Upper Barataria Basin Reach A Total Settlement

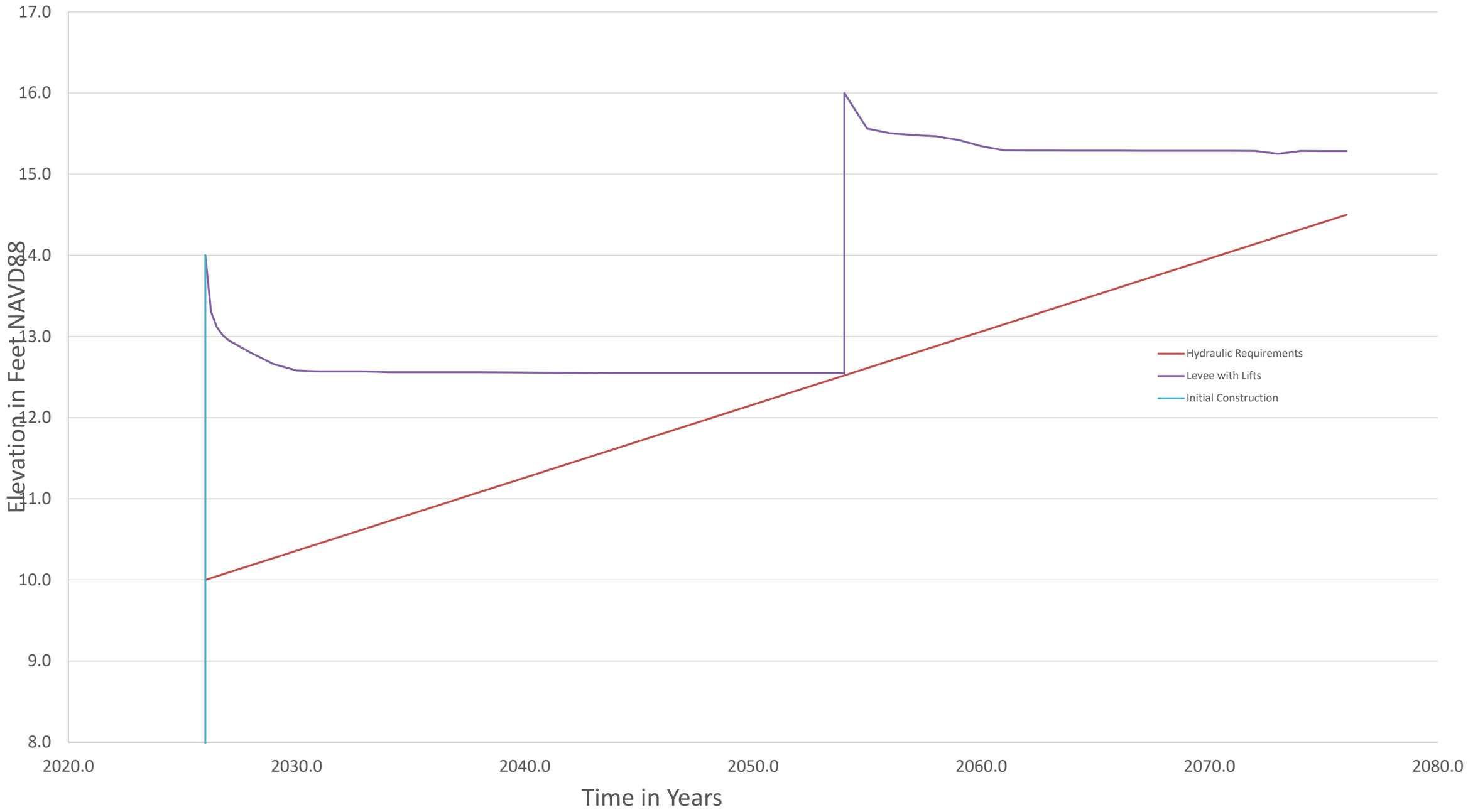


Plate 1

Upper Barataria Basin Reaches B,C,D Total Settlement

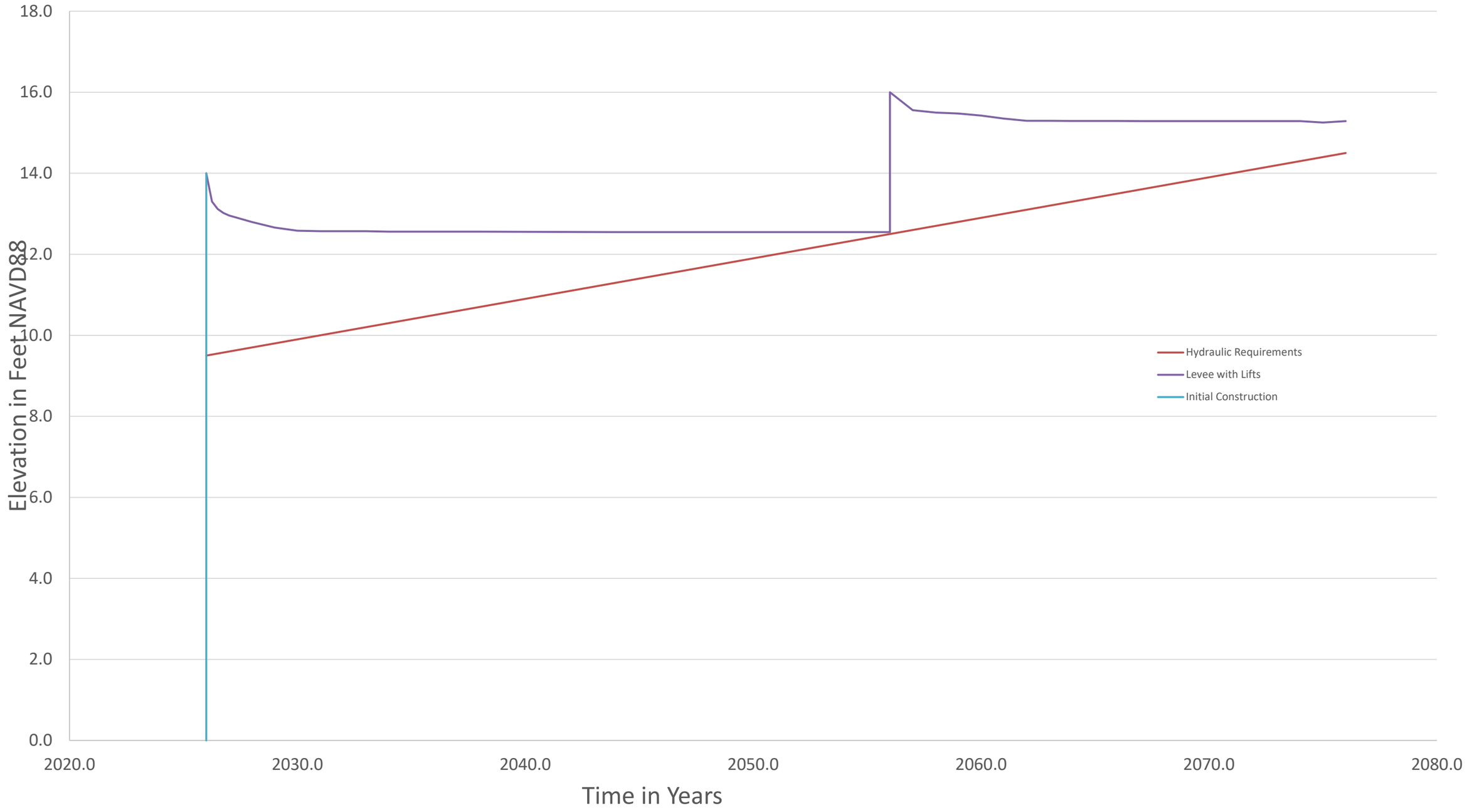


Plate 2

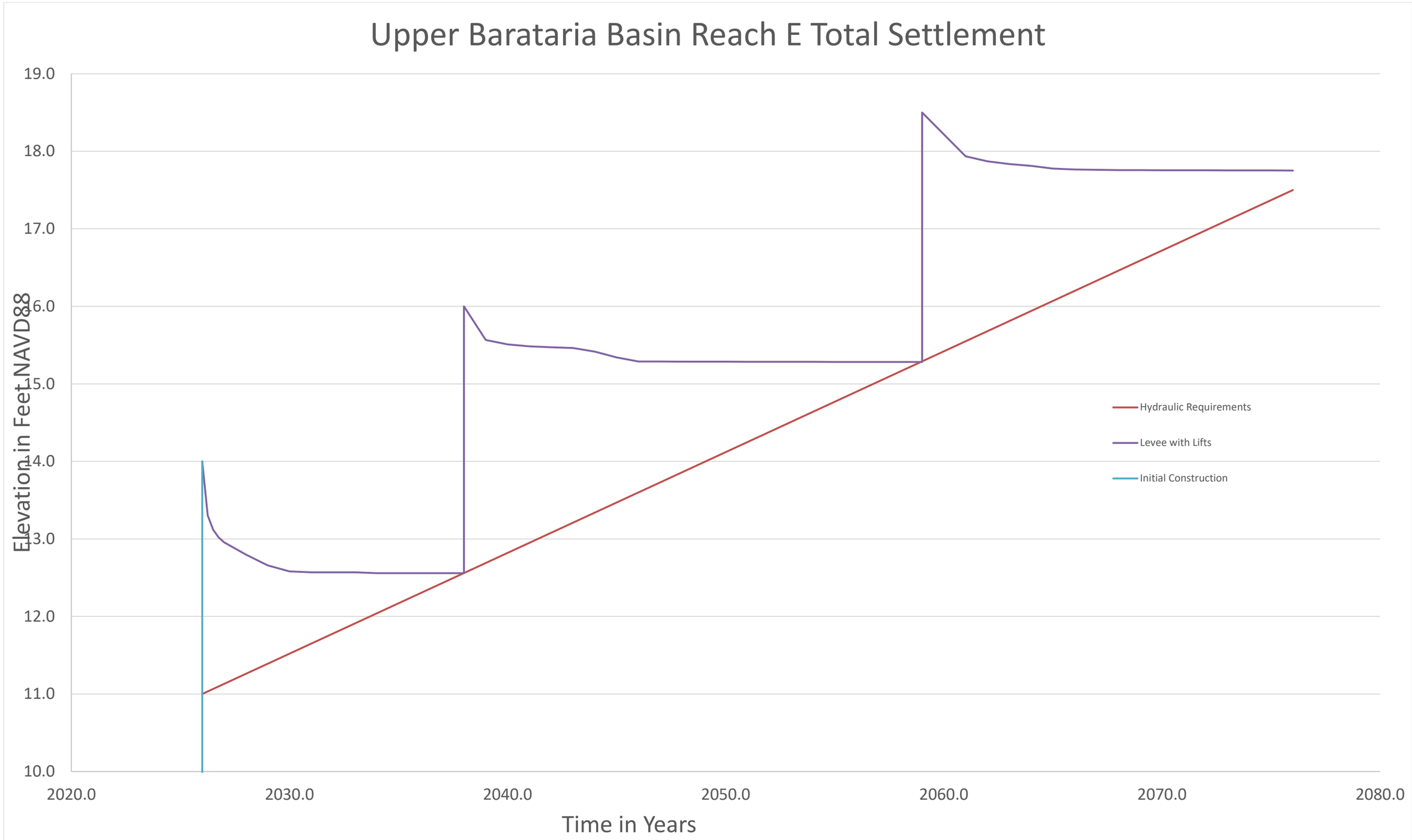

Upper Barataria Basin Reach E Total Settlement
19.0
18.0
17.0
16.0
15.0
14.0
13.0
12.0
11.0
10.0
Elevation in Feet NAVD88
2020.0
2030.0
2040.0
2050.0
2060.0
2070.0
2080.0
Time in Years
Hydraulic Requirements
Levee with Lifts
Initial Construction

