ANNEX 3

Geotech

SECTION 1

Maps of Closest Borings

Borings from Eustis Job 09318

Used for

Bayou Lacombe Levees Alternative 4

Boring 09318
western det basin 21309 (10')
Location 4
detention basin 21311 (10')
Marina 09318 (40')
Location 5
detention basin 21312 (10')
Google Earth
N
4 mi

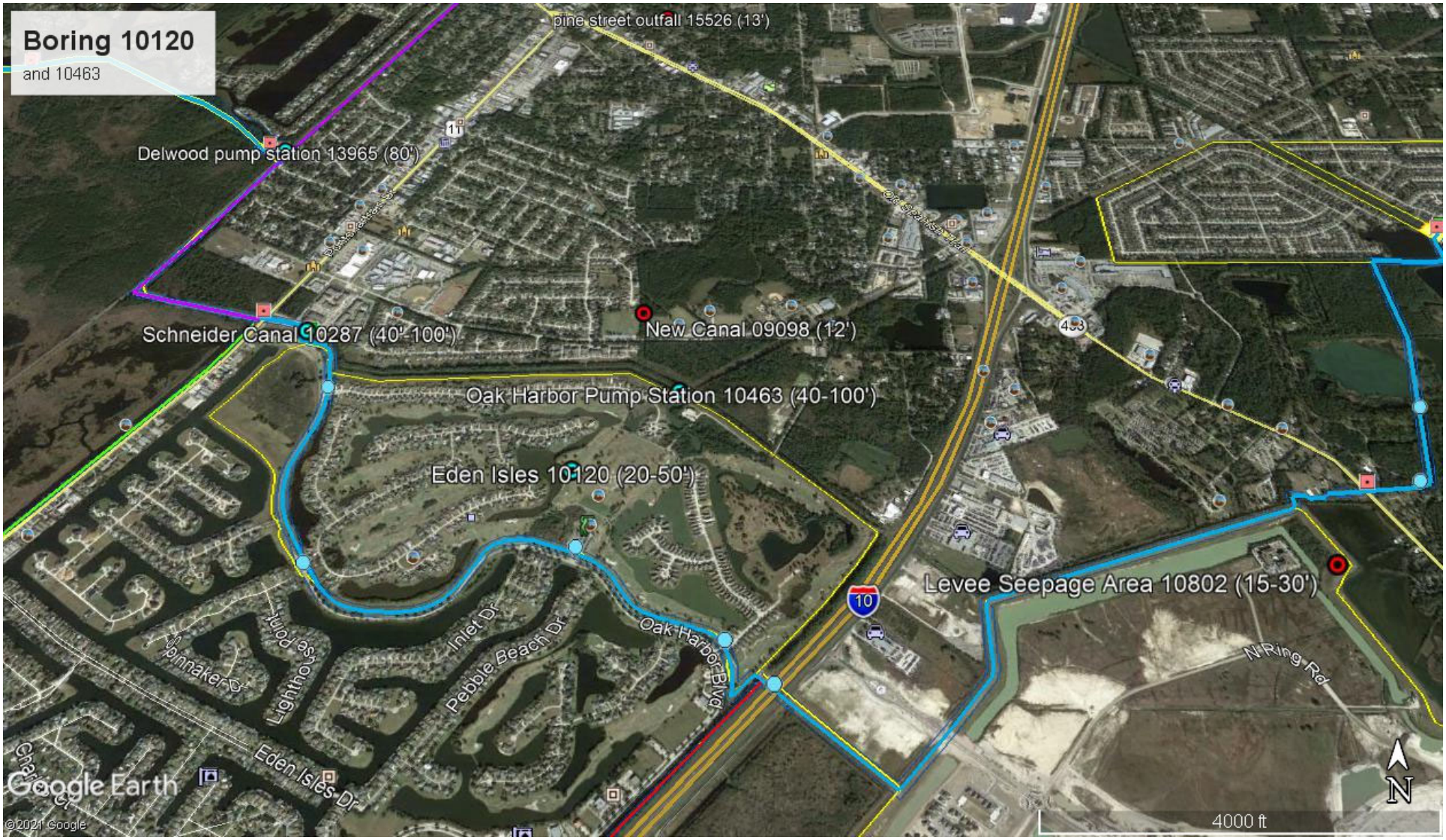
Borings from Eustis Job 10120

Used for South Slidell Levees Alternative 6

Borings from Eustis Job 10463

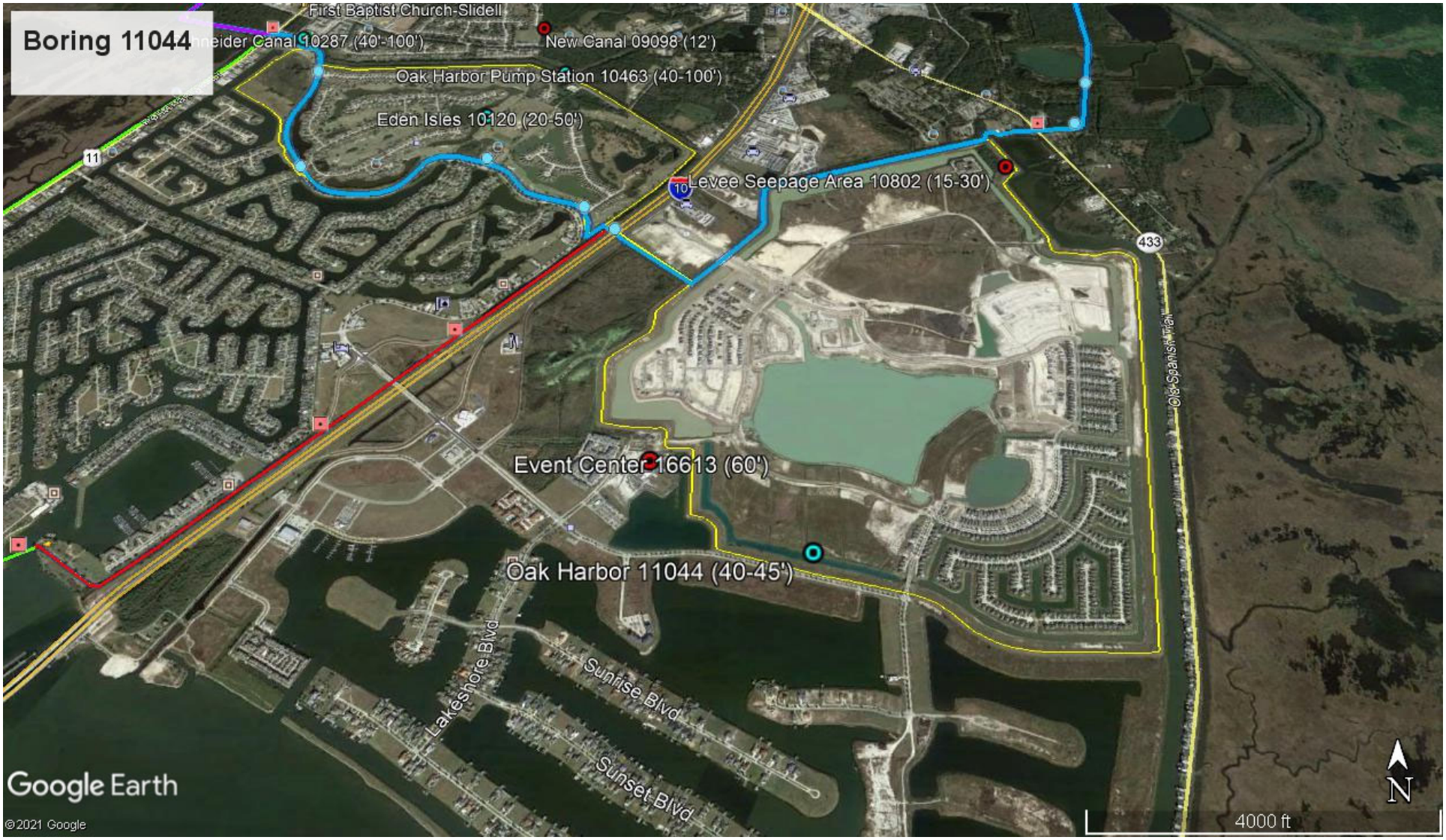
Used for

W-14 Floodgate/Old Spanish Trail Floodgate Alternative 6


Boring 10120
and 10463
pine street outfall 15526 (13')
Delwood pump station 13965 (80')
Schneider Canal 10287 (40'-100')
New Canal 09098 (12')
Oak Harbor Pump Station 10463 (40-100')
Eden Isles 10120 (20-50')
Levee Seepage Area 10802 (15-30')
Lighthouse Point
Spinnaker Dr
Inlet Dr
Pebble Beach Dr
Oak Harbor Blvd
Eden Isles Dr
N Ring Rd
Google Earth
©2021 Google
4000 ft
N

Borings from Eustis Job 11044

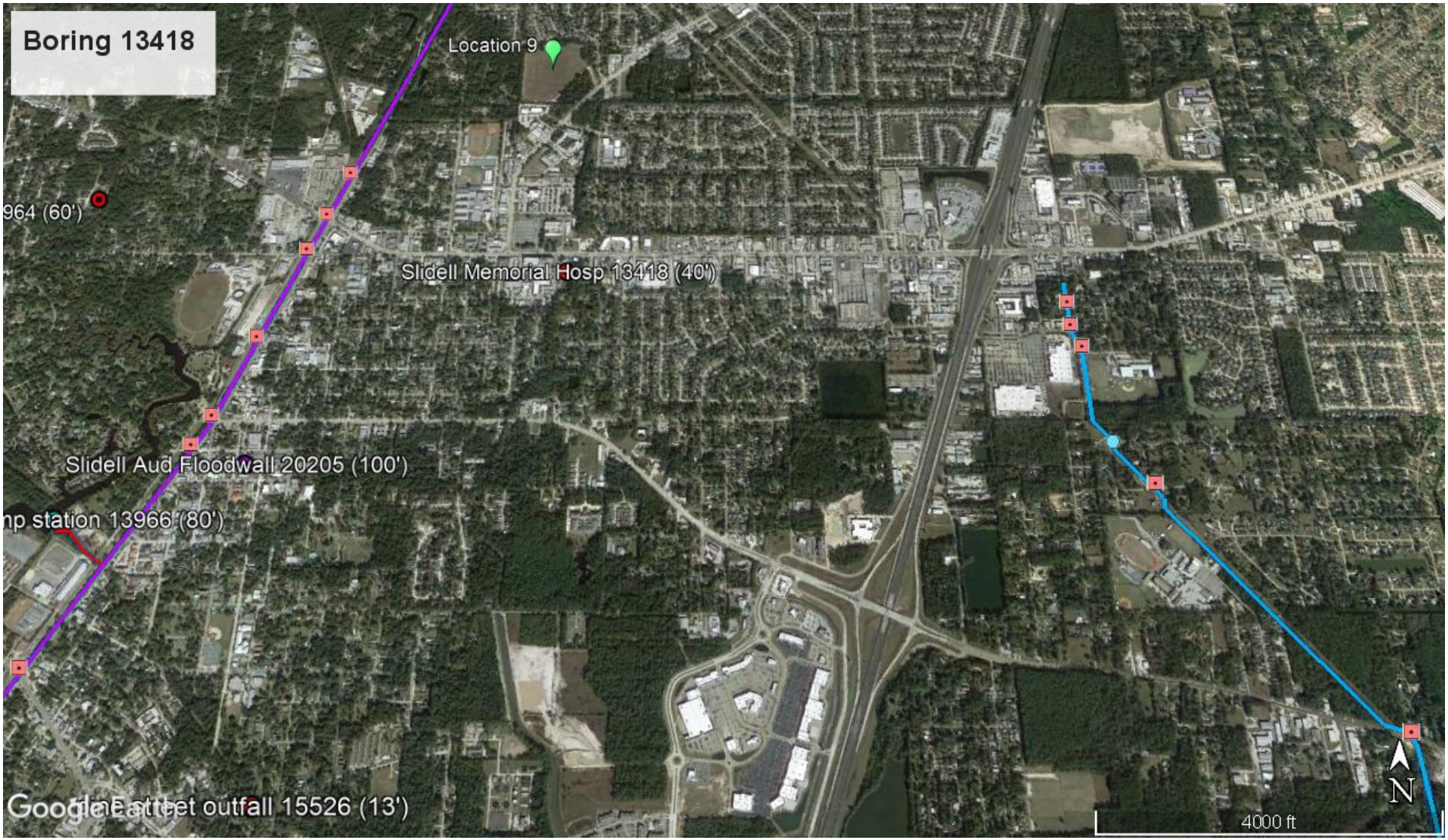
Used for South Oak Harbor Levees Alternative 6


Boring 11044
First Baptist Church-Slidell
New Canal 09098 (12')
Oak Harbor Pump Station 10463 (40-100')
Eden Isles 10120 (20-50')
Levee Seepage Area 10802 (15-30')
Event Center 16613 (60')
Oak Harbor 11044 (40-45')
Lakeshore Blvd
Sunrise Blvd
Sunset Blvd
Old Spanish Trail
433
11
10
Google Earth
©2021 Google
4000 ft
N

Borings from Eustis Job 13418

Used for

Pearl River Levees Alternative 7


Boring 13418
Location 9
964 (60')
Slidell Memorial Hosp 13418 (40')
Slidell Aud Floodwall 20205 (100')
np station 13966 (80')
Google
outfall 15526 (13')
N
4000 ft

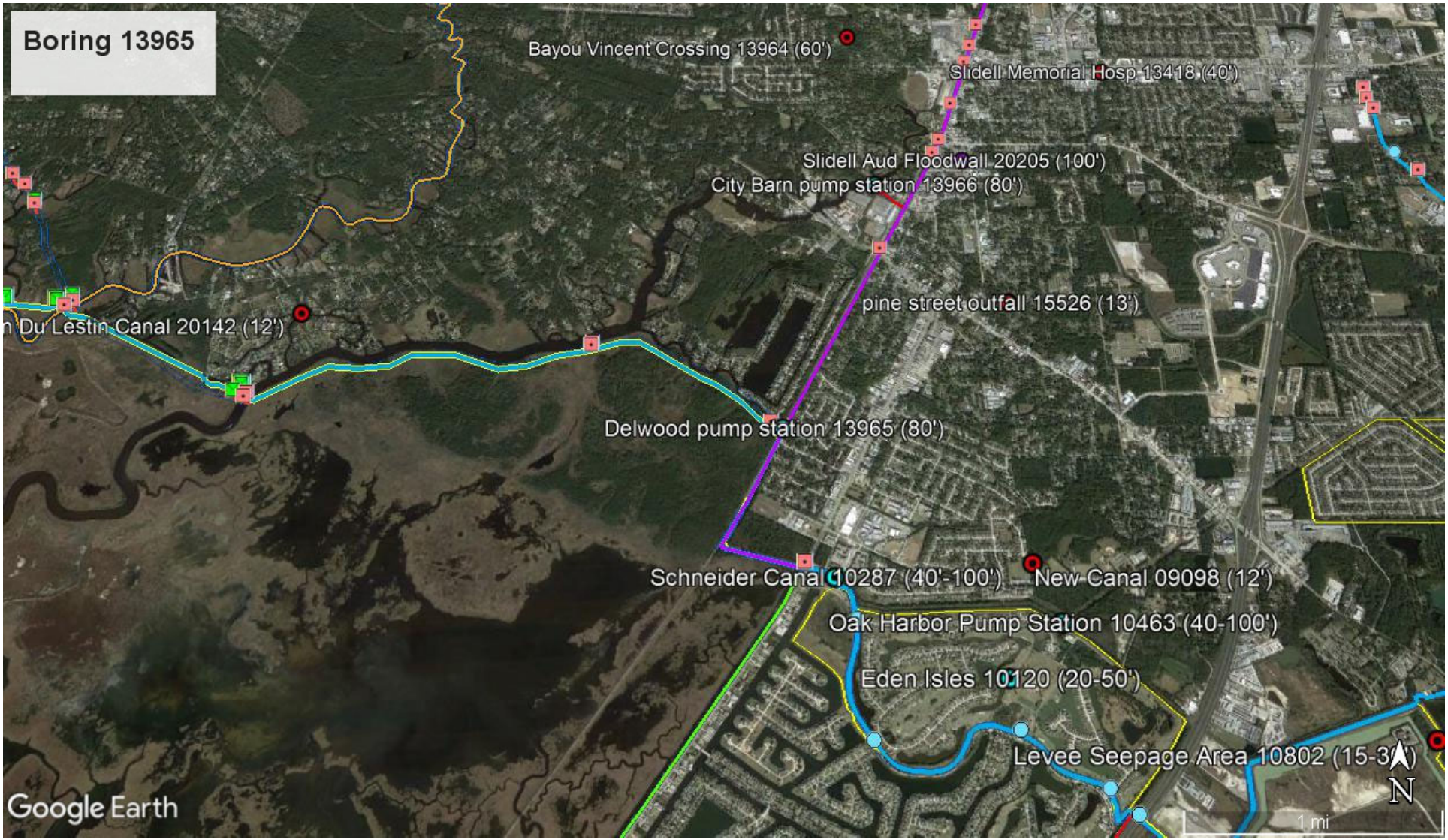
Borings from Eustis Job 13965

Used for

Bayou Lacombe Flood Gate Alternative 4

Bayou Liberty/Bayou Vincent/Bayou Bonfouca Structures Alternative 5

West Slidell Levees Alternative 5

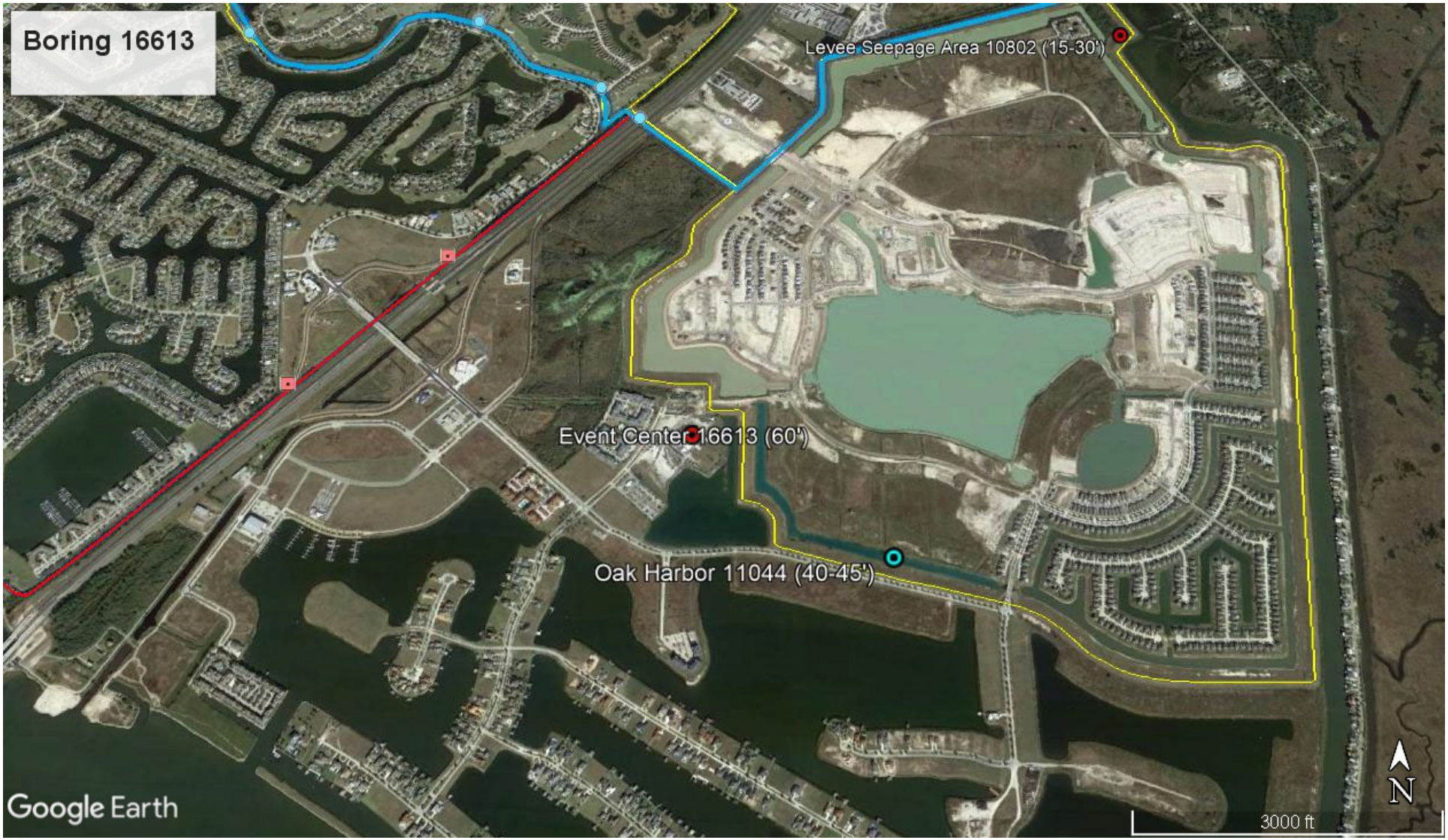

Boring 13965
Bayou Vincent Crossing 13964 (60')
Slidell Memorial Hosp 13418 (40')
Slidell Aud Floodwall 20205 (100')
City Barn pump station 13966 (80')
pine street outfall 15526 (13')
Du Lestin Canal 20142 (12')
Delwood pump station 13965 (80')
Schneider Canal 10287 (40'-100')
New Canal 09098 (12')
Oak Harbor Pump Station 10463 (40-100')
Eden Isles 10120 (20-50')
Levee Seepage Area 10802 (15-3
Google Earth
N
1 mi

Borings from Eustis Job 16613

Used for

Eden Isles Levees Alternative 6

Eden Isles Structures/I-10 Gates Alternative 6


Boring 16613
Levee Seepage Area 10802 (15-30')
Event Center 16613 (60')
Oak Harbor 11044 (40-45')
Google Earth
N
3000 ft

SECTION 2

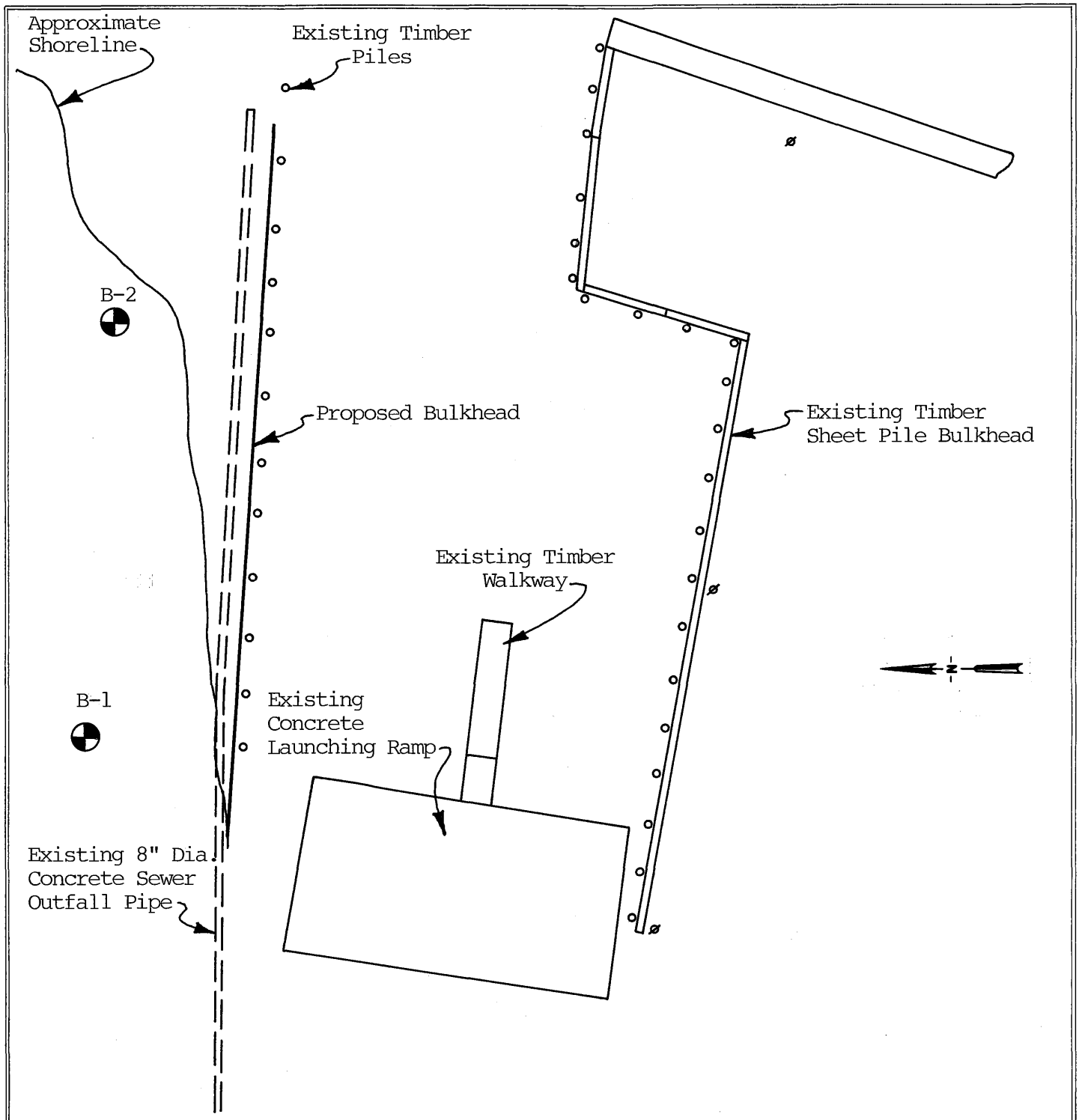
Borings Taken from

Eustis St. Tammany Projects

Borings from Eustis Job 09318

Used for

Bayou Lacombe Levees Alternative 4



LOCATION OF BORINGS

Scale: 1" = 20'

Geotechnical Investigation
City of Mandeville
Marina Improvements
Mandeville, Louisiana

For: City of Mandeville, Louisiana

Dyer & Moody, Inc., Consulting Engineers, Baker, Louisiana

Fig. 1

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LOUISIANA

LOG OF BORING

EUSTIS ENGINEERING COMPANY

SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: City of Mandeville
Marina Improvements, Mandeville, Louisiana
For: City of Mandeville, Louisiana
Dyer & Moody, Inc., Consulting Engineers, Baker, Louisiana

Boring No. 1 **Soil Technician** R. Elkins **Date** 26 December 1985

Ground Elev. _____ **Datum** _____ **Gr. Water Depth** See Text

Sample No.	SAMPLE Depth — Feet From	SAMPLE Depth — Feet To	DEPTH STRATUM Feet From	DEPTH STRATUM Feet To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
			0.0	0.5	Compact gray shells & sand		
1	1.5	2.5	0.5	3.0	Very soft gray sandy clay w/silty sand		
					& humus layers		
2	4.5	5.5	3.0	6.0	Soft gray & tan clay w/concretions		
3	7.5	8.5	6.0		Medium stiff to stiff gray & tan clay		
					w/trace of sand		
4	10.5	11.5			Ditto		
5	13.5	14.5			Medium stiff to stiff gray & tan clay		
6	18.0	19.0		20.0	Ditto		
7	23.0	24.0	20.0	25.0	Stiff gray clay w/some decayed wood		
8	28.0	29.0	25.0	30.0	Stiff greenish-gray sandy clay w/sand		
					layers		
9	30.0	31.5	30.0	32.5	Dense greenish-gray sand w/trace of	10	42
					clay		
10	32.5	34.0	32.5		Dense gray sand	7	41
11	35.0	36.5		38.5	Ditto	5	38
12	38.5	40.0	38.5	40.0	Very dense gray sand	14	50=10"

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks: _____

CLAY SILT SAND HUMUS

Predominant type shown heavy. Modifying type shown light.

