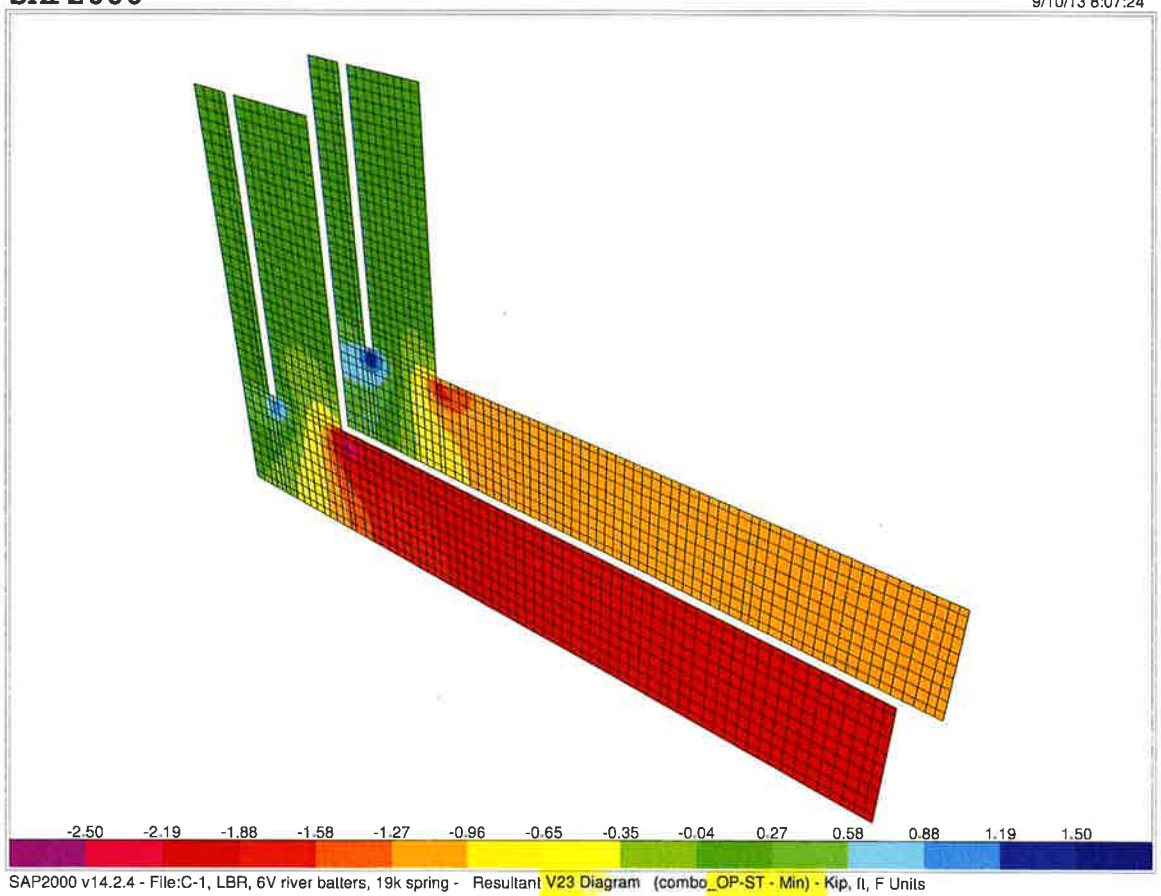
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:06:35



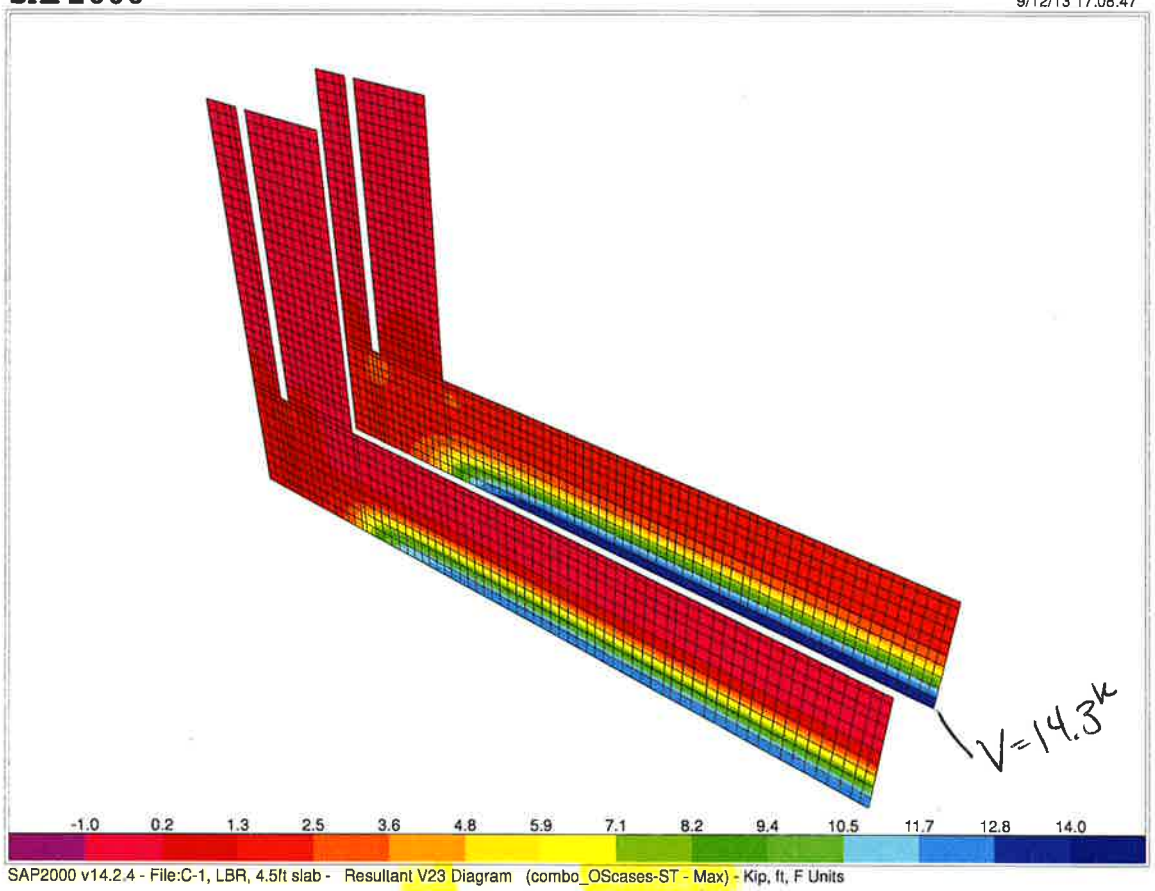
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:07:24



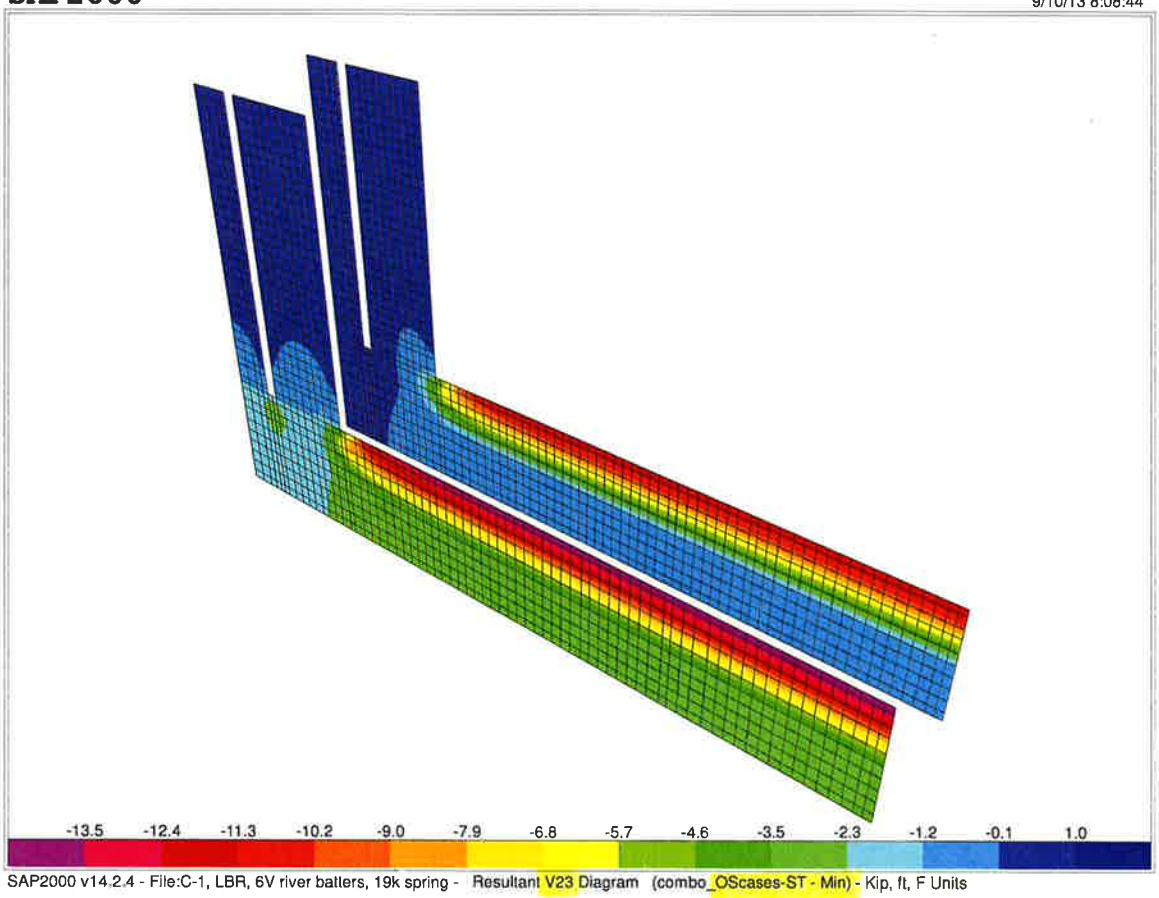
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/12/13 17:08:47



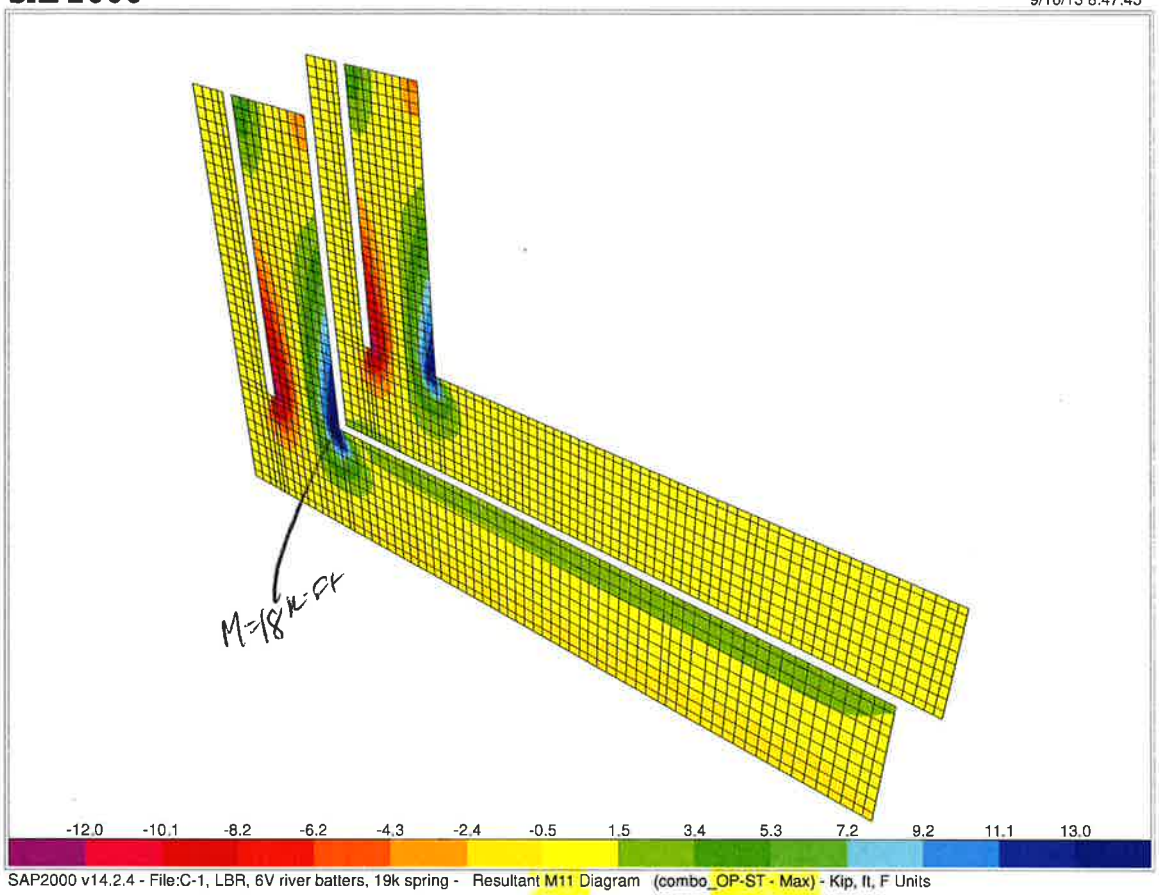
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:08:44



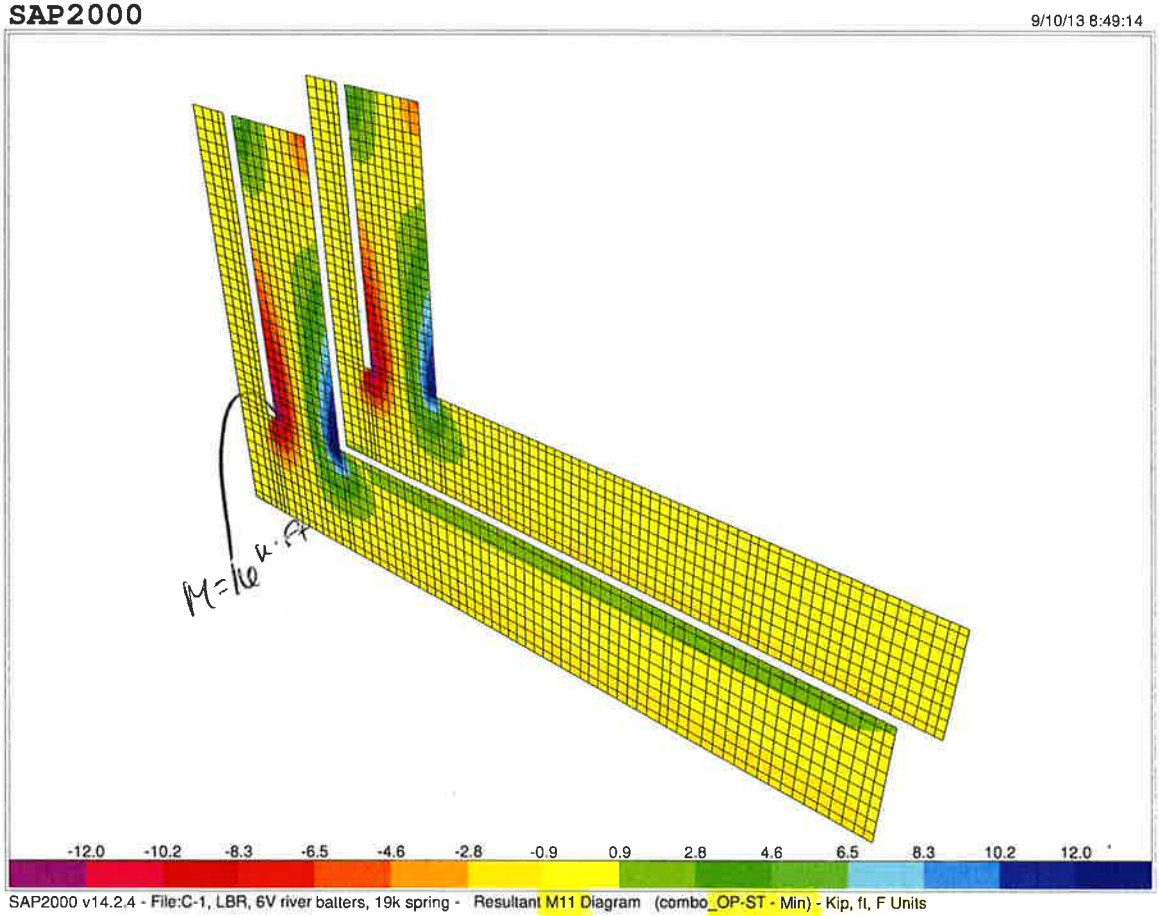
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:47:45



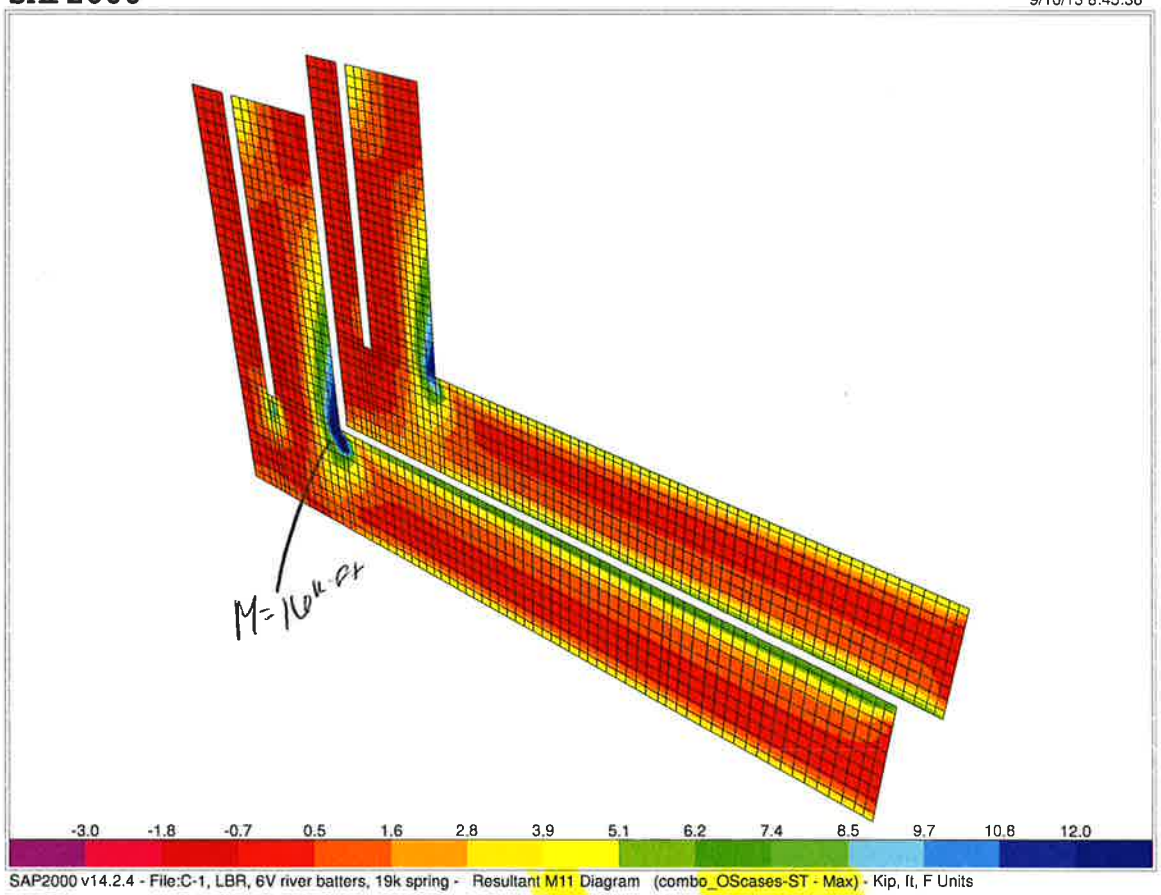
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:49:14



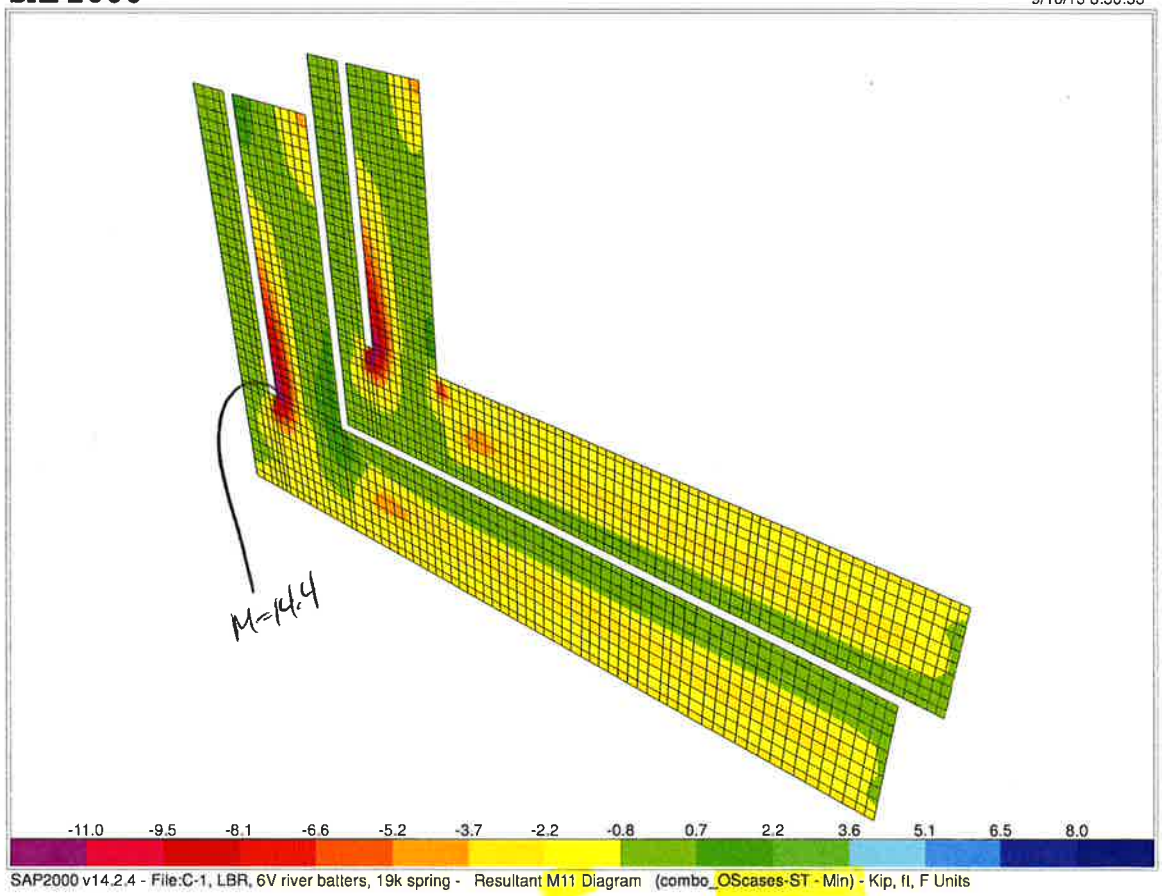
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:45:36



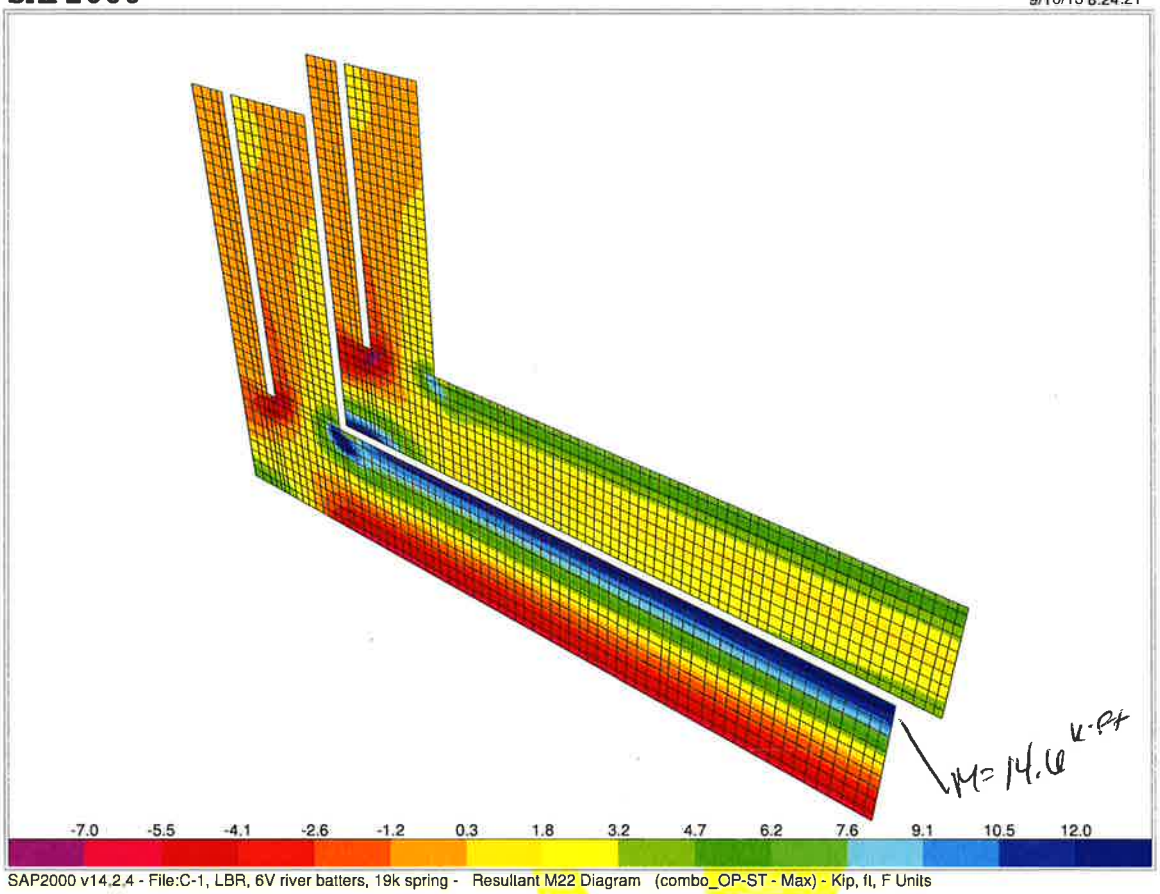
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:50:33



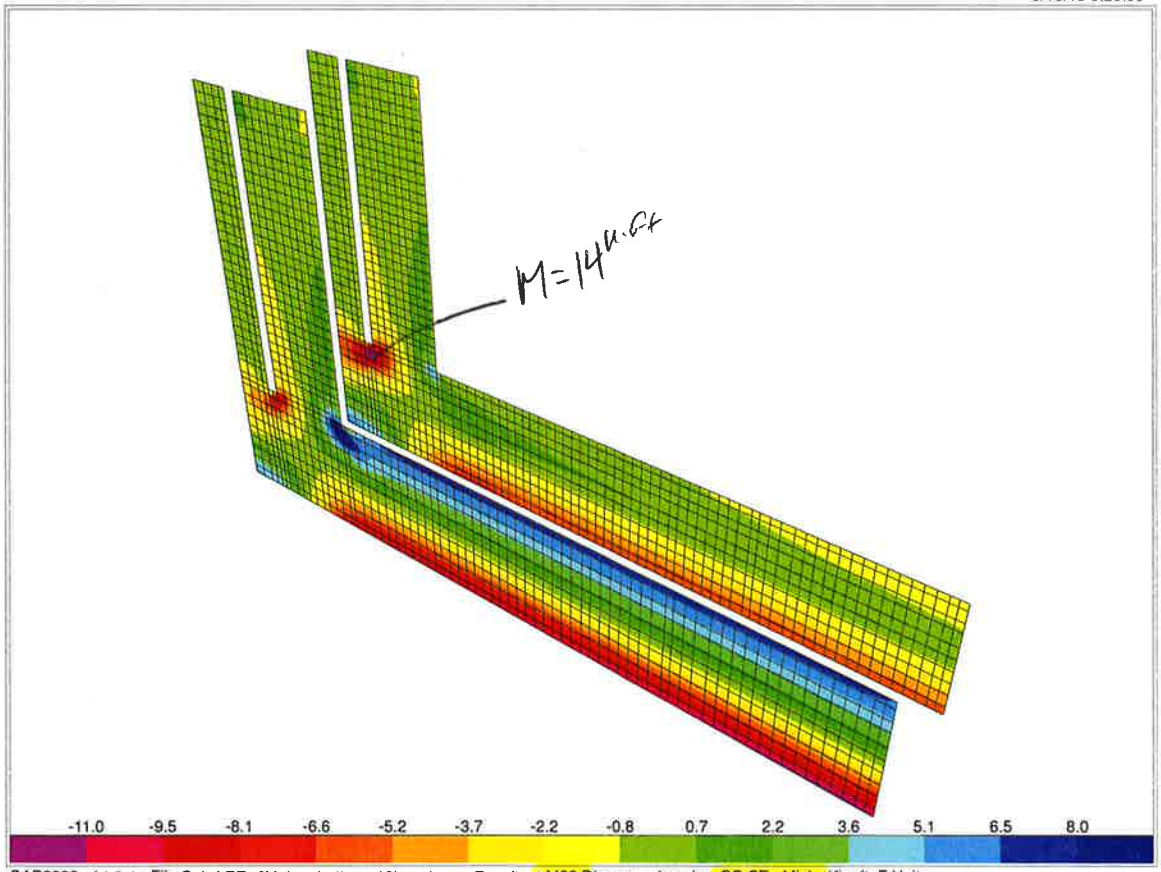
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:24:21



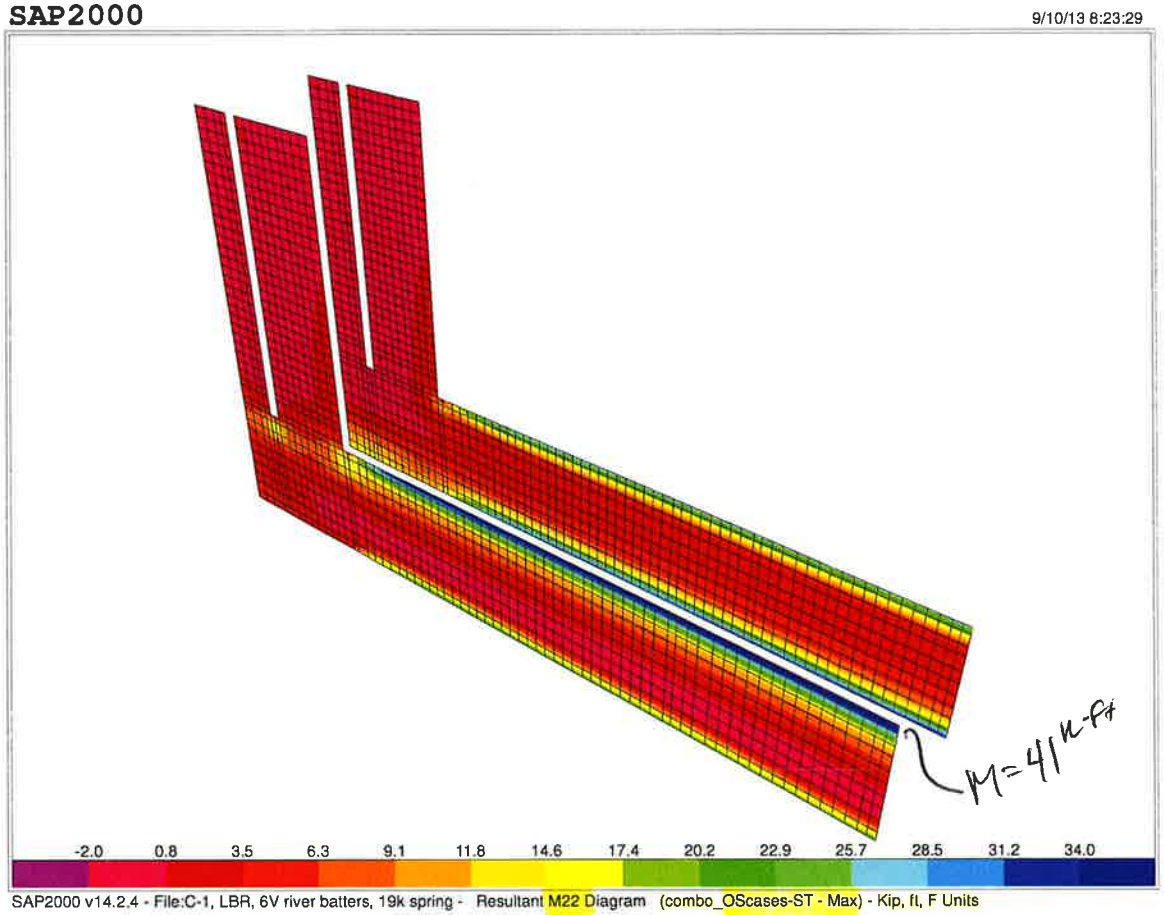
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:26:33



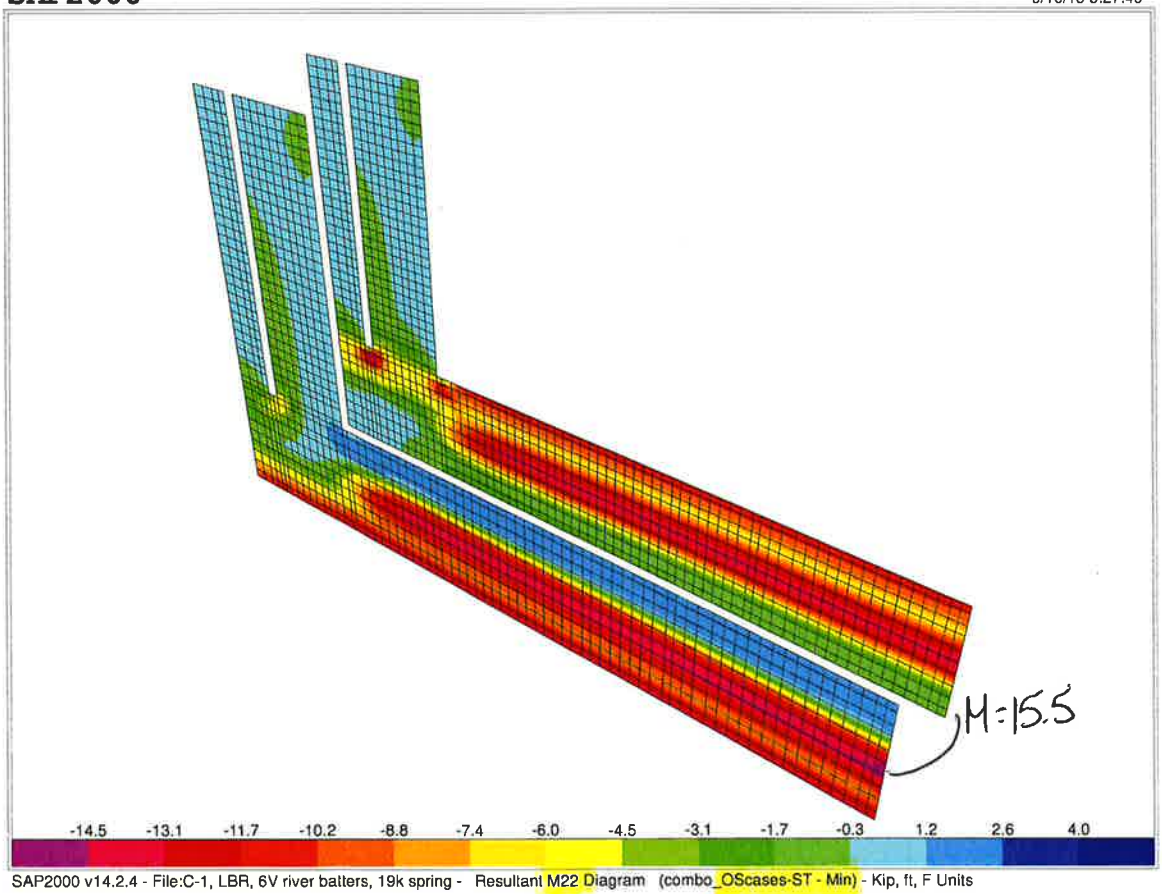
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 8:23:29



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 8:27:49



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

PART 7

Exterior Culvert Wall Design

*** Exterior Culvert Walls, Bottom Portion:**

Load Combo	Max. Shear * (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	25.9	29.5	28.8	114.6	50.5	137.4
combo_OScases	22.4	24.5	24.8	100.5	42.0	126.1

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs & intersecting walls.

Max. Shear = 29.5 kip
Max. Moment, Primary = 50.5 kip-ft (+M22 controls interior vertical reinforcement)
Min. Moment, Primary = 137.4 kip-ft (-M22 controls exterior vertical reinforcement)
Max. Moment, Secondary = 28.8 kip-ft (+M11 controls interior horiz. reinforcement)
Min. Moment, Secondary = 114.6 kip-ft (-M11 controls exterior horiz. reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'c) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Ext. Wall Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 29.5kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Vertical Exterior Face:

* Will try **#8 @ 6"** to start: As, #8 @ 6" = 1.58 in^2

a = A_s * f_y / (0.85 * f'c * b) = 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

ϕMn = 0.9 * 1.58in² * 60ksi * (28.365in - 2.324in / 2)
= 2321 kip-in/ft
= 193.42 kip-ft/ft

ϕMn = 193.4kip-ft > Mu = 137.4kip-ft → Use #8 @ 6"

Vertical Interior Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

$\phi Mn =$ 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)
= 1185.3 kip-in/ft
= 98.77 kip-ft/ft

* 50.5 x 1.33 = 67.3 k·ft

ϕMn = 98.8kip-ft > Mu = 50.5kip-ft → Use #8 @ 12"

* FLEXURAL MIN NEGLECTED W/ ACI 318 10.5.3 ϕMn > Mu x 1.33

Horizontal Exterior Face:

* Will try **#8 @ 6"** to start: As, #8 @ 6" = 1.58 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

$\phi Mn =$ 0.9 * 1.58in^2 * 60ksi * (28.365in - 2.324in / 2)
= 2321 kip-in/ft
= 193.42 kip-ft/ft

ϕMn = 193.4kip-ft > Mu = 114.6kip-ft → Use #8 @ 6"

Horizontal Interior Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

$\phi Mn =$ 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)
= 1185.3 kip-in/ft
= 98.77 kip-ft/ft

* 28.8 x 1.33 = 38.4 k·ft

ϕMn = 98.8kip-ft > Mu = 28.8kip-ft → Use #8 @ 12"

*** Exterior Culvert Walls, Top Portion:**

Load Combo	Max. Shear * (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	24.6	10.8	22.2	88.1	7.7	19.0
combo_OScases	21.5	8.8	20.1	78.5	3.2	16.9

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs & intersecting walls.

Max. Shear = 24.6 kip
Max. Moment, Primary = 7.7 kip-ft (+M22 controls interior vertical reinforcement)
Min. Moment, Primary = 19.0 kip-ft (-M22 controls exterior vertical reinforcement)
Max. Moment, Secondary = 22.2 kip-ft (+M11 controls interior horiz. reinforcement)
Min. Moment, Secondary = 88.1 kip-ft (-M11 controls exterior horiz. reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.109 in^2 — EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.076 in^2 — ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.135 in^2 — ACI 318-02, 10.5, flexural member min.

Ext. Wall Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity $(\phi V_c) = \phi * 2 * \sqrt{f'_c} * b * d$

$= 0.85 * 2 * \sqrt{4000} * 12in * 28.365in$

$= 36{,}597$ lb

ϕVc = 36.6kip > Vu = 24.6kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Vertical Both Faces: * $M_{max, vertical}$ = 19.0 k-ft

* Will try #7 @ 12" to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

* 19×1.33 = 25.3 k·ft

FOR EASE OF CONSTRUCTION w/ BOTTOM PART OF WALL, USE #8@12' ALTHOUGH ONLY #7s NEEDED

ϕMn = 75.4kip-ft > Mu = 19kip-ft → Use #7 @ 12"

Horizontal Exterior Face:

* Will try #9 @ 12" to start: As, #9 @ 12" = 1.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

ϕMn = 0.9 * 1in² * 60ksi * (28.365in - 1.471in / 2)

= 1492 kip-in/ft

= 124.33 kip-ft/ft

* 88.1×1.33 = 117.5 k·ft

ϕMn = 124.3kip-ft > Mu = 88.1kip-ft → Use #9 @ 12"

Horizontal Interior Face:

* Will try #7 @ 12" to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)

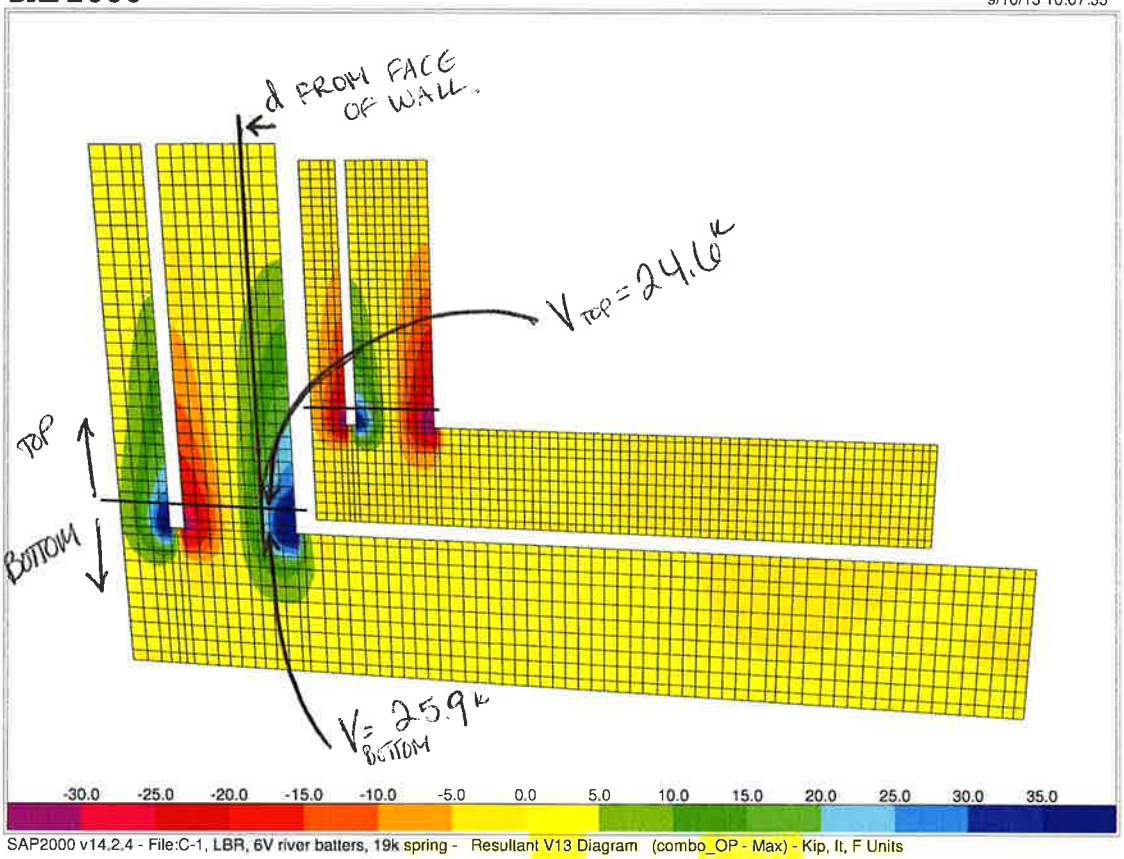
= 904.73 kip-in/ft

= 75.39 kip-ft/ft

* 22.2×1.33 = 29.6 k·ft

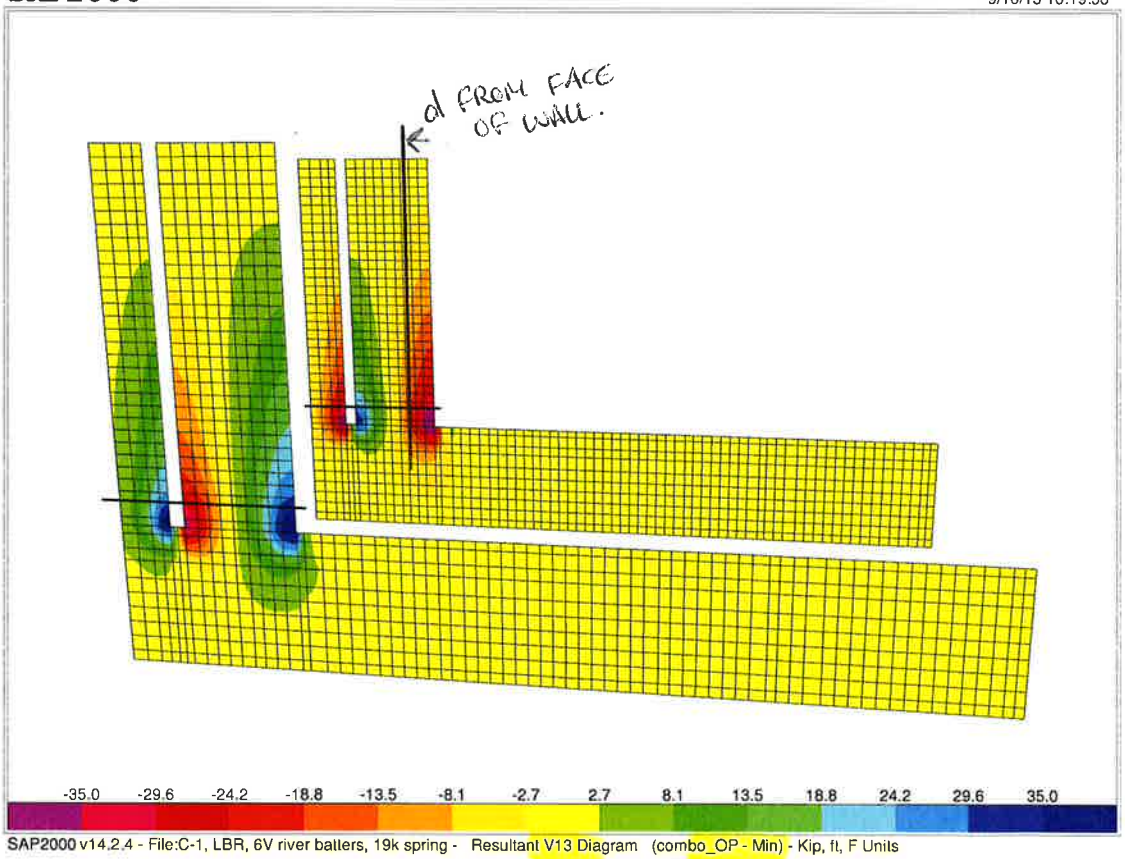
ϕMn = 75.4kip-ft > Mu = 22.2kip-ft → Use #7 @ 12"

SAP2000 9/10/13 10:07:35



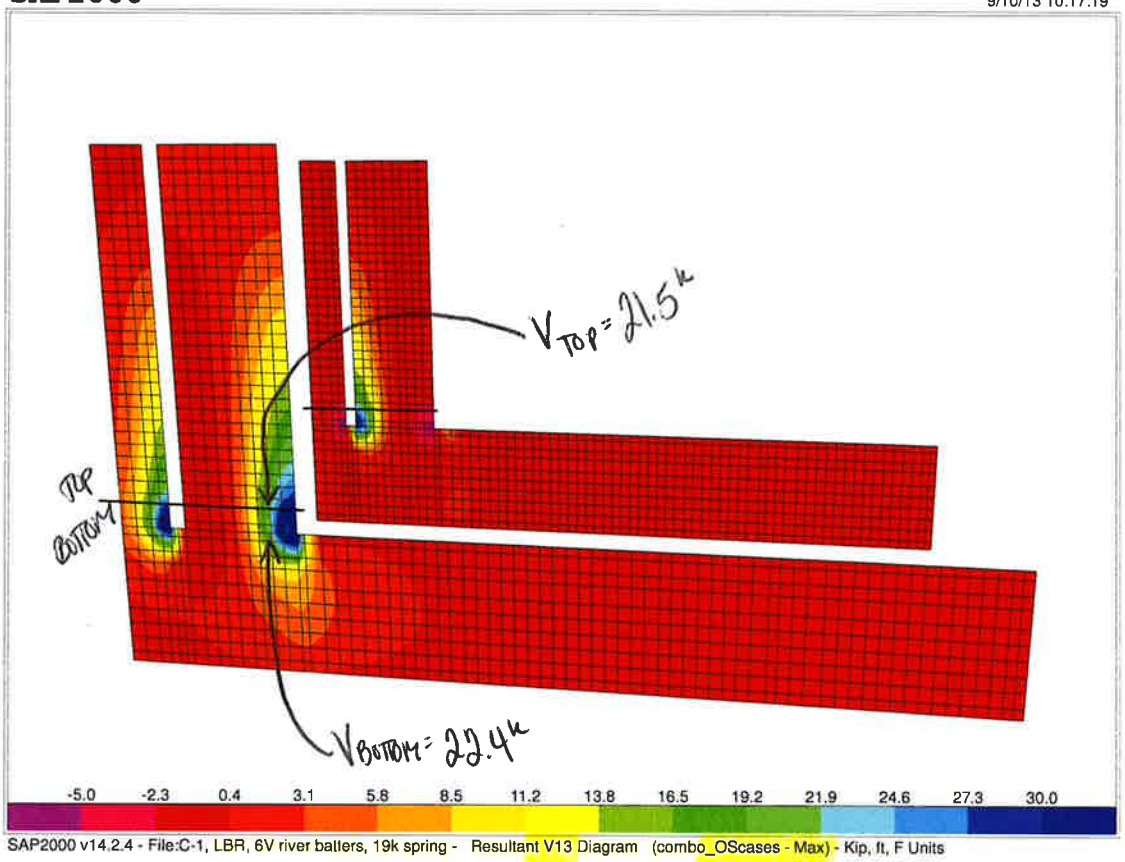
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:19:38



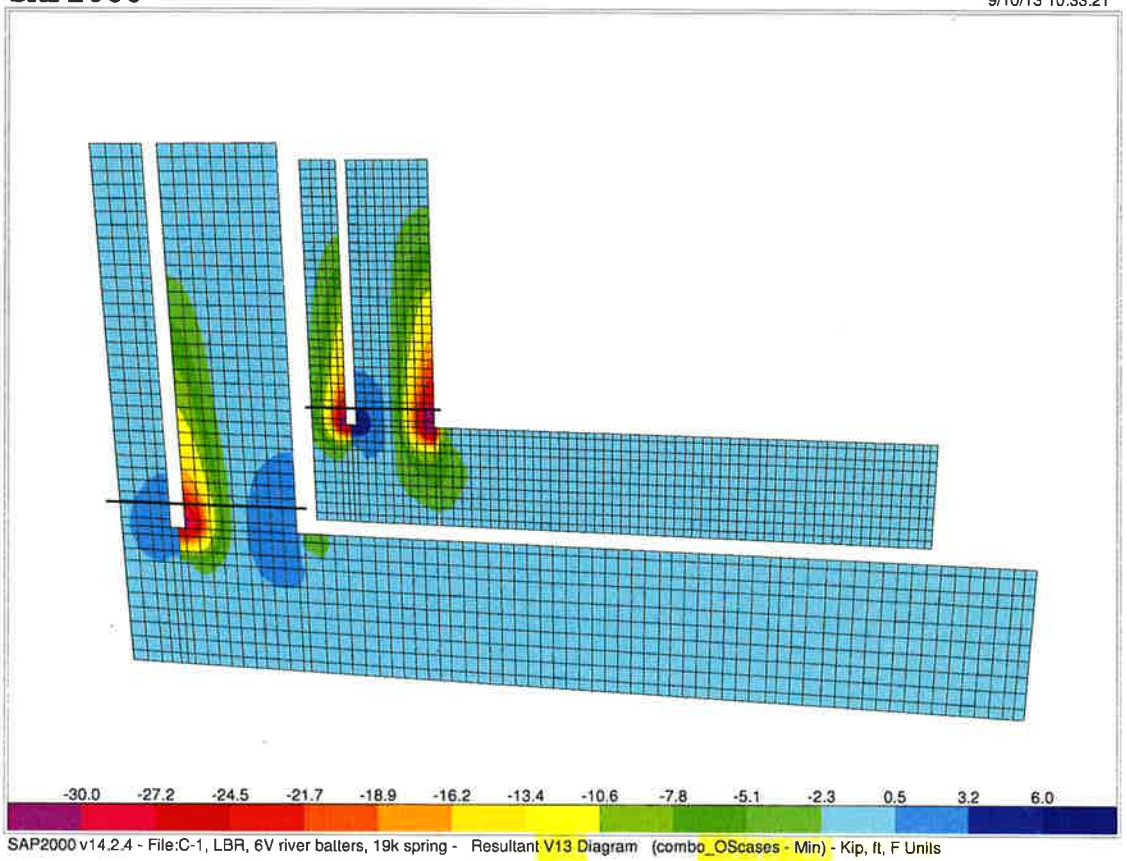
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 10:17:19



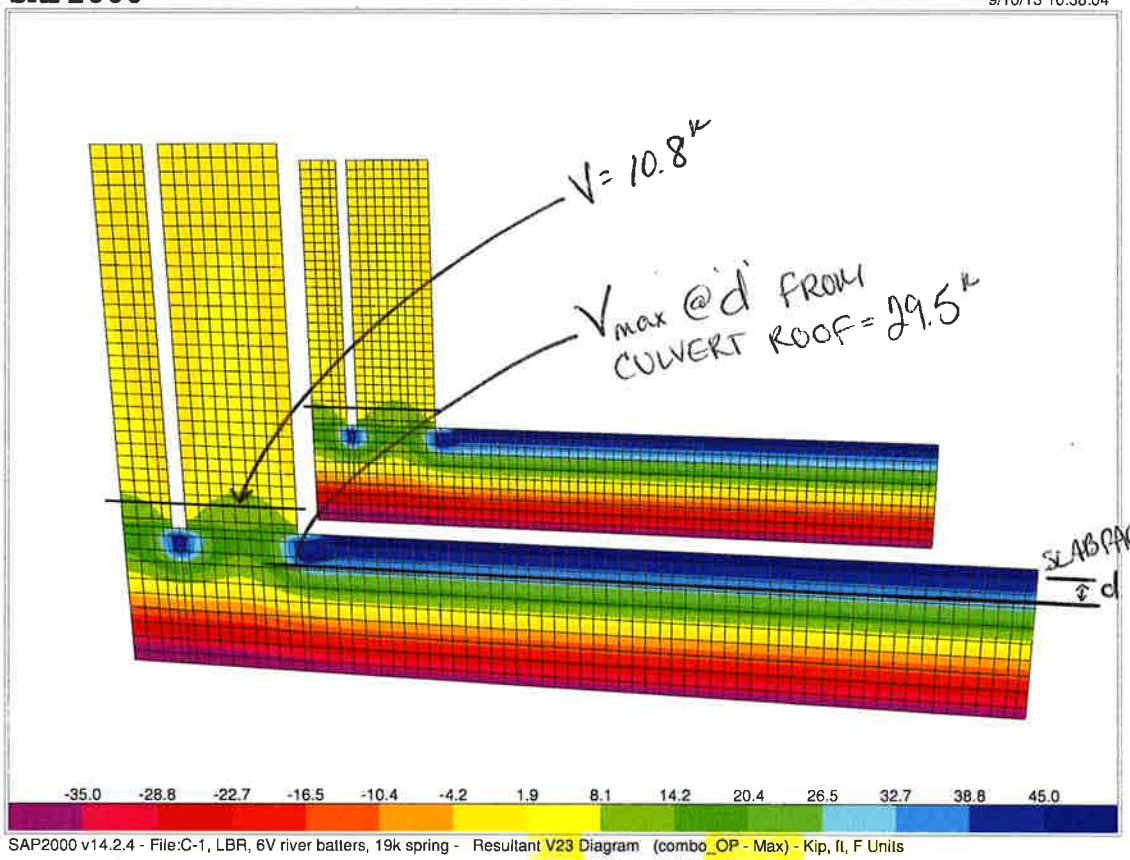
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:33:21



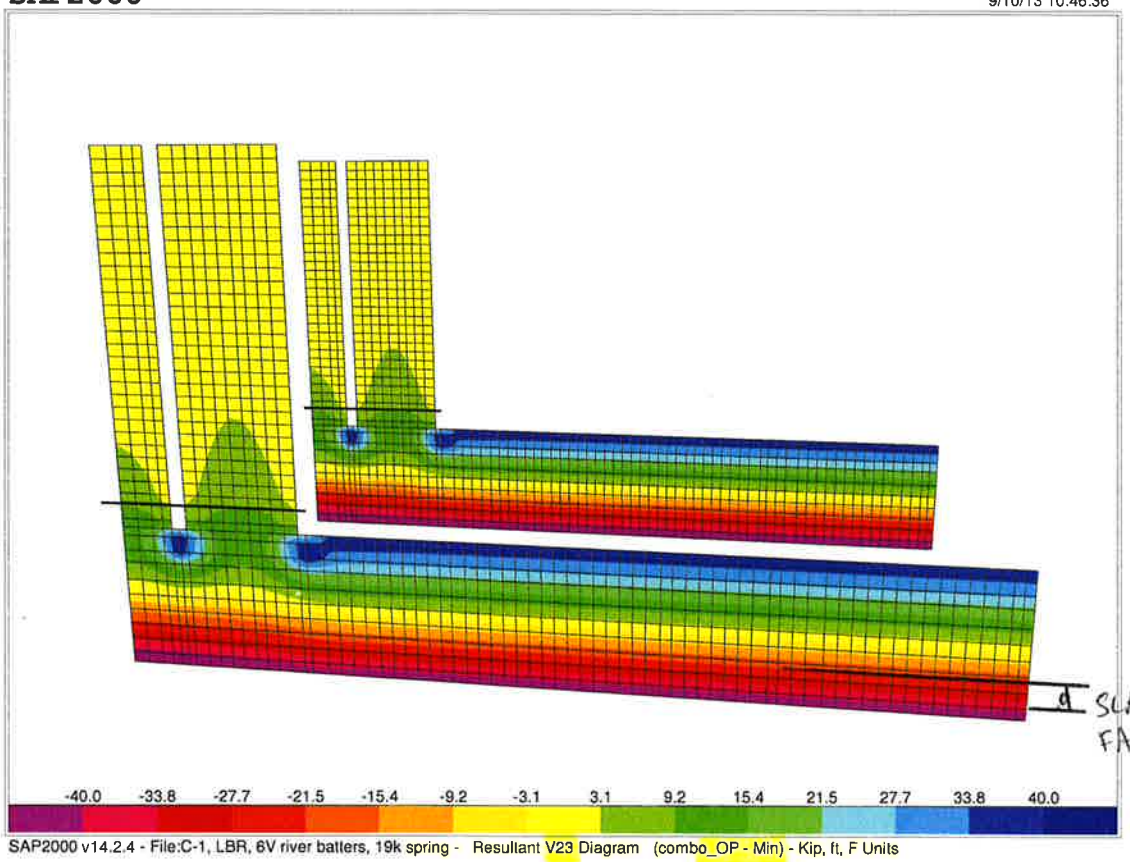
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/10/13 10:38:04



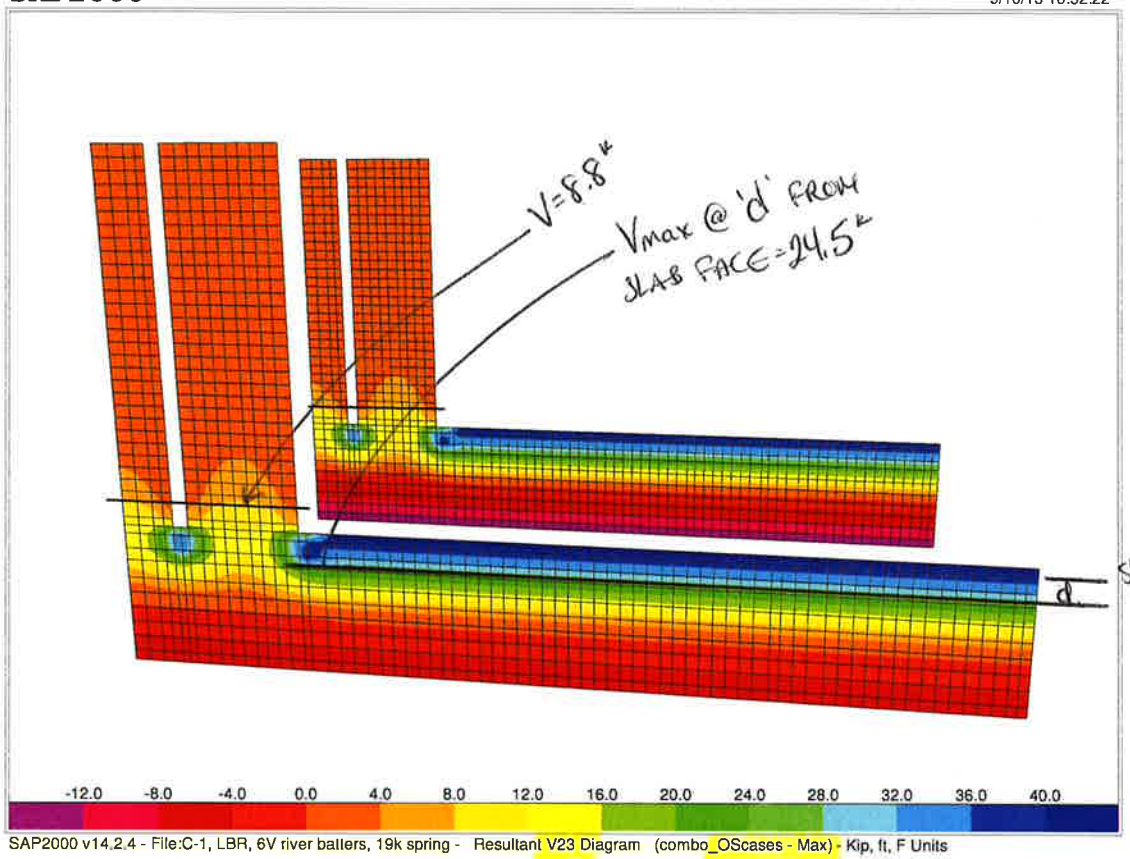
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:46:36



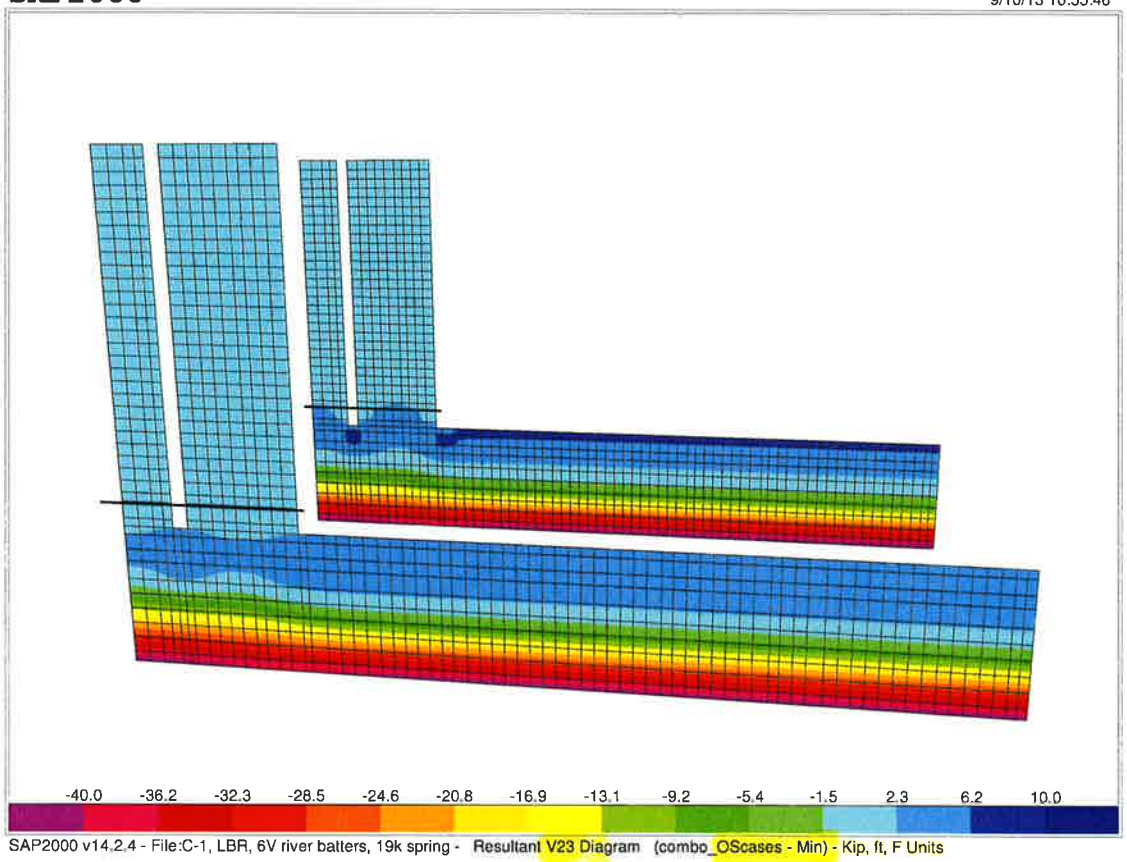
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 10:52:22



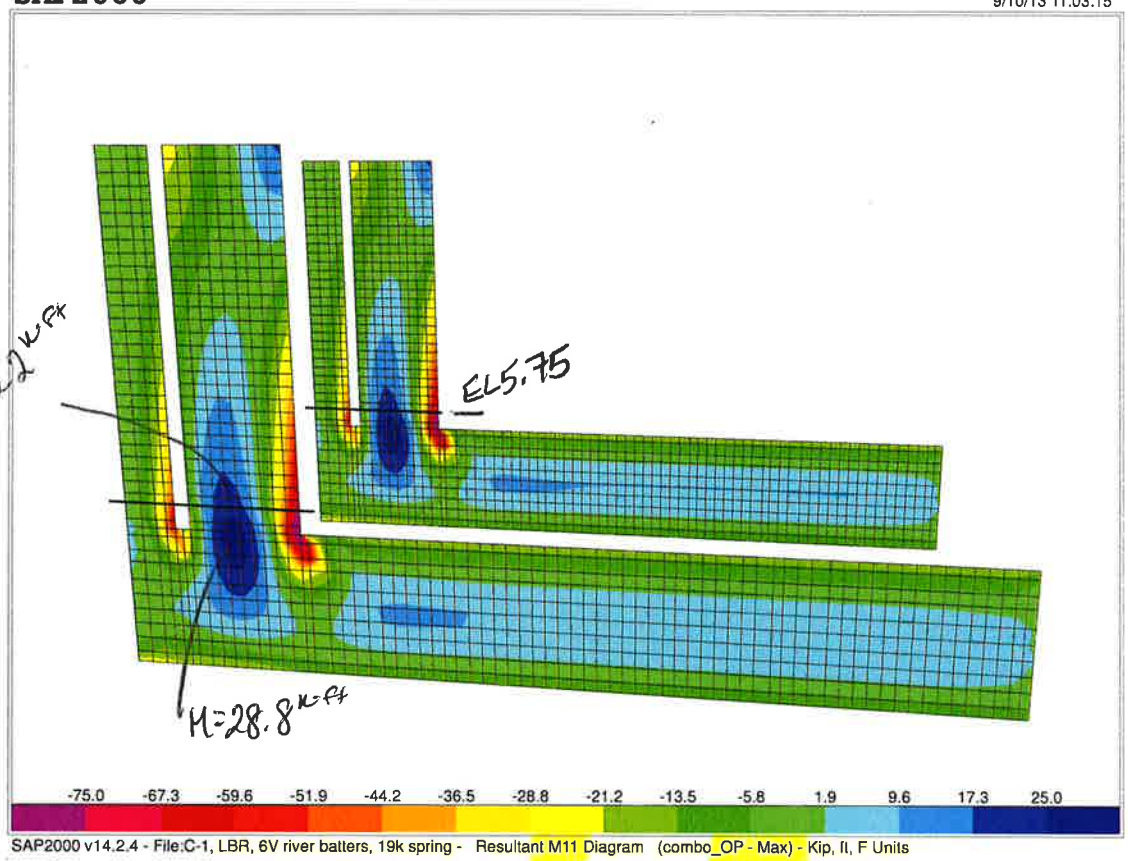
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:55:46



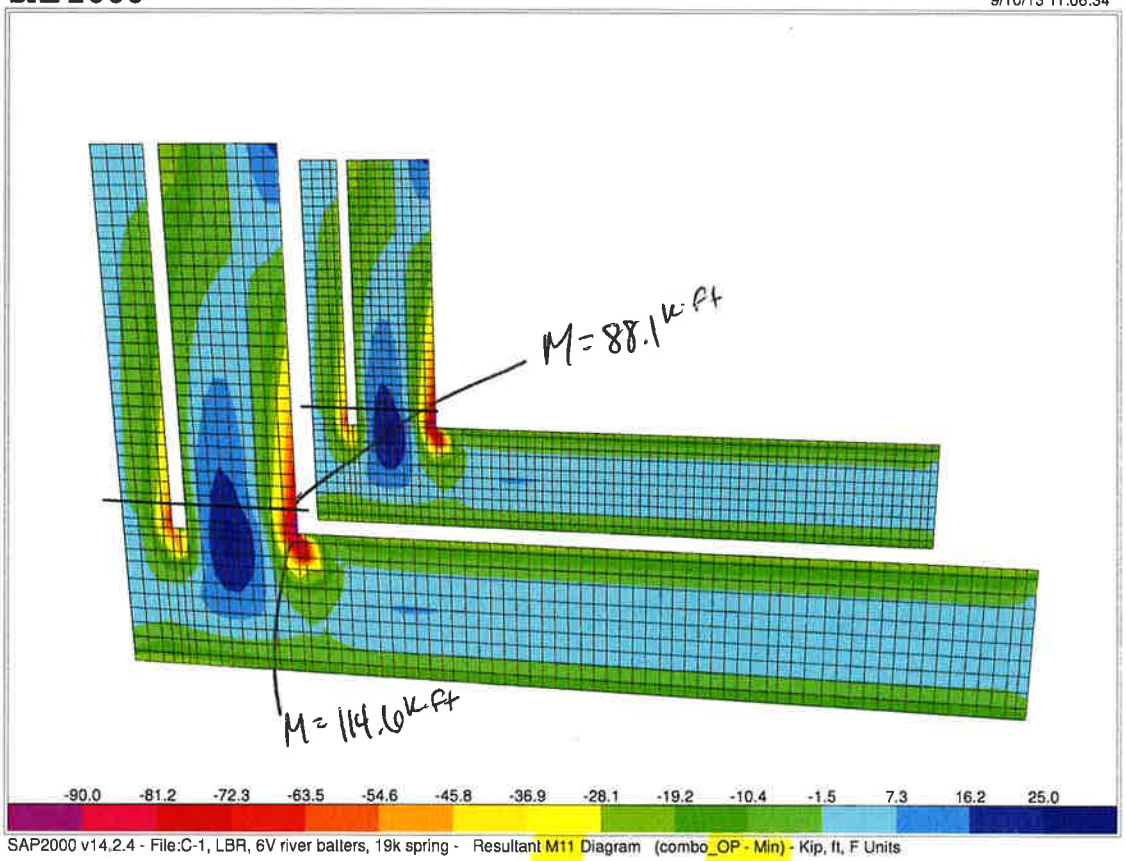
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/10/13 11:03:15



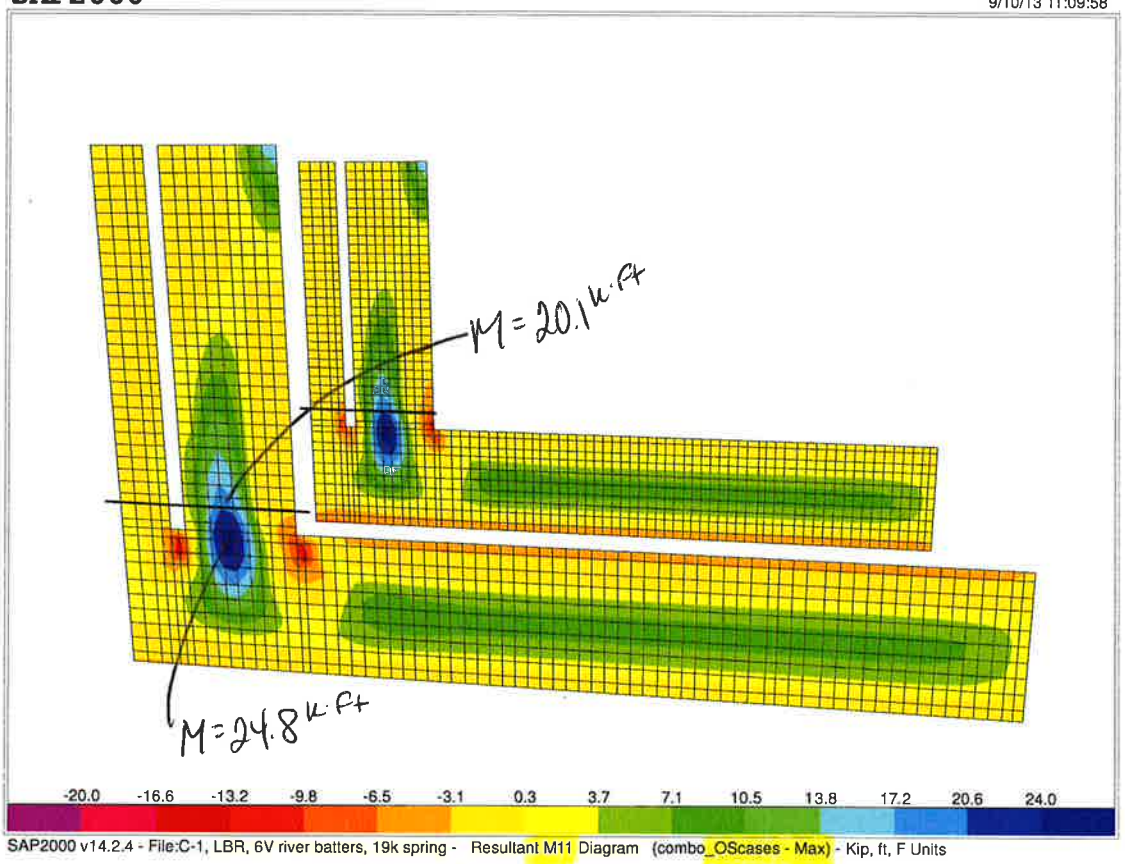
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 11:06:34



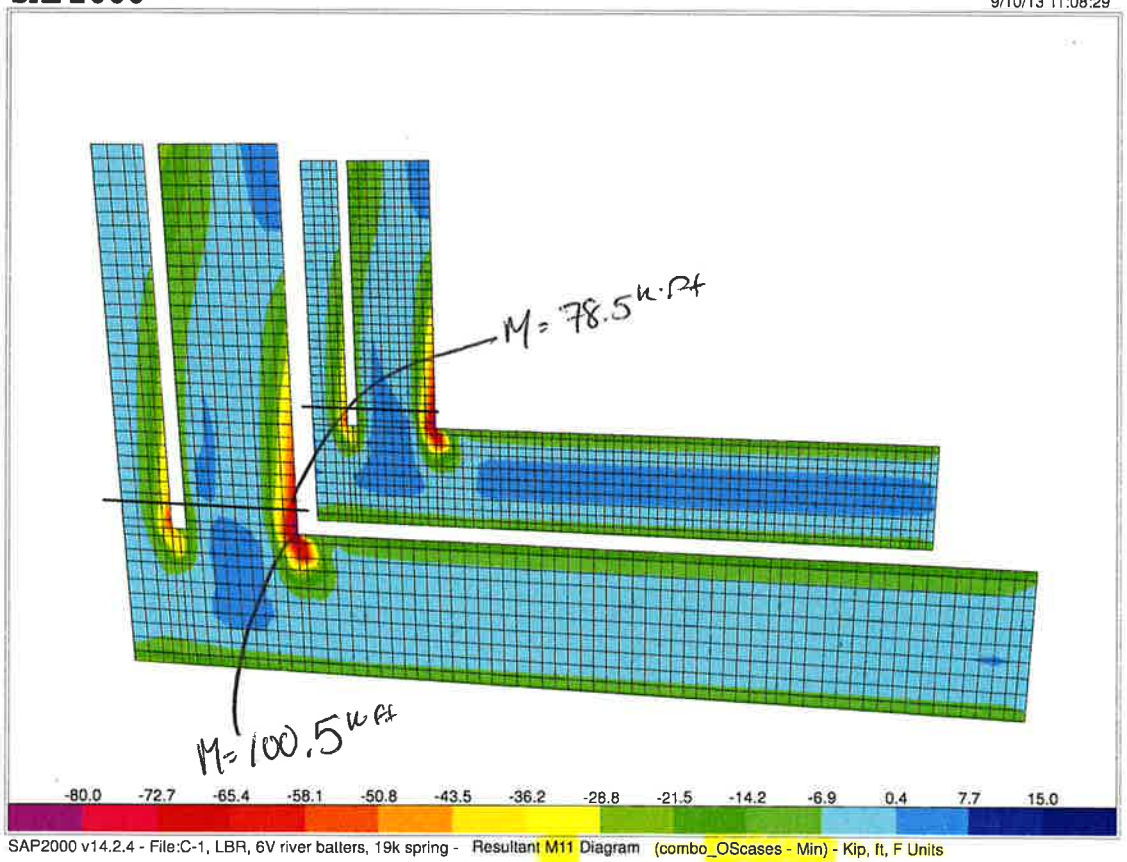
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 11:09:58



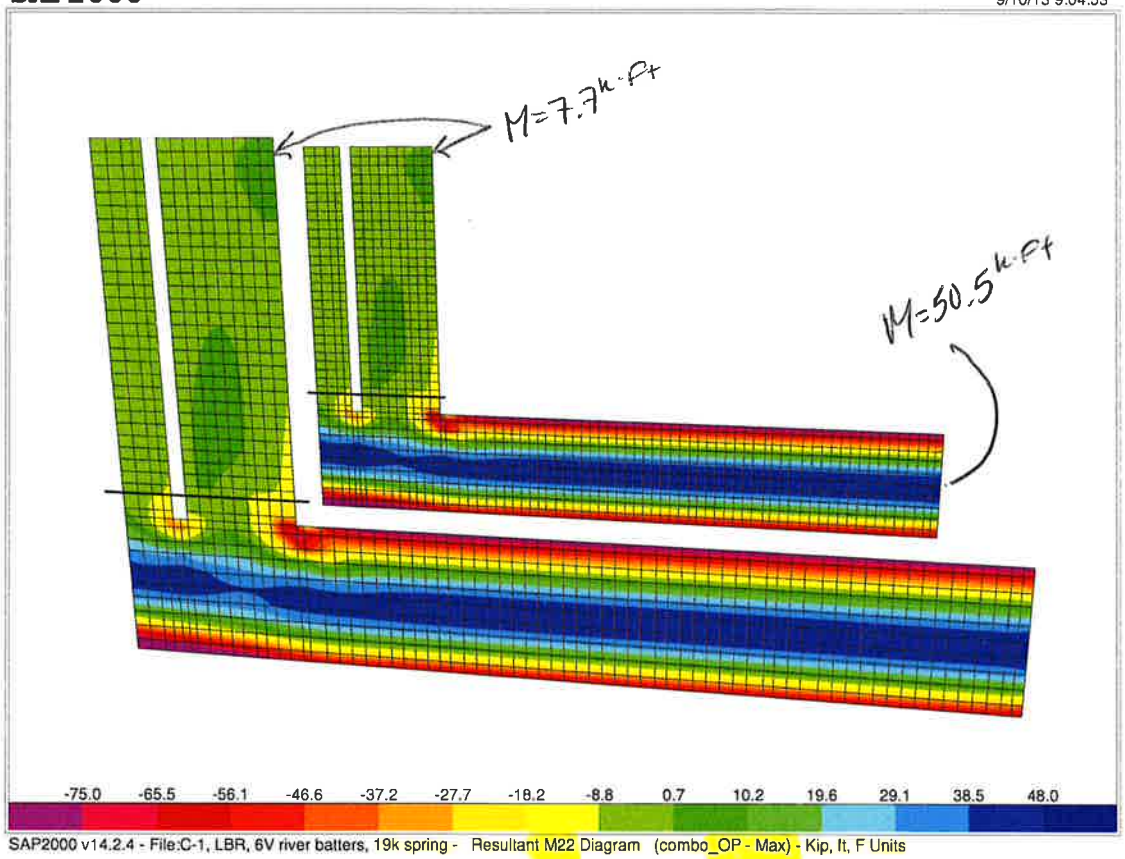
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 11:08:29



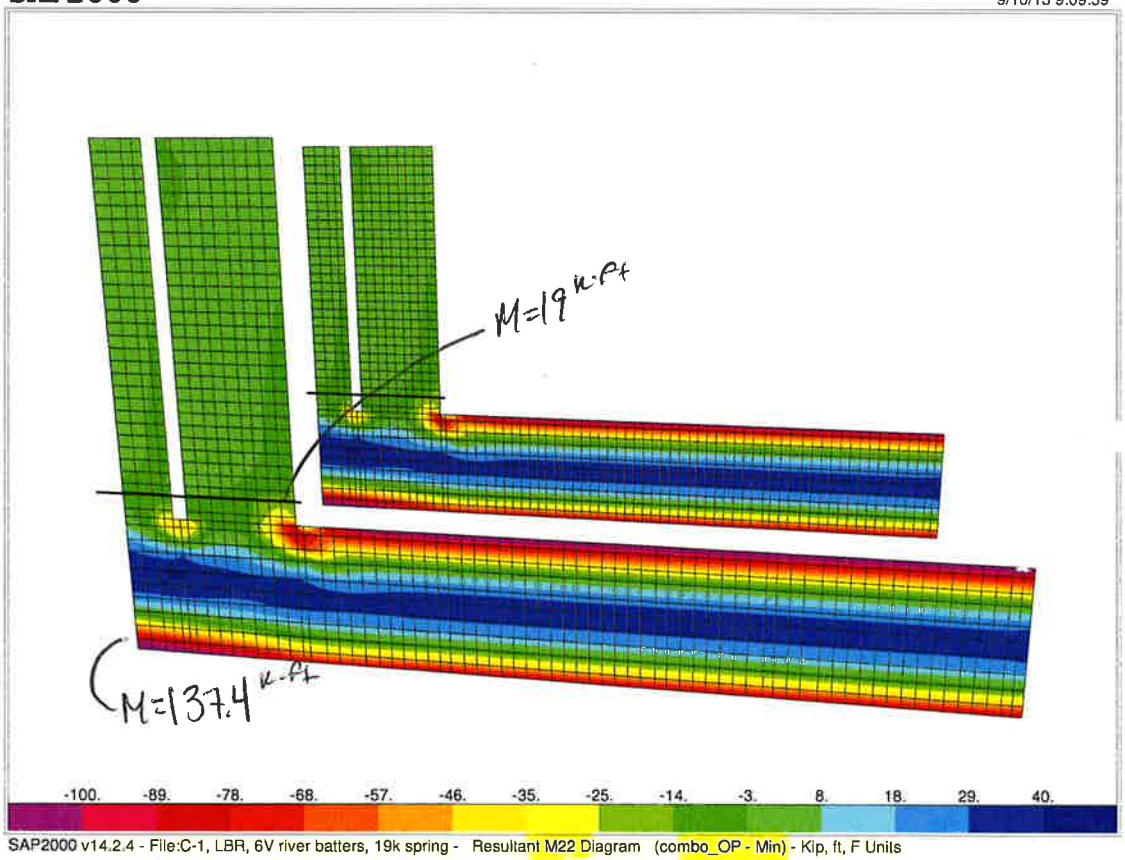
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/10/13 9:04:53



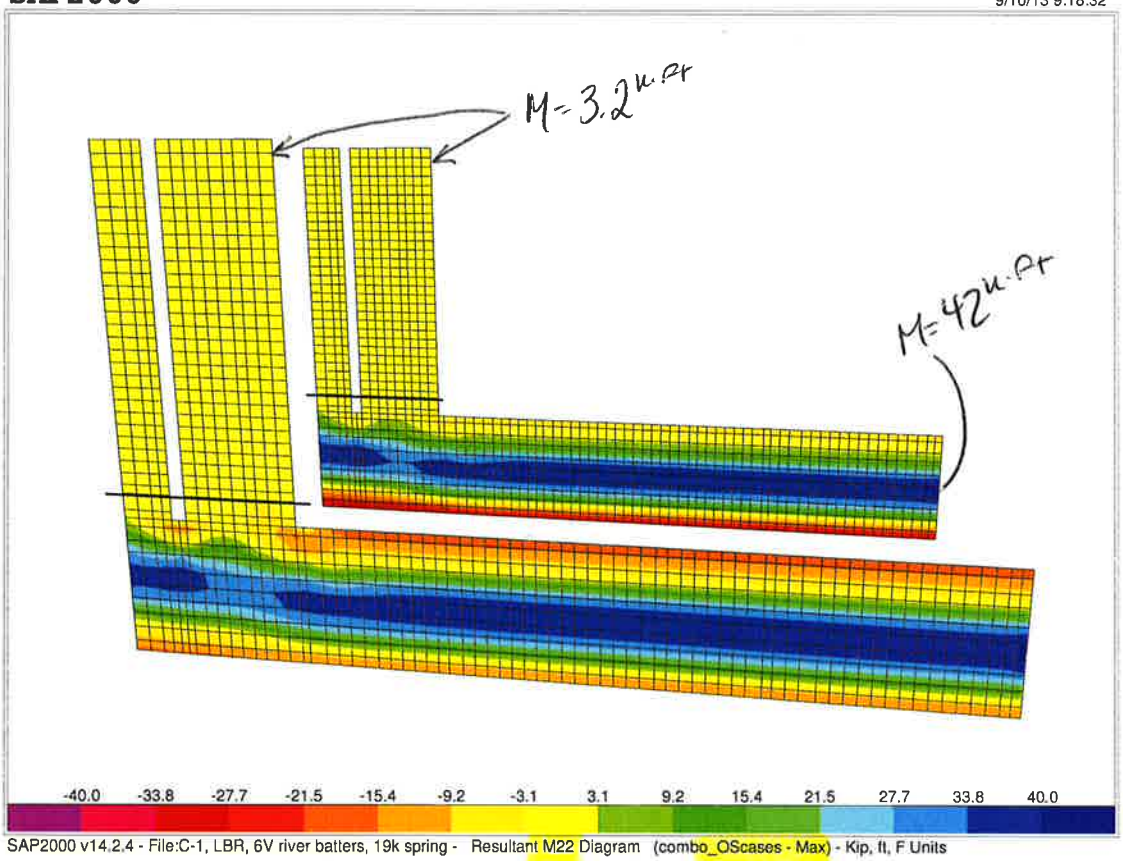
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/10/13 9:09:39



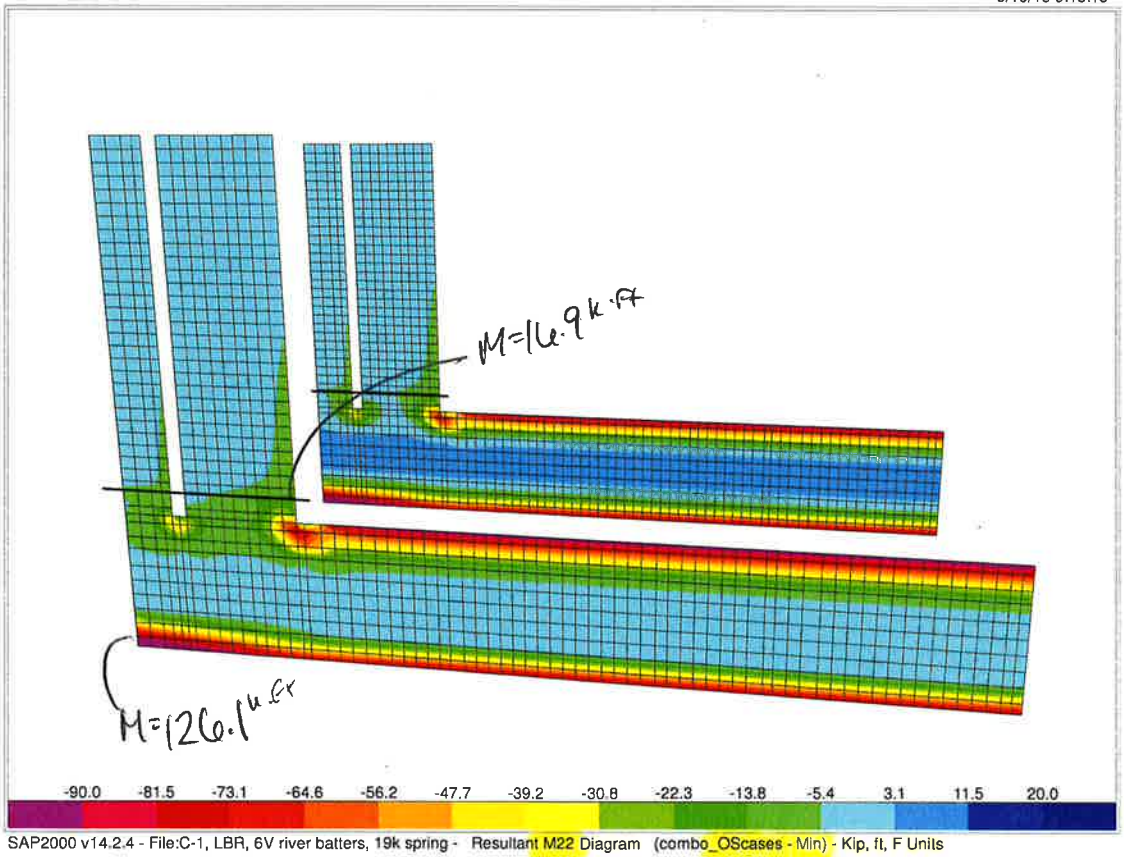
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/10/13 9:18:32



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/10/13 9:15:15



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

*** Exterior Culvert Walls, Bottom Portion:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP-ST	24.7	29.3	27.7	112.2	43.3	168.3
combo_OScases-ST	21.4	27.4	24.3	98.5	36.4	152.1

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 29.3 kip
Max. Moment, Primary = 43.3 kip-ft (+M22 controls interior vertical reinforcement)
Min. Moment, Primary = 168.3 kip-ft (-M22 controls exterior vertical reinforcement)
Max. Moment, Secondary = 27.7 kip-ft (+M11 controls interior horiz. reinforcement)
Min. Moment, Secondary = 112.2 kip-ft (-M11 controls exterior horiz. reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'c) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Ext. Wall Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 29.3kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Vertical Exterior Face:

* Will try **#8 @ 6"** to start: As, #8 @ 6" = 1.58 in^2

a = A_s * f_y / (0.85 * f'c * b) = 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

ϕMn = 0.9 * 1.58in^2 * 60ksi * (28.365in - 2.324in / 2)
= 2321 kip-in/ft
= 193.42 kip-ft/ft

ϕMn = 193.4kip-ft > Mu = 168.3kip-ft → Use #8 @ 6"

Vertical Interior Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

$\phi Mn =$ 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)
= 1185.3 kip-in/ft
= 98.77 kip-ft/ft *43.3×1.33=57.7 k·ft

ϕMn = 98.8kip-ft > Mu = 43.3kip-ft → Use #8 @ 12"

*FLEX. MIN. REBAR NEGLECTED B/C OF ACI 318 10.5.3 ALLOWANCE. ϕMn > 1.33Mu

Horizontal Exterior Face:

* Will try **#8 @ 6"** to start: As, #8 @ 6" = 1.58 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

$\phi Mn =$ 0.9 * 1.58in^2 * 60ksi * (28.365in - 2.324in / 2)
= 2321 kip-in/ft
= 193.42 kip-ft/ft

ϕMn = 193.4kip-ft > Mu = 112.2kip-ft → Use #8 @ 6"

Horizontal Interior Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

$\phi Mn =$ 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)
= 1185.3 kip-in/ft
= 98.77 kip-ft/ft *27.7×1.33=36.9 k·ft

ϕMn = 98.8kip-ft > Mu = 27.7kip-ft → Use #8 @ 12"

*** Exterior Culvert Walls, Top Portion:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP-ST	23.6	9.5	23.1	88.3	4.0	18.9
combo_OScases-ST	20.6	7.9	20.8	78.6	3.6	16.7

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear =	**23.6 kip**	
Max. Moment, Primary =	**4.0 kip-ft**	(+M22 controls interior vertical reinforcement)
Min. Moment, Primary =	**18.9 kip-ft**	(-M22 controls exterior vertical reinforcement)
Max. Moment, Secondary =	**23.1 kip-ft**	(+M11 controls interior horiz. reinforcement)
Min. Moment, Secondary =	**88.3 kip-ft**	(-M11 controls exterior horiz. reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement:	$0.0028 \times A_{gross}$ =	1.109 in^2	EM 1110-2-2104, 2-8a, temp. & shrinkage
	$(3 * \sqrt{f'_c} * b * d) / f_y$ =	1.076 in^2	ACI 318-02, 10.5, flexural member min.
	$(200 * b * d) / f_y$ =	1.135 in^2	ACI 318-02, 10.5, flexural member min.

Ext. Wall Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**0.554 in^2**	- per face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 23.6kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

Vertical Both Faces: * $M_{max, vertical}$ = 18.9 k-ft

* Will try #7 @ 12" to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

FOR EASE OF CONSTRUCTION w/ BOTTOM PART OF WALL, USE #8 @12" ALTHOUGH ONLY #7s NEEDED.

ϕMn = 75.4kip-ft > Mu = 18.9kip-ft → Use #7 @ 12"

Horizontal Exterior Face:

* Will try #9 @ 12" to start: As, #9 @ 12" = 1.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

ϕMn = 0.9 * 1in² * 60ksi * (28.365in - 1.471in / 2)

= 1492 kip-in/ft

= 124.33 kip-ft/ft

* 88.3 × 1.33 = 117.7 k·ft

ϕMn = 124.3kip-ft > Mu = 88.3kip-ft → Use #9 @ 12"

Horizontal Interior Face:

* Will try #7 @ 12" to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)

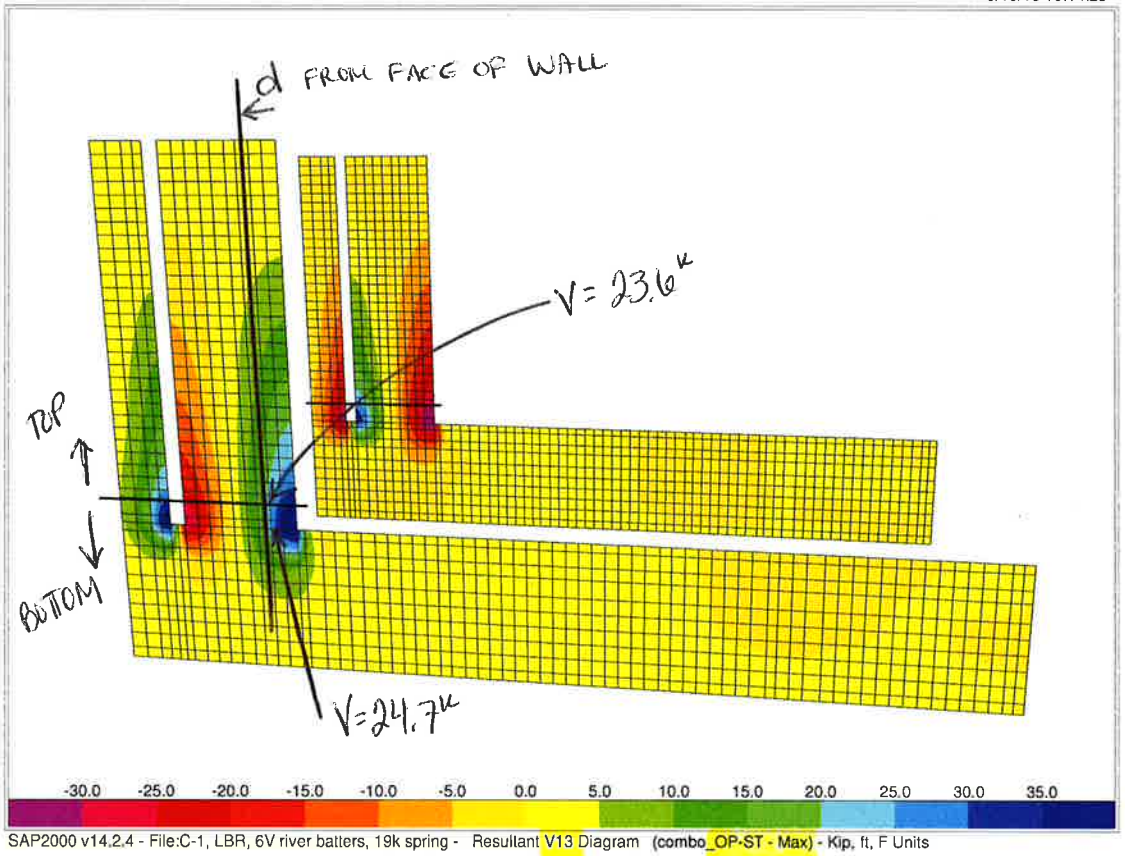
= 904.73 kip-in/ft

= 75.39 kip-ft/ft

* 23.1 × 1.33 = 30.8 k·ft

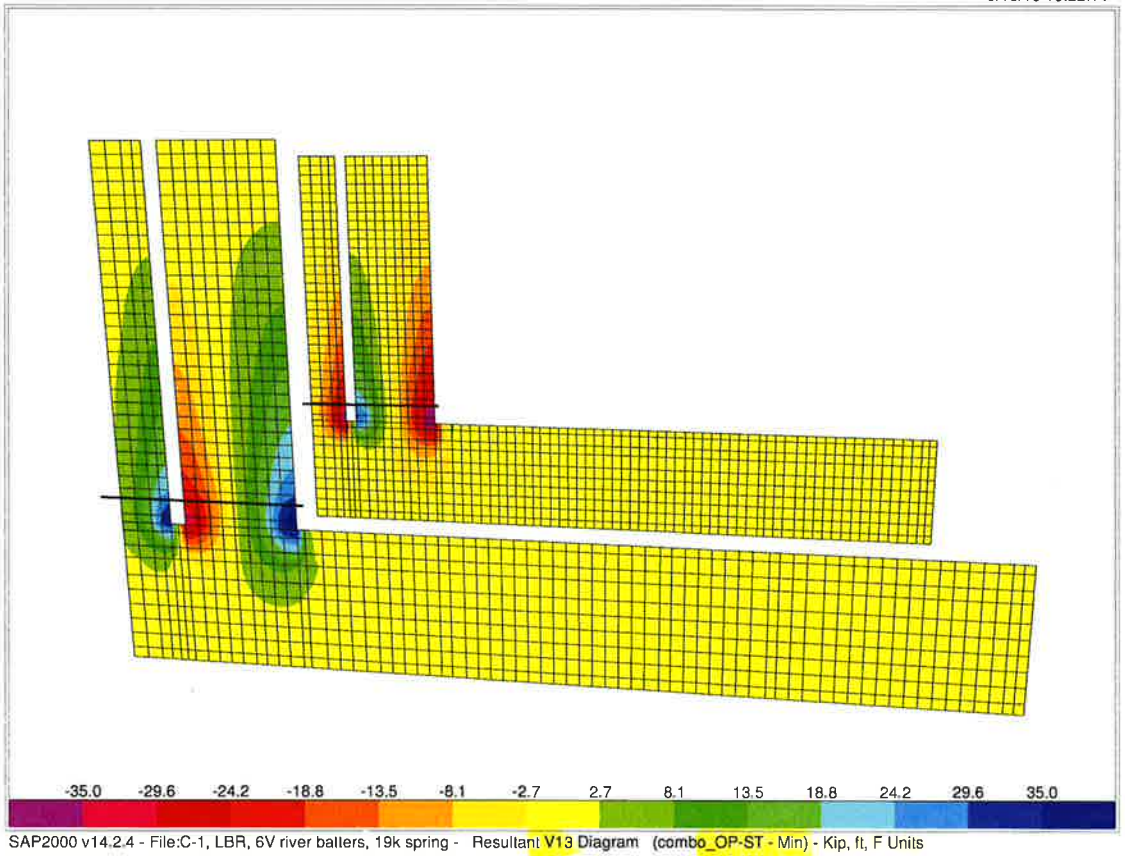
ϕMn = 75.4kip-ft > Mu = 23.1kip-ft → Use #7 @ 12"

SAP2000 9/10/13 10:14:26



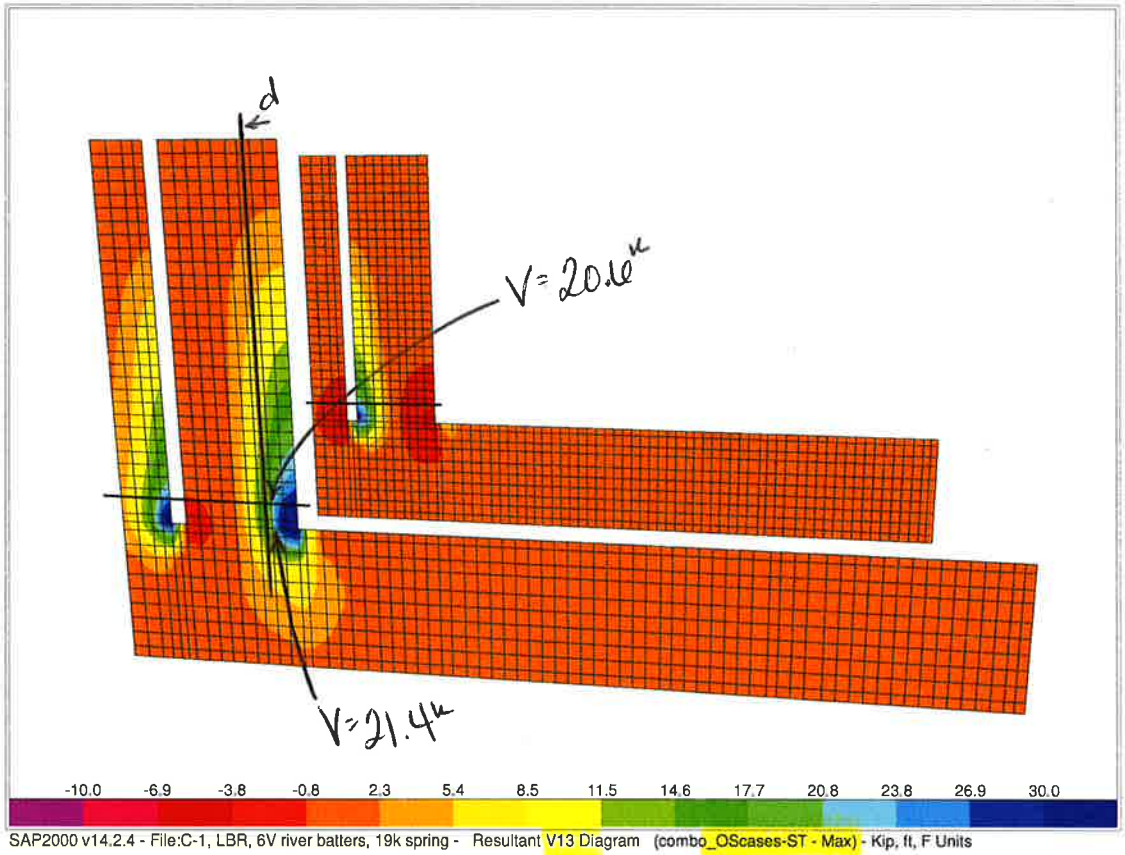
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:22:14



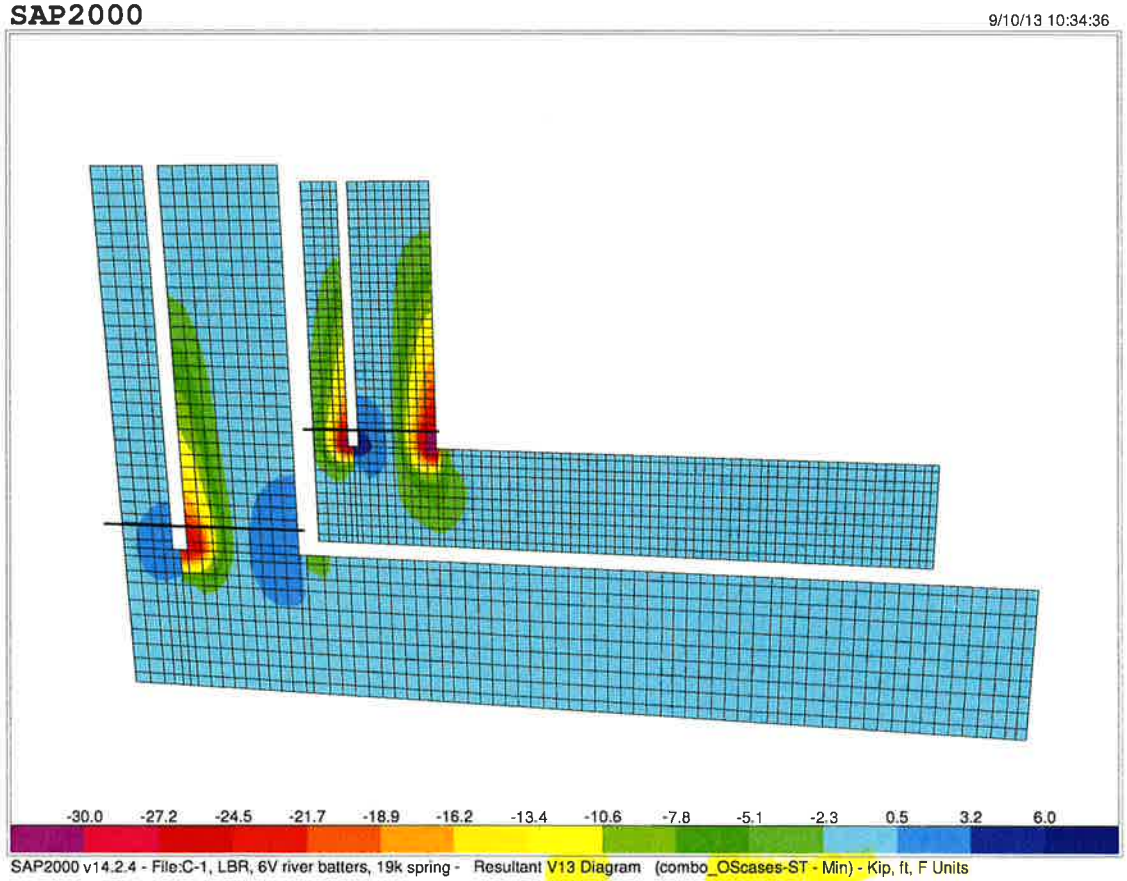
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 10:11:12



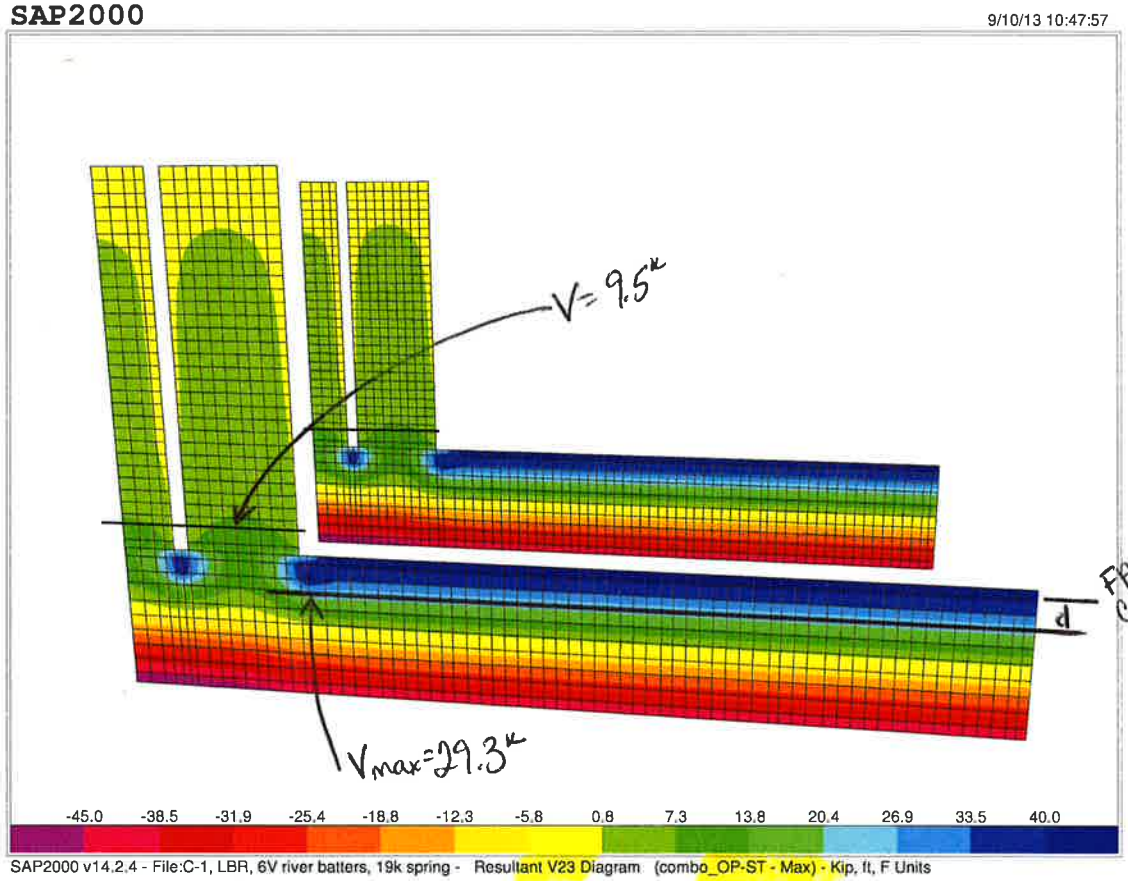
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:34:36



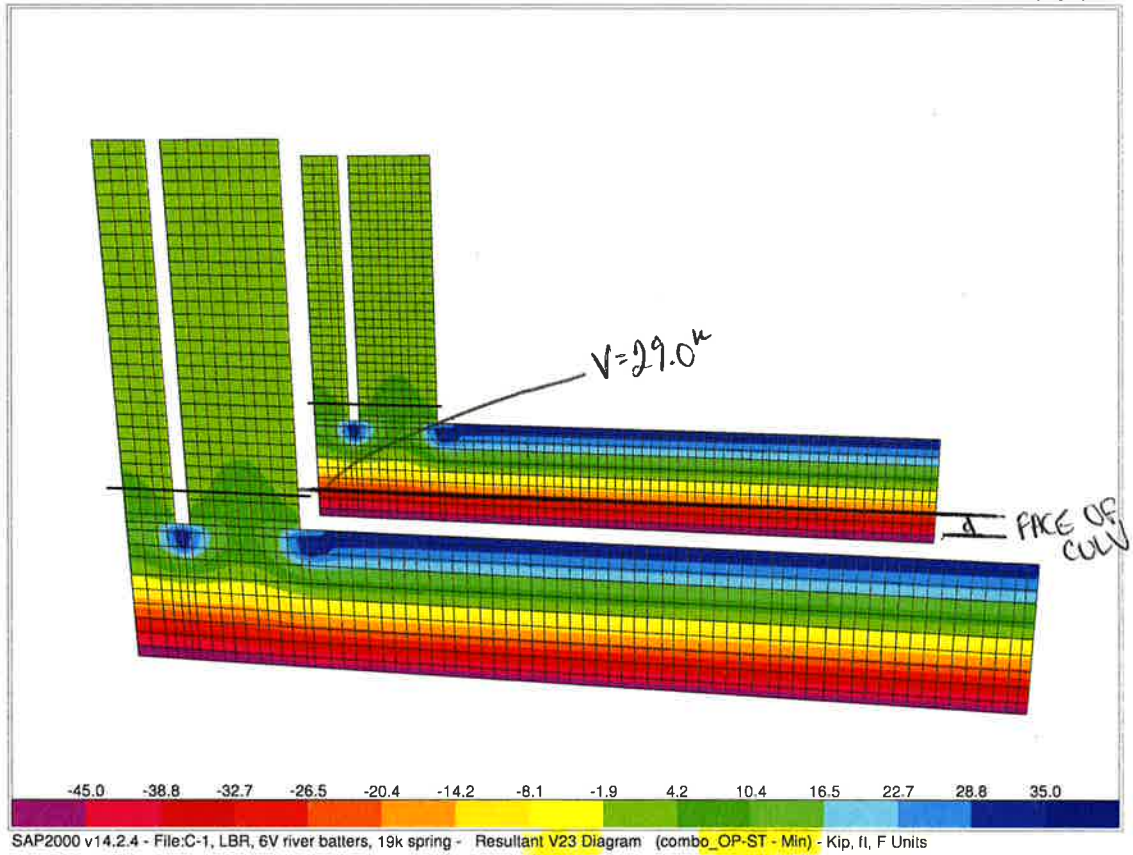
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 10:47:57



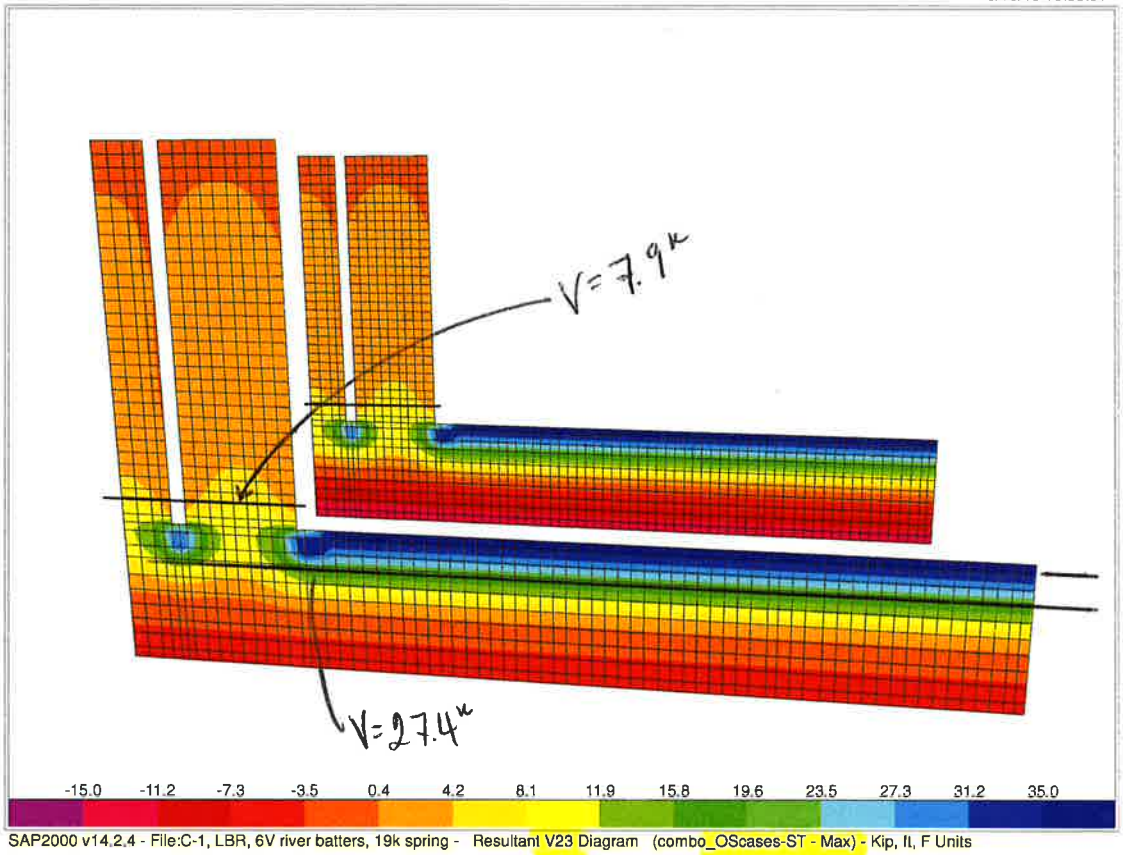
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:45:17



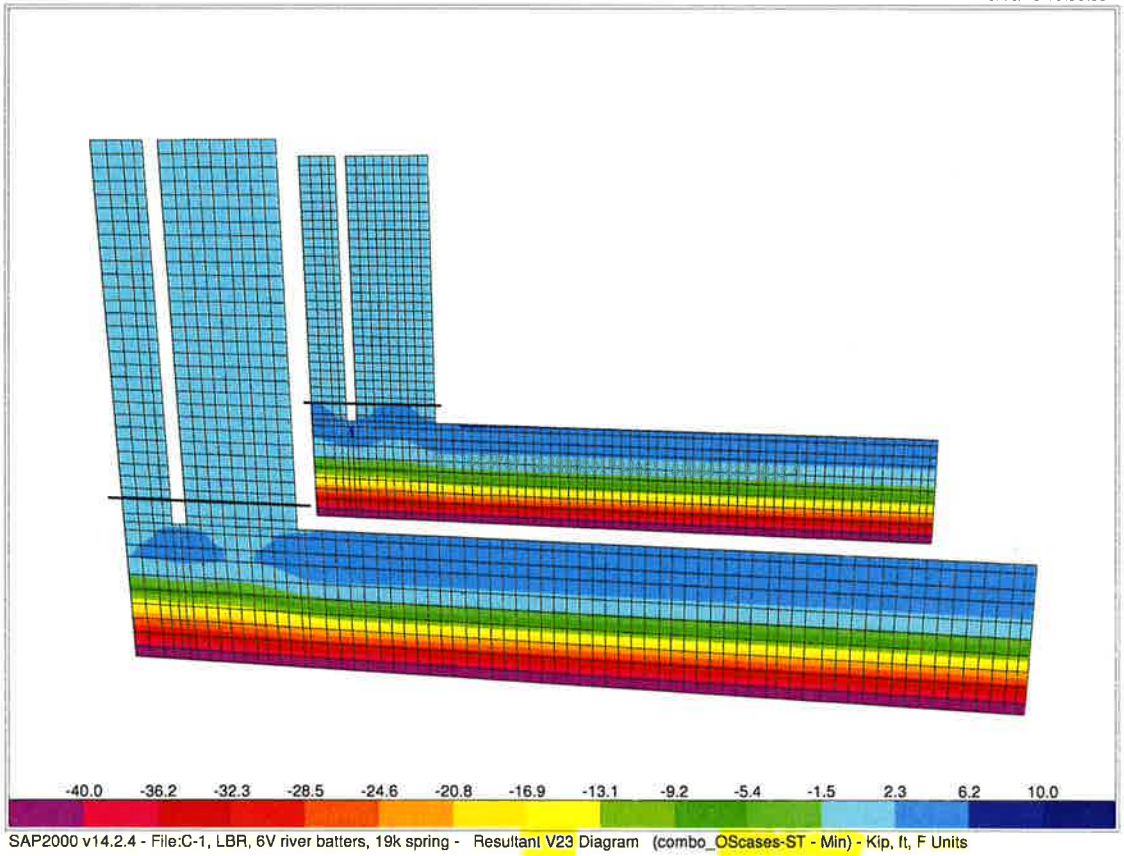
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 10:58:01



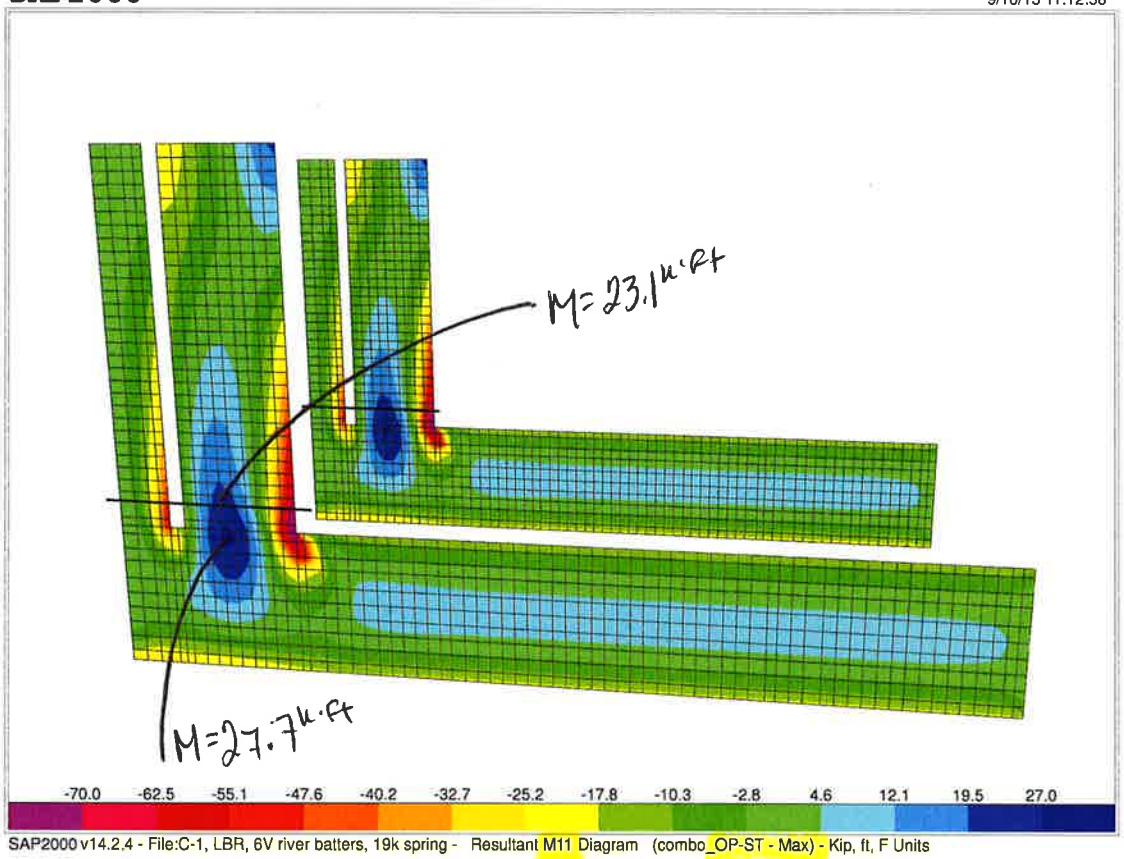
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 10:56:39



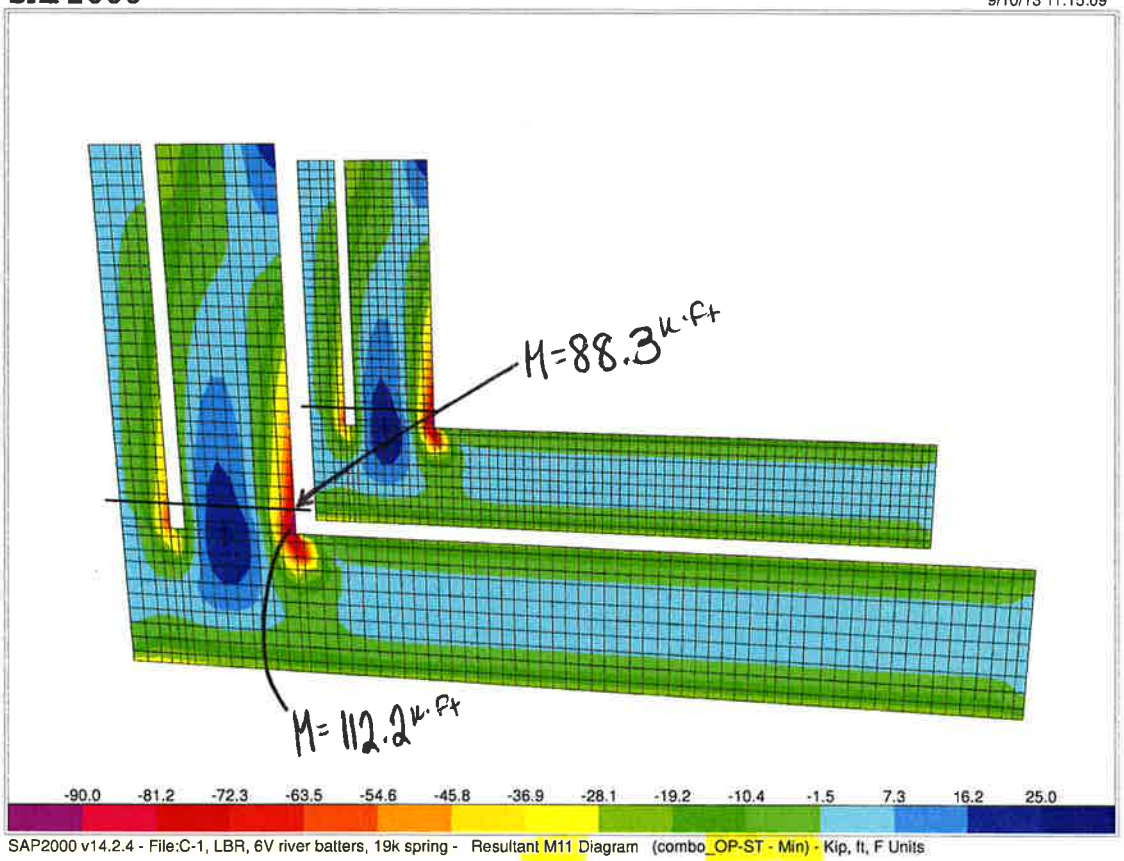
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 11:12:58



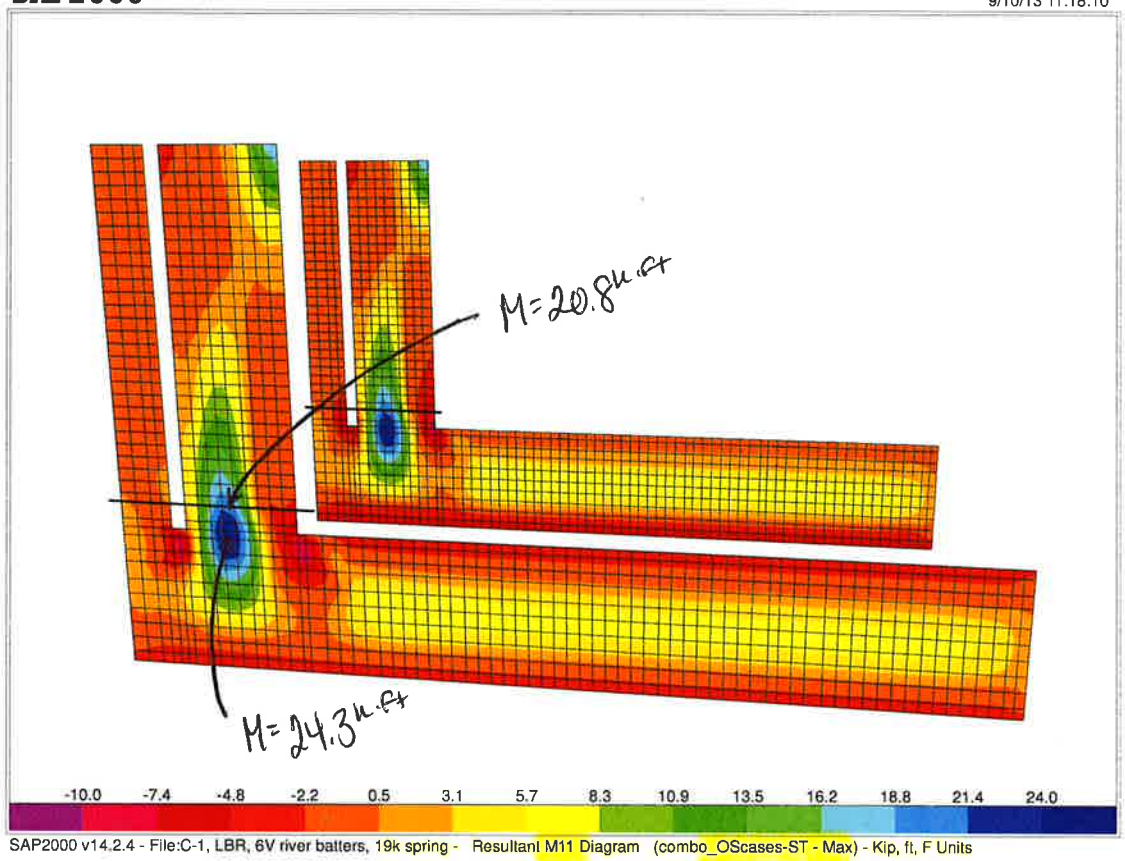
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 11:15:09



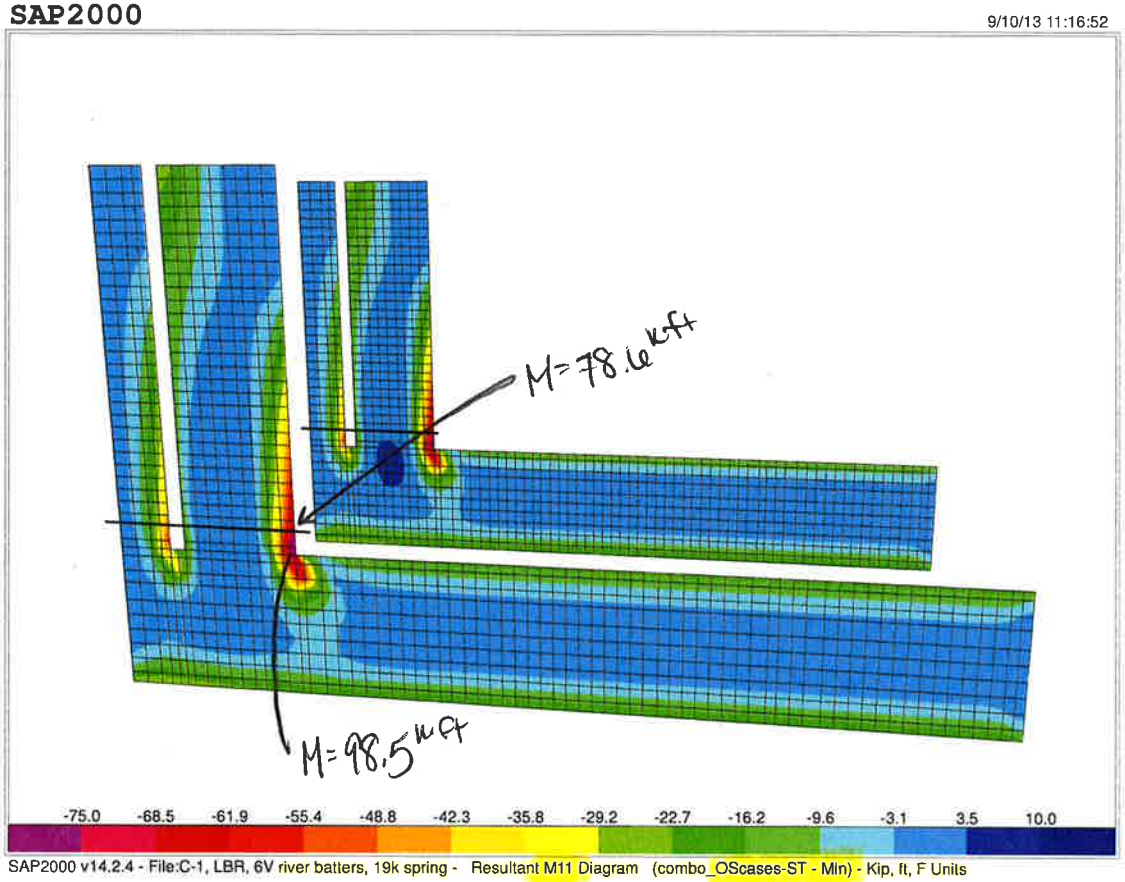
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 11:18:10



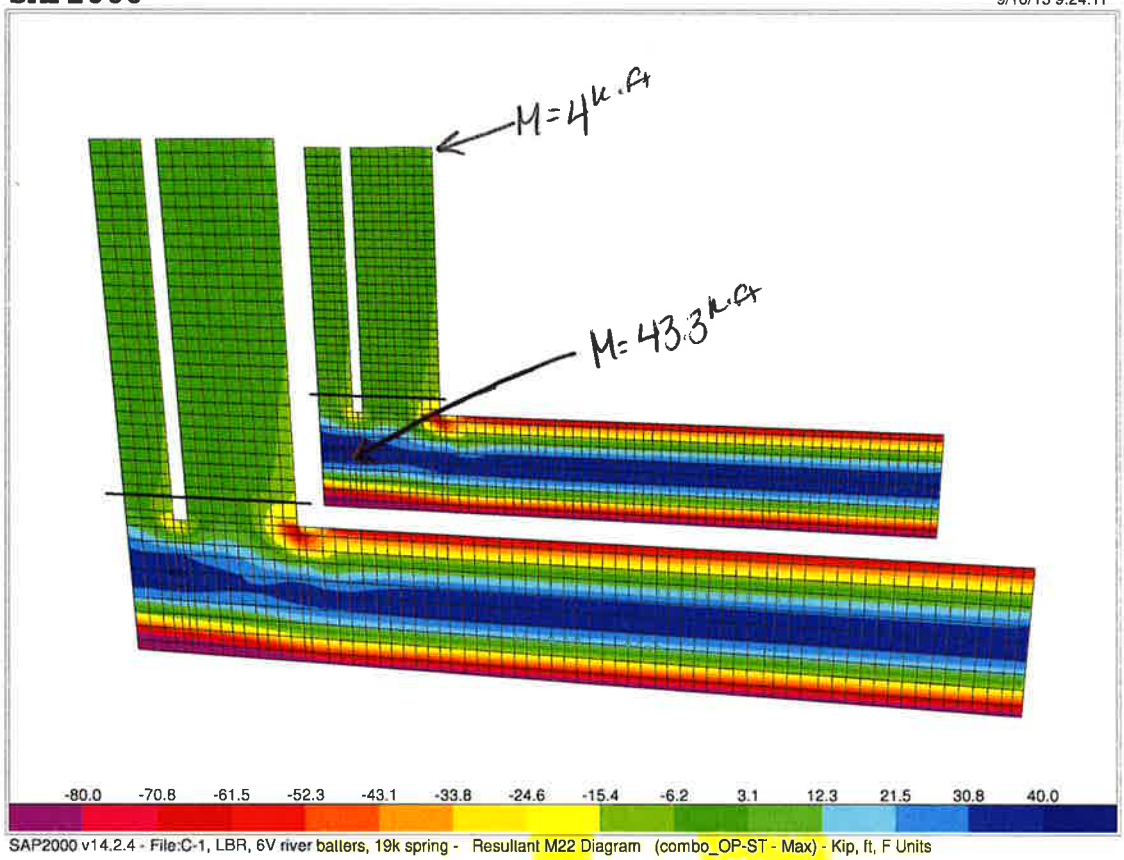
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 11:16:52



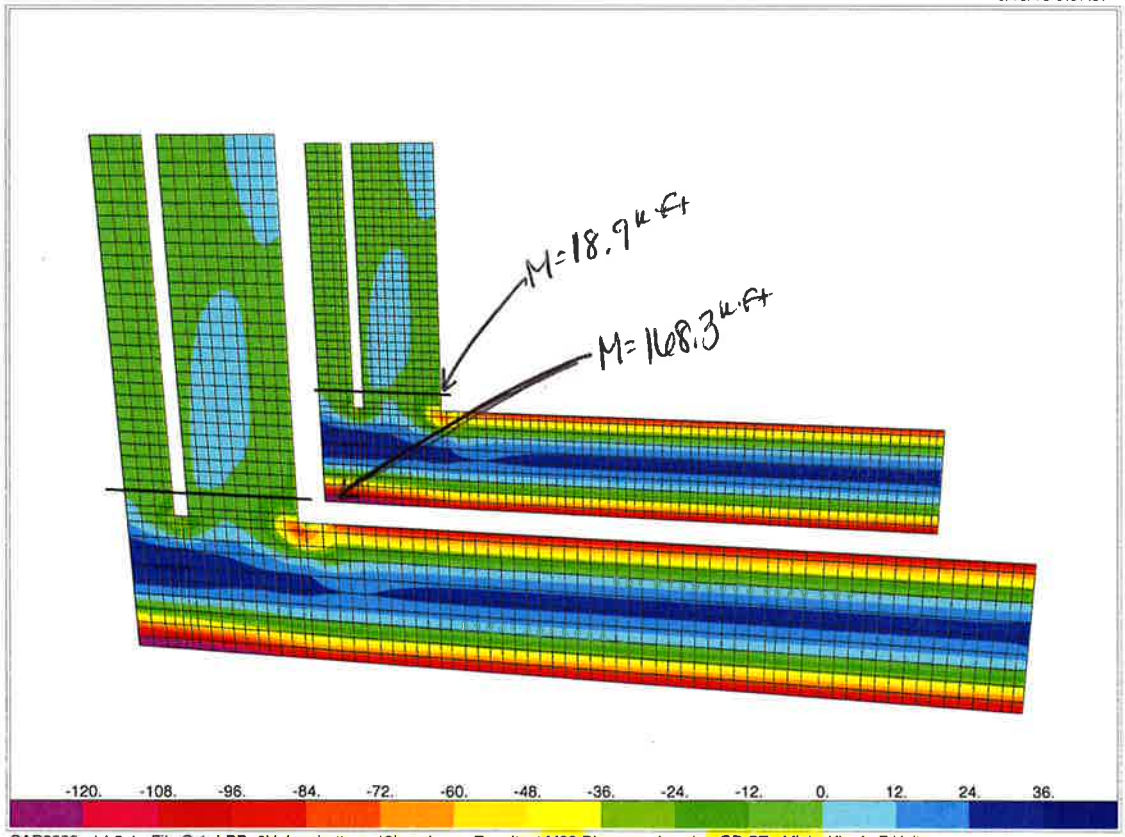
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M11 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 9:24:11



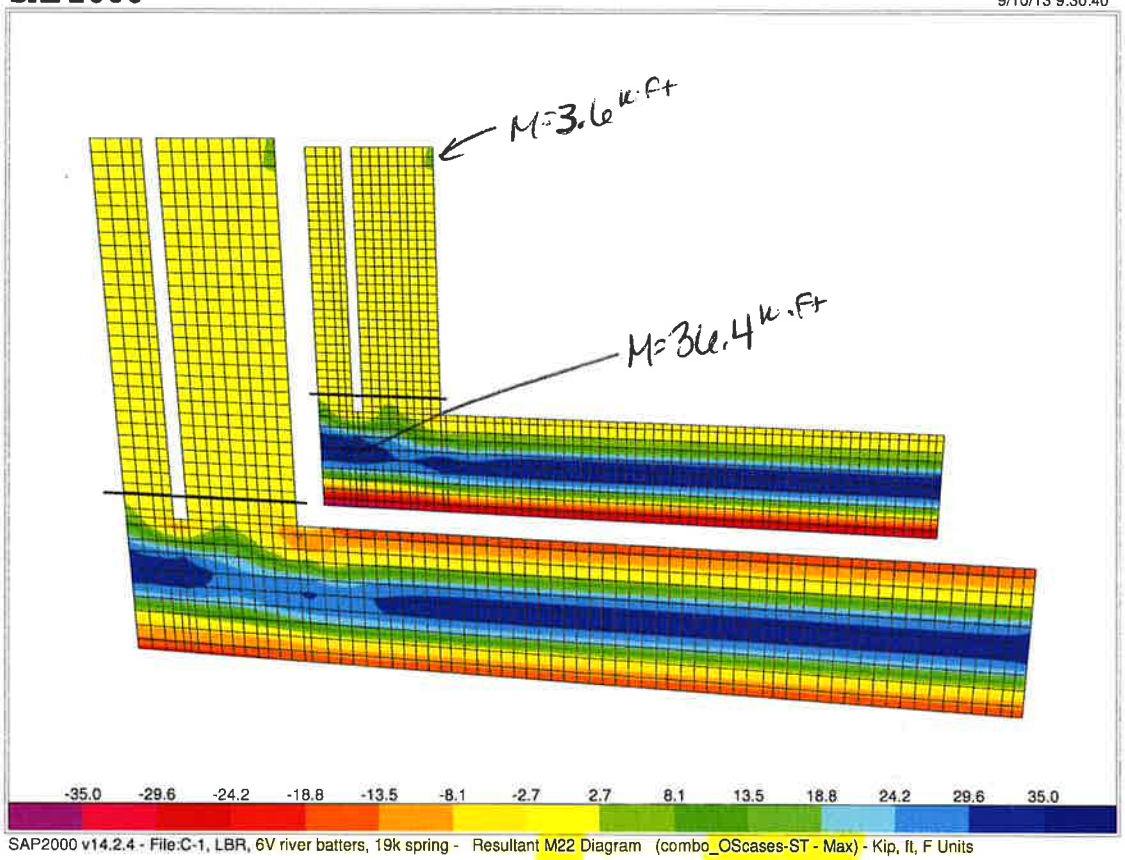
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 9:37:37



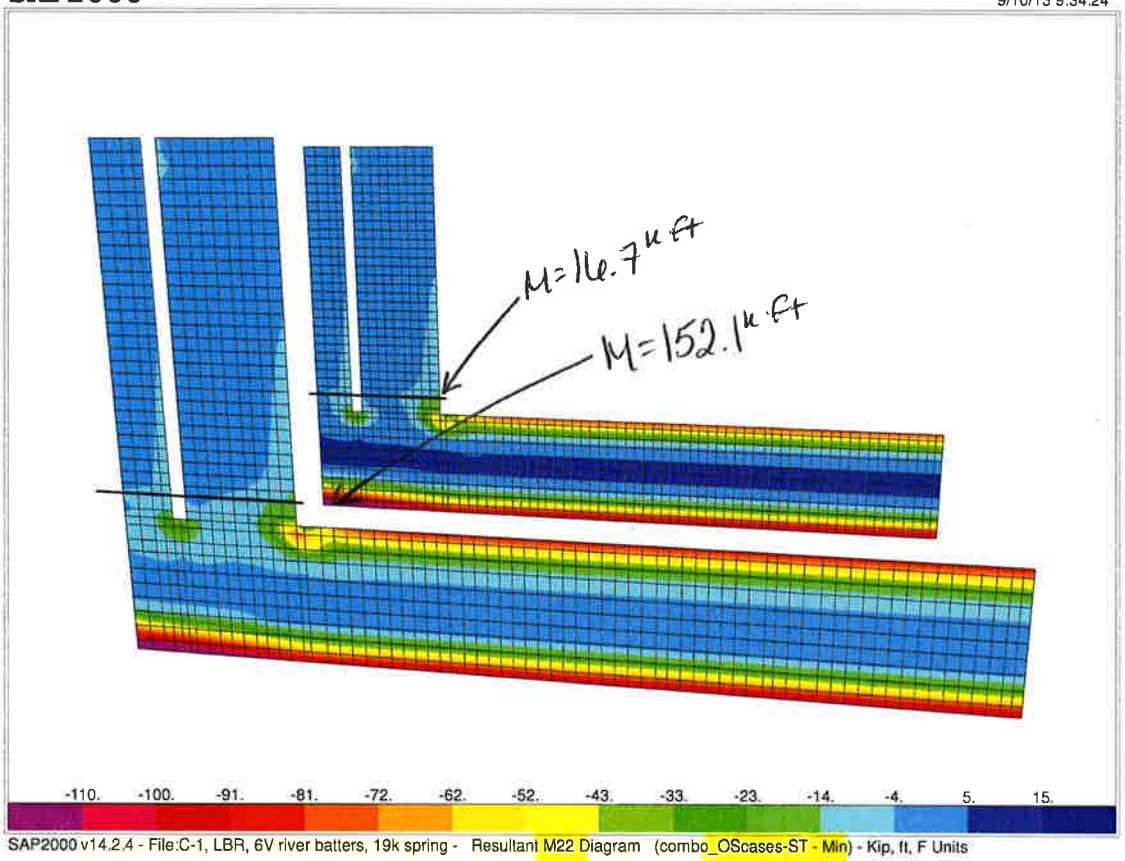
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/10/13 9:30:40



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/10/13 9:34:24



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant M22 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

PART 8

Front & Back Headwall Design

*** Back Headwall:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	17.3	15.9	17.8	35.4	10.0	30.9
combo_OScases	17.7	16.5	18.1	35.9	10.4	31.9

*** Front Headwall:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	1.4	0.0	7.0	11.5	1.4	2.3
combo_OScases	11.0	1.5	26.1	14.0	5.3	2.4

Max. Shear = 17.7 kip
Max. Moment, *Vert. Exterior* = 31.9 kip-ft
Max. Moment, *Vert. Interior* = 10.4 kip-ft
Max. Moment, *Horiz. Exterior* = 35.9 kip-ft
Max. Moment, *Horiz. Interior* = 18.1 kip-ft

In SAP the Front & Back Headwalls elements are similarly oriented (top sides face the levee, bottom sides face the river). M11 always controls horizontal reinf.; M22 always controls vertical reinf. However, for the Back Headwall, (+) is interior and (-) is exterior, and for the Front Headwall (+) is exterior and (-) is interior.

* Reinforcing Limits:

A_{gross} = 30in * 12in strip = 360 in^2

d = 30in - 4in cover - 1/2 bar diameter = 25.50 in #8 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 3.848 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.008 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'$_c$) * b * d) / f_y = 0.968 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.020 in^2 ACI 318-02, 10.5, flexural member min.

Headwall Summary:			
	Max. Rebar =	**3.848 in^2**	- half each face
	Min. T&S Rebar =	**0.504 in^2**	- per face
	Min. Flexural Rebar =	**1.020 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'$_c$) * b * d

= 0.85 * 2 * √4000 * 12in * 25.5in

= 32,900 lb

ϕVc = 32.9kip > Vu = 17.7kip → Section OK

→ FRONT WALL IMAGES PRESENTED FIRST
BACK WALL FOLLOWS.

→ NOTE: SOME V23 RESULTS FOR FRONT WALL NOT SHOWN B/C V<1.0k

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Vertical Both Faces: * $M_{max, M22 (vertical)}$ = 31.9 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (25.5in - 0.882in / 2)
= 811.91 kip-in/ft
= 67.66 kip-ft/ft

* 31.9×1.33=42.5 k·ft

ϕMn = 67.7kip-ft > Mu = 31.9kip-ft → Use #7 @ 12"

Horizontal Both Faces: * $M_{max, M11 (horizontal)}$ = 35.9 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (25.5in - 0.882in / 2)
= 811.91 kip-in/ft
= 67.66 kip-ft/ft

* 35.9×1.33=47.9 k·ft

ϕMn = 67.7kip-ft > Mu = 35.9kip-ft → Use #7 @ 12"

* FLEXURAL MIN. REBAR MAY BE NEGLECTED AS PER ACI 318, 10.5.3 WHERE $\phi Mn > 1.33 Mu$

*** Back Headwall:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	17.3	15.9	17.8	35.4	10.0	30.9
combo_OScases	17.7	16.5	18.1	35.9	10.4	31.9

*** Front Headwall:**

Load Combo	Max. Shear (kips)		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	1.4	0.0	7.0	11.5	1.4	2.3
combo_OScases	11.0	1.5	26.1	14.0	5.3	2.4

Max. Shear = 17.7 kip
Max. Moment, *Vert. Exterior* = 31.9 kip-ft
Max. Moment, *Vert. Interior* = 10.4 kip-ft
Max. Moment, *Horiz. Exterior* = 35.9 kip-ft
Max. Moment, *Horiz. Interior* = 18.1 kip-ft

In SAP the Front & Back Headwalls elements are similarly oriented (top side faces the levee, bottom side faces the river). M11 always controls horizontal reinf.; M22 always controls vertical reinf. However, for the Back Headwall, (+) is interior and (-) is exterior, and for the Front Headwall (+) is exterior and (-) is interior.

*** Reinforcing Limits:**

A_{gross} = 30in * 12in strip = 360 in^2

d = 30in - 4in cover - 1/2 bar diameter = 25.37 in — #10 bar assumed

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 3.848 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.008 in^2 — EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 0.963 in^2 — ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.015 in^2 — ACI 318-02, 10.5, flexural member min.

Headwall Summary:			
	Max. Rebar =	**3.848 in^2**	- half each face
	Min. T&S Rebar =	**0.504 in^2**	- per face
	Min. Flexural Rebar =	**1.015 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 25.365in

= 32,726 lb

ϕVc = 32.7kip > Vu = 17.7kip → Section OK

NOTE: Settlement Case Results are the same as regular load case results - SAP images of the settlement cases are therefore not presented herein.

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Vertical Both Faces: * $M_{max, M22 (vertical)}$ = 31.9 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

$\phi Mn =$ 0.9 * 0.6in^2 * 60ksi * (25.365in - 0.882in / 2)
= 807.53 kip-in/ft
= 67.29 kip-ft/ft

ϕMn = 67.3kip-ft > Mu = 31.9kip-ft → Use #7 @ 12"

Horizontal Both Faces: * $M_{max, M11 (horizontal)}$ = 35.9 k-ft

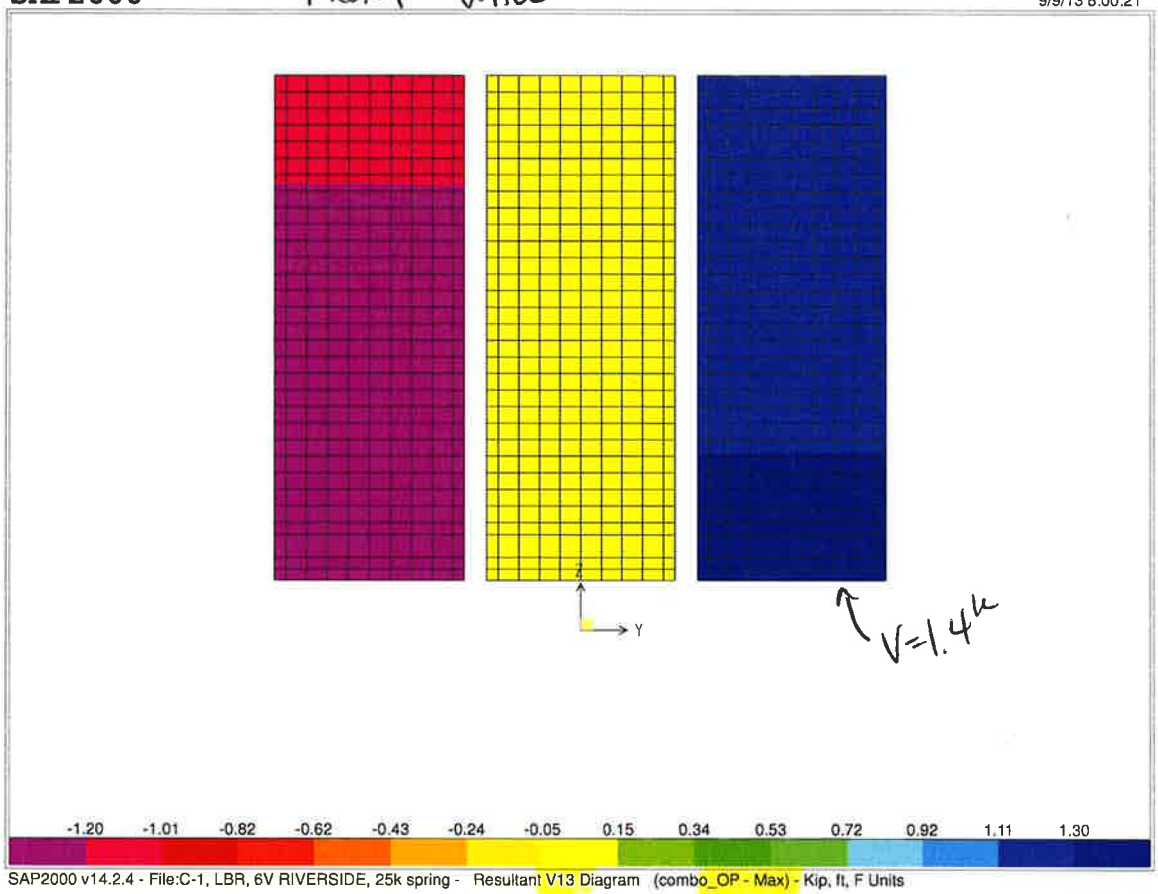
* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

$\phi Mn =$ 0.9 * 0.6in^2 * 60ksi * (25.365in - 0.882in / 2)
= 807.53 kip-in/ft
= 67.29 kip-ft/ft

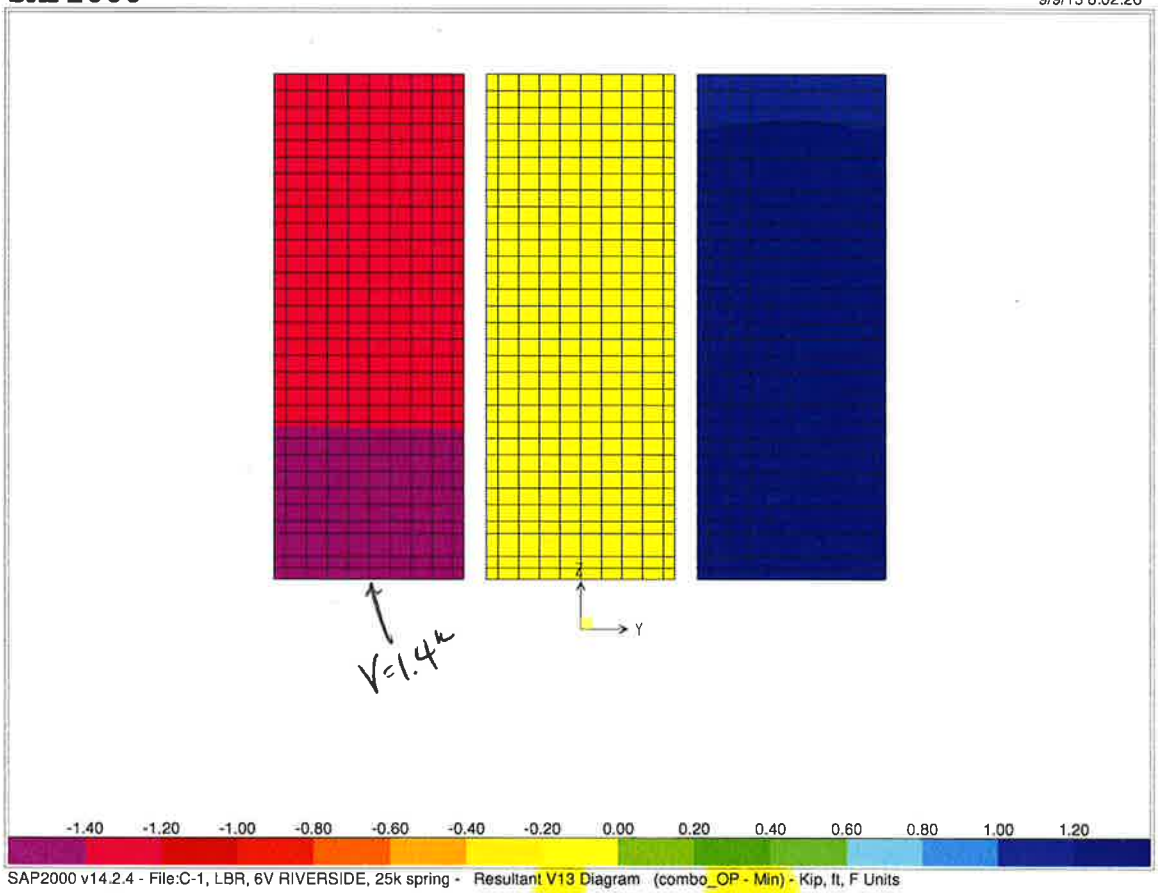
ϕMn = 67.3kip-ft > Mu = 35.9kip-ft → Use #7 @ 12"

SAP2000 FRONT WALL 9/9/13 8:00:21



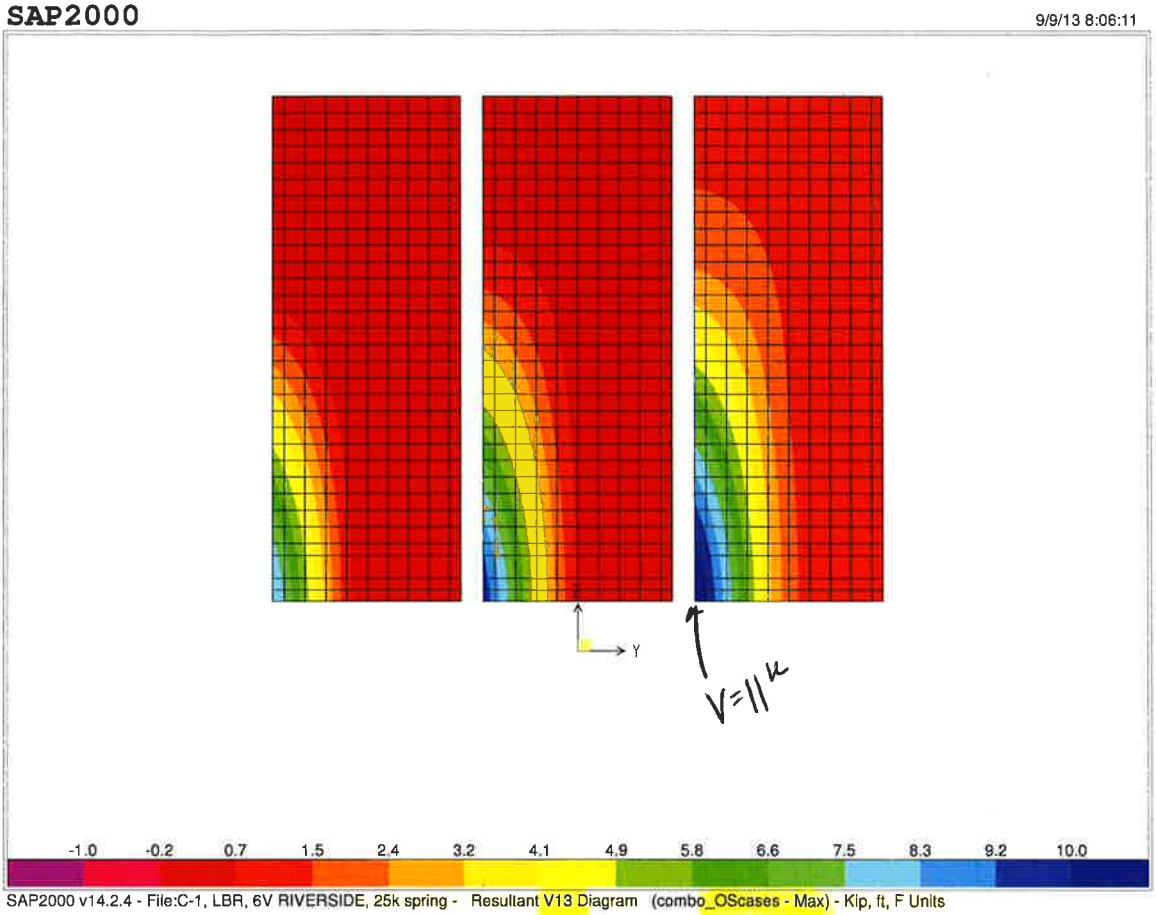
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/9/13 8:02:26



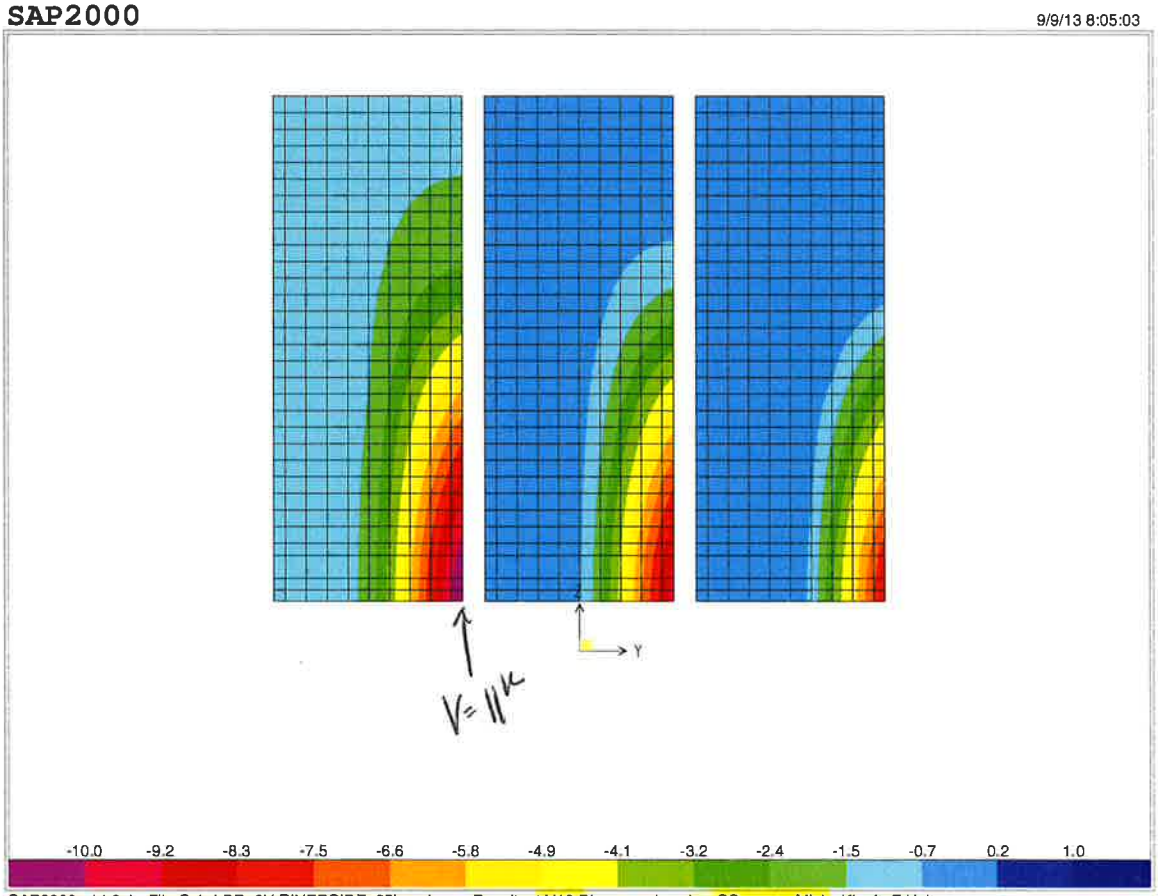
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/9/13 8:06:11

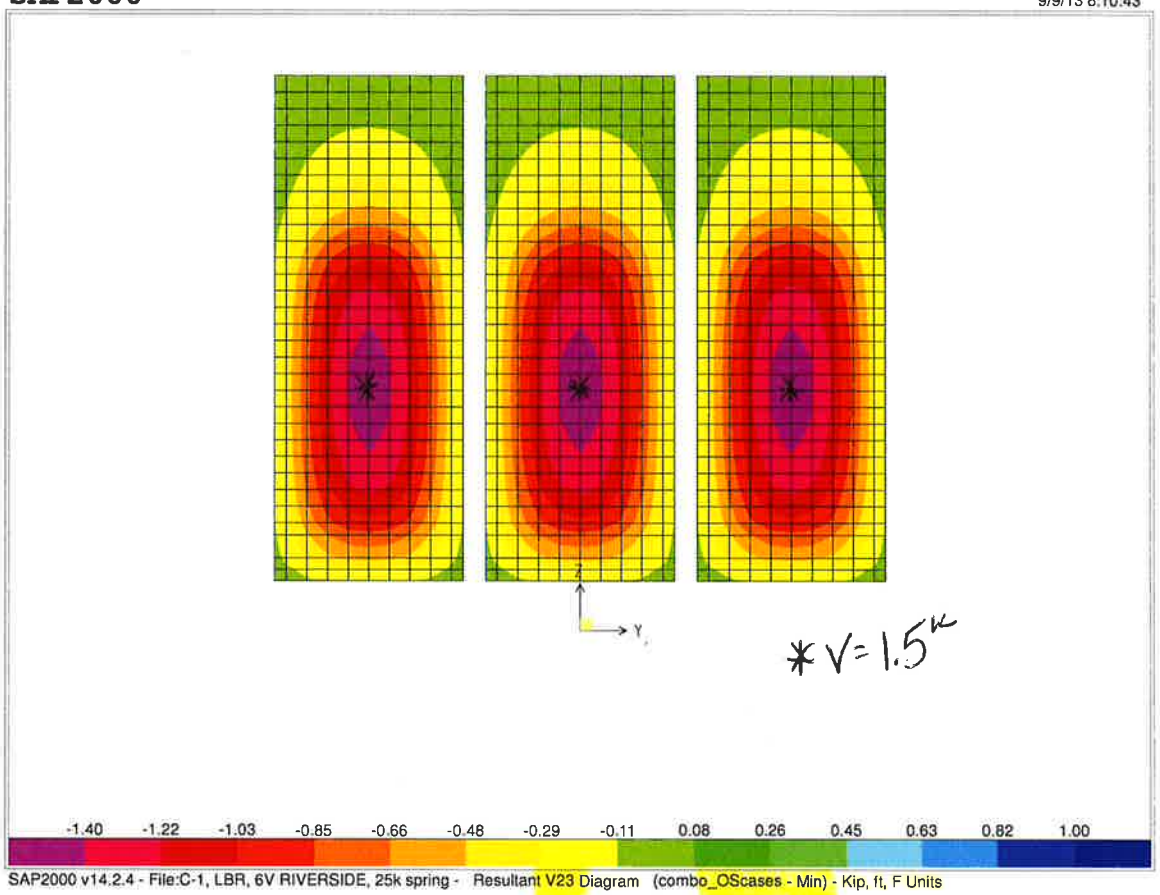


SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/9/13 8:05:03

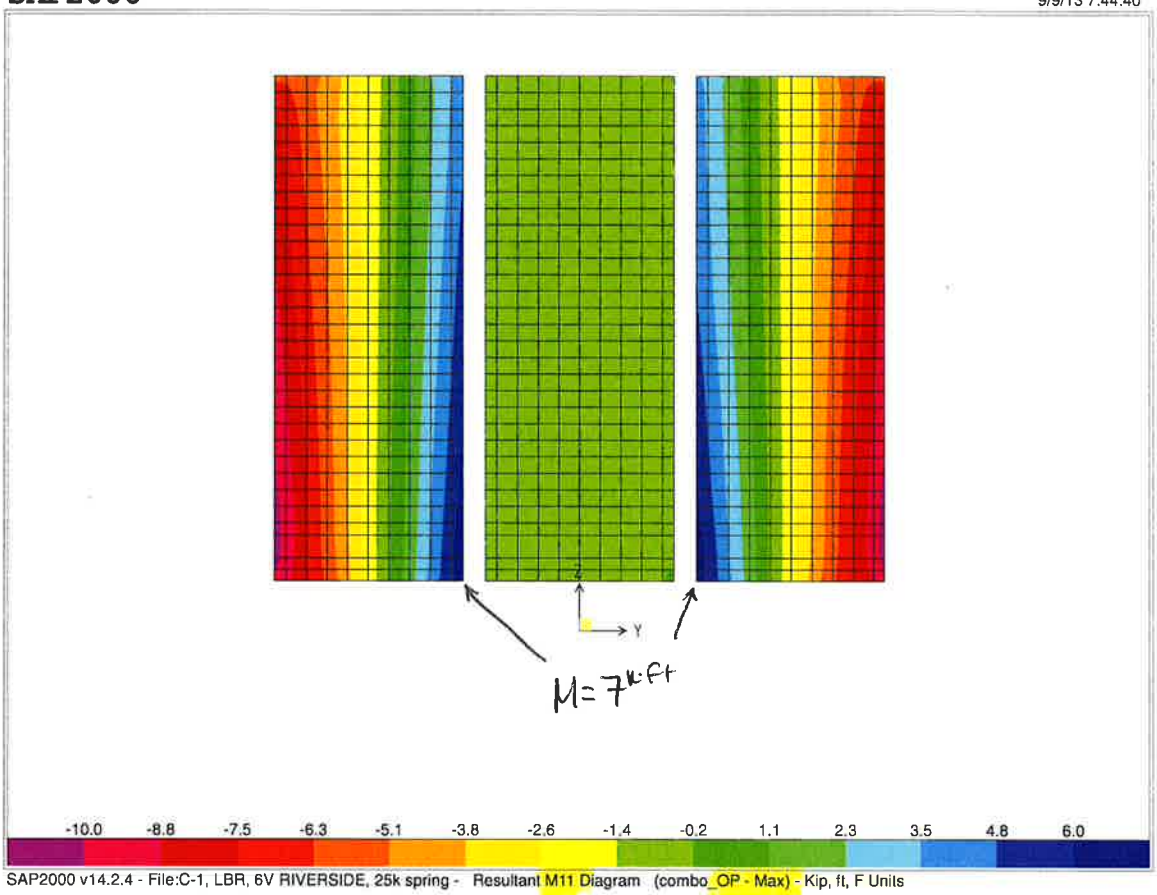


SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units



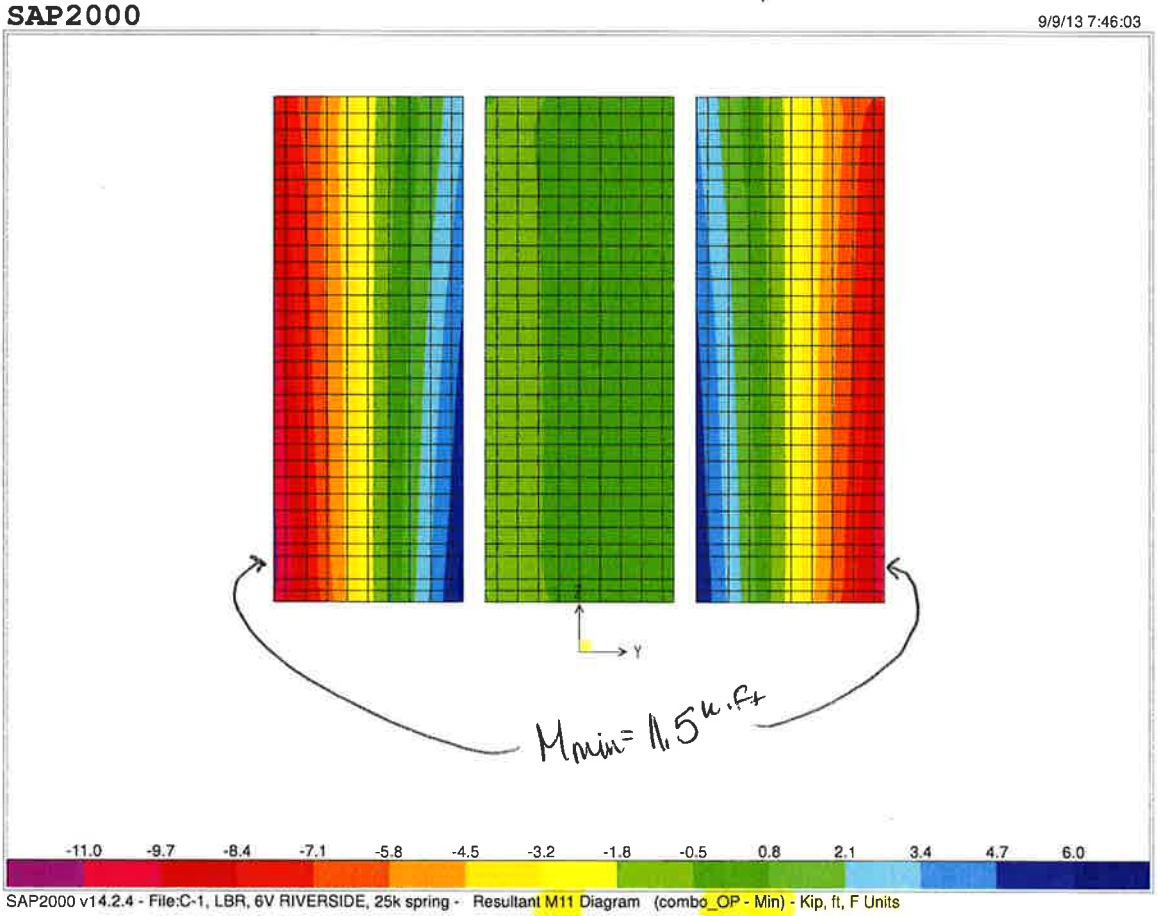
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/9/13 7:44:40



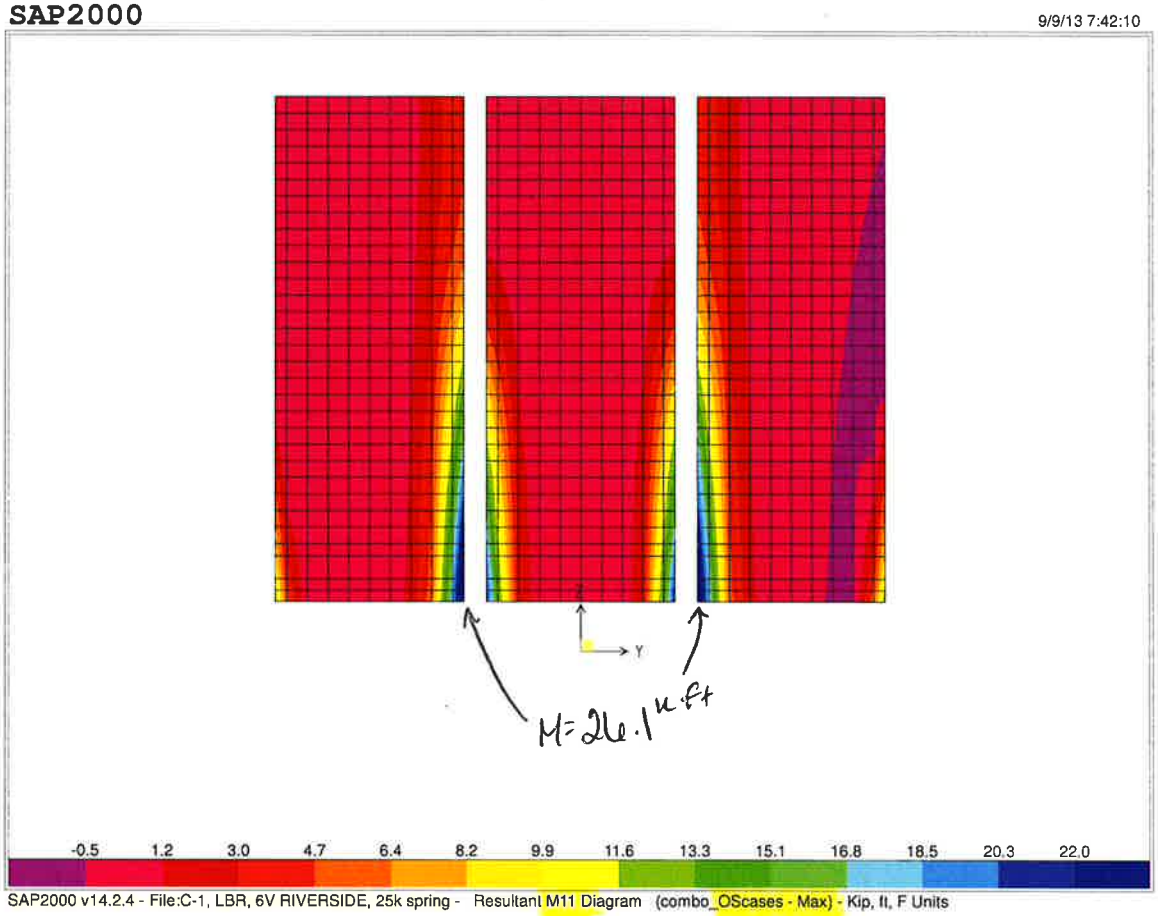
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/9/13 7:46:03



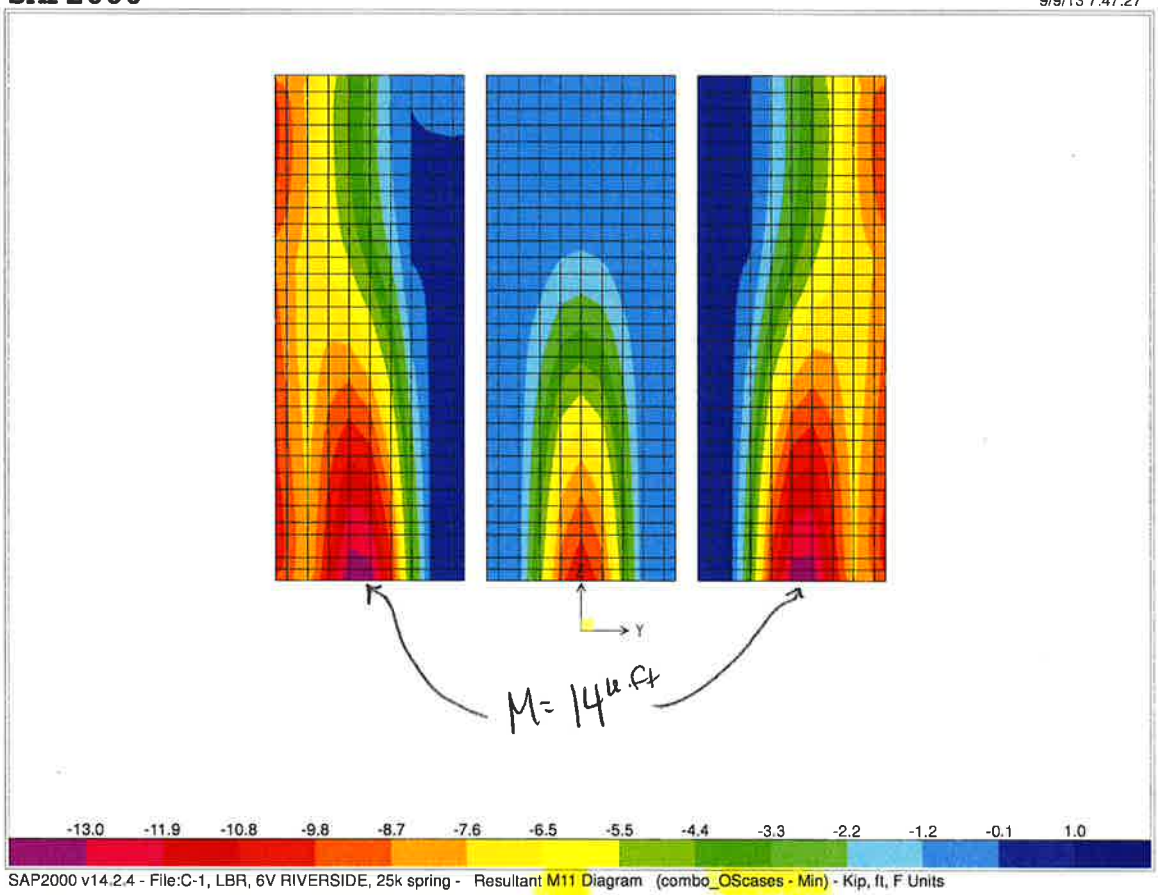
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/9/13 7:42:10



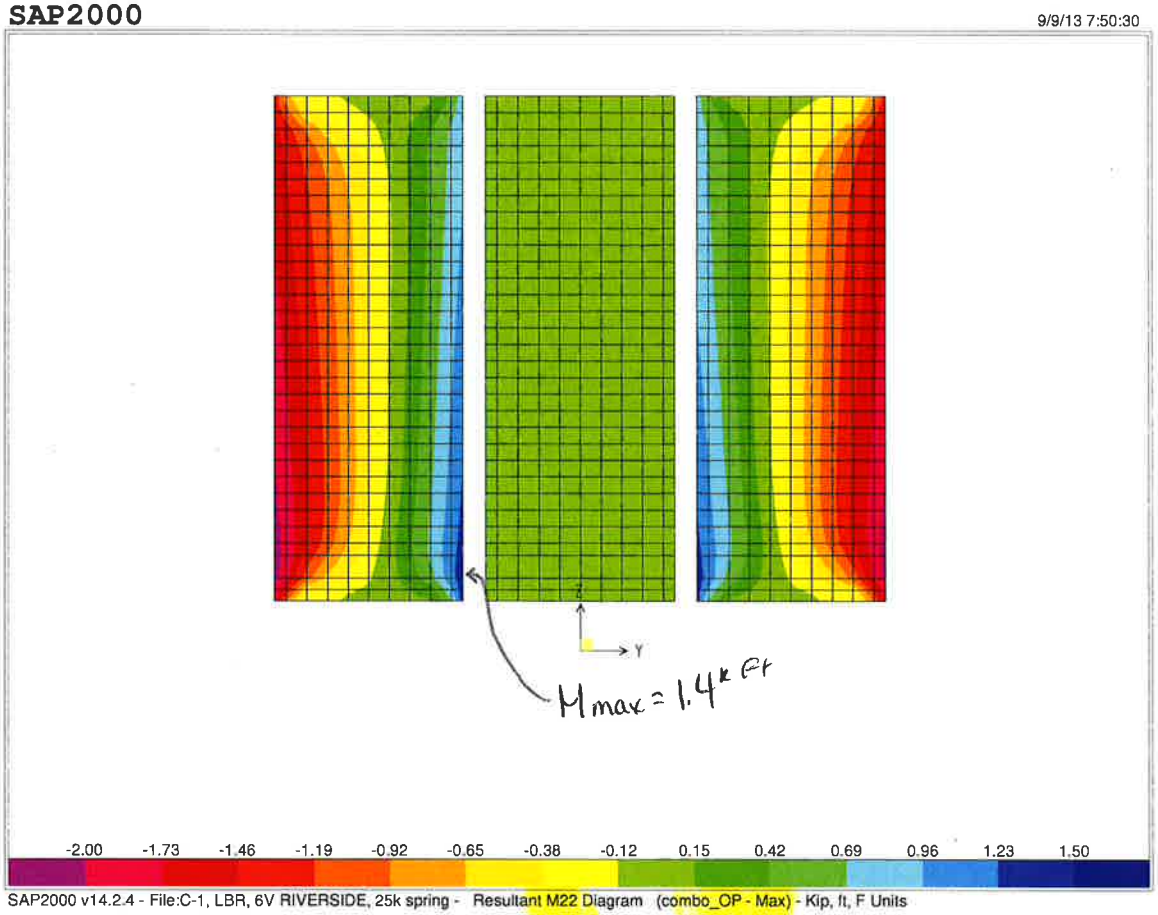
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/9/13 7:47:27



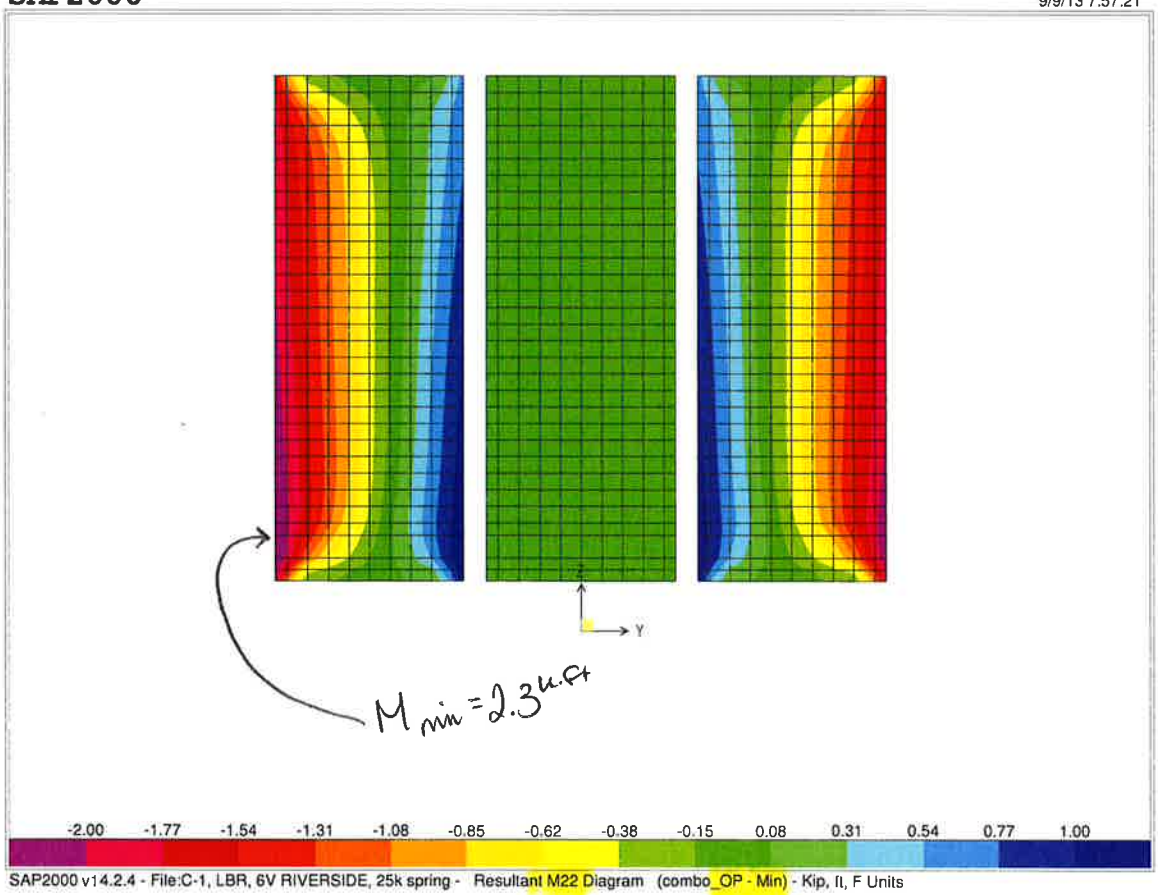
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/9/13 7:50:30



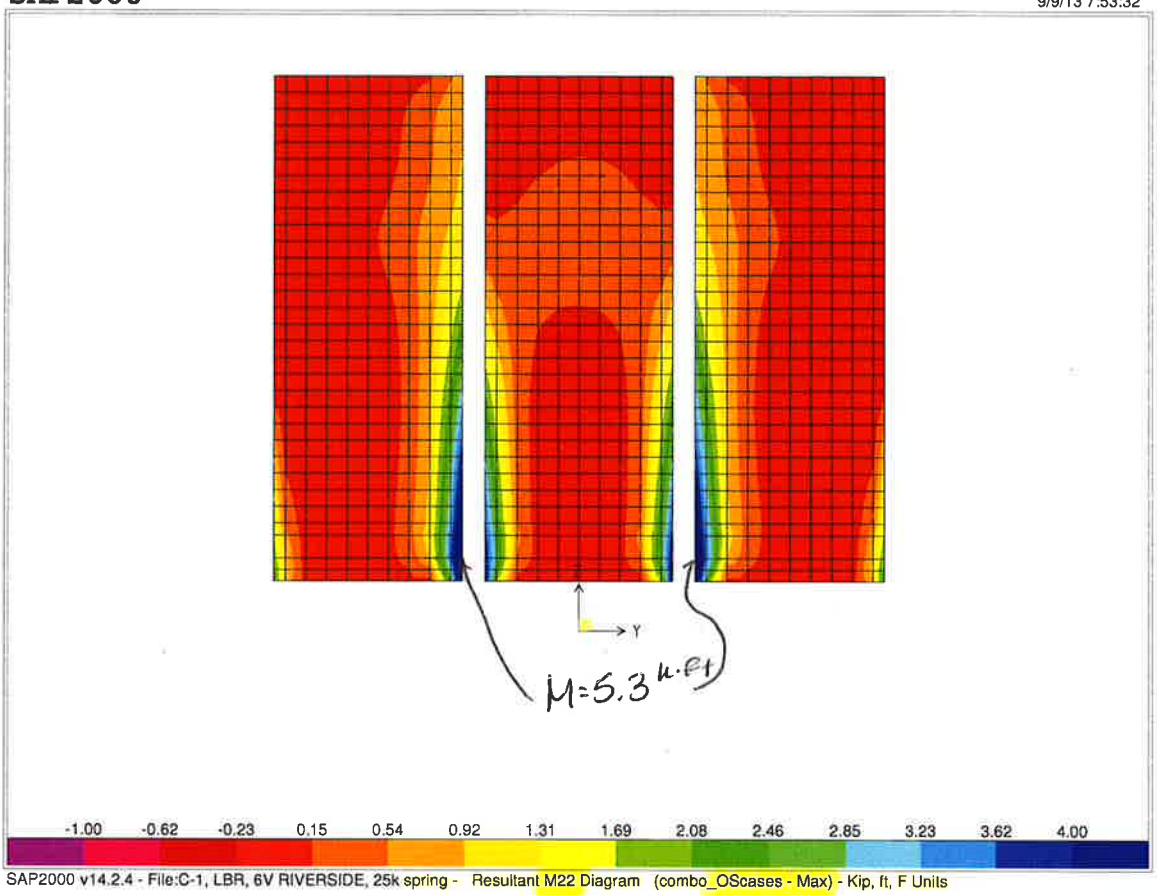
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/9/13 7:57:21



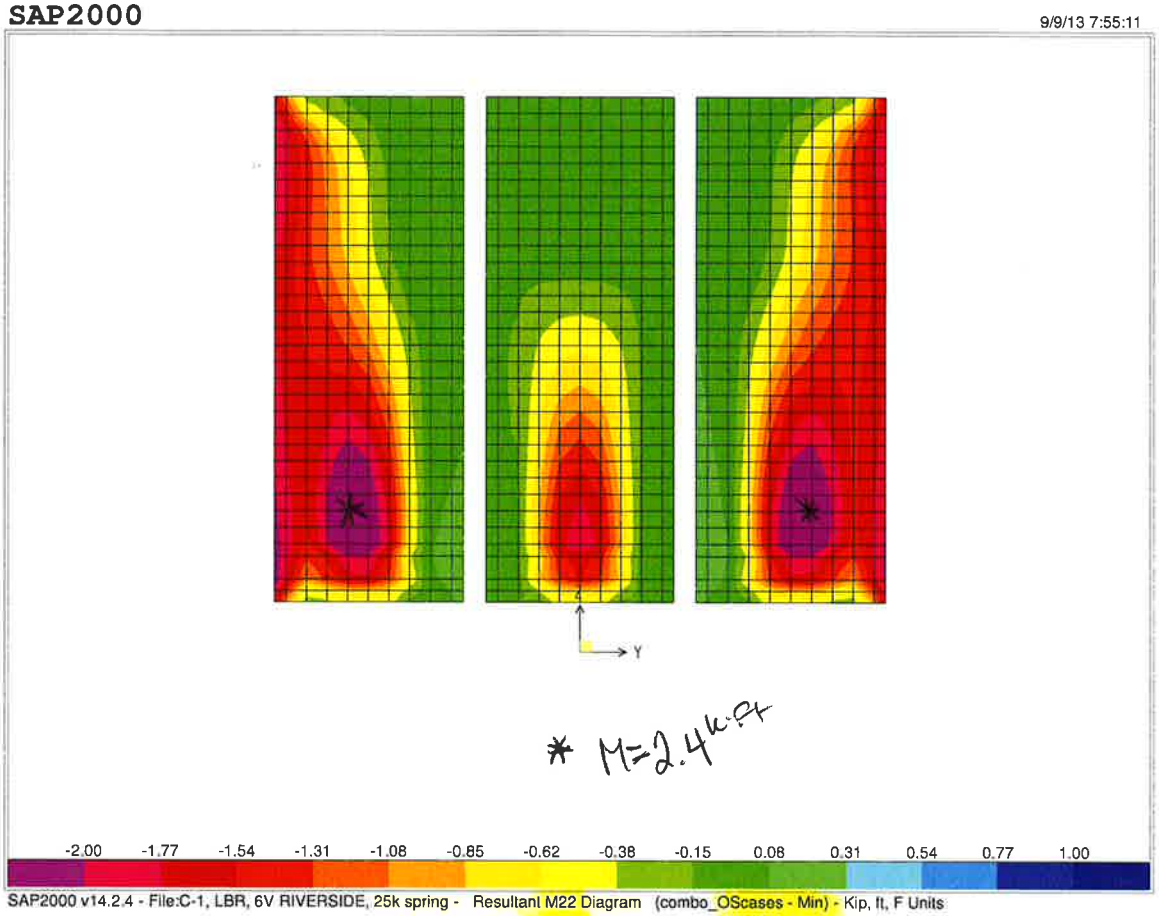
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/9/13 7:53:32



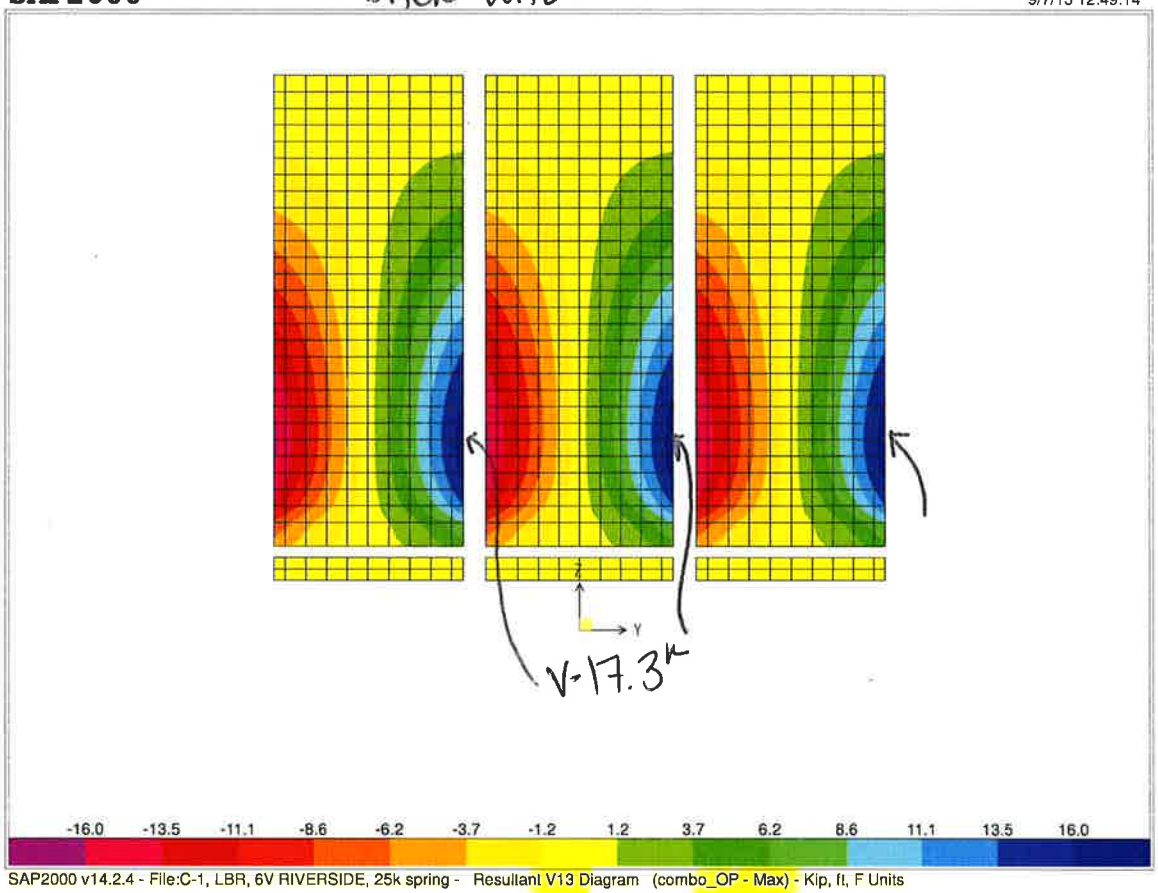
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/9/13 7:55:11



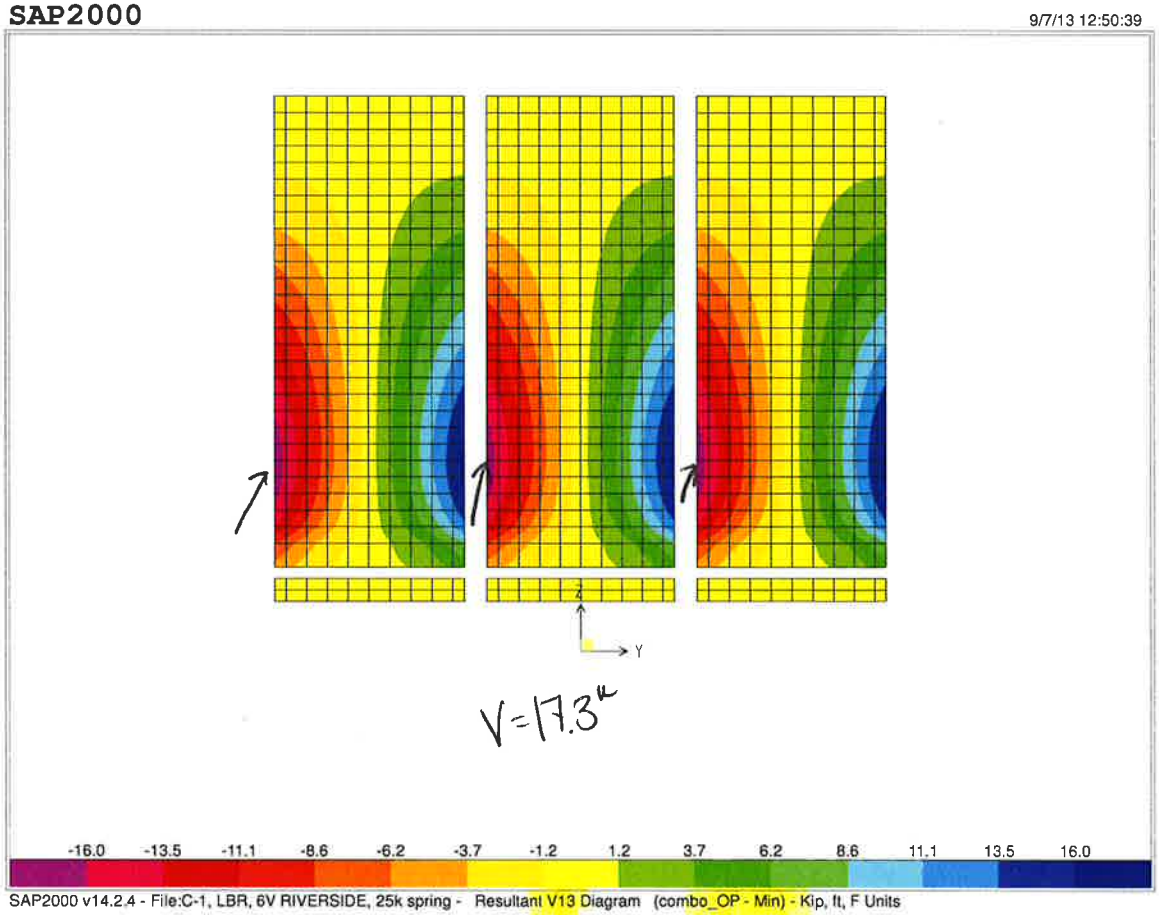
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 BACK WALL 9/7/13 12:49:14



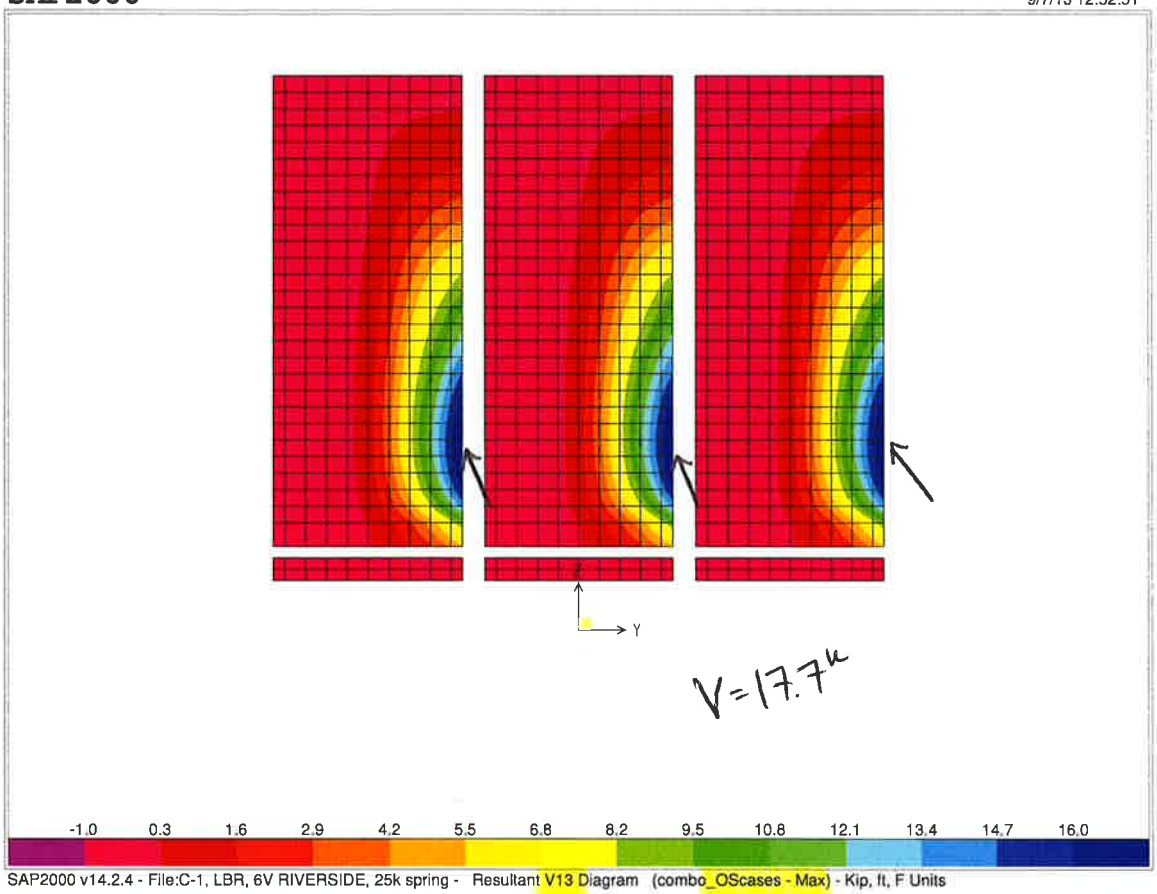
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/7/13 12:50:39



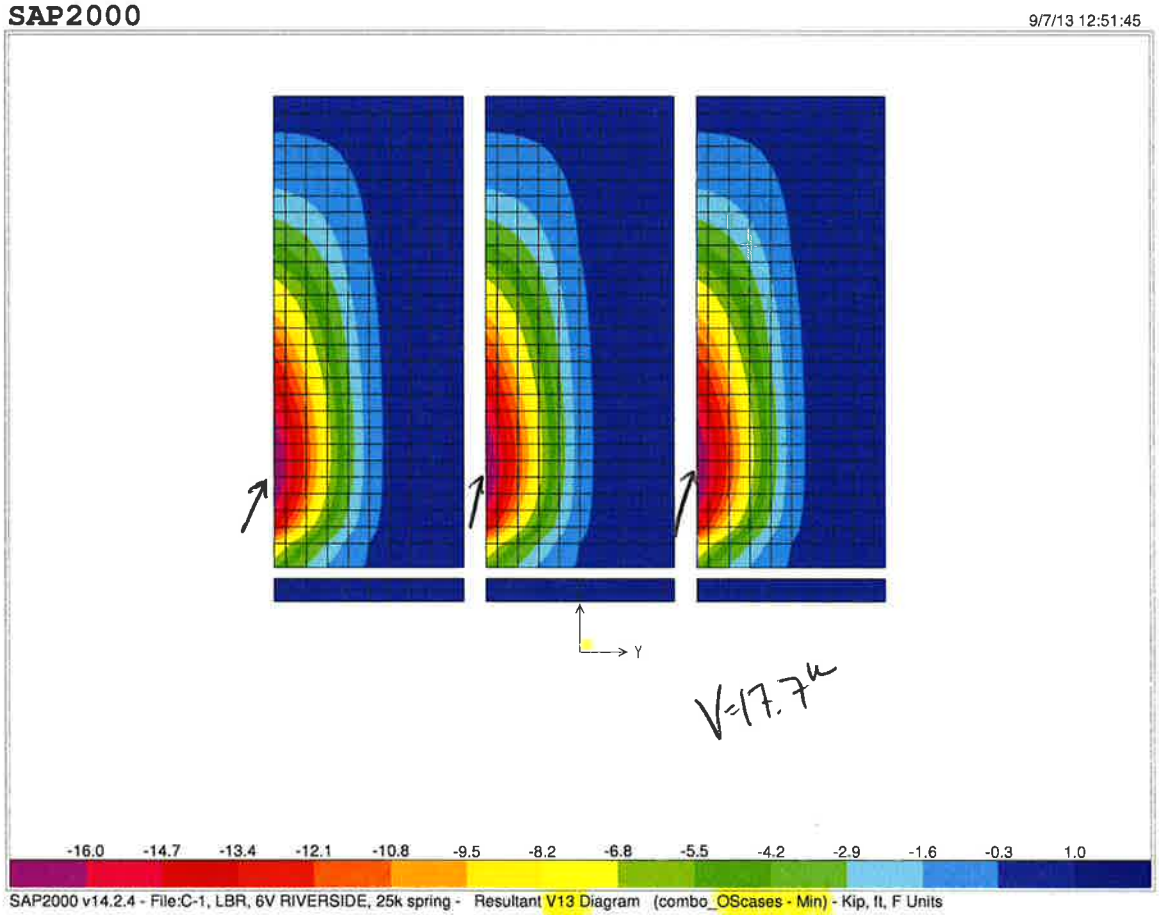
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/7/13 12:52:51



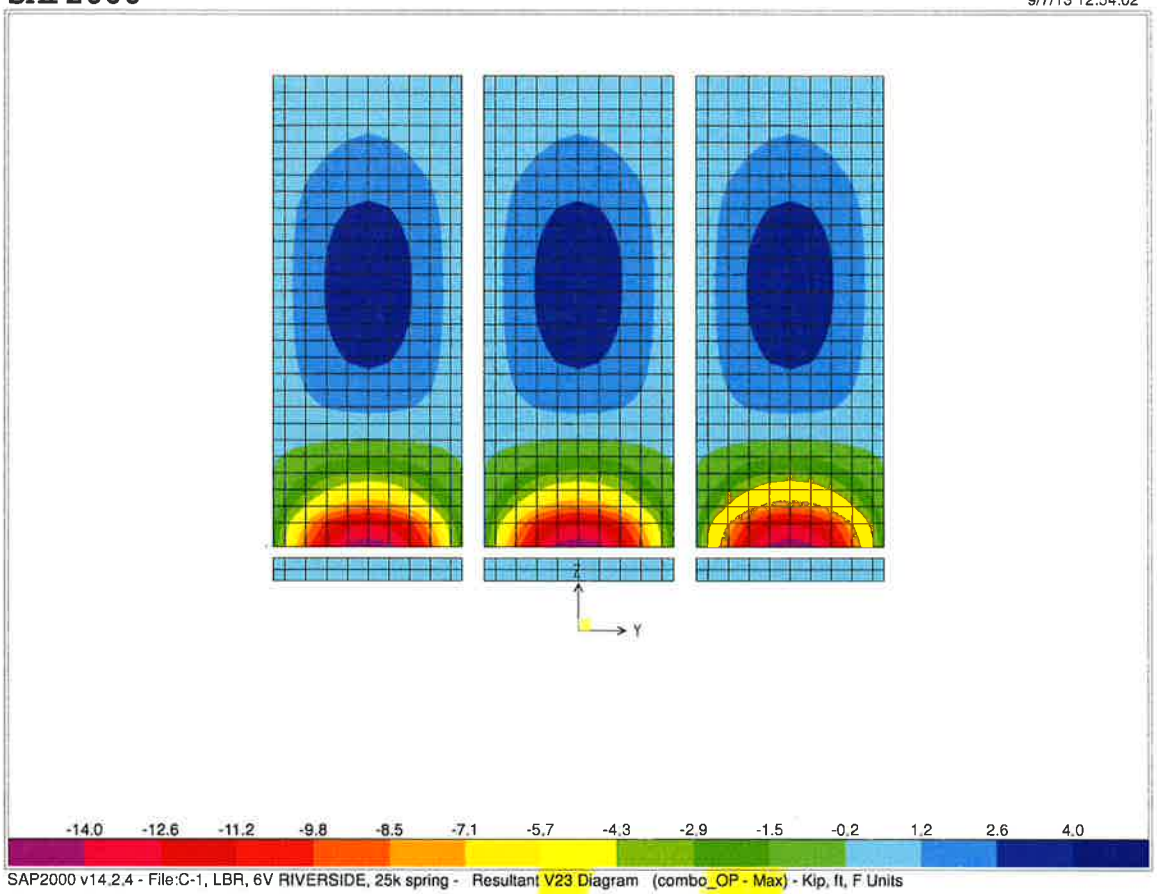
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/7/13 12:51:45



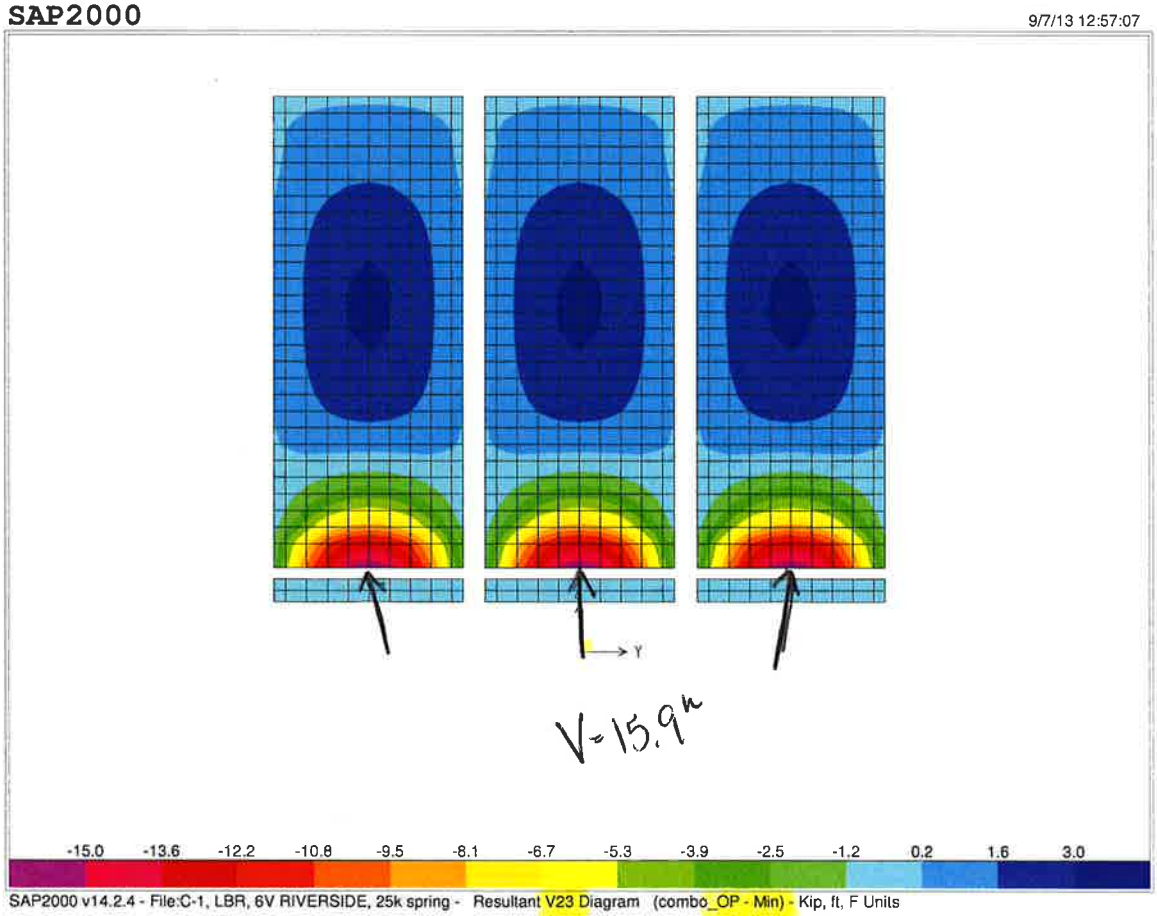
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/7/13 12:54:02



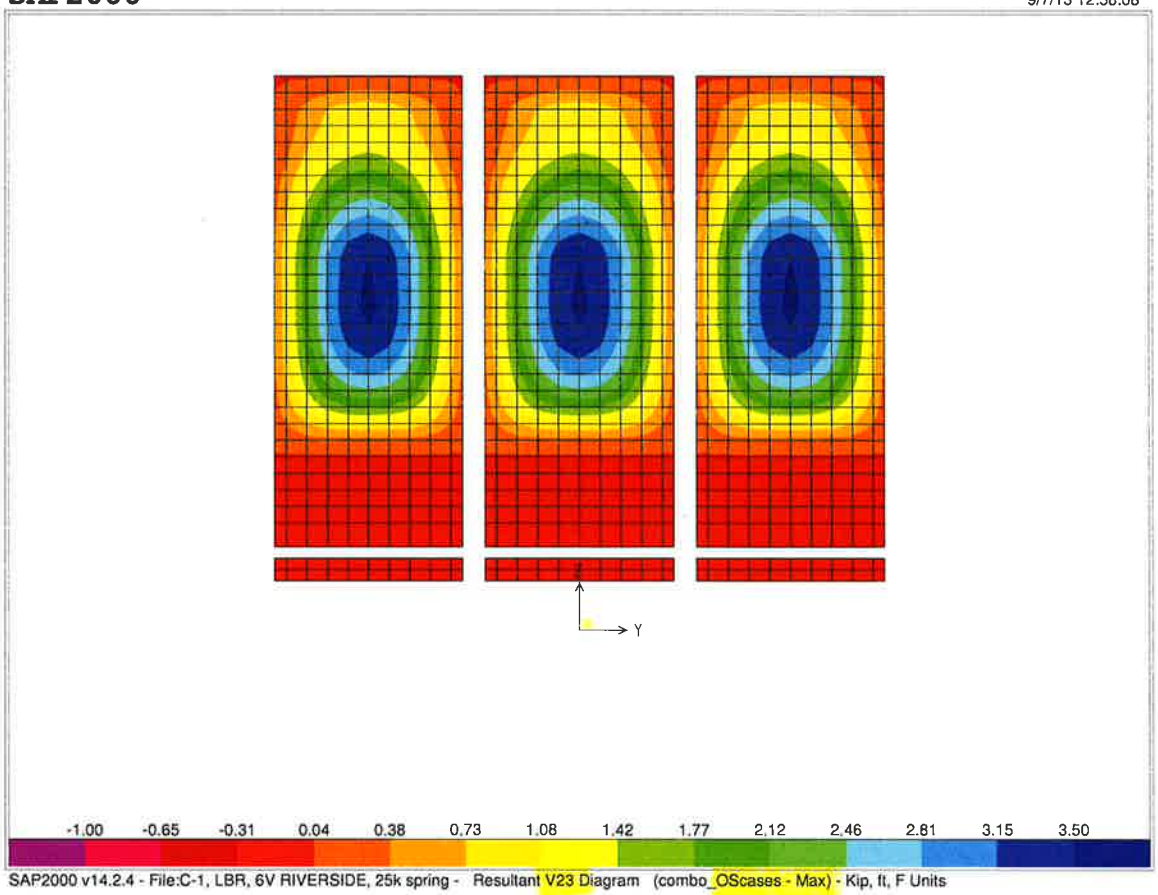
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/7/13 12:57:07

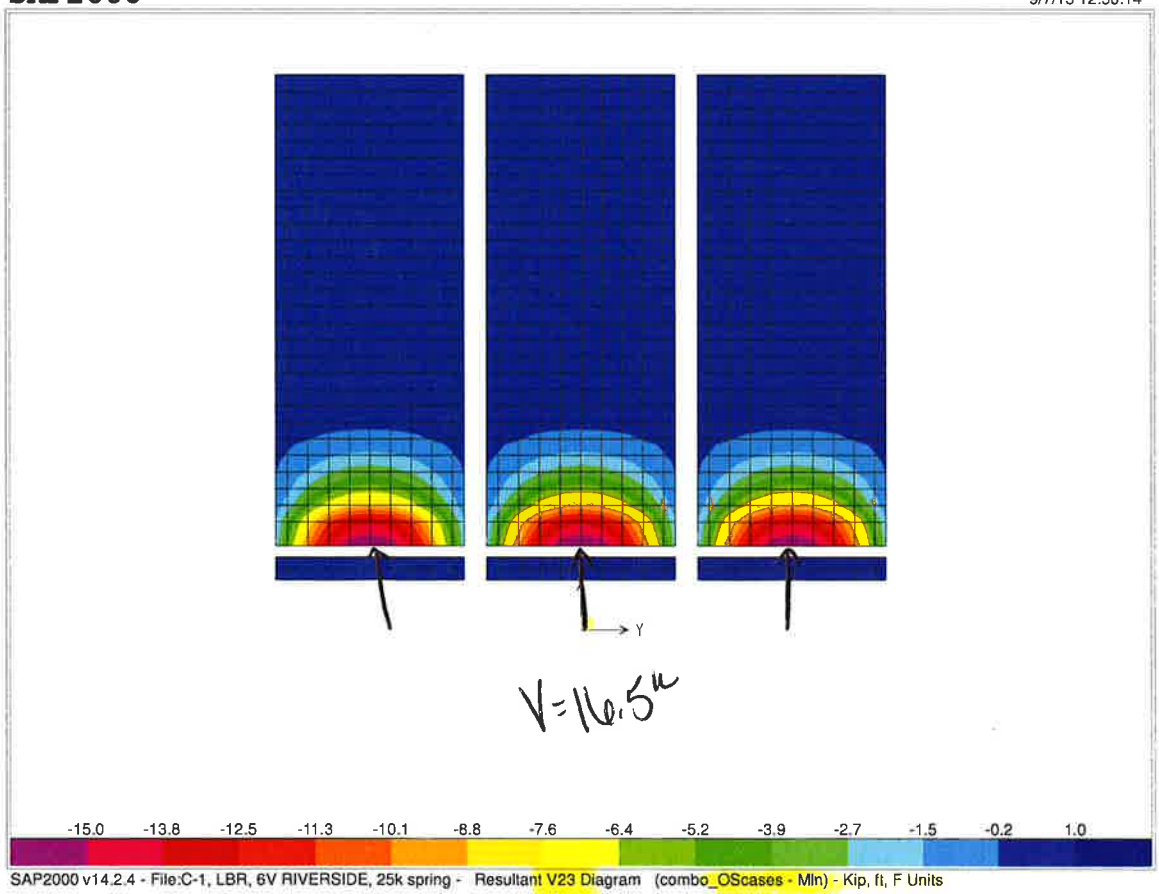


SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OP - Min) - Kip, ft, F Units

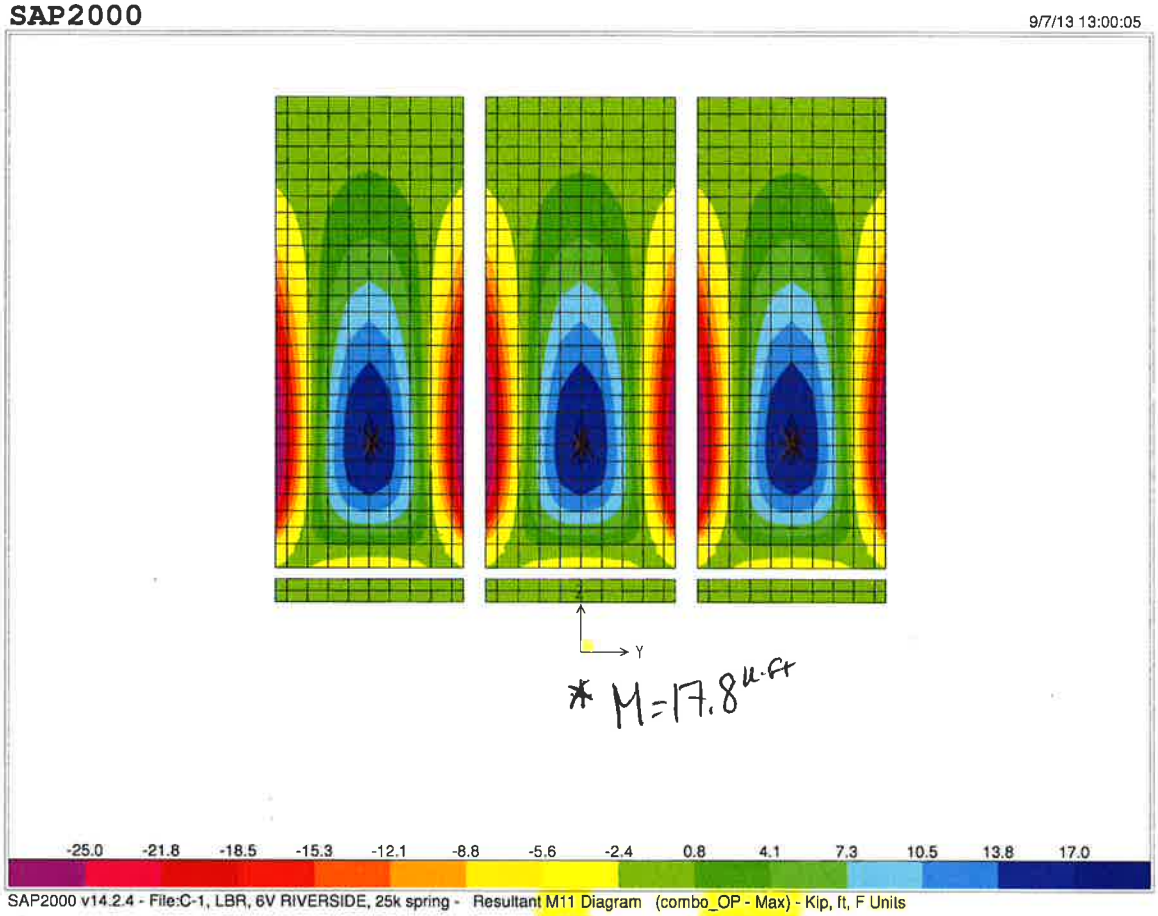
SAP2000 9/7/13 12:58:08



SAP2000 9/7/13 12:56:14

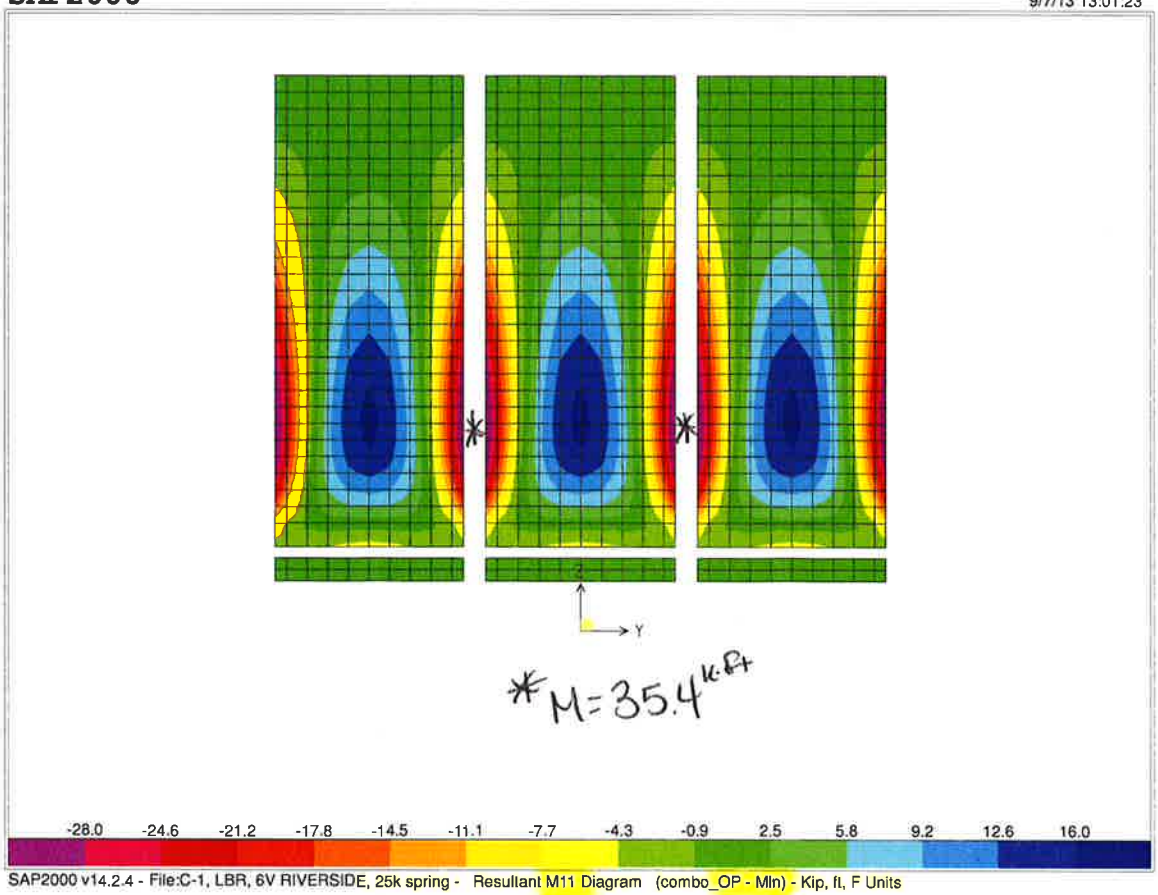


SAP2000 9/7/13 13:00:05



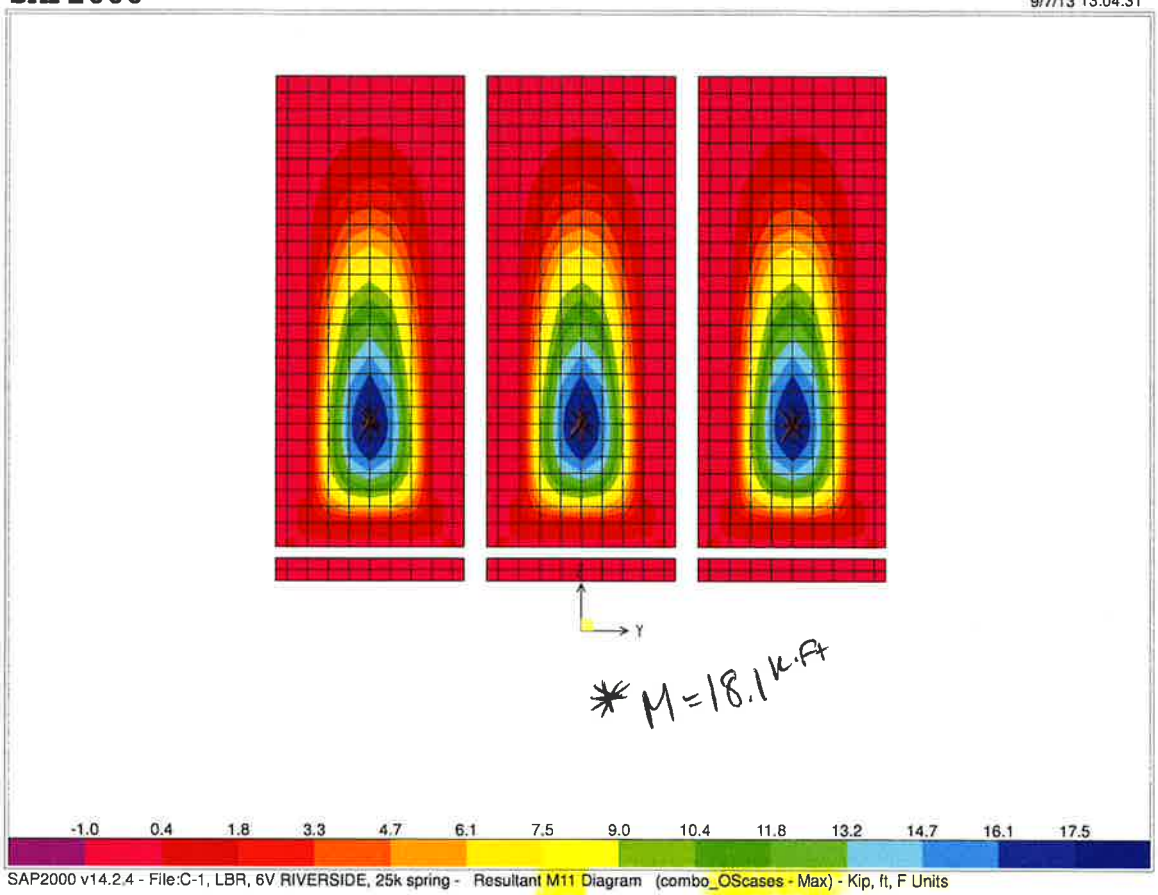
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/7/13 13:01:23



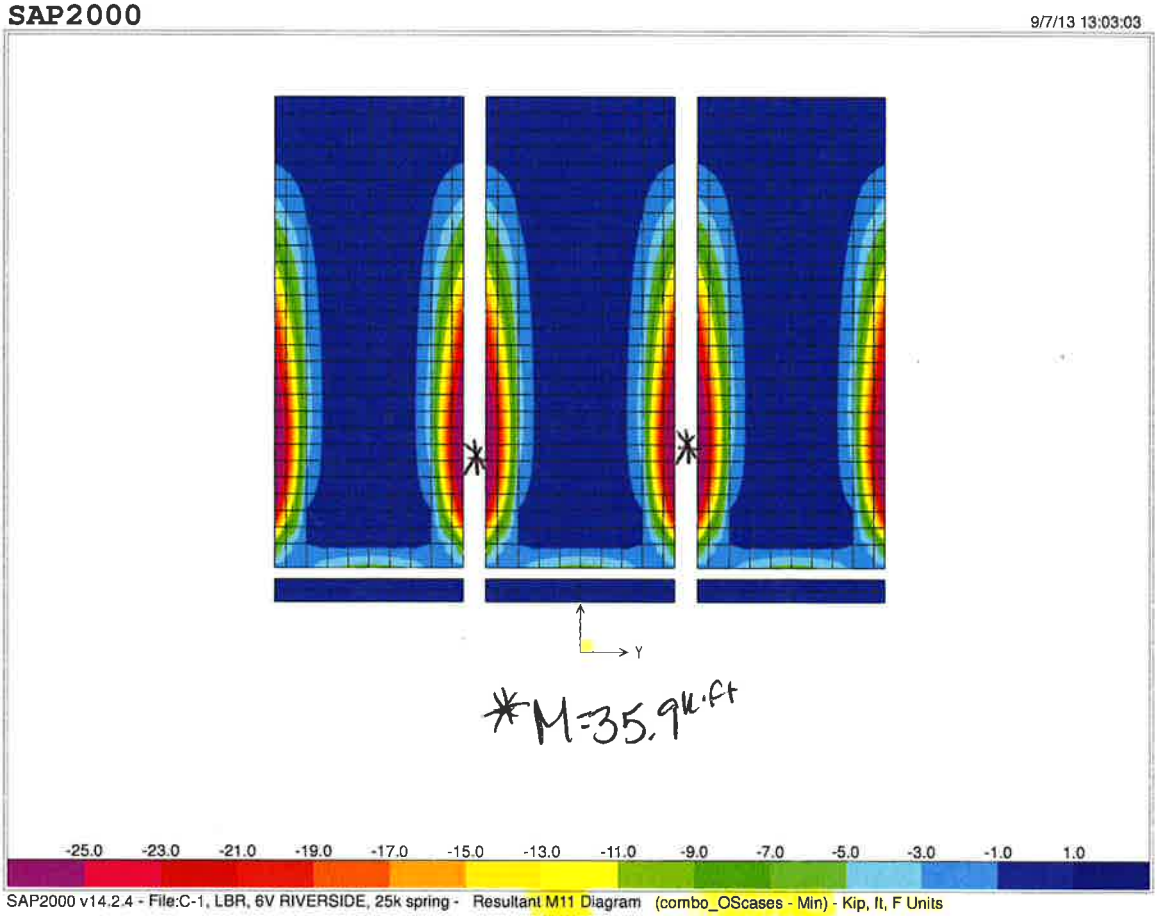
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/7/13 13:04:31



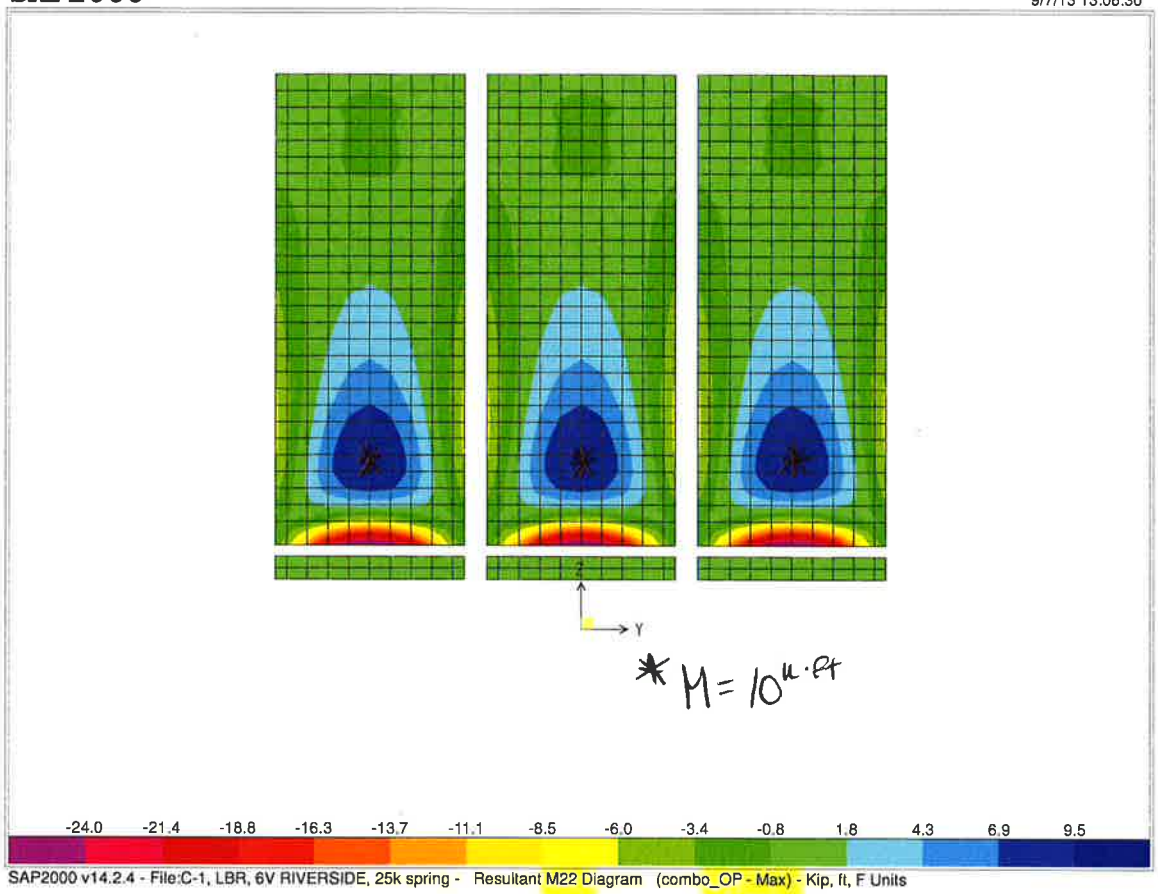
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/7/13 13:03:03



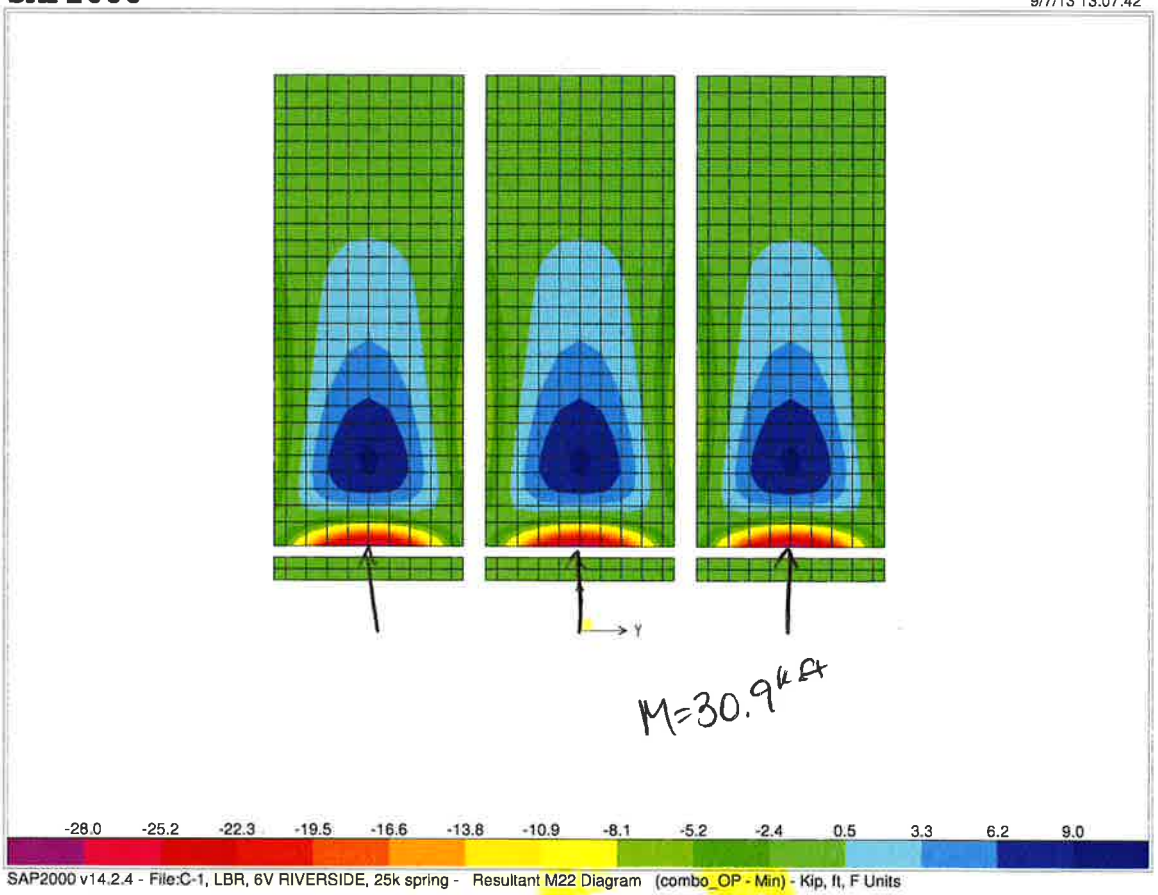
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/7/13 13:06:30



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

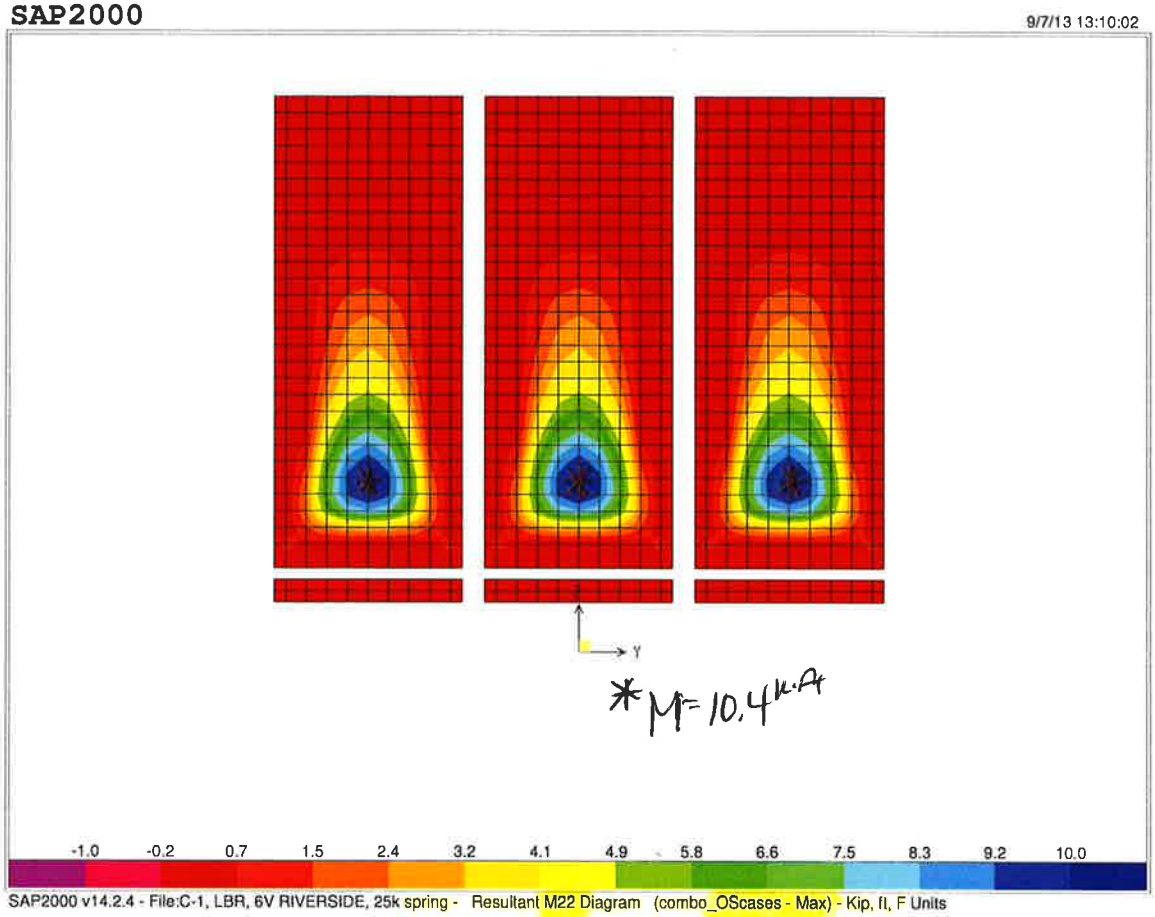
SAP2000 9/7/13 13:07:42



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000

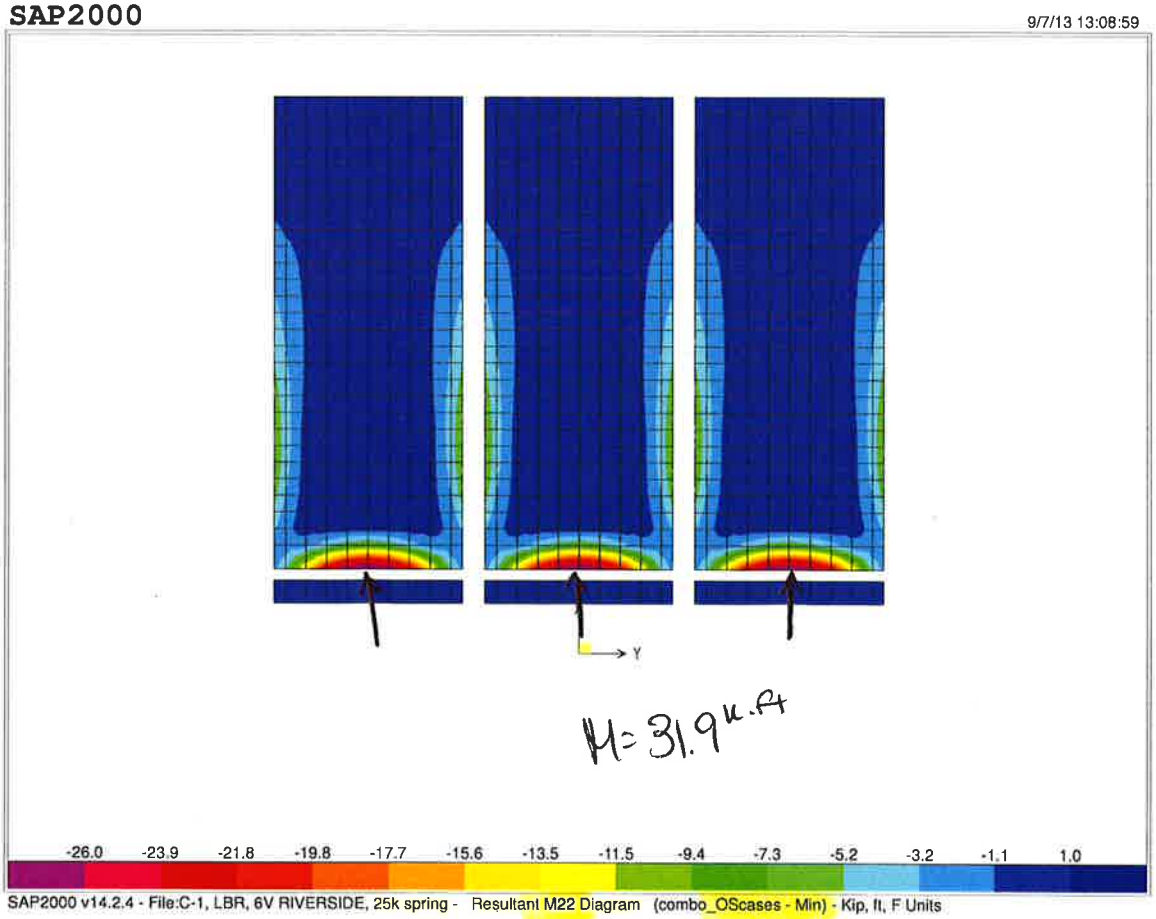
9/7/13 13:10:02



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000

9/7/13 13:08:59



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

PART 9

Base Slab Design

*** Bottom Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP	30.1	47.3	26.3	142.7	118.9	192.1
combo_OScases	24.5	41.4	21.9	120.2	110.8	169.8

* Shear taken at a distance 'd' = 29.44 inch from centerlines of piles.

Max. Shear = 47.3 kip
Bottom Moment, Primary = 118.9 kip-ft (+M22 controls bottom transverse reinforcement)
Top Moment, Primary = 192.1 kip-ft (-M22 controls top transverse reinforcement)
Bottom Moment, Secondary = 26.3 kip-ft (+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary = 142.7 kip-ft (-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 42in * 12in strip = 504 in^2

$d_{top\ bars}$ = 42in - 4in cover - 1/2 bar diameter = 37.44 in #9 bar assumed

$d_{bottom\ bars}$ = 42in - 9in pile embed - 3in cover - 1/2 bar diameter = 29.44 in

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 5.387 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.411 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'c) * b * d) / f_y = 1.421 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.497 in^2 ACI 318-02, 10.5, flexural member min.

Bottom Slab Summary:			
	Max. Rebar =	**5.387 in^2**	- half each face
	Min. T&S Rebar =	**0.706 in^2**	- per face
	Min. Flexural Rebar =	**1.497 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d
= 0.85 * 2 * √4000 * 12in * 37.436in
= 48,300 lb

ϕVc = 48.3kip > Vu = 47.3kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Transverse Top Face: $d_{top\ bars}$ = 37.44 in

* Will try **# 9 @ 6"** to start: As, # 9 @ 6" = 2.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 2 * 60ksi / (0.85 * 4ksi * 12in) = 2.941 in

ϕMn = 0.9 * $2in^2$ * 60ksi * (37.436in - 2.941in / 2)
= 3884.3 kip-in/ft
= 323.69 kip-ft/ft

ϕMn = 323.7kip-ft > Mu = 192.1kip-ft → Use # 9 @ 6"

Transverse Bottom Face: $d_{bottom\ bars}$ = 29.44 in

* Will try **#9 @ 6"** to start: As, #9 @ 6" = 2.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 2 * 60ksi / (0.85 * 4ksi * 12in) = 2.941 in

ϕMn = 0.9 * $2in^2$ * 60ksi * (29.436in - 2.941in / 2)
= 3020.3 kip-in/ft
= 251.69 kip-ft/ft

ϕMn = 251.7kip-ft > Mu = 118.9kip-ft → Use #9 @ 6"

Longitudinal Top Face: $d_{top\ bars}$ = 37.44 in

* Will try **#8 @ 6"** to start: As, #8 @ 6" = 1.58 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

ϕMn = 0.9 * $1.58in^2$ * 60ksi * (37.436in - 2.324in / 2)
= 3094.9 kip-in/ft
= 257.91 kip-ft/ft

ϕMn = 257.9kip-ft > Mu = 142.7kip-ft → Use #8 @ 6"

Longitudinal Bottom Face: $d_{bottom\ bars}$ = 29.44 in

* Will try **#6 @ 6"** to start: As, #6 @ 6" = 0.88 in^2

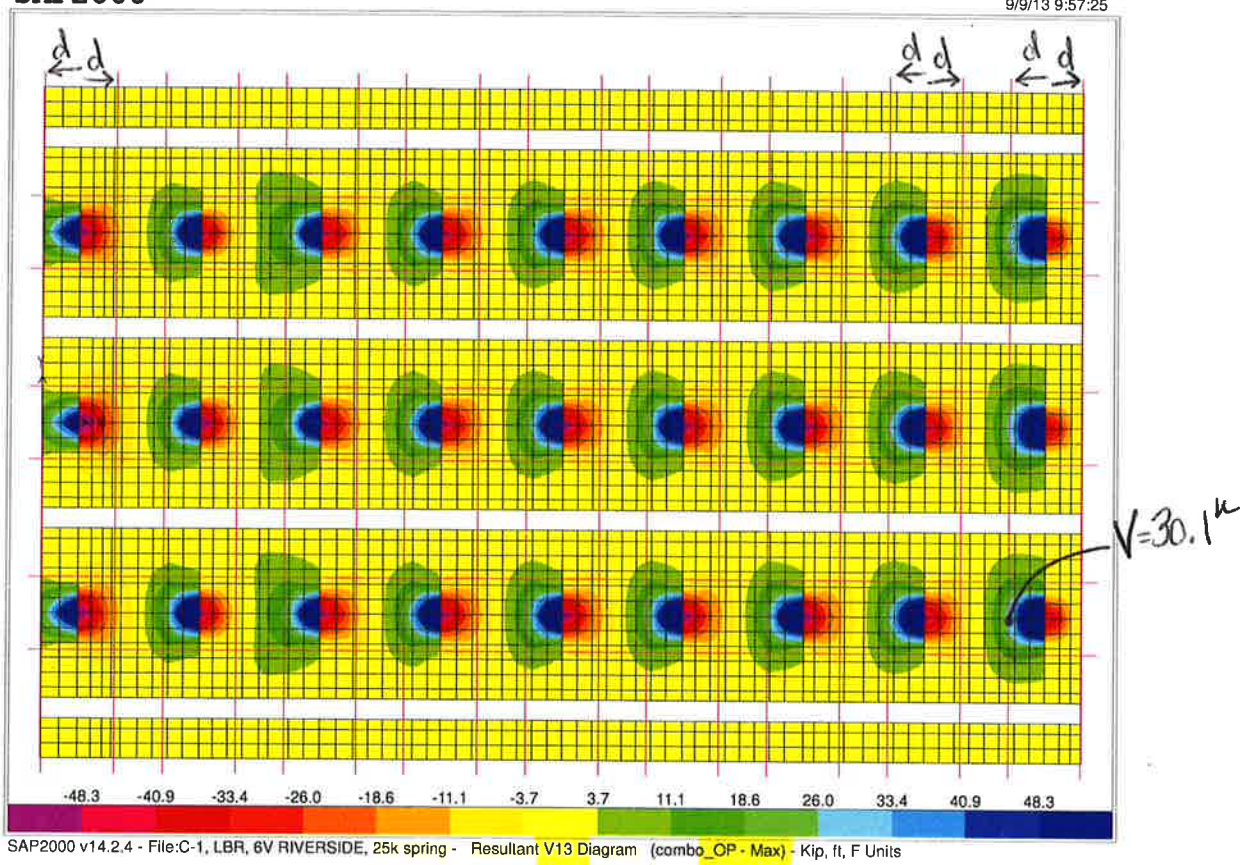
$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.88 * 60ksi / (0.85 * 4ksi * 12in) = 1.294 in

ϕMn = 0.9 * $0.88in^2$ * 60ksi * (29.436in - 1.294in / 2)
= 1368.1 kip-in/ft
= 114.00 kip-ft/ft

ϕMn = 114kip-ft > Mu = 26.3kip-ft → Use #6 @ 6"

SAP2000

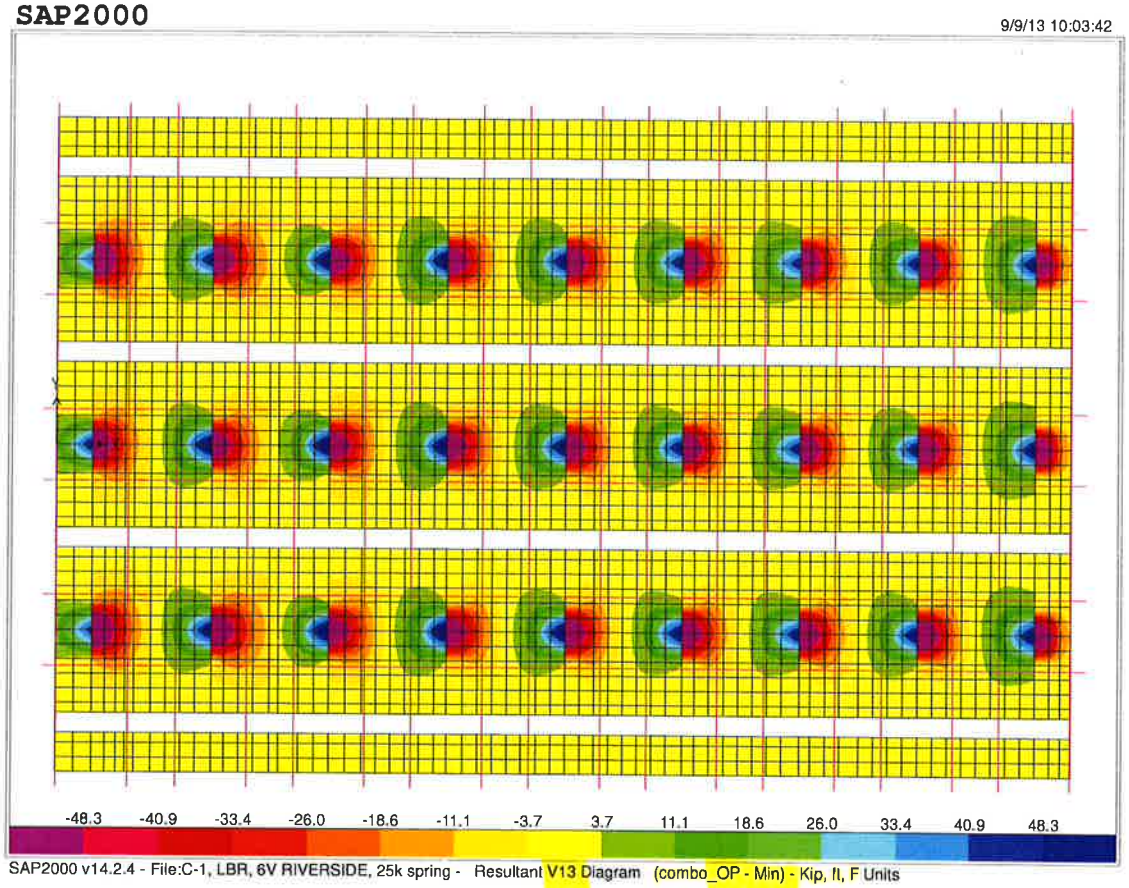
9/9/13 9:57:25



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP - Max) - Kip, ft, F Units

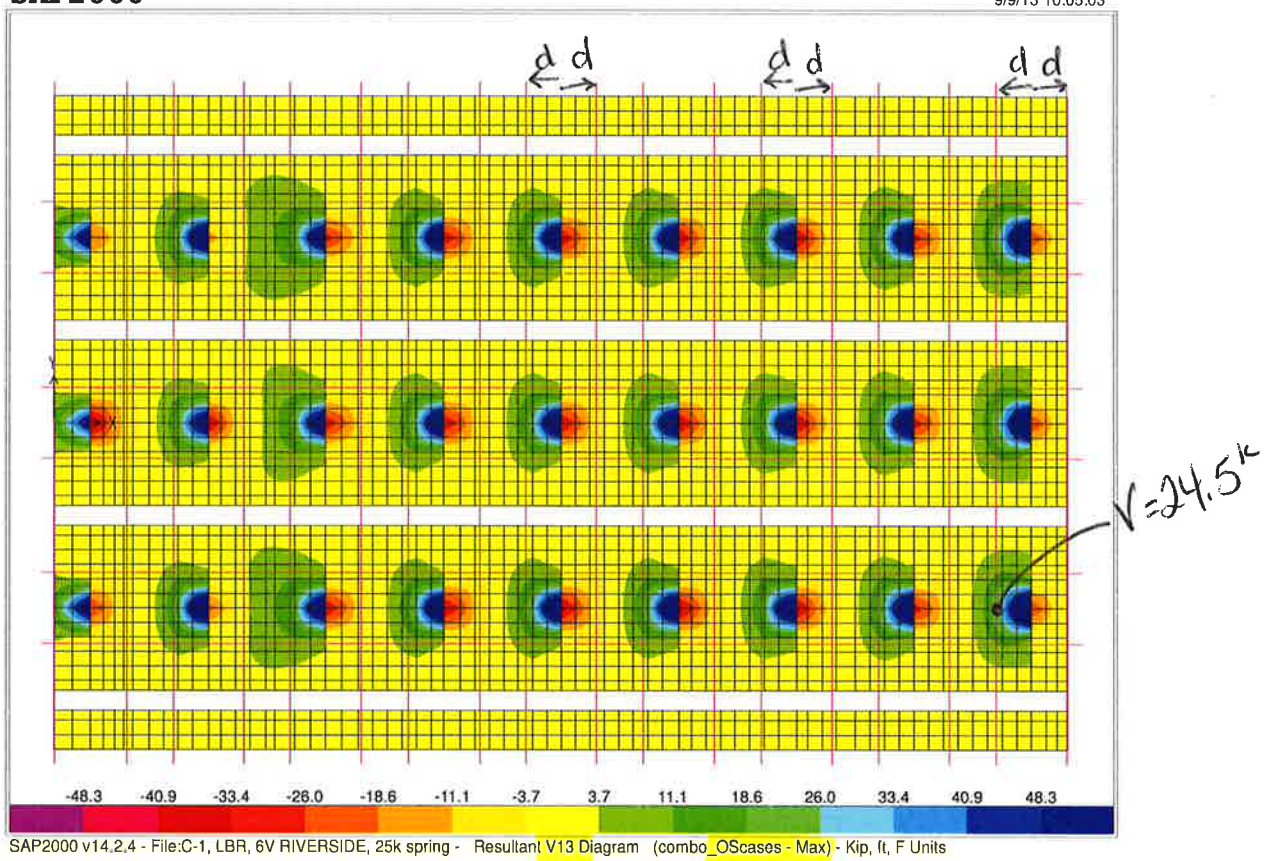
SAP2000

9/9/13 10:03:42



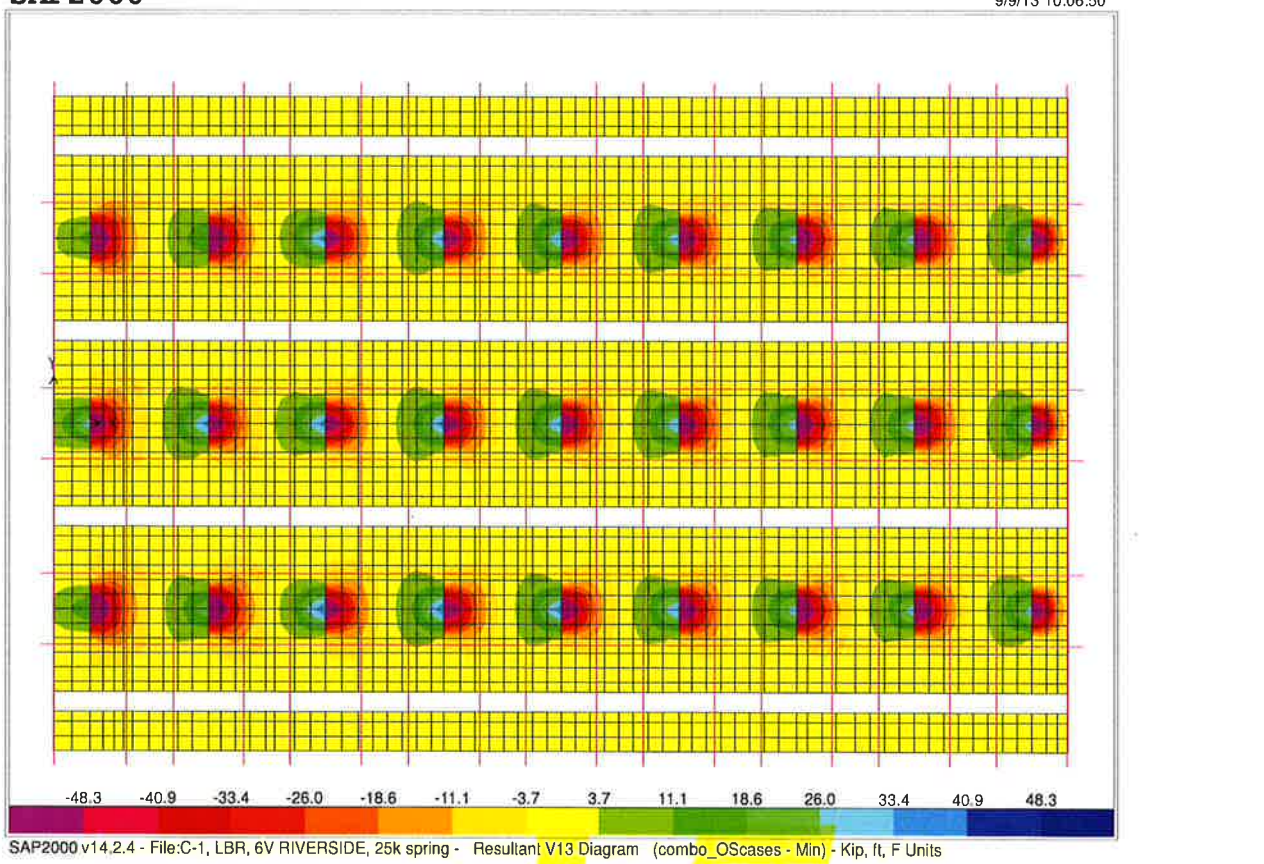
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/9/13 10:05:03



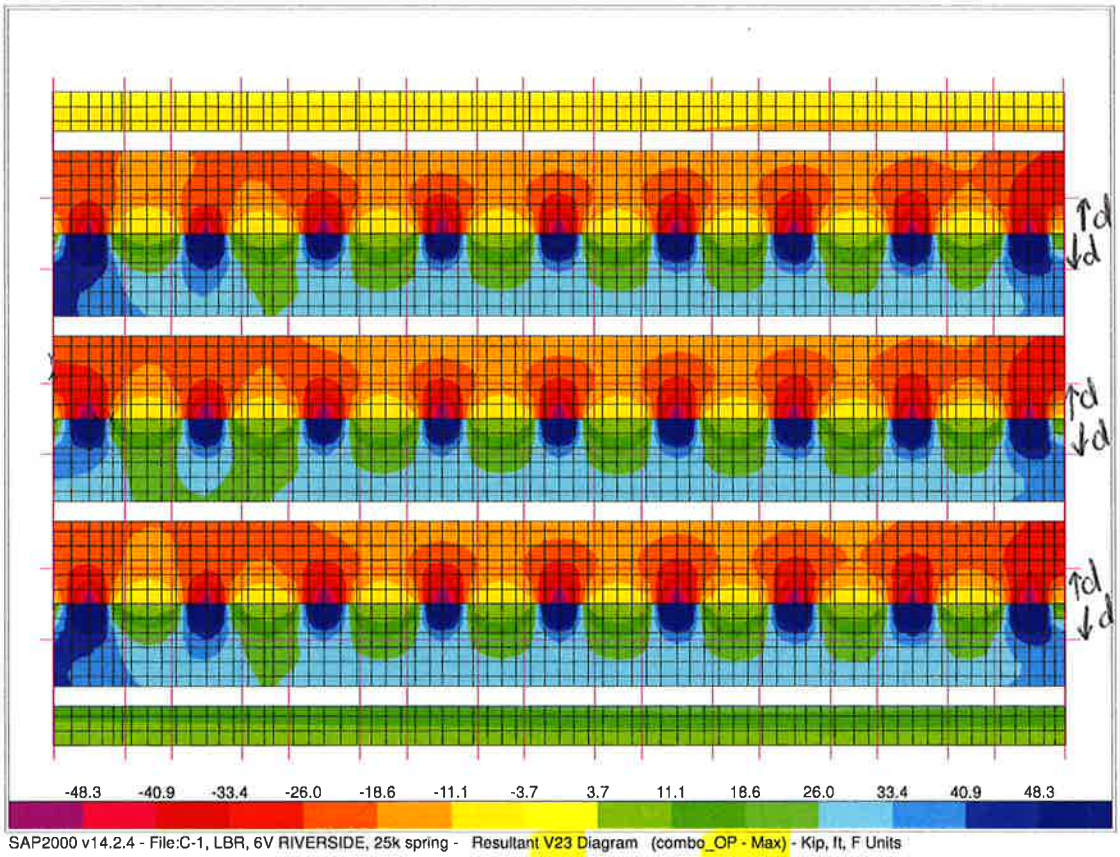
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000 9/9/13 10:06:50



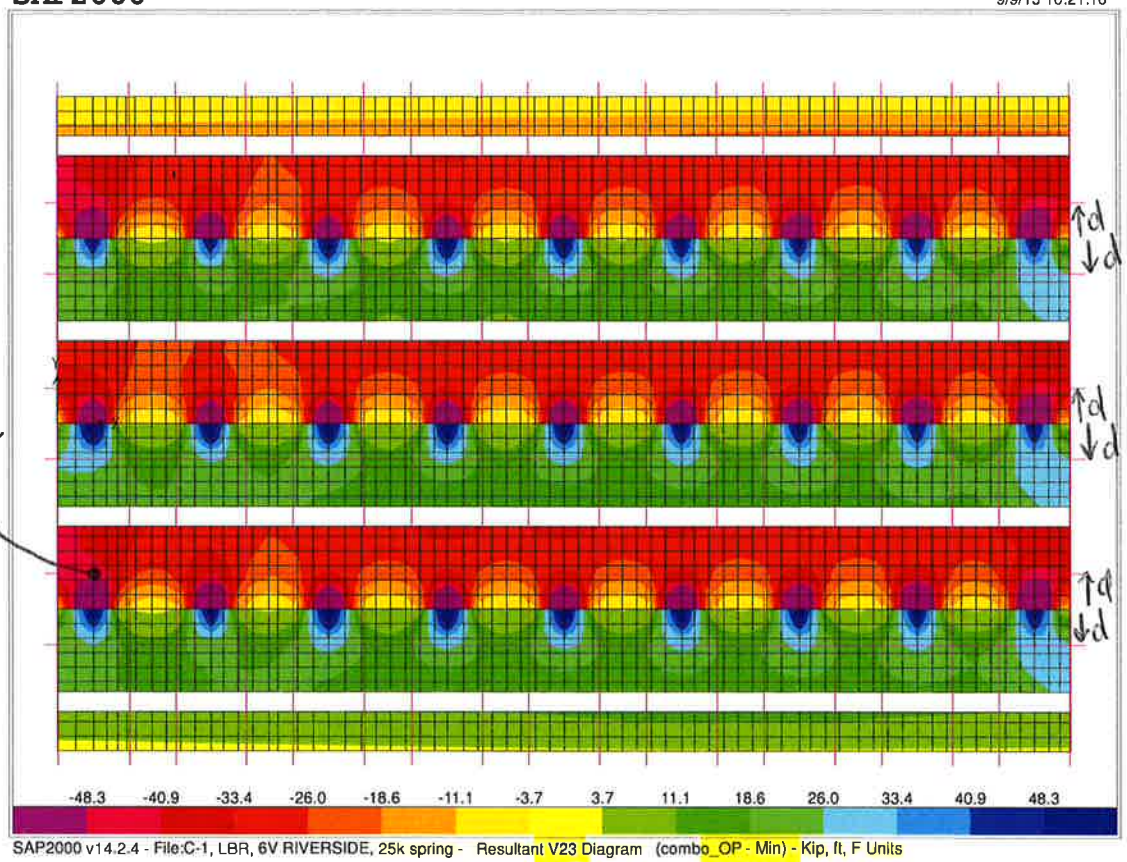
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/9/13 10:19:09



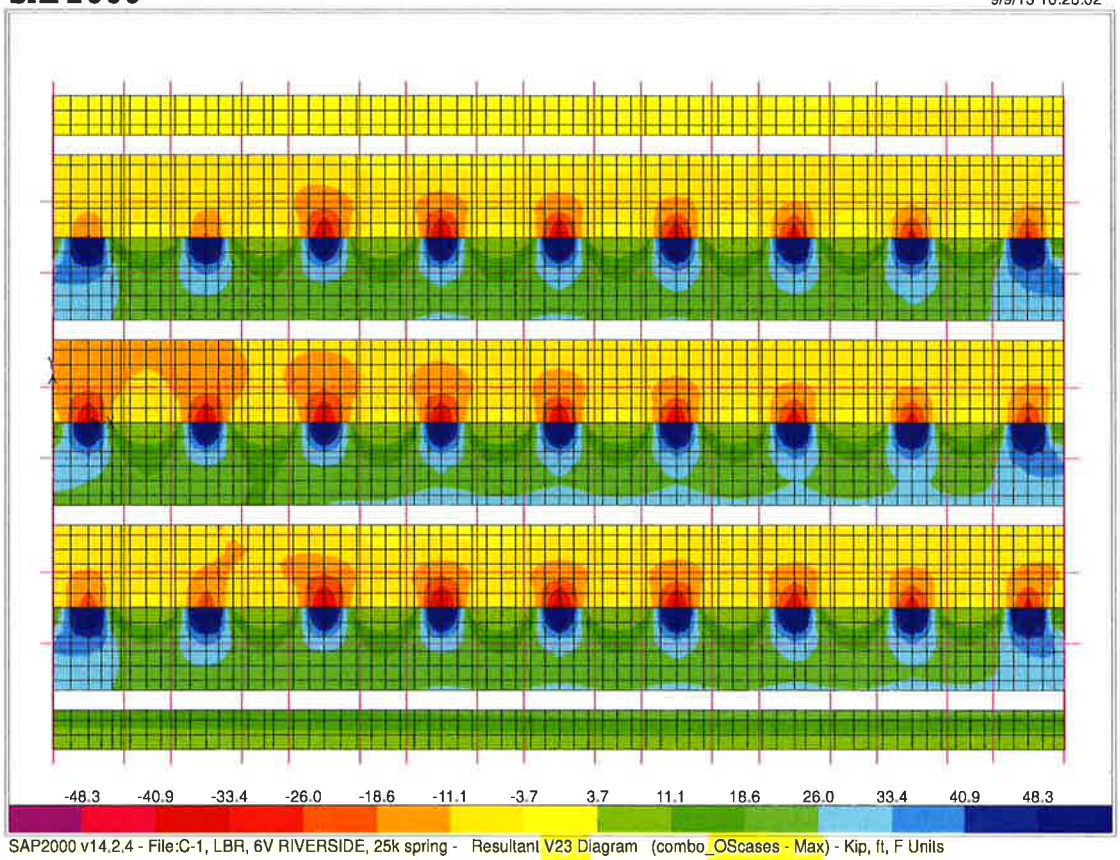
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000 9/9/13 10:21:16



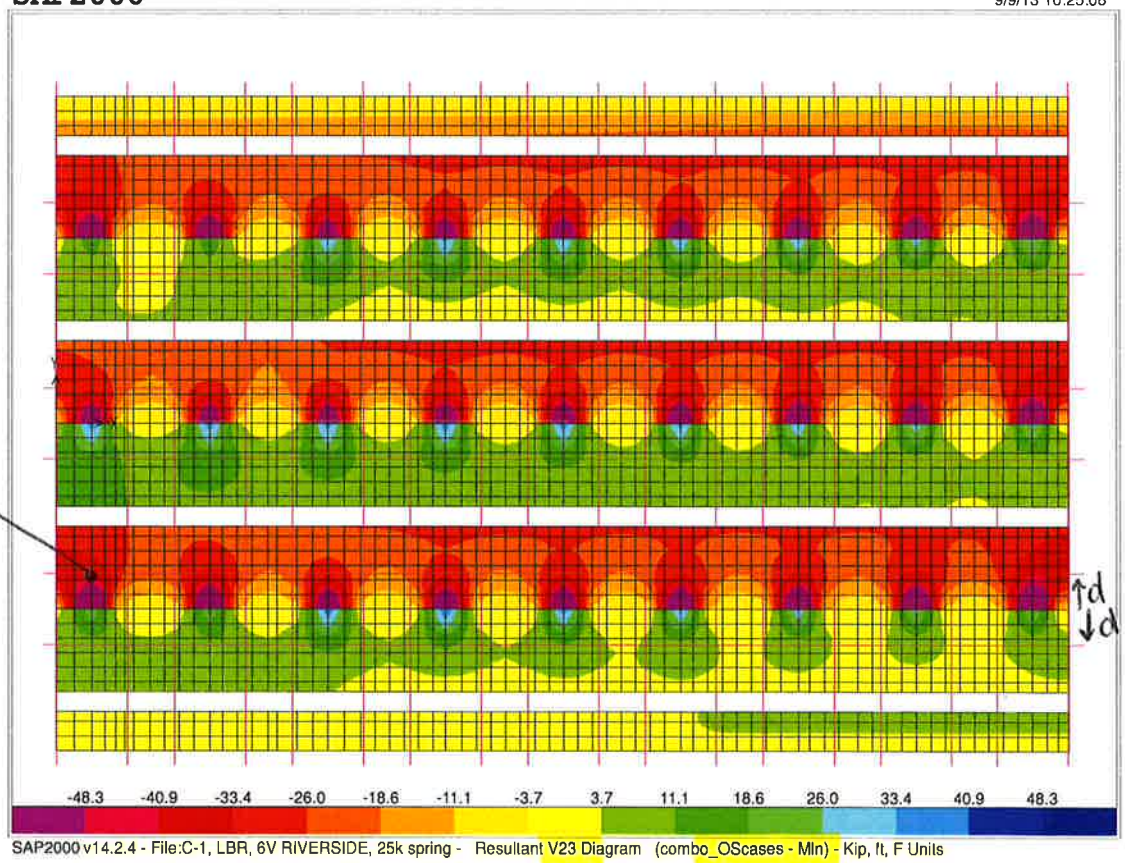
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000 9/9/13 10:28:02



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OScases - Max) - Kip, ft, F Units

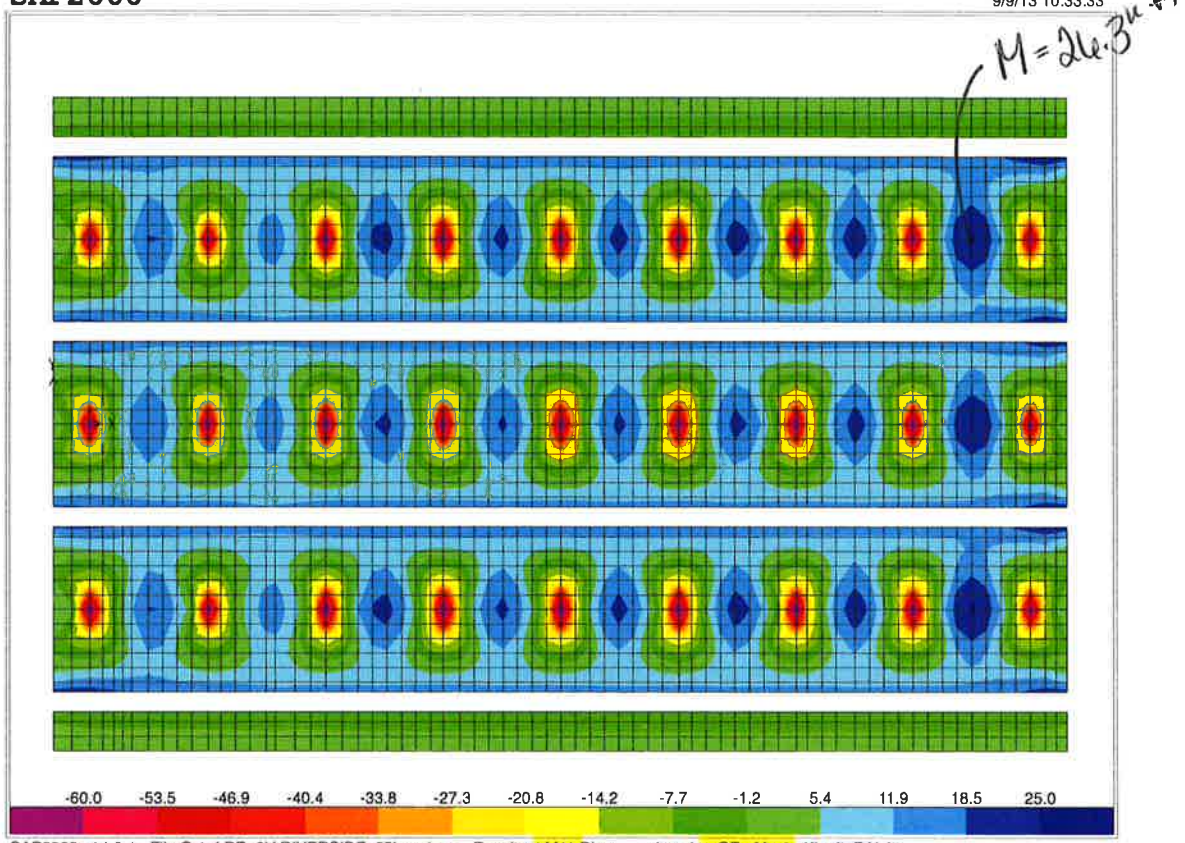
SAP2000 9/9/13 10:25:06



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V23 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000

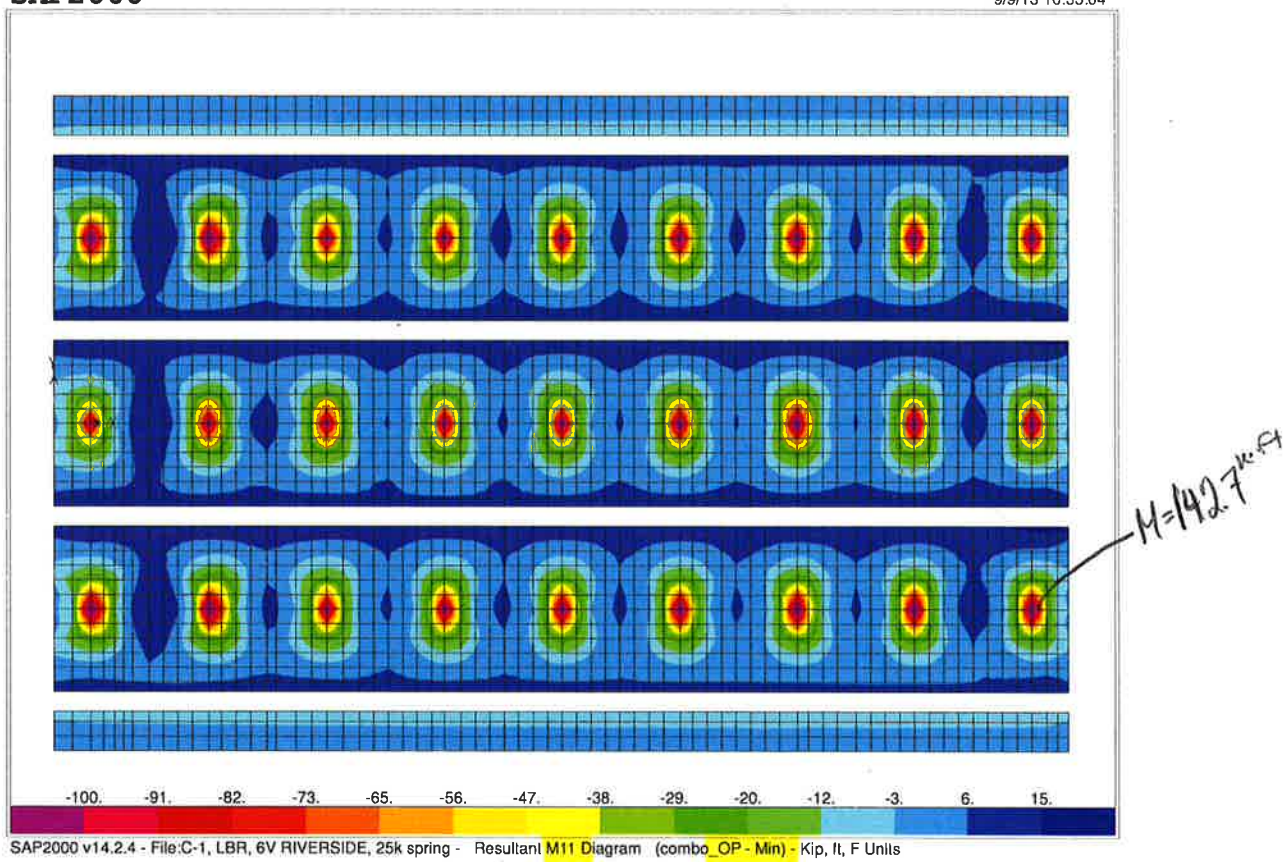
9/9/13 10:33:33



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OP - Max) - Kip, ft, F Units

SAP2000

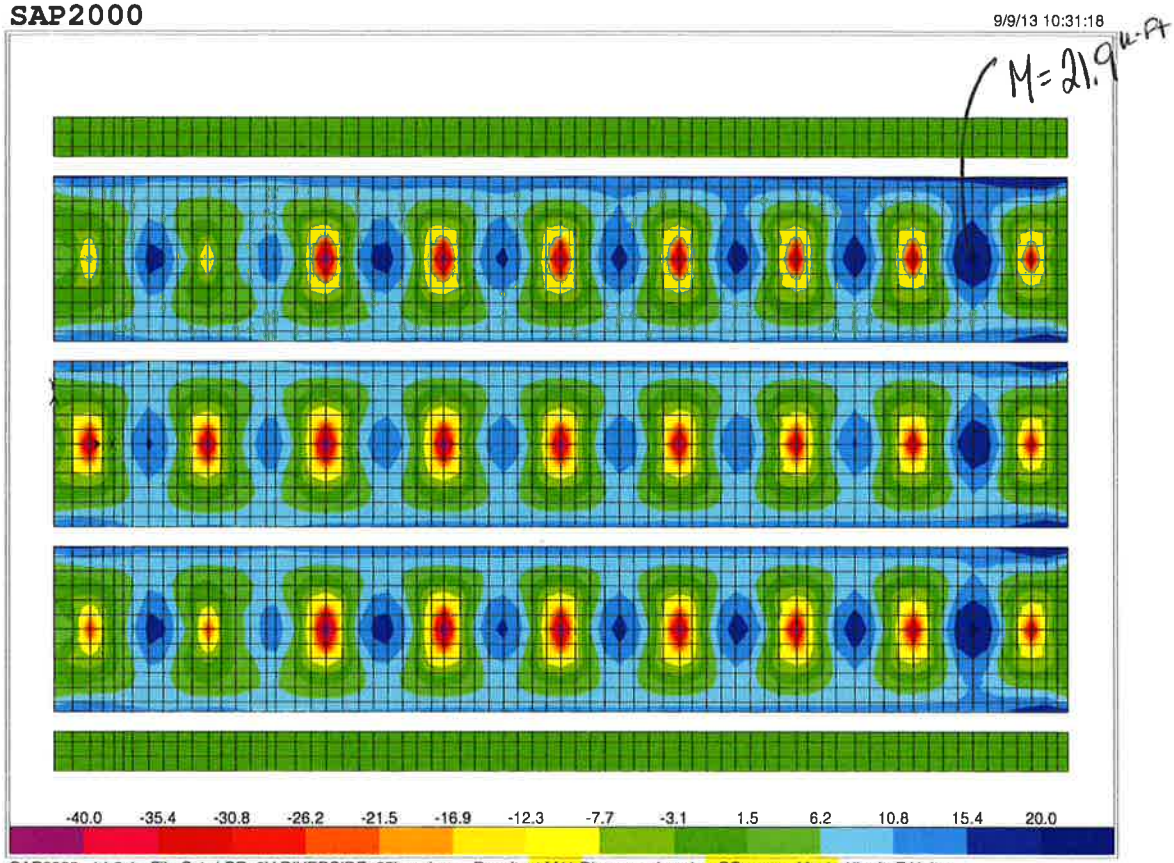
9/9/13 10:35:04



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000

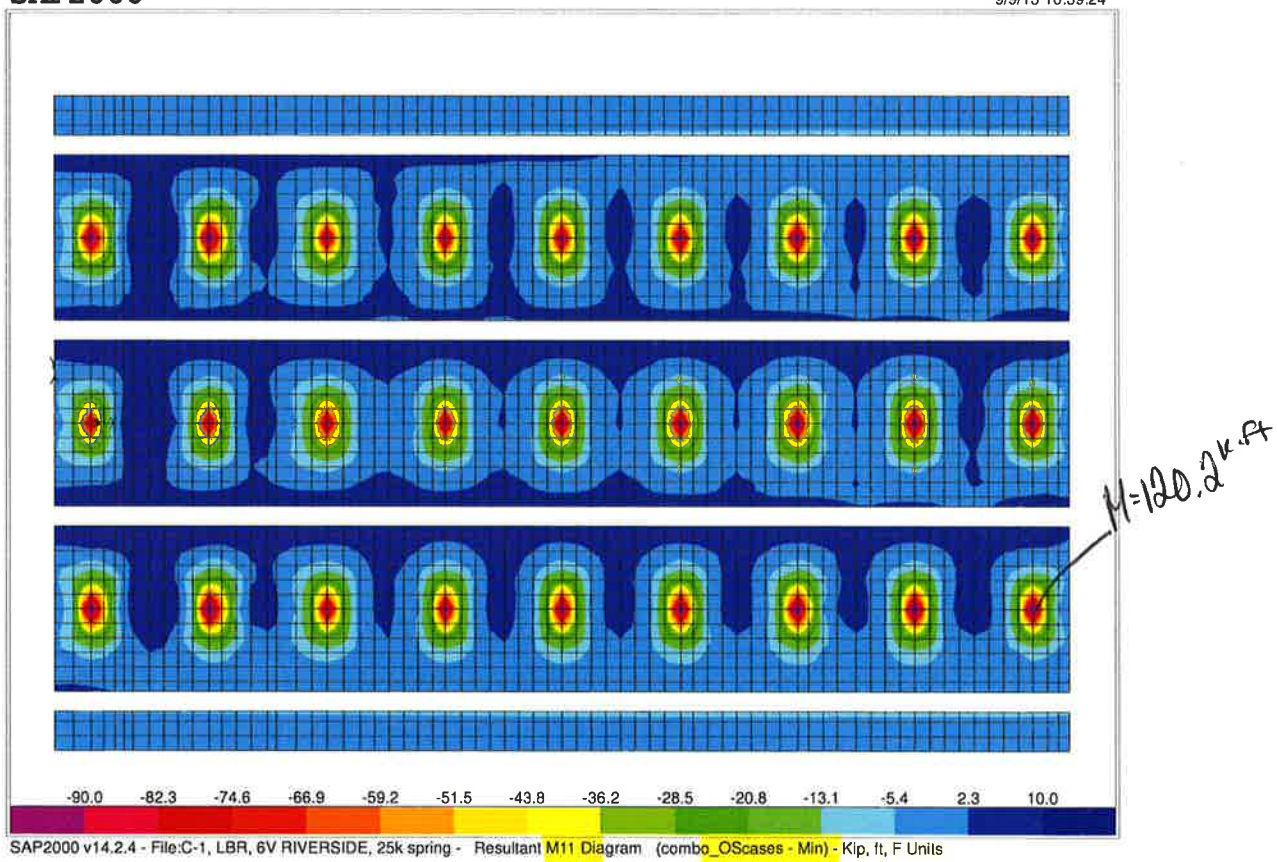
9/9/13 10:31:18



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OScases - Max) - Kip, ft, F Units

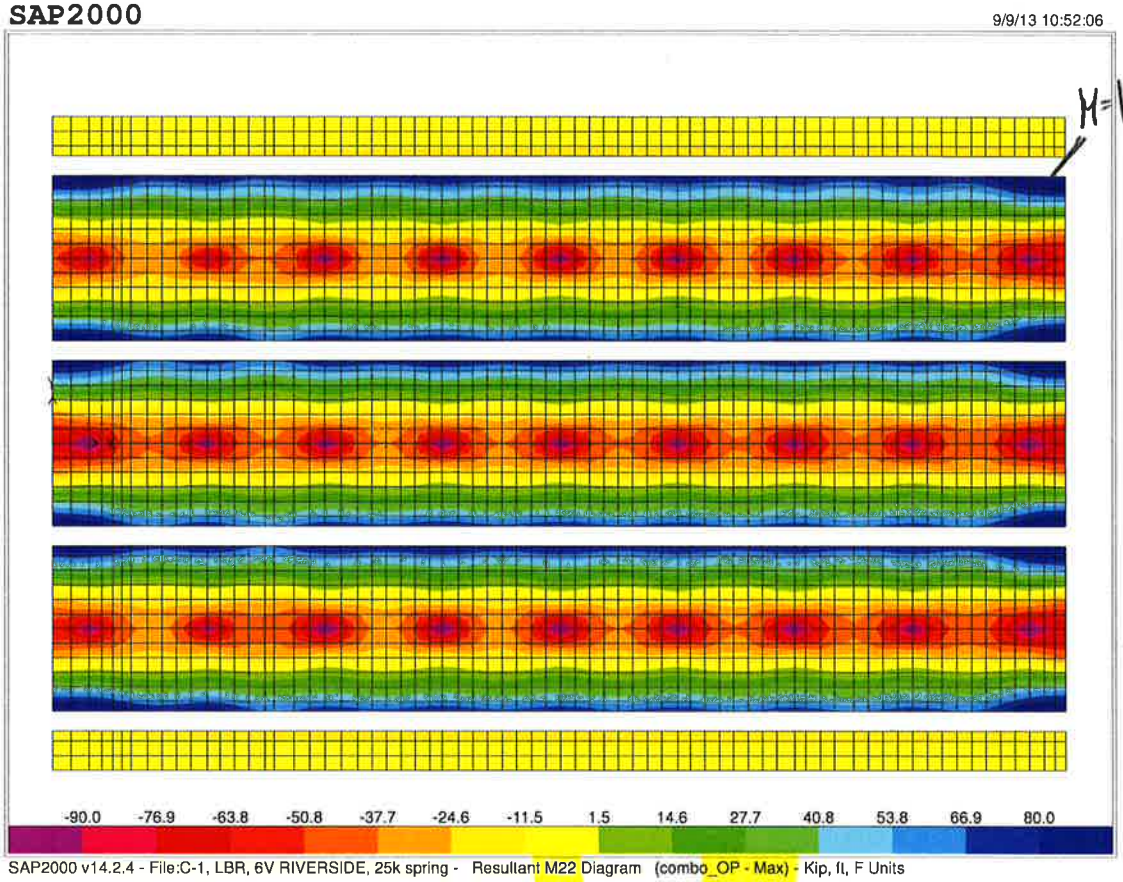
SAP2000

9/9/13 10:39:24



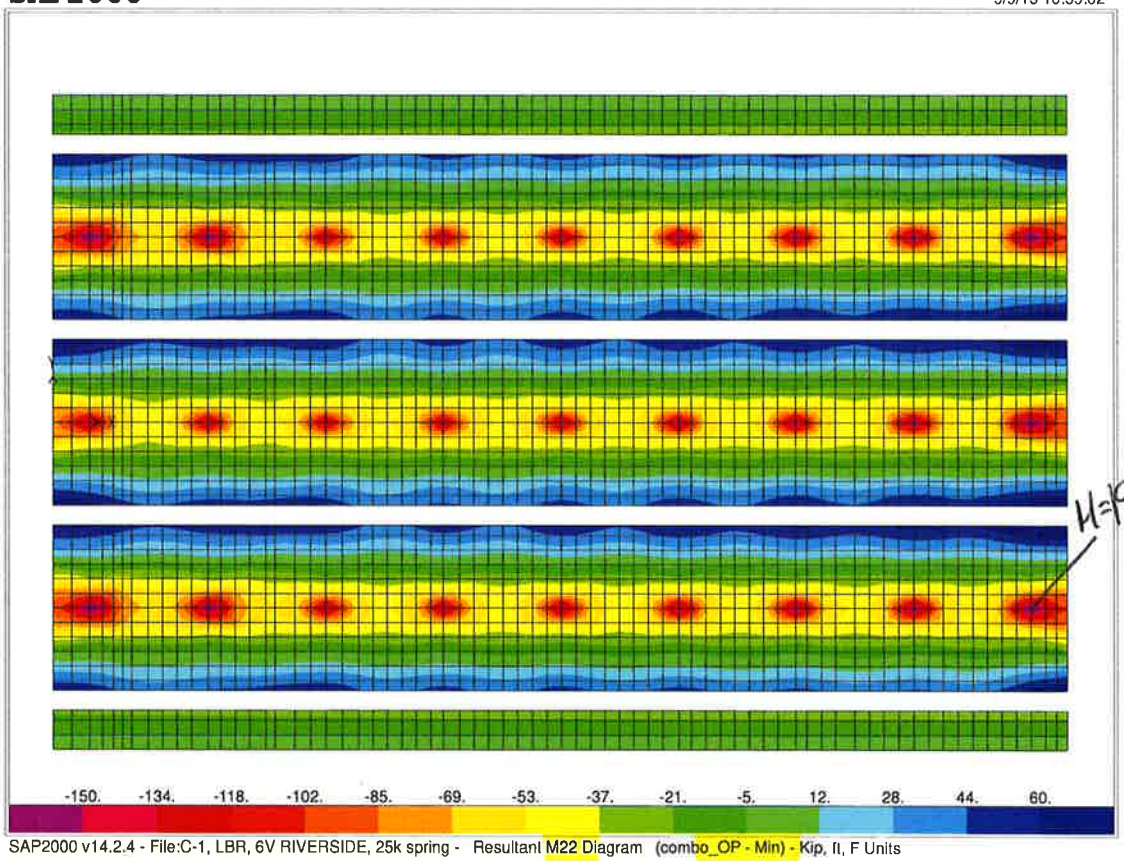
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M11 Diagram (combo_OScases - Min) - Kip, ft, F Units

SAP2000 9/9/13 10:52:06



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OP - Max) - Kip, ft, F Units

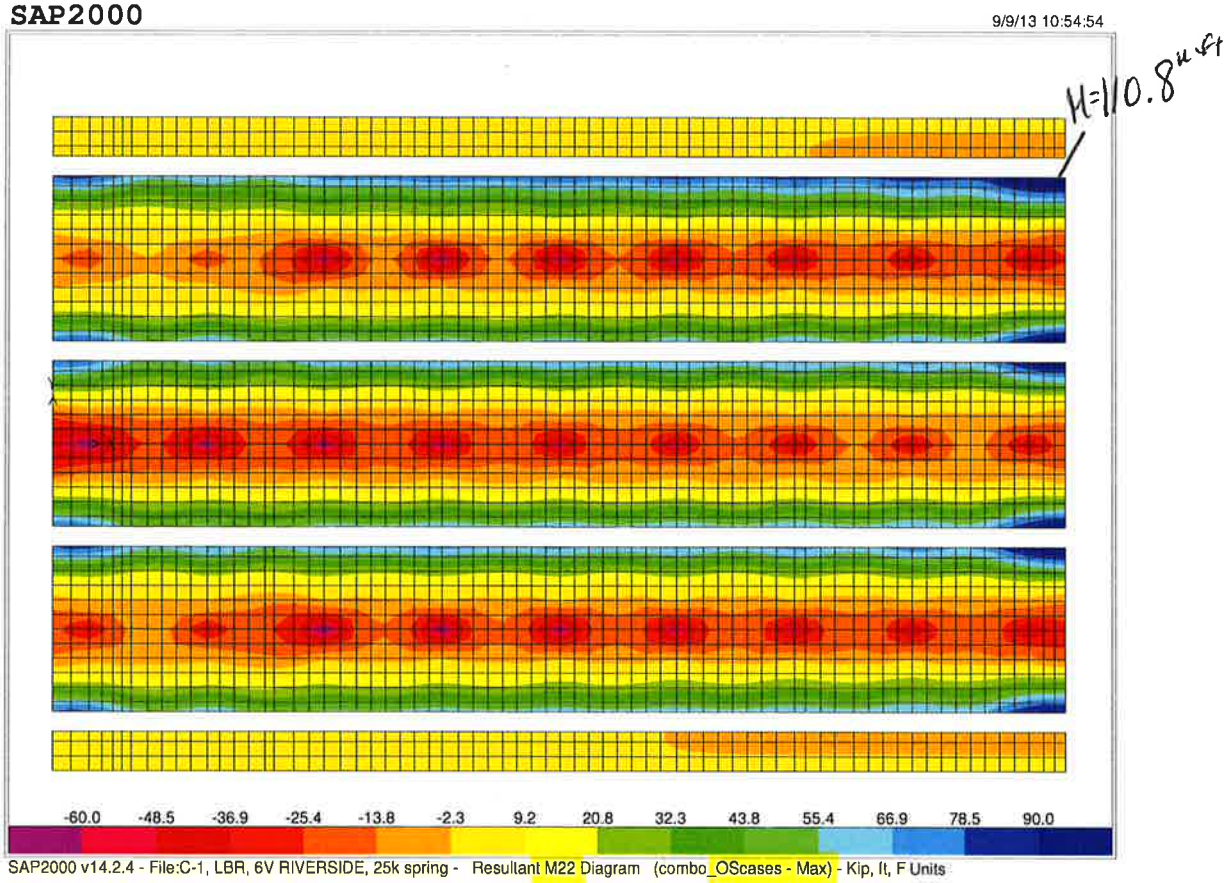
SAP2000 9/9/13 10:59:02



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OP - Min) - Kip, ft, F Units

SAP2000

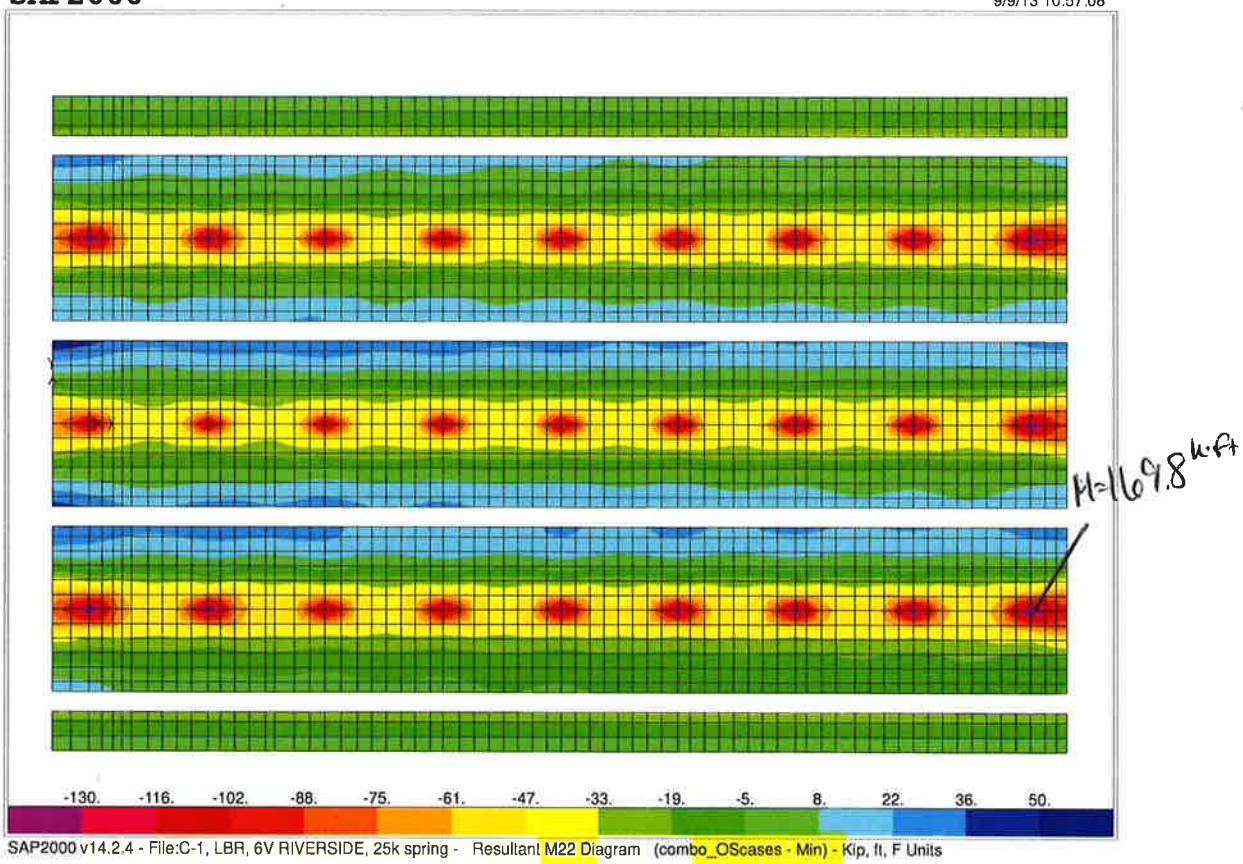
9/9/13 10:54:54



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OScases - Max) - Kip, ft, F Units

SAP2000

9/9/13 10:57:08



SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant M22 Diagram (combo_OScases - Min) - Kip, ft, F Units

*** Bottom Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
combo_OP-ST	44.1	75.1	37.7	213.9	191.0	311.6
combo_OScases-ST	36.4	66.8	34.2	176.1	173.5	272.2

* Shear taken at a distance 'd' = 29.37 inch from centerlines of piles.

Max. Shear = 75.1 kip
Bottom Moment, Primary = 191.0 kip-ft (+M22 controls bottom transverse reinforcement)
Top Moment, Primary = 311.6 kip-ft (-M22 controls top transverse reinforcement)
Bottom Moment, Secondary = 37.7 kip-ft (+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary = 213.9 kip-ft (-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 42in * 12in strip = 504 in^2

$d_{top\ bars}$ = 42in - 4in cover - 1/2 bar diameter = 37.37 in #10 bar assumed

$d_{bottom\ bars}$ = 42in - 9in pile embed - 3in cover - 1/2 bar diameter = 29.37 in

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 5.387 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.411 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.418 in^2 ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.495 in^2 ACI 318-02, 10.5, flexural member min.

Bottom Slab Summary:	**Max. Rebar =**	**5.387 in^2**	- half each face
	Min. T&S Rebar =	**0.706 in^2**	- per face
	Min. Flexural Rebar =	**1.495 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 37.365in

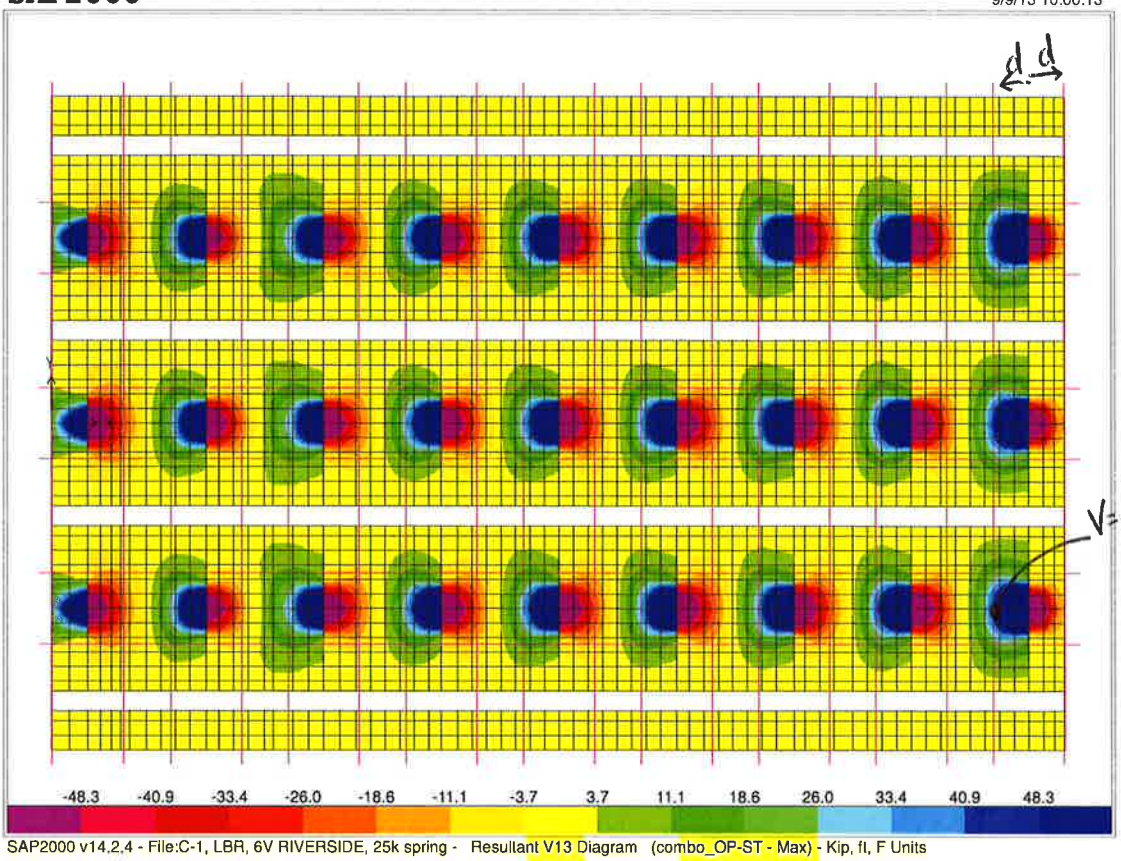
= 48,209 lb

ϕVc = 48.2kip < Vu = 75.1kip → Section NOT OK

* A 3'-6" slab does not have enough capacity to carry the excess shear forces due to the addition of Settlement Loads. A copy of the SAP model with a 4'-6" slab will now be created & analyzed to determine if the additional 1' of concrete is enough to carry the settlement loads. Pile reactions will also be rechecked to make sure the design tip elevation is still adequate.

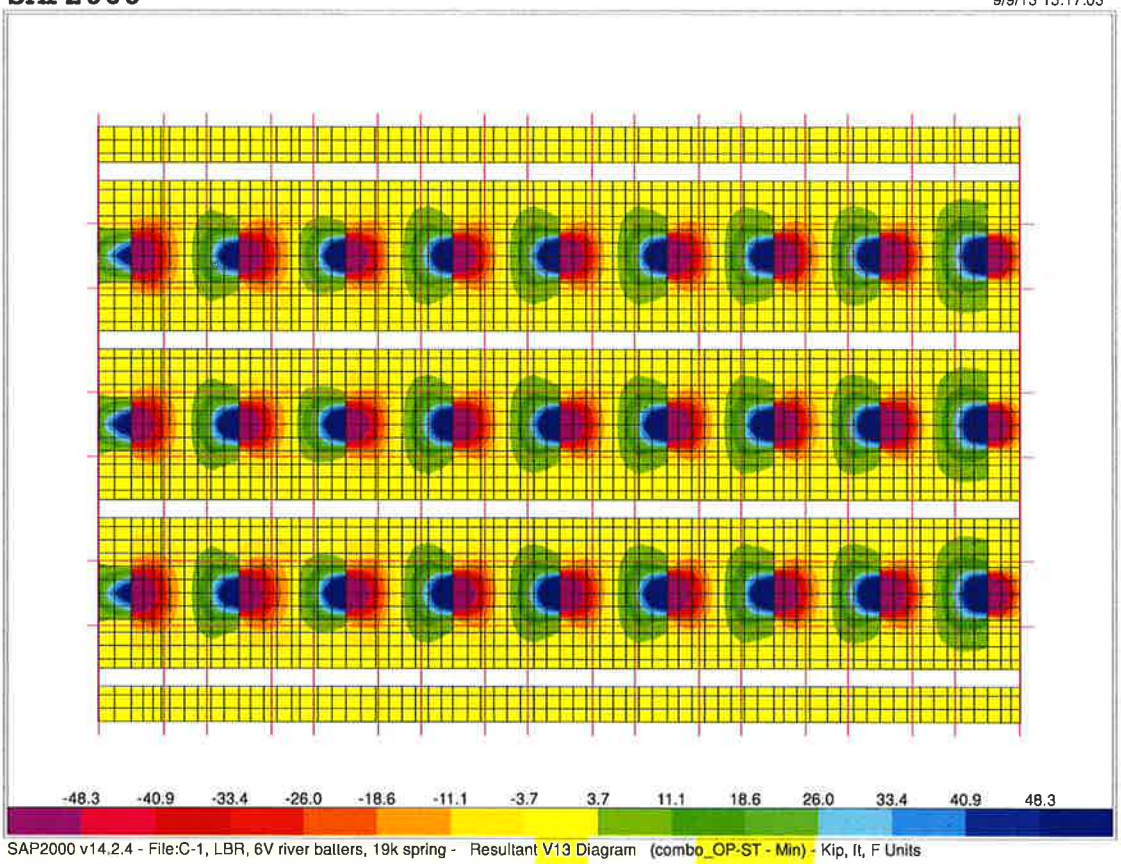
* Only the results of the settlement load cases will be shown in this update for the 4'-6" slab. As can be seen by the preceeding moment & shear results, the settlement cases controlled the design for all shear & moment calculations. All members above the base slab will not be affected by the increase in the base slab thickness.

SAP2000 9/9/13 10:00:13



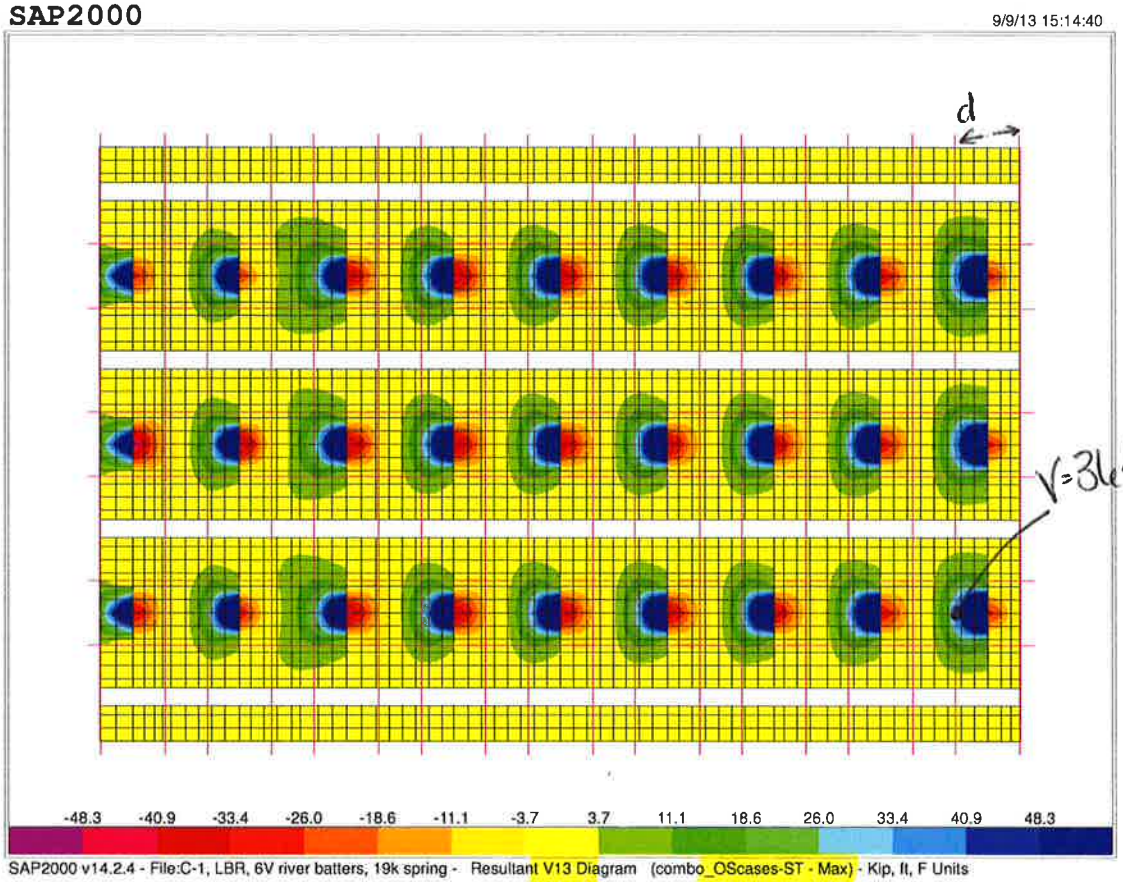
SAP2000 v14.2.4 - File:C-1, LBR, 6V RIVERSIDE, 25k spring - Resultant V13 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 15:17:03



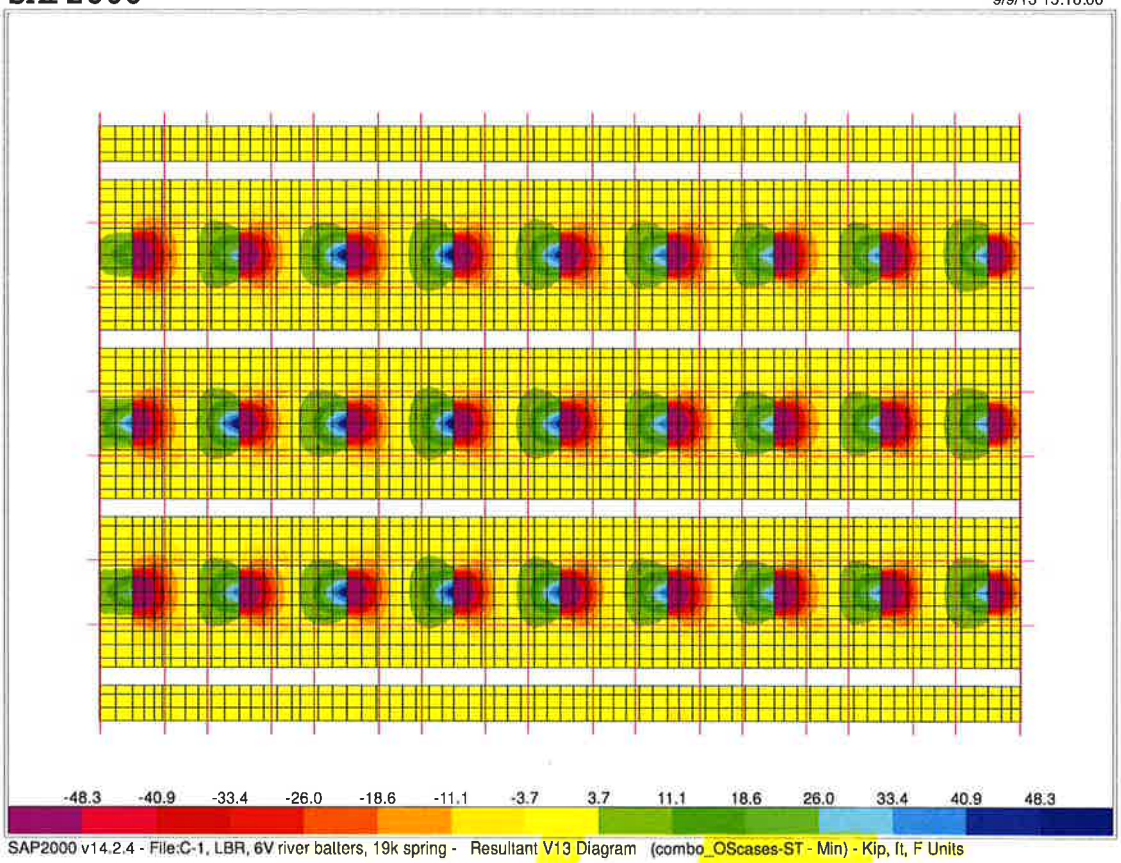
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 15:14:40



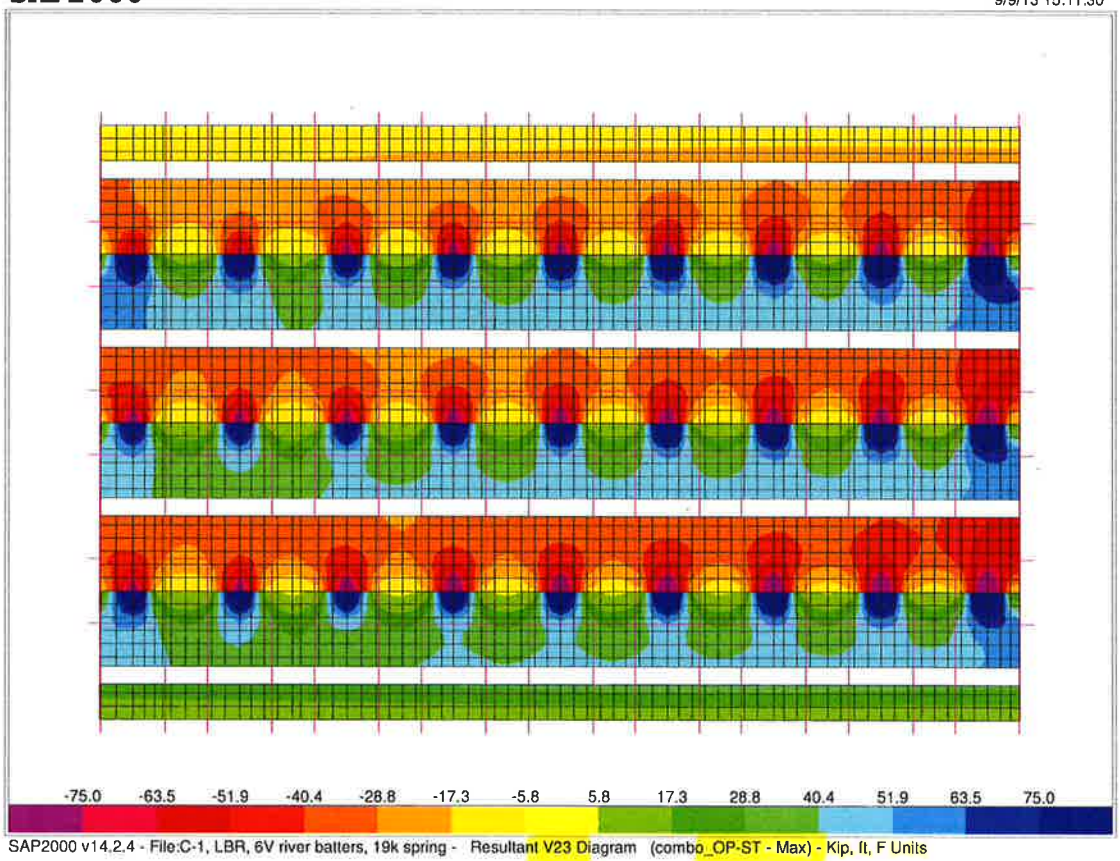
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 15:16:06



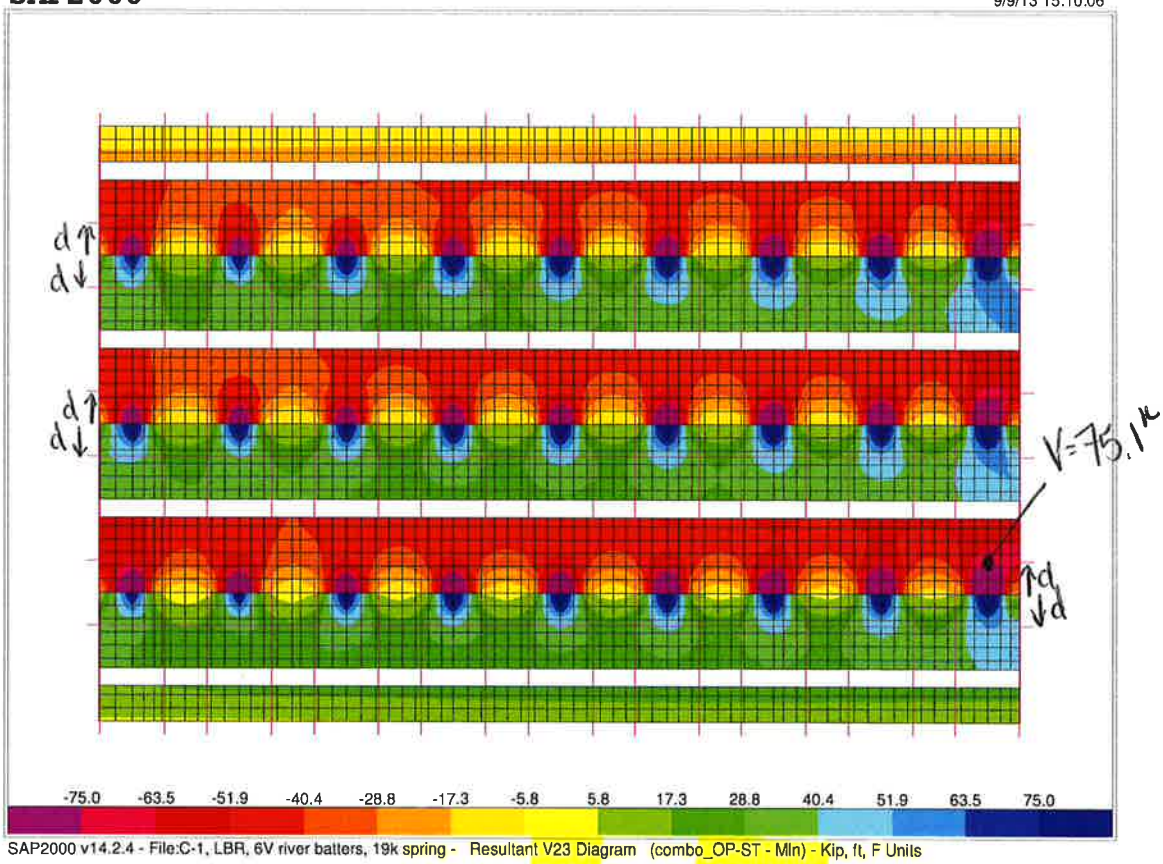
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V13 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 15:11:30



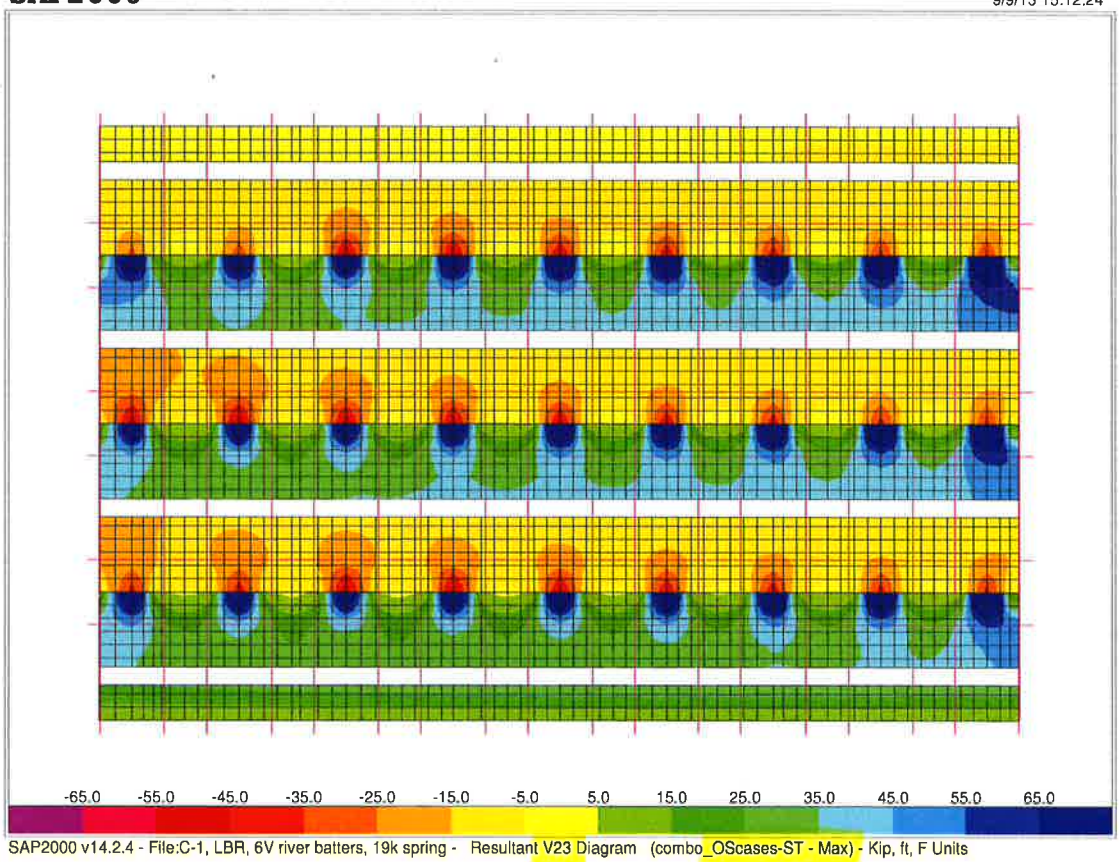
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 15:10:06



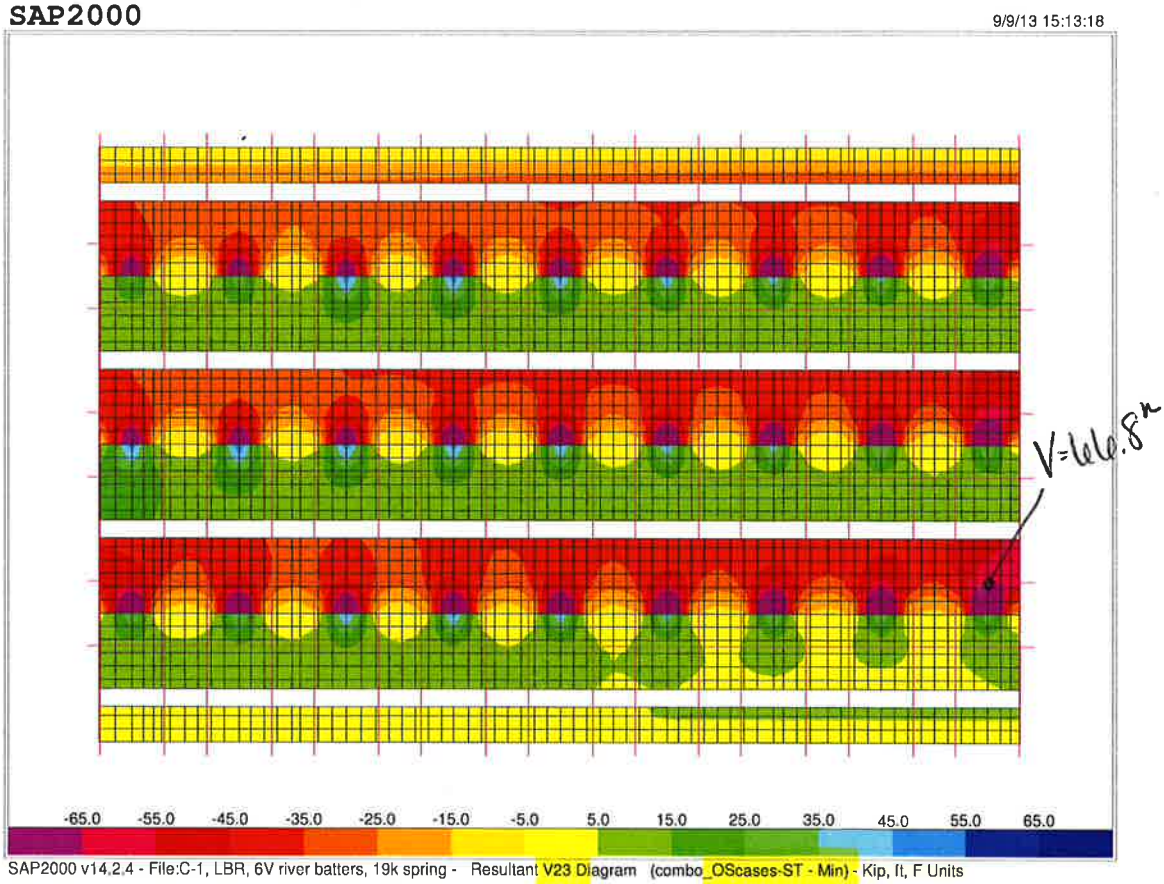
SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 15:12:24



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 15:13:18



SAP2000 v14.2.4 - File:C-1, LBR, 6V river batters, 19k spring - Resultant V23 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

*** Given Information:**

Bottom Slab Thickness =	4.5	ft
f'_c =	4	ksi
f_y =	60	ksi
ϕ, shear =	0.85	
ϕ, moment =	0.90	
ρ_{bal} =	0.0285	

*** Bottom Slab:**

Load Combo	Max. Shear		Max Moment, (kip-ft)	Min Moment, (kip-ft)	Max Moment, (kip-ft)	Min Moment, (kip-ft)
	V13	V23				
combo_OP-ST	18.5	65.2	36.4	223.1	183.2	327.0
combo_OScases-ST	16.0	58.8	32.8	182.4	165.0	286.5

* Shear taken at a distance 'd' = 41.44 inch from centerlines of piles.

Max. Shear =	**65.2 kip**	
Bottom Moment, Primary =	**183.2 kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**327.0 kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**36.4 kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**223.1 kip-ft**	(-M11 controls top longitudinal reinforcement)

*** Reinforcing Limits:**

A_{gross} = 54in * 12in strip = 648 in^2

$d_{top\ bars}$ = 54in - 4in cover - 1/2 bar diameter = 49.44 in #9 bar assumed

$d_{bottom\ bars}$ = 54in - 9in pile embed - 3in cover - 1/2 bar diameter = 41.44 in

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 6.926 in^2

Limits of Minimum Reinforcement:			
	0.0028 x A_{gross} =	1.814 in^2	EM 1110-2-2104, 2-8a, temp. & shrinkage
	(3 * √(f'_c) * b * d) / f_y =	1.876 in^2	ACI 318-02, 10.5, flexural member min.
	(200 * b * d) / f_y =	1.977 in^2	ACI 318-02, 10.5, flexural member min.

Bottom Slab Summary:			
	Max. Rebar =	**6.926 in^2**	- half each face
	Min. T&S Rebar =	**0.907 in^2**	- per face
	Min. Flexural Rebar =	**1.977 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'_c) * b * d

= 0.85 * 2 * √(4000) * 12in * 49.436in

= 63,783 lb

ϕVc = 63.8kip < Vu = 65.2kip → Section NOT OK * SEE NOTE BELOW

* The amount of shear force beyond the capacity is approximately 2.2%. Given the extreme loading conditions for the settlement cases and the fact that this value comes from load cases with a 2.21 multiplier (1.7 safety factor * 1.3 hydraulic factor), we find this slight overstress to be allowable. Also, shear was conservatively taken at 'd' from the pile centerline and does not account for the width of the pile. Therefore, the section is OK.

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Primary Top Face: $d_{top\ bars}$ = 49.44 in

* Will try #9 @ 6" to start: As, #9 @ 6" = 2.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 2 * 60ksi / (0.85 * 4ksi * 12in) = 2.941 in

$\phi Mn =$ 0.9 * 2in² * 60ksi * (49.436in - 2.941in / 2)
= 5180.3 kip-in/ft
= 431.69 kip-ft/ft

ϕMn = 431.7kip-ft > Mu = 327kip-ft → Use #9 @ 6"

Primary Bottom Face: $d_{bottom\ bars}$ = 41.44 in

* Will try #8 @ 6" to start: As, #8 @ 6" = 1.58 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

$\phi Mn =$ 0.9 * 1.58in² * 60ksi * (41.436in - 2.324in / 2)
= 3436.2 kip-in/ft
= 286.35 kip-ft/ft

ϕMn = 286.3kip-ft > Mu = 183.2kip-ft → Use #8 @ 6"

Secondary Top Face: $d_{top\ bars}$ = 49.44 in

* Will try #8 @ 6" to start: As, #8 @ 6" = 1.58 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

$\phi Mn =$ 0.9 * 1.58in² * 60ksi * (49.436in - 2.324in / 2)
= 4118.8 kip-in/ft
= 343.23 kip-ft/ft

ϕMn = 343.2kip-ft > Mu = 223.1kip-ft → Use #8 @ 6"

Secondary Bottom Face: $d_{bottom\ bars}$ = 41.44 in

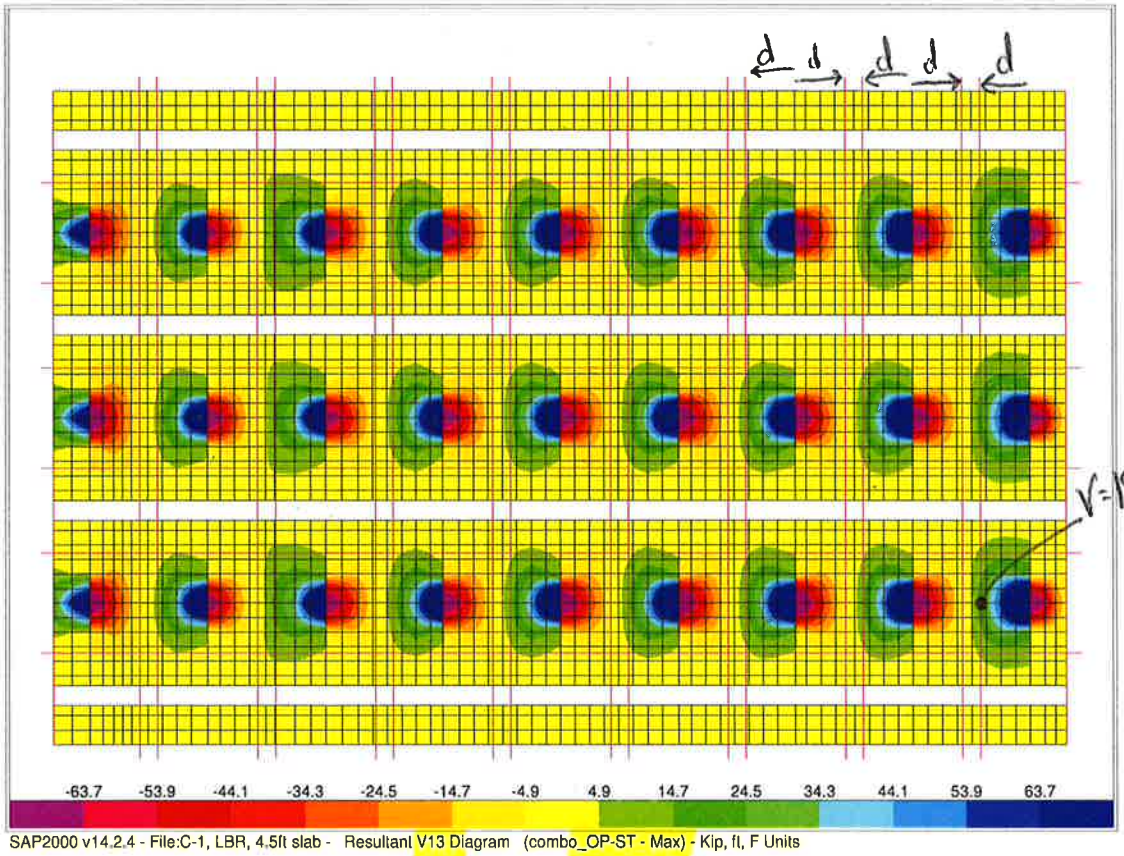
* Will try #9 @ 12" to start: As, #9 @ 12" = 1 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

$\phi Mn =$ 0.9 * 1in² * 60ksi * (41.436in - 1.471in / 2)
= 2197.8 kip-in/ft
= 183.15 kip-ft/ft

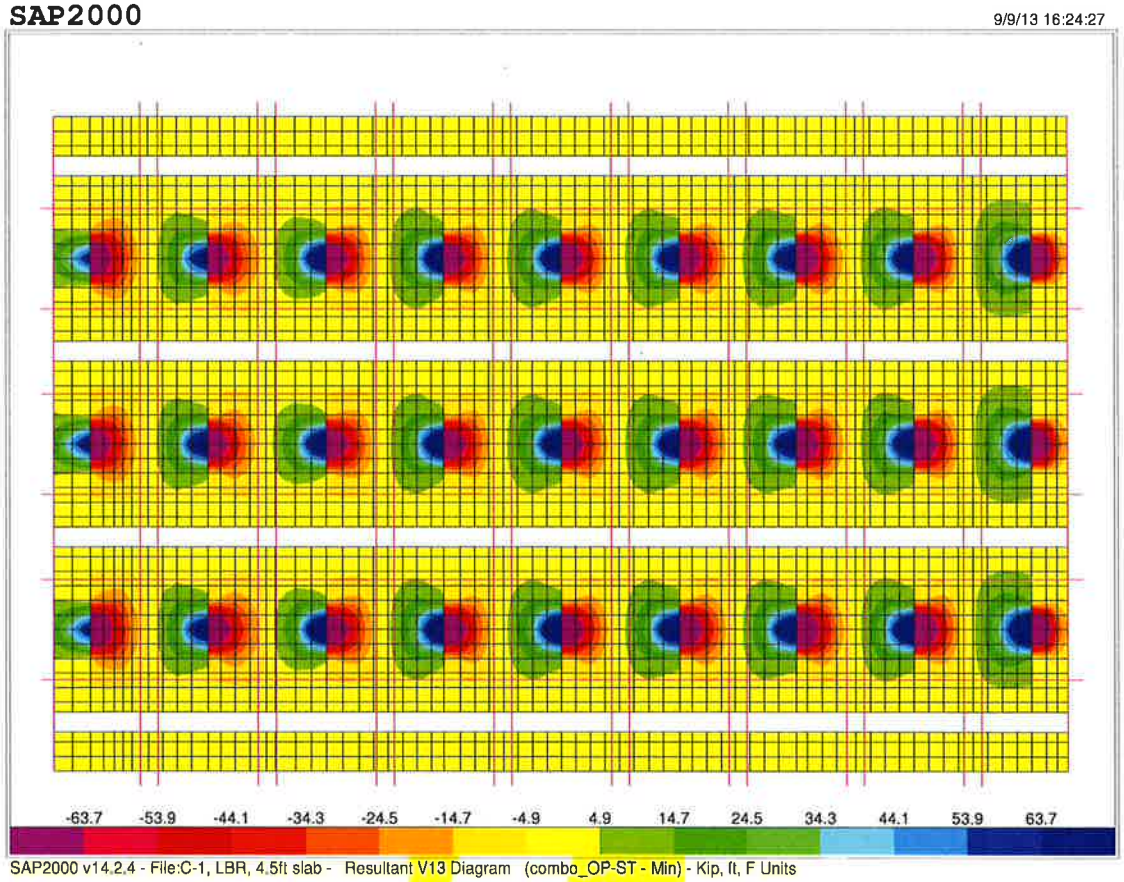
ϕMn = 183.2kip-ft > Mu = 36.4kip-ft → Use #9 @ 12"

SAP2000 9/9/13 16:22:06



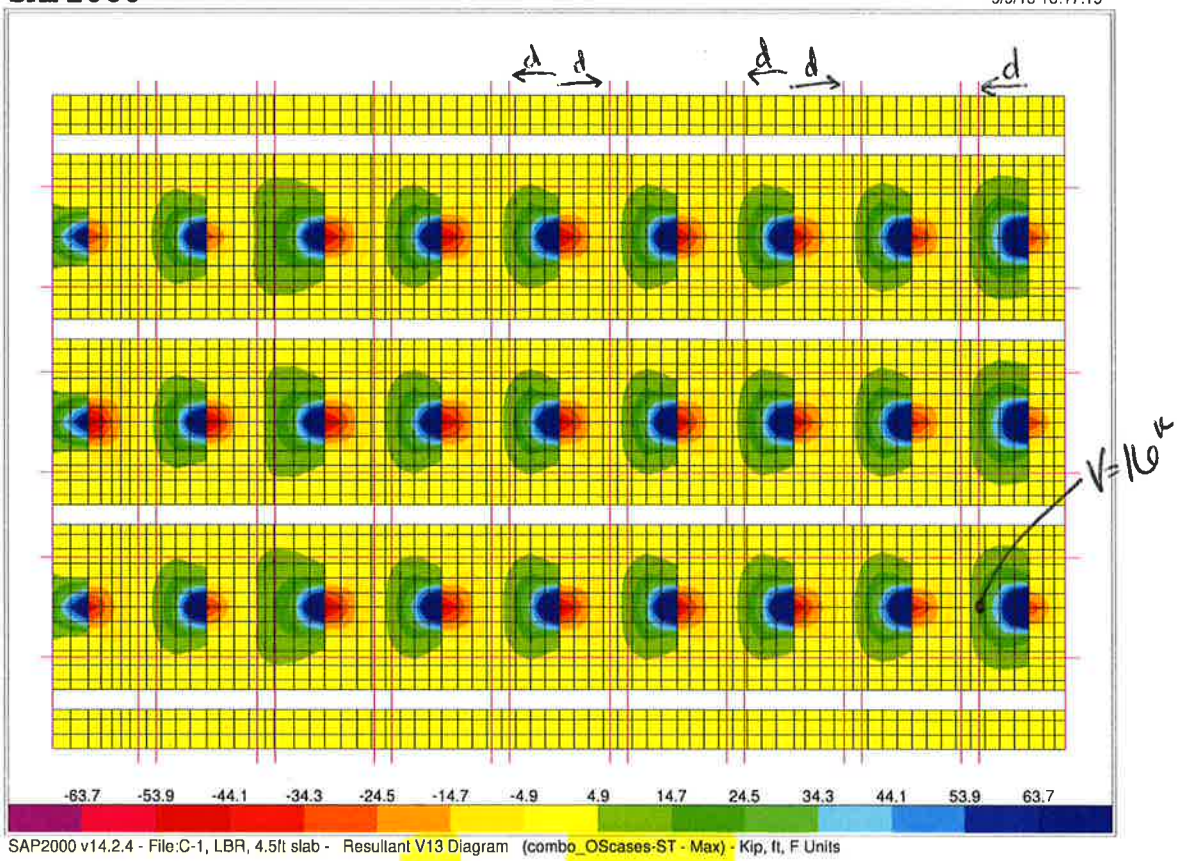
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 16:24:27



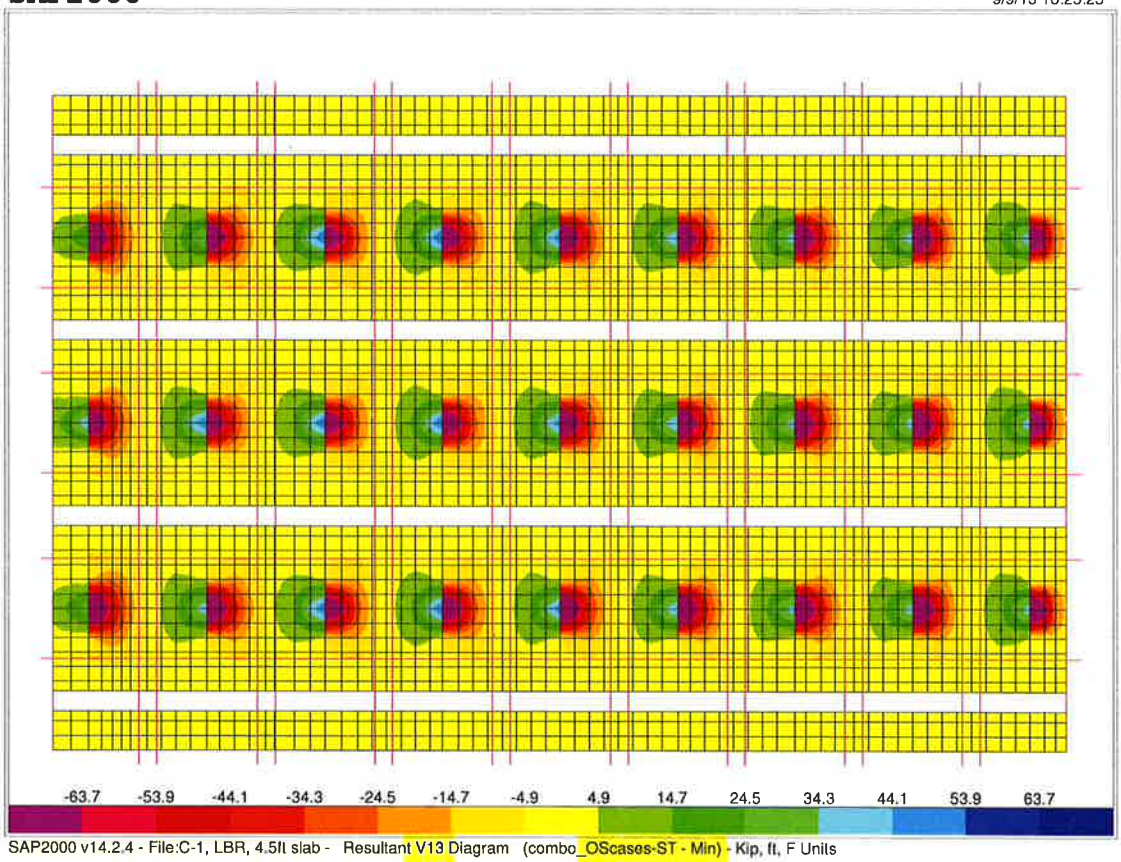
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 16:17:19



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

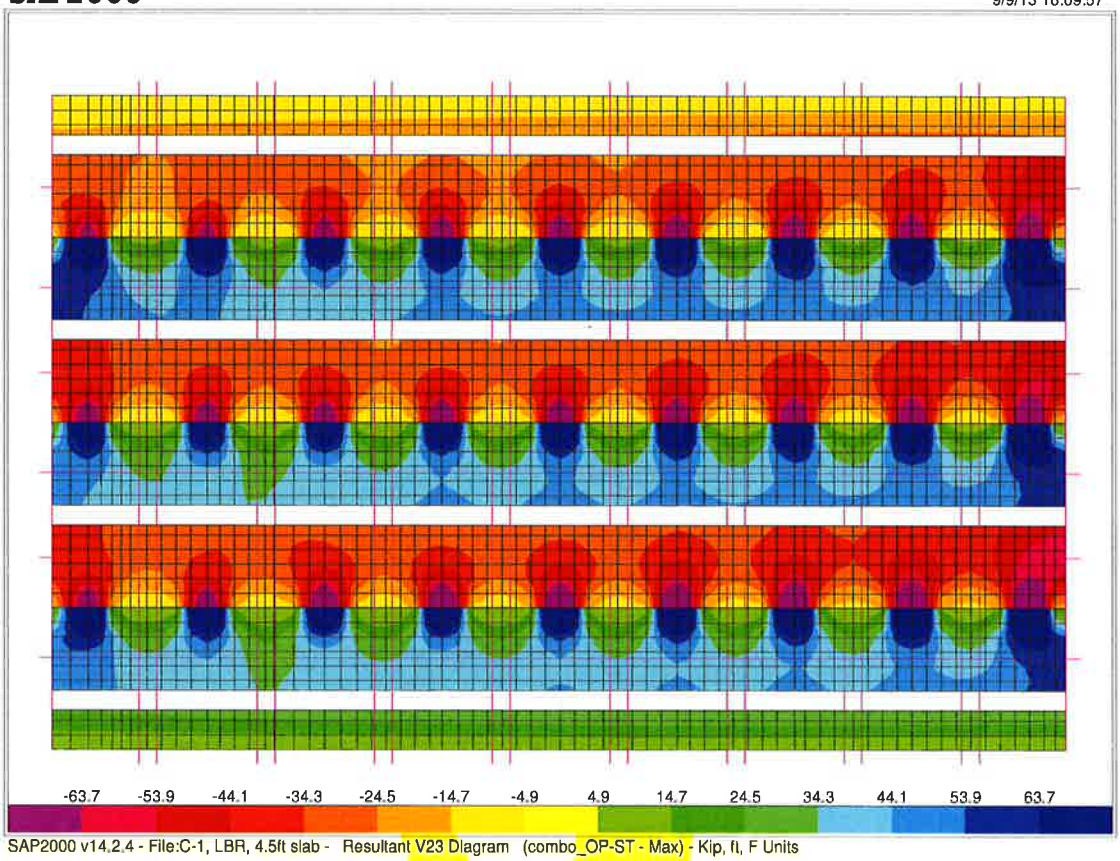
SAP2000 9/9/13 16:25:25



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V13 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000

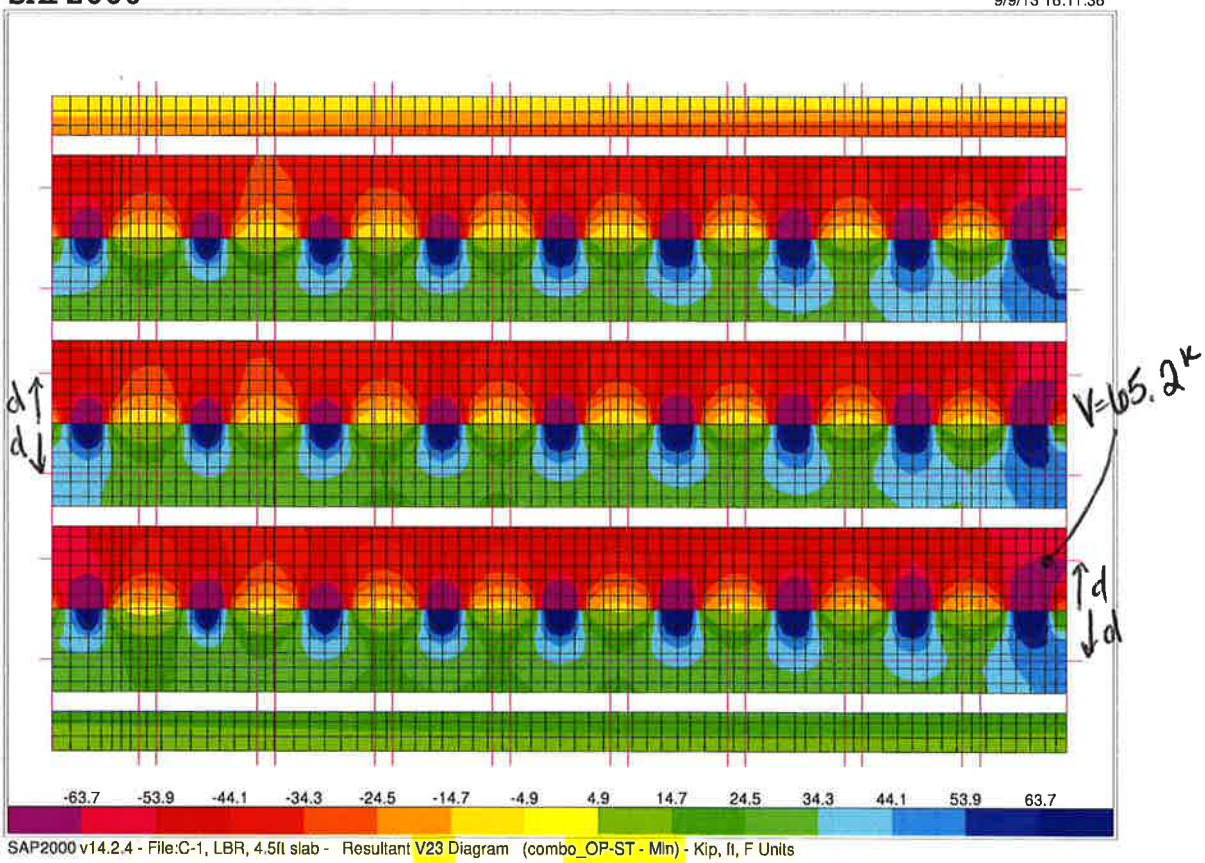
9/9/13 16:09:57



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

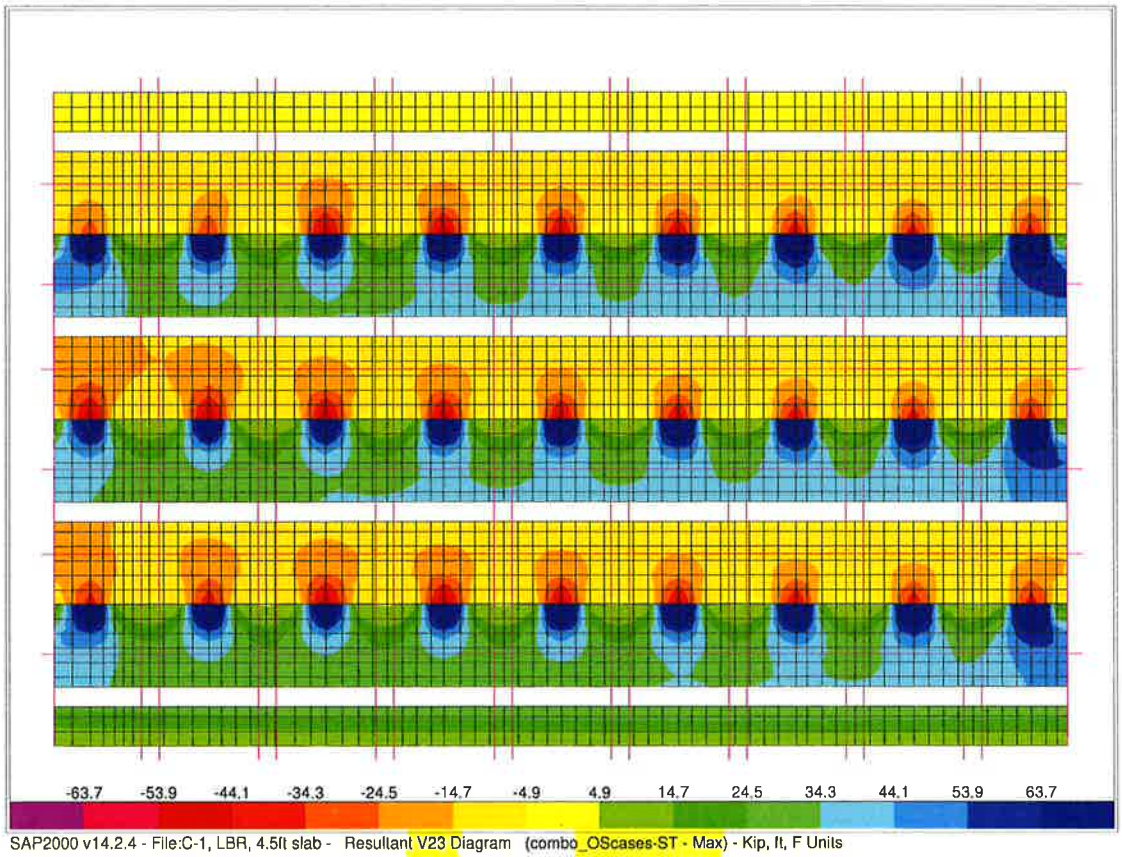
SAP2000

9/9/13 16:11:36



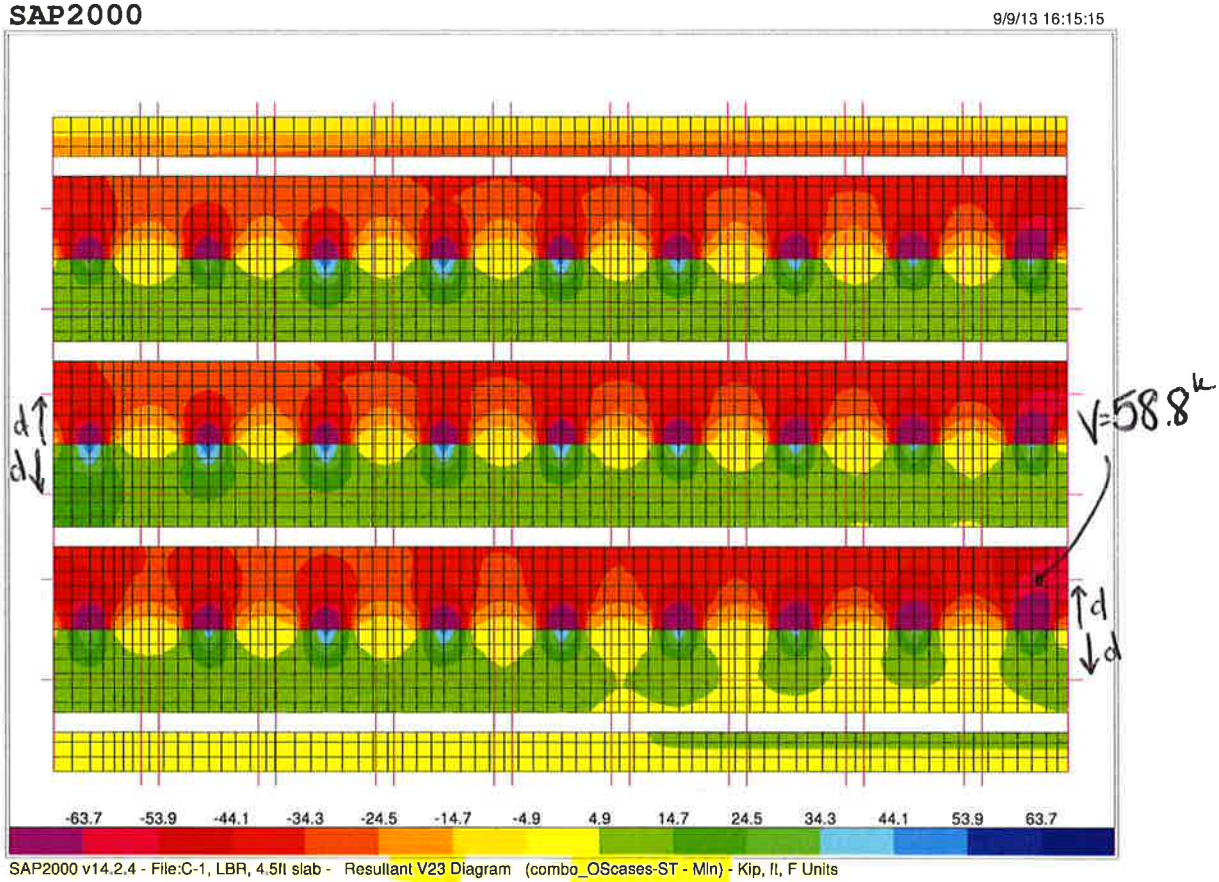
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 16:16:29



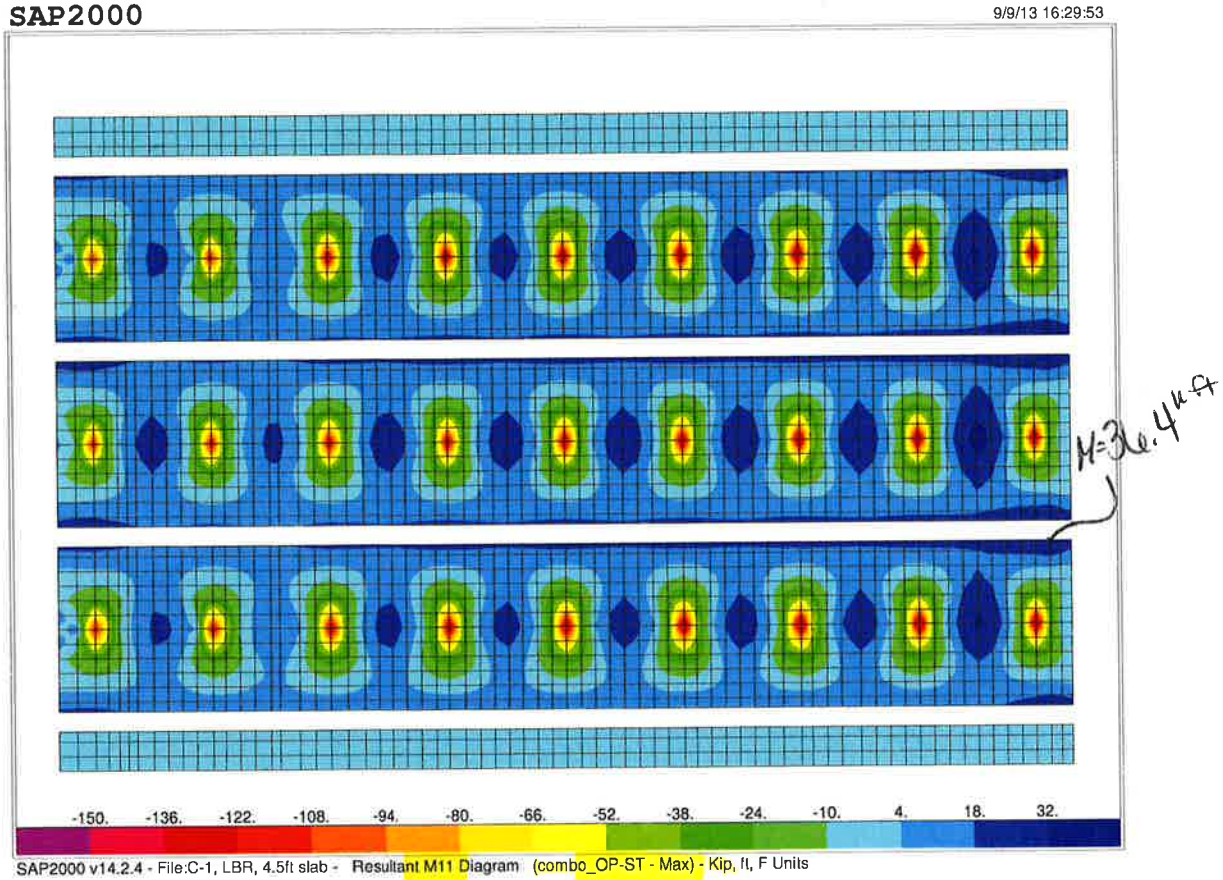
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 16:15:15



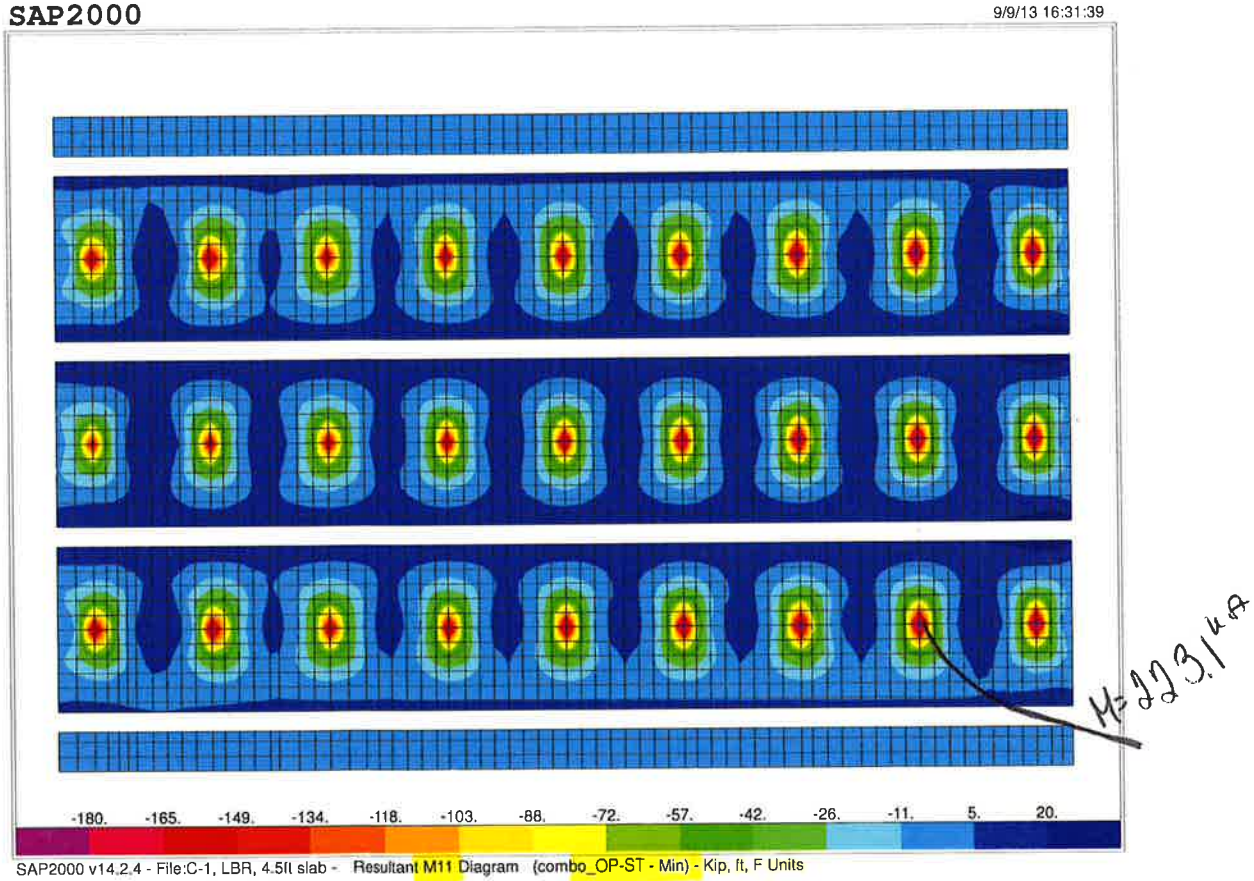
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant V23 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 16:29:53



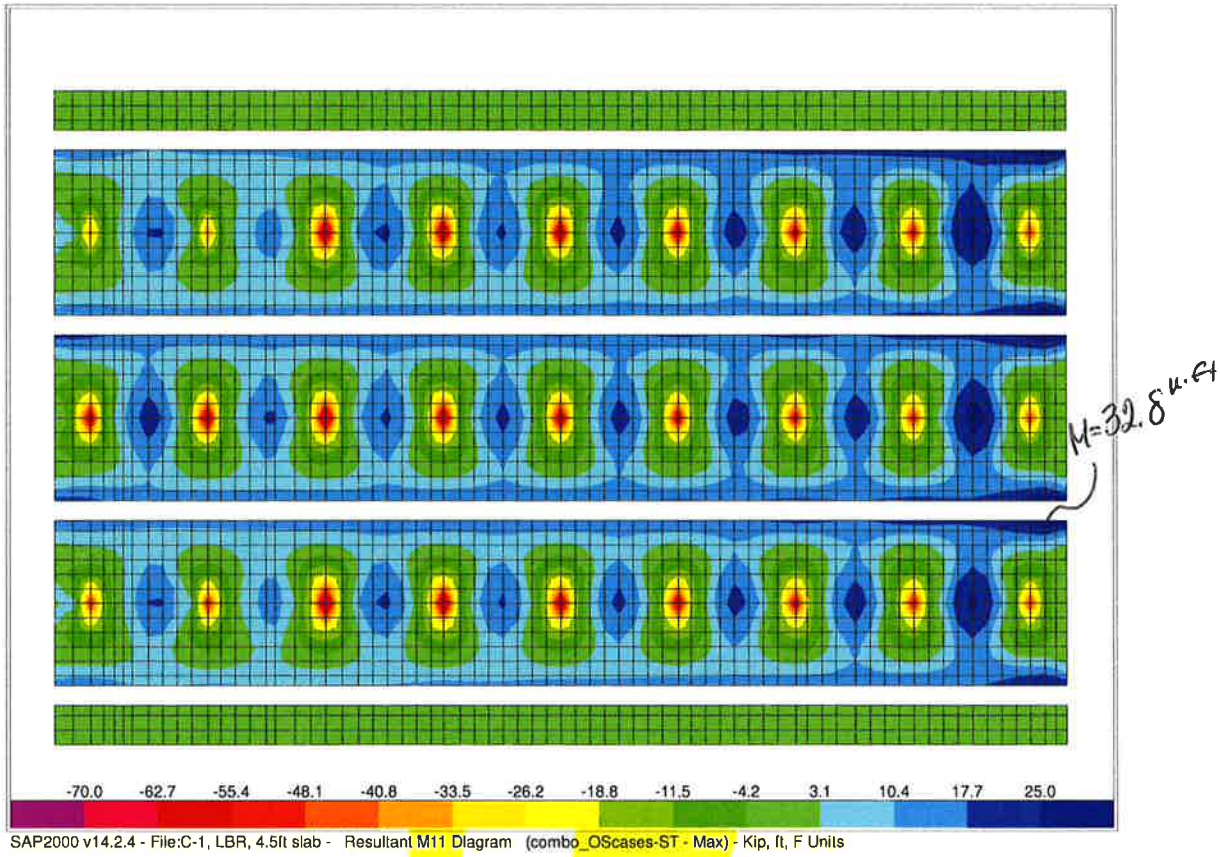
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 16:31:39



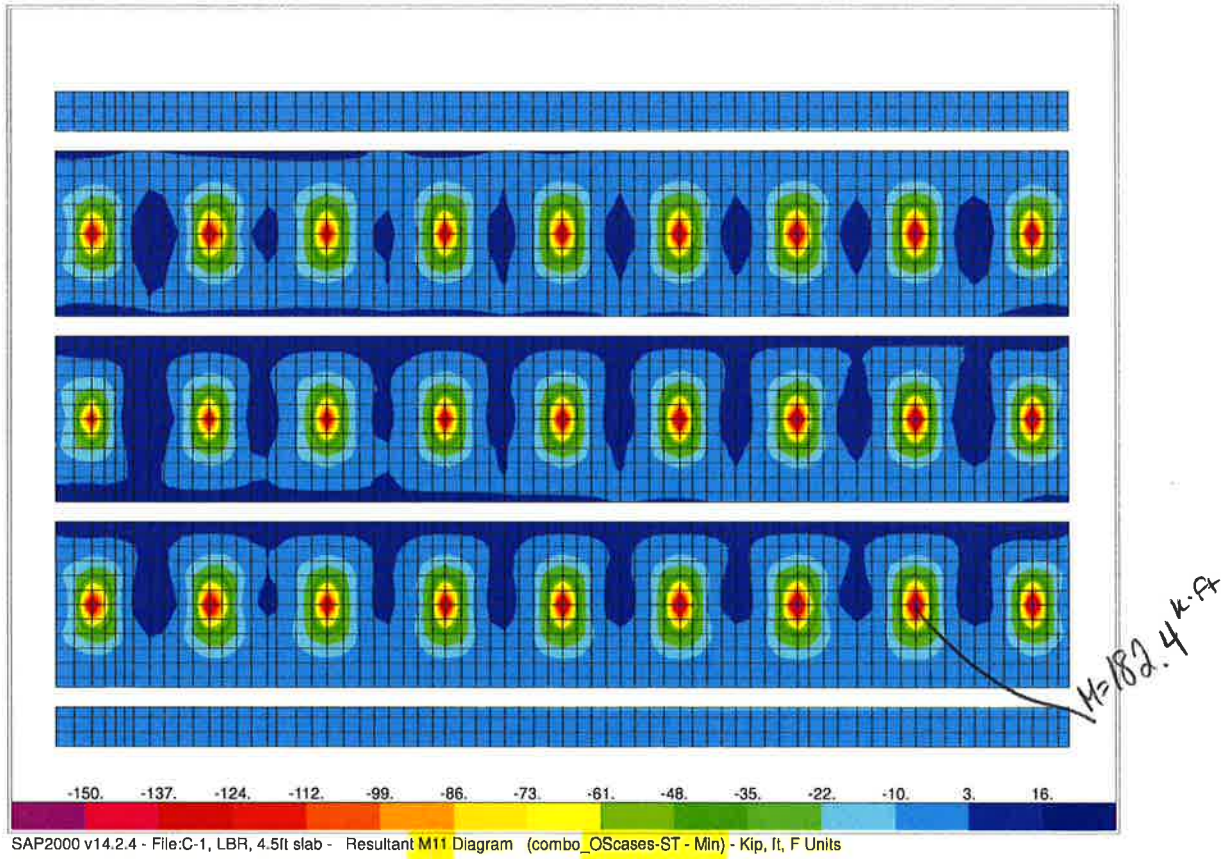
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 16:36:20



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

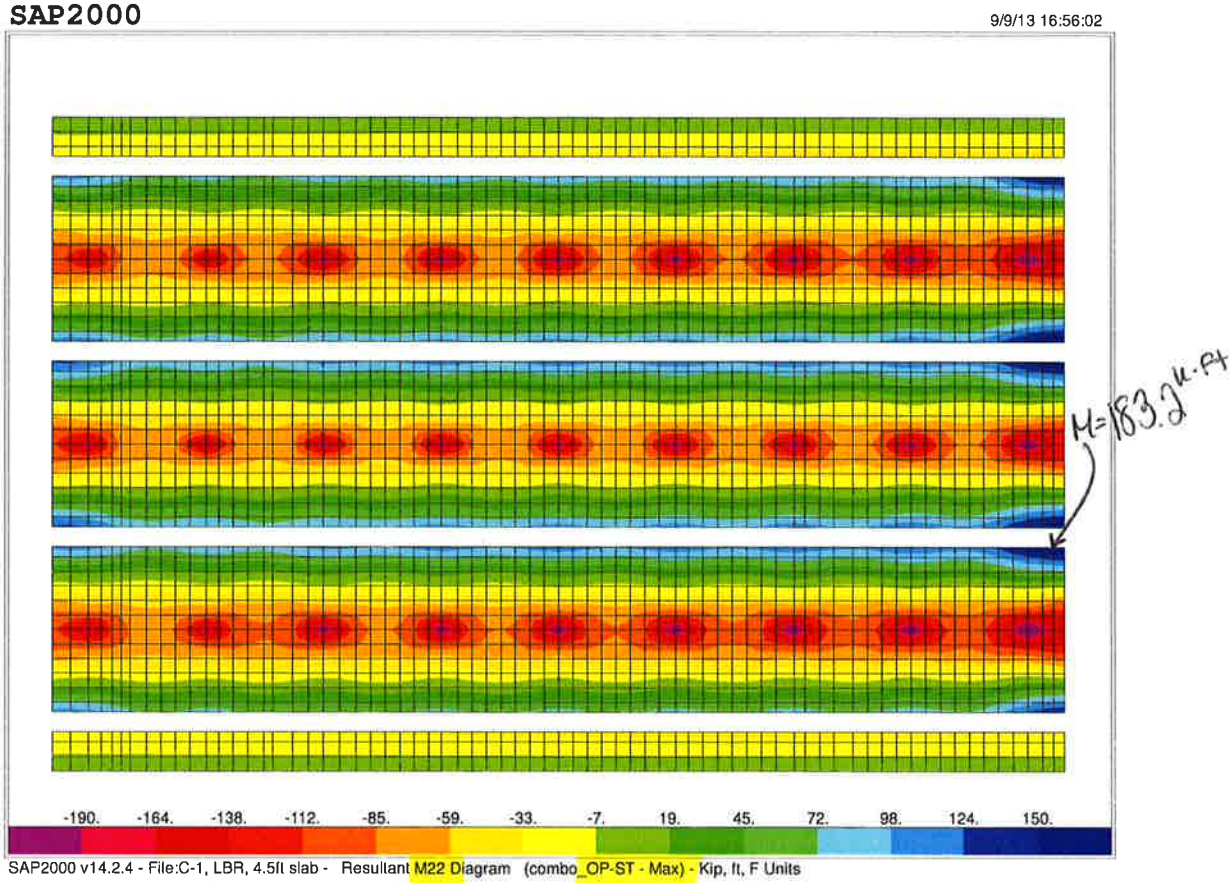
SAP2000 9/9/13 16:33:51



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M11 Diagram (combo_OScases-ST - Min) - Kip, ft, F Units

SAP2000

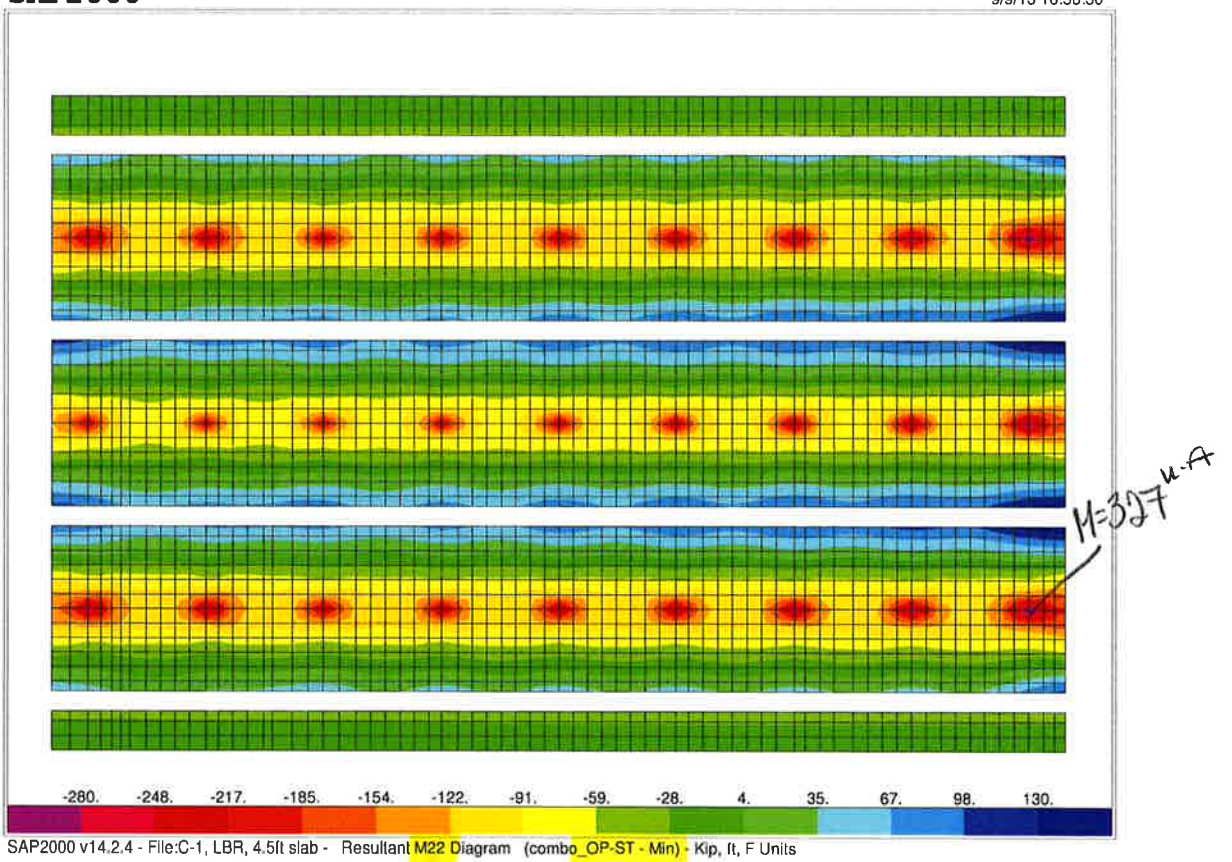
9/9/13 16:56:02



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP-ST - Max) - Kip, ft, F Units

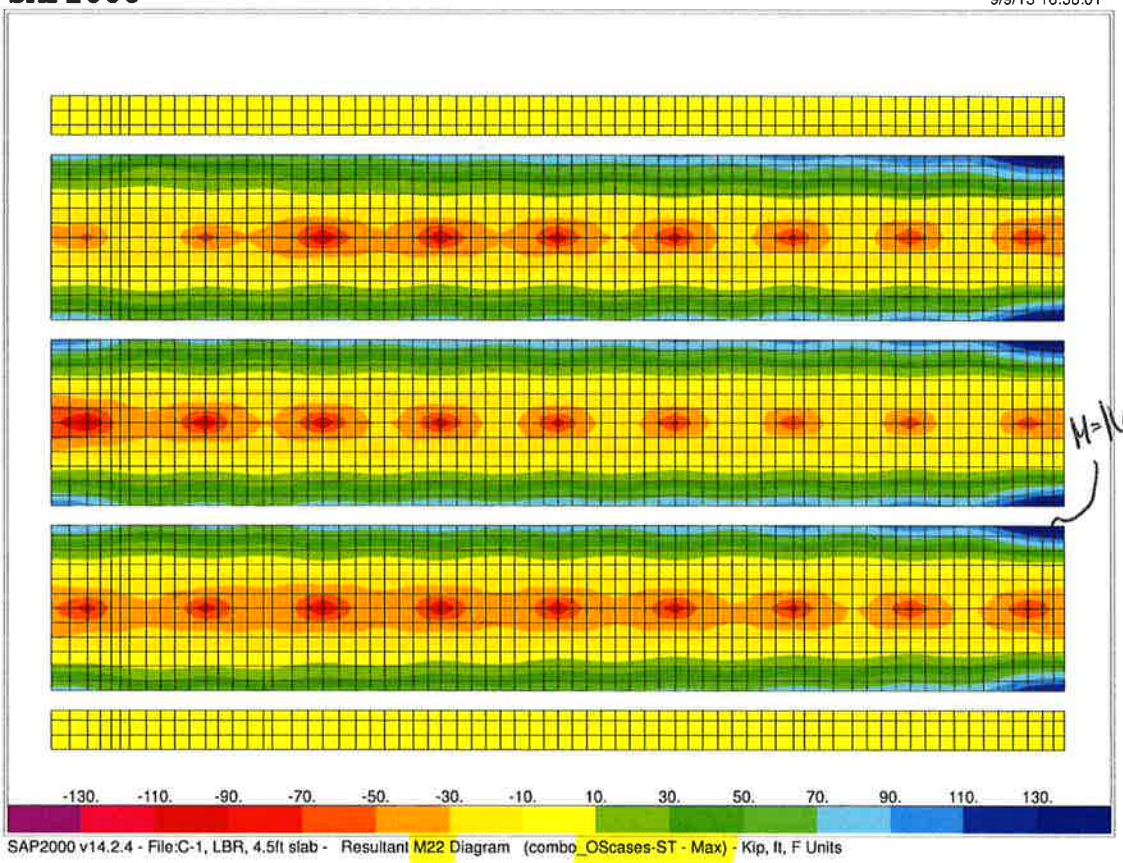
SAP2000

9/9/13 16:58:30



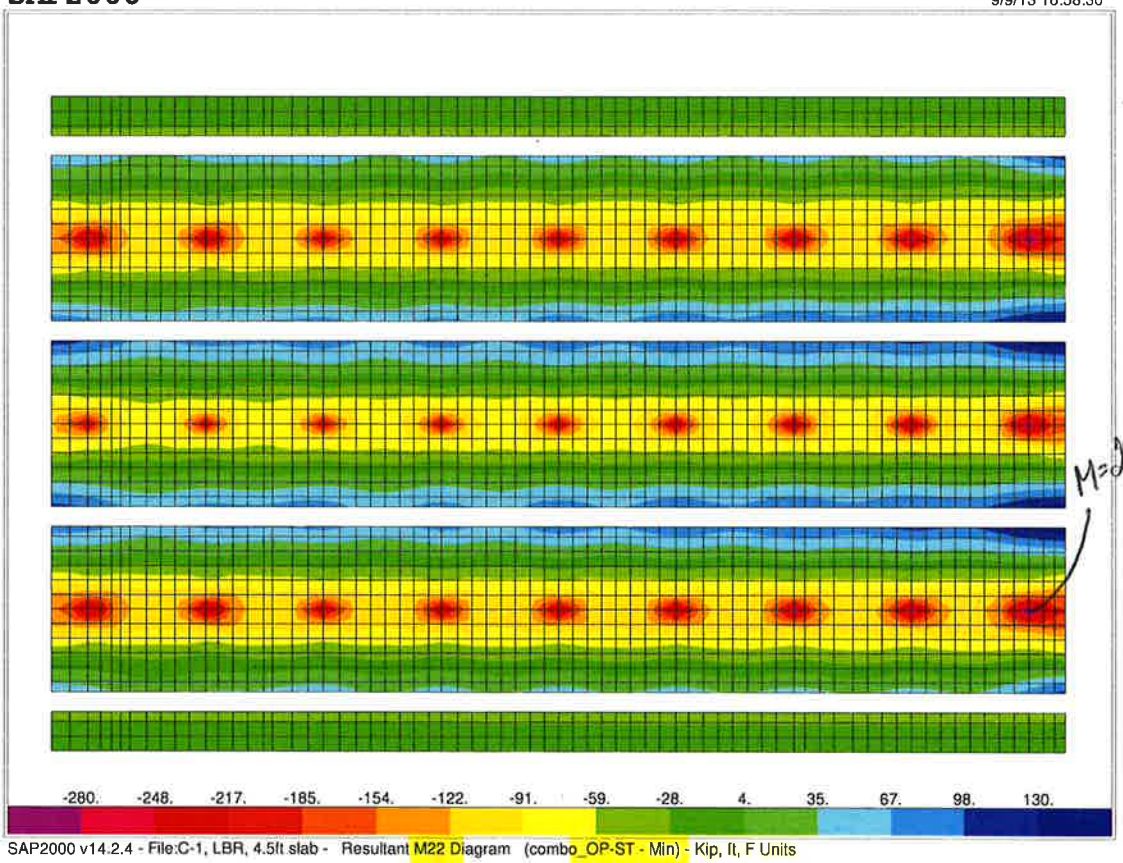
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

SAP2000 9/9/13 16:38:01



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OScases-ST - Max) - Kip, ft, F Units

SAP2000 9/9/13 16:58:30

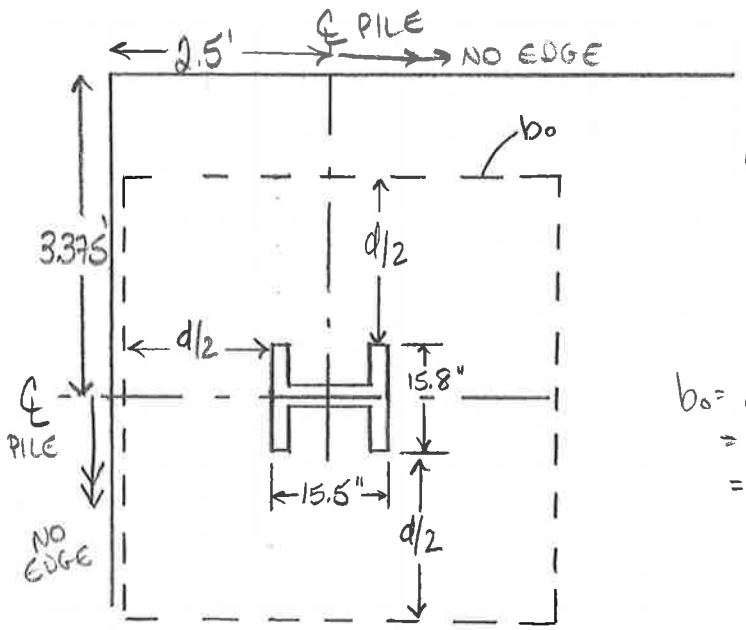


SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Resultant M22 Diagram (combo_OP-ST - Min) - Kip, ft, F Units

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-1 PUNCHING SHEAR BASE SLAB | Computed by: LBR | Sheet ___ of ___
Checked by: ___ | Date: 9/2013 | Date ___

Reference



$d_{SLAB} = 54" - 9"$ PILE EMBED $- 3"$ COVER $- \frac{1}{2}(1.128")$
$= 41.436"$

$b_o = 2\times(15.5" + 41.436") + 2\times(15.8" + 41.436")$
$= 113.872" + 114.472"$
$= 228.344"$

$$\phi V_c = \min \begin{cases} ① \ \phi\left(2 + \frac{4}{\beta_c}\right)\sqrt{f'_c}\, b_o d & (11\text{-}33) \\ ② \ \phi\left(\frac{\alpha_s d}{b_o} + 2\right)\sqrt{f'_c}\, b_o d & (11\text{-}34) \\ ③ \ \phi\, 4\sqrt{f'_c}\, b_o d & (11\text{-}35) \end{cases}$$

$\beta_c = \frac{15.8}{15.5} = 1.02$

$\alpha_s = 20$ (MINIMUM)

① $2 + \frac{4}{1.02} = 5.92$

→ ② $\frac{20 \times 41.436"}{228.344"} = 3.629\sqrt{4000\,PSI}\,(228.344")(41.436") = 2{,}171{,}779^{LB} \times \phi = 0.85$
$= \underline{\underline{1{,}846.0^{K} = \phi V_c}}$

③ 4

* MAXIMUM PILE REACTION IS 402.78^{K} (SETTLEMENT CASES). IF TREATED AS AN ENVIRONMENTAL LOAD SUBJECT TO HYDRAULIC & SAFETY FACTORS,

$P = 403^{K} \times 1.3 \times 1.7 = 890.6^{K} < \phi V_c = 1{,}846^{K}$ → OK

PART 10

Pile Foundation Results (Part 2 of 2)

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - 4.5ft SLAB MODIFICATION **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	-2.78	-0.10	155.54
P2	1a	-3.92	-0.07	141.57 *
P3	1a	-3.94	-0.04	144.27 *
P4	1a	-2.78	-0.02	154.86
P5	1a	-3.96	0.01	146.23 *
P6	1a	-3.97	0.04	145.43 *
P7	1a	-2.80	0.07	161.65
P8	1a	-2.78	-0.09	147.11
P9	1a	-3.86	-0.06	133.54 *
P10	1a	-3.88	-0.04	136.00 *
P11	1a	-2.79	-0.01	146.81
P12	1a	-3.90	0.01	137.96 *
P13	1a	-3.91	0.04	137.41 *
P14	1a	-2.80	0.07	153.22
P15	1a	-2.78	-0.09	138.68
P16	1a	-2.79	-0.06	137.02
P17	1a	-2.79	-0.03	139.54
P18	1a	-2.79	-0.01	138.58
P19	1a	-2.80	0.02	141.56
P20	1a	-2.80	0.04	140.99
P21	1a	-2.80	0.07	144.80
P22	1a	-2.78	-0.09	130.25
P23	1a	-2.79	-0.05	128.72
P24	1a	-2.79	-0.03	131.16
P25	1a	-2.79	0.00	130.31
P26	1a	-2.80	0.02	133.18
P27	1a	-2.80	0.05	132.70
P28	1a	-2.80	0.08	136.38
P29	1a	-2.78	-0.08	121.82
P30	1a	-2.79	-0.05	120.44
P31	1a	-2.79	-0.02	122.78
P32	1a	-2.79	0.00	122.06
P33	1a	-2.80	0.02	124.79
P34	1a	-2.80	0.05	124.42
P35	1a	-2.80	0.08	127.95
P36	1a	-2.78	-0.08	113.39
P37	1a	-2.79	-0.04	112.16
P38	1a	-2.79	-0.02	114.39
P39	1a	-2.79	0.00	113.80
P40	1a	-2.80	0.03	116.41
P41	1a	-2.80	0.05	116.15
P42	1a	-2.80	0.09	119.53
P43	1a	-2.78	-0.07	104.96
P44	1a	-2.79	-0.04	103.88
P45	1a	-2.79	-0.02	106.00
P46	1a	-2.79	0.01	105.55
P47	1a	-2.80	0.03	108.03
P48	1a	-2.80	0.06	107.87
P49	1a	-2.80	0.09	111.11
P50	1a	-2.78	-0.07	96.53
P51	1a	-2.79	-0.03	95.59
P52	1a	-2.79	-0.01	97.62
P53	1a	-2.79	0.01	97.28
P54	1a	-2.80	0.04	99.65
P55	1a	-2.80	0.06	99.59
P56	1a	-2.80	0.09	102.68
P57	1a	-2.78	-0.06	88.10
P58	1a	-2.79	-0.03	87.18
P59	1a	-2.79	-0.01	89.23
P60	1a	-2.80	0.02	88.89
P61	1a	-2.80	0.04	91.26
P62	1a	-2.80	0.06	91.17
P63	1a	-2.80	0.10	94.26

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	12.09	0.07	219.08
P2	1b	10.15	0.13	251.85 *
P3	1b	10.01	0.21	253.11 *
P4	1b	11.66	0.27	209.49
P5	1b	9.74	0.34	250.08 *
P6	1b	9.61	0.41	245.86 *
P7	1b	11.22	0.47	212.70
P8	1b	12.09	0.25	223.63
P9	1b	10.10	0.32	256.59 *
P10	1b	9.97	0.39	257.68 *
P11	1b	11.65	0.46	214.34
P12	1b	9.70	0.52	254.66 *
P13	1b	9.57	0.59	250.60 *
P14	1b	11.22	0.65	217.28
P15	1b	12.09	0.44	228.19
P16	1b	11.93	0.50	222.25
P17	1b	11.80	0.57	223.39
P18	1b	11.65	0.64	218.95
P19	1b	11.51	0.71	221.37
P20	1b	11.36	0.77	218.23
P21	1b	11.22	0.84	221.86
P22	1b	12.09	0.62	232.75
P23	1b	11.93	0.68	226.79
P24	1b	11.80	0.75	228.03
P25	1b	11.65	0.82	223.50
P26	1b	11.51	0.89	226.01
P27	1b	11.36	0.96	222.79
P28	1b	11.22	1.02	226.44
P29	1b	12.09	0.80	237.30
P30	1b	11.93	0.87	231.32
P31	1b	11.80	0.94	232.66
P32	1b	11.65	1.00	228.06
P33	1b	11.51	1.07	230.65
P34	1b	11.36	1.14	227.32
P35	1b	11.22	1.20	231.02
P36	1b	12.09	0.98	241.86
P37	1b	11.93	1.05	235.84
P38	1b	11.80	1.12	237.30
P39	1b	11.65	1.19	232.63
P40	1b	11.51	1.26	235.28
P41	1b	11.36	1.32	231.86
P42	1b	11.22	1.39	235.59
P43	1b	12.09	1.16	246.41
P44	1b	11.93	1.23	240.37
P45	1b	11.80	1.30	241.93
P46	1b	11.65	1.37	237.19
P47	1b	11.51	1.44	239.92
P48	1b	11.36	1.51	236.40
P49	1b	11.22	1.57	240.17
P50	1b	12.09	1.35	250.96
P51	1b	11.93	1.42	244.87
P52	1b	11.80	1.49	246.56
P53	1b	11.64	1.55	241.73
P54	1b	11.51	1.62	244.55
P55	1b	11.36	1.69	240.91
P56	1b	11.22	1.76	244.74
P57	1b	12.09	1.53	255.52
P58	1b	11.92	1.60	249.01
P59	1b	11.80	1.67	251.19
P60	1b	11.63	1.74	245.92
P61	1b	11.51	1.80	249.18
P62	1b	11.34	1.87	245.07
P63	1b	11.22	1.94	249.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1c	-2.78	10.21	161.28
P2	1c	-3.94	10.24	144.59 *
P3	1c	-3.93	10.27	145.25 *
P4	1c	-2.76	10.29	153.61
P5	1c	-3.91	10.31	142.86 *
P6	1c	-3.89	10.33	139.92 *
P7	1c	-2.76	10.35	153.21
P8	1c	-2.78	10.20	152.86
P9	1c	-3.88	10.24	136.57 *
P10	1c	-3.87	10.26	136.99 *
P11	1c	-2.77	10.28	145.56
P12	1c	-3.84	10.30	134.60 *
P13	1c	-3.83	10.33	131.89 *
P14	1c	-2.76	10.35	144.79
P15	1c	-2.78	10.20	144.44
P16	1c	-2.77	10.23	140.06
P17	1c	-2.77	10.26	140.49
P18	1c	-2.77	10.28	137.34
P19	1c	-2.77	10.30	138.04
P20	1c	-2.76	10.32	135.27
P21	1c	-2.76	10.35	136.38
P22	1c	-2.78	10.19	136.02
P23	1c	-2.77	10.23	131.77
P24	1c	-2.77	10.26	132.11
P25	1c	-2.77	10.27	129.08
P26	1c	-2.77	10.29	129.66
P27	1c	-2.76	10.32	126.98
P28	1c	-2.76	10.34	127.96
P29	1c	-2.78	10.19	127.60
P30	1c	-2.77	10.23	123.50
P31	1c	-2.77	10.25	123.73
P32	1c	-2.77	10.27	120.82
P33	1c	-2.77	10.29	121.28
P34	1c	-2.76	10.31	118.71
P35	1c	-2.76	10.34	119.55
P36	1c	-2.78	10.19	119.18
P37	1c	-2.77	10.22	115.23
P38	1c	-2.77	10.25	115.35
P39	1c	-2.77	10.27	112.57
P40	1c	-2.77	10.29	112.90
P41	1c	-2.76	10.31	110.44
P42	1c	-2.76	10.33	111.13
P43	1c	-2.78	10.18	110.76
P44	1c	-2.77	10.22	106.96
P45	1c	-2.77	10.24	106.98
P46	1c	-2.77	10.26	104.32
P47	1c	-2.77	10.28	104.52
P48	1c	-2.76	10.30	102.17
P49	1c	-2.76	10.33	102.71
P50	1c	-2.78	10.18	102.33
P51	1c	-2.77	10.22	98.68
P52	1c	-2.77	10.24	98.60
P53	1c	-2.77	10.26	96.06
P54	1c	-2.77	10.28	96.14
P55	1c	-2.76	10.30	93.90
P56	1c	-2.76	10.32	94.30
P57	1c	-2.78	10.18	93.91
P58	1c	-2.78	10.21	90.27
P59	1c	-2.77	10.24	90.22
P60	1c	-2.77	10.25	87.68
P61	1c	-2.77	10.27	87.76
P62	1c	-2.77	10.29	85.49
P63	1c	-2.76	10.32	85.88

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1a	11.71	-0.18	206.55
P2	OP1a	9.99	-0.13	240.23 *
P3	OP1a	9.99	-0.06	243.13 *
P4	OP1a	11.71	0.00	200.94
P5	OP1a	9.99	0.06	243.33 *
P6	OP1a	9.99	0.12	240.59 *
P7	OP1a	11.70	0.18	207.08
P8	OP1a	11.71	-0.18	212.82
P9	OP1a	9.94	-0.13	246.65 *
P10	OP1a	9.94	-0.06	249.41 *
P11	OP1a	11.70	0.00	207.50
P12	OP1a	9.94	0.06	249.61 *
P13	OP1a	9.93	0.12	247.03 *
P14	OP1a	11.70	0.18	213.36
P15	OP1a	11.71	-0.18	219.09
P16	OP1a	11.70	-0.12	214.89
P17	OP1a	11.70	-0.06	217.06
P18	OP1a	11.70	0.00	213.99
P19	OP1a	11.70	0.06	217.27
P20	OP1a	11.70	0.12	215.28
P21	OP1a	11.70	0.18	219.65
P22	OP1a	11.71	-0.18	225.36
P23	OP1a	11.70	-0.12	221.19
P24	OP1a	11.70	-0.06	223.42
P25	OP1a	11.70	0.00	220.30
P26	OP1a	11.70	0.06	223.63
P27	OP1a	11.70	0.12	221.60
P28	OP1a	11.70	0.18	225.94
P29	OP1a	11.71	-0.18	231.62
P30	OP1a	11.70	-0.12	227.41
P31	OP1a	11.70	-0.06	229.77
P32	OP1a	11.70	0.00	226.57
P33	OP1a	11.70	0.06	229.99
P34	OP1a	11.70	0.12	227.83
P35	OP1a	11.70	0.18	232.23
P36	OP1a	11.71	-0.18	237.89
P37	OP1a	11.70	-0.12	233.63
P38	OP1a	11.70	-0.06	236.13
P39	OP1a	11.70	0.00	232.83
P40	OP1a	11.70	0.06	236.35
P41	OP1a	11.70	0.12	234.06
P42	OP1a	11.70	0.18	238.51
P43	OP1a	11.71	-0.18	244.15
P44	OP1a	11.70	-0.12	239.84
P45	OP1a	11.70	-0.06	242.48
P46	OP1a	11.70	0.00	239.09
P47	OP1a	11.70	0.06	242.70
P48	OP1a	11.70	0.12	240.29
P49	OP1a	11.70	0.18	244.79
P50	OP1a	11.71	-0.18	250.41
P51	OP1a	11.69	-0.12	246.03
P52	OP1a	11.70	-0.06	248.83
P53	OP1a	11.69	0.00	245.32
P54	OP1a	11.70	0.06	249.06
P55	OP1a	11.69	0.12	246.49
P56	OP1a	11.70	0.18	251.08
P57	OP1a	11.71	-0.18	256.67
P58	OP1a	11.68	-0.12	251.86
P59	OP1a	11.70	-0.06	255.17
P60	OP1a	11.68	0.00	251.20
P61	OP1a	11.70	0.06	255.41
P62	OP1a	11.68	0.12	252.33
P63	OP1a	11.70	0.18	257.36

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1b	11.92	-0.18	196.57
P2	OP1b	10.28	-0.13	231.21 *
P3	OP1b	10.28	-0.06	233.96 *
P4	OP1b	11.92	0.00	191.02
P5	OP1b	10.28	0.06	234.15 *
P6	OP1b	10.28	0.12	231.57 *
P7	OP1b	11.92	0.18	197.09
P8	OP1b	11.92	-0.18	199.07
P9	OP1b	10.26	-0.13	233.94 *
P10	OP1b	10.26	-0.06	236.51 *
P11	OP1b	11.92	0.00	193.82
P12	OP1b	10.26	0.06	236.71 *
P13	OP1b	10.25	0.12	234.31 *
P14	OP1b	11.92	0.18	199.62
P15	OP1b	11.92	-0.18	201.58
P16	OP1b	11.92	-0.13	197.33
P17	OP1b	11.92	-0.06	199.42
P18	OP1b	11.91	0.00	196.40
P19	OP1b	11.92	0.06	199.63
P20	OP1b	11.91	0.12	197.72
P21	OP1b	11.92	0.18	202.14
P22	OP1b	11.92	-0.18	204.08
P23	OP1b	11.92	-0.12	199.85
P24	OP1b	11.92	-0.06	202.01
P25	OP1b	11.91	0.00	198.93
P26	OP1b	11.92	0.06	202.22
P27	OP1b	11.91	0.12	200.26
P28	OP1b	11.92	0.18	204.67
P29	OP1b	11.92	-0.18	206.59
P30	OP1b	11.92	-0.12	202.36
P31	OP1b	11.92	-0.06	204.59
P32	OP1b	11.91	0.00	201.48
P33	OP1b	11.92	0.06	204.81
P34	OP1b	11.91	0.12	202.78
P35	OP1b	11.92	0.18	207.19
P36	OP1b	11.92	-0.18	209.09
P37	OP1b	11.92	-0.12	204.86
P38	OP1b	11.92	-0.06	207.17
P39	OP1b	11.91	0.00	204.02
P40	OP1b	11.92	0.06	207.39
P41	OP1b	11.91	0.12	205.29
P42	OP1b	11.92	0.18	209.71
P43	OP1b	11.92	-0.18	211.59
P44	OP1b	11.91	-0.12	207.37
P45	OP1b	11.92	-0.06	209.75
P46	OP1b	11.91	0.00	206.57
P47	OP1b	11.92	0.06	209.98
P48	OP1b	11.91	0.12	207.81
P49	OP1b	11.92	0.19	212.23
P50	OP1b	11.92	-0.18	214.09
P51	OP1b	11.91	-0.12	209.85
P52	OP1b	11.92	-0.06	212.33
P53	OP1b	11.91	0.00	209.09
P54	OP1b	11.92	0.06	212.56
P55	OP1b	11.91	0.12	210.30
P56	OP1b	11.92	0.19	214.75
P57	OP1b	11.92	-0.18	216.59
P58	OP1b	11.90	-0.12	212.02
P59	OP1b	11.92	-0.06	214.91
P60	OP1b	11.90	0.00	211.31
P61	OP1b	11.92	0.06	215.14
P62	OP1b	11.90	0.12	212.49
P63	OP1b	11.92	0.19	217.27