Plate 3

Upper Barataria Basin Reach F Total Settlement

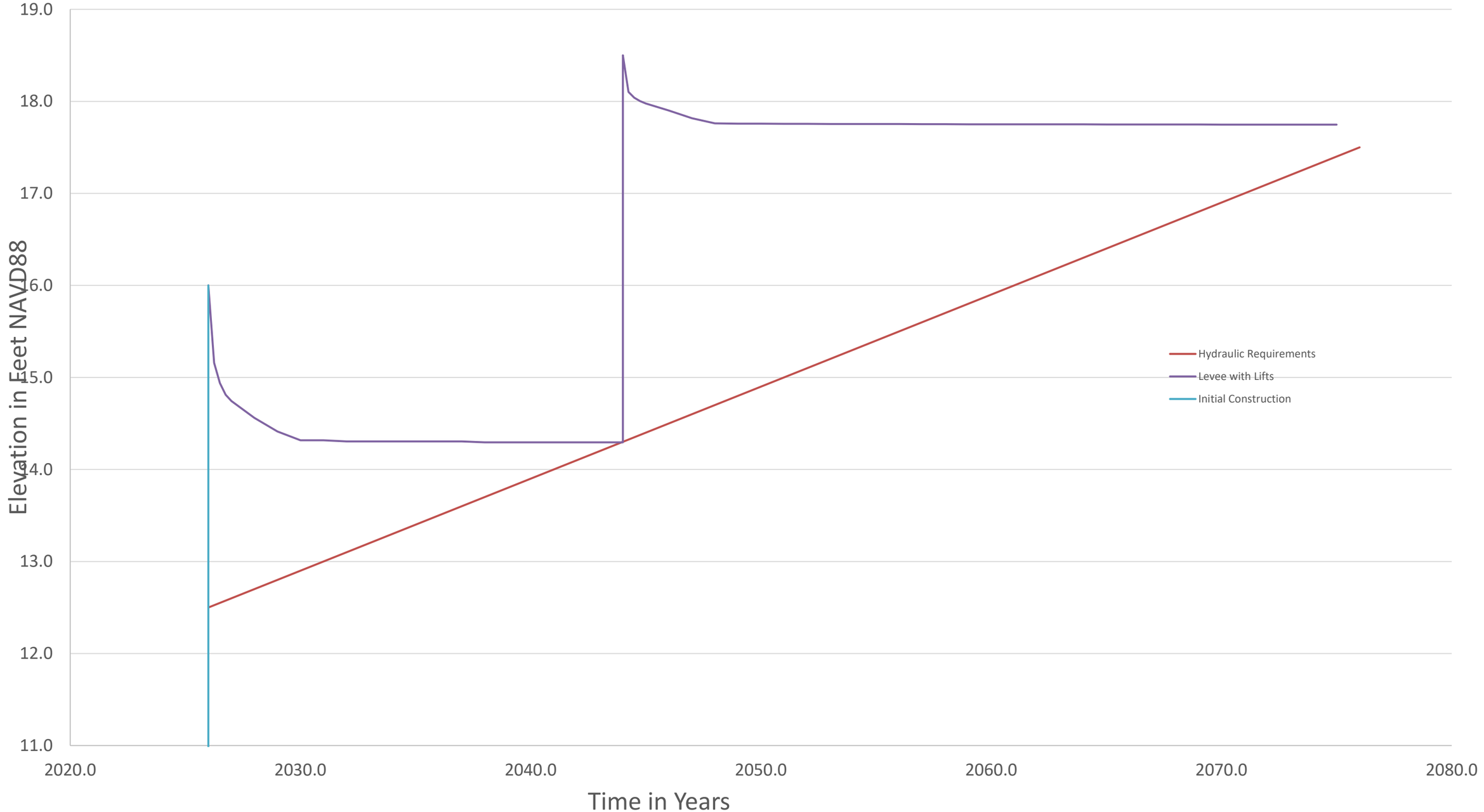


Plate 4

Upper Barataria Basin Reach G Total Settlement

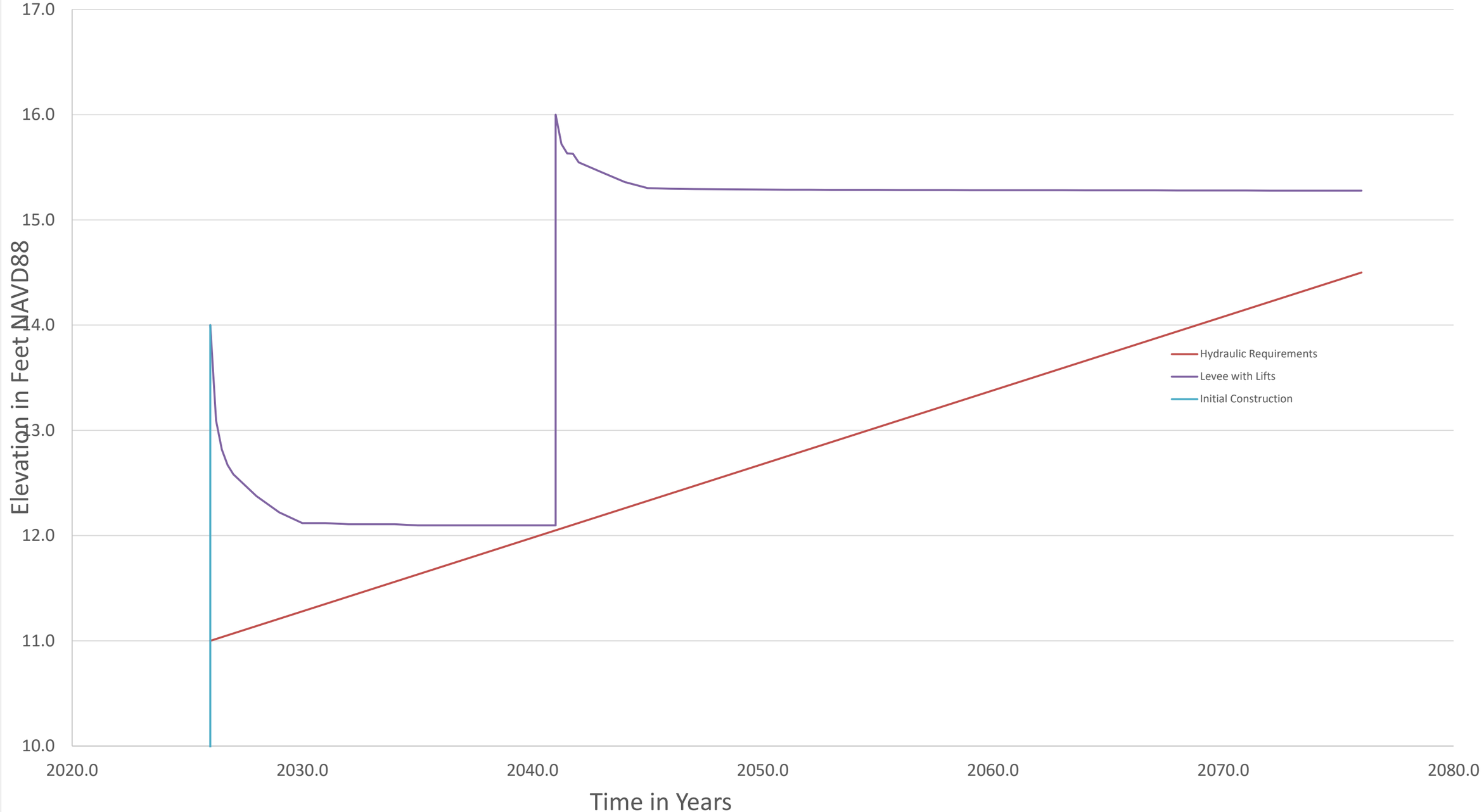


Plate 5

Upper Barataria Basin Reach H Total Settlement

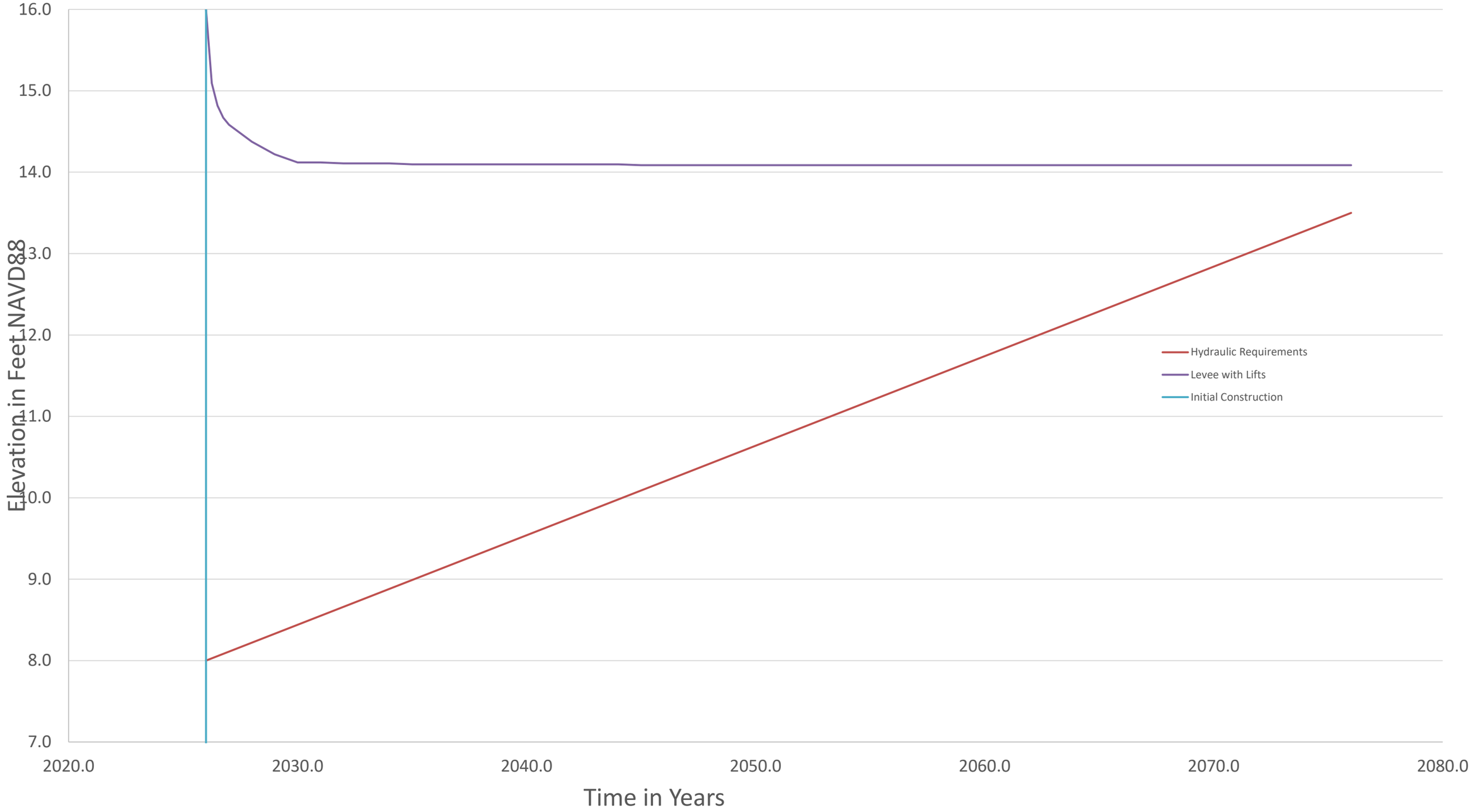
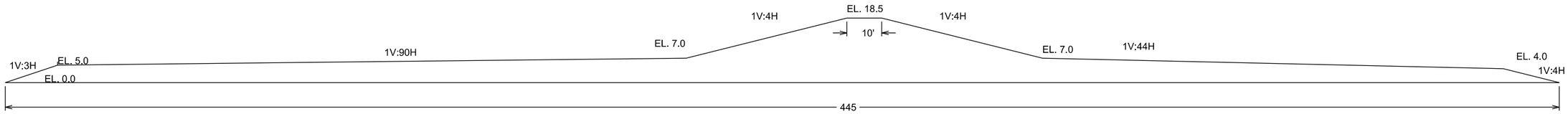


Plate 6

Upper Barataria Basin 100 year Footprints for Elevations 14', 16', and 18.5'

Flood Side

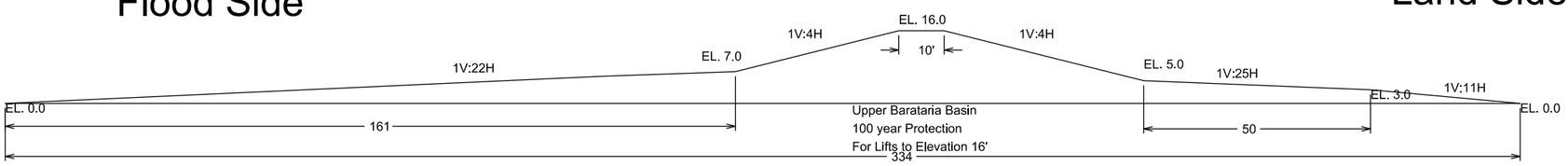
Land Side



Upper Barataria Basin
100 year Protection
For Lifts to Elevation 18.5'

Flood Side

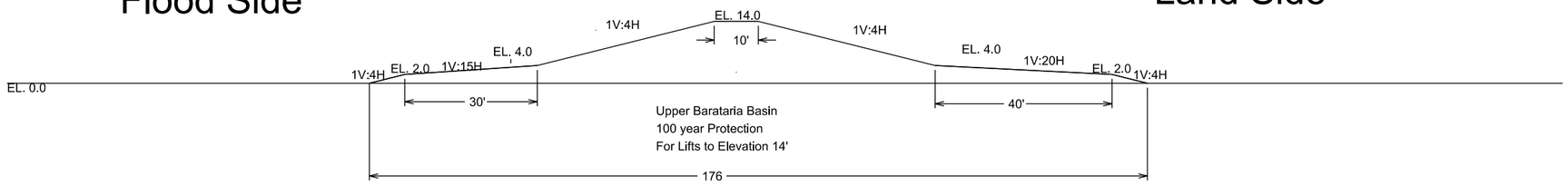
Land Side



Upper Barataria Basin
100 year Protection
For Lifts to Elevation 16'

Flood Side

Land Side



Upper Barataria Basin
100 year Protection
For Lifts to Elevation 14'

Plate 7

- DENOTES APPROXIMATE LOCATIONS OF 5-IN. UNDISTURBED SOIL BORINGS DRILLED BETWEEN APRIL 2014 AND JUNE 2015 FOR THIS PROJECT
- DENOTES APPROXIMATE LOCATIONS OF 3-IN. UNDISTURBED SOIL BORINGS DRILLED BETWEEN APRIL 2014 AND JUNE 2015 FOR THIS PROJECT
- DENOTES APPROXIMATE LOCATIONS OF 5-IN. UNDISTURBED SOIL BORINGS DRILLED IN 1995 AND 2004 UNDER EUSTIS ENGINEERING PROJECT NO. 13194
- DENOTES APPROXIMATE LOCATIONS OF 3-IN. UNDISTURBED SOIL BORINGS DRILLED IN 1995, 2003, AND 2004 UNDER EUSTIS ENGINEERING PROJECT NO. 13194

