U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT

Inner Harbor Navigational Canal
Lock Replacement Project
Cellular Cofferdam
Feasibility Study

GEOTECHNICAL ADDENDUM DESIGN REPORT

18 November 2016

US Army Corps of Engineers
New Orleans District

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21 January 2016

1.0 NOTE TO READER

Conclusions obtained in this report are for feasibility purposes only. Additional studies are needed for final design. All elevations mentioned in this report are referenced to the 1988 North American Vertical Datum (NAVD88) 2004.65 unless otherwise specified.

2.0 EXECUTIVE SUMMARY

The Inner Harbor Navigational Canal Lock is old and undersized. Recently, there have been several studies looking into different strategies for replacing the lock. These alternatives require a temporary retaining structure. For a project of this size, a cellular cofferdam wall approach is ideal. This report takes an already established layout from previous studies and looks at several alternatives for excavation depth and water load cases for a cellular cofferdam design. Analyses on the cofferdam investigated failure modes such as sliding, tilting, overturning, bearing, interlock tension, global stability. The information in this report is to be used for cost estimating purposes. A more detailed design can be performed in the design phase of the project.

3.0 BACKGROUND

The Inner Harbor Navigational Canal (IHNC) is a 5.5 mile waterway in New Orleans, Louisiana that connects Lake Pontchartrain to the Mississippi River. A lock system sits on the southern end of the canal by the Mississippi River mile 96.2. The Canal and the lock were constructed by the Port of New Orleans and put into service in 1923. The lock was owned by the Port of New Orleans until 1986, when it was acquired by the federal government. The canal served as a major confluence of boat traffic from the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet (MRGO) before the MRGO's closing in 2009. The IHNC lock is old and short and narrow for the increased traffic and larger vessels that currently navigate the waters. The IHNC existing lock is 75 feet wide, 640 feet long, and 31.5 feet over the sill at the low water in the river.

The IHNC replacement lock used for design of cofferdam would be a 110-foot wide lock good for ships and barges. It would have a usable length of 1200 feet and a maximum draft of 36 feet. The lock would be located 0.5 miles north up the canal from the current lock location and be within the eastern part of the City of New Orleans. Information can be found in Inner Harbor Navigation Canal Lock Replacement

Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006.

4.0 SCOPE OF WORK

Previous feasibility studies have been performed for the IHNC lock replacement project. The most recent study was a cast-in-place alternative in 2006. Information can be found in Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006. This feasibility study will look at the cellular cofferdam approach taken in that study for traditional lock construction in-the-dry. Two different excavation depths will be analyzed for the cofferdam design in this report. One check is for the lock sill at elevation -22 with an excavation elevation at -33. Another check is done for the lock sill elevation at -16.5 with an excavation elevation at -27.5. These excavations are not as deep as those utilized in the 2006 feasibility report, and this analysis uses the same preliminary layout as was presented in the earlier report. That layout calls for a 110 foot bypass channel on the eastern bank side of the cofferdam with a bottom elevation of -31.0 to allow for barge traffic. The cofferdam analysis requires investigations with water level to the top of the cofferdam at EL +5.0 and using vessel impact loads of 160 kip at water elevation +3.0. Both of these load cases were checked with the differing excavation depths in the cofferdam.

Guidelines from Engineering Manual 1110-2-2503 were followed for design of cellular cofferdam design. Stability design follows the most current version of the HSDRRS Design Guidelines. These analyses will be summarized below as they relate specifically to this project.

1) Stability of cofferdam cell on eastern bank with excavation at EL -33.0 and the water level at EL +5.0.

2) Stability of cofferdam cell on eastern bank with excavation at EL -27.5 and the water level at EL +5.0.

3) Stability of cofferdam cell on eastern bank with excavation at EL -33.0 and the water level at EL +3.0 with a 160 kip impact load.

4) Stability of cofferdam cell on eastern bank with excavation at EL -27.5 and the water level at EL +3.0 with a 160 kip impact load.

5) Stability of cofferdam cell at southern end in the channel with excavation at EL -33.0 and the water level at EL +5.0.

6) Stability of cofferdam cell at southern end in the channel with excavation at EL -27.5 and the water level at EL +5.0.

7) Stability of cofferdam cell at southern end in the channel with excavation at EL -33.0 and the water level at EL +3.0 with a 160 kip impact load.

8) Stability of cofferdam cell at southern end in the channel with excavation at EL -27.5 and the water level at EL +3.0 with a 160 kip impact load.

9) Stability of western bank with excavation at EL -33.0.

10) Hand calculations of active and passive pressures for cofferdam cell with diameter of 61 feet and height of 95 feet.

11) Hand calculations for risk of overturning for cofferdam cell with diameter of 61 feet and height of 95 feet.

12) Hand calculation for risk against sliding of cofferdam cell with diameter of 61 feet and height of 95 feet.

13) Hand calculation for risk against bearing capacity of cofferdam cell with diameter of 61 feet and height of 95 feet.

14) Hand calculation for risk against tilting of cofferdam cell with diameter of 61 feet and height of 95 feet.

15) Hand calculation of vertical shear and interlock tension of cofferdam cell with diameter of 61 feet and height of 95 feet.

5.0 SUBSURFACE INVESTIGATIONS

To generally characterize the subsurface conditions, historical information was used from borings taken for the Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3 from May 2002. Numerous undisturbed and general type borings were taken for the lock replacement project. Twelve (12) 5-inch undisturbed borings were taken in the vicinity of the lock replacement and seven (7) undisturbed borings were taken in the channel. More detailed information and boring logs can be found in the Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3 from May 2002.

Visual classification and water content determinations were made for all samples taken from borings. Unconfined Compression (UCT), Unconsolidated-Undrained Triaxial (Q), Consolidated-Undrained Triaxial (R), Consolidated-Drained Direct (S) shear tests, and Consolidation (C) tests, and Atterberg Limits were performed on select samples from the undisturbed borings. Granular soils had grain–size analyses taken from select samples of the undisturbed borings. Standard Penetration Test (SPT) blow counts were also recorded in granular soils. More detailed information on the test data can be found in the Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3 from May 2002.

6.0 GEOLOGY

A generalized soil profile delineating the subsurface conditions was developed for the Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3 from May 2002. The study area includes the section of the Inner Harbor Navigation Canal between the Claiborne Avenue Bridge to the South and Florida Avenue Bridge to the North. The detailed geologic write-up will not be repeated here, but can be found in the Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3 from May 2002.

7.0 DESIGN SOIL PARAMETERS

Design shear strengths were created for the initial 2002 lock replacement design. The same strength parameters are used for this feasibility report. Strength attributes were created for the defining features of the area. These include the existing east bank, the existing west bank, and inside the channel. Cofferdam analysis on the eastern side utilized the strength line for the East bank to the bottom of the slope, then utilized the channel strength line for the channel section where the cofferdam sits. The geostudio program slope/w that the analysis was performed in linearly interpolates between the two. The southern cofferdam analysis uses only the channel strength line as the most conservative cell design in the southern portion would not utilize any strengths from the adjacent banks. The western bank stability check utilizes the strength line created for the western bank to the bottom of the slope, then utilizes the channel strength line for the channel. The geostudio program slope/w that the analysis was performed in linearly interpolates between the two. A summary of the stability design parameters for the east Bank, West Bank, and Channel Section are included below in Tables 4-6, respectively. A stability design parameter plot for each locations is included in the Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3 from May 2002.

LAYER	MAT'L	ELEV.	UNDRAINED CONDITIONS			UNIT WEIGHT (pcf)
			Cohesion, top (psf)	Cohesion, bottom (psf)	Angle of Internal Friction Φ (degrees)	
		G.S.E.				
1	CH	-50	200	200	0	98
2	CH	-58	600	600	0	108
3	SM	-65	0	0	30	122
4	CH	-100	900	900	0	115
5	CH	-136	1200	1200	0	115
6	SM	-142	0	0	30	122
7	CH	-155	1240	1370	0	115
8	ML	-165	200	200	15	117
9	CH	-178	1470	1600	0	115
10	ML	-185	200	200	15	117
11	CH	-240	1670	2160	0	115

Table 1. Summary of the stability design parameters for the Channel section location.

LAYER	MAT'L	ELEV.	UNDRAINED CONDITIONS			UNIT WEIGHT (pcf)
			Cohesion, top (psf)	Cohesion, bottom (psf)	Angle of Internal Friction, Φ (degrees)	
		G.S.E				
1	ML	-3	200	200	15	117
2	CH	-21	215	215	0	95
3	CH	-50	300	692	0	100
4	CH	-58	692	800	0	110
5	SM	-65	0	0	30	122
6	CH	-100	1125	1125	0	117
7	CH	-136	1250	1250	0	110
8	SM	-142	0	0	30	122
9	CH	-155	1250	1250	0	110
10	ML	-165	200	200	15	117
11	CH	-178	1500	1500	0	120
12	ML	-185	200	200	15	117
13	CH	-197	1500	1500	0	110
14	CH	-230	2650	2650	0	110

Table 2. Summary of the stability design parameters for the east bank location.

LAYER	MAT'L	ELEV.	UNDRAINED CONDITIONS			UNIT WEIGHT (pcf)
			Cohesion, top (psf)	Cohesion, bottom (psf)	Angle of Internal Friction, Φ (degrees)	
		G.S.E				
1	SM	-3	0	0	30	122
2	CH	-21	215	215	0	100
3	CH	-40	400	400	0	105
4	CH	-58	550	550	0	105
5	SM	-65	0	0	30	122
6	CH	-80	650	650	0	115
7	CH	-100	1200	1200	0	115
8	CH	-130	1600	1600	0	115

Table 3. Summary of the stability design parameters for the west bank location.

8.0 ANALYSES AND RESULTS

8.1 Global Stability

Stability was checked with the 2007 version of GeoStudio's Slope/W program to perform global stability analyses using the two water loadings: water at the top of the cell at EL +5.0 and water at elevation +3.0 with a 160 k impact load. The two different excavation elevations of -27.5 and -33 were checked for each water load cases. A factor of safety of 1.5 was the minimum threshold used for the cofferdam sections. The bank stability minimum factor of safety used in the analysis was 1.4. For each loading case, a non-circular (i.e. block-specified) and circular (entry-exit) slip surface analysis was performed.

The eastern cofferdam wall was checked with a 61 foot diameter cell made from PS-31 flat sheet piles. The sheets extend 95 feet down from EL +5.0 to EL -90. A jet grouted soil column was added to the design due to bearing capacity difficulties. The jet-grouted column extends 20 feet around the cofferdam for a length of 101 feet and extends 25 feet deep from EL -90 to EL -115. Analyses on this cell were performed with and without the soil column in place.

The factor of safety for the east bank was below 1.5 for the entry-exit non-circular search with the excavation at EL -33.0 without the jet grout column in place for both water load cases. With the jet grout column in place which it would need to be for the design to work with bearing capacity, the factor of safety increases to well above 1.5. See tables 4 and 5 below for a summary of the results for the east bank cofferdam with the water at El +5.0 and at EL +3.0 with a 160 kip impact load. See appendix A and C for stability plates of the East bank cofferdam slope/w stability analyses.

EAST BANK – WATER EL. 5			
EXCAVATION DEPTH	TYPE OF SEARCH	JET GROUT SECTION	F.O.S.
-33.0	BLOCK	NO	1.32
-33.0	BLOCK	YES	1.86
-33.0	ENTRY EXIT	NO	1.23
-33.0	ENTRY EXIT	YES	1.60
-27.5	BLOCK	NO	1.90
-27.5	BLOCK	YES	2.18
-27.5	ENTRY EXIT	NO	1.49
-27.5	ENTRY EXIT	YES	1.89
CHANNEL SLOPE STABILITY			
-33	ENTRY EXIT	NO	2.44

Table 4. East Bank Cofferdam stability results for water elevation +5.0.

EAST BANK – WATER EL. 3 + 160 KIP IMPACT LOAD			
EXCAVATION DEPTH	TYPE OF SEARCH	JET GROUT SECTION	F.O.S.
-33.0	BLOCK	NO	1.41
-33.0	BLOCK	YES	1.87
-33.0	ENTRY EXIT	NO	1.27
-33.0	ENTRY EXIT	YES	1.66
-27.5	BLOCK	NO	1.98
-27.5	BLOCK	YES	2.28
-27.5	ENTRY EXIT	NO	1.55
-27.5	ENTRY EXIT	YES	1.97
CHANNEL SLOPE STABILITY			
-33	ENTRY EXIT	NO	2.44

Table 5. East Bank Cofferdam stability results for water elevation +3.0 with 160 kip impact load.

The southern cofferdam wall was checked with a 61 foot diameter cell made from PS-31 flat sheet piles. The sheets extend 95 feet down from EL +5.0 to EL -90. A jet grouted soil column was added to the design due to bearing capacity difficulties. The jet-grouted column extends 20 feet around the cofferdam for a length of 101 feet and extends 25 feet deep from EL -90 to EL -115. Also, a berm was placed in the interior of the cofferdam to help against sliding and tilting. Analyses on this cell were performed with and without the soil column in place and with and without the rock berm in place.

The factor of safety for the southern cofferdam cell was below 1.5 for the entry-exit non-circular search with the excavation at EL -33.0 without the jet grout column in place for water EL +5.0. With either the jet grout column or rock berm in place, the factor of safety increases to well above 1.5. See tables 6 and 7 below for a summary of the results for the east bank cofferdam with the water at El +5.0 and at EL +3.0 with a 160 kip impact load. See appendix B and D for stability plates of the East bank cofferdam slope/w stability analyses.

SOUTH BANK – WATER EL. 5				
EXCAVATION DEPTH	TYPE OF SEARCH	JET GROUT SECTION	ROCK BERM	F.O.S.
-33.0	BLOCK	NO	YES	1.61
-33.0	BLOCK	NO	NO	1.45
-33.0	BLOCK	YES	YES	1.99
-33.0	BLOCK	YES	NO	1.86
-33.0	ENTRY EXIT	NO	YES	1.72
-33.0	ENTRY EXIT	NO	NO	1.44
-33.0	ENTRY EXIT	YES	YES	2.13
-33.0	ENTRY EXIT	YES	NO	1.92
-27.5	BLOCK	NO	YES	1.84
-27.5	BLOCK	NO	NO	1.69
-27.5	BLOCK	YES	YES	2.29
-27.5	BLOCK	YES	NO	2.17
-27.5	ENTRY EXIT	NO	YES	1.98
-27.5	ENTRY EXIT	NO	NO	1.76
-27.5	ENTRY EXIT	YES	YES	2.47
-27.5	ENTRY EXIT	YES	NO	2.37

Table 6. Southern Cofferdam stability results for water elevation +5.0.

SOUTH BANK – WATER EL. 3 + 160 KIP IMPACT LOAD				
EXCAVATION DEPTH	TYPE OF SEARCH	JET GROUT SECTION	ROCK BERM	F.O.S.
-33.0	BLOCK	NO	YES	1.64
-33.0	BLOCK	NO	NO	1.48
-33.0	BLOCK	YES	YES	2.02
-33.0	BLOCK	YES	NO	1.89
-33.0	ENTRY EXIT	NO	YES	1.76
-33.0	ENTRY EXIT	NO	NO	1.50
-33.0	ENTRY EXIT	YES	YES	2.18
-33.0	ENTRY EXIT	YES	NO	2.00
-27.5	BLOCK	NO	YES	1.89
-27.5	BLOCK	NO	NO	1.73
-27.5	BLOCK	YES	YES	2.34
-27.5	BLOCK	YES	NO	2.21
-27.5	ENTRY EXIT	NO	YES	2.04
-27.5	ENTRY EXIT	NO	NO	1.85
-27.5	ENTRY EXIT	YES	YES	2.52
-27.5	ENTRY EXIT	YES	NO	2.48

Table 7. Southern Cofferdam stability results for water elevation +3.0 with 160 kip impact load.

The West Bank stability was checked going into the empty excavation at the most critical elevation of -33.0. No cofferdam wall is in place on the western side as the west bank itself will be used as the western part of the cofferdam. Required factor of safety for analysis is 1.4. Slopes were arranged in three staggered zones with 1V:3H slopes up to the bottom of the excavation which employs a 1V:4H slope. All factors of safety are above 1.4. See table 8 for below for a summary of the stability results for the West Bank. See appendix E for stability plates of the East bank cofferdam slope/w stability analyses.

WEST BANK STABILITY			
EXCAVATION DEPTH	TYPE OF SEARCH	SLOPE	F.O.S.
-33.0	BLOCK	OVERALL	1.79
-33.0	BLOCK	OVERALL (OPT)	1.49
-33.0	ENTRY EXIT	BOTTOM	1.70
-33.0	ENTRY EXIT	BOTTOM (OPT)	1.63
-33.0	ENTRY EXIT	LOWER	3.70
-33.0	ENTRY EXIT	MIDDLE	3.54
-33.0	ENTRY EXIT	TOP	1.45
-33.0	ENTRY EXIT	TOP (OPT)	1.42

Table 8. West Bank stability results.

8.2 Internal Stability

The cofferdam cell was checked for a 61 foot diameter cell. The cofferdam was designed with the fill assumed as clean sand down to the ground surface. The top 18 inches would be crushed stone to serve as a cap for the cofferdam and protect against erosion due to overtopping at the top. All cofferdam cells will sit within the limits of the channel, so channel soil properties were used to determine the total weight used in internal stability calculations. Rankine's active and passive pressures were also calculated using channel properties. Moments were checked for both water load cases and the larger moment of the two cases was used to calculate overturning. For the 61 foot diameter cell, the kern was 20.3 feet. The calculated eccentricity stays within the kern point keeping the structure from overturning. The bearing capacity of the heavy cell will not work when founded on the native soil alone. The in-situ clay will not take the weight. Bearing capacity checks were examined with a light weight fill, but the native soil would still not bear the weight. A jet grouted soil zone at the base of the cell extending 20 feet on both sides of the cell and 101 feet in total length and 25 feet in depth will be incorporated to bear the weight. The assumed value for the shear strength in the treated zone was 3500 psf. Discussions with Hayward Baker determined that an average unconfined compressive strength of 250 psi of treated soil was reasonable with an allowable shear strength of 75 psi was attainable. With a replacement ratio of 1/3 applied, 25 psi was determined as an average attainable strength of the treated zone which is 3600 psf. Details can be found in the Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006 for further details on dewatering, pressure relief, or rewatering. The 95 foot high cell will not work alone when checking against sliding. It is then recommended that the jet-grouted soil that will be used at the base of the cell be inserted into the bottom ten feet of the interior of the cell. This helps secure the structure against sliding. Design checks were also done for tilting, vertical shear, and interlock tension. The cell, as designed, proved stable against those failure modes. All internal stability calculations were done by hand. See appendix F for internal stability hand calculations.

9.0 INSTRUMENTATION

The open cell cofferdam design will require dewatering for work in the interior of the TRS. This report does not include a dewatering plan and leaves the methods for dewatering up to the contractor whether it involve sumps or wellpoints. This plan would require the installation of several piezometers to measure the performance of the contractor's system. Figure 31 in the URS design report from 2006 shows a proposed set-up for 4 shallow piezometers. Information can be found in Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006.

The URS plan from 2006 also includes a pressure relief system of the sand stratum at elevation -130. This would involve a series of 26 pressure relief wells extending down to elevation -140 with 4 shallow and 4 deep piezometers for monitoring during construction. The layout for these piezometers can also be found on figure 31. Information can be found in Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006.

10.0 CONSTRUCTION LIMITATIONS

The designs in this report took the existing design from the 2006 URS design report and adapted calculations for excavation depths at elevations -33 and -27.5. Construction limitations or techniques were not considered for this report, but can be found in Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006.