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2a	9.52	-0.18	215.28
P2	OP2a	7.78	-0.13	241.09 *
P3	OP2a	7.77	-0.06	244.04 *
P4	OP2a	9.53	0.00	209.57
P5	OP2a	7.77	0.06	244.23 *
P6	OP2a	7.77	0.12	241.45 *
P7	OP2a	9.52	0.18	215.80
P8	OP2a	9.52	-0.18	220.45
P9	OP2a	7.73	-0.12	246.45 *
P10	OP2a	7.73	-0.06	249.23 *
P11	OP2a	9.52	0.00	215.06
P12	OP2a	7.73	0.06	249.43 *
P13	OP2a	7.73	0.12	246.82 *
P14	OP2a	9.52	0.18	220.99
P15	OP2a	9.52	-0.18	225.62
P16	OP2a	9.52	-0.12	221.40
P17	OP2a	9.52	-0.06	223.64
P18	OP2a	9.52	0.00	220.52
P19	OP2a	9.52	0.06	223.85
P20	OP2a	9.52	0.12	221.79
P21	OP2a	9.52	0.18	226.19
P22	OP2a	9.52	-0.18	230.79
P23	OP2a	9.52	-0.12	226.64
P24	OP2a	9.52	-0.06	228.91
P25	OP2a	9.52	0.00	225.77
P26	OP2a	9.52	0.06	229.12
P27	OP2a	9.52	0.12	227.04
P28	OP2a	9.52	0.18	231.38
P29	OP2a	9.52	-0.18	235.96
P30	OP2a	9.52	-0.12	231.78
P31	OP2a	9.52	-0.06	234.17
P32	OP2a	9.52	0.00	230.96
P33	OP2a	9.52	0.06	234.39
P34	OP2a	9.52	0.12	232.20
P35	OP2a	9.52	0.18	236.57
P36	OP2a	9.52	-0.18	241.13
P37	OP2a	9.52	-0.12	236.92
P38	OP2a	9.52	-0.06	239.43
P39	OP2a	9.52	0.00	236.15
P40	OP2a	9.52	0.06	239.65
P41	OP2a	9.52	0.12	237.35
P42	OP2a	9.52	0.18	241.75
P43	OP2a	9.52	-0.18	246.30
P44	OP2a	9.52	-0.12	242.05
P45	OP2a	9.52	-0.06	244.68
P46	OP2a	9.52	0.00	241.33
P47	OP2a	9.52	0.06	244.91
P48	OP2a	9.52	0.12	242.50
P49	OP2a	9.52	0.18	246.94
P50	OP2a	9.52	-0.18	251.46
P51	OP2a	9.52	-0.12	247.16
P52	OP2a	9.52	-0.06	249.94
P53	OP2a	9.51	0.00	246.48
P54	OP2a	9.52	0.06	250.17
P55	OP2a	9.51	0.12	247.62
P56	OP2a	9.52	0.18	252.13
P57	OP2a	9.52	-0.18	256.63
P58	OP2a	9.50	-0.11	251.91
P59	OP2a	9.52	-0.06	255.19
P60	OP2a	9.50	0.00	251.28
P61	OP2a	9.52	0.06	255.43
P62	OP2a	9.50	0.12	252.38
P63	OP2a	9.52	0.18	257.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2b	9.80	-0.18	202.87
P2	OP2b	8.14	-0.13	229.87 *
P3	OP2b	8.13	-0.06	232.63 *
P4	OP2b	9.80	0.00	197.23
P5	OP2b	8.13	0.06	232.82 *
P6	OP2b	8.13	0.12	230.24 *
P7	OP2b	9.79	0.18	203.39
P8	OP2b	9.80	-0.18	203.36
P9	OP2b	8.13	-0.13	230.64 *
P10	OP2b	8.13	-0.06	233.20 *
P11	OP2b	9.79	0.00	198.06
P12	OP2b	8.13	0.06	233.40 *
P13	OP2b	8.12	0.12	231.02 *
P14	OP2b	9.79	0.18	203.90
P15	OP2b	9.80	-0.18	203.85
P16	OP2b	9.79	-0.12	199.57
P17	OP2b	9.79	-0.06	201.72
P18	OP2b	9.79	0.00	198.67
P19	OP2b	9.79	0.06	201.93
P20	OP2b	9.79	0.12	199.97
P21	OP2b	9.79	0.18	204.42
P22	OP2b	9.80	-0.18	204.35
P23	OP2b	9.79	-0.12	200.11
P24	OP2b	9.79	-0.06	202.29
P25	OP2b	9.79	0.00	199.21
P26	OP2b	9.79	0.06	202.51
P27	OP2b	9.79	0.12	200.52
P28	OP2b	9.79	0.18	204.93
P29	OP2b	9.80	-0.18	204.84
P30	OP2b	9.79	-0.12	200.63
P31	OP2b	9.79	-0.06	202.87
P32	OP2b	9.79	0.00	199.78
P33	OP2b	9.79	0.06	203.08
P34	OP2b	9.79	0.12	201.05
P35	OP2b	9.79	0.18	205.44
P36	OP2b	9.80	-0.18	205.33
P37	OP2b	9.79	-0.12	201.16
P38	OP2b	9.79	-0.06	203.44
P39	OP2b	9.79	0.00	200.34
P40	OP2b	9.79	0.06	203.66
P41	OP2b	9.79	0.12	201.59
P42	OP2b	9.79	0.18	205.96
P43	OP2b	9.80	-0.18	205.82
P44	OP2b	9.79	-0.12	201.68
P45	OP2b	9.79	-0.06	204.00
P46	OP2b	9.79	0.00	200.91
P47	OP2b	9.79	0.06	204.23
P48	OP2b	9.79	0.12	202.12
P49	OP2b	9.79	0.18	206.47
P50	OP2b	9.80	-0.18	206.31
P51	OP2b	9.79	-0.12	202.18
P52	OP2b	9.79	-0.06	204.57
P53	OP2b	9.78	0.00	201.45
P54	OP2b	9.79	0.06	204.80
P55	OP2b	9.79	0.12	202.64
P56	OP2b	9.79	0.18	206.98
P57	OP2b	9.80	-0.18	206.80
P58	OP2b	9.77	-0.12	202.39
P59	OP2b	9.79	-0.06	205.14
P60	OP2b	9.77	0.00	201.70
P61	OP2b	9.79	0.06	205.37
P62	OP2b	9.77	0.12	202.86
P63	OP2b	9.79	0.18	207.48

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - 4.5ft SLAB MODIFICATION **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3a	9.02	-0.18	214.63
P2	OP3a	7.28	-0.13	238.73 *
P3	OP3a	7.28	-0.06	241.65 *
P4	OP3a	9.02	0.00	208.99
P5	OP3a	7.28	0.06	241.85 *
P6	OP3a	7.28	0.12	239.09 *
P7	OP3a	9.02	0.17	215.15
P8	OP3a	9.02	-0.18	219.88
P9	OP3a	7.24	-0.12	244.16 *
P10	OP3a	7.24	-0.06	246.92 *
P11	OP3a	9.01	0.00	214.55
P12	OP3a	7.23	0.06	247.12 *
P13	OP3a	7.23	0.12	244.53 *
P14	OP3a	9.02	0.17	220.42
P15	OP3a	9.02	-0.18	225.12
P16	OP3a	9.01	-0.12	220.95
P17	OP3a	9.02	-0.06	223.19
P18	OP3a	9.01	0.00	220.09
P19	OP3a	9.02	0.06	223.40
P20	OP3a	9.01	0.12	221.35
P21	OP3a	9.02	0.17	225.68
P22	OP3a	9.02	-0.18	230.36
P23	OP3a	9.01	-0.12	226.27
P24	OP3a	9.02	-0.06	228.52
P25	OP3a	9.01	0.00	225.42
P26	OP3a	9.02	0.06	228.74
P27	OP3a	9.01	0.12	226.68
P28	OP3a	9.02	0.18	230.95
P29	OP3a	9.02	-0.18	235.61
P30	OP3a	9.01	-0.12	231.48
P31	OP3a	9.02	-0.06	233.86
P32	OP3a	9.01	0.00	230.68
P33	OP3a	9.02	0.06	234.07
P34	OP3a	9.01	0.12	231.90
P35	OP3a	9.02	0.18	236.21
P36	OP3a	9.02	-0.18	240.85
P37	OP3a	9.01	-0.12	236.69
P38	OP3a	9.02	-0.06	239.19
P39	OP3a	9.01	0.00	235.93
P40	OP3a	9.02	0.06	239.41
P41	OP3a	9.01	0.12	237.12
P42	OP3a	9.02	0.18	241.47
P43	OP3a	9.02	-0.18	246.08
P44	OP3a	9.01	-0.12	241.89
P45	OP3a	9.02	-0.06	244.52
P46	OP3a	9.01	0.00	241.18
P47	OP3a	9.02	0.06	244.74
P48	OP3a	9.01	0.12	242.34
P49	OP3a	9.02	0.18	246.73
P50	OP3a	9.02	-0.18	251.32
P51	OP3a	9.01	-0.11	247.07
P52	OP3a	9.02	-0.06	249.84
P53	OP3a	9.01	0.00	246.41
P54	OP3a	9.02	0.06	250.07
P55	OP3a	9.01	0.12	247.53
P56	OP3a	9.02	0.18	251.99
P57	OP3a	9.02	-0.17	256.56
P58	OP3a	9.00	-0.11	251.90
P59	OP3a	9.02	-0.06	255.17
P60	OP3a	8.99	0.00	251.28
P61	OP3a	9.02	0.06	255.40
P62	OP3a	9.00	0.12	252.37
P63	OP3a	9.02	0.18	257.24

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3b	9.31	-0.18	201.26
P2	OP3b	7.67	-0.13	226.65 *
P3	OP3b	7.67	-0.06	229.36 *
P4	OP3b	9.31	0.00	195.69
P5	OP3b	7.67	0.06	229.56 *
P6	OP3b	7.67	0.12	227.01 *
P7	OP3b	9.31	0.18	201.78
P8	OP3b	9.31	-0.18	201.46
P9	OP3b	7.66	-0.13	227.13 *
P10	OP3b	7.67	-0.06	229.64 *
P11	OP3b	9.30	0.00	196.23
P12	OP3b	7.66	0.06	229.84 *
P13	OP3b	7.66	0.12	227.51 *
P14	OP3b	9.31	0.18	202.01
P15	OP3b	9.31	-0.18	201.67
P16	OP3b	9.30	-0.12	197.44
P17	OP3b	9.31	-0.06	199.57
P18	OP3b	9.30	0.00	196.54
P19	OP3b	9.31	0.06	199.78
P20	OP3b	9.30	0.12	197.83
P21	OP3b	9.31	0.18	202.23
P22	OP3b	9.31	-0.18	201.87
P23	OP3b	9.31	-0.12	197.69
P24	OP3b	9.31	-0.06	199.85
P25	OP3b	9.30	0.00	196.80
P26	OP3b	9.31	0.06	200.06
P27	OP3b	9.30	0.12	198.09
P28	OP3b	9.31	0.18	202.46
P29	OP3b	9.31	-0.18	202.08
P30	OP3b	9.31	-0.12	197.93
P31	OP3b	9.31	-0.06	200.13
P32	OP3b	9.30	0.00	197.08
P33	OP3b	9.31	0.06	200.35
P34	OP3b	9.30	0.12	198.34
P35	OP3b	9.31	0.18	202.68
P36	OP3b	9.31	-0.18	202.28
P37	OP3b	9.31	-0.12	198.16
P38	OP3b	9.31	-0.06	200.41
P39	OP3b	9.30	0.00	197.36
P40	OP3b	9.31	0.06	200.63
P41	OP3b	9.30	0.12	198.59
P42	OP3b	9.31	0.18	202.90
P43	OP3b	9.31	-0.18	202.48
P44	OP3b	9.30	-0.12	198.40
P45	OP3b	9.31	-0.06	200.69
P46	OP3b	9.30	0.00	197.64
P47	OP3b	9.31	0.06	200.91
P48	OP3b	9.30	0.12	198.84
P49	OP3b	9.31	0.18	203.12
P50	OP3b	9.31	-0.18	202.68
P51	OP3b	9.30	-0.12	198.62
P52	OP3b	9.31	-0.06	200.96
P53	OP3b	9.30	0.00	197.89
P54	OP3b	9.31	0.06	201.19
P55	OP3b	9.30	0.12	199.07
P56	OP3b	9.31	0.18	203.34
P57	OP3b	9.31	-0.18	202.88
P58	OP3b	9.29	-0.12	198.55
P59	OP3b	9.31	-0.06	201.24
P60	OP3b	9.29	0.00	197.86
P61	OP3b	9.31	0.06	201.47
P62	OP3b	9.29	0.12	199.02
P63	OP3b	9.31	0.18	203.56

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4a	8.08	-0.17	213.48
P2	OP4a	6.36	-0.12	234.37 *
P3	OP4a	6.36	-0.06	237.24 *
P4	OP4a	8.08	0.00	207.91
P5	OP4a	6.35	0.06	237.41 *
P6	OP4a	6.35	0.12	234.69 *
P7	OP4a	8.07	0.17	213.96
P8	OP4a	8.08	-0.17	218.93
P9	OP4a	6.32	-0.12	240.00 *
P10	OP4a	6.31	-0.06	242.70 *
P11	OP4a	8.07	0.00	213.68
P12	OP4a	6.31	0.06	242.88 *
P13	OP4a	6.31	0.12	240.33 *
P14	OP4a	8.07	0.18	219.43
P15	OP4a	8.08	-0.17	224.38
P16	OP4a	8.07	-0.11	220.30
P17	OP4a	8.08	-0.05	222.51
P18	OP4a	8.07	0.01	219.44
P19	OP4a	8.07	0.07	222.71
P20	OP4a	8.07	0.13	220.67
P21	OP4a	8.07	0.18	224.90
P22	OP4a	8.08	-0.17	229.83
P23	OP4a	8.07	-0.11	225.82
P24	OP4a	8.08	-0.05	228.05
P25	OP4a	8.07	0.01	224.98
P26	OP4a	8.07	0.07	228.25
P27	OP4a	8.07	0.13	226.20
P28	OP4a	8.07	0.18	230.37
P29	OP4a	8.08	-0.16	235.28
P30	OP4a	8.07	-0.11	231.23
P31	OP4a	8.08	-0.05	233.59
P32	OP4a	8.07	0.01	230.44
P33	OP4a	8.07	0.07	233.79
P34	OP4a	8.07	0.13	231.63
P35	OP4a	8.07	0.18	235.84
P36	OP4a	8.08	-0.16	240.72
P37	OP4a	8.07	-0.10	236.64
P38	OP4a	8.08	-0.05	239.12
P39	OP4a	8.07	0.01	235.90
P40	OP4a	8.07	0.07	239.33
P41	OP4a	8.07	0.13	237.05
P42	OP4a	8.07	0.18	241.31
P43	OP4a	8.08	-0.16	246.17
P44	OP4a	8.07	-0.10	242.05
P45	OP4a	8.08	-0.04	244.65
P46	OP4a	8.07	0.01	241.35
P47	OP4a	8.07	0.07	244.87
P48	OP4a	8.07	0.13	242.47
P49	OP4a	8.07	0.19	246.77
P50	OP4a	8.08	-0.16	251.61
P51	OP4a	8.07	-0.10	247.43
P52	OP4a	8.08	-0.04	250.18
P53	OP4a	8.07	0.02	246.77
P54	OP4a	8.07	0.08	250.40
P55	OP4a	8.06	0.13	247.86
P56	OP4a	8.07	0.19	252.23
P57	OP4a	8.08	-0.15	257.05
P58	OP4a	8.06	-0.09	252.46
P59	OP4a	8.08	-0.04	255.71
P60	OP4a	8.05	0.02	251.85
P61	OP4a	8.07	0.08	255.93
P62	OP4a	8.05	0.13	252.90
P63	OP4a	8.07	0.19	257.70

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4b	8.41	-0.18	198.55
P2	OP4b	6.80	-0.12	220.88 *
P3	OP4b	6.79	-0.06	223.51 *
P4	OP4b	8.40	0.00	193.07
P5	OP4b	6.79	0.06	223.69 *
P6	OP4b	6.79	0.12	221.20 *
P7	OP4b	8.40	0.18	199.03
P8	OP4b	8.41	-0.18	198.37
P9	OP4b	6.79	-0.12	220.98 *
P10	OP4b	6.79	-0.06	223.41 *
P11	OP4b	8.40	0.00	193.22
P12	OP4b	6.79	0.06	223.59 *
P13	OP4b	6.79	0.13	221.31 *
P14	OP4b	8.40	0.18	198.87
P15	OP4b	8.41	-0.17	198.19
P16	OP4b	8.40	-0.12	194.04
P17	OP4b	8.40	-0.05	196.14
P18	OP4b	8.40	0.01	193.15
P19	OP4b	8.40	0.07	196.33
P20	OP4b	8.39	0.13	194.41
P21	OP4b	8.40	0.18	198.72
P22	OP4b	8.41	-0.17	198.02
P23	OP4b	8.40	-0.11	193.91
P24	OP4b	8.40	-0.05	196.04
P25	OP4b	8.39	0.01	193.03
P26	OP4b	8.40	0.07	196.24
P27	OP4b	8.39	0.13	194.29
P28	OP4b	8.40	0.19	198.56
P29	OP4b	8.41	-0.17	197.84
P30	OP4b	8.40	-0.11	193.77
P31	OP4b	8.40	-0.05	195.93
P32	OP4b	8.39	0.01	192.93
P33	OP4b	8.40	0.07	196.14
P34	OP4b	8.39	0.13	194.16
P35	OP4b	8.40	0.19	198.40
P36	OP4b	8.41	-0.17	197.66
P37	OP4b	8.40	-0.11	193.63
P38	OP4b	8.40	-0.05	195.83
P39	OP4b	8.39	0.01	192.82
P40	OP4b	8.40	0.07	196.03
P41	OP4b	8.39	0.13	194.04
P42	OP4b	8.40	0.19	198.24
P43	OP4b	8.41	-0.16	197.48
P44	OP4b	8.40	-0.10	193.49
P45	OP4b	8.40	-0.04	195.72
P46	OP4b	8.39	0.01	192.72
P47	OP4b	8.40	0.07	195.93
P48	OP4b	8.39	0.13	193.91
P49	OP4b	8.40	0.19	198.08
P50	OP4b	8.41	-0.16	197.30
P51	OP4b	8.40	-0.10	193.33
P52	OP4b	8.40	-0.04	195.61
P53	OP4b	8.39	0.02	192.60
P54	OP4b	8.40	0.08	195.83
P55	OP4b	8.39	0.13	193.76
P56	OP4b	8.40	0.19	197.92
P57	OP4b	8.41	-0.16	197.12
P58	OP4b	8.38	-0.10	192.89
P59	OP4b	8.40	-0.04	195.50
P60	OP4b	8.38	0.02	192.20
P61	OP4b	8.40	0.08	195.72
P62	OP4b	8.38	0.13	193.33
P63	OP4b	8.40	0.20	197.76

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5a	6.66	-0.15	211.86
P2	OP5a	4.96	-0.10	227.82 *
P3	OP5a	4.95	-0.04	230.55 *
P4	OP5a	6.63	0.02	206.32
P5	OP5a	4.92	0.08	230.58 *
P6	OP5a	4.92	0.14	227.86 *
P7	OP5a	6.59	0.19	212.10
P8	OP5a	6.66	-0.14	217.51
P9	OP5a	4.91	-0.09	233.64 *
P10	OP5a	4.90	-0.03	236.21 *
P11	OP5a	6.62	0.03	212.28
P12	OP5a	4.88	0.09	236.25 *
P13	OP5a	4.87	0.15	233.69 *
P14	OP5a	6.59	0.20	217.77
P15	OP5a	6.66	-0.13	223.16
P16	OP5a	6.64	-0.07	219.17
P17	OP5a	6.63	-0.02	221.32
P18	OP5a	6.62	0.04	218.26
P19	OP5a	6.61	0.10	221.43
P20	OP5a	6.60	0.16	219.38
P21	OP5a	6.59	0.21	223.44
P22	OP5a	6.66	-0.11	228.81
P23	OP5a	6.64	-0.06	224.89
P24	OP5a	6.63	0.00	227.05
P25	OP5a	6.62	0.06	224.01
P26	OP5a	6.61	0.12	227.17
P27	OP5a	6.60	0.17	225.12
P28	OP5a	6.59	0.23	229.10
P29	OP5a	6.66	-0.10	234.45
P30	OP5a	6.64	-0.05	230.50
P31	OP5a	6.63	0.01	232.78
P32	OP5a	6.62	0.07	229.66
P33	OP5a	6.61	0.13	232.91
P34	OP5a	6.60	0.19	230.74
P35	OP5a	6.59	0.24	234.77
P36	OP5a	6.66	-0.09	240.10
P37	OP5a	6.64	-0.03	236.10
P38	OP5a	6.63	0.03	238.51
P39	OP5a	6.62	0.08	235.31
P40	OP5a	6.61	0.14	238.64
P41	OP5a	6.60	0.20	236.35
P42	OP5a	6.59	0.25	240.43
P43	OP5a	6.66	-0.07	245.74
P44	OP5a	6.64	-0.02	241.70
P45	OP5a	6.63	0.04	244.24
P46	OP5a	6.62	0.10	240.95
P47	OP5a	6.61	0.15	244.37
P48	OP5a	6.60	0.21	241.97
P49	OP5a	6.59	0.26	246.10
P50	OP5a	6.66	-0.06	251.38
P51	OP5a	6.64	0.00	247.28
P52	OP5a	6.63	0.05	249.96
P53	OP5a	6.62	0.11	246.57
P54	OP5a	6.61	0.17	250.10
P55	OP5a	6.60	0.22	247.55
P56	OP5a	6.59	0.28	251.76
P57	OP5a	6.66	-0.05	257.02
P58	OP5a	6.62	0.01	252.50
P59	OP5a	6.63	0.07	255.69
P60	OP5a	6.60	0.12	251.83
P61	OP5a	6.61	0.18	255.83
P62	OP5a	6.58	0.23	252.79
P63	OP5a	6.59	0.29	257.42

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5b	7.03	-0.16	194.85
P2	OP5b	5.46	-0.11	212.45 *
P3	OP5b	5.44	-0.04	214.91 *
P4	OP5b	7.00	0.02	189.40
P5	OP5b	5.42	0.08	214.94 *
P6	OP5b	5.41	0.14	212.49 *
P7	OP5b	6.97	0.19	195.08
P8	OP5b	7.03	-0.15	194.08
P9	OP5b	5.46	-0.09	211.97 *
P10	OP5b	5.45	-0.03	214.22 *
P11	OP5b	6.99	0.03	188.97
P12	OP5b	5.43	0.09	214.26 *
P13	OP5b	5.41	0.15	212.02 *
P14	OP5b	6.97	0.21	194.34
P15	OP5b	7.03	-0.13	193.31
P16	OP5b	7.01	-0.08	189.24
P17	OP5b	7.00	-0.02	191.26
P18	OP5b	6.99	0.04	188.29
P19	OP5b	6.98	0.10	191.38
P20	OP5b	6.97	0.16	189.45
P21	OP5b	6.97	0.22	193.59
P22	OP5b	7.03	-0.12	192.55
P23	OP5b	7.01	-0.06	188.52
P24	OP5b	7.00	0.00	190.56
P25	OP5b	6.99	0.06	187.59
P26	OP5b	6.98	0.12	190.68
P27	OP5b	6.97	0.18	188.75
P28	OP5b	6.97	0.23	192.84
P29	OP5b	7.03	-0.11	191.78
P30	OP5b	7.01	-0.05	187.80
P31	OP5b	7.00	0.01	189.86
P32	OP5b	6.99	0.07	186.90
P33	OP5b	6.98	0.13	189.99
P34	OP5b	6.97	0.19	188.04
P35	OP5b	6.97	0.24	192.10
P36	OP5b	7.03	-0.09	191.01
P37	OP5b	7.01	-0.03	187.08
P38	OP5b	7.00	0.02	189.16
P39	OP5b	6.99	0.08	186.21
P40	OP5b	6.98	0.14	189.29
P41	OP5b	6.97	0.20	187.33
P42	OP5b	6.97	0.26	191.35
P43	OP5b	7.03	-0.08	190.24
P44	OP5b	7.01	-0.02	186.35
P45	OP5b	7.00	0.04	188.46
P46	OP5b	6.99	0.10	185.53
P47	OP5b	6.98	0.15	188.60
P48	OP5b	6.97	0.21	186.62
P49	OP5b	6.97	0.27	190.60
P50	OP5b	7.03	-0.07	189.47
P51	OP5b	7.01	-0.01	185.61
P52	OP5b	7.00	0.05	187.76
P53	OP5b	6.99	0.11	184.82
P54	OP5b	6.98	0.17	187.90
P55	OP5b	6.97	0.22	185.89
P56	OP5b	6.97	0.28	189.85
P57	OP5b	7.03	-0.05	188.70
P58	OP5b	7.00	0.01	184.61
P59	OP5b	7.00	0.06	187.06
P60	OP5b	6.97	0.12	183.85
P61	OP5b	6.98	0.18	187.20
P62	OP5b	6.96	0.24	184.89
P63	OP5b	6.97	0.30	189.10

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6a	6.13	-0.15	211.42
P2	OP6a	4.44	-0.10	225.53 *
P3	OP6a	4.42	-0.03	228.18 *
P4	OP6a	6.09	0.03	205.80
P5	OP6a	4.39	0.09	228.13 *
P6	OP6a	4.38	0.15	225.42 *
P7	OP6a	6.04	0.20	211.51
P8	OP6a	6.13	-0.13	217.21
P9	OP6a	4.39	-0.08	231.47 *
P10	OP6a	4.38	-0.01	233.97 *
P11	OP6a	6.08	0.05	211.89
P12	OP6a	4.35	0.10	233.93 *
P13	OP6a	4.33	0.16	231.37 *
P14	OP6a	6.04	0.22	217.32
P15	OP6a	6.13	-0.11	223.00
P16	OP6a	6.11	-0.05	218.95
P17	OP6a	6.10	0.01	221.10
P18	OP6a	6.08	0.06	217.97
P19	OP6a	6.07	0.12	221.17
P20	OP6a	6.05	0.18	219.07
P21	OP6a	6.04	0.23	223.13
P22	OP6a	6.13	-0.09	228.79
P23	OP6a	6.11	-0.03	224.81
P24	OP6a	6.10	0.02	226.97
P25	OP6a	6.08	0.08	223.85
P26	OP6a	6.07	0.14	227.05
P27	OP6a	6.05	0.20	224.94
P28	OP6a	6.04	0.25	228.95
P29	OP6a	6.13	-0.07	234.58
P30	OP6a	6.11	-0.01	230.56
P31	OP6a	6.10	0.04	232.84
P32	OP6a	6.08	0.10	229.64
P33	OP6a	6.07	0.16	232.92
P34	OP6a	6.05	0.22	230.70
P35	OP6a	6.04	0.27	234.75
P36	OP6a	6.13	-0.05	240.37
P37	OP6a	6.11	0.01	236.30
P38	OP6a	6.10	0.06	238.71
P39	OP6a	6.08	0.12	235.42
P40	OP6a	6.07	0.18	238.79
P41	OP6a	6.05	0.24	236.46
P42	OP6a	6.04	0.29	240.56
P43	OP6a	6.13	-0.03	246.15
P44	OP6a	6.11	0.03	242.04
P45	OP6a	6.10	0.08	244.57
P46	OP6a	6.08	0.14	241.20
P47	OP6a	6.07	0.20	244.66
P48	OP6a	6.05	0.26	242.21
P49	OP6a	6.04	0.31	246.37
P50	OP6a	6.13	-0.01	251.94
P51	OP6a	6.11	0.05	247.75
P52	OP6a	6.10	0.10	250.43
P53	OP6a	6.08	0.16	246.95
P54	OP6a	6.07	0.22	250.52
P55	OP6a	6.05	0.27	247.93
P56	OP6a	6.04	0.33	252.17
P57	OP6a	6.13	0.01	257.72
P58	OP6a	6.10	0.07	253.11
P59	OP6a	6.10	0.12	256.29
P60	OP6a	6.07	0.18	252.36
P61	OP6a	6.07	0.24	256.39
P62	OP6a	6.04	0.29	253.30
P63	OP6a	6.04	0.35	257.98

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-1 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - 4.5ft SLAB MODIFICATION **Checked By:** BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6b	6.52	-0.15	193.71
P2	OP6b	4.96	-0.10	209.53 *
P3	OP6b	4.94	-0.03	211.90 *
P4	OP6b	6.48	0.03	188.20
P5	OP6b	4.91	0.09	211.85 *
P6	OP6b	4.90	0.15	209.42 *
P7	OP6b	6.43	0.20	193.80
P8	OP6b	6.52	-0.13	192.82
P9	OP6b	4.96	-0.08	208.91 *
P10	OP6b	4.95	-0.01	211.09 *
P11	OP6b	6.47	0.05	187.62
P12	OP6b	4.92	0.11	211.04 *
P13	OP6b	4.90	0.17	208.81 *
P14	OP6b	6.43	0.22	192.93
P15	OP6b	6.52	-0.11	191.94
P16	OP6b	6.50	-0.06	187.80
P17	OP6b	6.49	0.00	189.81
P18	OP6b	6.47	0.06	186.78
P19	OP6b	6.46	0.12	189.88
P20	OP6b	6.44	0.18	187.92
P21	OP6b	6.43	0.24	192.07
P22	OP6b	6.52	-0.09	191.05
P23	OP6b	6.50	-0.04	186.95
P24	OP6b	6.49	0.02	188.99
P25	OP6b	6.47	0.08	185.94
P26	OP6b	6.46	0.14	189.07
P27	OP6b	6.44	0.20	187.09
P28	OP6b	6.43	0.26	191.20
P29	OP6b	6.52	-0.07	190.17
P30	OP6b	6.50	-0.02	186.11
P31	OP6b	6.49	0.04	188.17
P32	OP6b	6.47	0.10	185.13
P33	OP6b	6.46	0.16	188.25
P34	OP6b	6.44	0.22	186.25
P35	OP6b	6.43	0.28	190.34
P36	OP6b	6.52	-0.06	189.28
P37	OP6b	6.50	0.00	185.27
P38	OP6b	6.49	0.06	187.34
P39	OP6b	6.47	0.12	184.32
P40	OP6b	6.46	0.18	187.42
P41	OP6b	6.44	0.24	185.42
P42	OP6b	6.43	0.30	189.47
P43	OP6b	6.52	-0.04	188.39
P44	OP6b	6.50	0.02	184.42
P45	OP6b	6.49	0.08	186.51
P46	OP6b	6.47	0.14	183.51
P47	OP6b	6.46	0.20	186.60
P48	OP6b	6.44	0.26	184.59
P49	OP6b	6.43	0.32	188.60
P50	OP6b	6.52	-0.02	187.50
P51	OP6b	6.50	0.04	183.56
P52	OP6b	6.49	0.10	185.69
P53	OP6b	6.47	0.16	182.68
P54	OP6b	6.46	0.22	185.78
P55	OP6b	6.44	0.28	183.75
P56	OP6b	6.43	0.34	187.74
P57	OP6b	6.52	0.00	186.61
P58	OP6b	6.48	0.06	182.44
P59	OP6b	6.49	0.12	184.86
P60	OP6b	6.45	0.18	181.59
P61	OP6b	6.46	0.24	184.95
P62	OP6b	6.42	0.30	182.63
P63	OP6b	6.43	0.36	186.87

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP7a	6.13	-0.15	211.36
P2	OP7a	4.44	-0.09	225.49 *
P3	OP7a	4.43	-0.03	228.15 *
P4	OP7a	6.09	0.03	205.78
P5	OP7a	4.40	0.09	228.10 *
P6	OP7a	4.38	0.15	225.38 *
P7	OP7a	6.04	0.20	211.45
P8	OP7a	6.13	-0.13	217.10
P9	OP7a	4.40	-0.07	231.39 *
P10	OP7a	4.38	-0.01	233.90 *
P11	OP7a	6.08	0.05	211.83
P12	OP7a	4.35	0.10	233.85 *
P13	OP7a	4.34	0.16	231.29 *
P14	OP7a	6.04	0.21	217.21
P15	OP7a	6.13	-0.11	222.84
P16	OP7a	6.11	-0.05	218.85
P17	OP7a	6.10	0.01	220.98
P18	OP7a	6.08	0.06	217.89
P19	OP7a	6.07	0.12	221.05
P20	OP7a	6.05	0.18	218.97
P21	OP7a	6.04	0.23	222.97
P22	OP7a	6.13	-0.09	228.58
P23	OP7a	6.11	-0.03	224.66
P24	OP7a	6.10	0.03	226.80
P25	OP7a	6.08	0.08	223.73
P26	OP7a	6.07	0.14	226.87
P27	OP7a	6.05	0.20	224.80
P28	OP7a	6.04	0.25	228.73
P29	OP7a	6.13	-0.07	234.32
P30	OP7a	6.11	-0.01	230.36
P31	OP7a	6.10	0.04	232.62
P32	OP7a	6.08	0.10	229.48
P33	OP7a	6.07	0.16	232.70
P34	OP7a	6.05	0.22	230.51
P35	OP7a	6.04	0.27	234.49
P36	OP7a	6.13	-0.05	240.05
P37	OP7a	6.11	0.01	236.05
P38	OP7a	6.10	0.06	238.44
P39	OP7a	6.08	0.12	235.21
P40	OP7a	6.07	0.18	238.52
P41	OP7a	6.05	0.24	236.21
P42	OP7a	6.04	0.29	240.25
P43	OP7a	6.13	-0.03	245.79
P44	OP7a	6.11	0.03	241.74
P45	OP7a	6.10	0.08	244.26
P46	OP7a	6.08	0.14	240.94
P47	OP7a	6.07	0.20	244.34
P48	OP7a	6.05	0.25	241.92
P49	OP7a	6.04	0.31	246.00
P50	OP7a	6.13	-0.01	251.52
P51	OP7a	6.11	0.05	247.41
P52	OP7a	6.10	0.10	250.07
P53	OP7a	6.08	0.16	246.65
P54	OP7a	6.07	0.22	250.16
P55	OP7a	6.05	0.27	247.59
P56	OP7a	6.04	0.33	251.76
P57	OP7a	6.13	0.01	257.25
P58	OP7a	6.10	0.07	252.72
P59	OP7a	6.10	0.12	255.88
P60	OP7a	6.07	0.18	252.00
P61	OP7a	6.07	0.24	255.98
P62	OP7a	6.04	0.29	252.92
P63	OP7a	6.04	0.35	257.51

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP7b	6.52	-0.15	193.65
P2	OP7b	4.96	-0.10	209.49 *
P3	OP7b	4.94	-0.03	211.87 *
P4	OP7b	6.48	0.03	188.17
P5	OP7b	4.91	0.09	211.82 *
P6	OP7b	4.90	0.15	209.38 *
P7	OP7b	6.43	0.20	193.74
P8	OP7b	6.52	-0.13	192.71
P9	OP7b	4.96	-0.08	208.83 *
P10	OP7b	4.95	-0.01	211.01 *
P11	OP7b	6.47	0.05	187.56
P12	OP7b	4.92	0.10	210.97 *
P13	OP7b	4.90	0.17	208.73 *
P14	OP7b	6.43	0.22	192.82
P15	OP7b	6.52	-0.11	191.78
P16	OP7b	6.50	-0.06	187.70
P17	OP7b	6.49	0.01	189.69
P18	OP7b	6.47	0.06	186.71
P19	OP7b	6.46	0.12	189.76
P20	OP7b	6.44	0.18	187.82
P21	OP7b	6.43	0.24	191.91
P22	OP7b	6.52	-0.09	190.84
P23	OP7b	6.50	-0.04	186.80
P24	OP7b	6.49	0.02	188.82
P25	OP7b	6.47	0.08	185.82
P26	OP7b	6.46	0.14	188.89
P27	OP7b	6.44	0.20	186.94
P28	OP7b	6.43	0.26	190.99
P29	OP7b	6.52	-0.07	189.90
P30	OP7b	6.50	-0.02	185.91
P31	OP7b	6.49	0.04	187.95
P32	OP7b	6.47	0.10	184.97
P33	OP7b	6.46	0.16	188.03
P34	OP7b	6.44	0.22	186.06
P35	OP7b	6.43	0.28	190.08
P36	OP7b	6.52	-0.05	188.96
P37	OP7b	6.50	0.01	185.02
P38	OP7b	6.49	0.06	187.07
P39	OP7b	6.47	0.12	184.11
P40	OP7b	6.46	0.18	187.16
P41	OP7b	6.44	0.24	185.18
P42	OP7b	6.43	0.30	189.16
P43	OP7b	6.52	-0.03	188.02
P44	OP7b	6.50	0.03	184.13
P45	OP7b	6.49	0.08	186.20
P46	OP7b	6.47	0.14	183.25
P47	OP7b	6.46	0.20	186.29
P48	OP7b	6.44	0.26	184.30
P49	OP7b	6.43	0.32	188.24
P50	OP7b	6.52	-0.01	187.08
P51	OP7b	6.50	0.05	183.22
P52	OP7b	6.49	0.10	185.32
P53	OP7b	6.47	0.16	182.38
P54	OP7b	6.46	0.22	185.42
P55	OP7b	6.44	0.28	183.41
P56	OP7b	6.43	0.33	187.32
P57	OP7b	6.52	0.01	186.14
P58	OP7b	6.49	0.07	182.05
P59	OP7b	6.49	0.12	184.45
P60	OP7b	6.45	0.18	181.24
P61	OP7b	6.46	0.24	184.54
P62	OP7b	6.43	0.29	182.25
P63	OP7b	6.43	0.35	186.40

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP8a	-5.28	0.28	201.69
P2	OP8a	-6.95	0.33	174.46 *
P3	OP8a	-7.19	0.38	174.21 *
P4	OP8a	-5.99	0.45	192.60
P5	OP8a	-7.64	0.51	169.89 *
P6	OP8a	-7.86	0.57	165.92 *
P7	OP8a	-6.72	0.61	193.38
P8	OP8a	-5.28	0.58	209.51
P9	OP8a	-7.02	0.63	182.24 *
P10	OP8a	-7.25	0.69	181.95 *
P11	OP8a	-6.00	0.75	200.59
P12	OP8a	-7.70	0.82	177.64 *
P13	OP8a	-7.92	0.87	173.70 *
P14	OP8a	-6.72	0.92	201.23
P15	OP8a	-5.28	0.89	217.34
P16	OP8a	-5.52	0.94	212.27
P17	OP8a	-5.76	0.99	213.06
P18	OP8a	-6.00	1.06	208.51
P19	OP8a	-6.24	1.12	210.43
P20	OP8a	-6.48	1.18	207.05
P21	OP8a	-6.72	1.22	209.08
P22	OP8a	-5.28	1.19	225.16
P23	OP8a	-5.52	1.24	220.10
P24	OP8a	-5.76	1.30	220.90
P25	OP8a	-6.00	1.37	216.36
P26	OP8a	-6.24	1.43	218.27
P27	OP8a	-6.48	1.49	214.89
P28	OP8a	-6.72	1.53	216.93
P29	OP8a	-5.28	1.50	232.99
P30	OP8a	-5.52	1.55	227.82
P31	OP8a	-5.76	1.61	228.74
P32	OP8a	-6.00	1.67	224.09
P33	OP8a	-6.24	1.74	226.12
P34	OP8a	-6.48	1.79	222.62
P35	OP8a	-6.72	1.84	224.78
P36	OP8a	-5.28	1.80	240.81
P37	OP8a	-5.52	1.85	235.53
P38	OP8a	-5.76	1.91	236.58
P39	OP8a	-6.00	1.98	231.81
P40	OP8a	-6.24	2.04	233.96
P41	OP8a	-6.48	2.10	230.35
P42	OP8a	-6.72	2.14	232.63
P43	OP8a	-5.28	2.11	248.63
P44	OP8a	-5.52	2.16	243.25
P45	OP8a	-5.76	2.22	244.42
P46	OP8a	-6.00	2.28	239.54
P47	OP8a	-6.24	2.35	241.80
P48	OP8a	-6.48	2.41	238.08
P49	OP8a	-6.72	2.45	240.48
P50	OP8a	-5.28	2.41	256.45
P51	OP8a	-5.52	2.46	250.93
P52	OP8a	-5.76	2.52	252.26
P53	OP8a	-6.00	2.59	247.23
P54	OP8a	-6.24	2.65	249.64
P55	OP8a	-6.48	2.71	245.78
P56	OP8a	-6.72	2.76	248.32
P57	OP8a	-5.28	2.72	264.27
P58	OP8a	-5.53	2.77	258.27
P59	OP8a	-5.76	2.83	260.09
P60	OP8a	-6.02	2.89	254.59
P61	OP8a	-6.24	2.96	257.48
P62	OP8a	-6.50	3.02	253.15
P63	OP8a	-6.72	3.06	256.17

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP8b	-4.63	0.27	171.96
P2	OP8b	-6.09	0.32	147.61 *
P3	OP8b	-6.32	0.38	146.89 *
P4	OP8b	-5.35	0.45	163.06
P5	OP8b	-6.77	0.51	142.58 *
P6	OP8b	-6.99	0.57	139.07 *
P7	OP8b	-6.08	0.62	163.66
P8	OP8b	-4.63	0.57	168.59
P9	OP8b	-6.06	0.63	144.39 *
P10	OP8b	-6.29	0.69	143.55 *
P11	OP8b	-5.35	0.75	159.87
P12	OP8b	-6.75	0.82	139.24 *
P13	OP8b	-6.97	0.88	135.86 *
P14	OP8b	-6.08	0.93	160.31
P15	OP8b	-4.63	0.88	165.21
P16	OP8b	-4.87	0.93	160.01
P17	OP8b	-5.11	0.99	160.56
P18	OP8b	-5.35	1.06	156.18
P19	OP8b	-5.60	1.12	157.93
P20	OP8b	-5.83	1.18	154.78
P21	OP8b	-6.08	1.23	156.96
P22	OP8b	-4.63	1.18	161.84
P23	OP8b	-4.87	1.24	156.57
P24	OP8b	-5.11	1.30	157.17
P25	OP8b	-5.35	1.37	152.75
P26	OP8b	-5.60	1.43	154.54
P27	OP8b	-5.83	1.49	151.36
P28	OP8b	-6.08	1.54	153.61
P29	OP8b	-4.63	1.49	158.46
P30	OP8b	-4.87	1.54	153.23
P31	OP8b	-5.11	1.60	153.78
P32	OP8b	-5.35	1.67	149.41
P33	OP8b	-5.60	1.74	151.16
P34	OP8b	-5.83	1.80	148.04
P35	OP8b	-6.08	1.85	150.26
P36	OP8b	-4.63	1.79	155.08
P37	OP8b	-4.87	1.85	149.90
P38	OP8b	-5.11	1.91	150.40
P39	OP8b	-5.35	1.98	146.07
P40	OP8b	-5.60	2.04	147.77
P41	OP8b	-5.83	2.10	144.72
P42	OP8b	-6.08	2.15	146.91
P43	OP8b	-4.63	2.10	151.71
P44	OP8b	-4.87	2.15	146.58
P45	OP8b	-5.11	2.22	147.01
P46	OP8b	-5.35	2.28	142.74
P47	OP8b	-5.60	2.35	144.39
P48	OP8b	-5.83	2.41	141.41
P49	OP8b	-6.08	2.46	143.55
P50	OP8b	-4.63	2.40	148.33
P51	OP8b	-4.87	2.46	143.23
P52	OP8b	-5.11	2.52	143.62
P53	OP8b	-5.35	2.59	139.39
P54	OP8b	-5.60	2.66	141.00
P55	OP8b	-5.83	2.72	138.08
P56	OP8b	-6.08	2.77	140.20
P57	OP8b	-4.63	2.71	144.95
P58	OP8b	-4.88	2.76	139.69
P59	OP8b	-5.11	2.83	140.23
P60	OP8b	-5.37	2.89	135.86
P61	OP8b	-5.60	2.96	137.62
P62	OP8b	-5.85	3.02	134.56
P63	OP8b	-6.08	3.07	136.85

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP9a	-5.32	0.28	203.42
P2	OP9a	-7.00	0.33	176.03 *
P3	OP9a	-7.24	0.39	175.84 *
P4	OP9a	-6.03	0.45	194.38
P5	OP9a	-7.69	0.51	171.53 *
P6	OP9a	-7.91	0.57	167.49 *
P7	OP9a	-6.76	0.61	195.11
P8	OP9a	-5.32	0.58	211.67
P9	OP9a	-7.07	0.63	184.24 *
P10	OP9a	-7.30	0.69	184.01 *
P11	OP9a	-6.04	0.75	202.81
P12	OP9a	-7.75	0.82	179.70 *
P13	OP9a	-7.98	0.87	175.71 *
P14	OP9a	-6.76	0.91	203.39
P15	OP9a	-5.32	0.89	219.92
P16	OP9a	-5.55	0.94	214.94
P17	OP9a	-5.80	1.00	215.71
P18	OP9a	-6.04	1.06	211.24
P19	OP9a	-6.28	1.12	213.08
P20	OP9a	-6.52	1.18	209.71
P21	OP9a	-6.76	1.22	211.67
P22	OP9a	-5.32	1.20	228.17
P23	OP9a	-5.56	1.25	223.20
P24	OP9a	-5.80	1.30	223.99
P25	OP9a	-6.04	1.37	219.53
P26	OP9a	-6.28	1.43	221.36
P27	OP9a	-6.52	1.48	217.99
P28	OP9a	-6.76	1.53	219.94
P29	OP9a	-5.32	1.50	236.42
P30	OP9a	-5.56	1.55	231.34
P31	OP9a	-5.80	1.61	232.26
P32	OP9a	-6.04	1.67	227.69
P33	OP9a	-6.28	1.73	229.64
P34	OP9a	-6.52	1.79	226.15
P35	OP9a	-6.76	1.83	228.22
P36	OP9a	-5.32	1.81	244.67
P37	OP9a	-5.56	1.86	239.48
P38	OP9a	-5.80	1.91	240.53
P39	OP9a	-6.04	1.98	235.84
P40	OP9a	-6.28	2.04	237.91
P41	OP9a	-6.52	2.09	234.30
P42	OP9a	-6.76	2.14	236.49
P43	OP9a	-5.32	2.11	252.91
P44	OP9a	-5.56	2.16	247.61
P45	OP9a	-5.80	2.22	248.80
P46	OP9a	-6.04	2.28	243.99
P47	OP9a	-6.28	2.35	246.18
P48	OP9a	-6.52	2.40	242.45
P49	OP9a	-6.76	2.45	244.76
P50	OP9a	-5.32	2.42	261.16
P51	OP9a	-5.56	2.47	255.72
P52	OP9a	-5.80	2.53	257.07
P53	OP9a	-6.04	2.59	252.11
P54	OP9a	-6.28	2.65	254.45
P55	OP9a	-6.52	2.71	250.57
P56	OP9a	-6.76	2.75	253.03
P57	OP9a	-5.32	2.72	269.40
P58	OP9a	-5.57	2.77	263.48
P59	OP9a	-5.80	2.83	265.34
P60	OP9a	-6.05	2.89	259.89
P61	OP9a	-6.28	2.96	262.73
P62	OP9a	-6.53	3.01	258.35
P63	OP9a	-6.76	3.06	261.30

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP9b	-4.67	0.27	173.70
P2	OP9b	-6.14	0.33	149.18 *
P3	OP9b	-6.37	0.38	148.52 *
P4	OP9b	-5.38	0.45	164.83
P5	OP9b	-6.82	0.51	144.21 *
P6	OP9b	-7.04	0.57	140.64 *
P7	OP9b	-6.11	0.62	165.39
P8	OP9b	-4.67	0.57	170.75
P9	OP9b	-6.12	0.63	146.40 *
P10	OP9b	-6.34	0.69	145.61 *
P11	OP9b	-5.39	0.75	162.09
P12	OP9b	-6.80	0.82	141.30 *
P13	OP9b	-7.02	0.87	137.86 *
P14	OP9b	-6.11	0.92	162.47
P15	OP9b	-4.67	0.88	167.80
P16	OP9b	-4.91	0.94	162.67
P17	OP9b	-5.15	1.00	163.21
P18	OP9b	-5.39	1.06	158.91
P19	OP9b	-5.63	1.12	160.58
P20	OP9b	-5.87	1.18	157.45
P21	OP9b	-6.11	1.23	159.54
P22	OP9b	-4.67	1.19	164.85
P23	OP9b	-4.91	1.24	159.67
P24	OP9b	-5.15	1.30	160.26
P25	OP9b	-5.39	1.37	155.92
P26	OP9b	-5.63	1.43	157.63
P27	OP9b	-5.87	1.49	154.46
P28	OP9b	-6.11	1.54	156.62
P29	OP9b	-4.67	1.49	161.90
P30	OP9b	-4.91	1.55	156.76
P31	OP9b	-5.15	1.61	157.30
P32	OP9b	-5.39	1.67	153.01
P33	OP9b	-5.63	1.73	154.68
P34	OP9b	-5.87	1.79	151.56
P35	OP9b	-6.11	1.84	153.69
P36	OP9b	-4.67	1.80	158.94
P37	OP9b	-4.91	1.85	153.85
P38	OP9b	-5.15	1.91	154.34
P39	OP9b	-5.39	1.98	150.10
P40	OP9b	-5.63	2.04	151.72
P41	OP9b	-5.87	2.10	148.67
P42	OP9b	-6.11	2.15	150.76
P43	OP9b	-4.67	2.10	155.99
P44	OP9b	-4.91	2.16	150.94
P45	OP9b	-5.15	2.22	151.39
P46	OP9b	-5.39	2.28	147.19
P47	OP9b	-5.63	2.35	148.77
P48	OP9b	-5.87	2.41	145.78
P49	OP9b	-6.11	2.46	147.84
P50	OP9b	-4.67	2.41	153.04
P51	OP9b	-4.91	2.46	148.02
P52	OP9b	-5.15	2.52	148.43
P53	OP9b	-5.39	2.59	144.27
P54	OP9b	-5.63	2.65	145.82
P55	OP9b	-5.87	2.71	142.87
P56	OP9b	-6.11	2.76	144.91
P57	OP9b	-4.67	2.71	150.08
P58	OP9b	-4.92	2.77	144.90
P59	OP9b	-5.15	2.83	145.47
P60	OP9b	-5.40	2.89	141.15
P61	OP9b	-5.63	2.96	142.86
P62	OP9b	-5.88	3.02	139.77
P63	OP9b	-6.11	3.07	141.98

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - 4.5ft SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10a	-5.32	0.28	203.36
P2	OP10a	-7.00	0.33	175.99 *
P3	OP10a	-7.23	0.39	175.81 *
P4	OP10a	-6.03	0.45	194.36
P5	OP10a	-7.69	0.51	171.50 *
P6	OP10a	-7.91	0.56	167.45 *
P7	OP10a	-6.76	0.61	195.06
P8	OP10a	-5.32	0.59	211.56
P9	OP10a	-7.07	0.64	184.16 *
P10	OP10a	-7.30	0.69	183.93 *
P11	OP10a	-6.04	0.75	202.75
P12	OP10a	-7.75	0.82	179.62 *
P13	OP10a	-7.97	0.87	175.63 *
P14	OP10a	-6.76	0.91	203.28
P15	OP10a	-5.32	0.89	219.76
P16	OP10a	-5.55	0.94	214.83
P17	OP10a	-5.80	1.00	215.58
P18	OP10a	-6.03	1.06	211.16
P19	OP10a	-6.28	1.12	212.95
P20	OP10a	-6.52	1.18	209.61
P21	OP10a	-6.76	1.22	211.51
P22	OP10a	-5.32	1.20	227.96
P23	OP10a	-5.55	1.25	223.05
P24	OP10a	-5.80	1.30	223.81
P25	OP10a	-6.04	1.37	219.41
P26	OP10a	-6.28	1.43	221.19
P27	OP10a	-6.52	1.48	217.84
P28	OP10a	-6.76	1.53	219.73
P29	OP10a	-5.32	1.50	236.16
P30	OP10a	-5.55	1.55	231.15
P31	OP10a	-5.80	1.61	232.04
P32	OP10a	-6.04	1.67	227.52
P33	OP10a	-6.28	1.73	229.42
P34	OP10a	-6.52	1.79	225.95
P35	OP10a	-6.76	1.83	227.96
P36	OP10a	-5.32	1.81	244.35
P37	OP10a	-5.55	1.86	239.24
P38	OP10a	-5.80	1.91	240.27
P39	OP10a	-6.04	1.98	235.63
P40	OP10a	-6.28	2.04	237.64
P41	OP10a	-6.52	2.09	234.05
P42	OP10a	-6.76	2.14	236.18
P43	OP10a	-5.32	2.11	252.55
P44	OP10a	-5.55	2.17	247.32
P45	OP10a	-5.80	2.22	248.49
P46	OP10a	-6.04	2.28	243.73
P47	OP10a	-6.28	2.34	245.87
P48	OP10a	-6.52	2.40	242.16
P49	OP10a	-6.76	2.44	244.40
P50	OP10a	-5.32	2.42	260.74
P51	OP10a	-5.56	2.47	255.38
P52	OP10a	-5.80	2.53	256.71
P53	OP10a	-6.04	2.59	251.80
P54	OP10a	-6.28	2.65	254.09
P55	OP10a	-6.52	2.70	250.23
P56	OP10a	-6.76	2.75	252.61
P57	OP10a	-5.32	2.73	268.93
P58	OP10a	-5.57	2.78	263.09
P59	OP10a	-5.80	2.83	264.93
P60	OP10a	-6.05	2.89	259.53
P61	OP10a	-6.28	2.96	262.32
P62	OP10a	-6.53	3.01	257.96
P63	OP10a	-6.76	3.05	260.83

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10b	-4.67	0.27	173.64
P2	OP10b	-6.13	0.33	149.14 *
P3	OP10b	-6.37	0.38	148.50 *
P4	OP10b	-5.38	0.45	164.81
P5	OP10b	-6.82	0.51	144.18 *
P6	OP10b	-7.04	0.57	140.60 *
P7	OP10b	-6.11	0.62	165.34
P8	OP10b	-4.67	0.58	170.64
P9	OP10b	-6.11	0.63	146.32 *
P10	OP10b	-6.34	0.69	145.53 *
P11	OP10b	-5.39	0.75	162.03
P12	OP10b	-6.80	0.82	141.23 *
P13	OP10b	-7.02	0.87	137.78 *
P14	OP10b	-6.11	0.92	162.36
P15	OP10b	-4.67	0.88	167.64
P16	OP10b	-4.91	0.94	162.57
P17	OP10b	-5.15	1.00	163.09
P18	OP10b	-5.39	1.06	158.83
P19	OP10b	-5.63	1.12	160.46
P20	OP10b	-5.87	1.18	157.34
P21	OP10b	-6.11	1.23	159.38
P22	OP10b	-4.67	1.19	164.63
P23	OP10b	-4.91	1.24	159.53
P24	OP10b	-5.15	1.30	160.08
P25	OP10b	-5.39	1.37	155.80
P26	OP10b	-5.63	1.43	157.46
P27	OP10b	-5.87	1.49	154.32
P28	OP10b	-6.11	1.53	156.41
P29	OP10b	-4.67	1.49	161.63
P30	OP10b	-4.91	1.55	156.57
P31	OP10b	-5.15	1.61	157.08
P32	OP10b	-5.39	1.67	152.84
P33	OP10b	-5.63	1.73	154.46
P34	OP10b	-5.87	1.79	151.37
P35	OP10b	-6.11	1.84	153.43
P36	OP10b	-4.67	1.80	158.63
P37	OP10b	-4.91	1.85	153.61
P38	OP10b	-5.15	1.91	154.08
P39	OP10b	-5.39	1.98	149.89
P40	OP10b	-5.63	2.04	151.46
P41	OP10b	-5.87	2.10	148.43
P42	OP10b	-6.11	2.15	150.45
P43	OP10b	-4.67	2.10	155.62
P44	OP10b	-4.91	2.16	150.65
P45	OP10b	-5.15	2.22	151.07
P46	OP10b	-5.39	2.28	146.93
P47	OP10b	-5.63	2.35	148.45
P48	OP10b	-5.87	2.40	145.48
P49	OP10b	-6.11	2.45	147.47
P50	OP10b	-4.67	2.41	152.62
P51	OP10b	-4.91	2.47	147.68
P52	OP10b	-5.15	2.53	148.07
P53	OP10b	-5.39	2.59	143.96
P54	OP10b	-5.63	2.65	145.45
P55	OP10b	-5.87	2.71	142.53
P56	OP10b	-6.11	2.76	144.49
P57	OP10b	-4.67	2.72	149.62
P58	OP10b	-4.92	2.77	144.51
P59	OP10b	-5.15	2.83	145.06
P60	OP10b	-5.40	2.89	140.80
P61	OP10b	-5.63	2.96	142.45
P62	OP10b	-5.88	3.01	139.38
P63	OP10b	-6.11	3.06	141.52

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11a	18.32	-0.20	195.57
P2	OP11a	16.61	-0.15	252.51 *
P3	OP11a	16.62	-0.08	255.67 *
P4	OP11a	18.35	-0.02	190.04
P5	OP11a	16.64	0.04	256.02 *
P6	OP11a	16.64	0.11	253.18 *
P7	OP11a	18.38	0.16	196.37
P8	OP11a	18.32	-0.21	194.89
P9	OP11a	16.61	-0.16	252.21 *
P10	OP11a	16.62	-0.09	255.12 *
P11	OP11a	18.34	-0.03	189.74
P12	OP11a	16.64	0.03	255.47 *
P13	OP11a	16.64	0.09	252.89 *
P14	OP11a	18.38	0.15	195.71
P15	OP11a	18.32	-0.23	194.22
P16	OP11a	18.32	-0.17	189.97
P17	OP11a	18.34	-0.10	192.03
P18	OP11a	18.34	-0.04	189.23
P19	OP11a	18.36	0.02	192.32
P20	OP11a	18.36	0.08	190.54
P21	OP11a	18.38	0.14	195.05
P22	OP11a	18.32	-0.24	193.54
P23	OP11a	18.32	-0.18	189.37
P24	OP11a	18.34	-0.11	191.46
P25	OP11a	18.34	-0.05	188.64
P26	OP11a	18.36	0.00	191.76
P27	OP11a	18.36	0.07	189.95
P28	OP11a	18.38	0.13	194.39
P29	OP11a	18.32	-0.25	192.86
P30	OP11a	18.32	-0.19	188.76
P31	OP11a	18.34	-0.12	190.90
P32	OP11a	18.34	-0.07	188.08
P33	OP11a	18.36	-0.01	191.20
P34	OP11a	18.36	0.05	189.35
P35	OP11a	18.38	0.11	193.73
P36	OP11a	18.32	-0.26	192.18
P37	OP11a	18.32	-0.20	188.15
P38	OP11a	18.34	-0.14	190.33
P39	OP11a	18.34	-0.08	187.53
P40	OP11a	18.36	-0.02	190.64
P41	OP11a	18.36	0.04	188.75
P42	OP11a	18.38	0.10	193.07
P43	OP11a	18.32	-0.27	191.50
P44	OP11a	18.32	-0.21	187.54
P45	OP11a	18.34	-0.15	189.76
P46	OP11a	18.34	-0.09	186.97
P47	OP11a	18.36	-0.03	190.08
P48	OP11a	18.36	0.03	188.15
P49	OP11a	18.38	0.09	192.41
P50	OP11a	18.32	-0.28	190.82
P51	OP11a	18.32	-0.22	186.90
P52	OP11a	18.34	-0.16	189.20
P53	OP11a	18.34	-0.10	186.40
P54	OP11a	18.36	-0.05	189.51
P55	OP11a	18.36	0.01	187.53
P56	OP11a	18.38	0.08	191.75
P57	OP11a	18.32	-0.29	190.13
P58	OP11a	18.31	-0.22	185.99
P59	OP11a	18.34	-0.17	188.62
P60	OP11a	18.33	-0.11	185.54
P61	OP11a	18.36	-0.06	188.95
P62	OP11a	18.35	0.00	186.63
P63	OP11a	18.38	0.06	191.09

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11b	18.64	-0.20	176.57
P2	OP11b	17.07	-0.15	235.09 *
P3	OP11b	17.08	-0.08	238.16 *
P4	OP11b	18.67	-0.02	171.24
P5	OP11b	17.10	0.04	238.50 *
P6	OP11b	17.10	0.11	235.76 *
P7	OP11b	18.70	0.16	177.37
P8	OP11b	18.64	-0.21	178.66
P9	OP11b	17.05	-0.16	237.48 *
P10	OP11b	17.06	-0.09	240.34 *
P11	OP11b	18.66	-0.03	173.67
P12	OP11b	17.08	0.03	240.69 *
P13	OP11b	17.08	0.09	238.16 *
P14	OP11b	18.70	0.15	179.48
P15	OP11b	18.64	-0.22	180.75
P16	OP11b	18.64	-0.16	176.76
P17	OP11b	18.66	-0.10	178.67
P18	OP11b	18.66	-0.04	176.02
P19	OP11b	18.68	0.02	178.96
P20	OP11b	18.68	0.08	177.33
P21	OP11b	18.70	0.14	181.59
P22	OP11b	18.64	-0.23	182.84
P23	OP11b	18.64	-0.17	178.94
P24	OP11b	18.66	-0.11	180.88
P25	OP11b	18.66	-0.05	178.21
P26	OP11b	18.68	0.00	181.18
P27	OP11b	18.68	0.07	179.52
P28	OP11b	18.70	0.12	183.70
P29	OP11b	18.64	-0.24	184.93
P30	OP11b	18.64	-0.18	181.06
P31	OP11b	18.66	-0.12	183.09
P32	OP11b	18.66	-0.07	180.39
P33	OP11b	18.68	-0.01	183.40
P34	OP11b	18.68	0.05	181.65
P35	OP11b	18.70	0.11	185.80
P36	OP11b	18.64	-0.25	187.02
P37	OP11b	18.64	-0.19	183.18
P38	OP11b	18.66	-0.13	185.30
P39	OP11b	18.66	-0.08	182.57
P40	OP11b	18.68	-0.02	185.61
P41	OP11b	18.68	0.04	183.78
P42	OP11b	18.70	0.10	187.91
P43	OP11b	18.64	-0.27	189.10
P44	OP11b	18.64	-0.20	185.29
P45	OP11b	18.66	-0.15	187.51
P46	OP11b	18.66	-0.09	184.75
P47	OP11b	18.68	-0.03	187.82
P48	OP11b	18.68	0.02	185.91
P49	OP11b	18.70	0.09	190.01
P50	OP11b	18.64	-0.28	191.18
P51	OP11b	18.64	-0.21	187.39
P52	OP11b	18.66	-0.16	189.71
P53	OP11b	18.66	-0.10	186.91
P54	OP11b	18.68	-0.05	190.03
P55	OP11b	18.68	0.01	188.02
P56	OP11b	18.70	0.07	192.12
P57	OP11b	18.64	-0.29	193.27
P58	OP11b	18.63	-0.22	189.20
P59	OP11b	18.66	-0.17	191.92
P60	OP11b	18.65	-0.11	188.78
P61	OP11b	18.68	-0.06	192.24
P62	OP11b	18.67	0.00	189.84
P63	OP11b	18.70	0.06	194.22

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	-4.94	0.29	190.28
P2	D1a	-6.54	0.33	164.44 *
P3	D1a	-6.77	0.39	164.08 *
P4	D1a	-5.66	0.45	181.33
P5	D1a	-7.22	0.51	159.77 *
P6	D1a	-7.45	0.56	155.90 *
P7	D1a	-6.39	0.60	181.97
P8	D1a	-4.94	0.59	199.50
P9	D1a	-6.61	0.64	173.65 *
P10	D1a	-6.84	0.69	173.17 *
P11	D1a	-5.67	0.75	190.64
P12	D1a	-7.29	0.82	168.86 *
P13	D1a	-7.52	0.87	165.11 *
P14	D1a	-6.39	0.91	191.22
P15	D1a	-4.94	0.90	208.72
P16	D1a	-5.18	0.95	204.11
P17	D1a	-5.43	1.00	204.32
P18	D1a	-5.66	1.06	199.77
P19	D1a	-5.91	1.12	201.68
P20	D1a	-6.14	1.17	198.89
P21	D1a	-6.39	1.21	200.47
P22	D1a	-4.94	1.21	217.94
P23	D1a	-5.18	1.25	213.38
P24	D1a	-5.43	1.30	213.53
P25	D1a	-5.67	1.37	208.92
P26	D1a	-5.91	1.43	210.90
P27	D1a	-6.15	1.48	208.17
P28	D1a	-6.39	1.52	209.71
P29	D1a	-4.94	1.51	227.16
P30	D1a	-5.18	1.56	222.46
P31	D1a	-5.43	1.61	222.73
P32	D1a	-5.67	1.67	217.99
P33	D1a	-5.91	1.73	220.11
P34	D1a	-6.15	1.78	217.27
P35	D1a	-6.39	1.82	218.96
P36	D1a	-4.94	1.82	236.38
P37	D1a	-5.18	1.86	231.54
P38	D1a	-5.43	1.91	231.94
P39	D1a	-5.67	1.98	227.06
P40	D1a	-5.91	2.04	229.32
P41	D1a	-6.15	2.09	226.35
P42	D1a	-6.39	2.13	228.20
P43	D1a	-4.94	2.13	245.59
P44	D1a	-5.18	2.17	240.61
P45	D1a	-5.43	2.22	241.14
P46	D1a	-5.67	2.28	236.13
P47	D1a	-5.91	2.35	238.53
P48	D1a	-6.15	2.39	235.44
P49	D1a	-6.39	2.43	237.44
P50	D1a	-4.94	2.43	254.81
P51	D1a	-5.19	2.47	249.65
P52	D1a	-5.43	2.52	250.35
P53	D1a	-5.67	2.59	245.17
P54	D1a	-5.91	2.65	247.73
P55	D1a	-6.15	2.70	244.50
P56	D1a	-6.39	2.74	246.68
P57	D1a	-4.94	2.74	264.02
P58	D1a	-5.20	2.78	258.36
P59	D1a	-5.43	2.83	259.55
P60	D1a	-5.68	2.89	253.88
P61	D1a	-5.91	2.96	256.94
P62	D1a	-6.16	3.01	253.23
P63	D1a	-6.39	3.04	255.92

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	-4.29	0.28	160.56
P2	D1b	-5.67	0.33	137.59 *
P3	D1b	-5.90	0.39	136.76 *
P4	D1b	-5.02	0.45	151.78
P5	D1b	-6.35	0.51	132.45 *
P6	D1b	-6.58	0.56	129.05 *
P7	D1b	-5.74	0.61	152.25
P8	D1b	-4.29	0.58	158.58
P9	D1b	-5.66	0.64	135.80 *
P10	D1b	-5.88	0.69	134.77 *
P11	D1b	-5.02	0.75	149.92
P12	D1b	-6.34	0.82	130.46 *
P13	D1b	-6.57	0.87	127.26 *
P14	D1b	-5.74	0.92	150.30
P15	D1b	-4.29	0.89	156.60
P16	D1b	-4.54	0.94	151.85
P17	D1b	-4.78	1.00	151.82
P18	D1b	-5.02	1.06	147.44
P19	D1b	-5.26	1.12	149.19
P20	D1b	-5.50	1.17	146.63
P21	D1b	-5.74	1.22	148.34
P22	D1b	-4.29	1.20	154.62
P23	D1b	-4.53	1.25	149.85
P24	D1b	-4.78	1.30	149.80
P25	D1b	-5.02	1.37	145.31
P26	D1b	-5.26	1.43	147.17
P27	D1b	-5.50	1.48	144.64
P28	D1b	-5.74	1.53	146.39
P29	D1b	-4.29	1.50	152.64
P30	D1b	-4.53	1.55	147.88
P31	D1b	-4.78	1.61	147.77
P32	D1b	-5.02	1.67	143.31
P33	D1b	-5.26	1.74	145.15
P34	D1b	-5.50	1.79	142.68
P35	D1b	-5.74	1.83	144.43
P36	D1b	-4.29	1.81	150.65
P37	D1b	-4.53	1.86	145.91
P38	D1b	-4.78	1.91	145.75
P39	D1b	-5.02	1.98	141.32
P40	D1b	-5.26	2.04	143.13
P41	D1b	-5.50	2.09	140.73
P42	D1b	-5.74	2.14	142.48
P43	D1b	-4.29	2.12	148.67
P44	D1b	-4.53	2.16	143.94
P45	D1b	-4.78	2.22	143.73
P46	D1b	-5.02	2.28	139.33
P47	D1b	-5.26	2.35	141.11
P48	D1b	-5.50	2.40	138.77
P49	D1b	-5.74	2.44	140.52
P50	D1b	-4.29	2.42	146.69
P51	D1b	-4.54	2.47	141.95
P52	D1b	-4.78	2.52	141.71
P53	D1b	-5.02	2.59	137.33
P54	D1b	-5.26	2.65	139.09
P55	D1b	-5.50	2.71	136.80
P56	D1b	-5.74	2.75	138.56
P57	D1b	-4.29	2.73	144.71
P58	D1b	-4.55	2.78	139.78
P59	D1b	-4.78	2.83	139.69
P60	D1b	-5.03	2.89	135.14
P61	D1b	-5.26	2.96	137.07
P62	D1b	-5.51	3.01	134.65
P63	D1b	-5.74	3.05	136.60

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	-6.30	-1.40	196.80
P2	D2a	-8.24	-1.35	162.51 *
P3	D2a	-8.78	-1.30	158.46 *
P4	D2a	-8.02	-1.24	180.32
P5	D2a	-9.85	-1.18	146.66 *
P6	D2a	-10.38	-1.12	139.40 *
P7	D2a	-9.74	-1.08	173.28
P8	D2a	-6.30	-0.67	205.23
P9	D2a	-8.30	-0.62	170.93 *
P10	D2a	-8.84	-0.58	166.75 *
P11	D2a	-8.02	-0.51	188.80
P12	D2a	-9.91	-0.45	154.87 *
P13	D2a	-10.44	-0.40	147.62 *
P14	D2a	-9.74	-0.35	181.63
P15	D2a	-6.30	0.06	213.65
P16	D2a	-6.87	0.10	206.57
P17	D2a	-7.45	0.15	204.28
P18	D2a	-8.02	0.21	197.09
P19	D2a	-8.60	0.28	196.30
P20	D2a	-9.17	0.33	190.50
P21	D2a	-9.74	0.38	189.98
P22	D2a	-6.30	0.78	222.07
P23	D2a	-6.87	0.83	215.03
P24	D2a	-7.45	0.88	212.67
P25	D2a	-8.02	0.94	205.39
P26	D2a	-8.60	1.00	204.62
P27	D2a	-9.17	1.06	198.75
P28	D2a	-9.74	1.10	198.32
P29	D2a	-6.30	1.51	230.50
P30	D2a	-6.87	1.56	223.33
P31	D2a	-7.45	1.60	221.07
P32	D2a	-8.02	1.66	213.63
P33	D2a	-8.60	1.73	212.94
P34	D2a	-9.17	1.79	206.96
P35	D2a	-9.74	1.83	206.67
P36	D2a	-6.30	2.24	238.91
P37	D2a	-6.87	2.28	231.61
P38	D2a	-7.45	2.33	229.46
P39	D2a	-8.02	2.39	221.86
P40	D2a	-8.60	2.46	221.26
P41	D2a	-9.17	2.52	215.17
P42	D2a	-9.74	2.56	215.01
P43	D2a	-6.30	2.97	247.33
P44	D2a	-6.87	3.01	239.89
P45	D2a	-7.45	3.06	237.85
P46	D2a	-8.02	3.12	230.09
P47	D2a	-8.60	3.19	229.57
P48	D2a	-9.17	3.25	223.37
P49	D2a	-9.74	3.29	223.35
P50	D2a	-6.30	3.70	255.75
P51	D2a	-6.87	3.74	248.14
P52	D2a	-7.45	3.78	246.24
P53	D2a	-8.02	3.84	238.29
P54	D2a	-8.60	3.91	237.89
P55	D2a	-9.17	3.97	231.55
P56	D2a	-9.74	4.02	231.70
P57	D2a	-6.30	4.42	264.16
P58	D2a	-6.89	4.46	256.05
P59	D2a	-7.45	4.51	254.63
P60	D2a	-8.04	4.57	246.17
P61	D2a	-8.60	4.64	246.20
P62	D2a	-9.18	4.70	239.42
P63	D2a	-9.74	4.75	240.04

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - 4.5ft SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	D2b	-5.65	-1.41	167.08	
P2	D2b	-7.37	-1.35	135.66	*
P3	D2b	-7.91	-1.30	131.14	*
P4	D2b	-7.37	-1.24	150.78	
P5	D2b	-8.98	-1.18	119.35	*
P6	D2b	-9.51	-1.12	112.55	*
P7	D2b	-9.09	-1.07	143.56	
P8	D2b	-5.65	-0.68	164.30	
P9	D2b	-7.35	-0.63	133.08	*
P10	D2b	-7.89	-0.58	128.35	*
P11	D2b	-7.37	-0.51	148.07	
P12	D2b	-8.96	-0.45	116.48	*
P13	D2b	-9.49	-0.39	109.77	*
P14	D2b	-9.09	-0.34	140.71	
P15	D2b	-5.65	0.05	161.53	
P16	D2b	-6.23	0.10	154.30	
P17	D2b	-6.80	0.15	151.78	
P18	D2b	-7.37	0.21	144.76	
P19	D2b	-7.95	0.28	143.80	
P20	D2b	-8.52	0.34	138.23	
P21	D2b	-9.09	0.39	137.85	
P22	D2b	-5.65	0.77	158.75	
P23	D2b	-6.22	0.83	151.51	
P24	D2b	-6.80	0.88	148.94	
P25	D2b	-7.37	0.94	141.78	
P26	D2b	-7.95	1.00	140.89	
P27	D2b	-8.52	1.06	135.23	
P28	D2b	-9.09	1.11	135.00	
P29	D2b	-5.65	1.50	155.97	
P30	D2b	-6.22	1.55	148.74	
P31	D2b	-6.80	1.60	146.11	
P32	D2b	-7.37	1.66	138.95	
P33	D2b	-7.95	1.73	137.98	
P34	D2b	-8.52	1.79	132.38	
P35	D2b	-9.09	1.84	132.14	
P36	D2b	-5.65	2.23	153.19	
P37	D2b	-6.22	2.28	145.98	
P38	D2b	-6.80	2.33	143.28	
P39	D2b	-7.37	2.39	136.12	
P40	D2b	-7.95	2.46	135.07	
P41	D2b	-8.52	2.52	129.54	
P42	D2b	-9.09	2.57	129.29	
P43	D2b	-5.65	2.96	150.41	
P44	D2b	-6.22	3.00	143.22	
P45	D2b	-6.80	3.06	140.44	
P46	D2b	-7.37	3.12	133.29	
P47	D2b	-7.95	3.19	132.16	
P48	D2b	-8.52	3.25	126.70	
P49	D2b	-9.09	3.30	126.43	
P50	D2b	-5.65	3.69	147.63	
P51	D2b	-6.23	3.73	140.44	
P52	D2b	-6.80	3.78	137.60	
P53	D2b	-7.37	3.84	130.45	
P54	D2b	-7.95	3.91	129.25	
P55	D2b	-8.52	3.98	123.85	
P56	D2b	-9.09	4.03	123.58	
P57	D2b	-5.65	4.41	144.85	
P58	D2b	-6.23	4.46	137.47	
P59	D2b	-6.80	4.51	134.77	
P60	D2b	-7.38	4.57	127.43	
P61	D2b	-7.95	4.64	126.34	
P62	D2b	-8.53	4.71	120.84	
P63	D2b	-9.09	4.76	120.72	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	DC Aa	-15.11	0.80	177.79	
P2	DC Aa	-16.71	0.84	114.76	*
P3	DC Aa	-17.20	0.89	110.93	*
P4	DC Aa	-16.61	0.95	164.20	
P5	DC Aa	-18.14	1.01	100.84	*
P6	DC Aa	-18.60	1.06	94.81	*
P7	DC Aa	-18.13	1.09	157.18	
P8	DC Aa	-15.11	1.44	190.88	
P9	DC Aa	-16.81	1.48	127.50	*
P10	DC Aa	-17.29	1.53	123.74	*
P11	DC Aa	-16.61	1.59	177.22	
P12	DC Aa	-18.24	1.66	113.64	*
P13	DC Aa	-18.70	1.70	107.53	*
P14	DC Aa	-18.13	1.73	170.28	
P15	DC Aa	-15.11	2.08	203.96	
P16	DC Aa	-15.60	2.12	197.74	
P17	DC Aa	-16.12	2.17	196.47	
P18	DC Aa	-16.61	2.23	190.18	
P19	DC Aa	-17.13	2.30	189.87	
P20	DC Aa	-17.62	2.34	184.67	
P21	DC Aa	-18.13	2.37	183.37	
P22	DC Aa	-15.11	2.71	217.04	
P23	DC Aa	-15.60	2.76	210.68	
P24	DC Aa	-16.12	2.81	209.46	
P25	DC Aa	-16.61	2.87	203.11	
P26	DC Aa	-17.13	2.94	202.85	
P27	DC Aa	-17.62	2.98	197.60	
P28	DC Aa	-18.13	3.01	196.46	
P29	DC Aa	-15.11	3.35	230.13	
P30	DC Aa	-15.60	3.40	223.53	
P31	DC Aa	-16.12	3.45	222.44	
P32	DC Aa	-16.61	3.51	215.90	
P33	DC Aa	-17.13	3.58	215.83	
P34	DC Aa	-17.62	3.63	210.45	
P35	DC Aa	-18.13	3.65	209.54	
P36	DC Aa	-15.11	3.99	243.21	
P37	DC Aa	-15.60	4.04	236.36	
P38	DC Aa	-16.12	4.09	235.42	
P39	DC Aa	-16.61	4.16	228.68	
P40	DC Aa	-17.13	4.22	228.80	
P41	DC Aa	-17.62	4.27	223.28	
P42	DC Aa	-18.13	4.30	222.63	
P43	DC Aa	-15.11	4.63	256.29	
P44	DC Aa	-15.60	4.67	249.19	
P45	DC Aa	-16.12	4.73	248.39	
P46	DC Aa	-16.61	4.80	241.47	
P47	DC Aa	-17.13	4.86	241.78	
P48	DC Aa	-17.62	4.91	236.12	
P49	DC Aa	-18.13	4.94	235.72	
P50	DC Aa	-15.11	5.27	269.37	
P51	DC Aa	-15.61	5.31	262.00	
P52	DC Aa	-16.12	5.37	261.37	
P53	DC Aa	-16.62	5.44	254.22	
P54	DC Aa	-17.13	5.50	254.75	
P55	DC Aa	-17.62	5.55	248.92	
P56	DC Aa	-18.13	5.58	248.80	
P57	DC Aa	-15.11	5.91	282.44	
P58	DC Aa	-15.62	5.95	274.45	
P59	DC Aa	-16.12	6.01	274.35	
P60	DC Aa	-16.63	6.08	266.63	
P61	DC Aa	-17.13	6.14	267.72	
P62	DC Aa	-17.63	6.20	261.40	
P63	DC Aa	-18.13	6.22	261.89	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	DC Ab	-14.31	0.78	141.33	
P2	DC Ab	-15.65	0.84	81.83	*
P3	DC Ab	-16.13	0.89	77.42	*
P4	DC Ab	-15.81	0.95	127.97	
P5	DC Ab	-17.07	1.02	67.33	*
P6	DC Ab	-17.54	1.06	61.88	*
P7	DC Ab	-17.34	1.10	120.73	
P8	DC Ab	-14.31	1.42	140.68	
P9	DC Ab	-15.65	1.48	81.08	*
P10	DC Ab	-16.12	1.53	76.64	*
P11	DC Ab	-15.82	1.59	127.27	
P12	DC Ab	-17.07	1.66	66.54	*
P13	DC Ab	-17.53	1.70	61.11	*
P14	DC Ab	-17.34	1.74	120.08	
P15	DC Ab	-14.31	2.06	140.02	
P16	DC Ab	-14.81	2.12	133.63	
P17	DC Ab	-15.32	2.17	132.08	
P18	DC Ab	-15.82	2.23	125.99	
P19	DC Ab	-16.33	2.30	125.48	
P20	DC Ab	-16.83	2.35	120.56	
P21	DC Ab	-17.34	2.38	119.43	
P22	DC Ab	-14.31	2.70	139.37	
P23	DC Ab	-14.81	2.75	132.76	
P24	DC Ab	-15.32	2.81	131.29	
P25	DC Ab	-15.82	2.87	125.09	
P26	DC Ab	-16.33	2.94	124.68	
P27	DC Ab	-16.82	2.99	119.68	
P28	DC Ab	-17.34	3.02	118.78	
P29	DC Ab	-14.31	3.34	138.71	
P30	DC Ab	-14.81	3.39	132.04	
P31	DC Ab	-15.32	3.45	130.49	
P32	DC Ab	-15.82	3.51	124.30	
P33	DC Ab	-16.33	3.58	123.88	
P34	DC Ab	-16.82	3.63	118.96	
P35	DC Ab	-17.34	3.67	118.13	
P36	DC Ab	-14.31	3.98	138.06	
P37	DC Ab	-14.81	4.03	131.33	
P38	DC Ab	-15.32	4.09	129.70	
P39	DC Ab	-15.82	4.16	123.52	
P40	DC Ab	-16.33	4.22	123.09	
P41	DC Ab	-16.82	4.27	118.25	
P42	DC Ab	-17.34	4.31	117.48	
P43	DC Ab	-14.31	4.62	137.40	
P44	DC Ab	-14.81	4.67	130.62	
P45	DC Ab	-15.32	4.73	128.91	
P46	DC Ab	-15.82	4.80	122.74	
P47	DC Ab	-16.33	4.86	122.29	
P48	DC Ab	-16.82	4.92	117.54	
P49	DC Ab	-17.34	4.95	116.83	
P50	DC Ab	-14.31	5.26	136.75	
P51	DC Ab	-14.81	5.31	129.89	
P52	DC Ab	-15.32	5.37	128.12	
P53	DC Ab	-15.82	5.44	121.94	
P54	DC Ab	-16.33	5.50	121.49	
P55	DC Ab	-16.83	5.56	116.82	
P56	DC Ab	-17.34	5.59	116.18	
P57	DC Ab	-14.31	5.90	136.09	
P58	DC Ab	-14.82	5.94	129.00	
P59	DC Ab	-15.32	6.01	127.32	
P60	DC Ab	-15.83	6.08	121.00	
P61	DC Ab	-16.33	6.14	120.70	
P62	DC Ab	-16.84	6.20	115.95	
P63	DC Ab	-17.34	6.24	115.54	

* Denotes Pile Battered @ 6V:1H in -X Direction

VERTICAL PILES

Vertical Reactions:
MAXIMUM REACTION = 282.44 kips
MINIMUM REACTION = 85.49 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 18.70 kips
MINIMUM REACTION = -18.13 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 10.35 kips
MINIMUM REACTION = -1.41 kips

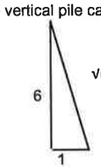
6V:1H PILES

Vertical Reactions:
MAXIMUM REACTION = 257.68 kips
MINIMUM REACTION = 61.11 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 17.10 kips
MINIMUM REACTION = -18.70 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 10.33 kips
MINIMUM REACTION = -1.35 kips

* Vertical reactions for piles battered at 6V:1H must be increased by a factor (hypotenuse/vertical length) to correspond to vertical pile capacity curves



$\sqrt{(6^2+1^2)}$ = 6.083

Max. Vertical Reaction = 261.2 kips

Maximum Vertical Reaction = 282.44 kips < $C_{allowable}$ = 285 kips - OK

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a-ST	-3.22	-0.11	180.04
P2	1a-ST	-4.53	-0.08	163.26 *
P3	1a-ST	-4.55	-0.04	166.00 *
P4	1a-ST	-3.21	-0.02	177.96
P5	1a-ST	-4.57	0.01	167.96 *
P6	1a-ST	-4.57	0.04	167.12 *
P7	1a-ST	-3.23	0.08	186.16
P8	1a-ST	-3.22	-0.11	171.47
P9	1a-ST	-4.47	-0.07	155.12 *
P10	1a-ST	-4.48	-0.04	157.62 *
P11	1a-ST	-3.22	-0.01	169.82
P12	1a-ST	-4.50	0.01	159.58 *
P13	1a-ST	-4.51	0.05	158.99 *
P14	1a-ST	-3.23	0.08	177.59
P15	1a-ST	-3.22	-0.10	162.89
P16	1a-ST	-3.22	-0.07	160.30
P17	1a-ST	-3.22	-0.04	162.89
P18	1a-ST	-3.22	-0.01	161.48
P19	1a-ST	-3.23	0.02	164.90
P20	1a-ST	-3.23	0.05	164.27
P21	1a-ST	-3.23	0.09	169.02
P22	1a-ST	-3.22	-0.10	154.32
P23	1a-ST	-3.22	-0.06	151.87
P24	1a-ST	-3.22	-0.03	154.38
P25	1a-ST	-3.22	0.00	153.09
P26	1a-ST	-3.23	0.02	156.40
P27	1a-ST	-3.23	0.05	155.85
P28	1a-ST	-3.23	0.09	160.45
P29	1a-ST	-3.22	-0.09	145.75
P30	1a-ST	-3.22	-0.06	143.46
P31	1a-ST	-3.22	-0.03	145.88
P32	1a-ST	-3.22	0.00	144.72
P33	1a-ST	-3.23	0.03	147.89
P34	1a-ST	-3.23	0.06	147.44
P35	1a-ST	-3.23	0.09	151.88
P36	1a-ST	-3.22	-0.09	137.17
P37	1a-ST	-3.22	-0.05	135.05
P38	1a-ST	-3.22	-0.02	137.37
P39	1a-ST	-3.22	0.00	136.34
P40	1a-ST	-3.23	0.03	139.39
P41	1a-ST	-3.23	0.06	139.03
P42	1a-ST	-3.23	0.10	143.31
P43	1a-ST	-3.22	-0.08	128.60
P44	1a-ST	-3.22	-0.05	126.64
P45	1a-ST	-3.22	-0.02	128.86
P46	1a-ST	-3.22	0.01	127.97
P47	1a-ST	-3.23	0.03	130.89
P48	1a-ST	-3.23	0.06	130.63
P49	1a-ST	-3.23	0.10	134.74
P50	1a-ST	-3.22	-0.08	120.02
P51	1a-ST	-3.22	-0.04	118.22
P52	1a-ST	-3.22	-0.01	120.36
P53	1a-ST	-3.22	0.01	119.58
P54	1a-ST	-3.23	0.04	122.38
P55	1a-ST	-3.23	0.07	122.21
P56	1a-ST	-3.23	0.11	126.16
P57	1a-ST	-3.22	-0.08	111.45
P58	1a-ST	-3.22	-0.04	109.64
P59	1a-ST	-3.22	-0.01	111.85
P60	1a-ST	-3.23	0.02	111.03
P61	1a-ST	-3.23	0.04	113.88
P62	1a-ST	-3.24	0.07	113.62
P63	1a-ST	-3.23	0.11	117.59

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b-ST	10.69	0.03	295.75
P2	1b-ST	8.21	0.12	318.93 *
P3	1b-ST	8.08	0.21	320.37 *
P4	1b-ST	10.27	0.28	280.83
P5	1b-ST	7.82	0.35	316.29 *
P6	1b-ST	7.70	0.44	310.84 *
P7	1b-ST	9.84	0.53	286.04
P8	1b-ST	10.69	0.21	307.40
P9	1b-ST	8.11	0.30	330.63 *
P10	1b-ST	7.99	0.39	331.96 *
P11	1b-ST	10.26	0.46	292.79
P12	1b-ST	7.73	0.54	327.88 *
P13	1b-ST	7.60	0.62	322.55 *
P14	1b-ST	9.84	0.71	297.71
P15	1b-ST	10.69	0.39	319.05
P16	1b-ST	10.54	0.48	309.27
P17	1b-ST	10.40	0.57	310.81
P18	1b-ST	10.26	0.64	304.41
P19	1b-ST	10.12	0.72	307.70
P20	1b-ST	9.97	0.80	303.11
P21	1b-ST	9.84	0.89	309.38
P22	1b-ST	10.69	0.57	330.69
P23	1b-ST	10.54	0.67	320.79
P24	1b-ST	10.40	0.75	322.55
P25	1b-ST	10.26	0.82	315.95
P26	1b-ST	10.12	0.90	319.45
P27	1b-ST	9.97	0.98	314.64
P28	1b-ST	9.84	1.08	321.06
P29	1b-ST	10.69	0.75	342.34
P30	1b-ST	10.54	0.85	332.30
P31	1b-ST	10.40	0.93	334.30
P32	1b-ST	10.26	1.01	327.51
P33	1b-ST	10.12	1.08	331.20
P34	1b-ST	9.97	1.16	326.17
P35	1b-ST	9.84	1.26	332.73
P36	1b-ST	10.69	0.92	353.98
P37	1b-ST	10.54	1.03	343.82
P38	1b-ST	10.40	1.11	346.03
P39	1b-ST	10.26	1.19	339.08
P40	1b-ST	10.12	1.26	342.94
P41	1b-ST	9.97	1.34	337.70
P42	1b-ST	9.84	1.44	344.40
P43	1b-ST	10.69	1.10	365.62
P44	1b-ST	10.54	1.21	355.33
P45	1b-ST	10.40	1.29	357.77
P46	1b-ST	10.26	1.37	350.64
P47	1b-ST	10.12	1.44	354.68
P48	1b-ST	9.97	1.52	349.24
P49	1b-ST	9.84	1.62	356.07
P50	1b-ST	10.69	1.28	377.26
P51	1b-ST	10.54	1.39	366.81
P52	1b-ST	10.40	1.47	369.50
P53	1b-ST	10.25	1.55	362.17
P54	1b-ST	10.12	1.62	366.42
P55	1b-ST	9.97	1.70	360.73
P56	1b-ST	9.84	1.80	367.73
P57	1b-ST	10.69	1.46	388.90
P58	1b-ST	10.52	1.57	377.76
P59	1b-ST	10.40	1.65	381.24
P60	1b-ST	10.24	1.73	373.17
P61	1b-ST	10.12	1.80	378.16
P62	1b-ST	9.95	1.88	371.70
P63	1b-ST	9.84	1.98	379.40

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1c-ST	-3.14	10.16	176.93
P2	1c-ST	-4.43	10.20	159.96 *
P3	1c-ST	-4.44	10.23	162.52 *
P4	1c-ST	-3.14	10.25	174.01
P5	1c-ST	-4.46	10.28	164.00 *
P6	1c-ST	-4.46	10.31	162.93 *
P7	1c-ST	-3.16	10.33	180.98
P8	1c-ST	-3.14	10.17	168.38
P9	1c-ST	-4.37	10.21	151.83 *
P10	1c-ST	-4.38	10.24	154.15 *
P11	1c-ST	-3.15	10.26	165.89
P12	1c-ST	-4.40	10.28	155.63 *
P13	1c-ST	-4.40	10.31	154.81 *
P14	1c-ST	-3.16	10.34	172.43
P15	1c-ST	-3.14	10.17	159.83
P16	1c-ST	-3.14	10.21	156.73
P17	1c-ST	-3.15	10.24	159.12
P18	1c-ST	-3.15	10.26	157.56
P19	1c-ST	-3.15	10.28	160.65
P20	1c-ST	-3.16	10.31	159.79
P21	1c-ST	-3.16	10.34	163.88
P22	1c-ST	-3.14	10.18	151.28
P23	1c-ST	-3.14	10.22	148.32
P24	1c-ST	-3.15	10.24	150.64
P25	1c-ST	-3.15	10.27	149.19
P26	1c-ST	-3.15	10.29	152.16
P27	1c-ST	-3.15	10.32	151.39
P28	1c-ST	-3.16	10.35	155.34
P29	1c-ST	-3.14	10.18	142.73
P30	1c-ST	-3.14	10.22	139.93
P31	1c-ST	-3.15	10.25	142.15
P32	1c-ST	-3.15	10.27	140.83
P33	1c-ST	-3.15	10.29	143.68
P34	1c-ST	-3.15	10.32	143.00
P35	1c-ST	-3.16	10.35	146.79
P36	1c-ST	-3.14	10.18	134.18
P37	1c-ST	-3.14	10.23	131.54
P38	1c-ST	-3.15	10.25	133.66
P39	1c-ST	-3.15	10.27	132.47
P40	1c-ST	-3.15	10.30	135.19
P41	1c-ST	-3.15	10.32	134.61
P42	1c-ST	-3.16	10.35	138.24
P43	1c-ST	-3.14	10.19	125.63
P44	1c-ST	-3.14	10.23	123.15
P45	1c-ST	-3.15	10.26	125.17
P46	1c-ST	-3.15	10.28	124.12
P47	1c-ST	-3.15	10.30	126.70
P48	1c-ST	-3.16	10.33	126.22
P49	1c-ST	-3.16	10.36	129.69
P50	1c-ST	-3.14	10.19	117.08
P51	1c-ST	-3.14	10.23	114.75
P52	1c-ST	-3.15	10.26	116.68
P53	1c-ST	-3.15	10.28	115.75
P54	1c-ST	-3.15	10.31	118.21
P55	1c-ST	-3.16	10.33	117.82
P56	1c-ST	-3.16	10.36	121.14
P57	1c-ST	-3.14	10.20	108.53
P58	1c-ST	-3.15	10.24	106.20
P59	1c-ST	-3.15	10.26	108.19
P60	1c-ST	-3.15	10.29	107.23
P61	1c-ST	-3.15	10.31	109.72
P62	1c-ST	-3.16	10.33	109.27
P63	1c-ST	-3.16	10.36	112.59

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1a-ST	10.31	-0.23	283.23
P2	OP1a-ST	8.06	-0.14	307.30 *
P3	OP1a-ST	8.06	-0.06	310.39 *
P4	OP1a-ST	10.32	0.01	272.28
P5	OP1a-ST	8.07	0.07	309.53 *
P6	OP1a-ST	8.08	0.15	305.57 *
P7	OP1a-ST	10.32	0.24	280.41
P8	OP1a-ST	10.31	-0.23	296.59
P9	OP1a-ST	7.95	-0.14	320.69 *
P10	OP1a-ST	7.96	-0.06	323.68 *
P11	OP1a-ST	10.31	0.01	285.94
P12	OP1a-ST	7.97	0.07	322.82 *
P13	OP1a-ST	7.97	0.15	318.98 *
P14	OP1a-ST	10.32	0.24	293.79
P15	OP1a-ST	10.31	-0.23	309.94
P16	OP1a-ST	10.30	-0.14	301.91
P17	OP1a-ST	10.31	-0.06	304.48
P18	OP1a-ST	10.31	0.00	299.44
P19	OP1a-ST	10.31	0.07	303.60
P20	OP1a-ST	10.31	0.15	300.16
P21	OP1a-ST	10.32	0.24	307.18
P22	OP1a-ST	10.31	-0.23	323.30
P23	OP1a-ST	10.30	-0.14	315.19
P24	OP1a-ST	10.31	-0.06	317.94
P25	OP1a-ST	10.31	0.00	312.75
P26	OP1a-ST	10.31	0.07	317.07
P27	OP1a-ST	10.31	0.15	313.46
P28	OP1a-ST	10.32	0.24	320.56
P29	OP1a-ST	10.31	-0.24	336.65
P30	OP1a-ST	10.30	-0.14	328.40
P31	OP1a-ST	10.31	-0.07	331.41
P32	OP1a-ST	10.31	0.00	326.01
P33	OP1a-ST	10.31	0.07	330.54
P34	OP1a-ST	10.31	0.14	326.68
P35	OP1a-ST	10.32	0.23	333.94
P36	OP1a-ST	10.31	-0.24	350.01
P37	OP1a-ST	10.30	-0.15	341.60
P38	OP1a-ST	10.31	-0.07	344.86
P39	OP1a-ST	10.31	0.00	339.27
P40	OP1a-ST	10.31	0.07	344.01
P41	OP1a-ST	10.31	0.14	339.90
P42	OP1a-ST	10.32	0.23	347.32
P43	OP1a-ST	10.31	-0.24	363.36
P44	OP1a-ST	10.30	-0.15	354.81
P45	OP1a-ST	10.31	-0.07	358.32
P46	OP1a-ST	10.31	0.00	352.53
P47	OP1a-ST	10.31	0.06	357.47
P48	OP1a-ST	10.31	0.14	353.12
P49	OP1a-ST	10.32	0.23	360.70
P50	OP1a-ST	10.31	-0.24	376.71
P51	OP1a-ST	10.30	-0.15	367.98
P52	OP1a-ST	10.31	-0.07	371.77
P53	OP1a-ST	10.30	0.00	365.75
P54	OP1a-ST	10.31	0.06	370.93
P55	OP1a-ST	10.31	0.14	366.30
P56	OP1a-ST	10.32	0.23	374.07
P57	OP1a-ST	10.31	-0.25	390.06
P58	OP1a-ST	10.28	-0.15	380.61
P59	OP1a-ST	10.31	-0.07	385.23
P60	OP1a-ST	10.29	-0.01	378.44
P61	OP1a-ST	10.31	0.06	384.38
P62	OP1a-ST	10.29	0.13	378.96
P63	OP1a-ST	10.32	0.23	387.45

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP1b-ST	10.53	-0.23	273.24
P2	OP1b-ST	8.35	-0.14	298.28 *
P3	OP1b-ST	8.35	-0.06	301.22 *
P4	OP1b-ST	10.54	0.01	262.36
P5	OP1b-ST	8.36	0.07	300.36 *
P6	OP1b-ST	8.37	0.16	296.55 *
P7	OP1b-ST	10.54	0.24	270.43
P8	OP1b-ST	10.53	-0.23	282.84
P9	OP1b-ST	8.27	-0.14	307.98 *
P10	OP1b-ST	8.28	-0.06	310.78 *
P11	OP1b-ST	10.53	0.01	272.26
P12	OP1b-ST	8.29	0.07	309.92 *
P13	OP1b-ST	8.29	0.15	306.26 *
P14	OP1b-ST	10.54	0.24	280.05
P15	OP1b-ST	10.53	-0.23	292.43
P16	OP1b-ST	10.52	-0.14	284.35
P17	OP1b-ST	10.53	-0.06	286.84
P18	OP1b-ST	10.52	0.00	281.86
P19	OP1b-ST	10.53	0.07	285.97
P20	OP1b-ST	10.53	0.15	282.60
P21	OP1b-ST	10.54	0.24	289.67
P22	OP1b-ST	10.53	-0.24	302.03
P23	OP1b-ST	10.52	-0.14	293.85
P24	OP1b-ST	10.53	-0.06	296.53
P25	OP1b-ST	10.52	0.00	291.38
P26	OP1b-ST	10.53	0.07	295.66
P27	OP1b-ST	10.53	0.15	292.12
P28	OP1b-ST	10.54	0.24	299.28
P29	OP1b-ST	10.53	-0.24	311.62
P30	OP1b-ST	10.52	-0.15	303.34
P31	OP1b-ST	10.53	-0.07	306.22
P32	OP1b-ST	10.52	0.00	300.92
P33	OP1b-ST	10.53	0.07	305.36
P34	OP1b-ST	10.53	0.15	301.63
P35	OP1b-ST	10.54	0.24	308.90
P36	OP1b-ST	10.53	-0.24	321.21
P37	OP1b-ST	10.52	-0.15	312.84
P38	OP1b-ST	10.53	-0.07	315.91
P39	OP1b-ST	10.52	0.00	310.47
P40	OP1b-ST	10.53	0.07	315.05
P41	OP1b-ST	10.53	0.14	311.14
P42	OP1b-ST	10.54	0.24	318.52
P43	OP1b-ST	10.53	-0.24	330.80
P44	OP1b-ST	10.52	-0.15	322.33
P45	OP1b-ST	10.53	-0.07	325.59
P46	OP1b-ST	10.52	0.00	320.01
P47	OP1b-ST	10.53	0.06	324.74
P48	OP1b-ST	10.53	0.14	320.65
P49	OP1b-ST	10.54	0.23	328.13
P50	OP1b-ST	10.53	-0.25	340.39
P51	OP1b-ST	10.52	-0.15	331.79
P52	OP1b-ST	10.53	-0.07	335.28
P53	OP1b-ST	10.52	0.00	329.52
P54	OP1b-ST	10.53	0.06	334.43
P55	OP1b-ST	10.52	0.14	330.12
P56	OP1b-ST	10.54	0.23	337.75
P57	OP1b-ST	10.53	-0.25	349.97
P58	OP1b-ST	10.50	-0.15	340.77
P59	OP1b-ST	10.53	-0.07	344.96
P60	OP1b-ST	10.50	-0.01	338.55
P61	OP1b-ST	10.53	0.06	344.12
P62	OP1b-ST	10.51	0.14	339.12
P63	OP1b-ST	10.54	0.23	347.36

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2a-ST	8.13	-0.22	291.95
P2	OP2a-ST	5.84	-0.14	308.16 *
P3	OP2a-ST	5.84	-0.06	311.30 *
P4	OP2a-ST	8.14	0.01	280.91
P5	OP2a-ST	5.85	0.07	310.44 *
P6	OP2a-ST	5.86	0.15	306.43 *
P7	OP2a-ST	8.14	0.24	289.14
P8	OP2a-ST	8.13	-0.23	304.22
P9	OP2a-ST	5.74	-0.14	320.49 *
P10	OP2a-ST	5.75	-0.06	323.51 *
P11	OP2a-ST	8.13	0.01	293.51
P12	OP2a-ST	5.76	0.07	322.65 *
P13	OP2a-ST	5.76	0.15	318.78 *
P14	OP2a-ST	8.14	0.24	301.42
P15	OP2a-ST	8.13	-0.23	316.48
P16	OP2a-ST	8.12	-0.14	308.42
P17	OP2a-ST	8.13	-0.06	311.06
P18	OP2a-ST	8.13	0.00	305.98
P19	OP2a-ST	8.13	0.07	310.19
P20	OP2a-ST	8.13	0.15	306.67
P21	OP2a-ST	8.14	0.23	313.71
P22	OP2a-ST	8.13	-0.23	328.74
P23	OP2a-ST	8.12	-0.14	320.64
P24	OP2a-ST	8.13	-0.06	323.43
P25	OP2a-ST	8.13	0.00	318.22
P26	OP2a-ST	8.13	0.07	322.56
P27	OP2a-ST	8.13	0.14	318.90
P28	OP2a-ST	8.14	0.23	326.00
P29	OP2a-ST	8.13	-0.23	340.99
P30	OP2a-ST	8.12	-0.14	332.77
P31	OP2a-ST	8.13	-0.06	335.80
P32	OP2a-ST	8.13	0.00	330.41
P33	OP2a-ST	8.13	0.07	334.94
P34	OP2a-ST	8.13	0.14	331.05
P35	OP2a-ST	8.14	0.23	338.28
P36	OP2a-ST	8.13	-0.24	353.25
P37	OP2a-ST	8.12	-0.14	344.89
P38	OP2a-ST	8.13	-0.07	348.17
P39	OP2a-ST	8.13	0.00	342.59
P40	OP2a-ST	8.13	0.06	347.31
P41	OP2a-ST	8.13	0.14	343.19
P42	OP2a-ST	8.14	0.23	350.56
P43	OP2a-ST	8.13	-0.24	365.51
P44	OP2a-ST	8.12	-0.14	357.02
P45	OP2a-ST	8.13	-0.07	360.53
P46	OP2a-ST	8.13	0.00	354.77
P47	OP2a-ST	8.13	0.06	359.67
P48	OP2a-ST	8.13	0.14	355.33
P49	OP2a-ST	8.14	0.23	362.84
P50	OP2a-ST	8.13	-0.24	377.76
P51	OP2a-ST	8.12	-0.14	369.10
P52	OP2a-ST	8.13	-0.07	372.89
P53	OP2a-ST	8.12	0.00	366.92
P54	OP2a-ST	8.13	0.06	372.04
P55	OP2a-ST	8.13	0.13	367.43
P56	OP2a-ST	8.14	0.23	375.12
P57	OP2a-ST	8.13	-0.24	390.01
P58	OP2a-ST	8.10	-0.14	380.66
P59	OP2a-ST	8.13	-0.07	385.25
P60	OP2a-ST	8.11	-0.01	378.53
P61	OP2a-ST	8.13	0.06	384.40
P62	OP2a-ST	8.11	0.13	379.01
P63	OP2a-ST	8.14	0.22	387.40

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP2b-ST	8.40	-0.23	279.54
P2	OP2b-ST	6.20	-0.14	296.95 *
P3	OP2b-ST	6.20	-0.06	299.89 *
P4	OP2b-ST	8.41	0.01	268.57
P5	OP2b-ST	6.21	0.07	299.03 *
P6	OP2b-ST	6.22	0.15	295.22 *
P7	OP2b-ST	8.41	0.24	276.73
P8	OP2b-ST	8.40	-0.23	287.13
P9	OP2b-ST	6.14	-0.14	304.69 *
P10	OP2b-ST	6.15	-0.06	307.47 *
P11	OP2b-ST	8.40	0.01	276.50
P12	OP2b-ST	6.16	0.07	306.61 *
P13	OP2b-ST	6.16	0.15	302.97 *
P14	OP2b-ST	8.41	0.24	284.33
P15	OP2b-ST	8.40	-0.23	294.71
P16	OP2b-ST	8.39	-0.14	286.59
P17	OP2b-ST	8.40	-0.06	289.14
P18	OP2b-ST	8.40	0.00	284.12
P19	OP2b-ST	8.40	0.07	288.26
P20	OP2b-ST	8.40	0.15	284.84
P21	OP2b-ST	8.41	0.24	291.94
P22	OP2b-ST	8.40	-0.23	302.29
P23	OP2b-ST	8.39	-0.14	294.11
P24	OP2b-ST	8.40	-0.06	296.82
P25	OP2b-ST	8.40	0.00	291.66
P26	OP2b-ST	8.40	0.07	295.95
P27	OP2b-ST	8.40	0.15	292.38
P28	OP2b-ST	8.41	0.24	299.55
P29	OP2b-ST	8.40	-0.24	309.87
P30	OP2b-ST	8.40	-0.14	301.62
P31	OP2b-ST	8.40	-0.07	304.50
P32	OP2b-ST	8.40	0.00	299.22
P33	OP2b-ST	8.40	0.07	303.63
P34	OP2b-ST	8.40	0.14	299.90
P35	OP2b-ST	8.41	0.24	307.16
P36	OP2b-ST	8.40	-0.24	317.45
P37	OP2b-ST	8.40	-0.14	309.13
P38	OP2b-ST	8.40	-0.07	312.17
P39	OP2b-ST	8.40	0.00	306.79
P40	OP2b-ST	8.40	0.06	311.32
P41	OP2b-ST	8.40	0.14	307.43
P42	OP2b-ST	8.41	0.23	314.76
P43	OP2b-ST	8.40	-0.24	325.03
P44	OP2b-ST	8.39	-0.15	316.65
P45	OP2b-ST	8.40	-0.07	319.85
P46	OP2b-ST	8.40	0.00	314.35
P47	OP2b-ST	8.40	0.06	318.99
P48	OP2b-ST	8.40	0.14	314.96
P49	OP2b-ST	8.41	0.23	322.37
P50	OP2b-ST	8.40	-0.24	332.61
P51	OP2b-ST	8.39	-0.15	324.13
P52	OP2b-ST	8.40	-0.07	327.52
P53	OP2b-ST	8.39	0.00	321.88
P54	OP2b-ST	8.40	0.06	326.67
P55	OP2b-ST	8.40	0.14	322.46
P56	OP2b-ST	8.41	0.23	329.97
P57	OP2b-ST	8.40	-0.25	340.18
P58	OP2b-ST	8.38	-0.15	331.14
P59	OP2b-ST	8.40	-0.07	335.19
P60	OP2b-ST	8.38	-0.01	328.95
P61	OP2b-ST	8.40	0.06	334.35
P62	OP2b-ST	8.38	0.13	329.49
P63	OP2b-ST	8.41	0.23	337.57

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3a-ST	7.62	-0.22	291.31
P2	OP3a-ST	5.35	-0.14	305.80 *
P3	OP3a-ST	5.35	-0.06	308.92 *
P4	OP3a-ST	7.63	0.01	280.32
P5	OP3a-ST	5.36	0.07	308.05 *
P6	OP3a-ST	5.37	0.15	304.07 *
P7	OP3a-ST	7.63	0.24	288.49
P8	OP3a-ST	7.62	-0.23	303.64
P9	OP3a-ST	5.25	-0.14	318.20 *
P10	OP3a-ST	5.25	-0.06	321.19 *
P11	OP3a-ST	7.62	0.01	292.99
P12	OP3a-ST	5.26	0.07	320.34 *
P13	OP3a-ST	5.27	0.15	316.48 *
P14	OP3a-ST	7.63	0.23	300.85
P15	OP3a-ST	7.62	-0.23	315.97
P16	OP3a-ST	7.62	-0.14	307.97
P17	OP3a-ST	7.62	-0.06	310.61
P18	OP3a-ST	7.62	0.00	305.55
P19	OP3a-ST	7.63	0.07	309.73
P20	OP3a-ST	7.63	0.15	306.23
P21	OP3a-ST	7.63	0.23	313.21
P22	OP3a-ST	7.62	-0.23	328.31
P23	OP3a-ST	7.62	-0.14	320.27
P24	OP3a-ST	7.62	-0.06	323.05
P25	OP3a-ST	7.62	0.00	317.87
P26	OP3a-ST	7.63	0.07	322.18
P27	OP3a-ST	7.62	0.14	318.53
P28	OP3a-ST	7.63	0.23	325.57
P29	OP3a-ST	7.62	-0.23	340.64
P30	OP3a-ST	7.62	-0.14	332.47
P31	OP3a-ST	7.62	-0.06	335.49
P32	OP3a-ST	7.62	0.00	330.13
P33	OP3a-ST	7.63	0.07	334.63
P34	OP3a-ST	7.63	0.14	330.75
P35	OP3a-ST	7.63	0.23	337.92
P36	OP3a-ST	7.62	-0.23	352.97
P37	OP3a-ST	7.62	-0.14	344.66
P38	OP3a-ST	7.62	-0.07	347.93
P39	OP3a-ST	7.62	0.00	342.38
P40	OP3a-ST	7.63	0.06	347.07
P41	OP3a-ST	7.62	0.14	342.96
P42	OP3a-ST	7.63	0.23	350.28
P43	OP3a-ST	7.62	-0.24	365.29
P44	OP3a-ST	7.62	-0.14	356.86
P45	OP3a-ST	7.62	-0.07	360.36
P46	OP3a-ST	7.62	0.00	354.63
P47	OP3a-ST	7.63	0.06	359.51
P48	OP3a-ST	7.62	0.14	355.17
P49	OP3a-ST	7.63	0.23	362.63
P50	OP3a-ST	7.62	-0.24	377.62
P51	OP3a-ST	7.62	-0.14	369.02
P52	OP3a-ST	7.62	-0.07	372.79
P53	OP3a-ST	7.62	0.00	366.84
P54	OP3a-ST	7.63	0.06	371.94
P55	OP3a-ST	7.62	0.13	367.35
P56	OP3a-ST	7.63	0.22	374.98
P57	OP3a-ST	7.62	-0.24	389.94
P58	OP3a-ST	7.60	-0.14	380.65
P59	OP3a-ST	7.62	-0.07	385.22
P60	OP3a-ST	7.60	-0.01	378.53
P61	OP3a-ST	7.63	0.06	384.38
P62	OP3a-ST	7.60	0.13	378.99
P63	OP3a-ST	7.63	0.22	387.33

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP3b-ST	7.91	-0.23	277.93
P2	OP3b-ST	5.74	-0.14	293.72 *
P3	OP3b-ST	5.74	-0.06	296.63 *
P4	OP3b-ST	7.93	0.01	267.03
P5	OP3b-ST	5.75	0.07	295.76 *
P6	OP3b-ST	5.76	0.15	291.99 *
P7	OP3b-ST	7.92	0.24	275.12
P8	OP3b-ST	7.91	-0.23	285.23
P9	OP3b-ST	5.67	-0.14	301.17 *
P10	OP3b-ST	5.68	-0.06	303.92 *
P11	OP3b-ST	7.92	0.01	274.67
P12	OP3b-ST	5.69	0.07	303.06 *
P13	OP3b-ST	5.69	0.15	299.46 *
P14	OP3b-ST	7.92	0.24	282.44
P15	OP3b-ST	7.91	-0.23	292.52
P16	OP3b-ST	7.91	-0.14	284.46
P17	OP3b-ST	7.92	-0.06	286.99
P18	OP3b-ST	7.91	0.00	282.00
P19	OP3b-ST	7.92	0.07	286.11
P20	OP3b-ST	7.92	0.15	282.71
P21	OP3b-ST	7.92	0.24	289.76
P22	OP3b-ST	7.91	-0.23	299.82
P23	OP3b-ST	7.91	-0.14	291.69
P24	OP3b-ST	7.92	-0.06	294.38
P25	OP3b-ST	7.91	0.00	289.25
P26	OP3b-ST	7.92	0.07	293.51
P27	OP3b-ST	7.92	0.15	289.95
P28	OP3b-ST	7.92	0.24	297.08
P29	OP3b-ST	7.91	-0.24	307.11
P30	OP3b-ST	7.91	-0.14	298.91
P31	OP3b-ST	7.92	-0.06	301.76
P32	OP3b-ST	7.91	0.00	296.53
P33	OP3b-ST	7.92	0.07	300.90
P34	OP3b-ST	7.92	0.14	297.20
P35	OP3b-ST	7.92	0.23	304.39
P36	OP3b-ST	7.91	-0.24	314.40
P37	OP3b-ST	7.91	-0.14	306.14
P38	OP3b-ST	7.92	-0.07	309.15
P39	OP3b-ST	7.91	0.00	303.80
P40	OP3b-ST	7.92	0.06	308.29
P41	OP3b-ST	7.92	0.14	304.44
P42	OP3b-ST	7.92	0.23	311.71
P43	OP3b-ST	7.91	-0.24	321.69
P44	OP3b-ST	7.91	-0.14	313.37
P45	OP3b-ST	7.92	-0.07	316.53
P46	OP3b-ST	7.91	0.00	311.08
P47	OP3b-ST	7.92	0.06	315.68
P48	OP3b-ST	7.92	0.14	311.68
P49	OP3b-ST	7.92	0.23	319.02
P50	OP3b-ST	7.91	-0.24	328.97
P51	OP3b-ST	7.91	-0.14	320.56
P52	OP3b-ST	7.92	-0.07	323.91
P53	OP3b-ST	7.91	0.00	318.32
P54	OP3b-ST	7.92	0.06	323.06
P55	OP3b-ST	7.91	0.13	318.89
P56	OP3b-ST	7.92	0.23	326.34
P57	OP3b-ST	7.91	-0.24	336.26
P58	OP3b-ST	7.89	-0.15	327.30
P59	OP3b-ST	7.92	-0.07	331.29
P60	OP3b-ST	7.89	-0.01	325.11
P61	OP3b-ST	7.92	0.06	330.45
P62	OP3b-ST	7.90	0.13	325.64
P63	OP3b-ST	7.92	0.23	333.65

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4a-ST	6.68	-0.22	290.15
P2	OP4a-ST	4.43	-0.14	301.44 *
P3	OP4a-ST	4.43	-0.05	304.50 *
P4	OP4a-ST	6.69	0.01	279.25
P5	OP4a-ST	4.43	0.08	303.61 *
P6	OP4a-ST	4.44	0.15	299.66 *
P7	OP4a-ST	6.68	0.24	287.30
P8	OP4a-ST	6.68	-0.22	302.69
P9	OP4a-ST	4.33	-0.13	314.04 *
P10	OP4a-ST	4.33	-0.05	316.98 *
P11	OP4a-ST	6.68	0.01	292.12
P12	OP4a-ST	4.34	0.08	316.10 *
P13	OP4a-ST	4.34	0.15	312.28 *
P14	OP4a-ST	6.68	0.24	299.86
P15	OP4a-ST	6.68	-0.22	315.23
P16	OP4a-ST	6.68	-0.13	307.32
P17	OP4a-ST	6.68	-0.05	309.93
P18	OP4a-ST	6.68	0.01	304.90
P19	OP4a-ST	6.68	0.08	309.04
P20	OP4a-ST	6.68	0.15	305.54
P21	OP4a-ST	6.68	0.24	312.43
P22	OP4a-ST	6.68	-0.22	327.77
P23	OP4a-ST	6.68	-0.13	319.82
P24	OP4a-ST	6.68	-0.05	322.58
P25	OP4a-ST	6.68	0.01	317.43
P26	OP4a-ST	6.68	0.07	321.69
P27	OP4a-ST	6.68	0.15	318.06
P28	OP4a-ST	6.68	0.24	324.99
P29	OP4a-ST	6.68	-0.22	340.31
P30	OP4a-ST	6.68	-0.13	332.22
P31	OP4a-ST	6.68	-0.05	335.22
P32	OP4a-ST	6.68	0.01	329.89
P33	OP4a-ST	6.68	0.07	334.34
P34	OP4a-ST	6.68	0.15	330.48
P35	OP4a-ST	6.68	0.24	337.55
P36	OP4a-ST	6.68	-0.22	352.84
P37	OP4a-ST	6.68	-0.13	344.62
P38	OP4a-ST	6.68	-0.05	347.86
P39	OP4a-ST	6.68	0.01	342.34
P40	OP4a-ST	6.68	0.07	346.99
P41	OP4a-ST	6.68	0.15	342.89
P42	OP4a-ST	6.68	0.24	350.11
P43	OP4a-ST	6.68	-0.22	365.37
P44	OP4a-ST	6.68	-0.13	357.02
P45	OP4a-ST	6.68	-0.05	360.50
P46	OP4a-ST	6.68	0.01	354.79
P47	OP4a-ST	6.68	0.07	359.63
P48	OP4a-ST	6.68	0.15	355.31
P49	OP4a-ST	6.68	0.24	362.67
P50	OP4a-ST	6.68	-0.22	377.90
P51	OP4a-ST	6.68	-0.13	369.38
P52	OP4a-ST	6.68	-0.05	373.13
P53	OP4a-ST	6.68	0.01	367.21
P54	OP4a-ST	6.68	0.07	372.27
P55	OP4a-ST	6.68	0.15	367.68
P56	OP4a-ST	6.68	0.24	375.23
P57	OP4a-ST	6.68	-0.22	390.43
P58	OP4a-ST	6.66	-0.12	381.21
P59	OP4a-ST	6.68	-0.05	385.76
P60	OP4a-ST	6.66	0.01	379.10
P61	OP4a-ST	6.68	0.07	384.91
P62	OP4a-ST	6.66	0.14	379.53
P63	OP4a-ST	6.68	0.24	387.78

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP4b-ST	7.01	-0.22	275.22
P2	OP4b-ST	4.86	-0.14	287.95 *
P3	OP4b-ST	4.86	-0.05	290.78 *
P4	OP4b-ST	7.02	0.01	264.41
P5	OP4b-ST	4.87	0.08	289.89 *
P6	OP4b-ST	4.88	0.16	286.18 *
P7	OP4b-ST	7.01	0.24	272.37
P8	OP4b-ST	7.01	-0.22	282.13
P9	OP4b-ST	4.80	-0.13	295.03 *
P10	OP4b-ST	4.81	-0.05	297.69 *
P11	OP4b-ST	7.01	0.01	271.67
P12	OP4b-ST	4.82	0.08	296.81 *
P13	OP4b-ST	4.82	0.15	293.26 *
P14	OP4b-ST	7.01	0.24	279.31
P15	OP4b-ST	7.01	-0.22	289.05
P16	OP4b-ST	7.00	-0.13	281.06
P17	OP4b-ST	7.01	-0.05	283.56
P18	OP4b-ST	7.01	0.01	278.61
P19	OP4b-ST	7.01	0.08	282.67
P20	OP4b-ST	7.01	0.15	279.29
P21	OP4b-ST	7.01	0.24	286.24
P22	OP4b-ST	7.01	-0.22	295.96
P23	OP4b-ST	7.01	-0.13	287.91
P24	OP4b-ST	7.01	-0.05	290.56
P25	OP4b-ST	7.01	0.01	285.48
P26	OP4b-ST	7.01	0.08	289.68
P27	OP4b-ST	7.01	0.15	286.15
P28	OP4b-ST	7.01	0.24	293.18
P29	OP4b-ST	7.01	-0.22	302.87
P30	OP4b-ST	7.01	-0.13	294.76
P31	OP4b-ST	7.01	-0.05	297.56
P32	OP4b-ST	7.01	0.01	292.37
P33	OP4b-ST	7.01	0.08	296.69
P34	OP4b-ST	7.01	0.15	293.01
P35	OP4b-ST	7.01	0.24	300.12
P36	OP4b-ST	7.01	-0.22	309.78
P37	OP4b-ST	7.01	-0.13	301.61
P38	OP4b-ST	7.01	-0.05	304.56
P39	OP4b-ST	7.00	0.01	299.27
P40	OP4b-ST	7.01	0.08	303.69
P41	OP4b-ST	7.01	0.15	299.88
P42	OP4b-ST	7.01	0.24	307.05
P43	OP4b-ST	7.01	-0.22	316.69
P44	OP4b-ST	7.00	-0.13	308.46
P45	OP4b-ST	7.01	-0.05	311.56
P46	OP4b-ST	7.00	0.01	306.17
P47	OP4b-ST	7.01	0.07	310.70
P48	OP4b-ST	7.01	0.15	306.75
P49	OP4b-ST	7.01	0.24	313.98
P50	OP4b-ST	7.01	-0.22	323.59
P51	OP4b-ST	7.00	-0.13	315.28
P52	OP4b-ST	7.01	-0.05	318.56
P53	OP4b-ST	7.00	0.01	313.03
P54	OP4b-ST	7.01	0.07	317.70
P55	OP4b-ST	7.00	0.15	313.58
P56	OP4b-ST	7.01	0.24	320.91
P57	OP4b-ST	7.01	-0.22	330.50
P58	OP4b-ST	6.99	-0.13	321.64
P59	OP4b-ST	7.01	-0.05	325.55
P60	OP4b-ST	6.99	0.01	319.45
P61	OP4b-ST	7.01	0.07	324.70
P62	OP4b-ST	6.99	0.15	319.96
P63	OP4b-ST	7.01	0.24	327.85

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5a-ST	5.26	-0.20	288.54
P2	OP5a-ST	3.03	-0.12	294.89 *
P3	OP5a-ST	3.02	-0.04	297.81 *
P4	OP5a-ST	5.24	0.03	277.65
P5	OP5a-ST	3.01	0.09	296.79 *
P6	OP5a-ST	3.01	0.17	292.84 *
P7	OP5a-ST	5.21	0.25	285.43
P8	OP5a-ST	5.26	-0.19	301.28
P9	OP5a-ST	2.92	-0.10	307.68 *
P10	OP5a-ST	2.92	-0.03	310.48 *
P11	OP5a-ST	5.23	0.04	290.72
P12	OP5a-ST	2.91	0.10	309.46 *
P13	OP5a-ST	2.90	0.18	305.64 *
P14	OP5a-ST	5.21	0.26	298.20
P15	OP5a-ST	5.26	-0.18	314.01
P16	OP5a-ST	5.25	-0.09	306.19
P17	OP5a-ST	5.24	-0.02	308.74
P18	OP5a-ST	5.23	0.05	303.72
P19	OP5a-ST	5.22	0.11	307.77
P20	OP5a-ST	5.21	0.19	304.26
P21	OP5a-ST	5.21	0.27	310.96
P22	OP5a-ST	5.26	-0.17	326.75
P23	OP5a-ST	5.25	-0.08	318.89
P24	OP5a-ST	5.24	0.00	321.58
P25	OP5a-ST	5.23	0.06	316.45
P26	OP5a-ST	5.22	0.12	320.62
P27	OP5a-ST	5.21	0.20	316.98
P28	OP5a-ST	5.21	0.28	323.72
P29	OP5a-ST	5.26	-0.16	339.48
P30	OP5a-ST	5.25	-0.07	331.49
P31	OP5a-ST	5.24	0.01	334.42
P32	OP5a-ST	5.23	0.07	329.11
P33	OP5a-ST	5.22	0.13	333.46
P34	OP5a-ST	5.21	0.21	329.59
P35	OP5a-ST	5.21	0.29	336.48
P36	OP5a-ST	5.26	-0.14	352.22
P37	OP5a-ST	5.25	-0.06	344.08
P38	OP5a-ST	5.24	0.02	347.25
P39	OP5a-ST	5.23	0.08	341.75
P40	OP5a-ST	5.22	0.14	346.30
P41	OP5a-ST	5.21	0.22	342.20
P42	OP5a-ST	5.21	0.30	349.24
P43	OP5a-ST	5.26	-0.13	364.95
P44	OP5a-ST	5.25	-0.04	356.67
P45	OP5a-ST	5.24	0.03	360.08
P46	OP5a-ST	5.23	0.09	354.40
P47	OP5a-ST	5.22	0.16	359.14
P48	OP5a-ST	5.21	0.23	354.80
P49	OP5a-ST	5.21	0.31	362.00
P50	OP5a-ST	5.26	-0.12	377.67
P51	OP5a-ST	5.24	-0.03	369.22
P52	OP5a-ST	5.24	0.04	372.91
P53	OP5a-ST	5.23	0.10	367.00
P54	OP5a-ST	5.22	0.17	371.97
P55	OP5a-ST	5.21	0.24	367.37
P56	OP5a-ST	5.21	0.33	374.75
P57	OP5a-ST	5.26	-0.11	390.40
P58	OP5a-ST	5.23	-0.02	381.25
P59	OP5a-ST	5.24	0.05	385.74
P60	OP5a-ST	5.21	0.11	379.08
P61	OP5a-ST	5.22	0.18	384.81
P62	OP5a-ST	5.19	0.25	379.41
P63	OP5a-ST	5.21	0.34	387.51

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP5b-ST	5.63	-0.21	271.52
P2	OP5b-ST	3.52	-0.12	279.52 *
P3	OP5b-ST	3.51	-0.04	282.17 *
P4	OP5b-ST	5.61	0.03	260.74
P5	OP5b-ST	3.50	0.09	281.15 *
P6	OP5b-ST	3.50	0.17	277.47 *
P7	OP5b-ST	5.58	0.26	268.42
P8	OP5b-ST	5.63	-0.19	277.85
P9	OP5b-ST	3.47	-0.11	286.01 *
P10	OP5b-ST	3.46	-0.03	288.50 *
P11	OP5b-ST	5.60	0.04	267.41
P12	OP5b-ST	3.45	0.10	287.48 *
P13	OP5b-ST	3.45	0.18	283.97 *
P14	OP5b-ST	5.58	0.27	274.77
P15	OP5b-ST	5.63	-0.18	284.17
P16	OP5b-ST	5.62	-0.09	276.26
P17	OP5b-ST	5.61	-0.02	278.68
P18	OP5b-ST	5.60	0.05	273.75
P19	OP5b-ST	5.59	0.11	277.71
P20	OP5b-ST	5.58	0.19	274.33
P21	OP5b-ST	5.58	0.28	281.12
P22	OP5b-ST	5.63	-0.17	290.49
P23	OP5b-ST	5.62	-0.08	282.52
P24	OP5b-ST	5.61	0.00	285.09
P25	OP5b-ST	5.60	0.06	280.04
P26	OP5b-ST	5.59	0.12	284.13
P27	OP5b-ST	5.58	0.20	280.60
P28	OP5b-ST	5.58	0.29	287.46
P29	OP5b-ST	5.63	-0.16	296.81
P30	OP5b-ST	5.62	-0.07	288.78
P31	OP5b-ST	5.61	0.01	291.50
P32	OP5b-ST	5.60	0.07	286.35
P33	OP5b-ST	5.59	0.13	290.54
P34	OP5b-ST	5.58	0.21	286.89
P35	OP5b-ST	5.58	0.30	293.81
P36	OP5b-ST	5.63	-0.15	303.13
P37	OP5b-ST	5.62	-0.06	295.05
P38	OP5b-ST	5.61	0.02	297.90
P39	OP5b-ST	5.60	0.08	292.66
P40	OP5b-ST	5.59	0.15	296.95
P41	OP5b-ST	5.58	0.22	293.17
P42	OP5b-ST	5.58	0.31	300.16
P43	OP5b-ST	5.63	-0.14	309.45
P44	OP5b-ST	5.62	-0.05	301.32
P45	OP5b-ST	5.61	0.03	304.31
P46	OP5b-ST	5.60	0.09	298.97
P47	OP5b-ST	5.59	0.16	303.36
P48	OP5b-ST	5.58	0.23	299.45
P49	OP5b-ST	5.58	0.32	306.50
P50	OP5b-ST	5.63	-0.13	315.77
P51	OP5b-ST	5.61	-0.03	307.56
P52	OP5b-ST	5.61	0.04	310.71
P53	OP5b-ST	5.60	0.10	305.25
P54	OP5b-ST	5.59	0.17	309.77
P55	OP5b-ST	5.58	0.24	305.71
P56	OP5b-ST	5.58	0.33	312.84
P57	OP5b-ST	5.63	-0.12	322.09
P58	OP5b-ST	5.60	-0.02	313.35
P59	OP5b-ST	5.61	0.05	317.11
P60	OP5b-ST	5.58	0.11	311.10
P61	OP5b-ST	5.59	0.18	316.18
P62	OP5b-ST	5.56	0.25	311.52
P63	OP5b-ST	5.58	0.34	319.19

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6a-ST	4.74	-0.19	288.10
P2	OP6a-ST	2.51	-0.11	292.60 *
P3	OP6a-ST	2.49	-0.03	295.44 *
P4	OP6a-ST	4.70	0.04	277.14
P5	OP6a-ST	2.48	0.10	294.33 *
P6	OP6a-ST	2.47	0.18	290.39 *
P7	OP6a-ST	4.66	0.26	284.85
P8	OP6a-ST	4.74	-0.17	300.98
P9	OP6a-ST	2.40	-0.09	305.51 *
P10	OP6a-ST	2.40	-0.01	308.24 *
P11	OP6a-ST	4.69	0.05	290.34
P12	OP6a-ST	2.38	0.12	307.14 *
P13	OP6a-ST	2.37	0.19	303.32 *
P14	OP6a-ST	4.66	0.28	297.75
P15	OP6a-ST	4.74	-0.16	313.86
P16	OP6a-ST	4.72	-0.07	305.97
P17	OP6a-ST	4.71	0.00	308.52
P18	OP6a-ST	4.69	0.07	303.43
P19	OP6a-ST	4.68	0.13	307.51
P20	OP6a-ST	4.67	0.21	303.95
P21	OP6a-ST	4.66	0.29	310.66
P22	OP6a-ST	4.74	-0.14	326.74
P23	OP6a-ST	4.72	-0.05	318.81
P24	OP6a-ST	4.71	0.02	321.50
P25	OP6a-ST	4.69	0.09	316.30
P26	OP6a-ST	4.68	0.15	320.49
P27	OP6a-ST	4.67	0.23	316.80
P28	OP6a-ST	4.66	0.31	323.56
P29	OP6a-ST	4.74	-0.12	339.61
P30	OP6a-ST	4.72	-0.04	331.54
P31	OP6a-ST	4.71	0.04	334.47
P32	OP6a-ST	4.69	0.10	329.09
P33	OP6a-ST	4.68	0.17	333.47
P34	OP6a-ST	4.67	0.24	329.55
P35	OP6a-ST	4.66	0.33	336.47
P36	OP6a-ST	4.74	-0.11	352.49
P37	OP6a-ST	4.72	-0.02	344.27
P38	OP6a-ST	4.71	0.06	347.45
P39	OP6a-ST	4.69	0.12	341.87
P40	OP6a-ST	4.68	0.18	346.45
P41	OP6a-ST	4.67	0.26	342.30
P42	OP6a-ST	4.66	0.34	349.37
P43	OP6a-ST	4.74	-0.09	365.36
P44	OP6a-ST	4.72	0.00	357.00
P45	OP6a-ST	4.71	0.07	360.41
P46	OP6a-ST	4.69	0.14	354.65
P47	OP6a-ST	4.68	0.20	359.42
P48	OP6a-ST	4.66	0.27	355.04
P49	OP6a-ST	4.66	0.36	362.27
P50	OP6a-ST	4.74	-0.07	378.23
P51	OP6a-ST	4.72	0.02	369.69
P52	OP6a-ST	4.71	0.09	373.38
P53	OP6a-ST	4.69	0.15	367.39
P54	OP6a-ST	4.68	0.22	372.40
P55	OP6a-ST	4.66	0.29	367.75
P56	OP6a-ST	4.66	0.38	375.17
P57	OP6a-ST	4.74	-0.06	391.10
P58	OP6a-ST	4.70	0.04	381.86
P59	OP6a-ST	4.71	0.11	386.35
P60	OP6a-ST	4.67	0.17	379.60
P61	OP6a-ST	4.68	0.24	385.37
P62	OP6a-ST	4.65	0.31	379.93
P63	OP6a-ST	4.66	0.40	388.06

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP6b-ST	5.12	-0.20	270.38
P2	OP6b-ST	3.03	-0.11	276.60 *
P3	OP6b-ST	3.01	-0.03	279.16 *
P4	OP6b-ST	5.09	0.04	259.53
P5	OP6b-ST	2.99	0.10	278.05 *
P6	OP6b-ST	2.99	0.18	274.39 *
P7	OP6b-ST	5.04	0.26	267.13
P8	OP6b-ST	5.12	-0.18	276.59
P9	OP6b-ST	2.97	-0.09	282.96 *
P10	OP6b-ST	2.96	-0.01	285.36 *
P11	OP6b-ST	5.08	0.05	266.07
P12	OP6b-ST	2.95	0.12	284.26 *
P13	OP6b-ST	2.93	0.20	280.76 *
P14	OP6b-ST	5.04	0.28	273.36
P15	OP6b-ST	5.12	-0.16	282.79
P16	OP6b-ST	5.10	-0.07	274.82
P17	OP6b-ST	5.09	0.00	277.23
P18	OP6b-ST	5.08	0.07	272.24
P19	OP6b-ST	5.07	0.13	276.22
P20	OP6b-ST	5.05	0.21	272.80
P21	OP6b-ST	5.04	0.30	279.59
P22	OP6b-ST	5.12	-0.15	288.99
P23	OP6b-ST	5.11	-0.06	280.95
P24	OP6b-ST	5.09	0.02	283.52
P25	OP6b-ST	5.08	0.09	278.39
P26	OP6b-ST	5.07	0.15	282.51
P27	OP6b-ST	5.05	0.23	278.94
P28	OP6b-ST	5.04	0.32	285.82
P29	OP6b-ST	5.12	-0.13	295.20
P30	OP6b-ST	5.11	-0.04	287.09
P31	OP6b-ST	5.09	0.04	289.80
P32	OP6b-ST	5.08	0.10	284.58
P33	OP6b-ST	5.07	0.17	288.80
P34	OP6b-ST	5.05	0.24	285.10
P35	OP6b-ST	5.04	0.33	292.05
P36	OP6b-ST	5.12	-0.11	301.40
P37	OP6b-ST	5.11	-0.02	293.24
P38	OP6b-ST	5.09	0.06	296.08
P39	OP6b-ST	5.08	0.12	290.77
P40	OP6b-ST	5.07	0.19	295.08
P41	OP6b-ST	5.05	0.26	291.27
P42	OP6b-ST	5.04	0.35	298.28
P43	OP6b-ST	5.12	-0.10	307.60
P44	OP6b-ST	5.10	0.00	299.39
P45	OP6b-ST	5.09	0.07	302.36
P46	OP6b-ST	5.08	0.14	296.96
P47	OP6b-ST	5.07	0.20	301.37
P48	OP6b-ST	5.05	0.28	297.43
P49	OP6b-ST	5.04	0.37	304.50
P50	OP6b-ST	5.12	-0.08	313.80
P51	OP6b-ST	5.10	0.02	305.51
P52	OP6b-ST	5.09	0.09	308.63
P53	OP6b-ST	5.08	0.15	303.12
P54	OP6b-ST	5.07	0.22	307.65
P55	OP6b-ST	5.05	0.29	303.56
P56	OP6b-ST	5.04	0.38	310.73
P57	OP6b-ST	5.12	-0.06	320.00
P58	OP6b-ST	5.09	0.03	311.19
P59	OP6b-ST	5.09	0.11	314.91
P60	OP6b-ST	5.06	0.17	308.84
P61	OP6b-ST	5.07	0.24	313.93
P62	OP6b-ST	5.03	0.31	309.26
P63	OP6b-ST	5.04	0.40	316.95

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP7a-ST	4.74	-0.19	288.04
P2	OP7a-ST	2.51	-0.11	292.56 *
P3	OP7a-ST	2.50	-0.03	295.41 *
P4	OP7a-ST	4.70	0.04	277.12
P5	OP7a-ST	2.48	0.10	294.31 *
P6	OP7a-ST	2.47	0.18	290.36 *
P7	OP7a-ST	4.66	0.26	284.79
P8	OP7a-ST	4.74	-0.17	300.87
P9	OP7a-ST	2.41	-0.09	305.43 *
P10	OP7a-ST	2.40	-0.01	308.17 *
P11	OP7a-ST	4.69	0.05	290.27
P12	OP7a-ST	2.38	0.12	307.07 *
P13	OP7a-ST	2.37	0.19	303.24 *
P14	OP7a-ST	4.66	0.27	297.64
P15	OP7a-ST	4.74	-0.16	313.70
P16	OP7a-ST	4.72	-0.07	305.87
P17	OP7a-ST	4.71	0.01	308.39
P18	OP7a-ST	4.69	0.07	303.35
P19	OP7a-ST	4.68	0.13	307.38
P20	OP7a-ST	4.67	0.21	303.85
P21	OP7a-ST	4.66	0.29	310.50
P22	OP7a-ST	4.74	-0.14	326.52
P23	OP7a-ST	4.72	-0.05	318.66
P24	OP7a-ST	4.71	0.02	321.33
P25	OP7a-ST	4.69	0.09	316.18
P26	OP7a-ST	4.68	0.15	320.32
P27	OP7a-ST	4.67	0.22	316.66
P28	OP7a-ST	4.66	0.31	323.35
P29	OP7a-ST	4.74	-0.12	339.35
P30	OP7a-ST	4.72	-0.03	331.35
P31	OP7a-ST	4.71	0.04	334.25
P32	OP7a-ST	4.69	0.10	328.92
P33	OP7a-ST	4.68	0.17	333.25
P34	OP7a-ST	4.67	0.24	329.36
P35	OP7a-ST	4.66	0.33	336.20
P36	OP7a-ST	4.74	-0.10	352.17
P37	OP7a-ST	4.72	-0.02	344.03
P38	OP7a-ST	4.71	0.06	347.18
P39	OP7a-ST	4.69	0.12	341.66
P40	OP7a-ST	4.68	0.18	346.18
P41	OP7a-ST	4.67	0.26	342.06
P42	OP7a-ST	4.66	0.34	349.05
P43	OP7a-ST	4.74	-0.09	365.00
P44	OP7a-ST	4.72	0.00	356.71
P45	OP7a-ST	4.71	0.07	360.10
P46	OP7a-ST	4.69	0.14	354.39
P47	OP7a-ST	4.68	0.20	359.11
P48	OP7a-ST	4.67	0.27	354.75
P49	OP7a-ST	4.66	0.36	361.90
P50	OP7a-ST	4.74	-0.07	377.82
P51	OP7a-ST	4.72	0.02	369.35
P52	OP7a-ST	4.71	0.09	373.02
P53	OP7a-ST	4.69	0.15	367.08
P54	OP7a-ST	4.68	0.22	372.03
P55	OP7a-ST	4.66	0.29	367.41
P56	OP7a-ST	4.66	0.38	374.75
P57	OP7a-ST	4.74	-0.05	390.64
P58	OP7a-ST	4.70	0.04	381.47
P59	OP7a-ST	4.71	0.11	385.94
P60	OP7a-ST	4.67	0.17	379.25
P61	OP7a-ST	4.68	0.23	384.96
P62	OP7a-ST	4.65	0.30	379.54
P63	OP7a-ST	4.66	0.39	387.60

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP7b-ST	5.12	-0.20	270.32
P2	OP7b-ST	3.03	-0.11	276.56 *
P3	OP7b-ST	3.01	-0.03	279.13 *
P4	OP7b-ST	5.09	0.04	259.51
P5	OP7b-ST	2.99	0.10	278.03 *
P6	OP7b-ST	2.99	0.18	274.36 *
P7	OP7b-ST	5.04	0.26	267.08
P8	OP7b-ST	5.12	-0.18	276.48
P9	OP7b-ST	2.97	-0.09	282.88 *
P10	OP7b-ST	2.97	-0.01	285.28 *
P11	OP7b-ST	5.08	0.05	266.00
P12	OP7b-ST	2.95	0.12	284.19 *
P13	OP7b-ST	2.94	0.19	280.68 *
P14	OP7b-ST	5.04	0.28	273.25
P15	OP7b-ST	5.12	-0.16	282.63
P16	OP7b-ST	5.11	-0.07	274.72
P17	OP7b-ST	5.10	0.00	277.11
P18	OP7b-ST	5.08	0.07	272.16
P19	OP7b-ST	5.07	0.13	276.10
P20	OP7b-ST	5.05	0.21	272.70
P21	OP7b-ST	5.04	0.30	279.43
P22	OP7b-ST	5.12	-0.15	288.78
P23	OP7b-ST	5.11	-0.05	280.80
P24	OP7b-ST	5.10	0.02	283.34
P25	OP7b-ST	5.08	0.09	278.27
P26	OP7b-ST	5.07	0.15	282.34
P27	OP7b-ST	5.05	0.23	278.80
P28	OP7b-ST	5.04	0.31	285.61
P29	OP7b-ST	5.12	-0.13	294.93
P30	OP7b-ST	5.11	-0.04	286.90
P31	OP7b-ST	5.10	0.04	289.58
P32	OP7b-ST	5.08	0.10	284.42
P33	OP7b-ST	5.07	0.17	288.58
P34	OP7b-ST	5.05	0.24	284.91
P35	OP7b-ST	5.04	0.33	291.79
P36	OP7b-ST	5.12	-0.11	301.08
P37	OP7b-ST	5.11	-0.02	293.00
P38	OP7b-ST	5.10	0.06	295.81
P39	OP7b-ST	5.08	0.12	290.56
P40	OP7b-ST	5.07	0.18	294.82
P41	OP7b-ST	5.05	0.26	291.02
P42	OP7b-ST	5.04	0.35	297.96
P43	OP7b-ST	5.12	-0.09	307.23
P44	OP7b-ST	5.11	0.00	299.10
P45	OP7b-ST	5.10	0.07	302.04
P46	OP7b-ST	5.08	0.14	296.70
P47	OP7b-ST	5.07	0.20	301.05
P48	OP7b-ST	5.05	0.27	297.14
P49	OP7b-ST	5.04	0.36	304.14
P50	OP7b-ST	5.12	-0.08	313.38
P51	OP7b-ST	5.10	0.02	305.17
P52	OP7b-ST	5.10	0.09	308.27
P53	OP7b-ST	5.08	0.15	302.81
P54	OP7b-ST	5.07	0.22	307.29
P55	OP7b-ST	5.05	0.29	303.22
P56	OP7b-ST	5.04	0.38	310.31
P57	OP7b-ST	5.12	-0.06	319.53
P58	OP7b-ST	5.09	0.04	310.80
P59	OP7b-ST	5.10	0.11	314.50
P60	OP7b-ST	5.06	0.17	308.49
P61	OP7b-ST	5.07	0.23	313.52
P62	OP7b-ST	5.03	0.31	308.87
P63	OP7b-ST	5.04	0.40	316.49

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP8a-ST	-6.68	0.23	278.36
P2	OP8a-ST	-8.89	0.31	241.53 *
P3	OP8a-ST	-9.12	0.39	241.47 *
P4	OP8a-ST	-7.38	0.46	263.94
P5	OP8a-ST	-9.56	0.53	236.10 *
P6	OP8a-ST	-9.77	0.60	230.90 *
P7	OP8a-ST	-8.11	0.67	266.71
P8	OP8a-ST	-6.68	0.53	293.28
P9	OP8a-ST	-9.01	0.62	256.28 *
P10	OP8a-ST	-9.23	0.69	256.22 *
P11	OP8a-ST	-7.39	0.76	279.03
P12	OP8a-ST	-9.67	0.83	250.85 *
P13	OP8a-ST	-9.89	0.90	245.65 *
P14	OP8a-ST	-8.11	0.98	281.66
P15	OP8a-ST	-6.68	0.84	308.19
P16	OP8a-ST	-6.91	0.92	299.29
P17	OP8a-ST	-7.16	0.99	300.48
P18	OP8a-ST	-7.39	1.06	293.97
P19	OP8a-ST	-7.63	1.13	296.76
P20	OP8a-ST	-7.87	1.21	291.93
P21	OP8a-ST	-8.11	1.28	296.61
P22	OP8a-ST	-6.68	1.14	323.11
P23	OP8a-ST	-6.91	1.22	314.10
P24	OP8a-ST	-7.16	1.30	315.43
P25	OP8a-ST	-7.39	1.37	308.81
P26	OP8a-ST	-7.63	1.44	311.72
P27	OP8a-ST	-7.87	1.51	306.75
P28	OP8a-ST	-8.11	1.59	311.55
P29	OP8a-ST	-6.68	1.44	338.02
P30	OP8a-ST	-6.91	1.53	328.81
P31	OP8a-ST	-7.16	1.60	330.38
P32	OP8a-ST	-7.39	1.67	323.54
P33	OP8a-ST	-7.63	1.74	326.67
P34	OP8a-ST	-7.87	1.81	321.47
P35	OP8a-ST	-8.11	1.89	326.50
P36	OP8a-ST	-6.68	1.74	352.93
P37	OP8a-ST	-6.91	1.83	343.51
P38	OP8a-ST	-7.16	1.90	345.32
P39	OP8a-ST	-7.39	1.98	338.26
P40	OP8a-ST	-7.63	2.05	341.62
P41	OP8a-ST	-7.87	2.12	336.19
P42	OP8a-ST	-8.11	2.20	341.44
P43	OP8a-ST	-6.68	2.05	367.84
P44	OP8a-ST	-6.91	2.13	358.21
P45	OP8a-ST	-7.16	2.21	360.26
P46	OP8a-ST	-7.39	2.28	352.98
P47	OP8a-ST	-7.63	2.35	356.57
P48	OP8a-ST	-7.87	2.42	350.92
P49	OP8a-ST	-8.11	2.50	356.38
P50	OP8a-ST	-6.68	2.35	382.74
P51	OP8a-ST	-6.92	2.44	372.88
P52	OP8a-ST	-7.16	2.51	375.21
P53	OP8a-ST	-7.39	2.58	367.66
P54	OP8a-ST	-7.63	2.65	371.51
P55	OP8a-ST	-7.87	2.73	365.60
P56	OP8a-ST	-8.11	2.81	371.32
P57	OP8a-ST	-6.68	2.65	397.65
P58	OP8a-ST	-6.93	2.74	387.02
P59	OP8a-ST	-7.16	2.81	390.15
P60	OP8a-ST	-7.41	2.89	381.84
P61	OP8a-ST	-7.63	2.96	386.46
P62	OP8a-ST	-7.89	3.03	379.77
P63	OP8a-ST	-8.11	3.11	386.26

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP8b-ST	-6.03	0.22	248.64
P2	OP8b-ST	-8.02	0.31	214.68 *
P3	OP8b-ST	-8.25	0.39	214.15 *
P4	OP8b-ST	-6.73	0.46	234.39
P5	OP8b-ST	-8.69	0.53	208.78 *
P6	OP8b-ST	-8.91	0.60	204.05 *
P7	OP8b-ST	-7.46	0.68	236.99
P8	OP8b-ST	-6.03	0.52	252.35
P9	OP8b-ST	-8.05	0.61	218.43 *
P10	OP8b-ST	-8.28	0.69	217.82 *
P11	OP8b-ST	-6.74	0.76	238.31
P12	OP8b-ST	-8.72	0.83	212.46 *
P13	OP8b-ST	-8.94	0.91	207.81 *
P14	OP8b-ST	-7.46	0.99	240.74
P15	OP8b-ST	-6.03	0.83	256.07
P16	OP8b-ST	-6.27	0.92	247.03
P17	OP8b-ST	-6.51	0.99	247.98
P18	OP8b-ST	-6.74	1.06	241.64
P19	OP8b-ST	-6.98	1.13	244.27
P20	OP8b-ST	-7.22	1.21	239.66
P21	OP8b-ST	-7.46	1.29	244.48
P22	OP8b-ST	-6.03	1.13	259.78
P23	OP8b-ST	-6.26	1.22	250.57
P24	OP8b-ST	-6.51	1.30	251.70
P25	OP8b-ST	-6.74	1.37	245.20
P26	OP8b-ST	-6.98	1.44	247.99
P27	OP8b-ST	-7.22	1.51	243.22
P28	OP8b-ST	-7.46	1.60	248.23
P29	OP8b-ST	-6.03	1.43	263.49
P30	OP8b-ST	-6.26	1.52	254.22
P31	OP8b-ST	-6.51	1.60	255.42
P32	OP8b-ST	-6.74	1.67	248.86
P33	OP8b-ST	-6.98	1.74	251.71
P34	OP8b-ST	-7.22	1.82	246.89
P35	OP8b-ST	-7.46	1.90	251.97
P36	OP8b-ST	-6.03	1.73	267.20
P37	OP8b-ST	-6.26	1.82	257.88
P38	OP8b-ST	-6.51	1.90	259.13
P39	OP8b-ST	-6.74	1.98	252.52
P40	OP8b-ST	-6.98	2.05	255.43
P41	OP8b-ST	-7.22	2.12	250.57
P42	OP8b-ST	-7.46	2.21	255.71
P43	OP8b-ST	-6.03	2.04	270.92
P44	OP8b-ST	-6.26	2.13	261.54
P45	OP8b-ST	-6.51	2.21	262.85
P46	OP8b-ST	-6.74	2.28	256.19
P47	OP8b-ST	-6.98	2.35	259.15
P48	OP8b-ST	-7.22	2.43	254.24
P49	OP8b-ST	-7.46	2.51	259.46
P50	OP8b-ST	-6.03	2.34	274.63
P51	OP8b-ST	-6.27	2.43	265.18
P52	OP8b-ST	-6.51	2.51	266.57
P53	OP8b-ST	-6.74	2.58	259.82
P54	OP8b-ST	-6.98	2.65	262.87
P55	OP8b-ST	-7.22	2.73	257.90
P56	OP8b-ST	-7.46	2.82	263.20
P57	OP8b-ST	-6.03	2.64	278.34
P58	OP8b-ST	-6.28	2.73	268.44
P59	OP8b-ST	-6.51	2.81	270.28
P60	OP8b-ST	-6.76	2.89	263.11
P61	OP8b-ST	-6.98	2.96	266.59
P62	OP8b-ST	-7.24	3.04	261.19
P63	OP8b-ST	-7.46	3.12	266.94

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP9a-ST	-6.71	0.23	280.10
P2	OP9a-ST	-8.94	0.32	243.10 *
P3	OP9a-ST	-9.17	0.39	243.10 *
P4	OP9a-ST	-7.42	0.46	265.72
P5	OP9a-ST	-9.61	0.53	237.73 *
P6	OP9a-ST	-9.82	0.60	232.47 *
P7	OP9a-ST	-8.15	0.67	268.45
P8	OP9a-ST	-6.71	0.54	295.44
P9	OP9a-ST	-9.06	0.62	258.29 *
P10	OP9a-ST	-9.28	0.69	258.28 *
P11	OP9a-ST	-7.43	0.76	281.26
P12	OP9a-ST	-9.73	0.83	252.91 *
P13	OP9a-ST	-9.94	0.90	247.66 *
P14	OP9a-ST	-8.15	0.98	283.82
P15	OP9a-ST	-6.71	0.84	310.78
P16	OP9a-ST	-6.95	0.92	301.96
P17	OP9a-ST	-7.19	1.00	303.13
P18	OP9a-ST	-7.43	1.06	296.70
P19	OP9a-ST	-7.67	1.13	299.42
P20	OP9a-ST	-7.90	1.20	294.59
P21	OP9a-ST	-8.15	1.28	299.19
P22	OP9a-ST	-6.71	1.14	326.12
P23	OP9a-ST	-6.95	1.23	317.20
P24	OP9a-ST	-7.19	1.30	318.51
P25	OP9a-ST	-7.43	1.37	311.98
P26	OP9a-ST	-7.67	1.44	314.80
P27	OP9a-ST	-7.90	1.51	309.85
P28	OP9a-ST	-8.15	1.58	314.56
P29	OP9a-ST	-6.71	1.45	341.45
P30	OP9a-ST	-6.95	1.53	332.33
P31	OP9a-ST	-7.19	1.60	333.89
P32	OP9a-ST	-7.43	1.67	327.14
P33	OP9a-ST	-7.67	1.74	330.19
P34	OP9a-ST	-7.90	1.81	325.00
P35	OP9a-ST	-8.15	1.89	329.93
P36	OP9a-ST	-6.71	1.75	356.79
P37	OP9a-ST	-6.95	1.83	347.46
P38	OP9a-ST	-7.19	1.91	349.27
P39	OP9a-ST	-7.43	1.98	342.29
P40	OP9a-ST	-7.67	2.04	345.57
P41	OP9a-ST	-7.90	2.11	340.14
P42	OP9a-ST	-8.15	2.19	345.30
P43	OP9a-ST	-6.71	2.05	372.12
P44	OP9a-ST	-6.95	2.14	362.58
P45	OP9a-ST	-7.19	2.21	364.65
P46	OP9a-ST	-7.43	2.28	357.43
P47	OP9a-ST	-7.67	2.35	360.95
P48	OP9a-ST	-7.90	2.42	355.28
P49	OP9a-ST	-8.15	2.50	360.66
P50	OP9a-ST	-6.71	2.35	387.45
P51	OP9a-ST	-6.95	2.44	377.66
P52	OP9a-ST	-7.19	2.51	380.02
P53	OP9a-ST	-7.43	2.58	372.54
P54	OP9a-ST	-7.67	2.65	376.33
P55	OP9a-ST	-7.91	2.72	370.39
P56	OP9a-ST	-8.15	2.80	376.02
P57	OP9a-ST	-6.71	2.66	402.78
P58	OP9a-ST	-6.97	2.74	392.22
P59	OP9a-ST	-7.19	2.82	395.39
P60	OP9a-ST	-7.45	2.89	387.13
P61	OP9a-ST	-7.67	2.95	391.70
P62	OP9a-ST	-7.92	3.02	384.98
P63	OP9a-ST	-8.15	3.10	391.39

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP9b-ST	-6.06	0.22	250.38
P2	OP9b-ST	-8.07	0.31	216.25 *
P3	OP9b-ST	-8.30	0.39	215.78 *
P4	OP9b-ST	-6.77	0.46	236.17
P5	OP9b-ST	-8.74	0.53	210.42 *
P6	OP9b-ST	-8.95	0.60	205.62 *
P7	OP9b-ST	-7.50	0.68	238.73
P8	OP9b-ST	-6.06	0.53	254.51
P9	OP9b-ST	-8.11	0.62	220.44 *
P10	OP9b-ST	-8.33	0.69	219.88 *
P11	OP9b-ST	-6.78	0.76	240.54
P12	OP9b-ST	-8.77	0.83	214.52 *
P13	OP9b-ST	-8.99	0.90	209.81 *
P14	OP9b-ST	-7.50	0.98	242.90
P15	OP9b-ST	-6.06	0.83	258.65
P16	OP9b-ST	-6.30	0.92	249.69
P17	OP9b-ST	-6.54	1.00	250.63
P18	OP9b-ST	-6.78	1.06	244.37
P19	OP9b-ST	-7.02	1.13	246.92
P20	OP9b-ST	-7.26	1.21	242.33
P21	OP9b-ST	-7.50	1.29	247.07
P22	OP9b-ST	-6.06	1.13	262.79
P23	OP9b-ST	-6.30	1.22	253.67
P24	OP9b-ST	-6.54	1.30	254.78
P25	OP9b-ST	-6.78	1.37	248.37
P26	OP9b-ST	-7.02	1.44	251.07
P27	OP9b-ST	-7.26	1.51	246.32
P28	OP9b-ST	-7.50	1.59	251.24
P29	OP9b-ST	-6.06	1.44	266.93
P30	OP9b-ST	-6.30	1.53	257.75
P31	OP9b-ST	-6.54	1.60	258.93
P32	OP9b-ST	-6.78	1.67	252.46
P33	OP9b-ST	-7.02	1.74	255.23
P34	OP9b-ST	-7.26	1.81	250.41
P35	OP9b-ST	-7.50	1.90	255.40
P36	OP9b-ST	-6.06	1.74	271.06
P37	OP9b-ST	-6.30	1.83	261.83
P38	OP9b-ST	-6.54	1.91	263.08
P39	OP9b-ST	-6.78	1.98	256.55
P40	OP9b-ST	-7.02	2.04	259.38
P41	OP9b-ST	-7.26	2.12	254.51
P42	OP9b-ST	-7.50	2.20	259.57
P43	OP9b-ST	-6.06	2.04	275.20
P44	OP9b-ST	-6.30	2.13	265.91
P45	OP9b-ST	-6.54	2.21	267.23
P46	OP9b-ST	-6.78	2.28	260.64
P47	OP9b-ST	-7.02	2.35	263.53
P48	OP9b-ST	-7.26	2.42	258.61
P49	OP9b-ST	-7.50	2.50	263.74
P50	OP9b-ST	-6.06	2.34	279.33
P51	OP9b-ST	-6.30	2.44	269.97
P52	OP9b-ST	-6.54	2.51	271.38
P53	OP9b-ST	-6.78	2.58	264.70
P54	OP9b-ST	-7.02	2.65	267.69
P55	OP9b-ST	-7.26	2.73	262.69
P56	OP9b-ST	-7.50	2.81	267.90
P57	OP9b-ST	-6.06	2.65	283.47
P58	OP9b-ST	-6.32	2.74	273.65
P59	OP9b-ST	-6.54	2.82	275.53
P60	OP9b-ST	-6.79	2.89	268.40
P61	OP9b-ST	-7.02	2.95	271.84
P62	OP9b-ST	-7.27	3.03	266.40
P63	OP9b-ST	-7.50	3.11	272.07

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10a-ST	-6.71	0.23	280.04
P2	OP10a-ST	-8.94	0.32	243.06 *
P3	OP10a-ST	-9.16	0.39	243.07 *
P4	OP10a-ST	-7.42	0.46	265.69
P5	OP10a-ST	-9.61	0.52	237.71 *
P6	OP10a-ST	-9.82	0.60	232.43 *
P7	OP10a-ST	-8.15	0.67	268.39
P8	OP10a-ST	-6.71	0.54	295.33
P9	OP10a-ST	-9.06	0.62	258.21 *
P10	OP10a-ST	-9.28	0.69	258.20 *
P11	OP10a-ST	-7.43	0.76	281.19
P12	OP10a-ST	-9.72	0.83	252.84 *
P13	OP10a-ST	-9.94	0.90	247.58 *
P14	OP10a-ST	-8.15	0.97	283.71
P15	OP10a-ST	-6.71	0.84	310.62
P16	OP10a-ST	-6.95	0.92	301.85
P17	OP10a-ST	-7.19	1.00	303.00
P18	OP10a-ST	-7.42	1.06	296.62
P19	OP10a-ST	-7.67	1.13	299.29
P20	OP10a-ST	-7.90	1.20	294.49
P21	OP10a-ST	-8.15	1.28	299.03
P22	OP10a-ST	-6.71	1.14	325.90
P23	OP10a-ST	-6.95	1.23	317.05
P24	OP10a-ST	-7.19	1.30	318.34
P25	OP10a-ST	-7.43	1.37	311.86
P26	OP10a-ST	-7.67	1.44	314.63
P27	OP10a-ST	-7.90	1.51	309.70
P28	OP10a-ST	-8.15	1.58	314.35
P29	OP10a-ST	-6.71	1.45	341.19
P30	OP10a-ST	-6.95	1.53	332.14
P31	OP10a-ST	-7.19	1.60	333.67
P32	OP10a-ST	-7.43	1.67	326.97
P33	OP10a-ST	-7.67	1.74	329.97
P34	OP10a-ST	-7.90	1.81	324.80
P35	OP10a-ST	-8.15	1.89	329.67
P36	OP10a-ST	-6.71	1.75	356.47
P37	OP10a-ST	-6.95	1.84	347.21
P38	OP10a-ST	-7.19	1.91	349.00
P39	OP10a-ST	-7.43	1.98	342.07
P40	OP10a-ST	-7.67	2.04	345.30
P41	OP10a-ST	-7.90	2.11	339.90
P42	OP10a-ST	-8.15	2.19	344.98
P43	OP10a-ST	-6.71	2.05	371.75
P44	OP10a-ST	-6.95	2.14	362.29
P45	OP10a-ST	-7.19	2.21	364.33
P46	OP10a-ST	-7.43	2.28	357.18
P47	OP10a-ST	-7.67	2.35	360.63
P48	OP10a-ST	-7.90	2.42	354.99
P49	OP10a-ST	-8.15	2.49	360.30
P50	OP10a-ST	-6.71	2.36	387.03
P51	OP10a-ST	-6.95	2.44	377.32
P52	OP10a-ST	-7.19	2.51	379.66
P53	OP10a-ST	-7.43	2.58	372.24
P54	OP10a-ST	-7.67	2.65	375.96
P55	OP10a-ST	-7.91	2.72	370.05
P56	OP10a-ST	-8.15	2.80	375.61
P57	OP10a-ST	-6.71	2.66	402.31
P58	OP10a-ST	-6.97	2.75	391.84
P59	OP10a-ST	-7.19	2.82	394.98
P60	OP10a-ST	-7.44	2.89	386.78
P61	OP10a-ST	-7.67	2.95	391.29
P62	OP10a-ST	-7.92	3.02	384.59
P63	OP10a-ST	-8.15	3.10	390.92

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP10b-ST	-6.06	0.22	250.32
P2	OP10b-ST	-8.07	0.31	216.21 *
P3	OP10b-ST	-8.30	0.39	215.76 *
P4	OP10b-ST	-6.77	0.46	236.15
P5	OP10b-ST	-8.74	0.53	210.39 *
P6	OP10b-ST	-8.95	0.60	205.58 *
P7	OP10b-ST	-7.50	0.68	238.67
P8	OP10b-ST	-6.06	0.53	254.40
P9	OP10b-ST	-8.10	0.62	220.36 *
P10	OP10b-ST	-8.33	0.69	219.81 *
P11	OP10b-ST	-6.78	0.76	240.47
P12	OP10b-ST	-8.77	0.83	214.44 *
P13	OP10b-ST	-8.99	0.90	209.73 *
P14	OP10b-ST	-7.50	0.98	242.79
P15	OP10b-ST	-6.06	0.83	258.49
P16	OP10b-ST	-6.30	0.92	249.59
P17	OP10b-ST	-6.54	1.00	250.50
P18	OP10b-ST	-6.78	1.06	244.29
P19	OP10b-ST	-7.02	1.13	246.79
P20	OP10b-ST	-7.26	1.21	242.22
P21	OP10b-ST	-7.50	1.29	246.91
P22	OP10b-ST	-6.06	1.13	262.58
P23	OP10b-ST	-6.30	1.22	253.53
P24	OP10b-ST	-6.54	1.30	254.61
P25	OP10b-ST	-6.78	1.37	248.25
P26	OP10b-ST	-7.02	1.44	250.90
P27	OP10b-ST	-7.25	1.51	246.18
P28	OP10b-ST	-7.50	1.59	251.02
P29	OP10b-ST	-6.06	1.44	266.66
P30	OP10b-ST	-6.30	1.53	257.55
P31	OP10b-ST	-6.54	1.60	258.71
P32	OP10b-ST	-6.78	1.67	252.29
P33	OP10b-ST	-7.02	1.74	255.01
P34	OP10b-ST	-7.25	1.81	250.22
P35	OP10b-ST	-7.50	1.89	255.14
P36	OP10b-ST	-6.06	1.74	270.75
P37	OP10b-ST	-6.30	1.83	261.58
P38	OP10b-ST	-6.54	1.91	262.82
P39	OP10b-ST	-6.78	1.98	256.34
P40	OP10b-ST	-7.02	2.04	259.11
P41	OP10b-ST	-7.25	2.12	254.27
P42	OP10b-ST	-7.50	2.20	259.26
P43	OP10b-ST	-6.06	2.04	274.83
P44	OP10b-ST	-6.30	2.13	265.62
P45	OP10b-ST	-6.54	2.21	266.92
P46	OP10b-ST	-6.78	2.28	260.38
P47	OP10b-ST	-7.02	2.35	263.22
P48	OP10b-ST	-7.25	2.42	258.32
P49	OP10b-ST	-7.50	2.50	263.37
P50	OP10b-ST	-6.06	2.35	278.92
P51	OP10b-ST	-6.30	2.44	269.63
P52	OP10b-ST	-6.54	2.51	271.02
P53	OP10b-ST	-6.78	2.58	264.40
P54	OP10b-ST	-7.02	2.65	267.32
P55	OP10b-ST	-7.26	2.72	262.35
P56	OP10b-ST	-7.50	2.81	267.49
P57	OP10b-ST	-6.06	2.65	283.00
P58	OP10b-ST	-6.32	2.74	273.26
P59	OP10b-ST	-6.54	2.82	275.12
P60	OP10b-ST	-6.79	2.89	268.05
P61	OP10b-ST	-7.02	2.95	271.43
P62	OP10b-ST	-7.27	3.03	266.01
P63	OP10b-ST	-7.50	3.11	271.60

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11a-ST	16.93	-0.25	272.25
P2	OP11a-ST	14.68	-0.16	319.58 *
P3	OP11a-ST	14.69	-0.07	322.93 *
P4	OP11a-ST	16.96	-0.01	261.37
P5	OP11a-ST	14.72	0.05	322.22 *
P6	OP11a-ST	14.73	0.14	318.15 *
P7	OP11a-ST	16.99	0.23	269.71
P8	OP11a-ST	16.93	-0.26	278.66
P9	OP11a-ST	14.62	-0.17	326.25 *
P10	OP11a-ST	14.64	-0.09	329.39 *
P11	OP11a-ST	16.95	-0.02	268.18
P12	OP11a-ST	14.67	0.04	328.69 *
P13	OP11a-ST	14.68	0.12	324.84 *
P14	OP11a-ST	16.99	0.21	276.14
P15	OP11a-ST	16.93	-0.28	285.07
P16	OP11a-ST	16.93	-0.18	276.99
P17	OP11a-ST	16.95	-0.10	279.45
P18	OP11a-ST	16.95	-0.04	274.69
P19	OP11a-ST	16.97	0.03	278.66
P20	OP11a-ST	16.97	0.11	275.42
P21	OP11a-ST	16.99	0.20	282.58
P22	OP11a-ST	16.93	-0.29	291.48
P23	OP11a-ST	16.93	-0.20	283.37
P24	OP11a-ST	16.95	-0.11	285.99
P25	OP11a-ST	16.95	-0.05	281.09
P26	OP11a-ST	16.97	0.01	285.21
P27	OP11a-ST	16.97	0.09	281.81
P28	OP11a-ST	16.99	0.18	289.01
P29	OP11a-ST	16.93	-0.30	297.89
P30	OP11a-ST	16.93	-0.21	289.75
P31	OP11a-ST	16.95	-0.13	292.53
P32	OP11a-ST	16.95	-0.07	287.53
P33	OP11a-ST	16.97	0.00	291.76
P34	OP11a-ST	16.97	0.07	288.20
P35	OP11a-ST	16.99	0.17	295.45
P36	OP11a-ST	16.93	-0.32	304.30
P37	OP11a-ST	16.93	-0.22	296.13
P38	OP11a-ST	16.95	-0.14	299.07
P39	OP11a-ST	16.95	-0.08	293.97
P40	OP11a-ST	16.97	-0.02	298.30
P41	OP11a-ST	16.97	0.06	294.60
P42	OP11a-ST	16.99	0.15	301.88
P43	OP11a-ST	16.93	-0.33	310.71
P44	OP11a-ST	16.93	-0.23	302.50
P45	OP11a-ST	16.95	-0.16	305.61
P46	OP11a-ST	16.95	-0.09	300.42
P47	OP11a-ST	16.97	-0.03	304.84
P48	OP11a-ST	16.97	0.04	300.99
P49	OP11a-ST	16.99	0.14	308.31
P50	OP11a-ST	16.93	-0.34	317.11
P51	OP11a-ST	16.93	-0.24	308.85
P52	OP11a-ST	16.95	-0.17	312.14
P53	OP11a-ST	16.95	-0.11	306.83
P54	OP11a-ST	16.97	-0.05	311.38
P55	OP11a-ST	16.97	0.03	307.35
P56	OP11a-ST	16.99	0.12	314.74
P57	OP11a-ST	16.93	-0.36	323.52
P58	OP11a-ST	16.91	-0.25	314.74
P59	OP11a-ST	16.95	-0.18	318.68
P60	OP11a-ST	16.93	-0.12	312.79
P61	OP11a-ST	16.97	-0.06	317.92
P62	OP11a-ST	16.96	0.01	313.26
P63	OP11a-ST	16.99	0.11	321.17

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	OP11b-ST	17.25	-0.25	253.25
P2	OP11b-ST	15.14	-0.16	302.16 *
P3	OP11b-ST	15.15	-0.07	305.42 *
P4	OP11b-ST	17.28	-0.01	242.58
P5	OP11b-ST	15.18	0.05	304.71 *
P6	OP11b-ST	15.19	0.14	300.74 *
P7	OP11b-ST	17.31	0.22	250.71
P8	OP11b-ST	17.25	-0.26	262.43
P9	OP11b-ST	15.06	-0.17	311.52 *
P10	OP11b-ST	15.08	-0.09	314.61 *
P11	OP11b-ST	17.27	-0.02	252.11
P12	OP11b-ST	15.11	0.04	313.91 *
P13	OP11b-ST	15.12	0.12	310.11 *
P14	OP11b-ST	17.31	0.21	259.91
P15	OP11b-ST	17.25	-0.27	271.61
P16	OP11b-ST	17.25	-0.18	263.78
P17	OP11b-ST	17.27	-0.10	266.09
P18	OP11b-ST	17.27	-0.04	261.48
P19	OP11b-ST	17.29	0.03	265.30
P20	OP11b-ST	17.29	0.11	262.20
P21	OP11b-ST	17.31	0.19	269.11
P22	OP11b-ST	17.25	-0.29	280.78
P23	OP11b-ST	17.25	-0.19	272.94
P24	OP11b-ST	17.27	-0.11	275.41
P25	OP11b-ST	17.27	-0.05	270.66
P26	OP11b-ST	17.29	0.01	274.63
P27	OP11b-ST	17.29	0.09	271.38
P28	OP11b-ST	17.31	0.18	278.32
P29	OP11b-ST	17.25	-0.30	289.96
P30	OP11b-ST	17.25	-0.21	282.05
P31	OP11b-ST	17.27	-0.13	284.72
P32	OP11b-ST	17.27	-0.07	279.84
P33	OP11b-ST	17.29	0.00	283.95
P34	OP11b-ST	17.29	0.07	280.50
P35	OP11b-ST	17.31	0.16	287.52
P36	OP11b-ST	17.25	-0.31	299.13
P37	OP11b-ST	17.25	-0.22	291.16
P38	OP11b-ST	17.27	-0.14	294.04
P39	OP11b-ST	17.27	-0.08	289.02
P40	OP11b-ST	17.29	-0.02	293.27
P41	OP11b-ST	17.29	0.06	289.63
P42	OP11b-ST	17.31	0.15	296.72
P43	OP11b-ST	17.25	-0.33	308.31
P44	OP11b-ST	17.25	-0.23	300.26
P45	OP11b-ST	17.27	-0.16	303.35
P46	OP11b-ST	17.27	-0.09	298.20
P47	OP11b-ST	17.29	-0.03	302.59
P48	OP11b-ST	17.29	0.04	298.75
P49	OP11b-ST	17.31	0.14	305.92
P50	OP11b-ST	17.25	-0.34	317.48
P51	OP11b-ST	17.25	-0.24	309.34
P52	OP11b-ST	17.27	-0.17	312.66
P53	OP11b-ST	17.27	-0.11	307.34
P54	OP11b-ST	17.29	-0.05	311.90
P55	OP11b-ST	17.29	0.03	307.84
P56	OP11b-ST	17.31	0.12	315.11
P57	OP11b-ST	17.25	-0.35	326.65
P58	OP11b-ST	17.23	-0.25	317.95
P59	OP11b-ST	17.27	-0.18	321.97
P60	OP11b-ST	17.25	-0.12	316.03
P61	OP11b-ST	17.29	-0.06	321.21
P62	OP11b-ST	17.28	0.01	316.47
P63	OP11b-ST	17.31	0.11	324.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a-ST	-6.34	0.24	266.96
P2	D1a-ST	-8.47	0.32	231.51 *
P3	D1a-ST	-8.70	0.39	231.34 *
P4	D1a-ST	-7.05	0.46	252.67
P5	D1a-ST	-9.14	0.52	225.97 *
P6	D1a-ST	-9.36	0.59	220.88 *
P7	D1a-ST	-7.77	0.66	255.31
P8	D1a-ST	-6.34	0.54	283.27
P9	D1a-ST	-8.60	0.62	247.69 *
P10	D1a-ST	-8.82	0.69	247.44 *
P11	D1a-ST	-7.06	0.76	269.08
P12	D1a-ST	-9.27	0.83	242.07 *
P13	D1a-ST	-9.48	0.89	237.06 *
P14	D1a-ST	-7.77	0.97	271.65
P15	D1a-ST	-6.34	0.85	299.58
P16	D1a-ST	-6.58	0.93	291.13
P17	D1a-ST	-6.82	1.00	291.73
P18	D1a-ST	-7.05	1.06	285.23
P19	D1a-ST	-7.30	1.13	288.02
P20	D1a-ST	-7.53	1.20	283.77
P21	D1a-ST	-7.77	1.27	287.99
P22	D1a-ST	-6.34	1.15	315.89
P23	D1a-ST	-6.58	1.23	307.37
P24	D1a-ST	-6.82	1.30	308.05
P25	D1a-ST	-7.06	1.37	301.37
P26	D1a-ST	-7.30	1.44	304.34
P27	D1a-ST	-7.53	1.50	300.03
P28	D1a-ST	-7.77	1.57	304.33
P29	D1a-ST	-6.34	1.46	332.19
P30	D1a-ST	-6.58	1.54	323.45
P31	D1a-ST	-6.82	1.60	324.37
P32	D1a-ST	-7.06	1.67	317.44
P33	D1a-ST	-7.30	1.74	320.66
P34	D1a-ST	-7.53	1.80	316.12
P35	D1a-ST	-7.77	1.87	320.67
P36	D1a-ST	-6.34	1.76	348.50
P37	D1a-ST	-6.58	1.84	339.51
P38	D1a-ST	-6.82	1.91	340.68
P39	D1a-ST	-7.06	1.98	333.51
P40	D1a-ST	-7.30	2.04	336.98
P41	D1a-ST	-7.53	2.11	332.20
P42	D1a-ST	-7.77	2.18	337.01
P43	D1a-ST	-6.34	2.07	364.80
P44	D1a-ST	-6.58	2.14	355.57
P45	D1a-ST	-6.82	2.21	356.99
P46	D1a-ST	-7.06	2.28	349.58
P47	D1a-ST	-7.30	2.35	353.29
P48	D1a-ST	-7.53	2.41	348.28
P49	D1a-ST	-7.77	2.48	353.34
P50	D1a-ST	-6.34	2.37	381.10
P51	D1a-ST	-6.58	2.45	371.60
P52	D1a-ST	-6.82	2.51	373.30
P53	D1a-ST	-7.06	2.58	365.60
P54	D1a-ST	-7.30	2.65	369.60
P55	D1a-ST	-7.53	2.71	364.32
P56	D1a-ST	-7.77	2.78	369.68
P57	D1a-ST	-6.34	2.68	397.40
P58	D1a-ST	-6.59	2.75	387.10
P59	D1a-ST	-6.82	2.81	389.60
P60	D1a-ST	-7.07	2.89	381.12
P61	D1a-ST	-7.30	2.96	385.91
P62	D1a-ST	-7.55	3.02	379.85
P63	D1a-ST	-7.77	3.09	386.01

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b-ST	-5.69	0.23	237.23
P2	D1b-ST	-7.61	0.32	204.66 *
P3	D1b-ST	-7.83	0.39	204.02 *
P4	D1b-ST	-6.40	0.46	223.12
P5	D1b-ST	-8.27	0.52	198.65 *
P6	D1b-ST	-8.49	0.59	194.03 *
P7	D1b-ST	-7.12	0.67	225.59
P8	D1b-ST	-5.69	0.53	242.34
P9	D1b-ST	-7.65	0.62	209.84 *
P10	D1b-ST	-7.87	0.69	209.04 *
P11	D1b-ST	-6.41	0.76	228.36
P12	D1b-ST	-8.31	0.83	203.68 *
P13	D1b-ST	-8.53	0.90	199.21 *
P14	D1b-ST	-7.12	0.98	230.73
P15	D1b-ST	-5.69	0.84	247.45
P16	D1b-ST	-5.93	0.93	238.87
P17	D1b-ST	-6.17	1.00	239.24
P18	D1b-ST	-6.41	1.06	232.90
P19	D1b-ST	-6.65	1.13	235.52
P20	D1b-ST	-6.88	1.20	231.50
P21	D1b-ST	-7.12	1.28	235.87
P22	D1b-ST	-5.69	1.14	252.56
P23	D1b-ST	-5.93	1.23	243.85
P24	D1b-ST	-6.17	1.30	244.32
P25	D1b-ST	-6.41	1.37	237.76
P26	D1b-ST	-6.65	1.44	240.61
P27	D1b-ST	-6.88	1.50	236.50
P28	D1b-ST	-7.12	1.58	241.01
P29	D1b-ST	-5.69	1.45	257.67
P30	D1b-ST	-5.93	1.53	248.87
P31	D1b-ST	-6.17	1.60	249.41
P32	D1b-ST	-6.41	1.67	242.76
P33	D1b-ST	-6.65	1.74	245.70
P34	D1b-ST	-6.88	1.81	241.53
P35	D1b-ST	-7.12	1.88	246.15
P36	D1b-ST	-5.69	1.75	262.77
P37	D1b-ST	-5.93	1.83	253.88
P38	D1b-ST	-6.17	1.90	254.49
P39	D1b-ST	-6.41	1.98	247.77
P40	D1b-ST	-6.65	2.05	250.79
P41	D1b-ST	-6.88	2.11	246.57
P42	D1b-ST	-7.12	2.19	251.28
P43	D1b-ST	-5.69	2.06	267.88
P44	D1b-ST	-5.93	2.14	258.90
P45	D1b-ST	-6.17	2.21	259.57
P46	D1b-ST	-6.41	2.28	252.78
P47	D1b-ST	-6.65	2.35	255.88
P48	D1b-ST	-6.88	2.42	251.61
P49	D1b-ST	-7.12	2.49	256.42
P50	D1b-ST	-5.69	2.36	272.98
P51	D1b-ST	-5.93	2.44	263.90
P52	D1b-ST	-6.17	2.51	264.66
P53	D1b-ST	-6.41	2.58	257.76
P54	D1b-ST	-6.65	2.65	260.96
P55	D1b-ST	-6.89	2.72	256.62
P56	D1b-ST	-7.12	2.79	261.55
P57	D1b-ST	-5.69	2.67	278.09
P58	D1b-ST	-5.94	2.75	268.53
P59	D1b-ST	-6.17	2.81	269.74
P60	D1b-ST	-6.42	2.89	262.39
P61	D1b-ST	-6.65	2.96	266.05
P62	D1b-ST	-6.90	3.02	261.27
P63	D1b-ST	-7.12	3.10	266.69

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a-ST	-7.70	-1.45	273.48
P2	D2a-ST	-10.17	-1.37	229.58 *
P3	D2a-ST	-10.71	-1.30	225.72 *
P4	D2a-ST	-9.41	-1.23	251.66
P5	D2a-ST	-11.77	-1.17	212.87 *
P6	D2a-ST	-12.29	-1.09	204.38 *
P7	D2a-ST	-11.13	-1.02	246.62
P8	D2a-ST	-7.70	-0.72	288.99
P9	D2a-ST	-10.29	-0.64	244.97 *
P10	D2a-ST	-10.82	-0.58	241.02 *
P11	D2a-ST	-9.41	-0.51	267.24
P12	D2a-ST	-11.88	-0.44	228.09 *
P13	D2a-ST	-12.41	-0.37	219.57 *
P14	D2a-ST	-11.13	-0.29	262.06
P15	D2a-ST	-7.70	0.00	304.51
P16	D2a-ST	-8.27	0.08	293.59
P17	D2a-ST	-8.84	0.15	291.70
P18	D2a-ST	-9.41	0.22	282.55
P19	D2a-ST	-9.99	0.29	282.64
P20	D2a-ST	-10.55	0.36	275.37
P21	D2a-ST	-11.13	0.43	277.50
P22	D2a-ST	-7.70	0.73	320.02
P23	D2a-ST	-8.27	0.81	309.03
P24	D2a-ST	-8.84	0.87	307.20
P25	D2a-ST	-9.41	0.94	297.84
P26	D2a-ST	-9.99	1.01	298.06
P27	D2a-ST	-10.55	1.08	290.61
P28	D2a-ST	-11.13	1.16	292.94
P29	D2a-ST	-7.70	1.46	335.53
P30	D2a-ST	-8.27	1.53	324.31
P31	D2a-ST	-8.84	1.60	322.70
P32	D2a-ST	-9.41	1.66	313.07
P33	D2a-ST	-9.99	1.74	313.49
P34	D2a-ST	-10.55	1.81	305.81
P35	D2a-ST	-11.13	1.89	308.38
P36	D2a-ST	-7.70	2.18	351.03
P37	D2a-ST	-8.27	2.26	339.58
P38	D2a-ST	-8.84	2.32	338.20
P39	D2a-ST	-9.41	2.39	328.30
P40	D2a-ST	-9.99	2.46	328.92
P41	D2a-ST	-10.55	2.54	321.01
P42	D2a-ST	-11.13	2.61	323.82
P43	D2a-ST	-7.70	2.91	366.54
P44	D2a-ST	-8.27	2.98	354.85
P45	D2a-ST	-8.84	3.05	353.70
P46	D2a-ST	-9.41	3.11	343.53
P47	D2a-ST	-9.99	3.19	344.34
P48	D2a-ST	-10.55	3.26	336.21
P49	D2a-ST	-11.13	3.34	339.25
P50	D2a-ST	-7.70	3.63	382.04
P51	D2a-ST	-8.27	3.71	370.08
P52	D2a-ST	-8.84	3.77	369.19
P53	D2a-ST	-9.41	3.84	358.72
P54	D2a-ST	-9.99	3.91	359.76
P55	D2a-ST	-10.55	3.99	351.37
P56	D2a-ST	-11.13	4.07	354.69
P57	D2a-ST	-7.70	4.36	397.55
P58	D2a-ST	-8.28	4.43	384.80
P59	D2a-ST	-8.84	4.50	384.68
P60	D2a-ST	-9.43	4.56	373.42
P61	D2a-ST	-9.99	4.64	375.18
P62	D2a-ST	-10.57	4.71	366.05
P63	D2a-ST	-11.13	4.79	370.12

* Denotes Pile Battered @ 6V:1H in -X Direction

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR
Checked By: BCB

Date: Aug-13 **Page:** of
Date: Sep-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	D2b-ST	-7.05	-1.46	243.76	
P2	D2b-ST	-9.31	-1.37	202.73	*
P3	D2b-ST	-9.84	-1.30	198.40	*
P4	D2b-ST	-8.76	-1.23	222.12	
P5	D2b-ST	-10.90	-1.16	185.55	*
P6	D2b-ST	-11.42	-1.09	177.53	*
P7	D2b-ST	-10.48	-1.01	216.90	
P8	D2b-ST	-7.05	-0.73	248.07	
P9	D2b-ST	-9.34	-0.64	207.12	*
P10	D2b-ST	-9.87	-0.58	202.62	*
P11	D2b-ST	-8.76	-0.51	226.52	
P12	D2b-ST	-10.93	-0.44	189.69	*
P13	D2b-ST	-11.46	-0.36	181.72	*
P14	D2b-ST	-10.48	-0.28	221.14	
P15	D2b-ST	-7.05	0.00	252.38	
P16	D2b-ST	-7.62	0.08	241.32	
P17	D2b-ST	-8.19	0.15	239.20	
P18	D2b-ST	-8.76	0.22	230.21	
P19	D2b-ST	-9.34	0.29	230.14	
P20	D2b-ST	-9.91	0.36	223.11	
P21	D2b-ST	-10.48	0.44	225.38	
P22	D2b-ST	-7.05	0.72	256.69	
P23	D2b-ST	-7.62	0.81	245.51	
P24	D2b-ST	-8.19	0.87	243.47	
P25	D2b-ST	-8.76	0.94	234.23	
P26	D2b-ST	-9.34	1.01	234.34	
P27	D2b-ST	-9.90	1.09	227.09	
P28	D2b-ST	-10.48	1.17	229.62	
P29	D2b-ST	-7.05	1.45	261.00	
P30	D2b-ST	-7.62	1.53	249.73	
P31	D2b-ST	-8.19	1.60	247.74	
P32	D2b-ST	-8.76	1.66	238.39	
P33	D2b-ST	-9.34	1.74	238.53	
P34	D2b-ST	-9.90	1.81	231.23	
P35	D2b-ST	-10.48	1.90	233.85	
P36	D2b-ST	-7.05	2.17	265.31	
P37	D2b-ST	-7.62	2.25	253.96	
P38	D2b-ST	-8.19	2.32	252.01	
P39	D2b-ST	-8.76	2.39	242.56	
P40	D2b-ST	-9.34	2.46	242.73	
P41	D2b-ST	-9.90	2.54	235.38	
P42	D2b-ST	-10.48	2.62	238.09	
P43	D2b-ST	-7.05	2.90	269.62	
P44	D2b-ST	-7.62	2.98	258.18	
P45	D2b-ST	-8.19	3.05	256.28	
P46	D2b-ST	-8.76	3.11	246.73	
P47	D2b-ST	-9.34	3.19	246.92	
P48	D2b-ST	-9.90	3.27	239.54	
P49	D2b-ST	-10.48	3.35	242.33	
P50	D2b-ST	-7.05	3.62	273.93	
P51	D2b-ST	-7.62	3.70	262.38	
P52	D2b-ST	-8.19	3.77	260.55	
P53	D2b-ST	-8.76	3.84	250.88	
P54	D2b-ST	-9.34	3.91	251.12	
P55	D2b-ST	-9.91	3.99	243.67	
P56	D2b-ST	-10.48	4.08	246.57	
P57	D2b-ST	-7.05	4.35	278.23	
P58	D2b-ST	-7.63	4.43	266.22	
P59	D2b-ST	-8.19	4.50	264.82	
P60	D2b-ST	-8.78	4.56	254.68	
P61	D2b-ST	-9.34	4.64	255.32	
P62	D2b-ST	-9.92	4.72	247.47	
P63	D2b-ST	-10.48	4.80	250.81	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	DC Aa-ST	-15.97	0.78	226.01	
P2	DC Aa-ST	-17.90	0.85	155.69	*
P3	DC Aa-ST	-18.37	0.91	150.84	*
P4	DC Aa-ST	-17.46	0.98	205.48	
P5	DC Aa-ST	-19.28	1.04	137.93	*
P6	DC Aa-ST	-19.73	1.10	130.18	*
P7	DC Aa-ST	-18.97	1.15	196.55	
P8	DC Aa-ST	-15.97	1.41	247.87	
P9	DC Aa-ST	-18.07	1.48	176.99	*
P10	DC Aa-ST	-18.53	1.54	172.27	*
P11	DC Aa-ST	-17.46	1.61	227.17	
P12	DC Aa-ST	-19.45	1.68	159.36	*
P13	DC Aa-ST	-19.90	1.73	151.45	*
P14	DC Aa-ST	-18.97	1.79	218.40	
P15	DC Aa-ST	-15.97	2.05	269.73	
P16	DC Aa-ST	-16.46	2.12	259.59	
P17	DC Aa-ST	-16.97	2.18	257.50	
P18	DC Aa-ST	-17.46	2.25	248.76	
P19	DC Aa-ST	-17.97	2.31	248.00	
P20	DC Aa-ST	-18.46	2.37	240.79	
P21	DC Aa-ST	-18.97	2.42	240.25	
P22	DC Aa-ST	-15.97	2.68	291.59	
P23	DC Aa-ST	-16.46	2.75	281.15	
P24	DC Aa-ST	-16.97	2.81	279.23	
P25	DC Aa-ST	-17.46	2.88	270.29	
P26	DC Aa-ST	-17.97	2.95	269.72	
P27	DC Aa-ST	-18.46	3.01	262.34	
P28	DC Aa-ST	-18.97	3.06	262.10	
P29	DC Aa-ST	-15.97	3.31	313.44	
P30	DC Aa-ST	-16.46	3.38	302.62	
P31	DC Aa-ST	-16.97	3.45	300.95	
P32	DC Aa-ST	-17.46	3.52	291.69	
P33	DC Aa-ST	-17.97	3.58	291.44	
P34	DC Aa-ST	-18.46	3.64	283.80	
P35	DC Aa-ST	-18.97	3.69	283.95	
P36	DC Aa-ST	-15.97	3.95	335.30	
P37	DC Aa-ST	-16.46	4.01	324.08	
P38	DC Aa-ST	-16.97	4.08	322.68	
P39	DC Aa-ST	-17.46	4.15	313.09	
P40	DC Aa-ST	-17.97	4.22	313.15	
P41	DC Aa-ST	-18.46	4.28	305.25	
P42	DC Aa-ST	-18.97	4.33	305.80	
P43	DC Aa-ST	-15.97	4.58	357.15	
P44	DC Aa-ST	-16.46	4.64	345.54	
P45	DC Aa-ST	-16.97	4.71	344.40	
P46	DC Aa-ST	-17.46	4.78	334.48	
P47	DC Aa-ST	-17.97	4.85	334.87	
P48	DC Aa-ST	-18.46	4.92	326.70	
P49	DC Aa-ST	-18.97	4.97	327.64	
P50	DC Aa-ST	-15.97	5.21	379.00	
P51	DC Aa-ST	-16.46	5.28	366.96	
P52	DC Aa-ST	-16.97	5.35	366.12	
P53	DC Aa-ST	-17.46	5.42	355.83	
P54	DC Aa-ST	-17.97	5.49	356.58	
P55	DC Aa-ST	-18.46	5.55	348.12	
P56	DC Aa-ST	-18.97	5.60	349.49	
P57	DC Aa-ST	-15.97	5.85	400.86	
P58	DC Aa-ST	-16.48	5.91	387.88	
P59	DC Aa-ST	-16.97	5.98	387.84	
P60	DC Aa-ST	-17.48	6.05	376.70	
P61	DC Aa-ST	-17.97	6.12	378.30	
P62	DC Aa-ST	-18.48	6.19	369.06	
P63	DC Aa-ST	-18.97	6.24	371.33	

TABLE: Joint Reactions

Joint	Case	F1	F2	F3	
Text	Text	Kip	Kip	Kip	
P1	DC Ab-ST	-15.17	0.77	189.56	
P2	DC Ab-ST	-16.84	0.85	122.75	*
P3	DC Ab-ST	-17.30	0.91	117.33	*
P4	DC Ab-ST	-16.66	0.98	169.24	
P5	DC Ab-ST	-18.22	1.04	104.42	*
P6	DC Ab-ST	-18.66	1.10	97.25	*
P7	DC Ab-ST	-18.17	1.16	160.10	
P8	DC Ab-ST	-15.17	1.40	197.67	
P9	DC Ab-ST	-16.90	1.48	130.56	*
P10	DC Ab-ST	-17.36	1.54	125.17	*
P11	DC Ab-ST	-16.67	1.61	177.22	
P12	DC Ab-ST	-18.28	1.68	112.26	*
P13	DC Ab-ST	-18.73	1.74	105.02	*
P14	DC Ab-ST	-18.17	1.80	168.21	
P15	DC Ab-ST	-15.17	2.03	205.79	
P16	DC Ab-ST	-15.67	2.11	195.48	
P17	DC Ab-ST	-16.17	2.18	193.10	
P18	DC Ab-ST	-16.67	2.25	184.57	
P19	DC Ab-ST	-17.17	2.31	183.60	
P20	DC Ab-ST	-17.67	2.37	176.68	
P21	DC Ab-ST	-18.17	2.43	176.32	
P22	DC Ab-ST	-15.17	2.67	213.91	
P23	DC Ab-ST	-15.67	2.74	203.23	
P24	DC Ab-ST	-16.17	2.81	201.06	
P25	DC Ab-ST	-16.66	2.88	192.27	
P26	DC Ab-ST	-17.17	2.95	191.55	
P27	DC Ab-ST	-17.66	3.01	184.42	
P28	DC Ab-ST	-18.17	3.07	184.43	
P29	DC Ab-ST	-15.17	3.30	222.03	
P30	DC Ab-ST	-15.66	3.37	211.13	
P31	DC Ab-ST	-16.17	3.44	209.01	
P32	DC Ab-ST	-16.66	3.52	200.09	
P33	DC Ab-ST	-17.17	3.59	199.49	
P34	DC Ab-ST	-17.66	3.65	192.31	
P35	DC Ab-ST	-18.17	3.71	192.54	
P36	DC Ab-ST	-15.17	3.93	230.15	
P37	DC Ab-ST	-15.67	4.01	219.05	
P38	DC Ab-ST	-16.17	4.08	216.96	
P39	DC Ab-ST	-16.67	4.15	207.92	
P40	DC Ab-ST	-17.17	4.22	207.44	
P41	DC Ab-ST	-17.66	4.29	200.22	
P42	DC Ab-ST	-18.17	4.34	200.65	
P43	DC Ab-ST	-15.17	4.57	238.27	
P44	DC Ab-ST	-15.67	4.64	226.97	
P45	DC Ab-ST	-16.17	4.71	224.91	
P46	DC Ab-ST	-16.67	4.78	215.75	
P47	DC Ab-ST	-17.17	4.86	215.38	
P48	DC Ab-ST	-17.66	4.92	208.13	
P49	DC Ab-ST	-18.17	4.98	208.76	
P50	DC Ab-ST	-15.17	5.20	246.39	
P51	DC Ab-ST	-15.67	5.27	234.86	
P52	DC Ab-ST	-16.17	5.35	232.87	
P53	DC Ab-ST	-16.67	5.42	223.56	
P54	DC Ab-ST	-17.17	5.49	223.33	
P55	DC Ab-ST	-17.67	5.56	216.01	
P56	DC Ab-ST	-18.17	5.61	216.87	
P57	DC Ab-ST	-15.17	5.83	254.51	
P58	DC Ab-ST	-15.68	5.90	242.44	
P59	DC Ab-ST	-16.17	5.98	240.82	
P60	DC Ab-ST	-16.68	6.05	231.07	
P61	DC Ab-ST	-17.17	6.13	231.27	
P62	DC Ab-ST	-17.68	6.20	223.61	
P63	DC Ab-ST	-18.17	6.25	224.98	

* Denotes Pile Battered @ 6V:1H in -X Direction

VERTICAL PILES

Vertical Reactions:
MAXIMUM REACTION = 402.78 kips
MINIMUM REACTION = 106.20 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 17.31 kips
MINIMUM REACTION = -18.97 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 10.36 kips
MINIMUM REACTION = -1.46 kips

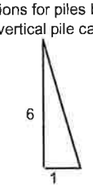
6V:1H PILES

Vertical Reactions:
MAXIMUM REACTION = 331.96 kips
MINIMUM REACTION = 97.25 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 15.19 kips
MINIMUM REACTION = -19.90 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 10.31 kips
MINIMUM REACTION = -1.37 kips

* Vertical reactions for piles battered at 6V:1H must be increased by a factor (hypotenuse/vertical length) to correspond to vertical pile capacity curves



$\sqrt{(6^2+1^2)}$ = 6.083

Max. Vertical Reaction = 336.5 kips

* PILE LENGTHS ARE NOT BEING ADJUSTED BASED ON SETTLEMENT FORCES. A STRUCTURAL CHECK OF THE PILES WILL BE PERFORMED USING PILE LENGTHS REQ. BY TRADITIONAL CASES. IF THE STRUCTURAL CHECK IS OK FOR SETTLEMENT LOADS, CBF<1.0, THEN PILES WILL BE DEEMED ADEQUATE @ EL-110.0. ALSO, SLAB PUNCHING SHEAR CHECKS WILL BE PERFORMED.

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Displacements
SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	1a-ST	0.0634	0.0022	-0.1643
P2	1a-ST	0.0893	0.0015	-0.1490 *
P3	1a-ST	0.0897	0.0009	-0.1515 *
P4	1a-ST	0.0634	0.0003	-0.1624
P5	1a-ST	0.0901	-0.0002	-0.1533 *
P6	1a-ST	0.0902	-0.0009	-0.1525 *
P7	1a-ST	0.0638	-0.0015	-0.1699
P8	1a-ST	0.0634	0.0021	-0.1565
P9	1a-ST	0.0881	0.0014	-0.1416 *
P10	1a-ST	0.0884	0.0008	-0.1439 *
P11	1a-ST	0.0635	0.0003	-0.1550
P12	1a-ST	0.0888	-0.0003	-0.1457 *
P13	1a-ST	0.0890	-0.0009	-0.1451 *
P14	1a-ST	0.0638	-0.0016	-0.1621
P15	1a-ST	0.0634	0.0020	-0.1487
P16	1a-ST	0.0634	0.0013	-0.1463
P17	1a-ST	0.0635	0.0007	-0.1487
P18	1a-ST	0.0635	0.0002	-0.1474
P19	1a-ST	0.0637	-0.0004	-0.1505
P20	1a-ST	0.0637	-0.0010	-0.1499
P21	1a-ST	0.0638	-0.0017	-0.1543
P22	1a-ST	0.0634	0.0019	-0.1409
P23	1a-ST	0.0634	0.0012	-0.1386
P24	1a-ST	0.0635	0.0006	-0.1409
P25	1a-ST	0.0636	0.0001	-0.1397
P26	1a-ST	0.0637	-0.0004	-0.1428
P27	1a-ST	0.0637	-0.0011	-0.1422
P28	1a-ST	0.0638	-0.0018	-0.1464
P29	1a-ST	0.0634	0.0018	-0.1330
P30	1a-ST	0.0634	0.0011	-0.1309
P31	1a-ST	0.0635	0.0005	-0.1331
P32	1a-ST	0.0636	0.0000	-0.1321
P33	1a-ST	0.0637	-0.0005	-0.1350
P34	1a-ST	0.0637	-0.0011	-0.1346
P35	1a-ST	0.0638	-0.0019	-0.1386
P36	1a-ST	0.0634	0.0018	-0.1252
P37	1a-ST	0.0634	0.0010	-0.1233
P38	1a-ST	0.0635	0.0005	-0.1254
P39	1a-ST	0.0636	-0.0001	-0.1244
P40	1a-ST	0.0637	-0.0006	-0.1272
P41	1a-ST	0.0637	-0.0012	-0.1269
P42	1a-ST	0.0638	-0.0019	-0.1308
P43	1a-ST	0.0634	0.0017	-0.1174
P44	1a-ST	0.0634	0.0009	-0.1156
P45	1a-ST	0.0635	0.0004	-0.1176
P46	1a-ST	0.0636	-0.0002	-0.1168
P47	1a-ST	0.0637	-0.0007	-0.1195
P48	1a-ST	0.0637	-0.0013	-0.1192
P49	1a-ST	0.0638	-0.0020	-0.1230
P50	1a-ST	0.0634	0.0016	-0.1095
P51	1a-ST	0.0635	0.0008	-0.1079
P52	1a-ST	0.0635	0.0003	-0.1099
P53	1a-ST	0.0636	-0.0002	-0.1091
P54	1a-ST	0.0637	-0.0008	-0.1117
P55	1a-ST	0.0637	-0.0013	-0.1115
P56	1a-ST	0.0638	-0.0021	-0.1152
P57	1a-ST	0.0634	0.0015	-0.1017
P58	1a-ST	0.0636	0.0007	-0.1001
P59	1a-ST	0.0635	0.0002	-0.1021
P60	1a-ST	0.0637	-0.0003	-0.1013
P61	1a-ST	0.0637	-0.0008	-0.1039
P62	1a-ST	0.0638	-0.0014	-0.1037
P63	1a-ST	0.0638	-0.0022	-0.1073

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	1b-ST	-0.2108	-0.0005	-0.2699
P2	1b-ST	-0.1620	-0.0024	-0.2911 *
P3	1b-ST	-0.1593	-0.0042	-0.2924 *
P4	1b-ST	-0.2026	-0.0056	-0.2563
P5	1b-ST	-0.1542	-0.0070	-0.2887 *
P6	1b-ST	-0.1519	-0.0087	-0.2837 *
P7	1b-ST	-0.1940	-0.0105	-0.2611
P8	1b-ST	-0.2108	-0.0041	-0.2806
P9	1b-ST	-0.1600	-0.0060	-0.3018 *
P10	1b-ST	-0.1576	-0.0077	-0.3030 *
P11	1b-ST	-0.2024	-0.0091	-0.2672
P12	1b-ST	-0.1525	-0.0106	-0.2993 *
P13	1b-ST	-0.1499	-0.0122	-0.2944 *
P14	1b-ST	-0.1940	-0.0140	-0.2717
P15	1b-ST	-0.2108	-0.0076	-0.2912
P16	1b-ST	-0.2079	-0.0096	-0.2823
P17	1b-ST	-0.2052	-0.0113	-0.2837
P18	1b-ST	-0.2023	-0.0127	-0.2778
P19	1b-ST	-0.1996	-0.0141	-0.2809
P20	1b-ST	-0.1967	-0.0158	-0.2767
P21	1b-ST	-0.1940	-0.0176	-0.2824
P22	1b-ST	-0.2108	-0.0112	-0.3018
P23	1b-ST	-0.2079	-0.0131	-0.2928
P24	1b-ST	-0.2052	-0.0148	-0.2944
P25	1b-ST	-0.2023	-0.0163	-0.2884
P26	1b-ST	-0.1996	-0.0177	-0.2916
P27	1b-ST	-0.1967	-0.0194	-0.2872
P28	1b-ST	-0.1940	-0.0212	-0.2930
P29	1b-ST	-0.2108	-0.0147	-0.3125
P30	1b-ST	-0.2079	-0.0167	-0.3033
P31	1b-ST	-0.2052	-0.0184	-0.3051
P32	1b-ST	-0.2023	-0.0198	-0.2989
P33	1b-ST	-0.1996	-0.0213	-0.3023
P34	1b-ST	-0.1967	-0.0229	-0.2977
P35	1b-ST	-0.1940	-0.0248	-0.3037
P36	1b-ST	-0.2108	-0.0182	-0.3231
P37	1b-ST	-0.2079	-0.0203	-0.3138
P38	1b-ST	-0.2052	-0.0219	-0.3158
P39	1b-ST	-0.2023	-0.0234	-0.3095
P40	1b-ST	-0.1996	-0.0248	-0.3130
P41	1b-ST	-0.1967	-0.0265	-0.3082
P42	1b-ST	-0.1940	-0.0284	-0.3143
P43	1b-ST	-0.2108	-0.0218	-0.3337
P44	1b-ST	-0.2079	-0.0238	-0.3243
P45	1b-ST	-0.2052	-0.0255	-0.3266
P46	1b-ST	-0.2023	-0.0270	-0.3200
P47	1b-ST	-0.1996	-0.0284	-0.3237
P48	1b-ST	-0.1967	-0.0300	-0.3188
P49	1b-ST	-0.1940	-0.0320	-0.3250
P50	1b-ST	-0.2108	-0.0253	-0.3443
P51	1b-ST	-0.2078	-0.0274	-0.3348
P52	1b-ST	-0.2052	-0.0291	-0.3373
P53	1b-ST	-0.2022	-0.0305	-0.3306
P54	1b-ST	-0.1996	-0.0320	-0.3344
P55	1b-ST	-0.1966	-0.0336	-0.3293
P56	1b-ST	-0.1940	-0.0356	-0.3356
P57	1b-ST	-0.2108	-0.0289	-0.3550
P58	1b-ST	-0.2075	-0.0310	-0.3448
P59	1b-ST	-0.2052	-0.0326	-0.3480
P60	1b-ST	-0.2019	-0.0341	-0.3406
P61	1b-ST	-0.1996	-0.0355	-0.3452
P62	1b-ST	-0.1963	-0.0371	-0.3393
P63	1b-ST	-0.1940	-0.0391	-0.3463

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	1c-ST	0.0620	-0.2005	-0.1615
P2	1c-ST	0.0873	-0.2012	-0.1460 *
P3	1c-ST	0.0876	-0.2018	-0.1483 *
P4	1c-ST	0.0619	-0.2022	-0.1588
P5	1c-ST	0.0880	-0.2027	-0.1497 *
P6	1c-ST	0.0880	-0.2033	-0.1487 *
P7	1c-ST	0.0623	-0.2038	-0.1652
P8	1c-ST	0.0620	-0.2006	-0.1537
P9	1c-ST	0.0862	-0.2013	-0.1386 *
P10	1c-ST	0.0864	-0.2019	-0.1407 *
P11	1c-ST	0.0621	-0.2023	-0.1514
P12	1c-ST	0.0867	-0.2028	-0.1421 *
P13	1c-ST	0.0869	-0.2033	-0.1413 *
P14	1c-ST	0.0623	-0.2039	-0.1574
P15	1c-ST	0.0620	-0.2006	-0.1459
P16	1c-ST	0.0620	-0.2014	-0.1431
P17	1c-ST	0.0621	-0.2020	-0.1452
P18	1c-ST	0.0621	-0.2024	-0.1438
P19	1c-ST	0.0622	-0.2029	-0.1466
P20	1c-ST	0.0622	-0.2034	-0.1459
P21	1c-ST	0.0623	-0.2040	-0.1496
P22	1c-ST	0.0620	-0.2007	-0.1381
P23	1c-ST	0.0620	-0.2015	-0.1354
P24	1c-ST	0.0621	-0.2020	-0.1375
P25	1c-ST	0.0621	-0.2025	-0.1362
P26	1c-ST	0.0622	-0.2029	-0.1389
P27	1c-ST	0.0622	-0.2035	-0.1382
P28	1c-ST	0.0623	-0.2040	-0.1418
P29	1c-ST	0.0620	-0.2008	-0.1303
P30	1c-ST	0.0620	-0.2016	-0.1277
P31	1c-ST	0.0621	-0.2021	-0.1297
P32	1c-ST	0.0621	-0.2026	-0.1285
P33	1c-ST	0.0622	-0.2030	-0.1311
P34	1c-ST	0.0622	-0.2035	-0.1305
P35	1c-ST	0.0623	-0.2041	-0.1340
P36	1c-ST	0.0620	-0.2009	-0.1225
P37	1c-ST	0.0620	-0.2017	-0.1201
P38	1c-ST	0.0621	-0.2022	-0.1220
P39	1c-ST	0.0621	-0.2026	-0.1209
P40	1c-ST	0.0622	-0.2031	-0.1234
P41	1c-ST	0.0622	-0.2036	-0.1229
P42	1c-ST	0.0623	-0.2042	-0.1262
P43	1c-ST	0.0620	-0.2010	-0.1147
P44	1c-ST	0.0620	-0.2018	-0.1124
P45	1c-ST	0.0621	-0.2023	-0.1142
P46	1c-ST	0.0621	-0.2027	-0.1133
P47	1c-ST	0.0622	-0.2032	-0.1156
P48	1c-ST	0.0622	-0.2037	-0.1152
P49	1c-ST	0.0623	-0.2043	-0.1184
P50	1c-ST	0.0620	-0.2010	-0.1069
P51	1c-ST	0.0620	-0.2019	-0.1047
P52	1c-ST	0.0621	-0.2024	-0.1065
P53	1c-ST	0.0621	-0.2028	-0.1056
P54	1c-ST	0.0622	-0.2033	-0.1079
P55	1c-ST	0.0622	-0.2037	-0.1075
P56	1c-ST	0.0623	-0.2044	-0.1106
P57	1c-ST	0.0620	-0.2011	-0.0991
P58	1c-ST	0.0621	-0.2020	-0.0969
P59	1c-ST	0.0621	-0.2025	-0.0988
P60	1c-ST	0.0622	-0.2029	-0.0979
P61	1c-ST	0.0622	-0.2033	-0.1002
P62	1c-ST	0.0623	-0.2038	-0.0997
P63	1c-ST	0.0623	-0.2044	-0.1028

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP1a-ST	-0.2033	0.0045	-0.2585
P2	OP1a-ST	-0.1589	0.0028	-0.2805 *
P3	OP1a-ST	-0.1590	0.0011	-0.2833 *
P4	OP1a-ST	-0.2035	-0.0002	-0.2485
P5	OP1a-ST	-0.1591	-0.0015	-0.2825 *
P6	OP1a-ST	-0.1593	-0.0031	-0.2789 *
P7	OP1a-ST	-0.2035	-0.0047	-0.2559
P8	OP1a-ST	-0.2033	0.0045	-0.2707
P9	OP1a-ST	-0.1568	0.0028	-0.2927 *
P10	OP1a-ST	-0.1569	0.0012	-0.2954 *
P11	OP1a-ST	-0.2033	-0.0001	-0.2610
P12	OP1a-ST	-0.1571	-0.0014	-0.2947 *
P13	OP1a-ST	-0.1572	-0.0030	-0.2911 *
P14	OP1a-ST	-0.2035	-0.0047	-0.2682
P15	OP1a-ST	-0.2033	0.0046	-0.2829
P16	OP1a-ST	-0.2032	0.0028	-0.2756
P17	OP1a-ST	-0.2034	0.0012	-0.2779
P18	OP1a-ST	-0.2033	-0.0001	-0.2733
P19	OP1a-ST	-0.2034	-0.0014	-0.2771
P20	OP1a-ST	-0.2033	-0.0029	-0.2740
P21	OP1a-ST	-0.2035	-0.0047	-0.2804
P22	OP1a-ST	-0.2033	0.0046	-0.2951
P23	OP1a-ST	-0.2032	0.0028	-0.2877
P24	OP1a-ST	-0.2034	0.0013	-0.2902
P25	OP1a-ST	-0.2033	0.0000	-0.2855
P26	OP1a-ST	-0.2034	-0.0014	-0.2894
P27	OP1a-ST	-0.2033	-0.0029	-0.2861
P28	OP1a-ST	-0.2035	-0.0046	-0.2926
P29	OP1a-ST	-0.2033	0.0047	-0.3073
P30	OP1a-ST	-0.2032	0.0028	-0.2997
P31	OP1a-ST	-0.2034	0.0013	-0.3025
P32	OP1a-ST	-0.2033	0.0000	-0.2976
P33	OP1a-ST	-0.2034	-0.0013	-0.3017
P34	OP1a-ST	-0.2033	-0.0028	-0.2982
P35	OP1a-ST	-0.2035	-0.0046	-0.3048
P36	OP1a-ST	-0.2033	0.0047	-0.3195
P37	OP1a-ST	-0.2032	0.0029	-0.3118
P38	OP1a-ST	-0.2034	0.0013	-0.3148
P39	OP1a-ST	-0.2033	0.0000	-0.3097
P40	OP1a-ST	-0.2034	-0.0013	-0.3140
P41	OP1a-ST	-0.2033	-0.0028	-0.3102
P42	OP1a-ST	-0.2035	-0.0046	-0.3170
P43	OP1a-ST	-0.2033	0.0047	-0.3317
P44	OP1a-ST	-0.2032	0.0029	-0.3238
P45	OP1a-ST	-0.2034	0.0014	-0.3271
P46	OP1a-ST	-0.2033	0.0001	-0.3218
P47	OP1a-ST	-0.2034	-0.0012	-0.3263
P48	OP1a-ST	-0.2033	-0.0027	-0.3223
P49	OP1a-ST	-0.2035	-0.0046	-0.3292
P50	OP1a-ST	-0.2033	0.0048	-0.3438
P51	OP1a-ST	-0.2032	0.0029	-0.3359
P52	OP1a-ST	-0.2034	0.0014	-0.3393
P53	OP1a-ST	-0.2032	0.0001	-0.3338
P54	OP1a-ST	-0.2034	-0.0012	-0.3386
P55	OP1a-ST	-0.2033	-0.0027	-0.3343
P56	OP1a-ST	-0.2035	-0.0045	-0.3414
P57	OP1a-ST	-0.2033	0.0048	-0.3560
P58	OP1a-ST	-0.2028	0.0029	-0.3474
P59	OP1a-ST	-0.2034	0.0015	-0.3516
P60	OP1a-ST	-0.2029	0.0001	-0.3454
P61	OP1a-ST	-0.2034	-0.0012	-0.3508
P62	OP1a-ST	-0.2029	-0.0026	-0.3459
P63	OP1a-ST	-0.2035	-0.0045	-0.3536

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP1b-ST	-0.2076	0.0045	-0.2494
P2	OP1b-ST	-0.1647	0.0028	-0.2723 *
P3	OP1b-ST	-0.1647	0.0012	-0.2749 *
P4	OP1b-ST	-0.2078	-0.0002	-0.2395
P5	OP1b-ST	-0.1649	-0.0015	-0.2741 *
P6	OP1b-ST	-0.1651	-0.0031	-0.2707 *
P7	OP1b-ST	-0.2078	-0.0048	-0.2468
P8	OP1b-ST	-0.2076	0.0046	-0.2582
P9	OP1b-ST	-0.1631	0.0028	-0.2811 *
P10	OP1b-ST	-0.1633	0.0012	-0.2837 *
P11	OP1b-ST	-0.2076	-0.0001	-0.2485
P12	OP1b-ST	-0.1634	-0.0014	-0.2829 *
P13	OP1b-ST	-0.1635	-0.0030	-0.2795 *
P14	OP1b-ST	-0.2078	-0.0048	-0.2556
P15	OP1b-ST	-0.2076	0.0046	-0.2669
P16	OP1b-ST	-0.2075	0.0028	-0.2595
P17	OP1b-ST	-0.2077	0.0012	-0.2618
P18	OP1b-ST	-0.2076	-0.0001	-0.2573
P19	OP1b-ST	-0.2077	-0.0014	-0.2610
P20	OP1b-ST	-0.2076	-0.0030	-0.2579
P21	OP1b-ST	-0.2078	-0.0047	-0.2644
P22	OP1b-ST	-0.2076	0.0047	-0.2757
P23	OP1b-ST	-0.2075	0.0028	-0.2682
P24	OP1b-ST	-0.2077	0.0013	-0.2707
P25	OP1b-ST	-0.2076	0.0000	-0.2660
P26	OP1b-ST	-0.2077	-0.0014	-0.2699
P27	OP1b-ST	-0.2076	-0.0029	-0.2666
P28	OP1b-ST	-0.2078	-0.0047	-0.2732
P29	OP1b-ST	-0.2076	0.0047	-0.2844
P30	OP1b-ST	-0.2075	0.0029	-0.2769
P31	OP1b-ST	-0.2077	0.0013	-0.2795
P32	OP1b-ST	-0.2076	0.0000	-0.2747
P33	OP1b-ST	-0.2077	-0.0013	-0.2787
P34	OP1b-ST	-0.2076	-0.0029	-0.2753
P35	OP1b-ST	-0.2078	-0.0047	-0.2819
P36	OP1b-ST	-0.2076	0.0048	-0.2932
P37	OP1b-ST	-0.2075	0.0029	-0.2855
P38	OP1b-ST	-0.2077	0.0013	-0.2883
P39	OP1b-ST	-0.2076	0.0000	-0.2834
P40	OP1b-ST	-0.2077	-0.0013	-0.2876
P41	OP1b-ST	-0.2076	-0.0028	-0.2840
P42	OP1b-ST	-0.2078	-0.0047	-0.2907
P43	OP1b-ST	-0.2076	0.0048	-0.3019
P44	OP1b-ST	-0.2075	0.0029	-0.2942
P45	OP1b-ST	-0.2077	0.0014	-0.2972
P46	OP1b-ST	-0.2076	0.0001	-0.2921
P47	OP1b-ST	-0.2077	-0.0013	-0.2964
P48	OP1b-ST	-0.2076	-0.0028	-0.2927
P49	OP1b-ST	-0.2078	-0.0046	-0.2995
P50	OP1b-ST	-0.2076	0.0049	-0.3107
P51	OP1b-ST	-0.2075	0.0029	-0.3028
P52	OP1b-ST	-0.2077	0.0014	-0.3060
P53	OP1b-ST	-0.2075	0.0001	-0.3008
P54	OP1b-ST	-0.2077	-0.0012	-0.3052
P55	OP1b-ST	-0.2076	-0.0027	-0.3013
P56	OP1b-ST	-0.2078	-0.0046	-0.3083
P57	OP1b-ST	-0.2076	0.0049	-0.3194
P58	OP1b-ST	-0.2071	0.0029	-0.3110
P59	OP1b-ST	-0.2077	0.0015	-0.3149
P60	OP1b-ST	-0.2072	0.0001	-0.3090
P61	OP1b-ST	-0.2077	-0.0012	-0.3141
P62	OP1b-ST	-0.2072	-0.0027	-0.3095
P63	OP1b-ST	-0.2078	-0.0046	-0.3171

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP2a-ST	-0.1603	0.0044	-0.2665
P2	OP2a-ST	-0.1152	0.0028	-0.2813 *
P3	OP2a-ST	-0.1152	0.0011	-0.2841 *
P4	OP2a-ST	-0.1605	-0.0002	-0.2564
P5	OP2a-ST	-0.1154	-0.0014	-0.2833 *
P6	OP2a-ST	-0.1156	-0.0030	-0.2797 *
P7	OP2a-ST	-0.1605	-0.0047	-0.2639
P8	OP2a-ST	-0.1603	0.0045	-0.2777
P9	OP2a-ST	-0.1132	0.0028	-0.2925 *
P10	OP2a-ST	-0.1134	0.0012	-0.2953 *
P11	OP2a-ST	-0.1603	-0.0001	-0.2679
P12	OP2a-ST	-0.1135	-0.0014	-0.2945 *
P13	OP2a-ST	-0.1136	-0.0030	-0.2910 *
P14	OP2a-ST	-0.1605	-0.0047	-0.2751
P15	OP2a-ST	-0.1603	0.0045	-0.2889
P16	OP2a-ST	-0.1602	0.0028	-0.2815
P17	OP2a-ST	-0.1604	0.0012	-0.2839
P18	OP2a-ST	-0.1603	-0.0001	-0.2793
P19	OP2a-ST	-0.1604	-0.0014	-0.2831
P20	OP2a-ST	-0.1604	-0.0029	-0.2799
P21	OP2a-ST	-0.1605	-0.0046	-0.2863
P22	OP2a-ST	-0.1603	0.0046	-0.3001
P23	OP2a-ST	-0.1602	0.0028	-0.2927
P24	OP2a-ST	-0.1604	0.0012	-0.2952
P25	OP2a-ST	-0.1603	0.0000	-0.2905
P26	OP2a-ST	-0.1604	-0.0013	-0.2944
P27	OP2a-ST	-0.1604	-0.0029	-0.2911
P28	OP2a-ST	-0.1605	-0.0046	-0.2975
P29	OP2a-ST	-0.1603	0.0046	-0.3112
P30	OP2a-ST	-0.1602	0.0028	-0.3037
P31	OP2a-ST	-0.1604	0.0013	-0.3065
P32	OP2a-ST	-0.1603	0.0000	-0.3016
P33	OP2a-ST	-0.1604	-0.0013	-0.3057
P34	OP2a-ST	-0.1604	-0.0028	-0.3022
P35	OP2a-ST	-0.1605	-0.0046	-0.3088
P36	OP2a-ST	-0.1603	0.0046	-0.3224
P37	OP2a-ST	-0.1602	0.0028	-0.3148
P38	OP2a-ST	-0.1604	0.0013	-0.3178
P39	OP2a-ST	-0.1603	0.0000	-0.3127
P40	OP2a-ST	-0.1604	-0.0013	-0.3170
P41	OP2a-ST	-0.1604	-0.0027	-0.3132
P42	OP2a-ST	-0.1605	-0.0045	-0.3200
P43	OP2a-ST	-0.1603	0.0047	-0.3336
P44	OP2a-ST	-0.1602	0.0028	-0.3259
P45	OP2a-ST	-0.1604	0.0013	-0.3291
P46	OP2a-ST	-0.1603	0.0001	-0.3238
P47	OP2a-ST	-0.1604	-0.0012	-0.3283
P48	OP2a-ST	-0.1603	-0.0027	-0.3243
P49	OP2a-ST	-0.1605	-0.0045	-0.3312
P50	OP2a-ST	-0.1603	0.0047	-0.3448
P51	OP2a-ST	-0.1602	0.0028	-0.3369
P52	OP2a-ST	-0.1604	0.0014	-0.3403
P53	OP2a-ST	-0.1602	0.0001	-0.3349
P54	OP2a-ST	-0.1604	-0.0012	-0.3396
P55	OP2a-ST	-0.1603	-0.0026	-0.3354
P56	OP2a-ST	-0.1605	-0.0045	-0.3424
P57	OP2a-ST	-0.1603	0.0048	-0.3560
P58	OP2a-ST	-0.1598	0.0028	-0.3474
P59	OP2a-ST	-0.1604	0.0014	-0.3516
P60	OP2a-ST	-0.1599	0.0001	-0.3455
P61	OP2a-ST	-0.1604	-0.0011	-0.3509
P62	OP2a-ST	-0.1600	-0.0026	-0.3459
P63	OP2a-ST	-0.1605	-0.0044	-0.3536

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP2b-ST	-0.1657	0.0045	-0.2551
P2	OP2b-ST	-0.1224	0.0028	-0.2710 *
P3	OP2b-ST	-0.1224	0.0011	-0.2737 *
P4	OP2b-ST	-0.1659	-0.0002	-0.2451
P5	OP2b-ST	-0.1226	-0.0015	-0.2729 *
P6	OP2b-ST	-0.1227	-0.0030	-0.2695 *
P7	OP2b-ST	-0.1658	-0.0048	-0.2526
P8	OP2b-ST	-0.1657	0.0046	-0.2621
P9	OP2b-ST	-0.1211	0.0028	-0.2781 *
P10	OP2b-ST	-0.1212	0.0012	-0.2806 *
P11	OP2b-ST	-0.1657	-0.0001	-0.2524
P12	OP2b-ST	-0.1214	-0.0014	-0.2799 *
P13	OP2b-ST	-0.1214	-0.0030	-0.2765 *
P14	OP2b-ST	-0.1658	-0.0047	-0.2595
P15	OP2b-ST	-0.1657	0.0046	-0.2690
P16	OP2b-ST	-0.1656	0.0028	-0.2616
P17	OP2b-ST	-0.1657	0.0012	-0.2639
P18	OP2b-ST	-0.1656	-0.0001	-0.2593
P19	OP2b-ST	-0.1658	-0.0014	-0.2631
P20	OP2b-ST	-0.1657	-0.0029	-0.2600
P21	OP2b-ST	-0.1658	-0.0047	-0.2665
P22	OP2b-ST	-0.1657	0.0046	-0.2759
P23	OP2b-ST	-0.1656	0.0028	-0.2684
P24	OP2b-ST	-0.1657	0.0012	-0.2709
P25	OP2b-ST	-0.1656	0.0000	-0.2662
P26	OP2b-ST	-0.1658	-0.0013	-0.2701
P27	OP2b-ST	-0.1657	-0.0029	-0.2669
P28	OP2b-ST	-0.1658	-0.0047	-0.2734
P29	OP2b-ST	-0.1657	0.0047	-0.2828
P30	OP2b-ST	-0.1656	0.0028	-0.2753
P31	OP2b-ST	-0.1657	0.0013	-0.2779
P32	OP2b-ST	-0.1656	0.0000	-0.2731
P33	OP2b-ST	-0.1658	-0.0013	-0.2771
P34	OP2b-ST	-0.1657	-0.0028	-0.2737
P35	OP2b-ST	-0.1658	-0.0046	-0.2804
P36	OP2b-ST	-0.1657	0.0047	-0.2898
P37	OP2b-ST	-0.1656	0.0028	-0.2822
P38	OP2b-ST	-0.1657	0.0013	-0.2849
P39	OP2b-ST	-0.1656	0.0000	-0.2800
P40	OP2b-ST	-0.1658	-0.0013	-0.2842
P41	OP2b-ST	-0.1657	-0.0028	-0.2806
P42	OP2b-ST	-0.1658	-0.0046	-0.2873
P43	OP2b-ST	-0.1657	0.0048	-0.2967
P44	OP2b-ST	-0.1656	0.0029	-0.2890
P45	OP2b-ST	-0.1657	0.0014	-0.2919
P46	OP2b-ST	-0.1656	0.0001	-0.2869
P47	OP2b-ST	-0.1658	-0.0012	-0.2912
P48	OP2b-ST	-0.1657	-0.0027	-0.2875
P49	OP2b-ST	-0.1658	-0.0046	-0.2942
P50	OP2b-ST	-0.1657	0.0048	-0.3036
P51	OP2b-ST	-0.1655	0.0029	-0.2958
P52	OP2b-ST	-0.1657	0.0014	-0.2989
P53	OP2b-ST	-0.1656	0.0001	-0.2938
P54	OP2b-ST	-0.1658	-0.0012	-0.2982
P55	OP2b-ST	-0.1657	-0.0027	-0.2943
P56	OP2b-ST	-0.1658	-0.0045	-0.3012
P57	OP2b-ST	-0.1657	0.0048	-0.3105
P58	OP2b-ST	-0.1652	0.0029	-0.3022
P59	OP2b-ST	-0.1657	0.0014	-0.3059
P60	OP2b-ST	-0.1653	0.0001	-0.3002
P61	OP2b-ST	-0.1658	-0.0012	-0.3052
P62	OP2b-ST	-0.1653	-0.0026	-0.3007
P63	OP2b-ST	-0.1658	-0.0045	-0.3081

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Displacements
SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP3a-ST	-0.1503	0.0044	-0.2659	
P2	OP3a-ST	-0.1055	0.0027	-0.2791	*
P3	OP3a-ST	-0.1055	0.0011	-0.2820	*
P4	OP3a-ST	-0.1506	-0.0002	-0.2559	
P5	OP3a-ST	-0.1057	-0.0014	-0.2812	*
P6	OP3a-ST	-0.1059	-0.0030	-0.2775	*
P7	OP3a-ST	-0.1505	-0.0047	-0.2633	
P8	OP3a-ST	-0.1503	0.0044	-0.2771	
P9	OP3a-ST	-0.1035	0.0027	-0.2904	*
P10	OP3a-ST	-0.1036	0.0012	-0.2932	*
P11	OP3a-ST	-0.1504	-0.0001	-0.2674	
P12	OP3a-ST	-0.1038	-0.0014	-0.2924	*
P13	OP3a-ST	-0.1039	-0.0030	-0.2889	*
P14	OP3a-ST	-0.1505	-0.0046	-0.2746	
P15	OP3a-ST	-0.1503	0.0045	-0.2884	
P16	OP3a-ST	-0.1503	0.0028	-0.2811	
P17	OP3a-ST	-0.1504	0.0012	-0.2835	
P18	OP3a-ST	-0.1504	-0.0001	-0.2789	
P19	OP3a-ST	-0.1504	-0.0014	-0.2827	
P20	OP3a-ST	-0.1504	-0.0029	-0.2795	
P21	OP3a-ST	-0.1505	-0.0046	-0.2859	
P22	OP3a-ST	-0.1503	0.0045	-0.2997	
P23	OP3a-ST	-0.1503	0.0028	-0.2923	
P24	OP3a-ST	-0.1504	0.0012	-0.2949	
P25	OP3a-ST	-0.1503	0.0000	-0.2901	
P26	OP3a-ST	-0.1504	-0.0013	-0.2941	
P27	OP3a-ST	-0.1504	-0.0028	-0.2907	
P28	OP3a-ST	-0.1505	-0.0046	-0.2972	
P29	OP3a-ST	-0.1503	0.0046	-0.3109	
P30	OP3a-ST	-0.1503	0.0028	-0.3035	
P31	OP3a-ST	-0.1504	0.0013	-0.3062	
P32	OP3a-ST	-0.1503	0.0000	-0.3013	
P33	OP3a-ST	-0.1504	-0.0013	-0.3054	
P34	OP3a-ST	-0.1504	-0.0028	-0.3019	
P35	OP3a-ST	-0.1505	-0.0045	-0.3084	
P36	OP3a-ST	-0.1503	0.0046	-0.3222	
P37	OP3a-ST	-0.1503	0.0028	-0.3146	
P38	OP3a-ST	-0.1504	0.0013	-0.3176	
P39	OP3a-ST	-0.1503	0.0000	-0.3125	
P40	OP3a-ST	-0.1504	-0.0013	-0.3168	
P41	OP3a-ST	-0.1504	-0.0027	-0.3130	
P42	OP3a-ST	-0.1505	-0.0045	-0.3197	
P43	OP3a-ST	-0.1503	0.0046	-0.3334	
P44	OP3a-ST	-0.1503	0.0028	-0.3257	
P45	OP3a-ST	-0.1504	0.0013	-0.3289	
P46	OP3a-ST	-0.1503	0.0001	-0.3237	
P47	OP3a-ST	-0.1504	-0.0012	-0.3281	
P48	OP3a-ST	-0.1504	-0.0027	-0.3242	
P49	OP3a-ST	-0.1505	-0.0045	-0.3310	
P50	OP3a-ST	-0.1503	0.0047	-0.3447	
P51	OP3a-ST	-0.1502	0.0028	-0.3368	
P52	OP3a-ST	-0.1504	0.0014	-0.3403	
P53	OP3a-ST	-0.1503	0.0001	-0.3348	
P54	OP3a-ST	-0.1504	-0.0012	-0.3395	
P55	OP3a-ST	-0.1503	-0.0026	-0.3353	
P56	OP3a-ST	-0.1505	-0.0044	-0.3423	
P57	OP3a-ST	-0.1503	0.0047	-0.3559	
P58	OP3a-ST	-0.1499	0.0028	-0.3474	
P59	OP3a-ST	-0.1504	0.0014	-0.3516	
P60	OP3a-ST	-0.1499	0.0001	-0.3455	
P61	OP3a-ST	-0.1504	-0.0011	-0.3508	
P62	OP3a-ST	-0.1500	-0.0026	-0.3459	
P63	OP3a-ST	-0.1505	-0.0044	-0.3535	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP3b-ST	-0.1561	0.0045	-0.2537	
P2	OP3b-ST	-0.1132	0.0028	-0.2681	*
P3	OP3b-ST	-0.1132	0.0011	-0.2707	*
P4	OP3b-ST	-0.1563	-0.0002	-0.2437	
P5	OP3b-ST	-0.1134	-0.0015	-0.2700	*
P6	OP3b-ST	-0.1136	-0.0030	-0.2665	*
P7	OP3b-ST	-0.1563	-0.0048	-0.2511	
P8	OP3b-ST	-0.1561	0.0045	-0.2603	
P9	OP3b-ST	-0.1119	0.0028	-0.2749	*
P10	OP3b-ST	-0.1121	0.0012	-0.2774	*
P11	OP3b-ST	-0.1561	-0.0001	-0.2507	
P12	OP3b-ST	-0.1123	-0.0014	-0.2766	*
P13	OP3b-ST	-0.1123	-0.0030	-0.2733	*
P14	OP3b-ST	-0.1563	-0.0047	-0.2578	
P15	OP3b-ST	-0.1561	0.0046	-0.2670	
P16	OP3b-ST	-0.1560	0.0028	-0.2596	
P17	OP3b-ST	-0.1561	0.0012	-0.2619	
P18	OP3b-ST	-0.1561	-0.0001	-0.2574	
P19	OP3b-ST	-0.1562	-0.0014	-0.2611	
P20	OP3b-ST	-0.1561	-0.0029	-0.2580	
P21	OP3b-ST	-0.1563	-0.0047	-0.2645	
P22	OP3b-ST	-0.1561	0.0046	-0.2737	
P23	OP3b-ST	-0.1560	0.0028	-0.2662	
P24	OP3b-ST	-0.1561	0.0012	-0.2687	
P25	OP3b-ST	-0.1561	0.0000	-0.2640	
P26	OP3b-ST	-0.1562	-0.0013	-0.2679	
P27	OP3b-ST	-0.1562	-0.0029	-0.2647	
P28	OP3b-ST	-0.1563	-0.0046	-0.2712	
P29	OP3b-ST	-0.1561	0.0047	-0.2803	
P30	OP3b-ST	-0.1560	0.0028	-0.2728	
P31	OP3b-ST	-0.1561	0.0013	-0.2754	
P32	OP3b-ST	-0.1561	0.0000	-0.2707	
P33	OP3b-ST	-0.1562	-0.0013	-0.2746	
P34	OP3b-ST	-0.1562	-0.0028	-0.2713	
P35	OP3b-ST	-0.1563	-0.0046	-0.2778	
P36	OP3b-ST	-0.1561	0.0047	-0.2870	
P37	OP3b-ST	-0.1560	0.0028	-0.2794	
P38	OP3b-ST	-0.1561	0.0013	-0.2822	
P39	OP3b-ST	-0.1561	0.0000	-0.2773	
P40	OP3b-ST	-0.1562	-0.0013	-0.2814	
P41	OP3b-ST	-0.1562	-0.0028	-0.2779	
P42	OP3b-ST	-0.1563	-0.0046	-0.2845	
P43	OP3b-ST	-0.1561	0.0047	-0.2936	
P44	OP3b-ST	-0.1560	0.0028	-0.2860	
P45	OP3b-ST	-0.1561	0.0013	-0.2889	
P46	OP3b-ST	-0.1561	0.0001	-0.2839	
P47	OP3b-ST	-0.1562	-0.0012	-0.2881	
P48	OP3b-ST	-0.1561	-0.0027	-0.2845	
P49	OP3b-ST	-0.1563	-0.0045	-0.2912	
P50	OP3b-ST	-0.1561	0.0048	-0.3003	
P51	OP3b-ST	-0.1560	0.0029	-0.2926	
P52	OP3b-ST	-0.1561	0.0014	-0.2956	
P53	OP3b-ST	-0.1560	0.0001	-0.2905	
P54	OP3b-ST	-0.1562	-0.0012	-0.2949	
P55	OP3b-ST	-0.1561	-0.0027	-0.2911	
P56	OP3b-ST	-0.1563	-0.0045	-0.2979	
P57	OP3b-ST	-0.1561	0.0048	-0.3069	
P58	OP3b-ST	-0.1557	0.0029	-0.2987	
P59	OP3b-ST	-0.1561	0.0014	-0.3024	
P60	OP3b-ST	-0.1557	0.0001	-0.2967	
P61	OP3b-ST	-0.1562	-0.0011	-0.3016	
P62	OP3b-ST	-0.1558	-0.0026	-0.2972	
P63	OP3b-ST	-0.1563	-0.0045	-0.3045	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP4a-ST	-0.1318	0.0043	-0.2648	
P2	OP4a-ST	-0.0874	0.0027	-0.2751	*
P3	OP4a-ST	-0.0873	0.0011	-0.2779	*
P4	OP4a-ST	-0.1320	-0.0002	-0.2549	
P5	OP4a-ST	-0.0875	-0.0015	-0.2771	*
P6	OP4a-ST	-0.0876	-0.0030	-0.2735	*
P7	OP4a-ST	-0.1318	-0.0047	-0.2622	
P8	OP4a-ST	-0.1318	0.0043	-0.2763	
P9	OP4a-ST	-0.0853	0.0026	-0.2866	*
P10	OP4a-ST	-0.0854	0.0011	-0.2893	*
P11	OP4a-ST	-0.1318	-0.0002	-0.2666	
P12	OP4a-ST	-0.0856	-0.0015	-0.2885	*
P13	OP4a-ST	-0.0856	-0.0030	-0.2850	*
P14	OP4a-ST	-0.1318	-0.0047	-0.2737	
P15	OP4a-ST	-0.1318	0.0043	-0.2877	
P16	OP4a-ST	-0.1318	0.0026	-0.2805	
P17	OP4a-ST	-0.1318	0.0011	-0.2829	
P18	OP4a-ST	-0.1318	-0.0002	-0.2783	
P19	OP4a-ST	-0.1318	-0.0015	-0.2821	
P20	OP4a-ST	-0.1318	-0.0030	-0.2789	
P21	OP4a-ST	-0.1318	-0.0047	-0.2852	
P22	OP4a-ST	-0.1318	0.0043	-0.2992	
P23	OP4a-ST	-0.1317	0.0026	-0.2919	
P24	OP4a-ST	-0.1318	0.0011	-0.2944	
P25	OP4a-ST	-0.1317	-0.0002	-0.2897	
P26	OP4a-ST	-0.1318	-0.0015	-0.2936	
P27	OP4a-ST	-0.1318	-0.0030	-0.2903	
P28	OP4a-ST	-0.1318	-0.0047	-0.2966	
P29	OP4a-ST	-0.1318	0.0043	-0.3106	
P30	OP4a-ST	-0.1317	0.0026	-0.3032	
P31	OP4a-ST	-0.1318	0.0011	-0.3060	
P32	OP4a-ST	-0.1317	-0.0002	-0.3011	
P33	OP4a-ST	-0.1318	-0.0015	-0.3052	
P34	OP4a-ST	-0.1318	-0.0029	-0.3016	
P35	OP4a-ST	-0.1318	-0.0047	-0.3081	
P36	OP4a-ST	-0.1318	0.0043	-0.3221	
P37	OP4a-ST	-0.1317	0.0025	-0.3145	
P38	OP4a-ST	-0.1318	0.0011	-0.3175	
P39	OP4a-ST	-0.1317	-0.0002	-0.3125	
P40	OP4a-ST	-0.1318	-0.0015	-0.3167	
P41	OP4a-ST	-0.1318	-0.0029	-0.3130	
P42	OP4a-ST	-0.1318	-0.0047	-0.3196	
P43	OP4a-ST	-0.1318	0.0043	-0.3335	
P44	OP4a-ST	-0.1317	0.0025	-0.3259	
P45	OP4a-ST	-0.1318	0.0011	-0.3290	
P46	OP4a-ST	-0.1317	-0.0002	-0.3238	
P47	OP4a-ST	-0.1318	-0.0015	-0.3283	
P48	OP4a-ST	-0.1317	-0.0029	-0.3243	
P49	OP4a-ST	-0.1318	-0.0047	-0.3310	
P50	OP4a-ST	-0.1318	0.0043	-0.3449	
P51	OP4a-ST	-0.1317	0.0025	-0.3371	
P52	OP4a-ST	-0.1318	0.0011	-0.3406	
P53	OP4a-ST	-0.1317	-0.0002	-0.3352	
P54	OP4a-ST	-0.1318	-0.0015	-0.3398	
P55	OP4a-ST	-0.1317	-0.0029	-0.3356	
P56	OP4a-ST	-0.1318	-0.0047	-0.3425	
P57	OP4a-ST	-0.1318	0.0043	-0.3564	
P58	OP4a-ST	-0.1313	0.0025	-0.3479	
P59	OP4a-ST	-0.1318	0.0011	-0.3521	
P60	OP4a-ST	-0.1313	-0.0002	-0.3460	
P61	OP4a-ST	-0.1318	-0.0015	-0.3513	
P62	OP4a-ST	-0.1314	-0.0029	-0.3464	
P63	OP4a-ST	-0.1318	-0.0047	-0.3539	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP4b-ST	-0.1383	0.0044	-0.2512	
P2	OP4b-ST	-0.0959	0.0027	-0.2628	*
P3	OP4b-ST	-0.0959	0.0011	-0.2654	*
P4	OP4b-ST	-0.1384	-0.0002	-0.2413	
P5	OP4b-ST	-0.0961	-0.0015	-0.2646	*
P6	OP4b-ST	-0.0962	-0.0031	-0.2612	*
P7	OP4b-ST	-0.1383	-0.0048	-0.2486	
P8	OP4b-ST	-0.1383	0.0044	-0.2575	
P9	OP4b-ST	-0.0948	0.0027	-0.2693	*
P10	OP4b-ST	-0.0949	0.0011	-0.2717	*
P11	OP4b-ST	-0.1382	-0.0002	-0.2480	
P12	OP4b-ST	-0.0950	-0.0015	-0.2709	*
P13	OP4b-ST	-0.0950	-0.0030	-0.2677	*
P14	OP4b-ST	-0.1383	-0.0048	-0.2549	
P15	OP4b-ST	-0.1383	0.0044	-0.2638	
P16	OP4b-ST	-0.1382	0.0026	-0.2565	
P17	OP4b-ST	-0.1382	0.0011	-0.2588	
P18	OP4b-ST	-0.1382	-0.0002	-0.2543	
P19	OP4b-ST	-0.1382	-0.0015	-0.2580	
P20	OP4b-ST	-0.1382	-0.0030	-0.2549	
P21	OP4b-ST	-0.1383	-0.0048	-0.2613	
P22	OP4b-ST	-0.1383	0.0044	-0.2701	
P23	OP4b-ST	-0.1382	0.0026	-0.2628	
P24	OP4b-ST	-0.1382	0.0011	-0.2652	
P25	OP4b-ST	-0.1382	-0.0002	-0.2606	
P26	OP4b-ST	-0.1382	-0.0015	-0.2644	
P27	OP4b-ST	-0.1382	-0.0030	-0.2612	
P28	OP4b-ST	-0.1383	-0.0048	-0.2676	
P29	OP4b-ST	-0.1383	0.0044	-0.2764	
P30	OP4b-ST	-0.1382	0.0026	-0.2690	
P31	OP4b-ST	-0.1382	0.0011	-0.2716	
P32	OP4b-ST	-0.1382	-0.0002	-0.2669	
P33	OP4b-ST	-0.1382	-0.0015	-0.2708	
P34	OP4b-ST	-0.1382	-0.0030	-0.2674	
P35	OP4b-ST	-0.1383	-0.0048	-0.2739	
P36	OP4b-ST	-0.1383	0.0044	-0.2827	
P37	OP4b-ST	-0.1382	0.0026	-0.2753	
P38	OP4b-ST	-0.1382	0.0011	-0.2780	
P39	OP4b-ST	-0.1382	-0.0002	-0.2732	
P40	OP4b-ST	-0.1382	-0.0015	-0.2772	
P41	OP4b-ST	-0.1382	-0.0030	-0.2737	
P42	OP4b-ST	-0.1383	-0.0048	-0.2803	
P43	OP4b-ST	-0.1383	0.0044	-0.2891	
P44	OP4b-ST	-0.1382	0.0026	-0.2815	
P45	OP4b-ST	-0.1382	0.0011	-0.2844	
P46	OP4b-ST	-0.1382	-0.0002	-0.2795	
P47	OP4b-ST	-0.1382	-0.0015	-0.2836	
P48	OP4b-ST	-0.1382	-0.0029	-0.2800	
P49	OP4b-ST	-0.1383	-0.0048	-0.2866	
P50	OP4b-ST	-0.1383	0.0044	-0.2954	
P51	OP4b-ST	-0.1381	0.0025	-0.2878	
P52	OP4b-ST	-0.1382	0.0011	-0.2908	
P53	OP4b-ST	-0.1381	-0.0002	-0.2857	
P54	OP4b-ST	-0.1382	-0.0015	-0.2900	
P55	OP4b-ST	-0.1381	-0.0029	-0.2862	
P56	OP4b-ST	-0.1383	-0.0048	-0.2929	
P57	OP4b-ST	-0.1383	0.0044	-0.3017	
P58	OP4b-ST	-0.1378	0.0025	-0.2936	
P59	OP4b-ST	-0.1382	0.0011	-0.2971	
P60	OP4b-ST	-0.1378	-0.0002	-0.2916	
P61	OP4b-ST	-0.1382	-0.0015	-0.2964	
P62	OP4b-ST	-0.1378	-0.0029	-0.2920	
P63	OP4b-ST	-0.1383	-0.0048	-0.2992	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP5a-ST	-0.1037	0.0039	-0.2634	
P2	OP5a-ST	-0.0597	0.0023	-0.2692	*
P3	OP5a-ST	-0.0595	0.0007	-0.2718	*
P4	OP5a-ST	-0.1033	-0.0005	-0.2534	
P5	OP5a-ST	-0.0593	-0.0018	-0.2709	*
P6	OP5a-ST	-0.0593	-0.0033	-0.2673	*
P7	OP5a-ST	-0.1027	-0.0049	-0.2605	
P8	OP5a-ST	-0.1037	0.0037	-0.2750	
P9	OP5a-ST	-0.0576	0.0021	-0.2808	*
P10	OP5a-ST	-0.0575	0.0005	-0.2834	*
P11	OP5a-ST	-0.1032	-0.0007	-0.2654	
P12	OP5a-ST	-0.0574	-0.0020	-0.2825	*
P13	OP5a-ST	-0.0573	-0.0035	-0.2790	*
P14	OP5a-ST	-0.1027	-0.0051	-0.2722	
P15	OP5a-ST	-0.1037	0.0035	-0.2866	
P16	OP5a-ST	-0.1035	0.0018	-0.2795	
P17	OP5a-ST	-0.1034	0.0003	-0.2818	
P18	OP5a-ST	-0.1032	-0.0010	-0.2772	
P19	OP5a-ST	-0.1030	-0.0022	-0.2809	
P20	OP5a-ST	-0.1028	-0.0037	-0.2777	
P21	OP5a-ST	-0.1027	-0.0054	-0.2838	
P22	OP5a-ST	-0.1037	0.0033	-0.2982	
P23	OP5a-ST	-0.1035	0.0016	-0.2911	
P24	OP5a-ST	-0.1034	0.0001	-0.2935	
P25	OP5a-ST	-0.1031	-0.0012	-0.2888	
P26	OP5a-ST	-0.1030	-0.0024	-0.2926	
P27	OP5a-ST	-0.1028	-0.0039	-0.2893	
P28	OP5a-ST	-0.1027	-0.0056	-0.2955	
P29	OP5a-ST	-0.1037	0.0031	-0.3099	
P30	OP5a-ST	-0.1035	0.0013	-0.3026	
P31	OP5a-ST	-0.1034	-0.0001	-0.3052	
P32	OP5a-ST	-0.1031	-0.0014	-0.3004	
P33	OP5a-ST	-0.1030	-0.0026	-0.3044	
P34	OP5a-ST	-0.1028	-0.0041	-0.3008	
P35	OP5a-ST	-0.1027	-0.0058	-0.3071	
P36	OP5a-ST	-0.1037	0.0028	-0.3215	
P37	OP5a-ST	-0.1035	0.0011	-0.3141	
P38	OP5a-ST	-0.1033	-0.0004	-0.3170	
P39	OP5a-ST	-0.1031	-0.0016	-0.3119	
P40	OP5a-ST	-0.1030	-0.0029	-0.3161	
P41	OP5a-ST	-0.1028	-0.0043	-0.3123	
P42	OP5a-ST	-0.1027	-0.0060	-0.3188	
P43	OP5a-ST	-0.1037	0.0026	-0.3331	
P44	OP5a-ST	-0.1035	0.0008	-0.3255	
P45	OP5a-ST	-0.1033	-0.0006	-0.3287	
P46	OP5a-ST	-0.1031	-0.0018	-0.3235	
P47	OP5a-ST	-0.1030	-0.0031	-0.3278	
P48	OP5a-ST	-0.1028	-0.0045	-0.3238	
P49	OP5a-ST	-0.1027	-0.0062	-0.3304	
P50	OP5a-ST	-0.1037	0.0024	-0.3447	
P51	OP5a-ST	-0.1034	0.0006	-0.3370	
P52	OP5a-ST	-0.1033	-0.0008	-0.3404	
P53	OP5a-ST	-0.1031	-0.0020	-0.3350	
P54	OP5a-ST	-0.1030	-0.0033	-0.3395	
P55	OP5a-ST	-0.1027	-0.0047	-0.3353	
P56	OP5a-ST	-0.1027	-0.0064	-0.3421	
P57	OP5a-ST	-0.1037	0.0022	-0.3563	
P58	OP5a-ST	-0.1031	0.0003	-0.3480	
P59	OP5a-ST	-0.1033	-0.0010	-0.3521	
P60	OP5a-ST	-0.1027	-0.0023	-0.3460	
P61	OP5a-ST	-0.1030	-0.0035	-0.3512	
P62	OP5a-ST	-0.1024	-0.0049	-0.3463	
P63	OP5a-ST	-0.1027	-0.0066	-0.3537	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP5b-ST	-0.1110	0.0041	-0.2478	
P2	OP5b-ST	-0.0695	0.0023	-0.2551	*
P3	OP5b-ST	-0.0693	0.0008	-0.2575	*
P4	OP5b-ST	-0.1107	-0.0005	-0.2380	
P5	OP5b-ST	-0.0691	-0.0018	-0.2566	*
P6	OP5b-ST	-0.0691	-0.0034	-0.2533	*
P7	OP5b-ST	-0.1100	-0.0050	-0.2450	
P8	OP5b-ST	-0.1110	0.0038	-0.2536	
P9	OP5b-ST	-0.0684	0.0021	-0.2611	*
P10	OP5b-ST	-0.0683	0.0005	-0.2633	*
P11	OP5b-ST	-0.1105	-0.0007	-0.2441	
P12	OP5b-ST	-0.0681	-0.0020	-0.2624	*
P13	OP5b-ST	-0.0680	-0.0035	-0.2592	*
P14	OP5b-ST	-0.1100	-0.0053	-0.2508	
P15	OP5b-ST	-0.1110	0.0036	-0.2594	
P16	OP5b-ST	-0.1108	0.0019	-0.2522	
P17	OP5b-ST	-0.1107	0.0003	-0.2544	
P18	OP5b-ST	-0.1104	-0.0010	-0.2499	
P19	OP5b-ST	-0.1103	-0.0022	-0.2535	
P20	OP5b-ST	-0.1101	-0.0037	-0.2504	
P21	OP5b-ST	-0.1100	-0.0055	-0.2566	
P22	OP5b-ST	-0.1110	0.0034	-0.2651	
P23	OP5b-ST	-0.1108	0.0016	-0.2579	
P24	OP5b-ST	-0.1107	0.0001	-0.2602	
P25	OP5b-ST	-0.1104	-0.0012	-0.2556	
P26	OP5b-ST	-0.1103	-0.0024	-0.2593	
P27	OP5b-ST	-0.1101	-0.0039	-0.2561	
P28	OP5b-ST	-0.1100	-0.0057	-0.2624	
P29	OP5b-ST	-0.1110	0.0032	-0.2709	
P30	OP5b-ST	-0.1108	0.0014	-0.2636	
P31	OP5b-ST	-0.1107	-0.0001	-0.2661	
P32	OP5b-ST	-0.1104	-0.0014	-0.2614	
P33	OP5b-ST	-0.1103	-0.0027	-0.2652	
P34	OP5b-ST	-0.1101	-0.0041	-0.2619	
P35	OP5b-ST	-0.1100	-0.0059	-0.2682	
P36	OP5b-ST	-0.1110	0.0030	-0.2767	
P37	OP5b-ST	-0.1108	0.0011	-0.2693	
P38	OP5b-ST	-0.1107	-0.0003	-0.2719	
P39	OP5b-ST	-0.1104	-0.0016	-0.2671	
P40	OP5b-ST	-0.1103	-0.0029	-0.2710	
P41	OP5b-ST	-0.1101	-0.0043	-0.2676	
P42	OP5b-ST	-0.1100	-0.0061	-0.2740	
P43	OP5b-ST	-0.1110	0.0027	-0.2825	
P44	OP5b-ST	-0.1108	0.0009	-0.2750	
P45	OP5b-ST	-0.1107	-0.0006	-0.2778	
P46	OP5b-ST	-0.1104	-0.0018	-0.2729	
P47	OP5b-ST	-0.1103	-0.0031	-0.2769	
P48	OP5b-ST	-0.1101	-0.0045	-0.2733	
P49	OP5b-ST	-0.1100	-0.0063	-0.2798	
P50	OP5b-ST	-0.1110	0.0025	-0.2882	
P51	OP5b-ST	-0.1107	0.0007	-0.2807	
P52	OP5b-ST	-0.1107	-0.0008	-0.2836	
P53	OP5b-ST	-0.1104	-0.0020	-0.2786	
P54	OP5b-ST	-0.1103	-0.0033	-0.2827	
P55	OP5b-ST	-0.1101	-0.0047	-0.2790	
P56	OP5b-ST	-0.1100	-0.0065	-0.2855	
P57	OP5b-ST	-0.1110	0.0023	-0.2940	
P58	OP5b-ST	-0.1104	0.0004	-0.2860	
P59	OP5b-ST	-0.1107	-0.0010	-0.2894	
P60	OP5b-ST	-0.1101	-0.0023	-0.2840	
P61	OP5b-ST	-0.1103	-0.0035	-0.2886	
P62	OP5b-ST	-0.1098	-0.0049	-0.2843	
P63	OP5b-ST	-0.1100	-0.0067	-0.2913	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	OP6a-ST	-0.0934	0.0038	-0.2630	
P2	OP6a-ST	-0.0495	0.0021	-0.2671	*
P3	OP6a-ST	-0.0492	0.0006	-0.2697	*
P4	OP6a-ST	-0.0927	-0.0007	-0.2530	
P5	OP6a-ST	-0.0488	-0.0020	-0.2687	*
P6	OP6a-ST	-0.0488	-0.0035	-0.2651	*
P7	OP6a-ST	-0.0918	-0.0051	-0.2600	
P8	OP6a-ST	-0.0934	0.0034	-0.2747	
P9	OP6a-ST	-0.0474	0.0018	-0.2789	*
P10	OP6a-ST	-0.0472	0.0002	-0.2813	*
P11	OP6a-ST	-0.0926	-0.0010	-0.2650	
P12	OP6a-ST	-0.0469	-0.0023	-0.2803	*
P13	OP6a-ST	-0.0467	-0.0038	-0.2769	*
P14	OP6a-ST	-0.0918	-0.0054	-0.2718	
P15	OP6a-ST	-0.0934	0.0031	-0.2865	
P16	OP6a-ST	-0.0931	0.0014	-0.2793	
P17	OP6a-ST	-0.0929	-0.0001	-0.2816	
P18	OP6a-ST	-0.0926	-0.0014	-0.2770	
P19	OP6a-ST	-0.0923	-0.0026	-0.2807	
P20	OP6a-ST	-0.0920	-0.0041	-0.2774	
P21	OP6a-ST	-0.0918	-0.0058	-0.2836	
P22	OP6a-ST	-0.0934	0.0028	-0.2982	
P23	OP6a-ST	-0.0931	0.0011	-0.2910	
P24	OP6a-ST	-0.0929	-0.0004	-0.2934	
P25	OP6a-ST	-0.0925	-0.0017	-0.2887	
P26	OP6a-ST	-0.0923	-0.0030	-0.2925	
P27	OP6a-ST	-0.0920	-0.0044	-0.2892	
P28	OP6a-ST	-0.0918	-0.0061	-0.2953	
P29	OP6a-ST	-0.0934	0.0024	-0.3100	
P30	OP6a-ST	-0.0931	0.0007	-0.3026	
P31	OP6a-ST	-0.0929	-0.0008	-0.3053	
P32	OP6a-ST	-0.0925	-0.0020	-0.3004	
P33	OP6a-ST	-0.0923	-0.0033	-0.3044	
P34	OP6a-ST	-0.0920	-0.0048	-0.3008	
P35	OP6a-ST	-0.0918	-0.0065	-0.3071	
P36	OP6a-ST	-0.0934	0.0021	-0.3217	
P37	OP6a-ST	-0.0931	0.0003	-0.3142	
P38	OP6a-ST	-0.0929	-0.0011	-0.3171	
P39	OP6a-ST	-0.0925	-0.0024	-0.3120	
P40	OP6a-ST	-0.0923	-0.0036	-0.3162	
P41	OP6a-ST	-0.0920	-0.0051	-0.3124	
P42	OP6a-ST	-0.0918	-0.0068	-0.3189	
P43	OP6a-ST	-0.0934	0.0018	-0.3335	
P44	OP6a-ST	-0.0931	0.0000	-0.3259	
P45	OP6a-ST	-0.0929	-0.0014	-0.3290	
P46	OP6a-ST	-0.0925	-0.0027	-0.3237	
P47	OP6a-ST	-0.0923	-0.0040	-0.3

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Displacements
SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP6b-ST	-0.1010	0.0039	-0.2468
P2	OP6b-ST	-0.0597	0.0022	-0.2525 *
P3	OP6b-ST	-0.0594	0.0006	-0.2548 *
P4	OP6b-ST	-0.1004	-0.0007	-0.2369
P5	OP6b-ST	-0.0590	-0.0020	-0.2538 *
P6	OP6b-ST	-0.0590	-0.0035	-0.2505 *
P7	OP6b-ST	-0.0995	-0.0052	-0.2438
P8	OP6b-ST	-0.1010	0.0036	-0.2525
P9	OP6b-ST	-0.0586	0.0018	-0.2583 *
P10	OP6b-ST	-0.0585	0.0003	-0.2605 *
P11	OP6b-ST	-0.1002	-0.0010	-0.2429
P12	OP6b-ST	-0.0581	-0.0023	-0.2595 *
P13	OP6b-ST	-0.0579	-0.0038	-0.2563 *
P14	OP6b-ST	-0.0995	-0.0056	-0.2495
P15	OP6b-ST	-0.1010	0.0032	-0.2581
P16	OP6b-ST	-0.1007	0.0015	-0.2508
P17	OP6b-ST	-0.1005	-0.0001	-0.2530
P18	OP6b-ST	-0.1002	-0.0014	-0.2485
P19	OP6b-ST	-0.1000	-0.0027	-0.2521
P20	OP6b-ST	-0.0996	-0.0042	-0.2490
P21	OP6b-ST	-0.0995	-0.0059	-0.2552
P22	OP6b-ST	-0.1010	0.0029	-0.2638
P23	OP6b-ST	-0.1007	0.0011	-0.2564
P24	OP6b-ST	-0.1005	-0.0004	-0.2588
P25	OP6b-ST	-0.1002	-0.0017	-0.2541
P26	OP6b-ST	-0.1000	-0.0030	-0.2579
P27	OP6b-ST	-0.0996	-0.0045	-0.2546
P28	OP6b-ST	-0.0995	-0.0062	-0.2609
P29	OP6b-ST	-0.1010	0.0026	-0.2694
P30	OP6b-ST	-0.1007	0.0008	-0.2620
P31	OP6b-ST	-0.1005	-0.0008	-0.2645
P32	OP6b-ST	-0.1002	-0.0020	-0.2597
P33	OP6b-ST	-0.1000	-0.0033	-0.2636
P34	OP6b-ST	-0.0996	-0.0048	-0.2602
P35	OP6b-ST	-0.0995	-0.0066	-0.2666
P36	OP6b-ST	-0.1010	0.0022	-0.2751
P37	OP6b-ST	-0.1007	0.0004	-0.2677
P38	OP6b-ST	-0.1005	-0.0011	-0.2702
P39	OP6b-ST	-0.1002	-0.0024	-0.2654
P40	OP6b-ST	-0.1000	-0.0037	-0.2693
P41	OP6b-ST	-0.0996	-0.0051	-0.2659
P42	OP6b-ST	-0.0995	-0.0069	-0.2723
P43	OP6b-ST	-0.1010	0.0019	-0.2808
P44	OP6b-ST	-0.1007	0.0000	-0.2733
P45	OP6b-ST	-0.1005	-0.0014	-0.2760
P46	OP6b-ST	-0.1001	-0.0027	-0.2710
P47	OP6b-ST	-0.1000	-0.0040	-0.2751
P48	OP6b-ST	-0.0996	-0.0055	-0.2715
P49	OP6b-ST	-0.0995	-0.0072	-0.2779
P50	OP6b-ST	-0.1010	0.0016	-0.2864
P51	OP6b-ST	-0.1007	-0.0003	-0.2788
P52	OP6b-ST	-0.1005	-0.0018	-0.2817
P53	OP6b-ST	-0.1001	-0.0030	-0.2767
P54	OP6b-ST	-0.1000	-0.0043	-0.2808
P55	OP6b-ST	-0.0996	-0.0058	-0.2771
P56	OP6b-ST	-0.0995	-0.0076	-0.2836
P57	OP6b-ST	-0.1010	0.0012	-0.2921
P58	OP6b-ST	-0.1003	-0.0007	-0.2840
P59	OP6b-ST	-0.1005	-0.0021	-0.2874
P60	OP6b-ST	-0.0998	-0.0034	-0.2819
P61	OP6b-ST	-0.1000	-0.0047	-0.2865
P62	OP6b-ST	-0.0993	-0.0061	-0.2823
P63	OP6b-ST	-0.0995	-0.0079	-0.2893

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP7a-ST	-0.0934	0.0038	-0.2629
P2	OP7a-ST	-0.0495	0.0021	-0.2670 *
P3	OP7a-ST	-0.0492	0.0006	-0.2696 *
P4	OP7a-ST	-0.0928	-0.0007	-0.2529
P5	OP7a-ST	-0.0489	-0.0020	-0.2686 *
P6	OP7a-ST	-0.0488	-0.0035	-0.2650 *
P7	OP7a-ST	-0.0919	-0.0051	-0.2599
P8	OP7a-ST	-0.0934	0.0034	-0.2746
P9	OP7a-ST	-0.0475	0.0018	-0.2788 *
P10	OP7a-ST	-0.0473	0.0002	-0.2813 *
P11	OP7a-ST	-0.0926	-0.0010	-0.2649
P12	OP7a-ST	-0.0469	-0.0023	-0.2803 *
P13	OP7a-ST	-0.0467	-0.0038	-0.2768 *
P14	OP7a-ST	-0.0919	-0.0054	-0.2717
P15	OP7a-ST	-0.0934	0.0031	-0.2863
P16	OP7a-ST	-0.0931	0.0014	-0.2792
P17	OP7a-ST	-0.0929	-0.0001	-0.2815
P18	OP7a-ST	-0.0926	-0.0014	-0.2769
P19	OP7a-ST	-0.0923	-0.0026	-0.2806
P20	OP7a-ST	-0.0921	-0.0041	-0.2773
P21	OP7a-ST	-0.0919	-0.0058	-0.2834
P22	OP7a-ST	-0.0934	0.0027	-0.2980
P23	OP7a-ST	-0.0931	0.0010	-0.2909
P24	OP7a-ST	-0.0929	-0.0004	-0.2933
P25	OP7a-ST	-0.0926	-0.0017	-0.2886
P26	OP7a-ST	-0.0923	-0.0030	-0.2924
P27	OP7a-ST	-0.0920	-0.0044	-0.2890
P28	OP7a-ST	-0.0919	-0.0061	-0.2951
P29	OP7a-ST	-0.0934	0.0024	-0.3097
P30	OP7a-ST	-0.0931	0.0007	-0.3024
P31	OP7a-ST	-0.0929	-0.0008	-0.3051
P32	OP7a-ST	-0.0926	-0.0020	-0.3002
P33	OP7a-ST	-0.0923	-0.0033	-0.3042
P34	OP7a-ST	-0.0920	-0.0047	-0.3006
P35	OP7a-ST	-0.0919	-0.0064	-0.3069
P36	OP7a-ST	-0.0934	0.0021	-0.3214
P37	OP7a-ST	-0.0931	0.0003	-0.3140
P38	OP7a-ST	-0.0929	-0.0011	-0.3169
P39	OP7a-ST	-0.0925	-0.0024	-0.3118
P40	OP7a-ST	-0.0923	-0.0036	-0.3160
P41	OP7a-ST	-0.0920	-0.0050	-0.3122
P42	OP7a-ST	-0.0919	-0.0067	-0.3186
P43	OP7a-ST	-0.0934	0.0017	-0.3331
P44	OP7a-ST	-0.0931	0.0000	-0.3256
P45	OP7a-ST	-0.0929	-0.0015	-0.3287
P46	OP7a-ST	-0.0925	-0.0027	-0.3235
P47	OP7a-ST	-0.0923	-0.0040	-0.3278
P48	OP7a-ST	-0.0920	-0.0054	-0.3238
P49	OP7a-ST	-0.0918	-0.0071	-0.3303
P50	OP7a-ST	-0.0934	0.0014	-0.3448
P51	OP7a-ST	-0.0930	-0.0004	-0.3371
P52	OP7a-ST	-0.0929	-0.0018	-0.3405
P53	OP7a-ST	-0.0925	-0.0030	-0.3350
P54	OP7a-ST	-0.0923	-0.0043	-0.3396
P55	OP7a-ST	-0.0920	-0.0057	-0.3354
P56	OP7a-ST	-0.0918	-0.0074	-0.3421
P57	OP7a-ST	-0.0934	0.0010	-0.3565
P58	OP7a-ST	-0.0927	-0.0008	-0.3482
P59	OP7a-ST	-0.0929	-0.0021	-0.3523
P60	OP7a-ST	-0.0922	-0.0034	-0.3462
P61	OP7a-ST	-0.0923	-0.0046	-0.3514
P62	OP7a-ST	-0.0917	-0.0060	-0.3464
P63	OP7a-ST	-0.0918	-0.0077	-0.3538

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP7b-ST	-0.1011	0.0039	-0.2467
P2	OP7b-ST	-0.0597	0.0022	-0.2524 *
P3	OP7b-ST	-0.0594	0.0006	-0.2548 *
P4	OP7b-ST	-0.1004	-0.0007	-0.2369
P5	OP7b-ST	-0.0591	-0.0020	-0.2538 *
P6	OP7b-ST	-0.0590	-0.0035	-0.2504 *
P7	OP7b-ST	-0.0995	-0.0052	-0.2438
P8	OP7b-ST	-0.1011	0.0035	-0.2524
P9	OP7b-ST	-0.0586	0.0018	-0.2582 *
P10	OP7b-ST	-0.0585	0.0002	-0.2604 *
P11	OP7b-ST	-0.1002	-0.0010	-0.2428
P12	OP7b-ST	-0.0581	-0.0023	-0.2594 *
P13	OP7b-ST	-0.0579	-0.0038	-0.2562 *
P14	OP7b-ST	-0.0995	-0.0055	-0.2494
P15	OP7b-ST	-0.1011	0.0032	-0.2580
P16	OP7b-ST	-0.1007	0.0014	-0.2507
P17	OP7b-ST	-0.1005	-0.0001	-0.2529
P18	OP7b-ST	-0.1002	-0.0014	-0.2484
P19	OP7b-ST	-0.1000	-0.0026	-0.2520
P20	OP7b-ST	-0.0997	-0.0041	-0.2489
P21	OP7b-ST	-0.0995	-0.0059	-0.2551
P22	OP7b-ST	-0.1011	0.0029	-0.2636
P23	OP7b-ST	-0.1007	0.0011	-0.2563
P24	OP7b-ST	-0.1005	-0.0004	-0.2586
P25	OP7b-ST	-0.1002	-0.0017	-0.2540
P26	OP7b-ST	-0.1000	-0.0030	-0.2577
P27	OP7b-ST	-0.0997	-0.0045	-0.2545
P28	OP7b-ST	-0.0995	-0.0062	-0.2607
P29	OP7b-ST	-0.1011	0.0025	-0.2692
P30	OP7b-ST	-0.1007	0.0007	-0.2619
P31	OP7b-ST	-0.1005	-0.0008	-0.2643
P32	OP7b-ST	-0.1002	-0.0020	-0.2596
P33	OP7b-ST	-0.1000	-0.0033	-0.2634
P34	OP7b-ST	-0.0997	-0.0048	-0.2600
P35	OP7b-ST	-0.0995	-0.0065	-0.2663
P36	OP7b-ST	-0.1011	0.0022	-0.2748
P37	OP7b-ST	-0.1007	0.0004	-0.2674
P38	OP7b-ST	-0.1005	-0.0011	-0.2700
P39	OP7b-ST	-0.1002	-0.0024	-0.2652
P40	OP7b-ST	-0.1000	-0.0036	-0.2691
P41	OP7b-ST	-0.0997	-0.0051	-0.2656
P42	OP7b-ST	-0.0995	-0.0069	-0.2720
P43	OP7b-ST	-0.1011	0.0018	-0.2804
P44	OP7b-ST	-0.1007	0.0000	-0.2730
P45	OP7b-ST	-0.1005	-0.0014	-0.2757
P46	OP7b-ST	-0.1002	-0.0027	-0.2708
P47	OP7b-ST	-0.1000	-0.0040	-0.2748
P48	OP7b-ST	-0.0997	-0.0054	-0.2712
P49	OP7b-ST	-0.0995	-0.0072	-0.2776
P50	OP7b-ST	-0.1011	0.0015	-0.2860
P51	OP7b-ST	-0.1007	-0.0003	-0.2785
P52	OP7b-ST	-0.1005	-0.0018	-0.2814
P53	OP7b-ST	-0.1001	-0.0030	-0.2764
P54	OP7b-ST	-0.1000	-0.0043	-0.2805
P55	OP7b-ST	-0.0996	-0.0057	-0.2768
P56	OP7b-ST	-0.0995	-0.0075	-0.2832
P57	OP7b-ST	-0.1011	0.0012	-0.2916
P58	OP7b-ST	-0.1004	-0.0007	-0.2837
P59	OP7b-ST	-0.1005	-0.0021	-0.2871
P60	OP7b-ST	-0.0998	-0.0034	-0.2816
P61	OP7b-ST	-0.1000	-0.0046	-0.2862
P62	OP7b-ST	-0.0993	-0.0060	-0.2819
P63	OP7b-ST	-0.0995	-0.0079	-0.2889

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP8a-ST	0.1317	-0.0046	-0.2541
P2	OP8a-ST	0.1753	-0.0062	-0.2205 *
P3	OP8a-ST	0.1798	-0.0077	-0.2204 *
P4	OP8a-ST	0.1456	-0.0090	-0.2409
P5	OP8a-ST	0.1886	-0.0104	-0.2155 *
P6	OP8a-ST	0.1928	-0.0118	-0.2108 *
P7	OP8a-ST	0.1600	-0.0133	-0.2434
P8	OP8a-ST	0.1317	-0.0105	-0.2677
P9	OP8a-ST	0.1776	-0.0122	-0.2339 *
P10	OP8a-ST	0.1821	-0.0136	-0.2339 *
P11	OP8a-ST	0.1458	-0.0150	-0.2547
P12	OP8a-ST	0.1908	-0.0164	-0.2290 *
P13	OP8a-ST	0.1951	-0.0178	-0.2242 *
P14	OP8a-ST	0.1600	-0.0193	-0.2571
P15	OP8a-ST	0.1317	-0.0165	-0.2813
P16	OP8a-ST	0.1363	-0.0181	-0.2732
P17	OP8a-ST	0.1411	-0.0196	-0.2743
P18	OP8a-ST	0.1457	-0.0210	-0.2683
P19	OP8a-ST	0.1506	-0.0224	-0.2709
P20	OP8a-ST	0.1552	-0.0238	-0.2665
P21	OP8a-ST	0.1600	-0.0253	-0.2707
P22	OP8a-ST	0.1317	-0.0225	-0.2949
P23	OP8a-ST	0.1364	-0.0241	-0.2867
P24	OP8a-ST	0.1411	-0.0256	-0.2879
P25	OP8a-ST	0.1458	-0.0270	-0.2819
P26	OP8a-ST	0.1506	-0.0284	-0.2845
P27	OP8a-ST	0.1552	-0.0298	-0.2800
P28	OP8a-ST	0.1600	-0.0313	-0.2844
P29	OP8a-ST	0.1317	-0.0284	-0.3085
P30	OP8a-ST	0.1364	-0.0301	-0.3001
P31	OP8a-ST	0.1411	-0.0316	-0.3015
P32	OP8a-ST	0.1458	-0.0330	-0.2953
P33	OP8a-ST	0.1506	-0.0344	-0.2982
P34	OP8a-ST	0.1552	-0.0358	-0.2934
P35	OP8a-ST	0.1600	-0.0373	-0.2980
P36	OP8a-ST	0.1317	-0.0344	-0.3221
P37	OP8a-ST	0.1364	-0.0361	-0.3135
P38	OP8a-ST	0.1411	-0.0376	-0.3152
P39	OP8a-ST	0.1458	-0.0390	-0.3087
P40	OP8a-ST	0.1506	-0.0403	-0.3118
P41	OP8a-ST	0.1552	-0.0418	-0.3069
P42	OP8a-ST	0.1600	-0.0433	-0.3116
P43	OP8a-ST	0.1317	-0.0404	-0.3357
P44	OP8a-ST	0.1364	-0.0421	-0.3270
P45	OP8a-ST	0.1411	-0.0435	-0.3288
P46	OP8a-ST	0.1458	-0.0449	-0.3222
P47	OP8a-ST	0.1506	-0.0463	-0.3255
P48	OP8a-ST	0.1552	-0.0478	-0.3203
P49	OP8a-ST	0.1600	-0.0493	-0.3253
P50	OP8a-ST	0.1317	-0.0463	-0.3493
P51	OP8a-ST	0.1364	-0.0480	-0.3403
P52	OP8a-ST	0.1411	-0.0495	-0.3425
P53	OP8a-ST	0.1458	-0.0509	-0.3356
P54	OP8a-ST	0.1506	-0.0523	-0.3391
P55	OP8a-ST	0.1552	-0.0538	-0.3337
P56	OP8a-ST	0.1600	-0.0553	-0.3389
P57	OP8a-ST	0.1317	-0.0523	-0.3630
P58	OP8a-ST	0.1367	-0.0540	-0.3533
P59	OP8a-ST	0.1411	-0.0555	-0.3561
P60	OP8a-ST	0.1462	-0.0569	-0.3485
P61	OP8a-ST	0.1506	-0.0583	-0.3527
P62	OP8a-ST	0.1556	-0.0598	-0.3466
P63	OP8a-ST	0.1600	-0.0613	-0.3526

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP8b-ST	0.1189	-0.0044	-0.2269
P2	OP8b-ST	0.1582	-0.0061	-0.1960 *
P3	OP8b-ST	0.1627	-0.0076	-0.1955 *
P4	OP8b-ST	0.1328	-0.0090	-0.2139
P5	OP8b-ST	0.1714	-0.0104	-0.1906 *
P6	OP8b-ST	0.1757	-0.0118	-0.1862 *
P7	OP8b-ST	0.1472	-0.0135	-0.2163
P8	OP8b-ST	0.1189	-0.0103	-0.2303
P9	OP8b-ST	0.1589	-0.0121	-0.1994 *
P10	OP8b-ST	0.1632	-0.0136	-0.1988 *
P11	OP8b-ST	0.1330	-0.0150	-0.2175
P12	OP8b-ST	0.1720	-0.0164	-0.1939 *
P13	OP8b-ST	0.1763	-0.0179	-0.1897 *
P14	OP8b-ST	0.1472	-0.0195	-0.2197
P15	OP8b-ST	0.1189	-0.0163	-0.2337
P16	OP8b-ST	0.1236	-0.0181	-0.2255
P17	OP8b-ST	0.1283	-0.0196	-0.2263
P18	OP8b-ST	0.1330	-0.0210	-0.2206
P19	OP8b-ST	0.1378	-0.0224	-0.2230
P20	OP8b-ST	0.1424	-0.0239	-0.2187
P21	OP8b-ST	0.1472	-0.0255	-0.2231
P22	OP8b-ST	0.1189	-0.0223	-0.2371
P23	OP8b-ST	0.1236	-0.0241	-0.2287
P24	OP8b-ST	0.1283	-0.0256	-0.2297
P25	OP8b-ST	0.1330	-0.0270	-0.2238
P26	OP8b-ST	0.1378	-0.0284	-0.2263
P27	OP8b-ST	0.1424	-0.0299	-0.2220
P28	OP8b-ST	0.1472	-0.0315	-0.2266
P29	OP8b-ST	0.1189	-0.0282	-0.2405
P30	OP8b-ST	0.1236	-0.0300	-0.2320
P31	OP8b-ST	0.1283	-0.0316	-0.2331
P32	OP8b-ST	0.1330	-0.0330	-0.2271
P33	OP8b-ST	0.1378	-0.0344	-0.2297
P34	OP8b-ST	0.1424	-0.0359	-0.2253
P35	OP8b-ST	0.1472	-0.0375	-0.2300
P36	OP8b-ST	0.1189	-0.0342	-0.2439
P37	OP8b-ST	0.1236	-0.0360	-0.2354
P38	OP8b-ST	0.1283	-0.0375	-0.2365
P39	OP8b-ST	0.1330	-0.0390	-0.2305
P40	OP8b-ST	0.1378	-0.0404	-0.2331
P41	OP8b-ST	0.1424	-0.0419	-0.2287
P42	OP8b-ST	0.1472	-0.0435	-0.2334
P43	OP8b-ST	0.1189	-0.0402	-0.2473
P44	OP8b-ST	0.1236	-0.0420	-0.2387
P45	OP8b-ST	0.1283	-0.0435	-0.2399
P46	OP8b-ST	0.1330	-0.0449	-0.2338
P47	OP8b-ST	0.1378	-0.0464	-0.2365
P48	OP8b-ST	0.1424	-0.0479	-0.2321
P49	OP8b-ST	0.1472	-0.0495	-0.2368
P50	OP8b-ST	0.1189	-0.0461	-0.2507
P51	OP8b-ST	0.1236	-0.0479	-0.2420
P52	OP8b-ST	0.1283	-0.0495	-0.2433
P53	OP8b-ST	0.1330	-0.0509	-0.2372
P54	OP8b-ST	0.1378	-0.0523	-0.2399
P55	OP8b-ST	0.1424	-0.0539	-0.2354
P56	OP8b-ST	0.1472	-0.0555	-0.2402
P57	OP8b-ST	0.1189	-0.0521	-0.2540
P58	OP8b-ST	0.1239	-0.0539	-0.2450
P59	OP8b-ST	0.1283	-0.0555	-0.2467
P60	OP8b-ST	0.1333	-0.0569	-0.2401
P61	OP8b-ST	0.1378	-0.0583	-0.2433
P62	OP8b-ST	0.1427	-0.0599	-0.2384
P63	OP8b-ST	0.1472	-0.0615	-0.2436

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP9a-ST	0.1324	-0.0046	-0.2557
P2	OP9a-ST	0.1763	-0.0062	-0.2219 *
P3	OP9a-ST	0.1808	-0.0077	-0.2219 *
P4	OP9a-ST	0.1463	-0.0090	-0.2425
P5	OP9a-ST	0.1895	-0.0104	-0.2170 *
P6	OP9a-ST	0.1937	-0.0118	-0.2122 *
P7	OP9a-ST	0.1607	-0.0132	-0.2450
P8	OP9a-ST	0.1324	-0.0106	-0.2697
P9	OP9a-ST	0.1787	-0.0122	-0.2357 *
P10	OP9a-ST	0.1831	-0.0137	-0.2357 *
P11	OP9a-ST	0.1465	-0.0150	-0.2567
P12	OP9a-ST	0.1918	-0.0163	-0.2308 *
P13	OP9a-ST	0.1961	-0.0177	-0.2260 *
P14	OP9a-ST	0.1607	-0.0192	-0.2591
P15	OP9a-ST	0.1324	-0.0166	-0.2837
P16	OP9a-ST	0.1371	-0.0182	-0.2756
P17	OP9a-ST	0.1418	-0.0196	-0.2767
P18	OP9a-ST	0.1465	-0.0210	-0.2708
P19	OP9a-ST	0.1513	-0.0223	-0.2733
P20	OP9a-ST	0.1559	-0.0237	-0.2689
P21	OP9a-ST	0.1607	-0.0252	-0.2731
P22	OP9a-ST	0.1324	-0.0225	-0.2977
P23	OP9a-ST	0.1371	-0.0242	-0.2895
P24	OP9a-ST	0.1419	-0.0256	-0.2907
P25	OP9a-ST	0.1465	-0.0270	-0.2848
P26	OP9a-ST	0.1513	-0.0283	-0.2873
P27	OP9a-ST	0.1559	-0.0297	-0.2828
P28	OP9a-ST	0.1607	-0.0312	-0.2871
P29	OP9a-ST	0.1324	-0.0285	-0.3117
P30	OP9a-ST	0.1371	-0.0302	-0.3033
P31	OP9a-ST	0.1419	-0.0316	-0.3048
P32	OP9a-ST	0.1465	-0.0330	-0.2986
P33	OP9a-ST	0.1513	-0.0343	-0.3014
P34	OP9a-ST	0.1559	-0.0357	-0.2966
P35	OP9a-ST	0.1607	-0.0372	-0.3011
P36	OP9a-ST	0.1324	-0.0345	-0.3257
P37	OP9a-ST	0.1371	-0.0362	-0.3171
P38	OP9a-ST	0.1419	-0.0376	-0.3188
P39	OP9a-ST	0.1465	-0.0390	-0.3124
P40	OP9a-ST	0.1513	-0.0403	-0.3154
P41	OP9a-ST	0.1559	-0.0417	-0.3105
P42	OP9a-ST	0.1607	-0.0432	-0.3152
P43	OP9a-ST	0.1324	-0.0405	-0.3396
P44	OP9a-ST	0.1371	-0.0422	-0.3309
P45	OP9a-ST	0.1419	-0.0436	-0.3328
P46	OP9a-ST	0.1465	-0.0449	-0.3262
P47	OP9a-ST	0.1513	-0.0463	-0.3295
P48	OP9a-ST	0.1559	-0.0477	-0.3243
P49	OP9a-ST	0.1607	-0.0492	-0.3292
P50	OP9a-ST	0.1324	-0.0464	-0.3536
P51	OP9a-ST	0.1371	-0.0481	-0.3447
P52	OP9a-ST	0.1419	-0.0496	-0.3469
P53	OP9a-ST	0.1465	-0.0509	-0.3400
P54	OP9a-ST	0.1513	-0.0523	-0.3435
P55	OP9a-ST	0.1560	-0.0537	-0.3381
P56	OP9a-ST	0.1607	-0.0552	-0.3432
P57	OP9a-ST	0.1324	-0.0524	-0.3676
P58	OP9a-ST	0.1374	-0.0541	-0.3580
P59	OP9a-ST	0.1419	-0.0556	-0.3609
P60	OP9a-ST	0.1469	-0.0569	-0.3534
P61	OP9a-ST	0.1513	-0.0583	-0.3575
P62	OP9a-ST	0.1563	-0.0596	-0.3514
P63	OP9a-ST	0.1607	-0.0612	-0.3572

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP9b-ST	0.1196	-0.0044	-0.2285
P2	OP9b-ST	0.1592	-0.0062	-0.1974 *
P3	OP9b-ST	0.1637	-0.0077	-0.1970 *
P4	OP9b-ST	0.1335	-0.0090	-0.2156
P5	OP9b-ST	0.1724	-0.0104	-0.1921 *
P6	OP9b-ST	0.1766	-0.0118	-0.1877 *
P7	OP9b-ST	0.1479	-0.0134	-0.2179
P8	OP9b-ST	0.1196	-0.0104	-0.2323
P9	OP9b-ST	0.1599	-0.0122	-0.2012 *
P10	OP9b-ST	0.1643	-0.0136	-0.2007 *
P11	OP9b-ST	0.1337	-0.0150	-0.2195
P12	OP9b-ST	0.1730	-0.0164	-0.1958 *
P13	OP9b-ST	0.1773	-0.0178	-0.1915 *
P14	OP9b-ST	0.1479	-0.0194	-0.2217
P15	OP9b-ST	0.1196	-0.0164	-0.2361
P16	OP9b-ST	0.1243	-0.0181	-0.2279
P17	OP9b-ST	0.1291	-0.0196	-0.2288
P18	OP9b-ST	0.1337	-0.0210	-0.2230
P19	OP9b-ST	0.1385	-0.0224	-0.2254
P20	OP9b-ST	0.1431	-0.0238	-0.2212
P21	OP9b-ST	0.1479	-0.0254	-0.2255
P22	OP9b-ST	0.1196	-0.0223	-0.2399
P23	OP9b-ST	0.1243	-0.0241	-0.2315
P24	OP9b-ST	0.1291	-0.0256	-0.2326
P25	OP9b-ST	0.1337	-0.0270	-0.2267
P26	OP9b-ST	0.1385	-0.0283	-0.2292
P27	OP9b-ST	0.1431	-0.0298	-0.2248
P28	OP9b-ST	0.1479	-0.0314	-0.2293
P29	OP9b-ST	0.1196	-0.0283	-0.2436
P30	OP9b-ST	0.1243	-0.0301	-0.2353
P31	OP9b-ST	0.1291	-0.0316	-0.2363
P32	OP9b-ST	0.1337	-0.0330	-0.2304
P33	OP9b-ST	0.1385	-0.0343	-0.2330
P34	OP9b-ST	0.1431	-0.0358	-0.2286
P35	OP9b-ST	0.1479	-0.0374	-0.2331
P36	OP9b-ST	0.1196	-0.0343	-0.2474
P37	OP9b-ST	0.1243	-0.0361	-0.2390
P38	OP9b-ST	0.1291	-0.0376	-0.2401
P39	OP9b-ST	0.1337	-0.0390	-0.2342
P40	OP9b-ST	0.1385	-0.0403	-0.2367
P41	OP9b-ST	0.1431	-0.0418	-0.2323
P42	OP9b-ST	0.1479	-0.0434	-0.2369
P43	OP9b-ST	0.1196	-0.0403	-0.2512
P44	OP9b-ST	0.1243	-0.0421	-0.2427
P45	OP9b-ST	0.1291	-0.0436	-0.2439
P46	OP9b-ST	0.1337	-0.0449	-0.2379
P47	OP9b-ST	0.1385	-0.0463	-0.2405
P48	OP9b-ST	0.1431	-0.0478	-0.2360
P49	OP9b-ST	0.1479	-0.0494	-0.2407
P50	OP9b-ST	0.1196	-0.0462	-0.2550
P51	OP9b-ST	0.1243	-0.0480	-0.2464
P52	OP9b-ST	0.1291	-0.0496	-0.2477
P53	OP9b-ST	0.1337	-0.0509	-0.2416
P54	OP9b-ST	0.1385	-0.0523	-0.2443
P55	OP9b-ST	0.1431	-0.0538	-0.2398
P56	OP9b-ST	0.1479	-0.0554	-0.2445
P57	OP9b-ST	0.1196	-0.0522	-0.2587
P58	OP9b-ST	0.1246	-0.0540	-0.2498
P59	OP9b-ST	0.1291	-0.0555	-0.2515
P60	OP9b-ST	0.1340	-0.0569	-

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Displacements
SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP10a-ST	0.1324	-0.0046	-0.2556
P2	OP10a-ST	0.1762	-0.0062	-0.2219 *
P3	OP10a-ST	0.1808	-0.0077	-0.2219 *
P4	OP10a-ST	0.1463	-0.0090	-0.2425
P5	OP10a-ST	0.1895	-0.0103	-0.2170 *
P6	OP10a-ST	0.1937	-0.0118	-0.2121 *
P7	OP10a-ST	0.1607	-0.0132	-0.2450
P8	OP10a-ST	0.1324	-0.0106	-0.2696
P9	OP10a-ST	0.1786	-0.0122	-0.2357 *
P10	OP10a-ST	0.1831	-0.0137	-0.2357 *
P11	OP10a-ST	0.1465	-0.0150	-0.2567
P12	OP10a-ST	0.1918	-0.0163	-0.2308 *
P13	OP10a-ST	0.1961	-0.0177	-0.2260 *
P14	OP10a-ST	0.1607	-0.0192	-0.2590
P15	OP10a-ST	0.1324	-0.0166	-0.2835
P16	OP10a-ST	0.1370	-0.0182	-0.2755
P17	OP10a-ST	0.1418	-0.0197	-0.2766
P18	OP10a-ST	0.1464	-0.0210	-0.2707
P19	OP10a-ST	0.1513	-0.0223	-0.2732
P20	OP10a-ST	0.1559	-0.0237	-0.2688
P21	OP10a-ST	0.1607	-0.0252	-0.2729
P22	OP10a-ST	0.1324	-0.0226	-0.2975
P23	OP10a-ST	0.1370	-0.0242	-0.2894
P24	OP10a-ST	0.1418	-0.0256	-0.2906
P25	OP10a-ST	0.1465	-0.0270	-0.2846
P26	OP10a-ST	0.1513	-0.0283	-0.2872
P27	OP10a-ST	0.1559	-0.0297	-0.2827
P28	OP10a-ST	0.1607	-0.0312	-0.2869
P29	OP10a-ST	0.1324	-0.0286	-0.3114
P30	OP10a-ST	0.1370	-0.0302	-0.3032
P31	OP10a-ST	0.1418	-0.0316	-0.3046
P32	OP10a-ST	0.1465	-0.0330	-0.2984
P33	OP10a-ST	0.1513	-0.0343	-0.3012
P34	OP10a-ST	0.1559	-0.0357	-0.2965
P35	OP10a-ST	0.1607	-0.0372	-0.3009
P36	OP10a-ST	0.1324	-0.0345	-0.3254
P37	OP10a-ST	0.1371	-0.0362	-0.3169
P38	OP10a-ST	0.1418	-0.0376	-0.3185
P39	OP10a-ST	0.1465	-0.0390	-0.3122
P40	OP10a-ST	0.1513	-0.0403	-0.3152
P41	OP10a-ST	0.1559	-0.0417	-0.3102
P42	OP10a-ST	0.1607	-0.0432	-0.3149
P43	OP10a-ST	0.1324	-0.0405	-0.3393
P44	OP10a-ST	0.1371	-0.0422	-0.3307
P45	OP10a-ST	0.1418	-0.0436	-0.3325
P46	OP10a-ST	0.1465	-0.0449	-0.3260
P47	OP10a-ST	0.1513	-0.0463	-0.3292
P48	OP10a-ST	0.1559	-0.0476	-0.3240
P49	OP10a-ST	0.1607	-0.0492	-0.3289
P50	OP10a-ST	0.1324	-0.0465	-0.3533
P51	OP10a-ST	0.1371	-0.0482	-0.3444
P52	OP10a-ST	0.1418	-0.0496	-0.3465
P53	OP10a-ST	0.1465	-0.0509	-0.3398
P54	OP10a-ST	0.1513	-0.0523	-0.3432
P55	OP10a-ST	0.1559	-0.0536	-0.3378
P56	OP10a-ST	0.1607	-0.0552	-0.3428
P57	OP10a-ST	0.1324	-0.0525	-0.3672
P58	OP10a-ST	0.1374	-0.0542	-0.3576
P59	OP10a-ST	0.1418	-0.0556	-0.3605
P60	OP10a-ST	0.1468	-0.0569	-0.3530
P61	OP10a-ST	0.1513	-0.0582	-0.3571
P62	OP10a-ST	0.1562	-0.0596	-0.3510
P63	OP10a-ST	0.1607	-0.0611	-0.3568

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP10b-ST	0.1196	-0.0044	-0.2285
P2	OP10b-ST	0.1591	-0.0062	-0.1973 *
P3	OP10b-ST	0.1636	-0.0077	-0.1969 *
P4	OP10b-ST	0.1335	-0.0090	-0.2155
P5	OP10b-ST	0.1724	-0.0104	-0.1920 *
P6	OP10b-ST	0.1766	-0.0118	-0.1876 *
P7	OP10b-ST	0.1479	-0.0134	-0.2178
P8	OP10b-ST	0.1196	-0.0104	-0.2322
P9	OP10b-ST	0.1599	-0.0122	-0.2011 *
P10	OP10b-ST	0.1642	-0.0137	-0.2006 *
P11	OP10b-ST	0.1337	-0.0150	-0.2195
P12	OP10b-ST	0.1730	-0.0164	-0.1957 *
P13	OP10b-ST	0.1773	-0.0178	-0.1914 *
P14	OP10b-ST	0.1479	-0.0194	-0.2216
P15	OP10b-ST	0.1196	-0.0164	-0.2359
P16	OP10b-ST	0.1243	-0.0182	-0.2278
P17	OP10b-ST	0.1290	-0.0196	-0.2286
P18	OP10b-ST	0.1337	-0.0210	-0.2230
P19	OP10b-ST	0.1385	-0.0223	-0.2253
P20	OP10b-ST	0.1431	-0.0238	-0.2211
P21	OP10b-ST	0.1479	-0.0254	-0.2254
P22	OP10b-ST	0.1196	-0.0224	-0.2397
P23	OP10b-ST	0.1243	-0.0241	-0.2314
P24	OP10b-ST	0.1290	-0.0256	-0.2324
P25	OP10b-ST	0.1337	-0.0270	-0.2266
P26	OP10b-ST	0.1385	-0.0283	-0.2290
P27	OP10b-ST	0.1431	-0.0298	-0.2247
P28	OP10b-ST	0.1479	-0.0314	-0.2291
P29	OP10b-ST	0.1196	-0.0284	-0.2434
P30	OP10b-ST	0.1242	-0.0301	-0.2351
P31	OP10b-ST	0.1290	-0.0316	-0.2361
P32	OP10b-ST	0.1337	-0.0330	-0.2303
P33	OP10b-ST	0.1385	-0.0343	-0.2328
P34	OP10b-ST	0.1431	-0.0358	-0.2284
P35	OP10b-ST	0.1479	-0.0374	-0.2329
P36	OP10b-ST	0.1196	-0.0343	-0.2471
P37	OP10b-ST	0.1242	-0.0361	-0.2388
P38	OP10b-ST	0.1290	-0.0376	-0.2399
P39	OP10b-ST	0.1337	-0.0390	-0.2340
P40	OP10b-ST	0.1385	-0.0403	-0.2365
P41	OP10b-ST	0.1431	-0.0417	-0.2321
P42	OP10b-ST	0.1479	-0.0434	-0.2366
P43	OP10b-ST	0.1196	-0.0403	-0.2509
P44	OP10b-ST	0.1243	-0.0421	-0.2424
P45	OP10b-ST	0.1290	-0.0436	-0.2436
P46	OP10b-ST	0.1337	-0.0449	-0.2377
P47	OP10b-ST	0.1385	-0.0463	-0.2403
P48	OP10b-ST	0.1431	-0.0477	-0.2358
P49	OP10b-ST	0.1479	-0.0494	-0.2404
P50	OP10b-ST	0.1196	-0.0463	-0.2546
P51	OP10b-ST	0.1243	-0.0481	-0.2461
P52	OP10b-ST	0.1290	-0.0496	-0.2474
P53	OP10b-ST	0.1337	-0.0509	-0.2413
P54	OP10b-ST	0.1385	-0.0523	-0.2440
P55	OP10b-ST	0.1431	-0.0537	-0.2395
P56	OP10b-ST	0.1479	-0.0553	-0.2441
P57	OP10b-ST	0.1196	-0.0523	-0.2583
P58	OP10b-ST	0.1246	-0.0541	-0.2494
P59	OP10b-ST	0.1290	-0.0556	-0.2511
P60	OP10b-ST	0.1340	-0.0569	-0.2447
P61	OP10b-ST	0.1385	-0.0583	-0.2477
P62	OP10b-ST	0.1434	-0.0597	-0.2428
P63	OP10b-ST	0.1479	-0.0613	-0.2479

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP11a-ST	-0.3338	0.0049	-0.2485
P2	OP11a-ST	-0.2895	0.0032	-0.2917 *
P3	OP11a-ST	-0.2897	0.0015	-0.2948 *
P4	OP11a-ST	-0.3345	0.0002	-0.2386
P5	OP11a-ST	-0.2903	-0.0011	-0.2941 *
P6	OP11a-ST	-0.2906	-0.0027	-0.2904 *
P7	OP11a-ST	-0.3351	-0.0045	-0.2462
P8	OP11a-ST	-0.3338	0.0052	-0.2543
P9	OP11a-ST	-0.2883	0.0034	-0.2978 *
P10	OP11a-ST	-0.2888	0.0017	-0.3006 *
P11	OP11a-ST	-0.3343	0.0005	-0.2448
P12	OP11a-ST	-0.2893	-0.0008	-0.3000 *
P13	OP11a-ST	-0.2895	-0.0024	-0.2965 *
P14	OP11a-ST	-0.3351	-0.0042	-0.2520
P15	OP11a-ST	-0.3338	0.0054	-0.2602
P16	OP11a-ST	-0.3338	0.0036	-0.2528
P17	OP11a-ST	-0.3343	0.0020	-0.2551
P18	OP11a-ST	-0.3343	0.0007	-0.2507
P19	OP11a-ST	-0.3347	-0.0005	-0.2543
P20	OP11a-ST	-0.3347	-0.0021	-0.2514
P21	OP11a-ST	-0.3351	-0.0039	-0.2579
P22	OP11a-ST	-0.3338	0.0057	-0.2660
P23	OP11a-ST	-0.3338	0.0038	-0.2586
P24	OP11a-ST	-0.3343	0.0023	-0.2610
P25	OP11a-ST	-0.3343	0.0010	-0.2566
P26	OP11a-ST	-0.3347	-0.0002	-0.2603
P27	OP11a-ST	-0.3347	-0.0018	-0.2572
P28	OP11a-ST	-0.3351	-0.0036	-0.2638
P29	OP11a-ST	-0.3338	0.0060	-0.2719
P30	OP11a-ST	-0.3339	0.0041	-0.2645
P31	OP11a-ST	-0.3343	0.0025	-0.2670
P32	OP11a-ST	-0.3343	0.0013	-0.2624
P33	OP11a-ST	-0.3347	0.0001	-0.2663
P34	OP11a-ST	-0.3347	-0.0015	-0.2631
P35	OP11a-ST	-0.3351	-0.0033	-0.2697
P36	OP11a-ST	-0.3338	0.0062	-0.2777
P37	OP11a-ST	-0.3339	0.0043	-0.2703
P38	OP11a-ST	-0.3342	0.0028	-0.2730
P39	OP11a-ST	-0.3343	0.0016	-0.2683
P40	OP11a-ST	-0.3347	0.0003	-0.2723
P41	OP11a-ST	-0.3347	-0.0012	-0.2689
P42	OP11a-ST	-0.3351	-0.0030	-0.2755
P43	OP11a-ST	-0.3338	0.0065	-0.2836
P44	OP11a-ST	-0.3338	0.0046	-0.2761
P45	OP11a-ST	-0.3342	0.0031	-0.2789
P46	OP11a-ST	-0.3343	0.0018	-0.2742
P47	OP11a-ST	-0.3347	0.0006	-0.2782
P48	OP11a-ST	-0.3347	-0.0008	-0.2747
P49	OP11a-ST	-0.3351	-0.0027	-0.2814
P50	OP11a-ST	-0.3338	0.0067	-0.2894
P51	OP11a-ST	-0.3338	0.0048	-0.2819
P52	OP11a-ST	-0.3342	0.0033	-0.2849
P53	OP11a-ST	-0.3343	0.0021	-0.2801
P54	OP11a-ST	-0.3347	0.0009	-0.2842
P55	OP11a-ST	-0.3347	-0.0005	-0.2805
P56	OP11a-ST	-0.3351	-0.0024	-0.2873
P57	OP11a-ST	-0.3338	0.0070	-0.2953
P58	OP11a-ST	-0.3336	0.0050	-0.2873
P59	OP11a-ST	-0.3342	0.0036	-0.2909
P60	OP11a-ST	-0.3340	0.0024	-0.2855
P61	OP11a-ST	-0.3347	0.0012	-0.2902
P62	OP11a-ST	-0.3344	-0.0002	-0.2859
P63	OP11a-ST	-0.3351	-0.0022	-0.2931

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	OP11b-ST	-0.3402	0.0048	-0.2312
P2	OP11b-ST	-0.2986	0.0031	-0.2758 *
P3	OP11b-ST	-0.2988	0.0015	-0.2788 *
P4	OP11b-ST	-0.3408	0.0002	-0.2214
P5	OP11b-ST	-0.2994	-0.0011	-0.2781 *
P6	OP11b-ST	-0.2997	-0.0027	-0.2745 *
P7	OP11b-ST	-0.3415	-0.0044	-0.2288
P8	OP11b-ST	-0.3402	0.0051	-0.2395
P9	OP11b-ST	-0.2970	0.0034	-0.2843 *
P10	OP11b-ST	-0.2974	0.0017	-0.2872 *
P11	OP11b-ST	-0.3406	0.0005	-0.2301
P12	OP11b-ST	-0.2980	-0.0008	-0.2865 *
P13	OP11b-ST	-0.2981	-0.0024	-0.2831 *
P14	OP11b-ST	-0.3415	-0.0041	-0.2372
P15	OP11b-ST	-0.3402	0.0054	-0.2479
P16	OP11b-ST	-0.3402	0.0036	-0.2408
P17	OP11b-ST	-0.3406	0.0020	-0.2429
P18	OP11b-ST	-0.3406	0.0007	-0.2387
P19	OP11b-ST	-0.3410	-0.0005	-0.2421
P20	OP11b-ST	-0.3411	-0.0021	-0.2393
P21	OP11b-ST	-0.3415	-0.0038	-0.2456
P22	OP11b-ST	-0.3402	0.0056	-0.2563
P23	OP11b-ST	-0.3402	0.0038	-0.2491
P24	OP11b-ST	-0.3406	0.0023	-0.2514
P25	OP11b-ST	-0.3406	0.0010	-0.2470
P26	OP11b-ST	-0.3410	-0.0002	-0.2507
P27	OP11b-ST	-0.3410	-0.0018	-0.2477
P28	OP11b-ST	-0.3415	-0.0035	-0.2540
P29	OP11b-ST	-0.3402	0.0059	-0.2647
P30	OP11b-ST	-0.3402	0.0041	-0.2574
P31	OP11b-ST	-0.3406	0.0025	-0.2599
P32	OP11b-ST	-0.3406	0.0013	-0.2554
P33	OP11b-ST	-0.3410	0.0001	-0.2592
P34	OP11b-ST	-0.3410	-0.0014	-0.2560
P35	OP11b-ST	-0.3415	-0.0032	-0.2624
P36	OP11b-ST	-0.3402	0.0062	-0.2730
P37	OP11b-ST	-0.3402	0.0043	-0.2657
P38	OP11b-ST	-0.3406	0.0028	-0.2684
P39	OP11b-ST	-0.3406	0.0016	-0.2638
P40	OP11b-ST	-0.3410	0.0003	-0.2677
P41	OP11b-ST	-0.3410	-0.0011	-0.2644
P42	OP11b-ST	-0.3415	-0.0030	-0.2708
P43	OP11b-ST	-0.3402	0.0064	-0.2814
P44	OP11b-ST	-0.3402	0.0045	-0.2741
P45	OP11b-ST	-0.3406	0.0031	-0.2769
P46	OP11b-ST	-0.3406	0.0018	-0.2722
P47	OP11b-ST	-0.3410	0.0006	-0.2762
P48	OP11b-ST	-0.3410	-0.0008	-0.2727
P49	OP11b-ST	-0.3415	-0.0027	-0.2792
P50	OP11b-ST	-0.3402	0.0067	-0.2898
P51	OP11b-ST	-0.3401	0.0048	-0.2823
P52	OP11b-ST	-0.3406	0.0033	-0.2854
P53	OP11b-ST	-0.3406	0.0021	-0.2805
P54	OP11b-ST	-0.3410	0.0009	-0.2847
P55	OP11b-ST	-0.3410	-0.0005	-0.2810
P56	OP11b-ST	-0.3415	-0.0024	-0.2876
P57	OP11b-ST	-0.3402	0.0069	-0.2981
P58	OP11b-ST	-0.3399	0.0050	-0.2902
P59	OP11b-ST	-0.3406	0.0036	-0.2939
P60	OP11b-ST	-0.3403	0.0024	-0.2885
P61	OP11b-ST	-0.3410	0.0012	-0.2932
P62	OP11b-ST	-0.3408	-0.0002	-0.2889
P63	OP11b-ST	-0.3415	-0.0021	-0.2960

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	D1a-ST	0.1250	-0.0047	-0.2437
P2	D1a-ST	0.1672	-0.0063	-0.2113 *
P3	D1a-ST	0.1716	-0.0077	-0.2112 *
P4	D1a-ST	0.1391	-0.0090	-0.2306
P5	D1a-ST	0.1803	-0.0103	-0.2063 *
P6	D1a-ST	0.1846	-0.0117	-0.2016 *
P7	D1a-ST	0.1533	-0.0131	-0.2330
P8	D1a-ST	0.1250	-0.0107	-0.2586
P9	D1a-ST	0.1696	-0.0123	-0.2261 *
P10	D1a-ST	0.1740	-0.0137	-0.2258 *
P11	D1a-ST	0.1392	-0.0150	-0.2456
P12	D1a-ST	0.1828	-0.0163	-0.2210 *
P13	D1a-ST	0.1871	-0.0176	-0.2164 *
P14	D1a-ST	0.1533	-0.0191	-0.2479
P15	D1a-ST	0.1250	-0.0167	-0.2734
P16	D1a-ST	0.1297	-0.0183	-0.2657
P17	D1a-ST	0.1345	-0.0197	-0.2663
P18	D1a-ST	0.1391	-0.0210	-0.2603
P19	D1a-ST	0.1439	-0.0223	-0.2629
P20	D1a-ST	0.1485	-0.0236	-0.2590
P21	D1a-ST	0.1533	-0.0250	-0.2629
P22	D1a-ST	0.1250	-0.0228	-0.2883
P23	D1a-ST	0.1297	-0.0243	-0.2806
P24	D1a-ST	0.1345	-0.0256	-0.2812
P25	D1a-ST	0.1392	-0.0270	-0.2751
P26	D1a-ST	0.1439	-0.0283	-0.2778
P27	D1a-ST	0.1486	-0.0296	-0.2738
P28	D1a-ST	0.1533	-0.0310	-0.2778
P29	D1a-ST	0.1250	-0.0288	-0.3032
P30	D1a-ST	0.1297	-0.0303	-0.2952
P31	D1a-ST	0.1345	-0.0316	-0.2961
P32	D1a-ST	0.1392	-0.0330	-0.2897
P33	D1a-ST	0.1439	-0.0343	-0.2927
P34	D1a-ST	0.1486	-0.0356	-0.2885
P35	D1a-ST	0.1533	-0.0370	-0.2927
P36	D1a-ST	0.1250	-0.0348	-0.3181
P37	D1a-ST	0.1297	-0.0363	-0.3099
P38	D1a-ST	0.1345	-0.0376	-0.3110
P39	D1a-ST	0.1392	-0.0390	-0.3044
P40	D1a-ST	0.1439	-0.0403	-0.3076
P41	D1a-ST	0.1486	-0.0416	-0.3032
P42	D1a-ST	0.1533	-0.0429	-0.3076
P43	D1a-ST	0.1251	-0.0408	-0.3330
P44	D1a-ST	0.1297	-0.0423	-0.3245
P45	D1a-ST	0.1345	-0.0436	-0.3258
P46	D1a-ST	0.1392	-0.0449	-0.3191
P47	D1a-ST	0.1439	-0.0463	-0.3225
P48	D1a-ST	0.1486	-0.0476	-0.3179
P49	D1a-ST	0.1533	-0.0489	-0.3225
P50	D1a-ST	0.1251	-0.0468	-0.3478
P51	D1a-ST	0.1298	-0.0483	-0.3392
P52	D1a-ST	0.1345	-0.0495	-0.3407
P53	D1a-ST	0.1392	-0.0509	-0.3337
P54	D1a-ST	0.1439	-0.0523	-0.3374
P55	D1a-ST	0.1486	-0.0535	-0.3325
P56	D1a-ST	0.1533	-0.0549	-0.3374
P57	D1a-ST	0.1251	-0.0528	-0.3627
P58	D1a-ST	0.1301	-0.0543	-0.3533
P59	D1a-ST	0.1345	-0.0555	-0.3556
P60	D1a-ST	0.1395	-0.0569	-0.3479
P61	D1a-ST	0.1439	-0.0583	-0.3522
P62	D1a-ST	0.1489	-0.0595	-0.3467
P63	D1a-ST	0.1533	-0.0609	-0.3523

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	D1b-ST	0.1122	-0.0045	-0.2165
P2	D1b-ST	0.1501	-0.0063	-0.1868 *
P3	D1b-ST	0.1544	-0.0077	-0.1862 *
P4	D1b-ST	0.1263	-0.0090	-0.2037
P5	D1b-ST	0.1632	-0.0103	-0.1813 *
P6	D1b-ST	0.1675	-0.0117	-0.1771 *
P7	D1b-ST	0.1405	-0.0133	-0.2059
P8	D1b-ST	0.1122	-0.0105	-0.2212
P9	D1b-ST	0.1508	-0.0123	-0.1915 *
P10	D1b-ST	0.1552	-0.0137	-0.1908 *
P11	D1b-ST	0.1264	-0.0150	-0.2084
P12	D1b-ST	0.1639	-0.0164	-0.1859 *
P13	D1b-ST	0.1683	-0.0177	-0.1818 *
P14	D1b-ST	0.1405	-0.0193	-0.2106
P15	D1b-ST	0.1122	-0.0166	-0.2259
P16	D1b-ST	0.1170	-0.0182	-0.2180
P17	D1b-ST	0.1217	-0.0196	-0.2184
P18	D1b-ST	0.1264	-0.0210	-0.2126
P19	D1b-ST	0.1311	-0.0224	-0.2150
P20	D1b-ST	0.1358	-0.0237	-0.2113
P21	D1b-ST	0.1405	-0.0252	-0.2153
P22	D1b-ST	0.1122	-0.0226	-0.2305
P23	D1b-ST	0.1169	-0.0242	-0.2226
P24	D1b-ST	0.1217	-0.0256	-0.2230
P25	D1b-ST	0.1264	-0.0270	-0.2170
P26	D1b-ST	0.1311	-0.0283	-0.2196
P27	D1b-ST	0.1358	-0.0297	-0.2159
P28	D1b-ST	0.1405	-0.0312	-0.2200
P29	D1b-ST	0.1122	-0.0286	-0.2352
P30	D1b-ST	0.1169	-0.0302	-0.2271
P31	D1b-ST	0.1217	-0.0316	-0.2276
P32	D1b-ST	0.1264	-0.0330	-0.2216
P33	D1b-ST	0.1311	-0.0343	-0.2243
P34	D1b-ST	0.1358	-0.0357	-0.2205
P35	D1b-ST	0.1405	-0.0372	-0.2247
P36	D1b-ST	0.1122	-0.0346	-0.2398
P37	D1b-ST	0.1169	-0.0362	-0.2317
P38	D1b-ST	0.1217	-0.0376	-0.2323
P39	D1b-ST	0.1264	-0.0390	-0.2261
P40	D1b-ST	0.1311	-0.0403	-0.2289
P41	D1b-ST	0.1358	-0.0417	-0.2251
P42	D1b-ST	0.1405	-0.0431	-0.2294
P43	D1b-ST	0.1122	-0.0406	-0.2445
P44	D1b-ST	0.1169	-0.0422	-0.2363
P45	D1b-ST	0.1217	-0.0435	-0.2369
P46	D1b-ST	0.1264	-0.0449	-0.2307
P47	D1b-ST	0.1311	-0.0463	-0.2336
P48	D1b-ST	0.1358	-0.0477	-0.2297
P49	D1b-ST	0.1405	-0.0491	-0.2340
P50	D1b-ST	0.1122	-0.0466	-0.2492
P51	D1b-ST	0.1170	-0.0482	-0.2409
P52	D1b-ST	0.1217	-0.0495	-0.2416
P53	D1b-ST	0.1264	-0.0509	-0.2353
P54	D1b-ST	0.1311	-0.0523	-0.2382
P55	D1b-ST	0.1358	-0.0536	-0.2342
P56	D1b-ST	0.1405	-0.0551	-0.2387
P57	D1b-ST	0.1122	-0.0526	-0.2538
P58	D1b-ST	0.1172	-0.0541	-0.2451
P59	D1b-ST	0.1217	-0.0555	-0.2462
P60	D1b-ST	0.1267	-0.0569	-0.2395
P61	D1b-ST	0.1311	-0.0583	-0.2428
P62	D1b-ST	0.1360	-0.0596	-0.2385
P63	D1b-ST	0.1405	-0.0611	-0.2434

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	Inch	Inch	Inch
P1	D2a-ST	0.1518	0.0285	-0.2496
P2	D2a-ST	0.2006	0.0269	-0.2095 *
P3	D2a-ST	0.2111	0.0256	-0.2060 *
P4	D2a-ST	0.1855	0.0243	-0.2297
P5	D2a-ST	0.2321	0.0230	-0.1943 *
P6	D2a-ST	0.2424	0.0216	-0.1865 *
P7	D2a-ST	0.2195	0.0201	-0.2251
P8	D2a-ST	0.1518	0.0142	-0.2638
P9	D2a-ST	0.2030	0.0126	-0.2236 *
P10	D2a-ST	0.2135	0.0113	-0.2200 *
P11	D2a-ST	0.1856	0.0100	-0.2439
P12	D2a-ST	0.2344	0.0087	-0.2082 *
P13	D2a-ST	0.2448	0.0073	-0.2004 *
P14	D2a-ST	0.2195	0.0058	-0.2392
P15	D2a-ST	0.1518	-0.0001	-0.2779
P16	D2a-ST	0.1630	-0.0017	-0.2680
P17	D2a-ST	0.1744	-0.0029	-0.2662
P18	D2a-ST	0.1856	-0.0043	-0.2579
P19	D2a-ST	0.1970	-0.0056	-0.2580
P20	D2a-ST	0.2081	-0.0071	-0.2513
P21	D2a-ST	0.2195	-0.0086	-0.2533
P22	D2a-ST	0.1518	-0.0144	-0.2921
P23	D2a-ST	0.1631	-0.0160	-0.2821
P24	D2a-ST	0.1744	-0.0172	-0.2804
P25	D2a-ST	0.1856	-0.0186	-0.2719
P26	D2a-ST	0.1970	-0.0199	-0.2721
P27	D2a-ST	0.2081	-0.0214	-0.2653
P28	D2a-ST	0.2195	-0.0229	-0.2674
P29	D2a-ST	0.1518	-0.0287	-0.3062
P30	D2a-ST	0.1631	-0.0303	-0.2960
P31	D2a-ST	0.1744	-0.0315	-0.2945
P32	D2a-ST	0.1856	-0.0328	-0.2858
P33	D2a-ST	0.1970	-0.0343	-0.2861
P34	D2a-ST	0.2081	-0.0357	-0.2791
P35	D2a-ST	0.2195	-0.0372	-0.2815
P36	D2a-ST	0.1518	-0.0430	-0.3204
P37	D2a-ST	0.1631	-0.0446	-0.3100
P38	D2a-ST	0.1744	-0.0458	-0.3087
P39	D2a-ST	0.1856	-0.0471	-0.2997
P40	D2a-ST	0.1970	-0.0486	-0.3002
P41	D2a-ST	0.2081	-0.0500	-0.2930
P42	D2a-ST	0.2195	-0.0516	-0.2956
P43	D2a-ST	0.1518	-0.0574	-0.3346
P44	D2a-ST	0.1631	-0.0588	-0.3239
P45	D2a-ST	0.1744	-0.0601	-0.3228
P46	D2a-ST	0.1856	-0.0614	-0.3136
P47	D2a-ST	0.1970	-0.0629	-0.3143
P48	D2a-ST	0.2081	-0.0643	-0.3069
P49	D2a-ST	0.2195	-0.0659	-0.3097
P50	D2a-ST	0.1518	-0.0717	-0.3487
P51	D2a-ST	0.1631	-0.0731	-0.3378
P52	D2a-ST	0.1744	-0.0744	-0.3370
P53	D2a-ST	0.1857	-0.0757	-0.3274
P54	D2a-ST	0.1970	-0.0772	-0.3284
P55	D2a-ST	0.2082	-0.0787	-0.3207
P56	D2a-ST	0.2195	-0.0802	-0.3237
P57	D2a-ST	0.1518	-0.0860	-0.3629
P58	D2a-ST	0.1634	-0.0874	-0.3512
P59	D2a-ST	0.1744	-0.0887	-0.3511
P60	D2a-ST	0.1860	-0.0900	-0.3408
P61	D2a-ST	0.1970	-0.0915	-0.3424
P62	D2a-ST	0.2085	-0.0930	-0.3341
P63	D2a-ST	0.2195	-0.0946	-0.3378

Job: Maurepas Freshwater Diversion
Desc.: C-1 Model Pile Displacements
SETTLEMENT CASES - INCLUDES 4.5' SLAB MODIFICATION

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Sep-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	D2b-ST	0.1390	0.0287	-0.2225	
P2	D2b-ST	0.1835	0.0270	-0.1850	*
P3	D2b-ST	0.1940	0.0257	-0.1811	*
P4	D2b-ST	0.1727	0.0243	-0.2027	
P5	D2b-ST	0.2150	0.0230	-0.1694	*
P6	D2b-ST	0.2253	0.0215	-0.1620	*
P7	D2b-ST	0.2067	0.0199	-0.1980	
P8	D2b-ST	0.1390	0.0144	-0.2264	
P9	D2b-ST	0.1842	0.0127	-0.1890	*
P10	D2b-ST	0.1947	0.0114	-0.1849	*
P11	D2b-ST	0.1728	0.0100	-0.2068	
P12	D2b-ST	0.2156	0.0087	-0.1731	*
P13	D2b-ST	0.2260	0.0072	-0.1659	*
P14	D2b-ST	0.2067	0.0056	-0.2018	
P15	D2b-ST	0.1390	0.0001	-0.2304	
P16	D2b-ST	0.1503	-0.0016	-0.2203	
P17	D2b-ST	0.1616	-0.0029	-0.2183	
P18	D2b-ST	0.1728	-0.0043	-0.2101	
P19	D2b-ST	0.1842	-0.0056	-0.2101	
P20	D2b-ST	0.1954	-0.0071	-0.2036	
P21	D2b-ST	0.2067	-0.0087	-0.2057	
P22	D2b-ST	0.1390	-0.0142	-0.2343	
P23	D2b-ST	0.1503	-0.0159	-0.2241	
P24	D2b-ST	0.1616	-0.0172	-0.2222	
P25	D2b-ST	0.1728	-0.0186	-0.2138	
P26	D2b-ST	0.1842	-0.0200	-0.2139	
P27	D2b-ST	0.1953	-0.0215	-0.2073	
P28	D2b-ST	0.2067	-0.0231	-0.2096	
P29	D2b-ST	0.1390	-0.0285	-0.2382	
P30	D2b-ST	0.1503	-0.0302	-0.2279	
P31	D2b-ST	0.1616	-0.0315	-0.2261	
P32	D2b-ST	0.1728	-0.0328	-0.2176	
P33	D2b-ST	0.1842	-0.0343	-0.2177	
P34	D2b-ST	0.1953	-0.0358	-0.2111	
P35	D2b-ST	0.2067	-0.0374	-0.2134	
P36	D2b-ST	0.1390	-0.0428	-0.2422	
P37	D2b-ST	0.1503	-0.0445	-0.2318	
P38	D2b-ST	0.1616	-0.0458	-0.2300	
P39	D2b-ST	0.1728	-0.0471	-0.2214	
P40	D2b-ST	0.1842	-0.0486	-0.2215	
P41	D2b-ST	0.1953	-0.0501	-0.2148	
P42	D2b-ST	0.2067	-0.0518	-0.2173	
P43	D2b-ST	0.1390	-0.0572	-0.2461	
P44	D2b-ST	0.1503	-0.0587	-0.2357	
P45	D2b-ST	0.1616	-0.0601	-0.2339	
P46	D2b-ST	0.1728	-0.0614	-0.2252	
P47	D2b-ST	0.1842	-0.0629	-0.2254	
P48	D2b-ST	0.1953	-0.0644	-0.2186	
P49	D2b-ST	0.2067	-0.0661	-0.2212	
P50	D2b-ST	0.1390	-0.0715	-0.2500	
P51	D2b-ST	0.1503	-0.0730	-0.2395	
P52	D2b-ST	0.1616	-0.0744	-0.2378	
P53	D2b-ST	0.1729	-0.0757	-0.2290	
P54	D2b-ST	0.1842	-0.0772	-0.2292	
P55	D2b-ST	0.1954	-0.0788	-0.2224	
P56	D2b-ST	0.2067	-0.0804	-0.2251	
P57	D2b-ST	0.1390	-0.0858	-0.2540	
P58	D2b-ST	0.1505	-0.0873	-0.2430	
P59	D2b-ST	0.1616	-0.0887	-0.2417	
P60	D2b-ST	0.1731	-0.0900	-0.2325	
P61	D2b-ST	0.1842	-0.0915	-0.2330	
P62	D2b-ST	0.1957	-0.0931	-0.2259	
P63	D2b-ST	0.2067	-0.0948	-0.2289	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	DC Aa-ST	0.3150	-0.0154	-0.2063	
P2	DC Aa-ST	0.3531	-0.0168	-0.1421	*
P3	DC Aa-ST	0.3623	-0.0179	-0.1377	*
P4	DC Aa-ST	0.3443	-0.0193	-0.1876	
P5	DC Aa-ST	0.3803	-0.0206	-0.1259	*
P6	DC Aa-ST	0.3891	-0.0216	-0.1188	*
P7	DC Aa-ST	0.3741	-0.0227	-0.1794	
P8	DC Aa-ST	0.3150	-0.0278	-0.2262	
P9	DC Aa-ST	0.3564	-0.0293	-0.1615	*
P10	DC Aa-ST	0.3655	-0.0304	-0.1572	*
P11	DC Aa-ST	0.3444	-0.0318	-0.2073	
P12	DC Aa-ST	0.3836	-0.0331	-0.1455	*
P13	DC Aa-ST	0.3924	-0.0342	-0.1382	*
P14	DC Aa-ST	0.3741	-0.0352	-0.1993	
P15	DC Aa-ST	0.3150	-0.0403	-0.2462	
P16	DC Aa-ST	0.3247	-0.0417	-0.2369	
P17	DC Aa-ST	0.3347	-0.0429	-0.2350	
P18	DC Aa-ST	0.3444	-0.0443	-0.2271	
P19	DC Aa-ST	0.3544	-0.0456	-0.2264	
P20	DC Aa-ST	0.3641	-0.0467	-0.2198	
P21	DC Aa-ST	0.3741	-0.0478	-0.2193	
P22	DC Aa-ST	0.3150	-0.0528	-0.2661	
P23	DC Aa-ST	0.3247	-0.0542	-0.2566	
P24	DC Aa-ST	0.3347	-0.0554	-0.2549	
P25	DC Aa-ST	0.3444	-0.0568	-0.2467	
P26	DC Aa-ST	0.3544	-0.0582	-0.2462	
P27	DC Aa-ST	0.3641	-0.0593	-0.2394	
P28	DC Aa-ST	0.3741	-0.0603	-0.2392	
P29	DC Aa-ST	0.3150	-0.0653	-0.2861	
P30	DC Aa-ST	0.3247	-0.0667	-0.2762	
P31	DC Aa-ST	0.3347	-0.0680	-0.2747	
P32	DC Aa-ST	0.3444	-0.0693	-0.2662	
P33	DC Aa-ST	0.3544	-0.0707	-0.2660	
P34	DC Aa-ST	0.3641	-0.0719	-0.2590	
P35	DC Aa-ST	0.3741	-0.0729	-0.2592	
P36	DC Aa-ST	0.3150	-0.0778	-0.3060	
P37	DC Aa-ST	0.3247	-0.0791	-0.2958	
P38	DC Aa-ST	0.3347	-0.0805	-0.2945	
P39	DC Aa-ST	0.3444	-0.0819	-0.2858	
P40	DC Aa-ST	0.3544	-0.0832	-0.2858	
P41	DC Aa-ST	0.3641	-0.0844	-0.2786	
P42	DC Aa-ST	0.3741	-0.0854	-0.2791	
P43	DC Aa-ST	0.3150	-0.0903	-0.3260	
P44	DC Aa-ST	0.3247	-0.0916	-0.3154	
P45	DC Aa-ST	0.3347	-0.0930	-0.3143	
P46	DC Aa-ST	0.3444	-0.0944	-0.3053	
P47	DC Aa-ST	0.3544	-0.0958	-0.3056	
P48	DC Aa-ST	0.3641	-0.0970	-0.2982	
P49	DC Aa-ST	0.3741	-0.0980	-0.2991	
P50	DC Aa-ST	0.3150	-0.1028	-0.3459	
P51	DC Aa-ST	0.3247	-0.1041	-0.3349	
P52	DC Aa-ST	0.3347	-0.1055	-0.3342	
P53	DC Aa-ST	0.3444	-0.1069	-0.3248	
P54	DC Aa-ST	0.3544	-0.1083	-0.3255	
P55	DC Aa-ST	0.3641	-0.1096	-0.3177	
P56	DC Aa-ST	0.3741	-0.1105	-0.3190	
P57	DC Aa-ST	0.3150	-0.1153	-0.3659	
P58	DC Aa-ST	0.3250	-0.1165	-0.3540	
P59	DC Aa-ST	0.3347	-0.1180	-0.3540	
P60	DC Aa-ST	0.3447	-0.1194	-0.3438	
P61	DC Aa-ST	0.3544	-0.1208	-0.3453	
P62	DC Aa-ST	0.3644	-0.1221	-0.3369	
P63	DC Aa-ST	0.3741	-0.1231	-0.3389	

TABLE: Joint Displacements

Joint	Case	U1	U2	U3	
Text	Text	Inch	Inch	Inch	
P1	DC Ab-ST	0.2993	-0.0151	-0.1730	
P2	DC Ab-ST	0.3321	-0.0167	-0.1120	*
P3	DC Ab-ST	0.3413	-0.0179	-0.1071	*
P4	DC Ab-ST	0.3286	-0.0193	-0.1545	
P5	DC Ab-ST	0.3593	-0.0206	-0.0953	*
P6	DC Ab-ST	0.3681	-0.0217	-0.0888	*
P7	DC Ab-ST	0.3584	-0.0229	-0.1461	
P8	DC Ab-ST	0.2993	-0.0276	-0.1804	
P9	DC Ab-ST	0.3334	-0.0292	-0.1192	*
P10	DC Ab-ST	0.3425	-0.0304	-0.1143	*
P11	DC Ab-ST	0.3287	-0.0318	-0.1618	
P12	DC Ab-ST	0.3605	-0.0331	-0.1025	*
P13	DC Ab-ST	0.3694	-0.0343	-0.0959	*
P14	DC Ab-ST	0.3584	-0.0355	-0.1535	
P15	DC Ab-ST	0.2993	-0.0401	-0.1878	
P16	DC Ab-ST	0.3090	-0.0416	-0.1784	
P17	DC Ab-ST	0.3190	-0.0429	-0.1763	
P18	DC Ab-ST	0.3287	-0.0443	-0.1685	
P19	DC Ab-ST	0.3387	-0.0457	-0.1676	
P20	DC Ab-ST	0.3484	-0.0468	-0.1613	
P21	DC Ab-ST	0.3584	-0.0480	-0.1609	
P22	DC Ab-ST	0.2993	-0.0526	-0.1952	
P23	DC Ab-ST	0.3090	-0.0541	-0.1855	
P24	DC Ab-ST	0.3190	-0.0554	-0.1835	
P25	DC Ab-ST	0.3287	-0.0568	-0.1755	
P26	DC Ab-ST	0.3387	-0.0582	-0.1748	
P27	DC Ab-ST	0.3484	-0.0594	-0.1683	
P28	DC Ab-ST	0.3584	-0.0606	-0.1683	
P29	DC Ab-ST	0.2993	-0.0651	-0.2027	
P30	DC Ab-ST	0.3090	-0.0666	-0.1927	
P31	DC Ab-ST	0.3190	-0.0679	-0.1908	
P32	DC Ab-ST	0.3287	-0.0693	-0.1826	
P33	DC Ab-ST	0.3387	-0.0707	-0.1821	
P34	DC Ab-ST	0.3484	-0.0720	-0.1755	
P35	DC Ab-ST	0.3584	-0.0731	-0.1757	
P36	DC Ab-ST	0.2993	-0.0776	-0.2101	
P37	DC Ab-ST	0.3090	-0.0790	-0.1999	
P38	DC Ab-ST	0.3190	-0.0804	-0.1980	
P39	DC Ab-ST	0.3287	-0.0819	-0.1898	
P40	DC Ab-ST	0.3387	-0.0832	-0.1893	
P41	DC Ab-ST	0.3484	-0.0845	-0.1827	
P42	DC Ab-ST	0.3584	-0.0856	-0.1831	
P43	DC Ab-ST	0.2993	-0.0901	-0.2175	
P44	DC Ab-ST	0.3090	-0.0915	-0.2072	
P45	DC Ab-ST	0.3190	-0.0930	-0.2053	
P46	DC Ab-ST	0.3287	-0.0944	-0.1969	
P47	DC Ab-ST	0.3387	-0.0958	-0.1966	
P48	DC Ab-ST	0.3484	-0.0971	-0.1900	
P49	DC Ab-ST	0.3584	-0.0982	-0.1905	
P50	DC Ab-ST	0.2993	-0.1026	-0.2249	
P51	DC Ab-ST	0.3090	-0.1039	-0.2144	
P52	DC Ab-ST	0.3190	-0.1055	-0.2125	
P53	DC Ab-ST	0.3287	-0.1069	-0.2040	
P54	DC Ab-ST	0.3387	-0.1083	-0.2038	
P55	DC Ab-ST	0.3484	-0.1097	-0.1972	
P56	DC Ab-ST	0.3584	-0.1107	-0.1979	
P57	DC Ab-ST	0.2993	-0.1151	-0.2323	
P58	DC Ab-ST	0.3093	-0.1164	-0.2213	
P59	DC Ab-ST	0.3190	-0.1180	-0.2198	
P60	DC Ab-ST	0.3290	-0.1194	-0.2109	
P61	DC Ab-ST	0.3387	-0.1208	-0.2111	
P62	DC Ab-ST	0.3487	-0.1223	-0.2041	
P63	DC Ab-ST	0.3584	-0.1233	-0.2053	

VERTICAL PILES

Vertical Displacements:
MAXIMUM DEFLECTION = -0.0969 inch
MINIMUM DEFLECTION = -0.3676 inch

Horizontal (F1) Displacements:
MAXIMUM DEFLECTION = 0.3741 inch
MINIMUM DEFLECTION = -0.3415 inch

Horizontal (F2) Displacements:
MAXIMUM DEFLECTION = 0.0287 inch
MINIMUM DEFLECTION = -0.2044 inch

6V:1H PILES

Vertical Displacements:
MAXIMUM DEFLECTION = -0.0888 inch
MINIMUM DEFLECTION = -0.3030 inch

Horizontal (F1) Displacements:
MAXIMUM DEFLECTION = 0.3924 inch
MINIMUM DEFLECTION = -0.2997 inch

Horizontal (F2) Displacements:
MAXIMUM DEFLECTION = 0.0270 inch
MINIMUM DEFLECTION = -0.2033 inch

Maximum allowable vertical deflection is 0.5" (for load cases with no allowable overstress). Maximum deflection found is 0.37" - OK.

Maximum allowable horizontal deflection is 0.75" (for load cases with no allowable overstress). Maximum deflection found is 0.392" - OK.

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-1 SOIL & PILE INFO FOR STRUCTURAL CHECK | Computed by: LBR | Sheet ___ of ___ | Date: 9/2013
Checked by: ___ | Date: ___

Reference

E_s: - USING P-Y CURVE DATA, CALIBRATED SPRING = 50.7 K/IN

- CPGA MANUAL: STIFFNESS = $K = \frac{C_0 E I}{R^3}$

C_0 = FIXITY CONST. = 0.707 FOR PINNED PILE, CONSTANT E_s
$E = 29{,}000{,}000$ PSI
$I = 1300\ IN^4$ (STRONG AXIS)
$R = \sqrt[4]{\frac{EI}{E_s}}$ (INCH)

$$\Rightarrow K = 50{,}666.7\ LB/IN = \frac{(0.707)(29{,}000{,}000\ PSI)(1300\ IN^4)}{\left(\sqrt[4]{\frac{29{,}000{,}000 \times 1300}{E_s}}\right)^3}$$

↳ SOLVING FOR E_s w/ EXCEL ⇒ $E_s = 887.75$ PSI = **0.888 KSI**

LATERAL GROUP REDUCTION FACTOR: HSDRS GUIDELINES SECT 4.3

↳ PERPENDICULAR TO LOADING: IF $S_a/b < 3.75$, REDUCTION NEEDED
(SAP Y-DIR., TRANSVERSE)

$S_a = 6'\text{-}4\tfrac{1}{2}''$, $b = 16''$ → $S_a/b = \frac{6.375}{1.33} = 4.78 > 3.75$
↳ NO REDUCTION NEEDED

↳ PARALLEL TO LOADING: IF $S_b/b < 7.0$, REDUCTION NEEDED
(SAP X-DIR, LONG.)

$S_b = 8'\text{-}1\tfrac{1}{2}''$, $b = 16''$ → $S_a/b = \frac{8.125}{1.33} = 6.09 < 7.0$

↳ $R_g = 0.48\left(S_b/b\right)^{0.38} = 0.48\left(\frac{8.125}{1.33}\right)^{0.38} = 0.9539$

CRITICAL BUCKLING LOAD: CPGA MANUAL PG 40 - FOR CONST. E_s & UNSUPPORTED LENGTH

$PCR = n\sqrt{E_s E I}$, $n = 1$ FOR PINNED PILES

$PCR_{,STRONG} = \sqrt{(0.888\ KSI)(29{,}000\ KSI)(1300\ IN^4)} = 5{,}785.17^K$

$PCR_{,WEAK} = \sqrt{(0.888)(29{,}000)(412\ IN^4)} = 3{,}256.8^K$

URS

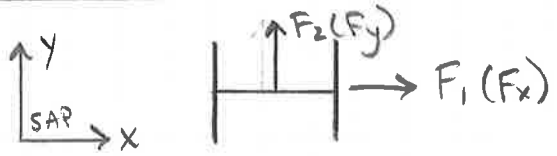
Job: MAUREPAS | Project No. 10001876 | Page ___ of ___ | Sheet ___ of ___

Description: C-1 PILE STRUCTURAL CHECK - PILE/SOIL INFO. | Computed by: LBR | Date: 9/2013

Checked by: ___ | Date: ___

Reference

PILE ORIENTATION: SAP X & Y CORRESPOND TO AISC TABLE X & Y.



$F_1 \Rightarrow$ STRONG AXIS
$F_2 \Rightarrow$ WEAK AXIS

ACC: CPG-A MANUAL PG 4Z-43 → IF $\sqrt{\frac{2\pi^2 E}{F_y}} > \sqrt{\frac{\pi^2 EA}{PCR}}$

THEN $ACC = \left[\frac{F_y \cdot A}{S.F.}\right]\left[1 - \frac{F_y \cdot A}{4 \cdot PCR}\right]$

$\rightarrow \sqrt{\frac{2\pi^2(29{,}000)}{50\,KSI}} = 106.99$

$\rightarrow \sqrt{\frac{\pi^2(29{,}000)(29.9\,in^2)}{3256.8}} = 51.26$ ← SMALLER PCR = HIGHER #

$106.99 > 51.26$

$\Rightarrow ACC_{,STRONG} = \left[\frac{50\,KSI \times 29.9\,in^2}{2}\right]\left[1 - \frac{50\,KSI \times 29.9\,in^2}{(4 \cdot 5785.17^k)}\right] = \underline{699.2^k}$

$\Rightarrow ACC_{,WEAK} = \left[\frac{50\,KSI \times 29.9\,in^2}{2}\right]\left[1 - \frac{50\,KSI \times 29.9\,in^2}{(4 \cdot 3256.8^k)}\right] = \underline{661.7^k}$

ATI: $ATI = \frac{A \cdot F_y}{S.F.} = \frac{29.9\,in^2 \times 50\,KSI}{2} = \underline{747.5^k}$ (BOTH AXIS)

AMs: ALLOWABLE MOMENTS $= S \cdot F_y$

USAGE FACTOR
SAFETY FACTOR - AISC

$AM1\ (STRONG) = S_x F_y = (168\,in^3)(50\,KSI) \times 5/6 \times 2/3 = \underline{4{,}666.67^{k \cdot in}}$

$AM2\ (WEAK) = S_y F_y = (52.2\,in^3)(50\,KSI) \times 5/6 \times 2/3 = \underline{1450^{k \cdot in}}$

URS

Job: MAUREPAS | Project No. 10001876 | Page ___ of ___
Description: C-1 PILE STRUCTURAL CHECK | Computed by: LBK | Sheet ___ of ___
Checked by: ___ | Date: 7/2013 | Date: ___

Reference

CBF: CPGA MANUAL PG 32.

$$COMP = \left[\frac{F3}{ACC} + MF1\left(\frac{M1}{AM1}\right) + MF2\left(\frac{M2}{AM2}\right) \right]\left(\frac{1}{OSF}\right) \leq 1.0$$

-NO TENSION REACTIONS-

MF1 & MF2 = 1.0, NO P_Δ EFFECT

ALF: $ALF = \frac{F3}{AC} \times \frac{1}{OSF}$, $AC = C_{ALLOWABLE} = 285^k$ (TIP EL-110)

-NO TENSION REACTIONS-

PILE CAPACITY: PILES 2, 3, 5, 6, 9, 10, 12 & 13 are battered @ 6V:1H

CAPACITY MUST BE REDUCED → $285^k \times \frac{6}{\sqrt{6^2+1^2}} = 281.1^k$

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	1a	-2.78	-0.10	155.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-22.73	0.23	0.47
P2	1a	-3.92	-0.07	141.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	120.83	-23.69	0.22	0.43
P3	1a	-3.94	-0.04	144.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	121.63	-24.60	0.22	0.44
P4	1a	-2.78	-0.02	154.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.28	-25.39	0.23	0.47
P5	1a	-3.96	0.01	146.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	122.55	-25.71	0.23	0.45
P6	1a	-3.97	0.04	145.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	122.66	-24.78	0.23	0.44
P7	1a	-2.80	0.07	161.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.03	-23.78	0.24	0.49
P8	1a	-2.78	-0.09	147.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-22.87	0.22	0.44
P9	1a	-3.86	-0.06	133.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	118.36	-23.86	0.21	0.41
P10	1a	-3.88	-0.04	136.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	118.94	-24.74	0.21	0.41
P11	1a	-2.79	-0.01	146.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.55	-25.52	0.22	0.44
P12	1a	-3.90	0.01	137.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	119.85	-25.58	0.22	0.42
P13	1a	-3.91	0.04	137.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	120.18	-24.67	0.22	0.42
P14	1a	-2.80	0.07	153.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.03	-23.65	0.23	0.46
P15	1a	-2.78	-0.09	138.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.02	0.21	0.42
P16	1a	-2.79	-0.06	137.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.35	-24.01	0.21	0.41
P17	1a	-2.79	-0.03	139.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.52	-24.88	0.21	0.42
P18	1a	-2.79	-0.01	138.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.58	-25.66	0.21	0.42
P19	1a	-2.80	0.02	141.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-25.45	0.21	0.43
P20	1a	-2.80	0.04	140.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.87	-24.56	0.21	0.42
P21	1a	-2.80	0.07	144.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.03	-23.52	0.22	0.44
P22	1a	-2.78	-0.09	130.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.16	0.20	0.39
P23	1a	-2.79	-0.05	128.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.34	-24.17	0.19	0.39
P24	1a	-2.79	-0.03	131.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.53	-25.02	0.20	0.39
P25	1a	-2.79	0.00	130.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.58	-25.80	0.20	0.39
P26	1a	-2.80	0.02	133.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-25.32	0.20	0.40
P27	1a	-2.80	0.05	132.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.85	-24.44	0.20	0.40
P28	1a	-2.80	0.08	136.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.03	-23.40	0.20	0.41
P29	1a	-2.78	-0.08	121.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.31	0.19	0.37
P30	1a	-2.79	-0.05	120.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.33	-24.33	0.18	0.36
P31	1a	-2.79	-0.02	122.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.53	-25.16	0.19	0.37
P32	1a	-2.79	0.00	122.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.59	-25.93	0.19	0.37
P33	1a	-2.80	0.02	124.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-25.18	0.19	0.38
P34	1a	-2.80	0.05	124.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.84	-24.33	0.19	0.37
P35	1a	-2.80	0.08	127.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.04	-23.27	0.19	0.38
P36	1a	-2.78	-0.08	113.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.45	0.17	0.34
P37	1a	-2.79	-0.04	112.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.33	-24.49	0.17	0.34
P38	1a	-2.79	-0.02	114.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.53	-25.29	0.18	0.34
P39	1a	-2.79	0.00	113.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.59	-25.82	0.18	0.34
P40	1a	-2.80	0.03	116.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-25.05	0.18	0.35
P41	1a	-2.80	0.05	116.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.85	-24.22	0.18	0.35
P42	1a	-2.80	0.09	119.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.04	-23.14	0.18	0.36
P43	1a	-2.78	-0.07	104.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.59	0.16	0.32
P44	1a	-2.79	-0.04	103.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.34	-24.65	0.16	0.31
P45	1a	-2.79	-0.02	106.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.53	-25.43	0.17	0.32
P46	1a	-2.79	0.01	105.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.60	-25.68	0.17	0.32
P47	1a	-2.80	0.03	108.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-24.92	0.17	0.32
P48	1a	-2.80	0.06	107.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.85	-24.10	0.17	0.32
P49	1a	-2.80	0.09	111.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.04	-23.01	0.17	0.33
P50	1a	-2.78	-0.07	96.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.74	0.15	0.29
P51	1a	-2.79	-0.03	95.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.37	-24.80	0.15	0.29
P52	1a	-2.79	-0.01	97.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.53	-25.57	0.16	0.29
P53	1a	-2.79	0.01	97.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.62	-25.54	0.16	0.29
P54	1a	-2.80	0.04	99.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-24.79	0.16	0.30
P55	1a	-2.80	0.06	99.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.88	-23.99	0.16	0.30
P56	1a	-2.80	0.09	102.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.04	-22.89	0.16	0.31
P57	1a	-2.78	-0.06	88.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.27	-23.88	0.14	0.26
P58	1a	-2.79	-0.03	87.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.56	-24.96	0.14	0.26
P59	1a	-2.79	-0.01	89.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.53	-25.71	0.14	0.27
P60	1a	-2.80	0.02	88.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.81	-25.41	0.14	0.27
P61	1a	-2.80	0.04	91.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.78	-24.66	0.15	0.27
P62	1a	-2.80	0.06	91.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.07	-23.88	0.15	0.27
P63	1a	-2.80	0.10	94.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	75.04	-22.76	0.15	0.28
P1	1b	12.09	0.07	219.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	-23.56	0.40	0.66
P2	1b	10.15	0.13	251.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	432.45	-21.53	0.42	0.77
P3	1b	10.01	0.21	253.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	424.42	-19.17	0.42	0.77
P4	1b	11.66	0.27	209.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	522.86	-16.95	0.38	0.63
P5	1b	9.74	0.34	250.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	409.07	-14.74	0.41	0.76
P6	1b	9.61	0.41	245.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	401.78	-12.41	0.40	0.75
P7	1b	11.22	0.47	212.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	-10.46	0.38	0.64
P8	1b	12.09	0.25	223.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	-17.58	0.40	0.67
P9	1b	10.10	0.32	256.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	429.89	-15.45	0.42	0.78
P10	1b	9.97	0.39	257.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.39	-13.09	0.42	0.79
P11	1b	11.65	0.46	214.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	522.13	-10.83	0.38	0.64
P12	1b	9.70	0.52	254.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	407.07	-8.59	0.41	0.78
P13	1b	9.57	0.59	250.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	399.28	-6.24	0.40	0.76
P14	1b	11.22	0.65	217.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	-4.22	0.38	0.65
P15	1b	12.09	0.44	228.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	-11.50	0.41	0.69
P16	1b	11.93	0.50	222.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	539.83	-9.31	0.40	0.67
P17	1b	11.80	0.57	223.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.26	-6.93	0.39	0.67
P18	1b	11.65	0.64	218.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	522.02	-4.64	0.38	0.66
P19	1b	11.51	0.71	221.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.53	-2.35	0.38	0.67
P20	1b	11.36	0.77	218.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	504.41	0.01	0.38	0.66

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		M1 Kips-in	M2 Kips-in	CBF	
P21	1b	11.22	0.84	221.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	2.11	0.38	0.67
P22	1b	12.09	0.62	232.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	-5.35	0.41	0.70
P23	1b	11.93	0.68	226.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	539.83	-3.08	0.40	0.68
P24	1b	11.80	0.75	228.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.26	-0.69	0.40	0.69
P25	1b	11.65	0.82	223.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	521.99	1.64	0.39	0.67
P26	1b	11.51	0.89	226.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.53	3.97	0.39	0.68
P27	1b	11.36	0.96	222.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	504.41	6.35	0.39	0.67
P28	1b	11.22	1.02	226.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	8.52	0.39	0.68
P29	1b	12.09	0.80	237.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	0.89	0.41	0.71
P30	1b	11.93	0.87	231.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	539.84	3.23	0.40	0.70
P31	1b	11.80	0.94	232.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.26	5.64	0.40	0.70
P32	1b	11.65	1.00	228.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	521.98	8.01	0.40	0.69
P33	1b	11.51	1.07	230.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.52	10.37	0.40	0.69
P34	1b	11.36	1.14	227.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	504.41	12.77	0.40	0.68
P35	1b	11.22	1.20	231.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	15.01	0.40	0.69
P36	1b	12.09	0.98	241.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	7.21	0.42	0.73
P37	1b	11.93	1.05	235.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	539.83	9.62	0.41	0.71
P38	1b	11.80	1.12	237.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.26	12.05	0.41	0.71
P39	1b	11.65	1.19	232.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	521.97	14.46	0.41	0.70
P40	1b	11.51	1.26	235.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.52	16.86	0.41	0.71
P41	1b	11.36	1.32	231.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	504.41	19.27	0.41	0.70
P42	1b	11.22	1.39	235.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	21.59	0.41	0.71
P43	1b	12.09	1.16	246.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	13.61	0.43	0.74
P44	1b	11.93	1.23	240.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	539.80	16.10	0.42	0.72
P45	1b	11.80	1.30	241.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.26	18.54	0.42	0.73
P46	1b	11.65	1.37	237.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	521.94	20.99	0.42	0.71
P47	1b	11.51	1.44	239.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.52	23.43	0.42	0.72
P48	1b	11.36	1.51	236.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	504.38	25.86	0.42	0.71
P49	1b	11.22	1.57	240.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	28.25	0.42	0.72
P50	1b	12.09	1.35	250.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	20.10	0.44	0.75
P51	1b	11.93	1.42	244.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	539.66	22.67	0.43	0.74
P52	1b	11.80	1.49	246.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.25	25.12	0.43	0.74
P53	1b	11.64	1.55	241.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	521.80	27.60	0.43	0.73
P54	1b	11.51	1.62	244.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.52	30.09	0.43	0.74
P55	1b	11.36	1.69	240.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	504.24	32.53	0.43	0.72
P56	1b	11.22	1.76	244.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	34.99	0.43	0.74
P57	1b	12.09	1.53	255.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	549.26	26.67	0.45	0.77
P58	1b	11.92	1.60	249.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	538.69	29.33	0.44	0.75
P59	1b	11.80	1.67	251.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	531.25	31.78	0.44	0.76
P60	1b	11.63	1.74	245.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	520.86	34.30	0.44	0.74
P61	1b	11.51	1.80	249.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	513.52	36.83	0.44	0.75
P62	1b	11.34	1.87	245.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	503.31	39.27	0.44	0.74
P63	1b	11.22	1.94	249.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	496.09	41.82	0.44	0.75
P1	1c	-2.78	10.21	161.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	435.93	0.49	0.49
P2	1c	-3.94	10.24	144.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	121.38	437.93	0.48	0.44
P3	1c	-3.93	10.27	145.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	121.19	439.48	0.48	0.44
P4	1c	-2.76	10.29	153.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.36	440.55	0.48	0.46
P5	1c	-3.91	10.31	142.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	120.13	441.77	0.48	0.44
P6	1c	-3.89	10.33	139.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	119.26	443.11	0.48	0.43
P7	1c	-2.76	10.35	153.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.30	444.48	0.49	0.46
P8	1c	-2.78	10.20	152.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	435.70	0.48	0.46
P9	1c	-3.88	10.24	136.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	118.88	437.75	0.47	0.42
P10	1c	-3.87	10.26	136.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	118.50	439.25	0.47	0.42
P11	1c	-2.77	10.28	145.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.60	440.32	0.47	0.44
P12	1c	-3.84	10.30	134.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	117.44	441.53	0.47	0.41
P13	1c	-3.83	10.33	131.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	116.78	442.85	0.47	0.40
P14	1c	-2.76	10.35	144.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.30	444.23	0.48	0.44
P15	1c	-2.78	10.20	144.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	435.47	0.47	0.43
P16	1c	-2.77	10.23	140.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.91	437.55	0.47	0.42
P17	1c	-2.77	10.26	140.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	439.01	0.47	0.42
P18	1c	-2.77	10.28	137.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.63	440.09	0.46	0.41
P19	1c	-2.77	10.30	138.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	441.29	0.47	0.42
P20	1c	-2.76	10.32	135.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.40	442.58	0.46	0.41
P21	1c	-2.76	10.35	136.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.30	443.98	0.46	0.41
P22	1c	-2.78	10.19	136.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	435.25	0.46	0.41
P23	1c	-2.77	10.23	131.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.89	437.34	0.45	0.40
P24	1c	-2.77	10.26	132.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	438.78	0.46	0.40
P25	1c	-2.77	10.27	129.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.63	439.85	0.45	0.39
P26	1c	-2.77	10.29	129.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	441.05	0.45	0.39
P27	1c	-2.76	10.32	126.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.38	442.30	0.45	0.38
P28	1c	-2.76	10.34	127.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.30	443.73	0.45	0.38
P29	1c	-2.78	10.19	127.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	435.02	0.45	0.38
P30	1c	-2.77	10.23	123.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.89	437.14	0.44	0.37
P31	1c	-2.77	10.25	123.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	438.54	0.44	0.37
P32	1c	-2.77	10.27	120.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.63	439.61	0.44	0.36
P33	1c	-2.77	10.29	121.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	440.80	0.44	0.36
P34	1c	-2.76	10.31	118.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.37	442.03	0.44	0.36
P35	1c	-2.76	10.34	119.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.30	443.49	0.44	0.36
P36	1c	-2.78	10.19	119.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	434.79	0.44	0.36
P37	1c	-2.77	10.22	115.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.89	436.94	0.43	0.35
P38	1c	-2.77	10.25	115.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	438.31	0.43	0.35
P39	1c	-2.77	10.27	112.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.63	439.37	0.43	0.34
P40	1c	-2.77	10.29	112.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	440.56	0.43	0.34

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor	ALF
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		M1 Kips-in	M2 Kips-in	CBF	
P41	1c	-2.76	10.31	110.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.37	441.76	0.43	0.33
P42	1c	-2.76	10.33	111.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.31	443.24	0.43	0.33
P43	1c	-2.78	10.18	110.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	434.56	0.43	0.33
P44	1c	-2.77	10.22	106.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.90	436.73	0.42	0.32
P45	1c	-2.77	10.24	106.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	438.07	0.42	0.32
P46	1c	-2.77	10.26	104.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.64	439.13	0.42	0.31
P47	1c	-2.77	10.28	104.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	440.32	0.42	0.31
P48	1c	-2.76	10.30	102.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.38	441.49	0.42	0.31
P49	1c	-2.76	10.33	102.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.31	442.98	0.42	0.31
P50	1c	-2.78	10.18	102.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	434.32	0.41	0.31
P51	1c	-2.77	10.22	98.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.91	436.53	0.41	0.30
P52	1c	-2.77	10.24	98.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	437.84	0.41	0.30
P53	1c	-2.77	10.26	96.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.66	438.89	0.41	0.29
P54	1c	-2.77	10.28	96.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	440.07	0.41	0.29
P55	1c	-2.76	10.30	93.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.40	441.21	0.41	0.28
P56	1c	-2.76	10.32	94.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.31	442.73	0.41	0.28
P57	1c	-2.78	10.18	93.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.08	434.09	0.40	0.28
P58	1c	-2.78	10.21	90.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	74.09	436.32	0.40	0.27
P59	1c	-2.77	10.24	90.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	437.60	0.40	0.27
P60	1c	-2.77	10.25	87.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.83	438.63	0.40	0.26
P61	1c	-2.77	10.27	87.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.57	439.83	0.40	0.26
P62	1c	-2.77	10.29	85.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.58	440.92	0.40	0.26
P63	1c	-2.76	10.32	85.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	73.31	442.48	0.40	0.26
P1	OP1a	11.71	-0.18	206.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.60	-20.04	0.44	0.72
P2	OP1a	9.99	-0.13	240.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	423.60	-21.77	0.47	0.85
P3	OP1a	9.99	-0.06	243.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	423.37	-23.91	0.48	0.86
P4	OP1a	11.71	0.00	200.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.68	-25.89	0.44	0.71
P5	OP1a	9.99	0.06	243.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	423.25	-24.00	0.48	0.87
P6	OP1a	9.99	0.12	240.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	423.38	-21.90	0.47	0.86
P7	OP1a	11.70	0.18	207.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-20.16	0.44	0.73
P8	OP1a	11.71	-0.18	212.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.60	-20.03	0.45	0.75
P9	OP1a	9.94	-0.13	246.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	420.48	-21.82	0.48	0.88
P10	OP1a	9.94	-0.06	249.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	420.59	-23.92	0.49	0.89
P11	OP1a	11.70	0.00	207.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.15	-25.91	0.45	0.73
P12	OP1a	9.94	0.06	249.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	420.47	-23.99	0.49	0.89
P13	OP1a	9.93	0.12	247.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	420.25	-21.91	0.48	0.88
P14	OP1a	11.70	0.18	213.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-20.13	0.45	0.75
P15	OP1a	11.71	-0.18	219.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.60	-20.03	0.46	0.77
P16	OP1a	11.70	-0.12	214.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.17	-21.86	0.46	0.75
P17	OP1a	11.70	-0.06	217.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.45	-23.93	0.46	0.76
P18	OP1a	11.70	0.00	213.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.12	-25.92	0.46	0.75
P19	OP1a	11.70	0.06	217.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.97	0.46	0.76
P20	OP1a	11.70	0.12	215.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.10	-21.92	0.46	0.76
P21	OP1a	11.70	0.18	219.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-20.10	0.46	0.77
P22	OP1a	11.71	-0.18	225.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.60	-20.02	0.47	0.79
P23	OP1a	11.70	-0.12	221.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.12	-21.90	0.47	0.78
P24	OP1a	11.70	-0.06	223.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.45	-23.94	0.47	0.78
P25	OP1a	11.70	0.00	220.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.04	-25.93	0.47	0.77
P26	OP1a	11.70	0.06	223.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.96	0.47	0.78
P27	OP1a	11.70	0.12	221.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.05	-21.93	0.47	0.78
P28	OP1a	11.70	0.18	225.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-20.07	0.47	0.79
P29	OP1a	11.71	-0.18	231.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.60	-20.02	0.48	0.81
P30	OP1a	11.70	-0.12	227.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.13	-21.94	0.47	0.80
P31	OP1a	11.70	-0.06	229.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.45	-23.96	0.48	0.81
P32	OP1a	11.70	0.00	226.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.03	-25.93	0.48	0.79
P33	OP1a	11.70	0.06	229.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.94	0.48	0.81
P34	OP1a	11.70	0.12	227.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.06	-21.94	0.48	0.80
P35	OP1a	11.70	0.18	232.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-20.04	0.48	0.81
P36	OP1a	11.71	-0.18	237.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.59	-20.01	0.49	0.83
P37	OP1a	11.70	-0.12	233.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.12	-21.98	0.48	0.82
P38	OP1a	11.70	-0.06	236.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.45	-23.97	0.49	0.83
P39	OP1a	11.70	0.00	232.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.02	-25.92	0.49	0.82
P40	OP1a	11.70	0.06	236.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.93	0.49	0.83
P41	OP1a	11.70	0.12	234.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.05	-21.94	0.48	0.82
P42	OP1a	11.70	0.18	238.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-20.01	0.49	0.84
P43	OP1a	11.71	-0.18	244.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.59	-20.01	0.50	0.86
P44	OP1a	11.70	-0.12	239.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.09	-22.01	0.49	0.84
P45	OP1a	11.70	-0.06	242.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.45	-23.98	0.50	0.85
P46	OP1a	11.70	0.00	239.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	524.99	-25.90	0.50	0.84
P47	OP1a	11.70	0.06	242.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.92	0.50	0.85
P48	OP1a	11.70	0.12	240.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.02	-21.95	0.49	0.84
P49	OP1a	11.70	0.18	244.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.50	-19.98	0.50	0.86
P50	OP1a	11.71	-0.18	250.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.59	-20.01	0.51	0.88
P51	OP1a	11.69	-0.12	246.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	524.97	-22.05	0.50	0.86
P52	OP1a	11.70	-0.06	248.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.44	-23.99	0.51	0.87
P53	OP1a	11.69	0.00	245.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	524.87	-25.89	0.50	0.86
P54	OP1a	11.70	0.06	249.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.90	0.51	0.87
P55	OP1a	11.69	0.12	246.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	524.90	-21.96	0.50	0.86
P56	OP1a	11.70	0.18	251.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.49	-19.96	0.51	0.88
P57	OP1a	11.71	-0.18	256.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.59	-20.01	0.52	0.90
P58	OP1a	11.68	-0.12	251.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	524.06	-22.10	0.51	0.88
P59	OP1a	11.70	-0.06	255.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.44	-24.00	0.52	0.90
P60	OP1a	11.68	0.00	251.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	523.97	-25.88	0.51	0.88

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	$n\sqrt{E_s EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E								(AISC)	(CPGA)	(5/3*6/5)							M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P61	OP1a	11.70	0.06	255.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.41	-23.89	0.52	0.90
P62	OP1a	11.68	0.12	252.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	523.99	-21.97	0.51	0.89
P63	OP1a	11.70	0.18	257.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	525.49	-19.93	0.52	0.90
P1	OP1b	11.92	-0.18	196.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.93	0.43	0.69
P2	OP1b	10.28	-0.13	231.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	440.44	-21.74	0.46	0.82
P3	OP1b	10.28	-0.06	233.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	440.23	-23.90	0.47	0.83
P4	OP1b	11.92	0.00	191.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.18	-25.89	0.43	0.67
P5	OP1b	10.28	0.06	234.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	440.11	-23.99	0.47	0.83
P6	OP1b	10.28	0.12	231.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	440.21	-21.87	0.46	0.82
P7	OP1b	11.92	0.18	197.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-20.05	0.43	0.69
P8	OP1b	11.92	-0.18	199.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.93	0.43	0.70
P9	OP1b	10.26	-0.13	233.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	438.94	-21.79	0.47	0.83
P10	OP1b	10.26	-0.06	236.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	439.09	-23.91	0.47	0.84
P11	OP1b	11.92	0.00	193.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.64	-25.91	0.43	0.68
P12	OP1b	10.26	0.06	236.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	438.96	-23.98	0.47	0.84
P13	OP1b	10.25	0.12	234.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	438.70	-21.88	0.47	0.83
P14	OP1b	11.92	0.18	199.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-20.02	0.43	0.70
P15	OP1b	11.92	-0.18	201.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.92	0.44	0.71
P16	OP1b	11.92	-0.13	197.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.63	-21.82	0.43	0.69
P17	OP1b	11.92	-0.06	199.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.92	0.44	0.70
P18	OP1b	11.91	0.00	196.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.57	-25.92	0.43	0.69
P19	OP1b	11.92	0.06	199.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.93	-23.96	0.44	0.70
P20	OP1b	11.91	0.12	197.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.56	-21.88	0.43	0.69
P21	OP1b	11.92	0.18	202.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.99	0.44	0.71
P22	OP1b	11.92	-0.18	204.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.91	0.44	0.72
P23	OP1b	11.92	-0.12	199.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.63	-21.86	0.44	0.70
P24	OP1b	11.92	-0.06	202.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.93	0.44	0.71
P25	OP1b	11.91	0.00	198.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.55	-25.93	0.44	0.70
P26	OP1b	11.92	0.06	202.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.92	-23.95	0.44	0.71
P27	OP1b	11.91	0.12	200.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.56	-21.89	0.44	0.70
P28	OP1b	11.92	0.18	204.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.96	0.44	0.72
P29	OP1b	11.92	-0.18	206.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.91	0.45	0.72
P30	OP1b	11.92	-0.12	202.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.64	-21.89	0.44	0.71
P31	OP1b	11.92	-0.06	204.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.94	0.45	0.72
P32	OP1b	11.91	0.00	201.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.54	-25.93	0.44	0.71
P33	OP1b	11.92	0.06	204.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.92	-23.93	0.45	0.72
P34	OP1b	11.91	0.12	202.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.57	-21.89	0.44	0.71
P35	OP1b	11.92	0.18	207.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.93	0.45	0.73
P36	OP1b	11.92	-0.18	209.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.91	0.45	0.73
P37	OP1b	11.92	-0.12	204.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.63	-21.93	0.44	0.72
P38	OP1b	11.92	-0.06	207.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.96	0.45	0.73
P39	OP1b	11.91	0.00	204.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.53	-25.92	0.45	0.72
P40	OP1b	11.92	0.06	207.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.92	-23.92	0.45	0.73
P41	OP1b	11.91	0.12	205.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.56	-21.89	0.44	0.72
P42	OP1b	11.92	0.18	209.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.90	0.45	0.74
P43	OP1b	11.92	-0.18	211.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.90	0.45	0.74
P44	OP1b	11.91	-0.12	207.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.60	-21.96	0.45	0.73
P45	OP1b	11.92	-0.06	209.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.97	0.45	0.74
P46	OP1b	11.91	0.00	206.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.50	-25.90	0.45	0.72
P47	OP1b	11.92	0.06	209.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.92	-23.90	0.45	0.74
P48	OP1b	11.91	0.12	207.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.53	-21.90	0.45	0.73
P49	OP1b	11.92	0.19	212.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.87	0.45	0.74
P50	OP1b	11.92	-0.18	214.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.90	0.46	0.75
P51	OP1b	11.91	-0.12	209.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.48	-22.00	0.45	0.74
P52	OP1b	11.92	-0.06	212.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.98	0.46	0.75
P53	OP1b	11.91	0.00	209.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.38	-25.89	0.45	0.73
P54	OP1b	11.92	0.06	212.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.92	-23.89	0.46	0.75
P55	OP1b	11.91	0.12	210.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.41	-21.90	0.45	0.74
P56	OP1b	11.92	0.19	214.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.85	0.46	0.75
P57	OP1b	11.92	-0.18	216.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.11	-19.90	0.46	0.76
P58	OP1b	11.90	-0.12	212.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	537.61	-22.04	0.45	0.74
P59	OP1b	11.92	-0.06	214.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.96	-23.99	0.46	0.75
P60	OP1b	11.90	0.00	211.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	537.52	-25.88	0.46	0.74
P61	OP1b	11.92	0.06	215.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	538.92	-23.88	0.46	0.75
P62	OP1b	11.90	0.12	212.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	537.54	-21.91	0.46	0.75
P63	OP1b	11.92	0.19	217.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	539.01	-19.82	0.46	0.76
P1	OP2a	9.52	-0.18	215.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.09	0.43	0.76
P2	OP2a	7.78	-0.13	241.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	302.40	-21.81	0.45	0.86
P3	OP2a	7.77	-0.06	244.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	302.13	-23.93	0.45	0.87
P4	OP2a	9.53	0.00	209.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	397.08	-25.89	0.42	0.74
P5	OP2a	7.77	0.06	244.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	302.02	-24.02	0.45	0.87
P6	OP2a	7.77	0.12	241.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	302.19	-21.94	0.45	0.86
P7	OP2a	9.52	0.18	215.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.21	0.43	0.76
P8	OP2a	9.52	-0.18	220.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.09	0.43	0.77
P9	OP2a	7.73	-0.12	246.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	300.02	-21.87	0.45	0.88
P10	OP2a	7.73	-0.06	249.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	300.06	-23.94	0.46	0.89
P11	OP2a	9.52	0.00	215.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.61	-25.91	0.43	0.75
P12	OP2a	7.73	0.06	249.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	299.94	-24.01	0.46	0.89
P13	OP2a	7.73	0.12	246.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	299.82	-21.96	0.45	0.88
P14	OP2a	9.52	0.18	220.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.19	0.44	0.78
P15	OP2a	9.52	-0.18	225.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.10	0.44	0.79
P16	OP2a	9.52	-0.12	221.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.65	-21.92	0.44	0.78
P17	OP2a	9.52	-0.06	223.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.83	-23.96	0.44	0.78

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Ce = \sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E								(AISC)	(CPGA)								M1	M2	CBF	
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P18	OP2a	9.52	0.00	220.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.59	-25.92	0.44	0.77
P19	OP2a	9.52	0.06	223.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.79	-24.00	0.44	0.79
P20	OP2a	9.52	0.12	221.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.59	-21.98	0.44	0.78
P21	OP2a	9.52	0.18	226.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.17	0.44	0.79
P22	OP2a	9.52	-0.18	230.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.11	0.45	0.81
P23	OP2a	9.52	-0.12	226.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.60	-21.97	0.44	0.80
P24	OP2a	9.52	-0.06	228.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.82	-23.97	0.45	0.80
P25	OP2a	9.52	0.00	225.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.52	-25.93	0.45	0.79
P26	OP2a	9.52	0.06	229.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.79	-23.99	0.45	0.80
P27	OP2a	9.52	0.12	227.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.54	-22.00	0.45	0.80
P28	OP2a	9.52	0.18	231.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.15	0.45	0.81
P29	OP2a	9.52	-0.18	235.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.11	0.46	0.83
P30	OP2a	9.52	-0.12	231.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.61	-22.01	0.45	0.81
P31	OP2a	9.52	-0.06	234.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.82	-23.99	0.46	0.82
P32	OP2a	9.52	0.00	230.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.51	-25.93	0.45	0.81
P33	OP2a	9.52	0.06	234.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.79	-23.98	0.46	0.82
P34	OP2a	9.52	0.12	232.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.54	-22.01	0.45	0.81
P35	OP2a	9.52	0.18	236.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.14	0.46	0.83
P36	OP2a	9.52	-0.18	241.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.12	0.47	0.85
P37	OP2a	9.52	-0.12	236.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.60	-22.06	0.46	0.83
P38	OP2a	9.52	-0.06	239.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.82	-24.00	0.47	0.84
P39	OP2a	9.52	0.00	236.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.50	-25.92	0.46	0.83
P40	OP2a	9.52	0.06	239.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.79	-23.97	0.47	0.84
P41	OP2a	9.52	0.12	237.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.54	-22.03	0.46	0.83
P42	OP2a	9.52	0.18	241.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.12	0.47	0.85
P43	OP2a	9.52	-0.18	246.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.13	0.47	0.86
P44	OP2a	9.52	-0.12	242.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.57	-22.11	0.47	0.85
P45	OP2a	9.52	-0.06	244.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.82	-24.02	0.47	0.86
P46	OP2a	9.52	0.00	241.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.47	-25.90	0.47	0.85
P47	OP2a	9.52	0.06	244.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.79	-23.96	0.47	0.86
P48	OP2a	9.52	0.12	242.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.51	-22.04	0.47	0.85
P49	OP2a	9.52	0.18	246.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.10	0.47	0.87
P50	OP2a	9.52	-0.18	251.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.14	0.48	0.88
P51	OP2a	9.52	-0.12	247.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.46	-22.16	0.48	0.87
P52	OP2a	9.52	-0.06	249.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.82	-24.03	0.48	0.88
P53	OP2a	9.51	0.00	246.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.36	-25.89	0.48	0.86
P54	OP2a	9.52	0.06	250.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.78	-23.95	0.48	0.88
P55	OP2a	9.51	0.12	247.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.40	-22.06	0.48	0.87
P56	OP2a	9.52	0.18	252.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.08	0.48	0.88
P57	OP2a	9.52	-0.18	256.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.98	-20.15	0.49	0.90
P58	OP2a	9.50	-0.11	251.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	395.66	-22.21	0.48	0.88
P59	OP2a	9.52	-0.06	255.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.82	-24.05	0.49	0.90
P60	OP2a	9.50	0.00	251.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	395.57	-25.88	0.48	0.88
P61	OP2a	9.52	0.06	255.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.78	-23.94	0.49	0.90
P62	OP2a	9.50	0.12	252.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	395.60	-22.08	0.48	0.89
P63	OP2a	9.52	0.18	257.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	396.89	-20.07	0.49	0.90
P1	OP2b	9.80	-0.18	202.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.95	0.41	0.71
P2	OP2b	8.14	-0.13	229.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	321.36	-21.78	0.43	0.82
P3	OP2b	8.13	-0.06	232.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	321.12	-23.92	0.44	0.83
P4	OP2b	9.80	0.00	197.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.40	-25.89	0.41	0.69
P5	OP2b	8.13	0.06	232.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	321.01	-24.01	0.44	0.83
P6	OP2b	8.13	0.12	230.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	321.15	-21.90	0.43	0.82
P7	OP2b	9.79	0.18	203.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-20.07	0.41	0.71
P8	OP2b	9.80	-0.18	203.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.96	0.41	0.71
P9	OP2b	8.13	-0.13	230.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	320.82	-21.83	0.43	0.82
P10	OP2b	8.13	-0.06	233.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	320.89	-23.93	0.44	0.83
P11	OP2b	9.79	0.00	198.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.93	-25.91	0.41	0.69
P12	OP2b	8.13	0.06	233.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	320.78	-24.00	0.44	0.83
P13	OP2b	8.12	0.12	231.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	320.60	-21.92	0.43	0.82
P14	OP2b	9.79	0.18	203.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-20.06	0.41	0.72
P15	OP2b	9.80	-0.18	203.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.97	0.41	0.72
P16	OP2b	9.79	-0.12	199.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.93	-21.87	0.41	0.70
P17	OP2b	9.79	-0.06	201.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.17	-23.95	0.41	0.71
P18	OP2b	9.79	0.00	198.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.86	-25.92	0.41	0.70
P19	OP2b	9.79	0.06	201.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.99	0.41	0.71
P20	OP2b	9.79	0.12	199.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.87	-21.93	0.41	0.70
P21	OP2b	9.79	0.18	204.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-20.04	0.41	0.72
P22	OP2b	9.80	-0.18	204.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.97	0.41	0.72
P23	OP2b	9.79	-0.12	200.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.94	-21.92	0.41	0.70
P24	OP2b	9.79	-0.06	202.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.16	-23.96	0.41	0.71
P25	OP2b	9.79	0.00	199.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.85	-25.93	0.41	0.70
P26	OP2b	9.79	0.06	202.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.98	0.41	0.71
P27	OP2b	9.79	0.12	200.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.87	-21.95	0.41	0.70
P28	OP2b	9.79	0.18	204.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-20.02	0.41	0.72
P29	OP2b	9.80	-0.18	204.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.98	0.41	0.72
P30	OP2b	9.79	-0.12	200.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.94	-21.96	0.41	0.70
P31	OP2b	9.79	-0.06	202.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.16	-23.98	0.41	0.71
P32	OP2b	9.79	0.00	199.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.84	-25.93	0.41	0.70
P33	OP2b	9.79	0.06	203.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.97	0.41	0.71
P34	OP2b	9.79	0.12	201.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.88	-21.96	0.41	0.71
P35	OP2b	9.79	0.18	205.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-20.00	0.42	0.72
P36	OP2b	9.80	-0.18	205.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.99	0.41	0.72
P37	OP2b	9.79	-0.12	201.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.94	-22.00	0.41	0.71

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$\pi\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Ce=\sqrt{\frac{2\pi^2 E}{fc}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P38	OP2b	9.79	-0.06	203.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.16	-23.99	0.41	0.71
P39	OP2b	9.79	0.00	200.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.83	-25.92	0.41	0.70
P40	OP2b	9.79	0.06	203.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.95	0.42	0.71
P41	OP2b	9.79	0.12	201.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.88	-21.97	0.41	0.71
P42	OP2b	9.79	0.18	205.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-19.98	0.42	0.72
P43	OP2b	9.80	-0.18	205.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-19.99	0.42	0.72
P44	OP2b	9.79	-0.12	201.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.91	-22.04	0.41	0.71
P45	OP2b	9.79	-0.06	204.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.16	-24.01	0.42	0.72
P46	OP2b	9.79	0.00	200.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.81	-25.90	0.41	0.70
P47	OP2b	9.79	0.06	204.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.94	0.42	0.72
P48	OP2b	9.79	0.12	202.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.85	-21.98	0.41	0.71
P49	OP2b	9.79	0.18	206.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-19.97	0.42	0.72
P50	OP2b	9.80	-0.18	206.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-20.00	0.42	0.72
P51	OP2b	9.79	-0.12	202.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.80	-22.08	0.41	0.71
P52	OP2b	9.79	-0.06	204.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.16	-24.02	0.42	0.72
P53	OP2b	9.78	0.00	201.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.70	-25.89	0.41	0.71
P54	OP2b	9.79	0.06	204.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.93	0.42	0.72
P55	OP2b	9.79	0.12	202.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.74	-21.99	0.41	0.71
P56	OP2b	9.79	0.18	206.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-19.95	0.42	0.73
P57	OP2b	9.80	-0.18	206.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.33	-20.01	0.42	0.73
P58	OP2b	9.77	-0.12	202.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	411.04	-22.14	0.41	0.71
P59	OP2b	9.79	-0.06	205.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.16	-24.04	0.42	0.72
P60	OP2b	9.77	0.00	201.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	410.95	-25.88	0.41	0.71
P61	OP2b	9.79	0.06	205.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.13	-23.92	0.42	0.72
P62	OP2b	9.77	0.12	202.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	410.98	-22.01	0.41	0.71
P63	OP2b	9.79	0.18	207.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	412.24	-19.93	0.42	0.73
P1	OP3a	9.02	-0.18	214.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.13	0.42	0.75
P2	OP3a	7.28	-0.13	238.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	277.06	-21.84	0.44	0.85
P3	OP3a	7.28	-0.06	241.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	276.80	-23.94	0.44	0.86
P4	OP3a	9.02	0.00	208.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.95	-25.89	0.41	0.73
P5	OP3a	7.28	0.06	241.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	276.69	-24.03	0.44	0.86
P6	OP3a	7.28	0.12	239.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	276.86	-21.96	0.44	0.85
P7	OP3a	9.02	0.17	215.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.25	0.42	0.75
P8	OP3a	9.02	-0.18	219.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.14	0.43	0.77
P9	OP3a	7.24	-0.12	244.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	274.73	-21.90	0.44	0.87
P10	OP3a	7.24	-0.06	246.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	274.75	-23.95	0.45	0.88
P11	OP3a	9.01	0.00	214.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.51	-25.91	0.42	0.75
P12	OP3a	7.23	0.06	247.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	274.64	-24.02	0.45	0.88
P13	OP3a	7.23	0.12	244.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	274.52	-21.99	0.44	0.87
P14	OP3a	9.02	0.17	220.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.23	0.43	0.77
P15	OP3a	9.02	-0.18	225.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.15	0.43	0.79
P16	OP3a	9.01	-0.12	220.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.56	-21.95	0.43	0.78
P17	OP3a	9.02	-0.06	223.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.71	-23.97	0.43	0.78
P18	OP3a	9.01	0.00	220.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.50	-25.92	0.43	0.77
P19	OP3a	9.02	0.06	223.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.68	-24.01	0.44	0.78
P20	OP3a	9.01	0.12	221.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.50	-22.01	0.43	0.78
P21	OP3a	9.02	0.17	225.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.22	0.44	0.79
P22	OP3a	9.02	-0.18	230.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.16	0.44	0.81
P23	OP3a	9.01	-0.12	226.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.51	-22.00	0.44	0.79
P24	OP3a	9.02	-0.06	228.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.71	-23.99	0.44	0.80
P25	OP3a	9.01	0.00	225.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.42	-25.93	0.44	0.79
P26	OP3a	9.02	0.06	228.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.68	-24.00	0.44	0.80
P27	OP3a	9.01	0.12	226.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.45	-22.03	0.44	0.80
P28	OP3a	9.02	0.18	230.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.20	0.44	0.81
P29	OP3a	9.02	-0.18	235.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.17	0.45	0.83
P30	OP3a	9.01	-0.12	231.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.51	-22.05	0.45	0.81
P31	OP3a	9.02	-0.06	233.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.71	-24.00	0.45	0.82
P32	OP3a	9.01	0.00	230.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.41	-25.93	0.45	0.81
P33	OP3a	9.02	0.06	234.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.67	-23.99	0.45	0.82
P34	OP3a	9.01	0.12	231.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.45	-22.04	0.45	0.81
P35	OP3a	9.02	0.18	236.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.19	0.45	0.83
P36	OP3a	9.02	-0.18	240.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.18	0.46	0.85
P37	OP3a	9.01	-0.12	236.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.50	-22.09	0.45	0.83
P38	OP3a	9.02	-0.06	239.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.71	-24.02	0.46	0.84
P39	OP3a	9.01	0.00	235.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.40	-25.92	0.46	0.83
P40	OP3a	9.02	0.06	239.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.67	-23.98	0.46	0.84
P41	OP3a	9.01	0.12	237.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.44	-22.06	0.45	0.83
P42	OP3a	9.02	0.18	241.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.17	0.46	0.85
P43	OP3a	9.02	-0.18	246.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.19	0.47	0.86
P44	OP3a	9.01	-0.12	241.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.48	-22.14	0.46	0.85
P45	OP3a	9.02	-0.06	244.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.70	-24.03	0.47	0.86
P46	OP3a	9.01	0.00	241.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.38	-25.90	0.46	0.85
P47	OP3a	9.02	0.06	244.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.67	-23.97	0.47	0.86
P48	OP3a	9.01	0.12	242.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.42	-22.08	0.46	0.85
P49	OP3a	9.02	0.18	246.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.16	0.47	0.87
P50	OP3a	9.02	-0.18	251.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.20	0.47	0.88
P51	OP3a	9.01	-0.11	247.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.37	-22.19	0.47	0.87
P52	OP3a	9.02	-0.06	249.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.70	-24.05	0.47	0.88
P53	OP3a	9.01	0.00	246.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.27	-25.89	0.47	0.86
P54	OP3a	9.02	0.06	250.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.67	-23.96	0.48	0.88
P55	OP3a	9.01	0.12	247.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.31	-22.09	0.47	0.87
P56	OP3a	9.02	0.18	251.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.15	0.48	0.88
P57	OP3a	9.02	-0.17	256.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.87	-20.21	0.48	0.90

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		M1 Kips-in	M2 Kips-in		
P58	OP3a	9.00	-0.11	251.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	367.60	-22.25	0.48	0.88
P59	OP3a	9.02	-0.06	255.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.70	-24.06	0.48	0.90
P60	OP3a	8.99	0.00	251.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	367.50	-25.88	0.48	0.88
P61	OP3a	9.02	0.06	255.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.67	-23.95	0.48	0.90
P62	OP3a	9.00	0.12	252.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	367.54	-22.12	0.48	0.89
P63	OP3a	9.02	0.18	257.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	368.78	-20.14	0.48	0.90
P1	OP3b	9.31	-0.18	201.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-19.98	0.40	0.71
P2	OP3b	7.67	-0.13	226.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	297.02	-21.80	0.42	0.81
P3	OP3b	7.67	-0.06	229.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.79	-23.92	0.43	0.82
P4	OP3b	9.31	0.00	195.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.10	-25.89	0.40	0.69
P5	OP3b	7.67	0.06	229.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.68	-24.01	0.43	0.82
P6	OP3b	7.67	0.12	227.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.82	-21.92	0.42	0.81
P7	OP3b	9.31	0.18	201.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.10	0.40	0.71
P8	OP3b	9.31	-0.18	201.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-19.99	0.40	0.71
P9	OP3b	7.66	-0.13	227.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.62	-21.85	0.42	0.81
P10	OP3b	7.67	-0.06	229.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.68	-23.94	0.43	0.82
P11	OP3b	9.30	0.00	196.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.65	-25.91	0.40	0.69
P12	OP3b	7.66	0.06	229.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.57	-24.00	0.43	0.82
P13	OP3b	7.66	0.12	227.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	296.41	-21.94	0.42	0.81
P14	OP3b	9.31	0.18	202.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.09	0.40	0.71
P15	OP3b	9.31	-0.18	201.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.00	0.40	0.71
P16	OP3b	9.30	-0.12	197.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.66	-21.90	0.40	0.69
P17	OP3b	9.31	-0.06	199.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.88	-23.96	0.40	0.70
P18	OP3b	9.30	0.00	196.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.59	-25.92	0.40	0.69
P19	OP3b	9.31	0.06	199.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.99	0.40	0.70
P20	OP3b	9.30	0.12	197.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.60	-21.96	0.40	0.69
P21	OP3b	9.31	0.18	202.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.07	0.40	0.71
P22	OP3b	9.31	-0.18	201.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.01	0.40	0.71
P23	OP3b	9.31	-0.12	197.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.67	-21.94	0.40	0.69
P24	OP3b	9.31	-0.06	199.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.88	-23.97	0.40	0.70
P25	OP3b	9.30	0.00	196.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.58	-25.93	0.40	0.69
P26	OP3b	9.31	0.06	200.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.99	0.40	0.70
P27	OP3b	9.30	0.12	198.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.61	-21.97	0.40	0.70
P28	OP3b	9.31	0.18	202.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.06	0.40	0.71
P29	OP3b	9.31	-0.18	202.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.02	0.40	0.71
P30	OP3b	9.31	-0.12	197.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.68	-21.98	0.40	0.69
P31	OP3b	9.31	-0.06	200.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.87	-23.99	0.40	0.70
P32	OP3b	9.30	0.00	197.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.57	-25.93	0.40	0.69
P33	OP3b	9.31	0.06	200.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.98	0.40	0.70
P34	OP3b	9.30	0.12	198.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.62	-21.98	0.40	0.70
P35	OP3b	9.31	0.18	202.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.04	0.40	0.71
P36	OP3b	9.31	-0.18	202.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.03	0.40	0.71
P37	OP3b	9.31	-0.12	198.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.67	-22.03	0.40	0.70
P38	OP3b	9.31	-0.06	200.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.87	-24.00	0.40	0.70
P39	OP3b	9.30	0.00	197.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.57	-25.92	0.40	0.69
P40	OP3b	9.31	0.06	200.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.97	0.40	0.70
P41	OP3b	9.30	0.12	198.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.61	-21.99	0.40	0.70
P42	OP3b	9.31	0.18	202.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.03	0.41	0.71
P43	OP3b	9.31	-0.18	202.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.04	0.40	0.71
P44	OP3b	9.30	-0.12	198.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.65	-22.07	0.40	0.70
P45	OP3b	9.31	-0.06	200.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.87	-24.02	0.40	0.70
P46	OP3b	9.30	0.00	197.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.54	-25.90	0.40	0.69
P47	OP3b	9.31	0.06	200.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.96	0.41	0.70
P48	OP3b	9.30	0.12	198.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.59	-22.01	0.40	0.70
P49	OP3b	9.31	0.18	203.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.02	0.41	0.71
P50	OP3b	9.31	-0.18	202.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.06	0.40	0.71
P51	OP3b	9.30	-0.12	198.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.54	-22.11	0.40	0.70
P52	OP3b	9.31	-0.06	200.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.87	-24.03	0.41	0.71
P53	OP3b	9.30	0.00	197.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.44	-25.89	0.40	0.69
P54	OP3b	9.31	0.06	201.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.95	0.41	0.71
P55	OP3b	9.30	0.12	199.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.48	-22.02	0.40	0.70
P56	OP3b	9.31	0.18	203.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-20.00	0.41	0.71
P57	OP3b	9.31	-0.18	202.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	385.04	-20.07	0.41	0.71
P58	OP3b	9.29	-0.12	198.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	383.81	-22.17	0.40	0.70
P59	OP3b	9.31	-0.06	201.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.87	-24.05	0.41	0.71
P60	OP3b	9.29	0.00	197.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	383.71	-25.88	0.40	0.69
P61	OP3b	9.31	0.06	201.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.84	-23.94	0.41	0.71
P62	OP3b	9.29	0.12	199.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	383.75	-22.04	0.40	0.70
P63	OP3b	9.31	0.18	203.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	384.95	-19.99	0.41	0.71
P1	OP4a	8.08	-0.17	213.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.27	0.41	0.75
P2	OP4a	6.36	-0.12	234.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	231.53	-21.96	0.42	0.83
P3	OP4a	6.36	-0.06	237.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	231.22	-24.03	0.43	0.84
P4	OP4a	8.08	0.00	207.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.18	-25.91	0.40	0.73
P5	OP4a	6.35	0.06	237.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	230.99	-23.95	0.43	0.84
P6	OP4a	6.35	0.12	234.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	231.08	-21.91	0.42	0.83
P7	OP4a	8.07	0.17	213.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-20.23	0.41	0.75
P8	OP4a	8.08	-0.17	218.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.35	0.41	0.77
P9	OP4a	6.32	-0.12	240.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	229.25	-22.08	0.43	0.85
P10	OP4a	6.31	-0.06	242.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	229.18	-24.11	0.43	0.86
P11	OP4a	8.07	0.00	213.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.78	-25.83	0.41	0.75
P12	OP4a	6.31	0.06	242.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	228.95	-23.89	0.43	0.86
P13	OP4a	6.31	0.12	240.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	228.79	-21.89	0.43	0.85
P14	OP4a	8.07	0.18	219.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-20.16	0.41	0.77

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P15	OP4a	8.08	-0.17	224.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.42	0.42	0.79
P16	OP4a	8.07	-0.11	220.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.99	-22.19	0.42	0.77
P17	OP4a	8.08	-0.05	222.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.19	0.42	0.78
P18	OP4a	8.07	0.01	219.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.78	-25.76	0.42	0.77
P19	OP4a	8.07	0.07	222.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.82	0.42	0.78
P20	OP4a	8.07	0.13	220.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.63	-21.85	0.42	0.77
P21	OP4a	8.07	0.18	224.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-20.09	0.42	0.79
P22	OP4a	8.08	-0.17	229.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.50	0.43	0.81
P23	OP4a	8.07	-0.11	225.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.93	-22.31	0.43	0.79
P24	OP4a	8.08	-0.05	228.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.26	0.43	0.80
P25	OP4a	8.07	0.01	224.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.70	-25.69	0.43	0.79
P26	OP4a	8.07	0.07	228.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.75	0.43	0.80
P27	OP4a	8.07	0.13	226.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.58	-21.81	0.43	0.79
P28	OP4a	8.07	0.18	230.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-20.02	0.43	0.81
P29	OP4a	8.08	-0.16	235.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.57	0.44	0.83
P30	OP4a	8.07	-0.11	231.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.94	-22.42	0.43	0.81
P31	OP4a	8.08	-0.05	233.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.34	0.44	0.82
P32	OP4a	8.07	0.01	230.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.69	-25.61	0.44	0.81
P33	OP4a	8.07	0.07	233.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.69	0.44	0.82
P34	OP4a	8.07	0.13	231.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.58	-21.77	0.43	0.81
P35	OP4a	8.07	0.18	235.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-19.95	0.44	0.83
P36	OP4a	8.08	-0.16	240.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.65	0.45	0.84
P37	OP4a	8.07	-0.10	236.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.93	-22.52	0.44	0.83
P38	OP4a	8.08	-0.05	239.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.41	0.45	0.84
P39	OP4a	8.07	0.01	235.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.68	-25.54	0.44	0.83
P40	OP4a	8.07	0.07	239.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.62	0.45	0.84
P41	OP4a	8.07	0.13	237.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.57	-21.73	0.44	0.83
P42	OP4a	8.07	0.18	241.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-19.88	0.45	0.85
P43	OP4a	8.08	-0.16	246.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.72	0.46	0.86
P44	OP4a	8.07	-0.10	242.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.91	-22.63	0.45	0.85
P45	OP4a	8.08	-0.04	244.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.49	0.46	0.86
P46	OP4a	8.07	0.01	241.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.66	-25.47	0.45	0.85
P47	OP4a	8.07	0.07	244.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.55	0.46	0.86
P48	OP4a	8.07	0.13	242.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.55	-21.69	0.45	0.85
P49	OP4a	8.07	0.19	246.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-19.81	0.46	0.87
P50	OP4a	8.08	-0.16	251.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.80	0.46	0.88
P51	OP4a	8.07	-0.10	247.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.81	-22.74	0.46	0.87
P52	OP4a	8.08	-0.04	250.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.57	0.46	0.88
P53	OP4a	8.07	0.02	246.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.56	-25.40	0.46	0.87
P54	OP4a	8.07	0.08	250.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.49	0.46	0.88
P55	OP4a	8.06	0.13	247.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.45	-21.65	0.46	0.87
P56	OP4a	8.07	0.19	252.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-19.75	0.46	0.89
P57	OP4a	8.08	-0.15	257.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.33	-20.87	0.47	0.90
P58	OP4a	8.06	-0.09	252.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.08	-22.87	0.47	0.89
P59	OP4a	8.08	-0.04	255.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	318.02	-24.64	0.47	0.90
P60	OP4a	8.05	0.02	251.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	316.83	-25.32	0.47	0.88
P61	OP4a	8.07	0.08	255.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.84	-23.42	0.47	0.90
P62	OP4a	8.05	0.13	252.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	316.72	-21.62	0.47	0.89
P63	OP4a	8.07	0.19	257.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	317.80	-19.68	0.47	0.90
P1	OP4b	8.41	-0.18	198.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.11	0.39	0.70
P2	OP4b	6.80	-0.12	220.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.85	-21.92	0.40	0.79
P3	OP4b	6.79	-0.06	223.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.56	-24.02	0.41	0.80
P4	OP4b	8.40	0.00	193.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.46	-25.91	0.38	0.68
P5	OP4b	6.79	0.06	223.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.32	-23.94	0.41	0.80
P6	OP4b	6.79	0.12	221.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.38	-21.87	0.40	0.79
P7	OP4b	8.40	0.18	199.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-20.07	0.39	0.70
P8	OP4b	8.41	-0.18	198.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.19	0.39	0.70
P9	OP4b	6.79	-0.12	220.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.62	-22.03	0.40	0.79
P10	OP4b	6.79	-0.06	223.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.60	-24.09	0.41	0.79
P11	OP4b	8.40	0.00	193.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.05	-25.83	0.38	0.68
P12	OP4b	6.79	0.06	223.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.36	-23.87	0.41	0.80
P13	OP4b	6.79	0.13	221.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.15	-21.84	0.40	0.79
P14	OP4b	8.40	0.18	198.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-20.00	0.39	0.70
P15	OP4b	8.41	-0.17	198.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.26	0.39	0.70
P16	OP4b	8.40	-0.12	194.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.22	-22.14	0.38	0.68
P17	OP4b	8.40	-0.05	196.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.17	0.39	0.69
P18	OP4b	8.40	0.01	193.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.00	-25.76	0.38	0.68
P19	OP4b	8.40	0.07	196.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.14	-23.81	0.39	0.69
P20	OP4b	8.39	0.13	194.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.85	-21.79	0.38	0.68
P21	OP4b	8.40	0.18	198.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.93	0.39	0.70
P22	OP4b	8.41	-0.17	198.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.34	0.39	0.69
P23	OP4b	8.40	-0.11	193.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.23	-22.24	0.38	0.68
P24	OP4b	8.40	-0.05	196.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.25	0.39	0.69
P25	OP4b	8.39	0.01	193.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.99	-25.69	0.38	0.68
P26	OP4b	8.40	0.07	196.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.14	-23.74	0.39	0.69
P27	OP4b	8.39	0.13	194.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.87	-21.75	0.38	0.68
P28	OP4b	8.40	0.19	198.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.86	0.39	0.70
P29	OP4b	8.41	-0.17	197.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.41	0.39	0.69
P30	OP4b	8.40	-0.11	193.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.24	-22.35	0.38	0.68
P31	OP4b	8.40	-0.05	195.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.32	0.39	0.69
P32	OP4b	8.39	0.01	192.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.98	-25.61	0.38	0.68
P33	OP4b	8.40	0.07	196.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.14	-23.67	0.39	0.69
P34	OP4b	8.39	0.13	194.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.87	-21.70	0.38	0.68

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P35	OP4b	8.40	0.19	198.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.79	0.39	0.70
P36	OP4b	8.41	-0.17	197.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.49	0.39	0.69
P37	OP4b	8.40	-0.11	193.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.23	-22.45	0.38	0.68
P38	OP4b	8.40	-0.05	195.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.40	0.39	0.69
P39	OP4b	8.39	0.01	192.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.97	-25.54	0.38	0.68
P40	OP4b	8.40	0.07	196.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.14	-23.61	0.39	0.69
P41	OP4b	8.39	0.13	194.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.87	-21.66	0.38	0.68
P42	OP4b	8.40	0.19	198.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.72	0.39	0.70
P43	OP4b	8.41	-0.16	197.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.56	0.39	0.69
P44	OP4b	8.40	-0.10	193.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.21	-22.55	0.38	0.68
P45	OP4b	8.40	-0.04	195.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.47	0.39	0.69
P46	OP4b	8.39	0.01	192.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.95	-25.47	0.38	0.68
P47	OP4b	8.40	0.07	195.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.14	-23.54	0.39	0.69
P48	OP4b	8.39	0.13	193.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.85	-21.61	0.38	0.68
P49	OP4b	8.40	0.19	198.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.65	0.39	0.70
P50	OP4b	8.41	-0.16	197.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.64	0.39	0.69
P51	OP4b	8.40	-0.10	193.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.11	-22.66	0.38	0.68
P52	OP4b	8.40	-0.04	195.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.55	0.39	0.69
P53	OP4b	8.39	0.02	192.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.85	-25.40	0.38	0.68
P54	OP4b	8.40	0.08	195.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.13	-23.47	0.39	0.69
P55	OP4b	8.39	0.13	193.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.75	-21.57	0.38	0.68
P56	OP4b	8.40	0.19	197.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.58	0.39	0.69
P57	OP4b	8.41	-0.16	197.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.64	-20.71	0.39	0.69
P58	OP4b	8.38	-0.10	192.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.42	-22.77	0.38	0.68
P59	OP4b	8.40	-0.04	195.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.32	-24.63	0.39	0.69
P60	OP4b	8.38	0.02	192.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.17	-25.32	0.38	0.67
P61	OP4b	8.40	0.08	195.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.13	-23.40	0.39	0.69
P62	OP4b	8.38	0.13	193.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	334.06	-21.53	0.38	0.68
P63	OP4b	8.40	0.20	197.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	335.10	-19.51	0.39	0.69
P1	OP5a	6.66	-0.15	211.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-20.89	0.39	0.74
P2	OP5a	4.96	-0.10	227.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	166.09	-22.54	0.40	0.81
P3	OP5a	4.95	-0.04	230.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	165.42	-24.57	0.40	0.82
P4	OP5a	6.63	0.02	206.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.35	-25.39	0.38	0.72
P5	OP5a	4.92	0.08	230.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	164.46	-23.45	0.40	0.82
P6	OP5a	4.92	0.14	227.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	164.19	-21.45	0.39	0.81
P7	OP5a	6.59	0.19	212.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.73	-19.80	0.39	0.74
P8	OP5a	6.66	-0.14	217.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-21.33	0.40	0.76
P9	OP5a	4.91	-0.09	233.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.92	-23.03	0.40	0.83
P10	OP5a	4.90	-0.03	236.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.46	-25.01	0.41	0.84
P11	OP5a	6.62	0.03	212.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.00	-24.95	0.39	0.74
P12	OP5a	4.88	0.09	236.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.51	-23.02	0.41	0.84
P13	OP5a	4.87	0.15	233.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.03	-21.06	0.40	0.83
P14	OP5a	6.59	0.20	217.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.73	-19.37	0.40	0.76
P15	OP5a	6.66	-0.13	223.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-21.78	0.41	0.78
P16	OP5a	6.64	-0.07	219.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.06	-23.50	0.40	0.77
P17	OP5a	6.63	-0.02	221.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-25.45	0.41	0.78
P18	OP5a	6.62	0.04	218.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.01	-24.52	0.40	0.77
P19	OP5a	6.61	0.10	221.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.61	-22.60	0.40	0.78
P20	OP5a	6.60	0.16	219.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.03	-20.66	0.40	0.77
P21	OP5a	6.59	0.21	223.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.73	-18.95	0.40	0.78
P22	OP5a	6.66	-0.11	228.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-22.22	0.41	0.80
P23	OP5a	6.64	-0.06	224.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.00	-23.98	0.41	0.79
P24	OP5a	6.63	0.00	227.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-25.88	0.41	0.80
P25	OP5a	6.62	0.06	224.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.93	-24.09	0.41	0.79
P26	OP5a	6.61	0.12	227.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.60	-22.17	0.41	0.80
P27	OP5a	6.60	0.17	225.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.97	-20.27	0.41	0.79
P28	OP5a	6.59	0.23	229.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.73	-18.52	0.41	0.80
P29	OP5a	6.66	-0.10	234.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-22.66	0.42	0.82
P30	OP5a	6.64	-0.05	230.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.01	-24.45	0.42	0.81
P31	OP5a	6.63	0.01	232.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-25.56	0.42	0.82
P32	OP5a	6.62	0.07	229.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.92	-23.66	0.42	0.81
P33	OP5a	6.61	0.13	232.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.60	-21.75	0.42	0.82
P34	OP5a	6.60	0.19	230.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.98	-19.87	0.41	0.81
P35	OP5a	6.59	0.24	234.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.73	-18.09	0.42	0.82
P36	OP5a	6.66	-0.09	240.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-23.10	0.43	0.84
P37	OP5a	6.64	-0.03	236.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.00	-24.92	0.43	0.83
P38	OP5a	6.63	0.03	238.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-25.13	0.43	0.84
P39	OP5a	6.62	0.08	235.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.92	-23.22	0.42	0.83
P40	OP5a	6.61	0.14	238.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.60	-21.32	0.43	0.84
P41	OP5a	6.60	0.20	236.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.97	-19.47	0.42	0.83
P42	OP5a	6.59	0.25	240.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.72	-17.67	0.43	0.84
P43	OP5a	6.66	-0.07	245.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-23.55	0.44	0.86
P44	OP5a	6.64	-0.02	241.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.98	-25.39	0.44	0.85
P45	OP5a	6.63	0.04	244.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-24.69	0.44	0.86
P46	OP5a	6.62	0.10	240.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.89	-22.79	0.43	0.85
P47	OP5a	6.61	0.15	244.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.60	-20.89	0.44	0.86
P48	OP5a	6.60	0.21	241.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.95	-19.07	0.43	0.85
P49	OP5a	6.59	0.26	246.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.72	-17.24	0.44	0.86
P50	OP5a	6.66	-0.06	251.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-23.99	0.45	0.88
P51	OP5a	6.64	0.00	247.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.89	-25.86	0.44	0.87
P52	OP5a	6.63	0.05	249.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-24.25	0.45	0.88
P53	OP5a	6.62	0.11	246.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.80	-22.36	0.44	0.87
P54	OP5a	6.61	0.17	250.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.60	-20.47	0.44	0.88