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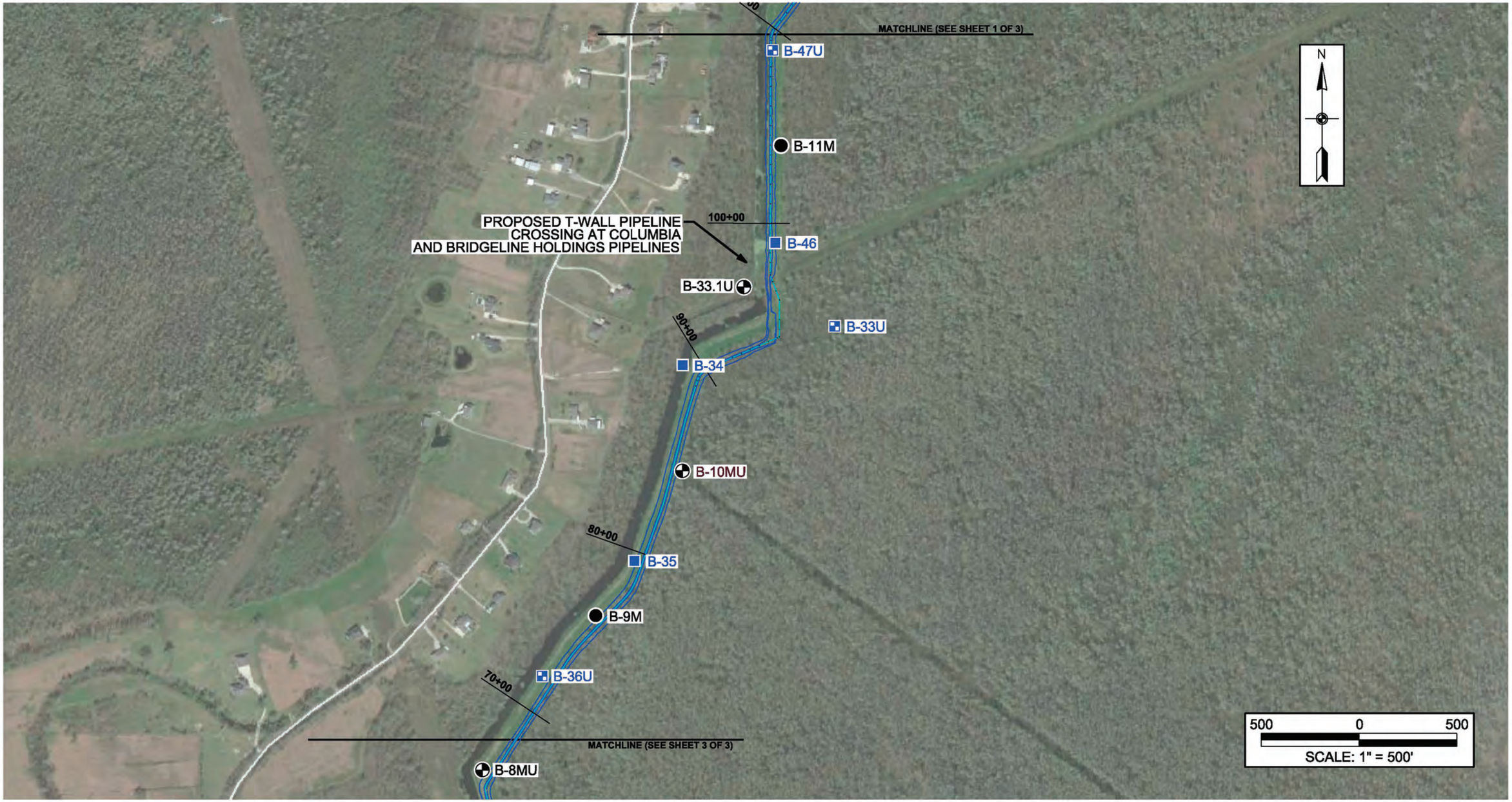
BORING LOCATION PLAN

ST. CHARLES PARISH
MAGNOLIA RIDGE LEVEE PROJECT
REPORT I - EARTHEN LEVEES
ST. CHARLES PARISH, LOUISIANA
ST. CHARLES PARISH PROJECT NO. P080905-6A

DRAWN BY: J.L.S.	PLOT DATE: 12 NOV 15	CADD FILE: REPORT I_PLAN.DGN
CHECKED BY: S.G.W.	JOB NO.: 22557	FIGURE 1 (SHEET 1 OF 3)



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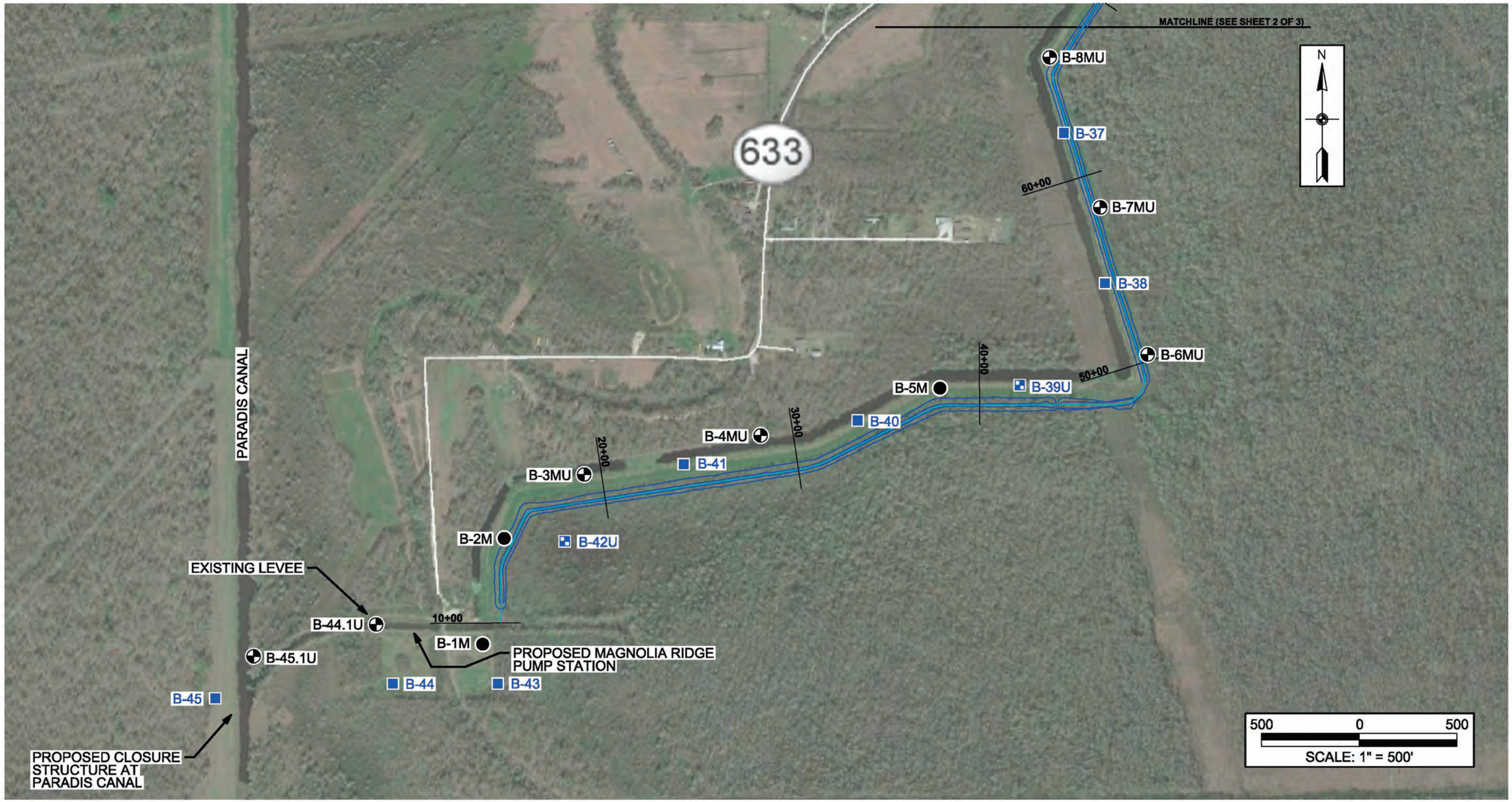
DRAWN BY: J.L.S.	PLOT DATE: 12 NOV 15	CADD FILE: REPORT I_PLAN.DGN
CHECKED BY: S.G.W.	JOB NO.: 22557	FIGURE 1 (SHEET 2 OF 3)



- DENOTES APPROXIMATE LOCATIONS OF 5-IN. UNDISTURBED SOIL BORINGS DRILLED BETWEEN APRIL 2014 AND JUNE 2015 FOR THIS PROJECT
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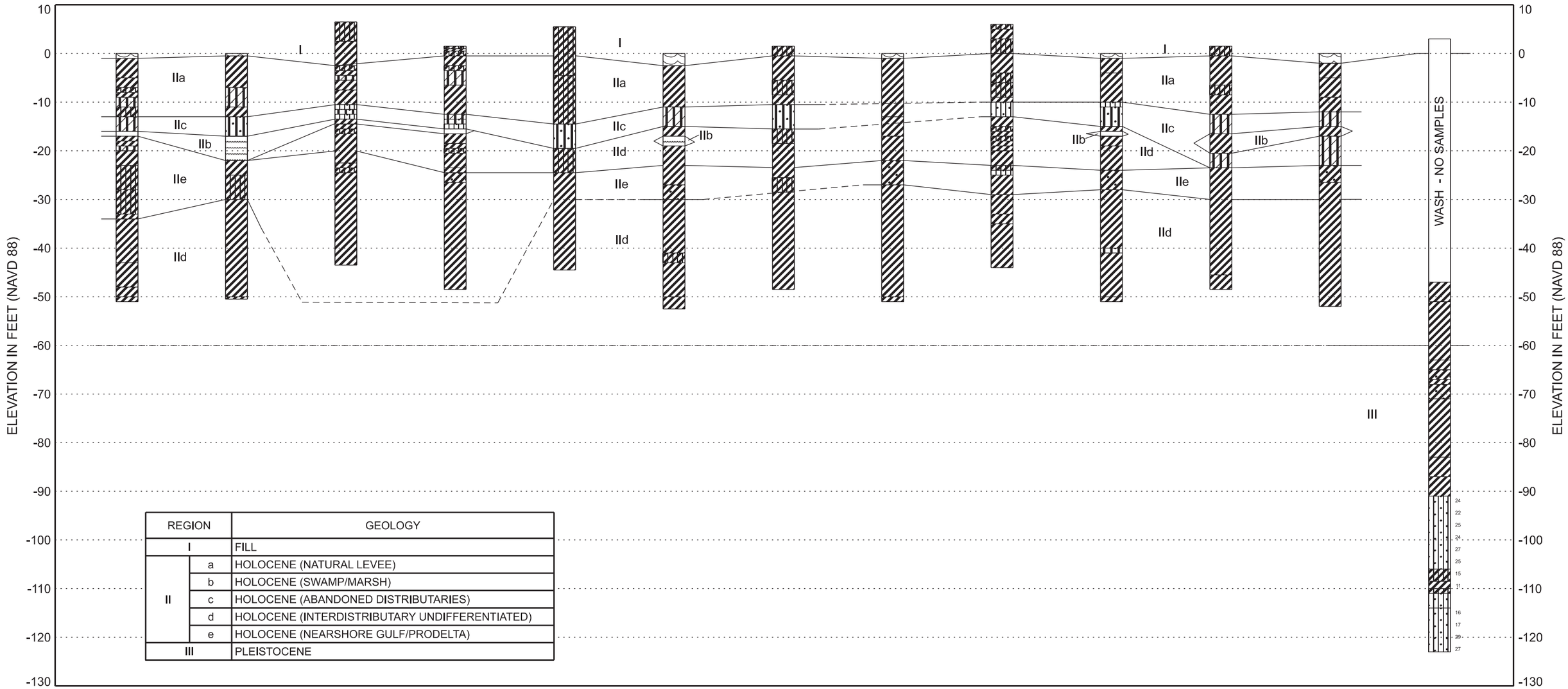
CHECKED BY: S.G.W.	JOB NO.: 22557	FIGURE 1 (SHEET 3 OF 3)

B-51	B-50	B-16MU	B-15MU	B-14M	B-49U	B-13M	B-48	B-12MU	B-47U	B-11M	B-46	B-33.1U
04 NOV 04	02 NOV 04	16 JUN 14	17 JUN 14	18 JUN 14	01 NOV 04	19 JUN 14	29 OCT 04	25 JUN 14	01 NOV 04	26 JUN 14	01 NOV 04	18 MAY 15
29°53'28.98"	29°53'25.8"	29°53'18.78"	29°53'15.12"	29°33'28.8"	29°53'5.6"	29°53'4.02"	29°52'59.6"	29°52'56.58"	29°52'58.2"	29°52'47.28"	29°52'42.2"	29°52'39"
-90°23'9.96"	-90°23'17"	-90°23'22.26"	-90°23'25.92"	-90°23'29.4"	-90°23'30.4"	-90°23'35.82"	-90°23'38.6"	-90°23'41.88"	-90°23'43.9"	-90°23'44.16"	-90°23'44.8"	-90°23'44.4001"
G.S.E. 0.00	G.S.E. 0.00	G.S.E. 6.50	G.S.E. 1.50	G.S.E. 5.50	G.S.E. 0.00	G.S.E. 1.50	G.S.E. 0.00	G.S.E. 6.00	G.S.E. 0.00	G.S.E. 1.50	G.S.E. 0.00	G.S.E. 3.00



REGION		GEOLOGY
I		FILL
II	a	HOLOCENE (NATURAL LEVEE)
	b	HOLOCENE (SWAMP/MARSH)
	c	HOLOCENE (ABANDONED DISTRIBUTARIES)
	d	HOLOCENE (INTERDISTRIBUTARY UNDIFFERENTIATED)
	e	HOLOCENE (NEARSHORE GULF/PRODELTA)
III		PLEISTOCENE

BORING MATERIAL GRAPHICS

- CLAY
- SILTY CLAY
- SANDY CLAY
- SAND
- SILTY SAND
- CLAYEY SAND
- SANDY SILT
- CLAYEY SILT
- ORGANIC CLAY
- PEAT/HUMUS
- WOOD
- SHELLS
- WATER

NOTE:

NUMBERS TO THE RIGHT OF THE BORING LOGS ARE STANDARD PENETRATION TEST (SPT) RESULTS (I.E., "N-VALUES").

