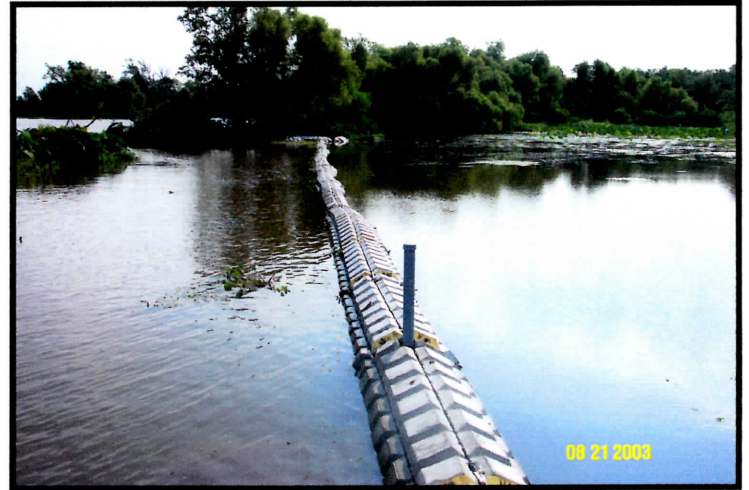


OPERATION, MAINTENANCE, AND REHABILITATION PLAN

MANDALAY BANK PROTECTION DEMONSTRATION

State Project No. TE-41



AUGUST 2004



**OPERATION, MAINTENANCE, AND REHABILITATION
PLAN FOR MANDALAY BANK PROTECTION
DEMONSTRATION PROJECT
TE-41**

August 2004

Prepared by:
Louisiana Department of Natural Resources
Coastal Engineering Division

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History of Revisions

OPERATION, MAINTENANCE, AND REHABILITATION PLAN
MANDALAY BANK PROTECTION DEMONSTRATION PROJECT

(TE-41)

The Louisiana Department of Natural Resources (LDNR) and the United States Department of the Interior - Fish and Wildlife Service (USFWS) agree to carry out the terms of this Operation, Maintenance, Repair, and Rehabilitation Plan (hereinafter referred to as the "Plan") of the accepted, completed project features in accordance with the Cost Sharing Agreement No. 435-100323, DNR Agreement No. 2511-01-13 dated December 6, 2000 with amendments effective January 9, 2002 and May 9, 2002 (Attachment I).

The project features covered by this plan are inclusive of and are identified as the Mandalay Bank Protection Demonstration Project (TE-41). The intention of the provisions of this Plan is to maintain this project in a condition that will generally provide the anticipated benefits that the project was based on. This is a Demonstration Project and there are no requirements that this project function to any standard beyond the 5-year demonstration period, except that it is not left as a hazard to navigation or a detriment to the environment.

Construction of Mandalay Bank Protection Demonstration Project is authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended. The Mandalay Bank Protection Demonstration Project was approved on the 9th Priority Project List.

1. PROJECT DESCRIPTION, PURPOSE, AND LOCATION

The Mandalay Bank Protection Demonstration Project (TE-41) is located along 3.4 miles of the Gulf Intracoastal Waterway (GIWW) approximately 6 miles southwest of Houma, Louisiana in the northeast portion of Terrebonne Parish. The project lies in the northern portion of the Penchant sub-basin in the Terrebonne hydrologic basin.

The stretch of the GIWW within the project area experiences a substantial volume of marine vessel traffic. Frequent wave action along the waterway coupled with soft, unstable marsh sediments has resulted in several shoreline blowouts, bank erosion, and an overall widening of the channel. Studies show that from 1944 to 1983 the GIWW shoreline in the project area experienced land loss rates of more than 13 feet per year (May and Britsch 1987). Adjacent freshwater marshes remain vulnerable to the damaging effects of waves produced by large-vessel traffic and high winds.

The overall objective of the project is to demonstrate the effectiveness of four separate types of treatments (two blowout and two off-bank techniques) in providing protection against shoreline erosion, promoting sedimentation, and promoting vegetative growth in a relatively high wave energy environment containing soft, highly organic soils. Unconsolidated sediments, such as those found along the GIWW, make traditional shoreline stabilization techniques ineffective due to poor load bearing capacities. The

treatments are arranged in twelve sites along the south bank of the GIWW, three sites of each of the four types of treatments (Attachment II – Project Features). Additionally, armored earthen plugs were constructed in three locations across deep, narrow breaks in the bank near some treatment sites in order to maintain the integrity of the treatment evaluation.

The project has a demonstration period of five (5) years, which began in September 2003. The principal project features include:

Blowout Treatments:

- Site R1 – Revetment Mats / Elevated Shoreline (CPE Pipe) System
- Site R2 – Revetment Mats / Elevated Shoreline (CPE Pipe) System
- Site R3 – Revetment Mats / Elevated Shoreline (CPE Pipe) System

- Site V1 – Straight-walled Fiberglass Sheet Pile System
- Site V2 – Straight-walled Fiberglass Sheet Pile System
- Site V3 – Straight-walled Fiberglass Sheet Pile System

Off-Bank Treatments:

- Site J1 – Concrete Armor Units with Giant Cutgrass
- Site J2 – Concrete Armor Units with Giant Cutgrass
- Site J3 – Concrete Armor Units with Giant Cutgrass

- Site F1 – Fencing with Giant Cutgrass
- Site F2 – Fencing with Giant Cutgrass
- Site F3 – Fencing with Giant Cutgrass

Additional features:

- Site A1 – Armored Plug
- Site A2 – Armored Plug
- Site A3 – Armored Plug

2. **CONSTRUCTION COMPLETION**

The Mandalay Bank Protection Demonstration Project (TE-41) completion report is included in Attachment III of this Plan. Within this completion report is a summary of information and significant events including: project personnel, final as-built project features, construction cost and CWPPRA project estimates, construction oversight cost, construction activities and change orders, pipeline and utility crossing owner information, and other significant milestone dates and comments.

The project “As-Built” construction drawings updated with all field changes and modifications that occurred during construction are included in Attachment IV.

3. **PROJECT PERMITS**

Project permit applications were completed and submitted to appropriate agencies, and permits were received prior to construction. These permits and permit amendments are included in Attachment V. Provisions for the renewal of Federal and State permits may be required prior to removal of these Structures.

4. **ITEMS REQUIRING OPERATION, MAINTENANCE, AND REHABILITATION**

This is a Demonstration Project with no provision for the operation, maintenance, or rehabilitation of any of the project features other than the performance of inspections of the project features during the 5-year demonstration period. The following completed, structural components jointly accepted by LDNR and USFWS will require inspections during the 5-year demonstration period of the project.

The project features to be inspected include:

Blowout Treatments:

Sites R1, R2, R3 – Revetment Mats / Elevated Shoreline (CPE Pipe) System

Articulated concrete mats are draped over bundled, perforated Corrugated Polyethylene (CPE) pipes which are placed on top of a geotextile fabric layer. This assembly is anchored to the water bottom and to shoreline banks. Each site has one Settlement Plate and one Warning Sign.

- Site R1 – approximately 312 L.F.
- Site R2 – approximately 300 L.F.
- Site R3 – approximately 584 L.F.

Sites V1, V2, V3 – Straight-walled Fiberglass Sheet Pile System

The sheet pile structure consists of vertically constructed, parallel, fiberglass panels with ball and socket interlocking joints. Walers are constructed of treated timber. All hardware and tie-rods are galvanized. In-fill dredge material from the GIWW is placed in between the sheet piles. Each site has one Warning Sign.

- Site V1 – approximately 612 L.F.
- Site V2 – approximately 408 L.F.
- Site V3 – approximately 729 L.F.

Off-Bank Treatments:

Sites J1, J2, J3 – Concrete Armor Units with Giant Cutgrass

An interlocking double row of 24 inch A-Jacks[®] concrete armor units is placed on the channel side of *Zizaniopsis miliacea* (giant cutgrass) plantings. The units are submerged and located in shallow water adjacent to eroding shoreline banks (off-

bank). The units are placed on a geogrid layer that is anchored to the water bottom. Each site has one Warning Sign.

- Site J1 – approximately 442 L.F.
- Site J2 – approximately 429 L.F.
- Site J3 – approximately 370 L.F.

Sites F1, F2, F3 – Fencing with Giant Cutgrass

The timber fence structure is a vertically constructed, V-shaped, wave dampening structure consisting of staggered timber boards and timber posts. All fencing is constructed with pressure-treated timber and galvanized hardware. The structure is constructed on the channel side of *Zizaniopsis miliacea* (giant cutgrass) plantings and is located in shallow water adjacent to eroding shoreline banks (off-bank). Each site has one Warning Sign.

- Site F1 – approximately 372 L.F.
- Site F2 – approximately 447 L.F.
- Site F3 – approximately 375 L.F.

Additional features:

Sites A1, A2, A3 – Armored Plugs

The armored plug consists of a core of dredged fill material from the GIWW placed on a geogrid layer with a geotextile fabric layer and a concrete revetment mat covering the core. The revetment mat is anchored to the water bottom. Each site has one Warning Sign.

- Site A1 – approximately 88 L.F.
- Site A2 – approximately 80 L.F.
- Site A3 – approximately 48 L.F.

5. OPERATION AND MAINTENANCE BUDGET

The Mandalay Bank Protection Demonstration Project (TE-41) is a demonstration project with a 5-year demonstration period. The costs associated with project inspections approved by the CWPPRA Task Force are included in attachment VI. This figure represents funding for inspection of the project after the first, third, and fifth years following construction completion. Under the current Cost Sharing Agreement between LDNR and USFWS no funds other than for inspections have been provided for the operation, maintenance, or rehabilitation of any of the project features in the Mandalay Bank Protection Demonstration Project (TE-41).

6. OPERATION OF STRUCTURES

No operation is required for this project. (Attachment VII intentionally blank)

7. **RESPONSIBILITIES – MAINTENANCE AND REHABILITATION**

A. LDNR will:

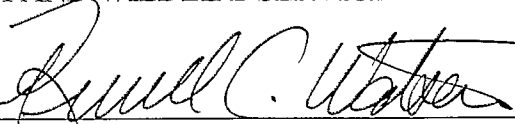
1. In accordance with the Cost Sharing Agreement No. 435-100323 outlined in Attachment I, assume all responsibilities for maintenance and rehabilitation of the accepted, completed project features identified in Section 4.
2. Conduct joint site inspections with USFWS of the project site after the first, third, and fifth years following construction completion and also after major storm events if determined to be necessary by LDNR and USFWS. LDNR will submit to USFWS, a report detailing the condition of the project features and recommendations for any corrective action. If LDNR recommends that corrective actions are needed, the report will include the entire estimated cost for engineering and design, supervision and inspection, construction, contingencies, and the urgency of such action. Project inspection reports may be compiled under attachment VIII - Project Inspections.
3. Perform or have performed any corrective actions needed, if such corrective actions have been approved by LDNR, USFWS, and the CWPPRA Task Force. USFWS will participate with LDNR, or its appointed representative, in the engineering and design phases of the corrective actions for the project. Oversight of engineering and construction of the corrective actions for the project will be the responsibility of LDNR or its appointed representative. At least thirty (30) calendar days prior to the date of formal request for construction bids, LDNR or its appointed representative shall provide USFWS with final copies of all project corrective action designs and specifications for review and concurrence by USFWS. LDNR or its appointed representative shall approve the final designs and specifications prior to proceeding with bid solicitations on all project corrective action construction contracts in coordination with USFWS. Any plan and/or specification change both before and after award of construction contracts shall be approved by LDNR in coordination with USFWS.
4. USFWS and LDNR representatives shall meet as necessary during the period of construction for corrective actions and shall make such recommendations as they deem necessary.
5. Provide the non-Federal contribution towards operation and maintenance activities as specified in the Cost Sharing Agreement between LDNR and USFWS.

B. USFWS will:

1. Conduct joint site inspections with LDNR of the project site after the first, third, and fifth years following construction completion and also after major storm events if determined to be necessary by LDNR and USFWS.
2. Request funding and authorization from the CWPPRA Task Force for any corrective actions that are deemed necessary by LDNR and USFWS.
3. Provide guidance for the development of plans and implementation of the project, review final copies of any maintenance and rehabilitation project designs and specifications, and provide review and approval of all planning and construction details prior to formal request for construction bids or any corrective actions for the project.
4. Provide the Federal contribution towards operations and maintenance activities as specified in the Cost Sharing Agreement between LDNR and USFWS.

The undersigned parties, acting on behalf of their respective agencies, agree to operate, maintain, and rehabilitate the Mandalay Bank Protection Demonstration Project (TE-41) according to this document, referenced Cost Sharing Agreement, plans, and all applicable permits and laws.

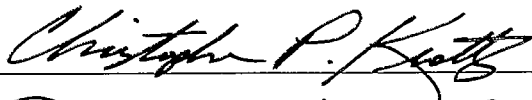
UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

By: 

Date: July 7, 2004

Title: Field Supervisor

LOUISIANA DEPARTMENT OF NATURAL RESOURCES

By: 

Date: 8/18/04

Title: DIRECTOR - COASTAL ENGINEERING DIVISION

ATTACHMENT I

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

COST SHARING AGREEMENT

AMENDMENT NO. 2
TO
COST SHARING AGREEMENT
BETWEEN
U.S. DEPARTMENT OF INTERIOR - FISH AND WILDLIFE SERVICE
AND
STATE OF LOUISIANA
FOR CONSTRUCTION, OPERATION, MAINTENANCE AND MONITORING OF THE
MANDALAY BANK PROTECTION (DEMO) PROJECT
TE-41 / XTE-DEMO

Reference is made to ARTICLE XX-AMENDMENTS TO BE IN WRITING, of the Cost Sharing Agreement for the captioned Project as amended on the 9th day of January, 2002, by and between the U.S. Department of Interior, represented by the Fish and Wildlife Service (hereinafter referred to as "FWS"), acting by and through the Regional Director, Region 4, and the State of Louisiana, acting by and through the Secretary, Department of Natural Resources (hereinafter referred to as "DNR"), which allows for the Cost Sharing Agreement to be amended in writing.

Therefore,

WITNESSETH THAT:

WHEREAS, the actual costs, based on the bids received for construction, supervision and inspection, exceeded the amount authorized during the Phase II funding request; and,

WHEREAS, expenditure of an additional \$400,000 for the Mandalay Bank Protection (Demo) Project (TE-41 / XTE-DEMO) was authorized by the PL 101-646 Task Force on April 16, 2002.

NOW THEREFORE, the following Articles and Paragraphs are amended as follows:

1. ARTICLE VI – METHOD OF PAYMENT

Paragraph “a.” contained in the January 9, 2002, amended Agreement is deleted in its entirety and the following is substituted therefor:

“a. DNR shall provide the contributions required under Article II of this Agreement. The PL 101-646 Task Force has authorized a maximum Phase I cost of \$367,034 and a maximum Phase II cost of \$1,502,625 for this particular Project. To meet its share, DNR will contribute, through in-kind services or in cash, the non-federal share of the maximum Phase I and Phase II costs. The maximum amount of DNR’s contribution for Phase I is \$55,055 and for Phase II is \$225,394, the total of which is \$280,449. This figure is subject to modification as provided for in Section 303(f) of CWPPRA. Any costs in excess of the maximum Phase I cost of \$367,034 or the maximum Phase II cost of \$1,502,625 are subject to amendment of this Agreement and Task Force approval, as provided in ARTICLE XIX. The maximum amount of DNR’s required minimum five percent (5%) cash contribution for Phase I is \$18,352 and Phase II is \$75,131. Funding methods and limits of obligations are specified in ARTICLE XIX-PROJECT COST LIMITS. When the PL 101-646 Task Force authorizes expenditures for post-construction monitoring and operation, maintenance and rehabilitation beyond the initial three (3) year minimum, this Agreement shall be amended in accordance with ARTICLE XX.”

ARTICLE XIX – PROJECT COST LIMITS

Paragraph “a.” contained in the January 9, 2002, amended Agreement is deleted in its entirety and the following is substituted therefor:

“a. Phase I funding is comprised of those funds needed for any necessary analysis of environmental benefits, any necessary hydrologic data collection and analysis, Pre-construction Biological Monitoring, and Engineering and Design and Real Estate requirements up to, but not including, the purchase of real estate. Engineering and Design includes Engineering, Design, Environmental Clearances, Permitting, and Project Management. Phase II funding is comprised of those funds needed for Construction, the first three (3) years of Post-construction Biological Monitoring, Operation, Maintenance and Rehabilitation and the Purchase of Real Estate. Construction includes Project Management, Contract Management, Construction Supervision and Inspection. The PL 101-646 Task Force has authorized a maximum Phase I and Phase II cost of \$367,034 and \$1,502,625 respectively. Any cost in excess of these maximum total Phase I and Phase II costs is subject to Task Force approval and amendment of this Agreement as provided in ARTICLE XX. The budget for each Phase by funding category includes the following:

PHASE I

1.	E&D (including supervision & administration)	\$247,360
2.	Easements and Landrights	\$ 93,750
3.	Pre-Construction Monitoring	<u>\$ 25,924</u>
Total Phase I		\$367,034

PHASE II

1.	Construction (including Project & construction management and construction supervision & inspection)	\$1,434,445
2.	Easements and Landrights	\$ 0
3.	Post-Construction Monitoring	\$ 51,313
4.	Operation, Maintenance and Rehabilitation	\$ 12,469
5.	U.S. Corps of Engineers Project Management	<u>\$ 4,398</u>
Total Phase II		\$ 1,502,625

GRAND TOTAL	\$1,869,659
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MANDALAY BANK PROTECTION (DEMO) / TE-41 / XTE-DEMO

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be executed on this 4th day of May, 2002, before the undersigned witnesses.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

BY: Sam D. Hamilton

Sam D. Hamilton
Regional Director

THE STATE OF LOUISIANA

BY: Jack C. Caldwell

Jack C. Caldwell, Secretary
Louisiana Department of
Natural Resources

WITNESSES:

Peggy L. Kerlin
Deborah L. Young
Kristi Young

WITNESSES:

Karen C. Lewis
Julia R. Rouse
Sharon C. Johnson

APPROVED

Office of the Governor
Office of Contractual Review

JUN 21 2002

Susan Smith
DIRECTOR

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

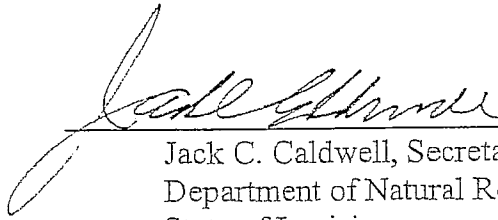
(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

DATE: May 9, 2002

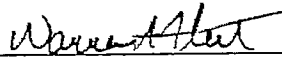


Jack C. Caldwell, Secretary
Department of Natural Resources
State of Louisiana

CERTIFICATION OF AUTHORITY

I, Warren A. Fleet, do hereby certify that I am the principal legal officer of the Department of Natural Resources for the State of Louisiana, that the Department of Natural Resources for the State of Louisiana is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the U. S. Fish and Wildlife Service and the State of Louisiana in connection with the **MANDALAY BANK PROTECTION (DEMO) PROJECT (TE-41 / XTE-DEMO)**, Terrebonne Parish, LA, and that the persons who have executed this Amendment on behalf of the State have acted within their statutory authority.

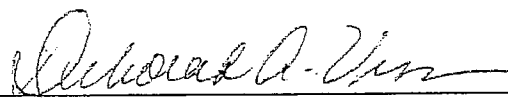
IN WITNESS WHEREOF, I have made and executed this certification this 13th day of
May, 2002.



Warren A. Fleet
General Counsel

STATE OF GEORGIA
COUNTY OF DEKALB

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said County and State aforesaid, on this 30th day of May, 2002, personally came and appeared Sam D. Hamilton who declared that he is the Regional Director of the U.S. Department of Interior, Fish and Wildlife Service, that he executed the foregoing instrument on behalf of said Federal Agency and that the instrument was signed pursuant to the authority granted to him by said Federal Agency and that he acknowledged the instrument to be the free act and deed of said Federal Agency.



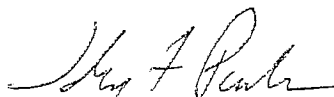
NOTARY PUBLIC

Notary Public, Cherokee County, Georgia
My Commission Expires November 23, 2003

My commission expires: _____
(SEAL)

STATE OF LOUISIANA
PARISH OF EAST BATON ROUGE

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said Parish and State aforesaid, on this 9th day of May, 2002, personally came and appeared Jack C. Caldwell, to me known, who declared that he is the Secretary of the Department of Natural Resources, State of Louisiana, that he executed the foregoing instrument on behalf of said State Agency and that the instrument was signed pursuant to the authority granted by him by said State Agency and that he acknowledged the instrument to be the free act and deed of said State Agency.



NOTARY PUBLIC

My commission expires: with 6/2
(SEAL)

AMENDMENT NO. 1

TO

COST SHARING AGREEMENT

BETWEEN

U.S. DEPARTMENT OF INTERIOR - FISH AND WILDLIFE SERVICE

AND

STATE OF LOUISIANA

FOR CONSTRUCTION, OPERATION, MAINTENANCE AND MONITORING OF THE

MANDALAY BANK PROTECTION (DEMO) PROJECT

TE-41 / XTE-DEMO

Reference is made to ARTICLE XX-AMENDMENTS TO BE IN WRITING, of the Cost Sharing Agreement for the captioned Project entered into the 6th day of December, 2000, by and between the U.S. Department of Interior, represented by the Fish and Wildlife Service (hereinafter referred to as "FWS"), acting by and through the Regional Director, Region 4, and the State of Louisiana, acting by and through the Secretary, Department of Natural Resources (hereinafter referred to as "DNR"), which allows for the Cost Sharing Agreement to be amended in writing.

Therefore,

WITNESSETH THAT:

WHEREAS, Phase I categories of E&D (including supervision & administration), Easements and Landrights, and, Pre-Construction Monitoring are substantially completed; and,

WHEREAS, expenditure of Phase II for the Mandalay Bank Protection (Demo) Project (TE-41 / XTE-DEMO) was authorized by the PL 101-646 Task Force October 25, 2001.

NOW THEREFORE, the following Articles and Paragraphs are amended as follows:

03/07/02
Revised
m w

1. ARTICLE VI – METHOD OF PAYMENT

Paragraph “a.” contained in the December 6, 2000 Agreement is deleted in its entirety and the following is substituted therefor:

“a. DNR shall provide the contributions required under Article II of this Agreement. The PL 101-646 Task Force has estimated a Phase I cost of \$298,939 and a Phase II cost of \$895,556.

To provide flexibility, the PL 101-646 Task Force has authorized a maximum Phase I cost of \$367,034 and a maximum Phase II cost of \$1,102,625 for this particular Project. To meet its share, DNR will contribute, through in-kind services or in cash, the non-federal share of the maximum Phase I and Phase II costs. The maximum amount of DNR’s contribution for Phase I is \$55,055 and for Phase II is \$165,394, the total of which is \$220,449. This figure is subject to modification as provided for in Section 303(f) of CWPPRA. Any costs in excess of the maximum Phase I cost of \$367,034 or the maximum Phase II cost of \$1,102,625 are subject to amendment of this Agreement and Task Force approval, as provided in ARTICLE XIX. The maximum amount of DNR’s required minimum five percent (5%) cash contribution for Phase I is \$18,352 and Phase II is \$55,131. Funding methods and limits of obligations are specified in ARTICLE XIX-PROJECT COST LIMITS. When the PL 101-646 Task Force authorizes expenditures for post-construction monitoring and operation, maintenance and rehabilitation beyond the initial three (3) year minimum, this Agreement shall be amended in accordance with ARTICLE XX.”

2. ARTICLE XIX – PROJECT COST LIMITS

Paragraph “a.” contained in the December 6, 2000 Agreement is deleted in its entirety and the following is substituted therefor:

“a. The PL 101-646 Task Force has financed Phase I at an estimated cost of \$298,939 and the Phase II at an estimated cost of \$895,556. Phase I funding is comprised of those funds needed for any necessary analysis of environmental benefits, any necessary hydrologic data collection and analysis, Pre-construction Biological Monitoring, and Engineering and Design and Real Estate requirements up to, but not including, the purchase of real estate. Engineering and Design includes Engineering, Design, Environmental Clearances, Permitting, and Project Management. Phase II funding is comprised of those funds needed for Construction, the first three (3) years of Post-construction Biological Monitoring, Operation, Maintenance and Rehabilitation and the Purchase of Real Estate. Construction includes Project Management, Contract Management, Construction Supervision and Inspection. To provide flexibility in the funding of the Project, the PL 101-646 Task Force has authorized a maximum Phase I and Phase II cost of 125% of the estimated Phase I and Phase II costs or \$367,034 and \$1,102,625 respectively. Any cost in excess of these maximum total Phase I and Phase II costs is subject to Task Force approval and amendment of this Agreement as provided in ARTICLE XX. The 125% budget for each Phase by funding category includes the following:

PHASE I

1.	E&D (including supervision & administration)	\$247,360
2.	Easements and Landrights	\$ 93,750
3.	Pre-Construction Monitoring	<u>\$ 25,924</u>
Total Phase I		\$367,034

PHASE II

1.	Construction (including Project & construction management and construction supervision & inspection)	\$1,034,445
2.	Easements and Landrights	\$ 0
3.	Post-Construction Monitoring	\$ 51,313
4.	Operation, Maintenance and Rehabilitation	\$ 12,469
5.	U.S. Corps of Engineers Project Management	<u>\$ 4,398</u>
Total Phase II		\$ 1,102,625

GRAND TOTAL

\$1,469,659

MANDALAY BANK PROTECTION (DEMO) / TE-41 / XTE-DEMO

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be executed on this 8th day of January, 2002, before the undersigned witnesses.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

BY: John R. Hamilton
for Sam D. Hamilton
Regional Director

THE STATE OF LOUISIANA

BY: Jack C. Caldwell
Jack C. Caldwell, Secretary
Louisiana Department of
Natural Resources

WITNESSES:

Peggy Kendrick
Lucy G. W.
Ellemanus

WITNESSES:

Karen G. Lewis
Julia Rufford
Suzanne Terrell

APPROVED
Office of the Governor
Office of Contractual Review

MAR 05 2002

David Smith
DIRECTOR

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

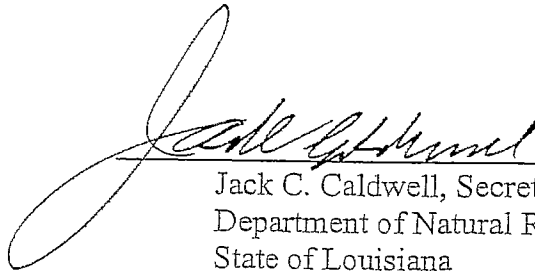
(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

DATE: 1-8-2002

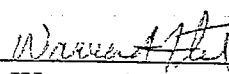


Jack C. Caldwell, Secretary
Department of Natural Resources
State of Louisiana

CERTIFICATION OF AUTHORITY

I, Warren A. Fleet, do hereby certify that I am the principal legal officer of the Department of Natural Resources for the State of Louisiana, that the Department of Natural Resources for the State of Louisiana is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the U. S. Fish and Wildlife Service and the State of Louisiana in connection with the **MANDALAY BANK PROTECTION (DEMO) PROJECT (TE-41 / XTE-DEMO)**, Terrebonne Parish, LA, and that the persons who have executed this Amendment on behalf of the State have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 9th day of January, 2001.



Warren A. Fleet
General Counsel

STATE OF GEORGIA
COUNTY OF DEKALB

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said County and State aforesaid, on this 28th day of January, 2001, personally came and appeared Sam D. Hamilton who declared that he is the Regional Director of the U.S. Department of Interior, Fish and Wildlife Service, that he executed the foregoing instrument on behalf of said Federal Agency and that the instrument was signed pursuant to the authority granted to him by said Federal Agency and that he acknowledged the instrument to be the free act and deed of said Federal Agency.

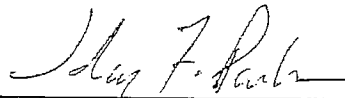


DEBORAH A. VESS
NOTARY PUBLIC
NOTARY PUBLIC, CHEROKEE COUNTY, GA
MY COMMISSION EXPIRES ON NOVEMBER 23, 2003

My commission expires: _____
(SEAL)

STATE OF LOUISIANA
PARISH OF EAST BATON ROUGE

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said Parish and State aforesaid, on this 8th day of January, 2001², personally came and appeared Jack C. Caldwell, to me known, who declared that he is the Secretary of the Department of Natural Resources, State of Louisiana, that he executed the foregoing instrument on behalf of said State Agency and that the instrument was signed pursuant to the authority granted by him by said State Agency and that he acknowledged the instrument to be the free act and deed of said State Agency.



NOTARY PUBLIC

My commission expires: with life
(SEAL)

FMS 566727

FWS Agreement No. _____

DNR Agreement No. 2511-01-13

Approved Format 16A

435-100323

COST SHARE AGREEMENT

BETWEEN

U.S. DEPARTMENT OF THE INTERIOR - FISH AND WILDLIFE SERVICE

AND

THE STATE OF LOUISIANA

FOR PLANNING, ENGINEERING AND DESIGN, CONSTRUCTION, OPERATION,

MAINTENANCE, AND MONITORING OF THE

MANDALAY BANK PROTECTION (DEMO) PROJECT

TE-41 / XTE-DEMO

THIS AGREEMENT, entered into this 6th day of December, 2000 by and between the U.S. Department of the Interior, represented by the Fish and Wildlife Service (hereinafter referred to as "FWS"), acting by and through the Regional Director, Region 4, and the State of Louisiana, acting by and through the Secretary, Department of Natural Resources (hereinafter referred to as "DNR").

WITNESSETH, THAT:

WHEREAS, expenditure of Phase I funding for the Mandalay Bank Protection (Demo) Project (TE-41 / XTE-DEMO) was authorized by the Coastal Wetlands Planning, Protection and Restoration Act (hereinafter referred to as "CWPPRA") of 1990 (16 U.S.C. Section 3961 *et seq.*; Public Law 101-646, Title III), and for local sponsorship by the Louisiana Coastal Wetlands Conservation Plan, by the State of Louisiana in January 2000; and,

WHEREAS, upon successful completion of Phase I, expenditure of Phase II funding for the Mandalay Bank Protection (Demo) Project may be authorized by the Louisiana Coastal Wetlands Conservation and Restoration Task Force (hereafter referred to as the "Task Force");

WHEREAS, the State's Coastal Wetlands Conservation Plan was approved on November 30, 1997; all costs incurred on or after December 1, 1997 are shared at eighty-five percent (85%) Federal and fifteen percent (15%) non-Federal;

WHEREAS, Section 303(e) of CWPPRA states that the Secretary of the Army shall not fund the identified project unless said project is subject to such terms and conditions necessary to ensure that

Rec'd 1/29/01

wetlands restored, enhanced, or managed through the project will be administered for the long-term conservation of such lands and waters and dependent fish and wildlife populations; and,

WHEREAS, FWS is authorized by federal law to enter a cost-sharing agreement with DNR to provide financial cost-share assistance for the construction, operation, maintenance, and monitoring of the Project; and,

WHEREAS, La. R.S. 49:213 and La. R.S. 49:214 state that the Secretary of DNR may enter into cost-sharing agreements with the federal government in order to conserve, restore, create, and enhance vegetated wetlands in coastal Louisiana in accordance with prescribed legislative oversight; and,

WHEREAS, DNR has agreed to pay 5% of the total Project cost in actual cash and the remaining balance of its share in the form of in-kind contributions; and,

WHEREAS, DNR is willing to participate in cost-sharing and financing in accordance with the terms of this Agreement;

NOW, THEREFORE, the parties agree as follows:

ARTICLE I – DEFINITIONS AND GENERAL PROVISIONS

For the purposes of this Agreement:

a. The term “**Project**” shall mean the work authorized by Congress as specified above for the construction of the Mandalay Bank Protection (Demo) Project (TE-41 / XTE-DEMO). The TE-41 / XTE-DEMO Project is located in Terrebonne Parish. The Project objective is to develop new techniques for protecting and restoring easily erodible organic soils affected by bank erosion along navigation channels. This project attempts to combine existing technologies such as plantings and fencing with other untried technologies to create new hybrid technologies. The use of concrete mats has been fairly well developed for upland erosion protection, but not yet developed for protection of organic-soil wetlands, nor used as proposed in this project. Techniques will be employed on intact banks to test their erosion prevention capability. Other techniques will be installed in eroded embayments to test both protection from further erosion and restoration of these “blowouts.” The proposed techniques attempt to capitalize on observed processes using a combination of hard and soft structures. Techniques employed will include a combination of fenced and unfenced vegetative planting (cutgrass and/or willow stakes), submarine armored levee, and low-level armored berm. The effectiveness of the various techniques will be determined by monitoring shoreline position change rates. Elevation surveys from foreshore open water areas will be used to further evaluate sediment trapping and associated shoreline changes. Settlement surveys will be utilized to monitor sinking rates of the concrete structures.

b. The term “**total Project costs**” shall mean all costs incurred by DNR and FWS directly related to implementation of the Project. Such costs shall be those costs incurred after January 11, 2000; and which shall include, but not necessarily be limited to, the following: actual costs of applicable project management, geotechnical investigations, detailed engineering and design; actual construction

costs; construction management, supervision and inspection costs; operation costs; monitoring costs; the cost of land rights acquisition, easements, servitudes, rights-of-way; utility and facility alterations or relocations; and maintenance for the Project.

c. The term **"total first costs"** shall mean all costs incurred by DNR and FWS directly related to completion of the construction phase of the project as identified in the official CWPPRA authorization document prepared by the CWPPRA Task Force January 11, 2000, and submitted to Congress.

d. The term **"period of construction"** shall mean the time from the advertisement of the first construction contract to the time that the Contracting Officer certifies to DNR that construction of the entire project is complete. The Contracting Officer shall furnish to DNR copies of the government's written Notice of Acceptance of Complete Work furnished to contractor(s) for all contracts for the Project.

e. The term **"Contracting Officer"** shall mean the FWS Regional Director, Region 4, or his/her designee.

f. The term **"relocations"** shall mean the preparation of plans and specifications for, and the accomplishment of any alteration, modification, lowering or raising in place, and/or a new construction related to, but not limited to, existing: buildings, pipelines, public utilities (such as municipal water and sewer lines, telephone lines, and storm drains), aerial utilities, cemeteries, and other facilities, structures, and improvements determined by FWS and DNR to be necessary for the construction, operation, maintenance, and monitoring of the Project.

g. The term **"utility"** shall mean pipelines, cables, and similar facilities.

h. The term **"fiscal year"** shall mean one fiscal year of the United States Government, unless otherwise specifically indicated. The Government fiscal year begins on October 1 and ends on September 30.

i. The term **"construction management costs"** shall mean costs incurred by FWS directly supervising and administering construction contracts, to include related overhead costs, as specified in applicable contracting regulations.

j. The term **"Project Monitoring Plan"** shall mean a plan jointly developed and approved by DNR and FWS specifically for the Project which identifies all monitoring requirements, parameters and procedures. DNR will be responsible for collection of monitoring data and assimilation as part of the local cost-share responsibilities. Monitoring will be conducted for the expected life of the Project or as agreed by FWS and DNR.

k. The term **"maintenance"** shall mean any action completed after the construction period that is required to maintain the Project at "as built" standards, and costing less than twenty percent (20%) of the original construction cost.

l. The term "**Operation and Maintenance Plan**" shall be a plan jointly developed and approved by FWS and DNR upon completion of the Project and prior to acceptance by DNR of the completed Project or functional portion of the Project. The Operation and Maintenance Plan will address specific items, including engineering inspections and any related landrights issues, with estimated costs, to be performed throughout the expected life-span of the Project and will be revised periodically to reflect actual needs.

m. The term "**operation and maintenance costs**" shall mean all costs incurred by DNR and FWS related to operating and maintaining the final accepted Project. Specific requirements and responsibilities shall be identified and mutually accepted by both parties in an "Operations and Maintenance Plan".

n. The term "**obligation**" refers to amount of orders placed, contracts awarded, services rendered, or other commitments made during a given period which will require outlay during the same or some future period.

o. The term "**engineering and design costs**" shall mean all costs incurred by DNR and FWS related to the development, approval, and acceptance of detailed engineering and design plans, specifications, and Project bid documents. This will also include all supervision and administrative costs associated with the engineering and design phase of the Project and will terminate with the award a Project construction contract.

p. The term "**monitoring costs**" shall mean all costs by DNR and FWS in developing and implementing the Project Monitoring Plan to evaluate the effectiveness of the Project in reaching Project objectives. This shall include, but not be limited to, such items as plan development and review, conducting pre- and post-construction monitoring procedures, collection and evaluation of data, and preparation of monitoring reports.

q. The term "**functional portion of the Project**" shall mean a completed portion of the Project as determined by the Contracting Officer and DNR in writing to be suitable for tender to DNR for operation and maintenance in advance of completion of the entire Project. To be suitable for tender, the Contracting Officer must determine that the completed portion of the Project can function independently and for a useful purpose, although the balance of the Project is not complete.

r. The term "**life of the Project**" shall mean the next five (5) years starting at the date of acceptance of the final Project, or functional portion of the Project, as provided in Article V.e. of this Agreement.

s. The term "**Phase I**" shall include but not be limited to any necessary analysis of environmental benefits, any necessary hydrologic data collection and analysis, Pre-construction Biological Monitoring, and Engineering and Design. Engineering and Design includes Engineering, Design, Environmental Clearances, Permitting, Project Management and Real Estate requirements up to, but not including, the purchase of real estate.

t. The term “**Phase II**” shall mean Construction and the first three (3) years of Post-construction Biological and Structural Monitoring, Operation and Maintenance. Construction includes Project Management, Contract Management, Construction Supervision, Inspection, and the Purchase of Real Estate.

u. The term “**CWPPRA Project Standard Operating Procedures Manual**” shall mean the standard procedures to be used by FWS and the State in the management of the Project. These standard procedures shall not supersede nor invalidate any rules or regulations internal to FWS or the State.

ARTICLE II – OBLIGATIONS OF THE PARTIES

a. No federal funds may be used to meet the DNR share of Project costs under this Agreement unless the expenditure of such funds is expressly authorized by statute as verified in writing by the granting agency.

b. DNR shall:

1. Over the life of the Project, fund a total contribution equal to the non-federal share of the total Project costs, including a minimum cash contribution of five percent (5%) of the total Project costs. Said contribution will include cash and/or credit granted from land rights, easements, servitudes, and rights-of way obtained through or owned by DNR, or relocations credit granted for Project features furnished by DNR, and all administrative and management costs required by DNR to fulfill the obligations specified in this Agreement including pre- and post-construction Project monitoring, permitting coordination, geotechnical investigation, engineering services, landrights amendment processing and or acquisition, and maintenance and operation responsibilities accepted by DNR.

2. Prior to advertisement of each construction contract, and as further specified in Article VI.b.2. hereof, provide a minimum cash contribution of five percent (5%) of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract.

3. Prior to the advertisement of each construction contract, and as further specified in Article VI.b.2. hereof, provide a contribution equal to the non-federal share of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract. Said contribution will include cash and/or credit granted from land rights, easements, servitudes, and rights-of-way obtained through or owned by DNR, or relocations credit granted for Project features furnished by DNR, administrative and management costs, and any engineering and/or, biological, or hydrological review evaluations required by DNR to fulfill the obligations specified in this Agreement.

4. Implement the Project Monitoring Plan in accordance with procedures jointly developed with FWS and, as further specified in Article VIII, to assure the performance of the long-term monitoring requirements.

5. Provide specific engineering services, associated with the Project, subject to the cost-sharing provisions, and as mutually agreeable to both DNR and FWS, or its engineering representative. Specific engineering services to be provided by DNR may include design surveys, preparation of plans and specifications, post-construction surveys, geotechnical, engineering, design, land services, and construction management services, etc., associated with the project, as requested by the FWS, subject to the cost-sharing provisions identified. All such services will be approved by and subject to the supervision and guidance of FWS Project Manager or engineering representative.

6. Acquire all land rights, servitudes, rights-of-way, easements, and material borrow and disposal areas associated with the Project which are determined to be necessary, subject to cost-sharing terms previously identified.

7. Jointly develop an Operation and Maintenance Plan with the FWS which will identify specific long-term maintenance and operation requirements. Said plan will be developed upon completion of the Project features in accordance with Article I.m., and will be reviewed and modified as necessary after an evaluation conducted by DNR, with FWS participation, within 12-18 months following completion of construction.

8. Provide for non-federal share of costs identified in the Operation and Maintenance Plan, according to Article VIII.a.

9. Assume all responsibilities (including engineering, design, and construction services) for operation and maintenance of the Project upon acceptance of the completed Project, limited only by the provisions of Article XVI. FWS will reimburse DNR using electronic funds transfer (EFT) procedures in accordance with 31 CFR 208 for the federal share of such costs, subject to availability of funds.

10. Participate in a preliminary design review with FWS at thirty percent (30%) completion of Phase I project evaluation in accordance with Section 5.(k).8 and 5.(k).9, CWPPRA, Project Standard Operating Procedures Manual.

11. Provide authorized technical services including, but not limited to, obtaining basic information; preparation of drawings, design, and specifications; and performance of layout, inspection services, and quality assurance during construction. The design report, preliminary and final plans must be reviewed by the FWS Project Manager and concurred upon prior to advertisement.

12. Submit to FWS the completed As-built Surveys/Construction drawings and Construction Completion Report.

c. FWS shall:

1. Over the life of the Project, fund a total contribution equal to the federal share of the total Project costs, including any relocation costs associated with the Project.

2. Prior to the advertisement of each construction contract, FWS shall provide a contribution equal to the federal share of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract, including any relocation costs associated with the Project.
3. Except as limited by the provisions of Article VIII.b., and subject to the availability of appropriations, reimburse DNR for the federal share of the approved cost of pre- and post-construction monitoring of the Project upon receipt of the request for reimbursement.
4. Reimburse DNR using electronic funds transfer (EFT) procedures in accordance with 31 CFR 208 for the federal share of the actual costs incurred by DNR for project management, geotechnical and engineering services, and permitting coordination provided for the Project, and acquiring all land rights (easements, servitudes, and rights-of-way, including suitable borrow material and disposal areas) as determined by FWS to be necessary for Project construction, operation, monitoring, and maintenance.
5. Participate with DNR on the level of design effort needed to determine the effectiveness of a project in achieving intended environmental benefits.
6. Provide all engineering, design, including but not limited to surveying, geotechnical investigations, hydrological modeling as deemed necessary by DNR and FWS, land services, and construction services, except those mutually agreed as specified in Article II.b.5. and Article II.b.9. associated with the Project, subject to the cost-sharing provisions identified.
7. Participate in a preliminary design review with DNR at thirty percent (30%) completion of Phase I project evaluation in accordance with Section 5.(k).8 and 5.(k).9, CWPPRA, Standard Operating Procedure.
8. Provide the federal share of costs identified in the Operation and Maintenance, Plan and actually incurred by DNR, subject to the limitations on expenditures set forth in Article XIX.
9. Arrange for and conduct final inspection of the completed works of improvement with DNR to determine whether all work has been performed in accordance with the contractual requirements. Based on this determination, accept work from the contractor and notify DNR of acceptance.
10. Participate, with DNR, in an evaluation within 12 - 18 months following the completion of construction to assess maintenance and operation needs. FWS will also participate with DNR in any subsequent evaluations as the parties deem necessary to address long-term maintenance and operation of the Project.
11. Ensure that all National Environmental Policy Act (NEPA) and regulatory requirements, including permits, for the Project are met.

ARTICLE III – LAND RIGHTS, FACILITIES, AND PUBLIC LAW 91-646 RELOCATION ASSISTANCE

a. On non-Federal lands, DNR shall acquire all land rights, easements, servitudes, rights-of-way, and material borrow and disposal areas determined to be necessary for construction of the Project and as mutually agreed-to by DNR and FWS. Prior to the advertisement of any construction contract, DNR shall provide certification to FWS that all land rights, easements, servitudes, rights-of-way and material borrow and disposal areas required, have been acquired as part of this Agreement and shall furnish to FWS evidence supporting actual rights-of-way acquired by DNR for Project construction, operation, monitoring, and maintenance.

b. The State shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way for construction and subsequent operation, and maintenance of the project.

c. No title to the property or minerals affected herein are transferred with any easements, servitudes, rights-of-way, and material borrow and disposal areas provided by DNR pursuant to this Agreement. No public rights of ownership shall be transferred and vested in private parties as a result of the Project. Further, any easements, servitudes, rights-of-way, and material borrow and disposal areas shall provide for reasonable access for mineral exploration and development.

ARTICLE IV – VALUE OF LAND RIGHTS AND FACILITIES

a. The value of the land rights, easements, servitudes, and rights-of-way to be included in total Project costs and credited towards DNR's share of total Project costs will be determined in accordance with the following procedures:

1. The costs associated with securing all land rights, easements, servitudes, and rights-of-way to be acquired by DNR (Article III.a.) shall be the actual costs including, but not limited to, expenses associated with securing legal land rights instruments from all sources (legal reviews, recording fees, etc.) associated with Project activities. An estimate of such costs will be prepared by DNR and approved by FWS for credit allowance as part of the DNR cost-share. Credit allowance for any costs above this estimate must be approved by FWS.

2. Any costs incurred for relocations will be included in total Project costs and will be accomplished as part of Project construction through the agreed cost-share arrangement.

ARTICLE V – CONSTRUCTION PHASING AND MANAGEMENT

a. To provide for consistent and effective communication between DNR and FWS during the period of construction, DNR and FWS shall appoint representatives to coordinate scheduling, plans, specifications, modifications, contract costs, and other matters relating to construction of the Project.

b. FWS will participate with DNR, or its appointed representative, in the engineering and design phases of the Project. Oversight of engineering and construction of the Project will be the responsibility of DNR or its appointed representative. At least thirty (30) calendar days prior to the date of formal request for construction bids, DNR, or its appointed representative, shall provide FWS with final copies of all Project designs and specifications for review and concurrence by FWS. FWS, or its appointed representative, and DNR shall concur in the final designs and specifications prior to proceeding with bid solicitations on all project construction contracts. Any plan and/or specification(s) changes, both before and after award of construction contracts, shall be jointly approved by FWS and DNR.

c. The representatives appointed above shall meet as necessary during the period of construction and shall make such recommendations as they deem warranted to the Contracting Officer.

d. The Contracting Officer shall consider the recommendations of the representatives in all matters relating to construction of the Project; but the Contracting Officer, having ultimate responsibility for construction of the Project, has complete discretion to accept, reject, or modify the recommendations.

e. Following completion of the Project, or functional portion of the Project, final acceptance of the Project, or functional portion of the Project, will be jointly made by FWS and DNR. Should the Project, or functional portion of the Project, not meet plan specification objectives, then DNR will have the option to approve modification of the Operation and Maintenance Plan, or to terminate this Agreement. However, both DNR and FWS shall endeavor to modify the Project and/or its Operation and Maintenance Plan to ensure that the original plan specification objectives are achieved.