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P55	OP5a	6.60	0.22	247.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.86	-18.67	0.44	0.87
P56	OP5a	6.59	0.28	251.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.72	-16.81	0.44	0.88
P57	OP5a	6.66	-0.05	257.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	245.77	-24.43	0.46	0.90
P58	OP5a	6.62	0.01	252.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.22	-25.54	0.45	0.89
P59	OP5a	6.63	0.07	255.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	244.62	-23.81	0.46	0.90
P60	OP5a	6.60	0.12	251.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.14	-21.92	0.45	0.88
P61	OP5a	6.61	0.18	255.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	243.60	-20.04	0.45	0.90
P62	OP5a	6.58	0.23	252.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.20	-18.28	0.45	0.89
P63	OP5a	6.59	0.29	257.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	242.72	-16.38	0.45	0.90
P1	OP5b	7.03	-0.16	194.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-20.71	0.37	0.68
P2	OP5b	5.46	-0.11	212.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	188.68	-22.49	0.38	0.76
P3	OP5b	5.44	-0.04	214.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	188.04	-24.55	0.38	0.76
P4	OP5b	7.00	0.02	189.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.72	-25.39	0.36	0.66
P5	OP5b	5.42	0.08	214.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	187.05	-23.43	0.38	0.76
P6	OP5b	5.41	0.14	212.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	186.73	-21.40	0.38	0.76
P7	OP5b	6.97	0.19	195.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-19.61	0.37	0.68
P8	OP5b	7.03	-0.15	194.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-21.15	0.37	0.68
P9	OP5b	5.46	-0.09	211.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	188.70	-22.97	0.38	0.75
P10	OP5b	5.45	-0.03	214.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	188.28	-24.99	0.38	0.76
P11	OP5b	6.99	0.03	188.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.36	-24.95	0.36	0.66
P12	OP5b	5.43	0.09	214.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	187.30	-23.01	0.38	0.76
P13	OP5b	5.41	0.15	212.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	186.75	-21.00	0.38	0.75
P14	OP5b	6.97	0.21	194.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-19.19	0.36	0.68
P15	OP5b	7.03	-0.13	193.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-21.59	0.36	0.68
P16	OP5b	7.01	-0.08	189.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.39	-23.44	0.36	0.66
P17	OP5b	7.00	-0.02	191.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.03	-25.43	0.36	0.67
P18	OP5b	6.99	0.04	188.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.32	-24.52	0.36	0.66
P19	OP5b	6.98	0.10	191.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.99	-22.58	0.36	0.67
P20	OP5b	6.97	0.16	189.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.33	-20.60	0.36	0.66
P21	OP5b	6.97	0.22	193.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-18.76	0.36	0.68
P22	OP5b	7.03	-0.12	192.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-22.04	0.36	0.68
P23	OP5b	7.01	-0.06	188.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.41	-23.91	0.36	0.66
P24	OP5b	7.00	0.00	190.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.03	-25.86	0.36	0.67
P25	OP5b	6.99	0.06	187.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.32	-24.09	0.36	0.66
P26	OP5b	6.98	0.12	190.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.99	-22.16	0.36	0.67
P27	OP5b	6.97	0.18	188.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.34	-20.20	0.36	0.66
P28	OP5b	6.97	0.23	192.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-18.34	0.36	0.68
P29	OP5b	7.03	-0.11	191.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-22.48	0.36	0.67
P30	OP5b	7.01	-0.05	187.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.42	-24.37	0.36	0.66
P31	OP5b	7.00	0.01	189.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.02	-25.58	0.36	0.67
P32	OP5b	6.99	0.07	186.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.31	-23.66	0.36	0.66
P33	OP5b	6.98	0.13	189.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.99	-21.73	0.36	0.67
P34	OP5b	6.97	0.19	188.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.35	-19.79	0.35	0.66
P35	OP5b	6.97	0.24	192.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-17.91	0.36	0.67
P36	OP5b	7.03	-0.09	191.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-22.92	0.36	0.67
P37	OP5b	7.01	-0.03	187.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.41	-24.84	0.36	0.66
P38	OP5b	7.00	0.02	189.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.02	-25.14	0.36	0.66
P39	OP5b	6.99	0.08	186.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.30	-23.22	0.35	0.65
P40	OP5b	6.98	0.14	189.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.99	-21.30	0.36	0.66
P41	OP5b	6.97	0.20	187.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.35	-19.38	0.35	0.66
P42	OP5b	6.97	0.26	191.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-17.48	0.36	0.67
P43	OP5b	7.03	-0.08	190.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-23.36	0.36	0.67
P44	OP5b	7.01	-0.02	186.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.39	-25.30	0.36	0.65
P45	OP5b	7.00	0.04	188.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.02	-24.71	0.36	0.66
P46	OP5b	6.99	0.10	185.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.28	-22.79	0.35	0.65
P47	OP5b	6.98	0.15	188.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.99	-20.88	0.36	0.66
P48	OP5b	6.97	0.21	186.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.32	-18.97	0.35	0.65
P49	OP5b	6.97	0.27	190.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-17.05	0.36	0.67
P50	OP5b	7.03	-0.07	189.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-23.80	0.36	0.66
P51	OP5b	7.01	-0.01	185.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.30	-25.76	0.36	0.65
P52	OP5b	7.00	0.05	187.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.02	-24.27	0.36	0.66
P53	OP5b	6.99	0.11	184.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.19	-22.36	0.35	0.65
P54	OP5b	6.98	0.17	187.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.98	-20.45	0.36	0.66
P55	OP5b	6.97	0.22	185.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.23	-18.57	0.35	0.65
P56	OP5b	6.97	0.28	189.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-16.62	0.36	0.67
P57	OP5b	7.03	-0.05	188.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.20	-24.24	0.36	0.66
P58	OP5b	7.00	0.01	184.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.68	-25.64	0.35	0.65
P59	OP5b	7.00	0.06	187.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.02	-23.83	0.36	0.66
P60	OP5b	6.97	0.12	183.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.58	-21.92	0.35	0.65
P61	OP5b	6.98	0.18	187.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.98	-20.02	0.35	0.66
P62	OP5b	6.96	0.24	184.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	260.62	-18.17	0.35	0.65
P63	OP5b	6.97	0.30	189.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.10	-16.20	0.35	0.66
P1	OP6a	6.13	-0.15	211.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-21.16	0.38	0.74
P2	OP6a	4.44	-0.10	225.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	143.22	-22.82	0.39	0.80
P3	OP6a	4.42	-0.03	228.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	142.38	-24.84	0.39	0.81
P4	OP6a	6.09	0.03	205.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.39	-25.10	0.38	0.72
P5	OP6a	4.39	0.09	228.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	141.06	-23.15	0.39	0.81
P6	OP6a	4.38	0.15	225.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	140.60	-21.15	0.38	0.80
P7	OP6a	6.04	0.20	211.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-19.50	0.38	0.74
P8	OP6a	6.13	-0.13	217.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-21.80	0.39	0.76
P9	OP6a	4.39	-0.08	231.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	141.08	-23.49	0.40	0.82
P10	OP6a	4.38	-0.01	233.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	140.43	-25.47	0.40	0.83
P11	OP6a	6.08	0.05	211.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.04	-24.47	0.38	0.74

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$C_c = \sqrt{\frac{2\pi^2 E}{f_y}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P12	OP6a	4.35	0.10	233.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	139.12	-22.52	0.40	0.83
P13	OP6a	4.33	0.16	231.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	138.46	-20.55	0.39	0.82
P14	OP6a	6.04	0.22	217.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-18.86	0.39	0.76
P15	OP6a	6.13	-0.11	223.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-22.43	0.40	0.78
P16	OP6a	6.11	-0.05	218.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.53	-24.16	0.40	0.77
P17	OP6a	6.10	0.01	221.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.87	-25.78	0.40	0.78
P18	OP6a	6.08	0.06	217.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.06	-23.84	0.39	0.76
P19	OP6a	6.07	0.12	221.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-21.89	0.40	0.78
P20	OP6a	6.05	0.18	219.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.64	-19.95	0.39	0.77
P21	OP6a	6.04	0.23	223.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-18.23	0.40	0.78
P22	OP6a	6.13	-0.09	228.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-23.06	0.41	0.80
P23	OP6a	6.11	-0.03	224.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.48	-24.82	0.40	0.79
P24	OP6a	6.10	0.02	226.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.87	-25.15	0.41	0.80
P25	OP6a	6.08	0.08	223.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.99	-23.21	0.40	0.79
P26	OP6a	6.07	0.14	227.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-21.26	0.40	0.80
P27	OP6a	6.05	0.20	224.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.60	-19.34	0.40	0.79
P28	OP6a	6.04	0.25	228.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-17.59	0.40	0.80
P29	OP6a	6.13	-0.07	234.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-23.69	0.42	0.82
P30	OP6a	6.11	-0.01	230.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.48	-25.48	0.41	0.81
P31	OP6a	6.10	0.04	232.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.87	-24.52	0.42	0.82
P32	OP6a	6.08	0.10	229.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.98	-22.58	0.41	0.81
P33	OP6a	6.07	0.16	232.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-20.64	0.41	0.82
P34	OP6a	6.05	0.22	230.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.60	-18.73	0.41	0.81
P35	OP6a	6.04	0.27	234.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-16.95	0.41	0.82
P36	OP6a	6.13	-0.05	240.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-24.32	0.43	0.84
P37	OP6a	6.11	0.01	236.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.48	-25.74	0.42	0.83
P38	OP6a	6.10	0.06	238.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.87	-23.88	0.42	0.84
P39	OP6a	6.08	0.12	235.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.97	-21.94	0.42	0.83
P40	OP6a	6.07	0.18	238.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-20.01	0.42	0.84
P41	OP6a	6.05	0.24	236.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.59	-18.12	0.42	0.83
P42	OP6a	6.04	0.29	240.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-16.32	0.42	0.84
P43	OP6a	6.13	-0.03	246.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-24.95	0.44	0.86
P44	OP6a	6.11	0.03	242.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.46	-25.09	0.43	0.85
P45	OP6a	6.10	0.08	244.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.86	-23.25	0.43	0.86
P46	OP6a	6.08	0.14	241.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.95	-21.31	0.43	0.85
P47	OP6a	6.07	0.20	244.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-19.37	0.43	0.86
P48	OP6a	6.05	0.26	242.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.57	-17.51	0.42	0.85
P49	OP6a	6.04	0.31	246.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-15.68	0.43	0.86
P50	OP6a	6.13	-0.01	251.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-25.58	0.45	0.88
P51	OP6a	6.11	0.05	247.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.36	-24.42	0.44	0.87
P52	OP6a	6.10	0.10	250.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.86	-22.61	0.44	0.88
P53	OP6a	6.08	0.16	246.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.86	-20.68	0.43	0.87
P54	OP6a	6.07	0.22	250.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-18.74	0.44	0.88
P55	OP6a	6.05	0.27	247.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.48	-16.90	0.43	0.87
P56	OP6a	6.04	0.33	252.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-15.04	0.44	0.88
P57	OP6a	6.13	0.01	257.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.43	-25.67	0.45	0.90
P58	OP6a	6.10	0.07	253.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.71	-23.75	0.45	0.89
P59	OP6a	6.10	0.12	256.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.86	-21.98	0.45	0.90
P60	OP6a	6.07	0.18	252.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.21	-20.04	0.44	0.89
P61	OP6a	6.07	0.24	256.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.42	-18.11	0.45	0.90
P62	OP6a	6.04	0.29	253.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.83	-16.30	0.44	0.89
P63	OP6a	6.04	0.35	257.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.11	-14.40	0.45	0.91
P1	OP6b	6.52	-0.15	193.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-20.97	0.36	0.68
P2	OP6b	4.96	-0.10	209.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	166.09	-22.77	0.37	0.75
P3	OP6b	4.94	-0.03	211.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	165.26	-24.82	0.37	0.75
P4	OP6b	6.48	0.03	188.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.00	-25.10	0.35	0.66
P5	OP6b	4.91	0.09	211.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.90	-23.13	0.37	0.75
P6	OP6b	4.90	0.15	209.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.38	-21.10	0.37	0.74
P7	OP6b	6.43	0.20	193.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-19.31	0.36	0.68
P8	OP6b	6.52	-0.13	192.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-21.61	0.36	0.68
P9	OP6b	4.96	-0.08	208.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	166.15	-23.43	0.37	0.74
P10	OP6b	4.95	-0.01	211.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	165.54	-25.46	0.37	0.75
P11	OP6b	6.47	0.05	187.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.65	-24.47	0.35	0.66
P12	OP6b	4.92	0.11	211.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	164.18	-22.50	0.37	0.75
P13	OP6b	4.90	0.17	208.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.44	-20.50	0.36	0.74
P14	OP6b	6.43	0.22	192.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-18.67	0.36	0.68
P15	OP6b	6.52	-0.11	191.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-22.24	0.36	0.67
P16	OP6b	6.50	-0.06	187.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.11	-24.09	0.35	0.66
P17	OP6b	6.49	0.00	189.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.52	-25.80	0.36	0.67
P18	OP6b	6.47	0.06	186.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.61	-23.84	0.35	0.66
P19	OP6b	6.46	0.12	189.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-21.87	0.35	0.67
P20	OP6b	6.44	0.18	187.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.17	-19.88	0.35	0.66
P21	OP6b	6.43	0.24	192.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-18.04	0.35	0.67
P22	OP6b	6.52	-0.09	191.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-22.87	0.36	0.67
P23	OP6b	6.50	-0.04	186.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.14	-24.75	0.35	0.66
P24	OP6b	6.49	0.02	188.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.52	-25.17	0.35	0.66
P25	OP6b	6.47	0.08	185.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.61	-23.21	0.35	0.65
P26	OP6b	6.46	0.14	189.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-21.25	0.35	0.66
P27	OP6b	6.44	0.20	187.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.20	-19.27	0.35	0.66
P28	OP6b	6.43	0.26	191.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-17.40	0.35	0.67
P29	OP6b	6.52	-0.07	190.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-23.50	0.36	0.67
P30	OP6b	6.50	-0.02	186.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.14	-25.40	0.35	0.65
P31	OP6b	6.49	0.04	188.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.52	-24.53	0.35	0.66

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in	CBF	
P32	OP6b	6.47	0.10	185.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.61	-22.58	0.35	0.65
P33	OP6b	6.46	0.16	188.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-20.62	0.35	0.66
P34	OP6b	6.44	0.22	186.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.20	-18.65	0.35	0.65
P35	OP6b	6.43	0.28	190.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-16.76	0.35	0.67
P36	OP6b	6.52	-0.06	189.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-24.13	0.35	0.66
P37	OP6b	6.50	0.00	185.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.14	-25.83	0.35	0.65
P38	OP6b	6.49	0.06	187.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.51	-23.90	0.35	0.66
P39	OP6b	6.47	0.12	184.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.60	-21.94	0.35	0.65
P40	OP6b	6.46	0.18	187.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-19.99	0.35	0.66
P41	OP6b	6.44	0.24	185.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.20	-18.04	0.34	0.65
P42	OP6b	6.43	0.30	189.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-16.12	0.35	0.66
P43	OP6b	6.52	-0.04	188.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-24.76	0.35	0.66
P44	OP6b	6.50	0.02	184.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.12	-25.18	0.35	0.65
P45	OP6b	6.49	0.08	186.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.51	-23.27	0.35	0.65
P46	OP6b	6.47	0.14	183.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.58	-21.31	0.34	0.64
P47	OP6b	6.46	0.20	186.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-19.36	0.35	0.65
P48	OP6b	6.44	0.26	184.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.18	-17.42	0.34	0.65
P49	OP6b	6.43	0.32	188.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-15.48	0.35	0.66
P50	OP6b	6.52	-0.02	187.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-25.39	0.35	0.66
P51	OP6b	6.50	0.04	183.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.03	-24.52	0.35	0.64
P52	OP6b	6.49	0.10	185.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.51	-22.63	0.35	0.65
P53	OP6b	6.47	0.16	182.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.49	-20.68	0.34	0.64
P54	OP6b	6.46	0.22	185.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-18.72	0.35	0.65
P55	OP6b	6.44	0.28	183.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.09	-16.80	0.34	0.64
P56	OP6b	6.43	0.34	187.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-14.84	0.34	0.66
P57	OP6b	6.52	0.00	186.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	-25.87	0.35	0.65
P58	OP6b	6.48	0.06	182.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.42	-23.86	0.34	0.64
P59	OP6b	6.49	0.12	184.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.51	-22.00	0.35	0.65
P60	OP6b	6.45	0.18	181.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.89	-20.04	0.34	0.64
P61	OP6b	6.46	0.24	184.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.04	-18.09	0.34	0.65
P62	OP6b	6.42	0.30	182.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.49	-16.19	0.34	0.64
P63	OP6b	6.43	0.36	186.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.71	-14.20	0.34	0.66
P1	OP7a	6.13	-0.15	211.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.49	-21.20	0.38	0.74
P2	OP7a	4.44	-0.09	225.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	143.28	-22.84	0.39	0.80
P3	OP7a	4.43	-0.03	228.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	142.43	-24.86	0.39	0.81
P4	OP7a	6.09	0.03	205.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.43	-25.10	0.38	0.72
P5	OP7a	4.40	0.09	228.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	141.11	-23.16	0.39	0.81
P6	OP7a	4.38	0.15	225.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	140.65	-21.17	0.38	0.80
P7	OP7a	6.04	0.20	211.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.17	-19.53	0.38	0.74
P8	OP7a	6.13	-0.13	217.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.49	-21.84	0.39	0.76
P9	OP7a	4.40	-0.07	231.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	141.16	-23.52	0.40	0.82
P10	OP7a	4.38	-0.01	233.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	140.50	-25.49	0.40	0.83
P11	OP7a	6.08	0.05	211.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.09	-24.47	0.38	0.74
P12	OP7a	4.35	0.10	233.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	139.19	-22.54	0.40	0.83
P13	OP7a	4.34	0.16	231.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	138.53	-20.58	0.39	0.82
P14	OP7a	6.04	0.21	217.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.17	-18.91	0.39	0.76
P15	OP7a	6.13	-0.11	222.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.49	-22.48	0.40	0.78
P16	OP7a	6.11	-0.05	218.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.58	-24.19	0.39	0.77
P17	OP7a	6.10	0.01	220.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.92	-25.76	0.40	0.78
P18	OP7a	6.08	0.06	217.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.11	-23.84	0.39	0.76
P19	OP7a	6.07	0.12	221.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-21.91	0.40	0.78
P20	OP7a	6.05	0.18	218.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.70	-19.99	0.39	0.77
P21	OP7a	6.04	0.23	222.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.17	-18.28	0.40	0.78
P22	OP7a	6.13	-0.09	228.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.49	-23.12	0.41	0.80
P23	OP7a	6.11	-0.03	224.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.53	-24.86	0.40	0.79
P24	OP7a	6.10	0.03	226.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.92	-25.12	0.41	0.80
P25	OP7a	6.08	0.08	223.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.03	-23.21	0.40	0.79
P26	OP7a	6.07	0.14	226.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-21.29	0.40	0.80
P27	OP7a	6.05	0.20	224.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.65	-19.39	0.40	0.79
P28	OP7a	6.04	0.25	228.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.16	-17.65	0.40	0.80
P29	OP7a	6.13	-0.07	234.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.49	-23.76	0.42	0.82
P30	OP7a	6.11	-0.01	230.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.53	-25.53	0.41	0.81
P31	OP7a	6.10	0.04	232.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.92	-24.49	0.42	0.82
P32	OP7a	6.08	0.10	229.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.02	-22.58	0.41	0.81
P33	OP7a	6.07	0.16	232.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-20.66	0.41	0.82
P34	OP7a	6.05	0.22	230.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.65	-18.78	0.41	0.81
P35	OP7a	6.04	0.27	234.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.16	-17.02	0.41	0.82
P36	OP7a	6.13	-0.05	240.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.49	-24.40	0.43	0.84
P37	OP7a	6.11	0.01	236.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.53	-25.69	0.42	0.83
P38	OP7a	6.10	0.06	238.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.91	-23.85	0.42	0.84
P39	OP7a	6.08	0.12	235.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.02	-21.94	0.42	0.83
P40	OP7a	6.07	0.18	238.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-20.04	0.42	0.84
P41	OP7a	6.05	0.24	236.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.64	-18.18	0.42	0.83
P42	OP7a	6.04	0.29	240.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.16	-16.39	0.42	0.84
P43	OP7a	6.13	-0.03	245.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.48	-25.03	0.44	0.86
P44	OP7a	6.11	0.03	241.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.51	-25.02	0.43	0.85
P45	OP7a	6.10	0.08	244.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.91	-23.22	0.43	0.86
P46	OP7a	6.08	0.14	240.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.99	-21.31	0.43	0.85
P47	OP7a	6.07	0.20	244.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-19.41	0.43	0.86
P48	OP7a	6.05	0.25	241.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.62	-17.58	0.42	0.85
P49	OP7a	6.04	0.31	246.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.16	-15.76	0.43	0.86
P50	OP7a	6.13	-0.01	251.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.48	-25.67	0.45	0.88
P51	OP7a	6.11	0.05	247.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.42	-24.35	0.44	0.87

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P52	OP7a	6.10	0.10	250.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.91	-22.58	0.44	0.88
P53	OP7a	6.08	0.16	246.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.91	-20.68	0.43	0.87
P54	OP7a	6.07	0.22	250.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-18.78	0.44	0.88
P55	OP7a	6.05	0.27	247.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.54	-16.98	0.43	0.87
P56	OP7a	6.04	0.33	251.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.16	-15.13	0.44	0.88
P57	OP7a	6.13	0.01	257.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.48	-25.58	0.45	0.90
P58	OP7a	6.10	0.07	252.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.77	-23.67	0.45	0.89
P59	OP7a	6.10	0.12	255.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.91	-21.94	0.45	0.90
P60	OP7a	6.07	0.18	252.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.27	-20.04	0.44	0.88
P61	OP7a	6.07	0.24	255.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.47	-18.15	0.45	0.90
P62	OP7a	6.04	0.29	252.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.89	-16.38	0.44	0.89
P63	OP7a	6.04	0.35	257.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.16	-14.50	0.45	0.90
P1	OP7b	6.52	-0.15	193.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.18	-21.00	0.36	0.68
P2	OP7b	4.96	-0.10	209.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	166.15	-22.79	0.37	0.75
P3	OP7b	4.94	-0.03	211.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	165.32	-24.84	0.37	0.75
P4	OP7b	6.48	0.03	188.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.04	-25.10	0.35	0.66
P5	OP7b	4.91	0.09	211.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.96	-23.14	0.37	0.75
P6	OP7b	4.90	0.15	209.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.44	-21.12	0.37	0.74
P7	OP7b	6.43	0.20	193.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-19.34	0.36	0.68
P8	OP7b	6.52	-0.13	192.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.18	-21.65	0.36	0.68
P9	OP7b	4.96	-0.08	208.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	166.23	-23.46	0.37	0.74
P10	OP7b	4.95	-0.01	211.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	165.61	-25.47	0.37	0.75
P11	OP7b	6.47	0.05	187.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.70	-24.47	0.35	0.66
P12	OP7b	4.92	0.10	210.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	164.25	-22.52	0.37	0.75
P13	OP7b	4.90	0.17	208.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.52	-20.52	0.36	0.74
P14	OP7b	6.43	0.22	192.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-18.71	0.36	0.68
P15	OP7b	6.52	-0.11	191.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-22.29	0.36	0.67
P16	OP7b	6.50	-0.06	187.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.17	-24.13	0.35	0.66
P17	OP7b	6.49	0.01	189.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.57	-25.78	0.36	0.67
P18	OP7b	6.47	0.06	186.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.66	-23.84	0.35	0.66
P19	OP7b	6.46	0.12	189.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-21.90	0.35	0.67
P20	OP7b	6.44	0.18	187.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.23	-19.92	0.35	0.66
P21	OP7b	6.43	0.24	191.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-18.09	0.35	0.67
P22	OP7b	6.52	-0.09	190.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-22.93	0.36	0.67
P23	OP7b	6.50	-0.04	186.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.19	-24.79	0.35	0.66
P24	OP7b	6.49	0.02	188.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.57	-25.14	0.35	0.66
P25	OP7b	6.47	0.08	185.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.66	-23.21	0.35	0.65
P26	OP7b	6.46	0.14	188.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-21.27	0.35	0.66
P27	OP7b	6.44	0.20	186.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.25	-19.31	0.35	0.66
P28	OP7b	6.43	0.26	190.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-17.46	0.35	0.67
P29	OP7b	6.52	-0.07	189.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-23.57	0.36	0.67
P30	OP7b	6.50	-0.02	185.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.20	-25.45	0.35	0.65
P31	OP7b	6.49	0.04	187.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.57	-24.51	0.35	0.66
P32	OP7b	6.47	0.10	184.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.65	-22.58	0.35	0.65
P33	OP7b	6.46	0.16	188.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-20.64	0.35	0.66
P34	OP7b	6.44	0.22	186.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.25	-18.70	0.35	0.65
P35	OP7b	6.43	0.28	190.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-16.83	0.35	0.67
P36	OP7b	6.52	-0.05	188.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-24.20	0.35	0.66
P37	OP7b	6.50	0.01	185.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.19	-25.77	0.35	0.65
P38	OP7b	6.49	0.06	187.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.56	-23.87	0.35	0.66
P39	OP7b	6.47	0.12	184.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.65	-21.94	0.35	0.65
P40	OP7b	6.46	0.18	187.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-20.02	0.35	0.66
P41	OP7b	6.44	0.24	185.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.25	-18.09	0.34	0.65
P42	OP7b	6.43	0.30	189.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-16.20	0.35	0.66
P43	OP7b	6.52	-0.03	188.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-24.84	0.35	0.66
P44	OP7b	6.50	0.03	184.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.17	-25.12	0.35	0.65
P45	OP7b	6.49	0.08	186.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.56	-23.24	0.35	0.65
P46	OP7b	6.47	0.14	183.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.63	-21.31	0.34	0.64
P47	OP7b	6.46	0.20	186.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-19.39	0.35	0.65
P48	OP7b	6.44	0.26	184.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.23	-17.48	0.34	0.65
P49	OP7b	6.43	0.32	188.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-15.56	0.35	0.66
P50	OP7b	6.52	-0.01	187.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-25.48	0.35	0.66
P51	OP7b	6.50	0.05	183.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.08	-24.45	0.35	0.64
P52	OP7b	6.49	0.10	185.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.56	-22.60	0.35	0.65
P53	OP7b	6.47	0.16	182.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.54	-20.68	0.34	0.64
P54	OP7b	6.46	0.22	185.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-18.76	0.34	0.65
P55	OP7b	6.44	0.28	183.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.14	-16.87	0.34	0.64
P56	OP7b	6.43	0.33	187.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-14.93	0.34	0.66
P57	OP7b	6.52	0.01	186.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.17	-25.77	0.35	0.65
P58	OP7b	6.49	0.07	182.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.48	-23.78	0.34	0.64
P59	OP7b	6.49	0.12	184.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.56	-21.96	0.35	0.65
P60	OP7b	6.45	0.18	181.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	235.95	-20.04	0.34	0.64
P61	OP7b	6.46	0.24	184.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	236.09	-18.13	0.34	0.65
P62	OP7b	6.43	0.29	182.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.55	-16.27	0.34	0.64
P63	OP7b	6.43	0.35	186.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	234.76	-14.30	0.34	0.65
P1	OP8a	-5.28	0.28	201.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.59	-16.81	0.36	0.71
P2	OP8a	-6.95	0.33	174.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	260.50	-15.18	0.33	0.62
P3	OP8a	-7.19	0.38	174.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	272.20	-13.27	0.33	0.62
P4	OP8a	-5.99	0.45	192.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	213.86	-11.10	0.34	0.68
P5	OP8a	-7.64	0.51	169.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	295.40	-8.96	0.33	0.60
P6	OP8a	-7.86	0.57	165.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	306.84	-7.09	0.32	0.59
P7	OP8a	-6.72	0.61	193.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	-5.64	0.35	0.68
P8	OP8a	-5.28	0.58	209.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	-6.57	0.36	0.74

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P9	OP8a	-7.02	0.63	182.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.64	-4.87	0.34	0.65
P10	OP8a	-7.25	0.69	181.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	275.22	-2.93	0.34	0.65
P11	OP8a	-6.00	0.75	200.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.15	-0.69	0.35	0.70
P12	OP8a	-7.70	0.82	177.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	298.48	1.50	0.33	0.63
P13	OP8a	-7.92	0.87	173.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	310.12	3.42	0.33	0.62
P14	OP8a	-6.72	0.92	201.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	4.93	0.36	0.71
P15	OP8a	-5.28	0.89	217.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	3.89	0.37	0.76
P16	OP8a	-5.52	0.94	212.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	191.53	5.65	0.37	0.74
P17	OP8a	-5.76	0.99	213.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	7.66	0.37	0.75
P18	OP8a	-6.00	1.06	208.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.07	9.94	0.37	0.73
P19	OP8a	-6.24	1.12	210.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.80	12.20	0.38	0.74
P20	OP8a	-6.48	1.18	207.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.20	14.17	0.37	0.73
P21	OP8a	-6.72	1.22	209.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	15.73	0.38	0.73
P22	OP8a	-5.28	1.19	225.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	14.59	0.39	0.79
P23	OP8a	-5.52	1.24	220.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	191.56	16.41	0.38	0.77
P24	OP8a	-5.76	1.30	220.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	18.47	0.39	0.78
P25	OP8a	-6.00	1.37	216.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.14	20.81	0.39	0.76
P26	OP8a	-6.24	1.43	218.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.81	23.13	0.39	0.77
P27	OP8a	-6.48	1.49	214.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.24	25.15	0.39	0.75
P28	OP8a	-6.72	1.53	216.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	26.77	0.40	0.76
P29	OP8a	-5.28	1.50	232.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	25.52	0.41	0.82
P30	OP8a	-5.52	1.55	227.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	191.56	27.40	0.40	0.80
P31	OP8a	-5.76	1.61	228.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	29.51	0.41	0.80
P32	OP8a	-6.00	1.67	224.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.15	31.91	0.41	0.79
P33	OP8a	-6.24	1.74	226.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.81	34.29	0.41	0.79
P34	OP8a	-6.48	1.79	222.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.24	36.37	0.41	0.78
P35	OP8a	-6.72	1.84	224.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	38.04	0.42	0.79
P36	OP8a	-5.28	1.80	240.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	36.69	0.43	0.84
P37	OP8a	-5.52	1.85	235.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	191.57	38.62	0.42	0.83
P38	OP8a	-5.76	1.91	236.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	40.79	0.43	0.83
P39	OP8a	-6.00	1.98	231.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.16	43.24	0.43	0.81
P40	OP8a	-6.24	2.04	233.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.81	45.68	0.43	0.82
P41	OP8a	-6.48	2.10	230.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.24	47.82	0.43	0.81
P42	OP8a	-6.72	2.14	232.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	49.54	0.44	0.82
P43	OP8a	-5.28	2.11	248.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	48.08	0.45	0.87
P44	OP8a	-5.52	2.16	243.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	191.59	50.07	0.44	0.85
P45	OP8a	-5.76	2.22	244.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	52.30	0.45	0.86
P46	OP8a	-6.00	2.28	239.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.18	54.81	0.45	0.84
P47	OP8a	-6.24	2.35	241.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.81	57.31	0.45	0.85
P48	OP8a	-6.48	2.41	238.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.27	59.51	0.45	0.84
P49	OP8a	-6.72	2.45	240.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	61.28	0.46	0.84
P50	OP8a	-5.28	2.41	256.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	59.71	0.47	0.90
P51	OP8a	-5.52	2.46	250.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	191.68	61.76	0.46	0.88
P52	OP8a	-5.76	2.52	252.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	64.05	0.47	0.89
P53	OP8a	-6.00	2.59	247.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.27	66.61	0.47	0.87
P54	OP8a	-6.24	2.65	249.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.81	69.18	0.48	0.88
P55	OP8a	-6.48	2.71	245.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.36	71.42	0.47	0.86
P56	OP8a	-6.72	2.76	248.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	73.25	0.48	0.87
P57	OP8a	-5.28	2.72	264.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	180.60	71.57	0.49	0.93
P58	OP8a	-5.53	2.77	258.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	192.29	73.69	0.48	0.91
P59	OP8a	-5.76	2.83	260.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	202.94	76.02	0.49	0.91
P60	OP8a	-6.02	2.89	254.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	214.90	78.64	0.49	0.89
P61	OP8a	-6.24	2.96	257.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	225.81	81.27	0.50	0.90
P62	OP8a	-6.50	3.02	253.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	237.99	83.57	0.49	0.89
P63	OP8a	-6.72	3.06	256.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	249.15	85.46	0.50	0.90
P1	OP8b	-4.63	0.27	171.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	-17.14	0.30	0.60
P2	OP8b	-6.09	0.32	147.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	218.20	-15.26	0.28	0.53
P3	OP8b	-6.32	0.38	146.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	229.33	-13.30	0.28	0.52
P4	OP8b	-5.35	0.45	163.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.62	-11.10	0.29	0.57
P5	OP8b	-6.77	0.51	142.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	251.54	-8.93	0.28	0.51
P6	OP8b	-6.99	0.57	139.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.58	-7.01	0.27	0.49
P7	OP8b	-6.08	0.62	163.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	-5.31	0.30	0.57
P8	OP8b	-4.63	0.57	168.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	-6.91	0.29	0.59
P9	OP8b	-6.06	0.63	144.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.15	-4.98	0.27	0.51
P10	OP8b	-6.29	0.69	143.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	228.08	-2.96	0.27	0.51
P11	OP8b	-5.35	0.75	159.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.90	-0.69	0.28	0.56
P12	OP8b	-6.75	0.82	139.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.27	1.53	0.27	0.50
P13	OP8b	-6.97	0.88	135.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	261.47	3.52	0.26	0.48
P14	OP8b	-6.08	0.93	160.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	5.27	0.29	0.56
P15	OP8b	-4.63	0.88	165.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	3.55	0.28	0.58
P16	OP8b	-4.87	0.93	160.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.13	5.53	0.28	0.56
P17	OP8b	-5.11	0.99	160.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	7.62	0.29	0.56
P18	OP8b	-5.35	1.06	156.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.91	9.94	0.28	0.55
P19	OP8b	-5.60	1.12	157.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	12.23	0.29	0.55
P20	OP8b	-5.83	1.18	154.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.26	14.29	0.29	0.54
P21	OP8b	-6.08	1.23	156.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	16.08	0.30	0.55
P22	OP8b	-4.63	1.18	161.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	14.25	0.29	0.57
P23	OP8b	-4.87	1.24	156.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.05	16.27	0.28	0.55
P24	OP8b	-5.11	1.30	157.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	18.43	0.29	0.55
P25	OP8b	-5.35	1.37	152.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.86	20.81	0.29	0.54
P26	OP8b	-5.60	1.43	154.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	23.16	0.29	0.54
P27	OP8b	-5.83	1.49	151.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.17	25.29	0.29	0.53
P28	OP8b	-6.08	1.54	153.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	27.12	0.30	0.54

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_s EI}$		$Cc=\sqrt{\frac{2\pi^2 E}{fs}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25.941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P29	OP8b	-4.63	1.49	158.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	25.17	0.29	0.56
P30	OP8b	-4.87	1.54	153.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.04	27.25	0.29	0.54
P31	OP8b	-5.11	1.60	153.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	29.48	0.29	0.54
P32	OP8b	-5.35	1.67	149.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.86	31.91	0.29	0.52
P33	OP8b	-5.60	1.74	151.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	34.32	0.30	0.53
P34	OP8b	-5.83	1.80	148.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.17	36.52	0.29	0.52
P35	OP8b	-6.08	1.85	150.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	38.40	0.30	0.53
P36	OP8b	-4.63	1.79	155.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	36.32	0.29	0.54
P37	OP8b	-4.87	1.85	149.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.05	38.45	0.29	0.53
P38	OP8b	-5.11	1.91	150.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	40.76	0.29	0.53
P39	OP8b	-5.35	1.98	146.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.87	43.24	0.29	0.51
P40	OP8b	-5.60	2.04	147.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	45.72	0.30	0.52
P41	OP8b	-5.83	2.10	144.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.17	47.99	0.30	0.51
P42	OP8b	-6.08	2.15	146.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	49.92	0.31	0.52
P43	OP8b	-4.63	2.10	151.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	47.71	0.30	0.53
P44	OP8b	-4.87	2.15	146.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.07	49.89	0.29	0.51
P45	OP8b	-5.11	2.22	147.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	52.27	0.30	0.52
P46	OP8b	-5.35	2.28	142.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.89	54.81	0.29	0.50
P47	OP8b	-5.60	2.35	144.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	57.35	0.30	0.51
P48	OP8b	-5.83	2.41	141.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.19	59.69	0.30	0.50
P49	OP8b	-6.08	2.46	143.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	61.66	0.31	0.50
P50	OP8b	-4.63	2.40	148.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	59.33	0.30	0.52
P51	OP8b	-4.87	2.46	143.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.15	61.56	0.30	0.50
P52	OP8b	-5.11	2.52	143.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	64.01	0.30	0.50
P53	OP8b	-5.35	2.59	139.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	183.97	66.61	0.30	0.49
P54	OP8b	-5.60	2.66	141.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	69.21	0.31	0.49
P55	OP8b	-5.83	2.72	138.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.28	71.63	0.31	0.48
P56	OP8b	-6.08	2.77	140.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	73.64	0.31	0.49
P57	OP8b	-4.63	2.71	144.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	151.46	71.19	0.30	0.51
P58	OP8b	-4.88	2.76	139.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	162.65	73.47	0.30	0.49
P59	OP8b	-5.11	2.83	140.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	173.03	75.98	0.30	0.49
P60	OP8b	-5.37	2.89	135.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	184.48	78.64	0.30	0.48
P61	OP8b	-5.60	2.96	137.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	195.12	81.31	0.31	0.48
P62	OP8b	-5.85	3.02	134.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	206.79	83.79	0.31	0.47
P63	OP8b	-6.08	3.07	136.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	217.68	85.85	0.32	0.48
P1	OP9a	-5.32	0.28	203.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	-16.76	0.36	0.71
P2	OP9a	-7.00	0.33	176.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.95	-15.13	0.33	0.63
P3	OP9a	-7.24	0.39	175.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	274.70	-13.23	0.33	0.63
P4	OP9a	-6.03	0.45	194.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.59	-11.10	0.35	0.68
P5	OP9a	-7.69	0.51	171.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	297.95	-9.00	0.33	0.61
P6	OP9a	-7.91	0.57	167.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	309.40	-7.15	0.33	0.60
P7	OP9a	-6.76	0.61	195.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	-5.69	0.35	0.68
P8	OP9a	-5.32	0.58	211.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	-6.50	0.36	0.74
P9	OP9a	-7.07	0.63	184.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	266.25	-4.80	0.34	0.66
P10	OP9a	-7.30	0.69	184.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	277.89	-2.87	0.34	0.65
P11	OP9a	-6.04	0.75	202.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.87	-0.69	0.35	0.71
P12	OP9a	-7.75	0.82	179.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	301.21	1.45	0.34	0.64
P13	OP9a	-7.98	0.87	175.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	312.85	3.34	0.34	0.63
P14	OP9a	-6.76	0.91	203.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	4.85	0.36	0.71
P15	OP9a	-5.32	0.89	219.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	4.00	0.37	0.77
P16	OP9a	-5.55	0.94	214.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.20	5.75	0.37	0.75
P17	OP9a	-5.80	1.00	215.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.64	7.72	0.37	0.76
P18	OP9a	-6.04	1.06	211.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.79	9.94	0.37	0.74
P19	OP9a	-6.28	1.12	213.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.55	12.14	0.38	0.75
P20	OP9a	-6.52	1.18	209.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.96	14.07	0.38	0.74
P21	OP9a	-6.76	1.22	211.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	15.63	0.39	0.74
P22	OP9a	-5.32	1.20	228.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	14.72	0.39	0.80
P23	OP9a	-5.56	1.25	223.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.24	16.52	0.39	0.78
P24	OP9a	-5.80	1.30	223.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.64	18.54	0.40	0.79
P25	OP9a	-6.04	1.37	219.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.88	20.81	0.39	0.77
P26	OP9a	-6.28	1.43	221.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.55	23.06	0.40	0.78
P27	OP9a	-6.52	1.48	217.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.00	25.03	0.40	0.76
P28	OP9a	-6.76	1.53	219.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	26.64	0.41	0.77
P29	OP9a	-5.32	1.50	236.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	25.68	0.41	0.83
P30	OP9a	-5.56	1.55	231.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.24	27.53	0.41	0.81
P31	OP9a	-5.80	1.61	232.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.65	29.59	0.42	0.81
P32	OP9a	-6.04	1.67	227.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.88	31.91	0.41	0.80
P33	OP9a	-6.28	1.73	229.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.56	34.21	0.42	0.81
P34	OP9a	-6.52	1.79	226.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.00	36.23	0.42	0.79
P35	OP9a	-6.76	1.83	228.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	37.88	0.43	0.80
P36	OP9a	-5.32	1.81	244.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	36.87	0.43	0.86
P37	OP9a	-5.56	1.86	239.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.24	38.78	0.43	0.84
P38	OP9a	-5.80	1.91	240.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.65	40.88	0.44	0.84
P39	OP9a	-6.04	1.98	235.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.89	43.24	0.43	0.83
P40	OP9a	-6.28	2.04	237.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.56	45.59	0.44	0.83
P41	OP9a	-6.52	2.09	234.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.01	47.66	0.44	0.82
P42	OP9a	-6.76	2.14	236.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	49.35	0.45	0.83
P43	OP9a	-5.32	2.11	252.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	48.30	0.46	0.89
P44	OP9a	-5.56	2.16	247.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.27	50.25	0.45	0.87
P45	OP9a	-5.80	2.22	248.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.65	52.40	0.46	0.87
P46	OP9a	-6.04	2.28	243.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.91	54.81	0.45	0.86
P47	OP9a	-6.28	2.35	246.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.56	57.21	0.46	0.86
P48	OP9a	-6.52	2.40	242.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.03	59.32	0.46	0.85

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P49	OP9a	-6.76	2.45	244.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	61.06	0.47	0.86
P50	OP9a	-5.32	2.42	261.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	59.95	0.48	0.92
P51	OP9a	-5.56	2.47	255.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.35	61.97	0.47	0.90
P52	OP9a	-5.80	2.53	257.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.65	64.16	0.48	0.90
P53	OP9a	-6.04	2.59	252.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.00	66.61	0.47	0.88
P54	OP9a	-6.28	2.65	254.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.56	69.07	0.48	0.89
P55	OP9a	-6.52	2.71	250.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.12	71.21	0.48	0.88
P56	OP9a	-6.76	2.75	253.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	73.00	0.49	0.89
P57	OP9a	-5.32	2.72	269.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.24	71.85	0.50	0.95
P58	OP9a	-5.57	2.77	263.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.95	73.92	0.49	0.92
P59	OP9a	-5.80	2.83	265.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.65	76.14	0.50	0.93
P60	OP9a	-6.05	2.89	259.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.62	78.64	0.50	0.91
P61	OP9a	-6.28	2.96	262.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.56	81.15	0.50	0.92
P62	OP9a	-6.53	3.01	258.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.74	83.33	0.50	0.91
P63	OP9a	-6.76	3.06	261.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.92	85.18	0.51	0.92
P1	OP9b	-4.67	0.27	173.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	-17.08	0.31	0.61
P2	OP9b	-6.14	0.33	149.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.55	-15.21	0.28	0.53
P3	OP9b	-6.37	0.38	148.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	231.72	-13.26	0.28	0.53
P4	OP9b	-5.38	0.45	164.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.29	-11.10	0.30	0.58
P5	OP9b	-6.82	0.51	144.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	253.99	-8.97	0.28	0.51
P6	OP9b	-7.04	0.57	140.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	265.03	-7.06	0.28	0.50
P7	OP9b	-6.11	0.62	165.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	-5.36	0.30	0.58
P8	OP9b	-4.67	0.57	170.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	-6.83	0.30	0.60
P9	OP9b	-6.12	0.63	146.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.64	-4.90	0.27	0.52
P10	OP9b	-6.34	0.69	145.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	230.63	-2.91	0.27	0.52
P11	OP9b	-5.39	0.75	162.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.56	-0.69	0.29	0.57
P12	OP9b	-6.80	0.82	141.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.88	1.48	0.27	0.50
P13	OP9b	-7.02	0.87	137.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.08	3.45	0.27	0.49
P14	OP9b	-6.11	0.92	162.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	5.19	0.30	0.57
P15	OP9b	-4.67	0.88	167.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	3.66	0.29	0.59
P16	OP9b	-4.91	0.94	162.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.74	5.63	0.28	0.57
P17	OP9b	-5.15	1.00	163.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	7.68	0.29	0.57
P18	OP9b	-5.39	1.06	158.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.57	9.94	0.29	0.56
P19	OP9b	-5.63	1.12	160.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	12.17	0.29	0.56
P20	OP9b	-5.87	1.18	157.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.95	14.19	0.29	0.55
P21	OP9b	-6.11	1.23	159.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	15.98	0.30	0.56
P22	OP9b	-4.67	1.19	164.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	14.37	0.29	0.58
P23	OP9b	-4.91	1.24	159.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.67	16.39	0.29	0.56
P24	OP9b	-5.15	1.30	160.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	18.50	0.29	0.56
P25	OP9b	-5.39	1.37	155.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.53	20.81	0.29	0.55
P26	OP9b	-5.63	1.43	157.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	23.09	0.30	0.55
P27	OP9b	-5.87	1.49	154.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.88	25.17	0.30	0.54
P28	OP9b	-6.11	1.54	156.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	26.99	0.30	0.55
P29	OP9b	-4.67	1.49	161.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	25.32	0.30	0.57
P30	OP9b	-4.91	1.55	156.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.66	27.38	0.29	0.55
P31	OP9b	-5.15	1.61	157.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	29.56	0.30	0.55
P32	OP9b	-5.39	1.67	153.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.53	31.91	0.29	0.54
P33	OP9b	-5.63	1.73	154.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	34.24	0.30	0.54
P34	OP9b	-5.87	1.79	151.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.87	36.38	0.30	0.53
P35	OP9b	-6.11	1.84	153.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	38.24	0.31	0.54
P36	OP9b	-4.67	1.80	158.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	36.51	0.30	0.56
P37	OP9b	-4.91	1.85	153.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.67	38.61	0.30	0.54
P38	OP9b	-5.15	1.91	154.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	40.84	0.30	0.54
P39	OP9b	-5.39	1.98	150.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.54	43.24	0.30	0.53
P40	OP9b	-5.63	2.04	151.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	45.63	0.30	0.53
P41	OP9b	-5.87	2.10	148.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.88	47.83	0.30	0.52
P42	OP9b	-6.11	2.15	150.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	49.73	0.31	0.53
P43	OP9b	-4.67	2.10	155.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	47.92	0.30	0.55
P44	OP9b	-4.91	2.16	150.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.69	50.07	0.30	0.53
P45	OP9b	-5.15	2.22	151.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	52.36	0.30	0.53
P46	OP9b	-5.39	2.28	147.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.56	54.81	0.30	0.52
P47	OP9b	-5.63	2.35	148.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	57.25	0.31	0.52
P48	OP9b	-5.87	2.41	145.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.90	59.50	0.31	0.51
P49	OP9b	-6.11	2.46	147.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	61.44	0.32	0.52
P50	OP9b	-4.67	2.41	153.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	59.57	0.31	0.54
P51	OP9b	-4.91	2.46	148.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.77	61.76	0.30	0.52
P52	OP9b	-5.15	2.52	148.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	64.12	0.31	0.52
P53	OP9b	-5.39	2.59	144.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.64	66.61	0.31	0.51
P54	OP9b	-5.63	2.65	145.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	69.10	0.31	0.51
P55	OP9b	-5.87	2.71	142.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.98	71.42	0.31	0.50
P56	OP9b	-6.11	2.76	144.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	73.39	0.32	0.51
P57	OP9b	-4.67	2.71	150.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	153.04	71.46	0.31	0.53
P58	OP9b	-4.92	2.77	144.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	164.25	73.70	0.31	0.51
P59	OP9b	-5.15	2.83	145.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.68	76.10	0.31	0.51
P60	OP9b	-5.40	2.89	141.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	186.13	78.64	0.31	0.50
P61	OP9b	-5.63	2.96	142.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.81	81.19	0.32	0.50
P62	OP9b	-5.88	3.02	139.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	208.48	83.56	0.32	0.49
P63	OP9b	-6.11	3.07	141.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.39	85.58	0.32	0.50
P1	OP10a	-5.32	0.28	203.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.18	-16.73	0.36	0.71
P2	OP10a	-7.00	0.33	175.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	262.88	-15.10	0.33	0.63
P3	OP10a	-7.23	0.39	175.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	274.63	-13.21	0.33	0.63
P4	OP10a	-6.03	0.45	194.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.55	-11.10	0.35	0.68
P5	OP10a	-7.69	0.51	171.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	297.89	-9.02	0.33	0.61

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P6	OP10a	-7.91	0.56	167.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	309.33	-7.17	0.33	0.60
P7	OP10a	-6.76	0.61	195.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.86	-5.72	0.35	0.68
P8	OP10a	-5.32	0.59	211.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.18	-6.46	0.36	0.74
P9	OP10a	-7.07	0.64	184.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	266.16	-4.77	0.34	0.66
P10	OP10a	-7.30	0.69	183.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	277.80	-2.85	0.34	0.65
P11	OP10a	-6.04	0.75	202.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.82	-0.69	0.35	0.71
P12	OP10a	-7.75	0.82	179.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	301.13	1.43	0.34	0.64
P13	OP10a	-7.97	0.87	175.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	312.76	3.31	0.34	0.62
P14	OP10a	-6.76	0.91	203.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.86	4.81	0.36	0.71
P15	OP10a	-5.32	0.89	219.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.18	4.05	0.37	0.77
P16	OP10a	-5.55	0.94	214.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.14	5.78	0.37	0.75
P17	OP10a	-5.80	1.00	215.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	7.74	0.37	0.76
P18	OP10a	-6.03	1.06	211.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.74	9.94	0.37	0.74
P19	OP10a	-6.28	1.12	212.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.50	12.11	0.38	0.75
P20	OP10a	-6.52	1.18	209.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.90	14.03	0.38	0.74
P21	OP10a	-6.76	1.22	211.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.86	15.57	0.38	0.74
P22	OP10a	-5.32	1.20	227.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.19	14.78	0.39	0.80
P23	OP10a	-5.55	1.25	223.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.19	16.57	0.39	0.78
P24	OP10a	-5.80	1.30	223.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	18.56	0.39	0.79
P25	OP10a	-6.04	1.37	219.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.83	20.81	0.39	0.77
P26	OP10a	-6.28	1.43	221.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.50	23.03	0.40	0.78
P27	OP10a	-6.52	1.48	217.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.95	24.99	0.40	0.76
P28	OP10a	-6.76	1.53	219.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.86	26.57	0.41	0.77
P29	OP10a	-5.32	1.50	236.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.19	25.75	0.41	0.83
P30	OP10a	-5.55	1.55	231.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.19	27.59	0.41	0.81
P31	OP10a	-5.80	1.61	232.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	29.62	0.42	0.81
P32	OP10a	-6.04	1.67	227.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.84	31.91	0.41	0.80
P33	OP10a	-6.28	1.73	229.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.51	34.18	0.42	0.80
P34	OP10a	-6.52	1.79	225.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.95	36.17	0.42	0.79
P35	OP10a	-6.76	1.83	227.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.86	37.80	0.43	0.80
P36	OP10a	-5.32	1.81	244.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.19	36.96	0.43	0.86
P37	OP10a	-5.55	1.86	239.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.20	38.84	0.43	0.84
P38	OP10a	-5.80	1.91	240.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	40.91	0.44	0.84
P39	OP10a	-6.04	1.98	235.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.85	43.24	0.43	0.83
P40	OP10a	-6.28	2.04	237.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.51	45.56	0.44	0.83
P41	OP10a	-6.52	2.09	234.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.96	47.59	0.44	0.82
P42	OP10a	-6.76	2.14	236.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.86	49.27	0.45	0.83
P43	OP10a	-5.32	2.11	252.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.19	48.39	0.45	0.89
P44	OP10a	-5.55	2.17	247.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.22	50.33	0.45	0.87
P45	OP10a	-5.80	2.22	248.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	52.44	0.46	0.87
P46	OP10a	-6.04	2.28	243.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.87	54.81	0.45	0.86
P47	OP10a	-6.28	2.34	245.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.51	57.18	0.46	0.86
P48	OP10a	-6.52	2.40	242.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	238.98	59.24	0.46	0.85
P49	OP10a	-6.76	2.44	244.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.87	60.97	0.47	0.86
P50	OP10a	-5.32	2.42	260.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.19	60.06	0.48	0.91
P51	OP10a	-5.56	2.47	255.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.30	62.05	0.47	0.90
P52	OP10a	-5.80	2.53	256.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	64.20	0.48	0.90
P53	OP10a	-6.04	2.59	251.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	215.95	66.61	0.47	0.88
P54	OP10a	-6.28	2.65	254.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.51	69.02	0.48	0.89
P55	OP10a	-6.52	2.70	250.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.07	71.13	0.48	0.88
P56	OP10a	-6.76	2.75	252.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.87	72.90	0.49	0.89
P57	OP10a	-5.32	2.73	268.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	182.19	71.96	0.50	0.94
P58	OP10a	-5.57	2.78	263.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	193.89	74.01	0.49	0.92
P59	OP10a	-5.80	2.83	264.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	204.60	76.19	0.50	0.93
P60	OP10a	-6.05	2.89	259.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	216.56	78.64	0.49	0.91
P61	OP10a	-6.28	2.96	262.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	227.51	81.10	0.50	0.92
P62	OP10a	-6.53	3.01	257.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	239.68	83.24	0.50	0.91
P63	OP10a	-6.76	3.05	260.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	250.87	85.06	0.51	0.92
P1	OP10b	-4.67	0.27	173.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	-17.05	0.31	0.61
P2	OP10b	-6.13	0.33	149.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	220.48	-15.19	0.28	0.53
P3	OP10b	-6.37	0.38	148.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	231.66	-13.25	0.28	0.53
P4	OP10b	-5.38	0.45	164.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.25	-11.10	0.30	0.58
P5	OP10b	-6.82	0.51	144.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	253.93	-8.99	0.28	0.51
P6	OP10b	-7.04	0.57	140.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	264.96	-7.08	0.28	0.50
P7	OP10b	-6.11	0.62	165.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	-5.39	0.30	0.58
P8	OP10b	-4.67	0.58	170.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	-6.79	0.30	0.60
P9	OP10b	-6.11	0.63	146.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.55	-4.87	0.27	0.52
P10	OP10b	-6.34	0.69	145.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	230.55	-2.89	0.27	0.52
P11	OP10b	-5.39	0.75	162.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.51	-0.69	0.29	0.57
P12	OP10b	-6.80	0.82	141.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	252.80	1.46	0.27	0.50
P13	OP10b	-7.02	0.87	137.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	263.99	3.42	0.27	0.49
P14	OP10b	-6.11	0.92	162.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	5.15	0.30	0.57
P15	OP10b	-4.67	0.88	167.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	3.71	0.29	0.59
P16	OP10b	-4.91	0.94	162.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.69	5.67	0.28	0.57
P17	OP10b	-5.15	1.00	163.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	7.71	0.29	0.57
P18	OP10b	-5.39	1.06	158.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.52	9.94	0.29	0.56
P19	OP10b	-5.63	1.12	160.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	12.15	0.29	0.56
P20	OP10b	-5.87	1.18	157.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.90	14.15	0.29	0.55
P21	OP10b	-6.11	1.23	159.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	15.92	0.30	0.56
P22	OP10b	-4.67	1.19	164.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	14.44	0.29	0.58
P23	OP10b	-4.91	1.24	159.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.62	16.44	0.29	0.56
P24	OP10b	-5.15	1.30	160.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	18.53	0.29	0.56
P25	OP10b	-5.39	1.37	155.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.49	20.81	0.29	0.55

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_s EI}$		$Ce = \sqrt{\frac{2\pi^2 E}{f_c}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25.941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P26	OP10b	-5.63	1.43	157.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	23.06	0.30	0.55
P27	OP10b	-5.87	1.49	154.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.83	25.12	0.30	0.54
P28	OP10b	-6.11	1.53	156.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	26.93	0.30	0.55
P29	OP10b	-4.67	1.49	161.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	25.40	0.30	0.57
P30	OP10b	-4.91	1.55	156.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.62	27.44	0.29	0.55
P31	OP10b	-5.15	1.61	157.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	29.59	0.30	0.55
P32	OP10b	-5.39	1.67	152.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.49	31.91	0.29	0.54
P33	OP10b	-5.63	1.73	154.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	34.21	0.30	0.54
P34	OP10b	-5.87	1.79	151.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.82	36.32	0.30	0.53
P35	OP10b	-6.11	1.84	153.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	38.17	0.31	0.54
P36	OP10b	-4.67	1.80	158.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	36.59	0.30	0.56
P37	OP10b	-4.91	1.85	153.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.62	38.68	0.30	0.54
P38	OP10b	-5.15	1.91	154.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	40.88	0.30	0.54
P39	OP10b	-5.39	1.98	149.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.49	43.24	0.30	0.53
P40	OP10b	-5.63	2.04	151.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	45.60	0.30	0.53
P41	OP10b	-5.87	2.10	148.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.83	47.76	0.30	0.52
P42	OP10b	-6.11	2.15	150.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	49.64	0.31	0.53
P43	OP10b	-4.67	2.10	155.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	48.02	0.30	0.55
P44	OP10b	-4.91	2.16	150.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.64	50.15	0.30	0.53
P45	OP10b	-5.15	2.22	151.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	52.40	0.30	0.53
P46	OP10b	-5.39	2.28	146.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.51	54.81	0.30	0.52
P47	OP10b	-5.63	2.35	148.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	57.21	0.31	0.52
P48	OP10b	-5.87	2.40	145.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.85	59.43	0.31	0.51
P49	OP10b	-6.11	2.45	147.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	61.35	0.31	0.52
P50	OP10b	-4.67	2.41	152.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	59.68	0.31	0.54
P51	OP10b	-4.91	2.47	147.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	163.72	61.85	0.30	0.52
P52	OP10b	-5.15	2.53	148.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	64.16	0.31	0.52
P53	OP10b	-5.39	2.59	143.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	185.59	66.61	0.31	0.51
P54	OP10b	-5.63	2.65	145.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	69.06	0.31	0.51
P55	OP10b	-5.87	2.71	142.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	207.93	71.33	0.31	0.50
P56	OP10b	-6.11	2.76	144.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	73.28	0.32	0.51
P57	OP10b	-4.67	2.72	149.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	152.99	71.58	0.31	0.52
P58	OP10b	-4.92	2.77	144.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	164.20	73.79	0.31	0.51
P59	OP10b	-5.15	2.83	145.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	174.63	76.15	0.31	0.51
P60	OP10b	-5.40	2.89	140.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	186.08	78.64	0.31	0.49
P61	OP10b	-5.63	2.96	142.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	196.76	81.14	0.32	0.50
P62	OP10b	-5.88	3.01	139.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	208.42	83.46	0.32	0.49
P63	OP10b	-6.11	3.06	141.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	219.34	85.46	0.32	0.50
P1	OP11a	18.32	-0.20	195.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.52	-19.28	0.53	0.69
P2	OP11a	16.61	-0.15	252.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	858.32	-21.15	0.59	0.90
P3	OP11a	16.62	-0.08	255.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	858.98	-23.40	0.59	0.91
P4	OP11a	18.35	-0.02	190.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	990.46	-25.32	0.53	0.67
P5	OP11a	16.64	0.04	256.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	860.17	-24.64	0.59	0.91
P6	OP11a	16.64	0.11	253.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	860.72	-22.43	0.59	0.90
P7	OP11a	18.38	0.16	196.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-20.56	0.53	0.69
P8	OP11a	18.32	-0.21	194.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.52	-18.92	0.53	0.68
P9	OP11a	16.61	-0.16	252.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	858.23	-20.83	0.59	0.90
P10	OP11a	16.62	-0.09	255.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	859.29	-23.02	0.59	0.91
P11	OP11a	18.34	-0.03	189.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.86	-24.93	0.52	0.67
P12	OP11a	16.64	0.03	255.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	860.49	-25.03	0.59	0.91
P13	OP11a	16.64	0.09	252.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	860.63	-22.88	0.59	0.90
P14	OP11a	18.38	0.15	195.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-20.97	0.53	0.69
P15	OP11a	18.32	-0.23	194.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.52	-18.55	0.53	0.68
P16	OP11a	18.32	-0.17	189.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.35	-20.51	0.52	0.67
P17	OP11a	18.34	-0.10	192.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-22.65	0.53	0.67
P18	OP11a	18.34	-0.04	189.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.74	-24.55	0.52	0.66
P19	OP11a	18.36	0.02	192.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.25	-25.43	0.53	0.67
P20	OP11a	18.36	0.08	190.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.26	-23.33	0.53	0.67
P21	OP11a	18.38	0.14	195.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-21.39	0.53	0.68
P22	OP11a	18.32	-0.24	193.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.52	-18.19	0.53	0.68
P23	OP11a	18.32	-0.18	189.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.35	-20.19	0.52	0.66
P24	OP11a	18.34	-0.11	191.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-22.27	0.53	0.67
P25	OP11a	18.34	-0.05	188.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.74	-24.17	0.52	0.66
P26	OP11a	18.36	0.00	191.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.25	-25.82	0.53	0.67
P27	OP11a	18.36	0.07	189.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.26	-23.77	0.52	0.67
P28	OP11a	18.38	0.13	194.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-21.80	0.53	0.68
P29	OP11a	18.32	-0.25	192.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.51	-17.83	0.52	0.68
P30	OP11a	18.32	-0.19	188.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.37	-19.86	0.52	0.66
P31	OP11a	18.34	-0.12	190.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-21.90	0.52	0.67
P32	OP11a	18.34	-0.07	188.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.73	-23.79	0.52	0.66
P33	OP11a	18.36	-0.01	191.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.24	-25.66	0.53	0.67
P34	OP11a	18.36	0.05	189.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.28	-24.21	0.52	0.66
P35	OP11a	18.38	0.11	193.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-22.21	0.53	0.68
P36	OP11a	18.32	-0.26	192.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.51	-17.46	0.52	0.67
P37	OP11a	18.32	-0.20	188.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.36	-19.54	0.52	0.66
P38	OP11a	18.34	-0.14	190.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-21.52	0.52	0.67
P39	OP11a	18.34	-0.08	187.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.72	-23.40	0.52	0.66
P40	OP11a	18.36	-0.02	190.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.24	-25.27	0.53	0.67
P41	OP11a	18.36	0.04	188.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.27	-24.65	0.52	0.66
P42	OP11a	18.38	0.10	193.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-22.63	0.53	0.68
P43	OP11a	18.32	-0.27	191.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.51	-17.10	0.52	0.67
P44	OP11a	18.32	-0.21	187.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.35	-19.21	0.52	0.66
P45	OP11a	18.34	-0.15	189.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-21.15	0.52	0.67

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P46	OP11a	18.34	-0.09	186.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.70	-23.02	0.52	0.66
P47	OP11a	18.36	-0.03	190.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.24	-24.87	0.53	0.67
P48	OP11a	18.36	0.03	188.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.26	-25.10	0.52	0.66
P49	OP11a	18.38	0.09	192.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-23.04	0.53	0.68
P50	OP11a	18.32	-0.28	190.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.51	-16.73	0.52	0.67
P51	OP11a	18.32	-0.22	186.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.27	-18.89	0.52	0.66
P52	OP11a	18.34	-0.16	189.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-20.77	0.52	0.66
P53	OP11a	18.34	-0.10	186.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.62	-22.63	0.52	0.65
P54	OP11a	18.36	-0.05	189.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.24	-24.47	0.52	0.66
P55	OP11a	18.36	0.01	187.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.18	-25.54	0.52	0.66
P56	OP11a	18.38	0.08	191.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-23.45	0.53	0.67
P57	OP11a	18.32	-0.29	190.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.51	-16.37	0.52	0.67
P58	OP11a	18.31	-0.22	185.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	987.51	-18.57	0.51	0.65
P59	OP11a	18.34	-0.17	188.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	989.79	-20.40	0.52	0.66
P60	OP11a	18.33	-0.11	185.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	988.89	-22.25	0.52	0.65
P61	OP11a	18.36	-0.06	188.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	991.24	-24.08	0.52	0.66
P62	OP11a	18.35	0.00	186.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	990.42	-25.89	0.52	0.65
P63	OP11a	18.38	0.06	191.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	992.89	-23.86	0.53	0.67
P1	OP11b	18.64	-0.20	176.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-19.40	0.51	0.62
P2	OP11b	17.07	-0.15	235.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	892.64	-21.17	0.57	0.84
P3	OP11b	17.08	-0.08	238.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	893.29	-23.40	0.57	0.85
P4	OP11b	18.67	-0.02	171.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.64	-25.32	0.50	0.60
P5	OP11b	17.10	0.04	238.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	894.50	-24.64	0.58	0.85
P6	OP11b	17.10	0.11	235.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	895.08	-22.45	0.57	0.84
P7	OP11b	18.70	0.16	177.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-20.67	0.51	0.62
P8	OP11b	18.64	-0.21	178.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-19.03	0.51	0.63
P9	OP11b	17.05	-0.16	237.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	891.00	-20.86	0.57	0.84
P10	OP11b	17.06	-0.09	240.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	892.03	-23.03	0.58	0.85
P11	OP11b	18.66	-0.03	173.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.09	-24.93	0.51	0.61
P12	OP11b	17.08	0.03	240.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	893.24	-25.04	0.58	0.86
P13	OP11b	17.08	0.09	238.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	893.43	-22.91	0.57	0.85
P14	OP11b	18.70	0.15	179.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-21.09	0.51	0.63
P15	OP11b	18.64	-0.22	180.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-18.67	0.51	0.63
P16	OP11b	18.64	-0.16	176.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.59	-20.54	0.51	0.62
P17	OP11b	18.66	-0.10	178.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.03	-22.65	0.51	0.63
P18	OP11b	18.66	-0.04	176.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.01	-24.55	0.51	0.62
P19	OP11b	18.68	0.02	178.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.50	-25.44	0.52	0.63
P20	OP11b	18.68	0.08	177.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.53	-23.36	0.51	0.62
P21	OP11b	18.70	0.14	181.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-21.50	0.52	0.64
P22	OP11b	18.64	-0.23	182.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-18.31	0.52	0.64
P23	OP11b	18.64	-0.17	178.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.54	-20.22	0.51	0.63
P24	OP11b	18.66	-0.11	180.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.02	-22.28	0.52	0.63
P25	OP11b	18.66	-0.05	178.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1014.95	-24.17	0.51	0.63
P26	OP11b	18.68	0.00	181.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-25.83	0.52	0.64
P27	OP11b	18.68	0.07	179.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.48	-23.81	0.51	0.63
P28	OP11b	18.70	0.12	183.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-21.91	0.52	0.64
P29	OP11b	18.64	-0.24	184.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-17.94	0.52	0.65
P30	OP11b	18.64	-0.18	181.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.55	-19.90	0.51	0.64
P31	OP11b	18.66	-0.12	183.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.02	-21.91	0.52	0.64
P32	OP11b	18.66	-0.07	180.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1014.94	-23.79	0.52	0.63
P33	OP11b	18.68	-0.01	183.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-25.65	0.52	0.64
P34	OP11b	18.68	0.05	181.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-24.25	0.52	0.64
P35	OP11b	18.70	0.11	185.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-22.33	0.52	0.65
P36	OP11b	18.64	-0.25	187.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-17.57	0.52	0.66
P37	OP11b	18.64	-0.19	183.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.55	-19.58	0.52	0.64
P38	OP11b	18.66	-0.13	185.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.02	-21.53	0.52	0.65
P39	OP11b	18.66	-0.08	182.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1014.93	-23.40	0.52	0.64
P40	OP11b	18.68	-0.02	185.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-25.26	0.52	0.65
P41	OP11b	18.68	0.04	183.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-24.70	0.52	0.64
P42	OP11b	18.70	0.10	187.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-22.74	0.53	0.66
P43	OP11b	18.64	-0.27	189.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-17.21	0.52	0.66
P44	OP11b	18.64	-0.20	185.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.53	-19.26	0.52	0.65
P45	OP11b	18.66	-0.15	187.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.02	-21.15	0.52	0.66
P46	OP11b	18.66	-0.09	184.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1014.91	-23.02	0.52	0.65
P47	OP11b	18.68	-0.03	187.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-24.86	0.53	0.66
P48	OP11b	18.68	0.02	185.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.47	-25.14	0.53	0.65
P49	OP11b	18.70	0.09	190.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-23.15	0.53	0.67
P50	OP11b	18.64	-0.28	191.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-16.84	0.53	0.67
P51	OP11b	18.64	-0.21	187.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.45	-18.94	0.52	0.66
P52	OP11b	18.66	-0.16	189.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.02	-20.78	0.53	0.67
P53	OP11b	18.66	-0.10	186.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1014.84	-22.63	0.52	0.66
P54	OP11b	18.68	-0.05	190.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-24.47	0.53	0.67
P55	OP11b	18.68	0.01	188.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.39	-25.58	0.53	0.66
P56	OP11b	18.70	0.07	192.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-23.56	0.53	0.67
P57	OP11b	18.64	-0.29	193.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1013.71	-16.48	0.53	0.68
P58	OP11b	18.63	-0.22	189.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1012.69	-18.62	0.52	0.66
P59	OP11b	18.66	-0.17	191.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.02	-20.40	0.53	0.67
P60	OP11b	18.65	-0.11	188.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1014.09	-22.25	0.53	0.66
P61	OP11b	18.68	-0.06	192.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1016.49	-24.07	0.53	0.67
P62	OP11b	18.67	0.00	189.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1015.63	-25.85	0.53	0.67
P63	OP11b	18.70	0.06	194.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1	1018.13	-23.97	0.54	0.68
P1	D1a	-4.94	0.29	190.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.30	-16.55	0.25	0.50
P2	D1a	-6.54	0.33	164.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	240.12	-14.94	0.23	0.44

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P3	D1a	-6.77	0.39	164.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	251.33	-13.19	0.23	0.44
P4	D1a	-5.66	0.45	181.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.31	-11.10	0.24	0.48
P5	D1a	-7.22	0.51	159.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	274.05	-9.05	0.23	0.43
P6	D1a	-7.45	0.56	155.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.52	-7.34	0.23	0.42
P7	D1a	-6.39	0.60	181.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	-5.91	0.25	0.48
P8	D1a	-4.94	0.59	199.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.30	-6.23	0.26	0.53
P9	D1a	-6.61	0.64	173.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	243.48	-4.61	0.24	0.46
P10	D1a	-6.84	0.69	173.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	254.80	-2.85	0.24	0.46
P11	D1a	-5.67	0.75	190.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.42	-0.69	0.25	0.50
P12	D1a	-7.29	0.82	168.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.60	1.43	0.24	0.45
P13	D1a	-7.52	0.87	165.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.04	3.15	0.24	0.44
P14	D1a	-6.39	0.91	191.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	4.57	0.26	0.50
P15	D1a	-4.94	0.90	208.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.30	4.33	0.26	0.55
P16	D1a	-5.18	0.95	204.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.09	5.94	0.26	0.54
P17	D1a	-5.43	1.00	204.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.35	7.72	0.27	0.54
P18	D1a	-5.66	1.06	199.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.33	9.94	0.26	0.53
P19	D1a	-5.91	1.12	201.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.81	12.13	0.27	0.53
P20	D1a	-6.14	1.17	198.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	220.96	13.87	0.27	0.52
P21	D1a	-6.39	1.21	200.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	15.29	0.27	0.53
P22	D1a	-4.94	1.21	217.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.30	15.11	0.28	0.57
P23	D1a	-5.18	1.25	213.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.17	16.73	0.28	0.56
P24	D1a	-5.43	1.30	213.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.35	18.52	0.28	0.56
P25	D1a	-5.67	1.37	208.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.36	20.81	0.28	0.55
P26	D1a	-5.91	1.43	210.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.82	23.07	0.29	0.56
P27	D1a	-6.15	1.48	208.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	221.04	24.83	0.28	0.55
P28	D1a	-6.39	1.52	209.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	26.24	0.29	0.55
P29	D1a	-4.94	1.51	227.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.30	26.13	0.30	0.60
P30	D1a	-5.18	1.56	222.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.16	27.75	0.29	0.59
P31	D1a	-5.43	1.61	222.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.35	29.56	0.30	0.59
P32	D1a	-5.67	1.67	217.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.37	31.91	0.30	0.57
P33	D1a	-5.91	1.73	220.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.82	34.24	0.30	0.58
P34	D1a	-6.15	1.78	217.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	221.04	36.02	0.30	0.57
P35	D1a	-6.39	1.82	218.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	37.42	0.31	0.58
P36	D1a	-4.94	1.82	236.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.31	37.38	0.31	0.62
P37	D1a	-5.18	1.86	231.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.17	39.00	0.31	0.61
P38	D1a	-5.43	1.91	231.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.36	40.83	0.31	0.61
P39	D1a	-5.67	1.98	227.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.38	43.24	0.31	0.60
P40	D1a	-5.91	2.04	229.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.82	45.64	0.32	0.60
P41	D1a	-6.15	2.09	226.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	221.04	47.44	0.32	0.60
P42	D1a	-6.39	2.13	228.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	48.84	0.32	0.60
P43	D1a	-4.94	2.13	245.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.31	48.87	0.33	0.65
P44	D1a	-5.18	2.17	240.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.18	50.48	0.33	0.63
P45	D1a	-5.43	2.22	241.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.36	52.34	0.33	0.63
P46	D1a	-5.67	2.28	236.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.40	54.81	0.33	0.62
P47	D1a	-5.91	2.35	238.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.82	57.28	0.33	0.63
P48	D1a	-6.15	2.39	235.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	221.05	59.09	0.33	0.62
P49	D1a	-6.39	2.43	237.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	60.48	0.34	0.62
P50	D1a	-4.94	2.43	254.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.31	60.59	0.35	0.67
P51	D1a	-5.19	2.47	249.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.25	62.20	0.34	0.66
P52	D1a	-5.43	2.52	250.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.36	64.08	0.35	0.66
P53	D1a	-5.67	2.59	245.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.49	66.61	0.35	0.65
P54	D1a	-5.91	2.65	247.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.82	69.14	0.35	0.65
P55	D1a	-6.15	2.70	244.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	221.13	70.98	0.35	0.64
P56	D1a	-6.39	2.74	246.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	72.36	0.36	0.65
P57	D1a	-4.94	2.74	264.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	165.31	72.54	0.36	0.69
P58	D1a	-5.20	2.78	258.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	176.75	74.16	0.36	0.68
P59	D1a	-5.43	2.83	259.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	187.36	76.05	0.36	0.68
P60	D1a	-5.68	2.89	253.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.11	78.64	0.36	0.67
P61	D1a	-5.91	2.96	256.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.82	81.24	0.37	0.68
P62	D1a	-6.16	3.01	253.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	221.64	83.09	0.37	0.67
P63	D1a	-6.39	3.04	255.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	232.64	84.47	0.37	0.67
P1	D1b	-4.29	0.28	160.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	-16.87	0.21	0.42
P2	D1b	-5.67	0.33	137.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	198.71	-15.02	0.20	0.37
P3	D1b	-5.90	0.39	136.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	209.36	-13.22	0.20	0.36
P4	D1b	-5.02	0.45	151.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.60	-11.10	0.21	0.40
P5	D1b	-6.35	0.51	132.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	231.10	-9.02	0.19	0.35
P6	D1b	-6.58	0.56	129.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	242.15	-7.25	0.19	0.34
P7	D1b	-5.74	0.61	152.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	-5.58	0.21	0.40
P8	D1b	-4.29	0.58	158.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	-6.56	0.20	0.42
P9	D1b	-5.66	0.64	135.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.96	-4.71	0.19	0.36
P10	D1b	-5.88	0.69	134.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	208.63	-2.88	0.19	0.36
P11	D1b	-5.02	0.75	149.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.71	-0.69	0.20	0.39
P12	D1b	-6.34	0.82	130.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.36	1.46	0.19	0.35
P13	D1b	-6.57	0.87	127.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	241.36	3.25	0.19	0.34
P14	D1b	-5.74	0.92	150.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	4.91	0.21	0.40
P15	D1b	-4.29	0.89	156.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	3.99	0.20	0.41
P16	D1b	-4.54	0.94	151.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.24	5.83	0.20	0.40
P17	D1b	-4.78	1.00	151.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	7.69	0.20	0.40
P18	D1b	-5.02	1.06	147.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.71	9.94	0.20	0.39
P19	D1b	-5.26	1.12	149.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	12.17	0.20	0.39
P20	D1b	-5.50	1.17	146.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.56	13.99	0.20	0.39
P21	D1b	-5.74	1.22	148.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	15.64	0.21	0.39
P22	D1b	-4.29	1.20	154.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	14.76	0.20	0.41

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$C_c = \sqrt{\frac{2\pi^2 E}{f_c}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P23	D1b	-4.53	1.25	149.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.20	16.59	0.20	0.39
P24	D1b	-4.78	1.30	149.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	18.49	0.21	0.39
P25	D1b	-5.02	1.37	145.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.62	20.81	0.20	0.38
P26	D1b	-5.26	1.43	147.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	23.11	0.21	0.39
P27	D1b	-5.50	1.48	144.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.51	24.96	0.21	0.38
P28	D1b	-5.74	1.53	146.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	26.59	0.21	0.39
P29	D1b	-4.29	1.50	152.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	25.77	0.21	0.40
P30	D1b	-4.53	1.55	147.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.19	27.60	0.21	0.39
P31	D1b	-4.78	1.61	147.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	29.52	0.21	0.39
P32	D1b	-5.02	1.67	143.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.62	31.91	0.21	0.38
P33	D1b	-5.26	1.74	145.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	34.28	0.21	0.38
P34	D1b	-5.50	1.79	142.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.51	36.17	0.21	0.38
P35	D1b	-5.74	1.83	144.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	37.78	0.22	0.38
P36	D1b	-4.29	1.81	150.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	37.02	0.21	0.40
P37	D1b	-4.53	1.86	145.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.19	38.83	0.21	0.38
P38	D1b	-4.78	1.91	145.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	40.79	0.21	0.38
P39	D1b	-5.02	1.98	141.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.63	43.24	0.21	0.37
P40	D1b	-5.26	2.04	143.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	45.68	0.22	0.38
P41	D1b	-5.50	2.09	140.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.51	47.61	0.22	0.37
P42	D1b	-5.74	2.14	142.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	49.21	0.22	0.37
P43	D1b	-4.29	2.12	148.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	48.49	0.22	0.39
P44	D1b	-4.53	2.16	143.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.21	50.30	0.21	0.38
P45	D1b	-4.78	2.22	143.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	52.30	0.22	0.38
P46	D1b	-5.02	2.28	139.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.65	54.81	0.21	0.37
P47	D1b	-5.26	2.35	141.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	57.32	0.22	0.37
P48	D1b	-5.50	2.40	138.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.52	59.28	0.22	0.37
P49	D1b	-5.74	2.44	140.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	60.86	0.23	0.37
P50	D1b	-4.29	2.42	146.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	60.21	0.22	0.39
P51	D1b	-4.54	2.47	141.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.27	61.99	0.22	0.37
P52	D1b	-4.78	2.52	141.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	64.04	0.22	0.37
P53	D1b	-5.02	2.59	137.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	168.73	66.61	0.22	0.36
P54	D1b	-5.26	2.65	139.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	69.18	0.22	0.37
P55	D1b	-5.50	2.71	136.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.59	71.18	0.22	0.36
P56	D1b	-5.74	2.75	138.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	72.75	0.23	0.36
P57	D1b	-4.29	2.73	144.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	136.71	72.15	0.22	0.38
P58	D1b	-4.55	2.78	139.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	147.66	73.94	0.22	0.37
P59	D1b	-4.78	2.83	139.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	157.99	76.01	0.22	0.37
P60	D1b	-5.03	2.89	135.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	169.23	78.64	0.22	0.36
P61	D1b	-5.26	2.96	137.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	179.67	81.28	0.23	0.36
P62	D1b	-5.51	3.01	134.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	190.98	83.31	0.23	0.35
P63	D1b	-5.74	3.05	136.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	201.72	84.87	0.23	0.36
P1	D2a	-6.30	-1.40	196.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	22.09	0.27	0.52
P2	D2a	-8.24	-1.35	162.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	326.61	20.32	0.25	0.43
P3	D2a	-8.78	-1.30	158.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	355.49	18.59	0.25	0.42
P4	D2a	-8.02	-1.24	180.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.04	16.30	0.26	0.47
P5	D2a	-9.85	-1.18	146.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	415.31	14.18	0.24	0.39
P6	D2a	-10.38	-1.12	139.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	446.05	12.23	0.24	0.37
P7	D2a	-9.74	-1.08	173.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.24	10.74	0.27	0.46
P8	D2a	-6.30	-0.67	205.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	-3.48	0.27	0.54
P9	D2a	-8.30	-0.62	170.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	329.95	-5.13	0.25	0.46
P10	D2a	-8.84	-0.58	166.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	358.97	-6.75	0.25	0.44
P11	D2a	-8.02	-0.51	188.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.18	-8.92	0.27	0.50
P12	D2a	-9.91	-0.45	154.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.93	-10.97	0.25	0.41
P13	D2a	-10.44	-0.40	147.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	449.74	-12.85	0.25	0.39
P14	D2a	-9.74	-0.35	181.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.24	-14.28	0.28	0.48
P15	D2a	-6.30	0.06	213.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	-24.14	0.29	0.56
P16	D2a	-6.87	0.10	206.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	256.44	-22.61	0.29	0.54
P17	D2a	-7.45	0.15	204.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	-21.05	0.29	0.54
P18	D2a	-8.02	0.21	197.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.08	-18.97	0.28	0.52
P19	D2a	-8.60	0.28	196.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.92	-16.89	0.29	0.52
P20	D2a	-9.17	0.33	190.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	376.91	-15.01	0.29	0.50
P21	D2a	-9.74	0.38	189.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	-13.56	0.29	0.50
P22	D2a	-6.30	0.78	222.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	0.31	0.29	0.58
P23	D2a	-6.87	0.83	215.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	256.52	1.88	0.29	0.57
P24	D2a	-7.45	0.88	212.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	3.51	0.29	0.56
P25	D2a	-8.02	0.94	205.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.12	5.69	0.29	0.54
P26	D2a	-8.60	1.00	204.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.92	7.95	0.29	0.54
P27	D2a	-9.17	1.06	198.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	376.90	9.95	0.29	0.52
P28	D2a	-9.74	1.10	198.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	11.50	0.30	0.52
P29	D2a	-6.30	1.51	230.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	26.08	0.31	0.61
P30	D2a	-6.87	1.56	223.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	256.51	27.68	0.31	0.59
P31	D2a	-7.45	1.60	221.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	29.40	0.31	0.58
P32	D2a	-8.02	1.66	213.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.12	31.66	0.31	0.56
P33	D2a	-8.60	1.73	212.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.93	34.10	0.32	0.56
P34	D2a	-9.17	1.79	206.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	376.90	36.23	0.32	0.54
P35	D2a	-9.74	1.83	206.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	37.88	0.32	0.54
P36	D2a	-6.30	2.24	238.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	53.17	0.34	0.63
P37	D2a	-6.87	2.28	231.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	256.52	54.80	0.33	0.61
P38	D2a	-7.45	2.33	229.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	56.60	0.34	0.60
P39	D2a	-8.02	2.39	221.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.13	58.95	0.33	0.58
P40	D2a	-8.60	2.46	221.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.93	61.57	0.34	0.58
P41	D2a	-9.17	2.52	215.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	376.91	63.82	0.34	0.57
P42	D2a	-9.74	2.56	215.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	65.59	0.35	0.57

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						OSF	Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment		M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)			(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	D2a	-6.30	2.97	247.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.54	81.58	0.36	0.65
P44	D2a	-6.87	3.01	239.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	256.53	83.24	0.36	0.63
P45	D2a	-7.45	3.06	237.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	85.13	0.36	0.63
P46	D2a	-8.02	3.12	230.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.16	87.55	0.36	0.61
P47	D2a	-8.60	3.19	229.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.93	90.36	0.37	0.60
P48	D2a	-9.17	3.25	223.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	376.93	92.75	0.36	0.59
P49	D2a	-9.74	3.29	223.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	94.62	0.37	0.59
P50	D2a	-6.30	3.70	255.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.55	111.31	0.39	0.67
P51	D2a	-6.87	3.74	248.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	256.60	112.99	0.38	0.65
P52	D2a	-7.45	3.78	246.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	114.97	0.39	0.65
P53	D2a	-8.02	3.84	238.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.25	117.47	0.38	0.63
P54	D2a	-8.60	3.91	237.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.93	120.47	0.39	0.63
P55	D2a	-9.17	3.97	231.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	377.04	122.99	0.39	0.61
P56	D2a	-9.74	4.02	231.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	124.97	0.40	0.61
P57	D2a	-6.30	4.42	264.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	228.55	142.36	0.41	0.70
P58	D2a	-6.89	4.46	256.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.14	144.08	0.41	0.67
P59	D2a	-7.45	4.51	254.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	285.60	146.13	0.41	0.67
P60	D2a	-8.04	4.57	246.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	315.93	148.71	0.41	0.65
P61	D2a	-8.60	4.64	246.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.93	151.91	0.42	0.65
P62	D2a	-9.18	4.70	239.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	377.72	154.55	0.42	0.63
P63	D2a	-9.74	4.75	240.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	409.25	156.64	0.42	0.63
P1	D2b	-5.65	-1.41	167.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	22.44	0.23	0.44
P2	D2b	-7.37	-1.35	135.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.54	20.41	0.21	0.36
P3	D2b	-7.91	-1.30	131.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	309.18	18.62	0.21	0.35
P4	D2b	-7.37	-1.24	150.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.53	16.30	0.23	0.40
P5	D2b	-8.98	-1.18	119.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	366.68	14.15	0.20	0.32
P6	D2b	-9.51	-1.12	112.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	396.35	12.14	0.20	0.30
P7	D2b	-9.09	-1.07	143.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	10.40	0.23	0.38
P8	D2b	-5.65	-0.68	164.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	-3.15	0.22	0.43
P9	D2b	-7.35	-0.63	133.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	280.41	-5.03	0.20	0.36
P10	D2b	-7.89	-0.58	128.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	308.05	-6.72	0.20	0.34
P11	D2b	-7.37	-0.51	148.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.66	-8.92	0.22	0.39
P12	D2b	-8.96	-0.45	116.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	365.46	-11.01	0.20	0.31
P13	D2b	-9.49	-0.39	109.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	395.12	-12.95	0.20	0.29
P14	D2b	-9.09	-0.34	140.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	-14.61	0.23	0.37
P15	D2b	-5.65	0.05	161.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	-24.46	0.23	0.43
P16	D2b	-6.23	0.10	154.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	224.86	-22.72	0.22	0.41
P17	D2b	-6.80	0.15	151.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	-21.08	0.22	0.40
P18	D2b	-7.37	0.21	144.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.66	-18.97	0.22	0.38
P19	D2b	-7.95	0.28	143.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	-16.85	0.22	0.38
P20	D2b	-8.52	0.34	138.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	341.64	-14.89	0.22	0.36
P21	D2b	-9.09	0.39	137.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	-13.23	0.23	0.36
P22	D2b	-5.65	0.77	158.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	-0.03	0.21	0.42
P23	D2b	-6.22	0.83	151.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	224.81	1.75	0.21	0.40
P24	D2b	-6.80	0.88	148.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	3.48	0.21	0.39
P25	D2b	-7.37	0.94	141.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.57	5.69	0.21	0.37
P26	D2b	-7.95	1.00	140.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	7.98	0.22	0.37
P27	D2b	-8.52	1.06	135.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	341.49	10.08	0.22	0.36
P28	D2b	-9.09	1.11	135.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	11.85	0.22	0.36
P29	D2b	-5.65	1.50	155.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	25.72	0.22	0.41
P30	D2b	-6.22	1.55	148.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	224.81	27.53	0.22	0.39
P31	D2b	-6.80	1.60	146.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	29.36	0.22	0.38
P32	D2b	-7.37	1.66	138.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.57	31.66	0.22	0.37
P33	D2b	-7.95	1.73	137.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	34.13	0.23	0.36
P34	D2b	-8.52	1.79	132.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	341.49	36.38	0.23	0.35
P35	D2b	-9.09	1.84	132.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	38.25	0.23	0.35
P36	D2b	-5.65	2.23	153.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	52.79	0.23	0.40
P37	D2b	-6.22	2.28	145.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	224.81	54.63	0.23	0.38
P38	D2b	-6.80	2.33	143.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	56.57	0.23	0.38
P39	D2b	-7.37	2.39	136.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.57	58.95	0.23	0.36
P40	D2b	-7.95	2.46	135.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	61.61	0.24	0.36
P41	D2b	-8.52	2.52	129.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	341.49	64.00	0.24	0.34
P42	D2b	-9.09	2.57	129.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	65.97	0.24	0.34
P43	D2b	-5.65	2.96	150.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	81.18	0.25	0.40
P44	D2b	-6.22	3.00	143.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	224.82	83.04	0.24	0.38
P45	D2b	-6.80	3.06	140.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	85.09	0.25	0.37
P46	D2b	-7.37	3.12	133.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.59	87.55	0.24	0.35
P47	D2b	-7.95	3.19	132.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	90.40	0.25	0.35
P48	D2b	-8.52	3.25	126.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	341.51	92.94	0.25	0.33
P49	D2b	-9.09	3.30	126.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	95.02	0.26	0.33
P50	D2b	-5.65	3.69	147.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	110.90	0.26	0.39
P51	D2b	-6.23	3.73	140.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	224.89	112.77	0.26	0.37
P52	D2b	-6.80	3.78	137.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	114.93	0.26	0.36
P53	D2b	-7.37	3.84	130.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	281.69	117.47	0.26	0.34
P54	D2b	-7.95	3.91	129.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	120.52	0.26	0.34
P55	D2b	-8.52	3.98	123.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	341.61	123.21	0.26	0.33
P56	D2b	-9.09	4.03	123.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	125.39	0.27	0.33
P57	D2b	-5.65	4.41	144.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	197.75	141.93	0.27	0.38
P58	D2b	-6.23	4.46	137.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	225.30	143.84	0.27	0.36
P59	D2b	-6.80	4.51	134.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	252.96	146.09	0.27	0.35
P60	D2b	-7.38	4.57	127.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	282.23	148.71	0.27	0.34
P61	D2b	-7.95	4.64	126.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	311.43	151.95	0.28	0.33
P62	D2b	-8.53	4.71	120.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	342.16	154.80	0.28	0.32

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P63	D2b	-9.09	4.76	120.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	372.89	157.08	0.28	0.32
P1	DC Aa	-15.11	0.80	177.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	0.76	0.33	0.47
P2	DC Aa	-16.71	0.84	114.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	865.89	2.35	0.28	0.31
P3	DC Aa	-17.20	0.89	110.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	901.94	3.90	0.28	0.30
P4	DC Aa	-16.61	0.95	164.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.16	6.17	0.33	0.43
P5	DC Aa	-18.14	1.01	100.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	974.32	8.33	0.28	0.27
P6	DC Aa	-18.60	1.06	94.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1010.48	9.80	0.28	0.25
P7	DC Aa	-18.13	1.09	157.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	10.86	0.35	0.41
P8	DC Aa	-15.11	1.44	190.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	23.33	0.35	0.50
P9	DC Aa	-16.81	1.48	127.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	873.39	24.98	0.30	0.34
P10	DC Aa	-17.29	1.53	123.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	909.40	26.66	0.31	0.33
P11	DC Aa	-16.61	1.59	177.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.52	29.05	0.36	0.47
P12	DC Aa	-18.24	1.66	113.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	982.01	31.32	0.31	0.30
P13	DC Aa	-18.70	1.70	107.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1018.43	32.92	0.31	0.29
P14	DC Aa	-18.13	1.73	170.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	34.01	0.37	0.45
P15	DC Aa	-15.11	2.08	203.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	46.93	0.38	0.54
P16	DC Aa	-15.60	2.12	197.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	785.07	48.62	0.38	0.52
P17	DC Aa	-16.12	2.17	196.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	50.45	0.39	0.52
P18	DC Aa	-16.61	2.23	190.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.34	52.94	0.39	0.50
P19	DC Aa	-17.13	2.30	189.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.76	55.33	0.39	0.50
P20	DC Aa	-17.62	2.34	184.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	934.16	57.06	0.40	0.49
P21	DC Aa	-18.13	2.37	183.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	58.18	0.40	0.48
P22	DC Aa	-15.11	2.71	217.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	71.55	0.41	0.57
P23	DC Aa	-15.60	2.76	210.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	785.11	73.27	0.41	0.55
P24	DC Aa	-16.12	2.81	209.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	75.26	0.41	0.55
P25	DC Aa	-16.61	2.87	203.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.47	77.85	0.42	0.53
P26	DC Aa	-17.13	2.94	202.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.76	80.37	0.42	0.53
P27	DC Aa	-17.62	2.98	197.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	934.20	82.23	0.42	0.52
P28	DC Aa	-18.13	3.01	196.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	83.38	0.43	0.52
P29	DC Aa	-15.11	3.35	230.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	97.19	0.44	0.61
P30	DC Aa	-15.60	3.40	223.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	785.11	98.94	0.44	0.59
P31	DC Aa	-16.12	3.45	222.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	101.09	0.44	0.59
P32	DC Aa	-16.61	3.51	215.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.48	103.79	0.44	0.57
P33	DC Aa	-17.13	3.58	215.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.77	106.43	0.45	0.57
P34	DC Aa	-17.62	3.63	210.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	934.21	108.43	0.45	0.55
P35	DC Aa	-18.13	3.65	209.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	109.60	0.46	0.55
P36	DC Aa	-15.11	3.99	243.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	123.85	0.47	0.64
P37	DC Aa	-15.60	4.04	236.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	785.12	125.62	0.47	0.62
P38	DC Aa	-16.12	4.09	235.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	127.94	0.47	0.62
P39	DC Aa	-16.61	4.16	228.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.49	130.74	0.47	0.60
P40	DC Aa	-17.13	4.22	228.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.77	133.52	0.48	0.60
P41	DC Aa	-17.62	4.27	223.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	934.22	135.66	0.48	0.59
P42	DC Aa	-18.13	4.30	222.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	136.86	0.49	0.59
P43	DC Aa	-15.11	4.63	256.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	151.53	0.50	0.67
P44	DC Aa	-15.60	4.67	249.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	785.15	153.32	0.50	0.66
P45	DC Aa	-16.12	4.73	248.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	155.81	0.50	0.65
P46	DC Aa	-16.61	4.80	241.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.52	158.72	0.50	0.64
P47	DC Aa	-17.13	4.86	241.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.77	161.64	0.51	0.64
P48	DC Aa	-17.62	4.91	236.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	934.25	163.92	0.51	0.62
P49	DC Aa	-18.13	4.94	235.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	165.14	0.52	0.62
P50	DC Aa	-15.11	5.27	269.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	180.22	0.53	0.71
P51	DC Aa	-15.61	5.31	262.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	785.29	182.03	0.53	0.69
P52	DC Aa	-16.12	5.37	261.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	184.71	0.53	0.69
P53	DC Aa	-16.62	5.44	254.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	858.66	187.73	0.53	0.67
P54	DC Aa	-17.13	5.50	254.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.77	190.77	0.54	0.67
P55	DC Aa	-17.62	5.55	248.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	934.39	193.22	0.54	0.66
P56	DC Aa	-18.13	5.58	248.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	194.44	0.55	0.65
P57	DC Aa	-15.11	5.91	282.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	749.92	209.94	0.56	0.74
P58	DC Aa	-15.62	5.95	274.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	786.16	211.78	0.56	0.72
P59	DC Aa	-16.12	6.01	274.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.13	214.63	0.56	0.72
P60	DC Aa	-16.63	6.08	266.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	859.57	217.76	0.56	0.70
P61	DC Aa	-17.13	6.14	267.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	896.77	220.94	0.57	0.70
P62	DC Aa	-17.63	6.20	261.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	935.26	223.54	0.57	0.69
P63	DC Aa	-18.13	6.22	261.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	973.71	224.78	0.58	0.69
P1	DC Ab	-14.31	0.78	141.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	0.34	0.28	0.37
P2	DC Ab	-15.65	0.84	81.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	788.39	2.24	0.23	0.22
P3	DC Ab	-16.13	0.89	77.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	823.04	3.86	0.23	0.21
P4	DC Ab	-15.81	0.95	127.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.18	6.17	0.28	0.34
P5	DC Ab	-17.07	1.02	67.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	892.90	8.37	0.23	0.18
P6	DC Ab	-17.54	1.06	61.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	927.97	9.91	0.23	0.17
P7	DC Ab	-17.34	1.10	120.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	11.28	0.30	0.32
P8	DC Ab	-14.31	1.42	140.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	22.90	0.29	0.37
P9	DC Ab	-15.65	1.48	81.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	788.16	24.85	0.24	0.22
P10	DC Ab	-16.12	1.53	76.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	822.60	26.62	0.24	0.20
P11	DC Ab	-15.82	1.59	127.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.54	29.05	0.29	0.33
P12	DC Ab	-17.07	1.66	66.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	892.44	31.36	0.24	0.18
P13	DC Ab	-17.53	1.70	61.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	927.70	33.05	0.24	0.16
P14	DC Ab	-17.34	1.74	120.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	34.45	0.31	0.32
P15	DC Ab	-14.31	2.06	140.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	46.48	0.30	0.37
P16	DC Ab	-14.81	2.12	133.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.22	48.46	0.30	0.35
P17	DC Ab	-15.32	2.17	132.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	50.40	0.30	0.35
P18	DC Ab	-15.82	2.23	125.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.53	52.94	0.31	0.33
P19	DC Ab	-16.33	2.30	125.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	55.37	0.31	0.33

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P20	DC Ab	-16.83	2.35	120.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.33	57.22	0.31	0.32
P21	DC Ab	-17.34	2.38	119.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	58.64	0.32	0.31
P22	DC Ab	-14.31	2.70	139.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	71.08	0.31	0.37
P23	DC Ab	-14.81	2.75	132.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.05	73.09	0.31	0.35
P24	DC Ab	-15.32	2.81	131.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	75.21	0.32	0.35
P25	DC Ab	-15.82	2.87	125.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.42	77.85	0.32	0.33
P26	DC Ab	-16.33	2.94	124.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	80.42	0.32	0.33
P27	DC Ab	-16.82	2.99	119.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.14	82.42	0.33	0.31
P28	DC Ab	-17.34	3.02	118.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	83.86	0.33	0.31
P29	DC Ab	-14.31	3.34	138.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	96.70	0.33	0.37
P30	DC Ab	-14.81	3.39	132.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.04	98.73	0.32	0.35
P31	DC Ab	-15.32	3.45	130.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	101.04	0.33	0.34
P32	DC Ab	-15.82	3.51	124.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.42	103.79	0.33	0.33
P33	DC Ab	-16.33	3.58	123.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	106.48	0.34	0.33
P34	DC Ab	-16.82	3.63	118.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.13	108.64	0.34	0.31
P35	DC Ab	-17.34	3.67	118.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	110.11	0.35	0.31
P36	DC Ab	-14.31	3.98	138.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	123.33	0.34	0.36
P37	DC Ab	-14.81	4.03	131.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.05	125.39	0.34	0.35
P38	DC Ab	-15.32	4.09	129.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	127.89	0.34	0.34
P39	DC Ab	-15.82	4.16	123.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.42	130.74	0.34	0.33
P40	DC Ab	-16.33	4.22	123.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	133.57	0.35	0.32
P41	DC Ab	-16.82	4.27	118.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.14	135.90	0.35	0.31
P42	DC Ab	-17.34	4.31	117.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	137.38	0.36	0.31
P43	DC Ab	-14.31	4.62	137.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	150.99	0.35	0.36
P44	DC Ab	-14.81	4.67	130.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.08	153.06	0.35	0.34
P45	DC Ab	-15.32	4.73	128.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	155.76	0.36	0.34
P46	DC Ab	-15.82	4.80	122.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.45	158.72	0.36	0.32
P47	DC Ab	-16.33	4.86	122.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	161.69	0.37	0.32
P48	DC Ab	-16.82	4.92	117.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.17	164.19	0.37	0.31
P49	DC Ab	-17.34	4.95	116.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	165.68	0.37	0.31
P50	DC Ab	-14.31	5.26	136.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	179.67	0.37	0.36
P51	DC Ab	-14.81	5.31	129.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.20	181.74	0.37	0.34
P52	DC Ab	-15.32	5.37	128.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	184.66	0.37	0.34
P53	DC Ab	-15.82	5.44	121.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	800.57	187.73	0.37	0.32
P54	DC Ab	-16.33	5.50	121.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	190.83	0.38	0.32
P55	DC Ab	-16.83	5.56	116.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.30	193.51	0.38	0.31
P56	DC Ab	-17.34	5.59	116.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	195.01	0.39	0.31
P57	DC Ab	-14.31	5.90	136.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	694.82	209.37	0.38	0.36
P58	DC Ab	-14.82	5.94	129.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	729.87	211.45	0.38	0.34
P59	DC Ab	-15.32	6.01	127.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	765.04	214.57	0.39	0.34
P60	DC Ab	-15.83	6.08	121.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	801.27	217.76	0.39	0.32
P61	DC Ab	-16.33	6.14	120.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	837.68	220.99	0.40	0.32
P62	DC Ab	-16.84	6.20	115.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	874.96	223.86	0.40	0.31
P63	DC Ab	-17.34	6.24	115.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	912.61	225.36	0.41	0.30

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	1b-ST	10.69	0.03	295.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.16	-25.06	0.48	0.89
P2	1b-ST	8.21	0.12	318.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	325.25	-21.96	0.49	0.97
P3	1b-ST	8.08	0.21	320.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	318.13	-19.03	0.48	0.98
P4	1b-ST	10.27	0.28	280.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	439.80	-16.64	0.46	0.84
P5	1b-ST	7.82	0.35	316.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	304.68	-14.26	0.47	0.96
P6	1b-ST	7.70	0.44	310.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	298.38	-11.37	0.46	0.95
P7	1b-ST	9.84	0.53	286.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.61	-8.34	0.45	0.86
P8	1b-ST	10.69	0.21	307.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.16	-19.17	0.50	0.92
P9	1b-ST	8.11	0.30	330.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	319.95	-15.97	0.50	1.01
P10	1b-ST	7.99	0.39	331.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	313.43	-13.03	0.50	1.01
P11	1b-ST	10.26	0.46	292.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.98	-10.60	0.47	0.88
P12	1b-ST	7.73	0.54	327.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	300.04	-8.17	0.48	1.00
P13	1b-ST	7.60	0.62	322.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	293.22	-5.27	0.47	0.98
P14	1b-ST	9.84	0.71	297.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.61	-2.15	0.46	0.90
P15	1b-ST	10.69	0.39	319.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.16	-13.20	0.51	0.96
P16	1b-ST	10.54	0.48	309.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	455.41	-9.90	0.49	0.93
P17	1b-ST	10.40	0.57	310.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.45	-6.94	0.49	0.93
P18	1b-ST	10.26	0.64	304.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.87	-4.47	0.48	0.92
P19	1b-ST	10.12	0.72	307.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.92	-2.01	0.48	0.93
P20	1b-ST	9.97	0.80	303.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.40	0.92	0.47	0.91
P21	1b-ST	9.84	0.89	309.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.61	4.13	0.48	0.93
P22	1b-ST	10.69	0.57	330.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.16	-7.14	0.52	0.99
P23	1b-ST	10.54	0.67	320.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	455.43	-3.75	0.50	0.96
P24	1b-ST	10.40	0.75	322.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.45	-0.78	0.50	0.97
P25	1b-ST	10.26	0.82	315.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.84	1.73	0.49	0.95
P26	1b-ST	10.12	0.90	319.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.92	4.24	0.50	0.96
P27	1b-ST	9.97	0.98	314.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.41	7.19	0.49	0.95
P28	1b-ST	9.84	1.08	321.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.60	10.49	0.50	0.97
P29	1b-ST	10.69	0.75	342.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.16	-1.01	0.53	1.03
P30	1b-ST	10.54	0.85	332.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	455.43	2.48	0.52	1.00
P31	1b-ST	10.40	0.93	334.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.45	5.47	0.52	1.01
P32	1b-ST	10.26	1.01	327.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.83	8.02	0.51	0.98
P33	1b-ST	10.12	1.08	331.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.92	10.57	0.52	1.00
P34	1b-ST	9.97	1.16	326.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.42	13.54	0.51	0.98
P35	1b-ST	9.84	1.26	332.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.60	16.93	0.52	1.00
P36	1b-ST	10.69	0.92	353.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.16	5.20	0.55	1.06
P37	1b-ST	10.54	1.03	343.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	455.43	8.79	0.53	1.03
P38	1b-ST	10.40	1.11	346.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.44	11.80	0.54	1.04
P39	1b-ST	10.26	1.19	339.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.81	14.39	0.53	1.02
P40	1b-ST	10.12	1.26	342.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.92	16.98	0.53	1.03
P41	1b-ST	9.97	1.34	337.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.41	19.97	0.53	1.02
P42	1b-ST	9.84	1.44	344.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.60	23.46	0.54	1.04
P43	1b-ST	10.69	1.10	365.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.15	11.50	0.57	1.10
P44	1b-ST	10.54	1.21	355.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	455.39	15.19	0.55	1.07
P45	1b-ST	10.40	1.29	357.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.44	18.21	0.56	1.08
P46	1b-ST	10.26	1.37	350.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.78	20.84	0.55	1.05
P47	1b-ST	10.12	1.44	354.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.91	23.48	0.55	1.07
P48	1b-ST	9.97	1.52	349.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.38	26.48	0.55	1.05
P49	1b-ST	9.84	1.62	356.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.60	30.06	0.56	1.07
P50	1b-ST	10.69	1.28	377.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.15	17.88	0.59	1.13
P51	1b-ST	10.54	1.39	366.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	455.26	21.66	0.57	1.10
P52	1b-ST	10.40	1.47	369.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.44	24.70	0.58	1.11
P53	1b-ST	10.25	1.55	362.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	438.65	27.37	0.57	1.09
P54	1b-ST	10.12	1.62	366.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.91	30.05	0.57	1.10
P55	1b-ST	9.97	1.70	360.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	422.25	33.07	0.57	1.08
P56	1b-ST	9.84	1.80	367.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.60	36.75	0.58	1.11
P57	1b-ST	10.69	1.46	388.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	464.15	24.34	0.60	1.17
P58	1b-ST	10.52	1.57	377.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	454.12	28.23	0.59	1.14
P59	1b-ST	10.40	1.65	381.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	447.44	31.27	0.60	1.15
P60	1b-ST	10.24	1.73	373.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	437.57	33.99	0.58	1.12
P61	1b-ST	10.12	1.80	378.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	430.91	36.71	0.59	1.14
P62	1b-ST	9.95	1.88	371.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	421.16	39.74	0.58	1.12
P63	1b-ST	9.84	1.98	379.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.167	414.60	43.51	0.59	1.14
P1	OP1a-ST	10.31	-0.23	283.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.82	-18.53	0.54	0.99
P2	OP1a-ST	8.06	-0.14	307.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	317.14	-21.34	0.55	1.09
P3	OP1a-ST	8.06	-0.06	310.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	317.16	-24.05	0.55	1.10
P4	OP1a-ST	10.32	0.01	272.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.46	-25.69	0.53	0.96
P5	OP1a-ST	8.07	0.07	309.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	317.67	-23.53	0.55	1.10
P6	OP1a-ST	8.08	0.15	305.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	318.17	-20.88	0.54	1.09
P7	OP1a-ST	10.32	0.24	280.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.35	-18.09	0.53	0.98
P8	OP1a-ST	10.31	-0.23	296.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.82	-18.44	0.56	1.04
P9	OP1a-ST	7.95	-0.14	320.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	311.36	-21.32	0.57	1.14
P10	OP1a-ST	7.96	-0.06	323.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	311.78	-23.99	0.57	1.15
P11	OP1a-ST	10.31	0.01	285.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.83	-25.75	0.55	1.00
P12	OP1a-ST	7.97	0.07	322.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	312.29	-23.59	0.57	1.15
P13	OP1a-ST	7.97	0.15	318.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	312.38	-20.97	0.56	1.13
P14	OP1a-ST	10.32	0.24	293.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.35	-18.13	0.55	1.03
P15	OP1a-ST	10.31	-0.23	309.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.82	-18.36	0.58	1.09
P16	OP1a-ST	10.30	-0.14	301.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.57	-21.29	0.57	1.06
P17	OP1a-ST	10.31	-0.06	304.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.97	-23.92	0.57	1.07
P18	OP1a-ST	10.31	0.00	299.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.79	-25.81	0.57	1.05
P19	OP1a-ST	10.31	0.07	303.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.14	-23.64	0.57	1.07
P20	OP1a-ST	10.31	0.15	300.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.92	-21.06	0.56	1.05
P21	OP1a-ST	10.32	0.24	307.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.35	-18.17	0.57	1.08

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_s EI}$		$C_r = \sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25.941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	OP1a-ST	10.31	-0.23	323.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.82	-18.28	0.60	1.13
P23	OP1a-ST	10.30	-0.14	315.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.54	-21.26	0.59	1.11
P24	OP1a-ST	10.31	-0.06	317.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.96	-23.86	0.59	1.12
P25	OP1a-ST	10.31	0.00	312.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.72	-25.86	0.59	1.10
P26	OP1a-ST	10.31	0.07	317.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.14	-23.70	0.59	1.11
P27	OP1a-ST	10.31	0.15	313.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.89	-21.14	0.58	1.10
P28	OP1a-ST	10.32	0.24	320.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.35	-18.22	0.59	1.12
P29	OP1a-ST	10.31	-0.24	336.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.82	-18.20	0.62	1.18
P30	OP1a-ST	10.30	-0.14	328.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.55	-21.23	0.61	1.15
P31	OP1a-ST	10.31	-0.07	331.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.96	-23.79	0.61	1.16
P32	OP1a-ST	10.31	0.00	326.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.71	-25.92	0.61	1.14
P33	OP1a-ST	10.31	0.07	330.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.14	-23.76	0.61	1.16
P34	OP1a-ST	10.31	0.14	326.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.90	-21.22	0.60	1.15
P35	OP1a-ST	10.32	0.23	333.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.35	-18.26	0.61	1.17
P36	OP1a-ST	10.31	-0.24	350.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.81	-18.12	0.64	1.23
P37	OP1a-ST	10.30	-0.15	341.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.54	-21.20	0.63	1.20
P38	OP1a-ST	10.31	-0.07	344.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.96	-23.73	0.63	1.21
P39	OP1a-ST	10.31	0.00	339.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.70	-25.90	0.63	1.19
P40	OP1a-ST	10.31	0.07	344.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.13	-23.82	0.63	1.21
P41	OP1a-ST	10.31	0.14	339.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.89	-21.31	0.62	1.19
P42	OP1a-ST	10.32	0.23	347.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.34	-18.30	0.63	1.22
P43	OP1a-ST	10.31	-0.24	363.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.81	-18.04	0.66	1.27
P44	OP1a-ST	10.30	-0.15	354.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.51	-21.17	0.65	1.24
P45	OP1a-ST	10.31	-0.07	358.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.96	-23.67	0.65	1.26
P46	OP1a-ST	10.31	0.00	352.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.67	-25.84	0.65	1.24
P47	OP1a-ST	10.31	0.06	357.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.13	-23.88	0.65	1.25
P48	OP1a-ST	10.31	0.14	353.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.86	-21.39	0.64	1.24
P49	OP1a-ST	10.32	0.23	360.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.34	-18.34	0.65	1.27
P50	OP1a-ST	10.31	-0.24	376.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.81	-17.96	0.68	1.32
P51	OP1a-ST	10.30	-0.15	367.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.39	-21.14	0.67	1.29
P52	OP1a-ST	10.31	-0.07	371.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.96	-23.60	0.67	1.30
P53	OP1a-ST	10.30	0.00	365.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.54	-25.79	0.67	1.28
P54	OP1a-ST	10.31	0.06	370.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.13	-23.93	0.67	1.30
P55	OP1a-ST	10.31	0.14	366.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.74	-21.47	0.66	1.29
P56	OP1a-ST	10.32	0.23	374.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.34	-18.39	0.67	1.31
P57	OP1a-ST	10.31	-0.25	390.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.81	-17.88	0.70	1.37
P58	OP1a-ST	10.28	-0.15	380.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	440.32	-21.11	0.68	1.34
P59	OP1a-ST	10.31	-0.07	385.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	441.96	-23.54	0.69	1.35
P60	OP1a-ST	10.29	-0.01	378.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	440.51	-25.73	0.68	1.33
P61	OP1a-ST	10.31	0.06	384.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.13	-23.99	0.69	1.35
P62	OP1a-ST	10.29	0.13	378.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	440.67	-21.57	0.68	1.33
P63	OP1a-ST	10.32	0.23	387.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	442.34	-18.43	0.69	1.36
P1	OP1b-ST	10.53	-0.23	273.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.58	-18.42	0.53	0.96
P2	OP1b-ST	8.35	-0.14	298.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	332.57	-21.31	0.54	1.06
P3	OP1b-ST	8.35	-0.06	301.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	332.62	-24.04	0.54	1.07
P4	OP1b-ST	10.54	0.01	262.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.20	-25.69	0.51	0.92
P5	OP1b-ST	8.36	0.07	300.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	333.14	-23.52	0.54	1.07
P6	OP1b-ST	8.37	0.16	296.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	333.62	-20.85	0.53	1.05
P7	OP1b-ST	10.54	0.24	270.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-17.98	0.52	0.95
P8	OP1b-ST	10.53	-0.23	282.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.58	-18.34	0.54	0.99
P9	OP1b-ST	8.27	-0.14	307.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	328.23	-21.28	0.55	1.10
P10	OP1b-ST	8.28	-0.06	310.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	328.70	-23.98	0.56	1.11
P11	OP1b-ST	10.53	0.01	272.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-25.75	0.53	0.96
P12	OP1b-ST	8.29	0.07	309.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	329.21	-23.58	0.56	1.10
P13	OP1b-ST	8.29	0.15	306.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	329.26	-20.94	0.55	1.09
P14	OP1b-ST	10.54	0.24	280.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.02	0.54	0.98
P15	OP1b-ST	10.53	-0.23	292.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.58	-18.25	0.55	1.03
P16	OP1b-ST	10.52	-0.14	284.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.27	-21.25	0.54	1.00
P17	OP1b-ST	10.53	-0.06	286.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.72	-23.91	0.55	1.01
P18	OP1b-ST	10.52	0.00	281.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.49	-25.81	0.54	0.99
P19	OP1b-ST	10.53	0.07	285.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.90	-23.63	0.55	1.00
P20	OP1b-ST	10.53	0.15	282.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.63	-21.02	0.54	0.99
P21	OP1b-ST	10.54	0.24	289.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.07	0.55	1.02
P22	OP1b-ST	10.53	-0.24	302.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-18.17	0.57	1.06
P23	OP1b-ST	10.52	-0.14	293.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.29	-21.22	0.56	1.03
P24	OP1b-ST	10.53	-0.06	296.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.72	-23.85	0.56	1.04
P25	OP1b-ST	10.52	0.00	291.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.47	-25.86	0.56	1.02
P26	OP1b-ST	10.53	0.07	295.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.89	-23.69	0.56	1.04
P27	OP1b-ST	10.53	0.15	292.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.65	-21.10	0.56	1.02
P28	OP1b-ST	10.54	0.24	299.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.11	0.56	1.05
P29	OP1b-ST	10.53	-0.24	311.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-18.09	0.58	1.09
P30	OP1b-ST	10.52	-0.15	303.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.30	-21.18	0.57	1.06
P31	OP1b-ST	10.53	-0.07	306.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.72	-23.78	0.58	1.07
P32	OP1b-ST	10.52	0.00	300.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.46	-25.92	0.57	1.06
P33	OP1b-ST	10.53	0.07	305.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.89	-23.75	0.58	1.07
P34	OP1b-ST	10.53	0.15	301.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.66	-21.18	0.57	1.06
P35	OP1b-ST	10.54	0.24	308.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.15	0.58	1.08
P36	OP1b-ST	10.53	-0.24	321.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-18.01	0.60	1.13
P37	OP1b-ST	10.52	-0.15	312.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.29	-21.15	0.59	1.10
P38	OP1b-ST	10.53	-0.07	315.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.72	-23.72	0.59	1.11
P39	OP1b-ST	10.52	0.00	310.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.45	-25.90	0.59	1.09
P40	OP1b-ST	10.53	0.07	315.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.89	-23.81	0.59	1.11
P41	OP1b-ST	10.53	0.14	311.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.65	-21.26	0.58	1.09
P42	OP1b-ST	10.54	0.24	318.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.19	0.59	1.12

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_x EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	OP1b-ST	10.53	-0.24	330.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-17.93	0.61	1.16
P44	OP1b-ST	10.52	-0.15	322.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.27	-21.11	0.60	1.13
P45	OP1b-ST	10.53	-0.07	325.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.71	-23.66	0.61	1.14
P46	OP1b-ST	10.52	0.00	320.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.42	-25.84	0.60	1.12
P47	OP1b-ST	10.53	0.06	324.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.89	-23.86	0.61	1.14
P48	OP1b-ST	10.53	0.14	320.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.62	-21.34	0.60	1.13
P49	OP1b-ST	10.54	0.23	328.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.23	0.61	1.15
P50	OP1b-ST	10.53	-0.25	340.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-17.85	0.63	1.19
P51	OP1b-ST	10.52	-0.15	331.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.14	-21.08	0.61	1.16
P52	OP1b-ST	10.53	-0.07	335.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.71	-23.59	0.62	1.18
P53	OP1b-ST	10.52	0.00	329.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.30	-25.79	0.61	1.16
P54	OP1b-ST	10.53	0.06	334.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.89	-23.92	0.62	1.17
P55	OP1b-ST	10.52	0.14	330.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.50	-21.42	0.61	1.16
P56	OP1b-ST	10.54	0.23	337.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.28	0.62	1.19
P57	OP1b-ST	10.53	-0.25	349.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.57	-17.77	0.64	1.23
P58	OP1b-ST	10.50	-0.15	340.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	453.10	-21.05	0.63	1.20
P59	OP1b-ST	10.53	-0.07	344.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.71	-23.53	0.64	1.21
P60	OP1b-ST	10.50	-0.01	338.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	453.30	-25.73	0.63	1.19
P61	OP1b-ST	10.53	0.06	344.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	454.89	-23.98	0.64	1.21
P62	OP1b-ST	10.51	0.14	339.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	453.46	-21.50	0.63	1.19
P63	OP1b-ST	10.54	0.23	347.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	455.11	-18.32	0.64	1.22
P1	OP2a-ST	8.13	-0.22	291.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.80	-18.57	0.52	1.02
P2	OP2a-ST	5.84	-0.14	308.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	206.63	-21.38	0.52	1.10
P3	OP2a-ST	5.84	-0.06	311.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	206.60	-24.07	0.53	1.11
P4	OP2a-ST	8.14	0.01	280.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.39	-25.69	0.51	0.99
P5	OP2a-ST	5.85	0.07	310.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	207.05	-23.55	0.53	1.10
P6	OP2a-ST	5.86	0.15	306.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	207.55	-20.92	0.52	1.09
P7	OP2a-ST	8.14	0.24	289.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.28	-18.14	0.52	1.01
P8	OP2a-ST	8.13	-0.23	304.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.80	-18.50	0.54	1.07
P9	OP2a-ST	5.74	-0.14	320.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	201.86	-21.37	0.54	1.14
P10	OP2a-ST	5.75	-0.06	323.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	202.18	-24.01	0.55	1.15
P11	OP2a-ST	8.13	0.01	293.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.84	-25.75	0.53	1.03
P12	OP2a-ST	5.76	0.07	322.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	202.63	-23.61	0.55	1.15
P13	OP2a-ST	5.76	0.15	318.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	202.77	-21.02	0.54	1.13
P14	OP2a-ST	8.14	0.24	301.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.28	-18.19	0.54	1.06
P15	OP2a-ST	8.13	-0.23	316.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.80	-18.43	0.56	1.11
P16	OP2a-ST	8.12	-0.14	308.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.62	-21.35	0.55	1.08
P17	OP2a-ST	8.13	-0.06	311.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.91	-23.95	0.56	1.09
P18	OP2a-ST	8.13	0.00	305.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.82	-25.81	0.55	1.07
P19	OP2a-ST	8.13	0.07	310.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.07	-23.67	0.55	1.09
P20	OP2a-ST	8.13	0.15	306.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.94	-21.11	0.55	1.08
P21	OP2a-ST	8.14	0.23	313.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.28	-18.25	0.56	1.10
P22	OP2a-ST	8.13	-0.23	328.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.80	-18.36	0.58	1.15
P23	OP2a-ST	8.12	-0.14	320.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.59	-21.33	0.57	1.13
P24	OP2a-ST	8.13	-0.06	323.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.91	-23.89	0.57	1.13
P25	OP2a-ST	8.13	0.00	318.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.75	-25.86	0.57	1.12
P26	OP2a-ST	8.13	0.07	322.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.06	-23.73	0.57	1.13
P27	OP2a-ST	8.13	0.14	318.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.91	-21.21	0.57	1.12
P28	OP2a-ST	8.14	0.23	326.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.28	-18.30	0.57	1.14
P29	OP2a-ST	8.13	-0.23	340.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.79	-18.29	0.60	1.20
P30	OP2a-ST	8.12	-0.14	332.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.60	-21.30	0.59	1.17
P31	OP2a-ST	8.13	-0.06	335.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.90	-23.83	0.59	1.18
P32	OP2a-ST	8.13	0.00	330.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.73	-25.92	0.59	1.16
P33	OP2a-ST	8.13	0.07	334.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.06	-23.79	0.59	1.18
P34	OP2a-ST	8.13	0.14	331.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.92	-21.30	0.58	1.16
P35	OP2a-ST	8.14	0.23	338.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.28	-18.35	0.59	1.19
P36	OP2a-ST	8.13	-0.24	353.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.79	-18.23	0.61	1.24
P37	OP2a-ST	8.12	-0.14	344.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.59	-21.28	0.60	1.21
P38	OP2a-ST	8.13	-0.07	348.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.90	-23.77	0.61	1.22
P39	OP2a-ST	8.13	0.00	342.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.72	-25.90	0.60	1.20
P40	OP2a-ST	8.13	0.06	347.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.06	-23.86	0.61	1.22
P41	OP2a-ST	8.13	0.14	343.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.91	-21.39	0.60	1.20
P42	OP2a-ST	8.14	0.23	350.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.27	-18.41	0.61	1.23
P43	OP2a-ST	8.13	-0.24	365.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.79	-18.16	0.63	1.28
P44	OP2a-ST	8.12	-0.14	357.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.57	-21.26	0.62	1.25
P45	OP2a-ST	8.13	-0.07	360.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.90	-23.71	0.63	1.27
P46	OP2a-ST	8.13	0.00	354.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.70	-25.84	0.62	1.24
P47	OP2a-ST	8.13	0.06	359.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.06	-23.92	0.63	1.26
P48	OP2a-ST	8.13	0.14	355.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.89	-21.48	0.62	1.25
P49	OP2a-ST	8.14	0.23	362.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.27	-18.46	0.63	1.27
P50	OP2a-ST	8.13	-0.24	377.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.79	-18.09	0.65	1.33
P51	OP2a-ST	8.12	-0.14	369.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.46	-21.24	0.64	1.30
P52	OP2a-ST	8.13	-0.07	372.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.90	-23.65	0.65	1.31
P53	OP2a-ST	8.12	0.00	366.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.59	-25.79	0.64	1.29
P54	OP2a-ST	8.13	0.06	372.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.06	-23.98	0.65	1.31
P55	OP2a-ST	8.13	0.13	367.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.78	-21.58	0.64	1.29
P56	OP2a-ST	8.14	0.23	375.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.27	-18.52	0.65	1.32
P57	OP2a-ST	8.13	-0.24	390.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.79	-18.02	0.67	1.37
P58	OP2a-ST	8.10	-0.14	380.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.51	-21.22	0.66	1.34
P59	OP2a-ST	8.13	-0.07	385.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	320.90	-23.59	0.67	1.35
P60	OP2a-ST	8.11	-0.01	378.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.68	-25.73	0.66	1.33
P61	OP2a-ST	8.13	0.06	384.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.06	-24.04	0.67	1.35
P62	OP2a-ST	8.11	0.13	379.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.84	-21.68	0.66	1.33
P63	OP2a-ST	8.14	0.22	387.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.27	-18.57	0.67	1.36

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$\pi\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$\lambda = \sqrt{\frac{2\pi^2 E}{f_y}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	OP2b-ST	8.40	-0.23	279.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.44	0.51	0.98
P2	OP2b-ST	6.20	-0.14	296.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	223.84	-21.34	0.51	1.06
P3	OP2b-ST	6.20	-0.06	299.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	223.84	-24.06	0.52	1.07
P4	OP2b-ST	8.41	0.01	268.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.78	-25.69	0.50	0.94
P5	OP2b-ST	6.21	0.07	299.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	224.31	-23.54	0.52	1.06
P6	OP2b-ST	6.22	0.15	295.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	224.78	-20.88	0.51	1.05
P7	OP2b-ST	8.41	0.24	276.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.69	-18.00	0.50	0.97
P8	OP2b-ST	8.40	-0.23	287.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.37	0.52	1.01
P9	OP2b-ST	6.14	-0.14	304.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	220.68	-21.32	0.52	1.08
P10	OP2b-ST	6.15	-0.06	307.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	221.04	-24.00	0.53	1.09
P11	OP2b-ST	8.40	0.01	276.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.22	-25.75	0.51	0.97
P12	OP2b-ST	6.16	0.07	306.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	221.50	-23.60	0.53	1.09
P13	OP2b-ST	6.16	0.15	302.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	221.61	-20.98	0.52	1.08
P14	OP2b-ST	8.41	0.24	284.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.69	-18.06	0.51	1.00
P15	OP2b-ST	8.40	-0.23	294.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.30	0.53	1.03
P16	OP2b-ST	8.39	-0.14	286.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.96	-21.30	0.52	1.01
P17	OP2b-ST	8.40	-0.06	289.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.31	-23.94	0.53	1.01
P18	OP2b-ST	8.40	0.00	284.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.15	-25.81	0.52	1.00
P19	OP2b-ST	8.40	0.07	288.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.47	-23.66	0.52	1.01
P20	OP2b-ST	8.40	0.15	284.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.29	-21.07	0.52	1.00
P21	OP2b-ST	8.41	0.24	291.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.11	0.53	1.02
P22	OP2b-ST	8.40	-0.23	302.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.23	0.54	1.06
P23	OP2b-ST	8.39	-0.14	294.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.99	-21.27	0.53	1.03
P24	OP2b-ST	8.40	-0.06	296.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.31	-23.88	0.54	1.04
P25	OP2b-ST	8.40	0.00	291.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.14	-25.86	0.53	1.02
P26	OP2b-ST	8.40	0.07	295.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.46	-23.72	0.54	1.04
P27	OP2b-ST	8.40	0.15	292.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.31	-21.16	0.53	1.03
P28	OP2b-ST	8.41	0.24	299.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.16	0.54	1.05
P29	OP2b-ST	8.40	-0.24	309.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.16	0.55	1.09
P30	OP2b-ST	8.40	-0.14	301.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.00	-21.25	0.54	1.06
P31	OP2b-ST	8.40	-0.07	304.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.30	-23.82	0.55	1.07
P32	OP2b-ST	8.40	0.00	299.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.13	-25.92	0.54	1.05
P33	OP2b-ST	8.40	0.07	303.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.46	-23.78	0.55	1.07
P34	OP2b-ST	8.40	0.14	299.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.32	-21.24	0.54	1.05
P35	OP2b-ST	8.41	0.24	307.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.22	0.55	1.08
P36	OP2b-ST	8.40	-0.24	317.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.09	0.56	1.11
P37	OP2b-ST	8.40	-0.14	309.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.99	-21.22	0.55	1.08
P38	OP2b-ST	8.40	-0.07	312.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.30	-23.76	0.56	1.10
P39	OP2b-ST	8.40	0.00	306.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.12	-25.90	0.55	1.08
P40	OP2b-ST	8.40	0.06	311.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.46	-23.84	0.56	1.09
P41	OP2b-ST	8.40	0.14	307.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.31	-21.33	0.55	1.08
P42	OP2b-ST	8.41	0.23	314.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.27	0.56	1.10
P43	OP2b-ST	8.40	-0.24	325.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-18.02	0.58	1.14
P44	OP2b-ST	8.39	-0.15	316.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.97	-21.19	0.57	1.11
P45	OP2b-ST	8.40	-0.07	319.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.30	-23.70	0.57	1.12
P46	OP2b-ST	8.40	0.00	314.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.09	-25.84	0.57	1.10
P47	OP2b-ST	8.40	0.06	318.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.46	-23.90	0.57	1.12
P48	OP2b-ST	8.40	0.14	314.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.29	-21.42	0.56	1.11
P49	OP2b-ST	8.41	0.23	322.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.33	0.57	1.13
P50	OP2b-ST	8.40	-0.24	332.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-17.95	0.59	1.17
P51	OP2b-ST	8.39	-0.15	324.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.86	-21.17	0.58	1.14
P52	OP2b-ST	8.40	-0.07	327.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.30	-23.64	0.58	1.15
P53	OP2b-ST	8.39	0.00	321.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.99	-25.79	0.58	1.13
P54	OP2b-ST	8.40	0.06	326.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.46	-23.97	0.58	1.15
P55	OP2b-ST	8.40	0.14	322.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.18	-21.51	0.57	1.13
P56	OP2b-ST	8.41	0.23	329.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.38	0.58	1.16
P57	OP2b-ST	8.40	-0.25	340.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.20	-17.89	0.60	1.19
P58	OP2b-ST	8.38	-0.15	331.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	333.95	-21.15	0.59	1.16
P59	OP2b-ST	8.40	-0.07	335.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.30	-23.58	0.59	1.18
P60	OP2b-ST	8.38	-0.01	328.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.11	-25.73	0.59	1.15
P61	OP2b-ST	8.40	0.06	334.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.46	-24.03	0.59	1.17
P62	OP2b-ST	8.38	0.13	329.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	334.27	-21.60	0.58	1.16
P63	OP2b-ST	8.41	0.23	337.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	335.68	-18.44	0.59	1.18
P1	OP3a-ST	7.62	-0.22	291.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.61	0.52	1.02
P2	OP3a-ST	5.35	-0.14	305.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	183.67	-21.40	0.52	1.09
P3	OP3a-ST	5.35	-0.06	308.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	183.64	-24.08	0.52	1.10
P4	OP3a-ST	7.63	0.01	280.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.02	-25.69	0.51	0.98
P5	OP3a-ST	5.36	0.07	308.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	184.09	-23.56	0.52	1.10
P6	OP3a-ST	5.37	0.15	304.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	184.57	-20.94	0.51	1.08
P7	OP3a-ST	7.63	0.24	288.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.18	0.51	1.01
P8	OP3a-ST	7.62	-0.23	303.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.55	0.53	1.07
P9	OP3a-ST	5.25	-0.14	318.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.01	-21.39	0.53	1.13
P10	OP3a-ST	5.25	-0.06	321.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.31	-24.02	0.54	1.14
P11	OP3a-ST	7.62	0.01	292.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.49	-25.75	0.52	1.03
P12	OP3a-ST	5.26	0.07	320.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.75	-23.62	0.54	1.14
P13	OP3a-ST	5.27	0.15	316.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.90	-21.05	0.53	1.13
P14	OP3a-ST	7.63	0.23	300.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.24	0.53	1.06
P15	OP3a-ST	7.62	-0.23	315.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.48	0.55	1.11
P16	OP3a-ST	7.62	-0.14	307.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.29	-21.37	0.54	1.08
P17	OP3a-ST	7.62	-0.06	310.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.55	-23.96	0.55	1.09
P18	OP3a-ST	7.62	0.00	305.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.47	-25.81	0.54	1.07
P19	OP3a-ST	7.63	0.07	309.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.70	-23.68	0.55	1.09
P20	OP3a-ST	7.63	0.15	306.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.60	-21.14	0.54	1.07
P21	OP3a-ST	7.63	0.23	313.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.29	0.55	1.10

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fc}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																				
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	OP3a-ST	7.62	-0.23	328.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.42	0.57	1.15
P23	OP3a-ST	7.62	-0.14	320.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.26	-21.36	0.56	1.12
P24	OP3a-ST	7.62	-0.06	323.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-23.90	0.57	1.13
P25	OP3a-ST	7.62	0.00	317.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.40	-25.86	0.56	1.12
P26	OP3a-ST	7.63	0.07	322.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.70	-23.74	0.57	1.13
P27	OP3a-ST	7.62	0.14	318.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.57	-21.24	0.56	1.12
P28	OP3a-ST	7.63	0.23	325.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.35	0.57	1.14
P29	OP3a-ST	7.62	-0.23	340.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.35	0.59	1.20
P30	OP3a-ST	7.62	-0.14	332.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.26	-21.33	0.58	1.17
P31	OP3a-ST	7.62	-0.06	335.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-23.84	0.59	1.18
P32	OP3a-ST	7.62	0.00	330.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.39	-25.92	0.58	1.16
P33	OP3a-ST	7.63	0.07	334.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.70	-23.81	0.59	1.17
P34	OP3a-ST	7.63	0.14	330.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.57	-21.33	0.58	1.16
P35	OP3a-ST	7.63	0.23	337.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.41	0.59	1.19
P36	OP3a-ST	7.62	-0.23	352.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.28	0.61	1.24
P37	OP3a-ST	7.62	-0.14	344.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.26	-21.31	0.60	1.21
P38	OP3a-ST	7.62	-0.07	347.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-23.78	0.61	1.22
P39	OP3a-ST	7.62	0.00	342.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.38	-25.90	0.60	1.20
P40	OP3a-ST	7.63	0.06	347.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.69	-23.87	0.60	1.22
P41	OP3a-ST	7.62	0.14	342.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.57	-21.42	0.60	1.20
P42	OP3a-ST	7.63	0.23	350.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.46	0.60	1.23
P43	OP3a-ST	7.62	-0.24	365.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.22	0.63	1.28
P44	OP3a-ST	7.62	-0.14	356.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.23	-21.29	0.62	1.25
P45	OP3a-ST	7.62	-0.07	360.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-23.72	0.62	1.26
P46	OP3a-ST	7.62	0.00	354.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.35	-25.84	0.62	1.24
P47	OP3a-ST	7.63	0.06	359.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.69	-23.93	0.62	1.26
P48	OP3a-ST	7.62	0.14	355.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-21.52	0.61	1.25
P49	OP3a-ST	7.63	0.23	362.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.52	0.62	1.27
P50	OP3a-ST	7.62	-0.24	377.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.15	0.65	1.32
P51	OP3a-ST	7.62	-0.14	369.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.13	-21.27	0.63	1.29
P52	OP3a-ST	7.62	-0.07	372.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-23.67	0.64	1.31
P53	OP3a-ST	7.62	0.00	366.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.25	-25.79	0.63	1.29
P54	OP3a-ST	7.63	0.06	371.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.69	-23.99	0.64	1.31
P55	OP3a-ST	7.62	0.13	367.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-21.61	0.63	1.29
P56	OP3a-ST	7.63	0.22	374.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.58	0.64	1.32
P57	OP3a-ST	7.62	-0.24	389.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.44	-18.09	0.66	1.37
P58	OP3a-ST	7.60	-0.14	380.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	293.21	-21.26	0.65	1.34
P59	OP3a-ST	7.62	-0.07	385.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.54	-23.61	0.66	1.35
P60	OP3a-ST	7.60	-0.01	378.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	293.36	-25.73	0.65	1.33
P61	OP3a-ST	7.63	0.06	384.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.69	-24.06	0.66	1.35
P62	OP3a-ST	7.60	0.13	378.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	293.52	-21.71	0.65	1.33
P63	OP3a-ST	7.63	0.22	387.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	294.91	-18.64	0.66	1.36
P1	OP3b-ST	7.91	-0.23	277.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.47	0.50	0.98
P2	OP3b-ST	5.74	-0.14	293.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	201.75	-21.36	0.50	1.04
P3	OP3b-ST	5.74	-0.06	296.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	201.75	-24.06	0.51	1.06
P4	OP3b-ST	7.93	0.01	267.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.16	-25.69	0.49	0.94
P5	OP3b-ST	5.75	0.07	295.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	202.21	-23.54	0.51	1.05
P6	OP3b-ST	5.76	0.15	291.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	202.67	-20.90	0.50	1.04
P7	OP3b-ST	7.92	0.24	275.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.03	0.50	0.97
P8	OP3b-ST	7.91	-0.23	285.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.40	0.51	1.00
P9	OP3b-ST	5.67	-0.14	301.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	198.78	-21.35	0.51	1.07
P10	OP3b-ST	5.68	-0.06	303.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	199.12	-24.00	0.52	1.08
P11	OP3b-ST	7.92	0.01	274.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.62	-25.75	0.50	0.96
P12	OP3b-ST	5.69	0.07	303.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	199.57	-23.60	0.52	1.08
P13	OP3b-ST	5.69	0.15	299.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	199.69	-21.00	0.51	1.07
P14	OP3b-ST	7.92	0.24	282.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.09	0.51	0.99
P15	OP3b-ST	7.91	-0.23	292.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.34	0.52	1.03
P16	OP3b-ST	7.91	-0.14	284.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.38	-21.32	0.51	1.00
P17	OP3b-ST	7.92	-0.06	286.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.70	-23.94	0.52	1.01
P18	OP3b-ST	7.91	0.00	282.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.56	-25.81	0.51	0.99
P19	OP3b-ST	7.92	0.07	286.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-23.67	0.52	1.00
P20	OP3b-ST	7.92	0.15	282.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.69	-21.09	0.51	0.99
P21	OP3b-ST	7.92	0.24	289.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.15	0.52	1.02
P22	OP3b-ST	7.91	-0.23	299.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.27	0.53	1.05
P23	OP3b-ST	7.91	-0.14	291.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.40	-21.30	0.52	1.02
P24	OP3b-ST	7.92	-0.06	294.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.70	-23.89	0.53	1.03
P25	OP3b-ST	7.91	0.00	289.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.55	-25.86	0.52	1.01
P26	OP3b-ST	7.92	0.07	293.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-23.73	0.53	1.03
P27	OP3b-ST	7.92	0.15	289.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.72	-21.18	0.52	1.02
P28	OP3b-ST	7.92	0.24	297.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.20	0.53	1.04
P29	OP3b-ST	7.91	-0.24	307.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.20	0.54	1.08
P30	OP3b-ST	7.91	-0.14	298.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.41	-21.27	0.53	1.05
P31	OP3b-ST	7.92	-0.06	301.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.70	-23.83	0.54	1.06
P32	OP3b-ST	7.91	0.00	296.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.54	-25.92	0.53	1.04
P33	OP3b-ST	7.92	0.07	300.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-23.79	0.54	1.06
P34	OP3b-ST	7.92	0.14	297.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.73	-21.27	0.53	1.04
P35	OP3b-ST	7.92	0.23	304.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.26	0.54	1.07
P36	OP3b-ST	7.91	-0.24	314.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.14	0.55	1.10
P37	OP3b-ST	7.91	-0.14	306.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.41	-21.25	0.54	1.07
P38	OP3b-ST	7.92	-0.07	309.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.69	-23.77	0.55	1.08
P39	OP3b-ST	7.91	0.00	303.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.53	-25.90	0.54	1.07
P40	OP3b-ST	7.92	0.06	308.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-23.85	0.55	1.08
P41	OP3b-ST	7.92	0.14	304.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.72	-21.36	0.54	1.07
P42	OP3b-ST	7.92	0.23	311.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.32	0.55	1.09

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																				
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	OP3b-ST	7.91	-0.24	321.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.07	0.56	1.13
P44	OP3b-ST	7.91	-0.14	313.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.38	-21.22	0.55	1.10
P45	OP3b-ST	7.92	-0.07	316.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.69	-23.71	0.56	1.11
P46	OP3b-ST	7.91	0.00	311.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.50	-25.84	0.55	1.09
P47	OP3b-ST	7.92	0.06	315.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-23.92	0.56	1.11
P48	OP3b-ST	7.92	0.14	311.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.70	-21.45	0.55	1.09
P49	OP3b-ST	7.92	0.23	319.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.37	0.56	1.12
P50	OP3b-ST	7.91	-0.24	328.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-18.01	0.58	1.15
P51	OP3b-ST	7.91	-0.14	320.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.28	-21.20	0.57	1.12
P52	OP3b-ST	7.92	-0.07	323.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.69	-23.65	0.57	1.14
P53	OP3b-ST	7.91	0.00	318.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.40	-25.79	0.57	1.12
P54	OP3b-ST	7.92	0.06	323.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-23.98	0.57	1.13
P55	OP3b-ST	7.91	0.13	318.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.59	-21.54	0.56	1.12
P56	OP3b-ST	7.92	0.23	326.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.43	0.57	1.15
P57	OP3b-ST	7.91	-0.24	336.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.60	-17.94	0.59	1.18
P58	OP3b-ST	7.89	-0.15	327.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	308.40	-21.18	0.58	1.15
P59	OP3b-ST	7.92	-0.07	331.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.69	-23.59	0.58	1.16
P60	OP3b-ST	7.89	-0.01	325.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	308.55	-25.73	0.58	1.14
P61	OP3b-ST	7.92	0.06	330.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.85	-24.04	0.58	1.16
P62	OP3b-ST	7.90	0.13	325.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	308.72	-21.63	0.57	1.14
P63	OP3b-ST	7.92	0.23	333.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.07	-18.49	0.58	1.17
P1	OP4a-ST	6.68	-0.22	290.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.18	-18.76	0.50	1.02
P2	OP4a-ST	4.43	-0.14	301.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	142.57	-21.52	0.50	1.07
P3	OP4a-ST	4.43	-0.05	304.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	142.49	-24.17	0.51	1.08
P4	OP4a-ST	6.69	0.01	279.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.51	-25.60	0.49	0.98
P5	OP4a-ST	4.43	0.08	303.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	142.79	-23.48	0.50	1.08
P6	OP4a-ST	4.44	0.15	299.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	143.19	-20.89	0.50	1.07
P7	OP4a-ST	6.68	0.24	287.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.21	-18.16	0.50	1.01
P8	OP4a-ST	6.68	-0.22	302.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.18	-18.76	0.52	1.06
P9	OP4a-ST	4.33	-0.13	314.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	138.10	-21.58	0.52	1.12
P10	OP4a-ST	4.33	-0.05	316.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	138.31	-24.17	0.52	1.13
P11	OP4a-ST	6.68	0.01	292.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.02	-25.60	0.51	1.02
P12	OP4a-ST	4.34	0.08	316.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	138.61	-23.49	0.52	1.12
P13	OP4a-ST	4.34	0.15	312.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	138.71	-20.94	0.51	1.11
P14	OP4a-ST	6.68	0.24	299.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.21	-18.16	0.52	1.05
P15	OP4a-ST	6.68	-0.22	315.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.76	0.54	1.11
P16	OP4a-ST	6.68	-0.13	307.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.98	-21.62	0.53	1.08
P17	OP4a-ST	6.68	-0.05	309.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-24.17	0.54	1.09
P18	OP4a-ST	6.68	0.01	304.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.02	-25.60	0.53	1.07
P19	OP4a-ST	6.68	0.08	309.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.49	0.54	1.08
P20	OP4a-ST	6.68	0.15	305.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.00	-20.98	0.53	1.07
P21	OP4a-ST	6.68	0.24	312.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.16	0.54	1.10
P22	OP4a-ST	6.68	-0.22	327.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.76	0.56	1.15
P23	OP4a-ST	6.68	-0.13	319.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.95	-21.66	0.55	1.12
P24	OP4a-ST	6.68	-0.05	322.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-24.18	0.56	1.13
P25	OP4a-ST	6.68	0.01	317.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.94	-25.60	0.55	1.11
P26	OP4a-ST	6.68	0.07	321.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.50	0.55	1.13
P27	OP4a-ST	6.68	0.15	318.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.96	-21.02	0.55	1.12
P28	OP4a-ST	6.68	0.24	324.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.17	0.56	1.14
P29	OP4a-ST	6.68	-0.22	340.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.76	0.58	1.19
P30	OP4a-ST	6.68	-0.13	332.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.95	-21.70	0.57	1.17
P31	OP4a-ST	6.68	-0.05	335.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.12	-24.18	0.58	1.18
P32	OP4a-ST	6.68	0.01	329.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.93	-25.60	0.57	1.16
P33	OP4a-ST	6.68	0.07	334.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.50	0.57	1.17
P34	OP4a-ST	6.68	0.15	330.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.97	-21.06	0.57	1.16
P35	OP4a-ST	6.68	0.24	337.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.17	0.57	1.18
P36	OP4a-ST	6.68	-0.22	352.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.75	0.60	1.24
P37	OP4a-ST	6.68	-0.13	344.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.95	-21.75	0.59	1.21
P38	OP4a-ST	6.68	-0.05	347.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.12	-24.18	0.59	1.22
P39	OP4a-ST	6.68	0.01	342.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.92	-25.60	0.59	1.20
P40	OP4a-ST	6.68	0.07	346.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.51	0.59	1.22
P41	OP4a-ST	6.68	0.15	342.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.96	-21.09	0.58	1.20
P42	OP4a-ST	6.68	0.24	350.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.17	0.59	1.23
P43	OP4a-ST	6.68	-0.22	365.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.75	0.62	1.28
P44	OP4a-ST	6.68	-0.13	357.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.92	-21.79	0.61	1.25
P45	OP4a-ST	6.68	-0.05	360.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.12	-24.18	0.61	1.26
P46	OP4a-ST	6.68	0.01	354.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.90	-25.60	0.61	1.24
P47	OP4a-ST	6.68	0.07	359.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.51	0.61	1.26
P48	OP4a-ST	6.68	0.15	355.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.94	-21.13	0.60	1.25
P49	OP4a-ST	6.68	0.24	362.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.17	0.61	1.27
P50	OP4a-ST	6.68	-0.22	377.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.75	0.64	1.33
P51	OP4a-ST	6.68	-0.13	369.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.82	-21.83	0.63	1.30
P52	OP4a-ST	6.68	-0.05	373.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.12	-24.18	0.63	1.31
P53	OP4a-ST	6.68	0.01	367.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.80	-25.60	0.62	1.29
P54	OP4a-ST	6.68	0.07	372.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.52	0.63	1.31
P55	OP4a-ST	6.68	0.15	367.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.84	-21.17	0.62	1.29
P56	OP4a-ST	6.68	0.24	375.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.18	0.63	1.32
P57	OP4a-ST	6.68	-0.22	390.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.17	-18.75	0.65	1.37
P58	OP4a-ST	6.66	-0.12	381.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	245.96	-21.88	0.64	1.34
P59	OP4a-ST	6.68	-0.05	385.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.12	-24.19	0.65	1.35
P60	OP4a-ST	6.66	0.01	379.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	245.96	-25.60	0.64	1.33
P61	OP4a-ST	6.68	0.07	384.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.13	-23.52	0.65	1.35
P62	OP4a-ST	6.66	0.14	379.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	245.98	-21.21	0.64	1.33
P63	OP4a-ST	6.68	0.24	387.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	247.20	-18.18	0.65	1.36

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$\pi\sqrt{E_x EI}$ X-axis PCR	Y-axis PCR	$Cc = \sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	OP4b-ST	7.01	-0.22	275.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.60	0.49	0.97
P2	OP4b-ST	4.86	-0.14	287.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	161.79	-21.48	0.48	1.02
P3	OP4b-ST	4.86	-0.05	290.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	161.73	-24.16	0.49	1.03
P4	OP4b-ST	7.02	0.01	264.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.66	-25.60	0.47	0.93
P5	OP4b-ST	4.87	0.08	289.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	162.04	-23.47	0.49	1.03
P6	OP4b-ST	4.88	0.16	286.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	162.42	-20.85	0.48	1.02
P7	OP4b-ST	7.01	0.24	272.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.00	0.48	0.96
P8	OP4b-ST	7.01	-0.22	282.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.60	0.50	0.99
P9	OP4b-ST	4.80	-0.13	295.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	159.10	-21.53	0.49	1.05
P10	OP4b-ST	4.81	-0.05	297.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	159.36	-24.16	0.50	1.06
P11	OP4b-ST	7.01	0.01	271.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.16	-25.60	0.48	0.95
P12	OP4b-ST	4.82	0.08	296.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	159.66	-23.47	0.50	1.06
P13	OP4b-ST	4.82	0.15	293.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	159.73	-20.89	0.49	1.04
P14	OP4b-ST	7.01	0.24	279.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.00	0.49	0.98
P15	OP4b-ST	7.01	-0.22	289.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.60	0.51	1.01
P16	OP4b-ST	7.00	-0.13	281.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.08	-21.57	0.50	0.99
P17	OP4b-ST	7.01	-0.05	283.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-24.16	0.50	0.99
P18	OP4b-ST	7.01	0.01	278.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.11	-25.60	0.50	0.98
P19	OP4b-ST	7.01	0.08	282.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.48	0.50	0.99
P20	OP4b-ST	7.01	0.15	279.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.10	-20.93	0.49	0.98
P21	OP4b-ST	7.01	0.24	286.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.00	0.50	1.00
P22	OP4b-ST	7.01	-0.22	295.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.60	0.52	1.04
P23	OP4b-ST	7.01	-0.13	287.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.11	-21.60	0.51	1.01
P24	OP4b-ST	7.01	-0.05	290.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.29	-24.16	0.51	1.02
P25	OP4b-ST	7.01	0.01	285.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.10	-25.60	0.51	1.00
P26	OP4b-ST	7.01	0.08	289.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.48	0.51	1.02
P27	OP4b-ST	7.01	0.15	286.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.13	-20.96	0.50	1.00
P28	OP4b-ST	7.01	0.24	293.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.00	0.51	1.03
P29	OP4b-ST	7.01	-0.22	302.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.59	0.53	1.06
P30	OP4b-ST	7.01	-0.13	294.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.12	-21.64	0.52	1.03
P31	OP4b-ST	7.01	-0.05	297.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.29	-24.16	0.52	1.04
P32	OP4b-ST	7.01	0.01	292.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.10	-25.60	0.52	1.03
P33	OP4b-ST	7.01	0.08	296.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.49	0.52	1.04
P34	OP4b-ST	7.01	0.15	293.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.14	-20.99	0.51	1.03
P35	OP4b-ST	7.01	0.24	300.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.00	0.52	1.05
P36	OP4b-ST	7.01	-0.22	309.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.59	0.54	1.09
P37	OP4b-ST	7.01	-0.13	301.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.11	-21.67	0.53	1.06
P38	OP4b-ST	7.01	-0.05	304.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.29	-24.16	0.53	1.07
P39	OP4b-ST	7.00	0.01	299.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.09	-25.60	0.53	1.05
P40	OP4b-ST	7.01	0.08	303.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.49	0.53	1.07
P41	OP4b-ST	7.01	0.15	299.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.13	-21.02	0.52	1.05
P42	OP4b-ST	7.01	0.24	307.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.01	0.53	1.08
P43	OP4b-ST	7.01	-0.22	316.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.35	-18.59	0.55	1.11
P44	OP4b-ST	7.00	-0.13	308.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.09	-21.71	0.54	1.08
P45	OP4b-ST	7.01	-0.05	311.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.29	-24.17	0.54	1.09
P46	OP4b-ST	7.00	0.01	306.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.06	-25.60	0.54	1.07
P47	OP4b-ST	7.01	0.07	310.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.50	0.54	1.09
P48	OP4b-ST	7.01	0.15	306.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.11	-21.05	0.53	1.08
P49	OP4b-ST	7.01	0.24	313.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.38	-18.01	0.54	1.10
P50	OP4b-ST	7.01	-0.22	323.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.34	-18.59	0.56	1.14
P51	OP4b-ST	7.00	-0.13	315.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.99	-21.74	0.55	1.11
P52	OP4b-ST	7.01	-0.05	318.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.29	-24.17	0.55	1.12
P53	OP4b-ST	7.00	0.01	313.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.96	-25.60	0.55	1.10
P54	OP4b-ST	7.01	0.07	317.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.50	0.55	1.11
P55	OP4b-ST	7.00	0.15	313.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.01	-21.08	0.54	1.10
P56	OP4b-ST	7.01	0.24	320.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.37	-18.01	0.55	1.13
P57	OP4b-ST	7.01	-0.22	330.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.34	-18.59	0.57	1.16
P58	OP4b-ST	6.99	-0.13	321.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.16	-21.79	0.56	1.13
P59	OP4b-ST	7.01	-0.05	325.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.29	-24.17	0.56	1.14
P60	OP4b-ST	6.99	0.01	319.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.17	-25.60	0.56	1.12
P61	OP4b-ST	7.01	0.07	324.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.30	-23.51	0.56	1.14
P62	OP4b-ST	6.99	0.15	319.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.19	-21.12	0.55	1.12
P63	OP4b-ST	7.01	0.24	327.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.37	-18.02	0.56	1.15
P1	OP5a-ST	5.26	-0.20	288.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.58	-19.38	0.49	1.01
P2	OP5a-ST	3.03	-0.12	294.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.90	-22.10	0.48	1.05
P3	OP5a-ST	3.02	-0.04	297.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.48	-24.71	0.48	1.06
P4	OP5a-ST	5.24	0.03	277.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.70	-25.08	0.47	0.97
P5	OP5a-ST	3.01	0.09	296.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.10	-22.98	0.48	1.06
P6	OP5a-ST	3.01	0.17	292.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.14	-20.43	0.47	1.04
P7	OP5a-ST	5.21	0.25	285.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.24	-17.73	0.48	1.00
P8	OP5a-ST	5.26	-0.19	301.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.58	-19.75	0.51	1.06
P9	OP5a-ST	2.92	-0.10	307.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	79.74	-22.52	0.50	1.09
P10	OP5a-ST	2.92	-0.03	310.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	79.58	-25.07	0.50	1.10
P11	OP5a-ST	5.23	0.04	290.72	50	29.9	1300	412	168	52.2	29000	0.886	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.27	-24.73	0.49	1.02
P12	OP5a-ST	2.91	0.10	309.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	79.20	-22.62	0.50	1.10
P13	OP5a-ST	2.90	0.18	305.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	78.99	-20.11	0.49	1.09
P14	OP5a-ST	5.21	0.26	298.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.24	-17.37	0.50	1.05
P15	OP5a-ST	5.26	-0.18	314.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.58	-20.12	0.53	1.10
P16	OP5a-ST	5.25	-0.09	306.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.04	-22.93	0.52	1.07
P17	OP5a-ST	5.24	-0.02	308.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.74	-25.43	0.52	1.08
P18	OP5a-ST	5.23	0.05	303.72	50	29.9	1300	412	168	52.2	29000	0.886	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.28	-24.37	0.51	1.07
P19	OP5a-ST	5.22	0.11	307.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-22.27	0.52	1.08
P20	OP5a-ST	5.21	0.19	304.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.47	-19.80	0.51	1.07
P21	OP5a-ST	5.21	0.27	310.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.24	-17.02	0.52	1.09

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25,941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	OP5a-ST	5.26	-0.17	326.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.58	-20.49	0.55	1.15
P23	OP5a-ST	5.25	-0.08	318.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.00	-23.34	0.54	1.12
P24	OP5a-ST	5.24	0.00	321.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.74	-25.80	0.54	1.13
P25	OP5a-ST	5.23	0.06	316.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.20	-24.01	0.53	1.11
P26	OP5a-ST	5.22	0.12	320.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-21.92	0.54	1.12
P27	OP5a-ST	5.21	0.20	316.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.44	-19.47	0.53	1.11
P28	OP5a-ST	5.21	0.28	323.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.24	-16.66	0.54	1.14
P29	OP5a-ST	5.26	-0.16	339.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.58	-20.85	0.56	1.19
P30	OP5a-ST	5.25	-0.07	331.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.01	-23.74	0.55	1.16
P31	OP5a-ST	5.24	0.01	334.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.73	-25.72	0.56	1.17
P32	OP5a-ST	5.23	0.07	329.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.19	-23.65	0.55	1.15
P33	OP5a-ST	5.22	0.13	333.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-21.56	0.56	1.17
P34	OP5a-ST	5.21	0.21	329.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.44	-19.15	0.55	1.16
P35	OP5a-ST	5.21	0.29	336.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.23	-16.30	0.56	1.18
P36	OP5a-ST	5.26	-0.14	352.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.57	-21.22	0.58	1.24
P37	OP5a-ST	5.25	-0.06	344.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.00	-24.14	0.57	1.21
P38	OP5a-ST	5.24	0.02	347.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.73	-25.36	0.58	1.22
P39	OP5a-ST	5.23	0.08	341.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.18	-23.29	0.57	1.20
P40	OP5a-ST	5.22	0.14	346.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-21.21	0.57	1.22
P41	OP5a-ST	5.21	0.22	342.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.44	-18.83	0.57	1.20
P42	OP5a-ST	5.21	0.30	349.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.23	-15.95	0.57	1.23
P43	OP5a-ST	5.26	-0.13	364.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.57	-21.59	0.60	1.28
P44	OP5a-ST	5.25	-0.04	356.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.98	-24.55	0.59	1.25
P45	OP5a-ST	5.24	0.03	360.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.73	-25.00	0.60	1.26
P46	OP5a-ST	5.23	0.09	354.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.16	-22.92	0.59	1.24
P47	OP5a-ST	5.22	0.16	359.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-20.85	0.59	1.26
P48	OP5a-ST	5.21	0.23	354.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.42	-18.50	0.59	1.24
P49	OP5a-ST	5.21	0.31	362.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.23	-15.59	0.59	1.27
P50	OP5a-ST	5.26	-0.12	377.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.57	-21.96	0.62	1.33
P51	OP5a-ST	5.24	-0.03	369.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.89	-24.95	0.61	1.30
P52	OP5a-ST	5.24	0.04	372.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.73	-24.63	0.62	1.31
P53	OP5a-ST	5.23	0.10	367.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.07	-22.56	0.61	1.29
P54	OP5a-ST	5.22	0.17	371.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-20.50	0.61	1.31
P55	OP5a-ST	5.21	0.24	367.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.33	-18.18	0.60	1.29
P56	OP5a-ST	5.21	0.33	374.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.23	-15.23	0.61	1.31
P57	OP5a-ST	5.26	-0.11	390.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	179.57	-22.32	0.64	1.37
P58	OP5a-ST	5.23	-0.02	381.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.10	-25.36	0.63	1.34
P59	OP5a-ST	5.24	0.05	385.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	178.73	-24.27	0.64	1.35
P60	OP5a-ST	5.21	0.11	379.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.31	-22.20	0.62	1.33
P61	OP5a-ST	5.22	0.18	384.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.95	-20.14	0.63	1.35
P62	OP5a-ST	5.19	0.25	379.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	176.55	-17.86	0.62	1.33
P63	OP5a-ST	5.21	0.34	387.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	177.23	-14.87	0.63	1.36
P1	OP5b-ST	5.63	-0.21	271.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-19.19	0.47	0.95
P2	OP5b-ST	3.52	-0.12	279.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	104.10	-22.06	0.46	0.99
P3	OP5b-ST	3.51	-0.04	282.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	103.70	-24.69	0.46	1.00
P4	OP5b-ST	5.61	0.03	260.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.79	-25.08	0.45	0.91
P5	OP5b-ST	3.50	0.09	281.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	103.31	-22.96	0.46	1.00
P6	OP5b-ST	3.50	0.17	277.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	103.32	-20.38	0.45	0.99
P7	OP5b-ST	5.58	0.26	268.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-17.54	0.46	0.94
P8	OP5b-ST	5.63	-0.19	277.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-19.56	0.47	0.97
P9	OP5b-ST	3.47	-0.11	286.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	101.81	-22.47	0.47	1.02
P10	OP5b-ST	3.46	-0.03	288.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	101.69	-25.05	0.47	1.03
P11	OP5b-ST	5.60	0.04	267.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.35	-24.73	0.46	0.94
P12	OP5b-ST	3.45	0.10	287.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	101.30	-22.61	0.47	1.02
P13	OP5b-ST	3.45	0.18	283.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	101.04	-20.06	0.46	1.01
P14	OP5b-ST	5.58	0.27	274.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-17.19	0.47	0.96
P15	OP5b-ST	5.63	-0.18	284.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-19.93	0.48	1.00
P16	OP5b-ST	5.62	-0.09	276.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.09	-22.87	0.47	0.97
P17	OP5b-ST	5.61	-0.02	278.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.85	-25.42	0.48	0.98
P18	OP5b-ST	5.60	0.05	273.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.31	-24.37	0.47	0.96
P19	OP5b-ST	5.59	0.11	277.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.05	-22.25	0.48	0.97
P20	OP5b-ST	5.58	0.19	274.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.49	-19.73	0.47	0.96
P21	OP5b-ST	5.58	0.28	281.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-16.83	0.48	0.99
P22	OP5b-ST	5.63	-0.17	290.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-20.30	0.49	1.02
P23	OP5b-ST	5.62	-0.08	282.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.12	-23.27	0.48	0.99
P24	OP5b-ST	5.61	0.00	285.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.85	-25.78	0.49	1.00
P25	OP5b-ST	5.60	0.06	280.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.30	-24.01	0.48	0.98
P26	OP5b-ST	5.59	0.12	284.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.05	-21.90	0.49	1.00
P27	OP5b-ST	5.58	0.20	280.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.52	-19.40	0.48	0.98
P28	OP5b-ST	5.58	0.29	287.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-16.47	0.49	1.01
P29	OP5b-ST	5.63	-0.16	296.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-20.67	0.50	1.04
P30	OP5b-ST	5.62	-0.07	288.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.13	-23.66	0.49	1.01
P31	OP5b-ST	5.61	0.01	291.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.85	-25.74	0.50	1.02
P32	OP5b-ST	5.60	0.07	286.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.29	-23.65	0.49	1.00
P33	OP5b-ST	5.59	0.13	290.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.05	-21.54	0.50	1.02
P34	OP5b-ST	5.58	0.21	286.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.53	-19.07	0.49	1.01
P35	OP5b-ST	5.58	0.30	293.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-16.12	0.50	1.03
P36	OP5b-ST	5.63	-0.15	303.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-21.04	0.51	1.06
P37	OP5b-ST	5.62	-0.06	295.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.12	-24.06	0.50	1.04
P38	OP5b-ST	5.61	0.02	297.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.85	-25.38	0.51	1.05
P39	OP5b-ST	5.60	0.08	292.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.28	-23.29	0.50	1.03
P40	OP5b-ST	5.59	0.15	296.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.05	-21.19	0.50	1.04
P41	OP5b-ST	5.58	0.22	293.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.53	-18.74	0.50	1.03
P42	OP5b-ST	5.58	0.31	300.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-15.76	0.51	1.05

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	OP5b-ST	5.63	-0.14	309.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-21.40	0.52	1.09
P44	OP5b-ST	5.62	-0.05	301.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.10	-24.46	0.51	1.06
P45	OP5b-ST	5.61	0.03	304.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.84	-25.02	0.52	1.07
P46	OP5b-ST	5.60	0.09	298.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.26	-22.92	0.51	1.05
P47	OP5b-ST	5.59	0.16	303.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.04	-20.83	0.51	1.06
P48	OP5b-ST	5.58	0.23	299.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.51	-18.41	0.51	1.05
P49	OP5b-ST	5.58	0.32	306.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-15.40	0.51	1.08
P50	OP5b-ST	5.63	-0.13	315.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-21.77	0.53	1.11
P51	OP5b-ST	5.61	-0.03	307.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.01	-24.86	0.52	1.08
P52	OP5b-ST	5.61	0.04	310.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.84	-24.65	0.53	1.09
P53	OP5b-ST	5.60	0.10	305.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.17	-22.56	0.52	1.07
P54	OP5b-ST	5.59	0.17	309.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.04	-20.48	0.52	1.09
P55	OP5b-ST	5.58	0.24	305.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.42	-18.08	0.52	1.07
P56	OP5b-ST	5.58	0.33	312.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-15.04	0.52	1.10
P57	OP5b-ST	5.63	-0.12	322.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	196.71	-22.14	0.54	1.13
P58	OP5b-ST	5.60	-0.02	313.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.26	-25.26	0.53	1.10
P59	OP5b-ST	5.61	0.05	317.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.84	-24.29	0.54	1.11
P60	OP5b-ST	5.58	0.11	311.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.46	-22.20	0.53	1.09
P61	OP5b-ST	5.59	0.18	316.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	195.04	-20.12	0.53	1.11
P62	OP5b-ST	5.56	0.25	311.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	193.67	-17.76	0.52	1.09
P63	OP5b-ST	5.58	0.34	319.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	194.32	-14.69	0.53	1.12
P1	OP6a-ST	4.74	-0.19	288.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-19.65	0.48	1.01
P2	OP6a-ST	2.51	-0.11	292.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	63.53	-22.38	0.47	1.04
P3	OP6a-ST	2.49	-0.03	295.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	62.95	-24.98	0.48	1.05
P4	OP6a-ST	4.70	0.04	277.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.59	-24.80	0.47	0.97
P5	OP6a-ST	2.48	0.10	294.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	62.23	-22.67	0.47	1.05
P6	OP6a-ST	2.47	0.18	290.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	62.10	-20.13	0.46	1.03
P7	OP6a-ST	4.66	0.26	284.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.53	-17.43	0.47	1.00
P8	OP6a-ST	4.74	-0.17	300.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-20.21	0.50	1.06
P9	OP6a-ST	2.40	-0.09	305.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	59.47	-22.99	0.49	1.09
P10	OP6a-ST	2.40	-0.01	308.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	59.13	-25.54	0.49	1.10
P11	OP6a-ST	4.69	0.05	290.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.17	-24.24	0.49	1.02
P12	OP6a-ST	2.38	0.12	307.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	58.42	-22.12	0.49	1.09
P13	OP6a-ST	2.37	0.19	303.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	58.04	-19.61	0.48	1.08
P14	OP6a-ST	4.66	0.28	297.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.53	-16.86	0.49	1.04
P15	OP6a-ST	4.74	-0.16	313.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-20.77	0.52	1.10
P16	OP6a-ST	4.72	-0.07	305.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.34	-23.59	0.51	1.07
P17	OP6a-ST	4.71	0.00	308.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.83	-25.79	0.52	1.08
P18	OP6a-ST	4.69	0.07	303.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.18	-23.68	0.51	1.06
P19	OP6a-ST	4.68	0.13	307.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.65	-21.56	0.51	1.08
P20	OP6a-ST	4.67	0.21	303.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.98	-19.08	0.50	1.07
P21	OP6a-ST	4.66	0.29	310.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-16.29	0.51	1.09
P22	OP6a-ST	4.74	-0.14	326.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-21.33	0.54	1.15
P23	OP6a-ST	4.72	-0.05	318.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.31	-24.18	0.53	1.12
P24	OP6a-ST	4.71	0.02	321.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.83	-25.23	0.54	1.13
P25	OP6a-ST	4.69	0.09	316.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.11	-23.12	0.53	1.11
P26	OP6a-ST	4.68	0.15	320.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.64	-21.01	0.53	1.12
P27	OP6a-ST	4.67	0.23	316.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.95	-18.55	0.52	1.11
P28	OP6a-ST	4.66	0.31	323.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-15.73	0.53	1.14
P29	OP6a-ST	4.74	-0.12	339.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-21.89	0.56	1.19
P30	OP6a-ST	4.72	-0.04	331.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.31	-24.77	0.55	1.16
P31	OP6a-ST	4.71	0.04	334.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.82	-24.68	0.55	1.17
P32	OP6a-ST	4.69	0.10	329.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.10	-22.57	0.54	1.15
P33	OP6a-ST	4.68	0.17	333.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.64	-20.45	0.55	1.17
P34	OP6a-ST	4.67	0.24	329.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.95	-18.02	0.54	1.16
P35	OP6a-ST	4.66	0.33	336.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-15.16	0.55	1.18
P36	OP6a-ST	4.74	-0.11	352.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-22.44	0.58	1.24
P37	OP6a-ST	4.72	-0.02	344.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.31	-25.36	0.57	1.21
P38	OP6a-ST	4.71	0.06	347.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.82	-24.12	0.57	1.22
P39	OP6a-ST	4.69	0.12	341.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.10	-22.01	0.56	1.20
P40	OP6a-ST	4.68	0.18	346.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.64	-19.89	0.57	1.22
P41	OP6a-ST	4.67	0.26	342.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.95	-17.48	0.56	1.20
P42	OP6a-ST	4.66	0.34	349.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-14.59	0.57	1.23
P43	OP6a-ST	4.74	-0.09	365.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-23.00	0.60	1.28
P44	OP6a-ST	4.72	0.00	357.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.29	-25.93	0.59	1.25
P45	OP6a-ST	4.71	0.07	360.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.82	-23.56	0.59	1.26
P46	OP6a-ST	4.69	0.14	354.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.07	-21.45	0.58	1.24
P47	OP6a-ST	4.68	0.20	359.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.64	-19.33	0.59	1.26
P48	OP6a-ST	4.66	0.27	355.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.93	-16.95	0.58	1.25
P49	OP6a-ST	4.66	0.36	362.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-14.02	0.59	1.27
P50	OP6a-ST	4.74	-0.07	378.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-23.56	0.62	1.33
P51	OP6a-ST	4.72	0.02	369.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.20	-25.33	0.61	1.30
P52	OP6a-ST	4.71	0.09	373.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.82	-23.00	0.61	1.31
P53	OP6a-ST	4.69	0.15	367.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.99	-20.88	0.60	1.29
P54	OP6a-ST	4.68	0.22	372.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.64	-18.78	0.61	1.31
P55	OP6a-ST	4.66	0.29	367.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.84	-16.42	0.60	1.29
P56	OP6a-ST	4.66	0.38	375.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-13.45	0.61	1.32
P57	OP6a-ST	4.74	-0.06	391.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.06	-24.11	0.64	1.37
P58	OP6a-ST	4.70	0.04	381.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.43	-24.73	0.63	1.34
P59	OP6a-ST	4.71	0.11	386.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.82	-22.44	0.63	1.36
P60	OP6a-ST	4.67	0.17	379.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.25	-20.32	0.62	1.33
P61	OP6a-ST	4.68	0.24	385.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.64	-18.22	0.63	1.35
P62	OP6a-ST	4.65	0.31	379.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.08	-15.89	0.62	1.33
P63	OP6a-ST	4.66	0.40	388.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.52	-12.88	0.63	1.36

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E						$\pi\sqrt{E_s EI}$		$Cc=\sqrt{\frac{2\pi^2 E}{fi}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$									M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	OP6b-ST	5.12	-0.20	270.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-19.46	0.46	0.95
P2	OP6b-ST	3.03	-0.11	276.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.90	-22.33	0.45	0.98
P3	OP6b-ST	3.01	-0.03	279.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.34	-24.96	0.46	0.99
P4	OP6b-ST	5.09	0.04	259.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.87	-24.80	0.45	0.91
P5	OP6b-ST	2.99	0.10	278.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	82.60	-22.66	0.45	0.99
P6	OP6b-ST	2.99	0.18	274.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	82.42	-20.08	0.44	0.98
P7	OP6b-ST	5.04	0.26	267.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.79	-17.23	0.45	0.94
P8	OP6b-ST	5.12	-0.18	276.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-20.02	0.47	0.97
P9	OP6b-ST	2.97	-0.09	282.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	81.72	-22.93	0.46	1.01
P10	OP6b-ST	2.96	-0.01	285.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	81.43	-25.52	0.46	1.02
P11	OP6b-ST	5.08	0.05	266.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.44	-24.24	0.45	0.93
P12	OP6b-ST	2.95	0.12	284.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	80.68	-22.10	0.46	1.01
P13	OP6b-ST	2.93	0.20	280.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	80.25	-19.55	0.45	1.00
P14	OP6b-ST	5.04	0.28	273.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.79	-16.67	0.46	0.96
P15	OP6b-ST	5.12	-0.16	282.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-20.58	0.48	0.99
P16	OP6b-ST	5.10	-0.07	274.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.59	-23.52	0.47	0.96
P17	OP6b-ST	5.09	0.00	277.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-25.81	0.47	0.97
P18	OP6b-ST	5.08	0.07	272.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.40	-23.68	0.46	0.96
P19	OP6b-ST	5.07	0.13	276.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.93	-21.54	0.47	0.97
P20	OP6b-ST	5.05	0.21	272.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.18	-19.01	0.46	0.96
P21	OP6b-ST	5.04	0.30	279.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.79	-16.10	0.47	0.98
P22	OP6b-ST	5.12	-0.15	288.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-21.14	0.49	1.01
P23	OP6b-ST	5.11	-0.06	280.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.62	-24.11	0.48	0.99
P24	OP6b-ST	5.09	0.02	283.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-25.25	0.48	0.99
P25	OP6b-ST	5.08	0.09	278.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.40	-23.12	0.47	0.98
P26	OP6b-ST	5.07	0.15	282.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.93	-20.99	0.48	0.99
P27	OP6b-ST	5.05	0.23	278.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.21	-18.47	0.47	0.98
P28	OP6b-ST	5.04	0.32	285.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.78	-15.53	0.48	1.00
P29	OP6b-ST	5.12	-0.13	295.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-21.69	0.50	1.04
P30	OP6b-ST	5.11	-0.04	287.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.63	-24.69	0.49	1.01
P31	OP6b-ST	5.09	0.04	289.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-24.69	0.49	1.02
P32	OP6b-ST	5.08	0.10	284.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.39	-22.57	0.48	1.00
P33	OP6b-ST	5.07	0.17	288.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.92	-20.43	0.49	1.01
P34	OP6b-ST	5.05	0.24	285.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.22	-17.93	0.48	1.00
P35	OP6b-ST	5.04	0.33	292.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.78	-14.96	0.49	1.02
P36	OP6b-ST	5.12	-0.11	301.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-22.25	0.51	1.06
P37	OP6b-ST	5.11	-0.02	293.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.63	-25.28	0.50	1.03
P38	OP6b-ST	5.09	0.06	296.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-24.14	0.50	1.04
P39	OP6b-ST	5.08	0.12	290.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.39	-22.01	0.49	1.02
P40	OP6b-ST	5.07	0.19	295.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.92	-19.87	0.50	1.04
P41	OP6b-ST	5.05	0.26	291.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.22	-17.39	0.49	1.02
P42	OP6b-ST	5.04	0.35	298.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.78	-14.39	0.50	1.05
P43	OP6b-ST	5.12	-0.10	307.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-22.81	0.52	1.08
P44	OP6b-ST	5.10	0.00	299.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.60	-25.86	0.51	1.05
P45	OP6b-ST	5.09	0.07	302.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-23.58	0.51	1.06
P46	OP6b-ST	5.08	0.14	296.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.37	-21.45	0.50	1.04
P47	OP6b-ST	5.07	0.20	301.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.92	-19.32	0.50	1.06
P48	OP6b-ST	5.05	0.28	297.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.20	-16.85	0.50	1.04
P49	OP6b-ST	5.04	0.37	304.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.78	-13.82	0.50	1.07
P50	OP6b-ST	5.12	-0.08	313.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-23.36	0.53	1.10
P51	OP6b-ST	5.10	0.02	305.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.52	-25.43	0.52	1.07
P52	OP6b-ST	5.09	0.09	308.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-23.02	0.52	1.08
P53	OP6b-ST	5.08	0.15	303.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.28	-20.88	0.51	1.06
P54	OP6b-ST	5.07	0.22	307.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.92	-18.76	0.51	1.08
P55	OP6b-ST	5.05	0.29	303.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.11	-16.31	0.51	1.07
P56	OP6b-ST	5.04	0.38	310.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.78	-13.25	0.51	1.09
P57	OP6b-ST	5.12	-0.06	320.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.40	-23.92	0.54	1.12
P58	OP6b-ST	5.09	0.03	311.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.79	-24.84	0.52	1.09
P59	OP6b-ST	5.09	0.11	314.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.13	-22.46	0.53	1.10
P60	OP6b-ST	5.06	0.17	308.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.58	-20.32	0.52	1.08
P61	OP6b-ST	5.07	0.24	313.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.92	-18.20	0.52	1.10
P62	OP6b-ST	5.03	0.31	309.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.39	-15.78	0.51	1.09
P63	OP6b-ST	5.04	0.40	316.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.78	-12.68	0.52	1.11
P1	OP7a-ST	4.74	-0.19	288.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-19.69	0.48	1.01
P2	OP7a-ST	2.51	-0.11	292.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	63.58	-22.40	0.47	1.04
P3	OP7a-ST	2.50	-0.03	295.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	63.00	-25.00	0.48	1.05
P4	OP7a-ST	4.70	0.04	277.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.63	-24.80	0.47	0.97
P5	OP7a-ST	2.48	0.10	294.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	62.28	-22.69	0.47	1.05
P6	OP7a-ST	2.47	0.18	290.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	62.15	-20.15	0.46	1.03
P7	OP7a-ST	4.66	0.26	284.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.58	-17.46	0.47	1.00
P8	OP7a-ST	4.74	-0.17	300.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-20.26	0.50	1.06
P9	OP7a-ST	2.41	-0.09	305.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	59.53	-23.02	0.49	1.09
P10	OP7a-ST	2.40	-0.01	308.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	59.19	-25.55	0.49	1.10
P11	OP7a-ST	4.69	0.05	290.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.22	-24.24	0.49	1.02
P12	OP7a-ST	2.38	0.12	307.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	58.48	-22.14	0.49	1.09
P13	OP7a-ST	2.37	0.19	303.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	58.11	-19.64	0.48	1.08
P14	OP7a-ST	4.66	0.27	297.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.58	-16.90	0.49	1.04
P15	OP7a-ST	4.74	-0.16	313.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-20.82	0.52	1.10
P16	OP7a-ST	4.72	-0.07	305.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.39	-23.62	0.51	1.07
P17	OP7a-ST	4.71	0.01	308.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-25.77	0.52	1.08
P18	OP7a-ST	4.69	0.07	303.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.23	-23.68	0.51	1.06
P19	OP7a-ST	4.68	0.13	307.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.69	-21.58	0.51	1.08
P20	OP7a-ST	4.67	0.21	303.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.03	-19.12	0.50	1.07
P21	OP7a-ST	4.66	0.29	310.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.58	-16.34	0.51	1.09

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check						Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fs}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	OP7a-ST	4.74	-0.14	326.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-21.39	0.54	1.15
P23	OP7a-ST	4.72	-0.05	318.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.35	-24.22	0.53	1.12
P24	OP7a-ST	4.71	0.02	321.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-25.21	0.53	1.13
P25	OP7a-ST	4.69	0.09	316.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.16	-23.12	0.53	1.11
P26	OP7a-ST	4.68	0.15	320.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.69	-21.03	0.53	1.12
P27	OP7a-ST	4.67	0.22	316.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.00	-18.59	0.52	1.11
P28	OP7a-ST	4.66	0.31	323.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.58	-15.79	0.53	1.13
P29	OP7a-ST	4.74	-0.12	339.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-21.95	0.56	1.19
P30	OP7a-ST	4.72	-0.03	331.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.36	-24.82	0.55	1.16
P31	OP7a-ST	4.71	0.04	334.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-24.65	0.55	1.17
P32	OP7a-ST	4.69	0.10	328.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.15	-22.57	0.54	1.15
P33	OP7a-ST	4.68	0.17	333.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.69	-20.48	0.55	1.17
P34	OP7a-ST	4.67	0.24	329.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.00	-18.07	0.54	1.16
P35	OP7a-ST	4.66	0.33	336.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.57	-15.23	0.55	1.18
P36	OP7a-ST	4.74	-0.10	352.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-22.52	0.58	1.24
P37	OP7a-ST	4.72	-0.02	344.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.35	-25.42	0.57	1.21
P38	OP7a-ST	4.71	0.06	347.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-24.09	0.57	1.22
P39	OP7a-ST	4.69	0.12	341.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.14	-22.01	0.56	1.20
P40	OP7a-ST	4.68	0.18	346.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.69	-19.92	0.57	1.21
P41	OP7a-ST	4.67	0.26	342.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.00	-17.54	0.56	1.20
P42	OP7a-ST	4.66	0.34	349.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.57	-14.67	0.57	1.22
P43	OP7a-ST	4.74	-0.09	365.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-23.08	0.60	1.28
P44	OP7a-ST	4.72	0.00	356.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.33	-25.86	0.59	1.25
P45	OP7a-ST	4.71	0.07	360.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-23.53	0.59	1.26
P46	OP7a-ST	4.69	0.14	354.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.12	-21.45	0.58	1.24
P47	OP7a-ST	4.68	0.20	359.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.69	-19.37	0.59	1.26
P48	OP7a-ST	4.67	0.27	354.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.98	-17.01	0.58	1.24
P49	OP7a-ST	4.66	0.36	361.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.57	-14.10	0.59	1.27
P50	OP7a-ST	4.74	-0.07	377.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-23.65	0.62	1.33
P51	OP7a-ST	4.72	0.02	369.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	155.25	-25.26	0.61	1.30
P52	OP7a-ST	4.71	0.09	373.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-22.96	0.61	1.31
P53	OP7a-ST	4.69	0.15	367.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.03	-20.88	0.60	1.29
P54	OP7a-ST	4.68	0.22	372.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.68	-18.81	0.61	1.31
P55	OP7a-ST	4.66	0.29	367.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.89	-16.49	0.60	1.29
P56	OP7a-ST	4.66	0.38	374.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.57	-13.54	0.61	1.31
P57	OP7a-ST	4.74	-0.05	390.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	156.11	-24.21	0.64	1.37
P58	OP7a-ST	4.70	0.04	381.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.48	-24.66	0.62	1.34
P59	OP7a-ST	4.71	0.11	385.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	154.87	-22.40	0.63	1.35
P60	OP7a-ST	4.67	0.17	379.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.30	-20.32	0.62	1.33
P61	OP7a-ST	4.68	0.23	384.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	153.68	-18.25	0.62	1.35
P62	OP7a-ST	4.65	0.30	379.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.13	-15.97	0.61	1.33
P63	OP7a-ST	4.66	0.39	387.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	152.57	-12.98	0.62	1.36
P1	OP7b-ST	5.12	-0.20	270.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-19.50	0.46	0.95
P2	OP7b-ST	3.03	-0.11	276.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.95	-22.35	0.45	0.98
P3	OP7b-ST	3.01	-0.03	279.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	83.39	-24.98	0.46	0.99
P4	OP7b-ST	5.09	0.04	259.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.91	-24.80	0.45	0.91
P5	OP7b-ST	2.99	0.10	278.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	82.65	-22.67	0.45	0.99
P6	OP7b-ST	2.99	0.18	274.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	82.48	-20.10	0.44	0.98
P7	OP7b-ST	5.04	0.26	267.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-17.27	0.45	0.94
P8	OP7b-ST	5.12	-0.18	276.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-20.06	0.47	0.97
P9	OP7b-ST	2.97	-0.09	282.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	81.79	-22.96	0.46	1.01
P10	OP7b-ST	2.97	-0.01	285.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	81.49	-25.54	0.46	1.01
P11	OP7b-ST	5.08	0.05	266.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.49	-24.24	0.45	0.93
P12	OP7b-ST	2.95	0.12	284.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	80.75	-22.12	0.46	1.01
P13	OP7b-ST	2.94	0.19	280.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	80.32	-19.58	0.45	1.00
P14	OP7b-ST	5.04	0.28	273.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-16.71	0.46	0.96
P15	OP7b-ST	5.12	-0.16	282.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-20.63	0.48	0.99
P16	OP7b-ST	5.11	-0.07	274.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.64	-23.56	0.47	0.96
P17	OP7b-ST	5.10	0.00	277.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-25.79	0.47	0.97
P18	OP7b-ST	5.08	0.07	272.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.45	-23.68	0.46	0.95
P19	OP7b-ST	5.07	0.13	276.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-21.57	0.47	0.97
P20	OP7b-ST	5.05	0.21	272.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.23	-19.05	0.46	0.96
P21	OP7b-ST	5.04	0.30	279.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-16.15	0.47	0.98
P22	OP7b-ST	5.12	-0.15	288.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-21.20	0.49	1.01
P23	OP7b-ST	5.11	-0.05	280.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.67	-24.15	0.48	0.99
P24	OP7b-ST	5.10	0.02	283.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-25.23	0.48	0.99
P25	OP7b-ST	5.08	0.09	278.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.44	-23.12	0.47	0.98
P26	OP7b-ST	5.07	0.15	282.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-21.01	0.48	0.99
P27	OP7b-ST	5.05	0.23	278.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.26	-18.52	0.47	0.98
P28	OP7b-ST	5.04	0.31	285.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-15.59	0.48	1.00
P29	OP7b-ST	5.12	-0.13	294.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-21.76	0.50	1.03
P30	OP7b-ST	5.11	-0.04	286.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.68	-24.74	0.49	1.01
P31	OP7b-ST	5.10	0.04	289.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-24.67	0.49	1.02
P32	OP7b-ST	5.08	0.10	284.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.44	-22.57	0.48	1.00
P33	OP7b-ST	5.07	0.17	288.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-20.46	0.49	1.01
P34	OP7b-ST	5.05	0.24	284.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.27	-17.99	0.48	1.00
P35	OP7b-ST	5.04	0.33	291.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-15.03	0.49	1.02
P36	OP7b-ST	5.12	-0.11	301.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-22.33	0.51	1.06
P37	OP7b-ST	5.11	-0.02	293.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.67	-25.34	0.50	1.03
P38	OP7b-ST	5.10	0.06	295.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-24.11	0.50	1.04
P39	OP7b-ST	5.08	0.12	290.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.43	-22.01	0.49	1.02
P40	OP7b-ST	5.07	0.18	294.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-19.90	0.49	1.03
P41	OP7b-ST	5.05	0.26	291.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.26	-17.45	0.49	1.02
P42	OP7b-ST	5.04	0.35	297.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-14.47	0.50	1.05

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E						$\pi\sqrt{E_s EI}$		$\frac{2\pi^2 E}{f_y}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$									M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	OP7b-ST	5.12	-0.09	307.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-22.89	0.52	1.08
P44	OP7b-ST	5.11	0.00	299.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.65	-25.93	0.51	1.05
P45	OP7b-ST	5.10	0.07	302.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-23.55	0.51	1.06
P46	OP7b-ST	5.08	0.14	296.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.41	-21.45	0.50	1.04
P47	OP7b-ST	5.07	0.20	301.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-19.35	0.50	1.06
P48	OP7b-ST	5.05	0.27	297.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.24	-16.92	0.50	1.04
P49	OP7b-ST	5.04	0.36	304.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-13.91	0.50	1.07
P50	OP7b-ST	5.12	-0.08	313.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-23.45	0.53	1.10
P51	OP7b-ST	5.10	0.02	305.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.57	-25.36	0.51	1.07
P52	OP7b-ST	5.10	0.09	308.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-22.98	0.52	1.08
P53	OP7b-ST	5.08	0.15	302.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.32	-20.88	0.51	1.06
P54	OP7b-ST	5.07	0.22	307.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-18.79	0.51	1.08
P55	OP7b-ST	5.05	0.29	303.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.16	-16.39	0.50	1.06
P56	OP7b-ST	5.04	0.38	310.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-13.35	0.51	1.09
P57	OP7b-ST	5.12	-0.06	319.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	173.45	-24.02	0.54	1.12
P58	OP7b-ST	5.09	0.04	310.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	171.84	-24.76	0.52	1.09
P59	OP7b-ST	5.10	0.11	314.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	172.18	-22.42	0.53	1.10
P60	OP7b-ST	5.06	0.17	308.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.63	-20.32	0.52	1.08
P61	OP7b-ST	5.07	0.23	313.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	170.97	-18.23	0.52	1.10
P62	OP7b-ST	5.03	0.31	308.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.44	-15.86	0.51	1.08
P63	OP7b-ST	5.04	0.40	316.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	169.84	-12.79	0.52	1.11
P1	OP8a-ST	-6.68	0.23	278.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	-18.33	0.49	0.98
P2	OP8a-ST	-8.89	0.31	241.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	361.63	-15.62	0.45	0.86
P3	OP8a-ST	-9.12	0.39	241.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	374.21	-13.13	0.46	0.86
P4	OP8a-ST	-7.38	0.46	263.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.12	-10.79	0.47	0.93
P5	OP8a-ST	-9.56	0.53	236.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	398.93	-8.47	0.45	0.84
P6	OP8a-ST	-9.77	0.60	230.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	411.01	-6.04	0.44	0.82
P7	OP8a-ST	-8.11	0.67	266.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.88	-3.50	0.47	0.94
P8	OP8a-ST	-6.68	0.53	293.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	-8.21	0.50	1.03
P9	OP8a-ST	-9.01	0.62	256.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	368.14	-5.40	0.47	0.91
P10	OP8a-ST	-9.23	0.69	256.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	380.51	-2.86	0.47	0.91
P11	OP8a-ST	-7.39	0.76	279.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.55	-0.45	0.48	0.98
P12	OP8a-ST	-9.67	0.83	250.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	405.36	1.92	0.47	0.89
P13	OP8a-ST	-9.89	0.90	245.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	417.78	4.42	0.47	0.87
P14	OP8a-ST	-8.11	0.98	281.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.88	7.04	0.50	0.99
P15	OP8a-ST	-6.68	0.84	308.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	2.15	0.52	1.08
P16	OP8a-ST	-6.91	0.92	299.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	258.49	5.04	0.51	1.05
P17	OP8a-ST	-7.16	0.99	300.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.64	7.64	0.52	1.05
P18	OP8a-ST	-7.39	1.06	293.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.47	10.11	0.51	1.03
P19	OP8a-ST	-7.63	1.13	296.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	12.55	0.52	1.04
P20	OP8a-ST	-7.87	1.21	291.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	307.14	15.11	0.52	1.02
P21	OP8a-ST	-8.11	1.28	296.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.88	17.81	0.53	1.04
P22	OP8a-ST	-6.68	1.14	323.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	12.72	0.55	1.13
P23	OP8a-ST	-6.91	1.22	314.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	258.51	15.71	0.54	1.10
P24	OP8a-ST	-7.16	1.30	315.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.64	18.37	0.55	1.11
P25	OP8a-ST	-7.39	1.37	308.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.55	20.90	0.54	1.08
P26	OP8a-ST	-7.63	1.44	311.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	23.41	0.55	1.09
P27	OP8a-ST	-7.87	1.51	306.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	307.16	26.02	0.55	1.08
P28	OP8a-ST	-8.11	1.59	311.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.88	28.81	0.56	1.09
P29	OP8a-ST	-6.68	1.44	338.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	23.53	0.58	1.19
P30	OP8a-ST	-6.91	1.53	328.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	258.51	26.61	0.57	1.15
P31	OP8a-ST	-7.16	1.60	330.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.65	29.33	0.58	1.16
P32	OP8a-ST	-7.39	1.67	323.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.56	31.92	0.57	1.14
P33	OP8a-ST	-7.63	1.74	326.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	34.50	0.58	1.15
P34	OP8a-ST	-7.87	1.81	321.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	307.16	37.17	0.58	1.13
P35	OP8a-ST	-8.11	1.89	326.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.88	40.04	0.59	1.15
P36	OP8a-ST	-6.68	1.74	352.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	34.57	0.61	1.24
P37	OP8a-ST	-6.91	1.83	343.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	258.52	37.74	0.60	1.21
P38	OP8a-ST	-7.16	1.90	345.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.65	40.52	0.61	1.21
P39	OP8a-ST	-7.39	1.98	338.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.57	43.17	0.60	1.19
P40	OP8a-ST	-7.63	2.05	341.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	45.81	0.61	1.20
P41	OP8a-ST	-7.87	2.12	336.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	307.17	48.55	0.61	1.18
P42	OP8a-ST	-8.11	2.20	341.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.89	51.51	0.62	1.20
P43	OP8a-ST	-6.68	2.05	367.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	45.83	0.64	1.29
P44	OP8a-ST	-6.91	2.13	358.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	258.54	49.09	0.63	1.26
P45	OP8a-ST	-7.16	2.21	360.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.65	51.94	0.64	1.26
P46	OP8a-ST	-7.39	2.28	352.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.59	54.65	0.63	1.24
P47	OP8a-ST	-7.63	2.35	356.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	57.36	0.64	1.25
P48	OP8a-ST	-7.87	2.42	350.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	307.19	60.16	0.64	1.23
P49	OP8a-ST	-8.11	2.50	356.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.89	63.20	0.65	1.25
P50	OP8a-ST	-6.68	2.35	382.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	57.33	0.67	1.34
P51	OP8a-ST	-6.92	2.44	372.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	258.64	60.68	0.66	1.31
P52	OP8a-ST	-7.16	2.51	375.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.65	63.59	0.67	1.32
P53	OP8a-ST	-7.39	2.58	367.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	282.70	66.36	0.66	1.29
P54	OP8a-ST	-7.63	2.65	371.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	69.14	0.67	1.30
P55	OP8a-ST	-7.87	2.73	365.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	307.30	72.00	0.67	1.28
P56	OP8a-ST	-8.11	2.81	371.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.89	75.12	0.68	1.30
P57	OP8a-ST	-6.68	2.65	397.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	246.87	69.05	0.70	1.40
P58	OP8a-ST	-6.93	2.74	387.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	259.49	72.50	0.69	1.36
P59	OP8a-ST	-7.16	2.81	390.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	270.65	75.47	0.70	1.37
P60	OP8a-ST	-7.41	2.89	381.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	283.53	78.30	0.69	1.34
P61	OP8a-ST	-7.63	2.96	386.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	295.00	81.14	0.70	1.36
P62	OP8a-ST	-7.89	3.03	379.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	308.16	84.07	0.70	1.33
P63	OP8a-ST	-8.11	3.11	386.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.89	87.28	0.71	1.36

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_0 EI}$		$c'c = \sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25.941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	OP8b-ST	-6.03	0.22	248.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	-18.65	0.43	0.87
P2	OP8b-ST	-8.02	0.31	214.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	315.15	-15.71	0.40	0.76
P3	OP8b-ST	-8.25	0.39	214.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	327.15	-13.16	0.40	0.76
P4	OP8b-ST	-6.73	0.46	234.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	249.64	-10.79	0.42	0.82
P5	OP8b-ST	-8.69	0.53	208.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	350.92	-8.44	0.40	0.74
P6	OP8b-ST	-8.91	0.60	204.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	362.62	-5.95	0.39	0.73
P7	OP8b-ST	-7.46	0.68	236.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	-3.17	0.42	0.83
P8	OP8b-ST	-6.03	0.52	252.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	-8.54	0.43	0.89
P9	OP8b-ST	-8.05	0.61	218.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	316.92	-5.50	0.40	0.78
P10	OP8b-ST	-8.28	0.69	217.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	328.66	-2.89	0.40	0.77
P11	OP8b-ST	-6.74	0.76	238.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.05	-0.45	0.41	0.84
P12	OP8b-ST	-8.72	0.83	212.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	352.46	1.96	0.40	0.76
P13	OP8b-ST	-8.94	0.91	207.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	364.46	4.52	0.40	0.74
P14	OP8b-ST	-7.46	0.99	240.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	7.38	0.43	0.84
P15	OP8b-ST	-6.03	0.83	256.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	1.81	0.43	0.90
P16	OP8b-ST	-6.27	0.92	247.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	226.85	4.92	0.42	0.87
P17	OP8b-ST	-6.51	0.99	247.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.48	7.61	0.43	0.87
P18	OP8b-ST	-6.74	1.06	241.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.07	10.11	0.43	0.85
P19	OP8b-ST	-6.98	1.13	244.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	12.58	0.43	0.86
P20	OP8b-ST	-7.22	1.21	239.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	273.96	15.23	0.43	0.84
P21	OP8b-ST	-7.46	1.29	244.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	18.16	0.44	0.86
P22	OP8b-ST	-6.03	1.13	259.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	12.38	0.45	0.91
P23	OP8b-ST	-6.26	1.22	250.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	226.75	15.58	0.44	0.88
P24	OP8b-ST	-6.51	1.30	251.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.48	18.34	0.44	0.88
P25	OP8b-ST	-6.74	1.37	245.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.02	20.90	0.44	0.86
P26	OP8b-ST	-6.98	1.44	247.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	23.44	0.45	0.87
P27	OP8b-ST	-7.22	1.51	243.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	273.85	26.16	0.45	0.85
P28	OP8b-ST	-7.46	1.60	248.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	29.17	0.46	0.87
P29	OP8b-ST	-6.03	1.43	263.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	23.18	0.46	0.92
P30	OP8b-ST	-6.26	1.52	254.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	226.74	26.46	0.45	0.89
P31	OP8b-ST	-6.51	1.60	255.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.48	29.30	0.46	0.90
P32	OP8b-ST	-6.74	1.67	248.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.02	31.92	0.45	0.87
P33	OP8b-ST	-6.98	1.74	251.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	34.53	0.46	0.88
P34	OP8b-ST	-7.22	1.82	246.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	273.85	37.32	0.46	0.87
P35	OP8b-ST	-7.46	1.90	251.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	40.41	0.47	0.88
P36	OP8b-ST	-6.03	1.73	267.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	34.21	0.47	0.94
P37	OP8b-ST	-6.26	1.82	257.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	226.74	37.57	0.46	0.90
P38	OP8b-ST	-6.51	1.90	259.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.48	40.49	0.47	0.91
P39	OP8b-ST	-6.74	1.98	252.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.03	43.17	0.47	0.89
P40	OP8b-ST	-6.98	2.05	255.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	45.85	0.47	0.90
P41	OP8b-ST	-7.22	2.12	250.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	273.85	48.72	0.47	0.88
P42	OP8b-ST	-7.46	2.21	255.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	51.88	0.49	0.90
P43	OP8b-ST	-6.03	2.04	270.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	45.46	0.49	0.95
P44	OP8b-ST	-6.26	2.13	261.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	226.77	48.91	0.48	0.92
P45	OP8b-ST	-6.51	2.21	262.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.48	51.91	0.49	0.92
P46	OP8b-ST	-6.74	2.28	256.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.05	54.65	0.48	0.90
P47	OP8b-ST	-6.98	2.35	259.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	57.40	0.49	0.91
P48	OP8b-ST	-7.22	2.43	254.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	273.87	60.35	0.49	0.89
P49	OP8b-ST	-7.46	2.51	259.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	63.58	0.50	0.91
P50	OP8b-ST	-6.03	2.34	274.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	56.95	0.50	0.96
P51	OP8b-ST	-6.27	2.43	265.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	226.86	60.48	0.49	0.93
P52	OP8b-ST	-6.51	2.51	266.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.49	63.55	0.50	0.94
P53	OP8b-ST	-6.74	2.58	259.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.15	66.36	0.49	0.91
P54	OP8b-ST	-6.98	2.65	262.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	69.18	0.50	0.92
P55	OP8b-ST	-7.22	2.73	257.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	273.97	72.20	0.50	0.90
P56	OP8b-ST	-7.46	2.82	263.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	75.52	0.51	0.92
P57	OP8b-ST	-6.03	2.64	278.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	215.47	68.67	0.52	0.98
P58	OP8b-ST	-6.28	2.73	268.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	227.58	72.28	0.51	0.94
P59	OP8b-ST	-6.51	2.81	270.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	238.49	75.43	0.51	0.95
P60	OP8b-ST	-6.76	2.89	263.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	250.85	78.30	0.51	0.92
P61	OP8b-ST	-6.98	2.96	266.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	262.06	81.18	0.52	0.94
P62	OP8b-ST	-7.24	3.04	261.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	274.70	84.29	0.51	0.92
P63	OP8b-ST	-7.46	3.12	266.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	286.17	87.68	0.53	0.94
P1	OP9a-ST	-6.71	0.23	280.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.63	-18.28	0.49	0.98
P2	OP9a-ST	-8.94	0.32	243.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	364.32	-15.57	0.46	0.86
P3	OP9a-ST	-9.17	0.39	243.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	376.94	-13.09	0.46	0.86
P4	OP9a-ST	-7.42	0.46	265.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	283.99	-10.79	0.47	0.93
P5	OP9a-ST	-9.61	0.53	237.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	401.72	-8.52	0.45	0.85
P6	OP9a-ST	-9.82	0.60	232.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	413.81	-6.09	0.45	0.83
P7	OP9a-ST	-8.15	0.67	268.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	-3.55	0.48	0.94
P8	OP9a-ST	-6.71	0.54	295.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.63	-8.13	0.50	1.04
P9	OP9a-ST	-9.06	0.62	258.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	371.01	-5.33	0.47	0.92
P10	OP9a-ST	-9.28	0.69	258.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	383.44	-2.81	0.48	0.92
P11	OP9a-ST	-7.43	0.76	281.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.39	-0.45	0.49	0.99
P12	OP9a-ST	-9.73	0.83	252.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	408.35	1.87	0.47	0.90
P13	OP9a-ST	-9.94	0.90	247.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	420.76	4.34	0.47	0.88
P14	OP9a-ST	-8.15	0.98	283.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	6.96	0.50	1.00
P15	OP9a-ST	-6.71	0.84	310.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.63	2.25	0.52	1.09
P16	OP9a-ST	-6.95	0.92	301.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.29	5.14	0.51	1.06
P17	OP9a-ST	-7.19	1.00	303.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.47	7.70	0.52	1.06
P18	OP9a-ST	-7.43	1.06	296.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.31	10.11	0.52	1.04
P19	OP9a-ST	-7.67	1.13	299.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.87	12.49	0.52	1.05
P20	OP9a-ST	-7.90	1.20	294.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.02	15.01	0.52	1.03
P21	OP9a-ST	-8.15	1.28	299.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	17.71	0.53	1.05

Maurepas Diversion
Monolith C-1: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 9/2013

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_s EI}$		$Ce = \sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25.941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	OP9a-ST	-6.71	1.14	326.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.63	12.85	0.55	1.14
P23	OP9a-ST	-6.95	1.23	317.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.32	15.83	0.55	1.11
P24	OP9a-ST	-7.19	1.30	318.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.48	18.44	0.55	1.12
P25	OP9a-ST	-7.43	1.37	311.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.41	20.90	0.55	1.09
P26	OP9a-ST	-7.67	1.44	314.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.87	23.34	0.56	1.10
P27	OP9a-ST	-7.90	1.51	309.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.06	25.91	0.55	1.09
P28	OP9a-ST	-8.15	1.58	314.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	28.68	0.56	1.10
P29	OP9a-ST	-6.71	1.45	341.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.64	23.69	0.58	1.20
P30	OP9a-ST	-6.95	1.53	332.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.32	26.75	0.58	1.17
P31	OP9a-ST	-7.19	1.60	333.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.48	29.41	0.58	1.17
P32	OP9a-ST	-7.43	1.67	327.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.42	31.92	0.58	1.15
P33	OP9a-ST	-7.67	1.74	330.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.87	34.42	0.59	1.16
P34	OP9a-ST	-7.90	1.81	325.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.05	37.03	0.58	1.14
P35	OP9a-ST	-8.15	1.89	329.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	39.88	0.60	1.16
P36	OP9a-ST	-6.71	1.75	356.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.64	34.75	0.62	1.25
P37	OP9a-ST	-6.95	1.83	347.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.32	37.90	0.61	1.22
P38	OP9a-ST	-7.19	1.91	349.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.48	40.61	0.61	1.23
P39	OP9a-ST	-7.43	1.98	342.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.43	43.17	0.61	1.20
P40	OP9a-ST	-7.67	2.04	345.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.87	45.72	0.62	1.21
P41	OP9a-ST	-7.90	2.11	340.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.06	48.39	0.61	1.19
P42	OP9a-ST	-8.15	2.19	345.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	51.32	0.63	1.21
P43	OP9a-ST	-6.71	2.05	372.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.64	46.05	0.65	1.31
P44	OP9a-ST	-6.95	2.14	362.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.35	49.28	0.64	1.27
P45	OP9a-ST	-7.19	2.21	364.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.48	52.04	0.65	1.28
P46	OP9a-ST	-7.43	2.28	357.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.45	54.65	0.64	1.25
P47	OP9a-ST	-7.67	2.35	360.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.88	57.26	0.65	1.27
P48	OP9a-ST	-7.90	2.42	355.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.08	59.97	0.65	1.25
P49	OP9a-ST	-8.15	2.50	360.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	62.98	0.66	1.27
P50	OP9a-ST	-6.71	2.35	387.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.64	57.57	0.68	1.36
P51	OP9a-ST	-6.95	2.44	377.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.45	60.89	0.67	1.33
P52	OP9a-ST	-7.19	2.51	380.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.48	63.70	0.68	1.33
P53	OP9a-ST	-7.43	2.58	372.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.55	66.36	0.67	1.31
P54	OP9a-ST	-7.67	2.65	376.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.88	69.03	0.68	1.32
P55	OP9a-ST	-7.91	2.72	370.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.19	71.79	0.68	1.30
P56	OP9a-ST	-8.15	2.80	376.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	74.88	0.69	1.32
P57	OP9a-ST	-6.71	2.66	402.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.64	69.32	0.71	1.41
P58	OP9a-ST	-6.97	2.74	392.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	261.28	72.73	0.70	1.38
P59	OP9a-ST	-7.19	2.82	395.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.48	75.59	0.71	1.39
P60	OP9a-ST	-7.45	2.89	387.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	285.38	78.30	0.70	1.36
P61	OP9a-ST	-7.67	2.95	391.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.88	81.02	0.71	1.37
P62	OP9a-ST	-7.92	3.02	384.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	310.03	83.83	0.71	1.35
P63	OP9a-ST	-8.15	3.10	391.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.78	87.00	0.72	1.37
P1	OP9b-ST	-6.06	0.22	250.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	-18.60	0.44	0.88
P2	OP9b-ST	-8.07	0.31	216.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	317.73	-15.65	0.41	0.77
P3	OP9b-ST	-8.30	0.39	215.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	329.78	-13.12	0.41	0.77
P4	OP9b-ST	-6.77	0.46	236.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.44	-10.79	0.42	0.83
P5	OP9b-ST	-8.74	0.53	210.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	353.60	-8.48	0.40	0.75
P6	OP9b-ST	-8.95	0.60	205.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	365.31	-6.01	0.39	0.73
P7	OP9b-ST	-7.50	0.68	238.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	-3.22	0.42	0.84
P8	OP9b-ST	-6.06	0.53	254.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	-8.46	0.44	0.89
P9	OP9b-ST	-8.11	0.62	220.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.67	-5.43	0.41	0.78
P10	OP9b-ST	-8.33	0.69	219.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	331.46	-2.84	0.41	0.78
P11	OP9b-ST	-6.78	0.76	240.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.84	-0.45	0.42	0.84
P12	OP9b-ST	-8.77	0.83	214.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	355.32	1.90	0.40	0.76
P13	OP9b-ST	-8.99	0.90	209.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	367.32	4.45	0.40	0.75
P14	OP9b-ST	-7.50	0.98	242.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	7.30	0.43	0.85
P15	OP9b-ST	-6.06	0.83	258.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	1.91	0.44	0.91
P16	OP9b-ST	-6.30	0.92	249.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.59	5.02	0.43	0.88
P17	OP9b-ST	-6.54	1.00	250.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	7.67	0.44	0.88
P18	OP9b-ST	-6.78	1.06	244.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.86	10.11	0.43	0.86
P19	OP9b-ST	-7.02	1.13	246.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	12.52	0.44	0.87
P20	OP9b-ST	-7.26	1.21	242.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.78	15.13	0.44	0.85
P21	OP9b-ST	-7.50	1.29	247.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	18.05	0.45	0.87
P22	OP9b-ST	-6.06	1.13	262.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	12.51	0.45	0.92
P23	OP9b-ST	-6.30	1.22	253.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.49	15.69	0.44	0.89
P24	OP9b-ST	-6.54	1.30	254.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	18.41	0.45	0.89
P25	OP9b-ST	-6.78	1.37	248.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.82	20.90	0.44	0.87
P26	OP9b-ST	-7.02	1.44	251.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	23.37	0.45	0.88
P27	OP9b-ST	-7.26	1.51	246.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.69	26.04	0.45	0.86
P28	OP9b-ST	-7.50	1.59	251.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	29.04	0.46	0.88
P29	OP9b-ST	-6.06	1.44	266.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	23.33	0.47	0.94
P30	OP9b-ST	-6.30	1.53	257.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.49	26.60	0.46	0.90
P31	OP9b-ST	-6.54	1.60	258.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	29.38	0.46	0.91
P32	OP9b-ST	-6.78	1.67	252.46	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.82	31.92	0.46	0.89
P33	OP9b-ST	-7.02	1.74	255.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	34.45	0.47	0.90
P34	OP9b-ST	-7.26	1.81	250.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.68	37.18	0.46	0.88
P35	OP9b-ST	-7.50	1.90	255.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	40.25	0.48	0.90
P36	OP9b-ST	-6.06	1.74	271.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	34.39	0.48	0.95
P37	OP9b-ST	-6.30	1.83	261.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.49	37.73	0.47	0.92
P38	OP9b-ST	-6.54	1.91	263.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	40.58	0.48	0.92
P39	OP9b-ST	-6.78	1.98	256.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.83	43.17	0.47	0.90
P40	OP9b-ST	-7.02	2.04	259.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	45.76	0.48	0.91
P41	OP9b-ST	-7.26	2.12	254.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.68	48.56	0.48	0.89
P42	OP9b-ST	-7.50	2.20	259.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	51.69	0.49	0.91

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1,2464*F² + 32.53*F - 25,941 M1	M2	Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E								(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)													
P43	OP9b-ST	-6.06	2.04	275.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	45.67	0.49	0.97
P44	OP9b-ST	-6.30	2.13	265.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.51	49.09	0.49	0.93
P45	OP9b-ST	-6.54	2.21	267.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	52.00	0.49	0.94
P46	OP9b-ST	-6.78	2.28	260.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.85	54.65	0.49	0.91
P47	OP9b-ST	-7.02	2.35	263.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	57.30	0.50	0.92
P48	OP9b-ST	-7.26	2.42	258.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.71	60.16	0.49	0.91
P49	OP9b-ST	-7.50	2.50	263.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	63.37	0.51	0.93
P50	OP9b-ST	-6.06	2.34	279.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	57.19	0.51	0.98
P51	OP9b-ST	-6.30	2.44	269.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.60	60.69	0.50	0.95
P52	OP9b-ST	-6.54	2.51	271.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	63.66	0.51	0.95
P53	OP9b-ST	-6.78	2.58	264.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.94	66.36	0.50	0.93
P54	OP9b-ST	-7.02	2.65	267.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	69.07	0.51	0.94
P55	OP9b-ST	-7.26	2.73	262.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.80	71.99	0.51	0.92
P56	OP9b-ST	-7.50	2.81	267.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	75.27	0.52	0.94
P57	OP9b-ST	-6.06	2.65	283.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.18	68.94	0.52	0.99
P58	OP9b-ST	-6.32	2.74	273.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	229.31	72.51	0.51	0.96
P59	OP9b-ST	-6.54	2.82	275.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.26	75.55	0.52	0.97
P60	OP9b-ST	-6.79	2.89	268.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	252.63	78.30	0.52	0.94
P61	OP9b-ST	-7.02	2.95	271.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.88	81.06	0.53	0.95
P62	OP9b-ST	-7.27	3.03	266.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	276.52	84.05	0.52	0.93
P63	OP9b-ST	-7.50	3.11	272.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	288.01	87.40	0.54	0.95
P1	OP10a-ST	-6.71	0.23	280.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	-18.25	0.49	0.98
P2	OP10a-ST	-8.94	0.32	243.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	364.25	-15.55	0.46	0.86
P3	OP10a-ST	-9.16	0.39	243.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	376.87	-13.07	0.46	0.86
P4	OP10a-ST	-7.42	0.46	265.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	283.94	-10.79	0.47	0.93
P5	OP10a-ST	-9.61	0.52	237.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	401.65	-8.53	0.45	0.85
P6	OP10a-ST	-9.82	0.60	232.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	413.73	-6.12	0.45	0.83
P7	OP10a-ST	-8.15	0.67	268.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	-3.59	0.48	0.94
P8	OP10a-ST	-6.71	0.54	295.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	-8.09	0.50	1.04
P9	OP10a-ST	-9.06	0.62	258.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	370.91	-5.30	0.47	0.92
P10	OP10a-ST	-9.28	0.69	258.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	383.35	-2.79	0.48	0.92
P11	OP10a-ST	-7.43	0.76	281.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.34	-0.45	0.49	0.99
P12	OP10a-ST	-9.72	0.83	252.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	408.26	1.85	0.47	0.90
P13	OP10a-ST	-9.94	0.90	247.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	420.66	4.31	0.47	0.88
P14	OP10a-ST	-8.15	0.97	283.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	6.92	0.50	1.00
P15	OP10a-ST	-6.71	0.84	310.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	2.30	0.52	1.09
P16	OP10a-ST	-6.95	0.92	301.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.23	5.18	0.51	1.06
P17	OP10a-ST	-7.19	1.00	303.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.42	7.73	0.52	1.06
P18	OP10a-ST	-7.42	1.06	296.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.26	10.11	0.52	1.04
P19	OP10a-ST	-7.67	1.13	299.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	12.47	0.52	1.05
P20	OP10a-ST	-7.90	1.20	294.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	308.96	14.97	0.52	1.03
P21	OP10a-ST	-8.15	1.28	299.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	17.65	0.53	1.05
P22	OP10a-ST	-6.71	1.14	325.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	12.92	0.55	1.14
P23	OP10a-ST	-6.95	1.23	317.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.27	15.87	0.55	1.11
P24	OP10a-ST	-7.19	1.30	318.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.42	18.47	0.55	1.12
P25	OP10a-ST	-7.43	1.37	311.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.36	20.90	0.55	1.09
P26	OP10a-ST	-7.67	1.44	314.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	23.31	0.56	1.10
P27	OP10a-ST	-7.90	1.51	309.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.00	25.86	0.55	1.09
P28	OP10a-ST	-8.15	1.58	314.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	28.61	0.56	1.10
P29	OP10a-ST	-6.71	1.45	341.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	23.76	0.58	1.20
P30	OP10a-ST	-6.95	1.53	332.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.26	26.80	0.58	1.17
P31	OP10a-ST	-7.19	1.60	333.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.43	29.44	0.58	1.17
P32	OP10a-ST	-7.43	1.67	326.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.37	31.92	0.58	1.15
P33	OP10a-ST	-7.67	1.74	329.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	34.39	0.59	1.16
P34	OP10a-ST	-7.90	1.81	324.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.00	36.97	0.58	1.14
P35	OP10a-ST	-8.15	1.89	329.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	39.81	0.60	1.16
P36	OP10a-ST	-6.71	1.75	356.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	34.84	0.62	1.25
P37	OP10a-ST	-6.95	1.84	347.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.27	37.96	0.61	1.22
P38	OP10a-ST	-7.19	1.91	349.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.43	40.65	0.61	1.22
P39	OP10a-ST	-7.43	1.98	342.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.38	43.17	0.61	1.20
P40	OP10a-ST	-7.67	2.04	345.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	45.69	0.62	1.21
P41	OP10a-ST	-7.90	2.11	339.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.00	48.32	0.61	1.19
P42	OP10a-ST	-8.15	2.19	344.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	51.23	0.63	1.21
P43	OP10a-ST	-6.71	2.05	371.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	46.14	0.65	1.30
P44	OP10a-ST	-6.95	2.14	362.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.29	49.35	0.64	1.27
P45	OP10a-ST	-7.19	2.21	364.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.43	52.08	0.65	1.28
P46	OP10a-ST	-7.43	2.28	357.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.40	54.65	0.64	1.25
P47	OP10a-ST	-7.67	2.35	360.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	57.22	0.65	1.27
P48	OP10a-ST	-7.90	2.42	354.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.03	59.90	0.64	1.25
P49	OP10a-ST	-8.15	2.49	360.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	62.89	0.66	1.26
P50	OP10a-ST	-6.71	2.36	387.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	57.68	0.68	1.36
P51	OP10a-ST	-6.95	2.44	377.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	260.39	60.97	0.67	1.32
P52	OP10a-ST	-7.19	2.51	379.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.43	63.74	0.68	1.33
P53	OP10a-ST	-7.43	2.58	372.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	284.50	66.36	0.67	1.31
P54	OP10a-ST	-7.67	2.65	375.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	68.99	0.68	1.32
P55	OP10a-ST	-7.91	2.72	370.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.13	71.70	0.68	1.30
P56	OP10a-ST	-8.15	2.80	375.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	74.77	0.69	1.32
P57	OP10a-ST	-6.71	2.66	402.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	248.58	69.44	0.71	1.41
P58	OP10a-ST	-6.97	2.75	391.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	261.21	72.83	0.70	1.37
P59	OP10a-ST	-7.19	2.82	394.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	272.43	75.63	0.71	1.39
P60	OP10a-ST	-7.44	2.89	386.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	285.32	78.30	0.70	1.36
P61	OP10a-ST	-7.67	2.95	391.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	296.82	80.98	0.71	1.37
P62	OP10a-ST	-7.92	3.02	384.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	309.97	83.74	0.71	1.35
P63	OP10a-ST	-8.15	3.10	390.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	321.72	86.88	0.72	1.37

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_s EI}$		$C_c = \sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25.941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	OP10b-ST	-6.06	0.22	250.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	-18.57	0.44	0.88
P2	OP10b-ST	-8.07	0.31	216.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	317.66	-15.63	0.41	0.77
P3	OP10b-ST	-8.30	0.39	215.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	329.72	-13.10	0.41	0.77
P4	OP10b-ST	-6.77	0.46	236.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.40	-10.79	0.42	0.83
P5	OP10b-ST	-8.74	0.53	210.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	353.53	-8.50	0.40	0.75
P6	OP10b-ST	-8.95	0.60	205.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	365.24	-6.03	0.39	0.73
P7	OP10b-ST	-7.50	0.68	238.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	-3.25	0.42	0.84
P8	OP10b-ST	-6.06	0.53	254.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	-8.42	0.44	0.89
P9	OP10b-ST	-8.10	0.62	220.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	319.57	-5.40	0.41	0.78
P10	OP10b-ST	-8.33	0.69	219.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	331.38	-2.82	0.41	0.78
P11	OP10b-ST	-6.78	0.76	240.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.79	-0.45	0.42	0.84
P12	OP10b-ST	-8.77	0.83	214.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	355.23	1.88	0.40	0.76
P13	OP10b-ST	-8.99	0.90	209.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	367.23	4.41	0.40	0.75
P14	OP10b-ST	-7.50	0.98	242.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	7.26	0.43	0.85
P15	OP10b-ST	-6.06	0.83	258.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	1.96	0.44	0.91
P16	OP10b-ST	-6.30	0.92	249.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.53	5.06	0.43	0.88
P17	OP10b-ST	-6.54	1.00	250.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.20	7.69	0.44	0.88
P18	OP10b-ST	-6.78	1.06	244.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.81	10.11	0.43	0.86
P19	OP10b-ST	-7.02	1.13	246.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	12.50	0.44	0.87
P20	OP10b-ST	-7.26	1.21	242.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.73	15.09	0.44	0.85
P21	OP10b-ST	-7.50	1.29	246.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	18.00	0.45	0.87
P22	OP10b-ST	-6.06	1.13	262.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	12.57	0.45	0.92
P23	OP10b-ST	-6.30	1.22	253.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.44	15.74	0.44	0.89
P24	OP10b-ST	-6.54	1.30	254.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.21	18.44	0.45	0.89
P25	OP10b-ST	-6.78	1.37	248.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.77	20.90	0.44	0.87
P26	OP10b-ST	-7.02	1.44	250.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	23.35	0.45	0.88
P27	OP10b-ST	-7.25	1.51	246.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.63	25.99	0.45	0.86
P28	OP10b-ST	-7.50	1.59	251.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	28.97	0.46	0.88
P29	OP10b-ST	-6.06	1.44	266.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	23.41	0.47	0.94
P30	OP10b-ST	-6.30	1.53	257.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.44	26.65	0.46	0.90
P31	OP10b-ST	-6.54	1.60	258.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.21	29.41	0.46	0.91
P32	OP10b-ST	-6.78	1.67	252.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.77	31.92	0.46	0.89
P33	OP10b-ST	-7.02	1.74	255.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	34.42	0.47	0.89
P34	OP10b-ST	-7.25	1.81	250.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.62	37.13	0.46	0.88
P35	OP10b-ST	-7.50	1.89	255.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	40.17	0.48	0.90
P36	OP10b-ST	-6.06	1.74	270.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	34.47	0.48	0.95
P37	OP10b-ST	-6.30	1.83	261.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.44	37.80	0.47	0.92
P38	OP10b-ST	-6.54	1.91	262.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.21	40.61	0.48	0.92
P39	OP10b-ST	-6.78	1.98	256.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.78	43.17	0.47	0.90
P40	OP10b-ST	-7.02	2.04	259.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	45.73	0.48	0.91
P41	OP10b-ST	-7.25	2.12	254.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.63	48.49	0.48	0.89
P42	OP10b-ST	-7.50	2.20	259.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	51.61	0.49	0.91
P43	OP10b-ST	-6.06	2.04	274.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	45.77	0.49	0.96
P44	OP10b-ST	-6.30	2.13	265.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.46	49.17	0.49	0.93
P45	OP10b-ST	-6.54	2.21	266.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.21	52.04	0.49	0.94
P46	OP10b-ST	-6.78	2.28	260.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.80	54.65	0.49	0.91
P47	OP10b-ST	-7.02	2.35	263.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	57.26	0.50	0.92
P48	OP10b-ST	-7.25	2.42	258.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.65	60.08	0.49	0.91
P49	OP10b-ST	-7.50	2.50	263.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	63.27	0.51	0.92
P50	OP10b-ST	-6.06	2.35	278.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	57.30	0.51	0.98
P51	OP10b-ST	-6.30	2.44	269.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	228.55	60.77	0.50	0.95
P52	OP10b-ST	-6.54	2.51	271.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.21	63.70	0.51	0.95
P53	OP10b-ST	-6.78	2.58	264.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	251.89	66.36	0.50	0.93
P54	OP10b-ST	-7.02	2.65	267.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	69.02	0.51	0.94
P55	OP10b-ST	-7.26	2.72	262.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	275.75	71.91	0.51	0.92
P56	OP10b-ST	-7.50	2.81	267.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	75.16	0.52	0.94
P57	OP10b-ST	-6.06	2.65	283.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	217.12	69.05	0.52	0.99
P58	OP10b-ST	-6.32	2.74	273.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	229.25	72.61	0.51	0.96
P59	OP10b-ST	-6.54	2.82	275.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	240.21	75.59	0.52	0.97
P60	OP10b-ST	-6.79	2.89	268.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	252.57	78.30	0.52	0.94
P61	OP10b-ST	-7.02	2.95	271.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	263.83	81.02	0.52	0.95
P62	OP10b-ST	-7.27	3.03	266.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	276.45	83.96	0.52	0.93
P63	OP10b-ST	-7.50	3.11	271.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	287.95	87.28	0.54	0.95
P1	OP11a-ST	16.93	-0.25	272.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-17.77	0.62	0.96
P2	OP11a-ST	14.68	-0.16	319.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	719.94	-20.71	0.66	1.14
P3	OP11a-ST	14.69	-0.07	322.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	720.87	-23.53	0.66	1.15
P4	OP11a-ST	16.96	-0.01	261.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.27	-25.62	0.61	0.92
P5	OP11a-ST	14.72	0.05	322.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	722.80	-24.17	0.66	1.15
P6	OP11a-ST	14.73	0.14	318.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	723.82	-21.41	0.66	1.13
P7	OP11a-ST	16.99	0.23	269.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-18.49	0.62	0.95
P8	OP11a-ST	16.93	-0.26	278.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-17.32	0.63	0.98
P9	OP11a-ST	14.62	-0.17	326.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	716.01	-20.33	0.66	1.16
P10	OP11a-ST	14.64	-0.09	329.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	717.43	-23.08	0.67	1.17
P11	OP11a-ST	16.95	-0.02	268.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.53	-25.16	0.62	0.94
P12	OP11a-ST	14.67	0.04	328.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	719.35	-24.63	0.67	1.17
P13	OP11a-ST	14.68	0.12	324.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	719.87	-21.94	0.66	1.16
P14	OP11a-ST	16.99	0.21	276.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-18.98	0.63	0.97
P15	OP11a-ST	16.93	-0.28	285.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-16.88	0.64	1.00
P16	OP11a-ST	16.93	-0.18	276.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.73	-19.94	0.63	0.97
P17	OP11a-ST	16.95	-0.10	279.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.28	-22.64	0.63	0.98
P18	OP11a-ST	16.95	-0.04	274.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.41	-24.71	0.63	0.96
P19	OP11a-ST	16.97	0.03	278.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.93	-25.10	0.63	0.98
P20	OP11a-ST	16.97	0.11	275.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	885.04	-22.46	0.63	0.97
P21	OP11a-ST	16.99	0.20	282.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-19.47	0.64	0.99

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check								Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	OP11a-ST	16.93	-0.29	291.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-16.44	0.65	1.02
P23	OP11a-ST	16.93	-0.20	283.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.76	-19.54	0.64	0.99
P24	OP11a-ST	16.95	-0.11	285.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.28	-22.19	0.64	1.00
P25	OP11a-ST	16.95	-0.05	281.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.40	-24.25	0.64	0.99
P26	OP11a-ST	16.97	0.01	285.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.93	-25.57	0.64	1.00
P27	OP11a-ST	16.97	0.09	281.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	885.07	-22.99	0.64	0.99
P28	OP11a-ST	16.99	0.18	289.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-19.95	0.65	1.01
P29	OP11a-ST	16.93	-0.30	297.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-16.00	0.66	1.05
P30	OP11a-ST	16.93	-0.21	289.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.77	-19.15	0.65	1.02
P31	OP11a-ST	16.95	-0.13	292.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.27	-21.74	0.65	1.03
P32	OP11a-ST	16.95	-0.07	287.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.39	-23.80	0.65	1.01
P33	OP11a-ST	16.97	0.00	291.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.93	-25.84	0.65	1.02
P34	OP11a-ST	16.97	0.07	288.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	885.09	-23.50	0.65	1.01
P35	OP11a-ST	16.99	0.17	295.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-20.44	0.66	1.04
P36	OP11a-ST	16.93	-0.32	304.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-15.55	0.67	1.07
P37	OP11a-ST	16.93	-0.22	296.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.77	-18.75	0.66	1.04
P38	OP11a-ST	16.95	-0.14	299.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.27	-21.29	0.66	1.05
P39	OP11a-ST	16.95	-0.08	293.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.38	-23.34	0.66	1.03
P40	OP11a-ST	16.97	-0.02	298.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.93	-25.38	0.66	1.05
P41	OP11a-ST	16.97	0.06	294.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	885.08	-24.02	0.66	1.03
P42	OP11a-ST	16.99	0.15	301.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-20.92	0.67	1.06
P43	OP11a-ST	16.93	-0.33	310.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-15.11	0.67	1.09
P44	OP11a-ST	16.93	-0.23	302.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.75	-18.36	0.66	1.06
P45	OP11a-ST	16.95	-0.16	305.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.27	-20.84	0.67	1.07
P46	OP11a-ST	16.95	-0.09	300.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.36	-22.88	0.67	1.05
P47	OP11a-ST	16.97	-0.03	304.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.93	-24.91	0.67	1.07
P48	OP11a-ST	16.97	0.04	300.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	885.06	-24.54	0.67	1.06
P49	OP11a-ST	16.99	0.14	308.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-21.41	0.68	1.08
P50	OP11a-ST	16.93	-0.34	317.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-14.67	0.68	1.11
P51	OP11a-ST	16.93	-0.24	308.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.67	-17.96	0.67	1.08
P52	OP11a-ST	16.95	-0.17	312.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.27	-20.39	0.68	1.10
P53	OP11a-ST	16.95	-0.11	306.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.28	-22.43	0.67	1.08
P54	OP11a-ST	16.97	-0.05	311.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.93	-24.44	0.68	1.09
P55	OP11a-ST	16.97	0.03	307.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.98	-25.06	0.68	1.08
P56	OP11a-ST	16.99	0.12	314.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-21.89	0.69	1.10
P57	OP11a-ST	16.93	-0.36	323.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	881.69	-14.22	0.69	1.14
P58	OP11a-ST	16.91	-0.25	314.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	880.67	-17.57	0.68	1.10
P59	OP11a-ST	16.95	-0.18	318.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.27	-19.93	0.69	1.12
P60	OP11a-ST	16.93	-0.12	312.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	882.34	-21.97	0.68	1.10
P61	OP11a-ST	16.97	-0.06	317.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	884.92	-23.97	0.69	1.12
P62	OP11a-ST	16.96	0.01	313.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	883.99	-25.58	0.69	1.10
P63	OP11a-ST	16.99	0.11	321.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	886.67	-22.38	0.70	1.13
P1	OP11b-ST	17.25	-0.25	253.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.77	-17.88	0.60	0.89
P2	OP11b-ST	15.14	-0.16	302.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	752.04	-20.74	0.64	1.07
P3	OP11b-ST	15.15	-0.07	305.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	752.97	-23.54	0.64	1.09
P4	OP11b-ST	17.28	-0.01	242.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	908.35	-25.62	0.59	0.85
P5	OP11b-ST	15.18	0.05	304.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	754.93	-24.17	0.64	1.08
P6	OP11b-ST	15.19	0.14	300.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	755.98	-21.43	0.64	1.07
P7	OP11b-ST	17.31	0.22	250.71	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-18.61	0.59	0.88
P8	OP11b-ST	17.25	-0.26	262.43	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.77	-17.44	0.61	0.92
P9	OP11b-ST	15.06	-0.17	311.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	746.59	-20.36	0.65	1.11
P10	OP11b-ST	15.08	-0.09	314.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	747.99	-23.09	0.66	1.12
P11	OP11b-ST	17.27	-0.02	252.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.65	-25.16	0.60	0.88
P12	OP11b-ST	15.11	0.04	313.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	749.94	-24.64	0.66	1.12
P13	OP11b-ST	15.12	0.12	310.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	750.52	-21.97	0.65	1.10
P14	OP11b-ST	17.31	0.21	259.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-19.09	0.61	0.91
P15	OP11b-ST	17.25	-0.27	271.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.77	-17.00	0.62	0.95
P16	OP11b-ST	17.25	-0.18	263.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.86	-19.97	0.61	0.93
P17	OP11b-ST	17.27	-0.10	266.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.40	-22.64	0.62	0.93
P18	OP11b-ST	17.27	-0.04	261.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.56	-24.71	0.61	0.92
P19	OP11b-ST	17.29	0.03	265.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.07	-25.11	0.62	0.93
P20	OP11b-ST	17.29	0.11	262.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.21	-22.50	0.61	0.92
P21	OP11b-ST	17.31	0.19	269.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-19.58	0.62	0.94
P22	OP11b-ST	17.25	-0.29	280.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.77	-16.56	0.64	0.99
P23	OP11b-ST	17.25	-0.19	272.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.83	-19.58	0.63	0.96
P24	OP11b-ST	17.27	-0.11	275.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.40	-22.19	0.63	0.97
P25	OP11b-ST	17.27	-0.05	270.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.51	-24.25	0.63	0.95
P26	OP11b-ST	17.29	0.01	274.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.07	-25.58	0.63	0.96
P27	OP11b-ST	17.29	0.09	271.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.18	-23.02	0.63	0.95
P28	OP11b-ST	17.31	0.18	278.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-20.07	0.64	0.98
P29	OP11b-ST	17.25	-0.30	289.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.77	-16.11	0.65	1.02
P30	OP11b-ST	17.25	-0.21	282.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.85	-19.19	0.64	0.99
P31	OP11b-ST	17.27	-0.13	284.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.39	-21.74	0.65	1.00
P32	OP11b-ST	17.27	-0.07	279.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.50	-23.80	0.64	0.98
P33	OP11b-ST	17.29	0.00	283.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.07	-25.84	0.65	1.00
P34	OP11b-ST	17.29	0.07	280.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.20	-23.54	0.64	0.98
P35	OP11b-ST	17.31	0.16	287.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-20.55	0.65	1.01
P36	OP11b-ST	17.25	-0.31	299.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.77	-15.67	0.66	1.05
P37	OP11b-ST	17.25	-0.22	291.16	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.84	-18.80	0.65	1.02
P38	OP11b-ST	17.27	-0.14	294.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.39	-21.29	0.66	1.03
P39	OP11b-ST	17.27	-0.08	289.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.48	-23.34	0.65	1.01
P40	OP11b-ST	17.29	-0.02	293.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.07	-25.37	0.66	1.03
P41	OP11b-ST	17.29	0.06	289.63	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.19	-24.06	0.66	1.02
P42	OP11b-ST	17.31	0.15	296.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-21.04	0.66	1.04

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	OP11b-ST	17.25	-0.33	308.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.76	-15.22	0.68	1.08
P44	OP11b-ST	17.25	-0.23	300.26	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.82	-18.40	0.67	1.05
P45	OP11b-ST	17.27	-0.16	303.35	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.39	-20.84	0.67	1.06
P46	OP11b-ST	17.27	-0.09	298.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.46	-22.88	0.67	1.05
P47	OP11b-ST	17.29	-0.03	302.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.06	-24.90	0.68	1.06
P48	OP11b-ST	17.29	0.04	298.75	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.17	-24.58	0.67	1.05
P49	OP11b-ST	17.31	0.14	305.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-21.52	0.68	1.07
P50	OP11b-ST	17.25	-0.34	317.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.76	-14.78	0.69	1.11
P51	OP11b-ST	17.25	-0.24	309.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.74	-18.01	0.68	1.09
P52	OP11b-ST	17.27	-0.17	312.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.39	-20.39	0.69	1.10
P53	OP11b-ST	17.27	-0.11	307.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.38	-22.43	0.68	1.08
P54	OP11b-ST	17.29	-0.05	311.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.06	-24.43	0.69	1.09
P55	OP11b-ST	17.29	0.03	307.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.09	-25.11	0.68	1.08
P56	OP11b-ST	17.31	0.12	315.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-22.01	0.69	1.11
P57	OP11b-ST	17.25	-0.35	326.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	905.76	-14.34	0.70	1.15
P58	OP11b-ST	17.23	-0.25	317.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	904.73	-17.63	0.69	1.12
P59	OP11b-ST	17.27	-0.18	321.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	907.39	-19.94	0.70	1.13
P60	OP11b-ST	17.25	-0.12	316.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	906.42	-21.97	0.69	1.11
P61	OP11b-ST	17.29	-0.06	321.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	909.06	-23.97	0.70	1.13
P62	OP11b-ST	17.28	0.01	316.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	908.08	-25.63	0.70	1.11
P63	OP11b-ST	17.31	0.11	324.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.000	910.80	-22.49	0.71	1.14
P1	D1a-ST	-6.34	0.24	266.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	-18.07	0.35	0.70
P2	D1a-ST	-8.47	0.32	231.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	339.26	-15.38	0.33	0.62
P3	D1a-ST	-8.70	0.39	231.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	351.32	-13.05	0.33	0.62
P4	D1a-ST	-7.05	0.46	252.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.43	-10.79	0.33	0.66
P5	D1a-ST	-9.14	0.52	225.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	375.59	-8.56	0.32	0.60
P6	D1a-ST	-9.36	0.59	220.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	387.73	-6.29	0.32	0.59
P7	D1a-ST	-7.77	0.66	255.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	-3.78	0.34	0.67
P8	D1a-ST	-6.34	0.54	283.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	-7.86	0.36	0.75
P9	D1a-ST	-8.60	0.62	247.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	345.96	-5.13	0.34	0.66
P10	D1a-ST	-8.82	0.69	247.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	358.07	-2.78	0.34	0.66
P11	D1a-ST	-7.06	0.76	269.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.66	-0.45	0.35	0.71
P12	D1a-ST	-9.27	0.83	242.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	382.48	1.85	0.34	0.65
P13	D1a-ST	-9.48	0.89	237.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	394.70	4.14	0.34	0.63
P14	D1a-ST	-7.77	0.97	271.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	6.68	0.36	0.71
P15	D1a-ST	-6.34	0.85	299.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	2.57	0.38	0.79
P16	D1a-ST	-6.58	0.93	291.13	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	241.89	5.34	0.37	0.77
P17	D1a-ST	-6.82	1.00	291.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.89	7.71	0.38	0.77
P18	D1a-ST	-7.05	1.06	285.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.57	10.11	0.37	0.75
P19	D1a-ST	-7.30	1.13	288.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.84	12.49	0.38	0.76
P20	D1a-ST	-7.53	1.20	283.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.74	14.81	0.38	0.75
P21	D1a-ST	-7.77	1.27	287.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	17.37	0.38	0.76
P22	D1a-ST	-6.34	1.15	315.89	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	13.24	0.40	0.83
P23	D1a-ST	-6.58	1.23	307.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	241.95	16.03	0.40	0.81
P24	D1a-ST	-6.82	1.30	308.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.89	18.43	0.40	0.81
P25	D1a-ST	-7.06	1.37	301.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.61	20.90	0.39	0.79
P26	D1a-ST	-7.30	1.44	304.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.85	23.36	0.40	0.80
P27	D1a-ST	-7.53	1.50	300.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.80	25.70	0.40	0.79
P28	D1a-ST	-7.77	1.57	304.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	28.28	0.41	0.80
P29	D1a-ST	-6.34	1.46	332.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	24.13	0.43	0.87
P30	D1a-ST	-6.58	1.54	323.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	241.95	26.96	0.42	0.85
P31	D1a-ST	-6.82	1.60	324.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.90	29.38	0.42	0.85
P32	D1a-ST	-7.06	1.67	317.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.62	31.92	0.42	0.84
P33	D1a-ST	-7.30	1.74	320.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.85	34.45	0.43	0.84
P34	D1a-ST	-7.53	1.80	316.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.80	36.82	0.42	0.83
P35	D1a-ST	-7.77	1.87	320.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	39.42	0.43	0.84
P36	D1a-ST	-6.34	1.76	348.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	35.26	0.45	0.92
P37	D1a-ST	-6.58	1.84	339.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	241.95	38.11	0.44	0.89
P38	D1a-ST	-6.82	1.91	340.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.90	40.56	0.45	0.90
P39	D1a-ST	-7.06	1.98	333.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.63	43.17	0.44	0.88
P40	D1a-ST	-7.30	2.04	336.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.85	45.77	0.45	0.89
P41	D1a-ST	-7.53	2.11	332.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.80	48.17	0.45	0.87
P42	D1a-ST	-7.77	2.18	337.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	50.80	0.46	0.89
P43	D1a-ST	-6.34	2.07	364.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	46.61	0.47	0.96
P44	D1a-ST	-6.58	2.14	355.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	241.97	49.50	0.47	0.94
P45	D1a-ST	-6.82	2.21	356.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.90	51.98	0.47	0.94
P46	D1a-ST	-7.06	2.28	349.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.65	54.65	0.47	0.92
P47	D1a-ST	-7.30	2.35	353.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.85	57.33	0.48	0.93
P48	D1a-ST	-7.53	2.41	348.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.82	59.75	0.47	0.92
P49	D1a-ST	-7.77	2.48	353.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	62.40	0.48	0.93
P50	D1a-ST	-6.34	2.37	381.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	58.20	0.50	1.00
P51	D1a-ST	-6.58	2.45	371.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	242.05	61.12	0.49	0.98
P52	D1a-ST	-6.82	2.51	373.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.90	63.62	0.50	0.98
P53	D1a-ST	-7.06	2.58	365.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.76	66.36	0.49	0.96
P54	D1a-ST	-7.30	2.65	369.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.85	69.11	0.50	0.97
P55	D1a-ST	-7.53	2.71	364.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	289.90	71.56	0.50	0.96
P56	D1a-ST	-7.77	2.78	369.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	74.23	0.51	0.97
P57	D1a-ST	-6.34	2.68	397.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	230.40	70.01	0.52	1.05
P58	D1a-ST	-6.59	2.75	387.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	242.77	72.97	0.52	1.02
P59	D1a-ST	-6.82	2.81	389.60	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	253.90	75.50	0.52	1.03
P60	D1a-ST	-7.07	2.89	381.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	266.58	78.30	0.52	1.00
P61	D1a-ST	-7.30	2.96	385.91	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	277.85	81.12	0.52	1.02
P62	D1a-ST	-7.55	3.02	379.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	290.63	83.59	0.52	1.00
P63	D1a-ST	-7.77	3.09	386.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	302.21	86.29	0.53	1.02

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
																	$n\sqrt{E_s EI}$		$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$								M = 1.2464*F² + 32.53*F - 25,941			
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	D1b-ST	-5.69	0.23	237.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	-18.39	0.31	0.62
P2	D1b-ST	-7.61	0.32	204.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	293.67	-15.46	0.29	0.55
P3	D1b-ST	-7.83	0.39	204.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	305.18	-13.08	0.29	0.54
P4	D1b-ST	-6.40	0.46	223.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.48	-10.79	0.30	0.59
P5	D1b-ST	-8.27	0.52	198.65	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.48	-8.53	0.28	0.53
P6	D1b-ST	-8.49	0.59	194.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	340.23	-6.20	0.28	0.52
P7	D1b-ST	-7.12	0.67	225.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	-3.44	0.30	0.59
P8	D1b-ST	-5.69	0.53	242.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	-8.19	0.31	0.64
P9	D1b-ST	-7.65	0.62	209.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	295.71	-5.23	0.29	0.56
P10	D1b-ST	-7.87	0.69	209.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	307.19	-2.82	0.29	0.56
P11	D1b-ST	-6.41	0.76	228.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.70	-0.45	0.30	0.60
P12	D1b-ST	-8.31	0.83	203.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	330.54	1.88	0.29	0.54
P13	D1b-ST	-8.53	0.90	199.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	342.35	4.25	0.28	0.53
P14	D1b-ST	-7.12	0.98	230.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	7.02	0.31	0.61
P15	D1b-ST	-5.69	0.84	247.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	2.24	0.31	0.65
P16	D1b-ST	-5.93	0.93	238.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	210.79	5.22	0.31	0.63
P17	D1b-ST	-6.17	1.00	239.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.27	7.67	0.31	0.63
P18	D1b-ST	-6.41	1.06	232.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.71	10.11	0.31	0.61
P19	D1b-ST	-6.65	1.13	235.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.45	12.52	0.31	0.62
P20	D1b-ST	-6.88	1.20	231.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.10	14.93	0.31	0.61
P21	D1b-ST	-7.12	1.28	235.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	17.71	0.32	0.62
P22	D1b-ST	-5.69	1.14	252.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	12.89	0.32	0.66
P23	D1b-ST	-5.93	1.23	243.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	210.73	15.90	0.32	0.64
P24	D1b-ST	-6.17	1.30	244.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.28	18.39	0.32	0.64
P25	D1b-ST	-6.41	1.37	237.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.62	20.90	0.32	0.63
P26	D1b-ST	-6.65	1.44	240.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.45	23.39	0.32	0.63
P27	D1b-ST	-6.88	1.50	236.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.04	25.83	0.32	0.62
P28	D1b-ST	-7.12	1.58	241.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	28.64	0.33	0.63
P29	D1b-ST	-5.69	1.45	257.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	23.78	0.34	0.68
P30	D1b-ST	-5.93	1.53	248.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	210.72	26.81	0.33	0.65
P31	D1b-ST	-6.17	1.60	249.41	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.28	29.34	0.33	0.66
P32	D1b-ST	-6.41	1.67	242.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.62	31.92	0.33	0.64
P33	D1b-ST	-6.65	1.74	245.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.46	34.49	0.34	0.65
P34	D1b-ST	-6.88	1.81	241.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.03	36.97	0.33	0.64
P35	D1b-ST	-7.12	1.88	246.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	39.79	0.34	0.65
P36	D1b-ST	-5.69	1.75	262.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	34.90	0.35	0.69
P37	D1b-ST	-5.93	1.83	253.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	210.72	37.95	0.34	0.67
P38	D1b-ST	-6.17	1.90	254.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.28	40.53	0.35	0.67
P39	D1b-ST	-6.41	1.98	247.77	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.63	43.17	0.34	0.65
P40	D1b-ST	-6.65	2.05	250.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.46	45.81	0.35	0.66
P41	D1b-ST	-6.88	2.11	246.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.03	48.34	0.35	0.65
P42	D1b-ST	-7.12	2.19	251.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	51.17	0.36	0.66
P43	D1b-ST	-5.69	2.06	267.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	46.24	0.36	0.70
P44	D1b-ST	-5.93	2.14	258.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	210.74	49.32	0.35	0.68
P45	D1b-ST	-6.17	2.21	259.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.28	51.94	0.36	0.68
P46	D1b-ST	-6.41	2.28	252.78	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.65	54.65	0.35	0.67
P47	D1b-ST	-6.65	2.35	255.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.46	57.36	0.36	0.67
P48	D1b-ST	-6.88	2.42	251.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.04	59.93	0.36	0.66
P49	D1b-ST	-7.12	2.49	256.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	62.78	0.37	0.67
P50	D1b-ST	-5.69	2.36	272.98	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	57.82	0.37	0.72
P51	D1b-ST	-5.93	2.44	263.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	210.81	60.92	0.37	0.69
P52	D1b-ST	-6.17	2.51	264.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.28	63.58	0.37	0.70
P53	D1b-ST	-6.41	2.58	257.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	233.75	66.36	0.37	0.68
P54	D1b-ST	-6.65	2.65	260.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.46	69.15	0.37	0.69
P55	D1b-ST	-6.89	2.72	256.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.12	71.76	0.37	0.68
P56	D1b-ST	-7.12	2.79	261.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	74.62	0.38	0.69
P57	D1b-ST	-5.69	2.67	278.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	199.55	69.63	0.38	0.73
P58	D1b-ST	-5.94	2.75	268.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	211.41	72.75	0.38	0.71
P59	D1b-ST	-6.17	2.81	269.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	222.28	75.46	0.38	0.71
P60	D1b-ST	-6.42	2.89	262.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	234.44	78.30	0.38	0.69
P61	D1b-ST	-6.65	2.96	266.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	245.46	81.16	0.38	0.70
P62	D1b-ST	-6.90	3.02	261.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	257.73	83.81	0.38	0.69
P63	D1b-ST	-7.12	3.10	266.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	269.04	86.69	0.39	0.70
P1	D2a-ST	-7.70	-1.45	273.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	23.74	0.37	0.72
P2	D2a-ST	-10.17	-1.37	229.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	433.94	20.80	0.34	0.61
P3	D2a-ST	-10.71	-1.30	225.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	465.14	18.44	0.34	0.60
P4	D2a-ST	-9.41	-1.23	251.66	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.31	15.97	0.36	0.66
P5	D2a-ST	-11.77	-1.17	212.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	529.40	13.67	0.34	0.57
P6	D2a-ST	-12.29	-1.09	204.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	562.23	11.13	0.33	0.55
P7	D2a-ST	-11.13	-1.02	246.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	8.54	0.36	0.65
P8	D2a-ST	-7.70	-0.72	288.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	-1.84	0.38	0.76
P9	D2a-ST	-10.29	-0.64	244.97	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	440.82	-4.61	0.35	0.65
P10	D2a-ST	-10.82	-0.58	241.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	472.15	-6.81	0.35	0.64
P11	D2a-ST	-9.41	-0.51	267.24	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.57	-9.15	0.37	0.70
P12	D2a-ST	-11.88	-0.44	228.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	536.68	-11.39	0.35	0.61
P13	D2a-ST	-12.41	-0.37	219.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	569.75	-13.81	0.35	0.59
P14	D2a-ST	-11.13	-0.29	262.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	-16.30	0.39	0.69
P15	D2a-ST	-7.70	0.00	304.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	-25.78	0.41	0.80
P16	D2a-ST	-8.27	0.08	293.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.11	-23.18	0.40	0.77
P17	D2a-ST	-8.84	0.15	291.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	-21.06	0.40	0.77
P18	D2a-ST	-9.41	0.22	282.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.47	-18.81	0.39	0.74
P19	D2a-ST	-9.99	0.29	282.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.26	-16.55	0.40	0.74
P20	D2a-ST	-10.55	0.36	275.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	456.14	-14.13	0.39	0.72
P21	D2a-ST	-11.13	0.43	277.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	-11.60	0.40	0.73

Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P22	D2a-ST	-7.70	0.73	320.02	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	-1.51	0.41	0.84
P23	D2a-ST	-8.27	0.81	309.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.18	1.20	0.40	0.81
P24	D2a-ST	-8.84	0.87	307.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	3.42	0.41	0.81
P25	D2a-ST	-9.41	0.94	297.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.52	5.78	0.40	0.78
P26	D2a-ST	-9.99	1.01	298.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.26	8.22	0.41	0.78
P27	D2a-ST	-10.55	1.08	290.61	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	456.11	10.79	0.41	0.76
P28	D2a-ST	-11.13	1.16	292.94	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	13.49	0.42	0.77
P29	D2a-ST	-7.70	1.46	335.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	24.08	0.44	0.88
P30	D2a-ST	-8.27	1.53	324.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.17	26.89	0.43	0.85
P31	D2a-ST	-8.84	1.60	322.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	29.22	0.44	0.85
P32	D2a-ST	-9.41	1.66	313.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.53	31.67	0.44	0.82
P33	D2a-ST	-9.99	1.74	313.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.26	34.31	0.44	0.82
P34	D2a-ST	-10.55	1.81	305.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	456.10	37.03	0.44	0.80
P35	D2a-ST	-11.13	1.89	308.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	39.89	0.45	0.81
P36	D2a-ST	-7.70	2.18	351.03	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	50.98	0.47	0.92
P37	D2a-ST	-8.27	2.26	339.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.17	53.89	0.47	0.89
P38	D2a-ST	-8.84	2.32	338.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	56.33	0.47	0.89
P39	D2a-ST	-9.41	2.39	328.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.54	58.87	0.47	0.86
P40	D2a-ST	-9.99	2.46	328.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.27	61.70	0.47	0.87
P41	D2a-ST	-10.55	2.54	321.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	456.11	64.58	0.47	0.84
P42	D2a-ST	-11.13	2.61	323.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	67.61	0.48	0.85
P43	D2a-ST	-7.70	2.91	366.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	79.20	0.51	0.96
P44	D2a-ST	-8.27	2.98	354.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.19	82.20	0.50	0.93
P45	D2a-ST	-8.84	3.05	353.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	84.75	0.50	0.93
P46	D2a-ST	-9.41	3.11	343.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.57	87.38	0.50	0.90
P47	D2a-ST	-9.99	3.19	344.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.27	90.41	0.51	0.91
P48	D2a-ST	-10.55	3.26	336.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	456.14	93.44	0.51	0.88
P49	D2a-ST	-11.13	3.34	339.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	96.64	0.52	0.89
P50	D2a-ST	-7.70	3.63	382.04	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	108.72	0.54	1.01
P51	D2a-ST	-8.27	3.71	370.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	328.27	111.82	0.53	0.97
P52	D2a-ST	-8.84	3.77	369.19	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	114.48	0.54	0.97
P53	D2a-ST	-9.41	3.84	358.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	390.68	117.20	0.53	0.94
P54	D2a-ST	-9.99	3.91	359.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.27	120.43	0.54	0.95
P55	D2a-ST	-10.55	3.99	351.37	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	456.26	123.61	0.54	0.92
P56	D2a-ST	-11.13	4.07	354.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	126.99	0.55	0.93
P57	D2a-ST	-7.70	4.36	397.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	298.37	139.56	0.57	1.05
P58	D2a-ST	-8.28	4.43	384.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	329.04	142.77	0.57	1.01
P59	D2a-ST	-8.84	4.50	384.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	359.16	145.52	0.57	1.01
P60	D2a-ST	-9.43	4.56	373.42	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	391.58	148.34	0.57	0.98
P61	D2a-ST	-9.99	4.64	375.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	423.27	151.77	0.58	0.99
P62	D2a-ST	-10.57	4.71	366.05	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	457.20	155.10	0.57	0.96
P63	D2a-ST	-11.13	4.79	370.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	490.41	158.66	0.58	0.97
P1	D2b-ST	-7.05	-1.46	243.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	24.09	0.33	0.64
P2	D2b-ST	-9.31	-1.37	202.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	384.68	20.89	0.30	0.54
P3	D2b-ST	-9.84	-1.30	198.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	414.65	18.47	0.30	0.53
P4	D2b-ST	-8.76	-1.23	222.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.56	15.97	0.32	0.58
P5	D2b-ST	-10.90	-1.16	185.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	476.61	13.63	0.30	0.50
P6	D2b-ST	-11.42	-1.09	177.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	508.39	11.04	0.29	0.47
P7	D2b-ST	-10.48	-1.01	216.90	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	8.20	0.32	0.57
P8	D2b-ST	-7.05	-0.73	248.07	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	-1.50	0.32	0.65
P9	D2b-ST	-9.34	-0.64	207.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.55	-4.51	0.30	0.55
P10	D2b-ST	-9.87	-0.58	202.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	416.51	-6.78	0.30	0.54
P11	D2b-ST	-8.76	-0.51	226.52	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.82	-9.15	0.32	0.60
P12	D2b-ST	-10.93	-0.44	189.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	478.52	-11.42	0.30	0.51
P13	D2b-ST	-11.46	-0.36	181.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	510.46	-13.91	0.30	0.48
P14	D2b-ST	-10.48	-0.28	221.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	-16.62	0.33	0.58
P15	D2b-ST	-7.05	0.00	252.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	-25.78	0.34	0.66
P16	D2b-ST	-7.62	0.08	241.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.29	-23.29	0.33	0.64
P17	D2b-ST	-8.19	0.15	239.20	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	-21.10	0.34	0.63
P18	D2b-ST	-8.76	0.22	230.21	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.82	-18.81	0.33	0.61
P19	D2b-ST	-9.34	0.29	230.14	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	-16.52	0.33	0.61
P20	D2b-ST	-9.91	0.36	223.11	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.63	-14.01	0.33	0.59
P21	D2b-ST	-10.48	0.44	225.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	-11.27	0.34	0.59
P22	D2b-ST	-7.05	0.72	256.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	-1.84	0.33	0.68
P23	D2b-ST	-7.62	0.81	245.51	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.22	1.07	0.33	0.65
P24	D2b-ST	-8.19	0.87	243.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	3.39	0.33	0.64
P25	D2b-ST	-8.76	0.94	234.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.72	5.78	0.33	0.62
P26	D2b-ST	-9.34	1.01	234.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	8.25	0.33	0.62
P27	D2b-ST	-9.90	1.09	227.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.46	10.93	0.33	0.60
P28	D2b-ST	-10.48	1.17	229.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	13.83	0.34	0.60
P29	D2b-ST	-7.05	1.45	261.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	23.73	0.35	0.69
P30	D2b-ST	-7.62	1.53	249.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.21	26.74	0.34	0.66
P31	D2b-ST	-8.19	1.60	247.74	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	29.19	0.35	0.65
P32	D2b-ST	-8.76	1.66	238.39	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.72	31.67	0.35	0.63
P33	D2b-ST	-9.34	1.74	238.53	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	34.34	0.35	0.63
P34	D2b-ST	-9.90	1.81	231.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.45	37.18	0.35	0.61
P35	D2b-ST	-10.48	1.90	233.85	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	40.26	0.36	0.62
P36	D2b-ST	-7.05	2.17	265.31	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	50.61	0.37	0.70
P37	D2b-ST	-7.62	2.25	253.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.21	53.72	0.36	0.67
P38	D2b-ST	-8.19	2.32	252.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	56.29	0.37	0.66
P39	D2b-ST	-8.76	2.39	242.56	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.73	58.88	0.36	0.64
P40	D2b-ST	-9.34	2.46	242.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	61.74	0.37	0.64
P41	D2b-ST	-9.90	2.54	235.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.45	64.75	0.37	0.62
P42	D2b-ST	-10.48	2.62	238.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	67.99	0.38	0.63

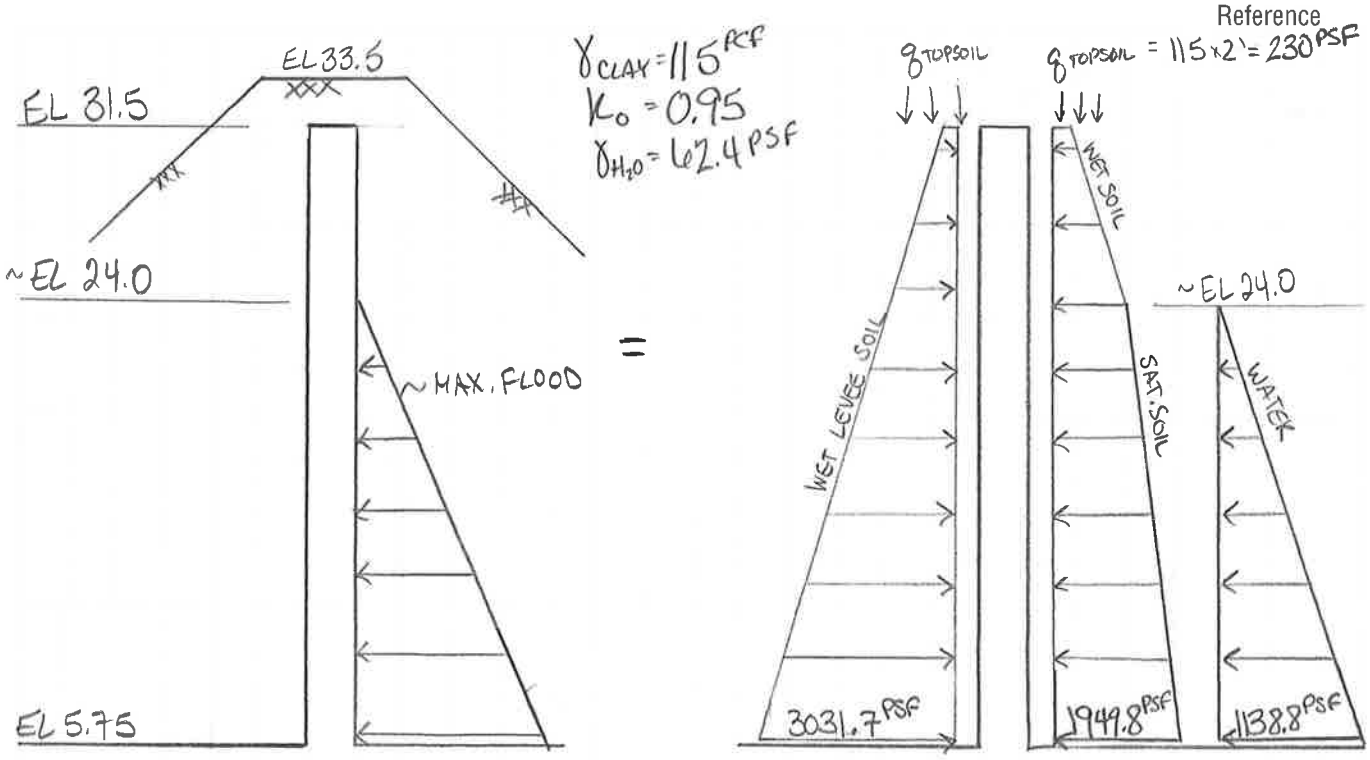
Sap2000 Data					Pile Properties							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
												Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.2464*F² + 32.53*F - 25.941		Factor CBF	ALF Factor
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E																	M1	M2		
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	D2b-ST	-7.05	2.90	269.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	78.81	0.39	0.71
P44	D2b-ST	-7.62	2.98	258.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.23	82.01	0.38	0.68
P45	D2b-ST	-8.19	3.05	256.28	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	84.71	0.39	0.67
P46	D2b-ST	-8.76	3.11	246.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.76	87.38	0.38	0.65
P47	D2b-ST	-9.34	3.19	246.92	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	90.45	0.39	0.65
P48	D2b-ST	-9.90	3.27	239.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.48	93.63	0.39	0.63
P49	D2b-ST	-10.48	3.35	242.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	97.05	0.40	0.64
P50	D2b-ST	-7.05	3.62	273.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	108.31	0.41	0.72
P51	D2b-ST	-7.62	3.70	262.38	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.30	111.61	0.41	0.69
P52	D2b-ST	-8.19	3.77	260.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	114.44	0.41	0.69
P53	D2b-ST	-8.76	3.84	250.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	354.86	117.20	0.41	0.66
P54	D2b-ST	-9.34	3.91	251.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	120.47	0.41	0.66
P55	D2b-ST	-9.91	3.99	243.67	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	418.59	123.83	0.41	0.64
P56	D2b-ST	-10.48	4.08	246.57	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	127.41	0.42	0.65
P57	D2b-ST	-7.05	4.35	278.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	265.32	139.13	0.43	0.73
P58	D2b-ST	-7.63	4.43	266.22	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	294.94	142.52	0.43	0.70
P59	D2b-ST	-8.19	4.50	264.82	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	324.27	145.47	0.43	0.70
P60	D2b-ST	-8.78	4.56	254.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	355.61	148.34	0.43	0.67
P61	D2b-ST	-9.34	4.64	255.32	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	386.52	151.81	0.43	0.67
P62	D2b-ST	-9.92	4.72	247.47	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	419.38	155.35	0.43	0.65
P63	D2b-ST	-10.48	4.80	250.81	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	451.81	159.10	0.44	0.66
P1	DC Aa-ST	-15.97	0.78	226.01	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	0.13	0.39	0.59
P2	DC Aa-ST	-17.90	0.85	155.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	955.72	2.64	0.34	0.42
P3	DC Aa-ST	-18.37	0.91	150.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	992.04	4.60	0.34	0.40
P4	DC Aa-ST	-17.46	0.98	205.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	921.62	7.04	0.39	0.54
P5	DC Aa-ST	-19.28	1.04	137.93	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1064.66	9.35	0.34	0.37
P6	DC Aa-ST	-19.73	1.10	130.18	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1100.82	11.20	0.34	0.35
P7	DC Aa-ST	-18.97	1.15	196.55	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	13.09	0.40	0.52
P8	DC Aa-ST	-15.97	1.41	247.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	22.47	0.43	0.65
P9	DC Aa-ST	-18.07	1.48	176.99	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	968.77	25.05	0.38	0.47
P10	DC Aa-ST	-18.53	1.54	172.27	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1005.02	27.18	0.38	0.46
P11	DC Aa-ST	-17.46	1.61	227.17	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	922.10	29.74	0.43	0.60
P12	DC Aa-ST	-19.45	1.68	159.36	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1078.02	32.17	0.38	0.43
P13	DC Aa-ST	-19.90	1.73	151.45	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	281.1	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1114.60	34.18	0.38	0.40
P14	DC Aa-ST	-18.97	1.79	218.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	36.11	0.44	0.57
P15	DC Aa-ST	-15.97	2.05	269.73	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	45.80	0.46	0.71
P16	DC Aa-ST	-16.46	2.12	259.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	847.24	48.45	0.46	0.68
P17	DC Aa-ST	-16.97	2.18	257.50	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.03	50.76	0.47	0.68
P18	DC Aa-ST	-17.46	2.25	248.76	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	921.92	53.43	0.46	0.65
P19	DC Aa-ST	-17.97	2.31	248.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	56.00	0.47	0.65
P20	DC Aa-ST	-18.46	2.37	240.79	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	999.18	58.16	0.47	0.63
P21	DC Aa-ST	-18.97	2.42	240.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	60.14	0.48	0.63
P22	DC Aa-ST	-15.97	2.68	291.59	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	70.14	0.50	0.77
P23	DC Aa-ST	-16.46	2.75	281.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	847.27	72.85	0.50	0.74
P24	DC Aa-ST	-16.97	2.81	279.23	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.04	75.35	0.50	0.73
P25	DC Aa-ST	-17.46	2.88	270.29	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	922.06	78.12	0.50	0.71
P26	DC Aa-ST	-17.97	2.95	269.72	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	80.83	0.51	0.71
P27	DC Aa-ST	-18.46	3.01	262.34	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	999.21	83.15	0.51	0.69
P28	DC Aa-ST	-18.97	3.06	262.10	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	85.19	0.52	0.69
P29	DC Aa-ST	-15.97	3.31	313.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	95.47	0.54	0.82
P30	DC Aa-ST	-16.46	3.38	302.62	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	847.27	98.24	0.54	0.80
P31	DC Aa-ST	-16.97	3.45	300.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.04	100.94	0.54	0.79
P32	DC Aa-ST	-17.46	3.52	291.69	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	922.07	103.82	0.54	0.77
P33	DC Aa-ST	-17.97	3.58	291.44	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	106.66	0.55	0.77
P34	DC Aa-ST	-18.46	3.64	283.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	999.21	109.15	0.55	0.75
P35	DC Aa-ST	-18.97	3.69	283.95	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	111.24	0.55	0.75
P36	DC Aa-ST	-15.97	3.95	335.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	121.81	0.58	0.88
P37	DC Aa-ST	-16.46	4.01	324.08	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	847.28	124.63	0.57	0.85
P38	DC Aa-ST	-16.97	4.08	322.68	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.04	127.53	0.58	0.85
P39	DC Aa-ST	-17.46	4.15	313.09	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	922.08	130.52	0.58	0.82
P40	DC Aa-ST	-17.97	4.22	313.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	133.50	0.59	0.82
P41	DC Aa-ST	-18.46	4.28	305.25	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	999.22	136.16	0.59	0.80
P42	DC Aa-ST	-18.97	4.33	305.80	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	138.30	0.59	0.80
P43	DC Aa-ST	-15.97	4.58	357.15	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	149.15	0.62	0.94
P44	DC Aa-ST	-16.46	4.64	345.54	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	847.31	152.01	0.61	0.91
P45	DC Aa-ST	-16.97	4.71	344.40	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.04	155.12	0.62	0.91
P46	DC Aa-ST	-17.46	4.78	334.48	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	922.12	158.23	0.62	0.88
P47	DC Aa-ST	-17.97	4.85	334.87	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	161.35	0.63	0.88
P48	DC Aa-ST	-18.46	4.92	326.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	999.26	164.18	0.62	0.86
P49	DC Aa-ST	-18.97	4.97	327.64	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	166.36	0.63	0.86
P50	DC Aa-ST	-15.97	5.21	379.00	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	177.49	0.66	1.00
P51	DC Aa-ST	-16.46	5.28	366.96	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	847.46	180.39	0.65	0.97
P52	DC Aa-ST	-16.97	5.35	366.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.04	183.72	0.66	0.96
P53	DC Aa-ST	-17.46	5.42	355.83	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	922.26	186.93	0.66	0.94
P54	DC Aa-ST	-17.97	5.49	356.58	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	190.20	0.67	0.94
P55	DC Aa-ST	-18.46	5.55	348.12	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	999.41	193.22	0.66	0.92
P56	DC Aa-ST	-18.97	5.60	349.49	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	195.44	0.67	0.92
P57	DC Aa-ST	-15.97	5.85	400.86	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	811.38	206.83	0.70	1.05
P58	DC Aa-ST	-16.48	5.91	387.88	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	848.59	209.77	0.69	1.02
P59	DC Aa-ST	-16.97	5.98	387.84	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	885.04	213.32	0.70	1.02
P60	DC Aa-ST	-17.48	6.05	376.70	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	923.41	216.65	0.70	0.99
P61	DC Aa-ST	-17.97	6.12	378.30	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	961.10	220.06	0.71	1.00
P62	DC Aa-ST	-18.48	6.19	369.06	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1000.54	223.26	0.70	0.97
P63	DC Aa-ST	-18.97	6.24	371.33	50	29.9	1300	412	168	52.2	29000	0.888	1	0.9539	285.0	0.0	3257	5785	107	51	2	699	662	748	4667	1450	1.333	1039.46	225.52	0.71	0.98

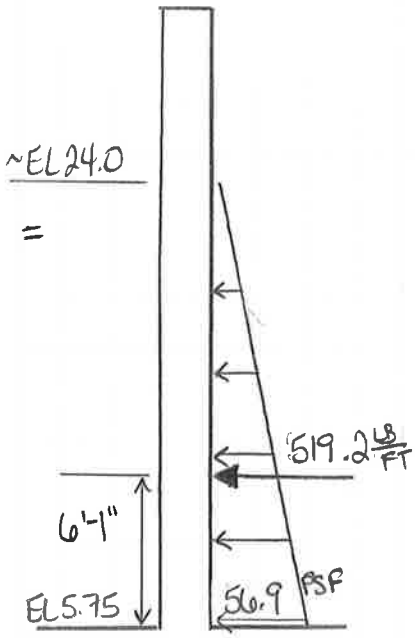
PART 11

T-Wall Stem Design

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____
Description: C-1 STEM WALL | Computed by: LBR | Sheet ____ of ____ | Date: 6/2013
Checked by: BCB | Date: 9/2013 | Reference





$M = (519.2 \frac{LB}{FT})(6'-1") = 3{,}158.5 \frac{FT \cdot LB}{FT}$ ✓

$V = 519.2$ LB/FT ✓

AISC TABLE 3-23, #18

Δ AT EL 24.0: $\frac{Wl^3}{15EI}$

$E = 519119500$ PSF

$I = \frac{1}{12}(1')(2')^3 = 0.667$ FT^4

$\Delta = \frac{(519.2 \frac{LB}{FT})(18.25')^3}{(15)(519119500 \frac{LB}{FT^2})(0.667\ FT^4)} = 0.00061$ FT $= \underline{\underline{0.0073"}}$

DEFLECTION OF 0.007" @ END OF LOAD-DEFLECTION LINEAR BEYOND THIS POINT

TOTAL Δ @ END OF STEM = 0.0111", NEGLIGIBLE

URS

Page ____ of ____

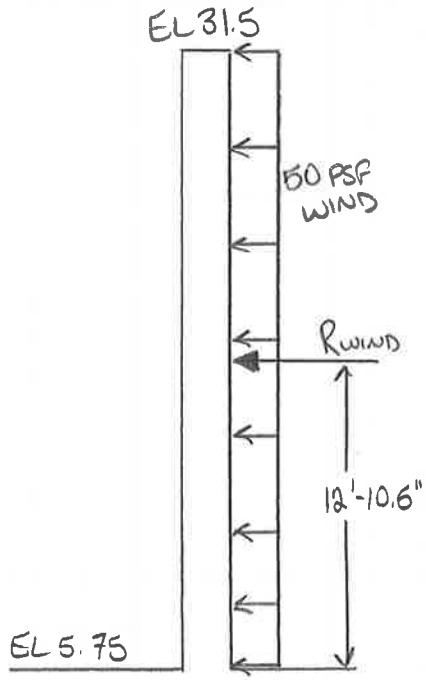
Job MAUREPAS DIVERSION | Project No. 10001876 | Sheet ____ of ____

Description C-1 STEM WALL | Computed by LBR | Date 6/2013

Checked by BCB | Date 9/2013

Reference

- WIND ON ONE SIDE OF THE WALL IS ANOTHER POSSIBLE LOAD CONDITION FOR THE WALL - AFTER CONSTRUCTION BUT BEFORE FILL HAS BEEN PLACED:



$R_{WIND} = (50\,PSF)(25.75') = 1{,}287.5\ LB/FT$

$V_{WIND} = \underline{1{,}287.5\ LB}$

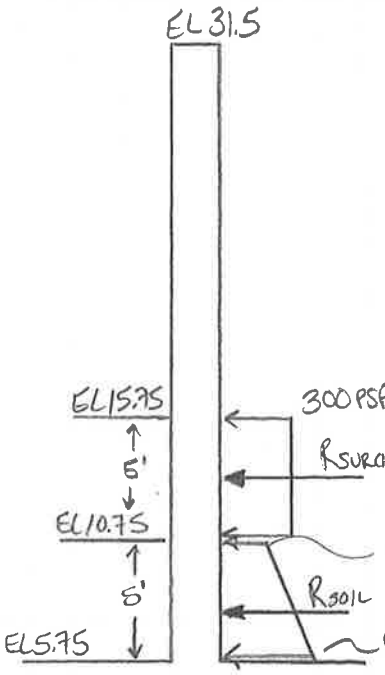
$M_{WIND} = 1{,}287.5\ LB \times 12.875' = \underline{16{,}576.6\ FT \cdot LB/FT}$

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-1 STEM WALL | Computed by: LBR | Sheet ___ of ___ | Date: 6/2013
Checked by: BCB | Date: 8/2013
Reference

- APART FROM WATER ON 1 SIDE OF THE WALL, OTHER APPLICABLE LOADS INCLUDE UNEVEN SOIL FILL (UP TO 5' DIFFERENTIAL) DURING CONSTRUCTION + CONST. SURCHARGE.

FROM CRITERIA: - 300 PSF HORIZ. SURCHARGE ON WALLS
- 250 PSF VERT. SURCHARGE FROM EARTH MOVERS.



ASSUMPTION IS THAT HORIZ CONST. SURCHARGE MAY AFFECT WALL UP TO 5' ABOVE TOP OF SOIL FILL.!

$P = k_o(q_{SURCH}) = 0.95(250\,PSF) = 237.5\ PSF$

$P = k_o(q_{SURCH} + \gamma_{SOIL} \times 5') = 0.95(250^{PSF} + 115^{PCF} \times 5') = 783.75^{PSF}$

$R_{SURCH} = (300\,PSF)(5') = 1{,}500^{LB/FT}$
@ 7.5' ABOVE EL 5.75

$R_{SOIL} = \frac{1}{2}(237.5\,PSF + 783.75\,PSF)(5') = 2{,}553.1^{LB/FT}$
@ $\left[\frac{5}{3} \times \frac{(2 \times 237.5 + 783.75)}{(237.5 + 783.75)}\right] = 2.054'$ ABOVE EL 5.75

$V_{TOTAL} = 1500^{LB} + 2553.1^{LB} = 4{,}053.1^{LB/FT}$

$M_{TOTAL} = (1500^{LB})(7.5') + (2553.1^{LB})(2.054') = 16{,}494.8^{FT\cdot LB}$ PER FOOT OF WALL

CASE	ALLOWABLE O/S	$H_S \times H_F$	SHEAR	FACTORED SHEAR *	MOMENT	FACTORED MOMENT *	
FLOOD	0	1.3×1.7 = 2.21	519.2^{LB}	$1{,}147.4^{LB}$	$3{,}158.5^{FT\cdot LB}$	$6{,}980.3^{FT\cdot LB}$	* FACTORED = $\frac{2.21}{O/S}$ = #
CONST	16.67%	2.21	$4{,}053.1^{LB}$	$7{,}677.5^{LB}$	$16{,}494.8^{FT\cdot LB}$	$31{,}245^{FT\cdot LB}$	
WIND	14.67%	2.21	$1{,}287.5^{LB}$	$2{,}438.8^{LB}$	$16{,}576.6^{FT\cdot LB}$	$31{,}399.9^{FT\cdot LB}$	

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____
Description: C-1 STEM WALL | Computed by: LBR | Sheet ____ of ____ | Date: 6/2013
Checked by: PCB | Date: 9/2013
Reference

→ 2'-0" WALL w/ 4" COVER , d=~19.5"

↳ TEMP & SHRINKAGE MIN. REINFORCEMENT = $0.0028 A_g = 0.0028(12")(24") = 0.8064 in^2$, HALF EACH FACE

↳ FLEXURAL MIN. REINFORCEMENT = $\begin{cases} \frac{3\sqrt{f'_c}}{f_y} bd = \frac{3\sqrt{4000}(12")(19.5")}{60{,}000} = 0.74 in^2 \\ \frac{200bd}{f_y} \quad \frac{200(12")(19.5")}{60{,}000} = 0.78 in^2 \end{cases}$ ← EACH FACE

→ SHEAR CAPACITY: $\phi V_c = \phi 2\sqrt{f'_c}\, bd$

$\phi V_c = (0.85)(2)\sqrt{4000}(12")(19.5") = \underline{25{,}159}^{LB} >> \underline{V_u = 7{,}678}^{LB}$

OK

→ MOMENT CAPACITY: TRY #8 @ 12" ($A_s = 0.79 in^2$, GREATER THAN MINIMUMS)

$\phi M_n = \phi A_s f_y (d - a/2)$, $a = \frac{A_s f_y}{0.85 f'_c b}$

$a = \frac{(0.79 in^2)(60{,}000)}{0.85(4000)(12")} = 1.1618"$

$\phi M_n = (0.9)(0.79 in^2)(60{,}000^{PSI})\left(19.5" - \frac{1.1618"}{2}\right) = 807{,}089.6^{LB \cdot IN} = \underline{67{,}257.5}^{FT \cdot LB}$

$\underline{\phi M_n = 67{,}257.5}^{FT \cdot LB} > \underline{M_u = 31{,}400}^{FT \cdot LB}$ → USE #8@12" VERT.

→ HORIZONTAL REINF. MAY BE TEMP & SHRINK. MINIMUM - USE #6@12" ($A_s = 0.44 in^2$ > MIN. = $0.403 in^2$ PER FACE)

PART 12

Column Design

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876		
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:** Aug-13	of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:** Sep-13	of

TABLE: Frame Section Properties 01 - General

SectionName	Material	Shape	t3	t2	Area	TorsConst	I33	I22	AS2	AS3	S33	S22	Z33	Z22
Text	Text	Text	ft	ft	ft2	ft4	ft4	ft4	ft2	ft2	ft3	ft3	ft3	ft3
18x18 column	4000Psi	Rectangular	1.5	1.5	2.25	0.712969	0.421875	0.42188	1.875	1.875	0.5625	0.5625	0.84375	0.84375

TABLE: Frame Section Properties 01 - General

R33	R22	ConcCol	ConcBeam	TotalWt	TotalMass	FromFile	AMod	A2Mod	A3Mod	JMod	I2Mod	I3Mod	MMod	WMod
ft	ft	Yes/No	Yes/No	Kip	Kip-s2/ft	Yes/No	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
0.433	0.433	Yes	No	28.477	0.89	No	1	1	1	1	1	1	1	1

TABLE: Frame Section Properties 02 - Concrete Column

SectionName	RebarMatL	RebarMatC	ReinfConfig	LatReinf	Cover	NumBars3Dir	NumBars2Dir	BarSizeL	BarSizeC	SpacingC	NumCBars2	NumCBars3	ReinfType
Text	Text	Text	Text	Text	ft	Unitless	Unitless	Text	Text	ft	Unitless	Unitless	Text
18x18 column	A615Gr60	A615Gr60	Rectangular	Ties	0.16667	3	3	#8	#3	1	2	2	Check

2" COVER

LONGITUDINAL BARS

TIES

URS

Job MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____
Description C-1 COLUMNS - | Computed by LBR | Sheet ____ of ____
Checked by [illegible] | Date 9/2013 | Date 9/2013
Reference

↳ COLUMNS 18" x 18" w/ 8-#8 BARS, 2" CLEAR

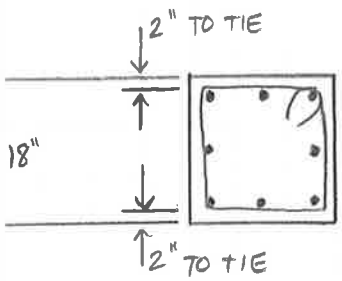
↳ % REINF: $1\% A_g \le A_{steel} \le 8\% A_g$
8-#8s ⟹ 6.32 in², WHICH IS $\frac{6.32}{18 \times 18} = 0.0195$, 1.95% steel

↳ TIES SHALL BE #3s FOR #8 BARS
↳ SPACING SHALL BE

MIN
- 16 × d#8s = 16" ←
- 48 × dTIES = 18"
- 18" (LEAST COLUMN DIM)

PLACE TIES EVERY 12"

↳ BAR SPACING CANNOT BE > 6" ...



BAR SPACING = (18" − 2" × 2 − 3/8" × 2 − 1/2(1") × 2) − 1"
(TIES, #8, CENTER #8)
= 5.625" CLEAR B/W #8 BARS → OK

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876		
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13 of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13 of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
West	18x18 column	Column	Check	No Messages	0.000	combo_OScases		0.165102	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	1.172	combo_OScases		0.163372	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	2.344	combo_OScases		0.162246	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	3.516	combo_OScases		0.161825	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	4.688	combo_OScases		0.16133	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	5.859	combo_OScases		0.160755	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	7.031	combo_OScases		0.161414	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	8.203	combo_OScases		0.162674	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	9.375	combo_OScases		0.163884	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	10.547	combo_OScases		0.165013	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	11.719	combo_OScases		0.166048	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	12.891	combo_OScases		0.167083	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	14.063	combo_OScases		0.168122	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	15.234	combo_OScases		0.16911	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	16.406	combo_OScases		0.169802	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	17.578	combo_OScases		0.169957	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	18.750	combo_OScases		0.170688	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	19.922	combo_OScases		0.171675	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	21.094	combo_OScases		0.172868	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	22.266	combo_OScases		0.174809	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	23.438	combo_OScases		0.176087	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	24.609	combo_OScases		0.177076	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	25.781	combo_OScases		0.178	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	26.953	combo_OScases		0.179068	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	28.125	combo_OScases		0.179949	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	0.000	combo_OP		0.186688	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	1.172	combo_OP		0.184839	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	2.344	combo_OP		0.184177	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	3.516	combo_OP		0.183682	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	4.688	combo_OP		0.1831	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	5.859	combo_OP		0.18242	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	7.031	combo_OP		0.182962	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	8.203	combo_OP		0.184556	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	9.375	combo_OP		0.186107	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	10.547	combo_OP		0.187595	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	11.719	combo_OP		0.188961	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	12.891	combo_OP		0.190181	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	14.063	combo_OP		0.191426	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	15.234	combo_OP		0.192597	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	16.406	combo_OP		0.19343	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	17.578	combo_OP		0.193605	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	18.750	combo_OP		0.19447	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	19.922	combo_OP		0.195622	0	0	No Messages	No Messages

SAP performs a design check of the 18"x18" columns using the ACI318-08 code.

"No messages" means no failures in buckling, shear, reinforcing, etc.

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876			
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13	of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13	of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
West	18x18 column	Column	Check	No Messages	21.094	combo_OP		0.197066	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	22.266	combo_OP		0.199282	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	23.438	combo_OP		0.200731	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	24.609	combo_OP		0.201802	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	25.781	combo_OP		0.20305	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	26.953	combo_OP		0.204104	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	28.125	combo_OP		0.205266	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	0.000	combo_OScases-ST		0.16573	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	1.172	combo_OScases-ST		0.163977	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	2.344	combo_OScases-ST		0.162232	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	3.516	combo_OScases-ST		0.161811	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	4.688	combo_OScases-ST		0.161317	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	5.859	combo_OScases-ST		0.160743	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	7.031	combo_OScases-ST		0.161547	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	8.203	combo_OScases-ST		0.162746	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	9.375	combo_OScases-ST		0.1639	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	10.547	combo_OScases-ST		0.165	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	11.719	combo_OScases-ST		0.166042	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	12.891	combo_OScases-ST		0.167047	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	14.063	combo_OScases-ST		0.168113	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	15.234	combo_OScases-ST		0.169112	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	16.406	combo_OScases-ST		0.16992	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	17.578	combo_OScases-ST		0.170336	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	18.750	combo_OScases-ST		0.170681	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	19.922	combo_OScases-ST		0.171668	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	21.094	combo_OScases-ST		0.172986	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	22.266	combo_OScases-ST		0.174871	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	23.438	combo_OScases-ST		0.176078	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	24.609	combo_OScases-ST		0.177049	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	25.781	combo_OScases-ST		0.177983	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	26.953	combo_OScases-ST		0.178959	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	28.125	combo_OScases-ST		0.180063	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	0.000	combo_OP-ST		0.183058	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	1.172	combo_OP-ST		0.182024	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	2.344	combo_OP-ST		0.181576	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	3.516	combo_OP-ST		0.181118	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	4.688	combo_OP-ST		0.180536	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	5.859	combo_OP-ST		0.179856	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	7.031	combo_OP-ST		0.17958	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	8.203	combo_OP-ST		0.181112	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	9.375	combo_OP-ST		0.18259	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	10.547	combo_OP-ST		0.184006	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	11.719	combo_OP-ST		0.185345	0	0	No Messages	No Messages

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876		
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13 of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13 of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
West	18x18 column	Column	Check	No Messages	12.891	combo_OP-ST		0.186605	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	14.063	combo_OP-ST		0.187814	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	15.234	combo_OP-ST		0.189021	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	16.406	combo_OP-ST		0.190021	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	17.578	combo_OP-ST		0.190541	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	18.750	combo_OP-ST		0.19092	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	19.922	combo_OP-ST		0.192072	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	21.094	combo_OP-ST		0.193704	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	22.266	combo_OP-ST		0.195811	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	23.438	combo_OP-ST		0.197137	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	24.609	combo_OP-ST		0.198211	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	25.781	combo_OP-ST		0.199365	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	26.953	combo_OP-ST		0.200635	0	0	No Messages	No Messages
West	18x18 column	Column	Check	No Messages	28.125	combo_OP-ST		0.20167	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	0.000	combo_OScases		0.305857	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	1.172	combo_OScases		0.306028	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	2.344	combo_OScases		0.307139	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	3.516	combo_OScases		0.308207	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	4.688	combo_OScases		0.309224	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	5.859	combo_OScases		0.310186	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	7.031	combo_OScases		0.311263	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	8.203	combo_OScases		0.312388	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	9.375	combo_OScases		0.313435	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	10.547	combo_OScases		0.314508	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	11.719	combo_OScases		0.315852	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	12.891	combo_OScases		0.316931	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	14.063	combo_OScases		0.317783	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	15.234	combo_OScases		0.317975	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	16.406	combo_OScases		0.317289	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	17.578	combo_OScases		0.317691	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	18.750	combo_OScases		0.318679	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	19.922	combo_OScases		0.319666	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	21.094	combo_OScases		0.321382	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	22.266	combo_OScases		0.324295	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	23.438	combo_OScases		0.326334	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	24.609	combo_OScases		0.327717	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	25.781	combo_OScases		0.328735	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	26.953	combo_OScases		0.329503	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	28.125	combo_OScases		0.330611	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	0.000	combo_OP		0.368771	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	1.172	combo_OP		0.367774	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	2.344	combo_OP		0.366662	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	3.516	combo_OP		0.365602	0	0	No Messages	No Messages

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876		
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13 of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13 of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
Center	18x18 column	Column	Check	No Messages	4.688	combo_OP		0.364679	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	5.859	combo_OP		0.363703	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	7.031	combo_OP		0.364812	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	8.203	combo_OP		0.366412	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	9.375	combo_OP		0.368579	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	10.547	combo_OP		0.370555	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	11.719	combo_OP		0.372299	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	12.891	combo_OP		0.373769	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	14.063	combo_OP		0.375092	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	15.234	combo_OP		0.376626	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	16.406	combo_OP		0.377253	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	17.578	combo_OP		0.376614	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	18.750	combo_OP		0.374163	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	19.922	combo_OP		0.379474	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	21.094	combo_OP		0.383069	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	22.266	combo_OP		0.385215	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	23.438	combo_OP		0.386451	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	24.609	combo_OP		0.387983	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	25.781	combo_OP		0.389076	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	26.953	combo_OP		0.389798	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	28.125	combo_OP		0.390201	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	0.000	combo_OScases-ST		0.308977	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	1.172	combo_OScases-ST		0.308796	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	2.344	combo_OScases-ST		0.309881	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	3.516	combo_OScases-ST		0.310921	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	4.688	combo_OScases-ST		0.311916	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	5.859	combo_OScases-ST		0.312901	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	7.031	combo_OScases-ST		0.314147	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	8.203	combo_OScases-ST		0.315259	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	9.375	combo_OScases-ST		0.316367	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	10.547	combo_OScases-ST		0.31757	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	11.719	combo_OScases-ST		0.318949	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	12.891	combo_OScases-ST		0.320033	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	14.063	combo_OScases-ST		0.320966	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	15.234	combo_OScases-ST		0.321251	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	16.406	combo_OScases-ST		0.320674	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	17.578	combo_OScases-ST		0.320367	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	18.750	combo_OScases-ST		0.321354	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	19.922	combo_OScases-ST		0.322342	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	21.094	combo_OScases-ST		0.324767	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	22.266	combo_OScases-ST		0.327599	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	23.438	combo_OScases-ST		0.329582	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	24.609	combo_OScases-ST		0.330925	0	0	No Messages	No Messages

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876		
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13 of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13 of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
Center	18x18 column	Column	Check	No Messages	25.781	combo_OScases-ST		0.331908	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	26.953	combo_OScases-ST		0.332509	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	28.125	combo_OScases-ST		0.33357	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	0.000	combo_OP-ST		0.373489	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	1.172	combo_OP-ST		0.37248	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	2.344	combo_OP-ST		0.371355	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	3.516	combo_OP-ST		0.37029	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	4.688	combo_OP-ST		0.369346	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	5.859	combo_OP-ST		0.368366	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	7.031	combo_OP-ST		0.368289	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	8.203	combo_OP-ST		0.370245	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	9.375	combo_OP-ST		0.372386	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	10.547	combo_OP-ST		0.374343	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	11.719	combo_OP-ST		0.376081	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	12.891	combo_OP-ST		0.377558	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	14.063	combo_OP-ST		0.378825	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	15.234	combo_OP-ST		0.380494	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	16.406	combo_OP-ST		0.381264	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	17.578	combo_OP-ST		0.38078	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	18.750	combo_OP-ST		0.378498	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	19.922	combo_OP-ST		0.383685	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	21.094	combo_OP-ST		0.387159	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	22.266	combo_OP-ST		0.389186	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	23.438	combo_OP-ST		0.390438	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	24.609	combo_OP-ST		0.391977	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	25.781	combo_OP-ST		0.393096	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	26.953	combo_OP-ST		0.393857	0	0	No Messages	No Messages
Center	18x18 column	Column	Check	No Messages	28.125	combo_OP-ST		0.394308	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	0	combo_OScases		0.242229	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	1.1719	combo_OScases		0.240962	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	2.3438	combo_OScases		0.239766	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	3.5156	combo_OScases		0.238646	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	4.6875	combo_OScases		0.23739	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	5.8594	combo_OScases		0.236001	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	7.0313	combo_OScases		0.235052	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	8.2031	combo_OScases		0.236255	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	9.375	combo_OScases		0.237373	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	10.5469	combo_OScases		0.23839	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	11.7188	combo_OScases		0.239433	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	12.8906	combo_OScases		0.240482	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	14.0625	combo_OScases		0.24149	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	15.2344	combo_OScases		0.242439	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	16.4063	combo_OScases		0.242459	0	0	No Messages	No Messages

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876			
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13	of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13	of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
East	18x18 column	Column	Check	No Messages	17.5781	combo_OScases		0.242474	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	18.75	combo_OScases		0.243461	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	19.9219	combo_OScases		0.244449	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	21.0938	combo_OScases		0.24625	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	22.2656	combo_OScases		0.248352	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	23.4375	combo_OScases		0.249466	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	24.6094	combo_OScases		0.25046	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	25.7813	combo_OScases		0.251438	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	26.9531	combo_OScases		0.252323	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	28.125	combo_OScases		0.253319	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	0	combo_OP		0.282319	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	1.1719	combo_OP		0.28084	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	2.3438	combo_OP		0.279444	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	3.5156	combo_OP		0.278138	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	4.6875	combo_OP		0.276676	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	5.8594	combo_OP		0.275057	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	7.0313	combo_OP		0.273445	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	8.2031	combo_OP		0.27501	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	9.375	combo_OP		0.276467	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	10.5469	combo_OP		0.277797	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	11.7188	combo_OP		0.278976	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	12.8906	combo_OP		0.280262	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	14.0625	combo_OP		0.281311	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	15.2344	combo_OP		0.282546	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	16.4063	combo_OP		0.282573	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	17.5781	combo_OP		0.282589	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	18.75	combo_OP		0.283741	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	19.9219	combo_OP		0.284892	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	21.0938	combo_OP		0.286998	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	22.2656	combo_OP		0.289445	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	23.4375	combo_OP		0.290622	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	24.6094	combo_OP		0.291903	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	25.7813	combo_OP		0.292868	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	26.9531	combo_OP		0.294077	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	28.125	combo_OP		0.295144	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	0	combo_OScases-ST		0.242296	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	1.1719	combo_OScases-ST		0.241023	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	2.3438	combo_OScases-ST		0.239821	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	3.5156	combo_OScases-ST		0.238696	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	4.6875	combo_OScases-ST		0.237441	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	5.8594	combo_OScases-ST		0.236051	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	7.0313	combo_OScases-ST		0.235046	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	8.2031	combo_OScases-ST		0.236249	0	0	No Messages	No Messages

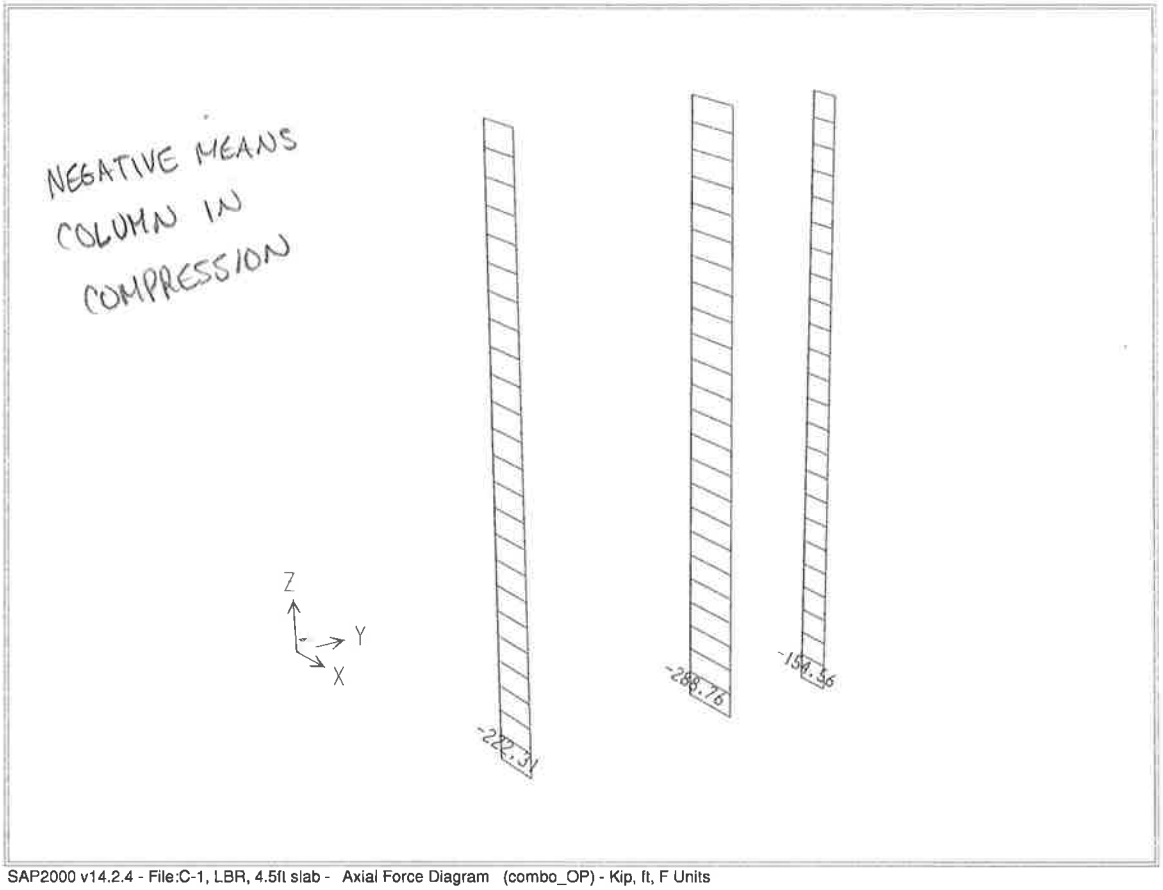
URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876			
Desc.:	Monolith C-1	**Computed By:**	LBR	**Date:**	Aug-13	of
	Member Designs - Column Results	**Checked By:**	BCB	**Date:**	Sep-13	of

TABLE: Concrete Details 1 - Column Summary Data - ACI 318-08/IBC2009

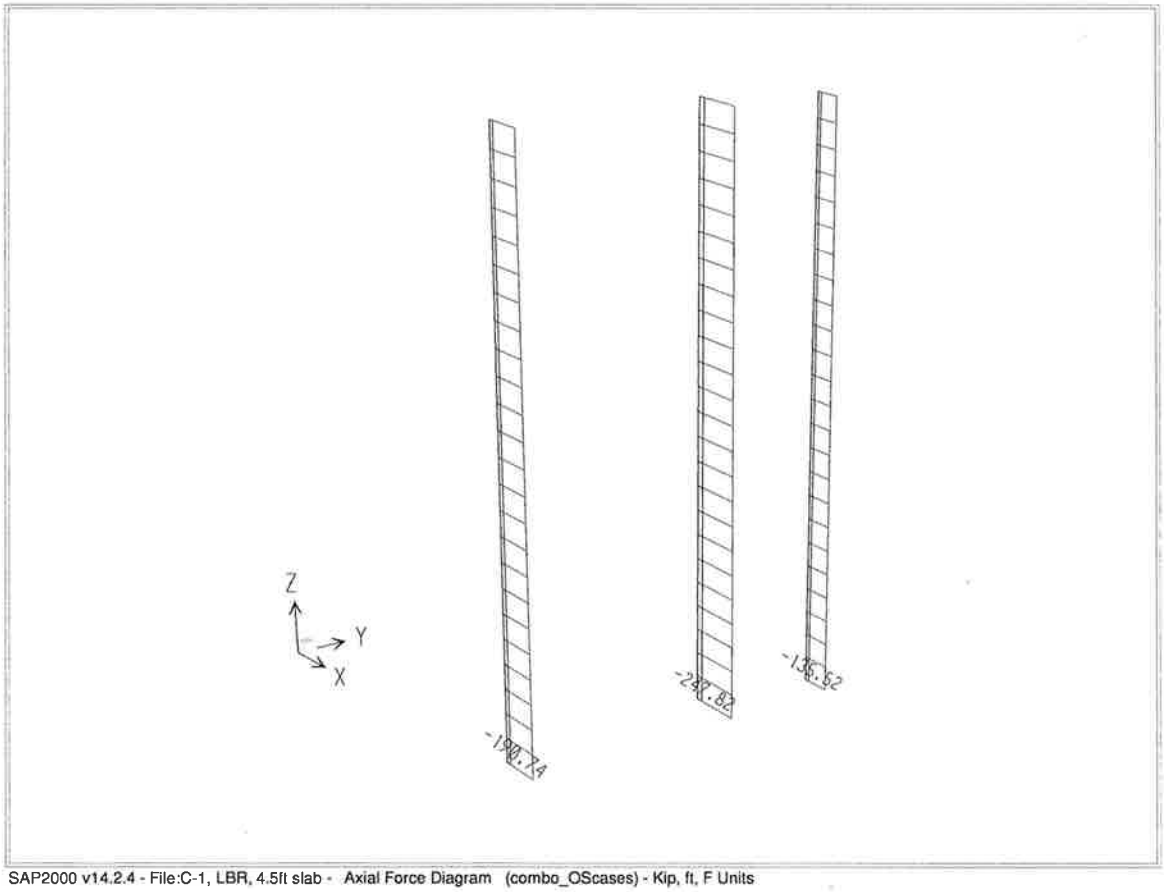
Frame	DesignSect	DesignType	DesignOpt	Status	Location	DesignCombo	PMMArea	PMMRatio	VMajRebar	VMinRebar	ErrMsg	WarnMsg
Text	Text	Text	Text	Text	ft	Text	ft2	Unitless	ft2/ft	ft2/ft	Text	Text
East	18x18 column	Column	Check	No Messages	9.375	combo_OScases-ST		0.237368	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	10.5469	combo_OScases-ST		0.238387	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	11.7188	combo_OScases-ST		0.239428	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	12.8906	combo_OScases-ST		0.240479	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	14.0625	combo_OScases-ST		0.241485	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	15.2344	combo_OScases-ST		0.242438	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	16.4063	combo_OScases-ST		0.242465	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	17.5781	combo_OScases-ST		0.24247	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	18.75	combo_OScases-ST		0.243457	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	19.9219	combo_OScases-ST		0.244445	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	21.0938	combo_OScases-ST		0.24625	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	22.2656	combo_OScases-ST		0.24835	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	23.4375	combo_OScases-ST		0.249462	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	24.6094	combo_OScases-ST		0.250456	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	25.7813	combo_OScases-ST		0.251433	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	26.9531	combo_OScases-ST		0.252319	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	28.125	combo_OScases-ST		0.253315	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	0	combo_OP-ST		0.282196	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	1.1719	combo_OP-ST		0.28071	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	2.3438	combo_OP-ST		0.279306	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	3.5156	combo_OP-ST		0.277991	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	4.6875	combo_OP-ST		0.276534	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	5.8594	combo_OP-ST		0.274915	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	7.0313	combo_OP-ST		0.27321	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	8.2031	combo_OP-ST		0.274777	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	9.375	combo_OP-ST		0.276236	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	10.5469	combo_OP-ST		0.277568	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	11.7188	combo_OP-ST		0.278749	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	12.8906	combo_OP-ST		0.280032	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	14.0625	combo_OP-ST		0.281087	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	15.2344	combo_OP-ST		0.282323	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	16.4063	combo_OP-ST		0.28236	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	17.5781	combo_OP-ST		0.282363	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	18.75	combo_OP-ST		0.283515	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	19.9219	combo_OP-ST		0.284666	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	21.0938	combo_OP-ST		0.286779	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	22.2656	combo_OP-ST		0.289222	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	23.4375	combo_OP-ST		0.29039	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	24.6094	combo_OP-ST		0.291675	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	25.7813	combo_OP-ST		0.292642	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	26.9531	combo_OP-ST		0.293849	0	0	No Messages	No Messages
East	18x18 column	Column	Check	No Messages	28.125	combo_OP-ST		0.294914	0	0	No Messages	No Messages

SAP2000 9/16/13 10:32:15



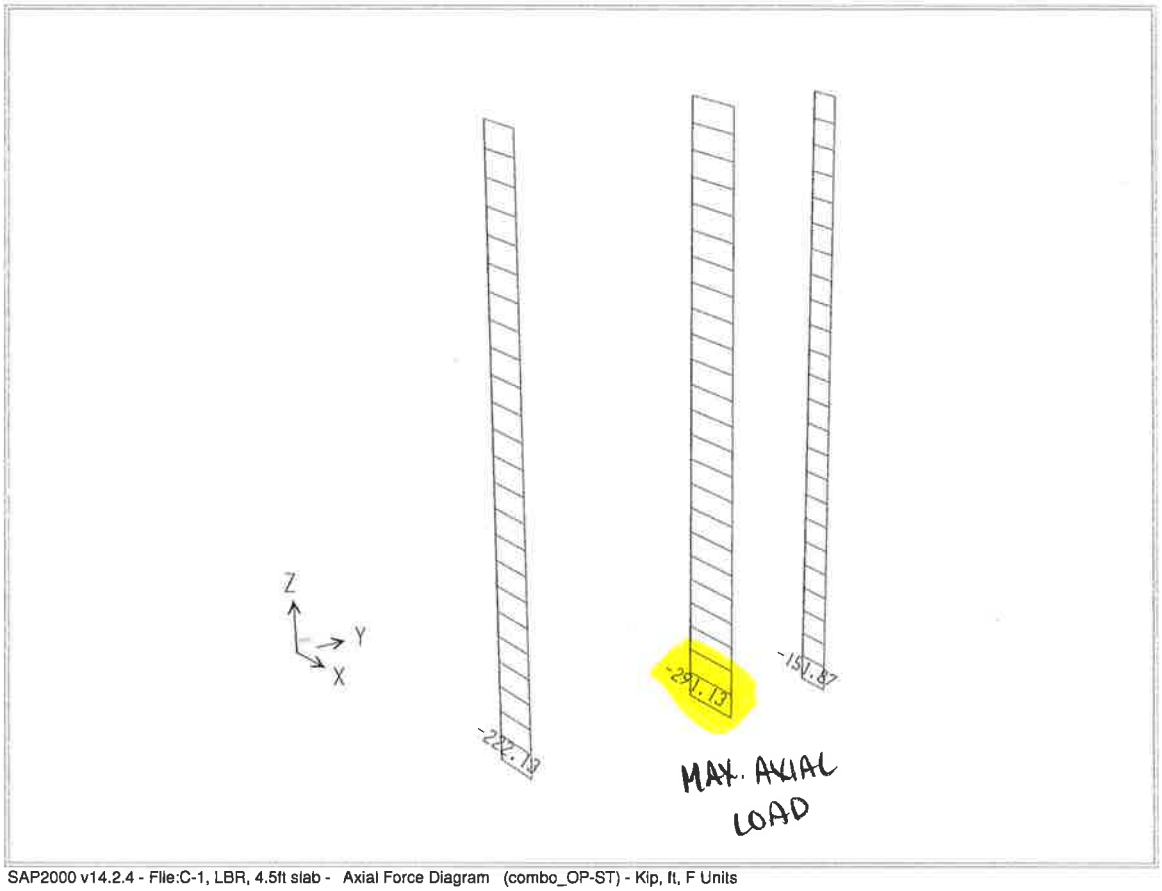
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Axial Force Diagram (combo_OP) - Kip, ft, F Units

SAP2000 9/16/13 10:32:25



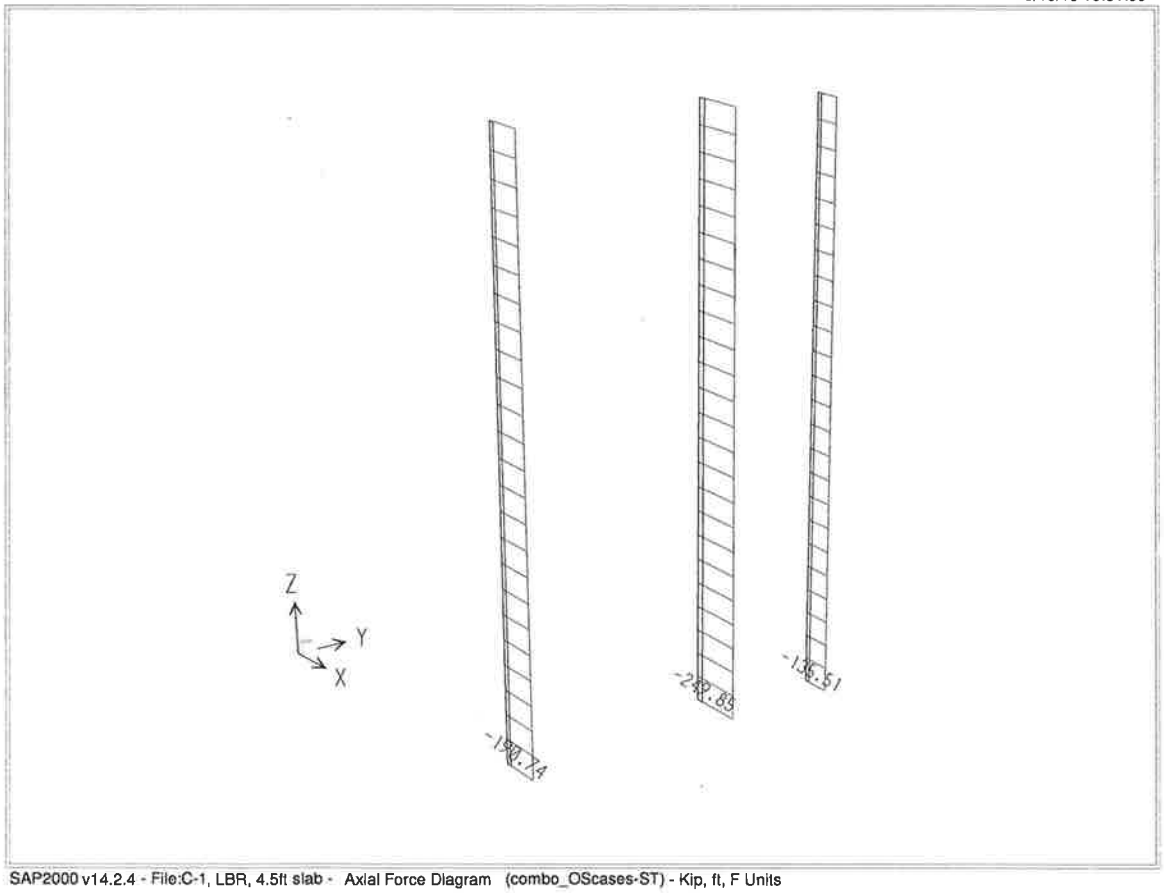
SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Axial Force Diagram (combo_OScases) - Kip, ft, F Units

SAP2000 9/16/13 10:32:05



SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Axial Force Diagram (combo_OP-ST) - Kip, ft, F Units

SAP2000 9/16/13 10:31:36

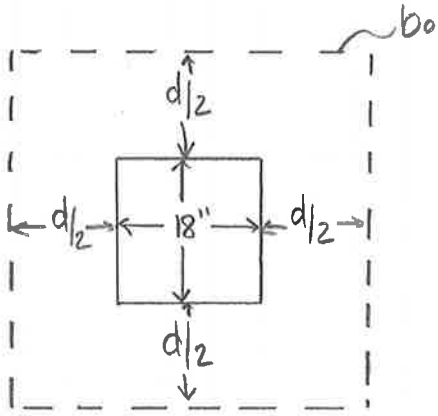


SAP2000 v14.2.4 - File:C-1, LBR, 4.5ft slab - Axial Force Diagram (combo_OScases-ST) - Kip, ft, F Units

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-1 PUNCHING SHEAR | Computed by: LBR | Sheet ___ of ___ | Date: 9/2013
CONVERT ROOF @ COLUMNS | Checked by: | Date:

Reference



$d_{ROOF} = 33" - 4"_{COVER} - (1\tfrac{1}{2})(1.128") = 28.436"$

$b_o = 2 \times (18" + 28.436") \times 2$
$= 185.74"$

$$\phi V_c = \min \begin{cases} \phi\left(2 + \frac{4}{\beta}\right)\sqrt{f'_c}\, b_o d & (11\text{-}33) \\ \phi\left(\frac{\alpha_s d}{b_o} + 2\right)\sqrt{f'_c}\, b_o d & (11\text{-}34) \\ \phi\, 4\sqrt{f'_c}\, b_o d & (11\text{-}35) \end{cases}$$

$\beta = 1.0 = \left(\frac{18"}{18"}\right)$

$\alpha_s = 40$ INTERIOR COLUMN

BY INSPECTION, 11-35 CONTROLS.

$\phi V_c = (0.85)(4)\sqrt{4000}\,(185.74")(28.436") = 1{,}135{,}750.3^{LB}$
$= \underline{\underline{1{,}135.8^k}} = \phi V_c$

↳ MAX. AXIAL FORCE IN ANY COLUMN = 291.1^k (INCLUDES HYDRAULIC & SAFETY FACTORS) - FROM CENTER COLUMN, COMBO OP-ST

$\phi V_c = 1{,}135^k > P = 291.1^k \rightarrow$ OK

URS

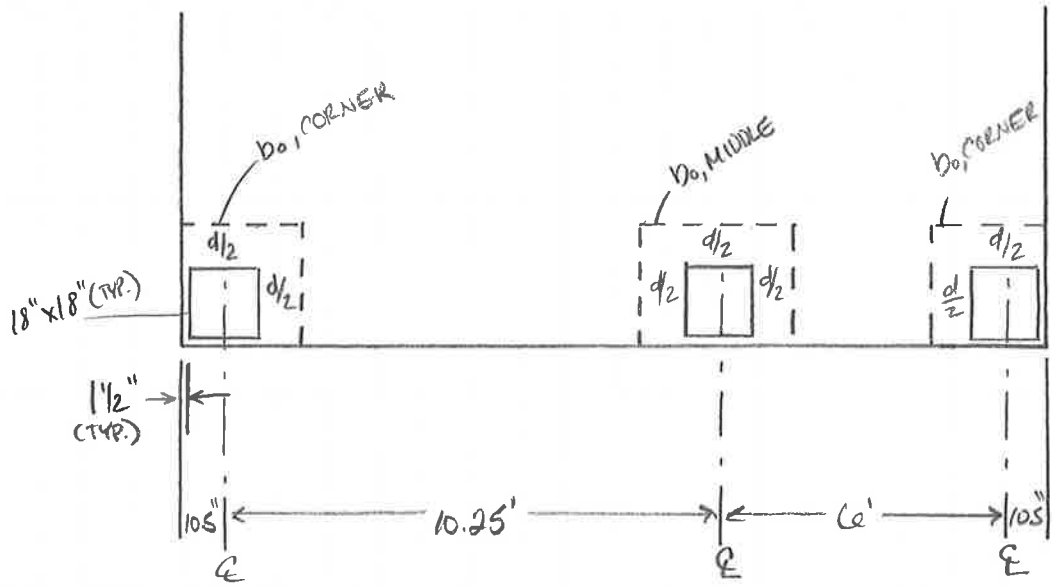
Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____

Description: C-1 PUNCHING SHEAR EQUIPMENT SLAB @ COLUMNS | Computed by: LBR | Sheet ____ of ____

Checked by: ____ | Date: 9/2013 | Date: ____

Reference

$d_{SLAB} = 24" - 4" - \frac{1}{2}" = \underline{19.5"}$



$b_{o,CORNER} = 2\times\left(18" + \frac{19.5"}{2} + 1.5"\right)\times 2 = 117"$

$b_{o,MIDDLE} = 2\times\left(18" + \frac{19.5"}{2} + 1.5"\right) + 2\times(18" + 19.5") = 133.5"$

$$\phi V_c = \min \begin{cases} ① \ \phi\left(2+\frac{4}{\beta}\right)\sqrt{f'_c}\, b_o d \\ ② \ \phi\left(\frac{\alpha_s d}{b_o}+2\right)\sqrt{f'_c}\, b_o d \\ ③ \ \phi 4\sqrt{f'_c}\, b_o d \end{cases}$$

$\beta = \frac{18"}{18"} = 1.0$ BOTH CASES (NEVER CONTROLS - BY INSPECTION)

$\alpha_s = 20$ FOR CORNERS, 30 FOR EDGES.

↳ <u>CORNER</u>: ② $\left(\frac{20\times 19.5"}{117"}+2\right) = 5.33$, ∴ ③ CONTROLS → $(0.85)(4)\sqrt{4000}\,(117")(19.5") = \phi V_c$

$= 490{,}602.1^{LB}$

$= \underline{490.6^k}$

$\underline{\phi V_{c,CORNER} = 490.6^k > P_{max} = 291^k}$

↳ MIDDLE: ϕV_c WILL BE LARGER THAN THAT OF THE CORNER COLUMNS. IF CORNERS HAVE 490.6^k CAPACITY, THEN MIDDLE COLUMN IS <u>OK</u>

PART 13

Steel Grating Walkway Selection

URS

Page ____ of ____

Job: Mawiyas | Project No.: 10001801 | Sheet ____ of ____

Description: Headworks | Computed by: BCB | Date: 8/13

Stainless steel Grating | Checked by: ____ | Date: ____

Reference

- Unsupported Span = 8'-0"
- Uniform Live Load = 300 psf

∴ use table to identify Bearing Bar Size

Type 19-4 & 19-2

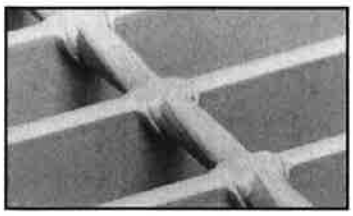
2 1/4" x 3/16" ✓

Stainless Steel Grating

When considering grating for food processing applications, shipboard use, or highly corrosive environments, Grating Pacific Stainless Steel Grating is often the most cost effective product. Commonly manufactured in 300 series alloys, stainless steel gratings are assembled by welding or pressure locking to suit the specific needs of each application.

To specify Grating Pacific Stainless Steel Grating, the **type** of grating is indicated by designating one of the three profiles shown combined with the bearing bar/cross bar spacing illustrated in the table below. Following selection of the **type** of grating, consult the load table on page 12 to select the appropriate bearing bar size for the loads and spans to be served.

EXAMPLES: W-19-4 FOR WELDED BAR GRATINGS
PS-19-4 FOR SWAGED PRESSURE LOCKED GRATINGS
PD-19-4 FOR DOVETAIL PRESSURE LOCKED GRATINGS

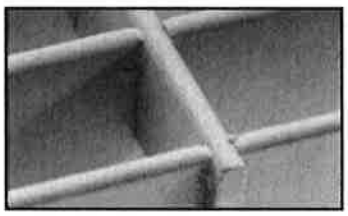


WELDED GRATING PROFILE "W"

Economic welded grating with forged bearing bar/cross bar intersection. Available with bearing bars spaced at 1-3/16" and 15/16" on center. Intersections subject to carbon precipitation caused by welding.

SWAGED GRATING PROFILE "PS"

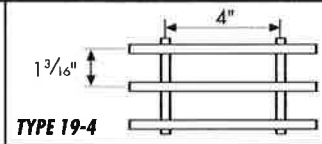
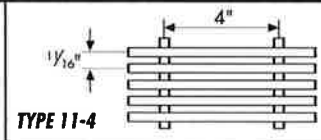
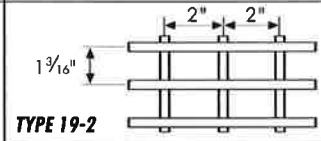
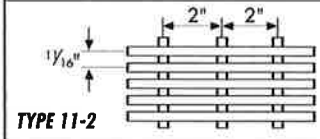
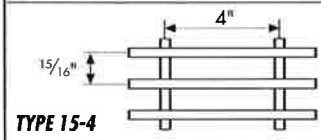
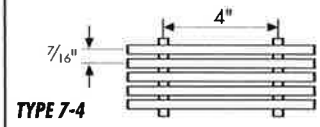
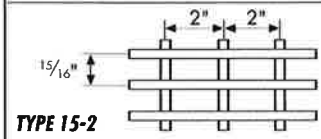
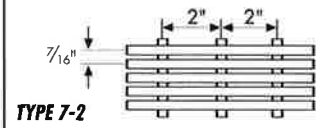
Hollow tube cross bars are swaged into round holes in bearing bars to permanently lock each intersection. Minimizes distortion from welding or punching top surfaces of the bearing bars. Available in any quantity.



DOVETAIL GRATING PROFILE "PD"

Deep rectangular cross bars provide excellent lateral stability. Cross bars are flush with top surface of bearing bars to provide comfortable walking surface. Popular for ornamental and architectural applications.

TABLE OF SPACINGS AVAILABLE

STANDARD MESH GRATING	 **TYPE 19-4**	*Bearing Bars at 1-3/16" O.C.* *Cross Bars at 4" O.C.*	**ADA CONFORMING SPACINGS**	 **TYPE 11-4**	*Bearing Bars at 11/16" O.C.* *Cross Bars at 4" O.C.*
OTHER BAR SPACINGS AVAILABLE	 **TYPE 19-2**	*Bearing Bars at 1-3/16" O.C.* *Cross Bars at 2" O.C.*		 **TYPE 11-2**	*Bearing Bars at 11/16" O.C.* *Cross Bars at 2" O.C.*
	 **TYPE 15-4**	*Bearing Bars at 15/16" O.C.* *Cross Bars at 4" O.C.*		 **TYPE 7-4**	*Bearing Bars at 7/16" O.C.* *Cross Bars at 4" O.C.*
	 **TYPE 15-2**	*Bearing Bars at 15/16" O.C.* *Cross Bars at 2" O.C.*		 **TYPE 7-2**	*Bearing Bars at 7/16" O.C.* *Cross Bars at 2" O.C.*

FINISHING

As produced, stainless steel products typically display discoloration due to cutting and welding. If appearance is a factor, consideration should be given to secondary cleaning such as abrasive blasting, passivating or electro polishing.

PHOENIX, AZ
TEL (888) 936-9201
FAX (623) 936-9550

LOS ALAMITOS, CA
TEL (800) 321-4314
FAX (562) 598-2740

TRACY, CA
TEL (800) 491-7999
FAX (209) 832-6311

WOODBURN, OR
TEL (800) 942-4041
FAX (503) 980-2068

SEATTLE, WA
TEL (800) 243-3939
FAX (206) 575-6455

Stainless Steel Grating Load Table

19-4 / 19-2 LOAD TABLE

BEARING BAR SIZE		UNSUPPORTED SPAN 2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	WEIGHT PER SQ. FT. (LBS.) 19-4	19-2	15-4	15-2	11-4	11-2	7-4	7-2
3/4 x 1/8	U	395	253	175	129	99	78								4.0	4.8	4.9	5.7	6.4	7.2	9.7	10.7
	D	.114	.179	.257	.350	.457	.579															
	C	395	316	263	226	197	175															
	D	.091	.143	.206	.280	.366	.463															
3/4 x 3/16	U	592	379	263	193	148	117								5.6	6.4	6.9	7.7	9.2	10.0	14.5	16.0
	D	.114	.179	.257	.350	.457	.579															
	C	592	474	395	338	296	263															
	D	.091	.143	.206	.280	.366	.463															
1 x 1/8	U	702	449	312	229	175	139	112	93	78					5.1	5.9	6.2	7.1	8.2	9.0	12.9	14.2
	D	.086	.134	.193	.263	.343	.434	.536	.648	.771												
	C	702	561	468	401	351	312	281	255	234												
	D	.069	.107	.154	.210	.274	.347	.429	.519	.617												
1 x 3/16	U	1053	674	468	344	263	208	168	139	117					7.4	8.4	9.2	10.2	12.1	13.1	19.4	21.3
	D	.086	.134	.193	.263	.343	.434	.536	.648	.771												
	C	1053	842	702	602	526	468	421	383	351												
	D	.069	.107	.154	.210	.274	.347	.429	.519	.617												
1-1/4 x 1/8	U	1096	702	487	358	274	217	175	145	122	104	90			6.4	7.4	7.8	8.8	10.3	11.3	15.8	17.1
	D	.069	.107	.154	.210	.274	.347	.429	.519	.617	.724	.840										
	C	1096	877	731	627	548	487	439	399	365	337	313										
	D	.055	.086	.123	.168	.219	.278	.343	.415	.494	.579	.672										
1-1/4 x 3/16	U	1645	1053	731	537	411	325	263	217	183	156	134			9.0	10.0	11.2	12.2	14.9	15.9	23.8	25.7
	D	.069	.107	.154	.210	.274	.347	.429	.519	.617	.724	.840										
	C	1645	1316	1096	940	822	731	658	598	548	506	470										
	D	.055	.086	.123	.168	.219	.278	.343	.415	.494	.579	.672										
1-1/2 x 1/8	U	1579	1011	702	516	395	312	253	209	175	149	129	99	78	7.4	8.4	9.2	10.2	12.1	13.1	18.8	20.0
	D	.057	.089	.129	.175	.229	.289	.357	.432	.514	.604	.700	.914	1.157								
	C	1579	1263	1053	902	789	702	632	574	526	486	451	395	351								
	D	.046	.071	.103	.140	.183	.231	.286	.346	.411	.483	.560	.731	.926								
1-1/2 x 3/16	U	2368	1516	1053	773	592	468	379	313	263	224	193	148	117	11.1	12.5	13.7	15.1	18.1	19.6	28.1	30.1
	D	.057	.089	.129	.175	.229	.289	.357	.432	.514	.604	.700	.914	1.157								
	C	2368	1895	1579	1353	1184	1053	947	861	789	729	677	592	526								
	D	.046	.071	.103	.140	.183	.231	.286	.346	.411	.483	.560	.731	.926								
1-3/4 x 3/16	U	3224	2063	1433	1053	806	637	516	426	358	305	263	201	159	12.7	14.1	15.7	17.1	20.9	22.3	32.5	34.4
	D	.049	.077	.110	.150	.196	.248	.306	.370	.441	.517	.600	.784	.992								
	C	3224	2579	2149	1842	1612	1433	1289	1172	1075	992	921	806	716								
	D	.039	.061	.088	.120	.157	.198	.245	.296	.353	.414	.480	.627	.793								
2 x 3/16	U	4211	2695	1871	1375	1053	832	674	557	468	399	344	263	208	14.3	15.7	17.8	19.2	23.7	25.1	36.9	38.8
	D	.043	.067	.096	.131	.171	.217	.268	.324	.386	.453	.525	.686	.868								
	C	4211	3368	2807	2406	2105	1871	1684	1531	1404	1296	1203	1053	936								
	D	.034	.054	.077	.105	.137	.174	.214	.259	.309	.362	.420	.549	.694								
2-1/4 x 3/16	U	5329	3411	2368	1740	1332	1053	853	705	592	505	435	333	263	15.9	17.4	19.8	21.2	26.5	27.9	41.3	43.2
	D	.038	.060	.086	.117	.152	.193	.238	.288	.343	.402	.467	.610	.771								
	C	5329	4263	3553	3045	2664	2368	2132	1938	1776	1640	1523	1332	1184								
	D	.030	.048	.069	.093	.122	.154	.190	.230	.274	.322	.373	.488	.617								
2-1/2 x 3/16	U	6579	4211	2924	2148	1645	1300	1053	870	731	623	537	411	325	17.5	19.0	21.8	23.3	29.2	30.7	45.6	47.5
	D	.034	.054	.077	.105	.137	.174	.214	.259	.309	.362	.420	.549	.694								
	C	6579	5263	4386	3759	3289	2924	2632	2392	2193	2024	1880	1645	1462								
	D	.027	.043	.062	.084	.110	.139	.171	.207	.247	.290	.336	.439	.555								

LOADS AND DEFLECTIONS ARE THEORETICAL VALUES BASED ON 20,000 PSI UNIT STRESS. FOR PEDESTRIAN COMFORT DEFLECTIONS IN EXCESS OF 1/4" ARE NOT RECOMMENDED.

U = SAFE UNIFORM LOAD, LBS. PER SQ. FT.
C = SAFE CONCENTRATED MID-SPAN LOAD, LBS. PER FT. OF GRATING WIDTH
D = DEFLECTION IN INCHES

NOTE: WHEN GRATINGS WITH SERRATED BEARING BARS ARE SELECTED, THE DEPTH OF GRATING REQUIRED TO SERVICE A SPECIFIED LOAD WILL BE 1/4" GREATER THAN THAT SHOWN IN THE TABLES ABOVE.

CONVERSION TABLE

The loads shown above are for type 19-4 and 19-2 gratings. To determine the load carrying capacity for alternative bar spacings, multiply the loads given by the following conversion factors (DEFLECTION REMAINS CONSTANT): ***FOR TYPES 15-4 AND 15-2: 1.26 FOR TYPES 11-4 AND 11-2: 1.72 FOR TYPES 7-4 AND 7-2: 2.71***

SELECTION GUIDE: 19-4 PLAIN SURFACE GRATING

For deflection of not more than 1/4" when subjected to the severest of the following: (1) the uniform loads below; (2) under concentrated mid-span loads of 300 lbs. up to 6'-0" span; or (3) 400 lbs. for spans 6'-0" and over.

SAFE UNIFORM LOAD LBS./SQ. FT.	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"
50	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16
75	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16
100	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16
125	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	-
150	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2 x 3/16	2-1/2 x 3/16	-
200	1 x 1/8	1 x 1/8	1 x 1/8	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	-	-
300	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16	-	-

rial: Hot Rolled Carbon Steel per ASTM A1011
Fs = 18,000 psi
E = 29,000,000 psi
Bearing bars spaced 1-3/16" on center
# of bearing bars per foot = 10.1053

Type 19-4

sco Industrial IKG

a harsco company

Types B, F, WB, & WF

STEEL SAFE LOAD TABLE
U = Uniform load in pounds per square foot
D = Deflection in inches
C = Concentrated load at mid span in pounds per foot of width

Maximum span for 1/4" deflection under a uniform load of 100 psf			SPAN IN INCHES																		
			12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
SIZE 1		U	1421	631	355	227	158	116	89	70	57	47	39	34	29	25	22	20	18	16	14
3/4 X 1/8	42	D	0.025	0.056	0.099	0.155	0.224	0.304	0.398	0.502	0.623	0.752	0.883	1.061	1.217	1.382	1.575	1.824	2.064	2.277	2.446
S^3/ft 0.1184		C	710	474	355	284	237	203	178	158	142	129	118	109	101	95	89	84	79	75	71
I^4/ft 0.0444		D	0.020	0.045	0.079	0.124	0.179	0.243	0.319	0.403	0.496	0.600	0.713	0.837	0.969	1.121	1.274	1.442	1.610	1.798	1.985
SIZE 2		U	2131	947	533	341	237	174	133	105	85	70	59	50	43	38	33	29	26	24	21
3/4 X 3/16	46	D	0.025	0.056	0.099	0.155	0.224	0.304	0.397	0.502	0.619	0.746	0.891	1.040	1.203	1.401	1.575	1.764	1.987	2.277	2.446
S^3/ft 0.1776		C	1066	710	533	426	355	304	266	237	213	194	178	164	152	142	133	125	118	112	107
I^4/ft 0.0666		D	0.020	0.045	0.079	0.124	0.179	0.243	0.317	0.403	0.496	0.602	0.717	0.839	0.972	1.117	1.269	1.431	1.603	1.790	1.994
SIZE 3		U	2526	1123	632	404	281	206	158	125	101	84	70	60	52	45	39	35	31	28	25
1 X 1/8	52	D	0.019	0.042	0.075	0.116	0.168	0.228	0.298	0.378	0.465	0.566	0.668	0.789	0.920	1.049	1.177	1.346	1.499	1.680	1.842
S^3/ft 0.2105		C	1263	842	632	505	421	361	316	281	253	230	211	194	180	168	158	149	140	133	126
I^4/ft 0.1053		D	0.015	0.034	0.060	0.093	0.134	0.182	0.238	0.302	0.373	0.451	0.537	0.628	0.728	0.836	0.954	1.079	1.203	1.344	1.485
SIZE 4		U	3790	1684	947	606	421	309	237	187	152	125	105	90	77	67	59	52	47	42	38
1 X 3/16	57	D	0.019	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.467	0.562	0.669	0.789	0.908	1.042	1.187	1.334	1.515	1.681	1.867
S^3/ft 0.3158		C	1895	1263	947	758	632	541	474	421	379	345	316	292	271	253	237	223	211	199	189
I^4/ft 0.1579		D	0.015	0.034	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.537	0.630	0.731	0.839	0.954	1.077	1.209	1.341	1.486
SIZE 5		U	3947	1754	987	631	439	322	247	195	158	130	110	93	81	70	62	55	49	44	39
1 1/4 X 1/8	61	D	0.015	0.034	0.060	0.093	0.134	0.182	0.239	0.302	0.373	0.449	0.538	0.626	0.734	0.836	0.958	1.083	1.213	1.352	1.472
S^3/ft 0.3289		C	1973	1316	987	789	658	564	493	439	395	359	329	304	282	263	247	232	219	208	197
I^4/ft 0.2056		D	0.012	0.027	0.048	0.074	0.107	0.146	0.191	0.242	0.298	0.361	0.429	0.504	0.584	0.670	0.764	0.860	0.964	1.077	1.189
SIZE 6		U	5921	2631	1480	947	658	483	370	292	237	196	164	140	121	105	93	82	73	66	59
1 1/4 X 3/16	67	D	0.015	0.034	0.060	0.093	0.134	0.182	0.238	0.301	0.373	0.451	0.535	0.629	0.731	0.836	0.958	1.077	1.205	1.352	1.484
S^3/ft 0.4934		C	2960	1974	1480	1184	987	846	740	658	592	538	493	455	423	395	370	348	329	312	296
I^4/ft 0.3084		D	0.012	0.027	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.503	0.584	0.671	0.763	0.860	0.965	1.077	1.191
SIZE 7		U	5684	2526	1421	910	632	464	355	281	227	188	158	135	116	101	89	79	70	63	57
1 1/2 X 1/8	70	D	0.012	0.028	0.050	0.078	0.112	0.152	0.198	0.252	0.310	0.376	0.447	0.526	0.608	0.698	0.796	0.901	1.003	1.121	1.245
S^3/ft 0.4737		C	2842	1895	1421	1137	947	812	711	632	568	517	474	437	406	379	355	334	316	299	284
I^4/ft 0.3553		D	0.010	0.022	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.301	0.358	0.419	0.487	0.559	0.635	0.717	0.805	0.896	0.992
SIZE 8		U	8526	3789	2132	1364	947	696	533	421	341	282	237	202	174	152	133	118	105	94	85
1 1/2 X 3/16	77	D	0.012	0.028	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.525	0.608	0.700	0.793	0.897	1.003	1.115	1.238
S^3/ft 0.7105		C	4263	2842	2132	1705	1421	1218	1066	947	853	775	711	656	609	568	533	502	474	449	426
I^4/ft 0.5329		D	0.010	0.022	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.558	0.636	0.718	0.805	0.897	0.992
SIZE 9		U	11605	5158	2901	1857	1289	947	725	573	464	384	322	275	237	206	181	161	143	129	116
1 3/4 X 3/16	87	D	0.011	0.024	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383	0.450	0.522	0.598	0.680	0.771	0.860	0.963	1.064
S^3/ft 0.9671		C	5803	3868	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	774	725	683	645	611	580
I^4/ft 0.8462		D	0.009	0.019	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306	0.360	0.417	0.479	0.545	0.615	0.690	0.768	0.851
SIZE 10		U	15158	6737	3790	2425	1684	1237	947	749	606	501	421	359	309	269	237	210	187	168	152
2 X 3/16	96	D	0.009	0.021	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.394	0.456	0.523	0.596	0.673	0.754	0.840	0.934
S^3/ft 1.2632		C	7579	5053	3790	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	1011	947	892	842	798	758
I^4/ft 1.2632		D	0.007	0.017	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.419	0.476	0.538	0.603	0.672	0.745
SIZE 11		U	19184	8526	4796	3070	2132	1566	1199	947	767	634	533	454	392	341	300	266	237	213	192
2 1/4 X 3/16	105	D	0.008	0.019	0.033	0.052	0.074	0.101	0.132	0.168	0.207	0.250	0.298	0.350	0.406	0.465	0.530	0.599	0.671	0.748	0.828
S^3/ft 1.5987		C	9592	6395	4796	3837	3197	2741	2398	2132	1918	1744	1599	1476	1370	1279	1199	1128	1066	1010	959
I^4/ft 1.7985		D	0.007	0.015	0.026	0.041	0.060	0.081	0.106	0.134	0.165	0.200	0.238	0.280	0.324	0.372	0.424	0.478	0.536	0.598	0.662
SIZE 12		U	23684	10526	5921	3790	2632	1933	1480	1170	947	783	658	561	483	421	370	328	292	262	237
2 1/2 X 3/16	113	D	0.007	0.017	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.419	0.477	0.538	0.602	0.671	0.745
S^3/ft 1.9737		C	11842	7895	5921	4737	3947	3383	2961	2632	2368	2153	1974	1822	1692	1579	1480	1393	1316	1247	1184
I^4/ft 2.4671		D	0.006	0.013	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.180	0.215	0.252	0.292	0.335	0.381	0.430	0.483	0.538	0.596

PART 14

Gate Hoist Support Beam Design

CPRA

REINTRODUCTION OF WATER INTO MAUREPAS SWAMP

HEADWORK STRUCTURE

ST. JOHN THE BAPTIST PARISH, LOUISIANA

MAUREPAS HEADWORKS

URS Project : 10001801

MONOLITH C-1, GATE HOIST BEAM

URS

URS Group, Inc.

3500 N. Causeway Blvd., Suite 900

Metairie, Louisiana 70002-3527

(504) 837-6326

(504) 831-8860 Fax

Computed by:	RJG	Checked by:	BCB
Date	9/3/2013	Date	9/4/2013

Date Printed 9/14/20139:54 AM

Filename: 10001801 sluice gate beam v2

Job REINTRODUCTION OF WATER INTO MAUREPAS SWAMP MAUREPAS HEADWORKS | Project No. 10001801 | Sheet ___ of ___

Description MONOLITH C-1, GATE HOIST BEAM Design Criteria | Computed by RJG | Date 9/3/2013

Checked by BCB | Date 9/4/2013

References

Material

Water	62.4 (lb/ft^3)
Steel	490 (lb/ft^3)
Modulus of elasticity, E_{steel} =	29,000.00 ksi

Steel Design

AISC Manual of Steel Construction (9th Ed.) - ASD only

EM-1111-2-2705

EM 1110-2-2105

AWS Welding Code

Structural Welding Code, AWS D1.1 (2008)

Design Criteria and Unit values Source: USACE

Grating dead weight =	15.0 psf	
Grating live weight =	100.0 psf	
combined grating load(uses combined factor of 1.7)	195.5 psf	
Contributary area of grating load on beam-1'*5'	5 sf	
Grating load on beam	0.98 k	
Clear opening =	9	ft
Total opening =	11.42	ft
Center of support to center of support =	10.083	ft
Assumed Center hoist to center of nearest support =	3	

Wind load MPH (Min 50 psf)

Impact Load - steel > 100 k total load kips **USACE/BI map**

5 ft, Distribute load across 5-ft width at center of gate's top member

> Size top member to carry entire load

0.33 overstress permitted

URS

URS Group **CPRA**

Job	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP MAUREPAS HEADWORKS	**Project No.**	10001801	**Sheet**	of
Description		**Computed by**	RJG	**Date**	9/3/2013
MONOLITH C-1, GATE HOIST BEAM					
	Hoist Girder Beam	**Checked by**	BCB	**Date**	9/4/2013
	From Waterman			**References**	

After our phone conversation, I reran the calculation on force required to move the gate against 20 feet of head.
The formula we use considers this water head at the horizontal centerline of the gate and averages the water pressure across the gate.
(Water depth in feet * 62.4lb/ft3 * area of face of cover in square feet * .35 (coefficient of friction between brass seats)) + 1.5 (weight of the gate + weight of the stem)
The factor of 1.5 considers breaking static inertia of the gate cover and any other dead weight. In this case there is no weight of the stem and I disregarded the rod of the hydraulic cylinder.
All that said, the weight involved is about 68,000 pounds at 20 feet of head.
Using the formula of stress at the centroid of a simply supported beam = PL/4Z, rearranging the variables and considering the allowable stress as ½ the yield strength of the 300 series stainless steel, the Z (section modulus) value required for this load is about 163 lb/in3.
The section modulus for a pair of 20" x 6" x ½" channels is about 165 lb/in3.

As we discussed, with a self contained gate in which all components are contained in a single package there is no transfer of load to the structure other than the static weight of the gate itself.
The cover for this gate weighs approximately 15,500 pounds, the frame weighs approximately 5500 pounds, the frame extensions weigh approximately 2800 for the pair. The set of channels weigh about 1300 pounds and the hydraulic cylinder weighs about 1000 pounds. All in, the assembly weighs about 26,100 pounds and the forces of opening or closing the gate are not transferred to the structure.

Let me know if you have any other questions.

Regards,
Darryl Pauls, P.E.
Waterman Industries
559 562 8672
When we consider lowering against a head, the weight of the gate slide and stem is subtracted from the force required to overcome the frictional load that the water head exerts against the assembly. This is usually a consideration when we are calculating for an electric motor operator as the available torque for such a unit drops off rather rapidly over time and closing against a head involves higher loads over time than opening against a head. Regardless, this is not as much a consideration with a hydraulic cylinder as the available force is considered constant and the available force for the cylinder is greater in extension than retraction.

Loading cases:

The gate has 20 headwater height

Total Weight = $H_{water\ depth} * \gamma_{water} * A_{cover} * \phi_{friction} + 1.5 *$total weight gate and stem

γ_{water} = 62.4 lb/ft^3

A_{cover} = area of face of cover in square feet = 102.5 sf

$\phi_{of\ friction\ between\ brass\ seats}$ = 0.35 (from Waterman, see above)

Weight of gate assembly = 16,500 lb (assume gate assembly weight adds to load)

Fy = 50 ksi

a = 85.0 in, b = 36 in L= 121.0 in

Assume the beam is fixed at each end, $M_{end} = Pa^2b/L^2$ and $M_{at\ point\ of\ load} = 2Pa^2b^2/L^3$

stress at the centroid of a simply supported beam, Z = M/(0.5Fy), where Z =section modulus

URS

URS Group **CPRA**

Job REINTRODUCTION OF WATER INTO MAUREPAS SWAMP — **Project No.** 10001801 — **Sheet** ____ **of** ____

MAUREPAS HEADWORKS

Description — **Computed by** RJG — **Date** 9/3/2013

MONOLITH C-1, GATE HOIST BEAM

Hoist Girder Beam — **Checked by** BCB — **Date** 9/4/2013

From Waterman — **References**

	Elevations	Hwater depth ft	Hwater depth to C/L of gate	force to move gate	Gate wtx1.5	Total
El. A	1	8	3	6715.8	24,750.0	31,465.80
El. B	9	16	11	24624.6	24,750.0	49,374.60
	15	22	17	38056.2	24,750.0	62,806.20
	16	23	18	40294.8	24,750.0	65,044.80
	17	24	19	42533.4	24,750.0	67,283.40
	18	25	20	44772.0	24,750.0	69,522.00
	19	26	21	47010.6	24,750.0	71,760.60
	20	27	22	49249.2	24,750.0	73,999.20
	21	28	23	51487.8	24,750.0	76,237.80
	22	29	24	53726.4	24,750.0	78,476.40
	23	30	25	55965.0	24,750.0	80,715.00
El. C	24	31	26	58203.6	24,750.0	82,953.60
	25	32	27	60442.2	24,750.0	85,192.20
	26	33	28	62680.8	24,750.0	87,430.80
	27	34	29	64919.4	24,750.0	89,669.40
	28	35	30	67158.0	24,750.0	91,908.00
	29	36	31	69396.6	24,750.0	94,146.60
	30	37	32	71635.2	24,750.0	96,385.20
	31	38	33	73873.8	24,750.0	98,623.80
El. D	31.5	38.5	33.5	74993.1	24,750.0	99,743.10

	Elevation, NAVD88	Description
El. A	1.00	Lowest historical river stage
El. B	9.00	Average/normal river stage
El. C	24.00	Highest historical river stage
El. D	31.50	Design elevation

Assume fully closed at El. 11

						try				
	Hwater depth across C/L of gate ft	P lb	$M = Pa^2b/L^2$ k-in	$M = 2Pa^2b^2/L^3$ k-in	Zrequired in^3	1/2 Zrequired in^3	WF	Zactual	channel	Zactual
El. A	3	31465.8	559.0	332.6	22.4	11.2	W12X50	64.2	C12x30	27.0
El. B	11	49374.6	877.1	521.9	35.1	17.5	W12X50	64.2	C12x30	27.0
	17	62806.2	1115.8	663.9	44.6	22.3	W12X50	64.2	C12x30	27.0
	18	65044.8	1155.5	687.6	46.2	23.1	W12X50	64.2	C12x30	27.0
	19	67283.4	1195.3	711.3	47.8	23.9	W12X50	64.2	C12x30	27.0
	20	69522.0	1235.1	734.9	49.4	24.7	W12X50	64.2	C12x30	27.0
	21	71760.6	1274.8	758.6	51.0	25.5	W12X50	64.2	C12x30	27.0
	22	73999.2	1314.6	782.2	52.6	26.3	W12X50	64.2	C12x30	27.0
	23	76237.8	1354.4	805.9	54.2	27.1	W12X50	64.2	C12x30	27.0
El. C	24	78476.4	1394.1	829.6	55.8	27.9	W12X50	64.2	C12x30	27.0
	25	80715.0	1433.9	853.2	57.4	28.7	W12X50	64.2	C12x30	27.0
	26	82953.6	1473.7	876.9	58.9	29.5	W12X50	64.2	C12x30	27.0
	27	85192.2	1513.5	900.6	60.5	30.3	W12X50	64.2	C12x30	27.0
	28	87430.8	1553.2	924.2	62.1	31.1	W12X50	64.2	C12x30	27.0
	29	89669.4	1593.0	947.9	63.7	31.9	W12X50	64.2	C12x30	27.0
	30	91908.0	1632.8	971.6	65.3	32.7	W12X50	64.2	C12x30	27.0
	31	94146.6	1672.5	995.2	66.9	33.5	W12X50	64.2	C12x30	27.0
	31.5	96385.2	1712.3	1018.9	68.5	34.2	W12X50	64.2	C12x30	27.0
	33	98623.8	1752.1	1042.6	70.1	35.0	W12X50	64.2	C12x30	27.0
El. D	33.5	99743.1	1772.0	1054.4	70.9	35.4	W12X50	64.2	C12x30	27.0

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

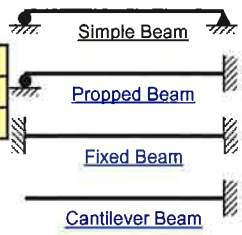
For Simple, Propped, Fixed, or Cantilever Beams

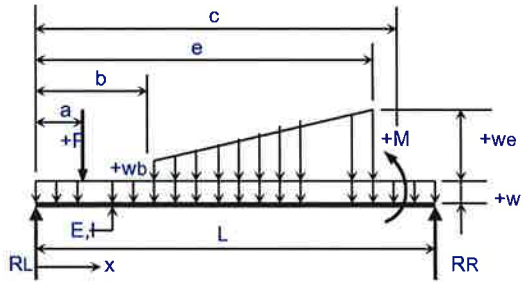
Using AISC W, S, C, or MC Shapes Strong-Axis Bending, 13th Ed. AISC, ASD or LRFD

Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Hoist beam check - DEAD LOADS ONLY		
Job Number:	10001801	Originator:	rjg 9/3/13	Checker:	BCB

Beam Data:

Span Type?	Fixed		
Span, L =	10.08	ft.	
LRFD, Φ =	0.90	1.00	
ASD, Ω =	1.67	1.50	
Beam Size =	W12X50	Major	
Yield, Fy =	50	ksi	
Length, Lb =	10.08	ft.	
Coef., Cb =	1.00		
Method =	LFRD		





Nomenclature

Beam Loadings:

Full Uniform:

w = 0.0500 kips/ft. (1 - W12x50 beam)

THE DESIGN IS ADEQUATE

**P = total gate load/2000

Distributed:	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:				
#2:				
#3:				
#4:				
#5:				
#6:				
#7:				
#8:				

Moments:	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Point Loads:	a (ft.)	P (kips)
#1:	3.0000	8.25
#2:	5.0417	0.98
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

REACTIONS FOR SAP MODEL ARE 2x VALUES BELOW
(INPUT BOTH BEAM REACTIONS AT ONE POINT)

End Reactions:

RL =	7.2	kips	RR =	2.5	kips
MxL =	-13.9	ft-kips	MxR =	-6.8	ft-kips

Maximum Moments:

+Mx(max) =	7.6	ft-kips	@ x =	3.00	ft.
-Mx(max) =	-13.9	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-0.01	in.	@ x =	4.37	ft.
+Δ(max) =	0.00	in.	@ x =	0.00	ft.
Δ(ratio) =	L/22000				

AISC Code Check for X-Axis Bending:

Lp =	6.92	ft.
Lr =	23.82	ft.
Mp =	299.6	ft-kips
Fcr =	121.9	ksi
Mn =	278.6	ft-kips
ΦMn =	250.7	ft-kips
Web =	Compact	
Flange =	Compact	
	Not Slender	
S.R. =	0.03	= Mx(max)/ΦMn

AISC Code Check for Gross Shear:

Cv =	1.00	
Vn =	135.4	kips
ΦVn =	135.4	kips
S.R. =	0.05	= R(max)/ΦVn

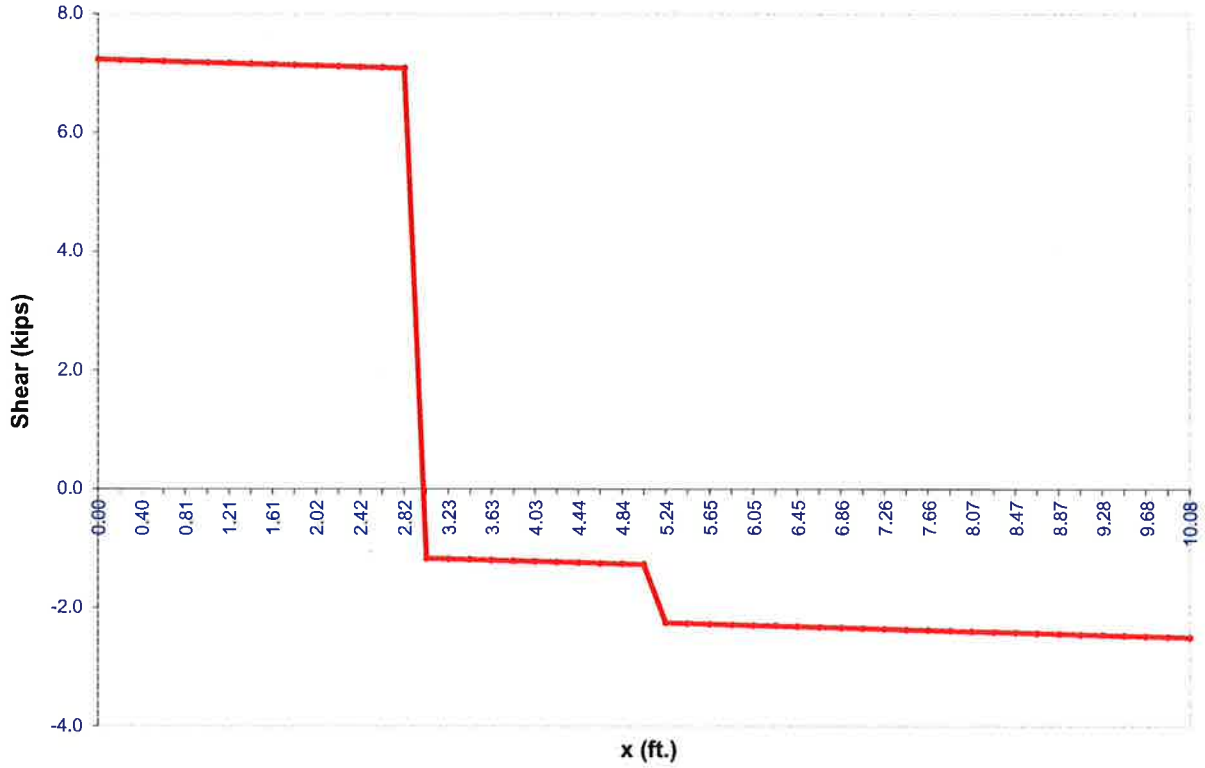
SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

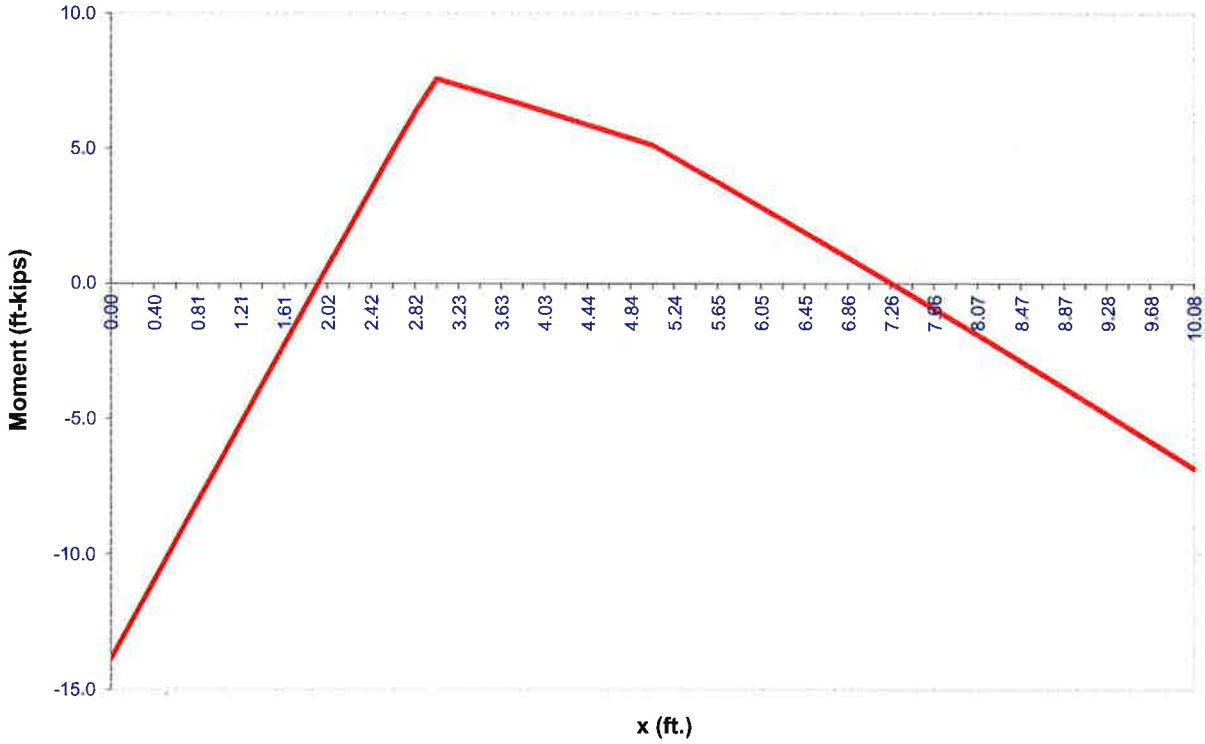
Using AISC W, S, C, or MC Shapes Strong-Axis Bending, 13th Ed. AISC, ASD or LRFD

Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMI	Subject:	Hoist beam check - DEAD LOADS ONLY		
Job Number:	10001801	Originator:	rjg 9/3/13	Checker:	BCB

Shear Diagram



Moment Diagram



SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

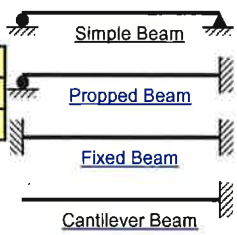
For Simple, Propped, Fixed, or Cantilever Beams

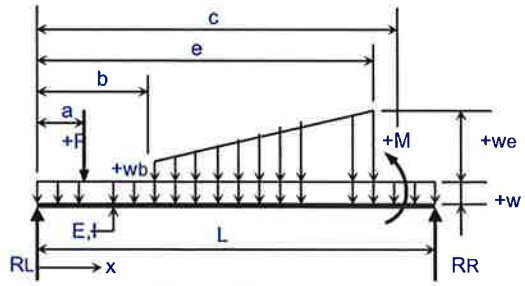
Using AISC W, S, C, or MC Shapes Strong-Axis Bending, 13th Ed. AISC, ASD or LRFD

Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Hoist beam check - MOVEMENT		
Job Number:	10001801	Originator:	rjg 9/3/13	Checker:	BCB

Beam Data:

Span Type?	Fixed		
Span, L =	10.08	ft.	
LRFD, Φ =	0.90	1.00	
ASD, Ω =	1.67	1.50	
Beam Size =	W12X50	Major	
Yield, Fy =	50	ksi	
Length, Lb =	10.08	ft.	
Coef., Cb =	1.00		
Method =	LFRD		





Nomenclature

Beam Loadings:

Full Uniform:

w = 0.0500 kips/ft. (- W12x50 beam :)

THE DESIGN IS ADEQUATE

**P = total gate load/2000

Distributed:	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:				
#2:				
#3:				
#4:				
#5:				
#6:				
#7:				
#8:				

Moments:	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Point Loads:	a (ft.)	P (kips)
#1:	3.0000	49.87
#2:	5.0417	0.98
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

REACTIONS FOR SAP MODEL ARE 2x VALUES BELOW
(INPUT BOTH BEAM REACTIONS AT ONE POINT)

End Reactions:

RL =	40.0	kips	RR =	11.4	kips
MxL =	-75.5	ft-kips	MxR =	-32.9	ft-kips

Maximum Moments:

+Mx(max) =	44.3	ft-kips	@ x =	3.00	ft.
-Mx(max) =	-75.5	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-0.03	in.	@ x =	4.23	ft.
+Δ(max) =	0.00	in.	@ x =	0.00	ft.
Δ(ratio) =	L/4246				

AISC Code Check for X-Axis Bending:

Lp =	6.92	ft.
Lr =	23.82	ft.
Mp =	299.6	ft-kips
Fcr =	121.9	ksi
Mn =	278.6	ft-kips
ΦMn =	250.7	ft-kips
Web =	Compact	
Flange =	Compact	
	Not Slender	
S.R. =	0.18	= Mx(max)/ΦMn

AISC Code Check for Gross Shear:

Cv =	1.00	
Vn =	135.4	kips
ΦVn =	135.4	kips
S.R. =	0.30	= R(max)/ΦVn

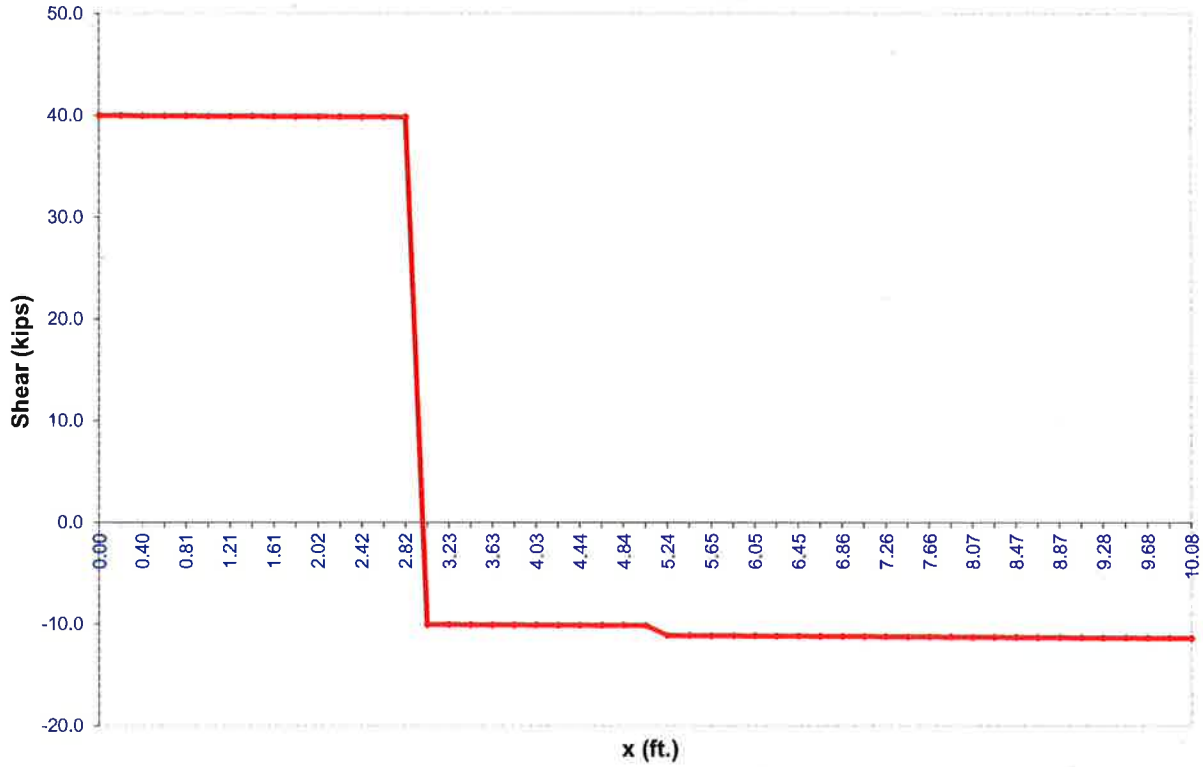
SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

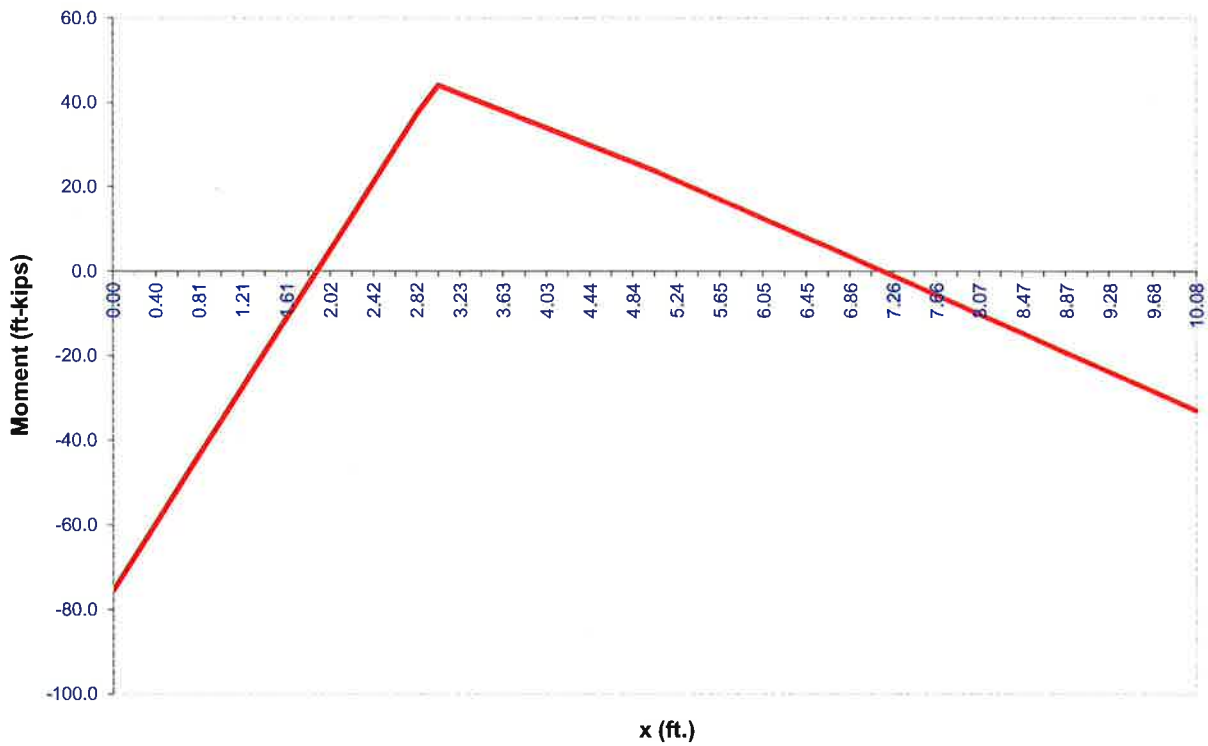
Using AISC W, S, C, or MC Shapes Strong-Axis Bending, 13th Ed. AISC, ASD or LRFD

Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Hoist beam check - MOVEMENT		
Job Number:	10001801	Originator:	rjg 9/3/13	Checker:	BCB

Shear Diagram



Moment Diagram



STEEL BEAM WEB STIFFENER ANALYSIS

Flange Local Bending, Web Yielding, Crippling, Buckling, and Stiffener Criteria for Concentrated Load or Reaction Per AISC 13th Edition Manual (ASD)

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAM	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Input Data: See below.

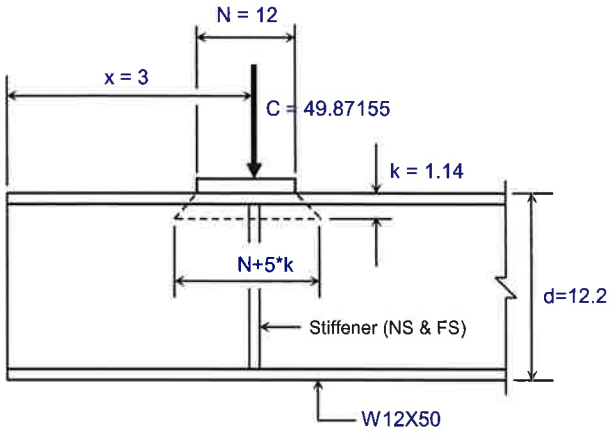
Conclusion: Stiffeners for beam web are not required

Beam Size:

Select: W12X50

Beam Compressive Load:

C = 49.87 kips



Design Parameters:

Beam Yield, Fy =	50	ksi
Bearing Length, N =	12.000	in.
Bearing Width, B =	12.000	in.
Unbraced Length, Lb =	10.083	ft.
Distance to C, x =	3.000	ft.
Actual Moment, Ma =	44.3	ft.-kips
Yield Moment, My =	267.5	ft.-kips
Loaded Flg. Restrained?	No	

Input for Stiffener When Required

Stiffener Yield, Fys =	50	ksi
Number of Stiff. Pairs =	1-Pair	
Stiffener Thickness, ts =	1/2	in.

Nomenclature

Notes: 1. When stiffeners are required, program assumes full height stiffeners.

2. Only 1-pair of stiffeners depicted at either reaction or load (if required) but may be 2-pairs or 3-pairs spaced 3" o.c.

Beam Properties:

d =	12.200	in.
tw =	0.370	in.
bf =	8.080	in.
tf =	0.640	in.
k =	1.140	in.
Sx =	64.20	in.^3

Results:

Gross Shear Capacity of Beam Web: (G2.1)

Rvg = 90.28 kips Rvg = (1/1.5)*0.60*Fyb*Cv*Avg Rv >= C, O.K.

Local Web Yielding: (J10.2) (Criteria is for C away from beam end per AISC Eqn. J10-2)

Rwy = 218.30 kips Rwy = (1/1.5)*Fy*tw*(N+5*k)

Rwy >= C, O.K.

Web Crippling: (J10.3) (Criteria is for C away from beam end per AISC Eqn. J10-4)

Rwc = 199.21 kips Rwc = (1/2)*0.80*tw^2*[1+3(N/d)*(tw/tf)^1.5]*sqrt(E*Fy*tf/tw)

Rwc >= C, O.K.

(continued)

STEEL BEAM WEB STIFFENER ANALYSIS

Flange Local Bending, Web Yielding, Crippling, Buckling, and Stiffener Criteria for Concentrated Load or Reaction Per AISC 13th Edition Manual (ASD)

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAM	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Sidesway Web Buckling: (J10.4) (Criteria is for beam with unrestrained top flange per AISC Eqn. J10-7)

h =	9.920	in.	h = d-2*k
Cr =	960,000	ksi	Cr = 960,000 ksi when 1.5*Ma < My
dc/tw)/(Lb/bf) =	1.790		Critical buckling ratio > 1.7, sidesway web buckling will not occur
Rwb =	N.A.	kips	Rwb = (1/1.76)*Cr*(tw^3/h^2)*tf*(0.4*((h/tw)/(Lb/bf))^3)

Rwb >= C, O.K.

Conclusion: Stiffeners for beam web are not required

Beam Web Stiffener Design:

(Note: stiffeners are assumed to be full depth, from flange to flange.)

Stiffener Width:

bs(min) =	N.A.	in.	bs(min) = bf/3-tw/2
bs =	N.A.	in.	bs = bf/2-tw/2 (rounded down to nearest 1/2 inch)

Stiffener Thickness:

ts(min) =	N.A.	in.	ts(min) = larger of: tf/2 or bs/15

Check Stiffener Slenderness and Compressive Stress:

kc =	N.A.		kc = max{ 0.35, min[0.76, 4/sqrt(h/t)] }, h/t = 25 for int. & 12 for ext.
b/t =	N.A.		b/t = bs/ts
b/t(max) =	N.A.		b/t(max) = 0.64*SQRT(kc*E/Fys)
K =	N.A.		(assumed effective length factor per AISC Code, page 16.1-121)
L =	N.A.	in.	L = h = d-2*k
I =	N.A.	in.^4	I = 2*(ts*bs^3/12+(ts*bs)*(bs/2+tw/2)^2)+(25*tw)*tw^3/12
A =	N.A.	in.^2	A = 2*(ts*bs)+(25*tw)*tw
r =	N.A.	in.	r = SQRT(I/A)
fa =	N.A.	ksi	fa = C/A
KL/r =	N.A.		(effective slenderness ratio for compression)
Fe =	N.A.		Fe = π^2*29000/ (KL/r)^2
Fa =	N.A.	ksi	If KL/r <= 25 then Fa = (1/1.67)*Fy (Eqn. J4-6)
			If KL/r <= 4.71*sqrt(E/Fys) then Fa = (1/1.67)*[0.658^(Fy/Fe)]*Fy
			If KL/r > 4.71*sqrt(E/Fys) then Fa = (1/1.67)*0.877*Fe

Stiffener Welding to Beam Flange:

Ps =	N.A.	kips	Ps = C-(Minimum of Rwy, Rwc, or Rwb) (design force)
Lw =	N.A.	in.	Lw = (bs-0.75)*4
fw =	N.A.	kips/in.	fw = Ps/Lw
ω(req'd) =	N.A.	in. (size)	ω(req'd) = fw/((SQRT(2)/2)*(0.30*70))
ω(min) =	N.A.	in.	ω(min) = Min. fillet weld size from AISC Table J2.4, page 5-67
ω(max) =	N.A.	in.	ω(max) = 0.40*Fys*ts/((SQRT(2)/2)*0.30*70*2)

Stiffener Welding to Beam Web:

Ps =	N.A.	kips	Ps = C-(Minimum of Rwy, Rwc, or Rwb) (design force)
Lw =	N.A.	in.	Lw = (d-2*(k+0.25))*4
fw =	N.A.	kips/in.	fw = Ps/Lw
ω(req'd) =	N.A.	in. (size)	ω(req'd) = fw/((SQRT(2)/2)*(0.30*70))
ω(min) =	N.A.	in.	ω(min) = Min. fillet weld size from AISC Table J2.4, page 5-67
ω(max) =	N.A.	in.	ω(max) = 0.40*Fy*tw/((SQRT(2)/2)*0.3*70*2)

STEEL BEAM WEB STIFFENER ANALYSIS

Flange Local Bending, Web Yielding, Crippling, Buckling, and Stiffener Criteria for Concentrated Load or Reaction Per AISC 13th Edition Manual (ASD)

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Input Data: See below.

Conclusion: Stiffeners for beam web are not required

Beam Size:

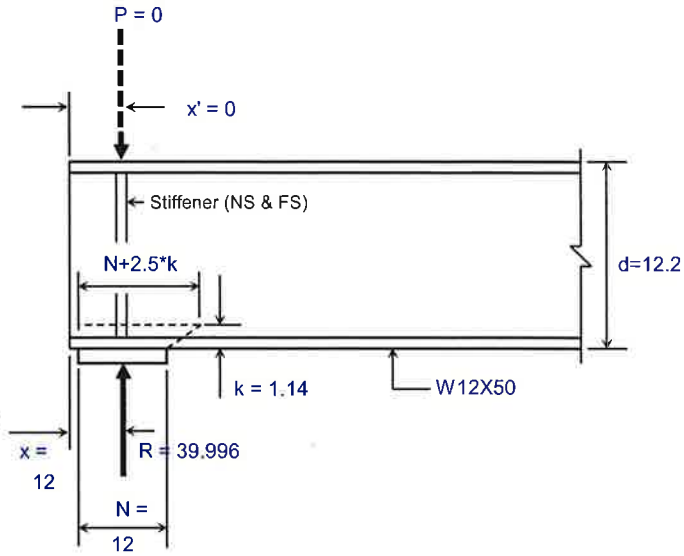
Select: W12X50

End Reaction:

P =	0.00	kips
R =	40.00	kips

Design Parameters:

Beam Yield, Fy =	50	ksi
Bearing Length, N =	12.000	in.
Bearing Width, B =	12.000	in.
Unbraced Length, Lb =	10.083	ft.
Distance to R, x =	12.000	ft.
Distance to P, x' =	0.000	ft.
Actual Moment, Ma =	75.5	ft.-kips
Yield Moment, My =	267.5	
Loaded Flg. Restrained?	No	



Input for Stiffener When Required:

Stiffener Yield, Fys =	50	ksi
Number of Stiff. Pairs =	1-Pair	
Stiffener Thickness, ts =	1/2	in.

Nomenclature

Notes: 1. When stiffeners are required, program assumes full height stiffeners.

2. Only 1-pair of stiffeners depicted at either reaction or load (if required) but may be 2-pairs or 3-pairs spaced 3" o.c.

Beam Properties:

d =	12.200	in.
tw =	0.370	in.
bf =	8.080	in.
tf =	0.640	in.
k =	1.140	in.
Sx =	64.20	in.^3

Results:

Gross Shear Capacity of Beam Web: (G2.1)

Rvg = 90.28 kips — Rvg = (1/1.5)*0.60*Fyb*Cv*Avg — Rv >= R, O.K.

Local Web Yielding: (J10.2) — (Criteria is for R away from beam end per AISC Eqn. J10-2)

Rwy = 218.30 kips — Rwy = (1/1.5)*Fy*tw*(N+5*k) — Rwy >= R, O.K.

Web Crippling: (J10.3) — (Criteria is for R away from beam end per AISC Eqn. J10-4)

Rwc = 199.21 kips — Rwc = (1/2)*0.80*tw^2*[1+3(N/d)*(tw/tf)^1.5]*sqrt(E*Fy*tf/tw)

Rwc >= R, O.K.

(continued)

STEEL BEAM WEB STIFFENER ANALYSIS

Flange Local Bending, Web Yielding, Crippling, Buckling, and Stiffener Criteria for Concentrated Load or Reaction Per AISC 13th Edition Manual (ASD)

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Sidesway Web Buckling: (J10.4) (Criteria is for beam with unrestrained top flange per AISC Eqn. J10-7)

h =	9.920	in.	h = d-2*k
Cr =	960,000	ksi	Cr = 960,000 ksi when 1.5*Ma < My
(dc/tw)/(Lb/bf) =	1.790		Critical buckling ratio > 1.7, sidesway web buckling will not occur
Rwb =	N.A.	kips	Rwb = (1/1.76)*Cr*(tw^3/h^2)*tf*(0.4*((h/tw)/(Lb/bf))^3)

Web Compression Buckling: (J10.5) (Criteria applies to a pair of compressive concentrated forces per AISC Eqn. J10-8)

Rwcb =	N.A.	kips	

Conclusion: Stiffeners for beam web are not required

Beam Web Stiffener Design:

(Note: stiffeners are assumed to be full depth, from flange to flange.)

Stiffener Width:

bs(min) =	N.A.	in.	bs(min) = bf/3-tw/2
bs =	N.A.	in.	bs = bf/2-tw/2 (rounded down to nearest 1/2 inch)

Stiffener Thickness:

ts(min) =	N.A.	in.	ts(min) = larger of: tf/2 or bs/15

Check Stiffener Slenderness and Compressive Stress:

kc =	N.A.		kc = max{ 0.35, min[0.76, 4/sqrt(h/t)] }, h/t = 25 for int. & 12 for ext.
b/t =	N.A.		b/t = bs/ts
b/t(max) =	N.A.		b/t(max) = 0.64*SQRT(kc*E/Fys)
K =	N.A.		(assumed effective length factor per AISC Code, page 16.1-121)
L =	N.A.	in.	L = h = d-2*k
I =	N.A.	in.^4	I = 2*(ts*bs^3/12+(ts*bs)*(bs/2+tw/2)^2)+(25*tw)*tw^3/12
A =	N.A.	in.^2	A = 2*(ts*bs)+(25*tw)*tw
r =	N.A.	in.	r = SQRT(I/A)
fa =	N.A.	ksi	fa = R/A
KL/r =	N.A.		(effective slenderness ratio for compression)
Fe =	N.A.		Fe = π^2*29000/ (KL/r)^2
Fa =	N.A.	ksi	If KL/r <= 25 then Fa = (1/1.67)*Fy (Eqn. J4-6)
			If KL/r <= 4.71*sqrt(E/Fys) then Fa = (1/1.67)*[0.658^(Fy/Fe)]*Fy
			If KL/r > 4.71*sqrt(E/Fys) then Fa = (1/1.67)*0.877*Fe

Stiffener Welding to Beam Flange:

Ps =	N.A.	kips	Ps = R -(Minimum of Rwy, Rwc, Rwb or Rwcb) (design force)
Lw =	N.A.	in.	Lw = (bs-0.75)*4
fw =	N.A.	kips/in.	fw = Ps/Lw
ω(req'd) =	N.A.	in. (size)	ω(req'd) = fw/((SQRT(2)/2)*(0.30*70))
ω(min) =	N.A.	in.	ω(min) = Min. fillet weld size from AISC Table J2.4, page 5-67
ω(max) =	N.A.	in.	ω(max) = 0.40*Fys*ts/((SQRT(2)/2)*0.30*70*2)

Stiffener Welding to Beam Web:

Ps =	N.A.	kips	Ps = R-(Minimum of Rwy, Rwc, Rwb, or Rwcb) (design force)
Lw =	N.A.	in.	Lw = (d-2*(k+0.25))*4
fw =	N.A.	kips/in.	fw = Ps/Lw
ω(req'd) =	N.A.	in. (size)	ω(req'd) = fw/((SQRT(2)/2)*(0.30*70))
ω(min) =	N.A.	in.	ω(min) = Min. fillet weld size from AISC Table J2.4, page 5-67
ω(max) =	N.A.	in.	ω(max) = 0.40*Fy*tw/((SQRT(2)/2)*0.3*70*2)

BEAM BEARING PLATE DESIGN

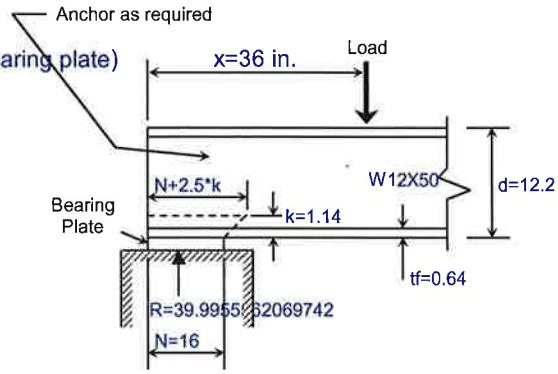
for W, S, and M Shape Beams

per AISC 13th Edition Manual (ASD) - Pages 14-3 to 14-4

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Input Data: see below

bearing plate not required, tf(beam) >tf(bearing plate)



Beam Size:

Beam Size = W12X50

Design Parameters:

Beam End Reaction, R =	40.00	kips
Beam Yield Stress, Fy =	50	ksi
Bearing Plate Length, N =	16.000	in.
Bearing Plate Width, B =	8.080	in.
Bearing Plate Yield Stress, Fyp =	50	ksi
Concrete Strength, f 'c =	4	ksi.
Dist. from Beam Brg to Load, x =	36.00	in.
Bearing Area, A2 =	129.28	in.^2

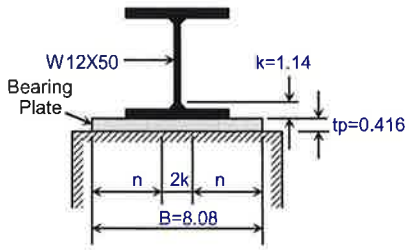
Member Properties:

Beam:

d =	12.200	in.
tw =	0.370	in.
bf =	8.080	in.
tf =	0.640	in.
k =	1.1400	in.

Constants (see pg. 9-18 & 9-38)

R1 / Ω =	35.15	Ω = 1.5
R2 / Ω =	12.33	Ω = 1.5
R3 / Ω =	43.36	Ω = 2.0
R4 / Ω =	4.69	Ω = 2.0
R5 / Ω =	39.55	Ω = 2.0
R6 / Ω =	6.25	Ω = 2.0



Nomenclature

Results:

Check End Reaction Based on Beam Web Shear:

Fv =	20.00	ksi	Fv = 0.6*Fy*Cv/Ω, where Cv = 1.0 & Ω = 1.5 for h/tw <= sqrt(E/Fy)
Rv =	90.28	kips	Rv = Fv*Aw = Fv*(d*tw) (Allowable web shear) — Rv >= R, O.K.

Check End Reaction Based on End Bearing Criteria for Beam:

Web Yielding: (see pg. 9-19)

Rwy1 =	N.A.	kips	Rwy = R1/Ω + N*(R2/Ω) (AISC pg. 9-19) (only appl. if x ≤ d)
Rwy2 =	267.63	kips	Rwy = 2*R1/Ω + N*(R2/Ω) (AISC pg. 9-19) (only appl. if x > d)
Rwy =	267.63	kips	Rwy = Minimum of: Rwy1 or Rwy2

Web Crippling: (see pg. 9-19)

Rwc1 =	FALSE	kips	Rwc1 = R3/Ω + N*(R4/Ω) (AISC pg. 9-19) (appl. if x < d/2 & N/d ≤0.2)
Rwc2 =	FALSE	kips	Rwc2 = R5/Ω + N*(R6/Ω) (AISC pg. 9-19) (appl. if x < d/2 & N/d > 0.2)
Rwc3 =	236.71	kips	Rwc3 = 2*(R3/Ω + N*(R4/Ω)) (AISC pg. 9-19) (appl. if x ≥d/2)
Rwc =	236.71	kips	Rwc = Minimum of: Rwc1, Rwc2 or Rwc3
Rp =	236.71	kips	Rp = Minimum of: Rwy or Rwc — Rp >= R, O.K.

Maximum Allowable End Reaction:

R(max) =	90.28	kips	R(max) = Minimum of: Rv or Rp — Rp >= R, O.K.

(continued)

BEAM BEARING PLATE DESIGN

for W, S, and M Shape Beams

per AISC 13th Edition Manual (ASD) - Pages 14-3 to 14-4

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Determine Required Bearing Plate Thickness:

fp =	0.309	ksi	fp = R/(N*B)	
Fp =	1.360	ksi	Fp = Min. of: 0.34*f'c*SQRT(A2/(N*B)) and 0.68*f'c	Fp >= fp, O.K.
n =	2.900	in.	n = (B-2*k)/2	
tp =	0.416	in.	tp = SQRT(3*fp*n^2)/(0.6*Fy*1.5))	

Minimum Beam Flange Thickness without Bearing Plate:

fpf =	0.309	ksi	fpf = R/(N*bf)	
Fpf =	1.360	ksi	Fpf = Min. of: 0.34*SQRT(A2/(N*bf))*f'c and 0.68*f'c	Fpf >= fpf, O.K.
nf =	2.900	in.	nf = (bf-2*k)/2	
tf(min) =	0.416	in.	tf(min) = SQRT(3*fpf*nf^2/Fbf)	tf(min) <= tf, O.K.
				Bearing Plate Not Req'd.

PRYING ACTION ANALYSIS

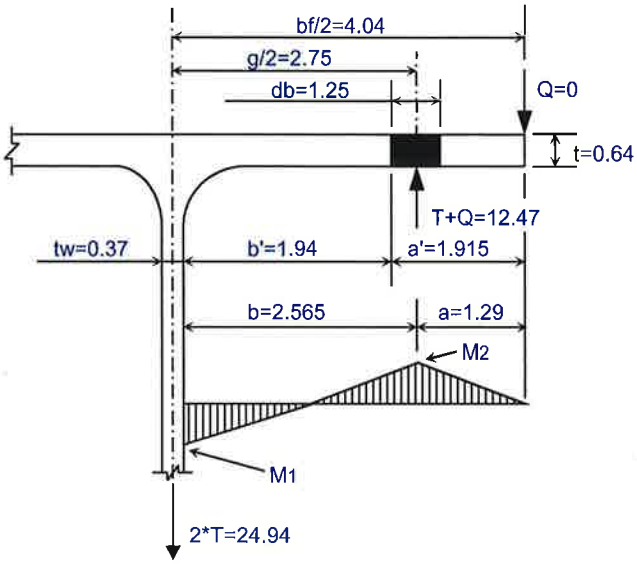
For Structural Steel Connections

Per AISC 13th Edition Manual (ASD) - Pages 9-10 to 9-13

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAM	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Input Data:

Beam, WF =	W12X50	
Total Tension Load, Tt =	49.87	kips
Total Shear Load, Vt =	0.00	kips
Tensile Strength, Fu =	58	ksi
Bolt Diameter, db =	1 1/4	in.
ASTM Bolt Desig. =	A325	
Bolt Type (N, X, or SC) =	N	
Faying Surface Class =	N.A.	
Bolt Hole Type =	Standard	
Tributary Length/Bolt, p =	9.000	in.
Total No. of Bolts, Nb =	4	bolts
Width, bf =	8.0800	in.
Thickness, t =	0.6400	in.
Thickness, tw =	0.3700	in.
Bolt Gage, g =	5.500	in.
No. of Loading Cycles =	0	



Results:

Check Bolt Tension and Shear:

Ab =	1.2272	in.^2	Ab = π*db^2/4	
vb =	0.00	kips/bolt	vb = Vt/Nb	
fv =	0.00	ksi	fv = vb/Ab	
T =	12.47	kips/bolt	T = Tt/Nb	
ft =	10.16	ksi	ft = T/Ab	
Tb =	N.A.	kips	Tb = not applicable for N or X bolts	
Fnv =	48.00	ksi	Fnv = Nominal shear stress for A325-N from AISC Table J3.2, page 16.1-104	
Fnv' =	48.00	ksi	Fnv' = Fnv (no reduction needed for comb. effects)	
Fv =	24.00	ksi	Fv = Fnv' / 2	
ks =	N.A.		ks = not applicable for N or X bolts	
Vb =	29.45	kips/bolt	Vb = Ab*Fv	Vb >= vb, O.K.
At =	0.9691	in.^2	At = π/4*(db - 0.9743/n)^2	
Fnt =	90.00	ksi	Fnt = Nominal tensile stress for A325 bolts from AISC Table J3.2, page 16.1-104	
Fnt' =	90.00	ksi	Fnt' = Fnt (no reduction needed for comb. effects	
Ft =	45.00	ksi	Ft = Fnt' / 2, fatigue is not considered)	
B =	55.22	kips/bolt	B = Ft*Ab	B >= T, O.K.

Nomenclature

(continued)

PRYING ACTION ANALYSIS

For Structural Steel Connections

Per AISC 13th Edition Manual (ASD) - Pages 9-10 to 9-13

Project Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAM	Client:	CPRA		
Project No.:	10001801	Prep. By:	RJG	Chkd By:	BCB

Option #1 - Design connection with prying action

Calculate Required Thickness:

b =	2.5650	in.	b = (g-tw)/2
b' =	1.9400	in.	b' = b-db/2
a =	1.2900	in.	a = minimum of: (bf-g)/2 or 1.25*b
a' =	1.9150	in.	a' = a+db/2
ρ =	1.0131		ρ = b'/a'
d' =	1.3125	in.	d' = Nominal hole dimensions from Table J3.3
δ =	0.8542		δ = 1-d'/p
β =	3.385		β = (1/ρ)*(B/T-1)
α' =	1.0000		If β >= 1: α' = 1, If β < 1: α' = lesser of 1 or (1/δ)*(β/(1-β))
t(req'd) =	0.408	in.	t(req'd) = SQRT(6.66*T*b'/(p*Fu*(1+δ*α'))) t >= t(req'd), O.K.

Calculate Prying Force, Q:

tc =	1.169	in.	tc = SQRT(6.66*B*b'/(p*Fu)) (to develop 'B' in bolts/no prying)
α =	0.000		α = 1/δ*((T/B)/(t/tc)^2-1) (Note: 0 <= a <= 1.0)
Q =	0.00	kips	Q = B*δ*α*ρ*(t/tc)^2 (prying force per bolt at design load)

Check Allowable Bolt Tension with Prying Action:

α' =	1.3592		α' = 1/(δ*(1+ρ))*((tc/t)^2-1)
Ta =	30.68	kips	If α' >1: Ta = B*(t/tc)^2*(1+δ) , If α' < 0: Ta = B
			If 0 <= α' <= 1: Ta = B*(t/tc)^2*(1+δ*α')

Ta >= T, O.K.

Option #2 - Design connection with no prying action

Calculate Required Thickness to Eliminate Prying Action:

t(req'd) =	0.556	in.	t(req'd) = SQRT(6.66*T*b'/(p*Fu)) t >= t(req'd), O.K.

Comments:

Analysis only applicable for Load cases involving raising the sluice gate.

PART 15

Equipment Room Design

CPRA
REINTRODUCTION OF WATER INTO MAUREPAS SWAMP
HEADWORK STRUCTURE
ST. JOHN THE BAPTIST PARISH, LOUISIANA

MAUREPAS HEADWORKS

URS Project : 10001801

Wind Loading on Equipment Room

URS

URS Group, Inc.
3500 N. Causeway Blvd., Suite 900
Metairie, Louisiana 70002-3527
(504) 837-6326
(504) 831-8860 Fax

Computed by:	RJG	Checked by:	JY
Date	9/20/2011	Date	10/18/2012

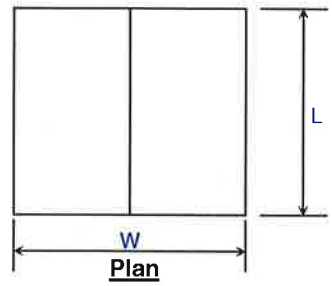
WIND LOADING ANALYSIS - MWFRS and Components/Cladding

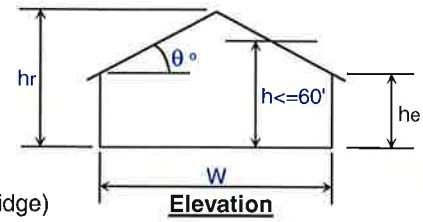
Per ASCE 7-05 Code for Low-Rise, Enclosed Buildings with h <= 60' and Roof θ <= 45°
Using Method 1: Simplified Procedure (Section 6.4)

Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Wind Loading on Equipment Room		
Job Number:	10001801	Originator:	RJG	Checker:	JY

Input Data:

Wind Speed, V =	140	mph (Wind Map, Figure 6-1)
Bldg. Classification =	IV	(Table 1-1 Occupancy Category)
Exposure Category =	C	(Sect. 6.5.6)
Ridge Height, hr =	8.50	ft. (hr >= he)
Eave Height, he =	8.50	ft. (he <= hr)
Building Width, W =	11.00	ft. (Normal to Building Ridge)
Building Length, L =	11.00	ft. (Parallel to Building Ridge)
Roof Type =	Monoslope	(Gable or Monoslope)
Topo. Factor, Kzt =	1.00	(Sect. 6.5.7 & Figure 6-4)
Wall C&C Name =	Wall	(Girt, Siding, Wall, or Fastener)
Wall C&C Eff. Area =	80.00	ft.^2 (for Component/Cladding)
Roof C&C Name =	Decking	(Purlin, Joist, Decking, or Fastener)
Roof C&C Eff. Area =	121.00	ft.^2 (for Component/Cladding)
Overhang Eff. Area =	0.00	ft.^2 (for Component/Cladding)
Hurricane Region?	Y	





Resulting Parameters and Net Design Pressures:

For Transverse Direction: (wind perpendicular to ridge)

Roof Angle, θ =	0.00	deg.
Mean Roof Ht., h =	8.50	ft. (h = he for θ < 10 deg.)
Adjustment Factor, λ =	1.210	(adjusts for height and exposure)
Importance Factor, I =	1.15	(Table 6-1)
Wall & Roof End Zone Width, a =	3.000	ft. (use: "2*a" for MWFRS, "a" for C&C)

Transverse MWFRS Net Pressures, ps (psf)

ps = λ*Kzt*I*ps30 (ps30 from Fig. 6-2)

Location	Direction	Zone	Load Case 1	Load Case 2
A = end zone of wall	Horizontal	A	43.28	---
B = end zone of roof	Horizontal	B	0.00	---
C = interior zone of wall	Horizontal	C	28.66	---
D = interior zone of roof	Horizontal	D	0.00	---
E = end zone of windward roof	Vertical	E	-51.90	---
F = end zone of leeward roof	Vertical	F	-29.50	---
G = interior zone of windward roof	Vertical	G	-36.18	---
H = interior zone of leeward roof	Vertical	H	-22.82	---

For Longitudinal Direction: (wind parallel to ridge)

Roof Angle, θ =	0.00	deg. (assumed)
Mean Roof Ht., h =	8.50	ft. (h = (hr+he)/2)
Adjustment Factor, λ =	1.210	(adjusts for height and exposure)

Longitudinal MWFRS Net Pressures, ps (psf)

ps = λ*Kzt*I*ps30 (ps30 from Fig. 6-2)

Location	Direction	Zone	Load Case 1	Load Case 2
A = end zone of wall	Horizontal	A	43.28	---
B = end zone of roof	Horizontal	B	0.00	---
C = interior zone of wall	Horizontal	C	28.66	---
D = interior zone of roof	Horizontal	D	0.00	---
E = end zone of windward roof	Vertical	E	-51.90	---
F = end zone of leeward roof	Vertical	F	-29.50	---
G = interior zone of windward roof	Vertical	G	-36.18	---
H = interior zone of leeward roof	Vertical	H	-22.82	---

(continued)

Total Design MWFRS Horizontal Load (kips)					
Transverse			Longitudinal		
Load Case 1	Load Case 2	Min. Load	Load Case 1	Load Case 2	Min. Load
4.17	---	0.94	4.17	---	0.94

Formulas:

Ph(Trans) = ((Pc*(L-4*a)+Pa*4*a)*he+(Pd*(L-4*a)+Pb*4*a)*(hr-he))/1000

Ph(Trans)(min) = P(min)*L*hr/1000 , where: P(min) = 10.0 psf on projected area

Ph(Long) = (Pa*(hr+he)/2*4*a+Pc*((hr+he)/2*W-(hr+he)/2*4*a))/1000

Ph(Long)(min) = P(min)*W*(hr+he)/2/1000 , where: P(min) = 10.0 psf on full area

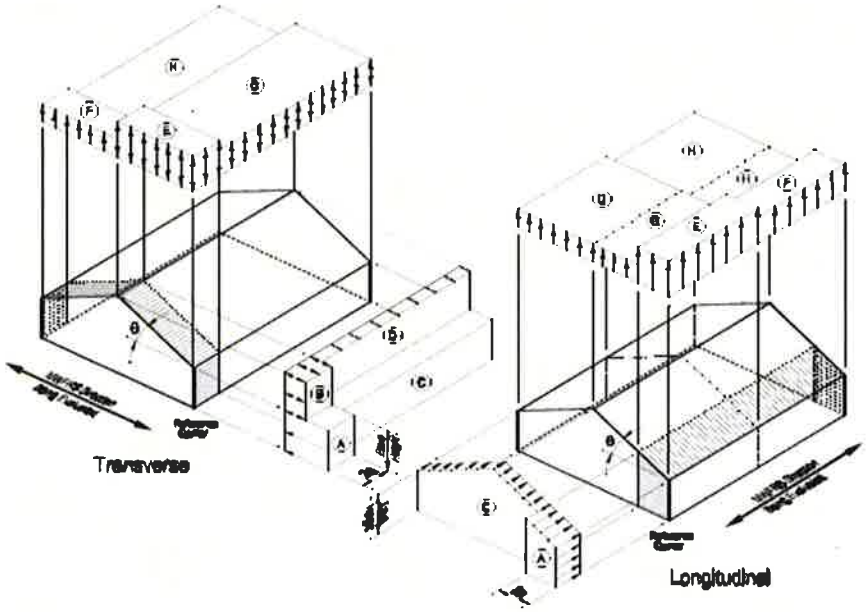
Components & Cladding Net Pressures, ps (psf)				
Item	Location	Zone	Pos. (+)	Neg. (-)
Wall	4 = interior zone of wall	4	42.64	-46.81
	5 = end zone of wall	5	42.64	-52.79
Roof Decking	1 = interior zone of roof	1	15.86	-44.95
	2 = end zone of roof	2	15.86	-53.16
	3 = corner zone of roof	3	15.86	-53.16
Roof Overhang	2 = end zone of o.h.	2	---	---
	3 = corner zone of o.h.	3	---	---

pnet = λ*Kzt*I*pnet30
(pnet30 from Fig. 6-3)

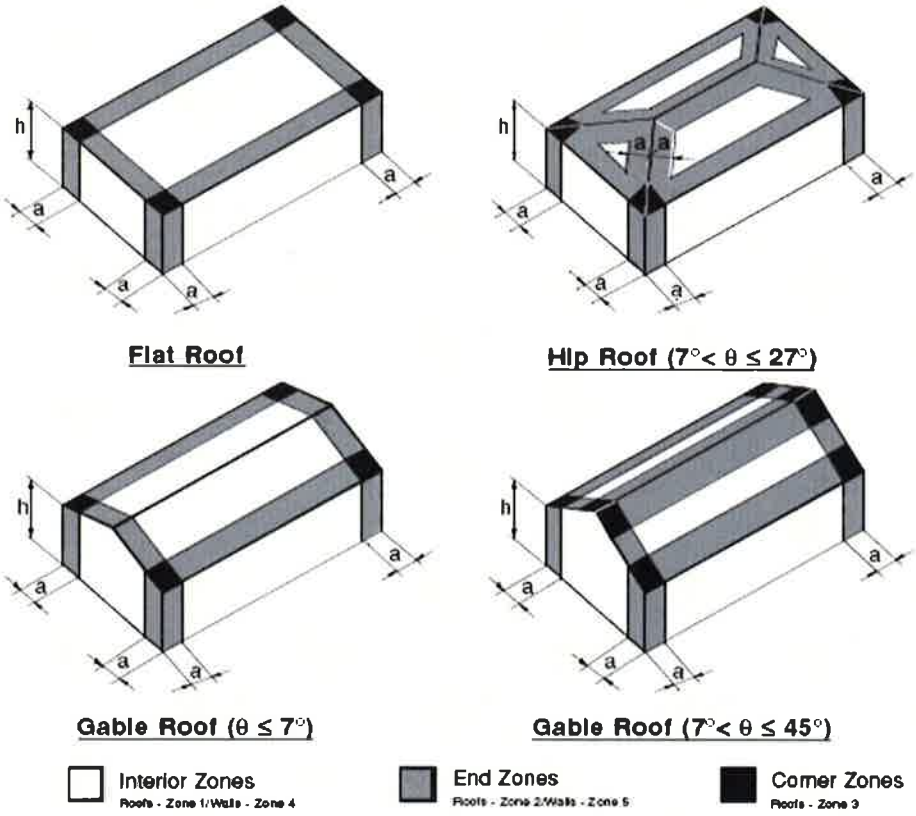
Notes:

1. For Method 1: Simplified Procedure of Section 6.4 to be used for an enclosed low-rise building to determine the design wind loads, all of the following eight conditions of 6.4.1.1 must be met:
   a. Building is a simple diaphragm building, in which wind loads are transmitted through floor and roof diaphragms to the vertical Main Wind-Force Resisting System (MWFRS).
   b. Building is a low-rise building where mean roof height, h <= 60 ft., and h <= min. of L or W.
   c. Building is enclosed and conforms to wind-borne debris provisions of Section 6.5.9.3.
   d. Building is a regular shaped building, having no unusual geometrical irregularity.
   e. Building is not classified as a flexible building so it is considered "rigid".
   f. Building is not subject to across-wind loading, vortex shedding, etc.
   g. Building has an approximately symmetrical cross section in each direction with either a flat roof, or gable roof with θ <= 45 degrees.
   h. Building is exempted from torsional load cases or torsional load cases do not control any of the MWFRSs of the building.
2. Wind pressures (p_{s30}) in Figure 6-2 and (p_{net30}) in Figure 6-3 were prepared based on following:
   a. Mean roof height, h = 30 ft. , Exposure category = B , Importance factor, I =1.0
   b. Velocity pressure exposure coefficient, Kz = 0.70
   c. Directionality factor, Kd = 0.85 , Topographic factor, Kzt = 1.0
   d. Internal pressure coefficients, GCpi = +0.18, -0.18 (enclosed building)
   e. MWFRS pressure coeff's. from Figure 6-10, and C&C pressure coeff's. from Figure 6-11.
   f. MWFRS design wind pressure, $P_s = \lambda*Kzt*I*p_{s30}$, in psf.
   g. Components & cladding design wind pressure, $P_{net} = \lambda*Kzt*I*p_{net30}$, in psf.
3. Design wind pressures are net pressures (sum of external and internal pressures).
4. Wall net pressure for MWFRS is total for both windward and leeward walls.
5. (+) and (-) signs signify wind pressures acting toward & away from respective surfaces.
6. If pressures for Zones "B" and "D" < 0, assume = 0.
7. For the design of the longitudinal MWFRS use roof angle, θ = 0 degrees.
8. Both load cases 1 and 2 are be checked for roof angle, 25 degrees < θ <= 45 degrees.
9. The total design MWFRS horizontal load is the total horizontal wind load on either the length (L) or the width (W) of the building respectively assuming one end zone of a width = 2*a.
10. Minimum wind load for MWFRS design shall be 10 psf applied to area on projected vertical plane. Minimum wind load for C&C shall be 10 psf acting in either direction normal to surface.
11. References:
    a. ASCE 7-05 Standard, "Minimum Design Loads for Buildings and Other Structures".
    b. "Guide to the Use of the Wind Load Provisions of ASCE 7-02" by: Kishor C. Mehta and James M. Delahay (2004).

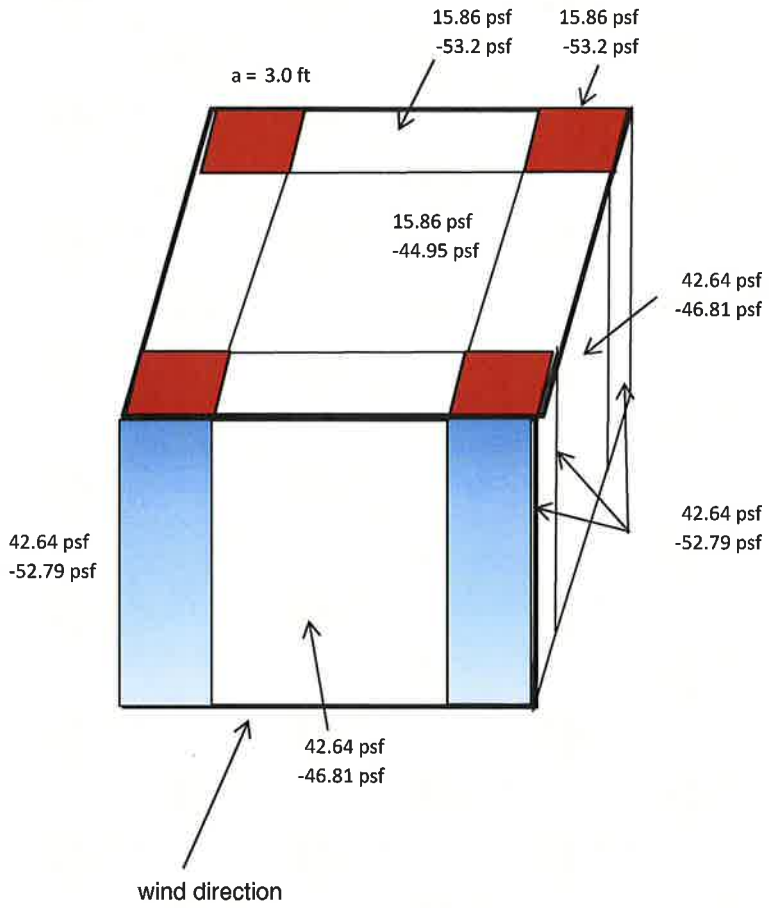
(continued)



MWFRS - Wind Zones



Components and Cladding - Wind Zones


15.86 psf
-53.2 psf
15.86 psf
-53.2 psf
a = 3.0 ft
15.86 psf
-44.95 psf
42.64 psf
-46.81 psf
42.64 psf
-52.79 psf
42.64 psf
-52.79 psf
42.64 psf
-46.81 psf
wind direction

WIND LOADING ANALYSIS - Main Wind-Force Resisting System

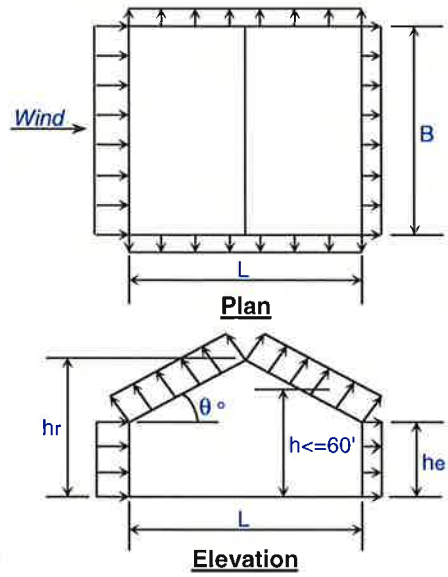
Per ASCE 7-05 Code for Enclosed or Partially Enclosed Buildings

Using Method 2: Analytical Procedure (Section 6.5) for Low-Rise Buildings

Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Wind Loading on Equipment Room		
Job Number:	10001801	Originator:	RJG	Checker:	JY

Input Data:

Wind Speed, V =	140	mph (Wind Map, Figure 6-1)
Bldg. Classification =	III	(Table 1-1 Occupancy Cat.)
Exposure Category =	B	(Sect. 6.5.6)
Ridge Height, hr =	8.00	ft. (hr >= he)
Eave Height, he =	8.00	ft. (he <= hr)
Building Width =	11.00	ft. (Normal to Building Ridge)
Building Length =	11.00	ft. (Parallel to Building Ridge)
Roof Type =	Monoslope	(Gable or Monoslope)
Topo. Factor, Kzt =	1.00	(Sect. 6.5.7 & Figure 6-4)
Direct. Factor, Kd =	0.85	(Table 6-4)
Enclosed? (Y/N)	Y	(Sect. 6.2 & Figure 6-5)
Hurricane Region?	Y	



Resulting Parameters and Coefficients:

Roof Angle, θ =	0.00	deg.
Mean Roof Ht., h =	8.00	ft. (h = he, for angle <=10 deg.)

Check Criteria for a Low-Rise Building:

1. Is h <= 60' ? Yes, O.K. 2. Is h <= Lesser of L or B? Yes, O.K.

External Pressure Coeff's., GCpf (Fig. 6-10):
(For values, see following wind load tabulations.)
Positive & Negative Internal Pressure Coefficients, GCpi (Figure 6-5):

+GCpi Coef. =	0.18	(positive internal pressure)
-GCpi Coef. =	-0.18	(negative internal pressure)

If h < 15 then: Kh = 2.01*(15/zg)^(2/α) (Table 6-3, Case 1b)
If h >= 15 then: Kh = 2.01*(z/zg)^(2/α) (Table 6-3, Case 1b) (Note: z not < 30' for Exp. B, Case 1)

α =	7.00	(Table 6-2)
zg =	1200	(Table 6-2)
Kh =	0.70	(Kh = Kz evaluated at z = h)
I =	1.15	(Table 6-1) (Importance factor)

Velocity Pressure: qz = 0.00256*Kz*Kzt*Kd*V^2*I (Sect. 6.5.10, Eq. 6-15)
qh = 34.36 psf qh = 0.00256*Kh*Kzt*Kd*V^2*I (qz evaluated at z = h)
Design Net External Wind Pressures (Sect. 6.5.12.2.2):
p = qh*[(GCpf) - (+/-GCpi)] (psf, Eq. 6-18)

Wall and Roof End Zone Widths 'a' and '2*a' (Fig. 6-10):

a =	3.00	ft.
2*a =	6.00	ft.