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SUBSOIL PROFILE

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ST. CHARLES PARISH, LOUISIANA
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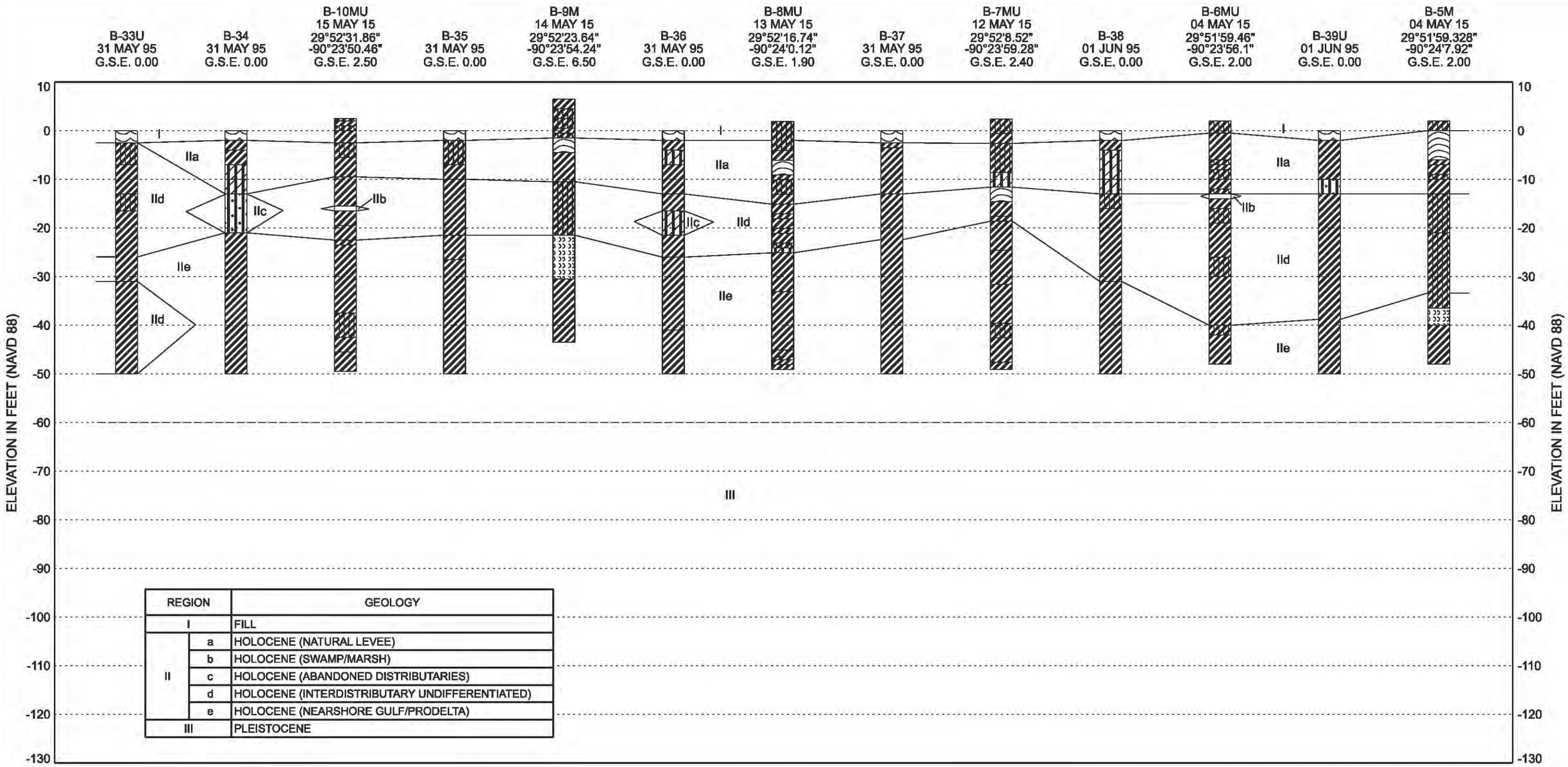
DRAWN BY: J.L.S.	PLOT DATE: 12 NOV 15	CADD FILE: PROFILE.DGN
CHECKED BY: S.G.W.	JOB NO.: 22557	FIGURE 2 (SHEET 1 OF 3)



REGION		GEOLOGY
I		FILL
II	a	HOLOCENE (NATURAL LEVEE)
	b	HOLOCENE (SWAMP/MARSH)
	c	HOLOCENE (ABANDONED DISTRIBUTARIES)
	d	HOLOCENE (INTERDISTRIBUTARY UNDIFFERENTIATED)
	e	HOLOCENE (NEARSHORE GULF/PRODELTA)
III		PLEISTOCENE

BORING MATERIAL GRAPHICS

- CLAY
- SILTY CLAY
- SANDY CLAY
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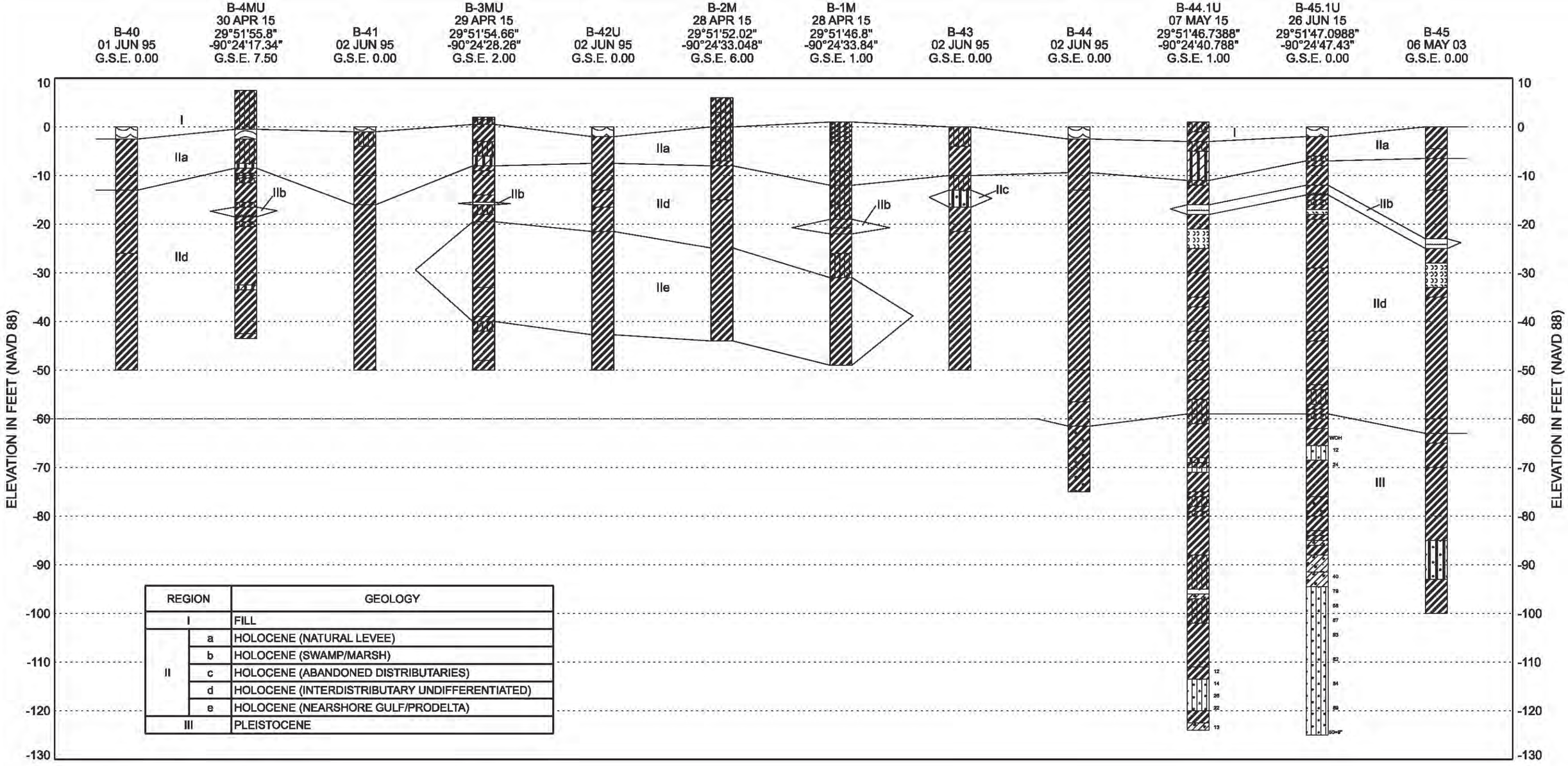
DRAWN BY: J.L.S.	PLOT DATE: 12 NOV 15	CADD FILE: PROFILE.DGN
CHECKED BY: S.G.W.	JOB NO.: 22557	FIGURE 2 (SHEET 2 OF 3)



REGION		GEOLOGY
I		FILL
II	a	HOLOCENE (NATURAL LEVEE)
	b	HOLOCENE (SWAMP/MARSH)
	c	HOLOCENE (ABANDONED DISTRIBUTARIES)
	d	HOLOCENE (INTERDISTRIBUTARY UNDIFFERENTIATED)
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- CLAY
- SILTY CLAY
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NATURAL MOISTURE CONTENT (%)

TOTAL UNIT WEIGHT (γ) IN PCF

UNDRAINED SHEAR STRENGTH (S_U) IN PSF

ELEVATION IN FEET (NAVD88)

EFFECTIVE OVERBURDEN STRESS (P'o) IN PSF

γ=115
γ=112
γ=112
γ=112
γ=80
γ=102
γ=107
γ=102
γ=102
γ=105
γ=98
γ=120

S_u=700
S_u=500
S_u=450
S_u=400 (SEE NOTE 7)
S_u=350
$S_{u(TOP)}$ = 250
S_u=14 PSF/FT
$S_{u(BOT)}$ = 700
S_u=700
S_u=850

EL. 6
EL. 1.5
EL. -5
EL. -10
EL. -13
EL. -18
EL. -25
EL. -30
EL. -35
EL. -40
EL. -50
EL. -58
EL. -80

B-51 (EE13194), B-50 (EE13194), B-49U (EE13194), B-48 (EE13194), B-47U (EE13194), B-46 (EE13194), B-45 (EE13194), B-44 (EE13194), B-43 (EE13194), B-42U (EE13194), B-41 (EE13194), B-40 (EE13194), B-39U (EE13194), B-38 (EE13194), B-37 (EE13194), B-36U (EE13194), B-35 (EE13194), B-34 (EE13194), B-33U (EE13194), B-1M

B-2M, B-3MU, B-4MU, B-5M, B-6MU, B-7MU, B-8MU, B-9M, B-10MU, B-11M, B-12MU, B-13M, B-14M, B-15MU, B-16MU, B-33.1U, B-44.1U, B-45.1U, B-10MU (CU), B-7MU (CU)

NOTES:

1. SOIL BORING LOGS ARE PROVIDED IN APPENDIX I(a). LABORATORY TEST REPORTS ARE SHOWN IN APPENDIX I(b) (SHEAR) AND I(c) (CONSOLIDATION). SOIL BORING LOGS FROM PREVIOUS PROJECTS ARE SHOWN IN APPENDIX II.

2. UNIT WEIGHTS SHOWN ARE TOTAL UNIT WEIGHTS AND MUST BE APPROPRIATELY REDUCED TO ESTIMATE EFFECTIVE STRESS STATES.

3. UNDRAINED SHEAR STRENGTHS SHOWN IN RED WERE BACK-CALCULATED USING THE SHANSEP EQUATION WITH PAST MAXIMUM PRESSURES OBTAINED FROM THE CONSOLIDATION TESTS AND ASSUMING THE S_U/P'_O RATIO FOR NORMALLY CONSOLIDATED SOIL AT THIS SITE IS 0.25 AND THAT m=0.80.

4. AVERAGE GROUND TAKEN AS EL.1.5 ACROSS PROJECT SITE. AVERAGE TOP OF LEVEE AT EL 6. PARAMATERS ABOVE EL 1.5 REPRESENT THE EXISTING LEVEE THAT WILL BE DEGRADED AS PART OF THIS PROJECT. GEOTECHNICAL DATA EVALUATION TO EL -80.

5. DESIGN PROFILES SHOWN CANNOT FULLY ANTICIPATE ALL PARAMETERS WHICH MAY INFLUENCE SELECTION OF DESIGN VALUES FOR A SPECIFIC ANALYSIS. FOR THIS REASON, THE USER SHOULD CONTACT EUSTIS ENGINEERING SERVICES, L.L.C. PRIOR TO USE OF DESIGN PROFILES IN ANY ANALYSES.

6. FOR S-CASE (DRAINED SHEAR STRENGTHS) WE RECOMMEND USING ϕ=23° FOR ALL CLAY STRATA AND ϕ=28° FOR ALL SILT STRATA.

7. ALTERNATE CONDITION FOR EL -10 TO EL -13 INCLUDES A SEMI-COHESIVE MATERIAL (I.E., SILT) USING AN UNDRAINED COHESION OF 200 PSF AND UNDRAINED FRICTION ANGLE OF 15 DEGREES.