ARTICLE VI – METHOD OF PAYMENT

a. DNR shall provide the contributions required under Article II of this Agreement. The Task Force has estimated a Phase I cost of \$298,939 and authorized a maximum Phase I cost of \$367,034 for this particular Project. To meet its share, DNR will contribute, through in-kind services or in cash, the non-federal share of the maximum Phase I costs. The maximum amount of DNR's contribution is \$55,055. This figure is subject to modification as provided for in Section 303(f) of CWPPRA. Any costs in excess of the maximum Phase I cost of \$367,034 are subject to amendment of this Agreement and Task Force approval, as provided in Article XIX. The maximum amount of DNR's required minimum five percent (5%) cash contribution for Phase I is \$18,352. Funding methods and limits of obligations are specified in Article XIX – Project Cost Limits. Should the Task Force authorize expenditure of Phase II funding, this Agreement shall be amended in accordance with Article XX.

b. DNR shall provide its required cash contribution in proportion to the rate of federal expenditures in accordance with the following provisions:

1. For purposes of budget planning, FWS shall notify DNR by October 1 of each year of the estimated funds that will be required from DNR to meet its share of total Project costs for the subsequent fiscal year.

2. No later than sixty (60) calendar days prior to the advertisement of each construction contract, FWS shall notify DNR of DNR's share of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract. This amount will include the non-federal share of total first costs in cash and/or credit as described in Article II.b.3., and the minimum cash contribution of five percent (5%) of total first costs as described in Article II.b.2. No later than thirty (30) calendar days thereafter, DNR shall verify to the satisfaction of FWS or its representative, that it has deposited the requisite amount in an escrow account with interest accruing to DNR.

3. For the second and subsequent fiscal years of Project implementation, no later than sixty (60) calendar days prior to the beginning of the fiscal year, DNR shall make the necessary funds available to FWS through the funding mechanism specified in Article VI.b.2. of this Agreement. As construction of the Project proceeds, FWS shall adjust the amount required to be provided under this paragraph to reflect actual costs.

4. If, at any time during the period of construction, FWS determines that additional funds will be needed from DNR to meet DNR's required share, FWS shall so notify DNR, and DNR, no later than forty-five (45) calendar days from receipt of such notice, shall make the necessary funds available through the funding mechanism specified in Article VI.b.2. of this Agreement.

c. FWS will draw on the escrow account such sums as FWS deems necessary to cover contractual and in-house fiscal obligations attributable to the Project on an annual basis, as well as costs incurred by FWS prior to the initiation of construction but after January 11, 2000, according to Article I.b.

d. The escrow account will be managed for FWS by the New Orleans District, U.S. Army Corps of Engineers. Funds will be withdrawn from the account and disbursed to FWS as requested.

e. Upon completion of the Project, or termination of this Agreement in accordance with Article XV of this Agreement, and resolution of all relevant contract claims and appeals, FWS shall compute the total Project costs and tender to DNR a final accounting of DNR's share of total Project costs. In the event that the total contribution by DNR is less than its minimum required share of total Project costs, DNR shall, no later than ninety (90) calendar days after receipt of written notice, make a cash payment to FWS of whatever sum is required to meet its minimum required non-federal share of total Project costs, subject to the availability of appropriations.

f. In the event DNR has made cash contributions in excess of five percent (5%) of total Project costs which result in DNR having provided more than its required share of total Project costs, FWS shall, no later than ninety (90) calendar days after the final accounting is complete, subject to the availability of appropriations, return said excess to DNR; however, DNR shall not be entitled to any refund of the five percent (5%) cash contribution required pursuant to Article II.b.2. of this Agreement.

g. If DNR's total contribution under this Agreement (including land rights, easements, rights-of-way, relocations, material borrow and disposal areas, and work-in-kind provided by DNR and

approved by FWS) exceeds DNR's required non-federal share of total Project costs, FWS shall verify the actual exceeded costs and direct the U.S. Army Corps of Engineers, subject to the availability of appropriations for that purpose, and the minimum five percent (5%) cash requirement, refund the excess to DNR no later than ninety (90) calendar days after the final accounting is complete.

ARTICLE VII – DISPUTES

Before any party to this Agreement may bring suit in any court concerning an issue relating to this Agreement, such party must first seek in good faith to resolve the issue through negotiations or other forms of non-binding alternative dispute resolution mutually acceptable to the parties.

ARTICLE VIII – MONITORING, OPERATING AND MAINTENANCE

a. After FWS has accepted, with the concurrence of DNR, the completed Project, or the functional portion of the Project, DNR shall assume long-term monitoring responsibilities in accordance with the Project Monitoring Plan defined in Article I.j. of this Agreement. At this same time, DNR will also assume responsibilities for operation and maintenance of the completed Project, or functional portion of the Project, following the recommendations jointly developed and approved by DNR and FWS in the Project Operation and Maintenance Plan defined in Article I.m. of this Agreement. These responsibilities will remain in effect for the expected life of the Project which is five (5) years from the date of acceptance of the completed Project unless otherwise agreed to by FWS and DNR.

b. DNR grants FWS the right to enter, at reasonable times and in a reasonable manner, upon land which it owns or maintains access easements to the Project, for the purpose of inspection related to monitoring, operating or maintaining the Project. If an inspection shows that DNR, for any reason, is failing to fulfill its obligations under this Agreement, FWS will send a written notice to DNR concerning a need for compliance. If DNR persists in such failure for ninety (90) calendar days after receipt of this notice, then FWS shall have a right to cancel the federal assistance portion of this Agreement for any additional expenses related to monitoring, operation and maintenance costs of the Project.

ARTICLE IX – MAINTENANCE OF RECORDS

FWS and DNR shall keep books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement to the extent and in such detail as will properly reflect total Project costs. FWS and DNR shall maintain such books, records, documents and other evidence for a minimum of three (3) years after completion of construction, operation, maintenance, repair, and monitoring of the Project and resolution of all relevant claims arising therefrom, and shall make available at their offices at reasonable times, such books, records, documents, and other evidence for inspection and audit by authorized representatives of the parties to this Agreement.

ARTICLE X – GOVERNMENT REVIEW OF RECORDS

FWS shall have the right to conduct an audit, when appropriate, of DNR's records for the Project to ascertain the reasonableness and allowability of its costs for inclusion as credit against the non-federal share of Project costs.

ARTICLE XI – STATE REVIEW OF RECORDS

DNR shall have the right to conduct an audit, when appropriate, of FWS's records for the Project to ascertain the reasonableness and allowability of its costs for inclusion as credit against the federal share of Project costs.

ARTICLE XII – RELATIONSHIP OF PARTIES

The parties to this Agreement act in an independent capacity in the performance of their respective functions under this Agreement, and neither party is to be considered the officer, agent, or employee of the other.

ARTICLE XIII – OFFICIALS NOT TO BENEFIT

No member of, or delegate to, the Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

ARTICLE XIV – COVENANT AGAINST CONTINGENT FEES

DNR warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by DNR for the purpose of securing business. For breach or violation of this warranty, FWS shall have the right to annul this Agreement without liability, or, in its discretion, to add to the Agreement or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE XV – TERMINATION OR SUSPENSION

a. If FWS or DNR fails to receive annual appropriations for the Project in amount sufficient to meet Project expenditure for the then-current or upcoming fiscal year, FWS or DNR shall so notify the other Party. After sixty (60) calendar days from such notification either party may elect, without penalty, to terminate this Agreement pursuant to this Article or to defer future performance hereunder; however, deferral of future performance under this Agreement shall not affect existing obligations or relieve the parties of liability for any obligation previously incurred. In the event that either party elects to terminate this Agreement pursuant to this Article, both parties shall conclude their activities relating to the Project and proceed to final accounting in accordance with Article VI of this Agreement. In the event that either party elects to defer future performance under this Agreement pursuant to this Article,

such deferral shall remain in effect until such time as FWS or DNR receives sufficient appropriations or until either party elects to terminate this Agreement.

b. Except as provided in paragraph (a) above, if at any time DNR fails to make the payments required under this Agreement, FWS shall terminate or suspend work on the Project until DNR is no longer in arrears, unless FWS determines that continuation of work on the Project is in the best interest of the United States or is necessary in order to satisfy agreements with any other non-federal interests in connection with the Project. DNR shall not be liable for any future payments should FWS continue work on the Project, but shall remain liable for obligations previously incurred.

ARTICLE XVI – OBLIGATIONS OF FUTURE APPROPRIATIONS

Nothing herein shall constitute, or be deemed to constitute, an obligation of future appropriations by the legislature of the State of Louisiana when obligating future appropriations would be inconsistent with the State's constitutional or statutory limitations.

ARTICLE XVII – NOTICES

a. All notices, requests, demands, and other communications required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally, given by prepaid telegram, or mailed by first-class (postage pre-paid), registered, or certified mail, as follows:

If to DNR:

Secretary, Department of Natural Resources
P.O. Box 94396
Baton Rouge, LA 70804-9396

If to FWS:

Regional Director, U.S. Fish and Wildlife Service
1875 Century Boulevard
Atlanta, Georgia 30345

b. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this Article.

c. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at such time as it is personally delivered or seven (7) calendar days after it is mailed, as the case may be.

ARTICLE XVIII – CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XIX – PROJECT COST LIMITS

a. The Task Force will finance the Project in two phases. Phase I funding is comprised of those funds needed for any necessary analysis of environmental benefits, any necessary hydrologic data collection and analysis, Pre-construction Biological Monitoring, and Engineering and Design. Engineering and Design includes Engineering, Design, Environmental Clearances, Permitting, Project Management and Real Estate requirements up to, but not including, the purchase of real estate. The Task Force estimated Phase I cost for this Project at \$298,939. To provide flexibility in Phase I of the Project, the Task Force has authorized a maximum Phase I cost of 125% of the estimated Phase I cost or \$367,034 for this particular Project. This is the total funding and obligation for FWS and the State until Phase II funding is approved. Any cost in excess of this maximum total Phase I cost is subject to Task Force approval and amendment of this Agreement, as provided in Article XX. The 125% budget for Phase I by funding category includes the following:

1.	E & D (including supervision & administration)	\$247,360
2.	Easements and Landrights	\$ 93,750
3.	Pre – Construction Monitoring	<u>\$ 25,924</u>
	Total	\$367,034

b. If, at any time during the performance of work for a particular funding category, the actual or anticipated cost of that category exceeds the 125% cost of that particular funding category as set forth in Article XIX.a. of this Agreement, all work in that particular category shall cease. FWS and DNR may agree to increase the cost of completing that particular category by transferring funds from one category to the other, but only if such increase would not result in the total Phase I costs exceeding the maximum total cost defined in Article XIX.a. of this Agreement. Such agreement regarding transferring funds from one category to the other shall be made by letter agreement confirmed by the mutual written approval of both the FWS Regional Director and the DNR Secretary. Work on that particular funding category shall thereafter resume.

c. After Phase I has been substantially completed, the Task Force may authorize expenditure of Phase II funding. This process will be accomplished as specified in the CWPPRA Project Standard Operating Procedures Manual. This Agreement shall then be amended in accordance with the provisions of Article XX to include the Phase II costs of Construction and the first three (3) years of Post-construction Biological Monitoring, Operation and Maintenance. Construction includes Project Management, Contract Management, Construction Supervision, Inspection, and the purchase of real estate. Operation and Maintenance includes Engineering Inspections.

d. Post-construction Biological Monitoring and Operation and Maintenance costs will be funded in accordance with Section 5.(k).12. of the CWPPRA Project Standard Operating Procedures Manual so as to maintain approximately three (3) years of authorized and funded post construction

activity. This Agreement will be amended in accordance with the provisions of Article XX to reflect these CWPPRA and State funding obligations as they occur.

ARTICLE XX – AMENDMENTS TO BE IN WRITING

This Agreement may be modified by agreement of the parties, in accordance with the provisions of CWPPRA and applicable federal and state regulations. All such amendments, modifications, revisions, and/or changes to this Agreement must be made in writing and acknowledged by signature of the authorized representatives of all parties of this Agreement. All such amendments, modifications, revisions, and/or changes to this Agreement shall be subject to review and approval by the Division of Administration, State of Louisiana.

ARTICLE XXI – EQUAL OPPORTUNITY AND CIVIL RIGHTS

a. The program or activities conducted under this Agreement will be in compliance with the nondiscrimination provisions contained in the following Federal anti-discrimination laws: (1) Titles VI and VII of the Civil Rights Act of 1964 (Public Law 88-352), as amended; (2) the Civil Rights Restoration Act of 1987 (Public Law 100-259); (3) the Civil Rights Act of 1991 (Public Law 102-166), as amended; (4) Executive Order 11478, as amended; (5) Section 504 of the Rehabilitation Act of 1973 (PL 93-112), as amended; (6) Title II of the Americans with Disabilities Act of 1990 (PL 101-336); (7) the Age Discrimination in Employment Act (PL 93-259), as amended; (8) Age Discrimination Act of 1975 (PL 94-135); (9) Equal Pay Act; (10) Title IX of the Education Amendments of 1972, as amended; and (11) other Federal statutes that prohibit discrimination. They will also be in accordance with nondiscrimination regulations of the Secretary of Interior (43 CFR 17). The program or activities conducted under this Agreement will provide that no person in the United States shall on the grounds of race, color, national origin, age, sex, religion, marital status, handicap or sexual orientation be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial assistance from the Department of Interior or any agency thereof.

ARTICLE XXII – SURVEY

Prior to commencement of any construction activities, FWS or the Office of Coastal Restoration and Management of DNR, at the option of DNR, shall (1) cause to be conducted, a survey to determine the highest tide during winter season or such other time which will indicate the extent of State ownership existing prior to commencement of any restoration activities, or (2) obtain aerial photographs or satellite images of the project area taken within one (1) year prior to commencement of the restoration activity, or (3) acquire such other information as is acceptable to DNR to indicate the extent of State ownership. Any costs associated with this Article are considered a part of total Project costs and shall be cost-shared according to the terms previously identified.

ARTICLE XXIII – FEDERAL AND STATE LAWS

- a. In exercise of DNR's rights and obligations hereunder, DNR agrees to comply with all applicable Federal and State laws and regulations.
- b. FWS agrees to comply with all applicable Federal and State of Louisiana laws and/or regulations, unless state law and regulations are preempted by federal law.

ARTICLE XXIV – FISCAL FUNDING

The continuation of this contract is contingent upon the appropriation of funds by the Louisiana Legislature to fulfill the requirements of the agreement. If the Louisiana Legislature fails to appropriate sufficient monies to provide for the continuation of the agreement, or if such appropriation is reduced by the veto of the governor or by any means provided in the appropriations act to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the agreement, the agreement shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated.

FWS Agreement No. _____
DNR Agreement No. 2511-01-13
Approved Format 16A

MANDALAY BANK PROTECTION (DEMO)/ TE-41 / XTE-DEMO

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed on the
22nd day of December, 2000, before the undersigned witnesses.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

BY: Sam D. Hamilton
for Sam D. Hamilton
Regional Director

THE STATE OF LOUISIANA

BY: Jack C. Caldwell
Jack C. Caldwell, Secretary
Louisiana Department of
Natural Resources

WITNESSES:

Randa Middlebrooks

Margaret Howell

Sijananna Burnett

WITNESSES:

Karen Y. Lewis

Susan R. Robinson

Julia Rayford

APPROVED
Office of the Governor
Office of Contractual Review

JAN 19 2001

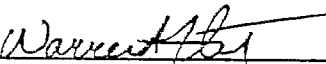
Susan M. Smith
DIRECTOR

FWS Agreement No. _____
DNR Agreement No. 2511-01-13
Approved Format 16A

CERTIFICATE OF AUTHORITY

I, Warren A. Fleet, do hereby certify that I am the principal legal officer of the Department of Natural Resources for the State of Louisiana, that the Department of Natural Resources for the State of Louisiana is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the U. S. Fish and Wildlife Service and the State of Louisiana in connection with the MANDALAY BANK PROTECTION (DEMO) (TE-41 / XTE-DEMO), Terrebonne Parish, LA, and that the persons who have executed this Agreement on behalf of the State have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 11/12 day of December, 2000.



Warren A. Fleet
General Counsel

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

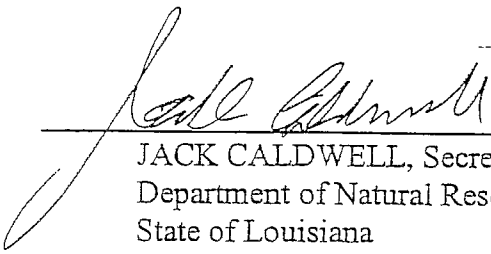
(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.


DATE: 12/6/00

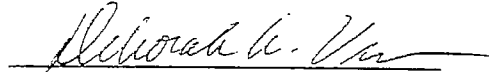


JACK CALDWELL, Secretary
Department of Natural Resources
State of Louisiana

STATE OF GEORGIA
COUNTY OF DEKALB

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said County and State aforesaid, on this 22nd day of December, 2000, personally came and appeared Sam D. Hamilton who declared that he is the Regional Director of the U.S. Department of the Interior, Fish and Wildlife Service, that he executed the foregoing instrument on behalf of said Federal Agency and that the instrument was signed pursuant to the authority granted to him by said Federal Agency and that he acknowledged the instrument to be the free act and deed of said Federal Agency.

 **DEBORAH A. VESS**
NOTARY PUBLIC, CHEROKEE COUNTY, GA
MY COMMISSION EXPIRES ON NOVEMBER 23, 2003


NOTARY PUBLIC

My commission expires: _____

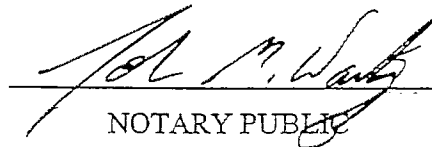
(SEAL)

STATE OF LOUISIANA
PARISH OF EAST BATON ROUGE

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said Parish and State aforesaid, on this 6th day of December, 2000, personally came and appeared Jack C. Caldwell, to me known, who declared that he is the Secretary of the Department of Natural Resources, State of Louisiana, that he executed the foregoing instrument on behalf of said State Agency and that the instrument was signed pursuant to the authority granted to him by said State Agency and that he acknowledged the instrument to be the free act and deed of said State Agency.

My commission expires: at death

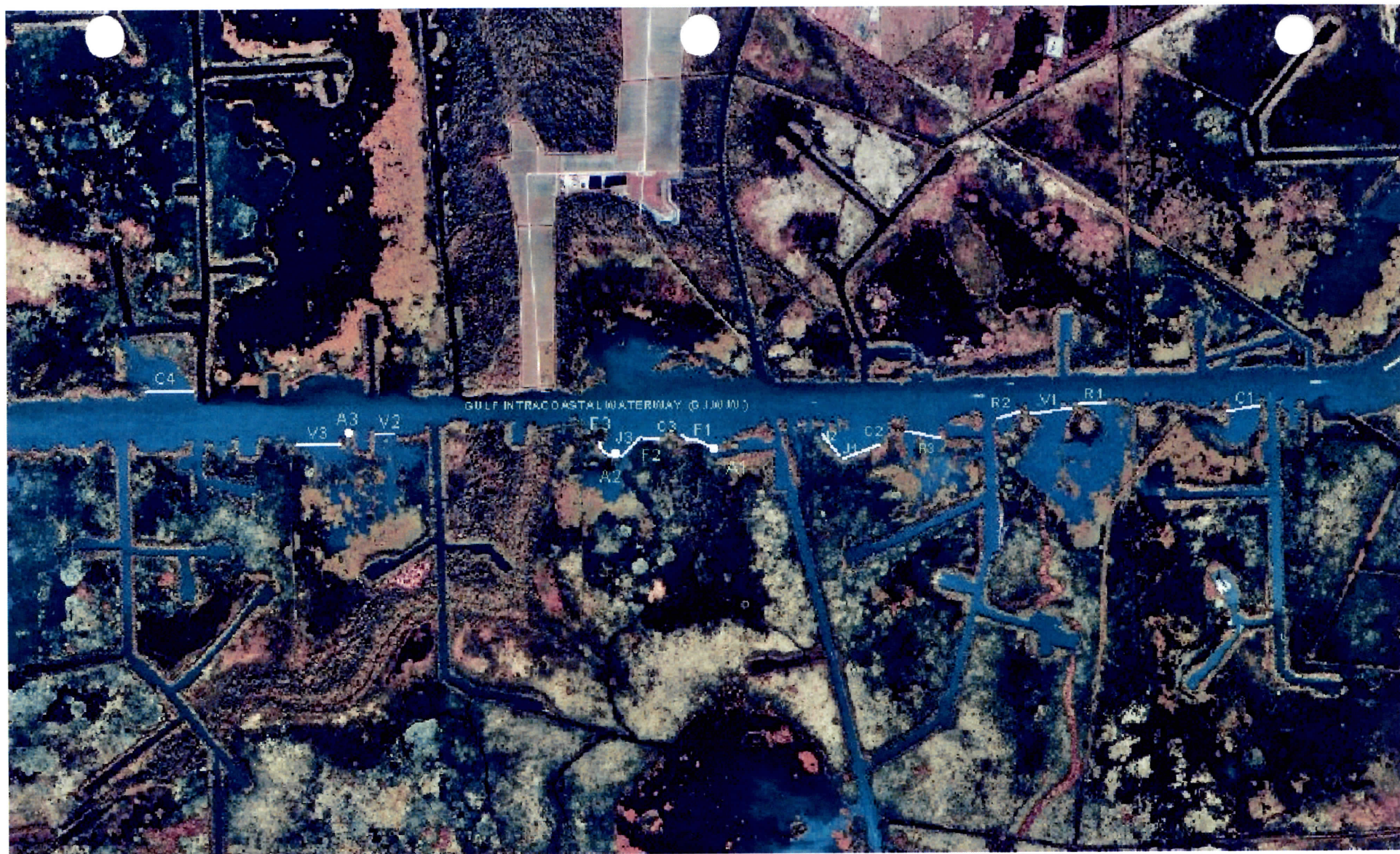
(SEAL)


NOTARY PUBLIC

ATTACHMENT II

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

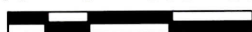
PROJECT FEATURES



Louisiana



300 0 300 600 Meters



900 0 900 1800 Feet



Project Site

Louisiana Department of Natural Resources
Coastal Restoration Division
Biological Monitoring Section
Thibodaux Field Office
July 17, 2001

C1 & C4 = Blowout Reference Areas
C2 & C3 = Off-Bank Reference Areas
A = Armored Plugs
F = Fencing with planted outgrass
J = 24" A-Jacks with planted outgrass
R = Concrete Revetment Mats
V = Straight-Walled Fiberglass Sheet Pile

ATTACHMENT III

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

PROJECT COMPLETION REPORT

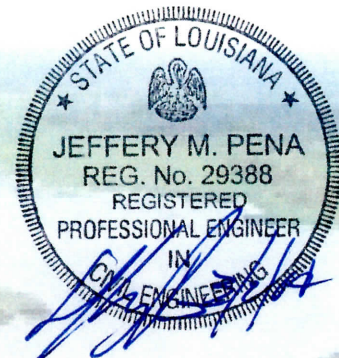
Mandalay Inspection Services TE-41

**LDNR CONTRACT NO. 2503-03-21
SCI PROJECT NO. 1942**

PROJECT COMPLETION REPORT



MARCH 2004



**Prepared For:
Louisiana Department of Natural Resources**

Prepared By:
Shaw Coastal, Inc.
197 Elysian Drive
Houma, Louisiana 70363

PROJECT COMPLETION REPORT

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APPENDICES

A	CWPPRA Report
B	Change Order No.
C	Change Order No. 2
D	Balancing Change Order
E	Project Site Map
F	As-Built Drawings
G	As-Build Surveys Data/Field Notes
H	As-Build Revetment Mat Layout

PROJECT COMPLETION REPORT

PROJECT NAME

Mandalay Bank Protection Demonstration

CWPPRA/STATE PROJECT NO.

TE-41

Report Date: February, 2004

By: Shaw Coastal, Inc.

1. Project Managers/Contracting Officer:

DNR Project Manager	Ralph Libersat	Telephone	(225) 342-1952
DNR Construction Project Manager	Daniel Dearmond	Telephone	(985) 449-5103
DNR Monitoring Manager	Elaine Lear	Telephone	(985) 447-0974
USFWS Project Manager	Martha Segura	Telephone	(337) 291-3110
Construction Administrator/Inspection	Jeffery Peña -SCI	Telephone	(985) 868-3434

2. Location and Description of Projects as Approved for Construction by Task Force.

The Mandalay Bank Protection Demonstration (TE-41) project is located along a 3.4 mi (5.5 km) stretch of the Gulf Intracoastal Waterway (GIWW). It is approximately 6 mi (9.7 km) southwest of Houma, Louisiana in the northeast portion of Terrebonne Parish. The project lies in the northern portion of the Penchant sub-basin in the Terrebonne hydrologic basin between Latitude 29°32'10" east Longitude 90°40'49" north, and Latitude 29°32'06" east Longitude 90°46'16" north. A permanent benchmark (PBM) has been installed in the project area as part of the secondary GPS network.

Fifteen sites were considered along the GIWW, along the Mandalay Refugee to demonstrate Five (5) treatments to protect the shoreline banks from additional erosion and to restore the marshes by promoting sedimentation and vegetation growth. These proposed treatments were Revetment Mat System, straight walled and fiberglass sheet pile system for the Blowout Treatments; Concrete Armor Units with Giant Cutgrass and Fencing with Giant Cutgrass for the Off-Bank Treatments; and the Armored Plug Treatment.

(Refer to Appendix E for fact sheet and project site map.)

3. Final, As-Built Features, Boundaries and Resulting Acreage (use attachments if necessary).

The project was constructed as described above. For additional information see attached "AS BUILT" Plans.

Actual Benefited Acres

N/A

Key Project Cost Elements

	CWPPRA Project Cost Estimates**	Cost Incurred as of January 31, 2004.
Construction	\$1,434,445	\$1,274,186.74
E & D	\$251,758	\$201,401.37
Land rights	\$93,750	\$23,317.58
Monitoring	\$77,237	\$44,511.82
O & M	\$12,469	\$0
Total	\$1,869,659	\$1,543,417.51

**Most recent estimate from CWPPRA Project estimates Report produced by USACOE.

** See Appendix A, CWPPRA Report.

5. Items of Work

Schedule of Items								
Item No.	Work	Est. Quan.	Unit	Estimated Unit Price	Estimated Amount	Final Quan.	Bid Unit Price	Final Amount
Base Price								
1	Mobilization and Demobilization	1	LS	\$75,000.00	\$75,000.00	1	\$3,000.00	\$3,000.00
2	Clearing and Grubbing	1	LS	\$25,000.00	\$25,000.00	1	\$5,000.00	\$5,000.00
3	Concrete Revetment Mats	220	EA	\$1,300.00	\$286,000.00	255	\$1,300.00	\$331,500.00
4	Elevated Shoreline System	1,080	LF	\$45.00	\$48,600.00	1,129	\$45.00	\$50,805.00
5	Anchors (Type I)	348	EA	\$245.00	\$85,260.00	364	\$200.00	\$72,800.00
6	Dredge Material	2,058	CY	\$3.00	\$6,174.00	2,356	\$5.00	\$11,780.00
7	Fiberglass Sheet Pile	69,960	SF	\$7.70	\$538,692.00	72,960	\$5.95	\$434,112.00
8	24" Concrete Armor Units	1,325	LF	\$70.00	\$92,750.00	1,283	\$45.00	\$57,735.00
9	Geotextile Fabric	5,211	SY	\$4.50	\$23,449.50	5,770	\$3.00	\$17,310.00
10	Giant Cutgrass	908	EA	\$7.50	\$6,810.00	908	\$6.00	\$5,448.00
11	Timber Fence	1,910	LF	\$55.00	\$105,050.00	1,910	\$27.50	\$52,525.00
12	Warning Signs	15	EA	\$2000.00	\$30,000.00	15	\$750.00	\$11,250.00
13	Settlement Plates	3	EA	\$500.00	\$1,500.00	3	\$750.00	\$2,250.00
14	Anchors (Type II)	206	EA	\$210.00	\$43,260.00	206	\$250.00	\$51,500.00
15	Geogrid	4,168	SY	\$8.50	\$35,428.00	4,002	\$5.00	\$20,010.00
Total					\$1,402,973.50	Total \$1,127,025.00		

Construction and Construction Oversight

Prime construction contractor	Bertucci Contracting Corporation
Subcontractor	
Subcontractor	
Original construction contract	\$1,057,823.00
Change orders (final costs)	\$95,358.00
Over/Under runs (from original bid items)	\$26,156.00
Final construction contract	\$1,127,025.00

Construction Oversight Contractor: Shaw Coastal, Inc.

Construction Oversight Amount: \$77,004.20 (As of January 31, 2004)

7. Major Equipment Used

Quarter Boats: AB-11, and AB 4
Cranes: 71 B, and 88 B
Spud Barges: KS-113, and RG-410
Excavators: 9030b (40' boom), and 240x (60' boom)
Tug Boats: Capt Mack, and Julie Marie

8. Discuss Construction Sequences and Activities, Problems Encountered, Solutions to Problems, etc.

Armored Plugs Sites:

A1, A2 and A3 sites were filled with dredged material from the middle of the GIWW borrow area. The material was of good clay type material. The material set up and dried before placing on the geogrid. The geogrid was sewn with overlays and placed on bottom of the treatment sites before the material was placed. This procedure was followed for all three treatments sites. Upon placing the material in the three sites, the sites were shaped, sloped and permitted to dry and settle. Upon verifying the elevation on each, the engineer was informed and authorized the placement of the fabric and revetment mats on the armored plug. This fabric was placed with overlays and sewing and adjusted to the site. Then followed the placement of the revetment mats. Each revetment mat was anchored and secured together with a minimum of eight (8) ss straps. The elevation and alignment was checked and monitored as the mats were placed and periodically thereafter. There were no problems encountered at any of the armored plug sites.

Concrete Armor Units with Giant Cutgrass Off-Bank Sites:

J1 and J2 sites were re-aligned from the banks edge due to the existing water depth and to maintain the required water depth for the placement of the concrete armored units (A-Jacks). The alignment was staked out and verified before placing the geogrid and the A-Jacks. Upon verifying the alignment, the geogrid was placed and pinned at both sites. The A-Jacks was then placed onto the geogrid. A special hanger was made by the Contractor to accommodate ten (10) feet of A-Jack when placing on the site. Upon the first few placements of A-Jacks, they were settling and parting from the intended set up. After a few trials, the A-Jacks were placed in a uniform manner with little settling and parting. These areas were a rather soft humus material (i.e., loose). An excavator with a special rack was used to place the A-Jacks in the three (3) sites.

The J3 site was re-aligned ten (10) feet from the banks edge due to the existing condition of the depth of water. This site placement was a little deeper than sites J1 and J2. The geogrid was placed within the proper overlays and sewn and alignment was checked and verified before placing the geogrid and A-Jacks. Upon verification of the alignment, the geogrid was placed and pinned as in J1 and J2 sites. Wave action was encountered, which made it more difficult for the geogrid to stay in place. The A-Jacks were placed onto

geogrid by the same method as in J1 and J2. Being this site was in deeper water, it took a little more time to place and secure the geogrid and A-Jacks. Upon completion of the geogrid and A-Jacks in all three (3) sites, the anchors were placed and secured.

Straight Walled Fiberglass Sheetpile System Sites:

V1, V2 and V3. Sites V2 and V3 were driven without major encounters. The only encounters for these two (2) sites were striking roots, logs on the bank at each end of the sites. A special flat head hydraulic vibrator was used to drive the sheet pile. A wooden templet was first made to use for alignment, an iron templet was then made to use for alignment and was used at sites V1, V2 and V3. Site V1 encountered the most problems. A stiff clay material was encountered preventing the 20 foot sheets from being driven no more than 3 to 5 feet into the ground. Upon further evaluation, a steel cap was made to fit over the end of the sheet pile to be driven. Even with this cap, the sheet pile continued to meet heavy resistance and a number of the 20 foot sheets were not driven to the full depth. With the use of the steel cap, an extra 5 to 6 feet of driving ability was observed. In some of the area, 10 foot sheets were allowed to be driven instead of the required 20 foot sheets. This site by far was the most difficult and time consuming. The walers were placed in all three (3) sites, secured as specified. All three (3) sites were backfilled with a clay type material, dredged for the GIWW.

Revetment Mat Blowout Sites:

R1, R2 and R3. The Contractor chose to stagger the pipe while banding the pipe together. By staggering the pipe, this method helped in the placement of the pipe and alignment of the pipe. It also lessened the pipe movement with the wave action and water movements as the vessels would pass. Alignment was staked, checked and verified before placement of fabric, pipe, revetment mats and anchors. Upon verifying the alignment, the fabric was placed and secured. Then the bundles of pipe were placed. A special spreader bar with a harness was used to place the pipes and mats. A crane barge did the placement. Upon placement of the pipe, the mats were placed on top of the pipe. Upon completion of each site with the fabric, pipe and mats, the anchors and straps were installed to secure the same. The straps are as recommended by the manufacturer.

One site had two (2) areas which fill material to was placed to level the bottom before placement of the fabric, pipe, and mats. R1 site has several areas of settlement. There is a settlement plate installed in the middle of each of the sites.

Fencing with Giant Cutgrass:

F1, F2 and F3. These sites were the least difficult. The material was transported on a barge and the crew fabricated the sections to be installed. An excavator barge was used to set in place each section of wooden fence and drive down to grade. The alignment was staked and checked and verified before any sections were set in place. There were no major difficulties encountered at these sites. Adjustments in the alignment were verified due to the existing conditions. The cutgrass was placed in these sites and in the concrete armor unit sites (J1, J2 and J3).

9. Construction Change Orders and Field Changes.

1. Change Order No.1 – The quantities of the items were modified in order to construct the treatments and the tie-ins as per the construction contract drawings. The change order cost is **\$95,358.00** and increased the total construction cost to **\$1,153,181.00** from **\$1,057,823.00**. This change order did not increase the construction time. (See Appendix B.)
2. Change Order No.2 – This change order increased the construction time by 20 days, from 180 to 200 days, with no change in project construction cost. The increase in construction time is due to the issuance of an advanced Notice to Proceed and construction down time due to inclement weather. (See Appendix C.)
3. Balancing Change Order – This change order constituted a decrease in Construction Cost of \$26,156.00 due to under runs on the contract. (See Appendix D.)

. Pipeline and Other Utility Crossings.

	<u>Structure</u>	<u>Owner</u>	<u>Rep. To Contact</u>
1.	Pipeline	Mandalay Oil Co.	Ms. Debbie Bashnell (337-232-7665)
2.			
3.			

11. Safety and Accidents.

None

12. Additional Comments Pertaining to Construction, Completed Projects, etc.

1. The limits for the sites were increased due to the time between the original survey, the bidding and the start of construction.
2. The dredged material for the sites was a better material than expected. The material set up with good consistency. The anticipated two feet of fluff in the dredge location was not encountered.
3. The J sites were altered due to the existing conditions of bank and water depth.
4. The securing of the anchors at the J sites should be re-evaluated before the next project. The material (tie wraps), used to secure the geogrid to the anchors, were stronger than the geogrid. In these sites, with the wave action, the geogrid pulled away from the anchors, causing a bunching effect.

The V sites were more time consuming than the other sites due to the resistance and method used in aligning, setting and driving the fiberglass sheet pile in place to the proper grade. Site V1 met greatest resistance due to the stiff clays in which the sheet piles were driven.

6. At site R1, a cut in the marsh on the east bank was observed. A clay type dredged material was placed in the site to protect the marsh around the cut.

13. Significant Construction Dates: To be filled out by DNR Construction Project Manager or Contracting Officer for construction for Agency responsible for construction.

SP File No. J24954DL; PO No. 3519448	Date
Bid Opening	12-26-02
Construction Contract	02-18-03
Preconstruction Conference	03-11-03
Notice to Proceed	03-04-03
Mobilization	05-19-03
Construction Start	05-19-03
Construction Completion	08-29-03
Final Acceptance	09-17-03

If different bids are taken, repeat this table to individually reflect each bid and attach tables.
Other significant Project Dates

	<u>Date</u>
Project Implementation closeout**	
Start of Preconstruction Monitoring***	
Preconstruction Aerial Photography Acquisition***	
Monitoring Plan Completion***	

** Final implementation closeout is made by either the DNR Project Manager or the Federal Agency Contracting Officer depending on which organization had lead role for construction of project.

*** To be completed by DNR Project Manager.

Appendix A

CWPPRA REPORT

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

PROJECT STATUS REPORT as of 2/5/2004

Mandalay Bank Protection Demonstration (DEMO)

PROJECT DATA

PROJECT: Mandalay Bank Protection Demonstration (DEMO)
PRIORITY LIST: 9 **PROJECT NO:** 0909 **CWPPRA NO:** XTE-DEMO **DNR NO:** TE-41
PROJECT TYPE: Shoreline Protection **NET ACRES BENEFITTED:**
REGION: 3 **BASIN:** Terrebonne **PARISH:** Terrebonne
LEAD AGENCY: FWS
LOCAL SPONSOR: DEPT. OF NATURAL RESOURCES, STATE OF LA

MILESTONES:

CSA EXECUTION: 12/6/2000 (Actual)
DESIGN COMPLETION: 9/1/2001 (Actual)
CONSTRUCTION START: 4/25/2003 (Actual)
CONSTRUCTION COMPLETION: 9/1/2003 (Actual)
ESCROW AMENDMENT 3/2/2001 (Actual) **No: 81**
MONITORING PLAN APPROVAL:
O and M PLAN APPROVAL:
DEAUTHORIZATION DATE:
CASH FLOW PROECTS:
Phase 1 Approval: 1/11/2000 (Actual)
Phase 2 Approval: 10/25/2001 (Actual)

LEGISLATIVE DISTRICTS:

CONGRESSIONAL DISTRICT: 3 W. J. Tauzin
STATE SENATE DISTRICT: 21 Butch Gautreaux
STATE HOUSE DISTRICT: 51 Carla Blanchard Dartez

Point of Contact:

DEPT. OF THE INTERIOR
FISH & WILDLIFE SERVICE

Martha Segura
Fish and Wildlife Biologist
646 Cajundome Blvd.
Suite 400
Lafayette, LA 70506

PHONES:
Office: (337) 291-3110
Fax: (337) 291-3139

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

PROJECT STATUS REPORT as of 2/5/2004

Mandalay Bank Protection Demonstration (DEMO)

FINANCIAL DATA

ESTIMATES	BASELINE	CSA	CURRENT
Engr & Design:	\$229,235	\$251,758	\$251,758
Lands:	\$75,000	\$93,750	\$93,750
Construction:	\$644,317	\$1,434,445	\$1,434,445
Monitoring:	\$77,237	\$77,237	\$77,237
O & M:	\$12,469	\$12,469	\$12,469
Contingencies:	\$156,237	\$0	\$0
Total:	\$1,194,495	\$1,869,659	\$1,869,659
Maximum Project Cost:	\$1,493,119	future input	future input

OBLIGATIONS	Federal	Non-Federal		Total
		Cash	WIK	
Engr & Design:	\$44,690	\$0	\$161,825	\$206,515
Lands:	\$0	\$0	\$22,319	\$22,319
Construction:	\$933,331	\$0	\$0	\$933,331
Monitoring:	\$0	\$0	\$17,895	\$17,895
O & M:	\$0	\$0	\$0	\$0
Total:	\$978,021	\$0	\$202,038	\$1,180,060
		\$202,038		

EXPENDITURES	Federal	Non-Federal		Total
		Cash	WIK	
Engr & Design:	\$31,084	\$0	\$161,825	\$192,909
Lands:	\$0	\$0	\$22,319	\$22,319
Construction:	\$0	\$0	\$0	\$0
Monitoring:	\$0	\$0	\$17,895	\$17,895
O & M:	\$0	\$0	\$0	\$0
Total:	\$31,084	\$0	\$202,038	\$233,122
		\$202,038		

Financial Data Analysis:

Federal Expenditures: \$31,084 (13.3%)

Non-Fed Expenditures: \$202,038 (86.7%)

Escrow Funds Deposited: \$0

Note

1. Financial data based on Corps of Engineers records.

2. A "#" by the CSA Estimate indicates that the CURRENT ESTIMATE exceeds 125% of the CSA ESTIMATE for the feature. A modification to the Cost Sharing Agreement may be required.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

PROJECT STATUS REPORT as of 2/5/2004

Mandalay Bank Protection Demonstration (DEMO)

PROJECT LOCATION:

The project is located in Terrebonne Parish along the Gulf Intracoastal Waterway west of Houma.

PROJECT DESCRIPTION:

The project will evaluate several low-cost solutions for restoring habitat in blowout areas and preventing bank erosion.

PROJECT STATUS: (Project Status Last Updated: 9/5/2003)

Construction was completed 9/1/2003.

FUND STATUS:

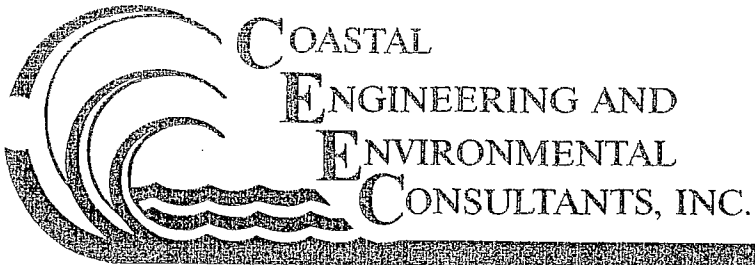
The current project estimate is \$1,869,659 , which includes \$1,779,953 for construction first costs, and \$77,237 and \$12,469 for 20 years of monitoring and operations and maintenance, respectively.

[Home](#) | [CWPPRA Project Reports](#)

Project Managers' Technical Factsheet <http://lacoast.gov/reports/>

Appendix B

CHANGE ORDER NO. 1



FILE
1942

Engineers — Scientists — Planners — Environmental Consultants

June 16, 2003

Louisiana Department of Natural Resources
1440 Tiger Drive, Suite B
Thibodaux, Louisiana 70310

Attention: Daniel Dearmond, P.E.

Subject: Change Order No. 1

Reference: Louisiana Department of Natural Resources
Mandalay Bank Protection Demo Project (TE-41)
Terrebonne Parish, Louisiana
CEEC Job No. 1942

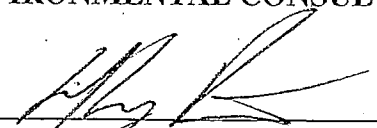
Dear Mr. Dearmond:

Attached for your review and approval is Change Order No.1 and attachments for the above referenced project. The change order cost is \$ **95,358.00** and will increase the total construction cost to \$ **1,153,181.00**. This change order will not increase the construction time.

Should you have any questions or wish to discuss, please call me at (985)868-3434.

Sincerely,

**COASTAL ENGINEERING AND
ENVIRONMENTAL CONSULTANTS, INC.**



Jeffery M. Peña, P.E.
Project Manager

JMP:rmb

Attachment

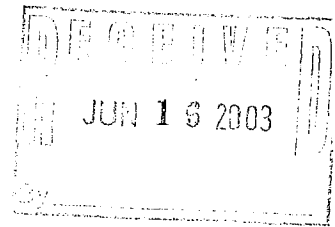
cc: Oscar F. Peña - CEEC

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CHANGE ORDER NO. 1

PROJECT:

Mandalay Bank Protection Demo Project

DATE OF ISSUANCE:**OWNER:**

Department of Natural Resources
1440 Tiger Drive STE B
Thibodaux, LA 70301

**OWNER'S PROJECT NO.
(TE-41)****CONTRACTOR:**

Bertucci Contracting Corporation
Post Office Box 10582
Jefferson, LA 70181-4223

ENGINEER:

Coastal Engineering & Environmental Consultants, Inc.
197 Elysian Drive
Houma, Louisiana 70364

CONTRACT FOR:

Mandalay Bank Protection Demo Project (TE-41)

**ENGINEER'S PROJECT NO.
1942**

You are directed to make the following changes in the Contract Documents.

Description: Refer Change Order No. 1 Attached

Purpose of Change Order: Increase in the limits of the various treatments.

CHANGE IN CONTRACT PRICE:

Original Contract Price

\$ 1,057,823.00

Previous Change Orders No. 1 to No.2

\$ 0.00

Contract Price Prior to this Change Order

\$ 1,057,823.00

Net Increase of this Change Order

\$ 95,358.00

Contract Price with all approved Change Orders

\$ 1,153,181.00

CHANGE IN CONTRACT TIME:

Original Contract Time

180 Calendar Days

days or date

Net Change from previous Change Orders

0 Days

days

Contract Time Prior to this Change Order

180 Calendar Days

days or date

Net Increase of this Change Order

0 Days

date

Contract Time with all approved Change Orders

180 Calendar Days

days or date

RECOMMENDED:

By: 

Date: 6/16/03

JEFFERY M. PENA
REG. No. 29388
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

APPROVED:

By: 

Date: 13-JUNE-03

Contractor

ANTHONY J. ZELENKA, PRESIDENT

APPROVED:

By: _____

DNR

Date: _____

APPROVED:

By: _____

USFW

Date: _____

**Louisiana Department of Natural Resources
Manadalay Bank Protection Demo Project (TE - 41)**

CEEC Job.No. 1942

Change Order No.1

Summary

The change order cost is \$ **95,358.00** and will increase the total construction cost to \$ **1,153,181.00**. This change order will not increase the construction time.

This Change Order consists of modifying the following Bid Items:

ITEM NO.	ITEM	UNIT	Add. Quantity	Unit Cost	Total Additional Cost
3	Concrete Revetment Mat	Each	35.00	\$ 1,300.00	\$45,500.00
4	Elevated Shore Line System	Linear feet	336.00	\$ 45.00	\$15,120.00
5	Anchors (Type I)	Each	42.00	\$ 200.00	\$8,400.00
7	Dredged Material Fill	Cubic yard	900.00	\$ 5.00	\$4,500.00
8	Fiber Glass Sheet Pile	Square feet	3040.00	\$ 5.95	\$18,088.00
10	Geotextile	Square yard	625.00	\$ 3.00	\$1,875.00
15	Geogrid	Square yard	375.00	\$ 5.00	\$1,875.00
					\$95,358.00

The following items are being modified in order to construct the treatments and the tie-ins as per the construction contract drawings:

Item No. 3: Concrete Revetment Mat

The increase in the quantity of this item is due to the expansion in limits of the treatments. (Treatments R1, R2, R3, A1 & A3)

Item No. 4: Elevated Shore Line System

The additional length of perforated CPE system is due to the increase in length of the treatments. (Treatments R1, R2 & R3)

Item No. 5: Anchors (Type I)

The additional anchors are required to support the additional revetment mats. (Treatments R1, R2, R3, A1 & A3)

Item No. 7: Dredge Material

The additional cubic yardage of fill is due to the increase in length of the sheetpile systems and armored plugs. (Treatments V1, V2, V3, A1 & A3)

Item No. 8: Fiber Glass Sheet Pile

The additional length of sheet pile is due to the increase in length of the treatments. (Treatments V1, V2 & V3)

Item No. 10: Geotextile

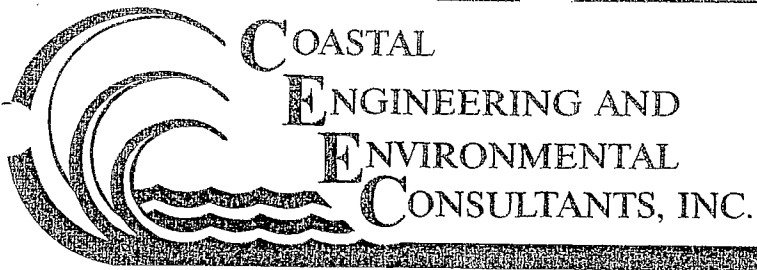
The additional area of geotextile is due to the increase in length of the treatments. (R1, R2, R3, A1 & A3)

Item No. 15: Geogrid

The additional quantity of geogrid is due to the increase in length of the treatments. (Treatments A1 & A3)

Appendix C

CHANGE ORDER NO. 2



Engineers — Scientists — Planners — Environmental Consultants

September 10, 2003

Bertucci Contracting Corporation
#7 River Road, Post Office Box 10582
Jefferson, Louisiana 70181

Attention: Nolan Simoneaux, Project Manager

Subject: Change Order No. 2

Reference: Louisiana Department of Natural Resources
Mandalay Bank Protection Demo Project (TE-41)
Terrebonne Parish, Louisiana
CEEC Job No. 1942

Dear Mr. Simoneaux:

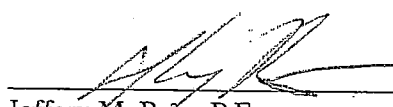
In response to your letter dated September 10, 2003 (attached), Coastal Engineering and Environmental Consultants, Inc. has prepared for your review and approval Change Order No.2 for the above referenced project. This change order will increase the construction time by 20 days, from 180 to 200 days, with no change in project construction cost.