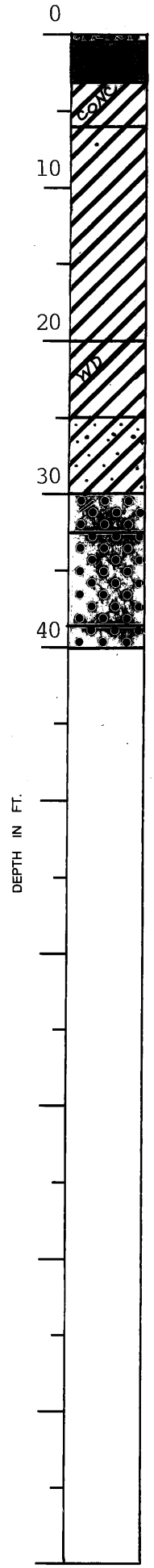


Fig. 2

LOG OF BORING

EUSTIS ENGINEERING COMPANY

SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: City of Mandeville
Marina Improvements, Mandeville, Louisiana
For: City of Mandeville, Louisiana
Dyer & Moody, Inc., Consulting Engineers, Baker, Louisiana

Boring No. 2 **Soil Technician** R. Elkins **Date** 26 December 1985

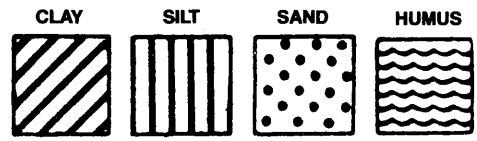
Ground Elev. _____ **Datum** _____ **Gr. Water Depth** See Text

Sample No.	SAMPLE Depth — Feet From	SAMPLE Depth — Feet To	DEPTH STRATUM Feet From	DEPTH STRATUM Feet To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
1	0.0	0.5	0.0	1.0	Very soft gray clay w/roots & organic		
					matter		
2	1.5	2.5	1.0	3.0	Soft gray & tan clay w/sandy silt &		
					humus layers		
3	4.5	5.5	3.0	6.0	Very soft gray clay w/trace of silt &		
					wood		
4	7.5	8.5	6.0		Medium stiff tan & gray clay w/wood		
5	10.5	11.5			Ditto		
6	13.5	14.5		15.0	Medium stiff tan & gray clay		
7	18.0	19.0	15.0	21.0	Stiff tan & gray clay		
8	23.0	24.0	21.0	25.0	Medium stiff gray clay w/sandy clay		
					pockets & lenses		
9	28.0	29.0	25.0	31.0	Medium stiff greenish-gray sandy clay		
					w/sand layers		
10	33.0	34.5	31.0	35.5	Medium dense gray silty sand w/clay	7	21
					layers		
11	35.5	37.0	35.5		Dense gray silty sand	7	34
12	38.5	40.0		40.0	Dense gray silty sand w/trace of shell	12	40
					fragments		

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks: _____



Predominant type shown heavy. Modifying type shown light.

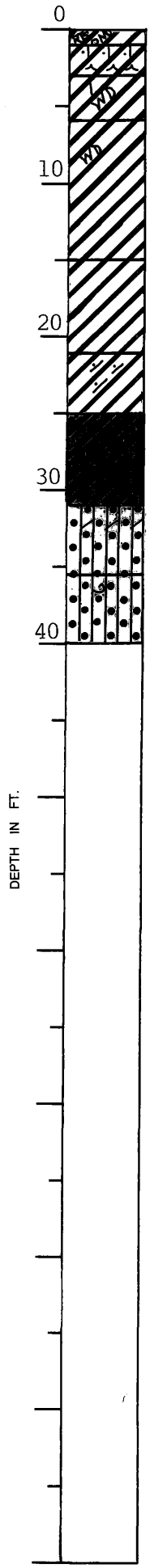


Fig. 3

Geotechnical Investigation
City of Mandeville
Marina Improvements
Mandeville, Louisiana

For: City of Mandeville, Louisiana

Dyer & Moody, Inc., Consulting Engineers, Baker, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 1

Sample No.	Depth In Feet	Classification	Water Content Percent	Density PCF Dry	Density PCF Wet	Unconfined Compressive Strength PSF
1	1.5	Very soft gray sandy clay w/clayey sand layers & humus pockets	27.1	88.6	112.6	295*
2	4.5	Soft gray & tan sandy clay w/concretions	26.2	97.1	122.5	770
3	7.5	Stiff gray & tan clay w/sand pockets	29.5	93.9	121.6	2455
4	10.5	Medium stiff gray & tan clay w/vertical clayey sand lenses	31.3	89.3	117.2	1135*
5	13.5	Medium stiff gray & tan clay	43.8	77.4	111.3	1685
6	18.0	Stiff gray & tan clay	24.3	104.0	129.2	2385
7	23.0	Stiff gray clay w/sand pockets	29.7	92.2	119.6	2240
8	28.0	Stiff greenish-gray sandy clay w/clayey sand layers	23.1	101.8	125.3	----

BORING 2

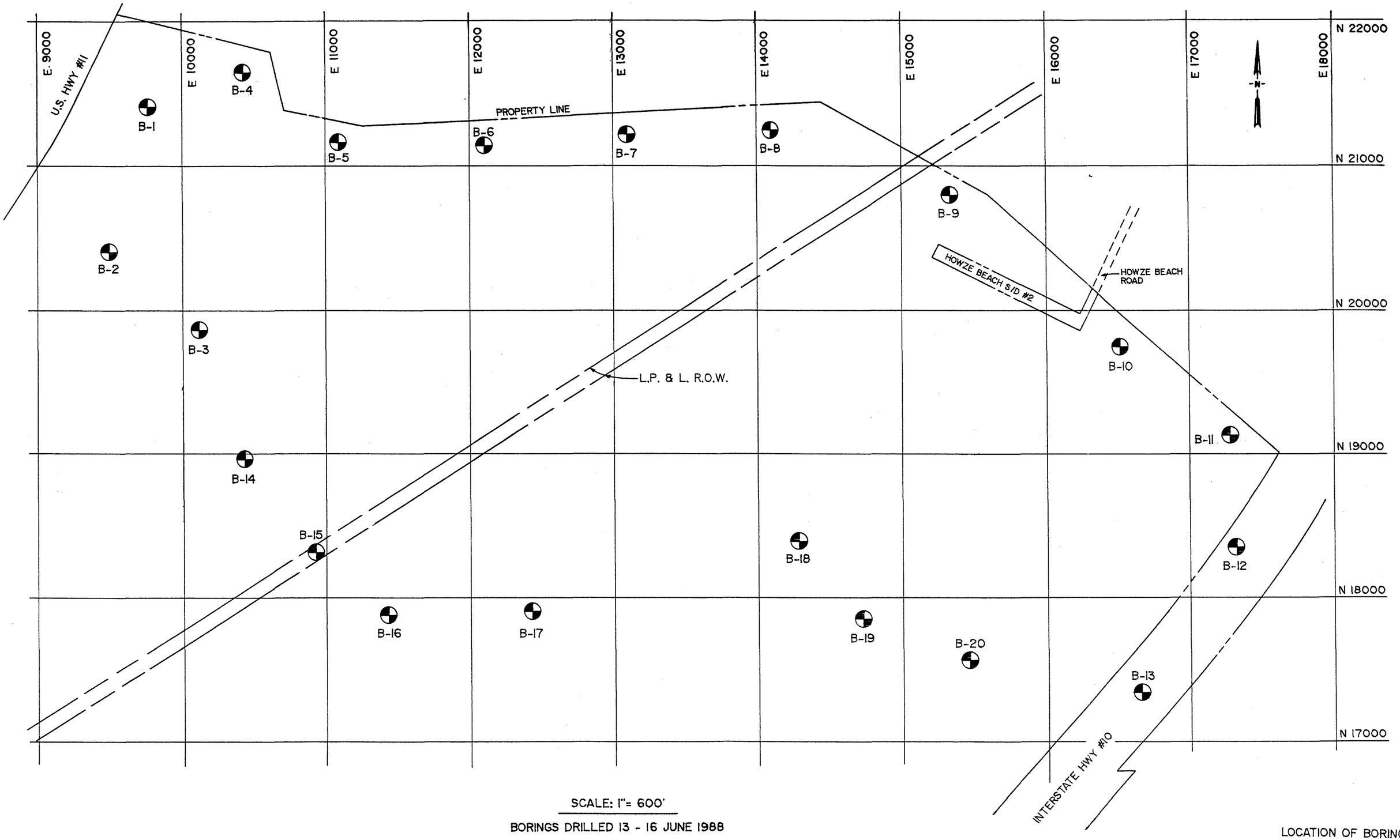
2	1.5	Soft gray & tan clay w/sandy clay layers & humus pockets	43.8	71.6	102.9	535
3	4.5	Very soft gray clay w/organic matter & decayed roots	58.9	63.3	100.5	460
4	7.5	Medium stiff gray & tan clay w/few roots	41.3	80.0	113.0	1235
5	10.5	Medium stiff tan & gray clay	42.9	78.5	112.2	1690
6	13.5	Ditto	46.2	73.6	107.6	1105
7	18.0	Stiff tan & gray clay	29.6	92.5	119.9	3515
8	23.0	Medium stiff gray clay w/sand pockets	29.1	93.2	120.3	1420
9	28.0	Medium stiff greenish-gray sandy clay w/clayey sand layers & pockets	20.5	105.9	127.6	1390*

*Unconsolidated Undrained Triaxial Compression Test - One Specimen; Confined at the approximate overburden pressure.

Fig. 4

Borings from Eustis Job 10120

Used for South Slidell Levees Alternative 6



SCALE: 1"= 600'

BORINGS DRILLED 13 - 16 JUNE 1988

LOCATION OF BORINGS

EDEN ISLES EXPANSION
PROPOSED LEVEE SYSTEM
VICINITY OF SLIDELL, LOUISIANA

EUSTIS ENGINEERING

FIGURE 1

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15/88 Boring: 1 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	1.00				Medium stiff tan & gray silty clay w/organic matter & roots	CL	1	2-3	26	94	118	UC	—	930					
5	1.50				Stiff gray silty clay w/decayed wood	CL	2	5-6	19	111	132	UC	—	1520					
10	1.25				Stiff gray & tan clay w/silt lenses & pockets	CH	3	8-9											
	1.80						4	11-12	24	100	125	UC	—	1280					
15	1.75						5	14-15											
20	2.10				Stiff tan & gray clay w/silt lenses	CH	6	19-20	44	77	110	UC	—	1400					
25	2.50						7	24-25											
30	0.75				Soft gray clay w/sand layers	CH	8	29-30	46	74	108	UC	—	330	63	21	42		
35	0.60						9	34-35											
40	0.90				Medium stiff gray fissured clay w/shell layers	CH	10	39-40	55	66	105	UC	—	750					
45	2.50				Stiff greenish-gray fissured clay w/silt lenses	CH	11	44-45											
50	2.75						12	49-50	35	85	115	UC	—	1120					

Boring offset 40 feet west of staked location.

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 2 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.45				Medium compact gray clayey silt	ML	1	2-3	22	105	127	OB	—	765	25	19	6		
5	0.35				Medium stiff light gray silty clay	CL	2	5-6	22	104	127	UC	—	740					
	1.25				Medium stiff greenish-gray silty clay	CL	3	8-9	23	102	125	UC	—	920					
10	1.65				Medium stiff greenish-gray & tan clay w/silt pockets	CH	4	11-12	36	85	116	UC	—	855					
15	1.75				Stiff gray & tan clay w/silt lenses	CH	5	14-15											
20	1.75				Stiff tan & gray clay	CH	6	18-19	47	75	109	UC	—	1100					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 3 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLIT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Loose black organic clay w/roots & humus	OH	1	0-1	148										
	1.10				Medium stiff dark gray silty clay w/roots	CL	2	2-3	24	101	124	UC	—	725					
5	0.50				Medium stiff greenish-gray silty clay	CL	3	5-6	25	99	124	UC	—	860					
10	1.80				Stiff gray & tan clay w/silty sand pockets	CH	4	8-9	24	101	125	UC	—	1220					
	1.95						5	11-12											
15	2.45				Medium stiff gray & tan clay w/silt lenses	CH	6	14-15	37	84	115	UC	—	690					
20	1.50				Stiff gray & tan clay	CH	7	18-19											

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: 6.2' Job No: 10120 Date Drilled: 6/13/88 Boring: 4 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Loose tan fine sand	SP	1	1-2	4										
					Very loose tan & gray clayey sand	SC													
5	0.40						2	4-5	17	116	136	UC	—	135					
	0.80				Medium dense tan sand w/some clay	SP	3	6-7	13	119	134								
		28			Medium dense tan & gray fine sand	SP	4	8-9											
10		29					5	10-11											
		55			Very dense tan & gray fine sand	SP	6	12-13											
15		31			Dense tan & gray fine sand	SP	7	14-15											
					Medium dense gray fine sand	SP													
20		18					8	19-20											

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15/88 Boring: 5 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Loose tan & gray sand w/roots & some silt	SP													
							1	2-3	16	98	114	OB	—	440					
5					Very soft gray & tan sandy clay	CL													
	0.30						2	5-6	23	103	126	UC	—	210					
					Stiff tan & gray clay w/few silt pockets	CH													
	1.55						3	8-9	30	92	120	UC	—	1805					
10					Stiff tan & gray silty clay	CL													
	1.90						4	11-12	28	94	121	UC	—	1045					
15	1.50						5	14-15											
					Stiff tan & gray fissured clay	CH													
20	1.50						6	19-20	43	77	110	UC	—	1090					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: 6.3' Job No: 10120 Date Drilled: 6/15/88 Boring: 6 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø'	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Medium dense tan sand w/roots & trace of clay	SP													
							1	2-3	16	94	109	OB	—	985					
5					Medium stiff gray & tan sandy clay	CL													
							2	5-6	22	105	127	OB	—	805					
					Stiff tan & gray sandy clay	CL													
	1.20						3	8-9	17	112	131	UC	—	1040					
10					Medium dense tan & gray clayey sand	SC													
							4	11-12	22	104	127								
		17			Medium dense tan sand	SP													
							5	13-14											
15																			
		24					6	16-17											
					Dense tan sand	SP													
20		32					7	19-20											

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15/88 Boring: 7 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø'	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Medium compact gray & tan clayey silt	ML	1	2-3	22	103	125	OB	—	885					
5	0.90				Medium stiff gray & tan silty clay	CL	2	5-6	23	103	127	UC	—	590					
	0.75				Medium stiff greenish-gray & tan silty clay	CL	3	8-9	34	88	118	UC	—	755					
10	0.75				Soft light gray silty clay w/clayey silt layers	CL	4	11-12	26	97	122	OB	—	355					
15	1.50			FISS	Medium stiff tan & gray fissured clay w/silt lenses	CH	5	14-15											
20	1.75						6	19-20	49	73	108	UC	—	690					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15-16/88 Boring: 8 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Medium compact gray & tan clayey silty w/some sand	ML	1	1-2	22	97	118	OB	—	695					
				Soft dark gray silty clay w/roots	CL	2	3-4	24	100	124	UC	—	445					
5	1.50			Stiff tan & gray silty clay	CL	3	5-6	20	108	129	UC	—	1610					
10	1.10					4	8-9	23	102	126	UC	—	1195					
	1.60					5	11-12											
15	2.20			Medium stiff gray & tan fissured clay w/silt lenses	CH	6	14-15	38	81	112	UC	—	595					
20	2.00					7	19-20											
25	0.75			Medium stiff gray clay w/trace of silt & shell fragments	CH	8	24-25	48	74	109	UC	—	745	66	21	45		
30	2.50			Stiff greenish-gray clay w/silty sand lenses & pockets	CH	9	28-29	28	96	122	UC	—	1090					
35	0.40			Medium stiff gray clay w/silty sand lenses & shell fragments	CH	10	33-34	44	76	109	UC	—	710					
40	0.75			Medium stiff gray clay w/shell fragments	CH	11	38-39	58	66	104	UC	—	875	79	22	57		
45	0.30 1.85			Medium stiff gray & brown clay w/decayed wood, organic clay layers and roots	CH	12 13	42-43 43-44	101 27	44 97	88 123	UC UC	— —	585 1440					
				Stiff dark gray silty clay	CL													
50	2.30			Medium stiff gray clay w/silty sand pockets	CH	14	48-49	28	95	121	UC	—	865				1.20	

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 9 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLB	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø'	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.25				Very soft gray & tan silty clay	CL	1	2-3	36	82	112	UC	—	215					
5	0.75				Soft tan & gray silty clay	CL	2	5-6	28	96	122	UC	—	490	40	20	20		
	2.25				Stiff tan & gray clay w/silt pockets	CH	3	8-9	22	103	126	UC	—	1385					
10	1.75				Medium stiff gray & tan clay	CH	4	11-12											
15	1.25				w/silt lenses		5	14-15	34	86	115	UC	—	800					
	1.15				Stiff tan & gray clay	CH	6	18-19											
20																			

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 10 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.95				Medium stiff tan & gray clay w/many silt lenses & pockets	CH	1	2-3	23	102	125	UC	—	765					
5	1.50				Medium stiff gray & tan clay w/clayey silt lenses & pockets	CH	2	5-6	23	103	126	UC	—	950					
10	2.25				Stiff gray & tan clay	CH	3	8-9											
	1.75				Medium stiff gray & tan clay w/silt lenses	CH	4	11-12	35	86	116	UC	—	850					
15	1.95				Stiff tan & gray clay	CH	5	14-15											
20	1.75						6	18-19	44	77	111	UC	—	1075					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 11 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø'	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	T.V. TSF	Other Tests
	1.40				Stiff gray & tan sandy clay w/clay pockets & roots	CL	1	2-3	17	112	131	UC	—	1520					
5					Medium dense dark gray silty sand w/roots	SM	2	5-6	22	92	112	OB	—	685					
	0.90				Medium stiff gray & tan sandy clay	CL	3	8-9	21	106	128	UC	—	885					
10	1.50				Very stiff tan & gray sandy clay w/clay layers	CL	4	11-12	19	108	129	UC	—	2130					
15	2.50				Very stiff gray & tan clay w/sand pockets	CH	5	14-15											
20	1.70				Stiff tan & gray clay w/clayey silt layers	CH	6	18-19	34	86	115	OB	—	1055				1.18	

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: 5.0' Job No: 10120 Date Drilled: 6/15/88 Boring: 12 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
		26			Medium dense tan & gray sand w/clay pockets & trace of shell fragments	SP	1	1-2	15										
5		21			Medium dense gray sand	SP	2	4-5	27										
					Very loose gray clayey sand w/small roots & organic matter	SC	3	6-7	21										
10					Very soft gray & tan sandy clay w/roots	CL	4	8-9	23										
	2.25				Stiff gray & tan sandy clay	CL	5	11-12	17	111	130	UC	—	1370					
15	1.95				Very stiff gray & tan clay w/sand pockets	CH	6	14-15	18	110	130	UC	—	3105					
20	1.90				Stiff gray & tan clay w/sandy clay layers	CH	7	18-19	18	105	124	OB	—	1510					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15/88 Boring: 13 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
		28			Medium dense tan & gray sand w/trace of clay & shells	SP	1	1-2	7										
5		18			Medium dense tan & gray sand w/shells	SP	2	4-5	11										
		3			Very loose gray shells w/sand	SI	3	7-8											
10		2			Very loose brown & gray organic clayey sand w/small roots	SC	4	9-10	32										
					Very loose gray clayey sand w/small roots	SC	5	11-12	20										
15	2.25				Medium dense tan & gray clayey sand	SC	6	14-15	20	107	128	OB	—	770					
20	2.20				Stiff gray & tan clay w/sand pockets	CH	7	18-19	21	105	127	UC	—	1745					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 14 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	T.V. TSF	Other Tests
					Medium dense gray & tan clayey sand w/small roots	SC	1	2-3	17	110	129	OB	—	620					
5	0.85				Medium stiff tan & gray sandy clay	CL	2	5-6	23	103	126	UC	—	630				0.875	
10	1.25				Medium stiff gray & tan fissured clay w/sand pockets & lenses	CH	3	8-9	35	85	115	UC	—	540				0.975	
	0.70				Medium stiff gray & tan clay w/sandy silt lenses & pockets	CH	4	11-12	37	84	115							0.375	
15	1.20				Medium stiff gray & tan clay w/clayey silt layers	CH	5	14-15	41	80	112	OB	—	735					
20	1.60				Stiff gray & tan clay	CH	6	18-19											

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: 7.7' Job No: 10120 Date Drilled: 6/13/88 Boring: 15 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	T.V. TSF	Other Tests
	1.00				Stiff tan & gray clay w/sandy silt lenses & pockets	CH	1	2-3	22	104	127	UC	—	1390					
5	0.70				Medium stiff gray & tan clay w/sandy silt pockets & shell fragments	CH	2	5-6	33	88	117	UC	—	625	55	21	34	0.475	
10	0.75				Medium stiff gray & tan silty clay w/sand pockets & decayed roots	CL	3	8-9	29	94	121	UC	—	645					
	0.60				Medium stiff dark gray & tan sandy clay w/decayed roots	CL	4	11-12	21	108	131	UC	—	620					
15	0.80				Medium stiff tan & gray sandy clay w/decayed roots	CL	5	14-15	23	103	127	UC	—	865					
20	1.10				Medium compact gray & tan clayey silt w/clay lenses	ML	6	18-19	30	93	120	OB	—	615					
25	1.30				Stiff tan & gray clay w/silt pockets & lenses	CH	7	23-24											
30	2.20				Medium stiff tan & gray fissured clay	CH	8	28-29	44	78	112	UC	—	770				1.25	
35	2.00						9	33-34											
40	1.60				Medium stiff gray clay w/sand pockets & shell fragments	CH	10	38-39	29	92	119	UC	—	990				0.900	
45	1.15				Medium stiff gray fissured clay w/sand pockets & shell fragments	CH	11	43-44											
50	1.25						12	48-49	54	69	106	UC	—	760				0.600	

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/13/88 Boring: 16 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	T.V. TSF	Other Tests
	1.00				Medium stiff greenish-gray & tan clay w/silty clay layers & organic matter	CH	1	2-3	38	86	119	UC	—	640					
5	0.70				Medium stiff tan & gray sandy clay w/clay lenses & organic matter	CL	2	5-6	24	99	122	UC	—	950					
	0.65				Soft greenish-gray & tan silty clay w/trace of organic matter	CL	3	8-9	38	83	115								
10	0.70				Medium stiff gray & tan silty clay w/roots & trace of sand	CL	4	11-12	25	102	127	UC	—	560	43	20	23		
15	1.20				Stiff greenish-gray & tan clay w/sand pockets	CH	5	14-15	27	99	125	UC	—	1110				1.63	
20	1.35						6	18-19											

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/13/88 Boring: 17 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	1.10				Soft tan & gray clay w/clayey silt pockets	CH	1	2-3	37	84	115	UC	—	435					
5	0.85				Soft greenish-gray & tan clay w/sandy clay layers	CH	2	5-6	32	89	118	UC	—	360					
10	0.40				Loose gray clayey sand w/humus & roots	SC	3	8-9	28	94	120	OB	—	425					
	0.75				Soft gray & tan sandy clay w/decayed roots	CL	4	11-12	23	103	127	UC	—	365					
15	2.20				Stiff greenish-gray & tan clay w/sand pockets	CH	5	14-15	23	102	127	UC	—	1585					
20	1.50				Stiff tan & gray clay w/silt lenses & pockets	CH	6	18-19											

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/16/88 Boring: 18 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø'	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	1.25				Medium stiff gray & tan silty clay	CL	1	2-3	22	102	125	UC	—	890					
5	0.35				Medium stiff dark gray silty clay w/roots	CL	2	5-6	20	107	128	UC	—	695					
	0.35				Soft gray & tan silty clay w/roots & trace of sand	CL	3	8-9	26	97	122	UC	—	410	47	21	26		
10	2.25				Stiff light gray clay w/silt lenses & pockets	CH	4	11-12	21	106	128	UC	—	1755					
15	2.50						5	14-15											
	1.50				Medium stiff gray & tan clay w/silt pockets	CH	6	18-19	34	86	114	UC	—	905					
20																			

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15/88 Boring: 19 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.50				Medium stiff tan & gray silty clay w/trace of sand	CL	1	2-3	25	98	122	UC	—	860					
5	0.05				Medium stiff gray & tan clay w/clayey silt lenses	CH	2	5-6	23	101	124	UC	—	560					
10	0.50				Medium compact gray clayey silt w/many roots	ML	3	8-9	22	103	126	OB	—	830					
	0.85				Soft gray & tan sandy clay	CL	4	11-12	24	101	126	OB	—	325					
15	2.20				Stiff gray & tan sandy clay w/silt pockets	CL	5	14-15	20	106	128	UC	—	1185					
20	2.85				Very stiff gray & tan clay w/sand pockets	CH	6	18-19	25	99	123	UC	—	2055					

Boring drilled at staked location

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Eden Isles Expansion, Proposed Levee System, Vicinity of Slidell, Louisiana

Ground Elev.: Datum: Gr. Water Depth: See Text Job No: 10120 Date Drilled: 6/15/88 Boring: 20 Refer To "Legends & Notes"

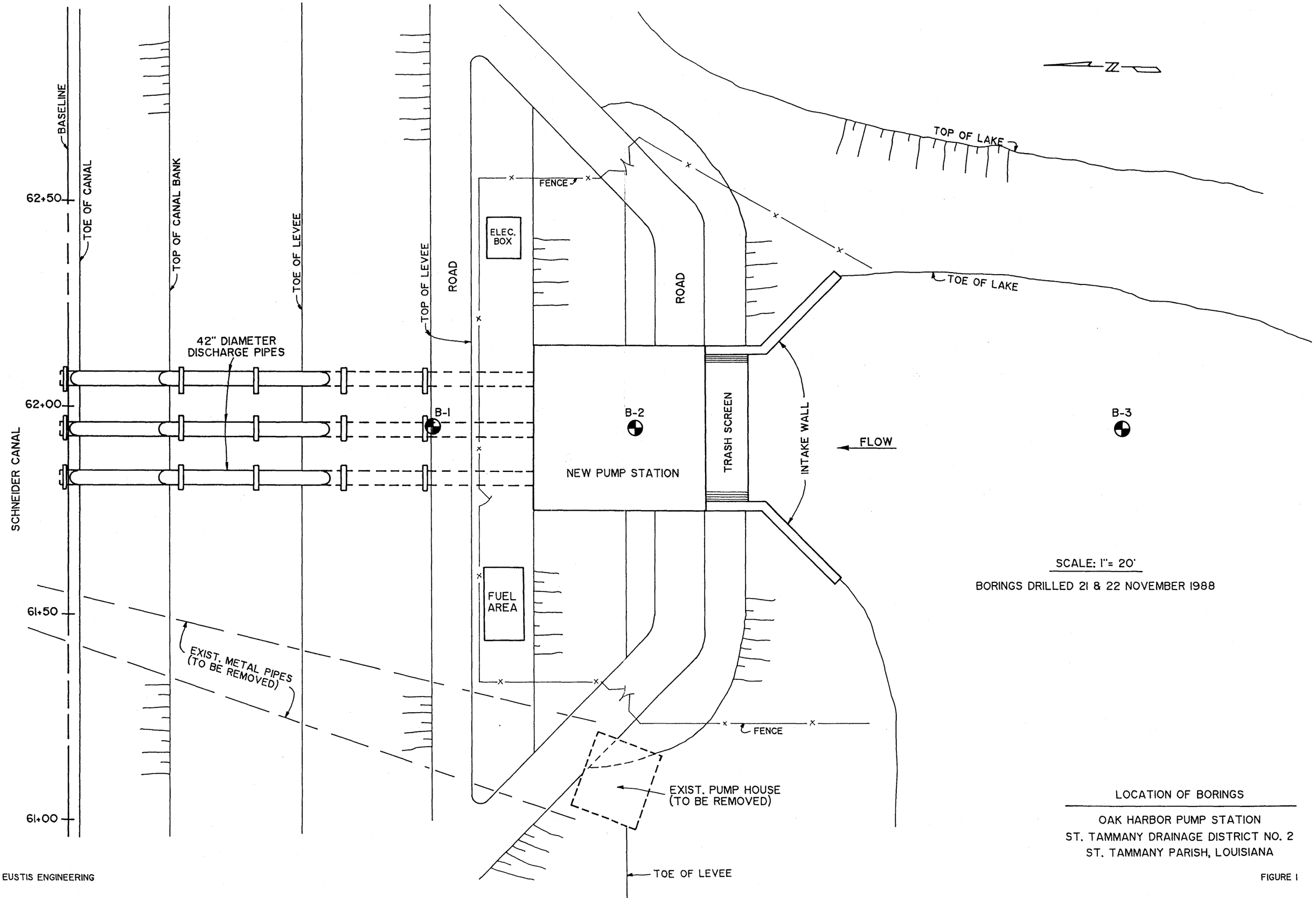
Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.75			FILL	Medium stiff tan & gray clay w/silt pockets & trace of organic matter (fill)	CH	1	2-3	36	84	114	UC	—	575					
5	1.20			FILL	Medium stiff greenish-gray & tan clay w/sand pockets & lenses (fill)	CH	2	5-6	22	99	121	UC	—	595					
					Very soft gray sandy clay w/organic matter & some roots	CL	3	8-9	26										
10	0.85				Medium stiff gray & tan sandy clay w/few small roots	CL	4	11-12	19	110	131	UC	—	620					
15	1.25				Stiff gray & tan sandy clay	CL	5	14-15	23	100	123	UC	—	1020					
20	1.30				Medium stiff gray & tan clay w/silty sand lenses & layers	CH	6	18-19	29	93	119	UC	—	810					
25	2.55				Very stiff gray & tan clay w/silt lenses & pockets	CH	7	23-24											
30	3.05				Stiff greenish-gray clay	CH	8	28-29	41	80	113	UC	—	1825					
35	0.60				Medium stiff gray clay w/trace of shell fragments & clayey sand layers	CH	9	33-34											
40	0.95				Soft gray clay w/sand lenses & layers	CH	10	38-39	36	82	111	UC	—	345					
45	0.65				Medium stiff gray clay w/shell fragments	CH	11	43-44											
50	0.70						12	48-49	53	70	107	UC	—	895					

