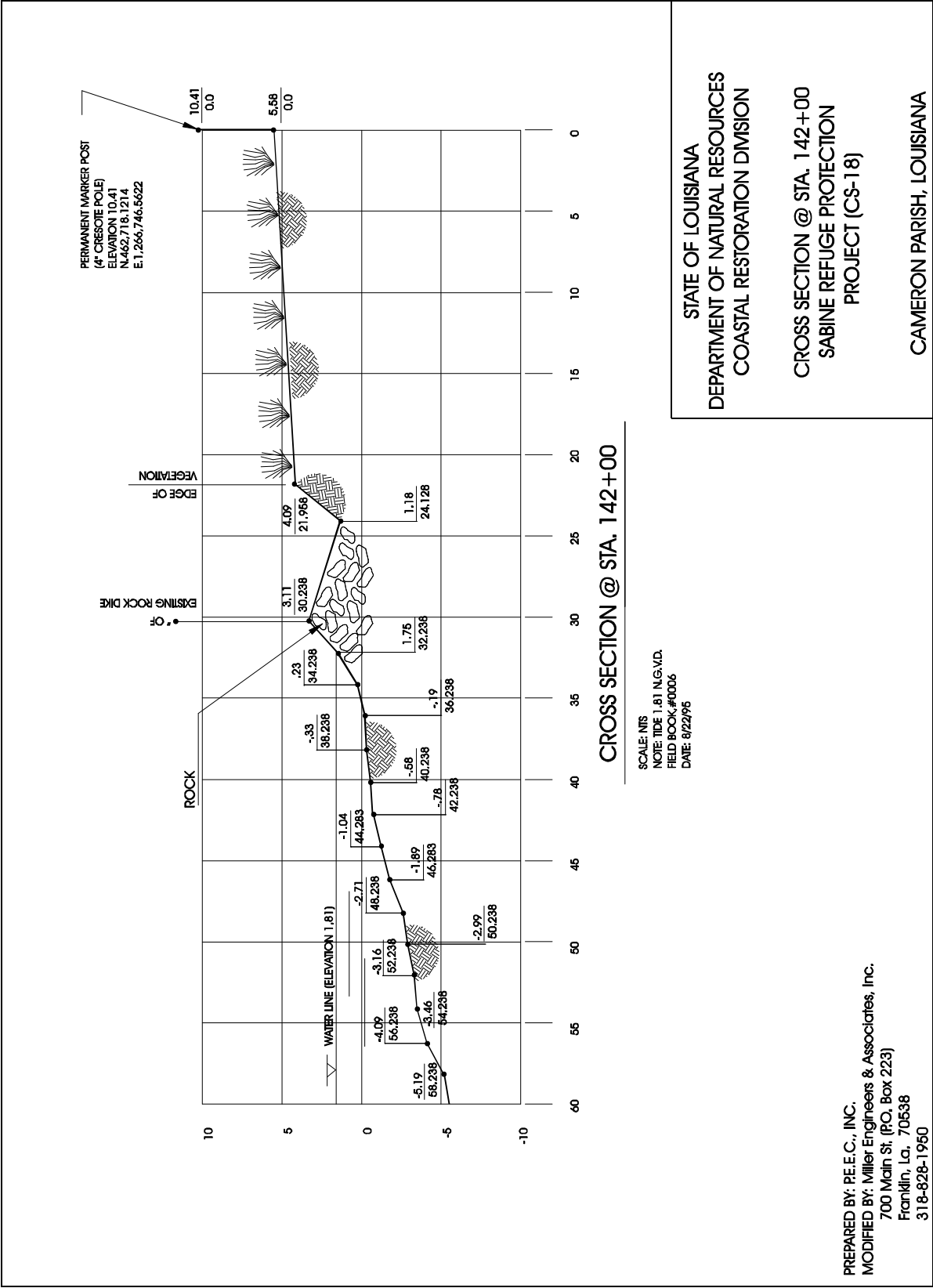
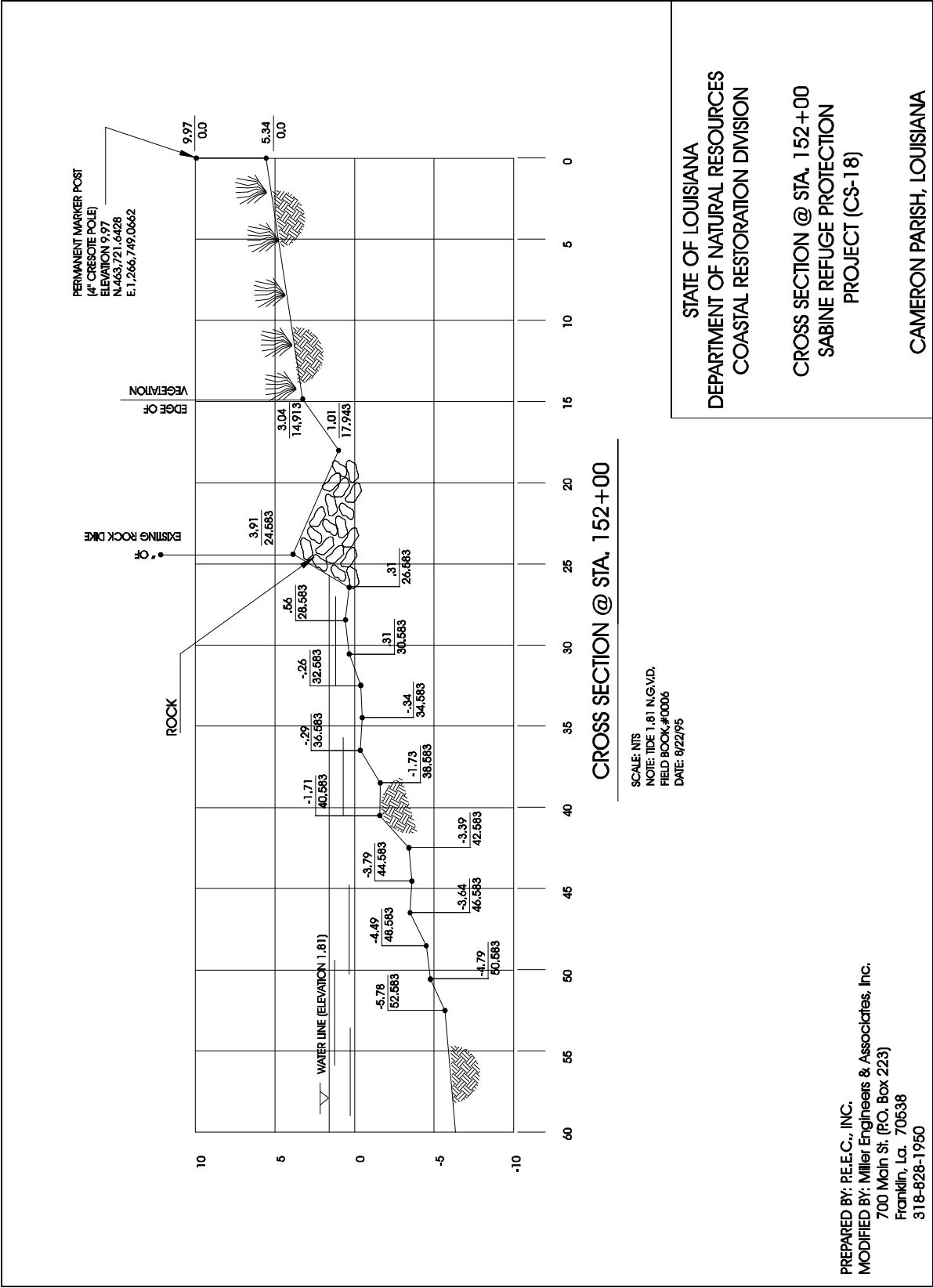