The increase in construction time is due to the issuance of an advanced Notice to Proceed and construction down time due to inclement weather.

Should you have any questions or wish to discuss, please call me at (985)868-3434.

Sincerely,

**COASTAL ENGINEERING AND
ENVIRONMENTAL CONSULTANTS, INC.**


Jeffery M. Peña, P.E.
Project Manager

JMP:mmmb

Attachment

cc: Daniel Dearmond, DNR
Oscar F. Peña, Sr. Vice-President - CEEC

K:\1942\Change Orders\Change Order No. 2 Letter.wpd



BERTUCCI CONTRACTING CORPORATION

#7 River Road, Post Office Box 10582

Jefferson, Louisiana 70181

PHONE 504-835-0303 : FAX 504-835-8448

September 108, 2003

Mr. Jeff Pena
CEEC, Inc
197 Elysian Drive
Houma, Louisiana 70363

Re: Mandalay Bank Shoreline Protection Demonstration Project (TE-41)/Department of
Natural Resources, Terrebonne Parish, Louisiana. File Number J 24954 DL, Purchase
Order Number 3519448.

Mr. Pena;

We are requesting additional performance time for the above referenced contract. Due to an
advanced Notice to Proceed and down time due to weather, we are requesting 20 days extension
to the 180 contract days.

If you have any questions or need further information please contact me at your earliest
convenience.

Sincerely,

A handwritten signature in dark ink, appearing to read "S. Zelenka". The signature is fluid and cursive.

Stephen M. Zelenka
Contract Administrator

CHANGE ORDER NO. 2

PROJECT:

Mandalay Bank Protection Demo Project

DATE OF ISSUANCE:**OWNER:**

Department of Natural Resources
1440 Tiger Drive STE B
Thibodaux, LA 70301

OWNER'S PROJECT NO.

(TE-41)

CONTRACTOR:

Bertucci Contracting Corporation
Post Office Box 10582
Jefferson, LA 70181-4223

ENGINEER:

Coastal Engineering & Environmental Consultants, Inc.
197 Elysian Drive
Houma, Louisiana 70364

CONTRACT FOR:

Mandalay Bank Protection Demo Project (TE-41)

ENGINEER'S PROJECT NO.

1942

You are directed to make the following changes in the Contract Documents.

Description: Increase the construction time by 20 days, from 180 to 200 days.

Purpose of Change Order:

Due to the issuance of an advanced Notice to Proceed and construction down time due to inclement weather.

CHANGE IN CONTRACT PRICE:

Original Contract Price

\$ 1,057,823.00

Previous Change Orders No. 1 to No.2

\$ 95,358.00

Contract Price Prior to this Change Order

\$ 1,153,181.00

Net Increase of this Change Order

\$ 0.00

Contract Price with all approved Change Orders

\$ 1,153,181.00

CHANGE IN CONTRACT TIME:

Original Contract Time

180 Calendar Days

days or date

Net Change from previous Change Orders

0 Days

days

Contract Time Prior to this Change Order

180 Calendar Days

days or date

Net Increase of this Change Order

20 Days

date

Contract Time with all approved Change Orders

200 Calendar Days

days or date

RECOMMENDED:

By:

JEFFERY M. DENA

Date:

SEP 15, 2003

PROFESSIONAL ENGINEER

APPROVED:

IN

By:

COASTAL ENGINEERING

S. ZELENKA CONTRACT ADM.

Date:

16-SEP-03

APPROVED:

By:

DNR

Date:

APPROVED:

By:

USFW

Date:

Appendix D

BALANCING CHANGE ORDER

Pena, Jeffery

From: email
Sent: Monday, October 13, 2003 4:25 PM
To: Dina Toups; Jeffery Pena; Melissa Porche
Subject: FW: Jeff Pena RE: TE-41 Mandalay balancing change order



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-----Original Message-----

From: Daniel Dearmond [mailto:DanielD@dnr.state.la.us]
Sent: Monday, October 13, 2003 4:13 PM
To: ceec01@bellsouth.net
Subject: TO: Jeff Pena RE: TE-41 Mandalay balancing change order

Jeff,
This is the letter from Bertucci agreeing to the reduction in the TE-41 final contract price. Also, attached is the balancing change order from Purchasing. This was done direct between Bertucci and DNR Purchasing. Thought you might want something for your files.

Daniel Dearmond, P.E.
Louisiana Department of Natural Resources
Coastal Engineering Division
Thibodaux Field Office
(985) 449-5103

-----Original Message-----

From: Judy LeBourgeois
Sent: Friday, October 10, 2003 12:39 PM
To: Dorothea Young
Cc: Brian Babin; Daniel Dearmond; Samuel Priddy
Subject: PO# 3519448 BERTUCCI CONTRACTING FILE #: J24954DL MANDALAY BANK SHORELINE PROTECTION

Please find attached the agreement to decrease the items on change order 02.



DEPARTMENT OF NATURAL RESOURCES
COASTAL RESTORATION DIVISION
THIBODAUX FIELD OFFICE
1440 TIGER DRIVE SUITE B
THIBODAUX, LOUISIANA 70301

FACSIMILE TRANSMISSION COVER SHEET**DATE:** 10/10/2003**TIME:** 11:40 am**TO:** Judy LeBourgeois**LOCATION:** DNR**FAX NUMBER:** 225-242-3369**MESSAGE/COMMENTS:**

TE-41 Mandalay Bank Protection Demo Project
PO 3519448

Judy,

I've signed off on Bertucci's agreement with the balancing change order for TE-41 as the project construction manager with DNR.

Thanks.

FROM: Daniel Dearmond, P.E.**TELEPHONE:** (985) 449-5103**FAX:** (985) 447-0997**NUMBER OF PAGES TO FOLLOW COVER****SHEET:** 1



Fax

To: Jerry LeBourgeois **From:** Gene Simon 628-1723
Fax: 225-242-3369 **Pages:** 1
Phone: **Date:** October 10, 2003
Re: Mandalay Bank Demo Project **cc:**
PO 3519448

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

• **Comments:**

Confirming our conversation, we consent to a change order to the contract decreasing its value by \$26,156 due to under runs on the contract.

Gene Simon

Chief Financial Officer

Daniel Dearmond, DNR construction Manager

Please see us at Bertuccicorp.com

DEPARTMENT OF NATURAL RESOURCES

REQUISITION (Rev 2/02)

TO BE DELIVERED TO:		ORDER ISSUED TO:		DATE:	
NAME: Sam Priddy		BERTUCCI CONTRACTING CORP.		October 2, 2003	
ROOM: 1017 M					
PHONE: (225)342-5023					
DIRECT QUESTIONS TO:		MANDALAY BANK SHORELINE PROTECTION		REQUISITION NO.:	
NAME: Daniel Dearmond/Sam Priddy		P.O. 3519448 FILE J24954 DL		CRD-03-0233	
PHONE: (985)449-5103/342-5023				CHANGE ORDER # 2	
				DESIRED DELIVERY	

CLASS	DESCRIPTION	QTY ORD	UNIT	ITEM NO.	UNIT PRICE	AMOUNT
CHANGE ORDER NO.2						
for the MANDALAY BANK SHORELINE PROTECTION (TE-41)						
ITEM #4	Decrease by \$12,915.00 (287 LF X \$45.00) Underrun	287	LF	1.	\$45.00	-\$12,915.00
ITEM #5	Decrease by \$5,200.00 (26 EA X \$200.00) Underrun	26	EA	2.	\$200.00	-\$5,200.00
ITEM #6	Decrease by \$3,010.00 (602 CY X \$5.00) Underrun	602	CY	3.	\$5.00	-\$3,010.00
ITEM #7	Decrease by \$238.00 (40 SF X \$5.95) Underrun	40	SF	4.	\$5.95	-\$238.00
ITEM #8	Decrease by 1,890.00 (42 LF X \$45.00) Underrun	42	LF	5.	\$45.00	-\$1,890.00
ITEM #9	Decrease by \$198.00 (66 SY X \$3.00) Underrun	66	SY	6.	\$3.00	-\$198.00
ITEM #15	Decrease by \$2,705.00 (541 SY X \$5.00) Underrun	541	SY	7.	\$5.00	-\$2,705.00
OVERRUNS/UNDERRUNS MONETARY ADJUSTMENTS						
Overrun(+)/Underrun(-)						
-12,915-\$5,200-\$3,010-\$238-\$1,890-\$1980-\$2,705 =-\$26,156.00 Underrun						
Net Total Project Underrun -\$26,156.00						
PROJECT Current Decrease New Total						
Mandalay(TE-41) \$1,153,181.00 \$- 26,156.00 \$471,329.65						
TOTAL ADJUSTMENT						
ITEM #S	COST CENTER	OBJECT	ACTIVITY	REPORTING CAT. (Proj.code)	PROJECT NO./ APROP UNIT (Purpose Code)	Previous TOTALS 1,153,181.00 Post C.O. 2 Total \$ 1,127,025.00
1	2511	3655		OF 18	6	

REQUESTED BY
Daniel DearmondSIGNATURE AGENCY
APPROVALFUNDS AVAILABLE BUDGET
APPROVAL

The request made above is necessary and in the interest of the general public and the State of La

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RECEIVED
NATURAL RESOURCES
PURCHASING
2003 OCT -8 PM 1:01

PO# 3519448 CRD-03-0233

MANDALAY BANK PROTECTION PROJECT (TE-41)

	BUDGET	C.O. #1	INV 1	INV 2	INV 3	INV 4	C.O.#2	BALANCE
MOBILIZATION	3000.00	0.00	1800.00	0.00	0.00	1200.00	0.00	0.00
CLEARING AND GRUBBING	5000.00	0.00	500.00	4100.00	400.00	0.00	0.00	0.00
CONCRETE REVETMENT MATS	288000.00	45500.00	0.00	44200.00	287300.00	0.00	0.00	0.00
ELEVATED SHORELINE SYSTEM	48600.00	15120.00	0.00	0.00	50805.00	0.00	12915.00	0.00
ANCHORS (TYPE I)	69600.00	8400.00	0.00	4600.00	48800.00	19400.00	5200.00	0.00
DREDGE MATERIAL	10290.00	4500.00	985.00	7250.00	0.00	3545.00	3010.00	0.00
FIBERGLASS SHEET PILE	416262.00	18088.00	0.00	0.00	305235.00	128877.00	238.00	0.00
24" CONCRETE ARMOR UNITS	59625.00	0.00	0.00	57285.00	450.00	0.00	1890.00	0.00
GEOTEXTILE FABRIC	15633.00	1875.00	0.00	1917.00	15393.00	0.00	198.00	0.00
GIANT CUTGRASS	5448.00	0.00	0.00	0.00	0.00	5448.00	0.00	0.00
TIMBER FENCE	52525.00	0.00	0.00	0.00	48400.00	4125.00	0.00	0.00
WARNING SIGNS	11250.00	0.00	0.00	0.00	0.00	11250.00	0.00	0.00
SETTLEMENT PLATES	2250.00	0.00	0.00	0.00	2250.00	0.00	0.00	0.00
ANCHORS (TYPE II)	51500.00	0.00	0.00	25000.00	1250.00	25250.00	0.00	0.00
GEOGRID	20840.00	1875.00	0.00	20010.00	0.00	0.00	2705.00	0.00
RETAINAGE			-164.25	-8218.10	-38014.15	-9954.75	0.00	56351.25
TOTAL	1153181.00	95358.00	3120.75	156143.90	722268.85	189140.25	26156.00	56351.25

BERTUCCI CONTRACTING CORPORATION
P.O. BOX 10382
TIN 721228128
VXPS820029
JEFFERSON, LOUISIANA 70181

MAHULAY BANK PROTECTION DEMO PROJECT (TE-4)
FILE NUMBER J2454 DL, PURCHASE ORDER NUMBER 2519448
PAYMENT ESTIMATE NO. 4
PERIOD COVERING THRU 31-AUG-00

BASE BID

ITEM NO	DESCRIPTION	EST. QUANTITY	UNIT	UNIT PRICE	EST. AMOUNT	CURRENT QUANTITY	CURRENT REVENUE	TOTAL QUANTITY	TOTAL REVENUE	UNEARNED QUANTITY	UNEARNED REVENUE
1	MOBILIZATION & DEMOBILIZATION	1	LS	\$ 3,000.00	\$ 3,000.00	40%	\$ 1,200.00	100%	\$ 3,000.00	0%	\$ -
2	CLEARING & GRUBBING	1	LS	\$ 5,000.00	\$ 5,000.00	0%	\$ -	100%	\$ 5,000.00	0%	\$ -
3	CONCRETE REVETMENT MATS	265	EA	\$ 1,300.00	\$ 331,500.00	-	\$ -	265	\$ 331,500.00	-	\$ -
4	ELEVATED SHORELINE SYSTEM	1,418	LF	\$ 45.00	\$ 63,720.00	-	\$ -	1,123	\$ 50,535.00	297	\$ 12,915.00
5	ANCHORS (TYPE I)	380	EA	\$ 200.00	\$ 76,000.00	97	\$ 19,400.00	384	\$ 76,800.00	25	\$ 5,200.00
6	DREDGE MATERIAL	2,959	CY	\$ 5.00	\$ 14,795.00	709	\$ 3,545.00	2,360	\$ 11,780.00	602	\$ 3,010.00
7	FIBERGLASS SHEET PILE	73,000	SF	\$ 5.35	\$ 390,350.00	21,960	\$ 118,377.00	72,980	\$ 390,112.00	40	\$ 213.00
8	24" CONCRETE ARMOR UNITS	1,325	LF	\$ 45.00	\$ 59,625.00	-	\$ -	1,283	\$ 57,735.00	42	\$ 1,890.00
9	GEOTEXTILE FABRIC	5,835	SY	\$ 3.00	\$ 17,505.00	-	\$ -	5,770	\$ 17,310.00	65	\$ 195.00
10	GIANT CUTGRASS	503	EA	\$ 8.00	\$ 4,024.00	908	\$ 5,448.00	903	\$ 5,448.00	-	\$ -
11	TIMBER FENCE	1,910	LF	\$ 27.50	\$ 52,525.00	160	\$ 4,125.00	1,910	\$ 52,525.00	-	\$ -
12	WARNING SIGNS	15	EA	\$ 750.00	\$ 11,250.00	15	\$ 11,250.00	15	\$ 11,250.00	-	\$ -
13	SETTLEMENT PLATES	3	EA	\$ 760.00	\$ 2,280.00	-	\$ -	3	\$ 2,280.00	-	\$ -
14	ANCHORS (TYPE II)	206	EA	\$ 250.00	\$ 51,500.00	101	\$ 25,250.00	206	\$ 51,500.00	-	\$ -
15	GEOSPID	4,543	SY	\$ 5.00	\$ 22,715.00	-	\$ -	4,002	\$ 20,010.00	541	\$ 2,705.00
TOTAL					\$1,153,591.00		\$ 189,026.00		\$1,127,016.00		\$ 26,156.00

INVOICE TOTAL

\$1,127,016.00

LESS RETAINAGE(5%)

\$ 56,351.25

LESS PRIOR INVOICE

\$ 881,533.50

DUE THIS INVOICE

\$ 189,131.25

OWNER: Louisiana Department of Natural Resources
 Project Name: Mandalay Bank Protection Demo Project (TE-41)
 OWNER Project No.: Federal No. XTE-Demo, State No. TE-41
 ENGINEER Project No.: 1942
 Work Completed Through: August 31, 2003
 Original Contract Total: \$1,057,823.00

APPLICATION FOR PAYMENT NO. 4

BASE BID

ITEM NO	DESCRIPTION	EST. QUANTITY	UNIT	UNIT PRICE	EST. AMOUNT	CURRENT QUANTITY	CURRENT REVENUE	TOTAL QUANTITY	TOTAL REVENUE	UNEARNED QUANTITY	UNEARNED REVENUE
1	MOBILIZATION & DEMOBILIZATION	1	LS	\$ 3,000.00	\$ 3,000.00	40%	\$ 1,200.00	100%	\$ 3,000.00	0%	\$ -
2	CLEARING & GRUBBING	1	LS	\$ 5,000.00	\$ 5,000.00	0%	\$ -	100%	\$ 5,000.00	0%	\$ -
3	CONCRETE REVETMENT MATS	255	EA	\$ 1,000.00	\$ 331,500.00	-	\$ -	255	\$ 331,500.00	-	\$ -
4	ELEVATED SHORELINE SYSTEM	1,418	LF	\$ 45.00	\$ 63,810.00	-	\$ -	1,129	\$ 50,805.00	289	\$ 12,915.00
5	ANCHORS (TYPE I)	330	EA	\$ 200.00	\$ 78,000.00	97	\$ 19,400.00	364	\$ 72,600.00	26	\$ 5,200.00
6	DREDGE MATERIAL	2,958	CY	\$ 5.00	\$ 14,790.00	708	\$ 3,540.00	2,356	\$ 11,780.00	602	\$ 3,010.00
7	FIBERGLASS SHEET PILE	73,000	SF	\$ 5.95	\$ 434,350.00	21,680	\$ 128,977.00	72,880	\$ 434,112.00	40	\$ 238.00
8	24" CONCRETE ARMOR UNITS	1,325	LF	\$ 45.00	\$ 59,625.00	-	\$ -	1,283	\$ 57,735.00	42	\$ 1,890.00
9	GEOTEXTILE FABRIC	5,868	SY	\$ 3.00	\$ 17,604.00	-	\$ -	5,770	\$ 17,310.00	68	\$ 198.00
10	GIANT CUTGRASS	908	EA	\$ 6.00	\$ 5,448.00	908	\$ 5,448.00	908	\$ 5,448.00	-	\$ -
11	TIMBER FENCE	1,910	LF	\$ 27.50	\$ 52,525.00	150	\$ 4,125.00	1,910	\$ 52,525.00	-	\$ -
12	WARNING SIGNS	15	EA	\$ 750.00	\$ 11,250.00	15	\$ 11,250.00	15	\$ 11,250.00	-	\$ -
13	SETTLEMENT PLATES	9	EA	\$ 250.00	\$ 2,250.00	-	\$ -	9	\$ 2,250.00	-	\$ -
14	ANCHORS (TYPE II)	206	EA	\$ 250.00	\$ 51,500.00	101	\$ 25,250.00	206	\$ 51,500.00	-	\$ -
15	GEOGRID	4,540	SY	\$ 5.00	\$ 22,700.00	-	\$ -	4,002	\$ 20,010.00	541	\$ 2,705.00
TOTAL					\$ 1,153,181.00		\$ 199,095.00		\$ 1,127,025.00		\$ 28,158.00

INVOICE TOTAL \$ 1,127,025.00

LESS RETAINAGE(5%) \$ 56,351.25

LESS PRIOR INVOICE \$ 881,533.50

DUE THIS INVOICE \$ 189,140.25

CONTRACTORS CERTIFICATION

The undersigned certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above has been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered prior Applications for Payment numbered 1 through 4 inclusive; and (2) title to all materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment less and clear of all taxes, liens, security interests and encumbrances (except such as covered by Bond acceptable to OWNER).

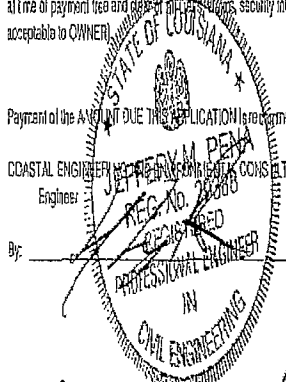
Payment of the AMOUNT DUE THIS APPLICATION is recommended.

COASTAL ENGINEERING & CONSTRUCTION CONSULTANTS, INC.

Engineer:

By:

Date:



Daniel Deamond
 DNR CONSTRUCTION MANAGER

9/18/2003

M. B. Brown
 9/25/03

Appendix E

PROJECT SITE MAP



Mandalay Bank Protection Demonstration (TE-41)

Project Status

Approved Date: 2000 **Cost:** \$1.19 million

Project Area: N/A **Status:** Completed September 2003

Net Benefit after 20 Years: N/A

Project Type: Demonstration, Shoreline Protection

Location

The project is located on the Gulf Intracoastal Waterway (GIWW), just west of Houma, in Terrebonne Parish Louisiana, in the vicinity of Minors Canal. The project features will be installed in the Mandalay National Wildlife Refuge.

Problems

Erosion of canal banks is caused by the wakes of passing vessels on the GIWW. Wake action erodes the spoil banks and exposes the underlying organic soils. Once breakthrough occurs, bay-like areas form in adjacent areas through continued erosion.

Restoration Strategy

This project is intended to develop new techniques for protecting and restoring easily erodible organic soils. Intact banks and breakthroughs will be treated to determine the cost effectiveness of demonstrated approaches.

Progress to Date

The project was approved for engineering and design in January 2000 and construction in October 2001.

Construction was completed September 2003.

This project is on Priority Project List 9.



Breach along the southern bank of the GIWW in Mandalay NWR.



The project is located within the boundaries of Mandalay National Wildlife Refuge.

For more project information, please contact:



Federal Sponsor:





U.S. Fish and Wildlife Service
Lafayette, LA
(337) 291-3100

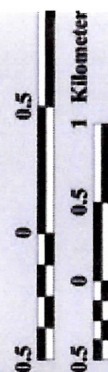
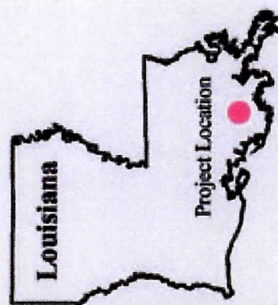


Local Sponsor:

Louisiana Department of Natural Resources
Baton Rouge, LA
(225) 342-7308

Mandalay Bay Protection Demonstration (TE-41)

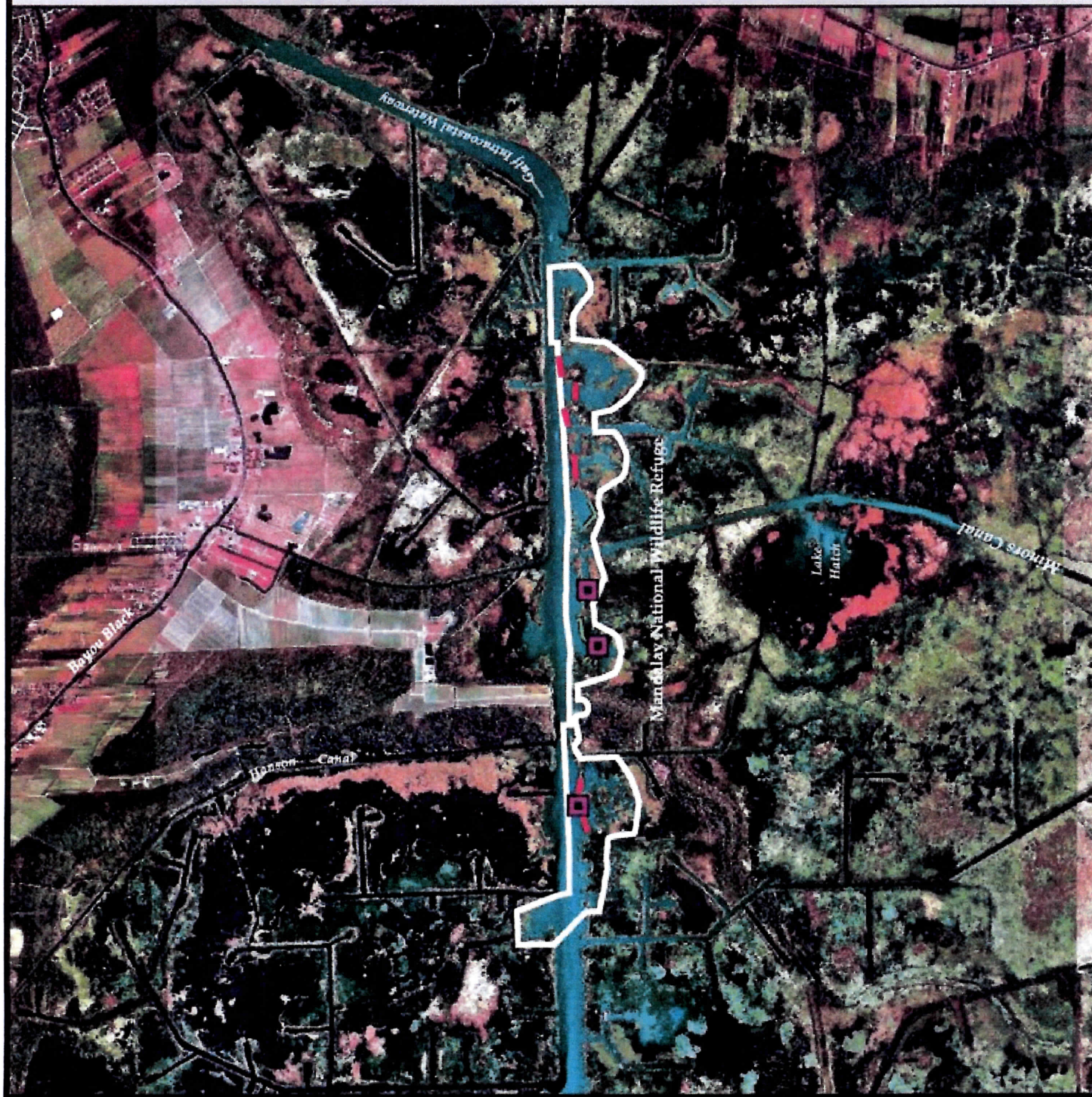
-  Plugs*
 -  Shoreline Protection
 -  Vegetative Plantings
 -  Project Boundary
- * denotes proposed features



Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quad

Map Date: August 25, 2003
Map ID: 2002-11-546
Data accurate as of: March 11, 2003



Appendix F

AS-BUILT DRAWINGS

For As-built drawings, see O&M Plan Attachment IV.

Appendix G

AS-BUILD SURVEYS DATA/FIELD NOTES

160	376015.63	3449096.19	1.82	a2
159	376019.42	3449104.22	1.94	a2
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157	376026.61	3449119.95	3.11	a2
156	376032.41	3449131.94	3.23	a2
155	376038.47	3449145.61	3.15	a2
154	376041.97	3449153.78	3.46	a2
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152	376054.55	3449182.29	3.42	a2
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150	376067.65	3449211.62	3.08	a2
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147	376082.46	3449245.92	1.93	a2
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217	376153.41	3452799.83	2.49	j2
216	376130.38	3452820.60	2.54	j2
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477	376358.42	3449481.03	1.01	j3
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475	376335.55	3449496.59	2.67	j3
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375	376704.53	3456819.92	1.49	r1
374	376704.87	3456820.85	2.37	r1
314	376705.99	3456822.76	2.67	r1
313	376714.37	3456838.77	2.70	r1
373	376716.77	3456843.48	2.29	r1
372	376722.50	3456857.17	1.81	r1
312	376723.07	3456858.65	2.08	r1
371	376727.97	3456868.19	1.41	r1
311	376728.11	3456868.95	1.61	r1
370	376734.34	3456882.21	1.94	r1
310	376735.94	3456886.08	2.16	r1
309	376739.33	3456893.78	1.92	r1
308	376743.59	3456903.04	2.33	r1
369	376746.68	3456908.59	2.29	r1
368	376754.89	3456930.90	2.26	r1
307	376756.57	3456931.89	2.33	r1
367	376765.55	3456951.55	4.80	plate
366	376765.66	3456952.11	2.16	r1
306	376766.30	3456953.16	4.80	plate
305	376767.09	3456955.45	2.14	r1
365	376774.64	3456972.58	2.16	r1
304	376776.05	3456975.18	2.19	r1
364	376779.69	3456981.60	1.49	r1
303	376780.87	3456985.02	1.59	r1
363	376786.14	3456994.97	1.95	r1
302	376786.51	3456997.08	2.03	r1
362	376790.03	3457003.03	1.64	r1
301	376790.54	3457005.83	1.65	r1
361	376792.06	3457008.12	1.90	r1
300	376792.79	3457011.22	1.97	r1
299	376796.76	3457019.91	1.81	r1
360	376799.26	3457024.48	1.77	r1

298	376804.05	3457036.67	1.56	r1
359	376808.51	3457045.68	1.79	r1
297	376811.71	3457055.51	1.85	r1
296	376817.69	3457068.45	1.66	r1
358	376820.92	3457074.25	1.96	r1
295	376821.07	3457075.77	1.87	r1
357	376829.35	3457093.06	1.75	r1
294	376829.47	3457094.72	1.73	r1
293	376830.03	3457096.63	1.33	r1
356	376830.41	3457094.45	1.18	r1
355	376831.09	3457096.36	1.89	r1
354	376836.84	3457106.38	2.16	r1
353	376838.12	3457108.49	1.86	r1
422	376586.12	3455266.12	4.06	r2
421	376586.35	3455275.66	3.17	r2
420	376586.33	3455277.94	3.59	r2
269	376586.39	3455284.81	2.24	r2
419	376587.15	3455285.29	2.02	r2
418	376587.20	3455286.59	2.37	r2
268	376586.49	3455286.86	2.51	r2
267	376586.55	3455290.84	2.34	r2
417	376587.30	3455293.15	1.95	r2
416	376587.86	3455303.35	0.62	r2
266	376586.90	3455303.56	0.83	r2
415	376587.88	3455312.19	1.34	r2
265	376587.15	3455315.49	1.58	r2
264	376587.13	3455342.23	1.78	r2
414	376587.80	3455343.97	1.77	r2
263	376587.76	3455365.22	1.50	r2
413	376588.48	3455369.42	1.53	r2
412	376588.49	3455380.30	1.62	r2
262	376587.77	3455380.58	1.69	r2
411	376588.42	3455401.82	1.55	r2
261	376587.43	3455412.48	1.79	r2
410	376588.25	3455423.81	1.78	r2
260	376587.98	3455436.31	1.76	r2
409	376588.80	3455445.22	4.31	plate
259	376588.07	3455445.23	4.31	plate
258	376588.37	3455452.43	1.93	r2
408	376589.00	3455467.63	1.86	r2
257	376588.50	3455476.28	1.88	r2
256	376588.97	3455500.06	1.92	r2
255	376589.48	3455524.00	1.85	r2
407	376590.21	3455534.06	1.91	r2
254	376590.15	3455546.80	1.68	r2
253	376590.65	3455566.69	2.12	r2
406	376591.00	3455567.42	1.96	r2
252	376590.12	3455569.84	1.35	r2
405	376591.24	3455570.25	1.23	r2
404	376591.14	3455574.68	1.49	r2
403	376590.67	3455578.62	2.22	r2
443	376614.24	3453811.72	2.48	r3

251	376612.15	3453822.29	1.96	r3
250	376610.87	3453831.96	1.17	r3
249	376609.94	3453834.26	2.52	r3
442	376609.91	3453829.06	1.74	r3
441	376609.17	3453831.48	1.11	r3
440	376608.42	3453834.45	2.48	r3
439	376604.06	3453850.49	1.57	r3
248	376602.33	3453861.61	1.75	r3
247	376598.35	3453876.95	1.67	r3
246	376594.62	3453892.77	1.75	r3
438	376589.17	3453909.50	1.69	r3
245	376588.69	3453915.07	1.75	r3
244	376584.83	3453931.17	1.91	r3
243	376578.35	3453953.81	1.95	r3
242	376572.75	3453976.50	2.08	r3
437	376572.18	3453976.55	2.02	r3
241	376565.00	3454007.28	2.17	r3
240	376558.50	3454030.38	2.06	r3
436	376554.94	3454043.72	2.06	r3
239	376550.75	3454061.21	2.17	r3
238	376543.26	3454091.59	2.17	r3
435	376540.53	3454101.89	1.98	r3
237	376538.96	3454107.89	1.85	r3
433	376538.63	3454108.92	1.80	r3
3	376538.31	3454109.00	4.31	plate
434	376538.31	3454109.00	4.31	plate
432	376537.02	3454114.54	2.17	r3
236	376534.74	3454122.87	2.24	r3
235	376528.68	3454145.29	2.15	r3
234	376522.78	3454168.44	2.09	r3
431	376519.41	3454182.42	2.06	r3
430	376517.40	3454191.07	1.73	r3
233	376516.91	3454191.41	1.81	r3
429	376516.21	3454196.16	2.01	r3
232	376511.66	3454213.93	2.11	r3
428	376511.52	3454216.38	2.12	r3
231	376505.77	3454237.17	2.02	r3
230	376499.89	3454260.44	2.03	r3
427	376496.37	3454277.72	2.11	r3
229	376492.31	3454290.60	1.98	r3
228	376486.13	3454313.93	1.94	r3
426	376480.03	3454337.00	1.95	r3
227	376478.86	3454344.66	1.94	r3
226	376475.07	3454359.44	2.03	r3
424	376470.58	3454384.50	1.50	r3
225	376468.40	3454382.54	2.34	r3
178	376468.78	3454382.93	2.32	r3
425	376469.78	3454383.40	2.22	r3
423	376470.45	3454386.51	2.25	r3
401	376629.73	3455893.70	2.42	v1
402	376624.60	3455891.45	2.56	v1
292	376630.06	3455904.34	2.89	v1

291	376625.49	3455904.54	2.52	v1
290	376632.06	3455946.91	2.15	v1
399	376632.26	3455950.39	1.97	v1
400	376627.72	3455951.28	2.14	v1
289	376629.82	3455987.94	2.09	v1
398	376629.03	3456001.08	2.25	v1
397	376633.70	3456002.21	1.99	v1
288	376634.46	3456018.83	2.07	v1
395	376635.89	3456065.13	2.01	v1
396	376631.12	3456065.25	2.26	v1
287	376632.35	3456066.88	2.27	v1
286	376636.29	3456092.26	1.94	v1
285	376633.10	3456135.79	2.21	v1
394	376632.79	3456146.15	2.01	v1
393	376637.46	3456146.77	1.94	v1
284	376638.07	3456172.65	2.03	v1
391	376639.07	3456205.46	2.06	v1
392	376635.12	3456205.52	2.02	v1
283	376635.72	3456212.68	2.00	v1
282	376640.84	3456242.79	2.01	v1
389	376640.37	3456246.19	1.94	v1
390	376636.41	3456246.31	2.01	v1
281	376637.86	3456284.02	1.88	v1
388	376637.41	3456290.11	1.94	v1
387	376641.50	3456290.40	1.99	v1
280	376643.60	3456325.02	1.92	v1
386	376639.40	3456350.38	2.02	v1
385	376643.60	3456350.54	2.05	v1
279	376639.93	3456361.34	1.92	v1
278	376645.09	3456389.01	2.00	v1
277	376641.35	3456412.75	1.86	v1
384	376641.65	3456420.75	1.92	v1
383	376645.53	3456421.06	1.96	v1
276	376646.53	3456436.68	1.92	v1
275	376643.23	3456472.52	1.88	v1
382	376643.34	3456475.74	1.99	v1
381	376647.36	3456476.73	2.01	v1
274	376648.50	3456493.97	1.96	v1
380	376644.41	3456511.33	1.93	v1
379	376644.48	3456513.66	2.47	v1
378	376648.89	3456513.90	2.28	v1
273	376645.06	3456516.00	1.89	v1
272	376649.57	3456523.26	2.02	v1
271	376645.13	3456528.55	2.72	v1
377	376644.76	3456529.21	2.67	v1
270	376649.38	3456528.65	2.40	v1
376	376649.38	3456528.65	2.51	v1
515	376523.91	3445067.48	2.55	v2
514	376516.58	3445075.46	2.00	v2
327	376510.30	3445101.67	2.08	v2
328	376514.45	3445102.86	2.04	v2
326	376506.91	3445134.42	1.99	v2

513	376496.75	3445157.88	2.09	v2
512	376501.22	3445158.89	2.04	v2
325	376495.76	3445162.89	2.12	v2
324	376492.70	3445192.41	2.10	v2
323	376479.25	3445230.31	2.14	v2
511	376477.94	3445235.29	2.05	v2
510	376482.44	3445236.17	2.17	v2
322	376476.06	3445262.82	2.08	v2
509	376461.03	3445304.55	2.33	v2
508	376465.33	3445306.53	2.31	v2
321	376455.55	3445328.61	2.21	v2
320	376452.40	3445361.25	2.15	v2
507	376443.55	3445377.32	2.15	v2
506	376448.20	3445378.84	2.24	v2
319	376439.38	3445396.14	2.24	v2
318	376436.41	3445426.58	2.11	v2
504	376424.80	3445457.66	2.46	v2
505	376429.37	3445458.89	2.49	v2
317	376420.33	3445477.14	2.20	v2
503	376420.33	3445477.14	2.18	v2
316	376425.01	3445478.02	2.23	v2
502	376425.11	3445478.13	2.32	v2

5

LOUISIANA DEPT OF NATURAL RESOURCES
MANORLAY BANK PROTECTION
AS-BUILT SURVEYS

6/5 cont'd

VERTICAL LOCALIZATION

28. 6. 4. 2

REMARKS
TOP ROW.
"MAYD"
FOR 1/2"
GIR (SET)

1

3.220

3.47
"MAD" (BASE)

ATTEN: 1986 A. 6.51573FF

1945

1971 6.48357

$$2.044 \text{ H}_2 = 6.706 \text{ Et.}$$

10/10/20

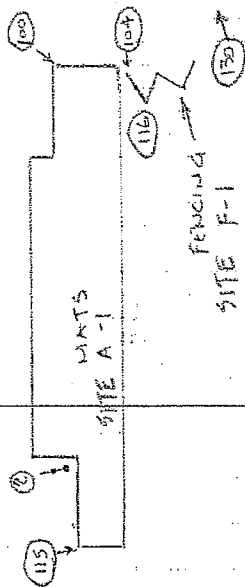
33

1940 = 6.365 FT,

$$\frac{195}{143} = 1.3636$$

L. Phil. L. Tol

[Faint handwritten notes or bleed-through from the reverse side of the page.]



2
3
4
5
6
7

pt. 3 410 DEAR WITE F-2

(Handwritten scribbles)

191.510 177 02515 F-5

Q. 173 174 225 231 04 STE 232

July, 1907 To 1907 on 5186 J-3

④ To ① on site: 1-

274 02545 12

7604 916

B.A. DEUNEN
W. RADAL
J. HELM

10/17/03

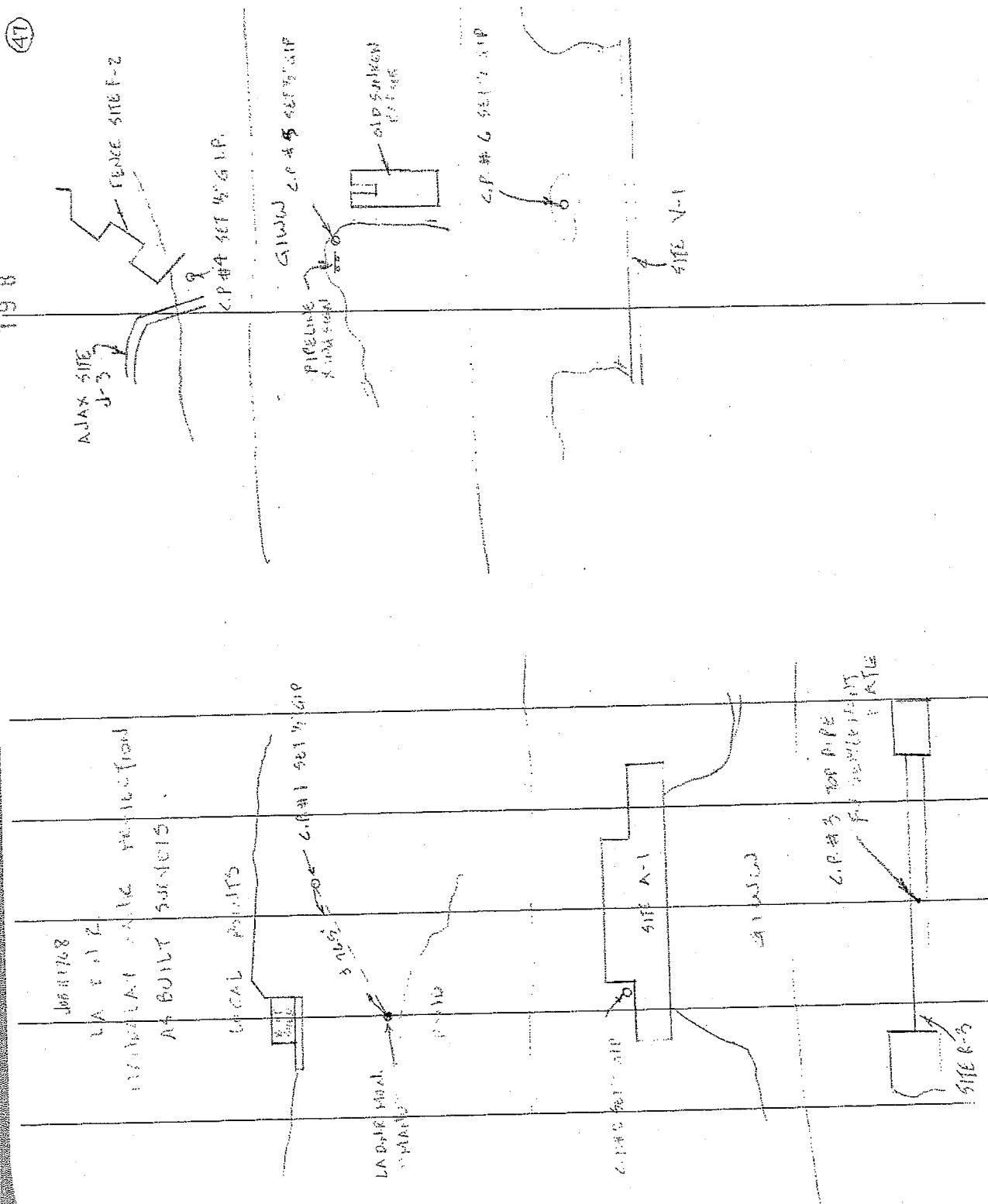
80°F

Job #1763	LA D.M.R.	MANDALAY BANK PROTECTION	AD BUILT SURVEYS	LOCAL PT. 6	1.869 M = 6.1319 FT
PTS. 290 TO 292	ON SITE V-1	<p>NOTE: POINTS 290 & 291 TAKEN APPROX. 10' FROM EAST END OF STRUCTURE DUE TO HEAVY TREE COVER. ALL EVEN NUMBERED POINTS TAKEN ON NORTHERN SIDE OF STRUCTURE W/ ODD NUMBERED POINTS TAKEN ON SOUTHERLY SIDE. ALSO, PTS. 291 & 292 TAKEN APPROX. 10' FROM WEST END DUE TO TREE COVER.</p>			
PTS. 316 TO 318	ON SITE V-2				
LOCAL PT. 8	1.536 M = 5.039 FT				
PTS. 329 TO 331	ON SITE A-3				
PTS. 352 TO 352	ON SITE V-3				

SAME FOR V-2 EXCEPT END SHOTS 316 317
321 & 328 TAKEN APPROX. 20' FROM ENDS
DUE TO TREE COVER
SAME FOR V-3

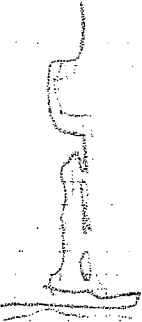
UNABLE TO TAKE ENDS OF SITE A-3
DUE TO HEAVY TREE COVER

۱۰۰
 ۱۰۱
 ۱۰۲



48

198



SITE
C-4

GIWW

CR # 7 SE 1/4 61P



JOHNSON

LA B.N.R.

MANDALAY BANK PROTECTION

AS BUILT SURVEYS

CR # 7 SE 1/4 61P



GIWW

SITE
C-1

CRADLE

MANSON

CR # 8 SE 1/4 61P

GIWW

2-11-15
A-3
S-1-11-15

BARRENET
WIRADAU
J. HELM

10/30/03
CLEAN 3 WILD
82°F

JOB #1768 LA D.R.R. MANDALAY BANK PROTECTION AS BUILT SURVEYS CHECK CONTROL POINTS				
TIME	PDOP	HDOP	VDOP	TRIP
13:44	2.08	1.16	1.73	1.13
21:22	2.58	1.17	2.30	1.56
ANTENNA = 2.024 M.				
"MAND" (BASE)				
	PDOP	HDOP	VDOP	TRIP
15:30	4.08	1.46	3.81	2.83
16:01	2.52	1.44	2.07	1.51
ANTENNA 1 = 1.297 + 1.271 = 2.568 M.				
19:22	3.07	1.62	2.61	2.03
19:52	1.58	0.87	1.32	0.83
ANTENNA 2 = 1.219 + 1.287 = 2.506 M.				
"PT04" (ROVER)				
LOCAL POINT 4	4.08	1.46	3.81	2.83
15:30	4.08	1.46	3.81	2.83
16:01	2.52	1.44	2.07	1.51
19:22	3.07	1.62	2.61	2.03
19:52	1.58	0.87	1.32	0.83
ANTENNA 1 = 1.297 + 1.271 = 2.568 M.				
ANTENNA 2 = 1.219 + 1.287 = 2.506 M.				
"PT05" (ROVER)				
LOCAL POINT 5	1.92	1.17	1.52	1.06
16:12	1.92	1.17	1.52	1.06
16:42	1.84	1.13	1.46	1.03
ANTENNA 1 = 1.219 + 1.115 = 2.334 M.				
18:39	2.11	1.38	2.33	1.85
19:09	3.53	1.84	3.01	2.17
ANTENNA 2 = 1.219 + 1.148 = 2.367 M.				