3-POINT "UU" TESTS ARE GREEN
3-POINT "CU" TESTS ARE YELLOW
CONSOLIDATION TESTS ARE RED
UC TESTS ARE BLUE

Su/P'o =0.17 from el 1.5
P'o & Su/P'o = 0.25 from el 1.5
SHEAR STRENGTH DESIGN LINE
Su/P'o =0.31 from el 1.5

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SOIL DESIGN PARAMETERS

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ST. CHARLES PARISH PROJECT NO. P080905-6A

DRAWN BY: S.G.W.	5 OCTOBER 2015	FILE: LEVEE.grf
CHECKED BY: S.G.W.	JOB NO.: 22557	FIGURE 3

Holocene shouldn't use ocr > 1.1 (???)

WATER CONTENT (%)

COMPRESSION RATIO (CR)

RECOMPRESSION RATIO (RR)

OVERCONSOLIDATION RATIO (OCR)

COEFFICIENT OF CONSOLIDATION (Cv) IN FT²/YEAR

ELEVATION, FT NAVD 88

EL. -5
EL. -10
EL. -13
EL. -18
EL. -25
EL. -30
EL. -35
EL. -40
EL. -50
EL. -58
EL. -80

CR=0.16
0.523
0.36
0.32
0.345
0.420
0.277

RR=0.05
0.135
0.050
0.075
0.075
0.07
0.085
RR=0.042
15%

OCR=3.3
2.1.2
1.2
1.2
1.4
3.2

Pleistocene

B-3MU, 6B	B-7MU, 8C	B-12MU, 13B	B-33.1U, 10B	B-44.1U, 11C	B-45.1U, 13C	B-44, 5 (EE13194)	B-47, 3B (EE13194)	B-49, 5C (EE13194)	B-51, 8C (EE13194)
B-4MU, 9B	B-8MU, 6C	B-15MU, 8B	B-33.1U, 10B	B-44.1U, 15C	B-35, 9 (EE13194)	B-47, 10C (EE13194)	B-49, 13C (EE13194)	B-51, 2B (EE13194)	SHANSEP_OCR m=0.8 S=0.25
B-6MU, 4C	B-10MU, 14C	B-16MU, 7B	B-44.1U, 6C	B-45.1U, 8C	B-40, 2 (EE13194)

EE 22557
Magnolia Ridge
Consolidation Test Summary

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the A-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$

0.8 = m
0.25 = S

No.	Boring	Sample	Boring El. (feet)	Sample Depth (feet)	Sample El. (feet)	USCS	w%	Cc	Cs	eo	CR	RR Based on Consol Test	Theoretical RR=.15*CR	Dry Unit Weight (pcf)	Moist Unit Weight, (pcf)	Approximate P'o (Psf)	Approximate P'o (tsf)	Approximate P'c (tsf)	OCR = P'$_c$/P'$_o$	S_u= P'o*S*(P'	C_{VR}	C_v (sq.ft/year)	Remarks ~~Shear test psf~~
1	B12MU	13B	6.0	45.0	-39.0	CH	59.1	0.911	0.202	1.674	0.341	0.076	0.051	63.6	101.2	2005.0	1.00	1.81	1.81	804	45	7.00	591
2	B15MU	8B	1.5	25.0	-23.5	CH	46.3	0.628	0.075	1.674	0.235	0.028	0.035	71.2	104.2	1042.0	0.52	1.15	2.21	491	66	32.85	268
3	B16MU	7B	6.5	21.0	-14.5	CH	66.0	0.968	0.171	1.925	0.331	0.059	0.050	58.5	97.1	960.6	0.48	1.10	2.29	466	73	29.20	320
4	B3MU	6B	2.0	17.0	-15.0	OH	200.8	3.279	0.858	5.268	0.523	0.137	0.078	24.4	73.4	856.2	0.43	1.92	4.48	711	18	3.65	1503
5	B4MU	9B	7.5	25,0	-17.5	OH	79.9	0.989	0.240	2.126	0.316	0.077	0.047	52.9	95.2	1363.0	0.68	1.05	1.54	482	29	14.60	788
6	B6MU	~ 4C	2.0	10.0	-8.0	CL	36.7	0.264	0.026	1.044	0.129	0.012	0.019	82.5	112.8	546.0	0.27	1.95	7.14	658	365	365.00	306/205
7	B7MU	8C	2.4	23.0	-20.6	CH	58.6	0.807	0.134	1.680	0.301	0.050	0.045	62.9	99.8	1030.0	0.52	1.55	3.01	622	219	36.50	CU=381; UU=755
8	B8MU	6C	1.9	17.0	-15.1	CH	50.4	0.549	0.168	1.602	0.211	0.064	0.032	65.3	98.2	912.2	0.46	1.25	2.74	511	29	14.60	475
9	B10MU	14C	2.5	50.0	-47.5	CH	46.9	0.779	0.170	1.405	0.324	0.071	0.049	71.1	104.4	2181.0	1.09	1.45	1.33	685	32	3.65	679
10	B33.1U	~ 10B 3" PSH	3.0	87.0	-84.0	CH	42.4	0.598	0.234	1.159	0.277	0.108	0.042	78.7	112.1	4205.2	2.10	6.60 B.P.	3.14	2625	/	40.15	UU 1561 / 1846 (UC)
11	B33.1U	~~X~~ 10B BAD TEST	3.0	87.5	-84.5	CH	41.7	0.153	0.116	1.142	0.071	0.054	0.011	79.3	112.4	4205.2	2.10	2.08 BAD TEST	0.99	1042	29	1.83	UU=1561; 1846=UC
12	B44.1U	6C	1.0	18.5	-17.5	OH	59.6	0.749	0.189	1.548	0.294	0.074	0.044	63.7	101.7	985.6	0.49	1.08	2.19	462	40	40.15	1165
13	B44.1U	11C	1.0	38.5	-37.5	CH	53.9	0.558	0.144	1.466	0.226	0.058	0.034	68.8	105.9	1881.0	0.94	1.10	1.17	533	29	~~0.00~~	492
14	B44.1U	15C	1.0	54.5	-53.5	CH	66.8	1.103	0.242	1.866	0.385	0.084	0.058	59.7	99.6	2526.5	1.26	1.86	1.47	861	22	~~7.30~~ 3.65	1460
15	B45.1U	8C	0.0	32.5	-32.5	CH	68.6	0.908	0.220	1.922	0.311	0.075	0.047	58.1	98.0	1356.0	0.68	0.94	1.39	440	40	3.65	588
16	B45.1U	~~X~~ 13C	0.0	52.5	-52.5	CH	65.5	0.806	0.149	1.904	0.278	0.051	0.042	58.9	97.5	2108.0	1.05	0.96 BAD TEST	0.91 BAD TEST	489	N/A	~~1.83~~ 4	232
24	B35	9	0.0	34.0	-34.0	CH	73.0	0.950		2.023	0.314	0.025	0.047	56.6	97.9	1513.0	0.76	1.10	1.45	510	7.3	3.65	
25	B40	2	0.0	6.0	-6.0	CH	40.6	0.320		1.134	0.150	0.012	0.022	79.6	111.9	301.0	0.15	1.40	9.30	448	18	10.95	
26	B44	5	0.0	15.0	-15.0	CH	56.5	0.570		1.562	0.222	0.012	0.033	66.8	104.5	715.0	0.36	1.30	3.64	502	9	4.75	
27	B47	3B	0.0	9.0	-9.0	CH	41.4	0.380		1.130	0.178	0.050	0.027	79.7	112.7	441.0	0.79	2.66	3.35	1044	26	5.00	
28	B47	10C	0.0	38.0	-38.0	CH	63.7	0.970		1.781	0.349	0.060	0.052	61.5	100.7	1587.0	0.47	1.27	2.68	521	/	4.00	
29	B49	5C	0.0	21.5	-21.5	CH	60.7	0.980		1.679	0.366	0.030	0.055	63.4	101.9	948.0	0.47	1.00	2.11	431	22	3.65	
30	B49	13C	0.0	52.5	-52.5	CH	71.1	1.250		1.980	0.419	0.060	0.063	57.4	98.2	2166.5	1.08	1.75	1.62	795	48	3.65	
31	B51	2B	0.0	5.0	-5.0	CH	43.5	0.370		1.276	0.163	0.050	0.024	75.2	107.9	245.0	0.12	1.40	11.43	430	44	3.65	
32	B51	8C	0.0	30.0	-30.0	CL	38.4	0.360		1.084	0.173	0.010	0.026	71.3	98.7	1325.0	0.66	1.23	1.86	543	923	146.00	

4.0 SUBSOIL CONDITIONS

4.1 Subsoil Descriptions for Reach 1 (Design Segment 5F)

4.1.1 Boring B-1 (Land Boring)

Below the ground surface, medium stiff to very stiff silty clay is present to the approximate 4 foot depth. Very soft to soft clay follows to the approximate 18 foot depth. Below this layer, a very loose silty sandy clay layer is present to the approximate 24 foot depth. Below the sand layer, interbedded layers of soft to medium stiff clay and silty clay follow to the boring's termination depth of 60 feet.

4.2 Subsoil Descriptions for Reach 2 (Design Segment 5E)

4.2.1 Boring B-2 and Probe CPT-B-7 (Godchaux Canal Boring)

The mudline was encountered at approximately 3 feet below the water surface level at the time of drilling. Below the mudline surface, interbedded layers of very soft to soft clay, silty clay, and sandy clay follow to the approximate 42 foot depth. Below these layers, interbedded layers of very loose to loose clayey sand and soft to medium stiff silty clay is present to the approximate 46 foot depth. Below these layers, soft to medium stiff clay follows to boring's termination depth of 60 feet.

In general, the CPT probe encountered similar subsurface conditions. Some variations are shown between the approximate 24 foot to 33 foot and 48 foot to 60 foot depths where relatively stiff silty clay and sandy clays were encountered.

4.3 Subsoil Descriptions for Reach 3 (Design Segment 5A to 4)

4.3.1 Probes CPT-B-3, CPT-B-4, and CPT-B-5 (Godchaux Canal Borings) and CPT-B-8 (Marshland Boring)

Referencing the canal borings, the mudline was encountered at approximately 0.5 feet to 3.5 feet below the water surface level at the time of probing. Below the mudline surface, interbedded layers of fine grained soils (i.e. clay and silty clay)

follow to the approximate 45 foot to 51 foot depths. Below these layers, interbedded layers of silty clay, sandy clay, and clayey sand layers are present to probes' termination depth of 60 feet.

The marshland CPT (CPT-B-8) probe encountered organic material (i.e. peats, organic clays) and clay below the ground surface to the approximate 25 foot depth. Below this depth, the subsurface conditions are similar to those detected within the canal probes encountering interbedded layers of silty clay, sandy clay, and clayey sand layers to probes' termination depth of 60 feet.

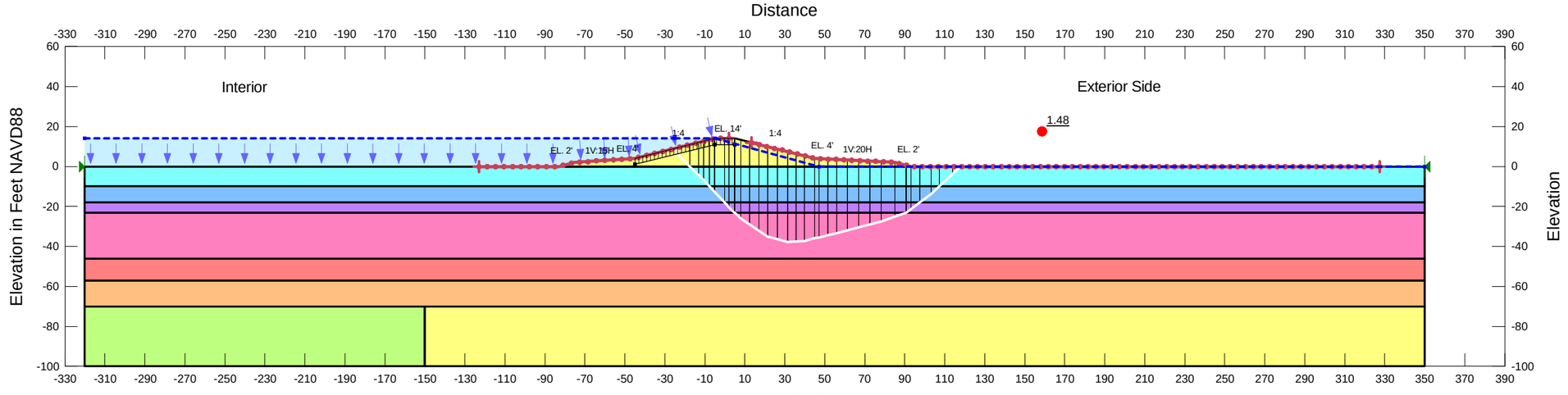
4.4 Subsoil Descriptions for Des Allemands Control Structure (Design Segment 3)

4.4.1 Boring B-6 (Bayou Des Allemands Boring)

Referencing the boring, the mudline was encountered at approximately 6.5 feet below the water surface level at the time of drilling. Below the mudline surface, organic material consisting of very soft organic clay is present to the approximate 9 foot depth. Below this layer, very soft to soft clay follows to the approximate 66 foot depth. Medium stiff clay follows to the approximate 83 foot depth. Below this layer, stiff sandy clay and very loose to loose clayey sand is present to the approximate 98 foot depth. Stiff clay follows to the approximate 125 foot depth. Interbedded layers of soft to medium stiff clay are present below this depth and to the approximate 148 foot depth. Below these layers, clay with shells layer overlies a very dense clayey shell with sand layer to the approximate 153 foot depth. Soft silty clay follows to the approximate 178 foot depth. Stiff to very stiff silty clay is present below this layer to the boring's termination depth of 200 feet.