MWFRS Wind Load for Transverse Direction				MWFRS Wind Load for Longitudinal Direction			
Surface	GCpf	p = Net Pressures (psf)		Surface	*GCpf	p = Net Pressures (psf)	
		(w/ +GCpi)	(w/ -GCpi)			(w/ +GCpi)	(w/ -GCpi)
Zone 1	0.40	7.56	19.93	Zone 1	0.40	7.56	19.93
Zone 2	-0.69	-29.89	-17.52	Zone 2	-0.69	-29.89	-17.52
Zone 3	-0.37	-18.90	-6.53	Zone 3	-0.37	-18.90	-6.53
Zone 4	-0.29	-16.15	-3.78	Zone 4	-0.29	-16.15	-3.78
Zone 5	-0.45	-21.65	-9.28	Zone 5	-0.45	-21.65	-9.28
Zone 6	-0.45	-21.65	-9.28	Zone 6	-0.45	-21.65	-9.28
Zone 1E	0.61	14.78	27.15	Zone 1E	0.61	14.78	27.15
Zone 2E	-1.07	-42.95	-30.58	Zone 2E	-1.07	-42.95	-30.58
Zone 3E	-0.53	-24.40	-12.03	Zone 3E	-0.53	-24.40	-12.03
Zone 4E	-0.43	-20.96	-8.59	Zone 4E	-0.43	-20.96	-8.59

*Note: Use roof angle θ = 0 degrees for Longitudinal Direction.

For Trans. when GCpf is neg. in Zones 2/2E:
Zones 2/2E dist. = 5.50 ft.

For Long. when GCpf is neg. in Zones 2/2E:
Zones 2/2E dist. = 5.50 ft.

Remainder of roof Zones 2/2E extending to ridge line shall use roof Zones 3/3E pressure coefficients.

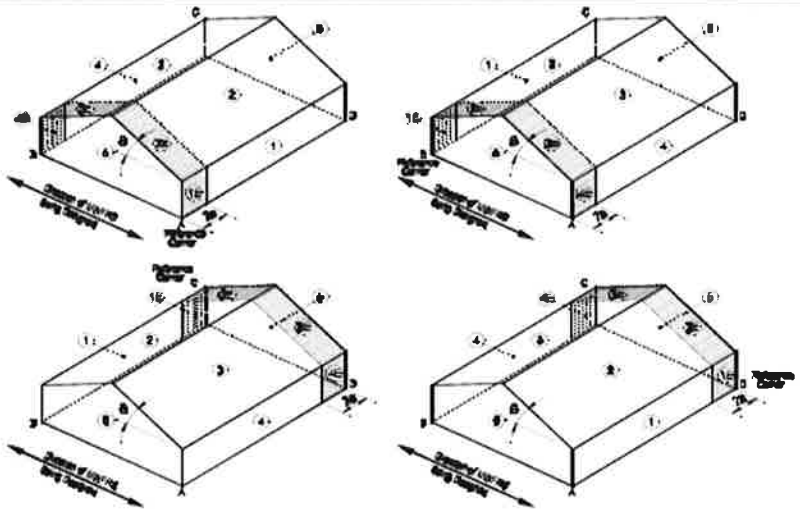
MWFRS Wind Load for Transverse, Torsional Case				MWFRS Wind Load for Long., Torsional Case			
Surface	GCpf	p = Net Pressure (psf)		Surface	GCpf	p = Net Pressure (psf)	
		(w/ +GCpi)	(w/ -GCpi)			(w/ +GCpi)	(w/ -GCpi)
Zone 1T	---	1.89	4.98	Zone 1T	---	1.89	4.98
Zone 2T	---	-7.47	-4.38	Zone 2T	---	-7.47	-4.38
Zone 3T	---	-4.72	-1.63	Zone 3T	---	-4.72	-1.63
Zone 4T	---	-4.04	-0.94	Zone 4T	---	-4.04	-0.94

Notes: 1. For Transverse, Longitudinal, and Torsional Cases:

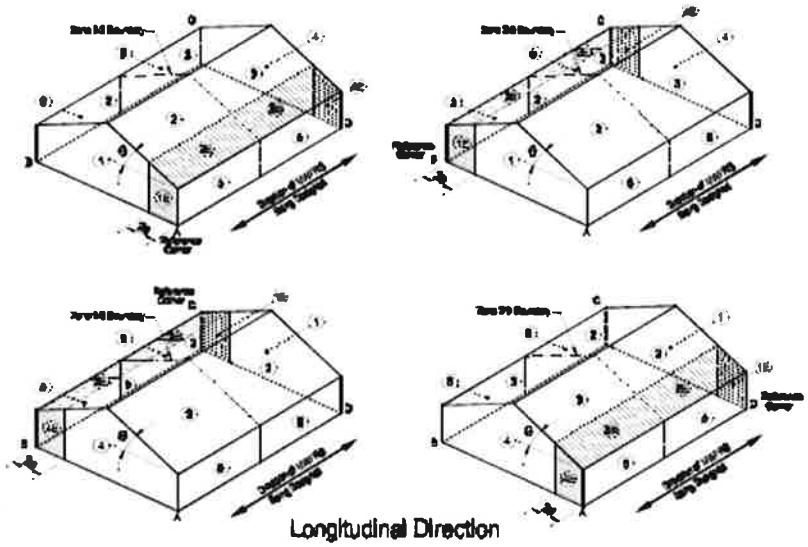
Zone 1 is windward wall for interior zone. Zone 1E is windward wall for end zone.
Zone 2 is windward roof for interior zone. Zone 2E is windward roof for end zone.
Zone 3 is leeward roof for interior zone. Zone 3E is leeward roof for end zone.
Zone 4 is leeward wall for interior zone. Zone 4E is leeward wall for end zone.
Zones 5 and 6 are sidewalls.
Zone 1T is windward wall for torsional case Zone 2T is windward roof for torsional case.
Zone 3T is leeward roof for torsional case Zone 4T is leeward wall for torsional case.

2. (+) and (-) signs signify wind pressures acting toward & away from respective surfaces.
3. Building must be designed for all wind directions using the 8 load cases shown below. The load cases are applied to each building corner in turn as the reference corner.
4. Wind loads for torsional cases are 25% of respective transverse or longitudinal zone load values. Torsional loading shall apply to all 8 basic load cases applied at each reference corner.
   Exception: One-story buildings with "h" <= 30', buildings <= 2 stories framed with light frame construction, and buildings <=2 stories designed with flexible diaphragms need not be designed for torsional load cases.
5. Per Code Section 6.1.4.1, the minimum wind load for MWFRS shall not be less than 10 psf.
6. References : a. ASCE 7-02, "Minimum Design Loads for Buildings and Other Structures".
   b. "Guide to the Use of the Wind Load Provisions of ASCE 7-02"
   by: Kishor C. Mehta and James M. Delahay (2004).

Low-Rise Buildings
h <= 60'

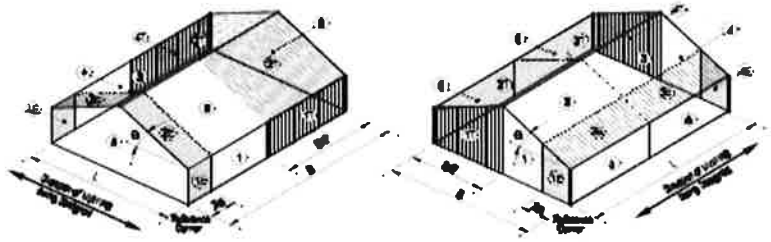


Transverse Direction



Longitudinal Direction

Basic Load Cases



Transverse Direction Longitudinal Direction

Torsional Load Cases

WIND LOADING ANALYSIS - Wall Components and Cladding

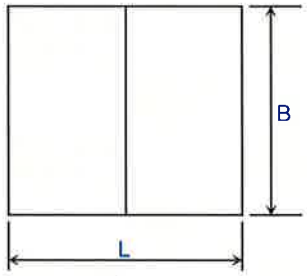
Per ASCE 7-05 Code for Buildings of Any Height

Using Method 2: Analytical Procedure (Section 6.5)

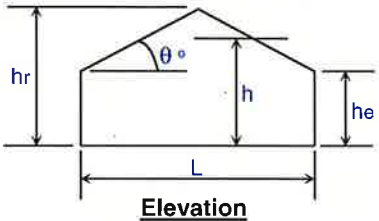
Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWA	Subject:	Wind Loading on Equipment Room		
Job Number:	10001801	Originator:	RJG	Checker:	JY

Input Data:

Wind Speed, V =	140	mph (Wind Map, Figure 6-1)
Bldg. Classification =	III	(Table 1-1 Occupancy Category)
Exposure Category =	B	(Sect. 6.5.6)
Ridge Height, hr =	8.00	ft. (hr >= he)
Eave Height, he =	8.00	ft. (he <= hr)
Building Width =	11.00	ft. (Normal to Building Ridge)
Building Length =	11.00	ft. (Parallel to Building Ridge)
Roof Type =	Monoslope	(Gable or Monoslope)
Topo. Factor, Kzt =	1.00	(Sect. 6.5.7 & Figure 6-4)
Direct. Factor, Kd =	0.85	(Table 6-4)
Enclosed? (Y/N)	Y	(Sect. 6.2 & Figure 6-5)
Hurricane Region?	Y	
Component Name =	Wall	(Girt, Siding, Wall, or Fastener)
Effective Area, Ae =	121	ft.^2 (Area Tributary to C&C)



Plan



Elevation

Resulting Parameters and Coefficients:

Roof Angle, θ =	0.00	deg.
Mean Roof Ht., h =	8.00	ft. (h = he, for roof angle <=10 deg.)

Wall External Pressure Coefficients, GCp:

GCp Zone 4 Pos. =	0.73	(Fig. 6-11A, GCp is reduced by 10% for roof angle <=10 deg.)
GCp Zone 5 Pos. =	0.73	(Fig. 6-11A, GCp is reduced by 10% for roof angle <=10 deg.)
GCp Zone 4 Neg. =	-0.82	(Fig. 6-11A, GCp is reduced by 10% for roof angle <=10 deg.)
GCp Zone 5 Neg. =	-0.92	(Fig. 6-11A, GCp is reduced by 10% for roof angle <=10 deg.)

Positive & Negative Internal Pressure Coefficients, GCpi (Figure 6-5):

+GCpi Coef. =	0.18	(positive internal pressure)
-GCpi Coef. =	-0.18	(negative internal pressure)

If z <= 15 then: Kz = 2.01*(15/zg)^(2/α) , If z > 15 then: Kz = 2.01*(z/zg)^(2/α) (Table 6-3, Case 1a)

α =	7.00	(Table 6-2) (Note: z not < 30' for Exp. B, Case 1)
zg =	1200	(Table 6-2)
Kh =	0.70	(Kh = Kz evaluated at z = h)
I =	1.15	(Table 6-1) (Importance factor)

Velocity Pressure: qz = 0.00256*Kz*Kzt*Kd*V^2*I (Sect. 6.5.10, Eq. 6-15)

qh = 34.36 psf qh = 0.00256*Kh*Kzt*Kd*V^2*I (qz evaluated at z = h)

Design Net External Wind Pressures (Sect. 6.5.12.4):

For h <= 60 ft.: p = qh*((GCp) - (+/-GCpi)) (psf)

For h > 60 ft.: p = q*(GCp) - qi*(+/-GCpi) (psf)

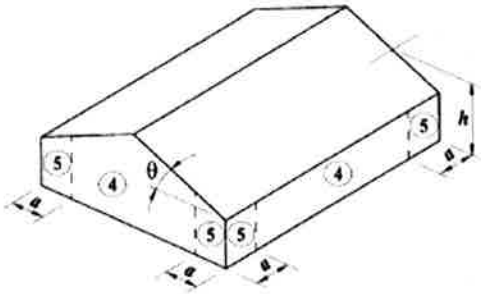
where: q = qz for windward walls, q = qh for leeward walls and side walls

qi = qh for all walls (conservatively assumed per Sect. 6.5.12.4.2)

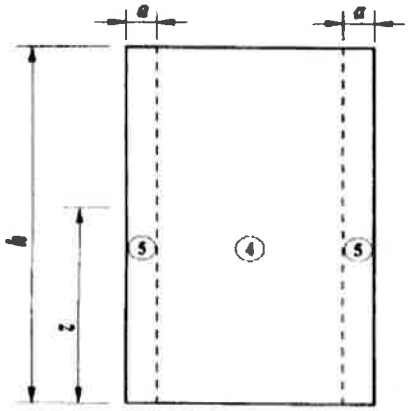
Wind Load Tabulation for Wall Components & Cladding							
Component	z (ft.)	Kh	qh (psf)	p = Net Design Pressures (psf)			
				Zone 4 (+)	Zone 4 (-)	Zone 5 (+)	Zone 5 (-)
Wall	0	0.70	34.36	31.20	-34.29	31.20	-37.65
For z = hr:	8.00	0.70	34.36	31.20	-34.29	31.20	-37.65
For z = he:	8.00	0.70	34.36	31.20	-34.29	31.20	-37.65
For z = h:	8.00	0.70	34.36	31.20	-34.29	31.20	-37.65

Notes: 1. (+) and (-) signs signify wind pressures acting toward & away from respective surfaces.
2. Width of Zone 5 (end zones), 'a' = 3.00 ft.
3. Per Code Section 6.1.4.2, the minimum wind load for C&C shall not be less than 10 psf.
4. References : a. ASCE 7-02, "Minimum Design Loads for Buildings and Other Structures".
b. "Guide to the Use of the Wind Load Provisions of ASCE 7-02"
by: Kishor C. Mehta and James M. Delahay (2004).

Wall Components and Cladding:



Wall Zones for Buildings with h <= 60 ft.



Wall Zones for Buildings with h > 60 ft.

WIND LOADING ANALYSIS - Roof Components and Cladding

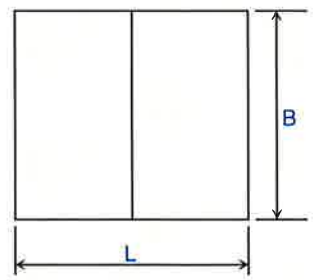
Per ASCE 7-05 Code for Bldgs. of Any Height with Gable Roof θ <= 45° or Monoslope Roof θ <= 3°

Using Method 2: Analytical Procedure (Section 6.5)

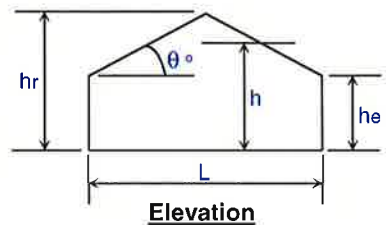
Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWA	Subject:	Wind Loading on Equipment Room		
Job Number:	10001801	Originator:	RJG	Checker:	JY

Input Data:

Wind Speed, V =	140	mph (Wind Map, Figure 6-1)
Bldg. Classification =	III	(Table 1-1 Occupancy Category)
Exposure Category =	B	(Sect. 6.5.6)
Ridge Height, hr =	8.00	ft. (hr >= he)
Eave Height, he =	8.00	ft. (he <= hr)
Building Width =	11.00	ft. (Normal to Building Ridge)
Building Length =	11.00	ft. (Parallel to Building Ridge)
Roof Type =	Monoslope	(Gable or Monoslope)
Topo. Factor, Kzt =	1.00	(Sect. 6.5.7 & Figure 6-4)
Direct. Factor, Kd =	0.85	(Table 6-4)
Enclosed? (Y/N)	Y	(Sect. 6.2 & Figure 6-5)
Hurricane Region?	Y	
Component Name =	Decking	(Purlin, Joist, Decking, or Fastener)
Effective Area, Ae =	121	ft.^2 (Area Tributary to C&C)
Overhangs? (Y/N)	N	(if used, overhangs on all sides)



Plan



Elevation

Resulting Parameters and Coefficients:

Roof Angle, θ =	0.00	deg.
Mean Roof Ht., h =	8.00	ft. (h = he, for roof angle <=10 deg.)

Roof External Pressure Coefficients, GCp:

GCp Zone 1-3 Pos. =	0.20	(Fig. 6-11B thru 6-11D)
GCp Zone 1 Neg. =	-0.90	(Fig. 6-11B thru 6-11D)
GCp Zone 2 Neg. =	-1.10	(Fig. 6-11B thru 6-11D)
GCp Zone 3 Neg. =	-1.10	(Fig. 6-11B thru 6-11D)

Positive & Negative Internal Pressure Coefficients, GCpi (Figure 6-5):

+GCpi Coef. =	0.18	(positive internal pressure)
-GCpi Coef. =	-0.18	(negative internal pressure)

If z <= 15 then: Kz = 2.01*(15/zg)^(2/α) , If z > 15 then: Kz = 2.01*(z/zg)^(2/α) (Table 6-3, Case 1a)

α =	7.00	
zg =	1200	(Table 6-2) (Note: z not < 30, Exp. B, Case 1)
Kh =	0.70	(Kh = Kz evaluated at z = h)
I =	1.15	(Table 6-1) (Importance factor)

Velocity Pressure: qz = 0.00256*Kz*Kzt*Kd*V^2*I (Sect. 6.5.10, Eq. 6-15)

qh = 34.36 psf qh = 0.00256*Kh*Kzt*Kd*V^2*I (qz evaluated at z = h)

Design Net External Wind Pressures (Sect. 6.5.12.4):

For h <= 60 ft.: p = qh*((GCp) - (+/-GCpi)) (psf)

For h > 60 ft.: p = q*(GCp) - qi*(+/-GCpi) (psf)

where: q = qh for roof

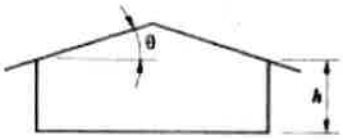
qi = qh for roof (conservatively assumed per Sect. 6.5.12.4.2)

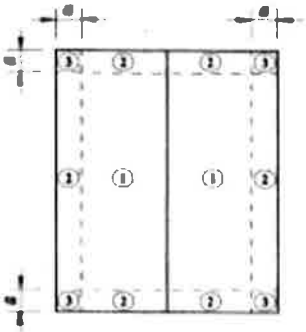
Wind Load Tabulation for Roof Components & Cladding

Component	z (ft.)	Kh	qh (psf)	p = Net Design Pressures (psf)			
				Zone 1,2,3 (+)	Zone 1 (-)	Zone 2 (-)	Zone 3 (-)
Decking	0	0.70	34.36	13.06	-37.11	-43.98	-43.98
For z = hr:	8.00	0.70	34.36	13.06	-37.11	-43.98	-43.98
For z = he:	8.00	0.70	34.36	13.06	-37.11	-43.98	-43.98
For z = h:	8.00	0.70	34.36	13.06	-37.11	-43.98	-43.98

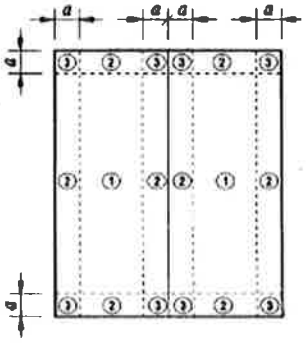
Notes:
1. (+) and (-) signs signify wind pressures acting toward & away from respective surfaces.
2. Width of Zone 2 (edge), 'a' = 3.00 ft.
3. Width of Zone 3 (corner), 'a' = 3.00 ft.
4. For monoslope roofs with θ <= 3 degrees, use Fig. 6-5B for 'GCp' values with 'qh'.
5. For buildings with h > 60' and θ > 10 degrees, use Fig. 6-5B for 'GCpi' values with 'qh'.
6. For all buildings with overhangs, use Fig. 6-5B for 'GCp' values per Sect. 6.5.11.4.2.
7. If a parapet >= 3' in height is provided around perimeter of roof with θ <= 10 degrees, Zone 3 shall be treated as Zone 2.
8. Per Code Section 6.1.4.2, the minimum wind load for C&C shall not be less than 10 psf.
9. References : a. ASCE 7-02, "Minimum Design Loads for Buildings and Other Structures".
   b. "Guide to the Use of the Wind Load Provisions of ASCE 7-02"
   by: Kishor C. Mehta and James M. Delahay (2004).

Roof Components and Cladding:

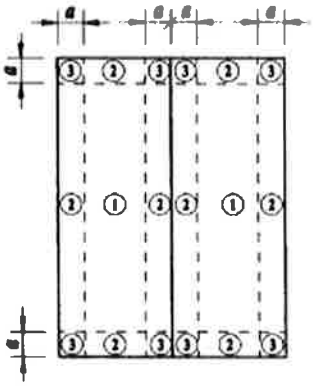




θ <= 7 deg.

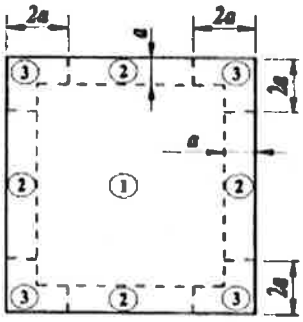


7 deg. < θ <= 27 deg.



27 deg. < θ <= 45 deg.

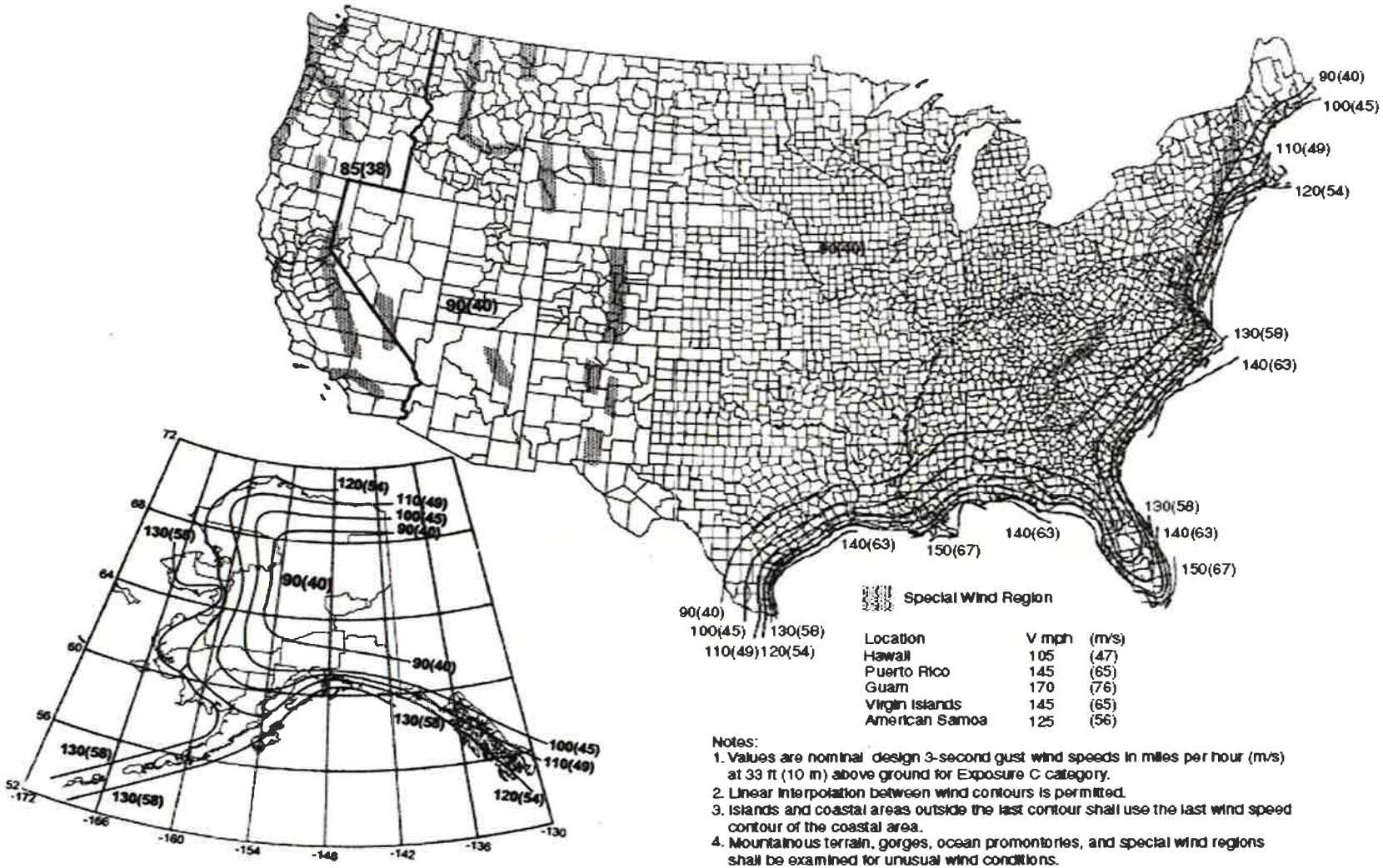
Roof Zones for Buildings with h <= 60 ft.
(for Gable Roofs <= 45° and Monoslope Roofs <= 3°)



ROOF PLAN

Roof Zones for Buildings with h > 60 ft.
(for Gable Roofs <= 10° and Monoslope Roofs <= 3°)

FIGURE 6-1: Basic Wind Speed

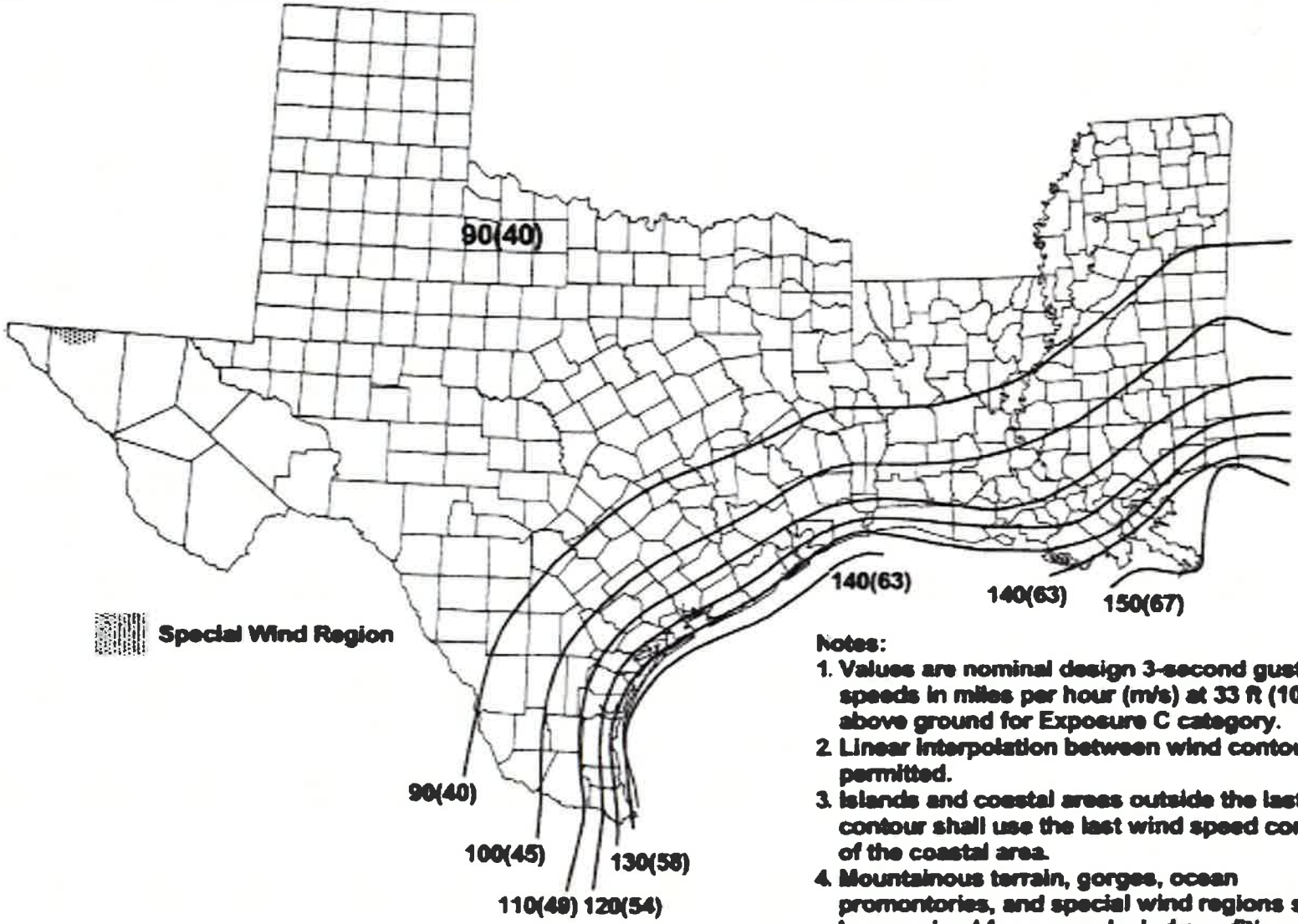


Location	V mph	(m/s)
Hawaii	105	(47)
Puerto Rico	145	(65)
Guam	170	(76)
Virgin Islands	145	(65)
American Samoa	125	(56)

Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10 m) above ground for Exposure C category.
2. Linear interpolation between wind contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

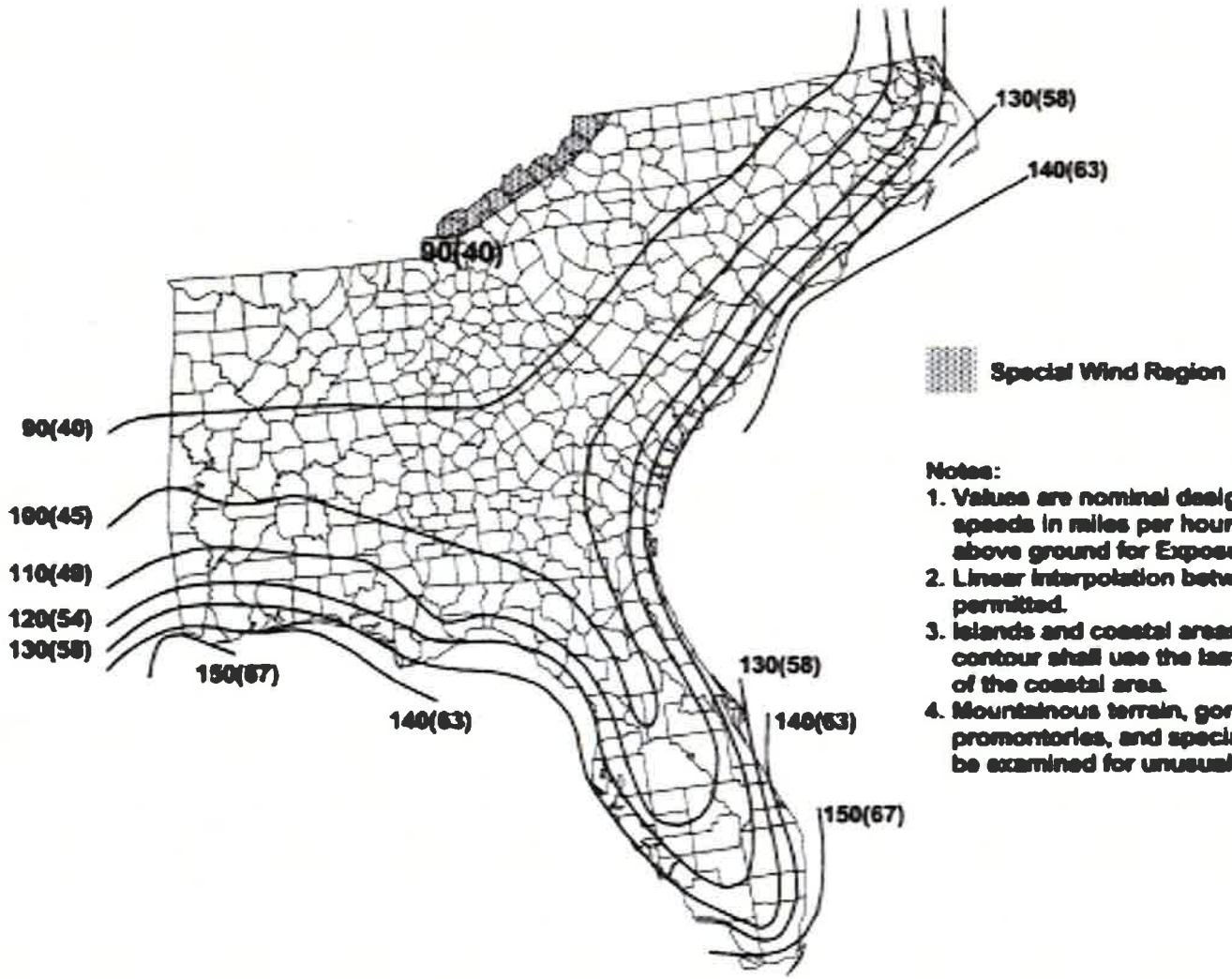
FIGURE 6-1a: Western Gulf of Mexico Hurricane Coastline



Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10 m) above ground for Exposure C category.
2. Linear interpolation between wind contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

FIGURE 6-1b: Eastern Gulf & Southeastern U.S. Hurricane Coastline



Notes:

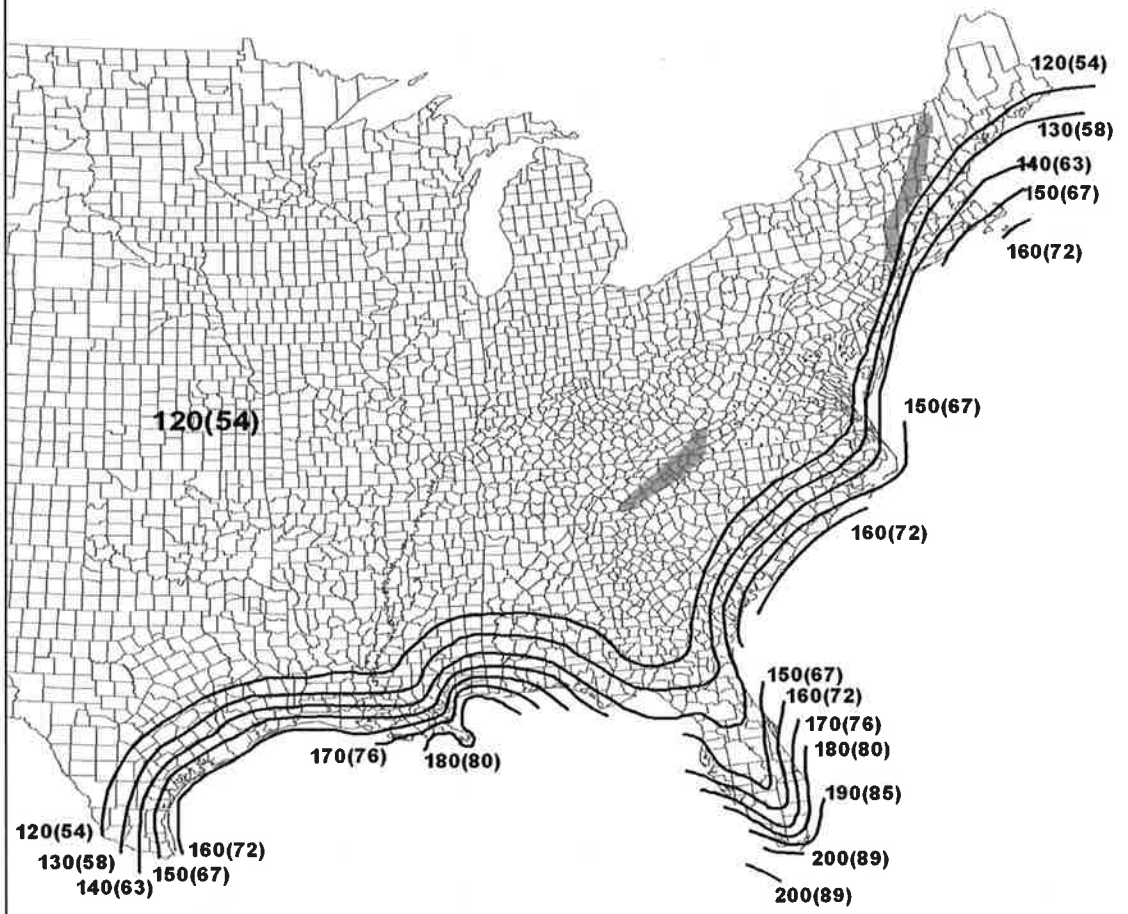
1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10 m) above ground for Exposure C category.
2. Linear interpolation between wind contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

From ASCE 7-10

Figure 26.5-1B Basic Wind Speeds for Occupancy Category III and IV Buildings and Other Structures.

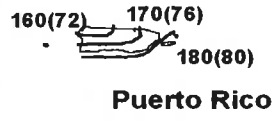
Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 ft (10m) above ground for Exposure C category.
2. Linear interpolation between contours is permitted.
3. Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
5. Wind speeds correspond to approximately a 3% probability of exceedance in 50 years (Annual Exceedance Probability = 0.000588, MRI = 1700 Years).



Special Wind Region

Location	Vmph	(m/s)
Guam	210	(94)
Virgin Islands	175	(78)
American Samoa	170	(76)
Hawaii – Special Wind Region Statewide	145	(65)



URS

Page ____ of ____

Job MAUREPAS HEADWORKS | Project No. 10001801 | Sheet ____ of ____

Description DESIGN OF WALLS & SLAB FOR EQUIPMENT ROOM | Computed by JY | Date 10/2012

Checked by ____ | Date ____

Reference

EQUIPMENT ROOM:

WALLS:

MAX. WIND PRESSURE ON THE WALLS FROM WIND LOAD CALCULATION = 52.79 psf

MOMENT DUE TO WIND LOAD ALONG THE HEIGHT OF WALL ABOUT THE BASE $= 52.79 \text{ psf} \times \frac{(8')^2}{2}$ HT. OF WALL

$= 1689.3$ lb-ft/ft

MOMENT DUE TO WIND LOAD ACROSS THE WALL

$= 52.79 \text{ psf} \times \frac{(11' - 0.5')^2}{2}$ ASSUMED THICKNESS OF WALL

$= 2910$ lb-ft/ft

EQUIPMENT ROOM - DESIGN OF WALLS:

Area of steel required 'As' is calculated from the following equation

$Mu = \phi Mn = \phi As fy (d - a/2)$ where ϕ = strength red. factor 0.85
a = (As fy / (0.85 f'c b))
Mn = nominal moment
ϕ Mn = usable flexural strength

Percentage area of steel required ($\rho_{req'd}$)= As/(b d)

$\rho_{req'd}$' is compared with minimum requirements by ACI (ρ_{min}): [Refer ACI, section 14.3]
If $\rho_{req'd} < \rho_{min}$ then provide ρ_{min} (where 'ρ_{min}'is the percentage of minimum reinforcement)

Wall R/F Design along Height

b =	1	ft
d =	0.23	ft
h =	0.5	ft

(Assuming clear cover 4"and #8 R/F bar)

fy = 60,000 psi
fc = 4,000 psi

Face	Mu (kip - ft)	As (in^2)	$\rho_{req'd}$ (%)=As/(bxd)	ρ_{min} (%)=0.0012(bxh)	$\rho_{ADJUSTED}$	Asreq'd $\rho_{ADJUSTED}$x (b d) (in^2 / per b dimension)
Along height	1.7	0.15	0.00459	0.000864	0.00459	0.15

Wall R/F Design Transversely

b = 1 ft
d = 0.27 ft 3.25 in
h = 0.5 ft

Face	Mu (kip - ft)	As (in^2)	$\rho_{req'd}$ (%)=As/(bxd)	ρ_{min} (%)=0.0020(bxh)	$\rho_{ADJUSTED}$	Asreq'd $\rho_{ADJUSTED}$x (b d) (in^2 / per b dimension)
Transversely	2.9	0.22	0.00569	0.001440	0.00569	0.22

∴ PROVIDE #4 @ 12" EACH WAY AT ALL WALLS

URS

Page ____ of ____

Job MAUREPAS HEADWORKS | Project No. 10001801 | Sheet ____ of ____

Description DESIGN OF ROOF FOR EQUIPMENT ROOM | Computed by JY | Date 10/2012

Checked by ____ | Date ____

Reference

EQUIPMENT ROOM:

ROOF:

MAX. WIND PRESSURE ON THE ROOF FROM WIND LOAD CALCULATION = 53.2 psf

MOMENT ON 1' STRIP OF ROOF ALONG LONGEST SPAN = $53.2^{PSF} \times \frac{11^2}{8}$

= 804.7 lb-ft/ft

EQUIPMENT ROOM - DESIGN OF ROOF:

Area of steel required 'As' is calculated from the following equation

$Mu = \phi Mn = \phi As fy (d - a/2)$ **where** **ϕ = strength red. factor** **0.85**
a = (As fy / (0.85 f'c b))
Mn = nominal moment
ϕ Mn = usable flexural strength

Percentage area of steel required ($\rho_{req'd}$)= **As/(b d)**

$\rho_{req'd}$' is compared with minimum requirements by ACI (ρ_{min}): **[Refer ACI, section 14.3]**
If $\rho_{req'd} < \rho_{min}$ then provide ρ_{min} **(where 'ρ_{min}'is the percentage of minimum reinforcement)**

Roof R/F Design

b =	1	ft
d =	0.23	ft
h =	0.5	ft

(Assuming clear cover 4"and #8 R/F bar)

fy = 60,000 psi
fc = 4,000 psi

Roof	Mu (kip - ft)	As (in^2)	$\rho_{req'd}$ (%)=As/(bxd)	ρ_{min} (%)=0.0012(bxh)	$\rho_{ADJUSTED}$	Asreq'd $\rho_{ADJUSTED}$x (b d) (in^2 / per b dimension)
Longest span	0.8	0.07	0.00213	0.000864	0.00213	0.07

∴ PROVIDE #4@12" EACH WAY.

PART 16

Concrete Walkway (from T-Wall to Equipment Room) Design

URS

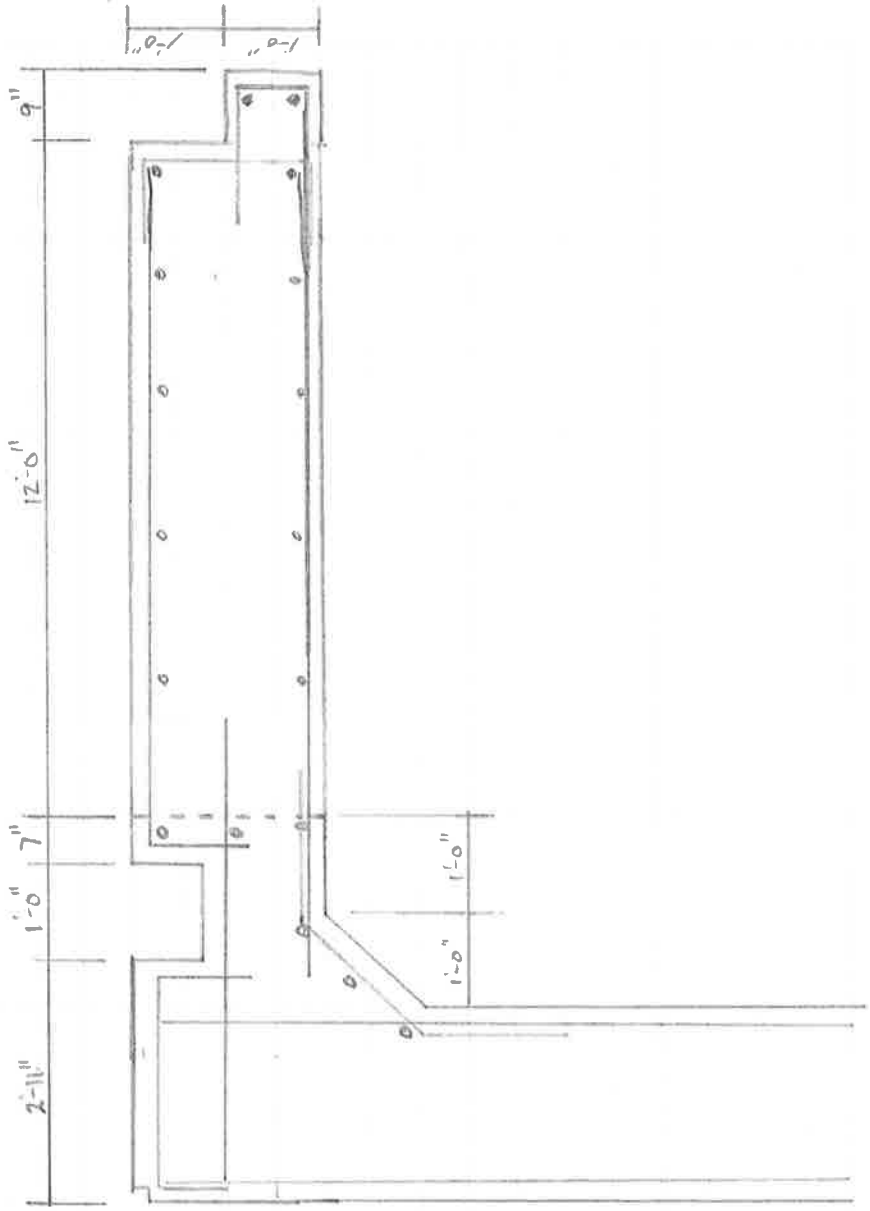
Page _____ of _____

Job Manrepas 1' | Project No. 10001801 | Sheet _____ of _____

Description Headworks | Computed by BCB | Date 8/22/13

Slab Walkway support | Checked by _____ | Date _____

Reference



URS

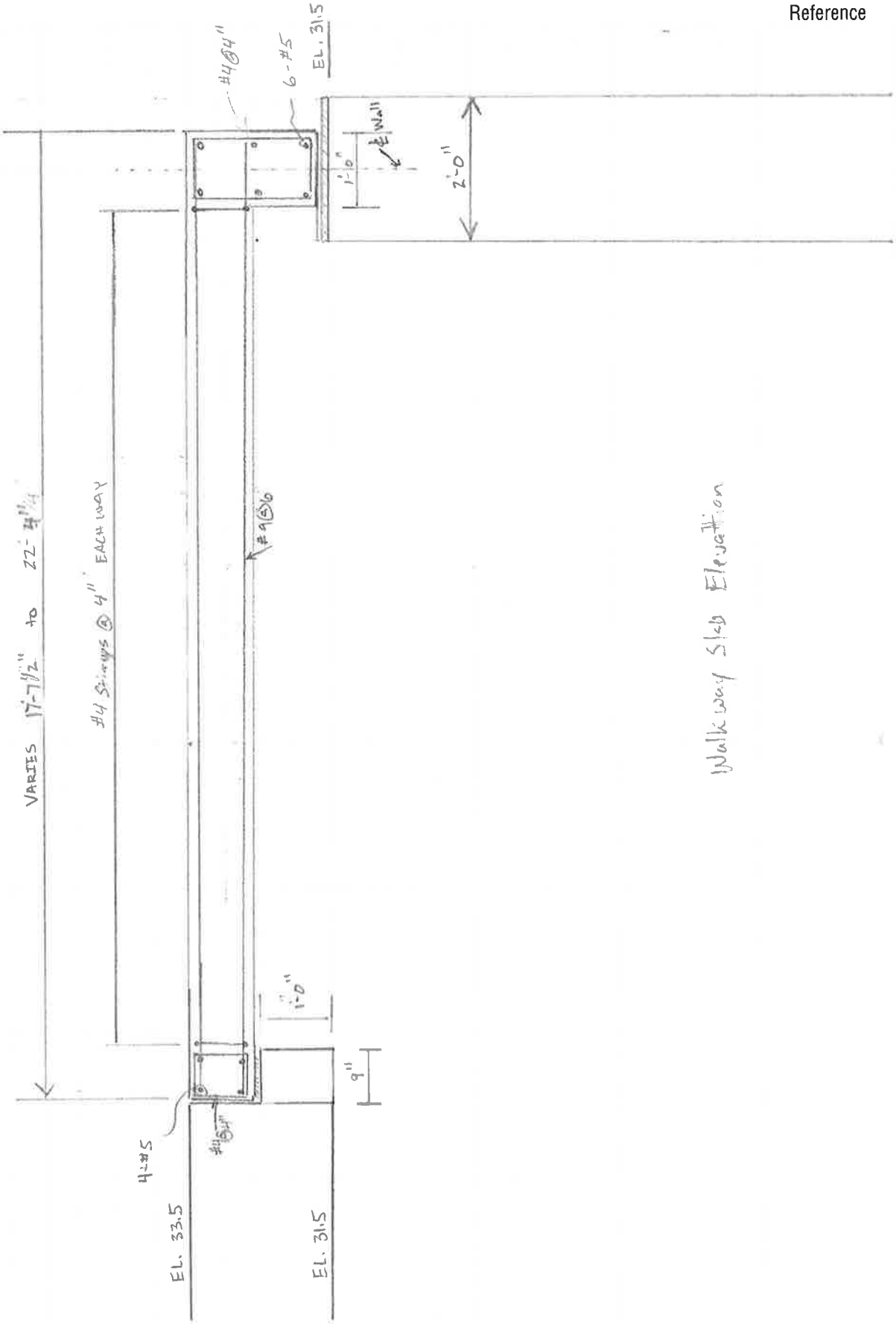
Page ____ of ____

Job: Maricopa | Project No.: 10001801 | Sheet ____ of ____

Description: Headworks | Computed by: BCB | Date: 8/22/13

Slab Walkway Design | Checked by: ____ | Date: ____

Reference



Walkway Slab Elevation

URS

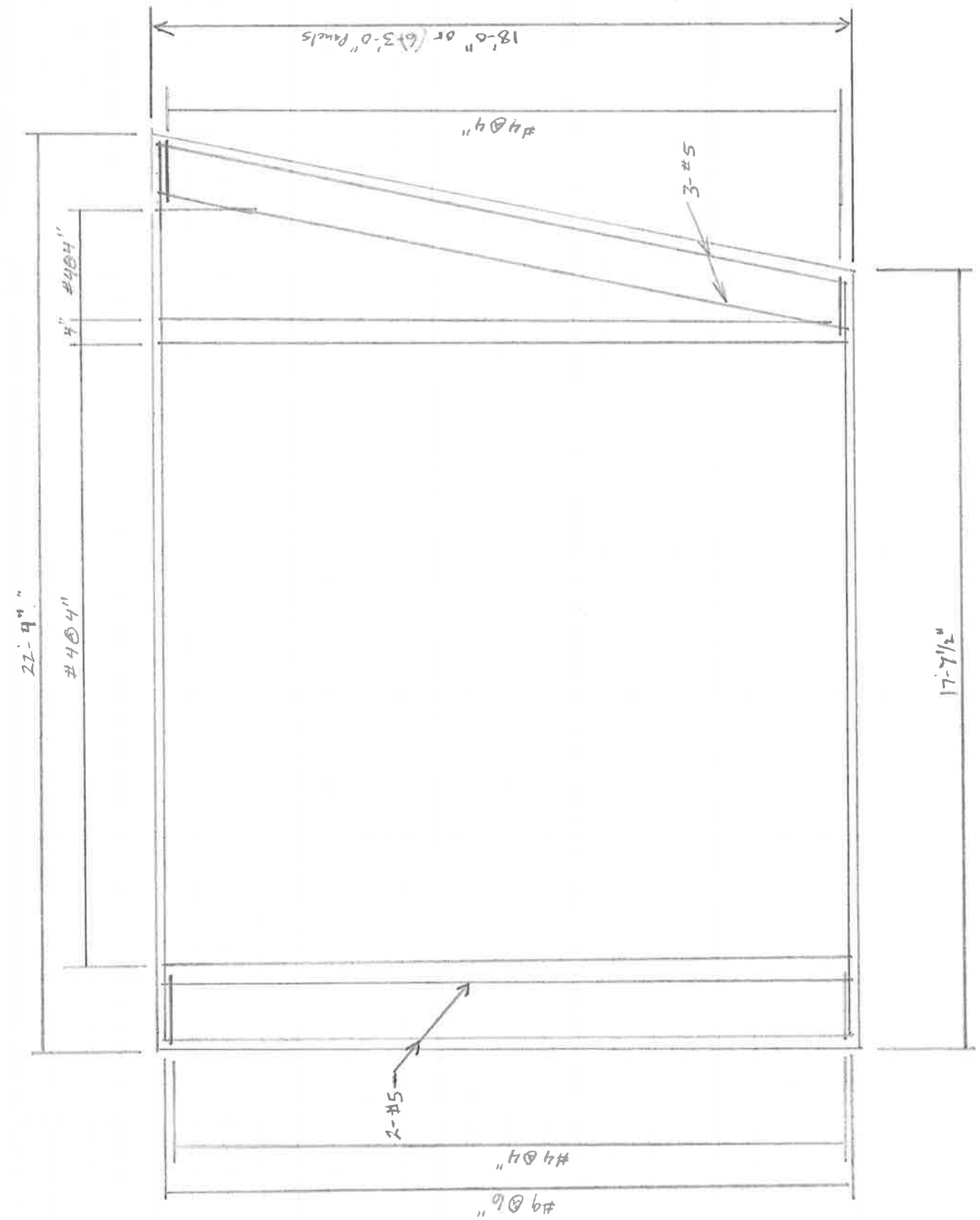
Page ____ of ____

Job: Mauepas | Project No.: 10001801 | Sheet ____ of ____

Description: Headworks | Computed by: BCB | Date: 8/22/13

Slab Walkway Design | Checked by: ____ | Date: ____

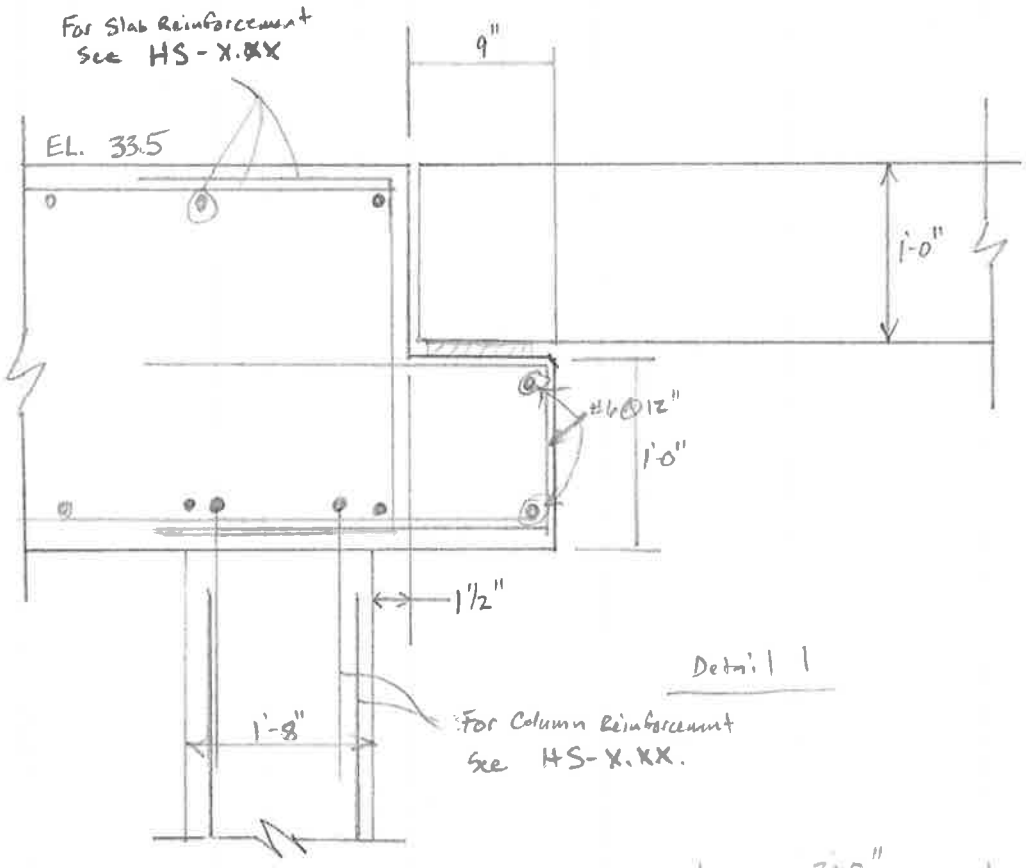
Reference



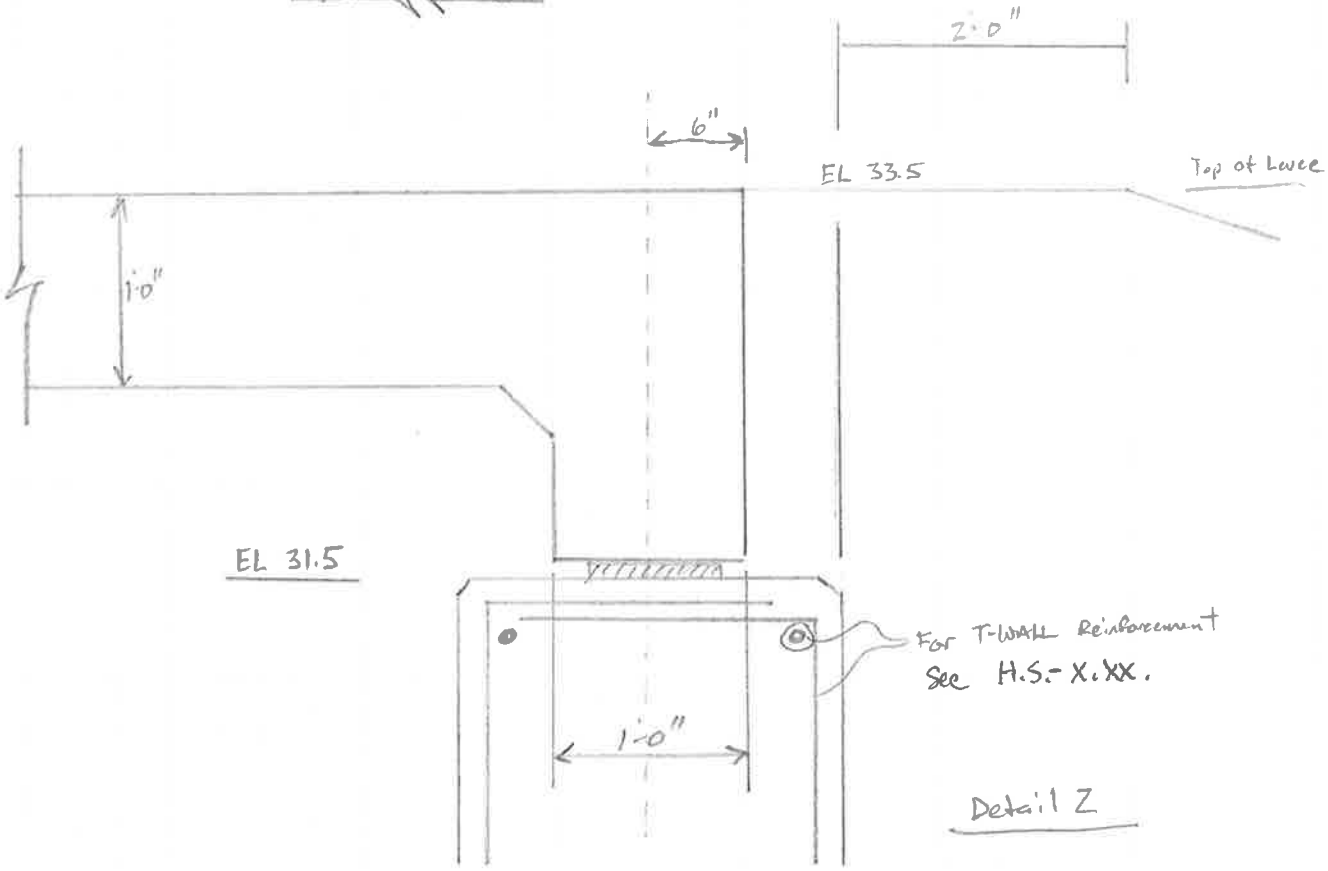
Walkway Slab Plan

URS

Job	Mawrepas	Project No.	10001801	Page ____ of ____	
Description	Headworks	Computed by	BCB	Sheet ____ of ____	
	Slab Walkway Support	Checked by		Date	8/22/13
				Reference	



Detail 1



Detail 2

CPRA
REINTRODUCTION OF WATER INTO MAUREPAS SWAMP
HEADWORK STRUCTURE
ST. JOHN THE BAPTIST PARISH, LOUISIANA

MAUREPAS HEADWORKS

URS Project : 10001801

Generator platform from C-1 to Levee Crown

URS

URS Group, Inc.
3500 N. Causeway Blvd., Suite 900
Metairie, Louisiana 70002-3527
(504) 837-6326
(504) 831-8860 Fax

Computed by:	BCB	Checked by:	
Date	8/22/2013	Date	

Date Printed 8/22/20132:16 PM
Filename: Maurepas HW Walkway & Generator Platform - BCB

URS

URS Group

SINGLE-SPAN BEAM ANALYSIS

For Simple, Propped, Fixed, or Cantilever Beams

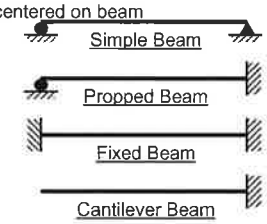
Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Generator platform from C-1 to Levee Crown		
Job Number:	10001801	Originator:	BCB	Checker:	0

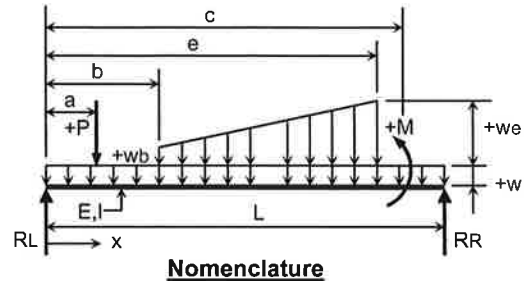
Input Data:

Longest Span as measured from CAD drawing
Assume Generator weight = 2535 lb; LL = 300 psf
Assume Generator 6.83'x3.17' centered on beam

Beam Data:

Span Type?	Simple	
Span, L =	23.0000	ft.
Modulus, E =	3834.3	ksi
Inertia, I =	1728.00	in.^4





Nomenclature

Beam Loadings:

Full Uniform:

w = 0.0000 kips/ft.

Distributed:	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:	8.0834	0.1171	14.9167	0.1171
#2:				
#3:				
#4:				
#5:				
#6:				
#7:				
#8:				

Results:

Reactions:

RL =	0.40 k	RR =	0.40 k
ML =	N.A.	MR =	N.A.

Maximum Moments:

+M(max) =	9.21 ft-k	@ x =	FALSE
-M(max) =	0.00 ft-k	@ x =	0.00 ft.

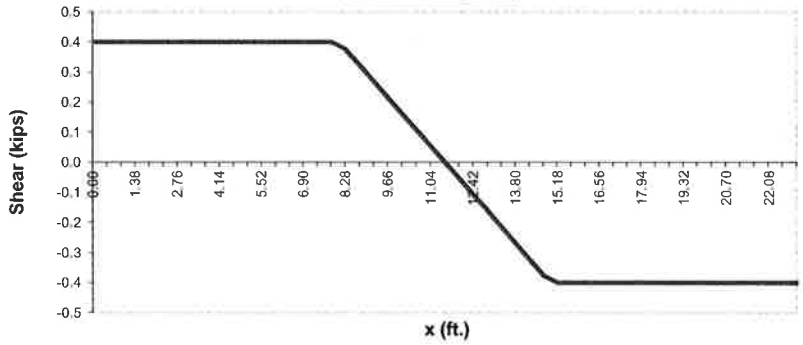
Maximum Deflections:

-Δ(max) =	-0.051 in.	@ x =	11.50 ft.
+Δ(max) =	0.058 in.	@ x =	FALSE
Δ(ratio) =	L/4792		

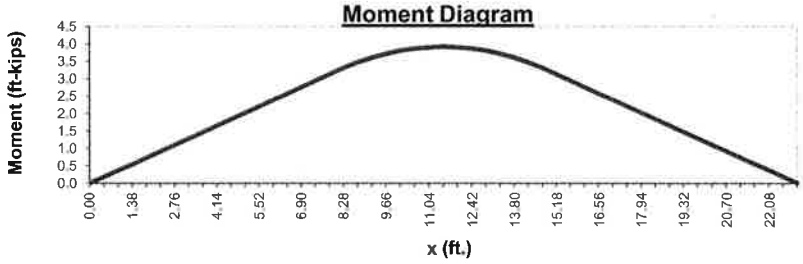
Point Loads:	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Shear Diagram



Moment Diagram



Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	0.40	0.00	-0.0320	0.0000
2	0.4600	0.40	0.18	-0.0319	-0.0031
3	0.9200	0.40	0.37	-0.0318	-0.0062
4	1.3800	0.40	0.55	-0.0315	-0.0092
5	1.8400	0.40	0.74	-0.0311	-0.0122
6	2.3000	0.40	0.92	-0.0307	-0.0152
7	2.7600	0.40	1.10	-0.0301	-0.0181
8	3.2200	0.40	1.29	-0.0294	-0.0210
9	3.6800	0.40	1.47	-0.0286	-0.0238
10	4.1400	0.40	1.66	-0.0277	-0.0265
11	4.6000	0.40	1.84	-0.0267	-0.0291
12	5.0600	0.40	2.03	-0.0256	-0.0316
13	5.5200	0.40	2.21	-0.0244	-0.0341
14	5.9800	0.40	2.39	-0.0231	-0.0363
15	6.4400	0.40	2.58	-0.0217	-0.0385
16	6.9000	0.40	2.76	-0.0201	-0.0405
17	7.3600	0.40	2.95	-0.0185	-0.0424
18	7.8200	0.40	3.13	-0.0167	-0.0441
19	8.2800	0.38	3.31	-0.0149	-0.0456
20	8.7400	0.32	3.47	-0.0130	-0.0469
21	9.2000	0.27	3.61	-0.0109	-0.0481
22	9.6600	0.22	3.72	-0.0088	-0.0490
23	10.1200	0.16	3.81	-0.0067	-0.0498
24	10.5800	0.11	3.87	-0.0045	-0.0503
25	11.0400	0.05	3.91	-0.0022	-0.0507
26	11.5000	0.00	3.92	0.0000	-0.0508
27	11.9600	-0.05	3.91	0.0022	-0.0507
28	12.4200	-0.11	3.87	0.0045	-0.0503
29	12.8800	-0.16	3.81	0.0067	-0.0498
30	13.3400	-0.22	3.72	0.0088	-0.0490
31	13.8000	-0.27	3.61	0.0109	-0.0481
32	14.2600	-0.32	3.47	0.0130	-0.0469
33	14.7200	-0.38	3.31	0.0149	-0.0456
34	15.1800	-0.40	3.13	0.0167	-0.0441
35	15.6400	-0.40	2.95	0.0185	-0.0424
36	16.1000	-0.40	2.76	0.0201	-0.0405
37	16.5600	-0.40	2.58	0.0217	-0.0385
38	17.0200	-0.40	2.39	0.0231	-0.0363
39	17.4800	-0.40	2.21	0.0244	-0.0341
40	17.9400	-0.40	2.03	0.0256	-0.0316
41	18.4000	-0.40	1.84	0.0267	-0.0291
42	18.8600	-0.40	1.66	0.0277	-0.0265
43	19.3200	-0.40	1.47	0.0286	-0.0238
44	19.7800	-0.40	1.29	0.0294	-0.0210
45	20.2400	-0.40	1.10	0.0301	-0.0181
46	20.7000	-0.40	0.92	0.0307	-0.0152
47	21.1600	-0.40	0.74	0.0311	-0.0122
48	21.6200	-0.40	0.55	0.0315	-0.0092
49	22.0800	-0.40	0.37	0.0318	-0.0062
50	22.5400	-0.40	0.18	0.0319	-0.0031
51	23.0000	-0.40	0.00	0.0320	0.0000

URS

URS Group

SINGLE-SPAN BEAM ANALYSIS

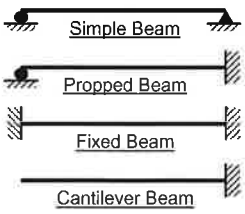
For Simple, Propped, Fixed, or Cantilever Beams

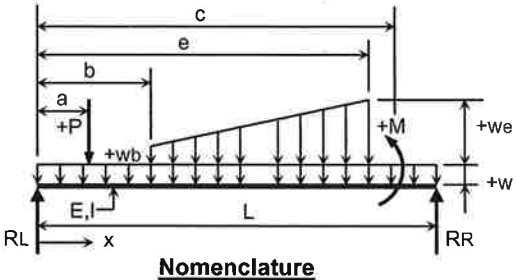
Job Name:	REINTRODUCTION OF WATER INTO MAUREPAS SWAMP	Subject:	Generator platform from C-1 to Levee Crown		
Job Number:	10001801	Originator:	BCB	Checker:	0

Input Data: Longest Span as measured from CAD drawing

Beam Data:

Span Type?	Simple	
Span, L =	23.0000	ft.
Modulus, E =	3834.3	ksi
Inertia, I =	1728.00	in.^4





Nomenclature

Beam Loadings:

Full Uniform:

w = 0.7650 kips/ft.

Distributed:	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:				
#2:				
#3:				
#4:				
#5:				
#6:				
#7:				
#8:				

Results:

Reactions:

RL =	8.80 k	RR =	8.80 k
ML =	N.A.	MR =	N.A.

Maximum Moments:

+M(max) =	50.59 ft-k	@ x =	11.50 ft.
-M(max) =	0.00 ft-k	@ x =	0.00 ft.

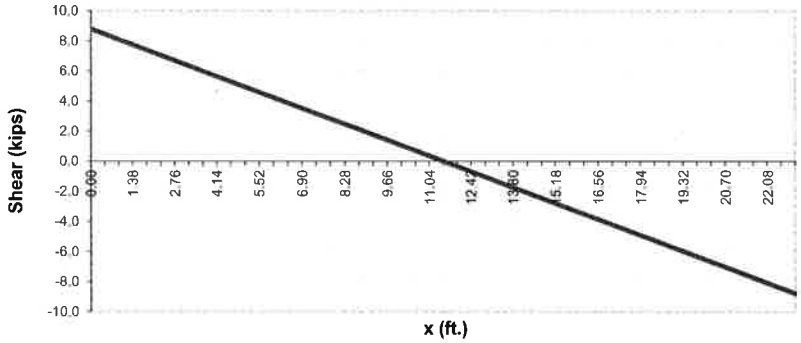
Maximum Deflections:

-Δ(max) =	-0.727 in.	@ x =	11.50 ft.
+Δ(max) =	0.000 in.	@ x =	0.00 ft.
Δ(ratio) =	L/380		

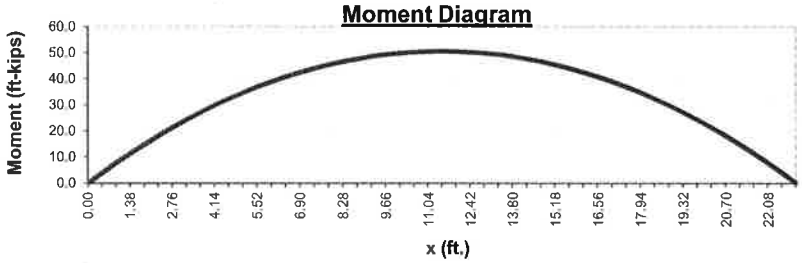
Point Loads:	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Shear Diagram



Moment Diagram

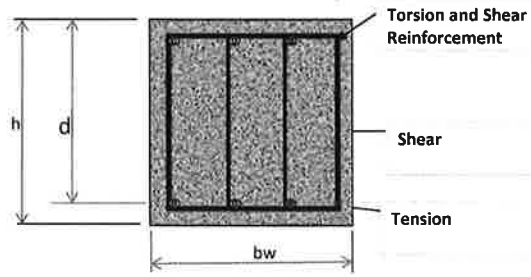


Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	8.80	0.00	-0.4829	0.0000
2	0.4600	8.45	3.97	-0.4818	-0.0465
3	0.9200	8.09	7.77	-0.4784	-0.0928
4	1.3800	7.74	11.41	-0.4729	-0.1386
5	1.8400	7.39	14.89	-0.4654	-0.1838
6	2.3000	7.04	18.21	-0.4559	-0.2282
7	2.7600	6.69	21.37	-0.4446	-0.2716
8	3.2200	6.33	24.36	-0.4314	-0.3138
9	3.6800	5.98	27.19	-0.4167	-0.3547
10	4.1400	5.63	29.87	-0.4003	-0.3941
11	4.6000	5.28	32.37	-0.3825	-0.4318
12	5.0600	4.93	34.72	-0.3633	-0.4677
13	5.5200	4.57	36.91	-0.3427	-0.5017
14	5.9800	4.22	38.93	-0.3210	-0.5337
15	6.4400	3.87	40.79	-0.2982	-0.5635
16	6.9000	3.52	42.49	-0.2743	-0.5911
17	7.3600	3.17	44.03	-0.2495	-0.6164
18	7.8200	2.82	45.41	-0.2239	-0.6392
19	8.2800	2.46	46.62	-0.1975	-0.6595
20	8.7400	2.11	47.67	-0.1705	-0.6772
21	9.2000	1.76	48.56	-0.1430	-0.6923
22	9.6600	1.41	49.29	-0.1149	-0.7048
23	10.1200	1.06	49.86	-0.0865	-0.7145
24	10.5800	0.70	50.26	-0.0578	-0.7214
25	11.0400	0.35	50.50	-0.0290	-0.7256
26	11.5000	0.00	50.59	0.0000	-0.7270
27	11.9600	-0.35	50.50	0.0290	-0.7256
28	12.4200	-0.70	50.26	0.0578	-0.7214
29	12.8800	-1.06	49.86	0.0865	-0.7145
30	13.3400	-1.41	49.29	0.1149	-0.7048
31	13.8000	-1.76	48.56	0.1430	-0.6923
32	14.2600	-2.11	47.67	0.1705	-0.6772
33	14.7200	-2.46	46.62	0.1975	-0.6595
34	15.1800	-2.82	45.41	0.2239	-0.6392
35	15.6400	-3.17	44.03	0.2495	-0.6164
36	16.1000	-3.52	42.49	0.2743	-0.5911
37	16.5600	-3.87	40.79	0.2982	-0.5635
38	17.0200	-4.22	38.93	0.3210	-0.5337
39	17.4800	-4.57	36.91	0.3427	-0.5017
40	17.9400	-4.93	34.72	0.3633	-0.4677
41	18.4000	-5.28	32.37	0.3825	-0.4318
42	18.8600	-5.63	29.87	0.4003	-0.3941
43	19.3200	-5.98	27.19	0.4167	-0.3547
44	19.7800	-6.33	24.36	0.4314	-0.3138
45	20.2400	-6.69	21.37	0.4446	-0.2716
46	20.7000	-7.04	18.21	0.4559	-0.2282
47	21.1600	-7.39	14.89	0.4654	-0.1838
48	21.6200	-7.74	11.41	0.4729	-0.1386
49	22.0800	-8.09	7.77	0.4784	-0.0928
50	22.5400	-8.45	3.97	0.4818	-0.0465
51	23.0000	-8.80	0.00	0.4829	0.0000

Concrete Beam Design, Based on ACI 318-08

INPUT DATA & DESIGN SUMMARY

CONCRETE STRENGTH		f'_c =	5	ksi
REBAR STRENGTH	MAIN	f_y =	60	ksi
	STIRRUP	f_y =	60	ksi
FACTORED BENDING MOMENT		M_u =	59.79	ft-k
FACTORED SHEAR FORCE		V_u =	9.20	kips
FACTORED TORSIONAL MOMENT		T_u =	0	ft-k
SECTION DIMENSIONS	b_w =	12	in	
	h =	12	in	
COVER		1.5	in, (ACI 318-08 7.7.1)	
TENSION REINFORCEMENT		2	#	9
SHEAR REINFORCEMENT		1	legs #	4 @ 4 in o.c.



ANALYSIS

THE DESIGN IS ADEQUATE.

CHECK FLEXURAL CAPACITY

d = 9.44 in

a = 2.35 in

ϕ = 0.90 , (ACI 318-08 R9.3.2)

$\varepsilon_{s,max}$ = 0.0050 , (ACI 318-08 10.3.4)

$\rho_{prov'd}$ = 0.0177 < ρ_{max} = 0.0204 , (ACI 318 R10.3.5)

> ρ_{min} = 0.0035 , (ACI 318 10.5)

[Satisfactory]

$A_{s,req'd}$ = 0.40 in^2 < $A_{s,prov'd}$ = 2.00 in^2 **[Satisfactory]**

= Min [1.33 * As,req'd or Min[200 bw d / Fy, 3√f'c bw d / Fy]

ϕM_n = 74.3 ft-k > Mu = 59.79 ft-k **[Satisfactory]**

CHECK SHEAR CAPACITY

Check section limitation (ACI, 11.4.7.9)

$$V_u \le 10\phi b_w d\sqrt{f'_c}$$

Vu = 9.19775894 < 60.1 kips **[Satisfactory]**

where ϕ = 0.75

Determine concrete capacity (ACI, 11.2.1.1 or 11.2.2.1)

$$\phi V_C = 2b_w d\sqrt{f'_c} = 12.01 \text{ kips}$$

Note: according to 8.13.8, Vc may be increased by 10%

$$\phi V_C = (1.9A + 2500\rho_w B)b_w d = 11.86 \text{ kips}$$,<== applicable

where $A = MIN\left(\sqrt{f'_c}\ ,\ 100\right) = 70.71$

$B = MIN\left(\frac{V_u d}{M_u}\ ,\ 1.0\right) = 0.121$

Check shear reinforcement (ACI, 11.4)

$$\left(\frac{A_v}{s}\right)_{ReqD} = \begin{cases} 0\ ,\ for\ V_u < \frac{\phi V_c}{2} \\ MAX\left(\frac{50b_w}{f_y}\ ,\ \frac{0.75\sqrt{f'_c}b_w}{f_y}\right)\ ,\ for\ \frac{\phi V_c}{2} \le V_u \le \phi V_c \\ \frac{V_u - \phi V_c}{\phi d f_y}\ ,\ for\ \phi V_c \le V_u \end{cases}$$

= 0.13 in^2 / ft < $\left(\frac{A_v}{s}\right)_{ProvD}$ = 0.60 in^2 / ft **[Satisfactory]**

Check spacing limits for shear reinforcement (ACI 11.4.5)

$$V_s = \frac{V_u - \phi V_c}{\phi} = 0.0 \text{ kips, (ACI 11.1.1)}$$

$$S_{max,shear} = \begin{cases} MIN(\frac{d}{2}\ ,\ 24)\ for\ V_s \le 4b_w d\sqrt{f'_c} \\ MIN(\frac{d}{4}\ ,\ 12)\ for\ V_s > 4b_w d\sqrt{f'_c} \end{cases}$$

= 4.72 > S = 4.00 in

[Satisfactory]

Concrete Beam Design, Based on ACI 318-08

(cont'd)

CHECK TORSION CAPACITY

Check section limitation (ACI, 11.5.3.1)

$$\sqrt{\left(\frac{V_u}{b_w d}\right)^2 + \left(\frac{T_u P_h}{1.7 A_{oh}^2}\right)^2} \le \phi\left(\frac{V_c}{b_w d} + 8\sqrt{f'_c}\right)$$

where ϕ = 0.75 (ACI, 9.3.2.3)
P_h = 34 in, (perimeter of centerline of outermost closed transverse torsional reinforcement.)
A_{oh} = 72 in^2 (area enclosed by centerline of the outermost closed transverse torsional reinforcement.)

0.081 < 0.504 **[Not Apply since Tu = 0]**

Check if torsional reinforcement required (ACI, 11.5.1)

$$T_u \le \phi\sqrt{f'_c}\left(\frac{A_{cp}^2}{P_{cp}}\right)$$

P_{cp} = 48 in, (outside perimeter of the concrete cross section.)
A_{cp} = 144 in^2 (area enclosed by outside perimeter of concrete cross section.)

0.0 < 1.9 ft-k
Torsional reinforcement NOT reqd.

Check the max factored torque causing cracking (ACI, 11.5.2.2)

$$T_u \le 4\phi\sqrt{f'_c}\left(\frac{A_{cp}^2}{P_{cp}}\right)$$

0.0 < 7.6
Reduction of the torsional moment can occur.

Determine the area of one leg of a closed stirrup (ACI, 11.5.3.6)

$$\frac{A_t}{s} = \frac{T_u}{2\phi A_0 f_{yv}} = \frac{T_u}{1.7\phi A_{0h} f_{yv}} =$$ N/A in^2 / ft > 0.60 in^2 / ft **[Not Apply]**

Determine the corresponding area of longitudinal reinforcement (derived from ACI, 11.5.3.7 & 11.5.5.3)

$$A_L = MAX\left[\frac{A_t}{s} P_h \frac{f_{yv}}{f_{yL}},\ \frac{5A_{cp}\sqrt{f'_c}}{f_{yL}} - P_h \frac{f_{yv}}{f_{yL}} MAX\left(\frac{A_t}{s},\ \frac{25 b_w}{f_{yv}}\right)\right] =$$ 0.00 in^2

Determine minimum combined area of longitudinal reinforcement

$A_{L,\,bot} = A_s + 0.5A_L$ = 1.61 in^2 < 2.00 in^2 **[Not Apply]**

Determine minimum diameter for longitudinal reinforcement (ACI, 11.5.6.2)

d_{bL} = MAX(0.042 S, 3/8) = 0.38 in < 1.13 in **[Not Apply]**

Determine minimum combined area of stirrups (ACI, 11.5.5.2 & 11.5.6.1)

$(A_{v,reqd} + 2A_{t,reqd})/S$ = #VALUE! in^2/ft **#VALUE!** 0.60 in^2/ft **[Not Apply]**

$(A_v + 2A_t) / S$ = 0.60 in^2 / ft > MAX [$0.75(f_c')^{0.5} b_w/f_{yv}$, $50 b_w/f_{yv}$] = 0.13 in^2 / ft

$S_{max,\,tor}$ = MIN[(P_h/8, 12) = 4 in **[Not Apply]**

S = MIN($S_{max,shear}$, $S_{max,tor}$) = 0 in < actual **[Not Apply]**

PROJECT: Reintroduction into Maurepas Swamp
CLIENT: CPRA
JOB NO: 10001801
DATE: 8/22/2013

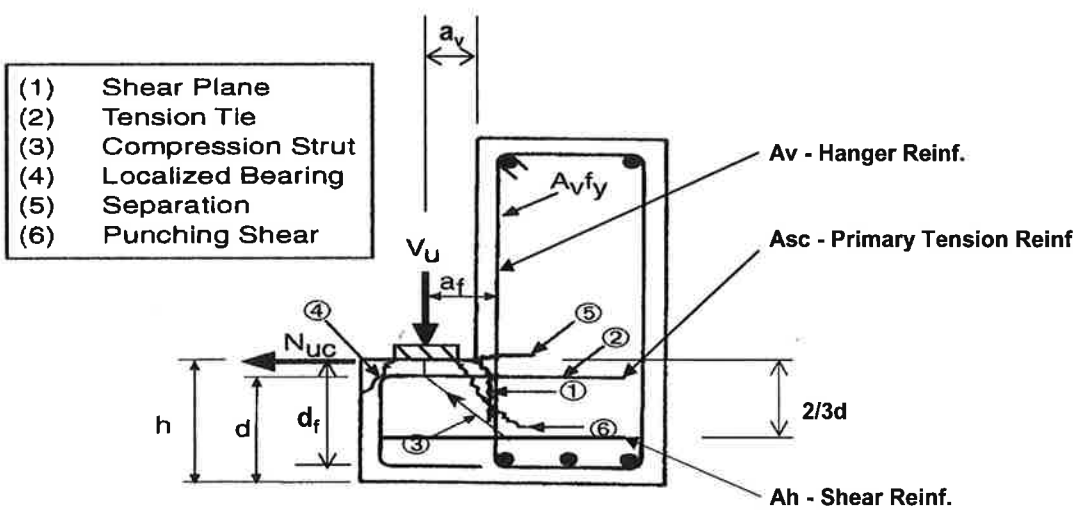
PAGE:
DESIGN BY: BCB 8/13
REVIEW BY:

CONCRETE LEDGE DESIGN - ACI 318 - 08

INPUT DATA

REACTION LOAD IN SAP MODEL

Factored Shear Load (V_u) =	**9.20**	kips		
Not Factored Shear Load (V) =	**5.6**	kips		
Factored Tensile Loads (N_{uc}) =	**1.8**	kips	Nuc = 0.2Vu	ACI Sec 11.8.3.4
Effective Depth (d) =	**10.75**	in	d = From center primary tension reinf to bottom of ledge	
Effective Depth (d_f) =	**10.00**	in	d_f = From top of ledge down to center of transverse reinf.	
Overall Depth (h) =	**12.00**	in		
Bearing Plate Width (W) =	**4.50**	in		
Bearing plate length used =	**4.50**	in	Min Bearing Length = A_1 / b_w = **0.93** **in**	
			A_1 = V_u / $Ø_2$ .85 f'_c) = 4.16 sq in	
Shear Span (a_v) =	**4.00**	in	$a_{v(min)}$ = (2/3) Bearing plate length used + 1" =	
Shear Span (a_f) =	**6.25**	in	= **4.00** **in**	
Primary Tension Reinf (Size) =	**6**			
Primary Tension Reinf (Spacing) =	**12**	in o.c		
A_h - Shear reinf (Size) =	**5**			
A_h - Shear Reinf (Spacing) =	**12**	in o.c		
Hanger Reinf (Size) =	**5**			
Hanger Reinf (Spacing) =	**12**	in o.c		
s =	**12**		s = spacing of hanger reinf.	
S =	**12.00**	in	S = dist between centers of adjacent bearings on the same ledge	
c =	**4.00**	in	c = dist from center of end bearing to the end of the ledge	
			(c <= Min [$W_{eff/2}$ or S / 2])	
			= enter 1,000 where end condition doesn't occur	
Conc Strength (f'_c) =	**4.0**	ksi		
Rebar Yield Strength (F_y) =	**60.0**	ksi		
μ (shr fric coef) =	**1.4**	Sec 11.6.4.3		
Ø (shear) =	**0.75**	Sec 11.8.3.1		
$Ø_2$ (bearing) =	**0.65**	Sec 9.3.2.4		



PROJECT: Reintroduction into Maurepas Swamp
CLIENT: CPRA
JOB NO: 10001801
DATE: 8/22/2013

PAGE:
DESIGN BY: BCB 8/13
REVIEW BY:

Dimensional Requirements:

$a_v / d =$ 0.37 **< 1.0 - OK** ACI Sec. 11.8.1

$N_{uc} / V_u =$ 0.20 **< 1.0 - OK** ACI Sec. 11.8.1

Depth Requirements:

$V_u <$ Min $[Ø.2f'_c W_{eff} d,\ Ø(480 + 0.08f'_c)W_{eff} d,\ Ø1600W_{eff} d] =$ 51.6 kips **O.K**

$W_{eff} =$ Min $[2c,\ W+4a_v,\ S] =$ 8.0 in ACI Sec 11.8.3.2.1

Notes Pg 15-5

Punching shear:

$V_c = 4\ Ø\ \sqrt{f'_c}\ (W + 2L + 2d_f)d_f =$ 63.6 kips < 9.2 kips **O.K**

Primary Tension Reinforcement:

Note: The three conditions have different effective widths which the rebar will be distributed over.

Shear-friction reinf.

$A_{vf} = V_u / (Ø\ f_y\ \mu) =$ 0.15 sq in / effective width ACI Sec. 11.8.3.2 &11.6.4.1

Effective width = **8.0** **in**

$A_{vf} =$ 0.018 sq in / in

Direct tension reinf.

$A_n = N_{uc} / (Ø\ f_y) =$ 0.04 sq in / effective width ACI Sec. 11.8.3.1

$N_{uc} > .2\ V_u$ ACI Sec. 11.8.3.4

Effective width = $W + 5a_f =$ **35.8** **in**

$A_n =$ 0.001 sq in / in

Flexural reinf.

$A_f = M_u / (Ø\ F_y\ .8\ d) =$ 0.15 sq in / effective width ACI Sec. 11.8.3.3 & 11.6.4.3

$M_u = V_u\ a_f + N_{uc}(h - d) =$ 59.8 kip-in

Effective width = $W + 5a_f =$ **35.8** **in**

Af = 0.004 sq in / in

Primary tension reinf. (combination of A_{vf}, A_n & A_f)

$A_{sc} =$ Max $[A_f + A_n,\ 2/3A_{vf} + A_n] =$ 0.013 sq in / in ACI Sec. 11.8.3.5

$A_{sc(min)} = .04df'_c / F_y =$ 0.029 sq in / in ACI Sec. 11.8.5

A_{sc} = 0.029 sq in / in < 0.037 sq in / in O.K

Shear Reinforcement:

Ties:

$A_h = .5(A_{sc} - A_n) =$ **0.014** **sq in** **<** **0.026** **sq in / in** **O.K** ACI Sec. 11.8.4

Distributed uniformily within **(2/3)d** ACI Sec. 11.8.4

PROJECT: Reintroduction into Maurepas Swamp
CLIENT: CPRA
JOB NO: 10001801
DATE: 8/22/2013

PAGE:
DESIGN BY: BCB 8/13
REVIEW BY:

Hanger Reinforcement:

For strength:

$A_v = V_u\ s / (Ø\ F_y\ S) =$ 0.20 sq in

For serviceability:

$A_v = [V / (.5\ F_y)] * [s / (W_{eff} + 3\ a_v)] =$ 0.14 sq in

$V = DL + LL$ (not factored)

$W_{eff} = W + 3a_v =$ 16.50 in

$A_v =$ 0.20 sq in < 0.31 sq in O.K

Beckner, Bryan

From: Read, Leah
Sent: Wednesday, August 21, 2013 5:14 PM
To: Beckner, Bryan
Subject: FW: Generator
Attachments: 40kwGen.pdf

There's no picture, but these things are generally supported on two skids that run the full length of the unit.

From: Chillara, Naveen
Sent: Tuesday, August 06, 2013 7:29 AM
To: Read, Leah; Lelong, Bruce
Subject: FW: Generator

From: Peabody, Byron
Sent: Tuesday, August 06, 2013 6:53 AM
To: Chillara, Naveen
Subject: Generator

Naveen
Here is some info on a generator, looks like about 2600 lbs.

Byron Peabody
E/I Engineer
Mobile, Alabama
Phone 251 652-1146
Cell 251 455-5640
Byron.peabody@urs.com

This e-mail and any attachments contain URS Corporation confidential information that may be proprietary or privileged. If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies.

CHAT OFFLINE
CALL 1-888-769-3758

40KW JOHN DEERE DIESEL GENERATOR 50KVA, J40UIV GENE SET
WEATHER PROOF / SUPER SILENT ENCLOSURE TYPE

TI

40 KW JOHN DEERE DIESEL GENERATOR 50 KVA, JOHN DEERE J40U DIESEL GENERATOR SET
40 Kw (50 Kva) Standby, 36 Kw (45 Kva) Prime, 60 HZ, 1800RPM, 3 Phase, 0.8PF

- JOHN DEERE 3029TF120, Turbocharged, Heavy duty diesel engine, 4 stroke, 1800RPM, Liquid cooled
- MECC ALTE ECO32-3S, 12 Leads brushless alternator. IP23 drip-proof protection, Insulation class H. Electronic Automatic voltag
- SCHNEIDER / MERLIN GERIN, Main line circuit breaker, 3 pole, set mounted, wired and maximum output rated for complete ge
- SDMO NEXYS, Digital auto-start/stop control panel. All genset parameter, alarms and control functions. CE listed
- SDMO TELYS2, ADVANCED Digital auto-start/stop control panel with Remote monitoring/control. All genset parameter, alarms a and RS485 (OPTIONAL)
- SDMO DAY TANK, Incorporated metallic fuel tank with electronic level sensing, single wall. Daily autonomy: 100L (26Gal) (11 h

60 HERTZ, 3 PHASES, 0.8PF, 1800 RPM

Voltage	Power ESP kWe/kVA	Power PRP kWe/kVA	Standby Amps	Dimensions	Weight
480/277	40 / 50	36 / 45	60		
440/254	40 / 50	36 / 45	66	Length: 2080mm [82in] 6.83'	1040kg [2293 lbs] Net
380/220	40 / 50	36 / 45	76	Width: 960mm [38in] 3.17'	1150kg [2535 lbs] Gross 2.54 k
240/120	40 / 50	36 / 45	120	Heigth: 1415mm [56in]	
230/115	32 / 40	29 / 36	100		
220/127	40 / 50	36 / 45	131		0.117 k/ft
208/120	37 / 46	33 / 42	128		

↳ used to calculate load on slab walkway

SECTION 9

CULVERT DESIGN GENERAL INFORMATION

URS	Quality - *It's Good Business*	QMS Form 3-3 (MM) Rev. 2013 QMS Date: 28 Feb 2013
IE QMS - Americas	**Detail Check - Calculations**	

Project Name	Maurepas Freshwater Diversion	**Client**	OCPR / USACE
Project Location	St John Parish, LA	**PM**	Naveen Chillara
Project Number	10001876	**PIC**	Mike Patorno

IDENTIFYING INFORMATION

(This section is to be completed by the Originator.)

Calculation Medium: *(Select as appropriate)*

☐ Electronic

☒ Hard-copy

File Name: Enter File Name.

Unique Identification: Enter Unique ID.

Number of pages *(including cover sheet)*: Enter number of pages.

Discipline:	Structural
Title of Calculation:	Structural Design & Detailing of Box Culvert Monoliths C2 – C4
Calculation Originator:	Leah B. Read, PE
Calculation Contributors:	N/A
Calculation Checker:	Bryan Beckner, PE

DESCRIPTION & PURPOSE

Calculations design the pile foundation, slabs & walls for the culverts that run beneath the Mississippi River Levee

BASIS / REFERENCE / ASSUMPTIONS

Most references noted in Structural Design Criteria or on calculations package. Main references used are EM 1110-2-2104 (incl. Change 1), EM 1110-2-2502, EM 1110-2-2906, ETL 1110-2-355, ACI318-08, ASCE7-10

ISSUE / REVISION RECORD

Checker comments, if any, provided on: ☒ hard-copy ☐ electronic file ☐ Form 3-5

No.	Description	P	S	F	Originator Initials	Date	Checker Initials	Date
0	No issues of note	☐	☐	☒	LBR	8/19/13	BCB	8/20/13
1	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.
2	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.
3	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.

For a given Revision, indicate either P (Preliminary), S (Superseding) or F (Final). If there are no revisions to the Initial Issue, check F (Final).

APPROVAL and DISTRIBUTION

☒ The below individuals assert that the Detail Check – Calculations is complete.

Leah Read **Originator Signature**	8/28/13 **Date**
Bryan Beckner **Checker Signature**	8/28/13 **Date**
[signature] **Project Manager (or Designee) Signature**	9/26/2013 **Date**

Distribution:

Project Central File – Quality File Folder

Other – Specify: Enter names here.

URS | Quality - *It's Good Business*

QMS Form 3-3 (MM)
Rev. 2013 QMS
Date: 28 Feb 2013

IE QMS - Americas

Detail Check - Calculations

Project Name	Maurepas Freshwater Diversion	**Client**	OCPR / USACE
Project Location	St John Parish, LA	**PM**	Naveen Chillara
Project Number	10001876	**PIC**	Mike Patorno

IDENTIFYING INFORMATION

(This section is to be completed by the Originator.)

Calculation Medium: *(Select as appropriate)*

☐ Electronic
☒ Hard-copy

File Name: Enter File Name.

Unique Identification: Enter Unique ID.

Number of pages *(including cover sheet)*: Enter number of pages.

Discipline:	Structural
Title of Calculation:	Structural Design & Detailing of Box Culvert Monoliths C5 & C6
Calculation Originator:	Leah B. Read, PE
Calculation Contributors:	N/A
Calculation Checker:	Bryan Beckner, PE

DESCRIPTION & PURPOSE

Calculations design the pile foundation, slabs & walls for the culvert C5, which runs beneath River Road, and culvert C6, which has the smallest soil cover.

BASIS / REFERENCE / ASSUMPTIONS

Most references noted in Structural Design Criteria or on calculations package. Main references used are EM 1110-2-2104 (incl. Change 1), EM 1110-2-2502, EM 1110-2-2906, ETL 1110-2-355, ACI318-08, ASCE7-10

ISSUE / REVISION RECORD

Checker comments, if any, provided on: ☒ hard-copy ☐ electronic file ☐ Form 3-5

No.	Description	P	S	F	Originator Initials	Date	Checker Initials	Date
0	No issues of note	☐	☐	☒	LBR	8/27/13	BCB	8/28/13
1	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.
2	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.
3	Click here to enter text.	☐	☐	☐	XXX	Date.	XXX	Date.

For a given Revision, indicate either P (Preliminary), S (Superseding) or F (Final). If there are no revisions to the Initial Issue, check F (Final).

APPROVAL and DISTRIBUTION

☒ The below individuals assert that the Detail Check – Calculations is complete.

Leah Read — **Originator Signature** — 8/28/13 — **Date**

Bryan Beckner — **Checker Signature** — 8/28/13 — **Date**

N. Chillara — **Project Manager (or Designee) Signature** — 9/26/2013 — **Date**

Distribution:

Project Central File – Quality File Folder

Other – Specify: Enter names here.

Table XX
Levee Area
Earth Pressure Parameters

Soil Type	Elevation		Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ko	Ka
	Top	Bottom					
Fill	–	–	115	600	0	0.95	1.0
Clay	20.0	0.0	112.5	600-900	0	0.95	1.0
Clay	0.0	-10.0	112.5	900-950	0	0.95	1.0
Clay	-10.0	-22.0	107.0	950	0	0.95	1.0
Silt	-22.0	-25.0	107.0	200	15	0.95	1.0
Clay	-25.0	-35.0	107.0	950-1070	0	0.95	1.0
Clay	-35.0	-52.0	120.0	1070-1250	0	0.95	1.0
Clay	-52.0	-60.0	120.0	1250-1334	0	0.95	1.0
Clay	-60.0	-73.0	112.5	1334-1470	0	0.95	1.0
Clay	-73.0	-92.0	112.5	1470-1600	0	0.95	1.0
Clay	-92.0	-120.0	112.5	1600-2210	0	0.95	1.0
Sand	-120.0	-140.0	112.5	0	32	0.47	0.32
Clay	-140.0	-160.0	112.5	2430-2650	0	0.95	1.0

Note: Ko is utilized to design rigid (concrete) walls, and Ka is utilized to design flexible (steel) walls.

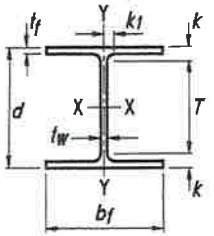


Table 1–4
HP Shapes
Dimensions

Shape	Area, A	Depth, d		Web Thickness, t_w		Web $\frac{t_w}{2}$	Flange Width, b_f		Flange Thickness, t_f		Distance k	Distance k_1	Distance T	Workable Gage
	in.^{2}	in.		in.		in.	in.		in.		in.	in.	in.	in.
HP14×117[f]	34.4	14.2	14 1/4	0.805	13/16	7/16	14.9	14 7/8	0.805	13/16	1 1/2	1 1/16	11 1/4	5 1/2
×102[f]	30.0	14.0	14	0.705	11/16	3/8	14.8	14 3/4	0.705	11/16	1 3/8	1		
×89[f]	26.1	13.8	13 7/8	0.615	5/8	5/16	14.7	14 3/4	0.615	5/8	1 5/16	15/16		
×73[c,f]	21.4	13.6	13 5/8	0.505	1/2	1/4	14.6	14 5/8	0.505	1/2	1 3/16	7/8		
HP12×84	24.6	12.3	12 1/4	0.685	11/16	3/8	12.3	12 1/4	0.685	11/16	1 3/8	1	9 1/2	5 1/2
×74[f]	21.8	12.1	12 1/8	0.605	5/8	5/16	12.2	12 1/4	0.610	5/8	1 5/16	15/16		
×63[f]	18.4	11.9	12	0.515	1/2	1/4	12.1	12 1/8	0.515	1/2	1 1/4	7/8		
×53[f]	15.5	11.8	11 3/4	0.435	7/16	1/4	12.0	12	0.435	7/16	1 1/8	7/8		
HP10×57[f]	16.8	9.99	10	0.565	9/16	5/16	10.2	10 1/4	0.565	9/16	1 1/4	15/16	7 1/2	5 1/2
×42[f]	12.4	9.70	9 3/4	0.415	7/16	1/4	10.1	10 1/8	0.420	7/16	1 1/8	13/16	7 1/2	5 1/2
HP8×36[f]	10.6	8.02	8	0.445	7/16	1/4	8.16	8 1/8	0.445	7/16	1 1/8	7/8	5 3/4	5 1/2

[c] Shape is slender for compression with $F_y = 50$ ksi.
[f] Shape exceeds compact limit for flexure with $F_y = 50$ ksi.

Table 1–4 (continued)
HP Shapes
Properties

HP S

Nominal Wt.	Compact Section Criteria $\frac{b_f}{2t_f}$	Compact Section Criteria $\frac{h}{t_w}$	Axis X-X I	Axis X-X S	Axis X-X r	Axis X-X Z	Axis Y-Y I	Axis Y-Y S	Axis Y-Y r	Axis Y-Y Z	r_{ts}	h_o	$\frac{J}{S_x h_o}$	Torsional Properties J	Torsional Properties C_w
lb/ft			in.^{4}	in.^{3}	in.	in.^{3}	in.^{4}	in.^{3}	in.	in.^{3}	in.	in.		in.^{4}	in.^{6}
117	9.25	14.2	1220	172	5.96	194	443	59.5	3.59	91.4	4.15	13.41	0.00348	8.02	19900
102	10.5	16.2	1050	150	5.92	169	380	51.4	3.56	78.8	4.10	13.31	0.00270	5.39	16800
89	11.9	18.5	904	131	5.88	146	326	44.3	3.53	67.7	4.05	13.22	0.00207	3.59	14200
73	14.4	22.6	729	107	5.84	118	261	35.8	3.49	54.6	4.00	13.11	0.00143	2.01	11200
84	8.97	14.2	650	106	5.14	120	213	34.6	2.94	53.2	3.41	11.60	0.00345	4.24	7140
74	10.0	16.1	569	93.8	5.11	105	186	30.4	2.92	46.6	3.38	11.52	0.00276	2.98	6160
63	11.8	18.9	472	79.1	5.06	88.3	153	25.3	2.88	38.7	3.33	11.43	0.00202	1.83	5000
53	13.8	22.3	393	66.7	5.03	74.0	127	21.1	2.86	32.2	3.29	11.35	0.00148	1.12	4080
57	9.05	13.9	294	58.8	4.18	66.5	101	19.7	2.45	30.3	2.84	9.43	0.00355	1.97	2240
42	12.0	18.9	210	43.4	4.13	48.3	71.7	14.2	2.41	21.8	2.77	9.28	0.00202	0.813	1540
36	9.16	14.2	119	29.8	3.36	33.6	40.3	9.88	1.95	15.2	2.26	7.58	0.00341	0.770	578

Axial Pile Stiffness

The axial pile stiffness, b_{33}, is essentially the secant modulus of the linear portion of the pile load settlement curve. It can also be calculated by multiplying the AE/Le term by the axial stiffnes modifier coefficient, c_{33}. Using the secant modulus, the modifier can be calculated as follows:

Given

$E_{steel} := 30000000 \cdot psi$ *Modulus of elasticity of steel*

$f'_c := 4000$ *Compressive strength of concrete*

$E_{conc} := 57000 \cdot \sqrt{f'_c} \cdot psi = 3.6 \times 10^6\ psi$ *Modulus of elasticity of concrete*

14X73

$A_{14X73} := 196 \cdot in^2$ *Area of pile*

$Le_{14X73} := 150 \cdot ft$ *Pile length*

$b_{33_14X73} := 5597.1 \cdot \frac{kip}{in}$ *Slope of tangent line of linear portion of load vs. deflection curve*

$$c_{33_14X73} := \frac{b_{33_14X73} \cdot Le_{14X73}}{A_{14X73} \cdot E_{steel}} = 1.71$$

14X89

$A_{14X89} := 196 \cdot in^2$

$Le_{14X89} := 150 \cdot ft$

$b_{33_14X89} := 5683.6 \cdot \frac{kip}{in}$

$$c_{33_14X89} := \frac{b_{33_14X89} \cdot Le_{14X89}}{A_{14X89} \cdot E_{steel}} = 1.74$$

HP 14x89 LPILE ANALYSIS - 2 RUNS. FOR FULL OUTPUT, SEE GEOTECH CALCS. HERE, ONLY RUN INFO & OUTPUT PRESENTED.

==========

LPile Plus for Windows, Version 6 (6.0.28)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

© 1985-2011 by Ensoft, Inc.
All Rights Reserved

==========

This copy of LPile is licensed to:

IH
URS

Serial Number of Security Device: 362999691
Company Name Stored in Security Device: URS Corporation

Files Used for Analysis

Path to file locations: C:\Ignacio Harrouch\Lake Maurepas Diversion Canal\2013\Pile Capacity Intake\L-Pile\
Name of input data file: LM-HP14 x 89.lp6d
Name of output report file: LM-HP14 x 89.lp6o
Name of plot output file: LM-HP14 x 89.lp6p
Name of runtime messeage file: LM-HP14 x 89.lp6r

Date and Time of Analysis

RUN 1

Date: June 20, 2013 Time: 17:47:27

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case No.	Load Type No.	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in-lbs	Maximum Shear lbs	Pile-head Rotation radians
1	1	V = 1000.0000	M = 0.000	275000.	0.00102520	14702.	1000.0000	-0.00002792
2	1	V = 2000.0000	M = 0.000	275000.	0.00409452	41727.	2000.0000	-0.00009282
3	1	V = 3000.0000	M = 0.000	275000.	0.00977514	74687.	3000.0000	-0.00019171
4	1	V = 4000.0000	M = 0.000	275000.	0.01819810	113767.	4000.0000	-0.00032059
5	1	V = 5000.0000	M = 0.000	275000.	0.02923616	155378.	5000.0000	-0.00047648
6	1	V = 6000.0000	M = 0.000	275000.	0.04343006	198520.	6000.0000	-0.00066167
7	1	V = 7000.0000	M = 0.000	275000.	0.06008830	251398.	7000.0000	-0.00087077
8	1	V = 8000.0000	M = 0.000	275000.	0.08048453	304990.	8000.0000	-0.00110551
9	1	V = 9000.0000	M = 0.000	275000.	0.10348752	361114.	9000.0000	-0.00136495
10	1	V = 10000.0000	M = 0.000	275000.	0.12881121	419316.	10000.	-0.00164480

The analysis ended normally.

==========

LPile Plus for Windows, Version 6 (6.0.28)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

© 1985-2011 by Ensoft, Inc.
All Rights Reserved

==========

This copy of LPile is licensed to:

IH
URS

Serial Number of Security Device: 362999691
Company Name Stored in Security Device: URS Corporation

Files Used for Analysis

Path to file locations: C:\Ignacio Harrouch\Lake Maurepas Diversion Canal\2013\Pile Capacity Intake\L-Pile\
Name of input data file: LM-HP14 x 89 Revised 7-25-13.lp6d
Name of output report file: LM-HP14 x 89 Revised 7-25-13.lp6o
Name of plot output file: LM-HP14 x 89 Revised 7-25-13.lp6p
Name of runtime messeage file: LM-HP14 x 89 Revised 7-25-13.lp6r

---

Date and Time of Analysis

Date: July 25, 2013 Time: 9:34:43

RUN 2

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

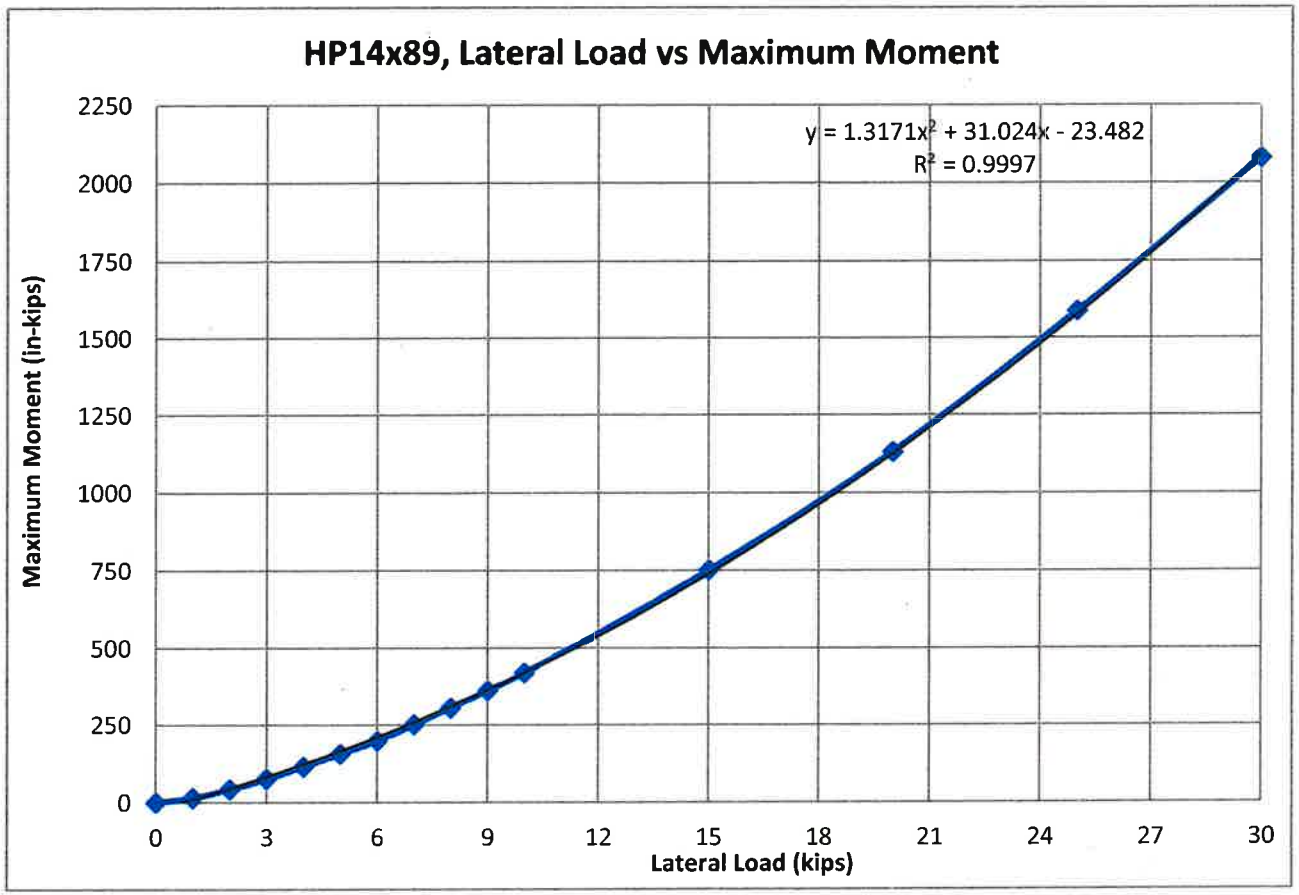
Load Case No.	Load Type No.	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in-lbs	Maximum Shear lbs	Pile-head Rotation radians
1	1	V = 5000.00	M = 0.000	275000.	0.02923616	155378.	5000.0	-0.00047648
2	1	V = 10000.00	M = 0.000	275000.	0.12881121	419316.	10000.	-0.00164480
3	1	V = 15000.	M = 0.000	275000.	0.30790796	751755.	15000.	-0.00339663
4	1	V = 20000.	M = 0.000	275000.	0.57012002	1131070.	20000.	-0.00569857
5	1	V = 25000.	M = 0.000	275000.	0.89728176	1587535.	25000.	-0.00844471
6	1	V = 30000.	M = 0.000	275000.	1.27460397	2079189.	30000.	-0.01153556

The analysis ended normally.

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	HP14x89 - Lateral Load vs. Maximum Moment	**Computed By:**	LBR	**Date:**	Jul-13	**Page:**	of
	For Pile Structural Check	**Checked By:**		**Date:**		**Sheet:**	of

Applied Lateral Load (kips)	Maximum Moment (in-kips)
0	0
1	14.702
2	41.727
3	74.687
4	113.767
5	155.378
6	198.52
7	251.398
8	304.99
9	361.114
10	419.316
15	751.755
20	1131.07
25	1587.535
30	2079.189



SETTLEMENT LOAD REFERENCE

Read, Leah

From: Lelong, Bruce
Sent: Friday, July 26, 2013 9:58 AM
To: Read, Leah; Grubb, Bob; Yerubandi, Jaya
Subject: FW: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)
Attachments: document2013-07-25-161833.pdf — Attachment follows e-mails

Bruce R. Lelong, P.E. • Project Manager & Structures Dept. Manager
3500 N. Causeway Blvd. • Suite 900 • Metairie, LA • 70002 Bruce.Lelong@urs.com • Office 504.837.6326 • Direct 504.218.0854

-----Original Message-----
From: Brandstetter, Charles P MVN [mailto:Charles.P.Brandstetter@usace.army.mil]
Sent: Thursday, July 25, 2013 4:27 PM
To: Lelong, Bruce
Cc: Buenano, Ariel; Chillara, Naveen
Subject: RE: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First I want to apologize for not getting back to you sooner. Also, I called yesterday and spoke with Ariel about this and I told him to not use the formulas described for condition 3.

However, **after consultation with others in the Corps, it looks like these formulas are appropriate. Darryl did use this in the design of Canarvan and Davis Pond. I have attached his description of why this applied.**

Sorry for the confusion.

Charlie

-----Original Message-----
From: Lelong, Bruce [mailto:bruce.lelong@urs.com]
Sent: Thursday, July 18, 2013 10:19 AM
To: Brandstetter, Charles P MVN
Cc: Buenano, Ariel; Chillara, Naveen
Subject: RE: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)

Thanks Charlie

Bruce R. Lelong, P.E. . Project Manager & Structures Dept. Manager
[illegible]0 N. Causeway Blvd. . Suite 900 . Metairie, LA . 70002 Bruce.Lelong@urs.com . Office 504.837.6326 . Direct [illegible].218.0854

-----Original Message-----
From: Brandstetter, Charles P MVN [mailto:Charles.P.Brandstetter@usace.army.mil]
Sent: Thursday, July 18, 2013 9:16 AM
To: Lelong, Bruce
Cc: Buenano, Ariel; Chillara, Naveen
Subject: RE: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Bruce, I am looking into this, I didn't want you to think I was ignoring you.

-----Original Message-----
From: Lelong, Bruce [mailto:bruce.lelong@urs.com]
Sent: Tuesday, July 16, 2013 5:45 PM
To: Brandstetter, Charles P MVN
[illegible]: Buenano, Ariel; Chillara, Naveen
[illegible]ject: Maurepas Freshwater Diversion Project: Design Critreria for Headworks Culvert Structures

Charlie,

As I mentioned to you today when I stopped by your office, we'd like guidance on the appropriateness of EM 1110-2902 CONDUITS, CULVERTS, AND PIPES, CHANGE 1, 31 MAR 98, for applying soil loads (vertical and horizontal) to the Maurepas Headworks structures. The EM "....provides (a) guidance on the design and construction of conduits, culverts, and pipes, and (b) design procedures for trench/embankment earth loadings, highway loadings, railroad loadings, surface concentrated loadings, and internal/external fluid pressures." It seems that generally this scope would apply to the headworks monoliths, and therefore we need to carefully consider the appropriateness of the guidance and follow it unless there is a good reason not to do so. Specifically, loadings are given in Chapter 2, Cast-in-place Conduits for Dams.

The specific aspect of the EM being considered is the specified vertical and lateral soil loadings on the structures. The EM, on p. 2-4, states, "direct measurements of such [soil] pressures [from overlying fill] have been made for small diameter pipes under relatively low fill heights. Until more data are available, the following loading should be used for rigid conduits and culverts for dams and levees and outlet conduits for interior drainage." The EM then defines three basic loading conditions based on two sets of parameters: the ratio of the trench width to the conduit diameter, and the height of overlying fill above natural grade. For the Maurepas Project, based on the conditions defined, the headworks structures would meet Condition 3, which is when the conduit is located within an embankment or when the situation does not meet the criteria of Conditions 1 and 2.

[illegible] Condition 3, there are two loading cases for applying soil load around the structure:
[illegible] Initial Embankment Condition (Case 1) where weight of top soil is taken as 150% of the actual weight and lateral earth pressure coefficient as 0.5

* Final Embankment Condition (Case 2) where weight of top soil is taken as 100% of the actual weight and lateral earth pressure coefficient as 1.0

So the question is are these formulae appropriate or alternately should we use other loading values, such as at-rest lateral earth pressure coefficients based on surcharge from the column of soil and water at the outside face of the structure (taking sloping backfill into account as appropriate) and use a vertical surcharge pressure on top of the structure based on the column of soil and water directly over the roof of the structure? My opinion is that the EM does not apply, but please advise so we can design according to the NOD's requirements. FYI, on LA Ave Culvert Design we only applied the soil prism on top of the structure and used at-rest pressures on the walls and designed for Corps foundation and strength design criteria, but also checked the concrete structure per AASHTO LRFD Culvert Design Criteria. AASHTO has a soil interaction factor for overburden, which for the embankment condition is a maximum of 1.15 when the fill is compacted. Although we did not use a soil interaction factor when designing per Corps criteria, we found Corps criteria governed over AASHTO because the Corps load factors are larger.

Thanks in advance for you guidance,

Bruce

Bruce R. Lelong, P.E. * Project Manager & Structures Dept. Manager
3500 N. Causeway Blvd. * Suite 900 * Metairie, LA * 70002 Bruce.Lelong@urs.com <mailto:Bruce.Lelong@urs.com> * Office 504.837.6326 * Direct 504.218.0854

This e-mail and any attachments contain URS Corporation confidential information that may be proprietary or privileged. If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

cut-off under the sluice gate monolith as effective. Uplift condition 2 was derived by assuming the sheet pile cut-off as ineffective.

(5) Superimposed. In addition to the primary loads on the structure, the application of the following additional loadings were considered:

(a) Soil drag loads (D). Drag load due to differential settlement of the surrounding backfill with respect to the structure was incorporated into the design. The drag load applied to those monolith walls backfilled with sand was computed to be 0.5 times the lateral earth pressure, times the tangent of 20 degrees. For monolith C-2, which was backfilled with clay material, forming an impervious plug, an adhesion of 600 PSF was applied. In addition to the above loadings, a more conservative approach was included for the culvert monoliths. Here it was assumed that a greater settlement in the backfill material adjacent the culvert set up friction forces acting downward on the fill above the culvert. In modeling this effect, a contributary area of soil extending at a 45 degree angle from the top of the culvert was added to the column of fill directly over it.

(b) Silt Loads (S). Structural components were designed for silt deposits up to 12 feet in height, where applicable.

(c) Debris loads (DI). A uniform load of 1.5 kips per foot acting at the water line was applied to the applicable structural components.

(d) Boat impact (BI). A uniform load of 5.0 kips per foot in the direction of flow was applied 1 foot above the waterline.

(e) Wind loads (WI). A wind load of 50 psf was considered in the design of applicable structural components.

(f) Highway loads (H). A Louisiana Department of Transportation and Development HST-18 truck loading was considered in the design of its applicable structural component.

(g) Train loads (T). Cooper E-80 train loads were applied to the applicable structural components for permanent work. A Cooper E-65 load was used in the design of the temporary detour.

(6) Nomenclature of design cases. The design cases were given a nomenclature, which identifies the basic loading condition. The following example illustrates the method.

1-ft-wide strip is usually sufficient. Strip selection should also consider blockouts that cause discontinuity or member property reduction in the structural framing. Some strips will have tributary load. An example of these strips/sections occurs at the culvert valve well. The walls of the well can be assumed to act as a plate fixed against rotation on three sides with reactions on upstream and downstream sections and the base slab. Wall reactions are distributed throughout the width of the upstream and downstream sections. Vertical forces are assumed to be resisted by the foundation below the wall with no transfer to adjacent sections. The wall plate must be designed to transfer the load in the assumed direction (see Figure A-4).

(2) All strips must be in static equilibrium. Strips in three-dimensional monoliths will have unbalanced vertical loads due to the foundation pressure gradient. Strip equilibrium is achieved by using vertical shears between strips with magnitudes as required to satisfy external equilibrium. This is referred to as shear transfer. Shears should be applied such that moments are not introduced into the external stability of the monolith. Shear transfer also provides redundancy in the monolith which is required to distribute the effects of small discontinuities (from blockouts/voids) in the structural framing. This permits the designer to ignore small voids in the frame analysis. Generally within a monolith, thick reinforced concrete members establish shear transfer without special details.

(3) A monolith may require several strip analyses and parametric studies in order for the designer to understand its behavior. Selecting a strip and interpretation of analysis results are challenging tasks and should be assigned to more experienced engineers.

c. Frame member. Generally, framing is modeled along member centerlines except for the very deep member that forms the culvert roof in monoliths such as the gate monoliths. This member is modeled near the top of the culvert and intersects the culvert walls at their centerlines (see Figure A-4). The block above the culvert can be modeled as a rigid body if its span-to-depth ratio is 1 to 1 or lower. If the member above the culvert is relatively thin, it behaves like a typical frame member. Member section properties are computed using member gross concrete dimensions.

d. Rigid links. Rigid links are short members at joints that are stiffened to represent the behavior of wide supports. They are used to approximate real behavior at the intersections of thick concrete members. The length of the rigid link is generally half the distance between the joint and the face of the supporting concrete. The length can be extended by half the length of a fillet if present. A link should have a stiffness of at least ten times greater than that of the intersecting flexible member. In regions of complex geometry, finite element runs can be used to calibrate the length of rigid links. For application of rigid links, see Figure A-5.

e. Foundation modeling.

(1) The foundation can usually be modeled by elastic springs (both vertical and horizontal) for soil or piles. Pile springs are attached to the base slab centerline by rigid links which model the eccentricity to the foundation. The length of the link is generally half the thickness of the base slab.

(2) Hydrostatic uplift is modeled as a load. Hydrostatic uplift reduces bearing pressures, which affects frame response.

(3) For soil-founded locks, assumed shapes of bearing pressures can be modeled as a load in lieu of using foundation springs (see paragraph 6-3*a*). Supports are still required to provide stable boundary conditions, but each support reaction should be zero. Note that displacements of the soil must be compatible with the deflections of the structure in order to accurately model the soil-structure interaction (see paragraph 6-3*b*). The use of foundation springs accommodates this requirement and is the preferred method of analysis.

(4) Pile foundation analyses should include horizontal base shears, particularly if battered piles are present. Horizontal base shear on battered piles creates a vertical component of force that will load the U-frame. Torsional moments on a monolith create horizontal base shears and should be evaluated.

(5) Due to uneven distributions of foundation bearing pressures, differential settlement between monoliths and within a monolith should be considered. Within a monolith, usually the base slab is constructed first, the subsequent load from buildup of

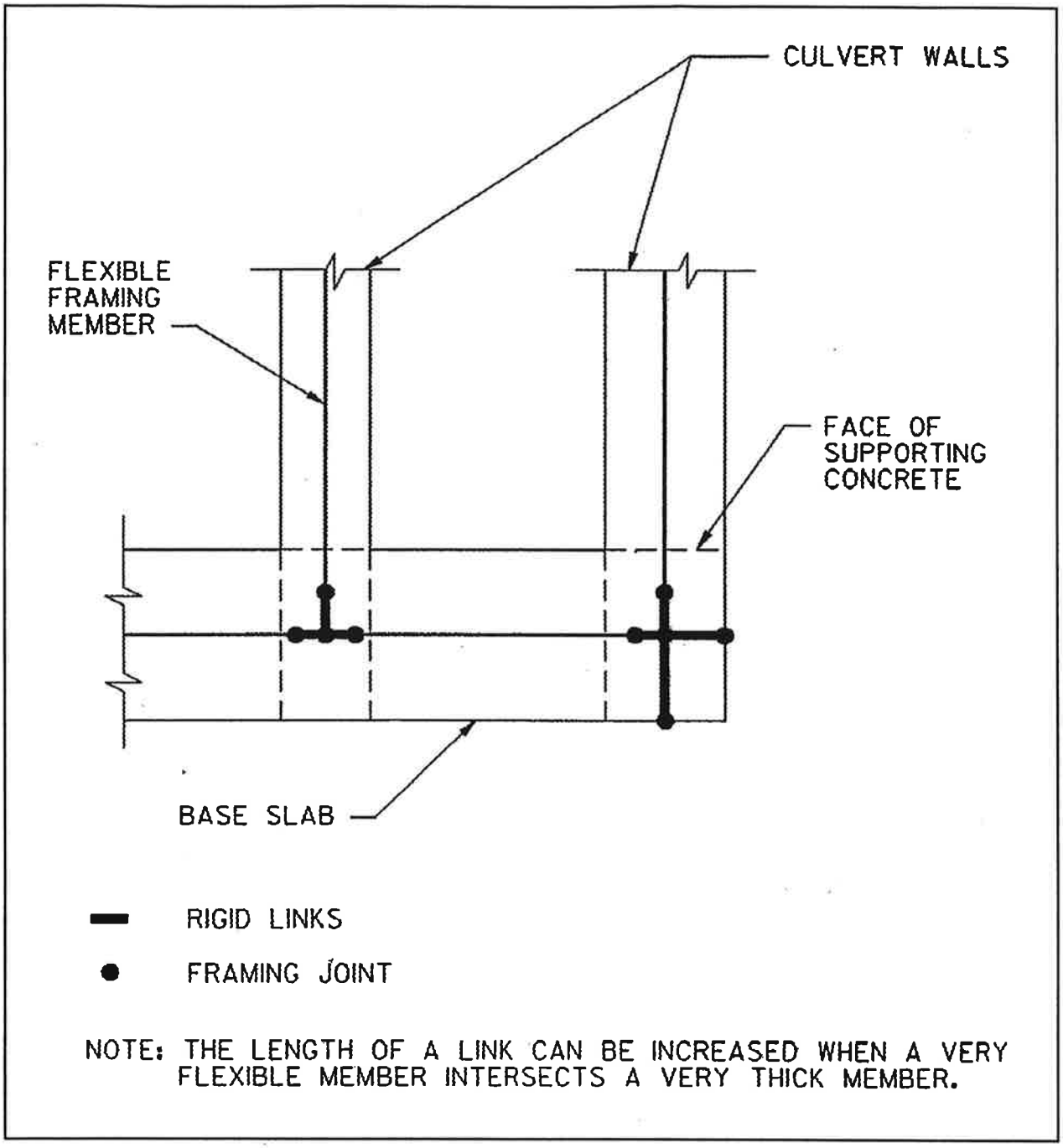


Figure A-5. Rigid link application

preparation, design for shear flow at the joint, and an adequate length of thickened section along the base member (see Figure A-6). Some thickened sections will not have sufficient length to stiffen the base slab (see related discussion on cover plated steel beams in the AISC *Manual of Steel Construction*). Alternatively, the added concrete thickness can be detailed to act independently of the rest of the base slab by segmenting it with watertight joints parallel to flow. Joint spacing should be such that composite action is not developed.

(2) Thicker slabs can stiffen adjacent thinner slabs similar to the stiffening effect that a T-beam

SECTION 10

MONOLITHS C-2 THRU C-4 DESIGN

SECTION 10 TABLE OF CONTENTS

PART 1. SAP Model Overview & Load Input

PART 2. Pile Foundation Results

PART 3. Member Design, Traditional Load Cases

PART 4. Member Design, Settlement Load Cases

PART 1

SAP Model Overview & Load Input

Two independent 3-D SAP2000 models have been created to design the Box Culvert Monoliths C-2 to C-6. 3-D models were employed because the culverts run beneath the Mississippi River Levee and adjacent River Road at an angle, creating a skewed loading condition on both types of box. The models are made of 4000psi concrete area elements with thicknesses of 3'-6" for the base slab and 2'-9" for the walls and top slab.

Joints connecting the frame elements are stiffened as per ETL 1110-2-355, which states that, "Rigid links are short members at joints that are stiffened to represent the behavior of wide supports. They are used to approximate real behavior at the intersections of thick concrete members. The length of the rigid link is generally half the distance between the joint and the face of the supporting concrete…A link should have a stiffness of at least ten times greater than that of the intersecting flexible member." The pertinent portions of the ETL explaining the rigid link method are included in the preceding general information section.

Piles are modeled with springs that are calculated with supplied geotechnical data. Axial springs are based on the equation:

$$b_{33} = c_{33} * (A * E) / L$$

where, b_{33} = axial pile stiffness spring (k/in)
c_{33} = axial stiffness modifier coefficient (supplied by geotechnical analysis)
A = cross-sectional area of the pile
E = modulus of elasticity of the pile
L = length of the pile

Lateral springs are based on the LPile Lateral Load vs. Displacement curve provided by the geotechnical analysis. For these springs, a lateral deflection is assumed (based on initial model runs or an engineering assumption) and the associated load is found. The calculated lateral spring is equivalent to this load divided by the correlated deflection. An iterative procedure is then used to calibrate the spring value so that the spring's source deflection is equivalent to the deflection of the model's piles. LPile information for up to a 30kip lateral load is available for use. For pile structural checks, the moment curve used is also taken from LPile output data.

Operational Load Cases were created to maximize possible upward or downward forces on the pile foundation and concrete members. Two overall cases are considered, one for a maximum river stage of EL 23.73 and one for a minimum river stage of EL 1.0. These two general conditions are split into a maximum downward force option, where water is flowing in the culverts and an impervious sheet pile cut-off is assumed (no uplift is applied), and a maximum upward force option where the culverts are empty and a pervious cut-off is assumed (uplift is applied).

Maintenance Dewatering Cases were also considered. Instead of modeling every possible combination of empty and full culverts, the two scenarios that maximize culvert wall forces were chosen for the model. In the first option, the center box is dewatered while the two exterior boxes are flowing full with water pressure due to the Maximum River Stage. In the second, only one edge culvert is flowing full while the remaining two boxes are empty. These dewatering cases are also split into versions with and without uplift.

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Description: Design Load Cases **Computed By:** LBR **Date:** Aug-13 **Page:** of

Culverts C-2 to C-4 **Checked By:** **Date:** **Sheet:** of

LC #	Description	Allowable Overstress	Applicable Loads
Dead	Dead Load	0.00%	Dead Load (concrete)
1a	Construction Condition	16.67%	Dead Load (concrete)
			Construction Surcharge (250psf)
			Dry Soil to T.O. Levee - Lateral & Vertical
1b	Uneven Construction Condition	16.67%	Dead Load (concrete)
			Construction Surcharge (250psf)
			Lateral Load from Uneven Dry Backfill (5ft differential)
2a	Maximum River Stage w/Uplift	0.00%	Dead Load (concrete)
			No Internal Water Pressure (Culverts Empty)
			Uplift from Max River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
2b	Maximum River Stage w/out Uplift	0.00%	Dead Load (concrete)
			Culverts Full
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
3a	Minimum River Stage w/Uplift	0.00%	Dead Load (concrete)
			No Internal Water Pressure (Culverts Empty)
			Uplift from Min River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
3b	Minimum River Stage w/out Uplift	0.00%	Dead Load (concrete)
			Culverts Full to Min River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D1a	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/Uplift	33.33%	Dead Load (concrete)
			Internal Water Pressure in Two Exterior Culverts from Max River Stage
			Uplift from Max River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D1b	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/out Uplift	33.33%	Dead Load (concrete)
			Internal Water Pressure in Two Exterior Culverts from Max River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D2a	Maintenance Dewatering Type 2 (Only One Edge Culvert In Operation) w/Uplift	33.33%	Dead Load (concrete)
			Internal Water Pressure in One Exterior Culvert from Max River Stage
			Uplift from Max River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D2b	Maintenance Dewatering Type 2 (Only One Edge Culvert In Operation) w/out Uplift	33.33%	Dead Load (concrete)
			Internal Water Pressure in One Exterior Culvert from Max River Stage
			Soil to T.O. Levee - Lateral & Vertical
			Average Groundwater Table Outside Culvert

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Description: Design Load Cases **Computed By:** LBR **Date:** Aug-13 **Page:** of

Culverts C-2 to C-4 **Checked By:** **Date:** **Sheet:** of

LC #	Description	Allowable Overstress	Applicable Loads
1a-ST	Construction Condition + Settlement of Adjacent Clay	16.67%	All loads included in LC 1a Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
1b-ST	Uneven Construction Condition + Settlement of Adjacent Clay	16.67%	All loads included in LC 1b Vertical Downdrag (600psf on walls/slab edges) NO TOPSOIL
2a-ST	Maximum River Stage with Uplift + Settlement of Adjacent Clay	0.00%	All loads included in LC 2a Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
2b-ST	Maximum River Stage w/out Uplift + Settlement of Adjacent Clay	0.00%	All loads included in LC 2b Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
3a-ST	Minimum River Stage with Uplift + Settlement of Adjacent Clay	0.00%	All loads included in LC 3a Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
3b-ST	Minimum River Stage w/out Uplift + Settlement of Adjacent Clay	0.00%	All loads included in LC 3b Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
D1a-ST	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/Uplift + Settlement of Adjacent Clay	33.33%	All loads included in LC D1a Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
D1b-ST	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/out Uplift + Settlement of Adjacent Clay	33.33%	All loads included in LC D1b Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
D2a-ST	Maintenance Dewatering Type 2 (Only One Edge Culvert In Operation) w/Uplift + Settlement of Adjacent Clay	33.33%	All loads included in LC D2a Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)
D2b-ST	Maintenance Dewatering Type (Only One Edge Culvert In Operation) w/out Uplift + Settlement of Adjacent Clay	33.33%	All loads included in LC D2b Topsoil Settlement (45° contributory area added to vertical soil column) Vertical Downdrag (600psf on walls/slab edges)

URS

Job:	Maurepas Freshwater Diversion	Project No.	10001876	Page	of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By:	LBR	Date:	August-13
		Checked By:		Date:	

References

Material

Water	62.4 lb/ft^3	
Concrete	150 lb/ft^3	
Steel	490 lb/ft^3	
Semi-Compacted Granular Fill	110 lb/ft^3	
Fully-Compacted Granular Fill, Wet	120 lb/ft^3	
Fully-Compacted Granular Fill, Effective	58 lb/ft^3	
Fully-Compacted Clay Fill, Wet	115 lb/ft^3	(soil weight provided by geotechnical analysis)
Fully-Compacted Clay Fill, Effective	52.6 lb/ft^3	(soil weight provided by geotechnical analysis)

Elevations

Datum Conversion: NAVD88 Elevation = NGVD Elevation - 0.223 ft

Top of Levee elevation	33.5 ft NAVD 88	
Top of River Road elevation	10.73 ft NAVD 88	
Top of Soil, C-6	8.0 ft NAVD 88	
Inside Top of Culvert	3.0 ft NAVD 88	
Outside Top of Culvert	5.75 ft NAVD 88	
Invert of Culvert	-7.0 ft NAVD 88	
Bottom of Culvert	-10.5 ft NAVD 88	
Average Ground Water Table	5.2 ft NAVD 88	
Maximum Ground Water Table	8.1 ft NAVD 88	
Maximum River Stage	23.73 ft NAVD 88	
Minimum River Stage	1.0 ft NAVD 88	(0.68 ft NAVD 88 rounded off to nearest decimal)

Concrete Design

Compressive Strength (f_c')	4000 psi, 28 day strength
Reinforcing, ASTM A615 Gr. 60 (f_y)	60 ksi
ACI 318-05:	
Strength reduction factor (φ)	0.75 for shear
EM1110-2-2104 including Change 1:	
Single Load Factor Method	1.7
Hydraulic Factor, shear and moment	1.3
Hydraulic Factor, direct tension	1.65

Loads

Concrete
- Unit weight of culvert
- Neglect weight of stability slab

Soil
Vertical - use unit weight
Horizontal - use unit weight x K_0

K_0 =	0.95 for clay	(K_0 value provided by geotechnical analysis)
Surcharge =	250 lbs/sf	AASHTO

Equations Used

Water Pressure (Lateral & Vertical):

*Water Pressure: $P = \gamma_{water} * Z_{water}$

Vertical Soil Pressure:

*Above water table: $P_y = \gamma_{fill,\ wet} * Z_{fill}$ (EM 1110-2-2502 Eq 3-39)

*Below water table: $P_y = \gamma_{fill,\ eff} * Z_{fill}$ (EM 1110-2-2502 Eq 3-40)

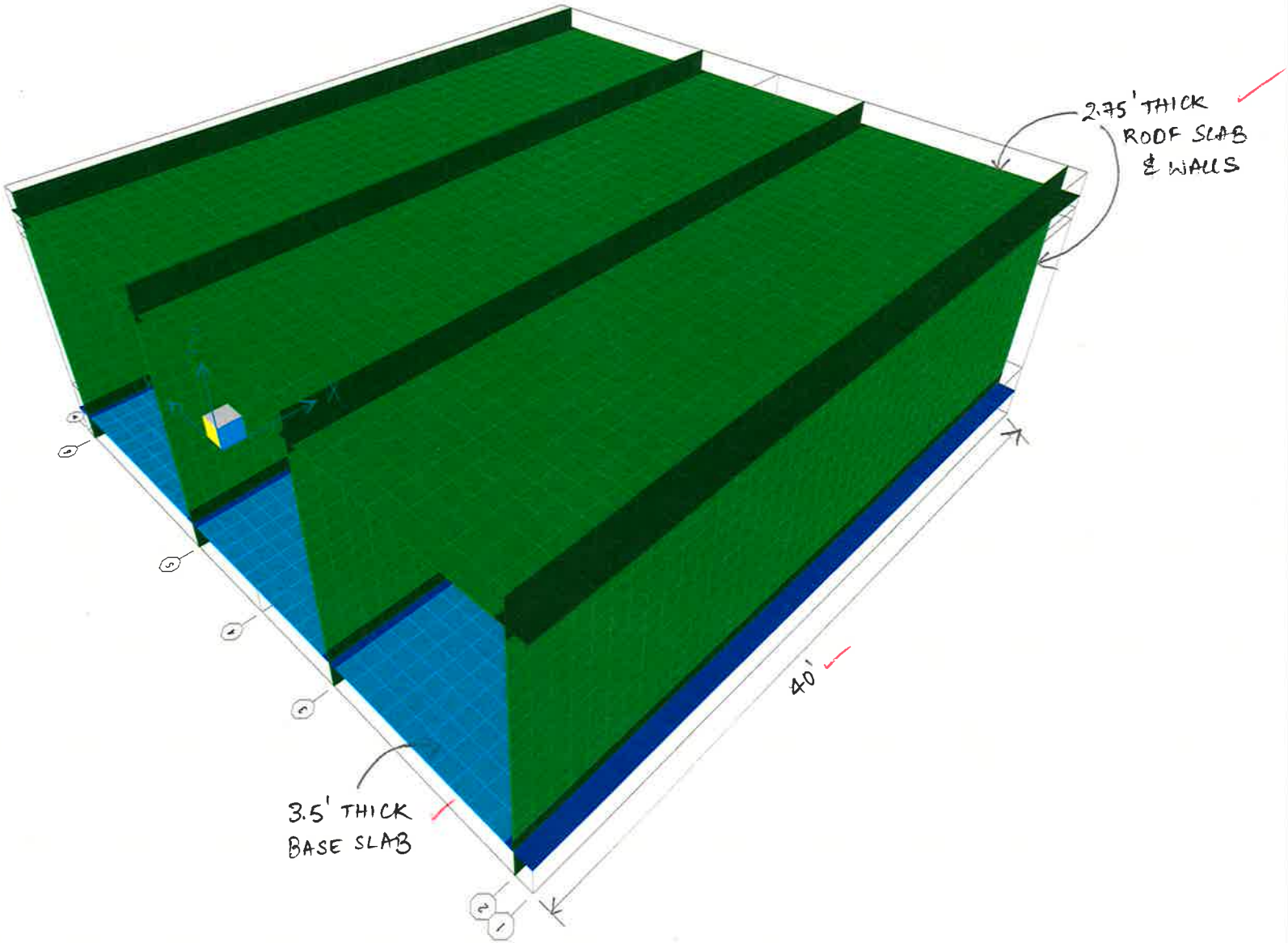
Lateral Soil Pressure Including Riprap:

*Above water table: $P_y = K_0 * (q_{surch,\ const} + \gamma_{fill,\ wet} * Z_{fill})$ (EM 1110-2-2502 Eq 3-43)

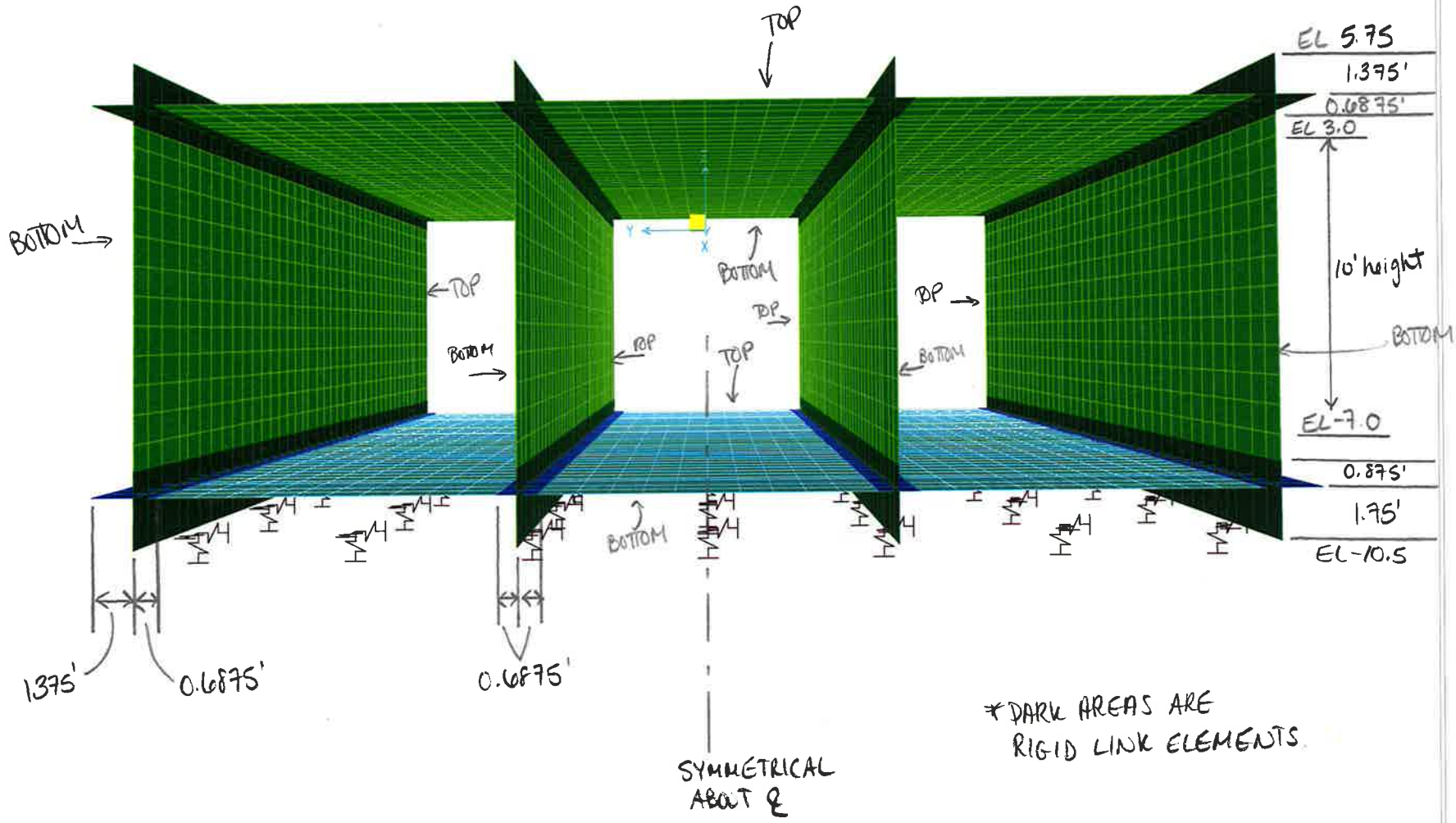
*Below water table: $P_y = K_0 * (q_{surch,\ const} + \gamma_{fill,\ eff} * Z_{fill})$

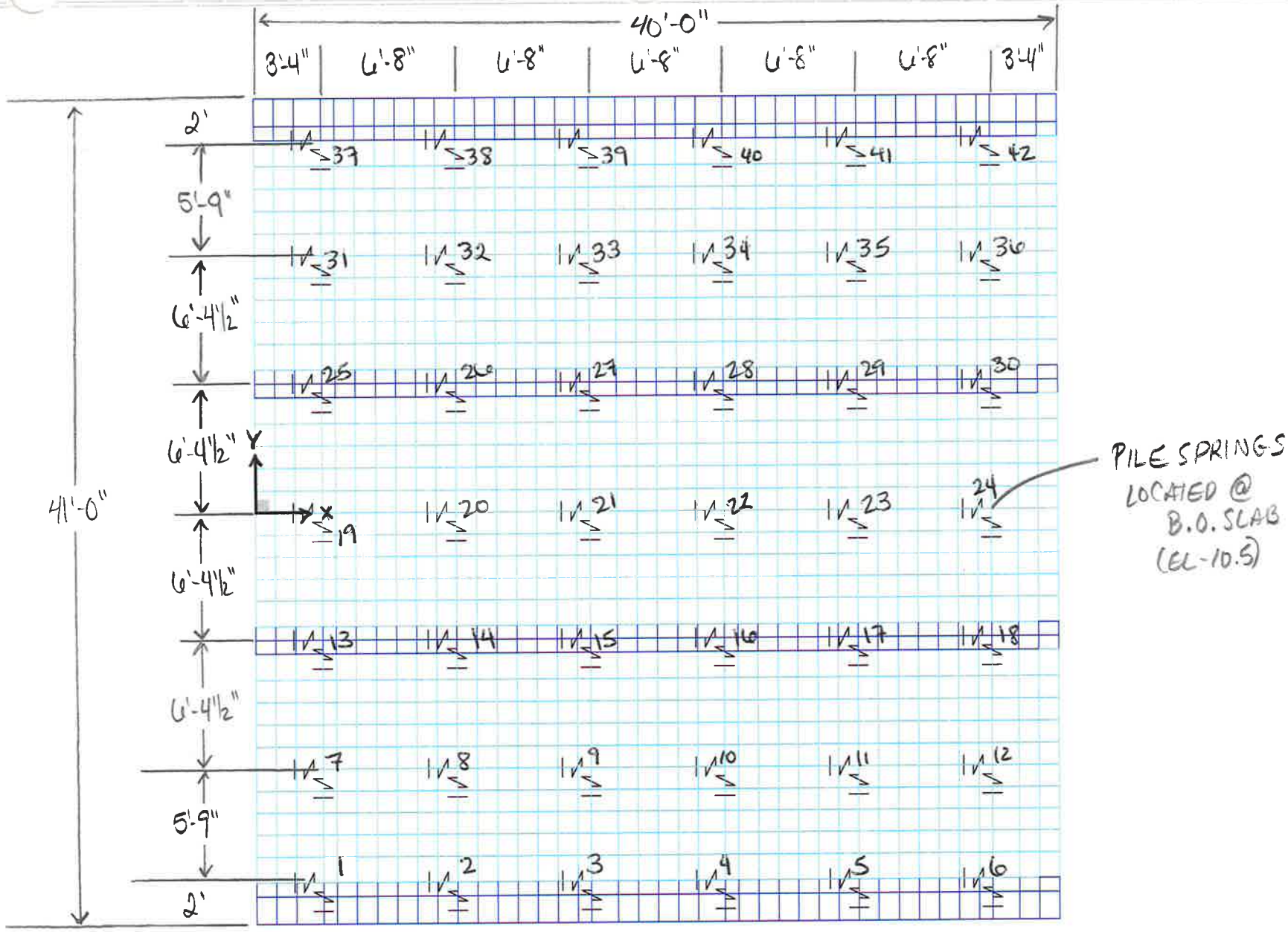
LBR 6/2013

3-10'x10' BOX CULVERT 3D SAP MODEL



JY 06/2013 (12)


TOP
EL 5.75
1.375'
0.6875'
EL 3.0
10' height
BOTTOM
EL -7.0
0.875'
1.75'
EL -10.5
BOTTOM
TOP
BOTTOM
TOP
BOTTOM
TOP
BOTTOM
TOP
BOTTOM
BOTTOM
1.375'
0.6875'
0.6875'
SYMMETRICAL ABOUT ℄
*DARK AREAS ARE RIGID LINK ELEMENTS


40'-0"
3'-4"
6'-8"
6'-8"
6'-8"
6'-8"
6'-8"
3'-4"
41'-0"
2'
5'-9"
6'-4½"
6'-4½"
6'-4½"
6'-4½"
5'-9"
2'
Y
X
37 38 39 40 41 42
31 32 33 34 35 36
25 26 27 28 29 30
19 20 21 22 23 24
13 14 15 16 17 18
7 8 9 10 11 12
1 2 3 4 5 6
PILE SPRINGS
LOCATED @
B.O. SLAB
(EL-10.5)

URS

Job: MAURERAS DIVERSION | Project No. 10001876 | Page ____ of ____
Description: MONOLITHS C2-C4 | Computed by: LBR | Sheet ____ of ____
DEAD LOAD CALIBRATION | Checked by ____ | Date: 8/2013 | Date ____
Reference

ACTUAL DEAD LOAD:

ROOF: 41' wide × 2.75' thick × 40' long × 150 PCF = 676,500 LB

WALLS: 10' tall × 2.75' thick × 40' long × 4 × 150 PCF = 660,000 LB

FLOOR: 41' wide × 3.5' thick × 40' long × 150 PCF = 861,000 LB

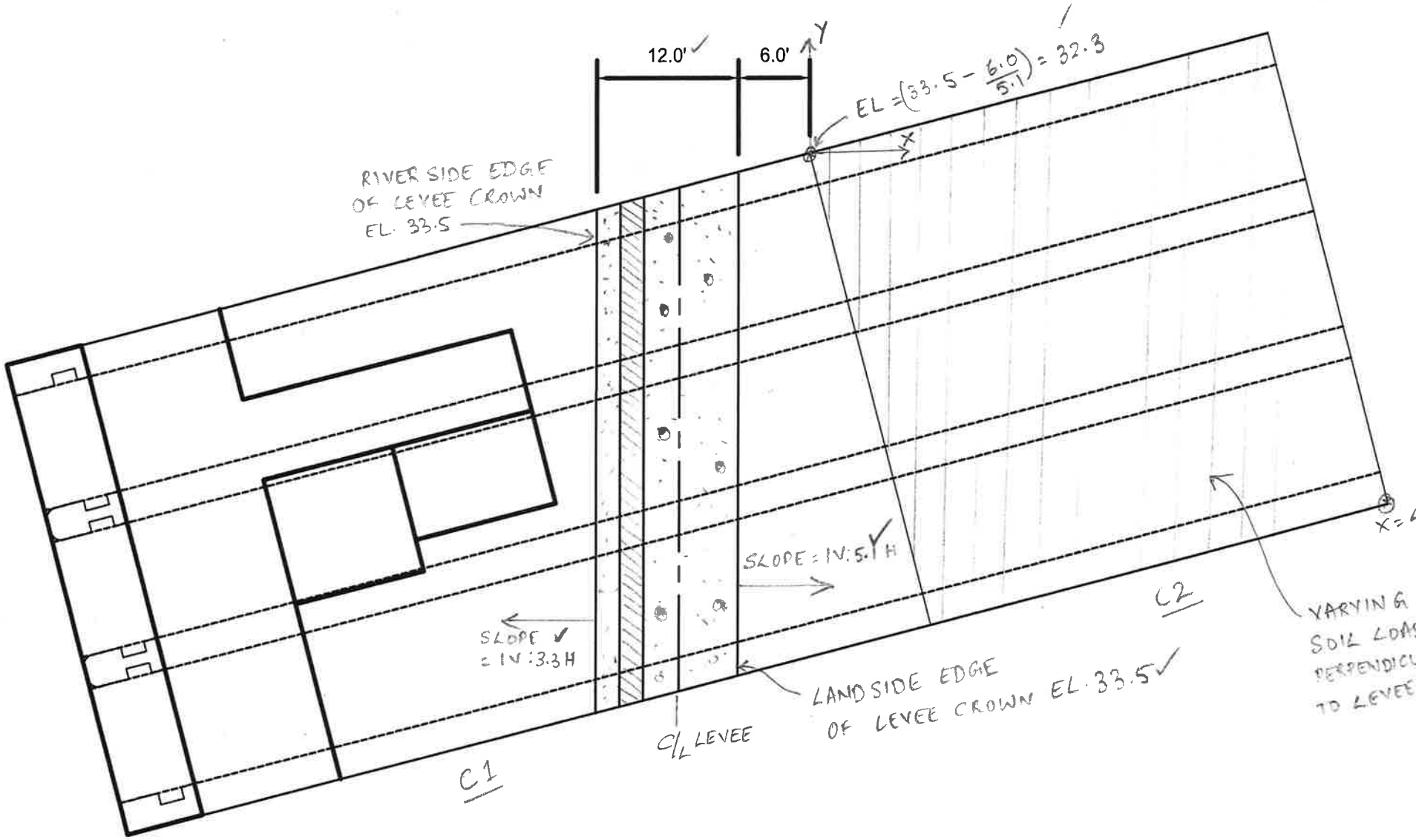
Σ = 2,197,500 LB

↳ ΣSAP REACTIONS FOR DEAD LOAD = 2,201,625 LB

↳ DIFFERENCE OF 4125 LB, OR 0.188% → OK

JY 06/2013
BR 6/2013

BOX CULVERT MONO. C2 - TOP SOIL LOADING:



URS

Job:	Maurepas Freshwater Diversion	Project No.	10001801	Page:	of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By:	JY	Date:	June-13
		Checked By:	LBR	Date:	June-13

References

Properties:

3 - 10ft x 10ft culverts

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	
Surcharge =	0.25	ksf

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Average GWT =	5.2	ft NAVD 88
Maximum river stage =	23.7	ft NAVD 88
Minimum river stage =	1.0	ft NAVD 88

EQUIPMENT SURCHARGE

- Equipment surcharge on top of the culvert (q)= 0.25 ksf

- Lateral effect due to surcharge load: *p'hz = kq (EM 1110-2-2502 Eq 3-43), using k_0 = 0.95

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.238
4.375	0.238
3.0	0.238
-7.0	0.238
-8.75	0.238
-10.5	0.238

SOIL LOAD (Dry Condition)

- Vertical Soil load on top of the culvert:

Levee Soil on top of the culvert varies in height along the culvert's length
Coordinates shown below are perpendicular to Levee (System CSYS1 in SAP)

X-Coordinates(ft) (CSYS1)	El. (ft)	Height(ft)	Pressure(K/ft)
0.0	**32.30**	26.55	3.05
49.0	22.7	16.94	1.95

Levee Slope
H :V
5.1 :1

- Lateral Loads: (EM1110-2-2502 Eq 3-43)

Soil to Top of Culvert

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.0
4.375	0.150
3.0	0.300
-7.0	1.393
-8.75	1.584
-10.5	1.775

Soil to Top of Levee

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	2.901
4.375	3.051
3.0	3.201
-7.0	4.294
-8.75	4.485
-10.5	4.676

Uneven Backfill (5' below T.O. Culvert)

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.0
3.0	0.0
0.75	0.0
-7.0	0.847
-8.75	1.038
-10.5	1.229

Note: - Even though the levee soil height varies along the length of the culvert, the lateral soil pressure on the outer walls was calculated for Max. levee soil height. This simplifies the model but is also a conservative modification.

URS

Job:	Maurepas Freshwater Diversion	Project No. 10001876	Page: of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By: JY	Date: 6/1/2013
		Checked By:	Date:

References

Properties:

3 - 10ft x 10ft culverts

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
γ_{wet} =	0.115	kcf
γ' =	0.0526	kcf
$K_{0,\ clay}$ =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Average GWT =	5.2	ft NAVD 88
Maximum river stage =	23.73	ft NAVD 88
Minimum river stage =	1.0	ft NAVD 88
Max Soil El. above culvert =	32.3	ft NAVD 88

LOADS : Max River Stage

To create Max effect of uplift on the culvert, Uplift due to Max River Stage will be considered acting uniformly on the Base slab of the culvert.

- Water press. at Bottom of the culvert due to Max River Stage (Uplift) = 2.136 ksf

- Water press. at culvert invert when Culvert filled with water (10' water height) = 0.624 ksf

- Water press. at culvert invert when Culvert filled with water at Max River Stage = 1.918 ksf
- Water press. at Roof of culvert when Culvert filled with water at Max River Stage = 1.294 ksf

Considered for Dewatering Load cases

Lateral Soil Loads:

Average GWT considered for calculating the Lateral Soil Pressures on the Outer Walls of the Culvert.

*Above water table: $P = K_0 * \gamma_{wet} * Z$ (EM 1110-2-2502 Eq 3-39)

*Below water table: $P = K_0 * [\gamma_{wet} * Z_{water} + \gamma' * (Z - Z_{water})]$ (EM 1110-2-2502 Eq 3-40)

Elevation (ft NGVD)	Lateral soil pressure (k/ft)
5.75	2.901
5.20	2.961
4.375	3.002
3.0	3.071
-7.0	3.570
-8.75	3.658
-10.5	3.745

Lateral Water Pressure on Culvert Walls:

Outer Wall Pressures from Avg. GWT:

Elevation (ft NGVD)	Lateral Water press.(ksf)
5.75	0.0
5.2	0.0
3.0	0.137
-7.0	0.761
-8.8	0.870
-10.5	0.980

Inner Wall Pressures (Culverts filled with Water):

Elevation (ft NGVD)	Lateral Water press.(ksf)
3.0	0.0
-7.0	0.624

Culverts filled due to Max River (Dewatering Cases):

Elevation (ft NGVD)	Lateral Water press.(ksf)
3.0	1.294
-7.0	1.918

Notes:

- Even though the levee soil height varies along the length of the culvert, the lateral soil pressure on the outer walls was calculated for Max. levee soil height. This simplifies the model but is also a conservative modification.
- Dewatering/Maintenance is assumed to be done during Full flow condition conservatively. Therefore, the above calculated Soil and Water loads applies to Dewatering case also.

URS

Job:	Maurepas Freshwater Diversion	Project No. 10001876	Page: of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By: JY	Date: 6/1/2013
		Checked By:	Date:

References

Properties:

3 - 10ft x 10ft culverts

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
γ_{sat} =	0.115	kcf
γ' =	0.0526	kcf
$K_{0,\ clay}$ =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of levee =	33.5	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Average GWT =	5.2	ft NAVD 88
Maximum river stage =	23.73	ft NAVD 88
Minimum river stage =	1.0	ft NAVD 88
Max Soil El. above culvert =	32.3	ft NAVD 88

LOADS : Min River Stage

- Water press. at Bottom of the culvert due to Min River Stage (Uplift) = 0.718 ksf

- Water press. at culvert invert, when culvert filled with water at Min River Stage = 0.499 ksf

Lateral Soil Loads:

Average GWT considered for calculating the Lateral Soil Pressures on the Outer Walls of the Culvert.

*Above water table: $P = K_0 * \gamma_{sat} * Z$ (EM 1110-2-2502 Eq 3-39)

*Below water table: $P = K_0 * [\gamma_{sat} * Z_{water} + \gamma' * (Z - Z_{water})]$ (EM 1110-2-2502 Eq 3-40)

Elevation (ft NGVD)	Lateral soil pressure (k/ft)
5.75	2.901
5.20	2.961
4.375	3.002
3.0	3.071
-7.0	3.570
-8.75	3.658
-10.5	3.745

Lateral Water Pressure on Culvert Walls:

Outer Wall Pressures from Avg. GWT:

Elevation (ft NGVD)	Lateral soil press.(ksf)
5.75	0.0
5.2	0.0
3.0	0.137
-7.0	0.761
-8.8	0.870
-10.5	0.980

Inner Wall Pressures
(Culverts filled with Water at Min. River Stage):

Elevation (ft NGVD)	Lateral soil press.(ksf)
1.0	0.000
-7.0	0.499

Notes:

- Even though the levee soil height varies along the length of the culvert, the lateral soil pressure on the outer walls was calculated for Max. levee soil height conservatively. This simplifies the model but is also a conservative modification.

Culvert Roof Slab Joint Pattern for Vertical load due to varying levee Soil:

Joint Pattern - "Top Soil"

Equation: P=Ax+D where P = Pressure at Coordinate x
x = x coordinate of model
A & D = constants

x	P
0.0	3.053
49.0	1.948

Equations:

3.053 = A*0 + D
1.948 = A*49 + D

A =	-0.0225
D =	3.0533

Culvert outer wall Joint Pattern for lateral force due to Soil to top of Culvert:

Joint Pattern - "TOC Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	0.000
-10.5	1.775

Equations:

0 = C*5.75 + D
1.78 = C*-10.5 + D

C =	-0.1093
D =	0.6282

Culvert outer wall Joint Pattern for lateral force due to Soil to 5' from top of Culvert:

Joint Pattern - "UE Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
0.75	0.000
-10.5	1.229

Equations:

0 = C*0.75 + D
1.23 = C*-10.5 + D

C =	-0.1093
D =	0.0819

Culvert outer wall Joint Pattern for lateral force due to Soil to top of levee on Culvert:

Joint Pattern - "TOL Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	2.901
-10.5	4.676

Equations:

2.9 = C*5.75 + D

C =	-0.1093

4.68 = C*-10.5 + D **D =** 3.5288

Culvert outer wall Joint Pattern for lateral Soil load due to Average Ground Water Table:

Joint Pattern - "Lat Avg GWT Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	2.901
5.20	2.961

Up to Top of Water

Equations:
2.9 = C*5.75 + D
2.96 = C*5.2 + D

C = -0.1093
D = 3.5288

z	P
5.20	2.961
-10.50	3.745

From Top of Water to Bottom of Culvert

Equations:
2.96 = C*5.2 + D
3.75 = C*-10.5 + D

C = -0.0500
D = 3.2205

Culvert Outer wall Joint Pattern for lateral Water load due to Average Ground Water Table:

Joint Pattern - "Lat GWT"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Outer Wall -

z	P
5.20	0.000
-10.50	0.980

Equations:
0 = C*5.2 + D
0.98 = C*-10.5 + D

C = -0.0624
D = 0.3245

Culvert Inner wall Joint Pattern for lateral Water when culverts filled with Water:

Joint Pattern - "Culvert Full"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Inner Wall -

z	P
3.0	0.000
-7.0	0.624

Equations:
0 = C*3 + D
0.62 = C*-7 + D

C = -0.0624
D = 0.1872

Culvert Inner wall Joint Pattern for lateral Water when culverts filled with Water up to Min River Stage:

Joint Pattern - "Min Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Inner Wall -

z	P
1.0	0.000
-7.0	0.499

Equations:

0 = C*1 + D
0.5 = C*-7 + D

C =	-0.0624
D =	0.0624

Culvert Inner wall Joint Pattern for lateral Water load due to Dewatering during Max River Stage:

Joint Pattern - "Dewater"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Inner Wall -

z	P
3.0	1.294
-7.0	1.918

Equations:

1.29 = C*3 + D
1.92 = C*-7 + D

C =	-0.0624
D =	1.4808

URS

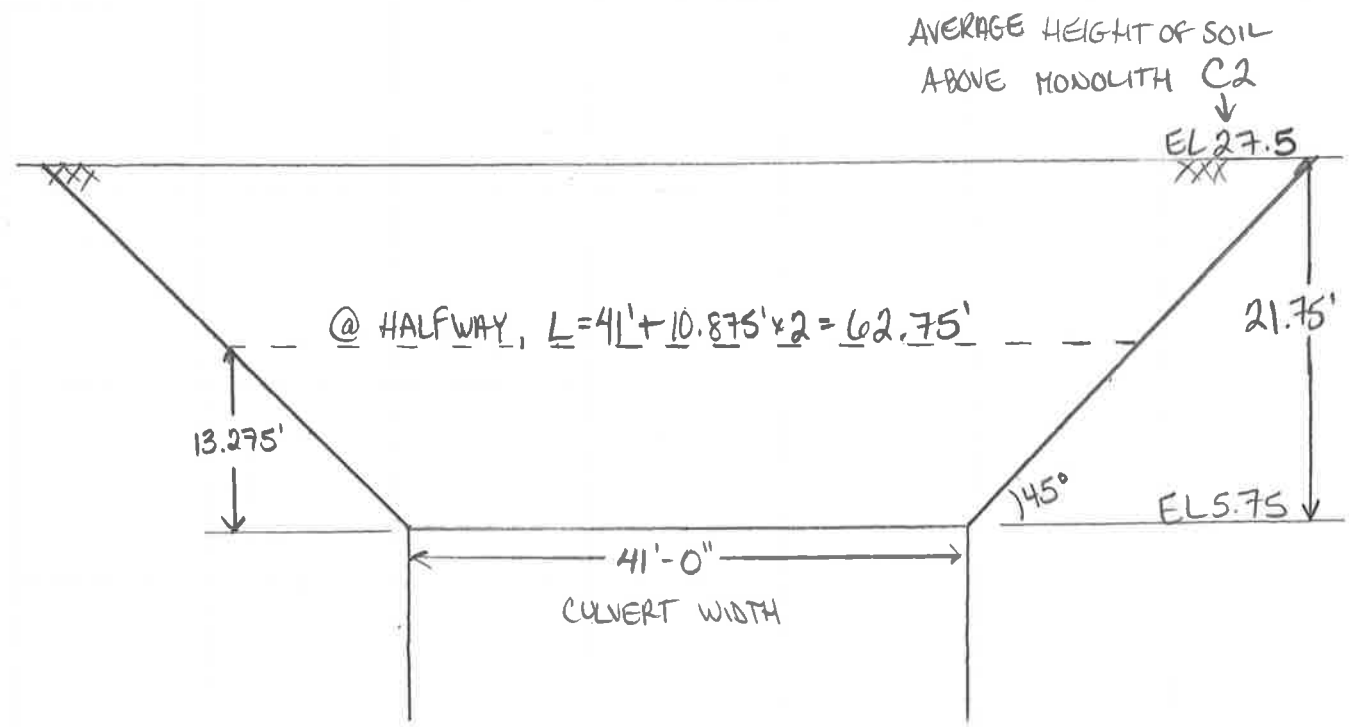
Page ____ of ____

Job: MAUREPAS DIVERSION | Project No. 10001876 | Sheet ____ of ____

Description: MONO. C2-C4 - VERTICAL SOIL COLUMN MODIFICATION. | Computed by: LBR | Date: 8/2013

Checked by: ____ | Date: ____

Reference



∴ TO ACCOUNT FOR CONTRIBUTORY AREA OF SOIL ADDING TO VERTICAL SOIL COLUMN, MULTIPLY VERTICAL SOIL FORCE BY:

$$\frac{62.75'}{41'} = \underline{\underline{1.53}}$$

- NOTE: THIS ESTIMATION OF ADD'L DOWNWARD FORCE IS LARGER THAN IS REQUIRED BY AASHTO 12.11.2 & IS CONSERVATIVE

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Description: Design Load Cases **Computed By:** LBR **Date:** Aug-13 **Page:** of

Culverts C-2 to C-4 **Checked By:** **Date:** **Sheet:** of

Load Pattern Name	Pattern Description
DEAD	Dead load of concrete structure
ST_cohesion	Downdrag force due to cohesive clay soils settling against walls
ST_cohesion_uneven	Downdrag force due to clay soils settling against walls for uneven backfill
LS_const	Construction surcharge loads (horizontal & vertical)
LS_const_uneven	Construction surcharge loads (horizontal & vertical) for uneven backfill
S_leveetop	Vertical force of levee soil on top of culvert (1.0 scale factor)
S_const_lat	Soil pressure from dry backfill during construction - soil to T.O. Levee
S_const_uneven	Soil pressure from dry uneven backfill during construction (5ft differential)
S_avg gwt	Soil pressure from partially submerged fill (water to Avg. Groundwater Table)
L_avg gwt	Lateral load from water to Average Groundwater Table (EL 5.2)
L_culvert full	Internal Pressure on walls & bottom slab from full culverts
L_culv min water	Internal Pressure on walls & bottom slab from culverts full to EL 1.0 (min river stage)
U_max river	Uplift load from water to EL 23.73 (max river stage)
U_min river	Uplift load from water to EL 1.0 (min river stage)
L_1-dewater	Internal Pressure on walls & slabs from water flow in two exterior culverts - center culvert dewatered (max. river stage water level)
L_2-dewater	Internal Pressure on walls & slabs from water flow in one exterior culvert - center and edge culvert dewatered (max river stage water level)

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
1a	Load pattern	DEAD	1
1a	Load pattern	LS_const	1
1a	Load pattern	S_const_lat	1
1a	Load pattern	S_leveetop	1
1b	Load pattern	DEAD	1
1b	Load pattern	LS_const_uneven	1
1b	Load pattern	S_const_uneven	1
2a	Load pattern	DEAD	1
2a	Load pattern	S_leveetop	1
2a	Load pattern	S_avg gwt	1
2a	Load pattern	U_max river	1
2a	Load pattern	L_avg gwt	1
2b	Load pattern	DEAD	1
2b	Load pattern	S_leveetop	1
2b	Load pattern	S_avg gwt	1
2b	Load pattern	L_culvert full	1
2b	Load pattern	L_avg gwt	1
3a	Load pattern	DEAD	1
3a	Load pattern	S_leveetop	1
3a	Load pattern	S_avg gwt	1
3a	Load pattern	U_min river	1
3a	Load pattern	L_avg gwt	1
3b	Load pattern	DEAD	1
3b	Load pattern	S_leveetop	1
3b	Load pattern	S_avg gwt	1
3b	Load pattern	L_culv min water	1
3b	Load pattern	L_avg gwt	1
D1a	Load pattern	DEAD	1
D1a	Load pattern	S_leveetop	1
D1a	Load pattern	S_avg gwt	1
D1a	Load pattern	L_1-dewater	1
D1a	Load pattern	U_max river	1
D1a	Load pattern	L_avg gwt	1
D1b	Load pattern	DEAD	1
D1b	Load pattern	S_leveetop	1
D1b	Load pattern	S_avg gwt	1
D1b	Load pattern	L_1-dewater	1
D1b	Load pattern	L_avg gwt	1
D2a	Load pattern	DEAD	1
D2a	Load pattern	S_leveetop	1
D2a	Load pattern	S_avg gwt	1
D2a	Load pattern	L_2-dewater	1
D2a	Load pattern	U_max river	1
D2a	Load pattern	L_avg gwt	1
D2b	Load pattern	DEAD	1
D2b	Load pattern	S_leveetop	1
D2b	Load pattern	S_avg gwt	1
D2b	Load pattern	L_2-dewater	1
D2b	Load pattern	L_avg gwt	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
1a-ST	Load pattern	DEAD	1
1a-ST	Load pattern	LS_const	1
1a-ST	Load pattern	S_const_lat	1
1a-ST	Load pattern	S_leveetop	1.53
1a-ST	Load pattern	ST_cohesion	1
1b-ST	Load pattern	DEAD	1
1b-ST	Load pattern	LS_const_uneven	1
1b-ST	Load pattern	S_const_uneven	1
1b-ST	Load pattern	ST_cohesion_uneven	1
2a-ST	Load pattern	DEAD	1
2a-ST	Load pattern	S_leveetop	1.53
2a-ST	Load pattern	S_avg gwt	1
2a-ST	Load pattern	U_max river	1
2a-ST	Load pattern	L_avg gwt	1
2a-ST	Load pattern	ST_cohesion	1
2b-ST	Load pattern	DEAD	1
2b-ST	Load pattern	S_leveetop	1.53
2b-ST	Load pattern	S_avg gwt	1
2b-ST	Load pattern	L_culvert full	1
2b-ST	Load pattern	L_avg gwt	1
2b-ST	Load pattern	ST_cohesion	1
3a-ST	Load pattern	DEAD	1
3a-ST	Load pattern	U_min river	1
3a-ST	Load pattern	S_leveetop	1.53
3a-ST	Load pattern	S_avg gwt	1
3a-ST	Load pattern	L_avg gwt	1
3a-ST	Load pattern	ST_cohesion	1
3b-ST	Load pattern	DEAD	1
3b-ST	Load pattern	S_leveetop	1.53
3b-ST	Load pattern	S_avg gwt	1
3b-ST	Load pattern	L_culv min water	1
3b-ST	Load pattern	L_avg gwt	1
3b-ST	Load pattern	ST_cohesion	1
D1a-ST	Load pattern	DEAD	1
D1a-ST	Load pattern	S_leveetop	1.53
D1a-ST	Load pattern	S_avg gwt	1
D1a-ST	Load pattern	L_1-dewater	1
D1a-ST	Load pattern	U_max river	1
D1a-ST	Load pattern	L_avg gwt	1
D1a-ST	Load pattern	ST_cohesion	1
D1b-ST	Load pattern	DEAD	1
D1b-ST	Load pattern	S_leveetop	1.53
D1b-ST	Load pattern	S_avg gwt	1
D1b-ST	Load pattern	L_1-dewater	1
D1b-ST	Load pattern	L_avg gwt	1
D1b-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments			
Case	**LoadType**	**LoadName**	**LoadSF**
Text	Text	Text	Unitless
D2a-ST	Load pattern	DEAD	1
D2a-ST	Load pattern	S_leveetop	1.53
D2a-ST	Load pattern	S_avg gwt	1
D2a-ST	Load pattern	L_2-dewater	1
D2a-ST	Load pattern	U_max river	1
D2a-ST	Load pattern	L_avg gwt	1
D2a-ST	Load pattern	ST_cohesion	1
D2b-ST	Load pattern	DEAD	1
D2b-ST	Load pattern	S_leveetop	1.53
D2b-ST	Load pattern	S_avg gwt	1
D2b-ST	Load pattern	L_2-dewater	1
D2b-ST	Load pattern	L_avg gwt	1
D2b-ST	Load pattern	ST_cohesion	1

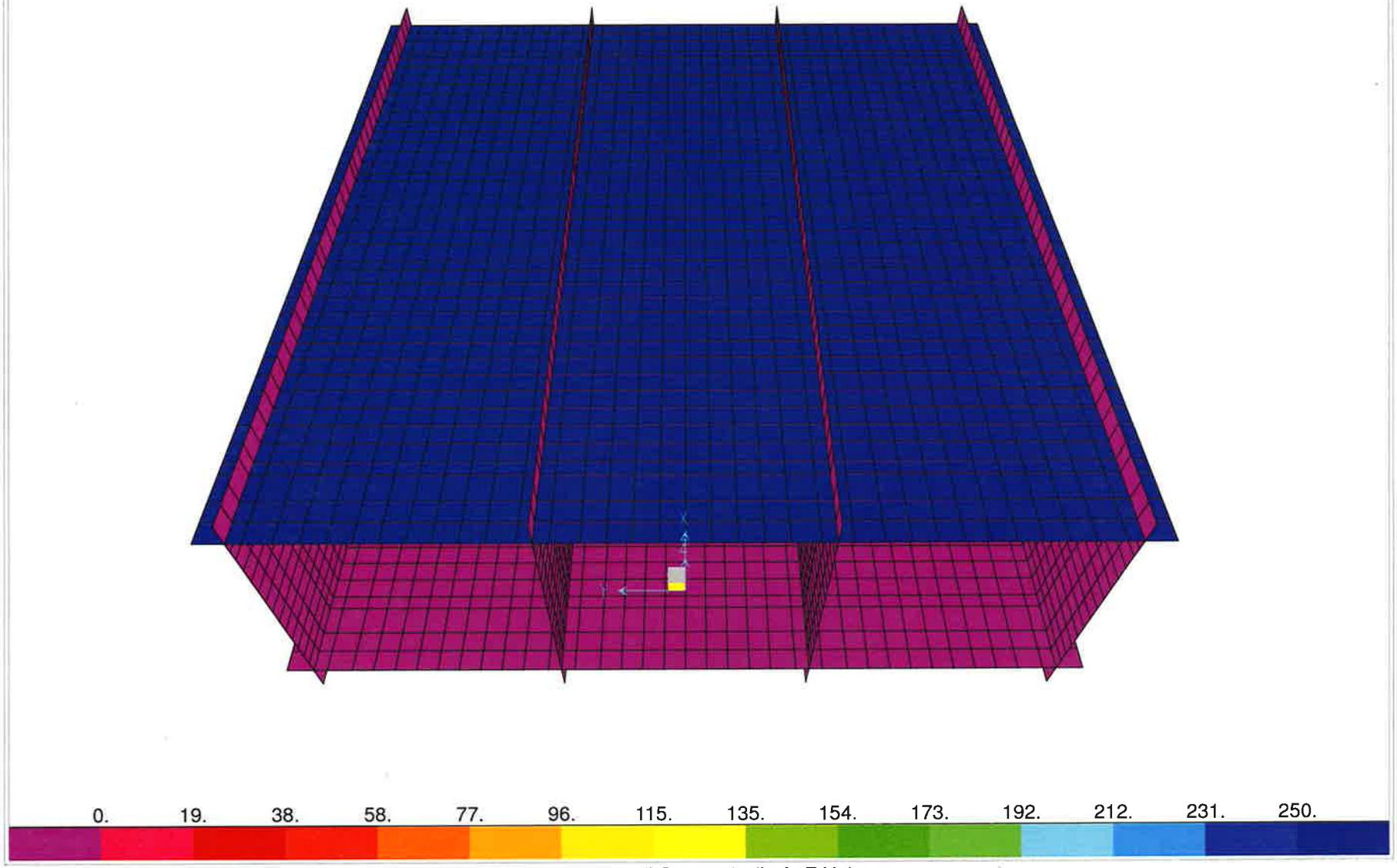
Maurepas Freshwater Diversion
Culverts C2-C4 - SAP Load Combinations

Project No. 10001876

Comp By: LBR 8/2013
Check By: _____

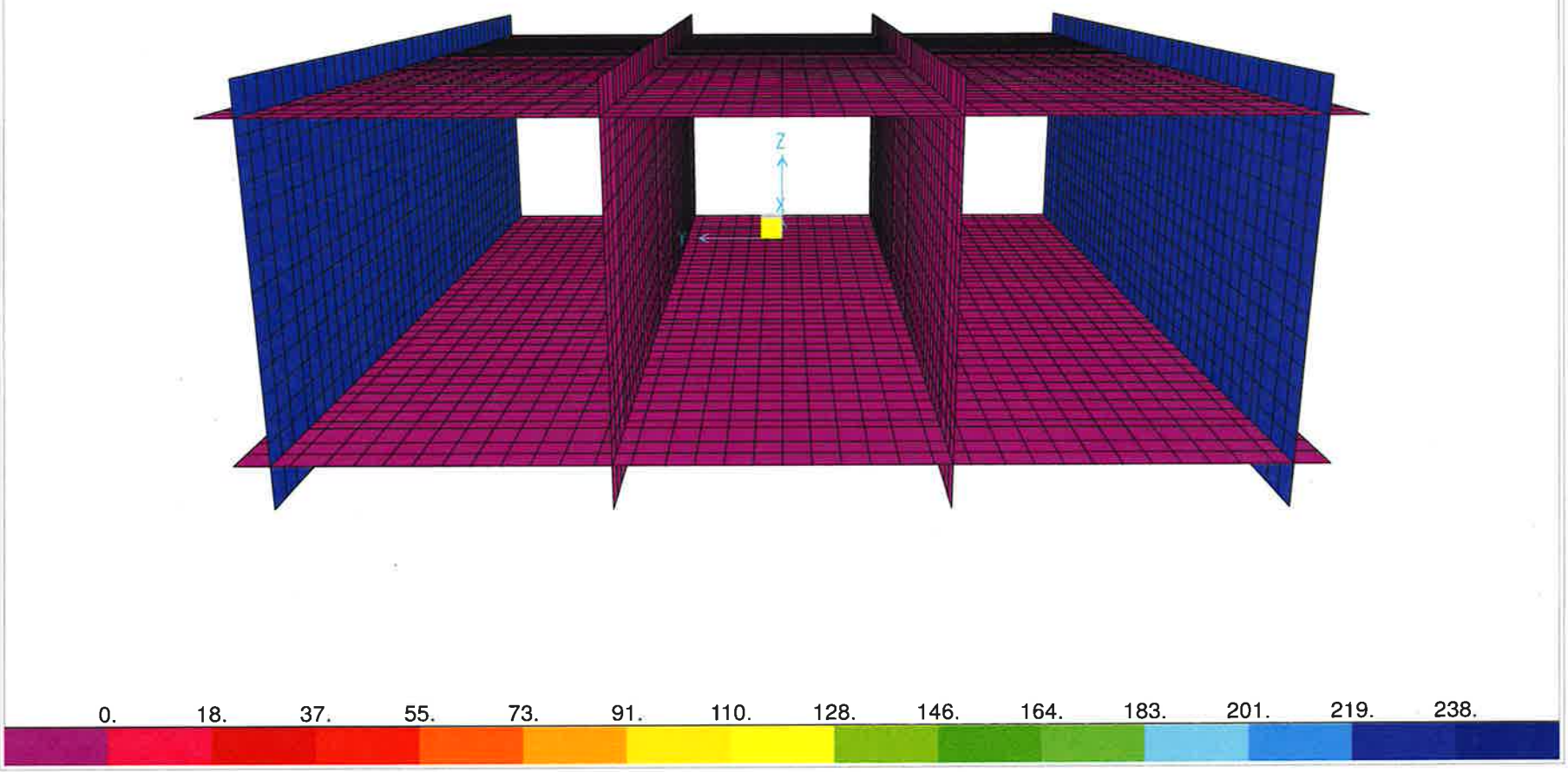
TABLE: Combination Definitions			
Combo Name	Combo Type	Case Name	Scale Factor
Text	Text	Text	Unitless
COMBO	Envelope	1a	1.8942
		1b	1.8942
		2a	2.21
		2b	2.21
		3a	2.21
		3b	2.21
		D1a	1.6575
		D1b	1.6575
		D2a	1.6575
		D2b	1.6575
COMBO-ST	Envelope	1a-ST	1.8942
		1b-ST	1.8942
		2a-ST	2.21
		2b-ST	2.21
		3a-ST	2.21
		3b-ST	2.21
		D1a-ST	1.6575
		D1b-ST	1.6575
		D2a-ST	1.6575
		D2b-ST	1.6575
C 1a	Linear Add	1a	1.8942
C 1b	Linear Add	1b	1.8942
C 2a	Linear Add	2a	2.21
C 2b	Linear Add	2b	2.21
C 3a	Linear Add	3a	2.21
C 3b	Linear Add	3b	2.21
C D1a	Linear Add	D1a	1.6575
C D1b	Linear Add	D1b	1.6575
C D2a	Linear Add	D2a	1.6575
C D2b	Linear Add	D2b	1.6575
C 1a-ST	Linear Add	1a-ST	1.8942
C 1b-ST	Linear Add	1b-ST	1.8942
C 2a-ST	Linear Add	2a-ST	2.21
C 2b-ST	Linear Add	2b-ST	2.21
C 3a-ST	Linear Add	3a-ST	2.21
C 3b-ST	Linear Add	3b-ST	2.21
C D1a-ST	Linear Add	D1a-ST	1.6575
C D1b-ST	Linear Add	D1b-ST	1.6575
C D2a-ST	Linear Add	D2a-ST	1.6575
C D2b-ST	Linear Add	D2b-ST	1.6575

CONSTRUCTION SURCHARGE:



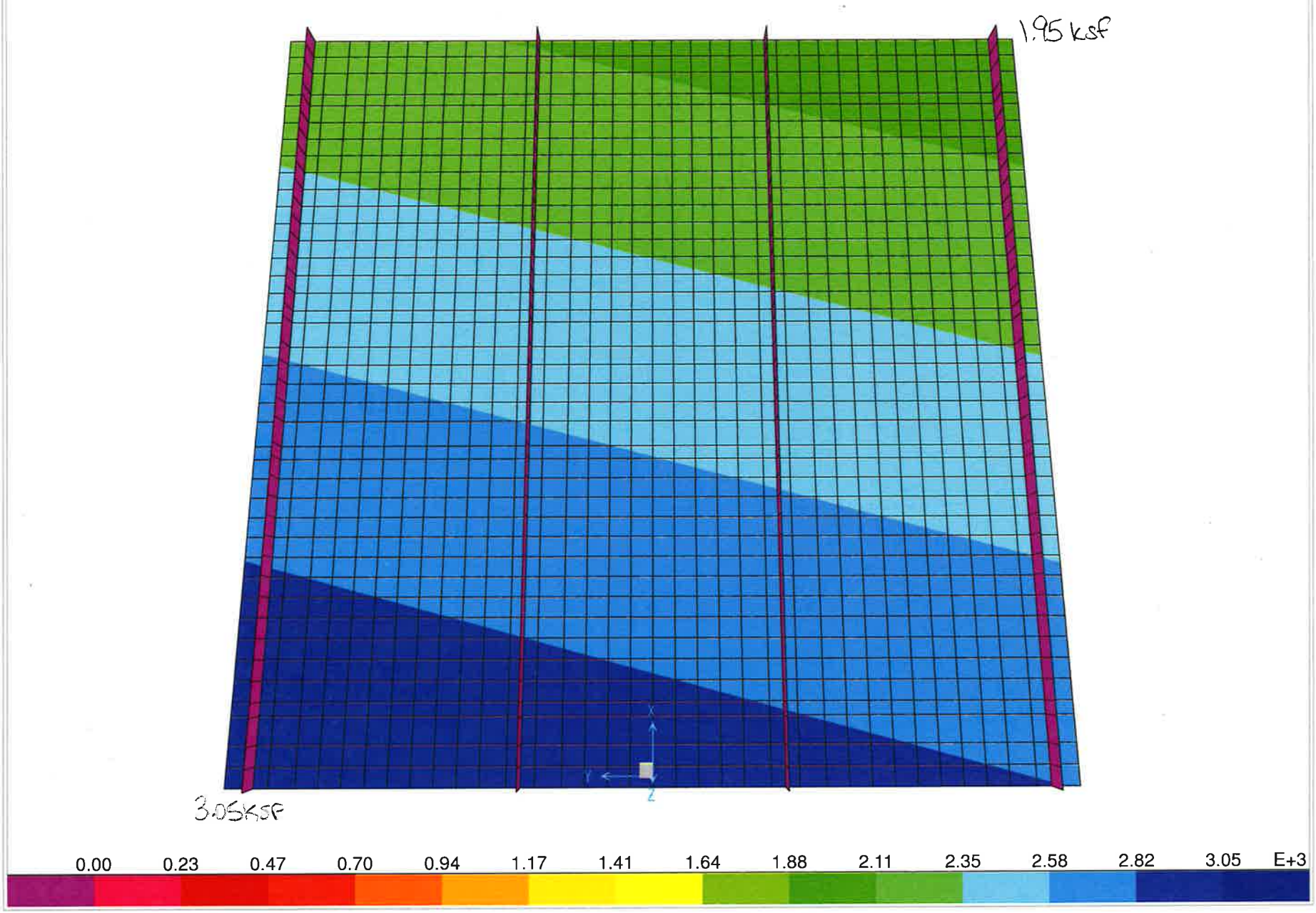
SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Top (LS_const) - lb, ft, F Units

CONSTRUCTION SURCHARGE:



SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (LS_const) - lb, ft, F Units

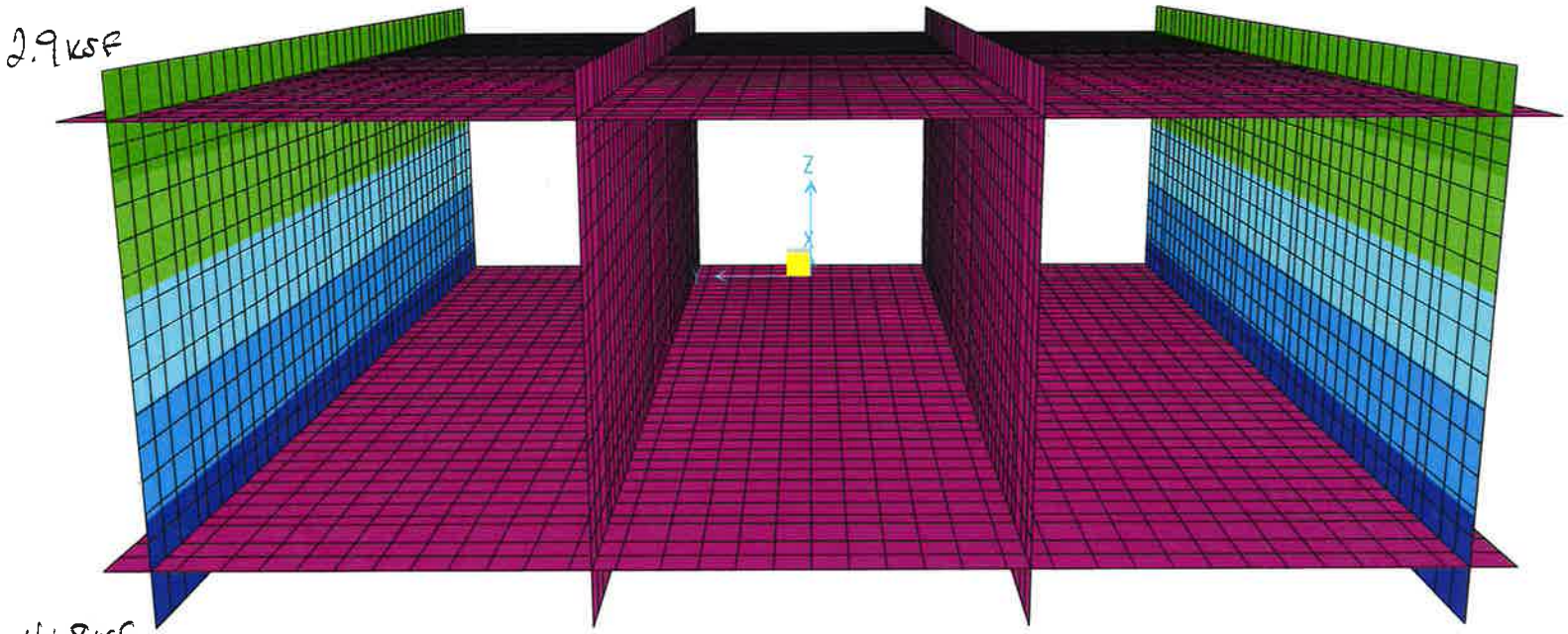
TOP LEVEE SOIL:



SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Top (S_leveetop) - lb, ft, F Units

SAP2000 8/14/13 9:36:31

DRY SOIL - LATERAL:



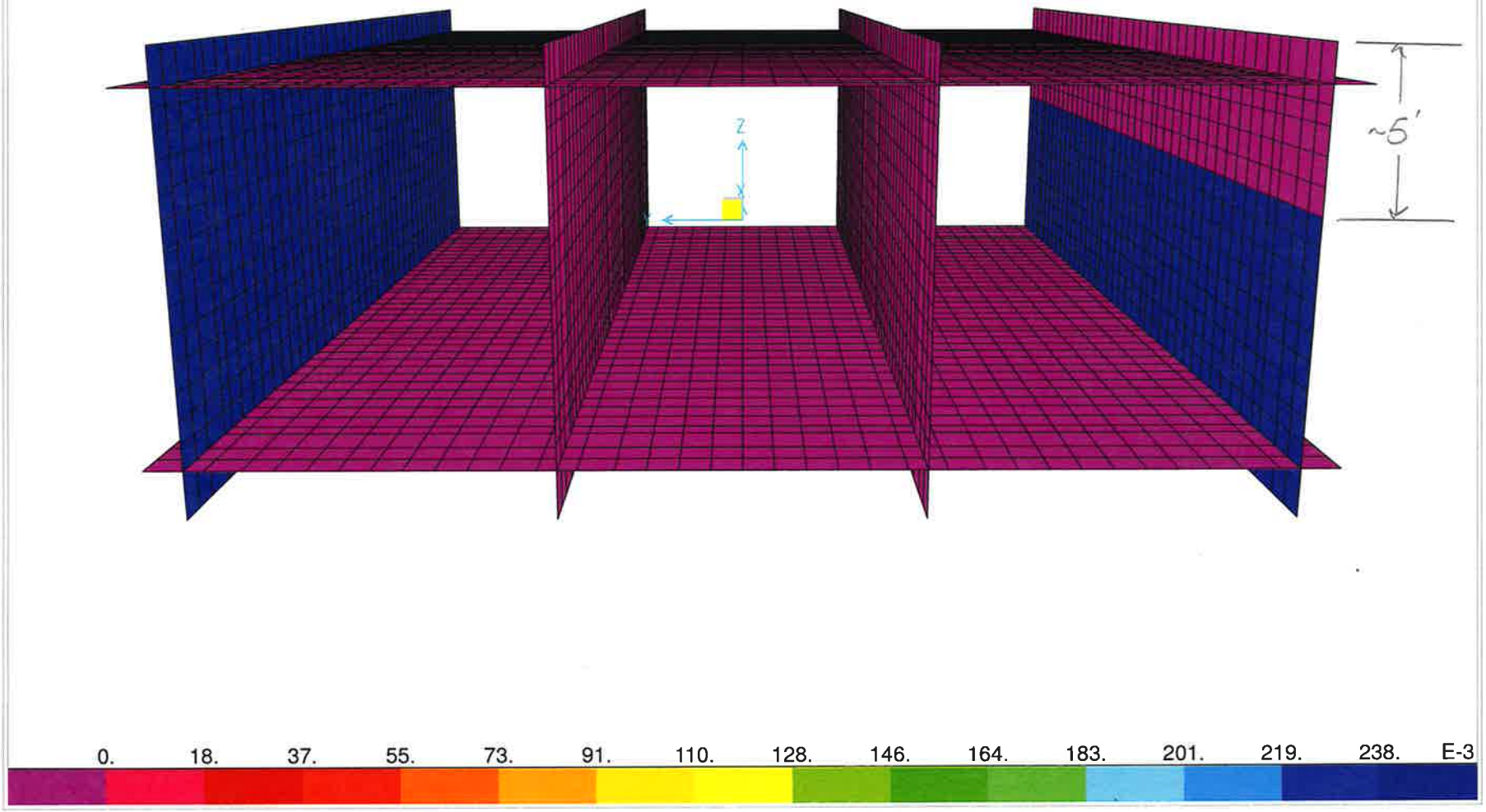
0.00 0.36 0.72 1.08 1.44 1.80 2.16 2.52 2.88 3.24 3.60 3.96 4.32 4.68 E+3

SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (S_const_lat) - lb, ft, F Units

SAP2000

8/14/13 9:41:38

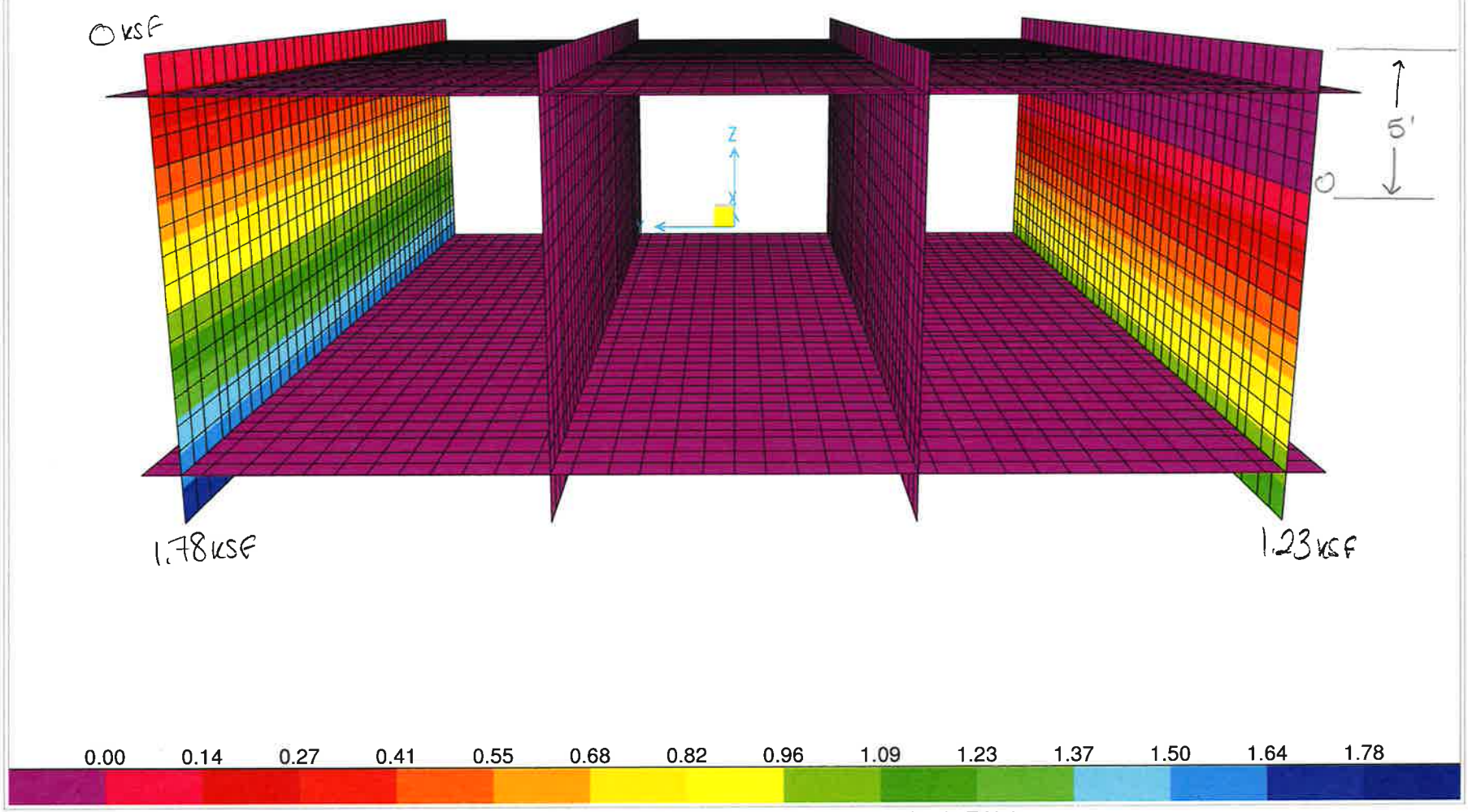
UNEVEN LATERAL CONSTRUCTION SURCHARGE:



SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (LS_const_uneven) - Kip, ft, F Units

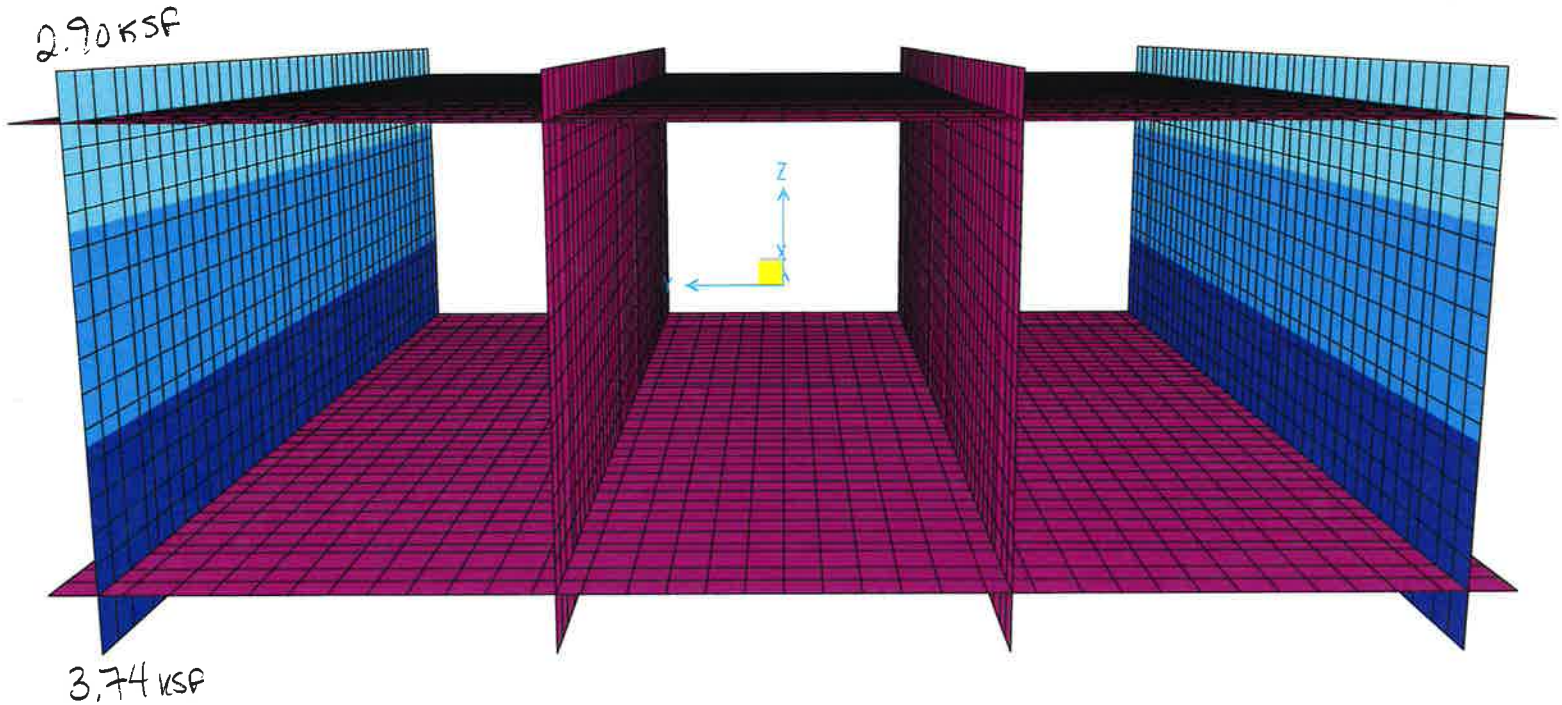
SAP2000 8/14/13 9:41:01

UNEVEN CONSTRUCTION SOIL:



SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (S_const_uneven) - Kip, ft, F Units

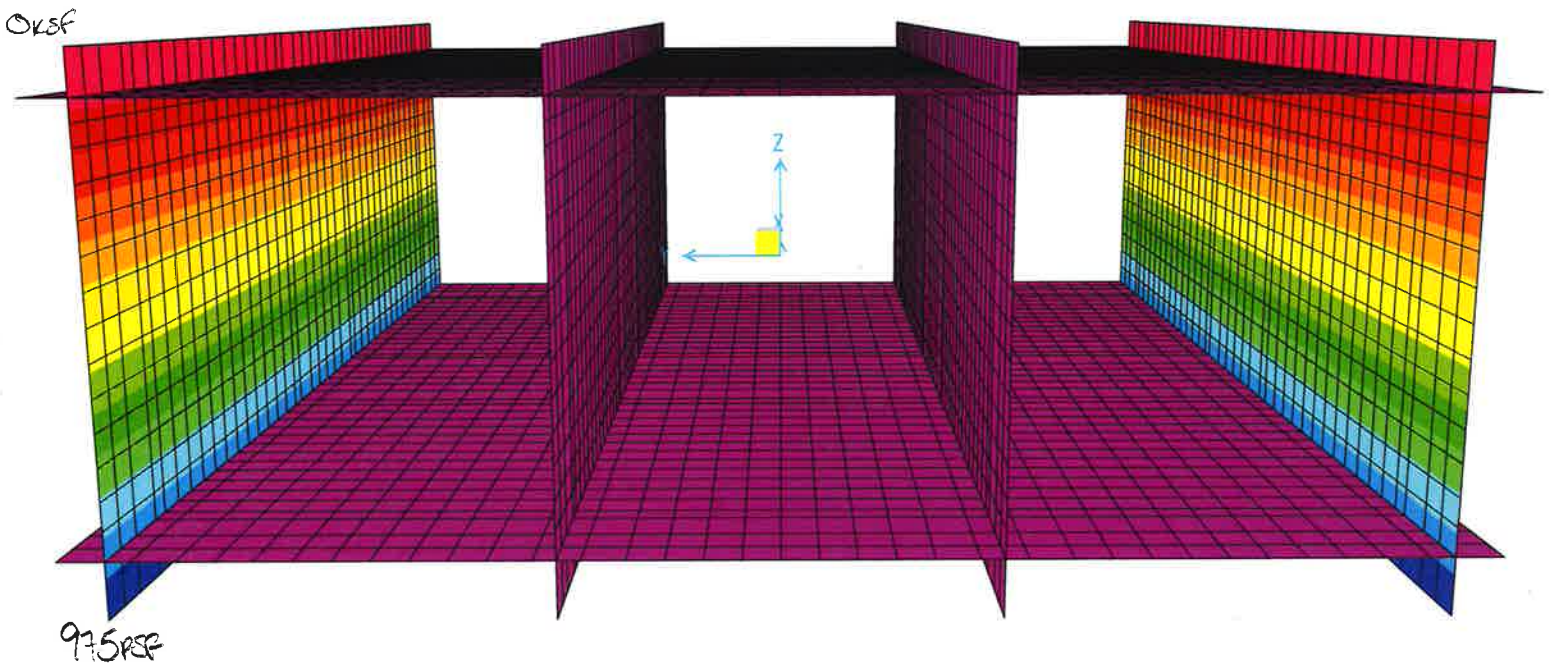
LATERAL SOIL PRESSURE - WATER TO EL 5.2:

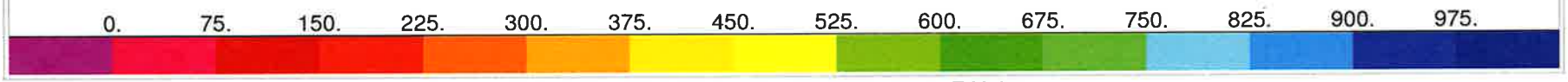


0.00 0.29 0.57 0.86 1.15 1.44 1.72 2.01 2.30 2.58 2.87 3.16 3.45 3.73

SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (S_avg gwt) - Kip, ft, F Units

LATERAL WATER PRESSURE - AVG. GWT EL5.2:



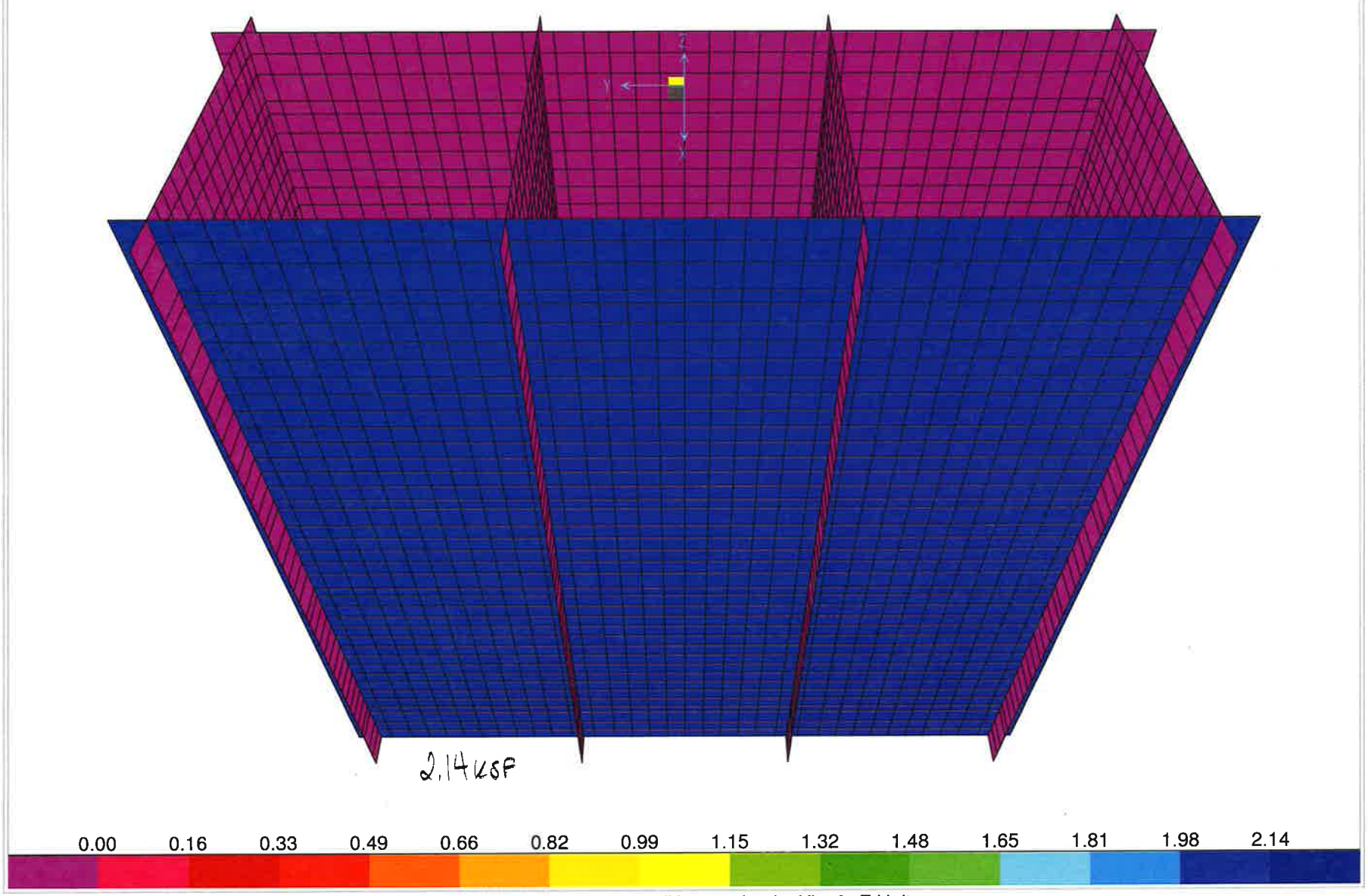


SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (L_avg gwt) - lb, ft, F Units

SAP2000

8/14/13 9:56:48

UPLIFT FROM MAX. RIVER STAGE:

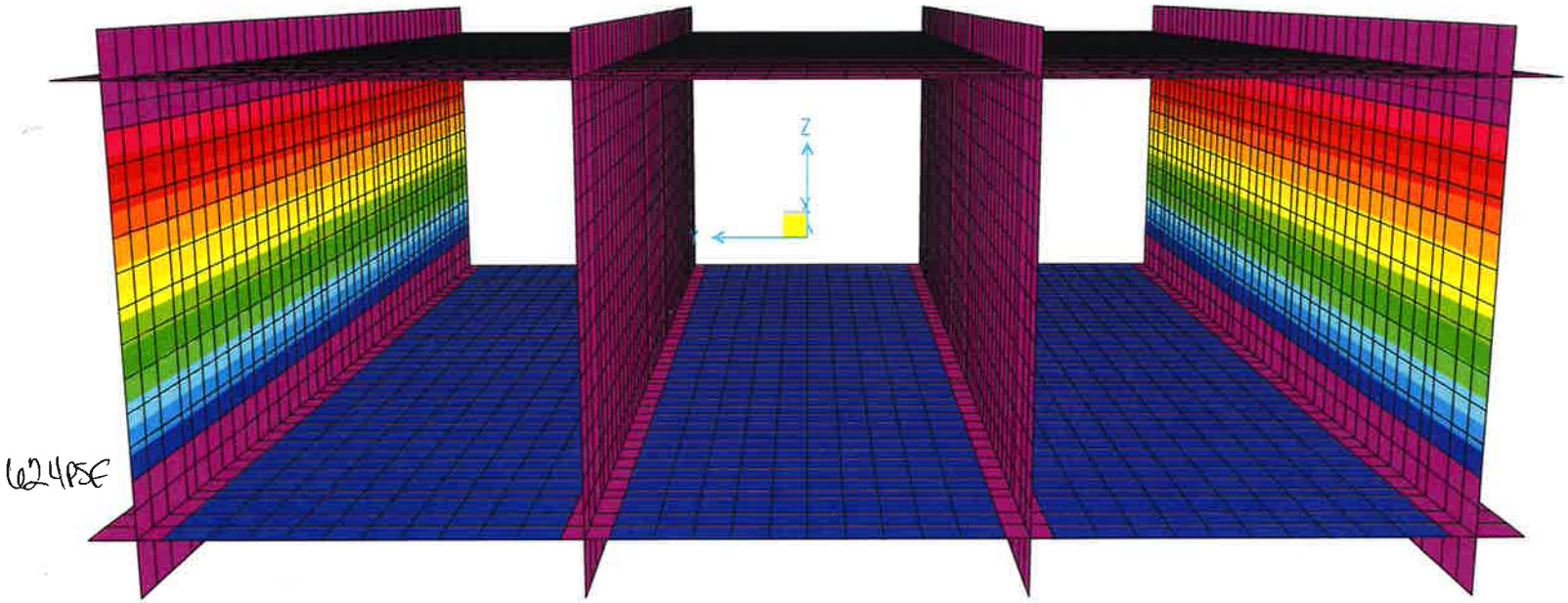


SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (U_max river) - Kip, ft, F Units

SAP 2000

8/14/13 9:54:51

CULVERT FLOWING FULL:



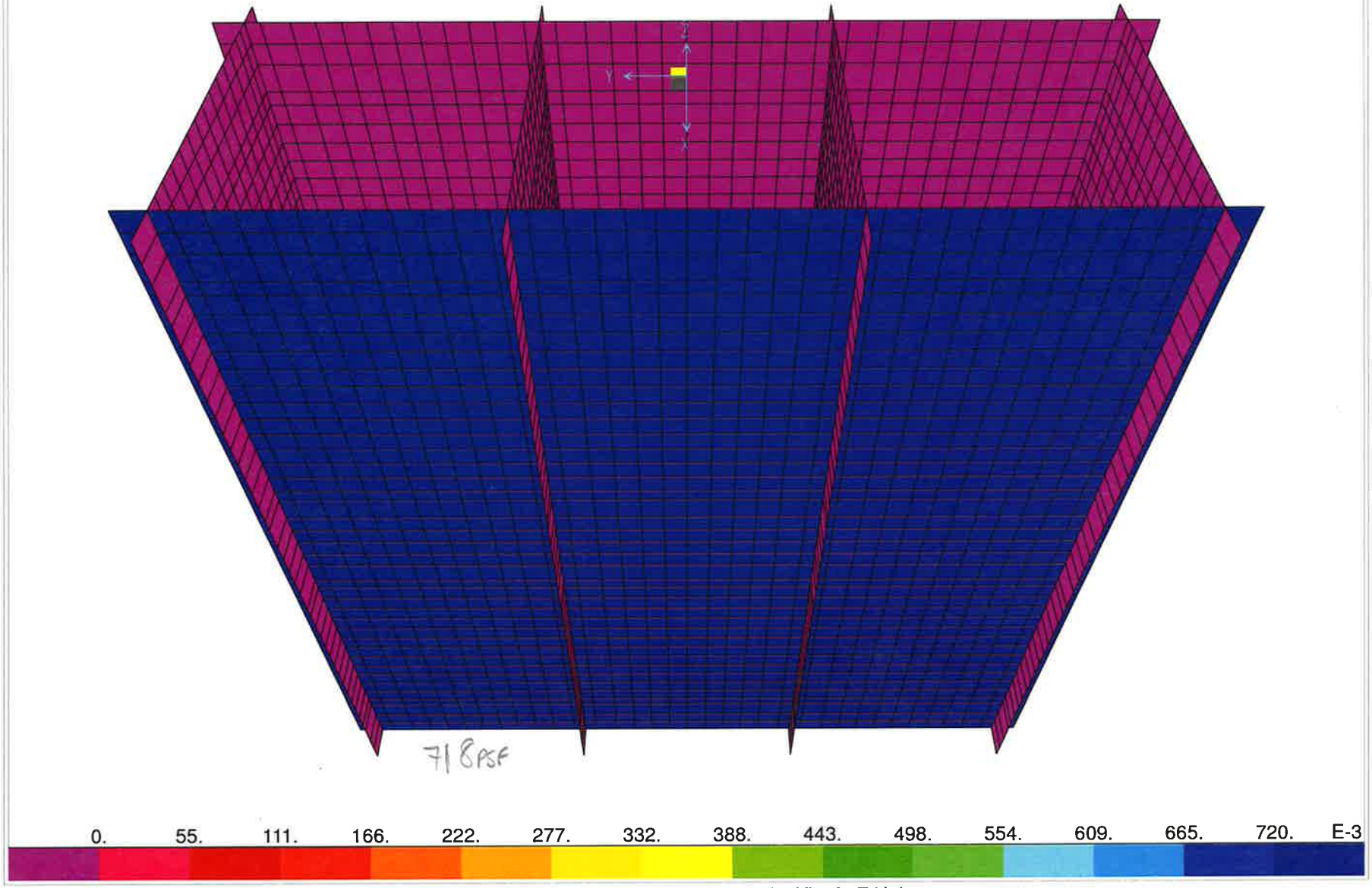
624PSF

0. 48. 96. 143. 191. 239. 287. 334. 382. 430. 478. 525. 573. 621. E-3

SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Top (L_culvert full) - Kip, ft, F Units

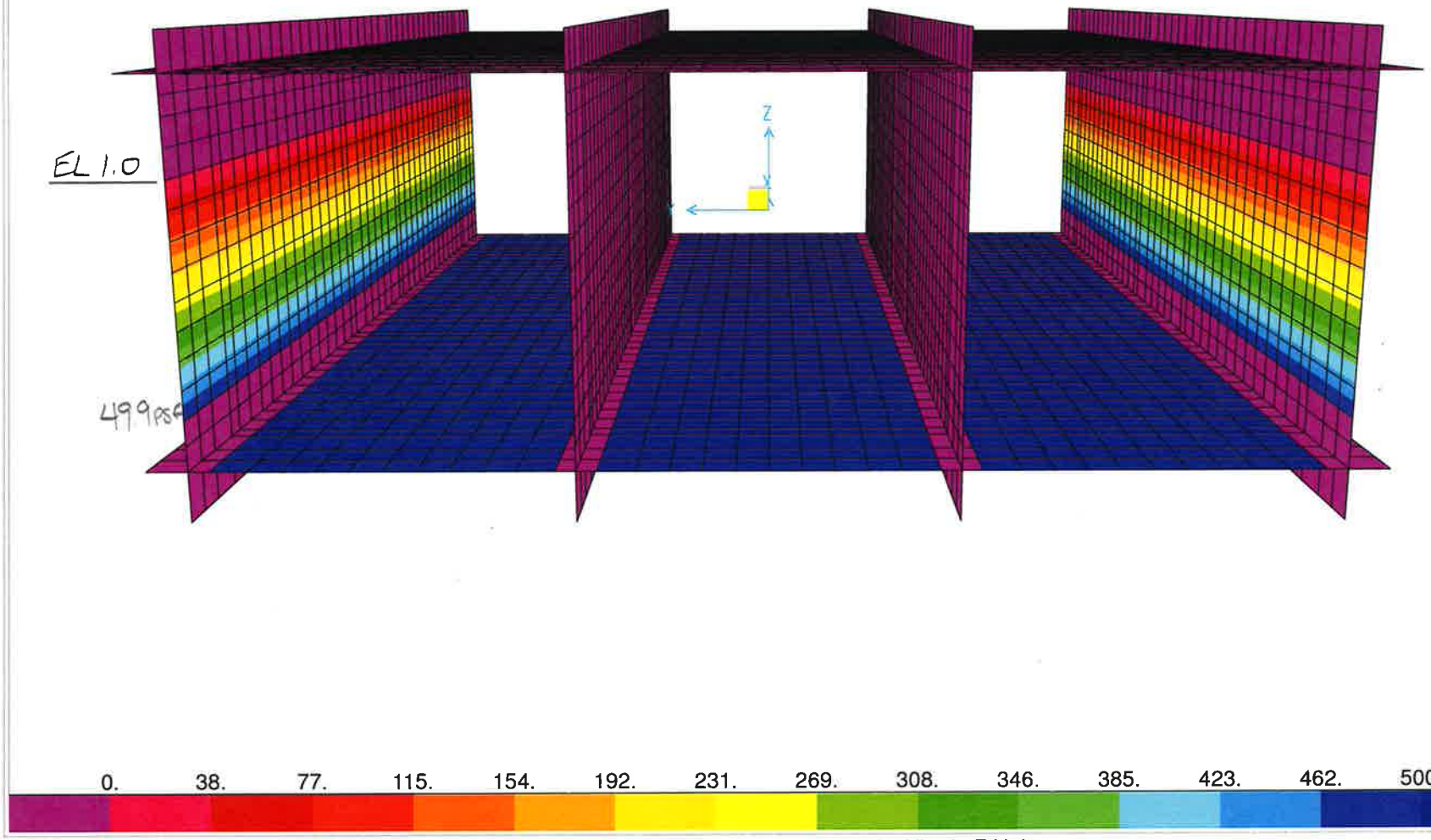
SAP2000 8/14/13 9:57:13

UPLIFT FROM MIN. RIVER STAGE:



SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (U_min river) - Kip, ft, F Units

CULVERT FLOW DURING MIN. RIVER STAGE:

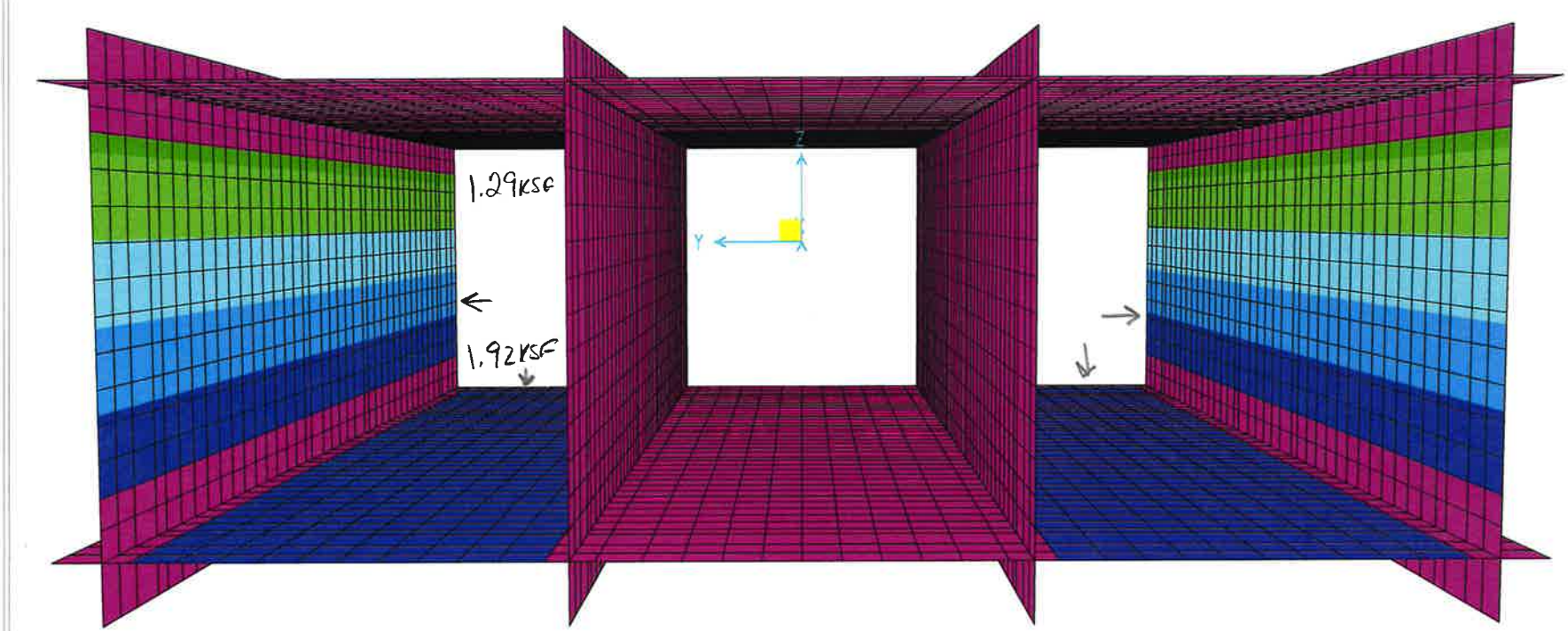


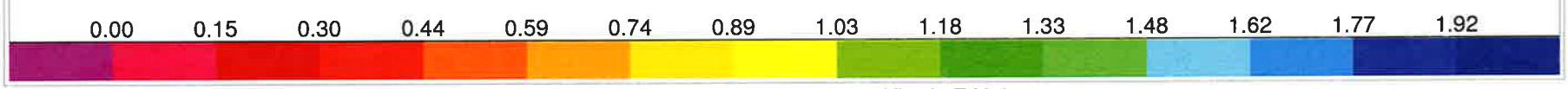
SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Top (L_culv min water) - Kip, ft, F Units

SAP2000

8/14/13 9:59:43

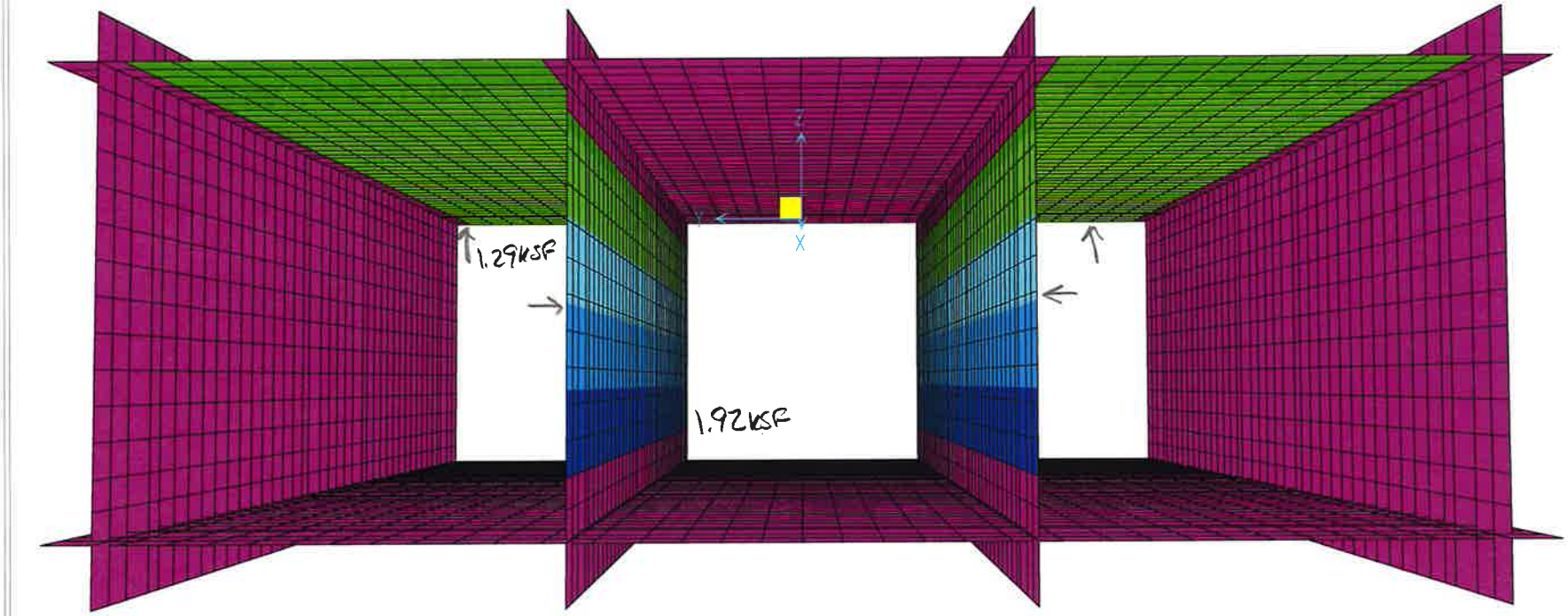
DEWATERING TYPE 1 - MIDDLE EMPTY:

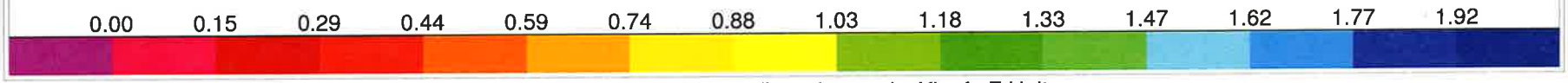




SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Top (L_1-dewater) - Kip, ft, F Units

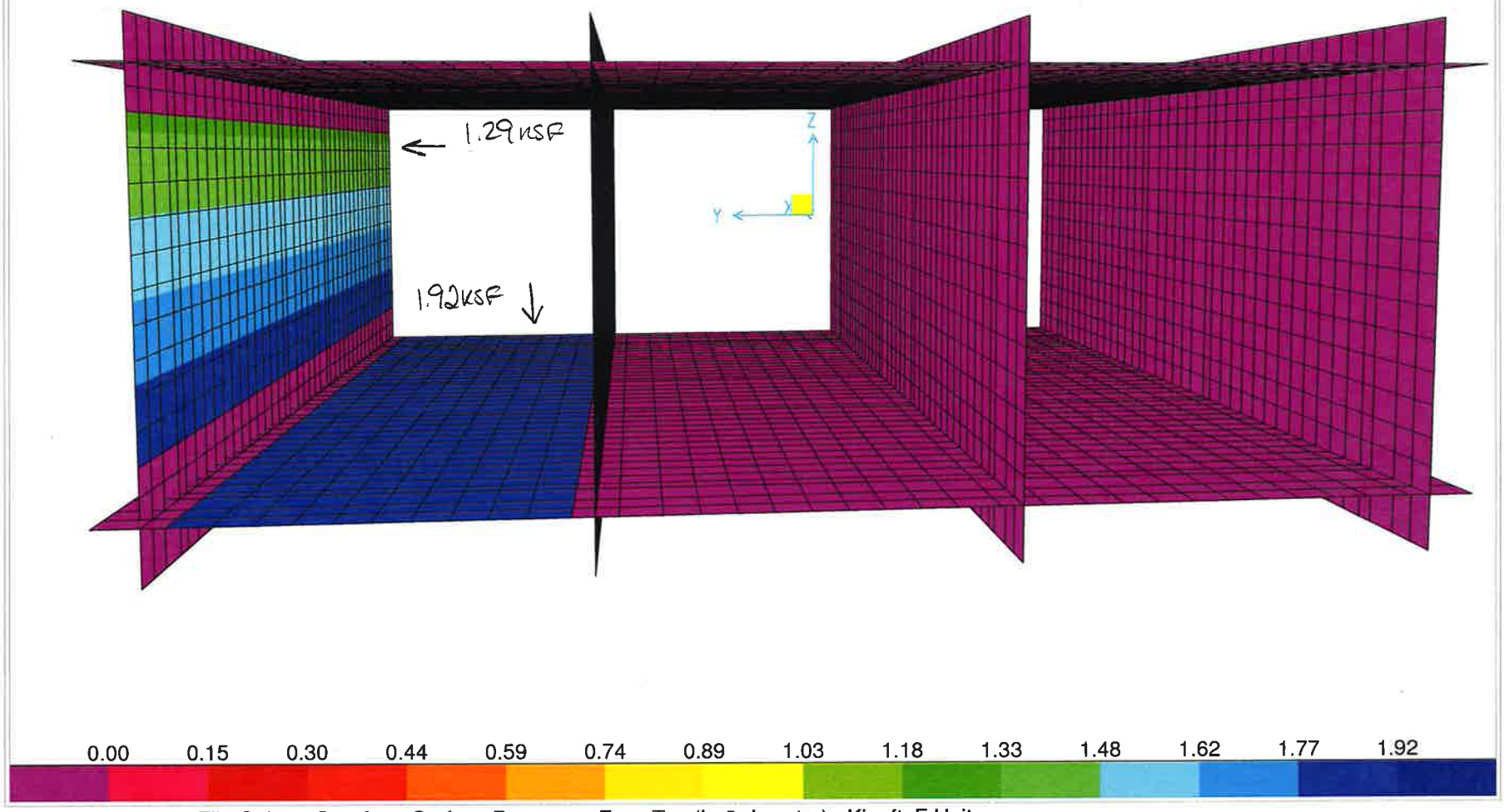
DEWATERING TYPE 1- MIDDLE EMPTY:





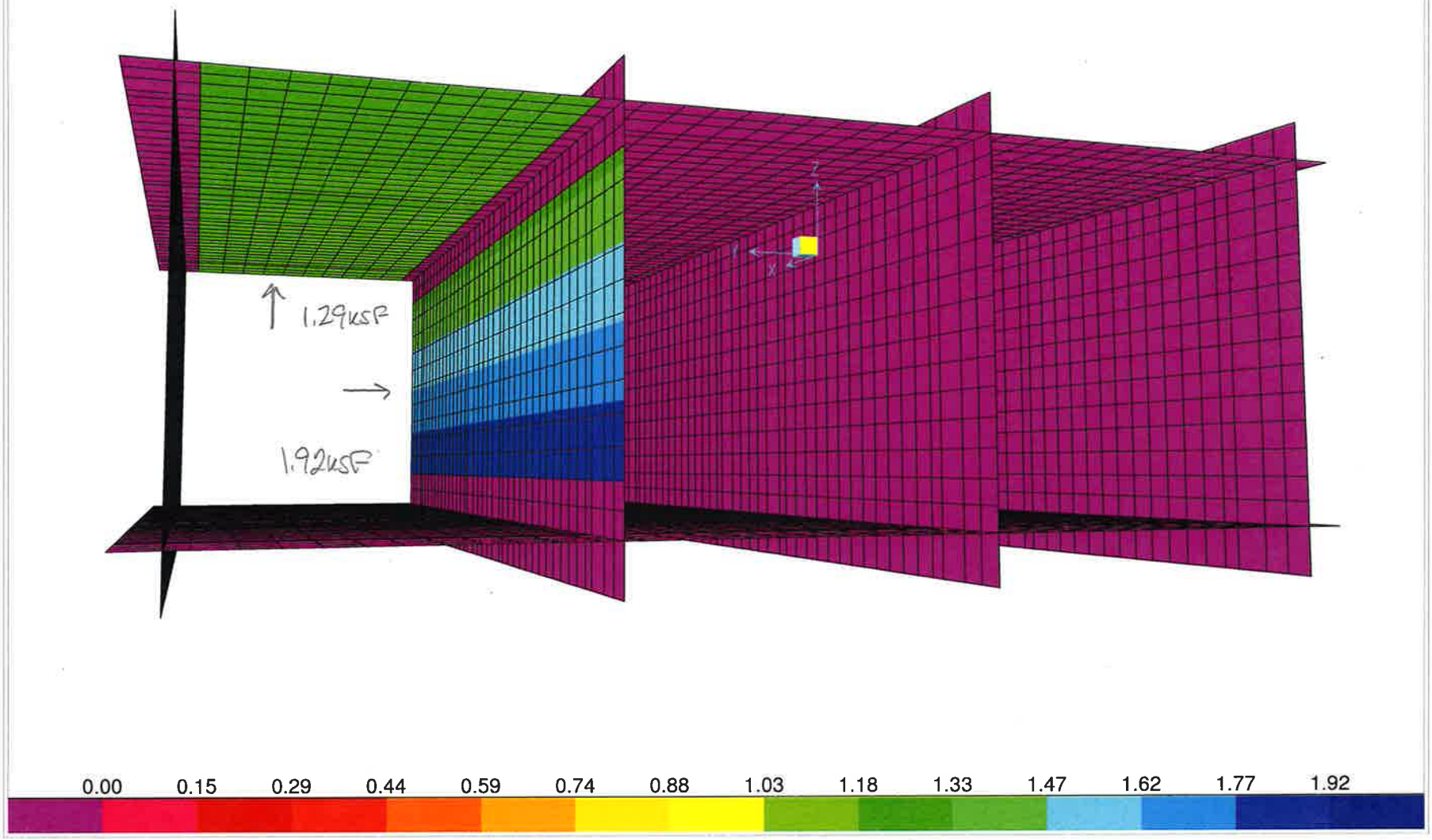
SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (L_1-dewater) - Kip, ft, F Units

DEWATERING TYPE 2 - 1 EDGE FLOWING FULL:



SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Top (L_2-dewater) - Kip, ft, F Units

DEWATERING TYPE 2 - 1 EDGE FLOWING FULL:

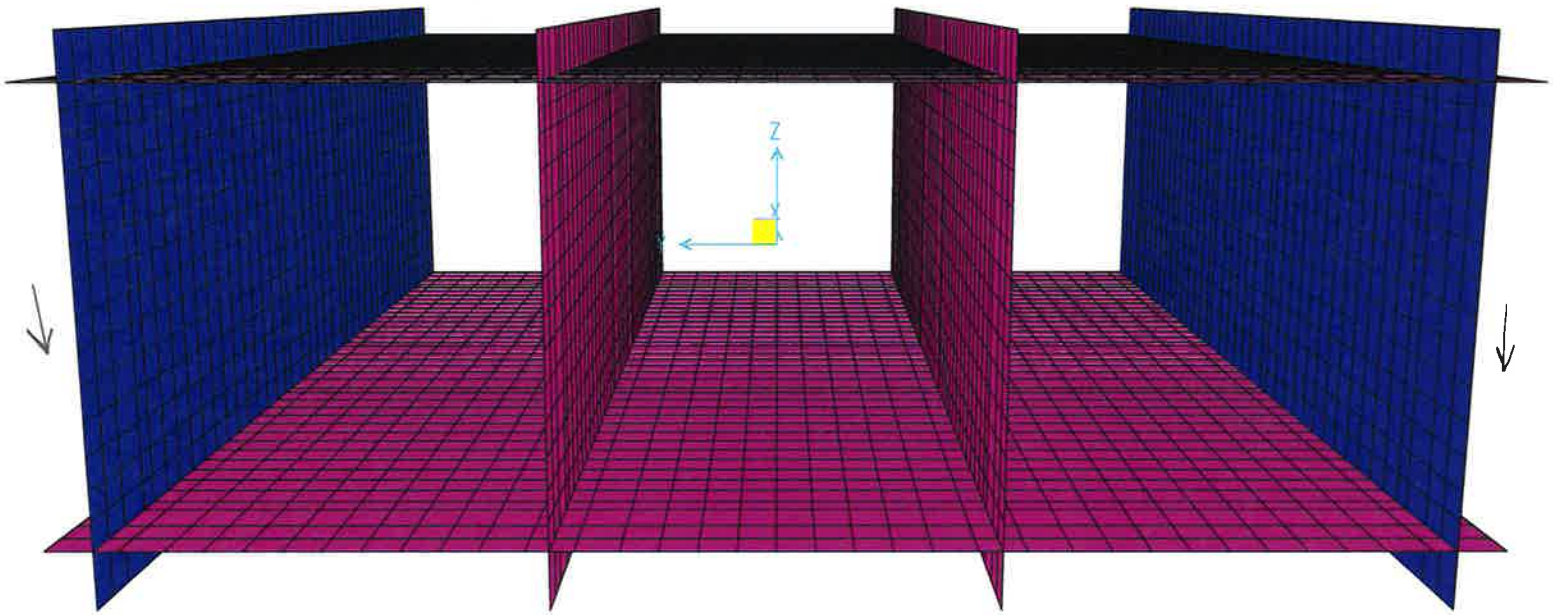


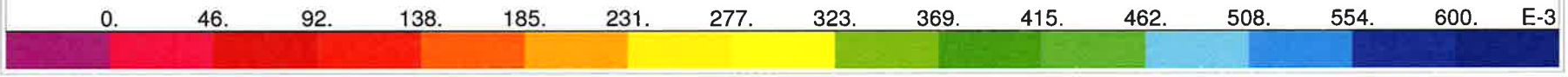
SAP2000 v14.2.4 - File:Culvert C2 - Area Surface Pressure - Face Bottom (L_2-dewater) - Kip, ft, F Units

SAP2000

8/14/13 10:08:04

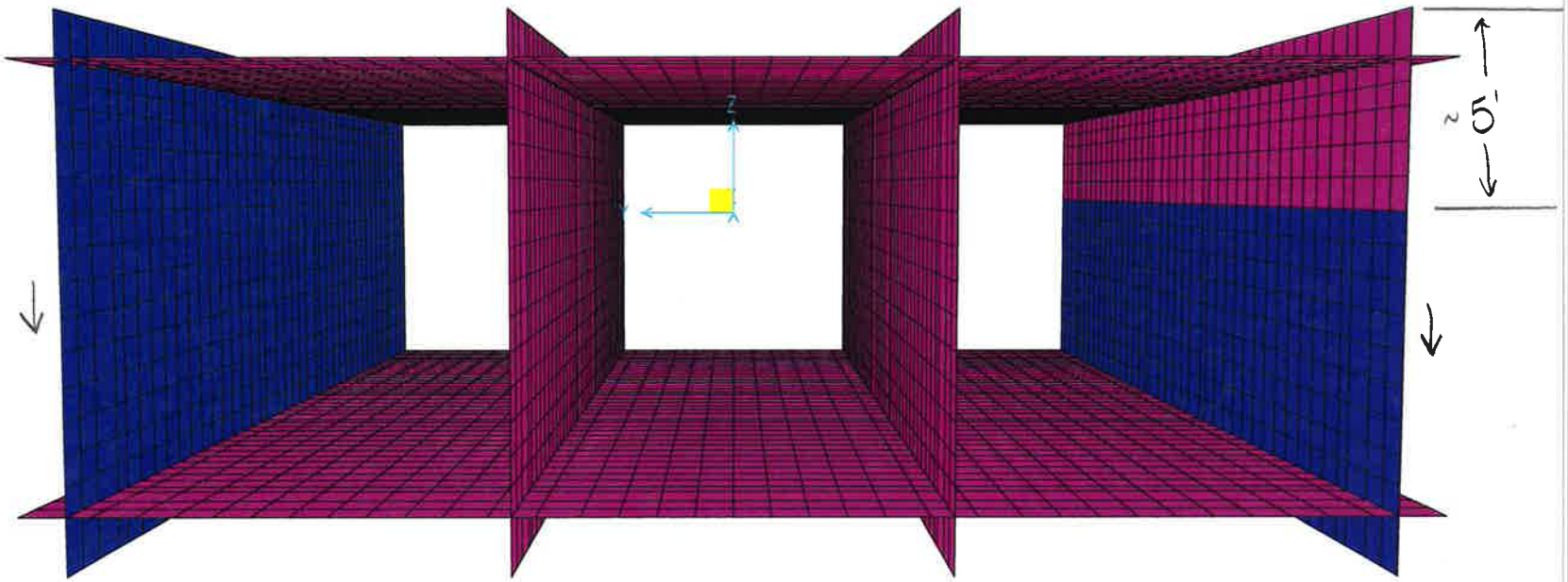
SETILEMENT FROM CLAY ADHESION:

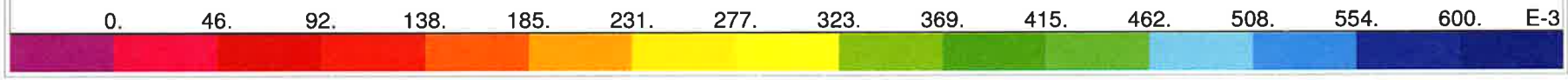




SAP2000 v14.2.4 - File:Culvert C2 - Area Uniform (ST_cohesion) (GLOBAL - Gravity) - Kip, ft, F Units

SETTLEMENT FROM CLAY ADESION - UNEVEN CONST. SOIL:





SAP2000 v14.2.4 - File:Culvert C2 - Area Uniform (ST_cohesion_uneven) (GLOBAL - Gravity) - Kip, ft, F Units

PART 2

Pile Foundation Results

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Reactions	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	Before Spring Calibration	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

* A few iterations were performed in the SAP model in order to converge on the appropriate lateral pile spring. Only the last few iterations are shown in this design package. The results below use a vertical spring based on a pile tip elevation of -100.0 and a lateral reaction of 15kip (0.3079" corresponding deflection).

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	0.00	-0.15	169.25
P2	1a	0.00	-0.15	163.38
P3	1a	0.00	-0.15	157.52
P4	1a	0.00	-0.15	151.65
P5	1a	0.00	-0.15	145.78
P6	1a	0.00	-0.15	139.92
P7	1a	0.01	-0.09	169.29
P8	1a	0.00	-0.09	163.54
P9	1a	0.00	-0.09	157.83
P10	1a	0.00	-0.09	152.11
P11	1a	0.00	-0.09	146.36
P12	1a	-0.01	-0.09	140.63
P13	1a	0.00	-0.05	176.78
P14	1a	0.00	-0.05	170.89
P15	1a	0.00	-0.05	164.99
P16	1a	0.00	-0.05	159.09
P17	1a	0.00	-0.05	153.20
P18	1a	0.00	-0.05	147.30
P19	1a	0.01	0.00	174.20
P20	1a	0.00	0.00	168.43
P21	1a	0.00	0.00	162.71
P22	1a	0.00	0.00	156.96
P23	1a	0.00	0.00	151.21
P24	1a	-0.01	0.00	145.46
P25	1a	0.00	0.05	179.45
P26	1a	0.00	0.05	173.55
P27	1a	0.00	0.05	167.65
P28	1a	0.00	0.05	161.76
P29	1a	0.00	0.05	155.86
P30	1a	0.00	0.05	149.96
P31	1a	0.01	0.09	174.36
P32	1a	0.00	0.09	168.60
P33	1a	0.00	0.09	162.90
P34	1a	0.00	0.09	157.17
P35	1a	0.00	0.09	151.43
P36	1a	-0.01	0.09	145.70
P37	1a	0.00	0.15	176.92
P38	1a	0.00	0.15	171.05
P39	1a	0.00	0.15	165.19
P40	1a	0.00	0.15	159.32
P41	1a	0.00	0.15	153.45
P42	1a	0.00	0.15	147.59

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	0.00	8.38	61.04
P2	1b	0.00	8.38	61.04
P3	1b	0.00	8.38	61.04
P4	1b	0.00	8.38	61.04
P5	1b	0.00	8.38	61.04
P6	1b	0.00	8.38	61.04
P7	1b	0.00	8.41	56.82
P8	1b	0.00	8.41	56.81
P9	1b	0.00	8.41	56.82
P10	1b	0.00	8.41	56.82
P11	1b	0.00	8.41	56.81
P12	1b	0.00	8.41	56.82
P13	1b	0.00	8.43	55.41
P14	1b	0.00	8.43	55.41
P15	1b	0.00	8.43	55.41
P16	1b	0.00	8.43	55.41
P17	1b	0.00	8.43	55.41
P18	1b	0.00	8.43	55.41
P19	1b	0.00	8.45	52.01
P20	1b	0.00	8.45	52.00
P21	1b	0.00	8.45	52.01
P22	1b	0.00	8.45	52.01
P23	1b	0.00	8.45	52.00
P24	1b	0.00	8.45	52.01
P25	1b	0.00	8.47	50.69
P26	1b	0.00	8.47	50.69
P27	1b	0.00	8.47	50.69
P28	1b	0.00	8.47	50.69
P29	1b	0.00	8.47	50.69
P30	1b	0.00	8.47	50.69
P31	1b	0.00	8.48	46.87
P32	1b	0.00	8.48	46.86
P33	1b	0.00	8.48	46.87
P34	1b	0.00	8.48	46.87
P35	1b	0.00	8.48	46.86
P36	1b	0.00	8.48	46.87
P37	1b	0.00	8.48	44.11
P38	1b	0.00	8.48	44.11
P39	1b	0.00	8.48	44.11
P40	1b	0.00	8.48	44.11
P41	1b	0.00	8.48	44.11
P42	1b	0.00	8.48	44.11

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a	0.00	-0.16	77.70
P2	2a	0.00	-0.16	71.83
P3	2a	0.00	-0.16	65.96
P4	2a	0.00	-0.16	60.10
P5	2a	0.00	-0.16	54.23
P6	2a	0.00	-0.16	48.36
P7	2a	0.01	-0.12	76.86
P8	2a	0.00	-0.12	71.11
P9	2a	0.00	-0.12	65.40
P10	2a	0.00	-0.12	59.67
P11	2a	0.00	-0.12	53.94
P12	2a	-0.01	-0.12	48.20
P13	2a	0.00	-0.06	81.50
P14	2a	0.00	-0.06	75.60
P15	2a	0.00	-0.06	69.71
P16	2a	0.00	-0.06	63.81
P17	2a	0.00	-0.06	57.91
P18	2a	0.00	-0.06	52.02
P19	2a	0.01	0.00	79.47
P20	2a	0.00	0.00	73.71
P21	2a	0.00	0.00	67.97
P22	2a	0.00	0.00	62.23
P23	2a	0.00	0.00	56.48
P24	2a	-0.01	0.00	50.73
P25	2a	0.00	0.06	84.17
P26	2a	0.00	0.06	78.27
P27	2a	0.00	0.06	72.37
P28	2a	0.00	0.06	66.48
P29	2a	0.00	0.06	60.58
P30	2a	0.00	0.06	54.68
P31	2a	0.01	0.12	81.92
P32	2a	0.00	0.12	76.18
P33	2a	0.00	0.12	70.46
P34	2a	0.00	0.12	64.73
P35	2a	0.00	0.12	59.00
P36	2a	-0.01	0.12	53.26
P37	2a	0.00	0.16	85.37
P38	2a	0.00	0.16	79.50
P39	2a	0.00	0.16	73.63
P40	2a	0.00	0.16	67.77
P41	2a	0.00	0.16	61.90
P42	2a	0.00	0.16	56.03

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of

Before Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b	0.00	-0.13	178.96
P2	2b	0.00	-0.13	173.09
P3	2b	0.00	-0.13	167.22
P4	2b	0.00	-0.13	161.36
P5	2b	0.00	-0.13	155.49
P6	2b	0.00	-0.13	149.62
P7	2b	0.01	-0.07	179.58
P8	2b	0.00	-0.07	173.83
P9	2b	0.00	-0.07	168.12
P10	2b	0.00	-0.07	162.40
P11	2b	0.00	-0.07	156.65
P12	2b	-0.01	-0.07	150.92
P13	2b	0.00	-0.04	187.58
P14	2b	0.00	-0.04	181.68
P15	2b	0.00	-0.04	175.78
P16	2b	0.00	-0.04	169.89
P17	2b	0.00	-0.04	163.99
P18	2b	0.00	-0.04	158.09
P19	2b	0.01	0.00	185.34
P20	2b	0.00	0.00	179.57
P21	2b	0.00	0.00	173.85
P22	2b	0.00	0.00	168.11
P23	2b	0.00	0.00	162.35
P24	2b	-0.01	0.00	156.61
P25	2b	0.00	0.04	190.24
P26	2b	0.00	0.04	184.35
P27	2b	0.00	0.04	178.45
P28	2b	0.00	0.04	172.55
P29	2b	0.00	0.04	166.65
P30	2b	0.00	0.04	160.76
P31	2b	0.01	0.07	184.64
P32	2b	0.00	0.07	178.89
P33	2b	0.00	0.07	173.18
P34	2b	0.00	0.07	167.46
P35	2b	0.00	0.07	161.71
P36	2b	-0.01	0.07	155.98
P37	2b	0.00	0.13	186.63
P38	2b	0.00	0.13	180.76
P39	2b	0.00	0.13	174.89
P40	2b	0.00	0.13	169.03
P41	2b	0.00	0.13	163.16
P42	2b	0.00	0.13	157.29

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a	0.00	-0.15	132.04
P2	3a	0.00	-0.15	126.17
P3	3a	0.00	-0.15	120.31
P4	3a	0.00	-0.15	114.44
P5	3a	0.00	-0.15	108.57
P6	3a	0.00	-0.15	102.71
P7	3a	0.01	-0.10	131.84
P8	3a	0.00	-0.10	126.09
P9	3a	0.00	-0.10	120.38
P10	3a	0.00	-0.10	114.66
P11	3a	0.00	-0.10	108.92
P12	3a	-0.01	-0.10	103.18
P13	3a	0.00	-0.06	138.07
P14	3a	0.00	-0.06	132.17
P15	3a	0.00	-0.06	126.28
P16	3a	0.00	-0.06	120.38
P17	3a	0.00	-0.06	114.48
P18	3a	0.00	-0.06	108.59
P19	3a	0.01	0.00	135.81
P20	3a	0.00	0.00	130.04
P21	3a	0.00	0.00	124.32
P22	3a	0.00	0.00	118.58
P23	3a	0.00	0.00	112.82
P24	3a	-0.01	0.00	107.07
P25	3a	0.00	0.05	140.74
P26	3a	0.00	0.05	134.84
P27	3a	0.00	0.05	128.94
P28	3a	0.00	0.05	123.05
P29	3a	0.00	0.05	117.15
P30	3a	0.00	0.05	111.25
P31	3a	0.01	0.10	136.91
P32	3a	0.00	0.10	131.16
P33	3a	0.00	0.10	125.44
P34	3a	0.00	0.10	119.72
P35	3a	0.00	0.10	113.98
P36	3a	-0.01	0.10	108.24
P37	3a	0.00	0.15	139.71
P38	3a	0.00	0.15	133.84
P39	3a	0.00	0.15	127.98
P40	3a	0.00	0.15	122.11
P41	3a	0.00	0.15	116.24
P42	3a	0.00	0.15	110.38

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b	0.00	-0.13	175.19
P2	3b	0.00	-0.13	169.32
P3	3b	0.00	-0.13	163.46
P4	3b	0.00	-0.13	157.59
P5	3b	0.00	-0.13	151.72
P6	3b	0.00	-0.13	145.86
P7	3b	0.01	-0.08	175.76
P8	3b	0.00	-0.08	170.01
P9	3b	0.00	-0.08	164.30
P10	3b	0.00	-0.08	158.57
P11	3b	0.00	-0.08	152.83
P12	3b	-0.01	-0.08	147.10
P13	3b	0.00	-0.04	183.55
P14	3b	0.00	-0.04	177.65
P15	3b	0.00	-0.04	171.75
P16	3b	0.00	-0.04	165.86
P17	3b	0.00	-0.04	159.96
P18	3b	0.00	-0.04	154.06
P19	3b	0.01	0.00	181.27
P20	3b	0.00	0.00	175.50
P21	3b	0.00	0.00	169.78
P22	3b	0.00	0.00	164.04
P23	3b	0.00	0.00	158.28
P24	3b	-0.01	0.00	152.54
P25	3b	0.00	0.04	186.21
P26	3b	0.00	0.04	180.32
P27	3b	0.00	0.04	174.42
P28	3b	0.00	0.04	168.52
P29	3b	0.00	0.04	162.62
P30	3b	0.00	0.04	156.73
P31	3b	0.01	0.08	180.82
P32	3b	0.00	0.08	175.07
P33	3b	0.00	0.08	169.36
P34	3b	0.00	0.08	163.64
P35	3b	0.00	0.08	157.89
P36	3b	-0.01	0.08	152.16
P37	3b	0.00	0.13	182.86
P38	3b	0.00	0.13	177.00
P39	3b	0.00	0.13	171.13
P40	3b	0.00	0.13	165.26
P41	3b	0.00	0.13	159.39
P42	3b	0.00	0.13	153.53

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of

Before Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	0.00	-0.14	91.81
P2	D1a	0.00	-0.14	85.94
P3	D1a	0.00	-0.14	80.07
P4	D1a	0.00	-0.14	74.21
P5	D1a	0.00	-0.14	68.34
P6	D1a	0.00	-0.14	62.47
P7	D1a	0.01	-0.11	91.27
P8	D1a	0.00	-0.11	85.53
P9	D1a	0.00	-0.11	79.81
P10	D1a	0.00	-0.11	74.08
P11	D1a	0.00	-0.11	68.35
P12	D1a	-0.01	-0.11	62.61
P13	D1a	0.00	-0.07	94.51
P14	D1a	0.00	-0.07	88.61
P15	D1a	0.00	-0.07	82.71
P16	D1a	0.00	-0.07	76.82
P17	D1a	0.00	-0.07	70.92
P18	D1a	0.00	-0.07	65.02
P19	D1a	0.01	0.00	91.96
P20	D1a	0.00	0.00	86.20
P21	D1a	0.00	0.00	80.47
P22	D1a	0.00	0.00	74.72
P23	D1a	0.00	0.00	68.98
P24	D1a	-0.01	0.00	63.23
P25	D1a	0.00	0.07	97.17
P26	D1a	0.00	0.07	91.27
P27	D1a	0.00	0.07	85.38
P28	D1a	0.00	0.07	79.48
P29	D1a	0.00	0.07	73.58
P30	D1a	0.00	0.07	67.69
P31	D1a	0.01	0.11	96.34
P32	D1a	0.00	0.11	90.59
P33	D1a	0.00	0.11	84.87
P34	D1a	0.00	0.11	79.15
P35	D1a	0.00	0.11	73.41
P36	D1a	-0.01	0.11	67.68
P37	D1a	0.00	0.14	99.48
P38	D1a	0.00	0.14	93.61
P39	D1a	0.00	0.14	87.74
P40	D1a	0.00	0.14	81.88
P41	D1a	0.00	0.14	76.01
P42	D1a	0.00	0.14	70.14

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	0.00	-0.12	173.70
P2	D1b	0.00	-0.12	167.84
P3	D1b	0.00	-0.12	161.97
P4	D1b	0.00	-0.12	156.10
P5	D1b	0.00	-0.12	150.24
P6	D1b	0.00	-0.12	144.37
P7	D1b	0.01	-0.08	174.13
P8	D1b	0.00	-0.08	168.38
P9	D1b	0.00	-0.08	162.68
P10	D1b	0.00	-0.08	156.95
P11	D1b	0.00	-0.08	151.20
P12	D1b	-0.01	-0.08	145.47
P13	D1b	0.00	-0.06	179.76
P14	D1b	0.00	-0.06	173.86
P15	D1b	0.00	-0.06	167.97
P16	D1b	0.00	-0.06	162.07
P17	D1b	0.00	-0.06	156.17
P18	D1b	0.00	-0.06	150.27
P19	D1b	0.01	0.00	176.87
P20	D1b	0.00	0.00	171.10
P21	D1b	0.00	0.00	165.38
P22	D1b	0.00	0.00	159.64
P23	D1b	0.00	0.00	153.88
P24	D1b	-0.01	0.00	148.14
P25	D1b	0.00	0.05	182.43
P26	D1b	0.00	0.05	176.53
P27	D1b	0.00	0.05	170.63
P28	D1b	0.00	0.05	164.73
P29	D1b	0.00	0.05	158.84
P30	D1b	0.00	0.05	152.94
P31	D1b	0.01	0.08	179.20
P32	D1b	0.00	0.08	173.44
P33	D1b	0.00	0.08	167.74
P34	D1b	0.00	0.08	162.01
P35	D1b	0.00	0.08	156.27
P36	D1b	-0.01	0.08	150.54
P37	D1b	0.00	0.13	181.38
P38	D1b	0.00	0.13	175.51
P39	D1b	0.00	0.12	169.64
P40	D1b	0.00	0.12	163.77
P41	D1b	0.00	0.12	157.91
P42	D1b	0.00	0.12	152.04

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	0.00	-0.16	74.75
P2	D2a	0.00	-0.16	68.88
P3	D2a	0.00	-0.16	63.02
P4	D2a	0.00	-0.16	57.15
P5	D2a	0.00	-0.16	51.28
P6	D2a	0.00	-0.16	45.42
P7	D2a	0.01	-0.12	76.53
P8	D2a	0.00	-0.12	70.78
P9	D2a	0.00	-0.12	65.06
P10	D2a	0.00	-0.12	59.34
P11	D2a	0.00	-0.12	53.60
P12	D2a	-0.01	-0.12	47.87
P13	D2a	0.00	-0.06	84.23
P14	D2a	0.00	-0.06	78.34
P15	D2a	0.00	-0.06	72.44
P16	D2a	0.00	-0.06	66.54
P17	D2a	0.00	-0.06	60.64
P18	D2a	0.00	-0.06	54.75
P19	D2a	0.01	0.01	85.71
P20	D2a	0.00	0.01	79.95
P21	D2a	0.00	0.01	74.22
P22	D2a	0.00	0.01	68.48
P23	D2a	0.00	0.01	62.73
P24	D2a	-0.01	0.01	56.98
P25	D2a	0.00	0.07	94.44
P26	D2a	0.00	0.07	88.54
P27	D2a	0.00	0.07	82.65
P28	D2a	0.00	0.07	76.75
P29	D2a	0.00	0.07	70.85
P30	D2a	0.00	0.07	64.96
P31	D2a	0.01	0.11	96.67
P32	D2a	0.00	0.11	90.92
P33	D2a	0.00	0.11	85.21
P34	D2a	0.00	0.11	79.48
P35	D2a	0.00	0.11	73.74
P36	D2a	-0.01	0.11	68.01
P37	D2a	0.00	0.15	102.42
P38	D2a	0.00	0.15	96.56
P39	D2a	0.00	0.15	90.69
P40	D2a	0.00	0.15	84.82
P41	D2a	0.00	0.15	78.96
P42	D2a	0.00	0.15	73.09

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Reactions	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	Before Spring Calibration	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b	0.00	-0.14	156.65
P2	D2b	0.00	-0.14	150.78
P3	D2b	0.00	-0.14	144.91
P4	D2b	0.00	-0.14	139.05
P5	D2b	0.00	-0.14	133.18
P6	D2b	0.00	-0.14	127.31
P7	D2b	0.01	-0.09	159.39
P8	D2b	0.00	-0.09	153.64
P9	D2b	0.00	-0.09	147.93
P10	D2b	0.00	-0.09	142.20
P11	D2b	0.00	-0.09	136.46
P12	D2b	-0.01	-0.09	130.73
P13	D2b	0.00	-0.05	169.49
P14	D2b	0.00	-0.05	163.59
P15	D2b	0.00	-0.05	157.69
P16	D2b	0.00	-0.05	151.79
P17	D2b	0.00	-0.05	145.90
P18	D2b	0.00	-0.05	140.00
P19	D2b	0.01	0.01	170.62
P20	D2b	0.00	0.01	164.86
P21	D2b	0.00	0.01	159.13
P22	D2b	0.00	0.01	153.39
P23	D2b	0.00	0.01	147.64
P24	D2b	-0.01	0.01	141.89
P25	D2b	0.00	0.06	179.69
P26	D2b	0.00	0.06	173.80
P27	D2b	0.00	0.06	167.90
P28	D2b	0.00	0.06	162.00
P29	D2b	0.00	0.06	156.11
P30	D2b	0.00	0.06	150.21
P31	D2b	0.01	0.08	179.53
P32	D2b	0.00	0.08	173.78
P33	D2b	0.00	0.08	168.07
P34	D2b	0.00	0.08	162.35
P35	D2b	0.00	0.08	156.60
P36	D2b	-0.01	0.08	150.87
P37	D2b	0.00	0.13	184.32
P38	D2b	0.00	0.13	178.45
P39	D2b	0.00	0.13	172.59
P40	D2b	0.00	0.13	166.72
P41	D2b	0.00	0.13	160.85
P42	D2b	0.00	0.13	154.99

Vertical Reactions:

MAXIMUM REACTION =	190.24	kips
MINIMUM REACTION =	44.11	kips

Horizontal (F1) Reactions:

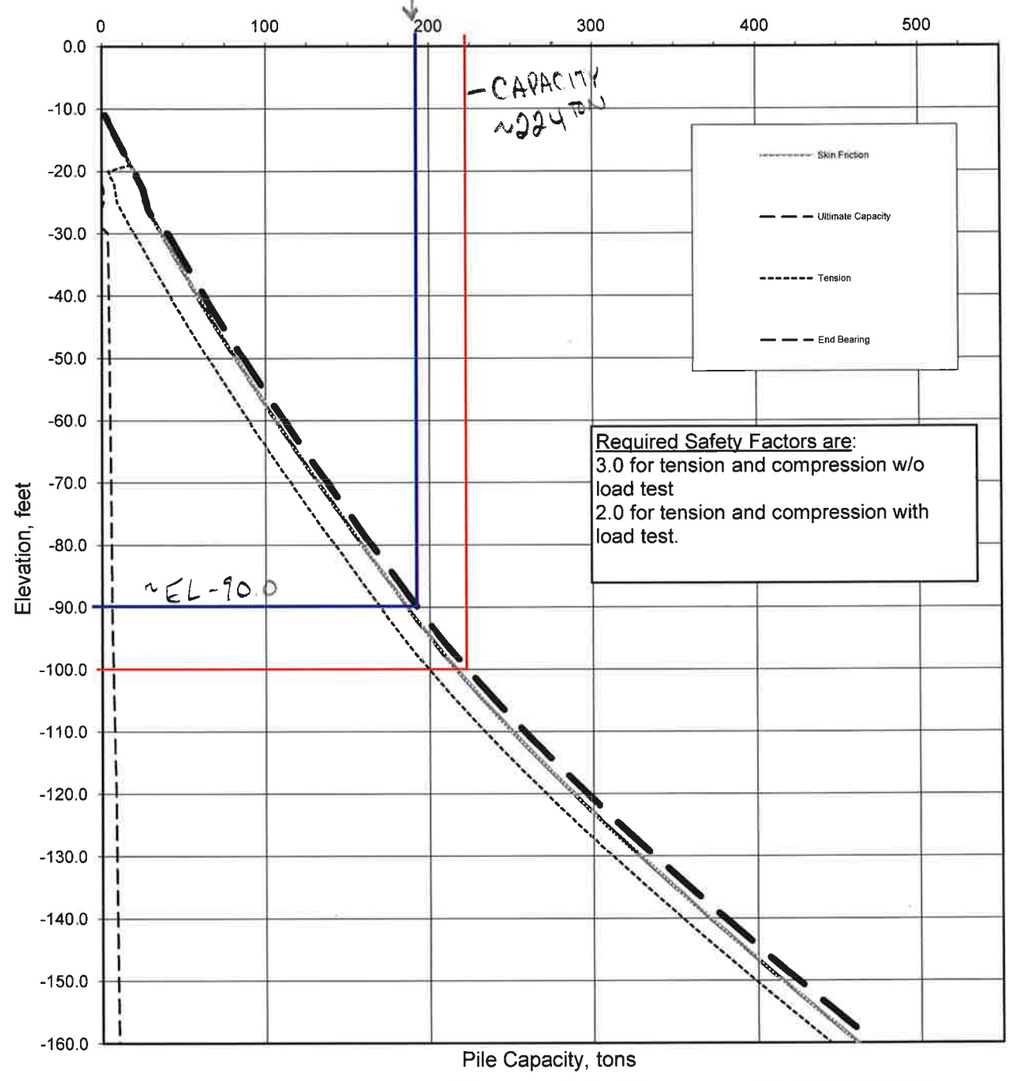
MAXIMUM REACTION =	0.01	kips
MINIMUM REACTION =	-0.01	kips

Horizontal (F2) Reactions:

MAXIMUM REACTION =	8.48	kips
MINIMUM REACTION =	-0.16	kips

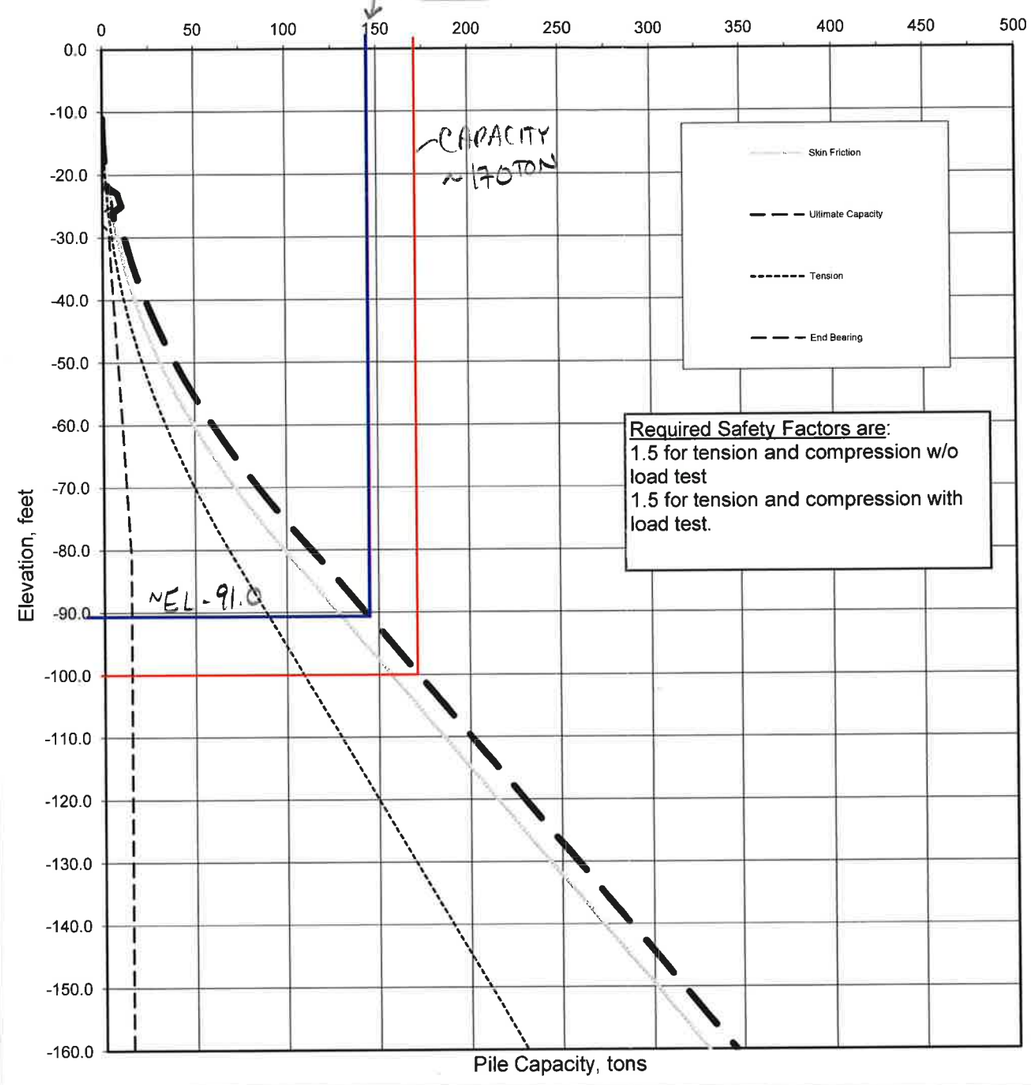
Undrained Strength Case with HP 14x89 Pile

191K REQUIRED x 1TON/2KIP x 2(F.O.S.) = 191 TON



Drained Strength Case with HP 14x89 Pile

191K REQ. x 1TON/2KIP x 1.5(F.O.S.) = 143.25 TON



SET TIPS @ EL -100.0

(EL-95.0 may be adequate, but setting tips lower b/c settlement case reactions will be very large)

CALLOW = 224K (UNDRAINED)

Notes:
1. Pile capacity curves represent axial resistance for a sigle pile and do not consider group effects.
2. Curves indicate Ultimate Capacity; the appropriate safety factors should be applied to arrive at the Allowable Capacity

Lake Maurepas Diversion Canal	Project No. 10001863	Pile Capacities: Intake Structure HP - 14X89	URS	Figure No. 2

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Description: C-2 to C-4 Model Pile Springs **Computed By:** LBR **Date:** Jul-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

PILE/SPRING STIFFNESS INPUT IN SAP **HP14x89 Piles Used**

Axial Pile Stiffness (b33 = C33 (AE/L)):

Pile tip elevation required pile from the pile capacity curves = -100.0 NAVD88
Top of pile Elevation including 9" Pile embedment = (-10.5 + 0.75) ft = -9.75 NAVD88
Therefore, required length of pile = 90.25 ft

Axial stiffness modifier (C33) that for interaction between soil & pile = 1.74 (from geotech analysis)

Cross-section area of the pile 'A' = 26.1 in^2

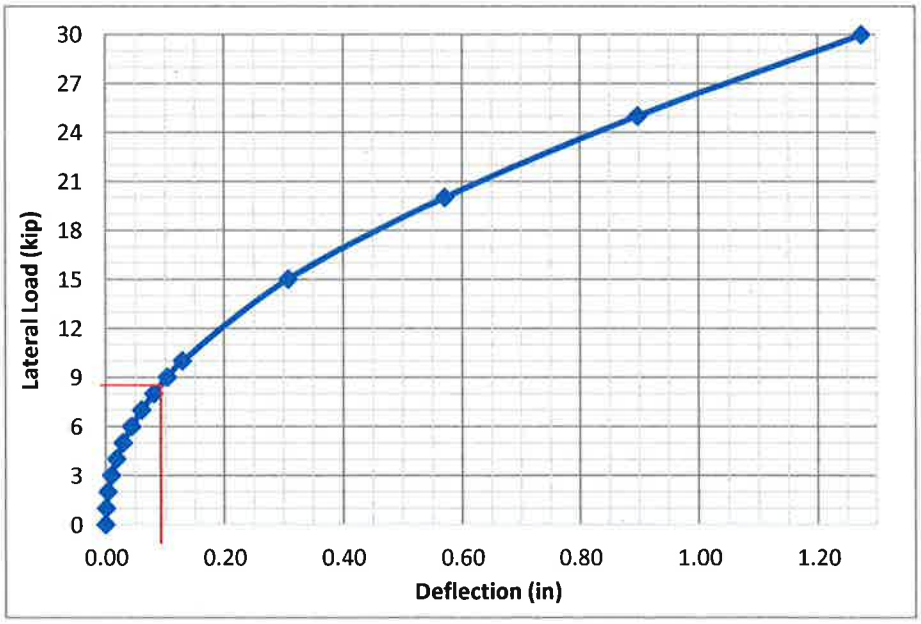
Modulus of Elasticity of the pile (E) = 29,000 ksi

Therefore, axial spring stiffness for SAP: b33 = C33 * (A*E/L) = 1216.1 k/in
= **14593 k/ft**

Lateral Pile Stiffness:

Lateral pile stiffness is determined from the L-Pile data attached (provided by geotech analysis).
Lateral pile stiffnesses for the loading curves are as follows:

Load curve (F)	Avg. Pile Head Deflection (x)	Stiffness (k = F/x)
(k)	(in)	(k/in)
0	0.00000	-
1	0.00103	975.4
2	0.00409	488.5
3	0.00978	306.9
4	0.01820	219.8
5	0.02924	171.0
6	0.04343	138.2
7	0.06009	116.5
8	0.08048	99.4
9	0.10349	87.0
10	0.12881	77.6
15	0.30791	48.7
20	0.57012	35.1
25	0.89728	27.9
30	1.27460	23.5



Try using a spring corresponding to an 8.5k lateral load
8.5k/0.091" = 93.4 k/in = 1120.9 k/ft

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Reactions	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	After Spring Calibration	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

* Using Tip EL -100.0 & Lateral Spring for 8.5k force (93.4 k/in)

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	0.00	-0.29	169.25
P2	1a	0.00	-0.29	163.38
P3	1a	0.00	-0.29	157.51
P4	1a	0.00	-0.28	151.64
P5	1a	0.00	-0.28	145.78
P6	1a	0.00	-0.28	139.91
P7	1a	0.02	-0.18	169.29
P8	1a	0.01	-0.18	163.54
P9	1a	0.00	-0.18	157.83
P10	1a	0.00	-0.18	152.11
P11	1a	-0.01	-0.18	146.36
P12	1a	-0.02	-0.18	140.63
P13	1a	0.00	-0.10	176.79
P14	1a	0.00	-0.10	170.89
P15	1a	0.00	-0.10	164.99
P16	1a	0.00	-0.10	159.10
P17	1a	0.00	-0.10	153.20
P18	1a	0.00	-0.10	147.30
P19	1a	0.02	0.00	174.20
P20	1a	0.01	0.00	168.43
P21	1a	0.00	0.00	162.71
P22	1a	0.00	0.00	156.97
P23	1a	-0.01	0.00	151.21
P24	1a	-0.02	0.00	145.47
P25	1a	0.00	0.10	179.45
P26	1a	0.00	0.10	173.55
P27	1a	0.00	0.10	167.66
P28	1a	0.00	0.10	161.76
P29	1a	0.00	0.10	155.86
P30	1a	0.00	0.10	149.97
P31	1a	0.02	0.18	174.36
P32	1a	0.01	0.18	168.60
P33	1a	0.00	0.18	162.90
P34	1a	0.00	0.18	157.17
P35	1a	-0.01	0.18	151.43
P36	1a	-0.02	0.18	145.70
P37	1a	0.00	0.29	176.92
P38	1a	0.00	0.29	171.05
P39	1a	0.00	0.29	165.18
P40	1a	0.00	0.29	159.31
P41	1a	0.00	0.29	153.45
P42	1a	0.00	0.29	147.58

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	0.00	8.32	61.03
P2	1b	0.00	8.32	61.03
P3	1b	0.00	8.32	61.03
P4	1b	0.00	8.32	61.03
P5	1b	0.00	8.32	61.03
P6	1b	0.00	8.32	61.03
P7	1b	0.00	8.38	56.82
P8	1b	0.00	8.38	56.81
P9	1b	0.00	8.38	56.82
P10	1b	0.00	8.38	56.82
P11	1b	0.00	8.38	56.81
P12	1b	0.00	8.38	56.82
P13	1b	0.00	8.42	55.42
P14	1b	0.00	8.42	55.42
P15	1b	0.00	8.42	55.42
P16	1b	0.00	8.42	55.42
P17	1b	0.00	8.42	55.42
P18	1b	0.00	8.42	55.42
P19	1b	0.00	8.46	52.01
P20	1b	0.00	8.46	52.00
P21	1b	0.00	8.46	52.01
P22	1b	0.00	8.46	52.01
P23	1b	0.00	8.46	52.00
P24	1b	0.00	8.46	52.01
P25	1b	0.00	8.49	50.69
P26	1b	0.00	8.49	50.69
P27	1b	0.00	8.49	50.69
P28	1b	0.00	8.49	50.69
P29	1b	0.00	8.49	50.69
P30	1b	0.00	8.49	50.69
P31	1b	0.01	8.51	46.87
P32	1b	0.00	8.51	46.86
P33	1b	0.00	8.51	46.87
P34	1b	0.00	8.51	46.87
P35	1b	0.00	8.51	46.86
P36	1b	-0.01	8.51	46.87
P37	1b	0.00	8.51	44.11
P38	1b	0.00	8.51	44.11
P39	1b	0.00	8.51	44.11
P40	1b	0.00	8.51	44.11
P41	1b	0.00	8.51	44.11
P42	1b	0.00	8.51	44.11

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a	0.00	-0.31	77.69
P2	2a	0.00	-0.31	71.82
P3	2a	0.00	-0.31	65.96
P4	2a	0.00	-0.31	60.09
P5	2a	0.00	-0.31	54.22
P6	2a	0.00	-0.31	48.36
P7	2a	0.02	-0.22	76.86
P8	2a	0.01	-0.22	71.11
P9	2a	0.00	-0.22	65.40
P10	2a	0.00	-0.22	59.67
P11	2a	0.00	-0.22	53.94
P12	2a	-0.02	-0.22	48.20
P13	2a	0.00	-0.12	81.51
P14	2a	0.00	-0.12	75.61
P15	2a	0.00	-0.12	69.71
P16	2a	0.00	-0.12	63.81
P17	2a	0.00	-0.12	57.92
P18	2a	0.00	-0.12	52.02
P19	2a	0.02	0.00	79.47
P20	2a	0.00	0.00	73.71
P21	2a	0.00	0.00	67.98
P22	2a	0.00	0.00	62.23
P23	2a	-0.01	0.00	56.49
P24	2a	-0.02	0.00	50.74
P25	2a	0.00	0.12	84.17
P26	2a	0.00	0.12	78.27
P27	2a	0.00	0.12	72.38
P28	2a	0.00	0.12	66.48
P29	2a	0.00	0.12	60.58
P30	2a	0.00	0.12	54.69
P31	2a	0.02	0.22	81.92
P32	2a	0.01	0.22	76.18
P33	2a	0.00	0.22	70.46
P34	2a	0.00	0.22	64.73
P35	2a	0.00	0.22	59.00
P36	2a	-0.02	0.22	53.26
P37	2a	0.00	0.31	85.36
P38	2a	0.00	0.31	79.50
P39	2a	0.00	0.31	73.63
P40	2a	0.00	0.31	67.76
P41	2a	0.00	0.31	61.89
P42	2a	0.00	0.31	56.03

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Reactions After Spring Calibration **Computed By:** LBR **Date:** Aug-13 **Page:** of

Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b	0.00	-0.24	178.95
P2	2b	0.00	-0.24	173.09
P3	2b	0.00	-0.24	167.22
P4	2b	0.00	-0.24	161.35
P5	2b	0.00	-0.24	155.48
P6	2b	0.00	-0.24	149.62
P7	2b	0.02	-0.14	179.58
P8	2b	0.01	-0.14	173.83
P9	2b	0.00	-0.14	168.12
P10	2b	0.00	-0.14	162.40
P11	2b	0.00	-0.14	156.65
P12	2b	-0.01	-0.14	150.92
P13	2b	0.00	-0.08	187.58
P14	2b	0.00	-0.08	181.68
P15	2b	0.00	-0.08	175.79
P16	2b	0.00	-0.08	169.89
P17	2b	0.00	-0.08	163.99
P18	2b	0.00	-0.08	158.10
P19	2b	0.01	0.00	185.34
P20	2b	0.00	0.00	179.58
P21	2b	0.00	0.00	173.86
P22	2b	0.00	0.00	168.11
P23	2b	-0.01	0.00	162.35
P24	2b	-0.02	0.00	156.61
P25	2b	0.00	0.08	190.25
P26	2b	0.00	0.08	184.35
P27	2b	0.00	0.08	178.45
P28	2b	0.00	0.08	172.55
P29	2b	0.00	0.08	166.66
P30	2b	0.00	0.07	160.76
P31	2b	0.02	0.14	184.64
P32	2b	0.01	0.14	178.89
P33	2b	0.00	0.14	173.18
P34	2b	0.00	0.14	167.46
P35	2b	0.00	0.14	161.71
P36	2b	-0.01	0.14	155.98
P37	2b	0.00	0.25	186.62
P38	2b	0.00	0.25	180.76
P39	2b	0.00	0.25	174.89
P40	2b	0.00	0.25	169.02
P41	2b	0.00	0.25	163.16
P42	2b	0.00	0.25	157.29

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a	0.00	-0.28	132.04
P2	3a	0.00	-0.28	126.17
P3	3a	0.00	-0.28	120.30
P4	3a	0.00	-0.28	114.43
P5	3a	0.00	-0.28	108.57
P6	3a	0.00	-0.28	102.70
P7	3a	0.02	-0.19	131.84
P8	3a	0.01	-0.19	126.09
P9	3a	0.00	-0.19	120.38
P10	3a	0.00	-0.19	114.66
P11	3a	0.00	-0.19	108.92
P12	3a	-0.02	-0.19	103.18
P13	3a	0.00	-0.11	138.08
P14	3a	0.00	-0.11	132.18
P15	3a	0.00	-0.11	126.28
P16	3a	0.00	-0.11	120.38
P17	3a	0.00	-0.11	114.49
P18	3a	0.00	-0.11	108.59
P19	3a	0.02	0.00	135.81
P20	3a	0.00	0.00	130.05
P21	3a	0.00	0.00	124.32
P22	3a	0.00	0.00	118.58
P23	3a	-0.01	0.00	112.83
P24	3a	-0.02	0.00	107.08
P25	3a	0.00	0.10	140.74
P26	3a	0.00	0.10	134.84
P27	3a	0.00	0.10	128.95
P28	3a	0.00	0.10	123.05
P29	3a	0.00	0.10	117.15
P30	3a	0.00	0.10	111.25
P31	3a	0.02	0.19	136.91
P32	3a	0.01	0.19	131.16
P33	3a	0.00	0.19	125.44
P34	3a	0.00	0.19	119.72
P35	3a	0.00	0.19	113.98
P36	3a	-0.02	0.19	108.24
P37	3a	0.00	0.29	139.71
P38	3a	0.00	0.29	133.84
P39	3a	0.00	0.29	127.97
P40	3a	0.00	0.29	122.10
P41	3a	0.00	0.29	116.24
P42	3a	0.00	0.29	110.37

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b	0.00	-0.25	175.19
P2	3b	0.00	-0.25	169.32
P3	3b	0.00	-0.25	163.45
P4	3b	0.00	-0.25	157.59
P5	3b	0.00	-0.25	151.72
P6	3b	0.00	-0.25	145.85
P7	3b	0.02	-0.15	175.76
P8	3b	0.01	-0.15	170.01
P9	3b	0.00	-0.15	164.30
P10	3b	0.00	-0.15	158.57
P11	3b	0.00	-0.15	152.83
P12	3b	-0.02	-0.15	147.10
P13	3b	0.00	-0.08	183.55
P14	3b	0.00	-0.08	177.65
P15	3b	0.00	-0.08	171.76
P16	3b	0.00	-0.08	165.86
P17	3b	0.00	-0.08	159.96
P18	3b	0.00	-0.08	154.07
P19	3b	0.01	0.00	181.27
P20	3b	0.00	0.00	175.51
P21	3b	0.00	0.00	169.79
P22	3b	0.00	0.00	164.05
P23	3b	-0.01	0.00	158.28
P24	3b	-0.02	0.00	152.54
P25	3b	0.00	0.08	186.22
P26	3b	0.00	0.08	180.32
P27	3b	0.00	0.08	174.42
P28	3b	0.00	0.08	168.52
P29	3b	0.00	0.08	162.63
P30	3b	0.00	0.08	156.73
P31	3b	0.02	0.14	180.82
P32	3b	0.01	0.14	175.07
P33	3b	0.00	0.14	169.36
P34	3b	0.00	0.14	163.64
P35	3b	0.00	0.15	157.89
P36	3b	-0.02	0.15	152.16
P37	3b	0.00	0.25	182.86
P38	3b	0.00	0.25	176.99
P39	3b	0.00	0.25	171.12
P40	3b	0.00	0.25	165.26
P41	3b	0.00	0.25	159.39
P42	3b	0.00	0.25	153.52

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Reactions After Spring Calibration **Computed By:** LBR **Date:** Aug-13 **Page:** of

Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	0.00	-0.27	91.80
P2	D1a	0.00	-0.27	85.93
P3	D1a	0.00	-0.27	80.07
P4	D1a	0.00	-0.27	74.20
P5	D1a	0.00	-0.27	68.33
P6	D1a	0.00	-0.27	62.47
P7	D1a	0.01	-0.21	91.27
P8	D1a	0.01	-0.21	85.53
P9	D1a	0.00	-0.21	79.81
P10	D1a	0.00	-0.21	74.08
P11	D1a	0.00	-0.21	68.35
P12	D1a	-0.01	-0.21	62.61
P13	D1a	0.00	-0.13	94.51
P14	D1a	0.00	-0.13	88.61
P15	D1a	0.00	-0.13	82.72
P16	D1a	0.00	-0.13	76.82
P17	D1a	0.00	-0.13	70.92
P18	D1a	0.00	-0.13	65.02
P19	D1a	0.02	0.00	91.97
P20	D1a	0.00	0.00	86.20
P21	D1a	0.00	0.00	80.47
P22	D1a	0.00	0.00	74.73
P23	D1a	-0.01	0.00	68.98
P24	D1a	-0.02	0.00	63.23
P25	D1a	0.00	0.13	97.18
P26	D1a	0.00	0.13	91.28
P27	D1a	0.00	0.13	85.38
P28	D1a	0.00	0.13	79.48
P29	D1a	0.00	0.13	73.59
P30	D1a	0.00	0.13	67.69
P31	D1a	0.01	0.21	96.34
P32	D1a	0.01	0.21	90.59
P33	D1a	0.00	0.21	84.87
P34	D1a	0.00	0.21	79.15
P35	D1a	0.00	0.21	73.41
P36	D1a	-0.01	0.21	67.68
P37	D1a	0.00	0.28	99.47
P38	D1a	0.00	0.28	93.60
P39	D1a	0.00	0.28	87.74
P40	D1a	0.00	0.28	81.87
P41	D1a	0.00	0.28	76.00
P42	D1a	0.00	0.28	70.14

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	0.00	-0.23	173.70
P2	D1b	0.00	-0.23	167.83
P3	D1b	0.00	-0.23	161.97
P4	D1b	0.00	-0.23	156.10
P5	D1b	0.00	-0.23	150.23
P6	D1b	0.00	-0.23	144.36
P7	D1b	0.01	-0.16	174.13
P8	D1b	0.01	-0.16	168.38
P9	D1b	0.00	-0.16	162.68
P10	D1b	0.00	-0.16	156.95
P11	D1b	0.00	-0.16	151.20
P12	D1b	-0.01	-0.16	145.47
P13	D1b	0.00	-0.11	179.76
P14	D1b	0.00	-0.11	173.87
P15	D1b	0.00	-0.11	167.97
P16	D1b	0.00	-0.11	162.07
P17	D1b	0.00	-0.11	156.17
P18	D1b	0.00	-0.11	150.28
P19	D1b	0.02	0.00	176.88
P20	D1b	0.00	0.00	171.11
P21	D1b	0.00	0.00	165.39
P22	D1b	0.00	0.00	159.65
P23	D1b	-0.01	0.00	153.89
P24	D1b	-0.02	0.00	148.14
P25	D1b	0.00	0.10	182.43
P26	D1b	0.00	0.10	176.53
P27	D1b	0.00	0.10	170.63
P28	D1b	0.00	0.10	164.74
P29	D1b	0.00	0.10	158.84
P30	D1b	0.00	0.10	152.94
P31	D1b	0.01	0.16	179.20
P32	D1b	0.01	0.16	173.44
P33	D1b	0.00	0.16	167.74
P34	D1b	0.00	0.16	162.01
P35	D1b	0.00	0.16	156.27
P36	D1b	-0.01	0.16	150.54
P37	D1b	0.00	0.24	181.37
P38	D1b	0.00	0.24	175.50
P39	D1b	0.00	0.24	169.64
P40	D1b	0.00	0.24	163.77
P41	D1b	0.00	0.24	157.90
P42	D1b	0.00	0.24	152.04

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	0.00	-0.31	74.75
P2	D2a	0.00	-0.31	68.88
P3	D2a	0.00	-0.31	63.01
P4	D2a	0.00	-0.31	57.14
P5	D2a	0.00	-0.31	51.28
P6	D2a	0.00	-0.30	45.41
P7	D2a	0.02	-0.22	76.53
P8	D2a	0.01	-0.22	70.78
P9	D2a	0.00	-0.22	65.06
P10	D2a	0.00	-0.22	59.34
P11	D2a	0.00	-0.22	53.60
P12	D2a	-0.02	-0.22	47.87
P13	D2a	0.00	-0.11	84.24
P14	D2a	0.00	-0.11	78.34
P15	D2a	0.00	-0.11	72.44
P16	D2a	0.00	-0.11	66.55
P17	D2a	0.00	-0.11	60.65
P18	D2a	0.00	-0.11	54.75
P19	D2a	0.02	0.02	85.72
P20	D2a	0.00	0.02	79.96
P21	D2a	0.00	0.02	74.22
P22	D2a	0.00	0.02	68.48
P23	D2a	-0.01	0.02	62.74
P24	D2a	-0.02	0.02	56.98
P25	D2a	0.00	0.14	94.44
P26	D2a	0.00	0.14	88.55
P27	D2a	0.00	0.13	82.65
P28	D2a	0.00	0.13	76.75
P29	D2a	0.00	0.13	70.86
P30	D2a	0.00	0.13	64.96
P31	D2a	0.01	0.21	96.67
P32	D2a	0.01	0.21	90.92
P33	D2a	0.00	0.21	85.21
P34	D2a	0.00	0.21	79.48
P35	D2a	0.00	0.21	73.74
P36	D2a	-0.01	0.21	68.01
P37	D2a	0.00	0.28	102.42
P38	D2a	0.00	0.28	96.55
P39	D2a	0.00	0.28	90.68
P40	D2a	0.00	0.28	84.82
P41	D2a	0.00	0.28	78.95
P42	D2a	0.00	0.28	73.08

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Reactions	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	After Spring Calibration	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b	0.00	-0.27	156.64
P2	D2b	0.00	-0.27	150.78
P3	D2b	0.00	-0.27	144.91
P4	D2b	0.00	-0.27	139.04
P5	D2b	0.00	-0.27	133.18
P6	D2b	0.00	-0.27	127.31
P7	D2b	0.02	-0.17	159.39
P8	D2b	0.01	-0.17	153.64
P9	D2b	0.00	-0.17	147.93
P10	D2b	0.00	-0.17	142.20
P11	D2b	-0.01	-0.17	136.46
P12	D2b	-0.02	-0.17	130.73
P13	D2b	0.00	-0.09	169.49
P14	D2b	0.00	-0.09	163.59
P15	D2b	0.00	-0.09	157.69
P16	D2b	0.00	-0.09	151.80
P17	D2b	0.00	-0.09	145.90
P18	D2b	0.00	-0.09	140.00
P19	D2b	0.02	0.02	170.63
P20	D2b	0.00	0.02	164.86
P21	D2b	0.00	0.02	159.14
P22	D2b	0.00	0.02	153.40
P23	D2b	-0.01	0.02	147.64
P24	D2b	-0.02	0.02	141.89
P25	D2b	0.00	0.11	179.70
P26	D2b	0.00	0.11	173.80
P27	D2b	0.00	0.11	167.90
P28	D2b	0.00	0.11	162.01
P29	D2b	0.00	0.11	156.11
P30	D2b	0.00	0.11	150.21
P31	D2b	0.01	0.16	179.53
P32	D2b	0.01	0.16	173.78
P33	D2b	0.00	0.16	168.07
P34	D2b	0.00	0.16	162.35
P35	D2b	0.00	0.16	156.60
P36	D2b	-0.01	0.16	150.87
P37	D2b	0.00	0.24	184.32
P38	D2b	0.00	0.24	178.45
P39	D2b	0.00	0.24	172.58
P40	D2b	0.00	0.24	166.72
P41	D2b	0.00	0.24	160.85
P42	D2b	0.00	0.24	154.98

Vertical Reactions:

MAXIMUM REACTION =	190.25	kips
MINIMUM REACTION =	44.11	kips

Horizontal (F1) Reactions:

MAXIMUM REACTION =	0.02	kips
MINIMUM REACTION =	-0.02	kips

Horizontal (F2) Reactions:

MAXIMUM REACTION =	8.51	kips
MINIMUM REACTION =	-0.31	kips

Callowable = 224k > Max Reaction = 190.2k - OK

URS

Job: Maurepas Freshwater Diversion
Desc.: C-2 to C-4 Model Pile Deflections After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

* Using Tip EL -100.0 & Lateral Spring for 8.5k force (93.4 k/in)

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	1a	0.00	0.0031	-0.1392
P2	1a	0.00	0.0031	-0.1343
P3	1a	0.00	0.0031	-0.1295
P4	1a	0.00	0.0030	-0.1247
P5	1a	0.00	0.0030	-0.1199
P6	1a	0.00	0.0030	-0.1150
P7	1a	0.00	0.0019	-0.1392
P8	1a	0.00	0.0019	-0.1345
P9	1a	0.00	0.0019	-0.1298
P10	1a	0.00	0.0019	-0.1251
P11	1a	0.00	0.0019	-0.1204
P12	1a	0.00	0.0019	-0.1156
P13	1a	0.00	0.0011	-0.1454
P14	1a	0.00	0.0011	-0.1405
P15	1a	0.00	0.0011	-0.1357
P16	1a	0.00	0.0011	-0.1308
P17	1a	0.00	0.0011	-0.1260
P18	1a	0.00	0.0011	-0.1211
P19	1a	0.00	0.0000	-0.1432
P20	1a	0.00	0.0000	-0.1385
P21	1a	0.00	0.0000	-0.1338
P22	1a	0.00	0.0000	-0.1291
P23	1a	0.00	0.0000	-0.1243
P24	1a	0.00	0.0000	-0.1196
P25	1a	0.00	-0.0011	-0.1476
P26	1a	0.00	-0.0011	-0.1427
P27	1a	0.00	-0.0011	-0.1379
P28	1a	0.00	-0.0010	-0.1330
P29	1a	0.00	-0.0010	-0.1282
P30	1a	0.00	-0.0010	-0.1233
P31	1a	0.00	-0.0019	-0.1434
P32	1a	0.00	-0.0019	-0.1386
P33	1a	0.00	-0.0019	-0.1340
P34	1a	0.00	-0.0019	-0.1292
P35	1a	0.00	-0.0019	-0.1245
P36	1a	0.00	-0.0019	-0.1198
P37	1a	0.00	-0.0031	-0.1455
P38	1a	0.00	-0.0031	-0.1407
P39	1a	0.00	-0.0031	-0.1358
P40	1a	0.00	-0.0031	-0.1310
P41	1a	0.00	-0.0031	-0.1262
P42	1a	0.00	-0.0031	-0.1214

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	1b	0.00	-0.0891	-0.0502
P2	1b	0.00	-0.0891	-0.0502
P3	1b	0.00	-0.0891	-0.0502
P4	1b	0.00	-0.0891	-0.0502
P5	1b	0.00	-0.0891	-0.0502
P6	1b	0.00	-0.0891	-0.0502
P7	1b	0.00	-0.0898	-0.0467
P8	1b	0.00	-0.0898	-0.0467
P9	1b	0.00	-0.0898	-0.0467
P10	1b	0.00	-0.0898	-0.0467
P11	1b	0.00	-0.0898	-0.0467
P12	1b	0.00	-0.0898	-0.0467
P13	1b	0.00	-0.0902	-0.0456
P14	1b	0.00	-0.0902	-0.0456
P15	1b	0.00	-0.0902	-0.0456
P16	1b	0.00	-0.0902	-0.0456
P17	1b	0.00	-0.0902	-0.0456
P18	1b	0.00	-0.0902	-0.0456
P19	1b	0.00	-0.0906	-0.0428
P20	1b	0.00	-0.0906	-0.0428
P21	1b	0.00	-0.0906	-0.0428
P22	1b	0.00	-0.0906	-0.0428
P23	1b	0.00	-0.0906	-0.0428
P24	1b	0.00	-0.0906	-0.0428
P25	1b	0.00	-0.0909	-0.0417
P26	1b	0.00	-0.0909	-0.0417
P27	1b	0.00	-0.0909	-0.0417
P28	1b	0.00	-0.0909	-0.0417
P29	1b	0.00	-0.0909	-0.0417
P30	1b	0.00	-0.0909	-0.0417
P31	1b	0.00	-0.0911	-0.0385
P32	1b	0.00	-0.0911	-0.0385
P33	1b	0.00	-0.0911	-0.0385
P34	1b	0.00	-0.0911	-0.0385
P35	1b	0.00	-0.0911	-0.0385
P36	1b	0.00	-0.0911	-0.0385
P37	1b	0.00	-0.0912	-0.0363
P38	1b	0.00	-0.0912	-0.0363
P39	1b	0.00	-0.0912	-0.0363
P40	1b	0.00	-0.0912	-0.0363
P41	1b	0.00	-0.0912	-0.0363
P42	1b	0.00	-0.0912	-0.0363

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	2a	0.00	0.0033	-0.0639
P2	2a	0.00	0.0033	-0.0591
P3	2a	0.00	0.0033	-0.0542
P4	2a	0.00	0.0033	-0.0494
P5	2a	0.00	0.0033	-0.0446
P6	2a	0.00	0.0033	-0.0398
P7	2a	0.00	0.0024	-0.0632
P8	2a	0.00	0.0024	-0.0585
P9	2a	0.00	0.0024	-0.0538
P10	2a	0.00	0.0024	-0.0491
P11	2a	0.00	0.0024	-0.0444
P12	2a	0.00	0.0024	-0.0396
P13	2a	0.00	0.0013	-0.0670
P14	2a	0.00	0.0013	-0.0622
P15	2a	0.00	0.0013	-0.0573
P16	2a	0.00	0.0013	-0.0525
P17	2a	0.00	0.0013	-0.0476
P18	2a	0.00	0.0013	-0.0428
P19	2a	0.00	0.0000	-0.0653
P20	2a	0.00	0.0000	-0.0606
P21	2a	0.00	0.0000	-0.0559
P22	2a	0.00	0.0000	-0.0512
P23	2a	0.00	0.0000	-0.0465
P24	2a	0.00	0.0000	-0.0417
P25	2a	0.00	-0.0013	-0.0692
P26	2a	0.00	-0.0013	-0.0644
P27	2a	0.00	-0.0013	-0.0595
P28	2a	0.00	-0.0013	-0.0547
P29	2a	0.00	-0.0013	-0.0498
P30	2a	0.00	-0.0013	-0.0450
P31	2a	0.00	-0.0024	-0.0674
P32	2a	0.00	-0.0024	-0.0626
P33	2a	0.00	-0.0024	-0.0579
P34	2a	0.00	-0.0024	-0.0532
P35	2a	0.00	-0.0024	-0.0485
P36	2a	0.00	-0.0024	-0.0438
P37	2a	0.00	-0.0034	-0.0702
P38	2a	0.00	-0.0034	-0.0654
P39	2a	0.00	-0.0034	-0.0605
P40	2a	0.00	-0.0034	-0.0557
P41	2a	0.00	-0.0034	-0.0509
P42	2a	0.00	-0.0033	-0.0461

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Deflections After Spring Calibration **Computed By:** LBR **Date:** Aug-13 **Page:** of

Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	2b	0.00	0.0026	-0.1472
P2	2b	0.00	0.0026	-0.1423
P3	2b	0.00	0.0026	-0.1375
P4	2b	0.00	0.0026	-0.1327
P5	2b	0.00	0.0026	-0.1279
P6	2b	0.00	0.0026	-0.1230
P7	2b	0.00	0.0015	-0.1477
P8	2b	0.00	0.0015	-0.1429
P9	2b	0.00	0.0015	-0.1382
P10	2b	0.00	0.0015	-0.1335
P11	2b	0.00	0.0015	-0.1288
P12	2b	0.00	0.0015	-0.1241
P13	2b	0.00	0.0009	-0.1542
P14	2b	0.00	0.0008	-0.1494
P15	2b	0.00	0.0008	-0.1445
P16	2b	0.00	0.0008	-0.1397
P17	2b	0.00	0.0008	-0.1349
P18	2b	0.00	0.0008	-0.1300
P19	2b	0.00	0.0000	-0.1524
P20	2b	0.00	0.0000	-0.1477
P21	2b	0.00	0.0000	-0.1430
P22	2b	0.00	0.0000	-0.1382
P23	2b	0.00	0.0000	-0.1335
P24	2b	0.00	0.0000	-0.1288
P25	2b	0.00	-0.0008	-0.1564
P26	2b	0.00	-0.0008	-0.1516
P27	2b	0.00	-0.0008	-0.1467
P28	2b	0.00	-0.0008	-0.1419
P29	2b	0.00	-0.0008	-0.1370
P30	2b	0.00	-0.0008	-0.1322
P31	2b	0.00	-0.0015	-0.1518
P32	2b	0.00	-0.0015	-0.1471
P33	2b	0.00	-0.0015	-0.1424
P34	2b	0.00	-0.0015	-0.1377
P35	2b	0.00	-0.0015	-0.1330
P36	2b	0.00	-0.0015	-0.1283
P37	2b	0.00	-0.0027	-0.1535
P38	2b	0.00	-0.0027	-0.1486
P39	2b	0.00	-0.0027	-0.1438
P40	2b	0.00	-0.0027	-0.1390
P41	2b	0.00	-0.0027	-0.1342
P42	2b	0.00	-0.0027	-0.1293

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	3a	0.00	0.0030	-0.1086
P2	3a	0.00	0.0030	-0.1037
P3	3a	0.00	0.0030	-0.0989
P4	3a	0.00	0.0030	-0.0941
P5	3a	0.00	0.0030	-0.0893
P6	3a	0.00	0.0030	-0.0845
P7	3a	0.00	0.0020	-0.1084
P8	3a	0.00	0.0020	-0.1037
P9	3a	0.00	0.0020	-0.0990
P10	3a	0.00	0.0020	-0.0943
P11	3a	0.00	0.0020	-0.0896
P12	3a	0.00	0.0020	-0.0848
P13	3a	0.00	0.0011	-0.1135
P14	3a	0.00	0.0011	-0.1087
P15	3a	0.00	0.0011	-0.1038
P16	3a	0.00	0.0011	-0.0990
P17	3a	0.00	0.0011	-0.0941
P18	3a	0.00	0.0011	-0.0893
P19	3a	0.00	0.0000	-0.1117
P20	3a	0.00	0.0000	-0.1069
P21	3a	0.00	0.0000	-0.1022
P22	3a	0.00	0.0000	-0.0975
P23	3a	0.00	0.0000	-0.0928
P24	3a	0.00	0.0000	-0.0881
P25	3a	0.00	-0.0011	-0.1157
P26	3a	0.00	-0.0011	-0.1109
P27	3a	0.00	-0.0011	-0.1060
P28	3a	0.00	-0.0011	-0.1012
P29	3a	0.00	-0.0011	-0.0963
P30	3a	0.00	-0.0011	-0.0915
P31	3a	0.00	-0.0020	-0.1126
P32	3a	0.00	-0.0020	-0.1078
P33	3a	0.00	-0.0020	-0.1032
P34	3a	0.00	-0.0020	-0.0984
P35	3a	0.00	-0.0020	-0.0937
P36	3a	0.00	-0.0020	-0.0890
P37	3a	0.00	-0.0031	-0.1149
P38	3a	0.00	-0.0031	-0.1101
P39	3a	0.00	-0.0031	-0.1052
P40	3a	0.00	-0.0031	-0.1004
P41	3a	0.00	-0.0031	-0.0956
P42	3a	0.00	-0.0031	-0.0908

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	3b	0.00	0.0027	-0.1441
P2	3b	0.00	0.0027	-0.1392
P3	3b	0.00	0.0027	-0.1344
P4	3b	0.00	0.0027	-0.1296
P5	3b	0.00	0.0027	-0.1248
P6	3b	0.00	0.0027	-0.1199
P7	3b	0.00	0.0016	-0.1445
P8	3b	0.00	0.0016	-0.1398
P9	3b	0.00	0.0016	-0.1351
P10	3b	0.00	0.0016	-0.1304
P11	3b	0.00	0.0016	-0.1257
P12	3b	0.00	0.0016	-0.1210
P13	3b	0.00	0.0009	-0.1509
P14	3b	0.00	0.0009	-0.1461
P15	3b	0.00	0.0009	-0.1412
P16	3b	0.00	0.0009	-0.1364
P17	3b	0.00	0.0009	-0.1315
P18	3b	0.00	0.0009	-0.1267
P19	3b	0.00	0.0000	-0.1491
P20	3b	0.00	0.0000	-0.1443
P21	3b	0.00	0.0000	-0.1396
P22	3b	0.00	0.0000	-0.1349
P23	3b	0.00	0.0000	-0.1302
P24	3b	0.00	0.0000	-0.1254
P25	3b	0.00	-0.0009	-0.1531
P26	3b	0.00	-0.0009	-0.1483
P27	3b	0.00	-0.0009	-0.1434
P28	3b	0.00	-0.0009	-0.1386
P29	3b	0.00	-0.0009	-0.1337
P30	3b	0.00	-0.0009	-0.1289
P31	3b	0.00	-0.0015	-0.1487
P32	3b	0.00	-0.0015	-0.1440
P33	3b	0.00	-0.0015	-0.1393
P34	3b	0.00	-0.0016	-0.1346
P35	3b	0.00	-0.0016	-0.1298
P36	3b	0.00	-0.0016	-0.1251
P37	3b	0.00	-0.0027	-0.1504
P38	3b	0.00	-0.0027	-0.1455
P39	3b	0.00	-0.0027	-0.1407
P40	3b	0.00	-0.0027	-0.1359
P41	3b	0.00	-0.0027	-0.1311
P42	3b	0.00	-0.0027	-0.1262

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Deflections After Spring Calibration **Computed By:** LBR **Date:** Aug-13 **Page:** of

Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D1a	0.00	0.0029	-0.0755
P2	D1a	0.00	0.0029	-0.0707
P3	D1a	0.00	0.0029	-0.0658
P4	D1a	0.00	0.0029	-0.0610
P5	D1a	0.00	0.0029	-0.0562
P6	D1a	0.00	0.0029	-0.0514
P7	D1a	0.00	0.0022	-0.0751
P8	D1a	0.00	0.0022	-0.0703
P9	D1a	0.00	0.0022	-0.0656
P10	D1a	0.00	0.0022	-0.0609
P11	D1a	0.00	0.0022	-0.0562
P12	D1a	0.00	0.0022	-0.0515
P13	D1a	0.00	0.0014	-0.0777
P14	D1a	0.00	0.0014	-0.0729
P15	D1a	0.00	0.0014	-0.0680
P16	D1a	0.00	0.0014	-0.0632
P17	D1a	0.00	0.0014	-0.0583
P18	D1a	0.00	0.0014	-0.0535
P19	D1a	0.00	0.0000	-0.0756
P20	D1a	0.00	0.0000	-0.0709
P21	D1a	0.00	0.0000	-0.0662
P22	D1a	0.00	0.0000	-0.0615
P23	D1a	0.00	0.0000	-0.0567
P24	D1a	0.00	0.0000	-0.0520
P25	D1a	0.00	-0.0014	-0.0799
P26	D1a	0.00	-0.0014	-0.0751
P27	D1a	0.00	-0.0014	-0.0702
P28	D1a	0.00	-0.0014	-0.0654
P29	D1a	0.00	-0.0013	-0.0605
P30	D1a	0.00	-0.0013	-0.0557
P31	D1a	0.00	-0.0022	-0.0792
P32	D1a	0.00	-0.0022	-0.0745
P33	D1a	0.00	-0.0022	-0.0698
P34	D1a	0.00	-0.0022	-0.0651
P35	D1a	0.00	-0.0022	-0.0604
P36	D1a	0.00	-0.0022	-0.0556
P37	D1a	0.00	-0.0030	-0.0818
P38	D1a	0.00	-0.0030	-0.0770
P39	D1a	0.00	-0.0030	-0.0721
P40	D1a	0.00	-0.0030	-0.0673
P41	D1a	0.00	-0.0030	-0.0625
P42	D1a	0.00	-0.0029	-0.0577

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D1b	0.00	0.0025	-0.1428
P2	D1b	0.00	0.0025	-0.1380
P3	D1b	0.00	0.0025	-0.1332
P4	D1b	0.00	0.0025	-0.1284
P5	D1b	0.00	0.0025	-0.1235
P6	D1b	0.00	0.0025	-0.1187
P7	D1b	0.00	0.0017	-0.1432
P8	D1b	0.00	0.0017	-0.1385
P9	D1b	0.00	0.0017	-0.1338
P10	D1b	0.00	0.0017	-0.1291
P11	D1b	0.00	0.0017	-0.1243
P12	D1b	0.00	0.0017	-0.1196
P13	D1b	0.00	0.0012	-0.1478
P14	D1b	0.00	0.0011	-0.1430
P15	D1b	0.00	0.0011	-0.1381
P16	D1b	0.00	0.0011	-0.1333
P17	D1b	0.00	0.0011	-0.1284
P18	D1b	0.00	0.0011	-0.1236
P19	D1b	0.00	0.0000	-0.1454
P20	D1b	0.00	0.0000	-0.1407
P21	D1b	0.00	0.0000	-0.1360
P22	D1b	0.00	0.0000	-0.1313
P23	D1b	0.00	0.0000	-0.1265
P24	D1b	0.00	0.0000	-0.1218
P25	D1b	0.00	-0.0011	-0.1500
P26	D1b	0.00	-0.0011	-0.1452
P27	D1b	0.00	-0.0011	-0.1403
P28	D1b	0.00	-0.0011	-0.1355
P29	D1b	0.00	-0.0011	-0.1306
P30	D1b	0.00	-0.0011	-0.1258
P31	D1b	0.00	-0.0017	-0.1474
P32	D1b	0.00	-0.0017	-0.1426
P33	D1b	0.00	-0.0017	-0.1379
P34	D1b	0.00	-0.0017	-0.1332
P35	D1b	0.00	-0.0017	-0.1285
P36	D1b	0.00	-0.0017	-0.1238
P37	D1b	0.00	-0.0026	-0.1491
P38	D1b	0.00	-0.0026	-0.1443
P39	D1b	0.00	-0.0026	-0.1395
P40	D1b	0.00	-0.0026	-0.1347
P41	D1b	0.00	-0.0026	-0.1298
P42	D1b	0.00	-0.0025	-0.1250

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D2a	0.00	0.0033	-0.0615
P2	D2a	0.00	0.0033	-0.0566
P3	D2a	0.00	0.0033	-0.0518
P4	D2a	0.00	0.0033	-0.0470
P5	D2a	0.00	0.0033	-0.0422
P6	D2a	0.00	0.0033	-0.0373
P7	D2a	0.00	0.0024	-0.0629
P8	D2a	0.00	0.0024	-0.0582
P9	D2a	0.00	0.0024	-0.0535
P10	D2a	0.00	0.0024	-0.0488
P11	D2a	0.00	0.0024	-0.0441
P12	D2a	0.00	0.0024	-0.0394
P13	D2a	0.00	0.0012	-0.0693
P14	D2a	0.00	0.0012	-0.0644
P15	D2a	0.00	0.0012	-0.0596
P16	D2a	0.00	0.0012	-0.0547
P17	D2a	0.00	0.0012	-0.0499
P18	D2a	0.00	0.0012	-0.0450
P19	D2a	0.00	-0.0002	-0.0705
P20	D2a	0.00	-0.0002	-0.0657
P21	D2a	0.00	-0.0002	-0.0610
P22	D2a	0.00	-0.0002	-0.0563
P23	D2a	0.00	-0.0002	-0.0516
P24	D2a	0.00	-0.0002	-0.0469
P25	D2a	0.00	-0.0014	-0.0777
P26	D2a	0.00	-0.0014	-0.0728
P27	D2a	0.00	-0.0014	-0.0680
P28	D2a	0.00	-0.0014	-0.0631
P29	D2a	0.00	-0.0014	-0.0583
P30	D2a	0.00	-0.0014	-0.0534
P31	D2a	0.00	-0.0022	-0.0795
P32	D2a	0.00	-0.0022	-0.0748
P33	D2a	0.00	-0.0022	-0.0701
P34	D2a	0.00	-0.0022	-0.0654
P35	D2a	0.00	-0.0022	-0.0606
P36	D2a	0.00	-0.0022	-0.0559
P37	D2a	0.00	-0.0030	-0.0842
P38	D2a	0.00	-0.0030	-0.0794
P39	D2a	0.00	-0.0030	-0.0746
P40	D2a	0.00	-0.0030	-0.0697
P41	D2a	0.00	-0.0030	-0.0649
P42	D2a	0.00	-0.0030	-0.0601

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Deflections After Spring Calibration	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
		Checked By: BCB	**Date:** Aug-13	**Sheet:**	of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D2b	0.00	0.0029	-0.1288
P2	D2b	0.00	0.0029	-0.1240
P3	D2b	0.00	0.0029	-0.1192
P4	D2b	0.00	0.0029	-0.1143
P5	D2b	0.00	0.0029	-0.1095
P6	D2b	0.00	0.0029	-0.1047
P7	D2b	0.00	0.0019	-0.1311
P8	D2b	0.00	0.0019	-0.1263
P9	D2b	0.00	0.0019	-0.1216
P10	D2b	0.00	0.0019	-0.1169
P11	D2b	0.00	0.0019	-0.1122
P12	D2b	0.00	0.0019	-0.1075
P13	D2b	0.00	0.0010	-0.1394
P14	D2b	0.00	0.0010	-0.1345
P15	D2b	0.00	0.0010	-0.1297
P16	D2b	0.00	0.0010	-0.1248
P17	D2b	0.00	0.0010	-0.1200
P18	D2b	0.00	0.0010	-0.1151
P19	D2b	0.00	-0.0002	-0.1403
P20	D2b	0.00	-0.0002	-0.1356
P21	D2b	0.00	-0.0002	-0.1309
P22	D2b	0.00	-0.0002	-0.1261
P23	D2b	0.00	-0.0002	-0.1214
P24	D2b	0.00	-0.0002	-0.1167
P25	D2b	0.00	-0.0012	-0.1478
P26	D2b	0.00	-0.0012	-0.1429
P27	D2b	0.00	-0.0012	-0.1381
P28	D2b	0.00	-0.0012	-0.1332
P29	D2b	0.00	-0.0012	-0.1284
P30	D2b	0.00	-0.0012	-0.1235
P31	D2b	0.00	-0.0017	-0.1476
P32	D2b	0.00	-0.0017	-0.1429
P33	D2b	0.00	-0.0017	-0.1382
P34	D2b	0.00	-0.0017	-0.1335
P35	D2b	0.00	-0.0017	-0.1288
P36	D2b	0.00	-0.0017	-0.1241
P37	D2b	0.00	-0.0026	-0.1516
P38	D2b	0.00	-0.0026	-0.1467
P39	D2b	0.00	-0.0026	-0.1419
P40	D2b	0.00	-0.0026	-0.1371
P41	D2b	0.00	-0.0026	-0.1323
P42	D2b	0.00	-0.0026	-0.1274

Vertical Reactions:

MAXIMUM DISP. = -0.03627 kips
MINIMUM DISP. = -0.15644 kips

Horizontal (F1) Reactions:

MAXIMUM DISP. = 0.00022 kips
MINIMUM DISP. = -0.00020 kips

Horizontal (F2) Reactions:

MAXIMUM DISP. = 0.00331 kips
MINIMUM DISP. = -0.09116 kips

Maximum horizontal displacement is 0.0912". Maximum allowable deflection is 0.75" (for load cases without allowable overstress). Maximum vertical deflection is 0.1564", which is less than the maximum allowable 0.5". Therefore, all deflections OK.

Also note that the lateral deflection is very close to the assumed spring value of 0.091". The spring has converged.

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Reactions	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	After Spring Calibration - SETTLEMENT	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

* Using Tip EL -100.0 & Lateral Spring for 8.5k force (93.4 k/in)

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a-ST	0.00	-0.45	250.79
P2	1a-ST	0.00	-0.45	241.81
P3	1a-ST	0.00	-0.44	232.84
P4	1a-ST	0.00	-0.44	223.86
P5	1a-ST	0.00	-0.44	214.88
P6	1a-ST	0.00	-0.44	205.91
P7	1a-ST	0.02	-0.29	244.55
P8	1a-ST	0.01	-0.29	235.75
P9	1a-ST	0.00	-0.29	227.01
P10	1a-ST	0.00	-0.29	218.25
P11	1a-ST	-0.01	-0.29	209.47
P12	1a-ST	-0.02	-0.29	200.70
P13	1a-ST	0.00	-0.14	252.18
P14	1a-ST	0.00	-0.14	243.16
P15	1a-ST	0.00	-0.14	234.13
P16	1a-ST	0.00	-0.14	225.11
P17	1a-ST	0.00	-0.14	216.09
P18	1a-ST	0.00	-0.14	207.07
P19	1a-ST	0.02	0.00	247.69
P20	1a-ST	0.01	0.00	238.87
P21	1a-ST	0.00	0.00	230.11
P22	1a-ST	0.00	0.00	221.33
P23	1a-ST	-0.01	0.00	212.52
P24	1a-ST	-0.02	0.00	203.73
P25	1a-ST	0.00	0.13	256.26
P26	1a-ST	0.00	0.13	247.23
P27	1a-ST	0.00	0.13	238.21
P28	1a-ST	0.00	0.13	229.19
P29	1a-ST	0.00	0.13	220.17
P30	1a-ST	0.00	0.13	211.14
P31	1a-ST	0.02	0.28	252.30
P32	1a-ST	0.01	0.28	243.50
P33	1a-ST	0.00	0.28	234.76
P34	1a-ST	0.00	0.28	226.00
P35	1a-ST	-0.01	0.28	217.21
P36	1a-ST	-0.02	0.28	208.45
P37	1a-ST	0.00	0.45	262.53
P38	1a-ST	0.00	0.45	253.55
P39	1a-ST	0.00	0.45	244.57
P40	1a-ST	0.00	0.45	235.60
P41	1a-ST	0.00	0.45	226.62
P42	1a-ST	0.00	0.45	217.64

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b-ST	0.00	8.23	73.21
P2	1b-ST	0.00	8.23	73.21
P3	1b-ST	0.00	8.23	73.21
P4	1b-ST	0.00	8.23	73.21
P5	1b-ST	0.00	8.23	73.21
P6	1b-ST	0.00	8.23	73.21
P7	1b-ST	0.01	8.28	67.37
P8	1b-ST	0.00	8.28	67.36
P9	1b-ST	0.00	8.28	67.37
P10	1b-ST	0.00	8.28	67.37
P11	1b-ST	0.00	8.28	67.36
P12	1b-ST	-0.01	8.28	67.37
P13	1b-ST	0.00	8.37	65.58
P14	1b-ST	0.00	8.37	65.58
P15	1b-ST	0.00	8.37	65.58
P16	1b-ST	0.00	8.37	65.58
P17	1b-ST	0.00	8.37	65.58
P18	1b-ST	0.00	8.37	65.58
P19	1b-ST	0.01	8.45	63.27
P20	1b-ST	0.00	8.45	63.27
P21	1b-ST	0.00	8.45	63.27
P22	1b-ST	0.00	8.45	63.27
P23	1b-ST	0.00	8.45	63.27
P24	1b-ST	-0.01	8.45	63.27
P25	1b-ST	0.00	8.53	65.56
P26	1b-ST	0.00	8.53	65.56
P27	1b-ST	0.00	8.53	65.56
P28	1b-ST	0.00	8.53	65.56
P29	1b-ST	0.00	8.53	65.56
P30	1b-ST	0.00	8.53	65.56
P31	1b-ST	0.01	8.62	67.21
P32	1b-ST	0.00	8.62	67.21
P33	1b-ST	0.00	8.62	67.21
P34	1b-ST	0.00	8.62	67.21
P35	1b-ST	0.00	8.62	67.21
P36	1b-ST	-0.01	8.62	67.21
P37	1b-ST	0.00	8.63	71.74
P38	1b-ST	0.00	8.63	71.74
P39	1b-ST	0.00	8.63	71.74
P40	1b-ST	0.00	8.63	71.74
P41	1b-ST	0.00	8.63	71.74
P42	1b-ST	0.00	8.63	71.74

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a-ST	0.00	-0.47	159.24
P2	2a-ST	0.00	-0.47	150.26
P3	2a-ST	0.00	-0.47	141.28
P4	2a-ST	0.00	-0.47	132.31
P5	2a-ST	0.00	-0.47	123.33
P6	2a-ST	0.00	-0.47	114.35
P7	2a-ST	0.02	-0.33	152.12
P8	2a-ST	0.01	-0.33	143.32
P9	2a-ST	0.00	-0.33	134.57
P10	2a-ST	0.00	-0.33	125.81
P11	2a-ST	0.00	-0.33	117.04
P12	2a-ST	-0.02	-0.33	108.27
P13	2a-ST	0.00	-0.16	156.90
P14	2a-ST	0.00	-0.16	147.88
P15	2a-ST	0.00	-0.16	138.85
P16	2a-ST	0.00	-0.16	129.83
P17	2a-ST	0.00	-0.16	120.81
P18	2a-ST	0.00	-0.16	111.79
P19	2a-ST	0.02	0.00	152.97
P20	2a-ST	0.00	0.00	144.15
P21	2a-ST	0.00	0.00	135.38
P22	2a-ST	0.00	0.00	126.59
P23	2a-ST	-0.01	0.00	117.80
P24	2a-ST	-0.02	0.00	109.00
P25	2a-ST	0.00	0.15	160.98
P26	2a-ST	0.00	0.15	151.95
P27	2a-ST	0.00	0.15	142.93
P28	2a-ST	0.00	0.15	133.91
P29	2a-ST	0.00	0.15	124.88
P30	2a-ST	0.00	0.15	115.86
P31	2a-ST	0.02	0.33	159.86
P32	2a-ST	0.01	0.33	151.07
P33	2a-ST	0.00	0.33	142.32
P34	2a-ST	0.00	0.33	133.56
P35	2a-ST	0.00	0.33	124.79
P36	2a-ST	-0.02	0.33	116.01
P37	2a-ST	0.00	0.48	170.97
P38	2a-ST	0.00	0.48	162.00
P39	2a-ST	0.00	0.48	153.02
P40	2a-ST	0.00	0.48	144.04
P41	2a-ST	0.00	0.47	135.07
P42	2a-ST	0.00	0.47	126.09

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of

After Spring Calibration - SETTLEMENT **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b-ST	0.00	-0.40	260.50
P2	2b-ST	0.00	-0.40	251.52
P3	2b-ST	0.00	-0.40	242.54
P4	2b-ST	0.00	-0.40	233.57
P5	2b-ST	0.00	-0.40	224.59
P6	2b-ST	0.00	-0.40	215.61
P7	2b-ST	0.02	-0.24	254.84
P8	2b-ST	0.01	-0.24	246.03
P9	2b-ST	0.00	-0.24	237.30
P10	2b-ST	0.00	-0.24	228.54
P11	2b-ST	0.00	-0.24	219.75
P12	2b-ST	-0.02	-0.24	210.98
P13	2b-ST	0.00	-0.11	262.97
P14	2b-ST	0.00	-0.11	253.95
P15	2b-ST	0.00	-0.11	244.93
P16	2b-ST	0.00	-0.11	235.90
P17	2b-ST	0.00	-0.11	226.88
P18	2b-ST	0.00	-0.11	217.86
P19	2b-ST	0.01	0.00	258.84
P20	2b-ST	0.00	0.00	250.01
P21	2b-ST	0.00	0.00	241.26
P22	2b-ST	0.00	0.00	232.47
P23	2b-ST	-0.01	0.00	223.66
P24	2b-ST	-0.02	0.00	214.87
P25	2b-ST	0.00	0.11	267.05
P26	2b-ST	0.00	0.11	258.03
P27	2b-ST	0.00	0.11	249.00
P28	2b-ST	0.00	0.11	239.98
P29	2b-ST	0.00	0.11	230.96
P30	2b-ST	0.00	0.11	221.94
P31	2b-ST	0.02	0.24	262.58
P32	2b-ST	0.01	0.24	253.78
P33	2b-ST	0.00	0.24	245.04
P34	2b-ST	0.00	0.24	236.28
P35	2b-ST	0.00	0.24	227.50
P36	2b-ST	-0.02	0.24	218.73
P37	2b-ST	0.00	0.41	272.23
P38	2b-ST	0.00	0.41	263.26
P39	2b-ST	0.00	0.41	254.28
P40	2b-ST	0.00	0.41	245.30
P41	2b-ST	0.00	0.41	236.33
P42	2b-ST	0.00	0.41	227.35

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a-ST	0.00	-0.44	213.58
P2	3a-ST	0.00	-0.44	204.60
P3	3a-ST	0.00	-0.44	195.63
P4	3a-ST	0.00	-0.44	186.65
P5	3a-ST	0.00	-0.44	177.67
P6	3a-ST	0.00	-0.44	168.70
P7	3a-ST	0.02	-0.30	207.10
P8	3a-ST	0.01	-0.30	198.30
P9	3a-ST	0.00	-0.30	189.56
P10	3a-ST	0.00	-0.30	180.80
P11	3a-ST	0.00	-0.30	172.02
P12	3a-ST	-0.02	-0.30	163.25
P13	3a-ST	0.00	-0.14	213.47
P14	3a-ST	0.00	-0.14	204.45
P15	3a-ST	0.00	-0.14	195.42
P16	3a-ST	0.00	-0.14	186.40
P17	3a-ST	0.00	-0.14	177.38
P18	3a-ST	0.00	-0.14	168.36
P19	3a-ST	0.02	0.00	209.31
P20	3a-ST	0.00	0.00	200.49
P21	3a-ST	0.00	0.00	191.72
P22	3a-ST	0.00	0.00	182.94
P23	3a-ST	-0.01	0.00	174.14
P24	3a-ST	-0.02	0.00	165.34
P25	3a-ST	0.00	0.14	217.55
P26	3a-ST	0.00	0.14	208.52
P27	3a-ST	0.00	0.14	199.50
P28	3a-ST	0.00	0.14	190.48
P29	3a-ST	0.00	0.14	181.45
P30	3a-ST	0.00	0.13	172.43
P31	3a-ST	0.02	0.29	214.85
P32	3a-ST	0.01	0.29	206.05
P33	3a-ST	0.00	0.29	197.31
P34	3a-ST	0.00	0.29	188.54
P35	3a-ST	0.00	0.29	179.77
P36	3a-ST	-0.02	0.29	170.99
P37	3a-ST	0.00	0.45	225.32
P38	3a-ST	0.00	0.45	216.34
P39	3a-ST	0.00	0.45	207.36
P40	3a-ST	0.00	0.45	198.39
P41	3a-ST	0.00	0.45	189.41
P42	3a-ST	0.00	0.45	180.43

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b-ST	0.00	-0.41	256.73
P2	3b-ST	0.00	-0.41	247.76
P3	3b-ST	0.00	-0.41	238.78
P4	3b-ST	0.00	-0.41	229.80
P5	3b-ST	0.00	-0.41	220.83
P6	3b-ST	0.00	-0.41	211.85
P7	3b-ST	0.02	-0.25	251.02
P8	3b-ST	0.01	-0.25	242.21
P9	3b-ST	0.00	-0.25	233.48
P10	3b-ST	0.00	-0.25	224.72
P11	3b-ST	0.00	-0.25	215.93
P12	3b-ST	-0.02	-0.25	207.16
P13	3b-ST	0.00	-0.12	258.94
P14	3b-ST	0.00	-0.12	249.92
P15	3b-ST	0.00	-0.12	240.90
P16	3b-ST	0.00	-0.12	231.87
P17	3b-ST	0.00	-0.12	222.85
P18	3b-ST	0.00	-0.12	213.83
P19	3b-ST	0.01	0.00	254.77
P20	3b-ST	0.00	0.00	245.95
P21	3b-ST	0.00	0.00	237.19
P22	3b-ST	0.00	0.00	228.41
P23	3b-ST	-0.01	0.00	219.60
P24	3b-ST	-0.02	0.00	210.81
P25	3b-ST	0.00	0.11	263.02
P26	3b-ST	0.00	0.11	254.00
P27	3b-ST	0.00	0.11	244.97
P28	3b-ST	0.00	0.11	235.95
P29	3b-ST	0.00	0.11	226.93
P30	3b-ST	0.00	0.11	217.91
P31	3b-ST	0.02	0.25	258.76
P32	3b-ST	0.01	0.25	249.96
P33	3b-ST	0.00	0.25	241.22
P34	3b-ST	0.00	0.25	232.46
P35	3b-ST	0.00	0.25	223.68
P36	3b-ST	-0.02	0.25	214.91
P37	3b-ST	0.00	0.42	268.47
P38	3b-ST	0.00	0.42	259.49
P39	3b-ST	0.00	0.42	250.52
P40	3b-ST	0.00	0.42	241.54
P41	3b-ST	0.00	0.42	232.56
P42	3b-ST	0.00	0.41	223.59

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of

After Spring Calibration - SETTLEMENT **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a-ST	0.00	-0.43	173.35
P2	D1a-ST	0.00	-0.43	164.37
P3	D1a-ST	0.00	-0.43	155.39
P4	D1a-ST	0.00	-0.43	146.42
P5	D1a-ST	0.00	-0.43	137.44
P6	D1a-ST	0.00	-0.43	128.46
P7	D1a-ST	0.01	-0.31	166.53
P8	D1a-ST	0.01	-0.31	157.73
P9	D1a-ST	0.00	-0.31	148.99
P10	D1a-ST	0.00	-0.32	140.23
P11	D1a-ST	0.00	-0.32	131.45
P12	D1a-ST	-0.01	-0.32	122.68
P13	D1a-ST	0.00	-0.17	169.90
P14	D1a-ST	0.00	-0.17	160.88
P15	D1a-ST	0.00	-0.17	151.86
P16	D1a-ST	0.00	-0.16	142.83
P17	D1a-ST	0.00	-0.16	133.81
P18	D1a-ST	0.00	-0.16	124.79
P19	D1a-ST	0.02	0.00	165.46
P20	D1a-ST	0.00	0.00	156.64
P21	D1a-ST	0.00	0.00	147.87
P22	D1a-ST	0.00	0.00	139.09
P23	D1a-ST	-0.01	0.00	130.29
P24	D1a-ST	-0.02	0.00	121.50
P25	D1a-ST	0.00	0.16	173.98
P26	D1a-ST	0.00	0.16	164.96
P27	D1a-ST	0.00	0.16	155.93
P28	D1a-ST	0.00	0.16	146.91
P29	D1a-ST	0.00	0.16	137.89
P30	D1a-ST	0.00	0.16	128.87
P31	D1a-ST	0.01	0.31	174.28
P32	D1a-ST	0.01	0.31	165.48
P33	D1a-ST	0.00	0.31	156.73
P34	D1a-ST	0.00	0.31	147.97
P35	D1a-ST	0.00	0.31	139.20
P36	D1a-ST	-0.01	0.31	130.43
P37	D1a-ST	0.00	0.44	185.08
P38	D1a-ST	0.00	0.44	176.11
P39	D1a-ST	0.00	0.44	167.13
P40	D1a-ST	0.00	0.44	158.15
P41	D1a-ST	0.00	0.44	149.18
P42	D1a-ST	0.00	0.44	140.20

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b-ST	0.00	-0.39	255.24
P2	D1b-ST	0.00	-0.39	246.27
P3	D1b-ST	0.00	-0.39	237.29
P4	D1b-ST	0.00	-0.39	228.31
P5	D1b-ST	0.00	-0.39	219.34
P6	D1b-ST	0.00	-0.39	210.36
P7	D1b-ST	0.01	-0.27	249.39
P8	D1b-ST	0.01	-0.27	240.59
P9	D1b-ST	0.00	-0.27	231.85
P10	D1b-ST	0.00	-0.27	223.09
P11	D1b-ST	0.00	-0.27	214.31
P12	D1b-ST	-0.01	-0.27	205.54
P13	D1b-ST	0.00	-0.14	255.16
P14	D1b-ST	0.00	-0.14	246.13
P15	D1b-ST	0.00	-0.14	237.11
P16	D1b-ST	0.00	-0.14	228.09
P17	D1b-ST	0.00	-0.14	219.06
P18	D1b-ST	0.00	-0.14	210.04
P19	D1b-ST	0.02	0.00	250.37
P20	D1b-ST	0.01	0.00	241.55
P21	D1b-ST	0.00	0.00	232.79
P22	D1b-ST	0.00	0.00	224.01
P23	D1b-ST	-0.01	0.00	215.20
P24	D1b-ST	-0.02	0.00	206.41
P25	D1b-ST	0.00	0.14	259.23
P26	D1b-ST	0.00	0.14	250.21
P27	D1b-ST	0.00	0.14	241.19
P28	D1b-ST	0.00	0.14	232.16
P29	D1b-ST	0.00	0.14	223.14
P30	D1b-ST	0.00	0.14	214.12
P31	D1b-ST	0.01	0.26	257.14
P32	D1b-ST	0.01	0.26	248.34
P33	D1b-ST	0.00	0.26	239.60
P34	D1b-ST	0.00	0.26	230.84
P35	D1b-ST	0.00	0.26	222.05
P36	D1b-ST	-0.01	0.26	213.29
P37	D1b-ST	0.00	0.40	266.98
P38	D1b-ST	0.00	0.40	258.00
P39	D1b-ST	0.00	0.40	249.03
P40	D1b-ST	0.00	0.40	240.05
P41	D1b-ST	0.00	0.40	231.07
P42	D1b-ST	0.00	0.40	222.10

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a-ST	0.00	-0.47	156.29
P2	D2a-ST	0.00	-0.47	147.31
P3	D2a-ST	0.00	-0.47	138.34
P4	D2a-ST	0.00	-0.46	129.36
P5	D2a-ST	0.00	-0.46	120.38
P6	D2a-ST	0.00	-0.46	111.41
P7	D2a-ST	0.02	-0.33	151.78
P8	D2a-ST	0.01	-0.33	142.99
P9	D2a-ST	0.00	-0.33	134.24
P10	D2a-ST	0.00	-0.33	125.48
P11	D2a-ST	0.00	-0.33	116.71
P12	D2a-ST	-0.02	-0.33	107.93
P13	D2a-ST	0.00	-0.15	159.63
P14	D2a-ST	0.00	-0.15	150.61
P15	D2a-ST	0.00	-0.15	141.58
P16	D2a-ST	0.00	-0.15	132.56
P17	D2a-ST	0.00	-0.15	123.54
P18	D2a-ST	0.00	-0.15	114.52
P19	D2a-ST	0.02	0.02	159.21
P20	D2a-ST	0.00	0.02	150.40
P21	D2a-ST	0.00	0.02	141.62
P22	D2a-ST	0.00	0.02	132.84
P23	D2a-ST	-0.01	0.02	124.05
P24	D2a-ST	-0.02	0.02	115.25
P25	D2a-ST	0.00	0.17	171.25
P26	D2a-ST	0.00	0.17	162.23
P27	D2a-ST	0.00	0.17	153.20
P28	D2a-ST	0.00	0.17	144.18
P29	D2a-ST	0.00	0.17	135.16
P30	D2a-ST	0.00	0.17	126.14
P31	D2a-ST	0.01	0.31	174.61
P32	D2a-ST	0.01	0.31	165.81
P33	D2a-ST	0.00	0.31	157.07
P34	D2a-ST	0.00	0.31	148.31
P35	D2a-ST	0.00	0.31	139.53
P36	D2a-ST	-0.01	0.31	130.76
P37	D2a-ST	0.00	0.44	188.03
P38	D2a-ST	0.00	0.44	179.05
P39	D2a-ST	0.00	0.44	170.08
P40	D2a-ST	0.00	0.44	161.10
P41	D2a-ST	0.00	0.44	152.12
P42	D2a-ST	0.00	0.44	143.15

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Reactions	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	After Spring Calibration - SETTLEMENT	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b-ST	0.00	-0.43	238.19
P2	D2b-ST	0.00	-0.43	229.21
P3	D2b-ST	0.00	-0.43	220.24
P4	D2b-ST	0.00	-0.43	211.26
P5	D2b-ST	0.00	-0.43	202.28
P6	D2b-ST	0.00	-0.43	193.31
P7	D2b-ST	0.02	-0.28	234.65
P8	D2b-ST	0.01	-0.28	225.84
P9	D2b-ST	0.00	-0.28	217.11
P10	D2b-ST	0.00	-0.28	208.35
P11	D2b-ST	0.00	-0.28	199.56
P12	D2b-ST	-0.02	-0.28	190.79
P13	D2b-ST	0.00	-0.13	244.88
P14	D2b-ST	0.00	-0.13	235.86
P15	D2b-ST	0.00	-0.13	226.84
P16	D2b-ST	0.00	-0.13	217.81
P17	D2b-ST	0.00	-0.12	208.79
P18	D2b-ST	0.00	-0.12	199.77
P19	D2b-ST	0.02	0.02	244.12
P20	D2b-ST	0.00	0.02	235.30
P21	D2b-ST	0.00	0.02	226.54
P22	D2b-ST	0.00	0.02	217.76
P23	D2b-ST	-0.01	0.02	208.95
P24	D2b-ST	-0.02	0.02	200.16
P25	D2b-ST	0.00	0.15	256.50
P26	D2b-ST	0.00	0.15	247.48
P27	D2b-ST	0.00	0.14	238.46
P28	D2b-ST	0.00	0.14	229.43
P29	D2b-ST	0.00	0.14	220.41
P30	D2b-ST	0.00	0.14	211.39
P31	D2b-ST	0.01	0.26	257.47
P32	D2b-ST	0.01	0.26	248.67
P33	D2b-ST	0.00	0.26	239.93
P34	D2b-ST	0.00	0.26	231.17
P35	D2b-ST	0.00	0.26	222.39
P36	D2b-ST	-0.01	0.26	213.62
P37	D2b-ST	0.00	0.40	269.93
P38	D2b-ST	0.00	0.40	260.95
P39	D2b-ST	0.00	0.40	251.97
P40	D2b-ST	0.00	0.40	243.00
P41	D2b-ST	0.00	0.40	234.02
P42	D2b-ST	0.00	0.40	225.04

Vertical Reactions:

MAXIMUM REACTION =	272.23	kips
MINIMUM REACTION =	63.27	kips

Horizontal (F1) Reactions:

MAXIMUM REACTION =	0.02	kips
MINIMUM REACTION =	-0.02	kips

Horizontal (F2) Reactions:

MAXIMUM REACTION =	8.63	kips
MINIMUM REACTION =	-0.47	kips

* Pile lengths are not being adjusted based on settlement forces. A structural check of the piles will be performed using the pile lengths for the traditional cases. If the structural check is ok for -ST cases, then they will be deemed adequate at EL. -100.0. Also, a punching shear check of the slab will be performed.

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876		
Desc.:	C-2 to C-4 Model Pile Deflections	**Computed By:**	LBR	**Date:** Aug-13	**Page:** of
	After Spring Calibration - SETTLEMENT	**Checked By:**	BCB	**Date:** Aug-13	**Sheet:** of

* Using Tip EL -100.0 & Lateral Spring for 8.5k force (93.4 k/in)

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	1a-ST	0.00	0.0048	-0.2062
P2	1a-ST	0.00	0.0048	-0.1988
P3	1a-ST	0.00	0.0048	-0.1915
P4	1a-ST	0.00	0.0048	-0.1841
P5	1a-ST	0.00	0.0047	-0.1767
P6	1a-ST	0.00	0.0047	-0.1693
P7	1a-ST	0.00	0.0031	-0.2011
P8	1a-ST	0.00	0.0031	-0.1939
P9	1a-ST	0.00	0.0031	-0.1867
P10	1a-ST	0.00	0.0031	-0.1795
P11	1a-ST	0.00	0.0031	-0.1722
P12	1a-ST	0.00	0.0031	-0.1650
P13	1a-ST	0.00	0.0015	-0.2074
P14	1a-ST	0.00	0.0015	-0.1999
P15	1a-ST	0.00	0.0015	-0.1925
P16	1a-ST	0.00	0.0015	-0.1851
P17	1a-ST	0.00	0.0015	-0.1777
P18	1a-ST	0.00	0.0015	-0.1703
P19	1a-ST	0.00	0.0000	-0.2037
P20	1a-ST	0.00	0.0000	-0.1964
P21	1a-ST	0.00	0.0000	-0.1892
P22	1a-ST	0.00	0.0000	-0.1820
P23	1a-ST	0.00	0.0000	-0.1748
P24	1a-ST	0.00	0.0000	-0.1675
P25	1a-ST	0.00	-0.0014	-0.2107
P26	1a-ST	0.00	-0.0014	-0.2033
P27	1a-ST	0.00	-0.0014	-0.1959
P28	1a-ST	0.00	-0.0014	-0.1885
P29	1a-ST	0.00	-0.0014	-0.1810
P30	1a-ST	0.00	-0.0014	-0.1736
P31	1a-ST	0.00	-0.0030	-0.2075
P32	1a-ST	0.00	-0.0030	-0.2002
P33	1a-ST	0.00	-0.0030	-0.1930
P34	1a-ST	0.00	-0.0030	-0.1858
P35	1a-ST	0.00	-0.0030	-0.1786
P36	1a-ST	0.00	-0.0030	-0.1714
P37	1a-ST	0.00	-0.0049	-0.2159
P38	1a-ST	0.00	-0.0049	-0.2085
P39	1a-ST	0.00	-0.0049	-0.2011
P40	1a-ST	0.00	-0.0048	-0.1937
P41	1a-ST	0.00	-0.0048	-0.1864
P42	1a-ST	0.00	-0.0048	-0.1790

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	1b-ST	0.00	-0.0881	-0.0602
P2	1b-ST	0.00	-0.0881	-0.0602
P3	1b-ST	0.00	-0.0881	-0.0602
P4	1b-ST	0.00	-0.0881	-0.0602
P5	1b-ST	0.00	-0.0881	-0.0602
P6	1b-ST	0.00	-0.0881	-0.0602
P7	1b-ST	0.00	-0.0886	-0.0554
P8	1b-ST	0.00	-0.0886	-0.0554
P9	1b-ST	0.00	-0.0886	-0.0554
P10	1b-ST	0.00	-0.0886	-0.0554
P11	1b-ST	0.00	-0.0886	-0.0554
P12	1b-ST	0.00	-0.0886	-0.0554
P13	1b-ST	0.00	-0.0896	-0.0539
P14	1b-ST	0.00	-0.0896	-0.0539
P15	1b-ST	0.00	-0.0896	-0.0539
P16	1b-ST	0.00	-0.0896	-0.0539
P17	1b-ST	0.00	-0.0896	-0.0539
P18	1b-ST	0.00	-0.0896	-0.0539
P19	1b-ST	0.00	-0.0905	-0.0520
P20	1b-ST	0.00	-0.0905	-0.0520
P21	1b-ST	0.00	-0.0905	-0.0520
P22	1b-ST	0.00	-0.0905	-0.0520
P23	1b-ST	0.00	-0.0905	-0.0520
P24	1b-ST	0.00	-0.0905	-0.0520
P25	1b-ST	0.00	-0.0913	-0.0539
P26	1b-ST	0.00	-0.0913	-0.0539
P27	1b-ST	0.00	-0.0913	-0.0539
P28	1b-ST	0.00	-0.0913	-0.0539
P29	1b-ST	0.00	-0.0913	-0.0539
P30	1b-ST	0.00	-0.0913	-0.0539
P31	1b-ST	0.00	-0.0923	-0.0553
P32	1b-ST	0.00	-0.0923	-0.0553
P33	1b-ST	0.00	-0.0923	-0.0553
P34	1b-ST	0.00	-0.0923	-0.0553
P35	1b-ST	0.00	-0.0923	-0.0553
P36	1b-ST	0.00	-0.0923	-0.0553
P37	1b-ST	0.00	-0.0923	-0.0590
P38	1b-ST	0.00	-0.0923	-0.0590
P39	1b-ST	0.00	-0.0923	-0.0590
P40	1b-ST	0.00	-0.0923	-0.0590
P41	1b-ST	0.00	-0.0923	-0.0590
P42	1b-ST	0.00	-0.0923	-0.0590

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	2a-ST	0.00	0.0050	-0.1309
P2	2a-ST	0.00	0.0050	-0.1236
P3	2a-ST	0.00	0.0050	-0.1162
P4	2a-ST	0.00	0.0050	-0.1088
P5	2a-ST	0.00	0.0050	-0.1014
P6	2a-ST	0.00	0.0050	-0.0940
P7	2a-ST	0.00	0.0035	-0.1251
P8	2a-ST	0.00	0.0035	-0.1179
P9	2a-ST	0.00	0.0035	-0.1107
P10	2a-ST	0.00	0.0035	-0.1035
P11	2a-ST	0.00	0.0035	-0.0962
P12	2a-ST	0.00	0.0035	-0.0890
P13	2a-ST	0.00	0.0017	-0.1290
P14	2a-ST	0.00	0.0017	-0.1216
P15	2a-ST	0.00	0.0017	-0.1142
P16	2a-ST	0.00	0.0017	-0.1068
P17	2a-ST	0.00	0.0017	-0.0993
P18	2a-ST	0.00	0.0017	-0.0919
P19	2a-ST	0.00	0.0000	-0.1258
P20	2a-ST	0.00	0.0000	-0.1185
P21	2a-ST	0.00	0.0000	-0.1113
P22	2a-ST	0.00	0.0000	-0.1041
P23	2a-ST	0.00	0.0000	-0.0969
P24	2a-ST	0.00	0.0000	-0.0896
P25	2a-ST	0.00	-0.0016	-0.1324
P26	2a-ST	0.00	-0.0016	-0.1250
P27	2a-ST	0.00	-0.0016	-0.1175
P28	2a-ST	0.00	-0.0016	-0.1101
P29	2a-ST	0.00	-0.0016	-0.1027
P30	2a-ST	0.00	-0.0016	-0.0953
P31	2a-ST	0.00	-0.0035	-0.1315
P32	2a-ST	0.00	-0.0035	-0.1242
P33	2a-ST	0.00	-0.0035	-0.1170
P34	2a-ST	0.00	-0.0035	-0.1098
P35	2a-ST	0.00	-0.0035	-0.1026
P36	2a-ST	0.00	-0.0035	-0.0954
P37	2a-ST	0.00	-0.0051	-0.1406
P38	2a-ST	0.00	-0.0051	-0.1332
P39	2a-ST	0.00	-0.0051	-0.1258
P40	2a-ST	0.00	-0.0051	-0.1184
P41	2a-ST	0.00	-0.0051	-0.1111
P42	2a-ST	0.00	-0.0051	-0.1037

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Deflections **Computed By:** LBR **Date:** Aug-13 **Page:** of

After Spring Calibration - SETTLEMENT **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	2b-ST	0.00	0.0043	-0.2142
P2	2b-ST	0.00	0.0043	-0.2068
P3	2b-ST	0.00	0.0043	-0.1994
P4	2b-ST	0.00	0.0043	-0.1921
P5	2b-ST	0.00	0.0043	-0.1847
P6	2b-ST	0.00	0.0043	-0.1773
P7	2b-ST	0.00	0.0026	-0.2096
P8	2b-ST	0.00	0.0026	-0.2023
P9	2b-ST	0.00	0.0026	-0.1951
P10	2b-ST	0.00	0.0026	-0.1879
P11	2b-ST	0.00	0.0026	-0.1807
P12	2b-ST	0.00	0.0026	-0.1735
P13	2b-ST	0.00	0.0012	-0.2162
P14	2b-ST	0.00	0.0012	-0.2088
P15	2b-ST	0.00	0.0012	-0.2014
P16	2b-ST	0.00	0.0012	-0.1940
P17	2b-ST	0.00	0.0012	-0.1866
P18	2b-ST	0.00	0.0012	-0.1791
P19	2b-ST	0.00	0.0000	-0.2128
P20	2b-ST	0.00	0.0000	-0.2056
P21	2b-ST	0.00	0.0000	-0.1984
P22	2b-ST	0.00	0.0000	-0.1912
P23	2b-ST	0.00	0.0000	-0.1839
P24	2b-ST	0.00	0.0000	-0.1767
P25	2b-ST	0.00	-0.0012	-0.2196
P26	2b-ST	0.00	-0.0012	-0.2122
P27	2b-ST	0.00	-0.0012	-0.2048
P28	2b-ST	0.00	-0.0012	-0.1973
P29	2b-ST	0.00	-0.0012	-0.1899
P30	2b-ST	0.00	-0.0012	-0.1825
P31	2b-ST	0.00	-0.0026	-0.2159
P32	2b-ST	0.00	-0.0026	-0.2087
P33	2b-ST	0.00	-0.0026	-0.2015
P34	2b-ST	0.00	-0.0026	-0.1943
P35	2b-ST	0.00	-0.0026	-0.1871
P36	2b-ST	0.00	-0.0026	-0.1799
P37	2b-ST	0.00	-0.0044	-0.2239
P38	2b-ST	0.00	-0.0044	-0.2165
P39	2b-ST	0.00	-0.0044	-0.2091
P40	2b-ST	0.00	-0.0044	-0.2017
P41	2b-ST	0.00	-0.0044	-0.1943
P42	2b-ST	0.00	-0.0044	-0.1870

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	3a-ST	0.00	0.0048	-0.1756
P2	3a-ST	0.00	0.0047	-0.1682
P3	3a-ST	0.00	0.0047	-0.1609
P4	3a-ST	0.00	0.0047	-0.1535
P5	3a-ST	0.00	0.0047	-0.1461
P6	3a-ST	0.00	0.0047	-0.1387
P7	3a-ST	0.00	0.0032	-0.1703
P8	3a-ST	0.00	0.0032	-0.1631
P9	3a-ST	0.00	0.0032	-0.1559
P10	3a-ST	0.00	0.0032	-0.1487
P11	3a-ST	0.00	0.0032	-0.1415
P12	3a-ST	0.00	0.0032	-0.1342
P13	3a-ST	0.00	0.0015	-0.1755
P14	3a-ST	0.00	0.0015	-0.1681
P15	3a-ST	0.00	0.0015	-0.1607
P16	3a-ST	0.00	0.0015	-0.1533
P17	3a-ST	0.00	0.0015	-0.1459
P18	3a-ST	0.00	0.0015	-0.1384
P19	3a-ST	0.00	0.0000	-0.1721
P20	3a-ST	0.00	0.0000	-0.1649
P21	3a-ST	0.00	0.0000	-0.1577
P22	3a-ST	0.00	0.0000	-0.1504
P23	3a-ST	0.00	0.0000	-0.1432
P24	3a-ST	0.00	0.0000	-0.1360
P25	3a-ST	0.00	-0.0015	-0.1789
P26	3a-ST	0.00	-0.0015	-0.1715
P27	3a-ST	0.00	-0.0015	-0.1640
P28	3a-ST	0.00	-0.0015	-0.1566
P29	3a-ST	0.00	-0.0014	-0.1492
P30	3a-ST	0.00	-0.0014	-0.1418
P31	3a-ST	0.00	-0.0031	-0.1767
P32	3a-ST	0.00	-0.0031	-0.1694
P33	3a-ST	0.00	-0.0031	-0.1622
P34	3a-ST	0.00	-0.0031	-0.1550
P35	3a-ST	0.00	-0.0032	-0.1478
P36	3a-ST	0.00	-0.0032	-0.1406
P37	3a-ST	0.00	-0.0048	-0.1853
P38	3a-ST	0.00	-0.0048	-0.1779
P39	3a-ST	0.00	-0.0048	-0.1705
P40	3a-ST	0.00	-0.0048	-0.1631
P41	3a-ST	0.00	-0.0048	-0.1558
P42	3a-ST	0.00	-0.0048	-0.1484

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	3b-ST	0.00	0.0044	-0.2111
P2	3b-ST	0.00	0.0044	-0.2037
P3	3b-ST	0.00	0.0044	-0.1963
P4	3b-ST	0.00	0.0044	-0.1890
P5	3b-ST	0.00	0.0044	-0.1816
P6	3b-ST	0.00	0.0044	-0.1742
P7	3b-ST	0.00	0.0027	-0.2064
P8	3b-ST	0.00	0.0027	-0.1992
P9	3b-ST	0.00	0.0027	-0.1920
P10	3b-ST	0.00	0.0027	-0.1848
P11	3b-ST	0.00	0.0027	-0.1776
P12	3b-ST	0.00	0.0027	-0.1704
P13	3b-ST	0.00	0.0013	-0.2129
P14	3b-ST	0.00	0.0013	-0.2055
P15	3b-ST	0.00	0.0013	-0.1981
P16	3b-ST	0.00	0.0013	-0.1907
P17	3b-ST	0.00	0.0013	-0.1833
P18	3b-ST	0.00	0.0013	-0.1758
P19	3b-ST	0.00	0.0000	-0.2095
P20	3b-ST	0.00	0.0000	-0.2022
P21	3b-ST	0.00	0.0000	-0.1950
P22	3b-ST	0.00	0.0000	-0.1878
P23	3b-ST	0.00	0.0000	-0.1806
P24	3b-ST	0.00	0.0000	-0.1733
P25	3b-ST	0.00	-0.0012	-0.2163
P26	3b-ST	0.00	-0.0012	-0.2089
P27	3b-ST	0.00	-0.0012	-0.2014
P28	3b-ST	0.00	-0.0012	-0.1940
P29	3b-ST	0.00	-0.0012	-0.1866
P30	3b-ST	0.00	-0.0012	-0.1792
P31	3b-ST	0.00	-0.0027	-0.2128
P32	3b-ST	0.00	-0.0027	-0.2055
P33	3b-ST	0.00	-0.0027	-0.1984
P34	3b-ST	0.00	-0.0027	-0.1912
P35	3b-ST	0.00	-0.0027	-0.1839
P36	3b-ST	0.00	-0.0027	-0.1767
P37	3b-ST	0.00	-0.0045	-0.2208
P38	3b-ST	0.00	-0.0045	-0.2134
P39	3b-ST	0.00	-0.0045	-0.2060
P40	3b-ST	0.00	-0.0045	-0.1986
P41	3b-ST	0.00	-0.0044	-0.1912
P42	3b-ST	0.00	-0.0044	-0.1839

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-2 to C-4 Model Pile Deflections **Computed By:** LBR **Date:** Aug-13 **Page:** of

After Spring Calibration - SETTLEMENT **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D1a-ST	0.00	0.0046	-0.1425
P2	D1a-ST	0.00	0.0046	-0.1352
P3	D1a-ST	0.00	0.0046	-0.1278
P4	D1a-ST	0.00	0.0046	-0.1204
P5	D1a-ST	0.00	0.0046	-0.1130
P6	D1a-ST	0.00	0.0046	-0.1056
P7	D1a-ST	0.00	0.0034	-0.1369
P8	D1a-ST	0.00	0.0034	-0.1297
P9	D1a-ST	0.00	0.0034	-0.1225
P10	D1a-ST	0.00	0.0034	-0.1153
P11	D1a-ST	0.00	0.0034	-0.1081
P12	D1a-ST	0.00	0.0034	-0.1009
P13	D1a-ST	0.00	0.0018	-0.1397
P14	D1a-ST	0.00	0.0018	-0.1323
P15	D1a-ST	0.00	0.0018	-0.1249
P16	D1a-ST	0.00	0.0018	-0.1175
P17	D1a-ST	0.00	0.0018	-0.1100
P18	D1a-ST	0.00	0.0018	-0.1026
P19	D1a-ST	0.00	0.0000	-0.1361
P20	D1a-ST	0.00	0.0000	-0.1288
P21	D1a-ST	0.00	0.0000	-0.1216
P22	D1a-ST	0.00	0.0000	-0.1144
P23	D1a-ST	0.00	0.0000	-0.1071
P24	D1a-ST	0.00	0.0000	-0.0999
P25	D1a-ST	0.00	-0.0017	-0.1431
P26	D1a-ST	0.00	-0.0017	-0.1356
P27	D1a-ST	0.00	-0.0017	-0.1282
P28	D1a-ST	0.00	-0.0017	-0.1208
P29	D1a-ST	0.00	-0.0017	-0.1134
P30	D1a-ST	0.00	-0.0017	-0.1060
P31	D1a-ST	0.00	-0.0033	-0.1433
P32	D1a-ST	0.00	-0.0033	-0.1361
P33	D1a-ST	0.00	-0.0033	-0.1289
P34	D1a-ST	0.00	-0.0033	-0.1217
P35	D1a-ST	0.00	-0.0034	-0.1145
P36	D1a-ST	0.00	-0.0034	-0.1072
P37	D1a-ST	0.00	-0.0047	-0.1522
P38	D1a-ST	0.00	-0.0047	-0.1448
P39	D1a-ST	0.00	-0.0047	-0.1374
P40	D1a-ST	0.00	-0.0047	-0.1300
P41	D1a-ST	0.00	-0.0047	-0.1227
P42	D1a-ST	0.00	-0.0047	-0.1153

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D1b-ST	0.00	0.0042	-0.2099
P2	D1b-ST	0.00	0.0042	-0.2025
P3	D1b-ST	0.00	0.0042	-0.1951
P4	D1b-ST	0.00	0.0042	-0.1877
P5	D1b-ST	0.00	0.0042	-0.1804
P6	D1b-ST	0.00	0.0042	-0.1730
P7	D1b-ST	0.00	0.0028	-0.2051
P8	D1b-ST	0.00	0.0028	-0.1978
P9	D1b-ST	0.00	0.0029	-0.1907
P10	D1b-ST	0.00	0.0029	-0.1835
P11	D1b-ST	0.00	0.0029	-0.1762
P12	D1b-ST	0.00	0.0029	-0.1690
P13	D1b-ST	0.00	0.0015	-0.2098
P14	D1b-ST	0.00	0.0015	-0.2024
P15	D1b-ST	0.00	0.0015	-0.1950
P16	D1b-ST	0.00	0.0015	-0.1876
P17	D1b-ST	0.00	0.0015	-0.1801
P18	D1b-ST	0.00	0.0015	-0.1727
P19	D1b-ST	0.00	0.0000	-0.2059
P20	D1b-ST	0.00	0.0000	-0.1986
P21	D1b-ST	0.00	0.0000	-0.1914
P22	D1b-ST	0.00	0.0000	-0.1842
P23	D1b-ST	0.00	0.0000	-0.1770
P24	D1b-ST	0.00	0.0000	-0.1697
P25	D1b-ST	0.00	-0.0015	-0.2132
P26	D1b-ST	0.00	-0.0015	-0.2057
P27	D1b-ST	0.00	-0.0015	-0.1983
P28	D1b-ST	0.00	-0.0015	-0.1909
P29	D1b-ST	0.00	-0.0015	-0.1835
P30	D1b-ST	0.00	-0.0015	-0.1761
P31	D1b-ST	0.00	-0.0028	-0.2114
P32	D1b-ST	0.00	-0.0028	-0.2042
P33	D1b-ST	0.00	-0.0028	-0.1970
P34	D1b-ST	0.00	-0.0028	-0.1898
P35	D1b-ST	0.00	-0.0028	-0.1826
P36	D1b-ST	0.00	-0.0028	-0.1754
P37	D1b-ST	0.00	-0.0043	-0.2195
P38	D1b-ST	0.00	-0.0043	-0.2122
P39	D1b-ST	0.00	-0.0043	-0.2048
P40	D1b-ST	0.00	-0.0043	-0.1974
P41	D1b-ST	0.00	-0.0043	-0.1900
P42	D1b-ST	0.00	-0.0043	-0.1826

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D2a-ST	0.00	0.0050	-0.1285
P2	D2a-ST	0.00	0.0050	-0.1211
P3	D2a-ST	0.00	0.0050	-0.1138
P4	D2a-ST	0.00	0.0050	-0.1064
P5	D2a-ST	0.00	0.0050	-0.0990
P6	D2a-ST	0.00	0.0050	-0.0916
P7	D2a-ST	0.00	0.0035	-0.1248
P8	D2a-ST	0.00	0.0035	-0.1176
P9	D2a-ST	0.00	0.0035	-0.1104
P10	D2a-ST	0.00	0.0035	-0.1032
P11	D2a-ST	0.00	0.0035	-0.0960
P12	D2a-ST	0.00	0.0035	-0.0888
P13	D2a-ST	0.00	0.0016	-0.1313
P14	D2a-ST	0.00	0.0016	-0.1238
P15	D2a-ST	0.00	0.0016	-0.1164
P16	D2a-ST	0.00	0.0016	-0.1090
P17	D2a-ST	0.00	0.0016	-0.1016
P18	D2a-ST	0.00	0.0016	-0.0942
P19	D2a-ST	0.00	-0.0002	-0.1309
P20	D2a-ST	0.00	-0.0002	-0.1237
P21	D2a-ST	0.00	-0.0002	-0.1165
P22	D2a-ST	0.00	-0.0002	-0.1092
P23	D2a-ST	0.00	-0.0002	-0.1020
P24	D2a-ST	0.00	-0.0002	-0.0948
P25	D2a-ST	0.00	-0.0018	-0.1408
P26	D2a-ST	0.00	-0.0018	-0.1334
P27	D2a-ST	0.00	-0.0018	-0.1260
P28	D2a-ST	0.00	-0.0018	-0.1186
P29	D2a-ST	0.00	-0.0018	-0.1111
P30	D2a-ST	0.00	-0.0018	-0.1037
P31	D2a-ST	0.00	-0.0033	-0.1436
P32	D2a-ST	0.00	-0.0033	-0.1363
P33	D2a-ST	0.00	-0.0033	-0.1292
P34	D2a-ST	0.00	-0.0033	-0.1220
P35	D2a-ST	0.00	-0.0034	-0.1147
P36	D2a-ST	0.00	-0.0034	-0.1075
P37	D2a-ST	0.00	-0.0047	-0.1546
P38	D2a-ST	0.00	-0.0047	-0.1472
P39	D2a-ST	0.00	-0.0047	-0.1399
P40	D2a-ST	0.00	-0.0047	-0.1325
P41	D2a-ST	0.00	-0.0047	-0.1251
P42	D2a-ST	0.00	-0.0047	-0.1177

URS

Job:	Maurepas Freshwater Diversion	**Project #:** 10001876			
Desc.:	C-2 to C-4 Model Pile Deflections	**Computed By:** LBR	**Date:** Aug-13	**Page:**	of
	After Spring Calibration - SETTLEMENT	**Checked By:** BCB	**Date:** Aug-13	**Sheet:**	of

TABLE: Joint Displacements

Joint	Case	U1	U2	U3
Text	Text	in	in	in
P1	D2b-ST	0.00	0.0046	-0.1959
P2	D2b-ST	0.00	0.0046	-0.1885
P3	D2b-ST	0.00	0.0046	-0.1811
P4	D2b-ST	0.00	0.0046	-0.1737
P5	D2b-ST	0.00	0.0046	-0.1663
P6	D2b-ST	0.00	0.0046	-0.1590
P7	D2b-ST	0.00	0.0030	-0.1929
P8	D2b-ST	0.00	0.0030	-0.1857
P9	D2b-ST	0.00	0.0030	-0.1785
P10	D2b-ST	0.00	0.0030	-0.1713
P11	D2b-ST	0.00	0.0030	-0.1641
P12	D2b-ST	0.00	0.0030	-0.1569
P13	D2b-ST	0.00	0.0013	-0.2014
P14	D2b-ST	0.00	0.0013	-0.1939
P15	D2b-ST	0.00	0.0013	-0.1865
P16	D2b-ST	0.00	0.0013	-0.1791
P17	D2b-ST	0.00	0.0013	-0.1717
P18	D2b-ST	0.00	0.0013	-0.1643
P19	D2b-ST	0.00	-0.0002	-0.2007
P20	D2b-ST	0.00	-0.0002	-0.1935
P21	D2b-ST	0.00	-0.0002	-0.1863
P22	D2b-ST	0.00	-0.0002	-0.1791
P23	D2b-ST	0.00	-0.0002	-0.1718
P24	D2b-ST	0.00	-0.0002	-0.1646
P25	D2b-ST	0.00	-0.0016	-0.2109
P26	D2b-ST	0.00	-0.0016	-0.2035
P27	D2b-ST	0.00	-0.0016	-0.1961
P28	D2b-ST	0.00	-0.0015	-0.1887
P29	D2b-ST	0.00	-0.0015	-0.1812
P30	D2b-ST	0.00	-0.0015	-0.1738
P31	D2b-ST	0.00	-0.0028	-0.2117
P32	D2b-ST	0.00	-0.0028	-0.2045
P33	D2b-ST	0.00	-0.0028	-0.1973
P34	D2b-ST	0.00	-0.0028	-0.1901
P35	D2b-ST	0.00	-0.0028	-0.1829
P36	D2b-ST	0.00	-0.0028	-0.1757
P37	D2b-ST	0.00	-0.0043	-0.2220
P38	D2b-ST	0.00	-0.0043	-0.2146
P39	D2b-ST	0.00	-0.0043	-0.2072
P40	D2b-ST	0.00	-0.0043	-0.1998
P41	D2b-ST	0.00	-0.0043	-0.1924
P42	D2b-ST	0.00	-0.0043	-0.1851

Vertical Reactions:

MAXIMUM DISP. = -0.05203 kips
MINIMUM DISP. = -0.22386 kips

Horizontal (F1) Reactions:

MAXIMUM DISP. = 0.00024 kips
MINIMUM DISP. = -0.00022 kips

Horizontal (F2) Reactions:

MAXIMUM DISP. = 0.00502 kips
MINIMUM DISP. = -0.09235 kips

Maximum horizontal displacement is 0.0924". Maximum allowable deflection is 0.75" (for load cases without allowable overstress). Maximum vertical deflection is 0.2239", which is less than the maximum allowable 0.5". Therefore, all deflections OK.

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C2-C4 SOIL & PILE INFO FOR STRUCTURAL CHECK | Computed by: LBR | Sheet ___ of ___
Checked by: ___ | Date: 8/2013 | Date: ___

Reference

E_s: USING P-y CURVE DATA, CALIBRATED SPRING IN SAP: 93.4 k/in

↳ FROM CPGA MANUAL: STIFFNESS $K = \frac{C_0 EI}{R^3}$

C_0 = FIXITY CONST. = 0.707 FOR PINNED, CONSTANT E_s
$E = 29{,}000{,}000$ PSI
$I = 904\ in^4$ (STRONG AXIS)
$R = \sqrt[4]{\frac{EI}{E_s}}$ (INCH)

$$\Rightarrow K = 93{,}406.6\ lb/in = \frac{(0.707)(29{,}000{,}000\ psi)(904\ in^4)}{\left(\sqrt[4]{\frac{29{,}000{,}000 \times 904}{E_s}}\right)^3}$$

↳ SOLVING FOR E_s w/ EXCEL ⇒ $E_s = 2265.1$ PSI = 2.265 KSI

LATERAL GROUP REDUCTION FACTOR: HSDRS GUIDELINES SECT 4.3

↳ PERPENDICULAR TO LOADING: (SAP X-DIR.) IF $S_a/b < 3.75$, REDUCTION NEEDED.

$S_a = 6'\text{-}8" = 80"$, $b = 14"$ $S_a/b = 5.71 > 3.75$ – NO REDUCTION

↳ PARALLEL TO LOADING: (SAP Y-DIR.) SPACINGS OF 5'-9" (69") & 6'-4½" (76.5")

$R_g = 0.48\,(c_b/b)^{0.38}$, FOR 5'-9", $R_g = 0.48(69"/14")^{0.38} = 0.88$

FOR 6'-4½", $R_g = 0.48(76.5"/14")^{0.38} = 0.915$

↳ LOWEST POSSIBLE REDUCTION FACTOR IS ROW UNDER EXTERIOR CULVERTS, 2ND ROWS FROM EDGES - AVG OF 5'-9" & 6'-4½" SPACINGS
AVG = 0.8976 - WILL BE APPLIED TO ALL PILES. (CONSERVATIVE)

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C2-C4 SOIL & PILE INFO FOR STRUCT. CHECK | Computed by: LBR | Sheet ___ of ___
Checked by: ___ | Date: 8/2013 | Date: ___

Reference

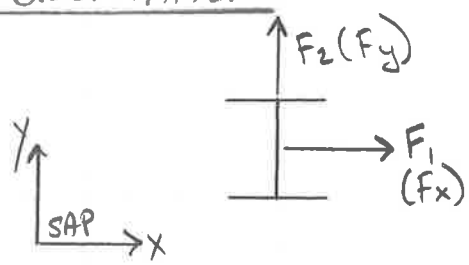
CRITICAL BUCKLING LOAD: CRGA MANUAL PG 40 - FOR CONST. E_s & UNSUPPORTED LENGTH

$$P_{CR} = n\sqrt{E_s E I}, \quad n = 1 \text{ FOR PINNED PILE}$$

$$P_{CR,\,STRONG} = \sqrt{(2.265\,ksi)(29{,}000\,ksi)(904\,in^4)} = \underline{7705.8^k}$$

$$P_{CR,\,WEAK} = \sqrt{(2.265)(29{,}000)(326\,in^4)} = \underline{4627.5^k}$$

PILE ORIENTATION:



F_1 / F_x CORRESPONDS TO WEAK AXIS

F_2 / F_y CORRESPONDS TO STRONG AXIS

ACC: CRGA MANUAL PG 42-43

-IF- $\sqrt{\frac{2\pi^2 E}{F_y}} > \sqrt{\frac{\pi^2 E A}{P_{CR}}}$

-THEN- $ACC = \left[\frac{F_y \cdot A}{S.F.}\right]\left[1 - \frac{F_y \cdot A}{4 \cdot P_{CR}}\right]$

$$\hookrightarrow \sqrt{\frac{2\pi^2(29{,}000)}{50}} = 106.99 \quad > \quad \hookrightarrow \sqrt{\frac{\pi^2(29{,}000)(26.1)}{4627.5}} = 40.2$$

(SMALLER PCR = LARGER ACC)

$$\Rightarrow ACC_{,\,STRONG} = \left[\frac{50 \cdot 26.1}{2}\right]\left[1 - \frac{50 \cdot 26.1}{4 \cdot 7705.8}\right] = \underline{\underline{624.9^k}}$$

$$\Rightarrow ACC_{,\,WEAK} = \left[\frac{50 \cdot 26.1}{2}\right]\left[1 - \frac{50 \cdot 26.1}{4 \cdot 4627.5}\right] = \underline{\underline{606.5^k}}$$

ATT: $\frac{A \cdot F_y}{S.F.} = \frac{26.1 \times 50\,ksi}{2} = \underline{\underline{652.5^k}}$ (BOTH AXIS)

URS

Job MAUREGAS | Project No. 10001876 | Page ____ of ____
Description C2-C4 SOIL & PILE INFO FOR STRUCT. CHECK | Computed by LBR | Sheet ____ of ____
Checked by ____ | Date 8/2013 | Date ____

Reference

CBF: CPGA MANUAL PG 32

$$\text{COMP} = \left[\frac{F3}{ACC} + MF1\left(\frac{M1}{AM1}\right) + MF2\left(\frac{M2}{AM2}\right)\right]\left(\frac{1}{OSF}\right) \leq 1.0$$

$$\text{TENSION} = \left[\frac{-F3}{ATT} + \quad '' \quad + \quad '' \quad\right]\left(\frac{1}{OSF}\right) \leq 1.0$$

USACE FACTOR

SAFETY FACTOR - AISC

↳ $AM1 = S_y F_y = 44.3\ IN^3 \times 50KSI \times 5/6 \times 2/3 = \underline{1230.6^{K\cdot IN}}$ (WEAK AXIS)

y IS FOR AISC table #s, opposite SAP

↳ $AM2 = S_x F_y = 131\ IN^3 \times 50KSI \times 5/6 \times 2/3 = \underline{3638.9^{K\cdot IN}}$ (STRONG AXIS)

AISC table #, opposite SAP.