Boring drilled at staked location

Borings from Eustis Job 10463

Used for

W-14 Floodgate/Old Spanish Trail Floodgate Alternative 6



SCALE: 1"= 20'

BORINGS DRILLED 21 & 22 NOVEMBER 1988

LOCATION OF BORINGS

OAK HARBOR PUMP STATION
ST. TAMMANY DRAINAGE DISTRICT NO. 2
ST. TAMMANY PARISH, LOUISIANA

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FIGURE 1

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Oak Harbor Pump Station, St. Tammany Drainage District No. 2, St. Tammany Parish, Louisiana

Ground Elev.: 1.60 Datum: MSL Gr. Water Depth: See Text Job No: 10463 Date Drilled: 11/22/88 Boring: 1 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.25				Very soft gray & tan sandy clay w/roots & gravel (fill)	CL	1	2-3	25	97	121	UC	—	175					
5					Very soft tan & gray silty clay w/organic matter, glass, tin, etc. (fill)	CL	2	5-6	30										
	0.90				Medium stiff gray & tan clay w/sand lenses & pockets	CH	3	8-9	23	101	125	UC	—	1000					
10	1.90				Medium stiff to stiff gray & tan clay w/silty clay layers	CH	4	11-12	27	96	121	UC	—	1145					
15	2.30				w/silt lenses & pockets		5	14-15	40	81	113	UC	—	710					
20	1.50				Soft gray & tan clay	CH	6	18-19	42	79	113	UC	—	460					
25	2.50				Stiff greenish-gray & tan clay w/silt pockets	CH	7	23-24	36	84	115	UC	—	1225					
30					Soft gray sandy clay w/clayey sand pockets	CL	8	28-29	35										
35	0.25				Medium stiff gray clay w/sandy clay pockets & layers	CH	9	33-34	39	82	114	UC	—	665					
		25			Medium dense gray fine sand	SP	10	37-38											
40		7			Loose gray clayey sand w/clay layers	SC	11	40-41	28										
45		50=7"			Very dense gray fine sand	SP	12	44-45											
50		50=9"					13	49-50											

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Oak Harbor Pump Station, St. Tammany Drainage District No. 2, St. Tammany Parish, Louisiana

(Sheet 1 of 2)

Ground Elev.: 2.15 Datum: MSL Gr. Water Depth: See Text Job No: 10463 Date Drilled: 11/21/88 Boring: 2 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
				Medium compact shells, sand & clay pockets														
				Compact tan & gray sandy silt w/organic matter & shell fragments	ML	1	2-3	56										
5	0.25			Soft light gray & tan silty clay w/silt pockets	CL	2	4-5	23	104	128	UC	—	355					
				Stiff gray & tan silty clay w/clayey silt	CL													
	1.30					3	8-9	19	109	130	UC	—	2115					
10				Stiff light gray & tan clay w/silty sand pockets	CH													
	2.00					4	11-12	25	100	125	UC	—	1605					
				Medium stiff to stiff gray & tan clay w/silt pockets	CH													
15	2.25					5	14-15	39	81	113	UC	—	940	70	24	46		
	1.90					6	18-19	40	81	114	UC	—	1130					
20				Stiff gray & greenish-gray clay w/silt pockets	CH													
	2.00					7	23-24	39	82	115	UC	—	1445					
25				Medium stiff gray clay w/clayey sand pockets	CH													
	0.30					8	28-29	45	76	110	UC	—	480	61	21	40		
30				Medium stiff gray sandy clay	CL													
	0.25					9	33-34	34	87	117	OB	—	515					
35				Loose gray fine sand w/clay pockets	SP													
						10	38-39	27	97	124	OB	—	760					
40				Loose gray clayey sand w/clay pockets	SC													
	0.30					11	42-43	26	98	123	OB	—	680					
45		50=10"		Very dense gray fine sand	SP	12	44-45											
		50=7"				13	47-48											
50																		

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Oak Harbor Pump Station, St. Tammany Drainage District No. 2, St. Tammany Parish, Louisiana

(Sheet 2 of 2)

Ground Elev.: 2.15 Datum: MSL Gr. Water Depth: See Text Job No: 10463 Date Drilled: 11/21/88 Boring: 2 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
		50=7"		Very dense gray fine sand	SP	14	50-51											
55		50=8"				15	54-55											
60		50=7"				16	59-60											
65		50=6"				17	64-65											
70		34		Dense gray medium coarse sand w/gravel & clay layers	SP	18	69-70											
75		50=7"		Very dense gray fine sand	SP	19	74-75											
80		50=10"				20	79-80											
85		50=10"				21	84-85											
90		50=7"		w/silt		22	89-90											
95		50=7"				23	94-95											
100		50=4"				24	99-100											

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LOG OF BORING AND TEST RESULTS

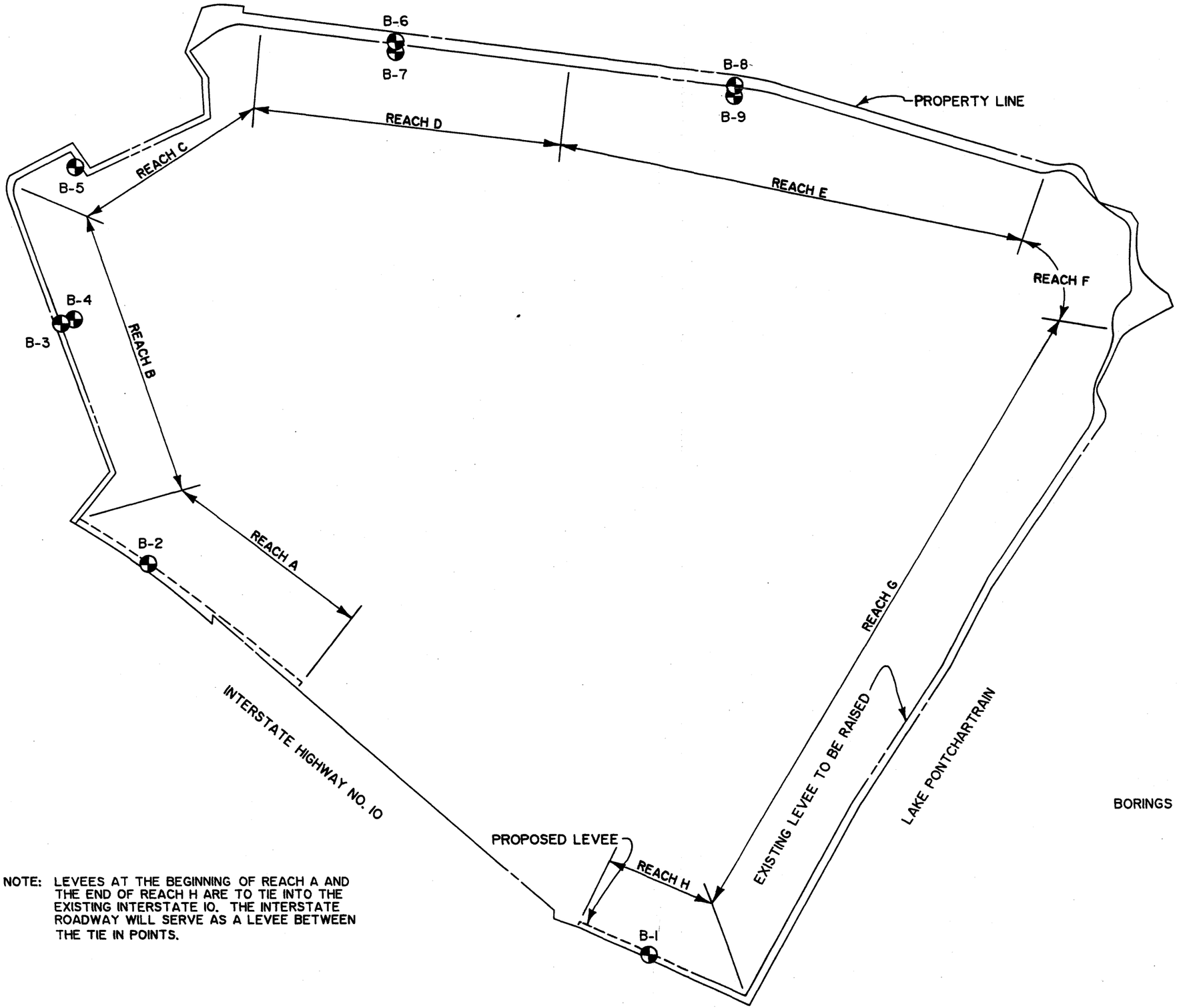
Oak Harbor Pump Station, St. Tammany Drainage District No. 2, St. Tammany Parish, Louisiana

Ground Elev.: 5.00 Datum: MSL Gr. Water Depth: See Text Job No: 10463 Date Drilled: 11/22/88 Boring: 3 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					Loose gray & tan fine sand w/clay pockets (fill)	SP	1	2-3											
5					Very stiff tan & gray sandy clay w/roots	CL	2	5-6	15	112	129	UC	—	2413					
10	0.90				Medium stiff light gray & tan & red sandy clay	CL	3	8-9	22	103	125	UC	—	720					
	4.25				Very stiff gray sandy clay w/silty sand pockets	CL	4	11-12	17	111	130	UC	—	2037					
15					Medium stiff gray silty clay w/vertical silty sand lenses	CL	5	14-15	21										
20		15			Medium dense gray fine sand	SP	6	18-19											
25		48			Dense gray fine sand	SP	7	21-22											
		22			Medium dense gray fine sand	SP	8	25-26											
30		4			Soft gray sandy clay w/silty clay pockets	CL	9	29-30	32										
35	0.40				Medium stiff gray silty clay w/sand lenses & pockets	CL	10	33-34	38	83	115	OB	—	890					
40	0.50				Medium stiff gray sandy clay w/clay lenses	CL	11	38-39	39	82	114	OB	—	651	36	21	15		
45	0.40						12	43-44	39	82	114	OB	—	915					
					Loose gray clayey sand	SC	13	47-48											
50		33			Dense gray fine sand	SP	14	49-50											

Borings from Eustis Job 11044

Used for South Oak Harbor Levees Alternative 6



SCALE: 1"=1200'

BORINGS DRILLED 4-9 APRIL 1990

NOTE: LEVEES AT THE BEGINNING OF REACH A AND THE END OF REACH H ARE TO TIE INTO THE EXISTING INTERSTATE 10. THE INTERSTATE ROADWAY WILL SERVE AS A LEVEE BETWEEN THE TIE IN POINTS.

LOCATION OF BORINGS

PERIMETER LEVEE SYSTEM
OAK HARBOR
EAST SIDE OF INTERSTATE 10
VICINITY OF SLIDELL, LOUISIANA

EUSTIS ENGINEERING

FIGURE 1

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: -1.50 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/03/90 Boring: 1 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLIT	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.50				Medium stiff gray & tan silty clay w/clay & clayey silt pockets, organic matter & roots (fill)	CL	1	2-3	41										
5	0.75				Medium stiff gray & tan clay w/silty sand lenses & organic clay layers (fill)	CH	2	5-6	42	80	113	UC	—	670					
	0.60				Medium stiff gray & light gray sandy clay w/silty sand pockets & lenses	CL	3	8-9	19	112	133	UC	—	1020					
10	0.20				Very soft gray clay w/sand & organic clay pockets & decayed roots	CH	4	11-12	60	65	103	UC	—	250					
15	0.15						5	14-15	83	53	97	UC	—	155	92	26	66		
20	2.50				Very stiff gray & light gray sandy clay	CL	6	18-19	20	107	128	UC	—	4570					
25	2.35				Stiff gray & greenish-gray silty clay	CL	7	23-24	25	98	122	UC	—	1160					
							8	27-28											
30		29			Medium dense gray fine sand w/clayey sand pockets	SP	9	29-30											
		6			Loose gray fine sand	SP	10	32-33											
35		6			w/clay layers		11	35-36											
40	0.20				Medium stiff gray clay w/sand pockets & lenses	CH	12	38-39	46	76	111	OB	—	590					

Coordinates: 10760 N; 11830 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: 1.0 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/04/90 Boring: 2 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	1.20				Medium stiff gray & tan silty clay w/clayey silt & clayey sand layers & roots	CL													
							1	2-3	21	104	125	OB	—	840					
5	0.75						2	5-6	23	103	127	UC	—	690					
					Stiff tan & gray clay w/sand & silt pockets & lenses	CH													
	1.50						3	8-9	22	104	127	UC	—	1425					
10	1.90						4	11-12	27	96	122	UC	—	1135					
15	1.50						5	14-15											
	1.50						6	18-19	37	84	115	UC	—	940					
20																			
	1.70				w/fissures		7	23-24											
25					Loose gray clayey sand w/clay layers, pockets & shell fragments	SC													
	0.75						8	28-29	32	91	120	OB	—	455					
30					Stiff gray clay w/clayey sand & silty sand pockets	CH													
	1.75						9	33-34	28	95	121	UC	—	960					
35					Medium stiff gray clay w/clayey silt lenses & shell fragments	CH													
	0.50						10	38-39	58	66	104	UC	—	480	79	24	55		
40																			

Coordinates: 17900 N; 17340 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: 6.78 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/04/90 Boring: 3 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	S/R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	1.50			FILL	Stiff tan & gray clay w/sand pockets & clayey sand layers (fill)	CH	1	2-3	24	102	125	UC	—	1375	56	20	36		
5	0.60			FILL	Medium stiff tan & gray clay w/clayey silt & clayey sand pockets (fill)	CH	2	5-6	22	104	127	UC	—	685					
	0.10				Soft tan & gray silty clay w/concretions & clayey silt layers	CL	3	8-9	22	103	126	OB	—	250					
10	1.75				Very stiff gray & tan sandy clay w/sand & clayey sand pockets & roots	CL	4	11-12	17	113	132	UC	—	2170					
15	2.25				Very stiff tan & gray clay w/sandy clay layers	CH	5	14-15											
20	3.50						6	18-19	25	101	126	UC	—	3560					
25	2.30				Stiff tan & gray clay w/silt pockets	CH	7	23-24											
30	2.20			FISS	w/fissures		8	28-29	40	80	113	UC	—	1540					
35	0.70				Loose gray & tan clayey sand	SC	9	33-34											
40	1.75				Stiff gray & tan clay w/silt pockets & lenses	CH	10	38-39	34	87	116	UC	—	1090					
45	0.60				Medium stiff gray clay w/shell fragments	CH	11	43-44	58	66	104	UC	—	650					

Coordinates: 18681 N; 20362 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: 0.5 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/05/90 Boring: 4 Refer To "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.10				Soft gray & tan sandy clay w/roots & concretions	CL	1	2-3	23	105	129	OB	—	255					
5	0.60						2	5-6	24	104	128	OB	—	445					
	1.30				Medium stiff gray & tan clay w/sand pockets & lenses	CH	3	8-9	28	96	123	UC	—	940					
10	2.60				Stiff tan & gray silty clay w/clayey sand pockets	CL	4	11-12	29	93	121	UC	—	1200					
15	2.60				Stiff tan & gray clay w/clayey silt lenses & fissures	CH	5	14-15											
	2.10						6	18-19	45	77	111	UC	—	1120					
20	1.16				Stiff tan & gray clay w/fissures & clayey sand layers & concretions	CH	7	23-24	44	78	112	UC	—	1650					
25	1.70				Medium stiff gray & tan clay w/clayey silt pockets & shell fragments	CH	8	28-29	29	91	118	UC	—	785					
30	0.60				Medium stiff gray clay w/clayey silt & silty sand lenses, layers & shell fragments	CH	9	33-34	45	78	112	UC	—	560					
35	0.50						10	38-39	57	68	106	UC	—	520					
40																			

Coordinates: 18571 N; 20399 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: -1.50 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/05/90 Boring: 5 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.10				Very soft black humus	Pt	1	2-3	517	11	67	UC	—	60	448	131	317		
5	0.20				Loose gray silty fine sand w/clayey sand layers	SM	2	5-6	26	98	124	OB	—	375					
	1.70				Stiff gray sandy clay w/clayey sand pockets, layers & lenses	CL	3	8-9	19	111	132	UC	—	1695					
10	3.75				Stiff gray & greenish-gray sandy clay w/sand pockets	CL	4	11-12	17	111	130	UC	—	1350					
15	4.20				Stiff light gray sandy clay w/clayey sand pockets & layers	CL	5	14-15	17	115	134	OB	—	1470					
	2.75				Medium dense to dense light gray silty fine sand	SM	6	17-18											
20		42			Dense gray fine sand w/trace of wood	SP	7	19-20											
		46					8	22-23											
25		27			Medium dense gray fine sand	SP	9	25-26											
30		47			Dense gray fine sand	SP	10	29-30											
35		37					11	34-35											
40		50=10"			Very dense gray fine sand	SP	12	39-40											

Coordinates: 18469 N; 22752 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: 5.55 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/06/90 Boring: 6 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.75				Medium stiff tan & gray clay w/roots & clayey sand pockets (fill)	CH	1	2-3	30	90	117	UC	—	700					
5	1.60				Medium stiff to stiff tan & gray clay w/silty clay & sandy clay pockets & layers	CH	2	5-6	31	93	121	UC	—	1070					
	1.20						3	8-9	24	102	127	UC	—	900					
10	0.90				Soft tan & gray clay w/silty clay layers	CH	4	11-12	35	88	119	UC	—	430					
15	0.00				Loose gray clayey sand w/clay pockets	SC	5	14-15	21										
20	2.75				Stiff gray sandy clay w/clayey sand layers	CL	6	18-19	14	121	138	OB	—	1890	25	19	6		
25	1.30				Stiff gray & tan clay w/sandy silt pockets & fissures	CH	7	23-24	41	79	112	UC	—	1515					
30	1.75				Medium stiff tan & gray clay w/silt pockets & decayed wood	CH	8	28-29	39	83	115	UC	—	965					
35	0.40				Soft gray sandy clay w/clayey sand pockets & shell fragments	CL	9	33-34	34	89	119	UC	—	370	35	20	15		
40	1.30				Stiff gray clay w/silt pockets & lenses & shell fragments	CH	10	38-39	40	81	113	UC	—	1025					
45	3.10				Very stiff greenish-gray clay w/silty clay layers & pockets	CH	11	43-44	25	99	124	UC	—	2625					

Coordinates: 14373 N; 24368 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: -1.50 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/10/90 Boring: 7 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.30				Medium stiff dark brown organic clay w/humus layers	OH	1	2-3	234	22	72	UC	—	590					
5	0.10				Very soft dark brown & gray organic clay w/humus & sand pockets	OH	2	5-6	166	30	80	UC	—	130	169	41	128		
	0.90				Medium stiff light gray sandy clay w/clayey sand layers	CL	3	8-9	21	106	128	OB	—	735					
10	1.20				Medium dense gray clayey sand w/sandy clay pockets	SC	4	11-12	14	121	139	OB	—	1380					
15		37	X		Dense gray & tan silty fine sand	SM	5	13-14											
		8	X		Medium stiff gray & greenish-gray clay	CH	6	16-17											
20	1.40				Stiff tan & gray clay	CH	7	18-19	45	75	109	UC	—	1050					
25	0.50				Loose gray clayey sand w/clay pockets & organic matter	SC	8	23-24											
30	1.50				Stiff gray clay w/clayey sand pockets & organic matter	CH	9	28-29	30	93	120	UC	—	1020					
35	0.50				Medium stiff gray clay w/shell fragments & organic matter	CH	10	33-34	60	63	102	UC	—	640	82	24	58		
40	2.20				Stiff greenish-gray clay w/silt pockets & layers	CH	11	38-39	30	92	120	OB	—	1045					

Coordinates: 14382 N; 24295 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: 7.17 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/09/90 Boring: 8 Refer To "Legends & Notes"

Scale in Feet	PP	SPT	SPLIT	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.75				Medium dense tan & gray clayey sand w/trace of clay	SC	1	2-3	13	117	133	OB	—	730					
5	0.80				Dense light gray & tan fine sand w/clay pockets	SP	2	5-6	16	114	132	OB	—	2070					
	0.40				Loose gray clayey sand w/organic matter	SC	3	8-9	15	118	136	OB	—	465					
10	1.50				Medium dense tan & gray clayey sand	SC	4	11-12	16	116	135	OB	—	845					
15	1.60	50=11"			Very dense tan & gray fine sand w/clay pockets	SP	5	16-17											
20		8			Loose tan & gray fine sand w/clay layers	SP	6	19-20											
		5			Medium stiff gray & tan clay w/silt lenses, sand pockets & fissures	CH	7	22-23											
25	1.70						8	24-25	40	80	111	UC	—	585					
30	1.60				Stiff tan & gray clay w/silt & sand pockets	CH	9	28-29	46	76	111	UC	—	1405					
35	1.90				Stiff gray & tan clay w/fissures	CH	10	33-34	46	76	110	UC	—	1040					
					Loose gray clayey sand w/clay layers & organic matter	SC	11	38-39											
40					Very stiff greenish-gray clay w/silty sand pockets & shell fragments	CH	12	43-44	34	87	117	UC	—	1085					
45																			

Coordinates: 10021 N; 23715 E

EUSTIS ENGINEERING

LOG OF BORING AND TEST RESULTS

Perimeter Levee System, Oak Harbor, East Side of Interstate 10, Vicinity of Slidell, Louisiana

Ground Elev.: 1.25 Datum: NGVD Gr. Water Depth: See Text Job No: 11044 Date Drilled: 4/09/90 Boring: 9 Refer To "Legends & Notes"

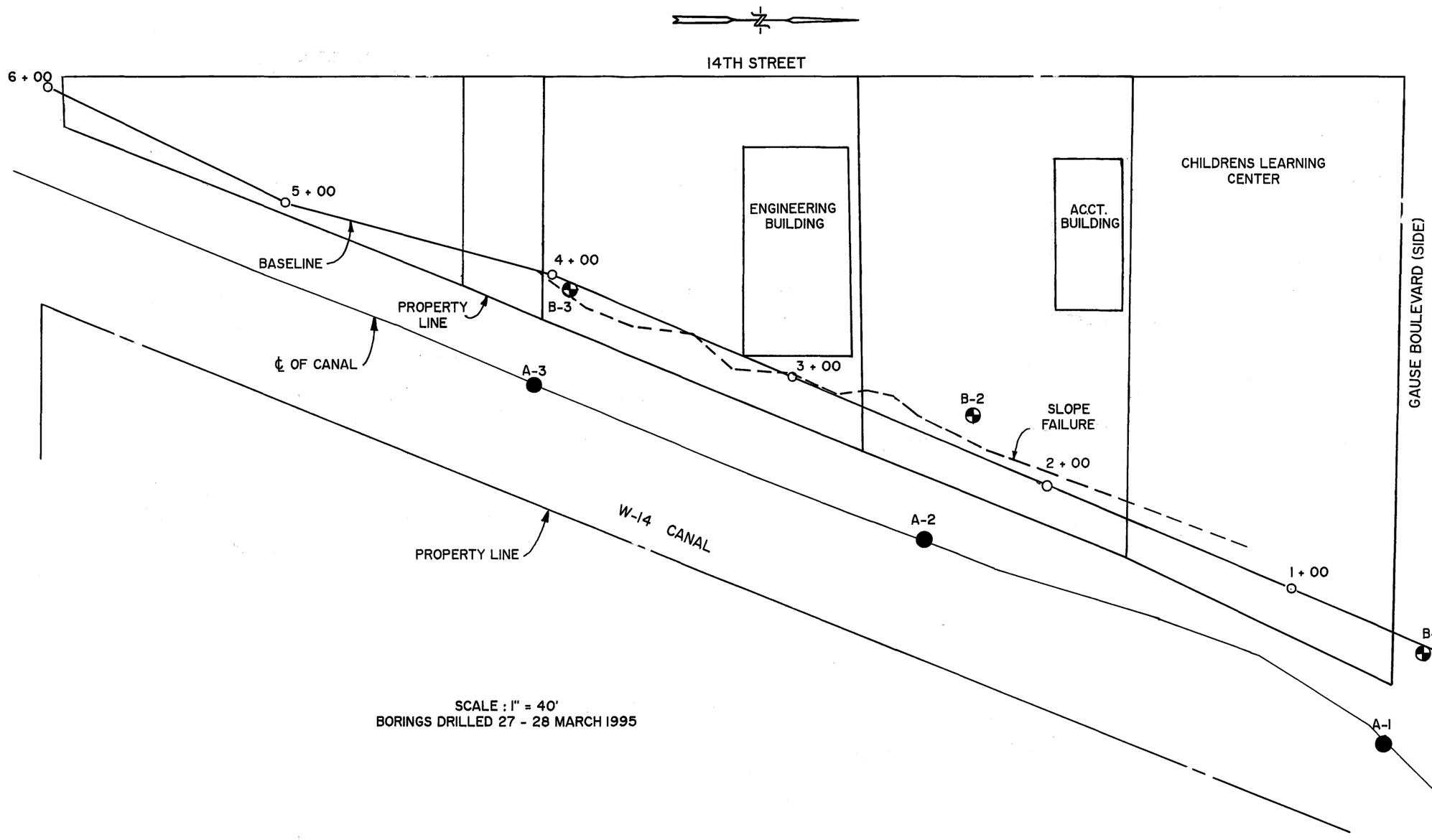
Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
	0.75				Medium dense gray & tan clayey sand w/humus layers, roots & organic matter	SC	1	2-3	16	116	135	OB	—	515					
5	0.75						2	5-6	16	116	135	OB	—	745	15	12	3		
	0.70				Loose gray & tan fine sand w/clay pockets	SP	3	8-9	18	110	130	OB	—	380					
10		13			Medium dense gray fine sand	SP	4	10-11											
		4			Soft gray & tan clay w/silt pockets	CH	5	13-14	35										
15	1.70				Medium stiff gray & tan clay w/silty sand pockets	CH	6	14-15	30	93	121	UC	—	835					
20	3.10				Stiff tan & gray clay w/silty clay & sand pockets	CH	7	18-19	34	87	117	UC	—	1060					
25	2.10						8	23-24											
30	1.60				Stiff gray & tan clay w/fissures	CH	9	28-29	46	75	110	UC	—	1200					
35	1.60				Stiff greenish-gray sandy clay w/clayey sand & clay layers	CL	10	34-35											
40	0.50				Medium stiff gray sandy clay w/shell fragments	CL	11	39-40	35	87	117	UC	—	655					

Coordinates: 10032 N; 23643 E

Borings from Eustis Job 13418

Used for

Pearl River Levees Alternative 7



LOCATION OF BORINGS

SLIDELL MEMORIAL HOSPITAL
BANK STABILIZATION STUDY
W-14 DRAINAGE CANAL
SLIDELL, LOUISIANA

FIGURE 1

EUSTIS ENGINEERING COMPANY, INC.