LOCAL POINT 8 "PT06" (ROVER)				
TIME	PDOP	HDOP	VDOP	TRIP
16:51	2.76	1.37	2.40	1.81
17:21	1.93	1.02	1.70	1.14
ANTENNA 1 = 1.239 M.				
17:48	1.72	0.90	1.46	0.93
18:30	1.88	1.04	1.57	1.08
ANTENNA 2 = 1.219 + 1.239 = 2.458 M.				
LOCAL POINT 7 "PT07" (ROVER)				
13:57	2.21	1.30	1.80	1.17
14:27	2.02	0.89	1.82	1.02
ANTENNA 1 = 1.219 + 1.289 = 2.508 M.				
20:03	2.02	1.16	1.55	1.11
20:33	1.80	0.85	1.58	0.94
ANTENNA 2 = 1.219 + 1.322 = 2.541 M.				
LOCAL POINT 8 "PT08" (ROVER)				
14:38	2.25	1.02	2.01	1.19
15:13	3.05	1.29	2.76	1.90
ANTENNA 1 = 1.219 + 1.222 = 2.441 M.				
20:43	1.97	0.93	1.73	1.06
21:13	1.89	1.24	2.60	1.76
ANTENNA 2 = 1.219 + 1.219 = 2.438 M.				

JOB # 2210

LA D.N.R.

MANDALAY BANK PROTECTION

AS BUILT SURVEYS

LOCAL POINT 4

Y= 376.346.226
 X= 3,449,494.119
 EL= 2.941 0.896
 29°32' 01.64" 355"
 90°48' 10.69" 437"
 -25.277

ELLIP
-24.381

LOCAL POINT 5

Y= 376.766.072
 X= 3,448,381.127
 EL= 3.611 1.101
 29°32' 05.87" 068"
 90°48' 23.27" 184"
 -25.281

ELLIP
-24.180

LOCAL POINT 6

Y= 376.816.339
 X= 3,456,021.395
 EL= 2.869 0.814
 29°32' 06.01" 260"
 90°46' 56.77" 860"
 -25.275

ELLIP
-24.401

LOCAL POINT 7

Y= 377,400.694
 X= 3,458,671.733
 EL= 4.710 1.436
 29°32' 11.67" 036"
 90°46' 26.74" 130"
 -25.276

ELLIP
-23.840

NAD '83 HORIZ. & MAND '88 VERT

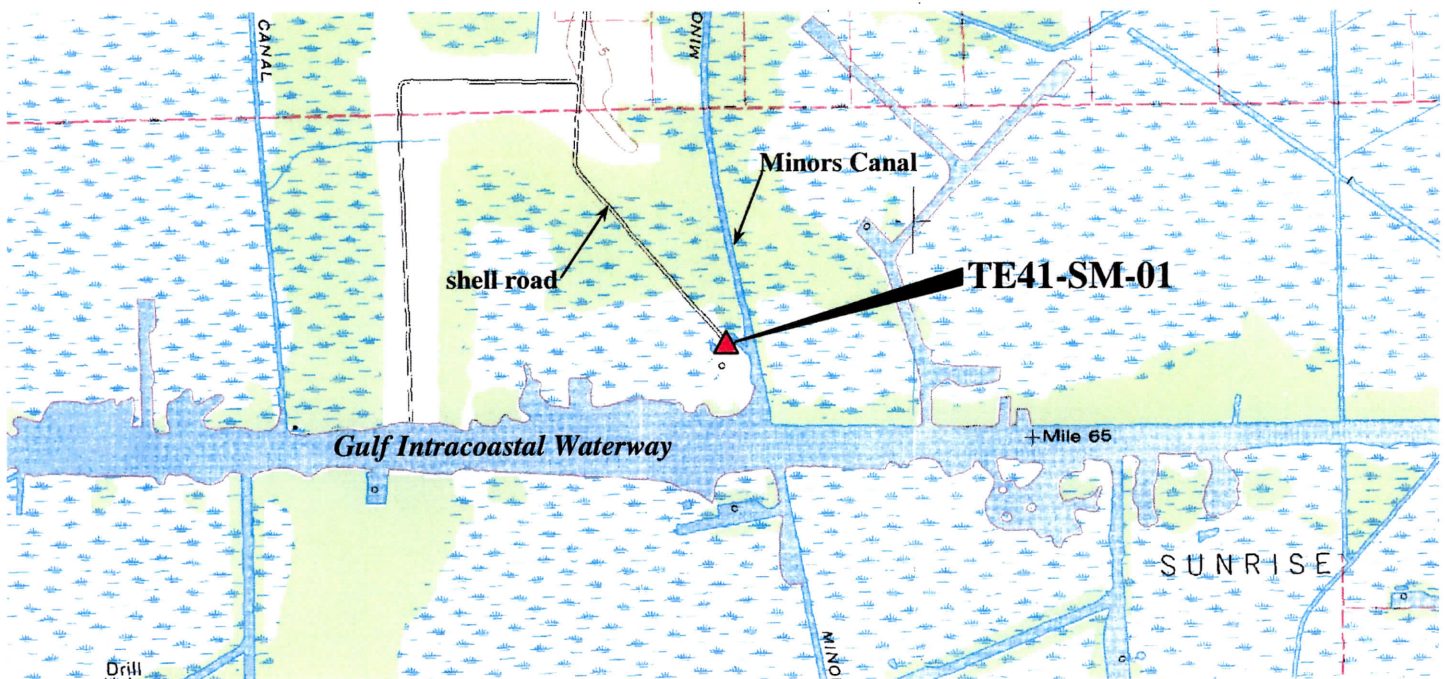
LOCAL POINT 8

Y= 377,242.589
 X= 3,445,431.426
 EL= 3.233 0.985
 29°32' 10.72" 108"
 90°48' 56.63" 17"
 -25.286

ELLIP
-24.301

25.277
 24.381
 25.281
 24.180
 25.275
 24.401

25.276
 24.340
 25.286
 24.361



VICINITY MAP

Scale: 1" = 2000'

Reproduced from USC&GS "Humphreys, La" Quadrangle

Station Name: "TE41-SM-01"

Location: Located near the community of Waterproof. At the intersection of a shell road and U.S. Hwy 90 proceed in a southerly direction from U.S. Highway 90 along the shell road for approximately 1.9 miles to the monument located at the end of the shell road. The monument is located approximately 245 feet west of Minors Canal and approximately 720 feet north of the Gulf Intracoastal Waterway.

Monument Description: Bronze cap attached to a 9/16" diameter stainless steel rod driven 72' to refusal set in sand filled 6" PVC pipe set in concrete.

Stamping: MANDALAY

Installation Date : September 2001

Monument Established By: Morris P. Hebert Inc.

For: Louisiana Department of Natural Resources, CRD

Adjusted NAD 83 Geodetic Position

Lat. 29°32'17.87723"N

Long. 90°47'52.86010"W

Adjusted NAD 83 Datum LSZ (1702) Ft

N= 377,991.33

E= 3,451,061.87

Adjusted NAVD88 Height

1.80 Feet / 0.549 Mtrs

Geoid99 Height: -25.286 Mtrs

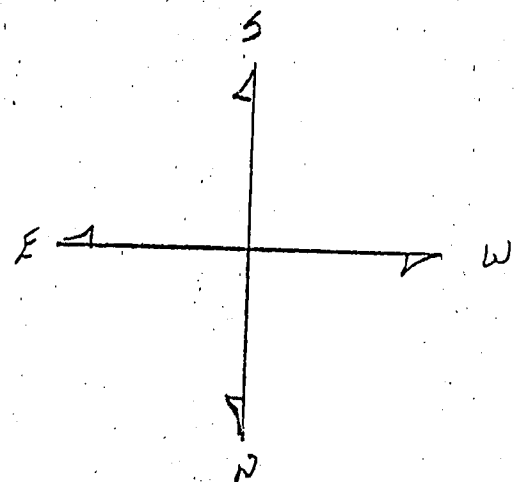
Ellipsoid Height: -24.736 Mtrs

Re-Adjusted September 2003

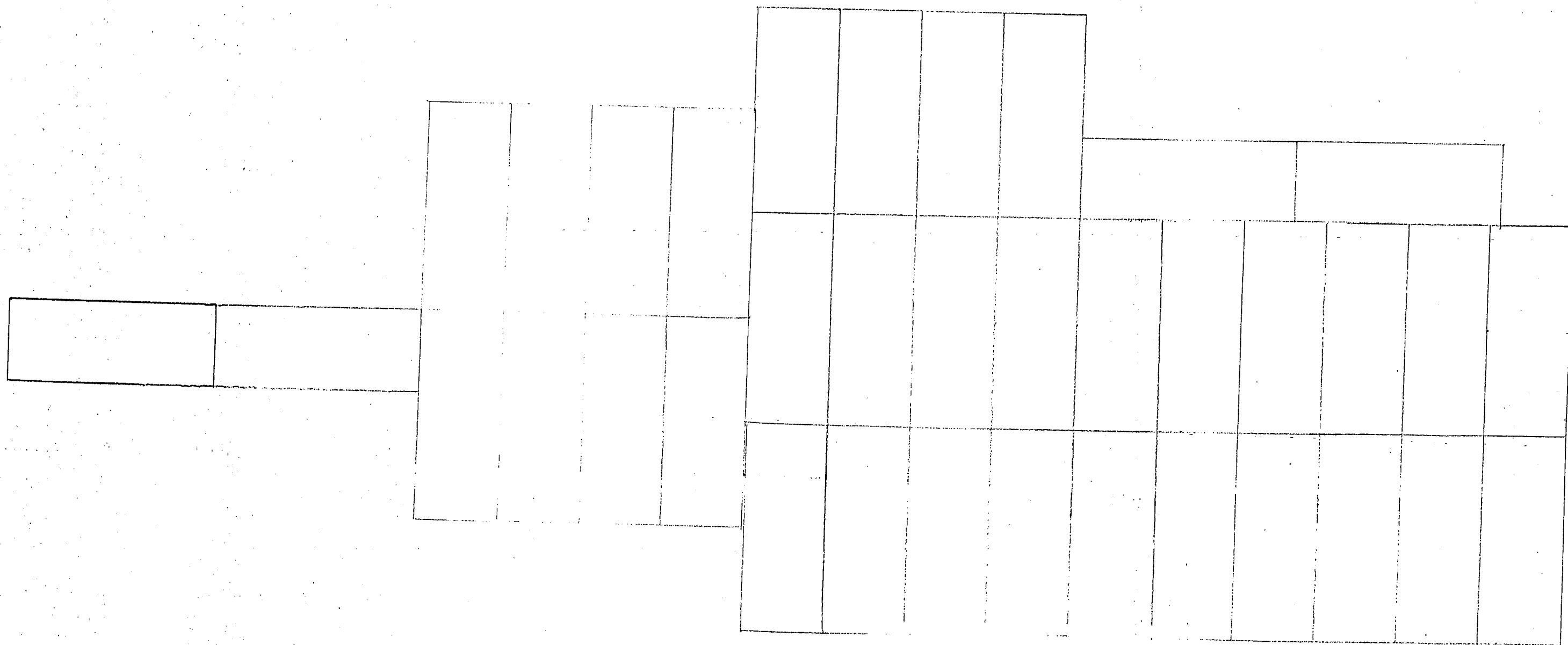


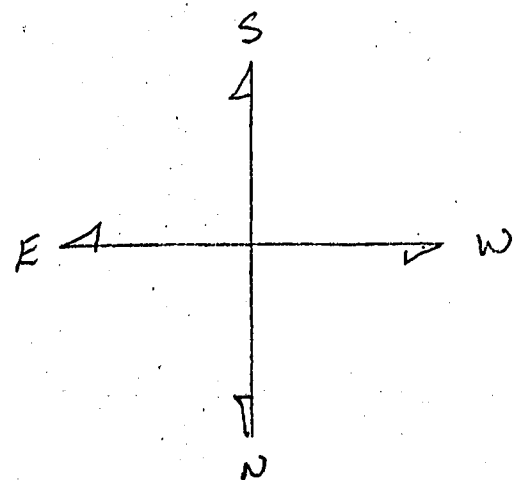
Appendix H

AS-BUILD REVETMENT MAT LAYOUTS



A-1 REJETMENT MATS
A-3 BUILT

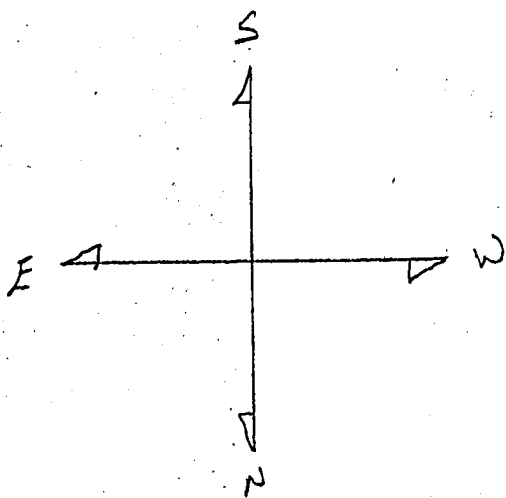




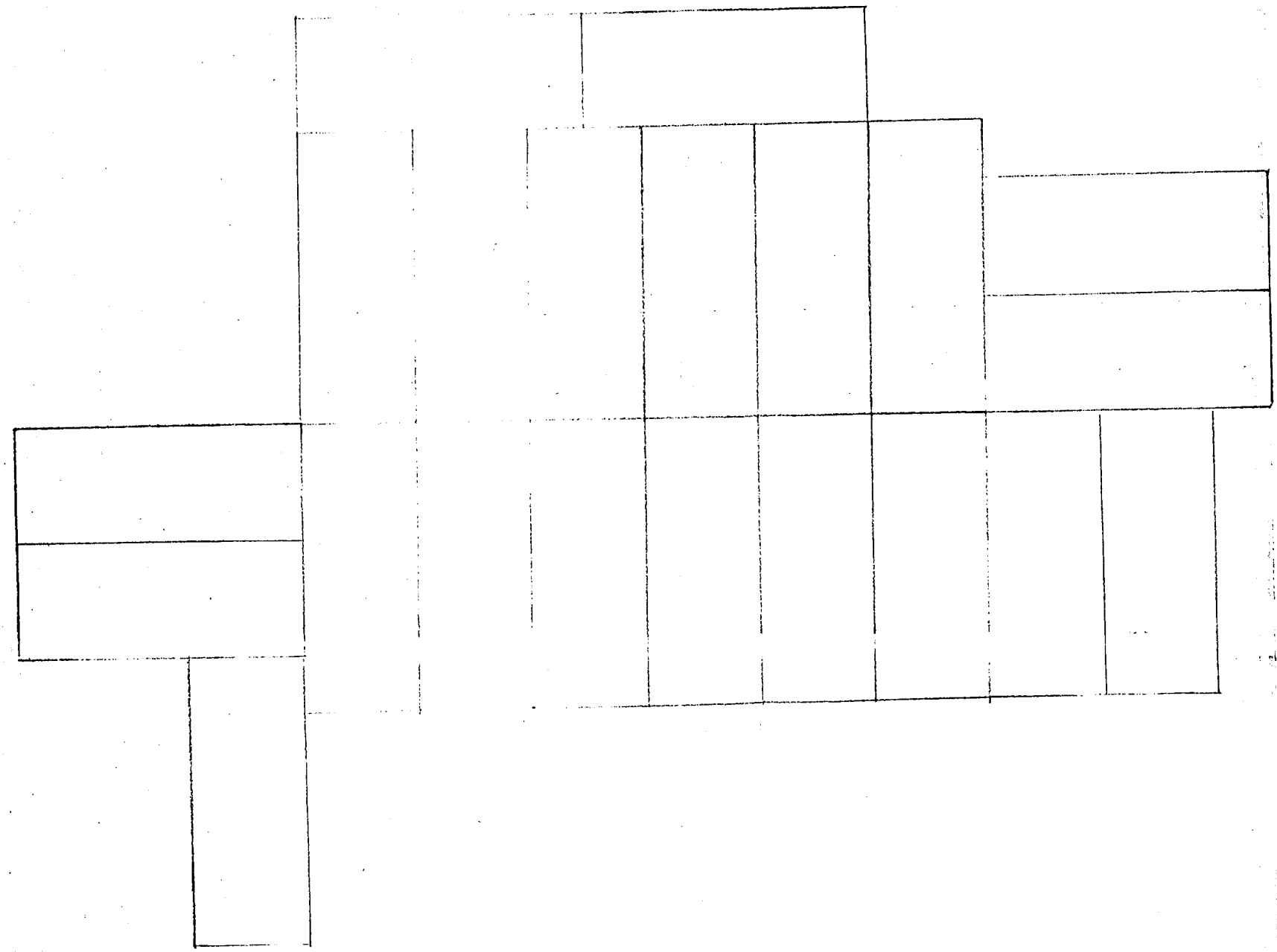
A-Z REVETMENT MATS

[illegible]





A-3 REVELMENT MATS



ATTACHMENT IV

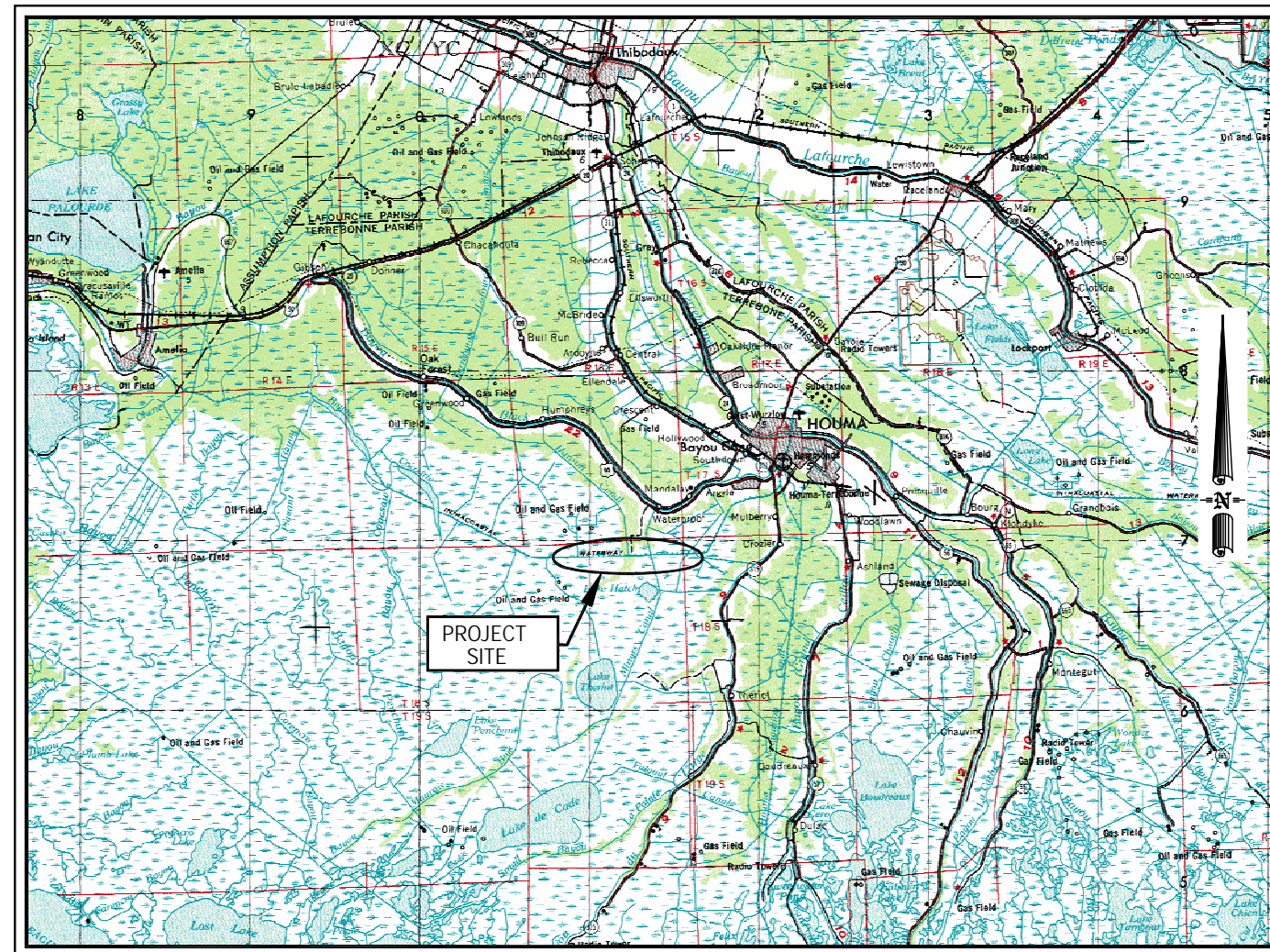
MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

AS-BUILT DRAWINGS

LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) TERREBONNE PARISH, LOUISIANA

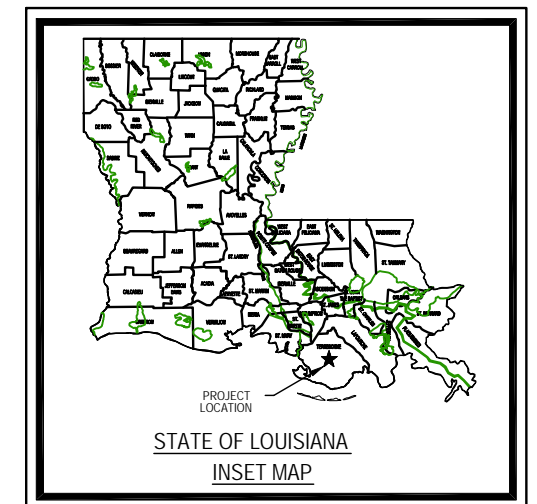
FEDERAL PROJECT NO. XTE-Demo
STATE PROJECT NO. TE-41
CEEC PROJECT NO. 1768

"AS-BUILTS"



VICINITY MAP

N.T.S.



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	<div>GENERAL NOTES</div> <div>1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, EXISTING ELEVATIONS AND CONDITIONS SHOWN ON THE PLANS PRIOR TO ORDERING MATERIAL, COMMENCEMENT OF CONSTRUCTION, AND PREPARATION OF SHOP DRAWINGS. ENGINEER SHALL BE NOTIFIED OF ALL DISCREPANCIES.</div> <div>2. THE CONTRACTOR SHALL DESIGN AND PROVIDE FOR ANY REQUIRED EXCAVATIONS AS SHOWN ON THE DRAWINGS AND INDICATED IN THE SPECIFICATIONS.</div> <div>3. VERTICAL CONTROL: N.A.V.D. 88' DATUM</div> <div>4. HORIZONTAL CONTROL: LOUISIANA STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD 83</div> <div>5. DIMENSIONS AND/OR ELEVATIONS MARKED THUS (±) ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL DIMENSIONS IN THE FIELD WITH THE PROJECT REPRESENTATIVE.</div> <div>6. DETAILS MARKED (N.T.S.) ARE NOT SHOWN TO SCALE.</div> <div>7. BENCHMARKS HAVE BEEN ESTABLISHED AT THE SITE BY THE OWNER. SEE SHEET 3 FOR BENCHMARK DESCRIPTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO ESTABLISH AND MAINTAIN TEMPORARY BENCHMARKS DURING CONSTRUCTION AS NEEDED.</div> <div>8. LOCATION OF UTILITIES INDICATED ON THE PLAN SHEET ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE BASED IN PART ON INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION.</div> <div>9. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES CAUSED BY THE CONTRACTOR'S NEGLIGENCE. THE DAMAGE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.</div> <div>10. CONTRACTOR SHALL VISIT THE SITE OF WORK AND COMPLETELY INFORM HIMSELF RELATIVE TO CONSTRUCTION.</div> <div>11. THE CONTRACTOR SHALL MAKE HIS OWN INTERPRETATION OF THE CHARACTER AND CONDITION OF THE MATERIALS WHICH WILL BE ENCOUNTERED BETWEEN THE BORINGS LOCATION. THE CONTRACTOR, AT HIS OWN EXPENSE, MAY MAKE ADDITIONAL SURVEYS AND INVESTIGATIONS AS HE DEEMS NECESSARY TO DETERMINE CONDITIONS WHICH WILL AFFECT PERFORMANCE OF THE WORK.</div> <div>12. ALL STRUCTURAL STEEL SHALL BE ASTM A-36, UNLESS OTHERWISE NOTED.</div> <div>13. ALL WELDING SHALL BE ELECTRIC WELDING. WORKMANSHIP AND TECHNIQUE, WHERE APPLICABLE, SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.</div> <div>14. WELDING SYMBOLS SHOWN ARE THOSE ADOPTED BY THE AMERICAN WELDING SOCIETY AND INDICATE ONLY SIZE AND TYPE OF WELDS REQUIRED. DETAILED INFORMATION SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBMITTED BY THE CONTRACTOR FOR APPROVAL.</div> <div>15. STRUCTURAL STEEL FABRICATION AND ERECTION SHALL CONFORM TO THE A.I.S.C. MANUAL OF STEEL CONSTRUCTION LATEST EDITION. UNLESS NOTED OTHERWISE.</div> <div>16. THE SETTLEMENT PLATES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.</div> <div>17. CONCRETE REVETMENT MATS SHALL HAVE A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4,000 PSI.</div>															
	<div>ABBREVIATION</div> <div>APPROX. - APPROXIMATE</div> <div>AVG. - AVERAGE</div> <div>CL - CENTER LINE</div> <div>DIA. - DIAMETER</div> <div>EL. OR ELEV. - ELEVATION</div> <div>GALV. - GALVANIZED</div> <div>G.I.W.W. - GULF INTRACOASTAL WATERWAY</div> <div>MIN. - MINIMUM</div> <div>MHW - MEAN HIGH WATER</div> <div>MLW - MEAN LOW WATER</div> <div>N.T.S. - NOT TO SCALE</div> <div>TYP. - TYPICAL</div> <div>CPE - CORRUGATED POLYETHYLENE</div> <div>"AS-BUILTS"</div>															
	<div>LEGEND</div> <div><div></div>EXISTING GROUND</div> <div><div></div>MARSH</div> <div><div></div>SPOIL</div> <div><div></div>TREES</div> <div><div>0.0</div>ELEVATION @ CENTER OF TEXT</div> <div><div></div>1.8 - HIGH BANK ELEV.</div> <div><div></div>0.8 - BANK BOTTOM ELEV.</div> <div><div></div>WARNING SIGN</div> <div><div></div>DOUBLE ROW 24" CONCRETE ARMOR UNIT</div> <div><div></div>GIANT CUTGRASS</div> <div><div></div>FENCING</div>															
	<div>UTILITY NOTE:</div> <div>PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CALL LOUISIANA ONE CALL (DOTTIE) AT 1-800-272-3020 TO LOCATE ANY UTILITY LINES IN THE AREA WHICH THE OWNER DOES NOT KNOW ABOUT. ADDITIONALLY, THE CONTRACTOR SHALL PERFORM A MAGNETOMETER SURVEY ALONG THE SOUTH SHORELINE OF THE GULF INTRACOASTAL WATER WAY WHERE THE TREATMENTS ARE TO BE LOCATED. FURTHERMORE, CONTRACTOR SHALL NOTIFY MANDALAY OIL CO. A MINIMUM OF 14 DAYS PRIOR TO ACCESSING THE SITE AT (337) 232-7669, ATTENTION MS. DEBBIE BUSHNELL TO HAVE THE PIPELINE IN THE PROJECT AREA PROPERLY MARKED PRIOR TO MOBILIZATION. MANDALAY OIL CO. ALSO REQUIRES THAT ONE OF THEIR REPRESENTATIVES BE PRESENT FOR ANY CONSTRUCTION ACTIVITIES UNDERTAKEN WITHIN 300 FT. OF THEIR PIPELINE.</div>															
	<div>(AS-BUILTS) BENCHMARK MONUMENTATION</div> <table><tr><th>DESIGNATION</th><th>DESCRIPTION</th><th>ELEVATION (NAVD 88')</th><th>LOCATION (NAD 83)</th></tr><tr><td>MAND (TE41-SM-01)</td><td>MONUMENT BY MORRIS P. HEBERT, INC., SET IN TERREBONNE PARISH. SEE SHEET 3</td><td>-2.012' 1.803'</td><td>X= 3,451,061.842 Y= 377,991.375</td></tr></table>						DESIGNATION	DESCRIPTION	ELEVATION (NAVD 88')	LOCATION (NAD 83)	MAND (TE41-SM-01)	MONUMENT BY MORRIS P. HEBERT, INC., SET IN TERREBONNE PARISH. SEE SHEET 3	-2.012' 1.803'	X= 3,451,061.842 Y= 377,991.375		
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LOUISIANA DEPARTMENT OF NATURAL RESOURCES
STATE PROJECT NO. TE-41
MANDALAY BANK PROTECTION DEMO PROJECT
GENERAL NOTES & ABBREVIATIONS

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DATE: 11/11/2024

PROJECT NO.: 11/11/2024
SCALE: N.T.S.
DATE: 11/11/2024

PROJECT NO.: 11/11/2024
SCALE: N.T.S.
DATE: 11/11/2024

DATE: 11/11/2024
DRAWN BY: J.A.P.
CHECKED BY: J.A.P.
DATE: 11/11/2024

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DATE: 11/11/2024

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DRAWN BY: J.A.P.
CHECKED BY: J.A.P.
DATE: 11/11/2024

PROJECT NAME: MANDALAY BANK PROTECTION DEMO PROJECT

D

C

B

A

"AS-BUILTS"

SUMMARY OF ESTIMATED QUANTITIES

BASE BID

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	ACTUAL
1	Mobilization & Demobilization	Lump Sum	1	1
2	Clearing & Grubbing (As Directed by Engineer)	Lump Sum	1	1
3	Supply & Install Concrete Revetment Mats	Each	220	255
4	Supply & Install Elevated Shoreline System (Perforated CPE Pipe System)	Linear Feet	1,080	1,129
5	Supply & Install Anchors (Type I)	Each	348	364
6	Dredge Material (Armor Plug & Straight Walled Fiberglass Sheet Pile System)	Cubic Yards	2,058	2,356
7	Supply & Install Fiberglass Sheet Pile	Square Feet	60,960	72,960
8	Supply & Install 24" Concrete Armor Units	Linear Feet	1,325	1,283
9	Supply & Install Geotextile Fabric	Square Yard	5,211	5,770
10	Supply & Install Giant Cutgrass	Each	908	908
11	Supply & Install Timber Fence	Linear Feet	1,910	1,910
12	Supply & Install Warning Signs	Each	15	15
13	Supply & Install Settlement Plates	Each	3	3
14	Supply & Install Anchors (Type II)	Each	206	206
15	Supply & Install Geogrid	Square Yard	4,168	4,002

~~ALTERNATE NO. 1 BID~~

16	Alternate No. 1 Bid Item Dredge Material, Item No. 6 to be replaced with: Dredge Material (Armor Plug & Double Sinusoidal Vinyl Sheet Pile System)	Cubic Yards	1,648
17	Alternate No. 1 Bid Item Vinyl Sheet Piling, Item No. 7 to be replaced with: Supply & Install Vinyl Sheet Pile	Square Feet	70,000


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LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. 17E-0000
STATE PROJECT NO. 1E-41
MANDALAY BANK PROTECTION DEMO PROJECT
TERREBORNE PARISH, LOUISIANA

SUMMARY OF
ESTIMATED QUANTITIES

SHEET
NUMBER
2
DWG. 1 of 1

[illegible]

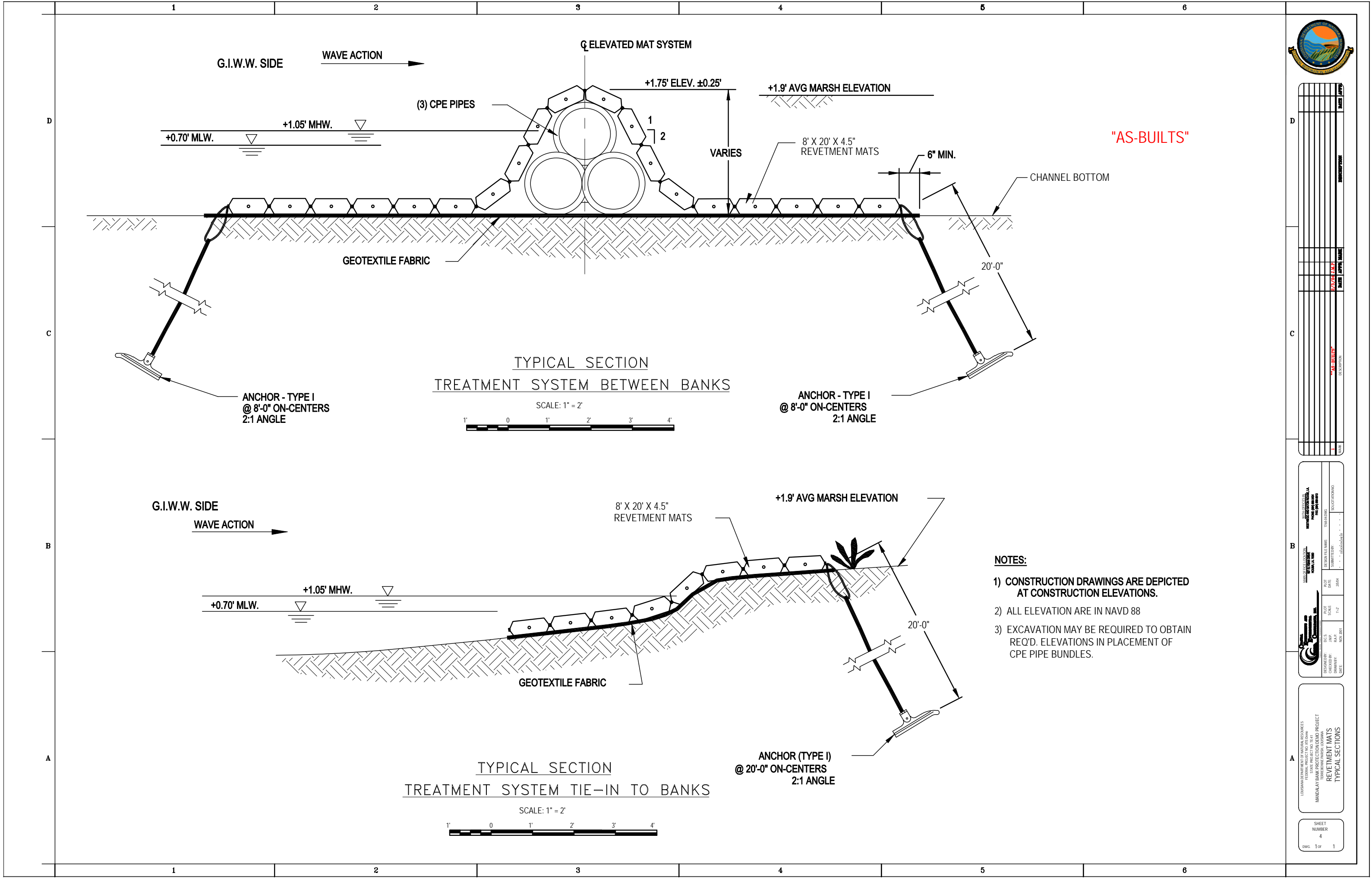
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	DESIGNED BY: DATE:	C.O.S. SCALE: R.A.P. NOV. 2001	F.O.T. DATE: 2/7/04	DESIGN FILE NAME: 170622.DWG
SUBMITTED BY: DATE:				
SOLUTION NO.				

A

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XTE-Dumbo
STATE PROJECT NO. TE-41
MANDALAY BANK PROTECTION DEMO PROJECT
TERREBOONE PARISH, LOUISIANA

TREATMENT STRUCTURES LAYOUT

SHEET
NUMBER
3
DWG. 1 OF 1

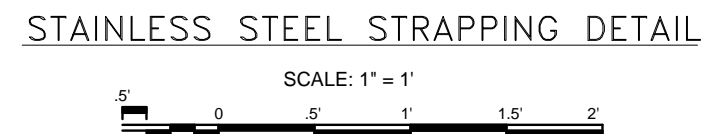
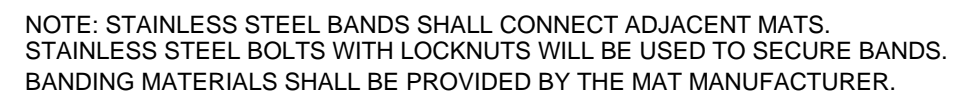
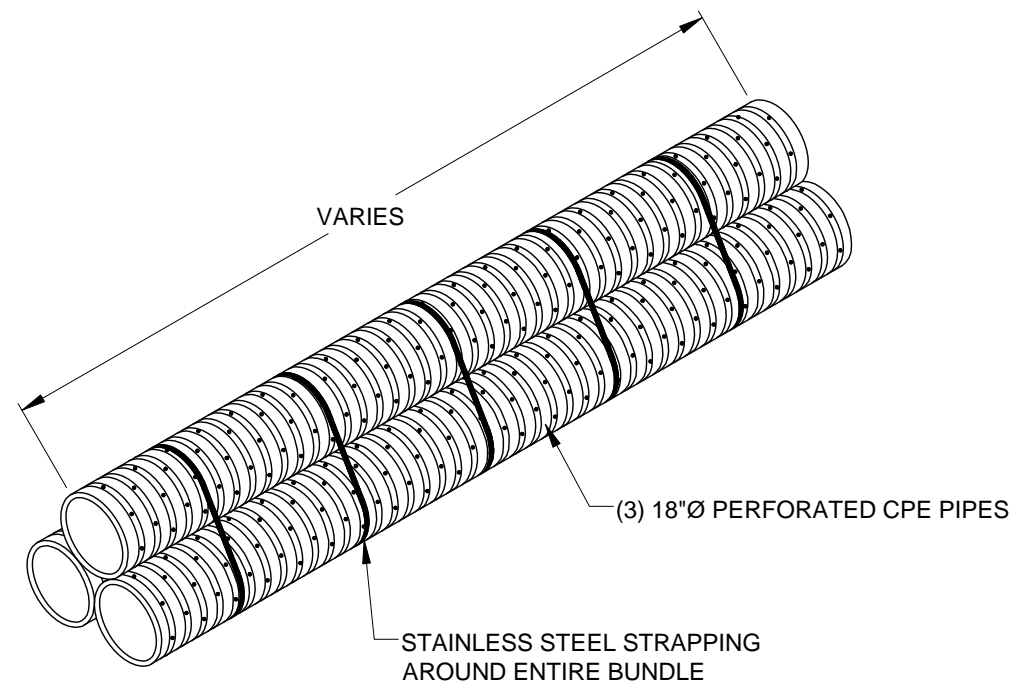
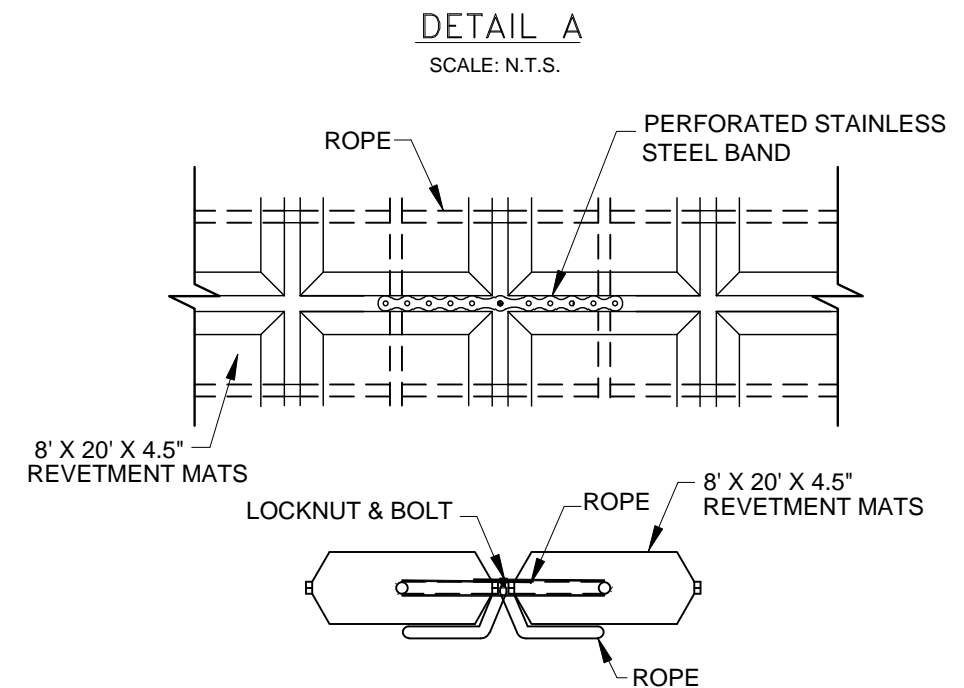
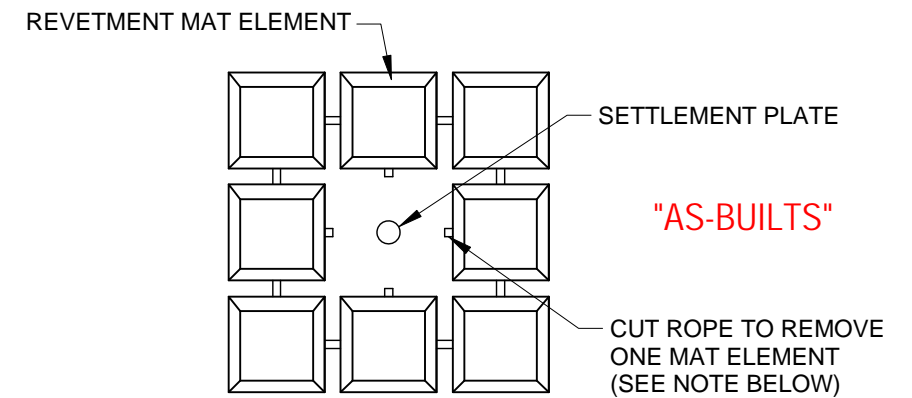
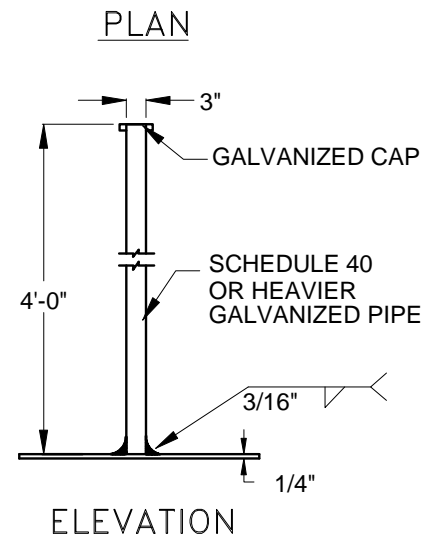
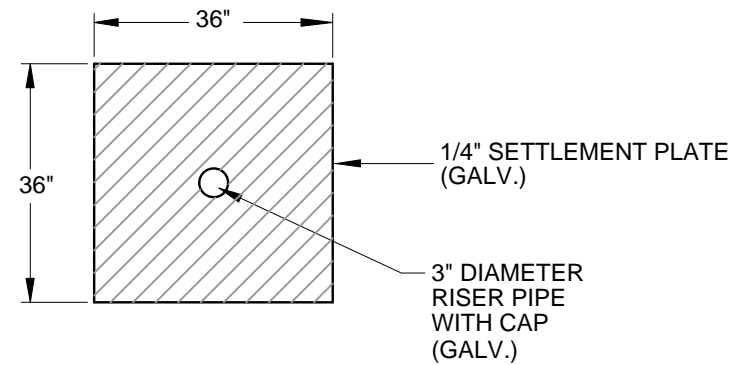


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6	10/1/2011	REVISED
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98	10/1/2011	REVISED
99	10/1/2011	REVISED
100	10/1/2011	REVISED

PROJECT NO.	10-00000000
PROJECT NAME	MANDALAY BANK PROTECTION AND RESTORATION PROJECT
PROJECT LOCATION	TERREBONE PARISH, LOUISIANA
PROJECT DATE	10/1/2011
PROJECT SCALE	1" = 2'
PROJECT STATUS	REVISED
PROJECT DRAWN BY	10/1/2011
PROJECT CHECKED BY	10/1/2011
PROJECT DATE	10/1/2011

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. 10-00000000
MANDALAY BANK PROTECTION AND RESTORATION PROJECT
TERREBONE PARISH, LOUISIANA
TYPICAL SECTIONS


SHEET NUMBER	4
DWG. 1 OF 1	



NOTES:

1. THE CONTRACTOR SHALL BE ALLOWED TO REMOVE ONE MAT ELEMENT FOR THE PLACEMENT OF THE REVETMENT MAT OVER THE SETTLEMENT PLATE. (SEE DETAIL "A")
2. ONE SETTLEMENT PLATE SHALL BE INSTALLED ALONG THE CENTERLINE OF THE REVETMENT MAT STRUCTURE AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT ENGINEER. APPROXIMATE LOCATIONS OF THE SETTLEMENT PLATES ARE SHOWN ON SHEETS 13, 14, & 15. ACTUAL LOCATIONS WILL BE DETERMINED IN THE FIELD. FOR INSTALLATION METHOD REFER TO THE PROJECT SPECIFICATIONS. SETTLEMENT PLATES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. PIPE BUNDLES & MAT ENDS SHALL NOT END AT THE SAME LOCATION. MATS SHALL BE INSTALLED SO AS TO COVER THE AREAS WHERE PIPE BUNDLES MEET.
4. STAINLESS STEEL STRAPPING SHALL BE PLACED @ ENDS OF PIPES AND @ A MIN. OF 5' SPACING
5. PIPE JOINT LENGTH WILL BE AS AVAILABLE FROM MANUFACTURER.