AXIAL LOAD FACTOR: $ALF = \frac{F3}{AC} \times \frac{1}{OSF}$, $AC = C_{ALLOW} = 224^K$ (TIP EL -100.0)

-NO TENSION REACTIONS-

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	1a	0.0	-0.3	169.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.51	0.26	0.65
P2	1a	0.0	-0.3	163.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.52	0.25	0.63
P3	1a	0.0	-0.3	157.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.53	0.24	0.60
P4	1a	0.0	-0.3	151.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.54	0.23	0.58
P5	1a	0.0	-0.3	145.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.55	0.23	0.56
P6	1a	0.0	-0.3	139.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.56	0.22	0.54
P7	1a	0.0	-0.2	169.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.93	-17.86	0.26	0.65
P8	1a	0.0	-0.2	163.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.27	-17.86	0.25	0.63
P9	1a	0.0	-0.2	157.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-17.85	0.24	0.60
P10	1a	0.0	-0.2	152.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.46	-17.84	0.24	0.58
P11	1a	0.0	-0.2	146.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	-17.83	0.23	0.56
P12	1a	0.0	-0.2	140.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.94	-17.83	0.22	0.54
P13	1a	0.0	-0.1	176.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.29	0.27	0.68
P14	1a	0.0	-0.1	170.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.30	0.26	0.65
P15	1a	0.0	-0.1	165.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.30	0.25	0.63
P16	1a	0.0	-0.1	159.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.31	0.25	0.61
P17	1a	0.0	-0.1	153.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.31	0.24	0.59
P18	1a	0.0	-0.1	147.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.32	0.23	0.56
P19	1a	0.0	0.0	174.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.99	-23.48	0.27	0.67
P20	1a	0.0	0.0	168.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.33	-23.48	0.26	0.64
P21	1a	0.0	0.0	162.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.46	-23.48	0.25	0.62
P22	1a	0.0	0.0	157.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-23.48	0.24	0.60
P23	1a	0.0	0.0	151.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.28	-23.48	0.24	0.58
P24	1a	0.0	0.0	145.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.92	-23.48	0.23	0.56
P25	1a	0.0	0.1	179.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.41	0.27	0.69
P26	1a	0.0	0.1	173.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.42	0.27	0.66
P27	1a	0.0	0.1	167.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.42	0.26	0.64
P28	1a	0.0	0.1	161.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.43	0.25	0.62
P29	1a	0.0	0.1	155.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.43	0.24	0.60
P30	1a	0.0	0.1	150.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-20.44	0.23	0.57
P31	1a	0.0	0.2	174.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.93	-17.91	0.27	0.67
P32	1a	0.0	0.2	168.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.27	-17.91	0.26	0.65
P33	1a	0.0	0.2	162.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-17.90	0.25	0.62
P34	1a	0.0	0.2	157.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.46	-17.89	0.24	0.60
P35	1a	0.0	0.2	151.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	-17.89	0.23	0.58
P36	1a	0.0	0.2	145.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.94	-17.88	0.23	0.56
P37	1a	0.0	0.3	176.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.33	0.27	0.68
P38	1a	0.0	0.3	171.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.34	0.26	0.65
P39	1a	0.0	0.3	165.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.35	0.25	0.63
P40	1a	0.0	0.3	159.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.36	0.24	0.61
P41	1a	0.0	0.3	153.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.37	0.24	0.59
P42	1a	0.0	0.3	147.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	-14.38	0.23	0.56
P1	1b	0.0	8.3	61.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	326.06	0.18	0.23
P2	1b	0.0	8.3	61.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	326.06	0.18	0.23
P3	1b	0.0	8.3	61.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	326.06	0.18	0.23
P4	1b	0.0	8.3	61.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	326.06	0.18	0.23
P5	1b	0.0	8.3	61.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	326.06	0.18	0.23
P6	1b	0.0	8.3	61.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	326.06	0.18	0.23
P7	1b	0.0	8.4	56.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.34	329.25	0.17	0.22
P8	1b	0.0	8.4	56.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	329.25	0.17	0.22
P9	1b	0.0	8.4	56.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	329.26	0.17	0.22
P10	1b	0.0	8.4	56.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	329.26	0.17	0.22
P11	1b	0.0	8.4	56.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.44	329.25	0.17	0.22

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P12	1b	0.0	8.4	56.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.34	329.25	0.17	0.22
P13	1b	0.0	8.4	55.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	331.25	0.17	0.21
P14	1b	0.0	8.4	55.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	331.25	0.17	0.21
P15	1b	0.0	8.4	55.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	331.25	0.17	0.21
P16	1b	0.0	8.4	55.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	331.25	0.17	0.21
P17	1b	0.0	8.4	55.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	331.25	0.17	0.21
P18	1b	0.0	8.4	55.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	331.25	0.17	0.21
P19	1b	0.0	8.5	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.33	333.41	0.17	0.20
P20	1b	0.0	8.5	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.43	333.42	0.17	0.20
P21	1b	0.0	8.5	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	333.42	0.17	0.20
P22	1b	0.0	8.5	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	333.42	0.17	0.20
P23	1b	0.0	8.5	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.43	333.42	0.17	0.20
P24	1b	0.0	8.5	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.33	333.41	0.17	0.20
P25	1b	0.0	8.5	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	334.81	0.17	0.19
P26	1b	0.0	8.5	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	334.81	0.17	0.19
P27	1b	0.0	8.5	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	334.81	0.17	0.19
P28	1b	0.0	8.5	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	334.81	0.17	0.19
P29	1b	0.0	8.5	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	334.81	0.17	0.19
P30	1b	0.0	8.5	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	334.81	0.17	0.19
P31	1b	0.0	8.5	46.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	335.88	0.16	0.18
P32	1b	0.0	8.5	46.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	335.89	0.16	0.18
P33	1b	0.0	8.5	46.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	335.89	0.16	0.18
P34	1b	0.0	8.5	46.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	335.89	0.16	0.18
P35	1b	0.0	8.5	46.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	335.89	0.16	0.18
P36	1b	0.0	8.5	46.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	335.88	0.16	0.18
P37	1b	0.0	8.5	44.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	336.16	0.16	0.17
P38	1b	0.0	8.5	44.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	336.16	0.16	0.17
P39	1b	0.0	8.5	44.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	336.16	0.16	0.17
P40	1b	0.0	8.5	44.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	336.16	0.16	0.17
P41	1b	0.0	8.5	44.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	336.16	0.16	0.17
P42	1b	0.0	8.5	44.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	336.16	0.16	0.17
P1	2a	0.0	-0.3	77.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.78	0.15	0.35
P2	2a	0.0	-0.3	71.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.79	0.14	0.32
P3	2a	0.0	-0.3	66.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.80	0.13	0.29
P4	2a	0.0	-0.3	60.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.81	0.12	0.27
P5	2a	0.0	-0.3	54.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.82	0.11	0.24
P6	2a	0.0	-0.3	48.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.83	0.10	0.22
P7	2a	0.0	-0.2	76.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.90	-16.52	0.15	0.34
P8	2a	0.0	-0.2	71.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-16.52	0.14	0.32
P9	2a	0.0	-0.2	65.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-16.51	0.13	0.29
P10	2a	0.0	-0.2	59.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-16.50	0.12	0.27
P11	2a	0.0	-0.2	53.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-16.49	0.11	0.24
P12	2a	0.0	-0.2	48.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.91	-16.49	0.10	0.22
P13	2a	0.0	-0.1	81.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.67	0.16	0.36
P14	2a	0.0	-0.1	75.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.67	0.15	0.34
P15	2a	0.0	-0.1	69.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.68	0.14	0.31
P16	2a	0.0	-0.1	63.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.69	0.13	0.28
P17	2a	0.0	-0.1	57.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.69	0.12	0.26
P18	2a	0.0	-0.1	52.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.70	0.11	0.23
P19	2a	0.0	0.0	79.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.94	-23.48	0.16	0.35
P20	2a	0.0	0.0	73.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-23.48	0.15	0.33
P21	2a	0.0	0.0	68.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-23.48	0.14	0.30
P22	2a	0.0	0.0	62.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-23.48	0.13	0.28

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P23	2a	0.0	0.0	56.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-23.48	0.12	0.25
P24	2a	0.0	0.0	50.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.87	-23.48	0.11	0.23
P25	2a	0.0	0.1	84.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.79	0.16	0.38
P26	2a	0.0	0.1	78.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.79	0.15	0.35
P27	2a	0.0	0.1	72.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.80	0.14	0.32
P28	2a	0.0	0.1	66.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.81	0.13	0.30
P29	2a	0.0	0.1	60.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.81	0.12	0.27
P30	2a	0.0	0.1	54.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-19.82	0.11	0.24
P31	2a	0.0	0.2	81.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.90	-16.58	0.16	0.37
P32	2a	0.0	0.2	76.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-16.57	0.15	0.34
P33	2a	0.0	0.2	70.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-16.56	0.14	0.31
P34	2a	0.0	0.2	64.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-16.56	0.13	0.29
P35	2a	0.0	0.2	59.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-16.55	0.12	0.26
P36	2a	0.0	0.2	53.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.91	-16.54	0.11	0.24
P37	2a	0.0	0.3	85.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.60	0.16	0.38
P38	2a	0.0	0.3	79.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.61	0.15	0.35
P39	2a	0.0	0.3	73.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.62	0.14	0.33
P40	2a	0.0	0.3	67.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.63	0.13	0.30
P41	2a	0.0	0.3	61.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.64	0.12	0.28
P42	2a	0.0	0.3	56.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-13.65	0.12	0.25
P1	2b	0.0	-0.2	179.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.82	0.32	0.80
P2	2b	0.0	-0.2	173.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.83	0.31	0.77
P3	2b	0.0	-0.2	167.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.84	0.30	0.75
P4	2b	0.0	-0.2	161.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.85	0.29	0.72
P5	2b	0.0	-0.2	155.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.86	0.28	0.69
P6	2b	0.0	-0.2	149.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.88	0.27	0.67
P7	2b	0.0	-0.1	179.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.01	-19.19	0.32	0.80
P8	2b	0.0	-0.1	173.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-19.18	0.31	0.78
P9	2b	0.0	-0.1	168.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-19.17	0.30	0.75
P10	2b	0.0	-0.1	162.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-19.17	0.29	0.72
P11	2b	0.0	-0.1	156.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-19.16	0.28	0.70
P12	2b	0.0	-0.1	150.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.02	-19.15	0.27	0.67
P13	2b	0.0	-0.1	187.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.01	0.33	0.84
P14	2b	0.0	-0.1	181.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.01	0.32	0.81
P15	2b	0.0	-0.1	175.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.02	0.31	0.78
P16	2b	0.0	-0.1	169.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.02	0.30	0.76
P17	2b	0.0	-0.1	164.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.03	0.30	0.73
P18	2b	0.0	-0.1	158.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.03	0.29	0.71
P19	2b	0.0	0.0	185.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.08	-23.48	0.33	0.83
P20	2b	0.0	0.0	179.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-23.48	0.32	0.80
P21	2b	0.0	0.0	173.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-23.48	0.31	0.78
P22	2b	0.0	0.0	168.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-23.48	0.30	0.75
P23	2b	0.0	0.0	162.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.30	-23.48	0.29	0.72
P24	2b	0.0	0.0	156.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.00	-23.48	0.28	0.70
P25	2b	0.0	0.1	190.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.13	0.34	0.85
P26	2b	0.0	0.1	184.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.13	0.33	0.82
P27	2b	0.0	0.1	178.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.14	0.32	0.80
P28	2b	0.0	0.1	172.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.14	0.31	0.77
P29	2b	0.0	0.1	166.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.15	0.30	0.74
P30	2b	0.0	0.1	160.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.15	0.29	0.72
P31	2b	0.0	0.1	184.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.01	-19.24	0.33	0.82
P32	2b	0.0	0.1	178.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-19.24	0.32	0.80
P33	2b	0.0	0.1	173.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-19.23	0.31	0.77

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P34	2b	0.0	0.1	167.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-19.22	0.30	0.75
P35	2b	0.0	0.1	161.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-19.21	0.29	0.72
P36	2b	0.0	0.1	156.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.02	-19.21	0.28	0.70
P37	2b	0.0	0.2	186.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.65	0.33	0.83
P38	2b	0.0	0.2	180.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.66	0.32	0.81
P39	2b	0.0	0.2	174.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.67	0.31	0.78
P40	2b	0.0	0.2	169.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.68	0.30	0.75
P41	2b	0.0	0.2	163.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.69	0.29	0.73
P42	2b	0.0	0.2	157.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.70	0.28	0.70
P1	3a	0.0	-0.3	132.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.57	0.24	0.59
P2	3a	0.0	-0.3	126.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.58	0.23	0.56
P3	3a	0.0	-0.3	120.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.59	0.22	0.54
P4	3a	0.0	-0.3	114.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.60	0.21	0.51
P5	3a	0.0	-0.3	108.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.61	0.20	0.48
P6	3a	0.0	-0.3	102.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.62	0.19	0.46
P7	3a	0.0	-0.2	131.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.94	-17.54	0.24	0.59
P8	3a	0.0	-0.2	126.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.28	-17.54	0.23	0.56
P9	3a	0.0	-0.2	120.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-17.53	0.22	0.54
P10	3a	0.0	-0.2	114.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-17.52	0.21	0.51
P11	3a	0.0	-0.2	108.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-17.51	0.20	0.49
P12	3a	0.0	-0.2	103.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.95	-17.51	0.19	0.46
P13	3a	0.0	-0.1	138.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.15	0.25	0.62
P14	3a	0.0	-0.1	132.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.15	0.24	0.59
P15	3a	0.0	-0.1	126.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.16	0.23	0.56
P16	3a	0.0	-0.1	120.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.16	0.22	0.54
P17	3a	0.0	-0.1	114.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.17	0.21	0.51
P18	3a	0.0	-0.1	108.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.17	0.20	0.48
P19	3a	0.0	0.0	135.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.99	-23.48	0.25	0.61
P20	3a	0.0	0.0	130.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-23.48	0.24	0.58
P21	3a	0.0	0.0	124.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-23.48	0.23	0.56
P22	3a	0.0	0.0	118.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-23.48	0.22	0.53
P23	3a	0.0	0.0	112.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-23.48	0.21	0.50
P24	3a	0.0	0.0	107.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.91	-23.48	0.20	0.48
P25	3a	0.0	0.1	140.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.27	0.26	0.63
P26	3a	0.0	0.1	134.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.27	0.25	0.60
P27	3a	0.0	0.1	128.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.28	0.24	0.58
P28	3a	0.0	0.1	123.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.28	0.23	0.55
P29	3a	0.0	0.1	117.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.29	0.22	0.52
P30	3a	0.0	0.1	111.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.29	0.21	0.50
P31	3a	0.0	0.2	136.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.94	-17.60	0.25	0.61
P32	3a	0.0	0.2	131.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.28	-17.59	0.24	0.59
P33	3a	0.0	0.2	125.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-17.58	0.23	0.56
P34	3a	0.0	0.2	119.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-17.58	0.22	0.53
P35	3a	0.0	0.2	114.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-17.57	0.21	0.51
P36	3a	0.0	0.2	108.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.95	-17.56	0.20	0.48
P37	3a	0.0	0.3	139.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.39	0.25	0.62
P38	3a	0.0	0.3	133.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.40	0.24	0.60
P39	3a	0.0	0.3	128.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.41	0.23	0.57
P40	3a	0.0	0.3	122.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.42	0.22	0.55
P41	3a	0.0	0.3	116.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.43	0.21	0.52
P42	3a	0.0	0.3	110.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-14.44	0.21	0.49
P1	3b	0.0	-0.2	175.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.67	0.31	0.78
P2	3b	0.0	-0.2	169.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.68	0.30	0.76

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	$n\sqrt{E_S EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P3	3b	0.0	-0.2	163.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.69	0.29	0.73
P4	3b	0.0	-0.2	157.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.70	0.28	0.70
P5	3b	0.0	-0.2	151.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.71	0.27	0.68
P6	3b	0.0	-0.2	145.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.72	0.26	0.65
P7	3b	0.0	-0.1	175.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.99	-18.92	0.31	0.78
P8	3b	0.0	-0.1	170.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-18.92	0.30	0.76
P9	3b	0.0	-0.1	164.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-18.91	0.30	0.73
P10	3b	0.0	-0.1	158.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-18.90	0.29	0.71
P11	3b	0.0	-0.1	152.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-18.90	0.28	0.68
P12	3b	0.0	-0.1	147.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.01	-18.89	0.27	0.66
P13	3b	0.0	-0.1	183.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.85	0.33	0.82
P14	3b	0.0	-0.1	177.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.85	0.32	0.79
P15	3b	0.0	-0.1	171.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.86	0.31	0.77
P16	3b	0.0	-0.1	165.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.87	0.30	0.74
P17	3b	0.0	-0.1	160.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.87	0.29	0.71
P18	3b	0.0	-0.1	154.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.88	0.28	0.69
P19	3b	0.0	0.0	181.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.06	-23.48	0.32	0.81
P20	3b	0.0	0.0	175.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-23.48	0.31	0.78
P21	3b	0.0	0.0	169.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-23.48	0.31	0.76
P22	3b	0.0	0.0	164.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-23.48	0.30	0.73
P23	3b	0.0	0.0	158.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.30	-23.48	0.29	0.71
P24	3b	0.0	0.0	152.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.99	-23.48	0.28	0.68
P25	3b	0.0	0.1	186.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.97	0.33	0.83
P26	3b	0.0	0.1	180.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.97	0.32	0.80
P27	3b	0.0	0.1	174.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.98	0.31	0.78
P28	3b	0.0	0.1	168.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.98	0.30	0.75
P29	3b	0.0	0.1	162.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-20.99	0.29	0.73
P30	3b	0.0	0.1	156.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-21.00	0.28	0.70
P31	3b	0.0	0.1	180.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.99	-18.98	0.32	0.81
P32	3b	0.0	0.1	175.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.29	-18.97	0.31	0.78
P33	3b	0.0	0.1	169.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-18.97	0.30	0.76
P34	3b	0.0	0.1	163.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.46	-18.96	0.29	0.73
P35	3b	0.0	0.1	157.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-18.95	0.28	0.70
P36	3b	0.0	0.1	152.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.01	-18.94	0.27	0.68
P37	3b	0.0	0.3	182.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.49	0.32	0.82
P38	3b	0.0	0.3	177.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.50	0.32	0.79
P39	3b	0.0	0.3	171.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.51	0.31	0.76
P40	3b	0.0	0.3	165.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.52	0.30	0.74
P41	3b	0.0	0.3	159.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.53	0.29	0.71
P42	3b	0.0	0.3	153.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.44	-15.54	0.28	0.69
P1	D1a	0.0	-0.3	91.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.96	0.13	0.31
P2	D1a	0.0	-0.3	85.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.97	0.12	0.29
P3	D1a	0.0	-0.3	80.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.98	0.12	0.27
P4	D1a	0.0	-0.3	74.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.99	0.11	0.25
P5	D1a	0.0	-0.3	68.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.00	0.10	0.23
P6	D1a	0.0	-0.3	62.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.01	0.09	0.21
P7	D1a	0.0	-0.2	91.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.06	-16.95	0.13	0.31
P8	D1a	0.0	-0.2	85.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.32	-16.94	0.12	0.29
P9	D1a	0.0	-0.2	79.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.43	-16.94	0.12	0.27
P10	D1a	0.0	-0.2	74.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-16.93	0.11	0.25
P11	D1a	0.0	-0.2	68.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-16.92	0.10	0.23
P12	D1a	0.0	-0.2	62.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.07	-16.92	0.09	0.21
P13	D1a	0.0	-0.1	94.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.41	0.14	0.32

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	$M = 1.3171*F^2 + 31.024*F - 23.482$ M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P14	D1a	0.0	-0.1	88.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.41	0.13	0.30
P15	D1a	0.0	-0.1	82.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.42	0.12	0.28
P16	D1a	0.0	-0.1	76.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.42	0.11	0.26
P17	D1a	0.0	-0.1	70.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.43	0.11	0.24
P18	D1a	0.0	-0.1	65.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.44	0.10	0.22
P19	D1a	0.0	0.0	92.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.93	-23.48	0.13	0.31
P20	D1a	0.0	0.0	86.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-23.48	0.13	0.29
P21	D1a	0.0	0.0	80.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-23.48	0.12	0.27
P22	D1a	0.0	0.0	74.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-23.48	0.11	0.25
P23	D1a	0.0	0.0	69.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.29	-23.48	0.10	0.23
P24	D1a	0.0	0.0	63.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.86	-23.48	0.10	0.21
P25	D1a	0.0	0.1	97.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.53	0.14	0.33
P26	D1a	0.0	0.1	91.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.53	0.13	0.31
P27	D1a	0.0	0.1	85.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.54	0.12	0.29
P28	D1a	0.0	0.1	79.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.54	0.12	0.27
P29	D1a	0.0	0.1	73.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.55	0.11	0.25
P30	D1a	0.0	0.1	67.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.56	0.10	0.23
P31	D1a	0.0	0.2	96.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.06	-17.00	0.14	0.32
P32	D1a	0.0	0.2	90.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.32	-17.00	0.13	0.30
P33	D1a	0.0	0.2	84.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.43	-16.99	0.12	0.28
P34	D1a	0.0	0.2	79.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-16.98	0.12	0.27
P35	D1a	0.0	0.2	73.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-16.97	0.11	0.25
P36	D1a	0.0	0.2	67.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.07	-16.97	0.10	0.23
P37	D1a	0.0	0.3	99.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.78	0.14	0.33
P38	D1a	0.0	0.3	93.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.79	0.13	0.31
P39	D1a	0.0	0.3	87.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.80	0.13	0.29
P40	D1a	0.0	0.3	81.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.81	0.12	0.27
P41	D1a	0.0	0.3	76.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.82	0.11	0.25
P42	D1a	0.0	0.3	70.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.84	0.10	0.23
P1	D1b	0.0	-0.2	173.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.14	0.23	0.58
P2	D1b	0.0	-0.2	167.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.15	0.23	0.56
P3	D1b	0.0	-0.2	162.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.16	0.22	0.54
P4	D1b	0.0	-0.2	156.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.17	0.21	0.52
P5	D1b	0.0	-0.2	150.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.18	0.20	0.50
P6	D1b	0.0	-0.2	144.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.20	0.20	0.48
P7	D1b	0.0	-0.2	174.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.11	-18.48	0.23	0.58
P8	D1b	0.0	-0.2	168.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.32	-18.48	0.23	0.56
P9	D1b	0.0	-0.2	162.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.43	-18.47	0.22	0.54
P10	D1b	0.0	-0.2	157.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-18.46	0.21	0.53
P11	D1b	0.0	-0.2	151.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.36	-18.46	0.21	0.51
P12	D1b	0.0	-0.2	145.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.13	-18.45	0.20	0.49
P13	D1b	0.0	-0.1	179.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.13	0.24	0.60
P14	D1b	0.0	-0.1	173.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.13	0.23	0.58
P15	D1b	0.0	-0.1	168.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.14	0.23	0.56
P16	D1b	0.0	-0.1	162.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.15	0.22	0.54
P17	D1b	0.0	-0.1	156.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.15	0.21	0.52
P18	D1b	0.0	-0.1	150.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.16	0.20	0.50
P19	D1b	0.0	0.0	176.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.01	-23.48	0.24	0.59
P20	D1b	0.0	0.0	171.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-23.48	0.23	0.57
P21	D1b	0.0	0.0	165.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.46	-23.48	0.22	0.55
P22	D1b	0.0	0.0	159.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-23.48	0.22	0.53
P23	D1b	0.0	0.0	153.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.29	-23.48	0.21	0.52
P24	D1b	0.0	0.0	148.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.93	-23.48	0.20	0.50

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	$n\sqrt{E_S EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P25	D1b	0.0	0.1	182.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.25	0.24	0.61
P26	D1b	0.0	0.1	176.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.25	0.24	0.59
P27	D1b	0.0	0.1	170.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.26	0.23	0.57
P28	D1b	0.0	0.1	164.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.26	0.22	0.55
P29	D1b	0.0	0.1	158.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.27	0.21	0.53
P30	D1b	0.0	0.1	152.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.28	0.21	0.51
P31	D1b	0.0	0.2	179.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.11	-18.54	0.24	0.60
P32	D1b	0.0	0.2	173.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.32	-18.53	0.23	0.58
P33	D1b	0.0	0.2	167.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.43	-18.52	0.23	0.56
P34	D1b	0.0	0.2	162.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-18.52	0.22	0.54
P35	D1b	0.0	0.2	156.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-18.51	0.21	0.52
P36	D1b	0.0	0.2	150.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.13	-18.50	0.20	0.50
P37	D1b	0.0	0.2	181.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.97	0.24	0.61
P38	D1b	0.0	0.2	175.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.98	0.23	0.59
P39	D1b	0.0	0.2	169.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.99	0.23	0.57
P40	D1b	0.0	0.2	163.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.00	0.22	0.55
P41	D1b	0.0	0.2	157.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.01	0.21	0.53
P42	D1b	0.0	0.2	152.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-16.02	0.21	0.51
P1	D2a	0.0	-0.3	74.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-13.85	0.11	0.25
P2	D2a	0.0	-0.3	68.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-13.86	0.10	0.23
P3	D2a	0.0	-0.3	63.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-13.87	0.10	0.21
P4	D2a	0.0	-0.3	57.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-13.88	0.09	0.19
P5	D2a	0.0	-0.3	51.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-13.89	0.08	0.17
P6	D2a	0.0	-0.3	45.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-13.90	0.07	0.15
P7	D2a	0.0	-0.2	76.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.89	-16.52	0.11	0.26
P8	D2a	0.0	-0.2	70.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.29	-16.52	0.11	0.24
P9	D2a	0.0	-0.2	65.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-16.51	0.10	0.22
P10	D2a	0.0	-0.2	59.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.46	-16.50	0.09	0.20
P11	D2a	0.0	-0.2	53.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-16.49	0.08	0.18
P12	D2a	0.0	-0.2	47.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.91	-16.49	0.08	0.16
P13	D2a	0.0	-0.1	84.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.94	0.12	0.28
P14	D2a	0.0	-0.1	78.3	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.94	0.12	0.26
P15	D2a	0.0	-0.1	72.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.95	0.11	0.24
P16	D2a	0.0	-0.1	66.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.95	0.10	0.22
P17	D2a	0.0	-0.1	60.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.96	0.09	0.20
P18	D2a	0.0	-0.1	54.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.96	0.09	0.18
P19	D2a	0.0	0.0	85.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.94	-22.83	0.12	0.29
P20	D2a	0.0	0.0	80.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-22.83	0.12	0.27
P21	D2a	0.0	0.0	74.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-22.83	0.11	0.25
P22	D2a	0.0	0.0	68.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-22.83	0.10	0.23
P23	D2a	0.0	0.0	62.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.29	-22.83	0.10	0.21
P24	D2a	0.0	0.0	57.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.86	-22.83	0.09	0.19
P25	D2a	0.0	0.1	94.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.26	0.14	0.32
P26	D2a	0.0	0.1	88.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.27	0.13	0.30
P27	D2a	0.0	0.1	82.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.27	0.12	0.28
P28	D2a	0.0	0.1	76.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.28	0.11	0.26
P29	D2a	0.0	0.1	70.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.28	0.11	0.24
P30	D2a	0.0	0.1	65.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.29	0.10	0.22
P31	D2a	0.0	0.2	96.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.06	-17.00	0.14	0.32
P32	D2a	0.0	0.2	90.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.32	-17.00	0.13	0.30
P33	D2a	0.0	0.2	85.2	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.43	-16.99	0.12	0.29
P34	D2a	0.0	0.2	79.5	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-16.98	0.12	0.27
P35	D2a	0.0	0.2	73.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-16.97	0.11	0.25

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc = \sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P36	D2a	0.0	0.2	68.0	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.07	-16.97	0.10	0.23
P37	D2a	0.0	0.3	102.4	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.71	0.14	0.34
P38	D2a	0.0	0.3	96.6	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.72	0.14	0.32
P39	D2a	0.0	0.3	90.7	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.73	0.13	0.30
P40	D2a	0.0	0.3	84.8	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.74	0.12	0.28
P41	D2a	0.0	0.3	78.9	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.76	0.11	0.26
P42	D2a	0.0	0.3	73.1	50	26.1	904	326	131	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-14.77	0.11	0.24
P1	D2b	0.0	-0.3	156.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.03	0.21	0.52
P2	D2b	0.0	-0.3	150.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.04	0.20	0.50
P3	D2b	0.0	-0.3	144.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.05	0.20	0.49
P4	D2b	0.0	-0.3	139.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.07	0.19	0.47
P5	D2b	0.0	-0.3	133.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.08	0.18	0.45
P6	D2b	0.0	-0.3	127.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.09	0.17	0.43
P7	D2b	0.0	-0.2	159.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.95	-18.06	0.21	0.53
P8	D2b	0.0	-0.2	153.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.28	-18.05	0.21	0.51
P9	D2b	0.0	-0.2	147.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-18.05	0.20	0.50
P10	D2b	0.0	-0.2	142.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.46	-18.04	0.19	0.48
P11	D2b	0.0	-0.2	136.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-18.03	0.19	0.46
P12	D2b	0.0	-0.2	130.7	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.96	-18.03	0.18	0.44
P13	D2b	0.0	-0.1	169.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.66	0.23	0.57
P14	D2b	0.0	-0.1	163.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.66	0.22	0.55
P15	D2b	0.0	-0.1	157.7	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.67	0.21	0.53
P16	D2b	0.0	-0.1	151.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.67	0.21	0.51
P17	D2b	0.0	-0.1	145.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.68	0.20	0.49
P18	D2b	0.0	-0.1	140.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.68	0.19	0.47
P19	D2b	0.0	0.0	170.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.01	-22.83	0.23	0.57
P20	D2b	0.0	0.0	164.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-22.83	0.22	0.55
P21	D2b	0.0	0.0	159.1	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.46	-22.83	0.22	0.53
P22	D2b	0.0	0.0	153.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-22.83	0.21	0.51
P23	D2b	0.0	0.0	147.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.29	-22.83	0.20	0.49
P24	D2b	0.0	0.0	141.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.94	-22.83	0.19	0.48
P25	D2b	0.0	0.1	179.7	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.98	0.24	0.60
P26	D2b	0.0	0.1	173.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.99	0.23	0.58
P27	D2b	0.0	0.1	167.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-19.99	0.23	0.56
P28	D2b	0.0	0.1	162.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.00	0.22	0.54
P29	D2b	0.0	0.1	156.1	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.00	0.21	0.52
P30	D2b	0.0	0.1	150.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-20.01	0.20	0.50
P31	D2b	0.0	0.2	179.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.12	-18.54	0.24	0.60
P32	D2b	0.0	0.2	173.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.32	-18.53	0.23	0.58
P33	D2b	0.0	0.2	168.1	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.43	-18.53	0.23	0.56
P34	D2b	0.0	0.2	162.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-18.52	0.22	0.54
P35	D2b	0.0	0.2	156.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-18.51	0.21	0.52
P36	D2b	0.0	0.2	150.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.13	-18.50	0.20	0.51
P37	D2b	0.0	0.2	184.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.90	0.25	0.62
P38	D2b	0.0	0.2	178.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.91	0.24	0.60
P39	D2b	0.0	0.2	172.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.92	0.23	0.58
P40	D2b	0.0	0.2	166.7	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.93	0.22	0.56
P41	D2b	0.0	0.2	160.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.94	0.22	0.54
P42	D2b	0.0	0.2	155.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	0.8976	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.44	-15.95	0.21	0.52
P1	1a-ST	0.0	-0.4	250.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.40	0.37	0.96
P2	1a-ST	0.0	-0.4	241.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.41	0.36	0.93
P3	1a-ST	0.0	-0.4	232.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.43	0.35	0.89
P4	1a-ST	0.0	-0.4	223.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.44	0.33	0.86

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc = \sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P5	1a-ST	0.0	-0.4	214.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.46	0.32	0.82
P6	1a-ST	0.0	-0.4	205.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.48	0.31	0.79
P7	1a-ST	0.0	-0.3	244.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.89	-14.52	0.36	0.94
P8	1a-ST	0.0	-0.3	235.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.25	-14.51	0.35	0.90
P9	1a-ST	0.0	-0.3	227.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.40	-14.50	0.34	0.87
P10	1a-ST	0.0	-0.3	218.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	-14.49	0.33	0.84
P11	1a-ST	0.0	-0.3	209.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	-14.47	0.32	0.80
P12	1a-ST	0.0	-0.3	200.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.91	-14.47	0.30	0.77
P13	1a-ST	0.0	-0.1	252.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.19	0.38	0.96
P14	1a-ST	0.0	-0.1	243.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.20	0.36	0.93
P15	1a-ST	0.0	-0.1	234.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.21	0.35	0.90
P16	1a-ST	0.0	-0.1	225.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.22	0.34	0.86
P17	1a-ST	0.0	-0.1	216.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.22	0.33	0.83
P18	1a-ST	0.0	-0.1	207.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.23	0.31	0.79
P19	1a-ST	0.0	0.0	247.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.97	-23.48	0.37	0.95
P20	1a-ST	0.0	0.0	238.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	-23.48	0.36	0.91
P21	1a-ST	0.0	0.0	230.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	-23.48	0.35	0.88
P22	1a-ST	0.0	0.0	221.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.40	-23.48	0.33	0.85
P23	1a-ST	0.0	0.0	212.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.25	-23.48	0.32	0.81
P24	1a-ST	0.0	0.0	203.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.85	-23.48	0.31	0.78
P25	1a-ST	0.0	0.1	256.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.37	0.38	0.98
P26	1a-ST	0.0	0.1	247.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.38	0.37	0.95
P27	1a-ST	0.0	0.1	238.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.39	0.36	0.91
P28	1a-ST	0.0	0.1	229.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.40	0.34	0.88
P29	1a-ST	0.0	0.1	220.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.41	0.33	0.84
P30	1a-ST	0.0	0.1	211.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	-19.42	0.32	0.81
P31	1a-ST	0.0	0.3	252.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.90	-14.60	0.38	0.97
P32	1a-ST	0.0	0.3	243.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.25	-14.59	0.36	0.93
P33	1a-ST	0.0	0.3	234.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.40	-14.58	0.35	0.90
P34	1a-ST	0.0	0.3	226.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	-14.57	0.34	0.86
P35	1a-ST	0.0	0.3	217.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.32	-14.56	0.33	0.83
P36	1a-ST	0.0	0.3	208.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-22.92	-14.55	0.31	0.80
P37	1a-ST	0.0	0.5	262.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.12	0.39	1.00
P38	1a-ST	0.0	0.5	253.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.14	0.38	0.97
P39	1a-ST	0.0	0.5	244.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.16	0.36	0.94
P40	1a-ST	0.0	0.5	235.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.17	0.35	0.90
P41	1a-ST	0.0	0.5	226.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.19	0.34	0.87
P42	1a-ST	0.0	0.5	217.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	-9.21	0.33	0.83
P1	1b-ST	0.0	8.2	73.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	321.09	0.20	0.28
P2	1b-ST	0.0	8.2	73.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	321.09	0.20	0.28
P3	1b-ST	0.0	8.2	73.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	321.09	0.20	0.28
P4	1b-ST	0.0	8.2	73.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	321.09	0.20	0.28
P5	1b-ST	0.0	8.2	73.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	321.09	0.20	0.28
P6	1b-ST	0.0	8.2	73.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	321.09	0.20	0.28
P7	1b-ST	0.0	8.3	67.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.31	323.64	0.19	0.26
P8	1b-ST	0.0	8.3	67.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.43	323.64	0.19	0.26
P9	1b-ST	0.0	8.3	67.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	323.65	0.19	0.26
P10	1b-ST	0.0	8.3	67.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	323.65	0.19	0.26
P11	1b-ST	0.0	8.3	67.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.43	323.64	0.19	0.26
P12	1b-ST	0.0	8.3	67.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.31	323.64	0.19	0.26
P13	1b-ST	0.0	8.4	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	328.40	0.19	0.25
P14	1b-ST	0.0	8.4	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	328.40	0.19	0.25
P15	1b-ST	0.0	8.4	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	328.40	0.19	0.25

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P16	1b-ST	0.0	8.4	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	328.40	0.19	0.25
P17	1b-ST	0.0	8.4	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	328.40	0.19	0.25
P18	1b-ST	0.0	8.4	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	328.40	0.19	0.25
P19	1b-ST	0.0	8.5	63.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.26	332.88	0.18	0.24
P20	1b-ST	0.0	8.5	63.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	332.88	0.18	0.24
P21	1b-ST	0.0	8.5	63.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	332.89	0.18	0.24
P22	1b-ST	0.0	8.5	63.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.47	332.89	0.18	0.24
P23	1b-ST	0.0	8.5	63.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.42	332.88	0.18	0.24
P24	1b-ST	0.0	8.5	63.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.26	332.88	0.18	0.24
P25	1b-ST	0.0	8.5	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	337.04	0.19	0.25
P26	1b-ST	0.0	8.5	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	337.04	0.19	0.25
P27	1b-ST	0.0	8.5	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	337.04	0.19	0.25
P28	1b-ST	0.0	8.5	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	337.04	0.19	0.25
P29	1b-ST	0.0	8.5	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	337.04	0.19	0.25
P30	1b-ST	0.0	8.5	65.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	337.04	0.19	0.25
P31	1b-ST	0.0	8.6	67.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.28	341.80	0.19	0.26
P32	1b-ST	0.0	8.6	67.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	341.81	0.19	0.26
P33	1b-ST	0.0	8.6	67.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.46	341.82	0.19	0.26
P34	1b-ST	0.0	8.6	67.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.46	341.82	0.19	0.26
P35	1b-ST	0.0	8.6	67.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.41	341.81	0.19	0.26
P36	1b-ST	0.0	8.6	67.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.28	341.80	0.19	0.26
P37	1b-ST	0.0	8.6	71.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	342.13	0.20	0.27
P38	1b-ST	0.0	8.6	71.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	342.13	0.20	0.27
P39	1b-ST	0.0	8.6	71.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	342.13	0.20	0.27
P40	1b-ST	0.0	8.6	71.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	342.13	0.20	0.27
P41	1b-ST	0.0	8.6	71.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	342.13	0.20	0.27
P42	1b-ST	0.0	8.6	71.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.17	-23.48	342.13	0.20	0.27
P1	2a-ST	0.0	-0.5	159.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.66	0.28	0.71
P2	2a-ST	0.0	-0.5	150.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.67	0.27	0.67
P3	2a-ST	0.0	-0.5	141.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.69	0.25	0.63
P4	2a-ST	0.0	-0.5	132.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.70	0.24	0.59
P5	2a-ST	0.0	-0.5	123.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.72	0.22	0.55
P6	2a-ST	0.0	-0.5	114.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.74	0.21	0.51
P7	2a-ST	0.0	-0.3	152.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.86	-13.17	0.27	0.68
P8	2a-ST	0.0	-0.3	143.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-13.16	0.26	0.64
P9	2a-ST	0.0	-0.3	134.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-13.15	0.24	0.60
P10	2a-ST	0.0	-0.3	125.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-13.14	0.23	0.56
P11	2a-ST	0.0	-0.3	117.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-13.13	0.22	0.52
P12	2a-ST	0.0	-0.3	108.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.88	-13.12	0.20	0.48
P13	2a-ST	0.0	-0.2	156.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.57	0.28	0.70
P14	2a-ST	0.0	-0.2	147.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.58	0.27	0.66
P15	2a-ST	0.0	-0.2	138.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.58	0.25	0.62
P16	2a-ST	0.0	-0.2	129.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.59	0.24	0.58
P17	2a-ST	0.0	-0.2	120.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.60	0.22	0.54
P18	2a-ST	0.0	-0.2	111.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.61	0.21	0.50
P19	2a-ST	0.0	0.0	153.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.92	-23.48	0.28	0.68
P20	2a-ST	0.0	0.0	144.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-23.48	0.26	0.64
P21	2a-ST	0.0	0.0	135.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-23.48	0.25	0.60
P22	2a-ST	0.0	0.0	126.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-23.48	0.23	0.57
P23	2a-ST	0.0	0.0	117.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.26	-23.48	0.22	0.53
P24	2a-ST	0.0	0.0	109.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.80	-23.48	0.20	0.49
P25	2a-ST	0.0	0.2	161.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.75	0.29	0.72
P26	2a-ST	0.0	0.2	152.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.76	0.27	0.68

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	$n\sqrt{E_S EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P27	2a-ST	0.0	0.2	142.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.77	0.26	0.64
P28	2a-ST	0.0	0.2	133.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.78	0.24	0.60
P29	2a-ST	0.0	0.2	124.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.78	0.23	0.56
P30	2a-ST	0.0	0.2	115.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-18.79	0.22	0.52
P31	2a-ST	0.0	0.3	159.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.86	-13.25	0.29	0.71
P32	2a-ST	0.0	0.3	151.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-13.24	0.27	0.67
P33	2a-ST	0.0	0.3	142.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-13.23	0.26	0.64
P34	2a-ST	0.0	0.3	133.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-13.22	0.24	0.60
P35	2a-ST	0.0	0.3	124.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-13.21	0.23	0.56
P36	2a-ST	0.0	0.3	116.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.88	-13.20	0.21	0.52
P37	2a-ST	0.0	0.5	171.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.38	0.30	0.76
P38	2a-ST	0.0	0.5	162.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.40	0.29	0.72
P39	2a-ST	0.0	0.5	153.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.42	0.27	0.68
P40	2a-ST	0.0	0.5	144.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.43	0.26	0.64
P41	2a-ST	0.0	0.5	135.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.45	0.24	0.60
P42	2a-ST	0.0	0.5	126.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-8.47	0.23	0.56
P1	2b-ST	0.0	-0.4	260.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.73	0.45	1.16
P2	2b-ST	0.0	-0.4	251.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.75	0.44	1.12
P3	2b-ST	0.0	-0.4	242.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.76	0.42	1.08
P4	2b-ST	0.0	-0.4	233.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.78	0.41	1.04
P5	2b-ST	0.0	-0.4	224.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.79	0.39	1.00
P6	2b-ST	0.0	-0.4	215.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.81	0.38	0.96
P7	2b-ST	0.0	-0.2	254.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.97	-15.86	0.44	1.14
P8	2b-ST	0.0	-0.2	246.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-15.85	0.43	1.10
P9	2b-ST	0.0	-0.2	237.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-15.84	0.41	1.06
P10	2b-ST	0.0	-0.2	228.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-15.83	0.40	1.02
P11	2b-ST	0.0	-0.2	219.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-15.81	0.39	0.98
P12	2b-ST	0.0	-0.2	211.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.99	-15.81	0.37	0.94
P13	2b-ST	0.0	-0.1	263.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.91	0.46	1.17
P14	2b-ST	0.0	-0.1	254.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.92	0.44	1.13
P15	2b-ST	0.0	-0.1	244.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.93	0.43	1.09
P16	2b-ST	0.0	-0.1	235.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.93	0.41	1.05
P17	2b-ST	0.0	-0.1	226.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.94	0.40	1.01
P18	2b-ST	0.0	-0.1	217.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.95	0.38	0.97
P19	2b-ST	0.0	0.0	258.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.05	-23.48	0.45	1.16
P20	2b-ST	0.0	0.0	250.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-23.48	0.44	1.12
P21	2b-ST	0.0	0.0	241.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-23.48	0.42	1.08
P22	2b-ST	0.0	0.0	232.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-23.48	0.41	1.04
P23	2b-ST	0.0	0.0	223.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-23.48	0.39	1.00
P24	2b-ST	0.0	0.0	214.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.94	-23.48	0.38	0.96
P25	2b-ST	0.0	0.1	267.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-20.09	0.46	1.19
P26	2b-ST	0.0	0.1	258.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-20.10	0.45	1.15
P27	2b-ST	0.0	0.1	249.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-20.11	0.44	1.11
P28	2b-ST	0.0	0.1	240.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-20.12	0.42	1.07
P29	2b-ST	0.0	0.1	231.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-20.12	0.41	1.03
P30	2b-ST	0.0	0.1	221.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-20.13	0.39	0.99
P31	2b-ST	0.0	0.2	262.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.97	-15.94	0.46	1.17
P32	2b-ST	0.0	0.2	253.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-15.93	0.44	1.13
P33	2b-ST	0.0	0.2	245.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-15.92	0.43	1.09
P34	2b-ST	0.0	0.2	236.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-15.91	0.41	1.05
P35	2b-ST	0.0	0.2	227.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-15.90	0.40	1.02
P36	2b-ST	0.0	0.2	218.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.99	-15.89	0.38	0.98
P37	2b-ST	0.0	0.4	272.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.46	0.47	1.22

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	$n\sqrt{E_S EI}$ Y-axis PCR	$Cc = \sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P38	2b-ST	0.0	0.4	263.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.47	0.46	1.18
P39	2b-ST	0.0	0.4	254.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.49	0.44	1.14
P40	2b-ST	0.0	0.4	245.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.51	0.43	1.10
P41	2b-ST	0.0	0.4	236.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.52	0.41	1.06
P42	2b-ST	0.0	0.4	227.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.54	0.40	1.01
P1	3a-ST	0.0	-0.4	213.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.46	0.37	0.95
P2	3a-ST	0.0	-0.4	204.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.47	0.36	0.91
P3	3a-ST	0.0	-0.4	195.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.49	0.34	0.87
P4	3a-ST	0.0	-0.4	186.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.50	0.33	0.83
P5	3a-ST	0.0	-0.4	177.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.52	0.31	0.79
P6	3a-ST	0.0	-0.4	168.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.54	0.30	0.75
P7	3a-ST	0.0	-0.3	207.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.90	-14.20	0.36	0.92
P8	3a-ST	0.0	-0.3	198.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.26	-14.19	0.35	0.89
P9	3a-ST	0.0	-0.3	189.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-14.18	0.34	0.85
P10	3a-ST	0.0	-0.3	180.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-14.17	0.32	0.81
P11	3a-ST	0.0	-0.3	172.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-14.15	0.31	0.77
P12	3a-ST	0.0	-0.3	163.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.92	-14.15	0.29	0.73
P13	3a-ST	0.0	-0.1	213.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.05	0.38	0.95
P14	3a-ST	0.0	-0.1	204.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.06	0.36	0.91
P15	3a-ST	0.0	-0.1	195.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.06	0.35	0.87
P16	3a-ST	0.0	-0.1	186.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.07	0.33	0.83
P17	3a-ST	0.0	-0.1	177.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.08	0.32	0.79
P18	3a-ST	0.0	-0.1	168.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.09	0.30	0.75
P19	3a-ST	0.0	0.0	209.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.97	-23.48	0.37	0.93
P20	3a-ST	0.0	0.0	200.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-23.48	0.36	0.90
P21	3a-ST	0.0	0.0	191.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-23.48	0.34	0.86
P22	3a-ST	0.0	0.0	182.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-23.48	0.33	0.82
P23	3a-ST	0.0	0.0	174.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.26	-23.48	0.31	0.78
P24	3a-ST	0.0	0.0	165.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.85	-23.48	0.30	0.74
P25	3a-ST	0.0	0.1	217.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.23	0.38	0.97
P26	3a-ST	0.0	0.1	208.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.24	0.37	0.93
P27	3a-ST	0.0	0.1	199.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.25	0.35	0.89
P28	3a-ST	0.0	0.1	190.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.26	0.34	0.85
P29	3a-ST	0.0	0.1	181.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.26	0.32	0.81
P30	3a-ST	0.0	0.1	172.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.27	0.31	0.77
P31	3a-ST	0.0	0.3	214.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.90	-14.28	0.38	0.96
P32	3a-ST	0.0	0.3	206.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.26	-14.27	0.36	0.92
P33	3a-ST	0.0	0.3	197.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-14.26	0.35	0.88
P34	3a-ST	0.0	0.3	188.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-14.25	0.33	0.84
P35	3a-ST	0.0	0.3	179.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.33	-14.24	0.32	0.80
P36	3a-ST	0.0	0.3	171.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.92	-14.23	0.30	0.76
P37	3a-ST	0.0	0.5	225.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.18	0.39	1.01
P38	3a-ST	0.0	0.5	216.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.20	0.38	0.97
P39	3a-ST	0.0	0.5	207.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.22	0.36	0.93
P40	3a-ST	0.0	0.5	198.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.23	0.35	0.89
P41	3a-ST	0.0	0.5	189.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.25	0.33	0.85
P42	3a-ST	0.0	0.4	180.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-9.27	0.32	0.81
P1	3b-ST	0.0	-0.4	256.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.57	0.45	1.15
P2	3b-ST	0.0	-0.4	247.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.59	0.43	1.11
P3	3b-ST	0.0	-0.4	238.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.60	0.42	1.07
P4	3b-ST	0.0	-0.4	229.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.62	0.40	1.03
P5	3b-ST	0.0	-0.4	220.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.63	0.39	0.99
P6	3b-ST	0.0	-0.4	211.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.65	0.37	0.95

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	$n\sqrt{E_S EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P7	3b-ST	0.0	-0.3	251.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.96	-15.59	0.44	1.12
P8	3b-ST	0.0	-0.3	242.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-15.59	0.42	1.08
P9	3b-ST	0.0	-0.3	233.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-15.57	0.41	1.04
P10	3b-ST	0.0	-0.3	224.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-15.56	0.39	1.00
P11	3b-ST	0.0	-0.3	215.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-15.55	0.38	0.96
P12	3b-ST	0.0	-0.3	207.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.98	-15.54	0.36	0.92
P13	3b-ST	0.0	-0.1	258.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.75	0.45	1.16
P14	3b-ST	0.0	-0.1	249.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.76	0.44	1.12
P15	3b-ST	0.0	-0.1	240.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.77	0.42	1.08
P16	3b-ST	0.0	-0.1	231.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.78	0.41	1.04
P17	3b-ST	0.0	-0.1	222.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.78	0.39	0.99
P18	3b-ST	0.0	-0.1	213.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.79	0.38	0.95
P19	3b-ST	0.0	0.0	254.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.04	-23.48	0.45	1.14
P20	3b-ST	0.0	0.0	245.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-23.48	0.43	1.10
P21	3b-ST	0.0	0.0	237.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-23.48	0.42	1.06
P22	3b-ST	0.0	0.0	228.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-23.48	0.40	1.02
P23	3b-ST	0.0	0.0	219.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-23.48	0.39	0.98
P24	3b-ST	0.0	0.0	210.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.92	-23.48	0.37	0.94
P25	3b-ST	0.0	0.1	263.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.93	0.46	1.17
P26	3b-ST	0.0	0.1	254.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.94	0.44	1.13
P27	3b-ST	0.0	0.1	245.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.95	0.43	1.09
P28	3b-ST	0.0	0.1	236.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.96	0.41	1.05
P29	3b-ST	0.0	0.1	226.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.97	0.40	1.01
P30	3b-ST	0.0	0.1	217.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.41	-19.98	0.38	0.97
P31	3b-ST	0.0	0.2	258.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.96	-15.67	0.45	1.16
P32	3b-ST	0.0	0.2	250.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.27	-15.67	0.44	1.12
P33	3b-ST	0.0	0.2	241.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.40	-15.66	0.42	1.08
P34	3b-ST	0.0	0.3	232.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.47	-15.64	0.41	1.04
P35	3b-ST	0.0	0.3	223.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.34	-15.63	0.39	1.00
P36	3b-ST	0.0	0.3	214.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-22.98	-15.62	0.38	0.96
P37	3b-ST	0.0	0.4	268.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.30	0.46	1.20
P38	3b-ST	0.0	0.4	259.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.32	0.45	1.16
P39	3b-ST	0.0	0.4	250.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.33	0.43	1.12
P40	3b-ST	0.0	0.4	241.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.35	0.42	1.08
P41	3b-ST	0.0	0.4	232.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.36	0.41	1.04
P42	3b-ST	0.0	0.4	223.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1	-23.42	-10.38	0.39	1.00
P1	D1a-ST	0.0	-0.4	173.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.85	0.23	0.58
P2	D1a-ST	0.0	-0.4	164.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.87	0.22	0.55
P3	D1a-ST	0.0	-0.4	155.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.88	0.21	0.52
P4	D1a-ST	0.0	-0.4	146.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.90	0.20	0.49
P5	D1a-ST	0.0	-0.4	137.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.92	0.19	0.46
P6	D1a-ST	0.0	-0.4	128.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.93	0.18	0.43
P7	D1a-ST	0.0	-0.3	166.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.02	-13.60	0.22	0.56
P8	D1a-ST	0.0	-0.3	157.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.30	-13.59	0.21	0.53
P9	D1a-ST	0.0	-0.3	149.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-13.58	0.20	0.50
P10	D1a-ST	0.0	-0.3	140.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.48	-13.57	0.19	0.47
P11	D1a-ST	0.0	-0.3	131.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-13.56	0.18	0.44
P12	D1a-ST	0.0	-0.3	122.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.04	-13.55	0.17	0.41
P13	D1a-ST	0.0	-0.2	169.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.31	0.23	0.57
P14	D1a-ST	0.0	-0.2	160.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.31	0.22	0.54
P15	D1a-ST	0.0	-0.2	151.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.32	0.21	0.51
P16	D1a-ST	0.0	-0.2	142.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.33	0.19	0.48
P17	D1a-ST	0.0	-0.2	133.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.34	0.18	0.45

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P18	D1a-ST	0.0	-0.2	124.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.35	0.17	0.42
P19	D1a-ST	0.0	0.0	165.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.91	-23.48	0.22	0.55
P20	D1a-ST	0.0	0.0	156.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-23.48	0.21	0.52
P21	D1a-ST	0.0	0.0	147.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-23.48	0.20	0.50
P22	D1a-ST	0.0	0.0	139.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.40	-23.48	0.19	0.47
P23	D1a-ST	0.0	0.0	130.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.26	-23.48	0.18	0.44
P24	D1a-ST	0.0	0.0	121.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.79	-23.48	0.17	0.41
P25	D1a-ST	0.0	0.2	174.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.49	0.23	0.58
P26	D1a-ST	0.0	0.2	165.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.50	0.22	0.55
P27	D1a-ST	0.0	0.2	155.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.51	0.21	0.52
P28	D1a-ST	0.0	0.2	146.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.51	0.20	0.49
P29	D1a-ST	0.0	0.2	137.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.52	0.19	0.46
P30	D1a-ST	0.0	0.2	128.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.53	0.18	0.43
P31	D1a-ST	0.0	0.3	174.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.02	-13.68	0.23	0.58
P32	D1a-ST	0.0	0.3	165.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.30	-13.67	0.22	0.55
P33	D1a-ST	0.0	0.3	156.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-13.66	0.21	0.52
P34	D1a-ST	0.0	0.3	148.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.48	-13.65	0.20	0.50
P35	D1a-ST	0.0	0.3	139.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-13.64	0.19	0.47
P36	D1a-ST	0.0	0.3	130.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.04	-13.63	0.18	0.44
P37	D1a-ST	0.0	0.4	185.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.58	0.25	0.62
P38	D1a-ST	0.0	0.4	176.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.60	0.23	0.59
P39	D1a-ST	0.0	0.4	167.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.61	0.22	0.56
P40	D1a-ST	0.0	0.4	158.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.63	0.21	0.53
P41	D1a-ST	0.0	0.4	149.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.65	0.20	0.50
P42	D1a-ST	0.0	0.4	140.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.66	0.19	0.47
P1	D1b-ST	0.0	-0.4	255.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-11.05	0.33	0.85
P2	D1b-ST	0.0	-0.4	246.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-11.07	0.32	0.82
P3	D1b-ST	0.0	-0.4	237.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-11.09	0.31	0.79
P4	D1b-ST	0.0	-0.4	228.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-11.10	0.30	0.76
P5	D1b-ST	0.0	-0.4	219.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-11.12	0.29	0.73
P6	D1b-ST	0.0	-0.4	210.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-11.14	0.28	0.70
P7	D1b-ST	0.0	-0.3	249.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.08	-15.15	0.33	0.84
P8	D1b-ST	0.0	-0.3	240.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.30	-15.14	0.31	0.81
P9	D1b-ST	0.0	-0.3	231.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-15.13	0.30	0.78
P10	D1b-ST	0.0	-0.3	223.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.48	-15.12	0.29	0.75
P11	D1b-ST	0.0	-0.3	214.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-15.10	0.28	0.72
P12	D1b-ST	0.0	-0.3	205.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.10	-15.10	0.27	0.69
P13	D1b-ST	0.0	-0.1	255.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.03	0.33	0.85
P14	D1b-ST	0.0	-0.1	246.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.04	0.32	0.82
P15	D1b-ST	0.0	-0.1	237.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.05	0.31	0.79
P16	D1b-ST	0.0	-0.1	228.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.05	0.30	0.76
P17	D1b-ST	0.0	-0.1	219.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.06	0.29	0.73
P18	D1b-ST	0.0	-0.1	210.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.07	0.28	0.70
P19	D1b-ST	0.0	0.0	250.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.98	-23.48	0.33	0.84
P20	D1b-ST	0.0	0.0	241.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-23.48	0.32	0.81
P21	D1b-ST	0.0	0.0	232.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-23.48	0.31	0.78
P22	D1b-ST	0.0	0.0	224.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.40	-23.48	0.30	0.75
P23	D1b-ST	0.0	0.0	215.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.26	-23.48	0.29	0.72
P24	D1b-ST	0.0	0.0	206.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.87	-23.48	0.27	0.69
P25	D1b-ST	0.0	0.1	259.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.21	0.34	0.87
P26	D1b-ST	0.0	0.1	250.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.22	0.33	0.84
P27	D1b-ST	0.0	0.1	241.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.23	0.32	0.81
P28	D1b-ST	0.0	0.1	232.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.24	0.31	0.78

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P29	D1b-ST	0.0	0.1	223.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.25	0.29	0.75
P30	D1b-ST	0.0	0.1	214.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.25	0.28	0.72
P31	D1b-ST	0.0	0.3	257.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.08	-15.23	0.34	0.86
P32	D1b-ST	0.0	0.3	248.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.30	-15.22	0.32	0.83
P33	D1b-ST	0.0	0.3	239.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-15.21	0.31	0.80
P34	D1b-ST	0.0	0.3	230.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.48	-15.20	0.30	0.77
P35	D1b-ST	0.0	0.3	222.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-15.19	0.29	0.74
P36	D1b-ST	0.0	0.3	213.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.10	-15.18	0.28	0.71
P37	D1b-ST	0.0	0.4	267.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.78	0.35	0.89
P38	D1b-ST	0.0	0.4	258.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.80	0.34	0.86
P39	D1b-ST	0.0	0.4	249.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.81	0.32	0.83
P40	D1b-ST	0.0	0.4	240.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.83	0.31	0.80
P41	D1b-ST	0.0	0.4	231.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.85	0.30	0.77
P42	D1b-ST	0.0	0.4	222.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.87	0.29	0.74
P1	D2a-ST	0.0	-0.5	156.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-8.73	0.21	0.52
P2	D2a-ST	0.0	-0.5	147.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-8.74	0.20	0.49
P3	D2a-ST	0.0	-0.5	138.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-8.76	0.19	0.46
P4	D2a-ST	0.0	-0.5	129.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-8.77	0.18	0.43
P5	D2a-ST	0.0	-0.5	120.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-8.79	0.16	0.40
P6	D2a-ST	0.0	-0.5	111.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-8.81	0.15	0.37
P7	D2a-ST	0.0	-0.3	151.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.86	-13.17	0.20	0.51
P8	D2a-ST	0.0	-0.3	143.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.27	-13.16	0.19	0.48
P9	D2a-ST	0.0	-0.3	134.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.40	-13.15	0.18	0.45
P10	D2a-ST	0.0	-0.3	125.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-13.14	0.17	0.42
P11	D2a-ST	0.0	-0.3	116.7	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-13.12	0.16	0.39
P12	D2a-ST	0.0	-0.3	107.9	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.88	-13.12	0.15	0.36
P13	D2a-ST	0.0	-0.1	159.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.84	0.22	0.53
P14	D2a-ST	0.0	-0.1	150.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.85	0.20	0.50
P15	D2a-ST	0.0	-0.1	141.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.85	0.19	0.47
P16	D2a-ST	0.0	-0.1	132.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.86	0.18	0.44
P17	D2a-ST	0.0	-0.1	123.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.87	0.17	0.41
P18	D2a-ST	0.0	-0.1	114.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.88	0.16	0.38
P19	D2a-ST	0.0	0.0	159.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.91	-22.83	0.22	0.53
P20	D2a-ST	0.0	0.0	150.4	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-22.83	0.20	0.50
P21	D2a-ST	0.0	0.0	141.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-22.83	0.19	0.47
P22	D2a-ST	0.0	0.0	132.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.40	-22.83	0.18	0.44
P23	D2a-ST	0.0	0.0	124.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.26	-22.83	0.17	0.42
P24	D2a-ST	0.0	0.0	115.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.80	-22.83	0.16	0.39
P25	D2a-ST	0.0	0.2	171.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.22	0.23	0.57
P26	D2a-ST	0.0	0.2	162.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.23	0.22	0.54
P27	D2a-ST	0.0	0.2	153.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.24	0.21	0.51
P28	D2a-ST	0.0	0.2	144.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.25	0.20	0.48
P29	D2a-ST	0.0	0.2	135.2	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.25	0.19	0.45
P30	D2a-ST	0.0	0.2	126.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.26	0.17	0.42
P31	D2a-ST	0.0	0.3	174.6	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.03	-13.68	0.23	0.58
P32	D2a-ST	0.0	0.3	165.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.31	-13.68	0.22	0.56
P33	D2a-ST	0.0	0.3	157.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-13.66	0.21	0.53
P34	D2a-ST	0.0	0.3	148.3	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.48	-13.65	0.20	0.50
P35	D2a-ST	0.0	0.3	139.5	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-13.64	0.19	0.47
P36	D2a-ST	0.0	0.3	130.8	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.04	-13.63	0.18	0.44
P37	D2a-ST	0.0	0.4	188.0	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.51	0.25	0.63
P38	D2a-ST	0.0	0.4	179.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.53	0.24	0.60
P39	D2a-ST	0.0	0.4	170.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.54	0.23	0.57

Maurepas Diversion
Monoliths C-2 to C-4: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: _____

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P40	D2a-ST	0.0	0.4	161.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.56	0.22	0.54
P41	D2a-ST	0.0	0.4	152.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.58	0.20	0.51
P42	D2a-ST	0.0	0.4	143.1	50	26.1	904	326	131	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.59	0.19	0.48
P1	D2b-ST	0.0	-0.4	238.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.93	0.31	0.80
P2	D2b-ST	0.0	-0.4	229.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.95	0.30	0.77
P3	D2b-ST	0.0	-0.4	220.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.96	0.29	0.74
P4	D2b-ST	0.0	-0.4	211.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-9.98	0.28	0.71
P5	D2b-ST	0.0	-0.4	202.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.00	0.27	0.68
P6	D2b-ST	0.0	-0.4	193.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.01	0.26	0.65
P7	D2b-ST	0.0	-0.3	234.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.92	-14.72	0.31	0.79
P8	D2b-ST	0.0	-0.3	225.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.26	-14.71	0.30	0.76
P9	D2b-ST	0.0	-0.3	217.1	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.40	-14.70	0.29	0.73
P10	D2b-ST	0.0	-0.3	208.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-14.69	0.27	0.70
P11	D2b-ST	0.0	-0.3	199.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-14.67	0.26	0.67
P12	D2b-ST	0.0	-0.3	190.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.94	-14.67	0.25	0.64
P13	D2b-ST	0.0	-0.1	244.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.56	0.32	0.82
P14	D2b-ST	0.0	-0.1	235.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.57	0.31	0.79
P15	D2b-ST	0.0	-0.1	226.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.57	0.30	0.76
P16	D2b-ST	0.0	-0.1	217.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.58	0.29	0.73
P17	D2b-ST	0.0	-0.1	208.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.59	0.28	0.70
P18	D2b-ST	0.0	-0.1	199.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-19.60	0.27	0.67
P19	D2b-ST	0.0	0.0	244.1	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.99	-22.83	0.32	0.82
P20	D2b-ST	0.0	0.0	235.3	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.33	-22.83	0.31	0.79
P21	D2b-ST	0.0	0.0	226.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.47	-22.83	0.30	0.76
P22	D2b-ST	0.0	0.0	217.8	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.40	-22.83	0.29	0.73
P23	D2b-ST	0.0	0.0	209.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.26	-22.83	0.28	0.70
P24	D2b-ST	0.0	0.0	200.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-22.87	-22.83	0.27	0.67
P25	D2b-ST	0.0	0.1	256.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.94	0.34	0.86
P26	D2b-ST	0.0	0.1	247.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.95	0.32	0.83
P27	D2b-ST	0.0	0.1	238.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.96	0.31	0.80
P28	D2b-ST	0.0	0.1	229.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.97	0.30	0.77
P29	D2b-ST	0.0	0.1	220.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.98	0.29	0.74
P30	D2b-ST	0.0	0.1	211.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-18.98	0.28	0.71
P31	D2b-ST	0.0	0.3	257.5	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.08	-15.23	0.34	0.86
P32	D2b-ST	0.0	0.3	248.7	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.30	-15.22	0.32	0.83
P33	D2b-ST	0.0	0.3	239.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.41	-15.21	0.31	0.80
P34	D2b-ST	0.0	0.3	231.2	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.48	-15.20	0.30	0.77
P35	D2b-ST	0.0	0.3	222.4	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.37	-15.19	0.29	0.74
P36	D2b-ST	0.0	0.3	213.6	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.10	-15.18	0.28	0.72
P37	D2b-ST	0.0	0.4	269.9	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.71	0.35	0.90
P38	D2b-ST	0.0	0.4	261.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.73	0.34	0.87
P39	D2b-ST	0.0	0.4	252.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.75	0.33	0.84
P40	D2b-ST	0.0	0.4	243.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.76	0.32	0.81
P41	D2b-ST	0.0	0.4	234.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.78	0.31	0.78
P42	D2b-ST	0.0	0.4	225.0	50	26.1	904.0	326.0	131.0	44.3	29000	2.265	1	1.0000	224.0	0.0	4627	7706	107	40	2	606	625	653	1231	3639	1.33	-23.42	-10.80	0.29	0.75

NO CBF FAILURES
ON ANY LOAD CASE

PART 3

Member Design, Traditional Load Cases

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Monoliths C-2 to C-4 Model	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Member Design	**Checked By:**	BCB	**Date:**	Aug-13	**Sheet:**	of

*** Given Information:**

Notes / References

TRADITIONAL CASES

Top Slab Thickness =	2.75	ft
Bottom Slab Thickness =	3.5	ft
Wall Thickness =	2.75	ft
Design Width =	12	in
f'_c =	4	ksi
f_y =	60	ksi
ϕ, shear =	0.85	
ϕ, moment =	0.90	
ρ_{bal} =	0.0285	

EM 1110-2-2104

EM 1110-2-2104

For f'_c = 4000 psi & f_y = 60,000 psi

*** Top Slab:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	25.3	9.4	22.6	50.4	113.9

* Shear taken at a distance 'd' = 28.37 inch from faces of walls.

Max. Shear =	**25.3**	**kip**	
Bottom Moment, Primary =	**50.4**	**kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**113.9**	**kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**9.4**	**kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**22.6**	**kip-ft**	(-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in — #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 — EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.076 in^2 — ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.135 in^2 — ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 25.3kip → Section OK

SAP RESULT IMAGES FOLLOW SPREADSHEET

Moment: * AS PER ACI 318 SECT 10.5.3, FLEX. MINIMUM MAY BE NEGLECTED IF CAPACITY > 1.33 × Mu

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$
* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Primary Top Face:

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

$\phi Mn =$ 0.9 * 1.27in^2 * 60ksi * (28.365in - 1.868in / 2)
= 1881.2 kip-in/ft
= 156.77 kip-ft/ft

ϕMn = 156.8kip-ft > Mu = 113.9kip-ft → Use #10 @ 12"

Primary Bottom Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

$\phi Mn =$ 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)
= 1185.3 kip-in/ft
= 98.77 kip-ft/ft

* 50.4 × 1.33 = 67.2 k·ft < ϕMn

ϕMn = 98.8kip-ft > Mu = 50.4kip-ft → Use #8 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 22.6 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

$\phi Mn =$ 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

* 22.6 k·ft × 1.33 = 30 k·ft < ϕMn

ϕMn = 75.4kip-ft > Mu = 22.6kip-ft → Use #7 @ 12"

*** Bottom Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
COMBO	13.6	31.9	18.0	98.4	91.0	122.1

* Shear taken at a distance 'd' = 37.37 inch from centerlines of piles.

Max. Shear = 31.9 kip
Bottom Moment, Primary = 91.0 kip-ft (+M22 controls bottom transverse reinforcement)
Top Moment, Primary = 122.1 kip-ft (-M22 controls top transverse reinforcement)
Bottom Moment, Secondary = 18.0 kip-ft (+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary = 98.4 kip-ft (-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 42in * 12in strip = 504 in^2

$d_{top\ bars}$ = 42in - 4in cover - 1/2 bar diameter = 37.37 in #10 bar assumed

$d_{bottom\ bars}$ = 42in - 9in pile embed - 3in cover - 1/2 bar diameter = 29.37 in

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 5.387 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.411 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.418 in^2 ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.495 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**5.387 in^2**	- half each face
	Min. T&S Rebar =	**1.411 in^2**	- half each face
	Min. Flexural Rebar =	**1.495 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 37.365in

= 48,209 lb

ϕVc = 48.2kip > Vu = 31.9kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

Primary Top Face: $d_{top\ bars}$ = 37.37 in

* Will try **#8 @ 6"** to start: As, #8 @ 6" = 1.58 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

ϕMn = 0.9 * 1.58in² * 60ksi * (37.365in - 2.324in / 2)

= 3088.9 kip-in/ft

= 257.41 kip-ft/ft

ϕMn = 257.4kip-ft > Mu = 122.1kip-ft → Use #8 @ 6"

Primary Bottom Face: $d_{bottom\ bars}$ = 29.37 in

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in² * 60ksi * (29.365in - 1.868in / 2)

= 1949.8 kip-in/ft

= 162.48 kip-ft/ft *$91^{k\cdot ft} \times 1.33 = 121.3^{k\cdot ft} < \phi Mn$

ϕMn = 162.5kip-ft > Mu = 91kip-ft → Use #10 @ 12"

* FLEX MINIMUM NEGLECTED B/C OF ACI 318, 10.5 3 ALLOWANCE → $\phi Mn > Mu \times 1.33$

Secondary Top Face: $d_{top\ bars}$ = 37.37 in

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in^2 * 60ksi * (37.365in - 1.868in / 2)
= 2498.5 kip-in/ft
= 208.20 kip-ft/ft

* 98.4k·ft x1.33 = 131.2k·ft < ϕMn

ϕMn = 208.2kip-ft > Mu = 98.4kip-ft → Use #10 @ 12"

Secondary Bottom Face: $d_{bottom\ bars}$ = 29.37 in

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in^2 * 60ksi * (29.365in - 1.868in / 2)
= 1949.8 kip-in/ft
= 162.48 kip-ft/ft *

ϕMn = 162.5kip-ft > Mu = 18kip-ft → Use #10 @ 12"

*** Interior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	9.4	7.4	3.9	37.2	19.2

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 9.4 kip
Max. Moment, Primary = 37.2 kip-ft (M22, "primary" controls vertical reinforcement)
Min. Moment, Primary = 19.2 kip-ft
Max. Moment, Secondary = 7.4 kip-ft (M11, "secondary" controls horizontal reinforcemen
Min. Moment, Secondary = 3.9 kip-ft

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
$(200 * b * d) / f_y$ = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * $\sqrt{(f'_c)}$ * b * d
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 9.4kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'_c * a * b
* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

All reinforcement: * $M_{max,\ all\ directions}$ = 37.2 k-ft

* Will try #7 @ 12" to start: As, #7 @ 12" = 0.6 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

* 37.2x1.33 = 49.6 k·ft < ϕMn

ϕMn = 75.4kip-ft > Mu = 37.2kip-ft → Use #7 @ 12"

*** Exterior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	23.8	20.3	11.1	103.0	57.6

* Shear taken at a distance 'd' = 28.37 inch from faces of Slabs.

CONTROL OVER SETTLEMENT CASES

Max. Shear =	**23.8 kip**	
Max. Moment, Primary =	**103.0 kip-ft**	(+M22 controls exterior vertical reinforcement)
Min. Moment, Primary =	**57.6 kip-ft**	(-M22 controls interior vertical reinforcement)
Max. Moment, Secondary =	**20.3 kip-ft**	(+M11 controls exterior horiz. reinforcement)
Min. Moment, Secondary =	**11.1 kip-ft**	(-M11 controls interior horiz. reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
(3 * $\sqrt{(f'_c)}$ * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{(f'_c)} * b * d$

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 23.8kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

Primary Exterior Face:

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in^2 * 60ksi * (28.365in - 1.868in / 2)

= 1881.2 kip-in/ft

= 156.77 kip-ft/ft

ϕMn = 156.8kip-ft > Mu = 103kip-ft → Use #10 @ 12"

Primary Interior Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)

= 1185.3 kip-in/ft

= 98.77 kip-ft/ft

* 57.6 × 1.33 = 76.8 k-ft < ϕMn

ϕMn = 98.8kip-ft > Mu = 57.6kip-ft → Use #8 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 20.3 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

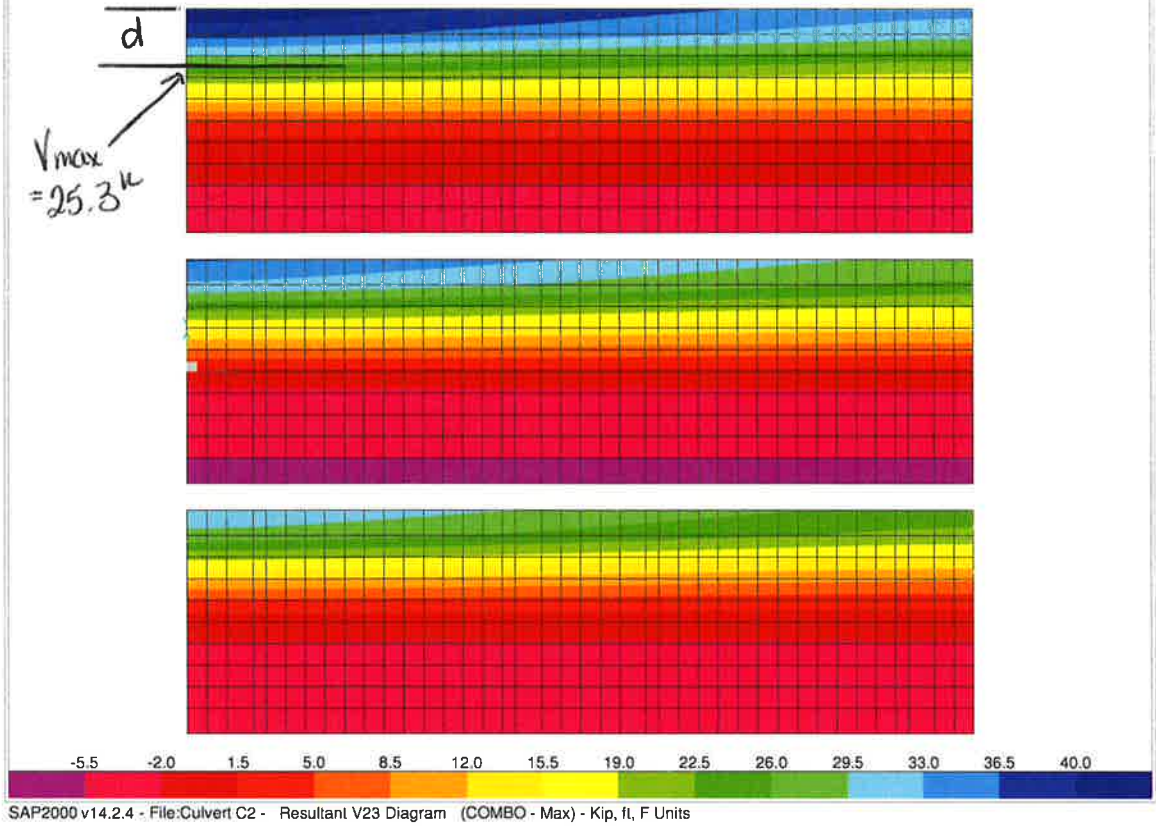
* 20.3 × 1.33 = 27.1 k-ft < ϕMn

ϕMn = 75.4kip-ft > Mu = 20.3kip-ft → Use #7 @ 12"

SAP2000

TOP SLAB RESULTS

8/14/13 14:03:30

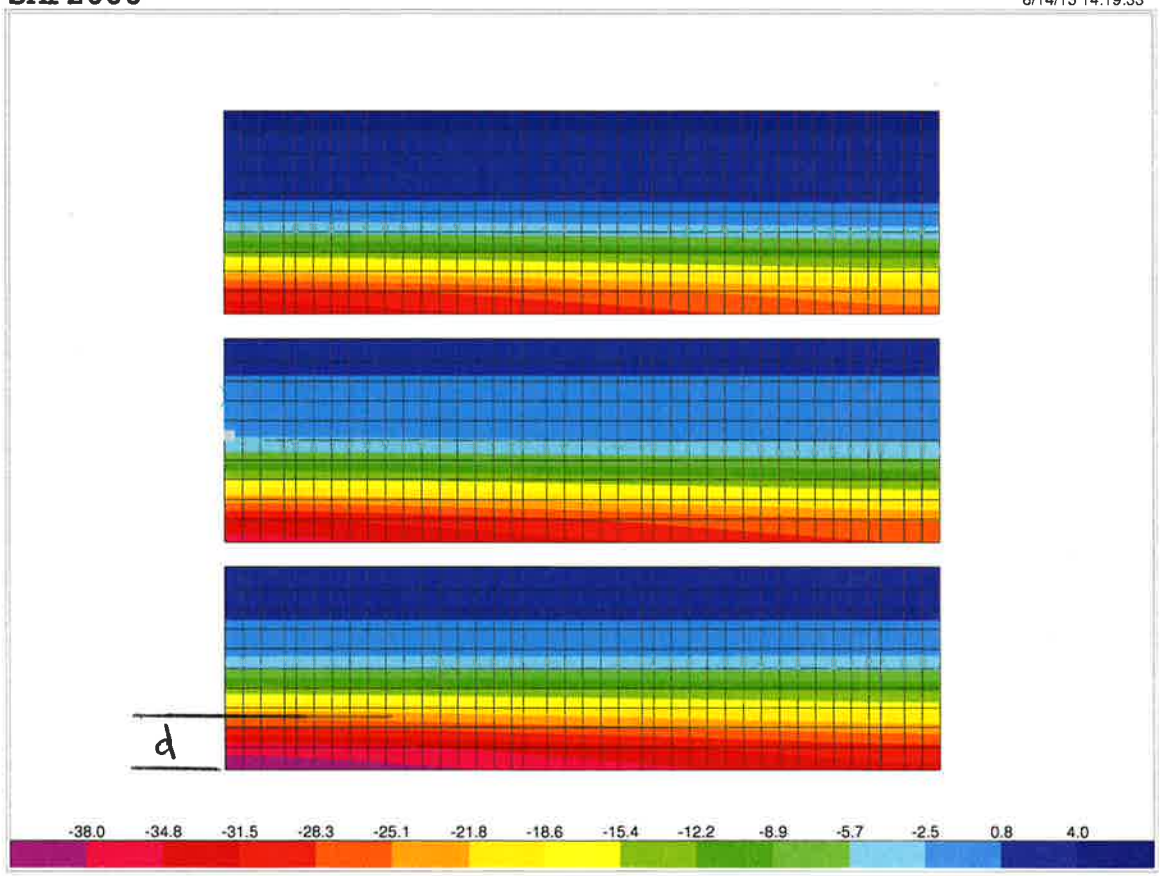


SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

Shears

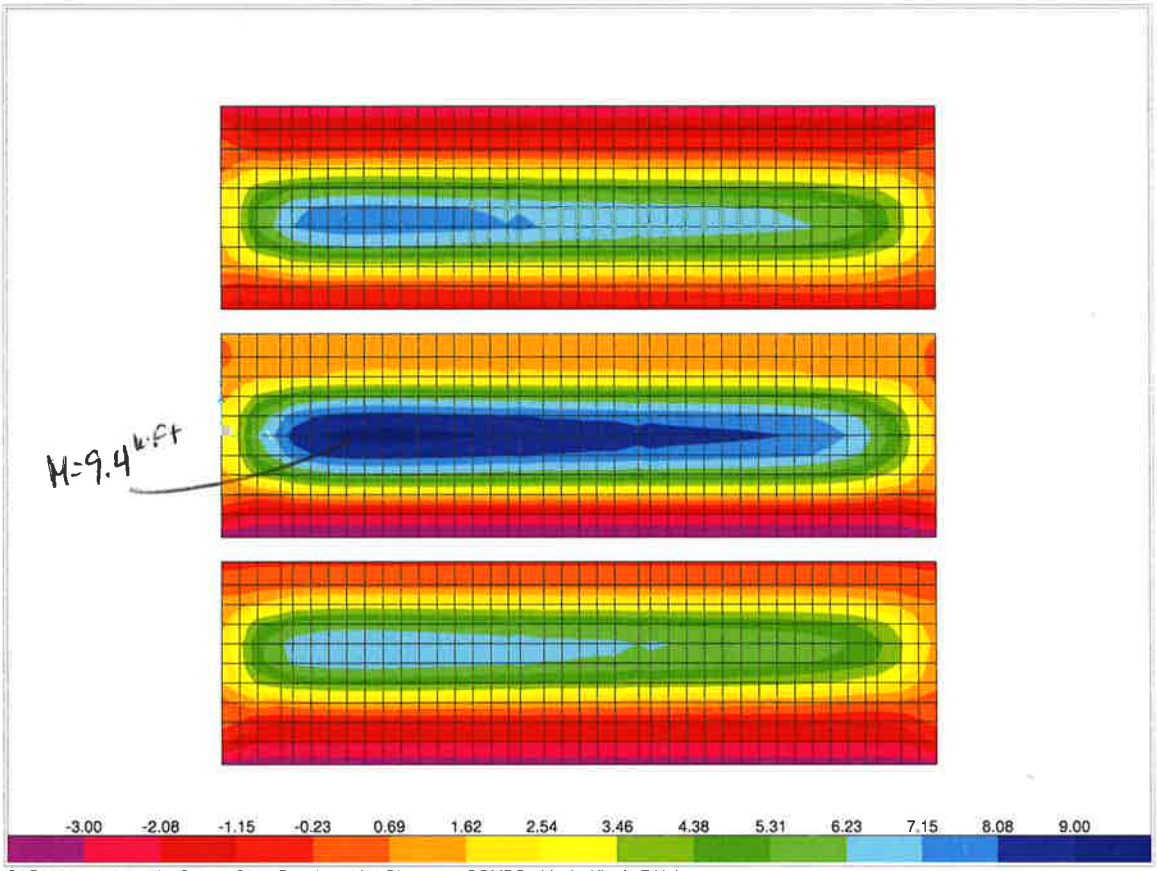
SAP2000

8/14/13 14:19:33



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

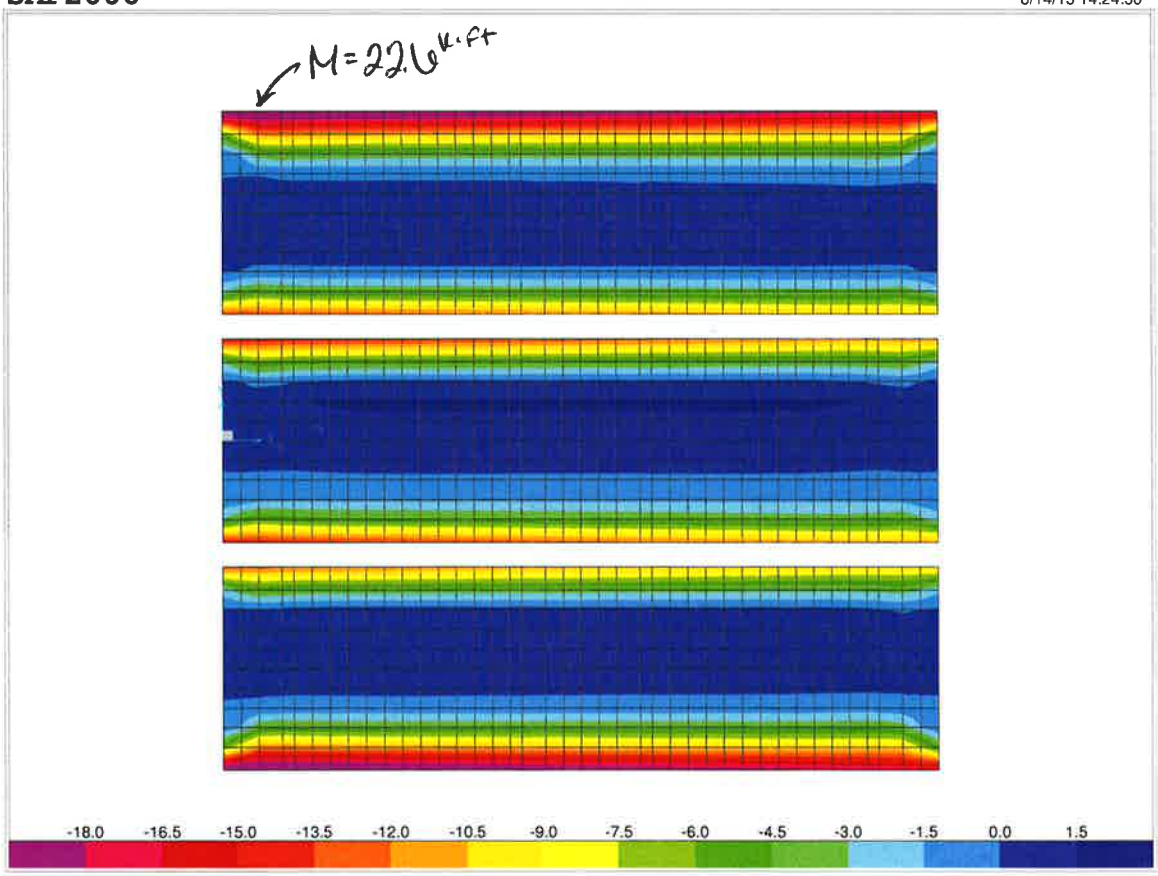
SAP2000 8/14/13 14:23:03



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

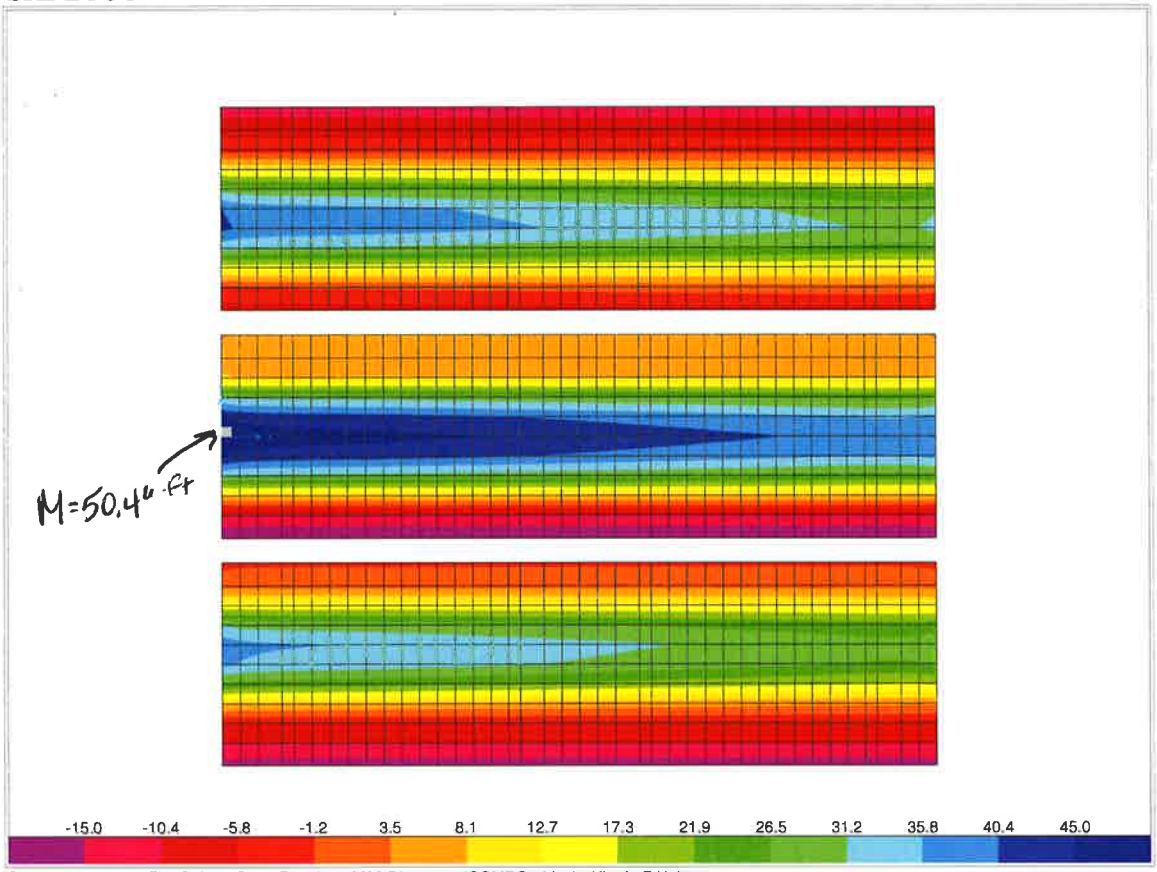
Secondary Moments

SAP2000 8/14/13 14:24:30



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

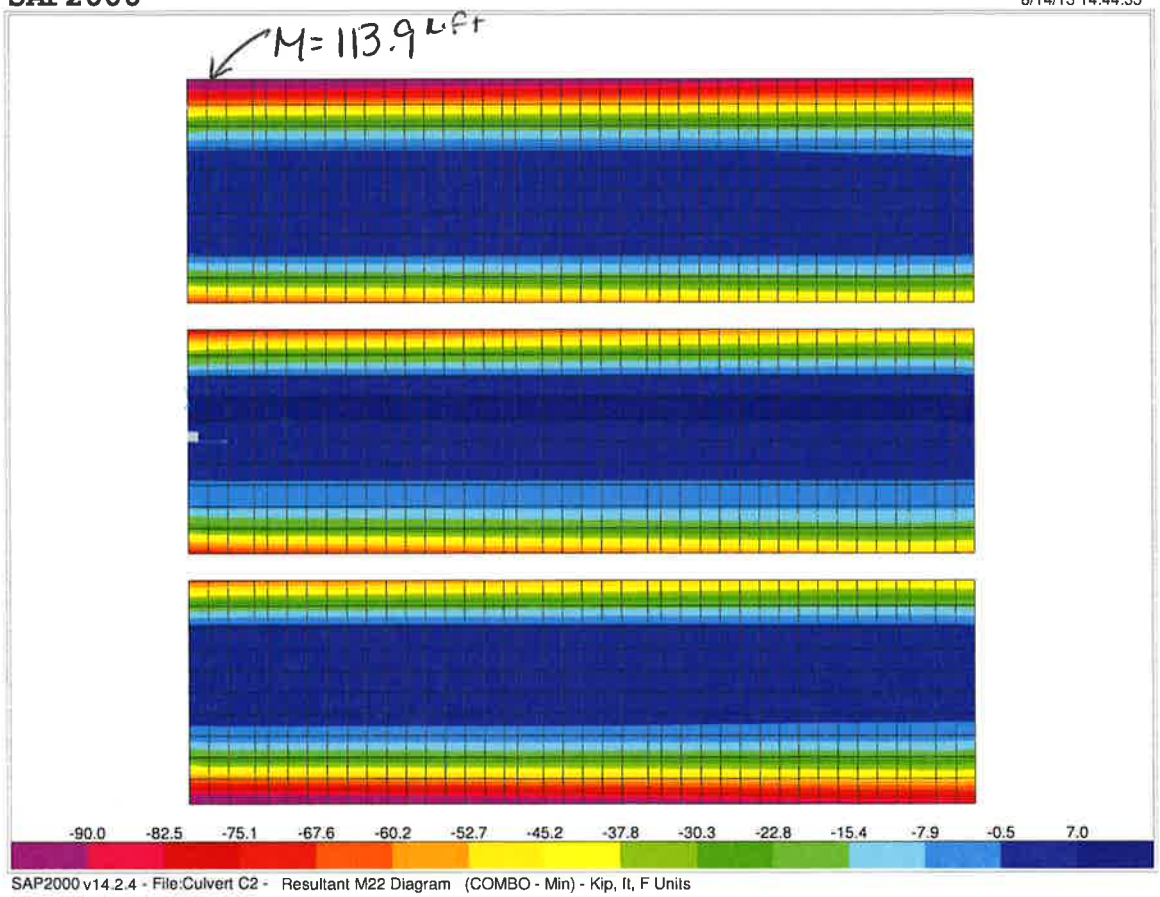
SAP2000 8/14/13 14:26:25



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

Primary Moments

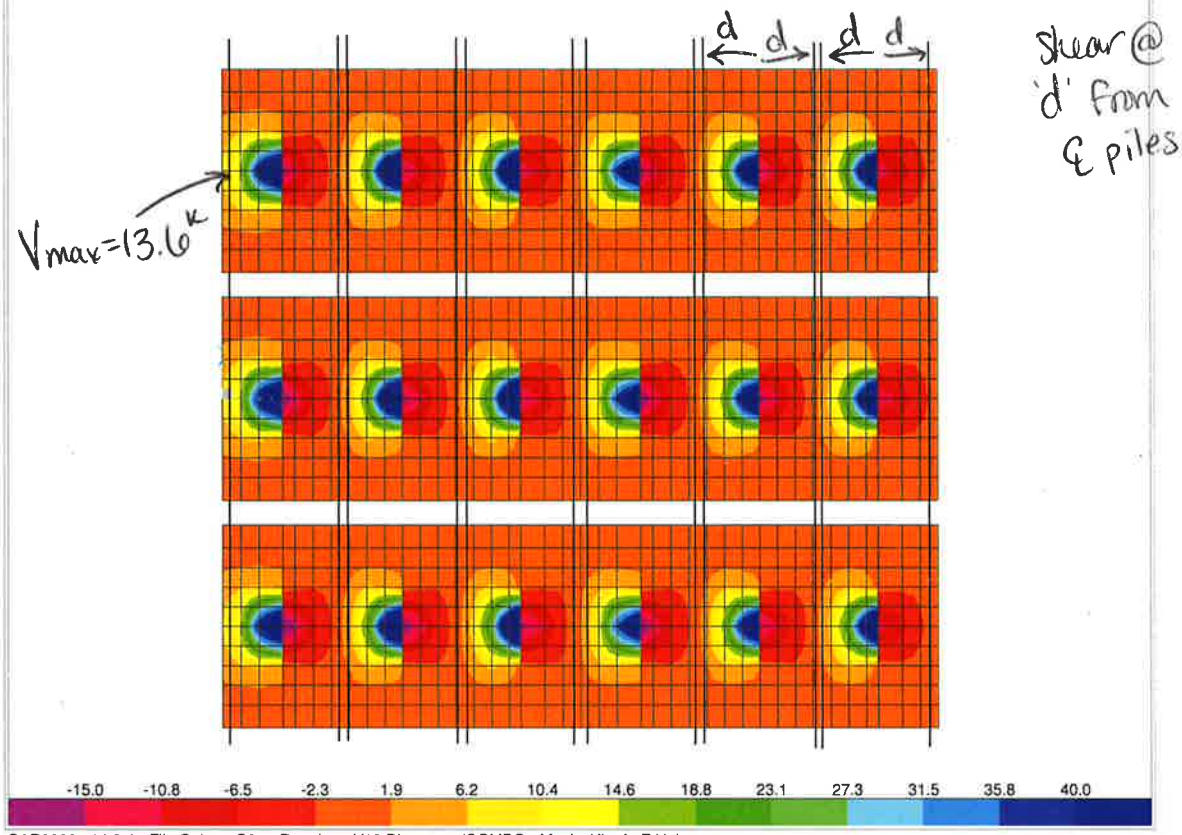
SAP2000 8/14/13 14:44:35



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

BASE SLAB RESULTS

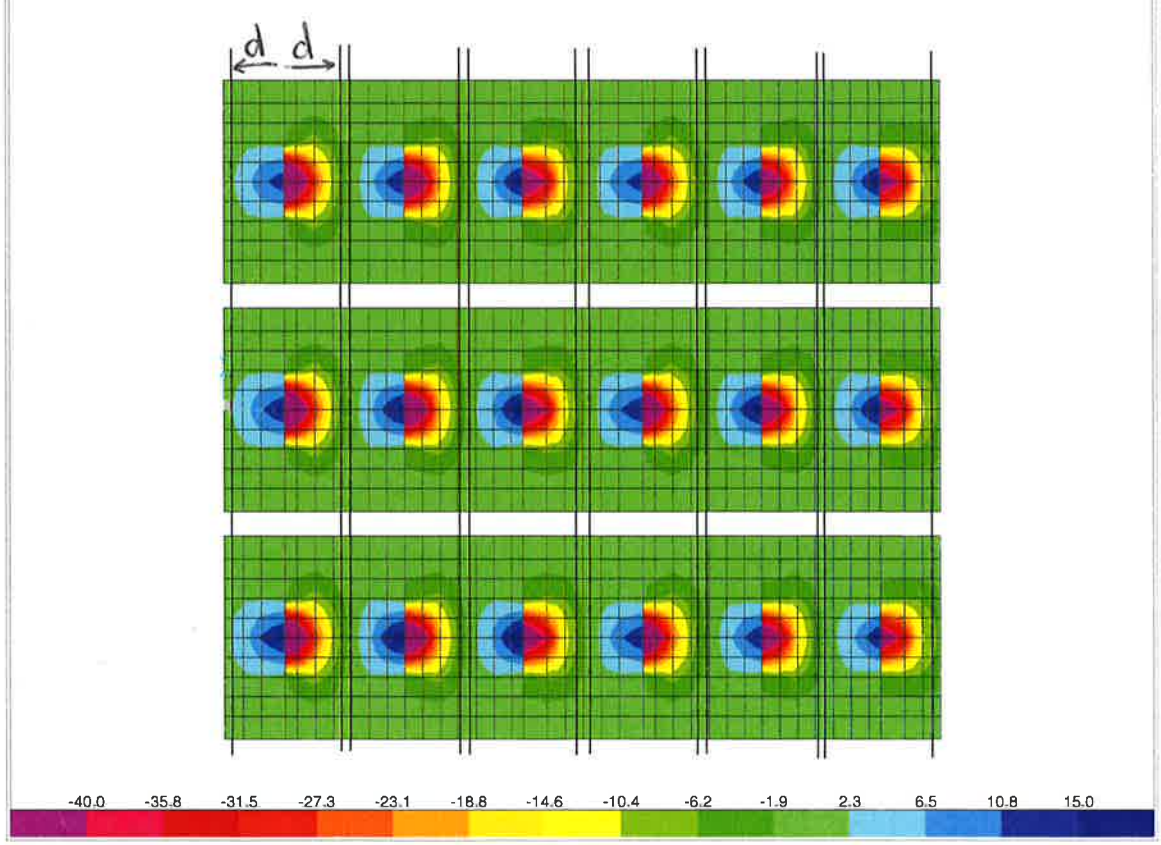
SAP2000 8/14/13 15:11:00



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V13 Diagram (COMBO - Max) - Kip, ft, F Units

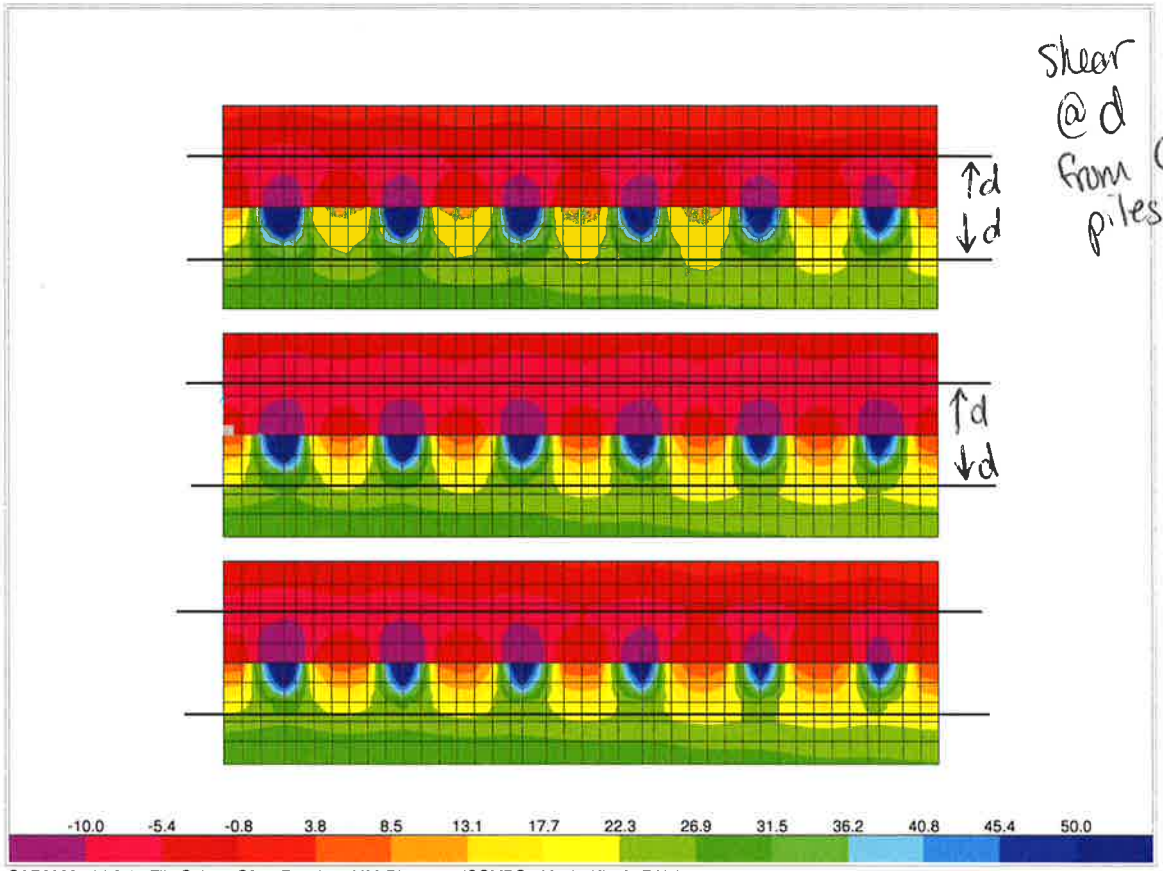
Shear

SAP2000 8/14/13 15:12:23



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V13 Diagram (COMBO - Min) - Kip, ft, F Units

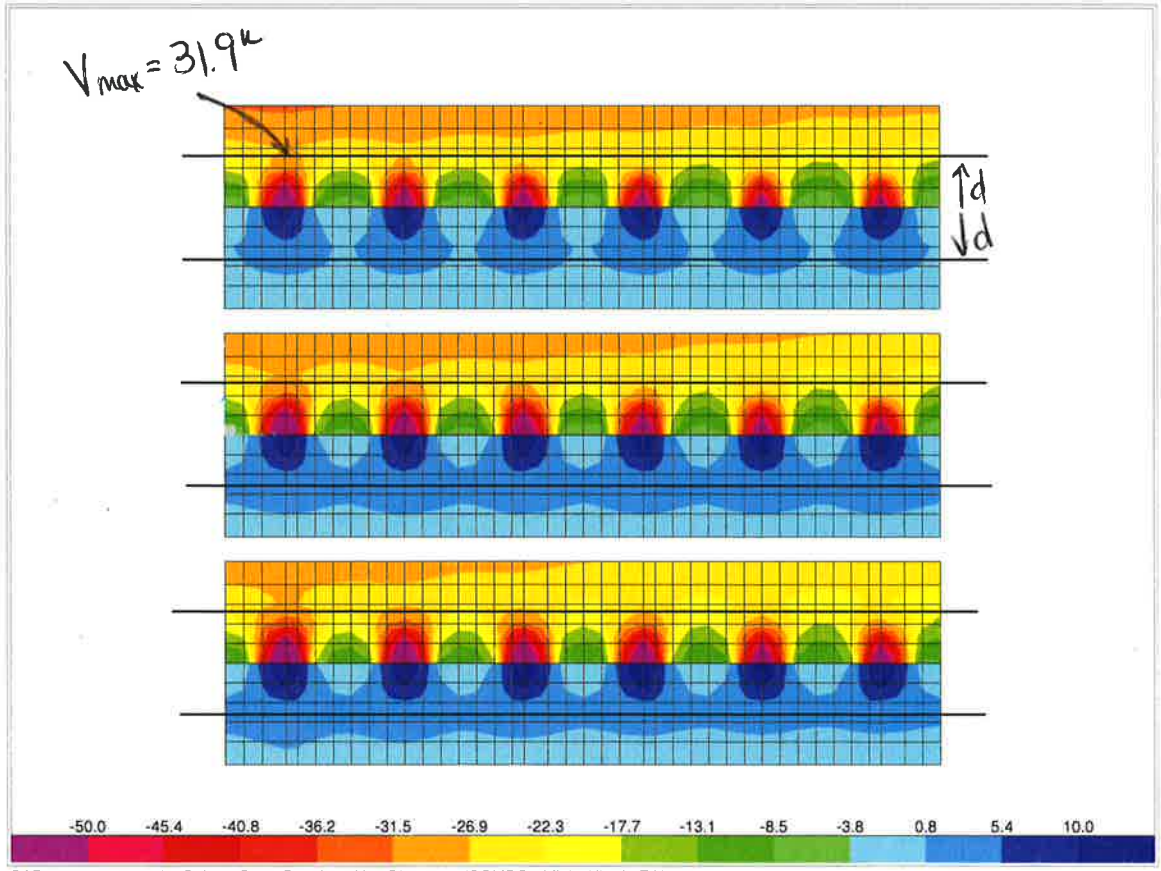
SAP2000 8/14/13 15:14:13



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

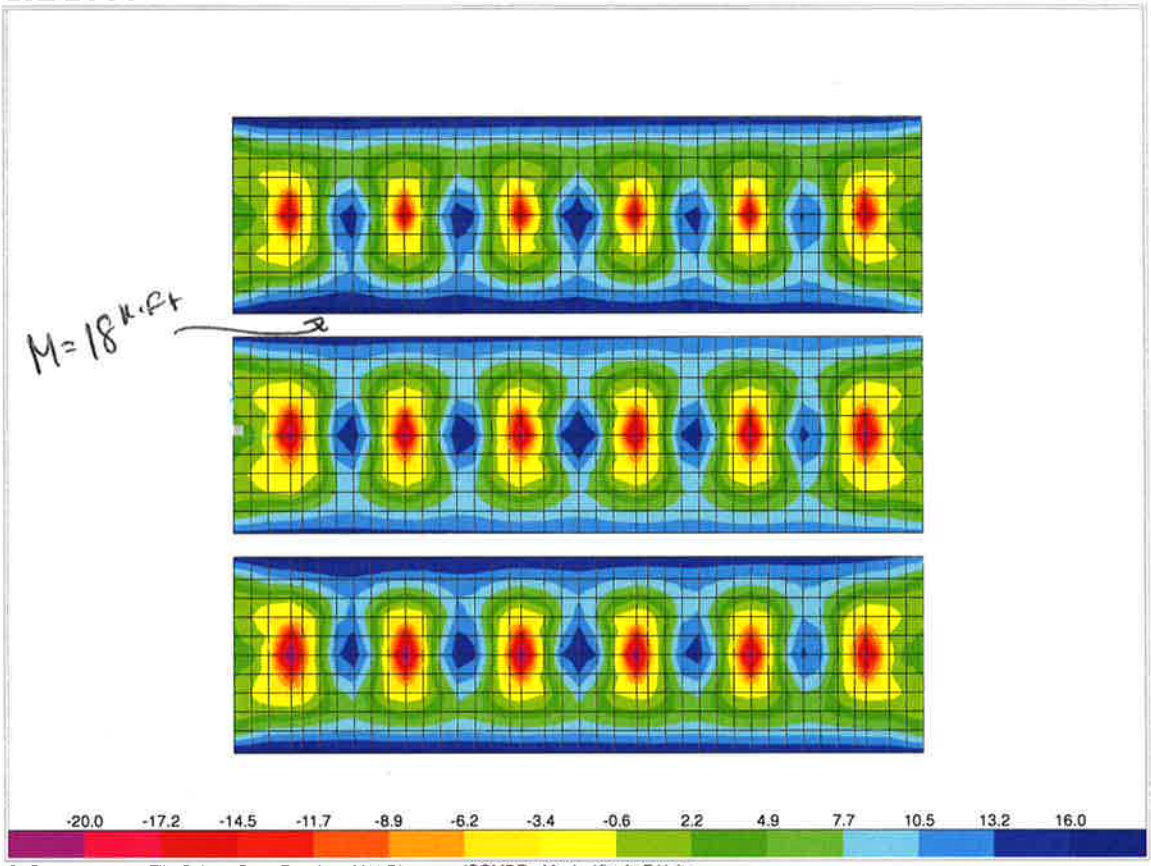
Shear

SAP2000 8/14/13 15:15:41



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

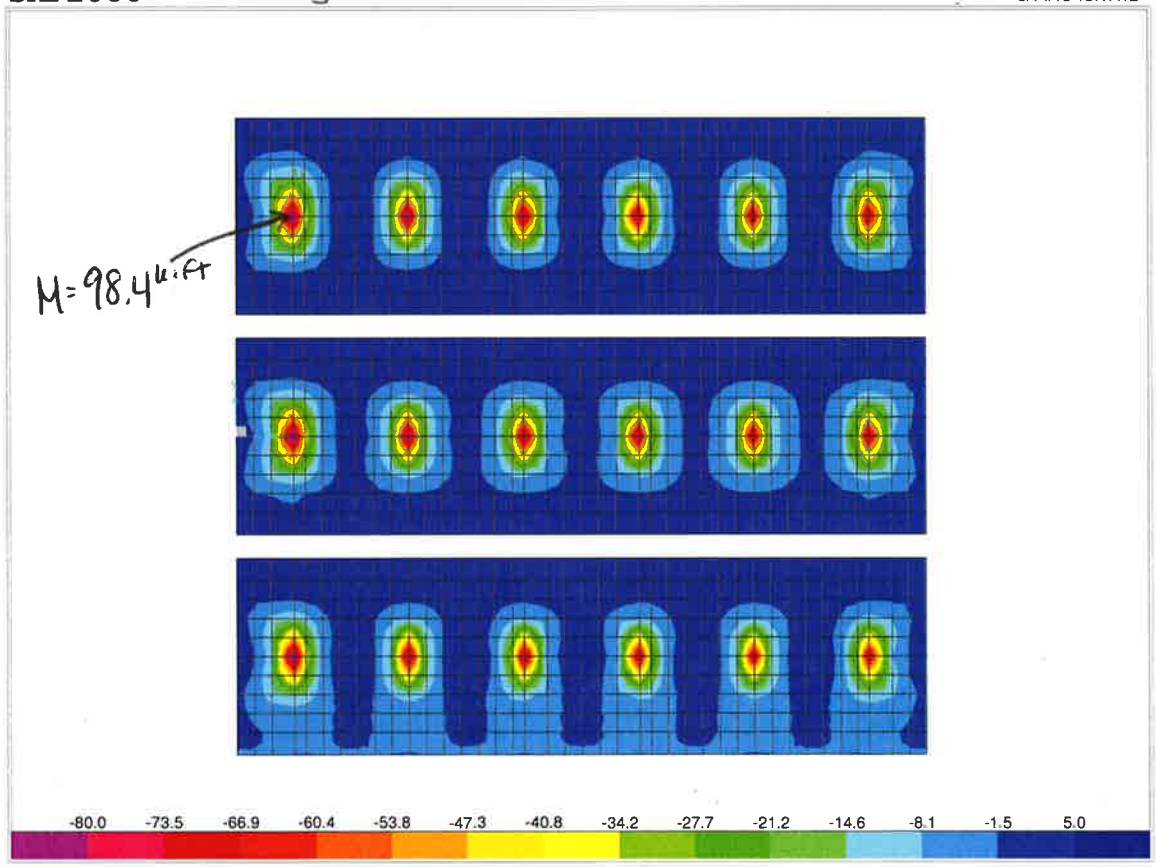
SAP2000 8/14/13 15:45:12



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

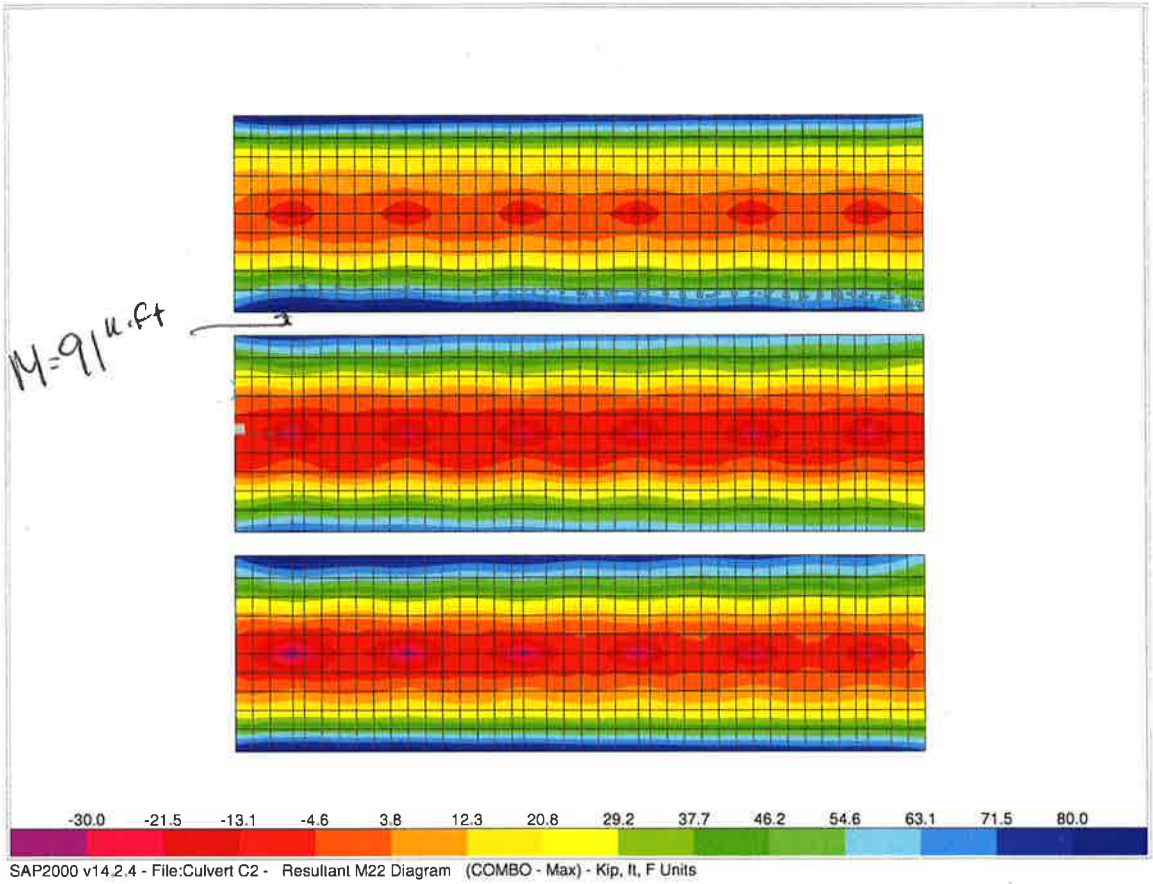
Secondary Moments

SAP2000 8/14/13 15:47:12



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

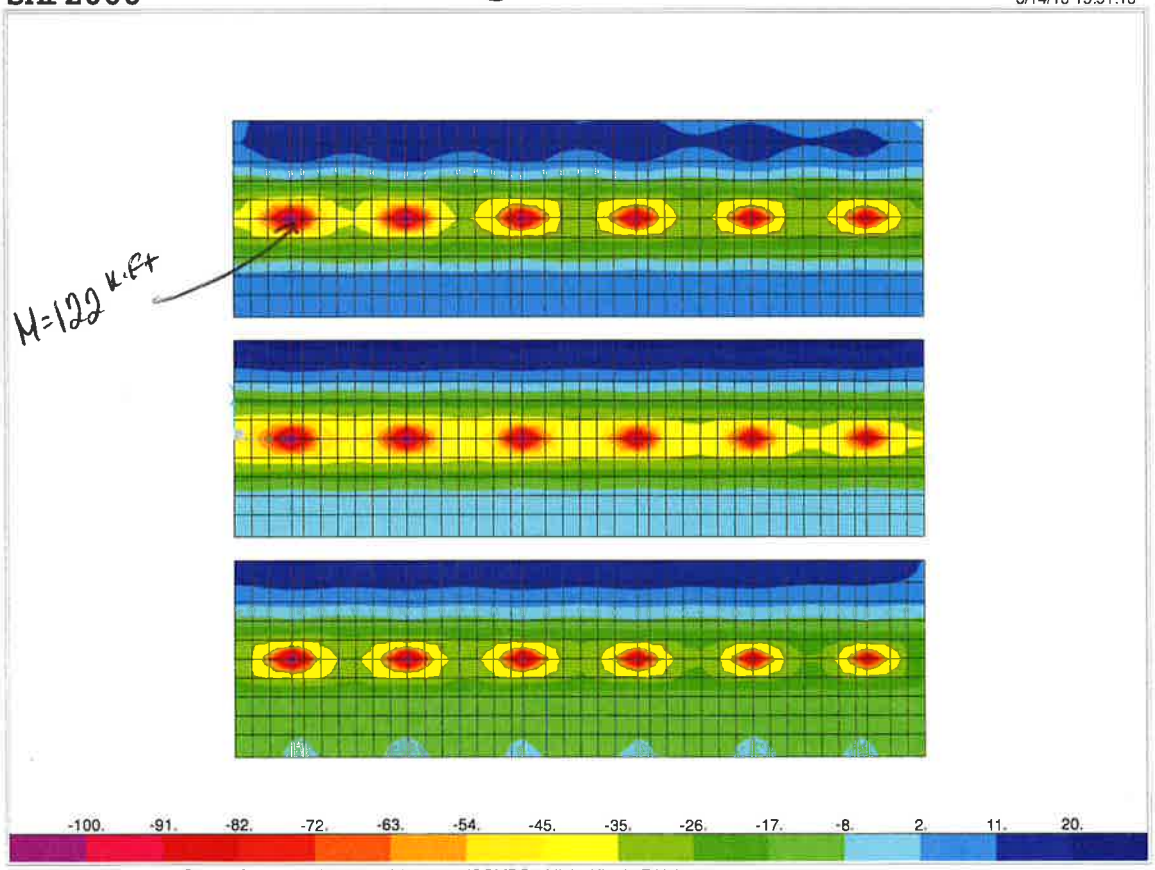
SAP2000 8/14/13 15:50:02



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

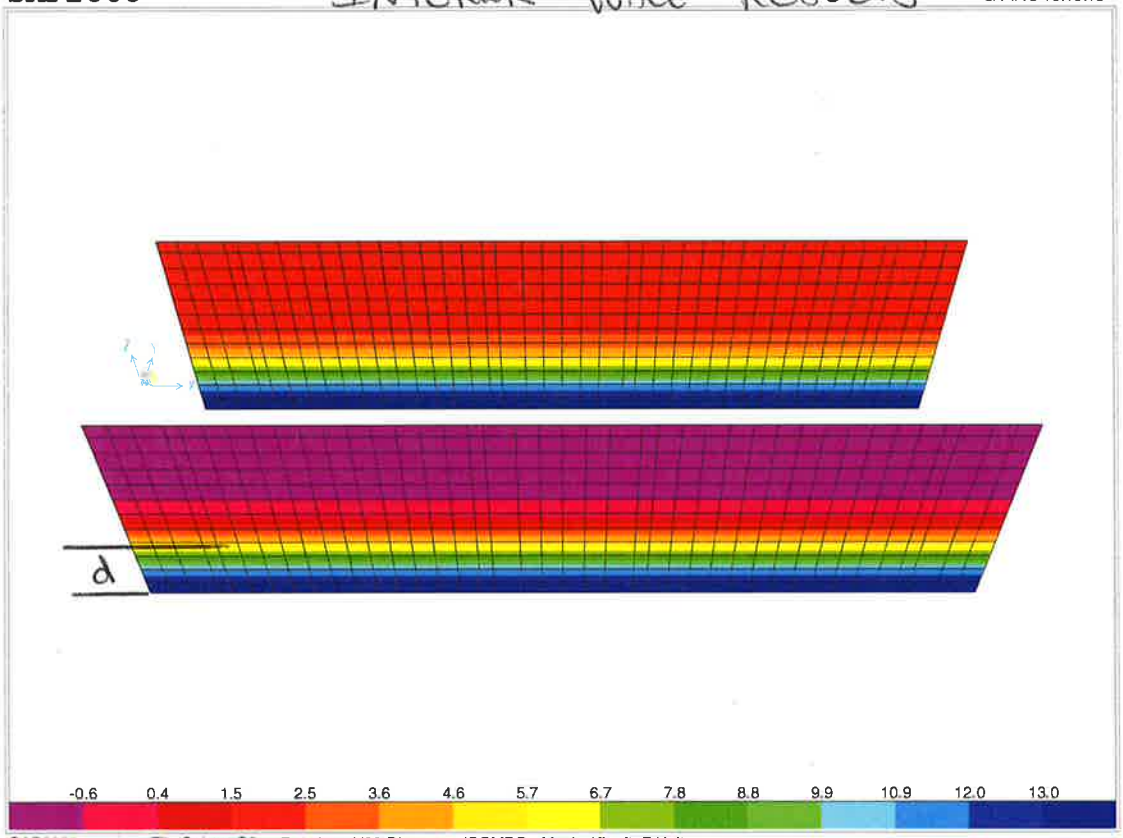
Primary Moments

SAP2000 8/14/13 15:51:18



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

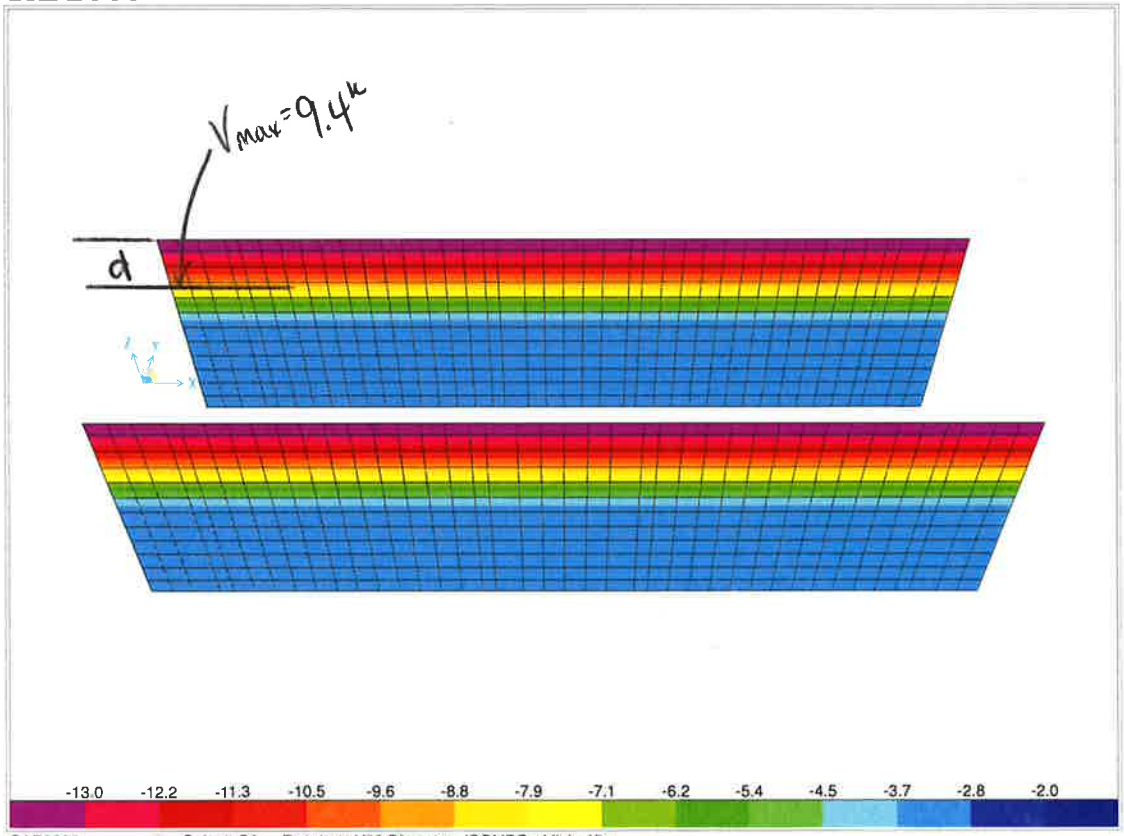
SAP2000 INTERIOR WALL RESULTS 8/14/13 16:19:13



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

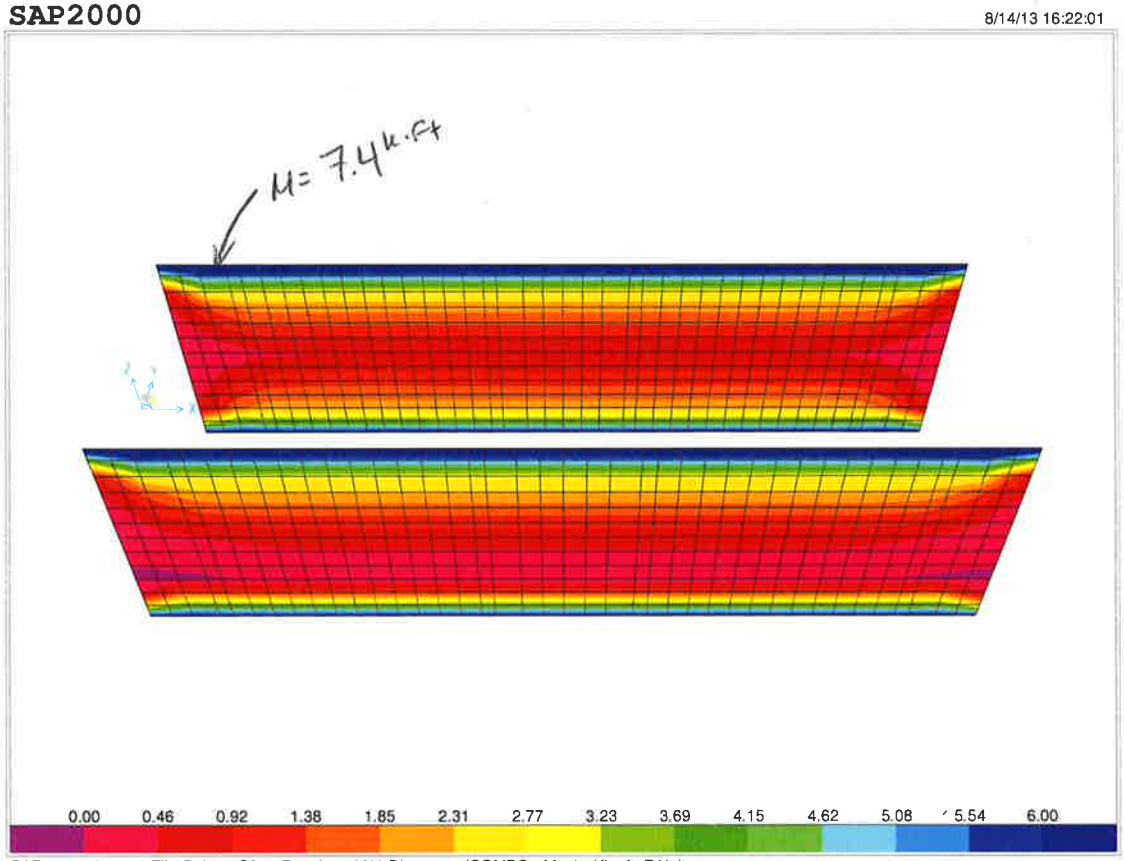
Shear

SAP2000 8/14/13 16:20:48



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

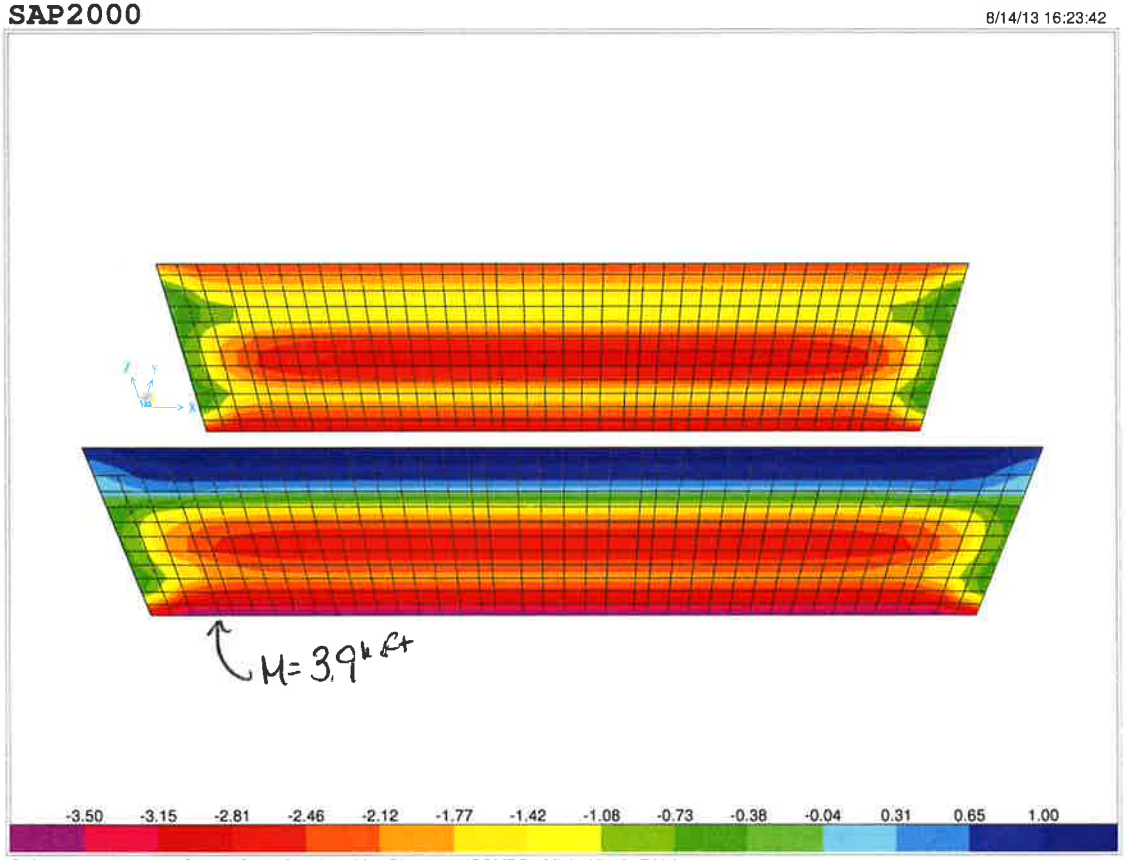
SAP2000 8/14/13 16:22:01



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

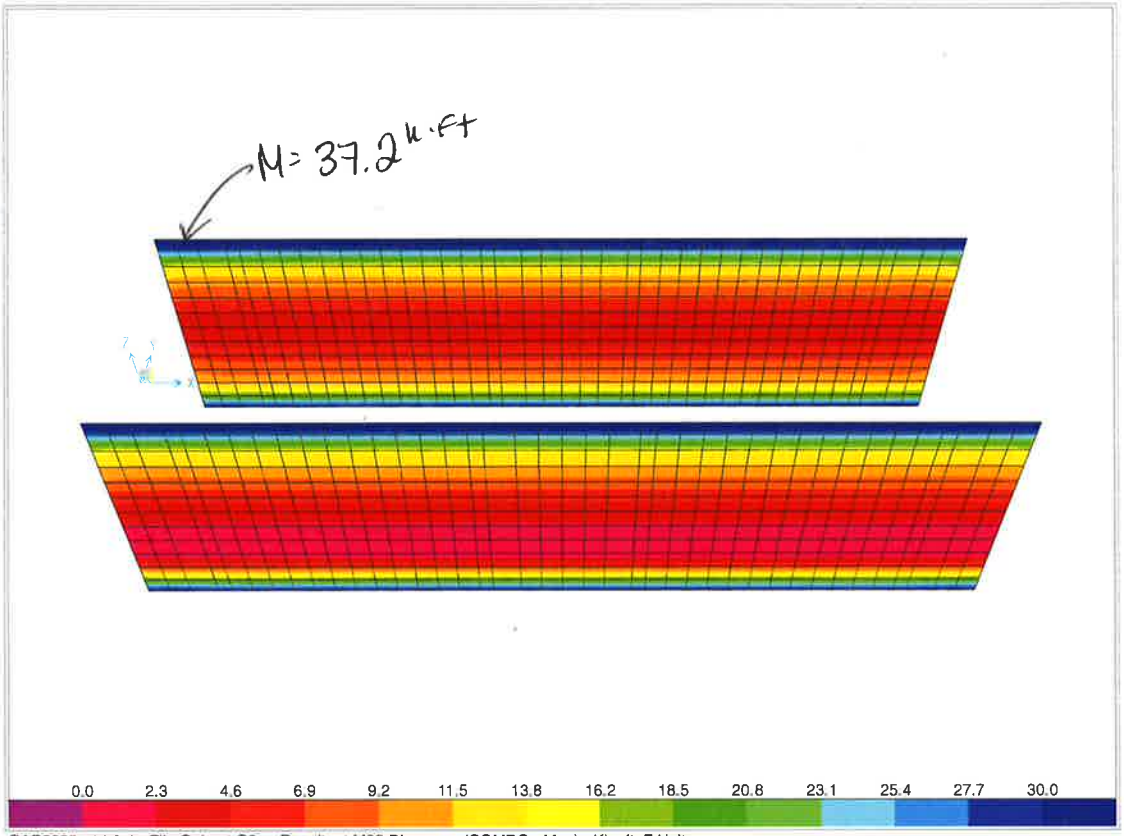
Secondary Moments

SAP2000 8/14/13 16:23:42



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

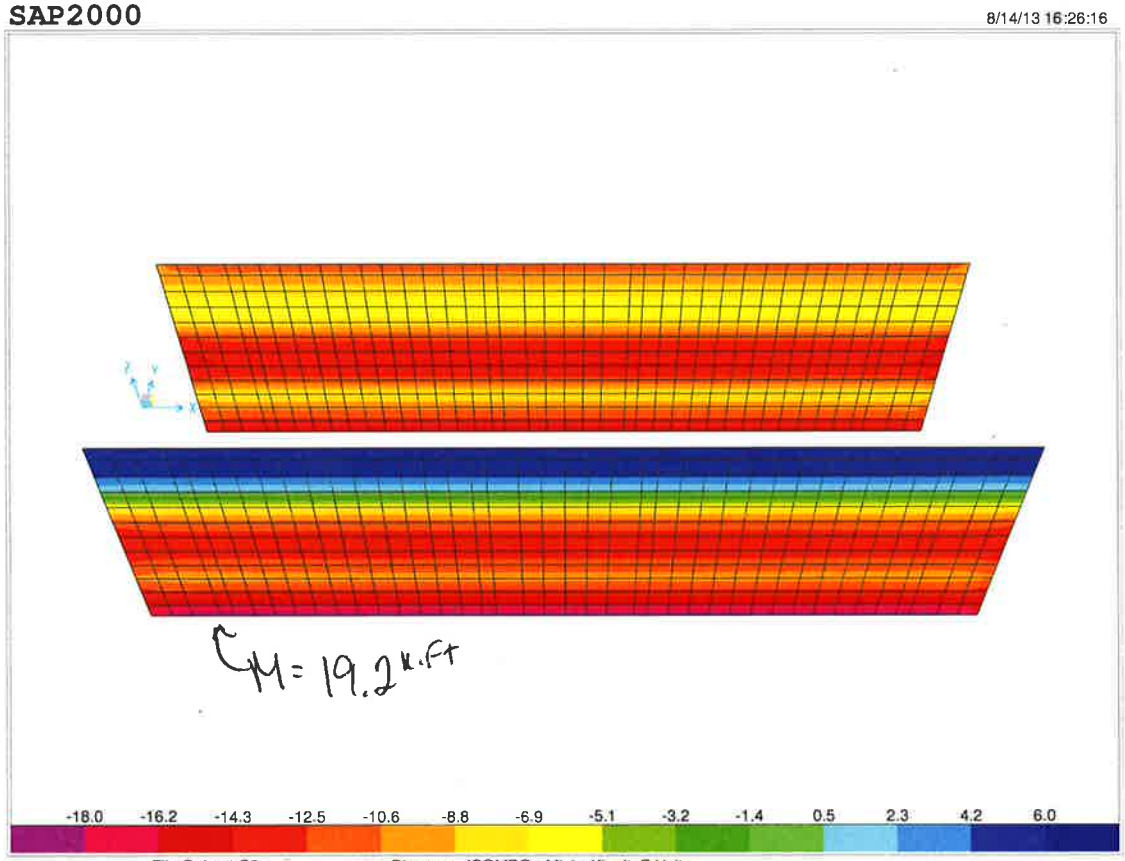
SAP2000 8/14/13 16:24:43



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

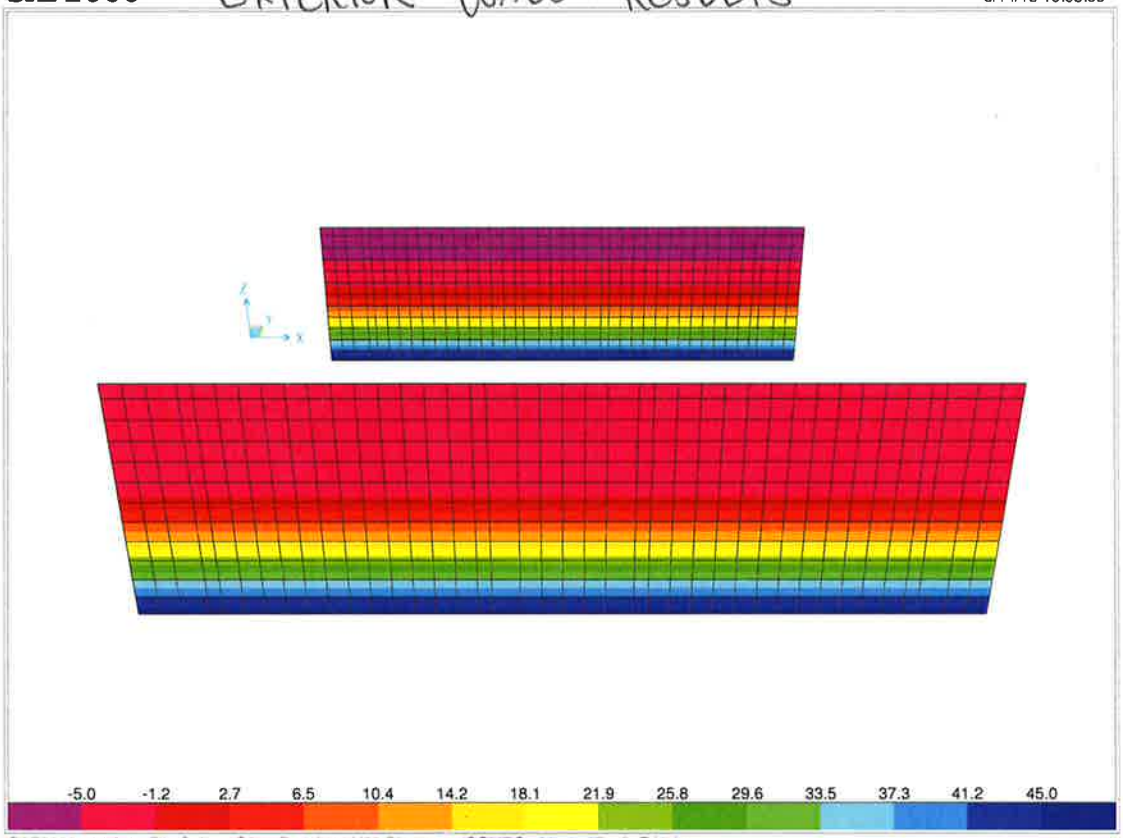
Primary Moments

SAP2000 8/14/13 16:26:16



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

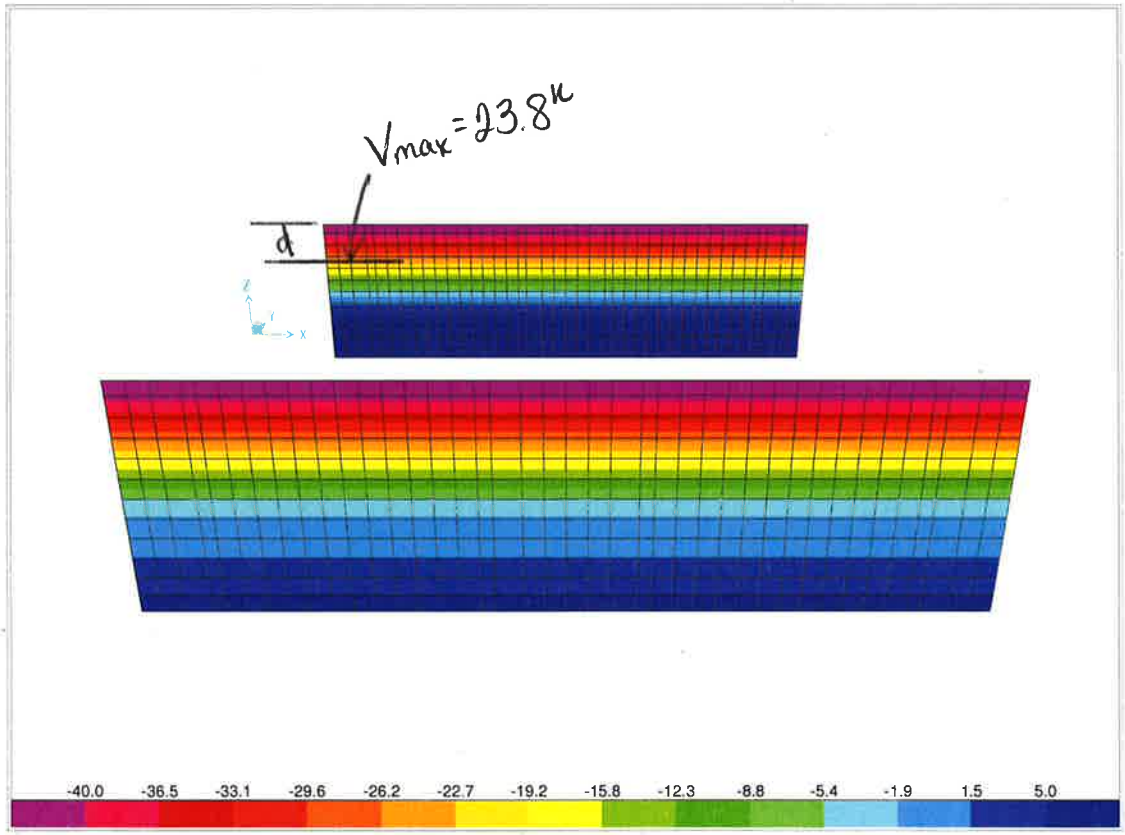
SAP2000 EXTERIOR WALL RESULTS 8/14/13 16:35:08



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

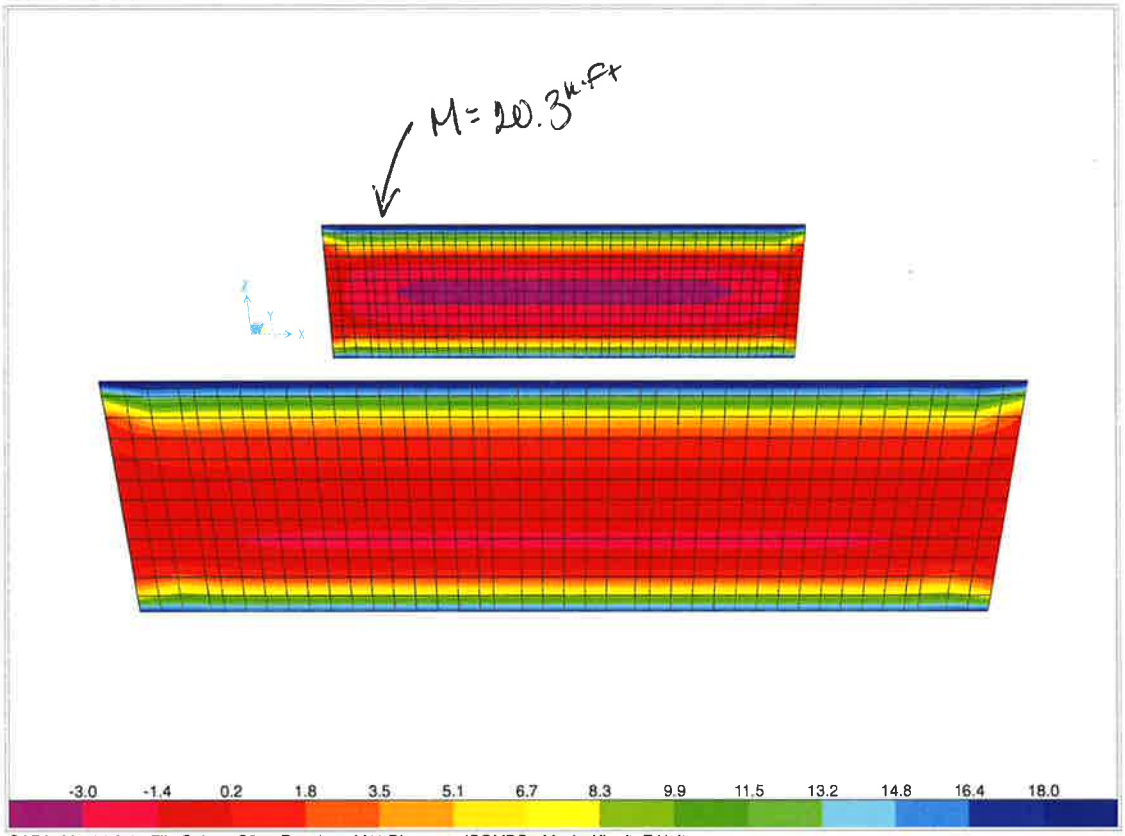
Shear

SAP2000 8/14/13 16:38:22



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

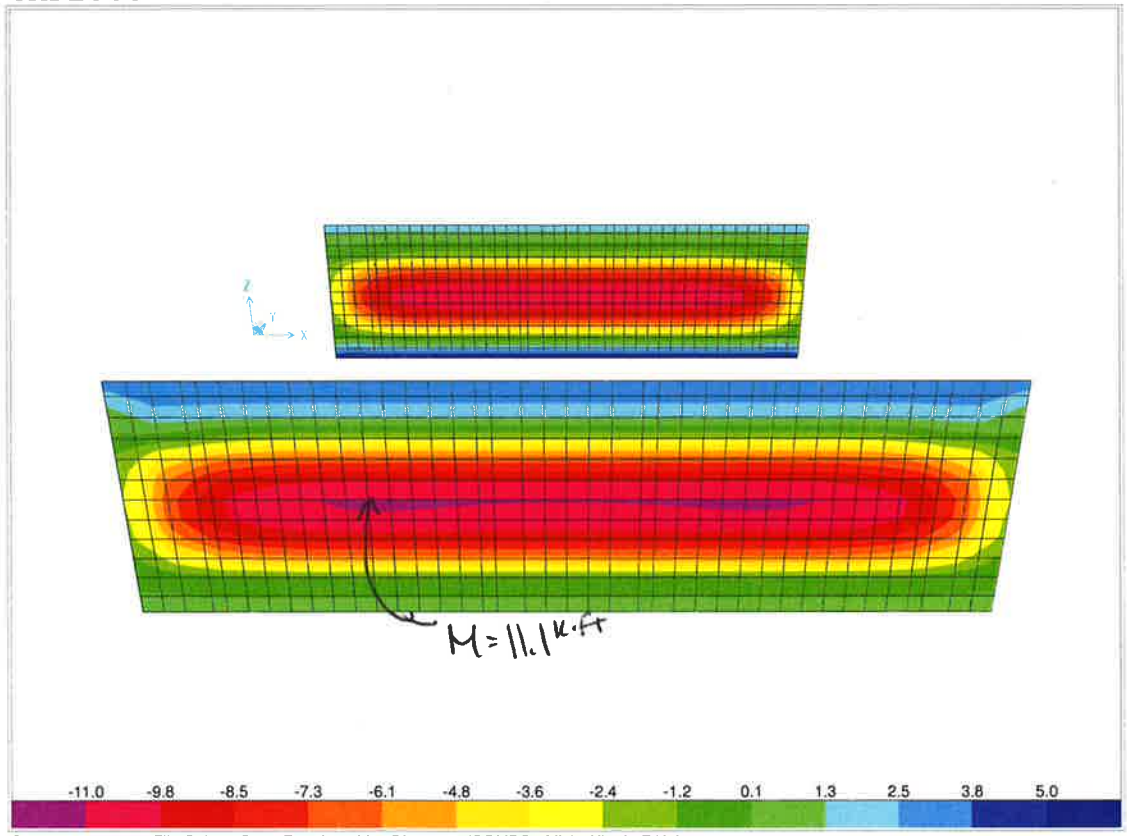
SAP2000 8/14/13 16:40:47



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

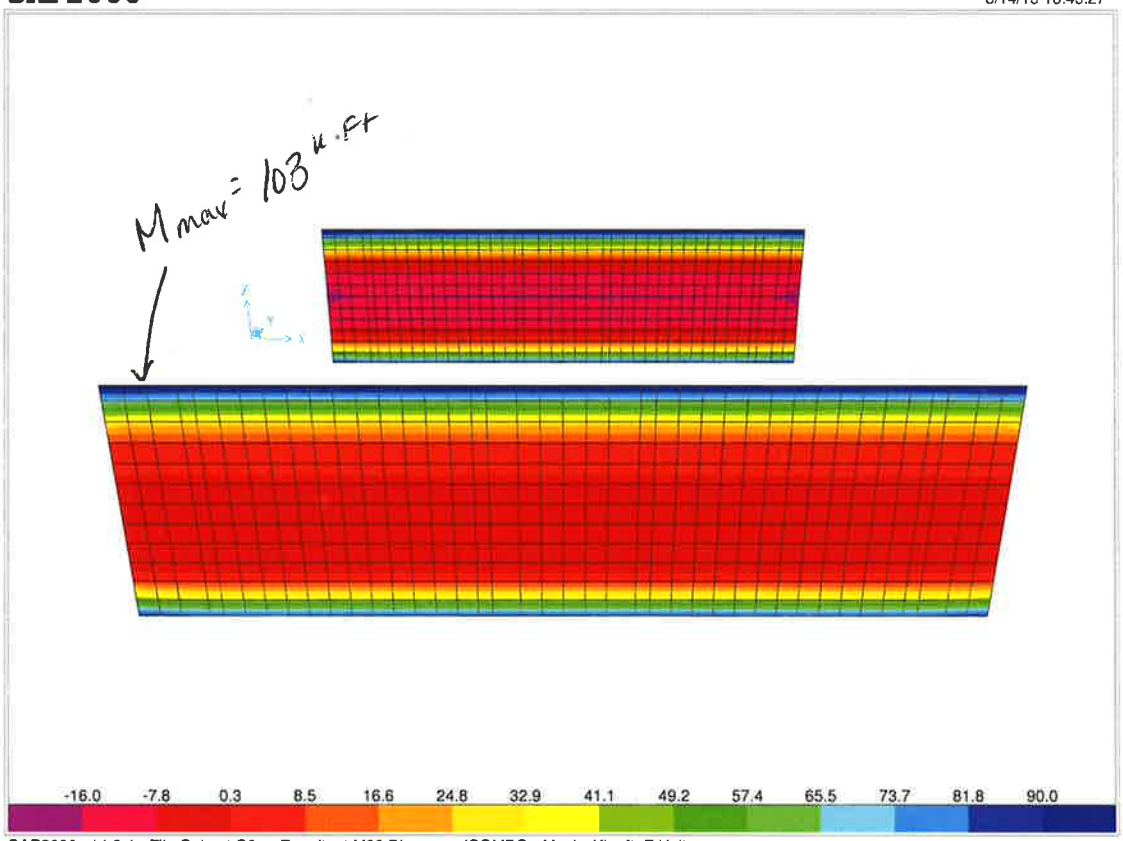
Secondary Moment

SAP2000 8/14/13 16:42:18



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

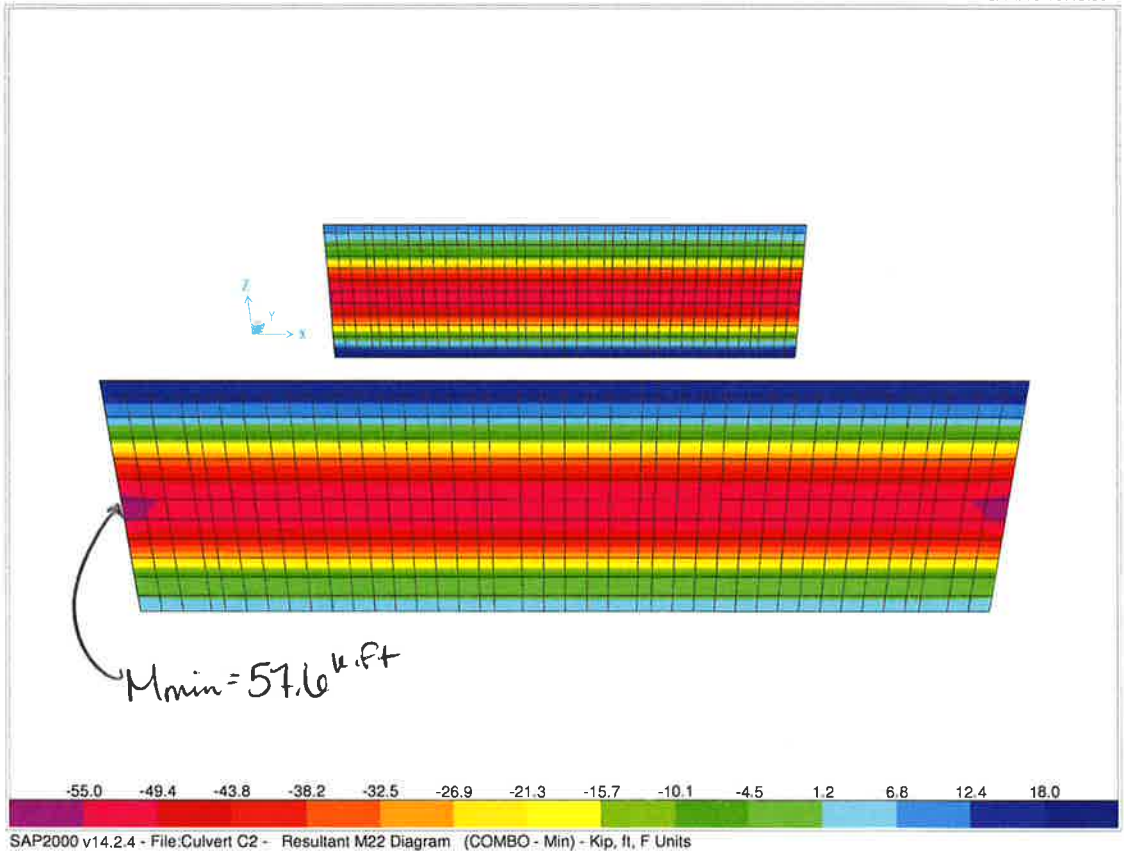
SAP2000 8/14/13 16:43:27



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

Primary Moment

SAP2000 8/14/13 16:45:39



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

PART 4

Member Design, Settlement Load Cases

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Monoliths C-2 to C-4 Model	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Member Design	**Checked By:**	BCB	**Date:**	Aug-13	**Sheet:**	of

*** Given Information:**

Notes / References

Settlement Cases

Top Slab Thickness =	2.75	ft
Bottom Slab Thickness =	3.5	ft
Wall Thickness =	2.75	ft
Design Width =	12	in
f'_c =	4	ksi
f_y =	60	ksi
ϕ, shear =	0.85	EM 1110-2-2104
ϕ, moment =	0.90	EM 1110-2-2104
ρ_{bal} =	0.0285	For f'_c = 4000 psi & f_y = 60,000 psi

*** Top Slab:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	33.1	12.9	26.6	69.7	133.0

* Shear taken at a distance 'd' = 28.37 inch from faces of walls.

CONTROLS

Max. Shear =	**33.1 kip**	
Bottom Moment, Primary =	**69.7 kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**133.0 kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**12.9 kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**26.6 kip-ft**	(-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'_c) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'_c) * b * d

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 33.1kip → Section OK

* Reinforcing Limits:

A_{gross} = 42in * 12in strip = 504 in^2

$d_{top\ bars}$ = 42in - 4in cover - 1/2 bar diameter = 37.37 in #10 bar assumed

$d_{bottom\ bars}$ = 42in - 9in pile embed - 3in cover - 1/2 bar diameter = 29.37 in

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 5.387 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.411 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

(3 * √(f'c) * b * d) / f_y = 1.418 in^2 ACI 318-02, 10.5, flexural member min.

(200 * b * d) / f_y = 1.495 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**5.387 in^2**	- half each face
	Min. T&S Rebar =	**1.411 in^2**	- half each face
	Min. Flexural Rebar =	**1.495 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'c) * b * d

= 0.85 * 2 * √4000 * 12in * 37.365in

= 48,209 lb

ϕVc = 48.2kip > Vu = 45.5kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Primary Top Face: $d_{top\ bars}$ = 37.37

* Will try #8 @ 6" to start: As, #8 @ 6" = 1.58 in^2

a = A_s * f_y / (0.85 * f'c * b) = 1.58 * 60ksi / (0.85 * 4ksi * 12in) = 2.324 in

ϕMn = 0.9 * 1.58in² * 60ksi * (37.365in - 2.324in / 2)

= 3088.9 kip-in/ft

= 257.41 kip-ft/ft

ϕMn = 257.4kip-ft > Mu = 204.9kip-ft → Use #8 @ 6"

Primary Bottom Face: $d_{bottom\ bars}$ = 29.37

* Will try #10 @ 12" to start: As, #10 @ 12" = 1.27 in^2

a = A_s * f_y / (0.85 * f'c * b) = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in² * 60ksi * (29.365in - 1.868in / 2)

= 1949.8 kip-in/ft

= 162.48 kip-ft/ft

* 111.2 x 1.33 = 148.3 k·ft < ϕMn

ϕMn = 162.5kip-ft > Mu = 111.2kip-ft → Use #10 @ 12"

Secondary Top Face: $d_{top\ bars}$ = 37.37

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in^2 * 60ksi * (37.365in - 1.868in / 2)
= 2498.5 kip-in/ft
= 208.20 kip-ft/ft

* 144x1.33 = 192 k-ft < ϕMn

ϕMn = 208.2kip-ft > Mu = 144kip-ft → Use #10 @ 12"

Secondary Bottom Face: $d_{bottom\ bars}$ = 29.37

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in^2 * 60ksi * (29.365in - 1.868in / 2)
= 1949.8 kip-in/ft
= 162.48 kip-ft/ft

ϕMn = 162.5kip-ft > Mu = 22.1kip-ft → Use #10 @ 12"

*** Interior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO-ST	10.3	8.6	5.2	43.4	25.7

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 10.3 kip CONTROL
Max. Moment, Primary = 43.4 kip-ft (M22, "primary" controls vertical reinforcement)
Min. Moment, Primary = 25.7 kip-ft
Max. Moment, Secondary = 8.6 kip-ft (M11, "secondary" controls horizontal reinforcemen
Min. Moment, Secondary = 5.2 kip-ft

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
(3 * √(f'c) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{(f'_c)} * b * d$
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 10.3kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$
* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

All reinforcement: * $M_{max,\ all\ directions}$ = 43.4 k-ft

* Will try #7 @ 12" to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

* 43.4×1.33 = 57.9 k·ft < ϕMn

ϕMn = 75.4kip-ft > Mu = 43.4kip-ft → Use #7 @ 12"

*** Exterior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO-ST	27.9	25.2	8.0	126.5	41.7

* Shear taken at a distance 'd' = 28.37 inch from faces of Slabs

CONTROLS

Max. Shear =	**27.9 kip**	
Max. Moment, Primary =	**126.5 kip-ft**	(+M22 controls exterior vertical reinforcement)
Min. Moment, Primary =	**41.7 kip-ft**	(-M22 controls interior vertical reinforcement)
Max. Moment, Secondary =	**25.2 kip-ft**	(+M11 controls exterior horiz. reinforcement)
Min. Moment, Secondary =	**8.0 kip-ft**	(-M11 controls interior horiz. reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 4.232 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
$(3 * \sqrt{(f'_c)} * b * d) / f_y$ = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
$(200 * b * d) / f_y$ = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * $\sqrt{(f'_c)}$ * b * d

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 27.9kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'_c * a * b

* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Primary Exterior Face:

* Will try **#10 @ 12"** to start: As, #10 @ 12" = 1.27 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 1.27 * 60ksi / (0.85 * 4ksi * 12in) = 1.868 in

ϕMn = 0.9 * 1.27in^2 * 60ksi * (28.365in - 1.868in / 2)

= 1881.2 kip-in/ft

= 156.77 kip-ft/ft

ϕMn = 156.8kip-ft > Mu = 126.5kip-ft → Use #10 @ 12"

Primary Interior Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)

= 1185.3 kip-in/ft

= 98.77 kip-ft/ft

*41.7x1.33 = 55.6 k·ft < ϕMn

ϕMn = 98.8kip-ft > Mu = 41.7kip-ft → Use #8 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 25.2 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)

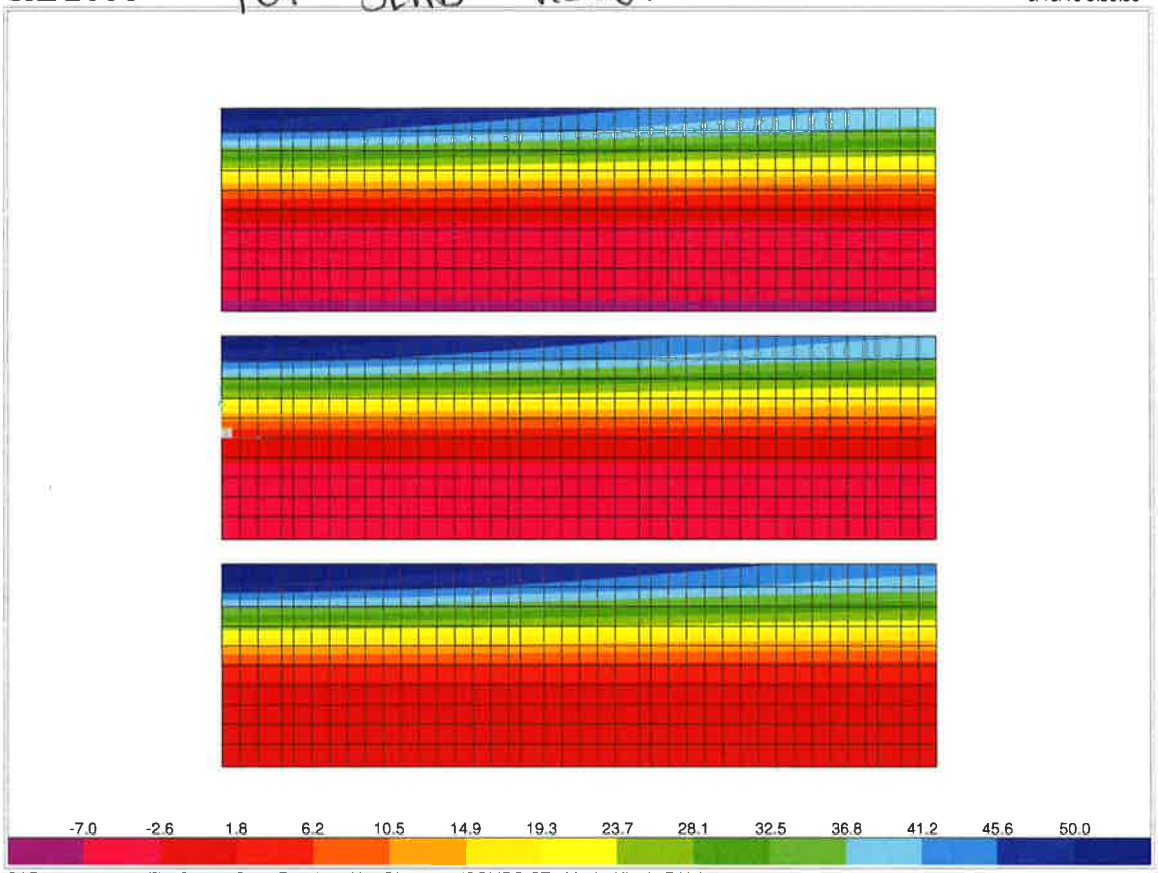
= 904.73 kip-in/ft

= 75.39 kip-ft/ft

*33.6 k·ft < ϕMn

ϕMn = 75.4kip-ft > Mu = 25.2kip-ft → Use #7 @ 12"

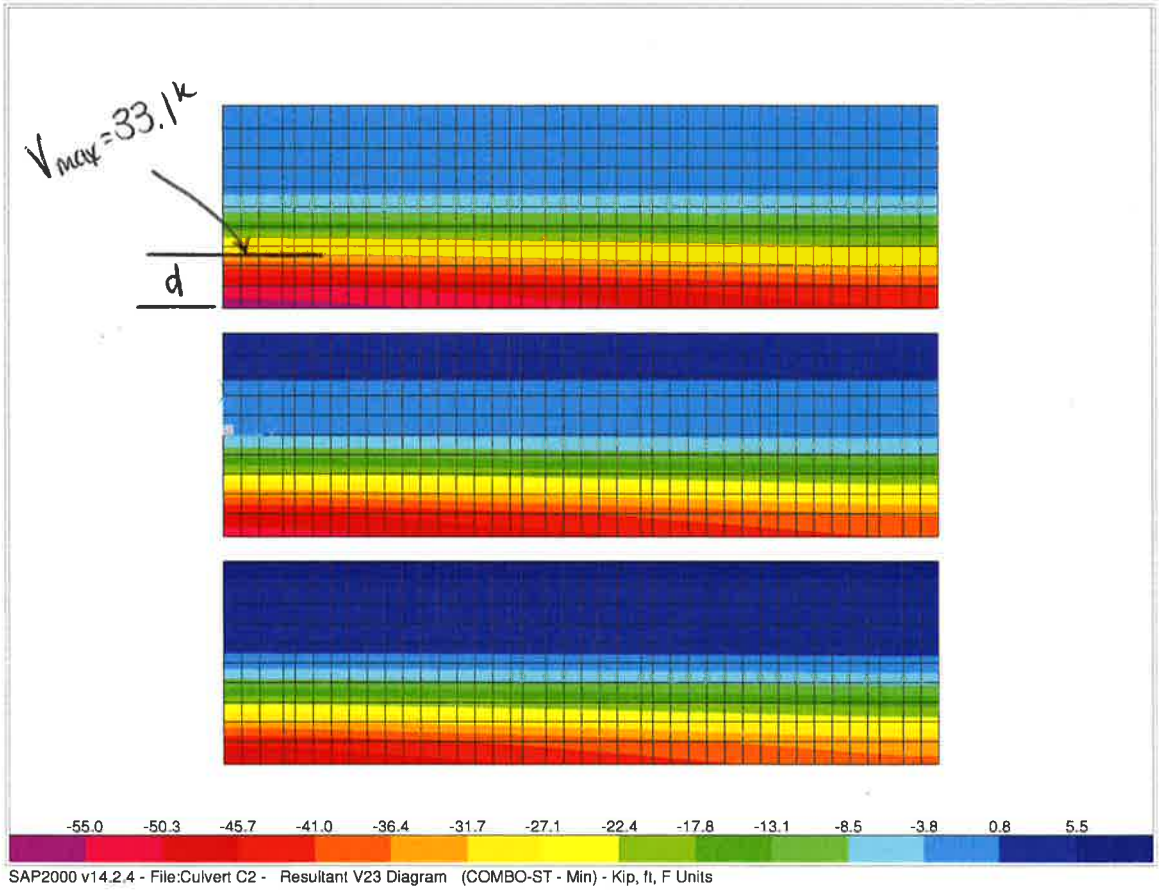
SAP2000 TOP SLAB RESULTS 8/15/13 8:50:53



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

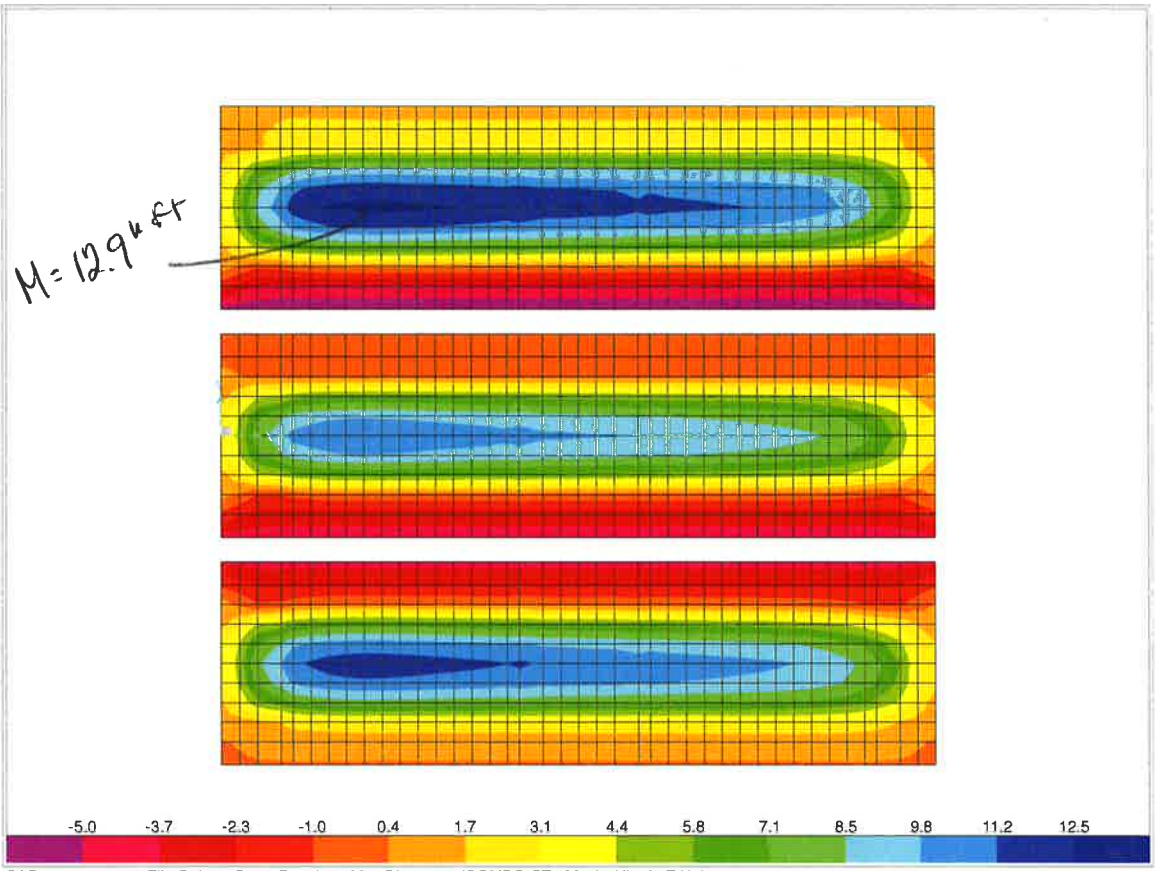
Shear

SAP2000 8/15/13 8:53:42



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

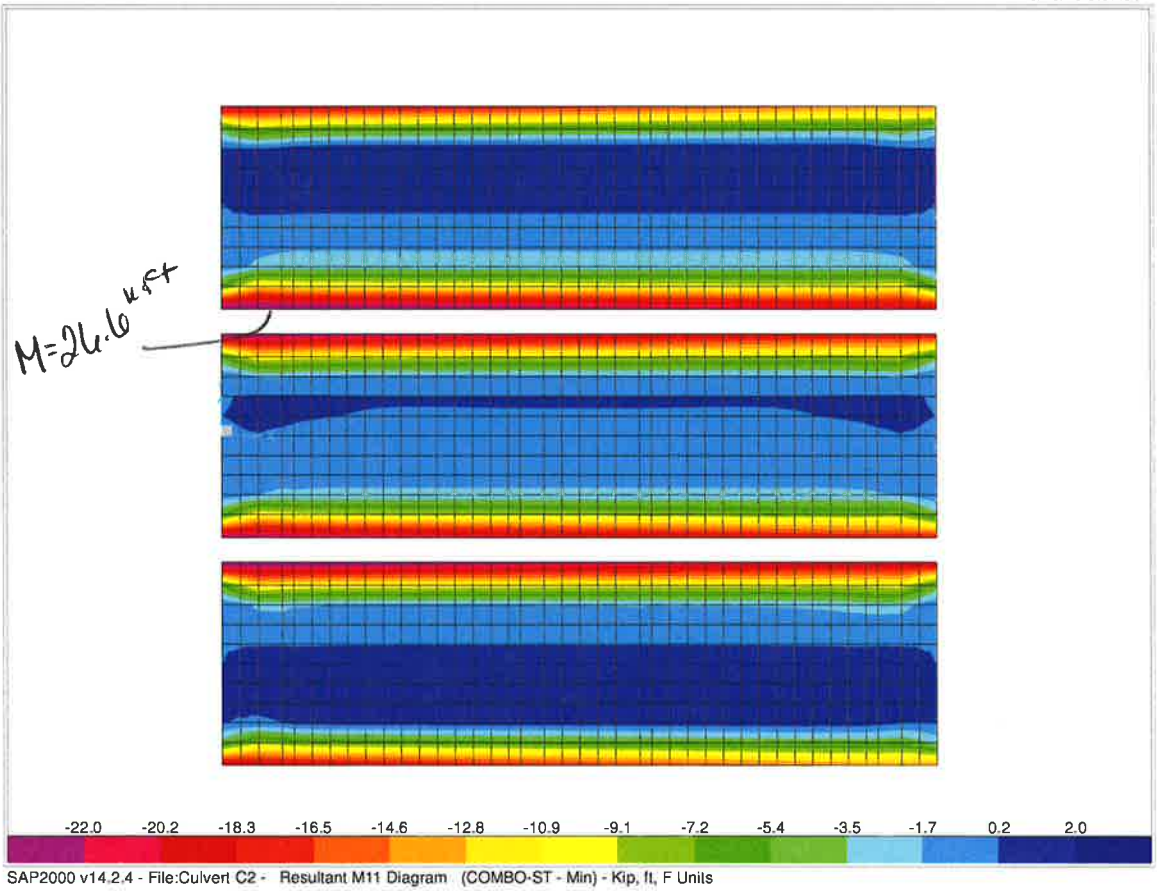
SAP2000 8/15/13 8:55:29



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

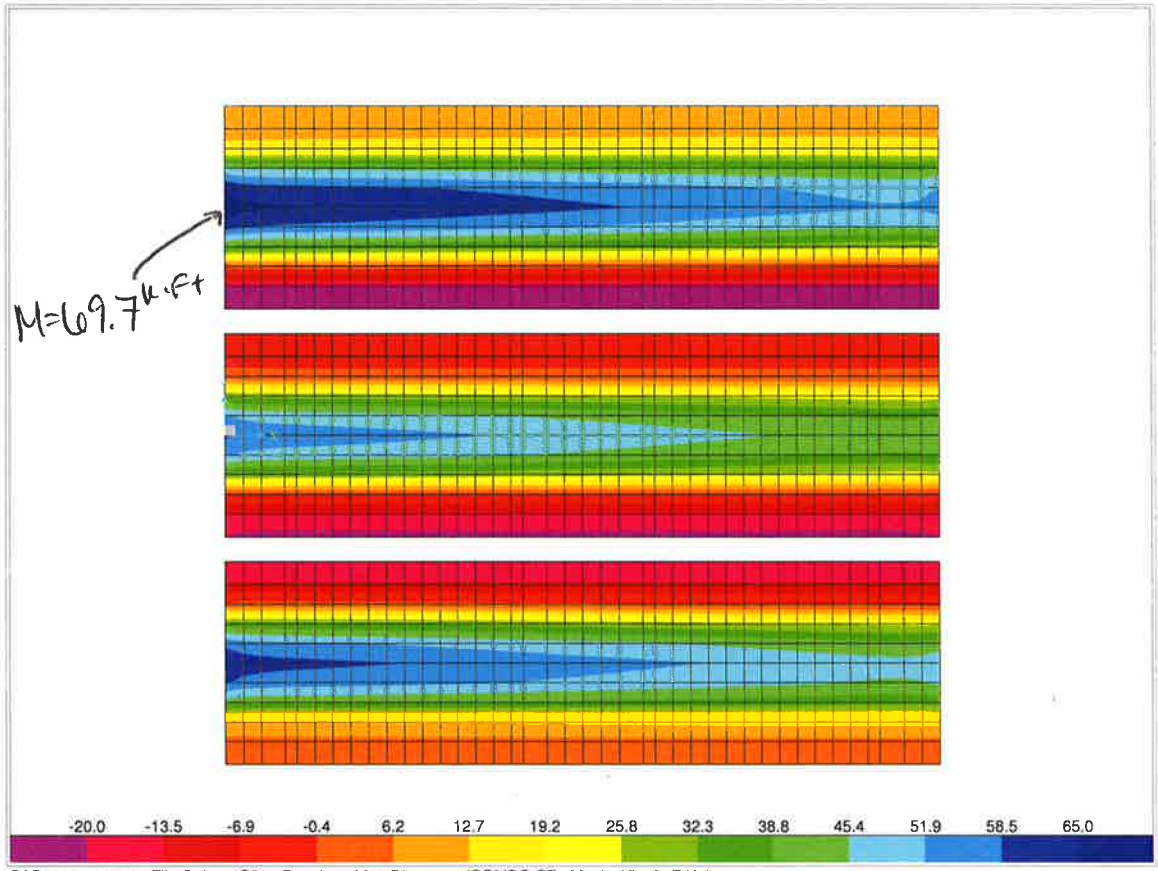
Secondary Moment

SAP2000 8/15/13 8:57:31



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

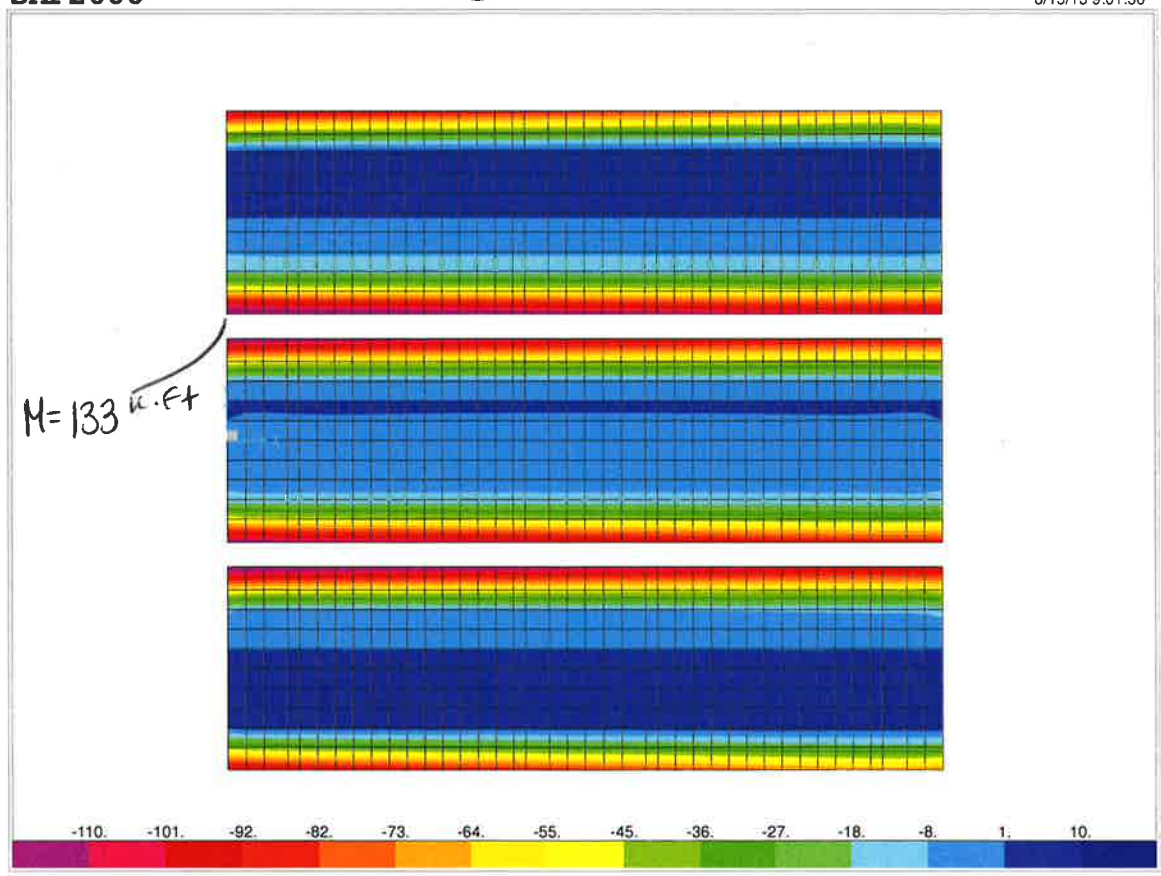
SAP2000 8/15/13 8:59:59



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

Primary Moment

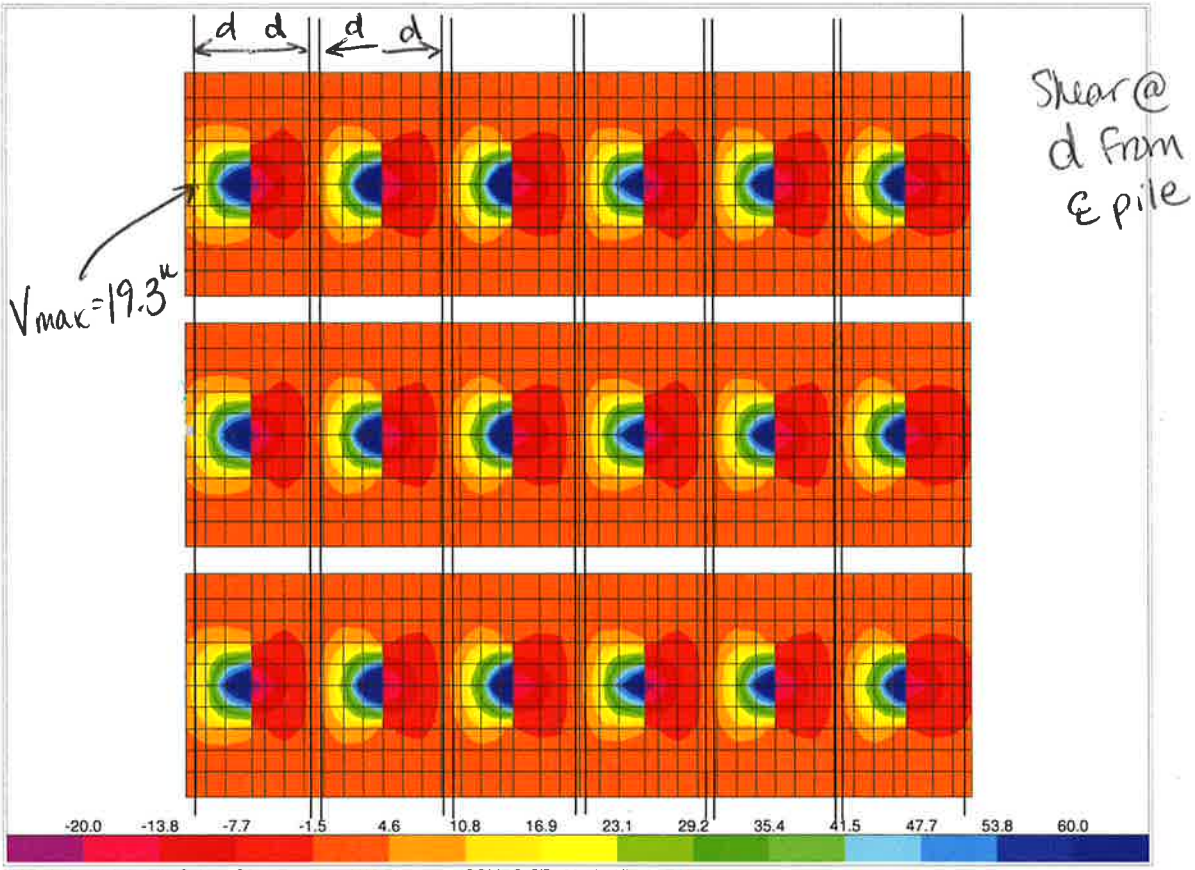
SAP2000 8/15/13 9:01:30



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

BASE SLAB RESULTS

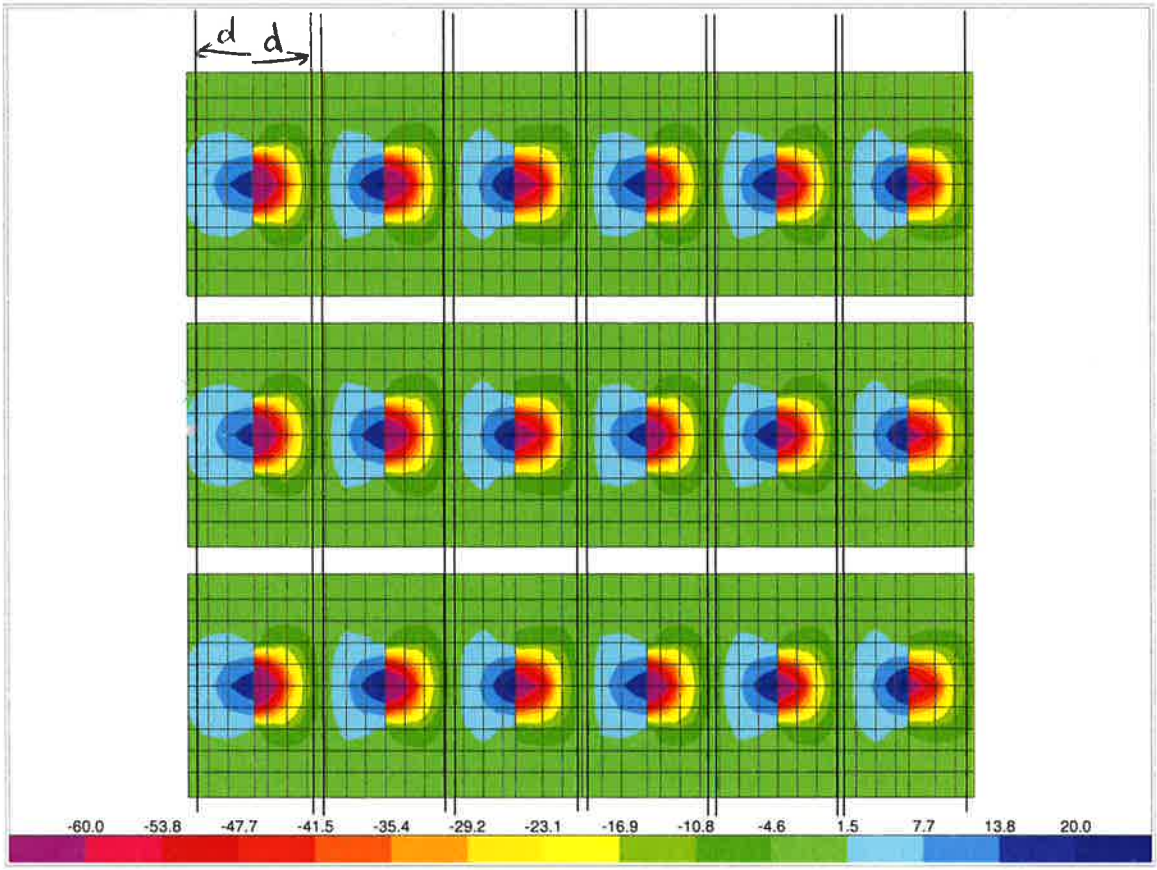
SAP2000 8/15/13 9:11:44



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V13 Diagram (COMBO-ST - Max) - Kip, ft, F Units

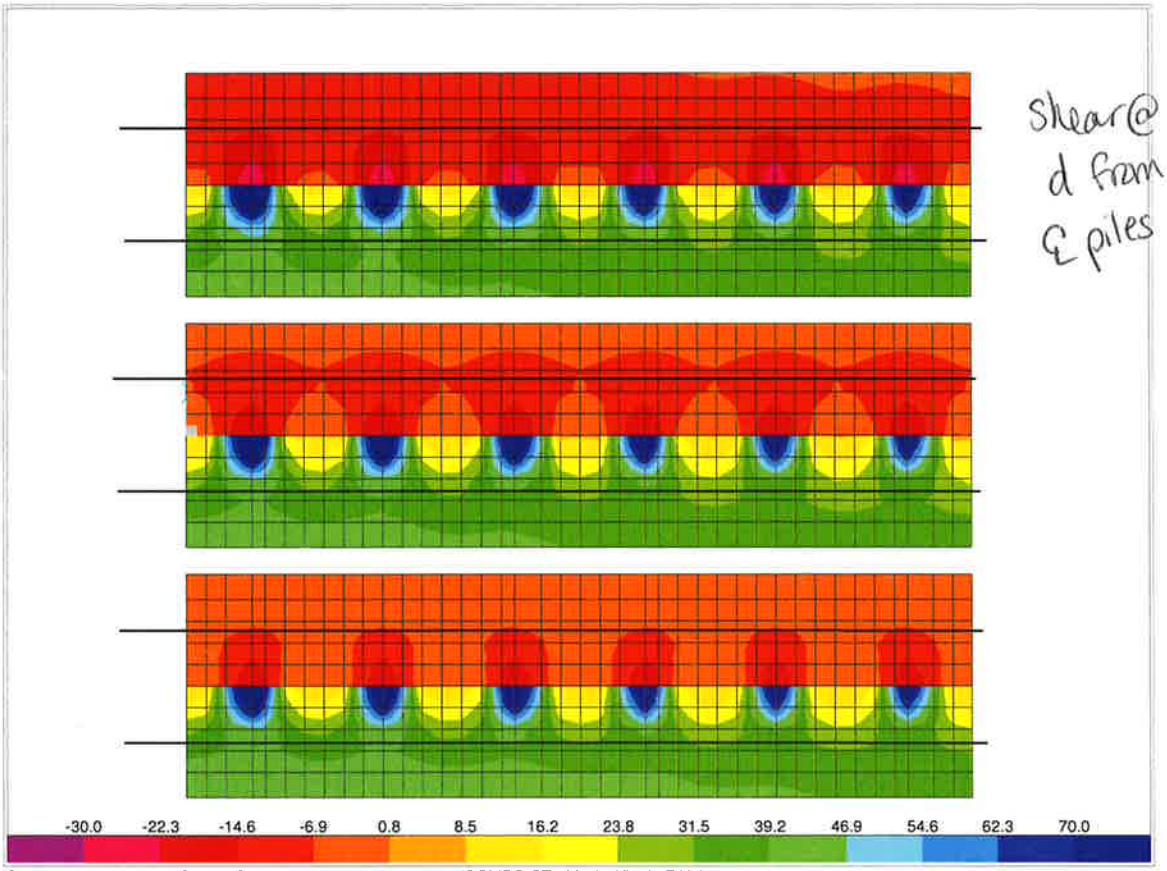
Shear

SAP2000 8/15/13 9:12:29



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V13 Diagram (COMBO-ST - Min) - Kip, ft, F Units

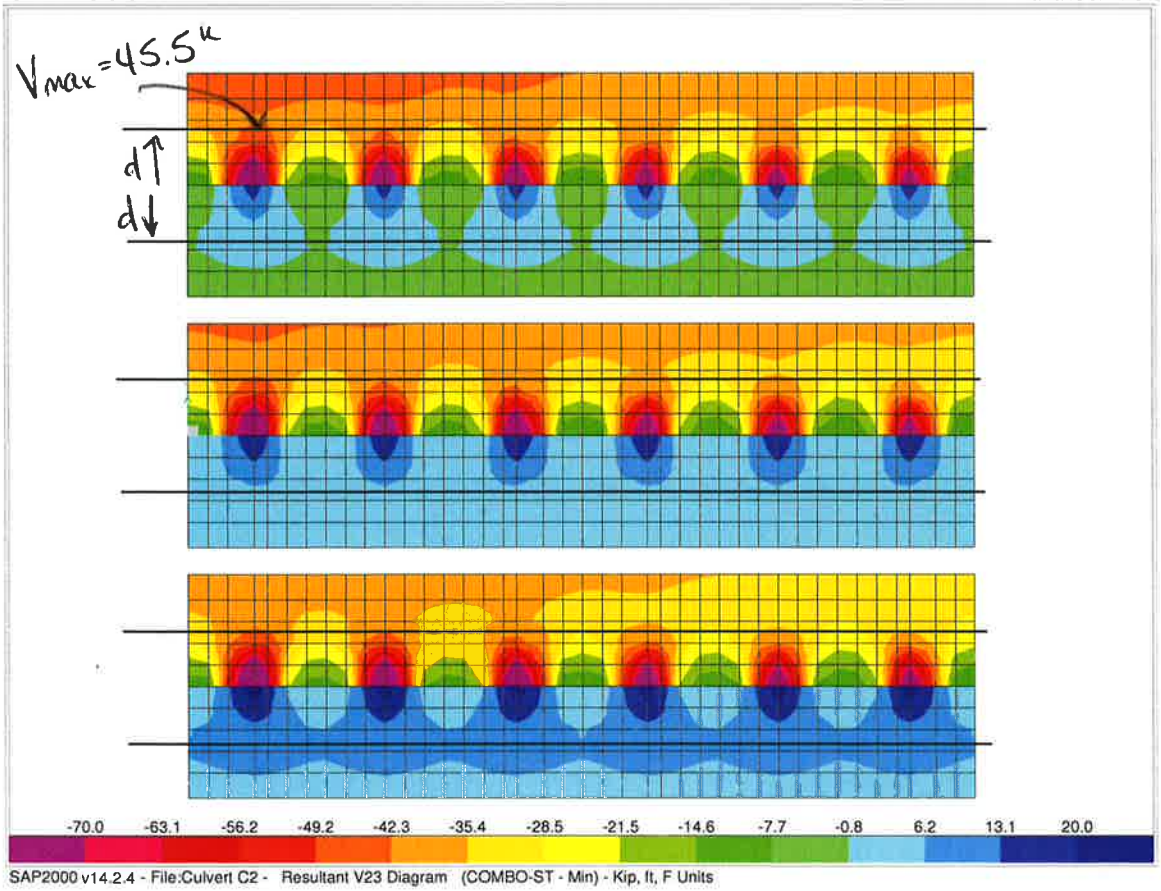
SAP2000 8/15/13 9:21:02



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

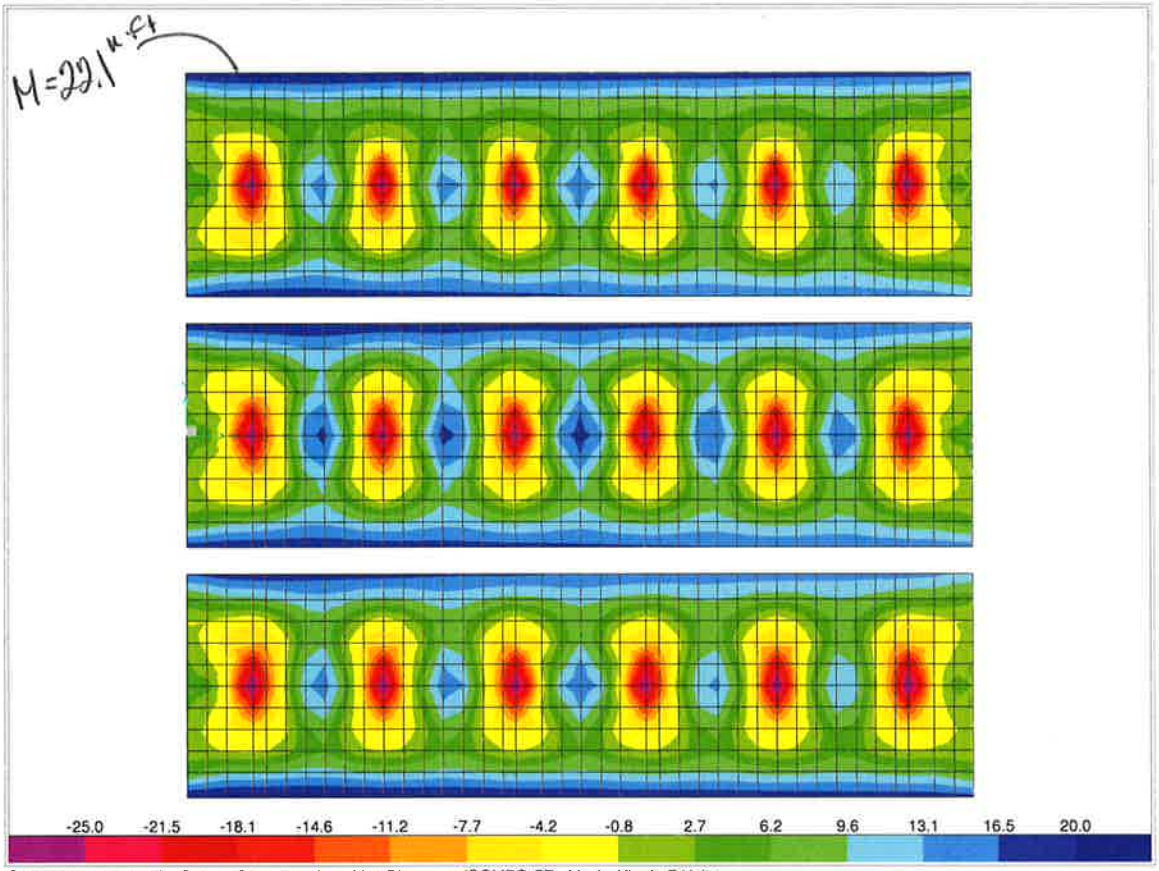
Shear

SAP2000 8/15/13 9:22:18



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

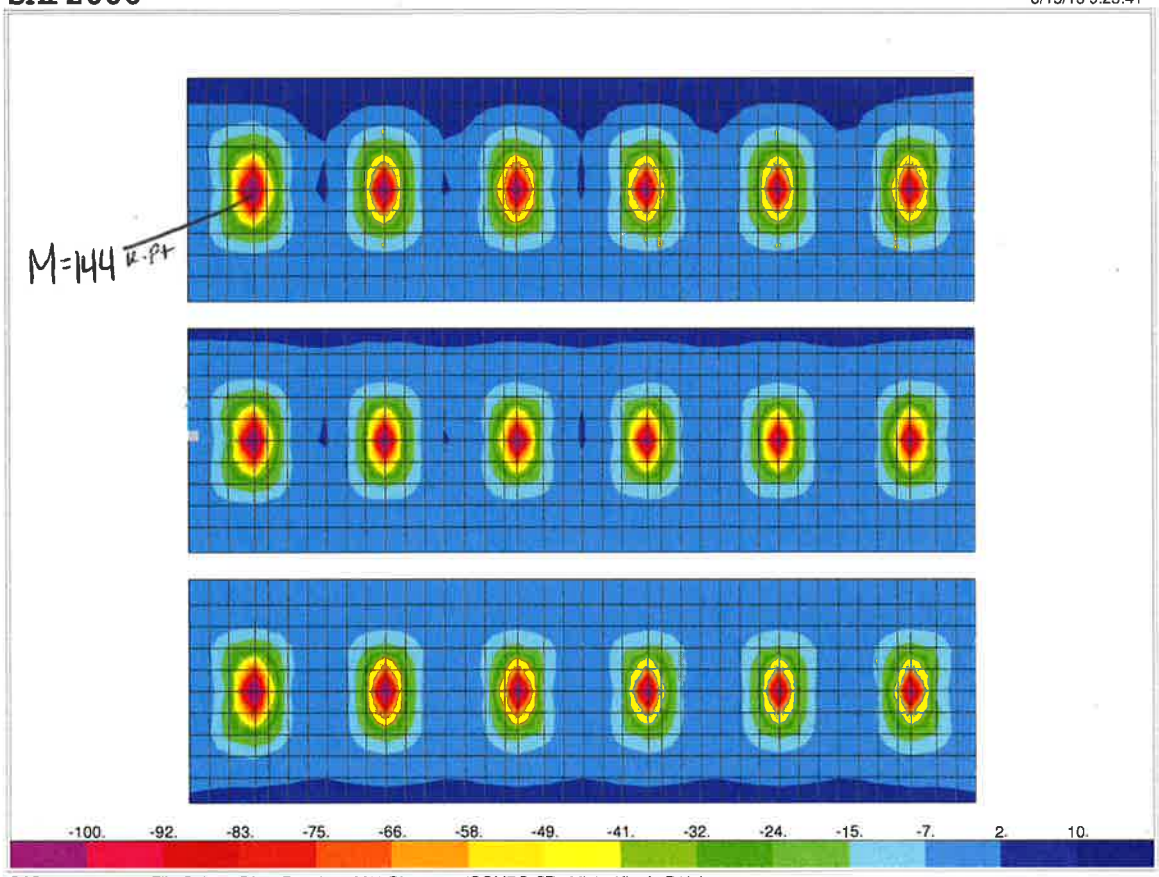
SAP2000 8/15/13 9:23:55



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

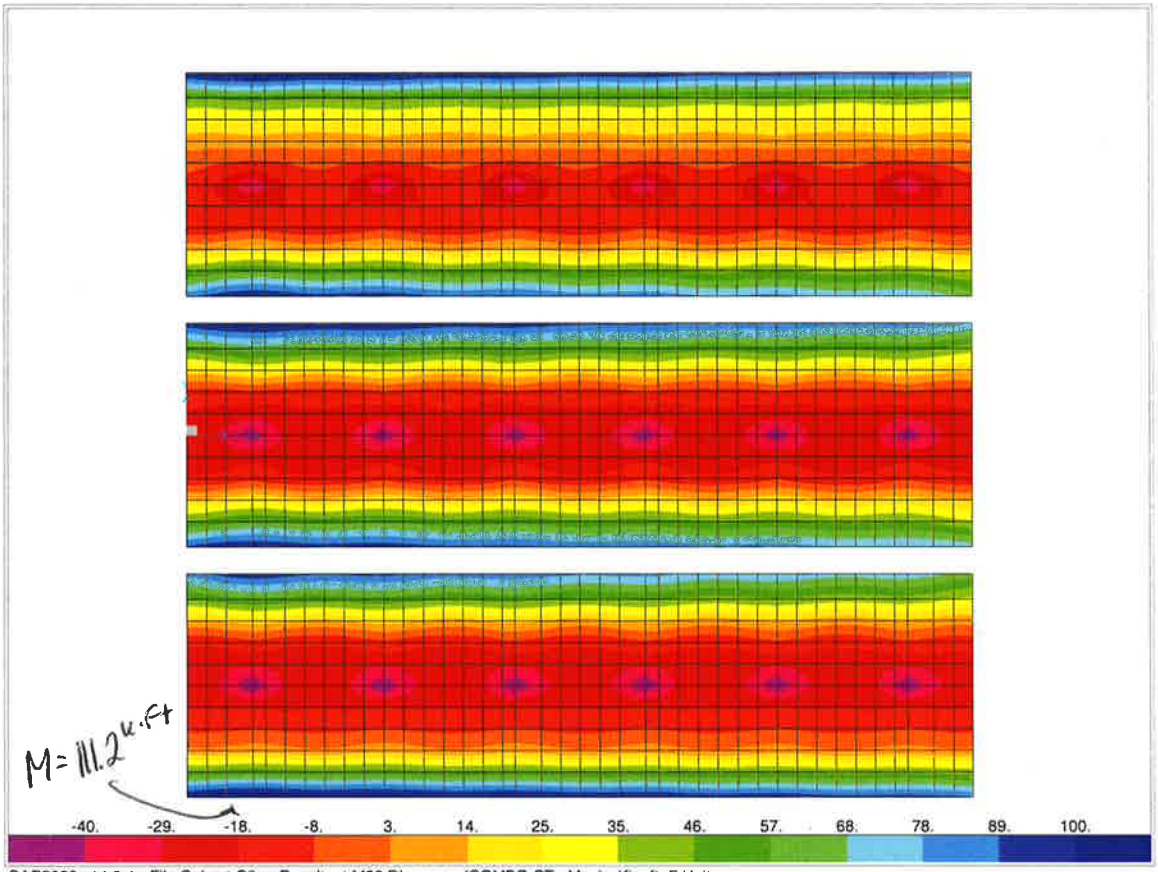
Secondary Moments

SAP2000 8/15/13 9:25:41



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

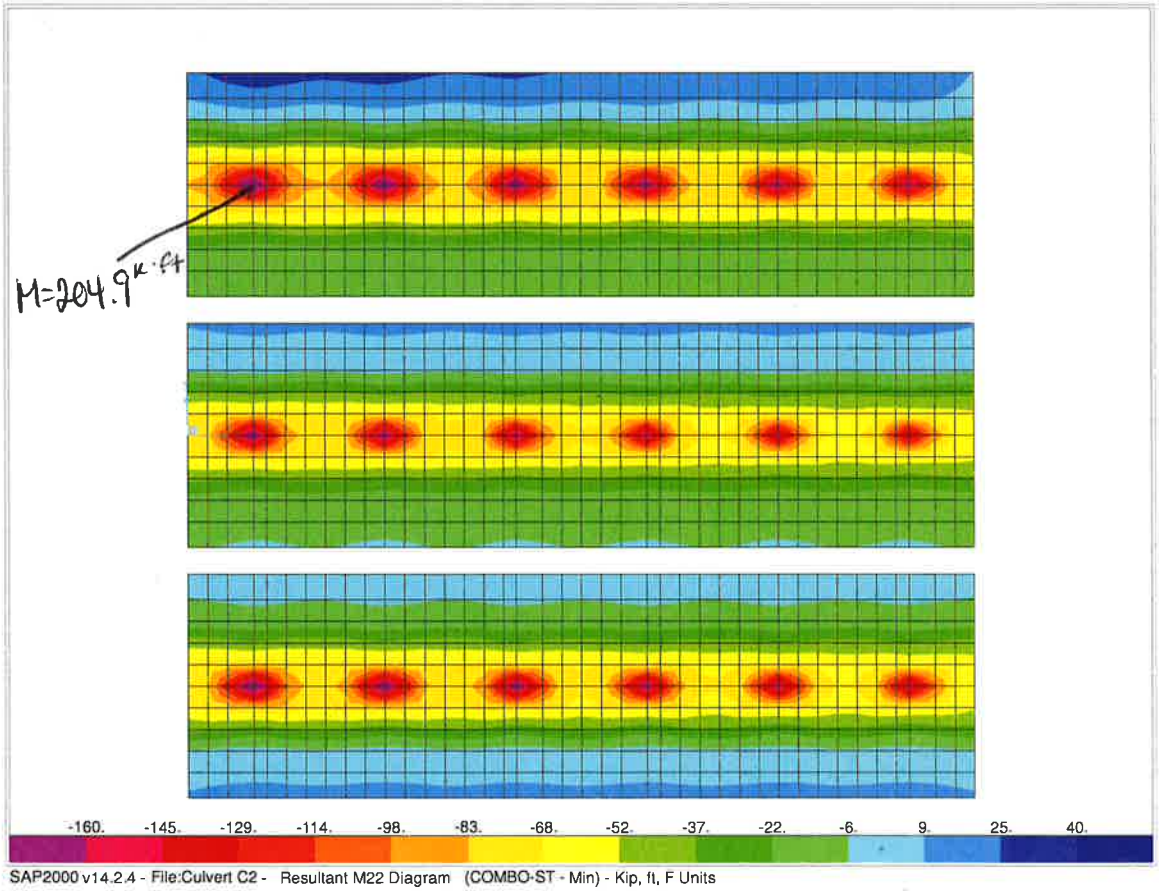
SAP2000 8/15/13 9:27:46



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

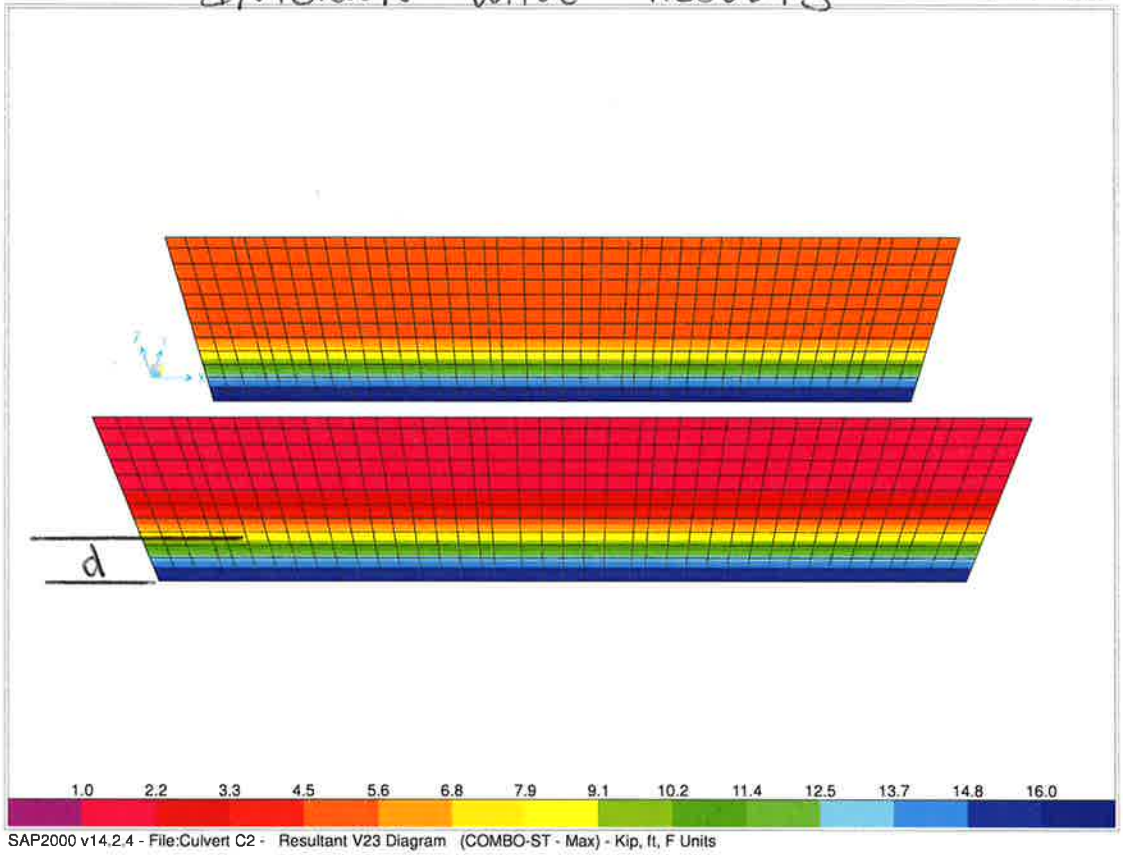
Primary Moments

SAP2000 8/15/13 9:30:12



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

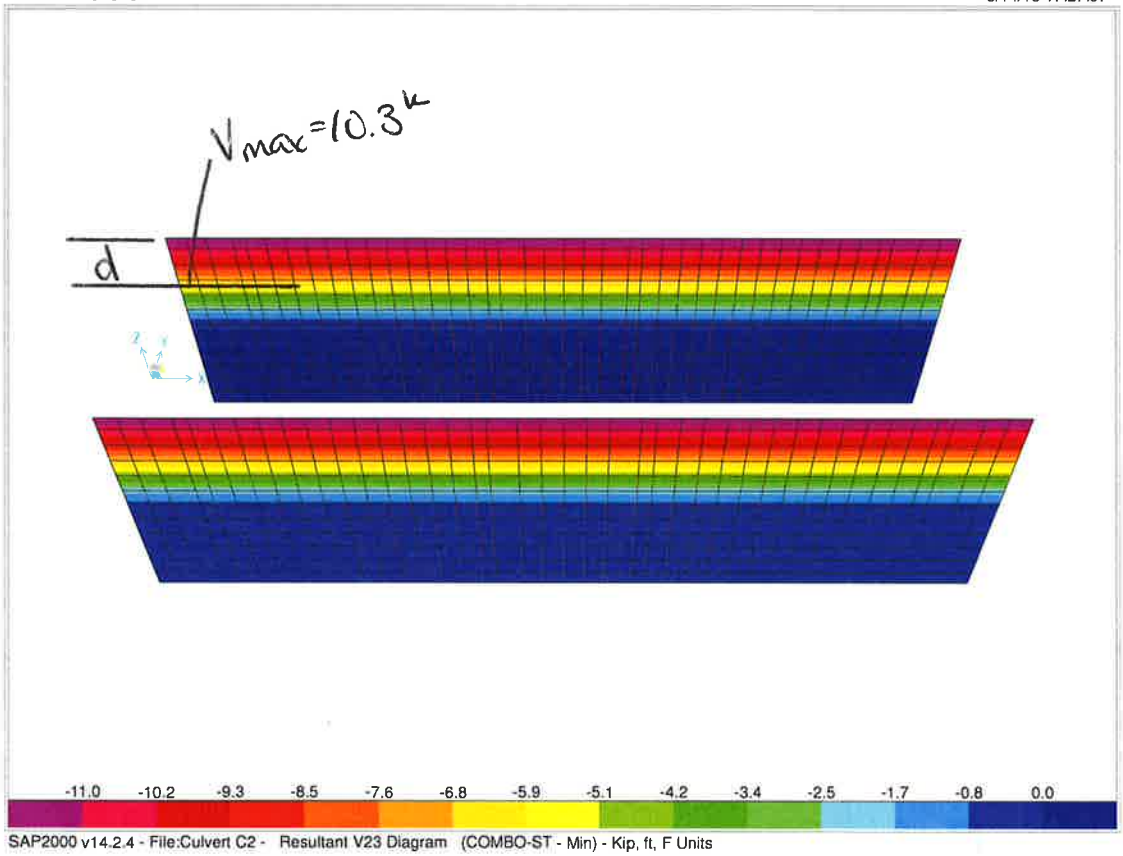
SAP2000 INTERIOR WALL RESULTS 8/14/13 17:23:20



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

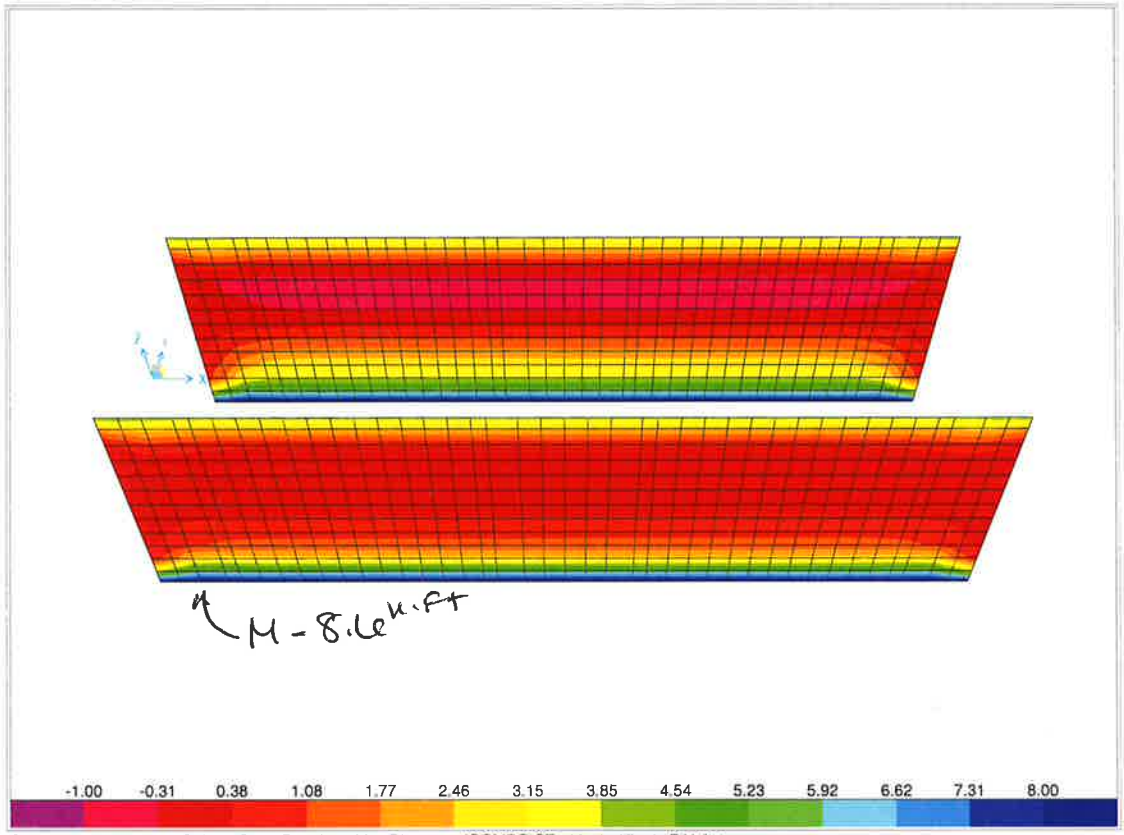
Shear

SAP2000 8/14/13 17:27:07



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

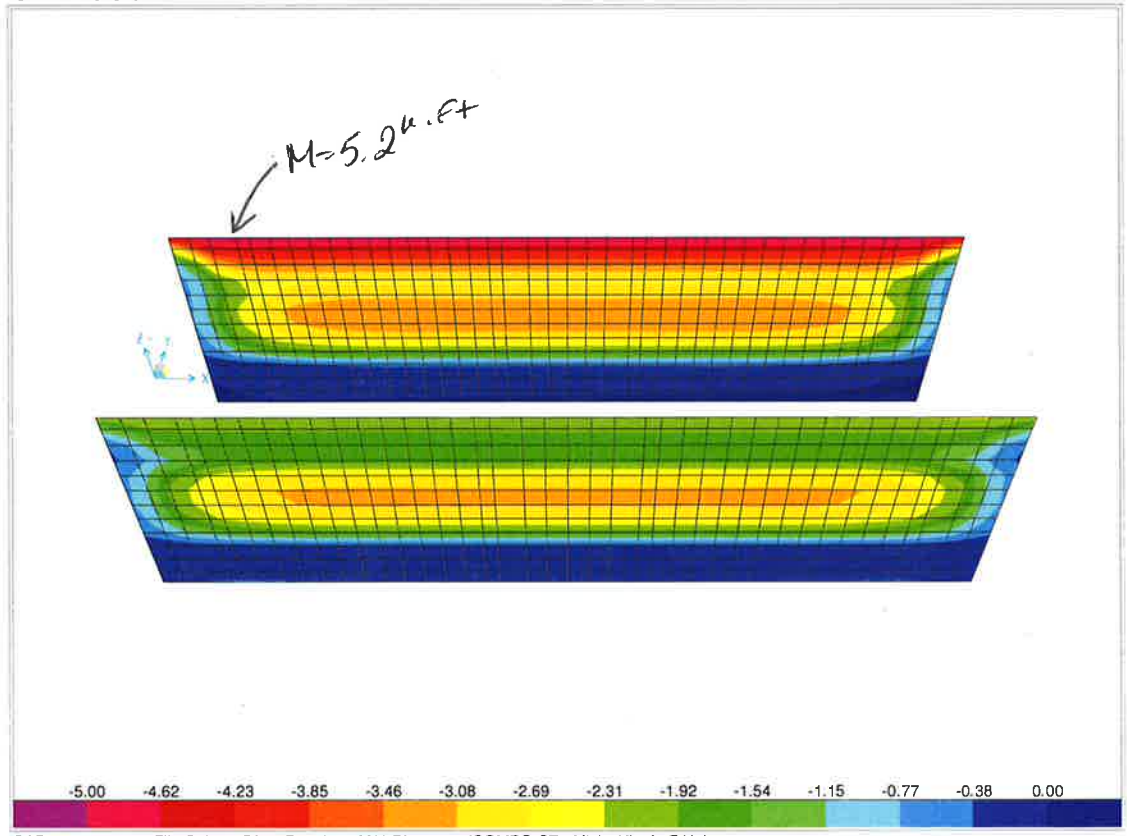
SAP2000 8/15/13 7:52:24



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

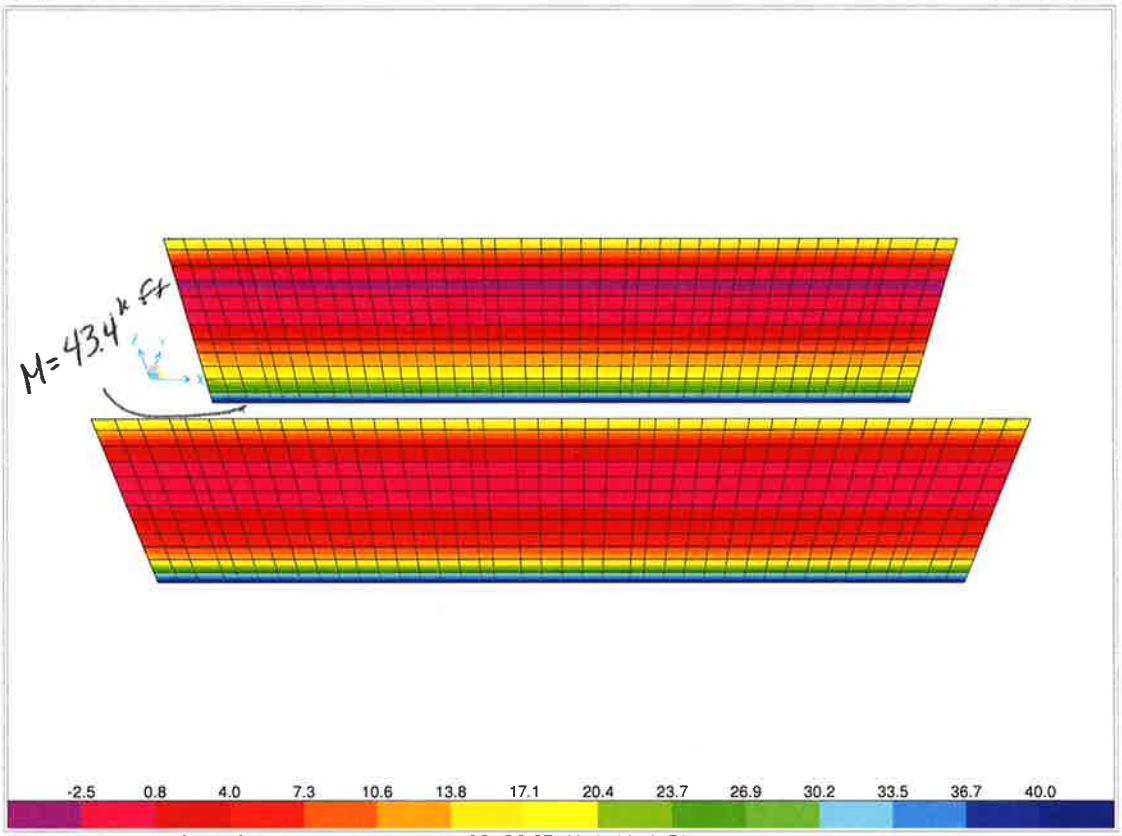
Secondary Moments

SAP2000 8/15/13 7:54:10



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

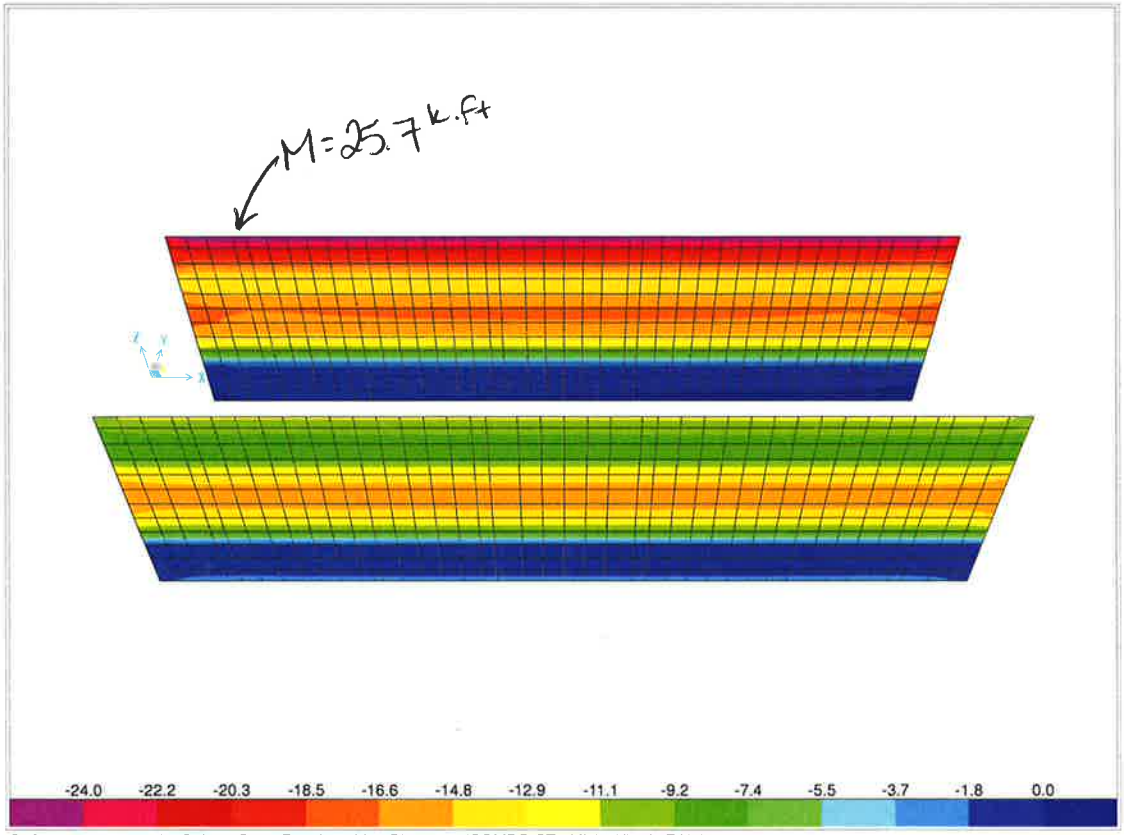
SAP2000 8/15/13 7:55:42



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

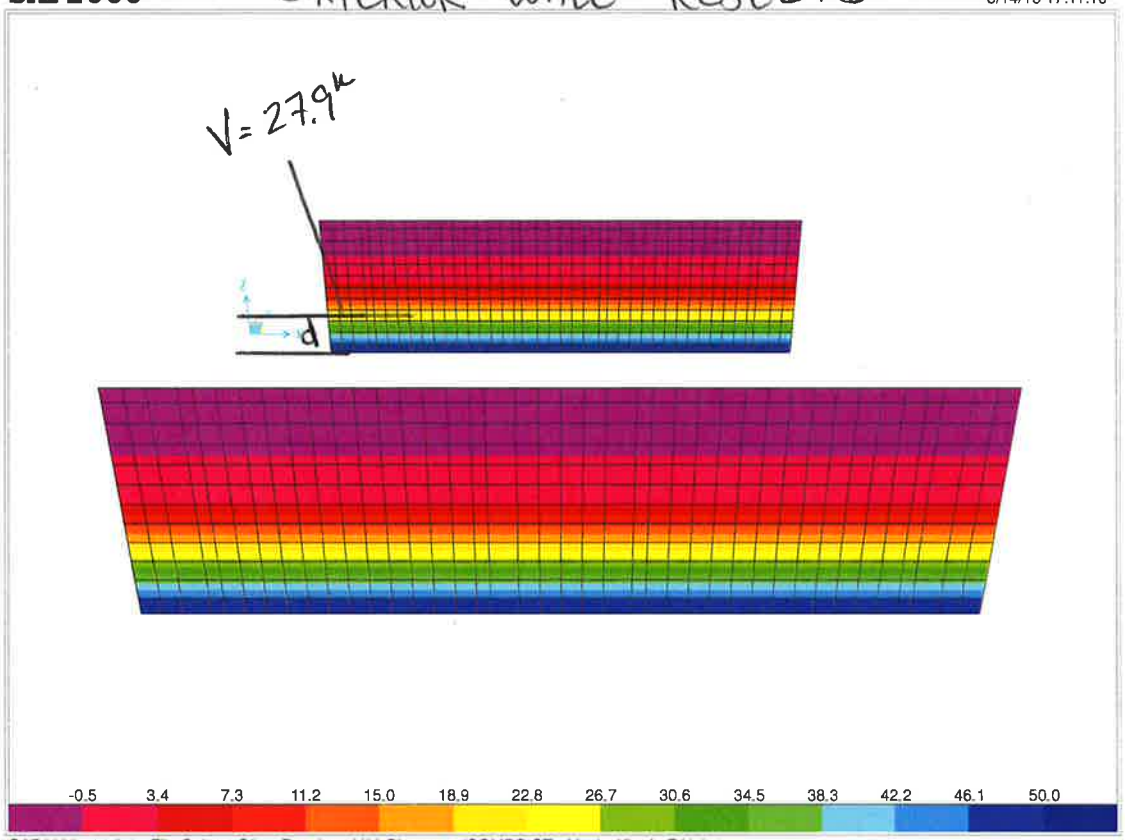
Primary Moments

SAP2000 8/15/13 7:57:35



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

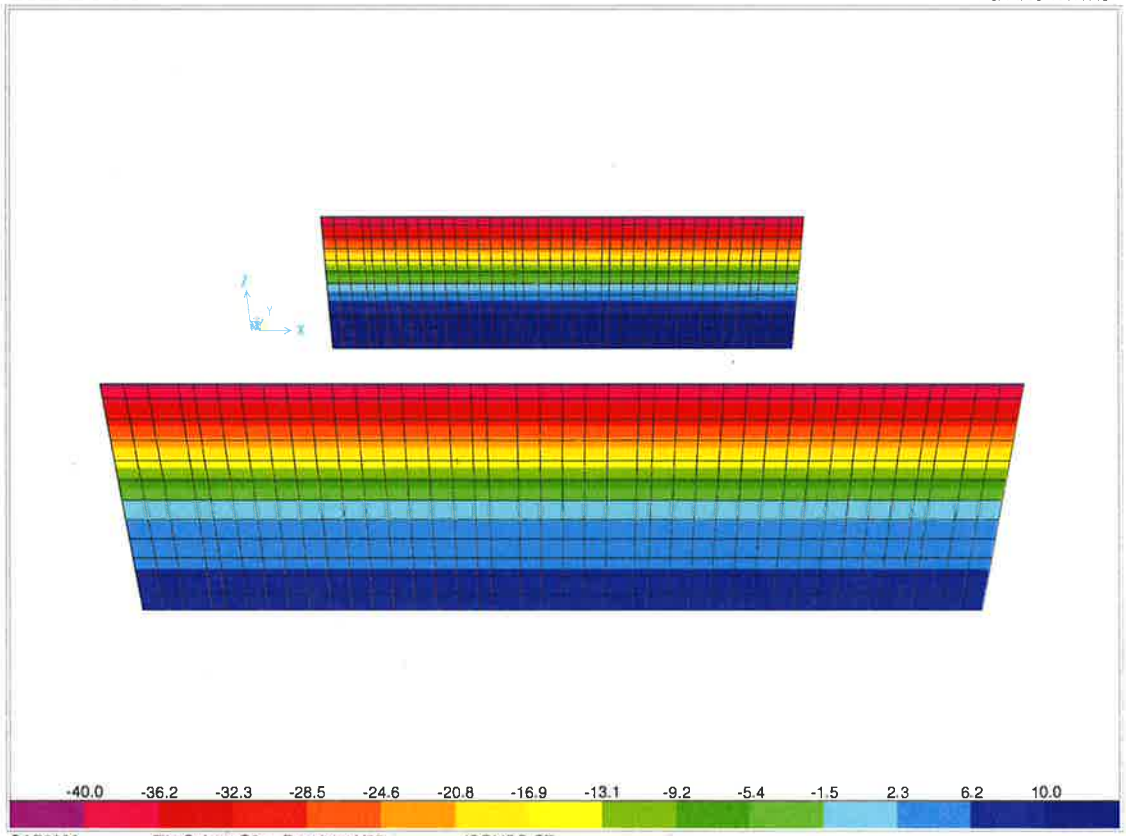
SAP2000 EXTERIOR WALL RESULTS 8/14/13 17:11:10



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

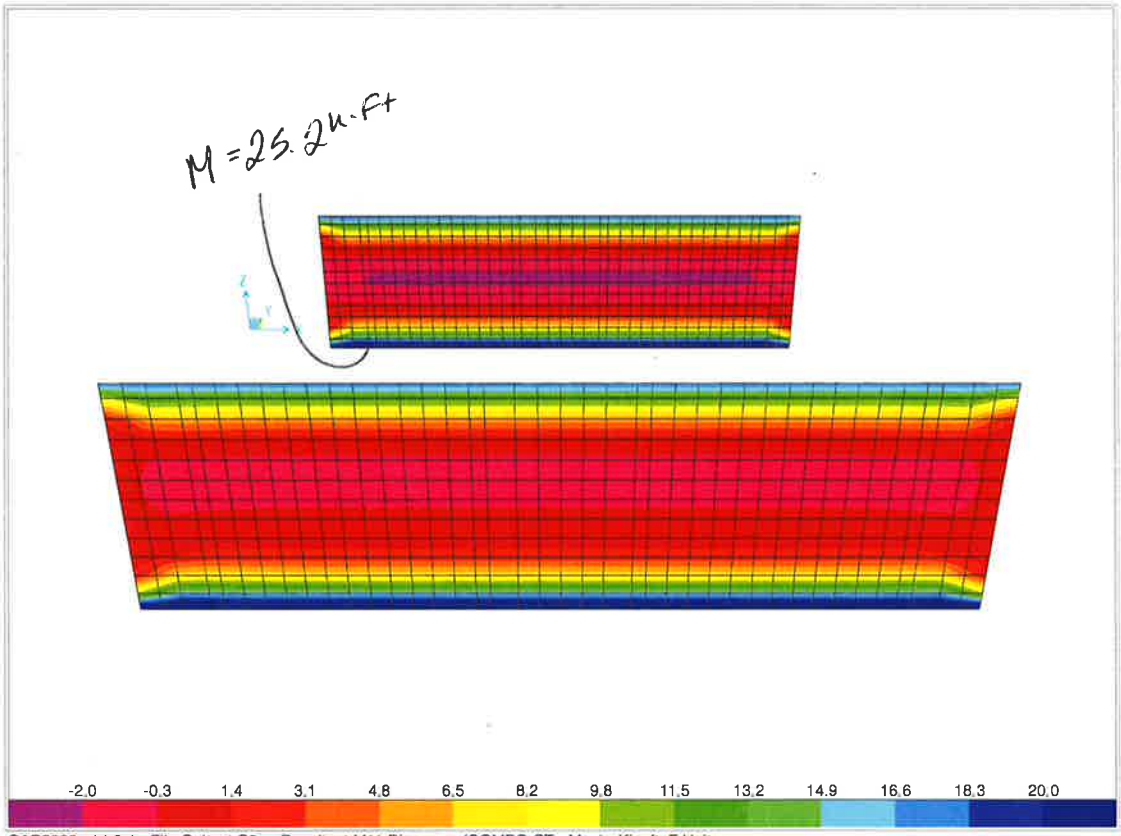
Shear

SAP2000 8/14/13 17:11:48



SAP2000 v14.2.4 - File:Culvert C2 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

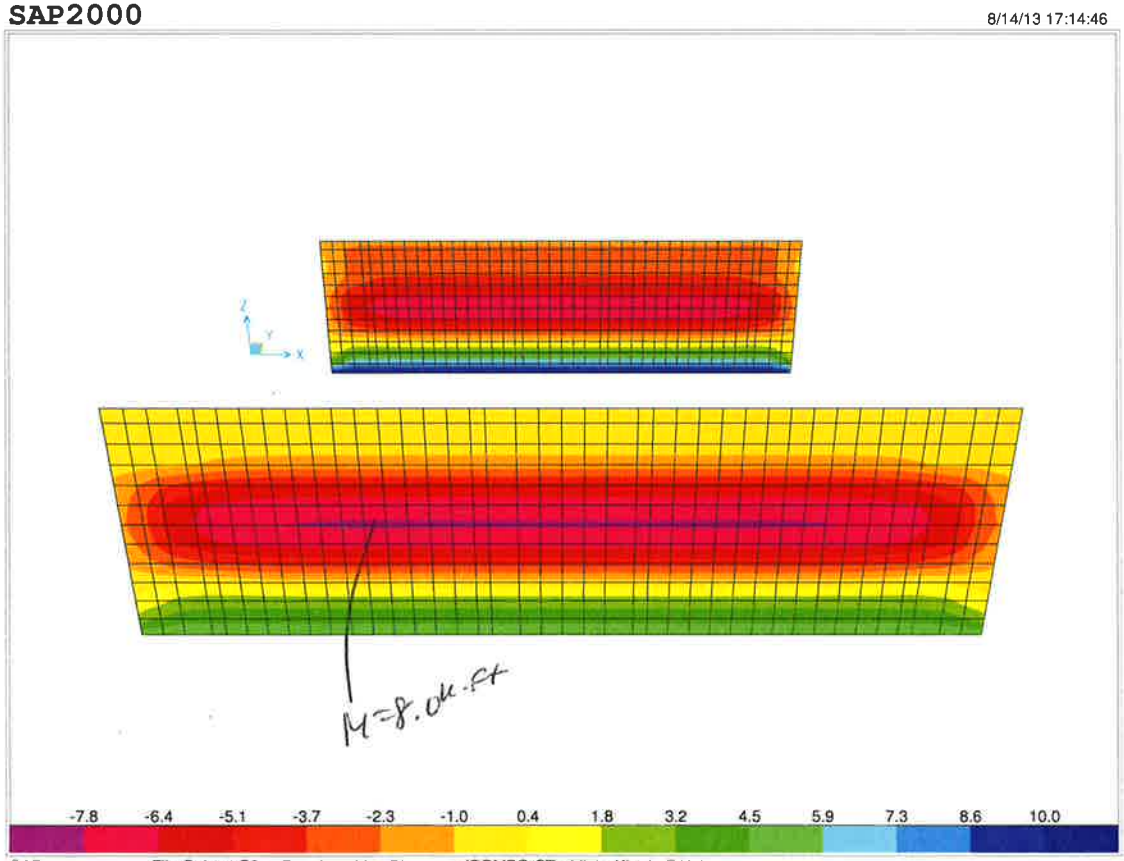
SAP2000 8/14/13 17:13:08



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

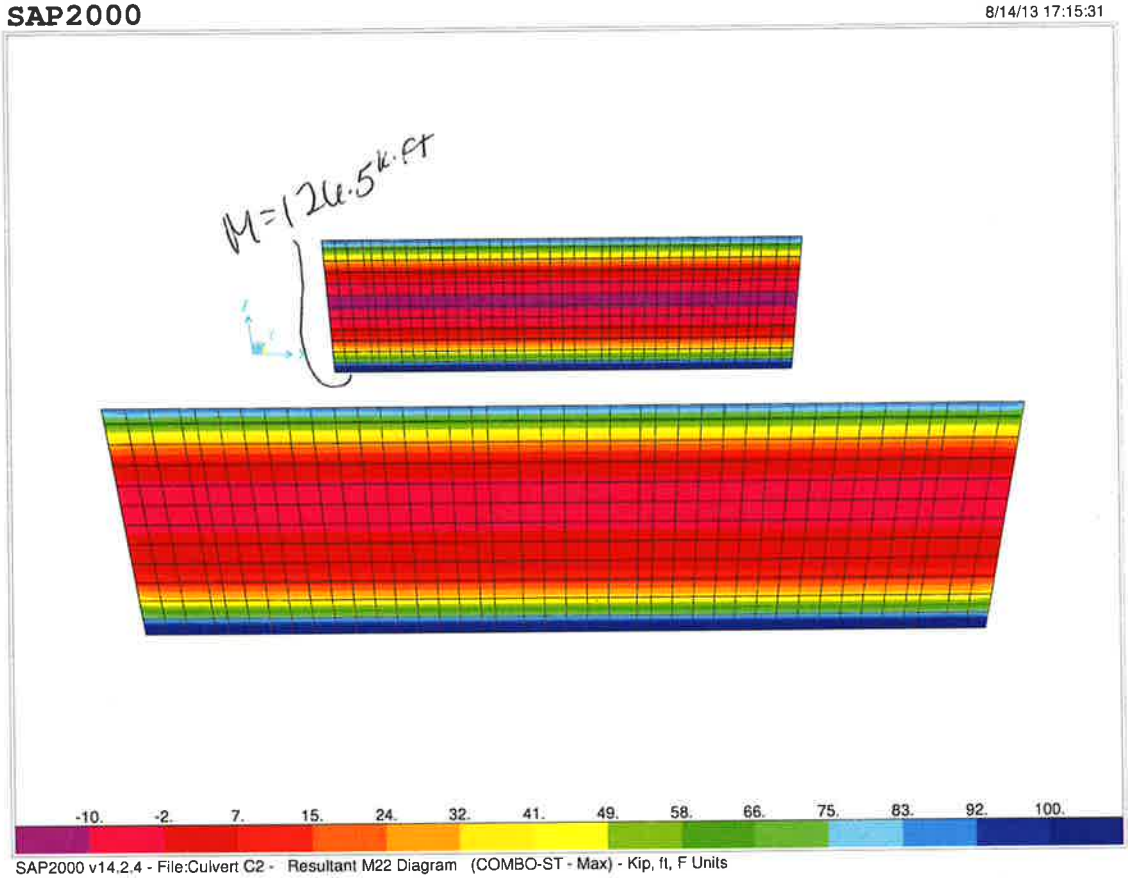
Secondary Moment

SAP2000 8/14/13 17:14:46



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

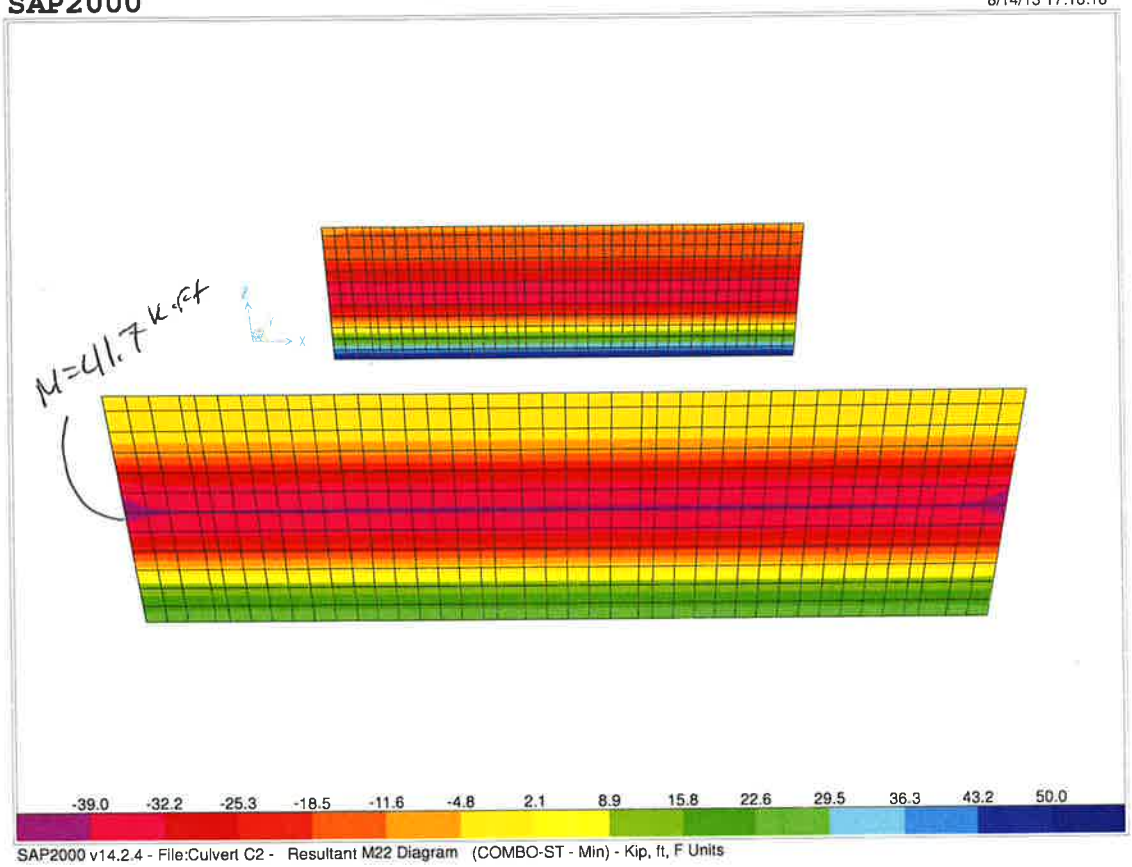
SAP2000 8/14/13 17:15:31



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

Primary Moment

SAP2000 8/14/13 17:18:18



SAP2000 v14.2.4 - File:Culvert C2 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

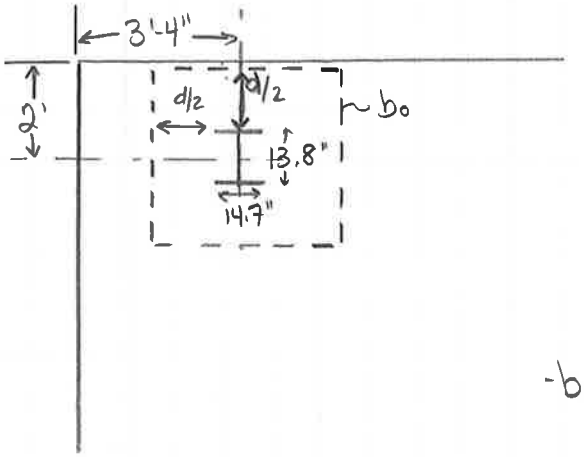
URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____

Description: CULVERT. MONO. PUNCHING SHEAR CHECK | Computed by: LBR | Sheet ____ of ____ | Date: 8/2013

Checked by: ____ | Date: ____

Reference



- $d_{SLAB} = 42" - 9"_{\text{PILE EMBED}} - 3"_{\text{COVER}} - 1/2"$
  $= 29.5"$

- CLOSEST EDGE IS 2', DOES NOT EFFECT PERIMETER.

- $b_o = 2\times(13.8" + d) + 2\times(14.7" + d)$
  $= 2\times(13.8" + 29.5") + 2\times(14.7" + 29.5")$
  $= 175"$

$$\phi V_c = \min. \begin{cases} ① \ \phi\left(2+\frac{4}{\beta}\right)\sqrt{f'_c}\, b_o d & \text{ACI 318 (11-33)} \quad \beta = \frac{14.7"}{13.8"} = 1.07 \\ ② \ \phi\left(\frac{\alpha d}{b_o}+2\right)\sqrt{f'_c}\, b_o d & (11\text{-}34) \quad \alpha = 20 \text{ (minimum)} \\ ③ \ \phi 4\sqrt{f'_c}\, b_o d & (11\text{-}35) \end{cases}$$

- BY INSPECTION, ③ CONTROLS

$$\phi V_c = (0.85)(4)\sqrt{4000}\,(175")(29.5") = 1{,}110{,}117.6^{LB}$$
$$= \underline{1{,}110.1^k}$$

- MAX REACTION IS 272.23^k. IF TREATED AS AN ENVIRONMENTAL LOAD SUBJECT TO HYDRAULIC & SAFETY FACTORS, LOAD $= 272.23^k \times 1.3 \times 1.7 = \underline{601.63^k}$

$$\phi V_c = 1{,}110^k >> P_{max} = 601.6^k \rightarrow \underline{\underline{OK}}$$

URS

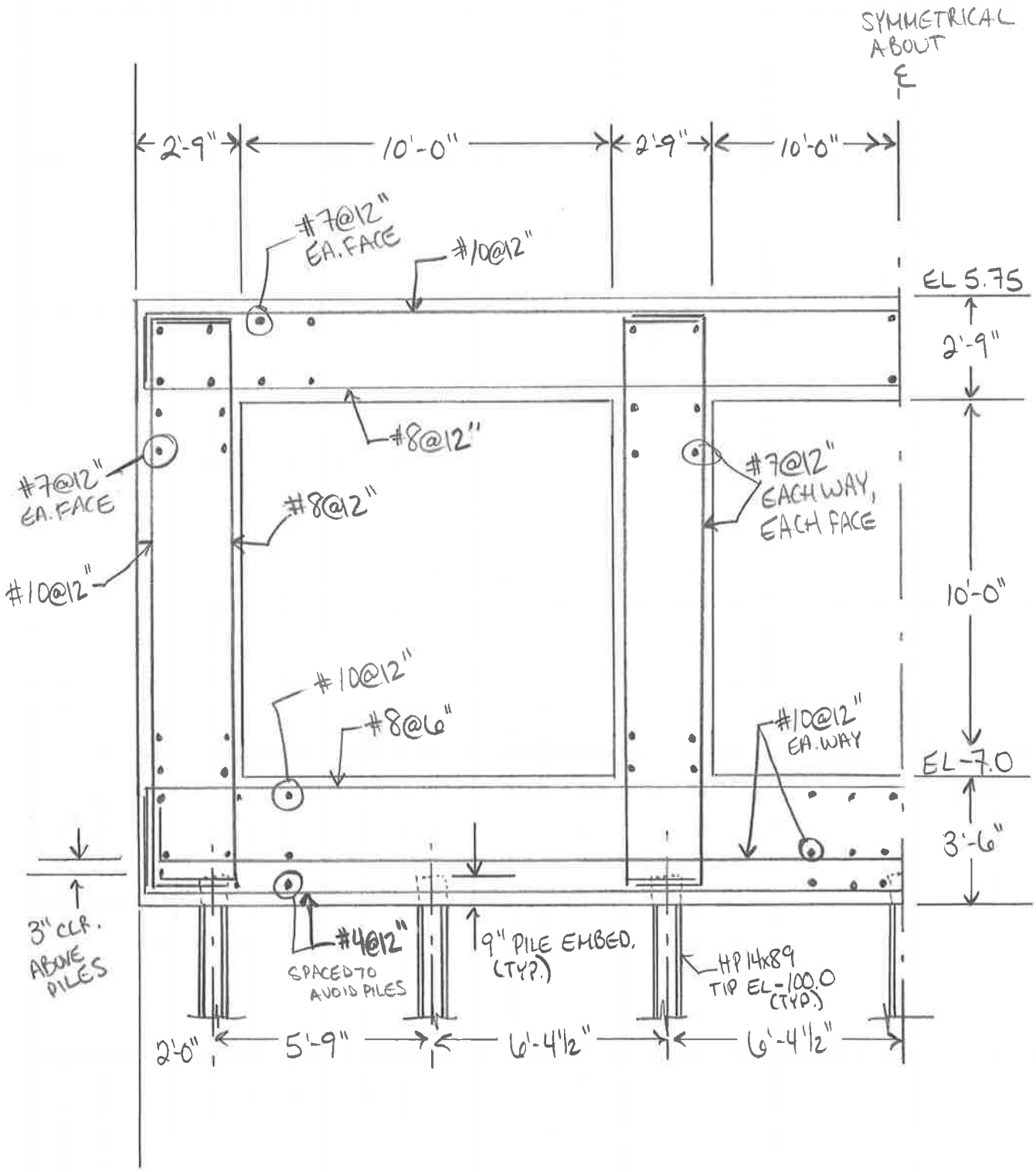
Job MAUREPAS | Project No. 10001876 | Page ____ of ____

Description MONOLITHS C-2 TO C-4 | Computed by LBR | Sheet ____ of ____

REINFORCEMENT | Checked by ____ | Date 8/2013

Date ____

Reference



SECTION 11

MONOLITHS C-5 AND C-6 DESIGN

SECTION 11 TABLE OF CONTENTS

PART 1. SAP Model Overview & Load Input

PART 2. Traffic Conditions/Loads

PART 3. Pile Foundation Results

PART 4. Member Design, Traditional Load Cases

PART 5. Member Design, Settlement Load Cases

PART 6. Downstream Bulkhead Area Design Check

PART 1

SAP Model Overview & Load Input

Two independent 3-D SAP2000 models have been created to design the Box Culvert Monoliths C-2 to C-6. 3-D models are employed because the culverts run beneath the Mississippi River Levee and adjacent River Road at an angle, creating a skewed loading condition on both types of box. The models are made of 4000psi concrete area elements with thicknesses of 3'-6" for the base slab and 2'-9" for the walls and top slab.

Joints connecting the frame elements are stiffened as per ETL 1110-2-355, which states that, "Rigid links are short members at joints that are stiffened to represent the behavior of wide supports. They are used to approximate real behavior at the intersections of thick concrete members. The length of the rigid link is generally half the distance between the joint and the face of the supporting concrete…A link should have a stiffness of at least ten times greater than that of the intersecting flexible member." The pertinent portions of the ETL explaining the rigid link method are included in the preceding general information section.

Piles are modeled with springs that are calculated with supplied geotechnical data. Axial springs are based on the equation:

$$b_{33} = c_{33} * (A * E) / L$$

where, b_{33} = axial pile stiffness spring (k/in)
c_{33} = axial stiffness modifier coefficient (supplied by geotechnical analysis)
A = cross-sectional area of the pile
E = modulus of elasticity of the pile
L = length of the pile

Lateral springs are based on the LPile Lateral Load vs. Displacement curve provided by the geotechnical analysis. For these springs, a lateral deflection is assumed (based on initial model runs or an engineering assumption) and the associated load is found. The calculated lateral spring is equivalent to this load divided by the correlated deflection. An iterative procedure is then used to calibrate the spring value so that the spring's source deflection is equivalent to the deflection of the model's piles. LPile information for up to a 30kip lateral load is available for use. For pile structural checks, the moment curve used is also taken from LPile output data.

Operational Load Cases are created to maximize possible upward or downward forces on the pile foundation and concrete members. Two overall cases are considered, one for a maximum river stage and one for a minimum river stage. These two general conditions are split into a maximum downward force option, where water is flowing in the culverts and an impervious sheet pile cut-off is assumed (no uplift is applied), and a maximum upward force option where the culverts are empty and a pervious cut-off is assumed (uplift is applied).

Two soil cover conditions are created in the model. One condition accounts for soil to the roadway elevation of 10.73 NAVD88. The other accounts for the smaller soil cover present on C-6, which is only approximately EL 8.0. The load cases which produce the highest uplift forces are duplicated and the lighter soil load is applied in order to check for possible tension reactions in the piles.

Traffic loads are applied to the load cases which include soil to EL 10.73. These traffic loads account for the skew of the roadway above the culvert and were chosen to approximate the worst-case traffic conditions for the pile foundation and the concrete members. Four general traffic cases are presented: two involve one truck traveling in the westbound lane and two involve two trucks passing each other. Single trucks traveling in the eastbound lane are not considered because this lane is more centralized above the monolith. Trucks traveling eastbound will result in more evenly distributed pile reactions throughout the foundation while creating moments & shears in the walls & slabs that are similar to those of the two included westbound-truck cases. In both passing-truck cases, axle loads are applied directly adjacent to each other (as opposed to staggered) because the effect of the overlapped wheel load areas is, in our engineering judgment, of greater concern than a load condition where two trucks axles are centered over a culvert opening or wall but are not overlapping. Considering the additional capacity available in the piles (see pile reaction results spreadsheet) and the fact that primary slab & wall reinforcing is designed on a per-foot basis and also contains additional capacity (see member design spreadsheet), the differences in stresses from slightly differing axle spacings will be carried by the designed foundation, concrete & reinforcing capacities.

Maintenance Dewatering Cases were also considered for these culverts. Instead of modeling every possible combination of empty and full culverts, the two scenarios that maximize culvert wall forces were chosen for the model. In the first option, the center box is dewatered while the two exterior boxes are flowing full with water pressure due to the Maximum River Stage. In the second, only one edge culvert is flowing full while the remaining two boxes are empty. These dewatering cases are also split into versions with and without uplift.

Additionally, please note that the small bulkhead recess area at the north end of monolith C-6 is not accounted for in the SAP model. Additional calculations are included at the end of this section that design the small retaining wall around this recessed area and check the culvert's top slab and exterior walls for additional forces imparted by the retaining wall. The additional weight and impact force applied to the foundation from bulkhead installation will be readily carried by the pile foundation because piles have tip elevations designed for monolith C-5's higher soil loads and traffic conditions.

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Description: Design Load Cases **Computed By:** LBR **Date:** Aug-13 **Page:** of

Culverts C-5 & C-6 **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

LC #	Description	Allowable Overstress	Applicable Loads
Dead	Dead Load	0.00%	Dead Load (concrete)
1a	Construction Condition Roadway Section	16.67%	Dead Load (concrete)
			Construction Surcharge (250psf)
			Dry Soil to T.O. Road - Lateral & Vertical
1b	Uneven Construction Condition	16.67%	Dead Load (concrete)
			Construction Surcharge (250psf)
			Lateral Load from Uneven Dry Backfill (5ft differential)
2a	Maximum River Stage w/Uplift Roadway Section	0.00%	Dead Load (concrete)
			No Internal Water Pressure (Culverts Empty)
			Uplift from Max River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert
2a_6	Maximum River Stage w/Uplift Lower Soil over C-6	0.00%	Dead Load (concrete)
			No Internal Water Pressure (Culverts Empty)
			Uplift from Max River Stage
			Soil to EL 8.0 - Lateral & Vertical
			Average Groundwater Table Outside Culvert
2b	Maximum River Stage w/o Uplift	0.00%	Dead Load (concrete)
			Culverts Full
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert
3a	Minimum River Stage w/Uplift Roadway Section	0.00%	Dead Load (concrete)
			No Internal Water Pressure (Culverts Empty)
			Uplift from Min River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert
3a_6	Minimum River Stage w/Uplift Lower Soil over C-6	0.00%	Dead Load (concrete)
			No Internal Water Pressure (Culverts Empty)
			Uplift from Min River Stage
			Soil to EL 8.0 - Lateral & Vertical
			Average Groundwater Table Outside Culvert
3b	Minimum River Stage w/o Uplift	0.00%	Dead Load (concrete)
			Culverts Full to Min River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Description: Design Load Cases **Computed By:** LBR **Date:** Aug-13 **Page:** of

Culverts C-5 & C-6 **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

LC #	Description	Allowable Overstress	Applicable Loads
D1a	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/Uplift Roadway Section	33.33%	Dead Load (concrete)
			Internal Water Pressure in Two Exterior Culverts from Max River Stage
			Uplift from Max River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D1a_6	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/Uplift Lower Soil over C-6	33.33%	Dead Load (concrete)
			Internal Water Pressure in Two Exterior Culverts from Max River Stage
			Uplift from Max River Stage
			Soil to EL 8.0 - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D1b	Maintenance Dewatering Type 1 (Center Culvert Dewatered) w/o Uplift	33.33%	Dead Load (concrete)
			Internal Water Pressure in Two Exterior Culverts from Max River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D2a	Maintenance Dewatering Type 2 (One Edge Culvert In Operation) w/Uplift Roadway Section	33.33%	Dead Load (concrete)
			Internal Water Pressure in One Exterior Culvert from Max River Stage
			Uplift from Max River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D2a_6	Maintenance Dewatering Type 2 (One Edge Culvert In Operation) w/Uplift Lower Soil over C-6	33.33%	Dead Load (concrete)
			Internal Water Pressure in One Exterior Culvert from Max River Stage
			Uplift from Max River Stage
			Soil to EL 8.0 - Lateral & Vertical
			Average Groundwater Table Outside Culvert
D2b	Maintenance Dewatering Type 2 (Only One Edge Culvert In Operation) w/o Uplift	33.33%	Dead Load (concrete)
			Internal Water Pressure in One Exterior Culvert from Max River Stage
			Soil to T.O. Road - Lateral & Vertical
			Average Groundwater Table Outside Culvert

Traffic Additions:

* 4 different traffic loading conditions will be used in this design. They are as follows:

T1: Single truck in Westbound Lane. Wheel load areas generally centered over culvert openings (high-moment case). Single lane load is also applied to Westbound Lane.

T2: Single truck in Westbound Lane. Wheel load areas generally centered over culvert walls (high-shear case). Single lane load is also applied to Westbound Lane.

T3: Passing Trucks. Westbound truck wheel loads are generally centered over culvert openings (same location as case T1). Eastbound truck is adjacent. Lane load applied to both lanes.

T4: Passing Trucks. Westbound truck wheel loads are generally centered over culvert walls (same location as case T2). Eastbound truck is adjacent. Lane load applied to both lanes.

* These traffic conditions will be applied to all operational & dewatering cases where soil is to the T.O. Road. They will be designated by the addition of "_T#" to the end of the load case name.
Ex: LC2a_T1 would be load case 2a with the addition of the Single truck load in the Westbound Lane.

* Single truck load cases in the Eastbound Lane are not examined because they will result in more evenly distributed pile reactions throughout the foundation than those of the single truck in the Westbound Lane. The Westbound Lane's proximity to the edge of the slab will produce higher variations in pile reactions and higher overall reactions on the north edge of the monolith. A single truck in the Eastbound Lane will have its load more evenly distributed over all piles because the lane is near the center of the monolith. Moment and shear results in the walls and slabs will be similar for either case.

Settlement Additions:

* A settlement load case, which includes the influence of clay fill settling on top of and ajacent to the monolith, is created for each of the design load cases described on the previous pages. The settlement forces on top of the culvert are estimated by adding a contributary area of soil extending at a 45 degree angle from the top of the culvert to the vertical soil column. Settlement of side soils is assumed to impart a 600psf downward adhesion force wherever soil touches the walls.

* These cases will be designated by the addition of "-ST" to the end of the load case name.
Ex: LC2a-ST would be load case 2a with the addition of a 600psf vertical downdrag force on the exterior culvert walls and an increase in the vertical soil column pressure.

URS

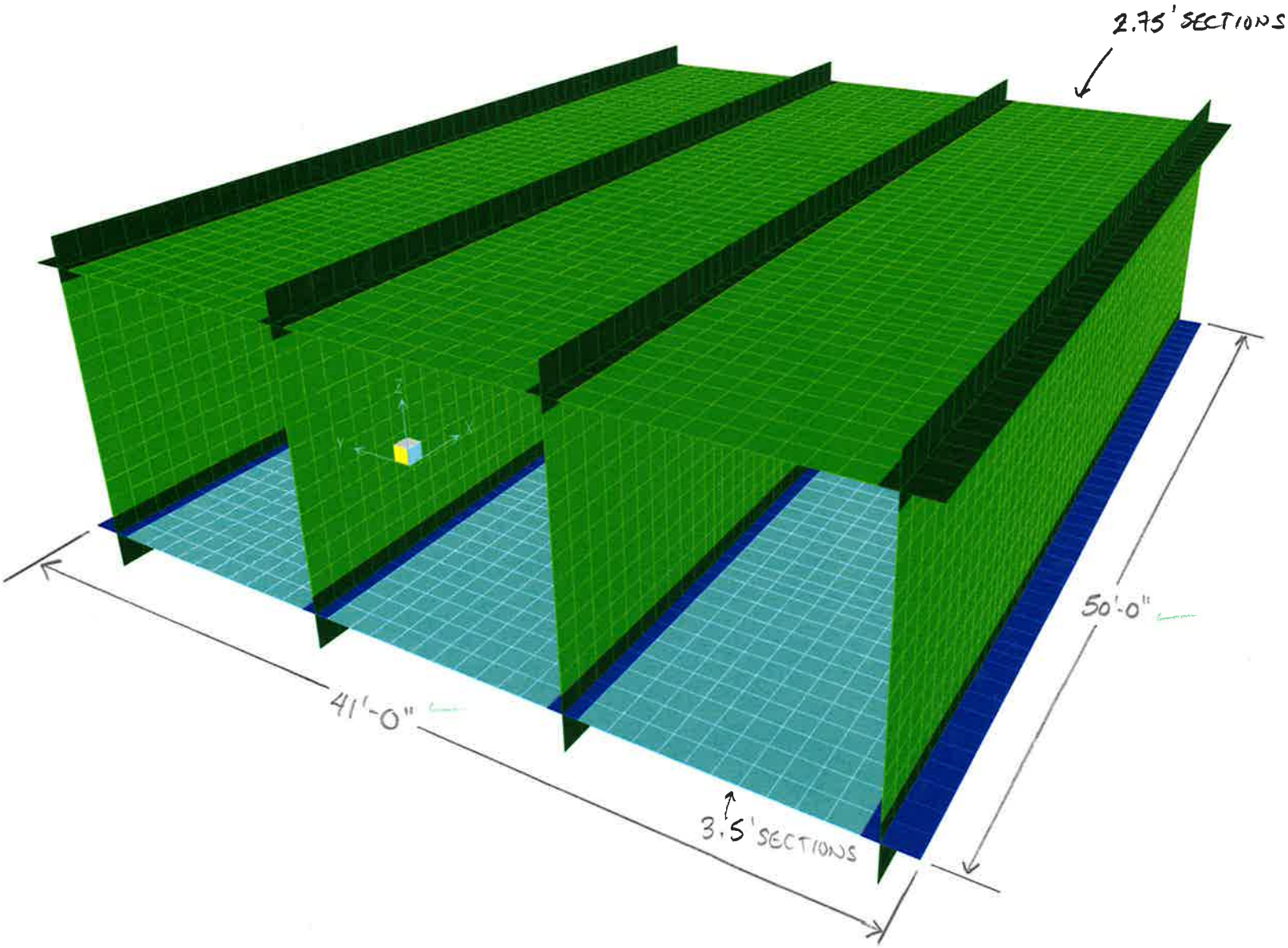
Job: Maurepas Freshwater Diversion **Project #:** 10001876

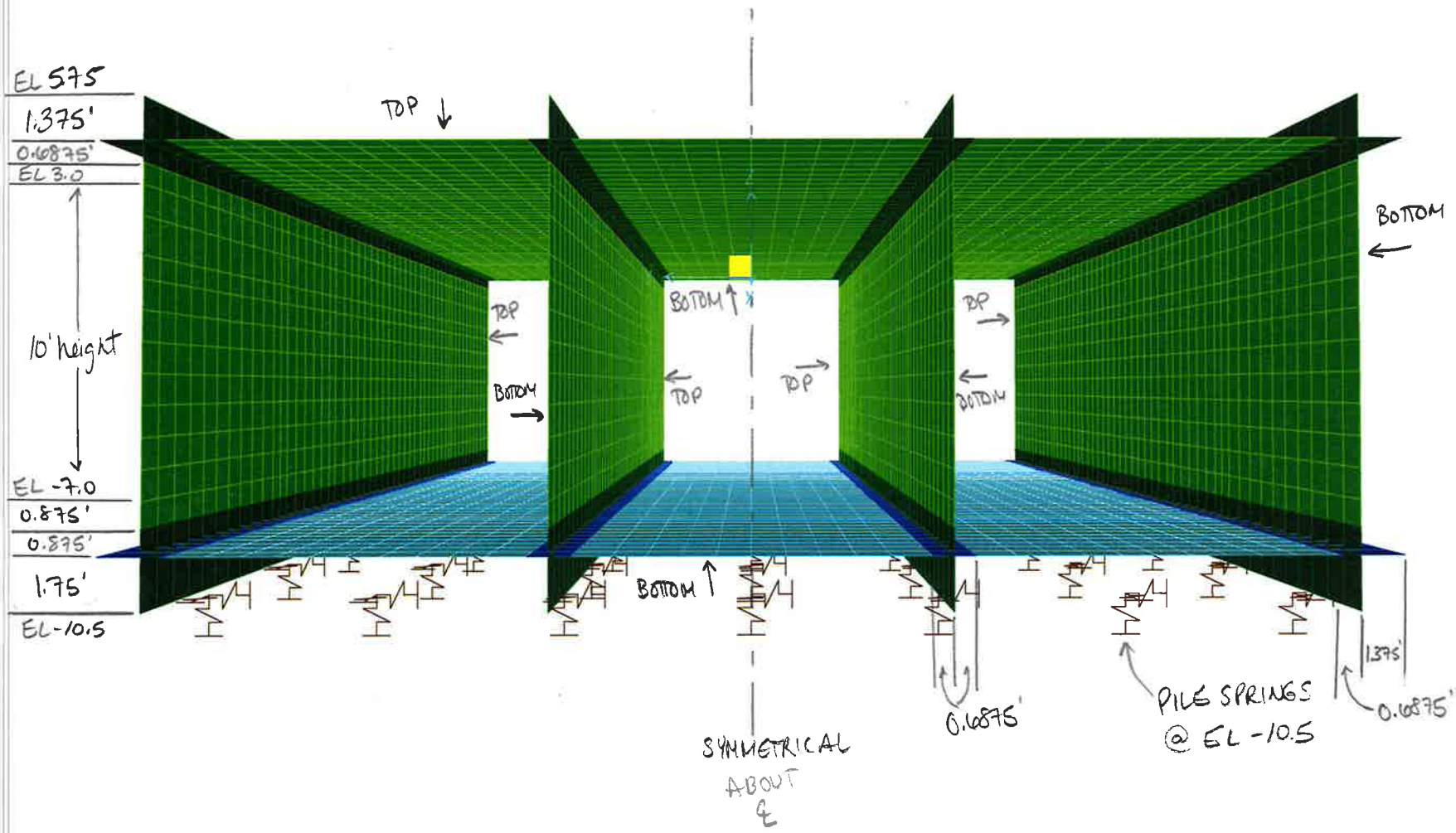
Description: Design Load Cases **Computed By:** LBR **Date:** Aug-13 **Page:** of

Culverts C-5 & C-6 **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

Load Pattern Name	Pattern Description
DEAD	Dead load of concrete structure
ST_cohesion	Downdrag force due to cohesive clay soils settling against walls
ST_cohesion_uneven	Downdrag force due to clay soils settling against walls for uneven backfill
LS_const	Construction surcharge loads (horizontal & vertical)
LS_const_uneven	Construction surcharge loads (horizontal & vertical) for uneven backfill
S_roadtop	Vertical force of soil to EL 10.73 on top of culvert (1.0 scale factor)
S_C6top	Vertical force of soil to EL 8.0 on top of culvert (1.0 scale factor)
S_const_lat	Soil pressure from dry backfill during construction - soil to T.O. Roadway
S_const_uneven	Soil pressure from dry uneven backfill during construction (5ft differential)
S_avg gwt_road	Soil pressure from partially submerged fill to EL 10.73 (water to Avg. Groundwater Table)
S_avg gwt_C6	Soil pressure from partially submerged fill to EL 8.0 (water to Avg. Groundwater Table)
L_avg gwt	Lateral load from water to Average Groundwater Table (EL 5.2)
L_culvert full	Internal Pressure on walls & bottom slab from full culverts
L_culv min water	Internal Pressure on walls & bottom slab from culverts full to EL 1.0 (min river stage)
U_max river	Uplift load from water to EL 23.73 (max river stage)
U_min river	Uplift load from water to EL 1.0 (min river stage)
L_1-dewater	Internal Pressure on walls & slabs from water flow in two exterior culverts - center culvert dewatered (max. river stage water level)
L_2-dewater	Internal Pressure on walls & slabs from water flow in one exterior culvert - center and edge culvert dewatered (max river stage water level)
T_R_lane	Lane Load applied to Westbound Lane (Right lane)
T_L_lane	Lane Load applied to Eastbound Lane (Left lane)
T_1_center	Truck wheel loads applied to Westbound Lane - roughly centered over culvert openings
T_1_edge	Truck wheel loads applied to Westbound Lane - roughly centered over culvert walls
T_2_center	Truck wheel loads applied to Eastbound Lane for use for Passing Trucks Condition T3
T_2_edge	Truck wheel loads applied to Eastbound Lane for use for Passing Trucks Condition T4

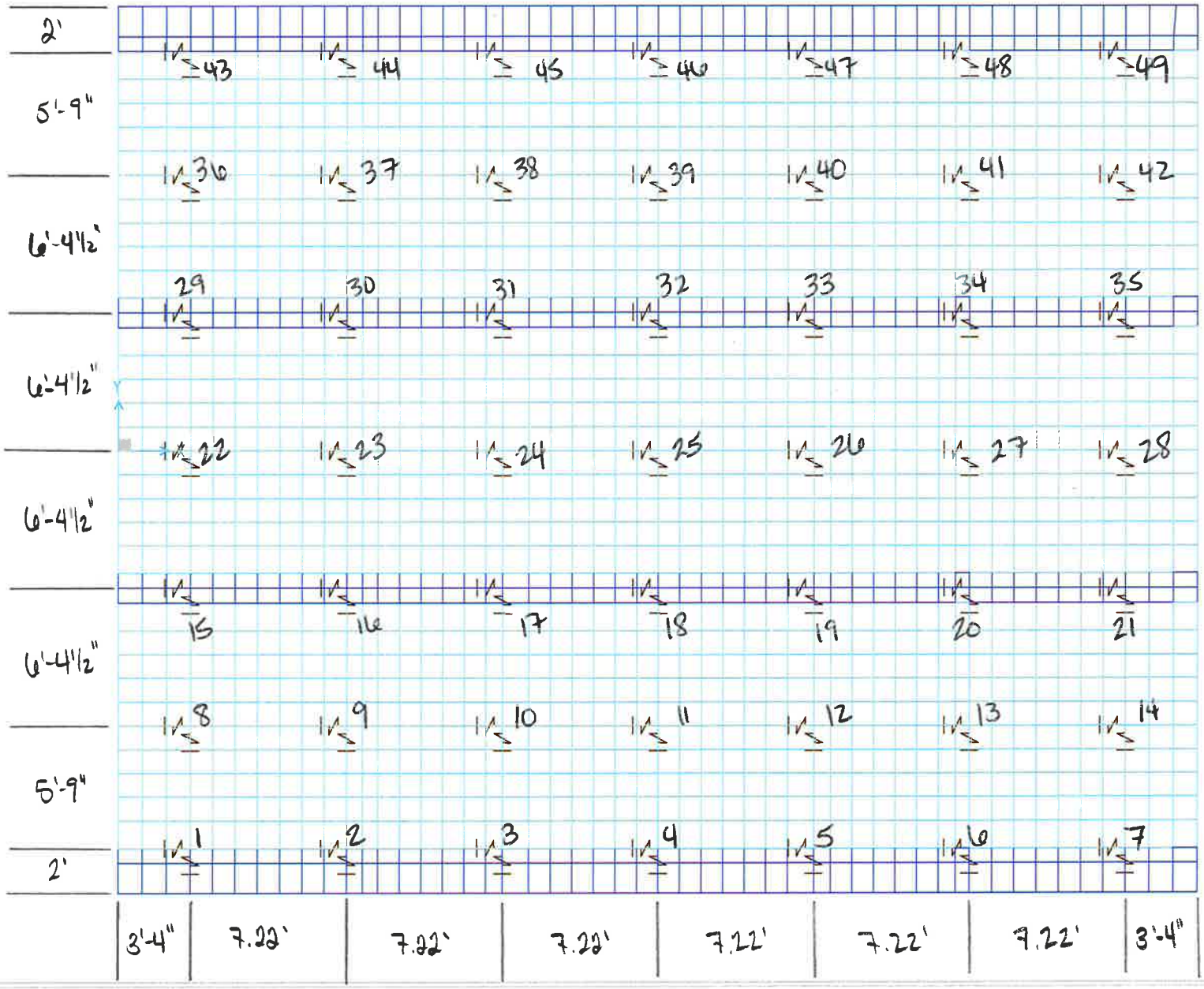
MODEL OVERVIEW:





*DARK AREAS ARE RIGID LINKS

 PILE LAYOUT:


2'
5'-9"
6'-4½"
6'-4½"
6'-4½"
6'-4½"
5'-9"
2'
43 44 45 46 47 48 49
36 37 38 39 40 41 42
29 30 31 32 33 34 35
22 23 24 25 26 27 28
15 16 17 18 19 20 21
8 9 10 11 12 13 14
1 2 3 4 5 6 7
3'-4"
7.22'
7.22'
7.22'
7.22'
7.22'
7.22'
3'-4"

URS

Job: MAURGDAS DIVERSION | Project No. 10001876 | Page ____ of ____
Description: MONOLITHS C5 & C6 | Computed by: LBR | Sheet ____ of ____ | Date: 8/2013
DEAD LOAD CALIBRATION | Checked by: BCB | Date: 8/2013
Reference

- ACTUAL DEAD LOAD:

ROOF: 41' wide × 2.75' thick × 50' long × 150 PCF = 845,625 LB ✓

WALLS: 10' tall × 2.75' thick × 50' long × 4 × 150 PCF = 825,000 LB ✓

FLOOR: 41' wide × 3.5' thick × 50' long × 150 PCF = 1,076,250 LB ✓

Σ = 2,746,875 LB ✓

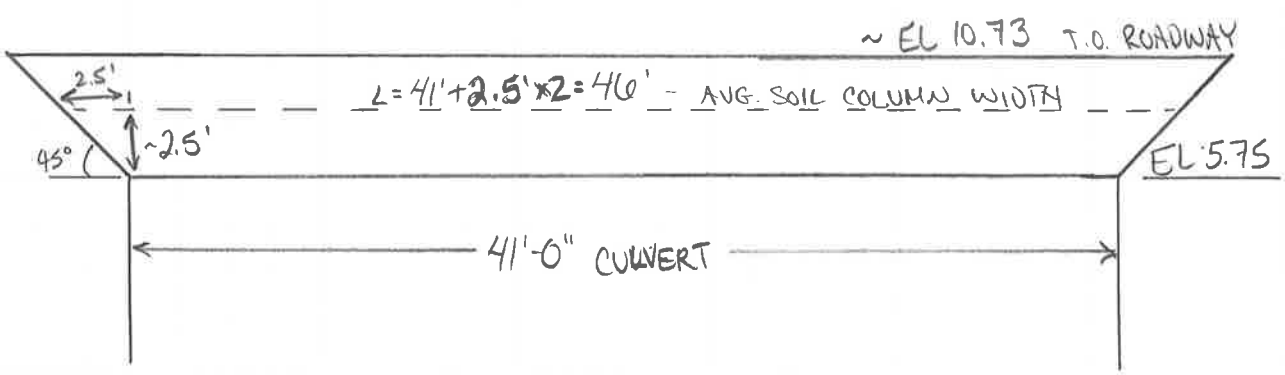
↳ SAP DEAD LOAD REACTIONS = 2,748,486.3 LB

↳ DIFFERENCE OF 1611.3 LB, OR 0.059% → OK

TOP SOIL LOAD: FOR SETTLEMENT CONDITION - A CONTRIBUTARY AREA OF SOIL @ 45° ANGLE FROM T.O. CULVERT ADDED TO SOIL COLUMN.

SCALE FACTOR APPLIED TO TOP SOIL VERTICAL LOAD TO ACCOUNT FOR CONTRIBUTARY SOIL AREA -

$$\text{FACTOR} = \frac{\text{AVG. SOIL WIDTH}}{\text{CULV. WIDTH}} = 46'/41' = 1.122$$ ✓



URS

Job: MAUREPAS DIVERSION
Project No. 10001876
Page ____ of ____
Sheet ____ of ____
Description: MONOLITHS C5/C6 - UPLIFT DERIVATIONS
Computed by: LBR
Date: 8/2013
Checked by: BOB
Date: 8/2013
Reference

*LENGTH OF PERVIOUS-CASE TRANSITION:

MONO C-1 ~ 70' long - 16' before sheetpile = 54'
MONOS C2 to C-4 40' long each = 120'
MONOS C-5 & C-6 50' long each = 100' Σ = 274'

WATER @ HIGHPOINTS:
EL 23.73 @ RIVER → 14.73' difference
EL 9.0 @ SEDIMENT BASIN

@ LOWPOINTS:
EL 1.0 @ RIVER → SAY EL 1.0
EL 2.0 @ SEDIMENT BASIN

*UPLIFT FOR MAX. WATER LEVELS:

$$EL\ 23.73 - \left(\frac{14.73'}{274'}\right) \times 174' = EL\ 14.38$$

URS

Job:	Maurepas Freshwater Diversion	Project No.	10001876	Page:	of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By:	LBR	Date:	June-13
		Checked By:	BCB	Date:	Aug-13

References

Properties:

3 - 10ft x 10ft culverts

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
$\gamma_{soil\text{-}wet}$ =	0.115	kcf
γ' =	0.0526	kcf
K_0, clay =	0.95	
Surcharge =	0.25	ksf

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of River Road =	10.73	ft NAVD 88
Top of soil, C-6 =	8.00	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Average GWT =	5.2	ft NAVD 88
Maximum river stage =	23.7	ft NAVD 88
Minimum river stage =	1.0	ft NAVD 88

EQUIPMENT SURCHARGE

- Equipment surcharge on top of the culvert (q)= 0.25 ksf

- Lateral effect due to surcharge load: *p'hz = kq (EM 1110-2-2502 Eq 3-43), using k_0 = 0.95

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.238
4.375	0.238
3.0	0.238
-7.0	0.238
-8.75	0.238
-10.5	0.238

SOIL LOAD (Dry Condition)

- Vertical Soil load on top of the culvert:

Vertical soil pressure under roadway = (EL 10.73 - EL 5.75) * 0.115 kcf = 0.573 ksf

Vertical soil pressure, C-6 = (EL 8 - EL 5.75) * 0.115 kcf = 0.259 ksf

- Lateral Loads: (EM1110-2-2502 Eq 3-43)

Soil to Top of Culvert

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.0
4.375	0.150
3.0	0.300
-7.0	1.393
-8.75	1.584
-10.5	1.775

Uneven Backfill (5' below T.O. Culvert)

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.0
3.0	0.0
0.75	0.0
-7.0	0.847
-8.75	1.038
-10.5	1.229

Soil to Top of River Road

Elevation (ft NGVD)	Lateral Pressure (k/ft)
5.75	0.544
4.375	0.694
3.0	0.845
-7.0	1.937
-8.75	2.128
-10.5	2.319

NOTE: BECAUSE A LIGHTER VERTICAL SOIL FORCE IS ALSO BEING EXAMINED, THE LARGER VERT. ROADWAY SOIL FORCE WILL BE APPLIED OVER THE WHOLE MONOLITH. EXTRA WEIGHT ⇒ CONSERVATIVE ANALYSIS.

URS

Job:	Maurepas Freshwater Diversion	Project No. 10001876	Page: of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By: LBR	Date: 6/1/2013
		Checked By: BCB	Date: Aug-13

References

Properties:

3 - 10ft x 10ft culverts

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
γ_{wet} =	0.115	kcf
γ' =	0.0526	kcf
$K_{0,\ clay}$ =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of River Road =	10.73	ft NAVD 88
Top of soil, C-6 =	8.0	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Average GWT =	5.2	ft NAVD 88
Maximum river stage =	23.73	ft NAVD 88
Maximum uplift water EL =	14.38	ft NAVD 88 (see uplift hand calculation)

LOADS : Max River Stage

To create Max effect of uplift on the culvert, Uplift due to Max River Stage will be considered acting uniformly on the Base slab of the culvert.

- Water press. at Bottom of the culvert due to Max River Stage (Uplift) = 1.553 ksf

- Water press. at culvert invert when Culvert filled with water (10' water height) = 0.624 ksf

- Water press. at culvert invert when Culvert filled with water at Max River Stage = 1.918 ksf
- Water press. at Roof of culvert when Culvert filled with water at Max River Stage = 1.294 ksf

} Considered for Dewatering Load cases

Lateral Soil Loads:

Average GWT considered for calculating the Lateral Soil Pressures on the Outer Walls of the Culvert.

*Above water table: $P = K_0 * \gamma_{wet} * Z$ (EM 1110-2-2502 Eq 3-39)

*Below water table: $P = K_0 * [\gamma_{wet} * Z_{water} + \gamma' * (Z - Z_{water})]$ (EM 1110-2-2502 Eq 3-40)

Soil to Top of River Road

Elevation (ft NGVD)	Lateral soil pressure (k/ft)
5.75	0.544
5.20	0.604
4.375	0.645
3.0	0.714
-7.0	1.214
-8.75	1.301
-10.5	1.389

Soil to Top of Grade, C-6

Elevation (ft NGVD)	Lateral soil pressure (k/ft)
5.75	0.246
5.20	0.306
4.38	0.347
3.00	0.416
-7.00	0.916
-8.75	1.003
-10.50	1.090

Lateral Water Pressure on Culvert Walls:

Outer Wall Pressures from Avg. GWT:

Elevation (ft NGVD)	Lateral Water press.(ksf)
5.75	0.0
5.2	0.0
3.0	0.137
-7.0	0.761
-8.8	0.870
-10.5	0.980

Inner Wall Pressures (Culverts filled with Water):

Elevation (ft NGVD)	Lateral Water press.(ksf)
3.0	0.0
-7.0	0.624

Culverts filled due to Max River (Dewatering Cases):

Elevation (ft NGVD)	Lateral Water press.(ksf)
3.0	1.294
-7.0	1.918

Notes:

- Dewatering/Maintenance is assumed to be done during Full flow condition conservatively. Therefore, the above calculated Soil and Water loads applies to Dewatering case also.

URS

Job:	Maurepas Freshwater Diversion	Project No. 10001876	Page: of
Description:	Design Criteria and Load Analysis for 10x10 box culverts	Computed By: LBR	Date: 6/1/2013
		Checked By: BCB	Date: Aug-13

References

Properties:

3 - 10ft x 10ft culverts

$\gamma_{concrete}$ =	0.15	kcf
γ_{water} =	0.0624	kcf
γ_{sat} =	0.115	kcf
γ' =	0.0526	kcf
$K_{0,\ clay}$ =	0.95	

Top slab thickness =	2.75	ft
Bottom slab thickness =	3.5	ft
Wall thickness =	2.75	ft
Top of River Road =	10.73	ft NAVD 88
Top of soil, C-6 =	8.0	ft NAVD 88
Top of culvert opening =	3.0	ft NAVD 88
Outside Top of Culvert =	5.75	ft NAVD 88
Average GWT =	5.2	ft NAVD 88
Minimum river stage =	1.0	ft NAVD 88
Maximum uplift water EL =	1.0	ft NAVD 88 (see uplift hand calculat

LOADS : Min River Stage

- Water press. at Bottom of the culvert due to Min River Stage (Uplift) = 0.718 ksf

- Water press. at culvert invert, when culvert filled with water at Min River Stage = 0.499 ksf

Lateral Soil Loads:

Average GWT considered for calculating the Lateral Soil Pressures on the Outer Walls of the Culvert.

*Above water table: $P = K_0 * \gamma_{sat} * Z$ (EM 1110-2-2502 Eq 3-39)

*Below water table: $P = K_0 * [\gamma_{sat} * Z_{water} + \gamma' * (Z - Z_{water})]$ (EM 1110-2-2502 Eq 3-40)

Soil to Top of River Road

Elevation (ft NGVD)	Lateral soil pressure (k/ft)
5.75	0.544
5.20	0.604
4.375	0.645
3.000	0.714
-7.000	1.214
-8.750	1.301
-10.5	1.389

Soil to Top of Grade, C-6

Elevation (ft NGVD)	Lateral soil pressure (k/ft)
5.75	0.246
5.20	0.306
4.38	0.347
3.00	0.416
-7.00	0.916
-8.75	1.003
-10.50	1.090

Lateral Water Pressure on Culvert Walls:

Outer Wall Pressures from Avg. GWT:

Elevation (ft NGVD)	Lateral soil press.(ksf)
5.75	0.0
5.2	0.0
3.0	0.137
-7.0	0.761
-8.8	0.870
-10.5	0.980

Inner Wall Pressures
(Culverts filled with Water at Min. River Stage):

Elevation (ft NGVD)	Lateral soil press.(ksf)
1.0	0.000
-7.0	0.499

Culvert outer wall Joint Pattern for lateral force due to Soil to top of Culvert:

Joint Pattern - "TOC Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	0.000
-10.5	1.775

Equations:

$0 = C*5.75 + D$

$1.78 = C*-10.5 + D$

C =	-0.1093
D =	0.6282

Culvert outer wall Joint Pattern for lateral force due to Soil to 5' from top of Culvert:

Joint Pattern - "UE Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
0.75	0.000
-10.5	1.229

Equations:

$0 = C*0.75 + D$

$1.23 = C*-10.5 + D$

C =	-0.1093
D =	0.0819

Culvert outer wall Joint Pattern for lateral force due to Soil to top of roadway on Culvert:

Joint Pattern - "TOR Const Lat Soil"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	0.544
-10.5	2.319

Equations:

$0.54 = C*5.75 + D$

$2.32 = C*-10.5 + D$

C =	-0.1093
D =	1.1723

Culvert outer wall Joint Pattern for lateral Soil to T.O. Road load due to Average Ground Water Table:

Joint Pattern - "Lat Avg GWT Soil - Road"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P	
5.75	0.544	Up to Top of Water
5.20	0.604	

Equations:

0.54 = C*5.75 + D
0.6 = C*5.2 + D

C =	-0.1093
D =	1.1723

z	P
5.20	0.604
-10.50	1.389

From Top of Water to Bottom of Culvert

Equations:

0.6 = C*5.2 + D
1.39 = C*-10.5 + D

C =	-0.0500
D =	0.8640

Culvert outer wall Joint Pattern for lateral Soil to EL 8.0 load due to Average Ground Water Table:

Joint Pattern - "Lat Avg GWT Soil - C6"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

z	P
5.75	0.246
5.20	0.306

Up to Top of Water

Equations:

0.25 = C*5.75 + D
0.31 = C*5.2 + D

C =	-0.1093
D =	0.8740

z	P
5.20	0.306
-10.50	1.090

From Top of Water to Bottom of Culvert

Equations:

0.31 = C*5.2 + D
1.09 = C*-10.5 + D

C =	-0.0500
D =	0.5657

Culvert Outer wall Joint Pattern for lateral Water load due to Average Ground Water Table:

Joint Pattern - "Lat GWT"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Outer Wall -

z	P
5.20	0.000
-10.50	0.980

Equations:

0 = C*5.2 + D
0.98 = C*-10.5 + D

C =	-0.0624
D =	0.3245

Culvert Inner wall Joint Pattern for lateral Water when culverts filled with Water:

Joint Pattern - "Culvert Full"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Inner Wall -

z	P
3.0	0.000
-7.0	0.624

Equations:

0 = C*3 + D
0.62 = C*-7 + D

C =	-0.0624
D =	0.1872

Culvert Inner wall Joint Pattern for lateral Water when culverts filled with Water up to Min River Stage:

Joint Pattern - "Min Lat Water"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Inner Wall -

z	P
1.0	0.000
-7.0	0.499

Equations:

0 = C*1 + D
0.5 = C*-7 + D

C =	-0.0624
D =	0.0624

Culvert Inner wall Joint Pattern for lateral Water load due to Dewatering during Max River Stage:

Joint Pattern - "Dewater"

Equation: P=Cz+D where P = Pressure at Coordinate z
z = z coordinate of model
C & D = constants

Inner Wall -

z	P
3.0	1.294
-7.0	1.918

Equations:

1.29 = C*3 + D
1.92 = C*-7 + D

C =	-0.0624
D =	1.4808

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
1a	Load pattern	DEAD	1
1a	Load pattern	LS_const	1
1a	Load pattern	S_const_lat	1
1a	Load pattern	S_roadtop	1
1b	Load pattern	DEAD	1
1b	Load pattern	LS_const_uneven	1
1b	Load pattern	S_const_uneven	1
2a	Load pattern	DEAD	1
2a	Load pattern	S_roadtop	1
2a	Load pattern	S_avg gwt_road	1
2a	Load pattern	L_avg gwt	1
2a	Load pattern	U_max river	1
2a_T1	Load pattern	DEAD	1
2a_T1	Load pattern	S_roadtop	1
2a_T1	Load pattern	S_avg gwt_road	1
2a_T1	Load pattern	L_avg gwt	1
2a_T1	Load pattern	U_max river	1
2a_T1	Load pattern	T_R_lane	1
2a_T1	Load pattern	T_1_center	1
2a_T2	Load pattern	DEAD	1
2a_T2	Load pattern	S_roadtop	1
2a_T2	Load pattern	S_avg gwt_road	1
2a_T2	Load pattern	L_avg gwt	1
2a_T2	Load pattern	U_max river	1
2a_T2	Load pattern	T_R_lane	1
2a_T2	Load pattern	T_1_edge	1
2a_T3	Load pattern	DEAD	1
2a_T3	Load pattern	S_roadtop	1
2a_T3	Load pattern	S_avg gwt_road	1
2a_T3	Load pattern	L_avg gwt	1
2a_T3	Load pattern	U_max river	1
2a_T3	Load pattern	T_R_lane	1
2a_T3	Load pattern	T_1_center	1
2a_T3	Load pattern	T_L_lane	1
2a_T3	Load pattern	T_2_center	1
2a_T4	Load pattern	DEAD	1
2a_T4	Load pattern	S_roadtop	1
2a_T4	Load pattern	S_avg gwt_road	1
2a_T4	Load pattern	L_avg gwt	1
2a_T4	Load pattern	U_max river	1
2a_T4	Load pattern	T_R_lane	1
2a_T4	Load pattern	T_1_edge	1
2a_T4	Load pattern	T_L_lane	1
2a_T4	Load pattern	T_2_edge	1
2a_6	Load pattern	DEAD	1
2a_6	Load pattern	S_C6top	1
2a_6	Load pattern	S_avg gwt_C6	1
2a_6	Load pattern	L_avg gwt	1
2a_6	Load pattern	U_max river	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
2b	Load pattern	DEAD	1
2b	Load pattern	S_roadtop	1
2b	Load pattern	S_avg gwt_road	1
2b	Load pattern	L_avg gwt	1
2b	Load pattern	L_culvert full	1
2b_T1	Load pattern	DEAD	1
2b_T1	Load pattern	S_roadtop	1
2b_T1	Load pattern	S_avg gwt_road	1
2b_T1	Load pattern	L_avg gwt	1
2b_T1	Load pattern	L_culvert full	1
2b_T1	Load pattern	T_R_lane	1
2b_T1	Load pattern	T_1_center	1
2b_T2	Load pattern	DEAD	1
2b_T2	Load pattern	S_roadtop	1
2b_T2	Load pattern	S_avg gwt_road	1
2b_T2	Load pattern	L_avg gwt	1
2b_T2	Load pattern	L_culvert full	1
2b_T2	Load pattern	T_R_lane	1
2b_T2	Load pattern	T_1_edge	1
2b_T3	Load pattern	DEAD	1
2b_T3	Load pattern	S_roadtop	1
2b_T3	Load pattern	S_avg gwt_road	1
2b_T3	Load pattern	L_avg gwt	1
2b_T3	Load pattern	L_culvert full	1
2b_T3	Load pattern	T_R_lane	1
2b_T3	Load pattern	T_1_center	1
2b_T3	Load pattern	T_L_lane	1
2b_T3	Load pattern	T_2_center	1
2b_T4	Load pattern	DEAD	1
2b_T4	Load pattern	S_roadtop	1
2b_T4	Load pattern	S_avg gwt_road	1
2b_T4	Load pattern	L_avg gwt	1
2b_T4	Load pattern	L_culvert full	1
2b_T4	Load pattern	T_R_lane	1
2b_T4	Load pattern	T_1_edge	1
2b_T4	Load pattern	T_L_lane	1
2b_T4	Load pattern	T_2_edge	1
3a	Load pattern	DEAD	1
3a	Load pattern	S_roadtop	1
3a	Load pattern	S_avg gwt_road	1
3a	Load pattern	L_avg gwt	1
3a	Load pattern	U_min river	1
3a_T1	Load pattern	DEAD	1
3a_T1	Load pattern	S_roadtop	1
3a_T1	Load pattern	S_avg gwt_road	1
3a_T1	Load pattern	L_avg gwt	1
3a_T1	Load pattern	U_min river	1
3a_T1	Load pattern	T_R_lane	1
3a_T1	Load pattern	T_1_center	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
3a_T2	Load pattern	DEAD	1
3a_T2	Load pattern	S_roadtop	1
3a_T2	Load pattern	S_avg gwt_road	1
3a_T2	Load pattern	L_avg gwt	1
3a_T2	Load pattern	U_min river	1
3a_T2	Load pattern	T_R_lane	1
3a_T2	Load pattern	T_1_edge	1
3a_T3	Load pattern	DEAD	1
3a_T3	Load pattern	S_roadtop	1
3a_T3	Load pattern	S_avg gwt_road	1
3a_T3	Load pattern	L_avg gwt	1
3a_T3	Load pattern	U_min river	1
3a_T3	Load pattern	T_R_lane	1
3a_T3	Load pattern	T_1_center	1
3a_T3	Load pattern	T_L_lane	1
3a_T3	Load pattern	T_2_center	1
3a_T4	Load pattern	DEAD	1
3a_T4	Load pattern	S_roadtop	1
3a_T4	Load pattern	S_avg gwt_road	1
3a_T4	Load pattern	L_avg gwt	1
3a_T4	Load pattern	U_min river	1
3a_T4	Load pattern	T_R_lane	1
3a_T4	Load pattern	T_1_edge	1
3a_T4	Load pattern	T_L_lane	1
3a_T4	Load pattern	T_2_edge	1
3a_6	Load pattern	DEAD	1
3a_6	Load pattern	S_C6top	1
3a_6	Load pattern	S_avg gwt_C6	1
3a_6	Load pattern	L_avg gwt	1
3a_6	Load pattern	U_min river	1
3b	Load pattern	DEAD	1
3b	Load pattern	S_roadtop	1
3b	Load pattern	S_avg gwt_road	1
3b	Load pattern	L_avg gwt	1
3b	Load pattern	L_culv min water	1
3b_T1	Load pattern	DEAD	1
3b_T1	Load pattern	S_roadtop	1
3b_T1	Load pattern	S_avg gwt_road	1
3b_T1	Load pattern	L_avg gwt	1
3b_T1	Load pattern	L_culv min water	1
3b_T1	Load pattern	T_R_lane	1
3b_T1	Load pattern	T_1_center	1
3b_T2	Load pattern	DEAD	1
3b_T2	Load pattern	S_roadtop	1
3b_T2	Load pattern	S_avg gwt_road	1
3b_T2	Load pattern	L_avg gwt	1
3b_T2	Load pattern	L_culv min water	1
3b_T2	Load pattern	T_R_lane	1
3b_T2	Load pattern	T_1_edge	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
3b_T3	Load pattern	DEAD	1
3b_T3	Load pattern	S_roadtop	1
3b_T3	Load pattern	S_avg gwt_road	1
3b_T3	Load pattern	L_avg gwt	1
3b_T3	Load pattern	L_culv min water	1
3b_T3	Load pattern	T_R_lane	1
3b_T3	Load pattern	T_1_center	1
3b_T3	Load pattern	T_L_lane	1
3b_T3	Load pattern	T_2_center	1
3b_T4	Load pattern	DEAD	1
3b_T4	Load pattern	S_roadtop	1
3b_T4	Load pattern	S_avg gwt_road	1
3b_T4	Load pattern	L_avg gwt	1
3b_T4	Load pattern	L_culv min water	1
3b_T4	Load pattern	T_R_lane	1
3b_T4	Load pattern	T_1_edge	1
3b_T4	Load pattern	T_L_lane	1
3b_T4	Load pattern	T_2_edge	1
D1a	Load pattern	DEAD	1
D1a	Load pattern	S_roadtop	1
D1a	Load pattern	S_avg gwt_road	1
D1a	Load pattern	L_avg gwt	1
D1a	Load pattern	U_max river	1
D1a	Load pattern	L_1-dewater	1
D1a_T1	Load pattern	DEAD	1
D1a_T1	Load pattern	S_roadtop	1
D1a_T1	Load pattern	S_avg gwt_road	1
D1a_T1	Load pattern	L_avg gwt	1
D1a_T1	Load pattern	U_max river	1
D1a_T1	Load pattern	L_1-dewater	1
D1a_T1	Load pattern	T_R_lane	1
D1a_T1	Load pattern	T_1_center	1
D1a_T2	Load pattern	DEAD	1
D1a_T2	Load pattern	S_roadtop	1
D1a_T2	Load pattern	S_avg gwt_road	1
D1a_T2	Load pattern	L_avg gwt	1
D1a_T2	Load pattern	U_max river	1
D1a_T2	Load pattern	L_1-dewater	1
D1a_T2	Load pattern	T_R_lane	1
D1a_T2	Load pattern	T_1_edge	1
D1a_T3	Load pattern	DEAD	1
D1a_T3	Load pattern	S_roadtop	1
D1a_T3	Load pattern	S_avg gwt_road	1
D1a_T3	Load pattern	L_avg gwt	1
D1a_T3	Load pattern	U_max river	1
D1a_T3	Load pattern	L_1-dewater	1
D1a_T3	Load pattern	T_R_lane	1
D1a_T3	Load pattern	T_1_center	1
D1a_T3	Load pattern	T_L_lane	1
D1a_T3	Load pattern	T_2_center	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D1a_T4	Load pattern	DEAD	1
D1a_T4	Load pattern	S_roadtop	1
D1a_T4	Load pattern	S_avg gwt_road	1
D1a_T4	Load pattern	L_avg gwt	1
D1a_T4	Load pattern	U_max river	1
D1a_T4	Load pattern	L_1-dewater	1
D1a_T4	Load pattern	T_R_lane	1
D1a_T4	Load pattern	T_1_edge	1
D1a_T4	Load pattern	T_L_lane	1
D1a_T4	Load pattern	T_2_edge	1
D1a_6	Load pattern	DEAD	1
D1a_6	Load pattern	S_C6top	1
D1a_6	Load pattern	S_avg gwt_C6	1
D1a_6	Load pattern	L_avg gwt	1
D1a_6	Load pattern	U_max river	1
D1a_6	Load pattern	L_1-dewater	1
D1b	Load pattern	DEAD	1
D1b	Load pattern	S_roadtop	1
D1b	Load pattern	S_avg gwt_road	1
D1b	Load pattern	L_avg gwt	1
D1b	Load pattern	L_1-dewater	1
D1b_T1	Load pattern	DEAD	1
D1b_T1	Load pattern	S_roadtop	1
D1b_T1	Load pattern	S_avg gwt_road	1
D1b_T1	Load pattern	L_avg gwt	1
D1b_T1	Load pattern	L_1-dewater	1
D1b_T1	Load pattern	T_R_lane	1
D1b_T1	Load pattern	T_1_center	1
D1b_T2	Load pattern	DEAD	1
D1b_T2	Load pattern	S_roadtop	1
D1b_T2	Load pattern	S_avg gwt_road	1
D1b_T2	Load pattern	L_avg gwt	1
D1b_T2	Load pattern	L_1-dewater	1
D1b_T2	Load pattern	T_R_lane	1
D1b_T2	Load pattern	T_1_edge	1
D1b_T3	Load pattern	DEAD	1
D1b_T3	Load pattern	S_roadtop	1
D1b_T3	Load pattern	S_avg gwt_road	1
D1b_T3	Load pattern	L_avg gwt	1
D1b_T3	Load pattern	L_1-dewater	1
D1b_T3	Load pattern	T_R_lane	1
D1b_T3	Load pattern	T_1_center	1
D1b_T3	Load pattern	T_L_lane	1
D1b_T3	Load pattern	T_2_center	1
D1b_T4	Load pattern	DEAD	1
D1b_T4	Load pattern	S_roadtop	1
D1b_T4	Load pattern	S_avg gwt_road	1
D1b_T4	Load pattern	L_avg gwt	1
D1b_T4	Load pattern	L_1-dewater	1
D1b_T4	Load pattern	T_R_lane	1
D1b_T4	Load pattern	T_1_edge	1
D1b_T4	Load pattern	T_L_lane	1
D1b_T4	Load pattern	T_2_edge	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D2a	Load pattern	DEAD	1
D2a	Load pattern	S_roadtop	1
D2a	Load pattern	S_avg gwt_road	1
D2a	Load pattern	L_avg gwt	1
D2a	Load pattern	U_max river	1
D2a	Load pattern	L_2-dewater	1
D2a_T1	Load pattern	DEAD	1
D2a_T1	Load pattern	S_roadtop	1
D2a_T1	Load pattern	S_avg gwt_road	1
D2a_T1	Load pattern	L_avg gwt	1
D2a_T1	Load pattern	U_max river	1
D2a_T1	Load pattern	L_2-dewater	1
D2a_T1	Load pattern	T_R_lane	1
D2a_T1	Load pattern	T_1_center	1
D2a_T2	Load pattern	DEAD	1
D2a_T2	Load pattern	S_roadtop	1
D2a_T2	Load pattern	S_avg gwt_road	1
D2a_T2	Load pattern	L_avg gwt	1
D2a_T2	Load pattern	U_max river	1
D2a_T2	Load pattern	L_2-dewater	1
D2a_T2	Load pattern	T_R_lane	1
D2a_T2	Load pattern	T_1_edge	1
D2a_T3	Load pattern	DEAD	1
D2a_T3	Load pattern	S_roadtop	1
D2a_T3	Load pattern	S_avg gwt_road	1
D2a_T3	Load pattern	L_avg gwt	1
D2a_T3	Load pattern	U_max river	1
D2a_T3	Load pattern	L_2-dewater	1
D2a_T3	Load pattern	T_R_lane	1
D2a_T3	Load pattern	T_1_center	1
D2a_T3	Load pattern	T_L_lane	1
D2a_T3	Load pattern	T_2_center	1
D2a_T4	Load pattern	DEAD	1
D2a_T4	Load pattern	S_roadtop	1
D2a_T4	Load pattern	S_avg gwt_road	1
D2a_T4	Load pattern	L_avg gwt	1
D2a_T4	Load pattern	U_max river	1
D2a_T4	Load pattern	L_2-dewater	1
D2a_T4	Load pattern	T_R_lane	1
D2a_T4	Load pattern	T_1_edge	1
D2a_T4	Load pattern	T_L_lane	1
D2a_T4	Load pattern	T_2_edge	1
D2a_6	Load pattern	DEAD	1
D2a_6	Load pattern	S_C6top	1
D2a_6	Load pattern	S_avg gwt_C6	1
D2a_6	Load pattern	L_avg gwt	1
D2a_6	Load pattern	U_max river	1
D2a_6	Load pattern	L_2-dewater	1
D2b	Load pattern	DEAD	1
D2b	Load pattern	S_roadtop	1
D2b	Load pattern	S_avg gwt_road	1
D2b	Load pattern	L_avg gwt	1
D2b	Load pattern	L_2-dewater	1

TABLE: Case - Static 1 - Load Assignments			
Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D2b_T1	Load pattern	DEAD	1
D2b_T1	Load pattern	S_roadtop	1
D2b_T1	Load pattern	S_avg gwt_road	1
D2b_T1	Load pattern	L_avg gwt	1
D2b_T1	Load pattern	L_2-dewater	1
D2b_T1	Load pattern	T_R_lane	1
D2b_T1	Load pattern	T_1_center	1
D2b_T2	Load pattern	DEAD	1
D2b_T2	Load pattern	S_roadtop	1
D2b_T2	Load pattern	S_avg gwt_road	1
D2b_T2	Load pattern	L_avg gwt	1
D2b_T2	Load pattern	L_2-dewater	1
D2b_T2	Load pattern	T_R_lane	1
D2b_T2	Load pattern	T_1_edge	1
D2b_T3	Load pattern	DEAD	1
D2b_T3	Load pattern	S_roadtop	1
D2b_T3	Load pattern	S_avg gwt_road	1
D2b_T3	Load pattern	L_avg gwt	1
D2b_T3	Load pattern	L_2-dewater	1
D2b_T3	Load pattern	T_R_lane	1
D2b_T3	Load pattern	T_1_center	1
D2b_T3	Load pattern	T_L_lane	1
D2b_T3	Load pattern	T_2_center	1
D2b_T4	Load pattern	DEAD	1
D2b_T4	Load pattern	S_roadtop	1
D2b_T4	Load pattern	S_avg gwt_road	1
D2b_T4	Load pattern	L_avg gwt	1
D2b_T4	Load pattern	L_2-dewater	1
D2b_T4	Load pattern	T_R_lane	1
D2b_T4	Load pattern	T_1_edge	1
D2b_T4	Load pattern	T_L_lane	1
D2b_T4	Load pattern	T_2_edge	1

TABLE: Case - Static 1 - Load Assignments			
Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
1a-ST	Load pattern	DEAD	1
1a-ST	Load pattern	LS_const	1
1a-ST	Load pattern	S_const_lat	1
1a-ST	Load pattern	S_roadtop	1.122
1a-ST	Load pattern	ST_cohesion	1
1b-ST	Load pattern	DEAD	1
1b-ST	Load pattern	LS_const_uneven	1
1b-ST	Load pattern	S_const_uneven	1
1b-ST	Load pattern	ST_cohesion_uneven	1
2a-ST	Load pattern	DEAD	1
2a-ST	Load pattern	S_roadtop	1.122
2a-ST	Load pattern	S_avg gwt_road	1
2a-ST	Load pattern	L_avg gwt	1
2a-ST	Load pattern	U_max river	1
2a-ST	Load pattern	ST_cohesion	1
2a_T1-ST	Load pattern	DEAD	1
2a_T1-ST	Load pattern	S_roadtop	1.122
2a_T1-ST	Load pattern	S_avg gwt_road	1
2a_T1-ST	Load pattern	L_avg gwt	1
2a_T1-ST	Load pattern	U_max river	1
2a_T1-ST	Load pattern	T_R_lane	1
2a_T1-ST	Load pattern	T_1_center	1
2a_T1-ST	Load pattern	ST_cohesion	1
2a_T2-ST	Load pattern	DEAD	1
2a_T2-ST	Load pattern	S_roadtop	1.122
2a_T2-ST	Load pattern	S_avg gwt_road	1
2a_T2-ST	Load pattern	L_avg gwt	1
2a_T2-ST	Load pattern	U_max river	1
2a_T2-ST	Load pattern	T_R_lane	1
2a_T2-ST	Load pattern	T_1_edge	1
2a_T2-ST	Load pattern	ST_cohesion	1
2a_T3-ST	Load pattern	DEAD	1
2a_T3-ST	Load pattern	S_roadtop	1.122
2a_T3-ST	Load pattern	S_avg gwt_road	1
2a_T3-ST	Load pattern	L_avg gwt	1
2a_T3-ST	Load pattern	U_max river	1
2a_T3-ST	Load pattern	T_R_lane	1
2a_T3-ST	Load pattern	T_1_center	1
2a_T3-ST	Load pattern	T_L_lane	1
2a_T3-ST	Load pattern	T_2_center	1
2a_T3-ST	Load pattern	ST_cohesion	1
2a_T4-ST	Load pattern	DEAD	1
2a_T4-ST	Load pattern	S_roadtop	1.122
2a_T4-ST	Load pattern	S_avg gwt_road	1
2a_T4-ST	Load pattern	L_avg gwt	1
2a_T4-ST	Load pattern	U_max river	1
2a_T4-ST	Load pattern	T_R_lane	1
2a_T4-ST	Load pattern	T_1_edge	1
2a_T4-ST	Load pattern	T_L_lane	1
2a_T4-ST	Load pattern	T_2_edge	1
2a_T4-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
2a_6-ST	Load pattern	DEAD	1
2a_6-ST	Load pattern	S_C6top	1.122
2a_6-ST	Load pattern	S_avg gwt_C6	1
2a_6-ST	Load pattern	L_avg gwt	1
2a_6-ST	Load pattern	U_max river	1
2a_6-ST	Load pattern	ST_cohesion	1
2b-ST	Load pattern	DEAD	1
2b-ST	Load pattern	S_roadtop	1.122
2b-ST	Load pattern	S_avg gwt_road	1
2b-ST	Load pattern	L_avg gwt	1
2b-ST	Load pattern	L_culvert full	1
2b-ST	Load pattern	ST_cohesion	1
2b_T1-ST	Load pattern	DEAD	1
2b_T1-ST	Load pattern	S_roadtop	1.122
2b_T1-ST	Load pattern	S_avg gwt_road	1
2b_T1-ST	Load pattern	L_avg gwt	1
2b_T1-ST	Load pattern	L_culvert full	1
2b_T1-ST	Load pattern	T_R_lane	1
2b_T1-ST	Load pattern	T_1_center	1
2b_T1-ST	Load pattern	ST_cohesion	1
2b_T2-ST	Load pattern	DEAD	1
2b_T2-ST	Load pattern	S_roadtop	1.122
2b_T2-ST	Load pattern	S_avg gwt_road	1
2b_T2-ST	Load pattern	L_avg gwt	1
2b_T2-ST	Load pattern	L_culvert full	1
2b_T2-ST	Load pattern	T_R_lane	1
2b_T2-ST	Load pattern	T_1_edge	1
2b_T2-ST	Load pattern	ST_cohesion	1
2b_T3-ST	Load pattern	DEAD	1
2b_T3-ST	Load pattern	S_roadtop	1.122
2b_T3-ST	Load pattern	S_avg gwt_road	1
2b_T3-ST	Load pattern	L_avg gwt	1
2b_T3-ST	Load pattern	L_culvert full	1
2b_T3-ST	Load pattern	T_R_lane	1
2b_T3-ST	Load pattern	T_1_center	1
2b_T3-ST	Load pattern	T_L_lane	1
2b_T3-ST	Load pattern	T_2_center	1
2b_T3-ST	Load pattern	ST_cohesion	1
2b_T4-ST	Load pattern	DEAD	1
2b_T4-ST	Load pattern	S_roadtop	1.122
2b_T4-ST	Load pattern	S_avg gwt_road	1
2b_T4-ST	Load pattern	L_avg gwt	1
2b_T4-ST	Load pattern	L_culvert full	1
2b_T4-ST	Load pattern	T_R_lane	1
2b_T4-ST	Load pattern	T_1_edge	1
2b_T4-ST	Load pattern	T_L_lane	1
2b_T4-ST	Load pattern	T_2_edge	1
2b_T4-ST	Load pattern	ST_cohesion	1
3a-ST	Load pattern	DEAD	1
3a-ST	Load pattern	S_roadtop	1.122
3a-ST	Load pattern	S_avg gwt_road	1
3a-ST	Load pattern	L_avg gwt	1
3a-ST	Load pattern	U_min river	1
3a-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
3a_T1-ST	Load pattern	DEAD	1
3a_T1-ST	Load pattern	S_roadtop	1.122
3a_T1-ST	Load pattern	S_avg gwt_road	1
3a_T1-ST	Load pattern	L_avg gwt	1
3a_T1-ST	Load pattern	U_min river	1
3a_T1-ST	Load pattern	T_R_lane	1
3a_T1-ST	Load pattern	T_1_center	1
3a_T1-ST	Load pattern	ST_cohesion	1
3a_T2-ST	Load pattern	DEAD	1
3a_T2-ST	Load pattern	S_roadtop	1.122
3a_T2-ST	Load pattern	S_avg gwt_road	1
3a_T2-ST	Load pattern	L_avg gwt	1
3a_T2-ST	Load pattern	U_min river	1
3a_T2-ST	Load pattern	T_R_lane	1
3a_T2-ST	Load pattern	T_1_edge	1
3a_T2-ST	Load pattern	ST_cohesion	1
3a_T3-ST	Load pattern	DEAD	1
3a_T3-ST	Load pattern	S_roadtop	1.122
3a_T3-ST	Load pattern	S_avg gwt_road	1
3a_T3-ST	Load pattern	L_avg gwt	1
3a_T3-ST	Load pattern	U_min river	1
3a_T3-ST	Load pattern	T_R_lane	1
3a_T3-ST	Load pattern	T_1_center	1
3a_T3-ST	Load pattern	T_L_lane	1
3a_T3-ST	Load pattern	T_2_center	1
3a_T3-ST	Load pattern	ST_cohesion	1
3a_T4-ST	Load pattern	DEAD	1
3a_T4-ST	Load pattern	S_roadtop	1.122
3a_T4-ST	Load pattern	S_avg gwt_road	1
3a_T4-ST	Load pattern	L_avg gwt	1
3a_T4-ST	Load pattern	U_min river	1
3a_T4-ST	Load pattern	T_R_lane	1
3a_T4-ST	Load pattern	T_1_edge	1
3a_T4-ST	Load pattern	T_L_lane	1
3a_T4-ST	Load pattern	T_2_edge	1
3a_T4-ST	Load pattern	ST_cohesion	1
3a_6-ST	Load pattern	DEAD	1
3a_6-ST	Load pattern	S_C6top	1.122
3a_6-ST	Load pattern	S_avg gwt_C6	1
3a_6-ST	Load pattern	L_avg gwt	1
3a_6-ST	Load pattern	U_min river	1
3a_6-ST	Load pattern	ST_cohesion	1
3b-ST	Load pattern	DEAD	1
3b-ST	Load pattern	S_roadtop	1.122
3b-ST	Load pattern	S_avg gwt_road	1
3b-ST	Load pattern	L_avg gwt	1
3b-ST	Load pattern	L_culv min water	1
3b-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
3b_T1-ST	Load pattern	DEAD	1
3b_T1-ST	Load pattern	S_roadtop	1.122
3b_T1-ST	Load pattern	S_avg gwt_road	1
3b_T1-ST	Load pattern	L_avg gwt	1
3b_T1-ST	Load pattern	L_culv min water	1
3b_T1-ST	Load pattern	T_R_lane	1
3b_T1-ST	Load pattern	T_1_center	1
3b_T1-ST	Load pattern	ST_cohesion	1
3b_T2-ST	Load pattern	DEAD	1
3b_T2-ST	Load pattern	S_roadtop	1.122
3b_T2-ST	Load pattern	S_avg gwt_road	1
3b_T2-ST	Load pattern	L_avg gwt	1
3b_T2-ST	Load pattern	L_culv min water	1
3b_T2-ST	Load pattern	T_R_lane	1
3b_T2-ST	Load pattern	T_1_edge	1
3b_T2-ST	Load pattern	ST_cohesion	1
3b_T3-ST	Load pattern	DEAD	1
3b_T3-ST	Load pattern	S_roadtop	1.122
3b_T3-ST	Load pattern	S_avg gwt_road	1
3b_T3-ST	Load pattern	L_avg gwt	1
3b_T3-ST	Load pattern	L_culv min water	1
3b_T3-ST	Load pattern	T_R_lane	1
3b_T3-ST	Load pattern	T_1_center	1
3b_T3-ST	Load pattern	T_L_lane	1
3b_T3-ST	Load pattern	T_2_center	1
3b_T3-ST	Load pattern	ST_cohesion	1
3b_T4-ST	Load pattern	DEAD	1
3b_T4-ST	Load pattern	S_roadtop	1.122
3b_T4-ST	Load pattern	S_avg gwt_road	1
3b_T4-ST	Load pattern	L_avg gwt	1
3b_T4-ST	Load pattern	L_culv min water	1
3b_T4-ST	Load pattern	T_R_lane	1
3b_T4-ST	Load pattern	T_1_edge	1
3b_T4-ST	Load pattern	T_L_lane	1
3b_T4-ST	Load pattern	T_2_edge	1
3b_T4-ST	Load pattern	ST_cohesion	1
D1a-ST	Load pattern	DEAD	1
D1a-ST	Load pattern	S_roadtop	1.122
D1a-ST	Load pattern	S_avg gwt_road	1
D1a-ST	Load pattern	L_avg gwt	1
D1a-ST	Load pattern	U_max river	1
D1a-ST	Load pattern	L_1-dewater	1
D1a-ST	Load pattern	ST_cohesion	1
D1a_T1-ST	Load pattern	DEAD	1
D1a_T1-ST	Load pattern	S_roadtop	1.122
D1a_T1-ST	Load pattern	S_avg gwt_road	1
D1a_T1-ST	Load pattern	L_avg gwt	1
D1a_T1-ST	Load pattern	U_max river	1
D1a_T1-ST	Load pattern	L_1-dewater	1
D1a_T1-ST	Load pattern	T_R_lane	1
D1a_T1-ST	Load pattern	T_1_center	1
D1a_T1-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D1a_T2-ST	Load pattern	DEAD	1
D1a_T2-ST	Load pattern	S_roadtop	1.122
D1a_T2-ST	Load pattern	S_avg gwt_road	1
D1a_T2-ST	Load pattern	L_avg gwt	1
D1a_T2-ST	Load pattern	U_max river	1
D1a_T2-ST	Load pattern	L_1-dewater	1
D1a_T2-ST	Load pattern	T_R_lane	1
D1a_T2-ST	Load pattern	T_1_edge	1
D1a_T2-ST	Load pattern	ST_cohesion	1
D1a_T3-ST	Load pattern	DEAD	1
D1a_T3-ST	Load pattern	S_roadtop	1.122
D1a_T3-ST	Load pattern	S_avg gwt_road	1
D1a_T3-ST	Load pattern	L_avg gwt	1
D1a_T3-ST	Load pattern	U_max river	1
D1a_T3-ST	Load pattern	L_1-dewater	1
D1a_T3-ST	Load pattern	T_R_lane	1
D1a_T3-ST	Load pattern	T_1_center	1
D1a_T3-ST	Load pattern	T_L_lane	1
D1a_T3-ST	Load pattern	T_2_center	1
D1a_T3-ST	Load pattern	ST_cohesion	1
D1a_T4-ST	Load pattern	DEAD	1
D1a_T4-ST	Load pattern	S_roadtop	1.122
D1a_T4-ST	Load pattern	S_avg gwt_road	1
D1a_T4-ST	Load pattern	L_avg gwt	1
D1a_T4-ST	Load pattern	U_max river	1
D1a_T4-ST	Load pattern	L_1-dewater	1
D1a_T4-ST	Load pattern	T_R_lane	1
D1a_T4-ST	Load pattern	T_1_edge	1
D1a_T4-ST	Load pattern	T_L_lane	1
D1a_T4-ST	Load pattern	T_2_edge	1
D1a_T4-ST	Load pattern	ST_cohesion	1
D1a_6-ST	Load pattern	DEAD	1
D1a_6-ST	Load pattern	S_C6top	1.122
D1a_6-ST	Load pattern	S_avg gwt_C6	1
D1a_6-ST	Load pattern	L_avg gwt	1
D1a_6-ST	Load pattern	U_max river	1
D1a_6-ST	Load pattern	L_1-dewater	1
D1a_6-ST	Load pattern	ST_cohesion	1
D1b-ST	Load pattern	DEAD	1
D1b-ST	Load pattern	S_roadtop	1.122
D1b-ST	Load pattern	S_avg gwt_road	1
D1b-ST	Load pattern	L_avg gwt	1
D1b-ST	Load pattern	L_1-dewater	1
D1b-ST	Load pattern	ST_cohesion	1
D1b_T1-ST	Load pattern	DEAD	1
D1b_T1-ST	Load pattern	S_roadtop	1.122
D1b_T1-ST	Load pattern	S_avg gwt_road	1
D1b_T1-ST	Load pattern	L_avg gwt	1
D1b_T1-ST	Load pattern	L_1-dewater	1
D1b_T1-ST	Load pattern	T_R_lane	1
D1b_T1-ST	Load pattern	T_1_center	1
D1b_T1-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D1b_T2-ST	Load pattern	DEAD	1
D1b_T2-ST	Load pattern	S_roadtop	1.122
D1b_T2-ST	Load pattern	S_avg gwt_road	1
D1b_T2-ST	Load pattern	L_avg gwt	1
D1b_T2-ST	Load pattern	L_1-dewater	1
D1b_T2-ST	Load pattern	T_R_lane	1
D1b_T2-ST	Load pattern	T_1_edge	1
D1b_T2-ST	Load pattern	ST_cohesion	1
D1b_T3-ST	Load pattern	DEAD	1
D1b_T3-ST	Load pattern	S_roadtop	1.122
D1b_T3-ST	Load pattern	S_avg gwt_road	1
D1b_T3-ST	Load pattern	L_avg gwt	1
D1b_T3-ST	Load pattern	L_1-dewater	1
D1b_T3-ST	Load pattern	T_R_lane	1
D1b_T3-ST	Load pattern	T_1_center	1
D1b_T3-ST	Load pattern	T_L_lane	1
D1b_T3-ST	Load pattern	T_2_center	1
D1b_T3-ST	Load pattern	ST_cohesion	1
D1b_T4-ST	Load pattern	DEAD	1
D1b_T4-ST	Load pattern	S_roadtop	1.122
D1b_T4-ST	Load pattern	S_avg gwt_road	1
D1b_T4-ST	Load pattern	L_avg gwt	1
D1b_T4-ST	Load pattern	L_1-dewater	1
D1b_T4-ST	Load pattern	T_R_lane	1
D1b_T4-ST	Load pattern	T_1_edge	1
D1b_T4-ST	Load pattern	T_L_lane	1
D1b_T4-ST	Load pattern	T_2_edge	1
D1b_T4-ST	Load pattern	ST_cohesion	1
D2a-ST	Load pattern	DEAD	1
D2a-ST	Load pattern	S_roadtop	1.122
D2a-ST	Load pattern	S_avg gwt_road	1
D2a-ST	Load pattern	L_avg gwt	1
D2a-ST	Load pattern	U_max river	1
D2a-ST	Load pattern	L_2-dewater	1
D2a-ST	Load pattern	ST_cohesion	1
D2a_T1-ST	Load pattern	DEAD	1
D2a_T1-ST	Load pattern	S_roadtop	1.122
D2a_T1-ST	Load pattern	S_avg gwt_road	1
D2a_T1-ST	Load pattern	L_avg gwt	1
D2a_T1-ST	Load pattern	U_max river	1
D2a_T1-ST	Load pattern	L_2-dewater	1
D2a_T1-ST	Load pattern	T_R_lane	1
D2a_T1-ST	Load pattern	T_1_center	1
D2a_T1-ST	Load pattern	ST_cohesion	1
D2a_T2-ST	Load pattern	DEAD	1
D2a_T2-ST	Load pattern	S_roadtop	1.122
D2a_T2-ST	Load pattern	S_avg gwt_road	1
D2a_T2-ST	Load pattern	L_avg gwt	1
D2a_T2-ST	Load pattern	U_max river	1
D2a_T2-ST	Load pattern	L_2-dewater	1
D2a_T2-ST	Load pattern	T_R_lane	1
D2a_T2-ST	Load pattern	T_1_edge	1
D2a_T2-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D2a_T3-ST	Load pattern	DEAD	1
D2a_T3-ST	Load pattern	S_roadtop	1.122
D2a_T3-ST	Load pattern	S_avg gwt_road	1
D2a_T3-ST	Load pattern	L_avg gwt	1
D2a_T3-ST	Load pattern	U_max river	1
D2a_T3-ST	Load pattern	L_2-dewater	1
D2a_T3-ST	Load pattern	T_R_lane	1
D2a_T3-ST	Load pattern	T_1_center	1
D2a_T3-ST	Load pattern	T_L_lane	1
D2a_T3-ST	Load pattern	T_2_center	1
D2a_T3-ST	Load pattern	ST_cohesion	1
D2a_T4-ST	Load pattern	DEAD	1
D2a_T4-ST	Load pattern	S_roadtop	1.122
D2a_T4-ST	Load pattern	S_avg gwt_road	1
D2a_T4-ST	Load pattern	L_avg gwt	1
D2a_T4-ST	Load pattern	U_max river	1
D2a_T4-ST	Load pattern	L_2-dewater	1
D2a_T4-ST	Load pattern	T_R_lane	1
D2a_T4-ST	Load pattern	T_1_edge	1
D2a_T4-ST	Load pattern	T_L_lane	1
D2a_T4-ST	Load pattern	T_2_edge	1
D2a_T4-ST	Load pattern	ST_cohesion	1
D2a_6-ST	Load pattern	DEAD	1
D2a_6-ST	Load pattern	S_C6top	1.122
D2a_6-ST	Load pattern	S_avg gwt_C6	1
D2a_6-ST	Load pattern	L_avg gwt	1
D2a_6-ST	Load pattern	U_max river	1
D2a_6-ST	Load pattern	L_2-dewater	1
D2a_6-ST	Load pattern	ST_cohesion	1
D2b-ST	Load pattern	DEAD	1
D2b-ST	Load pattern	S_roadtop	1.122
D2b-ST	Load pattern	S_avg gwt_road	1
D2b-ST	Load pattern	L_avg gwt	1
D2b-ST	Load pattern	L_2-dewater	1
D2b-ST	Load pattern	ST_cohesion	1
D2b_T1-ST	Load pattern	DEAD	1
D2b_T1-ST	Load pattern	S_roadtop	1.122
D2b_T1-ST	Load pattern	S_avg gwt_road	1
D2b_T1-ST	Load pattern	L_avg gwt	1
D2b_T1-ST	Load pattern	L_2-dewater	1
D2b_T1-ST	Load pattern	T_R_lane	1
D2b_T1-ST	Load pattern	T_1_center	1
D2b_T1-ST	Load pattern	ST_cohesion	1
D2b_T2-ST	Load pattern	DEAD	1
D2b_T2-ST	Load pattern	S_roadtop	1.122
D2b_T2-ST	Load pattern	S_avg gwt_road	1
D2b_T2-ST	Load pattern	L_avg gwt	1
D2b_T2-ST	Load pattern	L_2-dewater	1
D2b_T2-ST	Load pattern	T_R_lane	1
D2b_T2-ST	Load pattern	T_1_edge	1
D2b_T2-ST	Load pattern	ST_cohesion	1

TABLE: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
Text	Text	Text	Unitless
D2b_T3-ST	Load pattern	DEAD	1
D2b_T3-ST	Load pattern	S_roadtop	1.122
D2b_T3-ST	Load pattern	S_avg gwt_road	1
D2b_T3-ST	Load pattern	L_avg gwt	1
D2b_T3-ST	Load pattern	L_2-dewater	1
D2b_T3-ST	Load pattern	T_R_lane	1
D2b_T3-ST	Load pattern	T_1_center	1
D2b_T3-ST	Load pattern	T_L_lane	1
D2b_T3-ST	Load pattern	T_2_center	1
D2b_T3-ST	Load pattern	ST_cohesion	1
D2b_T4-ST	Load pattern	DEAD	1
D2b_T4-ST	Load pattern	S_roadtop	1.122
D2b_T4-ST	Load pattern	S_avg gwt_road	1
D2b_T4-ST	Load pattern	L_avg gwt	1
D2b_T4-ST	Load pattern	L_2-dewater	1
D2b_T4-ST	Load pattern	T_R_lane	1
D2b_T4-ST	Load pattern	T_1_edge	1
D2b_T4-ST	Load pattern	T_L_lane	1
D2b_T4-ST	Load pattern	T_2_edge	1
D2b_T4-ST	Load pattern	ST_cohesion	1

Maurepas Freshwater Diversion
Monoliths C-5 C-6 - SAP Load Combinations

Project No. 10001876

Comp By: LBR 8/2013
Check By: BCB Aug-13

TABLE: Combination Definitions				
ComboName	ComboType	CaseType	CaseName	ScaleFactor
Text	Text	Text	Text	Unitless
COMBO	Envelope	Linear Static	1a	1.8942
COMBO		Linear Static	1b	1.8942
COMBO		Linear Static	2a	2.21
COMBO		Linear Static	2a_6	2.21
COMBO		Linear Static	2b	2.21
COMBO		Linear Static	3a	2.21
COMBO		Linear Static	3a_6	2.21
COMBO		Linear Static	3b	2.21
COMBO		Linear Static	D1a	1.6575
COMBO		Linear Static	D1a_6	1.6575
COMBO		Linear Static	D1b	1.6575
COMBO		Linear Static	D2a	1.6575
COMBO		Linear Static	D2a_6	1.6575
COMBO		Linear Static	D2b	1.6575
COMBO_T	Envelope	Linear Static	2a_T1	2.21
COMBO_T		Linear Static	2a_T2	2.21
COMBO_T		Linear Static	2a_T3	2.21
COMBO_T		Linear Static	2a_T4	2.21
COMBO_T		Linear Static	2b_T1	2.21
COMBO_T		Linear Static	2b_T2	2.21
COMBO_T		Linear Static	2b_T3	2.21
COMBO_T		Linear Static	2b_T4	2.21
COMBO_T		Linear Static	3a_T1	2.21
COMBO_T		Linear Static	3a_T2	2.21
COMBO_T		Linear Static	3a_T3	2.21
COMBO_T		Linear Static	3a_T4	2.21
COMBO_T		Linear Static	3b_T1	2.21
COMBO_T		Linear Static	3b_T2	2.21
COMBO_T		Linear Static	3b_T3	2.21
COMBO_T		Linear Static	3b_T4	2.21
COMBO_T		Linear Static	D1a_T1	1.6575
COMBO_T		Linear Static	D1a_T2	1.6575
COMBO_T		Linear Static	D1a_T3	1.6575
COMBO_T		Linear Static	D1a_T4	1.6575
COMBO_T		Linear Static	D1b_T1	1.6575
COMBO_T		Linear Static	D1b_T2	1.6575
COMBO_T		Linear Static	D1b_T3	1.6575
COMBO_T		Linear Static	D1b_T4	1.6575
COMBO_T		Linear Static	D2a_T1	1.6575
COMBO_T		Linear Static	D2a_T2	1.6575
COMBO_T		Linear Static	D2a_T3	1.6575
COMBO_T		Linear Static	D2a_T4	1.6575
COMBO_T		Linear Static	D2b_T1	1.6575
COMBO_T		Linear Static	D2b_T2	1.6575
COMBO_T		Linear Static	D2b_T3	1.6575
COMBO_T		Linear Static	D2b_T4	1.6575

TRADITIONAL CASES

TRADITIONAL CASES INCLUDING TRAFFIC LOADS

Maurepas Freshwater Diversion Project No. 10001876 Comp By: LBR 8/2013
Monoliths C-5 C-6 - SAP Load Combinations Check By: BCB Aug-13

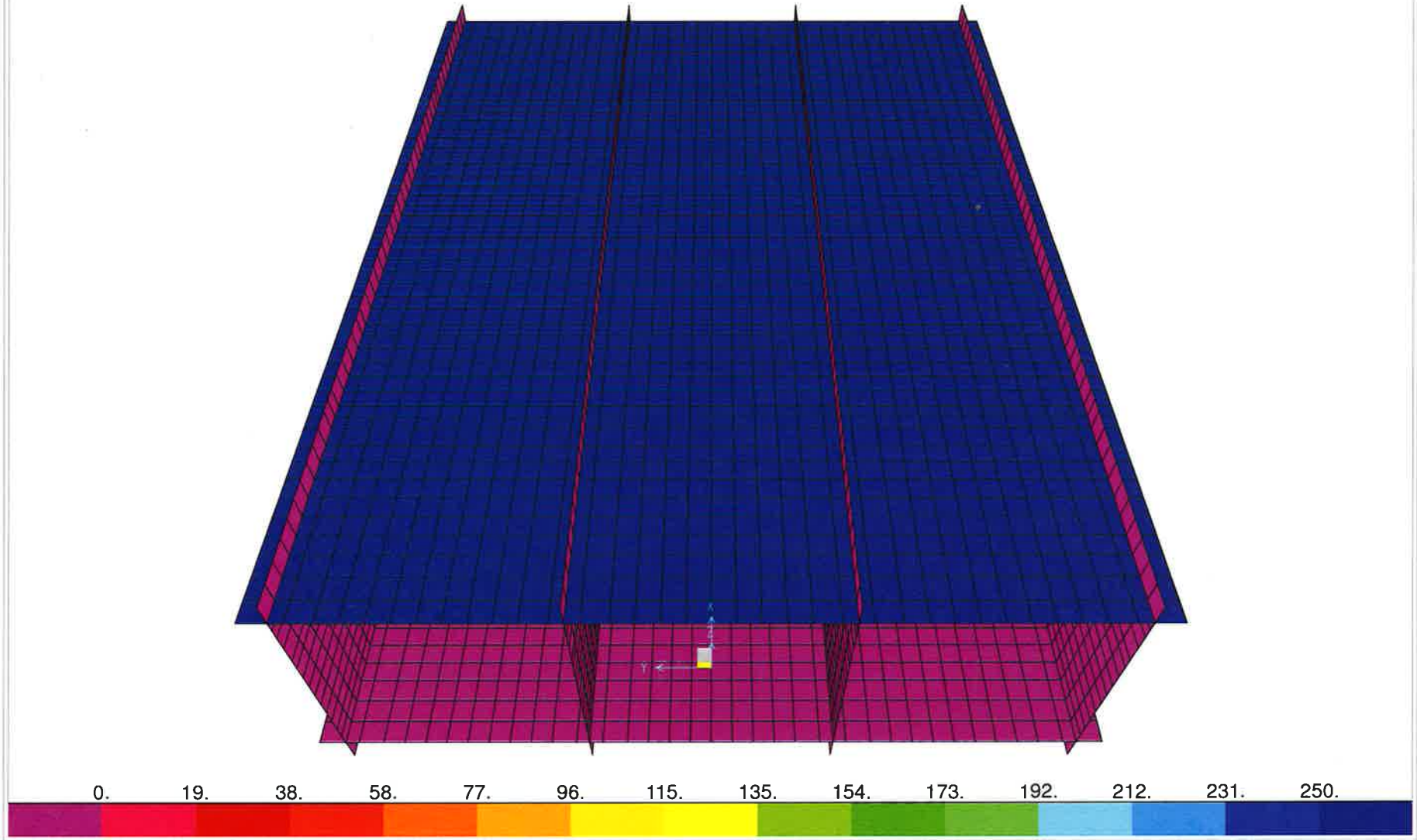
TABLE: Combination Definitions

ComboName	ComboType	CaseType	CaseName	ScaleFactor
Text	Text	Text	Text	Unitless
COMBO-ST	Envelope	Linear Static	1a-ST	1.8942
COMBO-ST		Linear Static	1b-ST	1.8942
COMBO-ST		Linear Static	2a-ST	2.21
COMBO-ST		Linear Static	2a_6-ST	2.21
COMBO-ST		Linear Static	2b-ST	2.21
COMBO-ST		Linear Static	3a-ST	2.21
COMBO-ST		Linear Static	3a_6-ST	2.21
COMBO-ST		Linear Static	3b-ST	2.21
COMBO-ST		Linear Static	D1a-ST	1.6575
COMBO-ST		Linear Static	D1a_6-ST	1.6575
COMBO-ST		Linear Static	D1b-ST	1.6575
COMBO-ST		Linear Static	D2a-ST	1.6575
COMBO-ST		Linear Static	D2a_6-ST	1.6575
COMBO-ST		Linear Static	D2b-ST	1.6575
COMBO_T-ST	Envelope	Linear Static	2a_T1-ST	2.21
COMBO_T-ST		Linear Static	2a_T2-ST	2.21
COMBO_T-ST		Linear Static	2a_T3-ST	2.21
COMBO_T-ST		Linear Static	2a_T4-ST	2.21
COMBO_T-ST		Linear Static	2b_T1-ST	2.21
COMBO_T-ST		Linear Static	2b_T2-ST	2.21
COMBO_T-ST		Linear Static	2b_T3-ST	2.21
COMBO_T-ST		Linear Static	2b_T4-ST	2.21
COMBO_T-ST		Linear Static	3a_T1-ST	2.21
COMBO_T-ST		Linear Static	3a_T2-ST	2.21
COMBO_T-ST		Linear Static	3a_T3-ST	2.21
COMBO_T-ST		Linear Static	3a_T4-ST	2.21
COMBO_T-ST		Linear Static	3b_T1-ST	2.21
COMBO_T-ST		Linear Static	3b_T2-ST	2.21
COMBO_T-ST		Linear Static	3b_T3-ST	2.21
COMBO_T-ST		Linear Static	3b_T4-ST	2.21
COMBO_T-ST		Linear Static	D1a_T1-ST	1.6575
COMBO_T-ST		Linear Static	D1a_T2-ST	1.6575
COMBO_T-ST		Linear Static	D1a_T3-ST	1.6575
COMBO_T-ST		Linear Static	D1a_T4-ST	1.6575
COMBO_T-ST		Linear Static	D1b_T1-ST	1.6575
COMBO_T-ST		Linear Static	D1b_T2-ST	1.6575
COMBO_T-ST		Linear Static	D1b_T3-ST	1.6575
COMBO_T-ST		Linear Static	D1b_T4-ST	1.6575
COMBO_T-ST		Linear Static	D2a_T1-ST	1.6575
COMBO_T-ST		Linear Static	D2a_T2-ST	1.6575
COMBO_T-ST		Linear Static	D2a_T3-ST	1.6575
COMBO_T-ST		Linear Static	D2a_T4-ST	1.6575
COMBO_T-ST		Linear Static	D2b_T1-ST	1.6575
COMBO_T-ST		Linear Static	D2b_T2-ST	1.6575
COMBO_T-ST		Linear Static	D2b_T3-ST	1.6575
COMBO_T-ST		Linear Static	D2b_T4-ST	1.6575

SETTLEMENT CASES

SETTLEMENT CASES INCLUDING TRAFFIC LOADS

CONSTRUCTION SURCHARGE - VERTICAL :

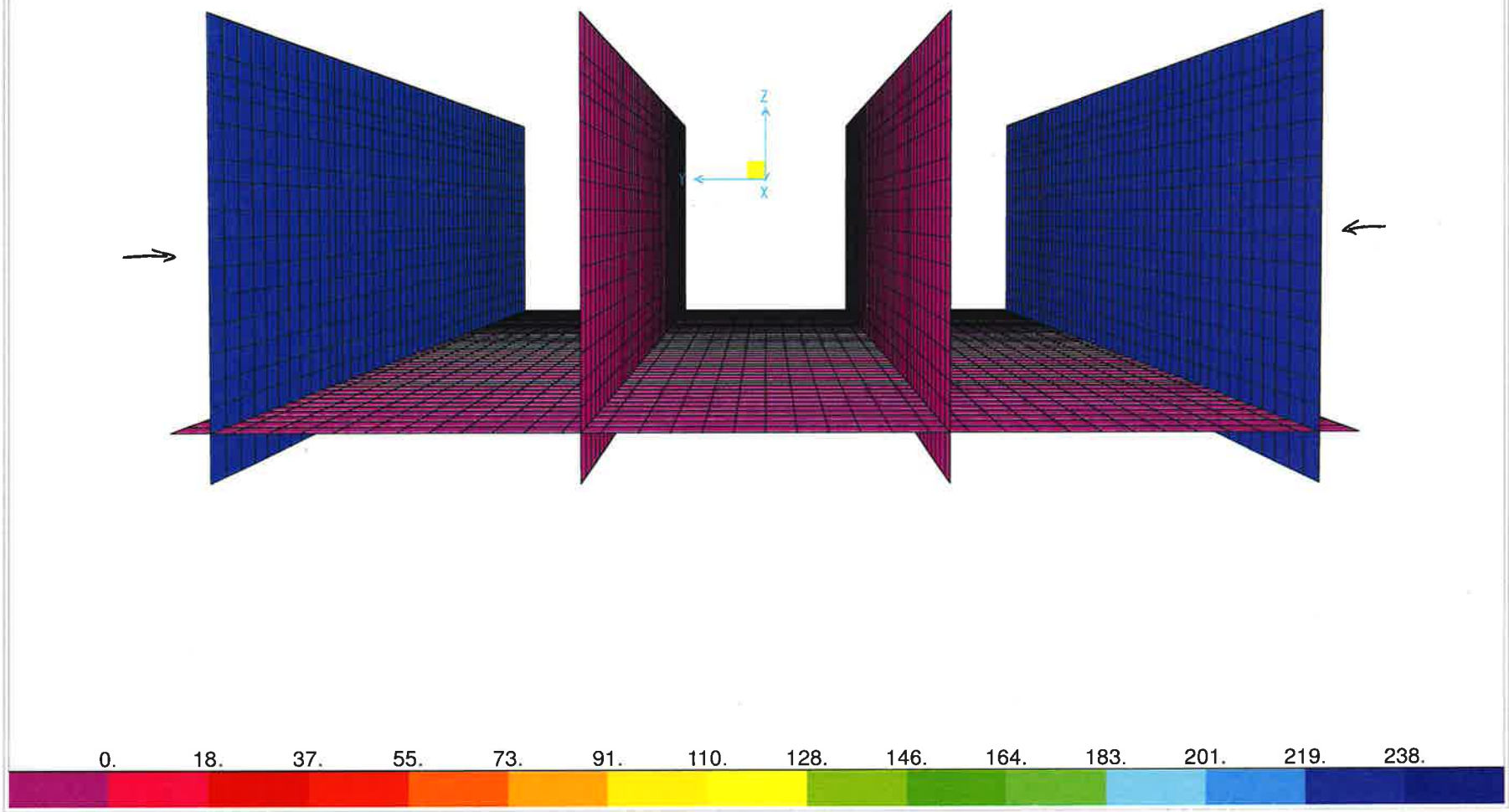


SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Top (LS_const) - lb, ft, F Units

SAP2000

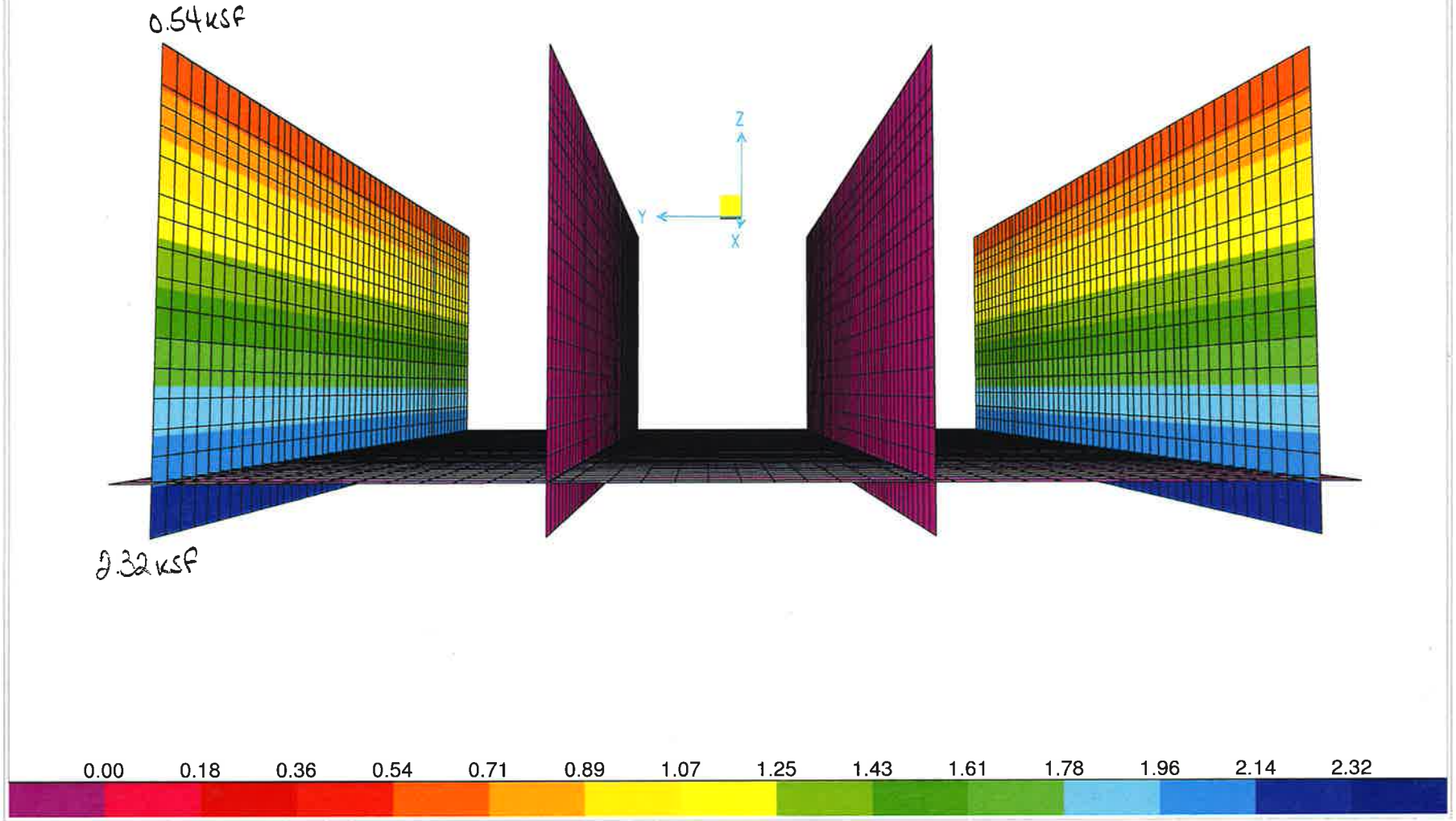
8/20/13 8:01:28

CONSTRUCTION SURCHARGE - HORIZONTAL:



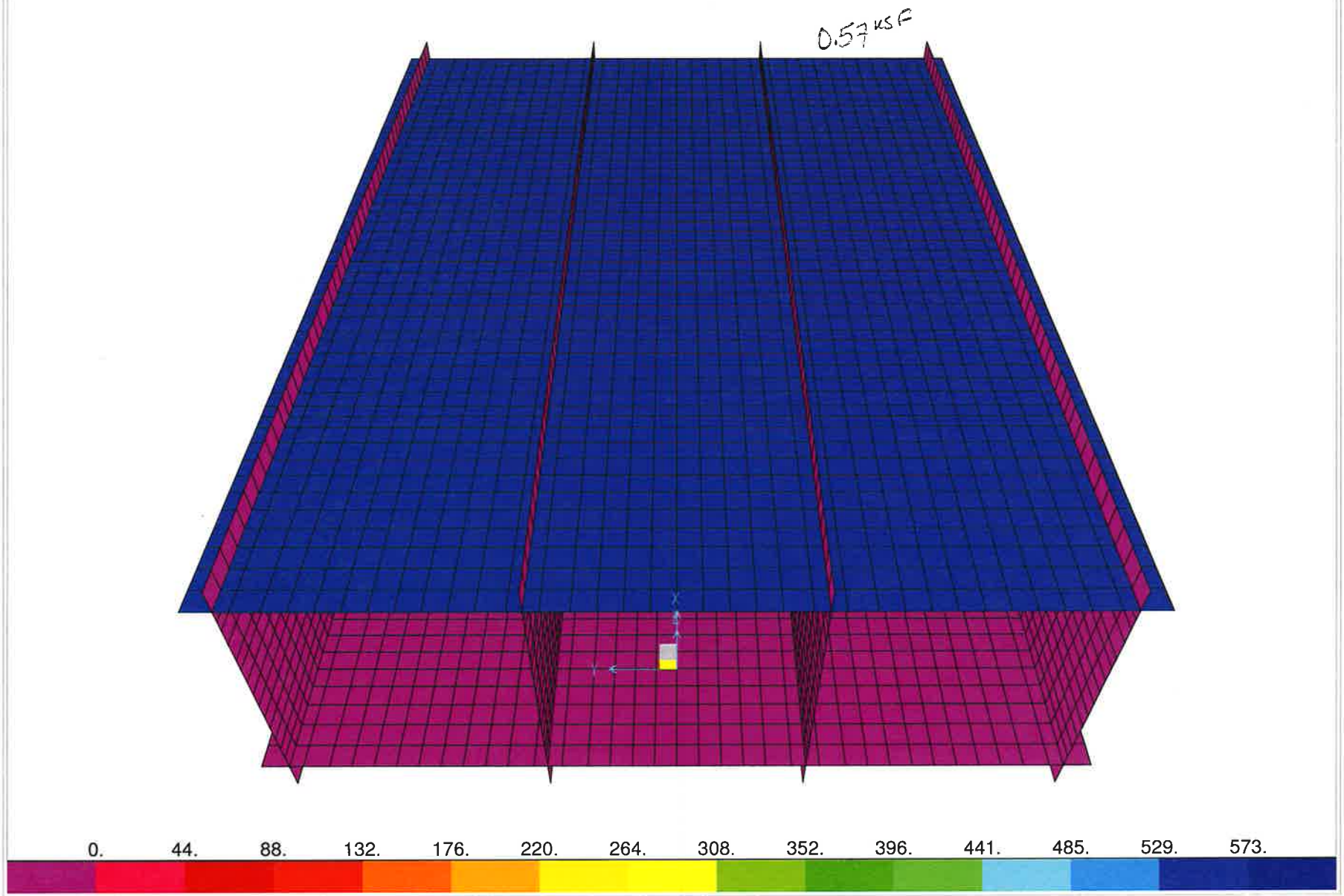
SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (LS_const) - lb, ft, F Units

DRY SOIL TO T.O. ROADWAY:



SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (S_const_lat) - Kip, ft, F Units

VERTICAL DRY SOIL LOAD - ROADWAY:

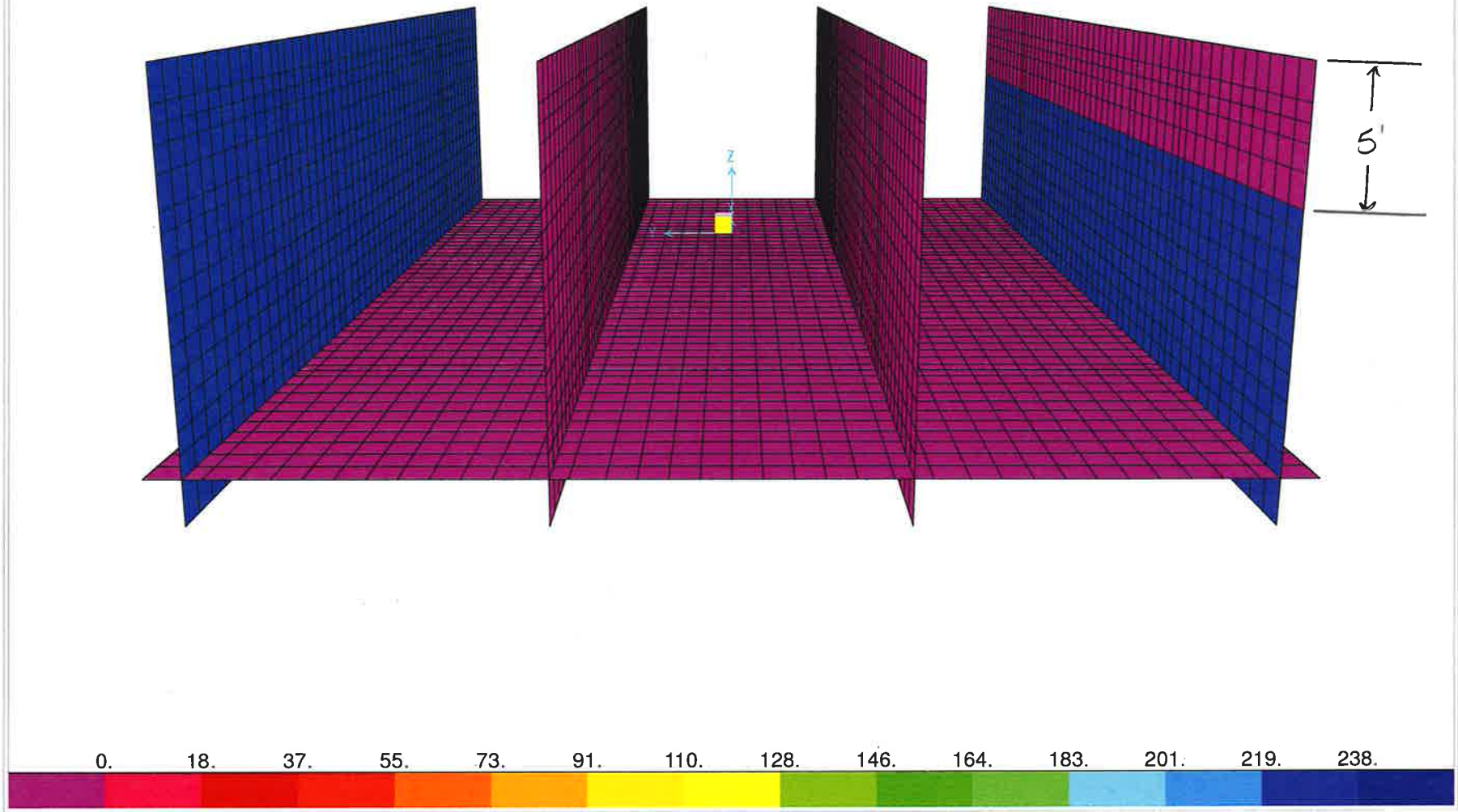


SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (S_roadtop) (GLOBAL - Gravity) - lb, ft, F Units

SAP2000

8/20/13 8:07:01

UNEVEN CONSTRUCTION SURCHARGE:

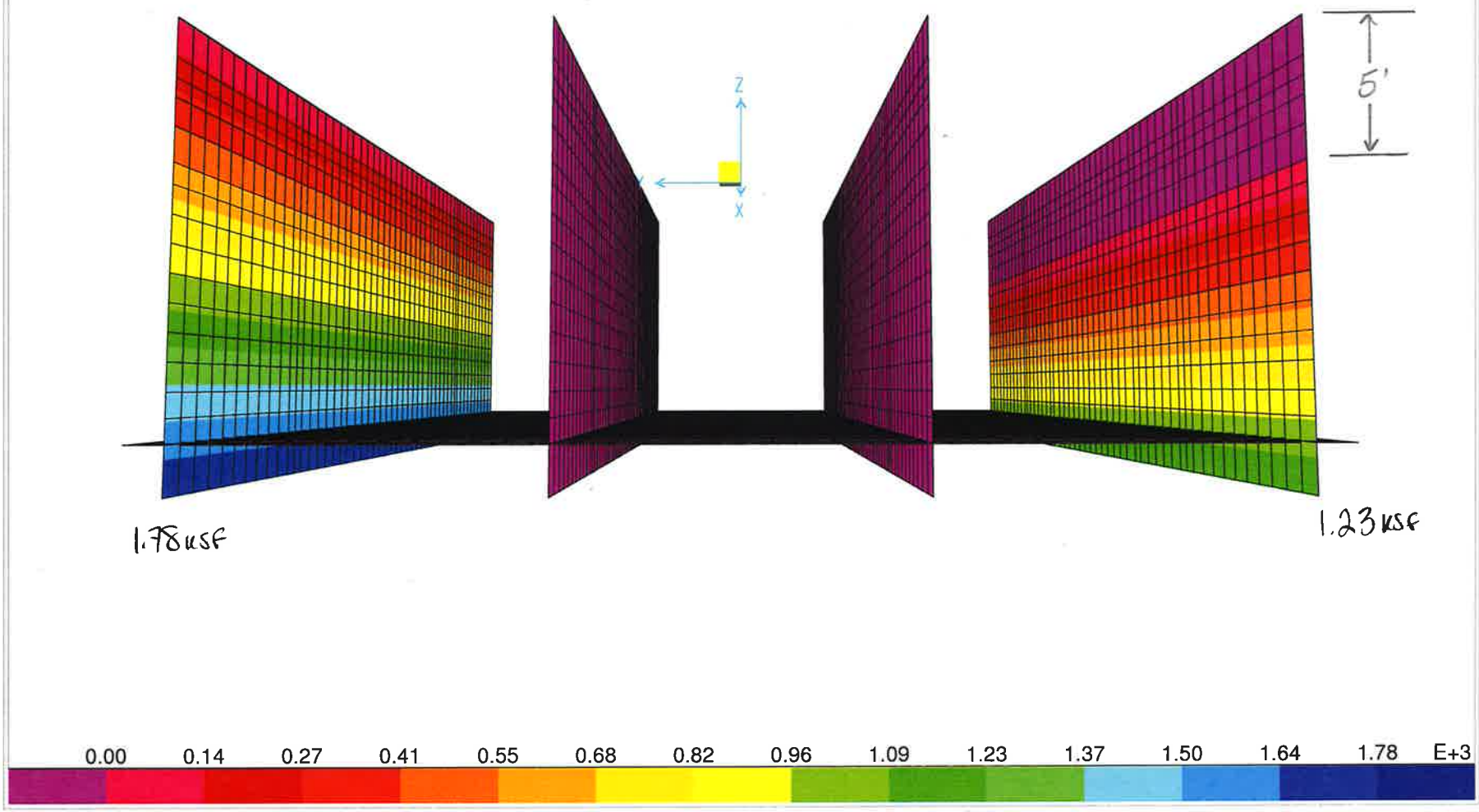


SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (LS_const_uneven) - lb, ft, F Units

SAP2000

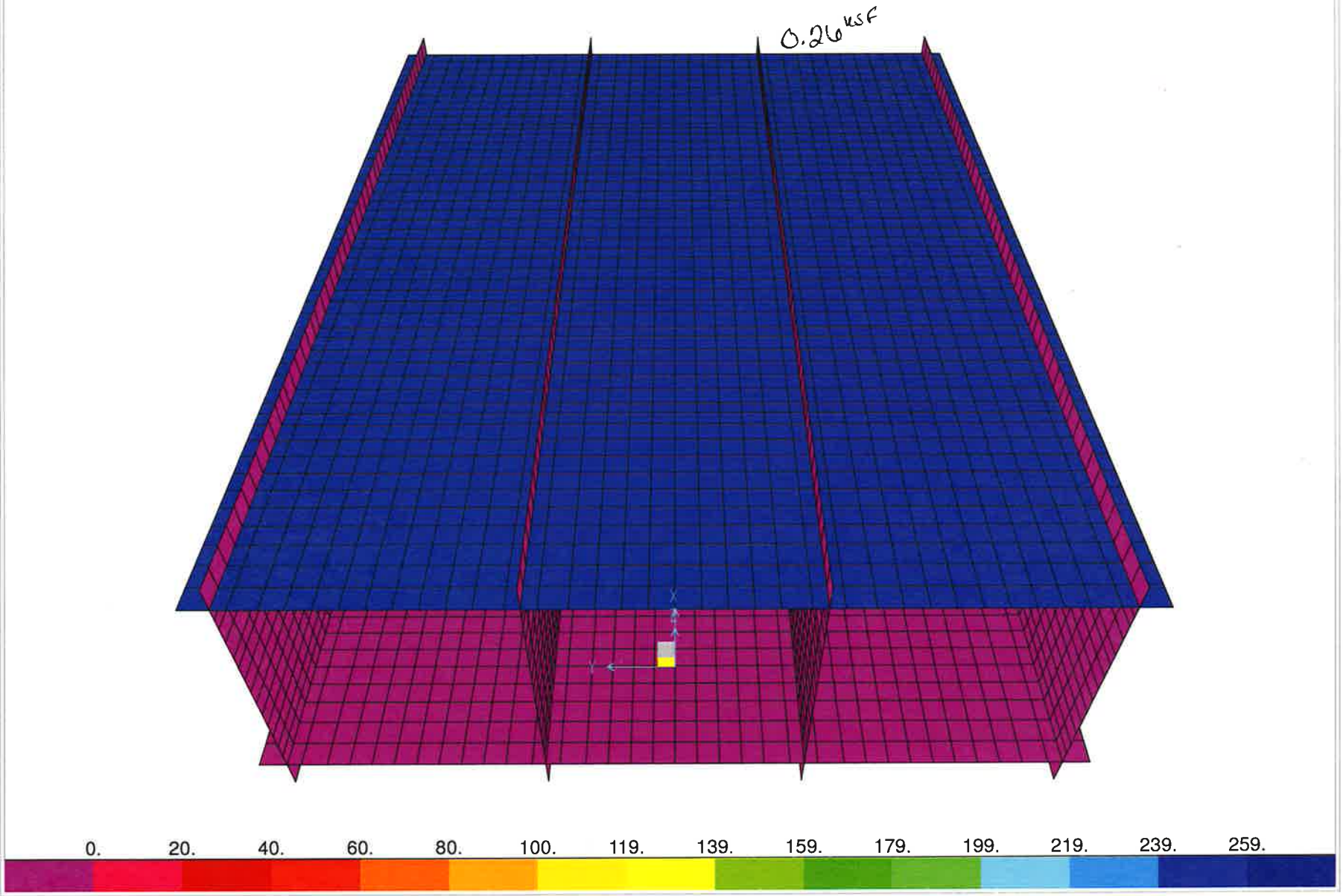
8/20/13 8:20:40

UNEVEN DRY SOIL-CONSTRUCTION:



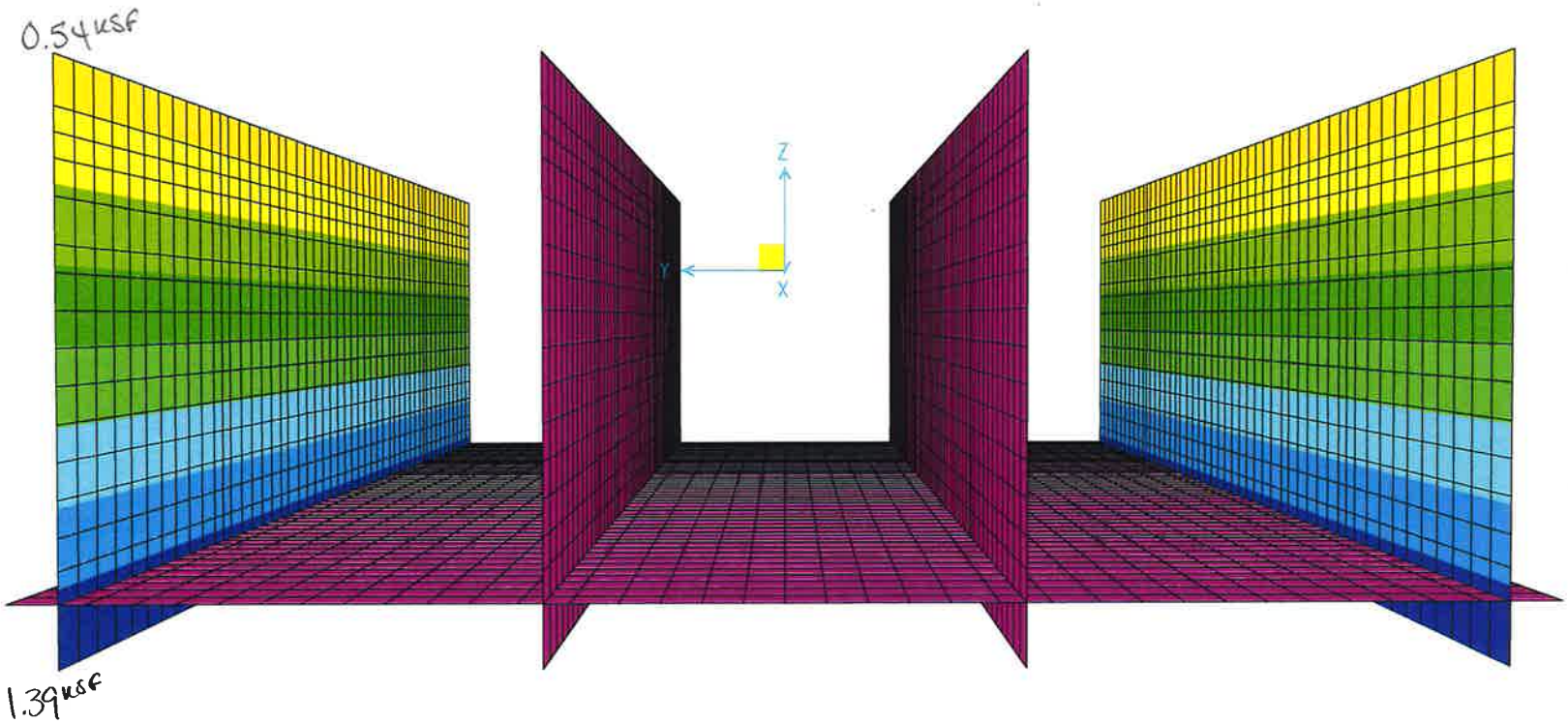
SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (S_const_uneven) - lb, ft, F Units

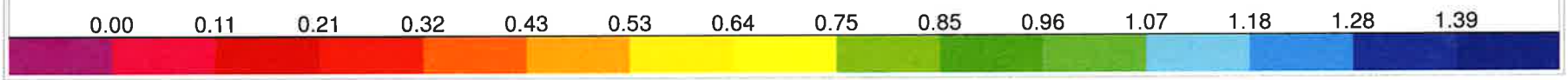
VERTICAL DRY SOIL LOAD - C6 COVER:



SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (S_C6top) (GLOBAL - Gravity) - lb, ft, F Units

LATERAL SOIL PRESSURE - ROADWAY SOIL w/ AVG WATER TABLE:

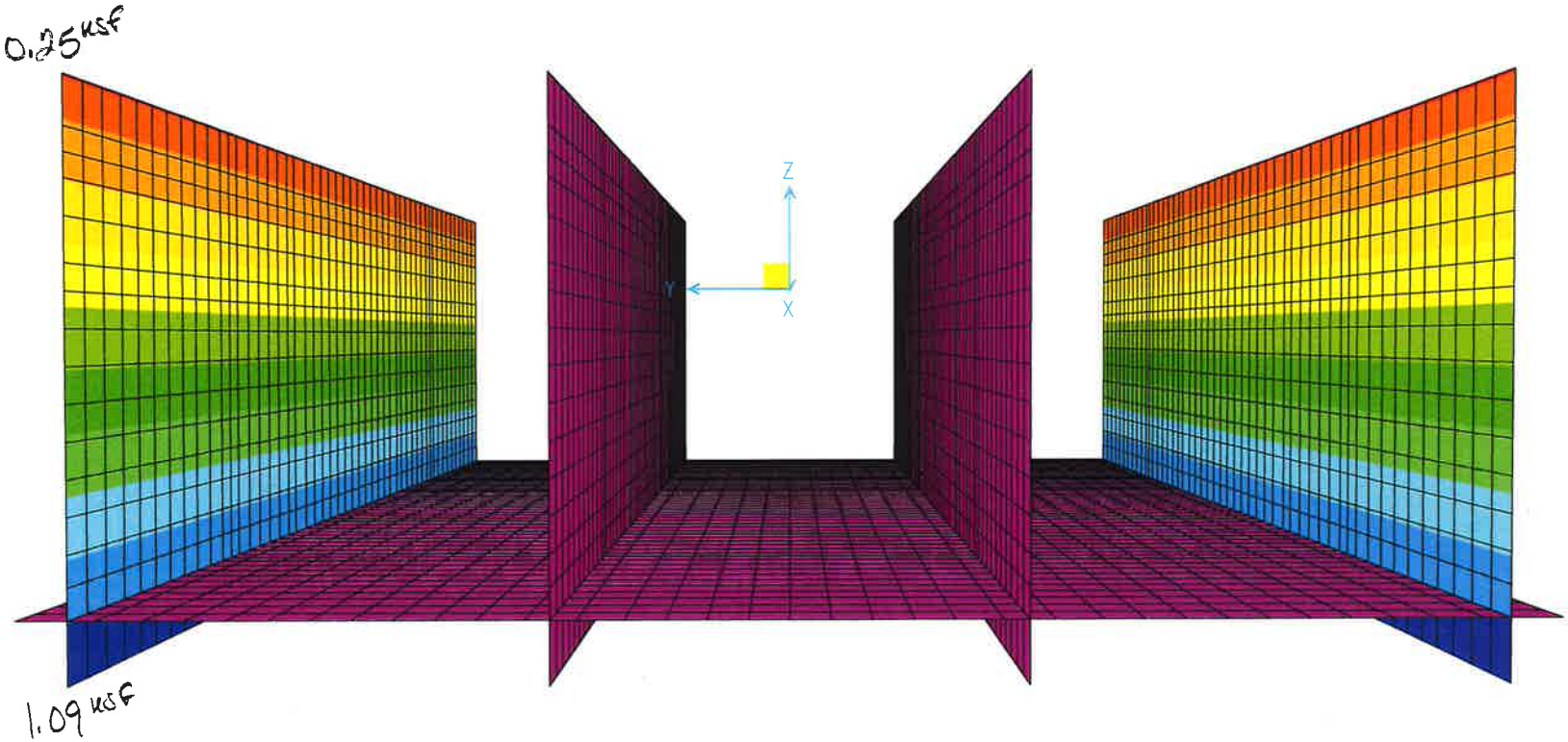




SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (S_avg gwt_road) - Kip, ft, F Units

SAP2000 8/20/13 10:06:21

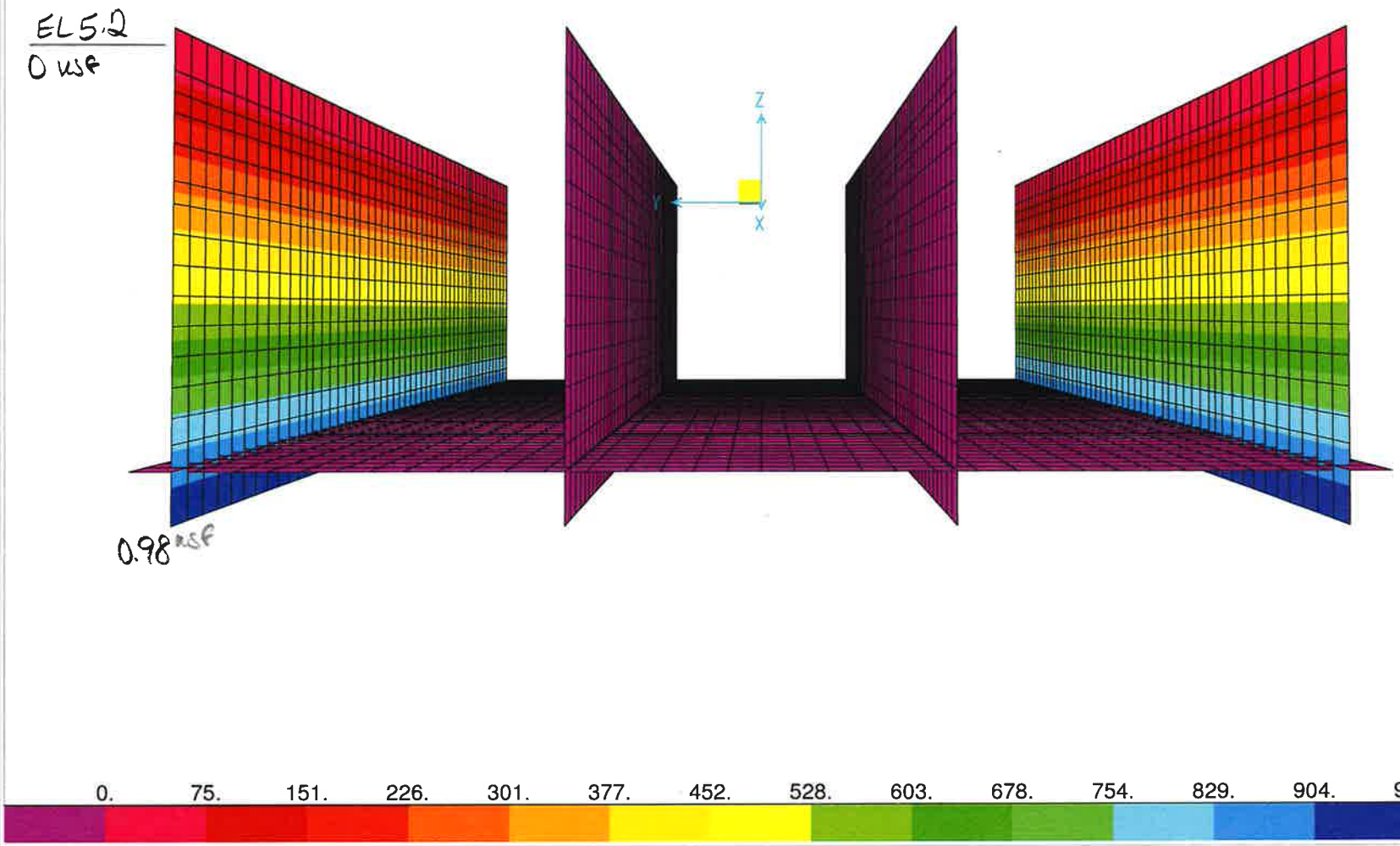
LATERAL SOIL PRESSURE - C-6 SOIL W/AVG GWT:



0.00 0.08 0.17 0.25 0.34 0.42 0.50 0.59 0.67 0.76 0.84 0.92 1.01 1.09

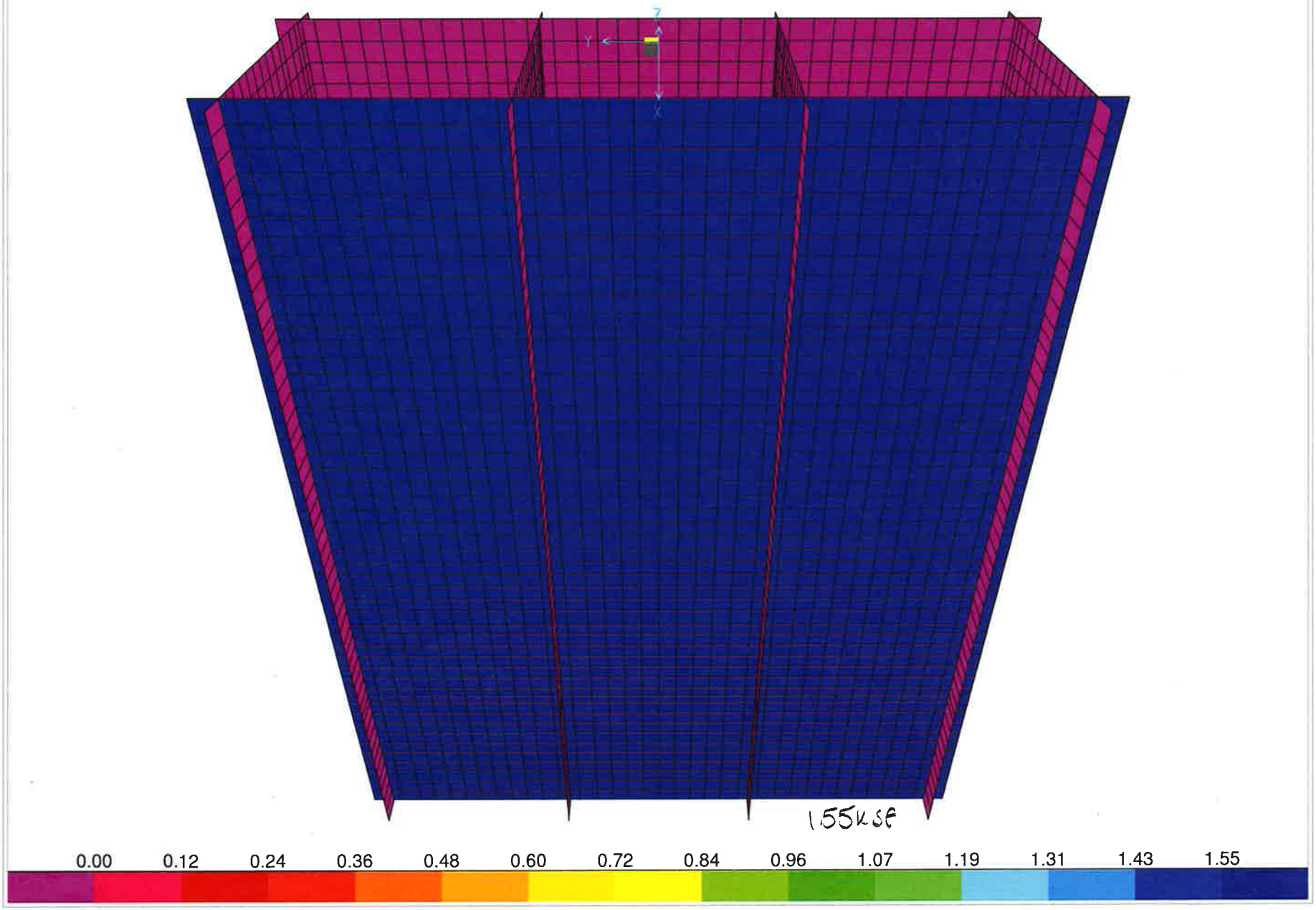
SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (S_avg gwt_C6) - Kip, ft, F Units

LATERAL WATER PRESSURE - AVG GWT:



SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (L_avg gwt) - Kip, ft, F Units

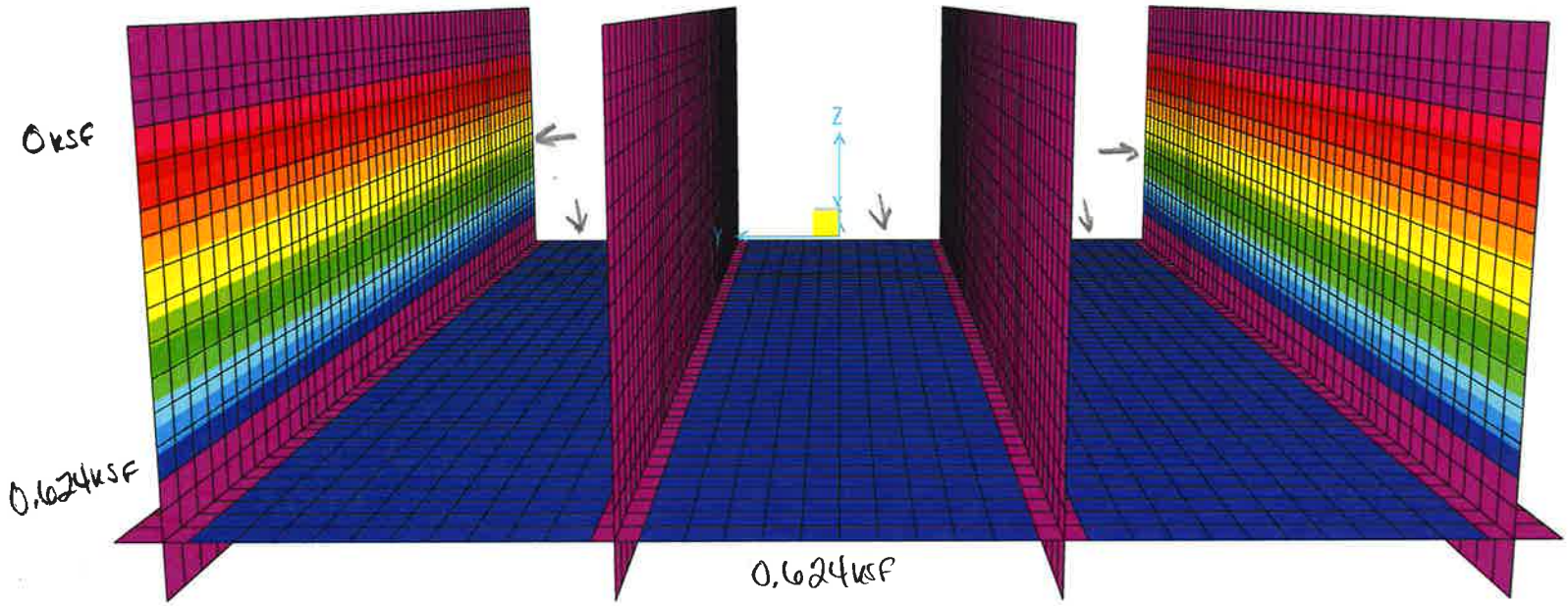
UPLIFT - MAX. RIVER/TAILWATER:

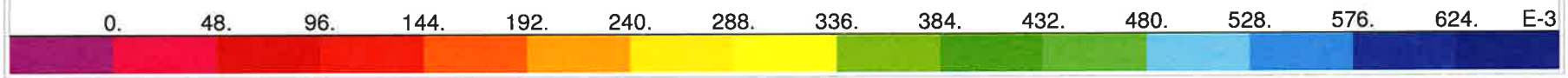


SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (U_max river) (GLOBAL - Z) - Kip, ft, F Units

SAP2000 8/20/13 10:39:38

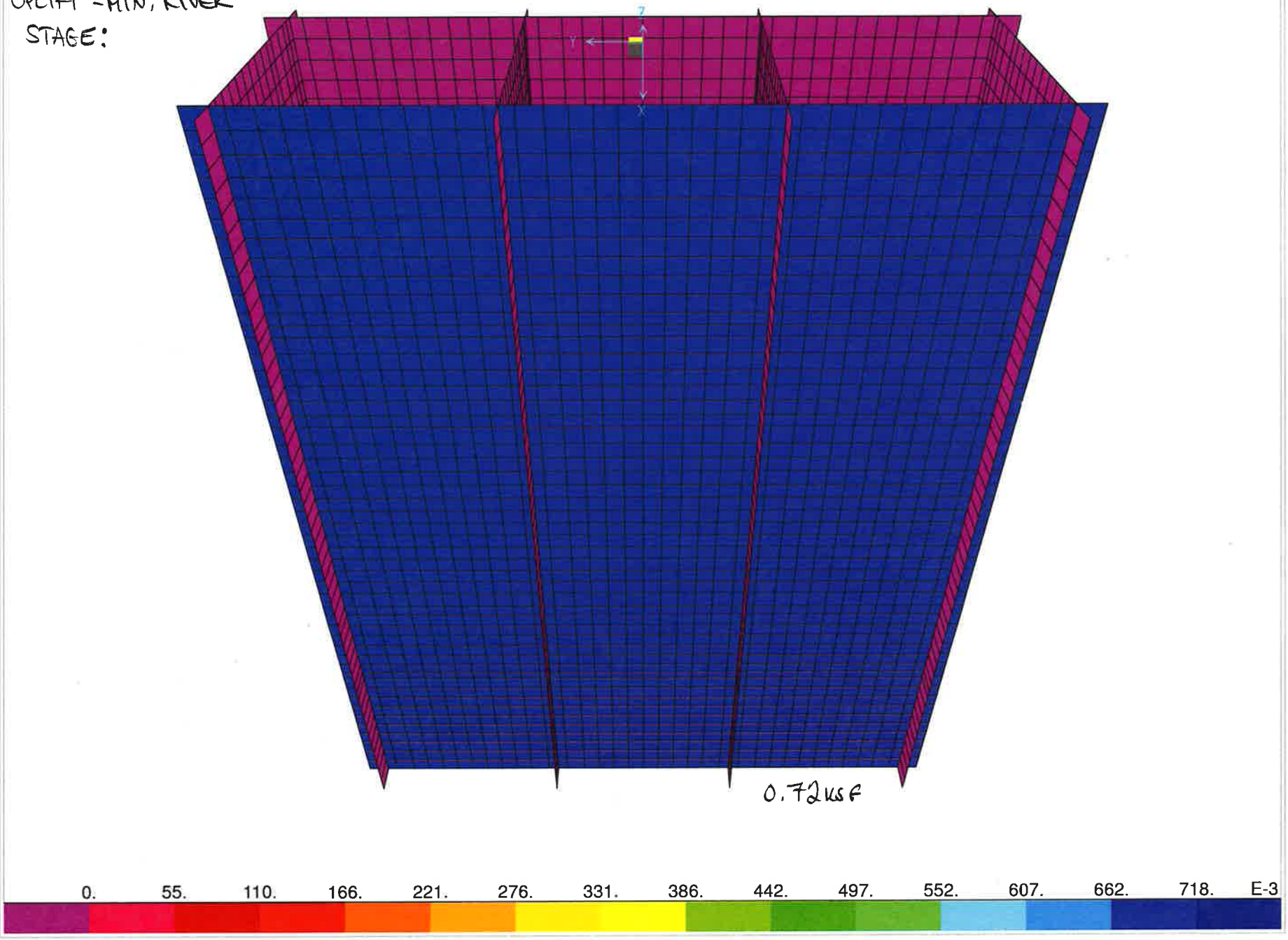
INTERNAL WATER PRESSURE - FULL CULVERT:





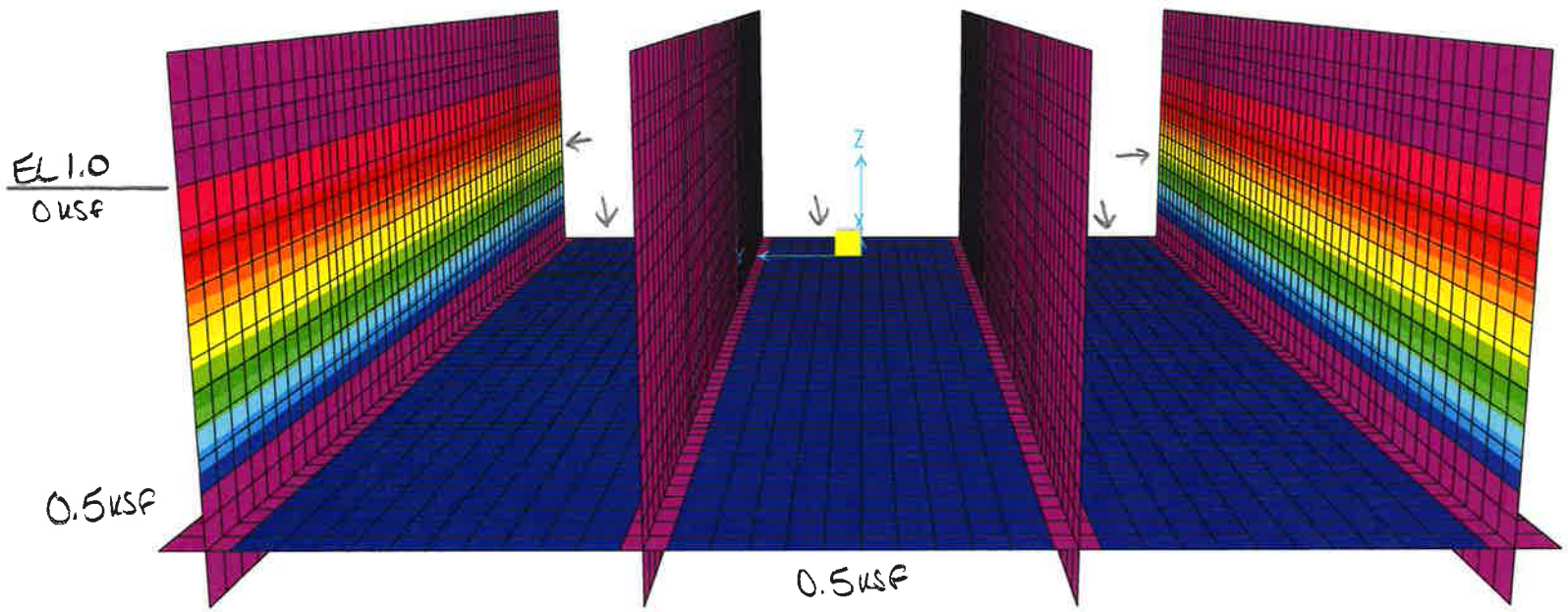
SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Top (L_culvert full) - Kip, ft, F Units

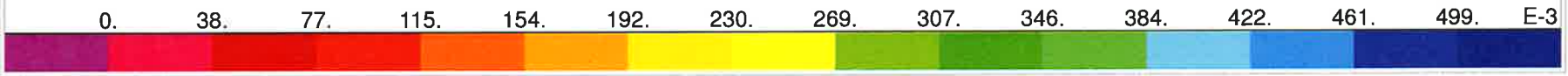
UPLIFT - MIN, RIVER STAGE:



SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (U_min river) (GLOBAL - Z) - Kip, ft, F Units

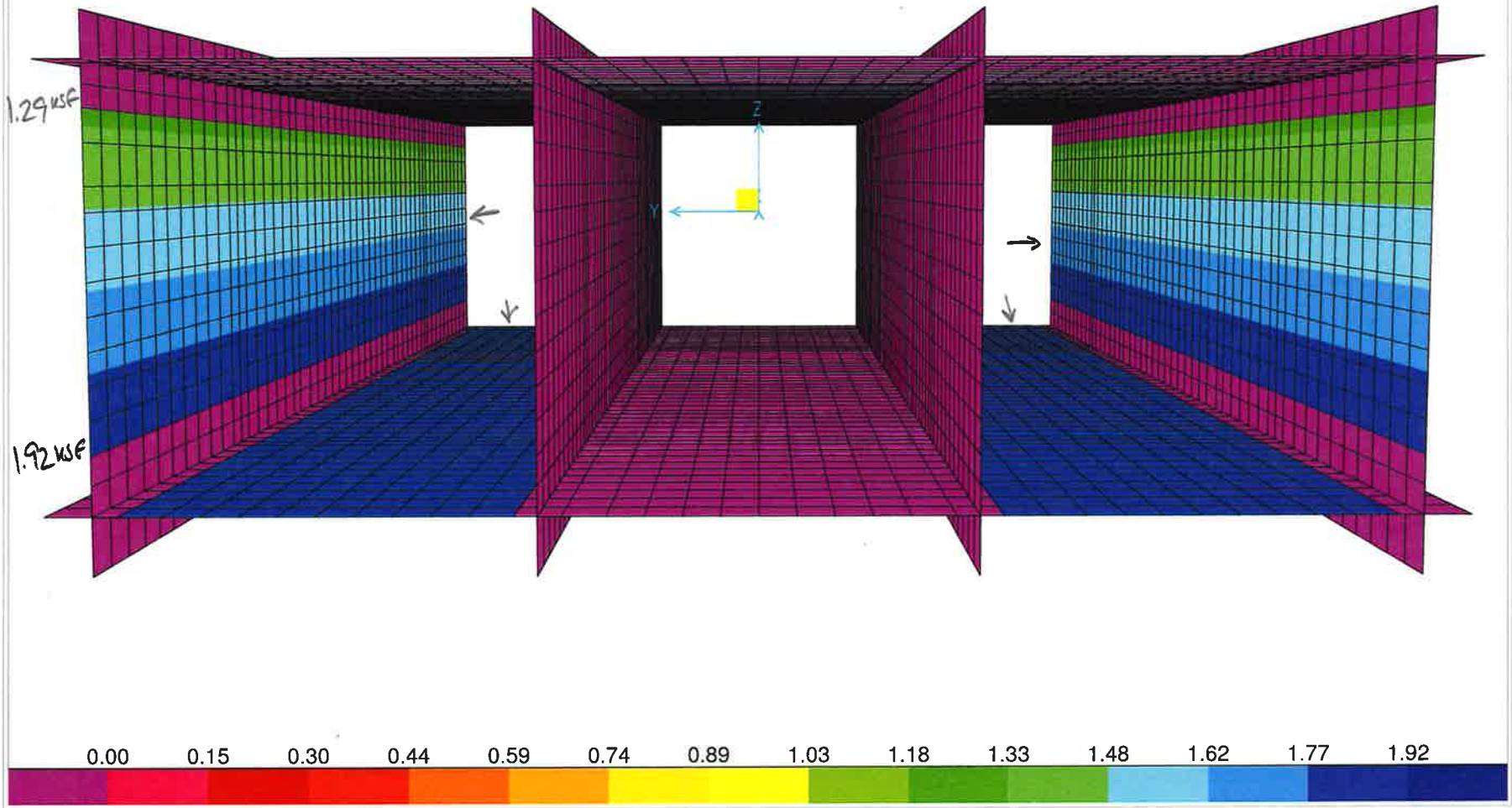
INTERNAL WATER PRESSURE - MIN. RIVER WATER:





SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Top (L_culv min water) - Kip, ft, F Units

DEWATERING TYPE 1 - MIDDLE EMPTY:

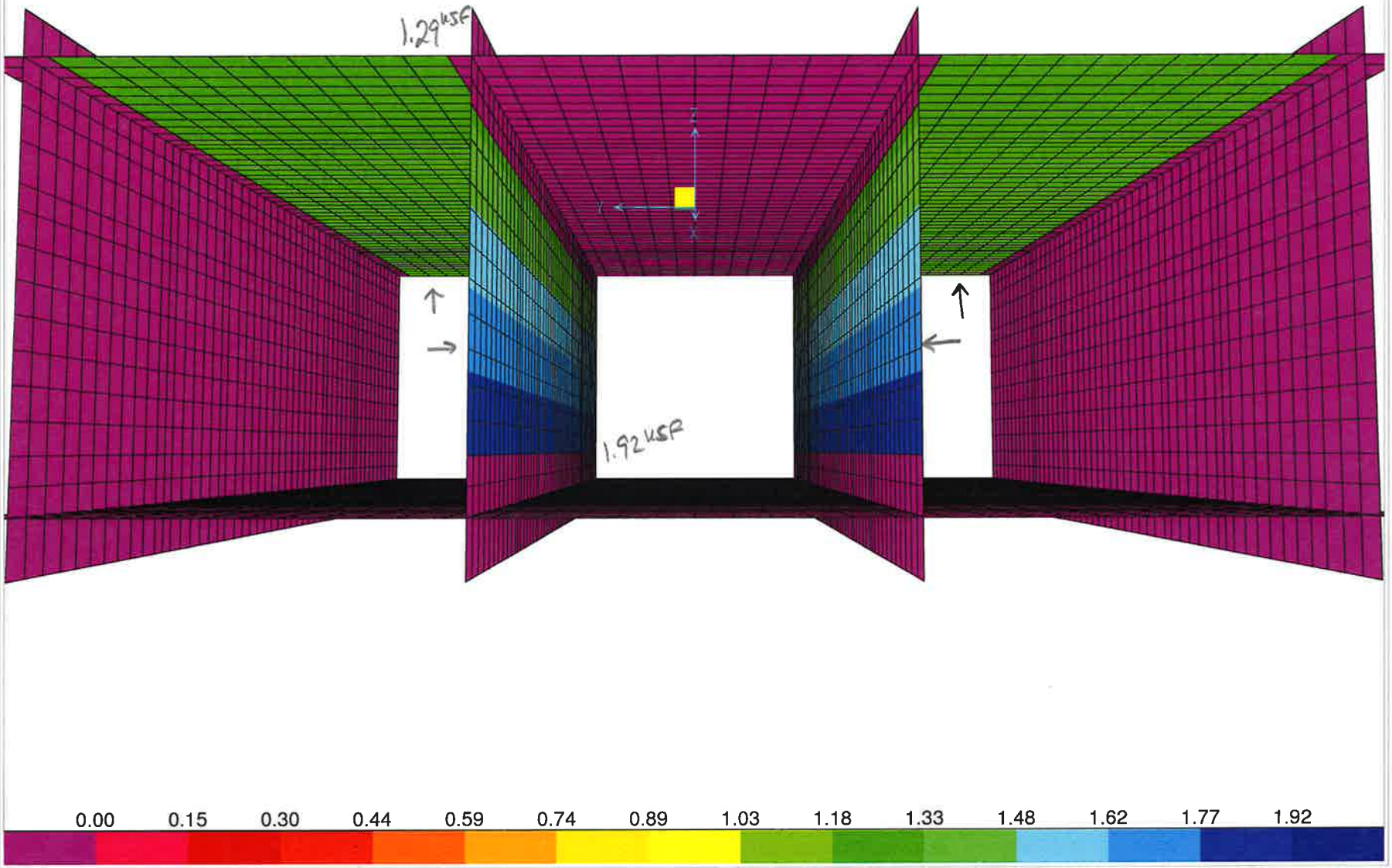


SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Top (L_1-dewater) - Kip, ft, F Units

SAP2000

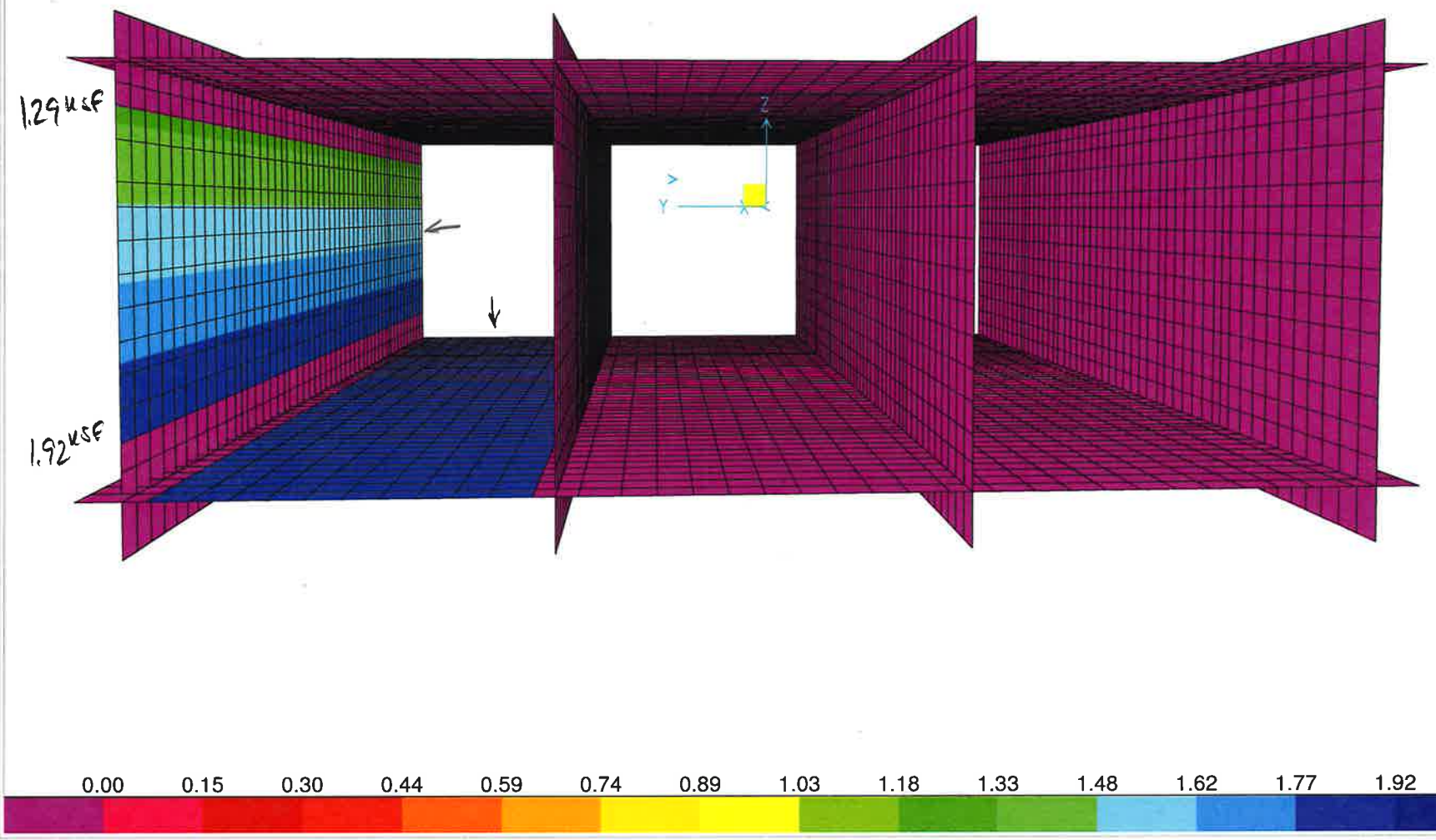
8/20/13 11:03:32

DEWATERING TYPE 1 - MIDDLE EMPTY:



SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (L_1-dewater) - Kip, ft, F Units

DEWATERING TYPE 2 - 1 EDGE FLOWING FULL:

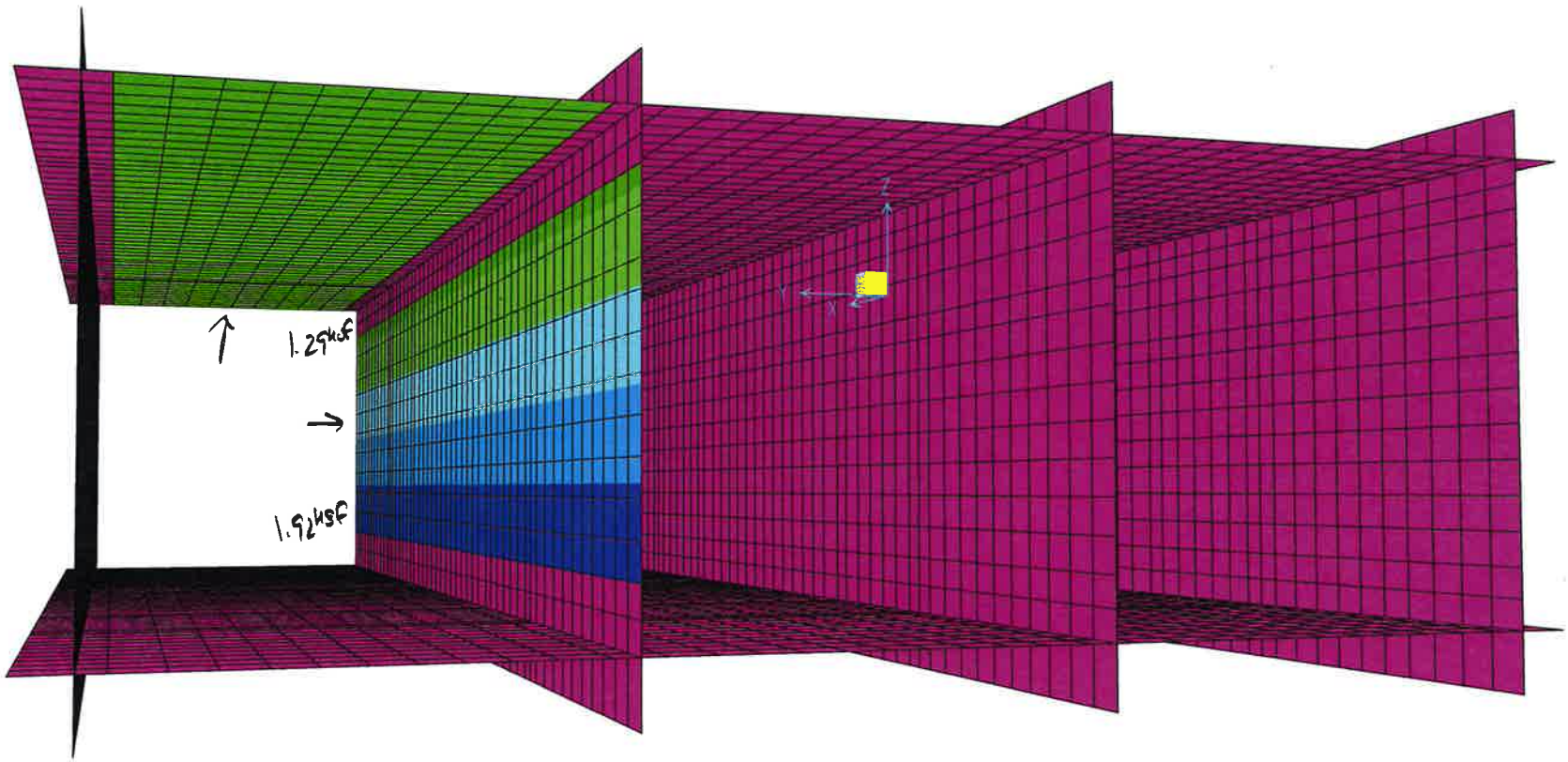


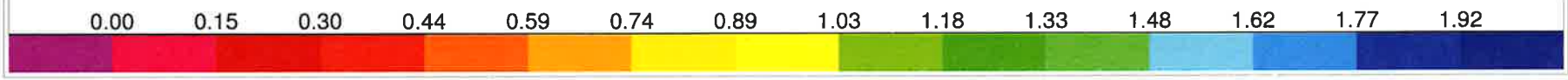
SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Top (L_2-dewater) - Kip, ft, F Units

SAP2000

8/20/13 11:02:22

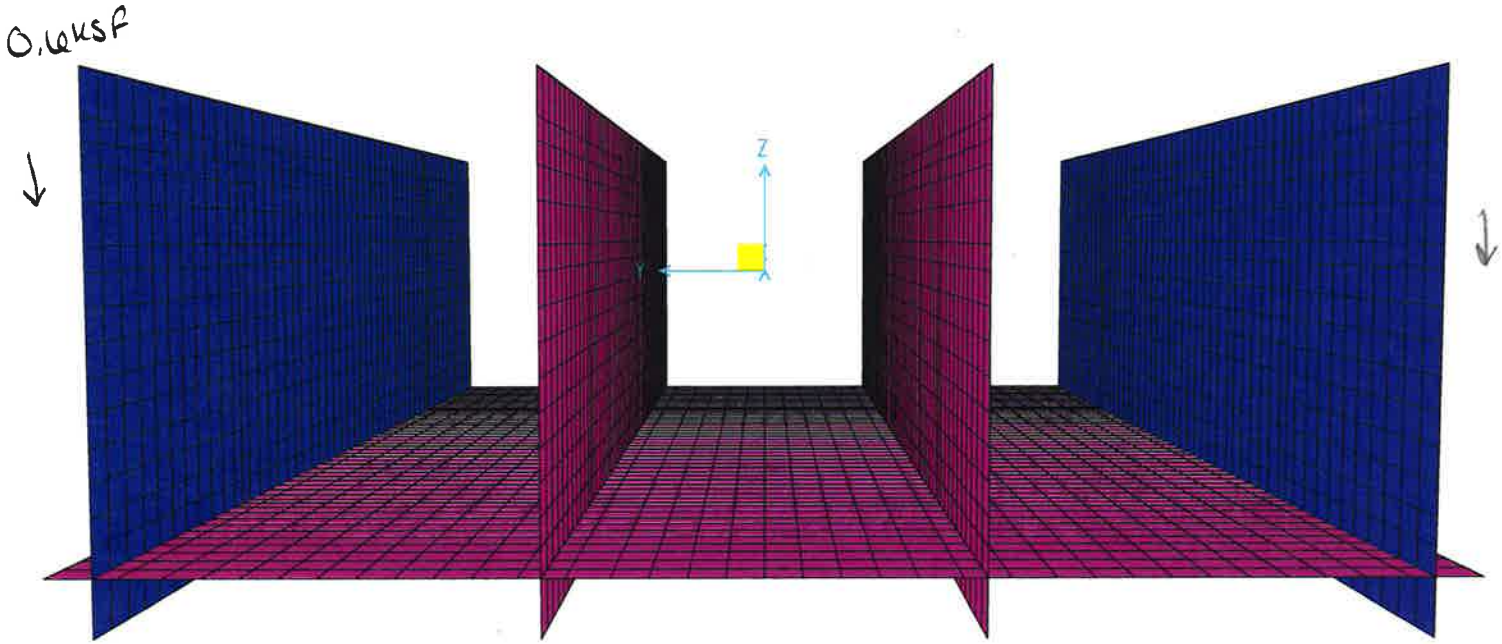
DEWATERING TYPE 2- 1 EDGE FLOWING FULL:

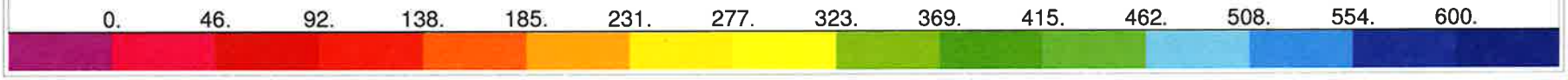




SAP2000 v14.2.4 - File:Culvert C5 - Area Surface Pressure - Face Bottom (L_2-dewater) - Kip, ft, F Units

SETTLEMENT - CLAY ADHESION FORCE:

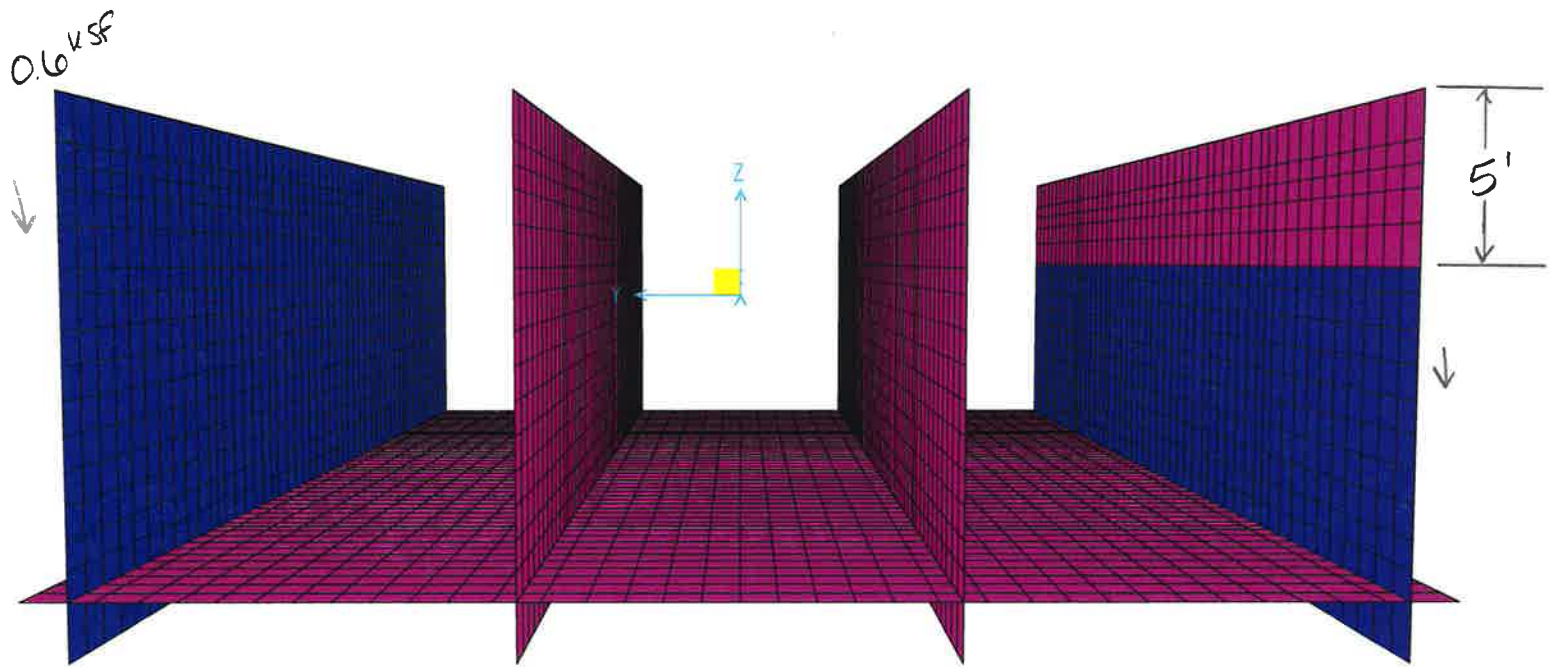




SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (ST_cohesion) (GLOBAL - Gravity) - lb, ft, F Units

SAP2000 8/20/13 9:11:35

SETTLEMENT W/ UNEVEN CONST. SOIL:



0. 46. 92. 138. 185. 231. 277. 323. 369. 415. 462. 508. 554. 600.

SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (ST_cohesion_uneven) (GLOBAL - Gravity) - lb, ft, F Units

PART 2

Traffic Conditions/Loads

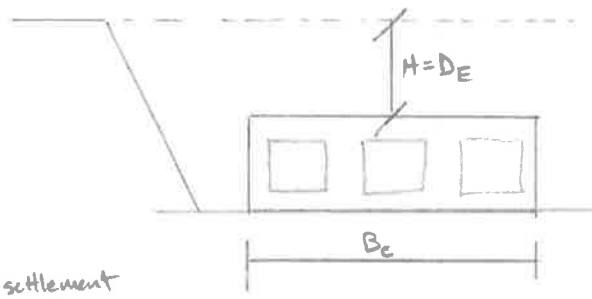
URS

Job	MAXRAS DIVERSION	Project No.	10001876	Page ____ of ____	
Description	TRAFFIC LOADS	Computed by	BCB	Sheet ____ of ____	
	C-5	Checked by	LBR	Date	8/2013
				Date	8/2013
				Reference	

Vertical Earth Pressure — AASHTO 12.11.2.2

- Assume Culvert will be constructed with embankment conditions

$E_V = W_E = F_e \gamma D_E$



$F_e = 1 + 0.20\left(\frac{H}{B_c}\right)$

$= 1 + 0.20\left(\frac{5.0}{41}\right)$

$= 1.024 < 1.122$ from settlement criteria calc

$\therefore$ use $F_e = 1.122$

Dynamic Load Allowance — AASHTO 3.6.2.2

$IM = 33[1.0 - 0.125 D_E]$

$= 33[1.0 - 0.125(5.0)]$

$IM = 12.375\%$ (STR & SER Limits states)

Fatigue: $IM_{FAT} = 15[1.0 - 0.125 D_E]$

$= 15[1.0 - 0.125(5)]$

$IM_{FAT} = 5.625\%$

IM is not applied to the Lane Load

Live Load Distribution

Multiple Presence Factor (MPF):

- One Lane = MPF = 1.20
- Two Lane = MPF = 1.00

- Tire contact area = 10" x 20"
- Load Spreads laterally @ 0.57' horizontally to 1' vertically

One Truck:

Influence Area:

$$10'' + (5' \times 0.57) + (5' \times 0.57) = 6.533'$$

$$20'' + (5' \times 0.57) + (5' \times 0.57) + 6' = 13.367'$$

↑ wheel transverse spacing

$$w_{LL} = \frac{2 \times P_W \times MPF}{A}$$

$$= \frac{2(16)(1.2)}{(6.533)(13.367)} = 0.44 \text{ ksf} \leftarrow \text{CONTROLS}$$

One Tandem:

Influence Area:

$$10'' + (5' \times 0.57) + (5' \times 0.57) + 4' = 10.533'$$

↑ wheel longitudinal spacing

$$20'' + (5' \times 0.57) + (5' \times 0.57) + 6' = 13.367'$$

$$w_{LL} = \frac{4 \times P_W \times MPF}{A} = \frac{4(12.5)(1.20)}{(10.533)(13.367)} = 0.426 \text{ ksf}$$

URS

Job	HAUREPAS	Project No.	10001876	Page ___ of ___	
Description	TRAFFIC LOADS	Computed by	BCB	Sheet ___ of ___	
	C-5	Checked by	LBR	Date	8/2013
				Date	8/2013
				Reference	

Two Truck (2 adjacent truck axles spaced 4' apart)

Influence Area:

$$10'' + (5' \times .57) + (5' \times .57) = 6.533'$$

$$20'' + (5' \times .57) + (5' \times .57) + 6' \times 2 + 4' = 23.367'$$

↳ transverse spacing

spacing between side-by-side trucks

$$\omega_{LL} = \frac{4 \times P_W \times MPF}{A}$$

$$= \frac{4(16)(1.0)}{(6.533)(23.367)} = 0.419 \text{ ksf}$$

Two Tandems:

Influence Area:

$$10'' + (5 \times .57) + (5' \times .57) + 4' = 10.533'$$

$$20'' + (5' \times .57) + (5' \times .57) + 6' \times 2 + 4' = 23.367'$$

$$\omega_{LL} = \frac{8 \times P_W \times MPF}{A}$$

$$= \frac{8(12.5)(1.0)}{(10.533)(23.367)} = 0.406$$

URS

Job: MAUREPAS | Project No. 10001874 | Page ___ of ___
Description: TRAFFIC LOADS C-5 | Computed by: BCB | Sheet ___ of ___
Checked by: LBK | Date: 8/2013 | Date: 8/2013
Reference

Single Lane:

Influence Width:

$$10' + (5' \times .57) + (5' \times .57) = 15.7'$$

$$w_{LL} = \frac{w_{lane} \times \text{width} \times MPF}{\text{Influence width}}$$

$$= \frac{.064 \times 10 \times 1.2}{15.7'} = 0.049 \text{ ksf} \leftarrow \text{CONTROLS}$$

Two Lanes

Influence Width:

$$10' + 10' + 4' + (5' \times .57) + (5' \times .57) = 29.7'$$

$$w_{LL} = \frac{2(.064 \times 10) \times 1.0}{29.7'} = 0.043 \text{ ksf}$$

Controlling combination is One Truck & One Lane for all limit states.

(CONTROLLING PRESSURE VALUE)

URS

Page ____ of ____

Job ____ Project No. ____ Sheet ____ of ____

Description ____ Computed by BCB Date 8/2013

C-5 Checked by LBK Date 8/2013

Reference

Load Factors:

	Strength		Service		Fatigue	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
DC	0.9	1.25	1.0	1.0	—	—
EV	0.9	1.30	1.0	1.0	—	—
EH	0.9	1.35	1.0	1.0	—	—
LL	1.75	1.75	1.0	1.0	0.75	0.75
WA	1.0	1.0	1.0	1.0	—	—

Load Combinations:

LC 1: $DC_{max} + EV_{max} + EH_{min} + (LL+IM)_{max} + WA_{max}$

STR = 1.25 DC + 1.30 EV + 0.9 EH + 1.75(LL+IM) + 1.0 WA

SER = 1.0 DC + 1.0 EV + 1.0 EH + 1.0(LL+IM) + 1.0 WA

LC 2: $DC_{MIN} + EV_{min} + EH_{max}$

STR = 0.9 DC + 0.9 EV + 1.35 EH

SER = 1.0 DC + 1.0 EV + 1.0 EH

LC3: $DC_{max} + EV_{max} + EH_{max} + (LL+IM)_{max}$

STR = 1.25 DC + 1.30 EV + 1.35 EH + 1.75 (LL+IM)

SER = 1.0 DC + 1.0 EV + 1.0 EH + 1.0 (LL+IM)

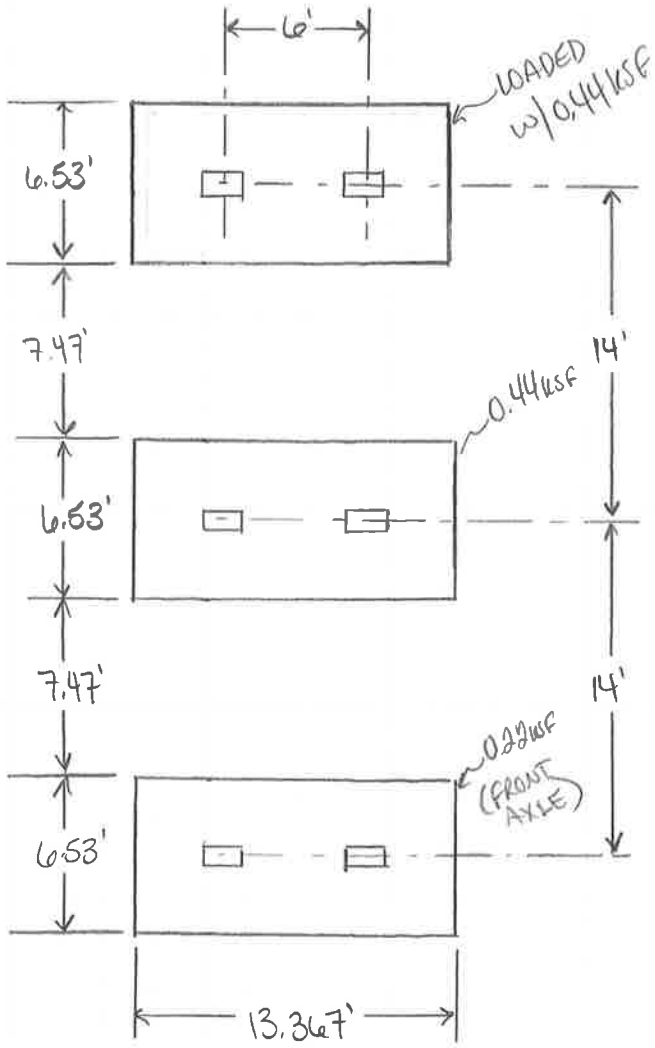
Fatigue = 0.75 (LL+IM)

URS

Job MAUREPAS | Project No. 1000876 | Page ____ of ____
Description TRAFFIC LOADS | Computed by LBK | Sheet ____ of ____
Checked by BCB | Date 8/2013 | Date Aug-13
Reference

AREA PRESSURE FOR CONTROLLING TRAFFIC CASES IS 1 TRUCK + LANE LOAD.

AS PER TRAFFIC CALCS, TRUCK LOADS DISTRIBUTED AS SHOWN ON ROOF OF CULVERT:

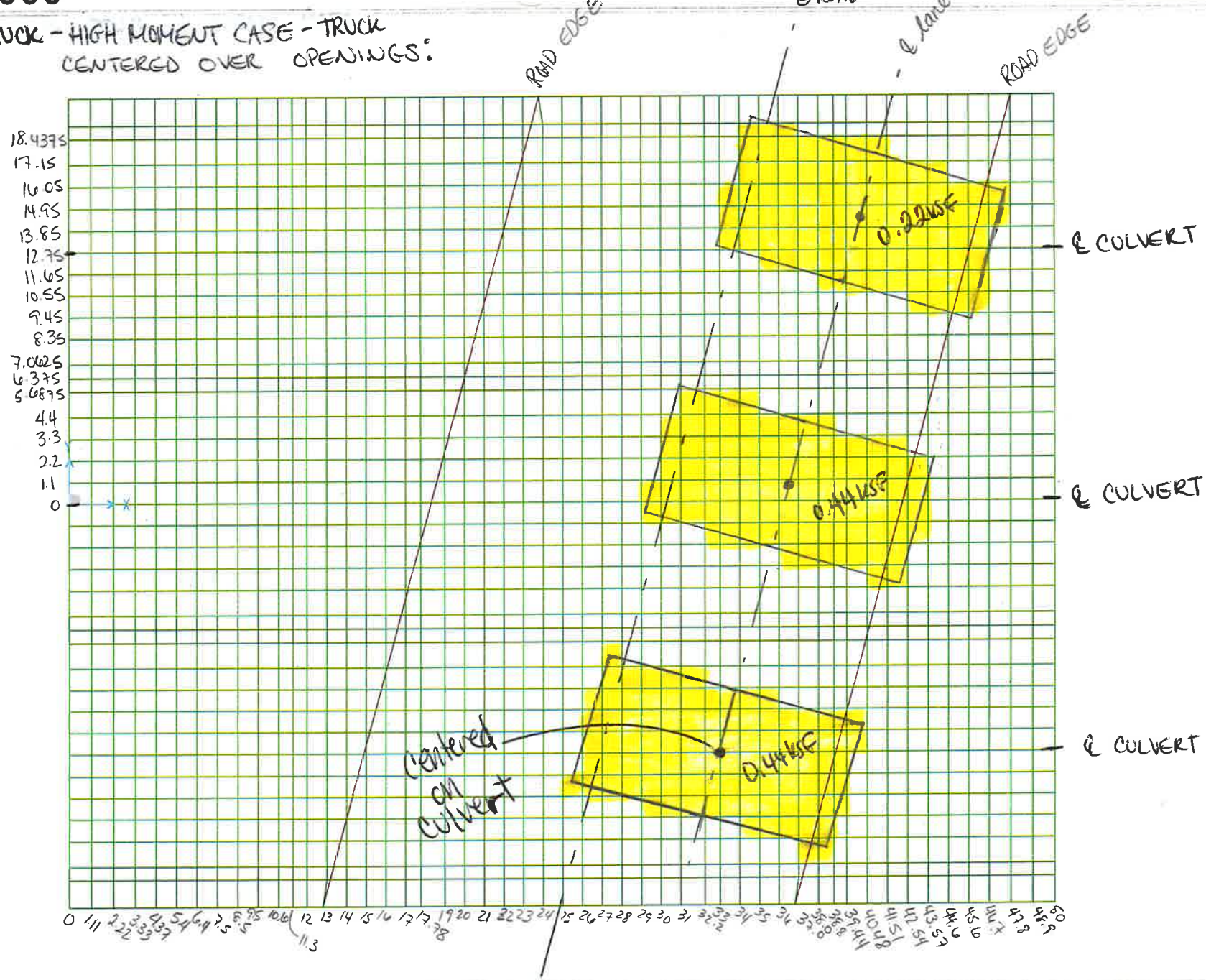


- FOR SINGLE TRUCK CASES, AREA PRESSURE IS 0.44KSF FOR BACK WHEELS, 0.22KSF FOR FRONT. SINGLE LANE LOAD IS 0.049KSF

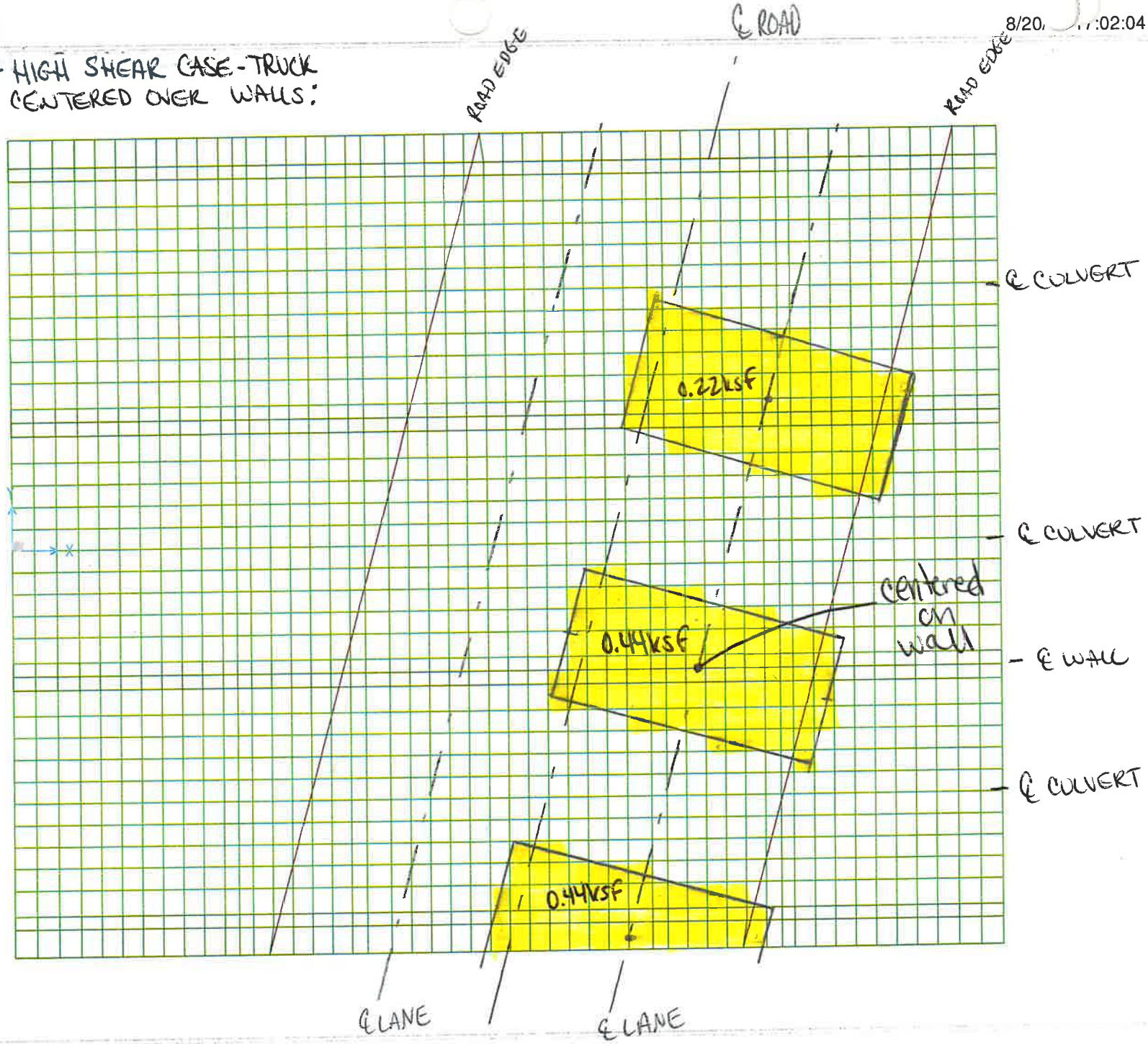
- FOR DOUBLE TRUCK CASES, AREA PRESSURE IS 0.42KSF FOR BACK WHEELS, 0.21KSF FOR FRONT. DOUBLE LANE LOAD IS 0.043KSF

- FOR MODEL SIMPLICITY & B/C DIFFERENCE MINIMAL, WILL USE SINGLE FORCES THROUGHOUT.