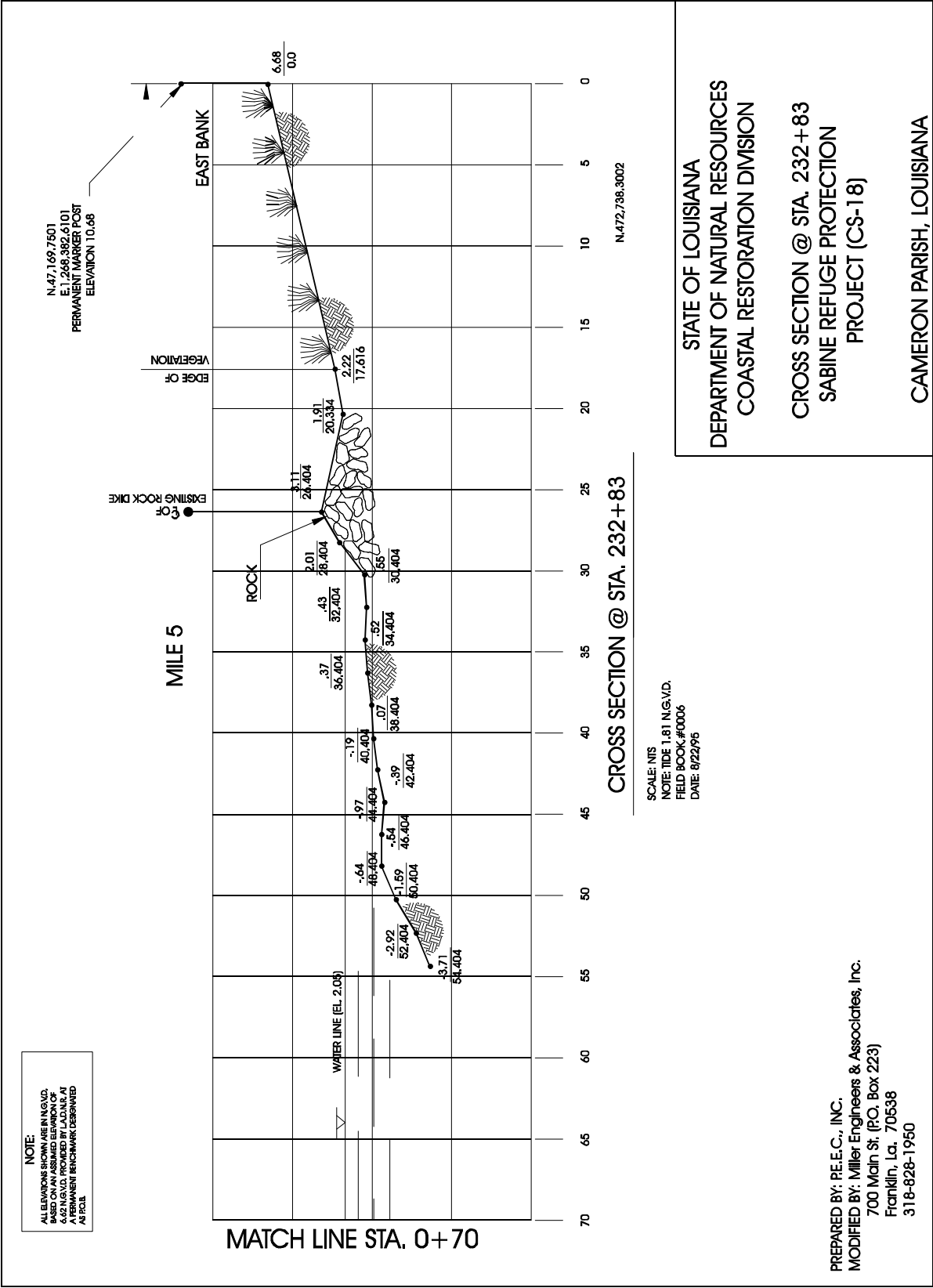
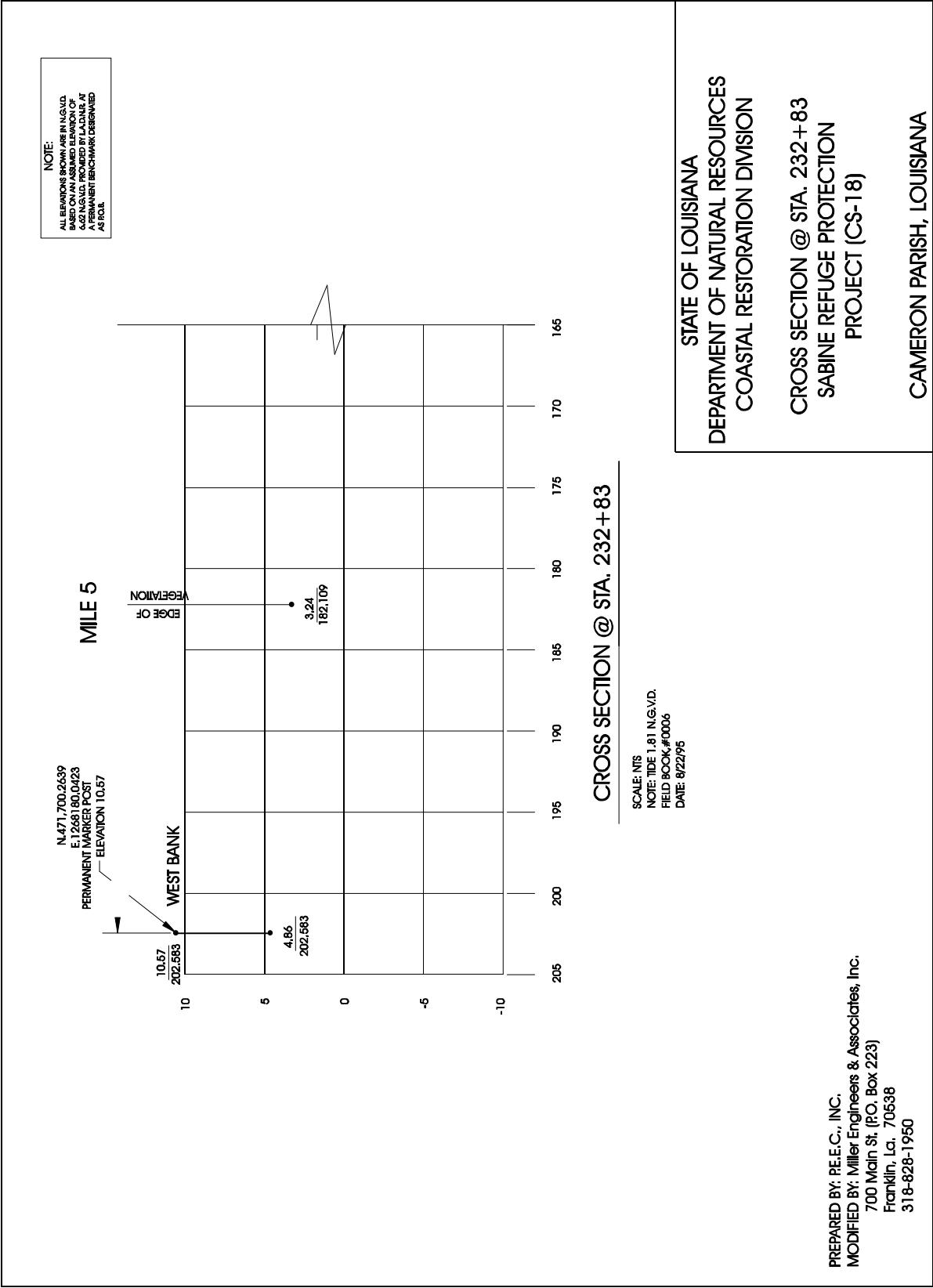