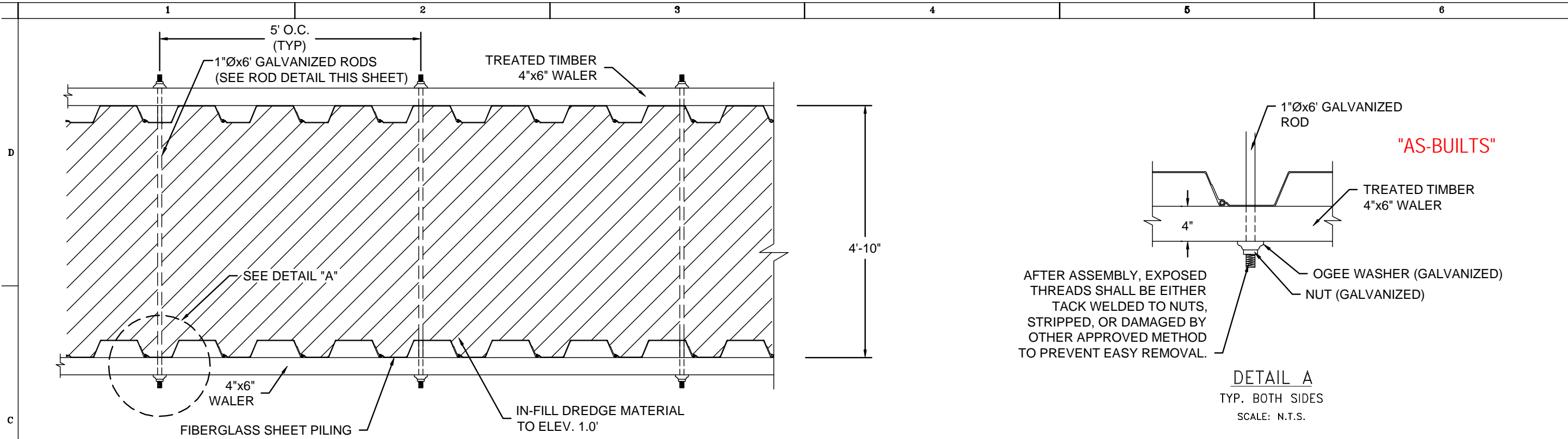
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	MAIN OFFICE LOCATION: CALIFORNIA HIGH-SPEED RAIL AUTHORITY 1500 N. RIVINGTON SUITE 100 SAN JOSE, CA 95131		WILCOFFICE LOCATION: 10000 N. RIVINGTON SUITE 100 SAN JOSE, CA 95131 PHONE: (408) 884-8844 FAX: (408) 884-8843	
	DESIGNED BY: D.C.S. CHECKED BY: J.M.P. DRAWN BY: R.A.P. DATE: NOV 2000	PLOT SCALE N.T.S.	PLOT DATE 2/5/04	DESIGN FILE NAME: 1768-03.DWG SUBMITTED BY: CHECKED (initials):

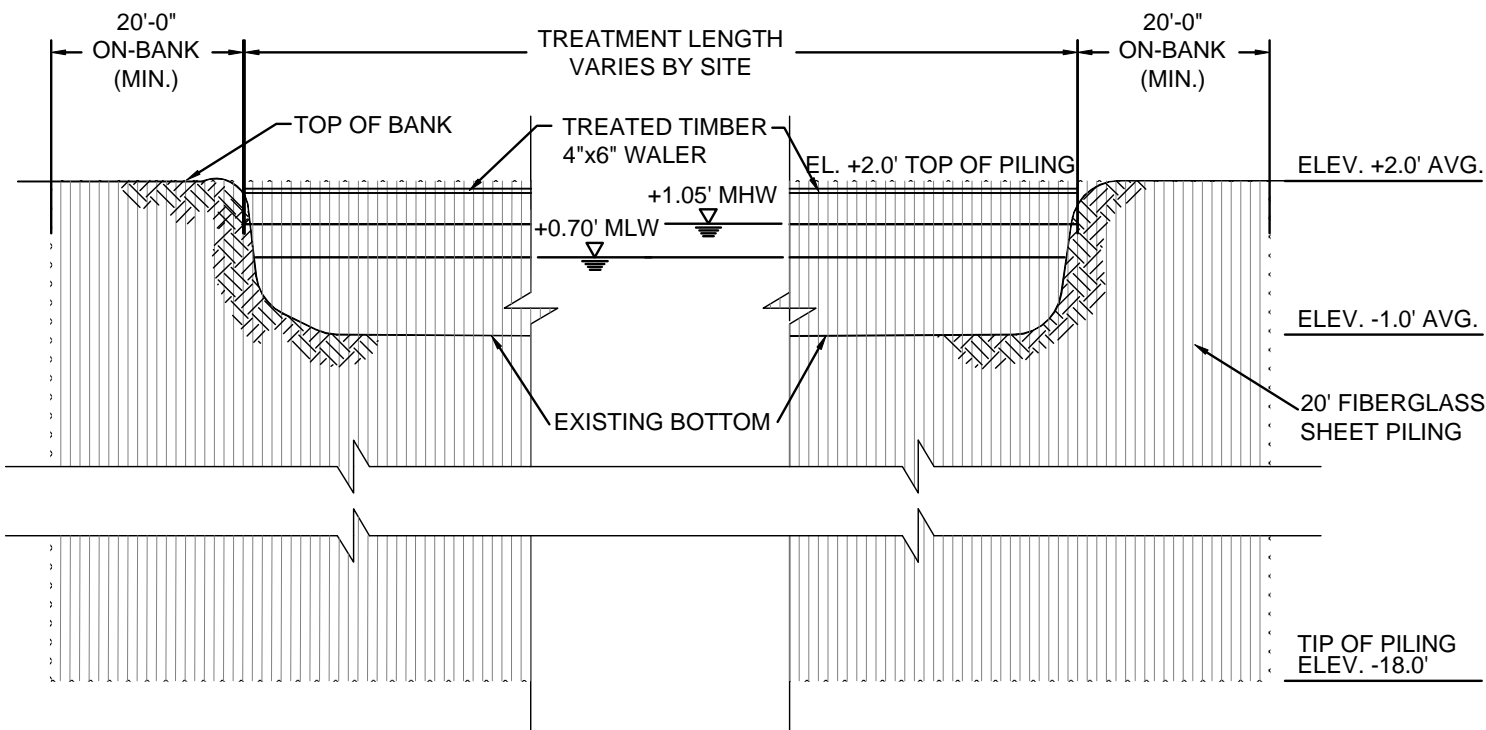
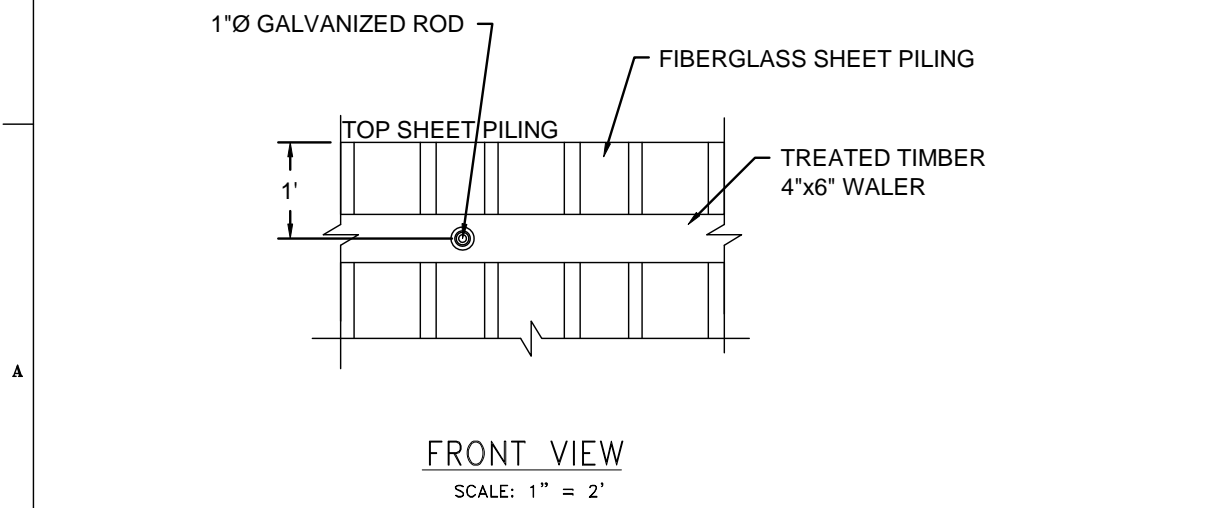
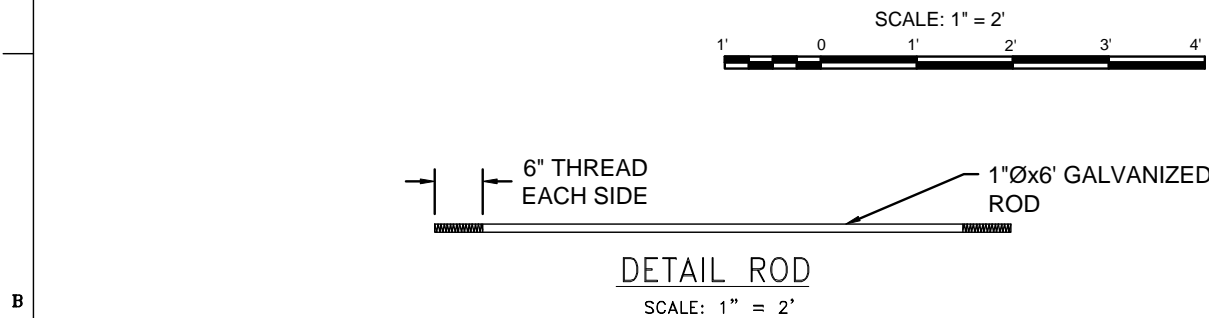
LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XTE-0200
STATE PROJECT NO. TE-41
MANDALAY BANK PROTECTION DEMO PROJECT
TERREBOANE PARISH, LOUISIANA

**PREVENT MATS, SETTLEMENT PLATE & ELEVATED
SHORELINE SYSTEM TYPICAL DETAILS & SECTIONS**

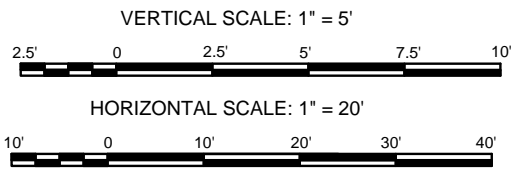
SHEET
NUMBER
5
DWG. 1 OF 1



PLAN OF TYPICAL MODULE
PARALLEL FIBERGLASS SHEET PILING



TYPICAL ELEVATION

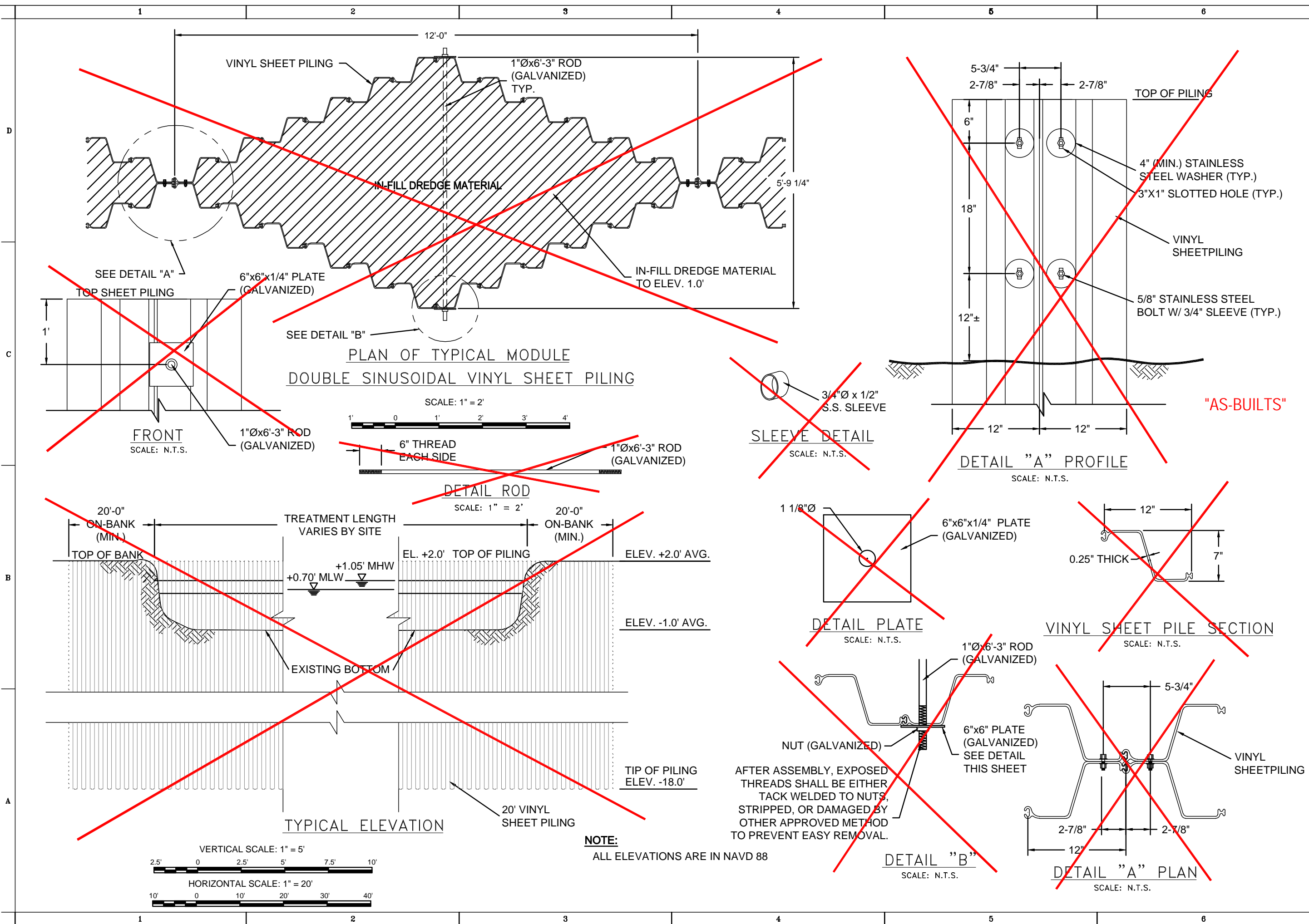


NOTE:
ALL ELEVATIONS ARE IN NAVD 88

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XTE-Demo
STATE PROJECT NO. 10-00000000
MANDALAY BAY PROTECT AND DEMO PROJECT
TERREBONNE PARISH, LOUISIANA

DATE	BY	DESCRIPTION
11/09/01	J.M.P.	DESIGN
11/09/01	J.M.P.	CHECKED
11/09/01	J.M.P.	DRAWN
11/09/01	J.M.P.	NOTED
11/09/01	J.M.P.	REVISIONS

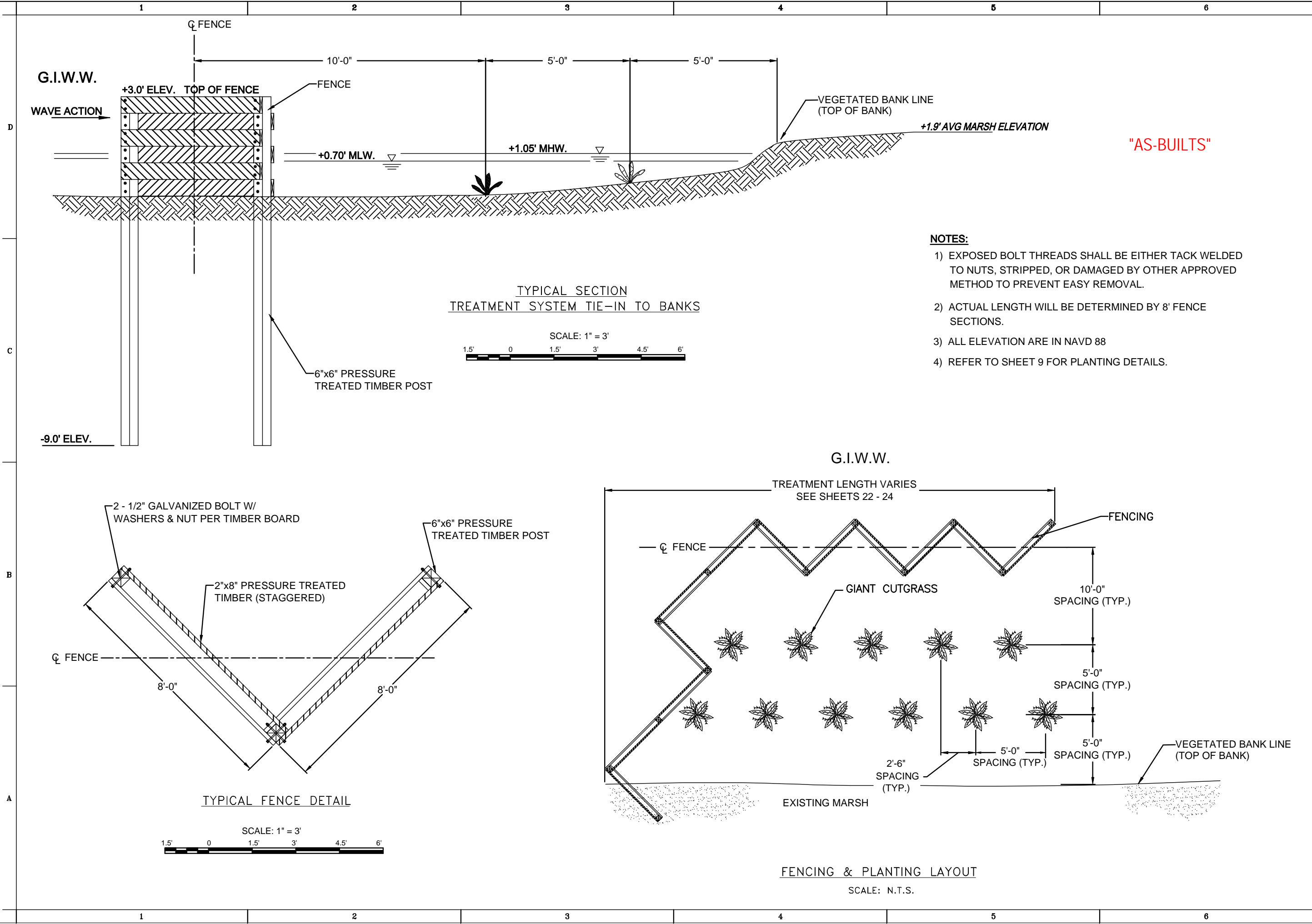
DESIGNER'S NAME: T.M. DAVIS
DATE: 11/09/01
SCALE: N.T.S.
PROJECT NO. 10-00000000
SHEET NUMBER 7
DWG. 1 OF 1



NO.	REVISION	DATE	BY	CHKD.	APP'D.
1	AS-BUILTS	8/2/08	JAP		

DESIGNED BY: JAP	CHECKED BY: JAP	DATE: 8/2/08
PROJECT NO. 1708-08-000	SUBMITTAL NO. 110001	DATE: 8/2/08

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. 1708-08-000
STATE PROJECT NO. 1708-08-000
MANDALAY BEACH PROTECTION REPAIR PROJECT
TERREBONNE PARISH, LOUISIANA
DOUBLE SINUSOIDAL VINYL SHEET
PILE TYPICAL DETAILS & SECTION



AS-BUILTS

NOTES:

- 1) EXPOSED BOLT THREADS SHALL BE EITHER TACK WELDED TO NUTS, STRIPPED, OR DAMAGED BY OTHER APPROVED METHOD TO PREVENT EASY REMOVAL.
- 2) ACTUAL LENGTH WILL BE DETERMINED BY 8' FENCE SECTIONS.
- 3) ALL ELEVATION ARE IN NAVD 88
- 4) REFER TO SHEET 9 FOR PLANTING DETAILS.

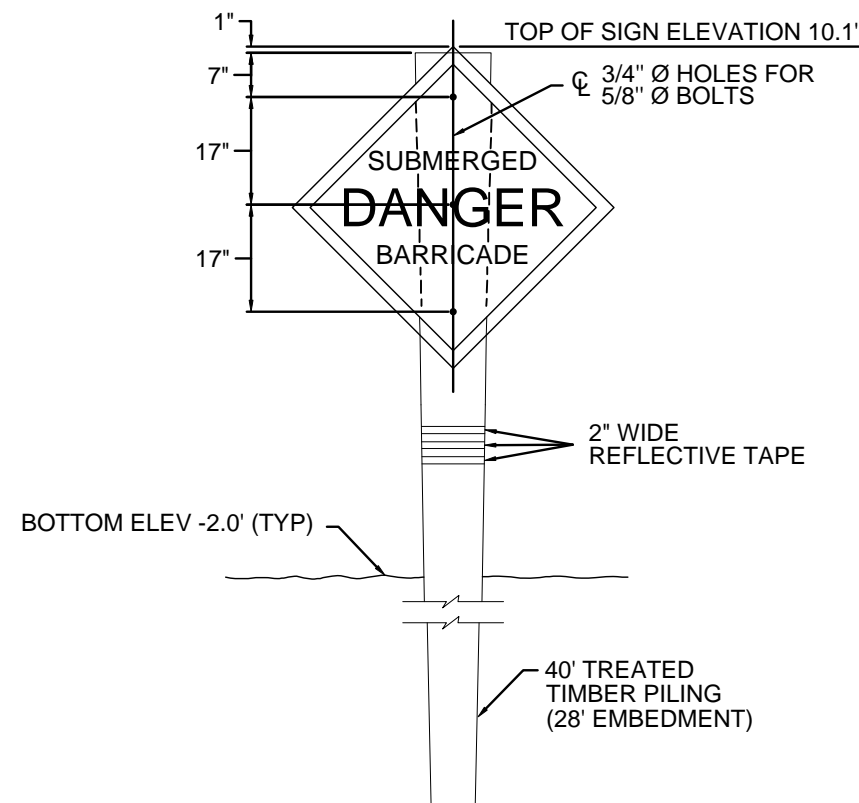
PROJECT INFORMATION:

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XTE-0310
MANDALAY BANK PROTECTION DEMO PROJECT
TERREBONNE PARISH, LOUISIANA
FENCING & PLANTING
TYPICAL DETAIL & SECTION

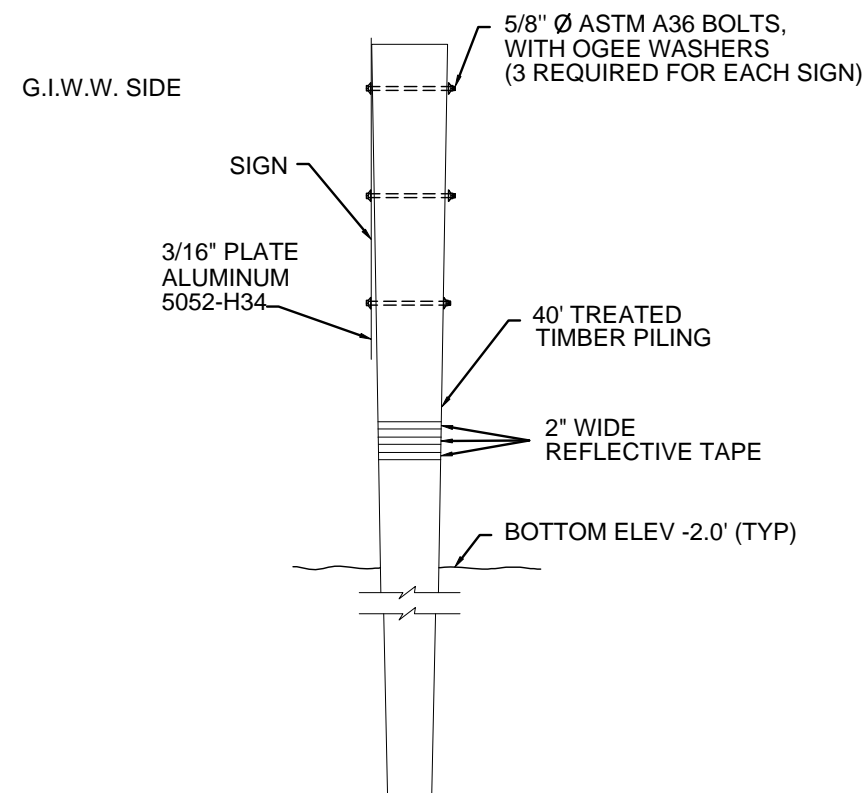
DESIGNER: TAC
CHECKED BY: JAMP
DATE: NOV. 2001

PROJECT NAME: TMS BUILDING
DATE: 2/2004
SCALE: N.T.S.

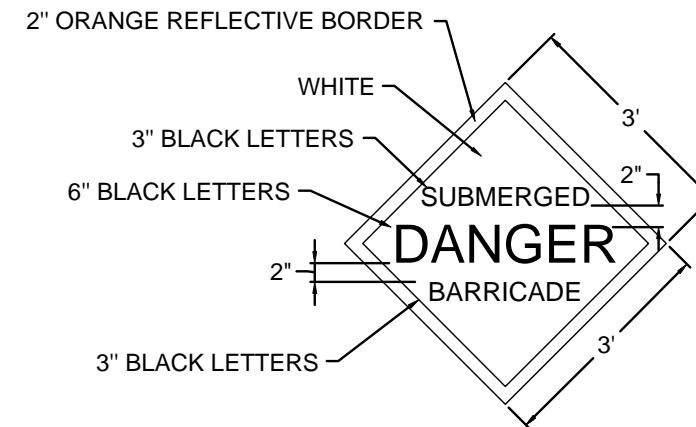
SHEET NUMBER: 10
DWG. 1 OF 1



WARNING SIGN ELEVATION



WARNING SIGN SIDE DETAIL



SIGN DETAIL

NOTES:

1. REFERENCES HEREIN TO THE "STANDARD SPECIFICATIONS" REFER TO THE "LA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", LATEST EDITION, INCLUDING AMENDMENTS, BY THE DEPT. OF TRANSPORTATION AND DEVELOPMENT. MEASUREMENT AND PAYMENT WILL BE MADE AS DESCRIBED THEREIN, EXCEPT WHERE STATED OTHERWISE.
2. ONE WARNING SIGN SHALL BE INSTALLED APPROXIMATELY 25 FEET IN FRONT OF EACH TREATMENT STRUCTURE (15 TOTAL) AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT ENGINEER. APPROXIMATE LOCATIONS OF THE WARNING SIGNS ARE SHOWN ON SHEETS 13 THRU 27. ACTUAL LOCATIONS WILL BE DETERMINED IN THE FIELD.
3. THE 2" BORDER ON THE WARNING SIGN WILL BE A REFLECTIVE MATERIAL OF ORANGE COLOR. THE LETTERING FIELD WILL BE A REFLECTIVE MATERIAL OF WHITE COLOR. THE LETTERING FOR THE WARNING SIGNS WILL BE BLACK. ALL SIGNS MUST MEET U.S. COAST GUARD STANDARDS; IN ACCORDANCE WITH 33 CFR 330.4 (a) (1).
4. NEOPRENE WASHERS SHALL BE PLACED BETWEEN THE SIGN AND THE PILING AT ALL POINTS OF CONTACT.
5. HARDWARE FOR TIMBER CONNECTIONS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SECTION 811.15 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS PUBLISHED BY THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT, LATEST EDITION.
6. TIMBER PILES SHALL CONFORM TO SECTIONS 804 AND 1014 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS PUBLISHED BY THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT, LATEST EDITION. PILES SHALL BE TREATED WITH A CREOSOTE SOLUTION CONFORMING TO AWPA P2 TO A MINIMUM RETENTION OF 16 PCF.
7. TIMBER PILING SHALL BE 40-FEET IN LENGTH WITH A 12-INCH DIAMETER BUTT AND 7-INCH DIAMETER AT THE TIP.
8. EXPOSED BOLT THREADS SHALL BE EITHER TACK WELDED TO NUTS, STRIPPED, OR DAMAGED BY OTHER APPROVED METHOD TO PREVENT EASY REMOVAL.

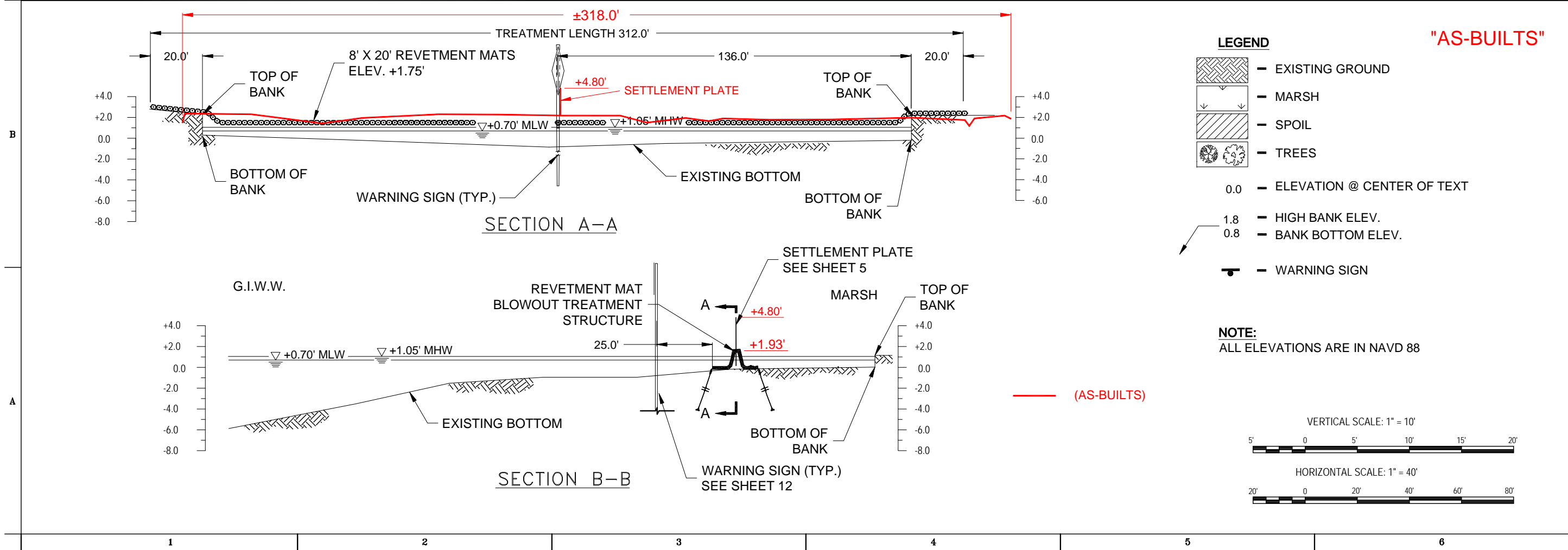
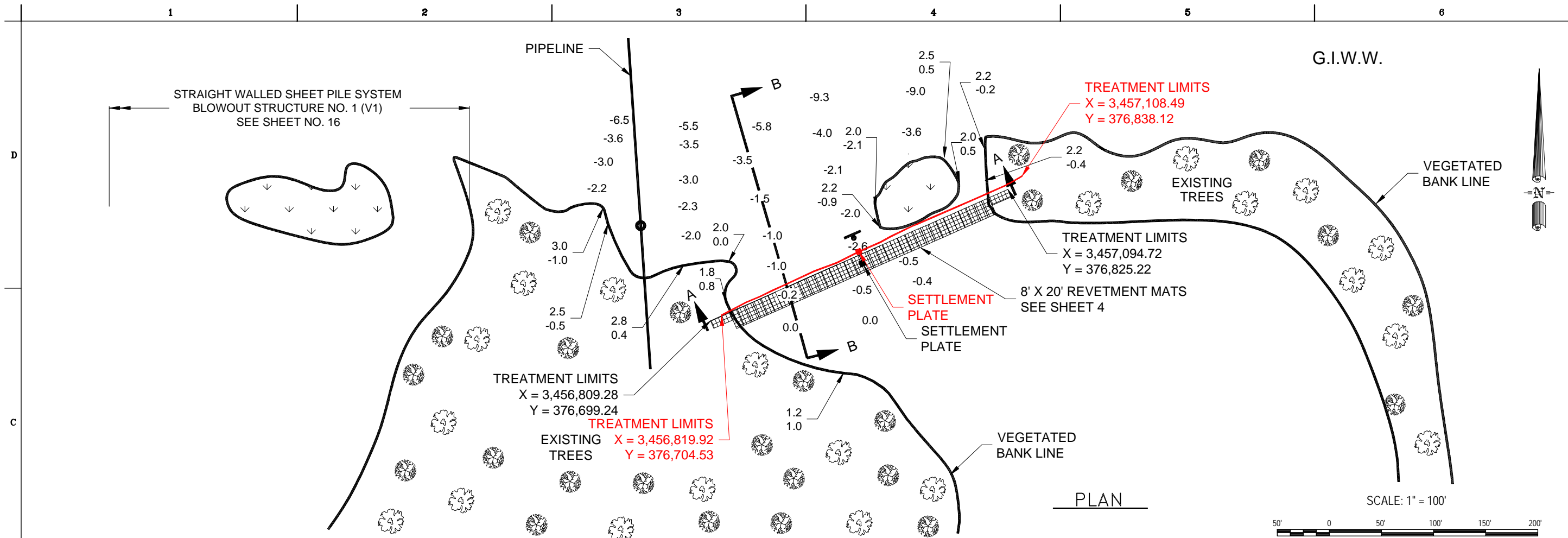


NO.	DESCRIPTION	DATE	BY	CHKD	APP'D
1	AS-BUILTS	2/20/2017	JMP		

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT STATE PROJECT NO. 17-01 TERREBONE PARISH, LOUISIANA MANDALAY EMBANKMENT PROJECT TERREBONE PARISH, LOUISIANA	DESIGNER: J.A.S. CHECKED BY: J.M.P. DATE: NOV 2017	SCALE: N.T.S.	DESIGN FILE NAME: 1706-12.DWG DATE: 2/20/17	SOLICITATION NO.
--	--	---------------	--	-----------------------

LOUISIANA DEPARTMENT OF NATURAL RESOURCES STATE PROJECT NO. 17-01 TERREBONE PARISH, LOUISIANA MANDALAY EMBANKMENT PROJECT TERREBONE PARISH, LOUISIANA	MISCELLANEOUS DETAILS
---	-----------------------

SHEET NUMBER 12 DWG. 1 OF 1



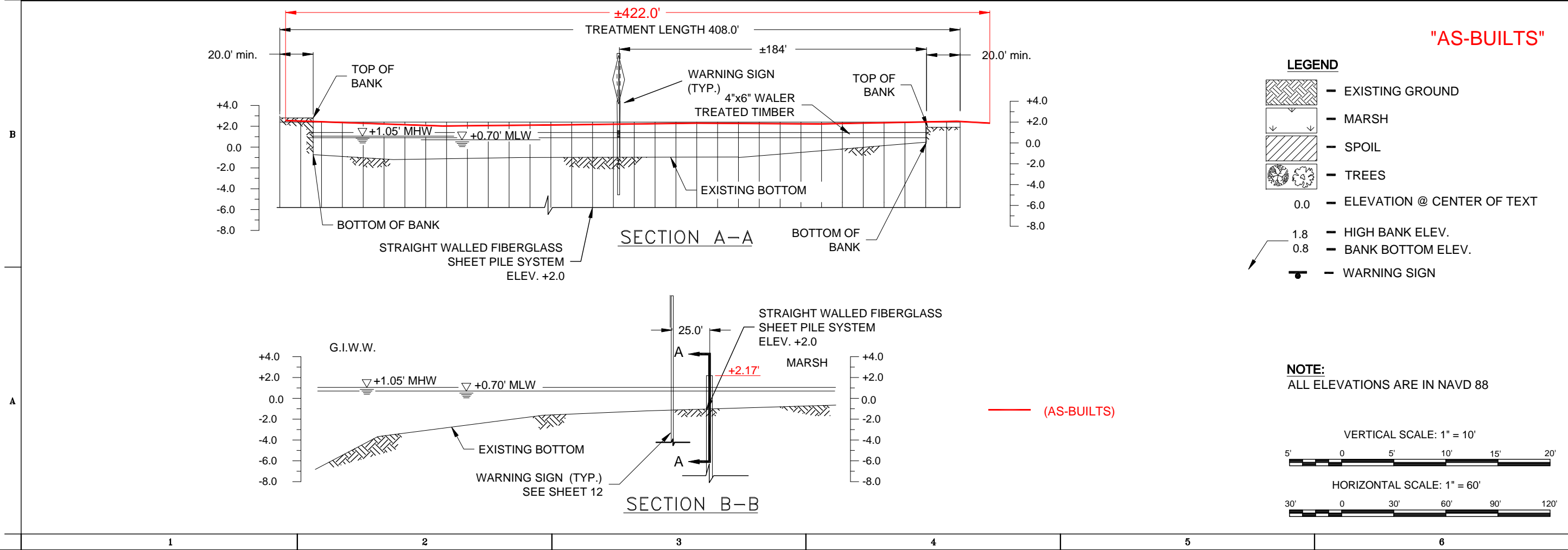
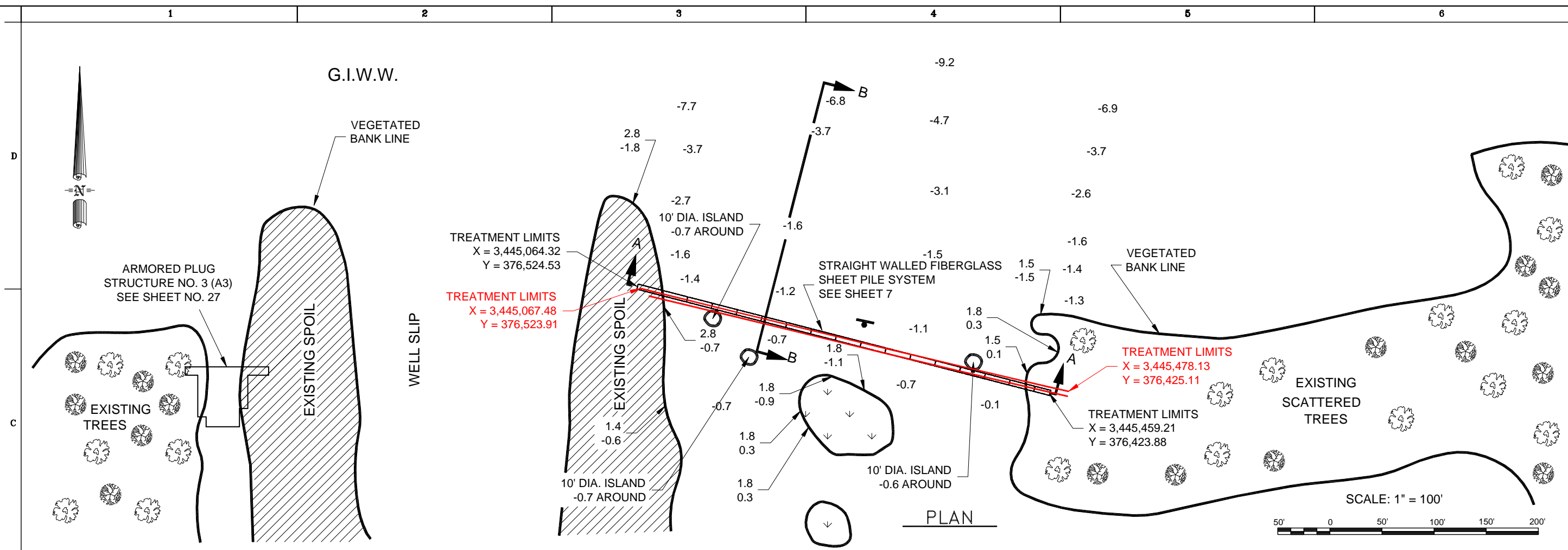
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5	10/1/2014	ISSUED FOR PERMIT
6	10/1/2014	ISSUED FOR PERMIT
7	10/1/2014	ISSUED FOR PERMIT
8	10/1/2014	ISSUED FOR PERMIT
9	10/1/2014	ISSUED FOR PERMIT
10	10/1/2014	ISSUED FOR PERMIT
11	10/1/2014	ISSUED FOR PERMIT
12	10/1/2014	ISSUED FOR PERMIT
13	10/1/2014	ISSUED FOR PERMIT
14	10/1/2014	ISSUED FOR PERMIT
15	10/1/2014	ISSUED FOR PERMIT
16	10/1/2014	ISSUED FOR PERMIT
17	10/1/2014	ISSUED FOR PERMIT
18	10/1/2014	ISSUED FOR PERMIT
19	10/1/2014	ISSUED FOR PERMIT
20	10/1/2014	ISSUED FOR PERMIT

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XE10-010
MANDALAY BANK PROTECTION DEMO PROJECT
TERRIBINE PARISH, LOUISIANA

REVISION NO. 1
DATE: 10/1/2014
BY: J.M.P.
CHECKED BY: J.M.P.
DRAWN BY: J.M.P.
DATE: 10/1/2014

SHEET
NUMBER
13

DWG. NO. 1



LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XTE-0400
MANDALAY BANK PROTECTION DEMO PROJECT
TERREBONE PARISH, LOUISIANA

STRAIGHT WALLED FIBERGLASS SHEET PILE SYSTEM
BLOWOUT TREATMENT STRUCTURE NO. 2 (V2)

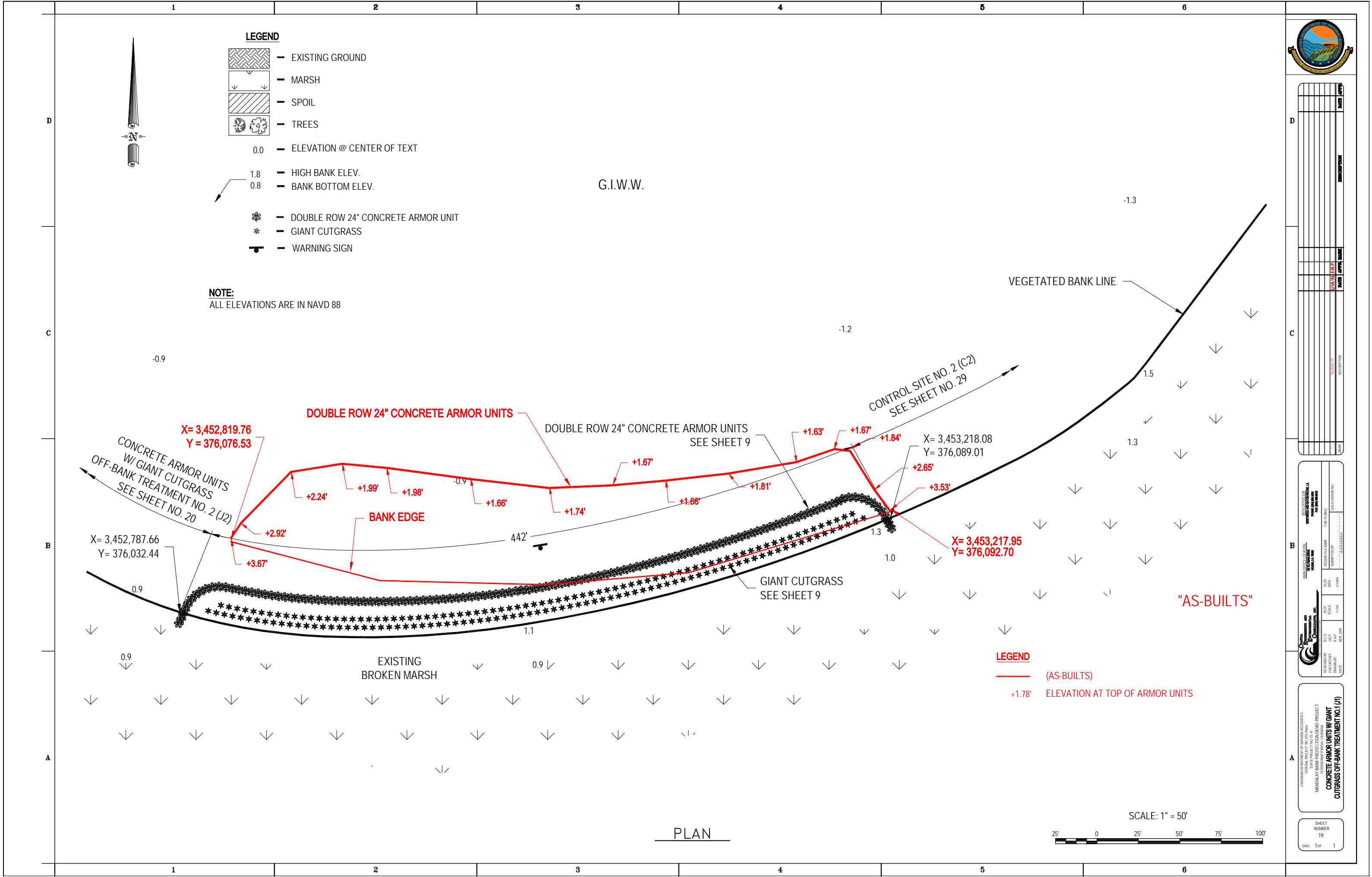
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CHECKED BY: J.A.P. **DATE:** 11/11/09
DRAWN BY: DATE