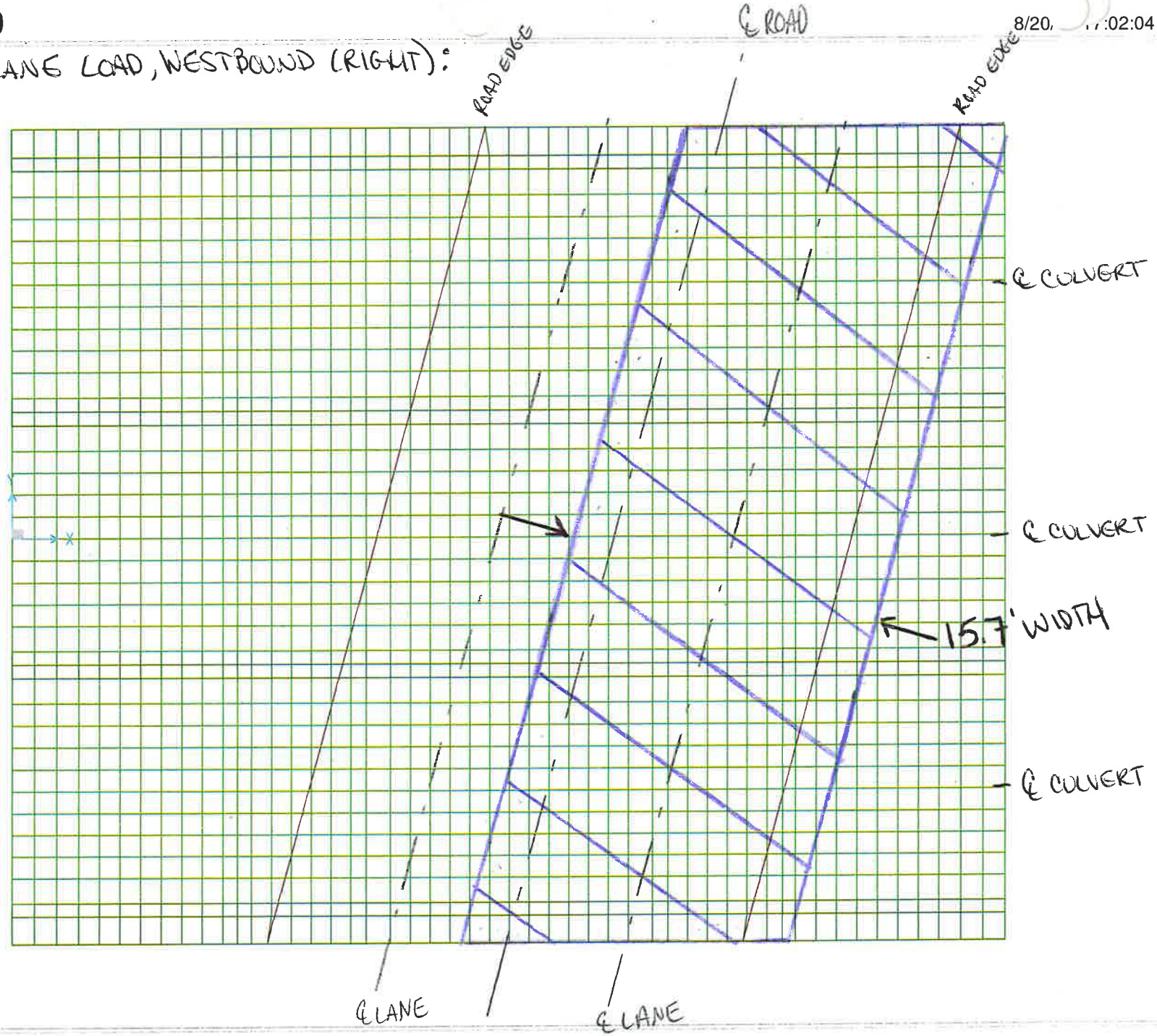
T1 TRUCK - HIGH MOMENT CASE - TRUCK CENTERED OVER OPENINGS:



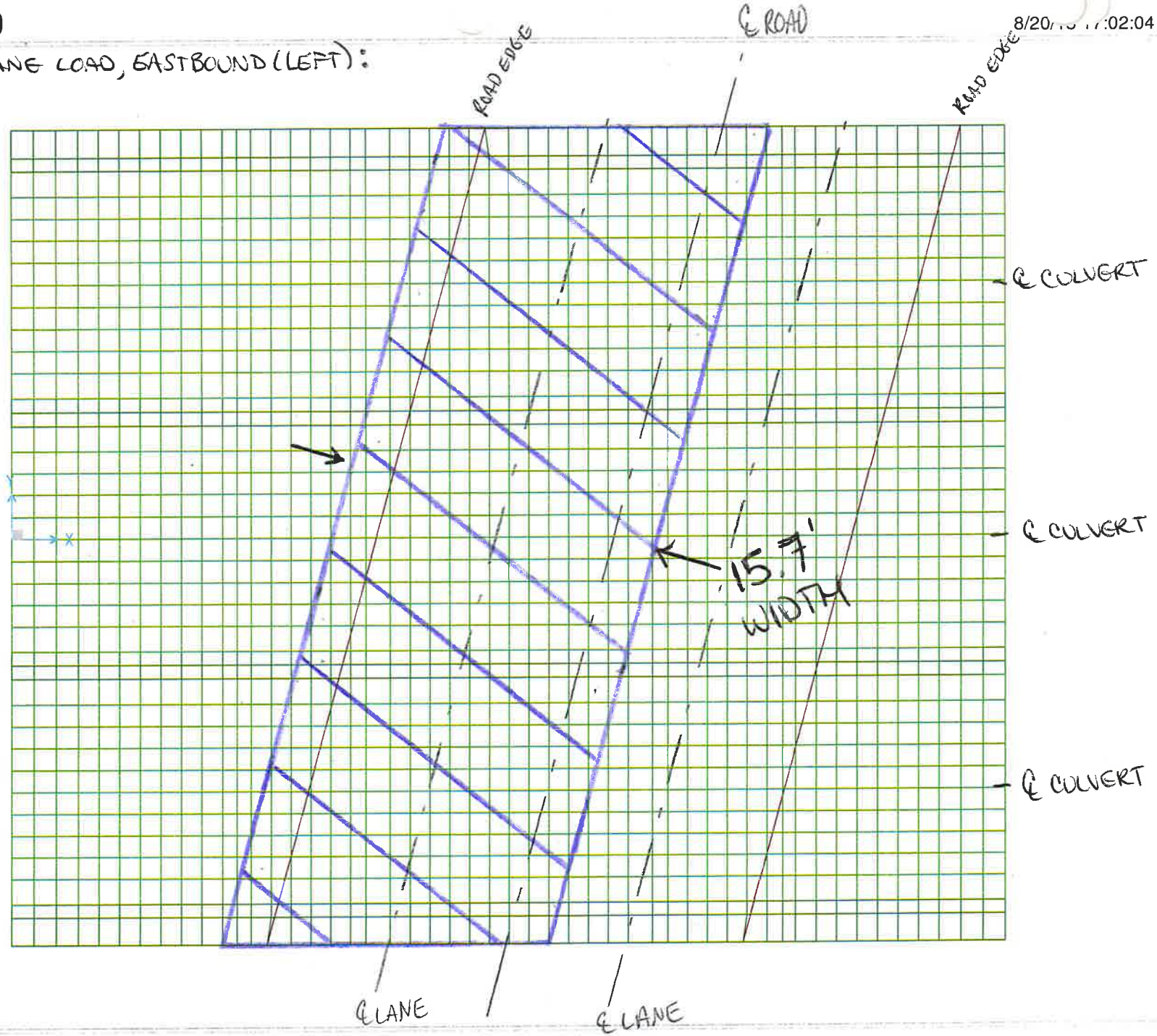
T2 TRUCK - HIGH SHEAR CASE - TRUCK CENTERED OVER WALLS:

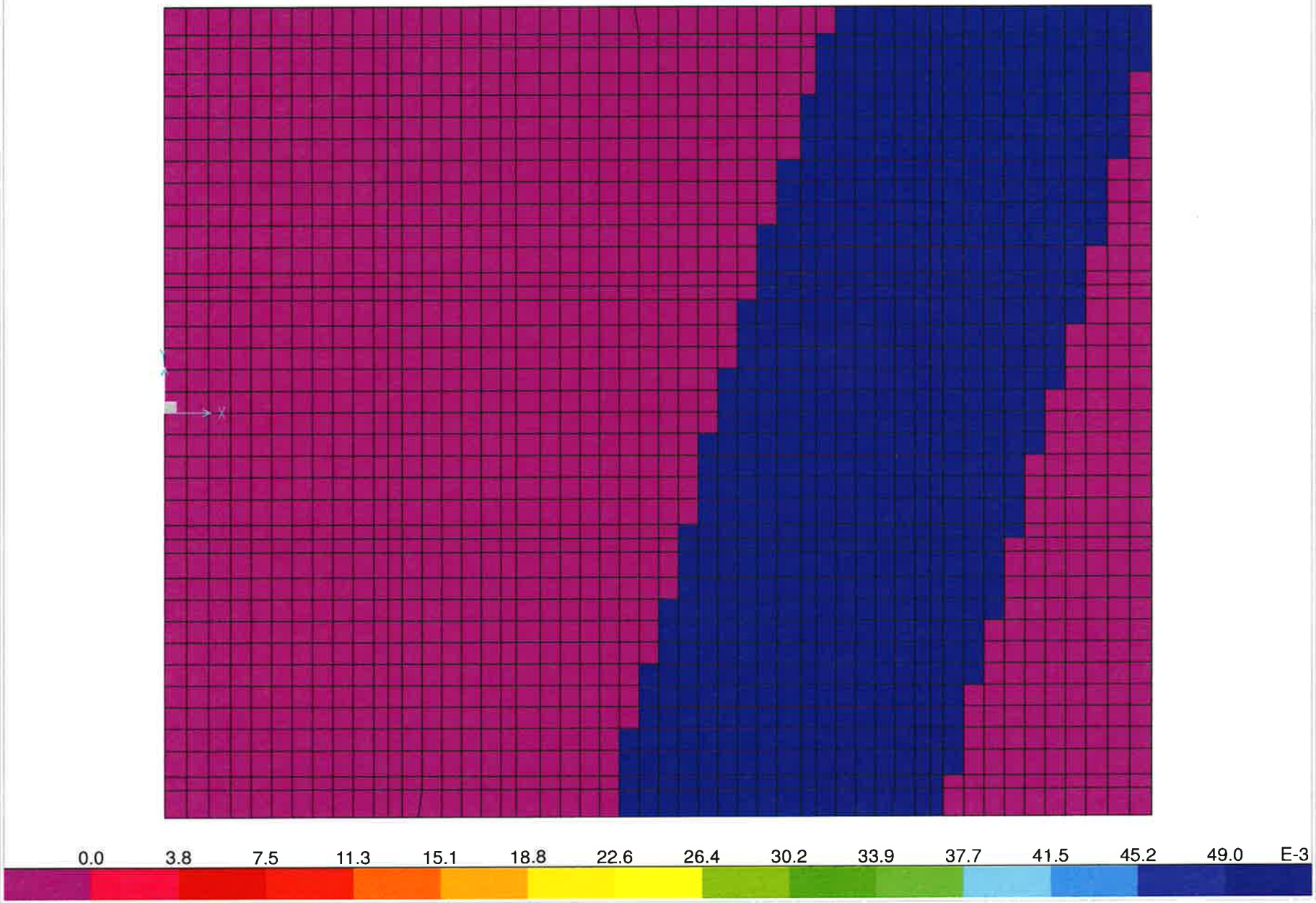


SINGLE LANE LOAD, WESTBOUND (RIGHT):

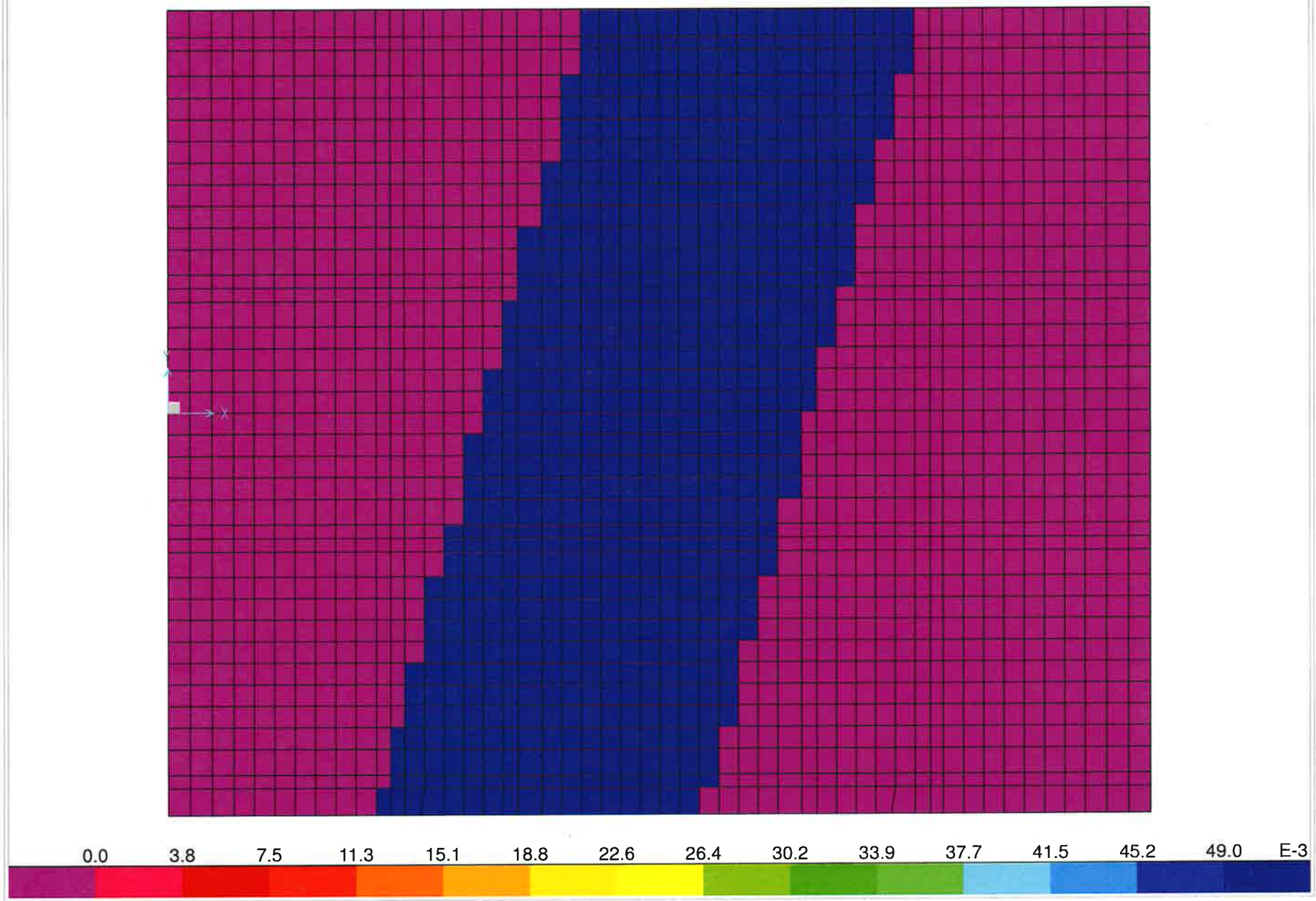


SINGLE LANE LOAD, EASTBOUND (LEFT):

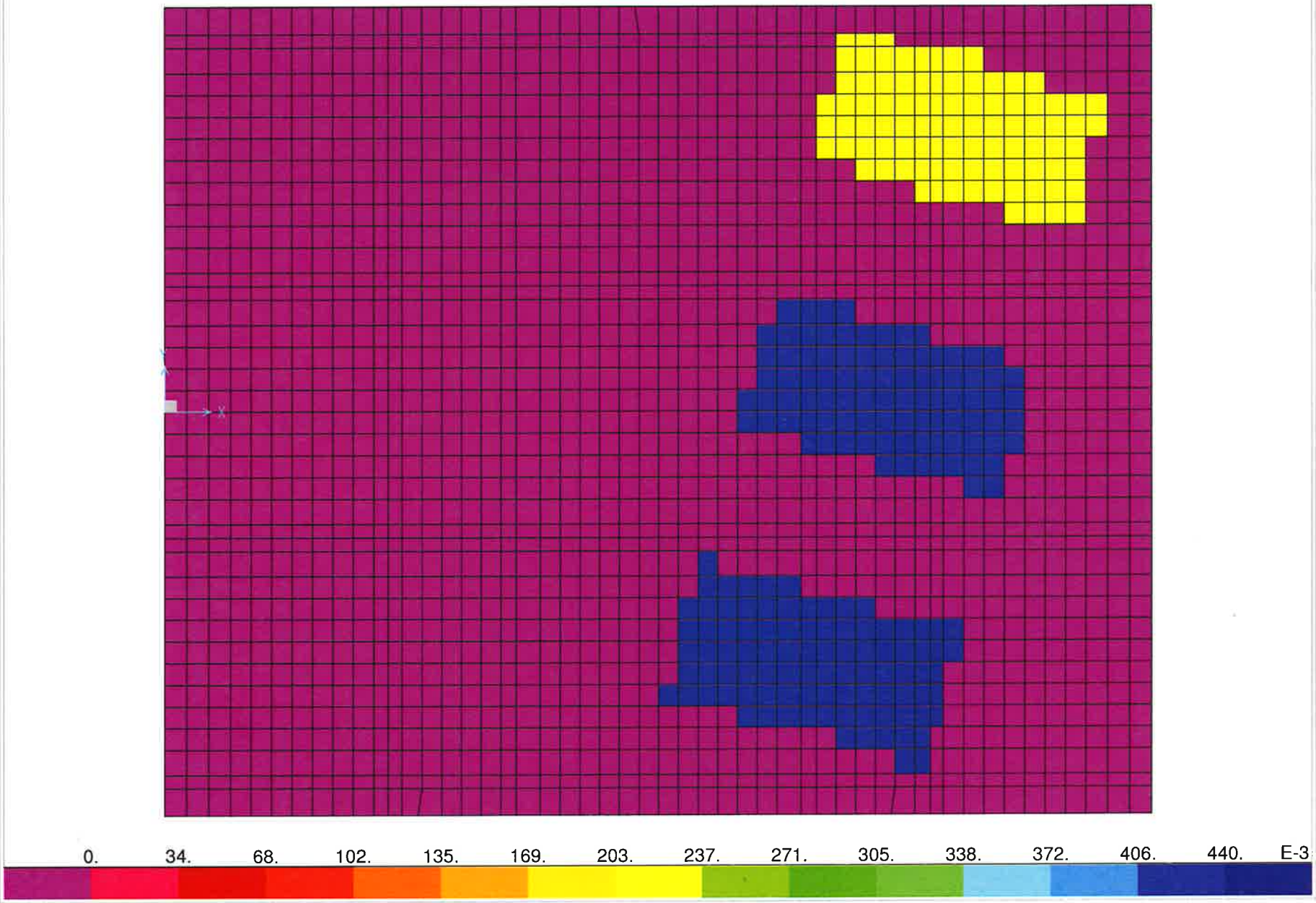




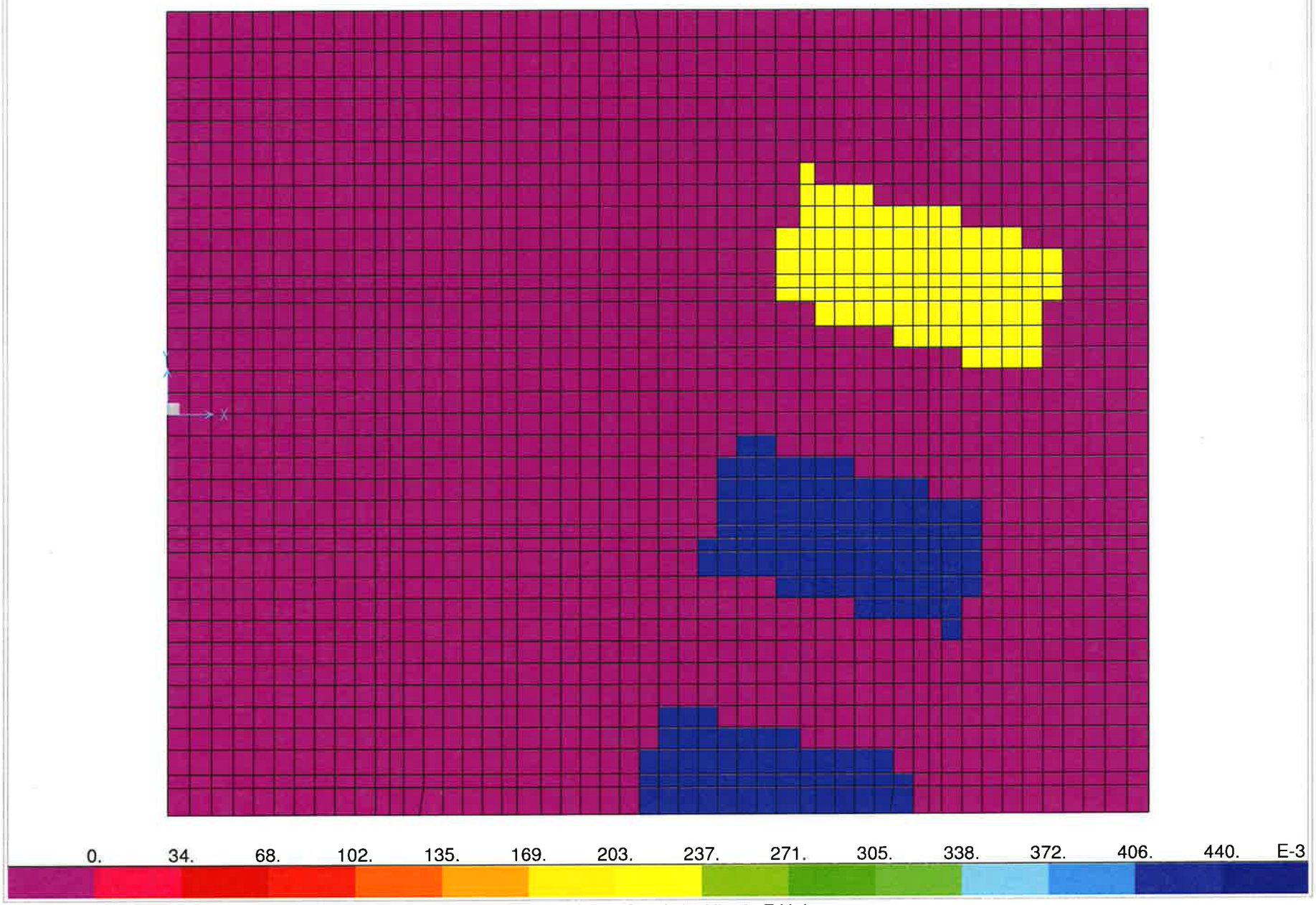
SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (T_R_lane) (GLOBAL - Gravity) - Kip, ft, F Units



SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (T_L_lane) (GLOBAL - Gravity) - Kip, ft, F Units



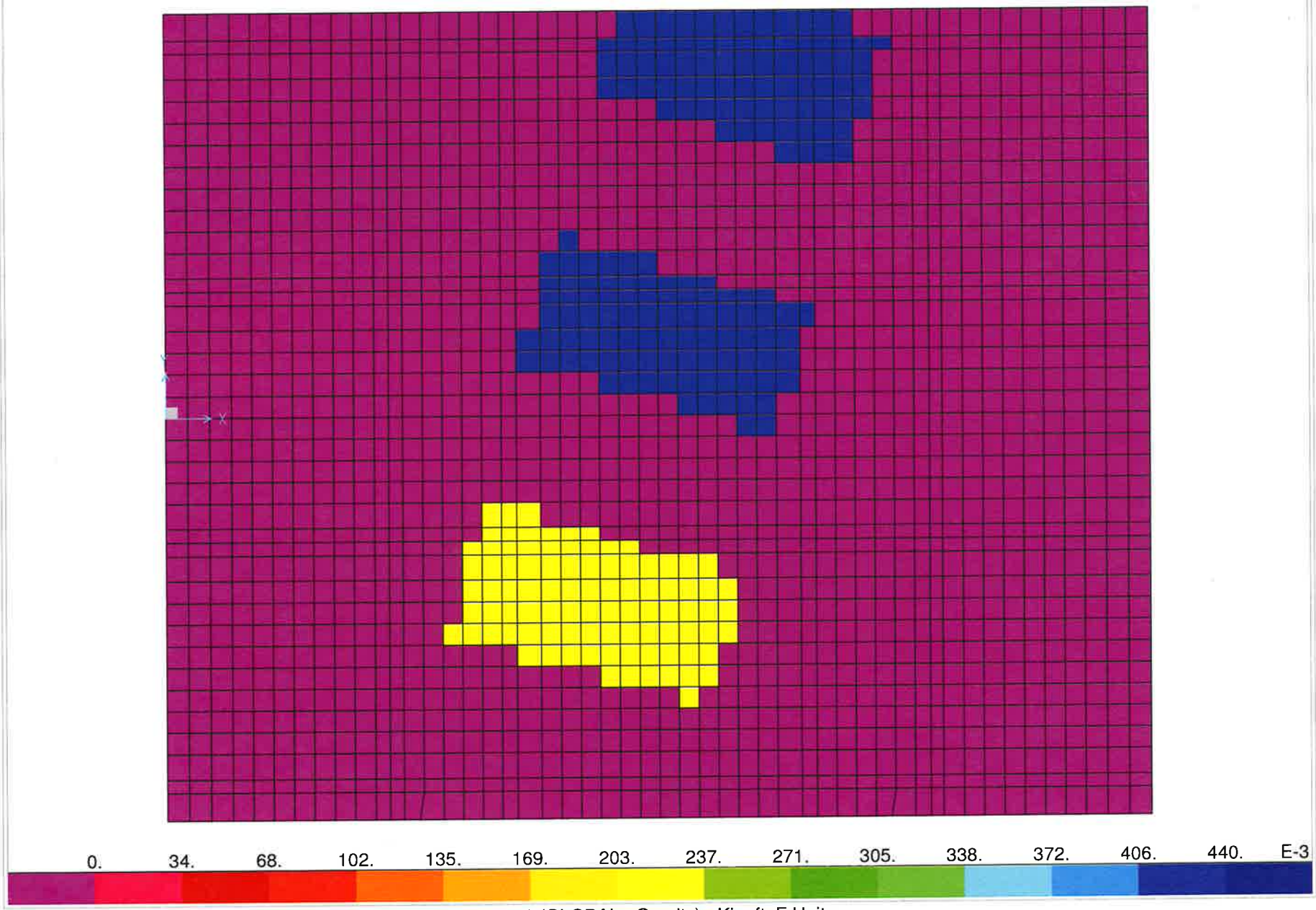
SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (T_1_center) (GLOBAL - Gravity) - Kip, ft, F Units



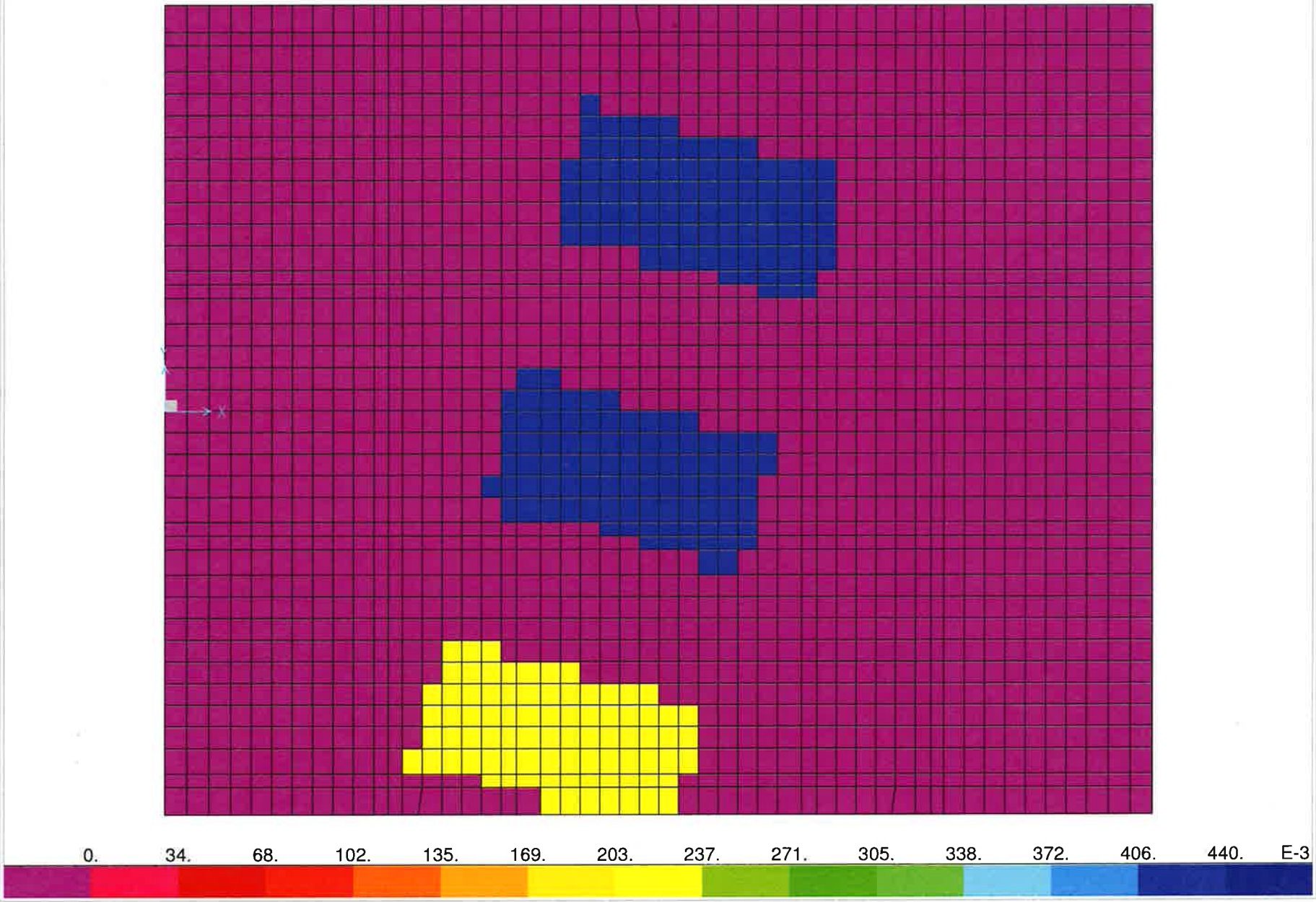
SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (T_1_edge) (GLOBAL - Gravity) - Kip, ft, F Units

SA 2000

8/21/13 13:25:24



SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (T_2_center) (GLOBAL - Gravity) - Kip, ft, F Units



SAP2000 v14.2.4 - File:Culvert C5 - Area Uniform (T_2_edge) (GLOBAL - Gravity) - Kip, ft, F Units

PART 3

Pile Foundation Results

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
Before Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

* Starting run uses springs from the design of monoliths C-2 to C-4. The results below use a vertical spring based on a pile tip elevation of -100.0 and a lateral reaction of 8.5kip (0.091" corresponding deflection).

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	0.0	-0.15	90.30
P2	1a	0.0	-0.15	90.30
P3	1a	0.0	-0.15	90.30
P4	1a	0.0	-0.15	90.30
P5	1a	0.0	-0.15	90.30
P6	1a	0.0	-0.15	90.30
P7	1a	0.0	-0.15	90.30
P8	1a	0.0	-0.09	89.30
P9	1a	0.0	-0.09	89.31
P10	1a	0.0	-0.09	89.34
P11	1a	0.0	-0.09	89.33
P12	1a	0.0	-0.09	89.33
P13	1a	0.0	-0.09	89.31
P14	1a	0.0	-0.09	89.30
P15	1a	0.0	-0.05	92.06
P16	1a	0.0	-0.05	92.06
P17	1a	0.0	-0.05	92.06
P18	1a	0.0	-0.05	92.06
P19	1a	0.0	-0.05	92.06
P20	1a	0.0	-0.05	92.06
P21	1a	0.0	-0.05	92.06
P22	1a	0.0	0.00	90.19
P23	1a	0.0	0.00	90.20
P24	1a	0.0	0.00	90.22
P25	1a	0.0	0.00	90.22
P26	1a	0.0	0.00	90.22
P27	1a	0.0	0.00	90.20
P28	1a	0.0	0.00	90.19
P29	1a	0.0	0.05	92.06
P30	1a	0.0	0.05	92.06
P31	1a	0.0	0.05	92.06
P32	1a	0.0	0.05	92.06
P33	1a	0.0	0.05	92.06
P34	1a	0.0	0.05	92.06
P35	1a	0.0	0.05	92.07
P36	1a	0.0	0.09	89.30
P37	1a	0.0	0.09	89.31
P38	1a	0.0	0.09	89.33
P39	1a	0.0	0.09	89.33
P40	1a	0.0	0.09	89.34
P41	1a	0.0	0.09	89.31
P42	1a	0.0	0.09	89.30
P43	1a	0.0	0.15	90.30
P44	1a	0.0	0.15	90.30
P45	1a	0.0	0.15	90.30
P46	1a	0.0	0.15	90.30
P47	1a	0.0	0.15	90.30
P48	1a	0.0	0.15	90.30
P49	1a	0.0	0.15	90.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	0.0	8.76	65.06
P2	1b	0.0	8.76	65.06
P3	1b	0.0	8.76	65.06
P4	1b	0.0	8.76	65.06
P5	1b	0.0	8.76	65.06
P6	1b	0.0	8.76	65.06
P7	1b	0.0	8.76	65.06
P8	1b	0.0	8.82	60.70
P9	1b	0.0	8.82	60.70
P10	1b	0.0	8.82	60.72
P11	1b	0.0	8.82	60.72
P12	1b	0.0	8.82	60.72
P13	1b	0.0	8.82	60.70
P14	1b	0.0	8.82	60.70
P15	1b	0.0	8.85	59.24
P16	1b	0.0	8.85	59.24
P17	1b	0.0	8.85	59.24
P18	1b	0.0	8.85	59.24
P19	1b	0.0	8.85	59.24
P20	1b	0.0	8.85	59.24
P21	1b	0.0	8.85	59.24
P22	1b	0.0	8.89	55.64
P23	1b	0.0	8.89	55.65
P24	1b	0.0	8.89	55.66
P25	1b	0.0	8.89	55.66
P26	1b	0.0	8.89	55.66
P27	1b	0.0	8.89	55.64
P28	1b	0.0	8.89	55.64
P29	1b	0.0	8.92	54.26
P30	1b	0.0	8.92	54.26
P31	1b	0.0	8.92	54.26
P32	1b	0.0	8.92	54.26
P33	1b	0.0	8.92	54.26
P34	1b	0.0	8.92	54.26
P35	1b	0.0	8.92	54.26
P36	1b	0.0	8.94	50.25
P37	1b	0.0	8.94	50.26
P38	1b	0.0	8.94	50.27
P39	1b	0.0	8.94	50.27
P40	1b	0.0	8.94	50.27
P41	1b	0.0	8.94	50.25
P42	1b	0.0	8.94	50.25
P43	1b	0.0	8.95	47.46
P44	1b	0.0	8.95	47.46
P45	1b	0.0	8.95	47.46
P46	1b	0.0	8.95	47.46
P47	1b	0.0	8.95	47.46
P48	1b	0.0	8.95	47.46
P49	1b	0.0	8.95	47.46

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a	0.0	-0.16	16.19
P2	2a	0.0	-0.16	16.19
P3	2a	0.0	-0.16	16.19
P4	2a	0.0	-0.16	16.19
P5	2a	0.0	-0.16	16.19
P6	2a	0.0	-0.16	16.19
P7	2a	0.0	-0.16	16.19
P8	2a	0.0	-0.12	14.65
P9	2a	0.0	-0.12	14.65
P10	2a	0.0	-0.12	14.65
P11	2a	0.0	-0.12	14.65
P12	2a	0.0	-0.12	14.65
P13	2a	0.0	-0.12	14.65
P14	2a	0.0	-0.12	14.65
P15	2a	0.0	-0.06	15.11
P16	2a	0.0	-0.06	15.11
P17	2a	0.0	-0.06	15.11
P18	2a	0.0	-0.06	15.11
P19	2a	0.0	-0.06	15.11
P20	2a	0.0	-0.06	15.11
P21	2a	0.0	-0.06	15.11
P22	2a	0.0	0.00	13.78
P23	2a	0.0	0.00	13.78
P24	2a	0.0	0.00	13.79
P25	2a	0.0	0.00	13.79
P26	2a	0.0	0.00	13.79
P27	2a	0.0	0.00	13.78
P28	2a	0.0	0.00	13.78
P29	2a	0.0	0.06	15.11
P30	2a	0.0	0.06	15.11
P31	2a	0.0	0.06	15.11
P32	2a	0.0	0.06	15.11
P33	2a	0.0	0.06	15.11
P34	2a	0.0	0.06	15.11
P35	2a	0.0	0.06	15.11
P36	2a	0.0	0.12	14.65
P37	2a	0.0	0.12	14.65
P38	2a	0.0	0.12	14.65
P39	2a	0.0	0.12	14.65
P40	2a	0.0	0.12	14.65
P41	2a	0.0	0.12	14.65
P42	2a	0.0	0.12	14.65
P43	2a	0.0	0.16	16.19
P44	2a	0.0	0.16	16.19
P45	2a	0.0	0.16	16.19
P46	2a	0.0	0.16	16.19
P47	2a	0.0	0.16	16.19
P48	2a	0.0	0.16	16.19
P49	2a	0.0	0.16	16.19

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_6	0.0	-0.14	3.20
P2	2a_6	0.0	-0.14	3.20
P3	2a_6	0.0	-0.14	3.20
P4	2a_6	0.0	-0.14	3.20
P5	2a_6	0.0	-0.14	3.20
P6	2a_6	0.0	-0.14	3.20
P7	2a_6	0.0	-0.14	3.20
P8	2a_6	0.0	-0.11	1.75
P9	2a_6	0.0	-0.11	1.75
P10	2a_6	0.0	-0.11	1.75
P11	2a_6	0.0	-0.11	1.75
P12	2a_6	0.0	-0.11	1.75
P13	2a_6	0.0	-0.11	1.75
P14	2a_6	0.0	-0.11	1.75
P15	2a_6	0.0	-0.06	1.64
P16	2a_6	0.0	-0.06	1.64
P17	2a_6	0.0	-0.06	1.64
P18	2a_6	0.0	-0.06	1.64
P19	2a_6	0.0	-0.06	1.64
P20	2a_6	0.0	-0.06	1.64
P21	2a_6	0.0	-0.06	1.64
P22	2a_6	0.0	0.00	0.59
P23	2a_6	0.0	0.00	0.59
P24	2a_6	0.0	0.00	0.59
P25	2a_6	0.0	0.00	0.59
P26	2a_6	0.0	0.00	0.59
P27	2a_6	0.0	0.00	0.59
P28	2a_6	0.0	0.00	0.59
P29	2a_6	0.0	0.06	1.64
P30	2a_6	0.0	0.06	1.64
P31	2a_6	0.0	0.06	1.64
P32	2a_6	0.0	0.06	1.64
P33	2a_6	0.0	0.06	1.64
P34	2a_6	0.0	0.06	1.64
P35	2a_6	0.0	0.06	1.64
P36	2a_6	0.0	0.11	1.75
P37	2a_6	0.0	0.11	1.75
P38	2a_6	0.0	0.11	1.75
P39	2a_6	0.0	0.11	1.75
P40	2a_6	0.0	0.11	1.75
P41	2a_6	0.0	0.11	1.75
P42	2a_6	0.0	0.11	1.75
P43	2a_6	0.0	0.14	3.20
P44	2a_6	0.0	0.14	3.20
P45	2a_6	0.0	0.14	3.20
P46	2a_6	0.0	0.14	3.20
P47	2a_6	0.0	0.14	3.20
P48	2a_6	0.0	0.14	3.20
P49	2a_6	0.0	0.14	3.20

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T1	0.0	-0.16	16.32
P2	2a_T1	0.0	-0.16	17.40
P3	2a_T1	0.0	-0.16	18.48
P4	2a_T1	0.0	-0.16	19.57
P5	2a_T1	0.0	-0.16	20.65
P6	2a_T1	0.0	-0.16	21.73
P7	2a_T1	0.0	-0.16	22.81
P8	2a_T1	0.0	-0.12	14.62
P9	2a_T1	0.0	-0.12	15.69
P10	2a_T1	0.0	-0.12	16.76
P11	2a_T1	0.0	-0.12	17.83
P12	2a_T1	0.0	-0.12	18.89
P13	2a_T1	0.0	-0.12	19.96
P14	2a_T1	0.0	-0.12	21.02
P15	2a_T1	0.0	-0.06	15.00
P16	2a_T1	0.0	-0.06	16.11
P17	2a_T1	0.0	-0.06	17.22
P18	2a_T1	0.0	-0.06	18.32
P19	2a_T1	0.0	-0.06	19.43
P20	2a_T1	0.0	-0.06	20.54
P21	2a_T1	0.0	-0.06	21.65
P22	2a_T1	0.0	0.00	13.50
P23	2a_T1	0.0	0.00	14.59
P24	2a_T1	0.0	0.00	15.68
P25	2a_T1	0.0	0.00	16.76
P26	2a_T1	0.0	0.00	17.85
P27	2a_T1	0.0	0.00	18.93
P28	2a_T1	0.0	0.00	20.02
P29	2a_T1	0.0	0.06	14.56
P30	2a_T1	0.0	0.06	15.68
P31	2a_T1	0.0	0.06	16.81
P32	2a_T1	0.0	0.06	17.93
P33	2a_T1	0.0	0.06	19.06
P34	2a_T1	0.0	0.06	20.18
P35	2a_T1	0.0	0.06	21.31
P36	2a_T1	0.0	0.12	13.81
P37	2a_T1	0.0	0.12	14.91
P38	2a_T1	0.0	0.12	16.01
P39	2a_T1	0.0	0.12	17.11
P40	2a_T1	0.0	0.12	18.20
P41	2a_T1	0.0	0.12	19.29
P42	2a_T1	0.0	0.12	20.39
P43	2a_T1	0.0	0.16	15.12
P44	2a_T1	0.0	0.16	16.24
P45	2a_T1	0.0	0.16	17.36
P46	2a_T1	0.0	0.16	18.49
P47	2a_T1	0.0	0.16	19.61
P48	2a_T1	0.0	0.16	20.73
P49	2a_T1	0.0	0.16	21.86

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T2	0.0	-0.16	17.47
P2	2a_T2	0.0	-0.16	18.33
P3	2a_T2	0.0	-0.16	19.19
P4	2a_T2	0.0	-0.16	20.05
P5	2a_T2	0.0	-0.16	20.91
P6	2a_T2	0.0	-0.16	21.77
P7	2a_T2	0.0	-0.16	22.63
P8	2a_T2	0.0	-0.12	15.47
P9	2a_T2	0.0	-0.12	16.32
P10	2a_T2	0.0	-0.12	17.17
P11	2a_T2	0.0	-0.12	18.01
P12	2a_T2	0.0	-0.12	18.86
P13	2a_T2	0.0	-0.12	19.70
P14	2a_T2	0.0	-0.12	20.54
P15	2a_T2	0.0	-0.06	15.57
P16	2a_T2	0.0	-0.06	16.44
P17	2a_T2	0.0	-0.06	17.31
P18	2a_T2	0.0	-0.06	18.19
P19	2a_T2	0.0	-0.06	19.06
P20	2a_T2	0.0	-0.06	19.93
P21	2a_T2	0.0	-0.06	20.81
P22	2a_T2	0.0	0.00	13.80
P23	2a_T2	0.0	0.00	14.64
P24	2a_T2	0.0	0.00	15.49
P25	2a_T2	0.0	0.00	16.33
P26	2a_T2	0.0	0.00	17.17
P27	2a_T2	0.0	0.00	18.01
P28	2a_T2	0.0	0.00	18.85
P29	2a_T2	0.0	0.06	14.64
P30	2a_T2	0.0	0.06	15.49
P31	2a_T2	0.0	0.06	16.34
P32	2a_T2	0.0	0.06	17.20
P33	2a_T2	0.0	0.06	18.05
P34	2a_T2	0.0	0.06	18.90
P35	2a_T2	0.0	0.06	19.76
P36	2a_T2	0.0	0.12	13.68
P37	2a_T2	0.0	0.12	14.49
P38	2a_T2	0.0	0.12	15.31
P39	2a_T2	0.0	0.12	16.12
P40	2a_T2	0.0	0.12	16.94
P41	2a_T2	0.0	0.12	17.75
P42	2a_T2	0.0	0.12	18.56
P43	2a_T2	0.0	0.16	14.76
P44	2a_T2	0.0	0.16	15.58
P45	2a_T2	0.0	0.16	16.39
P46	2a_T2	0.0	0.16	17.21
P47	2a_T2	0.0	0.16	18.03
P48	2a_T2	0.0	0.16	18.84
P49	2a_T2	0.0	0.16	19.66

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T3	0.0	-0.16	17.47
P2	2a_T3	0.0	-0.16	18.58
P3	2a_T3	0.0	-0.16	19.69
P4	2a_T3	0.0	-0.16	20.79
P5	2a_T3	0.0	-0.16	21.90
P6	2a_T3	0.0	-0.16	23.00
P7	2a_T3	0.0	-0.16	24.11
P8	2a_T3	0.0	-0.12	16.18
P9	2a_T3	0.0	-0.12	17.29
P10	2a_T3	0.0	-0.12	18.39
P11	2a_T3	0.0	-0.12	19.49
P12	2a_T3	0.0	-0.11	20.59
P13	2a_T3	0.0	-0.11	21.68
P14	2a_T3	0.0	-0.11	22.78
P15	2a_T3	0.0	-0.06	17.15
P16	2a_T3	0.0	-0.06	18.30
P17	2a_T3	0.0	-0.06	19.45
P18	2a_T3	0.0	-0.06	20.60
P19	2a_T3	0.0	-0.06	21.75
P20	2a_T3	0.0	-0.06	22.90
P21	2a_T3	0.0	-0.06	24.04
P22	2a_T3	0.0	0.00	16.03
P23	2a_T3	0.0	0.00	17.19
P24	2a_T3	0.0	0.00	18.34
P25	2a_T3	0.0	0.00	19.49
P26	2a_T3	0.0	0.00	20.64
P27	2a_T3	0.0	0.00	21.78
P28	2a_T3	0.0	0.00	22.94
P29	2a_T3	0.0	0.06	17.58
P30	2a_T3	0.0	0.06	18.79
P31	2a_T3	0.0	0.06	20.00
P32	2a_T3	0.0	0.06	21.21
P33	2a_T3	0.0	0.06	22.42
P34	2a_T3	0.0	0.06	23.63
P35	2a_T3	0.0	0.06	24.84
P36	2a_T3	0.0	0.11	17.11
P37	2a_T3	0.0	0.11	18.32
P38	2a_T3	0.0	0.11	19.52
P39	2a_T3	0.0	0.12	20.72
P40	2a_T3	0.0	0.12	21.92
P41	2a_T3	0.0	0.12	23.12
P42	2a_T3	0.0	0.12	24.32
P43	2a_T3	0.0	0.16	18.92
P44	2a_T3	0.0	0.16	20.17
P45	2a_T3	0.0	0.16	21.42
P46	2a_T3	0.0	0.16	22.68
P47	2a_T3	0.0	0.16	23.93
P48	2a_T3	0.0	0.16	25.18
P49	2a_T3	0.0	0.16	26.43

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
Before Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T4	0.0	-0.16	20.58
P2	2a_T4	0.0	-0.16	21.32
P3	2a_T4	0.0	-0.16	22.05
P4	2a_T4	0.0	-0.16	22.79
P5	2a_T4	0.0	-0.16	23.53
P6	2a_T4	0.0	-0.16	24.27
P7	2a_T4	0.0	-0.16	25.01
P8	2a_T4	0.0	-0.12	18.52
P9	2a_T4	0.0	-0.12	19.27
P10	2a_T4	0.0	-0.11	20.01
P11	2a_T4	0.0	-0.11	20.75
P12	2a_T4	0.0	-0.11	21.49
P13	2a_T4	0.0	-0.11	22.23
P14	2a_T4	0.0	-0.11	22.97
P15	2a_T4	0.0	-0.06	18.79
P16	2a_T4	0.0	-0.06	19.57
P17	2a_T4	0.0	-0.06	20.35
P18	2a_T4	0.0	-0.06	21.13
P19	2a_T4	0.0	-0.06	21.91
P20	2a_T4	0.0	-0.06	22.69
P21	2a_T4	0.0	-0.06	23.48
P22	2a_T4	0.0	0.00	16.94
P23	2a_T4	0.0	0.00	17.71
P24	2a_T4	0.0	0.00	18.49
P25	2a_T4	0.0	0.00	19.26
P26	2a_T4	0.0	0.00	20.03
P27	2a_T4	0.0	0.00	20.79
P28	2a_T4	0.0	0.00	21.56
P29	2a_T4	0.0	0.06	17.76
P30	2a_T4	0.0	0.06	18.56
P31	2a_T4	0.0	0.06	19.36
P32	2a_T4	0.0	0.06	20.16
P33	2a_T4	0.0	0.06	20.96
P34	2a_T4	0.0	0.06	21.76
P35	2a_T4	0.0	0.06	22.56
P36	2a_T4	0.0	0.11	16.52
P37	2a_T4	0.0	0.11	17.30
P38	2a_T4	0.0	0.11	18.07
P39	2a_T4	0.0	0.11	18.84
P40	2a_T4	0.0	0.11	19.61
P41	2a_T4	0.0	0.11	20.38
P42	2a_T4	0.0	0.11	21.15
P43	2a_T4	0.0	0.16	17.55
P44	2a_T4	0.0	0.16	18.33
P45	2a_T4	0.0	0.16	19.11
P46	2a_T4	0.0	0.16	19.90
P47	2a_T4	0.0	0.16	20.68
P48	2a_T4	0.0	0.16	21.46
P49	2a_T4	0.0	0.16	22.24

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b	0.0	-0.11	100.89
P2	2b	0.0	-0.11	100.89
P3	2b	0.0	-0.11	100.89
P4	2b	0.0	-0.11	100.89
P5	2b	0.0	-0.11	100.89
P6	2b	0.0	-0.11	100.89
P7	2b	0.0	-0.11	100.89
P8	2b	0.0	-0.05	100.45
P9	2b	0.0	-0.05	100.47
P10	2b	0.0	-0.05	100.49
P11	2b	0.0	-0.05	100.49
P12	2b	0.0	-0.05	100.49
P13	2b	0.0	-0.05	100.46
P14	2b	0.0	-0.05	100.45
P15	2b	0.0	-0.03	103.75
P16	2b	0.0	-0.03	103.75
P17	2b	0.0	-0.03	103.75
P18	2b	0.0	-0.03	103.75
P19	2b	0.0	-0.03	103.75
P20	2b	0.0	-0.03	103.75
P21	2b	0.0	-0.03	103.75
P22	2b	0.0	0.00	102.21
P23	2b	0.0	0.00	102.23
P24	2b	0.0	0.00	102.25
P25	2b	0.0	0.00	102.25
P26	2b	0.0	0.00	102.25
P27	2b	0.0	0.00	102.22
P28	2b	0.0	0.00	102.21
P29	2b	0.0	0.03	103.75
P30	2b	0.0	0.03	103.75
P31	2b	0.0	0.03	103.75
P32	2b	0.0	0.03	103.75
P33	2b	0.0	0.03	103.75
P34	2b	0.0	0.03	103.75
P35	2b	0.0	0.03	103.75
P36	2b	0.0	0.05	100.45
P37	2b	0.0	0.05	100.47
P38	2b	0.0	0.05	100.49
P39	2b	0.0	0.05	100.49
P40	2b	0.0	0.05	100.49
P41	2b	0.0	0.05	100.46
P42	2b	0.0	0.05	100.46
P43	2b	0.0	0.11	100.89
P44	2b	0.0	0.11	100.89
P45	2b	0.0	0.11	100.89
P46	2b	0.0	0.11	100.89
P47	2b	0.0	0.11	100.89
P48	2b	0.0	0.11	100.89
P49	2b	0.0	0.11	100.89

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T1	0.0	-0.11	101.01
P2	2b_T1	0.0	-0.11	102.10
P3	2b_T1	0.0	-0.11	103.18
P4	2b_T1	0.0	-0.11	104.26
P5	2b_T1	0.0	-0.11	105.34
P6	2b_T1	0.0	-0.11	106.43
P7	2b_T1	0.0	-0.11	107.51
P8	2b_T1	0.0	-0.05	100.43
P9	2b_T1	0.0	-0.05	101.51
P10	2b_T1	0.0	-0.05	102.60
P11	2b_T1	0.0	-0.04	103.67
P12	2b_T1	0.0	-0.04	104.73
P13	2b_T1	0.0	-0.04	105.77
P14	2b_T1	0.0	-0.04	106.83
P15	2b_T1	0.0	-0.02	103.64
P16	2b_T1	0.0	-0.02	104.75
P17	2b_T1	0.0	-0.02	105.85
P18	2b_T1	0.0	-0.02	106.96
P19	2b_T1	0.0	-0.02	108.07
P20	2b_T1	0.0	-0.02	109.18
P21	2b_T1	0.0	-0.02	110.28
P22	2b_T1	0.0	0.00	101.93
P23	2b_T1	0.0	0.00	103.03
P24	2b_T1	0.0	0.00	104.14
P25	2b_T1	0.0	0.00	105.23
P26	2b_T1	0.0	0.00	106.32
P27	2b_T1	0.0	0.00	107.37
P28	2b_T1	0.0	0.00	108.45
P29	2b_T1	0.0	0.02	103.19
P30	2b_T1	0.0	0.02	104.32
P31	2b_T1	0.0	0.02	105.44
P32	2b_T1	0.0	0.02	106.57
P33	2b_T1	0.0	0.02	107.69
P34	2b_T1	0.0	0.02	108.82
P35	2b_T1	0.0	0.02	109.94
P36	2b_T1	0.0	0.05	99.62
P37	2b_T1	0.0	0.05	100.73
P38	2b_T1	0.0	0.05	101.85
P39	2b_T1	0.0	0.05	102.94
P40	2b_T1	0.0	0.05	104.04
P41	2b_T1	0.0	0.05	105.11
P42	2b_T1	0.0	0.05	106.19
P43	2b_T1	0.0	0.11	99.81
P44	2b_T1	0.0	0.11	100.94
P45	2b_T1	0.0	0.11	102.06
P46	2b_T1	0.0	0.11	103.18
P47	2b_T1	0.0	0.11	104.31
P48	2b_T1	0.0	0.11	105.43
P49	2b_T1	0.0	0.11	106.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T2	0.0	-0.11	102.17
P2	2b_T2	0.0	-0.11	103.03
P3	2b_T2	0.0	-0.11	103.88
P4	2b_T2	0.0	-0.11	104.74
P5	2b_T2	0.0	-0.11	105.60
P6	2b_T2	0.0	-0.11	106.46
P7	2b_T2	0.0	-0.11	107.32
P8	2b_T2	0.0	-0.05	101.28
P9	2b_T2	0.0	-0.05	102.14
P10	2b_T2	0.0	-0.05	103.01
P11	2b_T2	0.0	-0.05	103.85
P12	2b_T2	0.0	-0.05	104.70
P13	2b_T2	0.0	-0.05	105.51
P14	2b_T2	0.0	-0.05	106.35
P15	2b_T2	0.0	-0.02	104.20
P16	2b_T2	0.0	-0.02	105.08
P17	2b_T2	0.0	-0.02	105.95
P18	2b_T2	0.0	-0.02	106.82
P19	2b_T2	0.0	-0.02	107.70
P20	2b_T2	0.0	-0.02	108.57
P21	2b_T2	0.0	-0.02	109.44
P22	2b_T2	0.0	0.00	102.23
P23	2b_T2	0.0	0.00	103.09
P24	2b_T2	0.0	0.00	103.96
P25	2b_T2	0.0	0.00	104.80
P26	2b_T2	0.0	0.00	105.64
P27	2b_T2	0.0	0.00	106.45
P28	2b_T2	0.0	0.00	107.28
P29	2b_T2	0.0	0.02	103.27
P30	2b_T2	0.0	0.02	104.13
P31	2b_T2	0.0	0.02	104.98
P32	2b_T2	0.0	0.02	105.83
P33	2b_T2	0.0	0.02	106.69
P34	2b_T2	0.0	0.02	107.54
P35	2b_T2	0.0	0.02	108.39
P36	2b_T2	0.0	0.05	99.48
P37	2b_T2	0.0	0.05	100.31
P38	2b_T2	0.0	0.05	101.15
P39	2b_T2	0.0	0.05	101.96
P40	2b_T2	0.0	0.05	102.78
P41	2b_T2	0.0	0.04	103.56
P42	2b_T2	0.0	0.04	104.37
P43	2b_T2	0.0	0.11	99.45
P44	2b_T2	0.0	0.11	100.27
P45	2b_T2	0.0	0.11	101.09
P46	2b_T2	0.0	0.11	101.91
P47	2b_T2	0.0	0.11	102.72
P48	2b_T2	0.0	0.11	103.54
P49	2b_T2	0.0	0.11	104.36

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T3	0.0	-0.11	102.17
P2	2b_T3	0.0	-0.11	103.27
P3	2b_T3	0.0	-0.11	104.38
P4	2b_T3	0.0	-0.11	105.49
P5	2b_T3	0.0	-0.11	106.59
P6	2b_T3	0.0	-0.11	107.70
P7	2b_T3	0.0	-0.11	108.81
P8	2b_T3	0.0	-0.05	101.99
P9	2b_T3	0.0	-0.05	103.10
P10	2b_T3	0.0	-0.04	104.23
P11	2b_T3	0.0	-0.04	105.33
P12	2b_T3	0.0	-0.04	106.43
P13	2b_T3	0.0	-0.04	107.49
P14	2b_T3	0.0	-0.04	108.59
P15	2b_T3	0.0	-0.02	105.79
P16	2b_T3	0.0	-0.02	106.93
P17	2b_T3	0.0	-0.02	108.08
P18	2b_T3	0.0	-0.02	109.23
P19	2b_T3	0.0	-0.02	110.38
P20	2b_T3	0.0	-0.02	111.53
P21	2b_T3	0.0	-0.02	112.68
P22	2b_T3	0.0	0.00	104.46
P23	2b_T3	0.0	0.00	105.63
P24	2b_T3	0.0	0.00	106.81
P25	2b_T3	0.0	0.00	107.96
P26	2b_T3	0.0	0.00	109.11
P27	2b_T3	0.0	0.00	110.22
P28	2b_T3	0.0	0.00	111.37
P29	2b_T3	0.0	0.02	106.22
P30	2b_T3	0.0	0.02	107.43
P31	2b_T3	0.0	0.02	108.64
P32	2b_T3	0.0	0.02	109.85
P33	2b_T3	0.0	0.02	111.06
P34	2b_T3	0.0	0.02	112.27
P35	2b_T3	0.0	0.02	113.48
P36	2b_T3	0.0	0.04	102.92
P37	2b_T3	0.0	0.04	104.14
P38	2b_T3	0.0	0.04	105.36
P39	2b_T3	0.0	0.04	106.56
P40	2b_T3	0.0	0.04	107.76
P41	2b_T3	0.0	0.05	108.93
P42	2b_T3	0.0	0.05	110.12
P43	2b_T3	0.0	0.11	103.62
P44	2b_T3	0.0	0.11	104.87
P45	2b_T3	0.0	0.11	106.12
P46	2b_T3	0.0	0.11	107.37
P47	2b_T3	0.0	0.11	108.62
P48	2b_T3	0.0	0.11	109.88
P49	2b_T3	0.0	0.11	111.13

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T4	0.0	-0.11	105.27
P2	2b_T4	0.0	-0.11	106.01
P3	2b_T4	0.0	-0.11	106.75
P4	2b_T4	0.0	-0.11	107.49
P5	2b_T4	0.0	-0.11	108.23
P6	2b_T4	0.0	-0.11	108.97
P7	2b_T4	0.0	-0.11	109.71
P8	2b_T4	0.0	-0.04	104.33
P9	2b_T4	0.0	-0.04	105.09
P10	2b_T4	0.0	-0.04	105.85
P11	2b_T4	0.0	-0.04	106.59
P12	2b_T4	0.0	-0.04	107.34
P13	2b_T4	0.0	-0.04	108.04
P14	2b_T4	0.0	-0.04	108.78
P15	2b_T4	0.0	-0.02	107.43
P16	2b_T4	0.0	-0.02	108.21
P17	2b_T4	0.0	-0.02	108.99
P18	2b_T4	0.0	-0.02	109.77
P19	2b_T4	0.0	-0.02	110.55
P20	2b_T4	0.0	-0.02	111.33
P21	2b_T4	0.0	-0.02	112.11
P22	2b_T4	0.0	0.00	105.37
P23	2b_T4	0.0	0.00	106.16
P24	2b_T4	0.0	0.00	106.95
P25	2b_T4	0.0	0.00	107.72
P26	2b_T4	0.0	0.00	108.50
P27	2b_T4	0.0	0.00	109.23
P28	2b_T4	0.0	0.00	109.99
P29	2b_T4	0.0	0.02	106.40
P30	2b_T4	0.0	0.02	107.20
P31	2b_T4	0.0	0.02	108.00
P32	2b_T4	0.0	0.02	108.80
P33	2b_T4	0.0	0.02	109.60
P34	2b_T4	0.0	0.02	110.40
P35	2b_T4	0.0	0.02	111.20
P36	2b_T4	0.0	0.04	102.33
P37	2b_T4	0.0	0.04	103.12
P38	2b_T4	0.0	0.04	103.91
P39	2b_T4	0.0	0.04	104.68
P40	2b_T4	0.0	0.04	105.45
P41	2b_T4	0.0	0.04	106.19
P42	2b_T4	0.0	0.04	106.96
P43	2b_T4	0.0	0.11	102.25
P44	2b_T4	0.0	0.11	103.03
P45	2b_T4	0.0	0.11	103.81
P46	2b_T4	0.0	0.11	104.59
P47	2b_T4	0.0	0.11	105.37
P48	2b_T4	0.0	0.11	106.15
P49	2b_T4	0.0	0.11	106.94

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a	0.0	-0.15	50.48
P2	3a	0.0	-0.15	50.48
P3	3a	0.0	-0.15	50.48
P4	3a	0.0	-0.15	50.48
P5	3a	0.0	-0.15	50.48
P6	3a	0.0	-0.15	50.48
P7	3a	0.0	-0.15	50.48
P8	3a	0.0	-0.10	49.28
P9	3a	0.0	-0.10	49.28
P10	3a	0.0	-0.10	49.29
P11	3a	0.0	-0.10	49.29
P12	3a	0.0	-0.10	49.29
P13	3a	0.0	-0.10	49.28
P14	3a	0.0	-0.10	49.27
P15	3a	0.0	-0.05	50.72
P16	3a	0.0	-0.05	50.72
P17	3a	0.0	-0.05	50.72
P18	3a	0.0	-0.05	50.72
P19	3a	0.0	-0.05	50.72
P20	3a	0.0	-0.05	50.72
P21	3a	0.0	-0.05	50.72
P22	3a	0.0	0.00	49.22
P23	3a	0.0	0.00	49.23
P24	3a	0.0	0.00	49.24
P25	3a	0.0	0.00	49.24
P26	3a	0.0	0.00	49.24
P27	3a	0.0	0.00	49.22
P28	3a	0.0	0.00	49.22
P29	3a	0.0	0.05	50.72
P30	3a	0.0	0.05	50.72
P31	3a	0.0	0.05	50.72
P32	3a	0.0	0.05	50.72
P33	3a	0.0	0.05	50.72
P34	3a	0.0	0.05	50.72
P35	3a	0.0	0.05	50.72
P36	3a	0.0	0.10	49.27
P37	3a	0.0	0.10	49.28
P38	3a	0.0	0.10	49.29
P39	3a	0.0	0.10	49.29
P40	3a	0.0	0.10	49.29
P41	3a	0.0	0.10	49.28
P42	3a	0.0	0.10	49.28
P43	3a	0.0	0.15	50.48
P44	3a	0.0	0.15	50.48
P45	3a	0.0	0.15	50.48
P46	3a	0.0	0.15	50.48
P47	3a	0.0	0.15	50.48
P48	3a	0.0	0.15	50.48
P49	3a	0.0	0.15	50.48

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_6	0.0	-0.13	37.49
P2	3a_6	0.0	-0.13	37.49
P3	3a_6	0.0	-0.13	37.49
P4	3a_6	0.0	-0.13	37.49
P5	3a_6	0.0	-0.13	37.49
P6	3a_6	0.0	-0.13	37.49
P7	3a_6	0.0	-0.13	37.49
P8	3a_6	0.0	-0.09	36.37
P9	3a_6	0.0	-0.09	36.38
P10	3a_6	0.0	-0.09	36.39
P11	3a_6	0.0	-0.09	36.39
P12	3a_6	0.0	-0.09	36.39
P13	3a_6	0.0	-0.09	36.38
P14	3a_6	0.0	-0.09	36.37
P15	3a_6	0.0	-0.05	37.25
P16	3a_6	0.0	-0.05	37.25
P17	3a_6	0.0	-0.05	37.24
P18	3a_6	0.0	-0.05	37.24
P19	3a_6	0.0	-0.05	37.24
P20	3a_6	0.0	-0.05	37.24
P21	3a_6	0.0	-0.05	37.25
P22	3a_6	0.0	0.00	36.03
P23	3a_6	0.0	0.00	36.03
P24	3a_6	0.0	0.00	36.04
P25	3a_6	0.0	0.00	36.04
P26	3a_6	0.0	0.00	36.04
P27	3a_6	0.0	0.00	36.03
P28	3a_6	0.0	0.00	36.03
P29	3a_6	0.0	0.05	37.24
P30	3a_6	0.0	0.05	37.24
P31	3a_6	0.0	0.05	37.24
P32	3a_6	0.0	0.05	37.25
P33	3a_6	0.0	0.05	37.25
P34	3a_6	0.0	0.05	37.25
P35	3a_6	0.0	0.05	37.25
P36	3a_6	0.0	0.09	36.37
P37	3a_6	0.0	0.09	36.38
P38	3a_6	0.0	0.09	36.39
P39	3a_6	0.0	0.09	36.39
P40	3a_6	0.0	0.09	36.39
P41	3a_6	0.0	0.09	36.38
P42	3a_6	0.0	0.09	36.38
P43	3a_6	0.0	0.13	37.49
P44	3a_6	0.0	0.13	37.49
P45	3a_6	0.0	0.13	37.49
P46	3a_6	0.0	0.13	37.49
P47	3a_6	0.0	0.13	37.49
P48	3a_6	0.0	0.13	37.49
P49	3a_6	0.0	0.13	37.49

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T1	0.0	-0.15	50.61
P2	3a_T1	0.0	-0.15	51.69
P3	3a_T1	0.0	-0.15	52.77
P4	3a_T1	0.0	-0.15	53.85
P5	3a_T1	0.0	-0.15	54.94
P6	3a_T1	0.0	-0.15	56.02
P7	3a_T1	0.0	-0.15	57.10
P8	3a_T1	0.0	-0.10	49.25
P9	3a_T1	0.0	-0.10	50.32
P10	3a_T1	0.0	-0.10	51.40
P11	3a_T1	0.0	-0.10	52.47
P12	3a_T1	0.0	-0.10	53.53
P13	3a_T1	0.0	-0.10	54.59
P14	3a_T1	0.0	-0.10	55.65
P15	3a_T1	0.0	-0.05	50.61
P16	3a_T1	0.0	-0.05	51.72
P17	3a_T1	0.0	-0.05	52.83
P18	3a_T1	0.0	-0.05	53.93
P19	3a_T1	0.0	-0.05	55.04
P20	3a_T1	0.0	-0.05	56.15
P21	3a_T1	0.0	-0.05	57.26
P22	3a_T1	0.0	0.00	48.93
P23	3a_T1	0.0	0.00	50.03
P24	3a_T1	0.0	0.00	51.13
P25	3a_T1	0.0	0.00	52.21
P26	3a_T1	0.0	0.00	53.30
P27	3a_T1	0.0	0.00	54.37
P28	3a_T1	0.0	0.00	55.46
P29	3a_T1	0.0	0.05	50.17
P30	3a_T1	0.0	0.05	51.29
P31	3a_T1	0.0	0.05	52.42
P32	3a_T1	0.0	0.05	53.54
P33	3a_T1	0.0	0.05	54.67
P34	3a_T1	0.0	0.05	55.79
P35	3a_T1	0.0	0.05	56.91
P36	3a_T1	0.0	0.10	48.44
P37	3a_T1	0.0	0.10	49.55
P38	3a_T1	0.0	0.10	50.65
P39	3a_T1	0.0	0.10	51.75
P40	3a_T1	0.0	0.10	52.84
P41	3a_T1	0.0	0.10	53.92
P42	3a_T1	0.0	0.10	55.01
P43	3a_T1	0.0	0.15	49.41
P44	3a_T1	0.0	0.15	50.53
P45	3a_T1	0.0	0.15	51.65
P46	3a_T1	0.0	0.15	52.77
P47	3a_T1	0.0	0.15	53.90
P48	3a_T1	0.0	0.15	55.02
P49	3a_T1	0.0	0.15	56.14

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T2	0.0	-0.15	51.76
P2	3a_T2	0.0	-0.15	52.62
P3	3a_T2	0.0	-0.15	53.48
P4	3a_T2	0.0	-0.15	54.34
P5	3a_T2	0.0	-0.15	55.20
P6	3a_T2	0.0	-0.15	56.05
P7	3a_T2	0.0	-0.15	56.91
P8	3a_T2	0.0	-0.10	50.10
P9	3a_T2	0.0	-0.10	50.95
P10	3a_T2	0.0	-0.10	51.81
P11	3a_T2	0.0	-0.10	52.65
P12	3a_T2	0.0	-0.10	53.50
P13	3a_T2	0.0	-0.10	54.33
P14	3a_T2	0.0	-0.10	55.17
P15	3a_T2	0.0	-0.05	51.18
P16	3a_T2	0.0	-0.05	52.05
P17	3a_T2	0.0	-0.05	52.92
P18	3a_T2	0.0	-0.05	53.80
P19	3a_T2	0.0	-0.05	54.67
P20	3a_T2	0.0	-0.05	55.54
P21	3a_T2	0.0	-0.05	56.42
P22	3a_T2	0.0	0.00	49.24
P23	3a_T2	0.0	0.00	50.09
P24	3a_T2	0.0	0.00	50.94
P25	3a_T2	0.0	0.00	51.78
P26	3a_T2	0.0	0.00	52.62
P27	3a_T2	0.0	0.00	53.45
P28	3a_T2	0.0	0.00	54.29
P29	3a_T2	0.0	0.05	50.25
P30	3a_T2	0.0	0.05	51.10
P31	3a_T2	0.0	0.05	51.95
P32	3a_T2	0.0	0.05	52.81
P33	3a_T2	0.0	0.05	53.66
P34	3a_T2	0.0	0.05	54.51
P35	3a_T2	0.0	0.05	55.37
P36	3a_T2	0.0	0.10	48.30
P37	3a_T2	0.0	0.10	49.13
P38	3a_T2	0.0	0.10	49.95
P39	3a_T2	0.0	0.10	50.77
P40	3a_T2	0.0	0.10	51.58
P41	3a_T2	0.0	0.10	52.38
P42	3a_T2	0.0	0.10	53.19
P43	3a_T2	0.0	0.15	49.05
P44	3a_T2	0.0	0.15	49.86
P45	3a_T2	0.0	0.15	50.68
P46	3a_T2	0.0	0.15	51.50
P47	3a_T2	0.0	0.15	52.32
P48	3a_T2	0.0	0.15	53.13
P49	3a_T2	0.0	0.15	53.95

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T3	0.0	-0.15	51.76
P2	3a_T3	0.0	-0.15	52.87
P3	3a_T3	0.0	-0.15	53.97
P4	3a_T3	0.0	-0.15	55.08
P5	3a_T3	0.0	-0.15	56.19
P6	3a_T3	0.0	-0.15	57.29
P7	3a_T3	0.0	-0.15	58.40
P8	3a_T3	0.0	-0.10	50.81
P9	3a_T3	0.0	-0.10	51.92
P10	3a_T3	0.0	-0.10	53.03
P11	3a_T3	0.0	-0.10	54.13
P12	3a_T3	0.0	-0.10	55.23
P13	3a_T3	0.0	-0.09	56.31
P14	3a_T3	0.0	-0.09	57.41
P15	3a_T3	0.0	-0.05	52.76
P16	3a_T3	0.0	-0.05	53.91
P17	3a_T3	0.0	-0.05	55.06
P18	3a_T3	0.0	-0.05	56.21
P19	3a_T3	0.0	-0.05	57.36
P20	3a_T3	0.0	-0.05	58.50
P21	3a_T3	0.0	-0.05	59.65
P22	3a_T3	0.0	0.00	51.47
P23	3a_T3	0.0	0.00	52.63
P24	3a_T3	0.0	0.00	53.79
P25	3a_T3	0.0	0.00	54.94
P26	3a_T3	0.0	0.00	56.09
P27	3a_T3	0.0	0.00	57.22
P28	3a_T3	0.0	0.00	58.37
P29	3a_T3	0.0	0.05	53.19
P30	3a_T3	0.0	0.05	54.40
P31	3a_T3	0.0	0.05	55.61
P32	3a_T3	0.0	0.05	56.82
P33	3a_T3	0.0	0.05	58.03
P34	3a_T3	0.0	0.05	59.24
P35	3a_T3	0.0	0.05	60.45
P36	3a_T3	0.0	0.09	51.74
P37	3a_T3	0.0	0.09	52.95
P38	3a_T3	0.0	0.10	54.16
P39	3a_T3	0.0	0.10	55.36
P40	3a_T3	0.0	0.10	56.56
P41	3a_T3	0.0	0.10	57.75
P42	3a_T3	0.0	0.10	58.94
P43	3a_T3	0.0	0.15	53.21
P44	3a_T3	0.0	0.15	54.46
P45	3a_T3	0.0	0.15	55.71
P46	3a_T3	0.0	0.15	56.97
P47	3a_T3	0.0	0.15	58.22
P48	3a_T3	0.0	0.15	59.47
P49	3a_T3	0.0	0.15	60.72

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T4	0.0	-0.15	54.86
P2	3a_T4	0.0	-0.15	55.60
P3	3a_T4	0.0	-0.15	56.34
P4	3a_T4	0.0	-0.15	57.08
P5	3a_T4	0.0	-0.15	57.82
P6	3a_T4	0.0	-0.15	58.56
P7	3a_T4	0.0	-0.15	59.30
P8	3a_T4	0.0	-0.10	53.15
P9	3a_T4	0.0	-0.10	53.90
P10	3a_T4	0.0	-0.10	54.65
P11	3a_T4	0.0	-0.09	55.39
P12	3a_T4	0.0	-0.09	56.14
P13	3a_T4	0.0	-0.09	56.86
P14	3a_T4	0.0	-0.09	57.60
P15	3a_T4	0.0	-0.05	54.40
P16	3a_T4	0.0	-0.05	55.18
P17	3a_T4	0.0	-0.05	55.96
P18	3a_T4	0.0	-0.05	56.74
P19	3a_T4	0.0	-0.05	57.52
P20	3a_T4	0.0	-0.05	58.30
P21	3a_T4	0.0	-0.05	59.09
P22	3a_T4	0.0	0.00	52.37
P23	3a_T4	0.0	0.00	53.15
P24	3a_T4	0.0	0.00	53.94
P25	3a_T4	0.0	0.00	54.71
P26	3a_T4	0.0	0.00	55.48
P27	3a_T4	0.0	0.00	56.23
P28	3a_T4	0.0	0.00	57.00
P29	3a_T4	0.0	0.05	53.37
P30	3a_T4	0.0	0.05	54.17
P31	3a_T4	0.0	0.05	54.97
P32	3a_T4	0.0	0.05	55.77
P33	3a_T4	0.0	0.05	56.57
P34	3a_T4	0.0	0.05	57.37
P35	3a_T4	0.0	0.05	58.17
P36	3a_T4	0.0	0.10	51.15
P37	3a_T4	0.0	0.10	51.93
P38	3a_T4	0.0	0.09	52.71
P39	3a_T4	0.0	0.09	53.48
P40	3a_T4	0.0	0.09	54.26
P41	3a_T4	0.0	0.09	55.01
P42	3a_T4	0.0	0.09	55.78
P43	3a_T4	0.0	0.15	51.84
P44	3a_T4	0.0	0.15	52.62
P45	3a_T4	0.0	0.15	53.40
P46	3a_T4	0.0	0.15	54.18
P47	3a_T4	0.0	0.15	54.96
P48	3a_T4	0.0	0.15	55.75
P49	3a_T4	0.0	0.15	56.53

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b	0.0	-0.11	96.69
P2	3b	0.0	-0.11	96.68
P3	3b	0.0	-0.11	96.68
P4	3b	0.0	-0.11	96.68
P5	3b	0.0	-0.11	96.68
P6	3b	0.0	-0.11	96.68
P7	3b	0.0	-0.11	96.68
P8	3b	0.0	-0.06	96.19
P9	3b	0.0	-0.06	96.21
P10	3b	0.0	-0.06	96.23
P11	3b	0.0	-0.06	96.23
P12	3b	0.0	-0.06	96.23
P13	3b	0.0	-0.06	96.20
P14	3b	0.0	-0.06	96.19
P15	3b	0.0	-0.03	99.27
P16	3b	0.0	-0.03	99.27
P17	3b	0.0	-0.03	99.27
P18	3b	0.0	-0.03	99.27
P19	3b	0.0	-0.03	99.27
P20	3b	0.0	-0.03	99.27
P21	3b	0.0	-0.03	99.27
P22	3b	0.0	0.00	97.69
P23	3b	0.0	0.00	97.71
P24	3b	0.0	0.00	97.73
P25	3b	0.0	0.00	97.73
P26	3b	0.0	0.00	97.73
P27	3b	0.0	0.00	97.70
P28	3b	0.0	0.00	97.70
P29	3b	0.0	0.03	99.27
P30	3b	0.0	0.03	99.27
P31	3b	0.0	0.03	99.27
P32	3b	0.0	0.03	99.27
P33	3b	0.0	0.03	99.27
P34	3b	0.0	0.03	99.27
P35	3b	0.0	0.03	99.27
P36	3b	0.0	0.06	96.19
P37	3b	0.0	0.06	96.21
P38	3b	0.0	0.06	96.23
P39	3b	0.0	0.06	96.23
P40	3b	0.0	0.06	96.23
P41	3b	0.0	0.06	96.20
P42	3b	0.0	0.06	96.19
P43	3b	0.0	0.11	96.68
P44	3b	0.0	0.11	96.68
P45	3b	0.0	0.11	96.68
P46	3b	0.0	0.11	96.68
P47	3b	0.0	0.11	96.68
P48	3b	0.0	0.11	96.69
P49	3b	0.0	0.11	96.69

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T1	0.0	-0.11	96.81
P2	3b_T1	0.0	-0.11	97.89
P3	3b_T1	0.0	-0.11	98.97
P4	3b_T1	0.0	-0.11	100.06
P5	3b_T1	0.0	-0.11	101.14
P6	3b_T1	0.0	-0.11	102.22
P7	3b_T1	0.0	-0.11	103.31
P8	3b_T1	0.0	-0.05	96.16
P9	3b_T1	0.0	-0.05	97.25
P10	3b_T1	0.0	-0.05	98.34
P11	3b_T1	0.0	-0.05	99.40
P12	3b_T1	0.0	-0.05	100.47
P13	3b_T1	0.0	-0.05	101.51
P14	3b_T1	0.0	-0.05	102.57
P15	3b_T1	0.0	-0.03	99.16
P16	3b_T1	0.0	-0.03	100.26
P17	3b_T1	0.0	-0.03	101.37
P18	3b_T1	0.0	-0.03	102.48
P19	3b_T1	0.0	-0.03	103.58
P20	3b_T1	0.0	-0.03	104.69
P21	3b_T1	0.0	-0.03	105.80
P22	3b_T1	0.0	0.00	97.41
P23	3b_T1	0.0	0.00	98.51
P24	3b_T1	0.0	0.00	99.62
P25	3b_T1	0.0	0.00	100.71
P26	3b_T1	0.0	0.00	101.80
P27	3b_T1	0.0	0.00	102.85
P28	3b_T1	0.0	0.00	103.93
P29	3b_T1	0.0	0.03	98.71
P30	3b_T1	0.0	0.03	99.83
P31	3b_T1	0.0	0.03	100.96
P32	3b_T1	0.0	0.03	102.08
P33	3b_T1	0.0	0.03	103.21
P34	3b_T1	0.0	0.03	104.33
P35	3b_T1	0.0	0.03	105.46
P36	3b_T1	0.0	0.05	95.36
P37	3b_T1	0.0	0.05	96.47
P38	3b_T1	0.0	0.05	97.59
P39	3b_T1	0.0	0.05	98.68
P40	3b_T1	0.0	0.05	99.78
P41	3b_T1	0.0	0.05	100.84
P42	3b_T1	0.0	0.05	101.93
P43	3b_T1	0.0	0.11	95.61
P44	3b_T1	0.0	0.11	96.73
P45	3b_T1	0.0	0.11	97.86
P46	3b_T1	0.0	0.11	98.98
P47	3b_T1	0.0	0.11	100.10
P48	3b_T1	0.0	0.11	101.22
P49	3b_T1	0.0	0.11	102.35

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
Before Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T2	0.0	-0.11	97.96
P2	3b_T2	0.0	-0.11	98.82
P3	3b_T2	0.0	-0.11	99.68
P4	3b_T2	0.0	-0.11	100.54
P5	3b_T2	0.0	-0.11	101.40
P6	3b_T2	0.0	-0.11	102.26
P7	3b_T2	0.0	-0.11	103.12
P8	3b_T2	0.0	-0.05	97.02
P9	3b_T2	0.0	-0.05	97.88
P10	3b_T2	0.0	-0.05	98.75
P11	3b_T2	0.0	-0.05	99.59
P12	3b_T2	0.0	-0.05	100.43
P13	3b_T2	0.0	-0.05	101.25
P14	3b_T2	0.0	-0.05	102.08
P15	3b_T2	0.0	-0.03	99.72
P16	3b_T2	0.0	-0.03	100.59
P17	3b_T2	0.0	-0.03	101.47
P18	3b_T2	0.0	-0.03	102.34
P19	3b_T2	0.0	-0.03	103.21
P20	3b_T2	0.0	-0.03	104.09
P21	3b_T2	0.0	-0.03	104.96
P22	3b_T2	0.0	0.00	97.71
P23	3b_T2	0.0	0.00	98.57
P24	3b_T2	0.0	0.00	99.44
P25	3b_T2	0.0	0.00	100.27
P26	3b_T2	0.0	0.00	101.12
P27	3b_T2	0.0	0.00	101.93
P28	3b_T2	0.0	0.00	102.76
P29	3b_T2	0.0	0.03	98.79
P30	3b_T2	0.0	0.03	99.64
P31	3b_T2	0.0	0.03	100.50
P32	3b_T2	0.0	0.03	101.35
P33	3b_T2	0.0	0.03	102.20
P34	3b_T2	0.0	0.03	103.06
P35	3b_T2	0.0	0.03	103.91
P36	3b_T2	0.0	0.06	95.22
P37	3b_T2	0.0	0.06	96.05
P38	3b_T2	0.0	0.06	96.89
P39	3b_T2	0.0	0.05	97.70
P40	3b_T2	0.0	0.05	98.52
P41	3b_T2	0.0	0.05	99.30
P42	3b_T2	0.0	0.05	100.11
P43	3b_T2	0.0	0.11	95.25
P44	3b_T2	0.0	0.11	96.07
P45	3b_T2	0.0	0.11	96.88
P46	3b_T2	0.0	0.11	97.70
P47	3b_T2	0.0	0.11	98.52
P48	3b_T2	0.0	0.11	99.34
P49	3b_T2	0.0	0.11	100.15

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T3	0.0	-0.11	97.96
P2	3b_T3	0.0	-0.11	99.07
P3	3b_T3	0.0	-0.11	100.18
P4	3b_T3	0.0	-0.11	101.28
P5	3b_T3	0.0	-0.11	102.39
P6	3b_T3	0.0	-0.11	103.50
P7	3b_T3	0.0	-0.11	104.60
P8	3b_T3	0.0	-0.06	97.73
P9	3b_T3	0.0	-0.05	98.84
P10	3b_T3	0.0	-0.05	99.97
P11	3b_T3	0.0	-0.05	101.06
P12	3b_T3	0.0	-0.05	102.16
P13	3b_T3	0.0	-0.05	103.23
P14	3b_T3	0.0	-0.05	104.32
P15	3b_T3	0.0	-0.03	101.30
P16	3b_T3	0.0	-0.03	102.45
P17	3b_T3	0.0	-0.03	103.60
P18	3b_T3	0.0	-0.03	104.75
P19	3b_T3	0.0	-0.03	105.90
P20	3b_T3	0.0	-0.03	107.05
P21	3b_T3	0.0	-0.03	108.20
P22	3b_T3	0.0	0.00	99.95
P23	3b_T3	0.0	0.00	101.11
P24	3b_T3	0.0	0.00	102.29
P25	3b_T3	0.0	0.00	103.44
P26	3b_T3	0.0	0.00	104.59
P27	3b_T3	0.0	0.00	105.71
P28	3b_T3	0.0	0.00	106.85
P29	3b_T3	0.0	0.03	101.73
P30	3b_T3	0.0	0.03	102.94
P31	3b_T3	0.0	0.03	104.15
P32	3b_T3	0.0	0.03	105.36
P33	3b_T3	0.0	0.03	106.58
P34	3b_T3	0.0	0.03	107.79
P35	3b_T3	0.0	0.03	109.00
P36	3b_T3	0.0	0.05	98.66
P37	3b_T3	0.0	0.05	99.88
P38	3b_T3	0.0	0.05	101.10
P39	3b_T3	0.0	0.05	102.30
P40	3b_T3	0.0	0.05	103.50
P41	3b_T3	0.0	0.05	104.67
P42	3b_T3	0.0	0.06	105.86
P43	3b_T3	0.0	0.11	99.41
P44	3b_T3	0.0	0.11	100.66
P45	3b_T3	0.0	0.11	101.92
P46	3b_T3	0.0	0.11	103.17
P47	3b_T3	0.0	0.11	104.42
P48	3b_T3	0.0	0.11	105.67
P49	3b_T3	0.0	0.12	106.93

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T4	0.0	-0.11	101.07
P2	3b_T4	0.0	-0.11	101.81
P3	3b_T4	0.0	-0.11	102.55
P4	3b_T4	0.0	-0.11	103.29
P5	3b_T4	0.0	-0.11	104.03
P6	3b_T4	0.0	-0.11	104.77
P7	3b_T4	0.0	-0.11	105.51
P8	3b_T4	0.0	-0.05	100.07
P9	3b_T4	0.0	-0.05	100.83
P10	3b_T4	0.0	-0.05	101.59
P11	3b_T4	0.0	-0.05	102.33
P12	3b_T4	0.0	-0.05	103.07
P13	3b_T4	0.0	-0.05	103.78
P14	3b_T4	0.0	-0.05	104.52
P15	3b_T4	0.0	-0.03	102.94
P16	3b_T4	0.0	-0.03	103.72
P17	3b_T4	0.0	-0.03	104.50
P18	3b_T4	0.0	-0.03	105.29
P19	3b_T4	0.0	-0.03	106.07
P20	3b_T4	0.0	-0.03	106.85
P21	3b_T4	0.0	-0.03	107.63
P22	3b_T4	0.0	0.00	100.85
P23	3b_T4	0.0	0.00	101.64
P24	3b_T4	0.0	0.00	102.43
P25	3b_T4	0.0	0.00	103.20
P26	3b_T4	0.0	0.00	103.97
P27	3b_T4	0.0	0.00	104.71
P28	3b_T4	0.0	0.00	105.48
P29	3b_T4	0.0	0.03	101.91
P30	3b_T4	0.0	0.03	102.71
P31	3b_T4	0.0	0.03	103.51
P32	3b_T4	0.0	0.03	104.31
P33	3b_T4	0.0	0.03	105.11
P34	3b_T4	0.0	0.03	105.91
P35	3b_T4	0.0	0.03	106.72
P36	3b_T4	0.0	0.05	98.07
P37	3b_T4	0.0	0.05	98.86
P38	3b_T4	0.0	0.05	99.65
P39	3b_T4	0.0	0.05	100.42
P40	3b_T4	0.0	0.05	101.19
P41	3b_T4	0.0	0.05	101.93
P42	3b_T4	0.0	0.05	102.70
P43	3b_T4	0.0	0.11	98.04
P44	3b_T4	0.0	0.11	98.82
P45	3b_T4	0.0	0.11	99.61
P46	3b_T4	0.0	0.11	100.39
P47	3b_T4	0.0	0.11	101.17
P48	3b_T4	0.0	0.11	101.95
P49	3b_T4	0.0	0.11	102.73

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	0.0	-0.12	31.14
P2	D1a	0.0	-0.12	31.14
P3	D1a	0.0	-0.12	31.14
P4	D1a	0.0	-0.12	31.14
P5	D1a	0.0	-0.12	31.14
P6	D1a	0.0	-0.12	31.14
P7	D1a	0.0	-0.12	31.14
P8	D1a	0.0	-0.11	29.89
P9	D1a	0.0	-0.11	29.89
P10	D1a	0.0	-0.11	29.90
P11	D1a	0.0	-0.11	29.90
P12	D1a	0.0	-0.11	29.90
P13	D1a	0.0	-0.11	29.89
P14	D1a	0.0	-0.11	29.89
P15	D1a	0.0	-0.07	28.96
P16	D1a	0.0	-0.07	28.96
P17	D1a	0.0	-0.07	28.96
P18	D1a	0.0	-0.07	28.96
P19	D1a	0.0	-0.07	28.96
P20	D1a	0.0	-0.07	28.96
P21	D1a	0.0	-0.07	28.96
P22	D1a	0.0	0.00	27.10
P23	D1a	0.0	0.00	27.11
P24	D1a	0.0	0.00	27.11
P25	D1a	0.0	0.00	27.11
P26	D1a	0.0	0.00	27.11
P27	D1a	0.0	0.00	27.10
P28	D1a	0.0	0.00	27.10
P29	D1a	0.0	0.07	28.96
P30	D1a	0.0	0.07	28.96
P31	D1a	0.0	0.07	28.96
P32	D1a	0.0	0.07	28.96
P33	D1a	0.0	0.07	28.96
P34	D1a	0.0	0.07	28.96
P35	D1a	0.0	0.07	28.96
P36	D1a	0.0	0.11	29.89
P37	D1a	0.0	0.11	29.89
P38	D1a	0.0	0.11	29.90
P39	D1a	0.0	0.11	29.90
P40	D1a	0.0	0.11	29.90
P41	D1a	0.0	0.11	29.89
P42	D1a	0.0	0.11	29.89
P43	D1a	0.0	0.12	31.14
P44	D1a	0.0	0.12	31.14
P45	D1a	0.0	0.12	31.14
P46	D1a	0.0	0.12	31.14
P47	D1a	0.0	0.12	31.14
P48	D1a	0.0	0.12	31.14
P49	D1a	0.0	0.12	31.14

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_6	0.0	-0.10	18.15
P2	D1a_6	0.0	-0.10	18.15
P3	D1a_6	0.0	-0.10	18.15
P4	D1a_6	0.0	-0.10	18.15
P5	D1a_6	0.0	-0.10	18.15
P6	D1a_6	0.0	-0.10	18.15
P7	D1a_6	0.0	-0.10	18.15
P8	D1a_6	0.0	-0.10	16.99
P9	D1a_6	0.0	-0.10	16.99
P10	D1a_6	0.0	-0.10	16.99
P11	D1a_6	0.0	-0.10	16.99
P12	D1a_6	0.0	-0.10	16.99
P13	D1a_6	0.0	-0.10	16.99
P14	D1a_6	0.0	-0.10	16.99
P15	D1a_6	0.0	-0.07	15.48
P16	D1a_6	0.0	-0.07	15.48
P17	D1a_6	0.0	-0.07	15.48
P18	D1a_6	0.0	-0.07	15.48
P19	D1a_6	0.0	-0.07	15.48
P20	D1a_6	0.0	-0.07	15.48
P21	D1a_6	0.0	-0.07	15.48
P22	D1a_6	0.0	0.00	13.91
P23	D1a_6	0.0	0.00	13.91
P24	D1a_6	0.0	0.00	13.91
P25	D1a_6	0.0	0.00	13.91
P26	D1a_6	0.0	0.00	13.91
P27	D1a_6	0.0	0.00	13.91
P28	D1a_6	0.0	0.00	13.91
P29	D1a_6	0.0	0.07	15.48
P30	D1a_6	0.0	0.07	15.48
P31	D1a_6	0.0	0.07	15.48
P32	D1a_6	0.0	0.07	15.48
P33	D1a_6	0.0	0.07	15.48
P34	D1a_6	0.0	0.07	15.48
P35	D1a_6	0.0	0.07	15.48
P36	D1a_6	0.0	0.10	16.99
P37	D1a_6	0.0	0.10	16.99
P38	D1a_6	0.0	0.10	16.99
P39	D1a_6	0.0	0.10	16.99
P40	D1a_6	0.0	0.10	16.99
P41	D1a_6	0.0	0.10	16.99
P42	D1a_6	0.0	0.10	16.99
P43	D1a_6	0.0	0.10	18.15
P44	D1a_6	0.0	0.10	18.15
P45	D1a_6	0.0	0.10	18.15
P46	D1a_6	0.0	0.10	18.15
P47	D1a_6	0.0	0.10	18.15
P48	D1a_6	0.0	0.10	18.15
P49	D1a_6	0.0	0.10	18.15

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T1	0.0	-0.12	31.27
P2	D1a_T1	0.0	-0.12	32.35
P3	D1a_T1	0.0	-0.12	33.43
P4	D1a_T1	0.0	-0.12	34.52
P5	D1a_T1	0.0	-0.12	35.60
P6	D1a_T1	0.0	-0.12	36.68
P7	D1a_T1	0.0	-0.12	37.77
P8	D1a_T1	0.0	-0.10	29.86
P9	D1a_T1	0.0	-0.10	30.93
P10	D1a_T1	0.0	-0.10	32.01
P11	D1a_T1	0.0	-0.10	33.07
P12	D1a_T1	0.0	-0.10	34.14
P13	D1a_T1	0.0	-0.10	35.20
P14	D1a_T1	0.0	-0.10	36.26
P15	D1a_T1	0.0	-0.07	28.85
P16	D1a_T1	0.0	-0.07	29.96
P17	D1a_T1	0.0	-0.07	31.06
P18	D1a_T1	0.0	-0.07	32.17
P19	D1a_T1	0.0	-0.07	33.28
P20	D1a_T1	0.0	-0.07	34.38
P21	D1a_T1	0.0	-0.07	35.49
P22	D1a_T1	0.0	0.00	26.82
P23	D1a_T1	0.0	0.00	27.91
P24	D1a_T1	0.0	0.00	29.00
P25	D1a_T1	0.0	0.00	30.09
P26	D1a_T1	0.0	0.00	31.17
P27	D1a_T1	0.0	0.00	32.25
P28	D1a_T1	0.0	0.00	33.34
P29	D1a_T1	0.0	0.07	28.40
P30	D1a_T1	0.0	0.07	29.53
P31	D1a_T1	0.0	0.07	30.65
P32	D1a_T1	0.0	0.07	31.78
P33	D1a_T1	0.0	0.07	32.90
P34	D1a_T1	0.0	0.07	34.02
P35	D1a_T1	0.0	0.07	35.15
P36	D1a_T1	0.0	0.10	29.05
P37	D1a_T1	0.0	0.10	30.16
P38	D1a_T1	0.0	0.10	31.26
P39	D1a_T1	0.0	0.10	32.35
P40	D1a_T1	0.0	0.10	33.45
P41	D1a_T1	0.0	0.10	34.53
P42	D1a_T1	0.0	0.10	35.63
P43	D1a_T1	0.0	0.12	30.07
P44	D1a_T1	0.0	0.12	31.19
P45	D1a_T1	0.0	0.12	32.32
P46	D1a_T1	0.0	0.12	33.44
P47	D1a_T1	0.0	0.12	34.56
P48	D1a_T1	0.0	0.12	35.68
P49	D1a_T1	0.0	0.12	36.81

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T2	0.0	-0.12	32.42
P2	D1a_T2	0.0	-0.12	33.28
P3	D1a_T2	0.0	-0.13	34.14
P4	D1a_T2	0.0	-0.13	35.00
P5	D1a_T2	0.0	-0.13	35.86
P6	D1a_T2	0.0	-0.13	36.72
P7	D1a_T2	0.0	-0.13	37.58
P8	D1a_T2	0.0	-0.10	30.71
P9	D1a_T2	0.0	-0.10	31.56
P10	D1a_T2	0.0	-0.10	32.41
P11	D1a_T2	0.0	-0.10	33.26
P12	D1a_T2	0.0	-0.10	34.10
P13	D1a_T2	0.0	-0.10	34.94
P14	D1a_T2	0.0	-0.10	35.78
P15	D1a_T2	0.0	-0.07	29.41
P16	D1a_T2	0.0	-0.07	30.28
P17	D1a_T2	0.0	-0.07	31.16
P18	D1a_T2	0.0	-0.07	32.03
P19	D1a_T2	0.0	-0.07	32.91
P20	D1a_T2	0.0	-0.07	33.78
P21	D1a_T2	0.0	-0.07	34.65
P22	D1a_T2	0.0	0.00	27.12
P23	D1a_T2	0.0	0.00	27.97
P24	D1a_T2	0.0	0.00	28.81
P25	D1a_T2	0.0	0.00	29.65
P26	D1a_T2	0.0	0.00	30.50
P27	D1a_T2	0.0	0.00	31.33
P28	D1a_T2	0.0	0.00	32.17
P29	D1a_T2	0.0	0.07	28.48
P30	D1a_T2	0.0	0.07	29.33
P31	D1a_T2	0.0	0.07	30.19
P32	D1a_T2	0.0	0.07	31.04
P33	D1a_T2	0.0	0.07	31.89
P34	D1a_T2	0.0	0.07	32.75
P35	D1a_T2	0.0	0.07	33.60
P36	D1a_T2	0.0	0.11	28.92
P37	D1a_T2	0.0	0.11	29.74
P38	D1a_T2	0.0	0.11	30.56
P39	D1a_T2	0.0	0.10	31.37
P40	D1a_T2	0.0	0.10	32.19
P41	D1a_T2	0.0	0.10	32.99
P42	D1a_T2	0.0	0.10	33.80
P43	D1a_T2	0.0	0.12	29.71
P44	D1a_T2	0.0	0.12	30.53
P45	D1a_T2	0.0	0.12	31.34
P46	D1a_T2	0.0	0.12	32.16
P47	D1a_T2	0.0	0.12	32.98
P48	D1a_T2	0.0	0.12	33.80
P49	D1a_T2	0.0	0.12	34.61

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
Before Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T3	0.0	-0.13	32.42
P2	D1a_T3	0.0	-0.13	33.53
P3	D1a_T3	0.0	-0.13	34.64
P4	D1a_T3	0.0	-0.13	35.74
P5	D1a_T3	0.0	-0.13	36.85
P6	D1a_T3	0.0	-0.12	37.96
P7	D1a_T3	0.0	-0.12	39.06
P8	D1a_T3	0.0	-0.10	31.42
P9	D1a_T3	0.0	-0.10	32.53
P10	D1a_T3	0.0	-0.10	33.64
P11	D1a_T3	0.0	-0.10	34.73
P12	D1a_T3	0.0	-0.10	35.83
P13	D1a_T3	0.0	-0.10	36.92
P14	D1a_T3	0.0	-0.10	38.02
P15	D1a_T3	0.0	-0.07	30.99
P16	D1a_T3	0.0	-0.07	32.14
P17	D1a_T3	0.0	-0.07	33.29
P18	D1a_T3	0.0	-0.07	34.44
P19	D1a_T3	0.0	-0.07	35.59
P20	D1a_T3	0.0	-0.07	36.74
P21	D1a_T3	0.0	-0.07	37.89
P22	D1a_T3	0.0	0.00	29.35
P23	D1a_T3	0.0	0.00	30.51
P24	D1a_T3	0.0	0.00	31.67
P25	D1a_T3	0.0	0.00	32.81
P26	D1a_T3	0.0	0.00	33.96
P27	D1a_T3	0.0	0.00	35.11
P28	D1a_T3	0.0	0.00	36.26
P29	D1a_T3	0.0	0.07	31.42
P30	D1a_T3	0.0	0.07	32.63
P31	D1a_T3	0.0	0.07	33.85
P32	D1a_T3	0.0	0.07	35.06
P33	D1a_T3	0.0	0.07	36.27
P34	D1a_T3	0.0	0.07	37.48
P35	D1a_T3	0.0	0.07	38.69
P36	D1a_T3	0.0	0.10	32.35
P37	D1a_T3	0.0	0.10	33.56
P38	D1a_T3	0.0	0.10	34.77
P39	D1a_T3	0.0	0.10	35.97
P40	D1a_T3	0.0	0.10	37.17
P41	D1a_T3	0.0	0.10	38.36
P42	D1a_T3	0.0	0.11	39.56
P43	D1a_T3	0.0	0.13	33.87
P44	D1a_T3	0.0	0.13	35.12
P45	D1a_T3	0.0	0.13	36.38
P46	D1a_T3	0.0	0.13	37.63
P47	D1a_T3	0.0	0.13	38.88
P48	D1a_T3	0.0	0.13	40.13
P49	D1a_T3	0.0	0.13	41.38

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T4	0.0	-0.12	35.53
P2	D1a_T4	0.0	-0.13	36.27
P3	D1a_T4	0.0	-0.13	37.01
P4	D1a_T4	0.0	-0.13	37.75
P5	D1a_T4	0.0	-0.13	38.49
P6	D1a_T4	0.0	-0.13	39.23
P7	D1a_T4	0.0	-0.13	39.97
P8	D1a_T4	0.0	-0.10	33.76
P9	D1a_T4	0.0	-0.10	34.51
P10	D1a_T4	0.0	-0.10	35.26
P11	D1a_T4	0.0	-0.10	36.00
P12	D1a_T4	0.0	-0.10	36.74
P13	D1a_T4	0.0	-0.10	37.47
P14	D1a_T4	0.0	-0.10	38.21
P15	D1a_T4	0.0	-0.07	32.63
P16	D1a_T4	0.0	-0.07	33.42
P17	D1a_T4	0.0	-0.07	34.20
P18	D1a_T4	0.0	-0.07	34.98
P19	D1a_T4	0.0	-0.07	35.76
P20	D1a_T4	0.0	-0.07	36.54
P21	D1a_T4	0.0	-0.07	37.32
P22	D1a_T4	0.0	0.00	30.26
P23	D1a_T4	0.0	0.00	31.03
P24	D1a_T4	0.0	0.00	31.81
P25	D1a_T4	0.0	0.00	32.58
P26	D1a_T4	0.0	0.00	33.35
P27	D1a_T4	0.0	0.00	34.11
P28	D1a_T4	0.0	0.00	34.88
P29	D1a_T4	0.0	0.07	31.60
P30	D1a_T4	0.0	0.07	32.40
P31	D1a_T4	0.0	0.07	33.20
P32	D1a_T4	0.0	0.07	34.01
P33	D1a_T4	0.0	0.07	34.81
P34	D1a_T4	0.0	0.07	35.61
P35	D1a_T4	0.0	0.07	36.41
P36	D1a_T4	0.0	0.10	31.76
P37	D1a_T4	0.0	0.10	32.54
P38	D1a_T4	0.0	0.10	33.32
P39	D1a_T4	0.0	0.10	34.09
P40	D1a_T4	0.0	0.10	34.86
P41	D1a_T4	0.0	0.10	35.62
P42	D1a_T4	0.0	0.10	36.39
P43	D1a_T4	0.0	0.12	32.50
P44	D1a_T4	0.0	0.12	33.28
P45	D1a_T4	0.0	0.12	34.06
P46	D1a_T4	0.0	0.12	34.85
P47	D1a_T4	0.0	0.12	35.63
P48	D1a_T4	0.0	0.12	36.41
P49	D1a_T4	0.0	0.12	37.19

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	0.0	-0.10	94.90
P2	D1b	0.0	-0.10	94.90
P3	D1b	0.0	-0.10	94.90
P4	D1b	0.0	-0.10	94.90
P5	D1b	0.0	-0.10	94.90
P6	D1b	0.0	-0.10	94.90
P7	D1b	0.0	-0.10	94.90
P8	D1b	0.0	-0.07	94.28
P9	D1b	0.0	-0.07	94.29
P10	D1b	0.0	-0.07	94.31
P11	D1b	0.0	-0.07	94.31
P12	D1b	0.0	-0.07	94.31
P13	D1b	0.0	-0.07	94.29
P14	D1b	0.0	-0.07	94.28
P15	D1b	0.0	-0.05	95.17
P16	D1b	0.0	-0.05	95.17
P17	D1b	0.0	-0.05	95.17
P18	D1b	0.0	-0.05	95.17
P19	D1b	0.0	-0.05	95.17
P20	D1b	0.0	-0.05	95.17
P21	D1b	0.0	-0.05	95.17
P22	D1b	0.0	0.00	92.99
P23	D1b	0.0	0.00	93.01
P24	D1b	0.0	0.00	93.03
P25	D1b	0.0	0.00	93.03
P26	D1b	0.0	0.00	93.03
P27	D1b	0.0	0.00	93.00
P28	D1b	0.0	0.00	93.00
P29	D1b	0.0	0.05	95.17
P30	D1b	0.0	0.05	95.17
P31	D1b	0.0	0.05	95.17
P32	D1b	0.0	0.05	95.17
P33	D1b	0.0	0.05	95.17
P34	D1b	0.0	0.05	95.18
P35	D1b	0.0	0.05	95.18
P36	D1b	0.0	0.07	94.28
P37	D1b	0.0	0.07	94.29
P38	D1b	0.0	0.07	94.31
P39	D1b	0.0	0.07	94.31
P40	D1b	0.0	0.07	94.32
P41	D1b	0.0	0.07	94.29
P42	D1b	0.0	0.07	94.28
P43	D1b	0.0	0.10	94.90
P44	D1b	0.0	0.10	94.90
P45	D1b	0.0	0.10	94.90
P46	D1b	0.0	0.10	94.90
P47	D1b	0.0	0.10	94.90
P48	D1b	0.0	0.10	94.90
P49	D1b	0.0	0.10	94.90

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T1	0.0	-0.10	95.03
P2	D1b_T1	0.0	-0.10	96.11
P3	D1b_T1	0.0	-0.10	97.19
P4	D1b_T1	0.0	-0.10	98.28
P5	D1b_T1	0.0	-0.10	99.36
P6	D1b_T1	0.0	-0.10	100.44
P7	D1b_T1	0.0	-0.10	101.53
P8	D1b_T1	0.0	-0.07	94.25
P9	D1b_T1	0.0	-0.07	95.33
P10	D1b_T1	0.0	-0.07	96.42
P11	D1b_T1	0.0	-0.07	97.49
P12	D1b_T1	0.0	-0.07	98.56
P13	D1b_T1	0.0	-0.07	99.59
P14	D1b_T1	0.0	-0.07	100.65
P15	D1b_T1	0.0	-0.05	95.06
P16	D1b_T1	0.0	-0.05	96.17
P17	D1b_T1	0.0	-0.05	97.28
P18	D1b_T1	0.0	-0.05	98.39
P19	D1b_T1	0.0	-0.05	99.49
P20	D1b_T1	0.0	-0.05	100.60
P21	D1b_T1	0.0	-0.05	101.71
P22	D1b_T1	0.0	0.00	92.71
P23	D1b_T1	0.0	0.00	93.81
P24	D1b_T1	0.0	0.00	94.92
P25	D1b_T1	0.0	0.00	96.01
P26	D1b_T1	0.0	0.00	97.09
P27	D1b_T1	0.0	0.00	98.15
P28	D1b_T1	0.0	0.00	99.23
P29	D1b_T1	0.0	0.05	94.62
P30	D1b_T1	0.0	0.05	95.74
P31	D1b_T1	0.0	0.05	96.87
P32	D1b_T1	0.0	0.05	97.99
P33	D1b_T1	0.0	0.05	99.12
P34	D1b_T1	0.0	0.05	100.24
P35	D1b_T1	0.0	0.05	101.37
P36	D1b_T1	0.0	0.07	93.44
P37	D1b_T1	0.0	0.07	94.55
P38	D1b_T1	0.0	0.07	95.67
P39	D1b_T1	0.0	0.07	96.77
P40	D1b_T1	0.0	0.07	97.86
P41	D1b_T1	0.0	0.07	98.93
P42	D1b_T1	0.0	0.07	100.02
P43	D1b_T1	0.0	0.10	93.83
P44	D1b_T1	0.0	0.10	94.95
P45	D1b_T1	0.0	0.10	96.07
P46	D1b_T1	0.0	0.10	97.20
P47	D1b_T1	0.0	0.10	98.32
P48	D1b_T1	0.0	0.10	99.44
P49	D1b_T1	0.0	0.10	100.57

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T2	0.0	-0.10	96.18
P2	D1b_T2	0.0	-0.10	97.04
P3	D1b_T2	0.0	-0.10	97.90
P4	D1b_T2	0.0	-0.10	98.76
P5	D1b_T2	0.0	-0.10	99.62
P6	D1b_T2	0.0	-0.10	100.48
P7	D1b_T2	0.0	-0.10	101.34
P8	D1b_T2	0.0	-0.07	95.10
P9	D1b_T2	0.0	-0.07	95.96
P10	D1b_T2	0.0	-0.07	96.83
P11	D1b_T2	0.0	-0.07	97.67
P12	D1b_T2	0.0	-0.07	98.52
P13	D1b_T2	0.0	-0.07	99.33
P14	D1b_T2	0.0	-0.07	100.17
P15	D1b_T2	0.0	-0.05	95.63
P16	D1b_T2	0.0	-0.05	96.50
P17	D1b_T2	0.0	-0.05	97.37
P18	D1b_T2	0.0	-0.05	98.25
P19	D1b_T2	0.0	-0.05	99.12
P20	D1b_T2	0.0	-0.05	99.99
P21	D1b_T2	0.0	-0.05	100.87
P22	D1b_T2	0.0	0.00	93.01
P23	D1b_T2	0.0	0.00	93.87
P24	D1b_T2	0.0	0.00	94.73
P25	D1b_T2	0.0	0.00	95.57
P26	D1b_T2	0.0	0.00	96.42
P27	D1b_T2	0.0	0.00	97.23
P28	D1b_T2	0.0	0.00	98.06
P29	D1b_T2	0.0	0.05	94.70
P30	D1b_T2	0.0	0.05	95.55
P31	D1b_T2	0.0	0.05	96.40
P32	D1b_T2	0.0	0.05	97.26
P33	D1b_T2	0.0	0.05	98.11
P34	D1b_T2	0.0	0.05	98.96
P35	D1b_T2	0.0	0.05	99.82
P36	D1b_T2	0.0	0.07	93.31
P37	D1b_T2	0.0	0.07	94.13
P38	D1b_T2	0.0	0.07	94.97
P39	D1b_T2	0.0	0.07	95.78
P40	D1b_T2	0.0	0.07	96.60
P41	D1b_T2	0.0	0.07	97.38
P42	D1b_T2	0.0	0.07	98.19
P43	D1b_T2	0.0	0.10	93.47
P44	D1b_T2	0.0	0.10	94.29
P45	D1b_T2	0.0	0.10	95.10
P46	D1b_T2	0.0	0.10	95.92
P47	D1b_T2	0.0	0.10	96.74
P48	D1b_T2	0.0	0.10	97.55
P49	D1b_T2	0.0	0.10	98.37

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T3	0.0	-0.10	96.18
P2	D1b_T3	0.0	-0.10	97.29
P3	D1b_T3	0.0	-0.10	98.39
P4	D1b_T3	0.0	-0.10	99.50
P5	D1b_T3	0.0	-0.10	100.61
P6	D1b_T3	0.0	-0.10	101.72
P7	D1b_T3	0.0	-0.10	102.82
P8	D1b_T3	0.0	-0.07	95.81
P9	D1b_T3	0.0	-0.07	96.93
P10	D1b_T3	0.0	-0.07	98.05
P11	D1b_T3	0.0	-0.07	99.15
P12	D1b_T3	0.0	-0.07	100.25
P13	D1b_T3	0.0	-0.06	101.32
P14	D1b_T3	0.0	-0.06	102.41
P15	D1b_T3	0.0	-0.05	97.21
P16	D1b_T3	0.0	-0.05	98.36
P17	D1b_T3	0.0	-0.05	99.51
P18	D1b_T3	0.0	-0.05	100.66
P19	D1b_T3	0.0	-0.05	101.81
P20	D1b_T3	0.0	-0.05	102.96
P21	D1b_T3	0.0	-0.05	104.11
P22	D1b_T3	0.0	0.00	95.25
P23	D1b_T3	0.0	0.00	96.41
P24	D1b_T3	0.0	0.00	97.59
P25	D1b_T3	0.0	0.00	98.73
P26	D1b_T3	0.0	0.00	99.88
P27	D1b_T3	0.0	0.00	101.01
P28	D1b_T3	0.0	0.00	102.15
P29	D1b_T3	0.0	0.05	97.64
P30	D1b_T3	0.0	0.05	98.85
P31	D1b_T3	0.0	0.05	100.06
P32	D1b_T3	0.0	0.05	101.27
P33	D1b_T3	0.0	0.05	102.48
P34	D1b_T3	0.0	0.05	103.69
P35	D1b_T3	0.0	0.05	104.90
P36	D1b_T3	0.0	0.06	96.74
P37	D1b_T3	0.0	0.06	97.96
P38	D1b_T3	0.0	0.07	99.18
P39	D1b_T3	0.0	0.07	100.38
P40	D1b_T3	0.0	0.07	101.58
P41	D1b_T3	0.0	0.07	102.75
P42	D1b_T3	0.0	0.07	103.95
P43	D1b_T3	0.0	0.10	97.63
P44	D1b_T3	0.0	0.10	98.88
P45	D1b_T3	0.0	0.10	100.13
P46	D1b_T3	0.0	0.10	101.39
P47	D1b_T3	0.0	0.10	102.64
P48	D1b_T3	0.0	0.10	103.89
P49	D1b_T3	0.0	0.10	105.14

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T4	0.0	-0.10	99.28
P2	D1b_T4	0.0	-0.10	100.02
P3	D1b_T4	0.0	-0.10	100.76
P4	D1b_T4	0.0	-0.10	101.50
P5	D1b_T4	0.0	-0.10	102.24
P6	D1b_T4	0.0	-0.10	102.98
P7	D1b_T4	0.0	-0.10	103.73
P8	D1b_T4	0.0	-0.07	98.15
P9	D1b_T4	0.0	-0.07	98.91
P10	D1b_T4	0.0	-0.07	99.67
P11	D1b_T4	0.0	-0.06	100.41
P12	D1b_T4	0.0	-0.06	101.16
P13	D1b_T4	0.0	-0.06	101.87
P14	D1b_T4	0.0	-0.06	102.60
P15	D1b_T4	0.0	-0.05	98.85
P16	D1b_T4	0.0	-0.05	99.63
P17	D1b_T4	0.0	-0.05	100.41
P18	D1b_T4	0.0	-0.05	101.19
P19	D1b_T4	0.0	-0.05	101.97
P20	D1b_T4	0.0	-0.05	102.76
P21	D1b_T4	0.0	-0.05	103.54
P22	D1b_T4	0.0	0.00	96.15
P23	D1b_T4	0.0	0.00	96.94
P24	D1b_T4	0.0	0.00	97.73
P25	D1b_T4	0.0	0.00	98.50
P26	D1b_T4	0.0	0.00	99.27
P27	D1b_T4	0.0	0.00	100.01
P28	D1b_T4	0.0	0.00	100.78
P29	D1b_T4	0.0	0.05	97.82
P30	D1b_T4	0.0	0.05	98.62
P31	D1b_T4	0.0	0.05	99.42
P32	D1b_T4	0.0	0.05	100.22
P33	D1b_T4	0.0	0.05	101.02
P34	D1b_T4	0.0	0.05	101.82
P35	D1b_T4	0.0	0.05	102.62
P36	D1b_T4	0.0	0.07	96.15
P37	D1b_T4	0.0	0.07	96.94
P38	D1b_T4	0.0	0.07	97.73
P39	D1b_T4	0.0	0.06	98.50
P40	D1b_T4	0.0	0.06	99.28
P41	D1b_T4	0.0	0.06	100.02
P42	D1b_T4	0.0	0.06	100.78
P43	D1b_T4	0.0	0.10	96.26
P44	D1b_T4	0.0	0.10	97.04
P45	D1b_T4	0.0	0.10	97.82
P46	D1b_T4	0.0	0.10	98.61
P47	D1b_T4	0.0	0.10	99.39
P48	D1b_T4	0.0	0.10	100.17
P49	D1b_T4	0.0	0.10	100.95

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
Before Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	0.0	-0.16	13.03
P2	D2a	0.0	-0.16	13.03
P3	D2a	0.0	-0.16	13.03
P4	D2a	0.0	-0.16	13.03
P5	D2a	0.0	-0.16	13.03
P6	D2a	0.0	-0.16	13.03
P7	D2a	0.0	-0.16	13.03
P8	D2a	0.0	-0.12	14.30
P9	D2a	0.0	-0.12	14.30
P10	D2a	0.0	-0.12	14.30
P11	D2a	0.0	-0.12	14.30
P12	D2a	0.0	-0.12	14.30
P13	D2a	0.0	-0.12	14.30
P14	D2a	0.0	-0.12	14.30
P15	D2a	0.0	-0.05	18.05
P16	D2a	0.0	-0.05	18.05
P17	D2a	0.0	-0.05	18.05
P18	D2a	0.0	-0.05	18.05
P19	D2a	0.0	-0.05	18.05
P20	D2a	0.0	-0.05	18.05
P21	D2a	0.0	-0.05	18.05
P22	D2a	0.0	0.02	20.44
P23	D2a	0.0	0.02	20.44
P24	D2a	0.0	0.02	20.45
P25	D2a	0.0	0.02	20.45
P26	D2a	0.0	0.02	20.45
P27	D2a	0.0	0.02	20.44
P28	D2a	0.0	0.02	20.44
P29	D2a	0.0	0.08	26.03
P30	D2a	0.0	0.08	26.03
P31	D2a	0.0	0.08	26.03
P32	D2a	0.0	0.08	26.03
P33	D2a	0.0	0.08	26.03
P34	D2a	0.0	0.08	26.03
P35	D2a	0.0	0.08	26.03
P36	D2a	0.0	0.11	30.24
P37	D2a	0.0	0.11	30.24
P38	D2a	0.0	0.11	30.25
P39	D2a	0.0	0.11	30.25
P40	D2a	0.0	0.11	30.25
P41	D2a	0.0	0.11	30.24
P42	D2a	0.0	0.11	30.24
P43	D2a	0.0	0.13	34.30
P44	D2a	0.0	0.13	34.30
P45	D2a	0.0	0.13	34.31
P46	D2a	0.0	0.13	34.31
P47	D2a	0.0	0.13	34.31
P48	D2a	0.0	0.13	34.31
P49	D2a	0.0	0.13	34.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_6	0.0	-0.14	0.04
P2	D2a_6	0.0	-0.14	0.04
P3	D2a_6	0.0	-0.14	0.04
P4	D2a_6	0.0	-0.14	0.04
P5	D2a_6	0.0	-0.14	0.04
P6	D2a_6	0.0	-0.14	0.04
P7	D2a_6	0.0	-0.14	0.04
P8	D2a_6	0.0	-0.11	1.40
P9	D2a_6	0.0	-0.11	1.40
P10	D2a_6	0.0	-0.11	1.40
P11	D2a_6	0.0	-0.11	1.40
P12	D2a_6	0.0	-0.11	1.40
P13	D2a_6	0.0	-0.11	1.40
P14	D2a_6	0.0	-0.11	1.40
P15	D2a_6	0.0	-0.05	4.57
P16	D2a_6	0.0	-0.05	4.57
P17	D2a_6	0.0	-0.05	4.57
P18	D2a_6	0.0	-0.05	4.57
P19	D2a_6	0.0	-0.05	4.57
P20	D2a_6	0.0	-0.05	4.57
P21	D2a_6	0.0	-0.05	4.57
P22	D2a_6	0.0	0.02	7.25
P23	D2a_6	0.0	0.02	7.25
P24	D2a_6	0.0	0.02	7.25
P25	D2a_6	0.0	0.02	7.25
P26	D2a_6	0.0	0.02	7.25
P27	D2a_6	0.0	0.02	7.25
P28	D2a_6	0.0	0.02	7.25
P29	D2a_6	0.0	0.07	12.55
P30	D2a_6	0.0	0.07	12.55
P31	D2a_6	0.0	0.07	12.55
P32	D2a_6	0.0	0.07	12.55
P33	D2a_6	0.0	0.07	12.55
P34	D2a_6	0.0	0.07	12.55
P35	D2a_6	0.0	0.07	12.55
P36	D2a_6	0.0	0.10	17.34
P37	D2a_6	0.0	0.10	17.34
P38	D2a_6	0.0	0.10	17.35
P39	D2a_6	0.0	0.10	17.35
P40	D2a_6	0.0	0.10	17.35
P41	D2a_6	0.0	0.10	17.34
P42	D2a_6	0.0	0.10	17.34
P43	D2a_6	0.0	0.11	21.31
P44	D2a_6	0.0	0.11	21.31
P45	D2a_6	0.0	0.11	21.31
P46	D2a_6	0.0	0.11	21.31
P47	D2a_6	0.0	0.11	21.31
P48	D2a_6	0.0	0.11	21.31
P49	D2a_6	0.0	0.11	21.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T1	0.0	-0.16	13.16
P2	D2a_T1	0.0	-0.16	14.24
P3	D2a_T1	0.0	-0.16	15.32
P4	D2a_T1	0.0	-0.16	16.40
P5	D2a_T1	0.0	-0.16	17.49
P6	D2a_T1	0.0	-0.16	18.57
P7	D2a_T1	0.0	-0.16	19.65
P8	D2a_T1	0.0	-0.12	14.27
P9	D2a_T1	0.0	-0.12	15.34
P10	D2a_T1	0.0	-0.12	16.41
P11	D2a_T1	0.0	-0.12	17.47
P12	D2a_T1	0.0	-0.12	18.54
P13	D2a_T1	0.0	-0.12	19.60
P14	D2a_T1	0.0	-0.12	20.67
P15	D2a_T1	0.0	-0.05	17.94
P16	D2a_T1	0.0	-0.05	19.04
P17	D2a_T1	0.0	-0.05	20.15
P18	D2a_T1	0.0	-0.05	21.26
P19	D2a_T1	0.0	-0.05	22.36
P20	D2a_T1	0.0	-0.05	23.47
P21	D2a_T1	0.0	-0.05	24.58
P22	D2a_T1	0.0	0.02	20.16
P23	D2a_T1	0.0	0.02	21.25
P24	D2a_T1	0.0	0.02	22.34
P25	D2a_T1	0.0	0.02	23.42
P26	D2a_T1	0.0	0.02	24.51
P27	D2a_T1	0.0	0.02	25.59
P28	D2a_T1	0.0	0.02	26.68
P29	D2a_T1	0.0	0.08	25.47
P30	D2a_T1	0.0	0.08	26.59
P31	D2a_T1	0.0	0.08	27.72
P32	D2a_T1	0.0	0.08	28.84
P33	D2a_T1	0.0	0.08	29.97
P34	D2a_T1	0.0	0.08	31.09
P35	D2a_T1	0.0	0.08	32.22
P36	D2a_T1	0.0	0.10	29.41
P37	D2a_T1	0.0	0.10	30.51
P38	D2a_T1	0.0	0.10	31.61
P39	D2a_T1	0.0	0.10	32.70
P40	D2a_T1	0.0	0.10	33.80
P41	D2a_T1	0.0	0.10	34.88
P42	D2a_T1	0.0	0.10	35.98
P43	D2a_T1	0.0	0.13	33.23
P44	D2a_T1	0.0	0.13	34.35
P45	D2a_T1	0.0	0.13	35.48
P46	D2a_T1	0.0	0.13	36.60
P47	D2a_T1	0.0	0.13	37.72
P48	D2a_T1	0.0	0.13	38.85
P49	D2a_T1	0.0	0.13	39.97

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T2	0.0	-0.16	14.31
P2	D2a_T2	0.0	-0.16	15.17
P3	D2a_T2	0.0	-0.16	16.03
P4	D2a_T2	0.0	-0.16	16.89
P5	D2a_T2	0.0	-0.16	17.75
P6	D2a_T2	0.0	-0.16	18.61
P7	D2a_T2	0.0	-0.16	19.46
P8	D2a_T2	0.0	-0.12	15.12
P9	D2a_T2	0.0	-0.12	15.97
P10	D2a_T2	0.0	-0.12	16.82
P11	D2a_T2	0.0	-0.12	17.66
P12	D2a_T2	0.0	-0.12	18.50
P13	D2a_T2	0.0	-0.12	19.34
P14	D2a_T2	0.0	-0.12	20.19
P15	D2a_T2	0.0	-0.05	18.50
P16	D2a_T2	0.0	-0.05	19.37
P17	D2a_T2	0.0	-0.05	20.25
P18	D2a_T2	0.0	-0.05	21.12
P19	D2a_T2	0.0	-0.05	21.99
P20	D2a_T2	0.0	-0.05	22.87
P21	D2a_T2	0.0	-0.05	23.74
P22	D2a_T2	0.0	0.02	20.46
P23	D2a_T2	0.0	0.02	21.31
P24	D2a_T2	0.0	0.02	22.15
P25	D2a_T2	0.0	0.02	22.99
P26	D2a_T2	0.0	0.02	23.83
P27	D2a_T2	0.0	0.02	24.67
P28	D2a_T2	0.0	0.02	25.51
P29	D2a_T2	0.0	0.08	25.55
P30	D2a_T2	0.0	0.08	26.40
P31	D2a_T2	0.0	0.08	27.25
P32	D2a_T2	0.0	0.08	28.11
P33	D2a_T2	0.0	0.08	28.96
P34	D2a_T2	0.0	0.08	29.81
P35	D2a_T2	0.0	0.08	30.67
P36	D2a_T2	0.0	0.11	29.27
P37	D2a_T2	0.0	0.11	30.09
P38	D2a_T2	0.0	0.11	30.91
P39	D2a_T2	0.0	0.10	31.72
P40	D2a_T2	0.0	0.10	32.54
P41	D2a_T2	0.0	0.10	33.34
P42	D2a_T2	0.0	0.10	34.15
P43	D2a_T2	0.0	0.13	32.87
P44	D2a_T2	0.0	0.13	33.69
P45	D2a_T2	0.0	0.13	34.51
P46	D2a_T2	0.0	0.13	35.32
P47	D2a_T2	0.0	0.13	36.14
P48	D2a_T2	0.0	0.13	36.96
P49	D2a_T2	0.0	0.13	37.77

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T3	0.0	-0.16	14.31
P2	D2a_T3	0.0	-0.16	15.42
P3	D2a_T3	0.0	-0.16	16.52
P4	D2a_T3	0.0	-0.16	17.63
P5	D2a_T3	0.0	-0.16	18.74
P6	D2a_T3	0.0	-0.16	19.84
P7	D2a_T3	0.0	-0.16	20.95
P8	D2a_T3	0.0	-0.12	15.83
P9	D2a_T3	0.0	-0.12	16.94
P10	D2a_T3	0.0	-0.12	18.04
P11	D2a_T3	0.0	-0.12	19.14
P12	D2a_T3	0.0	-0.11	20.24
P13	D2a_T3	0.0	-0.11	21.33
P14	D2a_T3	0.0	-0.11	22.43
P15	D2a_T3	0.0	-0.05	20.08
P16	D2a_T3	0.0	-0.05	21.23
P17	D2a_T3	0.0	-0.05	22.38
P18	D2a_T3	0.0	-0.05	23.53
P19	D2a_T3	0.0	-0.05	24.68
P20	D2a_T3	0.0	-0.05	25.83
P21	D2a_T3	0.0	-0.05	26.98
P22	D2a_T3	0.0	0.02	22.69
P23	D2a_T3	0.0	0.02	23.85
P24	D2a_T3	0.0	0.02	25.00
P25	D2a_T3	0.0	0.02	26.15
P26	D2a_T3	0.0	0.02	27.30
P27	D2a_T3	0.0	0.02	28.45
P28	D2a_T3	0.0	0.02	29.60
P29	D2a_T3	0.0	0.08	28.49
P30	D2a_T3	0.0	0.08	29.70
P31	D2a_T3	0.0	0.08	30.91
P32	D2a_T3	0.0	0.08	32.12
P33	D2a_T3	0.0	0.08	33.33
P34	D2a_T3	0.0	0.08	34.54
P35	D2a_T3	0.0	0.08	35.76
P36	D2a_T3	0.0	0.10	32.71
P37	D2a_T3	0.0	0.10	33.91
P38	D2a_T3	0.0	0.10	35.12
P39	D2a_T3	0.0	0.10	36.32
P40	D2a_T3	0.0	0.10	37.52
P41	D2a_T3	0.0	0.10	38.71
P42	D2a_T3	0.0	0.11	39.91
P43	D2a_T3	0.0	0.13	37.03
P44	D2a_T3	0.0	0.13	38.29
P45	D2a_T3	0.0	0.13	39.54
P46	D2a_T3	0.0	0.13	40.79
P47	D2a_T3	0.0	0.13	42.04
P48	D2a_T3	0.0	0.13	43.29
P49	D2a_T3	0.0	0.13	44.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T4	0.0	-0.16	17.41
P2	D2a_T4	0.0	-0.16	18.15
P3	D2a_T4	0.0	-0.16	18.89
P4	D2a_T4	0.0	-0.16	19.63
P5	D2a_T4	0.0	-0.16	20.37
P6	D2a_T4	0.0	-0.16	21.11
P7	D2a_T4	0.0	-0.16	21.85
P8	D2a_T4	0.0	-0.12	18.17
P9	D2a_T4	0.0	-0.12	18.92
P10	D2a_T4	0.0	-0.11	19.66
P11	D2a_T4	0.0	-0.11	20.40
P12	D2a_T4	0.0	-0.11	21.14
P13	D2a_T4	0.0	-0.11	21.88
P14	D2a_T4	0.0	-0.11	22.62
P15	D2a_T4	0.0	-0.05	21.72
P16	D2a_T4	0.0	-0.05	22.50
P17	D2a_T4	0.0	-0.05	23.28
P18	D2a_T4	0.0	-0.05	24.07
P19	D2a_T4	0.0	-0.05	24.85
P20	D2a_T4	0.0	-0.05	25.63
P21	D2a_T4	0.0	-0.05	26.41
P22	D2a_T4	0.0	0.02	23.60
P23	D2a_T4	0.0	0.02	24.37
P24	D2a_T4	0.0	0.02	25.15
P25	D2a_T4	0.0	0.02	25.92
P26	D2a_T4	0.0	0.02	26.69
P27	D2a_T4	0.0	0.02	27.45
P28	D2a_T4	0.0	0.02	28.22
P29	D2a_T4	0.0	0.08	28.67
P30	D2a_T4	0.0	0.08	29.47
P31	D2a_T4	0.0	0.08	30.27
P32	D2a_T4	0.0	0.08	31.07
P33	D2a_T4	0.0	0.08	31.87
P34	D2a_T4	0.0	0.08	32.67
P35	D2a_T4	0.0	0.08	33.47
P36	D2a_T4	0.0	0.10	32.12
P37	D2a_T4	0.0	0.10	32.89
P38	D2a_T4	0.0	0.10	33.67
P39	D2a_T4	0.0	0.10	34.44
P40	D2a_T4	0.0	0.10	35.21
P41	D2a_T4	0.0	0.10	35.97
P42	D2a_T4	0.0	0.10	36.74
P43	D2a_T4	0.0	0.12	35.66
P44	D2a_T4	0.0	0.13	36.45
P45	D2a_T4	0.0	0.13	37.23
P46	D2a_T4	0.0	0.13	38.01
P47	D2a_T4	0.0	0.13	38.79
P48	D2a_T4	0.0	0.13	39.57
P49	D2a_T4	0.0	0.13	40.35

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b	0.0	-0.13	76.79
P2	D2b	0.0	-0.13	76.79
P3	D2b	0.0	-0.13	76.79
P4	D2b	0.0	-0.13	76.79
P5	D2b	0.0	-0.13	76.79
P6	D2b	0.0	-0.13	76.79
P7	D2b	0.0	-0.13	76.79
P8	D2b	0.0	-0.08	78.69
P9	D2b	0.0	-0.08	78.70
P10	D2b	0.0	-0.08	78.72
P11	D2b	0.0	-0.08	78.72
P12	D2b	0.0	-0.08	78.72
P13	D2b	0.0	-0.08	78.69
P14	D2b	0.0	-0.08	78.69
P15	D2b	0.0	-0.04	84.26
P16	D2b	0.0	-0.04	84.26
P17	D2b	0.0	-0.04	84.26
P18	D2b	0.0	-0.04	84.26
P19	D2b	0.0	-0.04	84.26
P20	D2b	0.0	-0.04	84.26
P21	D2b	0.0	-0.04	84.26
P22	D2b	0.0	0.02	86.33
P23	D2b	0.0	0.02	86.35
P24	D2b	0.0	0.02	86.37
P25	D2b	0.0	0.02	86.37
P26	D2b	0.0	0.02	86.37
P27	D2b	0.0	0.02	86.34
P28	D2b	0.0	0.02	86.34
P29	D2b	0.0	0.06	92.24
P30	D2b	0.0	0.06	92.24
P31	D2b	0.0	0.06	92.24
P32	D2b	0.0	0.06	92.24
P33	D2b	0.0	0.06	92.24
P34	D2b	0.0	0.06	92.24
P35	D2b	0.0	0.06	92.24
P36	D2b	0.0	0.07	94.63
P37	D2b	0.0	0.07	94.64
P38	D2b	0.0	0.07	94.67
P39	D2b	0.0	0.07	94.66
P40	D2b	0.0	0.07	94.67
P41	D2b	0.0	0.07	94.64
P42	D2b	0.0	0.07	94.63
P43	D2b	0.0	0.10	98.06
P44	D2b	0.0	0.10	98.06
P45	D2b	0.0	0.10	98.06
P46	D2b	0.0	0.10	98.06
P47	D2b	0.0	0.10	98.06
P48	D2b	0.0	0.10	98.06
P49	D2b	0.0	0.10	98.07

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
Before Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T1	0.0	-0.13	76.91
P2	D2b_T1	0.0	-0.13	78.00
P3	D2b_T1	0.0	-0.13	79.08
P4	D2b_T1	0.0	-0.13	80.16
P5	D2b_T1	0.0	-0.13	81.25
P6	D2b_T1	0.0	-0.13	82.33
P7	D2b_T1	0.0	-0.13	83.41
P8	D2b_T1	0.0	-0.08	78.66
P9	D2b_T1	0.0	-0.08	79.74
P10	D2b_T1	0.0	-0.08	80.82
P11	D2b_T1	0.0	-0.08	81.89
P12	D2b_T1	0.0	-0.08	82.96
P13	D2b_T1	0.0	-0.08	84.00
P14	D2b_T1	0.0	-0.08	85.06
P15	D2b_T1	0.0	-0.03	84.15
P16	D2b_T1	0.0	-0.03	85.26
P17	D2b_T1	0.0	-0.03	86.37
P18	D2b_T1	0.0	-0.03	87.47
P19	D2b_T1	0.0	-0.03	88.58
P20	D2b_T1	0.0	-0.03	89.69
P21	D2b_T1	0.0	-0.03	90.79
P22	D2b_T1	0.0	0.02	86.05
P23	D2b_T1	0.0	0.02	87.15
P24	D2b_T1	0.0	0.02	88.26
P25	D2b_T1	0.0	0.02	89.34
P26	D2b_T1	0.0	0.02	90.43
P27	D2b_T1	0.0	0.02	91.49
P28	D2b_T1	0.0	0.02	92.57
P29	D2b_T1	0.0	0.06	91.69
P30	D2b_T1	0.0	0.06	92.81
P31	D2b_T1	0.0	0.06	93.93
P32	D2b_T1	0.0	0.06	95.06
P33	D2b_T1	0.0	0.06	96.18
P34	D2b_T1	0.0	0.06	97.31
P35	D2b_T1	0.0	0.06	98.43
P36	D2b_T1	0.0	0.07	93.79
P37	D2b_T1	0.0	0.07	94.91
P38	D2b_T1	0.0	0.07	96.02
P39	D2b_T1	0.0	0.07	97.12
P40	D2b_T1	0.0	0.07	98.21
P41	D2b_T1	0.0	0.07	99.28
P42	D2b_T1	0.0	0.07	100.37
P43	D2b_T1	0.0	0.10	96.99
P44	D2b_T1	0.0	0.10	98.11
P45	D2b_T1	0.0	0.10	99.24
P46	D2b_T1	0.0	0.10	100.36
P47	D2b_T1	0.0	0.10	101.48
P48	D2b_T1	0.0	0.10	102.60
P49	D2b_T1	0.0	0.10	103.73

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T2	0.0	-0.13	78.07
P2	D2b_T2	0.0	-0.13	78.93
P3	D2b_T2	0.0	-0.13	79.79
P4	D2b_T2	0.0	-0.13	80.65
P5	D2b_T2	0.0	-0.13	81.50
P6	D2b_T2	0.0	-0.13	82.36
P7	D2b_T2	0.0	-0.13	83.22
P8	D2b_T2	0.0	-0.08	79.51
P9	D2b_T2	0.0	-0.08	80.37
P10	D2b_T2	0.0	-0.08	81.23
P11	D2b_T2	0.0	-0.08	82.07
P12	D2b_T2	0.0	-0.08	82.92
P13	D2b_T2	0.0	-0.08	83.74
P14	D2b_T2	0.0	-0.08	84.58
P15	D2b_T2	0.0	-0.03	84.72
P16	D2b_T2	0.0	-0.03	85.59
P17	D2b_T2	0.0	-0.03	86.46
P18	D2b_T2	0.0	-0.04	87.34
P19	D2b_T2	0.0	-0.04	88.21
P20	D2b_T2	0.0	-0.04	89.08
P21	D2b_T2	0.0	-0.04	89.96
P22	D2b_T2	0.0	0.02	86.35
P23	D2b_T2	0.0	0.02	87.21
P24	D2b_T2	0.0	0.02	88.07
P25	D2b_T2	0.0	0.02	88.91
P26	D2b_T2	0.0	0.02	89.75
P27	D2b_T2	0.0	0.02	90.57
P28	D2b_T2	0.0	0.02	91.40
P29	D2b_T2	0.0	0.06	91.76
P30	D2b_T2	0.0	0.06	92.62
P31	D2b_T2	0.0	0.06	93.47
P32	D2b_T2	0.0	0.06	94.32
P33	D2b_T2	0.0	0.06	95.18
P34	D2b_T2	0.0	0.06	96.03
P35	D2b_T2	0.0	0.06	96.88
P36	D2b_T2	0.0	0.07	93.66
P37	D2b_T2	0.0	0.07	94.49
P38	D2b_T2	0.0	0.07	95.32
P39	D2b_T2	0.0	0.07	96.14
P40	D2b_T2	0.0	0.07	96.95
P41	D2b_T2	0.0	0.07	97.74
P42	D2b_T2	0.0	0.07	98.54
P43	D2b_T2	0.0	0.10	96.63
P44	D2b_T2	0.0	0.10	97.45
P45	D2b_T2	0.0	0.10	98.26
P46	D2b_T2	0.0	0.10	99.08
P47	D2b_T2	0.0	0.10	99.90
P48	D2b_T2	0.0	0.10	100.72
P49	D2b_T2	0.0	0.10	101.53

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T3	0.0	-0.13	78.07
P2	D2b_T3	0.0	-0.13	79.18
P3	D2b_T3	0.0	-0.13	80.28
P4	D2b_T3	0.0	-0.13	81.39
P5	D2b_T3	0.0	-0.13	82.50
P6	D2b_T3	0.0	-0.13	83.60
P7	D2b_T3	0.0	-0.13	84.71
P8	D2b_T3	0.0	-0.08	80.22
P9	D2b_T3	0.0	-0.08	81.33
P10	D2b_T3	0.0	-0.08	82.45
P11	D2b_T3	0.0	-0.08	83.55
P12	D2b_T3	0.0	-0.08	84.65
P13	D2b_T3	0.0	-0.08	85.72
P14	D2b_T3	0.0	-0.08	86.82
P15	D2b_T3	0.0	-0.04	86.30
P16	D2b_T3	0.0	-0.03	87.45
P17	D2b_T3	0.0	-0.03	88.60
P18	D2b_T3	0.0	-0.03	89.75
P19	D2b_T3	0.0	-0.03	90.89
P20	D2b_T3	0.0	-0.03	92.04
P21	D2b_T3	0.0	-0.03	93.19
P22	D2b_T3	0.0	0.02	88.59
P23	D2b_T3	0.0	0.02	89.75
P24	D2b_T3	0.0	0.02	90.92
P25	D2b_T3	0.0	0.02	92.07
P26	D2b_T3	0.0	0.02	93.22
P27	D2b_T3	0.0	0.02	94.34
P28	D2b_T3	0.0	0.02	95.49
P29	D2b_T3	0.0	0.06	94.71
P30	D2b_T3	0.0	0.06	95.92
P31	D2b_T3	0.0	0.06	97.13
P32	D2b_T3	0.0	0.06	98.34
P33	D2b_T3	0.0	0.06	99.55
P34	D2b_T3	0.0	0.06	100.76
P35	D2b_T3	0.0	0.06	101.97
P36	D2b_T3	0.0	0.06	97.09
P37	D2b_T3	0.0	0.06	98.31
P38	D2b_T3	0.0	0.07	99.54
P39	D2b_T3	0.0	0.07	100.73
P40	D2b_T3	0.0	0.07	101.94
P41	D2b_T3	0.0	0.07	103.10
P42	D2b_T3	0.0	0.07	104.30
P43	D2b_T3	0.0	0.10	100.79
P44	D2b_T3	0.0	0.10	102.04
P45	D2b_T3	0.0	0.10	103.30
P46	D2b_T3	0.0	0.10	104.55
P47	D2b_T3	0.0	0.10	105.80
P48	D2b_T3	0.0	0.10	107.05
P49	D2b_T3	0.0	0.10	108.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T4	0.0	-0.13	81.17
P2	D2b_T4	0.0	-0.13	81.91
P3	D2b_T4	0.0	-0.13	82.65
P4	D2b_T4	0.0	-0.13	83.39
P5	D2b_T4	0.0	-0.13	84.13
P6	D2b_T4	0.0	-0.13	84.87
P7	D2b_T4	0.0	-0.13	85.61
P8	D2b_T4	0.0	-0.08	82.56
P9	D2b_T4	0.0	-0.08	83.32
P10	D2b_T4	0.0	-0.08	84.08
P11	D2b_T4	0.0	-0.08	84.82
P12	D2b_T4	0.0	-0.08	85.56
P13	D2b_T4	0.0	-0.08	86.27
P14	D2b_T4	0.0	-0.08	87.01
P15	D2b_T4	0.0	-0.03	87.94
P16	D2b_T4	0.0	-0.03	88.72
P17	D2b_T4	0.0	-0.03	89.50
P18	D2b_T4	0.0	-0.03	90.28
P19	D2b_T4	0.0	-0.03	91.06
P20	D2b_T4	0.0	-0.03	91.84
P21	D2b_T4	0.0	-0.03	92.62
P22	D2b_T4	0.0	0.02	89.49
P23	D2b_T4	0.0	0.02	90.28
P24	D2b_T4	0.0	0.02	91.07
P25	D2b_T4	0.0	0.02	91.84
P26	D2b_T4	0.0	0.02	92.61
P27	D2b_T4	0.0	0.02	93.35
P28	D2b_T4	0.0	0.02	94.12
P29	D2b_T4	0.0	0.06	94.89
P30	D2b_T4	0.0	0.06	95.69
P31	D2b_T4	0.0	0.06	96.49
P32	D2b_T4	0.0	0.06	97.29
P33	D2b_T4	0.0	0.06	98.09
P34	D2b_T4	0.0	0.06	98.89
P35	D2b_T4	0.0	0.06	99.69
P36	D2b_T4	0.0	0.07	96.50
P37	D2b_T4	0.0	0.07	97.29
P38	D2b_T4	0.0	0.07	98.09
P39	D2b_T4	0.0	0.06	98.86
P40	D2b_T4	0.0	0.06	99.63
P41	D2b_T4	0.0	0.06	100.37
P42	D2b_T4	0.0	0.06	101.13
P43	D2b_T4	0.0	0.10	99.42
P44	D2b_T4	0.0	0.10	100.20
P45	D2b_T4	0.0	0.10	100.99
P46	D2b_T4	0.0	0.10	101.77
P47	D2b_T4	0.0	0.10	102.55
P48	D2b_T4	0.0	0.10	103.33
P49	D2b_T4	0.0	0.10	104.11

Vertical Reactions:

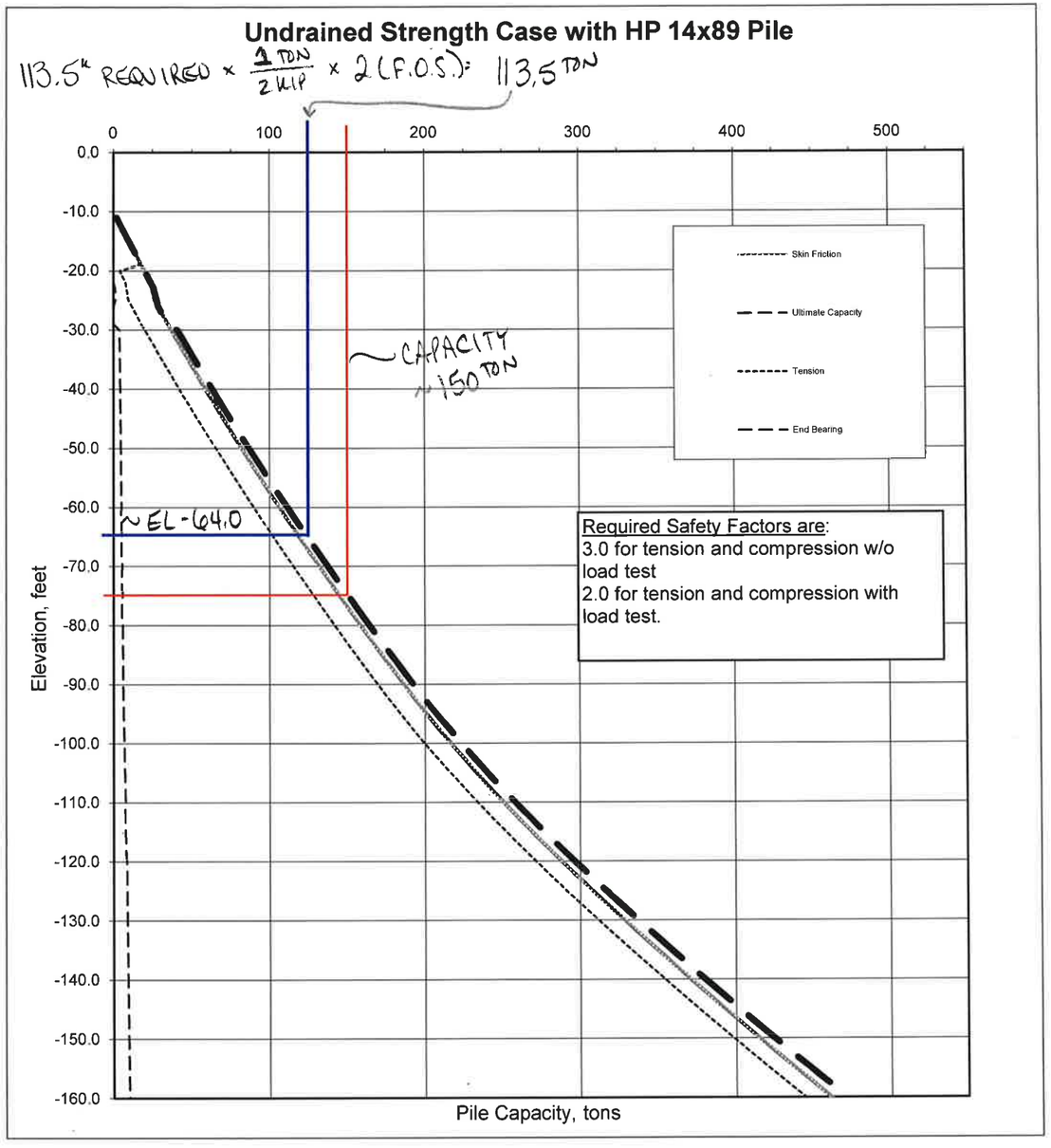
MAXIMUM REACTION =	113.48	kips
MINIMUM REACTION =	0.04	kips

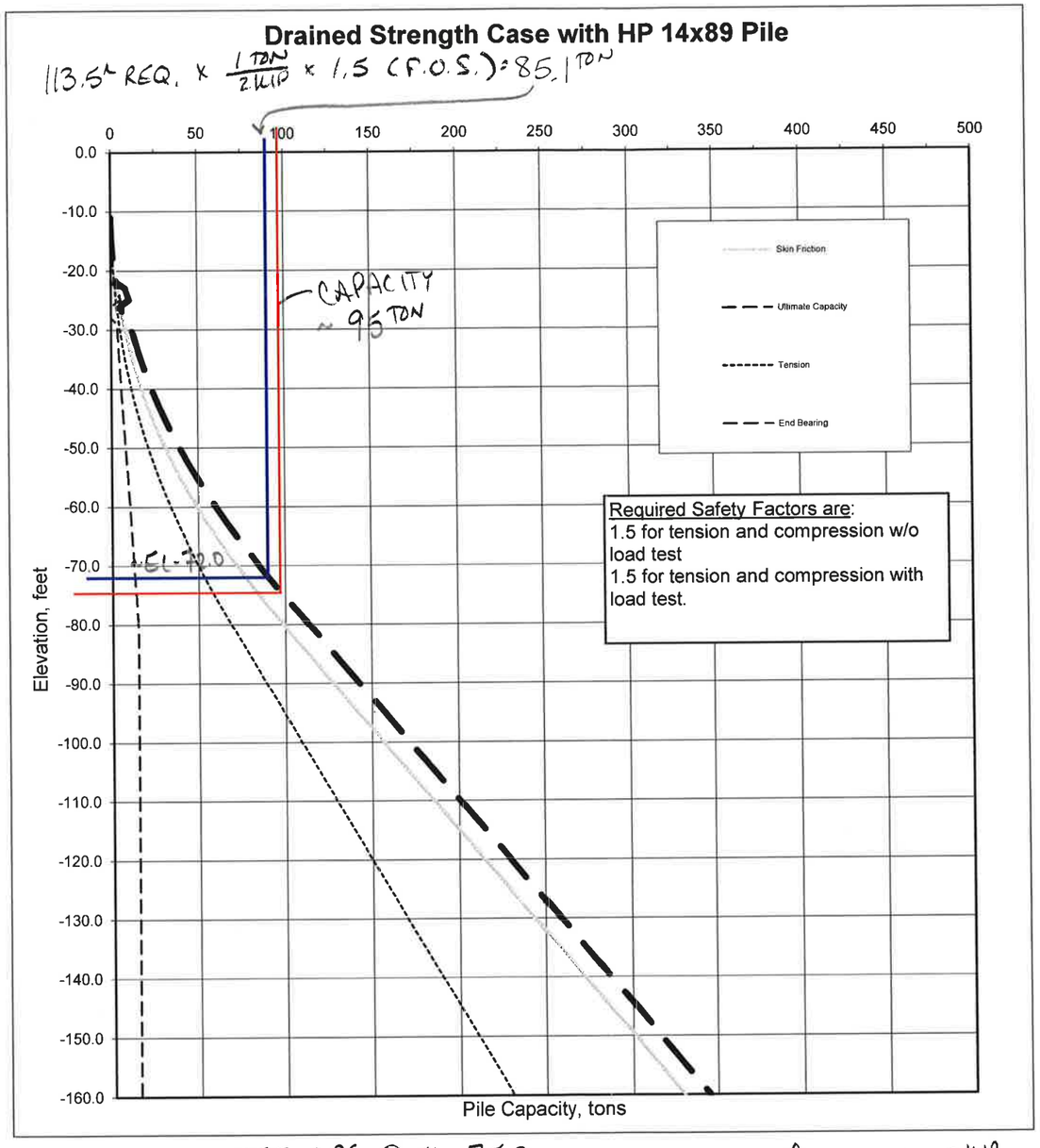
Horizontal (F1) Reactions:

MAXIMUM REACTION =	0.01	kips
MINIMUM REACTION =	-0.01	kips

Horizontal (F2) Reactions:

MAXIMUM REACTION =	8.95	kips
MINIMUM REACTION =	-0.16	kips





SET TIPS @ EL-75.0

C_{ALLOW}: 126.7 KIP (DRAINED CONTROLS)

Notes:
1. Pile capacity curves represent axial resistance for a sigle pile and do not consider group effects.
2. Curves indicate Ultimate Capacity; the appropriate safety factors should be applied to arrive at the Allowable Capacity

Lake Maurepas Diversion Canal	Project No. 10001863	**Pile Capacities: Intake Structure HP - 14X89**	URS	Figure No. 2

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Description: C-2 to C-4 Model Pile Springs **Computed By:** LBR **Date:** Jul-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

PILE/SPRING STIFFNESS INPUT IN SAP **HP14x89 Piles Used**

Axial Pile Stiffness (b33 = C33 (AE/L)):

Pile tip elevation required pile from the pile capacity curves = -75.0 NAVD88
Top of pile Elevation including 9" Pile embedment = (-10.5 + 0.75) ft = -9.75 NAVD88
Therefore, required length of pile = 65.25 ft

Axial stiffness modifier (C33) that for interaction between soil & pile = 1.74 (from geotech analysis)

Cross-section area of the pile 'A' = 26.1 in^2

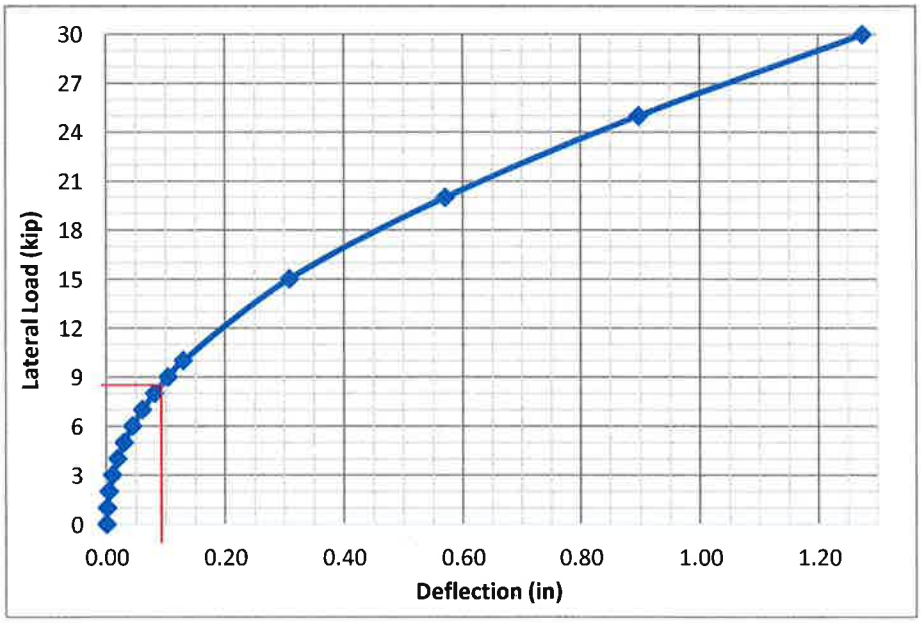
Modulus of Elasticity of the pile (E) = 29,000 ksi

Therefore, axial spring stiffness for SAP: b33 = C33 * (A*E/L) = 1682.0 k/in
= **20184 k/ft**

Lateral Pile Stiffness:

Lateral pile stiffness is determined from the L-Pile data attached (provided by geotech analysis).
Lateral pile stiffnesses for the loading curves are as follows:

Load curve (F)	Avg. Pile Head Deflection (x)	Stiffness (k = F/x)
(k)	(in)	(k/in)
0	0.00000	-
1	0.00103	975.4
2	0.00409	488.5
3	0.00978	306.9
4	0.01820	219.8
5	0.02924	171.0
6	0.04343	138.2
7	0.06009	116.5
8	0.08048	99.4
9	0.10349	87.0
10	0.12881	77.6
15	0.30791	48.7
20	0.57012	35.1
25	0.89728	27.9
30	1.27460	23.5



Try using a spring corresponding to a 9k lateral load

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

* Uses springs for a pile tip elevation of -75.0 and a lateral reaction of 9kip (0.1035" corresponding deflection).

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a	0.0	-0.14	90.27
P2	1a	0.0	-0.14	90.27
P3	1a	0.0	-0.14	90.27
P4	1a	0.0	-0.14	90.27
P5	1a	0.0	-0.14	90.27
P6	1a	0.0	-0.14	90.26
P7	1a	0.0	-0.14	90.26
P8	1a	0.0	-0.08	88.86
P9	1a	0.0	-0.08	88.88
P10	1a	0.0	-0.08	88.91
P11	1a	0.0	-0.08	88.91
P12	1a	0.0	-0.08	88.91
P13	1a	0.0	-0.08	88.87
P14	1a	0.0	-0.08	88.86
P15	1a	0.0	-0.05	92.62
P16	1a	0.0	-0.05	92.62
P17	1a	0.0	-0.05	92.62
P18	1a	0.0	-0.05	92.62
P19	1a	0.0	-0.05	92.62
P20	1a	0.0	-0.05	92.62
P21	1a	0.0	-0.05	92.62
P22	1a	0.0	0.00	90.01
P23	1a	0.0	0.00	90.03
P24	1a	0.0	0.00	90.06
P25	1a	0.0	0.00	90.06
P26	1a	0.0	0.00	90.06
P27	1a	0.0	0.00	90.02
P28	1a	0.0	0.00	90.01
P29	1a	0.0	0.05	92.62
P30	1a	0.0	0.05	92.62
P31	1a	0.0	0.05	92.62
P32	1a	0.0	0.05	92.62
P33	1a	0.0	0.05	92.62
P34	1a	0.0	0.05	92.62
P35	1a	0.0	0.05	92.62
P36	1a	0.0	0.08	88.86
P37	1a	0.0	0.08	88.88
P38	1a	0.0	0.08	88.91
P39	1a	0.0	0.08	88.91
P40	1a	0.0	0.08	88.91
P41	1a	0.0	0.08	88.87
P42	1a	0.0	0.08	88.86
P43	1a	0.0	0.14	90.26
P44	1a	0.0	0.14	90.26
P45	1a	0.0	0.14	90.27
P46	1a	0.0	0.14	90.27
P47	1a	0.0	0.14	90.27
P48	1a	0.0	0.14	90.27
P49	1a	0.0	0.14	90.27

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b	0.0	8.77	65.30
P2	1b	0.0	8.77	65.30
P3	1b	0.0	8.77	65.30
P4	1b	0.0	8.77	65.30
P5	1b	0.0	8.77	65.30
P6	1b	0.0	8.77	65.30
P7	1b	0.0	8.77	65.30
P8	1b	0.0	8.82	60.28
P9	1b	0.0	8.82	60.29
P10	1b	0.0	8.82	60.31
P11	1b	0.0	8.82	60.31
P12	1b	0.0	8.82	60.31
P13	1b	0.0	8.82	60.29
P14	1b	0.0	8.82	60.28
P15	1b	0.0	8.86	59.35
P16	1b	0.0	8.86	59.35
P17	1b	0.0	8.86	59.35
P18	1b	0.0	8.86	59.35
P19	1b	0.0	8.86	59.35
P20	1b	0.0	8.86	59.35
P21	1b	0.0	8.86	59.35
P22	1b	0.0	8.89	55.46
P23	1b	0.0	8.89	55.47
P24	1b	0.0	8.89	55.49
P25	1b	0.0	8.89	55.49
P26	1b	0.0	8.89	55.49
P27	1b	0.0	8.89	55.47
P28	1b	0.0	8.89	55.46
P29	1b	0.0	8.92	54.64
P30	1b	0.0	8.92	54.64
P31	1b	0.0	8.92	54.64
P32	1b	0.0	8.92	54.64
P33	1b	0.0	8.92	54.64
P34	1b	0.0	8.92	54.64
P35	1b	0.0	8.92	54.64
P36	1b	0.0	8.94	50.21
P37	1b	0.0	8.94	50.22
P38	1b	0.0	8.94	50.24
P39	1b	0.0	8.94	50.24
P40	1b	0.0	8.94	50.24
P41	1b	0.0	8.94	50.22
P42	1b	0.0	8.94	50.21
P43	1b	0.0	8.94	47.35
P44	1b	0.0	8.94	47.35
P45	1b	0.0	8.94	47.35
P46	1b	0.0	8.94	47.35
P47	1b	0.0	8.94	47.35
P48	1b	0.0	8.94	47.35
P49	1b	0.0	8.94	47.35

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a	0.0	-0.15	16.55
P2	2a	0.0	-0.15	16.55
P3	2a	0.0	-0.15	16.55
P4	2a	0.0	-0.15	16.55
P5	2a	0.0	-0.15	16.55
P6	2a	0.0	-0.15	16.55
P7	2a	0.0	-0.15	16.55
P8	2a	0.0	-0.11	14.47
P9	2a	0.0	-0.11	14.47
P10	2a	0.0	-0.11	14.47
P11	2a	0.0	-0.11	14.47
P12	2a	0.0	-0.11	14.47
P13	2a	0.0	-0.11	14.47
P14	2a	0.0	-0.11	14.47
P15	2a	0.0	-0.06	15.16
P16	2a	0.0	-0.06	15.16
P17	2a	0.0	-0.06	15.16
P18	2a	0.0	-0.06	15.16
P19	2a	0.0	-0.06	15.15
P20	2a	0.0	-0.06	15.15
P21	2a	0.0	-0.06	15.16
P22	2a	0.0	0.00	13.35
P23	2a	0.0	0.00	13.35
P24	2a	0.0	0.00	13.35
P25	2a	0.0	0.00	13.35
P26	2a	0.0	0.00	13.35
P27	2a	0.0	0.00	13.35
P28	2a	0.0	0.00	13.35
P29	2a	0.0	0.06	15.15
P30	2a	0.0	0.06	15.15
P31	2a	0.0	0.06	15.15
P32	2a	0.0	0.06	15.16
P33	2a	0.0	0.06	15.16
P34	2a	0.0	0.06	15.16
P35	2a	0.0	0.06	15.16
P36	2a	0.0	0.11	14.47
P37	2a	0.0	0.11	14.47
P38	2a	0.0	0.11	14.47
P39	2a	0.0	0.11	14.47
P40	2a	0.0	0.11	14.48
P41	2a	0.0	0.11	14.47
P42	2a	0.0	0.11	14.47
P43	2a	0.0	0.15	16.55
P44	2a	0.0	0.15	16.55
P45	2a	0.0	0.15	16.55
P46	2a	0.0	0.15	16.55
P47	2a	0.0	0.15	16.55
P48	2a	0.0	0.15	16.55
P49	2a	0.0	0.15	16.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_6	0.0	-0.13	3.60
P2	2a_6	0.0	-0.13	3.60
P3	2a_6	0.0	-0.13	3.60
P4	2a_6	0.0	-0.13	3.59
P5	2a_6	0.0	-0.13	3.59
P6	2a_6	0.0	-0.13	3.59
P7	2a_6	0.0	-0.13	3.59
P8	2a_6	0.0	-0.10	1.65
P9	2a_6	0.0	-0.10	1.65
P10	2a_6	0.0	-0.10	1.65
P11	2a_6	0.0	-0.10	1.65
P12	2a_6	0.0	-0.10	1.65
P13	2a_6	0.0	-0.10	1.65
P14	2a_6	0.0	-0.10	1.65
P15	2a_6	0.0	-0.05	1.56
P16	2a_6	0.0	-0.05	1.56
P17	2a_6	0.0	-0.05	1.56
P18	2a_6	0.0	-0.05	1.56
P19	2a_6	0.0	-0.05	1.56
P20	2a_6	0.0	-0.05	1.56
P21	2a_6	0.0	-0.05	1.56
P22	2a_6	0.0	0.00	0.15
P23	2a_6	0.0	0.00	0.15
P24	2a_6	0.0	0.00	0.15
P25	2a_6	0.0	0.00	0.15
P26	2a_6	0.0	0.00	0.15
P27	2a_6	0.0	0.00	0.15
P28	2a_6	0.0	0.00	0.15
P29	2a_6	0.0	0.05	1.56
P30	2a_6	0.0	0.05	1.56
P31	2a_6	0.0	0.05	1.56
P32	2a_6	0.0	0.05	1.56
P33	2a_6	0.0	0.05	1.56
P34	2a_6	0.0	0.05	1.56
P35	2a_6	0.0	0.05	1.56
P36	2a_6	0.0	0.10	1.65
P37	2a_6	0.0	0.10	1.65
P38	2a_6	0.0	0.10	1.65
P39	2a_6	0.0	0.10	1.65
P40	2a_6	0.0	0.10	1.65
P41	2a_6	0.0	0.10	1.65
P42	2a_6	0.0	0.10	1.65
P43	2a_6	0.0	0.13	3.59
P44	2a_6	0.0	0.13	3.59
P45	2a_6	0.0	0.13	3.59
P46	2a_6	0.0	0.13	3.59
P47	2a_6	0.0	0.13	3.60
P48	2a_6	0.0	0.13	3.60
P49	2a_6	0.0	0.13	3.60

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T1	0.0	-0.15	16.67
P2	2a_T1	0.0	-0.15	17.75
P3	2a_T1	0.0	-0.15	18.83
P4	2a_T1	0.0	-0.15	19.90
P5	2a_T1	0.0	-0.15	20.98
P6	2a_T1	0.0	-0.15	22.06
P7	2a_T1	0.0	-0.15	23.14
P8	2a_T1	0.0	-0.11	14.44
P9	2a_T1	0.0	-0.11	15.50
P10	2a_T1	0.0	-0.11	16.56
P11	2a_T1	0.0	-0.11	17.61
P12	2a_T1	0.0	-0.11	18.67
P13	2a_T1	0.0	-0.11	19.72
P14	2a_T1	0.0	-0.11	20.78
P15	2a_T1	0.0	-0.06	15.08
P16	2a_T1	0.0	-0.06	16.19
P17	2a_T1	0.0	-0.06	17.30
P18	2a_T1	0.0	-0.06	18.41
P19	2a_T1	0.0	-0.06	19.52
P20	2a_T1	0.0	-0.06	20.63
P21	2a_T1	0.0	-0.06	21.74
P22	2a_T1	0.0	0.00	13.09
P23	2a_T1	0.0	0.00	14.18
P24	2a_T1	0.0	0.00	15.27
P25	2a_T1	0.0	0.00	16.35
P26	2a_T1	0.0	0.00	17.43
P27	2a_T1	0.0	0.00	18.51
P28	2a_T1	0.0	0.00	19.59
P29	2a_T1	0.0	0.06	14.61
P30	2a_T1	0.0	0.06	15.74
P31	2a_T1	0.0	0.06	16.87
P32	2a_T1	0.0	0.06	18.01
P33	2a_T1	0.0	0.06	19.14
P34	2a_T1	0.0	0.06	20.28
P35	2a_T1	0.0	0.06	21.41
P36	2a_T1	0.0	0.11	13.61
P37	2a_T1	0.0	0.11	14.71
P38	2a_T1	0.0	0.11	15.81
P39	2a_T1	0.0	0.11	16.90
P40	2a_T1	0.0	0.11	17.99
P41	2a_T1	0.0	0.11	19.08
P42	2a_T1	0.0	0.11	20.17
P43	2a_T1	0.0	0.15	15.43
P44	2a_T1	0.0	0.15	16.56
P45	2a_T1	0.0	0.15	17.69
P46	2a_T1	0.0	0.15	18.82
P47	2a_T1	0.0	0.15	19.95
P48	2a_T1	0.0	0.15	21.08
P49	2a_T1	0.0	0.15	22.22

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T2	0.0	-0.15	17.80
P2	2a_T2	0.0	-0.15	18.67
P3	2a_T2	0.0	-0.15	19.53
P4	2a_T2	0.0	-0.15	20.40
P5	2a_T2	0.0	-0.15	21.26
P6	2a_T2	0.0	-0.15	22.12
P7	2a_T2	0.0	-0.15	22.99
P8	2a_T2	0.0	-0.11	15.26
P9	2a_T2	0.0	-0.11	16.11
P10	2a_T2	0.0	-0.11	16.96
P11	2a_T2	0.0	-0.11	17.80
P12	2a_T2	0.0	-0.11	18.64
P13	2a_T2	0.0	-0.11	19.48
P14	2a_T2	0.0	-0.11	20.32
P15	2a_T2	0.0	-0.06	15.61
P16	2a_T2	0.0	-0.06	16.50
P17	2a_T2	0.0	-0.06	17.38
P18	2a_T2	0.0	-0.06	18.26
P19	2a_T2	0.0	-0.06	19.15
P20	2a_T2	0.0	-0.06	20.03
P21	2a_T2	0.0	-0.06	20.92
P22	2a_T2	0.0	0.00	13.38
P23	2a_T2	0.0	0.00	14.23
P24	2a_T2	0.0	0.00	15.07
P25	2a_T2	0.0	0.00	15.91
P26	2a_T2	0.0	0.00	16.75
P27	2a_T2	0.0	0.00	17.59
P28	2a_T2	0.0	0.00	18.43
P29	2a_T2	0.0	0.06	14.69
P30	2a_T2	0.0	0.06	15.55
P31	2a_T2	0.0	0.06	16.41
P32	2a_T2	0.0	0.06	17.26
P33	2a_T2	0.0	0.06	18.12
P34	2a_T2	0.0	0.06	18.98
P35	2a_T2	0.0	0.06	19.84
P36	2a_T2	0.0	0.11	13.51
P37	2a_T2	0.0	0.11	14.32
P38	2a_T2	0.0	0.11	15.13
P39	2a_T2	0.0	0.11	15.93
P40	2a_T2	0.0	0.11	16.74
P41	2a_T2	0.0	0.11	17.53
P42	2a_T2	0.0	0.11	18.34
P43	2a_T2	0.0	0.15	15.12
P44	2a_T2	0.0	0.15	15.93
P45	2a_T2	0.0	0.15	16.74
P46	2a_T2	0.0	0.15	17.55
P47	2a_T2	0.0	0.15	18.36
P48	2a_T2	0.0	0.15	19.16
P49	2a_T2	0.0	0.15	19.97

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T3	0.0	-0.15	17.86
P2	2a_T3	0.0	-0.15	18.95
P3	2a_T3	0.0	-0.15	20.03
P4	2a_T3	0.0	-0.15	21.12
P5	2a_T3	0.0	-0.15	22.21
P6	2a_T3	0.0	-0.15	23.30
P7	2a_T3	0.0	-0.15	24.39
P8	2a_T3	0.0	-0.11	16.02
P9	2a_T3	0.0	-0.11	17.10
P10	2a_T3	0.0	-0.11	18.18
P11	2a_T3	0.0	-0.11	19.26
P12	2a_T3	0.0	-0.11	20.34
P13	2a_T3	0.0	-0.11	21.41
P14	2a_T3	0.0	-0.10	22.49
P15	2a_T3	0.0	-0.06	17.27
P16	2a_T3	0.0	-0.06	18.41
P17	2a_T3	0.0	-0.06	19.56
P18	2a_T3	0.0	-0.06	20.70
P19	2a_T3	0.0	-0.06	21.85
P20	2a_T3	0.0	-0.05	22.99
P21	2a_T3	0.0	-0.05	24.14
P22	2a_T3	0.0	0.00	15.64
P23	2a_T3	0.0	0.00	16.79
P24	2a_T3	0.0	0.00	17.94
P25	2a_T3	0.0	0.00	19.08
P26	2a_T3	0.0	0.00	20.22
P27	2a_T3	0.0	0.00	21.36
P28	2a_T3	0.0	0.00	22.51
P29	2a_T3	0.0	0.05	17.63
P30	2a_T3	0.0	0.05	18.86
P31	2a_T3	0.0	0.05	20.08
P32	2a_T3	0.0	0.05	21.31
P33	2a_T3	0.0	0.05	22.54
P34	2a_T3	0.0	0.06	23.76
P35	2a_T3	0.0	0.06	24.99
P36	2a_T3	0.0	0.10	16.84
P37	2a_T3	0.0	0.11	18.06
P38	2a_T3	0.0	0.11	19.27
P39	2a_T3	0.0	0.11	20.48
P40	2a_T3	0.0	0.11	21.69
P41	2a_T3	0.0	0.11	22.89
P42	2a_T3	0.0	0.11	24.10
P43	2a_T3	0.0	0.15	19.18
P44	2a_T3	0.0	0.15	20.46
P45	2a_T3	0.0	0.15	21.74
P46	2a_T3	0.0	0.15	23.02
P47	2a_T3	0.0	0.15	24.30
P48	2a_T3	0.0	0.15	25.58
P49	2a_T3	0.0	0.15	26.86

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T4	0.0	-0.15	20.92
P2	2a_T4	0.0	-0.15	21.65
P3	2a_T4	0.0	-0.15	22.38
P4	2a_T4	0.0	-0.15	23.11
P5	2a_T4	0.0	-0.15	23.84
P6	2a_T4	0.0	-0.15	24.58
P7	2a_T4	0.0	-0.15	25.31
P8	2a_T4	0.0	-0.11	18.30
P9	2a_T4	0.0	-0.11	19.04
P10	2a_T4	0.0	-0.11	19.78
P11	2a_T4	0.0	-0.11	20.51
P12	2a_T4	0.0	-0.10	21.24
P13	2a_T4	0.0	-0.10	21.96
P14	2a_T4	0.0	-0.10	22.69
P15	2a_T4	0.0	-0.05	18.89
P16	2a_T4	0.0	-0.05	19.68
P17	2a_T4	0.0	-0.05	20.46
P18	2a_T4	0.0	-0.05	21.25
P19	2a_T4	0.0	-0.05	22.03
P20	2a_T4	0.0	-0.05	22.82
P21	2a_T4	0.0	-0.05	23.61
P22	2a_T4	0.0	0.00	16.55
P23	2a_T4	0.0	0.00	17.32
P24	2a_T4	0.0	0.00	18.10
P25	2a_T4	0.0	0.00	18.87
P26	2a_T4	0.0	0.00	19.64
P27	2a_T4	0.0	0.00	20.40
P28	2a_T4	0.0	0.00	21.17
P29	2a_T4	0.0	0.05	17.85
P30	2a_T4	0.0	0.05	18.66
P31	2a_T4	0.0	0.05	19.47
P32	2a_T4	0.0	0.05	20.28
P33	2a_T4	0.0	0.06	21.09
P34	2a_T4	0.0	0.06	21.90
P35	2a_T4	0.0	0.06	22.72
P36	2a_T4	0.0	0.11	16.30
P37	2a_T4	0.0	0.11	17.08
P38	2a_T4	0.0	0.11	17.85
P39	2a_T4	0.0	0.11	18.62
P40	2a_T4	0.0	0.11	19.39
P41	2a_T4	0.0	0.11	20.15
P42	2a_T4	0.0	0.11	20.92
P43	2a_T4	0.0	0.15	17.84
P44	2a_T4	0.0	0.15	18.63
P45	2a_T4	0.0	0.15	19.41
P46	2a_T4	0.0	0.15	20.20
P47	2a_T4	0.0	0.15	20.98
P48	2a_T4	0.0	0.15	21.77
P49	2a_T4	0.0	0.15	22.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b	0.0	-0.10	100.64
P2	2b	0.0	-0.10	100.64
P3	2b	0.0	-0.10	100.64
P4	2b	0.0	-0.10	100.64
P5	2b	0.0	-0.10	100.64
P6	2b	0.0	-0.10	100.64
P7	2b	0.0	-0.10	100.64
P8	2b	0.0	-0.05	99.98
P9	2b	0.0	-0.05	100.00
P10	2b	0.0	-0.05	100.04
P11	2b	0.0	-0.05	100.03
P12	2b	0.0	-0.05	100.04
P13	2b	0.0	-0.05	99.99
P14	2b	0.0	-0.05	99.98
P15	2b	0.0	-0.02	104.43
P16	2b	0.0	-0.02	104.43
P17	2b	0.0	-0.02	104.43
P18	2b	0.0	-0.02	104.43
P19	2b	0.0	-0.02	104.43
P20	2b	0.0	-0.02	104.43
P21	2b	0.0	-0.02	104.43
P22	2b	0.0	0.00	102.27
P23	2b	0.0	0.00	102.29
P24	2b	0.0	0.00	102.33
P25	2b	0.0	0.00	102.32
P26	2b	0.0	0.00	102.33
P27	2b	0.0	0.00	102.28
P28	2b	0.0	0.00	102.27
P29	2b	0.0	0.02	104.43
P30	2b	0.0	0.02	104.43
P31	2b	0.0	0.02	104.43
P32	2b	0.0	0.02	104.43
P33	2b	0.0	0.02	104.43
P34	2b	0.0	0.02	104.43
P35	2b	0.0	0.02	104.44
P36	2b	0.0	0.05	99.98
P37	2b	0.0	0.05	100.00
P38	2b	0.0	0.05	100.03
P39	2b	0.0	0.05	100.03
P40	2b	0.0	0.05	100.04
P41	2b	0.0	0.05	100.00
P42	2b	0.0	0.05	99.98
P43	2b	0.0	0.10	100.64
P44	2b	0.0	0.10	100.64
P45	2b	0.0	0.10	100.64
P46	2b	0.0	0.10	100.64
P47	2b	0.0	0.10	100.64
P48	2b	0.0	0.10	100.64
P49	2b	0.0	0.10	100.64

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T1	0.0	-0.10	100.76
P2	2b_T1	0.0	-0.10	101.84
P3	2b_T1	0.0	-0.10	102.92
P4	2b_T1	0.0	-0.10	103.99
P5	2b_T1	0.0	-0.10	105.07
P6	2b_T1	0.0	-0.10	106.15
P7	2b_T1	0.0	-0.10	107.23
P8	2b_T1	0.0	-0.04	99.95
P9	2b_T1	0.0	-0.04	101.03
P10	2b_T1	0.0	-0.04	102.12
P11	2b_T1	0.0	-0.04	103.17
P12	2b_T1	0.0	-0.04	104.23
P13	2b_T1	0.0	-0.04	105.24
P14	2b_T1	0.0	-0.04	106.29
P15	2b_T1	0.0	-0.02	104.35
P16	2b_T1	0.0	-0.02	105.46
P17	2b_T1	0.0	-0.02	106.58
P18	2b_T1	0.0	-0.02	107.69
P19	2b_T1	0.0	-0.02	108.80
P20	2b_T1	0.0	-0.02	109.91
P21	2b_T1	0.0	-0.02	111.02
P22	2b_T1	0.0	0.00	102.02
P23	2b_T1	0.0	0.00	103.12
P24	2b_T1	0.0	0.00	104.24
P25	2b_T1	0.0	0.00	105.32
P26	2b_T1	0.0	0.00	106.41
P27	2b_T1	0.0	0.00	107.45
P28	2b_T1	0.0	0.00	108.52
P29	2b_T1	0.0	0.02	103.88
P30	2b_T1	0.0	0.02	105.02
P31	2b_T1	0.0	0.02	106.15
P32	2b_T1	0.0	0.02	107.29
P33	2b_T1	0.0	0.02	108.42
P34	2b_T1	0.0	0.02	109.55
P35	2b_T1	0.0	0.02	110.69
P36	2b_T1	0.0	0.04	99.13
P37	2b_T1	0.0	0.04	100.24
P38	2b_T1	0.0	0.04	101.37
P39	2b_T1	0.0	0.04	102.46
P40	2b_T1	0.0	0.04	103.55
P41	2b_T1	0.0	0.04	104.60
P42	2b_T1	0.0	0.04	105.69
P43	2b_T1	0.0	0.10	99.52
P44	2b_T1	0.0	0.10	100.65
P45	2b_T1	0.0	0.10	101.78
P46	2b_T1	0.0	0.10	102.91
P47	2b_T1	0.0	0.10	104.04
P48	2b_T1	0.0	0.10	105.17
P49	2b_T1	0.0	0.10	106.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T2	0.0	-0.10	101.89
P2	2b_T2	0.0	-0.10	102.76
P3	2b_T2	0.0	-0.10	103.62
P4	2b_T2	0.0	-0.10	104.49
P5	2b_T2	0.0	-0.10	105.35
P6	2b_T2	0.0	-0.10	106.21
P7	2b_T2	0.0	-0.10	107.08
P8	2b_T2	0.0	-0.04	100.77
P9	2b_T2	0.0	-0.04	101.64
P10	2b_T2	0.0	-0.04	102.52
P11	2b_T2	0.0	-0.04	103.36
P12	2b_T2	0.0	-0.04	104.20
P13	2b_T2	0.0	-0.04	105.00
P14	2b_T2	0.0	-0.04	105.84
P15	2b_T2	0.0	-0.02	104.89
P16	2b_T2	0.0	-0.02	105.77
P17	2b_T2	0.0	-0.02	106.66
P18	2b_T2	0.0	-0.02	107.54
P19	2b_T2	0.0	-0.02	108.43
P20	2b_T2	0.0	-0.02	109.31
P21	2b_T2	0.0	-0.02	110.19
P22	2b_T2	0.0	0.00	102.31
P23	2b_T2	0.0	0.00	103.17
P24	2b_T2	0.0	0.00	104.04
P25	2b_T2	0.0	0.00	104.88
P26	2b_T2	0.0	0.00	105.73
P27	2b_T2	0.0	0.00	106.52
P28	2b_T2	0.0	0.00	107.35
P29	2b_T2	0.0	0.02	103.97
P30	2b_T2	0.0	0.02	104.83
P31	2b_T2	0.0	0.02	105.68
P32	2b_T2	0.0	0.02	106.54
P33	2b_T2	0.0	0.02	107.40
P34	2b_T2	0.0	0.02	108.26
P35	2b_T2	0.0	0.02	109.12
P36	2b_T2	0.0	0.05	99.02
P37	2b_T2	0.0	0.05	99.85
P38	2b_T2	0.0	0.05	100.69
P39	2b_T2	0.0	0.04	101.49
P40	2b_T2	0.0	0.04	102.30
P41	2b_T2	0.0	0.04	103.06
P42	2b_T2	0.0	0.04	103.85
P43	2b_T2	0.0	0.10	99.21
P44	2b_T2	0.0	0.10	100.02
P45	2b_T2	0.0	0.10	100.83
P46	2b_T2	0.0	0.10	101.64
P47	2b_T2	0.0	0.10	102.45
P48	2b_T2	0.0	0.10	103.25
P49	2b_T2	0.0	0.10	104.06

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T3	0.0	-0.10	101.95
P2	2b_T3	0.0	-0.10	103.04
P3	2b_T3	0.0	-0.10	104.12
P4	2b_T3	0.0	-0.10	105.21
P5	2b_T3	0.0	-0.10	106.30
P6	2b_T3	0.0	-0.10	107.39
P7	2b_T3	0.0	-0.10	108.48
P8	2b_T3	0.0	-0.04	101.53
P9	2b_T3	0.0	-0.04	102.63
P10	2b_T3	0.0	-0.04	103.74
P11	2b_T3	0.0	-0.04	104.82
P12	2b_T3	0.0	-0.04	105.90
P13	2b_T3	0.0	-0.04	106.93
P14	2b_T3	0.0	-0.04	108.00
P15	2b_T3	0.0	-0.02	106.55
P16	2b_T3	0.0	-0.02	107.69
P17	2b_T3	0.0	-0.02	108.84
P18	2b_T3	0.0	-0.02	109.98
P19	2b_T3	0.0	-0.02	111.13
P20	2b_T3	0.0	-0.02	112.27
P21	2b_T3	0.0	-0.02	113.42
P22	2b_T3	0.0	0.00	104.56
P23	2b_T3	0.0	0.00	105.73
P24	2b_T3	0.0	0.00	106.91
P25	2b_T3	0.0	0.00	108.05
P26	2b_T3	0.0	0.00	109.20
P27	2b_T3	0.0	0.00	110.30
P28	2b_T3	0.0	0.00	111.43
P29	2b_T3	0.0	0.02	106.91
P30	2b_T3	0.0	0.02	108.14
P31	2b_T3	0.0	0.02	109.36
P32	2b_T3	0.0	0.02	110.59
P33	2b_T3	0.0	0.02	111.81
P34	2b_T3	0.0	0.02	113.04
P35	2b_T3	0.0	0.02	114.27
P36	2b_T3	0.0	0.04	102.36
P37	2b_T3	0.0	0.04	103.59
P38	2b_T3	0.0	0.04	104.83
P39	2b_T3	0.0	0.04	106.04
P40	2b_T3	0.0	0.04	107.25
P41	2b_T3	0.0	0.04	108.41
P42	2b_T3	0.0	0.05	109.61
P43	2b_T3	0.0	0.10	103.27
P44	2b_T3	0.0	0.10	104.55
P45	2b_T3	0.0	0.10	105.83
P46	2b_T3	0.0	0.10	107.11
P47	2b_T3	0.0	0.10	108.39
P48	2b_T3	0.0	0.10	109.67
P49	2b_T3	0.0	0.10	110.95

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T4	0.0	-0.10	105.01
P2	2b_T4	0.0	-0.10	105.74
P3	2b_T4	0.0	-0.10	106.47
P4	2b_T4	0.0	-0.10	107.20
P5	2b_T4	0.0	-0.10	107.94
P6	2b_T4	0.0	-0.10	108.67
P7	2b_T4	0.0	-0.10	109.40
P8	2b_T4	0.0	-0.04	103.82
P9	2b_T4	0.0	-0.04	104.57
P10	2b_T4	0.0	-0.04	105.34
P11	2b_T4	0.0	-0.04	106.07
P12	2b_T4	0.0	-0.04	106.80
P13	2b_T4	0.0	-0.04	107.49
P14	2b_T4	0.0	-0.04	108.21
P15	2b_T4	0.0	-0.02	108.17
P16	2b_T4	0.0	-0.02	108.95
P17	2b_T4	0.0	-0.02	109.74
P18	2b_T4	0.0	-0.02	110.53
P19	2b_T4	0.0	-0.02	111.31
P20	2b_T4	0.0	-0.02	112.10
P21	2b_T4	0.0	-0.02	112.88
P22	2b_T4	0.0	0.00	105.47
P23	2b_T4	0.0	0.00	106.27
P24	2b_T4	0.0	0.00	107.07
P25	2b_T4	0.0	0.00	107.84
P26	2b_T4	0.0	0.00	108.61
P27	2b_T4	0.0	0.00	109.34
P28	2b_T4	0.0	0.00	110.10
P29	2b_T4	0.0	0.02	107.12
P30	2b_T4	0.0	0.02	107.94
P31	2b_T4	0.0	0.02	108.75
P32	2b_T4	0.0	0.02	109.56
P33	2b_T4	0.0	0.02	110.37
P34	2b_T4	0.0	0.02	111.18
P35	2b_T4	0.0	0.02	112.00
P36	2b_T4	0.0	0.04	101.81
P37	2b_T4	0.0	0.04	102.61
P38	2b_T4	0.0	0.04	103.41
P39	2b_T4	0.0	0.04	104.18
P40	2b_T4	0.0	0.04	104.95
P41	2b_T4	0.0	0.04	105.68
P42	2b_T4	0.0	0.04	106.44
P43	2b_T4	0.0	0.10	101.93
P44	2b_T4	0.0	0.10	102.72
P45	2b_T4	0.0	0.10	103.50
P46	2b_T4	0.0	0.10	104.29
P47	2b_T4	0.0	0.10	105.07
P48	2b_T4	0.0	0.10	105.86
P49	2b_T4	0.0	0.10	106.64

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a	0.0	-0.14	50.64
P2	3a	0.0	-0.14	50.64
P3	3a	0.0	-0.14	50.64
P4	3a	0.0	-0.14	50.64
P5	3a	0.0	-0.14	50.64
P6	3a	0.0	-0.14	50.64
P7	3a	0.0	-0.14	50.64
P8	3a	0.0	-0.09	48.99
P9	3a	0.0	-0.09	49.00
P10	3a	0.0	-0.09	49.02
P11	3a	0.0	-0.09	49.02
P12	3a	0.0	-0.09	49.02
P13	3a	0.0	-0.09	49.00
P14	3a	0.0	-0.09	48.99
P15	3a	0.0	-0.05	50.99
P16	3a	0.0	-0.05	50.99
P17	3a	0.0	-0.05	50.99
P18	3a	0.0	-0.05	50.99
P19	3a	0.0	-0.05	50.99
P20	3a	0.0	-0.05	50.99
P21	3a	0.0	-0.05	50.99
P22	3a	0.0	0.00	48.92
P23	3a	0.0	0.00	48.93
P24	3a	0.0	0.00	48.94
P25	3a	0.0	0.00	48.94
P26	3a	0.0	0.00	48.95
P27	3a	0.0	0.00	48.93
P28	3a	0.0	0.00	48.92
P29	3a	0.0	0.05	50.99
P30	3a	0.0	0.05	50.99
P31	3a	0.0	0.05	50.99
P32	3a	0.0	0.05	50.99
P33	3a	0.0	0.05	50.99
P34	3a	0.0	0.05	50.99
P35	3a	0.0	0.05	50.99
P36	3a	0.0	0.09	48.99
P37	3a	0.0	0.09	49.00
P38	3a	0.0	0.09	49.02
P39	3a	0.0	0.09	49.02
P40	3a	0.0	0.09	49.02
P41	3a	0.0	0.09	49.00
P42	3a	0.0	0.09	48.99
P43	3a	0.0	0.14	50.64
P44	3a	0.0	0.14	50.64
P45	3a	0.0	0.14	50.64
P46	3a	0.0	0.14	50.64
P47	3a	0.0	0.14	50.64
P48	3a	0.0	0.14	50.64
P49	3a	0.0	0.14	50.64

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_6	0.0	-0.12	37.69
P2	3a_6	0.0	-0.12	37.69
P3	3a_6	0.0	-0.12	37.69
P4	3a_6	0.0	-0.12	37.69
P5	3a_6	0.0	-0.12	37.69
P6	3a_6	0.0	-0.12	37.69
P7	3a_6	0.0	-0.12	37.69
P8	3a_6	0.0	-0.08	36.18
P9	3a_6	0.0	-0.08	36.18
P10	3a_6	0.0	-0.08	36.19
P11	3a_6	0.0	-0.08	36.19
P12	3a_6	0.0	-0.08	36.19
P13	3a_6	0.0	-0.08	36.18
P14	3a_6	0.0	-0.08	36.17
P15	3a_6	0.0	-0.04	37.39
P16	3a_6	0.0	-0.04	37.39
P17	3a_6	0.0	-0.04	37.39
P18	3a_6	0.0	-0.04	37.39
P19	3a_6	0.0	-0.04	37.39
P20	3a_6	0.0	-0.04	37.39
P21	3a_6	0.0	-0.04	37.39
P22	3a_6	0.0	0.00	35.72
P23	3a_6	0.0	0.00	35.73
P24	3a_6	0.0	0.00	35.74
P25	3a_6	0.0	0.00	35.74
P26	3a_6	0.0	0.00	35.74
P27	3a_6	0.0	0.00	35.73
P28	3a_6	0.0	0.00	35.73
P29	3a_6	0.0	0.04	37.39
P30	3a_6	0.0	0.04	37.39
P31	3a_6	0.0	0.04	37.39
P32	3a_6	0.0	0.04	37.39
P33	3a_6	0.0	0.04	37.39
P34	3a_6	0.0	0.04	37.39
P35	3a_6	0.0	0.04	37.39
P36	3a_6	0.0	0.08	36.17
P37	3a_6	0.0	0.08	36.18
P38	3a_6	0.0	0.08	36.19
P39	3a_6	0.0	0.08	36.19
P40	3a_6	0.0	0.08	36.19
P41	3a_6	0.0	0.08	36.18
P42	3a_6	0.0	0.08	36.18
P43	3a_6	0.0	0.12	37.69
P44	3a_6	0.0	0.12	37.69
P45	3a_6	0.0	0.12	37.69
P46	3a_6	0.0	0.12	37.69
P47	3a_6	0.0	0.12	37.69
P48	3a_6	0.0	0.12	37.69
P49	3a_6	0.0	0.12	37.69

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T1	0.0	-0.14	50.76
P2	3a_T1	0.0	-0.14	51.84
P3	3a_T1	0.0	-0.14	52.92
P4	3a_T1	0.0	-0.14	54.00
P5	3a_T1	0.0	-0.14	55.08
P6	3a_T1	0.0	-0.14	56.15
P7	3a_T1	0.0	-0.14	57.23
P8	3a_T1	0.0	-0.09	48.96
P9	3a_T1	0.0	-0.09	50.03
P10	3a_T1	0.0	-0.09	51.10
P11	3a_T1	0.0	-0.09	52.16
P12	3a_T1	0.0	-0.09	53.21
P13	3a_T1	0.0	-0.09	54.25
P14	3a_T1	0.0	-0.09	55.30
P15	3a_T1	0.0	-0.05	50.91
P16	3a_T1	0.0	-0.05	52.02
P17	3a_T1	0.0	-0.05	53.13
P18	3a_T1	0.0	-0.05	54.24
P19	3a_T1	0.0	-0.05	55.35
P20	3a_T1	0.0	-0.05	56.47
P21	3a_T1	0.0	-0.05	57.58
P22	3a_T1	0.0	0.00	48.67
P23	3a_T1	0.0	0.00	49.76
P24	3a_T1	0.0	0.00	50.86
P25	3a_T1	0.0	0.00	51.94
P26	3a_T1	0.0	0.00	53.03
P27	3a_T1	0.0	0.00	54.09
P28	3a_T1	0.0	0.00	55.17
P29	3a_T1	0.0	0.05	50.44
P30	3a_T1	0.0	0.05	51.57
P31	3a_T1	0.0	0.05	52.71
P32	3a_T1	0.0	0.05	53.84
P33	3a_T1	0.0	0.05	54.98
P34	3a_T1	0.0	0.05	56.11
P35	3a_T1	0.0	0.05	57.24
P36	3a_T1	0.0	0.09	48.14
P37	3a_T1	0.0	0.09	49.24
P38	3a_T1	0.0	0.09	50.35
P39	3a_T1	0.0	0.09	51.44
P40	3a_T1	0.0	0.09	52.54
P41	3a_T1	0.0	0.09	53.61
P42	3a_T1	0.0	0.09	54.70
P43	3a_T1	0.0	0.14	49.52
P44	3a_T1	0.0	0.14	50.65
P45	3a_T1	0.0	0.14	51.78
P46	3a_T1	0.0	0.14	52.91
P47	3a_T1	0.0	0.14	54.05
P48	3a_T1	0.0	0.14	55.18
P49	3a_T1	0.0	0.14	56.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T2	0.0	-0.14	51.90
P2	3a_T2	0.0	-0.14	52.76
P3	3a_T2	0.0	-0.14	53.62
P4	3a_T2	0.0	-0.14	54.49
P5	3a_T2	0.0	-0.14	55.35
P6	3a_T2	0.0	-0.14	56.22
P7	3a_T2	0.0	-0.14	57.08
P8	3a_T2	0.0	-0.09	49.78
P9	3a_T2	0.0	-0.09	50.64
P10	3a_T2	0.0	-0.09	51.50
P11	3a_T2	0.0	-0.09	52.34
P12	3a_T2	0.0	-0.09	53.19
P13	3a_T2	0.0	-0.09	54.01
P14	3a_T2	0.0	-0.09	54.85
P15	3a_T2	0.0	-0.05	51.45
P16	3a_T2	0.0	-0.05	52.33
P17	3a_T2	0.0	-0.05	53.21
P18	3a_T2	0.0	-0.05	54.10
P19	3a_T2	0.0	-0.05	54.98
P20	3a_T2	0.0	-0.05	55.87
P21	3a_T2	0.0	-0.05	56.75
P22	3a_T2	0.0	0.00	48.96
P23	3a_T2	0.0	0.00	49.81
P24	3a_T2	0.0	0.00	50.66
P25	3a_T2	0.0	0.00	51.50
P26	3a_T2	0.0	0.00	52.34
P27	3a_T2	0.0	0.00	53.16
P28	3a_T2	0.0	0.00	54.00
P29	3a_T2	0.0	0.05	50.53
P30	3a_T2	0.0	0.05	51.38
P31	3a_T2	0.0	0.05	52.24
P32	3a_T2	0.0	0.05	53.10
P33	3a_T2	0.0	0.05	53.96
P34	3a_T2	0.0	0.05	54.81
P35	3a_T2	0.0	0.05	55.67
P36	3a_T2	0.0	0.09	48.04
P37	3a_T2	0.0	0.09	48.85
P38	3a_T2	0.0	0.09	49.67
P39	3a_T2	0.0	0.09	50.47
P40	3a_T2	0.0	0.09	51.28
P41	3a_T2	0.0	0.09	52.06
P42	3a_T2	0.0	0.09	52.86
P43	3a_T2	0.0	0.14	49.21
P44	3a_T2	0.0	0.14	50.02
P45	3a_T2	0.0	0.14	50.83
P46	3a_T2	0.0	0.14	51.64
P47	3a_T2	0.0	0.14	52.45
P48	3a_T2	0.0	0.14	53.26
P49	3a_T2	0.0	0.14	54.07

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T3	0.0	-0.14	51.95
P2	3a_T3	0.0	-0.14	53.04
P3	3a_T3	0.0	-0.14	54.13
P4	3a_T3	0.0	-0.14	55.22
P5	3a_T3	0.0	-0.14	56.30
P6	3a_T3	0.0	-0.14	57.39
P7	3a_T3	0.0	-0.14	58.48
P8	3a_T3	0.0	-0.09	50.54
P9	3a_T3	0.0	-0.09	51.63
P10	3a_T3	0.0	-0.09	52.73
P11	3a_T3	0.0	-0.09	53.80
P12	3a_T3	0.0	-0.09	54.88
P13	3a_T3	0.0	-0.09	55.94
P14	3a_T3	0.0	-0.09	57.01
P15	3a_T3	0.0	-0.05	53.10
P16	3a_T3	0.0	-0.05	54.25
P17	3a_T3	0.0	-0.05	55.39
P18	3a_T3	0.0	-0.05	56.54
P19	3a_T3	0.0	-0.05	57.68
P20	3a_T3	0.0	-0.05	58.83
P21	3a_T3	0.0	-0.05	59.97
P22	3a_T3	0.0	0.00	51.21
P23	3a_T3	0.0	0.00	52.37
P24	3a_T3	0.0	0.00	53.53
P25	3a_T3	0.0	0.00	54.67
P26	3a_T3	0.0	0.00	55.82
P27	3a_T3	0.0	0.00	56.94
P28	3a_T3	0.0	0.00	58.08
P29	3a_T3	0.0	0.05	53.47
P30	3a_T3	0.0	0.05	54.69
P31	3a_T3	0.0	0.05	55.92
P32	3a_T3	0.0	0.05	57.14
P33	3a_T3	0.0	0.05	58.37
P34	3a_T3	0.0	0.05	59.60
P35	3a_T3	0.0	0.05	60.82
P36	3a_T3	0.0	0.09	51.37
P37	3a_T3	0.0	0.09	52.59
P38	3a_T3	0.0	0.09	53.82
P39	3a_T3	0.0	0.09	55.02
P40	3a_T3	0.0	0.09	56.23
P41	3a_T3	0.0	0.09	57.42
P42	3a_T3	0.0	0.09	58.62
P43	3a_T3	0.0	0.14	53.28
P44	3a_T3	0.0	0.14	54.55
P45	3a_T3	0.0	0.14	55.83
P46	3a_T3	0.0	0.14	57.11
P47	3a_T3	0.0	0.14	58.39
P48	3a_T3	0.0	0.14	59.67
P49	3a_T3	0.0	0.14	60.95

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T4	0.0	-0.14	55.02
P2	3a_T4	0.0	-0.14	55.75
P3	3a_T4	0.0	-0.14	56.48
P4	3a_T4	0.0	-0.14	57.21
P5	3a_T4	0.0	-0.14	57.94
P6	3a_T4	0.0	-0.14	58.67
P7	3a_T4	0.0	-0.14	59.40
P8	3a_T4	0.0	-0.09	52.83
P9	3a_T4	0.0	-0.09	53.57
P10	3a_T4	0.0	-0.09	54.32
P11	3a_T4	0.0	-0.09	55.05
P12	3a_T4	0.0	-0.09	55.78
P13	3a_T4	0.0	-0.09	56.49
P14	3a_T4	0.0	-0.09	57.22
P15	3a_T4	0.0	-0.05	54.73
P16	3a_T4	0.0	-0.05	55.51
P17	3a_T4	0.0	-0.05	56.30
P18	3a_T4	0.0	-0.05	57.08
P19	3a_T4	0.0	-0.05	57.87
P20	3a_T4	0.0	-0.05	58.65
P21	3a_T4	0.0	-0.05	59.44
P22	3a_T4	0.0	0.00	52.12
P23	3a_T4	0.0	0.00	52.90
P24	3a_T4	0.0	0.00	53.69
P25	3a_T4	0.0	0.00	54.46
P26	3a_T4	0.0	0.00	55.23
P27	3a_T4	0.0	0.00	55.98
P28	3a_T4	0.0	0.00	56.75
P29	3a_T4	0.0	0.05	53.68
P30	3a_T4	0.0	0.05	54.49
P31	3a_T4	0.0	0.05	55.30
P32	3a_T4	0.0	0.05	56.12
P33	3a_T4	0.0	0.05	56.93
P34	3a_T4	0.0	0.05	57.74
P35	3a_T4	0.0	0.05	58.55
P36	3a_T4	0.0	0.09	50.83
P37	3a_T4	0.0	0.09	51.61
P38	3a_T4	0.0	0.09	52.39
P39	3a_T4	0.0	0.09	53.16
P40	3a_T4	0.0	0.09	53.94
P41	3a_T4	0.0	0.09	54.68
P42	3a_T4	0.0	0.09	55.45
P43	3a_T4	0.0	0.14	51.94
P44	3a_T4	0.0	0.14	52.72
P45	3a_T4	0.0	0.14	53.51
P46	3a_T4	0.0	0.14	54.29
P47	3a_T4	0.0	0.14	55.08
P48	3a_T4	0.0	0.14	55.86
P49	3a_T4	0.0	0.14	56.65

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b	0.0	-0.10	96.48
P2	3b	0.0	-0.10	96.48
P3	3b	0.0	-0.10	96.48
P4	3b	0.0	-0.10	96.48
P5	3b	0.0	-0.10	96.48
P6	3b	0.0	-0.10	96.48
P7	3b	0.0	-0.10	96.48
P8	3b	0.0	-0.05	95.75
P9	3b	0.0	-0.05	95.77
P10	3b	0.0	-0.05	95.80
P11	3b	0.0	-0.05	95.80
P12	3b	0.0	-0.05	95.80
P13	3b	0.0	-0.05	95.76
P14	3b	0.0	-0.05	95.75
P15	3b	0.0	-0.03	99.90
P16	3b	0.0	-0.03	99.90
P17	3b	0.0	-0.03	99.90
P18	3b	0.0	-0.03	99.90
P19	3b	0.0	-0.03	99.90
P20	3b	0.0	-0.03	99.90
P21	3b	0.0	-0.03	99.90
P22	3b	0.0	0.00	97.70
P23	3b	0.0	0.00	97.72
P24	3b	0.0	0.00	97.75
P25	3b	0.0	0.00	97.75
P26	3b	0.0	0.00	97.75
P27	3b	0.0	0.00	97.71
P28	3b	0.0	0.00	97.70
P29	3b	0.0	0.03	99.90
P30	3b	0.0	0.03	99.90
P31	3b	0.0	0.03	99.90
P32	3b	0.0	0.03	99.90
P33	3b	0.0	0.03	99.91
P34	3b	0.0	0.03	99.91
P35	3b	0.0	0.03	99.91
P36	3b	0.0	0.05	95.75
P37	3b	0.0	0.05	95.77
P38	3b	0.0	0.05	95.80
P39	3b	0.0	0.05	95.80
P40	3b	0.0	0.05	95.80
P41	3b	0.0	0.05	95.76
P42	3b	0.0	0.05	95.75
P43	3b	0.0	0.10	96.47
P44	3b	0.0	0.10	96.48
P45	3b	0.0	0.10	96.48
P46	3b	0.0	0.10	96.48
P47	3b	0.0	0.10	96.48
P48	3b	0.0	0.10	96.48
P49	3b	0.0	0.10	96.48

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T1	0.0	-0.11	96.60
P2	3b_T1	0.0	-0.11	97.68
P3	3b_T1	0.0	-0.11	98.75
P4	3b_T1	0.0	-0.11	99.83
P5	3b_T1	0.0	-0.11	100.91
P6	3b_T1	0.0	-0.11	101.99
P7	3b_T1	0.0	-0.11	103.07
P8	3b_T1	0.0	-0.05	95.72
P9	3b_T1	0.0	-0.05	96.79
P10	3b_T1	0.0	-0.05	97.88
P11	3b_T1	0.0	-0.05	98.94
P12	3b_T1	0.0	-0.05	100.00
P13	3b_T1	0.0	-0.05	101.01
P14	3b_T1	0.0	-0.05	102.06
P15	3b_T1	0.0	-0.03	99.82
P16	3b_T1	0.0	-0.03	100.94
P17	3b_T1	0.0	-0.03	102.05
P18	3b_T1	0.0	-0.03	103.16
P19	3b_T1	0.0	-0.03	104.27
P20	3b_T1	0.0	-0.03	105.38
P21	3b_T1	0.0	-0.03	106.49
P22	3b_T1	0.0	0.00	97.45
P23	3b_T1	0.0	0.00	98.55
P24	3b_T1	0.0	0.00	99.67
P25	3b_T1	0.0	0.00	100.75
P26	3b_T1	0.0	0.00	101.83
P27	3b_T1	0.0	0.00	102.87
P28	3b_T1	0.0	0.00	103.95
P29	3b_T1	0.0	0.03	99.35
P30	3b_T1	0.0	0.03	100.49
P31	3b_T1	0.0	0.03	101.62
P32	3b_T1	0.0	0.03	102.76
P33	3b_T1	0.0	0.03	103.89
P34	3b_T1	0.0	0.03	105.02
P35	3b_T1	0.0	0.03	106.16
P36	3b_T1	0.0	0.05	94.89
P37	3b_T1	0.0	0.05	96.01
P38	3b_T1	0.0	0.05	97.13
P39	3b_T1	0.0	0.05	98.22
P40	3b_T1	0.0	0.05	99.32
P41	3b_T1	0.0	0.05	100.37
P42	3b_T1	0.0	0.05	101.46
P43	3b_T1	0.0	0.10	95.36
P44	3b_T1	0.0	0.10	96.49
P45	3b_T1	0.0	0.10	97.62
P46	3b_T1	0.0	0.10	98.75
P47	3b_T1	0.0	0.10	99.88
P48	3b_T1	0.0	0.11	101.01
P49	3b_T1	0.0	0.11	102.14

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T2	0.0	-0.11	97.73
P2	3b_T2	0.0	-0.11	98.60
P3	3b_T2	0.0	-0.11	99.46
P4	3b_T2	0.0	-0.11	100.32
P5	3b_T2	0.0	-0.11	101.19
P6	3b_T2	0.0	-0.11	102.05
P7	3b_T2	0.0	-0.11	102.92
P8	3b_T2	0.0	-0.05	96.54
P9	3b_T2	0.0	-0.05	97.41
P10	3b_T2	0.0	-0.05	98.28
P11	3b_T2	0.0	-0.05	99.12
P12	3b_T2	0.0	-0.05	99.97
P13	3b_T2	0.0	-0.05	100.77
P14	3b_T2	0.0	-0.05	101.60
P15	3b_T2	0.0	-0.03	100.36
P16	3b_T2	0.0	-0.03	101.24
P17	3b_T2	0.0	-0.03	102.13
P18	3b_T2	0.0	-0.03	103.01
P19	3b_T2	0.0	-0.03	103.90
P20	3b_T2	0.0	-0.03	104.78
P21	3b_T2	0.0	-0.03	105.67
P22	3b_T2	0.0	0.00	97.74
P23	3b_T2	0.0	0.00	98.60
P24	3b_T2	0.0	0.00	99.47
P25	3b_T2	0.0	0.00	100.31
P26	3b_T2	0.0	0.00	101.15
P27	3b_T2	0.0	0.00	101.95
P28	3b_T2	0.0	0.00	102.78
P29	3b_T2	0.0	0.03	99.44
P30	3b_T2	0.0	0.03	100.30
P31	3b_T2	0.0	0.03	101.16
P32	3b_T2	0.0	0.03	102.01
P33	3b_T2	0.0	0.03	102.87
P34	3b_T2	0.0	0.03	103.73
P35	3b_T2	0.0	0.03	104.59
P36	3b_T2	0.0	0.05	94.79
P37	3b_T2	0.0	0.05	95.62
P38	3b_T2	0.0	0.05	96.45
P39	3b_T2	0.0	0.05	97.26
P40	3b_T2	0.0	0.05	98.06
P41	3b_T2	0.0	0.05	98.83
P42	3b_T2	0.0	0.05	99.62
P43	3b_T2	0.0	0.10	95.05
P44	3b_T2	0.0	0.10	95.86
P45	3b_T2	0.0	0.10	96.67
P46	3b_T2	0.0	0.10	97.47
P47	3b_T2	0.0	0.10	98.28
P48	3b_T2	0.0	0.10	99.09
P49	3b_T2	0.0	0.10	99.90

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T3	0.0	-0.11	97.79
P2	3b_T3	0.0	-0.11	98.87
P3	3b_T3	0.0	-0.11	99.96
P4	3b_T3	0.0	-0.11	101.05
P5	3b_T3	0.0	-0.11	102.14
P6	3b_T3	0.0	-0.11	103.23
P7	3b_T3	0.0	-0.11	104.32
P8	3b_T3	0.0	-0.05	97.30
P9	3b_T3	0.0	-0.05	98.40
P10	3b_T3	0.0	-0.05	99.51
P11	3b_T3	0.0	-0.05	100.58
P12	3b_T3	0.0	-0.05	101.66
P13	3b_T3	0.0	-0.05	102.70
P14	3b_T3	0.0	-0.05	103.77
P15	3b_T3	0.0	-0.03	102.02
P16	3b_T3	0.0	-0.03	103.16
P17	3b_T3	0.0	-0.03	104.31
P18	3b_T3	0.0	-0.03	105.45
P19	3b_T3	0.0	-0.03	106.60
P20	3b_T3	0.0	-0.03	107.74
P21	3b_T3	0.0	-0.03	108.89
P22	3b_T3	0.0	0.00	99.99
P23	3b_T3	0.0	0.00	101.16
P24	3b_T3	0.0	0.00	102.34
P25	3b_T3	0.0	0.00	103.48
P26	3b_T3	0.0	0.00	104.63
P27	3b_T3	0.0	0.00	105.73
P28	3b_T3	0.0	0.00	106.86
P29	3b_T3	0.0	0.03	102.38
P30	3b_T3	0.0	0.03	103.61
P31	3b_T3	0.0	0.03	104.83
P32	3b_T3	0.0	0.03	106.06
P33	3b_T3	0.0	0.03	107.29
P34	3b_T3	0.0	0.03	108.51
P35	3b_T3	0.0	0.03	109.74
P36	3b_T3	0.0	0.05	98.12
P37	3b_T3	0.0	0.05	99.36
P38	3b_T3	0.0	0.05	100.60
P39	3b_T3	0.0	0.05	101.80
P40	3b_T3	0.0	0.05	103.01
P41	3b_T3	0.0	0.05	104.18
P42	3b_T3	0.0	0.05	105.38
P43	3b_T3	0.0	0.11	99.11
P44	3b_T3	0.0	0.11	100.39
P45	3b_T3	0.0	0.11	101.67
P46	3b_T3	0.0	0.11	102.95
P47	3b_T3	0.0	0.11	104.23
P48	3b_T3	0.0	0.11	105.51
P49	3b_T3	0.0	0.11	106.79

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T4	0.0	-0.11	100.85
P2	3b_T4	0.0	-0.11	101.58
P3	3b_T4	0.0	-0.11	102.31
P4	3b_T4	0.0	-0.11	103.04
P5	3b_T4	0.0	-0.11	103.77
P6	3b_T4	0.0	-0.11	104.50
P7	3b_T4	0.0	-0.11	105.23
P8	3b_T4	0.0	-0.05	99.59
P9	3b_T4	0.0	-0.05	100.34
P10	3b_T4	0.0	-0.05	101.10
P11	3b_T4	0.0	-0.05	101.83
P12	3b_T4	0.0	-0.05	102.57
P13	3b_T4	0.0	-0.05	103.26
P14	3b_T4	0.0	-0.05	103.98
P15	3b_T4	0.0	-0.03	103.64
P16	3b_T4	0.0	-0.03	104.43
P17	3b_T4	0.0	-0.03	105.21
P18	3b_T4	0.0	-0.03	106.00
P19	3b_T4	0.0	-0.03	106.78
P20	3b_T4	0.0	-0.03	107.57
P21	3b_T4	0.0	-0.03	108.36
P22	3b_T4	0.0	0.00	100.90
P23	3b_T4	0.0	0.00	101.69
P24	3b_T4	0.0	0.00	102.50
P25	3b_T4	0.0	0.00	103.27
P26	3b_T4	0.0	0.00	104.04
P27	3b_T4	0.0	0.00	104.77
P28	3b_T4	0.0	0.00	105.53
P29	3b_T4	0.0	0.03	102.60
P30	3b_T4	0.0	0.03	103.41
P31	3b_T4	0.0	0.03	104.22
P32	3b_T4	0.0	0.03	105.03
P33	3b_T4	0.0	0.03	105.84
P34	3b_T4	0.0	0.03	106.65
P35	3b_T4	0.0	0.03	107.47
P36	3b_T4	0.0	0.05	97.58
P37	3b_T4	0.0	0.05	98.37
P38	3b_T4	0.0	0.05	99.18
P39	3b_T4	0.0	0.05	99.94
P40	3b_T4	0.0	0.05	100.72
P41	3b_T4	0.0	0.05	101.45
P42	3b_T4	0.0	0.05	102.21
P43	3b_T4	0.0	0.10	97.77
P44	3b_T4	0.0	0.10	98.56
P45	3b_T4	0.0	0.10	99.34
P46	3b_T4	0.0	0.10	100.13
P47	3b_T4	0.0	0.10	100.91
P48	3b_T4	0.0	0.10	101.70
P49	3b_T4	0.0	0.10	102.48

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a	0.0	-0.11	31.62
P2	D1a	0.0	-0.11	31.62
P3	D1a	0.0	-0.11	31.62
P4	D1a	0.0	-0.11	31.62
P5	D1a	0.0	-0.11	31.62
P6	D1a	0.0	-0.11	31.62
P7	D1a	0.0	-0.11	31.62
P8	D1a	0.0	-0.10	29.97
P9	D1a	0.0	-0.10	29.98
P10	D1a	0.0	-0.10	29.99
P11	D1a	0.0	-0.10	29.99
P12	D1a	0.0	-0.10	29.99
P13	D1a	0.0	-0.10	29.98
P14	D1a	0.0	-0.10	29.97
P15	D1a	0.0	-0.06	28.79
P16	D1a	0.0	-0.06	28.79
P17	D1a	0.0	-0.06	28.79
P18	D1a	0.0	-0.06	28.79
P19	D1a	0.0	-0.06	28.79
P20	D1a	0.0	-0.06	28.79
P21	D1a	0.0	-0.06	28.79
P22	D1a	0.0	0.00	26.30
P23	D1a	0.0	0.00	26.30
P24	D1a	0.0	0.00	26.31
P25	D1a	0.0	0.00	26.31
P26	D1a	0.0	0.00	26.31
P27	D1a	0.0	0.00	26.30
P28	D1a	0.0	0.00	26.30
P29	D1a	0.0	0.06	28.79
P30	D1a	0.0	0.06	28.79
P31	D1a	0.0	0.06	28.79
P32	D1a	0.0	0.06	28.79
P33	D1a	0.0	0.06	28.79
P34	D1a	0.0	0.06	28.80
P35	D1a	0.0	0.06	28.80
P36	D1a	0.0	0.10	29.97
P37	D1a	0.0	0.10	29.98
P38	D1a	0.0	0.10	29.99
P39	D1a	0.0	0.10	29.99
P40	D1a	0.0	0.10	29.99
P41	D1a	0.0	0.10	29.98
P42	D1a	0.0	0.10	29.97
P43	D1a	0.0	0.11	31.62
P44	D1a	0.0	0.11	31.62
P45	D1a	0.0	0.11	31.62
P46	D1a	0.0	0.11	31.62
P47	D1a	0.0	0.11	31.62
P48	D1a	0.0	0.11	31.62
P49	D1a	0.0	0.11	31.62

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_6	0.0	-0.10	18.67
P2	D1a_6	0.0	-0.10	18.67
P3	D1a_6	0.0	-0.10	18.67
P4	D1a_6	0.0	-0.10	18.67
P5	D1a_6	0.0	-0.10	18.67
P6	D1a_6	0.0	-0.10	18.67
P7	D1a_6	0.0	-0.10	18.67
P8	D1a_6	0.0	-0.09	17.15
P9	D1a_6	0.0	-0.09	17.16
P10	D1a_6	0.0	-0.09	17.16
P11	D1a_6	0.0	-0.09	17.16
P12	D1a_6	0.0	-0.09	17.16
P13	D1a_6	0.0	-0.09	17.16
P14	D1a_6	0.0	-0.09	17.15
P15	D1a_6	0.0	-0.06	15.20
P16	D1a_6	0.0	-0.06	15.20
P17	D1a_6	0.0	-0.06	15.20
P18	D1a_6	0.0	-0.06	15.20
P19	D1a_6	0.0	-0.06	15.20
P20	D1a_6	0.0	-0.06	15.20
P21	D1a_6	0.0	-0.06	15.20
P22	D1a_6	0.0	0.00	13.10
P23	D1a_6	0.0	0.00	13.11
P24	D1a_6	0.0	0.00	13.11
P25	D1a_6	0.0	0.00	13.11
P26	D1a_6	0.0	0.00	13.11
P27	D1a_6	0.0	0.00	13.11
P28	D1a_6	0.0	0.00	13.10
P29	D1a_6	0.0	0.06	15.20
P30	D1a_6	0.0	0.06	15.20
P31	D1a_6	0.0	0.06	15.20
P32	D1a_6	0.0	0.06	15.20
P33	D1a_6	0.0	0.06	15.20
P34	D1a_6	0.0	0.06	15.20
P35	D1a_6	0.0	0.06	15.20
P36	D1a_6	0.0	0.09	17.15
P37	D1a_6	0.0	0.09	17.16
P38	D1a_6	0.0	0.09	17.16
P39	D1a_6	0.0	0.09	17.16
P40	D1a_6	0.0	0.09	17.16
P41	D1a_6	0.0	0.09	17.16
P42	D1a_6	0.0	0.09	17.15
P43	D1a_6	0.0	0.10	18.67
P44	D1a_6	0.0	0.10	18.67
P45	D1a_6	0.0	0.10	18.67
P46	D1a_6	0.0	0.10	18.67
P47	D1a_6	0.0	0.10	18.67
P48	D1a_6	0.0	0.10	18.67
P49	D1a_6	0.0	0.10	18.67

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T1	0.0	-0.12	31.74
P2	D1a_T1	0.0	-0.12	32.82
P3	D1a_T1	0.0	-0.12	33.90
P4	D1a_T1	0.0	-0.12	34.98
P5	D1a_T1	0.0	-0.12	36.06
P6	D1a_T1	0.0	-0.11	37.14
P7	D1a_T1	0.0	-0.11	38.21
P8	D1a_T1	0.0	-0.10	29.94
P9	D1a_T1	0.0	-0.10	31.00
P10	D1a_T1	0.0	-0.09	32.07
P11	D1a_T1	0.0	-0.09	33.13
P12	D1a_T1	0.0	-0.09	34.18
P13	D1a_T1	0.0	-0.09	35.23
P14	D1a_T1	0.0	-0.09	36.28
P15	D1a_T1	0.0	-0.06	28.72
P16	D1a_T1	0.0	-0.06	29.83
P17	D1a_T1	0.0	-0.06	30.94
P18	D1a_T1	0.0	-0.06	32.05
P19	D1a_T1	0.0	-0.06	33.16
P20	D1a_T1	0.0	-0.06	34.27
P21	D1a_T1	0.0	-0.06	35.38
P22	D1a_T1	0.0	0.00	26.05
P23	D1a_T1	0.0	0.00	27.14
P24	D1a_T1	0.0	0.00	28.23
P25	D1a_T1	0.0	0.00	29.31
P26	D1a_T1	0.0	0.00	30.39
P27	D1a_T1	0.0	0.00	31.46
P28	D1a_T1	0.0	0.00	32.55
P29	D1a_T1	0.0	0.06	28.24
P30	D1a_T1	0.0	0.06	29.38
P31	D1a_T1	0.0	0.06	30.51
P32	D1a_T1	0.0	0.06	31.65
P33	D1a_T1	0.0	0.06	32.78
P34	D1a_T1	0.0	0.06	33.91
P35	D1a_T1	0.0	0.06	35.05
P36	D1a_T1	0.0	0.09	29.12
P37	D1a_T1	0.0	0.09	30.22
P38	D1a_T1	0.0	0.09	31.32
P39	D1a_T1	0.0	0.09	32.41
P40	D1a_T1	0.0	0.09	33.51
P41	D1a_T1	0.0	0.10	34.58
P42	D1a_T1	0.0	0.10	35.68
P43	D1a_T1	0.0	0.11	30.50
P44	D1a_T1	0.0	0.11	31.64
P45	D1a_T1	0.0	0.11	32.77
P46	D1a_T1	0.0	0.11	33.90
P47	D1a_T1	0.0	0.11	35.03
P48	D1a_T1	0.0	0.11	36.16
P49	D1a_T1	0.0	0.11	37.29

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T2	0.0	-0.11	32.88
P2	D1a_T2	0.0	-0.12	33.74
P3	D1a_T2	0.0	-0.12	34.61
P4	D1a_T2	0.0	-0.12	35.47
P5	D1a_T2	0.0	-0.12	36.33
P6	D1a_T2	0.0	-0.12	37.20
P7	D1a_T2	0.0	-0.12	38.06
P8	D1a_T2	0.0	-0.10	30.76
P9	D1a_T2	0.0	-0.10	31.61
P10	D1a_T2	0.0	-0.10	32.47
P11	D1a_T2	0.0	-0.10	33.31
P12	D1a_T2	0.0	-0.10	34.16
P13	D1a_T2	0.0	-0.10	34.98
P14	D1a_T2	0.0	-0.10	35.83
P15	D1a_T2	0.0	-0.06	29.25
P16	D1a_T2	0.0	-0.06	30.13
P17	D1a_T2	0.0	-0.06	31.02
P18	D1a_T2	0.0	-0.06	31.90
P19	D1a_T2	0.0	-0.06	32.79
P20	D1a_T2	0.0	-0.06	33.67
P21	D1a_T2	0.0	-0.06	34.56
P22	D1a_T2	0.0	0.00	26.34
P23	D1a_T2	0.0	0.00	27.18
P24	D1a_T2	0.0	0.00	28.03
P25	D1a_T2	0.0	0.00	28.87
P26	D1a_T2	0.0	0.00	29.71
P27	D1a_T2	0.0	0.00	30.54
P28	D1a_T2	0.0	0.00	31.38
P29	D1a_T2	0.0	0.06	28.33
P30	D1a_T2	0.0	0.06	29.19
P31	D1a_T2	0.0	0.06	30.05
P32	D1a_T2	0.0	0.06	30.90
P33	D1a_T2	0.0	0.06	31.76
P34	D1a_T2	0.0	0.06	32.62
P35	D1a_T2	0.0	0.06	33.48
P36	D1a_T2	0.0	0.10	29.01
P37	D1a_T2	0.0	0.10	29.83
P38	D1a_T2	0.0	0.10	30.64
P39	D1a_T2	0.0	0.10	31.44
P40	D1a_T2	0.0	0.10	32.25
P41	D1a_T2	0.0	0.09	33.04
P42	D1a_T2	0.0	0.09	33.84
P43	D1a_T2	0.0	0.11	30.19
P44	D1a_T2	0.0	0.11	31.00
P45	D1a_T2	0.0	0.11	31.81
P46	D1a_T2	0.0	0.11	32.62
P47	D1a_T2	0.0	0.11	33.43
P48	D1a_T2	0.0	0.11	34.24
P49	D1a_T2	0.0	0.11	35.05

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876

Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of

After Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T3	0.0	-0.12	32.93
P2	D1a_T3	0.0	-0.12	34.02
P3	D1a_T3	0.0	-0.12	35.11
P4	D1a_T3	0.0	-0.12	36.20
P5	D1a_T3	0.0	-0.12	37.29
P6	D1a_T3	0.0	-0.12	38.37
P7	D1a_T3	0.0	-0.11	39.46
P8	D1a_T3	0.0	-0.10	31.52
P9	D1a_T3	0.0	-0.10	32.61
P10	D1a_T3	0.0	-0.09	33.70
P11	D1a_T3	0.0	-0.09	34.77
P12	D1a_T3	0.0	-0.09	35.85
P13	D1a_T3	0.0	-0.09	36.91
P14	D1a_T3	0.0	-0.09	37.99
P15	D1a_T3	0.0	-0.06	30.91
P16	D1a_T3	0.0	-0.06	32.05
P17	D1a_T3	0.0	-0.06	33.20
P18	D1a_T3	0.0	-0.06	34.34
P19	D1a_T3	0.0	-0.06	35.49
P20	D1a_T3	0.0	-0.06	36.63
P21	D1a_T3	0.0	-0.06	37.78
P22	D1a_T3	0.0	0.00	28.59
P23	D1a_T3	0.0	0.00	29.74
P24	D1a_T3	0.0	0.00	30.90
P25	D1a_T3	0.0	0.00	32.04
P26	D1a_T3	0.0	0.00	33.18
P27	D1a_T3	0.0	0.00	34.31
P28	D1a_T3	0.0	0.00	35.46
P29	D1a_T3	0.0	0.06	31.27
P30	D1a_T3	0.0	0.06	32.50
P31	D1a_T3	0.0	0.06	33.72
P32	D1a_T3	0.0	0.06	34.95
P33	D1a_T3	0.0	0.06	36.18
P34	D1a_T3	0.0	0.06	37.40
P35	D1a_T3	0.0	0.06	38.63
P36	D1a_T3	0.0	0.09	32.35
P37	D1a_T3	0.0	0.09	33.57
P38	D1a_T3	0.0	0.09	34.78
P39	D1a_T3	0.0	0.09	35.99
P40	D1a_T3	0.0	0.09	37.20
P41	D1a_T3	0.0	0.10	38.39
P42	D1a_T3	0.0	0.10	39.60
P43	D1a_T3	0.0	0.12	34.26
P44	D1a_T3	0.0	0.12	35.54
P45	D1a_T3	0.0	0.12	36.82
P46	D1a_T3	0.0	0.12	38.10
P47	D1a_T3	0.0	0.12	39.38
P48	D1a_T3	0.0	0.12	40.65
P49	D1a_T3	0.0	0.12	41.93

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T4	0.0	-0.12	36.00
P2	D1a_T4	0.0	-0.12	36.73
P3	D1a_T4	0.0	-0.12	37.46
P4	D1a_T4	0.0	-0.12	38.19
P5	D1a_T4	0.0	-0.12	38.92
P6	D1a_T4	0.0	-0.12	39.65
P7	D1a_T4	0.0	-0.12	40.38
P8	D1a_T4	0.0	-0.09	33.81
P9	D1a_T4	0.0	-0.09	34.55
P10	D1a_T4	0.0	-0.09	35.29
P11	D1a_T4	0.0	-0.09	36.02
P12	D1a_T4	0.0	-0.09	36.75
P13	D1a_T4	0.0	-0.09	37.47
P14	D1a_T4	0.0	-0.09	38.20
P15	D1a_T4	0.0	-0.06	32.53
P16	D1a_T4	0.0	-0.06	33.32
P17	D1a_T4	0.0	-0.06	34.10
P18	D1a_T4	0.0	-0.06	34.89
P19	D1a_T4	0.0	-0.06	35.67
P20	D1a_T4	0.0	-0.06	36.46
P21	D1a_T4	0.0	-0.06	37.25
P22	D1a_T4	0.0	0.00	29.50
P23	D1a_T4	0.0	0.00	30.28
P24	D1a_T4	0.0	0.00	31.06
P25	D1a_T4	0.0	0.00	31.83
P26	D1a_T4	0.0	0.00	32.60
P27	D1a_T4	0.0	0.00	33.36
P28	D1a_T4	0.0	0.00	34.13
P29	D1a_T4	0.0	0.06	31.49
P30	D1a_T4	0.0	0.06	32.30
P31	D1a_T4	0.0	0.06	33.11
P32	D1a_T4	0.0	0.06	33.92
P33	D1a_T4	0.0	0.06	34.73
P34	D1a_T4	0.0	0.06	35.54
P35	D1a_T4	0.0	0.06	36.36
P36	D1a_T4	0.0	0.09	31.81
P37	D1a_T4	0.0	0.09	32.58
P38	D1a_T4	0.0	0.09	33.36
P39	D1a_T4	0.0	0.09	34.13
P40	D1a_T4	0.0	0.09	34.90
P41	D1a_T4	0.0	0.09	35.66
P42	D1a_T4	0.0	0.09	36.43
P43	D1a_T4	0.0	0.11	32.92
P44	D1a_T4	0.0	0.11	33.70
P45	D1a_T4	0.0	0.11	34.49
P46	D1a_T4	0.0	0.11	35.27
P47	D1a_T4	0.0	0.11	36.06
P48	D1a_T4	0.0	0.11	36.84
P49	D1a_T4	0.0	0.11	37.63

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b	0.0	-0.09	95.02
P2	D1b	0.0	-0.09	95.02
P3	D1b	0.0	-0.09	95.02
P4	D1b	0.0	-0.09	95.02
P5	D1b	0.0	-0.09	95.02
P6	D1b	0.0	-0.09	95.02
P7	D1b	0.0	-0.09	95.02
P8	D1b	0.0	-0.07	94.17
P9	D1b	0.0	-0.07	94.19
P10	D1b	0.0	-0.07	94.22
P11	D1b	0.0	-0.07	94.22
P12	D1b	0.0	-0.07	94.22
P13	D1b	0.0	-0.07	94.18
P14	D1b	0.0	-0.07	94.17
P15	D1b	0.0	-0.05	95.43
P16	D1b	0.0	-0.05	95.43
P17	D1b	0.0	-0.05	95.43
P18	D1b	0.0	-0.05	95.43
P19	D1b	0.0	-0.05	95.43
P20	D1b	0.0	-0.05	95.43
P21	D1b	0.0	-0.05	95.43
P22	D1b	0.0	0.00	92.45
P23	D1b	0.0	0.00	92.46
P24	D1b	0.0	0.00	92.49
P25	D1b	0.0	0.00	92.49
P26	D1b	0.0	0.00	92.50
P27	D1b	0.0	0.00	92.46
P28	D1b	0.0	0.00	92.45
P29	D1b	0.0	0.05	95.43
P30	D1b	0.0	0.05	95.43
P31	D1b	0.0	0.05	95.43
P32	D1b	0.0	0.05	95.43
P33	D1b	0.0	0.05	95.43
P34	D1b	0.0	0.05	95.43
P35	D1b	0.0	0.05	95.43
P36	D1b	0.0	0.07	94.17
P37	D1b	0.0	0.07	94.19
P38	D1b	0.0	0.07	94.22
P39	D1b	0.0	0.07	94.22
P40	D1b	0.0	0.07	94.22
P41	D1b	0.0	0.07	94.18
P42	D1b	0.0	0.07	94.17
P43	D1b	0.0	0.09	95.02
P44	D1b	0.0	0.09	95.02
P45	D1b	0.0	0.09	95.02
P46	D1b	0.0	0.09	95.02
P47	D1b	0.0	0.09	95.02
P48	D1b	0.0	0.09	95.02
P49	D1b	0.0	0.09	95.02

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T1	0.0	-0.09	95.14
P2	D1b_T1	0.0	-0.09	96.22
P3	D1b_T1	0.0	-0.09	97.30
P4	D1b_T1	0.0	-0.09	98.37
P5	D1b_T1	0.0	-0.09	99.45
P6	D1b_T1	0.0	-0.09	100.53
P7	D1b_T1	0.0	-0.09	101.61
P8	D1b_T1	0.0	-0.06	94.14
P9	D1b_T1	0.0	-0.06	95.22
P10	D1b_T1	0.0	-0.06	96.31
P11	D1b_T1	0.0	-0.06	97.36
P12	D1b_T1	0.0	-0.06	98.42
P13	D1b_T1	0.0	-0.06	99.43
P14	D1b_T1	0.0	-0.06	100.48
P15	D1b_T1	0.0	-0.05	95.35
P16	D1b_T1	0.0	-0.05	96.46
P17	D1b_T1	0.0	-0.05	97.57
P18	D1b_T1	0.0	-0.05	98.68
P19	D1b_T1	0.0	-0.05	99.79
P20	D1b_T1	0.0	-0.05	100.91
P21	D1b_T1	0.0	-0.05	102.02
P22	D1b_T1	0.0	0.00	92.19
P23	D1b_T1	0.0	0.00	93.30
P24	D1b_T1	0.0	0.00	94.41
P25	D1b_T1	0.0	0.00	95.49
P26	D1b_T1	0.0	0.00	96.58
P27	D1b_T1	0.0	0.00	97.62
P28	D1b_T1	0.0	0.00	98.69
P29	D1b_T1	0.0	0.05	94.88
P30	D1b_T1	0.0	0.05	96.01
P31	D1b_T1	0.0	0.05	97.15
P32	D1b_T1	0.0	0.05	98.28
P33	D1b_T1	0.0	0.05	99.42
P34	D1b_T1	0.0	0.05	100.55
P35	D1b_T1	0.0	0.05	101.68
P36	D1b_T1	0.0	0.06	93.32
P37	D1b_T1	0.0	0.06	94.43
P38	D1b_T1	0.0	0.06	95.56
P39	D1b_T1	0.0	0.06	96.65
P40	D1b_T1	0.0	0.06	97.74
P41	D1b_T1	0.0	0.06	98.79
P42	D1b_T1	0.0	0.06	99.88
P43	D1b_T1	0.0	0.09	93.90
P44	D1b_T1	0.0	0.09	95.03
P45	D1b_T1	0.0	0.09	96.16
P46	D1b_T1	0.0	0.09	97.29
P47	D1b_T1	0.0	0.09	98.42
P48	D1b_T1	0.0	0.09	99.55
P49	D1b_T1	0.0	0.09	100.68

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T2	0.0	-0.09	96.27
P2	D1b_T2	0.0	-0.09	97.14
P3	D1b_T2	0.0	-0.09	98.00
P4	D1b_T2	0.0	-0.09	98.87
P5	D1b_T2	0.0	-0.09	99.73
P6	D1b_T2	0.0	-0.09	100.59
P7	D1b_T2	0.0	-0.09	101.46
P8	D1b_T2	0.0	-0.06	94.96
P9	D1b_T2	0.0	-0.06	95.83
P10	D1b_T2	0.0	-0.06	96.70
P11	D1b_T2	0.0	-0.06	97.54
P12	D1b_T2	0.0	-0.06	98.39
P13	D1b_T2	0.0	-0.06	99.19
P14	D1b_T2	0.0	-0.06	100.03
P15	D1b_T2	0.0	-0.05	95.88
P16	D1b_T2	0.0	-0.05	96.77
P17	D1b_T2	0.0	-0.05	97.65
P18	D1b_T2	0.0	-0.05	98.54
P19	D1b_T2	0.0	-0.05	99.42
P20	D1b_T2	0.0	-0.05	100.31
P21	D1b_T2	0.0	-0.05	101.19
P22	D1b_T2	0.0	0.00	92.48
P23	D1b_T2	0.0	0.00	93.34
P24	D1b_T2	0.0	0.00	94.21
P25	D1b_T2	0.0	0.00	95.05
P26	D1b_T2	0.0	0.00	95.89
P27	D1b_T2	0.0	0.00	96.70
P28	D1b_T2	0.0	0.00	97.53
P29	D1b_T2	0.0	0.05	94.97
P30	D1b_T2	0.0	0.05	95.82
P31	D1b_T2	0.0	0.05	96.68
P32	D1b_T2	0.0	0.05	97.54
P33	D1b_T2	0.0	0.05	98.40
P34	D1b_T2	0.0	0.05	99.25
P35	D1b_T2	0.0	0.05	100.11
P36	D1b_T2	0.0	0.07	93.21
P37	D1b_T2	0.0	0.07	94.04
P38	D1b_T2	0.0	0.06	94.88
P39	D1b_T2	0.0	0.06	95.68
P40	D1b_T2	0.0	0.06	96.48
P41	D1b_T2	0.0	0.06	97.25
P42	D1b_T2	0.0	0.06	98.04
P43	D1b_T2	0.0	0.09	93.59
P44	D1b_T2	0.0	0.09	94.40
P45	D1b_T2	0.0	0.09	95.21
P46	D1b_T2	0.0	0.09	96.02
P47	D1b_T2	0.0	0.09	96.83
P48	D1b_T2	0.0	0.09	97.63
P49	D1b_T2	0.0	0.09	98.44

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T3	0.0	-0.09	96.33
P2	D1b_T3	0.0	-0.09	97.41
P3	D1b_T3	0.0	-0.09	98.50
P4	D1b_T3	0.0	-0.09	99.59
P5	D1b_T3	0.0	-0.09	100.68
P6	D1b_T3	0.0	-0.09	101.77
P7	D1b_T3	0.0	-0.09	102.86
P8	D1b_T3	0.0	-0.06	95.72
P9	D1b_T3	0.0	-0.06	96.82
P10	D1b_T3	0.0	-0.06	97.93
P11	D1b_T3	0.0	-0.06	99.01
P12	D1b_T3	0.0	-0.06	100.09
P13	D1b_T3	0.0	-0.06	101.12
P14	D1b_T3	0.0	-0.06	102.19
P15	D1b_T3	0.0	-0.05	97.54
P16	D1b_T3	0.0	-0.05	98.69
P17	D1b_T3	0.0	-0.05	99.83
P18	D1b_T3	0.0	-0.05	100.98
P19	D1b_T3	0.0	-0.05	102.12
P20	D1b_T3	0.0	-0.05	103.27
P21	D1b_T3	0.0	-0.05	104.41
P22	D1b_T3	0.0	0.00	94.74
P23	D1b_T3	0.0	0.00	95.91
P24	D1b_T3	0.0	0.00	97.08
P25	D1b_T3	0.0	0.00	98.22
P26	D1b_T3	0.0	0.00	99.37
P27	D1b_T3	0.0	0.00	100.47
P28	D1b_T3	0.0	0.00	101.60
P29	D1b_T3	0.0	0.05	97.91
P30	D1b_T3	0.0	0.05	99.13
P31	D1b_T3	0.0	0.05	100.36
P32	D1b_T3	0.0	0.05	101.58
P33	D1b_T3	0.0	0.05	102.81
P34	D1b_T3	0.0	0.05	104.04
P35	D1b_T3	0.0	0.05	105.26
P36	D1b_T3	0.0	0.06	96.55
P37	D1b_T3	0.0	0.06	97.78
P38	D1b_T3	0.0	0.06	99.02
P39	D1b_T3	0.0	0.06	100.23
P40	D1b_T3	0.0	0.06	101.44
P41	D1b_T3	0.0	0.06	102.60
P42	D1b_T3	0.0	0.06	103.80
P43	D1b_T3	0.0	0.09	97.65
P44	D1b_T3	0.0	0.09	98.93
P45	D1b_T3	0.0	0.09	100.21
P46	D1b_T3	0.0	0.09	101.49
P47	D1b_T3	0.0	0.09	102.77
P48	D1b_T3	0.0	0.09	104.05
P49	D1b_T3	0.0	0.09	105.33

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T4	0.0	-0.09	99.39
P2	D1b_T4	0.0	-0.09	100.12
P3	D1b_T4	0.0	-0.09	100.85
P4	D1b_T4	0.0	-0.09	101.58
P5	D1b_T4	0.0	-0.09	102.32
P6	D1b_T4	0.0	-0.09	103.05
P7	D1b_T4	0.0	-0.09	103.78
P8	D1b_T4	0.0	-0.06	98.01
P9	D1b_T4	0.0	-0.06	98.76
P10	D1b_T4	0.0	-0.06	99.53
P11	D1b_T4	0.0	-0.06	100.25
P12	D1b_T4	0.0	-0.06	100.99
P13	D1b_T4	0.0	-0.06	101.68
P14	D1b_T4	0.0	-0.06	102.40
P15	D1b_T4	0.0	-0.05	99.16
P16	D1b_T4	0.0	-0.05	99.95
P17	D1b_T4	0.0	-0.05	100.74
P18	D1b_T4	0.0	-0.05	101.52
P19	D1b_T4	0.0	-0.05	102.31
P20	D1b_T4	0.0	-0.05	103.09
P21	D1b_T4	0.0	-0.05	103.88
P22	D1b_T4	0.0	0.00	95.65
P23	D1b_T4	0.0	0.00	96.44
P24	D1b_T4	0.0	0.00	97.24
P25	D1b_T4	0.0	0.00	98.01
P26	D1b_T4	0.0	0.00	98.78
P27	D1b_T4	0.0	0.00	99.51
P28	D1b_T4	0.0	0.00	100.27
P29	D1b_T4	0.0	0.05	98.12
P30	D1b_T4	0.0	0.05	98.93
P31	D1b_T4	0.0	0.05	99.74
P32	D1b_T4	0.0	0.05	100.56
P33	D1b_T4	0.0	0.05	101.37
P34	D1b_T4	0.0	0.05	102.18
P35	D1b_T4	0.0	0.05	102.99
P36	D1b_T4	0.0	0.06	96.00
P37	D1b_T4	0.0	0.06	96.80
P38	D1b_T4	0.0	0.06	97.60
P39	D1b_T4	0.0	0.06	98.37
P40	D1b_T4	0.0	0.06	99.14
P41	D1b_T4	0.0	0.06	99.87
P42	D1b_T4	0.0	0.06	100.63
P43	D1b_T4	0.0	0.09	96.31
P44	D1b_T4	0.0	0.09	97.10
P45	D1b_T4	0.0	0.09	97.88
P46	D1b_T4	0.0	0.09	98.67
P47	D1b_T4	0.0	0.09	99.45
P48	D1b_T4	0.0	0.09	100.24
P49	D1b_T4	0.0	0.09	101.02

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a	0.0	-0.15	13.57
P2	D2a	0.0	-0.15	13.57
P3	D2a	0.0	-0.15	13.57
P4	D2a	0.0	-0.15	13.57
P5	D2a	0.0	-0.15	13.57
P6	D2a	0.0	-0.15	13.57
P7	D2a	0.0	-0.15	13.57
P8	D2a	0.0	-0.11	14.11
P9	D2a	0.0	-0.11	14.11
P10	D2a	0.0	-0.11	14.12
P11	D2a	0.0	-0.11	14.12
P12	D2a	0.0	-0.11	14.12
P13	D2a	0.0	-0.11	14.11
P14	D2a	0.0	-0.11	14.11
P15	D2a	0.0	-0.05	17.92
P16	D2a	0.0	-0.05	17.92
P17	D2a	0.0	-0.05	17.92
P18	D2a	0.0	-0.05	17.92
P19	D2a	0.0	-0.05	17.92
P20	D2a	0.0	-0.05	17.92
P21	D2a	0.0	-0.05	17.92
P22	D2a	0.0	0.02	19.82
P23	D2a	0.0	0.02	19.83
P24	D2a	0.0	0.02	19.83
P25	D2a	0.0	0.02	19.83
P26	D2a	0.0	0.02	19.83
P27	D2a	0.0	0.02	19.83
P28	D2a	0.0	0.02	19.82
P29	D2a	0.0	0.07	26.03
P30	D2a	0.0	0.07	26.03
P31	D2a	0.0	0.07	26.03
P32	D2a	0.0	0.07	26.03
P33	D2a	0.0	0.07	26.03
P34	D2a	0.0	0.07	26.03
P35	D2a	0.0	0.07	26.03
P36	D2a	0.0	0.10	30.33
P37	D2a	0.0	0.10	30.33
P38	D2a	0.0	0.10	30.35
P39	D2a	0.0	0.10	30.35
P40	D2a	0.0	0.10	30.35
P41	D2a	0.0	0.10	30.33
P42	D2a	0.0	0.10	30.33
P43	D2a	0.0	0.12	34.60
P44	D2a	0.0	0.12	34.60
P45	D2a	0.0	0.12	34.60
P46	D2a	0.0	0.12	34.60
P47	D2a	0.0	0.12	34.60
P48	D2a	0.0	0.12	34.60
P49	D2a	0.0	0.12	34.60

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_6	0.0	-0.13	0.62
P2	D2a_6	0.0	-0.13	0.61
P3	D2a_6	0.0	-0.13	0.61
P4	D2a_6	0.0	-0.13	0.61
P5	D2a_6	0.0	-0.13	0.61
P6	D2a_6	0.0	-0.13	0.61
P7	D2a_6	0.0	-0.13	0.61
P8	D2a_6	0.0	-0.10	1.29
P9	D2a_6	0.0	-0.10	1.29
P10	D2a_6	0.0	-0.10	1.29
P11	D2a_6	0.0	-0.10	1.29
P12	D2a_6	0.0	-0.10	1.29
P13	D2a_6	0.0	-0.10	1.29
P14	D2a_6	0.0	-0.10	1.29
P15	D2a_6	0.0	-0.04	4.32
P16	D2a_6	0.0	-0.04	4.32
P17	D2a_6	0.0	-0.04	4.32
P18	D2a_6	0.0	-0.04	4.32
P19	D2a_6	0.0	-0.04	4.32
P20	D2a_6	0.0	-0.04	4.32
P21	D2a_6	0.0	-0.04	4.32
P22	D2a_6	0.0	0.02	6.63
P23	D2a_6	0.0	0.02	6.63
P24	D2a_6	0.0	0.02	6.63
P25	D2a_6	0.0	0.02	6.63
P26	D2a_6	0.0	0.02	6.63
P27	D2a_6	0.0	0.02	6.63
P28	D2a_6	0.0	0.02	6.63
P29	D2a_6	0.0	0.07	12.43
P30	D2a_6	0.0	0.07	12.43
P31	D2a_6	0.0	0.07	12.43
P32	D2a_6	0.0	0.07	12.43
P33	D2a_6	0.0	0.07	12.43
P34	D2a_6	0.0	0.07	12.43
P35	D2a_6	0.0	0.07	12.43
P36	D2a_6	0.0	0.09	17.51
P37	D2a_6	0.0	0.09	17.51
P38	D2a_6	0.0	0.09	17.52
P39	D2a_6	0.0	0.09	17.52
P40	D2a_6	0.0	0.09	17.52
P41	D2a_6	0.0	0.09	17.51
P42	D2a_6	0.0	0.09	17.51
P43	D2a_6	0.0	0.10	21.65
P44	D2a_6	0.0	0.10	21.65
P45	D2a_6	0.0	0.10	21.65
P46	D2a_6	0.0	0.10	21.65
P47	D2a_6	0.0	0.10	21.65
P48	D2a_6	0.0	0.10	21.65
P49	D2a_6	0.0	0.10	21.65

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T1	0.0	-0.15	13.69
P2	D2a_T1	0.0	-0.15	14.77
P3	D2a_T1	0.0	-0.15	15.85
P4	D2a_T1	0.0	-0.15	16.92
P5	D2a_T1	0.0	-0.15	18.00
P6	D2a_T1	0.0	-0.15	19.08
P7	D2a_T1	0.0	-0.15	20.16
P8	D2a_T1	0.0	-0.11	14.08
P9	D2a_T1	0.0	-0.11	15.14
P10	D2a_T1	0.0	-0.11	16.20
P11	D2a_T1	0.0	-0.11	17.26
P12	D2a_T1	0.0	-0.11	18.31
P13	D2a_T1	0.0	-0.11	19.36
P14	D2a_T1	0.0	-0.11	20.42
P15	D2a_T1	0.0	-0.05	17.84
P16	D2a_T1	0.0	-0.05	18.95
P17	D2a_T1	0.0	-0.05	20.06
P18	D2a_T1	0.0	-0.05	21.17
P19	D2a_T1	0.0	-0.05	22.28
P20	D2a_T1	0.0	-0.05	23.39
P21	D2a_T1	0.0	-0.05	24.50
P22	D2a_T1	0.0	0.02	19.57
P23	D2a_T1	0.0	0.02	20.66
P24	D2a_T1	0.0	0.02	21.75
P25	D2a_T1	0.0	0.02	22.83
P26	D2a_T1	0.0	0.02	23.91
P27	D2a_T1	0.0	0.02	24.99
P28	D2a_T1	0.0	0.02	26.07
P29	D2a_T1	0.0	0.07	25.48
P30	D2a_T1	0.0	0.07	26.62
P31	D2a_T1	0.0	0.07	27.75
P32	D2a_T1	0.0	0.07	28.88
P33	D2a_T1	0.0	0.07	30.02
P34	D2a_T1	0.0	0.07	31.15
P35	D2a_T1	0.0	0.07	32.29
P36	D2a_T1	0.0	0.10	29.48
P37	D2a_T1	0.0	0.10	30.58
P38	D2a_T1	0.0	0.10	31.68
P39	D2a_T1	0.0	0.10	32.77
P40	D2a_T1	0.0	0.10	33.86
P41	D2a_T1	0.0	0.10	34.94
P42	D2a_T1	0.0	0.10	36.03
P43	D2a_T1	0.0	0.12	33.48
P44	D2a_T1	0.0	0.12	34.62
P45	D2a_T1	0.0	0.12	35.75
P46	D2a_T1	0.0	0.12	36.88
P47	D2a_T1	0.0	0.12	38.01
P48	D2a_T1	0.0	0.12	39.14
P49	D2a_T1	0.0	0.12	40.27

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T2	0.0	-0.15	14.82
P2	D2a_T2	0.0	-0.15	15.69
P3	D2a_T2	0.0	-0.15	16.55
P4	D2a_T2	0.0	-0.15	17.41
P5	D2a_T2	0.0	-0.15	18.28
P6	D2a_T2	0.0	-0.15	19.14
P7	D2a_T2	0.0	-0.15	20.01
P8	D2a_T2	0.0	-0.11	14.90
P9	D2a_T2	0.0	-0.11	15.75
P10	D2a_T2	0.0	-0.11	16.60
P11	D2a_T2	0.0	-0.11	17.44
P12	D2a_T2	0.0	-0.11	18.28
P13	D2a_T2	0.0	-0.11	19.12
P14	D2a_T2	0.0	-0.11	19.96
P15	D2a_T2	0.0	-0.05	18.37
P16	D2a_T2	0.0	-0.05	19.26
P17	D2a_T2	0.0	-0.05	20.14
P18	D2a_T2	0.0	-0.05	21.03
P19	D2a_T2	0.0	-0.05	21.91
P20	D2a_T2	0.0	-0.05	22.79
P21	D2a_T2	0.0	-0.05	23.68
P22	D2a_T2	0.0	0.02	19.86
P23	D2a_T2	0.0	0.02	20.71
P24	D2a_T2	0.0	0.02	21.55
P25	D2a_T2	0.0	0.02	22.39
P26	D2a_T2	0.0	0.02	23.23
P27	D2a_T2	0.0	0.02	24.06
P28	D2a_T2	0.0	0.02	24.90
P29	D2a_T2	0.0	0.07	25.57
P30	D2a_T2	0.0	0.07	26.43
P31	D2a_T2	0.0	0.07	27.28
P32	D2a_T2	0.0	0.07	28.14
P33	D2a_T2	0.0	0.07	29.00
P34	D2a_T2	0.0	0.07	29.86
P35	D2a_T2	0.0	0.07	30.71
P36	D2a_T2	0.0	0.10	29.37
P37	D2a_T2	0.0	0.10	30.18
P38	D2a_T2	0.0	0.10	31.00
P39	D2a_T2	0.0	0.10	31.80
P40	D2a_T2	0.0	0.10	32.61
P41	D2a_T2	0.0	0.10	33.40
P42	D2a_T2	0.0	0.09	34.20
P43	D2a_T2	0.0	0.12	33.17
P44	D2a_T2	0.0	0.12	33.98
P45	D2a_T2	0.0	0.12	34.79
P46	D2a_T2	0.0	0.12	35.60
P47	D2a_T2	0.0	0.12	36.41
P48	D2a_T2	0.0	0.12	37.22
P49	D2a_T2	0.0	0.12	38.03

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T3	0.0	-0.15	14.88
P2	D2a_T3	0.0	-0.15	15.96
P3	D2a_T3	0.0	-0.15	17.05
P4	D2a_T3	0.0	-0.15	18.14
P5	D2a_T3	0.0	-0.15	19.23
P6	D2a_T3	0.0	-0.15	20.32
P7	D2a_T3	0.0	-0.15	21.41
P8	D2a_T3	0.0	-0.11	15.66
P9	D2a_T3	0.0	-0.11	16.74
P10	D2a_T3	0.0	-0.11	17.83
P11	D2a_T3	0.0	-0.11	18.90
P12	D2a_T3	0.0	-0.11	19.98
P13	D2a_T3	0.0	-0.10	21.05
P14	D2a_T3	0.0	-0.10	22.13
P15	D2a_T3	0.0	-0.05	20.03
P16	D2a_T3	0.0	-0.05	21.18
P17	D2a_T3	0.0	-0.05	22.32
P18	D2a_T3	0.0	-0.05	23.47
P19	D2a_T3	0.0	-0.05	24.61
P20	D2a_T3	0.0	-0.05	25.76
P21	D2a_T3	0.0	-0.05	26.90
P22	D2a_T3	0.0	0.02	22.12
P23	D2a_T3	0.0	0.02	23.27
P24	D2a_T3	0.0	0.02	24.42
P25	D2a_T3	0.0	0.02	25.56
P26	D2a_T3	0.0	0.02	26.70
P27	D2a_T3	0.0	0.02	27.84
P28	D2a_T3	0.0	0.02	28.98
P29	D2a_T3	0.0	0.07	28.51
P30	D2a_T3	0.0	0.07	29.74
P31	D2a_T3	0.0	0.07	30.96
P32	D2a_T3	0.0	0.07	32.19
P33	D2a_T3	0.0	0.07	33.41
P34	D2a_T3	0.0	0.07	34.64
P35	D2a_T3	0.0	0.07	35.86
P36	D2a_T3	0.0	0.09	32.70
P37	D2a_T3	0.0	0.09	33.92
P38	D2a_T3	0.0	0.09	35.14
P39	D2a_T3	0.0	0.09	36.35
P40	D2a_T3	0.0	0.10	37.56
P41	D2a_T3	0.0	0.10	38.75
P42	D2a_T3	0.0	0.10	39.96
P43	D2a_T3	0.0	0.12	37.24
P44	D2a_T3	0.0	0.12	38.52
P45	D2a_T3	0.0	0.12	39.80
P46	D2a_T3	0.0	0.12	41.08
P47	D2a_T3	0.0	0.12	42.36
P48	D2a_T3	0.0	0.12	43.64
P49	D2a_T3	0.0	0.12	44.92

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T4	0.0	-0.15	17.94
P2	D2a_T4	0.0	-0.15	18.67
P3	D2a_T4	0.0	-0.15	19.40
P4	D2a_T4	0.0	-0.15	20.13
P5	D2a_T4	0.0	-0.15	20.86
P6	D2a_T4	0.0	-0.15	21.59
P7	D2a_T4	0.0	-0.15	22.33
P8	D2a_T4	0.0	-0.11	17.95
P9	D2a_T4	0.0	-0.11	18.68
P10	D2a_T4	0.0	-0.11	19.42
P11	D2a_T4	0.0	-0.10	20.15
P12	D2a_T4	0.0	-0.10	20.88
P13	D2a_T4	0.0	-0.10	21.61
P14	D2a_T4	0.0	-0.10	22.34
P15	D2a_T4	0.0	-0.05	21.65
P16	D2a_T4	0.0	-0.05	22.44
P17	D2a_T4	0.0	-0.05	23.23
P18	D2a_T4	0.0	-0.05	24.01
P19	D2a_T4	0.0	-0.05	24.80
P20	D2a_T4	0.0	-0.05	25.58
P21	D2a_T4	0.0	-0.05	26.37
P22	D2a_T4	0.0	0.02	23.02
P23	D2a_T4	0.0	0.02	23.80
P24	D2a_T4	0.0	0.02	24.58
P25	D2a_T4	0.0	0.02	25.35
P26	D2a_T4	0.0	0.02	26.12
P27	D2a_T4	0.0	0.02	26.88
P28	D2a_T4	0.0	0.02	27.65
P29	D2a_T4	0.0	0.07	28.72
P30	D2a_T4	0.0	0.07	29.53
P31	D2a_T4	0.0	0.07	30.35
P32	D2a_T4	0.0	0.07	31.16
P33	D2a_T4	0.0	0.07	31.97
P34	D2a_T4	0.0	0.07	32.78
P35	D2a_T4	0.0	0.07	33.59
P36	D2a_T4	0.0	0.09	32.16
P37	D2a_T4	0.0	0.09	32.94
P38	D2a_T4	0.0	0.09	33.72
P39	D2a_T4	0.0	0.09	34.49
P40	D2a_T4	0.0	0.09	35.26
P41	D2a_T4	0.0	0.09	36.02
P42	D2a_T4	0.0	0.09	36.78
P43	D2a_T4	0.0	0.12	35.90
P44	D2a_T4	0.0	0.12	36.68
P45	D2a_T4	0.0	0.12	37.47
P46	D2a_T4	0.0	0.12	38.25
P47	D2a_T4	0.0	0.12	39.04
P48	D2a_T4	0.0	0.12	39.82
P49	D2a_T4	0.0	0.12	40.61

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b	0.0	-0.12	76.96
P2	D2b	0.0	-0.12	76.96
P3	D2b	0.0	-0.12	76.96
P4	D2b	0.0	-0.12	76.96
P5	D2b	0.0	-0.12	76.96
P6	D2b	0.0	-0.12	76.96
P7	D2b	0.0	-0.12	76.96
P8	D2b	0.0	-0.08	78.31
P9	D2b	0.0	-0.08	78.33
P10	D2b	0.0	-0.08	78.35
P11	D2b	0.0	-0.08	78.35
P12	D2b	0.0	-0.08	78.35
P13	D2b	0.0	-0.08	78.32
P14	D2b	0.0	-0.08	78.31
P15	D2b	0.0	-0.03	84.55
P16	D2b	0.0	-0.03	84.55
P17	D2b	0.0	-0.03	84.55
P18	D2b	0.0	-0.03	84.55
P19	D2b	0.0	-0.03	84.55
P20	D2b	0.0	-0.03	84.55
P21	D2b	0.0	-0.03	84.55
P22	D2b	0.0	0.02	85.97
P23	D2b	0.0	0.02	85.99
P24	D2b	0.0	0.02	86.02
P25	D2b	0.0	0.02	86.01
P26	D2b	0.0	0.02	86.02
P27	D2b	0.0	0.02	85.98
P28	D2b	0.0	0.02	85.97
P29	D2b	0.0	0.06	92.66
P30	D2b	0.0	0.06	92.67
P31	D2b	0.0	0.06	92.67
P32	D2b	0.0	0.06	92.67
P33	D2b	0.0	0.06	92.67
P34	D2b	0.0	0.06	92.67
P35	D2b	0.0	0.06	92.67
P36	D2b	0.0	0.07	94.53
P37	D2b	0.0	0.07	94.55
P38	D2b	0.0	0.07	94.58
P39	D2b	0.0	0.07	94.58
P40	D2b	0.0	0.07	94.58
P41	D2b	0.0	0.07	94.54
P42	D2b	0.0	0.07	94.53
P43	D2b	0.0	0.09	98.00
P44	D2b	0.0	0.09	98.00
P45	D2b	0.0	0.09	98.00
P46	D2b	0.0	0.09	98.00
P47	D2b	0.0	0.09	98.00
P48	D2b	0.0	0.09	98.00
P49	D2b	0.0	0.09	98.00

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T1	0.0	-0.12	77.08
P2	D2b_T1	0.0	-0.12	78.16
P3	D2b_T1	0.0	-0.12	79.24
P4	D2b_T1	0.0	-0.12	80.32
P5	D2b_T1	0.0	-0.12	81.40
P6	D2b_T1	0.0	-0.12	82.48
P7	D2b_T1	0.0	-0.12	83.55
P8	D2b_T1	0.0	-0.08	78.28
P9	D2b_T1	0.0	-0.08	79.35
P10	D2b_T1	0.0	-0.08	80.43
P11	D2b_T1	0.0	-0.08	81.49
P12	D2b_T1	0.0	-0.08	82.55
P13	D2b_T1	0.0	-0.07	83.57
P14	D2b_T1	0.0	-0.07	84.62
P15	D2b_T1	0.0	-0.03	84.47
P16	D2b_T1	0.0	-0.03	85.58
P17	D2b_T1	0.0	-0.03	86.70
P18	D2b_T1	0.0	-0.03	87.81
P19	D2b_T1	0.0	-0.03	88.92
P20	D2b_T1	0.0	-0.03	90.03
P21	D2b_T1	0.0	-0.03	91.14
P22	D2b_T1	0.0	0.02	85.72
P23	D2b_T1	0.0	0.02	86.82
P24	D2b_T1	0.0	0.02	87.93
P25	D2b_T1	0.0	0.02	89.01
P26	D2b_T1	0.0	0.02	90.10
P27	D2b_T1	0.0	0.02	91.14
P28	D2b_T1	0.0	0.02	92.22
P29	D2b_T1	0.0	0.06	92.12
P30	D2b_T1	0.0	0.06	93.25
P31	D2b_T1	0.0	0.06	94.38
P32	D2b_T1	0.0	0.06	95.52
P33	D2b_T1	0.0	0.06	96.65
P34	D2b_T1	0.0	0.06	97.79
P35	D2b_T1	0.0	0.06	98.92
P36	D2b_T1	0.0	0.06	93.67
P37	D2b_T1	0.0	0.06	94.79
P38	D2b_T1	0.0	0.06	95.91
P39	D2b_T1	0.0	0.06	97.00
P40	D2b_T1	0.0	0.06	98.10
P41	D2b_T1	0.0	0.06	99.15
P42	D2b_T1	0.0	0.06	100.23
P43	D2b_T1	0.0	0.09	96.88
P44	D2b_T1	0.0	0.09	98.01
P45	D2b_T1	0.0	0.09	99.14
P46	D2b_T1	0.0	0.09	100.27
P47	D2b_T1	0.0	0.09	101.40
P48	D2b_T1	0.0	0.09	102.53
P49	D2b_T1	0.0	0.09	103.67

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T2	0.0	-0.12	78.22
P2	D2b_T2	0.0	-0.12	79.08
P3	D2b_T2	0.0	-0.12	79.95
P4	D2b_T2	0.0	-0.12	80.81
P5	D2b_T2	0.0	-0.12	81.67
P6	D2b_T2	0.0	-0.12	82.54
P7	D2b_T2	0.0	-0.12	83.40
P8	D2b_T2	0.0	-0.08	79.10
P9	D2b_T2	0.0	-0.08	79.96
P10	D2b_T2	0.0	-0.08	80.83
P11	D2b_T2	0.0	-0.08	81.67
P12	D2b_T2	0.0	-0.08	82.52
P13	D2b_T2	0.0	-0.08	83.33
P14	D2b_T2	0.0	-0.08	84.16
P15	D2b_T2	0.0	-0.03	85.01
P16	D2b_T2	0.0	-0.03	85.89
P17	D2b_T2	0.0	-0.03	86.78
P18	D2b_T2	0.0	-0.03	87.66
P19	D2b_T2	0.0	-0.03	88.55
P20	D2b_T2	0.0	-0.03	89.43
P21	D2b_T2	0.0	-0.03	90.31
P22	D2b_T2	0.0	0.02	86.01
P23	D2b_T2	0.0	0.02	86.87
P24	D2b_T2	0.0	0.02	87.73
P25	D2b_T2	0.0	0.02	88.57
P26	D2b_T2	0.0	0.02	89.42
P27	D2b_T2	0.0	0.02	90.22
P28	D2b_T2	0.0	0.02	91.05
P29	D2b_T2	0.0	0.06	92.20
P30	D2b_T2	0.0	0.06	93.06
P31	D2b_T2	0.0	0.06	93.92
P32	D2b_T2	0.0	0.06	94.78
P33	D2b_T2	0.0	0.06	95.63
P34	D2b_T2	0.0	0.06	96.49
P35	D2b_T2	0.0	0.06	97.35
P36	D2b_T2	0.0	0.07	93.57
P37	D2b_T2	0.0	0.07	94.40
P38	D2b_T2	0.0	0.07	95.23
P39	D2b_T2	0.0	0.06	96.04
P40	D2b_T2	0.0	0.06	96.84
P41	D2b_T2	0.0	0.06	97.60
P42	D2b_T2	0.0	0.06	98.40
P43	D2b_T2	0.0	0.09	96.57
P44	D2b_T2	0.0	0.09	97.38
P45	D2b_T2	0.0	0.09	98.19
P46	D2b_T2	0.0	0.09	99.00
P47	D2b_T2	0.0	0.09	99.81
P48	D2b_T2	0.0	0.09	100.62
P49	D2b_T2	0.0	0.09	101.42

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T3	0.0	-0.12	78.27
P2	D2b_T3	0.0	-0.12	79.36
P3	D2b_T3	0.0	-0.12	80.45
P4	D2b_T3	0.0	-0.12	81.54
P5	D2b_T3	0.0	-0.12	82.63
P6	D2b_T3	0.0	-0.12	83.72
P7	D2b_T3	0.0	-0.12	84.80
P8	D2b_T3	0.0	-0.08	79.86
P9	D2b_T3	0.0	-0.08	80.96
P10	D2b_T3	0.0	-0.08	82.06
P11	D2b_T3	0.0	-0.07	83.14
P12	D2b_T3	0.0	-0.07	84.21
P13	D2b_T3	0.0	-0.07	85.26
P14	D2b_T3	0.0	-0.07	86.33
P15	D2b_T3	0.0	-0.03	86.67
P16	D2b_T3	0.0	-0.03	87.81
P17	D2b_T3	0.0	-0.03	88.96
P18	D2b_T3	0.0	-0.03	90.10
P19	D2b_T3	0.0	-0.03	91.25
P20	D2b_T3	0.0	-0.03	92.39
P21	D2b_T3	0.0	-0.03	93.54
P22	D2b_T3	0.0	0.02	88.26
P23	D2b_T3	0.0	0.02	89.43
P24	D2b_T3	0.0	0.02	90.60
P25	D2b_T3	0.0	0.02	91.74
P26	D2b_T3	0.0	0.02	92.89
P27	D2b_T3	0.0	0.02	93.99
P28	D2b_T3	0.0	0.02	95.13
P29	D2b_T3	0.0	0.05	95.14
P30	D2b_T3	0.0	0.05	96.37
P31	D2b_T3	0.0	0.05	97.60
P32	D2b_T3	0.0	0.06	98.82
P33	D2b_T3	0.0	0.06	100.05
P34	D2b_T3	0.0	0.06	101.27
P35	D2b_T3	0.0	0.06	102.50
P36	D2b_T3	0.0	0.06	96.90
P37	D2b_T3	0.0	0.06	98.13
P38	D2b_T3	0.0	0.06	99.38
P39	D2b_T3	0.0	0.06	100.58
P40	D2b_T3	0.0	0.06	101.79
P41	D2b_T3	0.0	0.06	102.96
P42	D2b_T3	0.0	0.07	104.16
P43	D2b_T3	0.0	0.09	100.63
P44	D2b_T3	0.0	0.09	101.91
P45	D2b_T3	0.0	0.09	103.19
P46	D2b_T3	0.0	0.09	104.47
P47	D2b_T3	0.0	0.10	105.75
P48	D2b_T3	0.0	0.10	107.03
P49	D2b_T3	0.0	0.10	108.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T4	0.0	-0.12	81.34
P2	D2b_T4	0.0	-0.12	82.07
P3	D2b_T4	0.0	-0.12	82.80
P4	D2b_T4	0.0	-0.12	83.53
P5	D2b_T4	0.0	-0.12	84.26
P6	D2b_T4	0.0	-0.12	84.99
P7	D2b_T4	0.0	-0.12	85.72
P8	D2b_T4	0.0	-0.08	82.15
P9	D2b_T4	0.0	-0.07	82.90
P10	D2b_T4	0.0	-0.07	83.65
P11	D2b_T4	0.0	-0.07	84.38
P12	D2b_T4	0.0	-0.07	85.12
P13	D2b_T4	0.0	-0.07	85.81
P14	D2b_T4	0.0	-0.07	86.54
P15	D2b_T4	0.0	-0.03	88.29
P16	D2b_T4	0.0	-0.03	89.07
P17	D2b_T4	0.0	-0.03	89.86
P18	D2b_T4	0.0	-0.03	90.65
P19	D2b_T4	0.0	-0.03	91.43
P20	D2b_T4	0.0	-0.03	92.22
P21	D2b_T4	0.0	-0.03	93.00
P22	D2b_T4	0.0	0.02	89.17
P23	D2b_T4	0.0	0.02	89.96
P24	D2b_T4	0.0	0.02	90.76
P25	D2b_T4	0.0	0.02	91.53
P26	D2b_T4	0.0	0.02	92.30
P27	D2b_T4	0.0	0.02	93.04
P28	D2b_T4	0.0	0.02	93.80
P29	D2b_T4	0.0	0.05	95.36
P30	D2b_T4	0.0	0.06	96.17
P31	D2b_T4	0.0	0.06	96.98
P32	D2b_T4	0.0	0.06	97.79
P33	D2b_T4	0.0	0.06	98.60
P34	D2b_T4	0.0	0.06	99.42
P35	D2b_T4	0.0	0.06	100.23
P36	D2b_T4	0.0	0.06	96.36
P37	D2b_T4	0.0	0.06	97.15
P38	D2b_T4	0.0	0.06	97.96
P39	D2b_T4	0.0	0.06	98.72
P40	D2b_T4	0.0	0.06	99.50
P41	D2b_T4	0.0	0.06	100.23
P42	D2b_T4	0.0	0.06	100.99
P43	D2b_T4	0.0	0.09	99.29
P44	D2b_T4	0.0	0.09	100.08
P45	D2b_T4	0.0	0.09	100.86
P46	D2b_T4	0.0	0.09	101.65
P47	D2b_T4	0.0	0.09	102.43
P48	D2b_T4	0.0	0.09	103.22
P49	D2b_T4	0.0	0.09	104.00

Vertical Reactions:
MAXIMUM REACTION = 114.27 kips
MINIMUM REACTION = 0.15 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 0.01 kips
MINIMUM REACTION = -0.01 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 8.94 kips
MINIMUM REACTION = -0.15 kips

$C_{allowable}$ = 126.7kips > 114.3 kips - OK

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	1a	0.00	0.0016	-0.0537
P2	1a	0.00	0.0016	-0.0537
P3	1a	0.00	0.0016	-0.0537
P4	1a	0.00	0.0016	-0.0537
P5	1a	0.00	0.0016	-0.0537
P6	1a	0.00	0.0016	-0.0537
P7	1a	0.00	0.0016	-0.0537
P8	1a	0.00	0.0010	-0.0528
P9	1a	0.00	0.0010	-0.0528
P10	1a	0.00	0.0010	-0.0529
P11	1a	0.00	0.0010	-0.0529
P12	1a	0.00	0.0010	-0.0529
P13	1a	0.00	0.0010	-0.0528
P14	1a	0.00	0.0010	-0.0528
P15	1a	0.00	0.0005	-0.0551
P16	1a	0.00	0.0005	-0.0551
P17	1a	0.00	0.0005	-0.0551
P18	1a	0.00	0.0005	-0.0551
P19	1a	0.00	0.0005	-0.0551
P20	1a	0.00	0.0005	-0.0551
P21	1a	0.00	0.0005	-0.0551
P22	1a	0.00	0.0000	-0.0535
P23	1a	0.00	0.0000	-0.0535
P24	1a	0.00	0.0000	-0.0535
P25	1a	0.00	0.0000	-0.0535
P26	1a	0.00	0.0000	-0.0535
P27	1a	0.00	0.0000	-0.0535
P28	1a	0.00	0.0000	-0.0535
P29	1a	0.00	-0.0005	-0.0551
P30	1a	0.00	-0.0005	-0.0551
P31	1a	0.00	-0.0005	-0.0551
P32	1a	0.00	-0.0005	-0.0551
P33	1a	0.00	-0.0005	-0.0551
P34	1a	0.00	-0.0005	-0.0551
P35	1a	0.00	-0.0005	-0.0551
P36	1a	0.00	-0.0010	-0.0528
P37	1a	0.00	-0.0010	-0.0528
P38	1a	0.00	-0.0010	-0.0529
P39	1a	0.00	-0.0010	-0.0529
P40	1a	0.00	-0.0010	-0.0529
P41	1a	0.00	-0.0010	-0.0528
P42	1a	0.00	-0.0010	-0.0528
P43	1a	0.00	-0.0016	-0.0537
P44	1a	0.00	-0.0016	-0.0537
P45	1a	0.00	-0.0016	-0.0537
P46	1a	0.00	-0.0016	-0.0537
P47	1a	0.00	-0.0016	-0.0537
P48	1a	0.00	-0.0016	-0.0537
P49	1a	0.00	-0.0016	-0.0537

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	1b	0.00	-0.1008	-0.0388
P2	1b	0.00	-0.1008	-0.0388
P3	1b	0.00	-0.1008	-0.0388
P4	1b	0.00	-0.1008	-0.0388
P5	1b	0.00	-0.1008	-0.0388
P6	1b	0.00	-0.1008	-0.0388
P7	1b	0.00	-0.1008	-0.0388
P8	1b	0.00	-0.1014	-0.0358
P9	1b	0.00	-0.1014	-0.0358
P10	1b	0.00	-0.1014	-0.0359
P11	1b	0.00	-0.1014	-0.0359
P12	1b	0.00	-0.1014	-0.0359
P13	1b	0.00	-0.1014	-0.0358
P14	1b	0.00	-0.1014	-0.0358
P15	1b	0.00	-0.1018	-0.0353
P16	1b	0.00	-0.1018	-0.0353
P17	1b	0.00	-0.1018	-0.0353
P18	1b	0.00	-0.1018	-0.0353
P19	1b	0.00	-0.1018	-0.0353
P20	1b	0.00	-0.1018	-0.0353
P21	1b	0.00	-0.1018	-0.0353
P22	1b	0.00	-0.1023	-0.0330
P23	1b	0.00	-0.1023	-0.0330
P24	1b	0.00	-0.1023	-0.0330
P25	1b	0.00	-0.1023	-0.0330
P26	1b	0.00	-0.1023	-0.0330
P27	1b	0.00	-0.1023	-0.0330
P28	1b	0.00	-0.1023	-0.0330
P29	1b	0.00	-0.1025	-0.0325
P30	1b	0.00	-0.1025	-0.0325
P31	1b	0.00	-0.1025	-0.0325
P32	1b	0.00	-0.1025	-0.0325
P33	1b	0.00	-0.1025	-0.0325
P34	1b	0.00	-0.1025	-0.0325
P35	1b	0.00	-0.1025	-0.0325
P36	1b	0.00	-0.1028	-0.0298
P37	1b	0.00	-0.1028	-0.0299
P38	1b	0.00	-0.1028	-0.0299
P39	1b	0.00	-0.1028	-0.0299
P40	1b	0.00	-0.1028	-0.0299
P41	1b	0.00	-0.1028	-0.0299
P42	1b	0.00	-0.1028	-0.0299
P43	1b	0.00	-0.1028	-0.0282
P44	1b	0.00	-0.1028	-0.0282
P45	1b	0.00	-0.1028	-0.0282
P46	1b	0.00	-0.1028	-0.0282
P47	1b	0.00	-0.1028	-0.0282
P48	1b	0.00	-0.1028	-0.0282
P49	1b	0.00	-0.1028	-0.0282

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a	0.00	0.0017	-0.0098
P2	2a	0.00	0.0017	-0.0098
P3	2a	0.00	0.0017	-0.0098
P4	2a	0.00	0.0017	-0.0098
P5	2a	0.00	0.0017	-0.0098
P6	2a	0.00	0.0017	-0.0098
P7	2a	0.00	0.0017	-0.0098
P8	2a	0.00	0.0013	-0.0086
P9	2a	0.00	0.0013	-0.0086
P10	2a	0.00	0.0013	-0.0086
P11	2a	0.00	0.0013	-0.0086
P12	2a	0.00	0.0013	-0.0086
P13	2a	0.00	0.0013	-0.0086
P14	2a	0.00	0.0013	-0.0086
P15	2a	0.00	0.0007	-0.0090
P16	2a	0.00	0.0007	-0.0090
P17	2a	0.00	0.0007	-0.0090
P18	2a	0.00	0.0007	-0.0090
P19	2a	0.00	0.0007	-0.0090
P20	2a	0.00	0.0007	-0.0090
P21	2a	0.00	0.0007	-0.0090
P22	2a	0.00	0.0000	-0.0079
P23	2a	0.00	0.0000	-0.0079
P24	2a	0.00	0.0000	-0.0079
P25	2a	0.00	0.0000	-0.0079
P26	2a	0.00	0.0000	-0.0079
P27	2a	0.00	0.0000	-0.0079
P28	2a	0.00	0.0000	-0.0079
P29	2a	0.00	-0.0007	-0.0090
P30	2a	0.00	-0.0007	-0.0090
P31	2a	0.00	-0.0007	-0.0090
P32	2a	0.00	-0.0007	-0.0090
P33	2a	0.00	-0.0007	-0.0090
P34	2a	0.00	-0.0007	-0.0090
P35	2a	0.00	-0.0007	-0.0090
P36	2a	0.00	-0.0013	-0.0086
P37	2a	0.00	-0.0013	-0.0086
P38	2a	0.00	-0.0013	-0.0086
P39	2a	0.00	-0.0013	-0.0086
P40	2a	0.00	-0.0013	-0.0086
P41	2a	0.00	-0.0013	-0.0086
P42	2a	0.00	-0.0013	-0.0086
P43	2a	0.00	-0.0017	-0.0098
P44	2a	0.00	-0.0017	-0.0098
P45	2a	0.00	-0.0017	-0.0098
P46	2a	0.00	-0.0017	-0.0098
P47	2a	0.00	-0.0017	-0.0098
P48	2a	0.00	-0.0017	-0.0098
P49	2a	0.00	-0.0017	-0.0098

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_6	0.00	0.0015	-0.0021
P2	2a_6	0.00	0.0015	-0.0021
P3	2a_6	0.00	0.0015	-0.0021
P4	2a_6	0.00	0.0015	-0.0021
P5	2a_6	0.00	0.0015	-0.0021
P6	2a_6	0.00	0.0015	-0.0021
P7	2a_6	0.00	0.0015	-0.0021
P8	2a_6	0.00	0.0012	-0.0010
P9	2a_6	0.00	0.0012	-0.0010
P10	2a_6	0.00	0.0012	-0.0010
P11	2a_6	0.00	0.0012	-0.0010
P12	2a_6	0.00	0.0012	-0.0010
P13	2a_6	0.00	0.0012	-0.0010
P14	2a_6	0.00	0.0012	-0.0010
P15	2a_6	0.00	0.0006	-0.0009
P16	2a_6	0.00	0.0006	-0.0009
P17	2a_6	0.00	0.0006	-0.0009
P18	2a_6	0.00	0.0006	-0.0009
P19	2a_6	0.00	0.0006	-0.0009
P20	2a_6	0.00	0.0006	-0.0009
P21	2a_6	0.00	0.0006	-0.0009
P22	2a_6	0.00	0.0000	-0.0001
P23	2a_6	0.00	0.0000	-0.0001
P24	2a_6	0.00	0.0000	-0.0001
P25	2a_6	0.00	0.0000	-0.0001
P26	2a_6	0.00	0.0000	-0.0001
P27	2a_6	0.00	0.0000	-0.0001
P28	2a_6	0.00	0.0000	-0.0001
P29	2a_6	0.00	-0.0006	-0.0009
P30	2a_6	0.00	-0.0006	-0.0009
P31	2a_6	0.00	-0.0006	-0.0009
P32	2a_6	0.00	-0.0006	-0.0009
P33	2a_6	0.00	-0.0006	-0.0009
P34	2a_6	0.00	-0.0006	-0.0009
P35	2a_6	0.00	-0.0006	-0.0009
P36	2a_6	0.00	-0.0012	-0.0010
P37	2a_6	0.00	-0.0012	-0.0010
P38	2a_6	0.00	-0.0012	-0.0010
P39	2a_6	0.00	-0.0012	-0.0010
P40	2a_6	0.00	-0.0012	-0.0010
P41	2a_6	0.00	-0.0012	-0.0010
P42	2a_6	0.00	-0.0012	-0.0010
P43	2a_6	0.00	-0.0015	-0.0021
P44	2a_6	0.00	-0.0015	-0.0021
P45	2a_6	0.00	-0.0015	-0.0021
P46	2a_6	0.00	-0.0015	-0.0021
P47	2a_6	0.00	-0.0015	-0.0021
P48	2a_6	0.00	-0.0015	-0.0021
P49	2a_6	0.00	-0.0015	-0.0021

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T1	0.00	0.0017	-0.0099
P2	2a_T1	0.00	0.0017	-0.0106
P3	2a_T1	0.00	0.0017	-0.0112
P4	2a_T1	0.00	0.0017	-0.0118
P5	2a_T1	0.00	0.0017	-0.0125
P6	2a_T1	0.00	0.0017	-0.0131
P7	2a_T1	0.00	0.0017	-0.0138
P8	2a_T1	0.00	0.0013	-0.0086
P9	2a_T1	0.00	0.0012	-0.0092
P10	2a_T1	0.00	0.0012	-0.0098
P11	2a_T1	0.00	0.0012	-0.0105
P12	2a_T1	0.00	0.0012	-0.0111
P13	2a_T1	0.00	0.0012	-0.0117
P14	2a_T1	0.00	0.0012	-0.0124
P15	2a_T1	0.00	0.0006	-0.0090
P16	2a_T1	0.00	0.0006	-0.0096
P17	2a_T1	0.00	0.0006	-0.0103
P18	2a_T1	0.00	0.0006	-0.0109
P19	2a_T1	0.00	0.0006	-0.0116
P20	2a_T1	0.00	0.0006	-0.0123
P21	2a_T1	0.00	0.0006	-0.0129
P22	2a_T1	0.00	0.0000	-0.0078
P23	2a_T1	0.00	0.0000	-0.0084
P24	2a_T1	0.00	0.0000	-0.0091
P25	2a_T1	0.00	0.0000	-0.0097
P26	2a_T1	0.00	0.0000	-0.0104
P27	2a_T1	0.00	0.0000	-0.0110
P28	2a_T1	0.00	0.0000	-0.0116
P29	2a_T1	0.00	-0.0006	-0.0087
P30	2a_T1	0.00	-0.0006	-0.0094
P31	2a_T1	0.00	-0.0006	-0.0100
P32	2a_T1	0.00	-0.0006	-0.0107
P33	2a_T1	0.00	-0.0006	-0.0114
P34	2a_T1	0.00	-0.0006	-0.0121
P35	2a_T1	0.00	-0.0006	-0.0127
P36	2a_T1	0.00	-0.0012	-0.0081
P37	2a_T1	0.00	-0.0012	-0.0087
P38	2a_T1	0.00	-0.0012	-0.0094
P39	2a_T1	0.00	-0.0012	-0.0100
P40	2a_T1	0.00	-0.0012	-0.0107
P41	2a_T1	0.00	-0.0012	-0.0113
P42	2a_T1	0.00	-0.0012	-0.0120
P43	2a_T1	0.00	-0.0017	-0.0092
P44	2a_T1	0.00	-0.0017	-0.0098
P45	2a_T1	0.00	-0.0017	-0.0105
P46	2a_T1	0.00	-0.0017	-0.0112
P47	2a_T1	0.00	-0.0017	-0.0119
P48	2a_T1	0.00	-0.0017	-0.0125
P49	2a_T1	0.00	-0.0017	-0.0132

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T2	0.00	0.0017	-0.0106
P2	2a_T2	0.00	0.0017	-0.0111
P3	2a_T2	0.00	0.0017	-0.0116
P4	2a_T2	0.00	0.0017	-0.0121
P5	2a_T2	0.00	0.0017	-0.0126
P6	2a_T2	0.00	0.0017	-0.0132
P7	2a_T2	0.00	0.0017	-0.0137
P8	2a_T2	0.00	0.0012	-0.0091
P9	2a_T2	0.00	0.0012	-0.0096
P10	2a_T2	0.00	0.0012	-0.0101
P11	2a_T2	0.00	0.0012	-0.0106
P12	2a_T2	0.00	0.0012	-0.0111
P13	2a_T2	0.00	0.0012	-0.0116
P14	2a_T2	0.00	0.0012	-0.0121
P15	2a_T2	0.00	0.0006	-0.0093
P16	2a_T2	0.00	0.0006	-0.0098
P17	2a_T2	0.00	0.0006	-0.0103
P18	2a_T2	0.00	0.0006	-0.0109
P19	2a_T2	0.00	0.0006	-0.0114
P20	2a_T2	0.00	0.0006	-0.0119
P21	2a_T2	0.00	0.0006	-0.0124
P22	2a_T2	0.00	0.0000	-0.0080
P23	2a_T2	0.00	0.0000	-0.0085
P24	2a_T2	0.00	0.0000	-0.0090
P25	2a_T2	0.00	0.0000	-0.0095
P26	2a_T2	0.00	0.0000	-0.0100
P27	2a_T2	0.00	0.0000	-0.0105
P28	2a_T2	0.00	0.0000	-0.0110
P29	2a_T2	0.00	-0.0007	-0.0087
P30	2a_T2	0.00	-0.0007	-0.0092
P31	2a_T2	0.00	-0.0007	-0.0098
P32	2a_T2	0.00	-0.0007	-0.0103
P33	2a_T2	0.00	-0.0007	-0.0108
P34	2a_T2	0.00	-0.0007	-0.0113
P35	2a_T2	0.00	-0.0007	-0.0118
P36	2a_T2	0.00	-0.0013	-0.0080
P37	2a_T2	0.00	-0.0013	-0.0085
P38	2a_T2	0.00	-0.0013	-0.0090
P39	2a_T2	0.00	-0.0013	-0.0095
P40	2a_T2	0.00	-0.0012	-0.0099
P41	2a_T2	0.00	-0.0012	-0.0104
P42	2a_T2	0.00	-0.0012	-0.0109
P43	2a_T2	0.00	-0.0017	-0.0090
P44	2a_T2	0.00	-0.0017	-0.0095
P45	2a_T2	0.00	-0.0017	-0.0100
P46	2a_T2	0.00	-0.0017	-0.0104
P47	2a_T2	0.00	-0.0017	-0.0109
P48	2a_T2	0.00	-0.0017	-0.0114
P49	2a_T2	0.00	-0.0017	-0.0119

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T3	0.00	0.0017	-0.0106
P2	2a_T3	0.00	0.0017	-0.0113
P3	2a_T3	0.00	0.0017	-0.0119
P4	2a_T3	0.00	0.0017	-0.0126
P5	2a_T3	0.00	0.0017	-0.0132
P6	2a_T3	0.00	0.0017	-0.0139
P7	2a_T3	0.00	0.0017	-0.0145
P8	2a_T3	0.00	0.0013	-0.0095
P9	2a_T3	0.00	0.0012	-0.0102
P10	2a_T3	0.00	0.0012	-0.0108
P11	2a_T3	0.00	0.0012	-0.0115
P12	2a_T3	0.00	0.0012	-0.0121
P13	2a_T3	0.00	0.0012	-0.0127
P14	2a_T3	0.00	0.0012	-0.0134
P15	2a_T3	0.00	0.0006	-0.0103
P16	2a_T3	0.00	0.0006	-0.0109
P17	2a_T3	0.00	0.0006	-0.0116
P18	2a_T3	0.00	0.0006	-0.0123
P19	2a_T3	0.00	0.0006	-0.0130
P20	2a_T3	0.00	0.0006	-0.0137
P21	2a_T3	0.00	0.0006	-0.0144
P22	2a_T3	0.00	0.0000	-0.0093
P23	2a_T3	0.00	0.0000	-0.0100
P24	2a_T3	0.00	0.0000	-0.0107
P25	2a_T3	0.00	0.0000	-0.0113
P26	2a_T3	0.00	0.0000	-0.0120
P27	2a_T3	0.00	0.0000	-0.0127
P28	2a_T3	0.00	0.0000	-0.0134
P29	2a_T3	0.00	-0.0006	-0.0105
P30	2a_T3	0.00	-0.0006	-0.0112
P31	2a_T3	0.00	-0.0006	-0.0119
P32	2a_T3	0.00	-0.0006	-0.0127
P33	2a_T3	0.00	-0.0006	-0.0134
P34	2a_T3	0.00	-0.0006	-0.0141
P35	2a_T3	0.00	-0.0006	-0.0149
P36	2a_T3	0.00	-0.0012	-0.0100
P37	2a_T3	0.00	-0.0012	-0.0107
P38	2a_T3	0.00	-0.0012	-0.0115
P39	2a_T3	0.00	-0.0012	-0.0122
P40	2a_T3	0.00	-0.0012	-0.0129
P41	2a_T3	0.00	-0.0013	-0.0136
P42	2a_T3	0.00	-0.0013	-0.0143
P43	2a_T3	0.00	-0.0017	-0.0114
P44	2a_T3	0.00	-0.0017	-0.0122
P45	2a_T3	0.00	-0.0017	-0.0129
P46	2a_T3	0.00	-0.0017	-0.0137
P47	2a_T3	0.00	-0.0017	-0.0144
P48	2a_T3	0.00	-0.0018	-0.0152
P49	2a_T3	0.00	-0.0018	-0.0160

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T4	0.00	0.0017	-0.0124
P2	2a_T4	0.00	0.0017	-0.0129
P3	2a_T4	0.00	0.0017	-0.0133
P4	2a_T4	0.00	0.0017	-0.0137
P5	2a_T4	0.00	0.0017	-0.0142
P6	2a_T4	0.00	0.0017	-0.0146
P7	2a_T4	0.00	0.0017	-0.0150
P8	2a_T4	0.00	0.0012	-0.0109
P9	2a_T4	0.00	0.0012	-0.0113
P10	2a_T4	0.00	0.0012	-0.0118
P11	2a_T4	0.00	0.0012	-0.0122
P12	2a_T4	0.00	0.0012	-0.0126
P13	2a_T4	0.00	0.0012	-0.0131
P14	2a_T4	0.00	0.0012	-0.0135
P15	2a_T4	0.00	0.0006	-0.0112
P16	2a_T4	0.00	0.0006	-0.0117
P17	2a_T4	0.00	0.0006	-0.0122
P18	2a_T4	0.00	0.0006	-0.0126
P19	2a_T4	0.00	0.0006	-0.0131
P20	2a_T4	0.00	0.0006	-0.0136
P21	2a_T4	0.00	0.0006	-0.0140
P22	2a_T4	0.00	0.0000	-0.0098
P23	2a_T4	0.00	0.0000	-0.0103
P24	2a_T4	0.00	0.0000	-0.0108
P25	2a_T4	0.00	0.0000	-0.0112
P26	2a_T4	0.00	0.0000	-0.0117
P27	2a_T4	0.00	0.0000	-0.0121
P28	2a_T4	0.00	0.0000	-0.0126
P29	2a_T4	0.00	-0.0006	-0.0106
P30	2a_T4	0.00	-0.0006	-0.0111
P31	2a_T4	0.00	-0.0006	-0.0116
P32	2a_T4	0.00	-0.0006	-0.0121
P33	2a_T4	0.00	-0.0006	-0.0125
P34	2a_T4	0.00	-0.0006	-0.0130
P35	2a_T4	0.00	-0.0006	-0.0135
P36	2a_T4	0.00	-0.0012	-0.0097
P37	2a_T4	0.00	-0.0012	-0.0102
P38	2a_T4	0.00	-0.0012	-0.0106
P39	2a_T4	0.00	-0.0012	-0.0111
P40	2a_T4	0.00	-0.0012	-0.0115
P41	2a_T4	0.00	-0.0012	-0.0120
P42	2a_T4	0.00	-0.0012	-0.0124
P43	2a_T4	0.00	-0.0017	-0.0106
P44	2a_T4	0.00	-0.0017	-0.0111
P45	2a_T4	0.00	-0.0017	-0.0115
P46	2a_T4	0.00	-0.0017	-0.0120
P47	2a_T4	0.00	-0.0017	-0.0125
P48	2a_T4	0.00	-0.0017	-0.0129
P49	2a_T4	0.00	-0.0017	-0.0134

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b	0.00	0.0011	-0.0598
P2	2b	0.00	0.0011	-0.0598
P3	2b	0.00	0.0011	-0.0598
P4	2b	0.00	0.0011	-0.0598
P5	2b	0.00	0.0011	-0.0598
P6	2b	0.00	0.0011	-0.0598
P7	2b	0.00	0.0011	-0.0598
P8	2b	0.00	0.0005	-0.0594
P9	2b	0.00	0.0005	-0.0595
P10	2b	0.00	0.0005	-0.0595
P11	2b	0.00	0.0005	-0.0595
P12	2b	0.00	0.0005	-0.0595
P13	2b	0.00	0.0005	-0.0594
P14	2b	0.00	0.0005	-0.0594
P15	2b	0.00	0.0003	-0.0621
P16	2b	0.00	0.0003	-0.0621
P17	2b	0.00	0.0003	-0.0621
P18	2b	0.00	0.0003	-0.0621
P19	2b	0.00	0.0003	-0.0621
P20	2b	0.00	0.0003	-0.0621
P21	2b	0.00	0.0003	-0.0621
P22	2b	0.00	0.0000	-0.0608
P23	2b	0.00	0.0000	-0.0608
P24	2b	0.00	0.0000	-0.0608
P25	2b	0.00	0.0000	-0.0608
P26	2b	0.00	0.0000	-0.0608
P27	2b	0.00	0.0000	-0.0608
P28	2b	0.00	0.0000	-0.0608
P29	2b	0.00	-0.0003	-0.0621
P30	2b	0.00	-0.0003	-0.0621
P31	2b	0.00	-0.0003	-0.0621
P32	2b	0.00	-0.0003	-0.0621
P33	2b	0.00	-0.0003	-0.0621
P34	2b	0.00	-0.0003	-0.0621
P35	2b	0.00	-0.0003	-0.0621
P36	2b	0.00	-0.0005	-0.0594
P37	2b	0.00	-0.0005	-0.0595
P38	2b	0.00	-0.0005	-0.0595
P39	2b	0.00	-0.0005	-0.0595
P40	2b	0.00	-0.0005	-0.0595
P41	2b	0.00	-0.0005	-0.0595
P42	2b	0.00	-0.0005	-0.0594
P43	2b	0.00	-0.0011	-0.0598
P44	2b	0.00	-0.0011	-0.0598
P45	2b	0.00	-0.0011	-0.0598
P46	2b	0.00	-0.0011	-0.0598
P47	2b	0.00	-0.0011	-0.0598
P48	2b	0.00	-0.0011	-0.0598
P49	2b	0.00	-0.0011	-0.0598

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T1	0.00	0.0012	-0.0599
P2	2b_T1	0.00	0.0012	-0.0605
P3	2b_T1	0.00	0.0012	-0.0612
P4	2b_T1	0.00	0.0012	-0.0618
P5	2b_T1	0.00	0.0012	-0.0625
P6	2b_T1	0.00	0.0012	-0.0631
P7	2b_T1	0.00	0.0012	-0.0638
P8	2b_T1	0.00	0.0005	-0.0594
P9	2b_T1	0.00	0.0005	-0.0601
P10	2b_T1	0.00	0.0005	-0.0607
P11	2b_T1	0.00	0.0005	-0.0613
P12	2b_T1	0.00	0.0005	-0.0620
P13	2b_T1	0.00	0.0005	-0.0626
P14	2b_T1	0.00	0.0005	-0.0632
P15	2b_T1	0.00	0.0003	-0.0620
P16	2b_T1	0.00	0.0003	-0.0627
P17	2b_T1	0.00	0.0003	-0.0634
P18	2b_T1	0.00	0.0003	-0.0640
P19	2b_T1	0.00	0.0003	-0.0647
P20	2b_T1	0.00	0.0003	-0.0653
P21	2b_T1	0.00	0.0003	-0.0660
P22	2b_T1	0.00	0.0000	-0.0607
P23	2b_T1	0.00	0.0000	-0.0613
P24	2b_T1	0.00	0.0000	-0.0620
P25	2b_T1	0.00	0.0000	-0.0626
P26	2b_T1	0.00	0.0000	-0.0633
P27	2b_T1	0.00	0.0000	-0.0639
P28	2b_T1	0.00	0.0000	-0.0645
P29	2b_T1	0.00	-0.0003	-0.0618
P30	2b_T1	0.00	-0.0003	-0.0624
P31	2b_T1	0.00	-0.0003	-0.0631
P32	2b_T1	0.00	-0.0003	-0.0638
P33	2b_T1	0.00	-0.0003	-0.0645
P34	2b_T1	0.00	-0.0003	-0.0651
P35	2b_T1	0.00	-0.0003	-0.0658
P36	2b_T1	0.00	-0.0005	-0.0589
P37	2b_T1	0.00	-0.0005	-0.0596
P38	2b_T1	0.00	-0.0005	-0.0603
P39	2b_T1	0.00	-0.0005	-0.0609
P40	2b_T1	0.00	-0.0005	-0.0616
P41	2b_T1	0.00	-0.0005	-0.0622
P42	2b_T1	0.00	-0.0005	-0.0628
P43	2b_T1	0.00	-0.0011	-0.0592
P44	2b_T1	0.00	-0.0011	-0.0598
P45	2b_T1	0.00	-0.0011	-0.0605
P46	2b_T1	0.00	-0.0012	-0.0612
P47	2b_T1	0.00	-0.0012	-0.0619
P48	2b_T1	0.00	-0.0012	-0.0625
P49	2b_T1	0.00	-0.0012	-0.0632

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T2	0.00	0.0012	-0.0606
P2	2b_T2	0.00	0.0012	-0.0611
P3	2b_T2	0.00	0.0012	-0.0616
P4	2b_T2	0.00	0.0012	-0.0621
P5	2b_T2	0.00	0.0012	-0.0626
P6	2b_T2	0.00	0.0012	-0.0631
P7	2b_T2	0.00	0.0012	-0.0637
P8	2b_T2	0.00	0.0005	-0.0599
P9	2b_T2	0.00	0.0005	-0.0604
P10	2b_T2	0.00	0.0005	-0.0609
P11	2b_T2	0.00	0.0005	-0.0614
P12	2b_T2	0.00	0.0005	-0.0620
P13	2b_T2	0.00	0.0005	-0.0624
P14	2b_T2	0.00	0.0005	-0.0629
P15	2b_T2	0.00	0.0003	-0.0624
P16	2b_T2	0.00	0.0003	-0.0629
P17	2b_T2	0.00	0.0003	-0.0634
P18	2b_T2	0.00	0.0003	-0.0639
P19	2b_T2	0.00	0.0003	-0.0645
P20	2b_T2	0.00	0.0003	-0.0650
P21	2b_T2	0.00	0.0003	-0.0655
P22	2b_T2	0.00	0.0000	-0.0608
P23	2b_T2	0.00	0.0000	-0.0613
P24	2b_T2	0.00	0.0000	-0.0619
P25	2b_T2	0.00	0.0000	-0.0624
P26	2b_T2	0.00	0.0000	-0.0629
P27	2b_T2	0.00	0.0000	-0.0633
P28	2b_T2	0.00	0.0000	-0.0638
P29	2b_T2	0.00	-0.0003	-0.0618
P30	2b_T2	0.00	-0.0003	-0.0623
P31	2b_T2	0.00	-0.0003	-0.0628
P32	2b_T2	0.00	-0.0003	-0.0633
P33	2b_T2	0.00	-0.0003	-0.0639
P34	2b_T2	0.00	-0.0003	-0.0644
P35	2b_T2	0.00	-0.0003	-0.0649
P36	2b_T2	0.00	-0.0005	-0.0589
P37	2b_T2	0.00	-0.0005	-0.0594
P38	2b_T2	0.00	-0.0005	-0.0599
P39	2b_T2	0.00	-0.0005	-0.0603
P40	2b_T2	0.00	-0.0005	-0.0608
P41	2b_T2	0.00	-0.0005	-0.0613
P42	2b_T2	0.00	-0.0005	-0.0617
P43	2b_T2	0.00	-0.0011	-0.0590
P44	2b_T2	0.00	-0.0011	-0.0595
P45	2b_T2	0.00	-0.0011	-0.0599
P46	2b_T2	0.00	-0.0011	-0.0604
P47	2b_T2	0.00	-0.0011	-0.0609
P48	2b_T2	0.00	-0.0011	-0.0614
P49	2b_T2	0.00	-0.0011	-0.0619

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T3	0.00	0.0012	-0.0606
P2	2b_T3	0.00	0.0012	-0.0613
P3	2b_T3	0.00	0.0012	-0.0619
P4	2b_T3	0.00	0.0012	-0.0626
P5	2b_T3	0.00	0.0012	-0.0632
P6	2b_T3	0.00	0.0012	-0.0638
P7	2b_T3	0.00	0.0012	-0.0645
P8	2b_T3	0.00	0.0005	-0.0604
P9	2b_T3	0.00	0.0005	-0.0610
P10	2b_T3	0.00	0.0005	-0.0617
P11	2b_T3	0.00	0.0005	-0.0623
P12	2b_T3	0.00	0.0005	-0.0630
P13	2b_T3	0.00	0.0005	-0.0636
P14	2b_T3	0.00	0.0005	-0.0642
P15	2b_T3	0.00	0.0003	-0.0633
P16	2b_T3	0.00	0.0003	-0.0640
P17	2b_T3	0.00	0.0003	-0.0647
P18	2b_T3	0.00	0.0003	-0.0654
P19	2b_T3	0.00	0.0003	-0.0661
P20	2b_T3	0.00	0.0003	-0.0667
P21	2b_T3	0.00	0.0003	-0.0674
P22	2b_T3	0.00	0.0000	-0.0622
P23	2b_T3	0.00	0.0000	-0.0629
P24	2b_T3	0.00	0.0000	-0.0636
P25	2b_T3	0.00	0.0000	-0.0642
P26	2b_T3	0.00	0.0000	-0.0649
P27	2b_T3	0.00	0.0000	-0.0656
P28	2b_T3	0.00	0.0000	-0.0662
P29	2b_T3	0.00	-0.0002	-0.0636
P30	2b_T3	0.00	-0.0002	-0.0643
P31	2b_T3	0.00	-0.0002	-0.0650
P32	2b_T3	0.00	-0.0003	-0.0657
P33	2b_T3	0.00	-0.0003	-0.0665
P34	2b_T3	0.00	-0.0003	-0.0672
P35	2b_T3	0.00	-0.0003	-0.0679
P36	2b_T3	0.00	-0.0005	-0.0609
P37	2b_T3	0.00	-0.0005	-0.0616
P38	2b_T3	0.00	-0.0005	-0.0623
P39	2b_T3	0.00	-0.0005	-0.0630
P40	2b_T3	0.00	-0.0005	-0.0638
P41	2b_T3	0.00	-0.0005	-0.0645
P42	2b_T3	0.00	-0.0005	-0.0652
P43	2b_T3	0.00	-0.0012	-0.0614
P44	2b_T3	0.00	-0.0012	-0.0622
P45	2b_T3	0.00	-0.0012	-0.0629
P46	2b_T3	0.00	-0.0012	-0.0637
P47	2b_T3	0.00	-0.0012	-0.0644
P48	2b_T3	0.00	-0.0012	-0.0652
P49	2b_T3	0.00	-0.0012	-0.0660

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T4	0.00	0.0012	-0.0624
P2	2b_T4	0.00	0.0012	-0.0629
P3	2b_T4	0.00	0.0012	-0.0633
P4	2b_T4	0.00	0.0012	-0.0637
P5	2b_T4	0.00	0.0012	-0.0642
P6	2b_T4	0.00	0.0012	-0.0646
P7	2b_T4	0.00	0.0012	-0.0650
P8	2b_T4	0.00	0.0005	-0.0617
P9	2b_T4	0.00	0.0005	-0.0622
P10	2b_T4	0.00	0.0005	-0.0626
P11	2b_T4	0.00	0.0005	-0.0631
P12	2b_T4	0.00	0.0005	-0.0635
P13	2b_T4	0.00	0.0005	-0.0639
P14	2b_T4	0.00	0.0005	-0.0643
P15	2b_T4	0.00	0.0002	-0.0643
P16	2b_T4	0.00	0.0002	-0.0648
P17	2b_T4	0.00	0.0002	-0.0652
P18	2b_T4	0.00	0.0002	-0.0657
P19	2b_T4	0.00	0.0002	-0.0662
P20	2b_T4	0.00	0.0002	-0.0666
P21	2b_T4	0.00	0.0002	-0.0671
P22	2b_T4	0.00	0.0000	-0.0627
P23	2b_T4	0.00	0.0000	-0.0632
P24	2b_T4	0.00	0.0000	-0.0637
P25	2b_T4	0.00	0.0000	-0.0641
P26	2b_T4	0.00	0.0000	-0.0646
P27	2b_T4	0.00	0.0000	-0.0650
P28	2b_T4	0.00	0.0000	-0.0655
P29	2b_T4	0.00	-0.0003	-0.0637
P30	2b_T4	0.00	-0.0003	-0.0642
P31	2b_T4	0.00	-0.0003	-0.0647
P32	2b_T4	0.00	-0.0003	-0.0651
P33	2b_T4	0.00	-0.0003	-0.0656
P34	2b_T4	0.00	-0.0003	-0.0661
P35	2b_T4	0.00	-0.0003	-0.0666
P36	2b_T4	0.00	-0.0005	-0.0605
P37	2b_T4	0.00	-0.0005	-0.0610
P38	2b_T4	0.00	-0.0005	-0.0615
P39	2b_T4	0.00	-0.0005	-0.0619
P40	2b_T4	0.00	-0.0005	-0.0624
P41	2b_T4	0.00	-0.0005	-0.0628
P42	2b_T4	0.00	-0.0005	-0.0633
P43	2b_T4	0.00	-0.0011	-0.0606
P44	2b_T4	0.00	-0.0011	-0.0611
P45	2b_T4	0.00	-0.0011	-0.0615
P46	2b_T4	0.00	-0.0011	-0.0620
P47	2b_T4	0.00	-0.0011	-0.0625
P48	2b_T4	0.00	-0.0011	-0.0629
P49	2b_T4	0.00	-0.0012	-0.0634

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a	0.00	0.0016	-0.0301
P2	3a	0.00	0.0016	-0.0301
P3	3a	0.00	0.0016	-0.0301
P4	3a	0.00	0.0016	-0.0301
P5	3a	0.00	0.0016	-0.0301
P6	3a	0.00	0.0016	-0.0301
P7	3a	0.00	0.0016	-0.0301
P8	3a	0.00	0.0011	-0.0291
P9	3a	0.00	0.0011	-0.0291
P10	3a	0.00	0.0011	-0.0291
P11	3a	0.00	0.0011	-0.0291
P12	3a	0.00	0.0011	-0.0291
P13	3a	0.00	0.0011	-0.0291
P14	3a	0.00	0.0011	-0.0291
P15	3a	0.00	0.0006	-0.0303
P16	3a	0.00	0.0006	-0.0303
P17	3a	0.00	0.0006	-0.0303
P18	3a	0.00	0.0006	-0.0303
P19	3a	0.00	0.0006	-0.0303
P20	3a	0.00	0.0006	-0.0303
P21	3a	0.00	0.0006	-0.0303
P22	3a	0.00	0.0000	-0.0291
P23	3a	0.00	0.0000	-0.0291
P24	3a	0.00	0.0000	-0.0291
P25	3a	0.00	0.0000	-0.0291
P26	3a	0.00	0.0000	-0.0291
P27	3a	0.00	0.0000	-0.0291
P28	3a	0.00	0.0000	-0.0291
P29	3a	0.00	-0.0006	-0.0303
P30	3a	0.00	-0.0006	-0.0303
P31	3a	0.00	-0.0006	-0.0303
P32	3a	0.00	-0.0006	-0.0303
P33	3a	0.00	-0.0006	-0.0303
P34	3a	0.00	-0.0006	-0.0303
P35	3a	0.00	-0.0006	-0.0303
P36	3a	0.00	-0.0011	-0.0291
P37	3a	0.00	-0.0011	-0.0291
P38	3a	0.00	-0.0011	-0.0291
P39	3a	0.00	-0.0011	-0.0291
P40	3a	0.00	-0.0011	-0.0291
P41	3a	0.00	-0.0011	-0.0291
P42	3a	0.00	-0.0011	-0.0291
P43	3a	0.00	-0.0016	-0.0301
P44	3a	0.00	-0.0016	-0.0301
P45	3a	0.00	-0.0016	-0.0301
P46	3a	0.00	-0.0016	-0.0301
P47	3a	0.00	-0.0016	-0.0301
P48	3a	0.00	-0.0016	-0.0301
P49	3a	0.00	-0.0016	-0.0301

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13
Checked By: BCB **Date:** Aug-13

Page: of
Sheet: of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_6	0.00	0.0014	-0.0224
P2	3a_6	0.00	0.0014	-0.0224
P3	3a_6	0.00	0.0014	-0.0224
P4	3a_6	0.00	0.0014	-0.0224
P5	3a_6	0.00	0.0014	-0.0224
P6	3a_6	0.00	0.0014	-0.0224
P7	3a_6	0.00	0.0014	-0.0224
P8	3a_6	0.00	0.0010	-0.0215
P9	3a_6	0.00	0.0010	-0.0215
P10	3a_6	0.00	0.0010	-0.0215
P11	3a_6	0.00	0.0010	-0.0215
P12	3a_6	0.00	0.0010	-0.0215
P13	3a_6	0.00	0.0010	-0.0215
P14	3a_6	0.00	0.0010	-0.0215
P15	3a_6	0.00	0.0005	-0.0222
P16	3a_6	0.00	0.0005	-0.0222
P17	3a_6	0.00	0.0005	-0.0222
P18	3a_6	0.00	0.0005	-0.0222
P19	3a_6	0.00	0.0005	-0.0222
P20	3a_6	0.00	0.0005	-0.0222
P21	3a_6	0.00	0.0005	-0.0222
P22	3a_6	0.00	0.0000	-0.0212
P23	3a_6	0.00	0.0000	-0.0212
P24	3a_6	0.00	0.0000	-0.0212
P25	3a_6	0.00	0.0000	-0.0212
P26	3a_6	0.00	0.0000	-0.0213
P27	3a_6	0.00	0.0000	-0.0212
P28	3a_6	0.00	0.0000	-0.0212
P29	3a_6	0.00	-0.0005	-0.0222
P30	3a_6	0.00	-0.0005	-0.0222
P31	3a_6	0.00	-0.0005	-0.0222
P32	3a_6	0.00	-0.0005	-0.0222
P33	3a_6	0.00	-0.0005	-0.0222
P34	3a_6	0.00	-0.0005	-0.0222
P35	3a_6	0.00	-0.0005	-0.0222
P36	3a_6	0.00	-0.0010	-0.0215
P37	3a_6	0.00	-0.0010	-0.0215
P38	3a_6	0.00	-0.0010	-0.0215
P39	3a_6	0.00	-0.0010	-0.0215
P40	3a_6	0.00	-0.0010	-0.0215
P41	3a_6	0.00	-0.0010	-0.0215
P42	3a_6	0.00	-0.0010	-0.0215
P43	3a_6	0.00	-0.0014	-0.0224
P44	3a_6	0.00	-0.0014	-0.0224
P45	3a_6	0.00	-0.0014	-0.0224
P46	3a_6	0.00	-0.0014	-0.0224
P47	3a_6	0.00	-0.0014	-0.0224
P48	3a_6	0.00	-0.0014	-0.0224
P49	3a_6	0.00	-0.0014	-0.0224

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T1	0.00	0.0016	-0.0302
P2	3a_T1	0.00	0.0016	-0.0308
P3	3a_T1	0.00	0.0016	-0.0315
P4	3a_T1	0.00	0.0016	-0.0321
P5	3a_T1	0.00	0.0016	-0.0327
P6	3a_T1	0.00	0.0016	-0.0334
P7	3a_T1	0.00	0.0016	-0.0340
P8	3a_T1	0.00	0.0011	-0.0291
P9	3a_T1	0.00	0.0011	-0.0297
P10	3a_T1	0.00	0.0010	-0.0304
P11	3a_T1	0.00	0.0010	-0.0310
P12	3a_T1	0.00	0.0010	-0.0316
P13	3a_T1	0.00	0.0010	-0.0323
P14	3a_T1	0.00	0.0010	-0.0329
P15	3a_T1	0.00	0.0005	-0.0303
P16	3a_T1	0.00	0.0005	-0.0309
P17	3a_T1	0.00	0.0005	-0.0316
P18	3a_T1	0.00	0.0005	-0.0322
P19	3a_T1	0.00	0.0005	-0.0329
P20	3a_T1	0.00	0.0005	-0.0336
P21	3a_T1	0.00	0.0005	-0.0342
P22	3a_T1	0.00	0.0000	-0.0289
P23	3a_T1	0.00	0.0000	-0.0296
P24	3a_T1	0.00	0.0000	-0.0302
P25	3a_T1	0.00	0.0000	-0.0309
P26	3a_T1	0.00	0.0000	-0.0315
P27	3a_T1	0.00	0.0000	-0.0322
P28	3a_T1	0.00	0.0000	-0.0328
P29	3a_T1	0.00	-0.0006	-0.0300
P30	3a_T1	0.00	-0.0006	-0.0307
P31	3a_T1	0.00	-0.0006	-0.0313
P32	3a_T1	0.00	-0.0006	-0.0320
P33	3a_T1	0.00	-0.0006	-0.0327
P34	3a_T1	0.00	-0.0006	-0.0334
P35	3a_T1	0.00	-0.0006	-0.0340
P36	3a_T1	0.00	-0.0010	-0.0286
P37	3a_T1	0.00	-0.0010	-0.0293
P38	3a_T1	0.00	-0.0010	-0.0299
P39	3a_T1	0.00	-0.0010	-0.0306
P40	3a_T1	0.00	-0.0011	-0.0312
P41	3a_T1	0.00	-0.0011	-0.0319
P42	3a_T1	0.00	-0.0011	-0.0325
P43	3a_T1	0.00	-0.0016	-0.0294
P44	3a_T1	0.00	-0.0016	-0.0301
P45	3a_T1	0.00	-0.0016	-0.0308
P46	3a_T1	0.00	-0.0016	-0.0315
P47	3a_T1	0.00	-0.0016	-0.0321
P48	3a_T1	0.00	-0.0016	-0.0328
P49	3a_T1	0.00	-0.0016	-0.0335

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T2	0.00	0.0016	-0.0309
P2	3a_T2	0.00	0.0016	-0.0314
P3	3a_T2	0.00	0.0016	-0.0319
P4	3a_T2	0.00	0.0016	-0.0324
P5	3a_T2	0.00	0.0016	-0.0329
P6	3a_T2	0.00	0.0016	-0.0334
P7	3a_T2	0.00	0.0016	-0.0339
P8	3a_T2	0.00	0.0011	-0.0296
P9	3a_T2	0.00	0.0011	-0.0301
P10	3a_T2	0.00	0.0011	-0.0306
P11	3a_T2	0.00	0.0011	-0.0311
P12	3a_T2	0.00	0.0011	-0.0316
P13	3a_T2	0.00	0.0011	-0.0321
P14	3a_T2	0.00	0.0011	-0.0326
P15	3a_T2	0.00	0.0005	-0.0306
P16	3a_T2	0.00	0.0005	-0.0311
P17	3a_T2	0.00	0.0005	-0.0316
P18	3a_T2	0.00	0.0006	-0.0322
P19	3a_T2	0.00	0.0006	-0.0327
P20	3a_T2	0.00	0.0006	-0.0332
P21	3a_T2	0.00	0.0006	-0.0337
P22	3a_T2	0.00	0.0000	-0.0291
P23	3a_T2	0.00	0.0000	-0.0296
P24	3a_T2	0.00	0.0000	-0.0301
P25	3a_T2	0.00	0.0000	-0.0306
P26	3a_T2	0.00	0.0000	-0.0311
P27	3a_T2	0.00	0.0000	-0.0316
P28	3a_T2	0.00	0.0000	-0.0321
P29	3a_T2	0.00	-0.0006	-0.0300
P30	3a_T2	0.00	-0.0006	-0.0305
P31	3a_T2	0.00	-0.0006	-0.0311
P32	3a_T2	0.00	-0.0006	-0.0316
P33	3a_T2	0.00	-0.0006	-0.0321
P34	3a_T2	0.00	-0.0006	-0.0326
P35	3a_T2	0.00	-0.0006	-0.0331
P36	3a_T2	0.00	-0.0011	-0.0286
P37	3a_T2	0.00	-0.0011	-0.0290
P38	3a_T2	0.00	-0.0011	-0.0295
P39	3a_T2	0.00	-0.0011	-0.0300
P40	3a_T2	0.00	-0.0011	-0.0305
P41	3a_T2	0.00	-0.0010	-0.0310
P42	3a_T2	0.00	-0.0010	-0.0314
P43	3a_T2	0.00	-0.0016	-0.0293
P44	3a_T2	0.00	-0.0016	-0.0297
P45	3a_T2	0.00	-0.0016	-0.0302
P46	3a_T2	0.00	-0.0016	-0.0307
P47	3a_T2	0.00	-0.0016	-0.0312
P48	3a_T2	0.00	-0.0016	-0.0317
P49	3a_T2	0.00	-0.0016	-0.0321

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T3	0.00	0.0016	-0.0309
P2	3a_T3	0.00	0.0016	-0.0315
P3	3a_T3	0.00	0.0016	-0.0322
P4	3a_T3	0.00	0.0016	-0.0328
P5	3a_T3	0.00	0.0016	-0.0335
P6	3a_T3	0.00	0.0016	-0.0341
P7	3a_T3	0.00	0.0016	-0.0348
P8	3a_T3	0.00	0.0011	-0.0300
P9	3a_T3	0.00	0.0011	-0.0307
P10	3a_T3	0.00	0.0010	-0.0313
P11	3a_T3	0.00	0.0010	-0.0320
P12	3a_T3	0.00	0.0010	-0.0326
P13	3a_T3	0.00	0.0010	-0.0333
P14	3a_T3	0.00	0.0010	-0.0339
P15	3a_T3	0.00	0.0006	-0.0316
P16	3a_T3	0.00	0.0006	-0.0323
P17	3a_T3	0.00	0.0005	-0.0329
P18	3a_T3	0.00	0.0005	-0.0336
P19	3a_T3	0.00	0.0005	-0.0343
P20	3a_T3	0.00	0.0005	-0.0350
P21	3a_T3	0.00	0.0005	-0.0357
P22	3a_T3	0.00	0.0000	-0.0304
P23	3a_T3	0.00	0.0000	-0.0311
P24	3a_T3	0.00	0.0000	-0.0318
P25	3a_T3	0.00	0.0000	-0.0325
P26	3a_T3	0.00	0.0000	-0.0332
P27	3a_T3	0.00	0.0000	-0.0339
P28	3a_T3	0.00	0.0000	-0.0345
P29	3a_T3	0.00	-0.0005	-0.0318
P30	3a_T3	0.00	-0.0005	-0.0325
P31	3a_T3	0.00	-0.0005	-0.0332
P32	3a_T3	0.00	-0.0005	-0.0340
P33	3a_T3	0.00	-0.0005	-0.0347
P34	3a_T3	0.00	-0.0005	-0.0354
P35	3a_T3	0.00	-0.0005	-0.0362
P36	3a_T3	0.00	-0.0010	-0.0305
P37	3a_T3	0.00	-0.0010	-0.0313
P38	3a_T3	0.00	-0.0010	-0.0320
P39	3a_T3	0.00	-0.0010	-0.0327
P40	3a_T3	0.00	-0.0010	-0.0334
P41	3a_T3	0.00	-0.0011	-0.0341
P42	3a_T3	0.00	-0.0011	-0.0349
P43	3a_T3	0.00	-0.0016	-0.0317
P44	3a_T3	0.00	-0.0016	-0.0324
P45	3a_T3	0.00	-0.0016	-0.0332
P46	3a_T3	0.00	-0.0016	-0.0340
P47	3a_T3	0.00	-0.0016	-0.0347
P48	3a_T3	0.00	-0.0016	-0.0355
P49	3a_T3	0.00	-0.0016	-0.0362

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T4	0.00	0.0016	-0.0327
P2	3a_T4	0.00	0.0016	-0.0331
P3	3a_T4	0.00	0.0016	-0.0336
P4	3a_T4	0.00	0.0016	-0.0340
P5	3a_T4	0.00	0.0016	-0.0344
P6	3a_T4	0.00	0.0016	-0.0349
P7	3a_T4	0.00	0.0016	-0.0353
P8	3a_T4	0.00	0.0010	-0.0314
P9	3a_T4	0.00	0.0010	-0.0319
P10	3a_T4	0.00	0.0010	-0.0323
P11	3a_T4	0.00	0.0010	-0.0327
P12	3a_T4	0.00	0.0010	-0.0332
P13	3a_T4	0.00	0.0010	-0.0336
P14	3a_T4	0.00	0.0010	-0.0340
P15	3a_T4	0.00	0.0005	-0.0325
P16	3a_T4	0.00	0.0005	-0.0330
P17	3a_T4	0.00	0.0005	-0.0335
P18	3a_T4	0.00	0.0005	-0.0339
P19	3a_T4	0.00	0.0005	-0.0344
P20	3a_T4	0.00	0.0005	-0.0349
P21	3a_T4	0.00	0.0005	-0.0353
P22	3a_T4	0.00	0.0000	-0.0310
P23	3a_T4	0.00	0.0000	-0.0315
P24	3a_T4	0.00	0.0000	-0.0319
P25	3a_T4	0.00	0.0000	-0.0324
P26	3a_T4	0.00	0.0000	-0.0328
P27	3a_T4	0.00	0.0000	-0.0333
P28	3a_T4	0.00	0.0000	-0.0337
P29	3a_T4	0.00	-0.0005	-0.0319
P30	3a_T4	0.00	-0.0005	-0.0324
P31	3a_T4	0.00	-0.0005	-0.0329
P32	3a_T4	0.00	-0.0005	-0.0334
P33	3a_T4	0.00	-0.0005	-0.0338
P34	3a_T4	0.00	-0.0005	-0.0343
P35	3a_T4	0.00	-0.0005	-0.0348
P36	3a_T4	0.00	-0.0010	-0.0302
P37	3a_T4	0.00	-0.0010	-0.0307
P38	3a_T4	0.00	-0.0010	-0.0312
P39	3a_T4	0.00	-0.0010	-0.0316
P40	3a_T4	0.00	-0.0010	-0.0321
P41	3a_T4	0.00	-0.0010	-0.0325
P42	3a_T4	0.00	-0.0010	-0.0330
P43	3a_T4	0.00	-0.0016	-0.0309
P44	3a_T4	0.00	-0.0016	-0.0313
P45	3a_T4	0.00	-0.0016	-0.0318
P46	3a_T4	0.00	-0.0016	-0.0323
P47	3a_T4	0.00	-0.0016	-0.0327
P48	3a_T4	0.00	-0.0016	-0.0332
P49	3a_T4	0.00	-0.0016	-0.0337

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b	0.00	0.0012	-0.0574
P2	3b	0.00	0.0012	-0.0574
P3	3b	0.00	0.0012	-0.0574
P4	3b	0.00	0.0012	-0.0574
P5	3b	0.00	0.0012	-0.0574
P6	3b	0.00	0.0012	-0.0574
P7	3b	0.00	0.0012	-0.0574
P8	3b	0.00	0.0006	-0.0569
P9	3b	0.00	0.0006	-0.0569
P10	3b	0.00	0.0006	-0.0570
P11	3b	0.00	0.0006	-0.0570
P12	3b	0.00	0.0006	-0.0570
P13	3b	0.00	0.0006	-0.0569
P14	3b	0.00	0.0006	-0.0569
P15	3b	0.00	0.0003	-0.0594
P16	3b	0.00	0.0003	-0.0594
P17	3b	0.00	0.0003	-0.0594
P18	3b	0.00	0.0003	-0.0594
P19	3b	0.00	0.0003	-0.0594
P20	3b	0.00	0.0003	-0.0594
P21	3b	0.00	0.0003	-0.0594
P22	3b	0.00	0.0000	-0.0581
P23	3b	0.00	0.0000	-0.0581
P24	3b	0.00	0.0000	-0.0581
P25	3b	0.00	0.0000	-0.0581
P26	3b	0.00	0.0000	-0.0581
P27	3b	0.00	0.0000	-0.0581
P28	3b	0.00	0.0000	-0.0581
P29	3b	0.00	-0.0003	-0.0594
P30	3b	0.00	-0.0003	-0.0594
P31	3b	0.00	-0.0003	-0.0594
P32	3b	0.00	-0.0003	-0.0594
P33	3b	0.00	-0.0003	-0.0594
P34	3b	0.00	-0.0003	-0.0594
P35	3b	0.00	-0.0003	-0.0594
P36	3b	0.00	-0.0006	-0.0569
P37	3b	0.00	-0.0006	-0.0569
P38	3b	0.00	-0.0006	-0.0570
P39	3b	0.00	-0.0006	-0.0570
P40	3b	0.00	-0.0006	-0.0570
P41	3b	0.00	-0.0006	-0.0569
P42	3b	0.00	-0.0006	-0.0569
P43	3b	0.00	-0.0012	-0.0574
P44	3b	0.00	-0.0012	-0.0574
P45	3b	0.00	-0.0012	-0.0574
P46	3b	0.00	-0.0012	-0.0574
P47	3b	0.00	-0.0012	-0.0574
P48	3b	0.00	-0.0012	-0.0574
P49	3b	0.00	-0.0012	-0.0574

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T1	0.00	0.0012	-0.0574
P2	3b_T1	0.00	0.0012	-0.0581
P3	3b_T1	0.00	0.0012	-0.0587
P4	3b_T1	0.00	0.0012	-0.0594
P5	3b_T1	0.00	0.0012	-0.0600
P6	3b_T1	0.00	0.0012	-0.0606
P7	3b_T1	0.00	0.0012	-0.0613
P8	3b_T1	0.00	0.0006	-0.0569
P9	3b_T1	0.00	0.0006	-0.0575
P10	3b_T1	0.00	0.0006	-0.0582
P11	3b_T1	0.00	0.0006	-0.0588
P12	3b_T1	0.00	0.0006	-0.0595
P13	3b_T1	0.00	0.0006	-0.0601
P14	3b_T1	0.00	0.0006	-0.0607
P15	3b_T1	0.00	0.0003	-0.0593
P16	3b_T1	0.00	0.0003	-0.0600
P17	3b_T1	0.00	0.0003	-0.0607
P18	3b_T1	0.00	0.0003	-0.0613
P19	3b_T1	0.00	0.0003	-0.0620
P20	3b_T1	0.00	0.0003	-0.0627
P21	3b_T1	0.00	0.0003	-0.0633
P22	3b_T1	0.00	0.0000	-0.0579
P23	3b_T1	0.00	0.0000	-0.0586
P24	3b_T1	0.00	0.0000	-0.0593
P25	3b_T1	0.00	0.0000	-0.0599
P26	3b_T1	0.00	0.0000	-0.0605
P27	3b_T1	0.00	0.0000	-0.0612
P28	3b_T1	0.00	0.0000	-0.0618
P29	3b_T1	0.00	-0.0003	-0.0591
P30	3b_T1	0.00	-0.0003	-0.0597
P31	3b_T1	0.00	-0.0003	-0.0604
P32	3b_T1	0.00	-0.0003	-0.0611
P33	3b_T1	0.00	-0.0003	-0.0618
P34	3b_T1	0.00	-0.0003	-0.0624
P35	3b_T1	0.00	-0.0003	-0.0631
P36	3b_T1	0.00	-0.0006	-0.0564
P37	3b_T1	0.00	-0.0006	-0.0571
P38	3b_T1	0.00	-0.0006	-0.0577
P39	3b_T1	0.00	-0.0006	-0.0584
P40	3b_T1	0.00	-0.0006	-0.0590
P41	3b_T1	0.00	-0.0006	-0.0597
P42	3b_T1	0.00	-0.0006	-0.0603
P43	3b_T1	0.00	-0.0012	-0.0567
P44	3b_T1	0.00	-0.0012	-0.0574
P45	3b_T1	0.00	-0.0012	-0.0580
P46	3b_T1	0.00	-0.0012	-0.0587
P47	3b_T1	0.00	-0.0012	-0.0594
P48	3b_T1	0.00	-0.0012	-0.0601
P49	3b_T1	0.00	-0.0012	-0.0607

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T2	0.00	0.0012	-0.0581
P2	3b_T2	0.00	0.0012	-0.0586
P3	3b_T2	0.00	0.0012	-0.0591
P4	3b_T2	0.00	0.0012	-0.0596
P5	3b_T2	0.00	0.0012	-0.0602
P6	3b_T2	0.00	0.0012	-0.0607
P7	3b_T2	0.00	0.0012	-0.0612
P8	3b_T2	0.00	0.0006	-0.0574
P9	3b_T2	0.00	0.0006	-0.0579
P10	3b_T2	0.00	0.0006	-0.0584
P11	3b_T2	0.00	0.0006	-0.0589
P12	3b_T2	0.00	0.0006	-0.0594
P13	3b_T2	0.00	0.0006	-0.0599
P14	3b_T2	0.00	0.0006	-0.0604
P15	3b_T2	0.00	0.0003	-0.0597
P16	3b_T2	0.00	0.0003	-0.0602
P17	3b_T2	0.00	0.0003	-0.0607
P18	3b_T2	0.00	0.0003	-0.0612
P19	3b_T2	0.00	0.0003	-0.0618
P20	3b_T2	0.00	0.0003	-0.0623
P21	3b_T2	0.00	0.0003	-0.0628
P22	3b_T2	0.00	0.0000	-0.0581
P23	3b_T2	0.00	0.0000	-0.0586
P24	3b_T2	0.00	0.0000	-0.0591
P25	3b_T2	0.00	0.0000	-0.0596
P26	3b_T2	0.00	0.0000	-0.0601
P27	3b_T2	0.00	0.0000	-0.0606
P28	3b_T2	0.00	0.0000	-0.0611
P29	3b_T2	0.00	-0.0003	-0.0591
P30	3b_T2	0.00	-0.0003	-0.0596
P31	3b_T2	0.00	-0.0003	-0.0601
P32	3b_T2	0.00	-0.0003	-0.0607
P33	3b_T2	0.00	-0.0003	-0.0612
P34	3b_T2	0.00	-0.0003	-0.0617
P35	3b_T2	0.00	-0.0003	-0.0622
P36	3b_T2	0.00	-0.0006	-0.0564
P37	3b_T2	0.00	-0.0006	-0.0568
P38	3b_T2	0.00	-0.0006	-0.0573
P39	3b_T2	0.00	-0.0006	-0.0578
P40	3b_T2	0.00	-0.0006	-0.0583
P41	3b_T2	0.00	-0.0006	-0.0588
P42	3b_T2	0.00	-0.0006	-0.0592
P43	3b_T2	0.00	-0.0012	-0.0565
P44	3b_T2	0.00	-0.0012	-0.0570
P45	3b_T2	0.00	-0.0012	-0.0575
P46	3b_T2	0.00	-0.0012	-0.0580
P47	3b_T2	0.00	-0.0012	-0.0584
P48	3b_T2	0.00	-0.0012	-0.0589
P49	3b_T2	0.00	-0.0012	-0.0594

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T3	0.00	0.0012	-0.0581
P2	3b_T3	0.00	0.0012	-0.0588
P3	3b_T3	0.00	0.0012	-0.0594
P4	3b_T3	0.00	0.0012	-0.0601
P5	3b_T3	0.00	0.0012	-0.0607
P6	3b_T3	0.00	0.0012	-0.0614
P7	3b_T3	0.00	0.0012	-0.0620
P8	3b_T3	0.00	0.0006	-0.0578
P9	3b_T3	0.00	0.0006	-0.0585
P10	3b_T3	0.00	0.0006	-0.0592
P11	3b_T3	0.00	0.0006	-0.0598
P12	3b_T3	0.00	0.0006	-0.0604
P13	3b_T3	0.00	0.0006	-0.0611
P14	3b_T3	0.00	0.0005	-0.0617
P15	3b_T3	0.00	0.0003	-0.0607
P16	3b_T3	0.00	0.0003	-0.0613
P17	3b_T3	0.00	0.0003	-0.0620
P18	3b_T3	0.00	0.0003	-0.0627
P19	3b_T3	0.00	0.0003	-0.0634
P20	3b_T3	0.00	0.0003	-0.0641
P21	3b_T3	0.00	0.0003	-0.0647
P22	3b_T3	0.00	0.0000	-0.0594
P23	3b_T3	0.00	0.0000	-0.0601
P24	3b_T3	0.00	0.0000	-0.0608
P25	3b_T3	0.00	0.0000	-0.0615
P26	3b_T3	0.00	0.0000	-0.0622
P27	3b_T3	0.00	0.0000	-0.0629
P28	3b_T3	0.00	0.0000	-0.0635
P29	3b_T3	0.00	-0.0003	-0.0609
P30	3b_T3	0.00	-0.0003	-0.0616
P31	3b_T3	0.00	-0.0003	-0.0623
P32	3b_T3	0.00	-0.0003	-0.0631
P33	3b_T3	0.00	-0.0003	-0.0638
P34	3b_T3	0.00	-0.0003	-0.0645
P35	3b_T3	0.00	-0.0003	-0.0652
P36	3b_T3	0.00	-0.0006	-0.0583
P37	3b_T3	0.00	-0.0006	-0.0591
P38	3b_T3	0.00	-0.0006	-0.0598
P39	3b_T3	0.00	-0.0006	-0.0605
P40	3b_T3	0.00	-0.0006	-0.0612
P41	3b_T3	0.00	-0.0006	-0.0619
P42	3b_T3	0.00	-0.0006	-0.0627
P43	3b_T3	0.00	-0.0012	-0.0589
P44	3b_T3	0.00	-0.0012	-0.0597
P45	3b_T3	0.00	-0.0012	-0.0604
P46	3b_T3	0.00	-0.0012	-0.0612
P47	3b_T3	0.00	-0.0012	-0.0620
P48	3b_T3	0.00	-0.0012	-0.0627
P49	3b_T3	0.00	-0.0012	-0.0635

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T4	0.00	0.0012	-0.0600
P2	3b_T4	0.00	0.0012	-0.0604
P3	3b_T4	0.00	0.0012	-0.0608
P4	3b_T4	0.00	0.0012	-0.0613
P5	3b_T4	0.00	0.0012	-0.0617
P6	3b_T4	0.00	0.0012	-0.0621
P7	3b_T4	0.00	0.0012	-0.0626
P8	3b_T4	0.00	0.0006	-0.0592
P9	3b_T4	0.00	0.0006	-0.0597
P10	3b_T4	0.00	0.0006	-0.0601
P11	3b_T4	0.00	0.0006	-0.0605
P12	3b_T4	0.00	0.0006	-0.0610
P13	3b_T4	0.00	0.0005	-0.0614
P14	3b_T4	0.00	0.0005	-0.0618
P15	3b_T4	0.00	0.0003	-0.0616
P16	3b_T4	0.00	0.0003	-0.0621
P17	3b_T4	0.00	0.0003	-0.0626
P18	3b_T4	0.00	0.0003	-0.0630
P19	3b_T4	0.00	0.0003	-0.0635
P20	3b_T4	0.00	0.0003	-0.0640
P21	3b_T4	0.00	0.0003	-0.0644
P22	3b_T4	0.00	0.0000	-0.0600
P23	3b_T4	0.00	0.0000	-0.0605
P24	3b_T4	0.00	0.0000	-0.0609
P25	3b_T4	0.00	0.0000	-0.0614
P26	3b_T4	0.00	0.0000	-0.0619
P27	3b_T4	0.00	0.0000	-0.0623
P28	3b_T4	0.00	0.0000	-0.0627
P29	3b_T4	0.00	-0.0003	-0.0610
P30	3b_T4	0.00	-0.0003	-0.0615
P31	3b_T4	0.00	-0.0003	-0.0620
P32	3b_T4	0.00	-0.0003	-0.0624
P33	3b_T4	0.00	-0.0003	-0.0629
P34	3b_T4	0.00	-0.0003	-0.0634
P35	3b_T4	0.00	-0.0003	-0.0639
P36	3b_T4	0.00	-0.0006	-0.0580
P37	3b_T4	0.00	-0.0006	-0.0585
P38	3b_T4	0.00	-0.0006	-0.0590
P39	3b_T4	0.00	-0.0006	-0.0594
P40	3b_T4	0.00	-0.0006	-0.0599
P41	3b_T4	0.00	-0.0006	-0.0603
P42	3b_T4	0.00	-0.0006	-0.0608
P43	3b_T4	0.00	-0.0012	-0.0581
P44	3b_T4	0.00	-0.0012	-0.0586
P45	3b_T4	0.00	-0.0012	-0.0591
P46	3b_T4	0.00	-0.0012	-0.0595
P47	3b_T4	0.00	-0.0012	-0.0600
P48	3b_T4	0.00	-0.0012	-0.0605
P49	3b_T4	0.00	-0.0012	-0.0609

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a	0.00	0.0013	-0.0188
P2	D1a	0.00	0.0013	-0.0188
P3	D1a	0.00	0.0013	-0.0188
P4	D1a	0.00	0.0013	-0.0188
P5	D1a	0.00	0.0013	-0.0188
P6	D1a	0.00	0.0013	-0.0188
P7	D1a	0.00	0.0013	-0.0188
P8	D1a	0.00	0.0011	-0.0178
P9	D1a	0.00	0.0011	-0.0178
P10	D1a	0.00	0.0011	-0.0178
P11	D1a	0.00	0.0011	-0.0178
P12	D1a	0.00	0.0011	-0.0178
P13	D1a	0.00	0.0011	-0.0178
P14	D1a	0.00	0.0011	-0.0178
P15	D1a	0.00	0.0007	-0.0171
P16	D1a	0.00	0.0007	-0.0171
P17	D1a	0.00	0.0007	-0.0171
P18	D1a	0.00	0.0007	-0.0171
P19	D1a	0.00	0.0007	-0.0171
P20	D1a	0.00	0.0007	-0.0171
P21	D1a	0.00	0.0007	-0.0171
P22	D1a	0.00	0.0000	-0.0156
P23	D1a	0.00	0.0000	-0.0156
P24	D1a	0.00	0.0000	-0.0156
P25	D1a	0.00	0.0000	-0.0156
P26	D1a	0.00	0.0000	-0.0156
P27	D1a	0.00	0.0000	-0.0156
P28	D1a	0.00	0.0000	-0.0156
P29	D1a	0.00	-0.0007	-0.0171
P30	D1a	0.00	-0.0007	-0.0171
P31	D1a	0.00	-0.0007	-0.0171
P32	D1a	0.00	-0.0007	-0.0171
P33	D1a	0.00	-0.0007	-0.0171
P34	D1a	0.00	-0.0007	-0.0171
P35	D1a	0.00	-0.0007	-0.0171
P36	D1a	0.00	-0.0011	-0.0178
P37	D1a	0.00	-0.0011	-0.0178
P38	D1a	0.00	-0.0011	-0.0178
P39	D1a	0.00	-0.0011	-0.0178
P40	D1a	0.00	-0.0011	-0.0178
P41	D1a	0.00	-0.0011	-0.0178
P42	D1a	0.00	-0.0011	-0.0178
P43	D1a	0.00	-0.0013	-0.0188
P44	D1a	0.00	-0.0013	-0.0188
P45	D1a	0.00	-0.0013	-0.0188
P46	D1a	0.00	-0.0013	-0.0188
P47	D1a	0.00	-0.0013	-0.0188
P48	D1a	0.00	-0.0013	-0.0188
P49	D1a	0.00	-0.0013	-0.0188

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_6	0.00	0.0011	-0.0111
P2	D1a_6	0.00	0.0011	-0.0111
P3	D1a_6	0.00	0.0011	-0.0111
P4	D1a_6	0.00	0.0011	-0.0111
P5	D1a_6	0.00	0.0011	-0.0111
P6	D1a_6	0.00	0.0011	-0.0111
P7	D1a_6	0.00	0.0011	-0.0111
P8	D1a_6	0.00	0.0010	-0.0102
P9	D1a_6	0.00	0.0010	-0.0102
P10	D1a_6	0.00	0.0010	-0.0102
P11	D1a_6	0.00	0.0010	-0.0102
P12	D1a_6	0.00	0.0010	-0.0102
P13	D1a_6	0.00	0.0010	-0.0102
P14	D1a_6	0.00	0.0010	-0.0102
P15	D1a_6	0.00	0.0007	-0.0090
P16	D1a_6	0.00	0.0007	-0.0090
P17	D1a_6	0.00	0.0007	-0.0090
P18	D1a_6	0.00	0.0007	-0.0090
P19	D1a_6	0.00	0.0007	-0.0090
P20	D1a_6	0.00	0.0007	-0.0090
P21	D1a_6	0.00	0.0007	-0.0090
P22	D1a_6	0.00	0.0000	-0.0078
P23	D1a_6	0.00	0.0000	-0.0078
P24	D1a_6	0.00	0.0000	-0.0078
P25	D1a_6	0.00	0.0000	-0.0078
P26	D1a_6	0.00	0.0000	-0.0078
P27	D1a_6	0.00	0.0000	-0.0078
P28	D1a_6	0.00	0.0000	-0.0078
P29	D1a_6	0.00	-0.0007	-0.0090
P30	D1a_6	0.00	-0.0007	-0.0090
P31	D1a_6	0.00	-0.0007	-0.0090
P32	D1a_6	0.00	-0.0007	-0.0090
P33	D1a_6	0.00	-0.0007	-0.0090
P34	D1a_6	0.00	-0.0007	-0.0090
P35	D1a_6	0.00	-0.0007	-0.0090
P36	D1a_6	0.00	-0.0010	-0.0102
P37	D1a_6	0.00	-0.0010	-0.0102
P38	D1a_6	0.00	-0.0010	-0.0102
P39	D1a_6	0.00	-0.0010	-0.0102
P40	D1a_6	0.00	-0.0010	-0.0102
P41	D1a_6	0.00	-0.0010	-0.0102
P42	D1a_6	0.00	-0.0010	-0.0102
P43	D1a_6	0.00	-0.0011	-0.0111
P44	D1a_6	0.00	-0.0011	-0.0111
P45	D1a_6	0.00	-0.0011	-0.0111
P46	D1a_6	0.00	-0.0011	-0.0111
P47	D1a_6	0.00	-0.0011	-0.0111
P48	D1a_6	0.00	-0.0011	-0.0111
P49	D1a_6	0.00	-0.0011	-0.0111

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T1	0.00	0.0013	-0.0189
P2	D1a_T1	0.00	0.0013	-0.0195
P3	D1a_T1	0.00	0.0013	-0.0202
P4	D1a_T1	0.00	0.0013	-0.0208
P5	D1a_T1	0.00	0.0013	-0.0214
P6	D1a_T1	0.00	0.0013	-0.0221
P7	D1a_T1	0.00	0.0013	-0.0227
P8	D1a_T1	0.00	0.0011	-0.0178
P9	D1a_T1	0.00	0.0011	-0.0184
P10	D1a_T1	0.00	0.0011	-0.0191
P11	D1a_T1	0.00	0.0011	-0.0197
P12	D1a_T1	0.00	0.0011	-0.0203
P13	D1a_T1	0.00	0.0011	-0.0209
P14	D1a_T1	0.00	0.0011	-0.0216
P15	D1a_T1	0.00	0.0007	-0.0171
P16	D1a_T1	0.00	0.0007	-0.0177
P17	D1a_T1	0.00	0.0007	-0.0184
P18	D1a_T1	0.00	0.0007	-0.0191
P19	D1a_T1	0.00	0.0007	-0.0197
P20	D1a_T1	0.00	0.0007	-0.0204
P21	D1a_T1	0.00	0.0007	-0.0210
P22	D1a_T1	0.00	0.0000	-0.0155
P23	D1a_T1	0.00	0.0000	-0.0161
P24	D1a_T1	0.00	0.0000	-0.0168
P25	D1a_T1	0.00	0.0000	-0.0174
P26	D1a_T1	0.00	0.0000	-0.0181
P27	D1a_T1	0.00	0.0000	-0.0187
P28	D1a_T1	0.00	0.0000	-0.0193
P29	D1a_T1	0.00	-0.0007	-0.0168
P30	D1a_T1	0.00	-0.0007	-0.0175
P31	D1a_T1	0.00	-0.0007	-0.0181
P32	D1a_T1	0.00	-0.0007	-0.0188
P33	D1a_T1	0.00	-0.0007	-0.0195
P34	D1a_T1	0.00	-0.0007	-0.0202
P35	D1a_T1	0.00	-0.0007	-0.0208
P36	D1a_T1	0.00	-0.0011	-0.0173
P37	D1a_T1	0.00	-0.0011	-0.0180
P38	D1a_T1	0.00	-0.0011	-0.0186
P39	D1a_T1	0.00	-0.0011	-0.0193
P40	D1a_T1	0.00	-0.0011	-0.0199
P41	D1a_T1	0.00	-0.0011	-0.0206
P42	D1a_T1	0.00	-0.0011	-0.0212
P43	D1a_T1	0.00	-0.0013	-0.0181
P44	D1a_T1	0.00	-0.0013	-0.0188
P45	D1a_T1	0.00	-0.0013	-0.0195
P46	D1a_T1	0.00	-0.0013	-0.0202
P47	D1a_T1	0.00	-0.0013	-0.0208
P48	D1a_T1	0.00	-0.0013	-0.0215
P49	D1a_T1	0.00	-0.0013	-0.0222

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T2	0.00	0.0013	-0.0195
P2	D1a_T2	0.00	0.0013	-0.0201
P3	D1a_T2	0.00	0.0013	-0.0206
P4	D1a_T2	0.00	0.0013	-0.0211
P5	D1a_T2	0.00	0.0013	-0.0216
P6	D1a_T2	0.00	0.0013	-0.0221
P7	D1a_T2	0.00	0.0013	-0.0226
P8	D1a_T2	0.00	0.0011	-0.0183
P9	D1a_T2	0.00	0.0011	-0.0188
P10	D1a_T2	0.00	0.0011	-0.0193
P11	D1a_T2	0.00	0.0011	-0.0198
P12	D1a_T2	0.00	0.0011	-0.0203
P13	D1a_T2	0.00	0.0011	-0.0208
P14	D1a_T2	0.00	0.0011	-0.0213
P15	D1a_T2	0.00	0.0007	-0.0174
P16	D1a_T2	0.00	0.0007	-0.0179
P17	D1a_T2	0.00	0.0007	-0.0184
P18	D1a_T2	0.00	0.0007	-0.0190
P19	D1a_T2	0.00	0.0007	-0.0195
P20	D1a_T2	0.00	0.0007	-0.0200
P21	D1a_T2	0.00	0.0007	-0.0205
P22	D1a_T2	0.00	0.0000	-0.0157
P23	D1a_T2	0.00	0.0000	-0.0162
P24	D1a_T2	0.00	0.0000	-0.0167
P25	D1a_T2	0.00	0.0000	-0.0172
P26	D1a_T2	0.00	0.0000	-0.0177
P27	D1a_T2	0.00	0.0000	-0.0182
P28	D1a_T2	0.00	0.0000	-0.0187
P29	D1a_T2	0.00	-0.0007	-0.0168
P30	D1a_T2	0.00	-0.0007	-0.0174
P31	D1a_T2	0.00	-0.0007	-0.0179
P32	D1a_T2	0.00	-0.0007	-0.0184
P33	D1a_T2	0.00	-0.0007	-0.0189
P34	D1a_T2	0.00	-0.0007	-0.0194
P35	D1a_T2	0.00	-0.0007	-0.0199
P36	D1a_T2	0.00	-0.0011	-0.0173
P37	D1a_T2	0.00	-0.0011	-0.0177
P38	D1a_T2	0.00	-0.0011	-0.0182
P39	D1a_T2	0.00	-0.0011	-0.0187
P40	D1a_T2	0.00	-0.0011	-0.0192
P41	D1a_T2	0.00	-0.0011	-0.0196
P42	D1a_T2	0.00	-0.0011	-0.0201
P43	D1a_T2	0.00	-0.0013	-0.0180
P44	D1a_T2	0.00	-0.0013	-0.0184
P45	D1a_T2	0.00	-0.0013	-0.0189
P46	D1a_T2	0.00	-0.0013	-0.0194
P47	D1a_T2	0.00	-0.0013	-0.0199
P48	D1a_T2	0.00	-0.0013	-0.0204
P49	D1a_T2	0.00	-0.0013	-0.0208

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Displacements **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T3	0.00	0.0013	-0.0196
P2	D1a_T3	0.00	0.0013	-0.0202
P3	D1a_T3	0.00	0.0013	-0.0209
P4	D1a_T3	0.00	0.0013	-0.0215
P5	D1a_T3	0.00	0.0013	-0.0222
P6	D1a_T3	0.00	0.0013	-0.0228
P7	D1a_T3	0.00	0.0013	-0.0235
P8	D1a_T3	0.00	0.0011	-0.0187
P9	D1a_T3	0.00	0.0011	-0.0194
P10	D1a_T3	0.00	0.0011	-0.0200
P11	D1a_T3	0.00	0.0011	-0.0207
P12	D1a_T3	0.00	0.0011	-0.0213
P13	D1a_T3	0.00	0.0011	-0.0219
P14	D1a_T3	0.00	0.0010	-0.0226
P15	D1a_T3	0.00	0.0007	-0.0184
P16	D1a_T3	0.00	0.0007	-0.0191
P17	D1a_T3	0.00	0.0007	-0.0197
P18	D1a_T3	0.00	0.0007	-0.0204
P19	D1a_T3	0.00	0.0007	-0.0211
P20	D1a_T3	0.00	0.0007	-0.0218
P21	D1a_T3	0.00	0.0007	-0.0225
P22	D1a_T3	0.00	0.0000	-0.0170
P23	D1a_T3	0.00	0.0000	-0.0177
P24	D1a_T3	0.00	0.0000	-0.0184
P25	D1a_T3	0.00	0.0000	-0.0190
P26	D1a_T3	0.00	0.0000	-0.0197
P27	D1a_T3	0.00	0.0000	-0.0204
P28	D1a_T3	0.00	0.0000	-0.0211
P29	D1a_T3	0.00	-0.0007	-0.0186
P30	D1a_T3	0.00	-0.0007	-0.0193
P31	D1a_T3	0.00	-0.0007	-0.0201
P32	D1a_T3	0.00	-0.0007	-0.0208
P33	D1a_T3	0.00	-0.0007	-0.0215
P34	D1a_T3	0.00	-0.0007	-0.0222
P35	D1a_T3	0.00	-0.0007	-0.0230
P36	D1a_T3	0.00	-0.0010	-0.0192
P37	D1a_T3	0.00	-0.0011	-0.0200
P38	D1a_T3	0.00	-0.0011	-0.0207
P39	D1a_T3	0.00	-0.0011	-0.0214
P40	D1a_T3	0.00	-0.0011	-0.0221
P41	D1a_T3	0.00	-0.0011	-0.0228
P42	D1a_T3	0.00	-0.0011	-0.0235
P43	D1a_T3	0.00	-0.0013	-0.0204
P44	D1a_T3	0.00	-0.0013	-0.0211
P45	D1a_T3	0.00	-0.0013	-0.0219
P46	D1a_T3	0.00	-0.0013	-0.0226
P47	D1a_T3	0.00	-0.0013	-0.0234
P48	D1a_T3	0.00	-0.0013	-0.0242
P49	D1a_T3	0.00	-0.0014	-0.0249

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T4	0.00	0.0013	-0.0214
P2	D1a_T4	0.00	0.0013	-0.0218
P3	D1a_T4	0.00	0.0013	-0.0223
P4	D1a_T4	0.00	0.0013	-0.0227
P5	D1a_T4	0.00	0.0013	-0.0231
P6	D1a_T4	0.00	0.0013	-0.0236
P7	D1a_T4	0.00	0.0013	-0.0240
P8	D1a_T4	0.00	0.0011	-0.0201
P9	D1a_T4	0.00	0.0011	-0.0205
P10	D1a_T4	0.00	0.0011	-0.0210
P11	D1a_T4	0.00	0.0011	-0.0214
P12	D1a_T4	0.00	0.0011	-0.0219
P13	D1a_T4	0.00	0.0010	-0.0223
P14	D1a_T4	0.00	0.0010	-0.0227
P15	D1a_T4	0.00	0.0007	-0.0193
P16	D1a_T4	0.00	0.0007	-0.0198
P17	D1a_T4	0.00	0.0007	-0.0203
P18	D1a_T4	0.00	0.0007	-0.0207
P19	D1a_T4	0.00	0.0007	-0.0212
P20	D1a_T4	0.00	0.0007	-0.0217
P21	D1a_T4	0.00	0.0007	-0.0221
P22	D1a_T4	0.00	0.0000	-0.0175
P23	D1a_T4	0.00	0.0000	-0.0180
P24	D1a_T4	0.00	0.0000	-0.0185
P25	D1a_T4	0.00	0.0000	-0.0189
P26	D1a_T4	0.00	0.0000	-0.0194
P27	D1a_T4	0.00	0.0000	-0.0198
P28	D1a_T4	0.00	0.0000	-0.0203
P29	D1a_T4	0.00	-0.0007	-0.0187
P30	D1a_T4	0.00	-0.0007	-0.0192
P31	D1a_T4	0.00	-0.0007	-0.0197
P32	D1a_T4	0.00	-0.0007	-0.0202
P33	D1a_T4	0.00	-0.0007	-0.0206
P34	D1a_T4	0.00	-0.0007	-0.0211
P35	D1a_T4	0.00	-0.0007	-0.0216
P36	D1a_T4	0.00	-0.0011	-0.0189
P37	D1a_T4	0.00	-0.0011	-0.0194
P38	D1a_T4	0.00	-0.0011	-0.0198
P39	D1a_T4	0.00	-0.0011	-0.0203
P40	D1a_T4	0.00	-0.0011	-0.0208
P41	D1a_T4	0.00	-0.0011	-0.0212
P42	D1a_T4	0.00	-0.0011	-0.0217
P43	D1a_T4	0.00	-0.0013	-0.0196
P44	D1a_T4	0.00	-0.0013	-0.0200
P45	D1a_T4	0.00	-0.0013	-0.0205
P46	D1a_T4	0.00	-0.0013	-0.0210
P47	D1a_T4	0.00	-0.0013	-0.0214
P48	D1a_T4	0.00	-0.0013	-0.0219
P49	D1a_T4	0.00	-0.0013	-0.0224

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b	0.00	0.0010	-0.0565
P2	D1b	0.00	0.0010	-0.0565
P3	D1b	0.00	0.0010	-0.0565
P4	D1b	0.00	0.0010	-0.0565
P5	D1b	0.00	0.0010	-0.0565
P6	D1b	0.00	0.0010	-0.0565
P7	D1b	0.00	0.0010	-0.0565
P8	D1b	0.00	0.0008	-0.0560
P9	D1b	0.00	0.0008	-0.0560
P10	D1b	0.00	0.0008	-0.0560
P11	D1b	0.00	0.0008	-0.0560
P12	D1b	0.00	0.0008	-0.0560
P13	D1b	0.00	0.0008	-0.0560
P14	D1b	0.00	0.0008	-0.0560
P15	D1b	0.00	0.0006	-0.0567
P16	D1b	0.00	0.0006	-0.0567
P17	D1b	0.00	0.0006	-0.0567
P18	D1b	0.00	0.0006	-0.0567
P19	D1b	0.00	0.0006	-0.0567
P20	D1b	0.00	0.0006	-0.0567
P21	D1b	0.00	0.0006	-0.0567
P22	D1b	0.00	0.0000	-0.0550
P23	D1b	0.00	0.0000	-0.0550
P24	D1b	0.00	0.0000	-0.0550
P25	D1b	0.00	0.0000	-0.0550
P26	D1b	0.00	0.0000	-0.0550
P27	D1b	0.00	0.0000	-0.0550
P28	D1b	0.00	0.0000	-0.0550
P29	D1b	0.00	-0.0006	-0.0567
P30	D1b	0.00	-0.0006	-0.0567
P31	D1b	0.00	-0.0006	-0.0567
P32	D1b	0.00	-0.0006	-0.0567
P33	D1b	0.00	-0.0006	-0.0567
P34	D1b	0.00	-0.0006	-0.0567
P35	D1b	0.00	-0.0006	-0.0567
P36	D1b	0.00	-0.0008	-0.0560
P37	D1b	0.00	-0.0008	-0.0560
P38	D1b	0.00	-0.0008	-0.0560
P39	D1b	0.00	-0.0008	-0.0560
P40	D1b	0.00	-0.0008	-0.0560
P41	D1b	0.00	-0.0008	-0.0560
P42	D1b	0.00	-0.0008	-0.0560
P43	D1b	0.00	-0.0010	-0.0565
P44	D1b	0.00	-0.0010	-0.0565
P45	D1b	0.00	-0.0010	-0.0565
P46	D1b	0.00	-0.0010	-0.0565
P47	D1b	0.00	-0.0010	-0.0565
P48	D1b	0.00	-0.0010	-0.0565
P49	D1b	0.00	-0.0010	-0.0565

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T1	0.00	0.0010	-0.0566
P2	D1b_T1	0.00	0.0010	-0.0572
P3	D1b_T1	0.00	0.0010	-0.0578
P4	D1b_T1	0.00	0.0010	-0.0585
P5	D1b_T1	0.00	0.0010	-0.0591
P6	D1b_T1	0.00	0.0010	-0.0598
P7	D1b_T1	0.00	0.0010	-0.0604
P8	D1b_T1	0.00	0.0007	-0.0560
P9	D1b_T1	0.00	0.0007	-0.0566
P10	D1b_T1	0.00	0.0007	-0.0573
P11	D1b_T1	0.00	0.0007	-0.0579
P12	D1b_T1	0.00	0.0007	-0.0585
P13	D1b_T1	0.00	0.0007	-0.0591
P14	D1b_T1	0.00	0.0007	-0.0597
P15	D1b_T1	0.00	0.0006	-0.0567
P16	D1b_T1	0.00	0.0006	-0.0573
P17	D1b_T1	0.00	0.0006	-0.0580
P18	D1b_T1	0.00	0.0006	-0.0587
P19	D1b_T1	0.00	0.0006	-0.0593
P20	D1b_T1	0.00	0.0006	-0.0600
P21	D1b_T1	0.00	0.0006	-0.0607
P22	D1b_T1	0.00	0.0000	-0.0548
P23	D1b_T1	0.00	0.0000	-0.0555
P24	D1b_T1	0.00	0.0000	-0.0561
P25	D1b_T1	0.00	0.0000	-0.0568
P26	D1b_T1	0.00	0.0000	-0.0574
P27	D1b_T1	0.00	0.0000	-0.0580
P28	D1b_T1	0.00	0.0000	-0.0587
P29	D1b_T1	0.00	-0.0006	-0.0564
P30	D1b_T1	0.00	-0.0006	-0.0571
P31	D1b_T1	0.00	-0.0006	-0.0578
P32	D1b_T1	0.00	-0.0006	-0.0584
P33	D1b_T1	0.00	-0.0006	-0.0591
P34	D1b_T1	0.00	-0.0006	-0.0598
P35	D1b_T1	0.00	-0.0006	-0.0605
P36	D1b_T1	0.00	-0.0007	-0.0555
P37	D1b_T1	0.00	-0.0007	-0.0561
P38	D1b_T1	0.00	-0.0007	-0.0568
P39	D1b_T1	0.00	-0.0007	-0.0575
P40	D1b_T1	0.00	-0.0007	-0.0581
P41	D1b_T1	0.00	-0.0007	-0.0587
P42	D1b_T1	0.00	-0.0007	-0.0594
P43	D1b_T1	0.00	-0.0010	-0.0558
P44	D1b_T1	0.00	-0.0010	-0.0565
P45	D1b_T1	0.00	-0.0010	-0.0572
P46	D1b_T1	0.00	-0.0010	-0.0578
P47	D1b_T1	0.00	-0.0010	-0.0585
P48	D1b_T1	0.00	-0.0010	-0.0592
P49	D1b_T1	0.00	-0.0010	-0.0599

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T2	0.00	0.0010	-0.0572
P2	D1b_T2	0.00	0.0010	-0.0578
P3	D1b_T2	0.00	0.0010	-0.0583
P4	D1b_T2	0.00	0.0010	-0.0588
P5	D1b_T2	0.00	0.0010	-0.0593
P6	D1b_T2	0.00	0.0011	-0.0598
P7	D1b_T2	0.00	0.0011	-0.0603
P8	D1b_T2	0.00	0.0007	-0.0565
P9	D1b_T2	0.00	0.0007	-0.0570
P10	D1b_T2	0.00	0.0007	-0.0575
P11	D1b_T2	0.00	0.0007	-0.0580
P12	D1b_T2	0.00	0.0007	-0.0585
P13	D1b_T2	0.00	0.0007	-0.0590
P14	D1b_T2	0.00	0.0007	-0.0595
P15	D1b_T2	0.00	0.0005	-0.0570
P16	D1b_T2	0.00	0.0006	-0.0575
P17	D1b_T2	0.00	0.0006	-0.0581
P18	D1b_T2	0.00	0.0006	-0.0586
P19	D1b_T2	0.00	0.0006	-0.0591
P20	D1b_T2	0.00	0.0006	-0.0596
P21	D1b_T2	0.00	0.0006	-0.0602
P22	D1b_T2	0.00	0.0000	-0.0550
P23	D1b_T2	0.00	0.0000	-0.0555
P24	D1b_T2	0.00	0.0000	-0.0560
P25	D1b_T2	0.00	0.0000	-0.0565
P26	D1b_T2	0.00	0.0000	-0.0570
P27	D1b_T2	0.00	0.0000	-0.0575
P28	D1b_T2	0.00	0.0000	-0.0580
P29	D1b_T2	0.00	-0.0006	-0.0565
P30	D1b_T2	0.00	-0.0006	-0.0570
P31	D1b_T2	0.00	-0.0006	-0.0575
P32	D1b_T2	0.00	-0.0006	-0.0580
P33	D1b_T2	0.00	-0.0006	-0.0585
P34	D1b_T2	0.00	-0.0006	-0.0590
P35	D1b_T2	0.00	-0.0006	-0.0595
P36	D1b_T2	0.00	-0.0008	-0.0554
P37	D1b_T2	0.00	-0.0007	-0.0559
P38	D1b_T2	0.00	-0.0007	-0.0564
P39	D1b_T2	0.00	-0.0007	-0.0569
P40	D1b_T2	0.00	-0.0007	-0.0574
P41	D1b_T2	0.00	-0.0007	-0.0578
P42	D1b_T2	0.00	-0.0007	-0.0583
P43	D1b_T2	0.00	-0.0010	-0.0556
P44	D1b_T2	0.00	-0.0010	-0.0561
P45	D1b_T2	0.00	-0.0010	-0.0566
P46	D1b_T2	0.00	-0.0010	-0.0571
P47	D1b_T2	0.00	-0.0010	-0.0576
P48	D1b_T2	0.00	-0.0010	-0.0580
P49	D1b_T2	0.00	-0.0010	-0.0585

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T3	0.00	0.0011	-0.0573
P2	D1b_T3	0.00	0.0011	-0.0579
P3	D1b_T3	0.00	0.0011	-0.0586
P4	D1b_T3	0.00	0.0010	-0.0592
P5	D1b_T3	0.00	0.0010	-0.0599
P6	D1b_T3	0.00	0.0010	-0.0605
P7	D1b_T3	0.00	0.0010	-0.0612
P8	D1b_T3	0.00	0.0007	-0.0569
P9	D1b_T3	0.00	0.0007	-0.0576
P10	D1b_T3	0.00	0.0007	-0.0582
P11	D1b_T3	0.00	0.0007	-0.0589
P12	D1b_T3	0.00	0.0007	-0.0595
P13	D1b_T3	0.00	0.0007	-0.0601
P14	D1b_T3	0.00	0.0007	-0.0608
P15	D1b_T3	0.00	0.0006	-0.0580
P16	D1b_T3	0.00	0.0006	-0.0587
P17	D1b_T3	0.00	0.0005	-0.0594
P18	D1b_T3	0.00	0.0005	-0.0600
P19	D1b_T3	0.00	0.0005	-0.0607
P20	D1b_T3	0.00	0.0005	-0.0614
P21	D1b_T3	0.00	0.0005	-0.0621
P22	D1b_T3	0.00	0.0000	-0.0563
P23	D1b_T3	0.00	0.0000	-0.0570
P24	D1b_T3	0.00	0.0000	-0.0577
P25	D1b_T3	0.00	0.0000	-0.0584
P26	D1b_T3	0.00	0.0000	-0.0591
P27	D1b_T3	0.00	0.0000	-0.0597
P28	D1b_T3	0.00	0.0000	-0.0604
P29	D1b_T3	0.00	-0.0005	-0.0582
P30	D1b_T3	0.00	-0.0005	-0.0589
P31	D1b_T3	0.00	-0.0005	-0.0597
P32	D1b_T3	0.00	-0.0005	-0.0604
P33	D1b_T3	0.00	-0.0005	-0.0611
P34	D1b_T3	0.00	-0.0005	-0.0619
P35	D1b_T3	0.00	-0.0005	-0.0626
P36	D1b_T3	0.00	-0.0007	-0.0574
P37	D1b_T3	0.00	-0.0007	-0.0581
P38	D1b_T3	0.00	-0.0007	-0.0589
P39	D1b_T3	0.00	-0.0007	-0.0596
P40	D1b_T3	0.00	-0.0007	-0.0603
P41	D1b_T3	0.00	-0.0007	-0.0610
P42	D1b_T3	0.00	-0.0007	-0.0617
P43	D1b_T3	0.00	-0.0011	-0.0581
P44	D1b_T3	0.00	-0.0011	-0.0588
P45	D1b_T3	0.00	-0.0011	-0.0596
P46	D1b_T3	0.00	-0.0011	-0.0603
P47	D1b_T3	0.00	-0.0011	-0.0611
P48	D1b_T3	0.00	-0.0011	-0.0619
P49	D1b_T3	0.00	-0.0011	-0.0626

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T4	0.00	0.0010	-0.0591
P2	D1b_T4	0.00	0.0010	-0.0595
P3	D1b_T4	0.00	0.0010	-0.0600
P4	D1b_T4	0.00	0.0010	-0.0604
P5	D1b_T4	0.00	0.0010	-0.0608
P6	D1b_T4	0.00	0.0010	-0.0613
P7	D1b_T4	0.00	0.0010	-0.0617
P8	D1b_T4	0.00	0.0007	-0.0583
P9	D1b_T4	0.00	0.0007	-0.0587
P10	D1b_T4	0.00	0.0007	-0.0592
P11	D1b_T4	0.00	0.0007	-0.0596
P12	D1b_T4	0.00	0.0007	-0.0600
P13	D1b_T4	0.00	0.0007	-0.0605
P14	D1b_T4	0.00	0.0007	-0.0609
P15	D1b_T4	0.00	0.0005	-0.0590
P16	D1b_T4	0.00	0.0005	-0.0594
P17	D1b_T4	0.00	0.0005	-0.0599
P18	D1b_T4	0.00	0.0005	-0.0604
P19	D1b_T4	0.00	0.0005	-0.0608
P20	D1b_T4	0.00	0.0005	-0.0613
P21	D1b_T4	0.00	0.0005	-0.0618
P22	D1b_T4	0.00	0.0000	-0.0569
P23	D1b_T4	0.00	0.0000	-0.0573
P24	D1b_T4	0.00	0.0000	-0.0578
P25	D1b_T4	0.00	0.0000	-0.0583
P26	D1b_T4	0.00	0.0000	-0.0587
P27	D1b_T4	0.00	0.0000	-0.0592
P28	D1b_T4	0.00	0.0000	-0.0596
P29	D1b_T4	0.00	-0.0005	-0.0583
P30	D1b_T4	0.00	-0.0005	-0.0588
P31	D1b_T4	0.00	-0.0005	-0.0593
P32	D1b_T4	0.00	-0.0005	-0.0598
P33	D1b_T4	0.00	-0.0005	-0.0603
P34	D1b_T4	0.00	-0.0005	-0.0607
P35	D1b_T4	0.00	-0.0005	-0.0612
P36	D1b_T4	0.00	-0.0007	-0.0571
P37	D1b_T4	0.00	-0.0007	-0.0575
P38	D1b_T4	0.00	-0.0007	-0.0580
P39	D1b_T4	0.00	-0.0007	-0.0585
P40	D1b_T4	0.00	-0.0007	-0.0589
P41	D1b_T4	0.00	-0.0007	-0.0594
P42	D1b_T4	0.00	-0.0007	-0.0598
P43	D1b_T4	0.00	-0.0010	-0.0573
P44	D1b_T4	0.00	-0.0010	-0.0577
P45	D1b_T4	0.00	-0.0010	-0.0582
P46	D1b_T4	0.00	-0.0010	-0.0587
P47	D1b_T4	0.00	-0.0010	-0.0591
P48	D1b_T4	0.00	-0.0010	-0.0596
P49	D1b_T4	0.00	-0.0010	-0.0601

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a	0.00	0.0017	-0.0081
P2	D2a	0.00	0.0017	-0.0081
P3	D2a	0.00	0.0017	-0.0081
P4	D2a	0.00	0.0017	-0.0081
P5	D2a	0.00	0.0017	-0.0081
P6	D2a	0.00	0.0017	-0.0081
P7	D2a	0.00	0.0017	-0.0081
P8	D2a	0.00	0.0013	-0.0084
P9	D2a	0.00	0.0013	-0.0084
P10	D2a	0.00	0.0013	-0.0084
P11	D2a	0.00	0.0013	-0.0084
P12	D2a	0.00	0.0013	-0.0084
P13	D2a	0.00	0.0013	-0.0084
P14	D2a	0.00	0.0013	-0.0084
P15	D2a	0.00	0.0006	-0.0107
P16	D2a	0.00	0.0006	-0.0107
P17	D2a	0.00	0.0006	-0.0107
P18	D2a	0.00	0.0006	-0.0107
P19	D2a	0.00	0.0006	-0.0107
P20	D2a	0.00	0.0006	-0.0107
P21	D2a	0.00	0.0006	-0.0107
P22	D2a	0.00	-0.0002	-0.0118
P23	D2a	0.00	-0.0002	-0.0118
P24	D2a	0.00	-0.0002	-0.0118
P25	D2a	0.00	-0.0002	-0.0118
P26	D2a	0.00	-0.0002	-0.0118
P27	D2a	0.00	-0.0002	-0.0118
P28	D2a	0.00	-0.0002	-0.0118
P29	D2a	0.00	-0.0008	-0.0155
P30	D2a	0.00	-0.0008	-0.0155
P31	D2a	0.00	-0.0008	-0.0155
P32	D2a	0.00	-0.0008	-0.0155
P33	D2a	0.00	-0.0008	-0.0155
P34	D2a	0.00	-0.0008	-0.0155
P35	D2a	0.00	-0.0008	-0.0155
P36	D2a	0.00	-0.0011	-0.0180
P37	D2a	0.00	-0.0011	-0.0180
P38	D2a	0.00	-0.0011	-0.0180
P39	D2a	0.00	-0.0011	-0.0180
P40	D2a	0.00	-0.0011	-0.0180
P41	D2a	0.00	-0.0011	-0.0180
P42	D2a	0.00	-0.0011	-0.0180
P43	D2a	0.00	-0.0013	-0.0206
P44	D2a	0.00	-0.0013	-0.0206
P45	D2a	0.00	-0.0013	-0.0206
P46	D2a	0.00	-0.0013	-0.0206
P47	D2a	0.00	-0.0013	-0.0206
P48	D2a	0.00	-0.0013	-0.0206
P49	D2a	0.00	-0.0013	-0.0206

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_6	0.00	0.0015	-0.0004
P2	D2a_6	0.00	0.0015	-0.0004
P3	D2a_6	0.00	0.0015	-0.0004
P4	D2a_6	0.00	0.0015	-0.0004
P5	D2a_6	0.00	0.0015	-0.0004
P6	D2a_6	0.00	0.0015	-0.0004
P7	D2a_6	0.00	0.0015	-0.0004
P8	D2a_6	0.00	0.0012	-0.0008
P9	D2a_6	0.00	0.0012	-0.0008
P10	D2a_6	0.00	0.0012	-0.0008
P11	D2a_6	0.00	0.0012	-0.0008
P12	D2a_6	0.00	0.0012	-0.0008
P13	D2a_6	0.00	0.0012	-0.0008
P14	D2a_6	0.00	0.0012	-0.0008
P15	D2a_6	0.00	0.0005	-0.0026
P16	D2a_6	0.00	0.0005	-0.0026
P17	D2a_6	0.00	0.0005	-0.0026
P18	D2a_6	0.00	0.0005	-0.0026
P19	D2a_6	0.00	0.0005	-0.0026
P20	D2a_6	0.00	0.0005	-0.0026
P21	D2a_6	0.00	0.0005	-0.0026
P22	D2a_6	0.00	-0.0002	-0.0039
P23	D2a_6	0.00	-0.0002	-0.0039
P24	D2a_6	0.00	-0.0002	-0.0039
P25	D2a_6	0.00	-0.0002	-0.0039
P26	D2a_6	0.00	-0.0002	-0.0039
P27	D2a_6	0.00	-0.0002	-0.0039
P28	D2a_6	0.00	-0.0002	-0.0039
P29	D2a_6	0.00	-0.0008	-0.0074
P30	D2a_6	0.00	-0.0008	-0.0074
P31	D2a_6	0.00	-0.0008	-0.0074
P32	D2a_6	0.00	-0.0008	-0.0074
P33	D2a_6	0.00	-0.0008	-0.0074
P34	D2a_6	0.00	-0.0008	-0.0074
P35	D2a_6	0.00	-0.0008	-0.0074
P36	D2a_6	0.00	-0.0010	-0.0104
P37	D2a_6	0.00	-0.0010	-0.0104
P38	D2a_6	0.00	-0.0010	-0.0104
P39	D2a_6	0.00	-0.0010	-0.0104
P40	D2a_6	0.00	-0.0010	-0.0104
P41	D2a_6	0.00	-0.0010	-0.0104
P42	D2a_6	0.00	-0.0010	-0.0104
P43	D2a_6	0.00	-0.0011	-0.0129
P44	D2a_6	0.00	-0.0011	-0.0129
P45	D2a_6	0.00	-0.0011	-0.0129
P46	D2a_6	0.00	-0.0011	-0.0129
P47	D2a_6	0.00	-0.0011	-0.0129
P48	D2a_6	0.00	-0.0011	-0.0129
P49	D2a_6	0.00	-0.0011	-0.0129

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T1	0.00	0.0017	-0.0081
P2	D2a_T1	0.00	0.0017	-0.0088
P3	D2a_T1	0.00	0.0017	-0.0094
P4	D2a_T1	0.00	0.0017	-0.0101
P5	D2a_T1	0.00	0.0017	-0.0107
P6	D2a_T1	0.00	0.0017	-0.0113
P7	D2a_T1	0.00	0.0017	-0.0120
P8	D2a_T1	0.00	0.0012	-0.0084
P9	D2a_T1	0.00	0.0012	-0.0090
P10	D2a_T1	0.00	0.0012	-0.0096
P11	D2a_T1	0.00	0.0012	-0.0103
P12	D2a_T1	0.00	0.0012	-0.0109
P13	D2a_T1	0.00	0.0012	-0.0115
P14	D2a_T1	0.00	0.0012	-0.0121
P15	D2a_T1	0.00	0.0005	-0.0106
P16	D2a_T1	0.00	0.0005	-0.0113
P17	D2a_T1	0.00	0.0005	-0.0119
P18	D2a_T1	0.00	0.0005	-0.0126
P19	D2a_T1	0.00	0.0005	-0.0132
P20	D2a_T1	0.00	0.0005	-0.0139
P21	D2a_T1	0.00	0.0005	-0.0146
P22	D2a_T1	0.00	-0.0002	-0.0116
P23	D2a_T1	0.00	-0.0002	-0.0123
P24	D2a_T1	0.00	-0.0002	-0.0129
P25	D2a_T1	0.00	-0.0002	-0.0136
P26	D2a_T1	0.00	-0.0002	-0.0142
P27	D2a_T1	0.00	-0.0002	-0.0149
P28	D2a_T1	0.00	-0.0002	-0.0155
P29	D2a_T1	0.00	-0.0008	-0.0151
P30	D2a_T1	0.00	-0.0008	-0.0158
P31	D2a_T1	0.00	-0.0008	-0.0165
P32	D2a_T1	0.00	-0.0008	-0.0172
P33	D2a_T1	0.00	-0.0008	-0.0178
P34	D2a_T1	0.00	-0.0008	-0.0185
P35	D2a_T1	0.00	-0.0008	-0.0192
P36	D2a_T1	0.00	-0.0011	-0.0175
P37	D2a_T1	0.00	-0.0011	-0.0182
P38	D2a_T1	0.00	-0.0011	-0.0188
P39	D2a_T1	0.00	-0.0011	-0.0195
P40	D2a_T1	0.00	-0.0011	-0.0201
P41	D2a_T1	0.00	-0.0011	-0.0208
P42	D2a_T1	0.00	-0.0011	-0.0214
P43	D2a_T1	0.00	-0.0013	-0.0199
P44	D2a_T1	0.00	-0.0013	-0.0206
P45	D2a_T1	0.00	-0.0013	-0.0213
P46	D2a_T1	0.00	-0.0013	-0.0219
P47	D2a_T1	0.00	-0.0013	-0.0226
P48	D2a_T1	0.00	-0.0013	-0.0233
P49	D2a_T1	0.00	-0.0013	-0.0239

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T2	0.00	0.0017	-0.0088
P2	D2a_T2	0.00	0.0017	-0.0093
P3	D2a_T2	0.00	0.0017	-0.0098
P4	D2a_T2	0.00	0.0017	-0.0104
P5	D2a_T2	0.00	0.0017	-0.0109
P6	D2a_T2	0.00	0.0017	-0.0114
P7	D2a_T2	0.00	0.0017	-0.0119
P8	D2a_T2	0.00	0.0012	-0.0089
P9	D2a_T2	0.00	0.0012	-0.0094
P10	D2a_T2	0.00	0.0012	-0.0099
P11	D2a_T2	0.00	0.0012	-0.0104
P12	D2a_T2	0.00	0.0012	-0.0109
P13	D2a_T2	0.00	0.0012	-0.0114
P14	D2a_T2	0.00	0.0012	-0.0119
P15	D2a_T2	0.00	0.0005	-0.0109
P16	D2a_T2	0.00	0.0005	-0.0114
P17	D2a_T2	0.00	0.0005	-0.0120
P18	D2a_T2	0.00	0.0005	-0.0125
P19	D2a_T2	0.00	0.0005	-0.0130
P20	D2a_T2	0.00	0.0006	-0.0136
P21	D2a_T2	0.00	0.0006	-0.0141
P22	D2a_T2	0.00	-0.0002	-0.0118
P23	D2a_T2	0.00	-0.0002	-0.0123
P24	D2a_T2	0.00	-0.0002	-0.0128
P25	D2a_T2	0.00	-0.0002	-0.0133
P26	D2a_T2	0.00	-0.0002	-0.0138
P27	D2a_T2	0.00	-0.0002	-0.0143
P28	D2a_T2	0.00	-0.0002	-0.0148
P29	D2a_T2	0.00	-0.0008	-0.0152
P30	D2a_T2	0.00	-0.0008	-0.0157
P31	D2a_T2	0.00	-0.0008	-0.0162
P32	D2a_T2	0.00	-0.0008	-0.0167
P33	D2a_T2	0.00	-0.0008	-0.0172
P34	D2a_T2	0.00	-0.0008	-0.0178
P35	D2a_T2	0.00	-0.0008	-0.0183
P36	D2a_T2	0.00	-0.0011	-0.0175
P37	D2a_T2	0.00	-0.0011	-0.0179
P38	D2a_T2	0.00	-0.0011	-0.0184
P39	D2a_T2	0.00	-0.0011	-0.0189
P40	D2a_T2	0.00	-0.0011	-0.0194
P41	D2a_T2	0.00	-0.0011	-0.0199
P42	D2a_T2	0.00	-0.0011	-0.0203
P43	D2a_T2	0.00	-0.0013	-0.0197
P44	D2a_T2	0.00	-0.0013	-0.0202
P45	D2a_T2	0.00	-0.0013	-0.0207
P46	D2a_T2	0.00	-0.0013	-0.0212
P47	D2a_T2	0.00	-0.0013	-0.0216
P48	D2a_T2	0.00	-0.0013	-0.0221
P49	D2a_T2	0.00	-0.0013	-0.0226

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T3	0.00	0.0017	-0.0088
P2	D2a_T3	0.00	0.0017	-0.0095
P3	D2a_T3	0.00	0.0017	-0.0101
P4	D2a_T3	0.00	0.0017	-0.0108
P5	D2a_T3	0.00	0.0017	-0.0114
P6	D2a_T3	0.00	0.0017	-0.0121
P7	D2a_T3	0.00	0.0017	-0.0127
P8	D2a_T3	0.00	0.0013	-0.0093
P9	D2a_T3	0.00	0.0012	-0.0100
P10	D2a_T3	0.00	0.0012	-0.0106
P11	D2a_T3	0.00	0.0012	-0.0112
P12	D2a_T3	0.00	0.0012	-0.0119
P13	D2a_T3	0.00	0.0012	-0.0125
P14	D2a_T3	0.00	0.0012	-0.0132
P15	D2a_T3	0.00	0.0005	-0.0119
P16	D2a_T3	0.00	0.0005	-0.0126
P17	D2a_T3	0.00	0.0005	-0.0133
P18	D2a_T3	0.00	0.0005	-0.0140
P19	D2a_T3	0.00	0.0005	-0.0146
P20	D2a_T3	0.00	0.0005	-0.0153
P21	D2a_T3	0.00	0.0005	-0.0160
P22	D2a_T3	0.00	-0.0002	-0.0131
P23	D2a_T3	0.00	-0.0002	-0.0138
P24	D2a_T3	0.00	-0.0002	-0.0145
P25	D2a_T3	0.00	-0.0002	-0.0152
P26	D2a_T3	0.00	-0.0002	-0.0159
P27	D2a_T3	0.00	-0.0002	-0.0166
P28	D2a_T3	0.00	-0.0003	-0.0172
P29	D2a_T3	0.00	-0.0008	-0.0170
P30	D2a_T3	0.00	-0.0008	-0.0177
P31	D2a_T3	0.00	-0.0008	-0.0184
P32	D2a_T3	0.00	-0.0008	-0.0191
P33	D2a_T3	0.00	-0.0008	-0.0199
P34	D2a_T3	0.00	-0.0008	-0.0206
P35	D2a_T3	0.00	-0.0008	-0.0213
P36	D2a_T3	0.00	-0.0011	-0.0194
P37	D2a_T3	0.00	-0.0011	-0.0202
P38	D2a_T3	0.00	-0.0011	-0.0209
P39	D2a_T3	0.00	-0.0011	-0.0216
P40	D2a_T3	0.00	-0.0011	-0.0223
P41	D2a_T3	0.00	-0.0011	-0.0230
P42	D2a_T3	0.00	-0.0011	-0.0238
P43	D2a_T3	0.00	-0.0014	-0.0221
P44	D2a_T3	0.00	-0.0014	-0.0229
P45	D2a_T3	0.00	-0.0014	-0.0237
P46	D2a_T3	0.00	-0.0014	-0.0244
P47	D2a_T3	0.00	-0.0014	-0.0252
P48	D2a_T3	0.00	-0.0014	-0.0259
P49	D2a_T3	0.00	-0.0014	-0.0267

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T4	0.00	0.0017	-0.0107
P2	D2a_T4	0.00	0.0017	-0.0111
P3	D2a_T4	0.00	0.0017	-0.0115
P4	D2a_T4	0.00	0.0017	-0.0120
P5	D2a_T4	0.00	0.0017	-0.0124
P6	D2a_T4	0.00	0.0017	-0.0128
P7	D2a_T4	0.00	0.0017	-0.0133
P8	D2a_T4	0.00	0.0012	-0.0107
P9	D2a_T4	0.00	0.0012	-0.0111
P10	D2a_T4	0.00	0.0012	-0.0115
P11	D2a_T4	0.00	0.0012	-0.0120
P12	D2a_T4	0.00	0.0012	-0.0124
P13	D2a_T4	0.00	0.0012	-0.0128
P14	D2a_T4	0.00	0.0012	-0.0133
P15	D2a_T4	0.00	0.0005	-0.0129
P16	D2a_T4	0.00	0.0005	-0.0133
P17	D2a_T4	0.00	0.0005	-0.0138
P18	D2a_T4	0.00	0.0005	-0.0143
P19	D2a_T4	0.00	0.0005	-0.0147
P20	D2a_T4	0.00	0.0005	-0.0152
P21	D2a_T4	0.00	0.0005	-0.0157
P22	D2a_T4	0.00	-0.0002	-0.0137
P23	D2a_T4	0.00	-0.0002	-0.0142
P24	D2a_T4	0.00	-0.0002	-0.0146
P25	D2a_T4	0.00	-0.0002	-0.0151
P26	D2a_T4	0.00	-0.0002	-0.0155
P27	D2a_T4	0.00	-0.0002	-0.0160
P28	D2a_T4	0.00	-0.0002	-0.0164
P29	D2a_T4	0.00	-0.0008	-0.0171
P30	D2a_T4	0.00	-0.0008	-0.0176
P31	D2a_T4	0.00	-0.0008	-0.0180
P32	D2a_T4	0.00	-0.0008	-0.0185
P33	D2a_T4	0.00	-0.0008	-0.0190
P34	D2a_T4	0.00	-0.0008	-0.0195
P35	D2a_T4	0.00	-0.0008	-0.0200
P36	D2a_T4	0.00	-0.0011	-0.0191
P37	D2a_T4	0.00	-0.0011	-0.0196
P38	D2a_T4	0.00	-0.0011	-0.0200
P39	D2a_T4	0.00	-0.0011	-0.0205
P40	D2a_T4	0.00	-0.0011	-0.0210
P41	D2a_T4	0.00	-0.0011	-0.0214
P42	D2a_T4	0.00	-0.0011	-0.0219
P43	D2a_T4	0.00	-0.0013	-0.0213
P44	D2a_T4	0.00	-0.0013	-0.0218
P45	D2a_T4	0.00	-0.0013	-0.0223
P46	D2a_T4	0.00	-0.0013	-0.0227
P47	D2a_T4	0.00	-0.0013	-0.0232
P48	D2a_T4	0.00	-0.0013	-0.0237
P49	D2a_T4	0.00	-0.0013	-0.0241

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b	0.00	0.0014	-0.0458
P2	D2b	0.00	0.0014	-0.0458
P3	D2b	0.00	0.0014	-0.0458
P4	D2b	0.00	0.0014	-0.0458
P5	D2b	0.00	0.0014	-0.0458
P6	D2b	0.00	0.0014	-0.0458
P7	D2b	0.00	0.0014	-0.0458
P8	D2b	0.00	0.0009	-0.0466
P9	D2b	0.00	0.0009	-0.0466
P10	D2b	0.00	0.0009	-0.0466
P11	D2b	0.00	0.0009	-0.0466
P12	D2b	0.00	0.0009	-0.0466
P13	D2b	0.00	0.0009	-0.0466
P14	D2b	0.00	0.0009	-0.0466
P15	D2b	0.00	0.0004	-0.0503
P16	D2b	0.00	0.0004	-0.0503
P17	D2b	0.00	0.0004	-0.0503
P18	D2b	0.00	0.0004	-0.0503
P19	D2b	0.00	0.0004	-0.0503
P20	D2b	0.00	0.0004	-0.0503
P21	D2b	0.00	0.0004	-0.0503
P22	D2b	0.00	-0.0002	-0.0511
P23	D2b	0.00	-0.0002	-0.0511
P24	D2b	0.00	-0.0002	-0.0511
P25	D2b	0.00	-0.0002	-0.0511
P26	D2b	0.00	-0.0002	-0.0511
P27	D2b	0.00	-0.0002	-0.0511
P28	D2b	0.00	-0.0002	-0.0511
P29	D2b	0.00	-0.0007	-0.0551
P30	D2b	0.00	-0.0007	-0.0551
P31	D2b	0.00	-0.0007	-0.0551
P32	D2b	0.00	-0.0007	-0.0551
P33	D2b	0.00	-0.0007	-0.0551
P34	D2b	0.00	-0.0007	-0.0551
P35	D2b	0.00	-0.0007	-0.0551
P36	D2b	0.00	-0.0008	-0.0562
P37	D2b	0.00	-0.0008	-0.0562
P38	D2b	0.00	-0.0008	-0.0562
P39	D2b	0.00	-0.0008	-0.0562
P40	D2b	0.00	-0.0008	-0.0562
P41	D2b	0.00	-0.0008	-0.0562
P42	D2b	0.00	-0.0008	-0.0562
P43	D2b	0.00	-0.0011	-0.0583
P44	D2b	0.00	-0.0011	-0.0583
P45	D2b	0.00	-0.0011	-0.0583
P46	D2b	0.00	-0.0011	-0.0583
P47	D2b	0.00	-0.0011	-0.0583
P48	D2b	0.00	-0.0011	-0.0583
P49	D2b	0.00	-0.0011	-0.0583

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T1	0.00	0.0014	-0.0458
P2	D2b_T1	0.00	0.0014	-0.0465
P3	D2b_T1	0.00	0.0014	-0.0471
P4	D2b_T1	0.00	0.0014	-0.0478
P5	D2b_T1	0.00	0.0014	-0.0484
P6	D2b_T1	0.00	0.0014	-0.0490
P7	D2b_T1	0.00	0.0014	-0.0497
P8	D2b_T1	0.00	0.0009	-0.0465
P9	D2b_T1	0.00	0.0009	-0.0472
P10	D2b_T1	0.00	0.0009	-0.0478
P11	D2b_T1	0.00	0.0009	-0.0484
P12	D2b_T1	0.00	0.0009	-0.0491
P13	D2b_T1	0.00	0.0009	-0.0497
P14	D2b_T1	0.00	0.0009	-0.0503
P15	D2b_T1	0.00	0.0004	-0.0502
P16	D2b_T1	0.00	0.0004	-0.0509
P17	D2b_T1	0.00	0.0004	-0.0515
P18	D2b_T1	0.00	0.0004	-0.0522
P19	D2b_T1	0.00	0.0004	-0.0529
P20	D2b_T1	0.00	0.0004	-0.0535
P21	D2b_T1	0.00	0.0004	-0.0542
P22	D2b_T1	0.00	-0.0002	-0.0510
P23	D2b_T1	0.00	-0.0002	-0.0516
P24	D2b_T1	0.00	-0.0002	-0.0523
P25	D2b_T1	0.00	-0.0002	-0.0529
P26	D2b_T1	0.00	-0.0002	-0.0536
P27	D2b_T1	0.00	-0.0002	-0.0542
P28	D2b_T1	0.00	-0.0002	-0.0548
P29	D2b_T1	0.00	-0.0006	-0.0548
P30	D2b_T1	0.00	-0.0006	-0.0554
P31	D2b_T1	0.00	-0.0006	-0.0561
P32	D2b_T1	0.00	-0.0007	-0.0568
P33	D2b_T1	0.00	-0.0007	-0.0575
P34	D2b_T1	0.00	-0.0007	-0.0581
P35	D2b_T1	0.00	-0.0007	-0.0588
P36	D2b_T1	0.00	-0.0007	-0.0557
P37	D2b_T1	0.00	-0.0007	-0.0564
P38	D2b_T1	0.00	-0.0007	-0.0570
P39	D2b_T1	0.00	-0.0007	-0.0577
P40	D2b_T1	0.00	-0.0007	-0.0583
P41	D2b_T1	0.00	-0.0007	-0.0589
P42	D2b_T1	0.00	-0.0007	-0.0596
P43	D2b_T1	0.00	-0.0011	-0.0576
P44	D2b_T1	0.00	-0.0011	-0.0583
P45	D2b_T1	0.00	-0.0011	-0.0589
P46	D2b_T1	0.00	-0.0011	-0.0596
P47	D2b_T1	0.00	-0.0011	-0.0603
P48	D2b_T1	0.00	-0.0011	-0.0610
P49	D2b_T1	0.00	-0.0011	-0.0616

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T2	0.00	0.0014	-0.0465
P2	D2b_T2	0.00	0.0014	-0.0470
P3	D2b_T2	0.00	0.0014	-0.0475
P4	D2b_T2	0.00	0.0014	-0.0480
P5	D2b_T2	0.00	0.0014	-0.0486
P6	D2b_T2	0.00	0.0014	-0.0491
P7	D2b_T2	0.00	0.0014	-0.0496
P8	D2b_T2	0.00	0.0009	-0.0470
P9	D2b_T2	0.00	0.0009	-0.0475
P10	D2b_T2	0.00	0.0009	-0.0481
P11	D2b_T2	0.00	0.0009	-0.0486
P12	D2b_T2	0.00	0.0009	-0.0491
P13	D2b_T2	0.00	0.0009	-0.0495
P14	D2b_T2	0.00	0.0009	-0.0500
P15	D2b_T2	0.00	0.0004	-0.0505
P16	D2b_T2	0.00	0.0004	-0.0511
P17	D2b_T2	0.00	0.0004	-0.0516
P18	D2b_T2	0.00	0.0004	-0.0521
P19	D2b_T2	0.00	0.0004	-0.0526
P20	D2b_T2	0.00	0.0004	-0.0532
P21	D2b_T2	0.00	0.0004	-0.0537
P22	D2b_T2	0.00	-0.0002	-0.0511
P23	D2b_T2	0.00	-0.0002	-0.0516
P24	D2b_T2	0.00	-0.0002	-0.0522
P25	D2b_T2	0.00	-0.0002	-0.0527
P26	D2b_T2	0.00	-0.0002	-0.0532
P27	D2b_T2	0.00	-0.0002	-0.0536
P28	D2b_T2	0.00	-0.0002	-0.0541
P29	D2b_T2	0.00	-0.0007	-0.0548
P30	D2b_T2	0.00	-0.0007	-0.0553
P31	D2b_T2	0.00	-0.0007	-0.0558
P32	D2b_T2	0.00	-0.0007	-0.0563
P33	D2b_T2	0.00	-0.0007	-0.0569
P34	D2b_T2	0.00	-0.0007	-0.0574
P35	D2b_T2	0.00	-0.0007	-0.0579
P36	D2b_T2	0.00	-0.0008	-0.0556
P37	D2b_T2	0.00	-0.0008	-0.0561
P38	D2b_T2	0.00	-0.0007	-0.0566
P39	D2b_T2	0.00	-0.0007	-0.0571
P40	D2b_T2	0.00	-0.0007	-0.0576
P41	D2b_T2	0.00	-0.0007	-0.0580
P42	D2b_T2	0.00	-0.0007	-0.0585
P43	D2b_T2	0.00	-0.0011	-0.0574
P44	D2b_T2	0.00	-0.0011	-0.0579
P45	D2b_T2	0.00	-0.0011	-0.0584
P46	D2b_T2	0.00	-0.0011	-0.0589
P47	D2b_T2	0.00	-0.0011	-0.0593
P48	D2b_T2	0.00	-0.0011	-0.0598
P49	D2b_T2	0.00	-0.0011	-0.0603

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T3	0.00	0.0014	-0.0465
P2	D2b_T3	0.00	0.0014	-0.0472
P3	D2b_T3	0.00	0.0014	-0.0478
P4	D2b_T3	0.00	0.0014	-0.0485
P5	D2b_T3	0.00	0.0014	-0.0491
P6	D2b_T3	0.00	0.0014	-0.0498
P7	D2b_T3	0.00	0.0014	-0.0504
P8	D2b_T3	0.00	0.0009	-0.0475
P9	D2b_T3	0.00	0.0009	-0.0481
P10	D2b_T3	0.00	0.0009	-0.0488
P11	D2b_T3	0.00	0.0009	-0.0494
P12	D2b_T3	0.00	0.0008	-0.0501
P13	D2b_T3	0.00	0.0008	-0.0507
P14	D2b_T3	0.00	0.0008	-0.0513
P15	D2b_T3	0.00	0.0004	-0.0515
P16	D2b_T3	0.00	0.0004	-0.0522
P17	D2b_T3	0.00	0.0004	-0.0529
P18	D2b_T3	0.00	0.0004	-0.0536
P19	D2b_T3	0.00	0.0004	-0.0542
P20	D2b_T3	0.00	0.0004	-0.0549
P21	D2b_T3	0.00	0.0004	-0.0556
P22	D2b_T3	0.00	-0.0002	-0.0525
P23	D2b_T3	0.00	-0.0002	-0.0532
P24	D2b_T3	0.00	-0.0002	-0.0539
P25	D2b_T3	0.00	-0.0002	-0.0545
P26	D2b_T3	0.00	-0.0002	-0.0552
P27	D2b_T3	0.00	-0.0002	-0.0559
P28	D2b_T3	0.00	-0.0003	-0.0566
P29	D2b_T3	0.00	-0.0006	-0.0566
P30	D2b_T3	0.00	-0.0006	-0.0573
P31	D2b_T3	0.00	-0.0006	-0.0580
P32	D2b_T3	0.00	-0.0006	-0.0588
P33	D2b_T3	0.00	-0.0006	-0.0595
P34	D2b_T3	0.00	-0.0006	-0.0602
P35	D2b_T3	0.00	-0.0006	-0.0609
P36	D2b_T3	0.00	-0.0007	-0.0576
P37	D2b_T3	0.00	-0.0007	-0.0583
P38	D2b_T3	0.00	-0.0007	-0.0591
P39	D2b_T3	0.00	-0.0007	-0.0598
P40	D2b_T3	0.00	-0.0007	-0.0605
P41	D2b_T3	0.00	-0.0007	-0.0612
P42	D2b_T3	0.00	-0.0007	-0.0619
P43	D2b_T3	0.00	-0.0011	-0.0598
P44	D2b_T3	0.00	-0.0011	-0.0606
P45	D2b_T3	0.00	-0.0011	-0.0614
P46	D2b_T3	0.00	-0.0011	-0.0621
P47	D2b_T3	0.00	-0.0011	-0.0629
P48	D2b_T3	0.00	-0.0011	-0.0636
P49	D2b_T3	0.00	-0.0011	-0.0644

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T4	0.00	0.0014	-0.0484
P2	D2b_T4	0.00	0.0014	-0.0488
P3	D2b_T4	0.00	0.0014	-0.0492
P4	D2b_T4	0.00	0.0014	-0.0497
P5	D2b_T4	0.00	0.0014	-0.0501
P6	D2b_T4	0.00	0.0014	-0.0505
P7	D2b_T4	0.00	0.0014	-0.0510
P8	D2b_T4	0.00	0.0009	-0.0488
P9	D2b_T4	0.00	0.0009	-0.0493
P10	D2b_T4	0.00	0.0008	-0.0497
P11	D2b_T4	0.00	0.0008	-0.0502
P12	D2b_T4	0.00	0.0008	-0.0506
P13	D2b_T4	0.00	0.0008	-0.0510
P14	D2b_T4	0.00	0.0008	-0.0514
P15	D2b_T4	0.00	0.0004	-0.0525
P16	D2b_T4	0.00	0.0004	-0.0530
P17	D2b_T4	0.00	0.0004	-0.0534
P18	D2b_T4	0.00	0.0004	-0.0539
P19	D2b_T4	0.00	0.0004	-0.0544
P20	D2b_T4	0.00	0.0004	-0.0548
P21	D2b_T4	0.00	0.0004	-0.0553
P22	D2b_T4	0.00	-0.0002	-0.0530
P23	D2b_T4	0.00	-0.0002	-0.0535
P24	D2b_T4	0.00	-0.0002	-0.0540
P25	D2b_T4	0.00	-0.0002	-0.0544
P26	D2b_T4	0.00	-0.0002	-0.0549
P27	D2b_T4	0.00	-0.0002	-0.0553
P28	D2b_T4	0.00	-0.0002	-0.0558
P29	D2b_T4	0.00	-0.0006	-0.0567
P30	D2b_T4	0.00	-0.0006	-0.0572
P31	D2b_T4	0.00	-0.0006	-0.0577
P32	D2b_T4	0.00	-0.0006	-0.0581
P33	D2b_T4	0.00	-0.0006	-0.0586
P34	D2b_T4	0.00	-0.0006	-0.0591
P35	D2b_T4	0.00	-0.0006	-0.0596
P36	D2b_T4	0.00	-0.0007	-0.0573
P37	D2b_T4	0.00	-0.0007	-0.0578
P38	D2b_T4	0.00	-0.0007	-0.0582
P39	D2b_T4	0.00	-0.0007	-0.0587
P40	D2b_T4	0.00	-0.0007	-0.0592
P41	D2b_T4	0.00	-0.0007	-0.0596
P42	D2b_T4	0.00	-0.0007	-0.0600
P43	D2b_T4	0.00	-0.0010	-0.0590
P44	D2b_T4	0.00	-0.0011	-0.0595
P45	D2b_T4	0.00	-0.0011	-0.0600
P46	D2b_T4	0.00	-0.0011	-0.0604
P47	D2b_T4	0.00	-0.0011	-0.0609
P48	D2b_T4	0.00	-0.0011	-0.0614
P49	D2b_T4	0.00	-0.0011	-0.0618

Vertical Deflections:
MAXIMUM REACTION = -0.0001 kips
MINIMUM REACTION = -0.0679 kips

Horizontal (u1) Deflections:
MAXIMUM REACTION = 0.0001 kips
MINIMUM REACTION = -0.0001 kips

Horizontal (u2) Deflections:
MAXIMUM REACTION = 0.0017 kips
MINIMUM REACTION = -0.1028 kips

Maximum horizontal displacement is 0.1028". Maximum allowable deflection is 0.75" (for load cases without allowable overstress). Maximum vertical deflection is 0.0679", which is less than the maximum allowable 0.5". Therefore, all deflections OK.

Also note that the lateral deflection is very close to the assumed spring value of 0.1035". The spring has converged.

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - SETTLEMENT CASES **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

* Uses springs for a pile tip elevation of -75.0 and a lateral reaction of 9kip (0.1035" corresponding deflection).