4.5 Water Surface

At the time of making the borings, the water depth observed at each boring or CPT location is shown in the following table:



Distance in Feet

Uses soil Properties from Sunset Geotechnical Report Reach 7

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

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Directory: G:\F&MHOME\Danton\Barataria Basin\Upper Barataria Basin\~100 Year Design\Stability Analysis\

Note: This design is only for cost estimating purposes. A more detailed design will be completed at a later time.

GENERAL NOTES

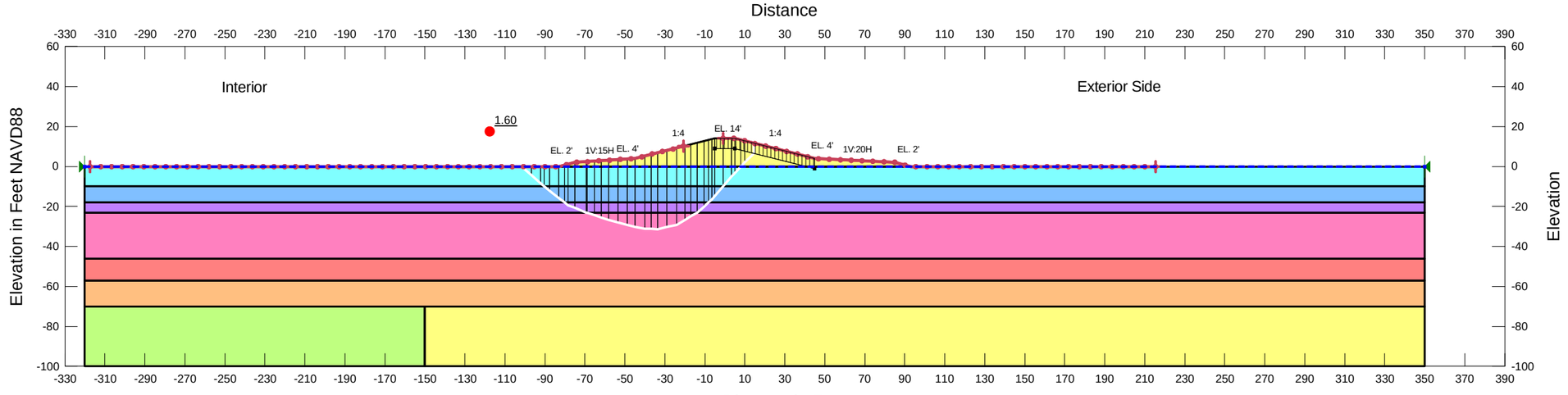
CLASSIFICATION STRATIFICATION SHEAR STRENGTHS AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate
100 year Design

Construction Grade - Entry Exit Slip Surface
Louisiana



Uses soil Properties from Sunset Geotechnical Report Reach 7

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

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Directory: G:\F&MHOME\Danton\Barataria Basin\Upper Barataria Basin\~100 Year Design\Stability Analysis\

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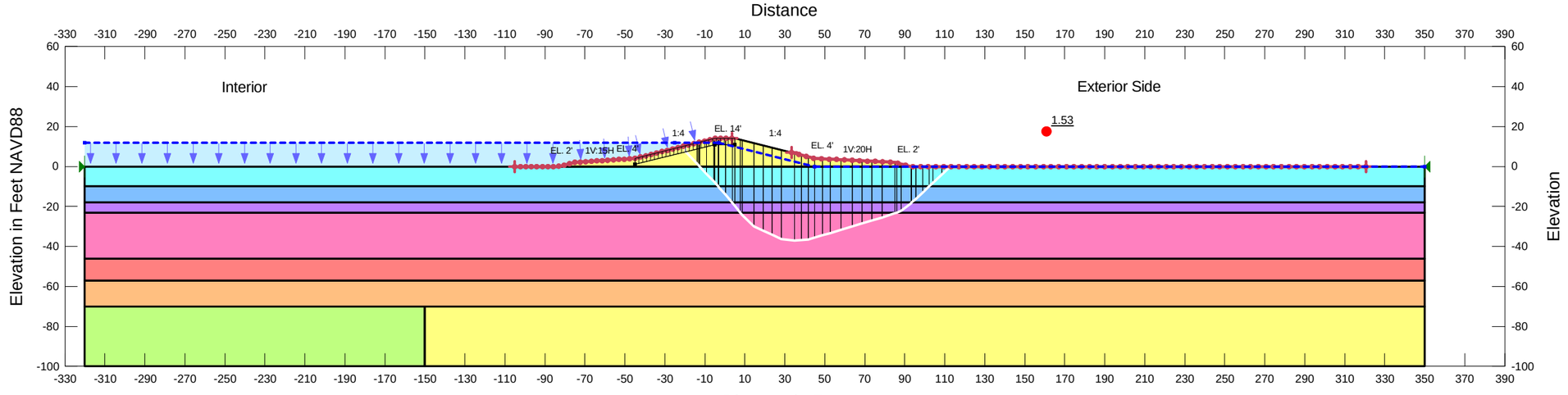
US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate
100 year Design

Low Water Level - Entry Exit Slip Surface
Louisiana



Distance in Feet

Uses soil Properties from Sunset Geotechnical Report Reach 7

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

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GENERAL NOTES

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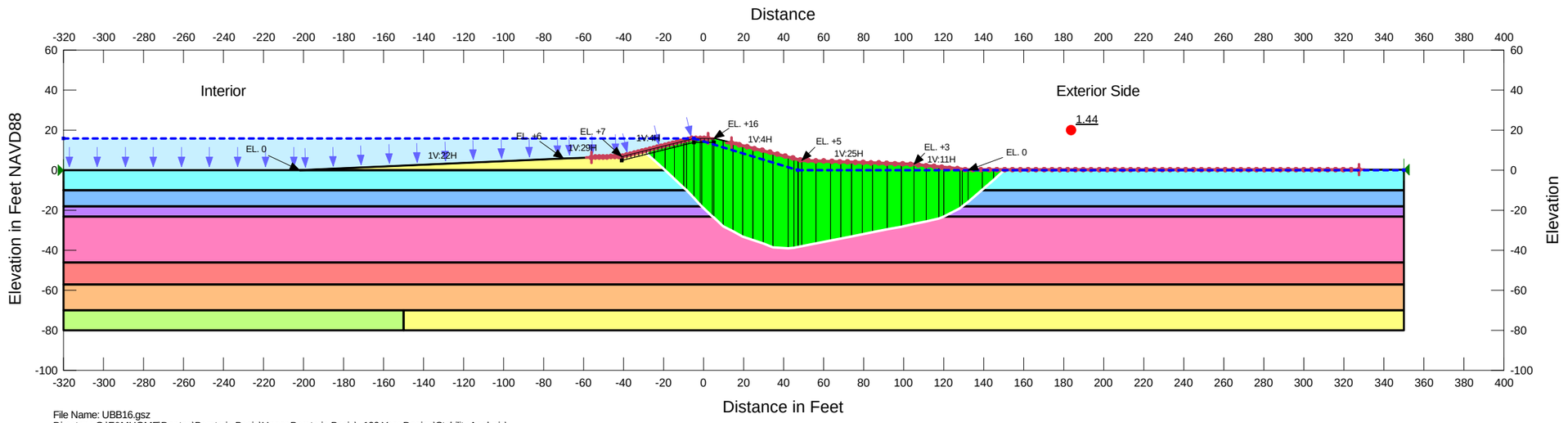
US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate
100 year Design

Still Water Level - Entry Exit Slip Surface
Louisiana



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Gains in Strength from additional loadings were added for this stability analysis

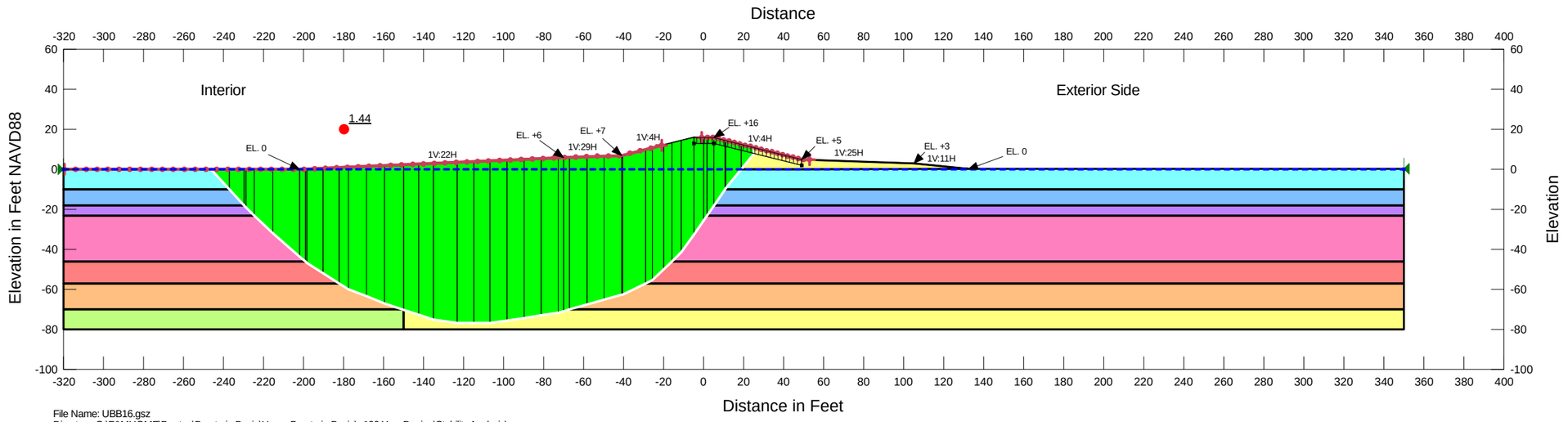
Uses soil Properties from Magnolia Ridge Geotechnical Report
22557-SCP-Magnolia Ridge Levee Project - Report I - Earthen Levees - Report and Figures. pdf
Page 45/49

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Construction Grade - Entry Exit Slip Surface



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Page 45/49

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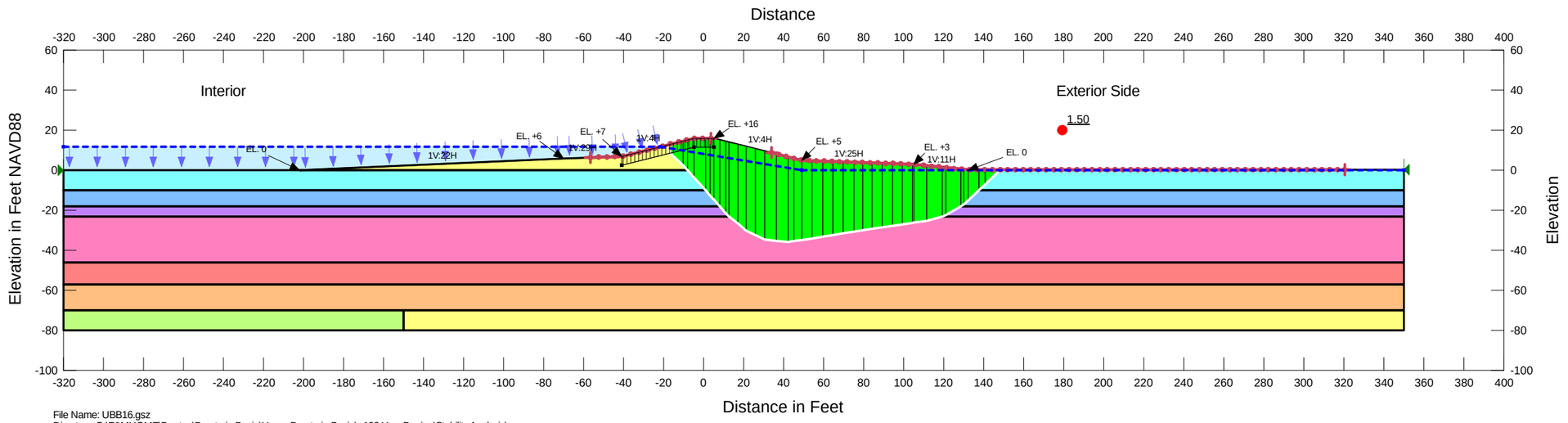
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Low Water Level - Entry Exit Slip Surface



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GENERAL NOTES

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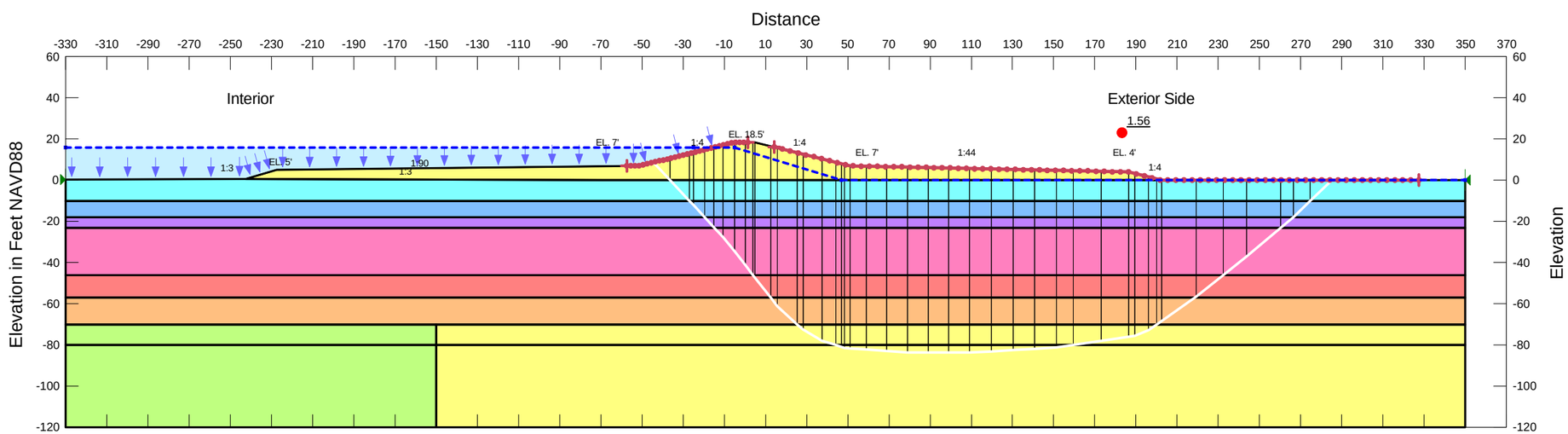
Page 45/49