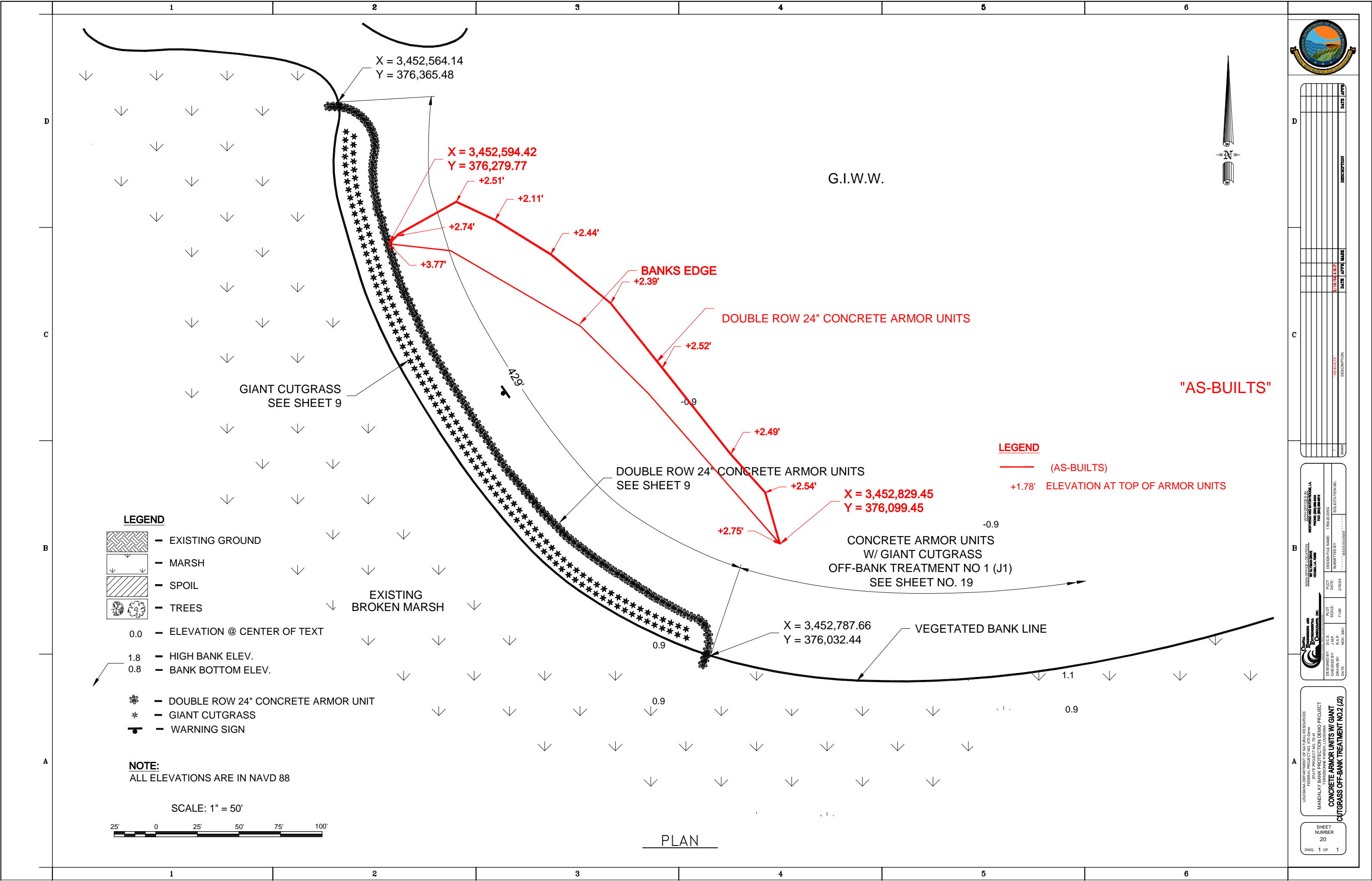
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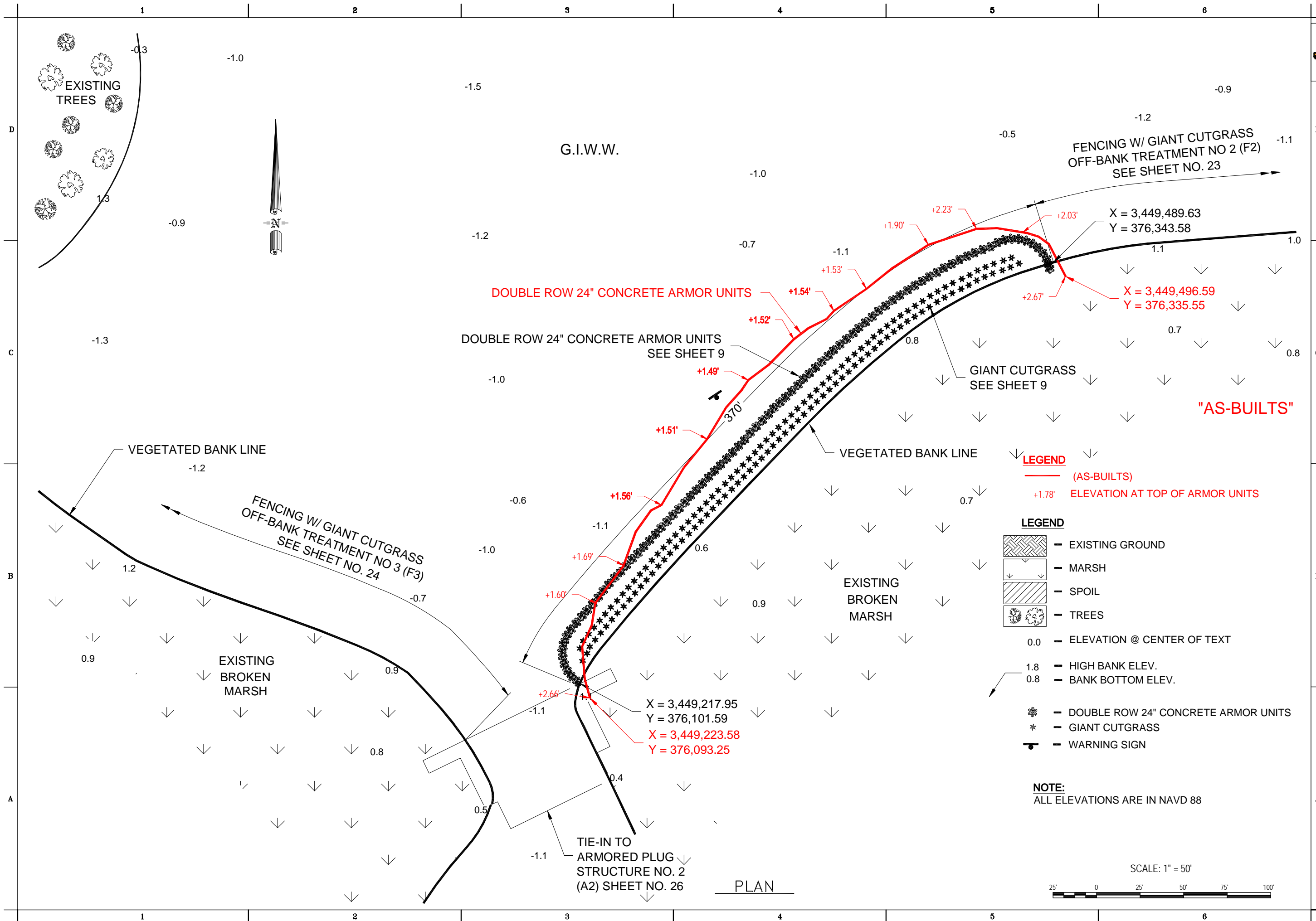
REVISIONS:


NO.	DATE	DESCRIPTION	BY	APP'D
1	2/13/13	DATE	DATE	DATE

SHEET NUMBER
17
DWG. 1 OF 1



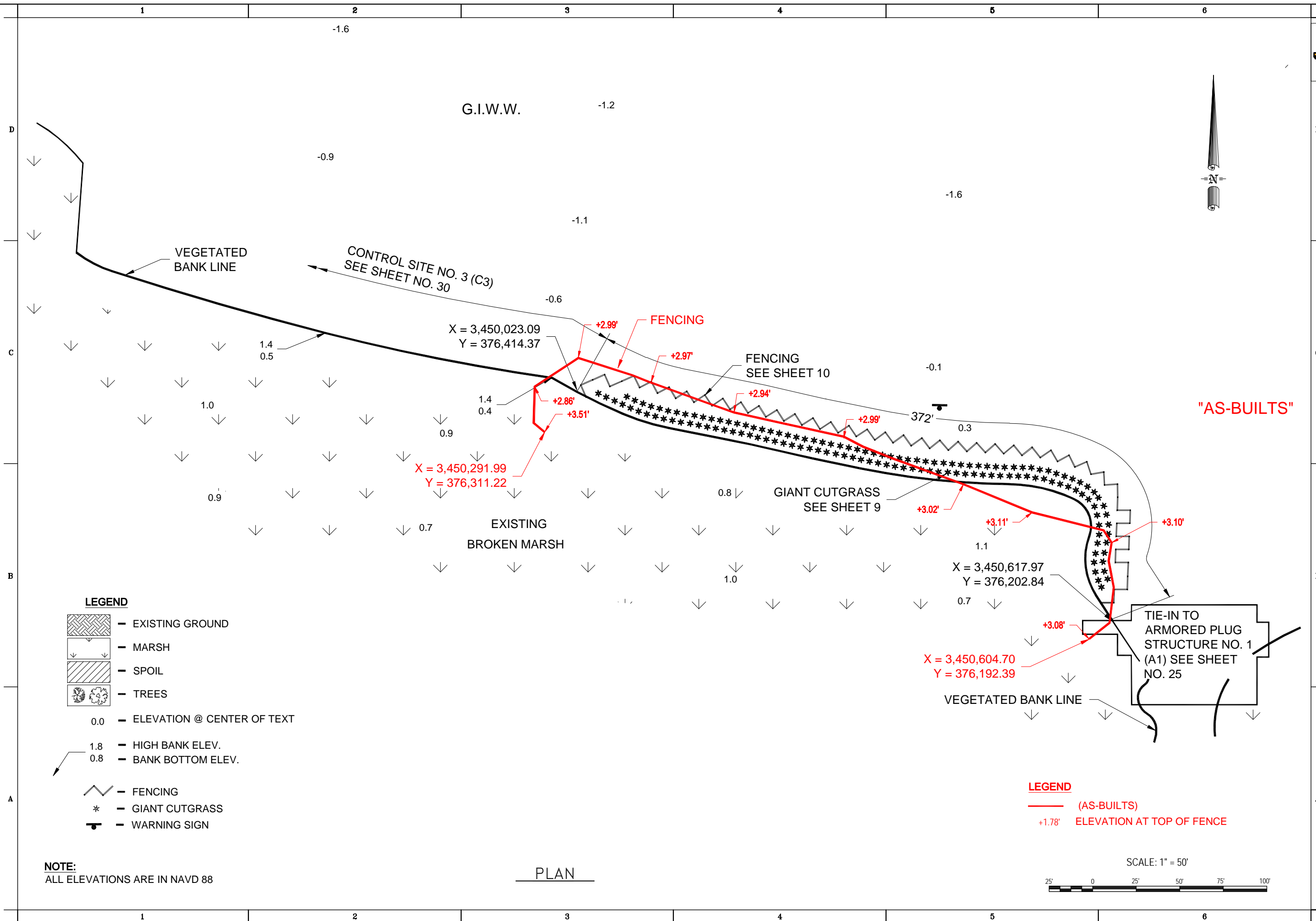



[illegible]

 CENTRAL ENVIRONMENTAL ENGINEERING, INC.	LABORATORY LOCATION 10000 N. 10th Ave. Mesa, AZ 85207		PROJECT LOCATION 10000 N. 10th Ave. Mesa, AZ 85207	
	DESIGNED BY CH2M HILL	PLOT DATE: 2/10/04	DESIGN FILE NAME 10000 N. 10th Ave.	PROJECT FILE NO. 10000 N. 10th Ave.
DRAWN BY JRP	SCALE 1"=50'	APPROVED BY JRP	PROJECT NO. 10000 N. 10th Ave.	

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL AID
STATE PROJECT NO. TE-41
MANDALAY BANK PROTECTION DEMO PROJECT
TE-BEFORE/TE-AFTER, LOUISIANA
**CONCRETE ARMOR UNITS W/ GIANT
CUTGRASS OFF-BANK TREATMENT NO.3 (19)**

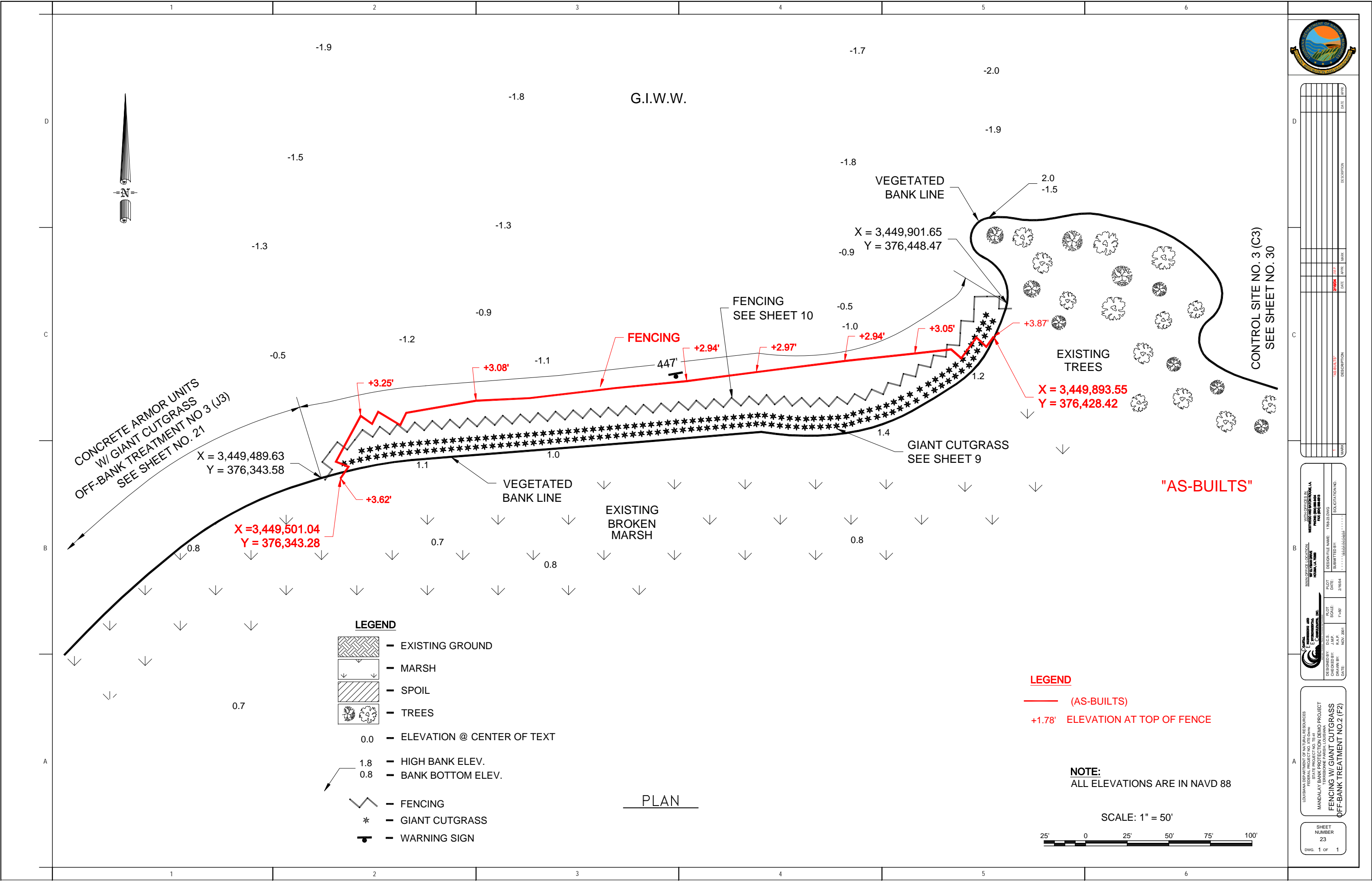
SHEET
NUMBER
21
DWG. 1 OF 1

[illegible]

 NATIONAL ENVIRONMENTAL CONTRACTORS INC.	MAIL ORDER LOCATION 10000 W. 10th Avenue DENVER, CO 80202 PHONE (303) 751-1000 FAX (303) 751-1001	
	MAIL ORDER LOCATION 10000 W. 10th Avenue DENVER, CO 80202 PHONE (303) 751-1000 FAX (303) 751-1001	
DESIGNED BY: D-C-5 CHECKED BY: JHP DRAWN BY: T-50 DATE: NOV 2000	PLOT SCALE: 1"=50' PLOT DATE: 4/9/04	DESIGN FILE NAME: 178-22.DWG SUBMITTED BY: SOLICITATION NO.:

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
FEDERAL PROJECT NO. XTE-Demo
STATE PROJECT NO. TE-11
MANDALAY BANK PROTECTION DEMO PROJECT
TERREBOONE PARISH, LOUISIANA
FENCING W/ GIANT CUTGRASS
OFF-BANK TREATMENT NO.1 (F1)

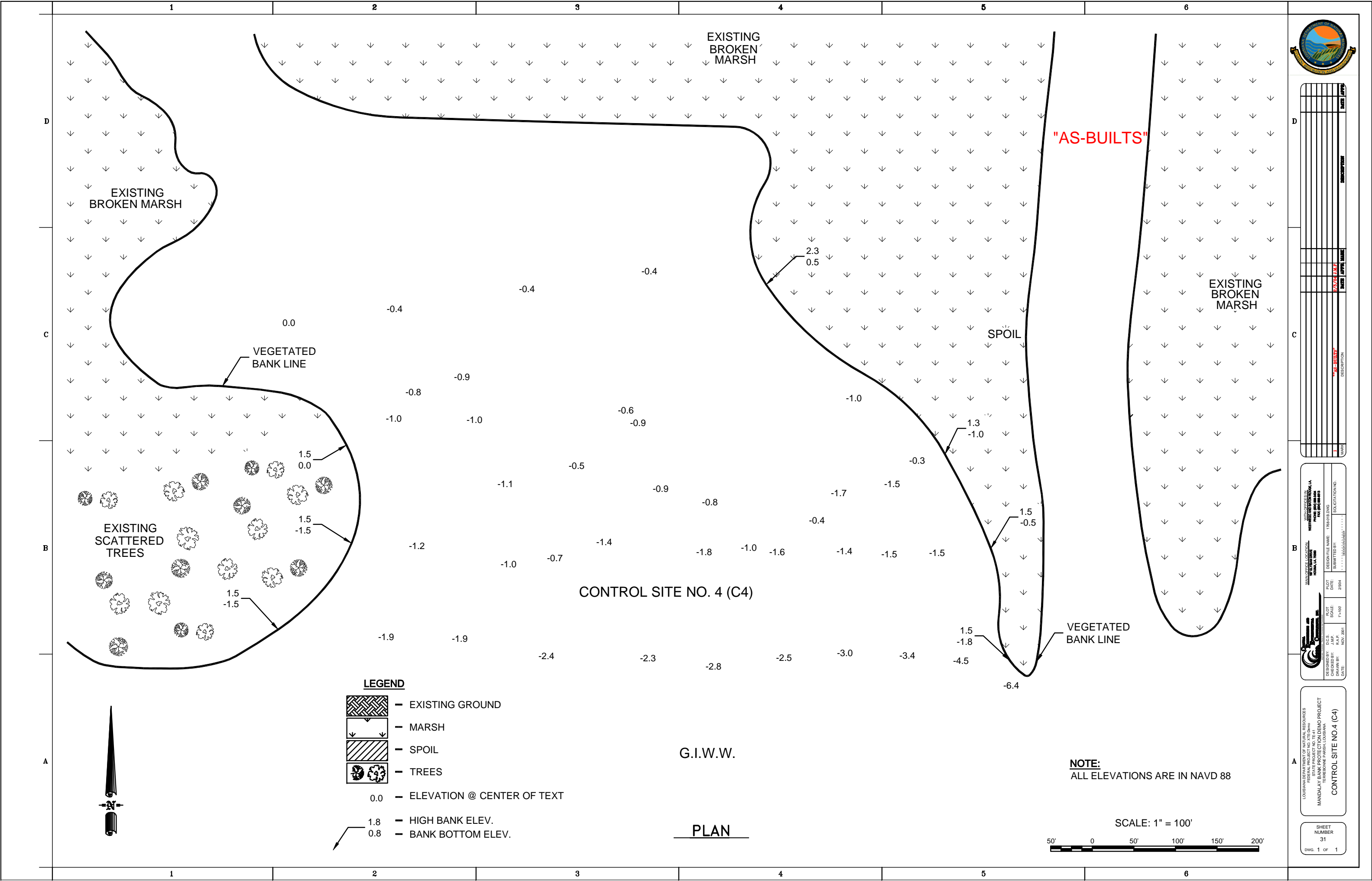
SHEET
NUMBER
22
DWG. 1 OF 1



DATE	BY	DESCRIPTION
2/10/24	JMP	DESIGN
2/10/24	JMP	CHECK
2/10/24	JMP	DATE

LOUISIANA DEPARTMENT OF NATURAL RESOURCES FEDERAL PROJECT NO. XTE-0400 TERREBONE PARISH, LOUISIANA MANDALAY BANK PROTECTION DEMO PROJECT FENCING W/ GIANT CUTGRASS OFF-BANK TREATMENT NO.2 (F2)	DESIGNER: DATE: CHECKED BY: DATE:	PROJECT NO. 2/10/24	SCALE: 1"=50'	SHEET NUMBER 23
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LOUISIANA DEPARTMENT OF NATURAL RESOURCES FEDERAL PROJECT NO. XTE-0400 TERREBONE PARISH, LOUISIANA MANDALAY BANK PROTECTION DEMO PROJECT FENCING W/ GIANT CUTGRASS OFF-BANK TREATMENT NO.2 (F2)	DESIGNER: DATE: CHECKED BY: DATE:	PROJECT NO. 2/10/24	SCALE: 1"=50'	SHEET NUMBER 23
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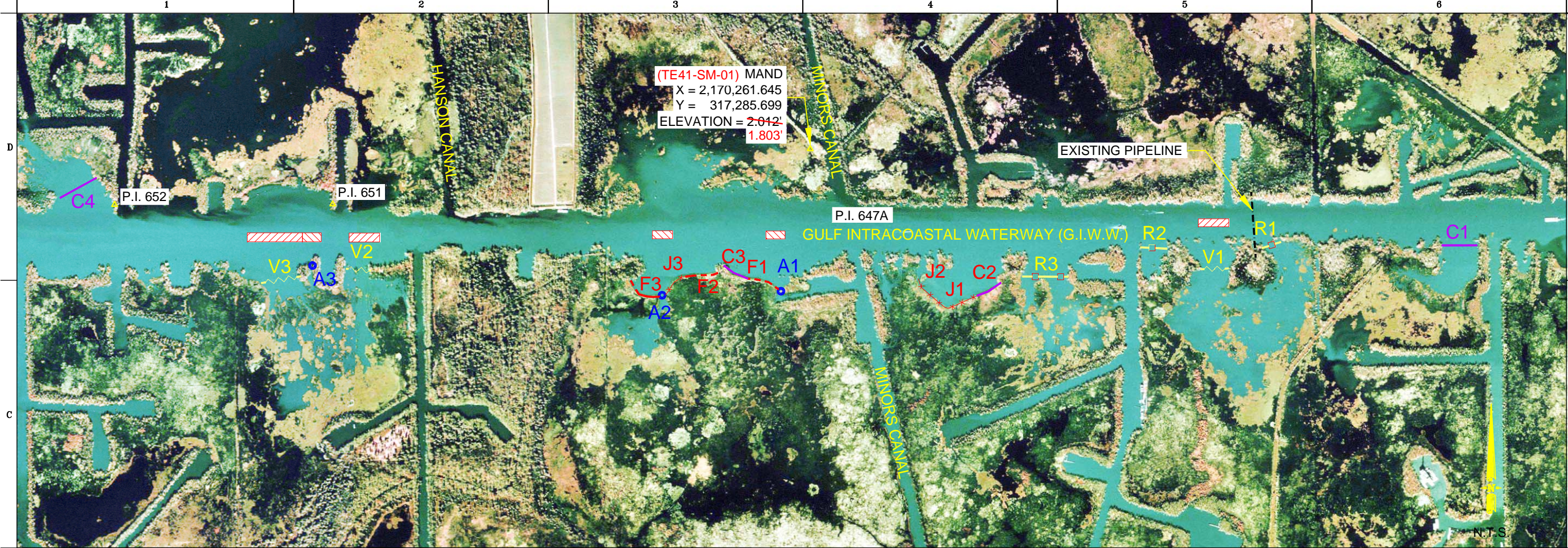


DATE	DESCRIPTION	DATE	DESCRIPTION
1/1/2004	AS-BUILTS	1/1/2004	AS-BUILTS

LOUISIANA DEPARTMENT OF NATURAL RESOURCES FEDERAL PROJECT NO. XTE-0100 STATE PROJECT NO. 0000000000 TERREBONE PARISH, LOUISIANA MANDALAY BANK PROTECTION DEMO PROJECT CONTROL SITE NO. 4 (C4)	DESIGNER: J.A.C. CHECKED BY: J.A.P. DATE: NOV. 2001	PROJECT NAME: TERREBONE SWG SUBMITTED BY: VEGETATION SOLICITATION NO. 2004	PILOT DATE: 2/2004 SCALE: 1"=100'
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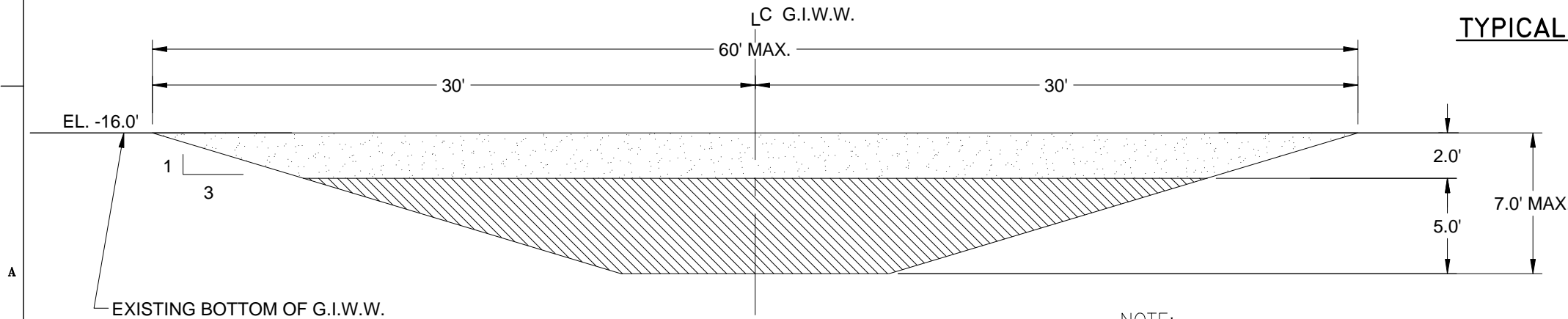
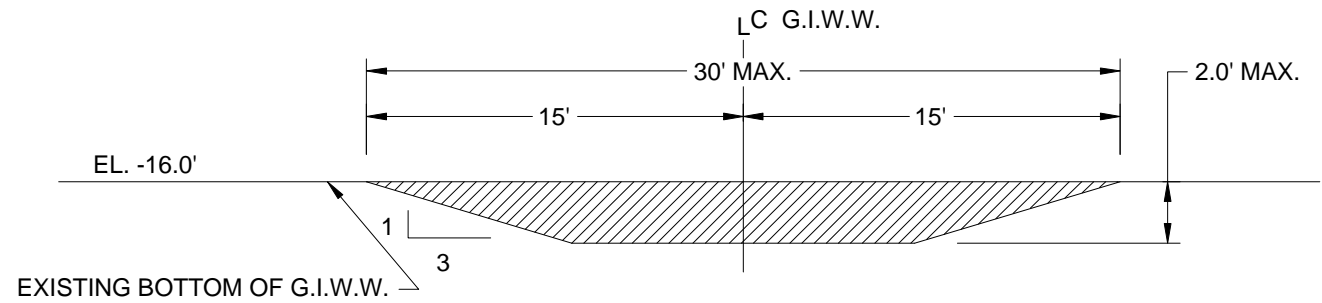
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--

SHEET NUMBER 31 DWG. 1 OF 1



LEGEND

- BORROW AREAS FOR SHEET PILING DREDGE FILL.
BORROW AREAS TO BE NEAREST TO CENTER LINE OF G.I.W.W. AND NOT TO EXCEED 2.0' DEPTH
- BORROW AREAS FOR ARMORED PLUG DREDGE FILL.
BORROW AREAS TO BE NEAREST TO CENTER LINE OF G.I.W.W. AND NOT TO EXCEED 7.0' DEPTH
- 2' DEPTH TO BE STRIPPED

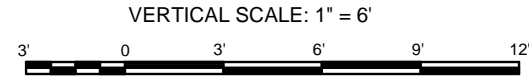


NOTE:
REQUIRED VOLUME FOR ARMORED
PLUGS IS APPROXIMATE 4 CY/FT

**TYPICAL SECTION - BORROW AREAS
FOR V1, V2, & V3**

"AS-BUILTS"

NOTE:
ALL ELEVATIONS ARE IN NAVD 88

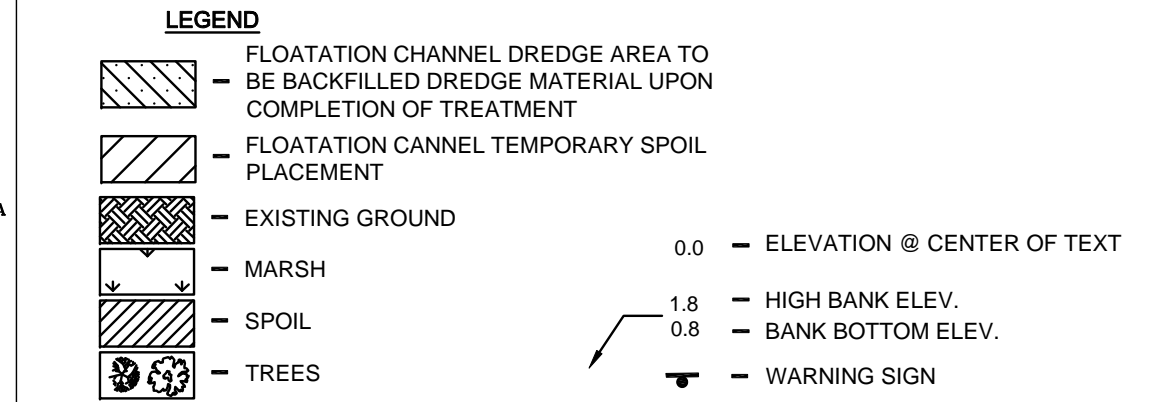
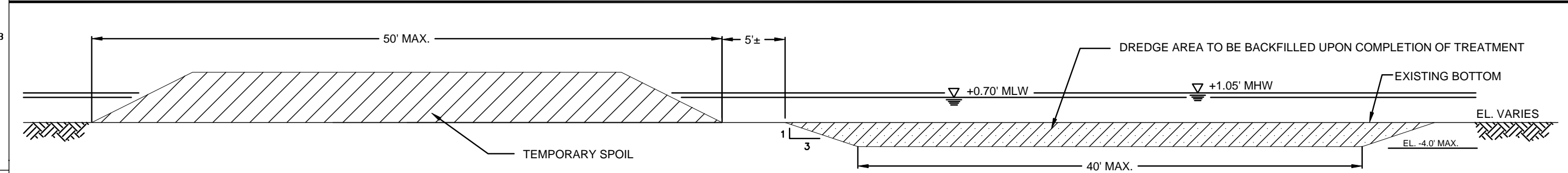
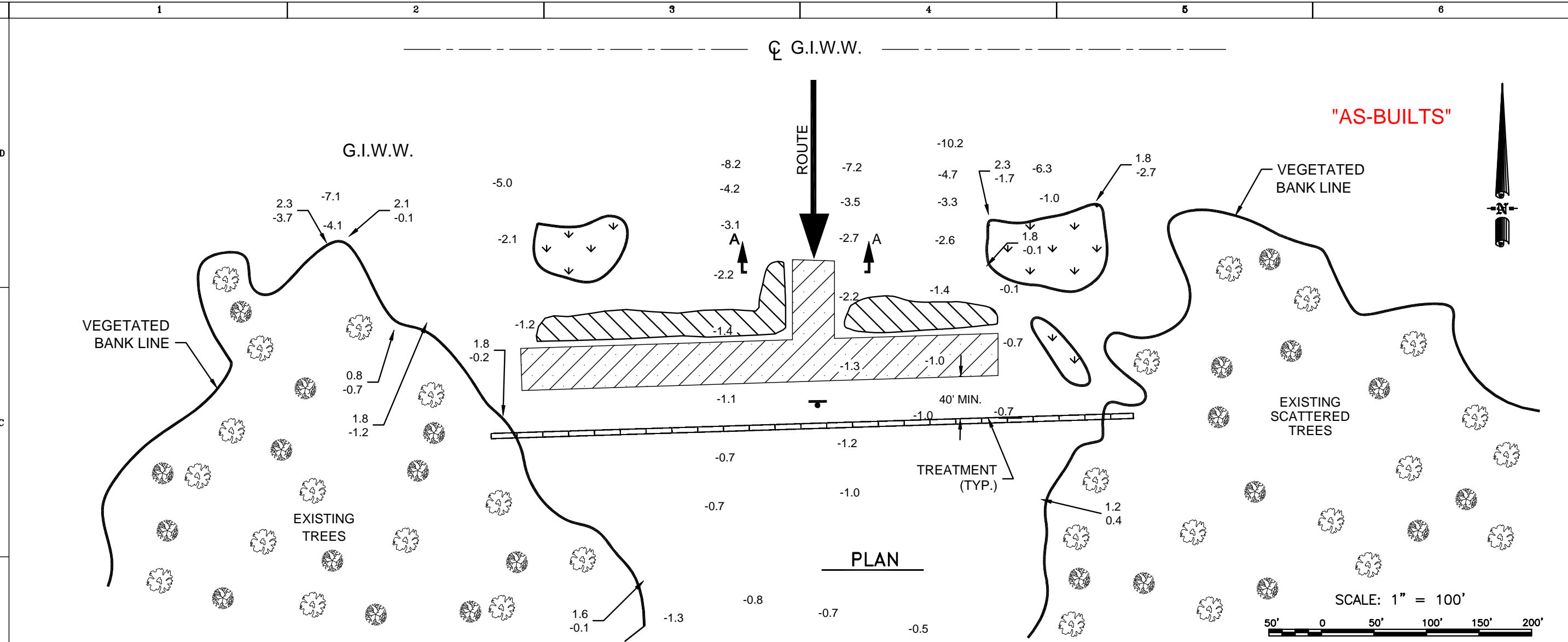


NO.	DATE	DESCRIPTION
1	10/20/2011	ISSUED FOR CONSTRUCTION

DESIGNED BY: D.C.S.	PROJECT NO. 1798-S2.DWG
DRAWN BY: R.A.P.	STATE PROJECT NO. TE-41
CHECKED BY: N.T.S.	FEDERAL PROJECT NO. 1798-S2.DWG
DATE: NOV 2011	MANDALAY BANK PROTECTION DEMO PROJECT

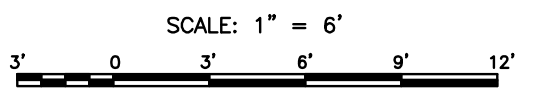
LOUISIANA DEPARTMENT OF TRANSPORTATION AND INFRASTRUCTURE
STATE PROJECT NO. TE-41
FEDERAL PROJECT NO. 1798-S2.DWG
MANDALAY BANK PROTECTION DEMO PROJECT
BORROW AREAS
PLAN & SECTIONS

SHEET
NUMBER
32
DWG. 1 OF 1



TYPICAL SECTION A-A

- NOTES:**
- 1) ALL ELEVATIONS ARE IN NAVD 88
 - 2) ALL TREATMENT CONSTRUCTION SHALL BE ACCESSED DIRECTLY FROM G.I.W.W.
 - 3) FLOATATION CHANNELS ARE ALLOWED FOR BLOWOUT TREATMENT AND ARMORED PLUG LOCATIONS ONLY. THESE INCLUDE SITES V1-V3, RI-R3, AND A1-A3. NO FLOATATION CHANNELS ARE TO BE DREDGED FOR OFF-BANK TREATMENT SITES.
 - 4) ONE PERPENDICULAR AND ONE PARALLEL FLOATATION CHANNEL IS ALLOWED FOR SITES LISTED IN NOTE 3 AND AS SHOWN IN THE PLAN VIEW. THE PARALLEL CHANNEL MUST BE AT LEAST 40 FEET FROM THE EDGE OF THE STRUCTURE.
 - 5) SHOULD THE CONTRACTOR REQUIRE FLOATATION CHANNEL, THE COST FOR THIS ITEM MUST BE INCLUDED IN THE COST OF THE STRUCTURE FOR EACH AND EVERY TREATMENT SITE AND/OR LOCATION THAT SHALL BE REQUIRED.
 - 6) NO EMERGENT MARSH IS TO BE DAMAGED DURING DREDGING OPERATIONS.



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NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/03/01	DESIGN	J.P.P.	
2	12/03/01	CHECKED	J.P.P.	
3	12/03/01	DESIGNED	J.P.P.	
4	12/03/01	REVIEWED	J.P.P.	
5	12/03/01	APPROVED	J.P.P.	

DESIGNER: J.P.P. DATE: 12/03/01
CHECKED: J.P.P. DATE: 12/03/01
DESIGNED: J.P.P. DATE: 12/03/01
REVIEWED: J.P.P. DATE: 12/03/01
APPROVED: J.P.P. DATE: 12/03/01

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
PROJECT NO. 100-000000
PROJECT NAME: TYPICAL FLOATATION CANAL
SHEET NUMBER: 33
DATE: 12/03/01

ATTACHMENT V

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

**PROJECT PERMITS
&
PERMIT AMENDMENTS**



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P.O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF:

FEB 10 2003

Operations Division
Central Evaluation Section

SUBJECT: WI-20-020-0013-1

U.S. Fish and Wildlife Service
c/o Coastal Engineering and Environmental Consultants, Inc.
197 Elysian Drive
Houma, Louisiana 70363

Gentleman:

Revised drawings attached in nine pages, furnished with your application dated January 9, 2003, covering the Mandalay National Wildlife Refuge bank protection demonstration project, located in Sections 1-3, T18S-R16E and Section 16, T18S-R17E, are approved and will be included in your plans for the work authorized by the Secretary of the Army in permit dated March 28, 2002. These drawings supersede the drawings of your previous permit.

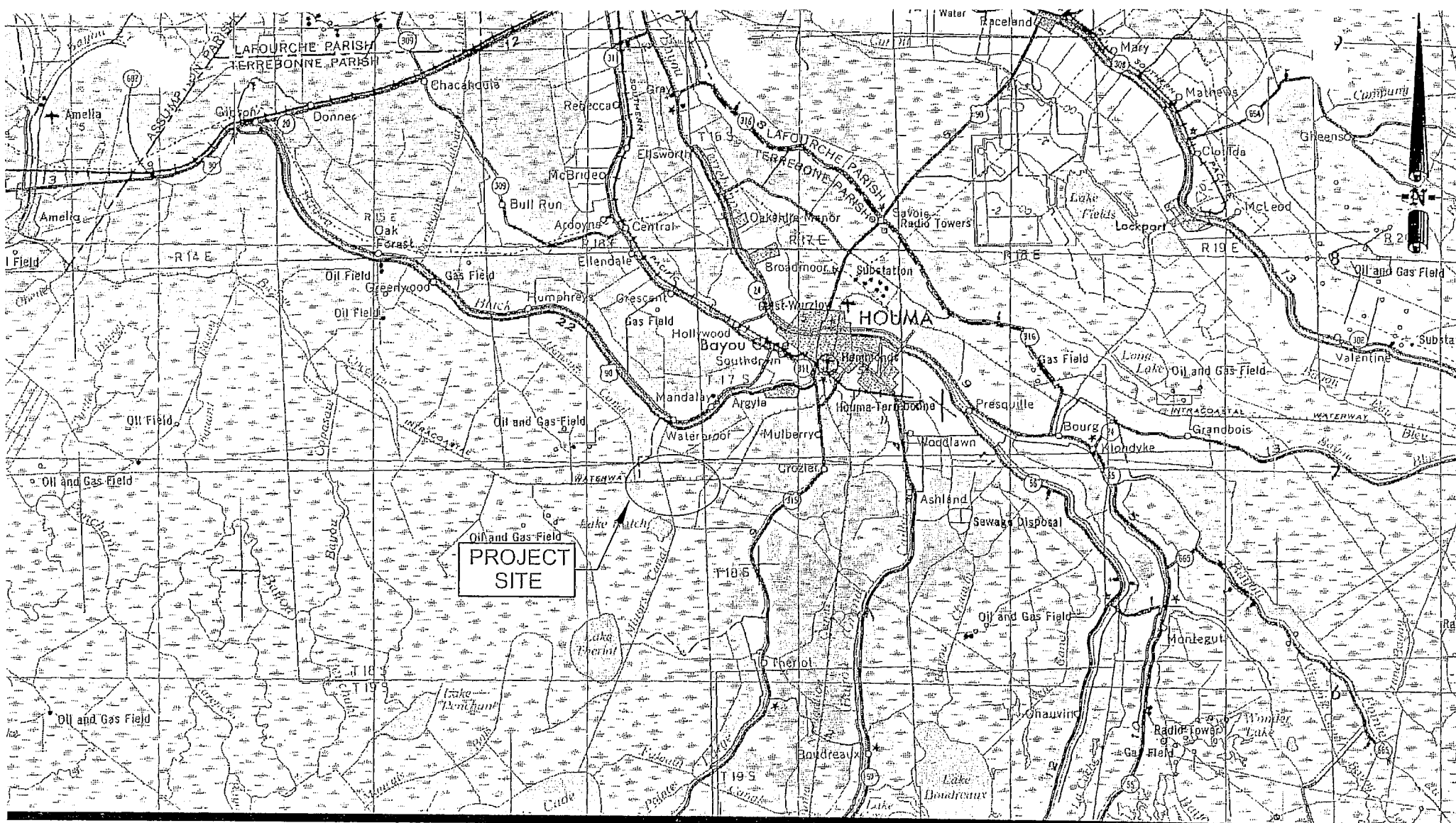
The conditions to which the work is made subject, remain in full force and effect.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Ronald J. Ventola
Chief, Regulatory Branch
for

Peter J. Rowan
Colonel, U.S. Army
District Engineer

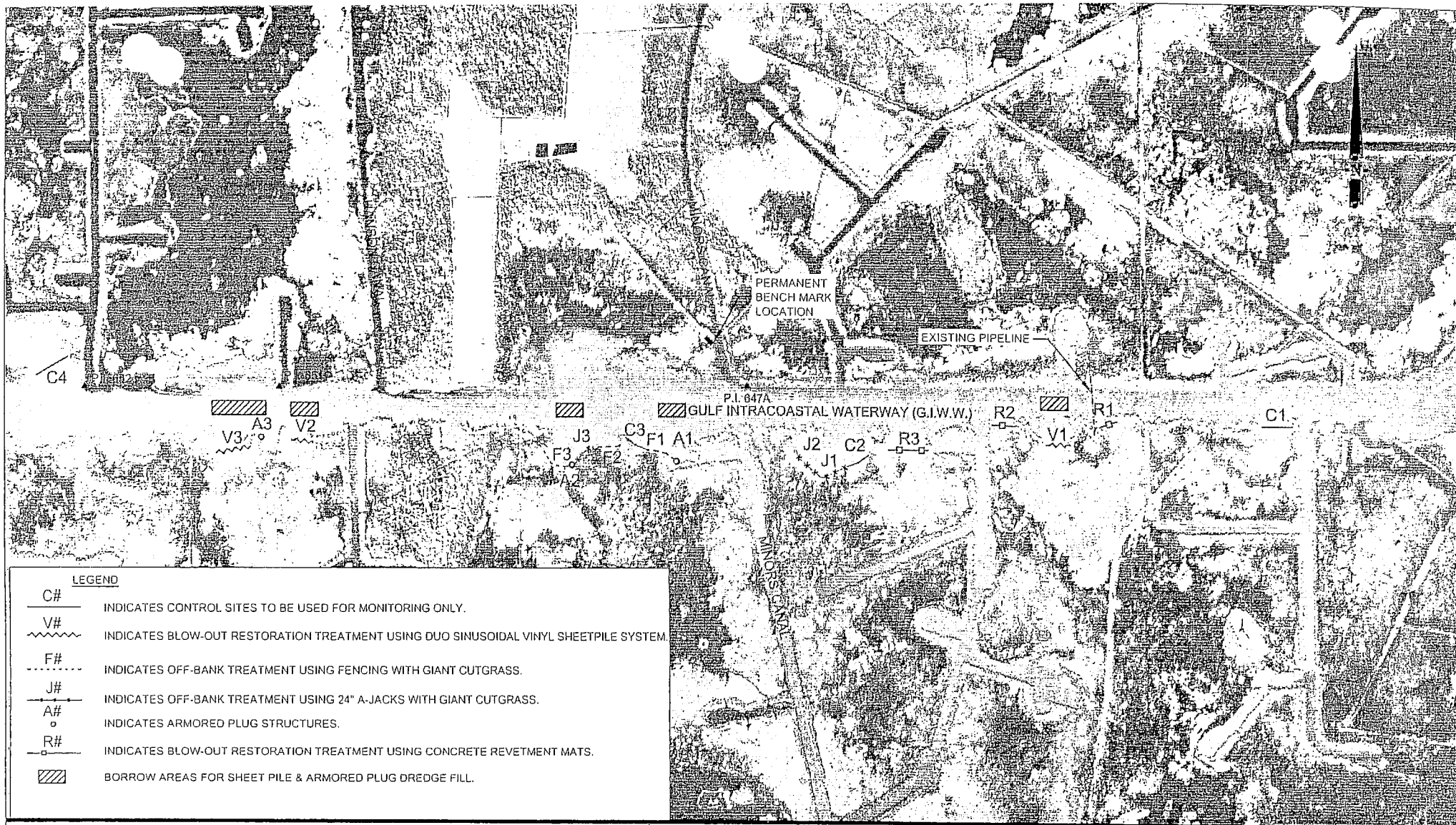
DATE	HOL'D	COPY
7/1/8		
OPM		
OPF		
HRA		
JMP		
DAC		
KJL		
MGM		
BSH		
CMM		
GPF		
FILE		
ACCT		
Attache		
REMARKS		



VICINITY MAP
N.T.S.

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S-R16E & SECTION 16, T18S-R17E
TERREBONNE PARISH, LOUISIANA

Date:	05/09/01	Drawn By:	CDL	Sheet No.:	1 of 9	Revisions:	
Scale:	NTS	Approved By:	MGM	File No.:	VICINITY	No.:	Date:
						1	09/19/2001



LEGEND

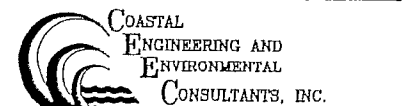
C#	INDICATES CONTROL SITES TO BE USED FOR MONITORING ONLY.
V#	INDICATES BLOW-OUT RESTORATION TREATMENT USING DUO SINUSOIDAL VINYL SHEETPILE SYSTEM
F#	INDICATES OFF-BANK TREATMENT USING FENCING WITH GIANT CUTGRASS.
J#	INDICATES OFF-BANK TREATMENT USING 24" A-JACKS WITH GIANT CUTGRASS.
A#	INDICATES ARMORED PLUG STRUCTURES.
R#	INDICATES BLOW-OUT RESTORATION TREATMENT USING CONCRETE REVETMENT MATS.
	BORROW AREAS FOR SHEET PILE & ARMORED PLUG DREDGE FILL.