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

SLIDELL MEMORIAL HOSPITAL, BANK STABILIZATION STUDY
W-14 DRAINAGE CANAL, SLIDELL, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth: See Text** **Job No.: 13418** **Date Drilled: 3/28/95** **Boring: 1** **Refer To "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests Ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					8" Asphalt Pavement														
		8	X		Loose tan fine sand	SP	1	1-2											
					Loose gray clayey silt	ML	2	3-4	14	114	130								
5					Loose brown & gray sandy silt w/few roots	CL													
	0.40				Soft tan & light gray sandy clay w/clayey sand pockets	CL	3	5-6	19	102	122	OB	--	410					
	2.70				Stiff tan & gray sandy clay w/clayey sand pockets		4	8-9	23	100	123	OB	--	1195					
10					Dense light gray clayey sand	SC													
	3.00						5	11-12	19	108	128	OB	--	1910					
					Loose light gray clayey sand	SC													
15							6	14-15	21	103	125	OB	--	440					
					Loose light gray fine sand	SP	7	18-19											
20																			
		16	X		Medium dense light gray fine sand	SP	8	21-22											
25		13	X				9	24-25											
30		10	X		Loose light gray fine sand	SP	10	29-30											
35		23	X		Medium dense gray fine sand	SP	11	34-35											
40		19	X				12	39-40											
45																			
50																			

Boring located at Station 0+45, 3 feet east of baseline and 6 feet west of failure.

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

SLIDELL MEMORIAL HOSPITAL, BANK STABILIZATION STUDY
W-14 DRAINAGE CANAL, SLIDELL, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth: See Text** **Job No.: 13418** **Date Drilled: 3/28/95** **Boring: 2** **Refer To "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests Ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					3.5" Loose white shells		1	0-0.3											
	0.10				Very loose light gray clayey sand w/trace of organic matter & clayey silt layers	SC	2	2-3	24	98	122	OB	--	75					
5	0.60				Stiff tan & gray sandy clay w/few concretions	CL	3	5-6	21	101	123	UC	--	1055					
	2.50				Stiff tan & light gray clay w/sand pockets & lenses	CH	4	8-9	19	104	123	UC	--	1375					
10	2.60				Medium stiff light gray clay w/vertical clayey sand lenses	CH	5	11-12	27	95	120	UC	--	980					
15	2.70				w/few clayey sand pockets		6	14-15											
20	1.70				Medium stiff light gray & tan clay w/fissures & silt lenses & pockets	CH	7	18-19	36	84	115	OB	--	630					
25	1.50				Stiff brown & gray clay	CH	8	23-24											
30					Medium dense greenish-gray clayey sand	SC	9	28-29	25	98	123	OB	--	1635					
35	1.25				Stiff gray clay w/clayey silt & clayey sand lenses & trace of organic matter	CH	10	33-34											
40	0.40				Loose gray clayey sand w/clay lenses & pockets	SC	11	38-39	29	93	120	OB	--	480					
45																			
50																			

Boring located at Station 2+34, 12 feet west of baseline and 8 feet west of failure.

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

SLIDELL MEMORIAL HOSPITAL, BANK STABILIZATION STUDY
W-14 DRAINAGE CANAL, SLIDELL, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth: See Text** **Job No.: 13418** **Date Drilled: 3/27/95** **Boring: 3** **Refer To "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests Ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					4" Asphalt pavement														
		6			8" Medium dense white shells	ML	1	1-2	16										
	0.20				Loose gray clayey silt w/shell fragments	ML	2	3-4	22	103	125	OB	--	230					
5					Very loose dark gray clayey silt														
	1.10				Medium stiff light gray & tan clay w/clayey sand pockets	CH	3	5-6	25	99	123	UC	--	605					
	1.50				Stiff light gray & tan clay w/sand pockets	CH	4	8-9	28	95	121	UC	--	1335					
10					Very stiff light gray & tan clay	CH													
	2.50						5	11-12											
15	3.00				w/sand pockets		6	14-15	25	98	123	UC	--	2190					
	2.20				w/few silt lenses		7	18-19											
20																			
	1.60				Medium stiff gray & tan clay w/sand pockets	CH	8	23-24	33	86	114	UC	--	875					
25																			
	0.75				Medium stiff gray & dark gray clay w/silty sand layers	CH	9	28-29											
30																			
	1.30				Soft gray & reddish-brown clay w/silty sand pockets & lenses & trace of organic matter	CH	10	33-34	49	72	108	OB	--	430					
35																			
	0.40				Soft gray sandy clay w/clayey sand pockets	CL	11	38-39											
40																			
45																			
50																			

Boring located at Station 3+92, 3 feet west of failure.

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

SLIDELL MEMORIAL HOSPITAL, BANK STABILIZATION STUDY
W-14 DRAINAGE CANAL, SLIDELL, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth: See Text** **Job No.: 13418** **Date Drilled: 3/27/95** **Boring: A-1 - A-3** **Refer To "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests Ø	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
					AUGER BORING A-1														
0					Very loose gray & tan fine sand	SP	1	0-1	26	98	123								
					Very loose gray & tan sandy silt	ML	2	1-2	25	101	126	OB	--	210					
					Loose light gray silty sand	SM	3	3-4											
5							4	5-6											
							5	7-8	25										
10					Very soft light gray sandy clay	CL	6	9-10											
					Station 0+45														
					AUGER BORING A-2														
0					Soft gray & tan silty clay w/trace of sand	CL	1	0-1											
							2	1-2	30	91	119	OB	--	480					
							3	3-4											
5					Medium stiff gray & tan clay w/silt pockets & fissures	CH	4	5-6	48										
							5	7-8											
10							6	9-10	49										
					Station 2+34														
					AUGER BORING A-3														
0					Loose gray & tan sandy silt		1	0-0.5	36										
					Medium stiff gray & tan clay w/sand & organic clay layers	SC	2	1.5-2	38										
					Very loose gray & tan clayey sand w/clay layers	CL	3	3-4	38										
5					Very soft gray & tan silty clay w/trace of sand	CL	4	5-6											
					Stiff tan & gray sandy clay		5	7-8											
10							6	9-10											
					Station 3+92														

Borings located near canal centerline. Depths referenced from existing mudline.

Borings from Eustis Job 13965

Used for

Bayou Lacombe Flood Gate Alternative 4

Bayou Liberty/Bayou Vincent/Bayou Bonfouca Structures Alternative 5

West Slidell Levees Alternative 5

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

DELWOOD PUMPING STATION
FRONT STREET
SLIDELL, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** See Text **Job No.:** 13965 **Date Drilled:** 3/27/96 **Boring:** 1 Refer to "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
0					Loose dark gray & tan clayey silt w/silty clay layers, shells & roots	ML	1	0-0.5											
	2.80				Very stiff tan & gray silty clay w/clay layers, shells & roots	CL	2	2-3	17									DIST.	
					Loose tan fine sand w/clayey sand pockets	SP	3	5-6											
	2.10				Stiff gray & tan silty clay w/clayey silt layers	CL	4	8-9	21	105	126	UC	--	1600	43				
10					Medium stiff gray & tan silty clay w/clayey silt layers	CL	5	11-12	28	94	121	OB	--	580					
	1.60				Stiff tan & gray clay w/clayey silt lenses	CH	6	14-15	45	76	111	OB	--	345					
	1.60						7	18-19	35						74				
20																			
	1.50				Medium stiff gray & tan clay w/shell fragments & fissures	CH	8	23-24	50	72	107	OB	--	630					
					Loose gray clayey sand w/shell fragments	SC	9	28-29	26										
30																			
	0.40				Soft gray clay w/silty sand layers, pockets & concretions	CH	10	33-34	40	82	114	OB	--	345					
	0.60				Medium stiff gray clay w/clayey silt lenses & shell fragments	CH	11	38-39	48	73	108	UC	--	580					
40																			
	0.60				w/shell fragments		12	43-44	48	74	109	UC	--	445					
50					Medium compact gray clayey silt w/shell	ML	13	48-49											

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

DELWOOD PUMPING STATION
FRONT STREET
SLIDELL, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** See Text **Job No.:** 13965 **Date Drilled:** 3/27/96 **Boring:** 1 Refer to "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
50					Medium compact gray clayey silt w/shell fragments	ML													
						CH													
	1.80				Stiff greenish-gray clay w/clayey silt pockets & shell fragments		14	53-54	33	88	117	OB	--	955					
	1.60				w/fissures & shell fragments		15	58-59	35	85	115	OB	--	1105					
60																			
					Loose gray clayey sand	SC	16	62-63											
	0.60				Medium stiff brown & gray clay w/organic matter & fissures	CH	17	64-65	64	60	99	OB	--	515					
	0.90						18	68-69	71	57	97	OB	--	805					
70																			
	1.80				Stiff greenish-gray clay w/silt pockets	CH	19	73-74	30	92	119	OB	--	2225					
	2.70				Stiff greenish-gray & tan clay w/fissures	CH	20	78-79	44	76	110	OB	--	835					
80																			
90																			
100																			

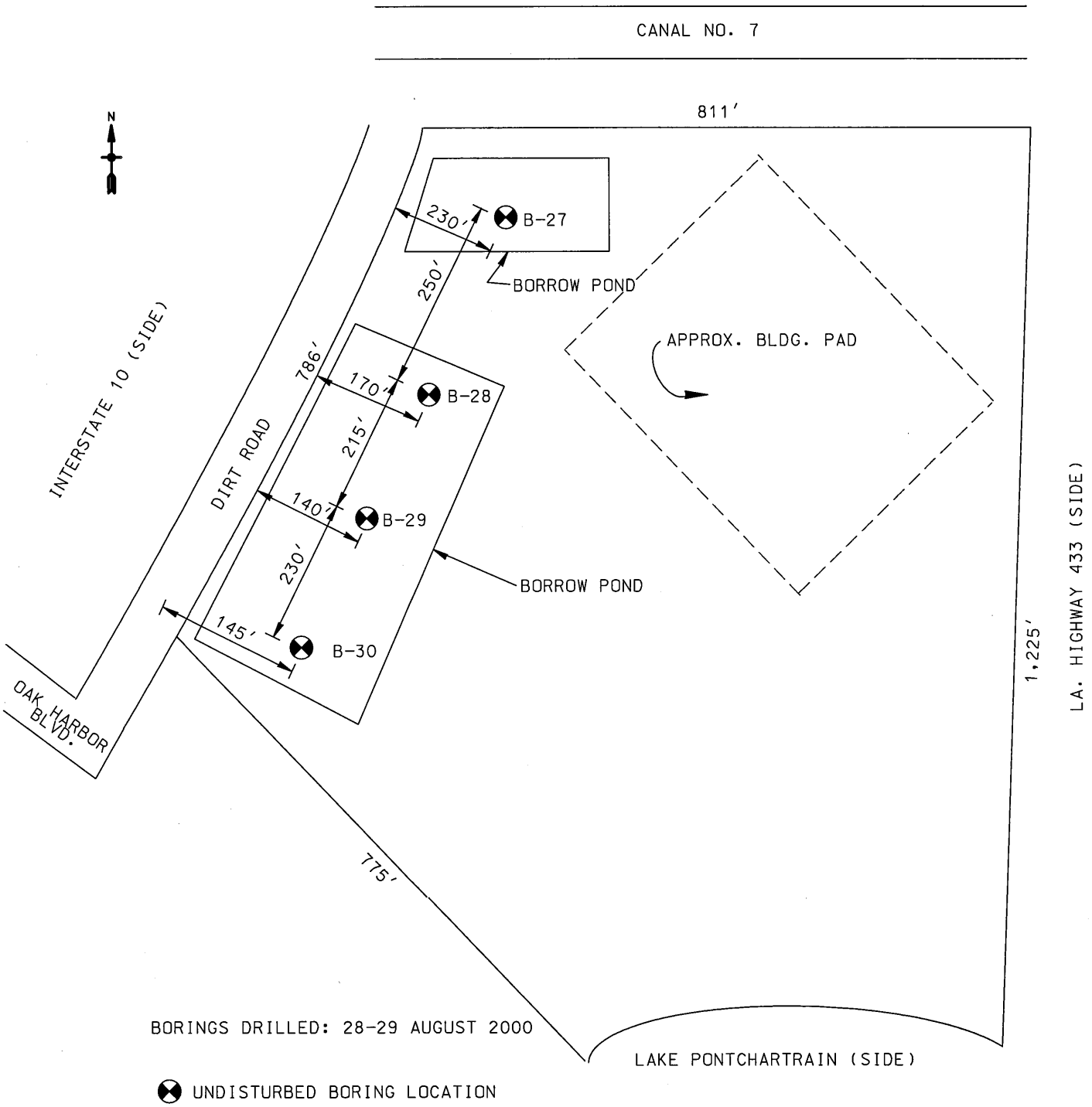
Comments:

Borings from Eustis Job 16613

Used for

Eden Isles Levees Alternative 6

Eden Isles Structures/I-10 Gates Alternative 6



NOT TO SCALE

LOCATION OF BORINGS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

EUSTIS ENGINEERING COMPANY, INC.

ENCLOSURE 1

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/29/00 **Boring:** 27 **Refer to "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
0					Loose dark gray clayey silt w/organic matter	ML	1	0-0.5	36										
					Loose brown & gray clayey sand	SC	2	2-3	15										
					Loose gray & tan clayey sand w/organic matter	SC	3	5-6	19	109	129	OB	--	560					
					Soft gray & tan sandy clay w/organic matter	CL	4	8-9	22						25	14	11		
10					Very soft light gray sandy clay	CL	5	11-12	21	107	130	UC	--	150					
					Very soft gray & tan sandy clay	CL	6	14-15	32						26	17	9		
	0.50				Medium stiff greenish-gray clay w/silt lenses	CH	7	18-19	36	84	114	UC	--	665					
20	1.80				Medium stiff greenish-gray clay		8	23-24	47	75	111	UC	--	805					
	2.00				Stiff greenish-gray & tan clay w/clayey sand lenses	CH	9	28-29	47										
30	1.00				Soft gray sandy clay w/shell fragments & roots	CL	10	33-34	27	96	122	UC	--	415					
	0.25				Medium stiff gray clay w/sand pockets & organic matter	CH	11	38-39	42	78	111	UC	--	605					
40					Loose gray shells w/clayey sand	GP	12	43-44	24										
50	0.50				Medium stiff gray clay w/silt pockets, organic matter, & large roots	CH	13	48-49	36	84	115	UC	--	785					

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/29/00 **Boring:** 27 Refer to "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ϕ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
50					Medium stiff gray clay w/trace of sand & organic matter	CH													
	0.25						14	53-54											
	0.30				w/trace of sand		15	58-59	26										
60					Loose gray fine sand	SP	16	59.5-60											
70																			
80																			
90																			
100																			

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/29/00 **Boring:** 28 **Refer to "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
50					Stiff gray clay w/trace of organic matter	CH													
	1.00						14	53-54	30	93	121	UC	--	1295					
							15	57-58											
		48			Dense gray fine sand w/clayey sand layers	SP	16	59-60											
60																			
70																			
80																			
90																			
100																			

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/29/00 **Boring:** 28 Refer to "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ϕ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
0					Medium stiff dark gray silty clay w/organic matter & roots	CL	1	0-0.5											
							2	2-3	25										
	1.75				Stiff gray & tan sandy clay w/organic matter	CL	3	5-6	19	110	131	UC	--	1680	35	12	23		
	1.50				Medium stiff light gray clay w/sand pockets & layers	CH	4	8-9	28	95	121	UC	--	755					
10	1.50				Medium stiff gray clay w/sand lenses & pockets	CH	5	11-12	30	93	120	UC	--	745	69	17	52		
	1.25				Medium stiff gray & tan clay w/clayey sand pockets	CH	6	14-15	32										
	2.25				Stiff gray & tan clay w/sand lenses & pockets	CH	7	18-19											
20	1.75				Medium stiff light gray & tan clay w/organic matter	CH	8	23-24	46	76	111	UC	--	980					
	1.50						9	28-29											
30					Soft gray clay w/trace of shell fragments	CH	10	33-34	62	63	102	UC	--	410					
	0.25				Medium stiff gray clay w/clayey sand lenses & layers	CH	11	38-39	29	93	120	UC	--	595					
40	0.25				Soft gray clay w/shell fragments	CH	12	43-44	59	65	103	UC	--	430					
	0.75				Medium stiff gray clay w/sand pockets & organic matter	CH	13	48-49											
50																			

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/28/00 **Boring:** 29 Refer to "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
0					Loose dark gray clayey silt w/organic matter & roots	ML	1	0-0.5	35						71	19	52		
					Soft gray sandy clay w/organic matter	CL	2	2-3	17	109	127	UC	--	430	24	12	12		
	2.50				Medium stiff to stiff greenish-gray sandy clay w/trace of organic matter	CL	3	5-6	20	105	126	UC	--	710	50	15	35		
	2.25				Medium stiff to stiff greenish-gray sandy clay		4	8-9	22	103	126	UC	--	1350	55	15	40		
10	1.00				Medium stiff light gray clay w/sand lenses & pockets	CH	5	11-12	29	94	121	UC	--	820					
	0.75				Medium stiff gray & tan clay w/sand lenses & concretions	CH	6	14-15	34	93	125	UC	--	435					
	2.25				Stiff gray & tan clay w/sand pockets	CH	7	18-19											
20	1.25				Medium stiff gray & tan clay w/concretions & trace of organic matter	CH	8	23-24	45	75	109	UC	--	755					
	1.75				Stiff greenish-gray & tan clay	CH	9	28-29											
30					Soft gray clay w/sand lenses & shell fragments	CH	10	33-34	59	65	103	UC	--	450					
					w/silt lenses & pockets, shell fragments, & trace of organic matter		11	38-39	48	73	108	UC	--	465					
40	0.25				Medium stiff gray clay w/silt pockets & shell fragments	CH	12	43-44	57	67	105	UC	--	555					
50					Medium stiff brown sandy clay w/roots, wood, & organic matter	CL	13	48-49	36	84	114	UC	--	855					

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/28/00 **Boring:** 29 **Refer to "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests ϕ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
50					Medium stiff gray sandy clay w/organic matter	CL													
							14	53-54	28	96	122	UC	--	575					
					Loose gray clayey sand	SC	15	58-59											
60																			
70																			
80																			
90																			
100																			

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/28/00 **Boring:** 30 Refer to "Legends & Notes"

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
0					Medium stiff dark gray silty clay w/organic matter & roots	CL	1	0-0.5	62										
					Medium stiff light brown sandy clay	CL	2	2-3	19	109	129	UC	--	555	24	14	10		
	1.75				Medium stiff gray sandy clay w/organic matter	CL	3	5-6	22	102	125	UC	--	625	39	14	25		
	2.20				Medium stiff light gray clay w/large sand pockets	CH	4	8-9	20	103	124	UC	--	160	63	16	47		
10	1.50				Stiff gray & tan clay w/sand pockets	CH	5	11-12	30	92	120	UC	--	1155	67	16	51		
	2.25						6	14-15											
	1.50				Medium stiff gray & tan clay w/clayey silt pockets	CH	7	18-19	36	85	115	UC	--	705					
20																			
	2.30				Stiff gray & tan clay w/sand pockets	CH	8	23-24											
	2.25				w/silt lenses		9	28-29											
30																			
					Soft gray clay w/sand pockets & shell fragments	CH	10	33-34	63	62	101	UC	--	455					
	0.60				w/clayey silt pockets & trace of organic matter		11	38-39	36	85	115	UC	--	360					
40																			
	0.25				Soft dark gray clay w/silt lenses & pockets, & trace of shell fragments	CH	12	43-44	56	67	105	UC	--	480					
					Loose gray clayey sand w/shell fragments	SC	13	48-49											
50																			

Comments:

EUSTIS ENGINEERING COMPANY, INC.

LOG OF BORING AND TEST RESULTS

EAST ST. TAMMANY EVENTS CENTER
PROPOSED BORROW PONDS
VICINITY OF OAK HARBOR BOULEVARD AND INTERSTATE 10
ST. TAMMANY PARISH, LOUISIANA

Ground Elev.: **Datum:** **Gr. Water Depth:** **Job No.:** 16613 **Date Drilled:** 8/28/00 **Boring:** 30 **Refer to "Legends & Notes"**

Scale In Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth In Feet	Water Content Percent	Density Dry	Density Wet	Shear Tests Type	Shear Tests φ	Shear Tests C	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
50		32			Dense gray & brown fine sand w/organic matter	SP	14	50-51	26										
		22			Medium dense gray fine sand	SP	15	53-54											
		11			Medium stiff gray silty clay	CL	16	56-57	27										
	0.40				Soft gray clay w/organic matter	CH	17	58-59											
60																			
70																			
80																			
90																			
100																			

Comments:

SECTION 3

Parameters for Estimates

Stability Parameter Tables

Eustis Job No. 09318 Used For Bayou Lacombe Levee Analysis

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
CL	0	-7	7 ‘	103	700	700
CH	-7	-15	8 ‘	112	1200	1200
CH	-15	-28	13 ‘	120	1400	1400
SM	-28	-40	12 ‘	122	0	0

Eustis Job No. 13965 Used For West Slidell Levee, Bayou Lacombe Floodgate, Bayou Lacombe Floodgate, Bayou Bonfouca Floodgate, Bayou Liberty Floodgate, Bayou Vincent Floodgate, Bayou Pacquet Floodgate, South Slidell Surge Reduction Wall

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
CL	0	-13	13 ‘	105	580	580
CH	-13	-26	13 ‘	107	400	400
SC	-26	-32	6 ‘	122	0	0
CH	-32	-48	16 ‘	108	400	400
ML	-48	-52	4 ‘	117	200	200
CH	-52	-80	28 ‘	105	800	800

Eustis Job No. 16613 + 10463 from -54 to -100 Used For Eden Isles Levee, Eden Isles Marina Gate, Eden Isles South Floodwall, Eden Isles Southwest Floodwall, Eden Isles West Floodwall

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
SC	0	-7	7 ‘	122	0	0
CL	-7	-15	8 ‘	120	700	700
CH	-15	-30	15 ‘	111	700	700
CH	-30	-46	16’	110	600	600
SP	-46	-54	8 ‘	122	0	0
SP	-54	-100	46’	122	0	0

Eustis Job No. 10120 Used For South Slidell Levee Analysis

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
CH	0	-10	10 ‘	125	640	640
CH	-10	-20	10 ‘	123	800	800
CH	-20	-35	15 ‘	111	725	725
CH	-35	-50	15 ‘	110	760	760

Eustis Job No. 11044 Used For Oak Harbor Levee Analysis

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
CH	0	-10	10 ‘	125	650	650
CH	-10	-29	19 ‘	118	1030	1030
SM	-29	-34	5 ‘	122	0	0
CH	-34	-50	16 ‘	110	640	640

Eustis Job No. 10463 Used For W-14 Floodgate, Old Spanish Trail Floodgate

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
ML	0	-3	3 ‘	117	200	200
CH	-3	-16	13 ‘	125	1000	1000
SP	-16	-26	10 ‘	122	0	0
CH	-26	-44	18 ‘	108	600	600
SP	-44	-100	4 ‘	122	0	0

Eustis Job No.13418 Used For Pearl River Levee and Pearl River Floodgate

Material	Top EL	Bottom EL	thickness	density	C-top	C-bottom
CL	0	-15	15 ‘	124	500	50
SM	-15	-22	7 ‘	122	0	0
CH	-22	-29	7 ‘	114	900	900
SM	-29	-33	4 ‘	122	0	0
CH	-33	-40	7 ‘	120	450	450

Settlement Parameter Tables

Eustis Job No. 09318 Used For Bayou Lacombe Levee Analysis (Correlations Based on Water Content)

Material	Top EL	Bottom EL	thickness	density	Cc	e0	Cr
CL	0	-7	7 ‘	103	0.16	0.71	0.32
CH	-7	-15	8 ‘	112	0.43	1.14	0.86
CH	-15	-28	13 ‘	120	0.2	0.8	0.040
SM	-28	-40	12 ‘	122	NA	NA	NA

Eustis Job No. 13965 Used For West Slidell Levee Analysis (Correlations Based on Water Content)

Material	Top EL	Bottom EL	thickness	density	Cc	e0	Cr
CL	0	-13	13 ‘	105	0.16	0.62	0.032
CH	-13	-26	13 ‘	107	0.43	1.03	0.086
SC	-26	-32	6 ‘	122	NA	NA	NA
CH	-32	-48	16 ‘	108	0.39	1.1	0.078
ML	-48	-52	4 ‘	117	0.26	0.9	0.052
CH	-52	-80	28 ‘	105	0.52	1.2	0.100

Eustis Job No. 10120 Used For South Slidell Levee Analysis (Correlations Based on Water Content)

Material	Top EL	Bottom EL	thickness	density	Cc	e0	Cr
CH	0	-10	10 ‘	125	0.11	0.65	0.022
CH	-10	-20	10 ‘	123	0.15	0.79	0.030
CH	-20	-35	15 ‘	111	0.45	1.19	0.090
CH	-35	-50	15 ‘	110	0.36	0.945	0.072

Eustis Job No. 16613 Used For Eden Isles Levee Analysis (Correlations Based on Water Content)

Material	Top EL	Bottom EL	thickness	density	Cc	e0	Cr
SC	0	-7	7 ‘	122	NA	NA	NA
CL	-7	-15	8 ‘	120	0.17	0.75	0.034
CH	-15	-30	15 ‘	111	0.49	1.25	0.098
CH	-30	-46	16’	110	0.41	1.1	0.082
SP	-46	-54	8 ‘	122	NA	NA	NA

Eustis Job No. 11044 Used For Oak Harbor Levee Analysis (Correlations Based on Water Content)

Material	Top EL	Bottom EL	thickness	density	Cc	e0	Cr
CH	0	-10	10 ‘	125	0.11	0.59	0.022
CH	-10	-29	19 ‘	118	0.21	0.79	0.042
SM	-29	-34	5 ‘	122	NA	NA	NA
CH	-34	-50	16 ‘	110	0.3	1.08	0.060

Eustis Job No.13418 Used For Pearl River Levee Analysis (Correlations Based on Water Content)

Material	Top EL	Bottom EL	thickness	density	Cc	e0	Cr
CL	0	-15	15 ‘	124	0.11	0.65	0.022
SM	-15	-22	7 ‘	122	NA	NA	NA
CH	-22	-29	7 ‘	114	0.27	0.89	0.054
SM	-29	-33	4 ‘	122	NA	NA	NA
CH	-33	-40	7 ‘	120	0.49	0.78	0.098