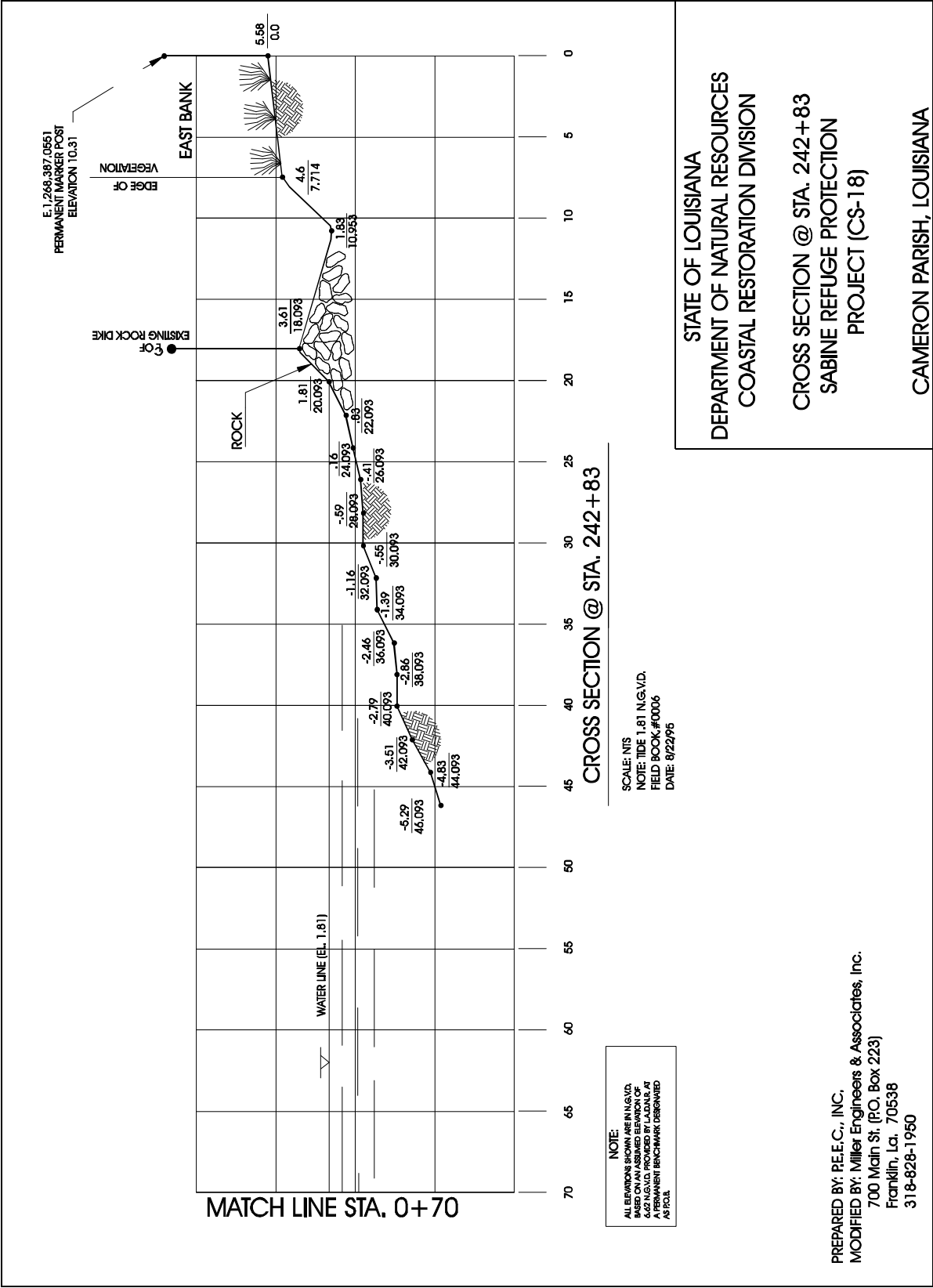


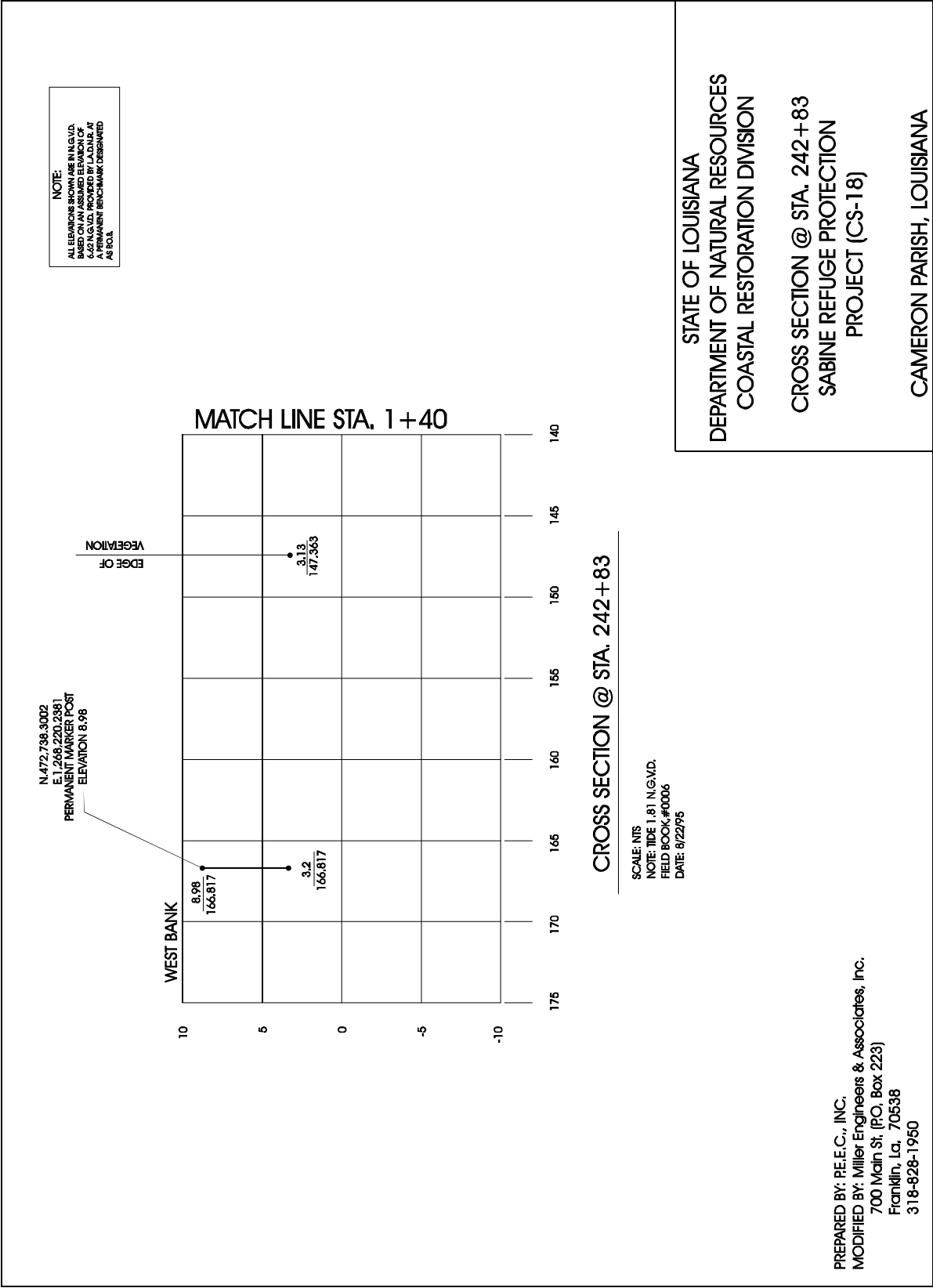


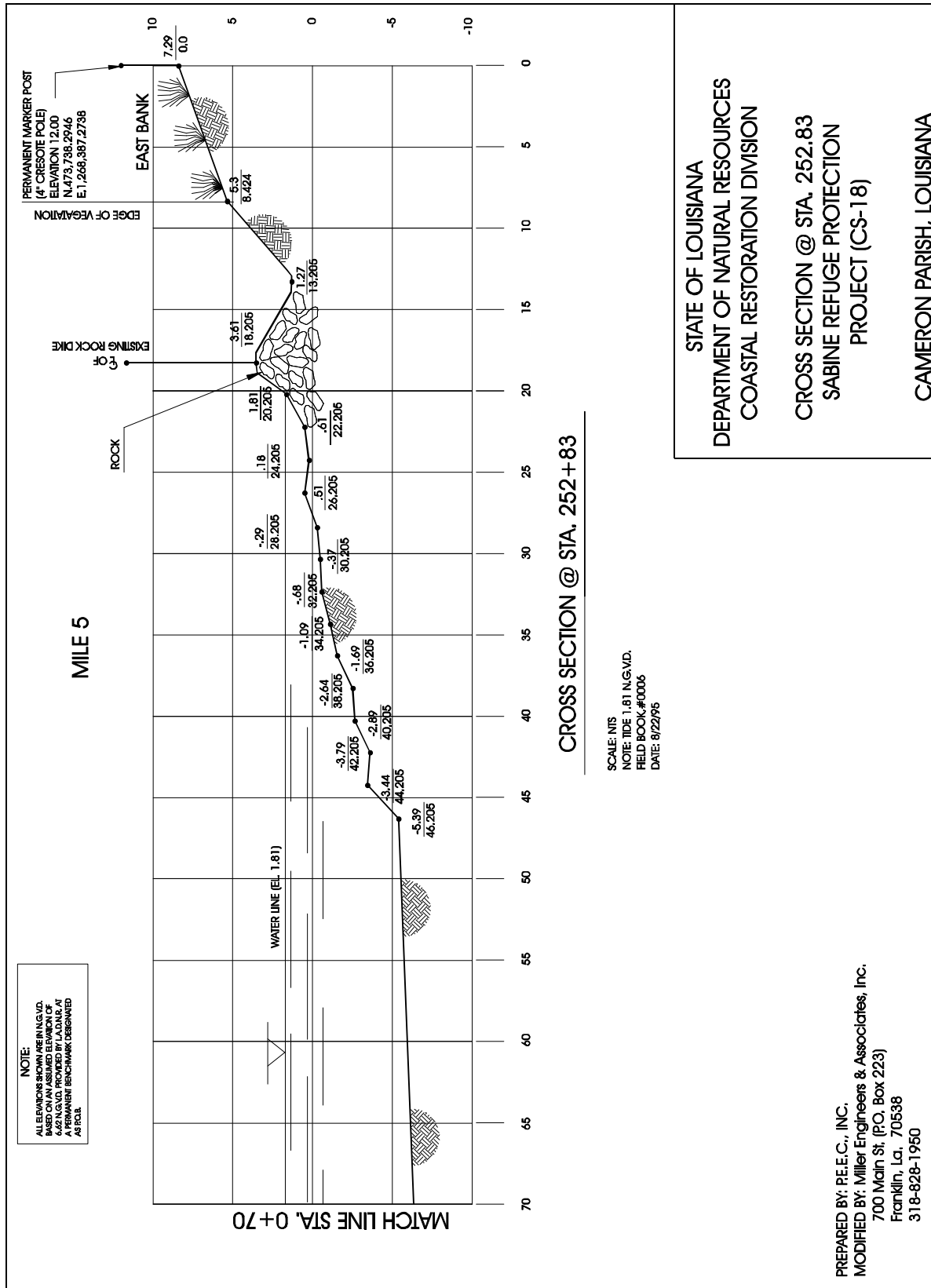
PREPARED BY: P.E.C., INC.
MODIFIED BY: Miller Engineers & Associates, Inc.
700 Main St. (P.O. Box 223)
Franklin, La. 70638
318-828-1950