PLAN

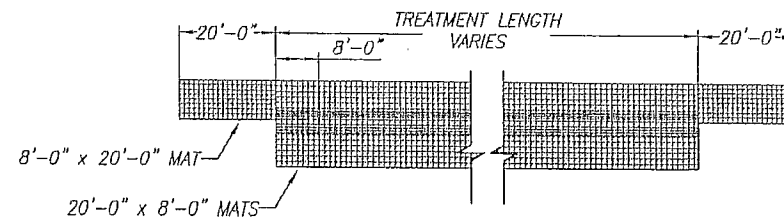
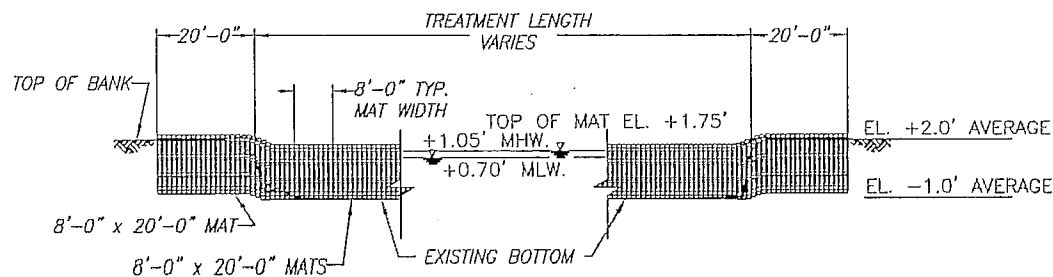
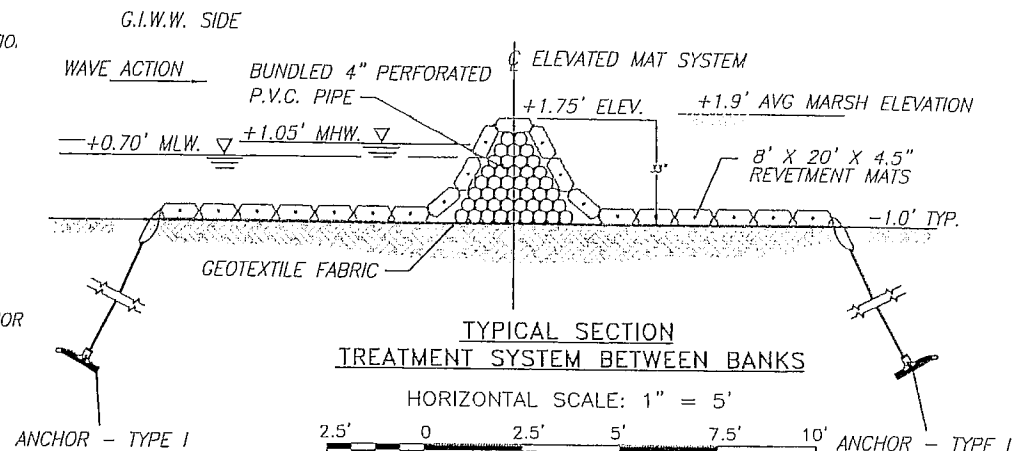
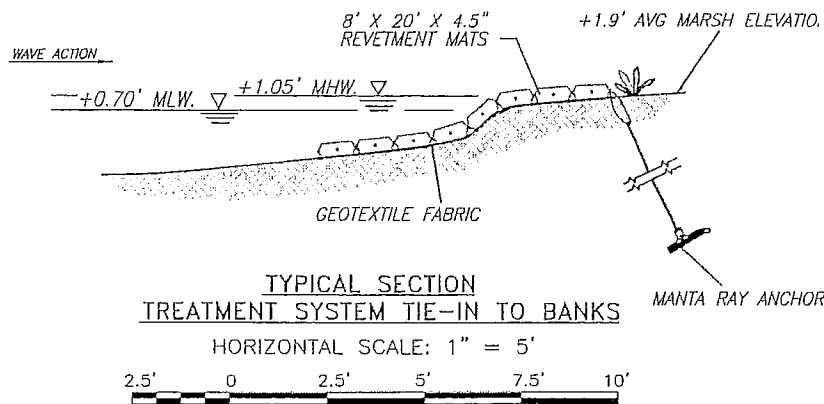
SCALE: 1" = 2000'

LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) SECTIONS 1-3, T18S-R16E & SECTION 16, T18S - R17E TERREBONNE PARISH, LOUISIANA

Date: 05/09/01	Drawn By: CDL	Sheet No.: 2 of 9	Revisions:	
			No.:	Date:
			1	09/19/2001
Scale: 1"=2000'	Approved By: MGM	File No.: SITEPLAN		



Engineers - Scientists - Planners - Environmental Consultants
197 Elysian Drive - Houma, Louisiana 70363



NOTE:

LOCATION	LENGTH (FT.)*
R1	312
R2	300
R3	584

* INCLUDING 20' TIE-IN FOR EACH END OF THE REVETMENT.

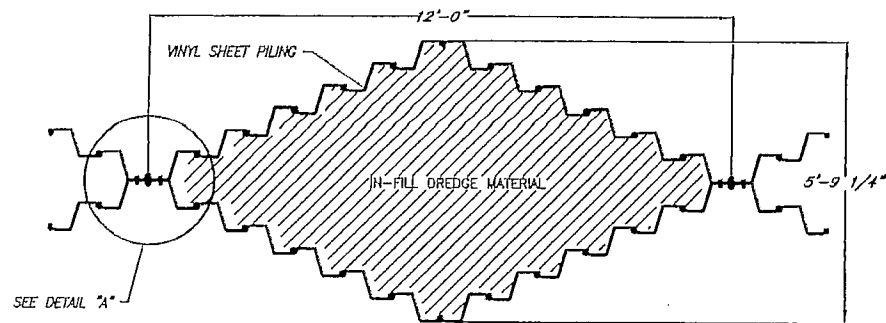
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NAVIGATIONAL WARNING SIGNS REQUIRED.

REVETMENT LAYOUT & SECTION

LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E TERREBONNE PARISH, LOUISIANA

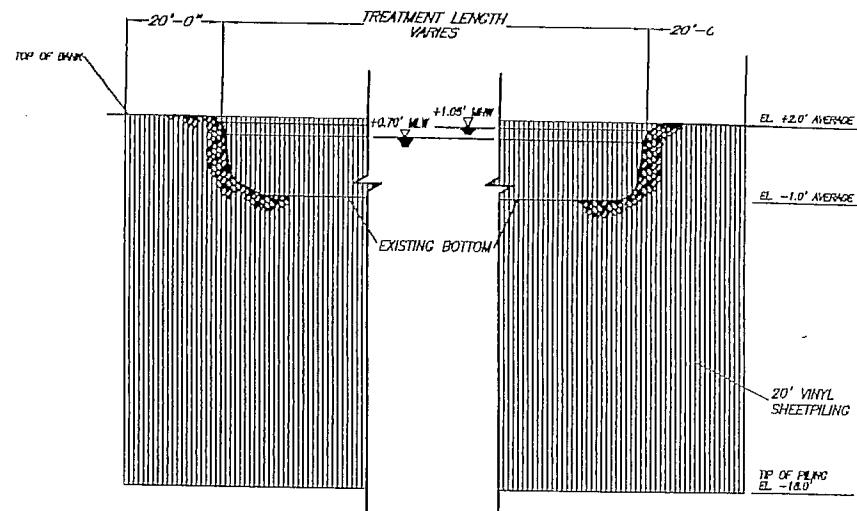
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Scale: SEE DWG	Approved By: MGM	File No.: REVET	No.: 1	Date: 09/19/2001

**COASTAL
ENGINEERING AND
ENVIRONMENTAL
CONSULTANTS, INC.**
Engineers - Scientists - Planners - Environmental Consultants
197 Flamingo Drive, Houma, Louisiana 70331



PLAN OF TYPICAL MODULE
DUO SINUSOIDAL VINYL SHEET PILE

HORIZONTAL SCALE: 1" = 4'



TYPICAL ELEVATION

VERTICAL SCALE: 1" = 10'



HORIZONTAL SCALE: 1" = 40'



NOTE:

LOCATION LENGTH (FT.)*

V1 612

V2 408

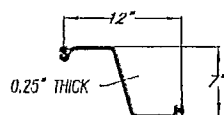
V3 729

* INCLUDING 20' TIE-IN FOR EACH END OF SHEET PILE.

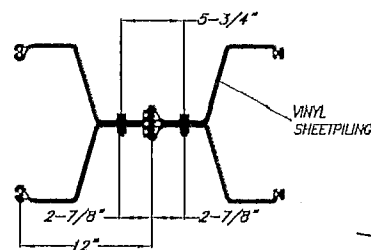
NOTES:

DATUM IS NAVD 88

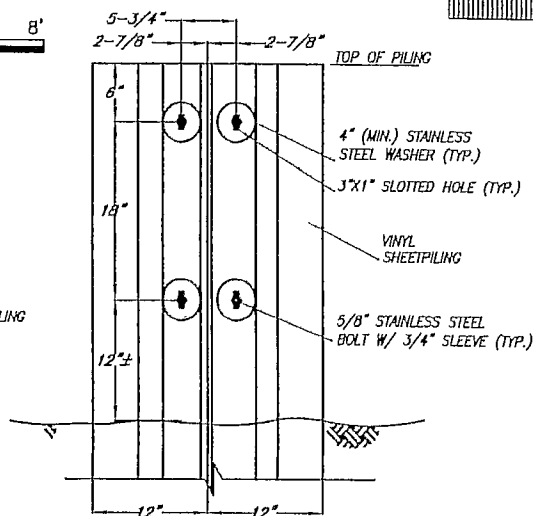
NAVIGATIONAL WARNING SIGN REQUIRED.



VINYL SHEET PILE SECTION
SCALE: N.T.S.



DETAIL "A" PLAN
SCALE: N.T.S.



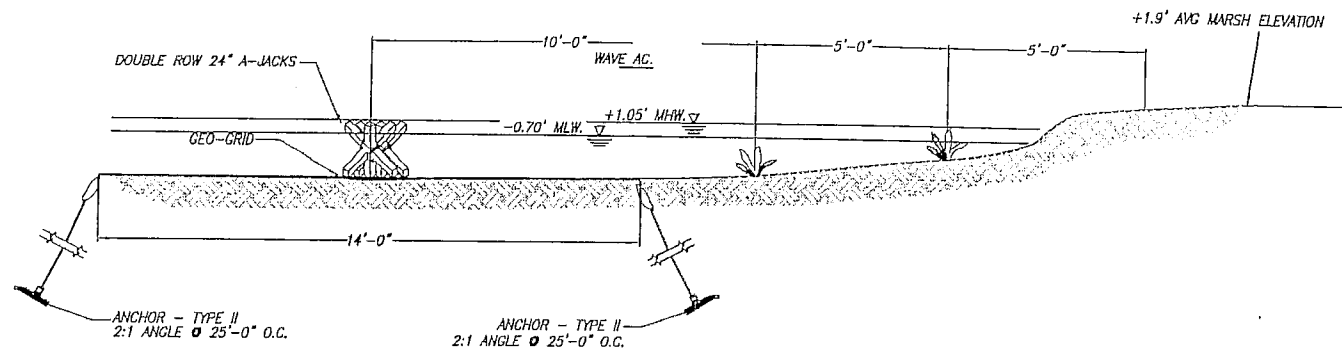
DETAIL "A" PROFILE
SCALE: N.T.S.

SHEETPILE LAYOUT & SECTION

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA

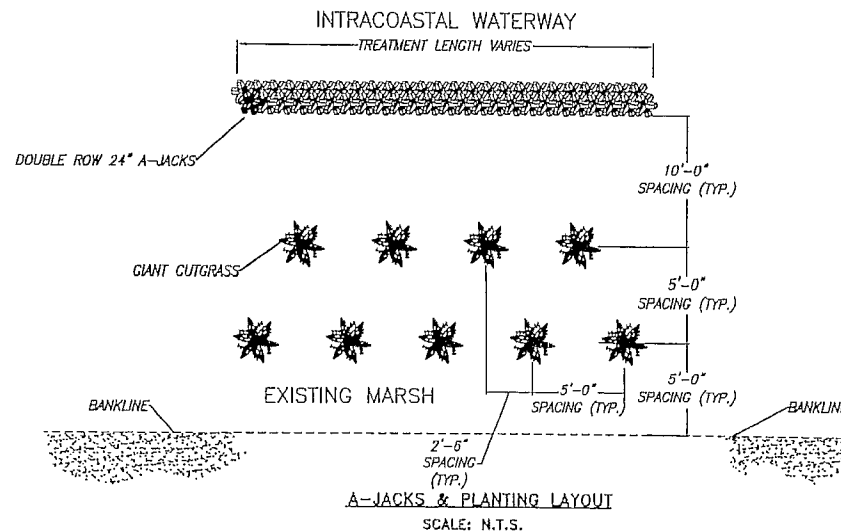
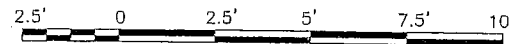
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Scale: SEE DWG.	Approved By: MGM	File No.: SHEETPILE	No.: 1
			Date: 09/19/2001

COASTAL ENGINEERING AND ENVIRONMENTAL CONSULTANTS, INC.
Engineers - Scientists - Planners - Environmental Consultants
197 Elysian Drive - Houma, Louisiana 70363



TYPICAL SECTION
TREATMENT SYSTEM TIE-IN TO BANKS

HORIZONTAL SCALE: 1" = 5'



NOTE:
PLANTING TO BE (2) ROWS DEEP
STAGGERED ROWS AS SHOWN

NOTE:

LOCATION	LENGTH (FT.)
J1	442
J2	427
J3	370

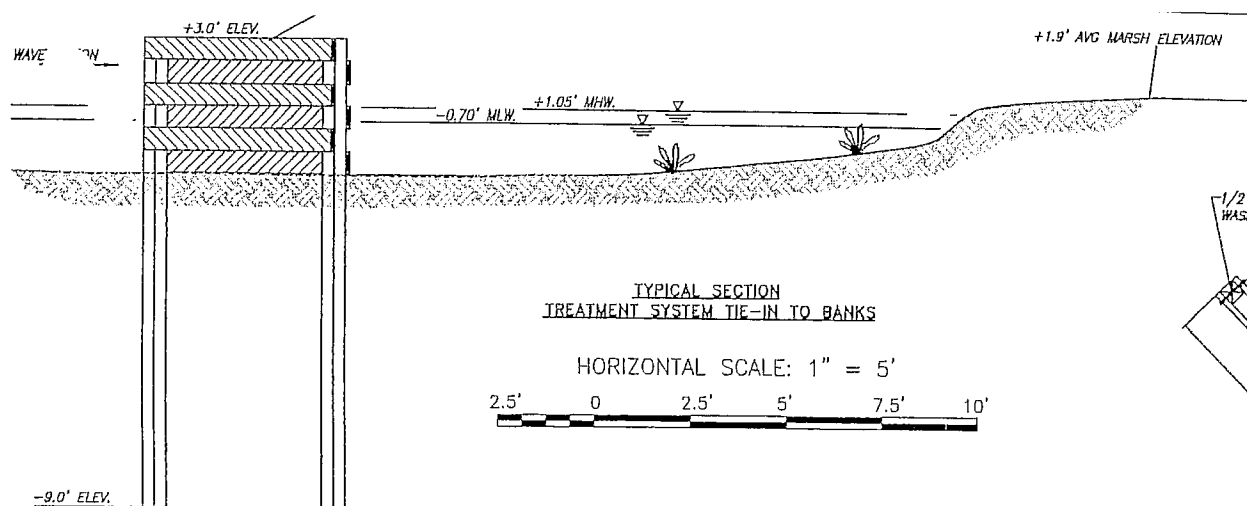
NOTES:

DATUM IS NAVD 88
NAVIGATIONAL WARNING SIGN REQUIRED

A-JACKS & PLANTING LAYOUT
& TYPICAL SECTIONS

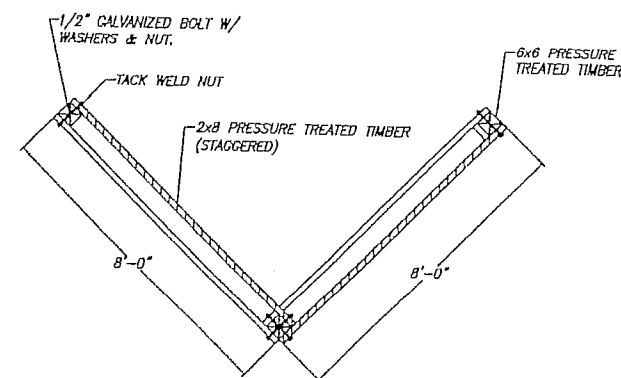
LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S-R16E & SECTION 16, T18S-R17E
TERREBONNE PARISH, LOUISIANA

Date: 05/08/01	Drawn By: CDL	Sheet No.: 5 of 9	Revisions:	
Scale: SEE DWG	Approved By: MGM	File No.: AJACKS	No.: 1	Date: 09/19/2001



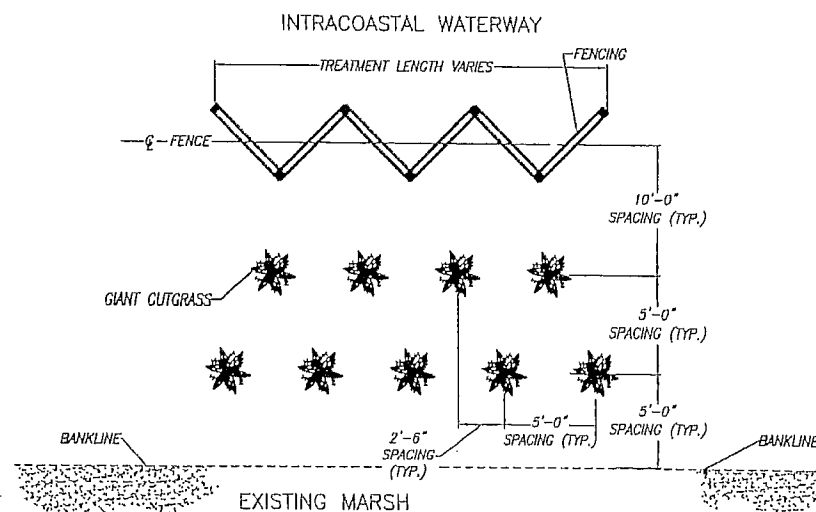
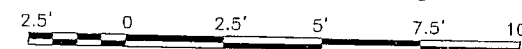
TYPICAL SECTION
TREATMENT SYSTEM TIE-IN TO BANKS

HORIZONTAL SCALE: 1" = 5'



TYPICAL FENCE DETAIL

HORIZONTAL SCALE: 1" = 5'



EXISTING MARSH

FENCING & PLANTING LAYOUT

SCALE: N.T.S.

LOCATION	LENGTH (FT.)
F1	372
F2	447
F3	375

NOTE:
DATUM IS NAVD 88
NAVIGATIONAL WARNING SIGN REQUIRED

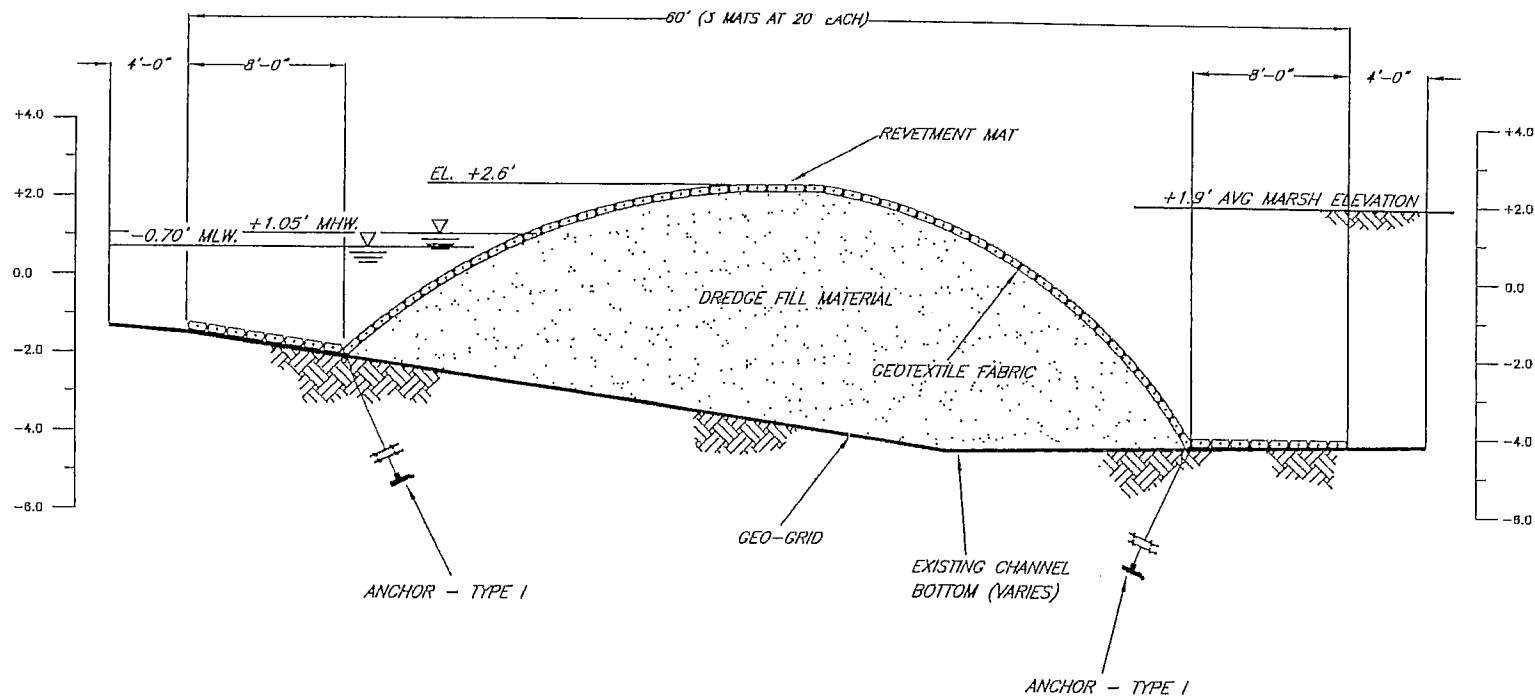
NOTE:
PLANTING TO BE (2) ROWS DEEP
STAGGERED ROWS AS SHOWN

FENCING & PLANTING LAYOUT & TYPICAL SECTION

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S-R16E & SECTION 16, T18S-R17E
TERREBONNE PARISH, LOUISIANA

ate:	Drawn By:	Sheet No.:	Revisions:	
05/08/01	CDL	6 of 9	No.:	Date:
			1	09/19/2001
cale:	Approved By:	File No.:		
SEE DWG.	MGM	FENCING		

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Engineers - Scientists - Planners - Environmental Consultants



TYPICAL SECTION

HORIZONTAL SCALE: 1" = 10'



VERTICAL SCALE: 1" = 5'



NOTE:

- 1.) DATUM IS NAVD 88
- 2.) NAVIGATIONAL WARNING SIGN REQUIRED.

NOTE:

<u>LOCATION</u>	<u>LENGTH (FT.)</u>
A1	88
A2	80
A3	48

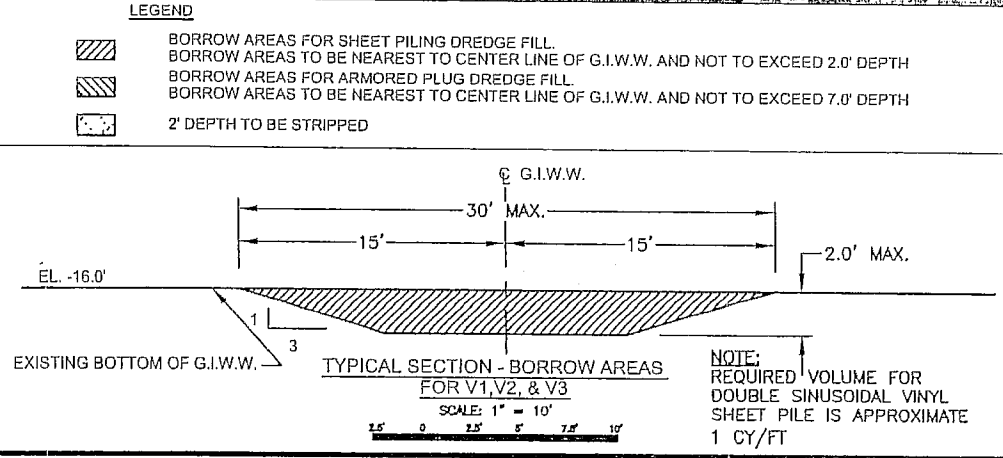
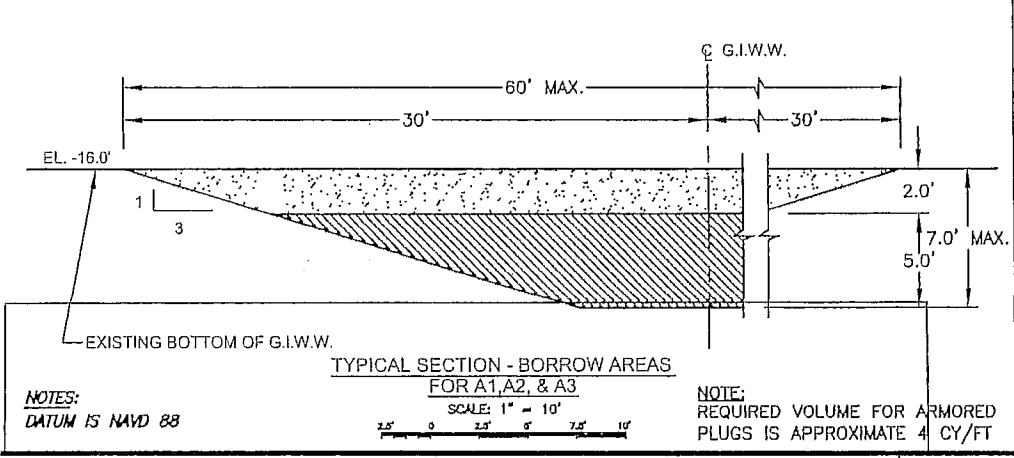
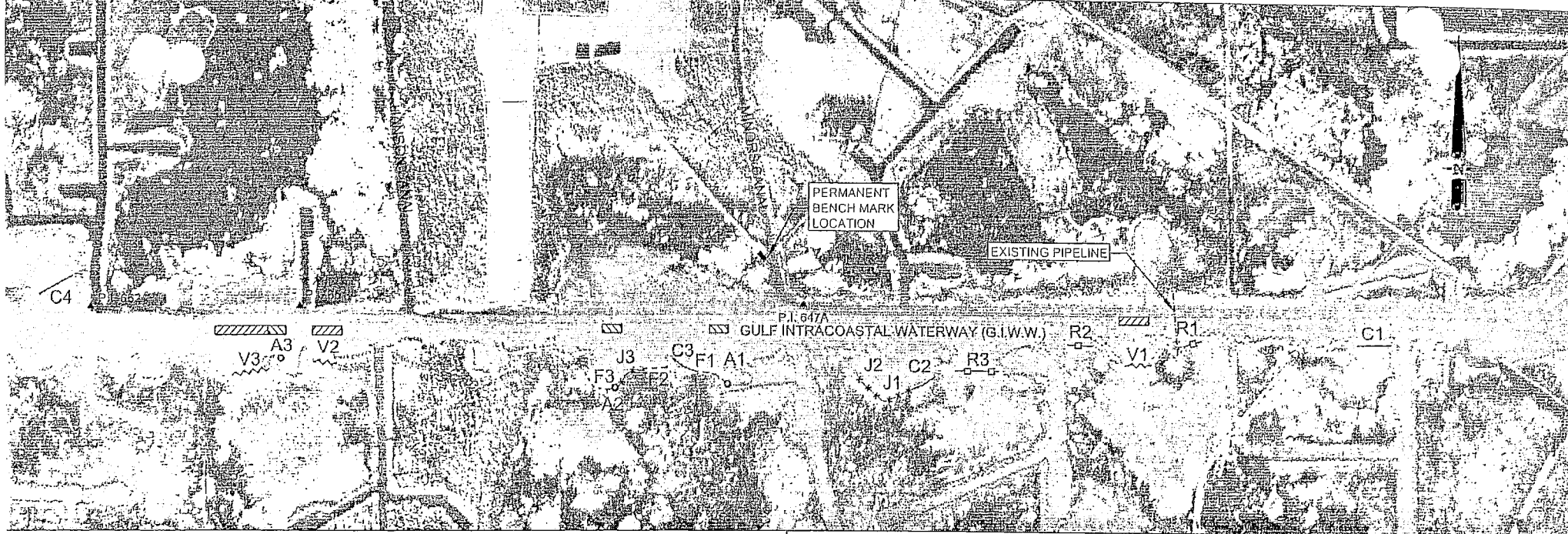
TYPICAL SECTION

ARMORED PLUG - STRUCTURE

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA

Date: 05/08/01	Drawn By: CDL	Sheet No.: 7 of 9	Revisions:
Scale: SEE DWG	Approved By: MGM	File No.: PLUG2	No.: 1
			Date: 09/19/2001


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PLAN - BORROW AREAS

LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) SECTIONS 1-3, T18S-R16E & SECTION 16, T18S - R17E TERREBONNE PARISH, LOUISIANA

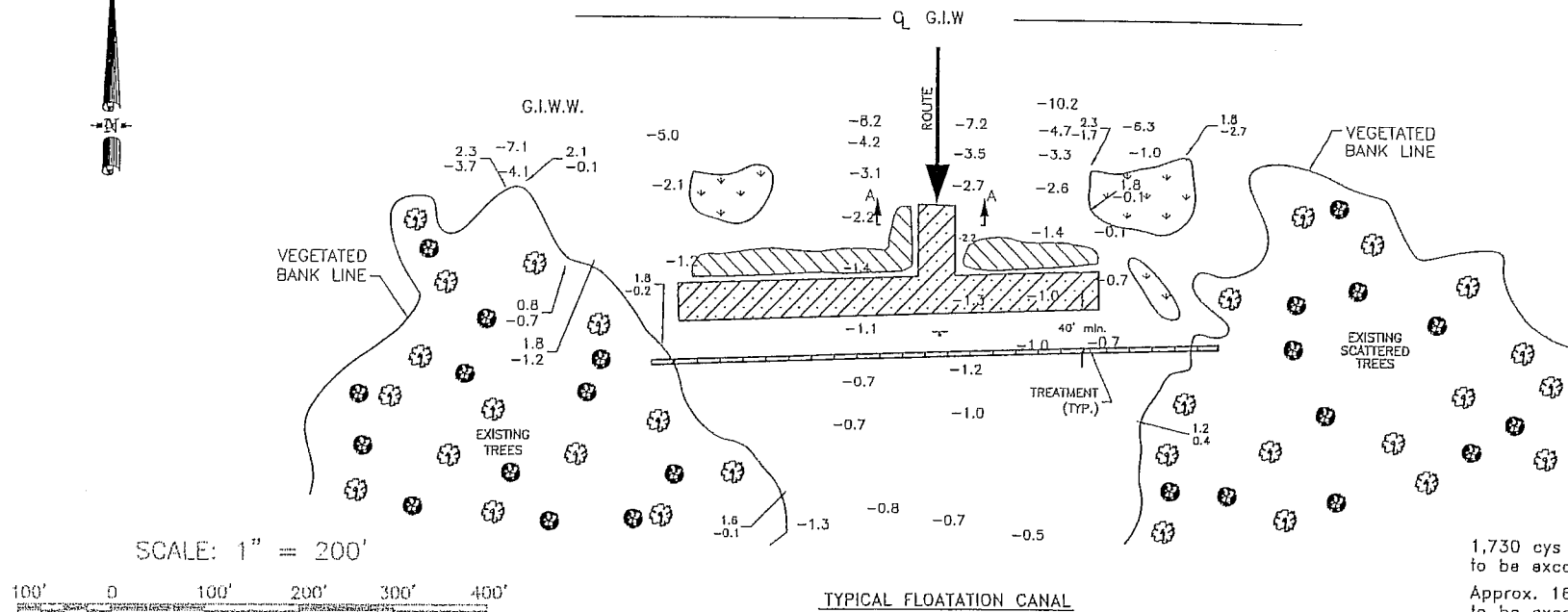
Date: 09/19/01	Drawn By: R.A.P.	Sheet No.: 8 of 9	Revisions:	
Scale: SEE DWG.	Approved By: M.G.M.	File No.: BORROW	No.:	Date:
			1 NEW DRAWING	09/19/01
			2 GENERAL REVISIONS	09/20/01


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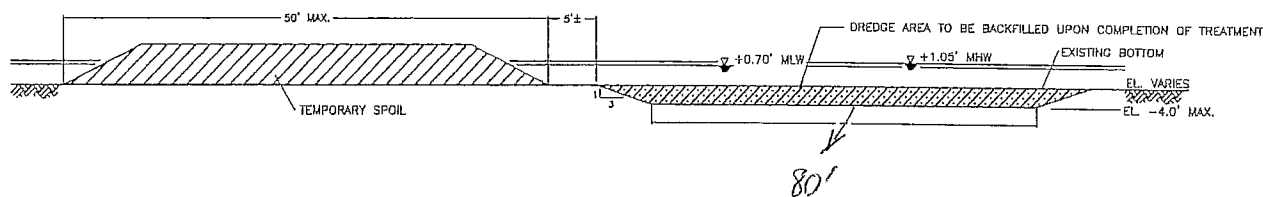


LEGEND

- FLOATATION CANAL DREDGE AREA TO BE BACKFILLED UPON COMPLETION OF TREATMENT
- FLOATATION CANAL TEMPORARY SPOIL PLACEMENT
- EXISTING GROUND
- MARSH
- SPOIL
- TREES
- 0.0' - ELEVATION @ CENTER OF TEXT
- 1.8' - HIGH BANK ELEV.
- 0.8' - BANK BOTTOM ELEV.
- WARNING SIGN



1,730 cys of dredge material to be excavated for typical floatation canal.
Approx. 16,000 cys of dredge material to be excavated for all floatation canals.



TYPICAL SECTION A-A

NOTES:

- 1) ALL ELEVATIONS ARE IN NAVD 88
- 2) ALL TREATMENT CONSTRUCTION SHALL BE ACCESSED DIRECTLY FROM G.I.W.W.
- 3) FLOATATION CHANNELS ARE ALLOWED FOR BLOWOUT TREATMENT AND ARMORED PLUG LOCATIONS ONLY. THESE INCLUDE SITES V1-V3, R1-R3, AND A1-A3. NO FLOATATION CHANNELS ARE TO BE DREDGED FOR OFF-BANK TREATMENT SITES.

TYPICAL FLOATATION CANAL PLAN & SECTION

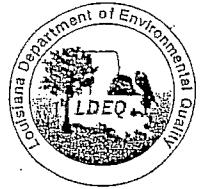
LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA

Date: 09/19/01	Drawn By: R.A.P.	Sheet No.: 9 of 9	Revisions:
Scale: SEE DWG.	Approved By: M.G.M.	File No.: FLOATATION	No.: 1
			Date: 09/19/01

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State of Louisiana
Department of Environmental Quality



M. J. "MIKE" FOSTER, JR.
GOVERNOR

L. HALL BOHLINGER
SECRETARY

January 23, 2003

Coastal Engineering and Environmental Consultants, Inc.
197 Elysian Drive
Houma, LA 70363
Attn: Mohanachandran G. Menon

RE: Revision of Water Quality Certification (WQC 011018-02)/Agency Interest (AI 93482)
Corps of Engineers Permit (WI-20-020-0013)
Terrebonne Parish

We have received your letter and attachments concerning the revision to your application to implement various bank protection treatment techniques along the Gulf Intracoastal Water Way in the Mandalay National Wildlife Refuge in Terrebonne Parish, Louisiana. This revision consists of including an extension of the flotation canal.

Please be advised that we have reviewed the information as noted therein and interpose no objection to this revision.

Sincerely,

Jodi G. Miller
Environmental Scientist Manager
Registrations and Certifications Section

JGM/mvrb

c: Corps of Engineers, New Orleans
Coastal Management Division



State of Louisiana



M.J. "MIKE" FOSTER, JR.
GOVERNOR

JACK C. CALDWELL
SECRETARY

DEPARTMENT OF NATURAL RESOURCES

December 17, 2002

Paul Yakubzak
US Fish and Wildlife Service
Mandalay National Wildlife Refuge
3599 Black Bayou Drive
Houma, LA 70360

RE: **C20010381**, Coastal Zone Consistency Modification
United States Fish and Wildlife Service
Direct Federal Action
Mandalay Bank Protection Demo CWPPRA Project TE-41; modification to extend the
flotation canal, Mandalay National Wildlife Refuge, **Terrebonne Parish, Louisiana**

Dear Mr. Yakubzak:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this determination please contact Brian Marcks of the Consistency Section at (225)342-7939 or 1-800-267-4019.

Sincerely,

Terry W. Howey,
Administrator

TWH/JH/bgm

cc: Fred Dunham, LDWF
Ron Ventola, NOD-COE
Mitchell Andrus, CRD
Joyce Mazourek, USFWS
Rick Hartman, NMFS
Rod Pierce, CMD/FI



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P. O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

MAR 29 2002

REPLY TO
ATTENTION OF:

Operations Division
Western Evaluation Section

SUBJECT: WI-20-020-0013

Received
4-3-02
P. Gallegos
Mandalay WWR

Bany Obidi

862-2041

Fax - 504-862-2574

Mandalay National Wildlife Refuge
3599 Bayou Black Drive
Houma, Louisiana 70360

Gentlemen:

Enclosed is a permit dated this date, subject as above, authorizing work under the Department of the Army permit program.

You are again reminded that any work not in accordance with the plans is subject to removal regardless of the expense and the inconvenience that such removal may involve and regardless of the date when the discrepancy is discovered.

Your attention is directed to all the terms and conditions of the approval, especially those conditions relative to supervision and approval of work by the District Engineer. In order to have the work finally approved and declared legal, all terms and conditions of the permit and plans shown on the drawings attached thereto, must be rigidly adhered to.

It is necessary that you notify the District Engineer, Attention: Regulatory Branch, Western Evaluation Section, in writing, prior to commencement of work and also upon its completion. The notification must include the permittee's name, as shown on the permit, and the permit number. Please note the expiration date on the permit. Should the project not be completed by that date, you may request a permit time extension. Such requests must be received before, but no sooner than, six months before the permit expiration date and must show the work completed and the reason the project was not finished within the time period granted by the permit.

A copy of Page 1 of the permit (ENG Form 1721) must be conspicuously displayed at the project site. Also, you must keep a copy of the signed permit at the project site until the work is completed.

Sincerely,

Pete Serio
Chief, Western Evaluation Section

Enclosure

DEPARTMENT OF THE ARMY PERMIT

Permittee: Mandalay National Wildlife Refuge

Permit No.: WI-20-020-0013

Issuing Office: New Orleans District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Dredge and deposit fill, concrete revetment mats and A-Jacks, and install sheetpile to construct the Mandalay Bank Protection Demonstration Project (TE-41), in accordance with drawings attached in four sheets, undated.

Project Location: The project is located in the GIWW and extends from Latitude 29°32'08.92", Longitude 90°46'16.51" to Latitude 29°32'04.44", Longitude 90°49'43.51" in Terrebonne Parish, Louisiana.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on March 31, 2007. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See Special Conditions on Page 4.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
 - (X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
 - (X) Section 404 of the Clean Water Act (33 U.S.C. 1344).
 - () Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization.
 - a. This permit does not obviate the need to obtain other federal, state or local authorizations required by law.
 - b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed federal project.
3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
 - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.
 - e. Damage claims associated with any future modification, suspension or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
 - a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms conditions of this permit.

Paul J. Huzzak
(PERMITTEE) *Refuge Manager*

March 22, 2002
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Pete Serio
Pete Serio, Chief, Western Evaluation Section
for Thomas F. Julich, District Engineer

28 March 2002
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

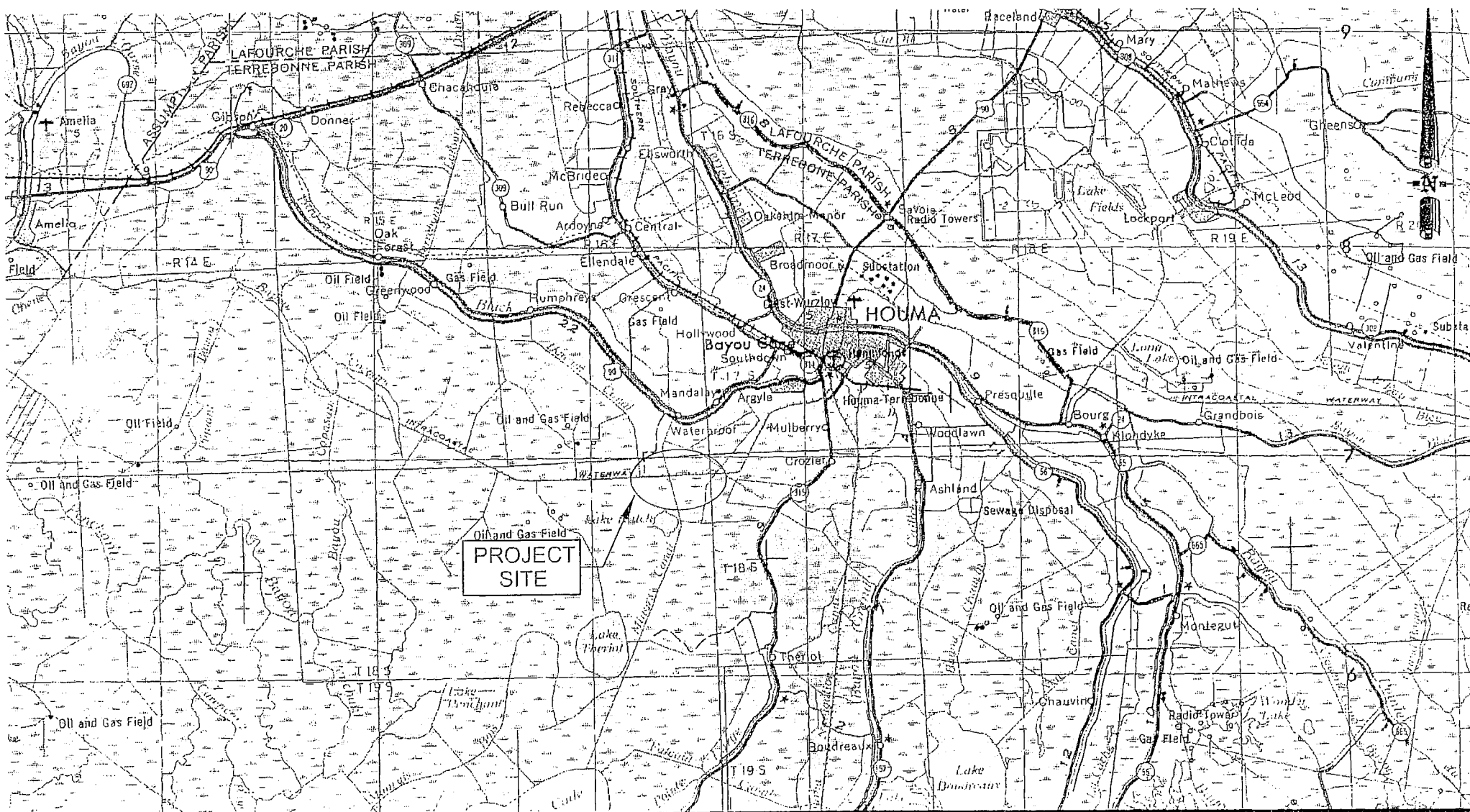
(TRANSFEREE)

(DATE)

SPECIAL CONDITIONS:

11-20-020-0013

7. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.
8. You must install and maintain, at your expense, any safety lights, signs and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on your authorized facilities.
9. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
10. Barriers will be visible to the boating public both day and night so as to reduce the possibility of boat collisions with barriers.
11. The permittee is aware that under 33 CFR 333.4(2)(1), signs may be placed as aids to navigation warning boaters of upcoming barriers in the waterways provided they are approved and installed with the requirements of the U.S. Coast Guard. The permittee is aware of special condition "c" under the Structures In or Affecting Navigable Waters of the United States section of this permit.
12. No structures permitted by this authorization are to be constructed less than 175-feet from the channel centerline.
13. The permittee is to provide all results of the shoreline protection demonstration project to the USACE for review to include copies of available evaluation reports, monitoring surveys and photos.




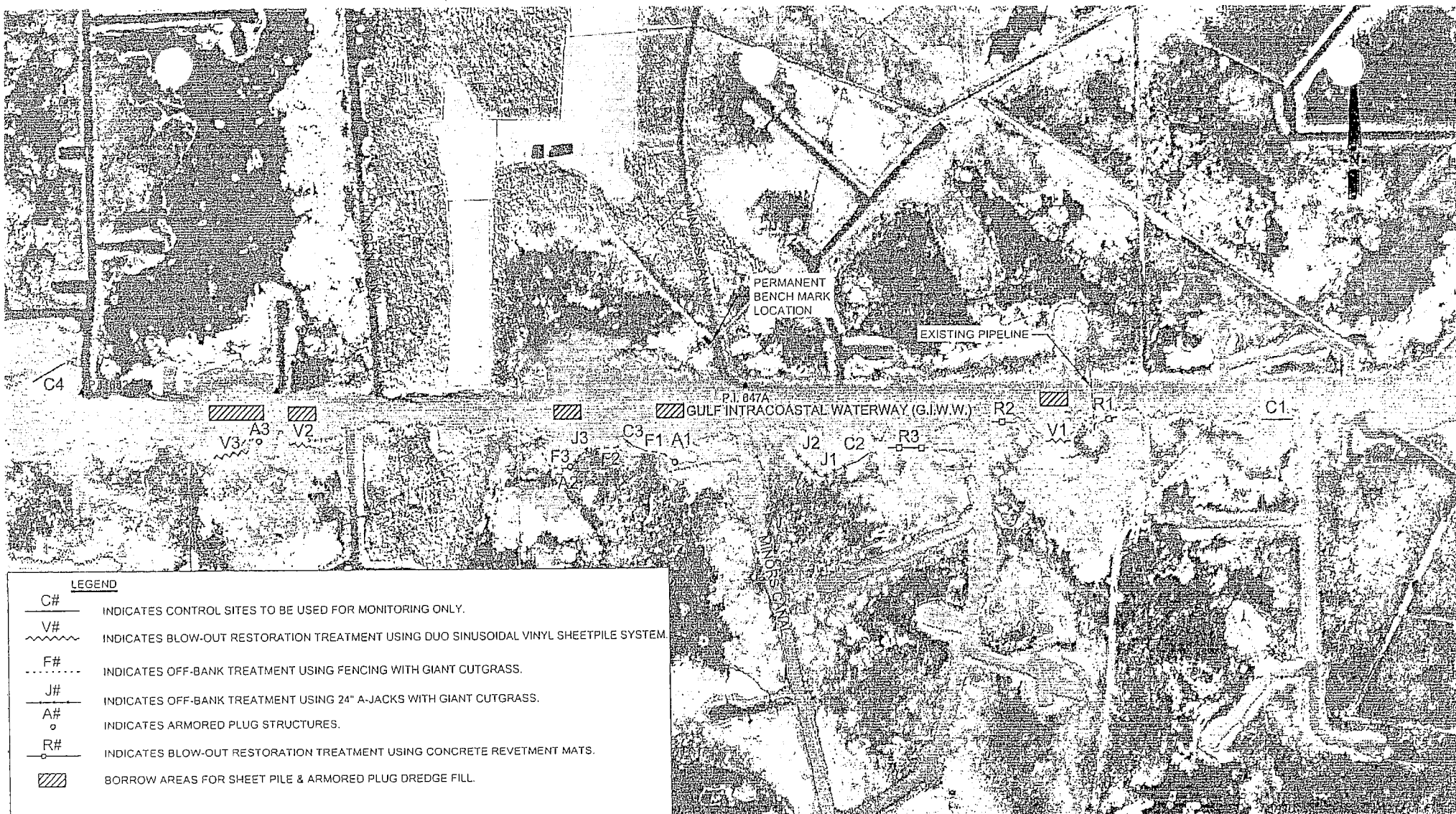
VICINITY MAP

N.T.S.

LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) SECTIONS 1-3, T18S-R16E & SECTION 16, T18S-R17E TERREBONNE PARISH, LOUISIANA

Date:	Drawn By:	Sheet No.:	Revisions:	
05/09/01	CDL	1 of 9	No.:	Date:
				09/19/2001
Scale:	Approved By:	File No.:		
NTS	MGM	VICINITY		


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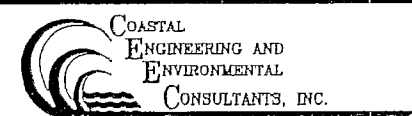


PLAN
SCALE: 1" = 2000'

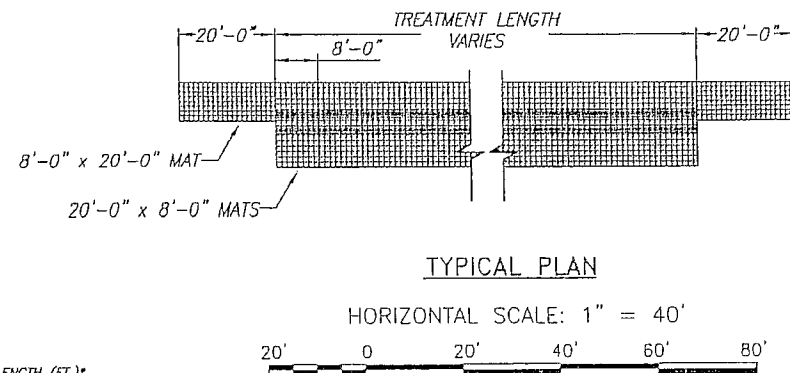
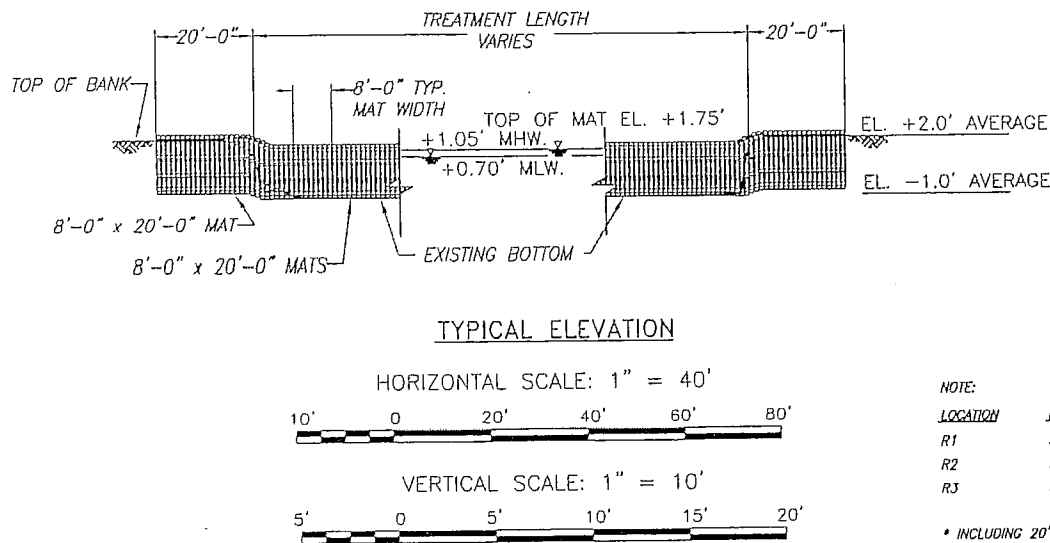
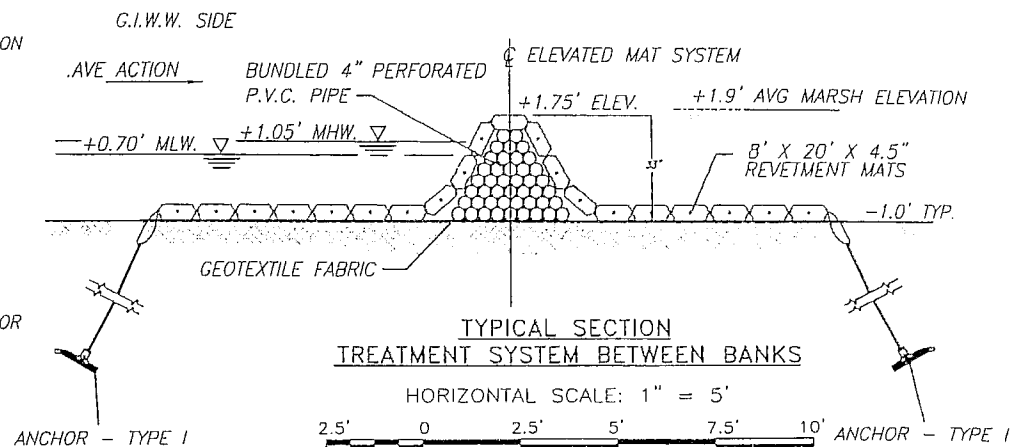
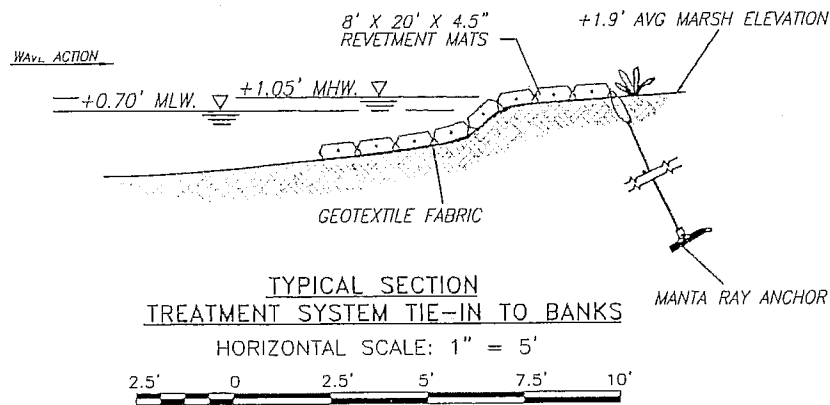
**LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S-R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA**

Date: 05/09/01	Drawn By: CDL	Sheet No.: 2 of 9	Revisions:	
			No.:	Date:
			1	09/19/2001

Scale: 1"=2000'	Approved By: MGM	File No.: SITEPLAN
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NOTE:

LOCATION	LENGTH (FT.)
R1	312
R2	300
R3	584

* INCLUDING 20' TIE-IN FOR EACH END OF THE REVETMENT.

NOTES:
DATUM IS NAVD 83
NAVIGATIONAL WARNING SIGNS REQUIRED.

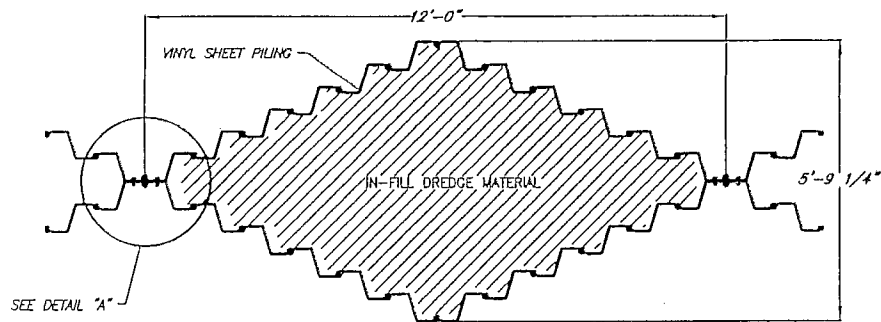
REVETMENT LAYOUT & SECTION

LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E TERREBONNE PARISH, LOUISIANA

Date: 05/09/01	Drawn By: CDL	Sheet No.: 3 of 9	Revisions:
Scale: SEE DWG	Approved By: MGM	File No.: REVET	No.: 1
			Date: 09/19/2001

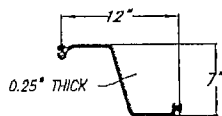
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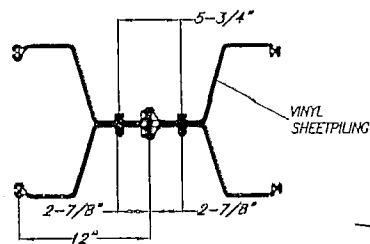


PLAN OF TYPICAL MODULE
DUO SINUSOIDAL VINYL SHEET PILE

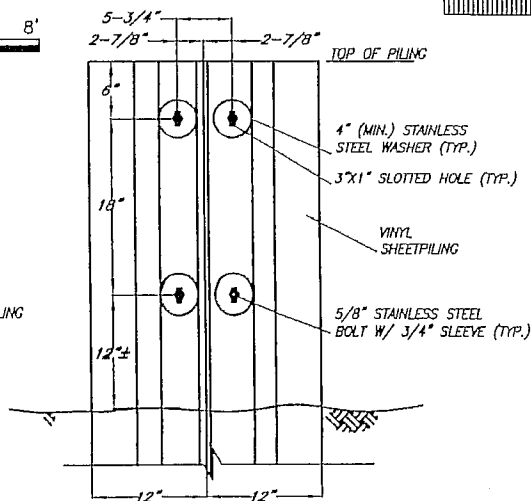
HORIZONTAL SCALE: 1" = 4'



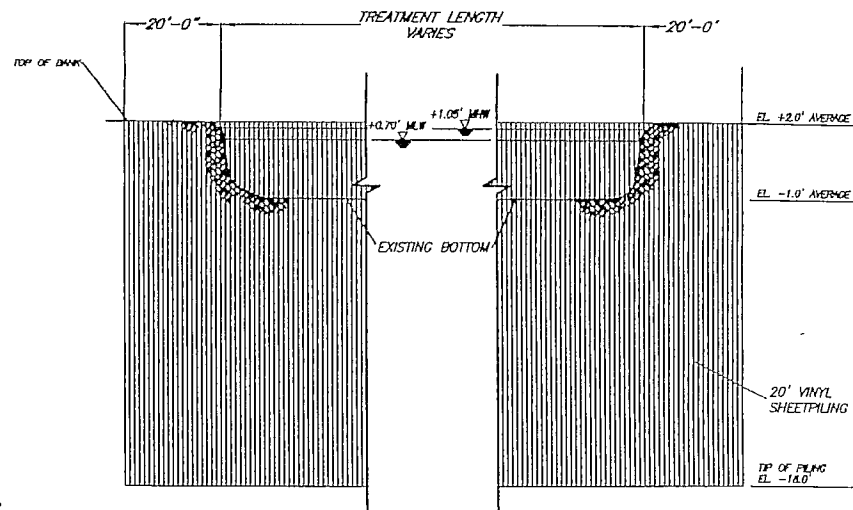
VINYL SHEET PILE SECTION
SCALE: N.T.S.



DETAIL "A" PLAN
SCALE: N.T.S.



DETAIL "A" PROFILE
SCALE: N.T.S.



TYPICAL ELEVATION

VERTICAL SCALE: 1" = 10'



HORIZONTAL SCALE: 1" = 40'



NOTE:

LOCATION	LENGTH (FT.)*
V1	612
V2	408
V3	729

* INCLUDING 20' TIE-IN FOR EACH END OF SHEET PILE.

NOTES:

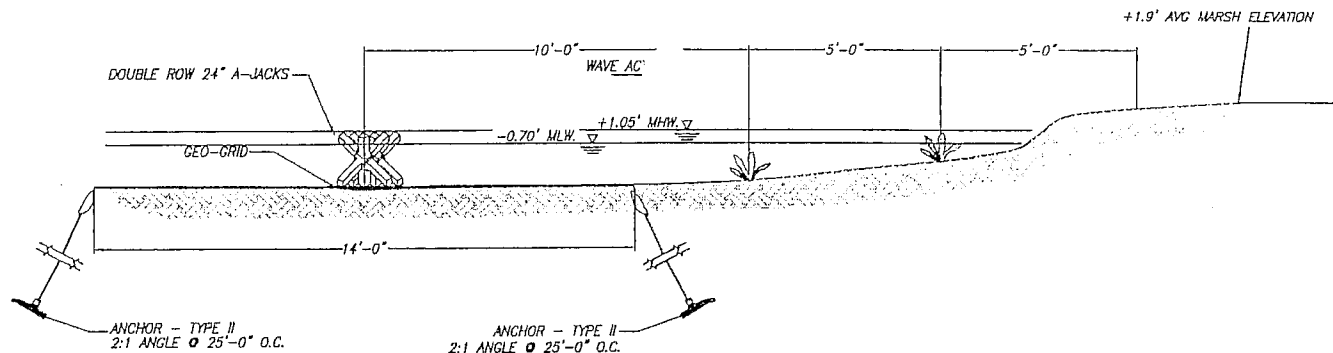
DATUM IS NAVD 88
NAVIGATIONAL WARNING SIGN REQUIRED.

SHEETPILE LAYOUT & SECTION

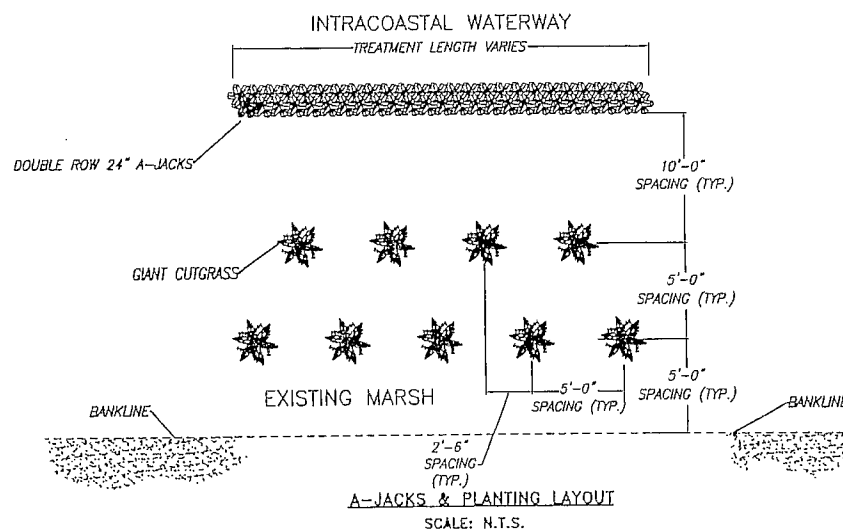
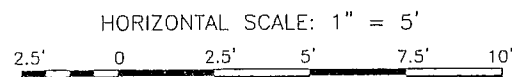
LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA

Date: 05/09/01	Drawn By: CDL	Sheet No.: 4 of 9	Revisions: No.: 7
Scale: SEE DWG.	Approved By: MGM	File No.: SHEETPILE	Date: 09/19/2001

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TYPICAL SECTION
TREATMENT SYSTEM TIE-IN TO BANKS



NOTE:
PLANTING TO BE (2) ROWS DEEP
STAGGERED ROWS AS SHOWN

NOTE:

LOCATION	LENGTH (FT.)
J1	442
J2	427
J3	370

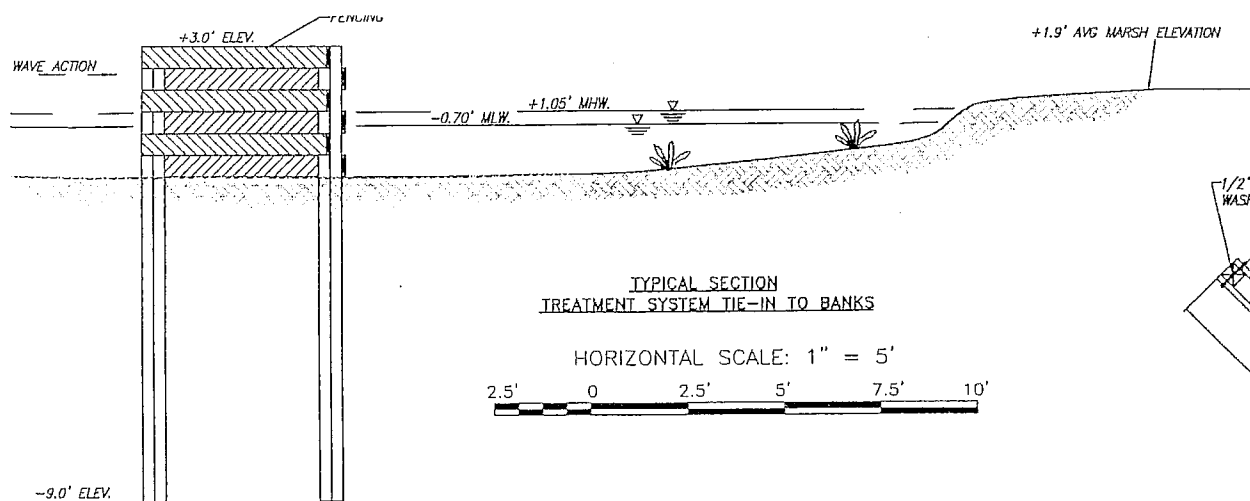
NOTES:
DATUM IS NAVD 88
NAVIGATIONAL WARNING SIGN REQUIRED

A-JACKS & PLANTING LAYOUT & TYPICAL SECTIONS

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S-R16E & SECTION 16, T18S-R17E
TERREBONNE PARISH, LOUISIANA

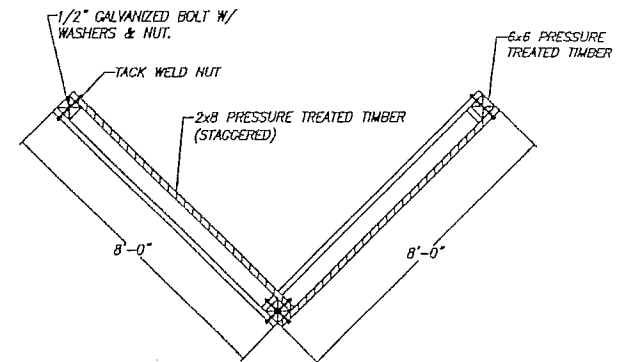
Date: 05/08/01	Drawn By: CDL	Sheet No.: 5 of 9	Revisions:	
Scale: SEE DWG	Approved By: MGM	File No.: AJACKS	No.:	Date:
			1	09/19/2001

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Engineers - Scientists - Planners - Environmental Consultants
197 Elysian Drive Houma, Louisiana 70363



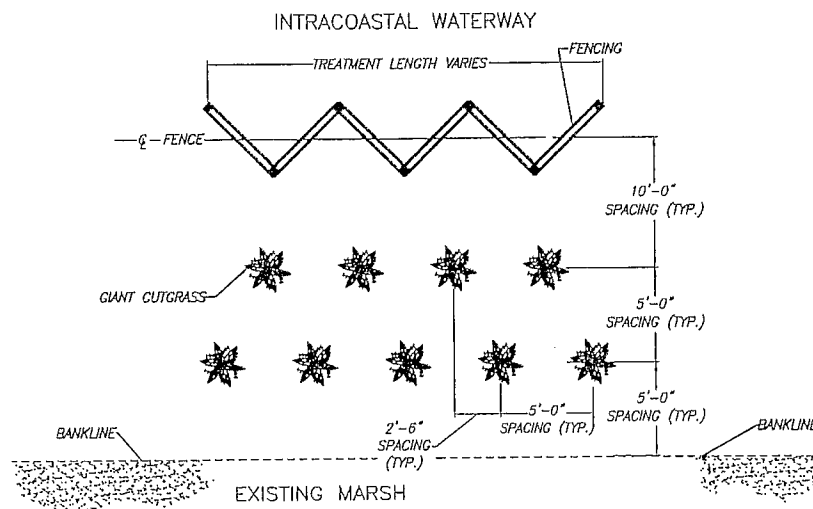
TYPICAL SECTION
TREATMENT SYSTEM TIE-IN TO BANKS

HORIZONTAL SCALE: 1" = 5'



TYPICAL FENCE DETAIL

HORIZONTAL SCALE: 1" = 5'



FENCING & PLANTING LAYOUT

SCALE: N.T.S.

LOCATION LENGTH (FT.)

F1	372
F2	447
F3	375

NOTE:
PLANTING TO BE (2) ROWS DEEP
STAGGERED ROWS AS SHOWN

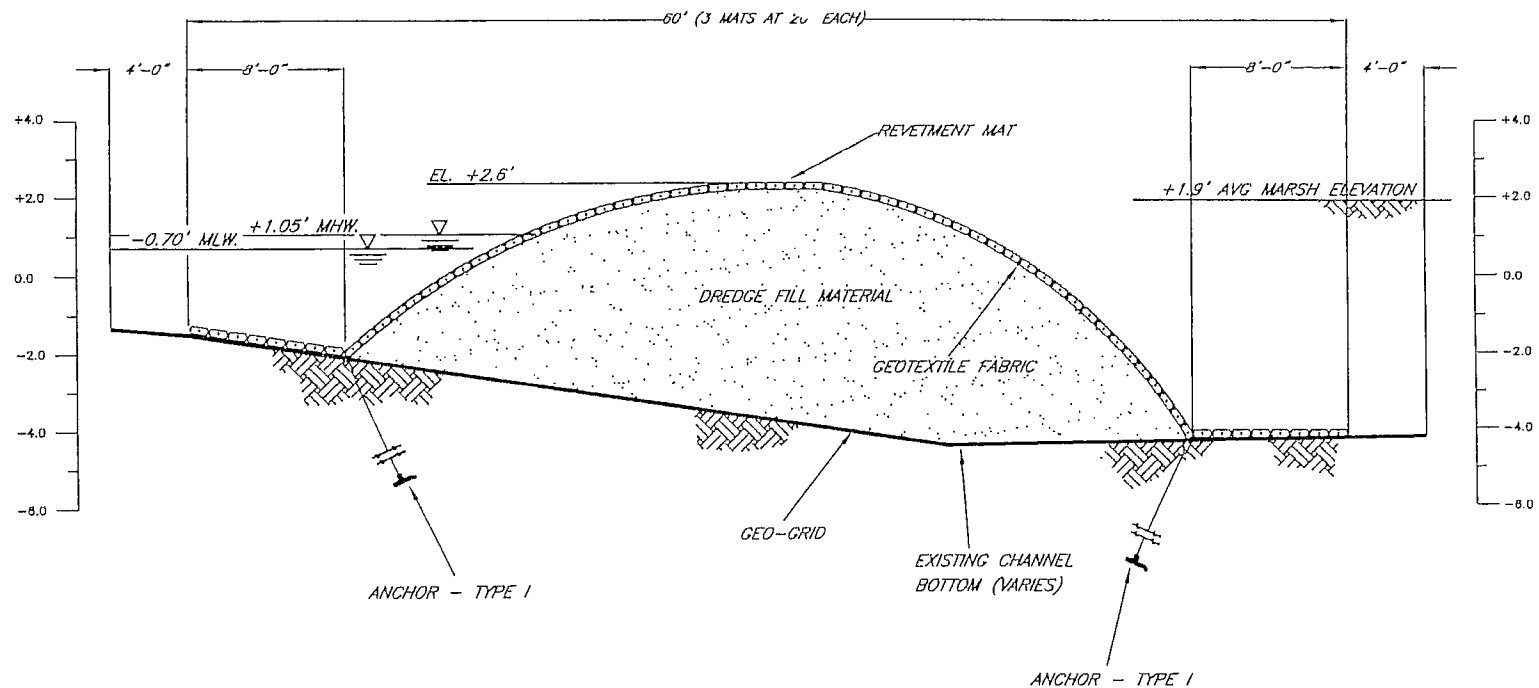
NOTE:
DATUM IS NAVD 88
NAVIGATIONAL WARNING SIGN REQUIRED

FENCING & PLANTING LAYOUT & TYPICAL SECTION

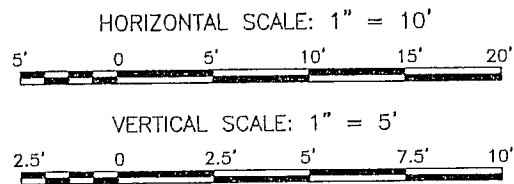
LOUISIANA DEPARTMENT OF NATURAL RESOURCES MANDALAY BANK PROTECTION DEMO PROJECT (TE-41) SECTIONS 1-3, T18S-R16E & SECTION 16, T18S-R17E TERREBONNE PARISH, LOUISIANA

Date: 05/08/01	Drawn By: CDL	Sheet No.: 6 of 9	Revisions:	
Scale: SEE DWG.	Approved By: MGM	File No.: FENCING	No.: 1	Date: 09/19/2001

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TYPICAL SECTION



- NOTE:**
- 1.) DATUM IS NAVD 88
 - 2.) NAVIGATIONAL WARNING SIGN REQUIRED.

NOTE:

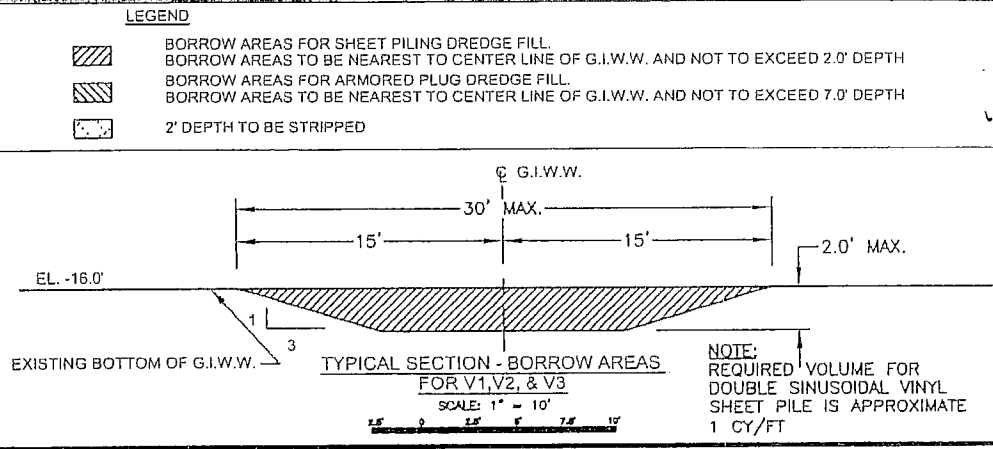
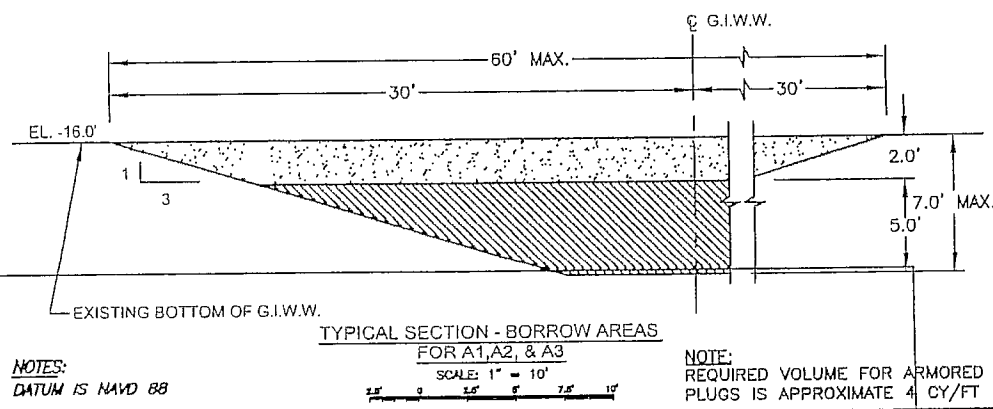
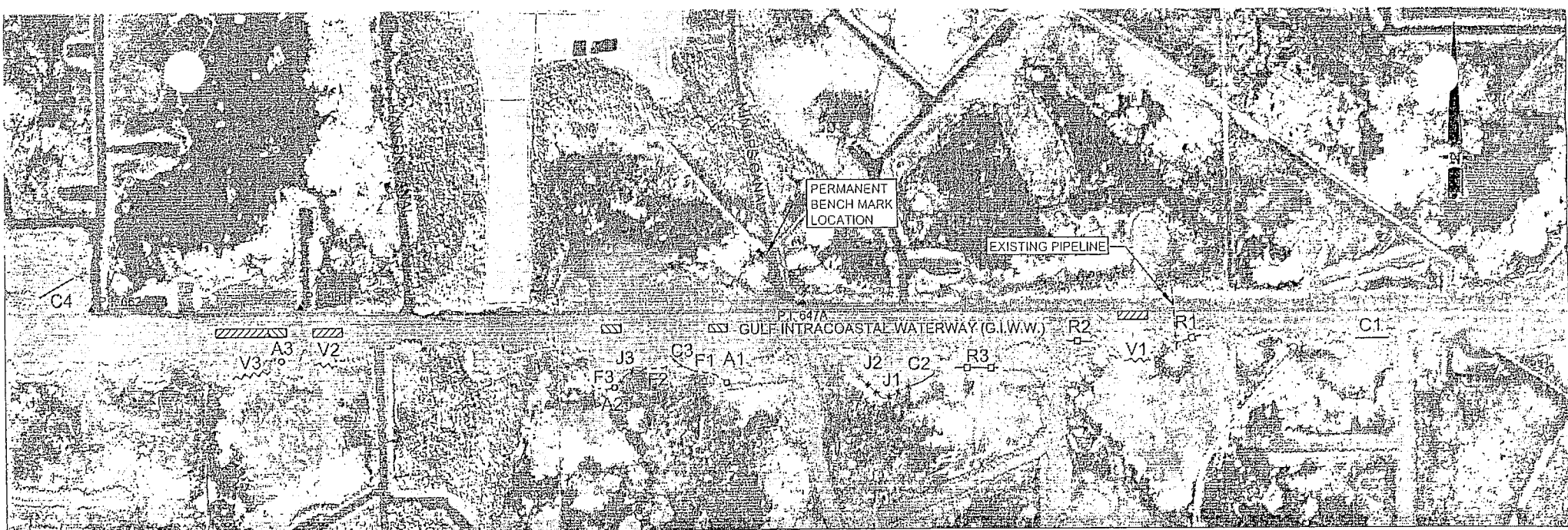
LOCATION	LENGTH (FT.)
A1	88
A2	80
A3	48

TYPICAL SECTION ARMORED PLUG - STRUCTURE

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA

Date:	Drawn By:	Sheet No.:	Revisions:	
05/08/01	CDL	7 of 9	No.:	Date:
				09/19/2001
Scale:	Approved By:	File No.:		
SEE DWG	MGM	PLUG2		

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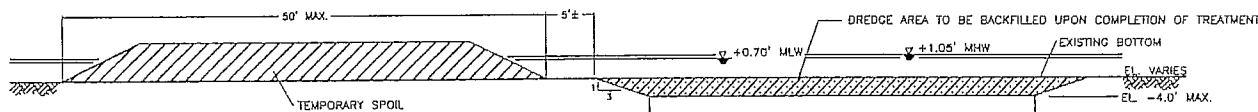
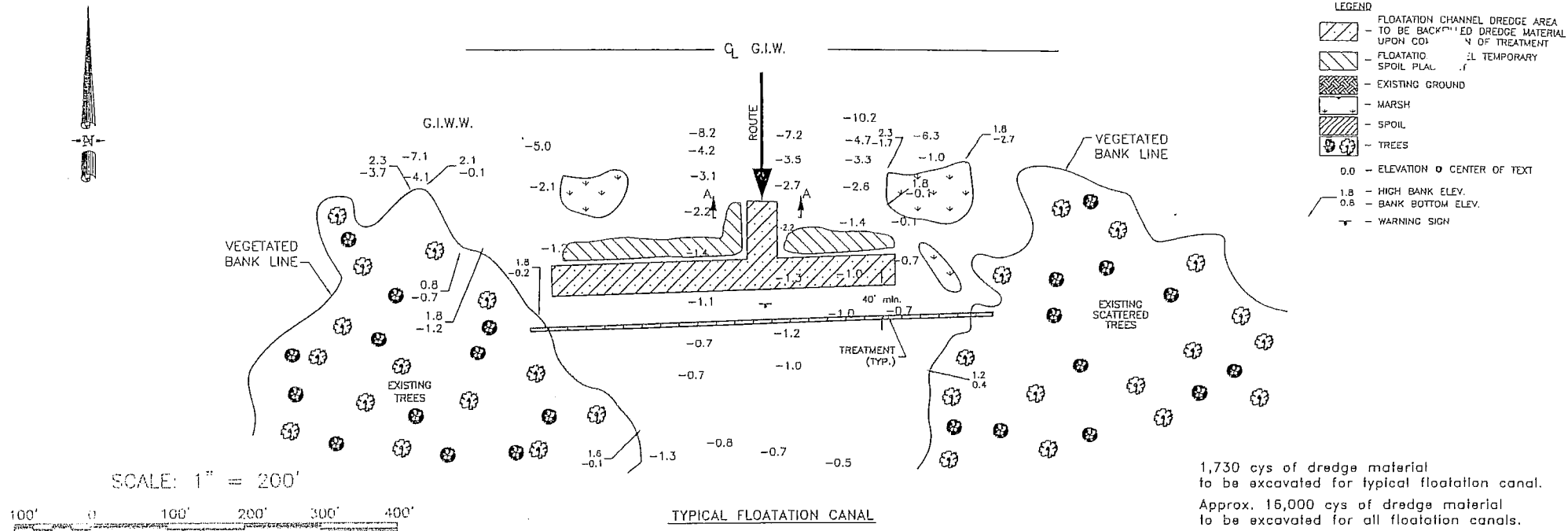


PLAN - BORROW AREAS

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S-R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA

Date: 09/19/01	Drawn By: R.A.P.	Sheet No.: 8 of 9	Revisions:	
			No.:	Date:
Scale: SEE DWG.	Approved By: M.G.M.	File No.: BORROW	1 NEW DRAWING	09/19/01
			2 GENERAL REVISIONS	09/20/01

COASTAL ENGINEERING AND ENVIRONMENTAL CONSULTANTS, INC.
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NOTES:

- 1) ALL ELEVATIONS ARE IN NAVD 88
- 2) ALL TREATMENT CONSTRUCTION SHALL BE ACCESSED DIRECTLY FROM G.I.W.W.
- 3) FLOATATION CHANNELS ARE ALLOWED FOR BLOWOUT TREATMENT AND ARMORED PLUG LOCATIONS ONLY. THESE INCLUDE SITES V1-V3, R1-R3, AND A1-A3. NO FLOATATION CHANNELS ARE TO BE DREDGED FOR OFF-BANK TREATMENT SITES.

**TYPICAL FLOATATION CANAL
PLAN & SECTION**

**LOUISIANA DEPARTMENT OF NATURAL RESOURCES
MANDALAY BANK PROTECTION DEMO PROJECT (TE-41)
SECTIONS 1-3, T18S - R16E & SECTION 16, T18S - R17E
TERREBONNE PARISH, LOUISIANA**

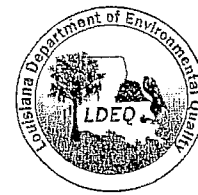
Date: 09/19/01	Drawn By: R.A.P.	Sheet No.: 9 of 9	Revisions:
Scale: SEE DWG.	Approved By: M.G.M.	File No.: FLOATATION	No.: 1
			Date: 09/19/01

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197 Elysian Drive Houma, Louisiana 70363



State of Louisiana
Department of Environmental Quality



M.J. "MIKE" FOSTER, JR.
GOVERNOR

January 28, 2002

J. DALE GIVENS
SECRETARY

Mr. David W. Fruge'
United States Department of the Interior
Fish and Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, LA 70506

RE: DEQ0201140129; Terrebonne Parish
Proposed Mandalay Bank Protection Project

Dear Mr. Fruge':

The Department of Environmental Quality, Office of Environmental Assessment and Office of Environmental Services has received your request for comments on the above referenced project.

There were no objections based on the limited information submitted to us. However, the following comments have been included and/or attached. Should you encounter a problem during the implementation of this project, please make the appropriate notification to this Department.

The Office of Environmental Services has made the following comments:

Please see the letter from the Office of Environmental Services, Permits Division.

"Any approval, or letter of no objection, granted by LDEQ is relevant only to the granting of funds for the proposed project. This does not relieve the applicant of his responsibility for obtaining any other permits or approvals necessary from LDEQ or other State, Local, or Federal agencies, nor does it influence the Department's ultimate decision on those permits or approvals. A copy of our brochure on construction best management practices is enclosed."

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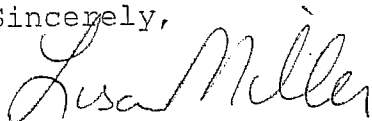
January 28, 2002
Page 2

Please forward all future requests to the following address and we will expedite it as quickly as possible. When submitting large proposals please provide triplicate copies.

Mrs. Lisa Miller
Department of Environmental Quality
P. O. Box 82231
Baton Rouge, LA 70884-2231

Should you need any additional information please call me at (225) 765-0723.

Sincerely,



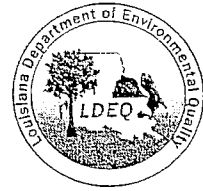
Lisa L. Miller
Contracts & Grants

llm
Enclosure

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State of Louisiana
Department of Environmental Quality



ALJ. "MIKE" FOSTER, JR.
GOVERNOR

J. DALE GIVENS
SECRETARY

January 7, 2002

U. S. Fish and Wildlife Service
Mandalay National Wildlife Refuge
3599 Bayou Black Drive
Houma, LA 70380

Attention: Paul Yakupzack

RE: Corps of Engineers Permit (WI-20-020-0013)
Water Quality Certification (WQC 011018-02/AI 93482)
Terrebonne Parish

Dear Mr. Yakupzack:

The Department has received an application to implement various bank protection treatment techniques along the Gulf Intracoastal Water Way, in the Mandalay National Wildlife Refuge, in Terrebonne Parish, Louisiana.

The requirements for Water Quality Certification have been met in accordance with LAC 33:IX.1507.A-E. Based on the information provided in your application, we have determined that the placement of the fill material will not violate the water quality standards of Louisiana provided for under LAC 33:IX.Chapter 11. Therefore, the Department has no objection to this project.

Sincerely,

Jodi G. Miller
Environmental Scientist Manager
Registrations and Certifications Section

JGM/jcr

c: Corps of Engineers, New Orleans
Coastal Management Division



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Mandalay National Wildlife Refuge
MA

SPECIAL USE PERMIT

Station No. to be Credited

Permit Number

76539

43626
Date

October 26, 2001

Period of Use (inclusive)

From Nov. 1 ~~XX~~ 2001

To N ~~XX~~ 2003
Nov. 1 ~~XX~~

Permittee Name

Randy Hanchey, Assistant Secretary

Permittee Address

LA Dept. of Natural Resources
Coastal Restoration Division- Land Section
P. O. Box 44027
Baton Rouge, LA 70804

Purpose (specify in detail privilege requested, or units of products involved)

To construct CWPPRA project entitled Mandalay Bank Protection Demo Project
TE-41

original
KL - 4/23/02

Description (specify unit numbers; metes and bounds, or other recognizable designations)

As per attachments Exhibit A and B

Amount of fee \$ 10 If not a fixed payment, specify rate and unit of charge: _____

- ☐ Payment Exempt - Justification: State Conservation Agency
☐ Full Payment
☐ Partial Payment - Balance of payments to be made as follows:

Record of Payments

NA

Special Conditions

As per attached Special Conditions

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This permit is issued by the U.S. Fish and Wildlife Service and accepted by the undersigned, subjected to the terms, covenants, obligations, and reservations, expressed or implied herein, and to the conditions and requirements appearing on the reverse side.

Permittee Signature

Issuing Officer Signature and Title

1-31-02

Refuge Manager

General Conditions

1. Payments

All payments shall be made on or before the due date to the local representative of the U.S. Fish and Wildlife Service by a postal money order or check made payable to the U.S. Fish and Wildlife Service.

2. Use limitations

The permittee's use of the described premises is limited to the purposes herein specified; does not unless provided for in this permit allow him/her to restrict other authorized entry on to his/her area; and permits the Service to carry on whatever activities are necessary for (1) protection and maintenance of the premises and adjacent lands administered by the Service and (2) the management of wildlife and fish using the premises and other Service lands.

3. Damages

The United States shall not be responsible for any loss or damage to property including but not limited to growing crops, animals, and machinery; or injury to the permittee, or his/her relatives, or to the officers, agents, employees, or any others who are on the premises from instructions or by the sufferance of the permittee or his/her associates; or for damages or interference caused by wildlife or employees or representatives of the Government carrying out their official responsibilities. The permittee agrees to save the United States or any of its agencies harmless from any and all claims for damages or losses that may arise or be incident to the flooding of the premises resulting from any associated Government river and harbor, flood control, reclamation, or Tennessee Valley Authority activity.

4. Operating Rules and Laws

The permittee shall keep the premises in a neat and orderly condition at all times, and shall comply with all municipal, county, and State laws applicable to the operations under the permit as well as all Federal laws, rules, and regulations governing National Wildlife Refuges and the area described in this permit. The permittee shall comply with all instructions applicable to this permit issued by the refuge officer in charge. The permittee shall take all reasonable precautions to prevent the escape of fires and to suppress fires and shall render all reasonable assistance in the suppression of refuge fires.

5. Responsibility of Permittee

The permittee, by operating on the premises, shall be considered to have accepted these premises with all the facilities, fixtures, or improvements in their existing condition as of the date of this permit. At the end of the period specified or upon earlier termination, the permittee shall give up the premises in as good order and condition as when received except for reasonable wear, tear, or damage occurring without fault or negligence. The permittee will fully repay the Service for any and all damage directly or indirectly resulting from negligence or failure on his/her part, or the part of anyone of his/her associates, to use reasonable care.

6. Revocation Policy

This permit may be revoked by the Regional Director of the Service without notice for noncompliance with the terms hereof or for violation of general and/or specific laws or regulations governing National Wildlife Refuges or for nonuse. It is at all times subject to discretionary revocation by the Director of the Service. Upon such revocation the Service, by and through any authorized representative, may take possession of the said premises for its own and sole use, or may enter and possess the premises as the agent of the permittee and for his/her account.

7. Compliance

Failure of the Service to insist upon a strict compliance with any of this permit's terms, conditions, and requirements shall not constitute a waiver or be considered as a giving up of the Service's right to thereafter enforce any of the permit's terms, conditions, or requirements.

8. Termination Policy

At the termination of this permit, the permittee shall immediately give up possession to the Service representative, reserving, however, the rights specified in paragraph 9. If he/she fails to do so, he/she will pay the Government, as liquidated damages, an amount double the rate specified in this permit for the entire time possession is withheld. Upon yielding possession, the permittee will still be allowed to reenter as needed to remove his/her property as stated in paragraph 9. The acceptance of any fee for liquidated damages or any other act of administration relating to the continued tenancy is not to be considered as an affirmation of the permittee's action nor shall it operate as a waiver of the Government's right to terminate or cancel the permit for the breach of any specified condition or requirement.

9. Removal of Permittee's Property

Upon the expiration or termination of this permit, if all rental charges and/or damage claims due to the Government have been paid, the permittee may, within a reasonable period as stated in the permit or as determined by the refuge officer in charge but not to exceed 60 days, remove all structures, machinery, and/or other equipment, etc., from the premises for which he/she is responsible. Within this period the permittee must also remove any other of his/her property including his/her acknowledged share of products or crops grown, cut, harvested, stored, or stacked on the premises. Upon failure to remove any of the above items within the aforesaid period, they shall become the property of the United States.

10. Transfer of Privileges

This permit is not transferable, and no privileges herein mentioned may be sublet or made available to any person or interest not mentioned in this permit. No interest hereunder may accrue through lien or be transferred to a third party without the approval of the Regional Director of the U.S. Fish and Wildlife Service and the permit shall not be used for speculative purposes.

11. Conditions of Permit not Fulfilled

If the permittee fails to fulfill any of the conditions and requirements set forth herein, all money paid under this permit shall be retained by the Government to be used to satisfy as much of the permittee's obligation as possible.

12. Officials Barred from Participating

No Member of Congress or Resident Commissioner shall participate in any part of this contract or to any benefit that may arise from it, but this provision shall not pertain to this contract if made with a corporation for its general benefit.

13. Nondiscrimination in Employment

The permittee agrees to be bound by the equal opportunity clause of Executive Order 11246, as amended.

Privacy Act Statement—Special Use Permit

NOTICE: In accordance with the Privacy Act of 1974, 5 U.S.C. 552a, please be advised that:

1. The issuance of a permit and collection of fees on lands of the National Wildlife Refuge System Administration Act (16 U.S.C. 668dd - 668ee), and the Refuge Recreation Act, (16 U.S.C. 460k-3); implemented by regulations in 50 CFR 25-36.
2. Information collected in issuing a permit may be used to evaluate and conclude the eligibility of, or merely document, permit applicants.
3. Routine use disclosures may also be made (1) to the U.S. Department of Justice when related to litigation or anticipated litigation; (2) of information indicating a violation or potential violation of a statute, regulation, rule, order or license, to appropriate Federal, State, local or foreign agencies responsible for investigating or prosecuting the violation or for enforcing or implementing the statute, rule, regulation, order or license; (3) from the record of the individual in response to an inquiry from a Congressional office made at the request of that individual; (4) to provide addresses obtained from the Internal Revenue Service to debt collection agencies for purposes of locating a debtor to collect or compromise a Federal claim against the debtor, or to consumer reporting agencies to prepare a commercial credit report for use by the Department (48FR 54716; December 6, 1983).
4. Any information requested is required to receive this permit. Failure to answer questions may jeopardize the eligibility of individuals to receive permits.

Special Conditions
Special Use Permit No. 76539
Mandalay NWR

1. A 48 hour notice of initial use of the MNWR will be given to the Refuge Manager or his designee.
2. Permittee shall advise the Refuge Manager of the agency and contractor representatives and their telephone numbers prior to entering the Refuge.
3. No discharge will be allowed on the Refuge.
4. The Refuge Manager must be advised immediately of any substantial release of pollutants, or any imminent danger of release. A log must be maintained by the LADNR or its contractors of all releases of pollutants into the surrounding area.
5. All Local, State and Federal air, water, fish, and wildlife regulations must be adhered to while LADNR or its contractors is utilizing the Refuge.
6. No solid waste may be deposited anywhere on the refuge.
7. All spills or releases of any liquid or solid shall be immediately reported to the Refuge Manager or his designee.
8. LADNR or its contractor shall maintain the ability to immediately respond to any oil spills. Absorbent pads and oil booms shall be readily accessible in the event of a spill.

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ATTACHMENT VI

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

**OPERATION, MAINTENANCE, AND REHABILITATION
BUDGET**

**TE-41 MANDALAY BANK PROTECTION DEMONSTRATION
O&M BUDGET**

FEDERAL SPONSOR: U. S. Fish & Wildlife Service

The Mandalay Bank Protection Demonstration Project (TE-41) is a demonstration project with a 5-year demonstration period with no provision for the operation, maintenance, or rehabilitation of any of the project features other than the performance of inspections of the project features during the 5-year demonstration period. The costs associated with project inspections approved by the CWPPRA Task Force are shown below. This figure represents funding for inspection of the project after the first, third, and fifth years following construction completion. Under the current Cost Sharing Agreement between LDNR and USFWS no funds other than for inspections have been provided for the operation, maintenance, or rehabilitation of any of the project features in the Mandalay Bank Protection Demonstration Project (TE-41).

COSTS OF ANNUAL INSPECTIONS

YEAR 1	\$ 3,890
YEAR 3	\$ 4,150
YEAR 5	\$ 4,429
	<hr/>
TOTAL O&M BUDGET	\$ 12,469

ATTACHMENT VII

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

OPERATION OF STRUCTURES

ATTACHMENT VIII

MANDALAY BANK PROTECTION DEMONSTRATION PROJECT (TE-41)

PROJECT INSPECTIONS

The purpose of the project inspections is to inspect and evaluate the condition of all project features to determine if structures are operating correctly and identify any deficiencies that may require maintenance. A project inspection report outlining these field observations will be drafted by LDNR. This report shall include the type of structure and description, date and time of inspection, personnel present for inspection, weather conditions, water levels at the time of inspection, and general condition of and any observed damages to structures.

In the case of severe storms and tidal events, additional inspections may be required between the scheduled inspections to assess potential damage from such weather events.