11.0 SUMMARY

This report serves as a supplement to the Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006. The same cell layout that was used in that design was incorporated in this feasibility study with more shallow excavations. A smaller cell diameter than was used in 2006 was analyzed for this study and passes all internal and external stability checks. At the feasibility stage, a 61 foot diameter cell, filled with a clean sand and capped with 18 inches of rock and tipped to elevation -90 is the recommended option. There should be a 101 foot long and 25 feet deep jet-grouted soil zone underneath the cell. The jet grout soil treatment should also extend 10 feet from the base into the interior of the cell. The rock berm option should not be needed with the jet grout soil section. No pile option was considered for this study as it was believed to be more costly based on the 2006 report. No dewatering plan, pressure relief system, or rewatering plan is included with this report. See the Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006 for further details on dewatering, pressure relief, or rewatering. The ends of the east cofferdam are tapered at the north and south ends to improve navigation for vessels in the channel and to limit chances of impact loads hitting the walls. Protection cells are also recommended to help protect against impact loads. This information in this report is to be used for cost estimating purposes for the completions of the GRR. A more detailed design can be performed in the design phase of the project. The layout of the cell wall system can be found in the Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design, USACE Contract No. DACW29-02-D-0008, TO 0002, Sep 2006. Figure 1 below shows the cell, bypass channel and eastern bank with dimensions.

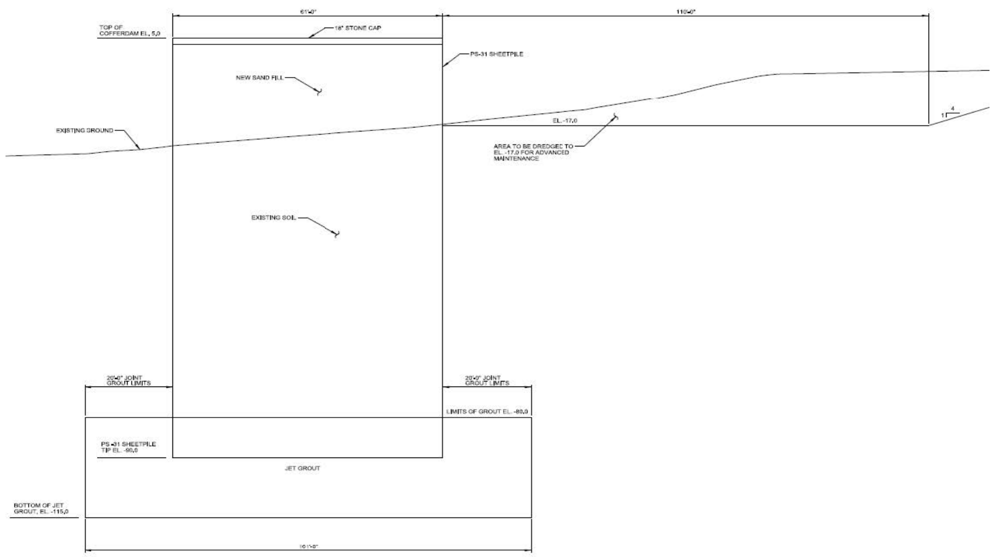

Figure 1. Cell Design Sketch.

12.0 REFERENCES

Department of the Army, U.S. Army Corps of Engineers. “Engineering and Design-Design and Construction of Levees.” Washington, DC. Engineering Manual (EM) 1110-2-1913. 30 April 2000.

Department of the Army, U.S. Army Corps of Engineers. “Design of Sheet Pile Cellular Structures, Cofferdams, and Retaining Structures.” Washington, DC. Engineering Technical Letter (EM) 1110-2-2503. 29 September 1989.

Department of the Army, U.S. Army Corps of Engineers. “Engineering and Design-Bearing Capacity of Soils.” Washington, DC. Engineering Manual (EM) 1110-1-1905. 30 October 1992.

U.S. Army Corps of Engineers (USACE). “Hurricane and Storm Damage Risk Reduction System Design Guidelines.” USACE-Mississippi Valley Division-New Orleans District (USACE-MVN). New Orleans, LA. June 2012.

U.S. Army Corps of Engineers, New Orleans District (USACE-MVN). “Inner Harbor Navigational Canal Lock Replacement Project Design Documentation Report No.3” USACE-MVN. New Orleans, LA. May 2002.

URS Group, Inc. “Inner Harbor Navigation Canal Lock Replacement Cast-In-Place Cofferdam 95% Feasibility Level Design”, USACE Contract No. DACW29-02-D-0008, Task Order 2. ” USACE-MVN. New Orleans, LA.. September 2006.

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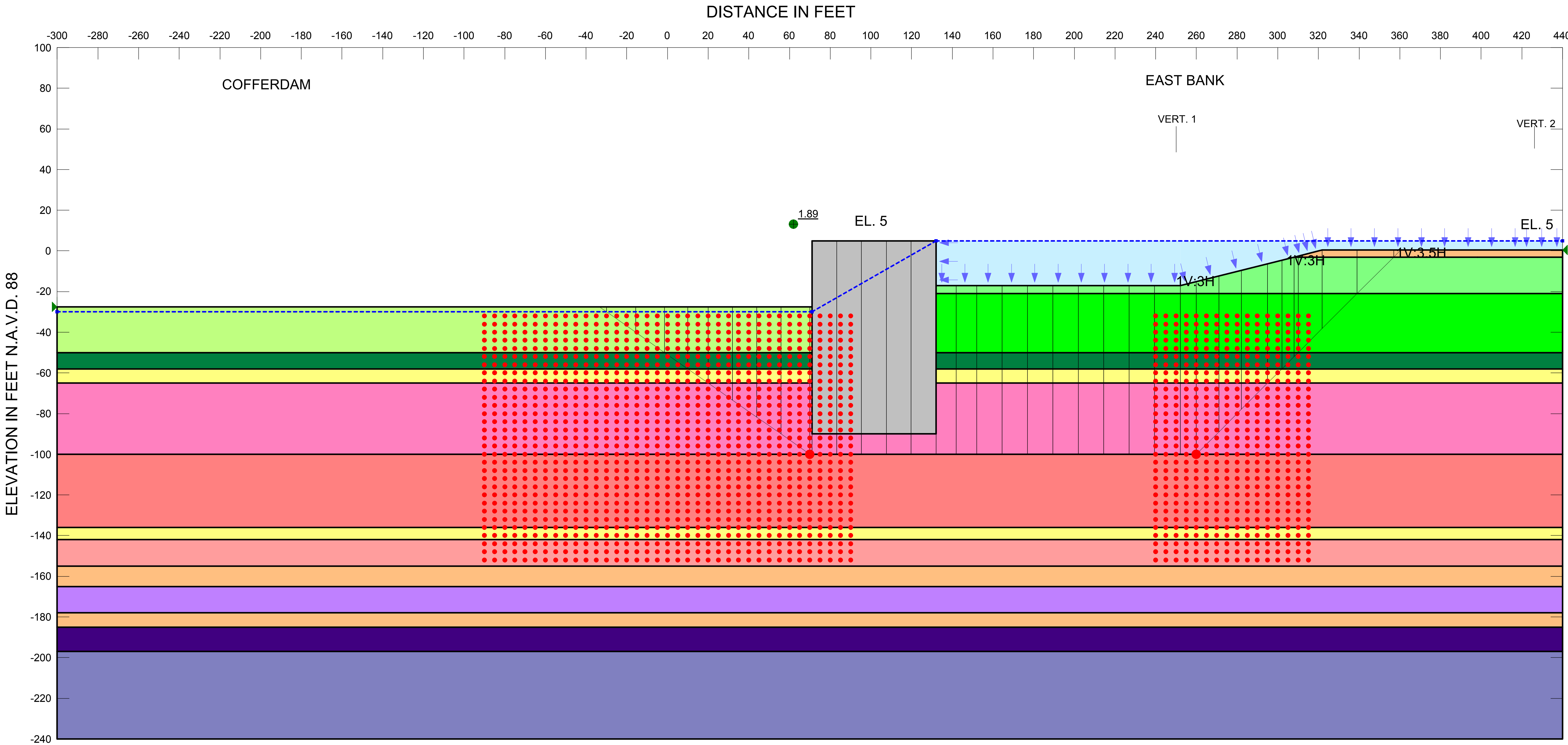
APPENDIX A:

Global Stability Excavation EL -27.5 East Bank Cofferdam



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

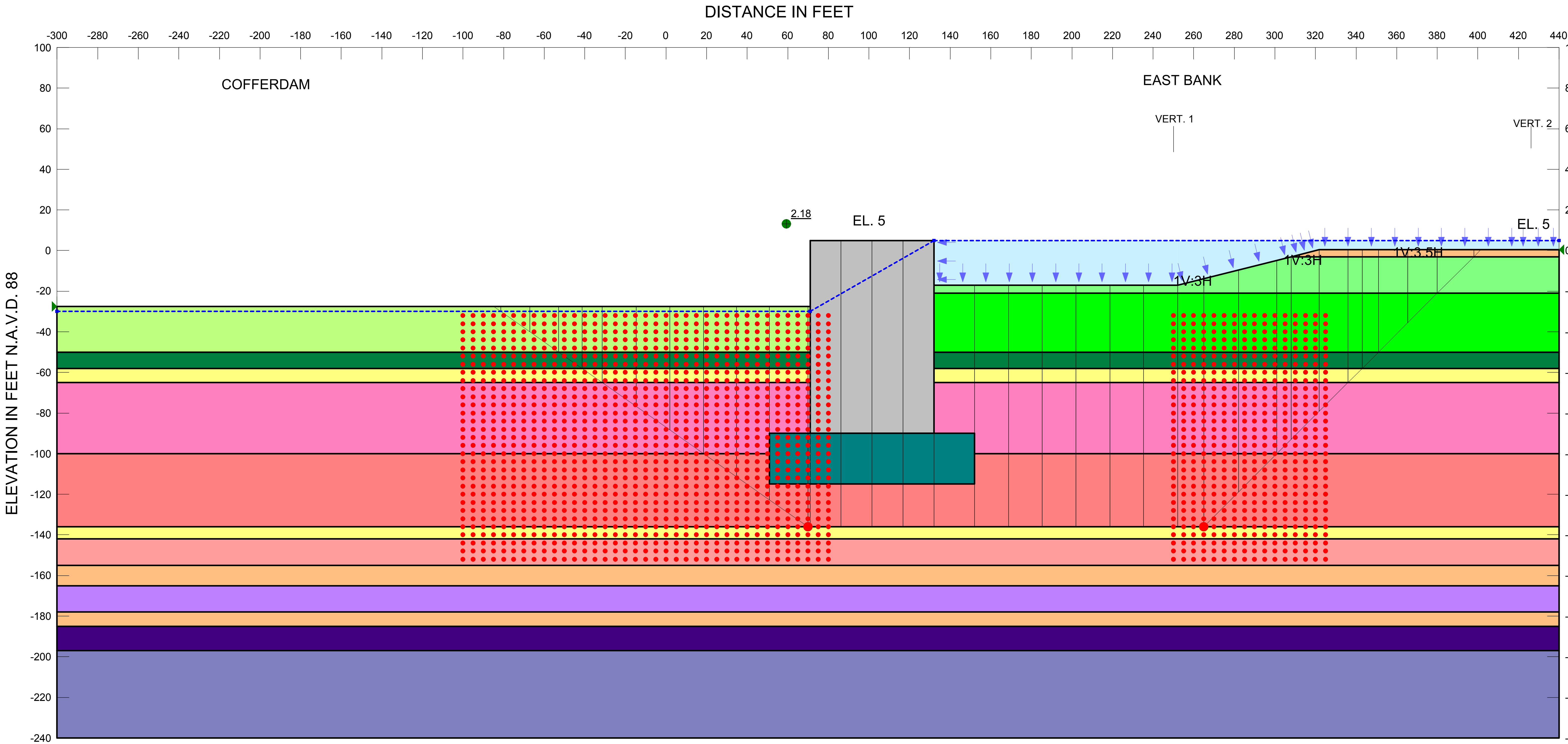
Eastern Cofferdam
Water EL +5.0
61 ft cell
Block Search
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-1

Name: Block no jet grout
File Name: East bank coff el-27.5_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: JET GROUTED SOIL ZONE Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

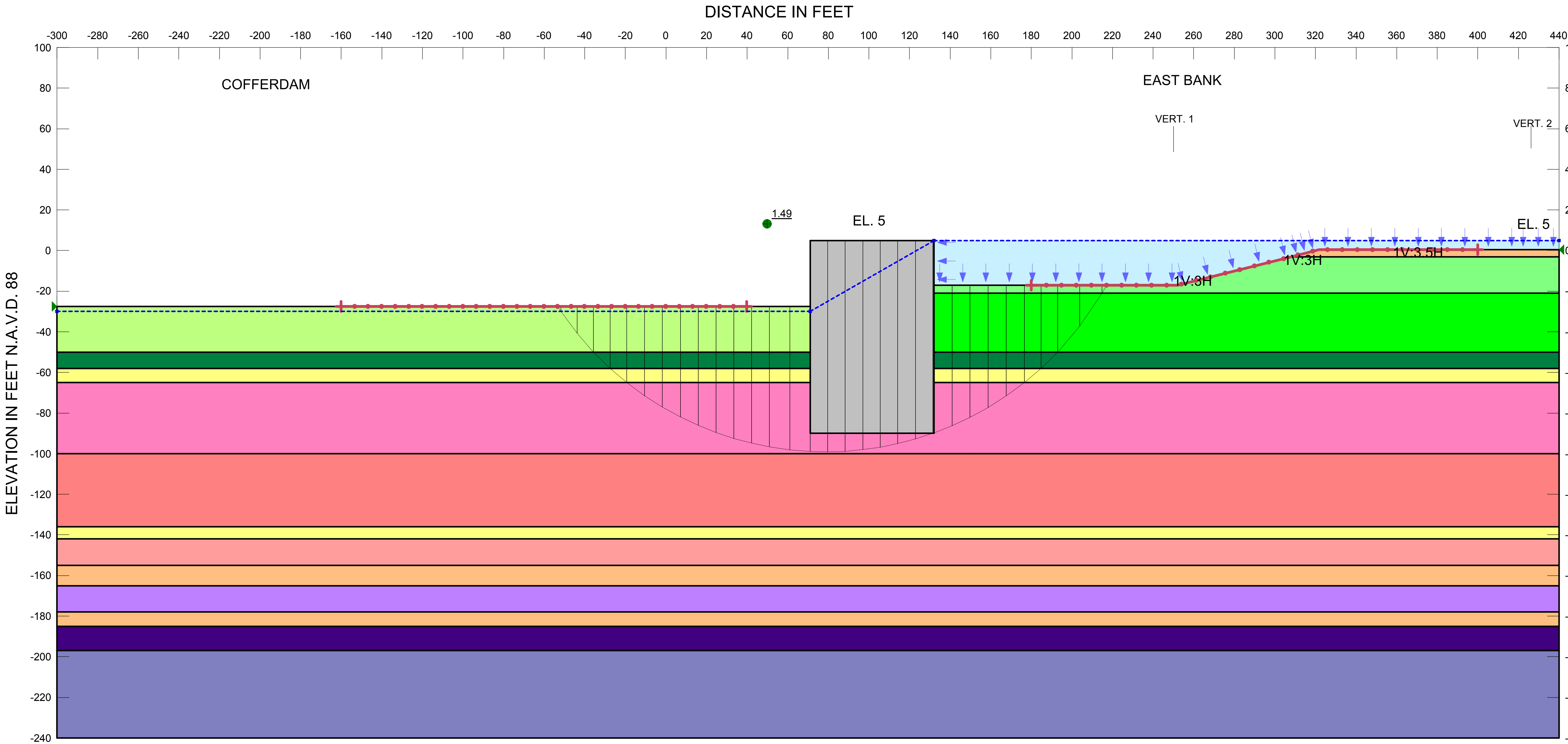
Eastern Cofferdam
Water EL +5.0
61 ft cell
Block Search
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-2

Name: Block w jet grout
File Name: East bank coff el-27.5_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK   Model: Spatial Mohr-Coulomb   Unit Weight: 100 pcf   Cohesion Spatial Fn: CH EL. -21.0 TO -50.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -100 to -136   Cohesion Fn: CH -100 to -136   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK   Model: Mohr-Coulomb   Unit Weight: 95 pcf   Cohesion: 215 psf   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -185 to -240   Cohesion Spatial Fn: CH EL. -197.0 TO -240.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -50 to -58   Cohesion Spatial Fn: CH EL. -50 TO -58.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -165 to -178   Cohesion Spatial Fn: CH EL. -165.0 TO -178.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -65 to -100   Cohesion Fn: CH -65 to -100   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -142 to -155   Cohesion Spatial Fn: CH EL. -142.0 TO -155.0   Phi: 0 °   Piezometric Line: 1
Name: ML   Model: Mohr-Coulomb   Unit Weight: 117 pcf   Cohesion: 200 psf   Phi: 15 °   Piezometric Line: 1
Name: SM   Model: Mohr-Coulomb   Unit Weight: 122 pcf   Cohesion: 0 psf   Phi: 30 °   Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL   Model: Mohr-Coulomb   Unit Weight: 98 pcf   Cohesion: 200 psf   Phi: 0 °   Piezometric Line: 1
Name: CH EL -185.0 TO -197.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -185 to -240   Cohesion Spatial Fn: CH EL. -185.0 TO -197.0   Phi: 0 °   Piezometric Line: 1
Name: CELL   Model: Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 10000 psf   Phi: 45 °   Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

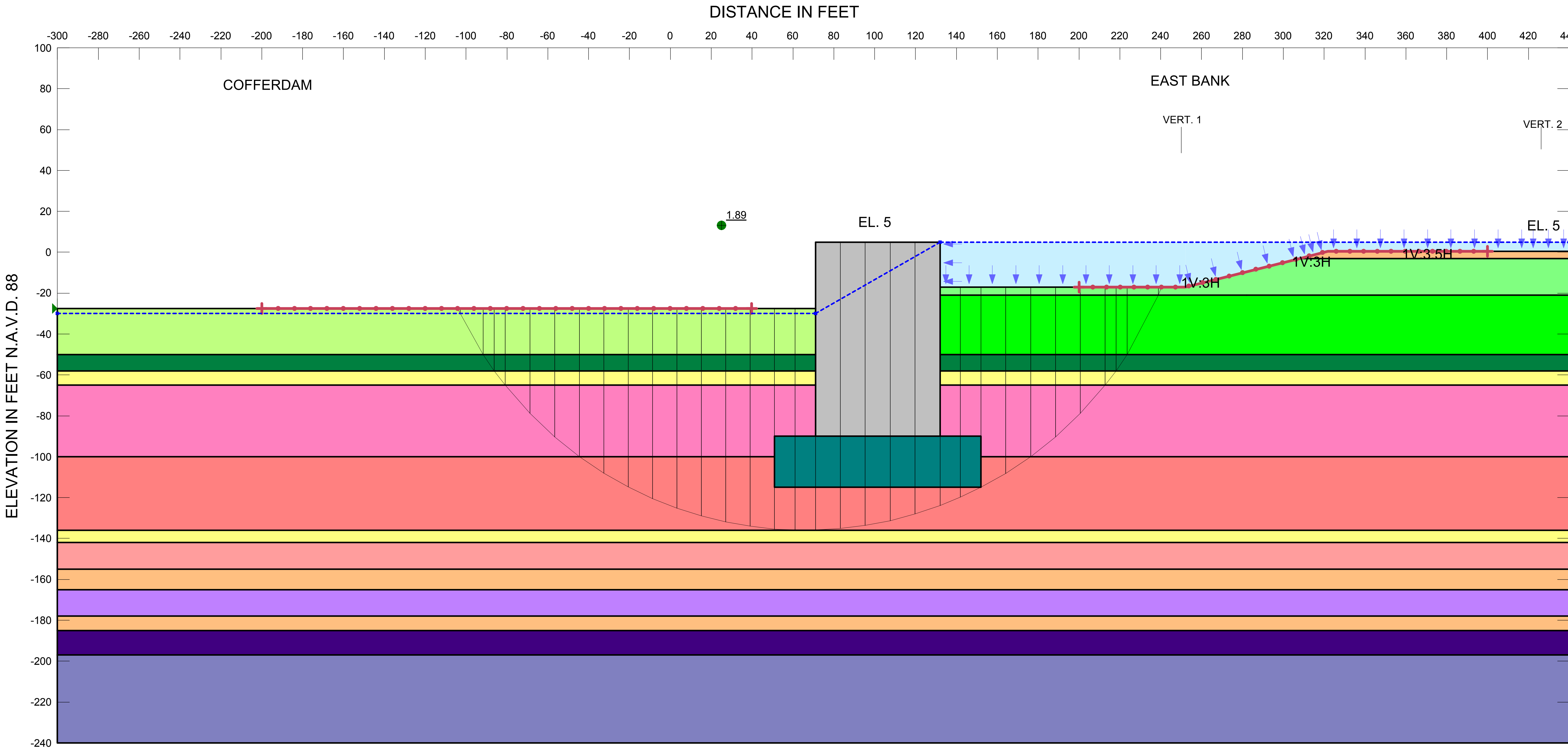
Eastern Cofferdam
Water EL +5.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-3