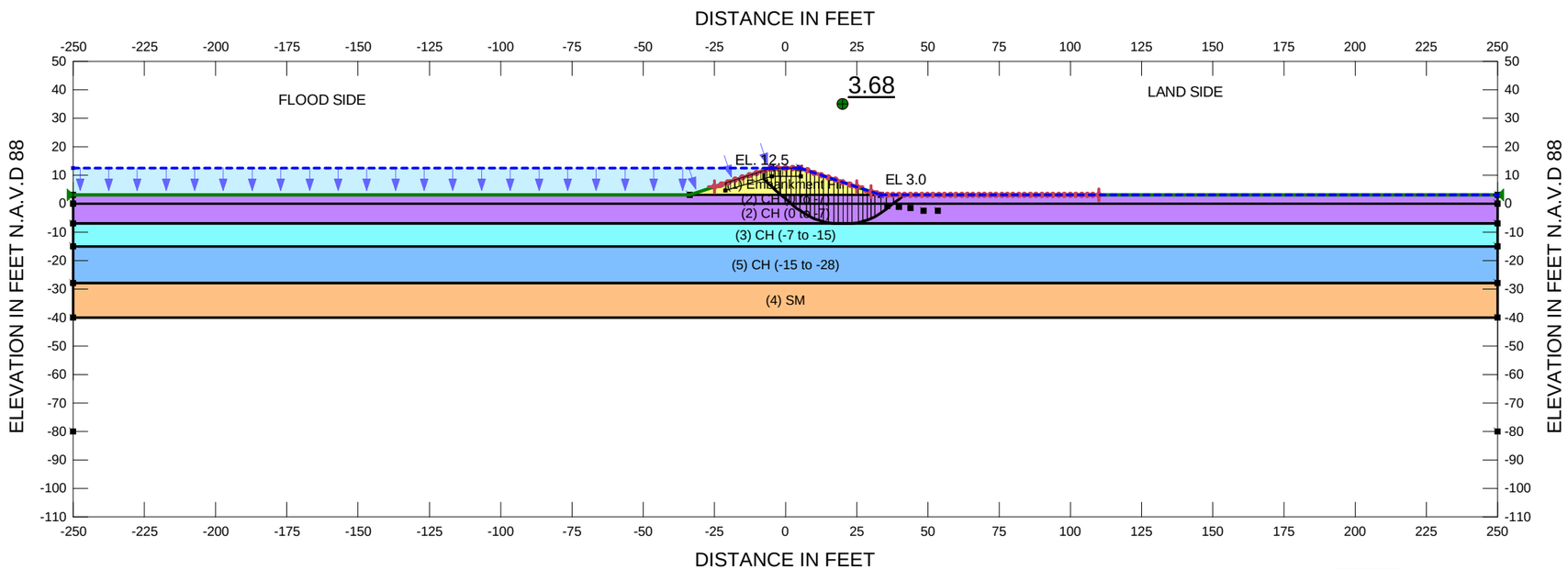
SECTION 4

Stability Plates

Spencer’s Analysis Entry/Exit

Bayou Lacombe Levees

Alternative 4

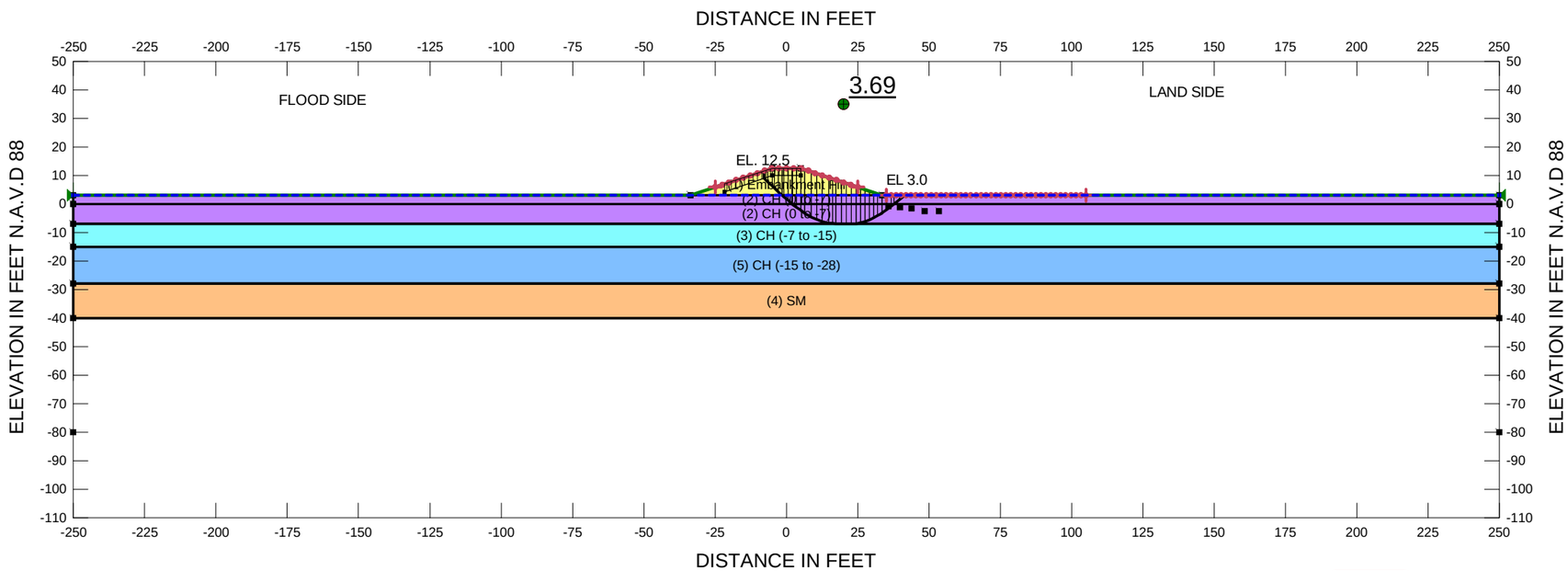


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -7)	Mohr-Coulomb	103	700	0
	(3) CH (-7 to -15)	Mohr-Coulomb	112	1,200	0
	(4) SM	Mohr-Coulomb	122	0	30
	(5) CH (-15 to -28)	Mohr-Coulomb	120	1,400	0

BAYOU LACOMBE LEVEES

CASE: ALTERNATIVE 4

US Army Corps of Engineers®
New Orleans District



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -7)	Mohr-Coulomb	103	700	0
	(3) CH (-7 to -15)	Mohr-Coulomb	112	1,200	0
	(4) SM	Mohr-Coulomb	122	0	30
	(5) CH (-15 to -28)	Mohr-Coulomb	120	1,400	0

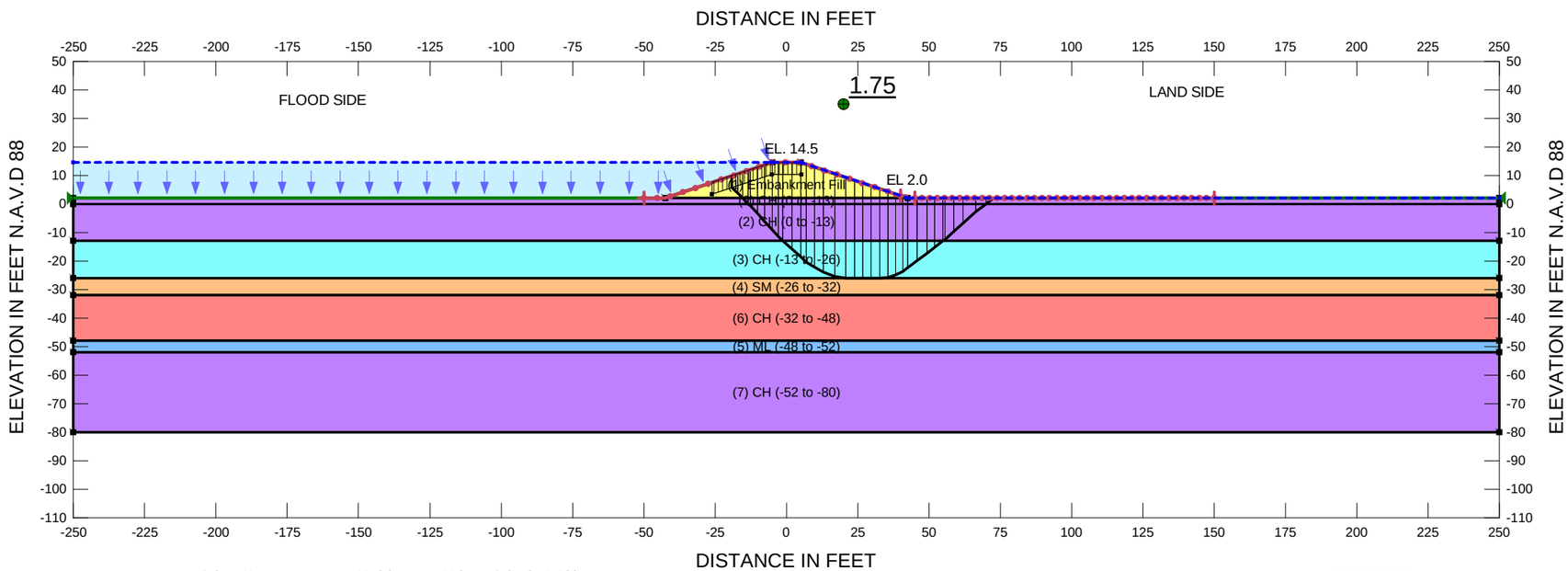
BAYOU LACOMBE LEVEES

CASE: ALTERNATIVE 4

US Army Corps of Engineers®
New Orleans District

West Slidell Levees

Alternative 5

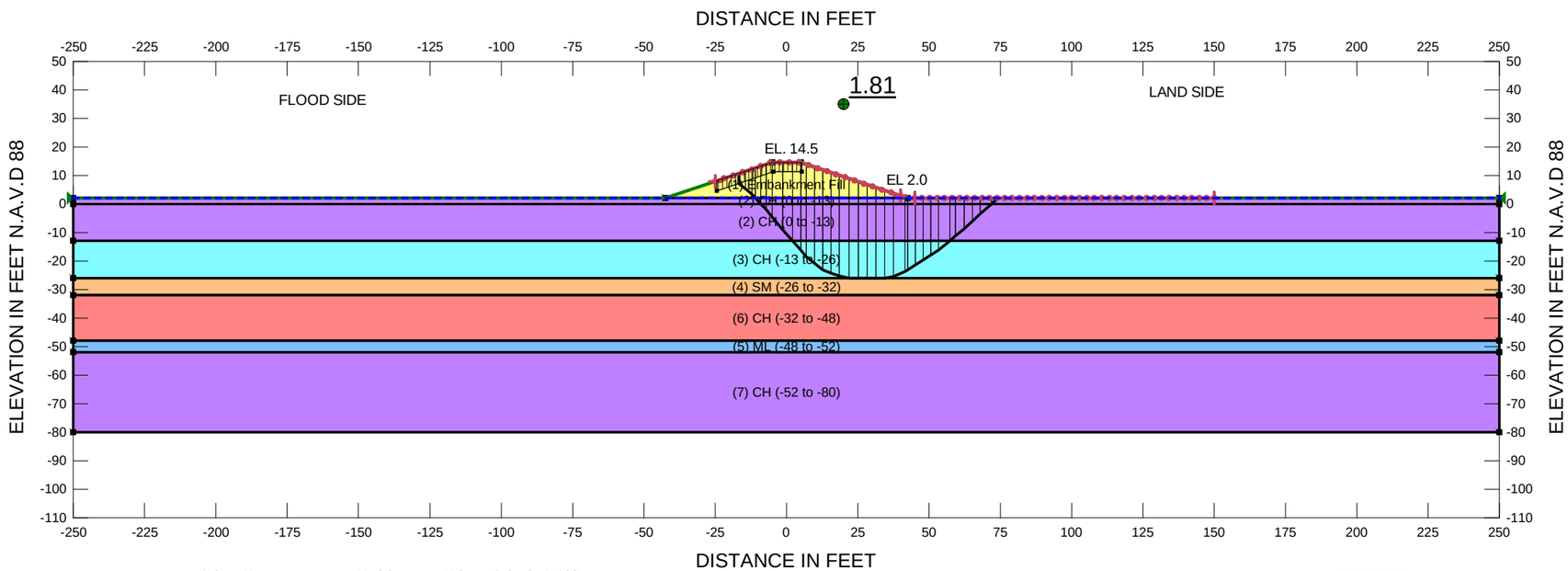


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -13)	Mohr-Coulomb	105	580	0
	(3) CH (-13 to -26)	Mohr-Coulomb	107	400	0
	(4) SM (-26 to -32)	Mohr-Coulomb	122	0	30
	(5) ML (-48 to -52)	Mohr-Coulomb	117	200	15
	(6) CH (-32 to -48)	Mohr-Coulomb	108	400	0
	(7) CH (-52 to -80)	Mohr-Coulomb	105	800	0

WEST SLIDELL LEVEES

CASE: ALTERNATIVE 5

US Army Corps of Engineers®
New Orleans District



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -13)	Mohr-Coulomb	105	580	0
	(3) CH (-13 to -26)	Mohr-Coulomb	107	400	0
	(4) SM (-26 to -32)	Mohr-Coulomb	122	0	30
	(5) ML (-48 to -52)	Mohr-Coulomb	117	200	15
	(6) CH (-32 to -48)	Mohr-Coulomb	108	400	0
	(7) CH (-52 to -80)	Mohr-Coulomb	105	800	0

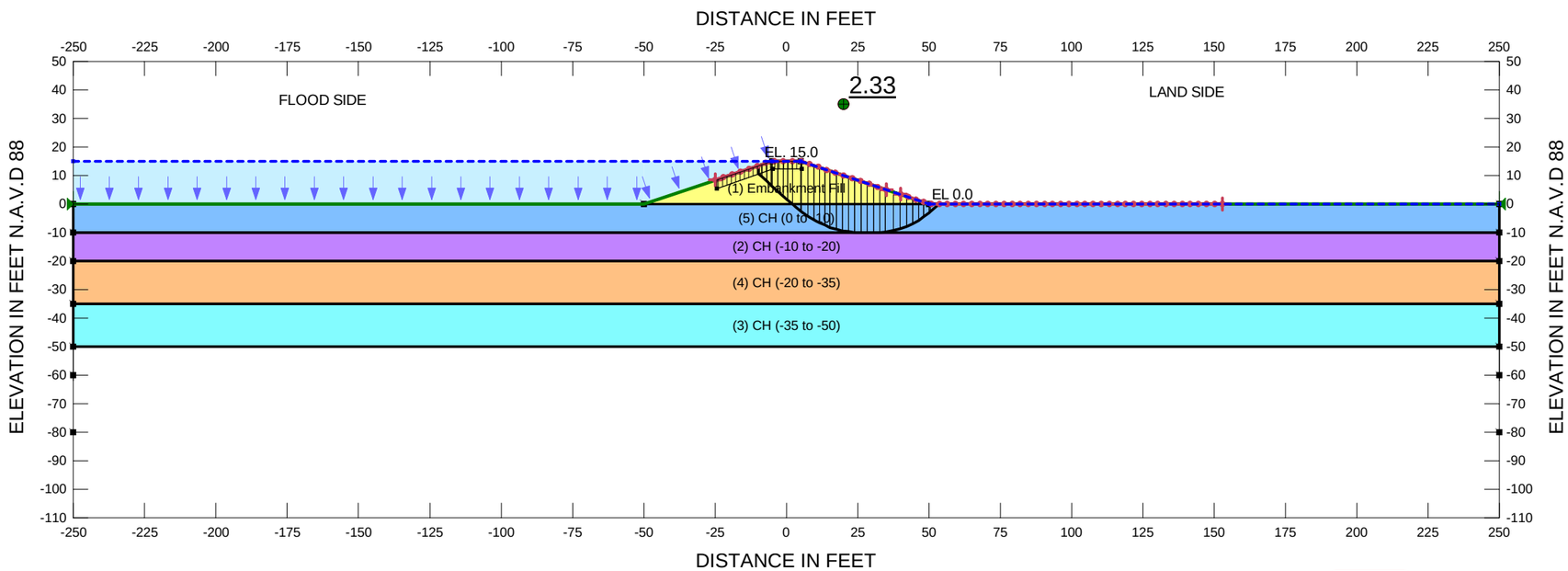
WEST SLIDELL LEVEES

CASE: ALTERNATIVE 5

US Army Corps of Engineers®
New Orleans District

South Slidell Levees

Alternative 6

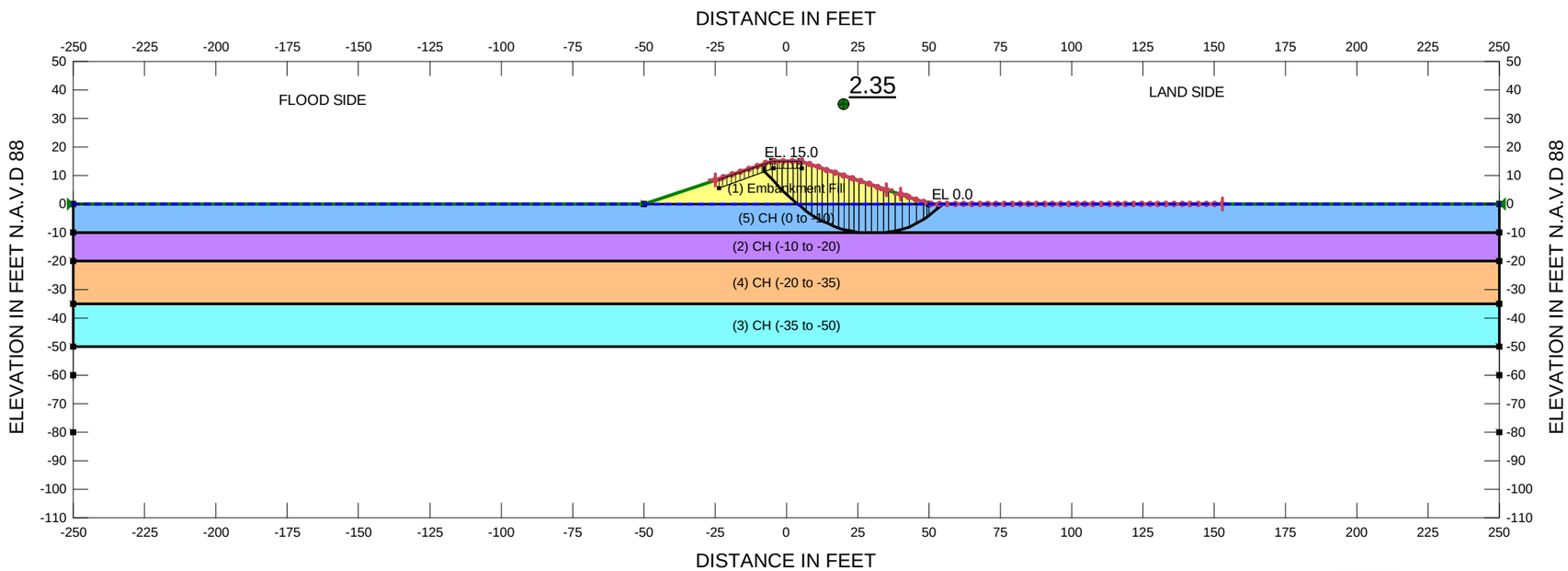


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (-10 to -20)	Mohr-Coulomb	123	800	0
	(3) CH (-35 to -50)	Mohr-Coulomb	110	760	0
	(4) CH (-20 to -35)	Mohr-Coulomb	111	725	0
	(5) CH (0 to -10)	Mohr-Coulomb	125	640	0

SOUTH SLIDELL

CASE: ALTERNATIVE 6

US Army Corps of Engineers®
New Orleans District



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (-10 to -20)	Mohr-Coulomb	123	800	0
	(3) CH (-35 to -50)	Mohr-Coulomb	110	760	0
	(4) CH (-20 to -35)	Mohr-Coulomb	111	725	0
	(5) CH (0 to -10)	Mohr-Coulomb	125	640	0

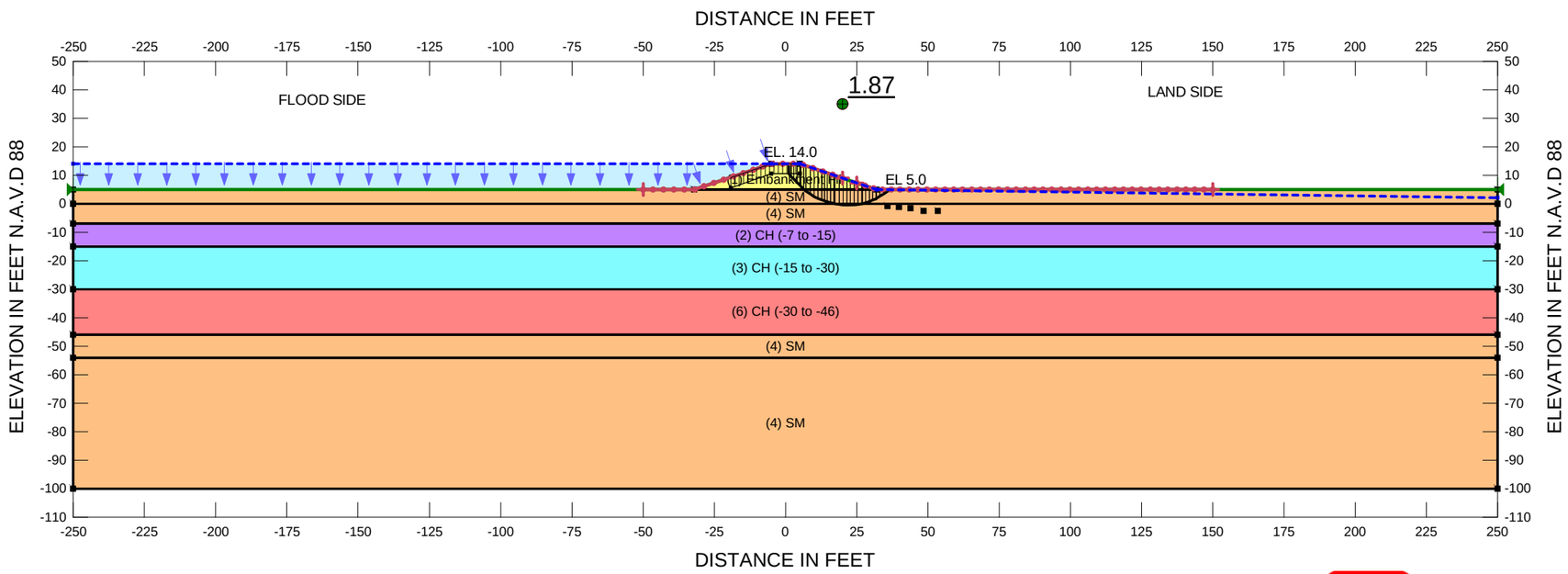
SOUTH SLIDELL

CASE: ALTERNATIVE 6

US Army Corps of Engineers®
New Orleans District

Eden Isles Levees

Alternative 6

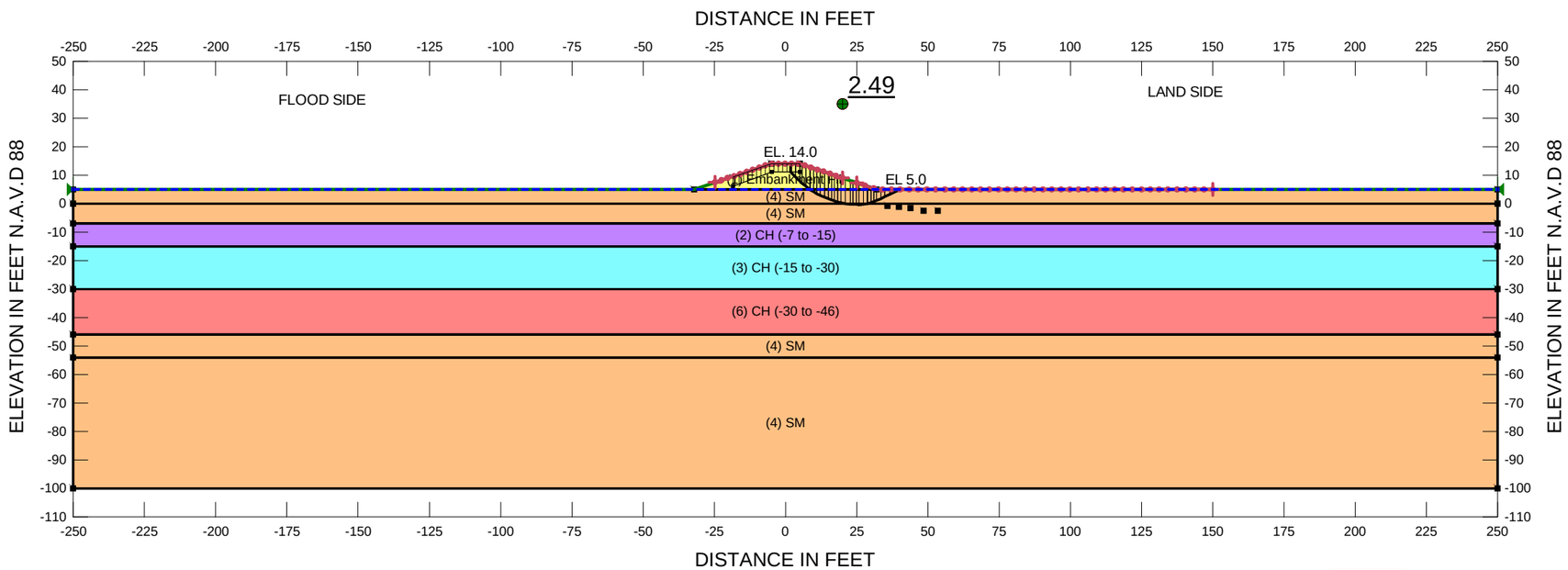


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (-7 to -15)	Mohr-Coulomb	120	700	0
	(3) CH (-15 to -30)	Mohr-Coulomb	111	700	0
	(4) SM	Mohr-Coulomb	122	0	30
	(6) CH (-30 to -46)	Mohr-Coulomb	110	600	0

EDEN ISLES LEVEES

CASE: ALTERNATIVE 6

US Army Corps of Engineers®
New Orleans District



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (-7 to -15)	Mohr-Coulomb	120	700	0
	(3) CH (-15 to -30)	Mohr-Coulomb	111	700	0
	(4) SM	Mohr-Coulomb	122	0	30
	(6) CH (-30 to -46)	Mohr-Coulomb	110	600	0