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Still Water Level - Entry Exit Slip Surface



Distance in Feet

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Gains in Strength from additional loadings were added for this stability analysis

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

GENERAL NOTES

US Army Corps of Engineers
New Orleans District

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SHEAR STRENGTHS BETWEEN VERTICALS WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

Upper Barataria Basin
Stability Analysis for Cost Estimate
Alternative 6

Construction Grade - Entry Exit Slip Surface
Louisiana

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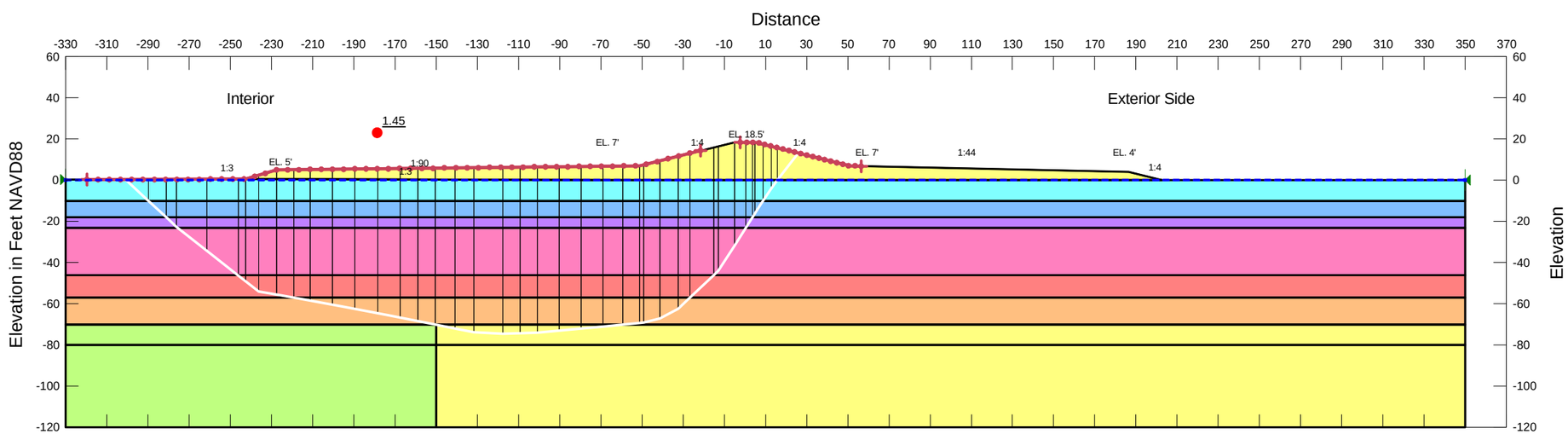

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Distance in Feet

Uses soil Properties from Magnolia Ridge Geotechnical Report
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Page 45/49

Gains in Strength from additional loadings were added for this stability analysis

Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

GENERAL NOTES

US Army Corps of Engineers
New Orleans District

CLASSIFICATION STRATIFICATION SHEAR STRENGTHS AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

Upper Barataria Basin
Stability Analysis for Cost Estimate
Alternative 6

Low Water Level - Entry Exit Slip Surface
Louisiana

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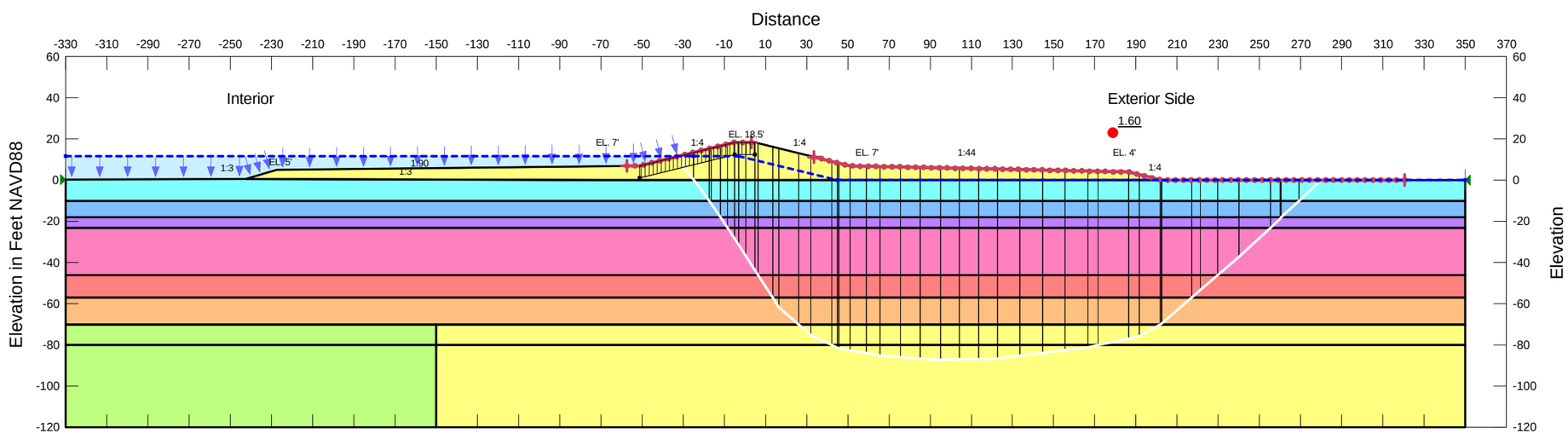

Distance in Feet

Note: This design is only for cost estimating purposes. A more detailed design will be completed at a later time.

Gains in Strength from additional loadings were added for this stability analysis

Uses soil Properties from Magnolia Ridge Geotechnical Report
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Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

GENERAL NOTES

US Army Corps of Engineers
New Orleans District

CLASSIFICATION STRATIFICATION SHEAR STRENGTHS AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

Upper Barataria Basin
Stability Analysis for Cost Estimate
Alternative 6

Still Water Level - Entry Exit Slip Surface
Louisiana

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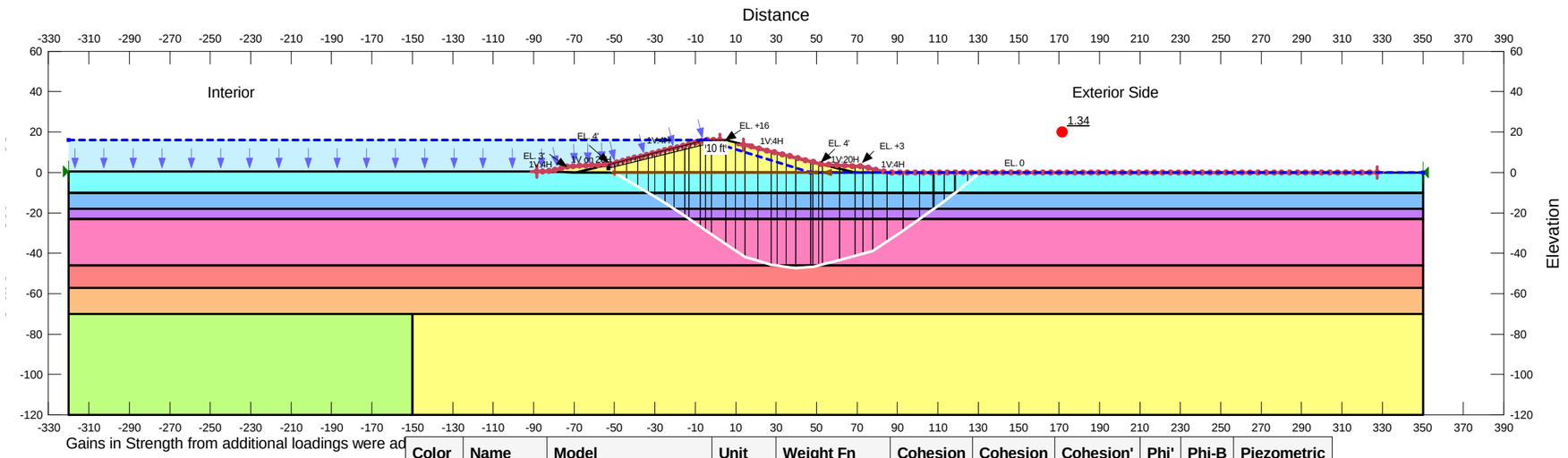
Plate 27



Gains in Strength from additional loadings were ad

This analysis should only be used for the cost estim

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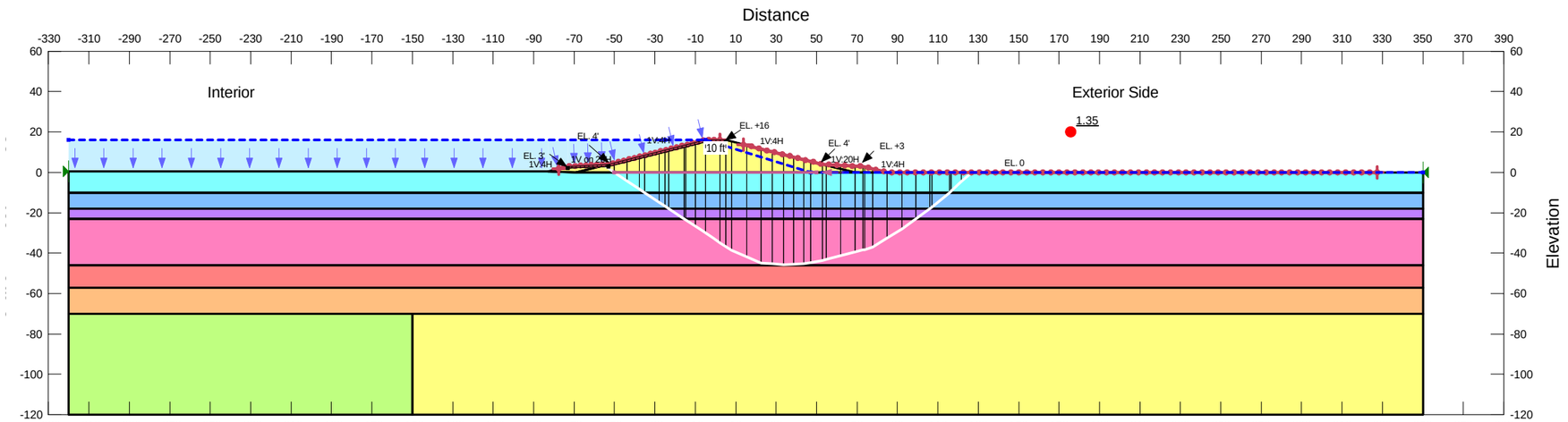
Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Construction Grade - Entry Exit Slip Surface - Around Geote
Louisiana



Gains in Strength from additional loadings were ad

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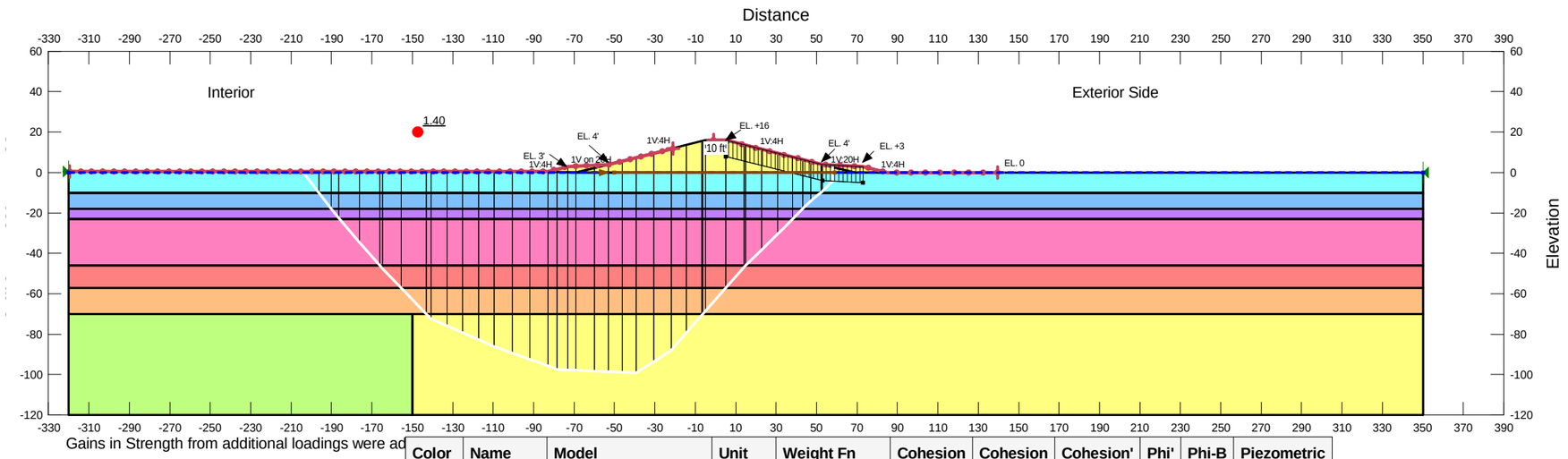
Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Construction Grade - Entry Exit Slip Surface - Through Geot
Louisiana