Name: EE no jet grout
File Name: East bank coff el-27.5_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: JET GROUTED SOIL ZONE Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

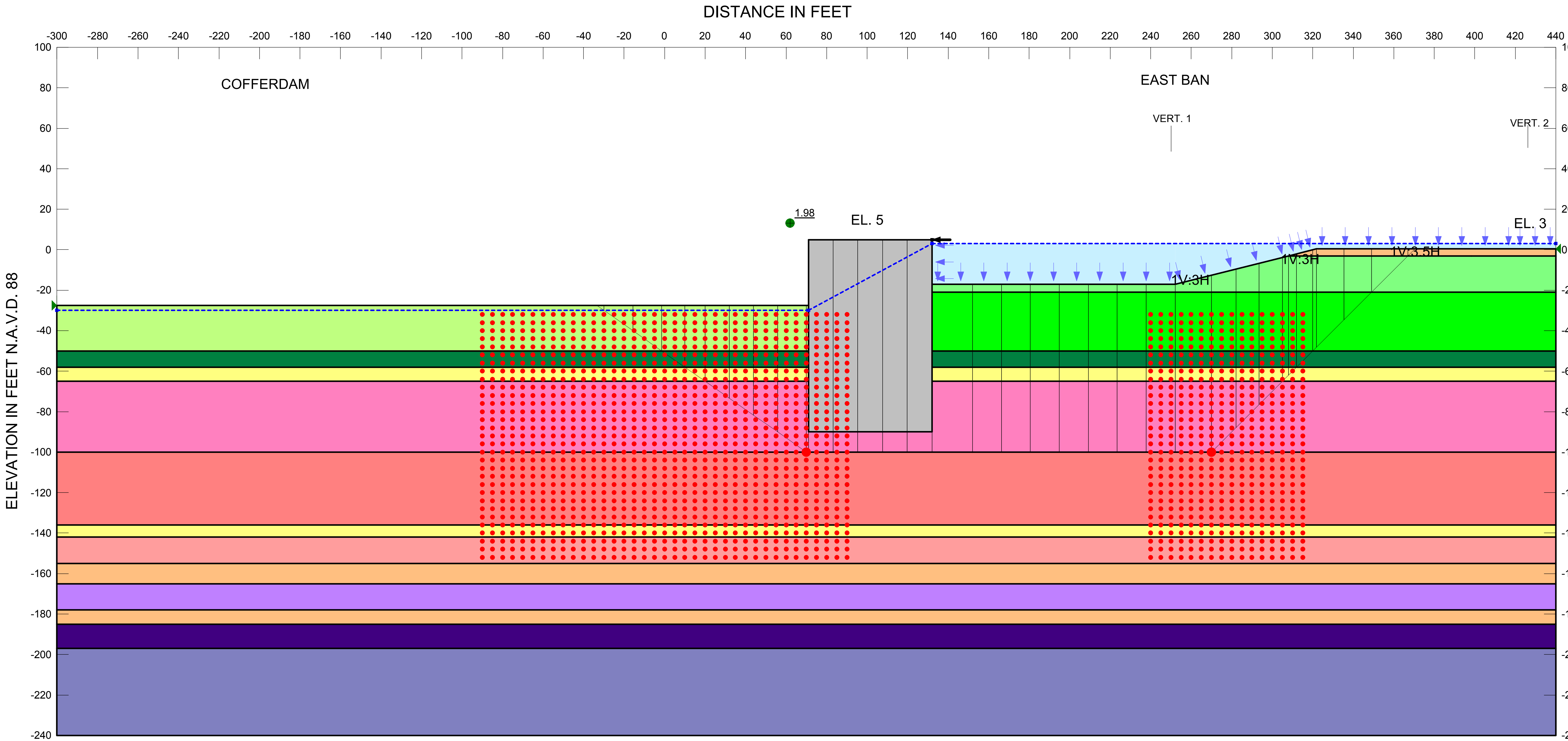
Eastern Cofferdam
Water EL +5.0
61 ft cell
Entry and Exit
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-4

Name: EE w jet grout
File Name: East bank coff el-27.5_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load: Coordinate: (132, 5) ft Magnitude: 2600 lbs

Name: Block no jet grout
File Name: East bank coff el-27.5 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

GENERAL NOTES

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

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

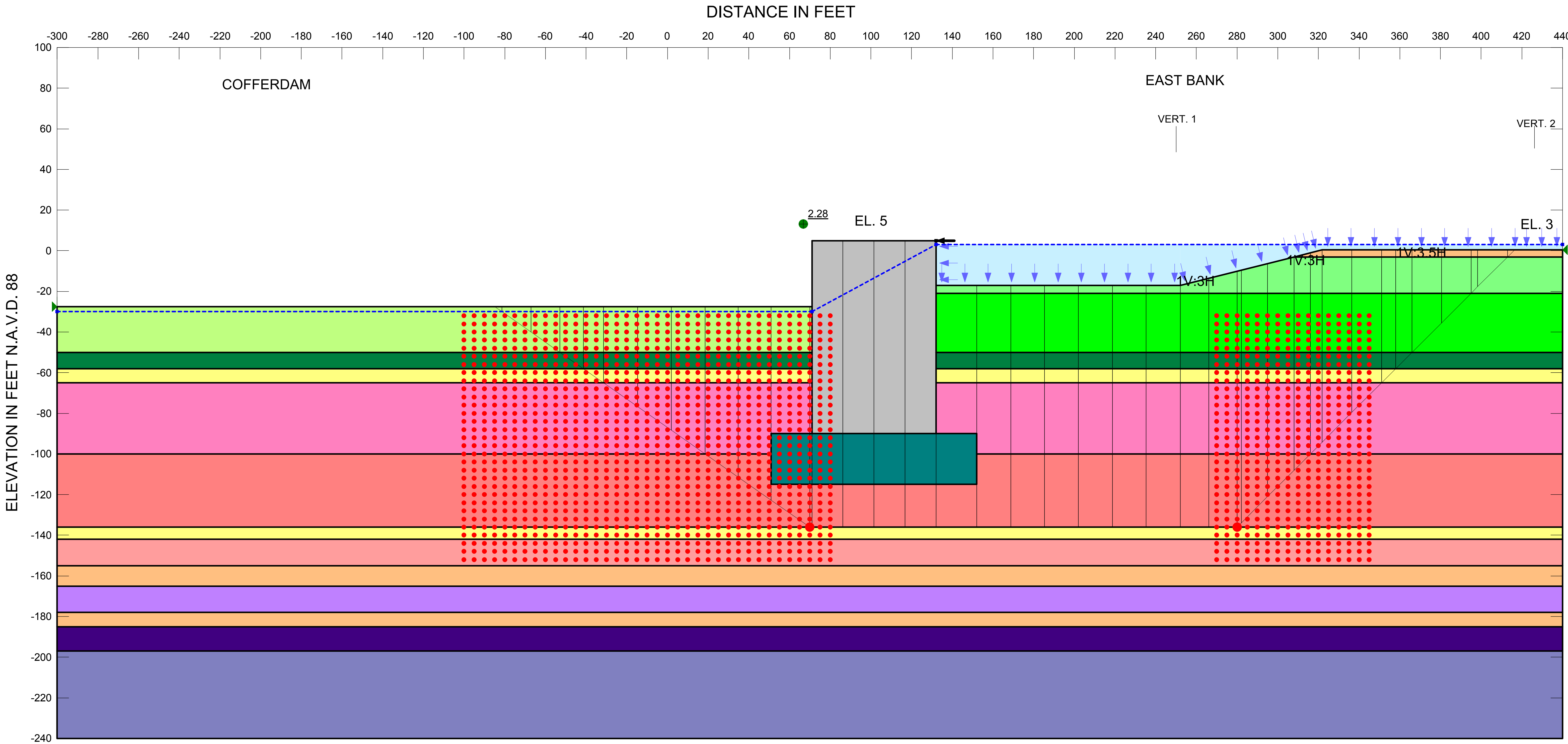
Inner Harbor
Navigational Canal
TRS feasability study

Eastern Cofferdam
Water EL +3.0
61 ft cell
Block Search
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-5

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: JET GROUTED SOIL ZONE Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load: Coordinate: (132, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

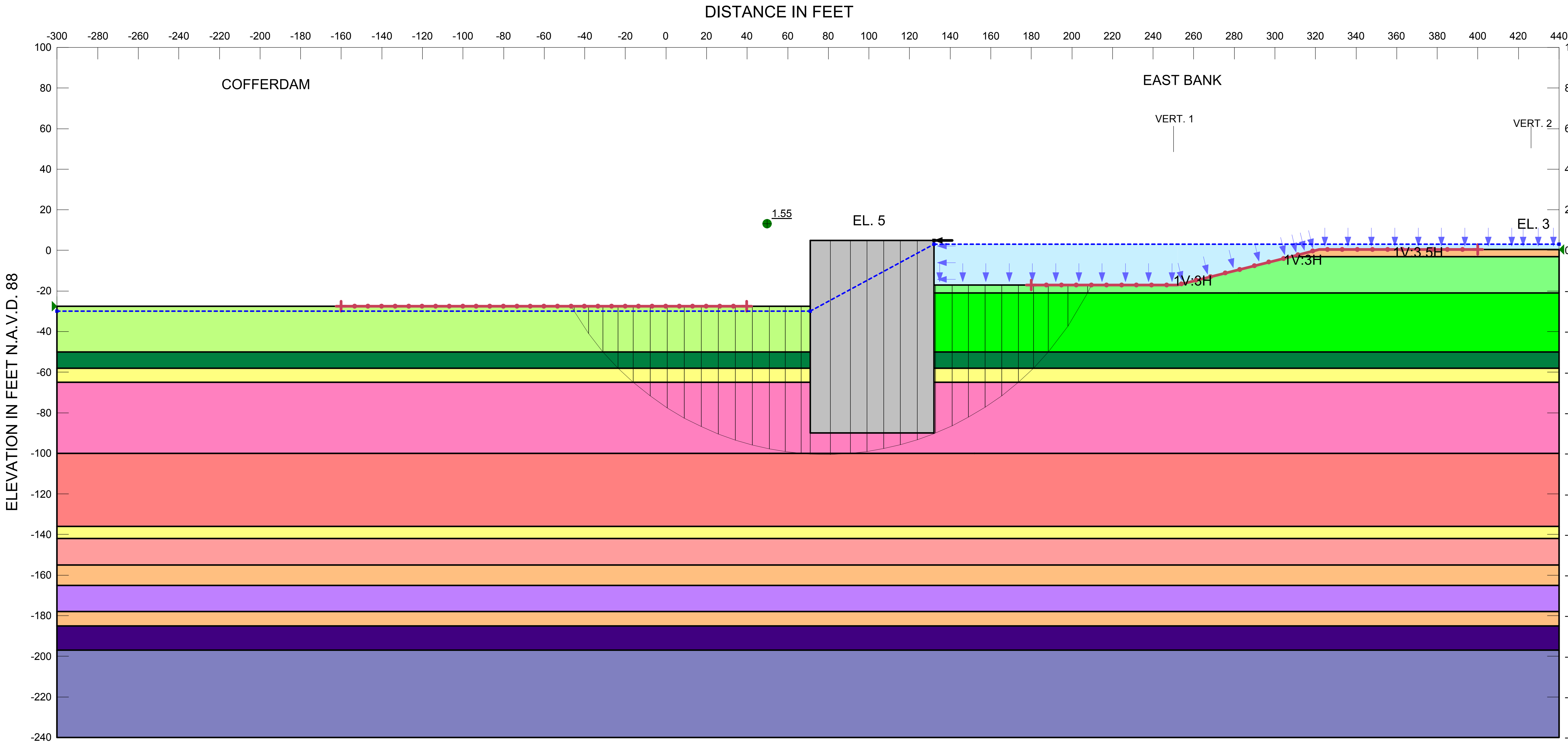
Eastern Cofferdam
Water EL +3.0
61 ft cell
Block Search
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-6

Name: Block w jet grout
File Name: East bank coff el-27.5 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load: Coordinate: (132, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

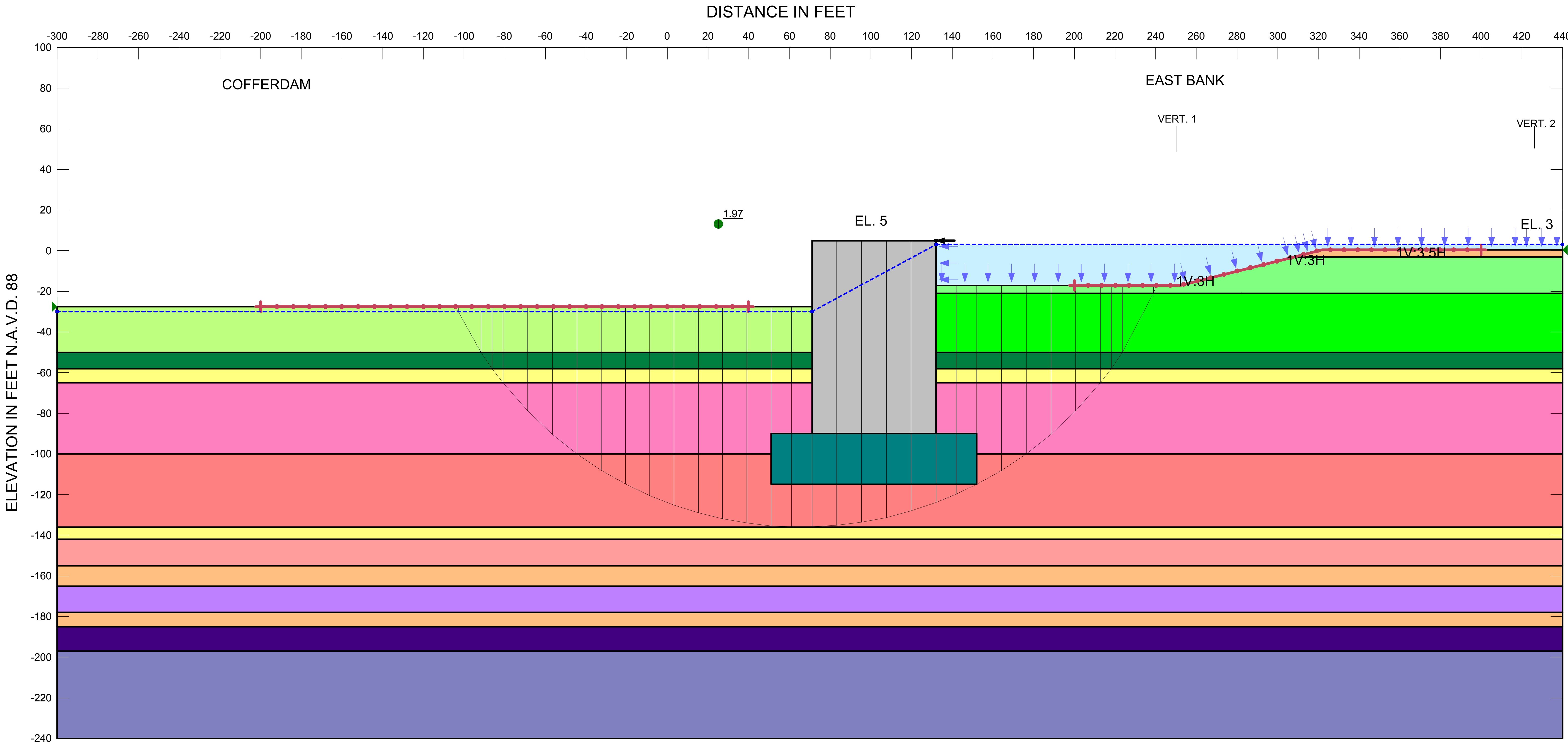
Eastern Cofferdam
Water EL +3.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-7

Name: EE no jet grout
File Name: East bank coff el-27.5 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK   Model: Spatial Mohr-Coulomb   Unit Weight: 100 pcf   Cohesion Spatial Fn: CH EL. -21.0 TO -50.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -100 to -136   Cohesion Fn: CH -100 to -136   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK   Model: Mohr-Coulomb   Unit Weight: 95 pcf   Cohesion: 215 psf   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -185 to -240   Cohesion Spatial Fn: CH EL. -197.0 TO -240.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -50 to -58   Cohesion Spatial Fn: CH EL. -50 TO -58.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -165 to -178   Cohesion Spatial Fn: CH EL. -165.0 TO -178.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -65 to -100   Cohesion Fn: CH -65 to -100   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -142 to -155   Cohesion Spatial Fn: CH EL. -142.0 TO -155.0   Phi: 0 °   Piezometric Line: 1
Name: ML   Model: Mohr-Coulomb   Unit Weight: 117 pcf   Cohesion: 200 psf   Phi: 15 °   Piezometric Line: 1
Name: SM   Model: Mohr-Coulomb   Unit Weight: 122 pcf   Cohesion: 0 psf   Phi: 30 °   Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL   Model: Mohr-Coulomb   Unit Weight: 98 pcf   Cohesion: 200 psf   Phi: 0 °   Piezometric Line: 1
Name: CH EL -185.0 TO -197.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -185 to -240   Cohesion Spatial Fn: CH EL. -185.0 TO -197.0   Phi: 0 °   Piezometric Line: 1
Name: JET GROUTED SOIL ZONE   Model: Mohr-Coulomb   Unit Weight: 120 pcf   Cohesion: 3500 psf   Phi: 0 °   Piezometric Line: 1
Name: CELL   Model: Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 10000 psf   Phi: 45 °   Piezometric Line: 1

Impact Load: Coordinate: (132, 5) ft   Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