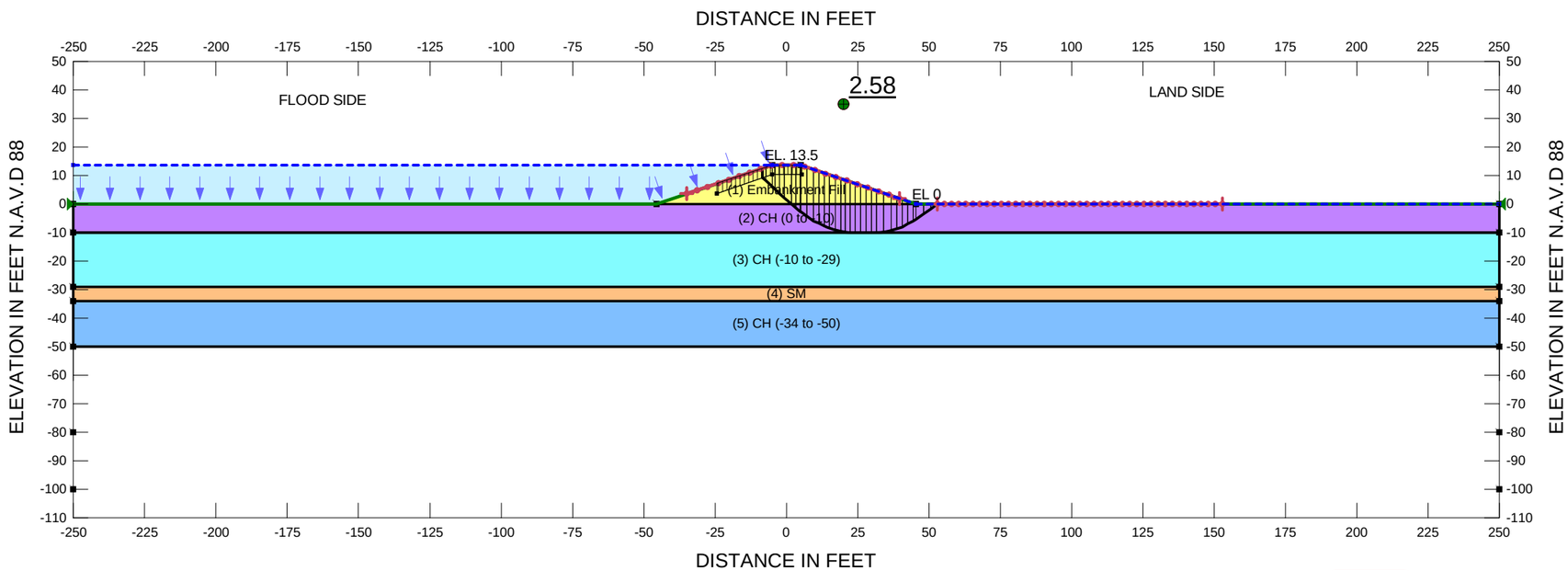
EDEN ISLES LEVEES

CASE: ALTERNATIVE 6

US Army Corps of Engineers®
New Orleans District

Oak Harbor Levees

Alternative 6

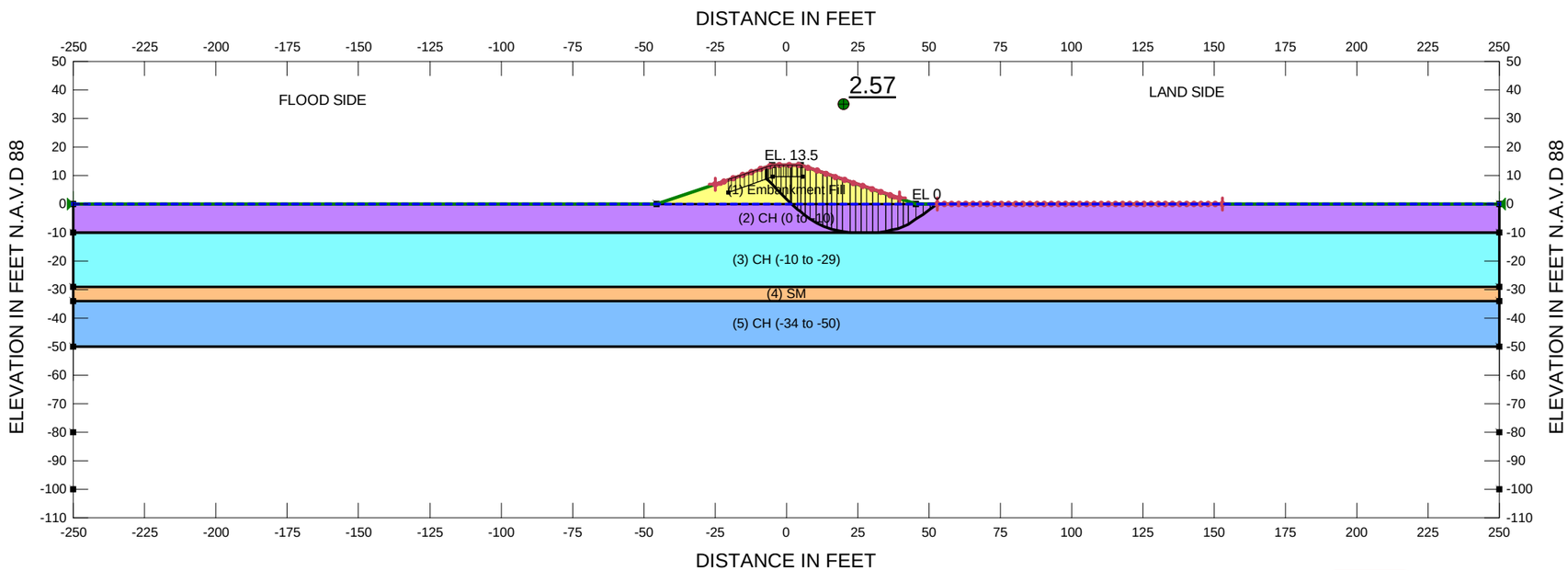


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -10)	Mohr-Coulomb	125	650	0
	(3) CH (-10 to -29)	Mohr-Coulomb	118	1,030	0
	(4) SM	Mohr-Coulomb	122	0	30
	(5) CH (-34 to -50)	Mohr-Coulomb	110	640	0

OAK HARBOR LEVEES

CASE: ALTERNATIVE 6

US Army Corps of Engineers®
New Orleans District



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -10)	Mohr-Coulomb	125	650	0
	(3) CH (-10 to -29)	Mohr-Coulomb	118	1,030	0
	(4) SM	Mohr-Coulomb	122	0	30
	(5) CH (-34 to -50)	Mohr-Coulomb	110	640	0

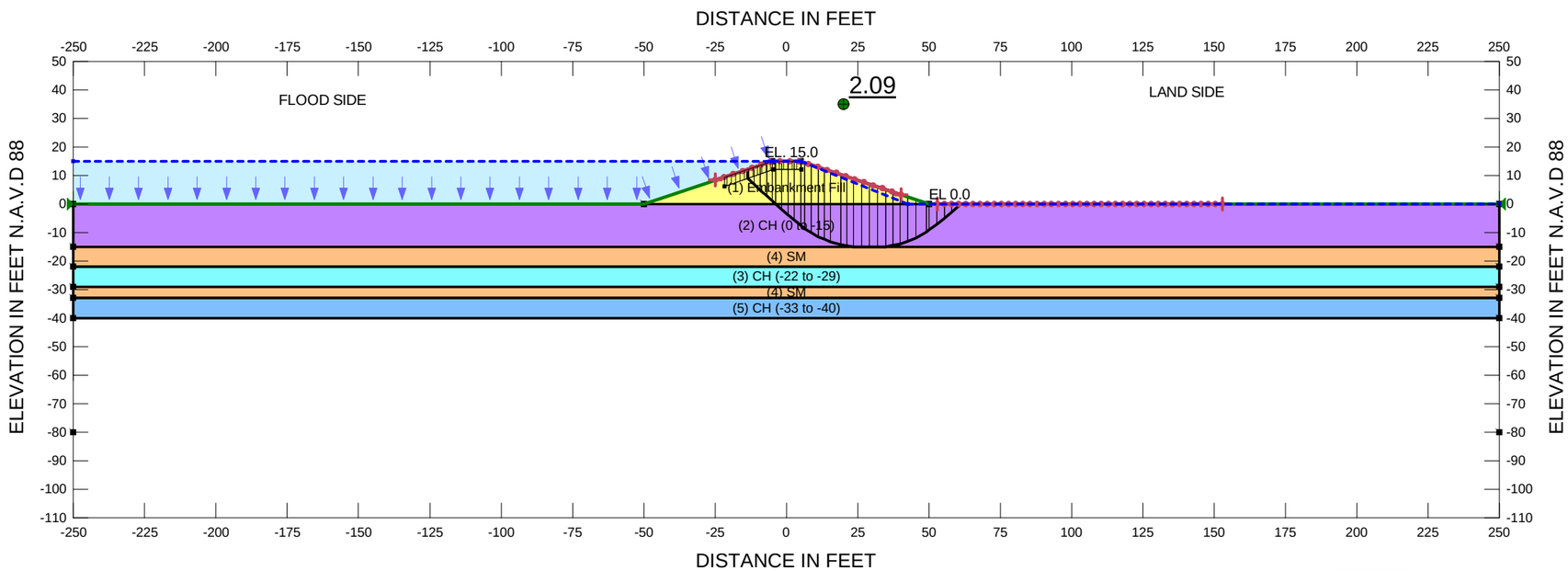
OAK HARBOR LEVEES

CASE: ALTERNATIVE 6

US Army Corps of Engineers®
New Orleans District

Pearl River Levees

Alternative 7

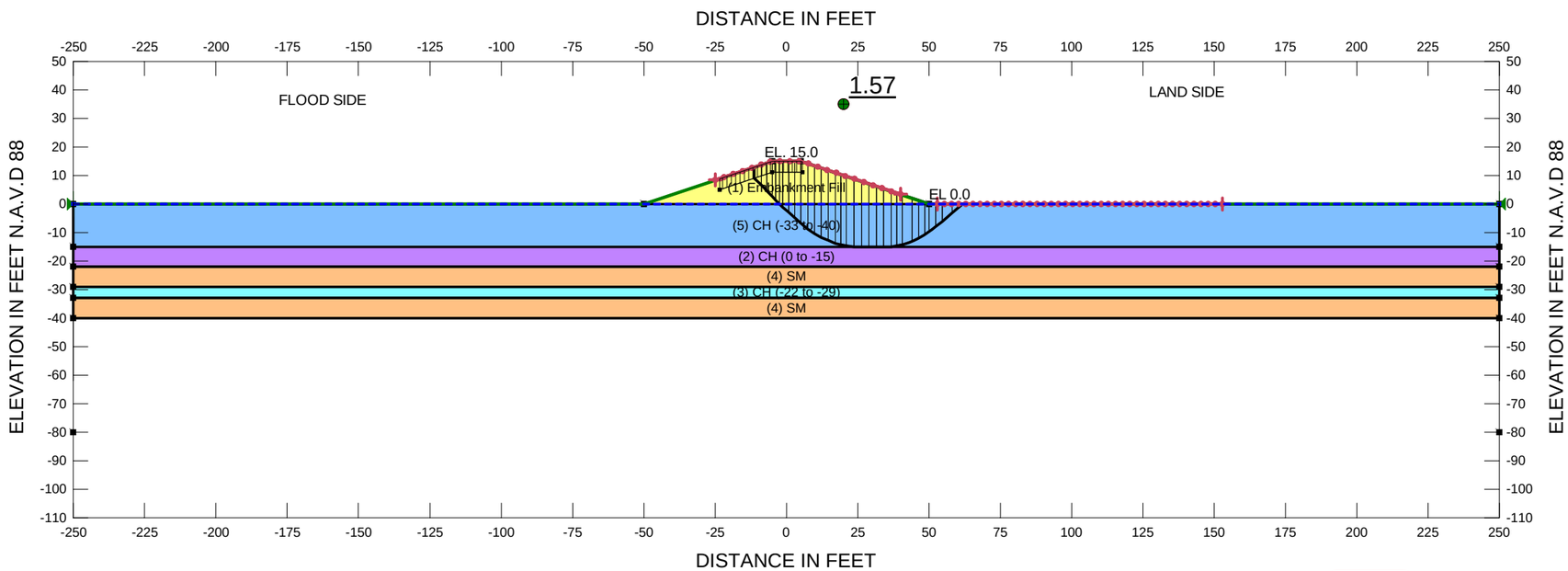


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -15)	Mohr-Coulomb	124	605	0
	(3) CH (-22 to -29)	Mohr-Coulomb	114	1,000	0
	(4) SM	Mohr-Coulomb	122	0	30
	(5) CH (-33 to -40)	Mohr-Coulomb	120	430	0

PEARL RIVER LEVEE

CASE: ALTERNATIVE 7

US Army Corps of Engineers®
New Orleans District



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	(1) Embankment Fill	Mohr-Coulomb	115	600	0
	(2) CH (0 to -15)	Mohr-Coulomb	124	605	0
	(3) CH (-22 to -29)	Mohr-Coulomb	114	1,000	0
	(4) SM	Mohr-Coulomb	122	0	30
	(5) CH (-33 to -40)	Mohr-Coulomb	120	430	0

PEARL RIVER LEVEE

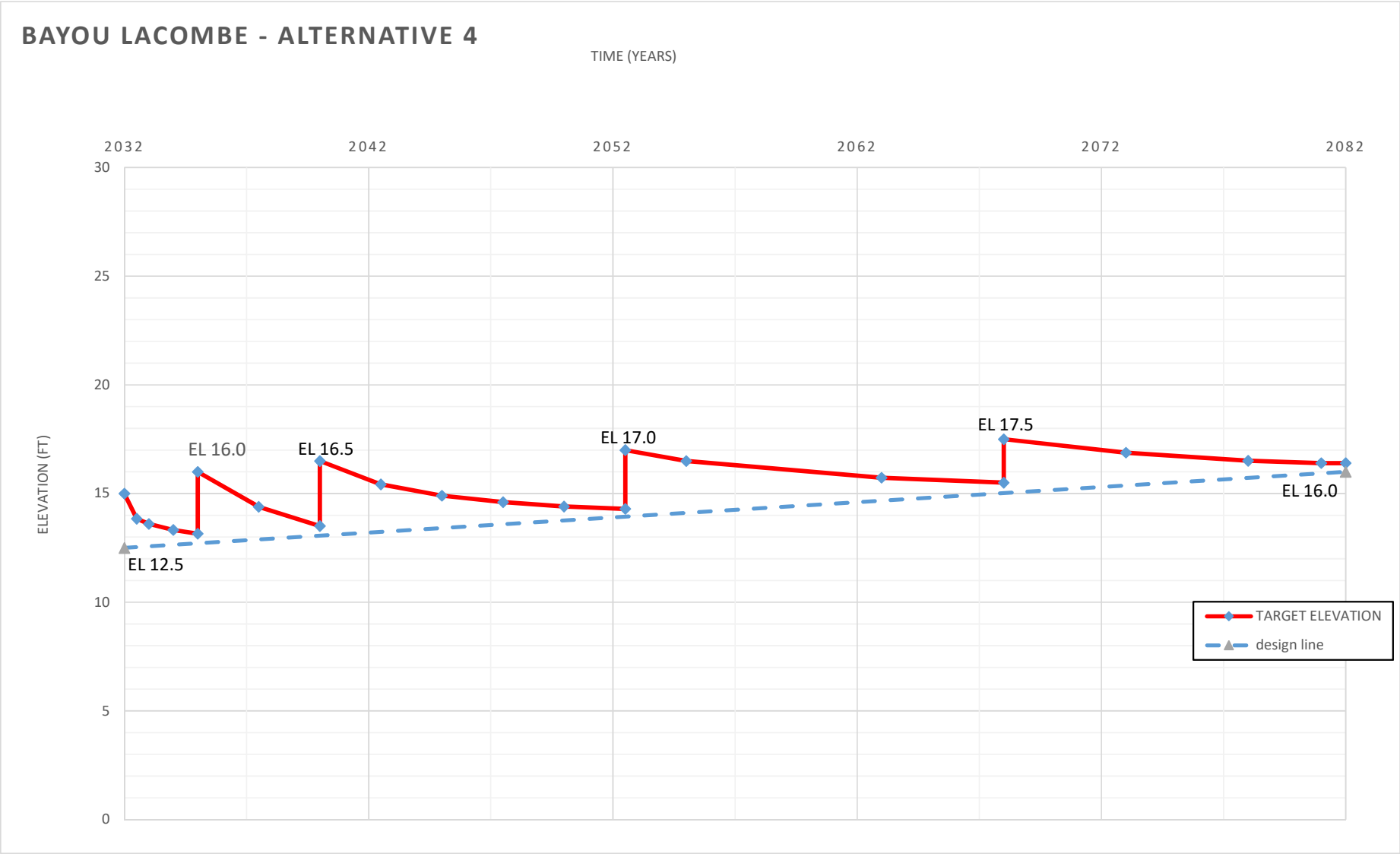
CASE: ALTERNATIVE 7

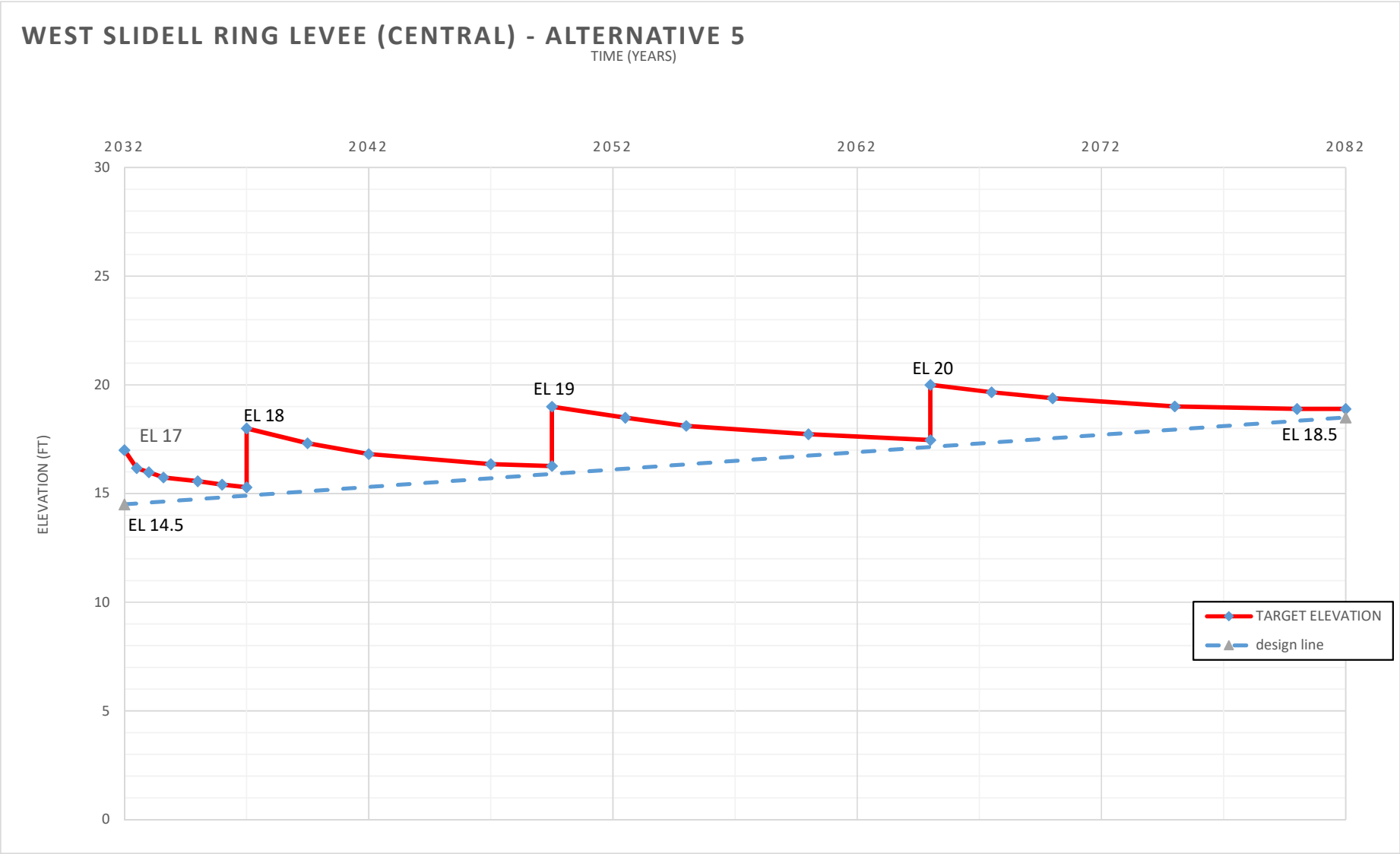
US Army Corps of Engineers®
New Orleans District

SECTION 5

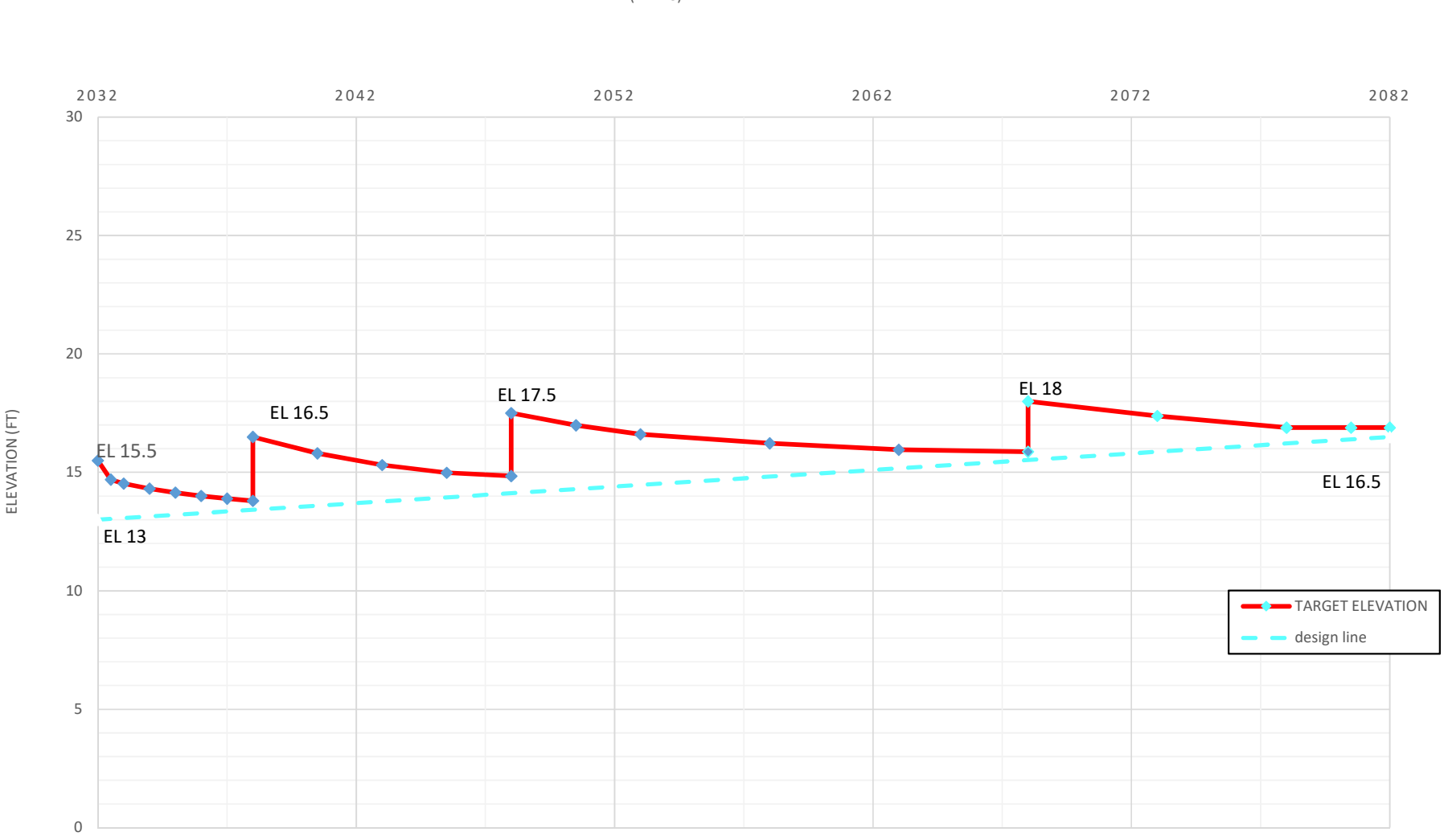
Lift Estimates

Settlement

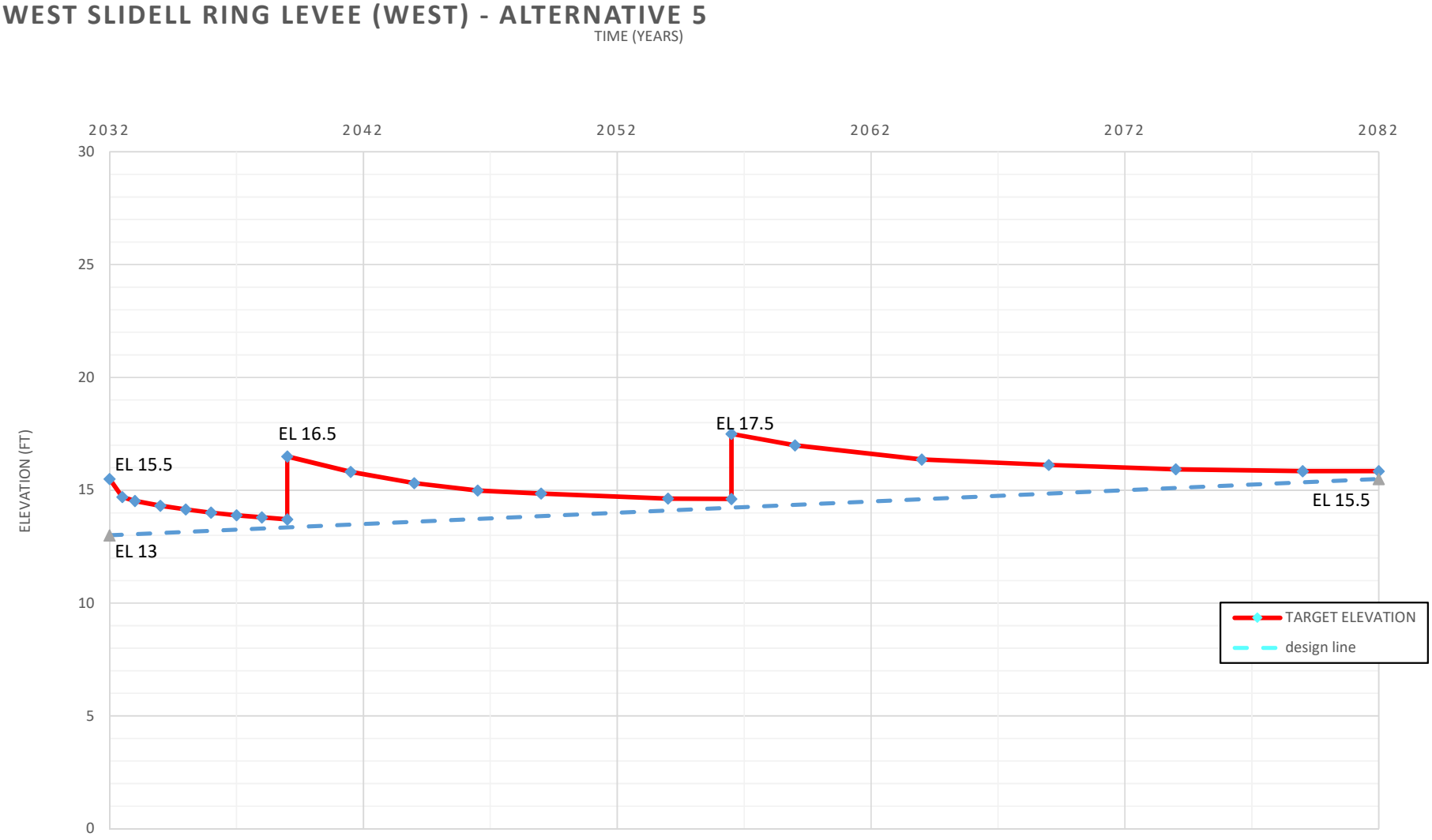

BAYOU LACOMBE - ALTERNATIVE 4
TIME (YEARS)
2032
2042
2052
2062
2072
2082
30
25
20
15
10
5
0
ELEVATION (FT)
EL 12.5
EL 16.0
EL 16.5
EL 17.0
EL 17.5
EL 16.0
TARGET ELEVATION
design line