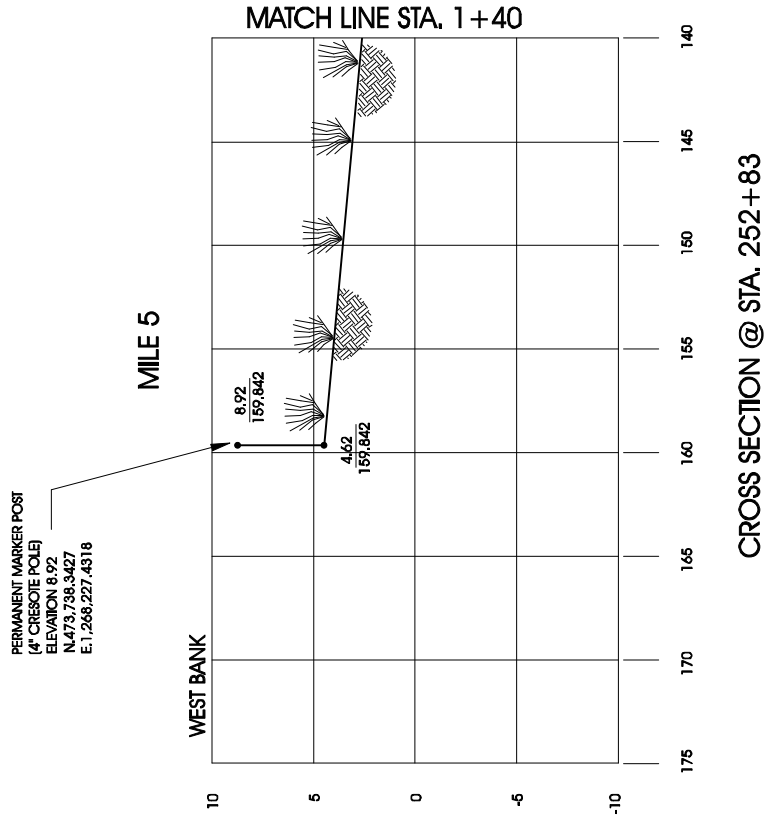












NOTE:
ALL ELEVATIONS SHOWN ARE IN NGVD.
ELEVATIONS IN PARENTS ARE ELEVATIONS
AS NGVD. PROVIDED BY LADN & P.
A PERMANENT BENCHMARK DESIGNATED
AS B.O.B.

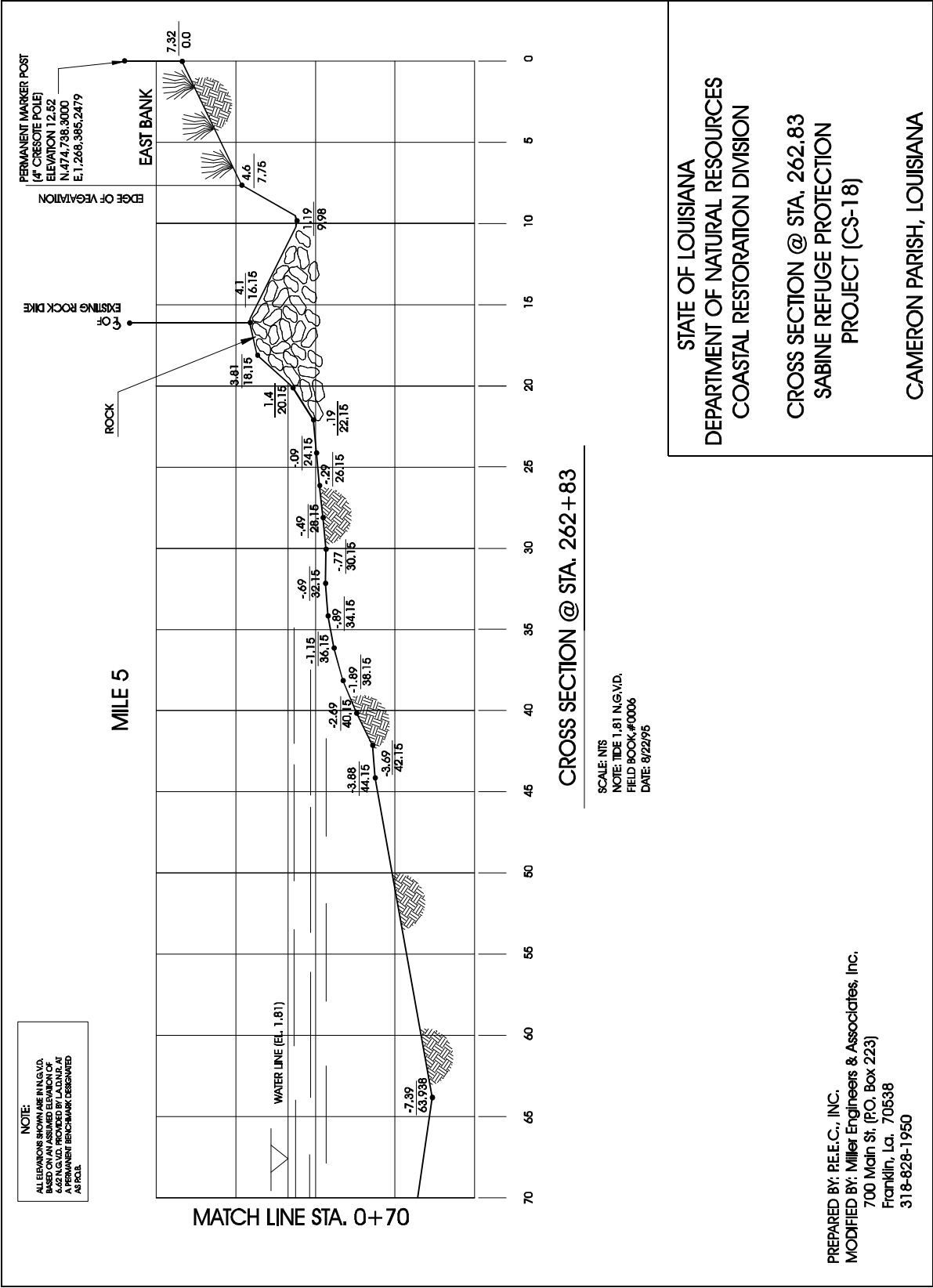
SCALE: NTS
NOTE: TIDE 1.81 NGVD.
FIELD BOOK #0006
DATE: 8/22/95

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STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESTORATION DIVISION

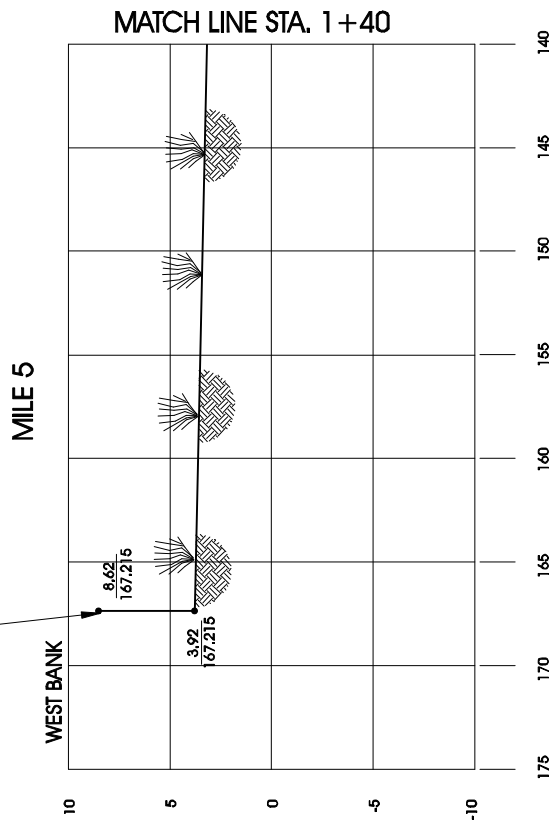
CROSS SECTION @ STA. 252.83
SABINE REFUGE PROTECTION
PROJECT (CS-18)