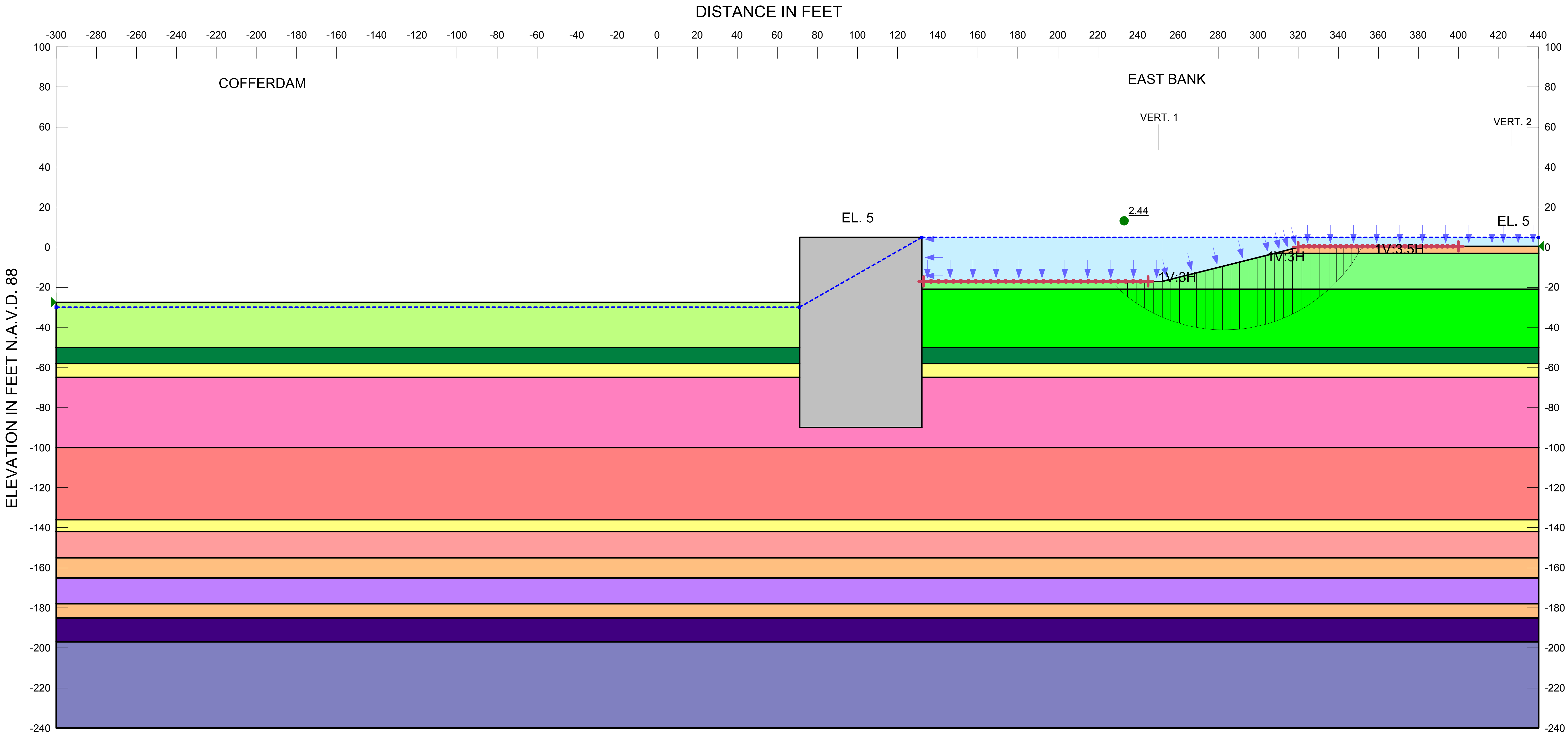
Eastern Cofferdam
Water EL +3.0
61 ft cell
Entry and Exit
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-8

Name: EE w jet grout
File Name: East bank coff el-27.5 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

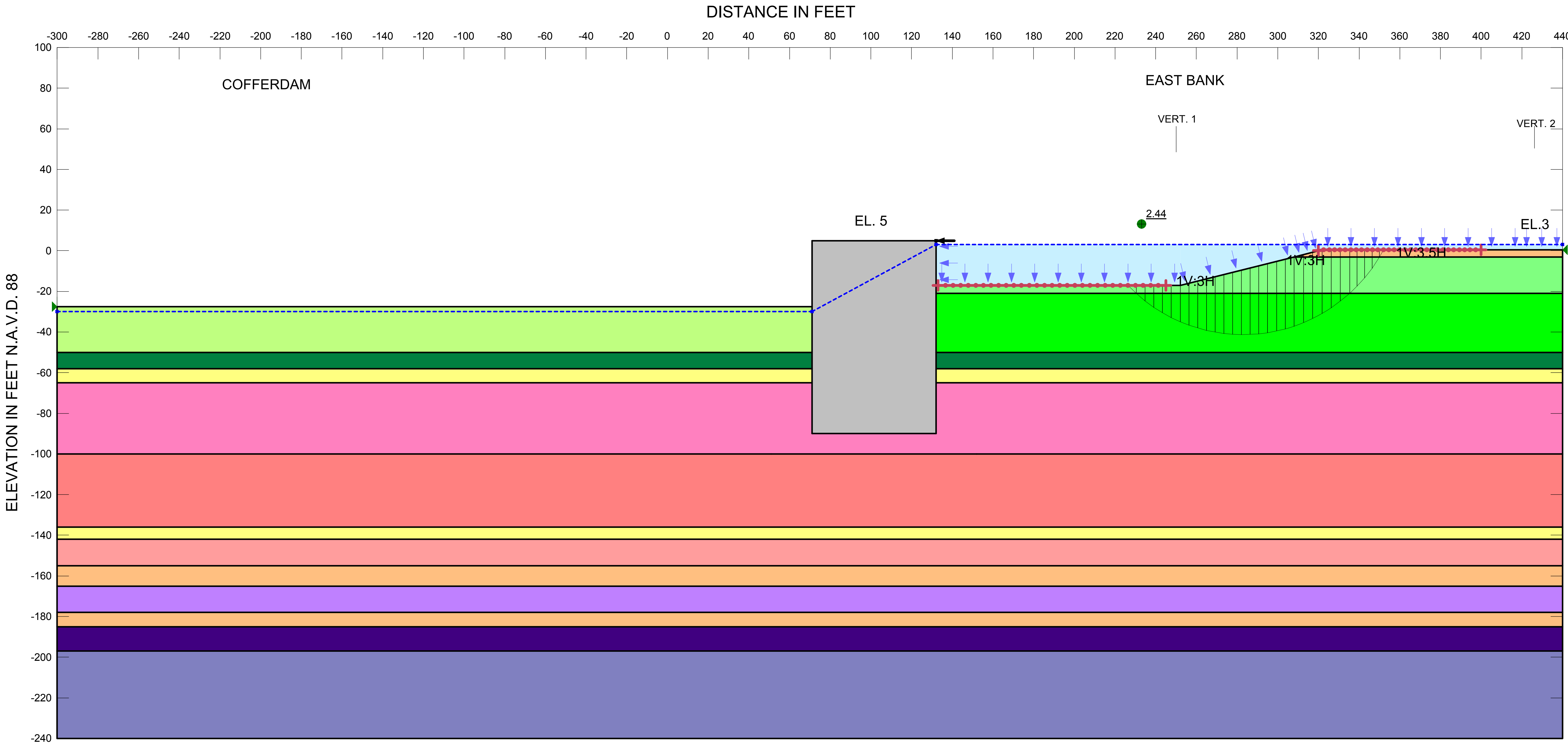
Eastern Cofferdam
Water EL +5.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-9

Name: EE no jet grout (slope in channel check)
File Name: East bank coff el-27.5_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load: Coordinate: (132, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

nner Harbor
Navigational Canal
TRS feasability study

Eastern Cofferdam
Water EL +3.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE-APPENDIX A-10

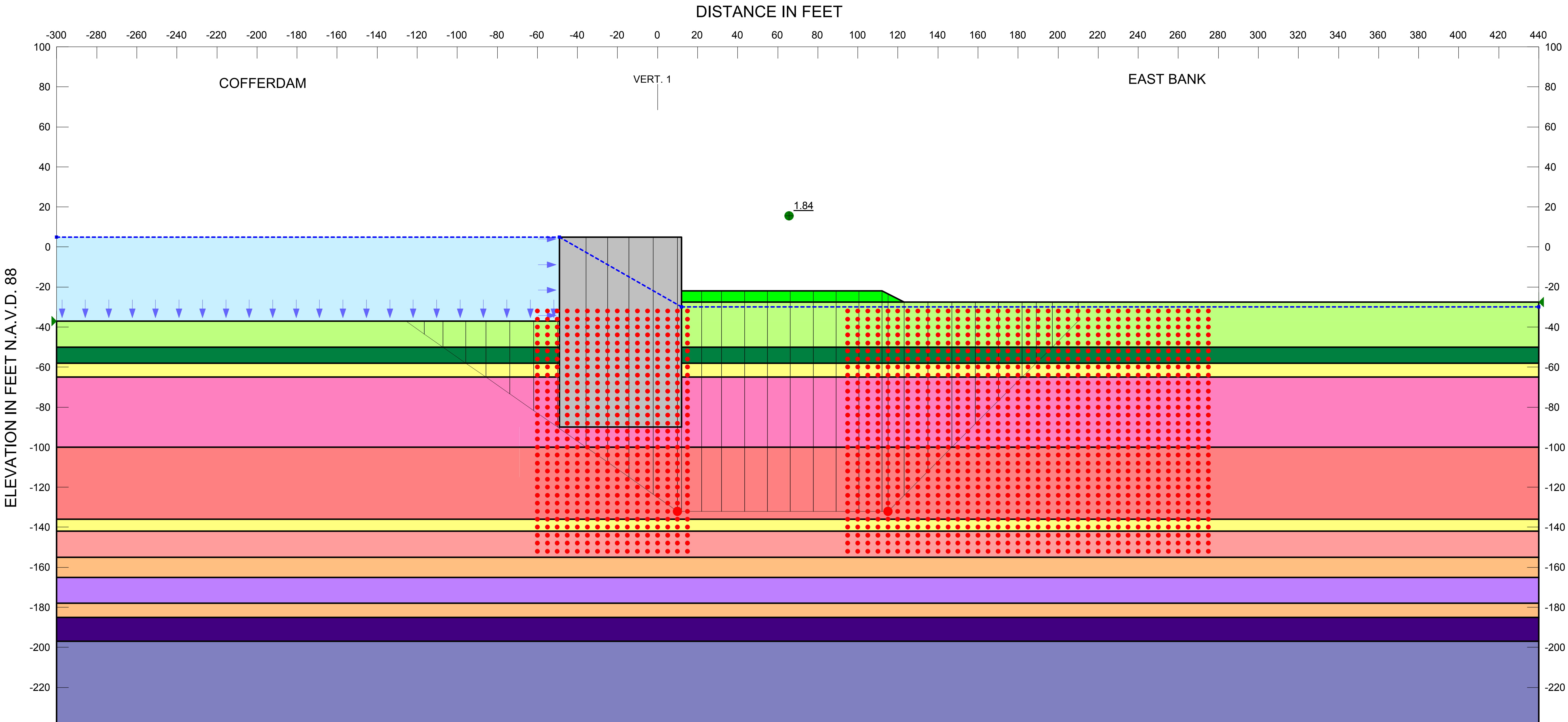
Name: EE no jet grout (slope in channel check)
File Name: East bank coff el-27.5 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE

US Army Corps of Engineers
New Orleans District

APPENDIX B:

Global Stability Excavation EL -27.5 South Cofferdam



Use Passive Mode: Yes
Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

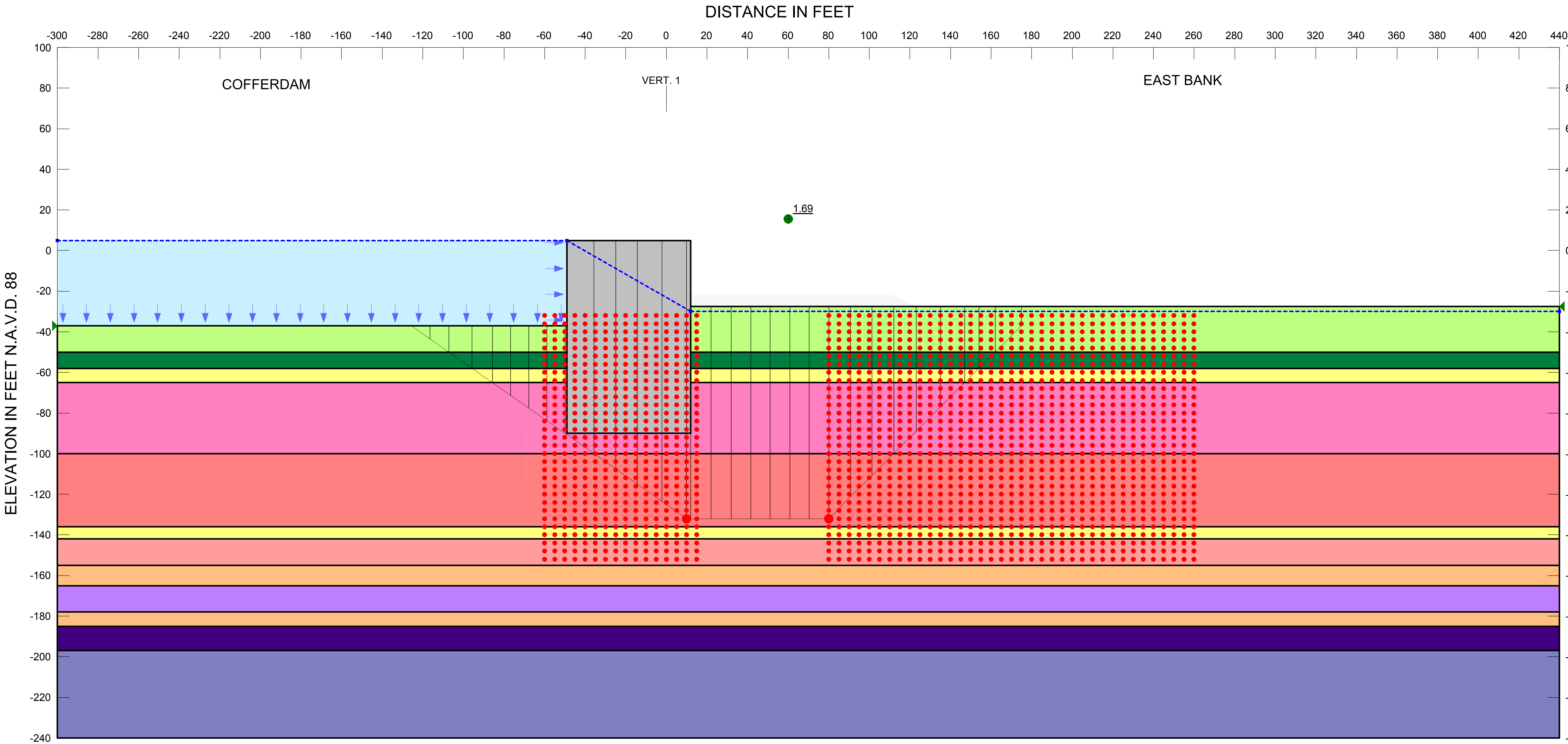
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-1

Name: Block no jet grout
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

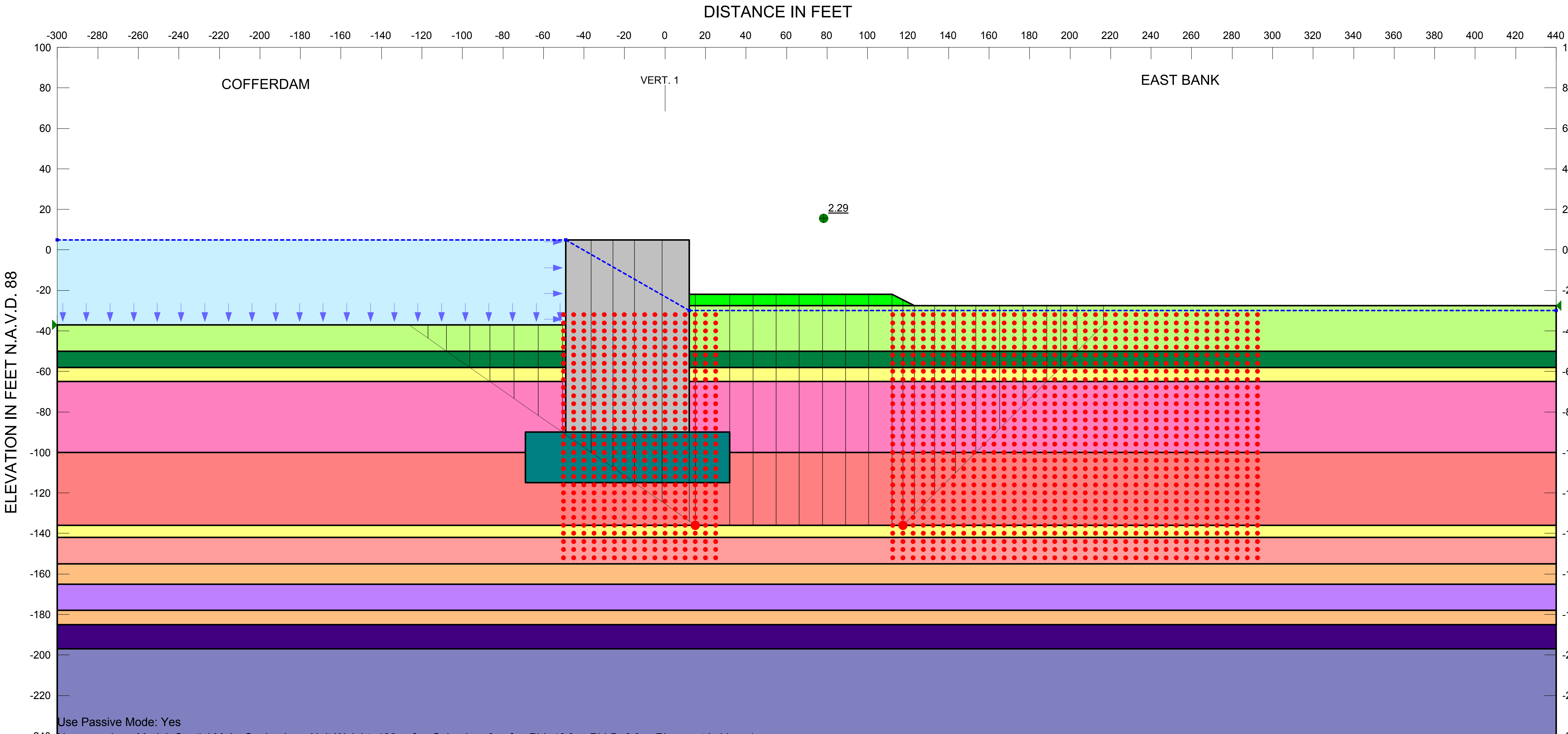
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-2

Name: Block no jet grout (no rock)
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

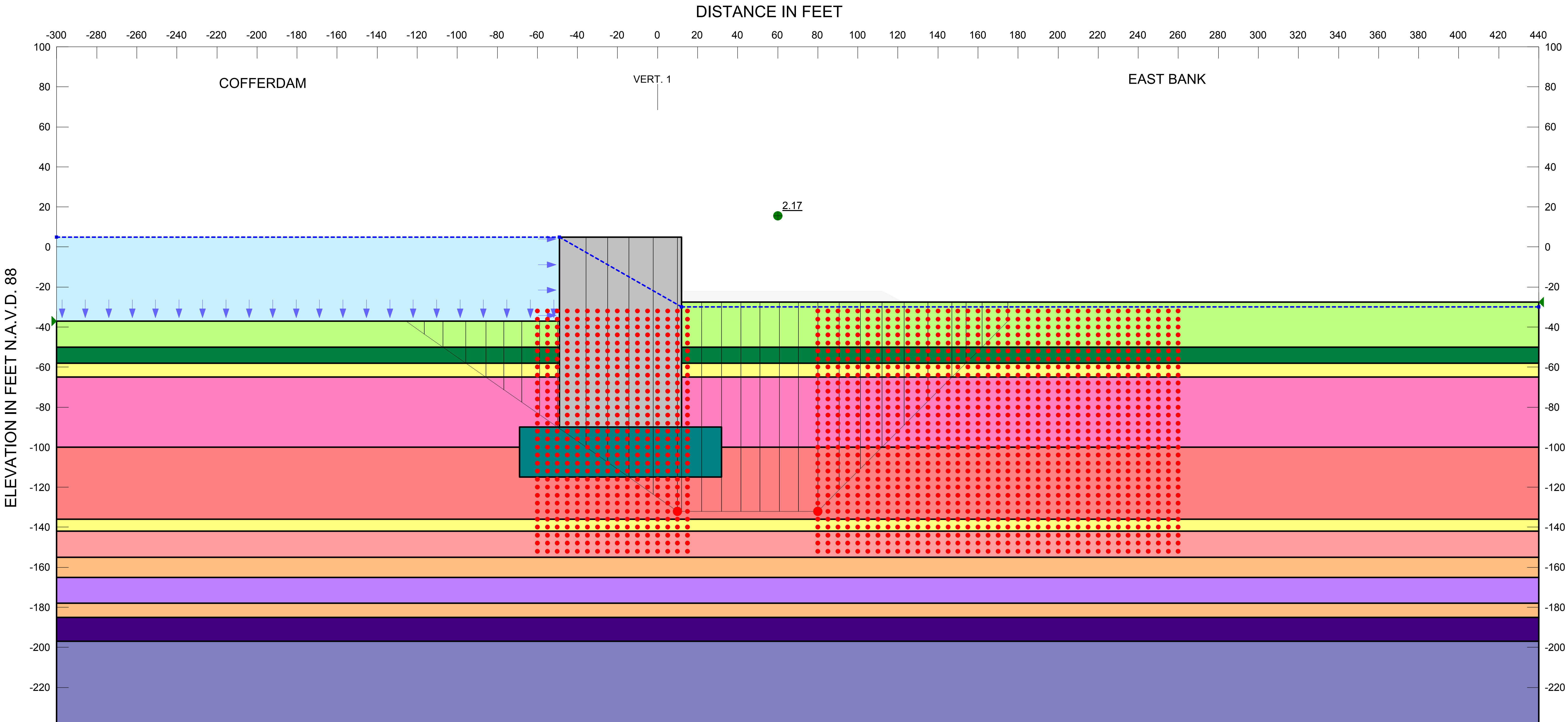
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-3