Plate 29



Gains in Strength from additional loadings were ad

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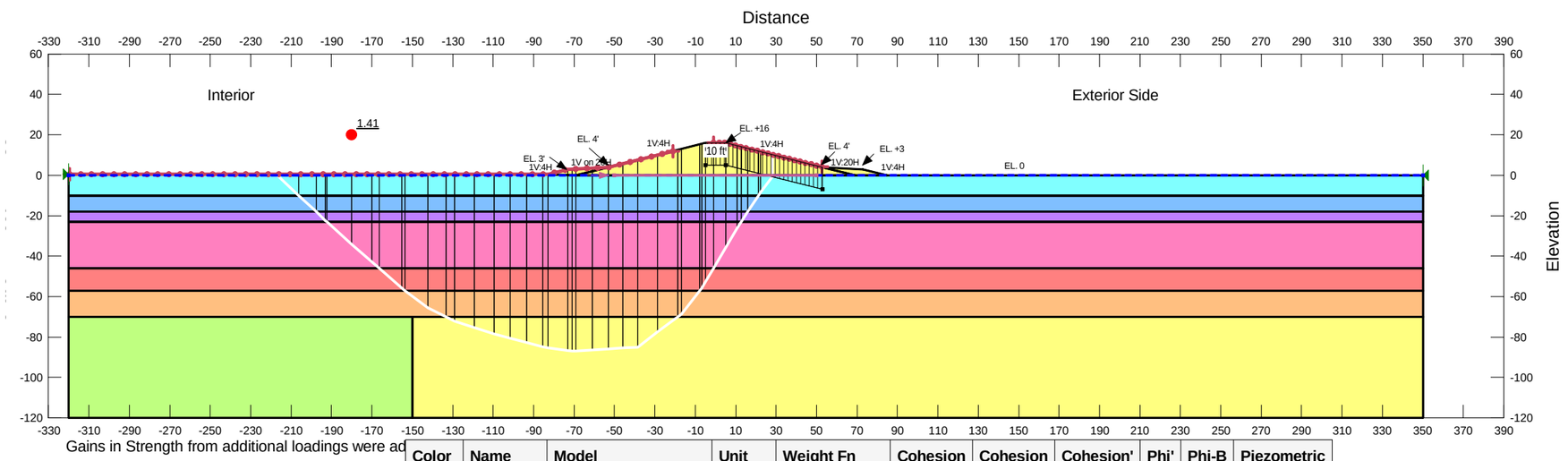
Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Low Water Level - Entry Exit Slip Surface - Around Geotextil
Louisiana

Plate 30



Gains in Strength from additional loadings were ad

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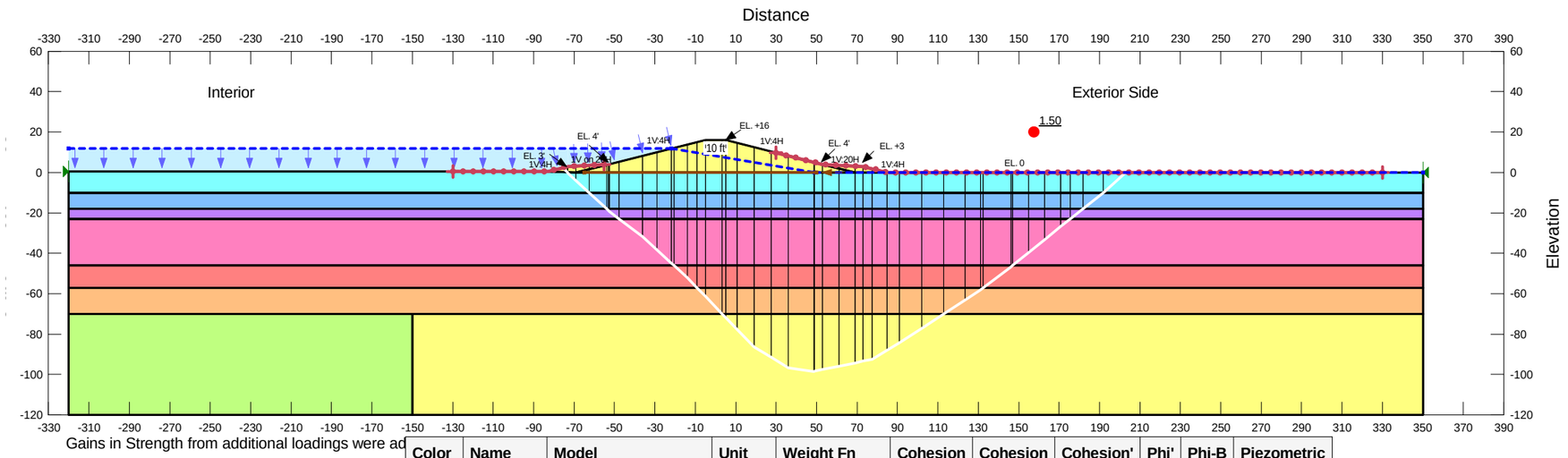
Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Low Water Level - Entry Exit Slip Surface - Through Geotex
Louisiana

Plate 31



Gains in Strength from additional loadings were ad

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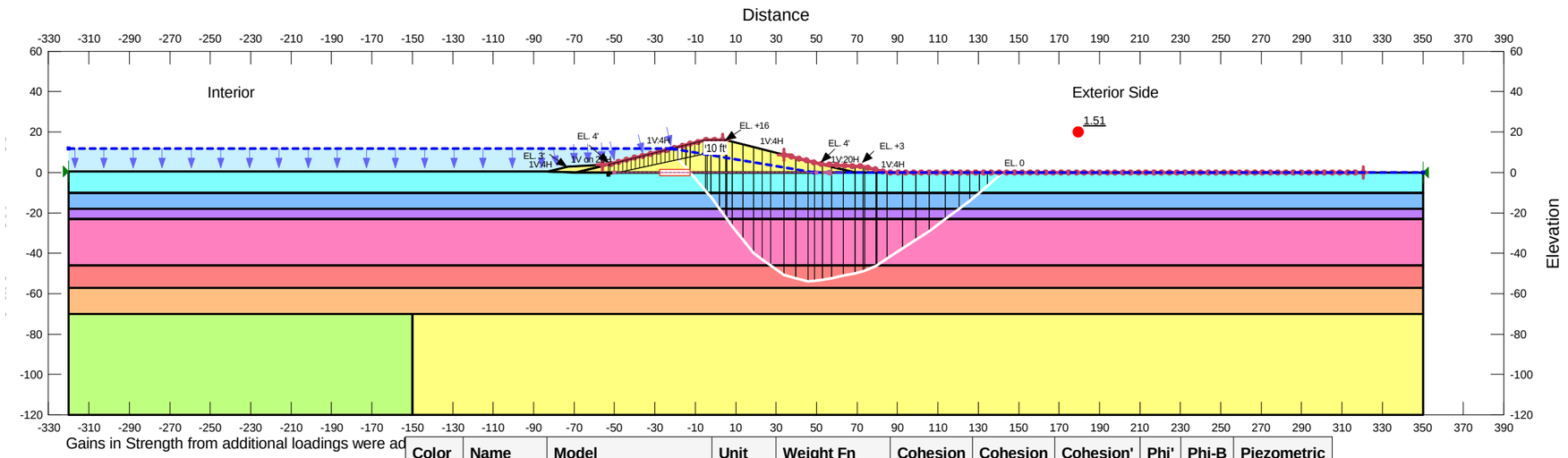
Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Still Water Level - Entry Exit Slip Surface - Around Geotextile
Louisiana

Plate 32



Gains in Strength from additional loadings were ad

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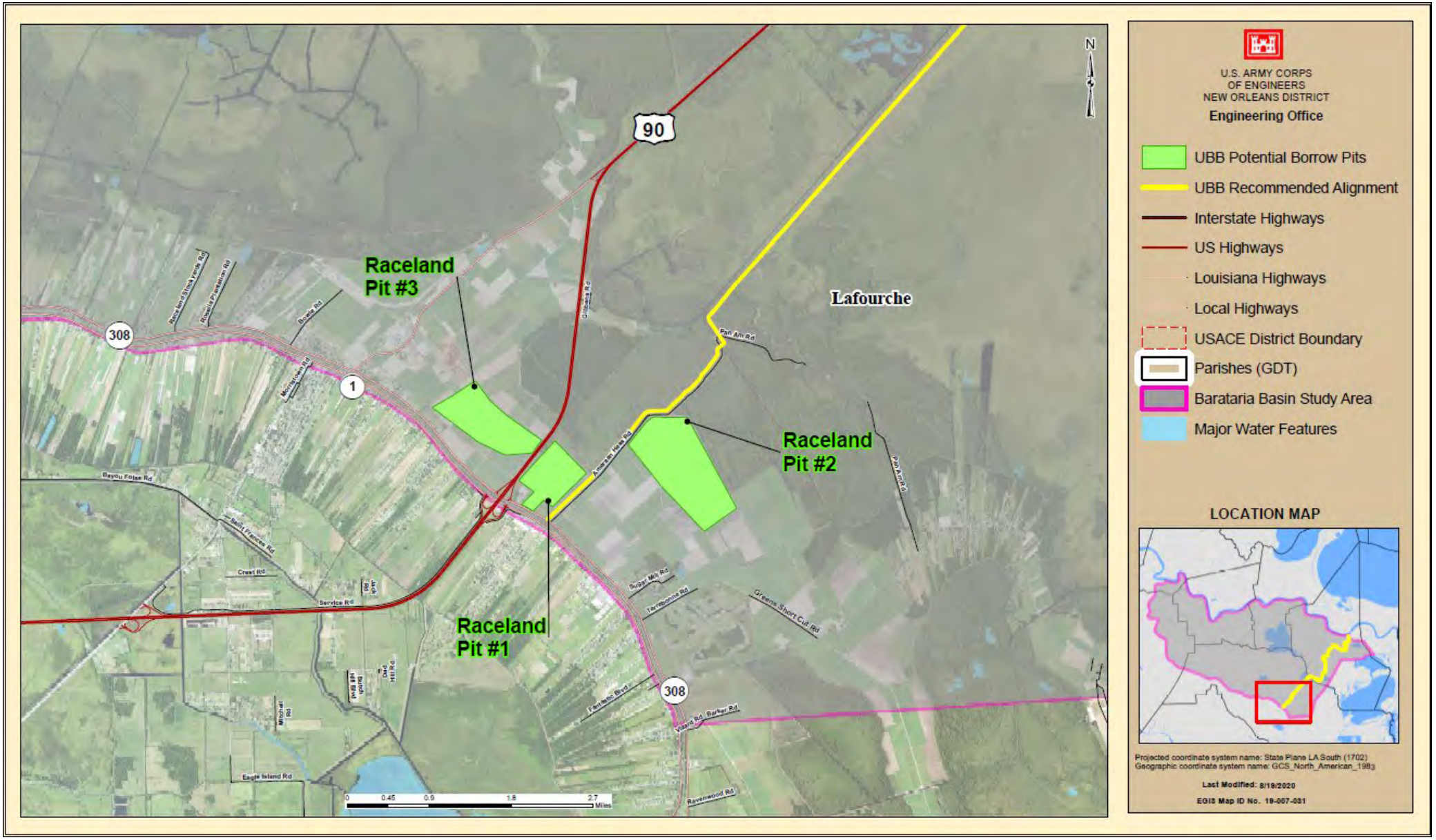
Color	Name	Model	Unit Weight (pcf)	Weight Fn	Cohesion Spatial Fn	Cohesion Fn	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	2 - Clay	Spatial Mohr-Coulomb		2 - Unit Weight			600	0	0	1
	3 - Clay	Spatial Mohr-Coulomb		3 - Unit Weight		3 -		0	0	1
	4 - Clay	Spatial Mohr-Coulomb		4 - Unit Weight	4 -			0	0	1
	5 - Clay	Spatial Mohr-Coulomb		5 - Unit Weight	5 -			0	0	1
	6 - Clay	Spatial Mohr-Coulomb		6 - Unit Weight	6 -			0	0	1
	7 - Clay	Spatial Mohr-Coulomb		7 - Unit Weight		7 -		0	0	1
	8 - Clay	Spatial Mohr-Coulomb		8 - Unit Weight		8 -		0	0	1
	9 - Dense Sand	Spatial Mohr-Coulomb	122				0	30	0	1
	New Fill	Mohr-Coulomb	115				600	0	0	1

US Army Corps of Engineers
New Orleans District

Upper Barataria Basin
Stability Analysis for Cost Estimate

Still Water Level - Entry Exit Slip Surface - Through Geotext
Louisiana

Plate 33


Raceland
Pit #3
Raceland
Pit #2
Raceland
Pit #1
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U.S. ARMY CORPS
OF ENGINEERS
NEW ORLEANS DISTRICT
Engineering Office
UBB Potential Borrow Pits
UBB Recommended Alignment
Interstate Highways
US Highways
Louisiana Highways
Local Highways
USACE District Boundary
Parishes (GDT)
Barataria Basin Study Area
Major Water Features
LOCATION MAP
Projected coordinate system name: State Plane LA South (1702)
Geographic coordinate system name: GCS_North_American_1983
Last Modified: 8/18/2020
EGIS Map ID No. 18-007-031

Plate 34