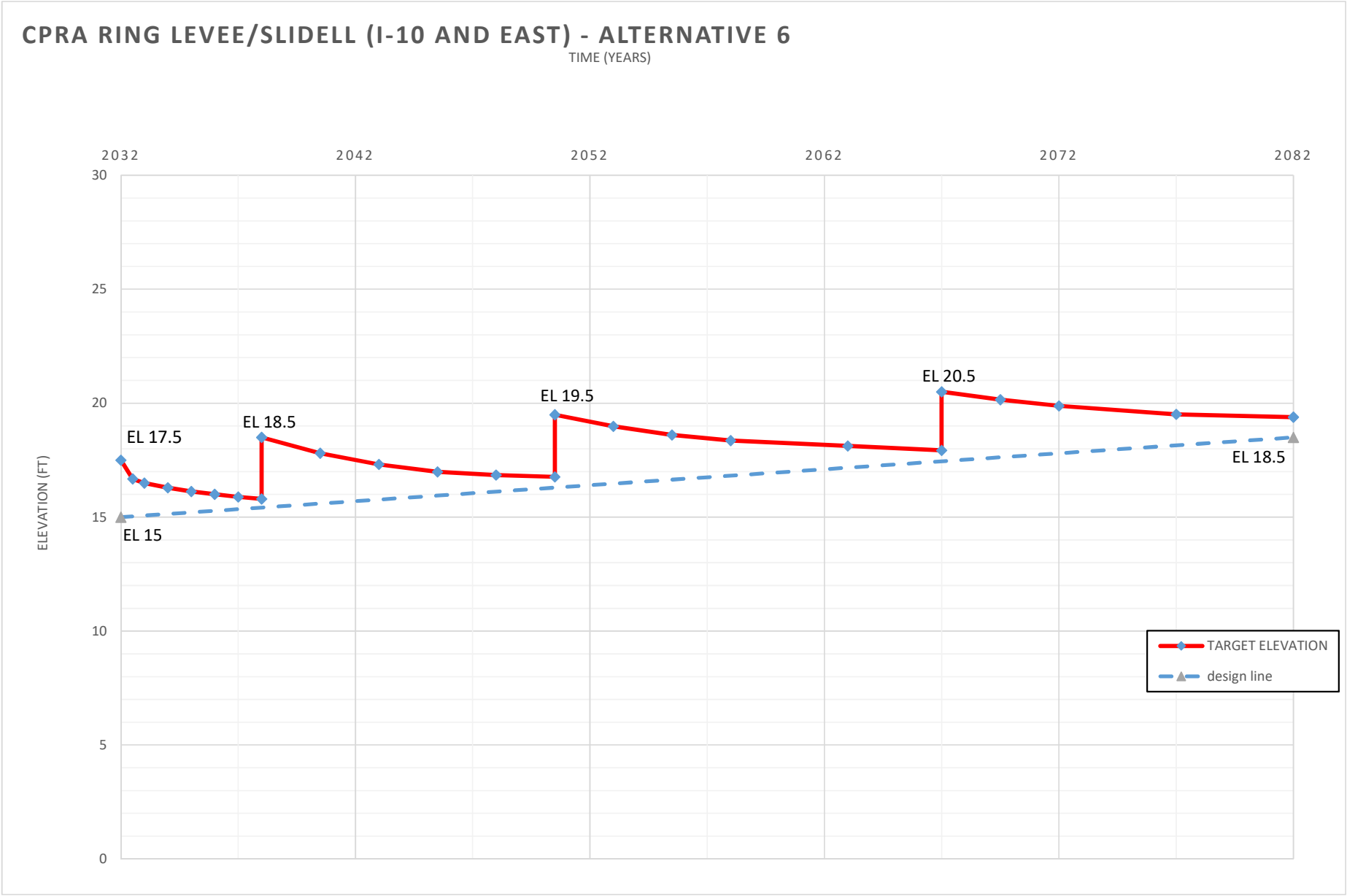

WEST SLIDELL RING LEVEE (CENTRAL) - ALTERNATIVE 5
TIME (YEARS)
2032
2042
2052
2062
2072
2082
30
25
20
15
10
5
0
ELEVATION (FT)
EL 17
EL 18
EL 19
EL 20
EL 14.5
EL 18.5
TARGET ELEVATION
design line

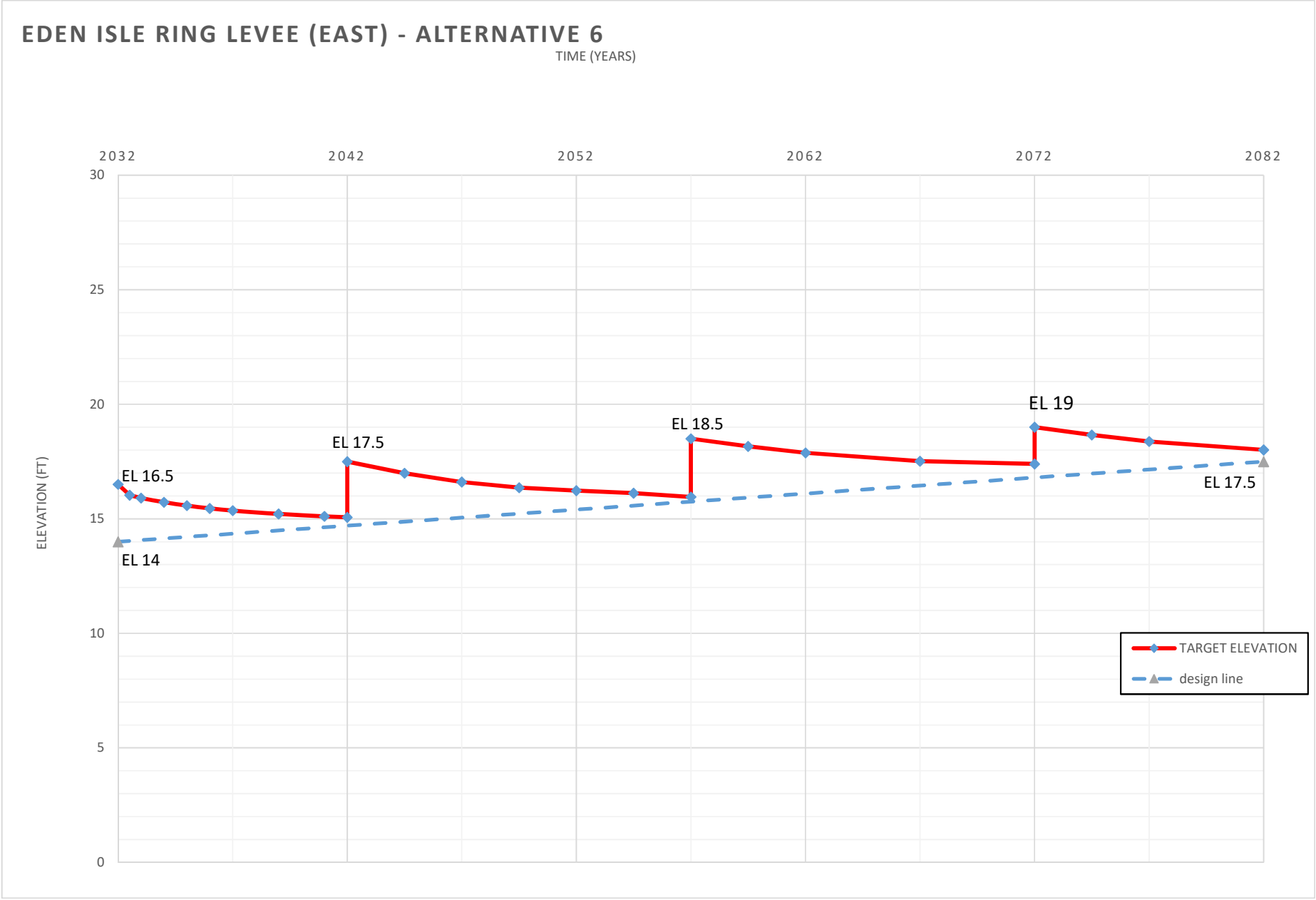
WEST SLIDELL RING LEVEE (EAST) - ALTERNATIVE 5

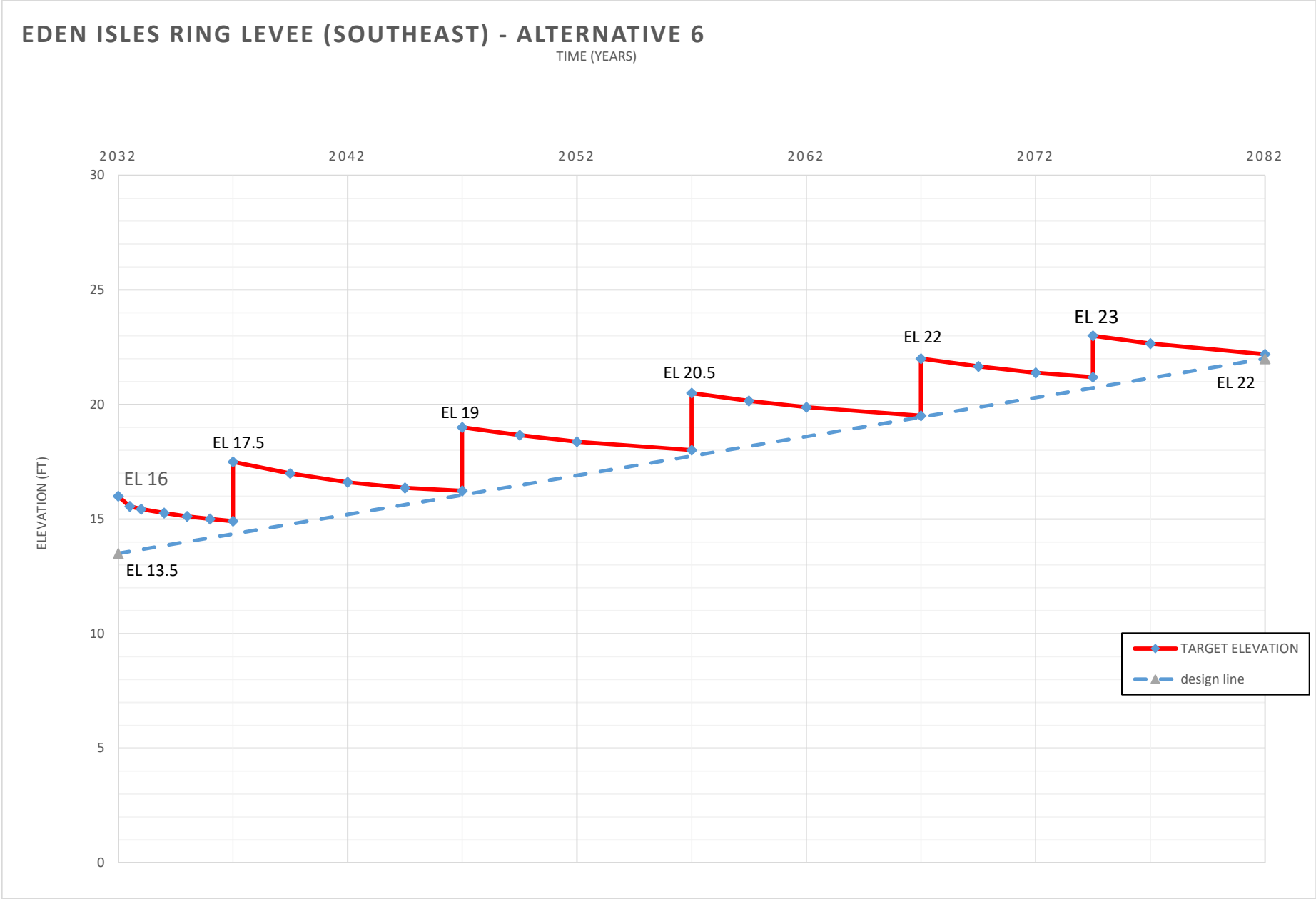


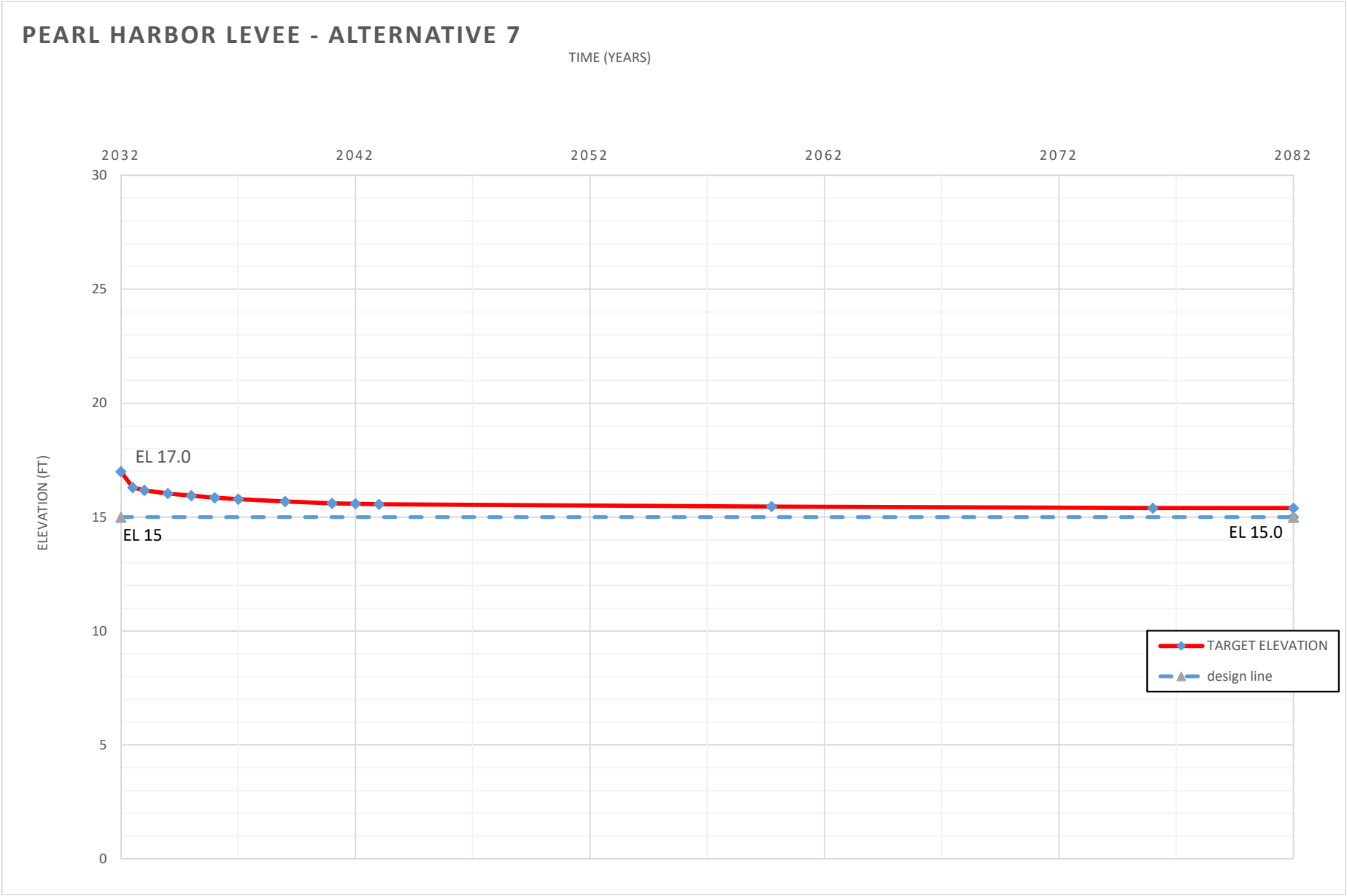
WEST SLIDELL RING LEVEE (WEST) - ALTERNATIVE 5




CPRA RING LEVEE/SLIDELL (I-10 AND EAST) - ALTERNATIVE 6
TIME (YEARS)
2032
2042
2052
2062
2072
2082
30
25
20
15
10
5
0
ELEVATION (FT)
EL 17.5
EL 18.5
EL 19.5
EL 20.5
EL 18.5
EL 15
TARGET ELEVATION
design line


EDEN ISLE RING LEVEE (EAST) - ALTERNATIVE 6
TIME (YEARS)
2032
2042
2052
2062
2072
2082
30
25
20
15
10
5
0
ELEVATION (FT)
EL 16.5
EL 17.5
EL 18.5
EL 19
EL 17.5
EL 14
TARGET ELEVATION
design line


EDEN ISLES RING LEVEE (SOUTHEAST) - ALTERNATIVE 6
TIME (YEARS)
2032
2042
2052
2062
2072
2082
30
25
20
15
10
5
0
ELEVATION (FT)
EL 16
EL 17.5
EL 19
EL 20.5
EL 22
EL 23
EL 22
EL 13.5
TARGET ELEVATION
design line


PEARL HARBOR LEVEE - ALTERNATIVE 7
TIME (YEARS)
2032
2042
2052
2062
2072
2082
30
25
20
15
10
5
0
ELEVATION (FT)
EL 17.0
EL 15
EL 15.0
TARGET ELEVATION
design line

SECTION 6

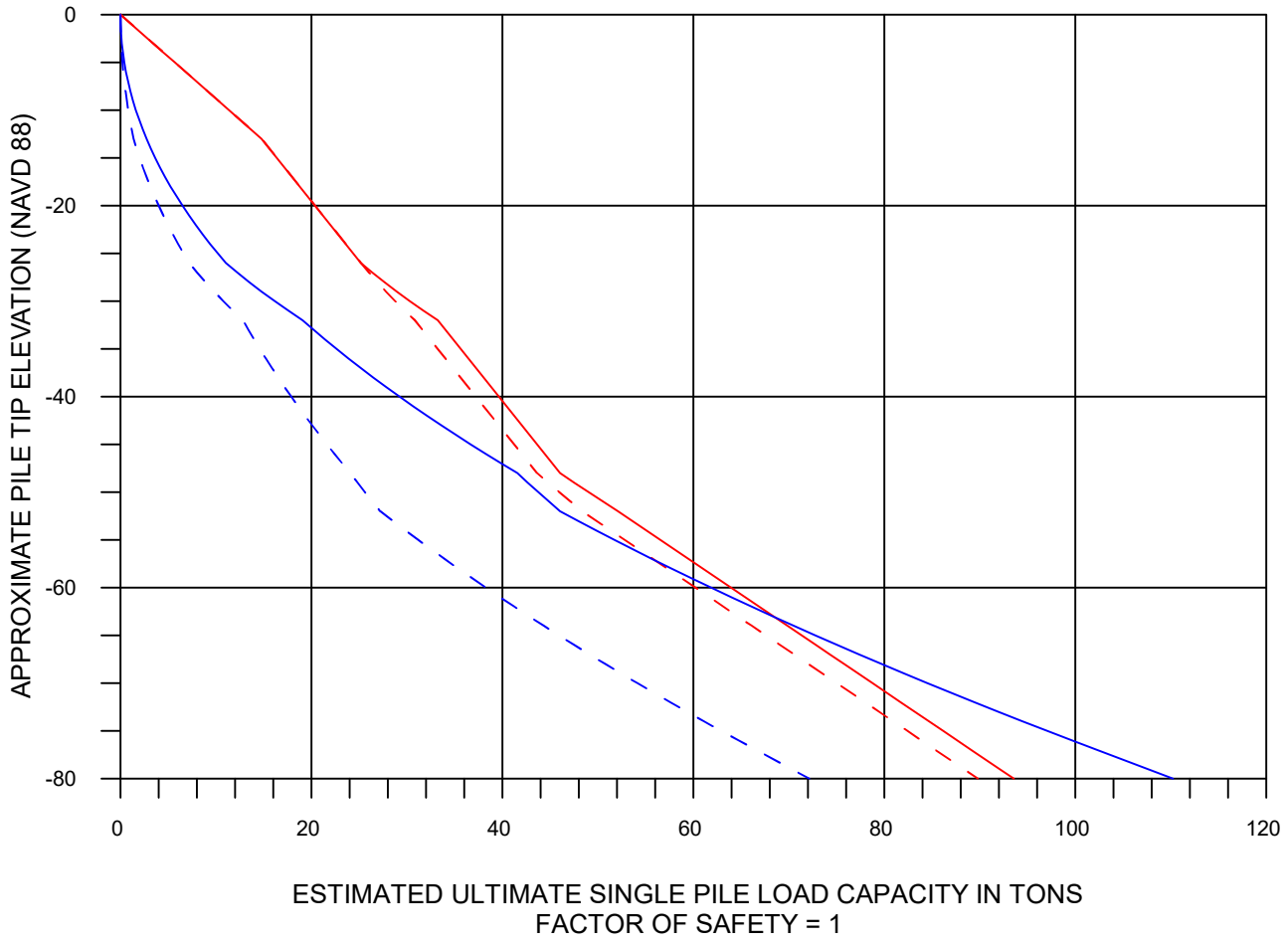
Pile Capacities

BAYOU LACOMBE/BONFOUCA/LIBERTY/PACQUET/VINCENT FLOODGATE

Alternative 4 &5

Pile Capacities

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18 (BAYOU LACOMBE/BONFOUCA/LIBERTY/PACQUET/VINCENT FLOODGATE)
12 x 74 INCH STEEL H-PILES
ALTERNATIVE 4 AND 5



LEGEND

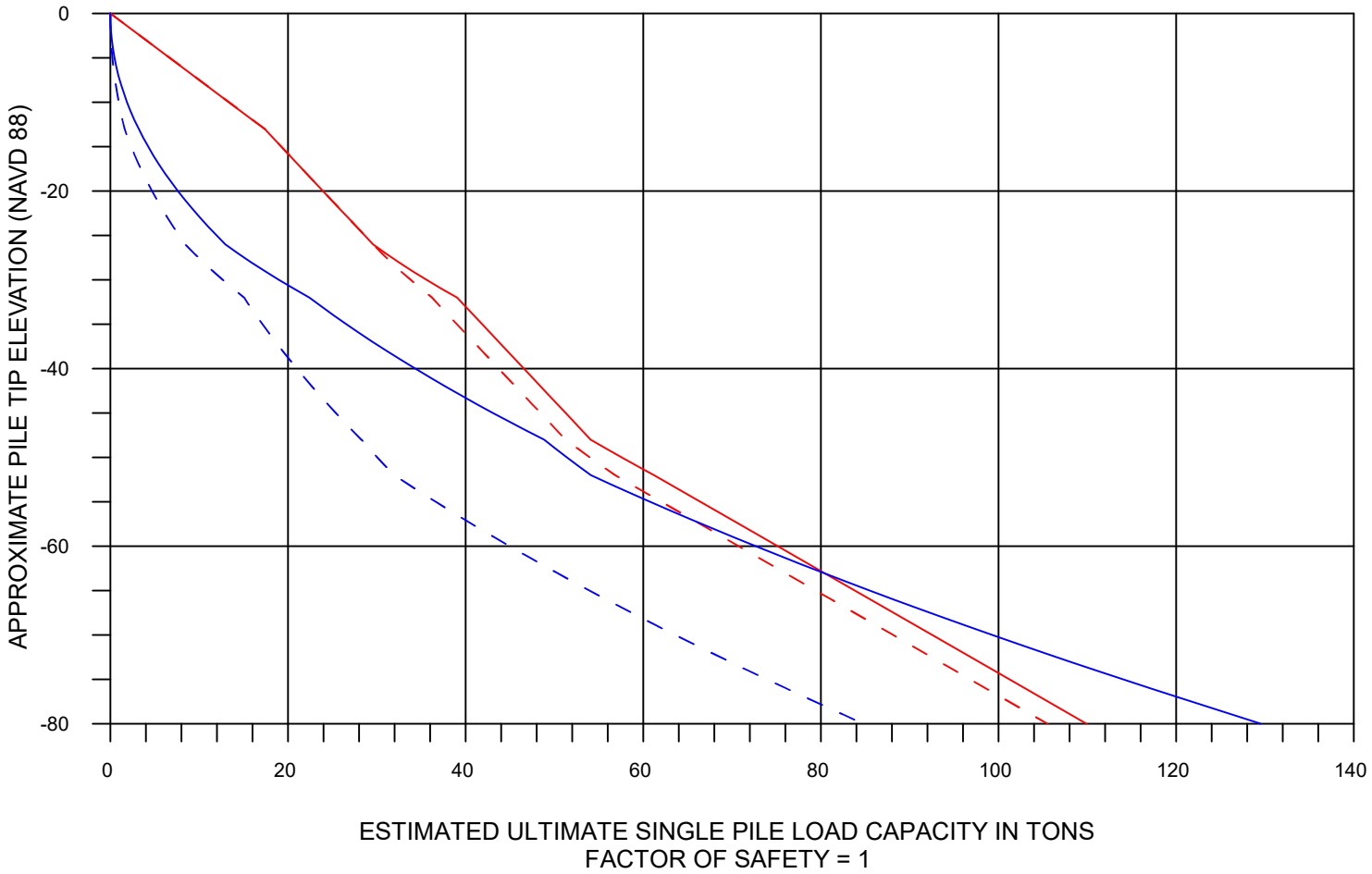
- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES
12 x 74 INCH STEEL H-PILES

ST. TAMMANY BBA-18
(BAYOU LACOMBE/BONFOUCA/LIBERTY/
PACQUET/VINCENT FLOODGATE)
ALTERNATIVE 4 AND 5

DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18 (BAYOU LACOMBE/BONFOUCA/LIBERTY/PACQUET/VINCENT FLOODGATE)
14 x 73 INCH STEEL H-PILES
ALTERNATIVE 4 AND 5



LEGEND

- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES
14 x 73 INCH STEEL H-PILES

ST. TAMMANY BBA-18
(BAYOU LACOMBE/BONFOUCA/LIBERTY/
PACQUET/VINCENT FLOODGATE)
ALTERNATIVE 4 AND 5

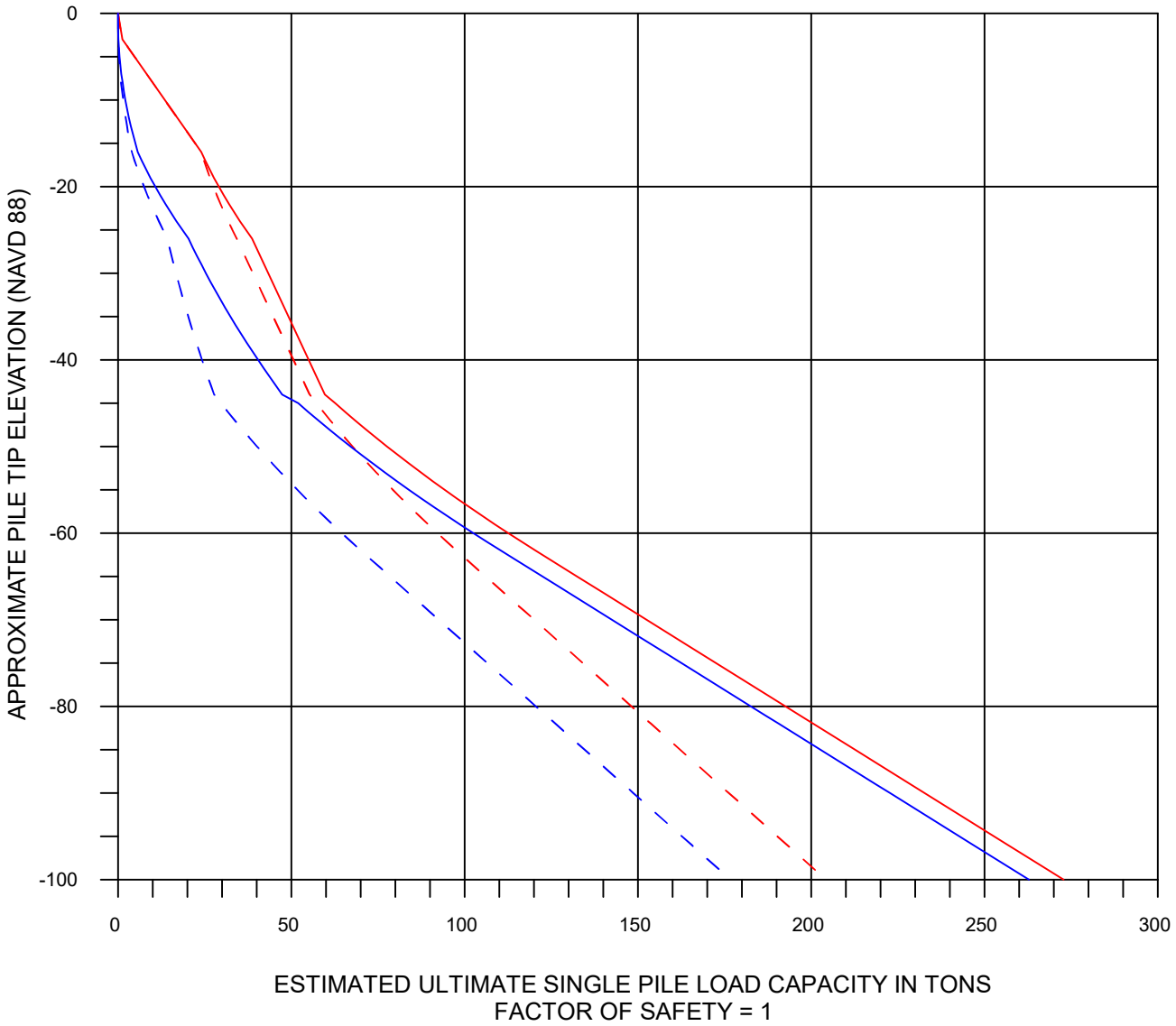
DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

W-14 FLOODGATE AND OLD SPANISH TRAIL FLOODGATE

Alternative 6

Pile Capacities

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18 (W-14 FLOODGATE AND OLD SPANISH TRAIL FLOODGATE)
12 x 74 INCH STEEL H-PILES
ALTERNATIVE 6