Name: Block w jet grout
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

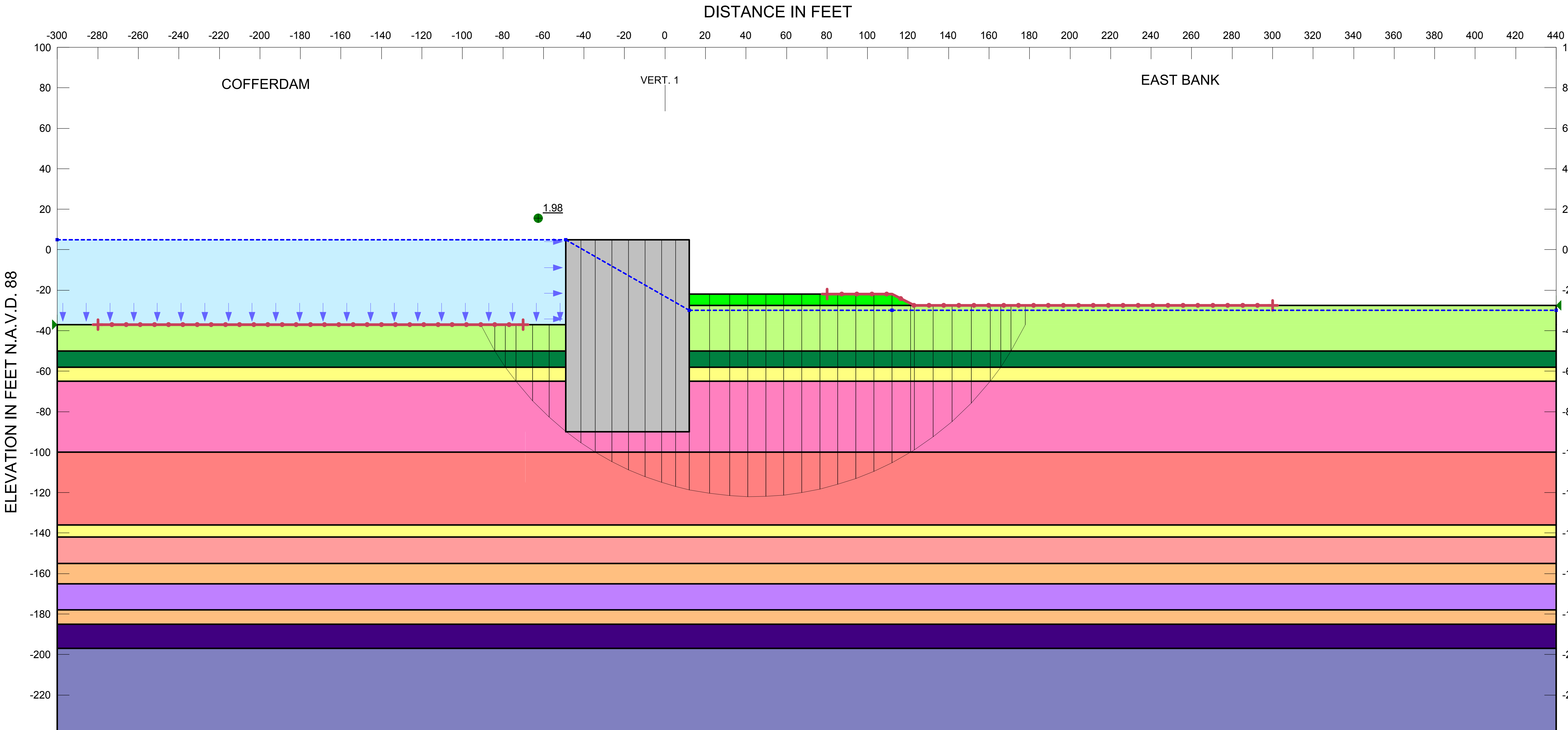
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE - APPENDIX B-4

Name: Block w jet grout (no rock)
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

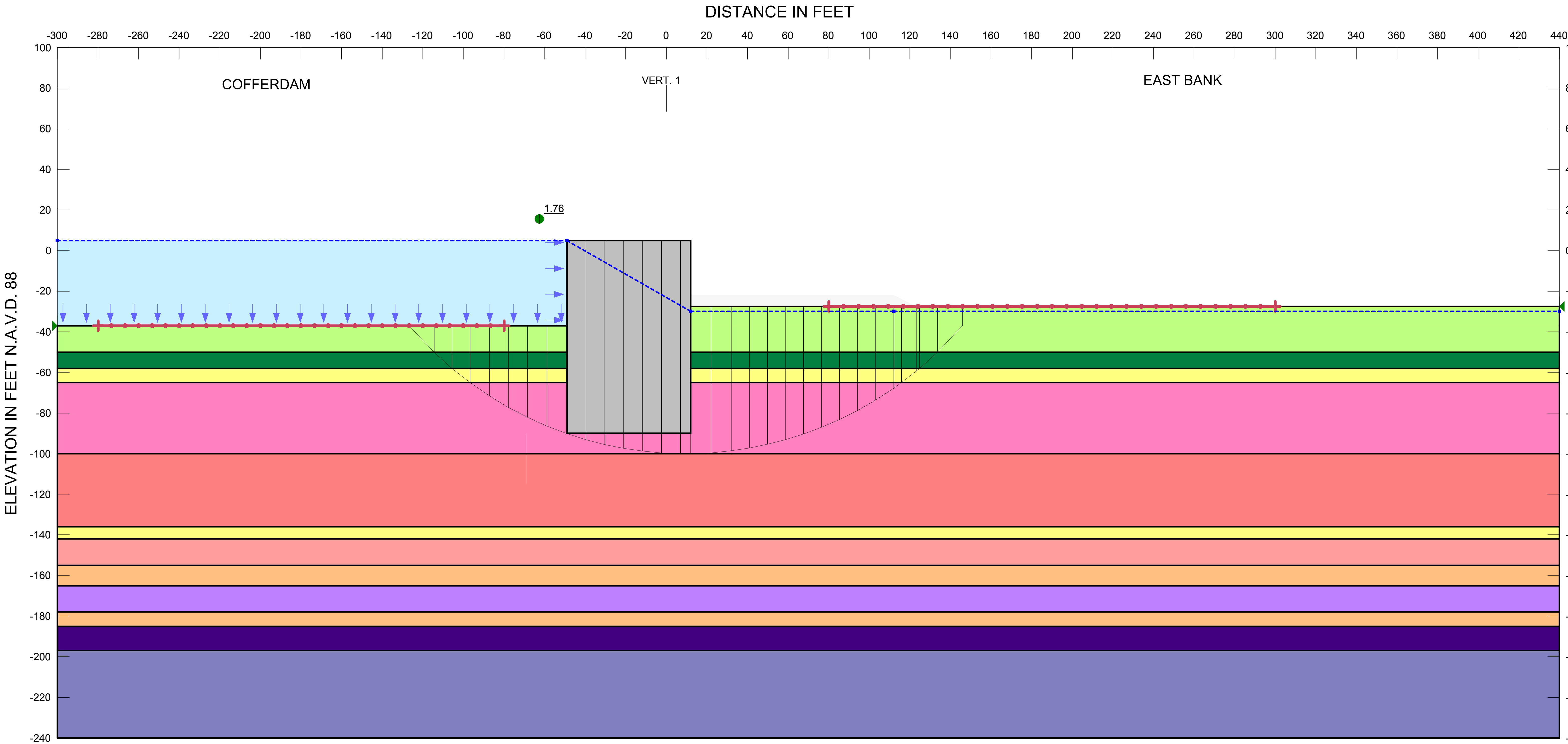
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE - APPENDIX B-5

Name: EE no jet grout
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

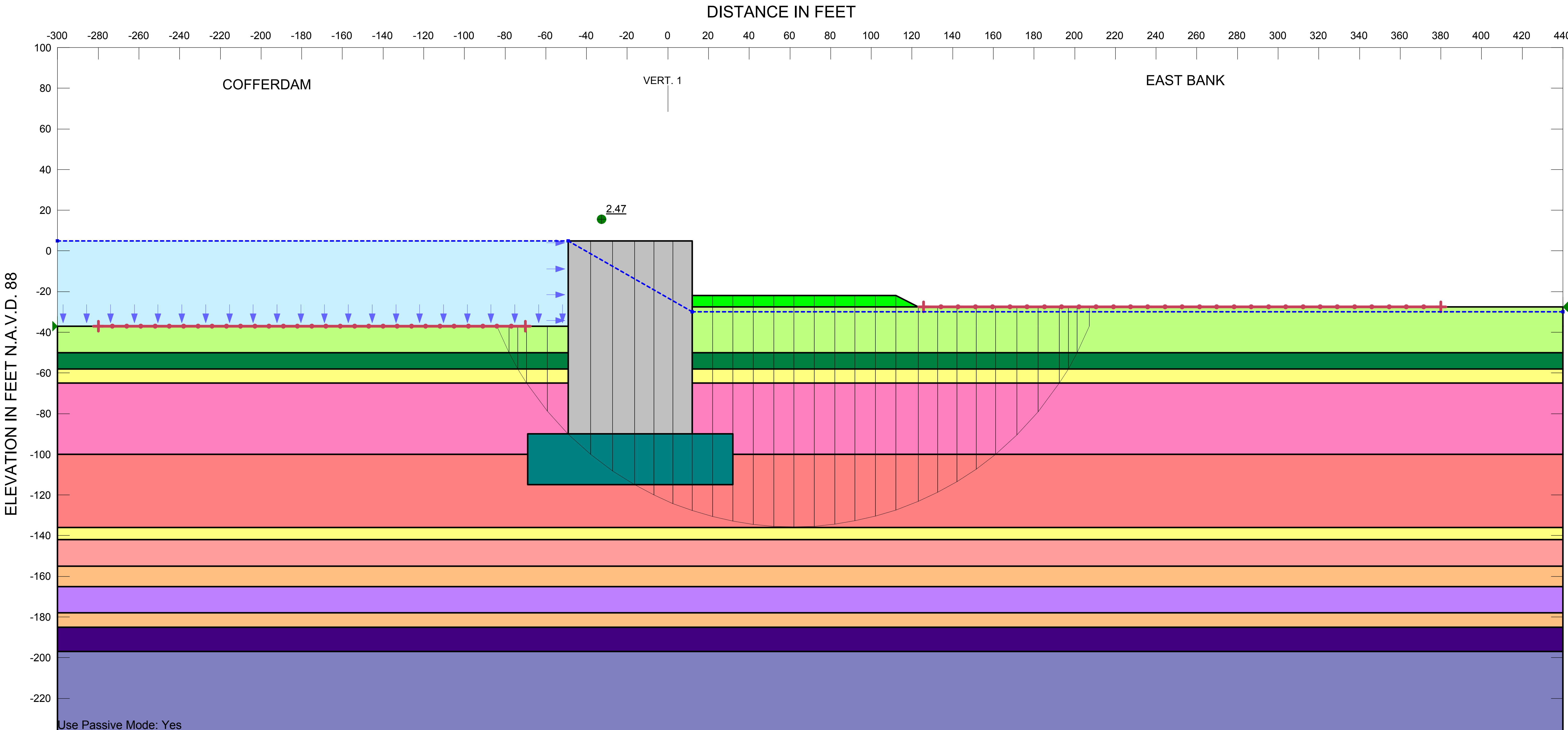
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-6

Name: EE no jet grout (no rock)
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes

Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

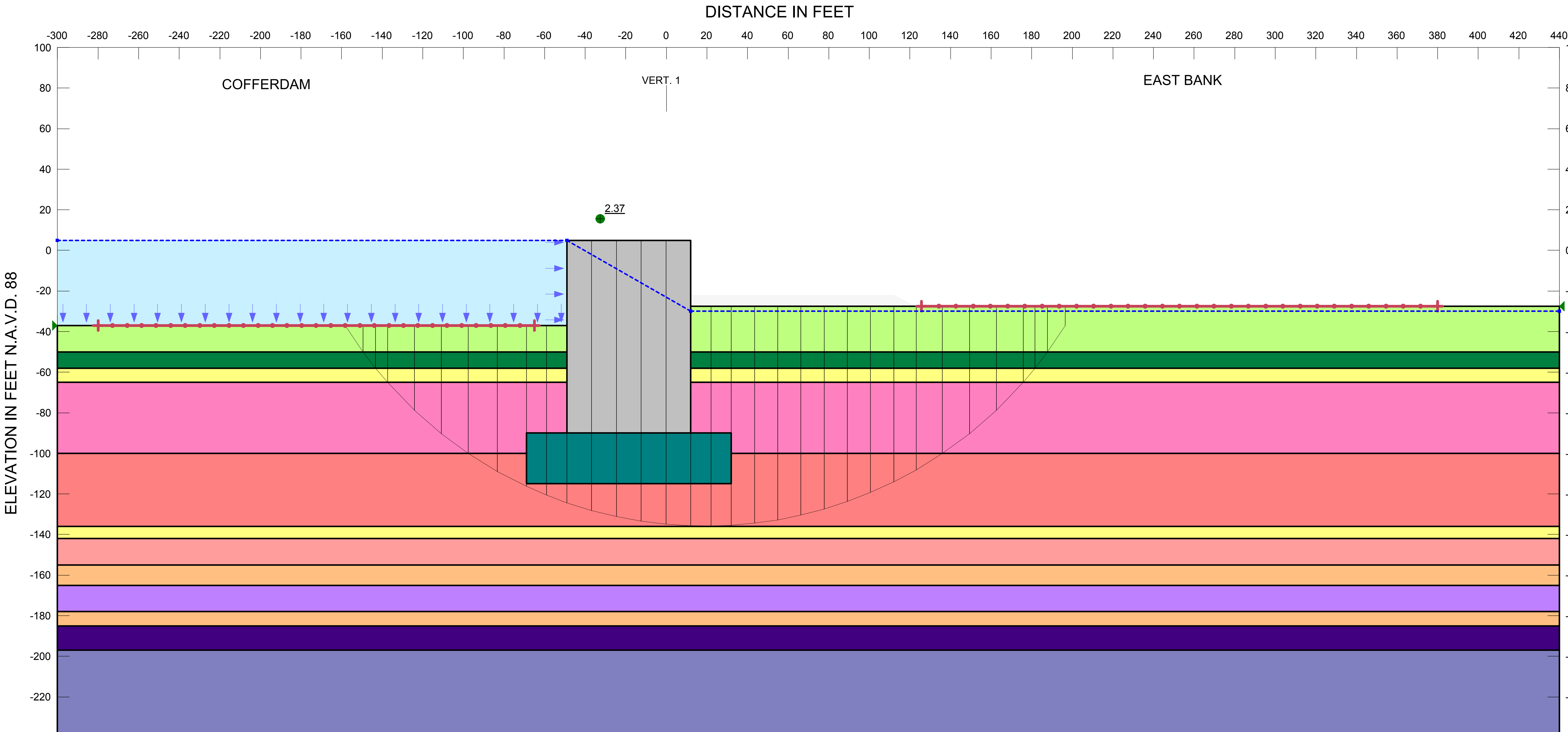
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-7

Name: EE w jet grout
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

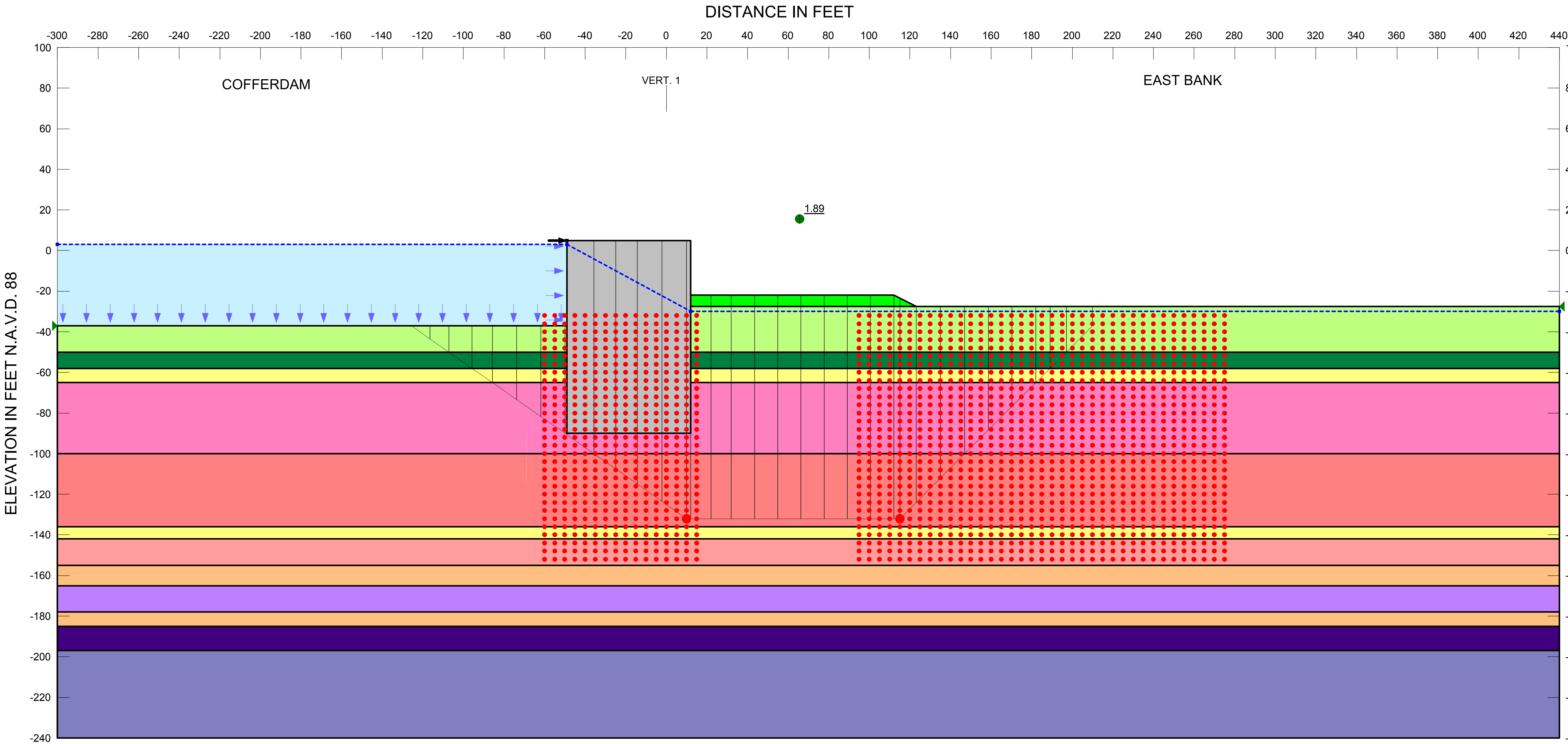
North and South Cofferdam
Water EL +5.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-8