CAMERON PARISH, LOUISIANA



PERMANENT MARKER POST
(4" CRESOTE POLE)
ELEVATION 8.62
N.474.738.3000
E.1,268.218.0329

NOTE:
ALL ELEVATIONS SHOWN ARE IN N.G.V.D.
BASED ON AN ASSUMED ELEVATION OF
8.62 N.G.V.D. PROVIDED BY LACONIA AT
A PERMANENT BENCHMARK DESIGNATED
AT P.O.L.



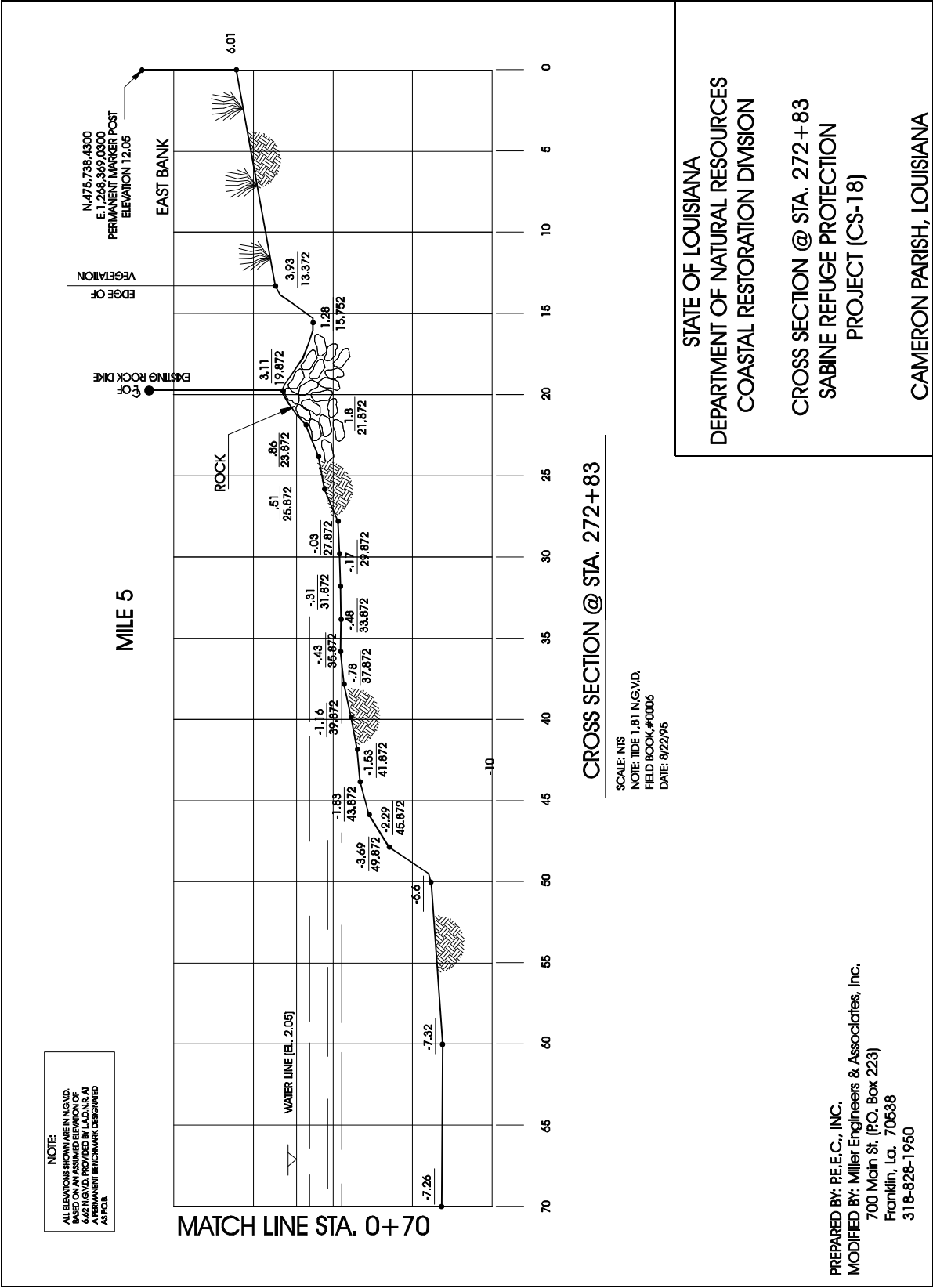
SCALE: NTS
NOTE: TIDE 1.81 N.G.V.D.
FIELD BOOK #0006
DATE: 8/22/95

PREPARED BY: P.E.C., INC.
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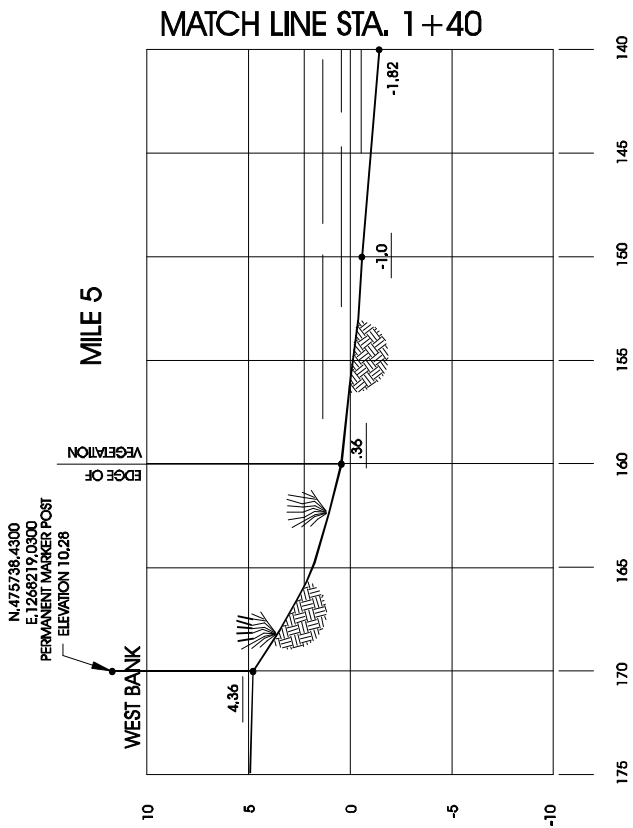
STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESTORATION DIVISION

CROSS SECTION @ STA. 262.83
SABINE REFUGE PROTECTION
PROJECT (CS-18)