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1a-ST	0.0	-0.25	120.51
P2	1a-ST	0.0	-0.25	120.51
P3	1a-ST	0.0	-0.25	120.51
P4	1a-ST	0.0	-0.25	120.51
P5	1a-ST	0.0	-0.25	120.51
P6	1a-ST	0.0	-0.25	120.51
P7	1a-ST	0.0	-0.25	120.51
P8	1a-ST	0.0	-0.20	111.76
P9	1a-ST	0.0	-0.20	111.78
P10	1a-ST	0.0	-0.20	111.81
P11	1a-ST	0.0	-0.20	111.81
P12	1a-ST	0.0	-0.20	111.81
P13	1a-ST	0.0	-0.20	111.77
P14	1a-ST	0.0	-0.20	111.75
P15	1a-ST	0.0	-0.10	111.12
P16	1a-ST	0.0	-0.10	111.12
P17	1a-ST	0.0	-0.10	111.12
P18	1a-ST	0.0	-0.10	111.12
P19	1a-ST	0.0	-0.10	111.12
P20	1a-ST	0.0	-0.10	111.12
P21	1a-ST	0.0	-0.10	111.13
P22	1a-ST	0.0	0.00	106.46
P23	1a-ST	0.0	0.00	106.48
P24	1a-ST	0.0	0.00	106.51
P25	1a-ST	0.0	0.00	106.51
P26	1a-ST	0.0	0.00	106.51
P27	1a-ST	0.0	0.00	106.47
P28	1a-ST	0.0	0.00	106.46
P29	1a-ST	0.0	0.10	111.12
P30	1a-ST	0.0	0.10	111.12
P31	1a-ST	0.0	0.10	111.12
P32	1a-ST	0.0	0.10	111.12
P33	1a-ST	0.0	0.10	111.13
P34	1a-ST	0.0	0.10	111.13
P35	1a-ST	0.0	0.10	111.13
P36	1a-ST	0.0	0.20	111.75
P37	1a-ST	0.0	0.20	111.78
P38	1a-ST	0.0	0.20	111.81
P39	1a-ST	0.0	0.20	111.81
P40	1a-ST	0.0	0.20	111.81
P41	1a-ST	0.0	0.20	111.77
P42	1a-ST	0.0	0.20	111.76
P43	1a-ST	0.0	0.25	120.51
P44	1a-ST	0.0	0.25	120.51
P45	1a-ST	0.0	0.25	120.51
P46	1a-ST	0.0	0.25	120.51
P47	1a-ST	0.0	0.25	120.51
P48	1a-ST	0.0	0.25	120.51
P49	1a-ST	0.0	0.25	120.51

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	1b-ST	0.0	8.68	81.17
P2	1b-ST	0.0	8.68	81.17
P3	1b-ST	0.0	8.68	81.17
P4	1b-ST	0.0	8.68	81.17
P5	1b-ST	0.0	8.68	81.17
P6	1b-ST	0.0	8.68	81.17
P7	1b-ST	0.0	8.68	81.17
P8	1b-ST	0.0	8.72	72.78
P9	1b-ST	0.0	8.72	72.80
P10	1b-ST	0.0	8.72	72.82
P11	1b-ST	0.0	8.72	72.82
P12	1b-ST	0.0	8.72	72.82
P13	1b-ST	0.0	8.72	72.79
P14	1b-ST	0.0	8.72	72.78
P15	1b-ST	0.0	8.81	70.31
P16	1b-ST	0.0	8.81	70.31
P17	1b-ST	0.0	8.81	70.31
P18	1b-ST	0.0	8.81	70.31
P19	1b-ST	0.0	8.81	70.31
P20	1b-ST	0.0	8.81	70.31
P21	1b-ST	0.0	8.81	70.31
P22	1b-ST	0.0	8.88	66.86
P23	1b-ST	0.0	8.88	66.88
P24	1b-ST	0.0	8.88	66.90
P25	1b-ST	0.0	8.88	66.89
P26	1b-ST	0.0	8.88	66.90
P27	1b-ST	0.0	8.88	66.87
P28	1b-ST	0.0	8.88	66.86
P29	1b-ST	0.0	8.96	69.86
P30	1b-ST	0.0	8.96	69.86
P31	1b-ST	0.0	8.96	69.86
P32	1b-ST	0.0	8.96	69.86
P33	1b-ST	0.0	8.96	69.86
P34	1b-ST	0.0	8.96	69.86
P35	1b-ST	0.0	8.96	69.87
P36	1b-ST	0.0	9.04	71.69
P37	1b-ST	0.0	9.04	71.71
P38	1b-ST	0.0	9.04	71.73
P39	1b-ST	0.0	9.04	71.73
P40	1b-ST	0.0	9.04	71.73
P41	1b-ST	0.0	9.04	71.70
P42	1b-ST	0.0	9.04	71.69
P43	1b-ST	0.0	9.04	77.76
P44	1b-ST	0.0	9.04	77.76
P45	1b-ST	0.0	9.04	77.76
P46	1b-ST	0.0	9.04	77.76
P47	1b-ST	0.0	9.04	77.76
P48	1b-ST	0.0	9.04	77.76
P49	1b-ST	0.0	9.04	77.76

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a-ST	0.0	-0.26	46.79
P2	2a-ST	0.0	-0.26	46.79
P3	2a-ST	0.0	-0.26	46.79
P4	2a-ST	0.0	-0.26	46.79
P5	2a-ST	0.0	-0.26	46.79
P6	2a-ST	0.0	-0.26	46.79
P7	2a-ST	0.0	-0.26	46.79
P8	2a-ST	0.0	-0.23	37.36
P9	2a-ST	0.0	-0.23	37.37
P10	2a-ST	0.0	-0.23	37.38
P11	2a-ST	0.0	-0.23	37.38
P12	2a-ST	0.0	-0.23	37.38
P13	2a-ST	0.0	-0.23	37.37
P14	2a-ST	0.0	-0.23	37.36
P15	2a-ST	0.0	-0.11	33.66
P16	2a-ST	0.0	-0.11	33.66
P17	2a-ST	0.0	-0.11	33.66
P18	2a-ST	0.0	-0.11	33.66
P19	2a-ST	0.0	-0.11	33.66
P20	2a-ST	0.0	-0.11	33.66
P21	2a-ST	0.0	-0.11	33.66
P22	2a-ST	0.0	0.00	29.80
P23	2a-ST	0.0	0.00	29.80
P24	2a-ST	0.0	0.00	29.81
P25	2a-ST	0.0	0.00	29.81
P26	2a-ST	0.0	0.00	29.81
P27	2a-ST	0.0	0.00	29.80
P28	2a-ST	0.0	0.00	29.80
P29	2a-ST	0.0	0.11	33.66
P30	2a-ST	0.0	0.11	33.66
P31	2a-ST	0.0	0.11	33.66
P32	2a-ST	0.0	0.11	33.66
P33	2a-ST	0.0	0.11	33.66
P34	2a-ST	0.0	0.11	33.66
P35	2a-ST	0.0	0.11	33.66
P36	2a-ST	0.0	0.23	37.36
P37	2a-ST	0.0	0.23	37.37
P38	2a-ST	0.0	0.23	37.38
P39	2a-ST	0.0	0.23	37.38
P40	2a-ST	0.0	0.23	37.38
P41	2a-ST	0.0	0.23	37.37
P42	2a-ST	0.0	0.23	37.36
P43	2a-ST	0.0	0.26	46.79
P44	2a-ST	0.0	0.26	46.79
P45	2a-ST	0.0	0.26	46.79
P46	2a-ST	0.0	0.26	46.79
P47	2a-ST	0.0	0.26	46.79
P48	2a-ST	0.0	0.26	46.79
P49	2a-ST	0.0	0.26	46.79

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_6-ST	0.0	-0.24	32.24
P2	2a_6-ST	0.0	-0.24	32.24
P3	2a_6-ST	0.0	-0.24	32.24
P4	2a_6-ST	0.0	-0.24	32.24
P5	2a_6-ST	0.0	-0.24	32.24
P6	2a_6-ST	0.0	-0.24	32.24
P7	2a_6-ST	0.0	-0.24	32.24
P8	2a_6-ST	0.0	-0.22	23.00
P9	2a_6-ST	0.0	-0.22	23.01
P10	2a_6-ST	0.0	-0.22	23.01
P11	2a_6-ST	0.0	-0.22	23.01
P12	2a_6-ST	0.0	-0.22	23.01
P13	2a_6-ST	0.0	-0.22	23.00
P14	2a_6-ST	0.0	-0.22	23.00
P15	2a_6-ST	0.0	-0.10	18.41
P16	2a_6-ST	0.0	-0.10	18.41
P17	2a_6-ST	0.0	-0.10	18.41
P18	2a_6-ST	0.0	-0.10	18.41
P19	2a_6-ST	0.0	-0.10	18.41
P20	2a_6-ST	0.0	-0.10	18.41
P21	2a_6-ST	0.0	-0.10	18.41
P22	2a_6-ST	0.0	0.00	14.98
P23	2a_6-ST	0.0	0.00	14.98
P24	2a_6-ST	0.0	0.00	14.99
P25	2a_6-ST	0.0	0.00	14.98
P26	2a_6-ST	0.0	0.00	14.99
P27	2a_6-ST	0.0	0.00	14.98
P28	2a_6-ST	0.0	0.00	14.98
P29	2a_6-ST	0.0	0.10	18.41
P30	2a_6-ST	0.0	0.10	18.41
P31	2a_6-ST	0.0	0.10	18.41
P32	2a_6-ST	0.0	0.10	18.41
P33	2a_6-ST	0.0	0.10	18.41
P34	2a_6-ST	0.0	0.10	18.41
P35	2a_6-ST	0.0	0.10	18.41
P36	2a_6-ST	0.0	0.22	23.00
P37	2a_6-ST	0.0	0.22	23.01
P38	2a_6-ST	0.0	0.22	23.01
P39	2a_6-ST	0.0	0.22	23.01
P40	2a_6-ST	0.0	0.22	23.01
P41	2a_6-ST	0.0	0.22	23.00
P42	2a_6-ST	0.0	0.22	23.00
P43	2a_6-ST	0.0	0.24	32.24
P44	2a_6-ST	0.0	0.24	32.24
P45	2a_6-ST	0.0	0.24	32.24
P46	2a_6-ST	0.0	0.24	32.24
P47	2a_6-ST	0.0	0.24	32.24
P48	2a_6-ST	0.0	0.24	32.24
P49	2a_6-ST	0.0	0.24	32.24

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T1-ST	0.0	-0.26	46.91
P2	2a_T1-ST	0.0	-0.26	47.99
P3	2a_T1-ST	0.0	-0.26	49.07
P4	2a_T1-ST	0.0	-0.26	50.15
P5	2a_T1-ST	0.0	-0.26	51.23
P6	2a_T1-ST	0.0	-0.26	52.30
P7	2a_T1-ST	0.0	-0.26	53.38
P8	2a_T1-ST	0.0	-0.22	37.33
P9	2a_T1-ST	0.0	-0.22	38.40
P10	2a_T1-ST	0.0	-0.22	39.46
P11	2a_T1-ST	0.0	-0.22	40.52
P12	2a_T1-ST	0.0	-0.22	41.57
P13	2a_T1-ST	0.0	-0.22	42.62
P14	2a_T1-ST	0.0	-0.22	43.67
P15	2a_T1-ST	0.0	-0.11	33.58
P16	2a_T1-ST	0.0	-0.11	34.69
P17	2a_T1-ST	0.0	-0.11	35.80
P18	2a_T1-ST	0.0	-0.11	36.91
P19	2a_T1-ST	0.0	-0.11	38.03
P20	2a_T1-ST	0.0	-0.11	39.14
P21	2a_T1-ST	0.0	-0.11	40.25
P22	2a_T1-ST	0.0	0.00	29.54
P23	2a_T1-ST	0.0	0.00	30.63
P24	2a_T1-ST	0.0	0.00	31.72
P25	2a_T1-ST	0.0	0.00	32.80
P26	2a_T1-ST	0.0	0.00	33.89
P27	2a_T1-ST	0.0	0.00	34.96
P28	2a_T1-ST	0.0	0.00	36.04
P29	2a_T1-ST	0.0	0.11	33.11
P30	2a_T1-ST	0.0	0.11	34.24
P31	2a_T1-ST	0.0	0.11	35.38
P32	2a_T1-ST	0.0	0.11	36.51
P33	2a_T1-ST	0.0	0.11	37.65
P34	2a_T1-ST	0.0	0.11	38.78
P35	2a_T1-ST	0.0	0.11	39.92
P36	2a_T1-ST	0.0	0.22	36.51
P37	2a_T1-ST	0.0	0.22	37.61
P38	2a_T1-ST	0.0	0.22	38.71
P39	2a_T1-ST	0.0	0.22	39.80
P40	2a_T1-ST	0.0	0.22	40.90
P41	2a_T1-ST	0.0	0.22	41.98
P42	2a_T1-ST	0.0	0.22	43.07
P43	2a_T1-ST	0.0	0.26	45.67
P44	2a_T1-ST	0.0	0.26	46.80
P45	2a_T1-ST	0.0	0.26	47.93
P46	2a_T1-ST	0.0	0.26	49.07
P47	2a_T1-ST	0.0	0.26	50.20
P48	2a_T1-ST	0.0	0.26	51.33
P49	2a_T1-ST	0.0	0.26	52.46

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T2-ST	0.0	-0.26	48.05
P2	2a_T2-ST	0.0	-0.26	48.91
P3	2a_T2-ST	0.0	-0.26	49.77
P4	2a_T2-ST	0.0	-0.26	50.64
P5	2a_T2-ST	0.0	-0.26	51.50
P6	2a_T2-ST	0.0	-0.26	52.37
P7	2a_T2-ST	0.0	-0.27	53.23
P8	2a_T2-ST	0.0	-0.22	38.15
P9	2a_T2-ST	0.0	-0.22	39.01
P10	2a_T2-ST	0.0	-0.22	39.86
P11	2a_T2-ST	0.0	-0.22	40.70
P12	2a_T2-ST	0.0	-0.22	41.55
P13	2a_T2-ST	0.0	-0.22	42.38
P14	2a_T2-ST	0.0	-0.22	43.22
P15	2a_T2-ST	0.0	-0.11	34.12
P16	2a_T2-ST	0.0	-0.11	35.00
P17	2a_T2-ST	0.0	-0.11	35.89
P18	2a_T2-ST	0.0	-0.11	36.77
P19	2a_T2-ST	0.0	-0.11	37.65
P20	2a_T2-ST	0.0	-0.11	38.54
P21	2a_T2-ST	0.0	-0.11	39.42
P22	2a_T2-ST	0.0	0.00	29.83
P23	2a_T2-ST	0.0	0.00	30.68
P24	2a_T2-ST	0.0	0.00	31.52
P25	2a_T2-ST	0.0	0.00	32.36
P26	2a_T2-ST	0.0	0.00	33.20
P27	2a_T2-ST	0.0	0.00	34.04
P28	2a_T2-ST	0.0	0.00	34.88
P29	2a_T2-ST	0.0	0.11	33.20
P30	2a_T2-ST	0.0	0.11	34.06
P31	2a_T2-ST	0.0	0.11	34.91
P32	2a_T2-ST	0.0	0.11	35.77
P33	2a_T2-ST	0.0	0.11	36.63
P34	2a_T2-ST	0.0	0.11	37.49
P35	2a_T2-ST	0.0	0.11	38.34
P36	2a_T2-ST	0.0	0.23	36.40
P37	2a_T2-ST	0.0	0.23	37.22
P38	2a_T2-ST	0.0	0.23	38.03
P39	2a_T2-ST	0.0	0.23	38.83
P40	2a_T2-ST	0.0	0.22	39.64
P41	2a_T2-ST	0.0	0.22	40.43
P42	2a_T2-ST	0.0	0.22	41.23
P43	2a_T2-ST	0.0	0.26	45.36
P44	2a_T2-ST	0.0	0.26	46.17
P45	2a_T2-ST	0.0	0.26	46.98
P46	2a_T2-ST	0.0	0.26	47.79
P47	2a_T2-ST	0.0	0.26	48.60
P48	2a_T2-ST	0.0	0.26	49.41
P49	2a_T2-ST	0.0	0.26	50.22

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T3-ST	0.0	-0.27	48.10
P2	2a_T3-ST	0.0	-0.27	49.19
P3	2a_T3-ST	0.0	-0.27	50.28
P4	2a_T3-ST	0.0	-0.26	51.37
P5	2a_T3-ST	0.0	-0.26	52.45
P6	2a_T3-ST	0.0	-0.26	53.54
P7	2a_T3-ST	0.0	-0.26	54.63
P8	2a_T3-ST	0.0	-0.23	38.91
P9	2a_T3-ST	0.0	-0.22	40.00
P10	2a_T3-ST	0.0	-0.22	41.09
P11	2a_T3-ST	0.0	-0.22	42.16
P12	2a_T3-ST	0.0	-0.22	43.24
P13	2a_T3-ST	0.0	-0.22	44.30
P14	2a_T3-ST	0.0	-0.22	45.38
P15	2a_T3-ST	0.0	-0.11	35.78
P16	2a_T3-ST	0.0	-0.11	36.92
P17	2a_T3-ST	0.0	-0.11	38.07
P18	2a_T3-ST	0.0	-0.10	39.21
P19	2a_T3-ST	0.0	-0.10	40.35
P20	2a_T3-ST	0.0	-0.10	41.50
P21	2a_T3-ST	0.0	-0.10	42.64
P22	2a_T3-ST	0.0	0.00	32.09
P23	2a_T3-ST	0.0	0.00	33.24
P24	2a_T3-ST	0.0	0.00	34.39
P25	2a_T3-ST	0.0	0.00	35.53
P26	2a_T3-ST	0.0	0.00	36.68
P27	2a_T3-ST	0.0	0.00	37.81
P28	2a_T3-ST	0.0	0.00	38.95
P29	2a_T3-ST	0.0	0.10	36.14
P30	2a_T3-ST	0.0	0.10	37.37
P31	2a_T3-ST	0.0	0.10	38.59
P32	2a_T3-ST	0.0	0.10	39.82
P33	2a_T3-ST	0.0	0.10	41.04
P34	2a_T3-ST	0.0	0.10	42.27
P35	2a_T3-ST	0.0	0.10	43.49
P36	2a_T3-ST	0.0	0.22	39.74
P37	2a_T3-ST	0.0	0.22	40.96
P38	2a_T3-ST	0.0	0.22	42.18
P39	2a_T3-ST	0.0	0.22	43.38
P40	2a_T3-ST	0.0	0.22	44.59
P41	2a_T3-ST	0.0	0.22	45.79
P42	2a_T3-ST	0.0	0.23	46.99
P43	2a_T3-ST	0.0	0.27	49.43
P44	2a_T3-ST	0.0	0.27	50.71
P45	2a_T3-ST	0.0	0.27	51.99
P46	2a_T3-ST	0.0	0.27	53.26
P47	2a_T3-ST	0.0	0.27	54.54
P48	2a_T3-ST	0.0	0.27	55.82
P49	2a_T3-ST	0.0	0.27	57.10

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES

Project #: 10001876
Computed By: LBR
Checked By: BCB

Date: Aug-13
Date: Aug-13

Page: of
Sheet: of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2a_T4-ST	0.0	-0.26	51.17
P2	2a_T4-ST	0.0	-0.26	51.90
P3	2a_T4-ST	0.0	-0.26	52.63
P4	2a_T4-ST	0.0	-0.26	53.36
P5	2a_T4-ST	0.0	-0.26	54.09
P6	2a_T4-ST	0.0	-0.26	54.82
P7	2a_T4-ST	0.0	-0.26	55.55
P8	2a_T4-ST	0.0	-0.22	41.20
P9	2a_T4-ST	0.0	-0.22	41.94
P10	2a_T4-ST	0.0	-0.22	42.68
P11	2a_T4-ST	0.0	-0.22	43.41
P12	2a_T4-ST	0.0	-0.22	44.14
P13	2a_T4-ST	0.0	-0.22	44.86
P14	2a_T4-ST	0.0	-0.22	45.59
P15	2a_T4-ST	0.0	-0.10	37.40
P16	2a_T4-ST	0.0	-0.10	38.18
P17	2a_T4-ST	0.0	-0.10	38.97
P18	2a_T4-ST	0.0	-0.10	39.75
P19	2a_T4-ST	0.0	-0.10	40.54
P20	2a_T4-ST	0.0	-0.10	41.33
P21	2a_T4-ST	0.0	-0.10	42.11
P22	2a_T4-ST	0.0	0.00	33.00
P23	2a_T4-ST	0.0	0.00	33.77
P24	2a_T4-ST	0.0	0.00	34.55
P25	2a_T4-ST	0.0	0.00	35.32
P26	2a_T4-ST	0.0	0.00	36.09
P27	2a_T4-ST	0.0	0.00	36.85
P28	2a_T4-ST	0.0	0.00	37.62
P29	2a_T4-ST	0.0	0.10	36.35
P30	2a_T4-ST	0.0	0.10	37.16
P31	2a_T4-ST	0.0	0.10	37.98
P32	2a_T4-ST	0.0	0.10	38.79
P33	2a_T4-ST	0.0	0.10	39.60
P34	2a_T4-ST	0.0	0.10	40.41
P35	2a_T4-ST	0.0	0.10	41.22
P36	2a_T4-ST	0.0	0.22	39.20
P37	2a_T4-ST	0.0	0.22	39.97
P38	2a_T4-ST	0.0	0.22	40.75
P39	2a_T4-ST	0.0	0.22	41.52
P40	2a_T4-ST	0.0	0.22	42.29
P41	2a_T4-ST	0.0	0.22	43.05
P42	2a_T4-ST	0.0	0.22	43.82
P43	2a_T4-ST	0.0	0.26	48.09
P44	2a_T4-ST	0.0	0.26	48.87
P45	2a_T4-ST	0.0	0.26	49.66
P46	2a_T4-ST	0.0	0.26	50.44
P47	2a_T4-ST	0.0	0.26	51.23
P48	2a_T4-ST	0.0	0.26	52.01
P49	2a_T4-ST	0.0	0.26	52.80

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b-ST	0.0	-0.21	130.88
P2	2b-ST	0.0	-0.21	130.88
P3	2b-ST	0.0	-0.21	130.88
P4	2b-ST	0.0	-0.21	130.88
P5	2b-ST	0.0	-0.21	130.88
P6	2b-ST	0.0	-0.21	130.88
P7	2b-ST	0.0	-0.21	130.88
P8	2b-ST	0.0	-0.16	122.88
P9	2b-ST	0.0	-0.16	122.90
P10	2b-ST	0.0	-0.16	122.94
P11	2b-ST	0.0	-0.16	122.94
P12	2b-ST	0.0	-0.16	122.94
P13	2b-ST	0.0	-0.16	122.89
P14	2b-ST	0.0	-0.16	122.88
P15	2b-ST	0.0	-0.07	122.94
P16	2b-ST	0.0	-0.07	122.94
P17	2b-ST	0.0	-0.07	122.94
P18	2b-ST	0.0	-0.07	122.94
P19	2b-ST	0.0	-0.07	122.94
P20	2b-ST	0.0	-0.07	122.94
P21	2b-ST	0.0	-0.07	122.94
P22	2b-ST	0.0	0.00	118.72
P23	2b-ST	0.0	0.00	118.74
P24	2b-ST	0.0	0.00	118.78
P25	2b-ST	0.0	0.00	118.78
P26	2b-ST	0.0	0.00	118.78
P27	2b-ST	0.0	0.00	118.73
P28	2b-ST	0.0	0.00	118.72
P29	2b-ST	0.0	0.07	122.94
P30	2b-ST	0.0	0.07	122.94
P31	2b-ST	0.0	0.07	122.94
P32	2b-ST	0.0	0.07	122.94
P33	2b-ST	0.0	0.07	122.94
P34	2b-ST	0.0	0.07	122.94
P35	2b-ST	0.0	0.07	122.94
P36	2b-ST	0.0	0.16	122.88
P37	2b-ST	0.0	0.16	122.90
P38	2b-ST	0.0	0.16	122.94
P39	2b-ST	0.0	0.16	122.94
P40	2b-ST	0.0	0.16	122.94
P41	2b-ST	0.0	0.16	122.89
P42	2b-ST	0.0	0.16	122.88
P43	2b-ST	0.0	0.21	130.88
P44	2b-ST	0.0	0.21	130.88
P45	2b-ST	0.0	0.21	130.88
P46	2b-ST	0.0	0.21	130.88
P47	2b-ST	0.0	0.21	130.88
P48	2b-ST	0.0	0.21	130.88
P49	2b-ST	0.0	0.21	130.88

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T1-ST	0.0	-0.21	131.00
P2	2b_T1-ST	0.0	-0.21	132.08
P3	2b_T1-ST	0.0	-0.21	133.16
P4	2b_T1-ST	0.0	-0.21	134.24
P5	2b_T1-ST	0.0	-0.21	135.32
P6	2b_T1-ST	0.0	-0.21	136.39
P7	2b_T1-ST	0.0	-0.21	137.47
P8	2b_T1-ST	0.0	-0.16	122.84
P9	2b_T1-ST	0.0	-0.16	123.93
P10	2b_T1-ST	0.0	-0.16	125.02
P11	2b_T1-ST	0.0	-0.16	126.08
P12	2b_T1-ST	0.0	-0.16	127.13
P13	2b_T1-ST	0.0	-0.16	128.14
P14	2b_T1-ST	0.0	-0.16	129.18
P15	2b_T1-ST	0.0	-0.07	122.86
P16	2b_T1-ST	0.0	-0.07	123.97
P17	2b_T1-ST	0.0	-0.07	125.08
P18	2b_T1-ST	0.0	-0.07	126.19
P19	2b_T1-ST	0.0	-0.07	127.30
P20	2b_T1-ST	0.0	-0.07	128.42
P21	2b_T1-ST	0.0	-0.07	129.53
P22	2b_T1-ST	0.0	0.00	118.46
P23	2b_T1-ST	0.0	0.00	119.57
P24	2b_T1-ST	0.0	0.00	120.69
P25	2b_T1-ST	0.0	0.00	121.77
P26	2b_T1-ST	0.0	0.00	122.86
P27	2b_T1-ST	0.0	0.00	123.89
P28	2b_T1-ST	0.0	0.00	124.97
P29	2b_T1-ST	0.0	0.07	122.39
P30	2b_T1-ST	0.0	0.07	123.52
P31	2b_T1-ST	0.0	0.07	124.66
P32	2b_T1-ST	0.0	0.07	125.79
P33	2b_T1-ST	0.0	0.07	126.93
P34	2b_T1-ST	0.0	0.07	128.06
P35	2b_T1-ST	0.0	0.07	129.19
P36	2b_T1-ST	0.0	0.16	122.02
P37	2b_T1-ST	0.0	0.16	123.14
P38	2b_T1-ST	0.0	0.16	124.27
P39	2b_T1-ST	0.0	0.16	125.36
P40	2b_T1-ST	0.0	0.16	126.46
P41	2b_T1-ST	0.0	0.16	127.50
P42	2b_T1-ST	0.0	0.16	128.58
P43	2b_T1-ST	0.0	0.21	129.76
P44	2b_T1-ST	0.0	0.21	130.89
P45	2b_T1-ST	0.0	0.21	132.02
P46	2b_T1-ST	0.0	0.21	133.16
P47	2b_T1-ST	0.0	0.21	134.29
P48	2b_T1-ST	0.0	0.21	135.42
P49	2b_T1-ST	0.0	0.21	136.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T2-ST	0.0	-0.21	132.14
P2	2b_T2-ST	0.0	-0.21	133.00
P3	2b_T2-ST	0.0	-0.22	133.86
P4	2b_T2-ST	0.0	-0.22	134.73
P5	2b_T2-ST	0.0	-0.22	135.59
P6	2b_T2-ST	0.0	-0.22	136.46
P7	2b_T2-ST	0.0	-0.22	137.32
P8	2b_T2-ST	0.0	-0.16	123.67
P9	2b_T2-ST	0.0	-0.16	124.54
P10	2b_T2-ST	0.0	-0.16	125.42
P11	2b_T2-ST	0.0	-0.16	126.26
P12	2b_T2-ST	0.0	-0.16	127.11
P13	2b_T2-ST	0.0	-0.16	127.90
P14	2b_T2-ST	0.0	-0.16	128.73
P15	2b_T2-ST	0.0	-0.07	123.39
P16	2b_T2-ST	0.0	-0.07	124.28
P17	2b_T2-ST	0.0	-0.07	125.16
P18	2b_T2-ST	0.0	-0.07	126.05
P19	2b_T2-ST	0.0	-0.07	126.93
P20	2b_T2-ST	0.0	-0.07	127.82
P21	2b_T2-ST	0.0	-0.07	128.70
P22	2b_T2-ST	0.0	0.00	118.75
P23	2b_T2-ST	0.0	0.00	119.62
P24	2b_T2-ST	0.0	0.00	120.50
P25	2b_T2-ST	0.0	0.00	121.34
P26	2b_T2-ST	0.0	0.00	122.18
P27	2b_T2-ST	0.0	0.00	122.97
P28	2b_T2-ST	0.0	0.00	123.80
P29	2b_T2-ST	0.0	0.07	122.48
P30	2b_T2-ST	0.0	0.07	123.33
P31	2b_T2-ST	0.0	0.07	124.19
P32	2b_T2-ST	0.0	0.07	125.05
P33	2b_T2-ST	0.0	0.07	125.91
P34	2b_T2-ST	0.0	0.07	126.76
P35	2b_T2-ST	0.0	0.07	127.62
P36	2b_T2-ST	0.0	0.16	121.92
P37	2b_T2-ST	0.0	0.16	122.75
P38	2b_T2-ST	0.0	0.16	123.59
P39	2b_T2-ST	0.0	0.16	124.39
P40	2b_T2-ST	0.0	0.16	125.20
P41	2b_T2-ST	0.0	0.16	125.95
P42	2b_T2-ST	0.0	0.16	126.75
P43	2b_T2-ST	0.0	0.21	129.45
P44	2b_T2-ST	0.0	0.21	130.26
P45	2b_T2-ST	0.0	0.21	131.07
P46	2b_T2-ST	0.0	0.21	131.88
P47	2b_T2-ST	0.0	0.21	132.69
P48	2b_T2-ST	0.0	0.21	133.50
P49	2b_T2-ST	0.0	0.21	134.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T3-ST	0.0	-0.22	132.19
P2	2b_T3-ST	0.0	-0.22	133.28
P3	2b_T3-ST	0.0	-0.22	134.37
P4	2b_T3-ST	0.0	-0.22	135.46
P5	2b_T3-ST	0.0	-0.22	136.55
P6	2b_T3-ST	0.0	-0.22	137.63
P7	2b_T3-ST	0.0	-0.21	138.72
P8	2b_T3-ST	0.0	-0.16	124.43
P9	2b_T3-ST	0.0	-0.16	125.53
P10	2b_T3-ST	0.0	-0.16	126.65
P11	2b_T3-ST	0.0	-0.16	127.72
P12	2b_T3-ST	0.0	-0.16	128.80
P13	2b_T3-ST	0.0	-0.16	129.83
P14	2b_T3-ST	0.0	-0.16	130.90
P15	2b_T3-ST	0.0	-0.07	125.05
P16	2b_T3-ST	0.0	-0.07	126.20
P17	2b_T3-ST	0.0	-0.07	127.34
P18	2b_T3-ST	0.0	-0.07	128.49
P19	2b_T3-ST	0.0	-0.07	129.63
P20	2b_T3-ST	0.0	-0.07	130.78
P21	2b_T3-ST	0.0	-0.07	131.92
P22	2b_T3-ST	0.0	0.00	121.01
P23	2b_T3-ST	0.0	0.00	122.18
P24	2b_T3-ST	0.0	0.00	123.36
P25	2b_T3-ST	0.0	0.00	124.51
P26	2b_T3-ST	0.0	0.00	125.65
P27	2b_T3-ST	0.0	0.00	126.75
P28	2b_T3-ST	0.0	0.00	127.88
P29	2b_T3-ST	0.0	0.07	125.42
P30	2b_T3-ST	0.0	0.07	126.64
P31	2b_T3-ST	0.0	0.07	127.87
P32	2b_T3-ST	0.0	0.07	129.09
P33	2b_T3-ST	0.0	0.07	130.32
P34	2b_T3-ST	0.0	0.07	131.55
P35	2b_T3-ST	0.0	0.07	132.77
P36	2b_T3-ST	0.0	0.16	125.25
P37	2b_T3-ST	0.0	0.16	126.49
P38	2b_T3-ST	0.0	0.16	127.74
P39	2b_T3-ST	0.0	0.16	128.94
P40	2b_T3-ST	0.0	0.16	130.15
P41	2b_T3-ST	0.0	0.16	131.31
P42	2b_T3-ST	0.0	0.16	132.51
P43	2b_T3-ST	0.0	0.22	133.52
P44	2b_T3-ST	0.0	0.22	134.80
P45	2b_T3-ST	0.0	0.22	136.08
P46	2b_T3-ST	0.0	0.22	137.36
P47	2b_T3-ST	0.0	0.22	138.63
P48	2b_T3-ST	0.0	0.22	139.91
P49	2b_T3-ST	0.0	0.22	141.19

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	2b_T4-ST	0.0	-0.22	135.26
P2	2b_T4-ST	0.0	-0.22	135.99
P3	2b_T4-ST	0.0	-0.22	136.72
P4	2b_T4-ST	0.0	-0.22	137.45
P5	2b_T4-ST	0.0	-0.22	138.18
P6	2b_T4-ST	0.0	-0.22	138.91
P7	2b_T4-ST	0.0	-0.22	139.64
P8	2b_T4-ST	0.0	-0.16	126.71
P9	2b_T4-ST	0.0	-0.16	127.47
P10	2b_T4-ST	0.0	-0.16	128.24
P11	2b_T4-ST	0.0	-0.16	128.97
P12	2b_T4-ST	0.0	-0.16	129.71
P13	2b_T4-ST	0.0	-0.16	130.39
P14	2b_T4-ST	0.0	-0.16	131.10
P15	2b_T4-ST	0.0	-0.07	126.67
P16	2b_T4-ST	0.0	-0.07	127.46
P17	2b_T4-ST	0.0	-0.07	128.25
P18	2b_T4-ST	0.0	-0.07	129.03
P19	2b_T4-ST	0.0	-0.07	129.82
P20	2b_T4-ST	0.0	-0.07	130.60
P21	2b_T4-ST	0.0	-0.07	131.39
P22	2b_T4-ST	0.0	0.00	121.92
P23	2b_T4-ST	0.0	0.00	122.72
P24	2b_T4-ST	0.0	0.00	123.53
P25	2b_T4-ST	0.0	0.00	124.29
P26	2b_T4-ST	0.0	0.00	125.07
P27	2b_T4-ST	0.0	0.00	125.79
P28	2b_T4-ST	0.0	0.00	126.55
P29	2b_T4-ST	0.0	0.07	125.63
P30	2b_T4-ST	0.0	0.07	126.44
P31	2b_T4-ST	0.0	0.07	127.25
P32	2b_T4-ST	0.0	0.07	128.07
P33	2b_T4-ST	0.0	0.07	128.88
P34	2b_T4-ST	0.0	0.07	129.69
P35	2b_T4-ST	0.0	0.07	130.50
P36	2b_T4-ST	0.0	0.16	124.71
P37	2b_T4-ST	0.0	0.16	125.51
P38	2b_T4-ST	0.0	0.16	126.32
P39	2b_T4-ST	0.0	0.16	127.08
P40	2b_T4-ST	0.0	0.16	127.86
P41	2b_T4-ST	0.0	0.16	128.58
P42	2b_T4-ST	0.0	0.16	129.33
P43	2b_T4-ST	0.0	0.21	132.18
P44	2b_T4-ST	0.0	0.21	132.96
P45	2b_T4-ST	0.0	0.21	133.75
P46	2b_T4-ST	0.0	0.21	134.53
P47	2b_T4-ST	0.0	0.21	135.32
P48	2b_T4-ST	0.0	0.21	136.10
P49	2b_T4-ST	0.0	0.21	136.89

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a-ST	0.0	-0.25	80.88
P2	3a-ST	0.0	-0.25	80.88
P3	3a-ST	0.0	-0.25	80.88
P4	3a-ST	0.0	-0.25	80.88
P5	3a-ST	0.0	-0.25	80.88
P6	3a-ST	0.0	-0.25	80.88
P7	3a-ST	0.0	-0.25	80.88
P8	3a-ST	0.0	-0.21	71.89
P9	3a-ST	0.0	-0.21	71.90
P10	3a-ST	0.0	-0.21	71.92
P11	3a-ST	0.0	-0.21	71.92
P12	3a-ST	0.0	-0.21	71.92
P13	3a-ST	0.0	-0.21	71.90
P14	3a-ST	0.0	-0.21	71.89
P15	3a-ST	0.0	-0.10	69.50
P16	3a-ST	0.0	-0.10	69.50
P17	3a-ST	0.0	-0.10	69.50
P18	3a-ST	0.0	-0.10	69.50
P19	3a-ST	0.0	-0.10	69.50
P20	3a-ST	0.0	-0.10	69.50
P21	3a-ST	0.0	-0.10	69.50
P22	3a-ST	0.0	0.00	65.37
P23	3a-ST	0.0	0.00	65.38
P24	3a-ST	0.0	0.00	65.40
P25	3a-ST	0.0	0.00	65.40
P26	3a-ST	0.0	0.00	65.40
P27	3a-ST	0.0	0.00	65.38
P28	3a-ST	0.0	0.00	65.37
P29	3a-ST	0.0	0.10	69.49
P30	3a-ST	0.0	0.10	69.49
P31	3a-ST	0.0	0.10	69.50
P32	3a-ST	0.0	0.10	69.50
P33	3a-ST	0.0	0.10	69.50
P34	3a-ST	0.0	0.10	69.50
P35	3a-ST	0.0	0.10	69.50
P36	3a-ST	0.0	0.21	71.89
P37	3a-ST	0.0	0.21	71.90
P38	3a-ST	0.0	0.21	71.92
P39	3a-ST	0.0	0.21	71.92
P40	3a-ST	0.0	0.21	71.92
P41	3a-ST	0.0	0.21	71.90
P42	3a-ST	0.0	0.21	71.89
P43	3a-ST	0.0	0.25	80.88
P44	3a-ST	0.0	0.25	80.88
P45	3a-ST	0.0	0.25	80.88
P46	3a-ST	0.0	0.25	80.88
P47	3a-ST	0.0	0.25	80.88
P48	3a-ST	0.0	0.25	80.88
P49	3a-ST	0.0	0.25	80.89

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES

Project #: 10001876
Computed By: LBR
Checked By: BCB

Date: Aug-13
Date: Aug-13

Page: of
Sheet: of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_6-ST	0.0	-0.23	66.33
P2	3a_6-ST	0.0	-0.23	66.33
P3	3a_6-ST	0.0	-0.23	66.33
P4	3a_6-ST	0.0	-0.23	66.33
P5	3a_6-ST	0.0	-0.23	66.33
P6	3a_6-ST	0.0	-0.23	66.33
P7	3a_6-ST	0.0	-0.23	66.33
P8	3a_6-ST	0.0	-0.20	57.53
P9	3a_6-ST	0.0	-0.20	57.54
P10	3a_6-ST	0.0	-0.20	57.56
P11	3a_6-ST	0.0	-0.20	57.55
P12	3a_6-ST	0.0	-0.20	57.56
P13	3a_6-ST	0.0	-0.20	57.53
P14	3a_6-ST	0.0	-0.20	57.53
P15	3a_6-ST	0.0	-0.10	54.24
P16	3a_6-ST	0.0	-0.10	54.24
P17	3a_6-ST	0.0	-0.10	54.24
P18	3a_6-ST	0.0	-0.10	54.24
P19	3a_6-ST	0.0	-0.10	54.24
P20	3a_6-ST	0.0	-0.10	54.24
P21	3a_6-ST	0.0	-0.10	54.24
P22	3a_6-ST	0.0	0.00	50.55
P23	3a_6-ST	0.0	0.00	50.56
P24	3a_6-ST	0.0	0.00	50.58
P25	3a_6-ST	0.0	0.00	50.58
P26	3a_6-ST	0.0	0.00	50.58
P27	3a_6-ST	0.0	0.00	50.56
P28	3a_6-ST	0.0	0.00	50.56
P29	3a_6-ST	0.0	0.10	54.24
P30	3a_6-ST	0.0	0.10	54.24
P31	3a_6-ST	0.0	0.10	54.24
P32	3a_6-ST	0.0	0.10	54.24
P33	3a_6-ST	0.0	0.10	54.24
P34	3a_6-ST	0.0	0.10	54.24
P35	3a_6-ST	0.0	0.10	54.24
P36	3a_6-ST	0.0	0.20	57.53
P37	3a_6-ST	0.0	0.20	57.54
P38	3a_6-ST	0.0	0.20	57.56
P39	3a_6-ST	0.0	0.20	57.55
P40	3a_6-ST	0.0	0.20	57.56
P41	3a_6-ST	0.0	0.20	57.53
P42	3a_6-ST	0.0	0.20	57.53
P43	3a_6-ST	0.0	0.23	66.33
P44	3a_6-ST	0.0	0.23	66.33
P45	3a_6-ST	0.0	0.23	66.33
P46	3a_6-ST	0.0	0.23	66.33
P47	3a_6-ST	0.0	0.23	66.33
P48	3a_6-ST	0.0	0.23	66.33
P49	3a_6-ST	0.0	0.23	66.33

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T1-ST	0.0	-0.25	81.00
P2	3a_T1-ST	0.0	-0.25	82.08
P3	3a_T1-ST	0.0	-0.25	83.16
P4	3a_T1-ST	0.0	-0.25	84.24
P5	3a_T1-ST	0.0	-0.25	85.32
P6	3a_T1-ST	0.0	-0.25	86.40
P7	3a_T1-ST	0.0	-0.25	87.48
P8	3a_T1-ST	0.0	-0.21	71.85
P9	3a_T1-ST	0.0	-0.21	72.93
P10	3a_T1-ST	0.0	-0.21	74.01
P11	3a_T1-ST	0.0	-0.21	75.06
P12	3a_T1-ST	0.0	-0.21	76.12
P13	3a_T1-ST	0.0	-0.21	77.15
P14	3a_T1-ST	0.0	-0.21	78.20
P15	3a_T1-ST	0.0	-0.10	69.42
P16	3a_T1-ST	0.0	-0.10	70.53
P17	3a_T1-ST	0.0	-0.10	71.64
P18	3a_T1-ST	0.0	-0.10	72.75
P19	3a_T1-ST	0.0	-0.10	73.86
P20	3a_T1-ST	0.0	-0.10	74.97
P21	3a_T1-ST	0.0	-0.10	76.08
P22	3a_T1-ST	0.0	0.00	65.11
P23	3a_T1-ST	0.0	0.00	66.21
P24	3a_T1-ST	0.0	0.00	67.31
P25	3a_T1-ST	0.0	0.00	68.39
P26	3a_T1-ST	0.0	0.00	69.48
P27	3a_T1-ST	0.0	0.00	70.54
P28	3a_T1-ST	0.0	0.00	71.61
P29	3a_T1-ST	0.0	0.10	68.95
P30	3a_T1-ST	0.0	0.10	70.08
P31	3a_T1-ST	0.0	0.10	71.21
P32	3a_T1-ST	0.0	0.10	72.35
P33	3a_T1-ST	0.0	0.10	73.48
P34	3a_T1-ST	0.0	0.10	74.62
P35	3a_T1-ST	0.0	0.10	75.75
P36	3a_T1-ST	0.0	0.21	71.03
P37	3a_T1-ST	0.0	0.21	72.14
P38	3a_T1-ST	0.0	0.21	73.26
P39	3a_T1-ST	0.0	0.21	74.35
P40	3a_T1-ST	0.0	0.21	75.44
P41	3a_T1-ST	0.0	0.21	76.51
P42	3a_T1-ST	0.0	0.21	77.59
P43	3a_T1-ST	0.0	0.25	79.77
P44	3a_T1-ST	0.0	0.25	80.90
P45	3a_T1-ST	0.0	0.25	82.03
P46	3a_T1-ST	0.0	0.25	83.16
P47	3a_T1-ST	0.0	0.25	84.29
P48	3a_T1-ST	0.0	0.25	85.42
P49	3a_T1-ST	0.0	0.25	86.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T2-ST	0.0	-0.25	82.14
P2	3a_T2-ST	0.0	-0.25	83.00
P3	3a_T2-ST	0.0	-0.25	83.87
P4	3a_T2-ST	0.0	-0.25	84.73
P5	3a_T2-ST	0.0	-0.25	85.60
P6	3a_T2-ST	0.0	-0.25	86.46
P7	3a_T2-ST	0.0	-0.25	87.32
P8	3a_T2-ST	0.0	-0.21	72.68
P9	3a_T2-ST	0.0	-0.21	73.54
P10	3a_T2-ST	0.0	-0.21	74.40
P11	3a_T2-ST	0.0	-0.21	75.24
P12	3a_T2-ST	0.0	-0.21	76.09
P13	3a_T2-ST	0.0	-0.21	76.90
P14	3a_T2-ST	0.0	-0.21	77.74
P15	3a_T2-ST	0.0	-0.10	69.95
P16	3a_T2-ST	0.0	-0.10	70.84
P17	3a_T2-ST	0.0	-0.10	71.72
P18	3a_T2-ST	0.0	-0.10	72.60
P19	3a_T2-ST	0.0	-0.10	73.49
P20	3a_T2-ST	0.0	-0.10	74.37
P21	3a_T2-ST	0.0	-0.10	75.26
P22	3a_T2-ST	0.0	0.00	65.40
P23	3a_T2-ST	0.0	0.00	66.26
P24	3a_T2-ST	0.0	0.00	67.12
P25	3a_T2-ST	0.0	0.00	67.96
P26	3a_T2-ST	0.0	0.00	68.80
P27	3a_T2-ST	0.0	0.00	69.61
P28	3a_T2-ST	0.0	0.00	70.45
P29	3a_T2-ST	0.0	0.10	69.03
P30	3a_T2-ST	0.0	0.10	69.89
P31	3a_T2-ST	0.0	0.10	70.75
P32	3a_T2-ST	0.0	0.10	71.60
P33	3a_T2-ST	0.0	0.10	72.46
P34	3a_T2-ST	0.0	0.10	73.32
P35	3a_T2-ST	0.0	0.10	74.18
P36	3a_T2-ST	0.0	0.21	70.93
P37	3a_T2-ST	0.0	0.21	71.75
P38	3a_T2-ST	0.0	0.21	72.58
P39	3a_T2-ST	0.0	0.21	73.38
P40	3a_T2-ST	0.0	0.21	74.18
P41	3a_T2-ST	0.0	0.21	74.96
P42	3a_T2-ST	0.0	0.21	75.76
P43	3a_T2-ST	0.0	0.25	79.45
P44	3a_T2-ST	0.0	0.25	80.26
P45	3a_T2-ST	0.0	0.25	81.07
P46	3a_T2-ST	0.0	0.25	81.88
P47	3a_T2-ST	0.0	0.25	82.69
P48	3a_T2-ST	0.0	0.25	83.50
P49	3a_T2-ST	0.0	0.25	84.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T3-ST	0.0	-0.25	82.19
P2	3a_T3-ST	0.0	-0.25	83.28
P3	3a_T3-ST	0.0	-0.25	84.37
P4	3a_T3-ST	0.0	-0.25	85.46
P5	3a_T3-ST	0.0	-0.25	86.55
P6	3a_T3-ST	0.0	-0.25	87.64
P7	3a_T3-ST	0.0	-0.25	88.73
P8	3a_T3-ST	0.0	-0.21	73.44
P9	3a_T3-ST	0.0	-0.21	74.53
P10	3a_T3-ST	0.0	-0.21	75.63
P11	3a_T3-ST	0.0	-0.21	76.71
P12	3a_T3-ST	0.0	-0.20	77.79
P13	3a_T3-ST	0.0	-0.20	78.83
P14	3a_T3-ST	0.0	-0.20	79.91
P15	3a_T3-ST	0.0	-0.10	71.61
P16	3a_T3-ST	0.0	-0.10	72.75
P17	3a_T3-ST	0.0	-0.10	73.90
P18	3a_T3-ST	0.0	-0.10	75.04
P19	3a_T3-ST	0.0	-0.10	76.19
P20	3a_T3-ST	0.0	-0.10	77.33
P21	3a_T3-ST	0.0	-0.10	78.48
P22	3a_T3-ST	0.0	0.00	67.66
P23	3a_T3-ST	0.0	0.00	68.82
P24	3a_T3-ST	0.0	0.00	69.98
P25	3a_T3-ST	0.0	0.00	71.13
P26	3a_T3-ST	0.0	0.00	72.27
P27	3a_T3-ST	0.0	0.00	73.39
P28	3a_T3-ST	0.0	0.00	74.53
P29	3a_T3-ST	0.0	0.10	71.97
P30	3a_T3-ST	0.0	0.10	73.20
P31	3a_T3-ST	0.0	0.10	74.43
P32	3a_T3-ST	0.0	0.10	75.65
P33	3a_T3-ST	0.0	0.10	76.88
P34	3a_T3-ST	0.0	0.10	78.10
P35	3a_T3-ST	0.0	0.10	79.33
P36	3a_T3-ST	0.0	0.20	74.26
P37	3a_T3-ST	0.0	0.20	75.49
P38	3a_T3-ST	0.0	0.21	76.72
P39	3a_T3-ST	0.0	0.21	77.93
P40	3a_T3-ST	0.0	0.21	79.14
P41	3a_T3-ST	0.0	0.21	80.31
P42	3a_T3-ST	0.0	0.21	81.52
P43	3a_T3-ST	0.0	0.25	83.52
P44	3a_T3-ST	0.0	0.25	84.80
P45	3a_T3-ST	0.0	0.25	86.08
P46	3a_T3-ST	0.0	0.25	87.36
P47	3a_T3-ST	0.0	0.25	88.64
P48	3a_T3-ST	0.0	0.25	89.92
P49	3a_T3-ST	0.0	0.25	91.20

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3a_T4-ST	0.0	-0.25	85.26
P2	3a_T4-ST	0.0	-0.25	85.99
P3	3a_T4-ST	0.0	-0.25	86.72
P4	3a_T4-ST	0.0	-0.25	87.45
P5	3a_T4-ST	0.0	-0.25	88.18
P6	3a_T4-ST	0.0	-0.25	88.91
P7	3a_T4-ST	0.0	-0.25	89.64
P8	3a_T4-ST	0.0	-0.21	75.72
P9	3a_T4-ST	0.0	-0.21	76.47
P10	3a_T4-ST	0.0	-0.20	77.23
P11	3a_T4-ST	0.0	-0.20	77.96
P12	3a_T4-ST	0.0	-0.20	78.69
P13	3a_T4-ST	0.0	-0.20	79.39
P14	3a_T4-ST	0.0	-0.20	80.11
P15	3a_T4-ST	0.0	-0.10	73.23
P16	3a_T4-ST	0.0	-0.10	74.02
P17	3a_T4-ST	0.0	-0.10	74.80
P18	3a_T4-ST	0.0	-0.10	75.59
P19	3a_T4-ST	0.0	-0.10	76.38
P20	3a_T4-ST	0.0	-0.10	77.16
P21	3a_T4-ST	0.0	-0.10	77.95
P22	3a_T4-ST	0.0	0.00	68.57
P23	3a_T4-ST	0.0	0.00	69.35
P24	3a_T4-ST	0.0	0.00	70.14
P25	3a_T4-ST	0.0	0.00	70.91
P26	3a_T4-ST	0.0	0.00	71.69
P27	3a_T4-ST	0.0	0.00	72.43
P28	3a_T4-ST	0.0	0.00	73.19
P29	3a_T4-ST	0.0	0.10	72.19
P30	3a_T4-ST	0.0	0.10	73.00
P31	3a_T4-ST	0.0	0.10	73.81
P32	3a_T4-ST	0.0	0.10	74.62
P33	3a_T4-ST	0.0	0.10	75.43
P34	3a_T4-ST	0.0	0.10	76.24
P35	3a_T4-ST	0.0	0.10	77.06
P36	3a_T4-ST	0.0	0.20	73.72
P37	3a_T4-ST	0.0	0.20	74.51
P38	3a_T4-ST	0.0	0.20	75.30
P39	3a_T4-ST	0.0	0.20	76.07
P40	3a_T4-ST	0.0	0.20	76.84
P41	3a_T4-ST	0.0	0.20	77.58
P42	3a_T4-ST	0.0	0.20	78.34
P43	3a_T4-ST	0.0	0.25	82.18
P44	3a_T4-ST	0.0	0.25	82.96
P45	3a_T4-ST	0.0	0.25	83.75
P46	3a_T4-ST	0.0	0.25	84.53
P47	3a_T4-ST	0.0	0.25	85.32
P48	3a_T4-ST	0.0	0.25	86.10
P49	3a_T4-ST	0.0	0.25	86.89

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b-ST	0.0	-0.22	126.72
P2	3b-ST	0.0	-0.22	126.72
P3	3b-ST	0.0	-0.22	126.72
P4	3b-ST	0.0	-0.22	126.72
P5	3b-ST	0.0	-0.22	126.72
P6	3b-ST	0.0	-0.22	126.72
P7	3b-ST	0.0	-0.22	126.72
P8	3b-ST	0.0	-0.17	118.64
P9	3b-ST	0.0	-0.17	118.67
P10	3b-ST	0.0	-0.17	118.70
P11	3b-ST	0.0	-0.17	118.70
P12	3b-ST	0.0	-0.17	118.70
P13	3b-ST	0.0	-0.17	118.66
P14	3b-ST	0.0	-0.17	118.64
P15	3b-ST	0.0	-0.08	118.41
P16	3b-ST	0.0	-0.08	118.41
P17	3b-ST	0.0	-0.08	118.41
P18	3b-ST	0.0	-0.08	118.41
P19	3b-ST	0.0	-0.08	118.41
P20	3b-ST	0.0	-0.08	118.41
P21	3b-ST	0.0	-0.08	118.41
P22	3b-ST	0.0	0.00	114.15
P23	3b-ST	0.0	0.00	114.17
P24	3b-ST	0.0	0.00	114.21
P25	3b-ST	0.0	0.00	114.20
P26	3b-ST	0.0	0.00	114.21
P27	3b-ST	0.0	0.00	114.16
P28	3b-ST	0.0	0.00	114.15
P29	3b-ST	0.0	0.08	118.41
P30	3b-ST	0.0	0.08	118.41
P31	3b-ST	0.0	0.08	118.41
P32	3b-ST	0.0	0.08	118.41
P33	3b-ST	0.0	0.08	118.41
P34	3b-ST	0.0	0.08	118.41
P35	3b-ST	0.0	0.08	118.41
P36	3b-ST	0.0	0.17	118.64
P37	3b-ST	0.0	0.17	118.67
P38	3b-ST	0.0	0.17	118.70
P39	3b-ST	0.0	0.17	118.70
P40	3b-ST	0.0	0.17	118.70
P41	3b-ST	0.0	0.17	118.66
P42	3b-ST	0.0	0.17	118.65
P43	3b-ST	0.0	0.22	126.72
P44	3b-ST	0.0	0.22	126.72
P45	3b-ST	0.0	0.22	126.72
P46	3b-ST	0.0	0.22	126.72
P47	3b-ST	0.0	0.22	126.72
P48	3b-ST	0.0	0.22	126.72
P49	3b-ST	0.0	0.22	126.72

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T1-ST	0.0	-0.22	126.84
P2	3b_T1-ST	0.0	-0.22	127.92
P3	3b_T1-ST	0.0	-0.22	129.00
P4	3b_T1-ST	0.0	-0.22	130.08
P5	3b_T1-ST	0.0	-0.22	131.15
P6	3b_T1-ST	0.0	-0.22	132.23
P7	3b_T1-ST	0.0	-0.22	133.31
P8	3b_T1-ST	0.0	-0.17	118.61
P9	3b_T1-ST	0.0	-0.17	119.69
P10	3b_T1-ST	0.0	-0.17	120.79
P11	3b_T1-ST	0.0	-0.17	121.84
P12	3b_T1-ST	0.0	-0.17	122.90
P13	3b_T1-ST	0.0	-0.17	123.91
P14	3b_T1-ST	0.0	-0.17	124.95
P15	3b_T1-ST	0.0	-0.08	118.33
P16	3b_T1-ST	0.0	-0.08	119.44
P17	3b_T1-ST	0.0	-0.08	120.55
P18	3b_T1-ST	0.0	-0.08	121.66
P19	3b_T1-ST	0.0	-0.08	122.78
P20	3b_T1-ST	0.0	-0.08	123.89
P21	3b_T1-ST	0.0	-0.08	125.00
P22	3b_T1-ST	0.0	0.00	113.89
P23	3b_T1-ST	0.0	0.00	115.00
P24	3b_T1-ST	0.0	0.00	116.12
P25	3b_T1-ST	0.0	0.00	117.20
P26	3b_T1-ST	0.0	0.00	118.29
P27	3b_T1-ST	0.0	0.00	119.32
P28	3b_T1-ST	0.0	0.00	120.40
P29	3b_T1-ST	0.0	0.08	117.86
P30	3b_T1-ST	0.0	0.08	118.99
P31	3b_T1-ST	0.0	0.08	120.13
P32	3b_T1-ST	0.0	0.08	121.26
P33	3b_T1-ST	0.0	0.08	122.40
P34	3b_T1-ST	0.0	0.08	123.53
P35	3b_T1-ST	0.0	0.08	124.66
P36	3b_T1-ST	0.0	0.17	117.79
P37	3b_T1-ST	0.0	0.17	118.91
P38	3b_T1-ST	0.0	0.17	120.04
P39	3b_T1-ST	0.0	0.17	121.13
P40	3b_T1-ST	0.0	0.17	122.22
P41	3b_T1-ST	0.0	0.17	123.27
P42	3b_T1-ST	0.0	0.17	124.35
P43	3b_T1-ST	0.0	0.22	125.60
P44	3b_T1-ST	0.0	0.22	126.73
P45	3b_T1-ST	0.0	0.22	127.86
P46	3b_T1-ST	0.0	0.22	128.99
P47	3b_T1-ST	0.0	0.22	130.13
P48	3b_T1-ST	0.0	0.22	131.26
P49	3b_T1-ST	0.0	0.22	132.39

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - SETTLEMENT CASES **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T2-ST	0.0	-0.22	127.97
P2	3b_T2-ST	0.0	-0.22	128.84
P3	3b_T2-ST	0.0	-0.22	129.70
P4	3b_T2-ST	0.0	-0.22	130.57
P5	3b_T2-ST	0.0	-0.22	131.43
P6	3b_T2-ST	0.0	-0.22	132.30
P7	3b_T2-ST	0.0	-0.22	133.16
P8	3b_T2-ST	0.0	-0.17	119.43
P9	3b_T2-ST	0.0	-0.17	120.30
P10	3b_T2-ST	0.0	-0.17	121.18
P11	3b_T2-ST	0.0	-0.17	122.03
P12	3b_T2-ST	0.0	-0.17	122.87
P13	3b_T2-ST	0.0	-0.17	123.67
P14	3b_T2-ST	0.0	-0.17	124.50
P15	3b_T2-ST	0.0	-0.08	118.87
P16	3b_T2-ST	0.0	-0.08	119.75
P17	3b_T2-ST	0.0	-0.08	120.63
P18	3b_T2-ST	0.0	-0.08	121.52
P19	3b_T2-ST	0.0	-0.08	122.40
P20	3b_T2-ST	0.0	-0.08	123.29
P21	3b_T2-ST	0.0	-0.08	124.17
P22	3b_T2-ST	0.0	0.00	114.18
P23	3b_T2-ST	0.0	0.00	115.05
P24	3b_T2-ST	0.0	0.00	115.92
P25	3b_T2-ST	0.0	0.00	116.76
P26	3b_T2-ST	0.0	0.00	117.61
P27	3b_T2-ST	0.0	0.00	118.40
P28	3b_T2-ST	0.0	0.00	119.23
P29	3b_T2-ST	0.0	0.08	117.95
P30	3b_T2-ST	0.0	0.08	118.80
P31	3b_T2-ST	0.0	0.08	119.66
P32	3b_T2-ST	0.0	0.08	120.52
P33	3b_T2-ST	0.0	0.08	121.38
P34	3b_T2-ST	0.0	0.08	122.24
P35	3b_T2-ST	0.0	0.08	123.09
P36	3b_T2-ST	0.0	0.17	117.69
P37	3b_T2-ST	0.0	0.17	118.51
P38	3b_T2-ST	0.0	0.17	119.36
P39	3b_T2-ST	0.0	0.17	120.16
P40	3b_T2-ST	0.0	0.17	120.97
P41	3b_T2-ST	0.0	0.17	121.72
P42	3b_T2-ST	0.0	0.17	122.51
P43	3b_T2-ST	0.0	0.22	125.29
P44	3b_T2-ST	0.0	0.22	126.10
P45	3b_T2-ST	0.0	0.22	126.91
P46	3b_T2-ST	0.0	0.22	127.72
P47	3b_T2-ST	0.0	0.22	128.53
P48	3b_T2-ST	0.0	0.22	129.34
P49	3b_T2-ST	0.0	0.22	130.15

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T3-ST	0.0	-0.22	128.03
P2	3b_T3-ST	0.0	-0.22	129.12
P3	3b_T3-ST	0.0	-0.22	130.21
P4	3b_T3-ST	0.0	-0.22	131.29
P5	3b_T3-ST	0.0	-0.22	132.38
P6	3b_T3-ST	0.0	-0.22	133.47
P7	3b_T3-ST	0.0	-0.22	134.56
P8	3b_T3-ST	0.0	-0.17	120.19
P9	3b_T3-ST	0.0	-0.17	121.30
P10	3b_T3-ST	0.0	-0.17	122.41
P11	3b_T3-ST	0.0	-0.17	123.49
P12	3b_T3-ST	0.0	-0.17	124.57
P13	3b_T3-ST	0.0	-0.16	125.60
P14	3b_T3-ST	0.0	-0.16	126.66
P15	3b_T3-ST	0.0	-0.08	120.52
P16	3b_T3-ST	0.0	-0.08	121.67
P17	3b_T3-ST	0.0	-0.08	122.81
P18	3b_T3-ST	0.0	-0.08	123.96
P19	3b_T3-ST	0.0	-0.08	125.10
P20	3b_T3-ST	0.0	-0.08	126.25
P21	3b_T3-ST	0.0	-0.08	127.39
P22	3b_T3-ST	0.0	0.00	116.44
P23	3b_T3-ST	0.0	0.00	117.61
P24	3b_T3-ST	0.0	0.00	118.79
P25	3b_T3-ST	0.0	0.00	119.93
P26	3b_T3-ST	0.0	0.00	121.08
P27	3b_T3-ST	0.0	0.00	122.17
P28	3b_T3-ST	0.0	0.00	123.31
P29	3b_T3-ST	0.0	0.08	120.89
P30	3b_T3-ST	0.0	0.08	122.11
P31	3b_T3-ST	0.0	0.08	123.34
P32	3b_T3-ST	0.0	0.08	124.57
P33	3b_T3-ST	0.0	0.08	125.79
P34	3b_T3-ST	0.0	0.08	127.02
P35	3b_T3-ST	0.0	0.08	128.24
P36	3b_T3-ST	0.0	0.16	121.02
P37	3b_T3-ST	0.0	0.16	122.25
P38	3b_T3-ST	0.0	0.17	123.50
P39	3b_T3-ST	0.0	0.17	124.71
P40	3b_T3-ST	0.0	0.17	125.92
P41	3b_T3-ST	0.0	0.17	127.08
P42	3b_T3-ST	0.0	0.17	128.27
P43	3b_T3-ST	0.0	0.22	129.35
P44	3b_T3-ST	0.0	0.22	130.63
P45	3b_T3-ST	0.0	0.22	131.91
P46	3b_T3-ST	0.0	0.22	133.19
P47	3b_T3-ST	0.0	0.22	134.47
P48	3b_T3-ST	0.0	0.22	135.75
P49	3b_T3-ST	0.0	0.22	137.03

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	3b_T4-ST	0.0	-0.22	131.10
P2	3b_T4-ST	0.0	-0.22	131.83
P3	3b_T4-ST	0.0	-0.22	132.56
P4	3b_T4-ST	0.0	-0.22	133.29
P5	3b_T4-ST	0.0	-0.22	134.02
P6	3b_T4-ST	0.0	-0.22	134.75
P7	3b_T4-ST	0.0	-0.22	135.48
P8	3b_T4-ST	0.0	-0.17	122.48
P9	3b_T4-ST	0.0	-0.17	123.24
P10	3b_T4-ST	0.0	-0.17	124.01
P11	3b_T4-ST	0.0	-0.16	124.74
P12	3b_T4-ST	0.0	-0.16	125.47
P13	3b_T4-ST	0.0	-0.16	126.15
P14	3b_T4-ST	0.0	-0.16	126.87
P15	3b_T4-ST	0.0	-0.08	122.15
P16	3b_T4-ST	0.0	-0.08	122.93
P17	3b_T4-ST	0.0	-0.08	123.72
P18	3b_T4-ST	0.0	-0.08	124.50
P19	3b_T4-ST	0.0	-0.08	125.29
P20	3b_T4-ST	0.0	-0.08	126.08
P21	3b_T4-ST	0.0	-0.08	126.86
P22	3b_T4-ST	0.0	0.00	117.35
P23	3b_T4-ST	0.0	0.00	118.14
P24	3b_T4-ST	0.0	0.00	118.95
P25	3b_T4-ST	0.0	0.00	119.72
P26	3b_T4-ST	0.0	0.00	120.49
P27	3b_T4-ST	0.0	0.00	121.22
P28	3b_T4-ST	0.0	0.00	121.98
P29	3b_T4-ST	0.0	0.08	121.10
P30	3b_T4-ST	0.0	0.08	121.91
P31	3b_T4-ST	0.0	0.08	122.72
P32	3b_T4-ST	0.0	0.08	123.54
P33	3b_T4-ST	0.0	0.08	124.35
P34	3b_T4-ST	0.0	0.08	125.16
P35	3b_T4-ST	0.0	0.08	125.97
P36	3b_T4-ST	0.0	0.16	120.48
P37	3b_T4-ST	0.0	0.16	121.27
P38	3b_T4-ST	0.0	0.16	122.08
P39	3b_T4-ST	0.0	0.16	122.85
P40	3b_T4-ST	0.0	0.16	123.62
P41	3b_T4-ST	0.0	0.16	124.34
P42	3b_T4-ST	0.0	0.16	125.10
P43	3b_T4-ST	0.0	0.22	128.02
P44	3b_T4-ST	0.0	0.22	128.80
P45	3b_T4-ST	0.0	0.22	129.59
P46	3b_T4-ST	0.0	0.22	130.37
P47	3b_T4-ST	0.0	0.22	131.16
P48	3b_T4-ST	0.0	0.22	131.94
P49	3b_T4-ST	0.0	0.22	132.73

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a-ST	0.0	-0.23	61.86
P2	D1a-ST	0.0	-0.23	61.87
P3	D1a-ST	0.0	-0.23	61.87
P4	D1a-ST	0.0	-0.23	61.87
P5	D1a-ST	0.0	-0.23	61.87
P6	D1a-ST	0.0	-0.23	61.87
P7	D1a-ST	0.0	-0.23	61.87
P8	D1a-ST	0.0	-0.21	52.87
P9	D1a-ST	0.0	-0.21	52.88
P10	D1a-ST	0.0	-0.21	52.89
P11	D1a-ST	0.0	-0.21	52.89
P12	D1a-ST	0.0	-0.21	52.89
P13	D1a-ST	0.0	-0.21	52.87
P14	D1a-ST	0.0	-0.21	52.87
P15	D1a-ST	0.0	-0.11	47.30
P16	D1a-ST	0.0	-0.11	47.30
P17	D1a-ST	0.0	-0.11	47.30
P18	D1a-ST	0.0	-0.11	47.30
P19	D1a-ST	0.0	-0.11	47.30
P20	D1a-ST	0.0	-0.11	47.30
P21	D1a-ST	0.0	-0.11	47.30
P22	D1a-ST	0.0	0.00	42.75
P23	D1a-ST	0.0	0.00	42.75
P24	D1a-ST	0.0	0.00	42.76
P25	D1a-ST	0.0	0.00	42.76
P26	D1a-ST	0.0	0.00	42.76
P27	D1a-ST	0.0	0.00	42.75
P28	D1a-ST	0.0	0.00	42.75
P29	D1a-ST	0.0	0.11	47.30
P30	D1a-ST	0.0	0.11	47.30
P31	D1a-ST	0.0	0.11	47.30
P32	D1a-ST	0.0	0.11	47.30
P33	D1a-ST	0.0	0.11	47.30
P34	D1a-ST	0.0	0.11	47.30
P35	D1a-ST	0.0	0.11	47.30
P36	D1a-ST	0.0	0.21	52.87
P37	D1a-ST	0.0	0.21	52.88
P38	D1a-ST	0.0	0.21	52.89
P39	D1a-ST	0.0	0.21	52.89
P40	D1a-ST	0.0	0.21	52.89
P41	D1a-ST	0.0	0.21	52.87
P42	D1a-ST	0.0	0.21	52.87
P43	D1a-ST	0.0	0.23	61.87
P44	D1a-ST	0.0	0.23	61.87
P45	D1a-ST	0.0	0.23	61.87
P46	D1a-ST	0.0	0.23	61.87
P47	D1a-ST	0.0	0.23	61.87
P48	D1a-ST	0.0	0.23	61.87
P49	D1a-ST	0.0	0.23	61.87

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_6-ST	0.0	-0.21	47.31
P2	D1a_6-ST	0.0	-0.21	47.31
P3	D1a_6-ST	0.0	-0.21	47.31
P4	D1a_6-ST	0.0	-0.21	47.31
P5	D1a_6-ST	0.0	-0.21	47.31
P6	D1a_6-ST	0.0	-0.21	47.31
P7	D1a_6-ST	0.0	-0.21	47.31
P8	D1a_6-ST	0.0	-0.20	38.51
P9	D1a_6-ST	0.0	-0.20	38.51
P10	D1a_6-ST	0.0	-0.20	38.52
P11	D1a_6-ST	0.0	-0.20	38.52
P12	D1a_6-ST	0.0	-0.20	38.53
P13	D1a_6-ST	0.0	-0.20	38.51
P14	D1a_6-ST	0.0	-0.20	38.51
P15	D1a_6-ST	0.0	-0.11	32.05
P16	D1a_6-ST	0.0	-0.11	32.05
P17	D1a_6-ST	0.0	-0.11	32.05
P18	D1a_6-ST	0.0	-0.11	32.05
P19	D1a_6-ST	0.0	-0.11	32.05
P20	D1a_6-ST	0.0	-0.11	32.05
P21	D1a_6-ST	0.0	-0.11	32.05
P22	D1a_6-ST	0.0	0.00	27.93
P23	D1a_6-ST	0.0	0.00	27.94
P24	D1a_6-ST	0.0	0.00	27.94
P25	D1a_6-ST	0.0	0.00	27.94
P26	D1a_6-ST	0.0	0.00	27.94
P27	D1a_6-ST	0.0	0.00	27.94
P28	D1a_6-ST	0.0	0.00	27.94
P29	D1a_6-ST	0.0	0.11	32.05
P30	D1a_6-ST	0.0	0.11	32.05
P31	D1a_6-ST	0.0	0.11	32.05
P32	D1a_6-ST	0.0	0.11	32.05
P33	D1a_6-ST	0.0	0.11	32.05
P34	D1a_6-ST	0.0	0.11	32.05
P35	D1a_6-ST	0.0	0.11	32.05
P36	D1a_6-ST	0.0	0.20	38.51
P37	D1a_6-ST	0.0	0.20	38.51
P38	D1a_6-ST	0.0	0.20	38.52
P39	D1a_6-ST	0.0	0.20	38.52
P40	D1a_6-ST	0.0	0.20	38.52
P41	D1a_6-ST	0.0	0.20	38.51
P42	D1a_6-ST	0.0	0.20	38.51
P43	D1a_6-ST	0.0	0.21	47.31
P44	D1a_6-ST	0.0	0.21	47.31
P45	D1a_6-ST	0.0	0.21	47.31
P46	D1a_6-ST	0.0	0.21	47.31
P47	D1a_6-ST	0.0	0.21	47.31
P48	D1a_6-ST	0.0	0.21	47.31
P49	D1a_6-ST	0.0	0.21	47.31

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T1-ST	0.0	-0.23	61.98
P2	D1a_T1-ST	0.0	-0.23	63.06
P3	D1a_T1-ST	0.0	-0.23	64.14
P4	D1a_T1-ST	0.0	-0.23	65.22
P5	D1a_T1-ST	0.0	-0.23	66.30
P6	D1a_T1-ST	0.0	-0.23	67.38
P7	D1a_T1-ST	0.0	-0.23	68.46
P8	D1a_T1-ST	0.0	-0.21	52.83
P9	D1a_T1-ST	0.0	-0.21	53.90
P10	D1a_T1-ST	0.0	-0.21	54.97
P11	D1a_T1-ST	0.0	-0.21	56.03
P12	D1a_T1-ST	0.0	-0.21	57.09
P13	D1a_T1-ST	0.0	-0.21	58.12
P14	D1a_T1-ST	0.0	-0.21	59.18
P15	D1a_T1-ST	0.0	-0.11	47.22
P16	D1a_T1-ST	0.0	-0.11	48.33
P17	D1a_T1-ST	0.0	-0.11	49.44
P18	D1a_T1-ST	0.0	-0.11	50.55
P19	D1a_T1-ST	0.0	-0.11	51.67
P20	D1a_T1-ST	0.0	-0.11	52.78
P21	D1a_T1-ST	0.0	-0.11	53.89
P22	D1a_T1-ST	0.0	0.00	42.49
P23	D1a_T1-ST	0.0	0.00	43.59
P24	D1a_T1-ST	0.0	0.00	44.68
P25	D1a_T1-ST	0.0	0.00	45.76
P26	D1a_T1-ST	0.0	0.00	46.84
P27	D1a_T1-ST	0.0	0.00	47.91
P28	D1a_T1-ST	0.0	0.00	48.99
P29	D1a_T1-ST	0.0	0.11	46.75
P30	D1a_T1-ST	0.0	0.11	47.88
P31	D1a_T1-ST	0.0	0.11	49.02
P32	D1a_T1-ST	0.0	0.11	50.15
P33	D1a_T1-ST	0.0	0.11	51.29
P34	D1a_T1-ST	0.0	0.11	52.42
P35	D1a_T1-ST	0.0	0.11	53.55
P36	D1a_T1-ST	0.0	0.21	52.01
P37	D1a_T1-ST	0.0	0.21	53.12
P38	D1a_T1-ST	0.0	0.21	54.23
P39	D1a_T1-ST	0.0	0.21	55.32
P40	D1a_T1-ST	0.0	0.21	56.41
P41	D1a_T1-ST	0.0	0.21	57.48
P42	D1a_T1-ST	0.0	0.21	58.57
P43	D1a_T1-ST	0.0	0.23	60.75
P44	D1a_T1-ST	0.0	0.23	61.88
P45	D1a_T1-ST	0.0	0.23	63.01
P46	D1a_T1-ST	0.0	0.23	64.14
P47	D1a_T1-ST	0.0	0.23	65.27
P48	D1a_T1-ST	0.0	0.23	66.40
P49	D1a_T1-ST	0.0	0.23	67.53

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T2-ST	0.0	-0.23	63.12
P2	D1a_T2-ST	0.0	-0.23	63.98
P3	D1a_T2-ST	0.0	-0.23	64.85
P4	D1a_T2-ST	0.0	-0.23	65.71
P5	D1a_T2-ST	0.0	-0.23	66.58
P6	D1a_T2-ST	0.0	-0.23	67.44
P7	D1a_T2-ST	0.0	-0.23	68.31
P8	D1a_T2-ST	0.0	-0.21	53.66
P9	D1a_T2-ST	0.0	-0.21	54.51
P10	D1a_T2-ST	0.0	-0.21	55.37
P11	D1a_T2-ST	0.0	-0.21	56.21
P12	D1a_T2-ST	0.0	-0.21	57.06
P13	D1a_T2-ST	0.0	-0.21	57.88
P14	D1a_T2-ST	0.0	-0.21	58.72
P15	D1a_T2-ST	0.0	-0.11	47.76
P16	D1a_T2-ST	0.0	-0.11	48.64
P17	D1a_T2-ST	0.0	-0.11	49.52
P18	D1a_T2-ST	0.0	-0.11	50.41
P19	D1a_T2-ST	0.0	-0.11	51.29
P20	D1a_T2-ST	0.0	-0.11	52.18
P21	D1a_T2-ST	0.0	-0.11	53.06
P22	D1a_T2-ST	0.0	0.00	42.78
P23	D1a_T2-ST	0.0	0.00	43.63
P24	D1a_T2-ST	0.0	0.00	44.48
P25	D1a_T2-ST	0.0	0.00	45.32
P26	D1a_T2-ST	0.0	0.00	46.16
P27	D1a_T2-ST	0.0	0.00	46.99
P28	D1a_T2-ST	0.0	0.00	47.83
P29	D1a_T2-ST	0.0	0.11	46.84
P30	D1a_T2-ST	0.0	0.11	47.69
P31	D1a_T2-ST	0.0	0.11	48.55
P32	D1a_T2-ST	0.0	0.11	49.41
P33	D1a_T2-ST	0.0	0.11	50.27
P34	D1a_T2-ST	0.0	0.11	51.12
P35	D1a_T2-ST	0.0	0.11	51.98
P36	D1a_T2-ST	0.0	0.21	51.91
P37	D1a_T2-ST	0.0	0.21	52.72
P38	D1a_T2-ST	0.0	0.21	53.54
P39	D1a_T2-ST	0.0	0.21	54.35
P40	D1a_T2-ST	0.0	0.21	55.15
P41	D1a_T2-ST	0.0	0.21	55.93
P42	D1a_T2-ST	0.0	0.21	56.73
P43	D1a_T2-ST	0.0	0.23	60.44
P44	D1a_T2-ST	0.0	0.23	61.25
P45	D1a_T2-ST	0.0	0.23	62.05
P46	D1a_T2-ST	0.0	0.23	62.86
P47	D1a_T2-ST	0.0	0.23	63.67
P48	D1a_T2-ST	0.0	0.23	64.48
P49	D1a_T2-ST	0.0	0.23	65.29

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Reactions
After Spring Calibration - SETTLEMENT CASES

Project #: 10001876
Computed By: LBR **Date:** Aug-13
Checked By: BCB **Date:** Aug-13

Page: of
Sheet: of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T3-ST	0.0	-0.23	63.17
P2	D1a_T3-ST	0.0	-0.23	64.26
P3	D1a_T3-ST	0.0	-0.23	65.35
P4	D1a_T3-ST	0.0	-0.23	66.44
P5	D1a_T3-ST	0.0	-0.23	67.53
P6	D1a_T3-ST	0.0	-0.23	68.62
P7	D1a_T3-ST	0.0	-0.23	69.71
P8	D1a_T3-ST	0.0	-0.21	54.42
P9	D1a_T3-ST	0.0	-0.21	55.51
P10	D1a_T3-ST	0.0	-0.21	56.60
P11	D1a_T3-ST	0.0	-0.21	57.68
P12	D1a_T3-ST	0.0	-0.21	58.76
P13	D1a_T3-ST	0.0	-0.21	59.81
P14	D1a_T3-ST	0.0	-0.21	60.89
P15	D1a_T3-ST	0.0	-0.11	49.41
P16	D1a_T3-ST	0.0	-0.11	50.56
P17	D1a_T3-ST	0.0	-0.11	51.70
P18	D1a_T3-ST	0.0	-0.11	52.85
P19	D1a_T3-ST	0.0	-0.11	53.99
P20	D1a_T3-ST	0.0	-0.11	55.14
P21	D1a_T3-ST	0.0	-0.11	56.28
P22	D1a_T3-ST	0.0	0.00	45.04
P23	D1a_T3-ST	0.0	0.00	46.19
P24	D1a_T3-ST	0.0	0.00	47.35
P25	D1a_T3-ST	0.0	0.00	48.49
P26	D1a_T3-ST	0.0	0.00	49.64
P27	D1a_T3-ST	0.0	0.00	50.76
P28	D1a_T3-ST	0.0	0.00	51.91
P29	D1a_T3-ST	0.0	0.11	49.78
P30	D1a_T3-ST	0.0	0.11	51.01
P31	D1a_T3-ST	0.0	0.11	52.23
P32	D1a_T3-ST	0.0	0.11	53.46
P33	D1a_T3-ST	0.0	0.11	54.68
P34	D1a_T3-ST	0.0	0.11	55.91
P35	D1a_T3-ST	0.0	0.11	57.13
P36	D1a_T3-ST	0.0	0.21	55.24
P37	D1a_T3-ST	0.0	0.21	56.46
P38	D1a_T3-ST	0.0	0.21	57.69
P39	D1a_T3-ST	0.0	0.21	58.90
P40	D1a_T3-ST	0.0	0.21	60.11
P41	D1a_T3-ST	0.0	0.21	61.29
P42	D1a_T3-ST	0.0	0.21	62.50
P43	D1a_T3-ST	0.0	0.23	64.50
P44	D1a_T3-ST	0.0	0.23	65.78
P45	D1a_T3-ST	0.0	0.23	67.06
P46	D1a_T3-ST	0.0	0.23	68.34
P47	D1a_T3-ST	0.0	0.23	69.62
P48	D1a_T3-ST	0.0	0.23	70.90
P49	D1a_T3-ST	0.0	0.23	72.18

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1a_T4-ST	0.0	-0.23	66.24
P2	D1a_T4-ST	0.0	-0.23	66.97
P3	D1a_T4-ST	0.0	-0.23	67.70
P4	D1a_T4-ST	0.0	-0.23	68.43
P5	D1a_T4-ST	0.0	-0.23	69.16
P6	D1a_T4-ST	0.0	-0.23	69.89
P7	D1a_T4-ST	0.0	-0.23	70.63
P8	D1a_T4-ST	0.0	-0.21	56.70
P9	D1a_T4-ST	0.0	-0.21	57.45
P10	D1a_T4-ST	0.0	-0.21	58.19
P11	D1a_T4-ST	0.0	-0.21	58.92
P12	D1a_T4-ST	0.0	-0.21	59.66
P13	D1a_T4-ST	0.0	-0.21	60.37
P14	D1a_T4-ST	0.0	-0.21	61.09
P15	D1a_T4-ST	0.0	-0.11	51.04
P16	D1a_T4-ST	0.0	-0.11	51.82
P17	D1a_T4-ST	0.0	-0.11	52.61
P18	D1a_T4-ST	0.0	-0.11	53.39
P19	D1a_T4-ST	0.0	-0.11	54.18
P20	D1a_T4-ST	0.0	-0.11	54.97
P21	D1a_T4-ST	0.0	-0.11	55.75
P22	D1a_T4-ST	0.0	0.00	45.95
P23	D1a_T4-ST	0.0	0.00	46.73
P24	D1a_T4-ST	0.0	0.00	47.51
P25	D1a_T4-ST	0.0	0.00	48.28
P26	D1a_T4-ST	0.0	0.00	49.05
P27	D1a_T4-ST	0.0	0.00	49.81
P28	D1a_T4-ST	0.0	0.00	50.57
P29	D1a_T4-ST	0.0	0.11	49.99
P30	D1a_T4-ST	0.0	0.11	50.80
P31	D1a_T4-ST	0.0	0.11	51.61
P32	D1a_T4-ST	0.0	0.11	52.43
P33	D1a_T4-ST	0.0	0.11	53.24
P34	D1a_T4-ST	0.0	0.11	54.05
P35	D1a_T4-ST	0.0	0.11	54.86
P36	D1a_T4-ST	0.0	0.21	54.70
P37	D1a_T4-ST	0.0	0.21	55.48
P38	D1a_T4-ST	0.0	0.21	56.27
P39	D1a_T4-ST	0.0	0.21	57.04
P40	D1a_T4-ST	0.0	0.21	57.81
P41	D1a_T4-ST	0.0	0.21	58.56
P42	D1a_T4-ST	0.0	0.21	59.32
P43	D1a_T4-ST	0.0	0.23	63.16
P44	D1a_T4-ST	0.0	0.23	63.95
P45	D1a_T4-ST	0.0	0.23	64.73
P46	D1a_T4-ST	0.0	0.23	65.52
P47	D1a_T4-ST	0.0	0.23	66.30
P48	D1a_T4-ST	0.0	0.23	67.08
P49	D1a_T4-ST	0.0	0.23	67.87

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b-ST	0.0	-0.20	125.26
P2	D1b-ST	0.0	-0.20	125.26
P3	D1b-ST	0.0	-0.20	125.26
P4	D1b-ST	0.0	-0.20	125.26
P5	D1b-ST	0.0	-0.20	125.26
P6	D1b-ST	0.0	-0.20	125.26
P7	D1b-ST	0.0	-0.20	125.26
P8	D1b-ST	0.0	-0.18	117.07
P9	D1b-ST	0.0	-0.18	117.09
P10	D1b-ST	0.0	-0.18	117.13
P11	D1b-ST	0.0	-0.18	117.12
P12	D1b-ST	0.0	-0.18	117.13
P13	D1b-ST	0.0	-0.18	117.08
P14	D1b-ST	0.0	-0.18	117.07
P15	D1b-ST	0.0	-0.10	113.93
P16	D1b-ST	0.0	-0.10	113.93
P17	D1b-ST	0.0	-0.10	113.94
P18	D1b-ST	0.0	-0.10	113.94
P19	D1b-ST	0.0	-0.10	113.94
P20	D1b-ST	0.0	-0.10	113.94
P21	D1b-ST	0.0	-0.10	113.94
P22	D1b-ST	0.0	0.00	108.89
P23	D1b-ST	0.0	0.00	108.91
P24	D1b-ST	0.0	0.00	108.95
P25	D1b-ST	0.0	0.00	108.95
P26	D1b-ST	0.0	0.00	108.95
P27	D1b-ST	0.0	0.00	108.91
P28	D1b-ST	0.0	0.00	108.90
P29	D1b-ST	0.0	0.10	113.93
P30	D1b-ST	0.0	0.10	113.93
P31	D1b-ST	0.0	0.10	113.93
P32	D1b-ST	0.0	0.10	113.94
P33	D1b-ST	0.0	0.10	113.94
P34	D1b-ST	0.0	0.10	113.94
P35	D1b-ST	0.0	0.10	113.94
P36	D1b-ST	0.0	0.18	117.06
P37	D1b-ST	0.0	0.18	117.09
P38	D1b-ST	0.0	0.18	117.13
P39	D1b-ST	0.0	0.18	117.12
P40	D1b-ST	0.0	0.18	117.13
P41	D1b-ST	0.0	0.18	117.08
P42	D1b-ST	0.0	0.18	117.07
P43	D1b-ST	0.0	0.20	125.26
P44	D1b-ST	0.0	0.20	125.26
P45	D1b-ST	0.0	0.20	125.26
P46	D1b-ST	0.0	0.20	125.26
P47	D1b-ST	0.0	0.20	125.26
P48	D1b-ST	0.0	0.20	125.26
P49	D1b-ST	0.0	0.20	125.26

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T1-ST	0.0	-0.20	125.38
P2	D1b_T1-ST	0.0	-0.20	126.46
P3	D1b_T1-ST	0.0	-0.20	127.54
P4	D1b_T1-ST	0.0	-0.20	128.62
P5	D1b_T1-ST	0.0	-0.20	129.70
P6	D1b_T1-ST	0.0	-0.20	130.78
P7	D1b_T1-ST	0.0	-0.20	131.85
P8	D1b_T1-ST	0.0	-0.18	117.03
P9	D1b_T1-ST	0.0	-0.18	118.11
P10	D1b_T1-ST	0.0	-0.18	119.21
P11	D1b_T1-ST	0.0	-0.18	120.26
P12	D1b_T1-ST	0.0	-0.18	121.32
P13	D1b_T1-ST	0.0	-0.18	122.33
P14	D1b_T1-ST	0.0	-0.18	123.37
P15	D1b_T1-ST	0.0	-0.10	113.85
P16	D1b_T1-ST	0.0	-0.10	114.97
P17	D1b_T1-ST	0.0	-0.10	116.08
P18	D1b_T1-ST	0.0	-0.10	117.19
P19	D1b_T1-ST	0.0	-0.10	118.30
P20	D1b_T1-ST	0.0	-0.10	119.41
P21	D1b_T1-ST	0.0	-0.10	120.52
P22	D1b_T1-ST	0.0	0.00	108.64
P23	D1b_T1-ST	0.0	0.00	109.75
P24	D1b_T1-ST	0.0	0.00	110.86
P25	D1b_T1-ST	0.0	0.00	111.94
P26	D1b_T1-ST	0.0	0.00	113.03
P27	D1b_T1-ST	0.0	0.00	114.07
P28	D1b_T1-ST	0.0	0.00	115.14
P29	D1b_T1-ST	0.0	0.10	113.38
P30	D1b_T1-ST	0.0	0.10	114.52
P31	D1b_T1-ST	0.0	0.10	115.65
P32	D1b_T1-ST	0.0	0.10	116.79
P33	D1b_T1-ST	0.0	0.10	117.92
P34	D1b_T1-ST	0.0	0.10	119.05
P35	D1b_T1-ST	0.0	0.10	120.19
P36	D1b_T1-ST	0.0	0.18	116.21
P37	D1b_T1-ST	0.0	0.18	117.33
P38	D1b_T1-ST	0.0	0.18	118.46
P39	D1b_T1-ST	0.0	0.18	119.55
P40	D1b_T1-ST	0.0	0.18	120.65
P41	D1b_T1-ST	0.0	0.18	121.69
P42	D1b_T1-ST	0.0	0.18	122.77
P43	D1b_T1-ST	0.0	0.20	124.14
P44	D1b_T1-ST	0.0	0.20	125.27
P45	D1b_T1-ST	0.0	0.20	126.41
P46	D1b_T1-ST	0.0	0.20	127.54
P47	D1b_T1-ST	0.0	0.20	128.67
P48	D1b_T1-ST	0.0	0.20	129.80
P49	D1b_T1-ST	0.0	0.20	130.93

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T2-ST	0.0	-0.20	126.51
P2	D1b_T2-ST	0.0	-0.20	127.38
P3	D1b_T2-ST	0.0	-0.20	128.24
P4	D1b_T2-ST	0.0	-0.21	129.11
P5	D1b_T2-ST	0.0	-0.21	129.97
P6	D1b_T2-ST	0.0	-0.21	130.84
P7	D1b_T2-ST	0.0	-0.21	131.70
P8	D1b_T2-ST	0.0	-0.18	117.86
P9	D1b_T2-ST	0.0	-0.18	118.72
P10	D1b_T2-ST	0.0	-0.18	119.61
P11	D1b_T2-ST	0.0	-0.18	120.45
P12	D1b_T2-ST	0.0	-0.18	121.29
P13	D1b_T2-ST	0.0	-0.18	122.09
P14	D1b_T2-ST	0.0	-0.18	122.92
P15	D1b_T2-ST	0.0	-0.10	114.39
P16	D1b_T2-ST	0.0	-0.10	115.27
P17	D1b_T2-ST	0.0	-0.10	116.16
P18	D1b_T2-ST	0.0	-0.10	117.04
P19	D1b_T2-ST	0.0	-0.10	117.93
P20	D1b_T2-ST	0.0	-0.10	118.81
P21	D1b_T2-ST	0.0	-0.10	119.70
P22	D1b_T2-ST	0.0	0.00	108.93
P23	D1b_T2-ST	0.0	0.00	109.79
P24	D1b_T2-ST	0.0	0.00	110.67
P25	D1b_T2-ST	0.0	0.00	111.50
P26	D1b_T2-ST	0.0	0.00	112.35
P27	D1b_T2-ST	0.0	0.00	113.14
P28	D1b_T2-ST	0.0	0.00	113.97
P29	D1b_T2-ST	0.0	0.10	113.47
P30	D1b_T2-ST	0.0	0.10	114.33
P31	D1b_T2-ST	0.0	0.10	115.19
P32	D1b_T2-ST	0.0	0.10	116.04
P33	D1b_T2-ST	0.0	0.10	116.90
P34	D1b_T2-ST	0.0	0.10	117.76
P35	D1b_T2-ST	0.0	0.10	118.62
P36	D1b_T2-ST	0.0	0.18	116.11
P37	D1b_T2-ST	0.0	0.18	116.94
P38	D1b_T2-ST	0.0	0.18	117.78
P39	D1b_T2-ST	0.0	0.18	118.58
P40	D1b_T2-ST	0.0	0.18	119.39
P41	D1b_T2-ST	0.0	0.18	120.14
P42	D1b_T2-ST	0.0	0.18	120.93
P43	D1b_T2-ST	0.0	0.20	123.83
P44	D1b_T2-ST	0.0	0.20	124.64
P45	D1b_T2-ST	0.0	0.20	125.45
P46	D1b_T2-ST	0.0	0.20	126.26
P47	D1b_T2-ST	0.0	0.20	127.07
P48	D1b_T2-ST	0.0	0.20	127.88
P49	D1b_T2-ST	0.0	0.20	128.69

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T3-ST	0.0	-0.21	126.57
P2	D1b_T3-ST	0.0	-0.21	127.66
P3	D1b_T3-ST	0.0	-0.21	128.75
P4	D1b_T3-ST	0.0	-0.21	129.84
P5	D1b_T3-ST	0.0	-0.21	130.93
P6	D1b_T3-ST	0.0	-0.20	132.01
P7	D1b_T3-ST	0.0	-0.20	133.10
P8	D1b_T3-ST	0.0	-0.18	118.61
P9	D1b_T3-ST	0.0	-0.18	119.72
P10	D1b_T3-ST	0.0	-0.18	120.84
P11	D1b_T3-ST	0.0	-0.18	121.91
P12	D1b_T3-ST	0.0	-0.18	122.99
P13	D1b_T3-ST	0.0	-0.18	124.02
P14	D1b_T3-ST	0.0	-0.17	125.09
P15	D1b_T3-ST	0.0	-0.10	116.05
P16	D1b_T3-ST	0.0	-0.10	117.19
P17	D1b_T3-ST	0.0	-0.10	118.34
P18	D1b_T3-ST	0.0	-0.10	119.48
P19	D1b_T3-ST	0.0	-0.10	120.63
P20	D1b_T3-ST	0.0	-0.10	121.77
P21	D1b_T3-ST	0.0	-0.10	122.92
P22	D1b_T3-ST	0.0	0.00	111.19
P23	D1b_T3-ST	0.0	0.00	112.36
P24	D1b_T3-ST	0.0	0.00	113.53
P25	D1b_T3-ST	0.0	0.00	114.67
P26	D1b_T3-ST	0.0	0.00	115.82
P27	D1b_T3-ST	0.0	0.00	116.92
P28	D1b_T3-ST	0.0	0.00	118.05
P29	D1b_T3-ST	0.0	0.10	116.41
P30	D1b_T3-ST	0.0	0.10	117.64
P31	D1b_T3-ST	0.0	0.10	118.86
P32	D1b_T3-ST	0.0	0.10	120.09
P33	D1b_T3-ST	0.0	0.10	121.32
P34	D1b_T3-ST	0.0	0.10	122.54
P35	D1b_T3-ST	0.0	0.10	123.77
P36	D1b_T3-ST	0.0	0.18	119.44
P37	D1b_T3-ST	0.0	0.18	120.68
P38	D1b_T3-ST	0.0	0.18	121.92
P39	D1b_T3-ST	0.0	0.18	123.13
P40	D1b_T3-ST	0.0	0.18	124.34
P41	D1b_T3-ST	0.0	0.18	125.50
P42	D1b_T3-ST	0.0	0.18	126.70
P43	D1b_T3-ST	0.0	0.21	127.90
P44	D1b_T3-ST	0.0	0.21	129.18
P45	D1b_T3-ST	0.0	0.21	130.46
P46	D1b_T3-ST	0.0	0.21	131.74
P47	D1b_T3-ST	0.0	0.21	133.01
P48	D1b_T3-ST	0.0	0.21	134.29
P49	D1b_T3-ST	0.0	0.21	135.57

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D1b_T4-ST	0.0	-0.20	129.63
P2	D1b_T4-ST	0.0	-0.20	130.37
P3	D1b_T4-ST	0.0	-0.20	131.10
P4	D1b_T4-ST	0.0	-0.21	131.83
P5	D1b_T4-ST	0.0	-0.21	132.56
P6	D1b_T4-ST	0.0	-0.21	133.29
P7	D1b_T4-ST	0.0	-0.21	134.02
P8	D1b_T4-ST	0.0	-0.18	120.90
P9	D1b_T4-ST	0.0	-0.18	121.66
P10	D1b_T4-ST	0.0	-0.18	122.43
P11	D1b_T4-ST	0.0	-0.18	123.16
P12	D1b_T4-ST	0.0	-0.18	123.89
P13	D1b_T4-ST	0.0	-0.18	124.57
P14	D1b_T4-ST	0.0	-0.17	125.29
P15	D1b_T4-ST	0.0	-0.10	117.67
P16	D1b_T4-ST	0.0	-0.10	118.46
P17	D1b_T4-ST	0.0	-0.10	119.24
P18	D1b_T4-ST	0.0	-0.10	120.03
P19	D1b_T4-ST	0.0	-0.10	120.81
P20	D1b_T4-ST	0.0	-0.10	121.60
P21	D1b_T4-ST	0.0	-0.10	122.39
P22	D1b_T4-ST	0.0	0.00	112.09
P23	D1b_T4-ST	0.0	0.00	112.89
P24	D1b_T4-ST	0.0	0.00	113.69
P25	D1b_T4-ST	0.0	0.00	114.46
P26	D1b_T4-ST	0.0	0.00	115.24
P27	D1b_T4-ST	0.0	0.00	115.96
P28	D1b_T4-ST	0.0	0.00	116.72
P29	D1b_T4-ST	0.0	0.10	116.63
P30	D1b_T4-ST	0.0	0.10	117.44
P31	D1b_T4-ST	0.0	0.10	118.25
P32	D1b_T4-ST	0.0	0.10	119.06
P33	D1b_T4-ST	0.0	0.10	119.87
P34	D1b_T4-ST	0.0	0.10	120.68
P35	D1b_T4-ST	0.0	0.10	121.50
P36	D1b_T4-ST	0.0	0.18	118.90
P37	D1b_T4-ST	0.0	0.18	119.69
P38	D1b_T4-ST	0.0	0.18	120.50
P39	D1b_T4-ST	0.0	0.18	121.27
P40	D1b_T4-ST	0.0	0.18	122.04
P41	D1b_T4-ST	0.0	0.18	122.76
P42	D1b_T4-ST	0.0	0.18	123.52
P43	D1b_T4-ST	0.0	0.20	126.56
P44	D1b_T4-ST	0.0	0.20	127.34
P45	D1b_T4-ST	0.0	0.20	128.13
P46	D1b_T4-ST	0.0	0.20	128.91
P47	D1b_T4-ST	0.0	0.20	129.70
P48	D1b_T4-ST	0.0	0.20	130.48
P49	D1b_T4-ST	0.0	0.20	131.27

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - SETTLEMENT CASES **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a-ST	0.0	-0.26	43.81
P2	D2a-ST	0.0	-0.26	43.81
P3	D2a-ST	0.0	-0.26	43.81
P4	D2a-ST	0.0	-0.26	43.81
P5	D2a-ST	0.0	-0.26	43.81
P6	D2a-ST	0.0	-0.26	43.81
P7	D2a-ST	0.0	-0.26	43.81
P8	D2a-ST	0.0	-0.23	37.00
P9	D2a-ST	0.0	-0.23	37.01
P10	D2a-ST	0.0	-0.23	37.02
P11	D2a-ST	0.0	-0.23	37.02
P12	D2a-ST	0.0	-0.23	37.02
P13	D2a-ST	0.0	-0.23	37.01
P14	D2a-ST	0.0	-0.23	37.00
P15	D2a-ST	0.0	-0.10	36.42
P16	D2a-ST	0.0	-0.10	36.42
P17	D2a-ST	0.0	-0.10	36.42
P18	D2a-ST	0.0	-0.10	36.42
P19	D2a-ST	0.0	-0.10	36.42
P20	D2a-ST	0.0	-0.10	36.42
P21	D2a-ST	0.0	-0.10	36.42
P22	D2a-ST	0.0	0.02	36.27
P23	D2a-ST	0.0	0.02	36.28
P24	D2a-ST	0.0	0.02	36.28
P25	D2a-ST	0.0	0.02	36.28
P26	D2a-ST	0.0	0.02	36.29
P27	D2a-ST	0.0	0.02	36.27
P28	D2a-ST	0.0	0.02	36.27
P29	D2a-ST	0.0	0.12	44.54
P30	D2a-ST	0.0	0.12	44.54
P31	D2a-ST	0.0	0.12	44.54
P32	D2a-ST	0.0	0.12	44.54
P33	D2a-ST	0.0	0.12	44.54
P34	D2a-ST	0.0	0.12	44.54
P35	D2a-ST	0.0	0.12	44.54
P36	D2a-ST	0.0	0.21	53.22
P37	D2a-ST	0.0	0.21	53.23
P38	D2a-ST	0.0	0.21	53.25
P39	D2a-ST	0.0	0.21	53.25
P40	D2a-ST	0.0	0.21	53.25
P41	D2a-ST	0.0	0.21	53.23
P42	D2a-ST	0.0	0.21	53.22
P43	D2a-ST	0.0	0.23	64.85
P44	D2a-ST	0.0	0.23	64.85
P45	D2a-ST	0.0	0.23	64.85
P46	D2a-ST	0.0	0.23	64.85
P47	D2a-ST	0.0	0.23	64.85
P48	D2a-ST	0.0	0.23	64.85
P49	D2a-ST	0.0	0.23	64.85

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_6-ST	0.0	-0.24	29.26
P2	D2a_6-ST	0.0	-0.24	29.26
P3	D2a_6-ST	0.0	-0.24	29.26
P4	D2a_6-ST	0.0	-0.24	29.26
P5	D2a_6-ST	0.0	-0.24	29.26
P6	D2a_6-ST	0.0	-0.24	29.26
P7	D2a_6-ST	0.0	-0.24	29.26
P8	D2a_6-ST	0.0	-0.22	22.64
P9	D2a_6-ST	0.0	-0.22	22.65
P10	D2a_6-ST	0.0	-0.22	22.65
P11	D2a_6-ST	0.0	-0.22	22.65
P12	D2a_6-ST	0.0	-0.22	22.65
P13	D2a_6-ST	0.0	-0.22	22.65
P14	D2a_6-ST	0.0	-0.22	22.65
P15	D2a_6-ST	0.0	-0.09	21.17
P16	D2a_6-ST	0.0	-0.09	21.17
P17	D2a_6-ST	0.0	-0.09	21.17
P18	D2a_6-ST	0.0	-0.09	21.17
P19	D2a_6-ST	0.0	-0.09	21.17
P20	D2a_6-ST	0.0	-0.09	21.17
P21	D2a_6-ST	0.0	-0.09	21.17
P22	D2a_6-ST	0.0	0.02	21.46
P23	D2a_6-ST	0.0	0.02	21.46
P24	D2a_6-ST	0.0	0.02	21.46
P25	D2a_6-ST	0.0	0.02	21.46
P26	D2a_6-ST	0.0	0.02	21.46
P27	D2a_6-ST	0.0	0.02	21.46
P28	D2a_6-ST	0.0	0.02	21.46
P29	D2a_6-ST	0.0	0.12	29.28
P30	D2a_6-ST	0.0	0.12	29.28
P31	D2a_6-ST	0.0	0.12	29.28
P32	D2a_6-ST	0.0	0.12	29.28
P33	D2a_6-ST	0.0	0.12	29.28
P34	D2a_6-ST	0.0	0.12	29.28
P35	D2a_6-ST	0.0	0.12	29.28
P36	D2a_6-ST	0.0	0.20	38.86
P37	D2a_6-ST	0.0	0.21	38.87
P38	D2a_6-ST	0.0	0.21	38.88
P39	D2a_6-ST	0.0	0.21	38.88
P40	D2a_6-ST	0.0	0.21	38.88
P41	D2a_6-ST	0.0	0.21	38.87
P42	D2a_6-ST	0.0	0.20	38.86
P43	D2a_6-ST	0.0	0.21	50.29
P44	D2a_6-ST	0.0	0.21	50.29
P45	D2a_6-ST	0.0	0.21	50.29
P46	D2a_6-ST	0.0	0.21	50.29
P47	D2a_6-ST	0.0	0.21	50.29
P48	D2a_6-ST	0.0	0.21	50.29
P49	D2a_6-ST	0.0	0.21	50.29

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T1-ST	0.0	-0.26	43.93
P2	D2a_T1-ST	0.0	-0.26	45.01
P3	D2a_T1-ST	0.0	-0.26	46.09
P4	D2a_T1-ST	0.0	-0.26	47.17
P5	D2a_T1-ST	0.0	-0.26	48.25
P6	D2a_T1-ST	0.0	-0.26	49.32
P7	D2a_T1-ST	0.0	-0.26	50.40
P8	D2a_T1-ST	0.0	-0.22	36.97
P9	D2a_T1-ST	0.0	-0.22	38.04
P10	D2a_T1-ST	0.0	-0.22	39.10
P11	D2a_T1-ST	0.0	-0.22	40.16
P12	D2a_T1-ST	0.0	-0.22	41.22
P13	D2a_T1-ST	0.0	-0.22	42.26
P14	D2a_T1-ST	0.0	-0.22	43.31
P15	D2a_T1-ST	0.0	-0.10	36.34
P16	D2a_T1-ST	0.0	-0.10	37.46
P17	D2a_T1-ST	0.0	-0.10	38.57
P18	D2a_T1-ST	0.0	-0.10	39.68
P19	D2a_T1-ST	0.0	-0.10	40.79
P20	D2a_T1-ST	0.0	-0.10	41.90
P21	D2a_T1-ST	0.0	-0.10	43.01
P22	D2a_T1-ST	0.0	0.02	36.02
P23	D2a_T1-ST	0.0	0.02	37.11
P24	D2a_T1-ST	0.0	0.02	38.20
P25	D2a_T1-ST	0.0	0.02	39.28
P26	D2a_T1-ST	0.0	0.02	40.37
P27	D2a_T1-ST	0.0	0.02	41.44
P28	D2a_T1-ST	0.0	0.02	42.52
P29	D2a_T1-ST	0.0	0.12	43.99
P30	D2a_T1-ST	0.0	0.12	45.12
P31	D2a_T1-ST	0.0	0.12	46.26
P32	D2a_T1-ST	0.0	0.12	47.39
P33	D2a_T1-ST	0.0	0.12	48.52
P34	D2a_T1-ST	0.0	0.12	49.66
P35	D2a_T1-ST	0.0	0.12	50.79
P36	D2a_T1-ST	0.0	0.21	52.37
P37	D2a_T1-ST	0.0	0.21	53.47
P38	D2a_T1-ST	0.0	0.21	54.58
P39	D2a_T1-ST	0.0	0.21	55.67
P40	D2a_T1-ST	0.0	0.21	56.77
P41	D2a_T1-ST	0.0	0.21	57.84
P42	D2a_T1-ST	0.0	0.21	58.93
P43	D2a_T1-ST	0.0	0.23	63.73
P44	D2a_T1-ST	0.0	0.23	64.86
P45	D2a_T1-ST	0.0	0.23	65.99
P46	D2a_T1-ST	0.0	0.23	67.12
P47	D2a_T1-ST	0.0	0.23	68.25
P48	D2a_T1-ST	0.0	0.23	69.38
P49	D2a_T1-ST	0.0	0.23	70.51

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T2-ST	0.0	-0.26	45.07
P2	D2a_T2-ST	0.0	-0.26	45.93
P3	D2a_T2-ST	0.0	-0.26	46.79
P4	D2a_T2-ST	0.0	-0.26	47.66
P5	D2a_T2-ST	0.0	-0.26	48.52
P6	D2a_T2-ST	0.0	-0.26	49.39
P7	D2a_T2-ST	0.0	-0.26	50.25
P8	D2a_T2-ST	0.0	-0.22	37.80
P9	D2a_T2-ST	0.0	-0.22	38.65
P10	D2a_T2-ST	0.0	-0.22	39.50
P11	D2a_T2-ST	0.0	-0.22	40.34
P12	D2a_T2-ST	0.0	-0.22	41.19
P13	D2a_T2-ST	0.0	-0.22	42.02
P14	D2a_T2-ST	0.0	-0.22	42.86
P15	D2a_T2-ST	0.0	-0.10	36.88
P16	D2a_T2-ST	0.0	-0.10	37.76
P17	D2a_T2-ST	0.0	-0.10	38.65
P18	D2a_T2-ST	0.0	-0.10	39.53
P19	D2a_T2-ST	0.0	-0.10	40.42
P20	D2a_T2-ST	0.0	-0.10	41.30
P21	D2a_T2-ST	0.0	-0.10	42.19
P22	D2a_T2-ST	0.0	0.02	36.31
P23	D2a_T2-ST	0.0	0.02	37.16
P24	D2a_T2-ST	0.0	0.02	38.00
P25	D2a_T2-ST	0.0	0.02	38.84
P26	D2a_T2-ST	0.0	0.02	39.68
P27	D2a_T2-ST	0.0	0.02	40.51
P28	D2a_T2-ST	0.0	0.02	41.35
P29	D2a_T2-ST	0.0	0.12	44.07
P30	D2a_T2-ST	0.0	0.12	44.93
P31	D2a_T2-ST	0.0	0.12	45.79
P32	D2a_T2-ST	0.0	0.12	46.65
P33	D2a_T2-ST	0.0	0.12	47.50
P34	D2a_T2-ST	0.0	0.12	48.36
P35	D2a_T2-ST	0.0	0.12	49.22
P36	D2a_T2-ST	0.0	0.21	52.27
P37	D2a_T2-ST	0.0	0.21	53.08
P38	D2a_T2-ST	0.0	0.21	53.90
P39	D2a_T2-ST	0.0	0.21	54.71
P40	D2a_T2-ST	0.0	0.21	55.51
P41	D2a_T2-ST	0.0	0.21	56.29
P42	D2a_T2-ST	0.0	0.21	57.09
P43	D2a_T2-ST	0.0	0.23	63.42
P44	D2a_T2-ST	0.0	0.23	64.23
P45	D2a_T2-ST	0.0	0.23	65.04
P46	D2a_T2-ST	0.0	0.23	65.84
P47	D2a_T2-ST	0.0	0.23	66.65
P48	D2a_T2-ST	0.0	0.23	67.46
P49	D2a_T2-ST	0.0	0.23	68.27

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T3-ST	0.0	-0.26	45.12
P2	D2a_T3-ST	0.0	-0.26	46.21
P3	D2a_T3-ST	0.0	-0.26	47.30
P4	D2a_T3-ST	0.0	-0.26	48.39
P5	D2a_T3-ST	0.0	-0.26	49.47
P6	D2a_T3-ST	0.0	-0.26	50.56
P7	D2a_T3-ST	0.0	-0.26	51.65
P8	D2a_T3-ST	0.0	-0.22	38.55
P9	D2a_T3-ST	0.0	-0.22	39.64
P10	D2a_T3-ST	0.0	-0.22	40.73
P11	D2a_T3-ST	0.0	-0.22	41.81
P12	D2a_T3-ST	0.0	-0.22	42.88
P13	D2a_T3-ST	0.0	-0.22	43.95
P14	D2a_T3-ST	0.0	-0.22	45.02
P15	D2a_T3-ST	0.0	-0.10	38.54
P16	D2a_T3-ST	0.0	-0.10	39.68
P17	D2a_T3-ST	0.0	-0.10	40.83
P18	D2a_T3-ST	0.0	-0.10	41.97
P19	D2a_T3-ST	0.0	-0.10	43.12
P20	D2a_T3-ST	0.0	-0.10	44.26
P21	D2a_T3-ST	0.0	-0.10	45.41
P22	D2a_T3-ST	0.0	0.02	38.56
P23	D2a_T3-ST	0.0	0.02	39.72
P24	D2a_T3-ST	0.0	0.02	40.87
P25	D2a_T3-ST	0.0	0.02	42.01
P26	D2a_T3-ST	0.0	0.02	43.16
P27	D2a_T3-ST	0.0	0.02	44.29
P28	D2a_T3-ST	0.0	0.02	45.43
P29	D2a_T3-ST	0.0	0.12	47.02
P30	D2a_T3-ST	0.0	0.12	48.24
P31	D2a_T3-ST	0.0	0.12	49.47
P32	D2a_T3-ST	0.0	0.12	50.69
P33	D2a_T3-ST	0.0	0.12	51.92
P34	D2a_T3-ST	0.0	0.12	53.14
P35	D2a_T3-ST	0.0	0.12	54.37
P36	D2a_T3-ST	0.0	0.21	55.60
P37	D2a_T3-ST	0.0	0.21	56.82
P38	D2a_T3-ST	0.0	0.21	58.05
P39	D2a_T3-ST	0.0	0.21	59.25
P40	D2a_T3-ST	0.0	0.21	60.46
P41	D2a_T3-ST	0.0	0.21	61.65
P42	D2a_T3-ST	0.0	0.21	62.85
P43	D2a_T3-ST	0.0	0.23	67.48
P44	D2a_T3-ST	0.0	0.23	68.76
P45	D2a_T3-ST	0.0	0.23	70.04
P46	D2a_T3-ST	0.0	0.23	71.32
P47	D2a_T3-ST	0.0	0.23	72.60
P48	D2a_T3-ST	0.0	0.23	73.88
P49	D2a_T3-ST	0.0	0.23	75.16

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2a_T4-ST	0.0	-0.26	48.19
P2	D2a_T4-ST	0.0	-0.26	48.92
P3	D2a_T4-ST	0.0	-0.26	49.65
P4	D2a_T4-ST	0.0	-0.26	50.38
P5	D2a_T4-ST	0.0	-0.26	51.11
P6	D2a_T4-ST	0.0	-0.26	51.84
P7	D2a_T4-ST	0.0	-0.26	52.57
P8	D2a_T4-ST	0.0	-0.22	40.84
P9	D2a_T4-ST	0.0	-0.22	41.58
P10	D2a_T4-ST	0.0	-0.22	42.32
P11	D2a_T4-ST	0.0	-0.22	43.05
P12	D2a_T4-ST	0.0	-0.22	43.79
P13	D2a_T4-ST	0.0	-0.22	44.50
P14	D2a_T4-ST	0.0	-0.22	45.23
P15	D2a_T4-ST	0.0	-0.10	40.16
P16	D2a_T4-ST	0.0	-0.10	40.95
P17	D2a_T4-ST	0.0	-0.10	41.73
P18	D2a_T4-ST	0.0	-0.10	42.52
P19	D2a_T4-ST	0.0	-0.10	43.30
P20	D2a_T4-ST	0.0	-0.10	44.09
P21	D2a_T4-ST	0.0	-0.10	44.88
P22	D2a_T4-ST	0.0	0.02	39.47
P23	D2a_T4-ST	0.0	0.02	40.25
P24	D2a_T4-ST	0.0	0.02	41.03
P25	D2a_T4-ST	0.0	0.02	41.80
P26	D2a_T4-ST	0.0	0.02	42.57
P27	D2a_T4-ST	0.0	0.02	43.33
P28	D2a_T4-ST	0.0	0.02	44.10
P29	D2a_T4-ST	0.0	0.12	47.23
P30	D2a_T4-ST	0.0	0.12	48.04
P31	D2a_T4-ST	0.0	0.12	48.85
P32	D2a_T4-ST	0.0	0.12	49.66
P33	D2a_T4-ST	0.0	0.12	50.47
P34	D2a_T4-ST	0.0	0.12	51.29
P35	D2a_T4-ST	0.0	0.12	52.10
P36	D2a_T4-ST	0.0	0.21	55.06
P37	D2a_T4-ST	0.0	0.21	55.84
P38	D2a_T4-ST	0.0	0.21	56.63
P39	D2a_T4-ST	0.0	0.21	57.39
P40	D2a_T4-ST	0.0	0.21	58.17
P41	D2a_T4-ST	0.0	0.21	58.91
P42	D2a_T4-ST	0.0	0.21	59.68
P43	D2a_T4-ST	0.0	0.23	66.14
P44	D2a_T4-ST	0.0	0.23	66.93
P45	D2a_T4-ST	0.0	0.23	67.71
P46	D2a_T4-ST	0.0	0.23	68.50
P47	D2a_T4-ST	0.0	0.23	69.28
P48	D2a_T4-ST	0.0	0.23	70.07
P49	D2a_T4-ST	0.0	0.23	70.85

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b-ST	0.0	-0.24	107.21
P2	D2b-ST	0.0	-0.24	107.21
P3	D2b-ST	0.0	-0.24	107.21
P4	D2b-ST	0.0	-0.24	107.21
P5	D2b-ST	0.0	-0.24	107.21
P6	D2b-ST	0.0	-0.24	107.21
P7	D2b-ST	0.0	-0.24	107.21
P8	D2b-ST	0.0	-0.19	101.20
P9	D2b-ST	0.0	-0.19	101.22
P10	D2b-ST	0.0	-0.19	101.26
P11	D2b-ST	0.0	-0.19	101.25
P12	D2b-ST	0.0	-0.19	101.26
P13	D2b-ST	0.0	-0.19	101.22
P14	D2b-ST	0.0	-0.19	101.20
P15	D2b-ST	0.0	-0.08	103.06
P16	D2b-ST	0.0	-0.08	103.06
P17	D2b-ST	0.0	-0.08	103.06
P18	D2b-ST	0.0	-0.08	103.06
P19	D2b-ST	0.0	-0.08	103.06
P20	D2b-ST	0.0	-0.08	103.06
P21	D2b-ST	0.0	-0.08	103.06
P22	D2b-ST	0.0	0.02	102.42
P23	D2b-ST	0.0	0.02	102.44
P24	D2b-ST	0.0	0.02	102.47
P25	D2b-ST	0.0	0.02	102.47
P26	D2b-ST	0.0	0.02	102.47
P27	D2b-ST	0.0	0.02	102.43
P28	D2b-ST	0.0	0.02	102.42
P29	D2b-ST	0.0	0.11	111.17
P30	D2b-ST	0.0	0.11	111.17
P31	D2b-ST	0.0	0.11	111.17
P32	D2b-ST	0.0	0.11	111.17
P33	D2b-ST	0.0	0.11	111.17
P34	D2b-ST	0.0	0.11	111.17
P35	D2b-ST	0.0	0.11	111.17
P36	D2b-ST	0.0	0.18	117.42
P37	D2b-ST	0.0	0.18	117.45
P38	D2b-ST	0.0	0.18	117.48
P39	D2b-ST	0.0	0.18	117.48
P40	D2b-ST	0.0	0.18	117.49
P41	D2b-ST	0.0	0.18	117.44
P42	D2b-ST	0.0	0.18	117.42
P43	D2b-ST	0.0	0.21	128.24
P44	D2b-ST	0.0	0.21	128.24
P45	D2b-ST	0.0	0.21	128.24
P46	D2b-ST	0.0	0.21	128.24
P47	D2b-ST	0.0	0.21	128.24
P48	D2b-ST	0.0	0.21	128.24
P49	D2b-ST	0.0	0.21	128.24

URS

Job: Maurepas Freshwater Diversion **Project #:** 10001876
Desc.: C-5 & C-6 Model Pile Reactions **Computed By:** LBR **Date:** Aug-13 **Page:** of
After Spring Calibration - SETTLEMENT CASES **Checked By:** BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T1-ST	0.0	-0.24	107.33
P2	D2b_T1-ST	0.0	-0.24	108.40
P3	D2b_T1-ST	0.0	-0.24	109.48
P4	D2b_T1-ST	0.0	-0.24	110.56
P5	D2b_T1-ST	0.0	-0.24	111.64
P6	D2b_T1-ST	0.0	-0.24	112.72
P7	D2b_T1-ST	0.0	-0.24	113.80
P8	D2b_T1-ST	0.0	-0.19	101.17
P9	D2b_T1-ST	0.0	-0.19	102.25
P10	D2b_T1-ST	0.0	-0.19	103.34
P11	D2b_T1-ST	0.0	-0.19	104.39
P12	D2b_T1-ST	0.0	-0.19	105.45
P13	D2b_T1-ST	0.0	-0.19	106.47
P14	D2b_T1-ST	0.0	-0.19	107.51
P15	D2b_T1-ST	0.0	-0.08	102.98
P16	D2b_T1-ST	0.0	-0.08	104.09
P17	D2b_T1-ST	0.0	-0.08	105.20
P18	D2b_T1-ST	0.0	-0.08	106.31
P19	D2b_T1-ST	0.0	-0.08	107.42
P20	D2b_T1-ST	0.0	-0.08	108.53
P21	D2b_T1-ST	0.0	-0.08	109.65
P22	D2b_T1-ST	0.0	0.02	102.16
P23	D2b_T1-ST	0.0	0.02	103.27
P24	D2b_T1-ST	0.0	0.02	104.38
P25	D2b_T1-ST	0.0	0.02	105.46
P26	D2b_T1-ST	0.0	0.02	106.55
P27	D2b_T1-ST	0.0	0.02	107.59
P28	D2b_T1-ST	0.0	0.02	108.67
P29	D2b_T1-ST	0.0	0.11	110.62
P30	D2b_T1-ST	0.0	0.11	111.76
P31	D2b_T1-ST	0.0	0.11	112.89
P32	D2b_T1-ST	0.0	0.11	114.02
P33	D2b_T1-ST	0.0	0.11	115.16
P34	D2b_T1-ST	0.0	0.11	116.29
P35	D2b_T1-ST	0.0	0.11	117.43
P36	D2b_T1-ST	0.0	0.18	116.57
P37	D2b_T1-ST	0.0	0.18	117.69
P38	D2b_T1-ST	0.0	0.18	118.82
P39	D2b_T1-ST	0.0	0.18	119.91
P40	D2b_T1-ST	0.0	0.18	121.00
P41	D2b_T1-ST	0.0	0.18	122.05
P42	D2b_T1-ST	0.0	0.18	123.13
P43	D2b_T1-ST	0.0	0.21	127.12
P44	D2b_T1-ST	0.0	0.21	128.25
P45	D2b_T1-ST	0.0	0.21	129.39
P46	D2b_T1-ST	0.0	0.21	130.52
P47	D2b_T1-ST	0.0	0.21	131.65
P48	D2b_T1-ST	0.0	0.21	132.78
P49	D2b_T1-ST	0.0	0.21	133.91

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T2-ST	0.0	-0.24	108.46
P2	D2b_T2-ST	0.0	-0.24	109.32
P3	D2b_T2-ST	0.0	-0.24	110.19
P4	D2b_T2-ST	0.0	-0.24	111.05
P5	D2b_T2-ST	0.0	-0.24	111.92
P6	D2b_T2-ST	0.0	-0.24	112.78
P7	D2b_T2-ST	0.0	-0.24	113.65
P8	D2b_T2-ST	0.0	-0.19	101.99
P9	D2b_T2-ST	0.0	-0.19	102.86
P10	D2b_T2-ST	0.0	-0.19	103.74
P11	D2b_T2-ST	0.0	-0.19	104.58
P12	D2b_T2-ST	0.0	-0.19	105.42
P13	D2b_T2-ST	0.0	-0.19	106.23
P14	D2b_T2-ST	0.0	-0.19	107.06
P15	D2b_T2-ST	0.0	-0.08	103.51
P16	D2b_T2-ST	0.0	-0.08	104.40
P17	D2b_T2-ST	0.0	-0.08	105.28
P18	D2b_T2-ST	0.0	-0.08	106.17
P19	D2b_T2-ST	0.0	-0.08	107.05
P20	D2b_T2-ST	0.0	-0.08	107.94
P21	D2b_T2-ST	0.0	-0.08	108.82
P22	D2b_T2-ST	0.0	0.02	102.45
P23	D2b_T2-ST	0.0	0.02	103.32
P24	D2b_T2-ST	0.0	0.02	104.19
P25	D2b_T2-ST	0.0	0.02	105.03
P26	D2b_T2-ST	0.0	0.02	105.87
P27	D2b_T2-ST	0.0	0.02	106.67
P28	D2b_T2-ST	0.0	0.02	107.50
P29	D2b_T2-ST	0.0	0.11	110.71
P30	D2b_T2-ST	0.0	0.11	111.57
P31	D2b_T2-ST	0.0	0.11	112.42
P32	D2b_T2-ST	0.0	0.11	113.28
P33	D2b_T2-ST	0.0	0.11	114.14
P34	D2b_T2-ST	0.0	0.11	115.00
P35	D2b_T2-ST	0.0	0.11	115.85
P36	D2b_T2-ST	0.0	0.18	116.47
P37	D2b_T2-ST	0.0	0.18	117.29
P38	D2b_T2-ST	0.0	0.18	118.14
P39	D2b_T2-ST	0.0	0.18	118.94
P40	D2b_T2-ST	0.0	0.18	119.75
P41	D2b_T2-ST	0.0	0.18	120.50
P42	D2b_T2-ST	0.0	0.18	121.29
P43	D2b_T2-ST	0.0	0.21	126.81
P44	D2b_T2-ST	0.0	0.21	127.62
P45	D2b_T2-ST	0.0	0.21	128.43
P46	D2b_T2-ST	0.0	0.21	129.24
P47	D2b_T2-ST	0.0	0.21	130.05
P48	D2b_T2-ST	0.0	0.21	130.86
P49	D2b_T2-ST	0.0	0.21	131.67

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T3-ST	0.0	-0.24	108.51
P2	D2b_T3-ST	0.0	-0.24	109.60
P3	D2b_T3-ST	0.0	-0.24	110.69
P4	D2b_T3-ST	0.0	-0.24	111.78
P5	D2b_T3-ST	0.0	-0.24	112.87
P6	D2b_T3-ST	0.0	-0.24	113.96
P7	D2b_T3-ST	0.0	-0.24	115.05
P8	D2b_T3-ST	0.0	-0.19	102.75
P9	D2b_T3-ST	0.0	-0.19	103.85
P10	D2b_T3-ST	0.0	-0.19	104.96
P11	D2b_T3-ST	0.0	-0.19	106.04
P12	D2b_T3-ST	0.0	-0.19	107.12
P13	D2b_T3-ST	0.0	-0.19	108.16
P14	D2b_T3-ST	0.0	-0.19	109.22
P15	D2b_T3-ST	0.0	-0.08	105.17
P16	D2b_T3-ST	0.0	-0.08	106.32
P17	D2b_T3-ST	0.0	-0.08	107.46
P18	D2b_T3-ST	0.0	-0.08	108.61
P19	D2b_T3-ST	0.0	-0.08	109.75
P20	D2b_T3-ST	0.0	-0.08	110.90
P21	D2b_T3-ST	0.0	-0.08	112.04
P22	D2b_T3-ST	0.0	0.02	104.71
P23	D2b_T3-ST	0.0	0.02	105.88
P24	D2b_T3-ST	0.0	0.02	107.05
P25	D2b_T3-ST	0.0	0.02	108.20
P26	D2b_T3-ST	0.0	0.02	109.34
P27	D2b_T3-ST	0.0	0.02	110.44
P28	D2b_T3-ST	0.0	0.02	111.58
P29	D2b_T3-ST	0.0	0.10	113.65
P30	D2b_T3-ST	0.0	0.10	114.88
P31	D2b_T3-ST	0.0	0.10	116.10
P32	D2b_T3-ST	0.0	0.10	117.33
P33	D2b_T3-ST	0.0	0.10	118.55
P34	D2b_T3-ST	0.0	0.11	119.78
P35	D2b_T3-ST	0.0	0.11	121.00
P36	D2b_T3-ST	0.0	0.18	119.80
P37	D2b_T3-ST	0.0	0.18	121.03
P38	D2b_T3-ST	0.0	0.18	122.28
P39	D2b_T3-ST	0.0	0.18	123.49
P40	D2b_T3-ST	0.0	0.18	124.70
P41	D2b_T3-ST	0.0	0.18	125.86
P42	D2b_T3-ST	0.0	0.18	127.05
P43	D2b_T3-ST	0.0	0.21	130.88
P44	D2b_T3-ST	0.0	0.21	132.16
P45	D2b_T3-ST	0.0	0.21	133.44
P46	D2b_T3-ST	0.0	0.21	134.72
P47	D2b_T3-ST	0.0	0.21	136.00
P48	D2b_T3-ST	0.0	0.21	137.27
P49	D2b_T3-ST	0.0	0.21	138.55

TABLE: Joint Reactions

Joint	Case	F1	F2	F3
Text	Text	Kip	Kip	Kip
P1	D2b_T4-ST	0.0	-0.24	111.58
P2	D2b_T4-ST	0.0	-0.24	112.31
P3	D2b_T4-ST	0.0	-0.24	113.04
P4	D2b_T4-ST	0.0	-0.24	113.77
P5	D2b_T4-ST	0.0	-0.24	114.50
P6	D2b_T4-ST	0.0	-0.24	115.23
P7	D2b_T4-ST	0.0	-0.24	115.97
P8	D2b_T4-ST	0.0	-0.19	105.04
P9	D2b_T4-ST	0.0	-0.19	105.79
P10	D2b_T4-ST	0.0	-0.19	106.56
P11	D2b_T4-ST	0.0	-0.19	107.29
P12	D2b_T4-ST	0.0	-0.19	108.02
P13	D2b_T4-ST	0.0	-0.19	108.71
P14	D2b_T4-ST	0.0	-0.19	109.43
P15	D2b_T4-ST	0.0	-0.08	106.79
P16	D2b_T4-ST	0.0	-0.08	107.58
P17	D2b_T4-ST	0.0	-0.08	108.37
P18	D2b_T4-ST	0.0	-0.08	109.15
P19	D2b_T4-ST	0.0	-0.08	109.94
P20	D2b_T4-ST	0.0	-0.08	110.72
P21	D2b_T4-ST	0.0	-0.08	111.51
P22	D2b_T4-ST	0.0	0.02	105.62
P23	D2b_T4-ST	0.0	0.02	106.41
P24	D2b_T4-ST	0.0	0.02	107.21
P25	D2b_T4-ST	0.0	0.02	107.98
P26	D2b_T4-ST	0.0	0.02	108.76
P27	D2b_T4-ST	0.0	0.02	109.49
P28	D2b_T4-ST	0.0	0.02	110.25
P29	D2b_T4-ST	0.0	0.10	113.86
P30	D2b_T4-ST	0.0	0.10	114.67
P31	D2b_T4-ST	0.0	0.10	115.49
P32	D2b_T4-ST	0.0	0.11	116.30
P33	D2b_T4-ST	0.0	0.11	117.11
P34	D2b_T4-ST	0.0	0.11	117.92
P35	D2b_T4-ST	0.0	0.11	118.73
P36	D2b_T4-ST	0.0	0.18	119.26
P37	D2b_T4-ST	0.0	0.18	120.05
P38	D2b_T4-ST	0.0	0.18	120.86
P39	D2b_T4-ST	0.0	0.18	121.63
P40	D2b_T4-ST	0.0	0.18	122.40
P41	D2b_T4-ST	0.0	0.18	123.12
P42	D2b_T4-ST	0.0	0.18	123.88
P43	D2b_T4-ST	0.0	0.21	129.54
P44	D2b_T4-ST	0.0	0.21	130.32
P45	D2b_T4-ST	0.0	0.21	131.11
P46	D2b_T4-ST	0.0	0.21	131.89
P47	D2b_T4-ST	0.0	0.21	132.68
P48	D2b_T4-ST	0.0	0.21	133.46
P49	D2b_T4-ST	0.0	0.21	134.25

Vertical Reactions:
MAXIMUM REACTION = 141.19 kips
MINIMUM REACTION = 14.98 kips

Horizontal (F1) Reactions:
MAXIMUM REACTION = 0.01 kips
MINIMUM REACTION = -0.01 kips

Horizontal (F2) Reactions:
MAXIMUM REACTION = 9.04 kips
MINIMUM REACTION = -0.27 kips

* Pile lengths are not being increased based on Settlement forces. A structural check of the piles will be performed using the pile lengths req. for traditional load cases. If the structural check is ok for settlement, then piles will be deemed adequate @ EL-75.0. Also, a punching shear check of the slab will be performed.

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration - Settlement Cases

Project #: 10001876
Computed By: LBR
Checked By: BCB

Date: Aug-13
Date: Aug-13

Page: of
Sheet: of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	1a-ST	0.00	0.0029	-0.0716
P2	1a-ST	0.00	0.0029	-0.0716
P3	1a-ST	0.00	0.0029	-0.0716
P4	1a-ST	0.00	0.0029	-0.0716
P5	1a-ST	0.00	0.0029	-0.0716
P6	1a-ST	0.00	0.0029	-0.0716
P7	1a-ST	0.00	0.0029	-0.0716
P8	1a-ST	0.00	0.0023	-0.0664
P9	1a-ST	0.00	0.0023	-0.0665
P10	1a-ST	0.00	0.0023	-0.0665
P11	1a-ST	0.00	0.0023	-0.0665
P12	1a-ST	0.00	0.0023	-0.0665
P13	1a-ST	0.00	0.0023	-0.0664
P14	1a-ST	0.00	0.0023	-0.0664
P15	1a-ST	0.00	0.0011	-0.0661
P16	1a-ST	0.00	0.0011	-0.0661
P17	1a-ST	0.00	0.0011	-0.0661
P18	1a-ST	0.00	0.0011	-0.0661
P19	1a-ST	0.00	0.0011	-0.0661
P20	1a-ST	0.00	0.0011	-0.0661
P21	1a-ST	0.00	0.0011	-0.0661
P22	1a-ST	0.00	0.0000	-0.0633
P23	1a-ST	0.00	0.0000	-0.0633
P24	1a-ST	0.00	0.0000	-0.0633
P25	1a-ST	0.00	0.0000	-0.0633
P26	1a-ST	0.00	0.0000	-0.0633
P27	1a-ST	0.00	0.0000	-0.0633
P28	1a-ST	0.00	0.0000	-0.0633
P29	1a-ST	0.00	-0.0011	-0.0661
P30	1a-ST	0.00	-0.0011	-0.0661
P31	1a-ST	0.00	-0.0011	-0.0661
P32	1a-ST	0.00	-0.0011	-0.0661
P33	1a-ST	0.00	-0.0011	-0.0661
P34	1a-ST	0.00	-0.0011	-0.0661
P35	1a-ST	0.00	-0.0011	-0.0661
P36	1a-ST	0.00	-0.0023	-0.0664
P37	1a-ST	0.00	-0.0023	-0.0665
P38	1a-ST	0.00	-0.0023	-0.0665
P39	1a-ST	0.00	-0.0023	-0.0665
P40	1a-ST	0.00	-0.0023	-0.0665
P41	1a-ST	0.00	-0.0023	-0.0664
P42	1a-ST	0.00	-0.0023	-0.0664
P43	1a-ST	0.00	-0.0029	-0.0716
P44	1a-ST	0.00	-0.0029	-0.0716
P45	1a-ST	0.00	-0.0029	-0.0716
P46	1a-ST	0.00	-0.0029	-0.0716
P47	1a-ST	0.00	-0.0029	-0.0716
P48	1a-ST	0.00	-0.0029	-0.0716
P49	1a-ST	0.00	-0.0029	-0.0716

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	1b-ST	0.00	-0.0998	-0.0483
P2	1b-ST	0.00	-0.0998	-0.0483
P3	1b-ST	0.00	-0.0998	-0.0483
P4	1b-ST	0.00	-0.0998	-0.0483
P5	1b-ST	0.00	-0.0998	-0.0483
P6	1b-ST	0.00	-0.0998	-0.0483
P7	1b-ST	0.00	-0.0998	-0.0483
P8	1b-ST	0.00	-0.1003	-0.0433
P9	1b-ST	0.00	-0.1003	-0.0433
P10	1b-ST	0.00	-0.1003	-0.0433
P11	1b-ST	0.00	-0.1003	-0.0433
P12	1b-ST	0.00	-0.1003	-0.0433
P13	1b-ST	0.00	-0.1003	-0.0433
P14	1b-ST	0.00	-0.1003	-0.0433
P15	1b-ST	0.00	-0.1013	-0.0418
P16	1b-ST	0.00	-0.1013	-0.0418
P17	1b-ST	0.00	-0.1013	-0.0418
P18	1b-ST	0.00	-0.1013	-0.0418
P19	1b-ST	0.00	-0.1013	-0.0418
P20	1b-ST	0.00	-0.1013	-0.0418
P21	1b-ST	0.00	-0.1013	-0.0418
P22	1b-ST	0.00	-0.1022	-0.0398
P23	1b-ST	0.00	-0.1022	-0.0398
P24	1b-ST	0.00	-0.1022	-0.0398
P25	1b-ST	0.00	-0.1022	-0.0398
P26	1b-ST	0.00	-0.1022	-0.0398
P27	1b-ST	0.00	-0.1022	-0.0398
P28	1b-ST	0.00	-0.1022	-0.0398
P29	1b-ST	0.00	-0.1030	-0.0415
P30	1b-ST	0.00	-0.1030	-0.0415
P31	1b-ST	0.00	-0.1030	-0.0415
P32	1b-ST	0.00	-0.1030	-0.0415
P33	1b-ST	0.00	-0.1030	-0.0415
P34	1b-ST	0.00	-0.1030	-0.0415
P35	1b-ST	0.00	-0.1030	-0.0415
P36	1b-ST	0.00	-0.1039	-0.0426
P37	1b-ST	0.00	-0.1039	-0.0426
P38	1b-ST	0.00	-0.1039	-0.0426
P39	1b-ST	0.00	-0.1039	-0.0426
P40	1b-ST	0.00	-0.1039	-0.0426
P41	1b-ST	0.00	-0.1039	-0.0426
P42	1b-ST	0.00	-0.1039	-0.0426
P43	1b-ST	0.00	-0.1040	-0.0462
P44	1b-ST	0.00	-0.1040	-0.0462
P45	1b-ST	0.00	-0.1040	-0.0462
P46	1b-ST	0.00	-0.1040	-0.0462
P47	1b-ST	0.00	-0.1040	-0.0462
P48	1b-ST	0.00	-0.1040	-0.0462
P49	1b-ST	0.00	-0.1040	-0.0462

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a-ST	0.00	0.0030	-0.0278
P2	2a-ST	0.00	0.0030	-0.0278
P3	2a-ST	0.00	0.0030	-0.0278
P4	2a-ST	0.00	0.0030	-0.0278
P5	2a-ST	0.00	0.0030	-0.0278
P6	2a-ST	0.00	0.0030	-0.0278
P7	2a-ST	0.00	0.0030	-0.0278
P8	2a-ST	0.00	0.0026	-0.0222
P9	2a-ST	0.00	0.0026	-0.0222
P10	2a-ST	0.00	0.0026	-0.0222
P11	2a-ST	0.00	0.0026	-0.0222
P12	2a-ST	0.00	0.0026	-0.0222
P13	2a-ST	0.00	0.0026	-0.0222
P14	2a-ST	0.00	0.0026	-0.0222
P15	2a-ST	0.00	0.0012	-0.0200
P16	2a-ST	0.00	0.0012	-0.0200
P17	2a-ST	0.00	0.0012	-0.0200
P18	2a-ST	0.00	0.0012	-0.0200
P19	2a-ST	0.00	0.0012	-0.0200
P20	2a-ST	0.00	0.0012	-0.0200
P21	2a-ST	0.00	0.0012	-0.0200
P22	2a-ST	0.00	0.0000	-0.0177
P23	2a-ST	0.00	0.0000	-0.0177
P24	2a-ST	0.00	0.0000	-0.0177
P25	2a-ST	0.00	0.0000	-0.0177
P26	2a-ST	0.00	0.0000	-0.0177
P27	2a-ST	0.00	0.0000	-0.0177
P28	2a-ST	0.00	0.0000	-0.0177
P29	2a-ST	0.00	-0.0012	-0.0200
P30	2a-ST	0.00	-0.0012	-0.0200
P31	2a-ST	0.00	-0.0012	-0.0200
P32	2a-ST	0.00	-0.0012	-0.0200
P33	2a-ST	0.00	-0.0012	-0.0200
P34	2a-ST	0.00	-0.0012	-0.0200
P35	2a-ST	0.00	-0.0012	-0.0200
P36	2a-ST	0.00	-0.0026	-0.0222
P37	2a-ST	0.00	-0.0026	-0.0222
P38	2a-ST	0.00	-0.0026	-0.0222
P39	2a-ST	0.00	-0.0026	-0.0222
P40	2a-ST	0.00	-0.0026	-0.0222
P41	2a-ST	0.00	-0.0026	-0.0222
P42	2a-ST	0.00	-0.0026	-0.0222
P43	2a-ST	0.00	-0.0030	-0.0278
P44	2a-ST	0.00	-0.0030	-0.0278
P45	2a-ST	0.00	-0.0030	-0.0278
P46	2a-ST	0.00	-0.0030	-0.0278
P47	2a-ST	0.00	-0.0030	-0.0278
P48	2a-ST	0.00	-0.0030	-0.0278
P49	2a-ST	0.00	-0.0030	-0.0278

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_6-ST	0.00	0.0028	-0.0192
P2	2a_6-ST	0.00	0.0028	-0.0192
P3	2a_6-ST	0.00	0.0028	-0.0192
P4	2a_6-ST	0.00	0.0028	-0.0192
P5	2a_6-ST	0.00	0.0028	-0.0192
P6	2a_6-ST	0.00	0.0028	-0.0192
P7	2a_6-ST	0.00	0.0028	-0.0192
P8	2a_6-ST	0.00	0.0025	-0.0137
P9	2a_6-ST	0.00	0.0025	-0.0137
P10	2a_6-ST	0.00	0.0025	-0.0137
P11	2a_6-ST	0.00	0.0025	-0.0137
P12	2a_6-ST	0.00	0.0025	-0.0137
P13	2a_6-ST	0.00	0.0025	-0.0137
P14	2a_6-ST	0.00	0.0025	-0.0137
P15	2a_6-ST	0.00	0.0012	-0.0109
P16	2a_6-ST	0.00	0.0012	-0.0109
P17	2a_6-ST	0.00	0.0012	-0.0109
P18	2a_6-ST	0.00	0.0012	-0.0109
P19	2a_6-ST	0.00	0.0012	-0.0109
P20	2a_6-ST	0.00	0.0012	-0.0109
P21	2a_6-ST	0.00	0.0012	-0.0109
P22	2a_6-ST	0.00	0.0000	-0.0089
P23	2a_6-ST	0.00	0.0000	-0.0089
P24	2a_6-ST	0.00	0.0000	-0.0089
P25	2a_6-ST	0.00	0.0000	-0.0089
P26	2a_6-ST	0.00	0.0000	-0.0089
P27	2a_6-ST	0.00	0.0000	-0.0089
P28	2a_6-ST	0.00	0.0000	-0.0089
P29	2a_6-ST	0.00	-0.0012	-0.0109
P30	2a_6-ST	0.00	-0.0012	-0.0109
P31	2a_6-ST	0.00	-0.0012	-0.0109
P32	2a_6-ST	0.00	-0.0012	-0.0109
P33	2a_6-ST	0.00	-0.0012	-0.0109
P34	2a_6-ST	0.00	-0.0012	-0.0109
P35	2a_6-ST	0.00	-0.0012	-0.0109
P36	2a_6-ST	0.00	-0.0025	-0.0137
P37	2a_6-ST	0.00	-0.0025	-0.0137
P38	2a_6-ST	0.00	-0.0025	-0.0137
P39	2a_6-ST	0.00	-0.0025	-0.0137
P40	2a_6-ST	0.00	-0.0025	-0.0137
P41	2a_6-ST	0.00	-0.0025	-0.0137
P42	2a_6-ST	0.00	-0.0025	-0.0137
P43	2a_6-ST	0.00	-0.0028	-0.0192
P44	2a_6-ST	0.00	-0.0028	-0.0192
P45	2a_6-ST	0.00	-0.0028	-0.0192
P46	2a_6-ST	0.00	-0.0028	-0.0192
P47	2a_6-ST	0.00	-0.0028	-0.0192
P48	2a_6-ST	0.00	-0.0028	-0.0192
P49	2a_6-ST	0.00	-0.0028	-0.0192

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T1-ST	0.00	0.0030	-0.0279
P2	2a_T1-ST	0.00	0.0030	-0.0285
P3	2a_T1-ST	0.00	0.0030	-0.0292
P4	2a_T1-ST	0.00	0.0030	-0.0298
P5	2a_T1-ST	0.00	0.0030	-0.0305
P6	2a_T1-ST	0.00	0.0030	-0.0311
P7	2a_T1-ST	0.00	0.0030	-0.0317
P8	2a_T1-ST	0.00	0.0026	-0.0222
P9	2a_T1-ST	0.00	0.0026	-0.0228
P10	2a_T1-ST	0.00	0.0026	-0.0235
P11	2a_T1-ST	0.00	0.0026	-0.0241
P12	2a_T1-ST	0.00	0.0026	-0.0247
P13	2a_T1-ST	0.00	0.0026	-0.0253
P14	2a_T1-ST	0.00	0.0026	-0.0260
P15	2a_T1-ST	0.00	0.0012	-0.0200
P16	2a_T1-ST	0.00	0.0012	-0.0206
P17	2a_T1-ST	0.00	0.0012	-0.0213
P18	2a_T1-ST	0.00	0.0012	-0.0219
P19	2a_T1-ST	0.00	0.0012	-0.0226
P20	2a_T1-ST	0.00	0.0012	-0.0233
P21	2a_T1-ST	0.00	0.0012	-0.0239
P22	2a_T1-ST	0.00	0.0000	-0.0176
P23	2a_T1-ST	0.00	0.0000	-0.0182
P24	2a_T1-ST	0.00	0.0000	-0.0189
P25	2a_T1-ST	0.00	0.0000	-0.0195
P26	2a_T1-ST	0.00	0.0000	-0.0201
P27	2a_T1-ST	0.00	0.0000	-0.0208
P28	2a_T1-ST	0.00	0.0000	-0.0214
P29	2a_T1-ST	0.00	-0.0012	-0.0197
P30	2a_T1-ST	0.00	-0.0012	-0.0204
P31	2a_T1-ST	0.00	-0.0012	-0.0210
P32	2a_T1-ST	0.00	-0.0012	-0.0217
P33	2a_T1-ST	0.00	-0.0012	-0.0224
P34	2a_T1-ST	0.00	-0.0012	-0.0231
P35	2a_T1-ST	0.00	-0.0012	-0.0237
P36	2a_T1-ST	0.00	-0.0026	-0.0217
P37	2a_T1-ST	0.00	-0.0026	-0.0224
P38	2a_T1-ST	0.00	-0.0026	-0.0230
P39	2a_T1-ST	0.00	-0.0026	-0.0237
P40	2a_T1-ST	0.00	-0.0026	-0.0243
P41	2a_T1-ST	0.00	-0.0026	-0.0250
P42	2a_T1-ST	0.00	-0.0026	-0.0256
P43	2a_T1-ST	0.00	-0.0030	-0.0272
P44	2a_T1-ST	0.00	-0.0030	-0.0278
P45	2a_T1-ST	0.00	-0.0030	-0.0285
P46	2a_T1-ST	0.00	-0.0030	-0.0292
P47	2a_T1-ST	0.00	-0.0030	-0.0298
P48	2a_T1-ST	0.00	-0.0030	-0.0305
P49	2a_T1-ST	0.00	-0.0030	-0.0312

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T2-ST	0.00	0.0030	-0.0286
P2	2a_T2-ST	0.00	0.0030	-0.0291
P3	2a_T2-ST	0.00	0.0030	-0.0296
P4	2a_T2-ST	0.00	0.0030	-0.0301
P5	2a_T2-ST	0.00	0.0030	-0.0306
P6	2a_T2-ST	0.00	0.0030	-0.0311
P7	2a_T2-ST	0.00	0.0030	-0.0316
P8	2a_T2-ST	0.00	0.0026	-0.0227
P9	2a_T2-ST	0.00	0.0026	-0.0232
P10	2a_T2-ST	0.00	0.0026	-0.0237
P11	2a_T2-ST	0.00	0.0026	-0.0242
P12	2a_T2-ST	0.00	0.0026	-0.0247
P13	2a_T2-ST	0.00	0.0026	-0.0252
P14	2a_T2-ST	0.00	0.0026	-0.0257
P15	2a_T2-ST	0.00	0.0012	-0.0203
P16	2a_T2-ST	0.00	0.0012	-0.0208
P17	2a_T2-ST	0.00	0.0012	-0.0213
P18	2a_T2-ST	0.00	0.0012	-0.0219
P19	2a_T2-ST	0.00	0.0012	-0.0224
P20	2a_T2-ST	0.00	0.0012	-0.0229
P21	2a_T2-ST	0.00	0.0012	-0.0234
P22	2a_T2-ST	0.00	0.0000	-0.0177
P23	2a_T2-ST	0.00	0.0000	-0.0182
P24	2a_T2-ST	0.00	0.0000	-0.0187
P25	2a_T2-ST	0.00	0.0000	-0.0192
P26	2a_T2-ST	0.00	0.0000	-0.0197
P27	2a_T2-ST	0.00	0.0000	-0.0202
P28	2a_T2-ST	0.00	0.0000	-0.0207
P29	2a_T2-ST	0.00	-0.0012	-0.0197
P30	2a_T2-ST	0.00	-0.0012	-0.0202
P31	2a_T2-ST	0.00	-0.0012	-0.0208
P32	2a_T2-ST	0.00	-0.0012	-0.0213
P33	2a_T2-ST	0.00	-0.0012	-0.0218
P34	2a_T2-ST	0.00	-0.0012	-0.0223
P35	2a_T2-ST	0.00	-0.0012	-0.0228
P36	2a_T2-ST	0.00	-0.0026	-0.0216
P37	2a_T2-ST	0.00	-0.0026	-0.0221
P38	2a_T2-ST	0.00	-0.0026	-0.0226
P39	2a_T2-ST	0.00	-0.0026	-0.0231
P40	2a_T2-ST	0.00	-0.0026	-0.0236
P41	2a_T2-ST	0.00	-0.0026	-0.0240
P42	2a_T2-ST	0.00	-0.0026	-0.0245
P43	2a_T2-ST	0.00	-0.0030	-0.0270
P44	2a_T2-ST	0.00	-0.0030	-0.0275
P45	2a_T2-ST	0.00	-0.0030	-0.0279
P46	2a_T2-ST	0.00	-0.0030	-0.0284
P47	2a_T2-ST	0.00	-0.0030	-0.0289
P48	2a_T2-ST	0.00	-0.0030	-0.0294
P49	2a_T2-ST	0.00	-0.0030	-0.0299

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T3-ST	0.00	0.0031	-0.0286
P2	2a_T3-ST	0.00	0.0031	-0.0292
P3	2a_T3-ST	0.00	0.0030	-0.0299
P4	2a_T3-ST	0.00	0.0030	-0.0305
P5	2a_T3-ST	0.00	0.0030	-0.0312
P6	2a_T3-ST	0.00	0.0030	-0.0318
P7	2a_T3-ST	0.00	0.0030	-0.0325
P8	2a_T3-ST	0.00	0.0026	-0.0231
P9	2a_T3-ST	0.00	0.0026	-0.0238
P10	2a_T3-ST	0.00	0.0026	-0.0244
P11	2a_T3-ST	0.00	0.0026	-0.0251
P12	2a_T3-ST	0.00	0.0026	-0.0257
P13	2a_T3-ST	0.00	0.0025	-0.0263
P14	2a_T3-ST	0.00	0.0025	-0.0270
P15	2a_T3-ST	0.00	0.0012	-0.0213
P16	2a_T3-ST	0.00	0.0012	-0.0220
P17	2a_T3-ST	0.00	0.0012	-0.0226
P18	2a_T3-ST	0.00	0.0012	-0.0233
P19	2a_T3-ST	0.00	0.0012	-0.0240
P20	2a_T3-ST	0.00	0.0012	-0.0247
P21	2a_T3-ST	0.00	0.0012	-0.0254
P22	2a_T3-ST	0.00	0.0000	-0.0191
P23	2a_T3-ST	0.00	0.0000	-0.0198
P24	2a_T3-ST	0.00	0.0000	-0.0204
P25	2a_T3-ST	0.00	0.0000	-0.0211
P26	2a_T3-ST	0.00	0.0000	-0.0218
P27	2a_T3-ST	0.00	0.0000	-0.0225
P28	2a_T3-ST	0.00	0.0000	-0.0232
P29	2a_T3-ST	0.00	-0.0012	-0.0215
P30	2a_T3-ST	0.00	-0.0012	-0.0222
P31	2a_T3-ST	0.00	-0.0012	-0.0229
P32	2a_T3-ST	0.00	-0.0012	-0.0237
P33	2a_T3-ST	0.00	-0.0012	-0.0244
P34	2a_T3-ST	0.00	-0.0012	-0.0251
P35	2a_T3-ST	0.00	-0.0012	-0.0259
P36	2a_T3-ST	0.00	-0.0025	-0.0236
P37	2a_T3-ST	0.00	-0.0025	-0.0243
P38	2a_T3-ST	0.00	-0.0026	-0.0251
P39	2a_T3-ST	0.00	-0.0026	-0.0258
P40	2a_T3-ST	0.00	-0.0026	-0.0265
P41	2a_T3-ST	0.00	-0.0026	-0.0272
P42	2a_T3-ST	0.00	-0.0026	-0.0279
P43	2a_T3-ST	0.00	-0.0030	-0.0294
P44	2a_T3-ST	0.00	-0.0031	-0.0301
P45	2a_T3-ST	0.00	-0.0031	-0.0309
P46	2a_T3-ST	0.00	-0.0031	-0.0317
P47	2a_T3-ST	0.00	-0.0031	-0.0324
P48	2a_T3-ST	0.00	-0.0031	-0.0332
P49	2a_T3-ST	0.00	-0.0031	-0.0339

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2a_T4-ST	0.00	0.0030	-0.0304
P2	2a_T4-ST	0.00	0.0030	-0.0309
P3	2a_T4-ST	0.00	0.0030	-0.0313
P4	2a_T4-ST	0.00	0.0030	-0.0317
P5	2a_T4-ST	0.00	0.0030	-0.0322
P6	2a_T4-ST	0.00	0.0030	-0.0326
P7	2a_T4-ST	0.00	0.0030	-0.0330
P8	2a_T4-ST	0.00	0.0026	-0.0245
P9	2a_T4-ST	0.00	0.0026	-0.0249
P10	2a_T4-ST	0.00	0.0026	-0.0254
P11	2a_T4-ST	0.00	0.0025	-0.0258
P12	2a_T4-ST	0.00	0.0025	-0.0262
P13	2a_T4-ST	0.00	0.0025	-0.0267
P14	2a_T4-ST	0.00	0.0025	-0.0271
P15	2a_T4-ST	0.00	0.0012	-0.0222
P16	2a_T4-ST	0.00	0.0012	-0.0227
P17	2a_T4-ST	0.00	0.0012	-0.0232
P18	2a_T4-ST	0.00	0.0012	-0.0236
P19	2a_T4-ST	0.00	0.0012	-0.0241
P20	2a_T4-ST	0.00	0.0012	-0.0246
P21	2a_T4-ST	0.00	0.0012	-0.0250
P22	2a_T4-ST	0.00	0.0000	-0.0196
P23	2a_T4-ST	0.00	0.0000	-0.0201
P24	2a_T4-ST	0.00	0.0000	-0.0205
P25	2a_T4-ST	0.00	0.0000	-0.0210
P26	2a_T4-ST	0.00	0.0000	-0.0215
P27	2a_T4-ST	0.00	0.0000	-0.0219
P28	2a_T4-ST	0.00	0.0000	-0.0224
P29	2a_T4-ST	0.00	-0.0012	-0.0216
P30	2a_T4-ST	0.00	-0.0012	-0.0221
P31	2a_T4-ST	0.00	-0.0012	-0.0226
P32	2a_T4-ST	0.00	-0.0012	-0.0231
P33	2a_T4-ST	0.00	-0.0012	-0.0235
P34	2a_T4-ST	0.00	-0.0012	-0.0240
P35	2a_T4-ST	0.00	-0.0012	-0.0245
P36	2a_T4-ST	0.00	-0.0025	-0.0233
P37	2a_T4-ST	0.00	-0.0025	-0.0238
P38	2a_T4-ST	0.00	-0.0025	-0.0242
P39	2a_T4-ST	0.00	-0.0025	-0.0247
P40	2a_T4-ST	0.00	-0.0025	-0.0251
P41	2a_T4-ST	0.00	-0.0025	-0.0256
P42	2a_T4-ST	0.00	-0.0025	-0.0261
P43	2a_T4-ST	0.00	-0.0030	-0.0286
P44	2a_T4-ST	0.00	-0.0030	-0.0291
P45	2a_T4-ST	0.00	-0.0030	-0.0295
P46	2a_T4-ST	0.00	-0.0030	-0.0300
P47	2a_T4-ST	0.00	-0.0030	-0.0305
P48	2a_T4-ST	0.00	-0.0030	-0.0309
P49	2a_T4-ST	0.00	-0.0030	-0.0314

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b-ST	0.00	0.0025	-0.0778
P2	2b-ST	0.00	0.0025	-0.0778
P3	2b-ST	0.00	0.0025	-0.0778
P4	2b-ST	0.00	0.0025	-0.0778
P5	2b-ST	0.00	0.0025	-0.0778
P6	2b-ST	0.00	0.0025	-0.0778
P7	2b-ST	0.00	0.0025	-0.0778
P8	2b-ST	0.00	0.0019	-0.0731
P9	2b-ST	0.00	0.0019	-0.0731
P10	2b-ST	0.00	0.0019	-0.0731
P11	2b-ST	0.00	0.0019	-0.0731
P12	2b-ST	0.00	0.0019	-0.0731
P13	2b-ST	0.00	0.0019	-0.0731
P14	2b-ST	0.00	0.0019	-0.0731
P15	2b-ST	0.00	0.0009	-0.0731
P16	2b-ST	0.00	0.0009	-0.0731
P17	2b-ST	0.00	0.0009	-0.0731
P18	2b-ST	0.00	0.0009	-0.0731
P19	2b-ST	0.00	0.0009	-0.0731
P20	2b-ST	0.00	0.0009	-0.0731
P21	2b-ST	0.00	0.0009	-0.0731
P22	2b-ST	0.00	0.0000	-0.0706
P23	2b-ST	0.00	0.0000	-0.0706
P24	2b-ST	0.00	0.0000	-0.0706
P25	2b-ST	0.00	0.0000	-0.0706
P26	2b-ST	0.00	0.0000	-0.0706
P27	2b-ST	0.00	0.0000	-0.0706
P28	2b-ST	0.00	0.0000	-0.0706
P29	2b-ST	0.00	-0.0009	-0.0731
P30	2b-ST	0.00	-0.0009	-0.0731
P31	2b-ST	0.00	-0.0009	-0.0731
P32	2b-ST	0.00	-0.0009	-0.0731
P33	2b-ST	0.00	-0.0009	-0.0731
P34	2b-ST	0.00	-0.0009	-0.0731
P35	2b-ST	0.00	-0.0009	-0.0731
P36	2b-ST	0.00	-0.0019	-0.0731
P37	2b-ST	0.00	-0.0019	-0.0731
P38	2b-ST	0.00	-0.0019	-0.0731
P39	2b-ST	0.00	-0.0019	-0.0731
P40	2b-ST	0.00	-0.0019	-0.0731
P41	2b-ST	0.00	-0.0019	-0.0731
P42	2b-ST	0.00	-0.0019	-0.0731
P43	2b-ST	0.00	-0.0025	-0.0778
P44	2b-ST	0.00	-0.0025	-0.0778
P45	2b-ST	0.00	-0.0025	-0.0778
P46	2b-ST	0.00	-0.0025	-0.0778
P47	2b-ST	0.00	-0.0025	-0.0778
P48	2b-ST	0.00	-0.0025	-0.0778
P49	2b-ST	0.00	-0.0025	-0.0778

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T1-ST	0.00	0.0025	-0.0779
P2	2b_T1-ST	0.00	0.0025	-0.0785
P3	2b_T1-ST	0.00	0.0025	-0.0792
P4	2b_T1-ST	0.00	0.0025	-0.0798
P5	2b_T1-ST	0.00	0.0025	-0.0804
P6	2b_T1-ST	0.00	0.0025	-0.0811
P7	2b_T1-ST	0.00	0.0025	-0.0817
P8	2b_T1-ST	0.00	0.0018	-0.0730
P9	2b_T1-ST	0.00	0.0018	-0.0737
P10	2b_T1-ST	0.00	0.0018	-0.0743
P11	2b_T1-ST	0.00	0.0018	-0.0750
P12	2b_T1-ST	0.00	0.0018	-0.0756
P13	2b_T1-ST	0.00	0.0018	-0.0762
P14	2b_T1-ST	0.00	0.0018	-0.0768
P15	2b_T1-ST	0.00	0.0008	-0.0730
P16	2b_T1-ST	0.00	0.0008	-0.0737
P17	2b_T1-ST	0.00	0.0008	-0.0744
P18	2b_T1-ST	0.00	0.0008	-0.0750
P19	2b_T1-ST	0.00	0.0008	-0.0757
P20	2b_T1-ST	0.00	0.0008	-0.0763
P21	2b_T1-ST	0.00	0.0008	-0.0770
P22	2b_T1-ST	0.00	0.0000	-0.0704
P23	2b_T1-ST	0.00	0.0000	-0.0711
P24	2b_T1-ST	0.00	0.0000	-0.0718
P25	2b_T1-ST	0.00	0.0000	-0.0724
P26	2b_T1-ST	0.00	0.0000	-0.0730
P27	2b_T1-ST	0.00	0.0000	-0.0737
P28	2b_T1-ST	0.00	0.0000	-0.0743
P29	2b_T1-ST	0.00	-0.0008	-0.0728
P30	2b_T1-ST	0.00	-0.0008	-0.0734
P31	2b_T1-ST	0.00	-0.0008	-0.0741
P32	2b_T1-ST	0.00	-0.0008	-0.0748
P33	2b_T1-ST	0.00	-0.0008	-0.0755
P34	2b_T1-ST	0.00	-0.0008	-0.0761
P35	2b_T1-ST	0.00	-0.0008	-0.0768
P36	2b_T1-ST	0.00	-0.0018	-0.0725
P37	2b_T1-ST	0.00	-0.0018	-0.0732
P38	2b_T1-ST	0.00	-0.0018	-0.0739
P39	2b_T1-ST	0.00	-0.0018	-0.0745
P40	2b_T1-ST	0.00	-0.0018	-0.0752
P41	2b_T1-ST	0.00	-0.0018	-0.0758
P42	2b_T1-ST	0.00	-0.0018	-0.0764
P43	2b_T1-ST	0.00	-0.0025	-0.0771
P44	2b_T1-ST	0.00	-0.0025	-0.0778
P45	2b_T1-ST	0.00	-0.0025	-0.0785
P46	2b_T1-ST	0.00	-0.0025	-0.0792
P47	2b_T1-ST	0.00	-0.0025	-0.0798
P48	2b_T1-ST	0.00	-0.0025	-0.0805
P49	2b_T1-ST	0.00	-0.0025	-0.0812

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T2-ST	0.00	0.0025	-0.0786
P2	2b_T2-ST	0.00	0.0025	-0.0791
P3	2b_T2-ST	0.00	0.0025	-0.0796
P4	2b_T2-ST	0.00	0.0025	-0.0801
P5	2b_T2-ST	0.00	0.0025	-0.0806
P6	2b_T2-ST	0.00	0.0025	-0.0811
P7	2b_T2-ST	0.00	0.0025	-0.0816
P8	2b_T2-ST	0.00	0.0018	-0.0735
P9	2b_T2-ST	0.00	0.0018	-0.0740
P10	2b_T2-ST	0.00	0.0018	-0.0746
P11	2b_T2-ST	0.00	0.0018	-0.0751
P12	2b_T2-ST	0.00	0.0018	-0.0756
P13	2b_T2-ST	0.00	0.0018	-0.0760
P14	2b_T2-ST	0.00	0.0018	-0.0765
P15	2b_T2-ST	0.00	0.0008	-0.0734
P16	2b_T2-ST	0.00	0.0008	-0.0739
P17	2b_T2-ST	0.00	0.0008	-0.0744
P18	2b_T2-ST	0.00	0.0008	-0.0749
P19	2b_T2-ST	0.00	0.0008	-0.0755
P20	2b_T2-ST	0.00	0.0008	-0.0760
P21	2b_T2-ST	0.00	0.0008	-0.0765
P22	2b_T2-ST	0.00	0.0000	-0.0706
P23	2b_T2-ST	0.00	0.0000	-0.0711
P24	2b_T2-ST	0.00	0.0000	-0.0716
P25	2b_T2-ST	0.00	0.0000	-0.0721
P26	2b_T2-ST	0.00	0.0000	-0.0726
P27	2b_T2-ST	0.00	0.0000	-0.0731
P28	2b_T2-ST	0.00	0.0000	-0.0736
P29	2b_T2-ST	0.00	-0.0008	-0.0728
P30	2b_T2-ST	0.00	-0.0008	-0.0733
P31	2b_T2-ST	0.00	-0.0008	-0.0738
P32	2b_T2-ST	0.00	-0.0008	-0.0743
P33	2b_T2-ST	0.00	-0.0008	-0.0749
P34	2b_T2-ST	0.00	-0.0008	-0.0754
P35	2b_T2-ST	0.00	-0.0008	-0.0759
P36	2b_T2-ST	0.00	-0.0019	-0.0725
P37	2b_T2-ST	0.00	-0.0019	-0.0730
P38	2b_T2-ST	0.00	-0.0019	-0.0735
P39	2b_T2-ST	0.00	-0.0018	-0.0740
P40	2b_T2-ST	0.00	-0.0018	-0.0744
P41	2b_T2-ST	0.00	-0.0018	-0.0749
P42	2b_T2-ST	0.00	-0.0018	-0.0754
P43	2b_T2-ST	0.00	-0.0025	-0.0770
P44	2b_T2-ST	0.00	-0.0025	-0.0774
P45	2b_T2-ST	0.00	-0.0025	-0.0779
P46	2b_T2-ST	0.00	-0.0025	-0.0784
P47	2b_T2-ST	0.00	-0.0025	-0.0789
P48	2b_T2-ST	0.00	-0.0025	-0.0794
P49	2b_T2-ST	0.00	-0.0025	-0.0798

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T3-ST	0.00	0.0025	-0.0786
P2	2b_T3-ST	0.00	0.0025	-0.0792
P3	2b_T3-ST	0.00	0.0025	-0.0799
P4	2b_T3-ST	0.00	0.0025	-0.0805
P5	2b_T3-ST	0.00	0.0025	-0.0812
P6	2b_T3-ST	0.00	0.0025	-0.0818
P7	2b_T3-ST	0.00	0.0025	-0.0825
P8	2b_T3-ST	0.00	0.0018	-0.0740
P9	2b_T3-ST	0.00	0.0018	-0.0746
P10	2b_T3-ST	0.00	0.0018	-0.0753
P11	2b_T3-ST	0.00	0.0018	-0.0759
P12	2b_T3-ST	0.00	0.0018	-0.0766
P13	2b_T3-ST	0.00	0.0018	-0.0772
P14	2b_T3-ST	0.00	0.0018	-0.0778
P15	2b_T3-ST	0.00	0.0008	-0.0743
P16	2b_T3-ST	0.00	0.0008	-0.0750
P17	2b_T3-ST	0.00	0.0008	-0.0757
P18	2b_T3-ST	0.00	0.0008	-0.0764
P19	2b_T3-ST	0.00	0.0008	-0.0771
P20	2b_T3-ST	0.00	0.0008	-0.0778
P21	2b_T3-ST	0.00	0.0008	-0.0784
P22	2b_T3-ST	0.00	0.0000	-0.0719
P23	2b_T3-ST	0.00	0.0000	-0.0726
P24	2b_T3-ST	0.00	0.0000	-0.0733
P25	2b_T3-ST	0.00	0.0000	-0.0740
P26	2b_T3-ST	0.00	0.0000	-0.0747
P27	2b_T3-ST	0.00	0.0000	-0.0754
P28	2b_T3-ST	0.00	0.0000	-0.0760
P29	2b_T3-ST	0.00	-0.0008	-0.0746
P30	2b_T3-ST	0.00	-0.0008	-0.0753
P31	2b_T3-ST	0.00	-0.0008	-0.0760
P32	2b_T3-ST	0.00	-0.0008	-0.0768
P33	2b_T3-ST	0.00	-0.0008	-0.0775
P34	2b_T3-ST	0.00	-0.0008	-0.0782
P35	2b_T3-ST	0.00	-0.0008	-0.0789
P36	2b_T3-ST	0.00	-0.0018	-0.0745
P37	2b_T3-ST	0.00	-0.0018	-0.0752
P38	2b_T3-ST	0.00	-0.0018	-0.0759
P39	2b_T3-ST	0.00	-0.0018	-0.0767
P40	2b_T3-ST	0.00	-0.0018	-0.0774
P41	2b_T3-ST	0.00	-0.0018	-0.0781
P42	2b_T3-ST	0.00	-0.0019	-0.0788
P43	2b_T3-ST	0.00	-0.0025	-0.0794
P44	2b_T3-ST	0.00	-0.0025	-0.0801
P45	2b_T3-ST	0.00	-0.0025	-0.0809
P46	2b_T3-ST	0.00	-0.0025	-0.0817
P47	2b_T3-ST	0.00	-0.0025	-0.0824
P48	2b_T3-ST	0.00	-0.0025	-0.0832
P49	2b_T3-ST	0.00	-0.0025	-0.0839

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	2b_T4-ST	0.00	0.0025	-0.0804
P2	2b_T4-ST	0.00	0.0025	-0.0808
P3	2b_T4-ST	0.00	0.0025	-0.0813
P4	2b_T4-ST	0.00	0.0025	-0.0817
P5	2b_T4-ST	0.00	0.0025	-0.0822
P6	2b_T4-ST	0.00	0.0025	-0.0826
P7	2b_T4-ST	0.00	0.0025	-0.0830
P8	2b_T4-ST	0.00	0.0018	-0.0753
P9	2b_T4-ST	0.00	0.0018	-0.0758
P10	2b_T4-ST	0.00	0.0018	-0.0762
P11	2b_T4-ST	0.00	0.0018	-0.0767
P12	2b_T4-ST	0.00	0.0018	-0.0771
P13	2b_T4-ST	0.00	0.0018	-0.0775
P14	2b_T4-ST	0.00	0.0018	-0.0779
P15	2b_T4-ST	0.00	0.0008	-0.0753
P16	2b_T4-ST	0.00	0.0008	-0.0758
P17	2b_T4-ST	0.00	0.0008	-0.0762
P18	2b_T4-ST	0.00	0.0008	-0.0767
P19	2b_T4-ST	0.00	0.0008	-0.0772
P20	2b_T4-ST	0.00	0.0008	-0.0776
P21	2b_T4-ST	0.00	0.0008	-0.0781
P22	2b_T4-ST	0.00	0.0000	-0.0725
P23	2b_T4-ST	0.00	0.0000	-0.0730
P24	2b_T4-ST	0.00	0.0000	-0.0734
P25	2b_T4-ST	0.00	0.0000	-0.0739
P26	2b_T4-ST	0.00	0.0000	-0.0744
P27	2b_T4-ST	0.00	0.0000	-0.0748
P28	2b_T4-ST	0.00	0.0000	-0.0752
P29	2b_T4-ST	0.00	-0.0008	-0.0747
P30	2b_T4-ST	0.00	-0.0008	-0.0752
P31	2b_T4-ST	0.00	-0.0008	-0.0757
P32	2b_T4-ST	0.00	-0.0008	-0.0761
P33	2b_T4-ST	0.00	-0.0008	-0.0766
P34	2b_T4-ST	0.00	-0.0008	-0.0771
P35	2b_T4-ST	0.00	-0.0008	-0.0776
P36	2b_T4-ST	0.00	-0.0018	-0.0741
P37	2b_T4-ST	0.00	-0.0018	-0.0746
P38	2b_T4-ST	0.00	-0.0018	-0.0751
P39	2b_T4-ST	0.00	-0.0018	-0.0756
P40	2b_T4-ST	0.00	-0.0018	-0.0760
P41	2b_T4-ST	0.00	-0.0018	-0.0764
P42	2b_T4-ST	0.00	-0.0018	-0.0769
P43	2b_T4-ST	0.00	-0.0024	-0.0786
P44	2b_T4-ST	0.00	-0.0025	-0.0790
P45	2b_T4-ST	0.00	-0.0025	-0.0795
P46	2b_T4-ST	0.00	-0.0025	-0.0800
P47	2b_T4-ST	0.00	-0.0025	-0.0804
P48	2b_T4-ST	0.00	-0.0025	-0.0809
P49	2b_T4-ST	0.00	-0.0025	-0.0814

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a-ST	0.00	0.0029	-0.0481
P2	3a-ST	0.00	0.0029	-0.0481
P3	3a-ST	0.00	0.0029	-0.0481
P4	3a-ST	0.00	0.0029	-0.0481
P5	3a-ST	0.00	0.0029	-0.0481
P6	3a-ST	0.00	0.0029	-0.0481
P7	3a-ST	0.00	0.0029	-0.0481
P8	3a-ST	0.00	0.0024	-0.0427
P9	3a-ST	0.00	0.0024	-0.0427
P10	3a-ST	0.00	0.0024	-0.0428
P11	3a-ST	0.00	0.0024	-0.0428
P12	3a-ST	0.00	0.0024	-0.0428
P13	3a-ST	0.00	0.0024	-0.0427
P14	3a-ST	0.00	0.0024	-0.0427
P15	3a-ST	0.00	0.0011	-0.0413
P16	3a-ST	0.00	0.0011	-0.0413
P17	3a-ST	0.00	0.0011	-0.0413
P18	3a-ST	0.00	0.0011	-0.0413
P19	3a-ST	0.00	0.0011	-0.0413
P20	3a-ST	0.00	0.0011	-0.0413
P21	3a-ST	0.00	0.0011	-0.0413
P22	3a-ST	0.00	0.0000	-0.0389
P23	3a-ST	0.00	0.0000	-0.0389
P24	3a-ST	0.00	0.0000	-0.0389
P25	3a-ST	0.00	0.0000	-0.0389
P26	3a-ST	0.00	0.0000	-0.0389
P27	3a-ST	0.00	0.0000	-0.0389
P28	3a-ST	0.00	0.0000	-0.0389
P29	3a-ST	0.00	-0.0011	-0.0413
P30	3a-ST	0.00	-0.0011	-0.0413
P31	3a-ST	0.00	-0.0011	-0.0413
P32	3a-ST	0.00	-0.0011	-0.0413
P33	3a-ST	0.00	-0.0011	-0.0413
P34	3a-ST	0.00	-0.0011	-0.0413
P35	3a-ST	0.00	-0.0011	-0.0413
P36	3a-ST	0.00	-0.0024	-0.0427
P37	3a-ST	0.00	-0.0024	-0.0427
P38	3a-ST	0.00	-0.0024	-0.0428
P39	3a-ST	0.00	-0.0024	-0.0428
P40	3a-ST	0.00	-0.0024	-0.0428
P41	3a-ST	0.00	-0.0024	-0.0427
P42	3a-ST	0.00	-0.0024	-0.0427
P43	3a-ST	0.00	-0.0029	-0.0481
P44	3a-ST	0.00	-0.0029	-0.0481
P45	3a-ST	0.00	-0.0029	-0.0481
P46	3a-ST	0.00	-0.0029	-0.0481
P47	3a-ST	0.00	-0.0029	-0.0481
P48	3a-ST	0.00	-0.0029	-0.0481
P49	3a-ST	0.00	-0.0029	-0.0481

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_6-ST	0.00	0.0027	-0.0394
P2	3a_6-ST	0.00	0.0027	-0.0394
P3	3a_6-ST	0.00	0.0027	-0.0394
P4	3a_6-ST	0.00	0.0027	-0.0394
P5	3a_6-ST	0.00	0.0027	-0.0394
P6	3a_6-ST	0.00	0.0027	-0.0394
P7	3a_6-ST	0.00	0.0027	-0.0394
P8	3a_6-ST	0.00	0.0023	-0.0342
P9	3a_6-ST	0.00	0.0023	-0.0342
P10	3a_6-ST	0.00	0.0023	-0.0342
P11	3a_6-ST	0.00	0.0023	-0.0342
P12	3a_6-ST	0.00	0.0023	-0.0342
P13	3a_6-ST	0.00	0.0023	-0.0342
P14	3a_6-ST	0.00	0.0023	-0.0342
P15	3a_6-ST	0.00	0.0011	-0.0322
P16	3a_6-ST	0.00	0.0011	-0.0322
P17	3a_6-ST	0.00	0.0011	-0.0322
P18	3a_6-ST	0.00	0.0011	-0.0322
P19	3a_6-ST	0.00	0.0011	-0.0322
P20	3a_6-ST	0.00	0.0011	-0.0322
P21	3a_6-ST	0.00	0.0011	-0.0322
P22	3a_6-ST	0.00	0.0000	-0.0301
P23	3a_6-ST	0.00	0.0000	-0.0301
P24	3a_6-ST	0.00	0.0000	-0.0301
P25	3a_6-ST	0.00	0.0000	-0.0301
P26	3a_6-ST	0.00	0.0000	-0.0301
P27	3a_6-ST	0.00	0.0000	-0.0301
P28	3a_6-ST	0.00	0.0000	-0.0301
P29	3a_6-ST	0.00	-0.0011	-0.0322
P30	3a_6-ST	0.00	-0.0011	-0.0322
P31	3a_6-ST	0.00	-0.0011	-0.0322
P32	3a_6-ST	0.00	-0.0011	-0.0322
P33	3a_6-ST	0.00	-0.0011	-0.0322
P34	3a_6-ST	0.00	-0.0011	-0.0322
P35	3a_6-ST	0.00	-0.0011	-0.0322
P36	3a_6-ST	0.00	-0.0023	-0.0342
P37	3a_6-ST	0.00	-0.0023	-0.0342
P38	3a_6-ST	0.00	-0.0023	-0.0342
P39	3a_6-ST	0.00	-0.0023	-0.0342
P40	3a_6-ST	0.00	-0.0023	-0.0342
P41	3a_6-ST	0.00	-0.0023	-0.0342
P42	3a_6-ST	0.00	-0.0023	-0.0342
P43	3a_6-ST	0.00	-0.0027	-0.0394
P44	3a_6-ST	0.00	-0.0027	-0.0394
P45	3a_6-ST	0.00	-0.0027	-0.0394
P46	3a_6-ST	0.00	-0.0027	-0.0394
P47	3a_6-ST	0.00	-0.0027	-0.0394
P48	3a_6-ST	0.00	-0.0027	-0.0394
P49	3a_6-ST	0.00	-0.0027	-0.0394

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T1-ST	0.00	0.0029	-0.0482
P2	3a_T1-ST	0.00	0.0029	-0.0488
P3	3a_T1-ST	0.00	0.0029	-0.0494
P4	3a_T1-ST	0.00	0.0029	-0.0501
P5	3a_T1-ST	0.00	0.0029	-0.0507
P6	3a_T1-ST	0.00	0.0029	-0.0514
P7	3a_T1-ST	0.00	0.0029	-0.0520
P8	3a_T1-ST	0.00	0.0024	-0.0427
P9	3a_T1-ST	0.00	0.0024	-0.0434
P10	3a_T1-ST	0.00	0.0024	-0.0440
P11	3a_T1-ST	0.00	0.0024	-0.0446
P12	3a_T1-ST	0.00	0.0024	-0.0453
P13	3a_T1-ST	0.00	0.0024	-0.0459
P14	3a_T1-ST	0.00	0.0024	-0.0465
P15	3a_T1-ST	0.00	0.0011	-0.0413
P16	3a_T1-ST	0.00	0.0011	-0.0419
P17	3a_T1-ST	0.00	0.0011	-0.0426
P18	3a_T1-ST	0.00	0.0011	-0.0433
P19	3a_T1-ST	0.00	0.0011	-0.0439
P20	3a_T1-ST	0.00	0.0011	-0.0446
P21	3a_T1-ST	0.00	0.0011	-0.0452
P22	3a_T1-ST	0.00	0.0000	-0.0387
P23	3a_T1-ST	0.00	0.0000	-0.0394
P24	3a_T1-ST	0.00	0.0000	-0.0400
P25	3a_T1-ST	0.00	0.0000	-0.0407
P26	3a_T1-ST	0.00	0.0000	-0.0413
P27	3a_T1-ST	0.00	0.0000	-0.0419
P28	3a_T1-ST	0.00	0.0000	-0.0426
P29	3a_T1-ST	0.00	-0.0011	-0.0410
P30	3a_T1-ST	0.00	-0.0011	-0.0417
P31	3a_T1-ST	0.00	-0.0011	-0.0423
P32	3a_T1-ST	0.00	-0.0011	-0.0430
P33	3a_T1-ST	0.00	-0.0011	-0.0437
P34	3a_T1-ST	0.00	-0.0011	-0.0444
P35	3a_T1-ST	0.00	-0.0011	-0.0450
P36	3a_T1-ST	0.00	-0.0024	-0.0422
P37	3a_T1-ST	0.00	-0.0024	-0.0429
P38	3a_T1-ST	0.00	-0.0024	-0.0436
P39	3a_T1-ST	0.00	-0.0024	-0.0442
P40	3a_T1-ST	0.00	-0.0024	-0.0449
P41	3a_T1-ST	0.00	-0.0024	-0.0455
P42	3a_T1-ST	0.00	-0.0024	-0.0461
P43	3a_T1-ST	0.00	-0.0029	-0.0474
P44	3a_T1-ST	0.00	-0.0029	-0.0481
P45	3a_T1-ST	0.00	-0.0029	-0.0488
P46	3a_T1-ST	0.00	-0.0029	-0.0494
P47	3a_T1-ST	0.00	-0.0029	-0.0501
P48	3a_T1-ST	0.00	-0.0029	-0.0508
P49	3a_T1-ST	0.00	-0.0029	-0.0515

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T2-ST	0.00	0.0029	-0.0488
P2	3a_T2-ST	0.00	0.0029	-0.0493
P3	3a_T2-ST	0.00	0.0029	-0.0499
P4	3a_T2-ST	0.00	0.0029	-0.0504
P5	3a_T2-ST	0.00	0.0029	-0.0509
P6	3a_T2-ST	0.00	0.0029	-0.0514
P7	3a_T2-ST	0.00	0.0029	-0.0519
P8	3a_T2-ST	0.00	0.0024	-0.0432
P9	3a_T2-ST	0.00	0.0024	-0.0437
P10	3a_T2-ST	0.00	0.0024	-0.0442
P11	3a_T2-ST	0.00	0.0024	-0.0447
P12	3a_T2-ST	0.00	0.0024	-0.0452
P13	3a_T2-ST	0.00	0.0024	-0.0457
P14	3a_T2-ST	0.00	0.0024	-0.0462
P15	3a_T2-ST	0.00	0.0011	-0.0416
P16	3a_T2-ST	0.00	0.0011	-0.0421
P17	3a_T2-ST	0.00	0.0011	-0.0426
P18	3a_T2-ST	0.00	0.0011	-0.0432
P19	3a_T2-ST	0.00	0.0011	-0.0437
P20	3a_T2-ST	0.00	0.0011	-0.0442
P21	3a_T2-ST	0.00	0.0011	-0.0447
P22	3a_T2-ST	0.00	0.0000	-0.0389
P23	3a_T2-ST	0.00	0.0000	-0.0394
P24	3a_T2-ST	0.00	0.0000	-0.0399
P25	3a_T2-ST	0.00	0.0000	-0.0404
P26	3a_T2-ST	0.00	0.0000	-0.0409
P27	3a_T2-ST	0.00	0.0000	-0.0414
P28	3a_T2-ST	0.00	0.0000	-0.0419
P29	3a_T2-ST	0.00	-0.0011	-0.0410
P30	3a_T2-ST	0.00	-0.0011	-0.0416
P31	3a_T2-ST	0.00	-0.0011	-0.0421
P32	3a_T2-ST	0.00	-0.0011	-0.0426
P33	3a_T2-ST	0.00	-0.0011	-0.0431
P34	3a_T2-ST	0.00	-0.0011	-0.0436
P35	3a_T2-ST	0.00	-0.0011	-0.0441
P36	3a_T2-ST	0.00	-0.0024	-0.0422
P37	3a_T2-ST	0.00	-0.0024	-0.0427
P38	3a_T2-ST	0.00	-0.0024	-0.0431
P39	3a_T2-ST	0.00	-0.0024	-0.0436
P40	3a_T2-ST	0.00	-0.0024	-0.0441
P41	3a_T2-ST	0.00	-0.0024	-0.0446
P42	3a_T2-ST	0.00	-0.0024	-0.0450
P43	3a_T2-ST	0.00	-0.0029	-0.0472
P44	3a_T2-ST	0.00	-0.0029	-0.0477
P45	3a_T2-ST	0.00	-0.0029	-0.0482
P46	3a_T2-ST	0.00	-0.0029	-0.0487
P47	3a_T2-ST	0.00	-0.0029	-0.0492
P48	3a_T2-ST	0.00	-0.0029	-0.0496
P49	3a_T2-ST	0.00	-0.0029	-0.0501

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T3-ST	0.00	0.0029	-0.0489
P2	3a_T3-ST	0.00	0.0029	-0.0495
P3	3a_T3-ST	0.00	0.0029	-0.0502
P4	3a_T3-ST	0.00	0.0029	-0.0508
P5	3a_T3-ST	0.00	0.0029	-0.0515
P6	3a_T3-ST	0.00	0.0029	-0.0521
P7	3a_T3-ST	0.00	0.0029	-0.0527
P8	3a_T3-ST	0.00	0.0024	-0.0437
P9	3a_T3-ST	0.00	0.0024	-0.0443
P10	3a_T3-ST	0.00	0.0024	-0.0450
P11	3a_T3-ST	0.00	0.0024	-0.0456
P12	3a_T3-ST	0.00	0.0024	-0.0462
P13	3a_T3-ST	0.00	0.0023	-0.0469
P14	3a_T3-ST	0.00	0.0023	-0.0475
P15	3a_T3-ST	0.00	0.0011	-0.0426
P16	3a_T3-ST	0.00	0.0011	-0.0433
P17	3a_T3-ST	0.00	0.0011	-0.0439
P18	3a_T3-ST	0.00	0.0011	-0.0446
P19	3a_T3-ST	0.00	0.0011	-0.0453
P20	3a_T3-ST	0.00	0.0011	-0.0460
P21	3a_T3-ST	0.00	0.0011	-0.0467
P22	3a_T3-ST	0.00	0.0000	-0.0402
P23	3a_T3-ST	0.00	0.0000	-0.0409
P24	3a_T3-ST	0.00	0.0000	-0.0416
P25	3a_T3-ST	0.00	0.0000	-0.0423
P26	3a_T3-ST	0.00	0.0000	-0.0430
P27	3a_T3-ST	0.00	0.0000	-0.0436
P28	3a_T3-ST	0.00	0.0000	-0.0443
P29	3a_T3-ST	0.00	-0.0011	-0.0428
P30	3a_T3-ST	0.00	-0.0011	-0.0435
P31	3a_T3-ST	0.00	-0.0011	-0.0442
P32	3a_T3-ST	0.00	-0.0011	-0.0450
P33	3a_T3-ST	0.00	-0.0011	-0.0457
P34	3a_T3-ST	0.00	-0.0011	-0.0464
P35	3a_T3-ST	0.00	-0.0011	-0.0472
P36	3a_T3-ST	0.00	-0.0023	-0.0442
P37	3a_T3-ST	0.00	-0.0023	-0.0449
P38	3a_T3-ST	0.00	-0.0024	-0.0456
P39	3a_T3-ST	0.00	-0.0024	-0.0463
P40	3a_T3-ST	0.00	-0.0024	-0.0470
P41	3a_T3-ST	0.00	-0.0024	-0.0477
P42	3a_T3-ST	0.00	-0.0024	-0.0485
P43	3a_T3-ST	0.00	-0.0029	-0.0497
P44	3a_T3-ST	0.00	-0.0029	-0.0504
P45	3a_T3-ST	0.00	-0.0029	-0.0512
P46	3a_T3-ST	0.00	-0.0029	-0.0519
P47	3a_T3-ST	0.00	-0.0029	-0.0527
P48	3a_T3-ST	0.00	-0.0029	-0.0535
P49	3a_T3-ST	0.00	-0.0029	-0.0542

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3a_T4-ST	0.00	0.0029	-0.0507
P2	3a_T4-ST	0.00	0.0029	-0.0511
P3	3a_T4-ST	0.00	0.0029	-0.0516
P4	3a_T4-ST	0.00	0.0029	-0.0520
P5	3a_T4-ST	0.00	0.0029	-0.0524
P6	3a_T4-ST	0.00	0.0029	-0.0529
P7	3a_T4-ST	0.00	0.0029	-0.0533
P8	3a_T4-ST	0.00	0.0024	-0.0450
P9	3a_T4-ST	0.00	0.0024	-0.0455
P10	3a_T4-ST	0.00	0.0024	-0.0459
P11	3a_T4-ST	0.00	0.0023	-0.0463
P12	3a_T4-ST	0.00	0.0023	-0.0468
P13	3a_T4-ST	0.00	0.0023	-0.0472
P14	3a_T4-ST	0.00	0.0023	-0.0476
P15	3a_T4-ST	0.00	0.0011	-0.0435
P16	3a_T4-ST	0.00	0.0011	-0.0440
P17	3a_T4-ST	0.00	0.0011	-0.0445
P18	3a_T4-ST	0.00	0.0011	-0.0449
P19	3a_T4-ST	0.00	0.0011	-0.0454
P20	3a_T4-ST	0.00	0.0011	-0.0459
P21	3a_T4-ST	0.00	0.0011	-0.0463
P22	3a_T4-ST	0.00	0.0000	-0.0408
P23	3a_T4-ST	0.00	0.0000	-0.0412
P24	3a_T4-ST	0.00	0.0000	-0.0417
P25	3a_T4-ST	0.00	0.0000	-0.0422
P26	3a_T4-ST	0.00	0.0000	-0.0426
P27	3a_T4-ST	0.00	0.0000	-0.0431
P28	3a_T4-ST	0.00	0.0000	-0.0435
P29	3a_T4-ST	0.00	-0.0011	-0.0429
P30	3a_T4-ST	0.00	-0.0011	-0.0434
P31	3a_T4-ST	0.00	-0.0011	-0.0439
P32	3a_T4-ST	0.00	-0.0011	-0.0444
P33	3a_T4-ST	0.00	-0.0011	-0.0448
P34	3a_T4-ST	0.00	-0.0011	-0.0453
P35	3a_T4-ST	0.00	-0.0011	-0.0458
P36	3a_T4-ST	0.00	-0.0024	-0.0438
P37	3a_T4-ST	0.00	-0.0024	-0.0443
P38	3a_T4-ST	0.00	-0.0024	-0.0448
P39	3a_T4-ST	0.00	-0.0023	-0.0452
P40	3a_T4-ST	0.00	-0.0023	-0.0457
P41	3a_T4-ST	0.00	-0.0023	-0.0461
P42	3a_T4-ST	0.00	-0.0023	-0.0466
P43	3a_T4-ST	0.00	-0.0029	-0.0489
P44	3a_T4-ST	0.00	-0.0029	-0.0493
P45	3a_T4-ST	0.00	-0.0029	-0.0498
P46	3a_T4-ST	0.00	-0.0029	-0.0503
P47	3a_T4-ST	0.00	-0.0029	-0.0507
P48	3a_T4-ST	0.00	-0.0029	-0.0512
P49	3a_T4-ST	0.00	-0.0029	-0.0517

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b-ST	0.00	0.0025	-0.0753
P2	3b-ST	0.00	0.0025	-0.0753
P3	3b-ST	0.00	0.0025	-0.0753
P4	3b-ST	0.00	0.0025	-0.0753
P5	3b-ST	0.00	0.0025	-0.0753
P6	3b-ST	0.00	0.0025	-0.0753
P7	3b-ST	0.00	0.0025	-0.0753
P8	3b-ST	0.00	0.0020	-0.0705
P9	3b-ST	0.00	0.0020	-0.0706
P10	3b-ST	0.00	0.0020	-0.0706
P11	3b-ST	0.00	0.0020	-0.0706
P12	3b-ST	0.00	0.0020	-0.0706
P13	3b-ST	0.00	0.0020	-0.0705
P14	3b-ST	0.00	0.0020	-0.0705
P15	3b-ST	0.00	0.0009	-0.0704
P16	3b-ST	0.00	0.0009	-0.0704
P17	3b-ST	0.00	0.0009	-0.0704
P18	3b-ST	0.00	0.0009	-0.0704
P19	3b-ST	0.00	0.0009	-0.0704
P20	3b-ST	0.00	0.0009	-0.0704
P21	3b-ST	0.00	0.0009	-0.0704
P22	3b-ST	0.00	0.0000	-0.0679
P23	3b-ST	0.00	0.0000	-0.0679
P24	3b-ST	0.00	0.0000	-0.0679
P25	3b-ST	0.00	0.0000	-0.0679
P26	3b-ST	0.00	0.0000	-0.0679
P27	3b-ST	0.00	0.0000	-0.0679
P28	3b-ST	0.00	0.0000	-0.0679
P29	3b-ST	0.00	-0.0009	-0.0704
P30	3b-ST	0.00	-0.0009	-0.0704
P31	3b-ST	0.00	-0.0009	-0.0704
P32	3b-ST	0.00	-0.0009	-0.0704
P33	3b-ST	0.00	-0.0009	-0.0704
P34	3b-ST	0.00	-0.0009	-0.0704
P35	3b-ST	0.00	-0.0009	-0.0704
P36	3b-ST	0.00	-0.0020	-0.0705
P37	3b-ST	0.00	-0.0020	-0.0706
P38	3b-ST	0.00	-0.0020	-0.0706
P39	3b-ST	0.00	-0.0020	-0.0706
P40	3b-ST	0.00	-0.0020	-0.0706
P41	3b-ST	0.00	-0.0020	-0.0705
P42	3b-ST	0.00	-0.0020	-0.0705
P43	3b-ST	0.00	-0.0025	-0.0753
P44	3b-ST	0.00	-0.0025	-0.0753
P45	3b-ST	0.00	-0.0025	-0.0753
P46	3b-ST	0.00	-0.0025	-0.0753
P47	3b-ST	0.00	-0.0025	-0.0753
P48	3b-ST	0.00	-0.0025	-0.0753
P49	3b-ST	0.00	-0.0025	-0.0753

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T1-ST	0.00	0.0025	-0.0754
P2	3b_T1-ST	0.00	0.0025	-0.0761
P3	3b_T1-ST	0.00	0.0025	-0.0767
P4	3b_T1-ST	0.00	0.0025	-0.0773
P5	3b_T1-ST	0.00	0.0025	-0.0780
P6	3b_T1-ST	0.00	0.0025	-0.0786
P7	3b_T1-ST	0.00	0.0025	-0.0793
P8	3b_T1-ST	0.00	0.0019	-0.0705
P9	3b_T1-ST	0.00	0.0019	-0.0712
P10	3b_T1-ST	0.00	0.0019	-0.0718
P11	3b_T1-ST	0.00	0.0019	-0.0724
P12	3b_T1-ST	0.00	0.0019	-0.0731
P13	3b_T1-ST	0.00	0.0019	-0.0737
P14	3b_T1-ST	0.00	0.0019	-0.0743
P15	3b_T1-ST	0.00	0.0009	-0.0704
P16	3b_T1-ST	0.00	0.0009	-0.0710
P17	3b_T1-ST	0.00	0.0009	-0.0717
P18	3b_T1-ST	0.00	0.0009	-0.0723
P19	3b_T1-ST	0.00	0.0009	-0.0730
P20	3b_T1-ST	0.00	0.0009	-0.0737
P21	3b_T1-ST	0.00	0.0009	-0.0743
P22	3b_T1-ST	0.00	0.0000	-0.0677
P23	3b_T1-ST	0.00	0.0000	-0.0684
P24	3b_T1-ST	0.00	0.0000	-0.0690
P25	3b_T1-ST	0.00	0.0000	-0.0697
P26	3b_T1-ST	0.00	0.0000	-0.0703
P27	3b_T1-ST	0.00	0.0000	-0.0709
P28	3b_T1-ST	0.00	0.0000	-0.0716
P29	3b_T1-ST	0.00	-0.0009	-0.0701
P30	3b_T1-ST	0.00	-0.0009	-0.0707
P31	3b_T1-ST	0.00	-0.0009	-0.0714
P32	3b_T1-ST	0.00	-0.0009	-0.0721
P33	3b_T1-ST	0.00	-0.0009	-0.0728
P34	3b_T1-ST	0.00	-0.0009	-0.0734
P35	3b_T1-ST	0.00	-0.0009	-0.0741
P36	3b_T1-ST	0.00	-0.0019	-0.0700
P37	3b_T1-ST	0.00	-0.0019	-0.0707
P38	3b_T1-ST	0.00	-0.0019	-0.0714
P39	3b_T1-ST	0.00	-0.0019	-0.0720
P40	3b_T1-ST	0.00	-0.0019	-0.0727
P41	3b_T1-ST	0.00	-0.0019	-0.0733
P42	3b_T1-ST	0.00	-0.0019	-0.0739
P43	3b_T1-ST	0.00	-0.0025	-0.0747
P44	3b_T1-ST	0.00	-0.0025	-0.0753
P45	3b_T1-ST	0.00	-0.0025	-0.0760
P46	3b_T1-ST	0.00	-0.0025	-0.0767
P47	3b_T1-ST	0.00	-0.0025	-0.0774
P48	3b_T1-ST	0.00	-0.0025	-0.0780
P49	3b_T1-ST	0.00	-0.0025	-0.0787

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T2-ST	0.00	0.0025	-0.0761
P2	3b_T2-ST	0.00	0.0025	-0.0766
P3	3b_T2-ST	0.00	0.0025	-0.0771
P4	3b_T2-ST	0.00	0.0025	-0.0776
P5	3b_T2-ST	0.00	0.0025	-0.0781
P6	3b_T2-ST	0.00	0.0025	-0.0787
P7	3b_T2-ST	0.00	0.0025	-0.0792
P8	3b_T2-ST	0.00	0.0019	-0.0710
P9	3b_T2-ST	0.00	0.0019	-0.0715
P10	3b_T2-ST	0.00	0.0019	-0.0720
P11	3b_T2-ST	0.00	0.0019	-0.0725
P12	3b_T2-ST	0.00	0.0019	-0.0731
P13	3b_T2-ST	0.00	0.0019	-0.0735
P14	3b_T2-ST	0.00	0.0019	-0.0740
P15	3b_T2-ST	0.00	0.0009	-0.0707
P16	3b_T2-ST	0.00	0.0009	-0.0712
P17	3b_T2-ST	0.00	0.0009	-0.0717
P18	3b_T2-ST	0.00	0.0009	-0.0722
P19	3b_T2-ST	0.00	0.0009	-0.0728
P20	3b_T2-ST	0.00	0.0009	-0.0733
P21	3b_T2-ST	0.00	0.0009	-0.0738
P22	3b_T2-ST	0.00	0.0000	-0.0679
P23	3b_T2-ST	0.00	0.0000	-0.0684
P24	3b_T2-ST	0.00	0.0000	-0.0689
P25	3b_T2-ST	0.00	0.0000	-0.0694
P26	3b_T2-ST	0.00	0.0000	-0.0699
P27	3b_T2-ST	0.00	0.0000	-0.0704
P28	3b_T2-ST	0.00	0.0000	-0.0709
P29	3b_T2-ST	0.00	-0.0009	-0.0701
P30	3b_T2-ST	0.00	-0.0009	-0.0706
P31	3b_T2-ST	0.00	-0.0009	-0.0711
P32	3b_T2-ST	0.00	-0.0009	-0.0717
P33	3b_T2-ST	0.00	-0.0009	-0.0722
P34	3b_T2-ST	0.00	-0.0009	-0.0727
P35	3b_T2-ST	0.00	-0.0009	-0.0732
P36	3b_T2-ST	0.00	-0.0020	-0.0700
P37	3b_T2-ST	0.00	-0.0019	-0.0705
P38	3b_T2-ST	0.00	-0.0019	-0.0710
P39	3b_T2-ST	0.00	-0.0019	-0.0714
P40	3b_T2-ST	0.00	-0.0019	-0.0719
P41	3b_T2-ST	0.00	-0.0019	-0.0724
P42	3b_T2-ST	0.00	-0.0019	-0.0728
P43	3b_T2-ST	0.00	-0.0025	-0.0745
P44	3b_T2-ST	0.00	-0.0025	-0.0750
P45	3b_T2-ST	0.00	-0.0025	-0.0755
P46	3b_T2-ST	0.00	-0.0025	-0.0759
P47	3b_T2-ST	0.00	-0.0025	-0.0764
P48	3b_T2-ST	0.00	-0.0025	-0.0769
P49	3b_T2-ST	0.00	-0.0025	-0.0774

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T3-ST	0.00	0.0025	-0.0761
P2	3b_T3-ST	0.00	0.0025	-0.0768
P3	3b_T3-ST	0.00	0.0025	-0.0774
P4	3b_T3-ST	0.00	0.0025	-0.0781
P5	3b_T3-ST	0.00	0.0025	-0.0787
P6	3b_T3-ST	0.00	0.0025	-0.0794
P7	3b_T3-ST	0.00	0.0025	-0.0800
P8	3b_T3-ST	0.00	0.0019	-0.0715
P9	3b_T3-ST	0.00	0.0019	-0.0721
P10	3b_T3-ST	0.00	0.0019	-0.0728
P11	3b_T3-ST	0.00	0.0019	-0.0734
P12	3b_T3-ST	0.00	0.0019	-0.0741
P13	3b_T3-ST	0.00	0.0019	-0.0747
P14	3b_T3-ST	0.00	0.0019	-0.0753
P15	3b_T3-ST	0.00	0.0009	-0.0717
P16	3b_T3-ST	0.00	0.0009	-0.0723
P17	3b_T3-ST	0.00	0.0009	-0.0730
P18	3b_T3-ST	0.00	0.0009	-0.0737
P19	3b_T3-ST	0.00	0.0009	-0.0744
P20	3b_T3-ST	0.00	0.0009	-0.0751
P21	3b_T3-ST	0.00	0.0009	-0.0757
P22	3b_T3-ST	0.00	0.0000	-0.0692
P23	3b_T3-ST	0.00	0.0000	-0.0699
P24	3b_T3-ST	0.00	0.0000	-0.0706
P25	3b_T3-ST	0.00	0.0000	-0.0713
P26	3b_T3-ST	0.00	0.0000	-0.0720
P27	3b_T3-ST	0.00	0.0000	-0.0726
P28	3b_T3-ST	0.00	0.0000	-0.0733
P29	3b_T3-ST	0.00	-0.0009	-0.0719
P30	3b_T3-ST	0.00	-0.0009	-0.0726
P31	3b_T3-ST	0.00	-0.0009	-0.0733
P32	3b_T3-ST	0.00	-0.0009	-0.0741
P33	3b_T3-ST	0.00	-0.0009	-0.0748
P34	3b_T3-ST	0.00	-0.0009	-0.0755
P35	3b_T3-ST	0.00	-0.0009	-0.0762
P36	3b_T3-ST	0.00	-0.0019	-0.0719
P37	3b_T3-ST	0.00	-0.0019	-0.0727
P38	3b_T3-ST	0.00	-0.0019	-0.0734
P39	3b_T3-ST	0.00	-0.0019	-0.0741
P40	3b_T3-ST	0.00	-0.0019	-0.0749
P41	3b_T3-ST	0.00	-0.0019	-0.0756
P42	3b_T3-ST	0.00	-0.0019	-0.0763
P43	3b_T3-ST	0.00	-0.0025	-0.0769
P44	3b_T3-ST	0.00	-0.0025	-0.0777
P45	3b_T3-ST	0.00	-0.0025	-0.0784
P46	3b_T3-ST	0.00	-0.0025	-0.0792
P47	3b_T3-ST	0.00	-0.0025	-0.0799
P48	3b_T3-ST	0.00	-0.0026	-0.0807
P49	3b_T3-ST	0.00	-0.0026	-0.0815

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	3b_T4-ST	0.00	0.0025	-0.0779
P2	3b_T4-ST	0.00	0.0025	-0.0784
P3	3b_T4-ST	0.00	0.0025	-0.0788
P4	3b_T4-ST	0.00	0.0025	-0.0792
P5	3b_T4-ST	0.00	0.0025	-0.0797
P6	3b_T4-ST	0.00	0.0025	-0.0801
P7	3b_T4-ST	0.00	0.0025	-0.0805
P8	3b_T4-ST	0.00	0.0019	-0.0728
P9	3b_T4-ST	0.00	0.0019	-0.0733
P10	3b_T4-ST	0.00	0.0019	-0.0737
P11	3b_T4-ST	0.00	0.0019	-0.0742
P12	3b_T4-ST	0.00	0.0019	-0.0746
P13	3b_T4-ST	0.00	0.0019	-0.0750
P14	3b_T4-ST	0.00	0.0019	-0.0754
P15	3b_T4-ST	0.00	0.0009	-0.0726
P16	3b_T4-ST	0.00	0.0009	-0.0731
P17	3b_T4-ST	0.00	0.0009	-0.0736
P18	3b_T4-ST	0.00	0.0009	-0.0740
P19	3b_T4-ST	0.00	0.0009	-0.0745
P20	3b_T4-ST	0.00	0.0009	-0.0750
P21	3b_T4-ST	0.00	0.0009	-0.0754
P22	3b_T4-ST	0.00	0.0000	-0.0698
P23	3b_T4-ST	0.00	0.0000	-0.0702
P24	3b_T4-ST	0.00	0.0000	-0.0707
P25	3b_T4-ST	0.00	0.0000	-0.0712
P26	3b_T4-ST	0.00	0.0000	-0.0716
P27	3b_T4-ST	0.00	0.0000	-0.0721
P28	3b_T4-ST	0.00	0.0000	-0.0725
P29	3b_T4-ST	0.00	-0.0009	-0.0720
P30	3b_T4-ST	0.00	-0.0009	-0.0725
P31	3b_T4-ST	0.00	-0.0009	-0.0730
P32	3b_T4-ST	0.00	-0.0009	-0.0734
P33	3b_T4-ST	0.00	-0.0009	-0.0739
P34	3b_T4-ST	0.00	-0.0009	-0.0744
P35	3b_T4-ST	0.00	-0.0009	-0.0749
P36	3b_T4-ST	0.00	-0.0019	-0.0716
P37	3b_T4-ST	0.00	-0.0019	-0.0721
P38	3b_T4-ST	0.00	-0.0019	-0.0726
P39	3b_T4-ST	0.00	-0.0019	-0.0730
P40	3b_T4-ST	0.00	-0.0019	-0.0735
P41	3b_T4-ST	0.00	-0.0019	-0.0739
P42	3b_T4-ST	0.00	-0.0019	-0.0744
P43	3b_T4-ST	0.00	-0.0025	-0.0761
P44	3b_T4-ST	0.00	-0.0025	-0.0766
P45	3b_T4-ST	0.00	-0.0025	-0.0770
P46	3b_T4-ST	0.00	-0.0025	-0.0775
P47	3b_T4-ST	0.00	-0.0025	-0.0780
P48	3b_T4-ST	0.00	-0.0025	-0.0784
P49	3b_T4-ST	0.00	-0.0025	-0.0789

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a-ST	0.00	0.0026	-0.0368
P2	D1a-ST	0.00	0.0026	-0.0368
P3	D1a-ST	0.00	0.0026	-0.0368
P4	D1a-ST	0.00	0.0026	-0.0368
P5	D1a-ST	0.00	0.0026	-0.0368
P6	D1a-ST	0.00	0.0026	-0.0368
P7	D1a-ST	0.00	0.0026	-0.0368
P8	D1a-ST	0.00	0.0025	-0.0314
P9	D1a-ST	0.00	0.0025	-0.0314
P10	D1a-ST	0.00	0.0025	-0.0314
P11	D1a-ST	0.00	0.0025	-0.0314
P12	D1a-ST	0.00	0.0025	-0.0314
P13	D1a-ST	0.00	0.0025	-0.0314
P14	D1a-ST	0.00	0.0025	-0.0314
P15	D1a-ST	0.00	0.0013	-0.0281
P16	D1a-ST	0.00	0.0013	-0.0281
P17	D1a-ST	0.00	0.0013	-0.0281
P18	D1a-ST	0.00	0.0013	-0.0281
P19	D1a-ST	0.00	0.0013	-0.0281
P20	D1a-ST	0.00	0.0013	-0.0281
P21	D1a-ST	0.00	0.0013	-0.0281
P22	D1a-ST	0.00	0.0000	-0.0254
P23	D1a-ST	0.00	0.0000	-0.0254
P24	D1a-ST	0.00	0.0000	-0.0254
P25	D1a-ST	0.00	0.0000	-0.0254
P26	D1a-ST	0.00	0.0000	-0.0254
P27	D1a-ST	0.00	0.0000	-0.0254
P28	D1a-ST	0.00	0.0000	-0.0254
P29	D1a-ST	0.00	-0.0013	-0.0281
P30	D1a-ST	0.00	-0.0013	-0.0281
P31	D1a-ST	0.00	-0.0013	-0.0281
P32	D1a-ST	0.00	-0.0013	-0.0281
P33	D1a-ST	0.00	-0.0013	-0.0281
P34	D1a-ST	0.00	-0.0013	-0.0281
P35	D1a-ST	0.00	-0.0013	-0.0281
P36	D1a-ST	0.00	-0.0025	-0.0314
P37	D1a-ST	0.00	-0.0025	-0.0314
P38	D1a-ST	0.00	-0.0025	-0.0314
P39	D1a-ST	0.00	-0.0025	-0.0314
P40	D1a-ST	0.00	-0.0025	-0.0314
P41	D1a-ST	0.00	-0.0025	-0.0314
P42	D1a-ST	0.00	-0.0025	-0.0314
P43	D1a-ST	0.00	-0.0026	-0.0368
P44	D1a-ST	0.00	-0.0026	-0.0368
P45	D1a-ST	0.00	-0.0026	-0.0368
P46	D1a-ST	0.00	-0.0026	-0.0368
P47	D1a-ST	0.00	-0.0026	-0.0368
P48	D1a-ST	0.00	-0.0026	-0.0368
P49	D1a-ST	0.00	-0.0026	-0.0368

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_6-ST	0.00	0.0024	-0.0281
P2	D1a_6-ST	0.00	0.0024	-0.0281
P3	D1a_6-ST	0.00	0.0024	-0.0281
P4	D1a_6-ST	0.00	0.0024	-0.0281
P5	D1a_6-ST	0.00	0.0024	-0.0281
P6	D1a_6-ST	0.00	0.0024	-0.0281
P7	D1a_6-ST	0.00	0.0024	-0.0281
P8	D1a_6-ST	0.00	0.0024	-0.0229
P9	D1a_6-ST	0.00	0.0024	-0.0229
P10	D1a_6-ST	0.00	0.0024	-0.0229
P11	D1a_6-ST	0.00	0.0024	-0.0229
P12	D1a_6-ST	0.00	0.0024	-0.0229
P13	D1a_6-ST	0.00	0.0024	-0.0229
P14	D1a_6-ST	0.00	0.0024	-0.0229
P15	D1a_6-ST	0.00	0.0013	-0.0191
P16	D1a_6-ST	0.00	0.0013	-0.0191
P17	D1a_6-ST	0.00	0.0013	-0.0191
P18	D1a_6-ST	0.00	0.0013	-0.0191
P19	D1a_6-ST	0.00	0.0013	-0.0191
P20	D1a_6-ST	0.00	0.0013	-0.0191
P21	D1a_6-ST	0.00	0.0013	-0.0191
P22	D1a_6-ST	0.00	0.0000	-0.0166
P23	D1a_6-ST	0.00	0.0000	-0.0166
P24	D1a_6-ST	0.00	0.0000	-0.0166
P25	D1a_6-ST	0.00	0.0000	-0.0166
P26	D1a_6-ST	0.00	0.0000	-0.0166
P27	D1a_6-ST	0.00	0.0000	-0.0166
P28	D1a_6-ST	0.00	0.0000	-0.0166
P29	D1a_6-ST	0.00	-0.0013	-0.0191
P30	D1a_6-ST	0.00	-0.0013	-0.0191
P31	D1a_6-ST	0.00	-0.0013	-0.0191
P32	D1a_6-ST	0.00	-0.0013	-0.0191
P33	D1a_6-ST	0.00	-0.0013	-0.0191
P34	D1a_6-ST	0.00	-0.0013	-0.0191
P35	D1a_6-ST	0.00	-0.0013	-0.0191
P36	D1a_6-ST	0.00	-0.0024	-0.0229
P37	D1a_6-ST	0.00	-0.0024	-0.0229
P38	D1a_6-ST	0.00	-0.0024	-0.0229
P39	D1a_6-ST	0.00	-0.0024	-0.0229
P40	D1a_6-ST	0.00	-0.0024	-0.0229
P41	D1a_6-ST	0.00	-0.0024	-0.0229
P42	D1a_6-ST	0.00	-0.0024	-0.0229
P43	D1a_6-ST	0.00	-0.0024	-0.0281
P44	D1a_6-ST	0.00	-0.0024	-0.0281
P45	D1a_6-ST	0.00	-0.0024	-0.0281
P46	D1a_6-ST	0.00	-0.0024	-0.0281
P47	D1a_6-ST	0.00	-0.0024	-0.0281
P48	D1a_6-ST	0.00	-0.0024	-0.0281
P49	D1a_6-ST	0.00	-0.0024	-0.0281

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T1-ST	0.00	0.0026	-0.0369
P2	D1a_T1-ST	0.00	0.0026	-0.0375
P3	D1a_T1-ST	0.00	0.0026	-0.0381
P4	D1a_T1-ST	0.00	0.0026	-0.0388
P5	D1a_T1-ST	0.00	0.0026	-0.0394
P6	D1a_T1-ST	0.00	0.0026	-0.0401
P7	D1a_T1-ST	0.00	0.0026	-0.0407
P8	D1a_T1-ST	0.00	0.0024	-0.0314
P9	D1a_T1-ST	0.00	0.0024	-0.0320
P10	D1a_T1-ST	0.00	0.0024	-0.0327
P11	D1a_T1-ST	0.00	0.0024	-0.0333
P12	D1a_T1-ST	0.00	0.0024	-0.0339
P13	D1a_T1-ST	0.00	0.0024	-0.0346
P14	D1a_T1-ST	0.00	0.0024	-0.0352
P15	D1a_T1-ST	0.00	0.0013	-0.0281
P16	D1a_T1-ST	0.00	0.0013	-0.0287
P17	D1a_T1-ST	0.00	0.0013	-0.0294
P18	D1a_T1-ST	0.00	0.0013	-0.0301
P19	D1a_T1-ST	0.00	0.0013	-0.0307
P20	D1a_T1-ST	0.00	0.0013	-0.0314
P21	D1a_T1-ST	0.00	0.0013	-0.0320
P22	D1a_T1-ST	0.00	0.0000	-0.0253
P23	D1a_T1-ST	0.00	0.0000	-0.0259
P24	D1a_T1-ST	0.00	0.0000	-0.0266
P25	D1a_T1-ST	0.00	0.0000	-0.0272
P26	D1a_T1-ST	0.00	0.0000	-0.0279
P27	D1a_T1-ST	0.00	0.0000	-0.0285
P28	D1a_T1-ST	0.00	0.0000	-0.0291
P29	D1a_T1-ST	0.00	-0.0013	-0.0278
P30	D1a_T1-ST	0.00	-0.0013	-0.0285
P31	D1a_T1-ST	0.00	-0.0013	-0.0291
P32	D1a_T1-ST	0.00	-0.0013	-0.0298
P33	D1a_T1-ST	0.00	-0.0013	-0.0305
P34	D1a_T1-ST	0.00	-0.0013	-0.0312
P35	D1a_T1-ST	0.00	-0.0013	-0.0318
P36	D1a_T1-ST	0.00	-0.0024	-0.0309
P37	D1a_T1-ST	0.00	-0.0024	-0.0316
P38	D1a_T1-ST	0.00	-0.0024	-0.0322
P39	D1a_T1-ST	0.00	-0.0024	-0.0329
P40	D1a_T1-ST	0.00	-0.0024	-0.0335
P41	D1a_T1-ST	0.00	-0.0024	-0.0342
P42	D1a_T1-ST	0.00	-0.0024	-0.0348
P43	D1a_T1-ST	0.00	-0.0026	-0.0361
P44	D1a_T1-ST	0.00	-0.0026	-0.0368
P45	D1a_T1-ST	0.00	-0.0026	-0.0375
P46	D1a_T1-ST	0.00	-0.0026	-0.0381
P47	D1a_T1-ST	0.00	-0.0026	-0.0388
P48	D1a_T1-ST	0.00	-0.0026	-0.0395
P49	D1a_T1-ST	0.00	-0.0026	-0.0401

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T2-ST	0.00	0.0026	-0.0375
P2	D1a_T2-ST	0.00	0.0026	-0.0380
P3	D1a_T2-ST	0.00	0.0026	-0.0386
P4	D1a_T2-ST	0.00	0.0026	-0.0391
P5	D1a_T2-ST	0.00	0.0026	-0.0396
P6	D1a_T2-ST	0.00	0.0026	-0.0401
P7	D1a_T2-ST	0.00	0.0026	-0.0406
P8	D1a_T2-ST	0.00	0.0024	-0.0319
P9	D1a_T2-ST	0.00	0.0024	-0.0324
P10	D1a_T2-ST	0.00	0.0024	-0.0329
P11	D1a_T2-ST	0.00	0.0024	-0.0334
P12	D1a_T2-ST	0.00	0.0024	-0.0339
P13	D1a_T2-ST	0.00	0.0024	-0.0344
P14	D1a_T2-ST	0.00	0.0024	-0.0349
P15	D1a_T2-ST	0.00	0.0013	-0.0284
P16	D1a_T2-ST	0.00	0.0013	-0.0289
P17	D1a_T2-ST	0.00	0.0013	-0.0294
P18	D1a_T2-ST	0.00	0.0013	-0.0300
P19	D1a_T2-ST	0.00	0.0013	-0.0305
P20	D1a_T2-ST	0.00	0.0013	-0.0310
P21	D1a_T2-ST	0.00	0.0013	-0.0315
P22	D1a_T2-ST	0.00	0.0000	-0.0254
P23	D1a_T2-ST	0.00	0.0000	-0.0259
P24	D1a_T2-ST	0.00	0.0000	-0.0264
P25	D1a_T2-ST	0.00	0.0000	-0.0269
P26	D1a_T2-ST	0.00	0.0000	-0.0274
P27	D1a_T2-ST	0.00	0.0000	-0.0279
P28	D1a_T2-ST	0.00	0.0000	-0.0284
P29	D1a_T2-ST	0.00	-0.0013	-0.0278
P30	D1a_T2-ST	0.00	-0.0013	-0.0284
P31	D1a_T2-ST	0.00	-0.0013	-0.0289
P32	D1a_T2-ST	0.00	-0.0013	-0.0294
P33	D1a_T2-ST	0.00	-0.0013	-0.0299
P34	D1a_T2-ST	0.00	-0.0013	-0.0304
P35	D1a_T2-ST	0.00	-0.0013	-0.0309
P36	D1a_T2-ST	0.00	-0.0024	-0.0309
P37	D1a_T2-ST	0.00	-0.0024	-0.0313
P38	D1a_T2-ST	0.00	-0.0024	-0.0318
P39	D1a_T2-ST	0.00	-0.0024	-0.0323
P40	D1a_T2-ST	0.00	-0.0024	-0.0328
P41	D1a_T2-ST	0.00	-0.0024	-0.0333
P42	D1a_T2-ST	0.00	-0.0024	-0.0337
P43	D1a_T2-ST	0.00	-0.0026	-0.0359
P44	D1a_T2-ST	0.00	-0.0026	-0.0364
P45	D1a_T2-ST	0.00	-0.0026	-0.0369
P46	D1a_T2-ST	0.00	-0.0026	-0.0374
P47	D1a_T2-ST	0.00	-0.0026	-0.0379
P48	D1a_T2-ST	0.00	-0.0026	-0.0383
P49	D1a_T2-ST	0.00	-0.0026	-0.0388

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T3-ST	0.00	0.0027	-0.0376
P2	D1a_T3-ST	0.00	0.0026	-0.0382
P3	D1a_T3-ST	0.00	0.0026	-0.0389
P4	D1a_T3-ST	0.00	0.0026	-0.0395
P5	D1a_T3-ST	0.00	0.0026	-0.0401
P6	D1a_T3-ST	0.00	0.0026	-0.0408
P7	D1a_T3-ST	0.00	0.0026	-0.0414
P8	D1a_T3-ST	0.00	0.0024	-0.0324
P9	D1a_T3-ST	0.00	0.0024	-0.0330
P10	D1a_T3-ST	0.00	0.0024	-0.0337
P11	D1a_T3-ST	0.00	0.0024	-0.0343
P12	D1a_T3-ST	0.00	0.0024	-0.0349
P13	D1a_T3-ST	0.00	0.0024	-0.0356
P14	D1a_T3-ST	0.00	0.0024	-0.0362
P15	D1a_T3-ST	0.00	0.0013	-0.0294
P16	D1a_T3-ST	0.00	0.0013	-0.0301
P17	D1a_T3-ST	0.00	0.0013	-0.0307
P18	D1a_T3-ST	0.00	0.0013	-0.0314
P19	D1a_T3-ST	0.00	0.0013	-0.0321
P20	D1a_T3-ST	0.00	0.0013	-0.0328
P21	D1a_T3-ST	0.00	0.0013	-0.0335
P22	D1a_T3-ST	0.00	0.0000	-0.0268
P23	D1a_T3-ST	0.00	0.0000	-0.0275
P24	D1a_T3-ST	0.00	0.0000	-0.0282
P25	D1a_T3-ST	0.00	0.0000	-0.0288
P26	D1a_T3-ST	0.00	0.0000	-0.0295
P27	D1a_T3-ST	0.00	0.0000	-0.0302
P28	D1a_T3-ST	0.00	0.0000	-0.0309
P29	D1a_T3-ST	0.00	-0.0013	-0.0296
P30	D1a_T3-ST	0.00	-0.0013	-0.0303
P31	D1a_T3-ST	0.00	-0.0013	-0.0311
P32	D1a_T3-ST	0.00	-0.0013	-0.0318
P33	D1a_T3-ST	0.00	-0.0013	-0.0325
P34	D1a_T3-ST	0.00	-0.0013	-0.0332
P35	D1a_T3-ST	0.00	-0.0013	-0.0340
P36	D1a_T3-ST	0.00	-0.0024	-0.0328
P37	D1a_T3-ST	0.00	-0.0024	-0.0336
P38	D1a_T3-ST	0.00	-0.0024	-0.0343
P39	D1a_T3-ST	0.00	-0.0024	-0.0350
P40	D1a_T3-ST	0.00	-0.0024	-0.0357
P41	D1a_T3-ST	0.00	-0.0024	-0.0364
P42	D1a_T3-ST	0.00	-0.0024	-0.0372
P43	D1a_T3-ST	0.00	-0.0026	-0.0383
P44	D1a_T3-ST	0.00	-0.0026	-0.0391
P45	D1a_T3-ST	0.00	-0.0027	-0.0399
P46	D1a_T3-ST	0.00	-0.0027	-0.0406
P47	D1a_T3-ST	0.00	-0.0027	-0.0414
P48	D1a_T3-ST	0.00	-0.0027	-0.0422
P49	D1a_T3-ST	0.00	-0.0027	-0.0429

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1a_T4-ST	0.00	0.0026	-0.0394
P2	D1a_T4-ST	0.00	0.0026	-0.0398
P3	D1a_T4-ST	0.00	0.0026	-0.0403
P4	D1a_T4-ST	0.00	0.0026	-0.0407
P5	D1a_T4-ST	0.00	0.0026	-0.0411
P6	D1a_T4-ST	0.00	0.0026	-0.0416
P7	D1a_T4-ST	0.00	0.0026	-0.0420
P8	D1a_T4-ST	0.00	0.0024	-0.0337
P9	D1a_T4-ST	0.00	0.0024	-0.0342
P10	D1a_T4-ST	0.00	0.0024	-0.0346
P11	D1a_T4-ST	0.00	0.0024	-0.0350
P12	D1a_T4-ST	0.00	0.0024	-0.0355
P13	D1a_T4-ST	0.00	0.0024	-0.0359
P14	D1a_T4-ST	0.00	0.0024	-0.0363
P15	D1a_T4-ST	0.00	0.0013	-0.0303
P16	D1a_T4-ST	0.00	0.0013	-0.0308
P17	D1a_T4-ST	0.00	0.0013	-0.0313
P18	D1a_T4-ST	0.00	0.0013	-0.0317
P19	D1a_T4-ST	0.00	0.0013	-0.0322
P20	D1a_T4-ST	0.00	0.0013	-0.0327
P21	D1a_T4-ST	0.00	0.0013	-0.0331
P22	D1a_T4-ST	0.00	0.0000	-0.0273
P23	D1a_T4-ST	0.00	0.0000	-0.0278
P24	D1a_T4-ST	0.00	0.0000	-0.0282
P25	D1a_T4-ST	0.00	0.0000	-0.0287
P26	D1a_T4-ST	0.00	0.0000	-0.0292
P27	D1a_T4-ST	0.00	0.0000	-0.0296
P28	D1a_T4-ST	0.00	0.0000	-0.0301
P29	D1a_T4-ST	0.00	-0.0013	-0.0297
P30	D1a_T4-ST	0.00	-0.0013	-0.0302
P31	D1a_T4-ST	0.00	-0.0013	-0.0307
P32	D1a_T4-ST	0.00	-0.0013	-0.0312
P33	D1a_T4-ST	0.00	-0.0013	-0.0317
P34	D1a_T4-ST	0.00	-0.0013	-0.0321
P35	D1a_T4-ST	0.00	-0.0013	-0.0326
P36	D1a_T4-ST	0.00	-0.0024	-0.0325
P37	D1a_T4-ST	0.00	-0.0024	-0.0330
P38	D1a_T4-ST	0.00	-0.0024	-0.0335
P39	D1a_T4-ST	0.00	-0.0024	-0.0339
P40	D1a_T4-ST	0.00	-0.0024	-0.0344
P41	D1a_T4-ST	0.00	-0.0024	-0.0348
P42	D1a_T4-ST	0.00	-0.0024	-0.0353
P43	D1a_T4-ST	0.00	-0.0026	-0.0376
P44	D1a_T4-ST	0.00	-0.0026	-0.0380
P45	D1a_T4-ST	0.00	-0.0026	-0.0385
P46	D1a_T4-ST	0.00	-0.0026	-0.0390
P47	D1a_T4-ST	0.00	-0.0026	-0.0394
P48	D1a_T4-ST	0.00	-0.0026	-0.0399
P49	D1a_T4-ST	0.00	-0.0026	-0.0404

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b-ST	0.00	0.0023	-0.0745
P2	D1b-ST	0.00	0.0023	-0.0745
P3	D1b-ST	0.00	0.0023	-0.0745
P4	D1b-ST	0.00	0.0023	-0.0745
P5	D1b-ST	0.00	0.0023	-0.0745
P6	D1b-ST	0.00	0.0023	-0.0745
P7	D1b-ST	0.00	0.0023	-0.0745
P8	D1b-ST	0.00	0.0021	-0.0696
P9	D1b-ST	0.00	0.0021	-0.0696
P10	D1b-ST	0.00	0.0021	-0.0696
P11	D1b-ST	0.00	0.0021	-0.0696
P12	D1b-ST	0.00	0.0021	-0.0696
P13	D1b-ST	0.00	0.0021	-0.0696
P14	D1b-ST	0.00	0.0021	-0.0696
P15	D1b-ST	0.00	0.0011	-0.0677
P16	D1b-ST	0.00	0.0011	-0.0677
P17	D1b-ST	0.00	0.0011	-0.0677
P18	D1b-ST	0.00	0.0011	-0.0677
P19	D1b-ST	0.00	0.0011	-0.0677
P20	D1b-ST	0.00	0.0011	-0.0677
P21	D1b-ST	0.00	0.0011	-0.0677
P22	D1b-ST	0.00	0.0000	-0.0647
P23	D1b-ST	0.00	0.0000	-0.0648
P24	D1b-ST	0.00	0.0000	-0.0648
P25	D1b-ST	0.00	0.0000	-0.0648
P26	D1b-ST	0.00	0.0000	-0.0648
P27	D1b-ST	0.00	0.0000	-0.0647
P28	D1b-ST	0.00	0.0000	-0.0647
P29	D1b-ST	0.00	-0.0011	-0.0677
P30	D1b-ST	0.00	-0.0011	-0.0677
P31	D1b-ST	0.00	-0.0011	-0.0677
P32	D1b-ST	0.00	-0.0011	-0.0677
P33	D1b-ST	0.00	-0.0011	-0.0677
P34	D1b-ST	0.00	-0.0011	-0.0677
P35	D1b-ST	0.00	-0.0011	-0.0677
P36	D1b-ST	0.00	-0.0021	-0.0696
P37	D1b-ST	0.00	-0.0021	-0.0696
P38	D1b-ST	0.00	-0.0021	-0.0696
P39	D1b-ST	0.00	-0.0021	-0.0696
P40	D1b-ST	0.00	-0.0021	-0.0696
P41	D1b-ST	0.00	-0.0021	-0.0696
P42	D1b-ST	0.00	-0.0021	-0.0696
P43	D1b-ST	0.00	-0.0023	-0.0745
P44	D1b-ST	0.00	-0.0023	-0.0745
P45	D1b-ST	0.00	-0.0023	-0.0745
P46	D1b-ST	0.00	-0.0023	-0.0745
P47	D1b-ST	0.00	-0.0023	-0.0745
P48	D1b-ST	0.00	-0.0023	-0.0745
P49	D1b-ST	0.00	-0.0023	-0.0745

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T1-ST	0.00	0.0024	-0.0745
P2	D1b_T1-ST	0.00	0.0024	-0.0752
P3	D1b_T1-ST	0.00	0.0024	-0.0758
P4	D1b_T1-ST	0.00	0.0024	-0.0765
P5	D1b_T1-ST	0.00	0.0024	-0.0771
P6	D1b_T1-ST	0.00	0.0024	-0.0777
P7	D1b_T1-ST	0.00	0.0024	-0.0784
P8	D1b_T1-ST	0.00	0.0021	-0.0696
P9	D1b_T1-ST	0.00	0.0021	-0.0702
P10	D1b_T1-ST	0.00	0.0021	-0.0709
P11	D1b_T1-ST	0.00	0.0021	-0.0715
P12	D1b_T1-ST	0.00	0.0020	-0.0721
P13	D1b_T1-ST	0.00	0.0020	-0.0727
P14	D1b_T1-ST	0.00	0.0020	-0.0734
P15	D1b_T1-ST	0.00	0.0011	-0.0677
P16	D1b_T1-ST	0.00	0.0011	-0.0684
P17	D1b_T1-ST	0.00	0.0011	-0.0690
P18	D1b_T1-ST	0.00	0.0011	-0.0697
P19	D1b_T1-ST	0.00	0.0011	-0.0703
P20	D1b_T1-ST	0.00	0.0011	-0.0710
P21	D1b_T1-ST	0.00	0.0011	-0.0717
P22	D1b_T1-ST	0.00	0.0000	-0.0646
P23	D1b_T1-ST	0.00	0.0000	-0.0652
P24	D1b_T1-ST	0.00	0.0000	-0.0659
P25	D1b_T1-ST	0.00	0.0000	-0.0666
P26	D1b_T1-ST	0.00	0.0000	-0.0672
P27	D1b_T1-ST	0.00	0.0000	-0.0678
P28	D1b_T1-ST	0.00	0.0000	-0.0685
P29	D1b_T1-ST	0.00	-0.0011	-0.0674
P30	D1b_T1-ST	0.00	-0.0011	-0.0681
P31	D1b_T1-ST	0.00	-0.0011	-0.0688
P32	D1b_T1-ST	0.00	-0.0011	-0.0694
P33	D1b_T1-ST	0.00	-0.0011	-0.0701
P34	D1b_T1-ST	0.00	-0.0011	-0.0708
P35	D1b_T1-ST	0.00	-0.0011	-0.0715
P36	D1b_T1-ST	0.00	-0.0021	-0.0691
P37	D1b_T1-ST	0.00	-0.0021	-0.0698
P38	D1b_T1-ST	0.00	-0.0021	-0.0704
P39	D1b_T1-ST	0.00	-0.0021	-0.0711
P40	D1b_T1-ST	0.00	-0.0021	-0.0717
P41	D1b_T1-ST	0.00	-0.0021	-0.0723
P42	D1b_T1-ST	0.00	-0.0021	-0.0730
P43	D1b_T1-ST	0.00	-0.0023	-0.0738
P44	D1b_T1-ST	0.00	-0.0023	-0.0745
P45	D1b_T1-ST	0.00	-0.0023	-0.0752
P46	D1b_T1-ST	0.00	-0.0023	-0.0758
P47	D1b_T1-ST	0.00	-0.0023	-0.0765
P48	D1b_T1-ST	0.00	-0.0023	-0.0772
P49	D1b_T1-ST	0.00	-0.0023	-0.0778

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T2-ST	0.00	0.0024	-0.0752
P2	D1b_T2-ST	0.00	0.0024	-0.0757
P3	D1b_T2-ST	0.00	0.0024	-0.0762
P4	D1b_T2-ST	0.00	0.0024	-0.0768
P5	D1b_T2-ST	0.00	0.0024	-0.0773
P6	D1b_T2-ST	0.00	0.0024	-0.0778
P7	D1b_T2-ST	0.00	0.0024	-0.0783
P8	D1b_T2-ST	0.00	0.0021	-0.0701
P9	D1b_T2-ST	0.00	0.0021	-0.0706
P10	D1b_T2-ST	0.00	0.0021	-0.0711
P11	D1b_T2-ST	0.00	0.0021	-0.0716
P12	D1b_T2-ST	0.00	0.0021	-0.0721
P13	D1b_T2-ST	0.00	0.0021	-0.0726
P14	D1b_T2-ST	0.00	0.0021	-0.0731
P15	D1b_T2-ST	0.00	0.0011	-0.0680
P16	D1b_T2-ST	0.00	0.0011	-0.0685
P17	D1b_T2-ST	0.00	0.0011	-0.0691
P18	D1b_T2-ST	0.00	0.0011	-0.0696
P19	D1b_T2-ST	0.00	0.0011	-0.0701
P20	D1b_T2-ST	0.00	0.0011	-0.0706
P21	D1b_T2-ST	0.00	0.0011	-0.0712
P22	D1b_T2-ST	0.00	0.0000	-0.0648
P23	D1b_T2-ST	0.00	0.0000	-0.0653
P24	D1b_T2-ST	0.00	0.0000	-0.0658
P25	D1b_T2-ST	0.00	0.0000	-0.0663
P26	D1b_T2-ST	0.00	0.0000	-0.0668
P27	D1b_T2-ST	0.00	0.0000	-0.0673
P28	D1b_T2-ST	0.00	0.0000	-0.0678
P29	D1b_T2-ST	0.00	-0.0011	-0.0675
P30	D1b_T2-ST	0.00	-0.0011	-0.0680
P31	D1b_T2-ST	0.00	-0.0011	-0.0685
P32	D1b_T2-ST	0.00	-0.0011	-0.0690
P33	D1b_T2-ST	0.00	-0.0011	-0.0695
P34	D1b_T2-ST	0.00	-0.0011	-0.0700
P35	D1b_T2-ST	0.00	-0.0011	-0.0705
P36	D1b_T2-ST	0.00	-0.0021	-0.0690
P37	D1b_T2-ST	0.00	-0.0021	-0.0695
P38	D1b_T2-ST	0.00	-0.0021	-0.0700
P39	D1b_T2-ST	0.00	-0.0021	-0.0705
P40	D1b_T2-ST	0.00	-0.0021	-0.0710
P41	D1b_T2-ST	0.00	-0.0021	-0.0714
P42	D1b_T2-ST	0.00	-0.0020	-0.0719
P43	D1b_T2-ST	0.00	-0.0023	-0.0736
P44	D1b_T2-ST	0.00	-0.0023	-0.0741
P45	D1b_T2-ST	0.00	-0.0023	-0.0746
P46	D1b_T2-ST	0.00	-0.0023	-0.0751
P47	D1b_T2-ST	0.00	-0.0023	-0.0755
P48	D1b_T2-ST	0.00	-0.0023	-0.0760
P49	D1b_T2-ST	0.00	-0.0023	-0.0765

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T3-ST	0.00	0.0024	-0.0752
P2	D1b_T3-ST	0.00	0.0024	-0.0759
P3	D1b_T3-ST	0.00	0.0024	-0.0765
P4	D1b_T3-ST	0.00	0.0024	-0.0772
P5	D1b_T3-ST	0.00	0.0024	-0.0778
P6	D1b_T3-ST	0.00	0.0024	-0.0785
P7	D1b_T3-ST	0.00	0.0024	-0.0791
P8	D1b_T3-ST	0.00	0.0021	-0.0705
P9	D1b_T3-ST	0.00	0.0021	-0.0712
P10	D1b_T3-ST	0.00	0.0021	-0.0718
P11	D1b_T3-ST	0.00	0.0020	-0.0725
P12	D1b_T3-ST	0.00	0.0020	-0.0731
P13	D1b_T3-ST	0.00	0.0020	-0.0737
P14	D1b_T3-ST	0.00	0.0020	-0.0744
P15	D1b_T3-ST	0.00	0.0011	-0.0690
P16	D1b_T3-ST	0.00	0.0011	-0.0697
P17	D1b_T3-ST	0.00	0.0011	-0.0704
P18	D1b_T3-ST	0.00	0.0011	-0.0710
P19	D1b_T3-ST	0.00	0.0011	-0.0717
P20	D1b_T3-ST	0.00	0.0011	-0.0724
P21	D1b_T3-ST	0.00	0.0011	-0.0731
P22	D1b_T3-ST	0.00	0.0000	-0.0661
P23	D1b_T3-ST	0.00	0.0000	-0.0668
P24	D1b_T3-ST	0.00	0.0000	-0.0675
P25	D1b_T3-ST	0.00	0.0000	-0.0682
P26	D1b_T3-ST	0.00	0.0000	-0.0689
P27	D1b_T3-ST	0.00	0.0000	-0.0695
P28	D1b_T3-ST	0.00	0.0000	-0.0702
P29	D1b_T3-ST	0.00	-0.0011	-0.0692
P30	D1b_T3-ST	0.00	-0.0011	-0.0699
P31	D1b_T3-ST	0.00	-0.0011	-0.0707
P32	D1b_T3-ST	0.00	-0.0011	-0.0714
P33	D1b_T3-ST	0.00	-0.0011	-0.0721
P34	D1b_T3-ST	0.00	-0.0011	-0.0729
P35	D1b_T3-ST	0.00	-0.0011	-0.0736
P36	D1b_T3-ST	0.00	-0.0020	-0.0710
P37	D1b_T3-ST	0.00	-0.0020	-0.0717
P38	D1b_T3-ST	0.00	-0.0020	-0.0725
P39	D1b_T3-ST	0.00	-0.0020	-0.0732
P40	D1b_T3-ST	0.00	-0.0021	-0.0739
P41	D1b_T3-ST	0.00	-0.0021	-0.0746
P42	D1b_T3-ST	0.00	-0.0021	-0.0753
P43	D1b_T3-ST	0.00	-0.0024	-0.0760
P44	D1b_T3-ST	0.00	-0.0024	-0.0768
P45	D1b_T3-ST	0.00	-0.0024	-0.0776
P46	D1b_T3-ST	0.00	-0.0024	-0.0783
P47	D1b_T3-ST	0.00	-0.0024	-0.0791
P48	D1b_T3-ST	0.00	-0.0024	-0.0798
P49	D1b_T3-ST	0.00	-0.0024	-0.0806

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D1b_T4-ST	0.00	0.0024	-0.0771
P2	D1b_T4-ST	0.00	0.0024	-0.0775
P3	D1b_T4-ST	0.00	0.0024	-0.0779
P4	D1b_T4-ST	0.00	0.0024	-0.0784
P5	D1b_T4-ST	0.00	0.0024	-0.0788
P6	D1b_T4-ST	0.00	0.0024	-0.0792
P7	D1b_T4-ST	0.00	0.0024	-0.0797
P8	D1b_T4-ST	0.00	0.0020	-0.0719
P9	D1b_T4-ST	0.00	0.0020	-0.0723
P10	D1b_T4-ST	0.00	0.0020	-0.0728
P11	D1b_T4-ST	0.00	0.0020	-0.0732
P12	D1b_T4-ST	0.00	0.0020	-0.0737
P13	D1b_T4-ST	0.00	0.0020	-0.0741
P14	D1b_T4-ST	0.00	0.0020	-0.0745
P15	D1b_T4-ST	0.00	0.0011	-0.0700
P16	D1b_T4-ST	0.00	0.0011	-0.0704
P17	D1b_T4-ST	0.00	0.0011	-0.0709
P18	D1b_T4-ST	0.00	0.0011	-0.0714
P19	D1b_T4-ST	0.00	0.0011	-0.0718
P20	D1b_T4-ST	0.00	0.0011	-0.0723
P21	D1b_T4-ST	0.00	0.0011	-0.0728
P22	D1b_T4-ST	0.00	0.0000	-0.0666
P23	D1b_T4-ST	0.00	0.0000	-0.0671
P24	D1b_T4-ST	0.00	0.0000	-0.0676
P25	D1b_T4-ST	0.00	0.0000	-0.0681
P26	D1b_T4-ST	0.00	0.0000	-0.0685
P27	D1b_T4-ST	0.00	0.0000	-0.0689
P28	D1b_T4-ST	0.00	0.0000	-0.0694
P29	D1b_T4-ST	0.00	-0.0011	-0.0693
P30	D1b_T4-ST	0.00	-0.0011	-0.0698
P31	D1b_T4-ST	0.00	-0.0011	-0.0703
P32	D1b_T4-ST	0.00	-0.0011	-0.0708
P33	D1b_T4-ST	0.00	-0.0011	-0.0713
P34	D1b_T4-ST	0.00	-0.0011	-0.0718
P35	D1b_T4-ST	0.00	-0.0011	-0.0722
P36	D1b_T4-ST	0.00	-0.0020	-0.0707
P37	D1b_T4-ST	0.00	-0.0020	-0.0712
P38	D1b_T4-ST	0.00	-0.0020	-0.0716
P39	D1b_T4-ST	0.00	-0.0020	-0.0721
P40	D1b_T4-ST	0.00	-0.0020	-0.0726
P41	D1b_T4-ST	0.00	-0.0020	-0.0730
P42	D1b_T4-ST	0.00	-0.0020	-0.0734
P43	D1b_T4-ST	0.00	-0.0023	-0.0752
P44	D1b_T4-ST	0.00	-0.0023	-0.0757
P45	D1b_T4-ST	0.00	-0.0023	-0.0762
P46	D1b_T4-ST	0.00	-0.0023	-0.0766
P47	D1b_T4-ST	0.00	-0.0023	-0.0771
P48	D1b_T4-ST	0.00	-0.0023	-0.0776
P49	D1b_T4-ST	0.00	-0.0023	-0.0780

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13 **Page:** of
Checked By: BCB **Date:** Aug-13 **Sheet:** of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a-ST	0.00	0.0030	-0.0260
P2	D2a-ST	0.00	0.0030	-0.0260
P3	D2a-ST	0.00	0.0030	-0.0260
P4	D2a-ST	0.00	0.0030	-0.0260
P5	D2a-ST	0.00	0.0030	-0.0260
P6	D2a-ST	0.00	0.0030	-0.0260
P7	D2a-ST	0.00	0.0030	-0.0260
P8	D2a-ST	0.00	0.0026	-0.0220
P9	D2a-ST	0.00	0.0026	-0.0220
P10	D2a-ST	0.00	0.0026	-0.0220
P11	D2a-ST	0.00	0.0026	-0.0220
P12	D2a-ST	0.00	0.0026	-0.0220
P13	D2a-ST	0.00	0.0026	-0.0220
P14	D2a-ST	0.00	0.0026	-0.0220
P15	D2a-ST	0.00	0.0011	-0.0217
P16	D2a-ST	0.00	0.0011	-0.0217
P17	D2a-ST	0.00	0.0011	-0.0217
P18	D2a-ST	0.00	0.0011	-0.0217
P19	D2a-ST	0.00	0.0011	-0.0217
P20	D2a-ST	0.00	0.0011	-0.0217
P21	D2a-ST	0.00	0.0011	-0.0217
P22	D2a-ST	0.00	-0.0002	-0.0216
P23	D2a-ST	0.00	-0.0002	-0.0216
P24	D2a-ST	0.00	-0.0002	-0.0216
P25	D2a-ST	0.00	-0.0002	-0.0216
P26	D2a-ST	0.00	-0.0002	-0.0216
P27	D2a-ST	0.00	-0.0002	-0.0216
P28	D2a-ST	0.00	-0.0002	-0.0216
P29	D2a-ST	0.00	-0.0014	-0.0265
P30	D2a-ST	0.00	-0.0014	-0.0265
P31	D2a-ST	0.00	-0.0014	-0.0265
P32	D2a-ST	0.00	-0.0014	-0.0265
P33	D2a-ST	0.00	-0.0014	-0.0265
P34	D2a-ST	0.00	-0.0014	-0.0265
P35	D2a-ST	0.00	-0.0014	-0.0265
P36	D2a-ST	0.00	-0.0025	-0.0316
P37	D2a-ST	0.00	-0.0025	-0.0316
P38	D2a-ST	0.00	-0.0025	-0.0317
P39	D2a-ST	0.00	-0.0025	-0.0317
P40	D2a-ST	0.00	-0.0025	-0.0317
P41	D2a-ST	0.00	-0.0025	-0.0316
P42	D2a-ST	0.00	-0.0025	-0.0316
P43	D2a-ST	0.00	-0.0027	-0.0386
P44	D2a-ST	0.00	-0.0027	-0.0386
P45	D2a-ST	0.00	-0.0027	-0.0386
P46	D2a-ST	0.00	-0.0027	-0.0386
P47	D2a-ST	0.00	-0.0027	-0.0386
P48	D2a-ST	0.00	-0.0027	-0.0386
P49	D2a-ST	0.00	-0.0027	-0.0386

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_6-ST	0.00	0.0028	-0.0174
P2	D2a_6-ST	0.00	0.0028	-0.0174
P3	D2a_6-ST	0.00	0.0028	-0.0174
P4	D2a_6-ST	0.00	0.0028	-0.0174
P5	D2a_6-ST	0.00	0.0028	-0.0174
P6	D2a_6-ST	0.00	0.0028	-0.0174
P7	D2a_6-ST	0.00	0.0028	-0.0174
P8	D2a_6-ST	0.00	0.0025	-0.0135
P9	D2a_6-ST	0.00	0.0025	-0.0135
P10	D2a_6-ST	0.00	0.0025	-0.0135
P11	D2a_6-ST	0.00	0.0025	-0.0135
P12	D2a_6-ST	0.00	0.0025	-0.0135
P13	D2a_6-ST	0.00	0.0025	-0.0135
P14	D2a_6-ST	0.00	0.0025	-0.0135
P15	D2a_6-ST	0.00	0.0011	-0.0126
P16	D2a_6-ST	0.00	0.0011	-0.0126
P17	D2a_6-ST	0.00	0.0011	-0.0126
P18	D2a_6-ST	0.00	0.0011	-0.0126
P19	D2a_6-ST	0.00	0.0011	-0.0126
P20	D2a_6-ST	0.00	0.0011	-0.0126
P21	D2a_6-ST	0.00	0.0011	-0.0126
P22	D2a_6-ST	0.00	-0.0002	-0.0128
P23	D2a_6-ST	0.00	-0.0002	-0.0128
P24	D2a_6-ST	0.00	-0.0002	-0.0128
P25	D2a_6-ST	0.00	-0.0002	-0.0128
P26	D2a_6-ST	0.00	-0.0002	-0.0128
P27	D2a_6-ST	0.00	-0.0002	-0.0128
P28	D2a_6-ST	0.00	-0.0002	-0.0128
P29	D2a_6-ST	0.00	-0.0014	-0.0174
P30	D2a_6-ST	0.00	-0.0014	-0.0174
P31	D2a_6-ST	0.00	-0.0014	-0.0174
P32	D2a_6-ST	0.00	-0.0014	-0.0174
P33	D2a_6-ST	0.00	-0.0014	-0.0174
P34	D2a_6-ST	0.00	-0.0014	-0.0174
P35	D2a_6-ST	0.00	-0.0014	-0.0174
P36	D2a_6-ST	0.00	-0.0024	-0.0231
P37	D2a_6-ST	0.00	-0.0024	-0.0231
P38	D2a_6-ST	0.00	-0.0024	-0.0231
P39	D2a_6-ST	0.00	-0.0024	-0.0231
P40	D2a_6-ST	0.00	-0.0024	-0.0231
P41	D2a_6-ST	0.00	-0.0024	-0.0231
P42	D2a_6-ST	0.00	-0.0024	-0.0231
P43	D2a_6-ST	0.00	-0.0024	-0.0299
P44	D2a_6-ST	0.00	-0.0024	-0.0299
P45	D2a_6-ST	0.00	-0.0024	-0.0299
P46	D2a_6-ST	0.00	-0.0024	-0.0299
P47	D2a_6-ST	0.00	-0.0024	-0.0299
P48	D2a_6-ST	0.00	-0.0024	-0.0299
P49	D2a_6-ST	0.00	-0.0024	-0.0299

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T1-ST	0.00	0.0030	-0.0261
P2	D2a_T1-ST	0.00	0.0030	-0.0268
P3	D2a_T1-ST	0.00	0.0030	-0.0274
P4	D2a_T1-ST	0.00	0.0030	-0.0280
P5	D2a_T1-ST	0.00	0.0030	-0.0287
P6	D2a_T1-ST	0.00	0.0030	-0.0293
P7	D2a_T1-ST	0.00	0.0030	-0.0300
P8	D2a_T1-ST	0.00	0.0026	-0.0220
P9	D2a_T1-ST	0.00	0.0026	-0.0226
P10	D2a_T1-ST	0.00	0.0026	-0.0232
P11	D2a_T1-ST	0.00	0.0026	-0.0239
P12	D2a_T1-ST	0.00	0.0026	-0.0245
P13	D2a_T1-ST	0.00	0.0026	-0.0251
P14	D2a_T1-ST	0.00	0.0026	-0.0258
P15	D2a_T1-ST	0.00	0.0011	-0.0216
P16	D2a_T1-ST	0.00	0.0011	-0.0223
P17	D2a_T1-ST	0.00	0.0011	-0.0229
P18	D2a_T1-ST	0.00	0.0011	-0.0236
P19	D2a_T1-ST	0.00	0.0011	-0.0243
P20	D2a_T1-ST	0.00	0.0011	-0.0249
P21	D2a_T1-ST	0.00	0.0011	-0.0256
P22	D2a_T1-ST	0.00	-0.0002	-0.0214
P23	D2a_T1-ST	0.00	-0.0002	-0.0221
P24	D2a_T1-ST	0.00	-0.0002	-0.0227
P25	D2a_T1-ST	0.00	-0.0002	-0.0234
P26	D2a_T1-ST	0.00	-0.0002	-0.0240
P27	D2a_T1-ST	0.00	-0.0002	-0.0246
P28	D2a_T1-ST	0.00	-0.0002	-0.0253
P29	D2a_T1-ST	0.00	-0.0014	-0.0262
P30	D2a_T1-ST	0.00	-0.0014	-0.0268
P31	D2a_T1-ST	0.00	-0.0014	-0.0275
P32	D2a_T1-ST	0.00	-0.0014	-0.0282
P33	D2a_T1-ST	0.00	-0.0014	-0.0288
P34	D2a_T1-ST	0.00	-0.0014	-0.0295
P35	D2a_T1-ST	0.00	-0.0014	-0.0302
P36	D2a_T1-ST	0.00	-0.0024	-0.0311
P37	D2a_T1-ST	0.00	-0.0024	-0.0318
P38	D2a_T1-ST	0.00	-0.0024	-0.0325
P39	D2a_T1-ST	0.00	-0.0024	-0.0331
P40	D2a_T1-ST	0.00	-0.0024	-0.0338
P41	D2a_T1-ST	0.00	-0.0024	-0.0344
P42	D2a_T1-ST	0.00	-0.0024	-0.0350
P43	D2a_T1-ST	0.00	-0.0026	-0.0379
P44	D2a_T1-ST	0.00	-0.0027	-0.0386
P45	D2a_T1-ST	0.00	-0.0027	-0.0392
P46	D2a_T1-ST	0.00	-0.0027	-0.0399
P47	D2a_T1-ST	0.00	-0.0027	-0.0406
P48	D2a_T1-ST	0.00	-0.0027	-0.0412
P49	D2a_T1-ST	0.00	-0.0027	-0.0419

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T2-ST	0.00	0.0030	-0.0268
P2	D2a_T2-ST	0.00	0.0030	-0.0273
P3	D2a_T2-ST	0.00	0.0030	-0.0278
P4	D2a_T2-ST	0.00	0.0030	-0.0283
P5	D2a_T2-ST	0.00	0.0030	-0.0288
P6	D2a_T2-ST	0.00	0.0030	-0.0294
P7	D2a_T2-ST	0.00	0.0030	-0.0299
P8	D2a_T2-ST	0.00	0.0026	-0.0225
P9	D2a_T2-ST	0.00	0.0026	-0.0230
P10	D2a_T2-ST	0.00	0.0026	-0.0235
P11	D2a_T2-ST	0.00	0.0026	-0.0240
P12	D2a_T2-ST	0.00	0.0026	-0.0245
P13	D2a_T2-ST	0.00	0.0026	-0.0250
P14	D2a_T2-ST	0.00	0.0026	-0.0255
P15	D2a_T2-ST	0.00	0.0011	-0.0219
P16	D2a_T2-ST	0.00	0.0011	-0.0225
P17	D2a_T2-ST	0.00	0.0011	-0.0230
P18	D2a_T2-ST	0.00	0.0011	-0.0235
P19	D2a_T2-ST	0.00	0.0011	-0.0240
P20	D2a_T2-ST	0.00	0.0011	-0.0246
P21	D2a_T2-ST	0.00	0.0011	-0.0251
P22	D2a_T2-ST	0.00	-0.0002	-0.0216
P23	D2a_T2-ST	0.00	-0.0002	-0.0221
P24	D2a_T2-ST	0.00	-0.0002	-0.0226
P25	D2a_T2-ST	0.00	-0.0002	-0.0231
P26	D2a_T2-ST	0.00	-0.0002	-0.0236
P27	D2a_T2-ST	0.00	-0.0002	-0.0241
P28	D2a_T2-ST	0.00	-0.0002	-0.0246
P29	D2a_T2-ST	0.00	-0.0014	-0.0262
P30	D2a_T2-ST	0.00	-0.0014	-0.0267
P31	D2a_T2-ST	0.00	-0.0014	-0.0272
P32	D2a_T2-ST	0.00	-0.0014	-0.0277
P33	D2a_T2-ST	0.00	-0.0014	-0.0282
P34	D2a_T2-ST	0.00	-0.0014	-0.0288
P35	D2a_T2-ST	0.00	-0.0014	-0.0293
P36	D2a_T2-ST	0.00	-0.0025	-0.0311
P37	D2a_T2-ST	0.00	-0.0025	-0.0316
P38	D2a_T2-ST	0.00	-0.0024	-0.0320
P39	D2a_T2-ST	0.00	-0.0024	-0.0325
P40	D2a_T2-ST	0.00	-0.0024	-0.0330
P41	D2a_T2-ST	0.00	-0.0024	-0.0335
P42	D2a_T2-ST	0.00	-0.0024	-0.0339
P43	D2a_T2-ST	0.00	-0.0026	-0.0377
P44	D2a_T2-ST	0.00	-0.0026	-0.0382
P45	D2a_T2-ST	0.00	-0.0026	-0.0387
P46	D2a_T2-ST	0.00	-0.0026	-0.0391
P47	D2a_T2-ST	0.00	-0.0027	-0.0396
P48	D2a_T2-ST	0.00	-0.0027	-0.0401
P49	D2a_T2-ST	0.00	-0.0027	-0.0406

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T3-ST	0.00	0.0030	-0.0268
P2	D2a_T3-ST	0.00	0.0030	-0.0275
P3	D2a_T3-ST	0.00	0.0030	-0.0281
P4	D2a_T3-ST	0.00	0.0030	-0.0288
P5	D2a_T3-ST	0.00	0.0030	-0.0294
P6	D2a_T3-ST	0.00	0.0030	-0.0301
P7	D2a_T3-ST	0.00	0.0030	-0.0307
P8	D2a_T3-ST	0.00	0.0026	-0.0229
P9	D2a_T3-ST	0.00	0.0026	-0.0236
P10	D2a_T3-ST	0.00	0.0026	-0.0242
P11	D2a_T3-ST	0.00	0.0026	-0.0249
P12	D2a_T3-ST	0.00	0.0025	-0.0255
P13	D2a_T3-ST	0.00	0.0025	-0.0261
P14	D2a_T3-ST	0.00	0.0025	-0.0268
P15	D2a_T3-ST	0.00	0.0011	-0.0229
P16	D2a_T3-ST	0.00	0.0011	-0.0236
P17	D2a_T3-ST	0.00	0.0011	-0.0243
P18	D2a_T3-ST	0.00	0.0011	-0.0250
P19	D2a_T3-ST	0.00	0.0011	-0.0256
P20	D2a_T3-ST	0.00	0.0011	-0.0263
P21	D2a_T3-ST	0.00	0.0011	-0.0270
P22	D2a_T3-ST	0.00	-0.0002	-0.0229
P23	D2a_T3-ST	0.00	-0.0002	-0.0236
P24	D2a_T3-ST	0.00	-0.0002	-0.0243
P25	D2a_T3-ST	0.00	-0.0002	-0.0250
P26	D2a_T3-ST	0.00	-0.0002	-0.0257
P27	D2a_T3-ST	0.00	-0.0002	-0.0263
P28	D2a_T3-ST	0.00	-0.0003	-0.0270
P29	D2a_T3-ST	0.00	-0.0014	-0.0280
P30	D2a_T3-ST	0.00	-0.0014	-0.0287
P31	D2a_T3-ST	0.00	-0.0014	-0.0294
P32	D2a_T3-ST	0.00	-0.0014	-0.0301
P33	D2a_T3-ST	0.00	-0.0014	-0.0309
P34	D2a_T3-ST	0.00	-0.0014	-0.0316
P35	D2a_T3-ST	0.00	-0.0014	-0.0323
P36	D2a_T3-ST	0.00	-0.0024	-0.0331
P37	D2a_T3-ST	0.00	-0.0024	-0.0338
P38	D2a_T3-ST	0.00	-0.0024	-0.0345
P39	D2a_T3-ST	0.00	-0.0024	-0.0352
P40	D2a_T3-ST	0.00	-0.0024	-0.0359
P41	D2a_T3-ST	0.00	-0.0024	-0.0367
P42	D2a_T3-ST	0.00	-0.0024	-0.0374
P43	D2a_T3-ST	0.00	-0.0027	-0.0401
P44	D2a_T3-ST	0.00	-0.0027	-0.0409
P45	D2a_T3-ST	0.00	-0.0027	-0.0416
P46	D2a_T3-ST	0.00	-0.0027	-0.0424
P47	D2a_T3-ST	0.00	-0.0027	-0.0432
P48	D2a_T3-ST	0.00	-0.0027	-0.0439
P49	D2a_T3-ST	0.00	-0.0027	-0.0447

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2a_T4-ST	0.00	0.0030	-0.0286
P2	D2a_T4-ST	0.00	0.0030	-0.0291
P3	D2a_T4-ST	0.00	0.0030	-0.0295
P4	D2a_T4-ST	0.00	0.0030	-0.0300
P5	D2a_T4-ST	0.00	0.0030	-0.0304
P6	D2a_T4-ST	0.00	0.0030	-0.0308
P7	D2a_T4-ST	0.00	0.0030	-0.0313
P8	D2a_T4-ST	0.00	0.0026	-0.0243
P9	D2a_T4-ST	0.00	0.0026	-0.0247
P10	D2a_T4-ST	0.00	0.0025	-0.0252
P11	D2a_T4-ST	0.00	0.0025	-0.0256
P12	D2a_T4-ST	0.00	0.0025	-0.0260
P13	D2a_T4-ST	0.00	0.0025	-0.0265
P14	D2a_T4-ST	0.00	0.0025	-0.0269
P15	D2a_T4-ST	0.00	0.0011	-0.0239
P16	D2a_T4-ST	0.00	0.0011	-0.0243
P17	D2a_T4-ST	0.00	0.0011	-0.0248
P18	D2a_T4-ST	0.00	0.0011	-0.0253
P19	D2a_T4-ST	0.00	0.0011	-0.0257
P20	D2a_T4-ST	0.00	0.0011	-0.0262
P21	D2a_T4-ST	0.00	0.0011	-0.0267
P22	D2a_T4-ST	0.00	-0.0002	-0.0235
P23	D2a_T4-ST	0.00	-0.0002	-0.0239
P24	D2a_T4-ST	0.00	-0.0002	-0.0244
P25	D2a_T4-ST	0.00	-0.0002	-0.0249
P26	D2a_T4-ST	0.00	-0.0002	-0.0253
P27	D2a_T4-ST	0.00	-0.0002	-0.0258
P28	D2a_T4-ST	0.00	-0.0002	-0.0262
P29	D2a_T4-ST	0.00	-0.0014	-0.0281
P30	D2a_T4-ST	0.00	-0.0014	-0.0286
P31	D2a_T4-ST	0.00	-0.0014	-0.0290
P32	D2a_T4-ST	0.00	-0.0014	-0.0295
P33	D2a_T4-ST	0.00	-0.0014	-0.0300
P34	D2a_T4-ST	0.00	-0.0014	-0.0305
P35	D2a_T4-ST	0.00	-0.0014	-0.0310
P36	D2a_T4-ST	0.00	-0.0024	-0.0327
P37	D2a_T4-ST	0.00	-0.0024	-0.0332
P38	D2a_T4-ST	0.00	-0.0024	-0.0337
P39	D2a_T4-ST	0.00	-0.0024	-0.0341
P40	D2a_T4-ST	0.00	-0.0024	-0.0346
P41	D2a_T4-ST	0.00	-0.0024	-0.0350
P42	D2a_T4-ST	0.00	-0.0024	-0.0355
P43	D2a_T4-ST	0.00	-0.0026	-0.0393
P44	D2a_T4-ST	0.00	-0.0026	-0.0398
P45	D2a_T4-ST	0.00	-0.0026	-0.0403
P46	D2a_T4-ST	0.00	-0.0026	-0.0407
P47	D2a_T4-ST	0.00	-0.0027	-0.0412
P48	D2a_T4-ST	0.00	-0.0027	-0.0417
P49	D2a_T4-ST	0.00	-0.0027	-0.0421

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b-ST	0.00	0.0027	-0.0637
P2	D2b-ST	0.00	0.0027	-0.0637
P3	D2b-ST	0.00	0.0027	-0.0637
P4	D2b-ST	0.00	0.0027	-0.0637
P5	D2b-ST	0.00	0.0027	-0.0637
P6	D2b-ST	0.00	0.0027	-0.0637
P7	D2b-ST	0.00	0.0027	-0.0637
P8	D2b-ST	0.00	0.0022	-0.0602
P9	D2b-ST	0.00	0.0022	-0.0602
P10	D2b-ST	0.00	0.0022	-0.0602
P11	D2b-ST	0.00	0.0022	-0.0602
P12	D2b-ST	0.00	0.0022	-0.0602
P13	D2b-ST	0.00	0.0022	-0.0602
P14	D2b-ST	0.00	0.0022	-0.0602
P15	D2b-ST	0.00	0.0010	-0.0613
P16	D2b-ST	0.00	0.0010	-0.0613
P17	D2b-ST	0.00	0.0010	-0.0613
P18	D2b-ST	0.00	0.0010	-0.0613
P19	D2b-ST	0.00	0.0010	-0.0613
P20	D2b-ST	0.00	0.0010	-0.0613
P21	D2b-ST	0.00	0.0010	-0.0613
P22	D2b-ST	0.00	-0.0002	-0.0609
P23	D2b-ST	0.00	-0.0002	-0.0609
P24	D2b-ST	0.00	-0.0002	-0.0609
P25	D2b-ST	0.00	-0.0002	-0.0609
P26	D2b-ST	0.00	-0.0002	-0.0609
P27	D2b-ST	0.00	-0.0002	-0.0609
P28	D2b-ST	0.00	-0.0002	-0.0609
P29	D2b-ST	0.00	-0.0012	-0.0661
P30	D2b-ST	0.00	-0.0012	-0.0661
P31	D2b-ST	0.00	-0.0012	-0.0661
P32	D2b-ST	0.00	-0.0012	-0.0661
P33	D2b-ST	0.00	-0.0012	-0.0661
P34	D2b-ST	0.00	-0.0012	-0.0661
P35	D2b-ST	0.00	-0.0012	-0.0661
P36	D2b-ST	0.00	-0.0021	-0.0698
P37	D2b-ST	0.00	-0.0021	-0.0698
P38	D2b-ST	0.00	-0.0021	-0.0698
P39	D2b-ST	0.00	-0.0021	-0.0698
P40	D2b-ST	0.00	-0.0021	-0.0698
P41	D2b-ST	0.00	-0.0021	-0.0698
P42	D2b-ST	0.00	-0.0021	-0.0698
P43	D2b-ST	0.00	-0.0024	-0.0762
P44	D2b-ST	0.00	-0.0024	-0.0762
P45	D2b-ST	0.00	-0.0024	-0.0762
P46	D2b-ST	0.00	-0.0024	-0.0762
P47	D2b-ST	0.00	-0.0024	-0.0762
P48	D2b-ST	0.00	-0.0024	-0.0762
P49	D2b-ST	0.00	-0.0024	-0.0762

URS

Job: Maurepas Freshwater Diversion
Desc.: C-5 & C-6 Model Pile Displacements
After Spring Calibration

Project #: 10001876
Computed By: LBR **Date:** Aug-13
Checked By: BCB **Date:** Aug-13

Page: of
Sheet: of

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T1-ST	0.00	0.0027	-0.0638
P2	D2b_T1-ST	0.00	0.0027	-0.0644
P3	D2b_T1-ST	0.00	0.0027	-0.0651
P4	D2b_T1-ST	0.00	0.0027	-0.0657
P5	D2b_T1-ST	0.00	0.0027	-0.0664
P6	D2b_T1-ST	0.00	0.0027	-0.0670
P7	D2b_T1-ST	0.00	0.0027	-0.0677
P8	D2b_T1-ST	0.00	0.0022	-0.0601
P9	D2b_T1-ST	0.00	0.0022	-0.0608
P10	D2b_T1-ST	0.00	0.0022	-0.0614
P11	D2b_T1-ST	0.00	0.0022	-0.0621
P12	D2b_T1-ST	0.00	0.0022	-0.0627
P13	D2b_T1-ST	0.00	0.0022	-0.0633
P14	D2b_T1-ST	0.00	0.0022	-0.0639
P15	D2b_T1-ST	0.00	0.0009	-0.0612
P16	D2b_T1-ST	0.00	0.0009	-0.0619
P17	D2b_T1-ST	0.00	0.0009	-0.0625
P18	D2b_T1-ST	0.00	0.0009	-0.0632
P19	D2b_T1-ST	0.00	0.0009	-0.0639
P20	D2b_T1-ST	0.00	0.0009	-0.0645
P21	D2b_T1-ST	0.00	0.0009	-0.0652
P22	D2b_T1-ST	0.00	-0.0002	-0.0607
P23	D2b_T1-ST	0.00	-0.0002	-0.0614
P24	D2b_T1-ST	0.00	-0.0002	-0.0621
P25	D2b_T1-ST	0.00	-0.0002	-0.0627
P26	D2b_T1-ST	0.00	-0.0002	-0.0633
P27	D2b_T1-ST	0.00	-0.0002	-0.0640
P28	D2b_T1-ST	0.00	-0.0002	-0.0646
P29	D2b_T1-ST	0.00	-0.0012	-0.0658
P30	D2b_T1-ST	0.00	-0.0012	-0.0664
P31	D2b_T1-ST	0.00	-0.0012	-0.0671
P32	D2b_T1-ST	0.00	-0.0012	-0.0678
P33	D2b_T1-ST	0.00	-0.0012	-0.0685
P34	D2b_T1-ST	0.00	-0.0012	-0.0691
P35	D2b_T1-ST	0.00	-0.0012	-0.0698
P36	D2b_T1-ST	0.00	-0.0021	-0.0693
P37	D2b_T1-ST	0.00	-0.0021	-0.0700
P38	D2b_T1-ST	0.00	-0.0021	-0.0706
P39	D2b_T1-ST	0.00	-0.0021	-0.0713
P40	D2b_T1-ST	0.00	-0.0021	-0.0719
P41	D2b_T1-ST	0.00	-0.0021	-0.0726
P42	D2b_T1-ST	0.00	-0.0021	-0.0732
P43	D2b_T1-ST	0.00	-0.0024	-0.0756
P44	D2b_T1-ST	0.00	-0.0024	-0.0763
P45	D2b_T1-ST	0.00	-0.0024	-0.0769
P46	D2b_T1-ST	0.00	-0.0024	-0.0776
P47	D2b_T1-ST	0.00	-0.0024	-0.0783
P48	D2b_T1-ST	0.00	-0.0024	-0.0789
P49	D2b_T1-ST	0.00	-0.0024	-0.0796

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T2-ST	0.00	0.0027	-0.0645
P2	D2b_T2-ST	0.00	0.0027	-0.0650
P3	D2b_T2-ST	0.00	0.0027	-0.0655
P4	D2b_T2-ST	0.00	0.0027	-0.0660
P5	D2b_T2-ST	0.00	0.0027	-0.0665
P6	D2b_T2-ST	0.00	0.0027	-0.0671
P7	D2b_T2-ST	0.00	0.0027	-0.0676
P8	D2b_T2-ST	0.00	0.0022	-0.0606
P9	D2b_T2-ST	0.00	0.0022	-0.0612
P10	D2b_T2-ST	0.00	0.0022	-0.0617
P11	D2b_T2-ST	0.00	0.0022	-0.0622
P12	D2b_T2-ST	0.00	0.0022	-0.0627
P13	D2b_T2-ST	0.00	0.0022	-0.0632
P14	D2b_T2-ST	0.00	0.0022	-0.0636
P15	D2b_T2-ST	0.00	0.0009	-0.0615
P16	D2b_T2-ST	0.00	0.0009	-0.0621
P17	D2b_T2-ST	0.00	0.0009	-0.0626
P18	D2b_T2-ST	0.00	0.0009	-0.0631
P19	D2b_T2-ST	0.00	0.0010	-0.0636
P20	D2b_T2-ST	0.00	0.0010	-0.0642
P21	D2b_T2-ST	0.00	0.0010	-0.0647
P22	D2b_T2-ST	0.00	-0.0002	-0.0609
P23	D2b_T2-ST	0.00	-0.0002	-0.0614
P24	D2b_T2-ST	0.00	-0.0002	-0.0619
P25	D2b_T2-ST	0.00	-0.0002	-0.0624
P26	D2b_T2-ST	0.00	-0.0002	-0.0629
P27	D2b_T2-ST	0.00	-0.0002	-0.0634
P28	D2b_T2-ST	0.00	-0.0002	-0.0639
P29	D2b_T2-ST	0.00	-0.0012	-0.0658
P30	D2b_T2-ST	0.00	-0.0012	-0.0663
P31	D2b_T2-ST	0.00	-0.0012	-0.0668
P32	D2b_T2-ST	0.00	-0.0012	-0.0673
P33	D2b_T2-ST	0.00	-0.0012	-0.0679
P34	D2b_T2-ST	0.00	-0.0012	-0.0684
P35	D2b_T2-ST	0.00	-0.0012	-0.0689
P36	D2b_T2-ST	0.00	-0.0021	-0.0692
P37	D2b_T2-ST	0.00	-0.0021	-0.0697
P38	D2b_T2-ST	0.00	-0.0021	-0.0702
P39	D2b_T2-ST	0.00	-0.0021	-0.0707
P40	D2b_T2-ST	0.00	-0.0021	-0.0712
P41	D2b_T2-ST	0.00	-0.0021	-0.0716
P42	D2b_T2-ST	0.00	-0.0021	-0.0721
P43	D2b_T2-ST	0.00	-0.0024	-0.0754
P44	D2b_T2-ST	0.00	-0.0024	-0.0759
P45	D2b_T2-ST	0.00	-0.0024	-0.0764
P46	D2b_T2-ST	0.00	-0.0024	-0.0768
P47	D2b_T2-ST	0.00	-0.0024	-0.0773
P48	D2b_T2-ST	0.00	-0.0024	-0.0778
P49	D2b_T2-ST	0.00	-0.0024	-0.0783

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T3-ST	0.00	0.0027	-0.0645
P2	D2b_T3-ST	0.00	0.0027	-0.0652
P3	D2b_T3-ST	0.00	0.0027	-0.0658
P4	D2b_T3-ST	0.00	0.0027	-0.0665
P5	D2b_T3-ST	0.00	0.0027	-0.0671
P6	D2b_T3-ST	0.00	0.0027	-0.0678
P7	D2b_T3-ST	0.00	0.0027	-0.0684
P8	D2b_T3-ST	0.00	0.0022	-0.0611
P9	D2b_T3-ST	0.00	0.0022	-0.0617
P10	D2b_T3-ST	0.00	0.0022	-0.0624
P11	D2b_T3-ST	0.00	0.0022	-0.0630
P12	D2b_T3-ST	0.00	0.0022	-0.0637
P13	D2b_T3-ST	0.00	0.0022	-0.0643
P14	D2b_T3-ST	0.00	0.0022	-0.0649
P15	D2b_T3-ST	0.00	0.0010	-0.0625
P16	D2b_T3-ST	0.00	0.0009	-0.0632
P17	D2b_T3-ST	0.00	0.0009	-0.0639
P18	D2b_T3-ST	0.00	0.0009	-0.0646
P19	D2b_T3-ST	0.00	0.0009	-0.0653
P20	D2b_T3-ST	0.00	0.0009	-0.0659
P21	D2b_T3-ST	0.00	0.0009	-0.0666
P22	D2b_T3-ST	0.00	-0.0002	-0.0623
P23	D2b_T3-ST	0.00	-0.0002	-0.0629
P24	D2b_T3-ST	0.00	-0.0002	-0.0636
P25	D2b_T3-ST	0.00	-0.0002	-0.0643
P26	D2b_T3-ST	0.00	-0.0002	-0.0650
P27	D2b_T3-ST	0.00	-0.0002	-0.0657
P28	D2b_T3-ST	0.00	-0.0003	-0.0663
P29	D2b_T3-ST	0.00	-0.0012	-0.0676
P30	D2b_T3-ST	0.00	-0.0012	-0.0683
P31	D2b_T3-ST	0.00	-0.0012	-0.0690
P32	D2b_T3-ST	0.00	-0.0012	-0.0698
P33	D2b_T3-ST	0.00	-0.0012	-0.0705
P34	D2b_T3-ST	0.00	-0.0012	-0.0712
P35	D2b_T3-ST	0.00	-0.0012	-0.0719
P36	D2b_T3-ST	0.00	-0.0020	-0.0712
P37	D2b_T3-ST	0.00	-0.0020	-0.0720
P38	D2b_T3-ST	0.00	-0.0020	-0.0727
P39	D2b_T3-ST	0.00	-0.0021	-0.0734
P40	D2b_T3-ST	0.00	-0.0021	-0.0741
P41	D2b_T3-ST	0.00	-0.0021	-0.0748
P42	D2b_T3-ST	0.00	-0.0021	-0.0755
P43	D2b_T3-ST	0.00	-0.0024	-0.0778
P44	D2b_T3-ST	0.00	-0.0024	-0.0786
P45	D2b_T3-ST	0.00	-0.0024	-0.0793
P46	D2b_T3-ST	0.00	-0.0024	-0.0801
P47	D2b_T3-ST	0.00	-0.0024	-0.0809
P48	D2b_T3-ST	0.00	-0.0024	-0.0816
P49	D2b_T3-ST	0.00	-0.0024	-0.0824

TABLE: Joint Displacements

Joint	Case	u1	u2	u3
Text	Text	in	in	in
P1	D2b_T4-ST	0.00	0.0027	-0.0663
P2	D2b_T4-ST	0.00	0.0027	-0.0668
P3	D2b_T4-ST	0.00	0.0027	-0.0672
P4	D2b_T4-ST	0.00	0.0027	-0.0676
P5	D2b_T4-ST	0.00	0.0027	-0.0681
P6	D2b_T4-ST	0.00	0.0027	-0.0685
P7	D2b_T4-ST	0.00	0.0027	-0.0689
P8	D2b_T4-ST	0.00	0.0022	-0.0624
P9	D2b_T4-ST	0.00	0.0022	-0.0629
P10	D2b_T4-ST	0.00	0.0022	-0.0634
P11	D2b_T4-ST	0.00	0.0022	-0.0638
P12	D2b_T4-ST	0.00	0.0022	-0.0642
P13	D2b_T4-ST	0.00	0.0022	-0.0646
P14	D2b_T4-ST	0.00	0.0022	-0.0651
P15	D2b_T4-ST	0.00	0.0009	-0.0635
P16	D2b_T4-ST	0.00	0.0009	-0.0640
P17	D2b_T4-ST	0.00	0.0009	-0.0644
P18	D2b_T4-ST	0.00	0.0009	-0.0649
P19	D2b_T4-ST	0.00	0.0009	-0.0654
P20	D2b_T4-ST	0.00	0.0009	-0.0658
P21	D2b_T4-ST	0.00	0.0009	-0.0663
P22	D2b_T4-ST	0.00	-0.0002	-0.0628
P23	D2b_T4-ST	0.00	-0.0002	-0.0633
P24	D2b_T4-ST	0.00	-0.0002	-0.0637
P25	D2b_T4-ST	0.00	-0.0002	-0.0642
P26	D2b_T4-ST	0.00	-0.0002	-0.0647
P27	D2b_T4-ST	0.00	-0.0002	-0.0651
P28	D2b_T4-ST	0.00	-0.0002	-0.0655
P29	D2b_T4-ST	0.00	-0.0012	-0.0677
P30	D2b_T4-ST	0.00	-0.0012	-0.0682
P31	D2b_T4-ST	0.00	-0.0012	-0.0687
P32	D2b_T4-ST	0.00	-0.0012	-0.0691
P33	D2b_T4-ST	0.00	-0.0012	-0.0696
P34	D2b_T4-ST	0.00	-0.0012	-0.0701
P35	D2b_T4-ST	0.00	-0.0012	-0.0706
P36	D2b_T4-ST	0.00	-0.0020	-0.0709
P37	D2b_T4-ST	0.00	-0.0020	-0.0714
P38	D2b_T4-ST	0.00	-0.0020	-0.0719
P39	D2b_T4-ST	0.00	-0.0020	-0.0723
P40	D2b_T4-ST	0.00	-0.0020	-0.0728
P41	D2b_T4-ST	0.00	-0.0020	-0.0732
P42	D2b_T4-ST	0.00	-0.0020	-0.0736
P43	D2b_T4-ST	0.00	-0.0024	-0.0770
P44	D2b_T4-ST	0.00	-0.0024	-0.0775
P45	D2b_T4-ST	0.00	-0.0024	-0.0779
P46	D2b_T4-ST	0.00	-0.0024	-0.0784
P47	D2b_T4-ST	0.00	-0.0024	-0.0789
P48	D2b_T4-ST	0.00	-0.0024	-0.0793
P49	D2b_T4-ST	0.00	-0.0024	-0.0798

Vertical Deflections:
MAXIMUM REACTION = -0.0089 kips
MINIMUM REACTION = -0.0839 kips

Horizontal (u1) Deflections:
MAXIMUM REACTION = 0.0001 kips
MINIMUM REACTION = -0.0001 kips

Horizontal (u2) Deflections:
MAXIMUM REACTION = 0.0031 kips
MINIMUM REACTION = -0.1040 kips

Maximum horizontal displacement is 0.104". Maximum allowable deflection is 0.75" (for load cases without allowable overstress). Maximum vertical deflection is 0.084", which is less than the maximum allowable 0.5". Therefore, all deflections OK.

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C5-C6 SOIL & PILE | Computed by: LBR | Sheet ___ of ___ | Date: 8/2013
INFO FOR STRUCTURAL CHECK | Checked by: ___ | Date: ___

Reference

Es: USING P-y CURVE DATA, CALIBRATED SPRING IN SAP: 86.97k/IN

↳ FROM CPGA MANUAL: STIFFNESS $K = \frac{C_0 EI}{R^3}$

C_0 = FIXETY CONST. = 0.707 FOR PINNED, CONSTANT E_s
$E = 29{,}000{,}000$ PSI
$I = 904 \text{ in}^4$ (STRONG AXIS)
$R = \sqrt[4]{\frac{EI}{E_s}}$ (INCH)

$$\Rightarrow K = 86{,}967.0 \text{ LB/IN} = \frac{(0.707)(29{,}000{,}000 \text{ PSI})(904 \text{ in}^4)}{\left(\sqrt[4]{\frac{29{,}000{,}000 \times 904}{E_s}}\right)^3}$$

↳ SOLVING FOR E_s W/EXCEL ⇒ $E_s = 2059.3$ PSI = 2.06 KSI

LATERAL GROUP REDUCTION FACTOR: HSDRS GUIDELINES SECT 4.3

↳ PERPENDICULAR TO LOADING: (SAP X-DIR.) IF $S_a/b < 3.75$, REDUCTION NEEDED.

$S_a = 6'\text{-}8'' = 80''$, $b = 14''$ $S_a/b = 5.71 > 3.75$ — NO REDUCTION

↳ PARALLEL TO LOADING: (SAP Y-DIR.) SPACINGS OF 5'-9" (69") & 6'-4½" (76.5")

$R_g = 0.48 \left(S_b/b\right)^{0.38}$, FOR 5'-9", $R_g = 0.48(69''/14'')^{0.38} = 0.88$

FOR 6'-4½", $R_g = 0.48(76.5''/14'')^{0.38} = 0.915$

↳ LOWEST POSSIBLE REDUCTION FACTOR IS ROW UNDER EXTERIOR COLUMNS, 2ND ROWS FROM EDGES - AVG OF 5'-9" & 6'-4½" SPACINGS
AVG = 0.8976 - WILL BE APPLIED TO ALL PILES.
(CONSERVATIVE)

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___ | Sheet ___ of ___

Description: C5-C6 SOIL & PILE INFO FOR STRUCT. CHECK | Computed by: LBR | Date: 8/2013

Checked by: ___ | Date: ___

Reference

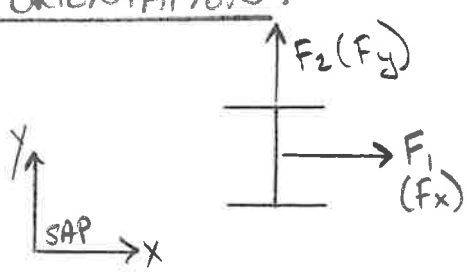
CRITICAL BUCKLING LOAD: CRGA MANUAL PG 40 - FOR CONST. E_s & UNSUPPORTED LENGTH

$$P_{CR} = n\sqrt{E_s E I}, \quad n = 1 \text{ FOR PINNED PILE}$$

$$P_{CR,\,STRONG} = \sqrt{(2059\ ksi)(29{,}000\ ksi)(904\ in^4)} = \underline{7347.0^k}$$

$$P_{CR,\,WEAK} = \sqrt{(2059)(29{,}000)(326\ in^4)} = \underline{4412.0^k}$$

PILE ORIENTATION:



F_1 / F_x CORRESPONDS TO WEAK AXIS

F_2 / F_y CORRESPONDS TO STRONG AXIS

ACC: CRGA MANUAL PG 42-43

-IF- $\sqrt{\dfrac{2\pi^2 E}{F_y}} > \sqrt{\dfrac{\pi^2 E A}{P_{CR}}}$

-THEN- $ACC = \left[\dfrac{F_y \cdot A}{S.F.}\right]\left[1 - \dfrac{F_y \cdot A}{4 \cdot P_{CR}}\right]$

$$\sqrt{\frac{2\pi^2(29{,}000)}{50}} = 106.99 \quad > \quad \sqrt{\frac{\pi^2(29{,}000)(26.1)}{4412}} = 41.1$$

(SMALLER P_{CR} = LARGER #)

$$\Rightarrow ACC_{,\,STRONG} = \left[\frac{50 \cdot 26.1}{2}\right]\left[1 - \frac{50 \cdot 26.1}{4 \cdot 7347.0}\right] = \underline{\underline{623.5^k}}$$

$$\Rightarrow ACC_{,\,WEAK} = \left[\frac{50 \cdot 26.1}{2}\right]\left[1 - \frac{50 \cdot 26.1}{4 \cdot 4412.0}\right] = \underline{\underline{604.3^k}}$$

ATI: $\dfrac{A \cdot F_y}{S.F.} = \dfrac{26.1 \times 50\ ksi}{2} = \underline{\underline{652.5^k}}$ (BOTH AXIS)

URS

Job: MAURGRAS | Project No. 10001876 | Page ____ of ____
Description: C5-C6 SOIL & PILE INFO FOR STRUCT. CHECK | Computed by: LBR | Sheet ____ of ____ | Date: 8/2013
Checked by: ____ | Date: ____

Reference

CBF: CPGA MANUAL PG 32

$$COMP = \left[\frac{F3}{ACC} + MF1\left(\frac{M1}{AM1}\right) + MF2\left(\frac{M2}{AM2}\right)\right]\left(\frac{1}{OSF}\right) \leq 1.0$$

$$TENSION = \left[\frac{-F3}{ATT} + \quad " \quad + \quad " \quad\right]\left(\frac{1}{OSF}\right) \leq 1.0$$

USACE FACTOR

SAFETY FACTOR - AISC

↳ $AM1 = S_y F_y = 44.3\ IN^3 \times 50KSI \times 5/6 \times 2/3 = 1230.6^{K \cdot IN}$ (WEAK AXIS)

y IS FOR AISC table #s, opposite SAP

↳ $AM2 = S_x F_y = 131\ IN^3 \times 50KSI \times 5/6 \times 2/3 = 3638.9^{K \cdot IN}$ (STRONG AXIS)

AISC table #, opposite SAP.

AXIAL LOAD FACTOR: $ALF = \frac{F3}{AC} \times \frac{1}{OSF}$, $AC = C_{ALLOW} = 126.7$ (TIP EL -750)

-NO TENSION REACTIONS-

*STRUCTURAL CHECKS PROVIDED ON FOLLOWING PAGES ARE FOR THE WORST CASE LOAD CASES - HIGHEST VERTICAL & LATERAL REACTIONS AS WELL MANY SETTLEMENT CASES. IF THE RESULTS OF A CASE ARE NOT PRESENTED IT IS B/C ALF & CBF FACTORS ARE EXTREMELY LOW.

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$\pi\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	AT1 = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P1	1a	0.0	-0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P2	1a	0.0	-0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P3	1a	0.0	-0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P4	1a	0.0	-0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P5	1a	0.0	-0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P6	1a	0.0	-0.14	90.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P7	1a	0.0	-0.14	90.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P8	1a	0.0	-0.08	88.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.21	-20.84	0.15	0.60
P9	1a	0.0	-0.08	88.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.41	-20.84	0.15	0.60
P10	1a	0.0	-0.08	88.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-20.84	0.15	0.60
P11	1a	0.0	-0.08	88.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.84	0.15	0.60
P12	1a	0.0	-0.08	88.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-20.84	0.15	0.60
P13	1a	0.0	-0.08	88.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.41	-20.84	0.15	0.60
P14	1a	0.0	-0.08	88.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.21	-20.84	0.15	0.60
P15	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P16	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P17	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P18	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P19	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P20	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P21	1a	0.0	-0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P22	1a	0.0	0.00	90.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.22	-23.48	0.15	0.61
P23	1a	0.0	0.00	90.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.41	-23.48	0.15	0.61
P24	1a	0.0	0.00	90.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-23.48	0.15	0.61
P25	1a	0.0	0.00	90.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-23.48	0.15	0.61
P26	1a	0.0	0.00	90.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-23.48	0.15	0.61
P27	1a	0.0	0.00	90.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.41	-23.48	0.15	0.61
P28	1a	0.0	0.00	90.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.22	-23.48	0.15	0.61
P29	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P30	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P31	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P32	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P33	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P34	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P35	1a	0.0	0.05	92.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-22.06	0.15	0.63
P36	1a	0.0	0.08	88.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.21	-20.84	0.15	0.60
P37	1a	0.0	0.08	88.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.41	-20.84	0.15	0.60
P38	1a	0.0	0.08	88.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-20.84	0.15	0.60
P39	1a	0.0	0.08	88.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.84	0.15	0.60
P40	1a	0.0	0.08	88.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-20.84	0.15	0.60
P41	1a	0.0	0.08	88.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.41	-20.84	0.15	0.60
P42	1a	0.0	0.08	88.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.21	-20.84	0.15	0.60
P43	1a	0.0	0.14	90.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P44	1a	0.0	0.14	90.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P45	1a	0.0	0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P46	1a	0.0	0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P47	1a	0.0	0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P48	1a	0.0	0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P49	1a	0.0	0.14	90.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-19.19	0.15	0.61
P1	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P2	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P3	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P4	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P5	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P6	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P7	1b	0.0	8.77	65.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	349.70	0.19	0.44
P8	1b	0.0	8.82	60.28	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.33	352.63	0.18	0.41
P9	1b	0.0	8.82	60.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.44	352.63	0.18	0.41
P10	1b	0.0	8.82	60.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	352.64	0.18	0.41
P11	1b	0.0	8.82	60.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	352.64	0.18	0.41
P12	1b	0.0	8.82	60.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	352.64	0.18	0.41
P13	1b	0.0	8.82	60.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.44	352.63	0.18	0.41
P14	1b	0.0	8.82	60.28	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.33	352.63	0.18	0.41
P15	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P16	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P17	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P18	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P19	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P20	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P21	1b	0.0	8.86	59.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	354.54	0.18	0.40
P22	1b	0.0	8.89	55.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.32	356.55	0.18	0.38
P23	1b	0.0	8.89	55.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.44	356.55	0.18	0.38

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P24	1b	0.0	8.89	55.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	356.56	0.18	0.38
P25	1b	0.0	8.89	55.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	356.56	0.18	0.38
P26	1b	0.0	8.89	55.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	356.56	0.18	0.38
P27	1b	0.0	8.89	55.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.44	356.55	0.18	0.38
P28	1b	0.0	8.89	55.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.32	356.55	0.18	0.38
P29	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P30	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P31	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P32	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P33	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P34	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P35	1b	0.0	8.92	54.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	357.94	0.18	0.37
P36	1b	0.0	8.94	50.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.31	358.95	0.17	0.34
P37	1b	0.0	8.94	50.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.43	358.94	0.17	0.34
P38	1b	0.0	8.94	50.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	358.95	0.17	0.34
P39	1b	0.0	8.94	50.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	358.95	0.17	0.34
P40	1b	0.0	8.94	50.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	358.95	0.17	0.34
P41	1b	0.0	8.94	50.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.43	358.94	0.17	0.34
P42	1b	0.0	8.94	50.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.31	358.94	0.17	0.34
P43	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P44	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P45	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P46	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P47	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P48	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P49	1b	0.0	8.94	47.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	359.26	0.17	0.32
P1	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P2	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P3	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P4	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P5	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P6	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P7	2b	0.0	-0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P8	2b	0.0	-0.05	99.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-22.04	0.19	0.79
P9	2b	0.0	-0.05	100.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.04	0.19	0.79
P10	2b	0.0	-0.05	100.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.04	0.19	0.79
P11	2b	0.0	-0.05	100.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.04	0.19	0.79
P12	2b	0.0	-0.05	100.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.04	0.19	0.79
P13	2b	0.0	-0.05	99.99	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-22.04	0.19	0.79
P14	2b	0.0	-0.05	99.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-22.04	0.19	0.79
P15	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P16	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P17	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P18	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P19	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P20	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P21	2b	0.0	-0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P22	2b	0.0	0.00	102.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.30	-23.48	0.19	0.81
P23	2b	0.0	0.00	102.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.48	0.19	0.81
P24	2b	0.0	0.00	102.33	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.19	0.81
P25	2b	0.0	0.00	102.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.48	0.19	0.81
P26	2b	0.0	0.00	102.33	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.19	0.81
P27	2b	0.0	0.00	102.28	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.48	0.19	0.81
P28	2b	0.0	0.00	102.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-23.48	0.19	0.81
P29	2b	0.0	0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P30	2b	0.0	0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P31	2b	0.0	0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P32	2b	0.0	0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P33	2b	0.0	0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P34	2b	0.0	0.02	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.71	0.20	0.82
P35	2b	0.0	0.02	104.44	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-22.04	0.19	0.79
P36	2b	0.0	0.05	99.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.04	0.19	0.79
P37	2b	0.0	0.05	100.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.04	0.19	0.79
P38	2b	0.0	0.05	100.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.04	0.19	0.79
P39	2b	0.0	0.05	100.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.04	0.19	0.79
P40	2b	0.0	0.05	100.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.04	0.19	0.79
P41	2b	0.0	0.05	100.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-22.04	0.19	0.79
P42	2b	0.0	0.05	99.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P43	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P44	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P45	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P46	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P47	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P48	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P49	2b	0.0	0.10	100.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P1	2b_T1	0.0	-0.10	100.76	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.19	0.80
P2	2b_T1	0.0	-0.10	101.84	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.19	0.80
P3	2b_T1	0.0	-0.10	102.92	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.19	0.81
P4	2b_T1	0.0	-0.10	103.99	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.20	0.82
P5	2b_T1	0.0	-0.10	105.07	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.20	0.83
P6	2b_T1	0.0	-0.10	106.15	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.20	0.84
P7	2b_T1	0.0	-0.10	107.23	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.34	0.20	0.85
P8	2b_T1	0.0	-0.04	99.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-22.10	0.19	0.79
P9	2b_T1	0.0	-0.04	101.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-22.11	0.19	0.80
P10	2b_T1	0.0	-0.04	102.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.12	0.19	0.81
P11	2b_T1	0.0	-0.04	103.17	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.13	0.20	0.81
P12	2b_T1	0.0	-0.04	104.23	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.15	0.20	0.82
P13	2b_T1	0.0	-0.04	105.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-22.16	0.20	0.83
P14	2b_T1	0.0	-0.04	106.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-22.17	0.20	0.84
P15	2b_T1	0.0	-0.02	104.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.20	0.82
P16	2b_T1	0.0	-0.02	105.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.20	0.83
P17	2b_T1	0.0	-0.02	106.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.20	0.84
P18	2b_T1	0.0	-0.02	107.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.20	0.85
P19	2b_T1	0.0	-0.02	108.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.21	0.86
P20	2b_T1	0.0	-0.02	109.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.21	0.87
P21	2b_T1	0.0	-0.02	111.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.77	0.21	0.88
P22	2b_T1	0.0	0.00	102.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-23.44	0.19	0.81
P23	2b_T1	0.0	0.00	103.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.45	0.20	0.81
P24	2b_T1	0.0	0.00	104.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.46	0.20	0.82
P25	2b_T1	0.0	0.00	105.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.47	0.20	0.83
P26	2b_T1	0.0	0.00	106.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.48	0.20	0.84
P27	2b_T1	0.0	0.00	107.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.47	0.20	0.85
P28	2b_T1	0.0	0.00	108.52	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.31	-23.46	0.20	0.86
P29	2b_T1	0.0	0.02	103.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.76	0.20	0.82
P30	2b_T1	0.0	0.02	105.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.76	0.20	0.83
P31	2b_T1	0.0	0.02	106.15	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.76	0.20	0.84
P32	2b_T1	0.0	0.02	107.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.75	0.20	0.85
P33	2b_T1	0.0	0.02	108.42	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.75	0.20	0.86
P34	2b_T1	0.0	0.02	109.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.75	0.21	0.86
P35	2b_T1	0.0	0.02	110.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.75	0.21	0.87
P36	2b_T1	0.0	0.04	99.13	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-22.13	0.19	0.78
P37	2b_T1	0.0	0.04	100.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.12	0.19	0.79
P38	2b_T1	0.0	0.04	101.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.12	0.19	0.80
P39	2b_T1	0.0	0.04	102.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.12	0.19	0.81
P40	2b_T1	0.0	0.04	103.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.12	0.20	0.82
P41	2b_T1	0.0	0.04	104.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-22.11	0.20	0.83
P42	2b_T1	0.0	0.04	105.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-22.11	0.20	0.83
P43	2b_T1	0.0	0.10	99.52	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.38	0.19	0.79
P44	2b_T1	0.0	0.10	100.65	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.79
P45	2b_T1	0.0	0.10	101.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.37	0.19	0.80
P46	2b_T1	0.0	0.10	102.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.36	0.19	0.81
P47	2b_T1	0.0	0.10	104.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.36	0.20	0.82
P48	2b_T1	0.0	0.10	105.17	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.36	0.20	0.83
P49	2b_T1	0.0	0.10	106.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.35	0.20	0.84
P1	2b_T2	0.0	-0.10	101.89	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.35	0.19	0.80
P2	2b_T2	0.0	-0.10	102.76	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.34	0.19	0.81
P3	2b_T2	0.0	-0.10	103.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.33	0.20	0.82
P4	2b_T2	0.0	-0.10	104.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.33	0.20	0.82
P5	2b_T2	0.0	-0.10	105.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.32	0.20	0.83
P6	2b_T2	0.0	-0.10	106.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.31	0.20	0.84
P7	2b_T2	0.0	-0.10	107.08	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.31	0.20	0.85
P8	2b_T2	0.0	-0.04	100.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-22.11	0.19	0.80
P9	2b_T2	0.0	-0.04	101.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.11	0.19	0.80
P10	2b_T2	0.0	-0.04	102.52	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.11	0.19	0.81
P11	2b_T2	0.0	-0.04	103.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.11	0.20	0.82
P12	2b_T2	0.0	-0.04	104.20	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.11	0.20	0.82
P13	2b_T2	0.0	-0.04	105.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-22.11	0.20	0.83
P14	2b_T2	0.0	-0.04	105.84	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-22.11	0.20	0.84
P15	2b_T2	0.0	-0.02	104.89	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.78	0.20	0.83
P16	2b_T2	0.0	-0.02	105.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.77	0.20	0.83
P17	2b_T2	0.0	-0.02	106.66	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.77	0.20	0.84
P18	2b_T2	0.0	-0.02	107.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.76	0.20	0.85
P19	2b_T2	0.0	-0.02	108.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.76	0.20	0.86
P20	2b_T2	0.0	-0.02	109.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.76	0.21	0.86

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. **Axial Tension Stress**	AM1 Allowable Bending Moment	**AM2 Allowable Bending Moment**	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P21	2b_T2	0.0	-0.02	110.19	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.75	0.21	0.87
P22	2b_T2	0.0	0.00	102.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-23.45	0.19	0.81
P23	2b_T2	0.0	0.00	103.17	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.46	0.20	0.81
P24	2b_T2	0.0	0.00	104.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.47	0.20	0.82
P25	2b_T2	0.0	0.00	104.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.20	0.83
P26	2b_T2	0.0	0.00	105.73	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.47	0.20	0.83
P27	2b_T2	0.0	0.00	106.52	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.46	0.20	0.84
P28	2b_T2	0.0	0.00	107.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.31	-23.45	0.20	0.85
P29	2b_T2	0.0	0.02	103.97	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.20	0.82
P30	2b_T2	0.0	0.02	104.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.20	0.83
P31	2b_T2	0.0	0.02	105.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.20	0.83
P32	2b_T2	0.0	0.02	106.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.20	0.84
P33	2b_T2	0.0	0.02	107.40	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.20	0.85
P34	2b_T2	0.0	0.02	108.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.20	0.85
P35	2b_T2	0.0	0.02	109.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.73	0.21	0.86
P36	2b_T2	0.0	0.05	99.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.30	-22.04	0.19	0.78
P37	2b_T2	0.0	0.05	99.85	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-22.06	0.19	0.79
P38	2b_T2	0.0	0.05	100.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.08	0.19	0.79
P39	2b_T2	0.0	0.04	101.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.09	0.19	0.80
P40	2b_T2	0.0	0.04	102.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.11	0.19	0.81
P41	2b_T2	0.0	0.04	103.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-22.13	0.20	0.81
P42	2b_T2	0.0	0.04	103.85	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-22.14	0.20	0.82
P43	2b_T2	0.0	0.10	99.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.38	0.19	0.78
P44	2b_T2	0.0	0.10	100.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.38	0.19	0.79
P45	2b_T2	0.0	0.10	100.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.38	0.19	0.80
P46	2b_T2	0.0	0.10	101.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.37	0.19	0.80
P47	2b_T2	0.0	0.10	102.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.37	0.19	0.81
P48	2b_T2	0.0	0.10	103.25	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.37	0.20	0.81
P49	2b_T2	0.0	0.10	104.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.37	0.20	0.82
P1	2b_T3	0.0	-0.10	101.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.30	0.19	0.80
P2	2b_T3	0.0	-0.10	103.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.30	0.20	0.81
P3	2b_T3	0.0	-0.10	104.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.31	0.20	0.82
P4	2b_T3	0.0	-0.10	105.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.32	0.20	0.83
P5	2b_T3	0.0	-0.10	106.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.33	0.20	0.84
P6	2b_T3	0.0	-0.10	107.39	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.34	0.20	0.85
P7	2b_T3	0.0	-0.10	108.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.34	0.20	0.86
P8	2b_T3	0.0	-0.04	101.53	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.32	-22.08	0.19	0.80
P9	2b_T3	0.0	-0.04	102.63	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.11	0.19	0.81
P10	2b_T3	0.0	-0.04	103.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.14	0.20	0.82
P11	2b_T3	0.0	-0.04	104.82	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-22.17	0.20	0.83
P12	2b_T3	0.0	-0.04	105.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.19	0.20	0.84
P13	2b_T3	0.0	-0.04	106.93	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.38	-22.22	0.20	0.84
P14	2b_T3	0.0	-0.04	108.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-22.24	0.20	0.85
P15	2b_T3	0.0	-0.02	106.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.76	0.20	0.84
P16	2b_T3	0.0	-0.02	107.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.77	0.20	0.85
P17	2b_T3	0.0	-0.02	108.84	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.77	0.21	0.86
P18	2b_T3	0.0	-0.02	109.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.78	0.21	0.87
P19	2b_T3	0.0	-0.02	111.13	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.79	0.21	0.88
P20	2b_T3	0.0	-0.02	112.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.79	0.21	0.89
P21	2b_T3	0.0	-0.02	113.42	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.80	0.21	0.90
P22	2b_T3	0.0	0.00	104.56	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.30	-23.36	0.20	0.83
P23	2b_T3	0.0	0.00	105.73	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.39	0.20	0.83
P24	2b_T3	0.0	0.00	106.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.43	0.20	0.84
P25	2b_T3	0.0	0.00	108.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.20	0.85
P26	2b_T3	0.0	0.00	109.20	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.47	0.21	0.86
P27	2b_T3	0.0	0.00	110.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.43	0.21	0.87
P28	2b_T3	0.0	0.00	111.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.30	-23.40	0.21	0.88
P29	2b_T3	0.0	0.02	106.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.82	0.20	0.84
P30	2b_T3	0.0	0.02	108.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.82	0.20	0.85
P31	2b_T3	0.0	0.02	109.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.81	0.21	0.86
P32	2b_T3	0.0	0.02	110.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.80	0.21	0.87
P33	2b_T3	0.0	0.02	111.81	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.80	0.21	0.88
P34	2b_T3	0.0	0.02	113.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.79	0.21	0.89
P35	2b_T3	0.0	0.02	114.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.78	0.21	0.90
P36	2b_T3	0.0	0.04	102.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-22.23	0.19	0.81
P37	2b_T3	0.0	0.04	103.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.39	-22.21	0.20	0.82
P38	2b_T3	0.0	0.04	104.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-22.18	0.20	0.83
P39	2b_T3	0.0	0.04	106.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-22.16	0.20	0.84
P40	2b_T3	0.0	0.04	107.25	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.13	0.20	0.85
P41	2b_T3	0.0	0.04	108.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.10	0.20	0.86
P42	2b_T3	0.0	0.05	109.61	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.32	-22.08	0.21	0.87
P43	2b_T3	0.0	0.10	103.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.31	0.20	0.82

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$C_c=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P44	2b_T3	0.0	0.10	104.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.30	0.20	0.83
P45	2b_T3	0.0	0.10	105.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.29	0.20	0.84
P46	2b_T3	0.0	0.10	107.11	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.29	0.20	0.85
P47	2b_T3	0.0	0.10	108.39	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.28	0.20	0.86
P48	2b_T3	0.0	0.10	109.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.27	0.21	0.87
P49	2b_T3	0.0	0.10	110.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.26	0.21	0.88
P1	2b_T4	0.0	-0.10	105.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.33	0.20	0.83
P2	2b_T4	0.0	-0.10	105.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.33	0.20	0.83
P3	2b_T4	0.0	-0.10	106.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.33	0.20	0.84
P4	2b_T4	0.0	-0.10	107.20	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.33	0.20	0.85
P5	2b_T4	0.0	-0.10	107.94	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.33	0.20	0.85
P6	2b_T4	0.0	-0.10	108.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.33	0.20	0.86
P7	2b_T4	0.0	-0.10	109.40	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.32	0.21	0.86
P8	2b_T4	0.0	-0.04	103.82	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.30	-22.15	0.20	0.82
P9	2b_T4	0.0	-0.04	104.57	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-22.17	0.20	0.83
P10	2b_T4	0.0	-0.04	105.34	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.19	0.20	0.83
P11	2b_T4	0.0	-0.04	106.07	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.21	0.20	0.84
P12	2b_T4	0.0	-0.04	106.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.22	0.20	0.84
P13	2b_T4	0.0	-0.04	107.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-22.24	0.20	0.85
P14	2b_T4	0.0	-0.04	108.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-22.26	0.20	0.85
P15	2b_T4	0.0	-0.02	108.17	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.20	0.85
P16	2b_T4	0.0	-0.02	108.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.21	0.86
P17	2b_T4	0.0	-0.02	109.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.21	0.87
P18	2b_T4	0.0	-0.02	110.53	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.21	0.87
P19	2b_T4	0.0	-0.02	111.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.21	0.88
P20	2b_T4	0.0	-0.02	112.10	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.21	0.88
P21	2b_T4	0.0	-0.02	112.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.83	0.21	0.89
P22	2b_T4	0.0	0.00	105.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-23.47	0.20	0.83
P23	2b_T4	0.0	0.00	106.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.48	0.20	0.84
P24	2b_T4	0.0	0.00	107.07	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.48	0.20	0.85
P25	2b_T4	0.0	0.00	107.84	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.20	0.85
P26	2b_T4	0.0	0.00	108.61	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.45	0.21	0.86
P27	2b_T4	0.0	0.00	109.34	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.44	0.21	0.86
P28	2b_T4	0.0	0.00	110.10	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.32	-23.43	0.21	0.87
P29	2b_T4	0.0	0.02	107.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.81	0.20	0.85
P30	2b_T4	0.0	0.02	107.94	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.80	0.20	0.85
P31	2b_T4	0.0	0.02	108.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.80	0.21	0.86
P32	2b_T4	0.0	0.02	109.56	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.79	0.21	0.86
P33	2b_T4	0.0	0.02	110.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.79	0.21	0.87
P34	2b_T4	0.0	0.02	111.18	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.79	0.21	0.88
P35	2b_T4	0.0	0.02	112.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.78	0.21	0.88
P36	2b_T4	0.0	0.04	101.81	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-22.20	0.19	0.80
P37	2b_T4	0.0	0.04	102.61	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-22.20	0.19	0.81
P38	2b_T4	0.0	0.04	103.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.20	0.20	0.82
P39	2b_T4	0.0	0.04	104.18	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.21	0.20	0.82
P40	2b_T4	0.0	0.04	104.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.21	0.20	0.83
P41	2b_T4	0.0	0.04	105.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-22.22	0.20	0.83
P42	2b_T4	0.0	0.04	106.44	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-22.22	0.20	0.84
P43	2b_T4	0.0	0.10	101.93	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.40	0.19	0.80
P44	2b_T4	0.0	0.10	102.72	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.39	0.19	0.81
P45	2b_T4	0.0	0.10	103.50	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.39	0.20	0.82
P46	2b_T4	0.0	0.10	104.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.38	0.20	0.82
P47	2b_T4	0.0	0.10	105.07	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.37	0.20	0.83
P48	2b_T4	0.0	0.10	105.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.37	0.20	0.84
P49	2b_T4	0.0	0.10	106.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.36	0.20	0.84
P1	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P2	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P3	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P4	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P5	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P6	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P7	3b	0.0	-0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P8	3b	0.0	-0.05	95.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-21.80	0.18	0.76
P9	3b	0.0	-0.05	95.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-21.80	0.18	0.76
P10	3b	0.0	-0.05	95.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.80	0.18	0.76
P11	3b	0.0	-0.05	95.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.80	0.18	0.76
P12	3b	0.0	-0.05	95.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.80	0.18	0.76
P13	3b	0.0	-0.05	95.76	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-21.80	0.18	0.76
P14	3b	0.0	-0.05	95.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-21.80	0.18	0.76
P15	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P16	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P17	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. **Axial Tension Stress**	AM1 Allowable Bending Moment	**AM2 Allowable Bending Moment**	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P18	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P19	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P20	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P21	3b	0.0	-0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P22	3b	0.0	0.00	97.70	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-23.48	0.19	0.77
P23	3b	0.0	0.00	97.72	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.48	0.19	0.77
P24	3b	0.0	0.00	97.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.19	0.77
P25	3b	0.0	0.00	97.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.48	0.19	0.77
P26	3b	0.0	0.00	97.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.19	0.77
P27	3b	0.0	0.00	97.71	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.48	0.19	0.77
P28	3b	0.0	0.00	97.70	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-23.48	0.19	0.77
P29	3b	0.0	0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P30	3b	0.0	0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P31	3b	0.0	0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P32	3b	0.0	0.03	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P33	3b	0.0	0.03	99.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P34	3b	0.0	0.03	99.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P35	3b	0.0	0.03	99.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.56	0.19	0.79
P36	3b	0.0	0.05	95.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-21.80	0.18	0.76
P37	3b	0.0	0.05	95.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-21.80	0.18	0.76
P38	3b	0.0	0.05	95.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.80	0.18	0.76
P39	3b	0.0	0.05	95.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.80	0.18	0.76
P40	3b	0.0	0.05	95.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.80	0.18	0.76
P41	3b	0.0	0.05	95.76	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-21.80	0.18	0.76
P42	3b	0.0	0.05	95.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-21.80	0.18	0.76
P43	3b	0.0	0.10	96.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P44	3b	0.0	0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P45	3b	0.0	0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P46	3b	0.0	0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P47	3b	0.0	0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P48	3b	0.0	0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.23	0.18	0.76
P49	3b	0.0	0.10	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.23	0.18	0.76
P1	3b_T1	0.0	-0.11	96.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.19	0.18	0.76
P2	3b_T1	0.0	-0.11	97.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.19	0.19	0.77
P3	3b_T1	0.0	-0.11	98.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.19	0.19	0.78
P4	3b_T1	0.0	-0.11	99.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.19	0.19	0.79
P5	3b_T1	0.0	-0.11	100.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.20	0.19	0.80
P6	3b_T1	0.0	-0.11	101.99	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.20	0.19	0.80
P7	3b_T1	0.0	-0.11	103.07	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.20	0.20	0.81
P8	3b_T1	0.0	-0.05	95.72	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-21.86	0.18	0.76
P9	3b_T1	0.0	-0.05	96.79	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-21.87	0.19	0.76
P10	3b_T1	0.0	-0.05	97.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.88	0.19	0.77
P11	3b_T1	0.0	-0.05	98.94	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.89	0.19	0.78
P12	3b_T1	0.0	-0.05	100.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.90	0.19	0.79
P13	3b_T1	0.0	-0.05	101.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-21.92	0.19	0.80
P14	3b_T1	0.0	-0.05	102.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-21.93	0.19	0.81
P15	3b_T1	0.0	-0.03	99.82	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.62	0.19	0.79
P16	3b_T1	0.0	-0.03	100.94	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.62	0.19	0.80
P17	3b_T1	0.0	-0.03	102.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.62	0.19	0.81
P18	3b_T1	0.0	-0.03	103.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.62	0.20	0.81
P19	3b_T1	0.0	-0.03	104.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.63	0.20	0.82
P20	3b_T1	0.0	-0.03	105.38	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.63	0.20	0.83
P21	3b_T1	0.0	-0.03	106.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-22.63	0.20	0.84
P22	3b_T1	0.0	0.00	97.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-23.44	0.19	0.77
P23	3b_T1	0.0	0.00	98.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.45	0.19	0.78
P24	3b_T1	0.0	0.00	99.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.46	0.19	0.79
P25	3b_T1	0.0	0.00	100.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.47	0.19	0.80
P26	3b_T1	0.0	0.00	101.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.19	0.80
P27	3b_T1	0.0	0.00	102.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.47	0.20	0.81
P28	3b_T1	0.0	0.00	103.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-23.46	0.20	0.82
P29	3b_T1	0.0	0.03	99.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.62	0.19	0.78
P30	3b_T1	0.0	0.03	100.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.62	0.19	0.79
P31	3b_T1	0.0	0.03	101.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.61	0.19	0.80
P32	3b_T1	0.0	0.03	102.76	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.61	0.20	0.81
P33	3b_T1	0.0	0.03	103.89	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.61	0.20	0.82
P34	3b_T1	0.0	0.03	105.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.60	0.20	0.83
P35	3b_T1	0.0	0.03	106.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.60	0.20	0.84
P36	3b_T1	0.0	0.05	94.89	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-21.88	0.18	0.75
P37	3b_T1	0.0	0.05	96.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-21.88	0.18	0.76
P38	3b_T1	0.0	0.05	97.13	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.88	0.19	0.77
P39	3b_T1	0.0	0.05	98.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.88	0.19	0.78
P40	3b_T1	0.0	0.05	99.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.87	0.19	0.78

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$C_c=\sqrt{\frac{2\pi^2 E}{f_y}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P41	3b_T1	0.0	0.05	100.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-21.87	0.19	0.79
P42	3b_T1	0.0	0.05	101.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-21.87	0.19	0.80
P43	3b_T1	0.0	0.10	95.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.23	0.18	0.75
P44	3b_T1	0.0	0.10	96.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.18	0.76
P45	3b_T1	0.0	0.10	97.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.19	0.77
P46	3b_T1	0.0	0.10	98.75	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.22	0.19	0.78
P47	3b_T1	0.0	0.10	99.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.21	0.19	0.79
P48	3b_T1	0.0	0.11	101.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.21	0.19	0.80
P49	3b_T1	0.0	0.11	102.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.20	0.19	0.81
P1	3b_T2	0.0	-0.11	97.73	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.20	0.19	0.77
P2	3b_T2	0.0	-0.11	98.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.19	0.19	0.78
P3	3b_T2	0.0	-0.11	99.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.19	0.19	0.79
P4	3b_T2	0.0	-0.11	100.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.18	0.19	0.79
P5	3b_T2	0.0	-0.11	101.19	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.17	0.19	0.80
P6	3b_T2	0.0	-0.11	102.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.17	0.19	0.81
P7	3b_T2	0.0	-0.11	102.92	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-20.16	0.19	0.81
P8	3b_T2	0.0	-0.05	96.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-21.86	0.18	0.76
P9	3b_T2	0.0	-0.05	97.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-21.87	0.19	0.77
P10	3b_T2	0.0	-0.05	98.28	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.87	0.19	0.78
P11	3b_T2	0.0	-0.05	99.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.87	0.19	0.78
P12	3b_T2	0.0	-0.05	99.97	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.87	0.19	0.79
P13	3b_T2	0.0	-0.05	100.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-21.87	0.19	0.80
P14	3b_T2	0.0	-0.05	101.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-21.87	0.19	0.80
P15	3b_T2	0.0	-0.03	100.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.63	0.19	0.79
P16	3b_T2	0.0	-0.03	101.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.63	0.19	0.80
P17	3b_T2	0.0	-0.03	102.13	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.62	0.19	0.81
P18	3b_T2	0.0	-0.03	103.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.62	0.20	0.81
P19	3b_T2	0.0	-0.03	103.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.62	0.20	0.82
P20	3b_T2	0.0	-0.03	104.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.61	0.20	0.83
P21	3b_T2	0.0	-0.03	105.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.61	0.20	0.83
P22	3b_T2	0.0	0.00	97.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-23.45	0.19	0.77
P23	3b_T2	0.0	0.00	98.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.46	0.19	0.78
P24	3b_T2	0.0	0.00	99.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.47	0.19	0.79
P25	3b_T2	0.0	0.00	100.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.19	0.79
P26	3b_T2	0.0	0.00	101.15	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.47	0.19	0.80
P27	3b_T2	0.0	0.00	101.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.46	0.19	0.80
P28	3b_T2	0.0	0.00	102.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.30	-23.45	0.20	0.81
P29	3b_T2	0.0	0.03	99.44	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.19	0.78
P30	3b_T2	0.0	0.03	100.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.19	0.79
P31	3b_T2	0.0	0.03	101.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.19	0.80
P32	3b_T2	0.0	0.03	102.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.19	0.81
P33	3b_T2	0.0	0.03	102.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.20	0.81
P34	3b_T2	0.0	0.03	103.73	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.20	0.82
P35	3b_T2	0.0	0.03	104.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.59	0.20	0.83
P36	3b_T2	0.0	0.05	94.79	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-21.80	0.18	0.75
P37	3b_T2	0.0	0.05	95.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-21.82	0.18	0.75
P38	3b_T2	0.0	0.05	96.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.84	0.18	0.76
P39	3b_T2	0.0	0.05	97.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.85	0.19	0.77
P40	3b_T2	0.0	0.05	98.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.87	0.19	0.77
P41	3b_T2	0.0	0.05	98.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-21.89	0.19	0.78
P42	3b_T2	0.0	0.05	99.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.25	-21.90	0.19	0.79
P43	3b_T2	0.0	0.10	95.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.18	0.75
P44	3b_T2	0.0	0.10	95.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.18	0.76
P45	3b_T2	0.0	0.10	96.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.18	0.76
P46	3b_T2	0.0	0.10	97.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.19	0.77
P47	3b_T2	0.0	0.10	98.28	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.19	0.78
P48	3b_T2	0.0	0.10	99.09	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.19	0.78
P49	3b_T2	0.0	0.10	99.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.23	0.19	0.79
P1	3b_T3	0.0	-0.11	97.79	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.15	0.19	0.77
P2	3b_T3	0.0	-0.11	98.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.16	0.19	0.78
P3	3b_T3	0.0	-0.11	99.96	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.16	0.19	0.79
P4	3b_T3	0.0	-0.11	101.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.17	0.19	0.80
P5	3b_T3	0.0	-0.11	102.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.18	0.19	0.81
P6	3b_T3	0.0	-0.11	103.23	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.19	0.20	0.81
P7	3b_T3	0.0	-0.11	104.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.20	0.20	0.82
P8	3b_T3	0.0	-0.05	97.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.31	-21.84	0.19	0.77
P9	3b_T3	0.0	-0.05	98.40	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.87	0.19	0.78
P10	3b_T3	0.0	-0.05	99.51	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.90	0.19	0.79
P11	3b_T3	0.0	-0.05	100.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-21.92	0.19	0.79
P12	3b_T3	0.0	-0.05	101.66	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-21.95	0.19	0.80
P13	3b_T3	0.0	-0.05	102.70	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.38	-21.98	0.20	0.81
P14	3b_T3	0.0	-0.05	103.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-22.00	0.20	0.82

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Ce=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1,3171*F² + 31,024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P15	3b_T3	0.0	-0.03	102.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.61	0.19	0.81
P16	3b_T3	0.0	-0.03	103.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.62	0.20	0.81
P17	3b_T3	0.0	-0.03	104.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.63	0.20	0.82
P18	3b_T3	0.0	-0.03	105.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.64	0.20	0.83
P19	3b_T3	0.0	-0.03	106.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.64	0.20	0.84
P20	3b_T3	0.0	-0.03	107.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.65	0.20	0.85
P21	3b_T3	0.0	-0.03	108.89	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-22.66	0.21	0.86
P22	3b_T3	0.0	0.00	99.99	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-23.36	0.19	0.79
P23	3b_T3	0.0	0.00	101.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.39	0.19	0.80
P24	3b_T3	0.0	0.00	102.34	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.43	0.19	0.81
P25	3b_T3	0.0	0.00	103.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.20	0.82
P26	3b_T3	0.0	0.00	104.63	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.47	0.20	0.83
P27	3b_T3	0.0	0.00	105.73	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.43	0.20	0.83
P28	3b_T3	0.0	0.00	106.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-23.40	0.20	0.84
P29	3b_T3	0.0	0.03	102.38	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.68	0.19	0.81
P30	3b_T3	0.0	0.03	103.61	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.67	0.20	0.82
P31	3b_T3	0.0	0.03	104.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.67	0.20	0.83
P32	3b_T3	0.0	0.03	106.06	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.66	0.20	0.84
P33	3b_T3	0.0	0.03	107.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.65	0.20	0.85
P34	3b_T3	0.0	0.03	108.51	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.64	0.20	0.86
P35	3b_T3	0.0	0.03	109.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.64	0.21	0.87
P36	3b_T3	0.0	0.05	98.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-21.99	0.19	0.77
P37	3b_T3	0.0	0.05	99.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.38	-21.97	0.19	0.78
P38	3b_T3	0.0	0.05	100.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-21.94	0.19	0.79
P39	3b_T3	0.0	0.05	101.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-21.91	0.19	0.80
P40	3b_T3	0.0	0.05	103.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.89	0.20	0.81
P41	3b_T3	0.0	0.05	104.18	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.86	0.20	0.82
P42	3b_T3	0.0	0.05	105.38	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.31	-21.83	0.20	0.83
P43	3b_T3	0.0	0.11	99.11	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.17	0.19	0.78
P44	3b_T3	0.0	0.11	100.39	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.16	0.19	0.79
P45	3b_T3	0.0	0.11	101.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.15	0.19	0.80
P46	3b_T3	0.0	0.11	102.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.14	0.19	0.81
P47	3b_T3	0.0	0.11	104.23	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.13	0.20	0.82
P48	3b_T3	0.0	0.11	105.51	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.12	0.20	0.83
P49	3b_T3	0.0	0.11	106.79	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-20.11	0.20	0.84
P1	3b_T4	0.0	-0.11	100.85	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.19	0.19	0.80
P2	3b_T4	0.0	-0.11	101.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.18	0.19	0.80
P3	3b_T4	0.0	-0.11	102.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.18	0.19	0.81
P4	3b_T4	0.0	-0.11	103.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.18	0.20	0.81
P5	3b_T4	0.0	-0.11	103.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.18	0.20	0.82
P6	3b_T4	0.0	-0.11	104.50	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.18	0.20	0.82
P7	3b_T4	0.0	-0.11	105.23	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-20.18	0.20	0.83
P8	3b_T4	0.0	-0.05	99.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.29	-21.91	0.19	0.79
P9	3b_T4	0.0	-0.05	100.34	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-21.93	0.19	0.79
P10	3b_T4	0.0	-0.05	101.10	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.95	0.19	0.80
P11	3b_T4	0.0	-0.05	101.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.96	0.19	0.80
P12	3b_T4	0.0	-0.05	102.57	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.98	0.19	0.81
P13	3b_T4	0.0	-0.05	103.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-22.00	0.20	0.81
P14	3b_T4	0.0	-0.05	103.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.25	-22.02	0.20	0.82
P15	3b_T4	0.0	-0.03	103.64	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.82
P16	3b_T4	0.0	-0.03	104.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.82
P17	3b_T4	0.0	-0.03	105.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.83
P18	3b_T4	0.0	-0.03	106.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.84
P19	3b_T4	0.0	-0.03	106.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.84
P20	3b_T4	0.0	-0.03	107.57	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.85
P21	3b_T4	0.0	-0.03	108.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-22.68	0.20	0.86
P22	3b_T4	0.0	0.00	100.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-23.47	0.19	0.80
P23	3b_T4	0.0	0.00	101.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-23.48	0.19	0.80
P24	3b_T4	0.0	0.00	102.50	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.48	0.20	0.81
P25	3b_T4	0.0	0.00	103.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.20	0.82
P26	3b_T4	0.0	0.00	104.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.45	0.20	0.82
P27	3b_T4	0.0	0.00	104.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.44	0.20	0.83
P28	3b_T4	0.0	0.00	105.53	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.31	-23.43	0.20	0.83
P29	3b_T4	0.0	0.03	102.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.66	0.20	0.81
P30	3b_T4	0.0	0.03	103.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.66	0.20	0.82
P31	3b_T4	0.0	0.03	104.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.65	0.20	0.82
P32	3b_T4	0.0	0.03	105.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.65	0.20	0.83
P33	3b_T4	0.0	0.03	105.84	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.65	0.20	0.84
P34	3b_T4	0.0	0.03	106.65	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.64	0.20	0.84
P35	3b_T4	0.0	0.03	107.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-22.64	0.20	0.85
P36	3b_T4	0.0	0.05	97.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-21.95	0.19	0.77
P37	3b_T4	0.0	0.05	98.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-21.96	0.19	0.78

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P38	3b_T4	0.0	0.05	99.18	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.96	0.19	0.78
P39	3b_T4	0.0	0.05	99.94	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.97	0.19	0.79
P40	3b_T4	0.0	0.05	100.72	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.97	0.19	0.79
P41	3b_T4	0.0	0.05	101.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-21.97	0.19	0.80
P42	3b_T4	0.0	0.05	102.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.28	-21.98	0.19	0.81
P43	3b_T4	0.0	0.10	97.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.25	0.19	0.77
P44	3b_T4	0.0	0.10	98.56	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.24	0.19	0.78
P45	3b_T4	0.0	0.10	99.34	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.24	0.19	0.78
P46	3b_T4	0.0	0.10	100.13	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.23	0.19	0.79
P47	3b_T4	0.0	0.10	100.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.23	0.19	0.80
P48	3b_T4	0.0	0.10	101.70	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.22	0.19	0.80
P49	3b_T4	0.0	0.10	102.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.21	0.19	0.81
P1	D1b_T1	0.0	-0.09	95.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.14	0.56
P2	D1b_T1	0.0	-0.09	96.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.14	0.57
P3	D1b_T1	0.0	-0.09	97.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.14	0.58
P4	D1b_T1	0.0	-0.09	98.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.14	0.58
P5	D1b_T1	0.0	-0.09	99.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.14	0.59
P6	D1b_T1	0.0	-0.09	100.53	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.14	0.60
P7	D1b_T1	0.0	-0.09	101.61	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.66	0.15	0.60
P8	D1b_T1	0.0	-0.06	94.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-21.50	0.14	0.56
P9	D1b_T1	0.0	-0.06	95.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.51	0.14	0.57
P10	D1b_T1	0.0	-0.06	96.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.52	0.14	0.57
P11	D1b_T1	0.0	-0.06	97.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.53	0.14	0.58
P12	D1b_T1	0.0	-0.06	98.42	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.54	0.14	0.58
P13	D1b_T1	0.0	-0.06	99.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-21.55	0.14	0.59
P14	D1b_T1	0.0	-0.06	100.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-21.56	0.14	0.60
P15	D1b_T1	0.0	-0.05	95.35	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.14	0.57
P16	D1b_T1	0.0	-0.05	96.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.14	0.57
P17	D1b_T1	0.0	-0.05	97.57	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.14	0.58
P18	D1b_T1	0.0	-0.05	98.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.14	0.59
P19	D1b_T1	0.0	-0.05	99.79	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.14	0.59
P20	D1b_T1	0.0	-0.05	100.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.14	0.60
P21	D1b_T1	0.0	-0.05	102.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.99	0.15	0.61
P22	D1b_T1	0.0	0.00	92.19	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.23	-23.44	0.13	0.55
P23	D1b_T1	0.0	0.00	93.30	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.41	-23.45	0.14	0.55
P24	D1b_T1	0.0	0.00	94.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-23.46	0.14	0.56
P25	D1b_T1	0.0	0.00	95.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-23.47	0.14	0.57
P26	D1b_T1	0.0	0.00	96.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-23.48	0.14	0.57
P27	D1b_T1	0.0	0.00	97.62	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-23.47	0.14	0.58
P28	D1b_T1	0.0	0.00	98.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.25	-23.46	0.14	0.59
P29	D1b_T1	0.0	0.05	94.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.99	0.14	0.56
P30	D1b_T1	0.0	0.05	96.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.98	0.14	0.57
P31	D1b_T1	0.0	0.05	97.15	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.98	0.14	0.58
P32	D1b_T1	0.0	0.05	98.28	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.98	0.14	0.58
P33	D1b_T1	0.0	0.05	99.42	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.97	0.14	0.59
P34	D1b_T1	0.0	0.05	100.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.97	0.14	0.60
P35	D1b_T1	0.0	0.05	101.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.97	0.15	0.60
P36	D1b_T1	0.0	0.06	93.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-21.52	0.13	0.55
P37	D1b_T1	0.0	0.06	94.43	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-21.52	0.14	0.56
P38	D1b_T1	0.0	0.06	95.56	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.52	0.14	0.57
P39	D1b_T1	0.0	0.06	96.65	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.52	0.14	0.57
P40	D1b_T1	0.0	0.06	97.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.51	0.14	0.58
P41	D1b_T1	0.0	0.06	98.79	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.51	0.14	0.59
P42	D1b_T1	0.0	0.06	99.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-21.51	0.14	0.59
P43	D1b_T1	0.0	0.09	93.90	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.70	0.14	0.56
P44	D1b_T1	0.0	0.09	95.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.69	0.14	0.56
P45	D1b_T1	0.0	0.09	96.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.69	0.14	0.57
P46	D1b_T1	0.0	0.09	97.29	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.68	0.14	0.58
P47	D1b_T1	0.0	0.09	98.42	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.68	0.14	0.58
P48	D1b_T1	0.0	0.09	99.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.67	0.14	0.59
P49	D1b_T1	0.0	0.09	100.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.67	0.14	0.60
P1	D1b_T2	0.0	-0.09	96.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.67	0.14	0.57
P2	D1b_T2	0.0	-0.09	97.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.66	0.14	0.58
P3	D1b_T2	0.0	-0.09	98.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.65	0.14	0.58
P4	D1b_T2	0.0	-0.09	98.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.65	0.14	0.59
P5	D1b_T2	0.0	-0.09	99.73	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.64	0.14	0.59
P6	D1b_T2	0.0	-0.09	100.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.64	0.14	0.60
P7	D1b_T2	0.0	-0.09	101.46	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.63	0.14	0.60
P8	D1b_T2	0.0	-0.06	94.96	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-21.50	0.14	0.56
P9	D1b_T2	0.0	-0.06	95.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-21.50	0.14	0.57
P10	D1b_T2	0.0	-0.06	96.70	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.51	0.14	0.57
P11	D1b_T2	0.0	-0.06	97.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.51	0.14	0.58

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P12	D1b_T2	0.0	-0.06	98.39	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.51	0.14	0.58
P13	D1b_T2	0.0	-0.06	99.19	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.51	0.14	0.59
P14	D1b_T2	0.0	-0.06	100.03	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-21.51	0.14	0.59
P15	D1b_T2	0.0	-0.05	95.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.00	0.14	0.57
P16	D1b_T2	0.0	-0.05	96.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.99	0.14	0.57
P17	D1b_T2	0.0	-0.05	97.65	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.99	0.14	0.58
P18	D1b_T2	0.0	-0.05	98.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.99	0.14	0.58
P19	D1b_T2	0.0	-0.05	99.42	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.98	0.14	0.59
P20	D1b_T2	0.0	-0.05	100.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.98	0.14	0.60
P21	D1b_T2	0.0	-0.05	101.19	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.97	0.14	0.60
P22	D1b_T2	0.0	0.00	92.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.22	-23.45	0.13	0.55
P23	D1b_T2	0.0	0.00	93.34	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-23.46	0.14	0.55
P24	D1b_T2	0.0	0.00	94.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-23.47	0.14	0.56
P25	D1b_T2	0.0	0.00	95.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.48	0.14	0.56
P26	D1b_T2	0.0	0.00	95.89	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.47	0.14	0.57
P27	D1b_T2	0.0	0.00	96.70	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-23.46	0.14	0.57
P28	D1b_T2	0.0	0.00	97.53	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.25	-23.45	0.14	0.58
P29	D1b_T2	0.0	0.05	94.97	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.95	0.14	0.56
P30	D1b_T2	0.0	0.05	95.82	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.95	0.14	0.57
P31	D1b_T2	0.0	0.05	96.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.95	0.14	0.57
P32	D1b_T2	0.0	0.05	97.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.95	0.14	0.58
P33	D1b_T2	0.0	0.05	98.40	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.95	0.14	0.58
P34	D1b_T2	0.0	0.05	99.25	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.96	0.14	0.59
P35	D1b_T2	0.0	0.05	100.11	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.96	0.14	0.59
P36	D1b_T2	0.0	0.07	93.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-21.44	0.13	0.55
P37	D1b_T2	0.0	0.07	94.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.46	0.14	0.56
P38	D1b_T2	0.0	0.06	94.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.47	0.14	0.56
P39	D1b_T2	0.0	0.06	95.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.49	0.14	0.57
P40	D1b_T2	0.0	0.06	96.48	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.51	0.14	0.57
P41	D1b_T2	0.0	0.06	97.25	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-21.52	0.14	0.58
P42	D1b_T2	0.0	0.06	98.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-21.54	0.14	0.58
P43	D1b_T2	0.0	0.09	93.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.70	0.14	0.56
P44	D1b_T2	0.0	0.09	94.40	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.70	0.14	0.56
P45	D1b_T2	0.0	0.09	95.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.70	0.14	0.56
P46	D1b_T2	0.0	0.09	96.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.70	0.14	0.57
P47	D1b_T2	0.0	0.09	96.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.69	0.14	0.57
P48	D1b_T2	0.0	0.09	97.63	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.69	0.14	0.58
P49	D1b_T2	0.0	0.09	98.44	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.69	0.14	0.58
P1	D1b_T3	0.0	-0.09	96.33	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.62	0.14	0.57
P2	D1b_T3	0.0	-0.09	97.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.62	0.14	0.58
P3	D1b_T3	0.0	-0.09	98.50	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.63	0.14	0.58
P4	D1b_T3	0.0	-0.09	99.59	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.64	0.14	0.59
P5	D1b_T3	0.0	-0.09	100.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.65	0.14	0.60
P6	D1b_T3	0.0	-0.09	101.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.66	0.15	0.60
P7	D1b_T3	0.0	-0.09	102.86	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.66	0.15	0.61
P8	D1b_T3	0.0	-0.06	95.72	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-21.48	0.14	0.57
P9	D1b_T3	0.0	-0.06	96.82	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.51	0.14	0.57
P10	D1b_T3	0.0	-0.06	97.93	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.54	0.14	0.58
P11	D1b_T3	0.0	-0.06	99.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-21.56	0.14	0.59
P12	D1b_T3	0.0	-0.06	100.09	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-21.59	0.14	0.59
P13	D1b_T3	0.0	-0.06	101.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.41	-21.62	0.14	0.60
P14	D1b_T3	0.0	-0.06	102.19	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-21.64	0.15	0.61
P15	D1b_T3	0.0	-0.05	97.54	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.98	0.14	0.58
P16	D1b_T3	0.0	-0.05	98.69	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.99	0.14	0.59
P17	D1b_T3	0.0	-0.05	99.83	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.00	0.14	0.59
P18	D1b_T3	0.0	-0.05	100.98	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.00	0.14	0.60
P19	D1b_T3	0.0	-0.05	102.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.01	0.15	0.61
P20	D1b_T3	0.0	-0.05	103.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.02	0.15	0.61
P21	D1b_T3	0.0	-0.05	104.41	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.02	0.15	0.62
P22	D1b_T3	0.0	0.00	94.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.24	-23.36	0.14	0.56
P23	D1b_T3	0.0	0.00	95.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-23.39	0.14	0.57
P24	D1b_T3	0.0	0.00	97.08	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.43	0.14	0.58
P25	D1b_T3	0.0	0.00	98.22	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.46	0.14	0.58
P26	D1b_T3	0.0	0.00	99.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.47	0.14	0.59
P27	D1b_T3	0.0	0.00	100.47	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-23.43	0.14	0.60
P28	D1b_T3	0.0	0.00	101.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.24	-23.40	0.15	0.60
P29	D1b_T3	0.0	0.05	97.91	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.05	0.14	0.58
P30	D1b_T3	0.0	0.05	99.13	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.04	0.14	0.59
P31	D1b_T3	0.0	0.05	100.36	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.03	0.14	0.60
P32	D1b_T3	0.0	0.05	101.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.03	0.15	0.60
P33	D1b_T3	0.0	0.05	102.81	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.02	0.15	0.61
P34	D1b_T3	0.0	0.05	104.04	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.01	0.15	0.62

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$C_c=\sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P35	D1b_T3	0.0	0.05	105.26	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.00	0.15	0.62
P36	D1b_T3	0.0	0.06	96.55	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-21.63	0.14	0.57
P37	D1b_T3	0.0	0.06	97.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.41	-21.61	0.14	0.58
P38	D1b_T3	0.0	0.06	99.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-21.58	0.14	0.59
P39	D1b_T3	0.0	0.06	100.23	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-21.55	0.14	0.59
P40	D1b_T3	0.0	0.06	101.44	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-21.53	0.14	0.60
P41	D1b_T3	0.0	0.06	102.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.50	0.15	0.61
P42	D1b_T3	0.0	0.06	103.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-21.47	0.15	0.62
P43	D1b_T3	0.0	0.09	97.65	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.63	0.14	0.58
P44	D1b_T3	0.0	0.09	98.93	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.62	0.14	0.59
P45	D1b_T3	0.0	0.09	100.21	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.62	0.14	0.59
P46	D1b_T3	0.0	0.09	101.49	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.61	0.14	0.60
P47	D1b_T3	0.0	0.09	102.77	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.60	0.15	0.61
P48	D1b_T3	0.0	0.09	104.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.59	0.15	0.62
P49	D1b_T3	0.0	0.09	105.33	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-20.58	0.15	0.63
P1	D1b_T4	0.0	-0.09	99.39	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.65	0.14	0.59
P2	D1b_T4	0.0	-0.09	100.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.65	0.14	0.59
P3	D1b_T4	0.0	-0.09	100.85	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.65	0.14	0.60
P4	D1b_T4	0.0	-0.09	101.58	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.65	0.14	0.60
P5	D1b_T4	0.0	-0.09	102.32	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.65	0.15	0.61
P6	D1b_T4	0.0	-0.09	103.05	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.65	0.15	0.61
P7	D1b_T4	0.0	-0.09	103.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-20.64	0.15	0.62
P8	D1b_T4	0.0	-0.06	98.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-21.55	0.14	0.58
P9	D1b_T4	0.0	-0.06	98.76	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.57	0.14	0.59
P10	D1b_T4	0.0	-0.06	99.53	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.59	0.14	0.59
P11	D1b_T4	0.0	-0.06	100.25	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.60	0.14	0.59
P12	D1b_T4	0.0	-0.06	100.99	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.62	0.14	0.60
P13	D1b_T4	0.0	-0.06	101.68	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-21.64	0.15	0.60
P14	D1b_T4	0.0	-0.06	102.40	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-21.66	0.15	0.61
P15	D1b_T4	0.0	-0.05	99.16	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.14	0.59
P16	D1b_T4	0.0	-0.05	99.95	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.14	0.59
P17	D1b_T4	0.0	-0.05	100.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.14	0.60
P18	D1b_T4	0.0	-0.05	101.52	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.15	0.60
P19	D1b_T4	0.0	-0.05	102.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.15	0.61
P20	D1b_T4	0.0	-0.05	103.09	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.15	0.61
P21	D1b_T4	0.0	-0.05	103.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.05	0.15	0.62
P22	D1b_T4	0.0	0.00	95.65	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.22	-23.47	0.14	0.57
P23	D1b_T4	0.0	0.00	96.44	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-23.48	0.14	0.57
P24	D1b_T4	0.0	0.00	97.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-23.48	0.14	0.58
P25	D1b_T4	0.0	0.00	98.01	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.47	0.14	0.58
P26	D1b_T4	0.0	0.00	98.78	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.46	0.14	0.59
P27	D1b_T4	0.0	0.00	99.51	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-23.44	0.14	0.59
P28	D1b_T4	0.0	0.00	100.27	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.26	-23.43	0.14	0.60
P29	D1b_T4	0.0	0.05	98.12	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.03	0.14	0.58
P30	D1b_T4	0.0	0.05	98.93	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.02	0.14	0.59
P31	D1b_T4	0.0	0.05	99.74	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.02	0.14	0.59
P32	D1b_T4	0.0	0.05	100.56	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.02	0.14	0.60
P33	D1b_T4	0.0	0.05	101.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.01	0.15	0.60
P34	D1b_T4	0.0	0.05	102.18	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.01	0.15	0.61
P35	D1b_T4	0.0	0.05	102.99	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.00	0.15	0.61
P36	D1b_T4	0.0	0.06	96.00	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.38	-21.59	0.14	0.57
P37	D1b_T4	0.0	0.06	96.80	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-21.60	0.14	0.57
P38	D1b_T4	0.0	0.06	97.60	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.60	0.14	0.58
P39	D1b_T4	0.0	0.06	98.37	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-21.60	0.14	0.58
P40	D1b_T4	0.0	0.06	99.14	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-21.61	0.14	0.59
P41	D1b_T4	0.0	0.06	99.87	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-21.61	0.14	0.59
P42	D1b_T4	0.0	0.06	100.63	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-21.61	0.14	0.60
P43	D1b_T4	0.0	0.09	96.31	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.72	0.14	0.57
P44	D1b_T4	0.0	0.09	97.10	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.71	0.14	0.58
P45	D1b_T4	0.0	0.09	97.88	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.71	0.14	0.58
P46	D1b_T4	0.0	0.09	98.67	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.70	0.14	0.59
P47	D1b_T4	0.0	0.09	99.45	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.69	0.14	0.59
P48	D1b_T4	0.0	0.09	100.24	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.69	0.14	0.59
P49	D1b_T4	0.0	0.09	101.02	50	26.1	904	326	131	44	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.68	0.14	0.60
P1	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P2	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P3	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P4	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P5	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P6	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P7	1a-ST	0.0	-0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.16	-17.20	0.18	0.76
P8	1a-ST	0.0	-0.20	111.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.16	-17.20	0.18	0.76

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1,3171*F² + 31,024*F - 23,482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P9	1a-ST	0.0	-0.20	111.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.40	-17.20	0.18	0.76
P10	1a-ST	0.0	-0.20	111.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-17.20	0.18	0.76
P11	1a-ST	0.0	-0.20	111.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-17.20	0.18	0.76
P12	1a-ST	0.0	-0.20	111.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-17.20	0.18	0.76
P13	1a-ST	0.0	-0.20	111.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.40	-17.20	0.18	0.76
P14	1a-ST	0.0	-0.20	111.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.16	-17.21	0.18	0.76
P15	1a-ST	0.0	-0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P16	1a-ST	0.0	-0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P17	1a-ST	0.0	-0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P18	1a-ST	0.0	-0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P19	1a-ST	0.0	-0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P20	1a-ST	0.0	-0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P21	1a-ST	0.0	-0.10	111.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P22	1a-ST	0.0	0.00	106.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.14	-23.48	0.17	0.72
P23	1a-ST	0.0	0.00	106.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.40	-23.48	0.17	0.72
P24	1a-ST	0.0	0.00	106.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-23.48	0.17	0.72
P25	1a-ST	0.0	0.00	106.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-23.48	0.17	0.72
P26	1a-ST	0.0	0.00	106.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-23.48	0.17	0.72
P27	1a-ST	0.0	0.00	106.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.40	-23.48	0.17	0.72
P28	1a-ST	0.0	0.00	106.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.14	-23.48	0.17	0.72
P29	1a-ST	0.0	0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P30	1a-ST	0.0	0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P31	1a-ST	0.0	0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P32	1a-ST	0.0	0.10	111.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P33	1a-ST	0.0	0.10	111.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P34	1a-ST	0.0	0.10	111.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-20.51	0.18	0.75
P35	1a-ST	0.0	0.10	111.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.16	-17.20	0.18	0.76
P36	1a-ST	0.0	0.20	111.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.40	-17.20	0.18	0.76
P37	1a-ST	0.0	0.20	111.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-17.20	0.18	0.76
P38	1a-ST	0.0	0.20	111.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-17.20	0.18	0.76
P39	1a-ST	0.0	0.20	111.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.46	-17.20	0.18	0.76
P40	1a-ST	0.0	0.20	111.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.40	-17.20	0.18	0.76
P41	1a-ST	0.0	0.20	111.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.16	-17.21	0.18	0.76
P42	1a-ST	0.0	0.20	111.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P43	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P44	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P45	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P46	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P47	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.59	0.19	0.82
P48	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	-15.60	0.19	0.82
P49	1a-ST	0.0	0.25	120.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P1	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P2	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P3	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P4	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P5	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P6	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	344.93	0.21	0.55
P7	1b-ST	0.0	8.68	81.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.29	347.36	0.20	0.49
P8	1b-ST	0.0	8.72	72.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.44	347.35	0.20	0.49
P9	1b-ST	0.0	8.72	72.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	347.36	0.20	0.49
P10	1b-ST	0.0	8.72	72.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	347.36	0.20	0.49
P11	1b-ST	0.0	8.72	72.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	347.36	0.20	0.49
P12	1b-ST	0.0	8.72	72.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.44	347.35	0.20	0.49
P13	1b-ST	0.0	8.72	72.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.29	347.36	0.20	0.49
P14	1b-ST	0.0	8.72	72.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P15	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P16	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P17	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P18	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P19	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P20	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	351.94	0.20	0.48
P21	1b-ST	0.0	8.81	70.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.25	356.12	0.19	0.45
P22	1b-ST	0.0	8.88	66.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.43	356.12	0.20	0.45
P23	1b-ST	0.0	8.88	66.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	356.13	0.20	0.45
P24	1b-ST	0.0	8.88	66.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	356.13	0.20	0.45
P25	1b-ST	0.0	8.88	66.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	356.13	0.20	0.45
P26	1b-ST	0.0	8.88	66.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.43	356.11	0.20	0.45
P27	1b-ST	0.0	8.88	66.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.25	356.12	0.19	0.45
P28	1b-ST	0.0	8.88	66.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47
P29	1b-ST	0.0	8.96	69.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47
P30	1b-ST	0.0	8.96	69.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47
P31	1b-ST	0.0	8.96	69.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$C_c=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. **Axial Tension Stress**	AM1 Allowable Bending Moment	**AM2 Allowable Bending Moment**	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P32	1b-ST	0.0	8.96	69.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47
P33	1b-ST	0.0	8.96	69.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47
P34	1b-ST	0.0	8.96	69.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	360.03	0.20	0.47
P35	1b-ST	0.0	8.96	69.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.26	364.48	0.20	0.48
P36	1b-ST	0.0	9.04	71.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.42	364.48	0.20	0.49
P37	1b-ST	0.0	9.04	71.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	364.49	0.20	0.49
P38	1b-ST	0.0	9.04	71.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.49	0.20	0.49
P39	1b-ST	0.0	9.04	71.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.47	364.49	0.20	0.49
P40	1b-ST	0.0	9.04	71.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.42	364.47	0.20	0.49
P41	1b-ST	0.0	9.04	71.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.26	364.48	0.20	0.49
P42	1b-ST	0.0	9.04	71.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P43	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P44	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P45	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P46	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P47	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P48	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.167	-23.48	364.85	0.21	0.53
P49	1b-ST	0.0	9.04	77.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.24	1.03
P1	2b_T1-ST	0.0	-0.21	131.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.24	1.04
P2	2b_T1-ST	0.0	-0.21	132.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.24	1.05
P3	2b_T1-ST	0.0	-0.21	133.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.25	1.06
P4	2b_T1-ST	0.0	-0.21	134.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.25	1.07
P5	2b_T1-ST	0.0	-0.21	135.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.25	1.08
P6	2b_T1-ST	0.0	-0.21	136.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.76	0.25	1.09
P7	2b_T1-ST	0.0	-0.21	137.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-18.47	0.23	0.97
P8	2b_T1-ST	0.0	-0.16	122.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-18.48	0.23	0.98
P9	2b_T1-ST	0.0	-0.16	123.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.50	0.23	0.99
P10	2b_T1-ST	0.0	-0.16	125.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.51	0.23	1.00
P11	2b_T1-ST	0.0	-0.16	126.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.52	0.23	1.00
P12	2b_T1-ST	0.0	-0.16	127.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.53	0.24	1.01
P13	2b_T1-ST	0.0	-0.16	128.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.54	0.24	1.02
P14	2b_T1-ST	0.0	-0.16	129.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.23	0.97
P15	2b_T1-ST	0.0	-0.07	122.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.23	0.98
P16	2b_T1-ST	0.0	-0.07	123.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.23	0.99
P17	2b_T1-ST	0.0	-0.07	125.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.23	1.00
P18	2b_T1-ST	0.0	-0.07	126.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.24	1.00
P19	2b_T1-ST	0.0	-0.07	127.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.24	1.01
P20	2b_T1-ST	0.0	-0.07	128.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.22	0.24	1.02
P21	2b_T1-ST	0.0	-0.07	129.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-23.44	0.22	0.93
P22	2b_T1-ST	0.0	0.00	118.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-23.45	0.22	0.94
P23	2b_T1-ST	0.0	0.00	119.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.46	0.23	0.95
P24	2b_T1-ST	0.0	0.00	120.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.47	0.23	0.96
P25	2b_T1-ST	0.0	0.00	121.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.23	0.97
P26	2b_T1-ST	0.0	0.00	122.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.47	0.23	0.98
P27	2b_T1-ST	0.0	0.00	123.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-23.46	0.23	0.99
P28	2b_T1-ST	0.0	0.00	124.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.22	0.23	0.97
P29	2b_T1-ST	0.0	0.07	122.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.21	0.23	0.97
P30	2b_T1-ST	0.0	0.07	123.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.21	0.23	0.98
P31	2b_T1-ST	0.0	0.07	124.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.21	0.23	0.99
P32	2b_T1-ST	0.0	0.07	125.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.20	0.23	1.00
P33	2b_T1-ST	0.0	0.07	126.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.20	0.24	1.01
P34	2b_T1-ST	0.0	0.07	128.06	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.20	0.24	1.02
P35	2b_T1-ST	0.0	0.07	129.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.50	0.23	0.96
P36	2b_T1-ST	0.0	0.16	122.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.50	0.23	0.97
P37	2b_T1-ST	0.0	0.16	123.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.50	0.23	0.98
P38	2b_T1-ST	0.0	0.16	124.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.49	0.23	0.99
P39	2b_T1-ST	0.0	0.16	125.36	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.49	0.23	1.00
P40	2b_T1-ST	0.0	0.16	126.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.49	0.24	1.01
P41	2b_T1-ST	0.0	0.16	127.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-18.49	0.24	1.01
P42	2b_T1-ST	0.0	0.16	128.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.02
P43	2b_T1-ST	0.0	0.21	129.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P44	2b_T1-ST	0.0	0.21	130.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.78	0.24	1.04
P45	2b_T1-ST	0.0	0.21	132.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.78	0.24	1.05
P46	2b_T1-ST	0.0	0.21	133.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.77	0.25	1.06
P47	2b_T1-ST	0.0	0.21	134.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.77	0.25	1.07
P48	2b_T1-ST	0.0	0.21	135.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.76	0.25	1.08
P49	2b_T1-ST	0.0	0.21	136.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.76	0.24	1.04
P1	2b_T2-ST	0.0	-0.21	132.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.75	0.24	1.05
P2	2b_T2-ST	0.0	-0.21	133.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.75	0.25	1.06
P3	2b_T2-ST	0.0	-0.22	133.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.74	0.25	1.06
P4	2b_T2-ST	0.0	-0.22	134.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.73	0.25	1.07
P5	2b_T2-ST	0.0	-0.22	135.59	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.73	0.25	1.07

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$Cr=\sqrt{\frac{2\pi^2 E}{f_y'}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P6	2b_T2-ST	0.0	-0.22	136.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.73	0.25	1.08
P7	2b_T2-ST	0.0	-0.22	137.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.72	0.25	1.08
P8	2b_T2-ST	0.0	-0.16	123.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.48	0.23	0.98
P9	2b_T2-ST	0.0	-0.16	124.54	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.48	0.23	0.98
P10	2b_T2-ST	0.0	-0.16	125.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.48	0.23	0.99
P11	2b_T2-ST	0.0	-0.16	126.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.48	0.23	1.00
P12	2b_T2-ST	0.0	-0.16	127.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.49	0.23	1.00
P13	2b_T2-ST	0.0	-0.16	127.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.49	0.24	1.01
P14	2b_T2-ST	0.0	-0.16	128.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-18.49	0.24	1.02
P15	2b_T2-ST	0.0	-0.07	123.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.23	0.23	0.97
P16	2b_T2-ST	0.0	-0.07	124.28	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.22	0.23	0.98
P17	2b_T2-ST	0.0	-0.07	125.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.22	0.23	0.99
P18	2b_T2-ST	0.0	-0.07	126.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.22	0.23	0.99
P19	2b_T2-ST	0.0	-0.07	126.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.21	0.23	1.00
P20	2b_T2-ST	0.0	-0.07	127.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.21	0.24	1.01
P21	2b_T2-ST	0.0	-0.07	128.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.20	0.24	1.02
P22	2b_T2-ST	0.0	0.00	118.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-23.45	0.22	0.94
P23	2b_T2-ST	0.0	0.00	119.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-23.46	0.22	0.94
P24	2b_T2-ST	0.0	0.00	120.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.47	0.22	0.95
P25	2b_T2-ST	0.0	0.00	121.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.23	0.96
P26	2b_T2-ST	0.0	0.00	122.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.47	0.23	0.96
P27	2b_T2-ST	0.0	0.00	122.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.46	0.23	0.97
P28	2b_T2-ST	0.0	0.00	123.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-23.45	0.23	0.98
P29	2b_T2-ST	0.0	0.07	122.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.18	0.23	0.97
P30	2b_T2-ST	0.0	0.07	123.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.18	0.23	0.97
P31	2b_T2-ST	0.0	0.07	124.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.18	0.23	0.98
P32	2b_T2-ST	0.0	0.07	125.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.18	0.23	0.99
P33	2b_T2-ST	0.0	0.07	125.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.19	0.23	0.99
P34	2b_T2-ST	0.0	0.07	126.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.19	0.23	1.00
P35	2b_T2-ST	0.0	0.07	127.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.19	0.24	1.01
P36	2b_T2-ST	0.0	0.16	121.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.25	-18.42	0.23	0.96
P37	2b_T2-ST	0.0	0.16	122.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-18.43	0.23	0.97
P38	2b_T2-ST	0.0	0.16	123.59	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.45	0.23	0.98
P39	2b_T2-ST	0.0	0.16	124.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.47	0.23	0.98
P40	2b_T2-ST	0.0	0.16	125.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.48	0.23	0.99
P41	2b_T2-ST	0.0	0.16	125.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.50	0.23	0.99
P42	2b_T2-ST	0.0	0.16	126.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-18.52	0.23	1.00
P43	2b_T2-ST	0.0	0.21	129.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.24	1.02
P44	2b_T2-ST	0.0	0.21	130.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.24	1.03
P45	2b_T2-ST	0.0	0.21	131.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.24	1.03
P46	2b_T2-ST	0.0	0.21	131.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.24	1.04
P47	2b_T2-ST	0.0	0.21	132.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.24	1.05
P48	2b_T2-ST	0.0	0.21	133.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.24	1.05
P49	2b_T2-ST	0.0	0.21	134.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.79	0.25	1.06
P1	2b_T3-ST	0.0	-0.22	132.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.71	0.24	1.04
P2	2b_T3-ST	0.0	-0.22	133.28	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.72	0.24	1.05
P3	2b_T3-ST	0.0	-0.22	134.37	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.72	0.25	1.06
P4	2b_T3-ST	0.0	-0.22	135.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.73	0.25	1.07
P5	2b_T3-ST	0.0	-0.22	136.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.74	0.25	1.08
P6	2b_T3-ST	0.0	-0.22	137.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.75	0.25	1.09
P7	2b_T3-ST	0.0	-0.21	138.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.76	0.25	1.09
P8	2b_T3-ST	0.0	-0.16	124.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-18.46	0.23	0.98
P9	2b_T3-ST	0.0	-0.16	125.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.49	0.23	0.99
P10	2b_T3-ST	0.0	-0.16	126.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.51	0.23	1.00
P11	2b_T3-ST	0.0	-0.16	127.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-18.54	0.24	1.01
P12	2b_T3-ST	0.0	-0.16	128.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.57	0.24	1.02
P13	2b_T3-ST	0.0	-0.16	129.83	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.37	-18.59	0.24	1.02
P14	2b_T3-ST	0.0	-0.16	130.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.19	-18.62	0.24	1.03
P15	2b_T3-ST	0.0	-0.07	125.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.21	0.23	0.99
P16	2b_T3-ST	0.0	-0.07	126.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.22	0.23	1.00
P17	2b_T3-ST	0.0	-0.07	127.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.23	0.24	1.01
P18	2b_T3-ST	0.0	-0.07	128.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.23	0.24	1.01
P19	2b_T3-ST	0.0	-0.07	129.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.24	0.24	1.02
P20	2b_T3-ST	0.0	-0.07	130.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.25	0.24	1.03
P21	2b_T3-ST	0.0	-0.07	131.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.25	0.24	1.04
P22	2b_T3-ST	0.0	0.00	121.01	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-23.36	0.23	0.96
P23	2b_T3-ST	0.0	0.00	122.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.39	0.23	0.96
P24	2b_T3-ST	0.0	0.00	123.36	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.43	0.23	0.97
P25	2b_T3-ST	0.0	0.00	124.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.23	0.98
P26	2b_T3-ST	0.0	0.00	125.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.23	0.99
P27	2b_T3-ST	0.0	0.00	126.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.43	0.24	1.00
P28	2b_T3-ST	0.0	0.00	127.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-23.40	0.24	1.01

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_S EI}$ X-axis PCR	Y-axis PCR	$C_C=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P29	2b_T3-ST	0.0	0.07	125.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.28	0.23	0.99
P30	2b_T3-ST	0.0	0.07	126.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.27	0.23	1.00
P31	2b_T3-ST	0.0	0.07	127.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.26	0.24	1.01
P32	2b_T3-ST	0.0	0.07	129.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.26	0.24	1.02
P33	2b_T3-ST	0.0	0.07	130.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.25	0.24	1.03
P34	2b_T3-ST	0.0	0.07	131.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.24	0.24	1.04
P35	2b_T3-ST	0.0	0.07	132.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.23	0.24	1.05
P36	2b_T3-ST	0.0	0.16	125.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.19	-18.61	0.23	0.99
P37	2b_T3-ST	0.0	0.16	126.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.38	-18.59	0.23	1.00
P38	2b_T3-ST	0.0	0.16	127.74	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.56	0.24	1.01
P39	2b_T3-ST	0.0	0.16	128.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-18.53	0.24	1.02
P40	2b_T3-ST	0.0	0.16	130.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.50	0.24	1.03
P41	2b_T3-ST	0.0	0.16	131.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.48	0.24	1.04
P42	2b_T3-ST	0.0	0.16	132.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.27	-18.45	0.24	1.05
P43	2b_T3-ST	0.0	0.22	133.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.73	0.24	1.05
P44	2b_T3-ST	0.0	0.22	134.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.72	0.25	1.06
P45	2b_T3-ST	0.0	0.22	136.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.71	0.25	1.07
P46	2b_T3-ST	0.0	0.22	137.36	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.70	0.25	1.08
P47	2b_T3-ST	0.0	0.22	138.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.69	0.25	1.09
P48	2b_T3-ST	0.0	0.22	139.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.68	0.26	1.10
P49	2b_T3-ST	0.0	0.22	141.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.67	0.26	1.11
P1	2b_T4-ST	0.0	-0.22	135.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.75	0.25	1.07
P2	2b_T4-ST	0.0	-0.22	135.99	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.75	0.25	1.07
P3	2b_T4-ST	0.0	-0.22	136.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.74	0.25	1.08
P4	2b_T4-ST	0.0	-0.22	137.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.74	0.25	1.08
P5	2b_T4-ST	0.0	-0.22	138.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.74	0.25	1.09
P6	2b_T4-ST	0.0	-0.22	138.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.74	0.25	1.10
P7	2b_T4-ST	0.0	-0.22	139.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.74	0.25	1.10
P8	2b_T4-ST	0.0	-0.16	126.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.25	-18.53	0.23	1.00
P9	2b_T4-ST	0.0	-0.16	127.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-18.54	0.24	1.01
P10	2b_T4-ST	0.0	-0.16	128.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.56	0.24	1.01
P11	2b_T4-ST	0.0	-0.16	128.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.58	0.24	1.02
P12	2b_T4-ST	0.0	-0.16	129.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.60	0.24	1.02
P13	2b_T4-ST	0.0	-0.16	130.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.62	0.24	1.03
P14	2b_T4-ST	0.0	-0.16	131.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-18.64	0.24	1.03
P15	2b_T4-ST	0.0	-0.07	126.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.23	1.00
P16	2b_T4-ST	0.0	-0.07	127.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.24	1.01
P17	2b_T4-ST	0.0	-0.07	128.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.24	1.01
P18	2b_T4-ST	0.0	-0.07	129.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.24	1.02
P19	2b_T4-ST	0.0	-0.07	129.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.24	1.02
P20	2b_T4-ST	0.0	-0.07	130.60	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.24	1.03
P21	2b_T4-ST	0.0	-0.07	131.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.28	0.24	1.04
P22	2b_T4-ST	0.0	0.00	121.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-23.47	0.23	0.96
P23	2b_T4-ST	0.0	0.00	122.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.39	-23.48	0.23	0.97
P24	2b_T4-ST	0.0	0.00	123.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.48	0.23	0.97
P25	2b_T4-ST	0.0	0.00	124.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.23	0.98
P26	2b_T4-ST	0.0	0.00	125.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.23	0.99
P27	2b_T4-ST	0.0	0.00	125.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.44	0.23	0.99
P28	2b_T4-ST	0.0	0.00	126.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-23.43	0.23	1.00
P29	2b_T4-ST	0.0	0.07	125.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.26	0.23	0.99
P30	2b_T4-ST	0.0	0.07	126.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.26	0.23	1.00
P31	2b_T4-ST	0.0	0.07	127.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.25	0.24	1.00
P32	2b_T4-ST	0.0	0.07	128.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.25	0.24	1.01
P33	2b_T4-ST	0.0	0.07	128.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.24	0.24	1.02
P34	2b_T4-ST	0.0	0.07	129.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.24	0.24	1.02
P35	2b_T4-ST	0.0	0.07	130.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.23	0.24	1.03
P36	2b_T4-ST	0.0	0.16	124.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.57	0.23	0.98
P37	2b_T4-ST	0.0	0.16	125.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.57	0.23	0.99
P38	2b_T4-ST	0.0	0.16	126.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.58	0.23	1.00
P39	2b_T4-ST	0.0	0.16	127.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.58	0.23	1.00
P40	2b_T4-ST	0.0	0.16	127.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.59	0.24	1.01
P41	2b_T4-ST	0.0	0.16	128.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.59	0.24	1.01
P42	2b_T4-ST	0.0	0.16	129.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-18.59	0.24	1.02
P43	2b_T4-ST	0.0	0.21	132.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.81	0.24	1.04
P44	2b_T4-ST	0.0	0.21	132.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.81	0.24	1.05
P45	2b_T4-ST	0.0	0.21	133.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.80	0.25	1.06
P46	2b_T4-ST	0.0	0.21	134.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.79	0.25	1.06
P47	2b_T4-ST	0.0	0.21	135.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.79	0.25	1.07
P48	2b_T4-ST	0.0	0.21	136.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.78	0.25	1.07
P49	2b_T4-ST	0.0	0.21	136.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.77	0.25	1.08
P1	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P2	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s E I}$ X-axis PCR	Y-axis PCR	$C_F=\sqrt{\frac{2\pi^2 E}{f_y}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P3	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P4	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P5	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P6	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P7	2b-ST	0.0	-0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P8	2b-ST	0.0	-0.16	122.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.42	0.23	0.97
P9	2b-ST	0.0	-0.16	122.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.41	0.23	0.97
P10	2b-ST	0.0	-0.16	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.41	0.23	0.97
P11	2b-ST	0.0	-0.16	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.41	0.23	0.97
P12	2b-ST	0.0	-0.16	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.41	0.23	0.97
P13	2b-ST	0.0	-0.16	122.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.42	0.23	0.97
P14	2b-ST	0.0	-0.16	122.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.42	0.23	0.97
P15	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P16	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P17	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P18	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P19	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P20	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P21	2b-ST	0.0	-0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P22	2b-ST	0.0	0.00	118.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-23.48	0.22	0.94
P23	2b-ST	0.0	0.00	118.74	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.48	0.22	0.94
P24	2b-ST	0.0	0.00	118.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.22	0.94
P25	2b-ST	0.0	0.00	118.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.48	0.22	0.94
P26	2b-ST	0.0	0.00	118.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.22	0.94
P27	2b-ST	0.0	0.00	118.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.48	0.22	0.94
P28	2b-ST	0.0	0.00	118.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-23.48	0.22	0.94
P29	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P30	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P31	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P32	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P33	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P34	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P35	2b-ST	0.0	0.07	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.16	0.23	0.97
P36	2b-ST	0.0	0.16	122.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.42	0.23	0.97
P37	2b-ST	0.0	0.16	122.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.41	0.23	0.97
P38	2b-ST	0.0	0.16	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.41	0.23	0.97
P39	2b-ST	0.0	0.16	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.41	0.23	0.97
P40	2b-ST	0.0	0.16	122.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.42	0.23	0.97
P41	2b-ST	0.0	0.16	122.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.42	0.23	0.97
P42	2b-ST	0.0	0.16	122.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.42	0.23	0.97
P43	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P44	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.78	0.24	1.03
P45	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.78	0.24	1.03
P46	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P47	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P48	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P49	2b-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.79	0.24	1.03
P1	3a_T3-ST	0.0	-0.25	82.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.57	0.16	0.65
P2	3a_T3-ST	0.0	-0.25	83.28	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.57	0.16	0.66
P3	3a_T3-ST	0.0	-0.25	84.37	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.58	0.16	0.67
P4	3a_T3-ST	0.0	-0.25	85.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.59	0.16	0.67
P5	3a_T3-ST	0.0	-0.25	86.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.60	0.17	0.68
P6	3a_T3-ST	0.0	-0.25	87.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.61	0.17	0.69
P7	3a_T3-ST	0.0	-0.25	88.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.62	0.17	0.70
P8	3a_T3-ST	0.0	-0.21	73.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-16.97	0.15	0.58
P9	3a_T3-ST	0.0	-0.21	74.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.99	0.15	0.59
P10	3a_T3-ST	0.0	-0.21	75.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-17.02	0.15	0.60
P11	3a_T3-ST	0.0	-0.21	76.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-17.05	0.15	0.61
P12	3a_T3-ST	0.0	-0.20	77.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-17.07	0.15	0.61
P13	3a_T3-ST	0.0	-0.20	78.83	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.36	-17.10	0.15	0.62
P14	3a_T3-ST	0.0	-0.20	79.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.14	-17.13	0.16	0.63
P15	3a_T3-ST	0.0	-0.10	71.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.44	0.14	0.57
P16	3a_T3-ST	0.0	-0.10	72.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.44	0.15	0.57
P17	3a_T3-ST	0.0	-0.10	73.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.45	0.15	0.58
P18	3a_T3-ST	0.0	-0.10	75.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.46	0.15	0.59
P19	3a_T3-ST	0.0	-0.10	76.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.47	0.15	0.60
P20	3a_T3-ST	0.0	-0.10	77.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.47	0.15	0.61
P21	3a_T3-ST	0.0	-0.10	78.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-20.48	0.15	0.62
P22	3a_T3-ST	0.0	0.00	67.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.16	-23.36	0.14	0.53
P23	3a_T3-ST	0.0	0.00	68.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-23.39	0.14	0.54
P24	3a_T3-ST	0.0	0.00	69.98	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.43	0.14	0.55
P25	3a_T3-ST	0.0	0.00	71.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.14	0.56

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_x EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P26	3a_T3-ST	0.0	0.00	72.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.15	0.57
P27	3a_T3-ST	0.0	0.00	73.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-23.43	0.15	0.58
P28	3a_T3-ST	0.0	0.00	74.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.16	-23.40	0.15	0.59
P29	3a_T3-ST	0.0	0.10	71.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.50	0.14	0.57
P30	3a_T3-ST	0.0	0.10	73.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.50	0.15	0.58
P31	3a_T3-ST	0.0	0.10	74.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.49	0.15	0.59
P32	3a_T3-ST	0.0	0.10	75.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.48	0.15	0.60
P33	3a_T3-ST	0.0	0.10	76.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.47	0.15	0.61
P34	3a_T3-ST	0.0	0.10	78.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.47	0.15	0.62
P35	3a_T3-ST	0.0	0.10	79.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.46	0.16	0.63
P36	3a_T3-ST	0.0	0.20	74.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.14	-17.12	0.15	0.59
P37	3a_T3-ST	0.0	0.20	75.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.37	-17.09	0.15	0.60
P38	3a_T3-ST	0.0	0.21	76.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-17.06	0.15	0.61
P39	3a_T3-ST	0.0	0.21	77.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-17.04	0.15	0.62
P40	3a_T3-ST	0.0	0.21	79.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-17.01	0.15	0.62
P41	3a_T3-ST	0.0	0.21	80.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.98	0.16	0.63
P42	3a_T3-ST	0.0	0.21	81.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-16.96	0.16	0.64
P43	3a_T3-ST	0.0	0.25	83.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.58	0.16	0.66
P44	3a_T3-ST	0.0	0.25	84.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.58	0.16	0.67
P45	3a_T3-ST	0.0	0.25	86.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.57	0.17	0.68
P46	3a_T3-ST	0.0	0.25	87.36	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.56	0.17	0.69
P47	3a_T3-ST	0.0	0.25	88.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.55	0.17	0.70
P48	3a_T3-ST	0.0	0.25	89.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.54	0.17	0.71
P49	3a_T3-ST	0.0	0.25	91.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-15.53	0.17	0.72
P1	3a_T4-ST	0.0	-0.25	85.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.61	0.16	0.67
P2	3a_T4-ST	0.0	-0.25	85.99	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.60	0.17	0.68
P3	3a_T4-ST	0.0	-0.25	86.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.60	0.17	0.68
P4	3a_T4-ST	0.0	-0.25	87.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.60	0.17	0.69
P5	3a_T4-ST	0.0	-0.25	88.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.60	0.17	0.70
P6	3a_T4-ST	0.0	-0.25	88.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.60	0.17	0.70
P7	3a_T4-ST	0.0	-0.25	89.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-15.60	0.17	0.71
P8	3a_T4-ST	0.0	-0.21	75.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-17.04	0.15	0.60
P9	3a_T4-ST	0.0	-0.21	76.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-17.05	0.15	0.60
P10	3a_T4-ST	0.0	-0.20	77.23	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-17.07	0.15	0.61
P11	3a_T4-ST	0.0	-0.20	77.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-17.09	0.15	0.62
P12	3a_T4-ST	0.0	-0.20	78.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-17.11	0.15	0.62
P13	3a_T4-ST	0.0	-0.20	79.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.39	-17.13	0.16	0.63
P14	3a_T4-ST	0.0	-0.20	80.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.17	-17.14	0.16	0.63
P15	3a_T4-ST	0.0	-0.10	73.23	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.58
P16	3a_T4-ST	0.0	-0.10	74.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.58
P17	3a_T4-ST	0.0	-0.10	74.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.59
P18	3a_T4-ST	0.0	-0.10	75.59	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.60
P19	3a_T4-ST	0.0	-0.10	76.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.60
P20	3a_T4-ST	0.0	-0.10	77.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.61
P21	3a_T4-ST	0.0	-0.10	77.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-20.51	0.15	0.62
P22	3a_T4-ST	0.0	0.00	68.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.14	-23.47	0.14	0.54
P23	3a_T4-ST	0.0	0.00	69.35	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.38	-23.48	0.14	0.55
P24	3a_T4-ST	0.0	0.00	70.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.48	0.14	0.55
P25	3a_T4-ST	0.0	0.00	70.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.14	0.56
P26	3a_T4-ST	0.0	0.00	71.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.14	0.57
P27	3a_T4-ST	0.0	0.00	72.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.44	0.15	0.57
P28	3a_T4-ST	0.0	0.00	73.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.18	-23.43	0.15	0.58
P29	3a_T4-ST	0.0	0.10	72.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.49	0.14	0.57
P30	3a_T4-ST	0.0	0.10	73.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.48	0.15	0.58
P31	3a_T4-ST	0.0	0.10	73.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.48	0.15	0.58
P32	3a_T4-ST	0.0	0.10	74.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.47	0.15	0.59
P33	3a_T4-ST	0.0	0.10	75.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.47	0.15	0.60
P34	3a_T4-ST	0.0	0.10	76.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.46	0.15	0.60
P35	3a_T4-ST	0.0	0.10	77.06	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-20.46	0.15	0.61
P36	3a_T4-ST	0.0	0.20	73.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.18	-17.08	0.15	0.58
P37	3a_T4-ST	0.0	0.20	74.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-17.08	0.15	0.59
P38	3a_T4-ST	0.0	0.20	75.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-17.08	0.15	0.59
P39	3a_T4-ST	0.0	0.20	76.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-17.09	0.15	0.60
P40	3a_T4-ST	0.0	0.20	76.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-17.09	0.15	0.61
P41	3a_T4-ST	0.0	0.20	77.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-17.10	0.15	0.61
P42	3a_T4-ST	0.0	0.20	78.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.19	-17.10	0.15	0.62
P43	3a_T4-ST	0.0	0.25	82.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.67	0.16	0.65
P44	3a_T4-ST	0.0	0.25	82.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.66	0.16	0.65
P45	3a_T4-ST	0.0	0.25	83.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.66	0.16	0.66
P46	3a_T4-ST	0.0	0.25	84.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.65	0.16	0.67
P47	3a_T4-ST	0.0	0.25	85.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.64	0.16	0.67
P48	3a_T4-ST	0.0	0.25	86.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.64	0.17	0.68

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$\pi\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P49	3a_T4-ST	0.0	0.25	86.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-15.63	0.17	0.69
P1	3b_T1-ST	0.0	-0.22	126.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.23	1.00
P2	3b_T1-ST	0.0	-0.22	127.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.24	1.01
P3	3b_T1-ST	0.0	-0.22	129.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.24	1.02
P4	3b_T1-ST	0.0	-0.22	130.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.24	1.03
P5	3b_T1-ST	0.0	-0.22	131.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.24	1.04
P6	3b_T1-ST	0.0	-0.22	132.23	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.24	1.04
P7	3b_T1-ST	0.0	-0.22	133.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-16.61	0.24	1.05
P8	3b_T1-ST	0.0	-0.17	118.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.23	0.22	0.94
P9	3b_T1-ST	0.0	-0.17	119.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-18.24	0.22	0.94
P10	3b_T1-ST	0.0	-0.17	120.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.25	0.22	0.95
P11	3b_T1-ST	0.0	-0.17	121.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.26	0.23	0.96
P12	3b_T1-ST	0.0	-0.17	122.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.28	0.23	0.97
P13	3b_T1-ST	0.0	-0.17	123.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.29	0.23	0.98
P14	3b_T1-ST	0.0	-0.17	124.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-18.30	0.23	0.99
P15	3b_T1-ST	0.0	-0.08	118.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.07	0.22	0.93
P16	3b_T1-ST	0.0	-0.08	119.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.08	0.22	0.94
P17	3b_T1-ST	0.0	-0.08	120.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.08	0.22	0.95
P18	3b_T1-ST	0.0	-0.08	121.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.08	0.23	0.96
P19	3b_T1-ST	0.0	-0.08	122.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.08	0.23	0.97
P20	3b_T1-ST	0.0	-0.08	123.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.08	0.23	0.98
P21	3b_T1-ST	0.0	-0.08	125.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.08	0.23	0.99
P22	3b_T1-ST	0.0	0.00	113.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.19	-23.44	0.21	0.90
P23	3b_T1-ST	0.0	0.00	115.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-23.45	0.22	0.91
P24	3b_T1-ST	0.0	0.00	116.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-23.46	0.22	0.92
P25	3b_T1-ST	0.0	0.00	117.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.47	0.22	0.93
P26	3b_T1-ST	0.0	0.00	118.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-23.48	0.22	0.93
P27	3b_T1-ST	0.0	0.00	119.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-23.47	0.22	0.94
P28	3b_T1-ST	0.0	0.00	120.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-23.46	0.22	0.95
P29	3b_T1-ST	0.0	0.08	117.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.07	0.22	0.93
P30	3b_T1-ST	0.0	0.08	118.99	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.07	0.22	0.94
P31	3b_T1-ST	0.0	0.08	120.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.07	0.22	0.95
P32	3b_T1-ST	0.0	0.08	121.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.06	0.23	0.96
P33	3b_T1-ST	0.0	0.08	122.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.06	0.23	0.97
P34	3b_T1-ST	0.0	0.08	123.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.06	0.23	0.97
P35	3b_T1-ST	0.0	0.08	124.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.05	0.23	0.98
P36	3b_T1-ST	0.0	0.17	117.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-18.26	0.22	0.93
P37	3b_T1-ST	0.0	0.17	118.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.25	0.22	0.94
P38	3b_T1-ST	0.0	0.17	120.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.25	0.22	0.95
P39	3b_T1-ST	0.0	0.17	121.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.25	0.22	0.96
P40	3b_T1-ST	0.0	0.17	122.22	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.25	0.23	0.96
P41	3b_T1-ST	0.0	0.17	123.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.24	0.23	0.97
P42	3b_T1-ST	0.0	0.17	124.35	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.24	0.23	0.98
P43	3b_T1-ST	0.0	0.22	125.60	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	0.99
P44	3b_T1-ST	0.0	0.22	126.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P45	3b_T1-ST	0.0	0.22	127.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.63	0.24	1.01
P46	3b_T1-ST	0.0	0.22	128.99	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.63	0.24	1.02
P47	3b_T1-ST	0.0	0.22	130.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.62	0.24	1.03
P48	3b_T1-ST	0.0	0.22	131.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.62	0.24	1.04
P49	3b_T1-ST	0.0	0.22	132.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.62	0.24	1.04
P1	3b_T2-ST	0.0	-0.22	127.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.61	0.24	1.01
P2	3b_T2-ST	0.0	-0.22	128.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.60	0.24	1.02
P3	3b_T2-ST	0.0	-0.22	129.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.60	0.24	1.02
P4	3b_T2-ST	0.0	-0.22	130.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.59	0.24	1.03
P5	3b_T2-ST	0.0	-0.22	131.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.59	0.24	1.04
P6	3b_T2-ST	0.0	-0.22	132.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.58	0.24	1.04
P7	3b_T2-ST	0.0	-0.22	133.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.57	0.24	1.05
P8	3b_T2-ST	0.0	-0.17	119.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-18.24	0.22	0.94
P9	3b_T2-ST	0.0	-0.17	120.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.24	0.22	0.95
P10	3b_T2-ST	0.0	-0.17	121.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.24	0.22	0.96
P11	3b_T2-ST	0.0	-0.17	122.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.24	0.23	0.96
P12	3b_T2-ST	0.0	-0.17	122.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.24	0.23	0.97
P13	3b_T2-ST	0.0	-0.17	123.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.24	0.23	0.98
P14	3b_T2-ST	0.0	-0.17	124.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.25	0.23	0.98
P15	3b_T2-ST	0.0	-0.08	118.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.08	0.22	0.94
P16	3b_T2-ST	0.0	-0.08	119.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.08	0.22	0.95
P17	3b_T2-ST	0.0	-0.08	120.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.08	0.22	0.95
P18	3b_T2-ST	0.0	-0.08	121.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.07	0.23	0.96
P19	3b_T2-ST	0.0	-0.08	122.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.07	0.23	0.97
P20	3b_T2-ST	0.0	-0.08	123.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.06	0.23	0.97
P21	3b_T2-ST	0.0	-0.08	124.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.06	0.23	0.98
P22	3b_T2-ST	0.0	0.00	114.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.19	-23.45	0.21	0.90

Maurepas Diversion
Monoliths C-5 C-6: Structural Check of Piles

Job No. 10001876

Calc By: LBR 8/2013
Check By: BCB 8/2013

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$\pi\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P23	3b_T2-ST	0.0	0.00	115.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.39	-23.46	0.22	0.91
P24	3b_T2-ST	0.0	0.00	115.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.47	0.22	0.91
P25	3b_T2-ST	0.0	0.00	116.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.22	0.92
P26	3b_T2-ST	0.0	0.00	117.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.47	0.22	0.93
P27	3b_T2-ST	0.0	0.00	118.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.46	0.22	0.93
P28	3b_T2-ST	0.0	0.00	119.23	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-23.45	0.22	0.94
P29	3b_T2-ST	0.0	0.08	117.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.22	0.93
P30	3b_T2-ST	0.0	0.08	118.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.22	0.94
P31	3b_T2-ST	0.0	0.08	119.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.22	0.94
P32	3b_T2-ST	0.0	0.08	120.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.22	0.95
P33	3b_T2-ST	0.0	0.08	121.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.23	0.96
P34	3b_T2-ST	0.0	0.08	122.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.23	0.96
P35	3b_T2-ST	0.0	0.08	123.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.04	0.23	0.97
P36	3b_T2-ST	0.0	0.17	117.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-18.18	0.22	0.93
P37	3b_T2-ST	0.0	0.17	118.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-18.19	0.22	0.94
P38	3b_T2-ST	0.0	0.17	119.36	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.21	0.22	0.94
P39	3b_T2-ST	0.0	0.17	120.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.22	0.22	0.95
P40	3b_T2-ST	0.0	0.17	120.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.24	0.22	0.95
P41	3b_T2-ST	0.0	0.17	121.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.26	0.23	0.96
P42	3b_T2-ST	0.0	0.17	122.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-18.27	0.23	0.97
P43	3b_T2-ST	0.0	0.22	125.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.23	0.99
P44	3b_T2-ST	0.0	0.22	126.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.23	1.00
P45	3b_T2-ST	0.0	0.22	126.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.23	1.00
P46	3b_T2-ST	0.0	0.22	127.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.23	1.01
P47	3b_T2-ST	0.0	0.22	128.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.24	1.01
P48	3b_T2-ST	0.0	0.22	129.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.24	1.02
P49	3b_T2-ST	0.0	0.22	130.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.64	0.24	1.03
P1	3b_T3-ST	0.0	-0.22	128.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.56	0.24	1.01
P2	3b_T3-ST	0.0	-0.22	129.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.57	0.24	1.02
P3	3b_T3-ST	0.0	-0.22	130.21	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.58	0.24	1.03
P4	3b_T3-ST	0.0	-0.22	131.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.58	0.24	1.04
P5	3b_T3-ST	0.0	-0.22	132.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.59	0.24	1.04
P6	3b_T3-ST	0.0	-0.22	133.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.60	0.24	1.05
P7	3b_T3-ST	0.0	-0.22	134.56	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.61	0.25	1.06
P8	3b_T3-ST	0.0	-0.17	120.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-18.22	0.22	0.95
P9	3b_T3-ST	0.0	-0.17	121.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.24	0.22	0.96
P10	3b_T3-ST	0.0	-0.17	122.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.27	0.23	0.97
P11	3b_T3-ST	0.0	-0.17	123.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-18.30	0.23	0.97
P12	3b_T3-ST	0.0	-0.17	124.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.32	0.23	0.98
P13	3b_T3-ST	0.0	-0.16	125.60	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.37	-18.35	0.23	0.99
P14	3b_T3-ST	0.0	-0.16	126.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.18	-18.38	0.23	1.00
P15	3b_T3-ST	0.0	-0.08	120.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.07	0.22	0.95
P16	3b_T3-ST	0.0	-0.08	121.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.07	0.23	0.96
P17	3b_T3-ST	0.0	-0.08	122.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.08	0.23	0.97
P18	3b_T3-ST	0.0	-0.08	123.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.09	0.23	0.98
P19	3b_T3-ST	0.0	-0.08	125.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.09	0.23	0.99
P20	3b_T3-ST	0.0	-0.08	126.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.10	0.23	1.00
P21	3b_T3-ST	0.0	-0.08	127.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-21.11	0.24	1.01
P22	3b_T3-ST	0.0	0.00	116.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-23.36	0.22	0.92
P23	3b_T3-ST	0.0	0.00	117.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.39	0.22	0.93
P24	3b_T3-ST	0.0	0.00	118.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.43	0.22	0.94
P25	3b_T3-ST	0.0	0.00	119.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.22	0.95
P26	3b_T3-ST	0.0	0.00	121.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.23	0.96
P27	3b_T3-ST	0.0	0.00	122.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.43	0.23	0.96
P28	3b_T3-ST	0.0	0.00	123.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-23.40	0.23	0.97
P29	3b_T3-ST	0.0	0.08	120.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.13	0.22	0.95
P30	3b_T3-ST	0.0	0.08	122.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.13	0.23	0.96
P31	3b_T3-ST	0.0	0.08	123.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.12	0.23	0.97
P32	3b_T3-ST	0.0	0.08	124.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.11	0.23	0.98
P33	3b_T3-ST	0.0	0.08	125.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.10	0.23	0.99
P34	3b_T3-ST	0.0	0.08	127.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.10	0.24	1.00
P35	3b_T3-ST	0.0	0.08	128.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.09	0.24	1.01
P36	3b_T3-ST	0.0	0.16	121.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.18	-18.37	0.22	0.96
P37	3b_T3-ST	0.0	0.16	122.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.37	-18.34	0.23	0.96
P38	3b_T3-ST	0.0	0.17	123.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.31	0.23	0.97
P39	3b_T3-ST	0.0	0.17	124.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-18.29	0.23	0.98
P40	3b_T3-ST	0.0	0.17	125.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.26	0.23	0.99
P41	3b_T3-ST	0.0	0.17	127.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.23	0.23	1.00
P42	3b_T3-ST	0.0	0.17	128.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.26	-18.21	0.24	1.01
P43	3b_T3-ST	0.0	0.22	129.35	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.58	0.24	1.02
P44	3b_T3-ST	0.0	0.22	130.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.57	0.24	1.03
P45	3b_T3-ST	0.0	0.22	131.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.56	0.24	1.04

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile # Pile	Load Case	F1 (Kip)	F2 (Kip)	F3 (Kip)	fy (ksi)	A (in^2)	Ix (in^4)	Iy (in^4)	Sx (in^3)	Sy (in^3)	E (ksi)	Es w/out Group Reaction Factor (ksi)	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2) (kips)	AT=Allow Comp. Load (FoS = 2) (kips)	$n\sqrt{E_s EI}$ X-axis PCR (kips)	$n\sqrt{E_s EI}$ Y-axis PCR (kips)	$Cc=\sqrt{\frac{2\pi^2 E}{f_y}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis (kips)	ACC = Allow Comp Stress, Y-Axis (kips)	ATT = Allow. Axial Tension Stress (kips)	AM1 Allowable Bending Moment (kip-in)	AM2 Allowable Bending Moment (kip-in)	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1 Kips-in	M2 Kips-in	Factor CBF	ALF Factor
P46	3b_T3-ST	0.0	0.22	133.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.55	0.24	1.05
P47	3b_T3-ST	0.0	0.22	134.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.54	0.25	1.06
P48	3b_T3-ST	0.0	0.22	135.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.53	0.25	1.07
P49	3b_T3-ST	0.0	0.22	137.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-16.52	0.25	1.08
P1	3b_T4-ST	0.0	-0.22	131.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.60	0.24	1.03
P2	3b_T4-ST	0.0	-0.22	131.83	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.60	0.24	1.04
P3	3b_T4-ST	0.0	-0.22	132.56	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.59	0.24	1.05
P4	3b_T4-ST	0.0	-0.22	133.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.59	0.24	1.05
P5	3b_T4-ST	0.0	-0.22	134.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.59	0.25	1.06
P6	3b_T4-ST	0.0	-0.22	134.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.59	0.25	1.06
P7	3b_T4-ST	0.0	-0.22	135.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-16.59	0.25	1.07
P8	3b_T4-ST	0.0	-0.17	122.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.24	-18.29	0.23	0.97
P9	3b_T4-ST	0.0	-0.17	123.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-18.30	0.23	0.97
P10	3b_T4-ST	0.0	-0.17	124.01	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.32	0.23	0.98
P11	3b_T4-ST	0.0	-0.16	124.74	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.34	0.23	0.98
P12	3b_T4-ST	0.0	-0.16	125.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-18.36	0.23	0.99
P13	3b_T4-ST	0.0	-0.16	126.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.40	-18.37	0.23	1.00
P14	3b_T4-ST	0.0	-0.16	126.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-18.39	0.23	1.00
P15	3b_T4-ST	0.0	-0.08	122.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	0.96
P16	3b_T4-ST	0.0	-0.08	122.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	0.97
P17	3b_T4-ST	0.0	-0.08	123.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	0.98
P18	3b_T4-ST	0.0	-0.08	124.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	0.98
P19	3b_T4-ST	0.0	-0.08	125.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	0.99
P20	3b_T4-ST	0.0	-0.08	126.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	1.00
P21	3b_T4-ST	0.0	-0.08	126.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-21.14	0.23	1.00
P22	3b_T4-ST	0.0	0.00	117.35	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.18	-23.47	0.22	0.93
P23	3b_T4-ST	0.0	0.00	118.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.39	-23.48	0.22	0.93
P24	3b_T4-ST	0.0	0.00	118.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.44	-23.48	0.22	0.94
P25	3b_T4-ST	0.0	0.00	119.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.47	0.22	0.94
P26	3b_T4-ST	0.0	0.00	120.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.46	0.22	0.95
P27	3b_T4-ST	0.0	0.00	121.22	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.43	-23.44	0.23	0.96
P28	3b_T4-ST	0.0	0.00	121.98	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-23.43	0.23	0.96
P29	3b_T4-ST	0.0	0.08	121.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.11	0.23	0.96
P30	3b_T4-ST	0.0	0.08	121.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.11	0.23	0.96
P31	3b_T4-ST	0.0	0.08	122.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.11	0.23	0.97
P32	3b_T4-ST	0.0	0.08	123.54	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.10	0.23	0.98
P33	3b_T4-ST	0.0	0.08	124.35	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.10	0.23	0.98
P34	3b_T4-ST	0.0	0.08	125.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.09	0.23	0.99
P35	3b_T4-ST	0.0	0.08	125.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.45	-21.09	0.23	0.99
P36	3b_T4-ST	0.0	0.16	120.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.21	-18.33	0.22	0.95
P37	3b_T4-ST	0.0	0.16	121.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.33	0.22	0.96
P38	3b_T4-ST	0.0	0.16	122.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.33	0.23	0.96
P39	3b_T4-ST	0.0	0.16	122.85	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.34	0.23	0.97
P40	3b_T4-ST	0.0	0.16	123.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-18.34	0.23	0.98
P41	3b_T4-ST	0.0	0.16	124.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.42	-18.35	0.23	0.98
P42	3b_T4-ST	0.0	0.16	125.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.23	-18.35	0.23	0.99
P43	3b_T4-ST	0.0	0.22	128.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.66	0.24	1.01
P44	3b_T4-ST	0.0	0.22	128.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.66	0.24	1.02
P45	3b_T4-ST	0.0	0.22	129.59	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.65	0.24	1.02
P46	3b_T4-ST	0.0	0.22	130.37	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.64	0.24	1.03
P47	3b_T4-ST	0.0	0.22	131.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.64	0.24	1.04
P48	3b_T4-ST	0.0	0.22	131.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.63	0.24	1.04
P49	3b_T4-ST	0.0	0.22	132.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.47	-16.63	0.24	1.05
P1	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P2	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P3	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P4	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P5	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P6	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P7	3b-ST	0.0	-0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.17	0.22	0.94
P8	3b-ST	0.0	-0.17	118.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.17	0.22	0.94
P9	3b-ST	0.0	-0.17	118.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.17	0.22	0.94
P10	3b-ST	0.0	-0.17	118.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.17	0.22	0.94
P11	3b-ST	0.0	-0.17	118.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.17	0.22	0.94
P12	3b-ST	0.0	-0.17	118.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.17	0.22	0.94
P13	3b-ST	0.0	-0.17	118.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.17	0.22	0.94
P14	3b-ST	0.0	-0.17	118.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.02	0.22	0.93
P15	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P16	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P17	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P18	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P19	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	$n\sqrt{E_s EI}$ Y-axis PCR	$Cr=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P20	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P21	3b-ST	0.0	-0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P22	3b-ST	0.0	0.00	114.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-23.48	0.21	0.90
P23	3b-ST	0.0	0.00	114.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.48	0.21	0.90
P24	3b-ST	0.0	0.00	114.21	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.21	0.90
P25	3b-ST	0.0	0.00	114.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-23.48	0.21	0.90
P26	3b-ST	0.0	0.00	114.21	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-23.48	0.21	0.90
P27	3b-ST	0.0	0.00	114.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-23.48	0.21	0.90
P28	3b-ST	0.0	0.00	114.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.20	-23.48	0.21	0.90
P29	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P30	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P31	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.01	0.22	0.93
P32	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.02	0.22	0.93
P33	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.02	0.22	0.93
P34	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-21.02	0.22	0.93
P35	3b-ST	0.0	0.08	118.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.17	0.22	0.94
P36	3b-ST	0.0	0.17	118.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.17	0.22	0.94
P37	3b-ST	0.0	0.17	118.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.17	0.22	0.94
P38	3b-ST	0.0	0.17	118.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-18.17	0.22	0.94
P39	3b-ST	0.0	0.17	118.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.46	-18.17	0.22	0.94
P40	3b-ST	0.0	0.17	118.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.41	-18.17	0.22	0.94
P41	3b-ST	0.0	0.17	118.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.22	-18.17	0.22	0.94
P42	3b-ST	0.0	0.17	118.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P43	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P44	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P45	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P46	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P47	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P48	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1	-23.48	-16.64	0.23	1.00
P49	3b-ST	0.0	0.22	126.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.17	0.74
P1	D1b_T1-ST	0.0	-0.20	125.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.18	0.75
P2	D1b_T1-ST	0.0	-0.20	126.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.18	0.76
P3	D1b_T1-ST	0.0	-0.20	127.54	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.18	0.76
P4	D1b_T1-ST	0.0	-0.20	128.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.18	0.77
P5	D1b_T1-ST	0.0	-0.20	129.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.18	0.78
P6	D1b_T1-ST	0.0	-0.20	130.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.08	0.18	0.78
P7	D1b_T1-ST	0.0	-0.20	131.85	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.35	-17.87	0.16	0.69
P8	D1b_T1-ST	0.0	-0.18	117.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.88	0.16	0.70
P9	D1b_T1-ST	0.0	-0.18	118.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.89	0.17	0.71
P10	D1b_T1-ST	0.0	-0.18	119.21	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.90	0.17	0.71
P11	D1b_T1-ST	0.0	-0.18	120.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.91	0.17	0.72
P12	D1b_T1-ST	0.0	-0.18	121.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-17.92	0.17	0.73
P13	D1b_T1-ST	0.0	-0.18	122.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.32	-17.94	0.17	0.73
P14	D1b_T1-ST	0.0	-0.18	123.37	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.16	0.68
P15	D1b_T1-ST	0.0	-0.10	113.85	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.16	0.68
P16	D1b_T1-ST	0.0	-0.10	114.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.16	0.69
P17	D1b_T1-ST	0.0	-0.10	116.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.16	0.70
P18	D1b_T1-ST	0.0	-0.10	117.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.17	0.70
P19	D1b_T1-ST	0.0	-0.10	118.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.17	0.71
P20	D1b_T1-ST	0.0	-0.10	119.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.44	0.17	0.72
P21	D1b_T1-ST	0.0	-0.10	120.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.15	-23.44	0.15	0.64
P22	D1b_T1-ST	0.0	0.00	108.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-23.45	0.16	0.65
P23	D1b_T1-ST	0.0	0.00	109.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-23.46	0.16	0.66
P24	D1b_T1-ST	0.0	0.00	110.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-23.47	0.16	0.66
P25	D1b_T1-ST	0.0	0.00	111.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-23.48	0.16	0.67
P26	D1b_T1-ST	0.0	0.00	113.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.41	-23.47	0.16	0.68
P27	D1b_T1-ST	0.0	0.00	114.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.17	-23.46	0.16	0.68
P28	D1b_T1-ST	0.0	0.00	115.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.44	0.16	0.67
P29	D1b_T1-ST	0.0	0.10	113.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.43	0.16	0.68
P30	D1b_T1-ST	0.0	0.10	114.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.43	0.16	0.69
P31	D1b_T1-ST	0.0	0.10	115.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.43	0.16	0.69
P32	D1b_T1-ST	0.0	0.10	116.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.42	0.17	0.70
P33	D1b_T1-ST	0.0	0.10	117.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.42	0.17	0.71
P34	D1b_T1-ST	0.0	0.10	119.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.42	0.17	0.71
P35	D1b_T1-ST	0.0	0.10	120.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.32	-17.89	0.16	0.69
P36	D1b_T1-ST	0.0	0.18	116.21	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.89	0.16	0.70
P37	D1b_T1-ST	0.0	0.18	117.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.89	0.17	0.70
P38	D1b_T1-ST	0.0	0.18	118.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.88	0.17	0.71
P39	D1b_T1-ST	0.0	0.18	119.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.88	0.17	0.72
P40	D1b_T1-ST	0.0	0.18	120.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.88	0.17	0.72
P41	D1b_T1-ST	0.0	0.18	121.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-17.88	0.17	0.73
P42	D1b_T1-ST	0.0	0.18	122.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33				

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	$n\sqrt{E_s EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P43	D1b_T1-ST	0.0	0.20	124.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P44	D1b_T1-ST	0.0	0.20	125.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P45	D1b_T1-ST	0.0	0.20	126.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.10	0.18	0.75
P46	D1b_T1-ST	0.0	0.20	127.54	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.10	0.18	0.76
P47	D1b_T1-ST	0.0	0.20	128.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.10	0.18	0.76
P48	D1b_T1-ST	0.0	0.20	129.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.09	0.18	0.77
P49	D1b_T1-ST	0.0	0.20	130.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.09	0.18	0.78
P1	D1b_T2-ST	0.0	-0.20	126.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.08	0.18	0.75
P2	D1b_T2-ST	0.0	-0.20	127.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.08	0.18	0.76
P3	D1b_T2-ST	0.0	-0.20	128.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.07	0.18	0.76
P4	D1b_T2-ST	0.0	-0.21	129.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.06	0.18	0.77
P5	D1b_T2-ST	0.0	-0.21	129.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.06	0.18	0.77
P6	D1b_T2-ST	0.0	-0.21	130.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.05	0.18	0.78
P7	D1b_T2-ST	0.0	-0.21	131.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.05	0.18	0.78
P8	D1b_T2-ST	0.0	-0.18	117.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.32	-17.87	0.16	0.70
P9	D1b_T2-ST	0.0	-0.18	118.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.87	0.17	0.70
P10	D1b_T2-ST	0.0	-0.18	119.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.87	0.17	0.71
P11	D1b_T2-ST	0.0	-0.18	120.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.88	0.17	0.71
P12	D1b_T2-ST	0.0	-0.18	121.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.88	0.17	0.72
P13	D1b_T2-ST	0.0	-0.18	122.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.88	0.17	0.72
P14	D1b_T2-ST	0.0	-0.18	122.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-17.88	0.17	0.73
P15	D1b_T2-ST	0.0	-0.10	114.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.45	0.16	0.68
P16	D1b_T2-ST	0.0	-0.10	115.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.44	0.16	0.68
P17	D1b_T2-ST	0.0	-0.10	116.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.44	0.16	0.69
P18	D1b_T2-ST	0.0	-0.10	117.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.44	0.16	0.69
P19	D1b_T2-ST	0.0	-0.10	117.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.43	0.17	0.70
P20	D1b_T2-ST	0.0	-0.10	118.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.43	0.17	0.71
P21	D1b_T2-ST	0.0	-0.10	119.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.42	0.17	0.71
P22	D1b_T2-ST	0.0	0.00	108.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.14	-23.45	0.15	0.65
P23	D1b_T2-ST	0.0	0.00	109.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.38	-23.46	0.16	0.65
P24	D1b_T2-ST	0.0	0.00	110.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-23.47	0.16	0.66
P25	D1b_T2-ST	0.0	0.00	111.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.48	0.16	0.66
P26	D1b_T2-ST	0.0	0.00	112.35	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.47	0.16	0.67
P27	D1b_T2-ST	0.0	0.00	113.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-23.46	0.16	0.67
P28	D1b_T2-ST	0.0	0.00	113.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.17	-23.45	0.16	0.68
P29	D1b_T2-ST	0.0	0.10	113.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.40	0.16	0.67
P30	D1b_T2-ST	0.0	0.10	114.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.40	0.16	0.68
P31	D1b_T2-ST	0.0	0.10	115.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.40	0.16	0.68
P32	D1b_T2-ST	0.0	0.10	116.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.40	0.16	0.69
P33	D1b_T2-ST	0.0	0.10	116.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.40	0.16	0.69
P34	D1b_T2-ST	0.0	0.10	117.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.41	0.17	0.70
P35	D1b_T2-ST	0.0	0.10	118.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.41	0.17	0.70
P36	D1b_T2-ST	0.0	0.18	116.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.35	-17.81	0.16	0.69
P37	D1b_T2-ST	0.0	0.18	116.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.82	0.16	0.69
P38	D1b_T2-ST	0.0	0.18	117.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.84	0.16	0.70
P39	D1b_T2-ST	0.0	0.18	118.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.86	0.17	0.70
P40	D1b_T2-ST	0.0	0.18	119.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.87	0.17	0.71
P41	D1b_T2-ST	0.0	0.18	120.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-17.89	0.17	0.71
P42	D1b_T2-ST	0.0	0.18	120.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.32	-17.91	0.17	0.72
P43	D1b_T2-ST	0.0	0.20	123.83	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.12	0.17	0.73
P44	D1b_T2-ST	0.0	0.20	124.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.11	0.17	0.74
P45	D1b_T2-ST	0.0	0.20	125.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.11	0.17	0.74
P46	D1b_T2-ST	0.0	0.20	126.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.11	0.17	0.75
P47	D1b_T2-ST	0.0	0.20	127.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.11	0.18	0.75
P48	D1b_T2-ST	0.0	0.20	127.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.11	0.18	0.76
P49	D1b_T2-ST	0.0	0.20	128.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.11	0.18	0.76
P1	D1b_T3-ST	0.0	-0.21	126.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.03	0.18	0.75
P2	D1b_T3-ST	0.0	-0.21	127.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.04	0.18	0.76
P3	D1b_T3-ST	0.0	-0.21	128.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.05	0.18	0.76
P4	D1b_T3-ST	0.0	-0.21	129.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.06	0.18	0.77
P5	D1b_T3-ST	0.0	-0.21	130.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.06	0.18	0.78
P6	D1b_T3-ST	0.0	-0.20	132.01	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.07	0.18	0.78
P7	D1b_T3-ST	0.0	-0.20	133.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.08	0.18	0.79
P8	D1b_T3-ST	0.0	-0.18	118.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-17.85	0.17	0.70
P9	D1b_T3-ST	0.0	-0.18	119.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.88	0.17	0.71
P10	D1b_T3-ST	0.0	-0.18	120.84	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.90	0.17	0.72
P11	D1b_T3-ST	0.0	-0.18	121.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.93	0.17	0.72
P12	D1b_T3-ST	0.0	-0.18	122.99	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.96	0.17	0.73
P13	D1b_T3-ST	0.0	-0.18	124.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-17.98	0.17	0.74
P14	D1b_T3-ST	0.0	-0.17	125.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.29	-18.01	0.17	0.74
P15	D1b_T3-ST	0.0	-0.10	116.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.43	0.16	0.69
P16	D1b_T3-ST	0.0	-0.10	117.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.44	0.16	0.70

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31,024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)	(5/3*6/5)	(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P17	D1b_T3-ST	0.0	-0.10	118.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.45	0.17	0.70
P18	D1b_T3-ST	0.0	-0.10	119.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.45	0.17	0.71
P19	D1b_T3-ST	0.0	-0.10	120.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.46	0.17	0.72
P20	D1b_T3-ST	0.0	-0.10	121.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.47	0.17	0.72
P21	D1b_T3-ST	0.0	-0.10	122.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.47	0.17	0.73
P22	D1b_T3-ST	0.0	0.00	111.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.16	-23.36	0.16	0.66
P23	D1b_T3-ST	0.0	0.00	112.36	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-23.39	0.16	0.67
P24	D1b_T3-ST	0.0	0.00	113.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.43	0.16	0.67
P25	D1b_T3-ST	0.0	0.00	114.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.46	0.16	0.68
P26	D1b_T3-ST	0.0	0.00	115.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.47	0.16	0.69
P27	D1b_T3-ST	0.0	0.00	116.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-23.43	0.16	0.69
P28	D1b_T3-ST	0.0	0.00	118.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.16	-23.40	0.17	0.70
P29	D1b_T3-ST	0.0	0.10	116.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.50	0.16	0.69
P30	D1b_T3-ST	0.0	0.10	117.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.49	0.16	0.70
P31	D1b_T3-ST	0.0	0.10	118.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.48	0.17	0.71
P32	D1b_T3-ST	0.0	0.10	120.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.48	0.17	0.71
P33	D1b_T3-ST	0.0	0.10	121.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.47	0.17	0.72
P34	D1b_T3-ST	0.0	0.10	122.54	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.46	0.17	0.73
P35	D1b_T3-ST	0.0	0.10	123.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.45	0.17	0.73
P36	D1b_T3-ST	0.0	0.18	119.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.29	-18.01	0.17	0.71
P37	D1b_T3-ST	0.0	0.18	120.68	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-17.98	0.17	0.72
P38	D1b_T3-ST	0.0	0.18	121.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.95	0.17	0.72
P39	D1b_T3-ST	0.0	0.18	123.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.92	0.17	0.73
P40	D1b_T3-ST	0.0	0.18	124.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.89	0.17	0.74
P41	D1b_T3-ST	0.0	0.18	125.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.87	0.17	0.74
P42	D1b_T3-ST	0.0	0.18	126.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-17.84	0.18	0.75
P43	D1b_T3-ST	0.0	0.21	127.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.05	0.18	0.76
P44	D1b_T3-ST	0.0	0.21	129.18	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.04	0.18	0.77
P45	D1b_T3-ST	0.0	0.21	130.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.03	0.18	0.77
P46	D1b_T3-ST	0.0	0.21	131.74	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.02	0.18	0.78
P47	D1b_T3-ST	0.0	0.21	133.01	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.01	0.18	0.79
P48	D1b_T3-ST	0.0	0.21	134.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.00	0.18	0.80
P49	D1b_T3-ST	0.0	0.21	135.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.00	0.19	0.80
P1	D1b_T4-ST	0.0	-0.20	129.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.07	0.18	0.77
P2	D1b_T4-ST	0.0	-0.20	130.37	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.07	0.18	0.77
P3	D1b_T4-ST	0.0	-0.20	131.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.07	0.18	0.78
P4	D1b_T4-ST	0.0	-0.21	131.83	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.06	0.18	0.78
P5	D1b_T4-ST	0.0	-0.21	132.56	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.06	0.18	0.79
P6	D1b_T4-ST	0.0	-0.21	133.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.06	0.18	0.79
P7	D1b_T4-ST	0.0	-0.21	134.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.06	0.18	0.80
P8	D1b_T4-ST	0.0	-0.18	120.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.35	-17.92	0.17	0.72
P9	D1b_T4-ST	0.0	-0.18	121.66	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.94	0.17	0.72
P10	D1b_T4-ST	0.0	-0.18	122.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.95	0.17	0.73
P11	D1b_T4-ST	0.0	-0.18	123.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.97	0.17	0.73
P12	D1b_T4-ST	0.0	-0.18	123.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.99	0.17	0.74
P13	D1b_T4-ST	0.0	-0.18	124.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-18.01	0.17	0.74
P14	D1b_T4-ST	0.0	-0.17	125.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.31	-18.03	0.17	0.74
P15	D1b_T4-ST	0.0	-0.10	117.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.16	0.70
P16	D1b_T4-ST	0.0	-0.10	118.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.17	0.70
P17	D1b_T4-ST	0.0	-0.10	119.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.17	0.71
P18	D1b_T4-ST	0.0	-0.10	120.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.17	0.71
P19	D1b_T4-ST	0.0	-0.10	120.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.17	0.72
P20	D1b_T4-ST	0.0	-0.10	121.60	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.17	0.72
P21	D1b_T4-ST	0.0	-0.10	122.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.50	0.17	0.73
P22	D1b_T4-ST	0.0	0.00	112.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.14	-23.47	0.16	0.67
P23	D1b_T4-ST	0.0	0.00	112.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.38	-23.48	0.16	0.67
P24	D1b_T4-ST	0.0	0.00	113.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-23.48	0.16	0.67
P25	D1b_T4-ST	0.0	0.00	114.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.47	0.16	0.68
P26	D1b_T4-ST	0.0	0.00	115.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.46	0.16	0.68
P27	D1b_T4-ST	0.0	0.00	115.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-23.44	0.16	0.69
P28	D1b_T4-ST	0.0	0.00	116.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.18	-23.43	0.16	0.69
P29	D1b_T4-ST	0.0	0.10	116.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.48	0.16	0.69
P30	D1b_T4-ST	0.0	0.10	117.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.48	0.16	0.70
P31	D1b_T4-ST	0.0	0.10	118.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.47	0.17	0.70
P32	D1b_T4-ST	0.0	0.10	119.06	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.47	0.17	0.71
P33	D1b_T4-ST	0.0	0.10	119.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.46	0.17	0.71
P34	D1b_T4-ST	0.0	0.10	120.68	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.46	0.17	0.72
P35	D1b_T4-ST	0.0	0.10	121.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.45	0.17	0.72
P36	D1b_T4-ST	0.0	0.18	118.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.97	0.17	0.71
P37	D1b_T4-ST	0.0	0.18	119.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.97	0.17	0.71
P38	D1b_T4-ST	0.0	0.18	120.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.97	0.17	0.72
P39	D1b_T4-ST	0.0	0.18	121.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.97	0.17	0.72

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	X-axis PCR	Y-axis PCR	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)		(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P40	D1b_T4-ST	0.0	0.18	122.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.98	0.17	0.72
P41	D1b_T4-ST	0.0	0.18	122.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.98	0.17	0.73
P42	D1b_T4-ST	0.0	0.18	123.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-17.99	0.17	0.73
P43	D1b_T4-ST	0.0	0.20	126.56	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.14	0.18	0.75
P44	D1b_T4-ST	0.0	0.20	127.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.13	0.18	0.76
P45	D1b_T4-ST	0.0	0.20	128.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.12	0.18	0.76
P46	D1b_T4-ST	0.0	0.20	128.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.12	0.18	0.77
P47	D1b_T4-ST	0.0	0.20	129.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.11	0.18	0.77
P48	D1b_T4-ST	0.0	0.20	130.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.10	0.18	0.77
P49	D1b_T4-ST	0.0	0.20	131.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.10	0.18	0.78
P1	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P2	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P3	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P4	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P5	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P6	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P7	D1b-ST	0.0	-0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.81	0.16	0.69
P8	D1b-ST	0.0	-0.18	117.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.81	0.16	0.69
P9	D1b-ST	0.0	-0.18	117.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.81	0.16	0.70
P10	D1b-ST	0.0	-0.18	117.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.81	0.16	0.70
P11	D1b-ST	0.0	-0.18	117.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.81	0.16	0.70
P12	D1b-ST	0.0	-0.18	117.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.81	0.16	0.69
P13	D1b-ST	0.0	-0.18	117.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.81	0.16	0.69
P14	D1b-ST	0.0	-0.18	117.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P15	D1b-ST	0.0	-0.10	113.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P16	D1b-ST	0.0	-0.10	113.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P17	D1b-ST	0.0	-0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P18	D1b-ST	0.0	-0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P19	D1b-ST	0.0	-0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P20	D1b-ST	0.0	-0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P21	D1b-ST	0.0	-0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.15	-23.48	0.15	0.65
P22	D1b-ST	0.0	0.00	108.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-23.48	0.15	0.65
P23	D1b-ST	0.0	0.00	108.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.48	0.15	0.65
P24	D1b-ST	0.0	0.00	108.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-23.48	0.15	0.65
P25	D1b-ST	0.0	0.00	108.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-23.48	0.15	0.65
P26	D1b-ST	0.0	0.00	108.95	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-23.48	0.15	0.65
P27	D1b-ST	0.0	0.00	108.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.15	-23.48	0.15	0.65
P28	D1b-ST	0.0	0.00	108.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P29	D1b-ST	0.0	0.10	113.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P30	D1b-ST	0.0	0.10	113.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P31	D1b-ST	0.0	0.10	113.93	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P32	D1b-ST	0.0	0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P33	D1b-ST	0.0	0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P34	D1b-ST	0.0	0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.38	0.16	0.68
P35	D1b-ST	0.0	0.10	113.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.81	0.16	0.69
P36	D1b-ST	0.0	0.18	117.06	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.81	0.16	0.69
P37	D1b-ST	0.0	0.18	117.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.81	0.16	0.70
P38	D1b-ST	0.0	0.18	117.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.81	0.16	0.70
P39	D1b-ST	0.0	0.18	117.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.81	0.16	0.70
P40	D1b-ST	0.0	0.18	117.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.81	0.16	0.69
P41	D1b-ST	0.0	0.18	117.08	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.81	0.16	0.69
P42	D1b-ST	0.0	0.18	117.07	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P43	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P44	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P45	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P46	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P47	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P48	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.11	0.17	0.74
P49	D1b-ST	0.0	0.20	125.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.15	0.64
P1	D2b_T1-ST	0.0	-0.24	107.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.15	0.64
P2	D2b_T1-ST	0.0	-0.24	108.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.15	0.65
P3	D2b_T1-ST	0.0	-0.24	109.48	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.16	0.66
P4	D2b_T1-ST	0.0	-0.24	110.56	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.16	0.66
P5	D2b_T1-ST	0.0	-0.24	111.64	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.16	0.67
P6	D2b_T1-ST	0.0	-0.24	112.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-16.05	0.16	0.68
P7	D2b_T1-ST	0.0	-0.24	113.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.20	-17.46	0.14	0.60
P8	D2b_T1-ST	0.0	-0.19	101.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-17.47	0.15	0.61
P9	D2b_T1-ST	0.0	-0.19	102.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.48	0.15	0.61
P10	D2b_T1-ST	0.0	-0.19	103.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.49	0.15	0.62
P11	D2b_T1-ST	0.0	-0.19	104.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.50	0.15	0.63
P12	D2b_T1-ST	0.0	-0.19	105.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-17.52	0.15	0.63
P13	D2b_T1-ST	0.0	-0.19	106.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33				

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile # Pile	Load Case	F1 (Kip)	F2 (Kip)	F3 (Kip)	fy (ksi)	A (in^2)	Ix (in^4)	Iy (in^4)	Sx (in^3)	Sy (in^3)	E (ksi)	Es w/out Group Reaction Factor (ksi)	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2) (kips)	AT=Allow Comp. Load (FoS = 2) (kips)	X-axis PCR (kips)	Y-axis PCR (kips)	(AISC)	(CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis (kips)	ACC = Allow Comp Stress, Y-Axis (kips)	ATT = Allow. Axial Tension Stress (kips)	AM1 Allowable Bending Moment (kip-in)	AM2 Allowable Bending Moment (kip-in)	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1 Kips-in	M2 Kips-in	Factor CBF	ALF Factor
P14	D2b_T1-ST	0.0	-0.19	107.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.17	-17.53	0.15	0.64
P15	D2b_T1-ST	0.0	-0.08	102.98	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.15	0.61
P16	D2b_T1-ST	0.0	-0.08	104.09	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.15	0.62
P17	D2b_T1-ST	0.0	-0.08	105.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.15	0.62
P18	D2b_T1-ST	0.0	-0.08	106.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.15	0.63
P19	D2b_T1-ST	0.0	-0.08	107.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.15	0.64
P20	D2b_T1-ST	0.0	-0.08	108.53	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.15	0.64
P21	D2b_T1-ST	0.0	-0.08	109.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-20.92	0.16	0.65
P22	D2b_T1-ST	0.0	0.02	102.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.15	-22.93	0.15	0.61
P23	D2b_T1-ST	0.0	0.02	103.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-22.92	0.15	0.61
P24	D2b_T1-ST	0.0	0.02	104.38	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-22.91	0.15	0.62
P25	D2b_T1-ST	0.0	0.02	105.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.90	0.15	0.63
P26	D2b_T1-ST	0.0	0.02	106.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-22.89	0.15	0.63
P27	D2b_T1-ST	0.0	0.02	107.59	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.41	-22.88	0.15	0.64
P28	D2b_T1-ST	0.0	0.02	108.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.17	-22.87	0.15	0.64
P29	D2b_T1-ST	0.0	0.11	110.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.18	0.16	0.66
P30	D2b_T1-ST	0.0	0.11	111.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.18	0.16	0.66
P31	D2b_T1-ST	0.0	0.11	112.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.17	0.16	0.67
P32	D2b_T1-ST	0.0	0.11	114.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.17	0.16	0.68
P33	D2b_T1-ST	0.0	0.11	115.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.17	0.16	0.68
P34	D2b_T1-ST	0.0	0.11	116.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.16	0.16	0.69
P35	D2b_T1-ST	0.0	0.11	117.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.16	0.16	0.70
P36	D2b_T1-ST	0.0	0.18	116.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.88	0.16	0.69
P37	D2b_T1-ST	0.0	0.18	117.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.87	0.16	0.70
P38	D2b_T1-ST	0.0	0.18	118.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.87	0.17	0.71
P39	D2b_T1-ST	0.0	0.18	119.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.87	0.17	0.71
P40	D2b_T1-ST	0.0	0.18	121.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.86	0.17	0.72
P41	D2b_T1-ST	0.0	0.18	122.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.86	0.17	0.72
P42	D2b_T1-ST	0.0	0.18	123.13	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-17.86	0.17	0.73
P43	D2b_T1-ST	0.0	0.21	127.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.04	0.18	0.75
P44	D2b_T1-ST	0.0	0.21	128.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.03	0.18	0.76
P45	D2b_T1-ST	0.0	0.21	129.39	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.03	0.18	0.77
P46	D2b_T1-ST	0.0	0.21	130.52	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.02	0.18	0.77
P47	D2b_T1-ST	0.0	0.21	131.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.02	0.18	0.78
P48	D2b_T1-ST	0.0	0.21	132.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.02	0.18	0.79
P49	D2b_T1-ST	0.0	0.21	133.91	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.01	0.18	0.79
P1	D2b_T2-ST	0.0	-0.24	108.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.05	0.15	0.64
P2	D2b_T2-ST	0.0	-0.24	109.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.05	0.15	0.65
P3	D2b_T2-ST	0.0	-0.24	110.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.04	0.15	0.65
P4	D2b_T2-ST	0.0	-0.24	111.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.03	0.16	0.66
P5	D2b_T2-ST	0.0	-0.24	111.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.03	0.16	0.66
P6	D2b_T2-ST	0.0	-0.24	112.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.02	0.16	0.67
P7	D2b_T2-ST	0.0	-0.24	113.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-16.02	0.16	0.67
P8	D2b_T2-ST	0.0	-0.19	101.99	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.18	-17.47	0.14	0.61
P9	D2b_T2-ST	0.0	-0.19	102.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-17.47	0.15	0.61
P10	D2b_T2-ST	0.0	-0.19	103.74	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.47	0.15	0.62
P11	D2b_T2-ST	0.0	-0.19	104.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.47	0.15	0.62
P12	D2b_T2-ST	0.0	-0.19	105.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.47	0.15	0.63
P13	D2b_T2-ST	0.0	-0.19	106.23	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.41	-17.47	0.15	0.63
P14	D2b_T2-ST	0.0	-0.19	107.06	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.20	-17.48	0.15	0.64
P15	D2b_T2-ST	0.0	-0.08	103.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.92	0.15	0.61
P16	D2b_T2-ST	0.0	-0.08	104.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.92	0.15	0.62
P17	D2b_T2-ST	0.0	-0.08	105.28	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.92	0.15	0.62
P18	D2b_T2-ST	0.0	-0.08	106.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.91	0.15	0.63
P19	D2b_T2-ST	0.0	-0.08	107.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.91	0.15	0.64
P20	D2b_T2-ST	0.0	-0.08	107.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.90	0.15	0.64
P21	D2b_T2-ST	0.0	-0.08	108.82	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.90	0.15	0.65
P22	D2b_T2-ST	0.0	0.02	102.45	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.14	-22.86	0.15	0.61
P23	D2b_T2-ST	0.0	0.02	103.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.38	-22.87	0.15	0.61
P24	D2b_T2-ST	0.0	0.02	104.19	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-22.88	0.15	0.62
P25	D2b_T2-ST	0.0	0.02	105.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.89	0.15	0.62
P26	D2b_T2-ST	0.0	0.02	105.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-22.90	0.15	0.63
P27	D2b_T2-ST	0.0	0.02	106.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-22.91	0.15	0.63
P28	D2b_T2-ST	0.0	0.02	107.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.18	-22.92	0.15	0.64
P29	D2b_T2-ST	0.0	0.11	110.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.66
P30	D2b_T2-ST	0.0	0.11	111.57	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.66
P31	D2b_T2-ST	0.0	0.11	112.42	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.67
P32	D2b_T2-ST	0.0	0.11	113.28	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.67
P33	D2b_T2-ST	0.0	0.11	114.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.68
P34	D2b_T2-ST	0.0	0.11	115.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.68
P35	D2b_T2-ST	0.0	0.11	115.85	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.15	0.16	0.69
P36	D2b_T2-ST	0.0	0.18	116.47	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.35	-17.80	0.16	0.69

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	$n\sqrt{E_s EI}$ Y-axis PCR	$Cc=\sqrt{\frac{2\pi^2 E}{fy}}$ (AISC)	$\sqrt{\frac{\pi^2 EA}{PCR}}$ (CPGA)	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)				(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P37	D2b_T2-ST	0.0	0.18	117.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.81	0.16	0.70
P38	D2b_T2-ST	0.0	0.18	118.14	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.82	0.17	0.70
P39	D2b_T2-ST	0.0	0.18	118.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.84	0.17	0.71
P40	D2b_T2-ST	0.0	0.18	119.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.86	0.17	0.71
P41	D2b_T2-ST	0.0	0.18	120.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-17.88	0.17	0.72
P42	D2b_T2-ST	0.0	0.18	121.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.32	-17.89	0.17	0.72
P43	D2b_T2-ST	0.0	0.21	126.81	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.04	0.18	0.75
P44	D2b_T2-ST	0.0	0.21	127.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.04	0.18	0.76
P45	D2b_T2-ST	0.0	0.21	128.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.04	0.18	0.76
P46	D2b_T2-ST	0.0	0.21	129.24	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.04	0.18	0.77
P47	D2b_T2-ST	0.0	0.21	130.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.04	0.18	0.77
P48	D2b_T2-ST	0.0	0.21	130.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.04	0.18	0.78
P49	D2b_T2-ST	0.0	0.21	131.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.03	0.18	0.78
P1	D2b_T3-ST	0.0	-0.24	108.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.00	0.15	0.64
P2	D2b_T3-ST	0.0	-0.24	109.60	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.01	0.15	0.65
P3	D2b_T3-ST	0.0	-0.24	110.69	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.02	0.16	0.66
P4	D2b_T3-ST	0.0	-0.24	111.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.03	0.16	0.66
P5	D2b_T3-ST	0.0	-0.24	112.87	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.03	0.16	0.67
P6	D2b_T3-ST	0.0	-0.24	113.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.04	0.16	0.68
P7	D2b_T3-ST	0.0	-0.24	115.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.05	0.16	0.68
P8	D2b_T3-ST	0.0	-0.19	102.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.23	-17.45	0.15	0.61
P9	D2b_T3-ST	0.0	-0.19	103.85	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.47	0.15	0.62
P10	D2b_T3-ST	0.0	-0.19	104.96	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.50	0.15	0.62
P11	D2b_T3-ST	0.0	-0.19	106.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.52	0.15	0.63
P12	D2b_T3-ST	0.0	-0.19	107.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-17.55	0.15	0.64
P13	D2b_T3-ST	0.0	-0.19	108.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.36	-17.58	0.15	0.64
P14	D2b_T3-ST	0.0	-0.19	109.22	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.15	-17.61	0.15	0.65
P15	D2b_T3-ST	0.0	-0.08	105.17	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.91	0.15	0.62
P16	D2b_T3-ST	0.0	-0.08	106.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.91	0.15	0.63
P17	D2b_T3-ST	0.0	-0.08	107.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.92	0.15	0.64
P18	D2b_T3-ST	0.0	-0.08	108.61	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.93	0.15	0.64
P19	D2b_T3-ST	0.0	-0.08	109.75	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.94	0.16	0.65
P20	D2b_T3-ST	0.0	-0.08	110.90	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.94	0.16	0.66
P21	D2b_T3-ST	0.0	-0.08	112.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-20.95	0.16	0.66
P22	D2b_T3-ST	0.0	0.02	104.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.16	-23.01	0.15	0.62
P23	D2b_T3-ST	0.0	0.02	105.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-22.97	0.15	0.63
P24	D2b_T3-ST	0.0	0.02	107.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.94	0.15	0.64
P25	D2b_T3-ST	0.0	0.02	108.20	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-22.91	0.15	0.64
P26	D2b_T3-ST	0.0	0.02	109.34	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.87	0.16	0.65
P27	D2b_T3-ST	0.0	0.02	110.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-22.84	0.16	0.66
P28	D2b_T3-ST	0.0	0.02	111.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.16	-22.80	0.16	0.66
P29	D2b_T3-ST	0.0	0.10	113.65	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.24	0.16	0.67
P30	D2b_T3-ST	0.0	0.10	114.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.23	0.16	0.68
P31	D2b_T3-ST	0.0	0.10	116.10	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.23	0.16	0.69
P32	D2b_T3-ST	0.0	0.10	117.33	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.22	0.16	0.70
P33	D2b_T3-ST	0.0	0.10	118.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.21	0.17	0.70
P34	D2b_T3-ST	0.0	0.11	119.78	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.20	0.17	0.71
P35	D2b_T3-ST	0.0	0.11	121.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.20	0.17	0.72
P36	D2b_T3-ST	0.0	0.18	119.80	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.29	-17.99	0.17	0.71
P37	D2b_T3-ST	0.0	0.18	121.03	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.40	-17.96	0.17	0.72
P38	D2b_T3-ST	0.0	0.18	122.28	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.93	0.17	0.73
P39	D2b_T3-ST	0.0	0.18	123.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.91	0.17	0.73
P40	D2b_T3-ST	0.0	0.18	124.70	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.88	0.17	0.74
P41	D2b_T3-ST	0.0	0.18	125.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.85	0.17	0.75
P42	D2b_T3-ST	0.0	0.18	127.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.37	-17.83	0.18	0.75
P43	D2b_T3-ST	0.0	0.21	130.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.97	0.18	0.78
P44	D2b_T3-ST	0.0	0.21	132.16	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.97	0.18	0.78
P45	D2b_T3-ST	0.0	0.21	133.44	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.96	0.18	0.79
P46	D2b_T3-ST	0.0	0.21	134.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.95	0.19	0.80
P47	D2b_T3-ST	0.0	0.21	136.00	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.94	0.19	0.81
P48	D2b_T3-ST	0.0	0.21	137.27	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.93	0.19	0.81
P49	D2b_T3-ST	0.0	0.21	138.55	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-16.92	0.19	0.82
P1	D2b_T4-ST	0.0	-0.24	111.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.04	0.16	0.66
P2	D2b_T4-ST	0.0	-0.24	112.31	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.04	0.16	0.67
P3	D2b_T4-ST	0.0	-0.24	113.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.04	0.16	0.67
P4	D2b_T4-ST	0.0	-0.24	113.77	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.03	0.16	0.68
P5	D2b_T4-ST	0.0	-0.24	114.50	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.03	0.16	0.68
P6	D2b_T4-ST	0.0	-0.24	115.23	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.03	0.16	0.68
P7	D2b_T4-ST	0.0	-0.24	115.97	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-16.03	0.16	0.69
P8	D2b_T4-ST	0.0	-0.19	105.04	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.20	-17.52	0.15	0.62
P9	D2b_T4-ST	0.0	-0.19	105.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-17.53	0.15	0.63
P10	D2b_T4-ST	0.0	-0.19	106.56	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.55	0.15	0.63

Sap2000 Data					Pile Properties (Note: x & y are from AISC table - opposite orientation of design)							Soil Data	Pile Group Factors		Soil Capacity		Critical Buckling Load		Slenderness Parameters		Structural Check							Design Moments (from Lateral Loads)		Struct. Capacity	Soil Capacity
Pile #	Load Case	F1	F2	F3	fy	A	Ix	Iy	Sx	Sy	E	Es w/out Group Reaction Factor	Group Vertical Reduction Factor	Group Lateral Reduction Factor	AC=Allow Comp. Load (FoS = 2)	AT=Allow Comp. Load (FoS = 2)	$n\sqrt{E_s EI}$ X-axis PCR	$n\sqrt{E_s EI}$ Y-axis PCR	$C_c=\sqrt{\frac{2\pi^2 E}{f_y}}$	$\sqrt{\frac{\pi^2 EA}{PCR}}$	Comp. Factor of Safety (5/3*6/5)	ACC = Allow Comp Stress, X-Axis	ACC = Allow Comp Stress, Y-Axis	ATT = Allow. Axial Tension Stress	AM1 Allowable Bending Moment	AM2 Allowable Bending Moment	OSF	M = 1.3171*F² + 31.024*F - 23.482 M1	M2	Factor CBF	ALF Factor
Pile		(Kip)	(Kip)	(Kip)	(ksi)	(in^2)	(in^4)	(in^4)	(in^3)	(in^3)	(ksi)	(ksi)			(kips)	(kips)	(kips)	(kips)	(AISC)	(CPGA)		(kips)	(kips)	(kips)	(kip-in)	(kip-in)		Kips-in	Kips-in		
P11	D2b_T4-ST	0.0	-0.19	107.29	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.57	0.15	0.64
P12	D2b_T4-ST	0.0	-0.19	108.02	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-17.58	0.15	0.64
P13	D2b_T4-ST	0.0	-0.19	108.71	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.39	-17.60	0.15	0.65
P14	D2b_T4-ST	0.0	-0.19	109.43	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.17	-17.62	0.15	0.65
P15	D2b_T4-ST	0.0	-0.08	106.79	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.15	0.63
P16	D2b_T4-ST	0.0	-0.08	107.58	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.15	0.64
P17	D2b_T4-ST	0.0	-0.08	108.37	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.15	0.64
P18	D2b_T4-ST	0.0	-0.08	109.15	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.15	0.65
P19	D2b_T4-ST	0.0	-0.08	109.94	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.16	0.65
P20	D2b_T4-ST	0.0	-0.08	110.72	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.16	0.66
P21	D2b_T4-ST	0.0	-0.08	111.51	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-20.98	0.16	0.66
P22	D2b_T4-ST	0.0	0.02	105.62	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.14	-22.90	0.15	0.63
P23	D2b_T4-ST	0.0	0.02	106.41	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.38	-22.89	0.15	0.63
P24	D2b_T4-ST	0.0	0.02	107.21	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.44	-22.88	0.15	0.64
P25	D2b_T4-ST	0.0	0.02	107.98	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-22.87	0.15	0.64
P26	D2b_T4-ST	0.0	0.02	108.76	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-22.86	0.15	0.65
P27	D2b_T4-ST	0.0	0.02	109.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.42	-22.85	0.16	0.65
P28	D2b_T4-ST	0.0	0.02	110.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.18	-22.84	0.16	0.65
P29	D2b_T4-ST	0.0	0.10	113.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.22	0.16	0.68
P30	D2b_T4-ST	0.0	0.10	114.67	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.22	0.16	0.68
P31	D2b_T4-ST	0.0	0.10	115.49	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.21	0.16	0.69
P32	D2b_T4-ST	0.0	0.11	116.30	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.21	0.16	0.69
P33	D2b_T4-ST	0.0	0.11	117.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.21	0.16	0.69
P34	D2b_T4-ST	0.0	0.11	117.92	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.20	0.17	0.70
P35	D2b_T4-ST	0.0	0.11	118.73	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-20.20	0.17	0.70
P36	D2b_T4-ST	0.0	0.18	119.26	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.33	-17.95	0.17	0.71
P37	D2b_T4-ST	0.0	0.18	120.05	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.43	-17.95	0.17	0.71
P38	D2b_T4-ST	0.0	0.18	120.86	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.46	-17.95	0.17	0.72
P39	D2b_T4-ST	0.0	0.18	121.63	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.96	0.17	0.72
P40	D2b_T4-ST	0.0	0.18	122.40	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.48	-17.96	0.17	0.73
P41	D2b_T4-ST	0.0	0.18	123.12	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.45	-17.97	0.17	0.73
P42	D2b_T4-ST	0.0	0.18	123.88	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.34	-17.97	0.17	0.74
P43	D2b_T4-ST	0.0	0.21	129.54	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.06	0.18	0.77
P44	D2b_T4-ST	0.0	0.21	130.32	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.05	0.18	0.77
P45	D2b_T4-ST	0.0	0.21	131.11	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.05	0.18	0.78
P46	D2b_T4-ST	0.0	0.21	131.89	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.04	0.18	0.78
P47	D2b_T4-ST	0.0	0.21	132.68	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.03	0.18	0.79
P48	D2b_T4-ST	0.0	0.21	133.46	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.03	0.18	0.79
P49	D2b_T4-ST	0.0	0.21	134.25	50	26.1	904	326	131	44.3	29000	2.059	1	0.8976	126.7	0.0	4412	7348	107	41	2	604	624	653	1231	3639	1.33	-23.47	-17.02	0.18	0.80

PART 4

Member Design, Traditional Load Cases

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Monoliths C-2 to C-4 Model	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Member Design	**Checked By:**	BCB	**Date:**	Aug-13	**Sheet:**	of

*** Given Information:**

			Notes / References
Top Slab Thickness =	2.75	ft	
Bottom Slab Thickness =	3.5	ft	
Wall Thickness =	2.75	ft	
Design Width =	12	in	
f'_c =	4	ksi	
f_y =	60	ksi	
ϕ, shear =	0.85		EM 1110-2-2104
ϕ, moment =	0.90		EM 1110-2-2104
ρ_{bal} =	0.0285		For f'_c = 4000 psi & f_y = 60,000 psi

*** Top Slab:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	9.4	3.1	7.3	15.9	36.6
COMBO_T	12.3	5.2	8.9	20.9	44.2

* Shear taken at a distance 'd' = 28.37 inch from faces of walls.