Name: EE w jet grout (no rock)
File Name: South coff el-27.5 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes
Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

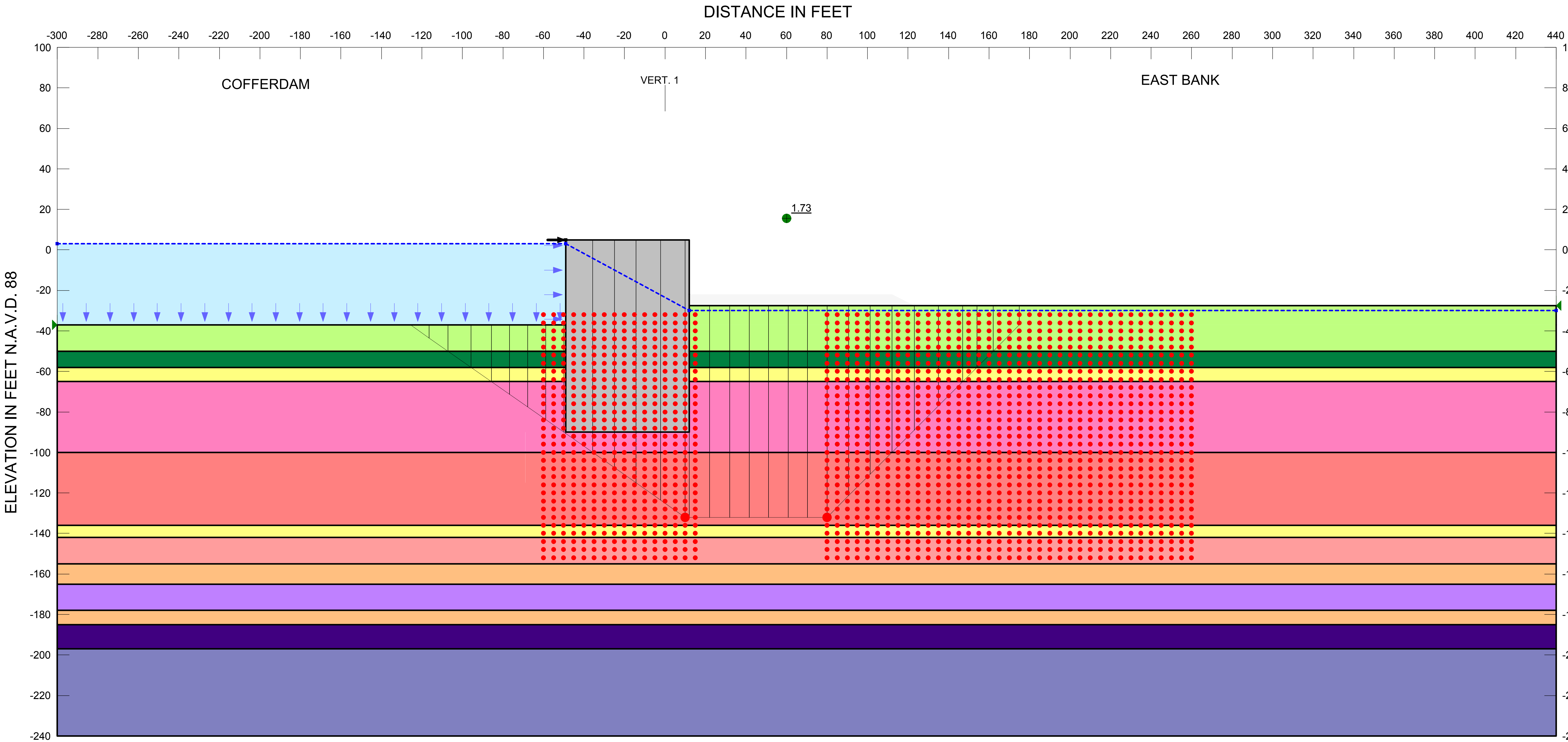
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-9

Name: Block no jet grout
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

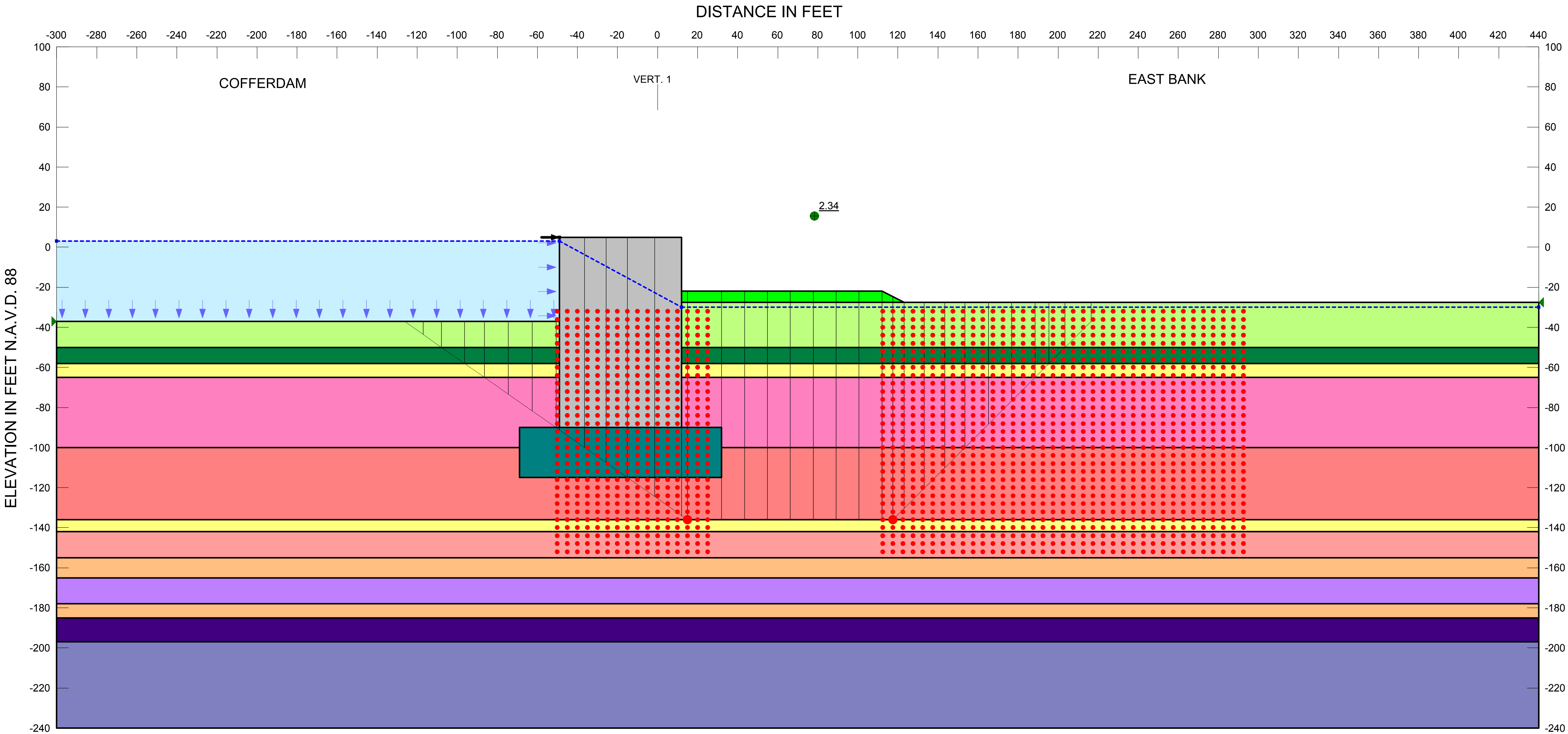
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE - APPENDIX B-10

Name: Block no jet grout (no rock)
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes
Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

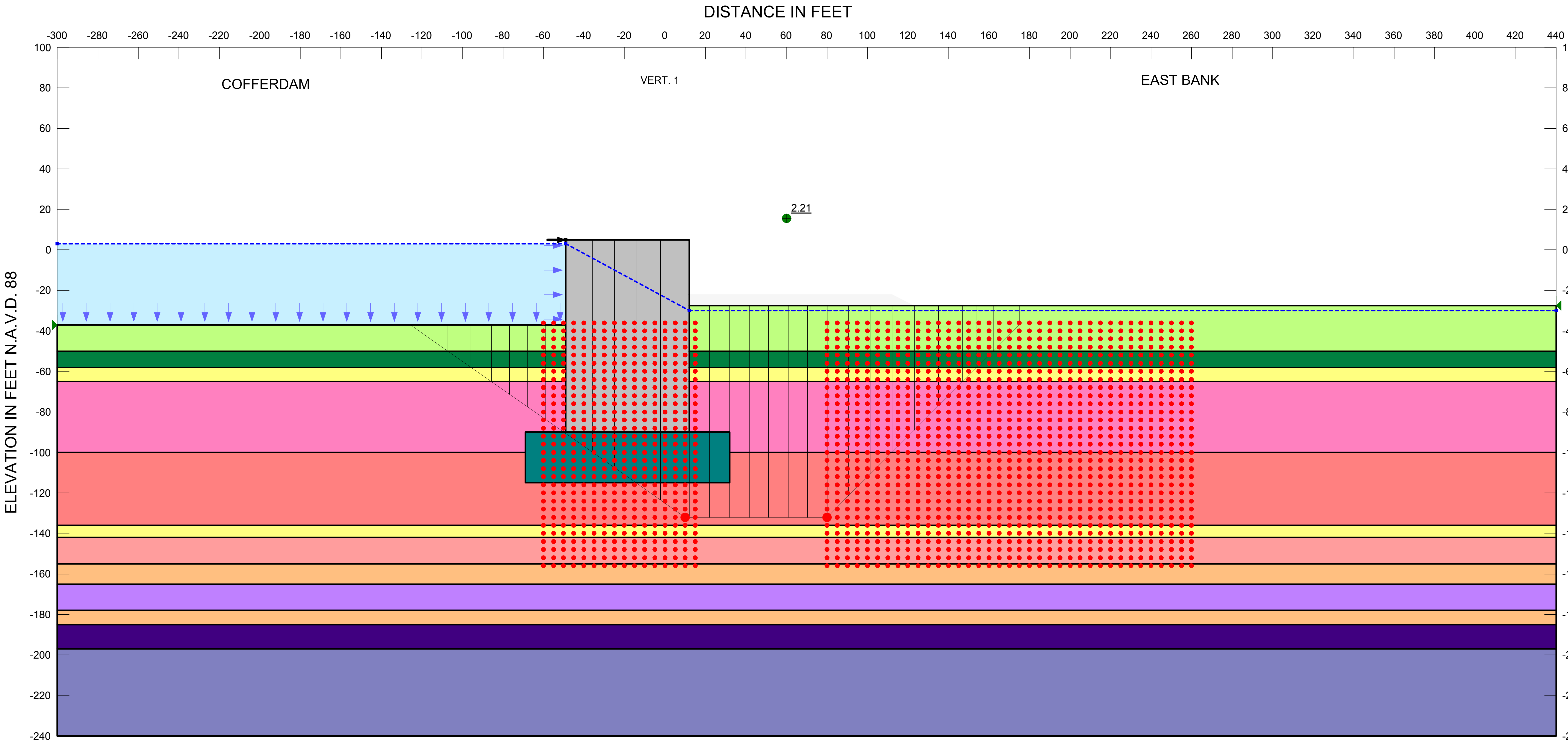
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-11

Name: Block w jet grout
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

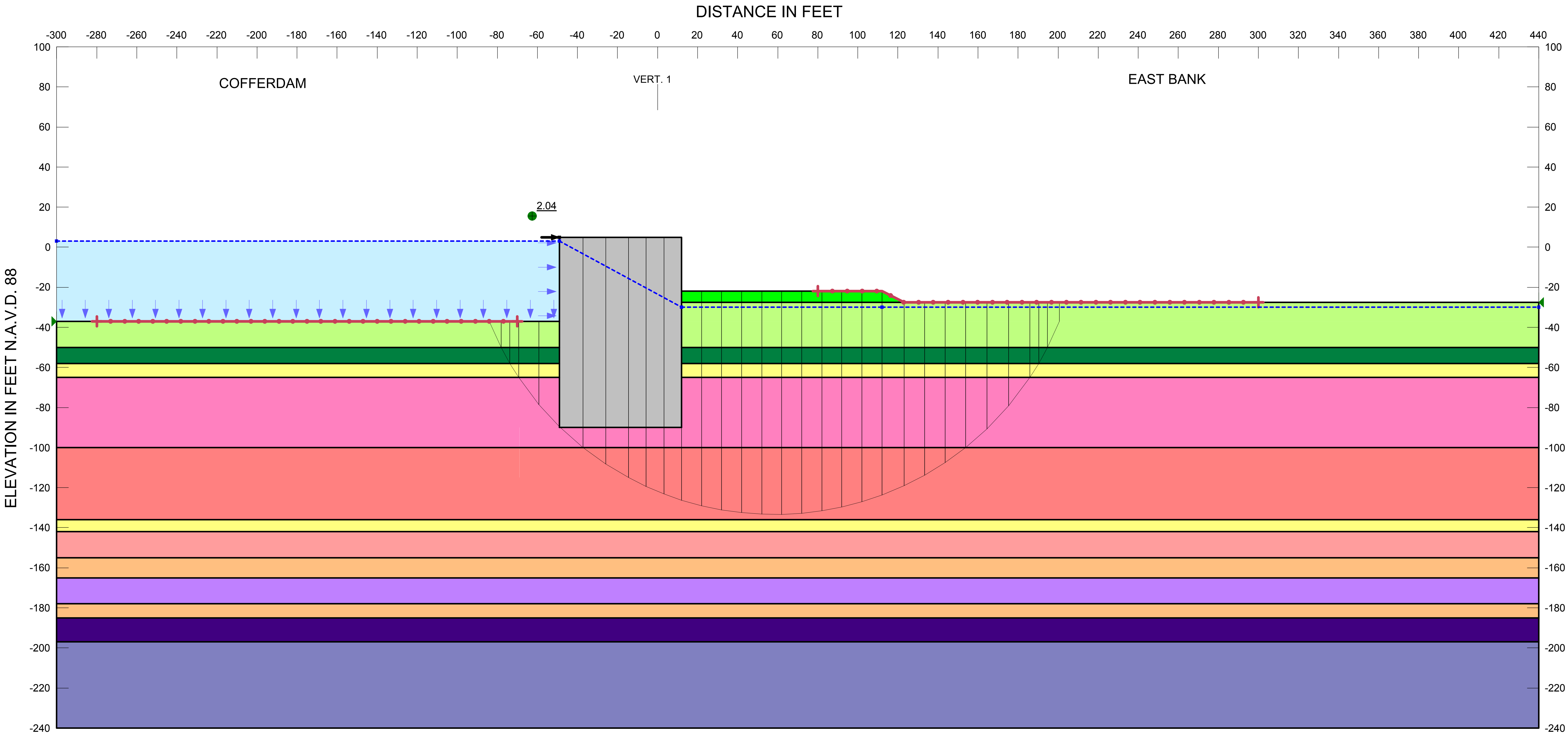
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-12

Name: Block w jet grout (no rock)
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes
Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

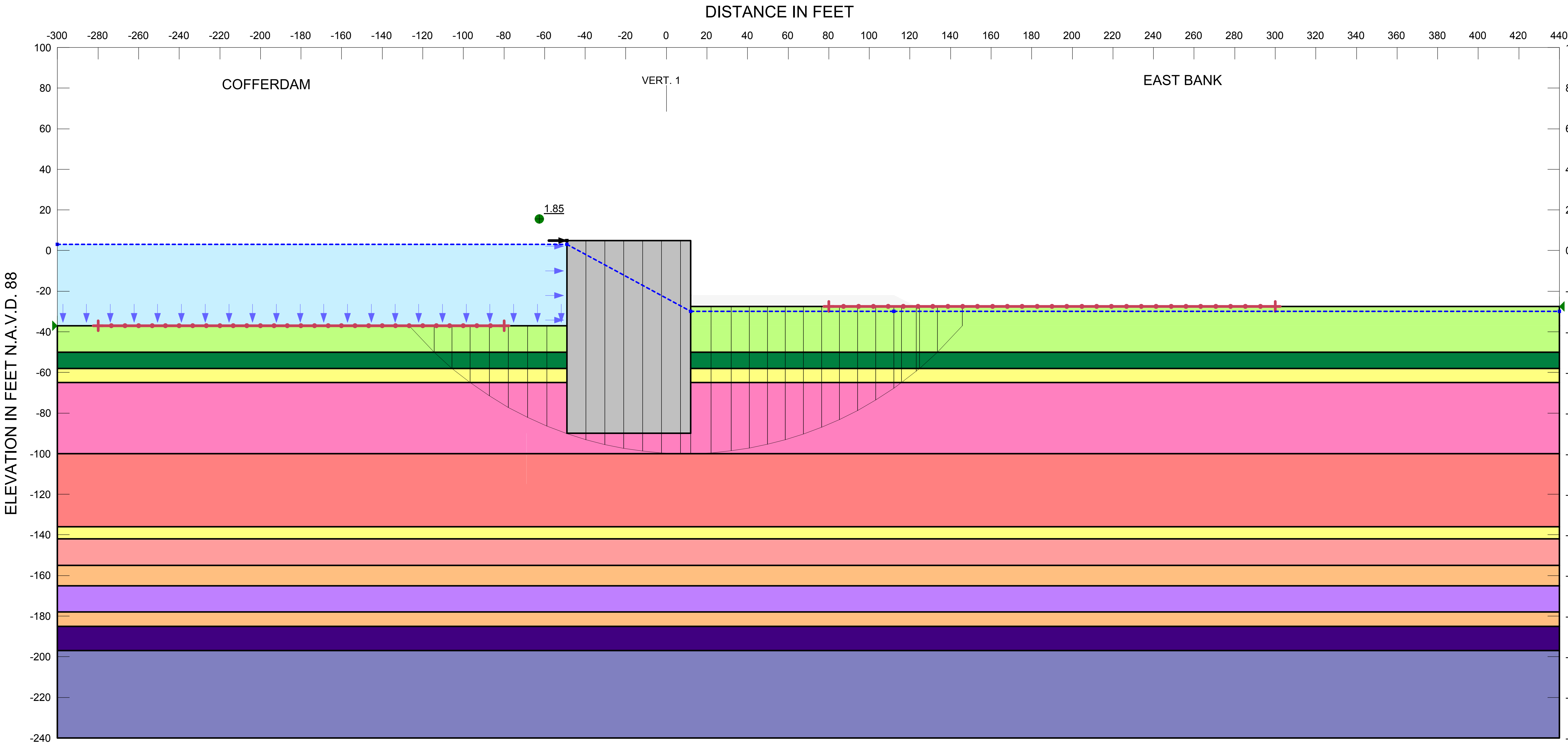
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE - APPENDIX B-13