CAMERON PARISH, LOUISIANA



NOTE:
ALL ELEVATIONS SHOWN ARE IN NGVD,
BASED ON AN ASSUMED ELEVATION OF
6.02 NGVD, PROVIDED BY LADNR, AT
A PERMANENT BENCHMARK DESIGNATED
AS 102A



CROSS SECTION @ STA. 272+83

SCALE: NTS
NOTE: TIDE 1.81 NGVD.
FIELD BOOK #0006
DATE: 8/22/95

STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESTORATION DIVISION

CROSS SECTION @ STA. 272+83
SABINE REFUGE PROTECTION
PROJECT (CS-18)

CAMERON PARISH, LOUISIANA

PREPARED BY: P.E.C., INC.
MODIFIED BY: Miller Engineers & Associates, Inc.
700 Main St. (P.O. Box 223)
Franklin, La. 70538
318-828-1950

APPENDIX B

Sabine NWR-Management Unit 3 vegetation data-December 1996

SABINE NWR -MANAGEMENT UNIT 3 VEGETATION DATA-DECEMBER 1996

Lines 18 and 19.

Site	%site veg	% spp of % veg	%spp of plot	Vegetation	Vegetation	% site water	% spp of % site water	% spp of plot	Spp within H2O	Spp within H2O
				Common name	Scientific name				Common name	Scientific name
A19-N	20	80	16	Bulltongue	Sagittaria lancifolia	80				
sw unit 3	20	10	2	Bagsscale	Sacciolepis striata					
	20	10	2	Marshmallow	Hibiscus spp.					
			20							
A19-S	20	70	14	Bulltongue	Sagittaria lancifolia	80				
	20	15	3	Alligatorweed	Althernanthera philoxeroides					
	20	10	2	Tallow tree	Sapium sebiferum					
	20	4	0.8	Pennywort	Hydrocotyle spp					
	20	1	0.2	Marshmallow	Hibiscus spp.					
			20							
B19-S	50	50	25	Bagsscale	Sacciolepis striata	50	40	20	Mud-midget	Wolffiella lingulata
	50	25	12.5	Cattail	Typha spp.					
	50	23	11.5	Fourchette	Bidens laevis					
	50	1	0.5	Pennywort	Hydrocotyle spp					
	50	1	0.5	Smartweed	Polygonum spp					
			50							
B19-N	35	60	21	Cattails	Typha spp.	65	50	32.5	Mud-midget	Wolffiella lingulata
	35	25	8.75	Bagsscale	Sacciolepis striata	65	1	0.65	Pennywort	Hydrocotyle spp
	35	10	3.5	Fourchette	Bidens laevis					
	35	5	1.75	Smartweed	Polygonum spp					
			35					33.15		
C19-S	20	80	16	Fourchette	Bidens laevis	80	10	8	Mud-midget	Wolffiella lingulata
	20	10	2	Bagsscale	Sacciolepis striata					
	20	10	2	Flatsedge	Cyperus spp					
			20							
C19-N	30	80	24	Bagsscale	Sacciolepis striata	70	10	7	Mud-midget	Wolffiella lingulata
	30	15	4.5	Fourchette	Bidens laevis					
	30	4	1.2	Dog fennel	Eupatorium perfoliatum					
	30	1	0.3	Carolina waterhyssop	Bacopa caroliniana					
			30							
D19-S	70	80	56	Bagsscale	Sacciolepis striata	30	5	1.5	Duckweed	Lemna spp.
	70	18	12.6	Dog fennel	Eupatorium perfoliatum	30	3	0.9	Mud-midget	Wolffiella lingulata
	70	2	1.4	Giant foxtail	Setaria magna					
			70					2.4		
D19-N	50	75	37.5	Dog fennel	Eupatorium perfoliatum	50	5	2.5	Duckweed	Lemna spp.
	50	15	7.5	Pennywort	Hydrocotyle spp	50	5	2.5	Mud-midget	Wolffiella lingulata
	50	9	4.5	Spike rush	Eleocharis spp					
	50	1	0.5	Marsh-fleabane	Pluchea odorata					
			50					5		
E19-N	75	50	37.5	Bagsscale	Sacciolepis striata	25				
	75	10	7.5	Fourchette	Bidens laevis					
	75	30	22.5	Alligatorweed	Althernanthera philoxeroides					
	75	5	3.75	Pennywort	Hydrocotyle spp					
	75	5	3.75	Climbing hempweed	Mikania scandens					
			75							
E19-S	85	60	51	Bagsscale	Sacciolepis striata	15				
	85	35	29.75	Alligatorweed	Althernanthera philoxeroides					
	85	5	4.25	Fourchette	Bidens laevis					
			85							

F19-E	35	80	28	Bagyscale	Sacciolepis striata	65				
	35	15	5.25	Flatsedge	Cyperus spp					
	35	5	1.75	Marsh-fleabane	Pluchea odorata					
			35							
F19-W	20	90	18	Bagyscale	Sacciolepis striata	80	2	1.6	Green algae	
	20	8	1.6	Flatsedge	Cyperus spp					
	20	1	0.2	Marsh-fleabane	Pluchea odorata					
	20	1	0.2	Willow tree	Salix spp.					
			20							
G19-S	75	30	22.5	Bulltongue	Sagittaria lancifolia	25				
	75	30	22.5	Bagyscale	Sacciolepis striata					
	75	30	22.5	Marsh-fleabane	Pluchea odorata					
	75	5	3.75	Dog fennel	Eupatorium perfoliatum					
	75	5	3.75	Coffeeweed	Sesbania macrocarpa					
			75							
G19-N	80	30	24	Bulltongue	Sagittaria lancifolia	20				
	80	30	24	Bagyscale	Sacciolepis striata					
	80	20	16	Marsh-fleabane	Pluchea odorata					
	80	20	16	Coffeeweed	Sesbania macrocarpa					
			80							
H19-N	15	100	15	Marsh-fleabane	Pluchea odorata	85	5	4.25	Waterhyssop-dead	Bacopa spp.
H19-S	25	90	22.5	Marsh-fleabane	Pluchea odorata	75	20	15	Waterhyssop-dead	Bacopa spp.
	25	5	1.25	Primrose-willow	Ludwigia leptocarpa					
	25	3	0.75	Bagyscale	Sacciolepis striata					
	25	2	0.5	Flatsedge	Cyperus spp					
			25							
I19-W	10	60	6	Marsh-fleabane	Pluchea odorata	90				
	10	20	2	Smartweed	Polygonum spp					
	10	10	1	Primrose-willow	Ludwigia leptocarpa					
	10	10	1	Bagyscale	Sacciolepis striata					
			10							
I19-E	15	55	8.25	Bullwhip	Scirpus californicus	85				
	15	20	3	Primrose-willow	Ludwigia leptocarpa					
	15	20	3	Marsh-fleabane	Pluchea odorata					
	15	3	0.45	Smartweed	Polygonum spp					
	15	2	0.3	Bagyscale	Sacciolepis striata					
			15							
A18-S	20	45	9	dead Dog fennel	Eupatorium perfoliatum	80				
	20	25	5	Pennywort	Hydrocotyle spp					
	20	10	2	Tallow tree	Sapium sebiferum					
	20	10	2	Coffeeweed	Sesbania macrocarpa					
	20	10	2	Bagyscale	Sacciolepis striata					
			20							
A18-N	70	75	52.5	Bagyscale	Sacciolepis striata	30				
	70	24	16.8	Dog fennel	Eupatorium perfoliatum					
	70	1	0.7	Pennywort	Hydrocotyle spp					
			70							