LEGEND

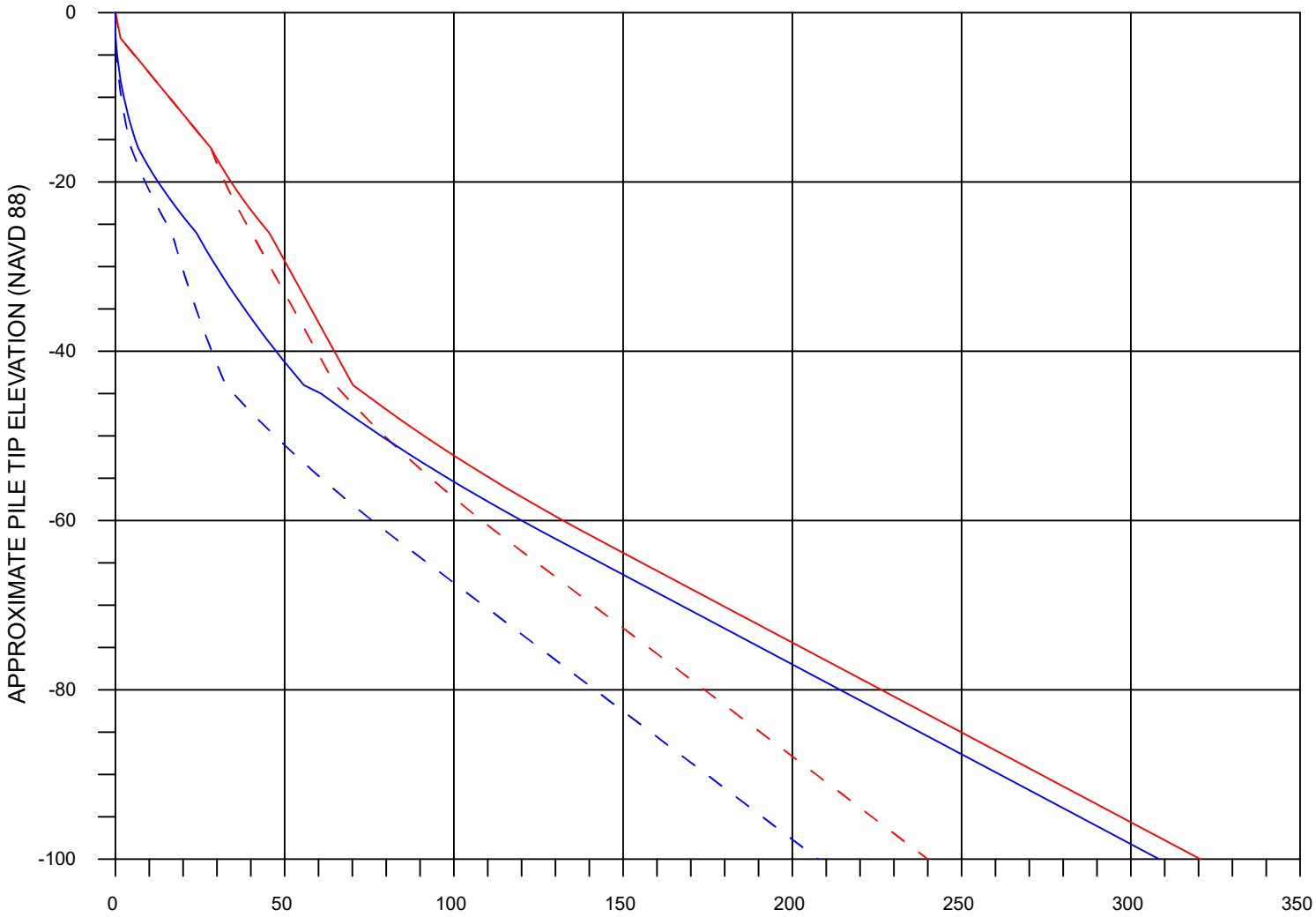
- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES
12 x 74 INCH STEEL H-PILES

ST TAMMANY BBA-18
(W-14 FLOODGATE AND OLD SPANISH TRAIL FLOODGATE)
ALTERNATIVE 6

DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18 (W-14 FLOODGATE AND OLD SPANISH TRAIL FLOODGATE)
14 x 73 INCH STEEL H-PILES
ALTERNATIVE 6



ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITY IN TONS
FACTOR OF SAFETY = 1

LEGEND

- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES=
14 x 73 INCH STEEL H-PILES

ST TAMMANY BBA-18
(W-14 FLOODGATE AND OLD SPANISH TRAIL FLOODGATE)
ALTERNATIVE 6

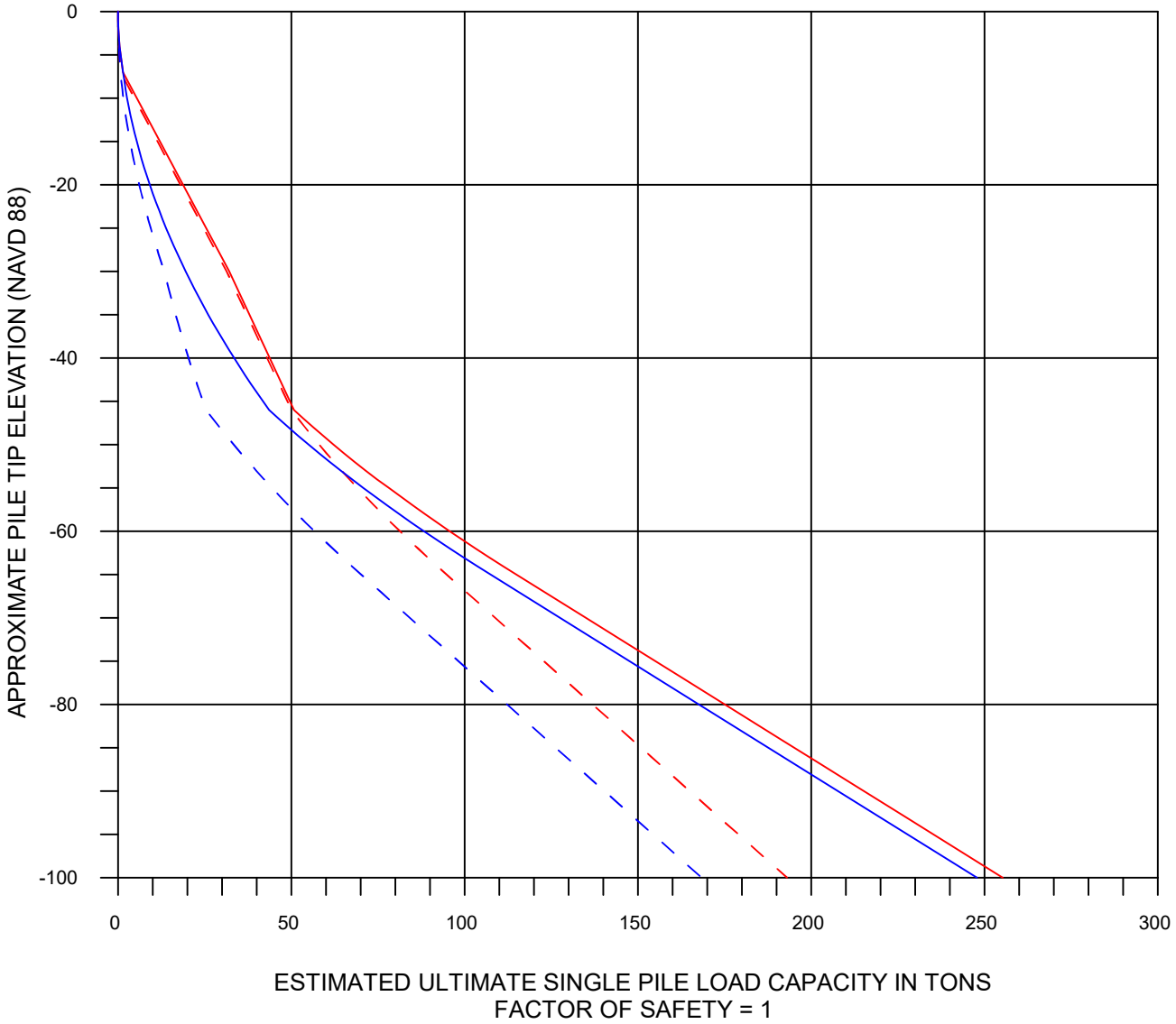
DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

I-10 ACCESS GATES, EDEN ISLES MARINA GATE, SOUTH, SOUTHWEST, WEST FLOODWALLS

Alternative 6

Pile Capacities

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18
(I-10 ACCESS GATES, EDEN ISLES MARINA GATE, SOUTH, SOUTHWEST, WEST FLOODWALLS)
12 x 74 INCH STEEL H-PILES
ALTERNATIVE 6



LEGEND

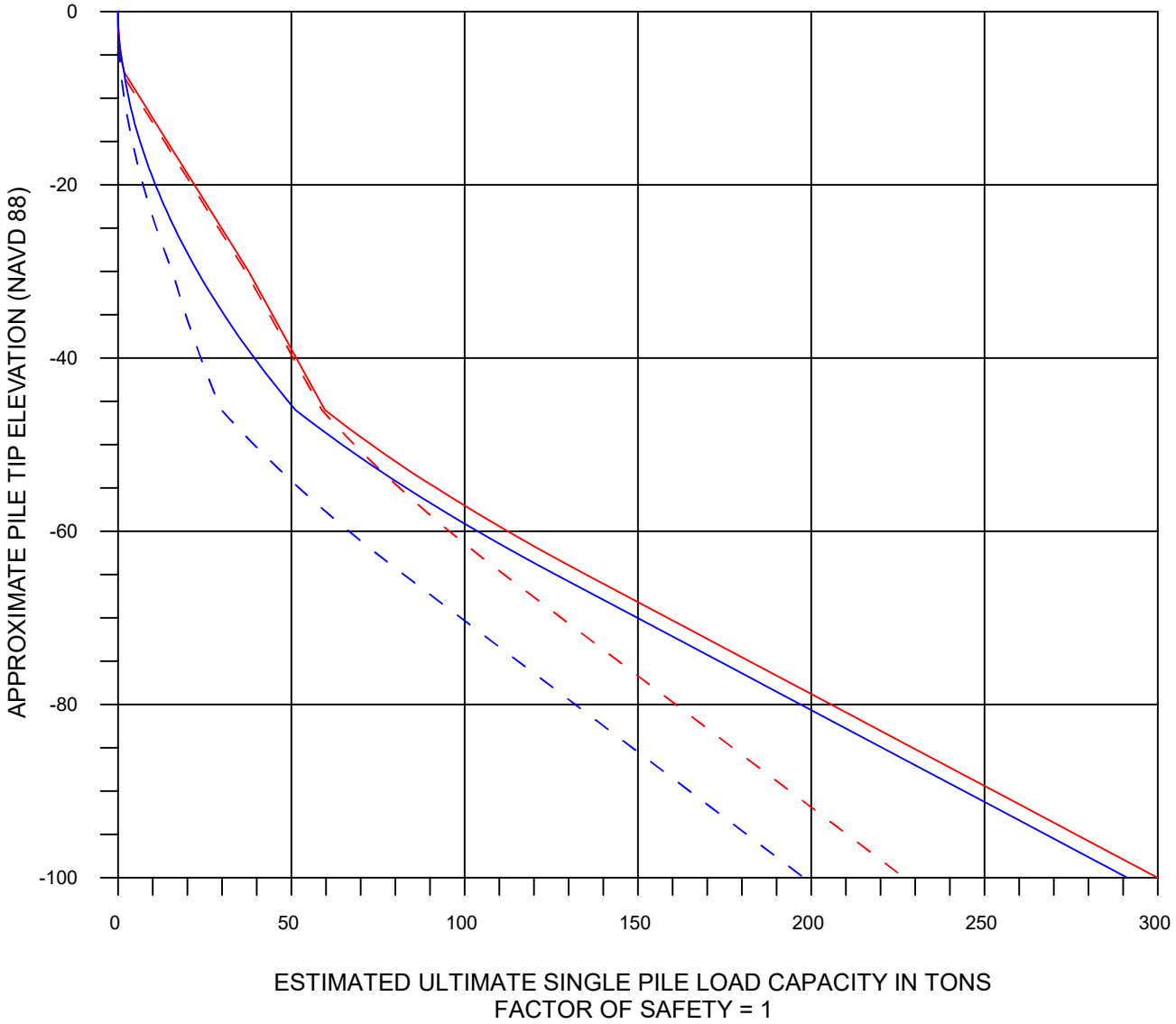
- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES
12 x 74 INCH STEEL H-PILES

ST. TAMMANY BBA-18
(I-10 ACCESS GATES, EDEN ISLES MARINA GATE,
SOUTH, SOUTHWEST, WEST FLOODWALLS)
ALTERNATIVE 6

DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18
(I-10 ACCESS GATES, EDEN ISLES MARINA GATE, SOUTH, SOUTHWEST, WEST FLOODWALLS)
14 x 73 INCH STEEL H-PILES
ALTERNATIVE 6



LEGEND

- Q-CASE: COMPRESSION PILE CAPACITY
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- S-CASE: COMPRESSION PILE CAPACITY
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ALLOWABLE PILE LOAD CAPACITIES
14 x 73 INCH STEEL H-PILES

ST. TAMMANY BBA-18
(I-10 ACCESS GATES, EDEN ISLES MARINA GATE,
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ALTERNATIVE 6

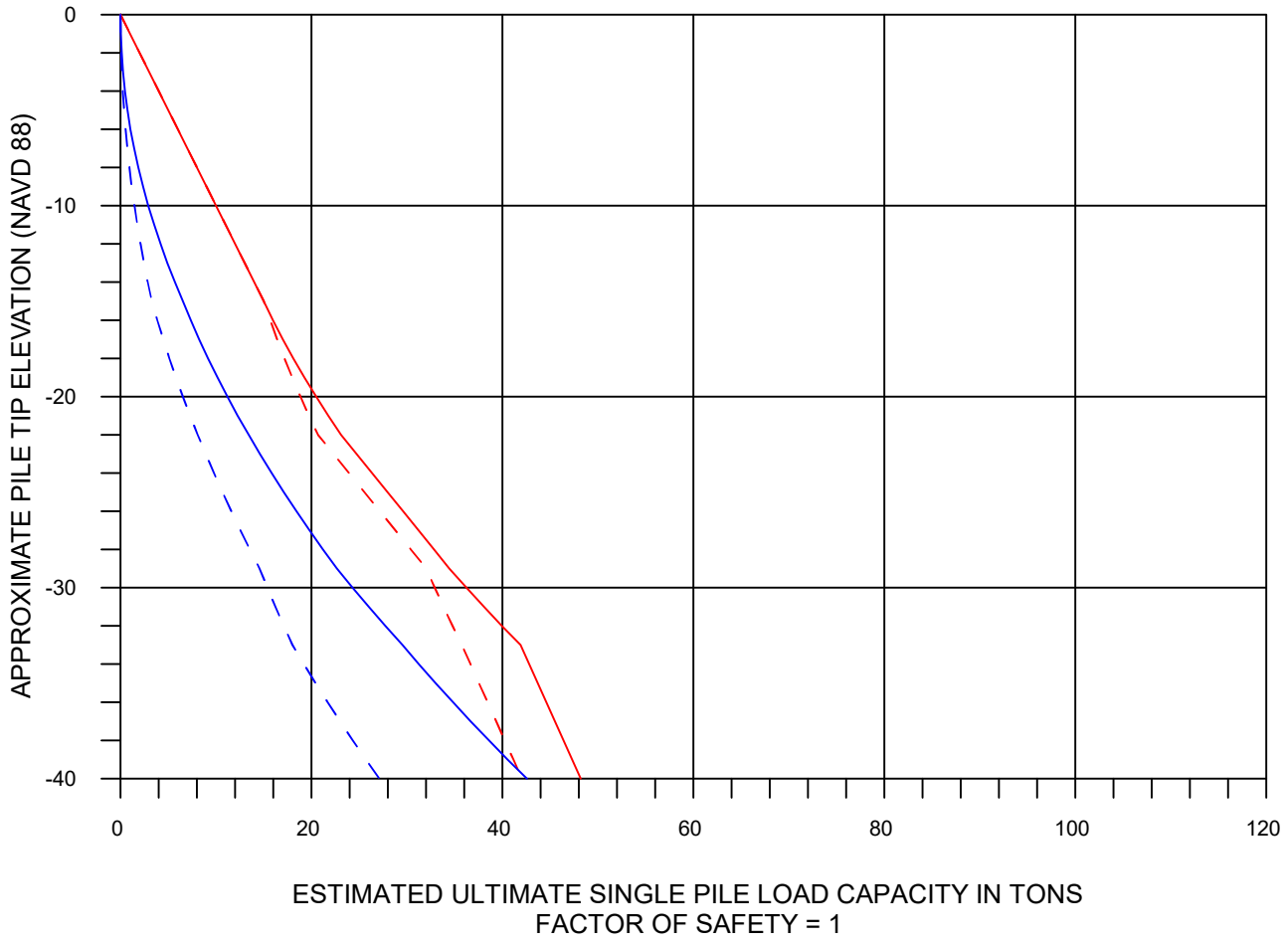
DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

PEARL RIVER FLOODWALLS

Alternative 7

Pile Capacities

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18 (PEARL RIVER FLOODWALLS)
12 x 74 INCH STEEL H-PILES
ALTERNATIVE 7



LEGEND

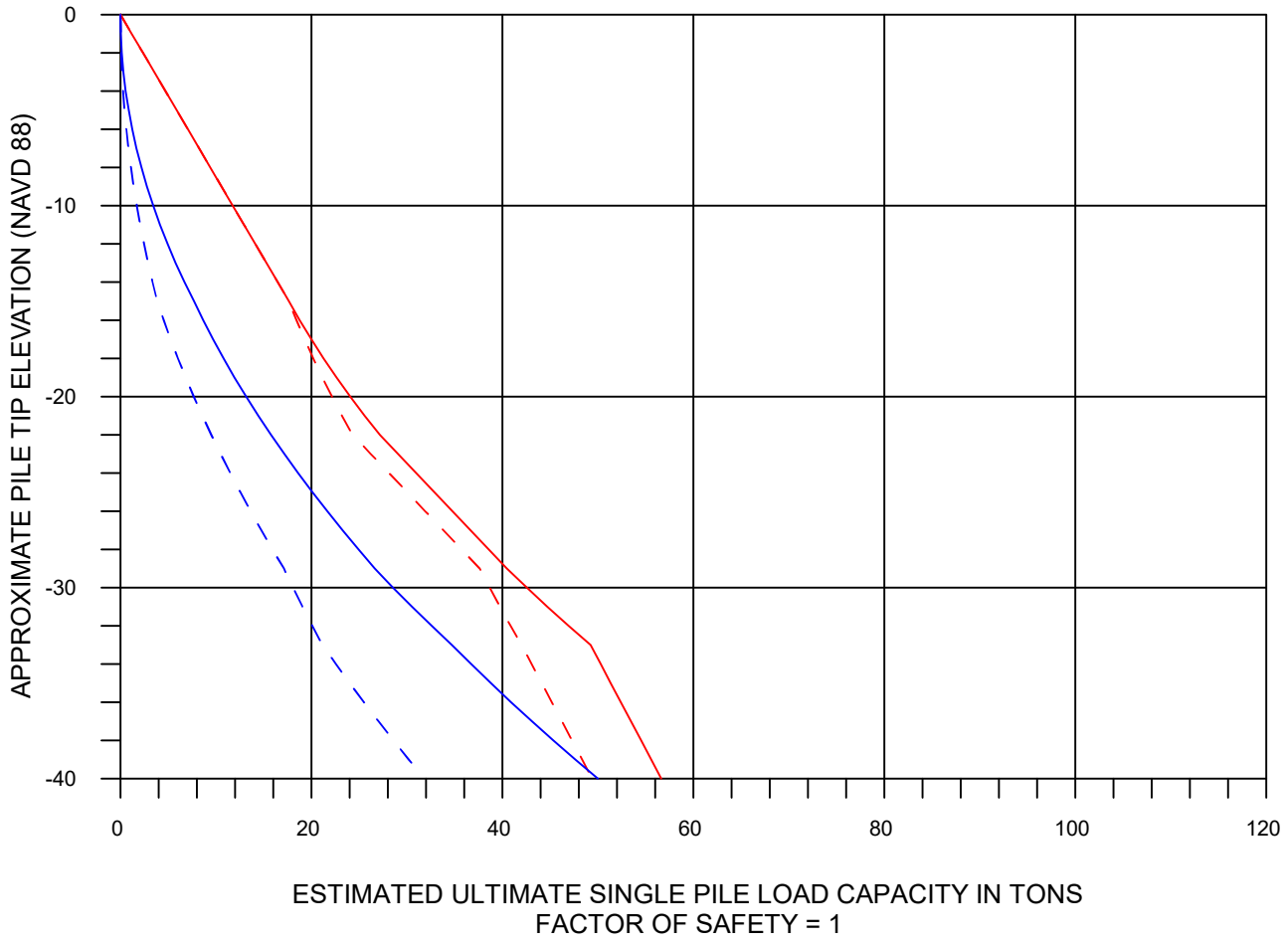
- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES
12 x 74 INCH STEEL H-PILES

ST. TAMMANY BBA-18
(PEARL RIVER FLOODWALLS)
ALTERNATIVE 7

DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

ESTIMATED ULTIMATE SINGLE PILE LOAD CAPACITIES
ST. TAMMANY BBA-18 (PEARL RIVER FLOODWALLS)
14 x 73 INCH STEEL H-PILES
ALTERNATIVE 7



LEGEND

- Q-CASE: COMPRESSION PILE CAPACITY
- Q-CASE: TENSION PILE CAPACITY
- S-CASE: COMPRESSION PILE CAPACITY
- S-CASE: TENSION PILE CAPACITY

ALLOWABLE PILE LOAD CAPACITIES
14 x 73 INCH STEEL H-PILES

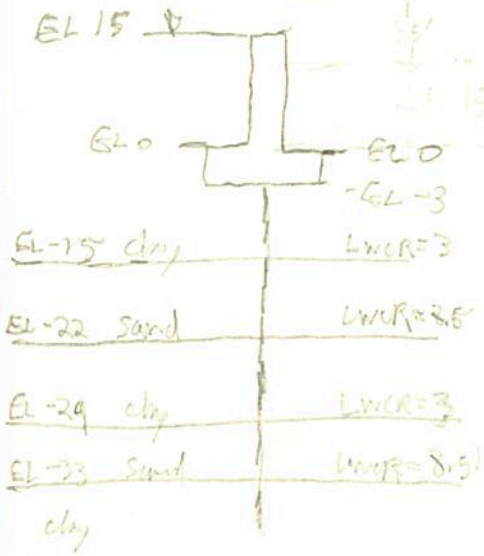
ST. TAMMANY BBA-18
(PEARL RIVER FLOODWALLS)
ALTERNATIVE 7

DRAWN BY: M.C.M	16 DECEMBER 2020	CHECKED BY:

SECTION 7

Lane's Weighted Creep

Sheetpile Lengths



$$LWCR = \frac{\frac{H}{3} + d_v}{h}$$ ⇒ assume $H=0$ for estimate on quantity

$$V = \frac{(LWCR)(h)}{2} = \frac{3(15')}{2} = 22.5'$$

Equivalent thickness:

clay $= \frac{3}{3}(12') = 12'$ and $\frac{3}{3}(7') = 7'$

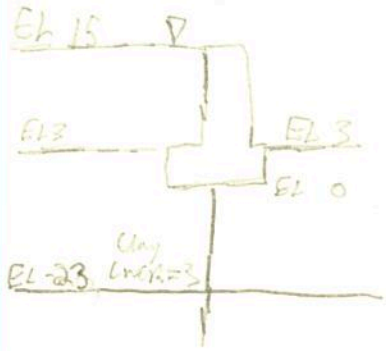
Sand $= \frac{3}{8.5}(7') = 2.5'$ and $\frac{3}{8.5}(4') = 1.4'$

Need to cover 23'

$12' + 2.5' + 7' + 1.4 = 22.9$ extend 5' into clay

So, use 35' sheetpiles for alternate 1 floodwall.

Soil properties based on Slidell memorial hospital boring for Eustis job 13418 which was closest available geotech data

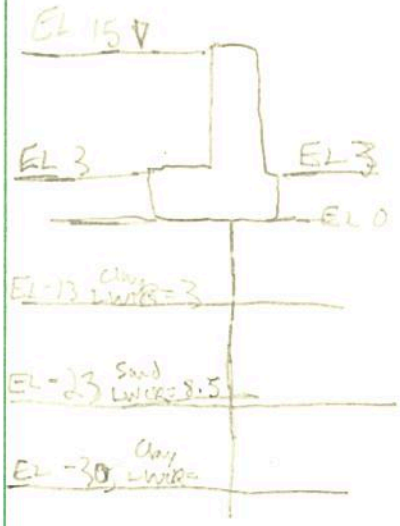


$LWCR = \frac{H/3 + 2v}{h}$ => assume H=0 for estimate on quantity

$V = \frac{(LWCR)(h)}{2}$

$V = \frac{3(12)}{2} = 18'$ ≤ 18' Sheet should be fine

Check same water loading at another location.



V = 18'

equivalent thickness: clay = $\frac{3}{3}(10') = 10'$

sand = $\frac{3}{8.5'}(10') = 3.5'$

clay = $\frac{3}{3}(7') = 7'$

20.5'

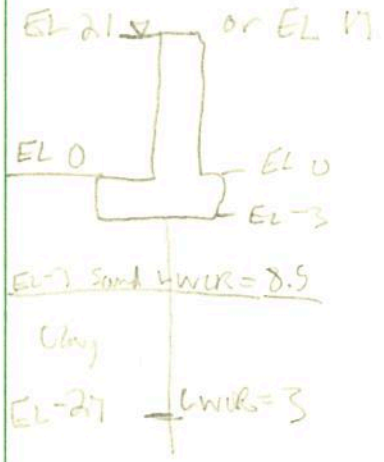
Will use different sheet lengths at different locations:

Use 20' length for the South Slidell surge reduction which has deeper sand

Use 25' length for W-14 gate which has deeper sand

Surge reduction use 13965 Eustis project

W-14 use 10463 Eustis project



$LWCR = \frac{H}{3} \cdot \frac{2V}{h}$ => assume H=0 for estimate or quantity

$$V = \frac{(LWCR)(h)}{2} = \frac{3(21)}{2} = 31.5$$

$$\text{or } V = \frac{3(17)}{2} = 25.5$$

Equivalent thickness:

Sand = $\frac{3}{8.5}(4') = 1.5$

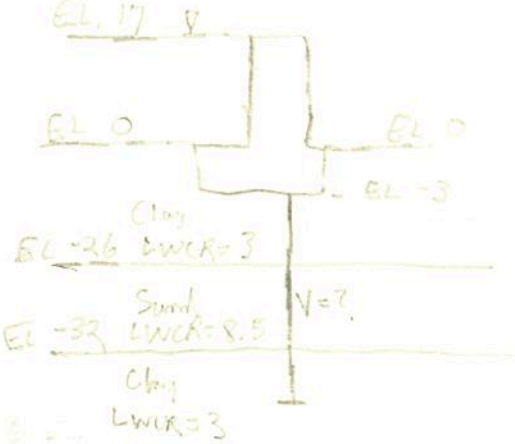
and clay for 24' or 30'

Soil properties based on St Tammany Events Center boring for Existis job 16613 which has closest available geotech data

Use 30' for jobs with less water loading in alternative 6

Eden Isle I-10 walls will utilize 30' sheets

Eden Isles Marina Gate, South, SW, West utilize 35' sheets



$$LWCR = \frac{H/3 + 2V}{h}$$ => assume H=0 for estimate on footing

$$V = \frac{(LWCR)(h)}{2}$$

Equivalent thickness

clay = 3/3 (23') = 23'

sand = 3/8.5 (6') = 2.1'

$$V = \frac{3^{\leftarrow \text{clay equivalent}}(17)}{2} = 25.5$$

25.1 < 25.5, extend into clay

So, use 35' sheetpiles for all alternate 4 floodwalls

Soil properties based on Delwood Pumping Station boring for Gustis job 13965 which was closest available geotechnical data

Other assumptions:

- assumed base width of 0
- assumed clay for first 26 ft then 6 ft sand
  * geology could change with site specific boring
- assumed 3 ft. slab and ground elev at 0
- assumed top of slab at ground elevation

Can also apply to alternative 5