Name: EE no jet grout
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

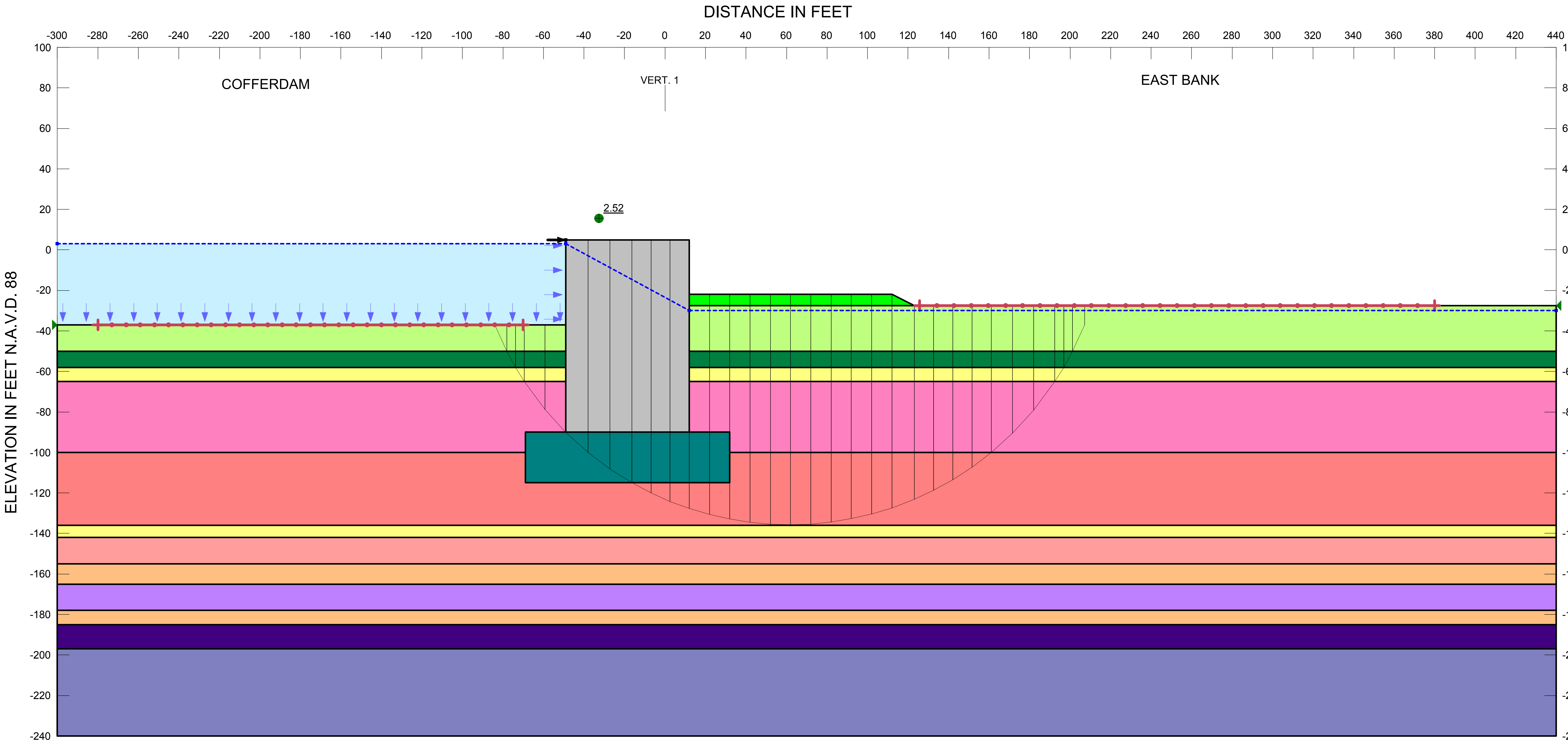
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-14

Name: EE no jet grout (no rock)
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes
Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 130 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

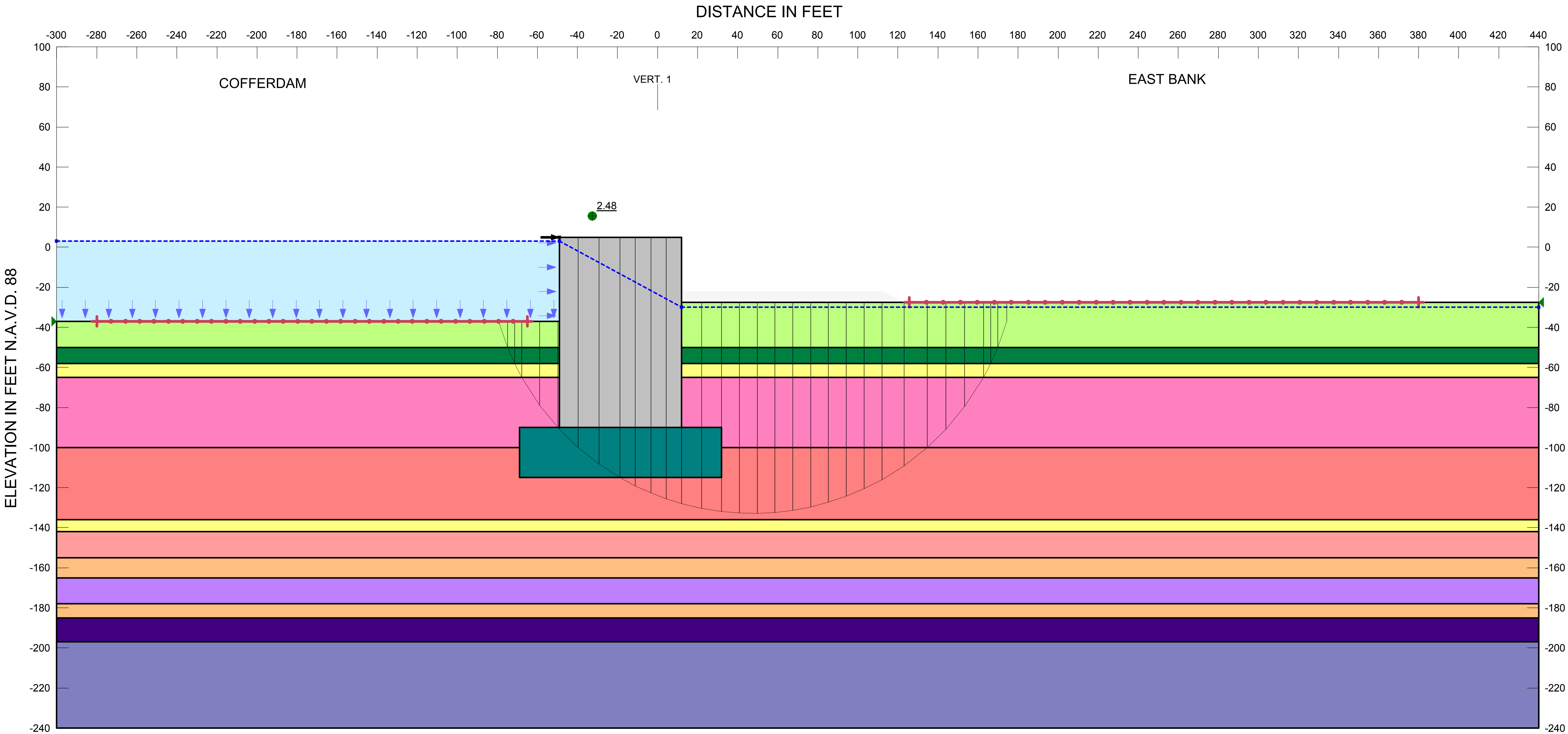
North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-15

Name: EE w jet grout
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1
Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

North and South Cofferdam
Water EL +3.0
Excavation at EL -27.5
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX B-16

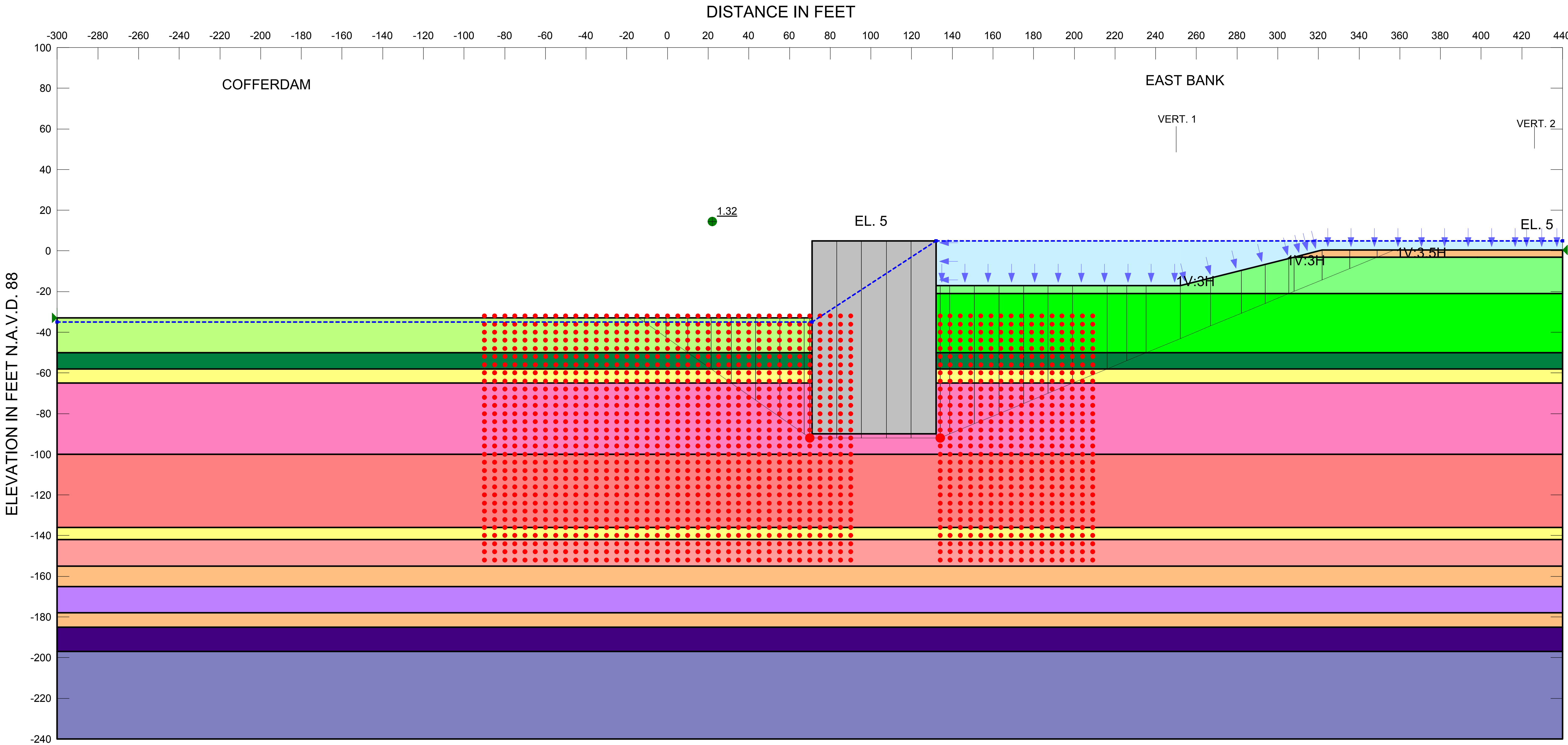
Name: EE w jet grout (no rock)
File Name: South coff el-27.5 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE

US Army Corps of Engineers®
New Orleans District

APPENDIX C:

Global Stability Excavation EL -33.0 East Bank Cofferdam



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

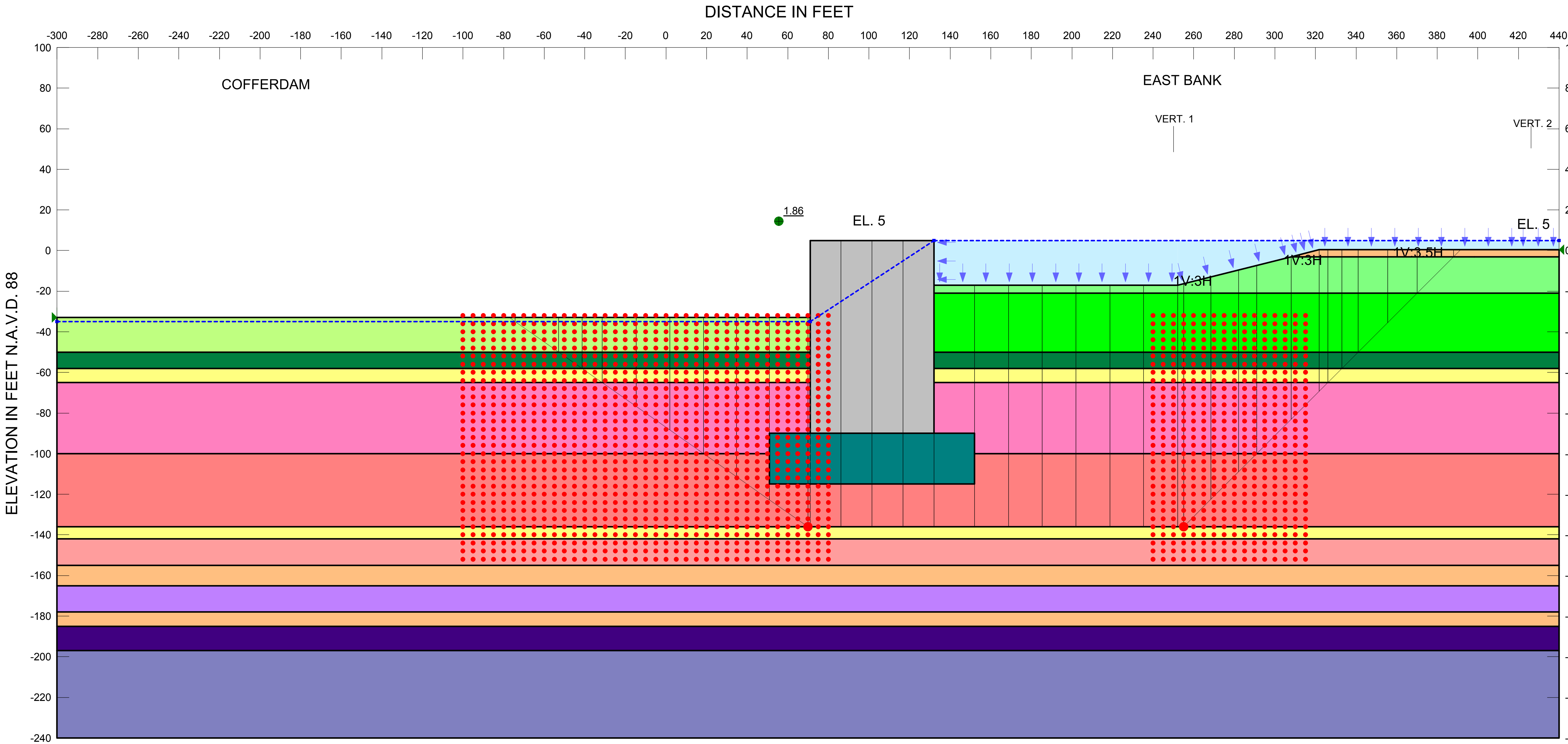
Eastern Cofferdam
Water EL +5.0
61 ft cell
Block Search
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-1

Name: Block no jet grout
File Name: East bank coff el-33_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: JET GROUTED SOIL ZONE Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

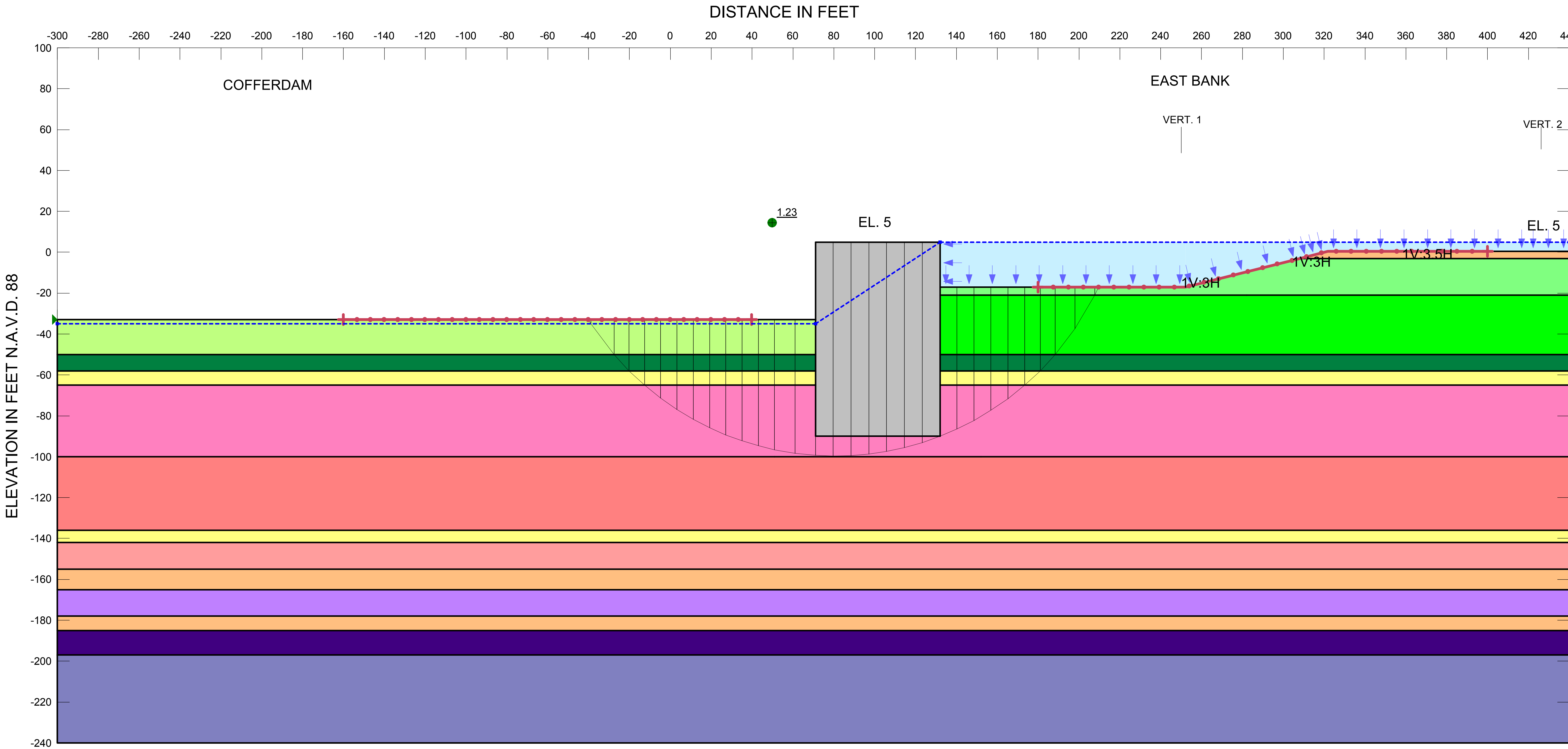
Eastern Cofferdam
Water EL +5.0
61 ft cell
Block Search
Jet grout

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE - APPENDIX C-2

Name: Block w jet grout
File Name: East bank coff el-33_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