B18-S	20	55	11	Marsh-fleabane	Pluchea odorata	80				
	20	25	5	Fourchette	Bidens laevis					
	20	10	2	Dog fennel	Eupatorium perfoliatum					
	20	10	2	Bagyscale	Sacciolepis striata					
			20							
B18-N	35	60	21	Bagyscale	Sacciolepis striata	65				
	35	30	10.5	Fourchette	Bidens laevis					
	35	8	2.8	Marsh-fleabane	Pluchea odorata					
	35	2	0.7	Dog fennel	Eupatorium perfoliatum					
C18-W	85	95	80.75	Bagyscale	Sacciolepis striata	15				
	85	2.5	2.125	Pennywort	Hydrocotyle spp					
	85	2.5	2.125	Carolina waterhyssop	Bacopa caroliniana					
			85							
C18-E	85	96	81.6	Bagyscale	Sacciolepis striata	15				
	85	2	1.7	Smartweed	Polygonum spp					
	85	2	1.7	Carolina waterhyssop	Bacopa caroliniana					
			85							
D18-S	10	50	5	Giant cutgrass	Zizaniopsis miliacea	90				
	10	50	5	Primrose-willow	Ludwigia leptocarpa					
			10							
D18-N	40	80	32	Giant cutgrass	Zizaniopsis miliacea	60				
	40	10	4	Primrose-willow	Ludwigia leptocarpa					
	40	10	4	Marsh-fleabane	Pluchea odorata					
			40							
E18-N	10	60	6	Bagyscale	Sacciolepis striata	90	30	27	Giant cutgrass	Zizaniopsis miliacea
	10	15	1.5	Marsh-fleabane	Pluchea odorata					
	10	10	1	Bullwhip	Scirpus californicus					
	10	10	1	Primrose-willow	Ludwigia leptocarpa					
	10	5	0.5	Pennywort	Hydrocotyle spp					
			10							
E18-S	10	85	8.5	Bullwhip	Scirpus californicus	90	20	18	Giant cutgrass	Zizaniopsis miliacea
	10	15	1.5	Primrose-willow	Ludwigia leptocarpa					
			10							
F18-S	65	65	42.25	Bulltongue	Sagittaria lancifolia	35				
	65	55	35.75	Bagyscale	Sacciolepis striata					
			78							
F18-N	65	50	32.5	Bulltongue	Sagittaria lancifolia	35				
	65	50	32.5	Bagyscale	Sacciolepis striata					
			65							
G18-S	30	75	22.5	Bulltongue	Sagittaria lancifolia	70	5	3.5	Waterhyssop	Bacopa spp.
	30	20	6	Bagyscale	Sacciolepis striata	70	1	0.7	Green algae	
	30	5	1.5	Marsh-fleabane	Pluchea odorata	70	1	0.7	Duckweed	Lemna spp.
			30					4.9		
G18-N	5	98	4.9	Bagyscale	Sacciolepis striata	95	1	0.95	Waterhyssop	Bacopa spp.
	5	1	0.05	Bulltongue	Sagittaria lancifolia	95	1	0.95	Bladderwort	Utricularia spp.
	5	1	0.05	Marsh-fleabane	Pluchea odorata					
			5					1.9		
H18-E	0		0			100	50	50	Waterlily	Nymphaea spp.

						100	10	10	Bladderwort	Utricularia spp.
								60		
H18-W	5	100	5	Bulltongue	Sagittaria lineolata	95	30	28.5	Bladderwort	Utricularia spp.
						95	30	28.5	Waterlily	
								57		
I18-S	0		0			100	20	20	Bladderwort	Utricularia spp.
						100	4	4	Waterlily	Nymphaea spp.
								24		
I18-N	0		0			100	30	30	Bladderwort	Utricularia spp.
						100	2	2	Waterlily	Nymphaea spp.
								32		
J18-N	20	90	18	Giant cutgrass	Zizaniopsis miliacea	80	1	0.8	Waterhyssop	Bacopa spp.
	20	5	1	Bullwhip	Scirpus californicus					
	20	5	1	Marsh-fleabane	Pluchea odorata					
			20							
J18-S	5	60	3	Marsh-fleabane	Pluchea odorata	95	10	9.5	Waterlily	Nymphaea spp.
	5	20	1	Primrose-willow	Ludwigia leptocarpa	95	5	4.75	Bladderwort	Utricularia spp.
	5	20	1	Bullwhip	Scirpus californicus					
			5					14.25		
K18-E	0		0			100	50	50	Water-celery	Vallisneria americana
ditch						100	35	35	Pondweed	Potamogeton spp.
								85		
K18-W	0		0			100	35	35	Pondweed	Potamogeton spp.
						100	30	30	Water-celery	Vallisneria americana
								65		

Site	H2O	Bottom	COMMENTS
	Depth	substrate	
A19-N	12"		This station was off from map we wrote down the new point.
sw unit 3			
A19-S			
B19-S	11"		
B19-N			
C19-S	6"	hard	
C19-N			
D19-S	7"	firm	
D19-N			
E19-N	7"		alligatorweed nutria eat-out
E19-S			

F19-E	15"	hard	
F19-W			
G19-S	4"	firm	
G19-N			
H19-N	15"	firm	live bacopa coming up from the bottom-difficult to estimate amount
H19-S			live bacopa coming up from the bottom-difficult to estimate amount
I19-W			
			dead cyperus under the water. This was a drought stimulated plant andd was covered by water when we got rain--good for ducks
I19-E			
			lots of nutria activity here and lots of seeds laying up on top of the water.
A18-S	8"		
A18-N			

B18-S			Cyperus spp made up quite a bit of the dead biomass under the waters surface.
B18-N			Nutria mounds in the area had a trace of pennywort.
C18-W	6"	hard	shallow marsh, hummock
C18-E			
D18-S	9"	firm	
D18-N			Nutria eat out area.
E18-N	11"	soft	
E18-S			
F18-S	6"	hard	both sides here there are chewed up plants and many signs of nutria activity including beds in the plot.
F18-N			
G18-S	17"	firm	bottom of plots covered in bacopa- rake.
G18-N			
H18-E	16"	firm	open pond east of channel

H18-W			
I18-S			
I18-N			
	25"	hard	
J18-N			
J18-S			
	15"	hard	lots of dead cyperus under the water on both plots-difficult to estimate down there.
K18-E	26"	hard	
ditch			
K18-W			