Max. Shear =	**12.3**	**kip**	
Bottom Moment, Primary =	**20.9**	**kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**44.2**	**kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**5.2**	**kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**8.9**	**kip-ft**	(-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement:	0.0028 x A_{gross} =	1.109 in^2	EM 1110-2-2104, 2-8a, temp. & shrinkage
	$(3 * \sqrt{f'_c} * b * d) / f_y$ =	1.076 in^2	ACI 318-02, 10.5, flexural member min.
	$(200 * b * d) / f_y$ =	1.135 in^2	ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{(f'_c)} * b * d$

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 12.3kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

Primary Top Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)

= 1185.3 kip-in/ft

= 98.77 kip-ft/ft * 44.2×1.33=58.9 k·ft

ϕMn = 98.8kip-ft > Mu = 44.2kip-ft → Use #8 @ 12"

Primary Bottom Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)

= 1185.3 kip-in/ft

= 98.77 kip-ft/ft * 20.9×1.33=27.9 k·ft

ϕMn = 98.8kip-ft > Mu = 20.9kip-ft → Use #8 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 8.9 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

ϕMn = 75.4kip-ft > Mu = 8.9kip-ft → Use #7 @ 12"

* FLEXURAL MINIMUM NEGLECTED B/C OF ACI 318 ALLOWANCE (SECT. 10.5.3) FOR $\phi Mn > Mu \times 1.33$.

*** Bottom Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
COMBO	7.6	14.4	10.8	52.8	38.9	63.1
COMBO_T	7.9	16.4	11.5	57.7	41.5	71.0

* Shear taken at a distance 'd' = 37.37 inch from centerlines of piles.

Max. Shear =	**16.4 kip**	
Bottom Moment, Primary =	**41.5 kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**71.0 kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**11.5 kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**57.7 kip-ft**	(-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 42in * 12in strip = 504 in^2

$d_{top\ bars}$ = 42in - 4in cover - 1/2 bar diameter = 37.37 in #10 bar assumed

$d_{bottom\ bars}$ = 42in - 9in pile embed - 3in cover - 1/2 bar diameter = 29.37 in

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 5.387 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.411 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.418 in^2 ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.495 in^2 ACI 318-02, 10.5, flexural member min.

Bottom Slab Summary:	**Max. Rebar =**	**5.387 in^2**	- half each face
	Min. T&S Rebar =	**1.411 in^2**	- half each face
	Min. Flexural Rebar =	**1.495 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 37.365in

= 48,209 lb

ϕVc = 48.2kip > Vu = 16.4kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

Primary Top Face: $d_{top\ bars}$ = 37.37 in

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.00 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

ϕMn = 0.9 * 1in^2 * 60ksi * (37.365in - 1.471in / 2)
= 1978 kip-in/ft
= 164.83 kip-ft/ft

* 71 × 1.33 = 94.7 k·ft

ϕMn = 164.8kip-ft > Mu = 71kip-ft → Use #9 @ 12"

Primary Bottom Face: $d_{bottom\ bars}$ = 29.37 in

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (29.365in - 1.162in / 2)
= 1227.9 kip-in/ft
= 102.33 kip-ft/ft

* 41.5 × 1.33 = 55.3 k·ft

ϕMn = 102.3kip-ft > Mu = 41.5kip-ft → Use #8 @ 12"

Secondary Top Face: $d_{top\ bars}$ = 37.37 in

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (37.365in - 1.162in / 2)
= 1569.2 kip-in/ft
= 130.77 kip-ft/ft

* 57.7 × 1.33 = 76.9 k·ft

ϕMn = 130.8kip-ft > Mu = 57.7kip-ft → Use #8 @ 12"

Secondary Bottom Face: $d_{bottom\ bars}$ = 29.37 in

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

a = A_s * f_y / (0.85 * f'_c * b) = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (29.365in - 1.162in / 2)
= 1227.9 kip-in/ft
= 102.33 kip-ft/ft

*

ϕMn = 102.3kip-ft > Mu = 11.5kip-ft → Use #8 @ 12"

* FLEXURAL MIN. NEGLECTED B/C OF ACI 318, 10.5.3 ALLOWANCE
ϕMn > Mu × 1.33

*** Interior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	8.7	7.0	3.7	35.7	18.6
COMBO_T	8.5	6.9	3.1	34.8	15.9

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 8.7 kip
Max. Moment, Primary = 35.7 kip-ft (M22, "primary" controls vertical reinforcement)
Min. Moment, Primary = 18.6 kip-ft
Max. Moment, Secondary = 7.0 kip-ft (M11, "secondary" controls horizontal reinforcemen
Min. Moment, Secondary = 3.7 kip-ft

*** Reinforcing Limits:**

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 4.232 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
$(200 * b * d) / f_y$ = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Int. Wall Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity $(\phi V_c) = \phi * 2 * \sqrt{f'_c} * b * d$
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 8.7kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$
* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

All reinforcement: * $M_{max,\ all\ directions}$ = 35.7 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

*ACI ALLOWANCE - 35.7X1.33 = 47.5 k·ft

ϕMn = 75.4kip-ft > Mu = 35.7kip-ft → Use #7 @ 12"

*** Exterior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO	10.0	7.8	4.1	39.0	21.1
COMBO_T	9.8	7.9	4.1	40.0	20.9

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 10.0 kip
Max. Moment, Primary = 40.0 kip-ft (+M22 controls exterior vertical reinforcement)
Min. Moment, Primary = 21.1 kip-ft (-M22 controls interior vertical reinforcement)
Max. Moment, Secondary = 7.9 kip-ft (+M11 controls exterior horiz. reinforcement)
Min. Moment, Secondary = 4.1 kip-ft (-M11 controls interior horiz. reinforcement)

*** Reinforcing Limits:**

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement: 0.0028 x A_{gross} = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
(3 * √(f'$_c$) * b * d) / f_y = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
(200 * b * d) / f_y = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Ext. Wall Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity (ϕV_c) = ϕ * 2 * √(f'$_c$) * b * d
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 10kip → Section OK

Moment:

* T = A_s * f_y * C = 0.85 * f'$_c$ * a * b
* Assuming Tension = Compression → ϕMn = ϕ * T * (d - (a / 2)) = ϕ * As * fy * (d - (a / 2))

Primary Exterior Face:

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

$\phi Mn =$ 0.9 * 1in^2 * 60ksi * (28.365in - 1.471in / 2)

= 1492 kip-in/ft

= 124.33 kip-ft/ft

* 40×1.33 = 53.3 k·ft

ϕMn = 124.3kip-ft > Mu = 40kip-ft → Use #9 @ 12"

Primary Interior Face:

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

$\phi Mn =$ 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

* 21.1 ×1.33 = 28.1 k·ft

ϕMn = 75.4kip-ft > Mu = 21.1kip-ft → Use #7 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 7.9 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

$\phi Mn =$ 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)

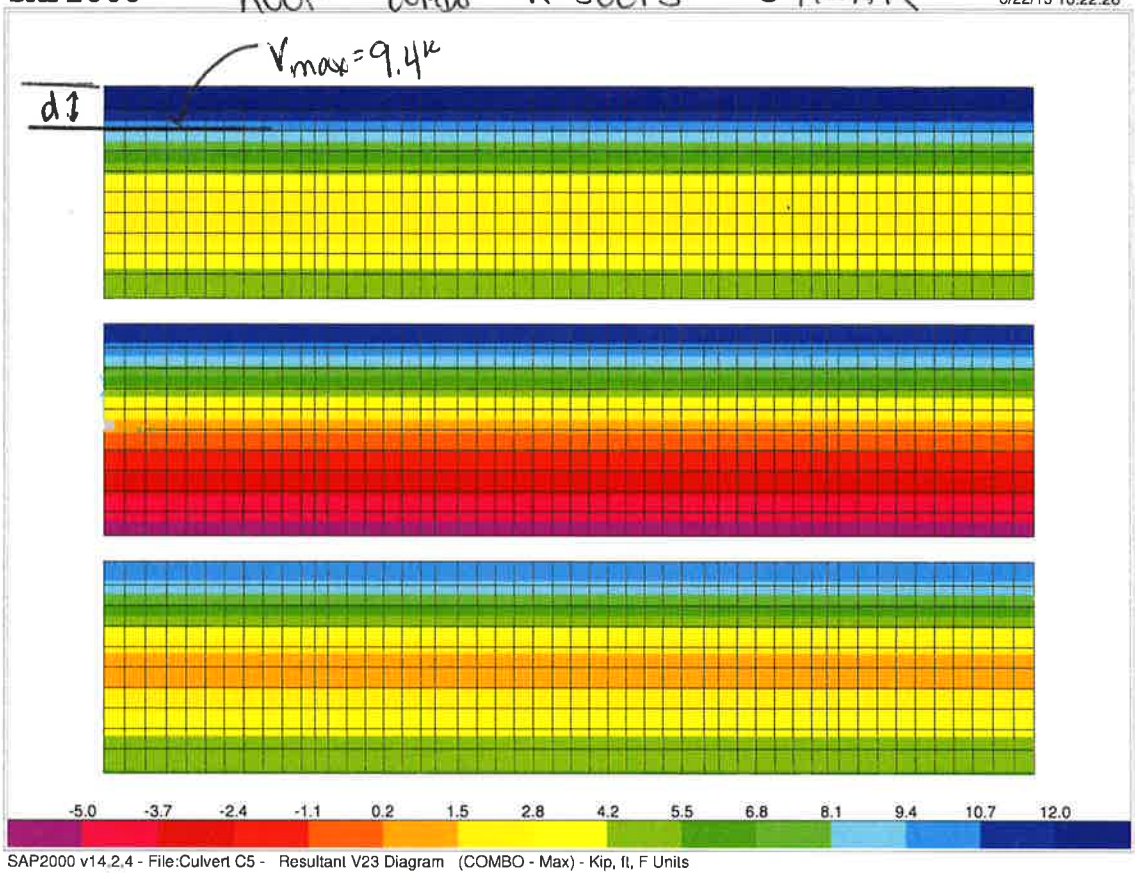
= 904.73 kip-in/ft

= 75.39 kip-ft/ft

*

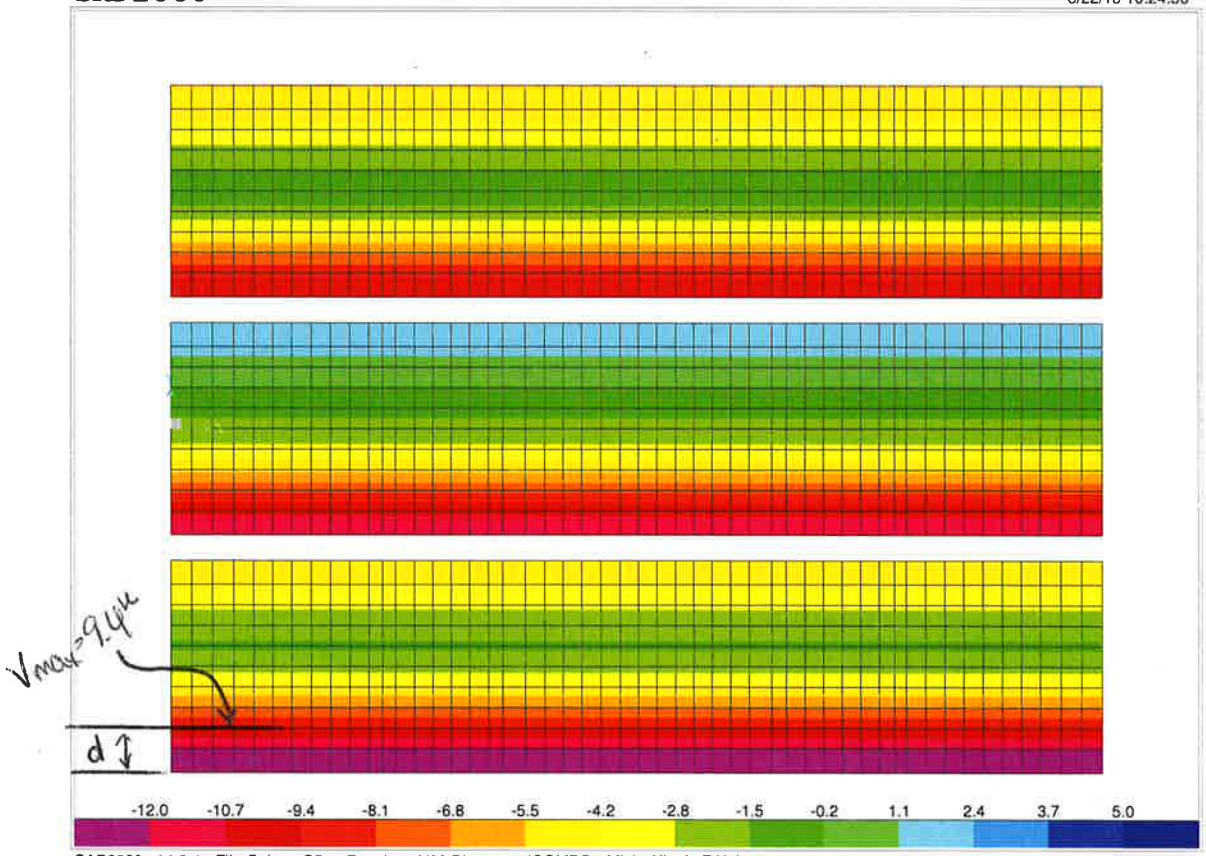
ϕMn = 75.4kip-ft > Mu = 7.9kip-ft → Use #7 @ 12"

SAP2000 ROOF "COMBO" RESULTS - SHEAR 8/22/13 10:22:26



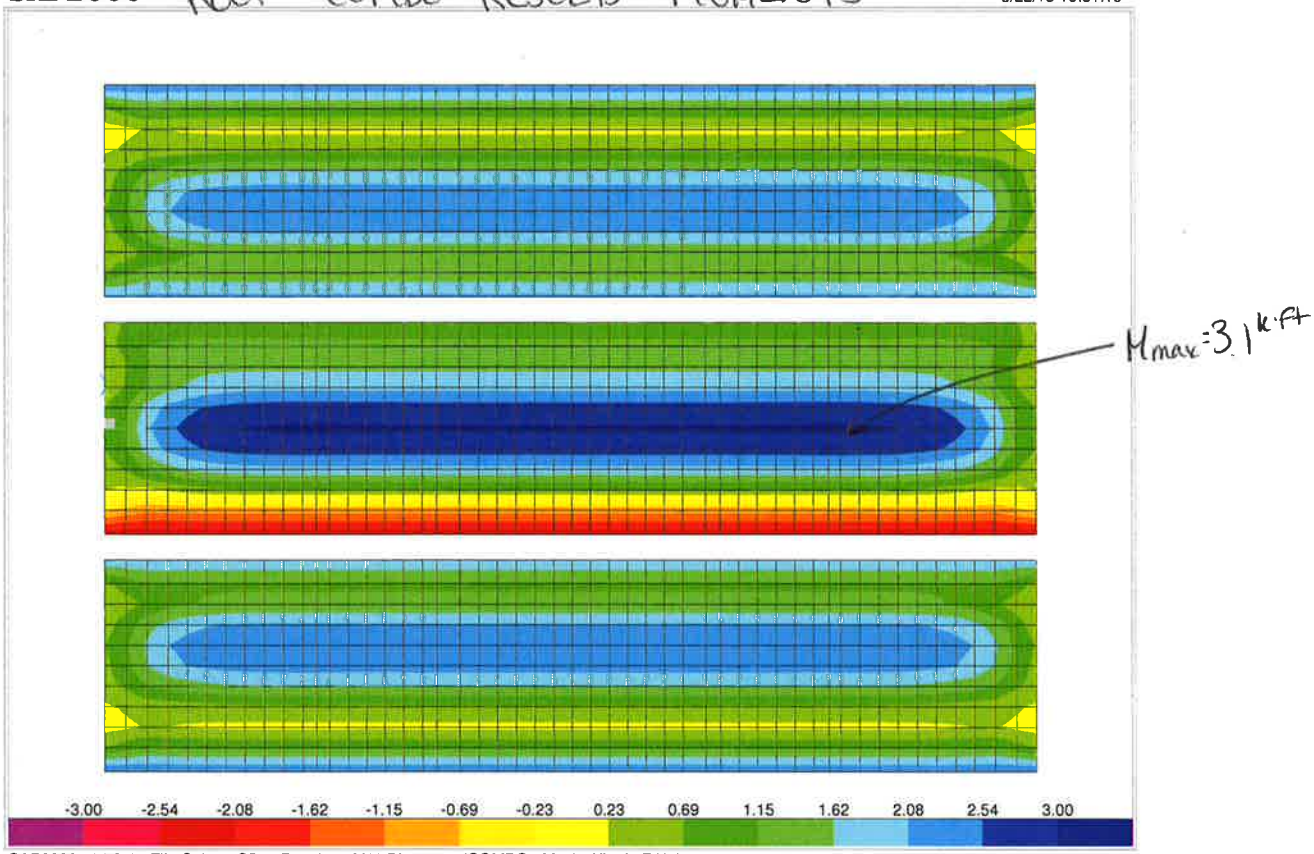
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

SAP2000 8/22/13 10:24:56



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

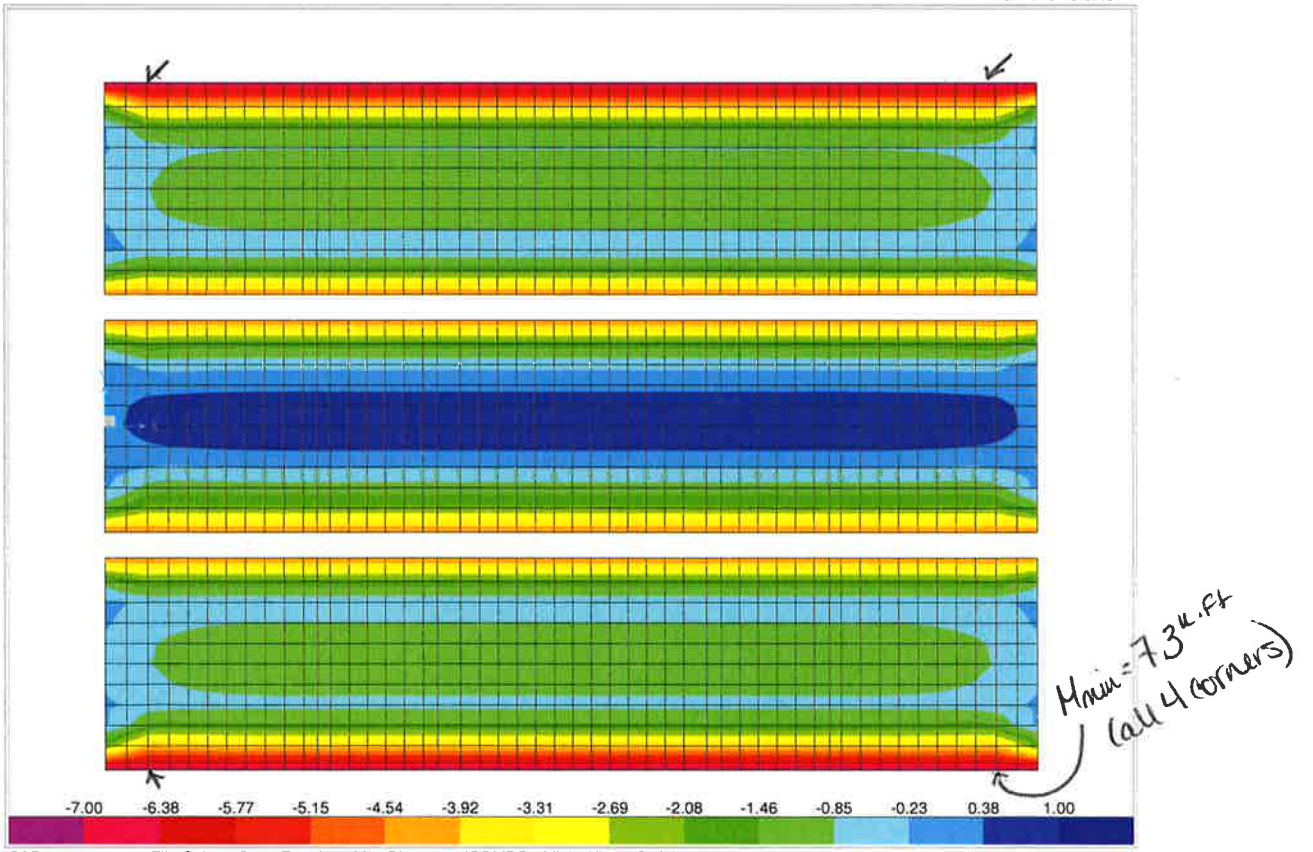
SAP2000 ROOF "COMBO" RESULTS - MOMENTS 8/22/13 10:31:19



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

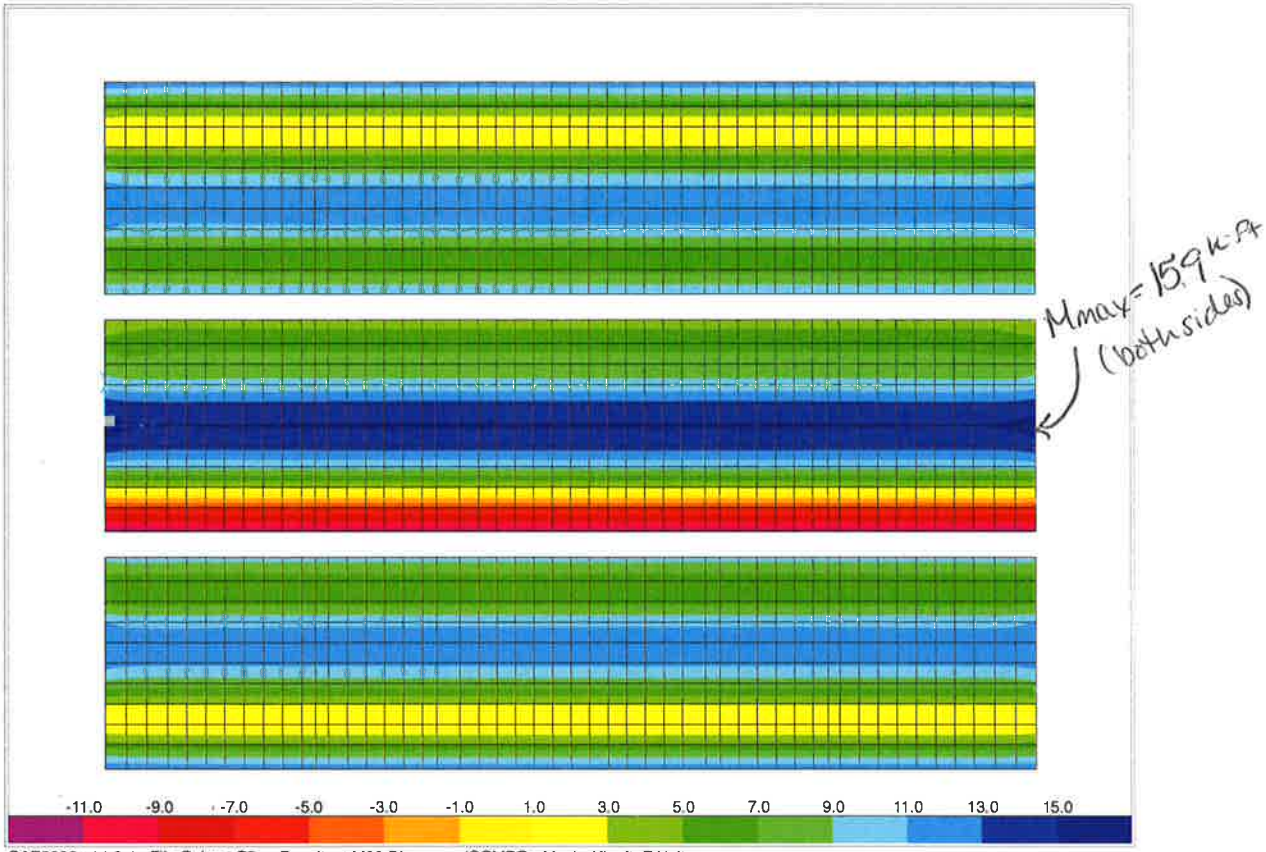
M_{11} = SECONDARY (LONGITUDINAL) REINF.

SAP2000 8/22/13 10:32:31



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

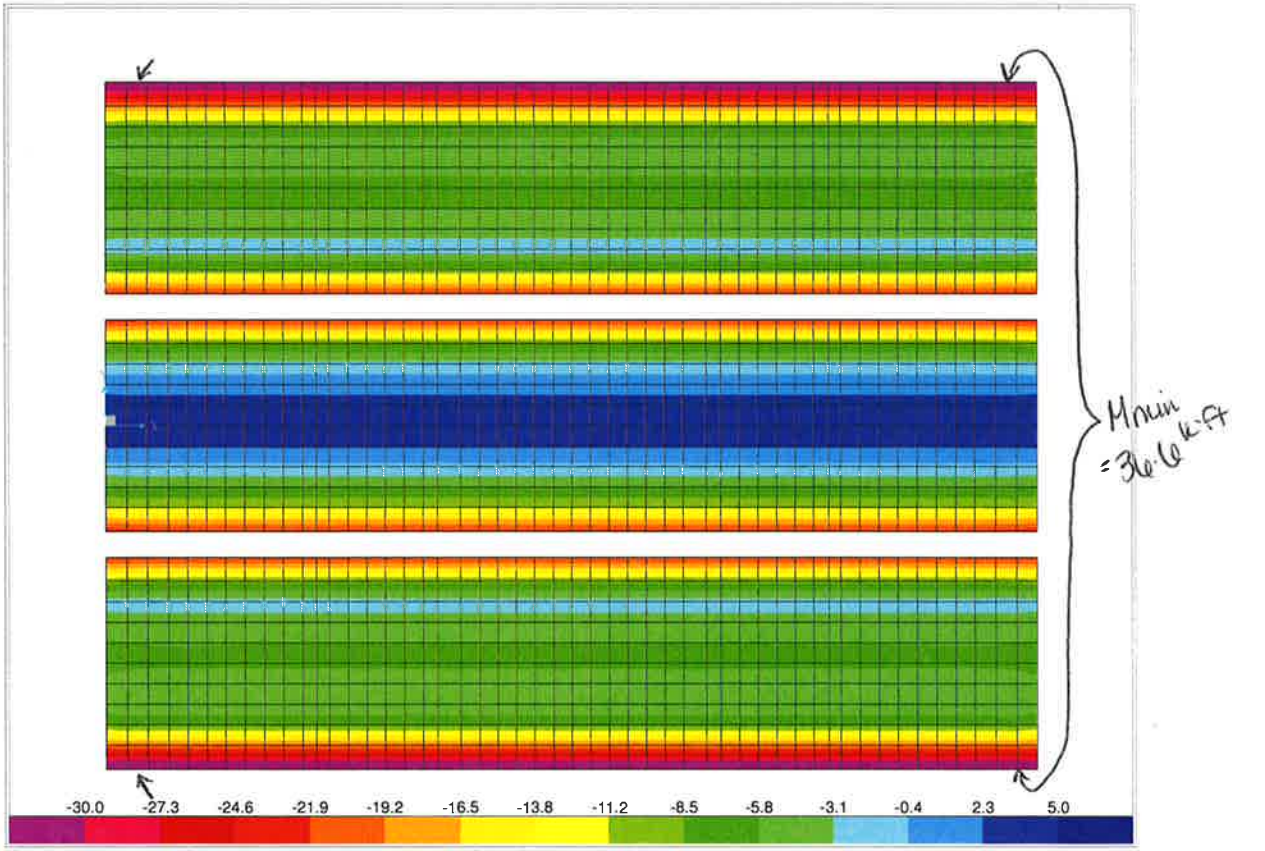
SAP2000 8/22/13 10:37:22



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

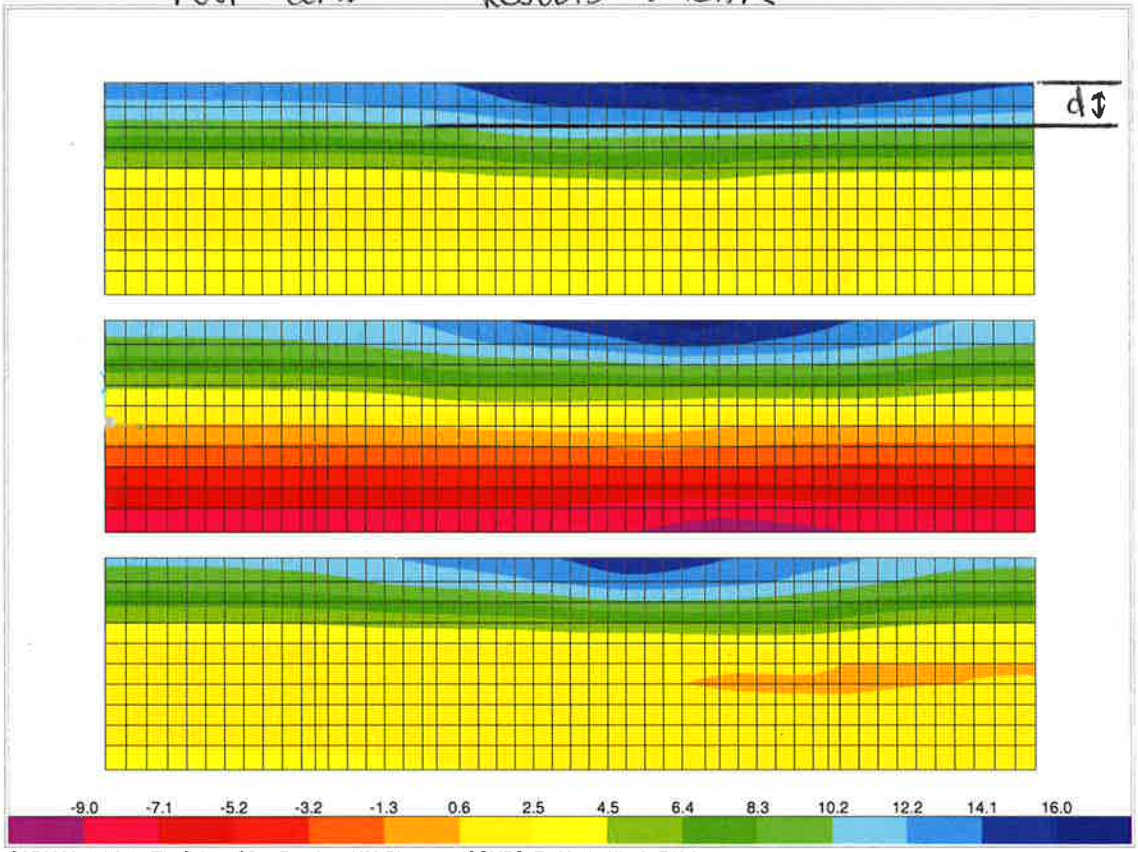
M_{22} = PRIMARY (TRANSVERSE) REINF.

SAP2000 8/22/13 10:39:51



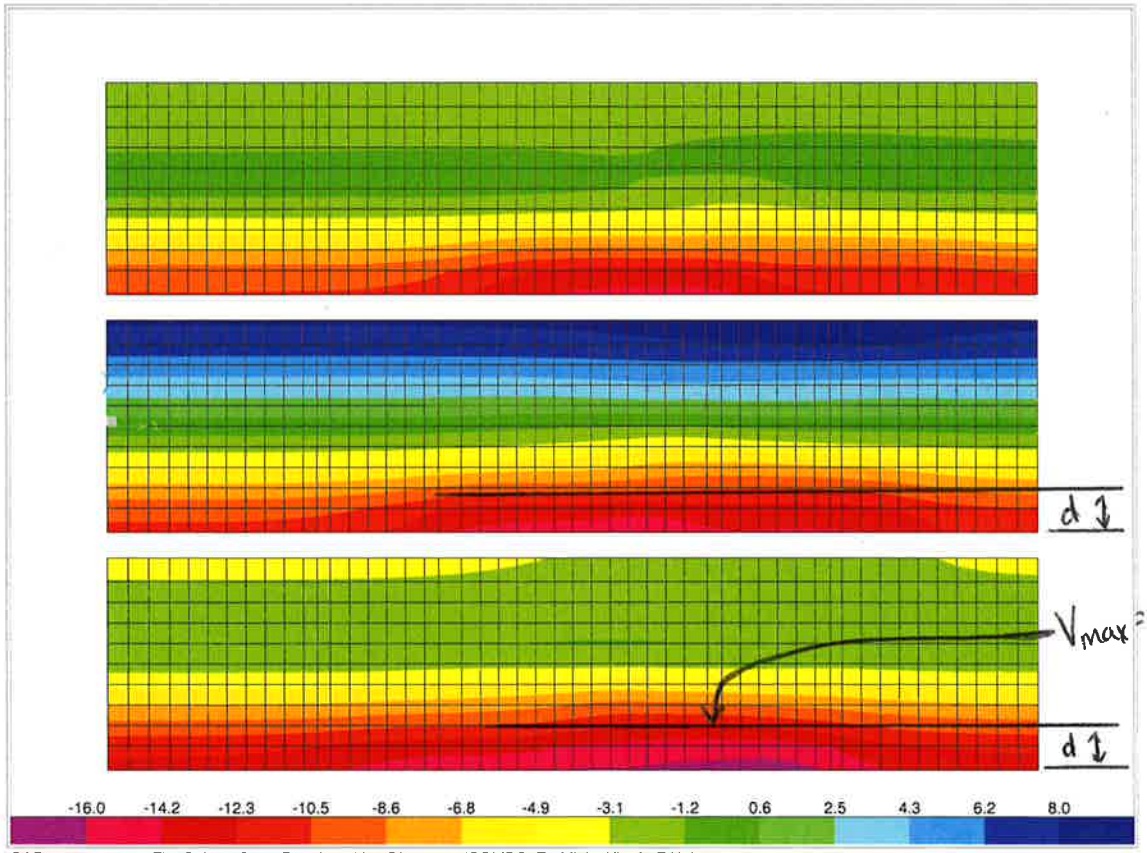
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

SAP2000 ROOF "COMBO_T" RESULTS - SHEAR 8/22/13 10:28:50



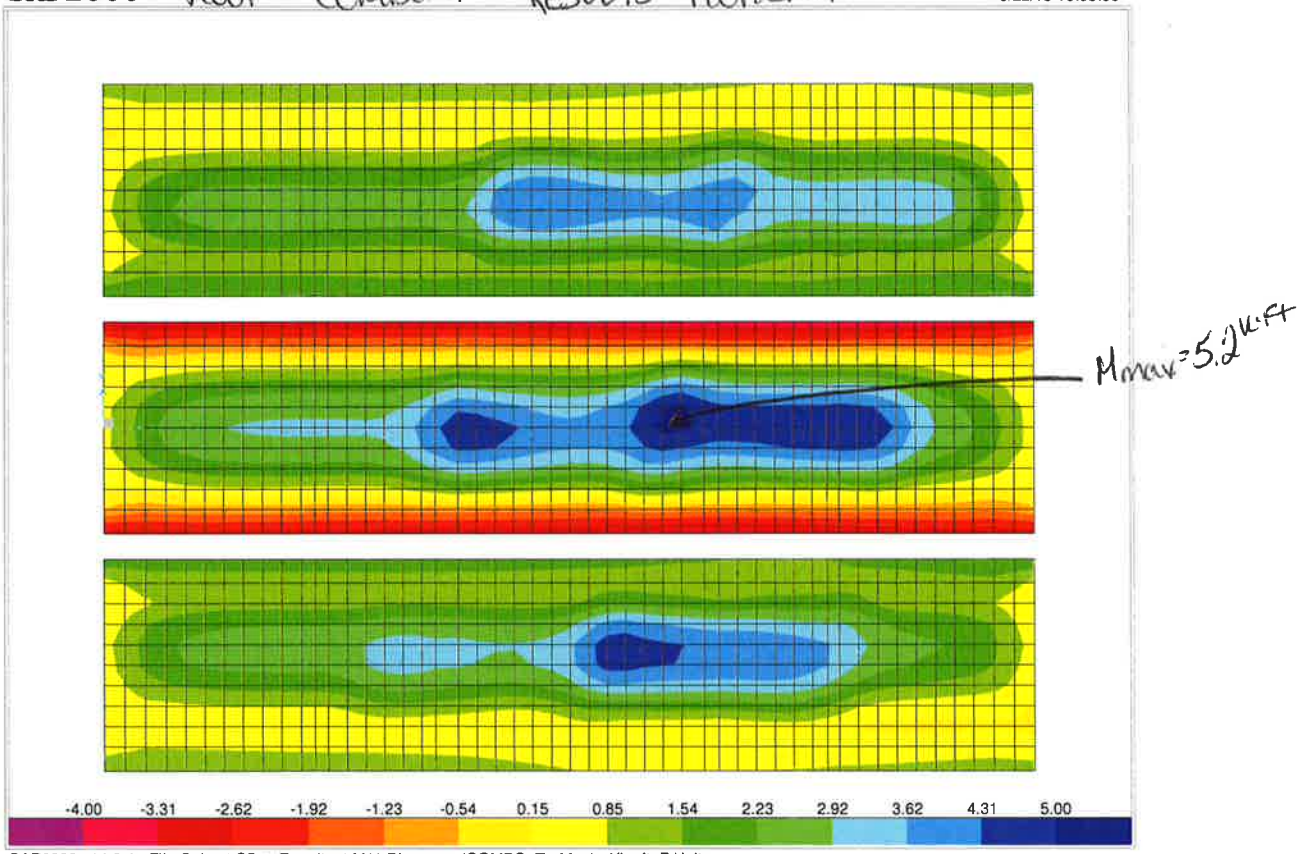
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Max) - Kip, ft, F Units

SAP2000 8/22/13 10:26:46



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Min) - Kip, ft, F Units

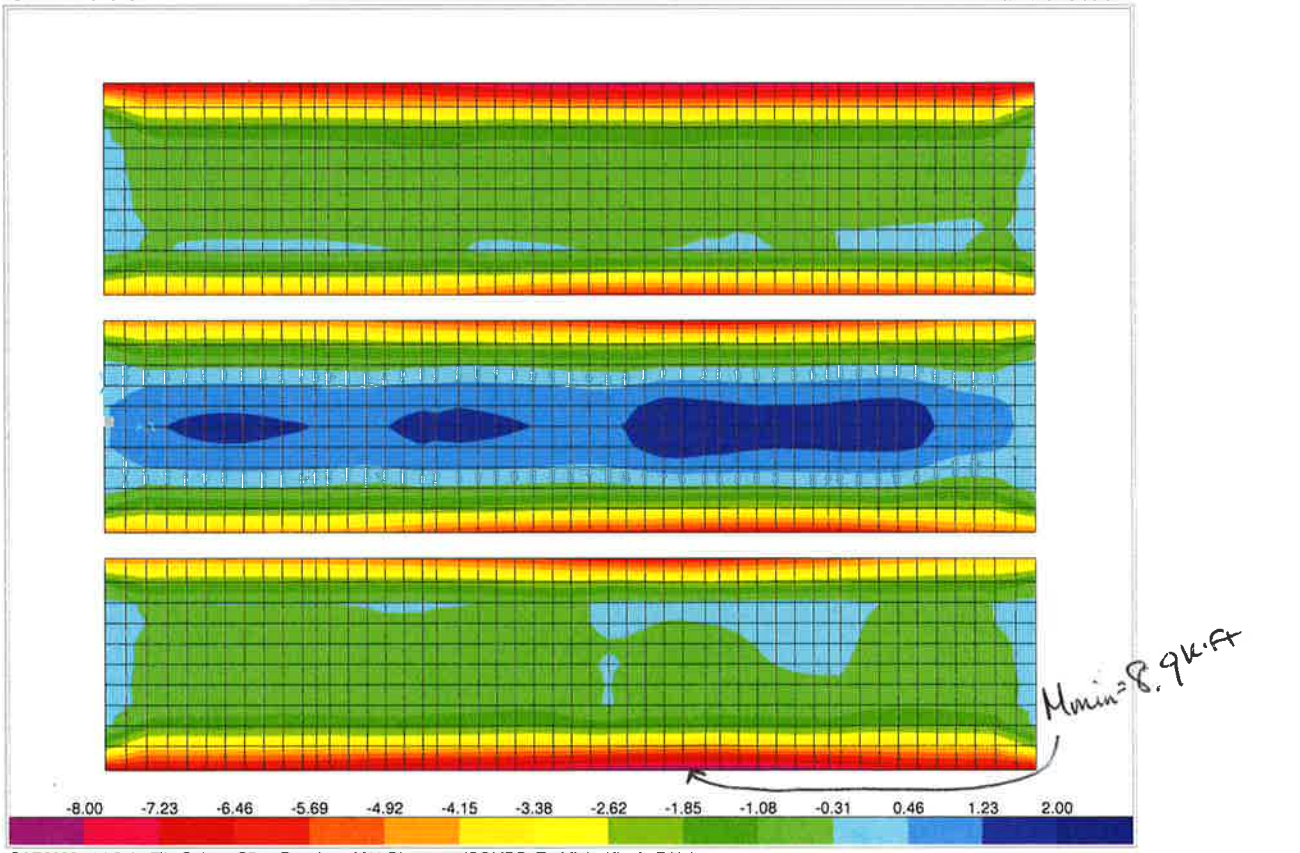
SAP2000 ROOF "COMBO-T" RESULTS - MOMENTS 8/22/13 10:35:36



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Max) - Kip, ft, F Units

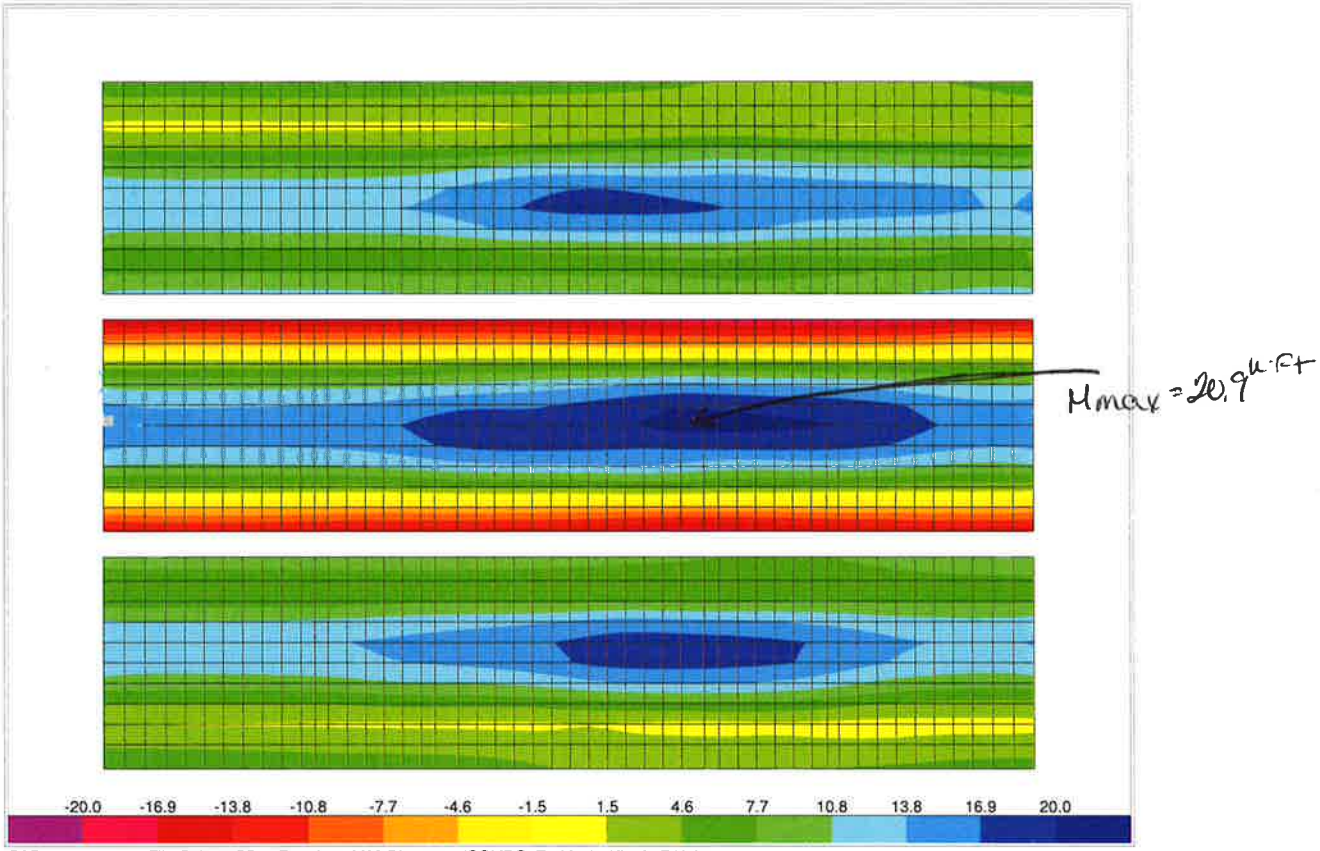
LONGITUDINAL REINF.

SAP2000 8/22/13 10:33:57



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Min) - Kip, ft, F Units

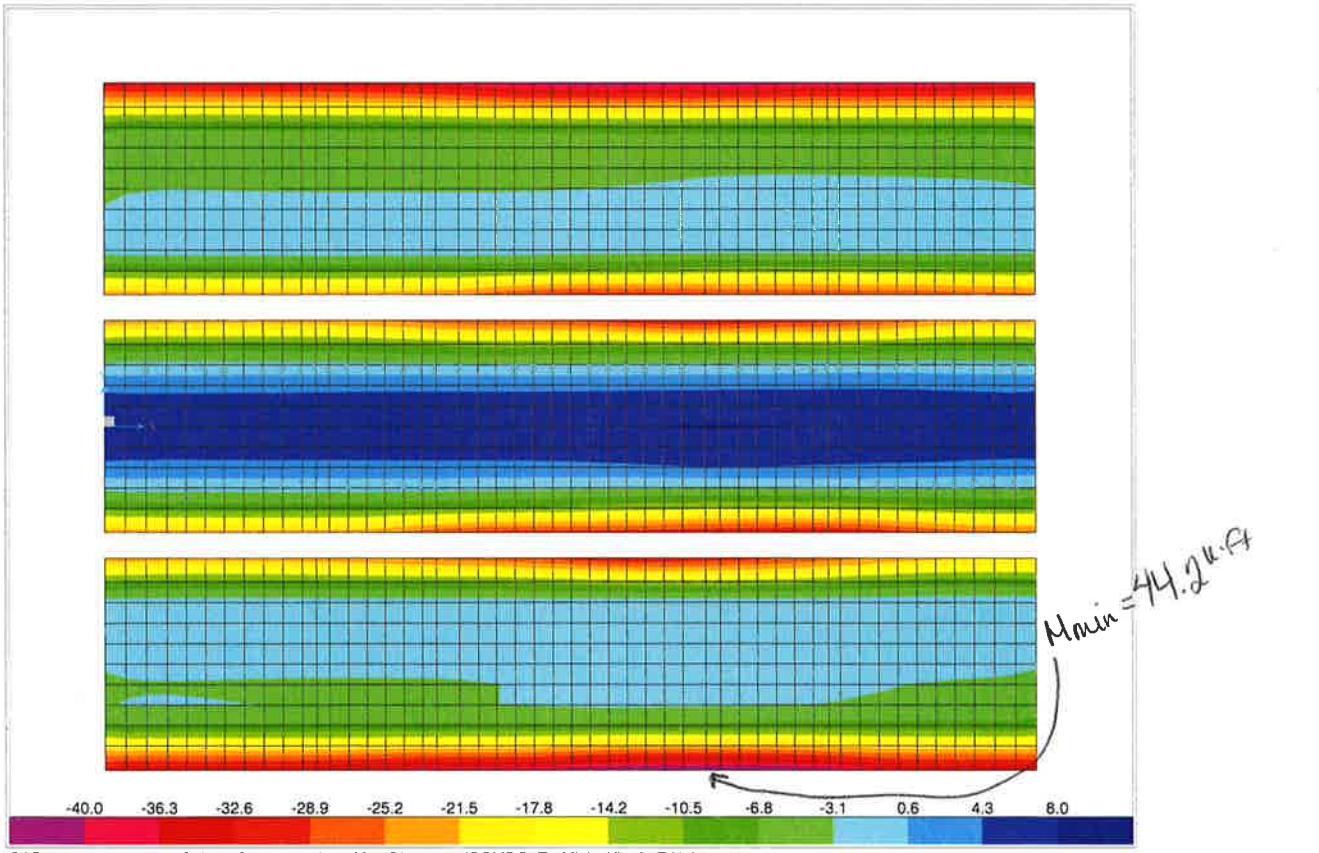
SAP2000 8/22/13 10:43:19



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Max) - Kip, ft, F Units

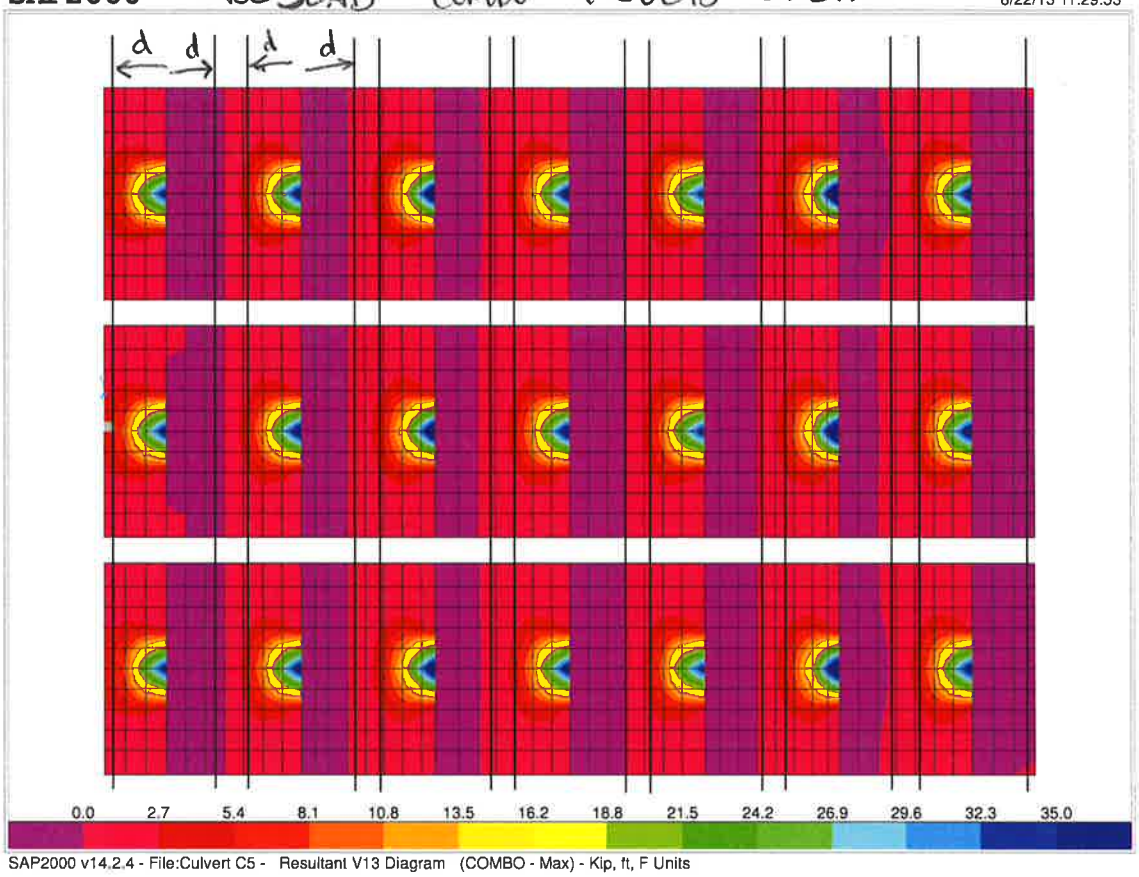
TRANSVERSE REINF.

SAP2000 8/22/13 10:42:14



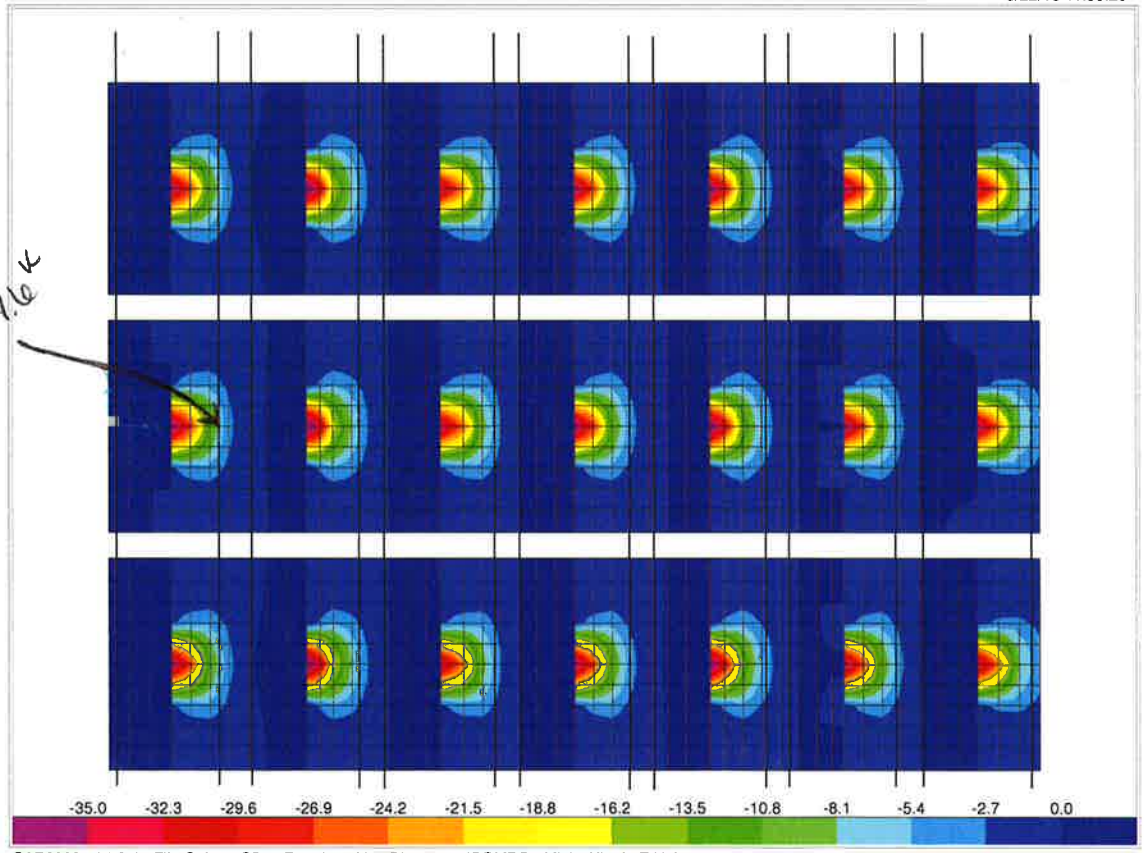
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO" RESULTS - SHEAR 8/22/13 11:29:53



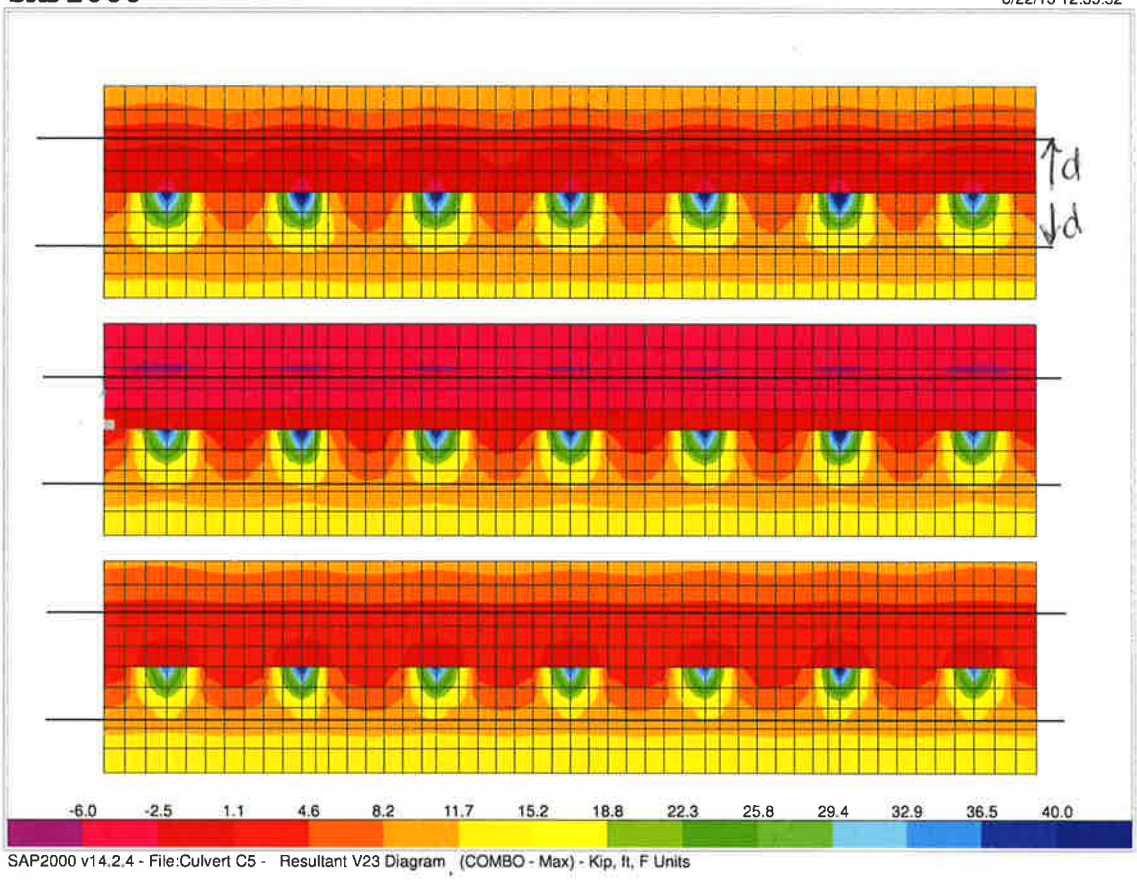
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO - Max) - Kip, ft, F Units

SAP2000 8/22/13 11:30:20



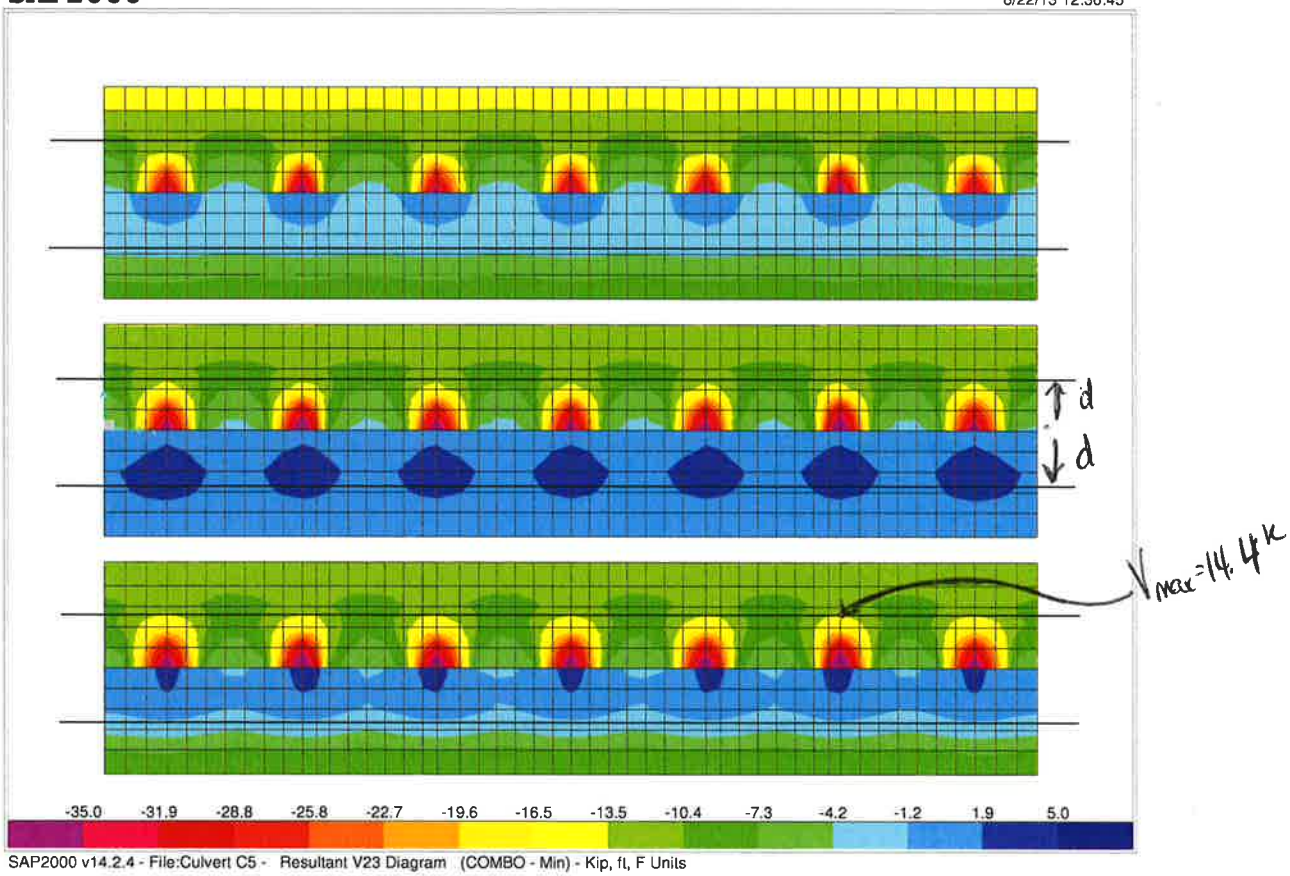
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO - Min) - Kip, ft, F Units

SAP2000 8/22/13 12:35:52



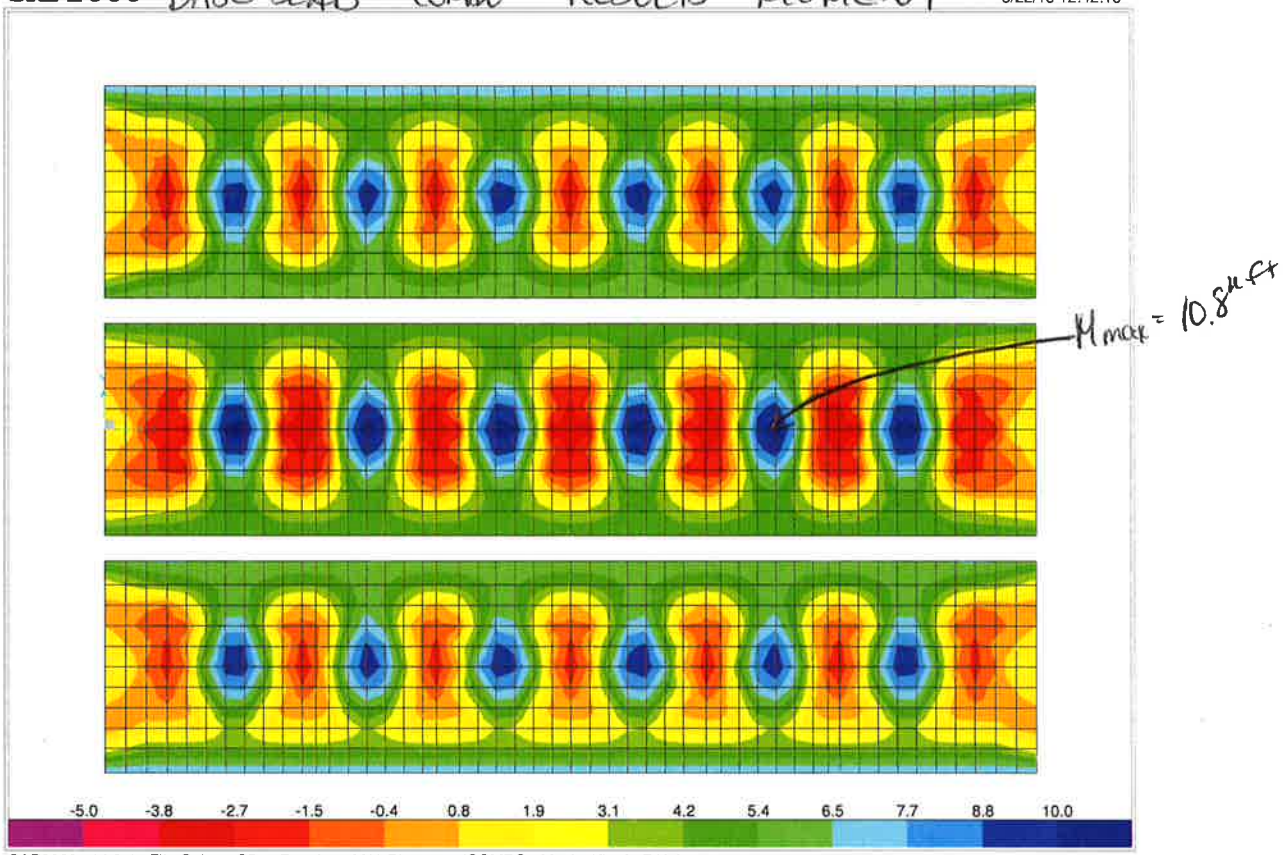
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

SAP2000 8/22/13 12:36:45



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

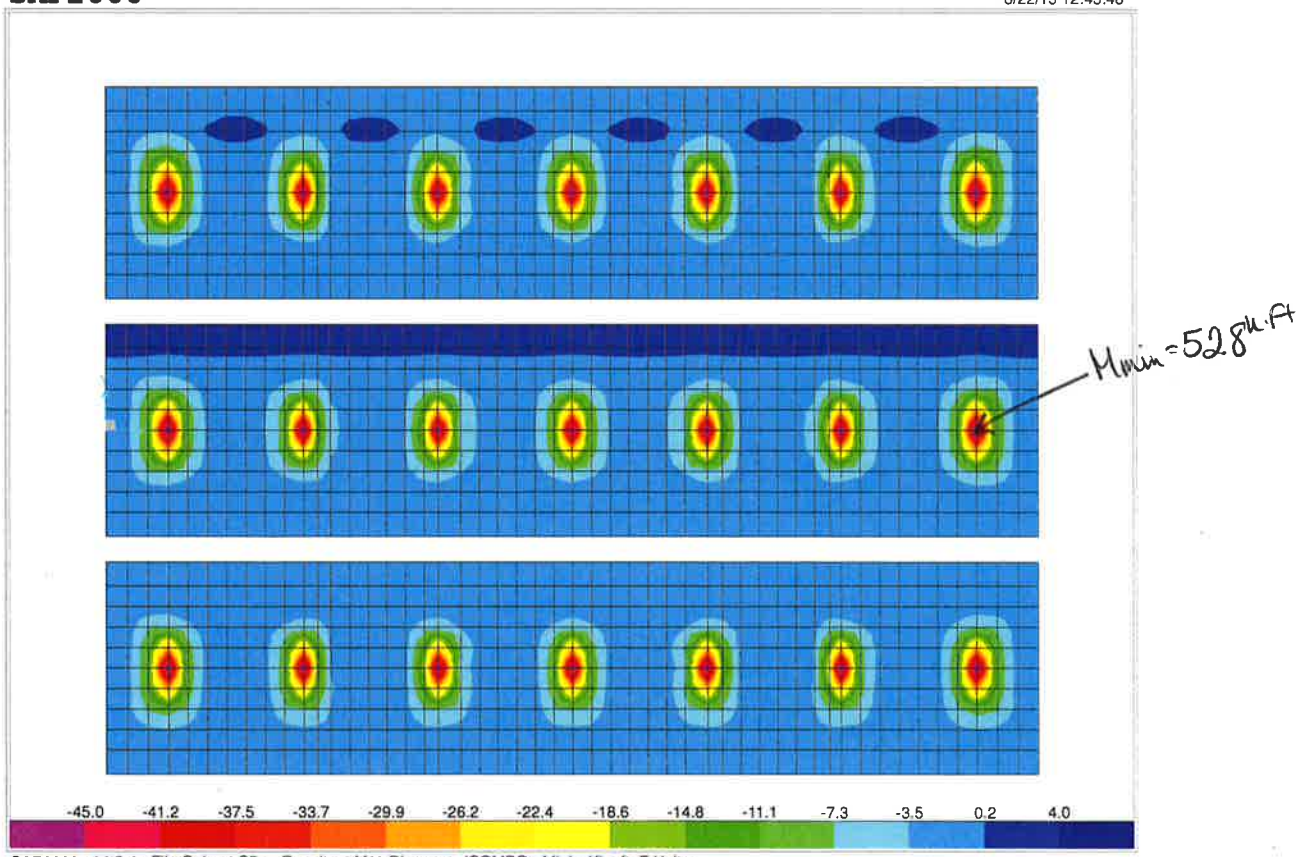
SAP2000 BASE SLAB "COMBO" RESULTS - MOMENT 8/22/13 12:42:13



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

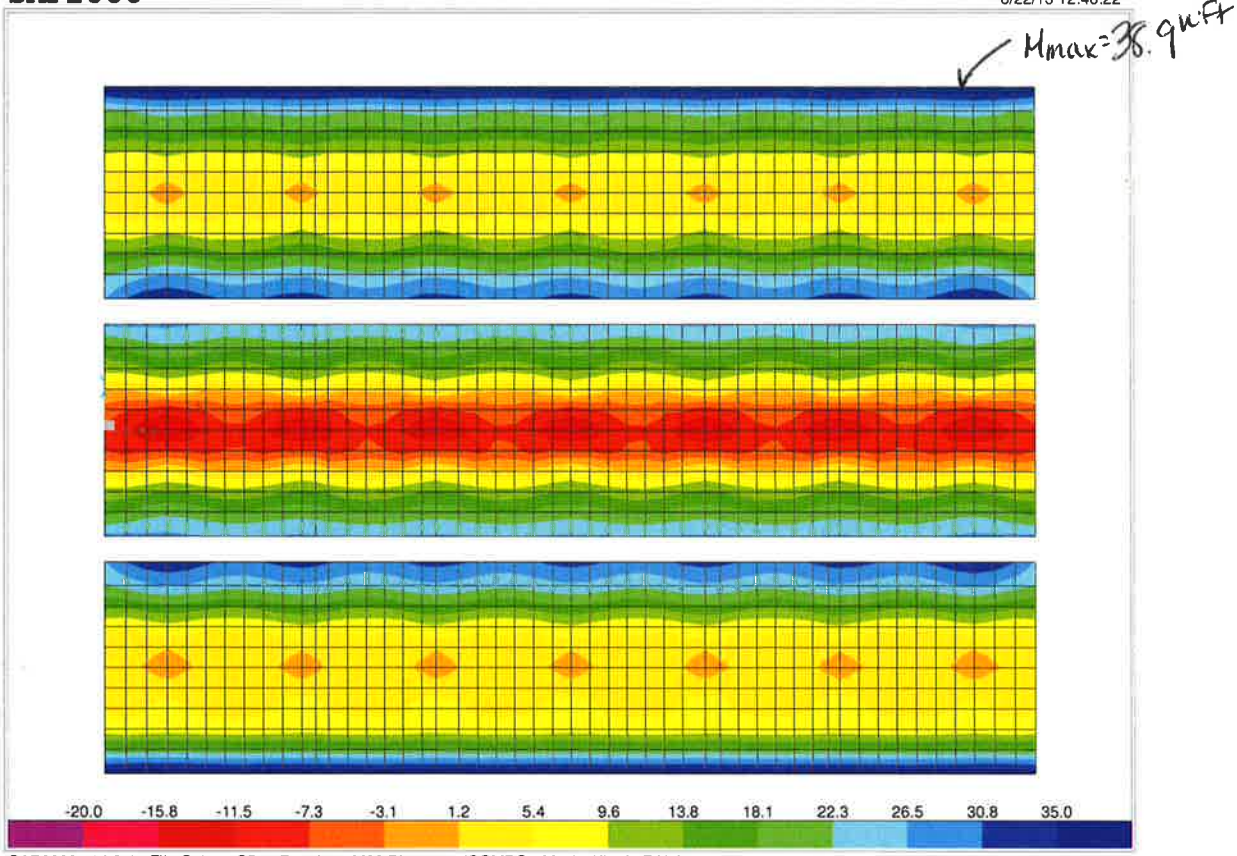
LONGITUDINAL REINF.

SAP2000 8/22/13 12:43:48



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

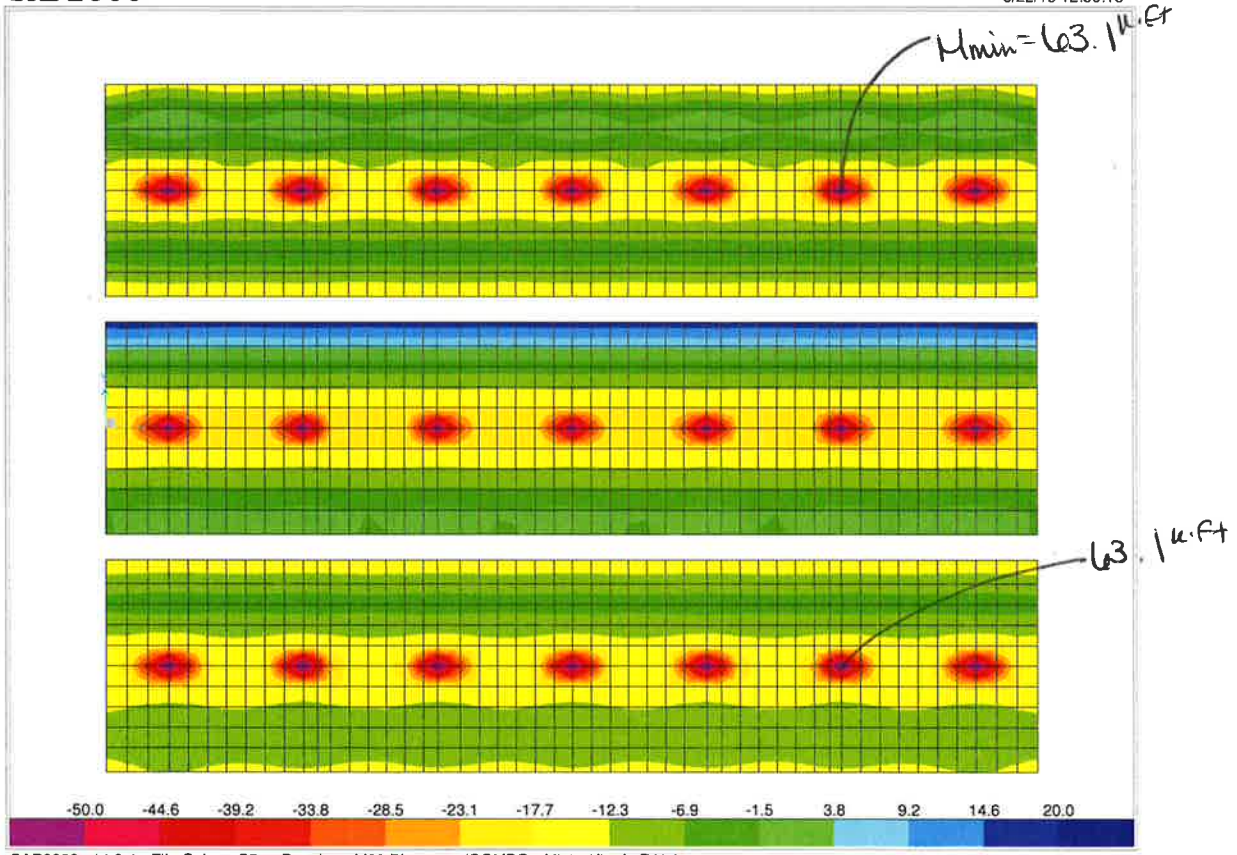
SAP2000 8/22/13 12:48:22



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

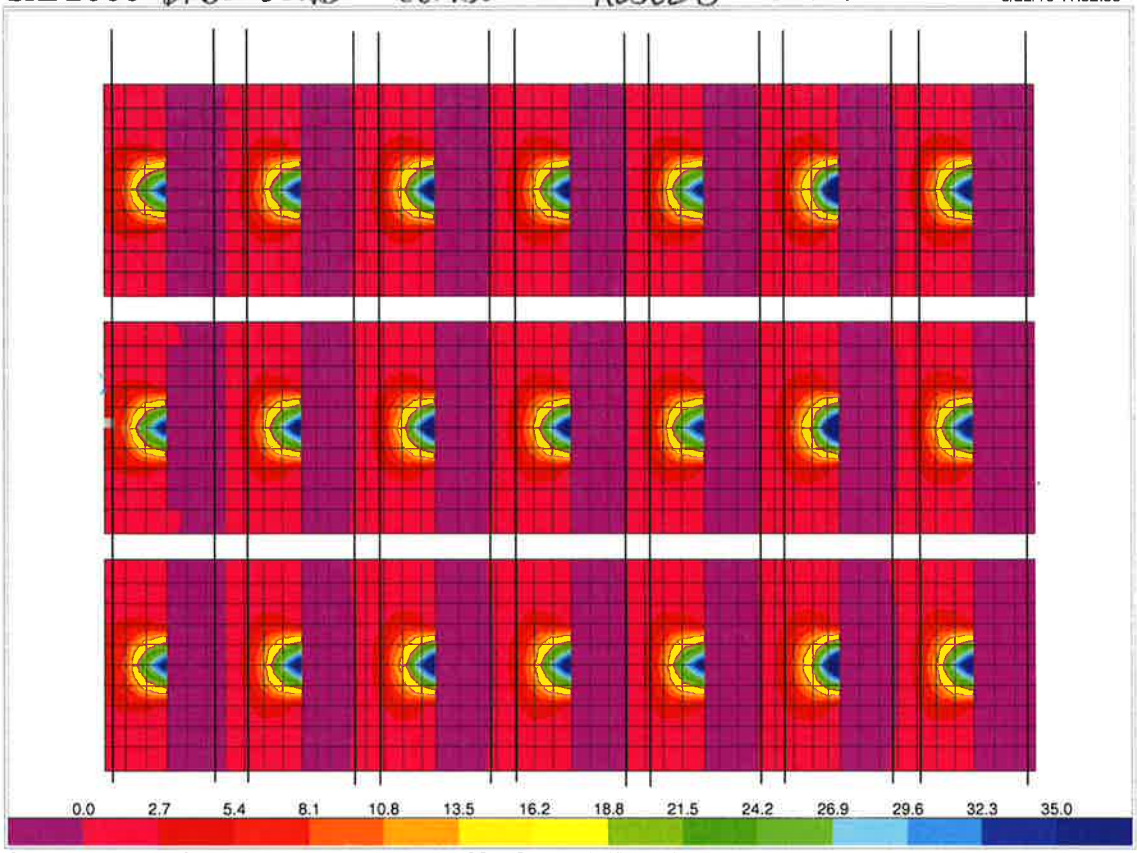
TRANSVERSE REINF.

SAP2000 8/22/13 12:50:18



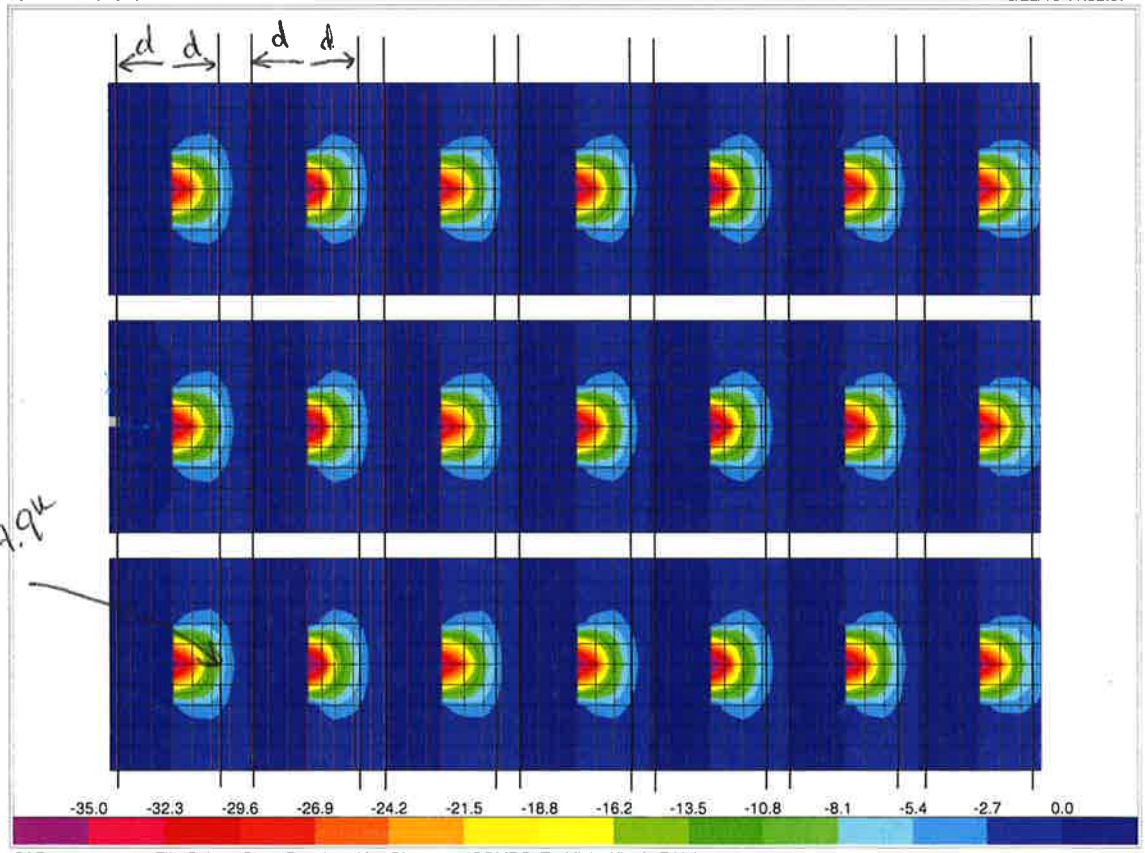
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO_T" RESULTS - SHEAR 8/22/13 11:32:38



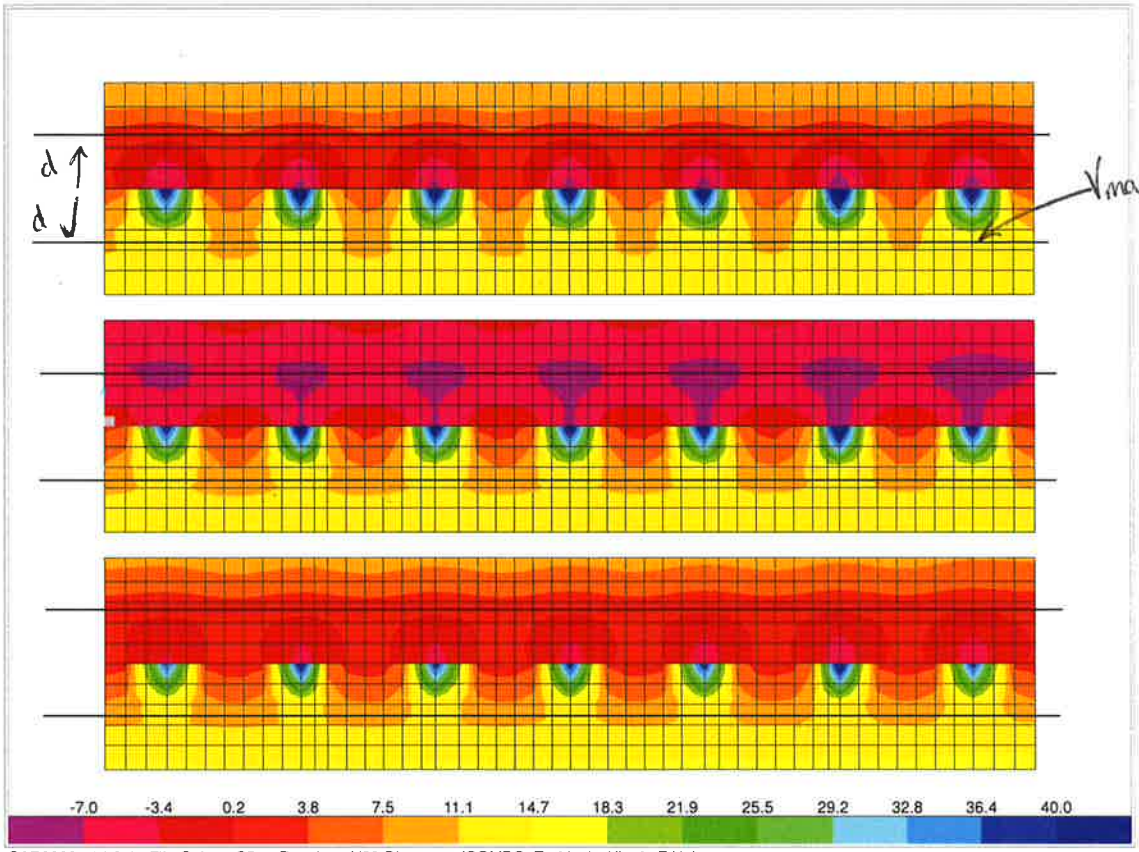
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO_T - Max) - Kip, ft, F Units

SAP2000 8/22/13 11:32:07



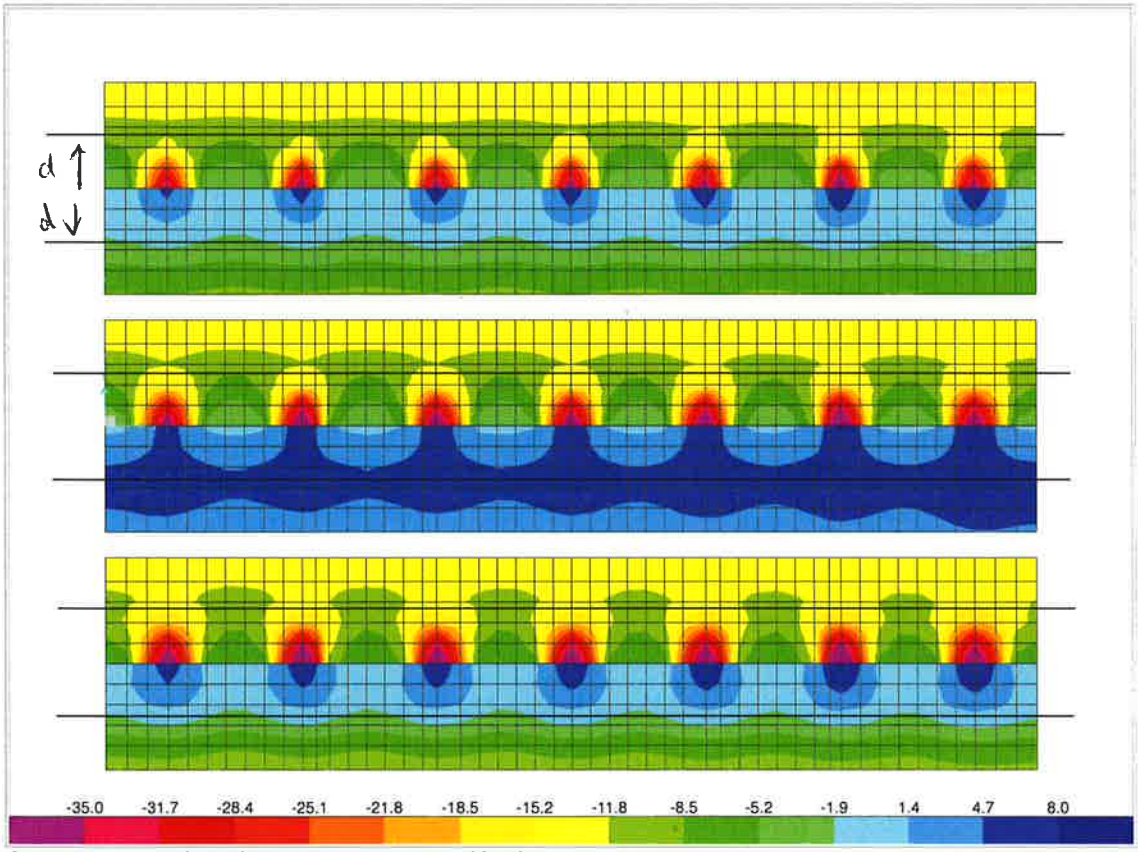
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 8/22/13 12:38:15



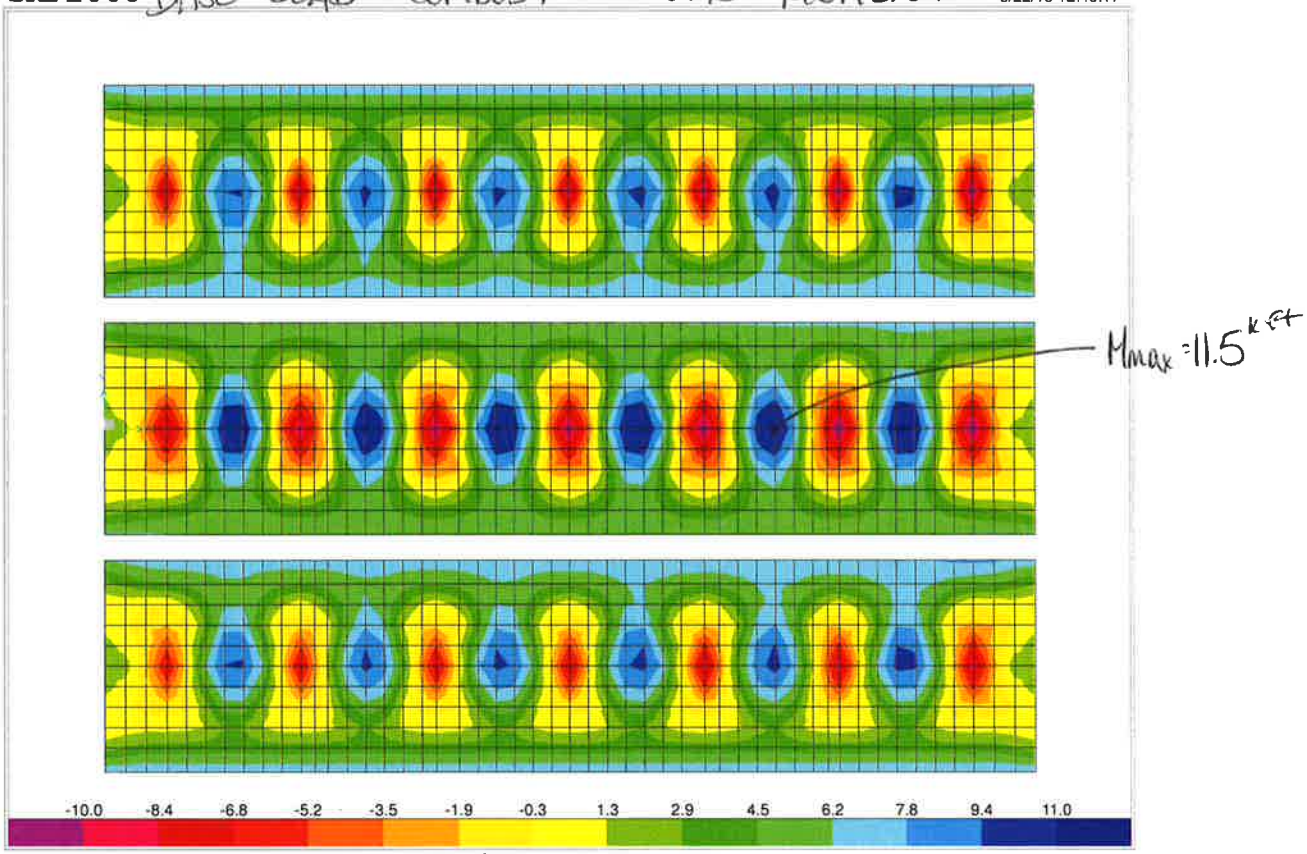
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Max) - Kip, ft, F Units

SAP2000 8/22/13 12:39:20



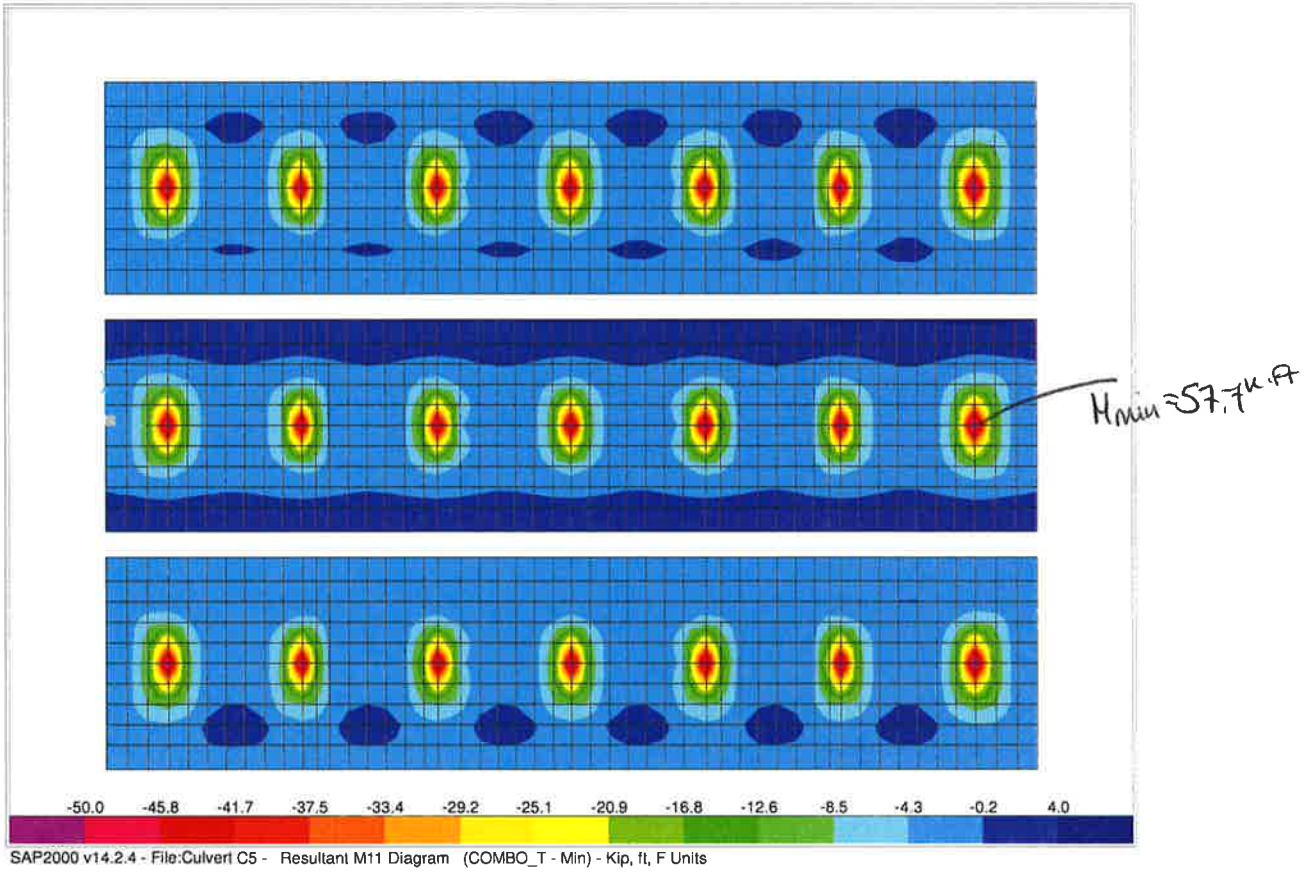
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO_T" RESULTS- MOMENT 8/22/13 12:40:17



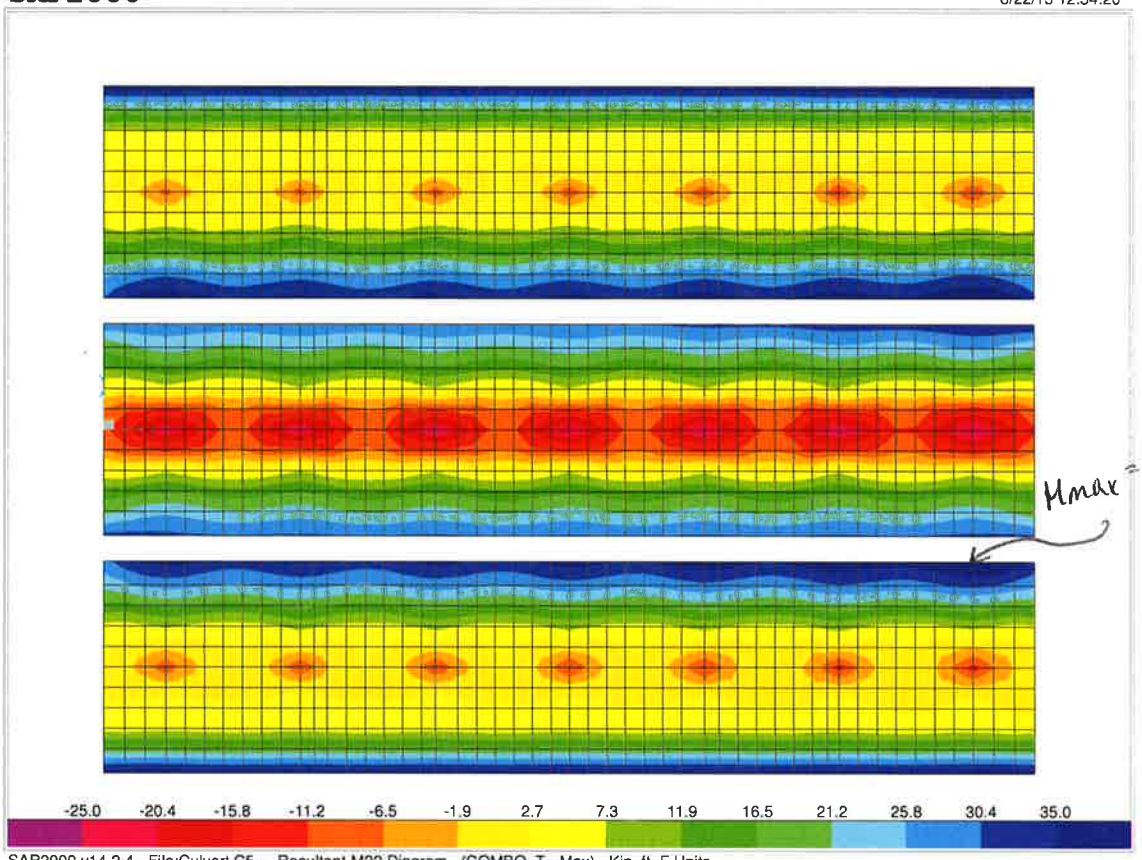
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Max) - Kip, ft, F Units

SAP2000 8/22/13 12:46:16



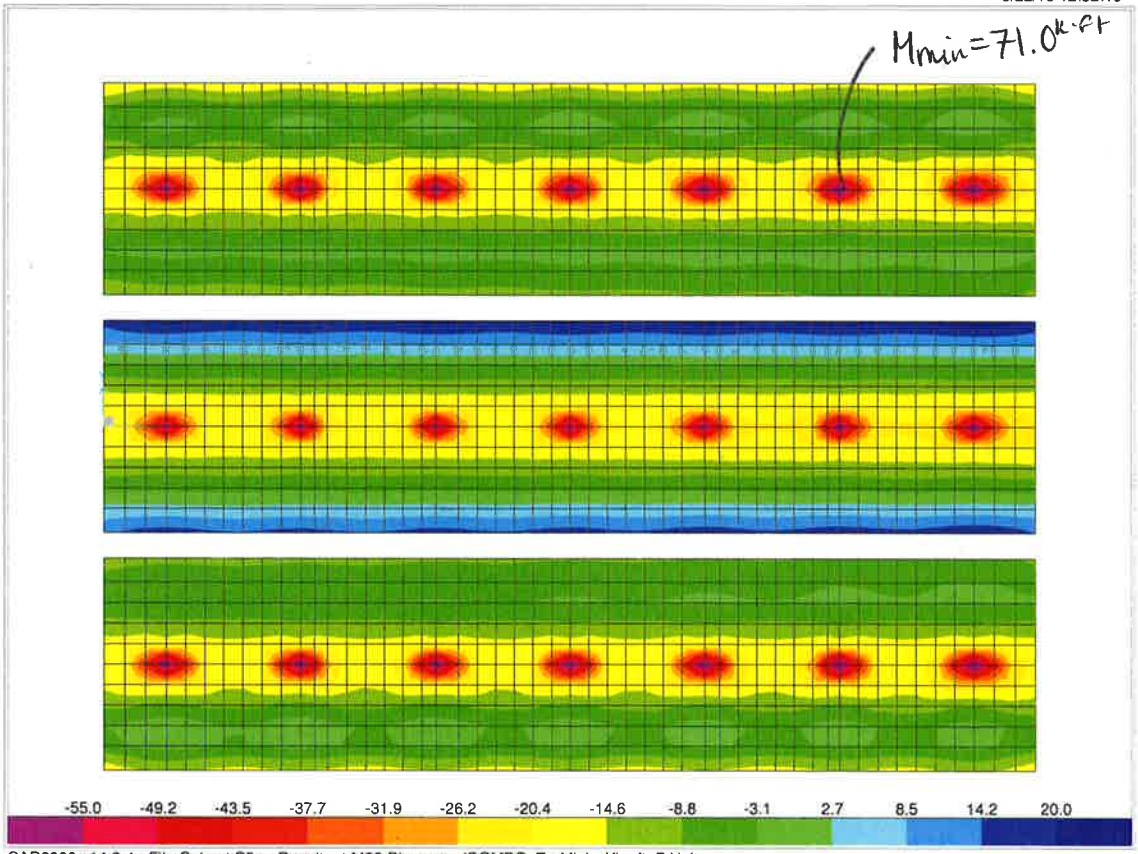
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 8/22/13 12:54:20



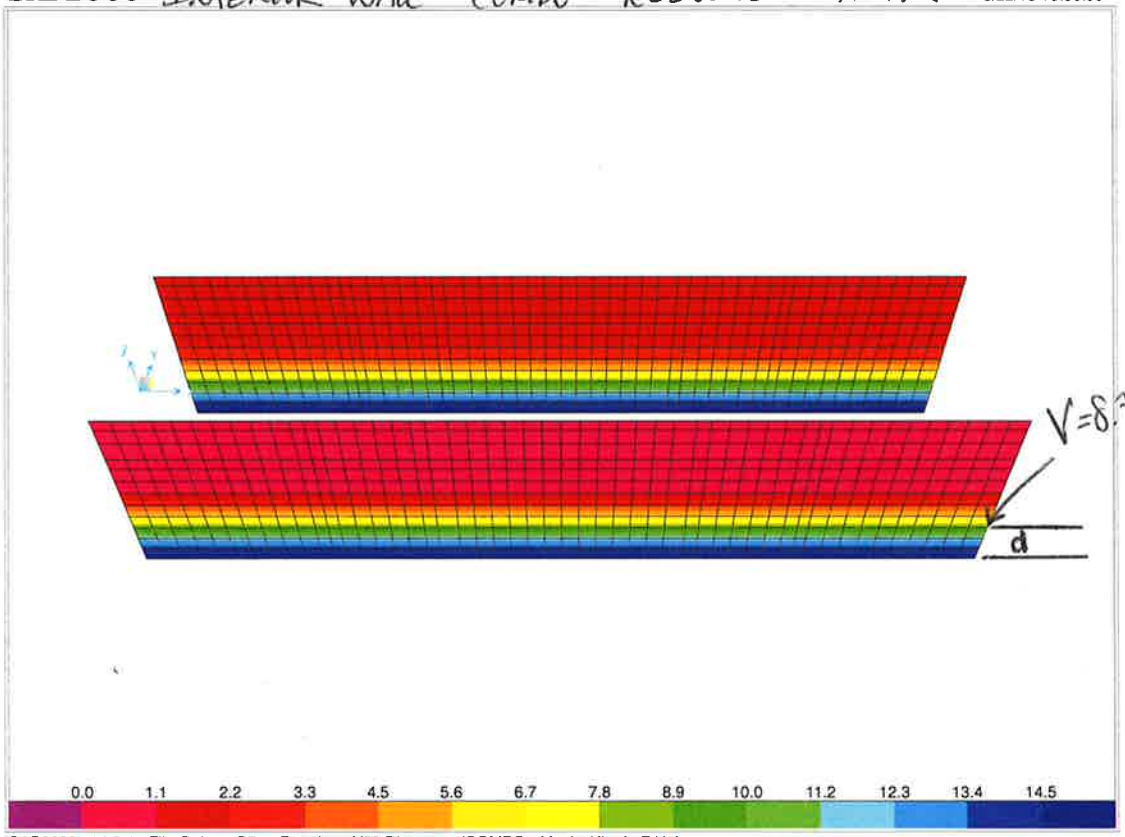
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Max) - Kip, ft, F Units

SAP2000 8/22/13 12:52:19



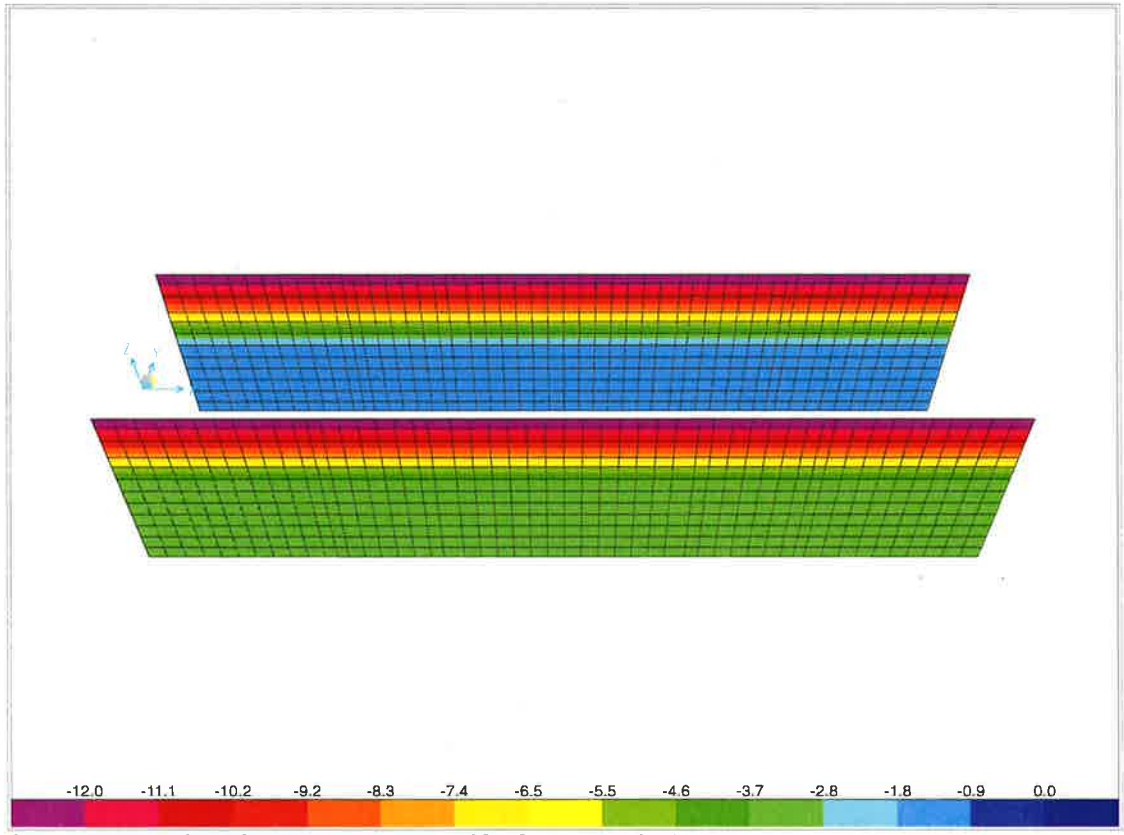
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 INTERIOR WALL "COMBO" RESULTS - SHEAR 8/22/13 13:30:06



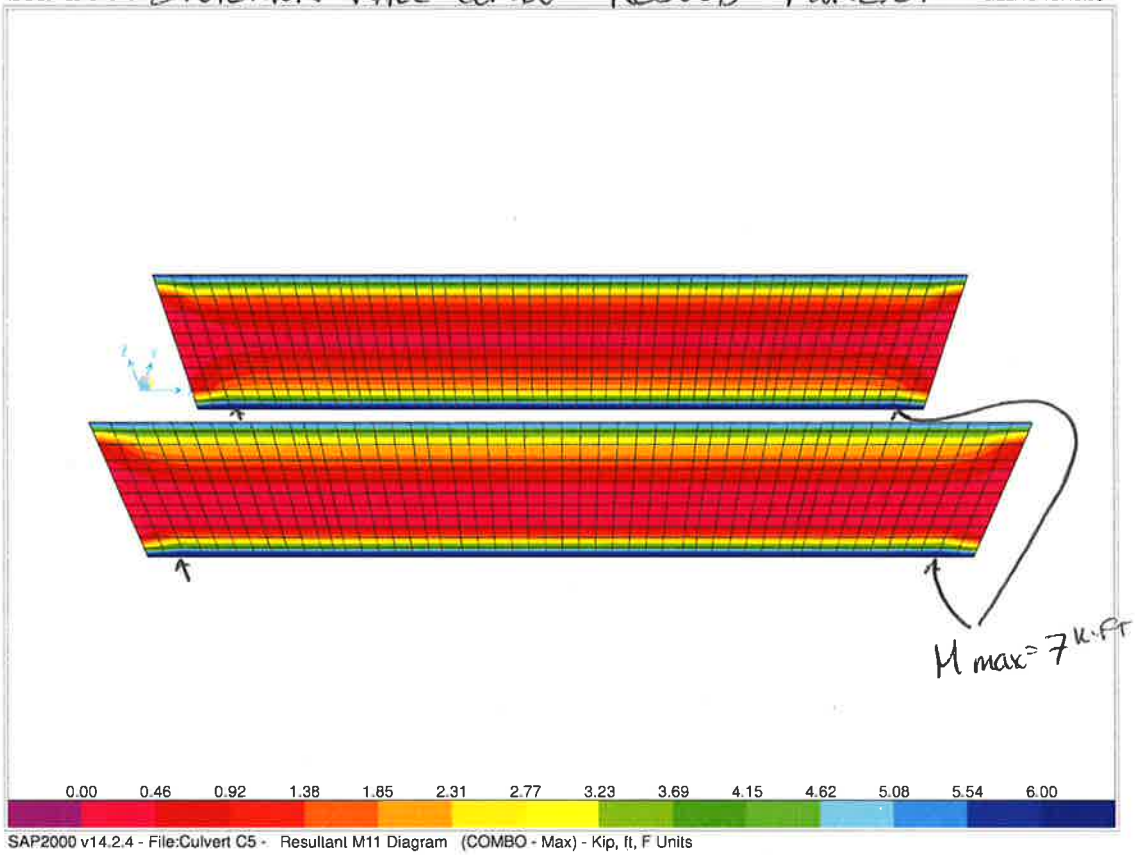
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

SAP2000 8/22/13 13:30:46



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

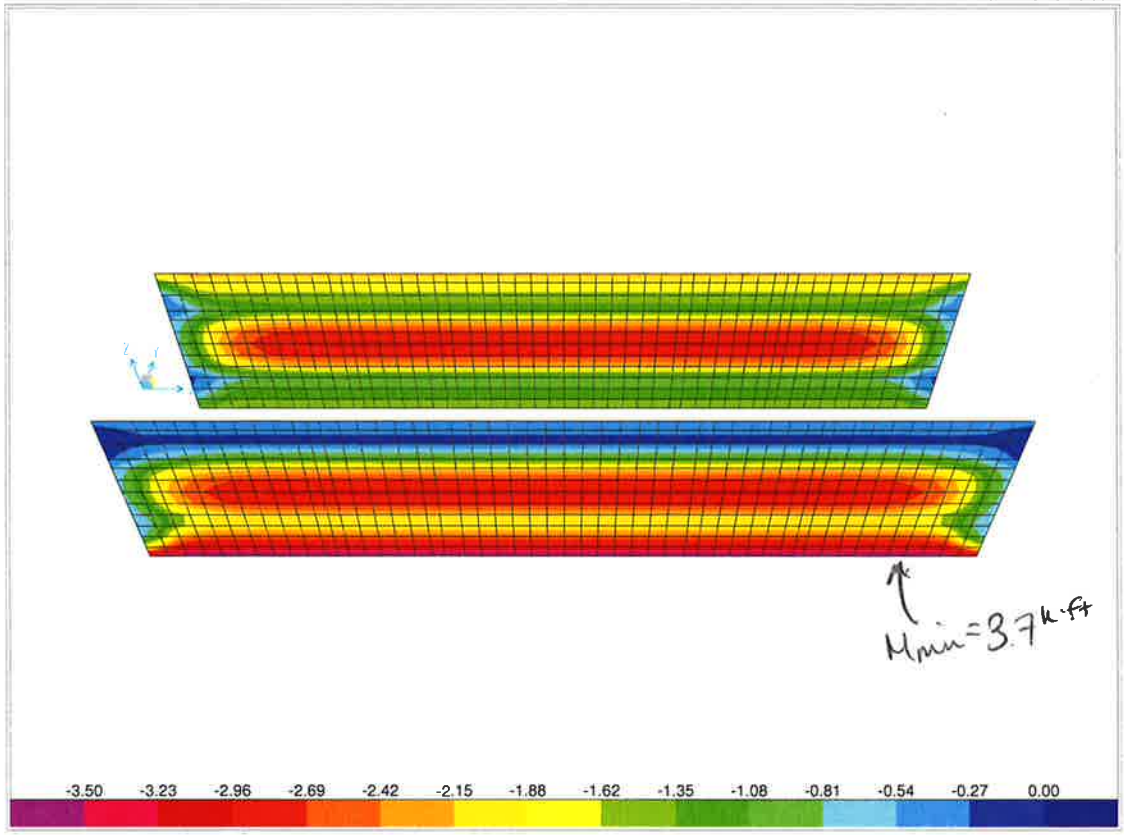
SAP2000 INTERIOR WALL "COMBO" RESULTS - MOMENT 8/22/13 13:45:03



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

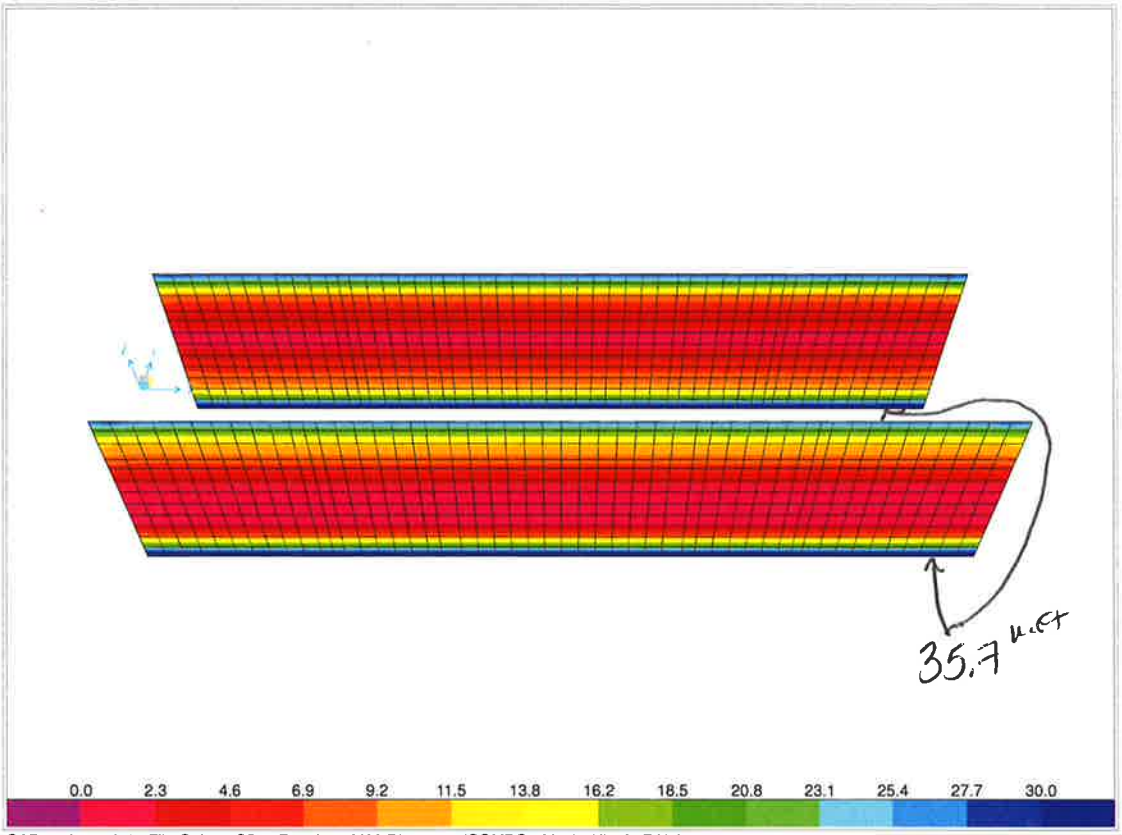
LONGITUDINAL (SECONDARY) REINF.

SAP2000 8/22/13 13:43:56



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

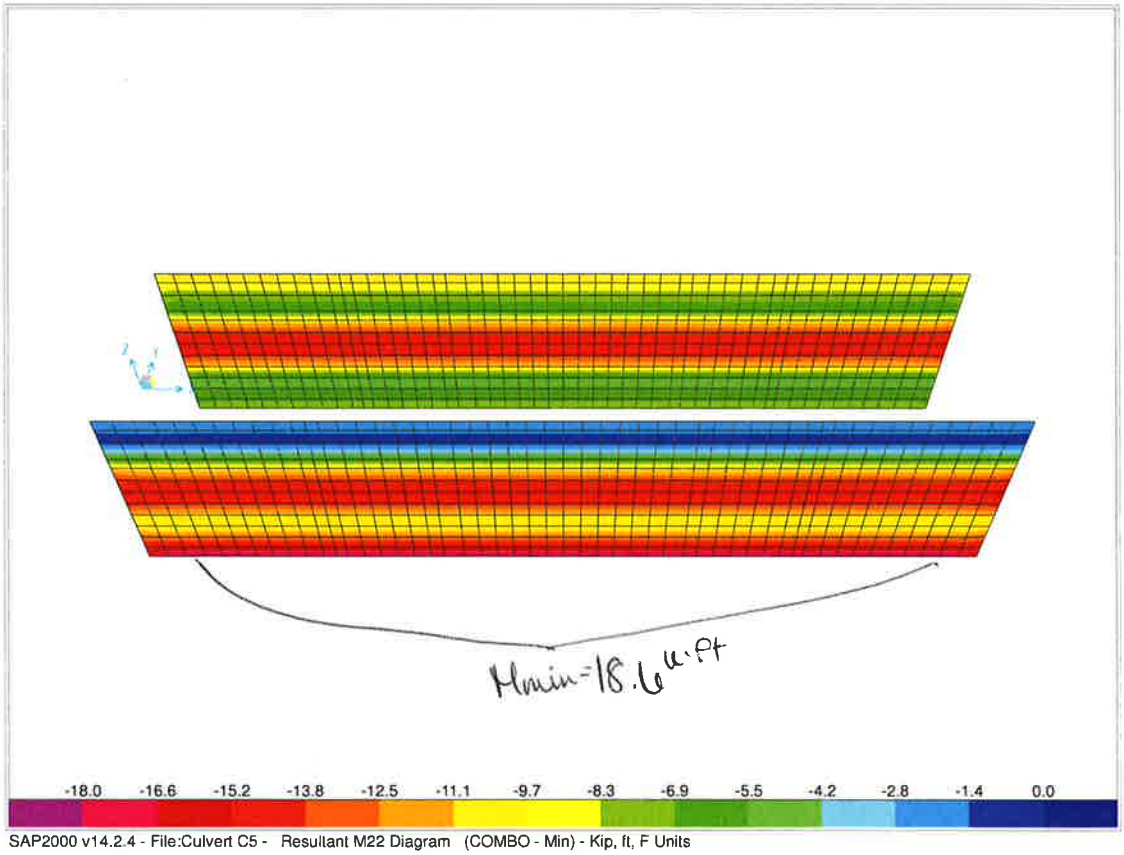
SAP2000 8/22/13 13:46:45



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

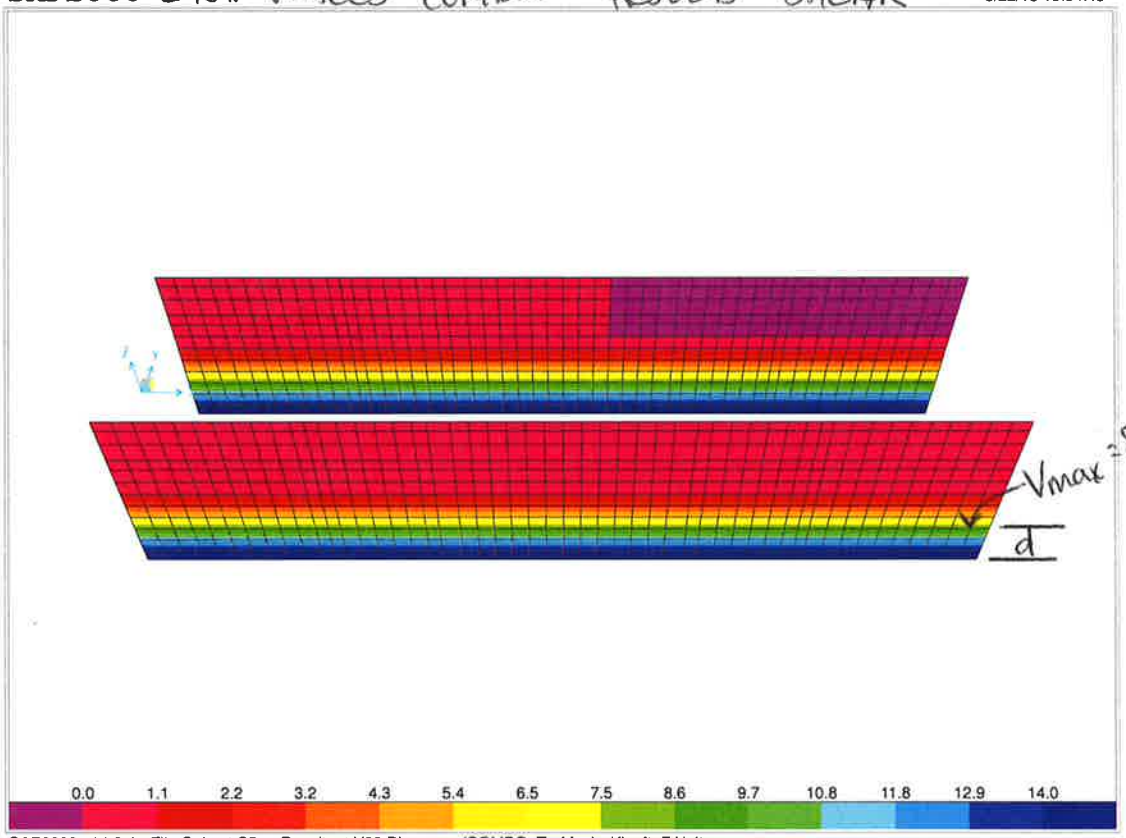
VERTICAL (PRIMARY) REINF.

SAP2000 8/22/13 13:49:50



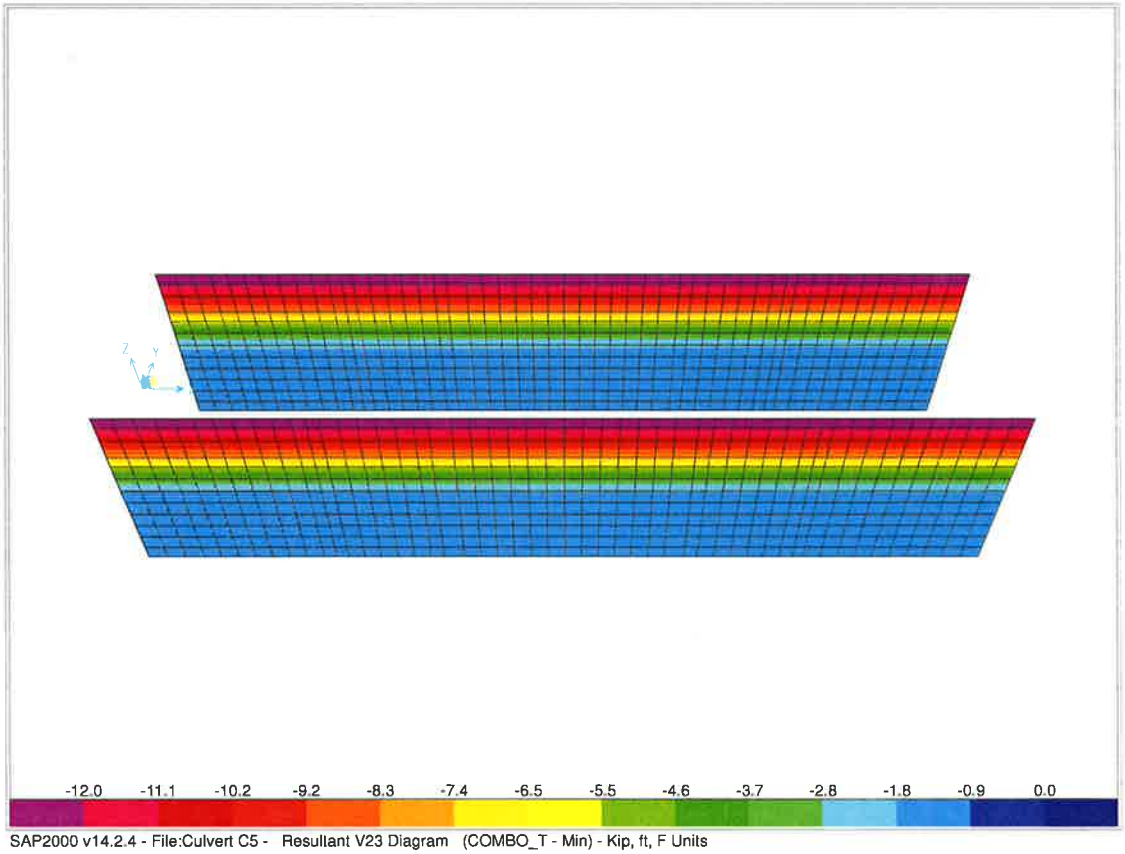
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

SAP2000 INT. WALLS "COMBO_T" RESULTS- SHEAR 8/22/13 13:34:45



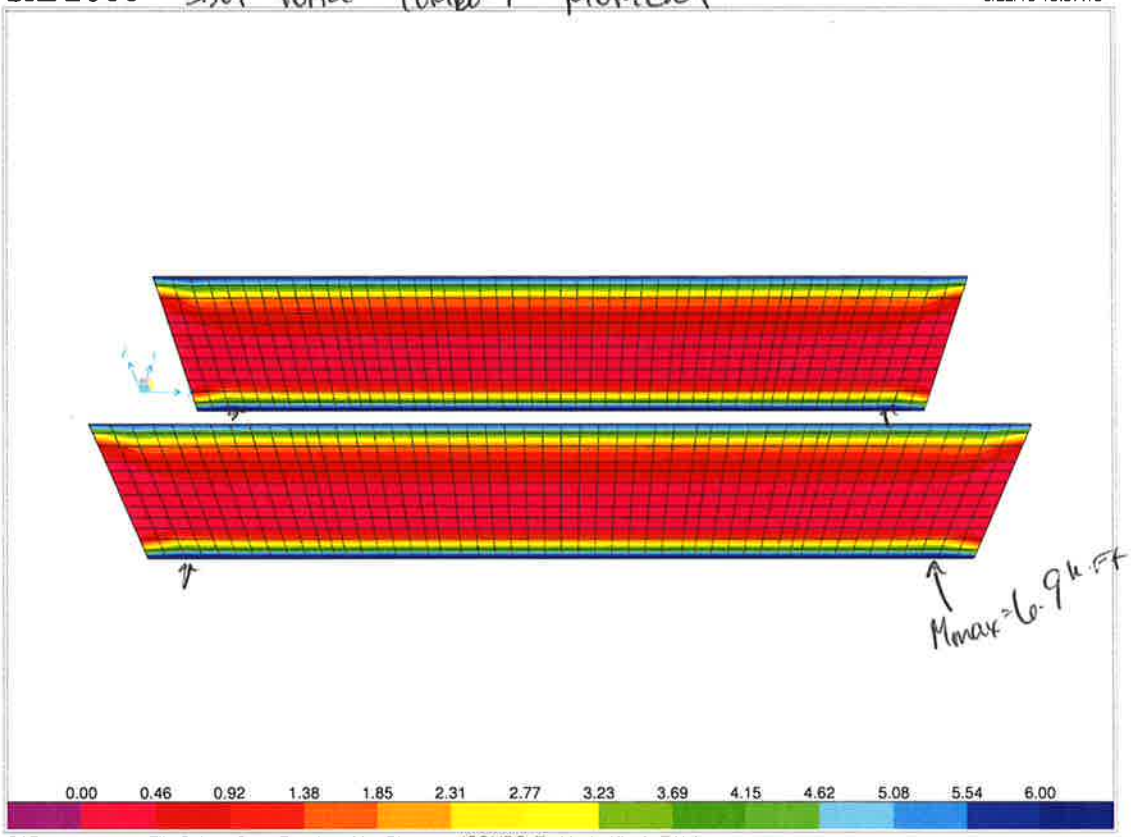
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Max) - Kip, ft, F Units

SAP2000 8/22/13 13:32:52



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Min) - Kip, ft, F Units

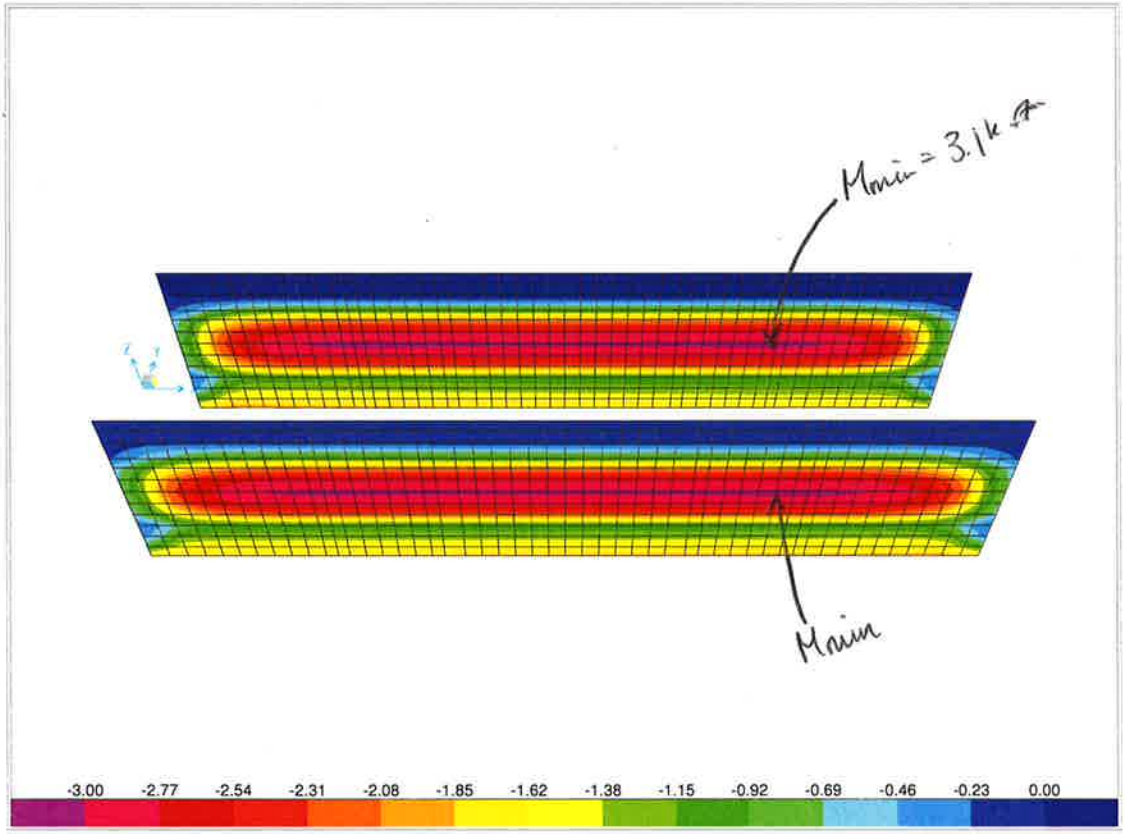
SAP2000 INT WALL "COMBO-T" - MOMENT 8/22/13 13:37:16



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Max) - Kip, ft, F Units

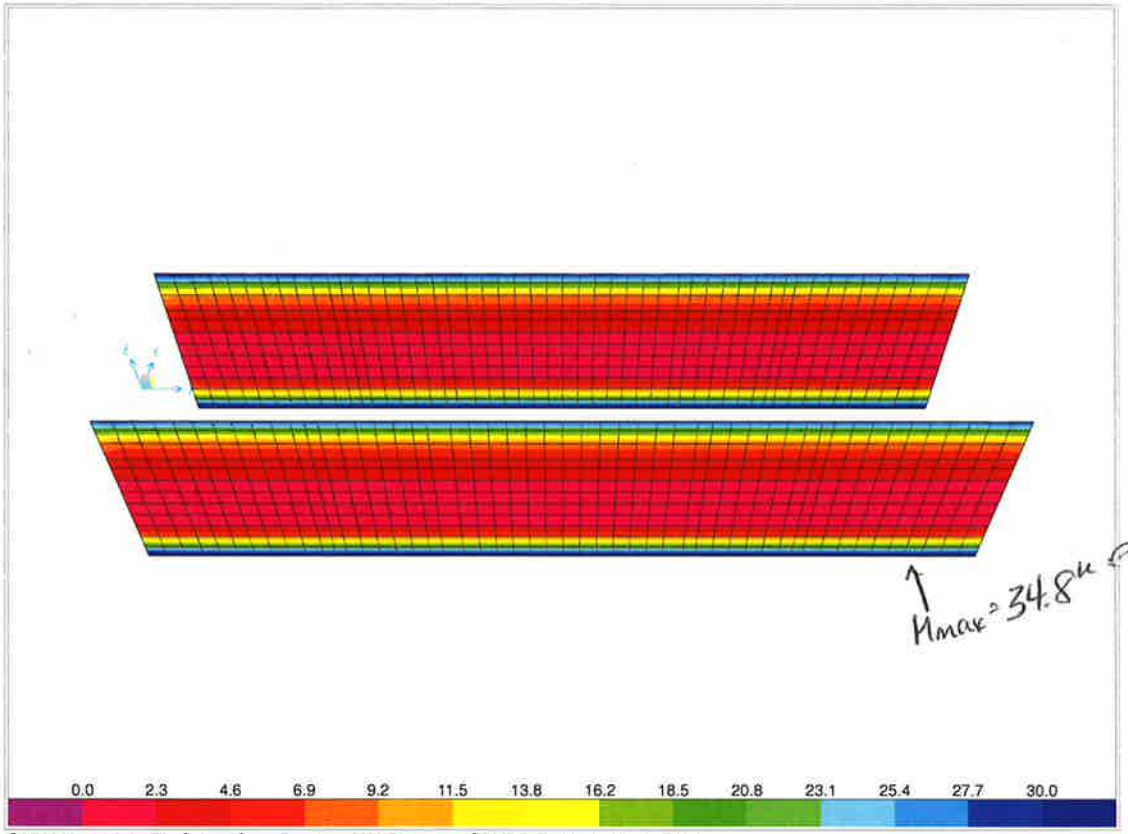
LONGITUDINAL REINF.

SAP2000 8/22/13 13:42:43



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Min) - Kip, ft, F Units

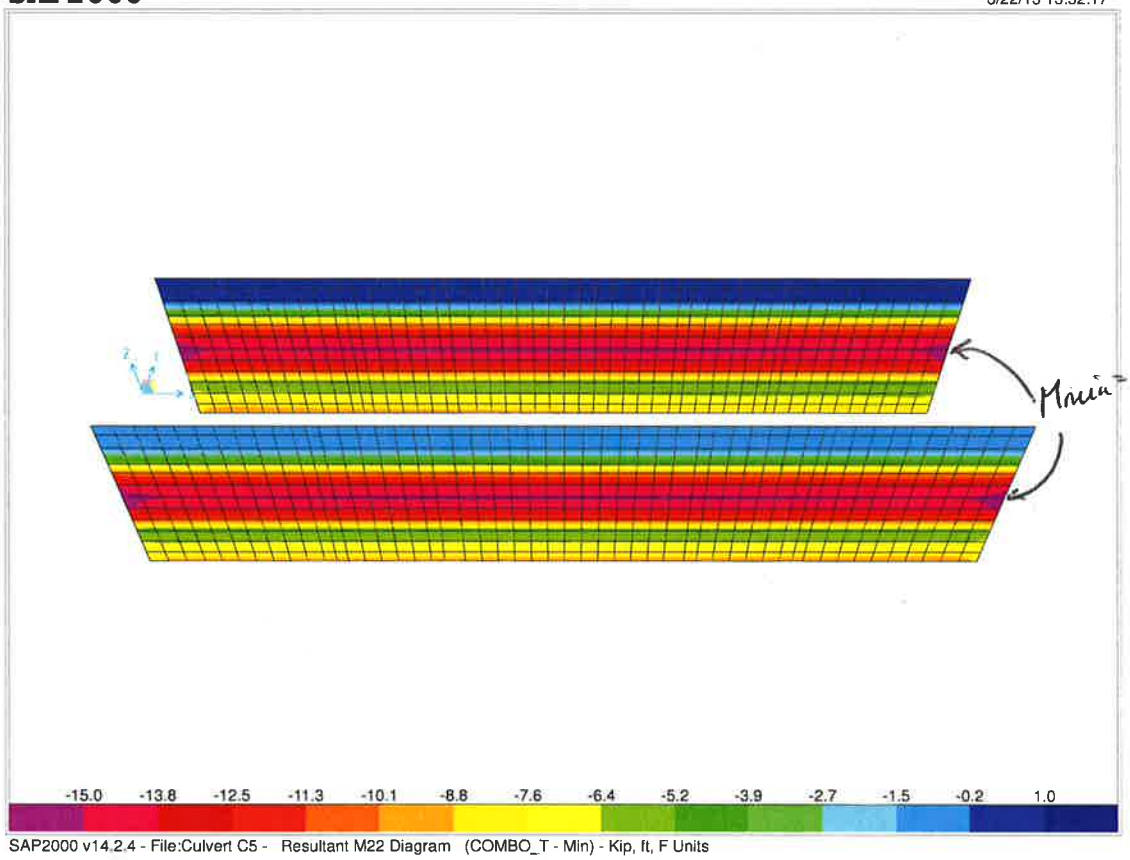
SAP2000 8/22/13 13:52:56



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Max) - Kip, ft, F Units

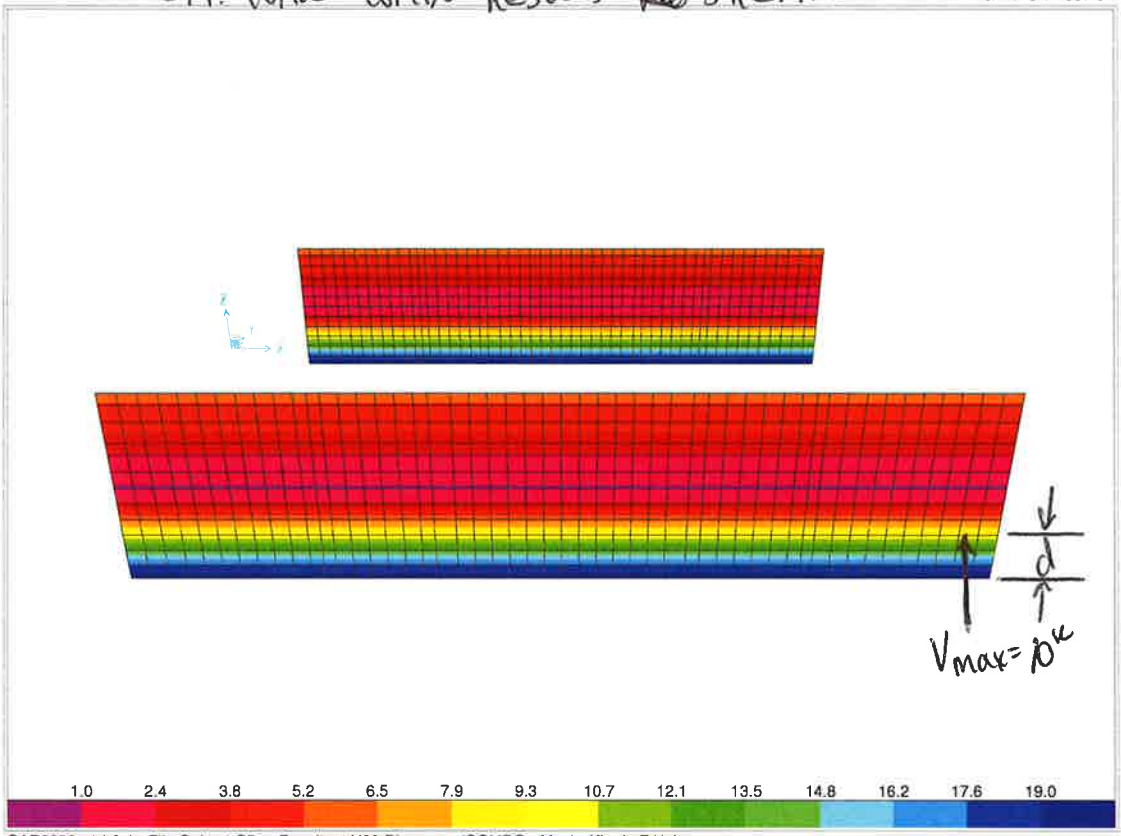
VERTICAL REINF.

SAP2000 8/22/13 13:52:17



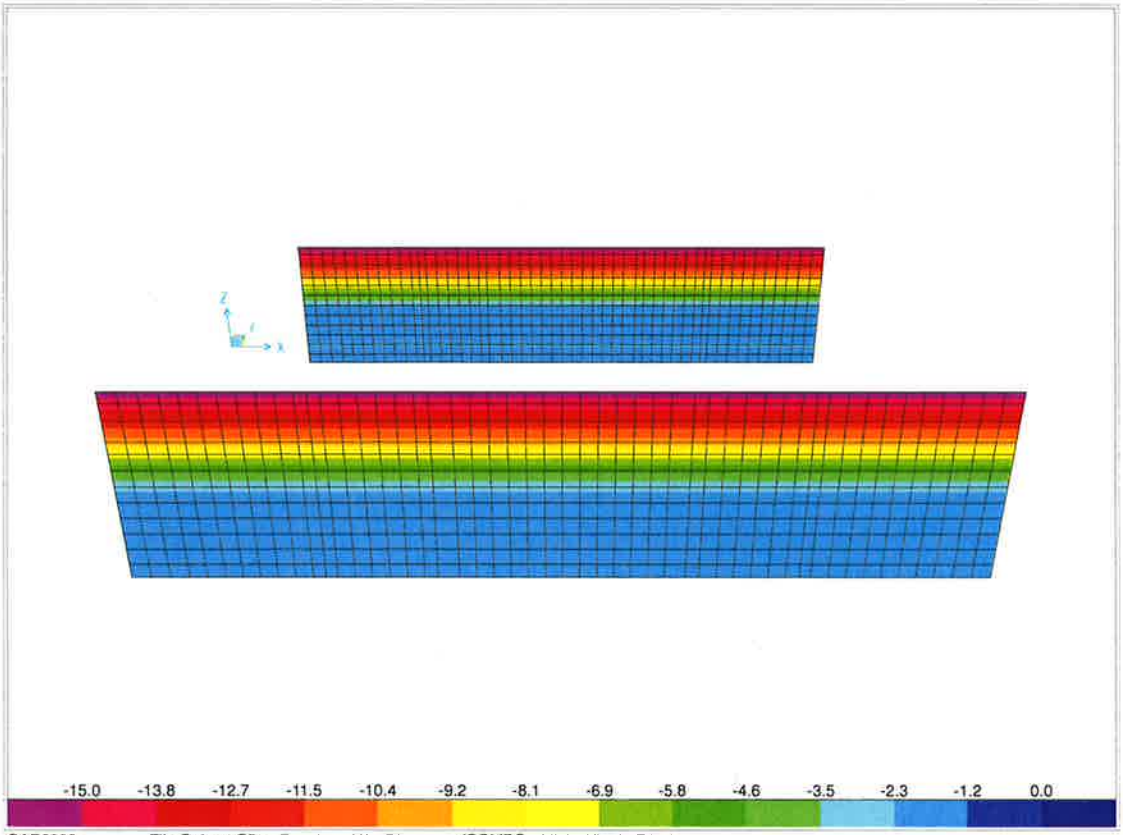
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 EXT. WALL "COMBO" RESULTS - SHEAR 8/22/13 14:30:26



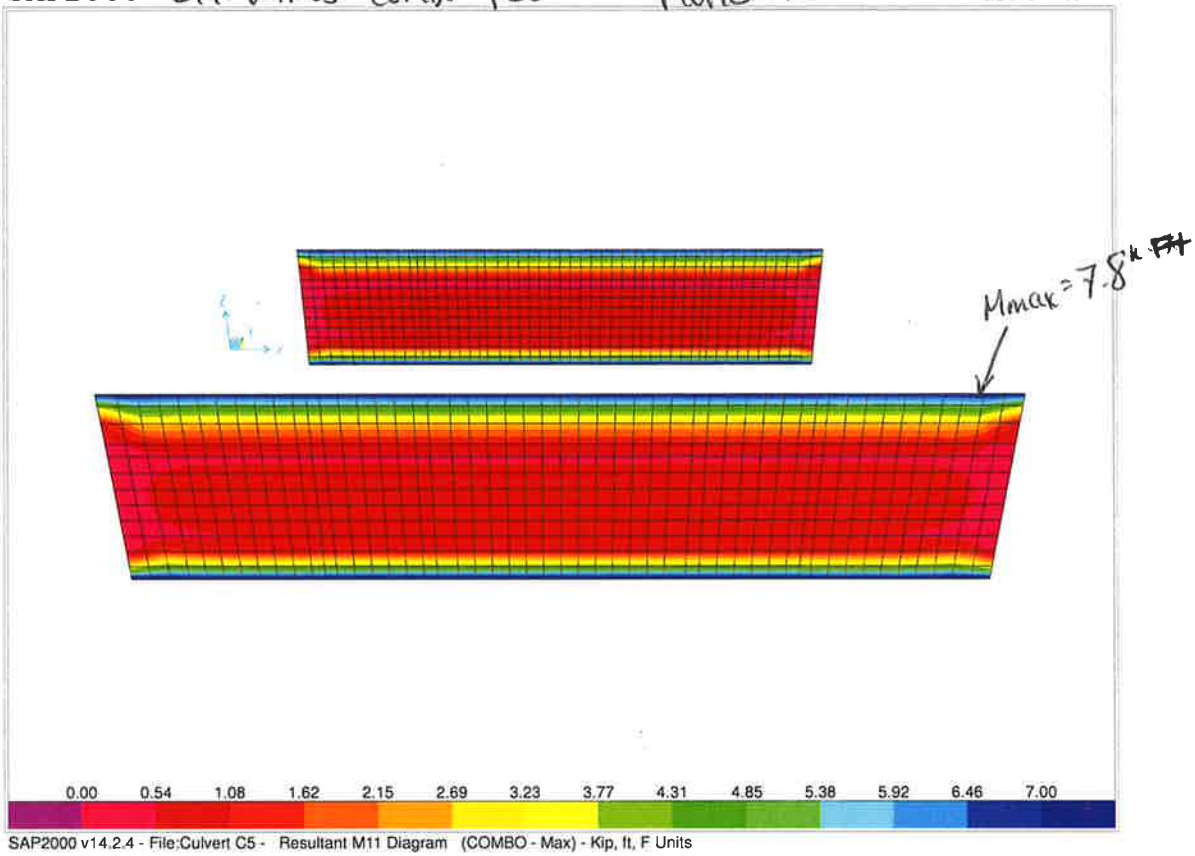
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Max) - Kip, ft, F Units

SAP2000 8/22/13 14:28:29



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO - Min) - Kip, ft, F Units

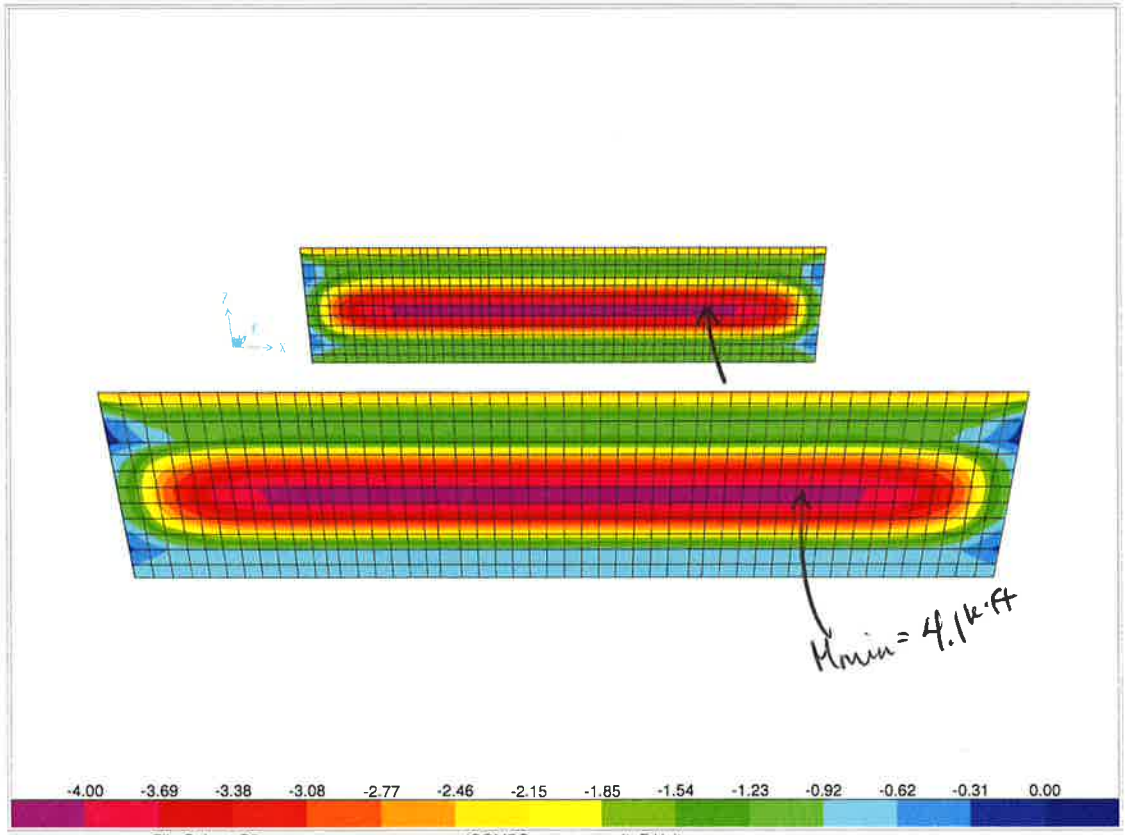
SAP2000 EXT. WALLS "COMBO" RESULTS- MOMENTS 8/22/13 14:36:44



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Max) - Kip, ft, F Units

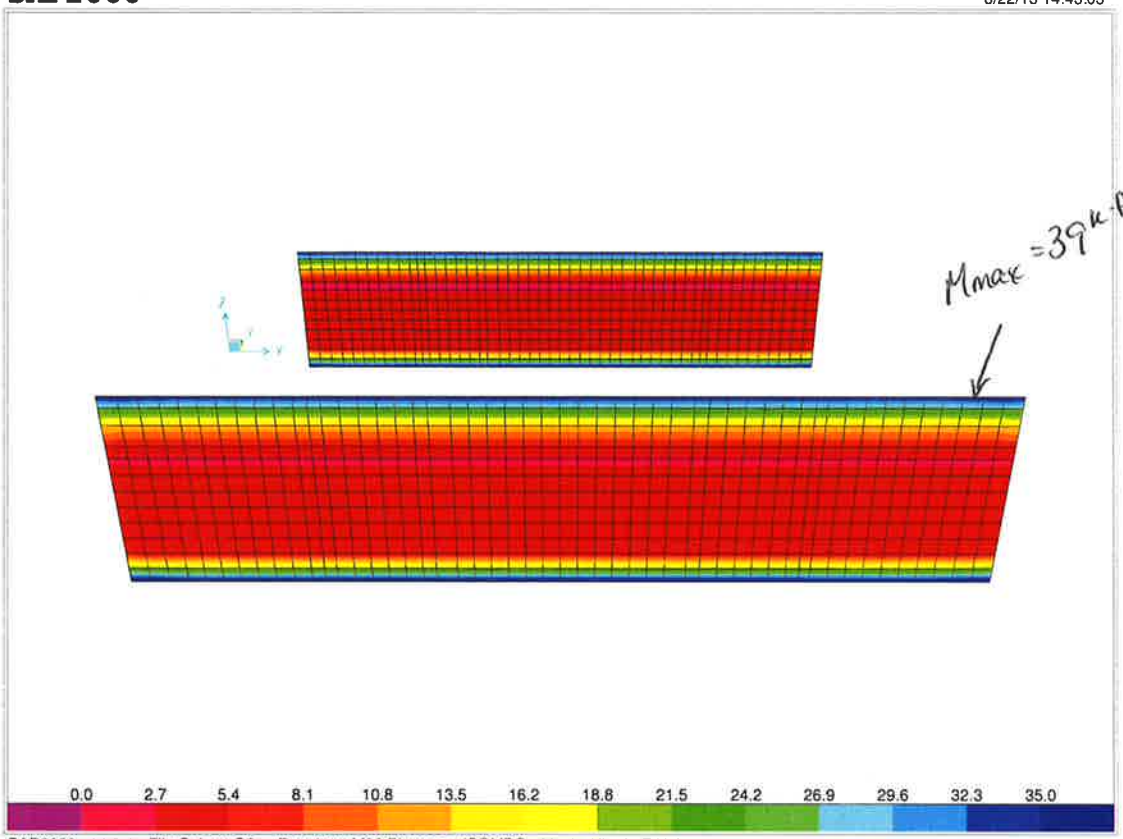
SECONDARY REINF.

SAP2000 8/22/13 14:38:35



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO - Min) - Kip, ft, F Units

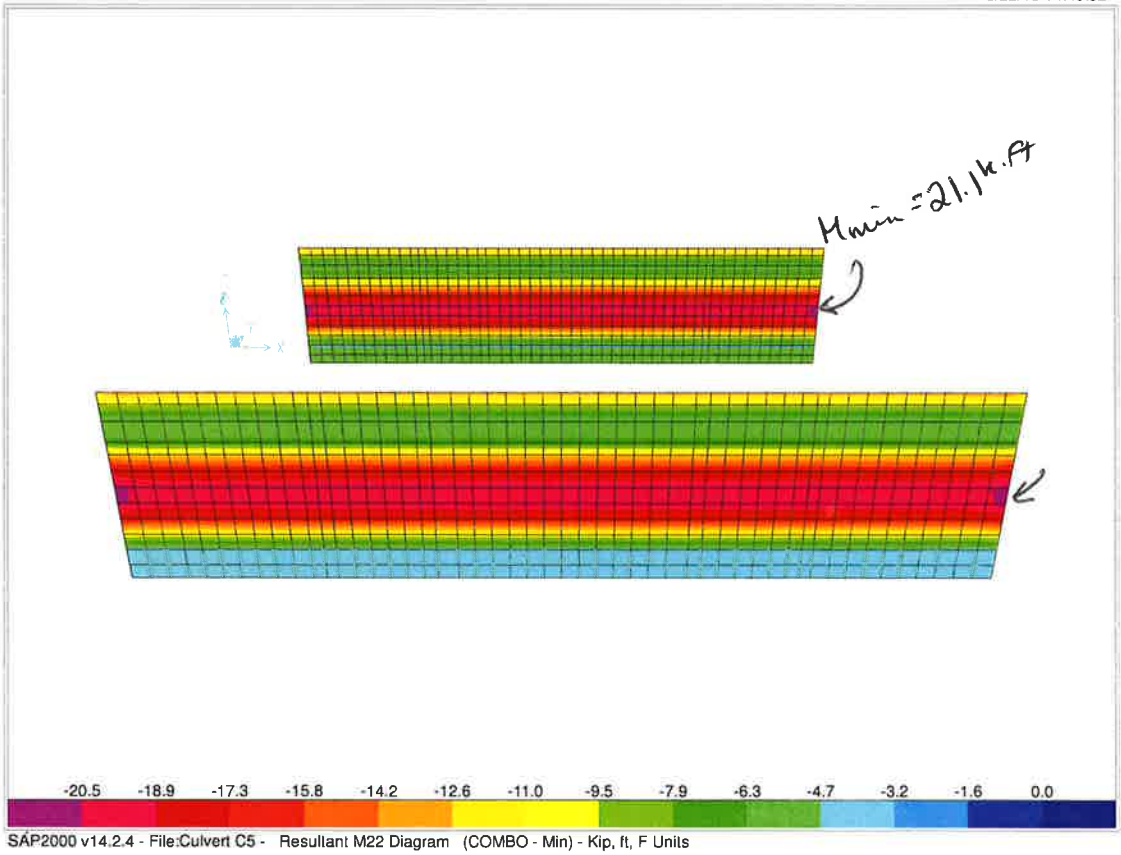
SAP2000 8/22/13 14:43:03



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Max) - Kip, ft, F Units

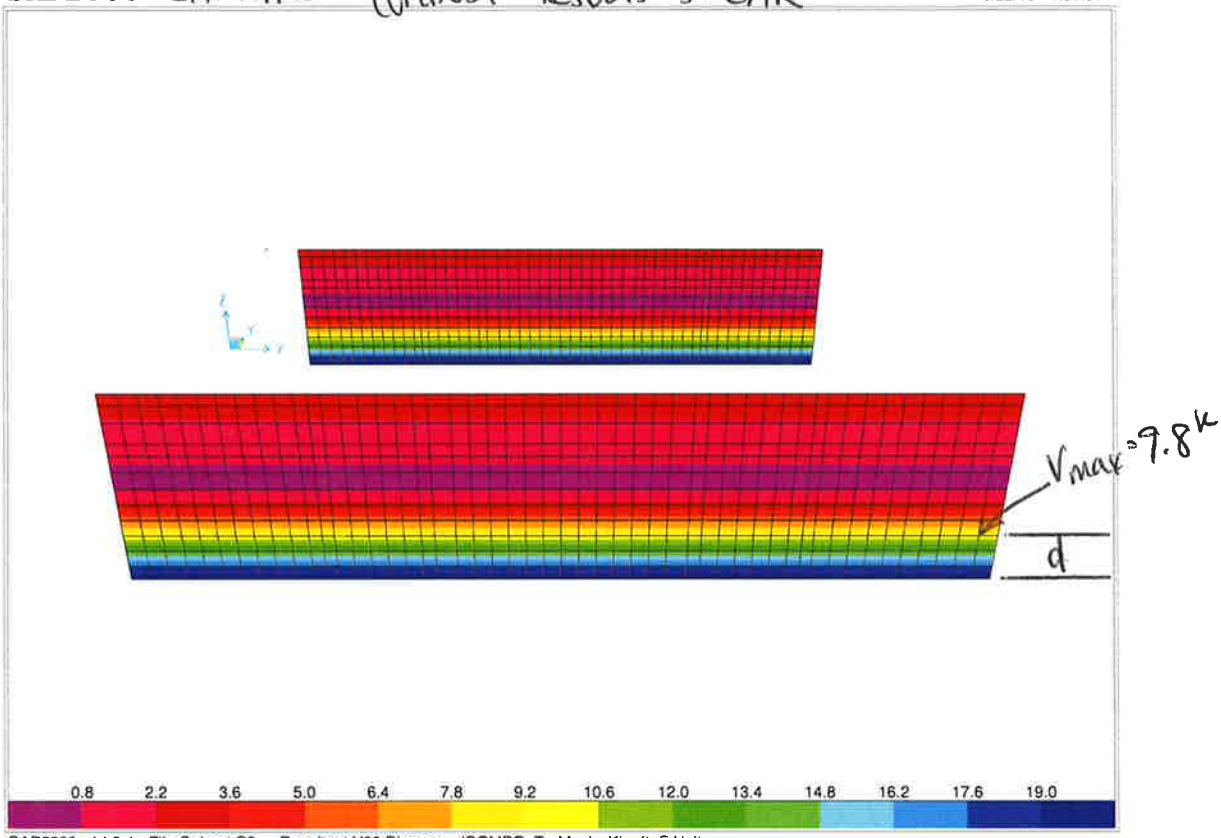
VERTICAL REINF.

SAP2000 8/22/13 14:49:52



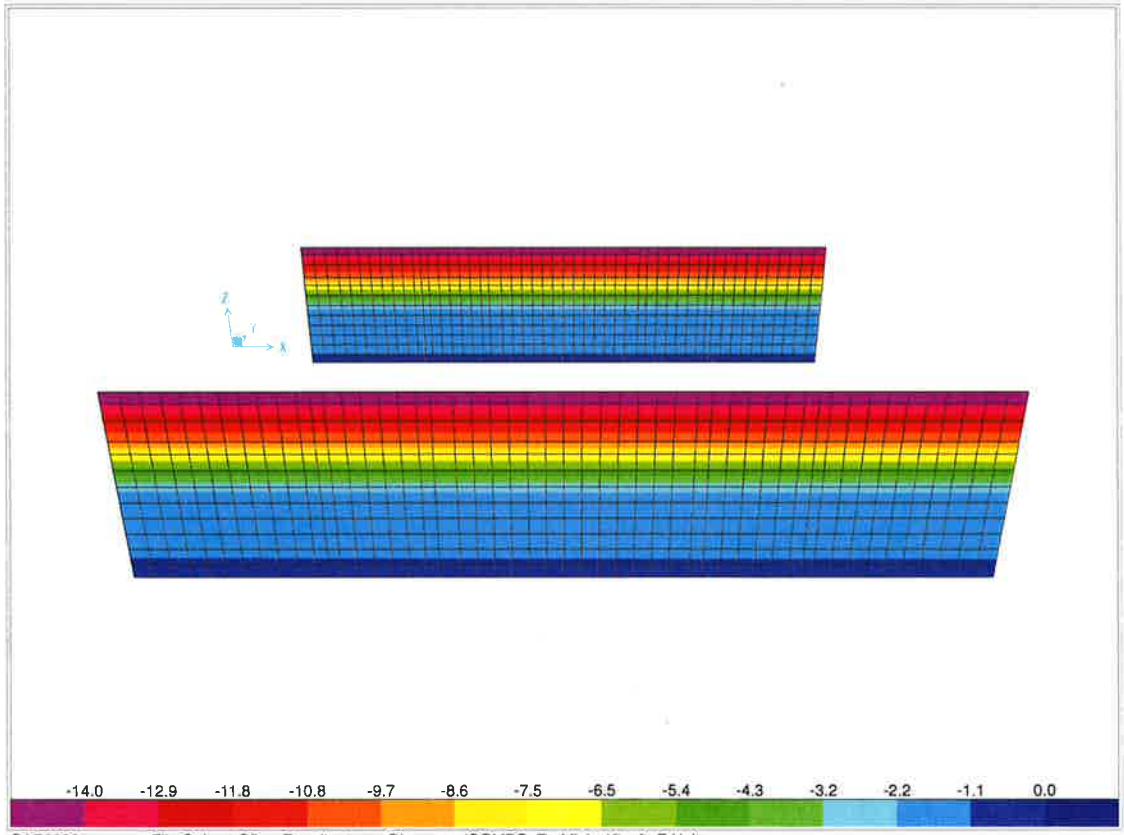
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO - Min) - Kip, ft, F Units

SAP2000 EXT. WALL "COMBO_T" RESULTS - SHEAR 8/22/13 14:31:31



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Max) - Kip, ft, F Units

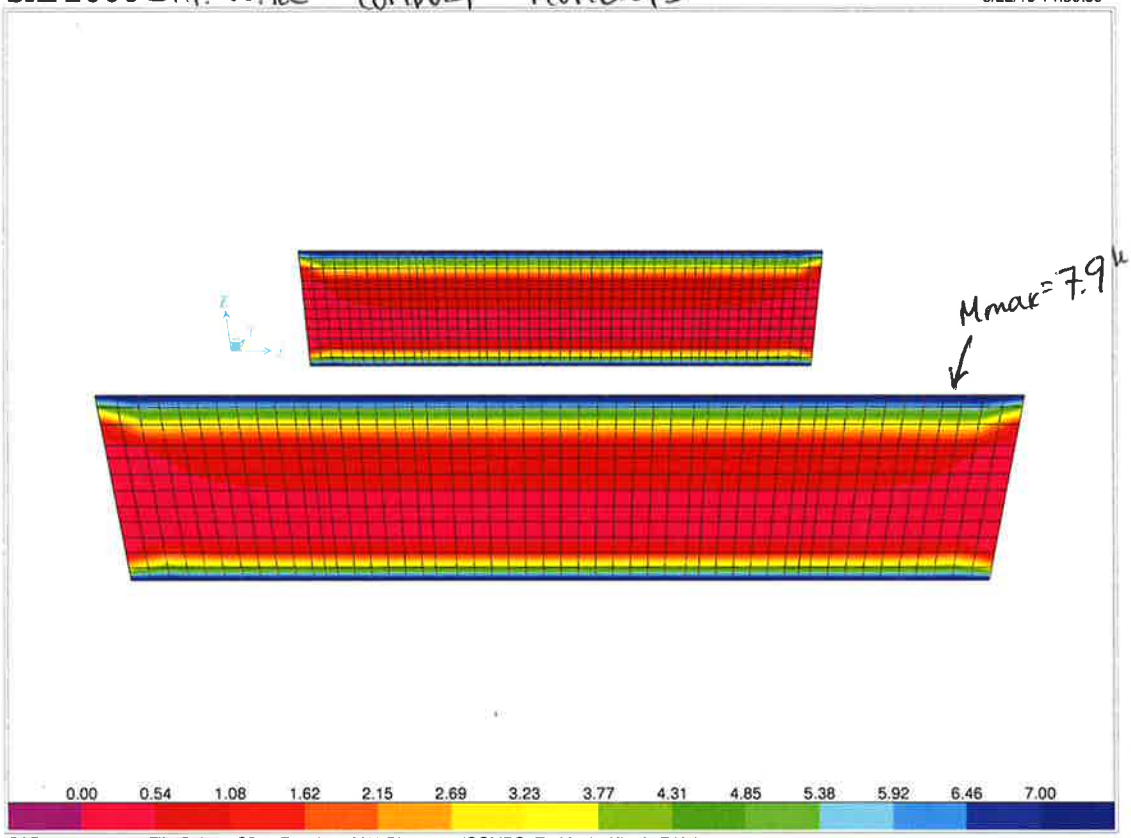
SAP2000 8/22/13 14:33:27



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T - Min) - Kip, ft, F Units

SAP2000 EXT. WALL "COMBO_T" MOMENTS

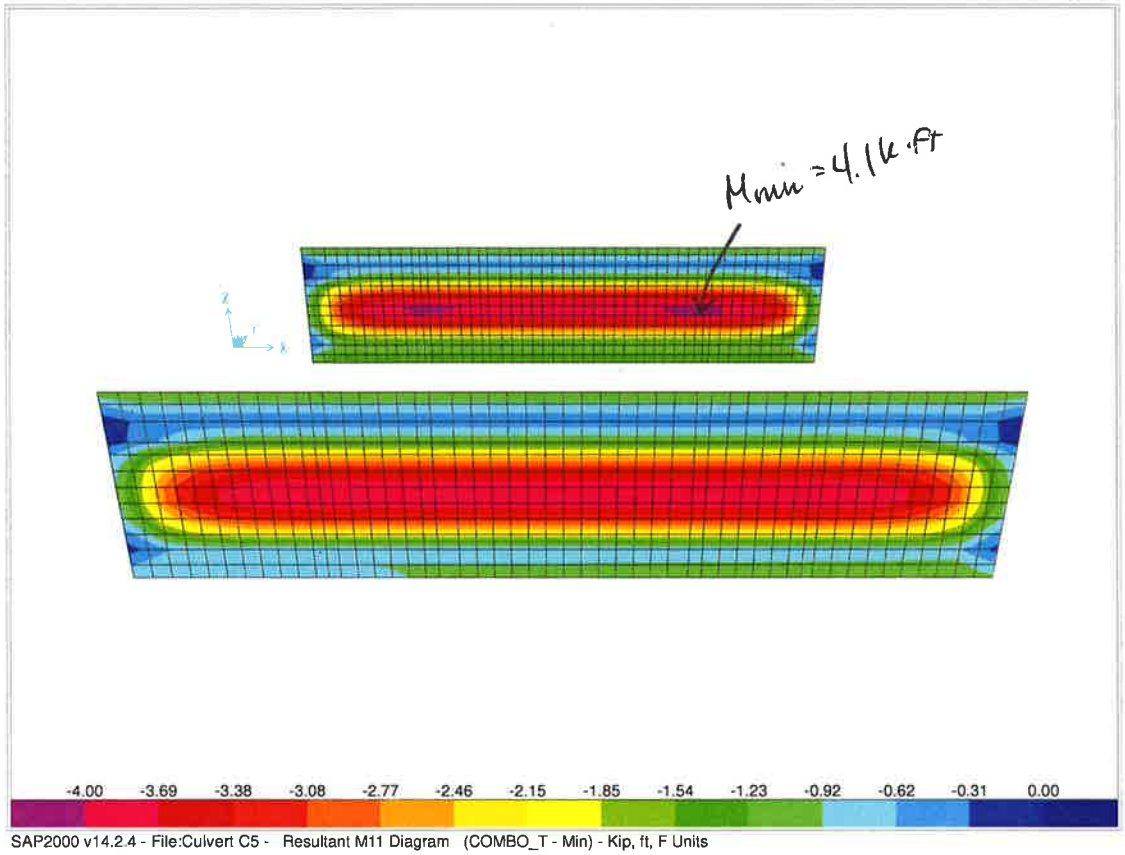
8/22/13 14:50:59



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Max) - Kip, ft, F Units

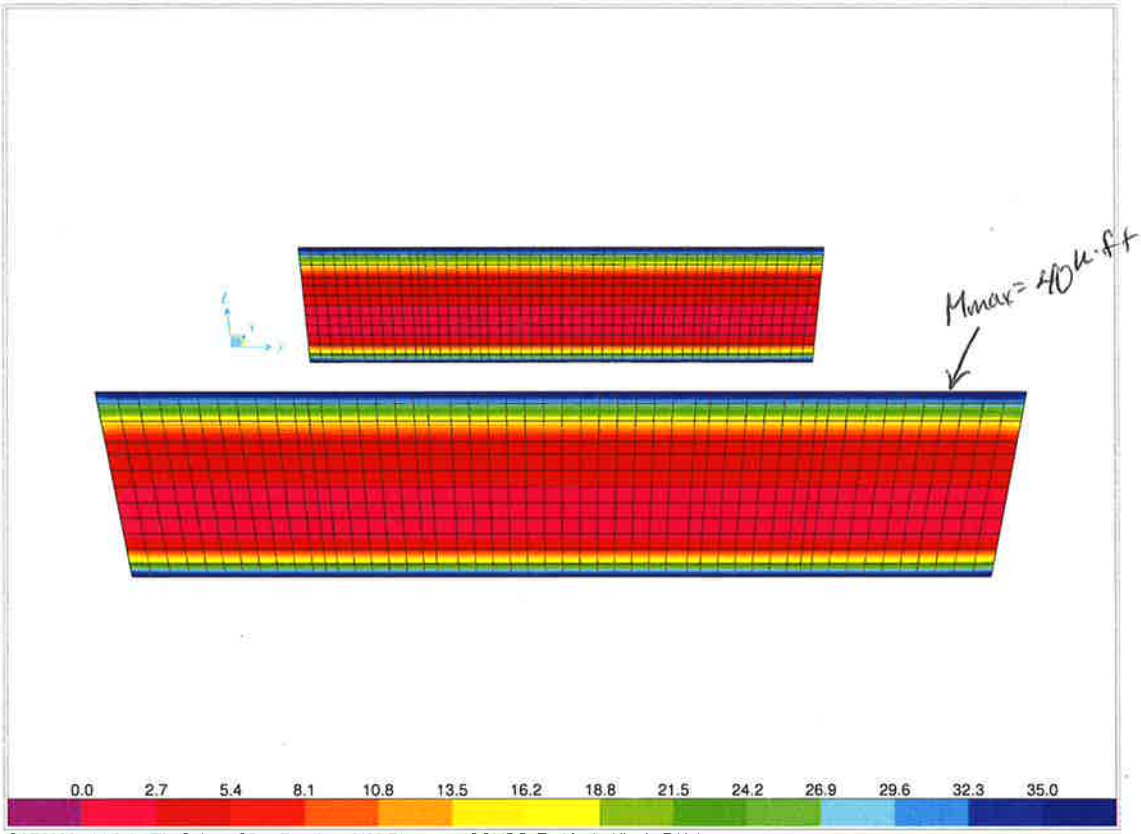
SAP2000

8/22/13 14:39:13



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T - Min) - Kip, ft, F Units

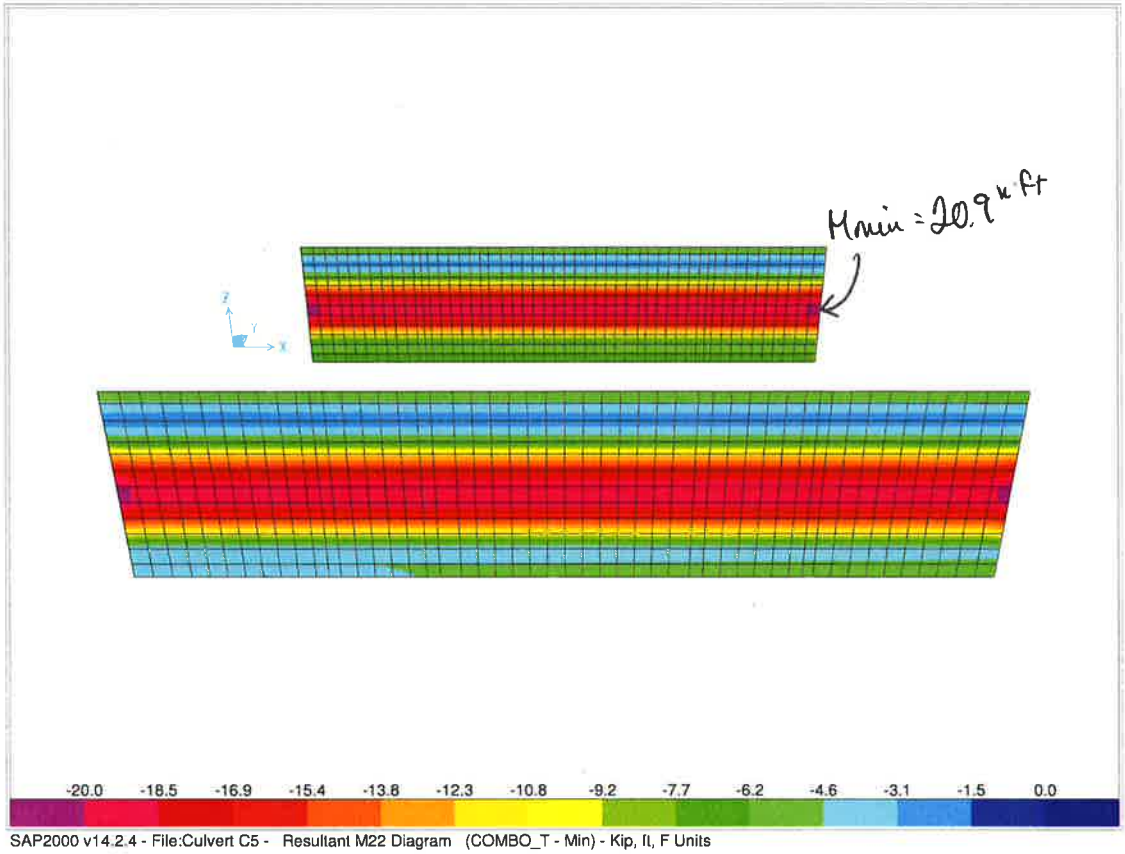
SAP2000 8/22/13 14:44:45



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Max) - Kip, ft, F Units

VERTICAL REINF.

SAP2000 8/22/13 14:48:23



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T - Min) - Kip, ft, F Units

PART 5

Member Design, Settlement Load Cases

URS

Job:	Maurepas Freshwater Diversion	**Project #:**	10001876				
Desc.:	Monoliths C-2 to C-4 Model	**Computed By:**	LBR	**Date:**	Aug-13	**Page:**	of
	Member Design - Settlement Cases	**Checked By:**	BCB	**Date:**	Aug-13	**Sheet:**	of

*** Given Information:**

			Notes / References
Top Slab Thickness =	2.75	ft	
Bottom Slab Thickness =	3.5	ft	
Wall Thickness =	2.75	ft	
Design Width =	12	in	
f'_c =	4	ksi	
f_y =	60	ksi	
ϕ, shear =	0.85		EM 1110-2-2104
ϕ, moment =	0.90		EM 1110-2-2104
ρ_{bal} =	0.0285		For f'_c = 4000 psi & f_y = 60,000 psi

*** Top Slab:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO-ST	12.1	6.6	10.4	33.0	52.1
COMBO_T-ST	15.4	5.6	12.4	27.8	61.9

* Shear taken at a distance 'd' = 28.37 inch from faces of walls.

Max. Shear =	**15.4 kip**	
Bottom Moment, Primary =	**33.0 kip-ft**	(+M22 controls bottom transverse reinforcement)
Top Moment, Primary =	**61.9 kip-ft**	(-M22 controls top transverse reinforcement)
Bottom Moment, Secondary =	**6.6 kip-ft**	(+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary =	**12.4 kip-ft**	(-M11 controls top longitudinal reinforcement)

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2

d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = 0.375 * ρ_{bal} * A_{gross} = 4.232 in^2

Limits of Minimum Reinforcement:	0.0028 x A_{gross} =	1.109 in^2	EM 1110-2-2104, 2-8a, temp. & shrinkage
	(3 * $\sqrt{f'_c}$) * b * d) / f_y =	1.076 in^2	ACI 318-02, 10.5, flexural member min.
	(200 * b * d) / f_y =	1.135 in^2	ACI 318-02, 10.5, flexural member min.

Top Slab Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$

= 0.85 * 2 * √4000 * 12in * 28.365in

= 36,597 lb

ϕVc = 36.6kip > Vu = 15.4kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Primary Top Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)

= 1185.3 kip-in/ft

= 98.77 kip-ft/ft

* 61.9 x 1.33 = 82.5 k·ft

ϕMn = 98.8kip-ft > Mu = 61.9kip-ft → Use #8 @ 12"

Primary Bottom Face:

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in^2 * 60ksi * (28.365in - 1.162in / 2)

= 1185.3 kip-in/ft

= 98.77 kip-ft/ft

* 33 x 1.33 = 44 k·ft

ϕMn = 98.8kip-ft > Mu = 33kip-ft → Use #8 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 12.4 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in^2 * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft *

ϕMn = 75.4kip-ft > Mu = 12.4kip-ft → Use #7 @ 12"

* NEGLECTING FLEXURAL MINIMUM B/C OF ACI 318, 10.5.3 ALLOWANCE

$\phi Mn > Mu \times 1.33$

*** Bottom Slab:**

Load Combo	Max. Shear (kips)*		Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
	V13	V23				
COMBO-ST	8.7	21.0	13.5	66.6	67.7	91.2
COMBO_T-ST	9.3	22.5	13.9	71.5	69.4	99.0

* Shear taken at a distance 'd' = 37.37 inch from centerlines of piles.

Max. Shear = 22.5 kip
Bottom Moment, Primary = 69.4 kip-ft (+M22 controls bottom transverse reinforcement)
Top Moment, Primary = 99.0 kip-ft (-M22 controls top transverse reinforcement)
Bottom Moment, Secondary = 13.9 kip-ft (+M11 controls bottom longitudinal reinforcement)
Top Moment, Secondary = 71.5 kip-ft (-M11 controls top longitudinal reinforcement)

*** Reinforcing Limits:**

A_{gross} = 42in * 12in strip = 504 in^2

$d_{top\ bars}$ = 42in - 4in cover - 1/2 bar diameter = 37.37 in #10 bar assumed

$d_{bottom\ bars}$ = 42in - 9in pile embed - 3in cover - 1/2 bar diameter 29.37 in

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 5.387 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.411 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage

$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.418 in^2 ACI 318-02, 10.5, flexural member min.

$(200 * b * d) / f_y$ = 1.495 in^2 ACI 318-02, 10.5, flexural member min.

Bottom Slab Summary:	**Max. Rebar =**	**5.387 in^2**	- half each face
	Min. T&S Rebar =	**1.411 in^2**	- half each face
	Min. Flexural Rebar =	**1.495 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$
= 0.85 * 2 * √4000 * 12in * 37.365in
= 48,209 lb

ϕVc = 48.2kip > Vu = 22.5kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$

* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Primary Top Face: $d_{top\ bars}$ = 37.37 in

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

ϕMn = 0.9 * 1in² * 60ksi * (37.365in - 1.471in / 2)
= 1978 kip-in/ft
= 164.83 kip-ft/ft *99x1.33 = 132 k·ft

ϕMn = 164.8kip-ft > Mu = 99kip-ft → Use #9 @ 12"

Primary Bottom Face: $d_{bottom\ bars}$ = 29.37 in

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in² * 60ksi * (29.365in - 1.162in / 2)
= 1227.9 kip-in/ft
= 102.33 kip-ft/ft *69.4x1.33 = 92.5 k·ft

ϕMn = 102.3kip-ft > Mu = 69.4kip-ft → Use #8 @ 12"

Secondary Top Face: $d_{top\ bars}$ = 37.37 in

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in² * 60ksi * (37.365in - 1.162in / 2)
= 1569.2 kip-in/ft
= 130.77 kip-ft/ft *71.5x1.33 = 95.3 k·ft

ϕMn = 130.8kip-ft > Mu = 71.5kip-ft → Use #8 @ 12"

Secondary Bottom Face: $d_{bottom\ bars}$ = 29.37 in

* Will try **#8 @ 12"** to start: As, #8 @ 12" = 0.79 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.79 * 60ksi / (0.85 * 4ksi * 12in) = 1.162 in

ϕMn = 0.9 * 0.79in² * 60ksi * (29.365in - 1.162in / 2)
= 1227.9 kip-in/ft
= 102.33 kip-ft/ft *

ϕMn = 102.3kip-ft > Mu = 13.9kip-ft → Use #8 @ 12"

* ACI 318, 10.5.3 ALLOWANCE - $\phi M_n > 1.33 \times M_u$

*** Interior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO-ST	11.3	10.0	5.0	50.6	25.2
COMBO_T-ST	11.2	9.8	4.1	49.6	20.4

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 11.3 kip
Max. Moment, Primary = 50.6 kip-ft (M22, "primary" controls vertical reinforcement)
Min. Moment, Primary = 25.2 kip-ft
Max. Moment, Secondary = 10.0 kip-ft (M11, "secondary" controls horizontal reinforcemen
Min. Moment, Secondary = 5.0 kip-ft

* Reinforcing Limits:

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 4.232 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
$(200 * b * d) / f_y$ = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Int. Wall Summary:			
	Max. Rebar =	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

* Section Design:

Shear:

Shear Capacity $(\phi V_c) = \phi * 2 * \sqrt{f'_c} * b * d$
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 11.3kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$
* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2))$ $= \phi * As * fy * (d - (a / 2))$

All reinforcement: * $M_{max,\ all\ directions}$ = 50.6 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b)$ = 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

ϕMn = 0.9 * 0.6in² * 60ksi * (28.365in - 0.882in / 2)
= 904.73 kip-in/ft
= 75.39 kip-ft/ft

* 50.6x1.33 = 67.5 k·ft

ϕMn = 75.4kip-ft > Mu = 50.6kip-ft → Use #7 @ 12"

*** Exterior Walls:**

Load Combo	Max. Shear* (kips)	Max Moment, M11 (kip-ft)	Min Moment, M11 (kip-ft)	Max Moment, M22 (kip-ft)	Min Moment, M22 (kip-ft)
COMBO-ST	15.0	14.8	6.8	74.3	34.0
COMBO_T-ST	15.0	14.9	5.2	75.0	26.3

* Shear taken at a distance 'd' = 28.37 inch from faces of slabs.

Max. Shear = 15.0 kip
Max. Moment, Primary = 75.0 kip-ft (+M22 controls exterior vertical reinforcement)
Min. Moment, Primary = 34.0 kip-ft (-M22 controls interior vertical reinforcement)
Max. Moment, Secondary = 14.9 kip-ft (+M11 controls exterior horiz. reinforcement)
Min. Moment, Secondary = 6.8 kip-ft (-M11 controls interior horiz. reinforcement)

*** Reinforcing Limits:**

A_{gross} = 33in * 12in strip = 396 in^2
d = 33in - 4in cover - 1/2 bar diameter = 28.37 in #10 bar assumed

Limit of Maximum Reinforcement = $0.375 * \rho_{bal} * A_{gross}$ = 4.232 in^2

Limits of Minimum Reinforcement: $0.0028 \times A_{gross}$ = 1.109 in^2 EM 1110-2-2104, 2-8a, temp. & shrinkage
$(3 * \sqrt{f'_c} * b * d) / f_y$ = 1.076 in^2 ACI 318-02, 10.5, flexural member min.
$(200 * b * d) / f_y$ = 1.135 in^2 ACI 318-02, 10.5, flexural member min.

Ext. Wall Summary:	**Max. Rebar =**	**4.232 in^2**	- half each face
	Min. T&S Rebar =	**1.109 in^2**	- half each face
	Min. Flexural Rebar =	**1.135 in^2**	- per face

*** Section Design:**

Shear:

Shear Capacity (ϕV_c) = $\phi * 2 * \sqrt{f'_c} * b * d$
= 0.85 * 2 * √4000 * 12in * 28.365in
= 36,597 lb

ϕVc = 36.6kip > Vu = 15kip → Section OK

Moment:

* $T = A_s * f_y$ * $C = 0.85 * f'_c * a * b$
* Assuming Tension = Compression → $\phi Mn = \phi * T * (d - (a / 2)) = \phi * As * fy * (d - (a / 2))$

Primary Exterior Face:

* Will try **#9 @ 12"** to start: As, #9 @ 12" = 1.00 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 1 * 60ksi / (0.85 * 4ksi * 12in) = 1.471 in

$\phi Mn =$ 0.9 * $1in^2$ * 60ksi * (28.365in - 1.471in / 2)

= 1492 kip-in/ft

= 124.33 kip-ft/ft

* 75×1.33 = 100 k·ft

ϕMn = 124.3kip-ft > Mu = 75kip-ft → Use #9 @ 12"

Primary Interior Face:

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.60 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

$\phi Mn =$ 0.9 * $0.6in^2$ * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

* 34×1.33 = 45.3 k ft

ϕMn = 75.4kip-ft > Mu = 34kip-ft → Use #7 @ 12"

Secondary Both Faces: * $M_{max, secondary}$ = 14.9 k-ft

* Will try **#7 @ 12"** to start: As, #7 @ 12" = 0.6 in^2

$a = A_s * f_y / (0.85 * f'_c * b) =$ 0.6 * 60ksi / (0.85 * 4ksi * 12in) = 0.882 in

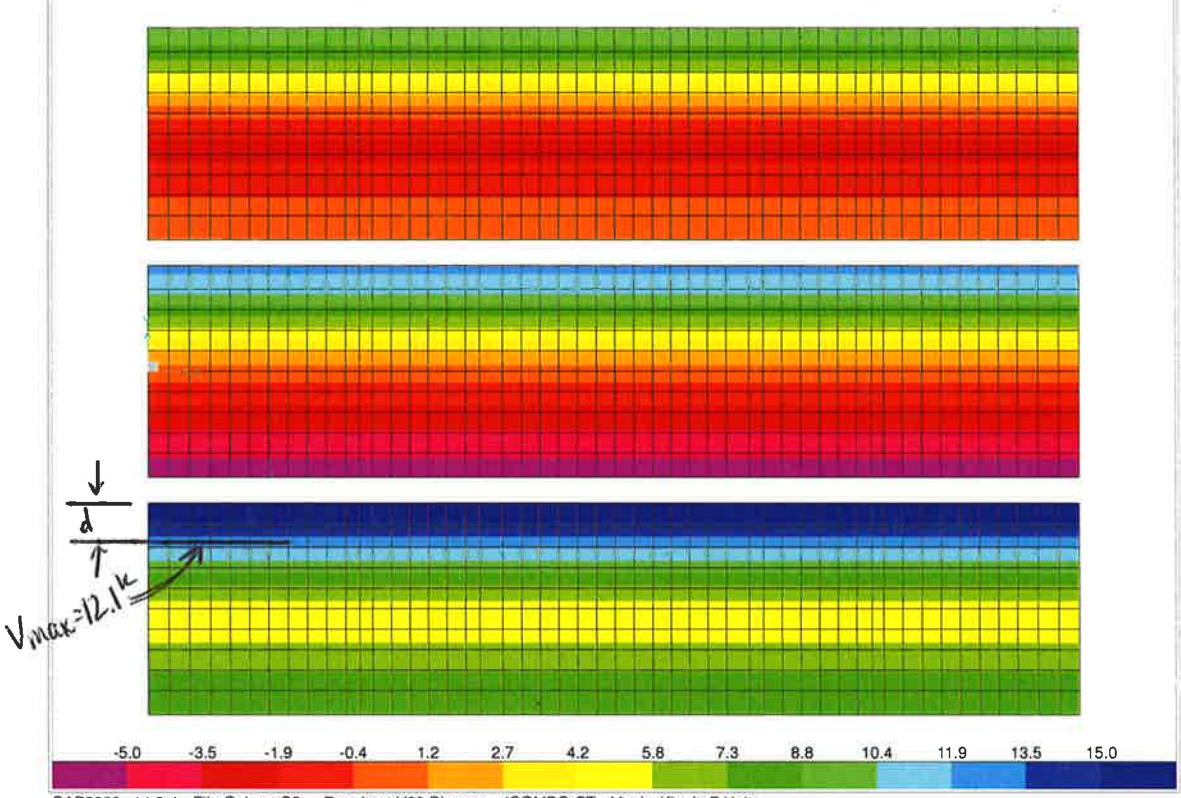
$\phi Mn =$ 0.9 * $0.6in^2$ * 60ksi * (28.365in - 0.882in / 2)

= 904.73 kip-in/ft

= 75.39 kip-ft/ft

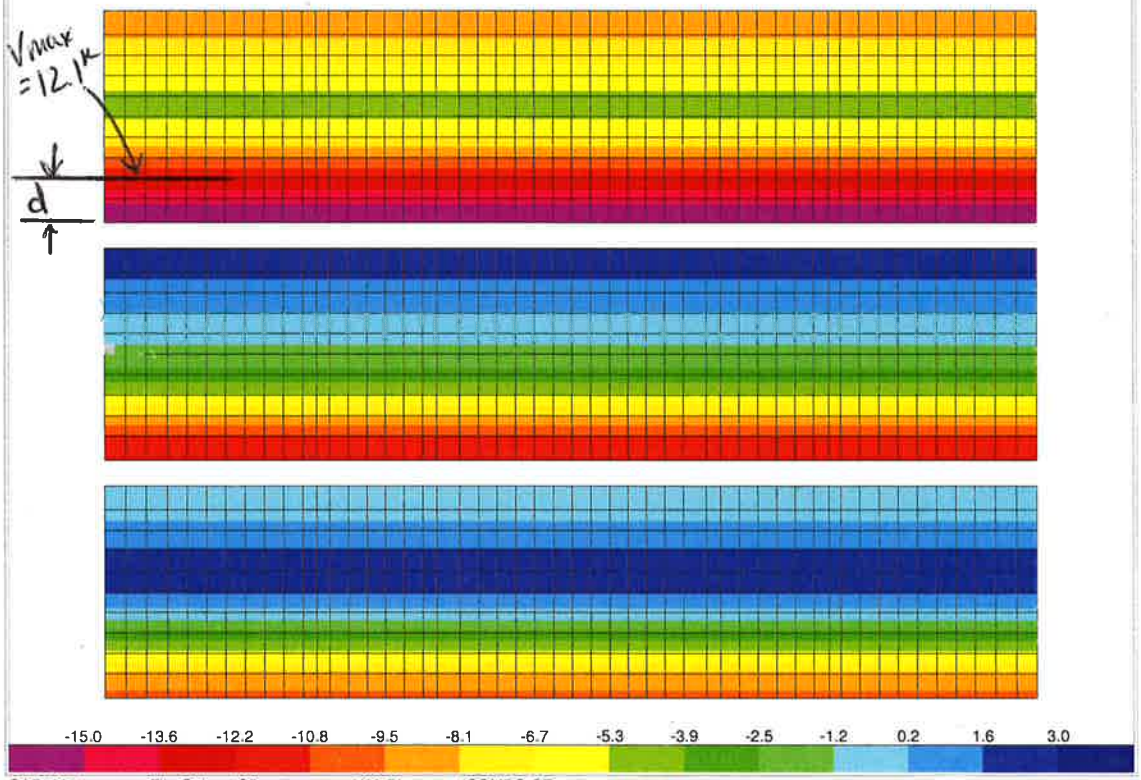
ϕMn = 75.4kip-ft > Mu = 14.9kip-ft → Use #7 @ 12"

SAP2000 ROOF "COMBO-ST" RESULTS - SHEAR 8/22/13 10:46:57



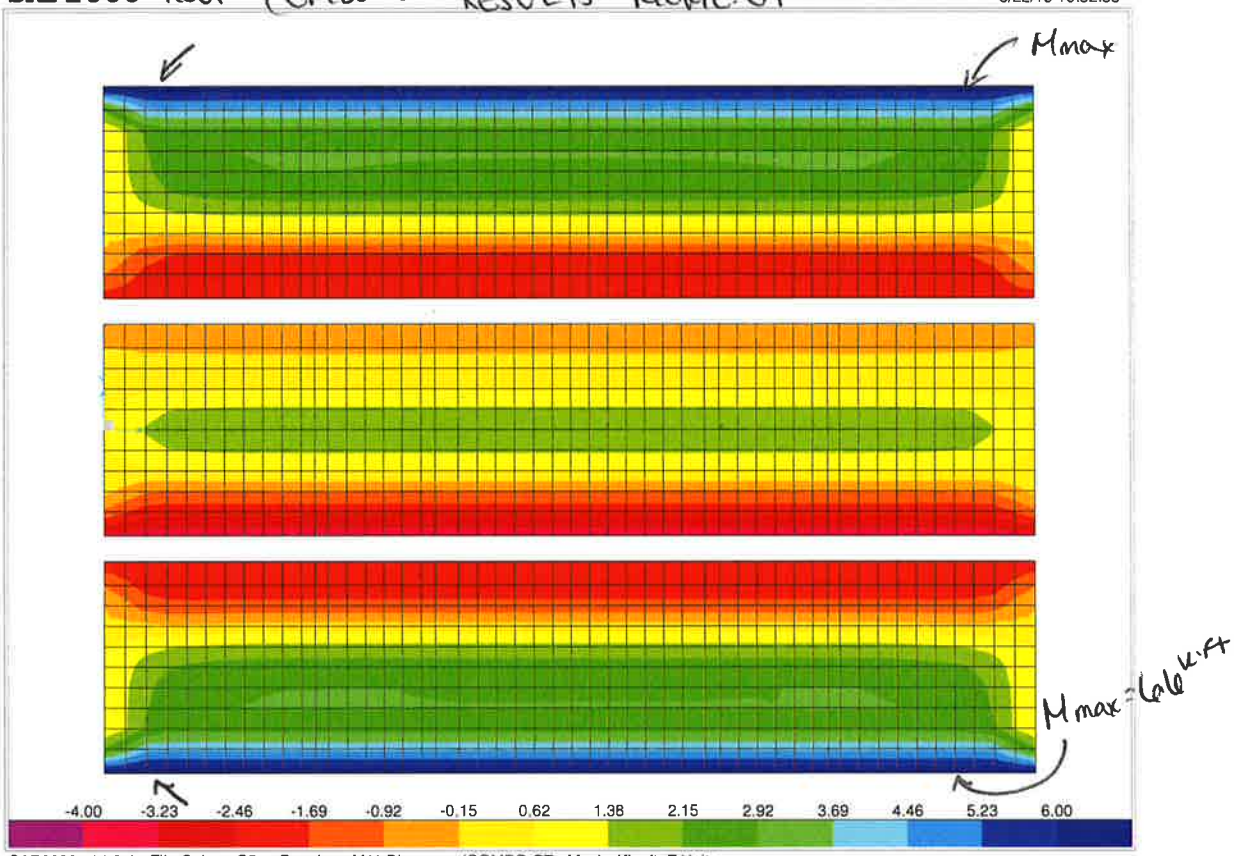
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 10:48:14



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

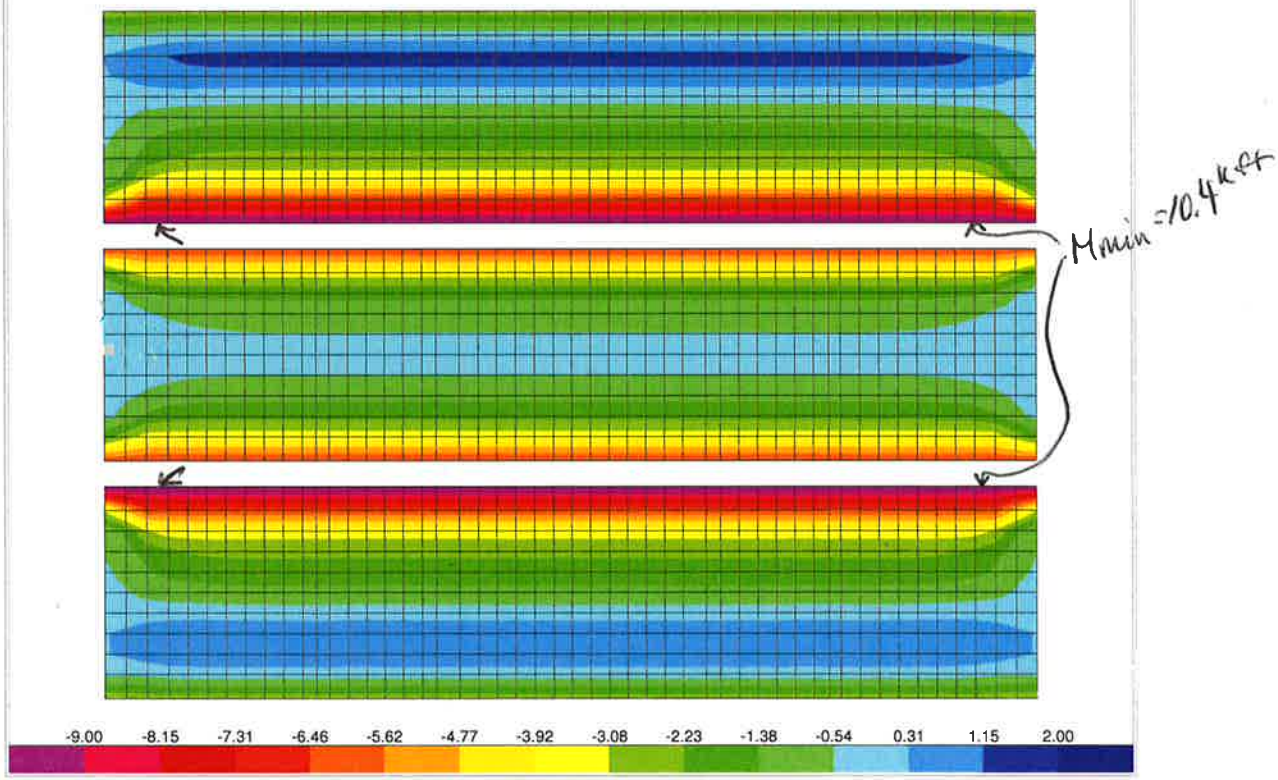
SAP2000 ROOF "COMBO-ST" RESULTS - MOMENT 8/22/13 10:52:53



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

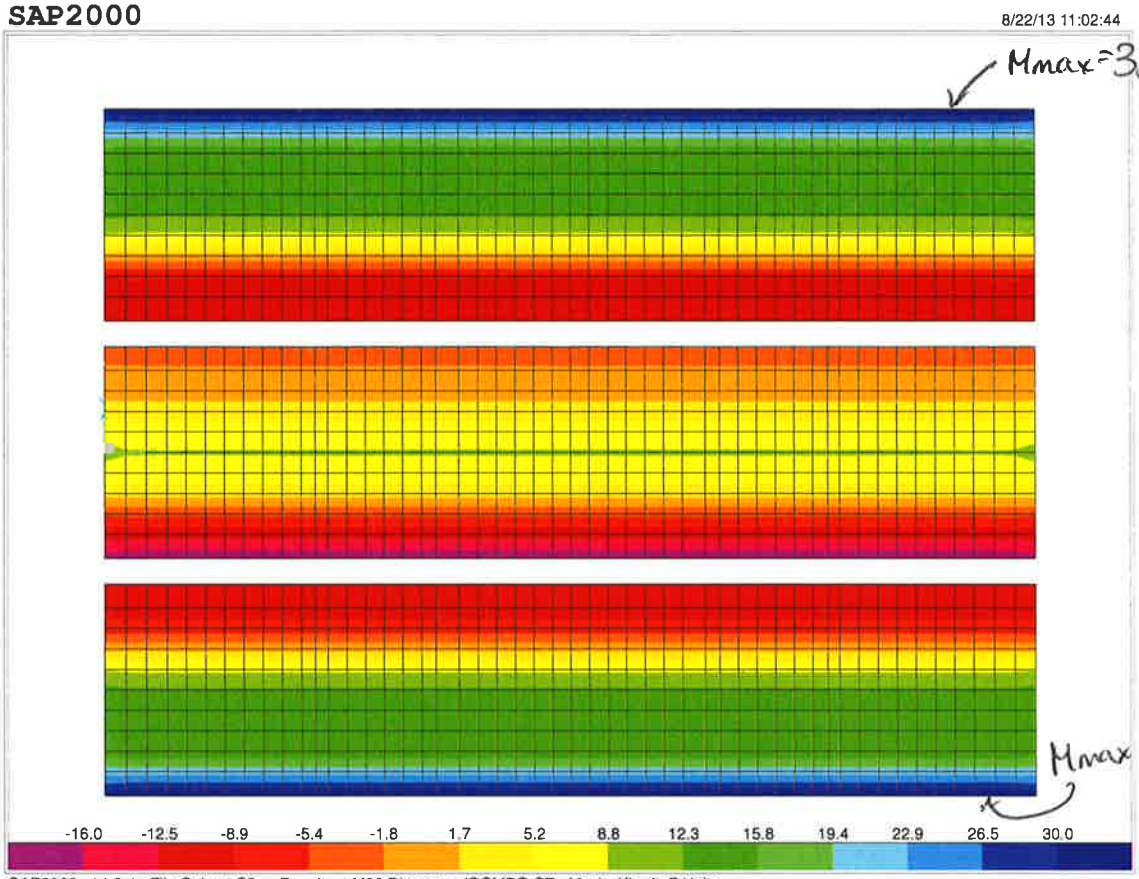
SECONDARY (LONGITUDINAL) REINF.

SAP2000 8/22/13 10:54:36



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

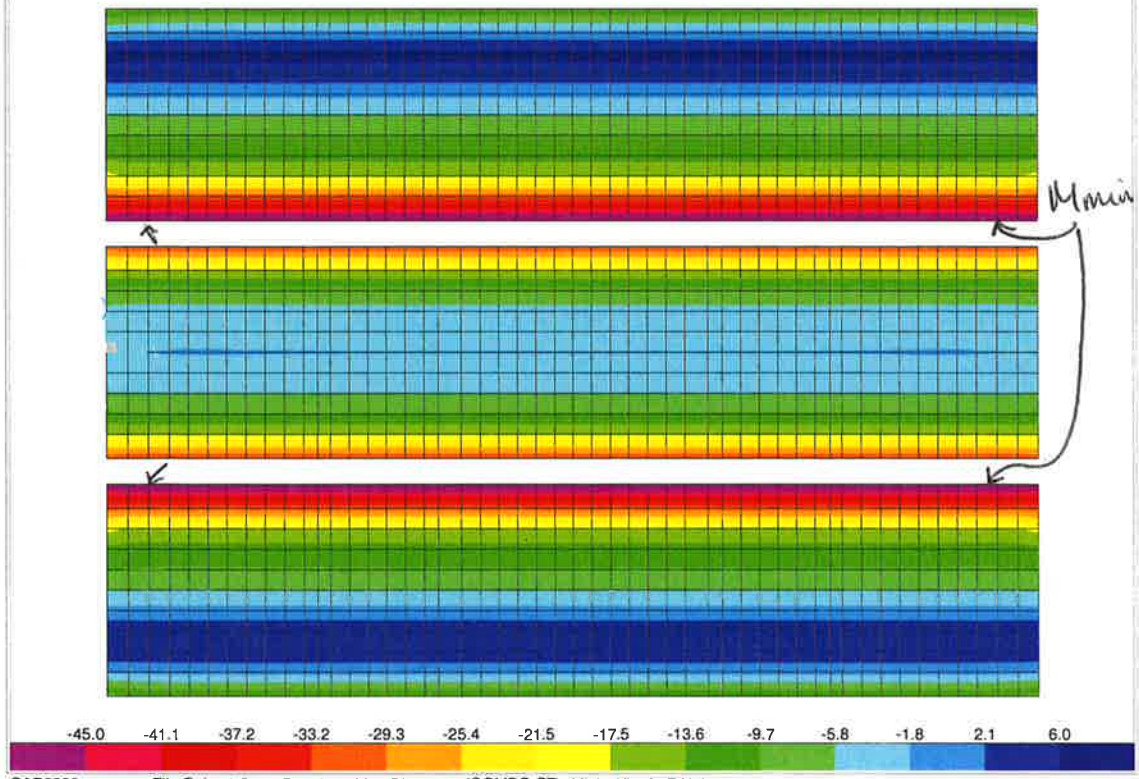
SAP2000 8/22/13 11:02:44



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

PRIMARY (TRANSVERSE) REINF.

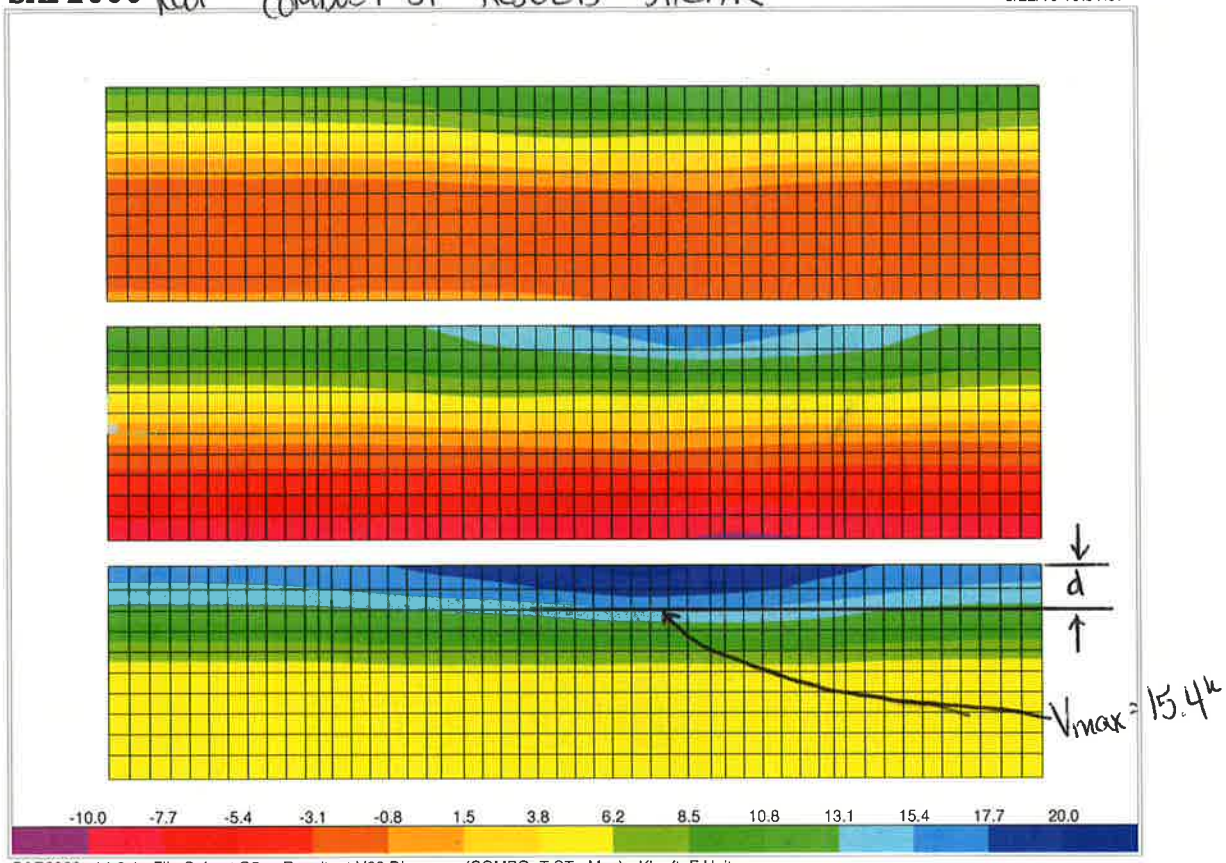
SAP2000 8/22/13 11:04:44



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 Roof "COMBO_T-ST" RESULTS - SHEAR

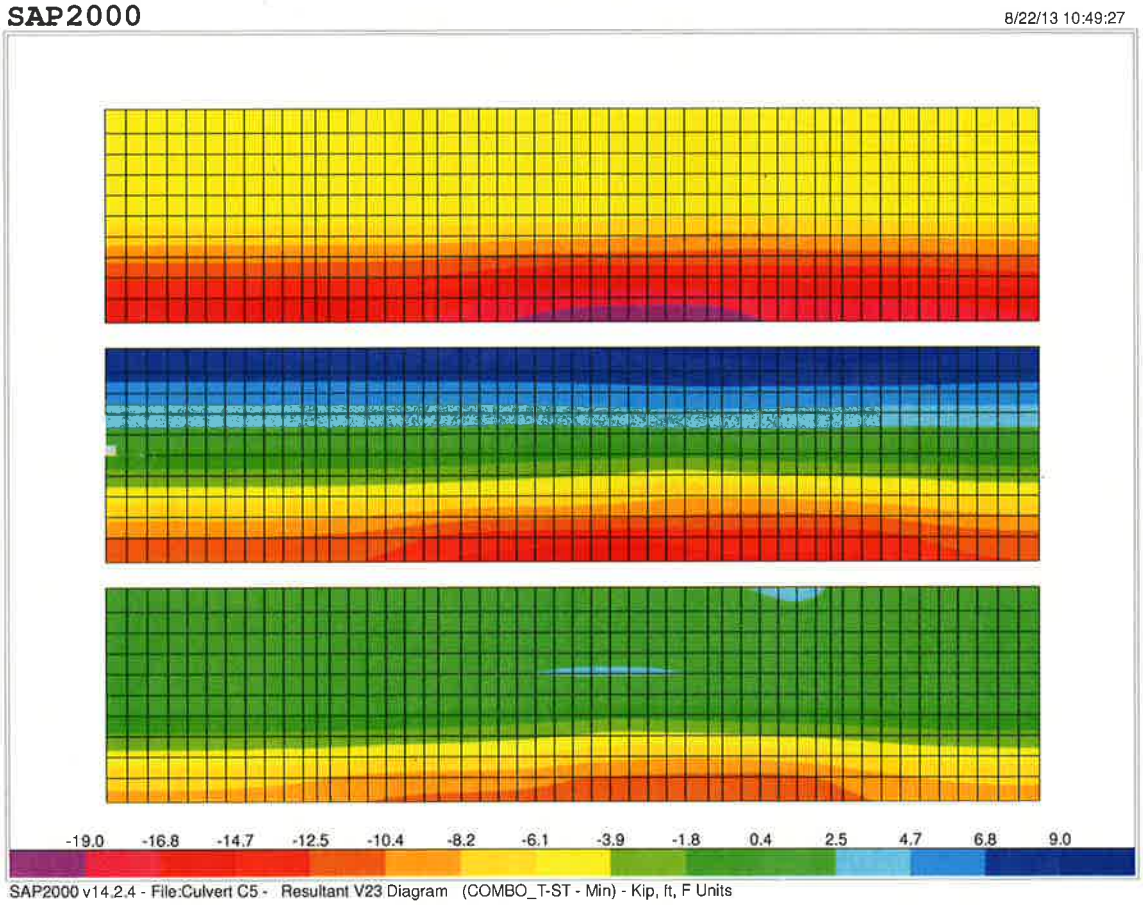
8/22/13 10:51:07



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

SAP2000

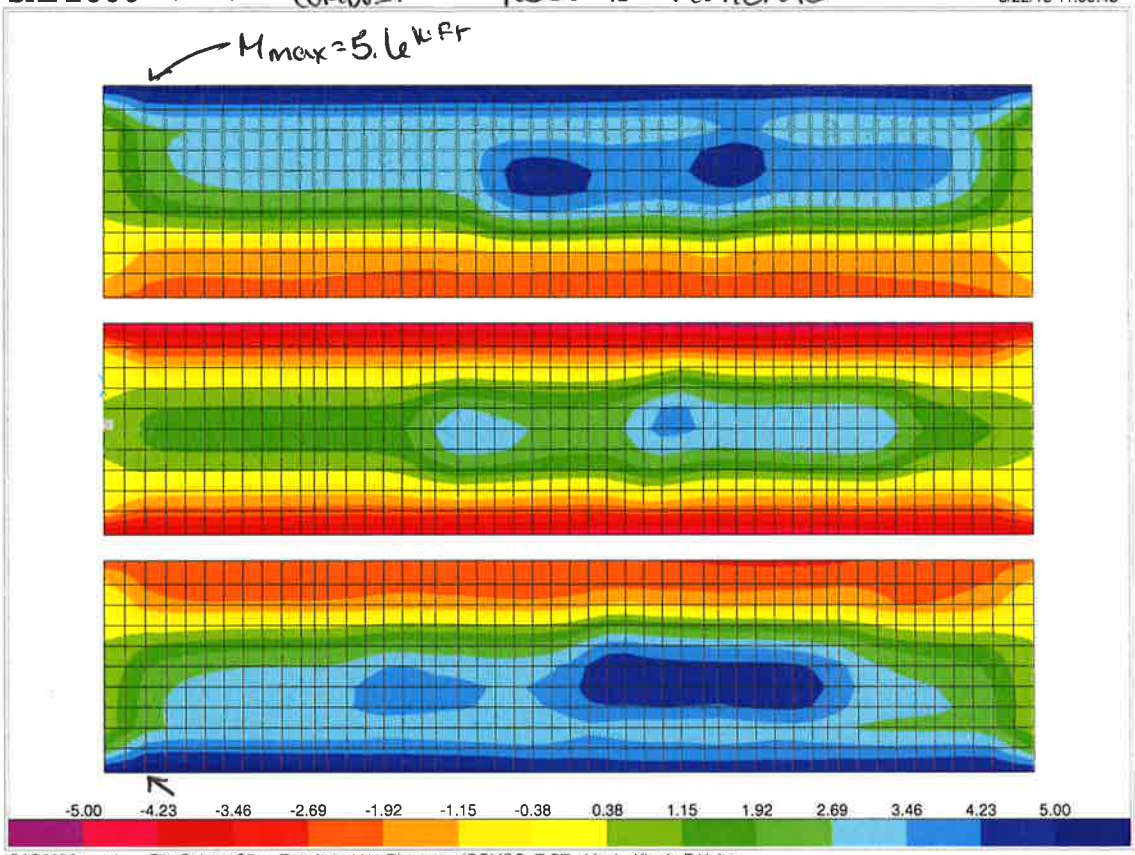
8/22/13 10:49:27



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 ROOF "COMBO_T-ST" RESULTS - MOMENTS

8/22/13 11:00:45

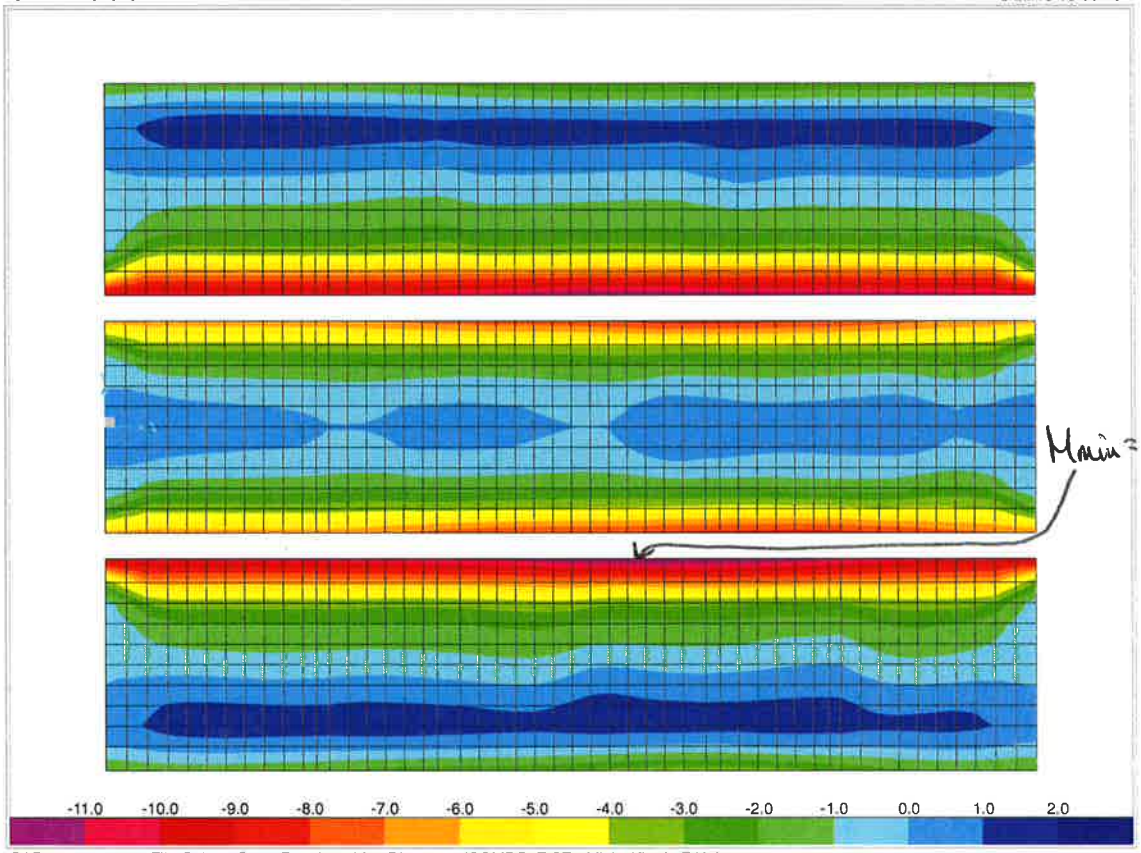


SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

LONGITUDINAL REINF.

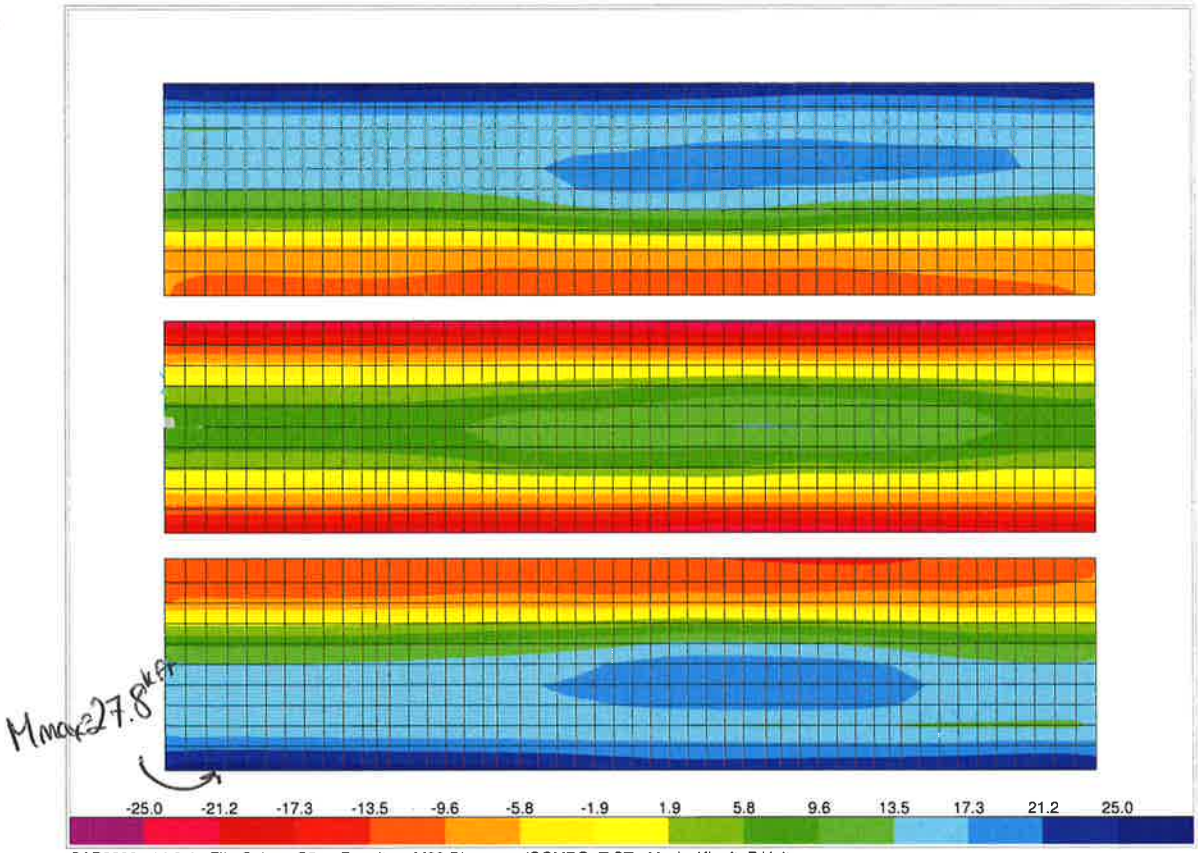
SAP2000

8/22/13 10:58:40



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

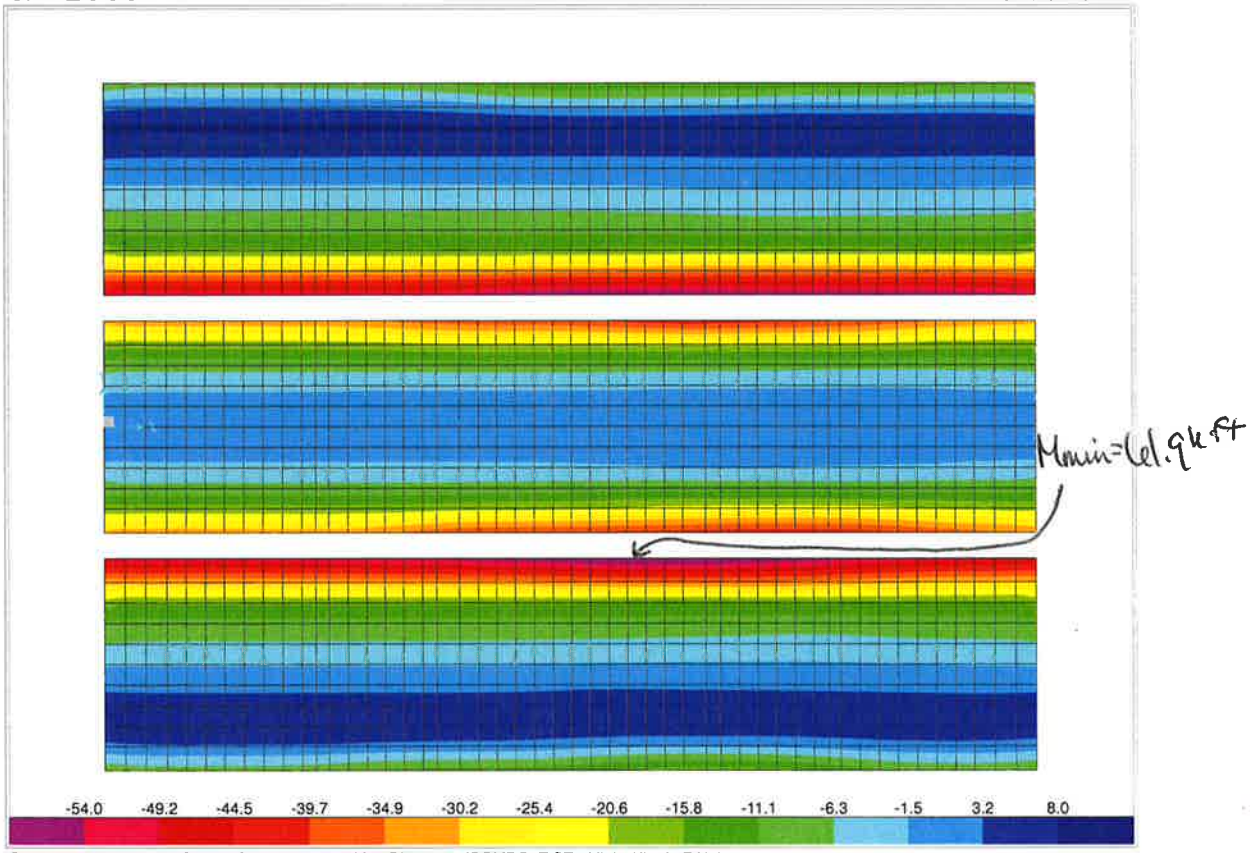
SAP2000 8/22/13 11:09:10



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

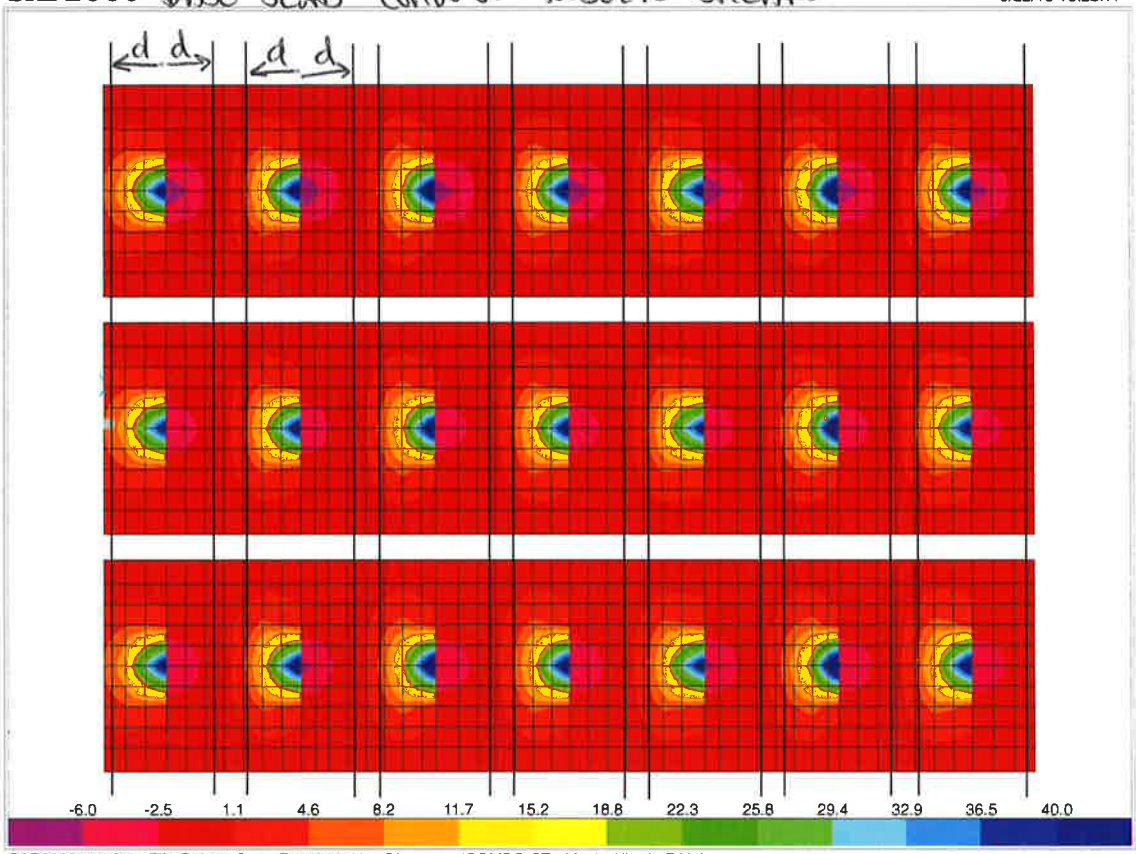
TRANSVERSE REINF.

SAP2000 8/22/13 11:07:21



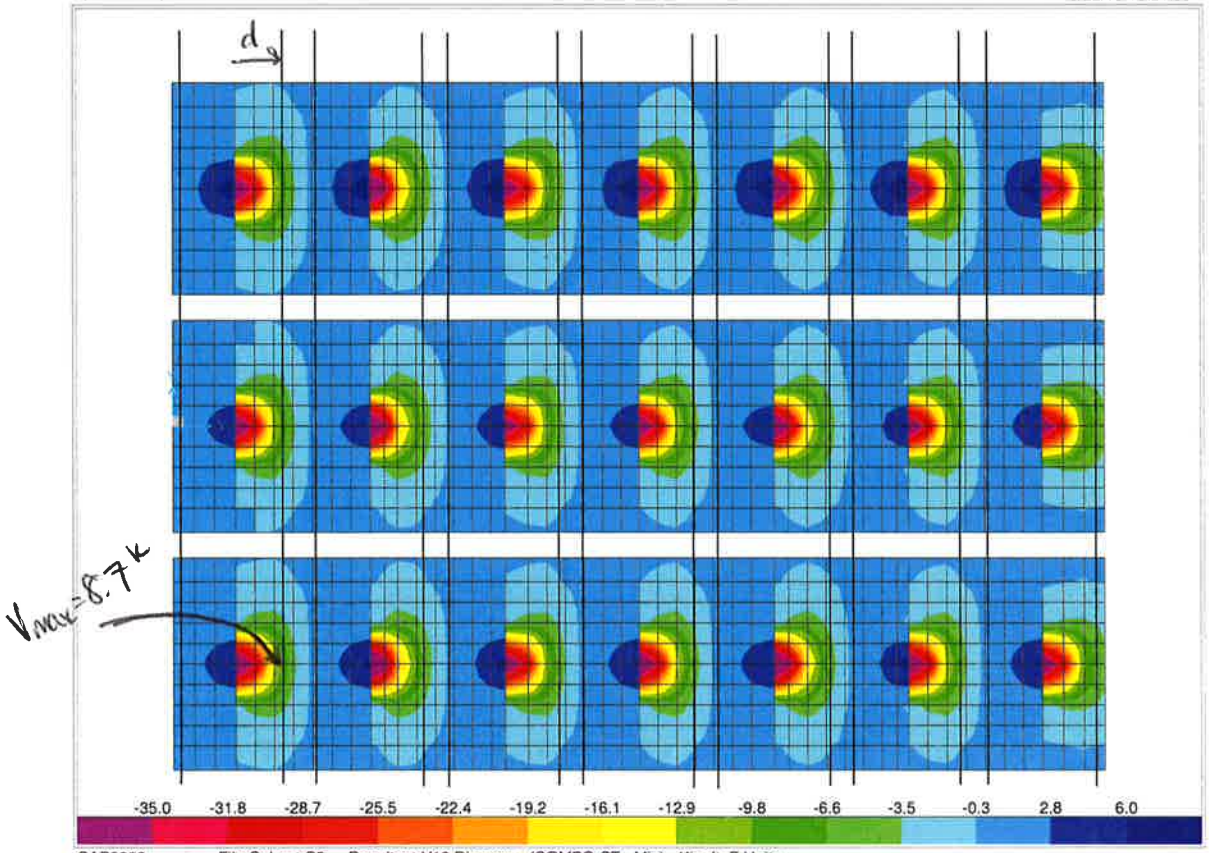
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO-ST" RESULTS-SHEAR 8/22/13 13:22:11



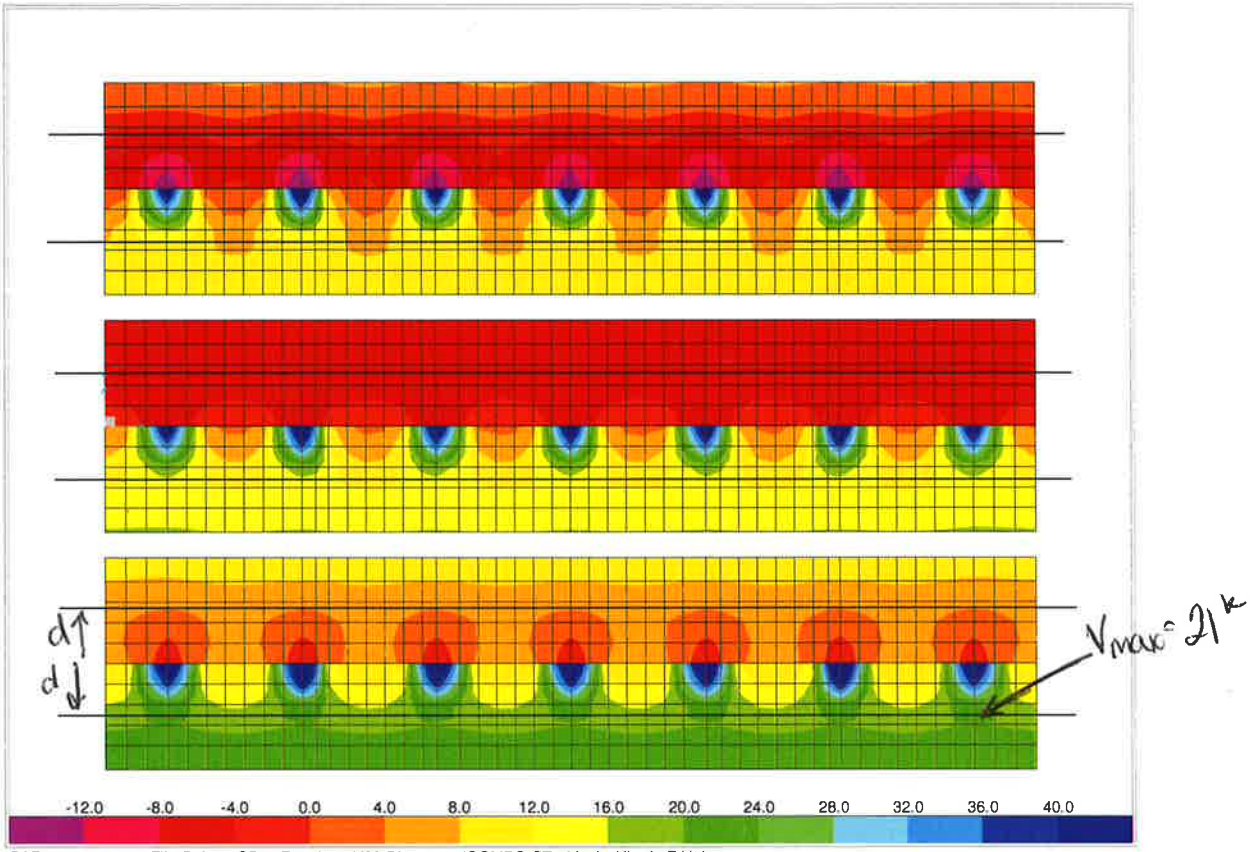
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 13:21:03



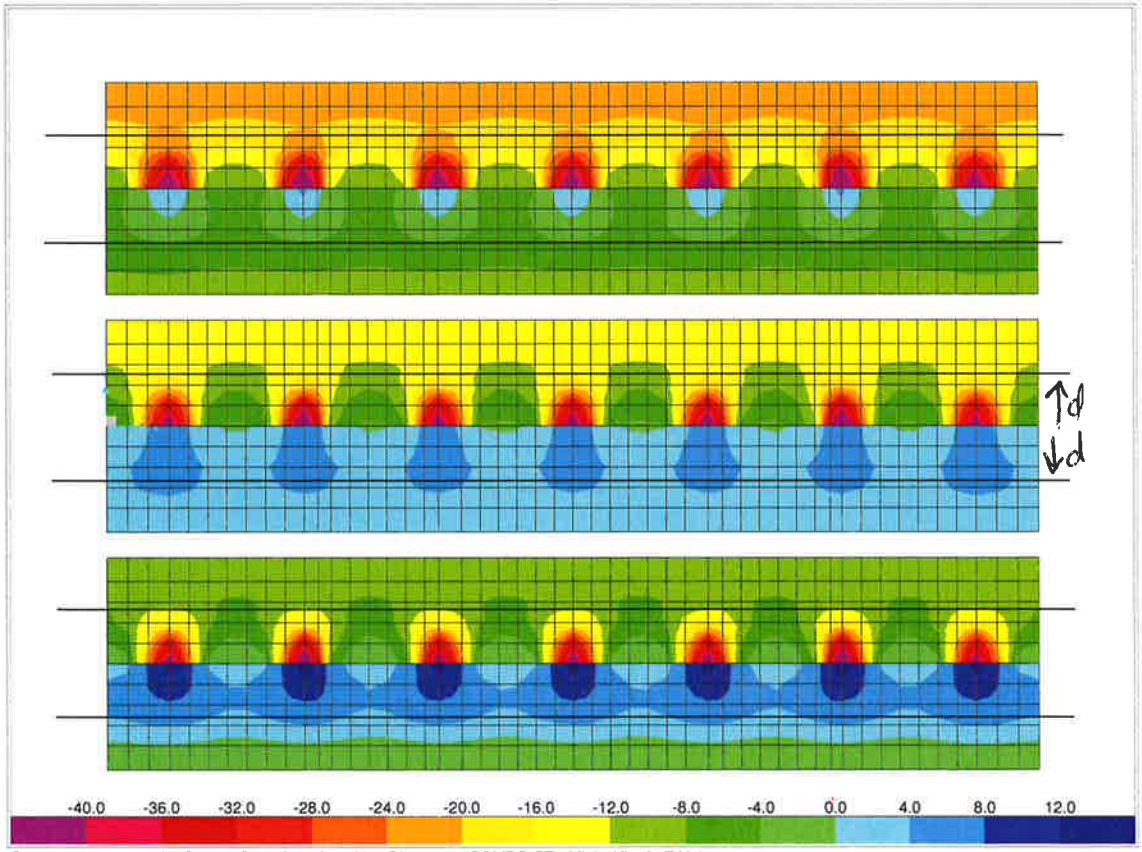
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 8/22/13 13:23:13



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

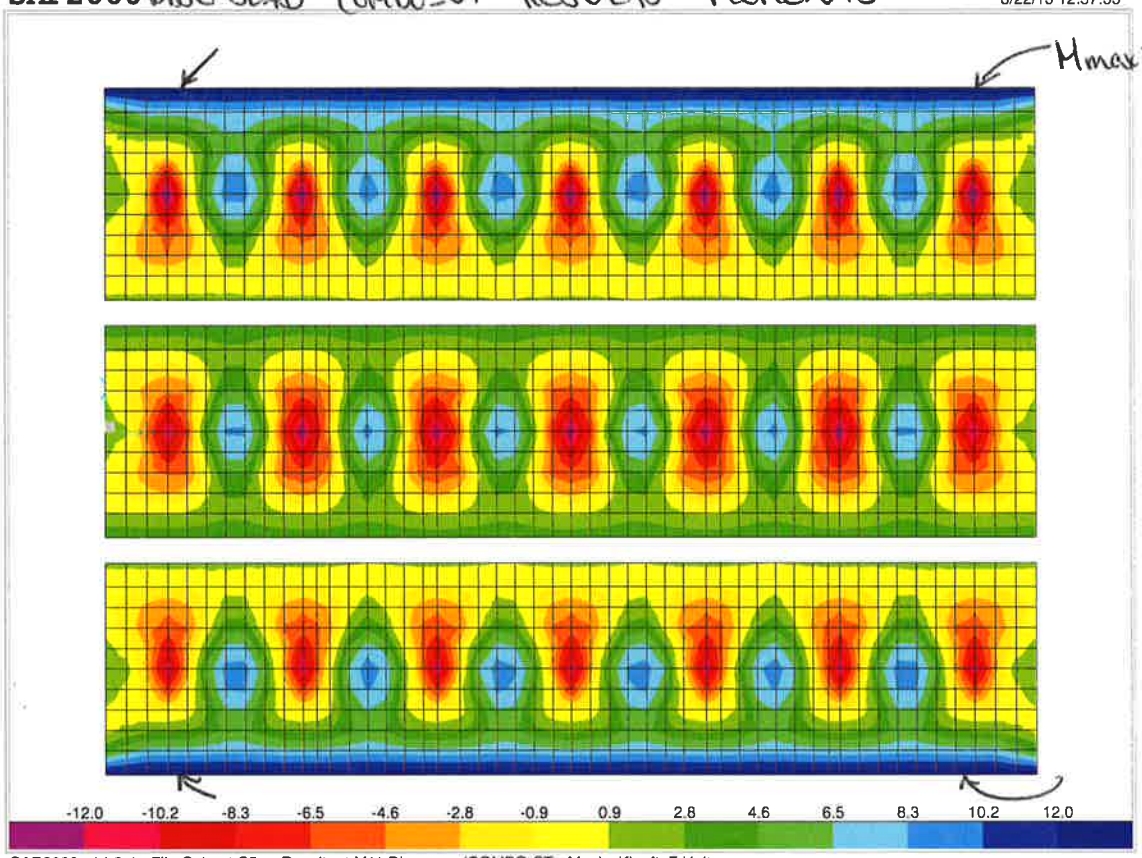
SAP2000 8/22/13 13:23:42



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO_ST" RESULTS - MOMENTS

8/22/13 12:57:33

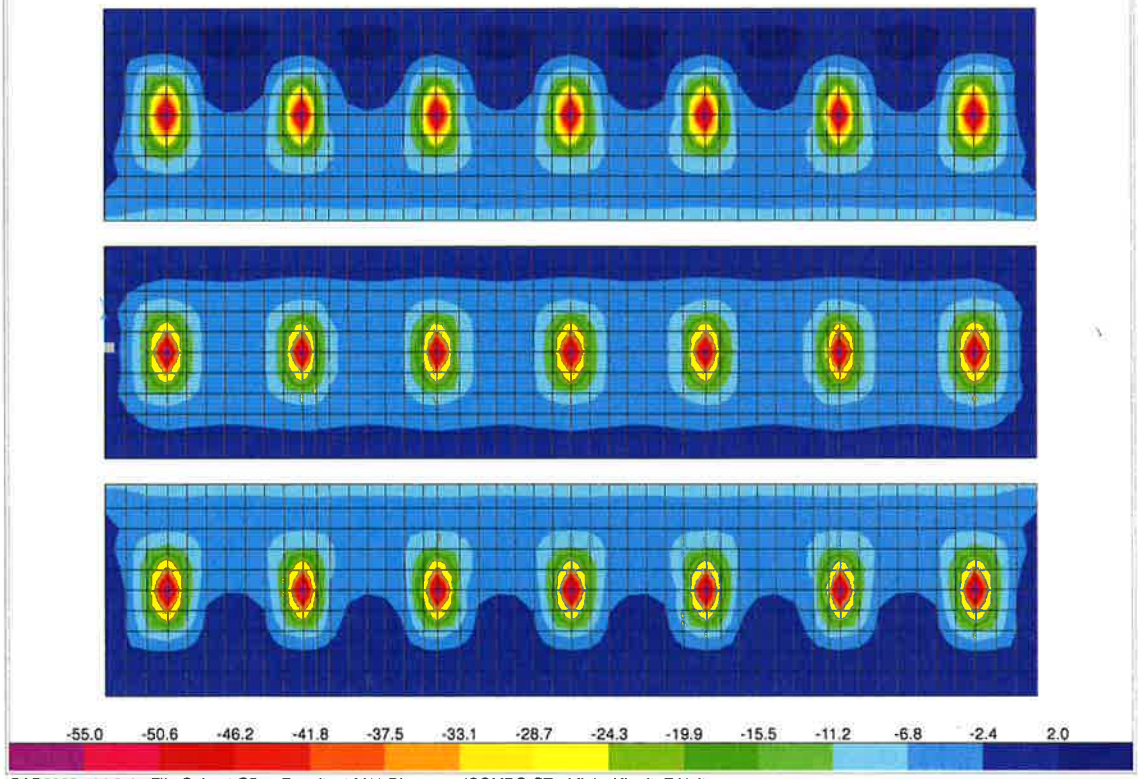


SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

SECONDARY (LONG) REINF.

SAP2000

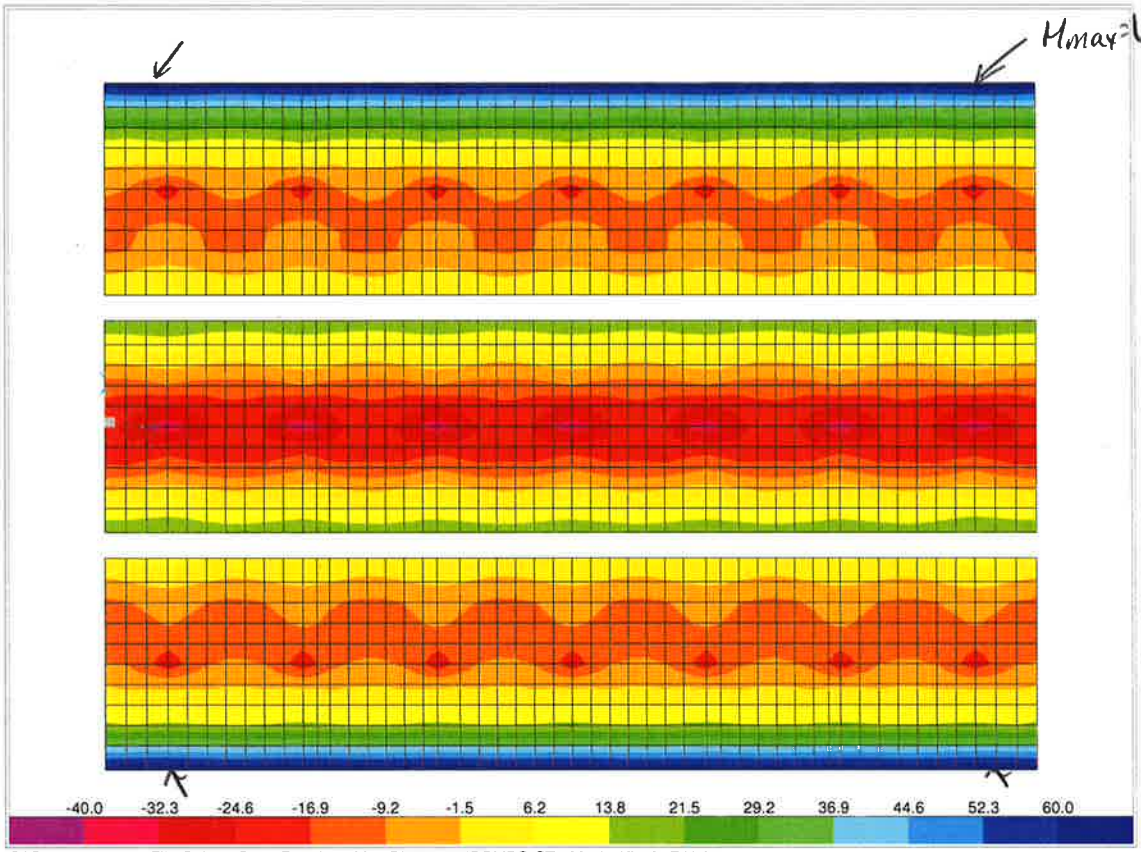
8/22/13 13:00:09



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 8/22/13 13:06:14

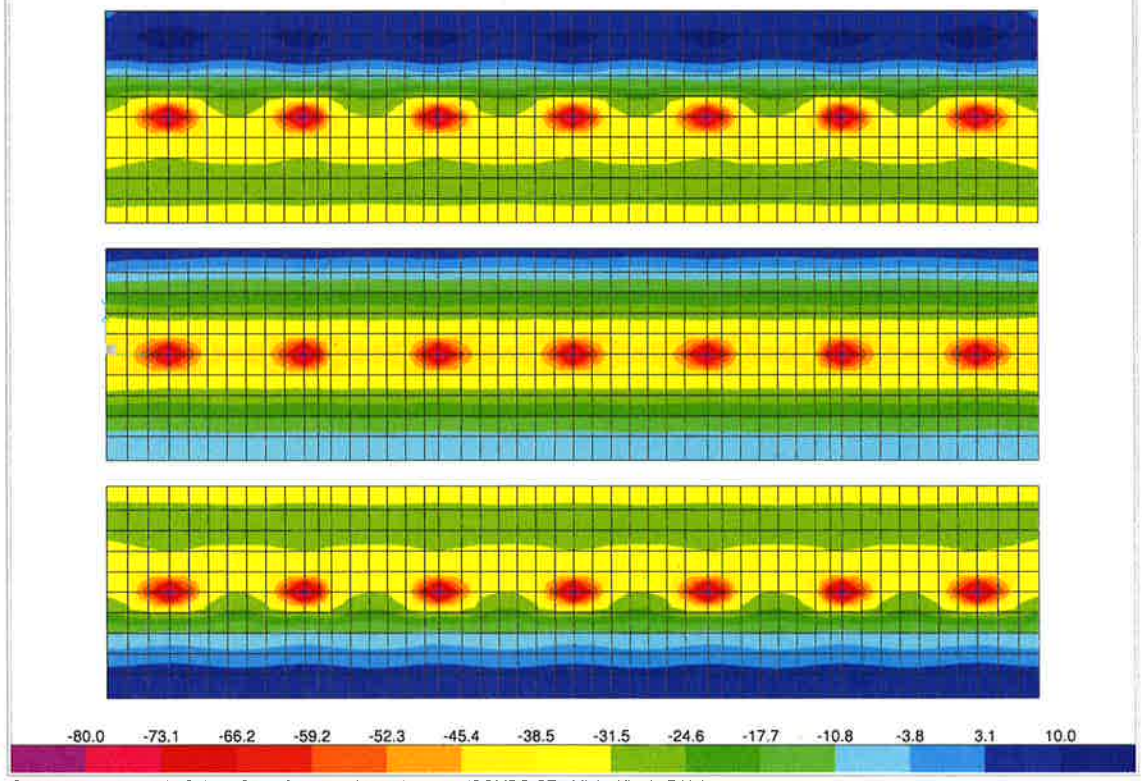
Mmax=69.4k-ft



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

PRIMARY (TRANSVERSE) REINF.

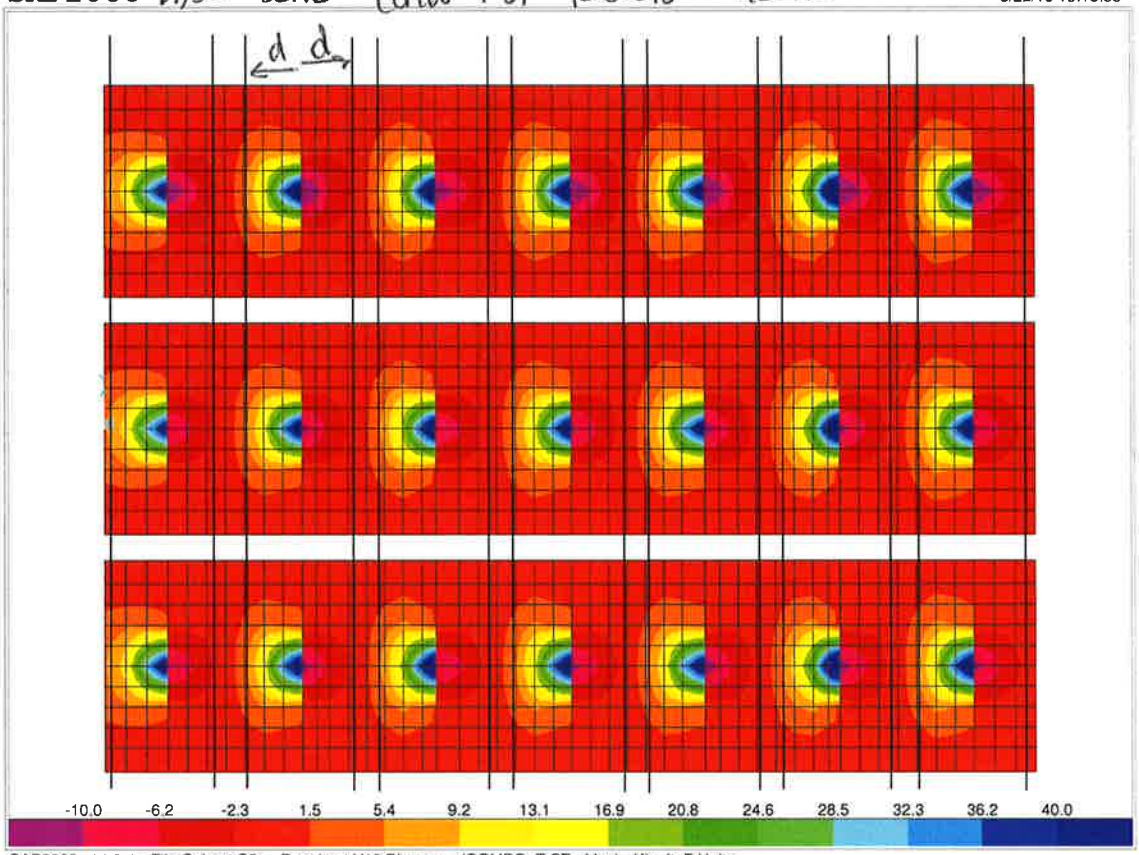
SAP2000 8/22/13 13:08:06



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO_T-ST" RESULTS - SHEAR

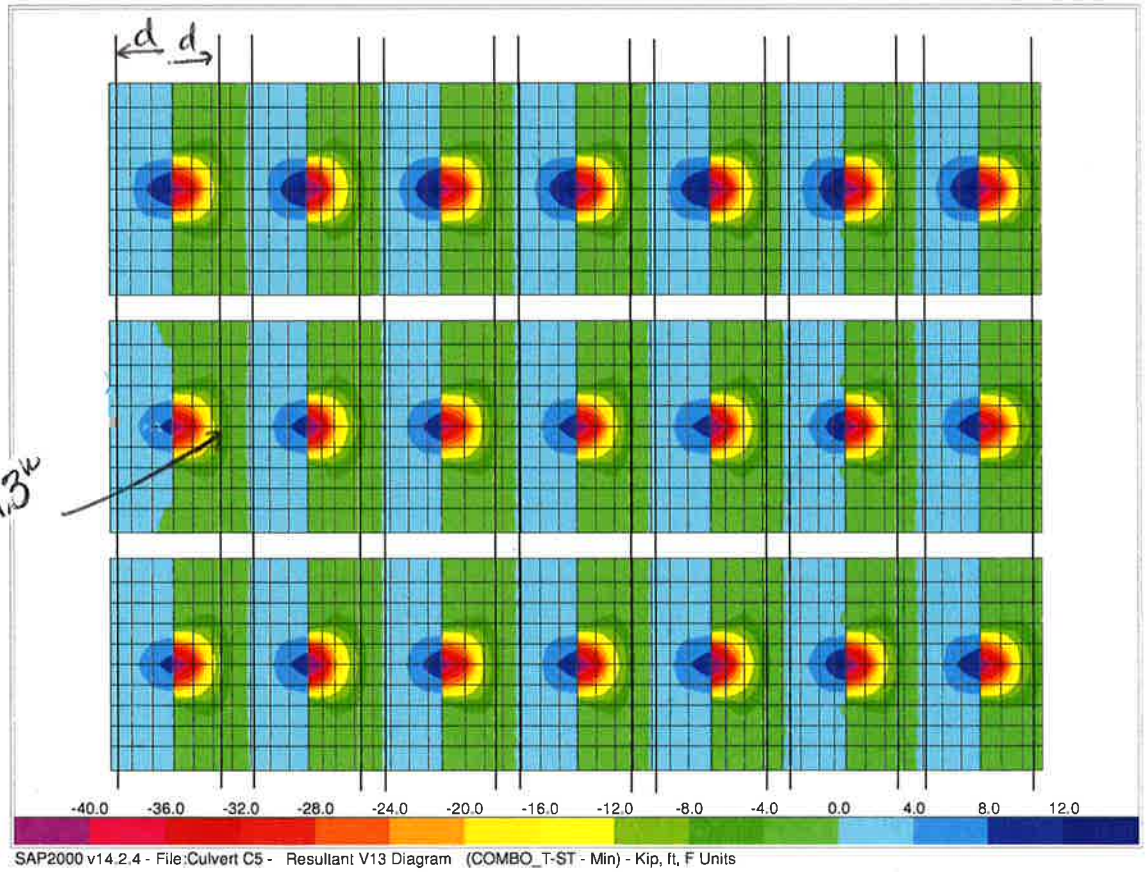
8/22/13 13:18:35



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

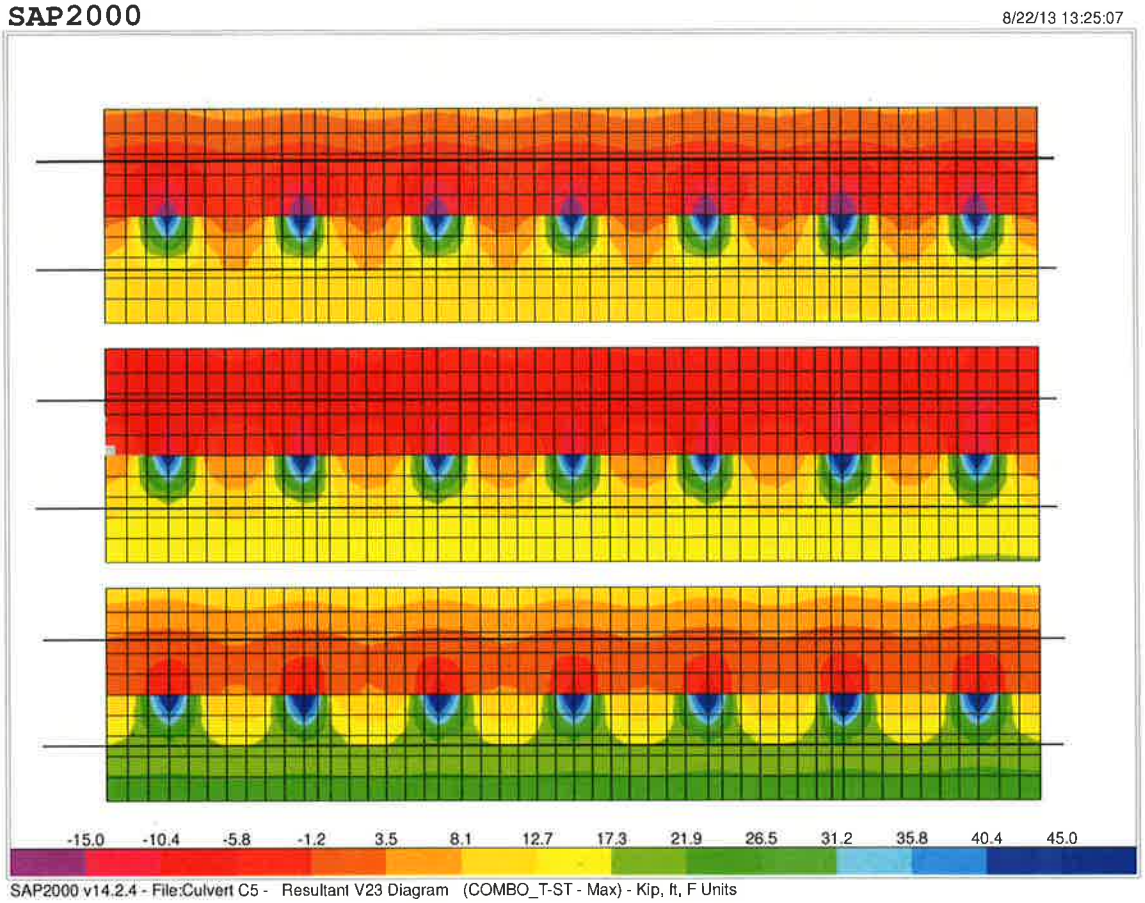
SAP2000

8/22/13 13:20:11



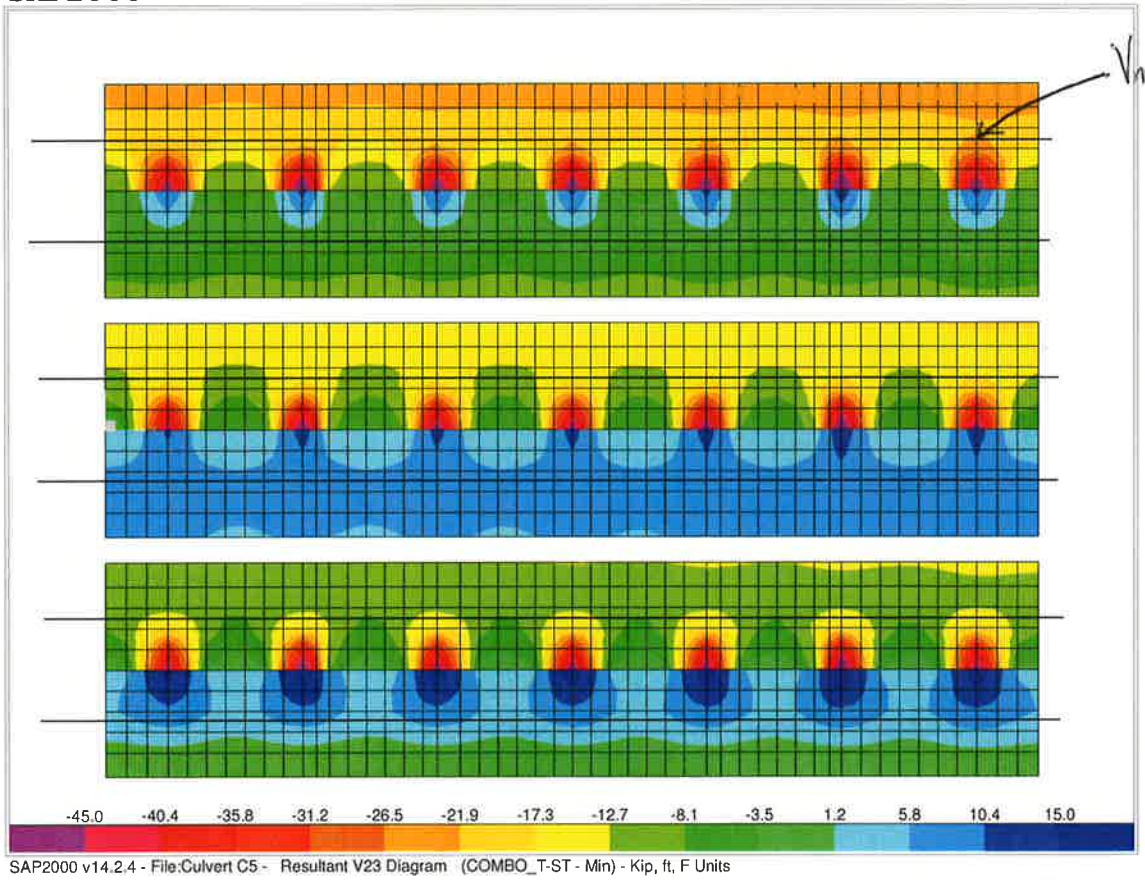
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V13 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 8/22/13 13:25:07



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

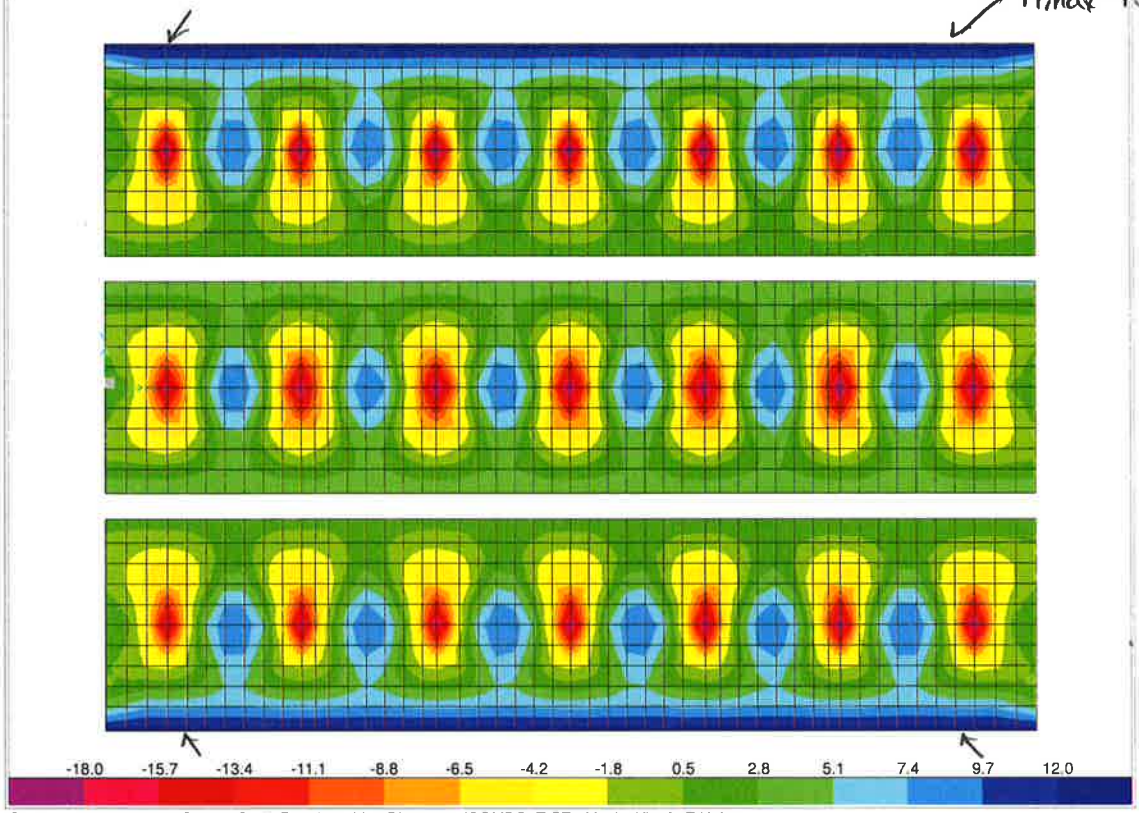
SAP2000 8/22/13 13:24:30



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 BASE SLAB "COMBO_T-ST" RESULTS - MOMENT 8/22/13 13:04:16

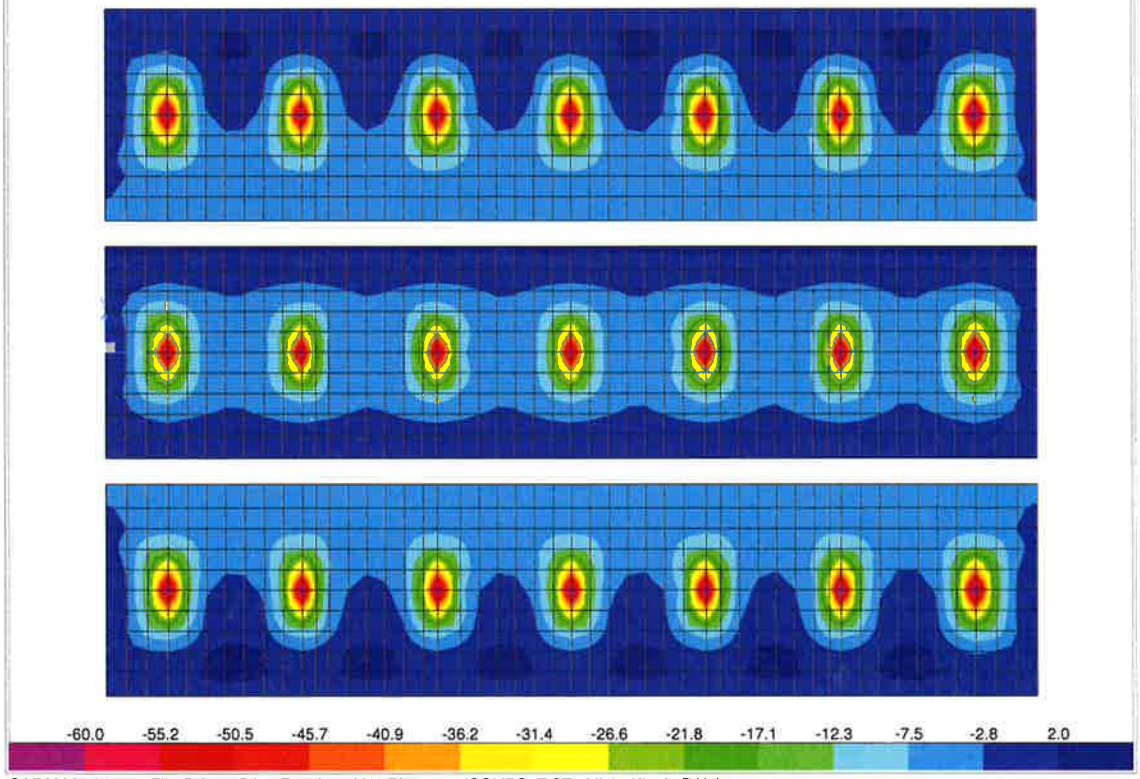
Mmax = 13.9 k·ft



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

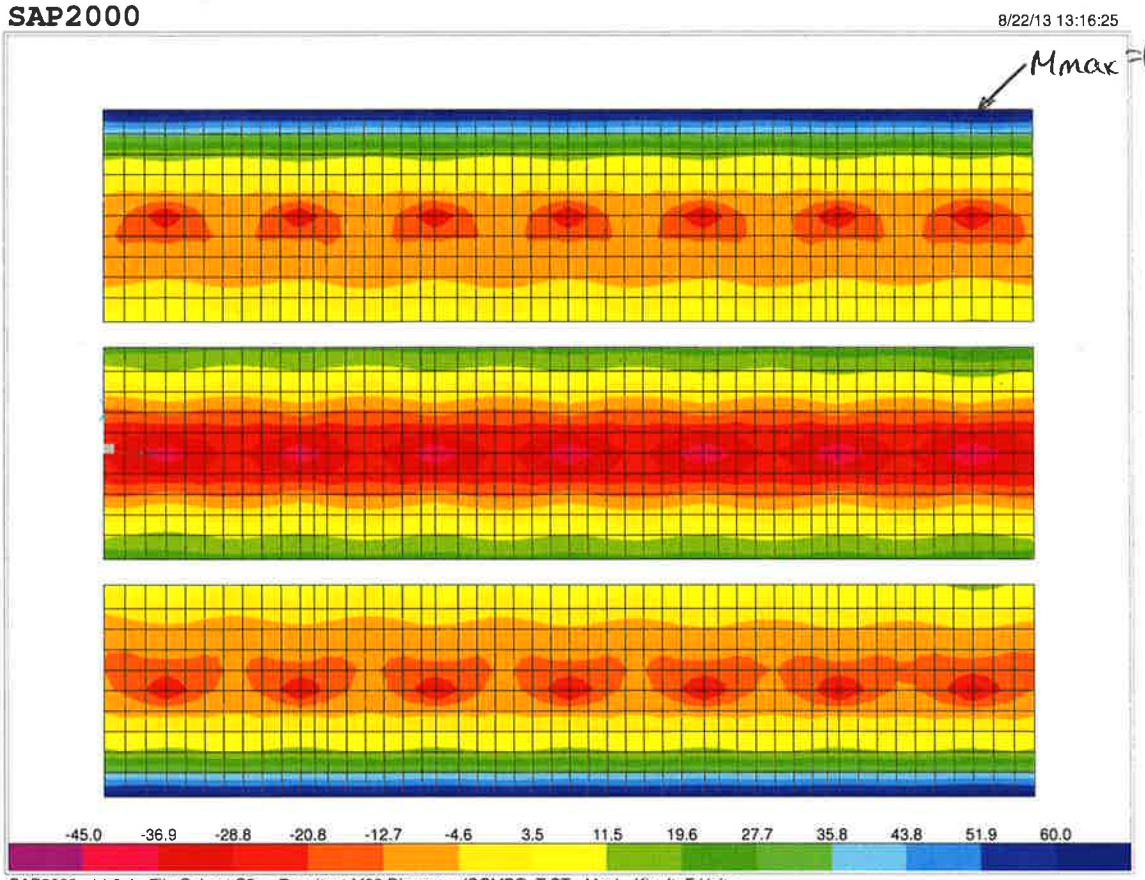
LONGITUDINAL

SAP2000 8/22/13 13:02:10



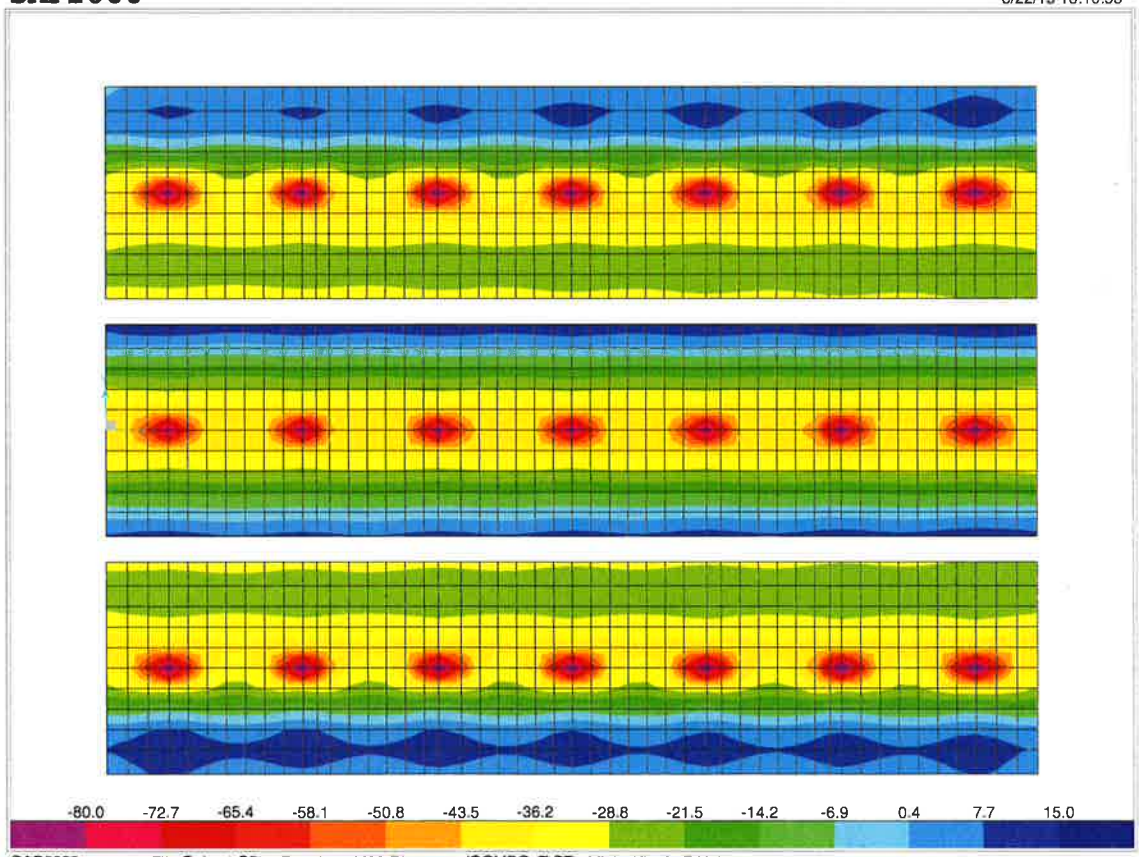
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 8/22/13 13:16:25



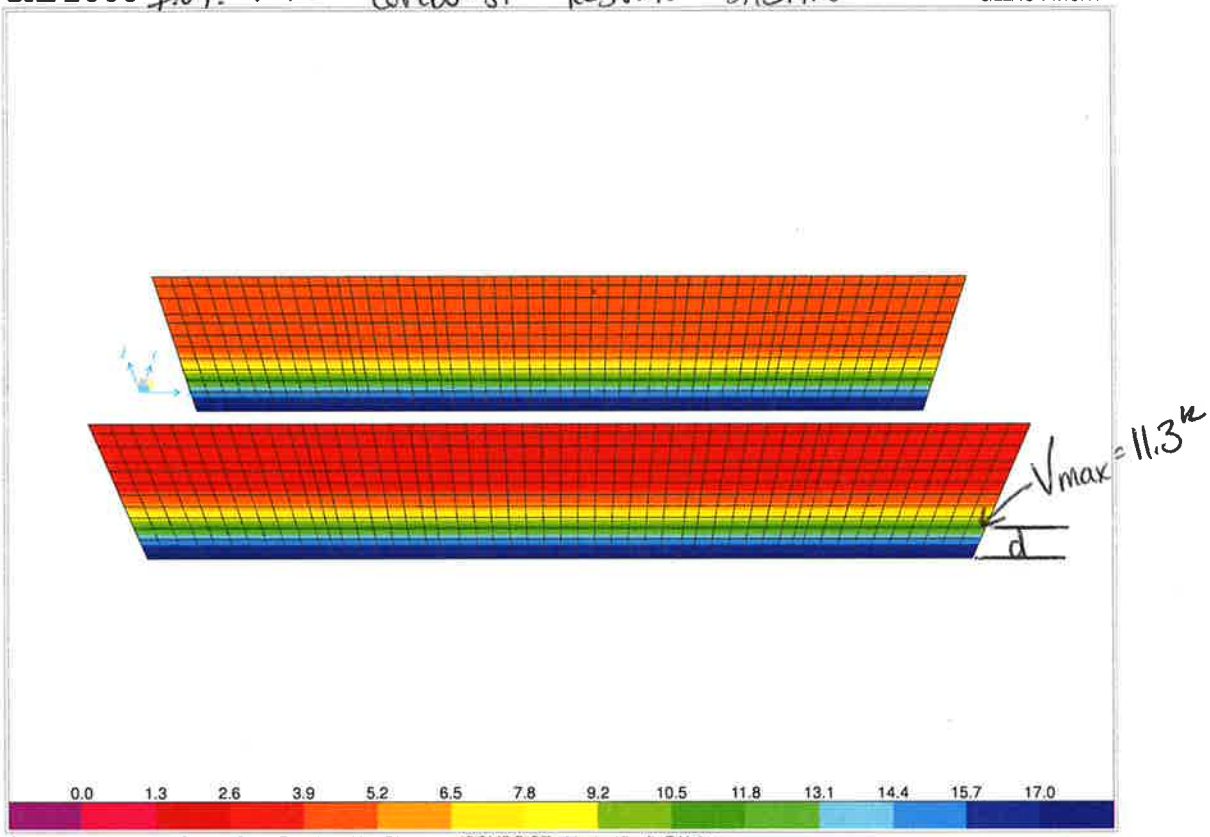
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 13:10:53



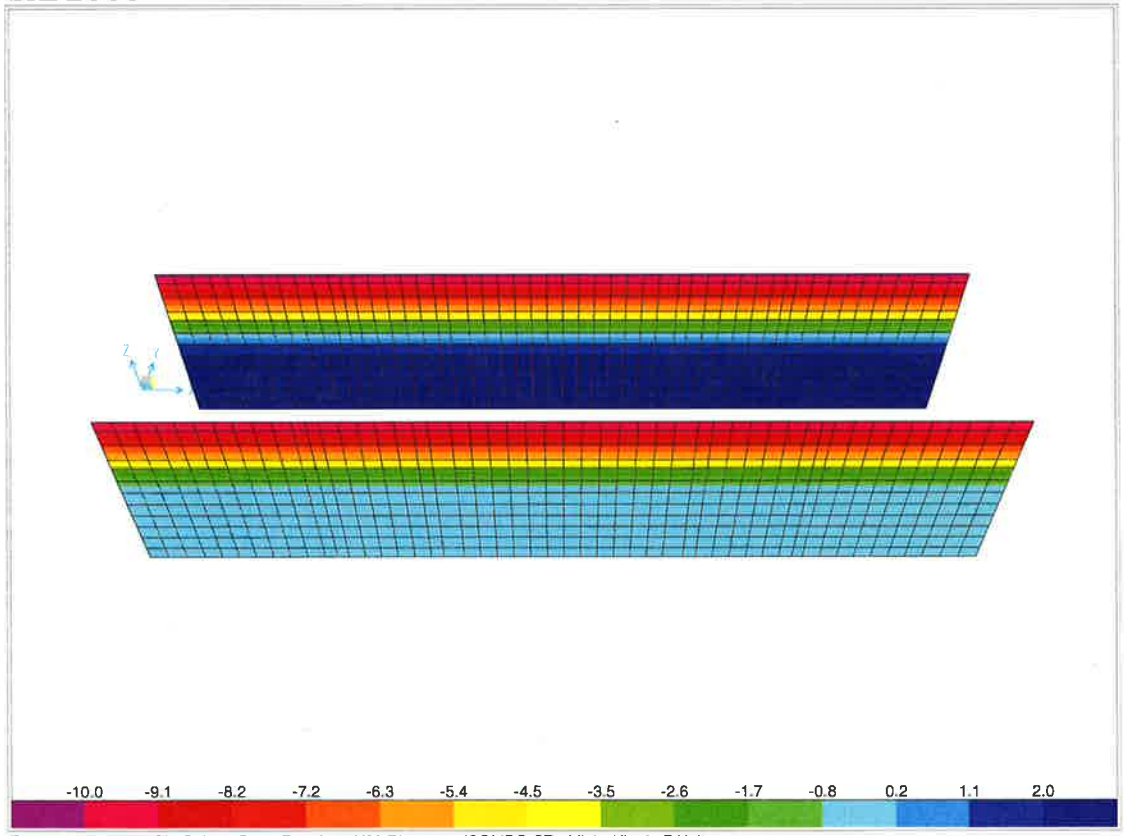
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 INT. WALL "COMBO-ST" RESULTS - SHEAR 8/22/13 14:15:41



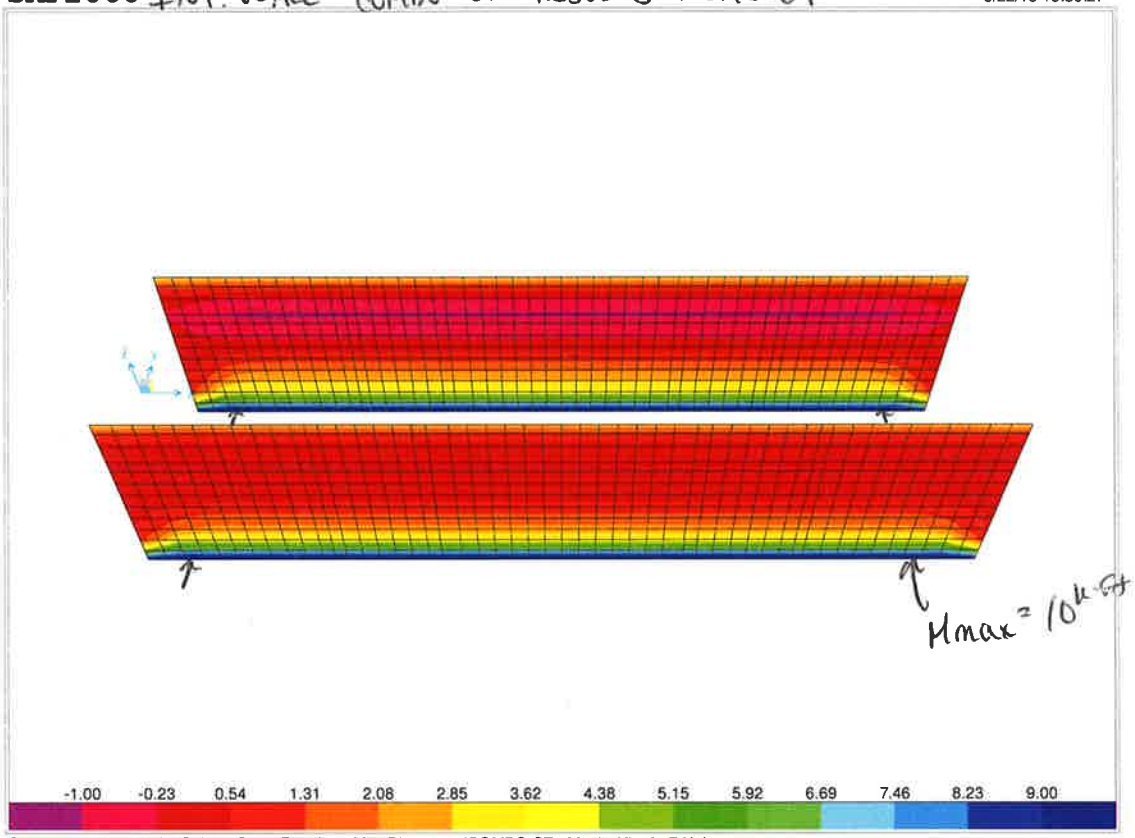
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 14:17:22



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

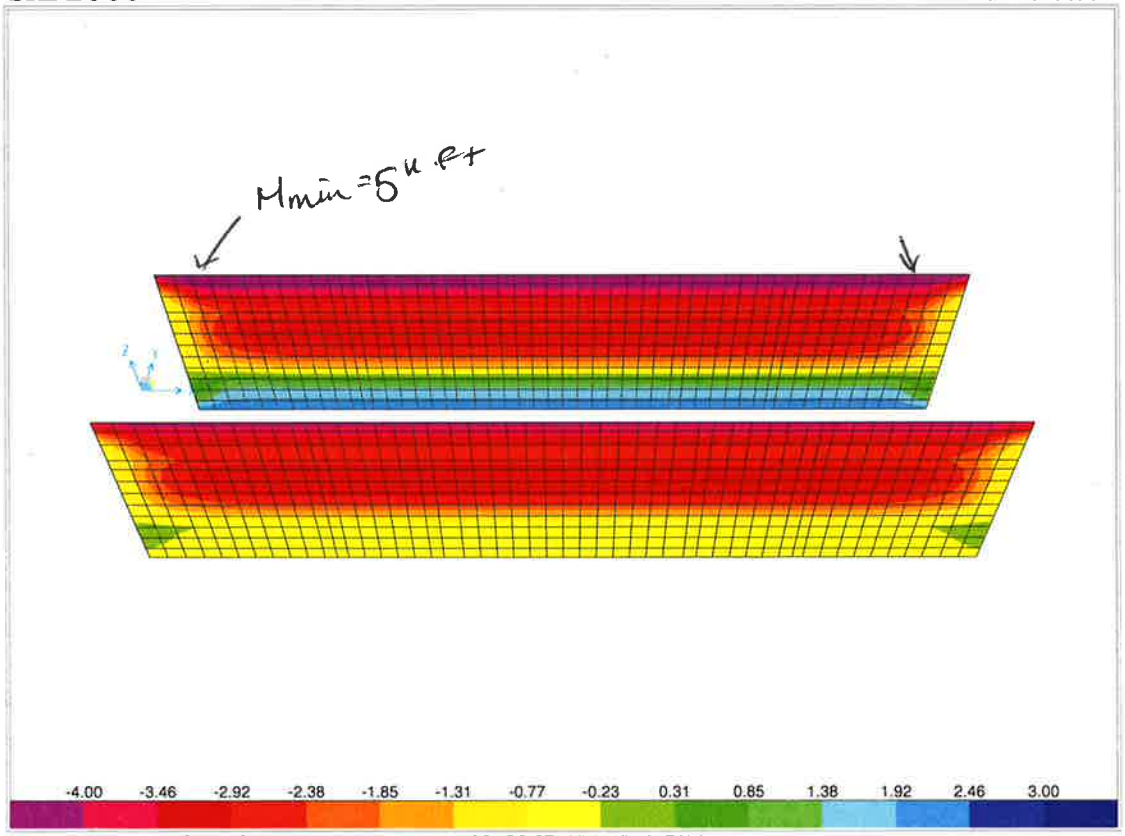
SAP2000 INT. WALL "COMBO-ST" RESULTS-MOMENT 8/22/13 13:56:27



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

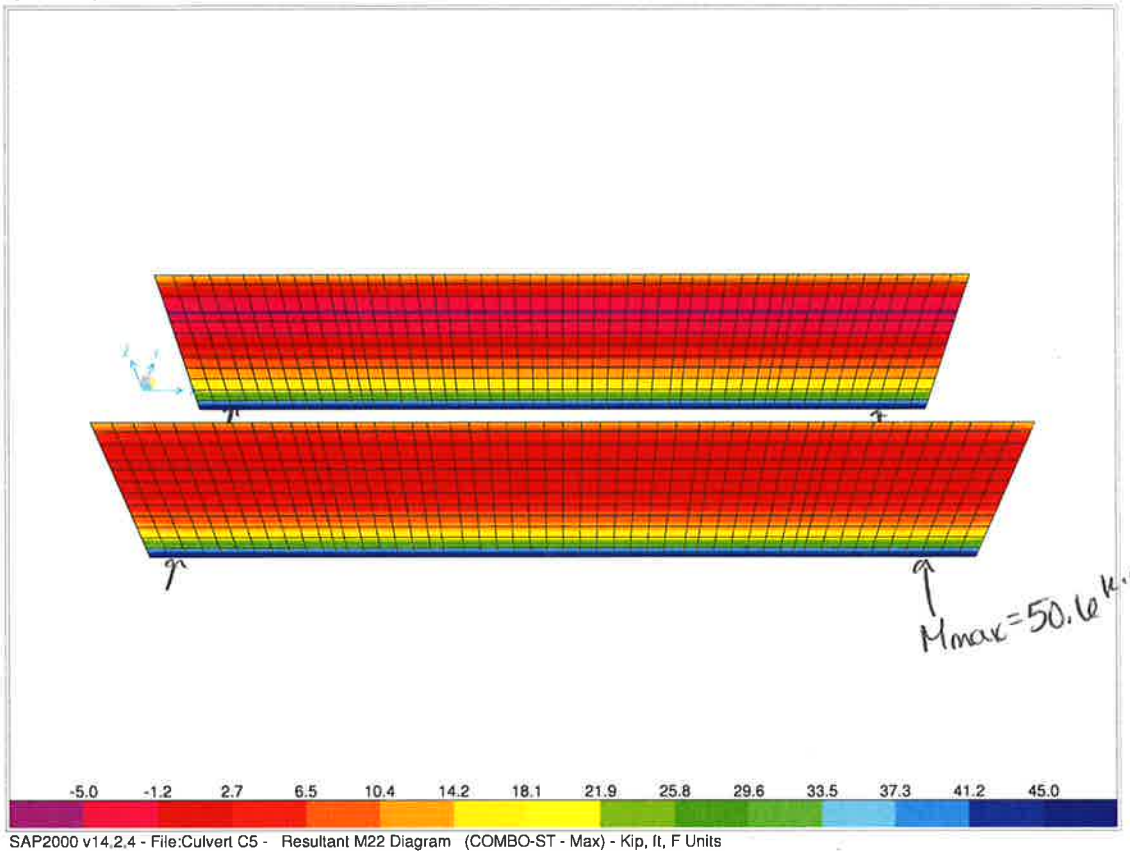
LONGITUDINAL (SECONDARY) REINF.

SAP2000 8/22/13 13:58:57



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

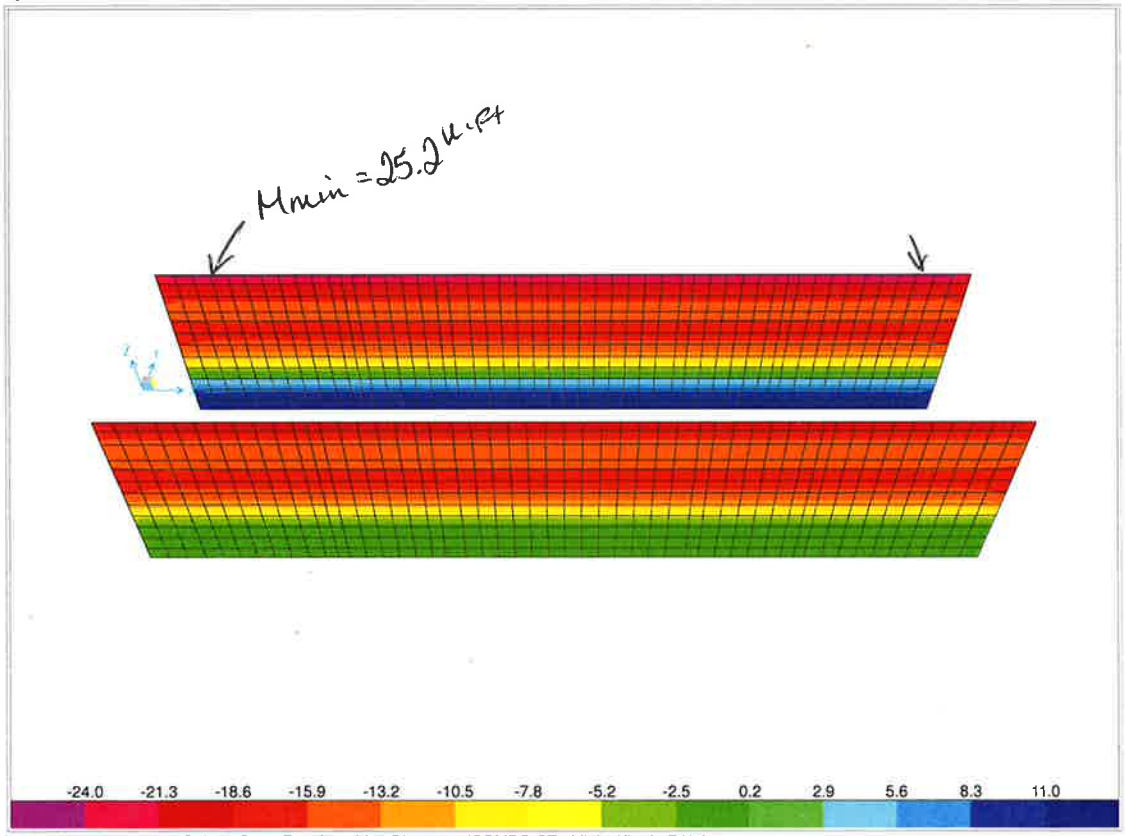
SAP2000 8/22/13 14:13:53



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

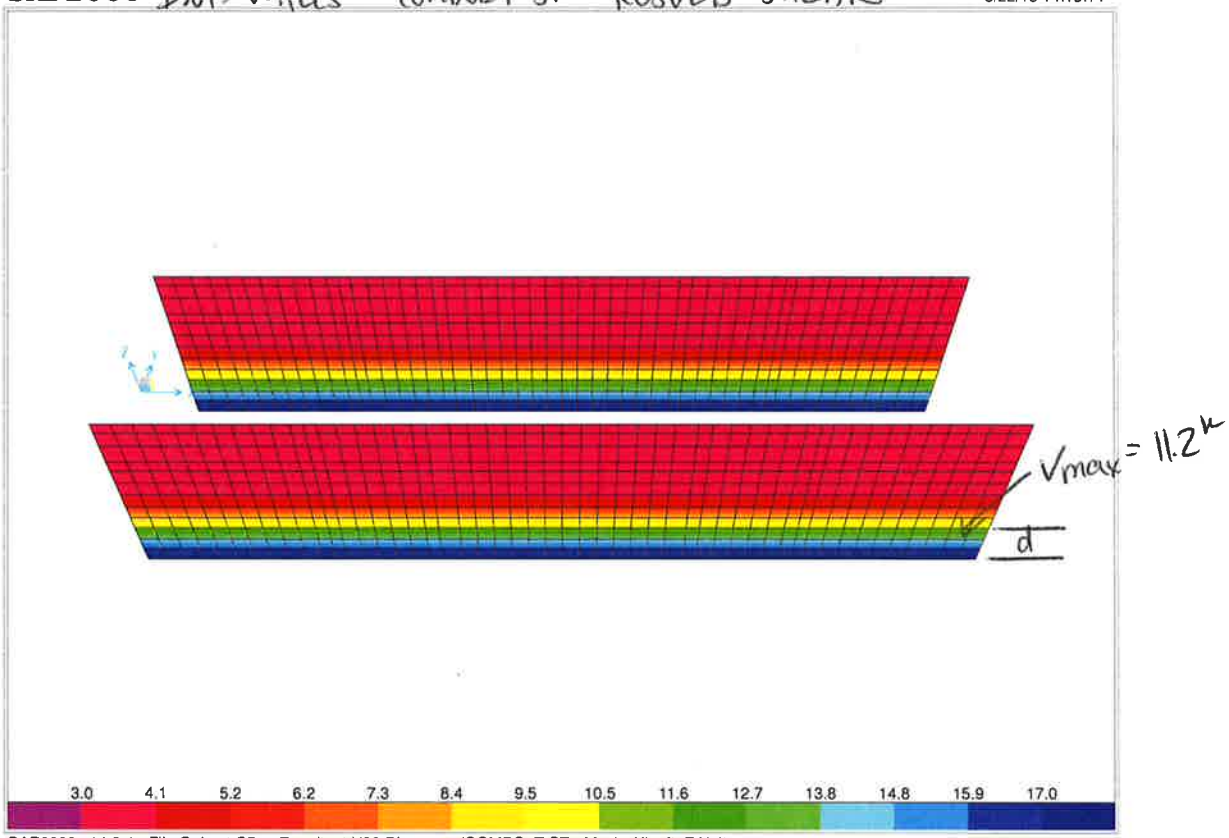
VERTICAL (PRIMARY) REINF.

SAP2000 8/22/13 14:08:51



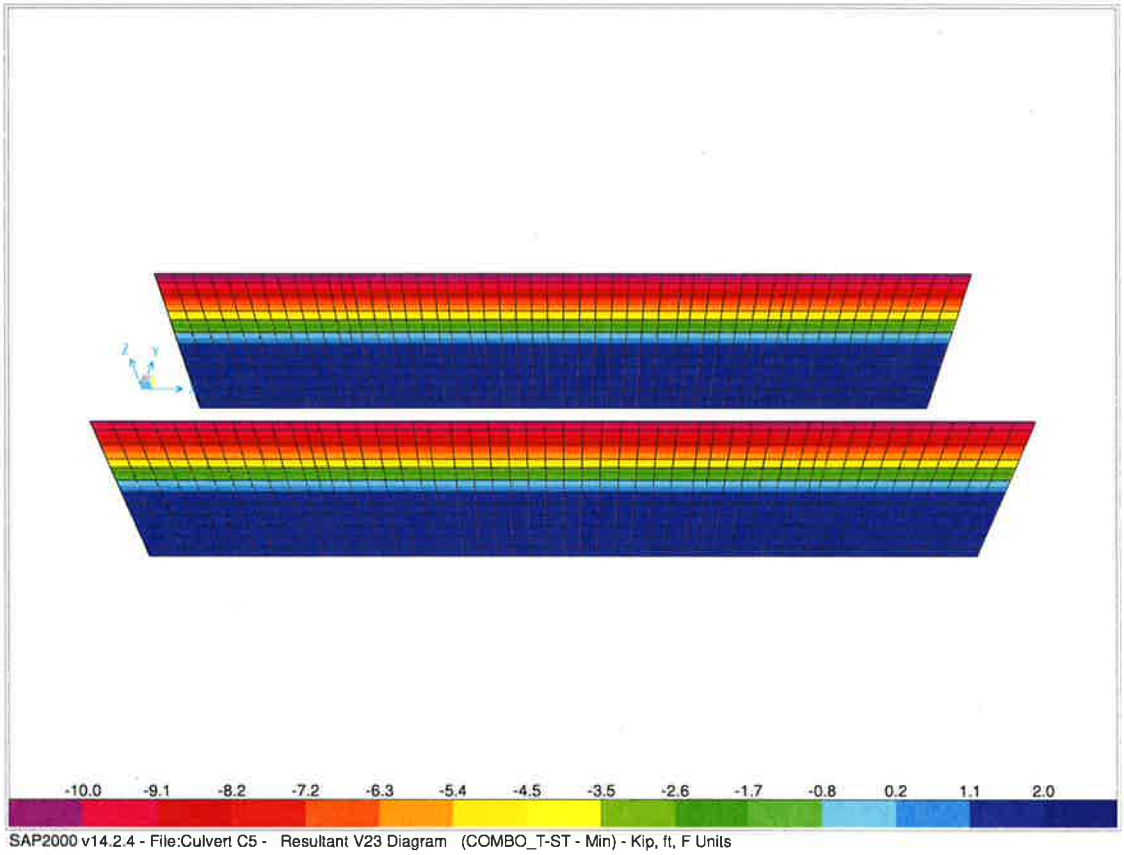
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 INT. WALLS "COMBO_T-ST" RESULTS-SHEAR 8/22/13 14:19:14



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

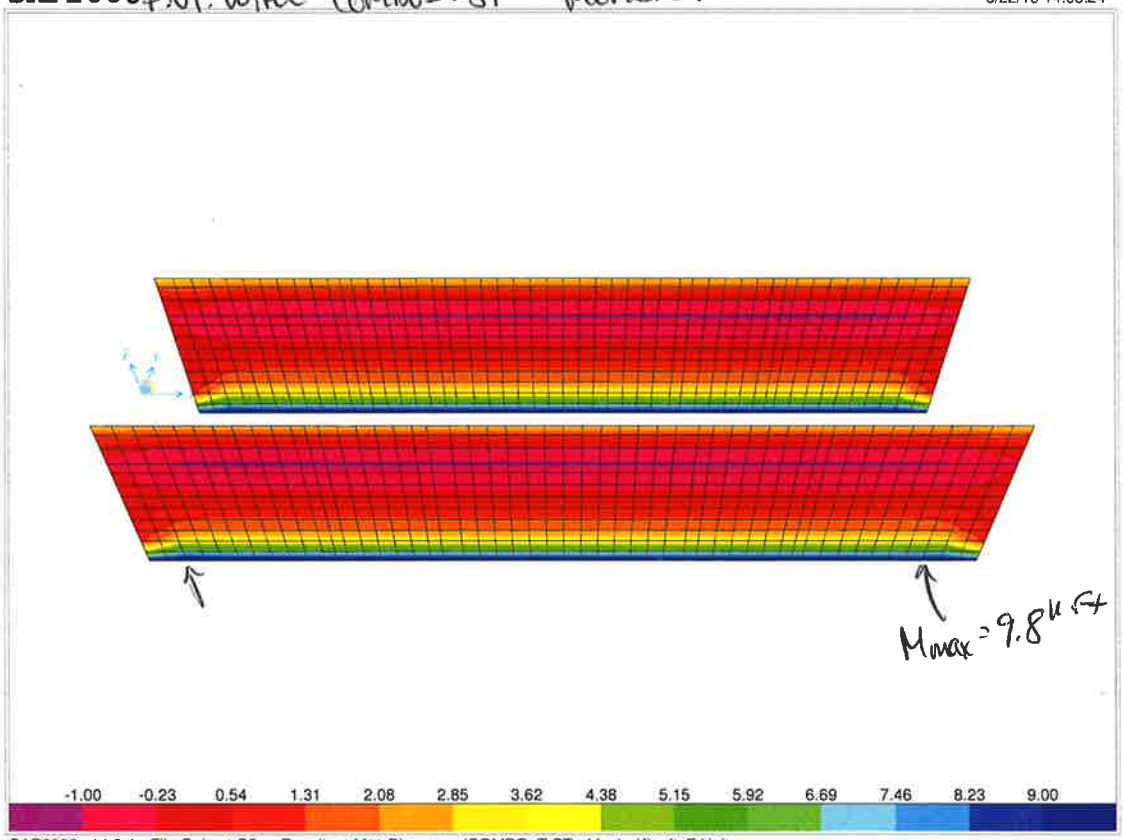
SAP2000 8/22/13 14:18:16



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 INT. WALL "COMBO_T-ST" - MOMENT

8/22/13 14:03:24

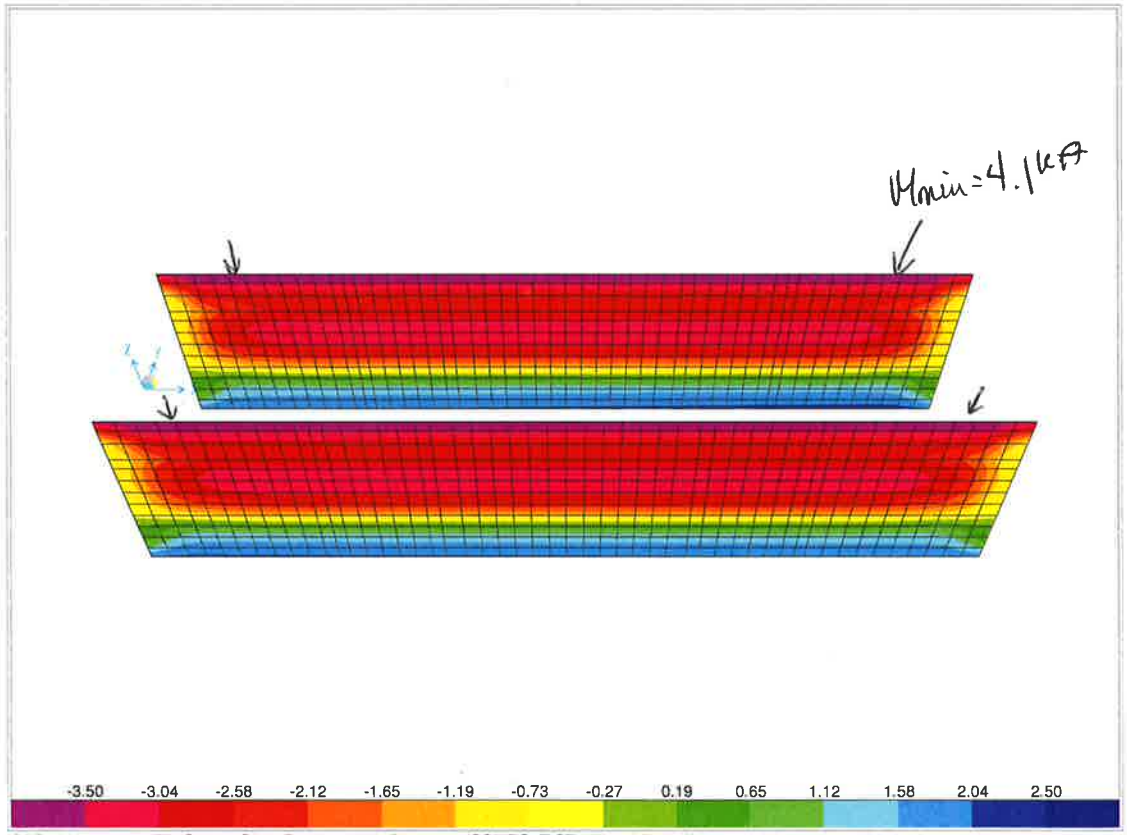


SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

LONG. REINF.

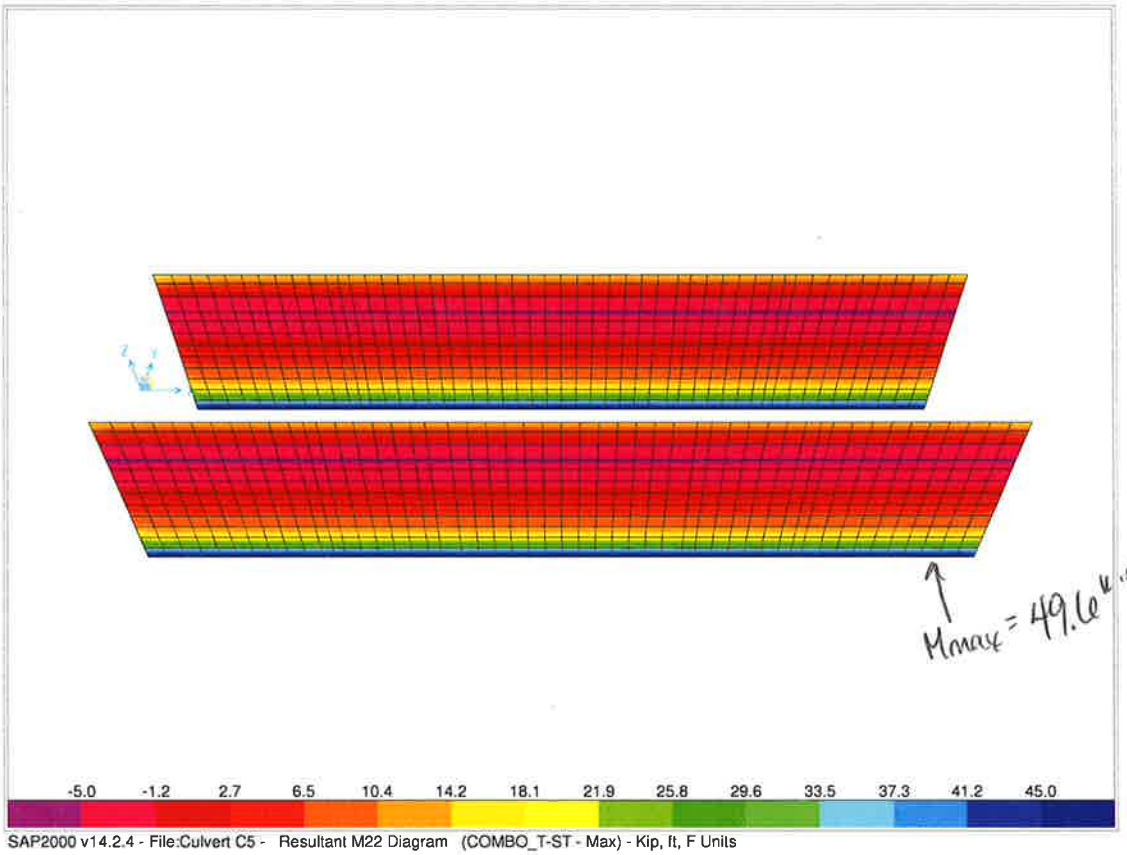
SAP2000

8/22/13 14:00:56



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

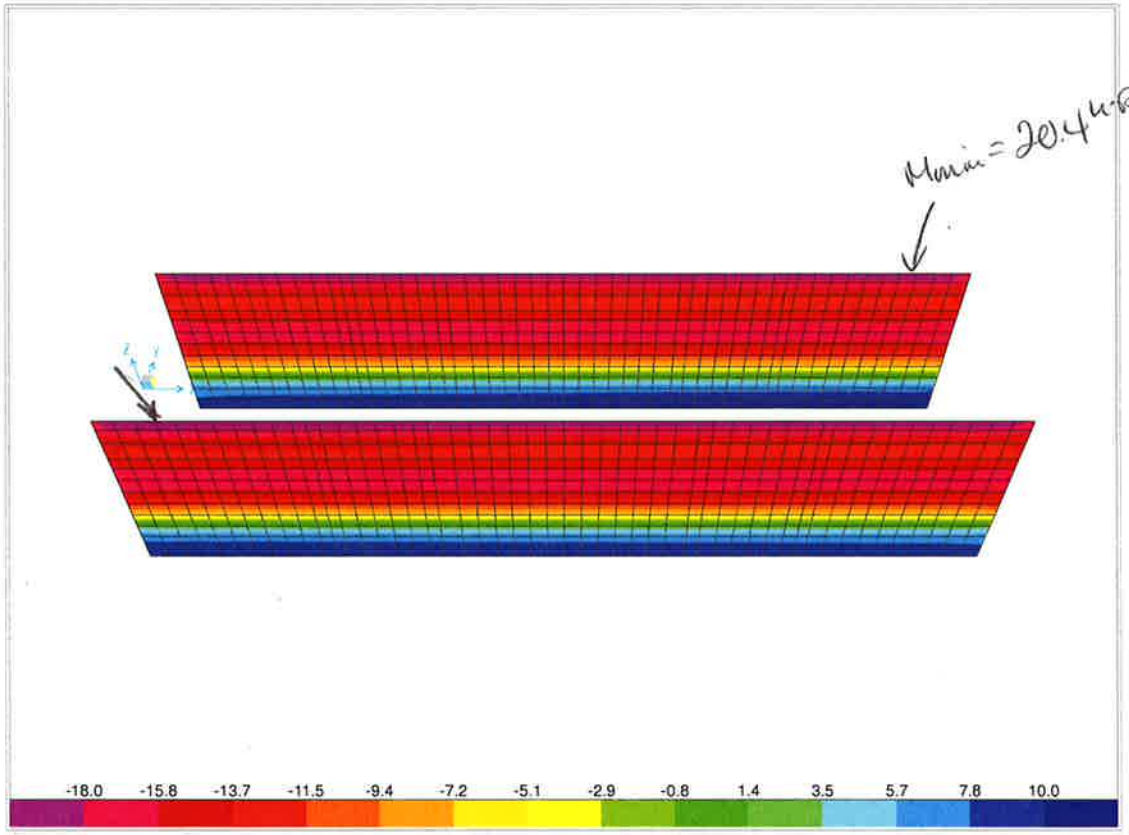
SAP2000 8/22/13 14:04:24



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

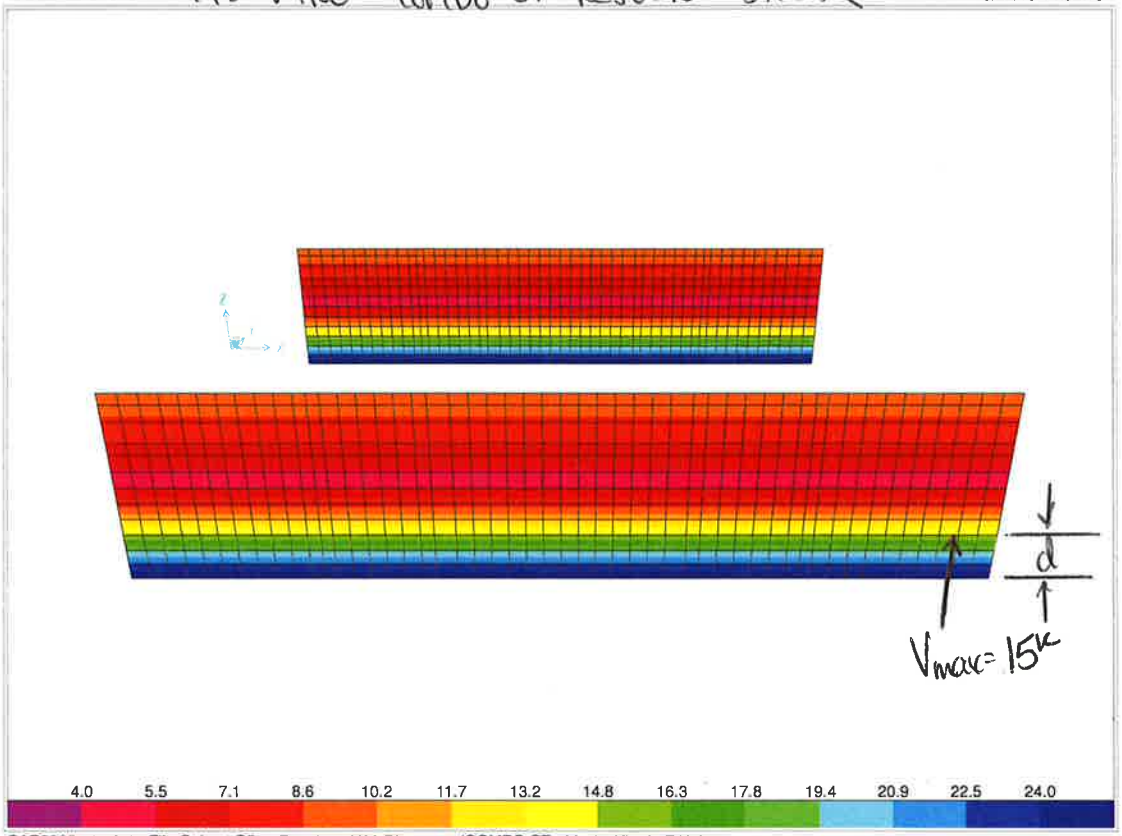
VERTICAL REINF.

SAP2000 8/22/13 14:06:57



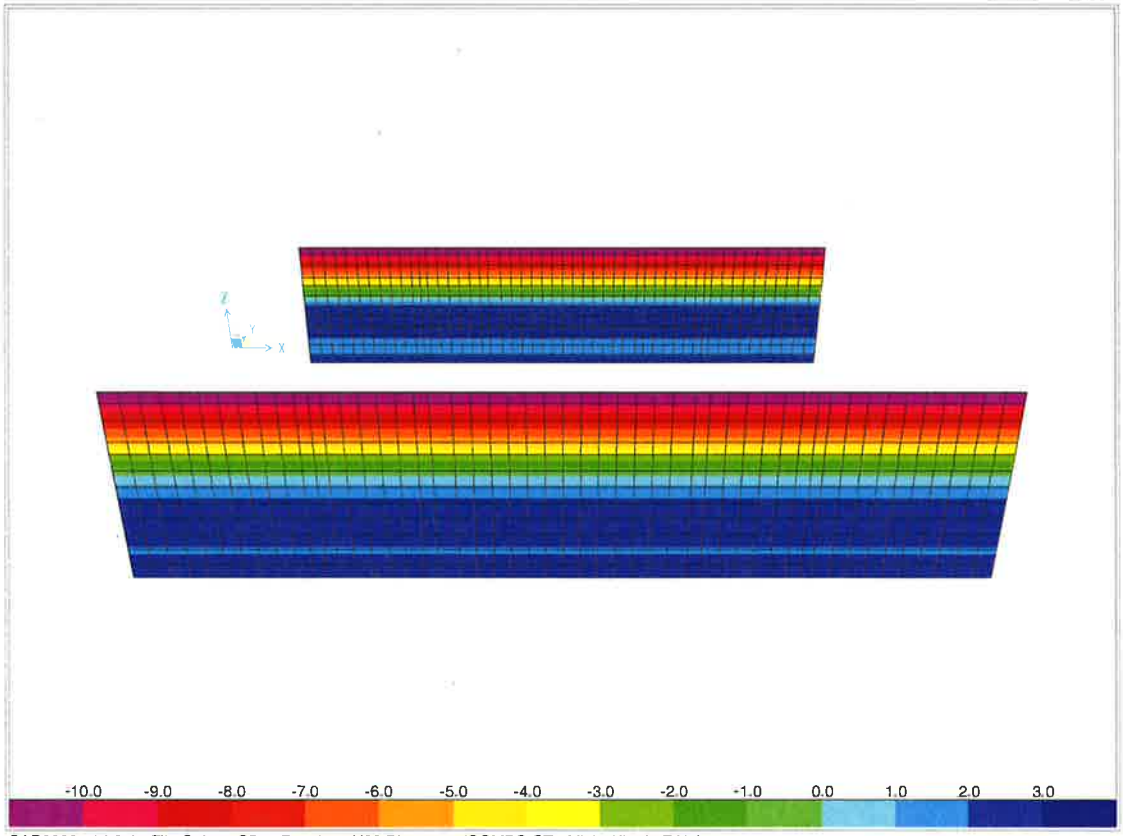
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 EXT. WALL "COMBO-ST" RESULTS– SHEAR 8/22/13 14:52:15



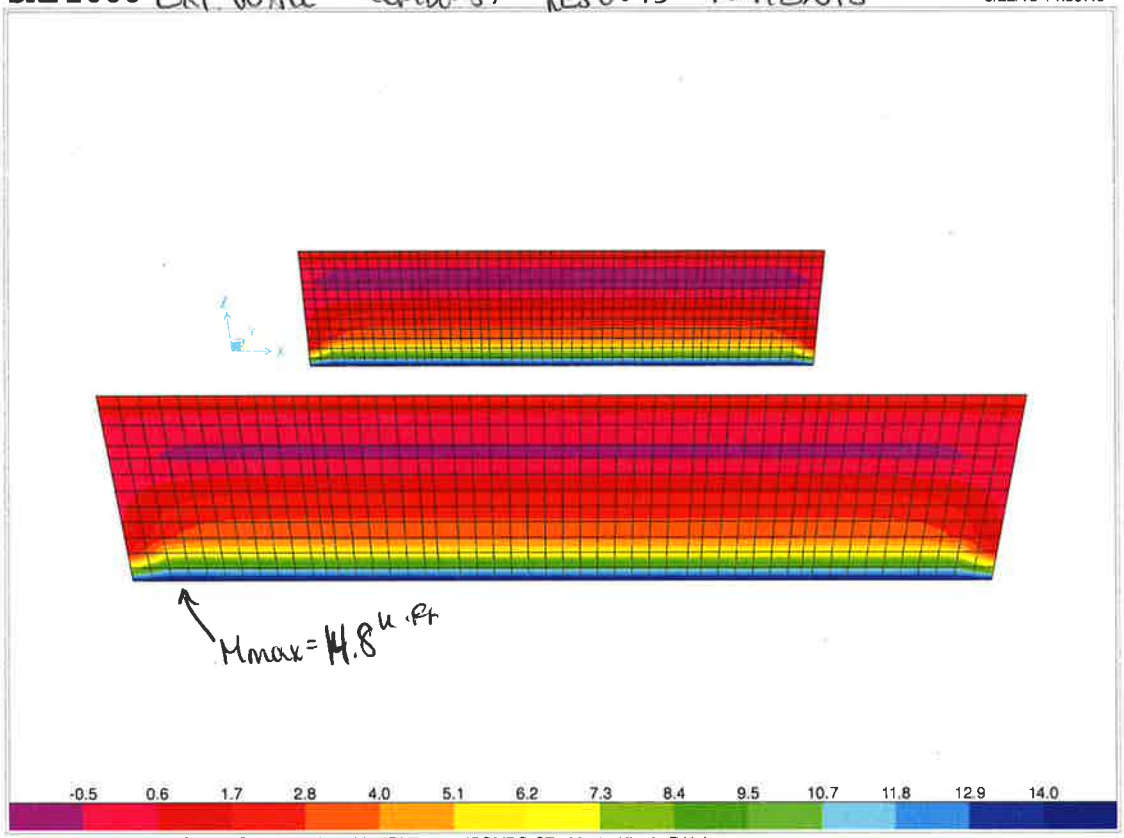
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 14:58:50



SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO-ST - Min) - Kip, ft, F Units

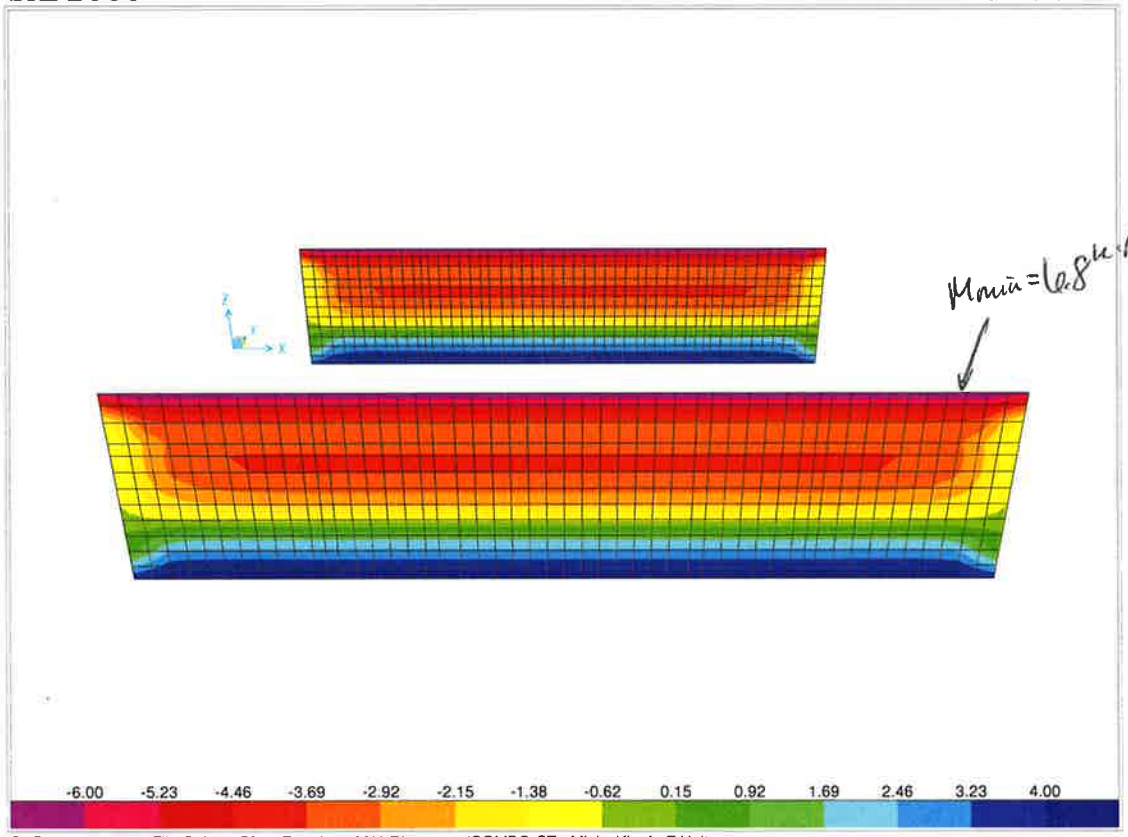
SAP2000 EXT. WALL "COMBO-ST" RESULTS – MOMENTS 8/22/13 14:59:43



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Max) - Kip, ft, F Units

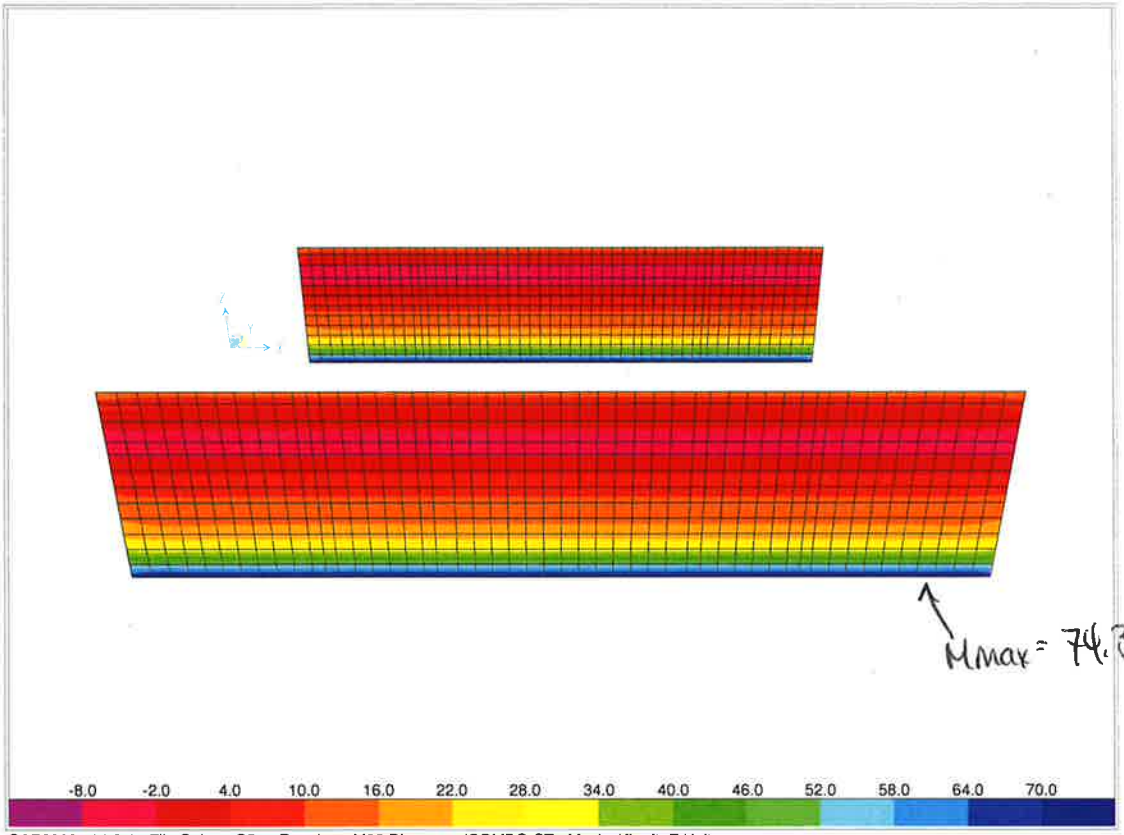
SECONDARY REINF.

SAP2000 8/22/13 15:06:55



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO-ST - Min) - Kip, ft, F Units

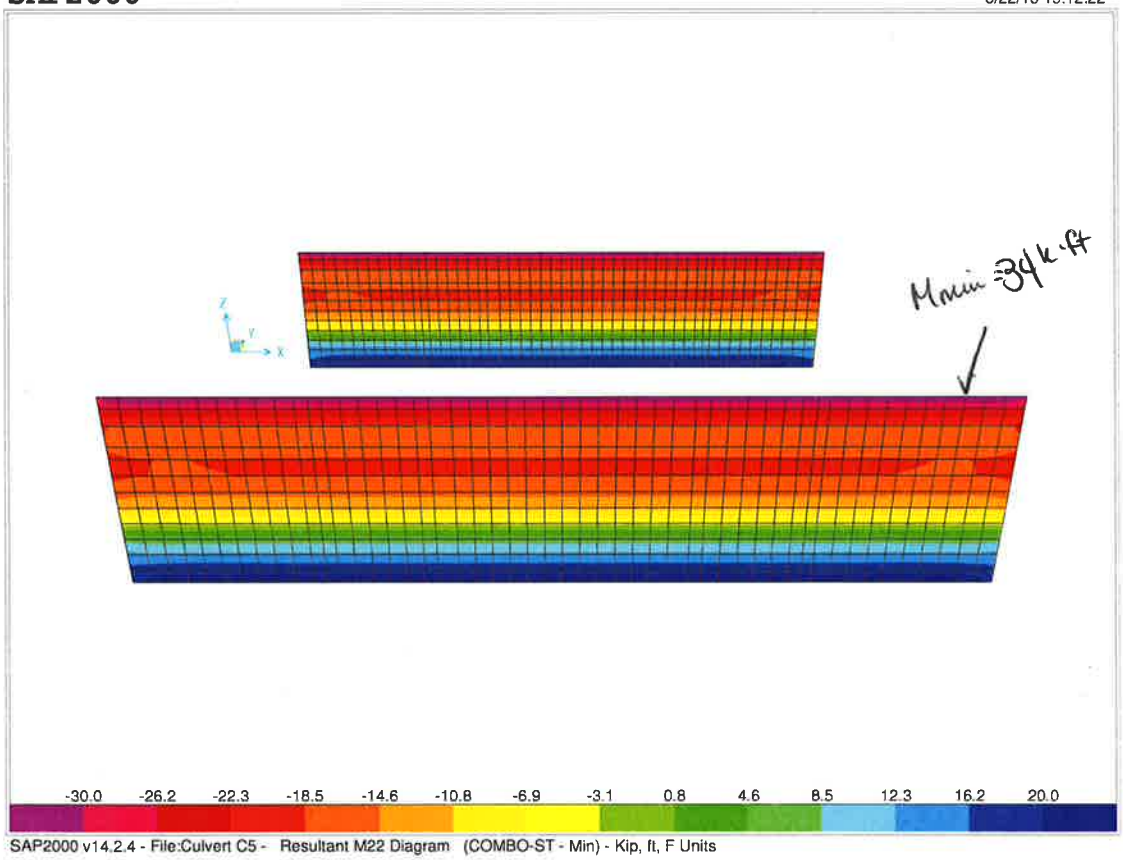
SAP2000 8/22/13 15:08:26



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Max) - Kip, ft, F Units

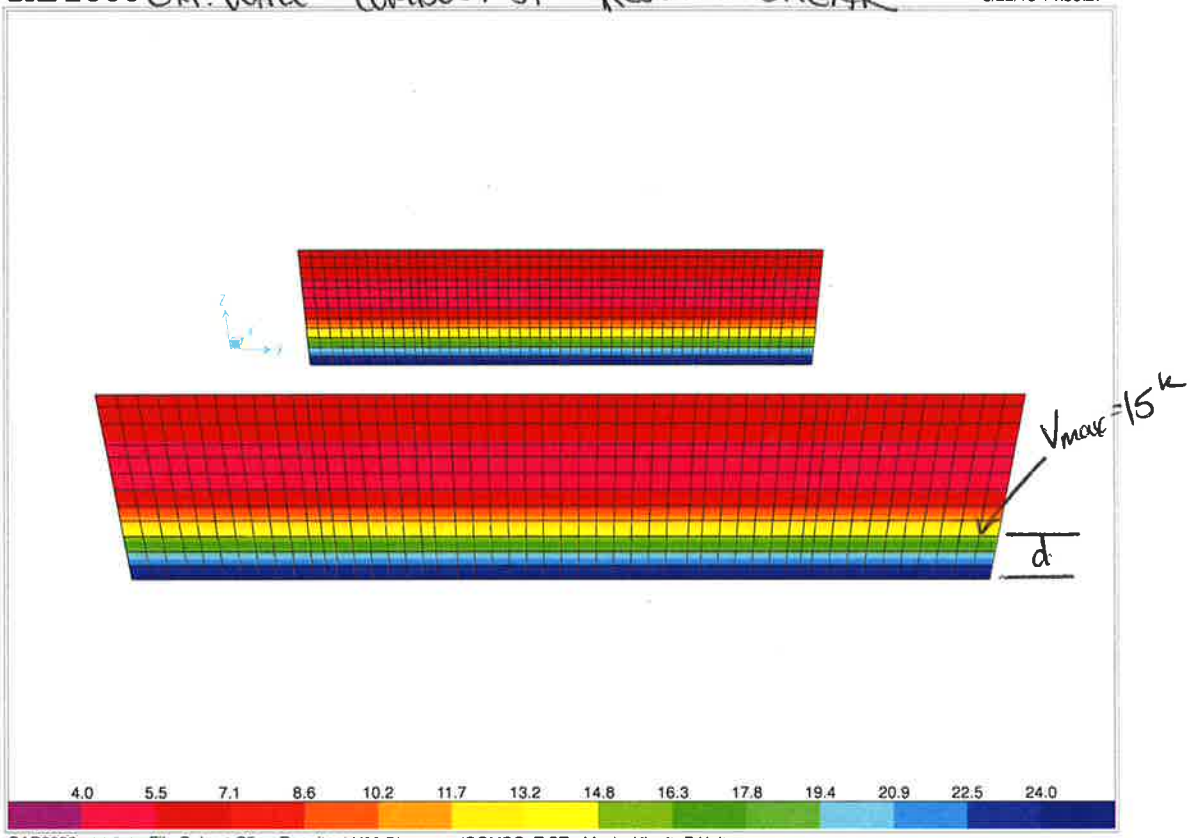
VERTICAL REINF.

SAP2000 8/22/13 15:12:22



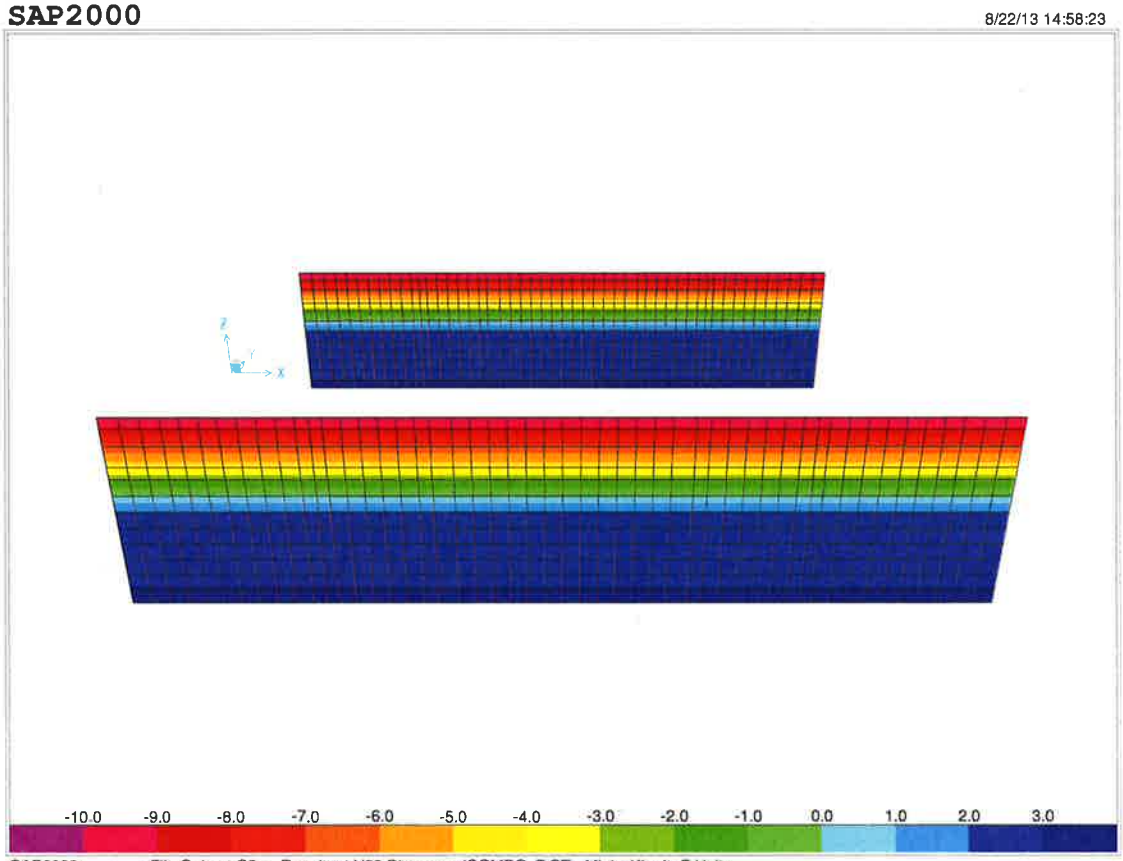
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO-ST - Min) - Kip, ft, F Units

SAP2000 EXT. WALL "COMBO_T-ST" RESULTS - SHEAR 8/22/13 14:56:27



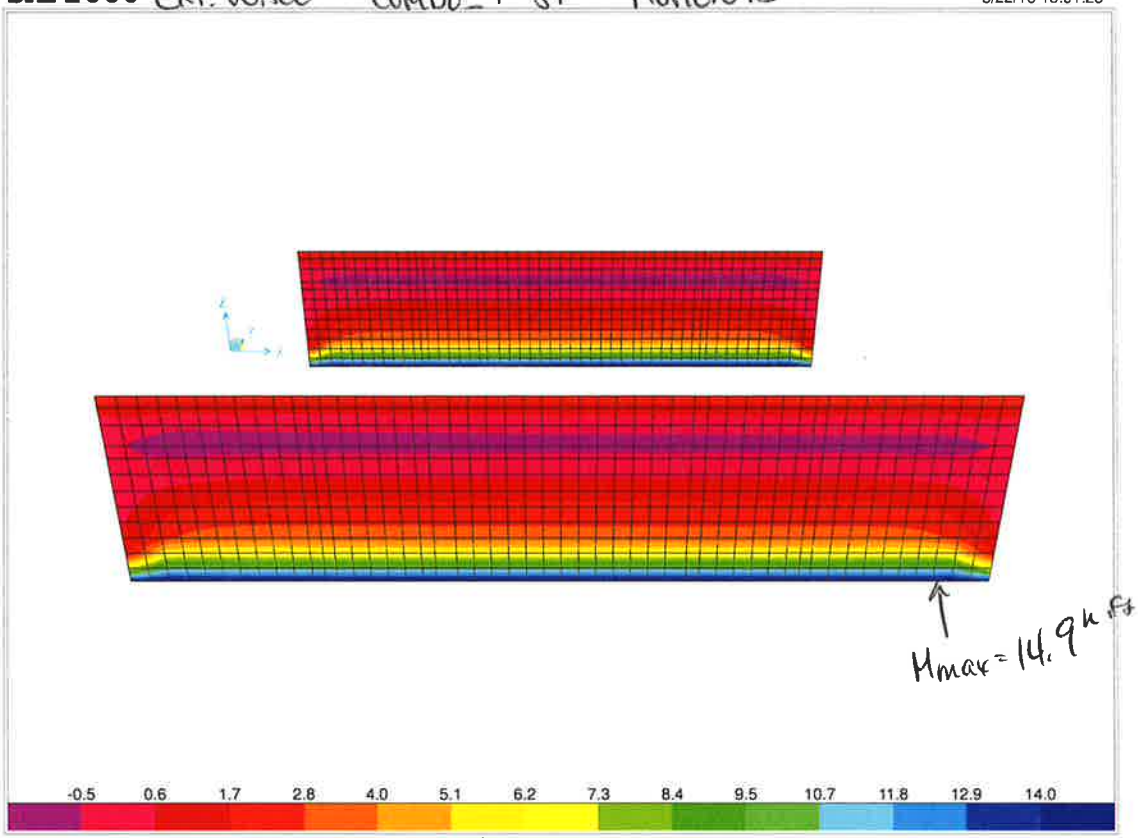
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 14:58:23



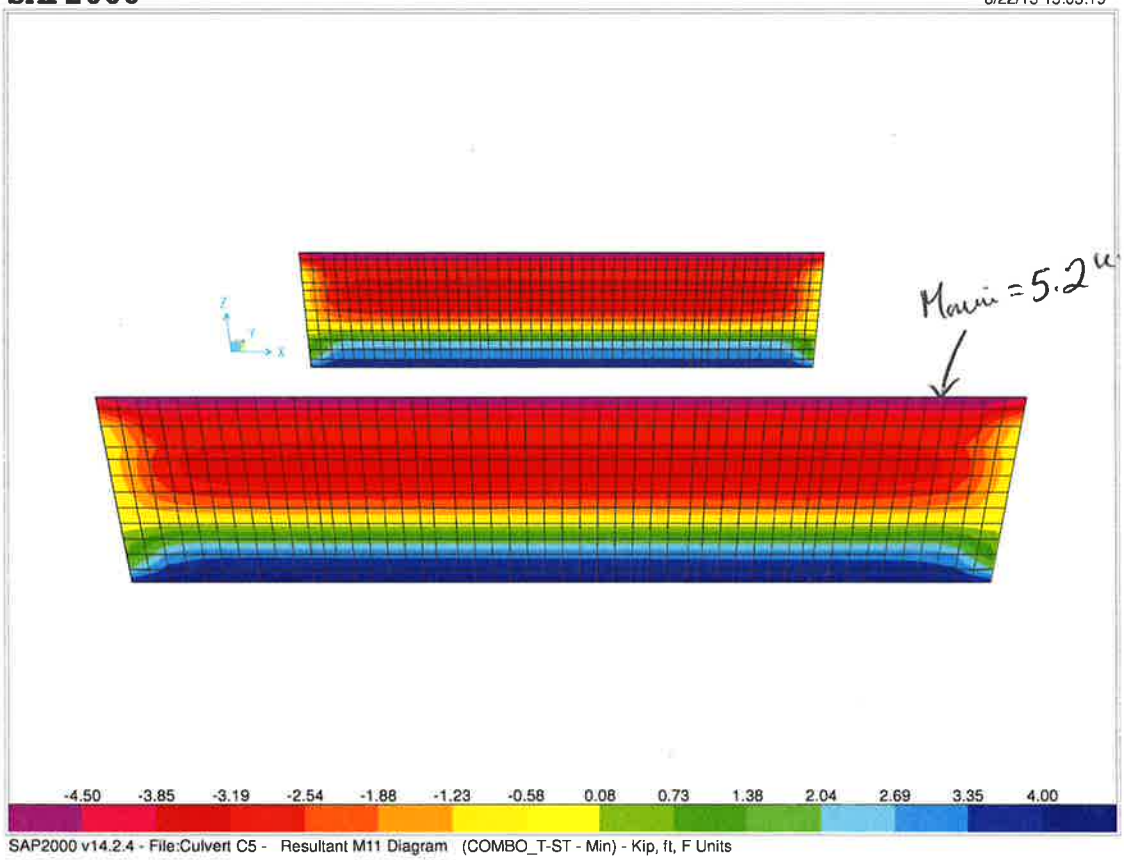
SAP2000 v14.2.4 - File:Culvert C5 - Resultant V23 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

SAP2000 EXT. WALL "COMBO_T-ST" MOMENTS 8/22/13 15:01:23



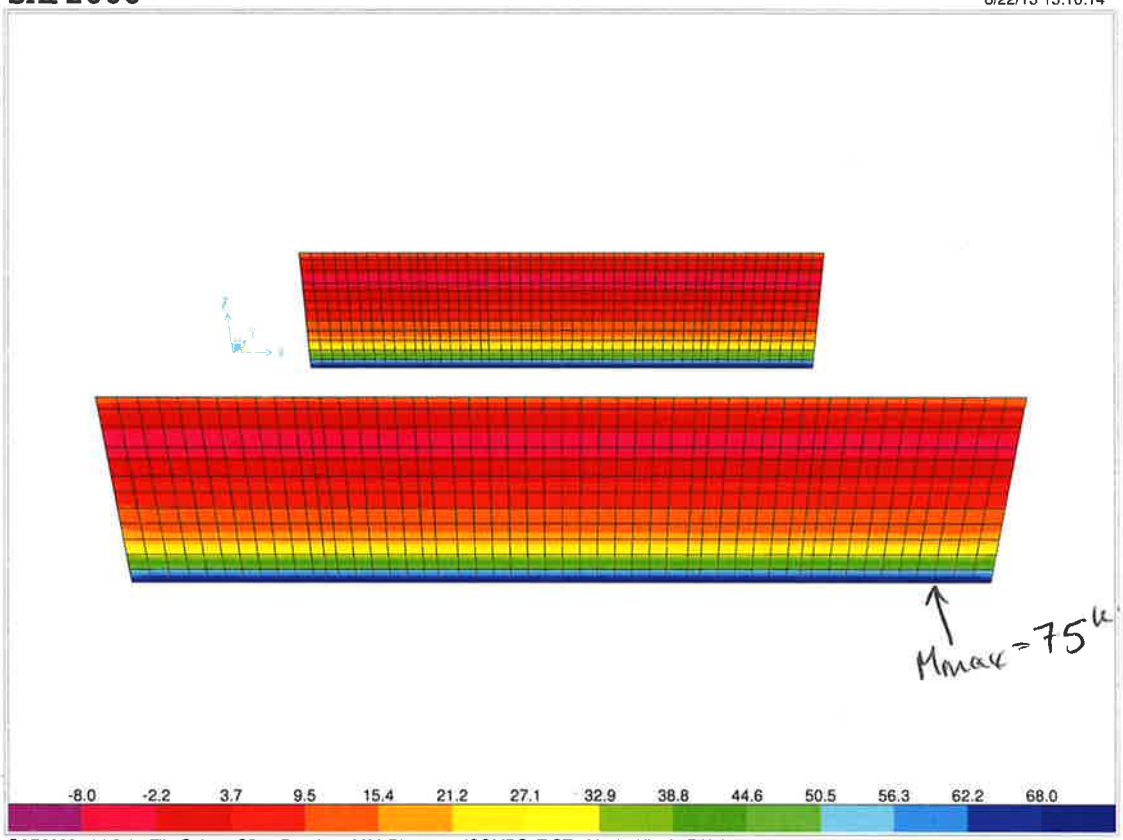
SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

SAP2000 8/22/13 15:05:19



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M11 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

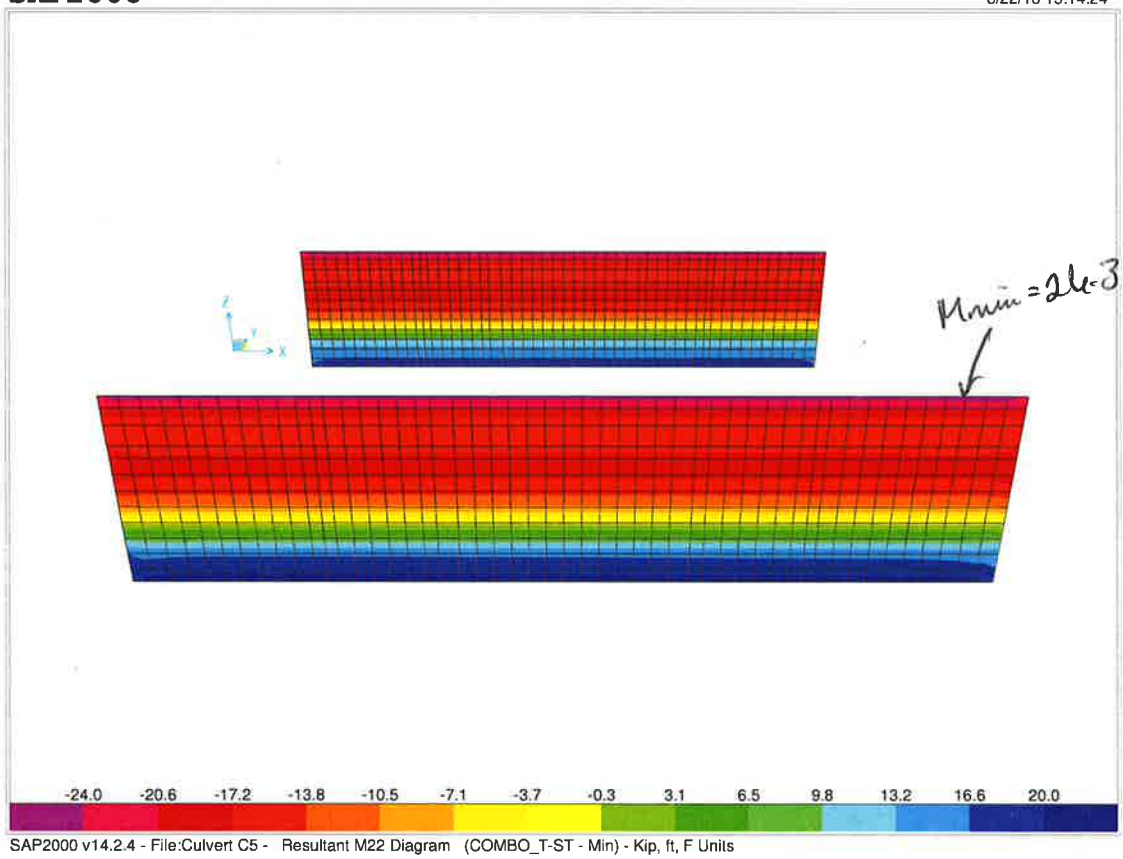
SAP2000 8/22/13 15:10:14



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Max) - Kip, ft, F Units

VERTICAL REINF.

SAP2000 8/22/13 15:14:24



SAP2000 v14.2.4 - File:Culvert C5 - Resultant M22 Diagram (COMBO_T-ST - Min) - Kip, ft, F Units

PART 6

Downstream Bulkhead Area Design Check

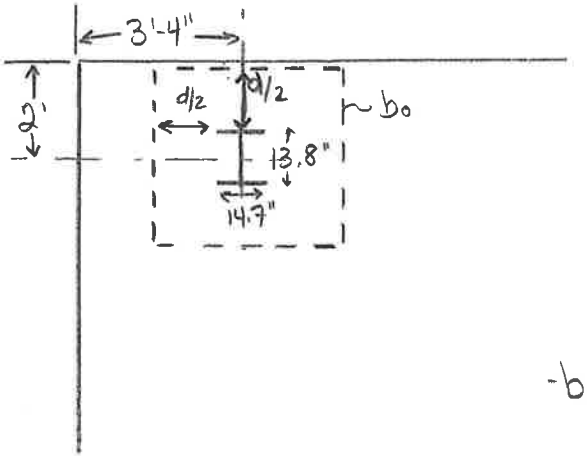
URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ____ of ____

Description: CULVERT. MONO. PUNCHING SHEAR CHECK | Computed by: LBR | Sheet ____ of ____

Checked by: ____ | Date: 8/2013 | Date: ____

Reference



- $d_{SLAB} = 42" - 9"_{\text{PILE EMBED}} - 3"_{\text{COVER}} - 1/2"$
  $= 29.5"$

- CLOSEST EDGE IS 2', DOES NOT EFFECT PERIMETER

- $b_o = 2\times(13.8" + d) + 2\times(14.7" + d)$
  $= 2\times(13.8" + 29.5") + 2\times(14.7" + 29.5")$
  $= 175"$

$$\phi V_c = \min. \begin{cases} ① \ \phi\left(2 + \frac{4}{\beta}\right)\sqrt{f'_c}\, b_o d & \text{ACI 318 (11-33)} \quad \beta = \frac{14.7"}{13.8"} = 1.07 \\ ② \ \phi\left(\frac{\alpha d}{b_o} + 2\right)\sqrt{f'_c}\, b_o d & (11\text{-}34) \quad \alpha = 20 \text{ (minimum)} \\ ③ \ \phi 4\sqrt{f'_c}\, b_o d & (11\text{-}35) \end{cases}$$

- BY INSPECTION, ③ CONTROLS

$$\phi V_c = (0.85)(4)\sqrt{4000}\,(175")(29.5") = 1{,}110{,}117.6^{LB}$$
$$= \underline{1{,}110.1^{K}}$$

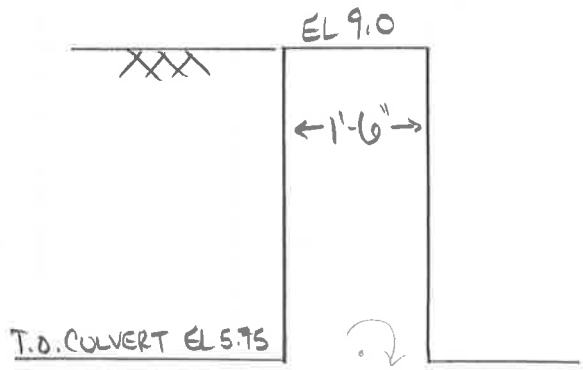
- MAX REACTION IS 141.2^K. IF TREATED AS AN ENVIRONMENTAL LOAD SUBJECT TO HYDRAULIC & SAFETY FACTORS, LOAD $= 141.2^K \times 1.3 \times 1.7 = \underline{312^K}$

$$\phi V_c = 1{,}110^K >> P_{max} = 312^K \rightarrow \underline{\underline{OK}}$$

URS

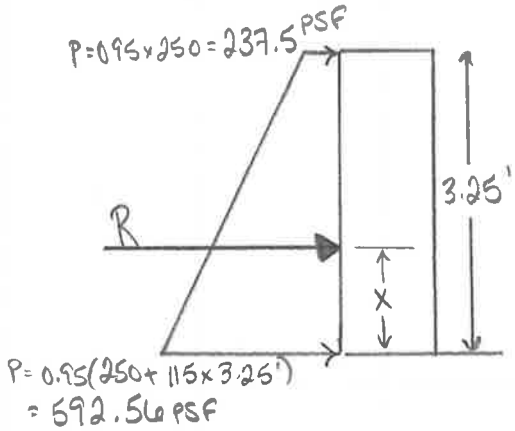
Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-6 RETAINING WALL | Computed by: LBR | Sheet ___ of ___ | Date: 8/2013
Checked by: BCB | Date: 8/2013
Reference

RETAINING WALL ON BACK EDGE OF MONOLITH C-6:



- AS PER CIVIL DWGS/LAYOUT, SOIL SHOULD ONLY BE TO EL 8.0 NEAR WALL (OVER ALL OF C-6 ROOF), BUT WILL DESIGN FOR SOIL TO T.O. WALL IN CASE OF GRADING CHANGES.

- WORST CASE CONDITION WOULD BE CONSTRUCTION - DRY SOIL TO T.O. WALL ON ONE SIDE PLUS 250PSF SURCHARGE. WILL NOT INCLUDE 16% ALLOWABLE O/S FOR A MORE CONSERVATIVE DESIGN.



$$P_{HZ} = K_0 \times [q_{SURCH} + \gamma_{DRY} \times h_{SOIL}]$$

$K_0 = 0.95$, $\gamma = 115$ PCF
$q = 250$ PSF

$$R = \tfrac{1}{2}[237.5^{PSF} + 592.56^{PSF}] \times 3.25' = \underline{1{,}348.9^{LB/FT}}$$

$$X = \frac{3.25'}{3}\left[\frac{2 \times 237.5 + 592.56}{237.5 + 592.56}\right] = \underline{1.393'}$$

HYDRAULIC FACTOR ↓ SINGLE LOAD FACTOR ↓

$$V_{max} = 1.35^{K/FT} \times 1.3 \times 1.7 = 2.984^{K/FT}$$

$$M_{max} = 1.35^{K/FT} \times 1.4' = 1.89^{K \cdot FT/FT} \times 1.3 \times 1.7 = 4.18^{K \cdot FT/FT}$$

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-6 RETAINING WALL | Computed by: LBR | Sheet ___ of ___
Checked by: BCB | Date: 8/2013 | Date: 8/2013

Reference

FOR 1'-6" SECTION, $d = 18" - 4" - \frac{1}{2} \times 1" = 13.5"$ (ASSUMES #8)

* $\phi V_c = \phi 2\sqrt{f'_c}\, b d = 0.85 \times 2 \times \sqrt{4000} \times 12" \times 13.5"$
$= 17{,}417.8^{LB}$
$= \underline{17.4^k \gg V_u = 3^k} \rightarrow$ OK

* MINIMUM REINF, T & S: $0.0028 A_{gross} = 0.0028 \times 12" \times 18" = 0.6048 \text{ IN}^2$
HALF EACH FACE $\Rightarrow$ $\underline{0.303 \text{ IN}^2/\text{FACE}}$

* MINIMUM REINF, FLEXURE:

$$\max \begin{cases} ① \dfrac{3\sqrt{f'_c}\, b d}{f_y} = \dfrac{3\sqrt{4000}(12")(13.5")}{60{,}000} = 0.512 \\ ② \dfrac{200 b d}{f_y} = \dfrac{200(12")(13.5")}{60{,}000} = \underline{0.54} \leftarrow \end{cases}$$

* #7@12" FULFILL MINIMUM REINF. REQUIREMENTS - CAPACITY:

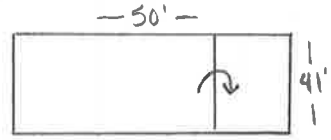
$$a = \frac{A_s f_y}{0.85 f'_c b} = (0.6 \text{ IN}^2)(60^{KSI}) / (0.85)(4^{KSI})(12") = 0.8824"$$

$$\phi M_n = \phi A_s f_y (d - a/2) = (0.9)(0.6 \text{ IN}^2)(60^{KSI})\left(13.5" - \frac{0.8824"}{2}\right)$$
$= 423.11^{k \cdot IN}$
$= 35.26^{k \cdot FT}$

$\underline{\phi M_n = 35^{k \cdot ft} \gg M_u = 4.18^{k \cdot ft}} \rightarrow$ OK

↳ CHECK TOP SLAB CAN SUPPORT ADD'L MOMENT IMPARTED BY WALL:

↳ MOMENT IS IN LONGITUDINAL DIRECTION



$M_{u,SECONDARY} = 12.4^{k \cdot ft} + 4.18^{k \cdot ft} = 16.6^{k \cdot ft} \times 1.33$ (ACI 10.5.3 ALLOWANCE FOR FLEXURAL REBAR)
$= \underline{22.13^{k \cdot ft}}$

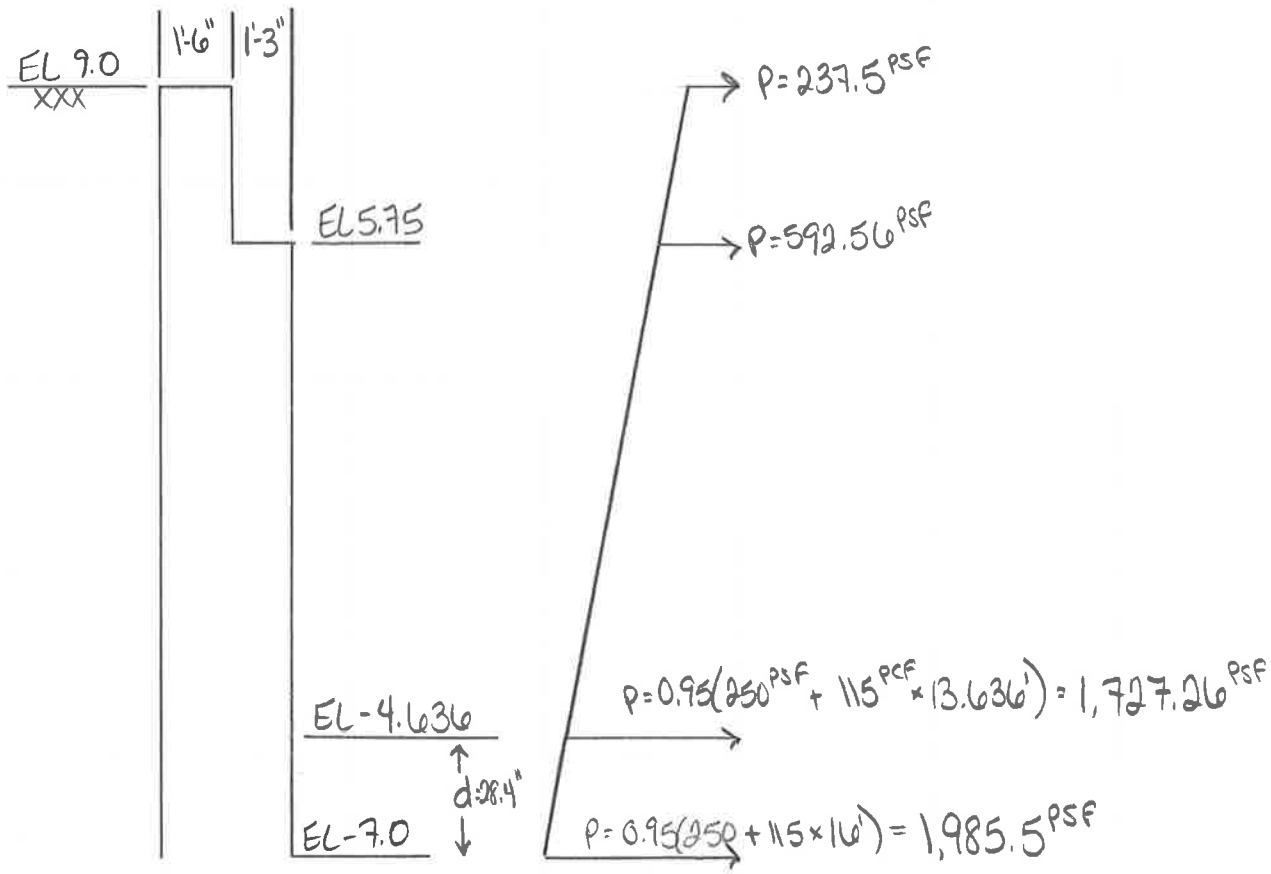
$\phi M_{n,\#7@12"} = 75.4^{k \cdot ft} > M_u = 22.13^{k \cdot ft} \rightarrow$ OK

URS

Job: MAUREPAS DIVERSION	Project No. 10001876	Page ___ of ___	
Description: C-6 RETAINING WALL BULKHEAD AREA	Computed by: LBR	Sheet ___ of ___	
	Checked by: BCB	Date: 8/2013	Date: 8/2013

Reference

↳ CHECK EXTERIOR WALLS CAN SUPPORT ADD'L MOMENT IMPARTED BY RETAINING WALL & LOSS OF SUPPORT FROM CULVERT ROOF:



* V_{max} (TAKEN @d FROM SLAB) = $\frac{1}{2} \times [237.5^{PSF} + 1727.26^{PSF}] \times 13.636' = 13{,}396.0^{LB/FT}$

$V_{max} \times H_s \times H_f = 13{,}396 \times 1.3 \times 1.7 = \underline{\underline{29{,}605.1^{LB/FT}}}$

$\phi V_c = 36.6^k > V_u = 29.61^k \rightarrow$ OK

* FORCE FOR MOMENT CHECK: $\frac{1}{2}[237.5^{PSF} + 1985.5^{PSF}] \times 16' = 17{,}784^{LB/FT}$

URS

Job: MAUREPAS DIVERSION | Project No. 10001876 | Page ___ of ___
Description: C-6 RETAINING WALL / BULKHEAD RECESS | Computed by: LBR | Sheet ___ of ___
Checked by: BCB | Date: 8/2013 | Date: 8/2013
Reference

$$\text{MOMENT ARM} = \frac{16'}{3}\left[\frac{2\times 237.5 + 1985.5}{237.5 + 1985.5}\right] = 5.9'$$

$$M_{max} = 17{,}784^{LB/FT} \times 5.9' = 104{,}925.6^{FT\cdot LB/FT}$$

$$M_{max} \times H_f \times H_s = 231{,}885.6^{FT\cdot LB/FT}$$

(NOT INCLUDING 16% ALLOWABLE O/S FOR CONST. CASES B/C ONLY 1 LOAD CONDITION ANALYZED)

↳ CURRENTLY HAVE #9@12" IN EXTERIOR WALL FACES. TRY INCREASING TO #9@6" FOR CANTILEVER SECTION OF WALL:

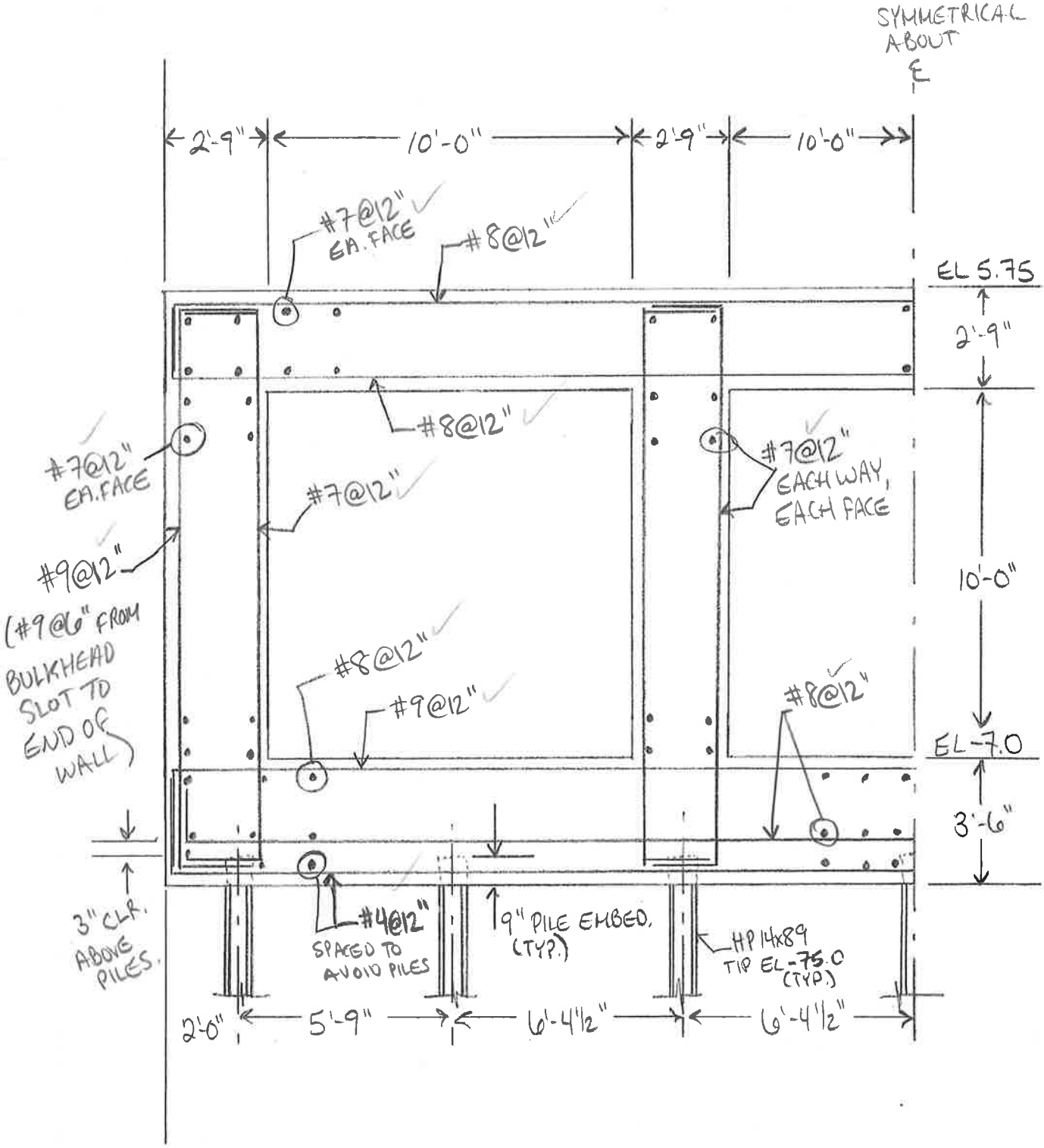
$$a = \frac{A_s f_y}{0.85 f'_c b} = \frac{(2\,in^2)(60^{KSI})}{0.85\,(4^{KSI})(12")} = 2.9412"$$

$$\phi M_n = \overbrace{(0.9)(2\,in^2)(60^{KSI})}^{\phi A_s f_y}(28.37 - \frac{2.9412"}{2}) = 2904.6^{IN\cdot KIP} = 242.05^{FT\cdot KIP}$$

$$\phi M_n = 242^{FT\cdot KIP/FT} > M_u = 231.9^{FT\cdot K.} \rightarrow \underline{\underline{OK}}$$

URS

Job MAUREPAS
Description MONOLITHS C-5 TO C-6
REINFORCEMENT

Project No. 10001876
Computed by LBR
Checked by

Page ____ of ____
Sheet ____ of ____
Date 8/2013
Date
Reference