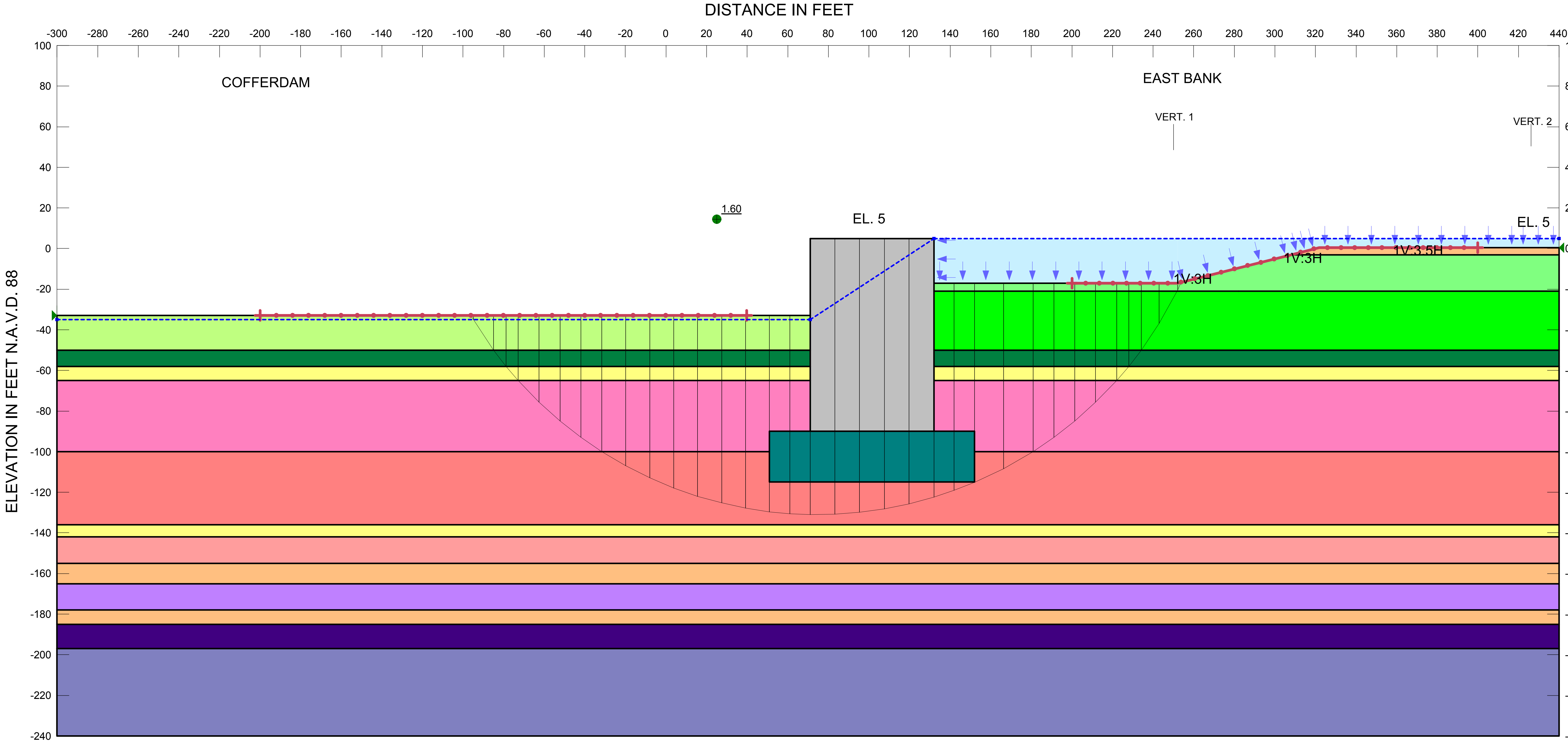
Eastern Cofferdam
Water EL +5.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-3

Name: EE no jet grout
File Name: East bank coff el-33_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: JET GROUTED SOIL ZONE Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

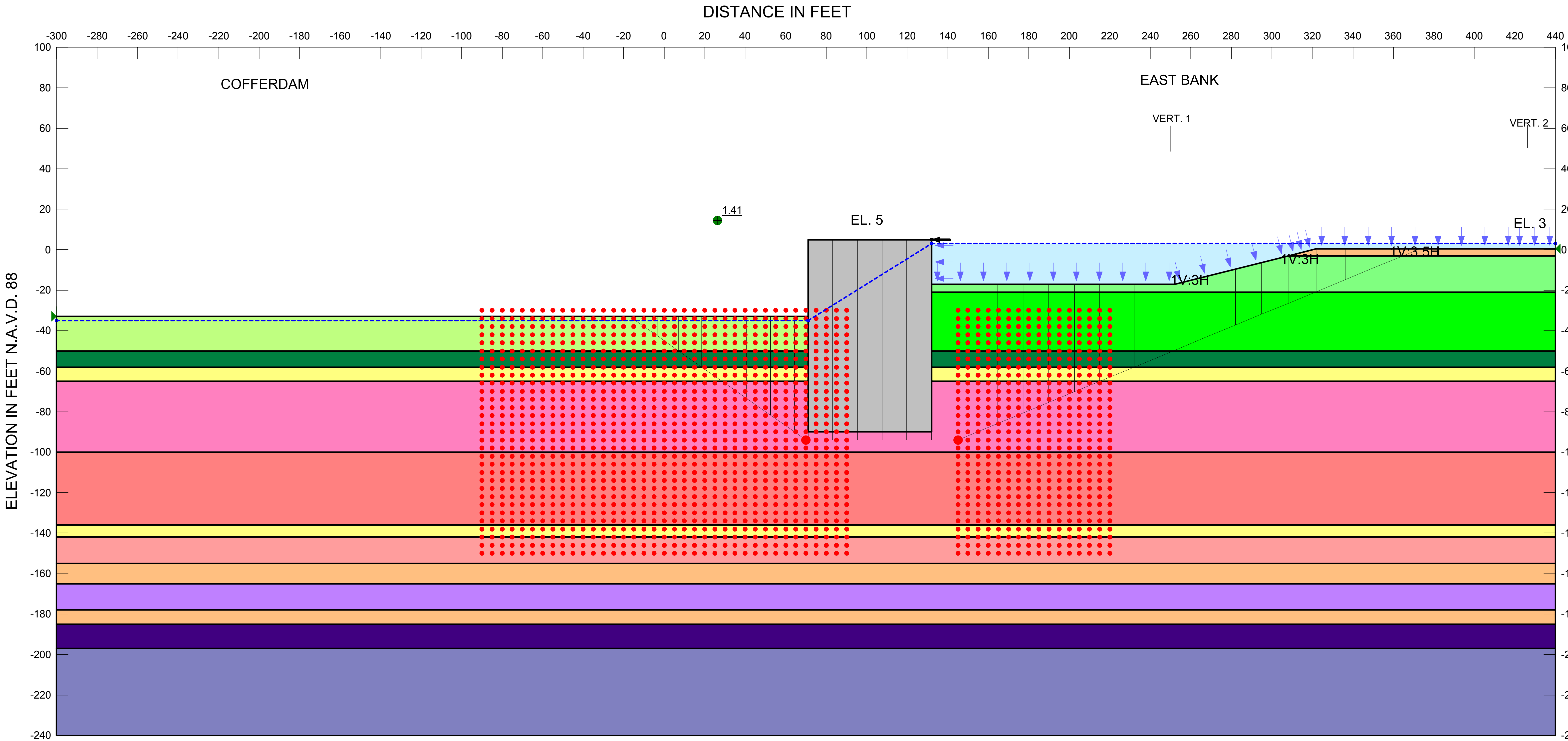
Eastern Cofferdam
Water EL +5.0
61 ft cell
Entry and Exit
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-4

Name: EE w jet grout
File Name: East bank coff el-33_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load Coordinate: (132, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

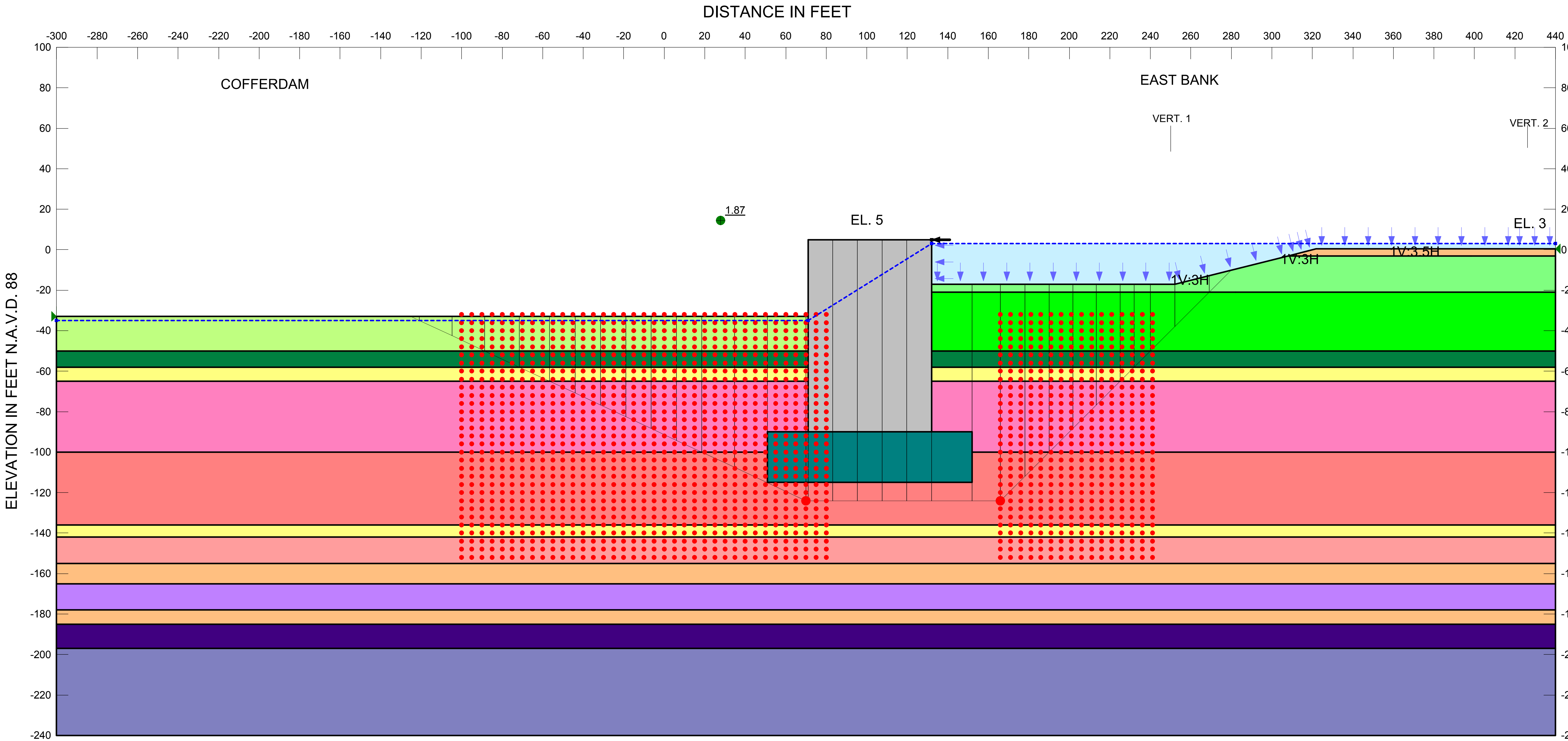
Eastern Cofferdam
Water EL +3.0
61 ft cell
Block Search
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-5

Name: Block no jet grout
File Name: East bank coff el-33 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK   Model: Spatial Mohr-Coulomb   Unit Weight: 100 pcf   Cohesion Spatial Fn: CH EL. -21.0 TO -50.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -100 to -136   Cohesion Fn: CH -100 to -136   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK   Model: Mohr-Coulomb   Unit Weight: 95 pcf   Cohesion: 215 psf   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -185 to -240   Cohesion Spatial Fn: CH EL. -197.0 TO -240.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -50 to -58   Cohesion Spatial Fn: CH EL. -50 TO -58.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -165 to -178   Cohesion Spatial Fn: CH EL. -165.0 TO -178.0   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -65 to -100   Cohesion Fn: CH -65 to -100   Phi: 0 °   Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -142 to -155   Cohesion Spatial Fn: CH EL. -142.0 TO -155.0   Phi: 0 °   Piezometric Line: 1
Name: ML   Model: Mohr-Coulomb   Unit Weight: 117 pcf   Cohesion: 200 psf   Phi: 15 °   Piezometric Line: 1
Name: SM   Model: Mohr-Coulomb   Unit Weight: 122 pcf   Cohesion: 0 psf   Phi: 30 °   Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL   Model: Mohr-Coulomb   Unit Weight: 98 pcf   Cohesion: 200 psf   Phi: 0 °   Piezometric Line: 1
Name: CH EL -185.0 TO -197.0   Model: Spatial Mohr-Coulomb   Weight Fn: CH -185 to -240   Cohesion Spatial Fn: CH EL. -185.0 TO -197.0   Phi: 0 °   Piezometric Line: 1
Name: JET GROUTED SOIL ZONE   Model: Mohr-Coulomb   Unit Weight: 120 pcf   Cohesion: 3500 psf   Phi: 0 °   Piezometric Line: 1
Name: CELL   Model: Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 10000 psf   Phi: 45 °   Piezometric Line: 1

Impact Load Coordinate: (132, 5) ft   Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

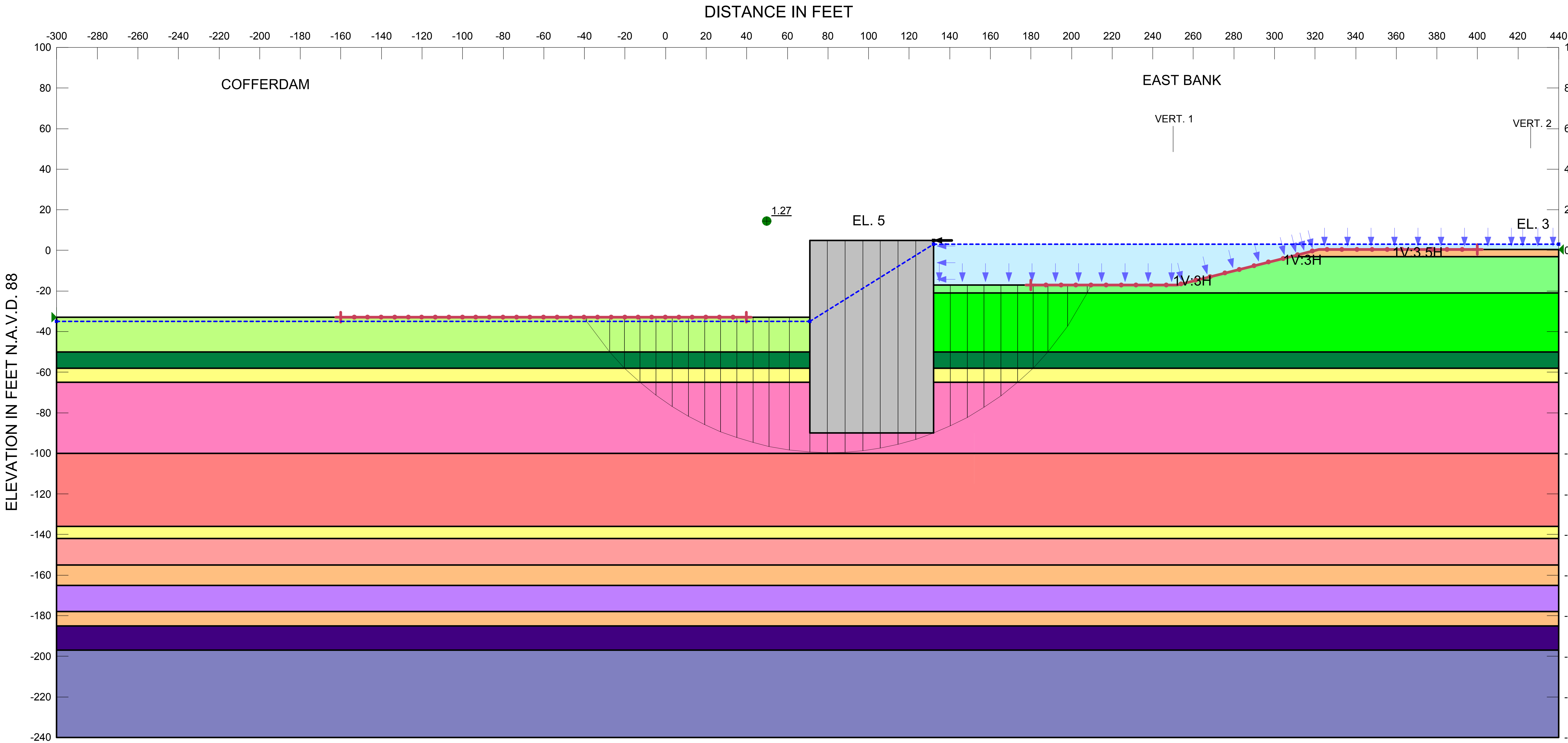
Eastern Cofferdam
Water EL +3.0
61 ft cell
Block Search
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-6

Name: Block w jet grout
File Name: East bank coff el-33 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C CIV USARMY CEMVN (US)

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load Coordinate: (132, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

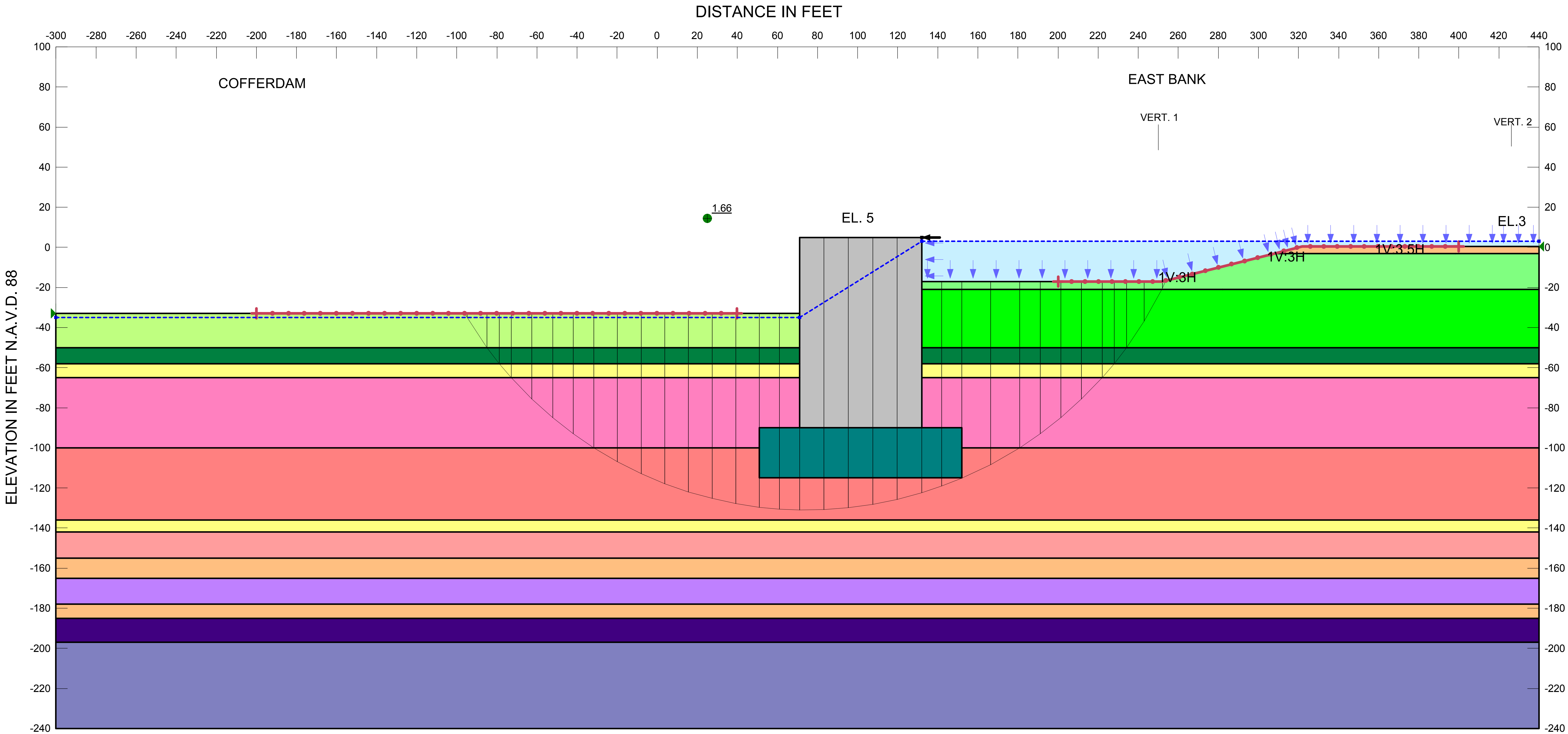
Eastern Cofferdam
Water EL +3.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-7

Name: EE no jet grout
File Name: East bank coff el-33 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: JET GROUTED SOIL ZONE Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load Coordinate: (132, 5) ft Magnitude: 2600 lb

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

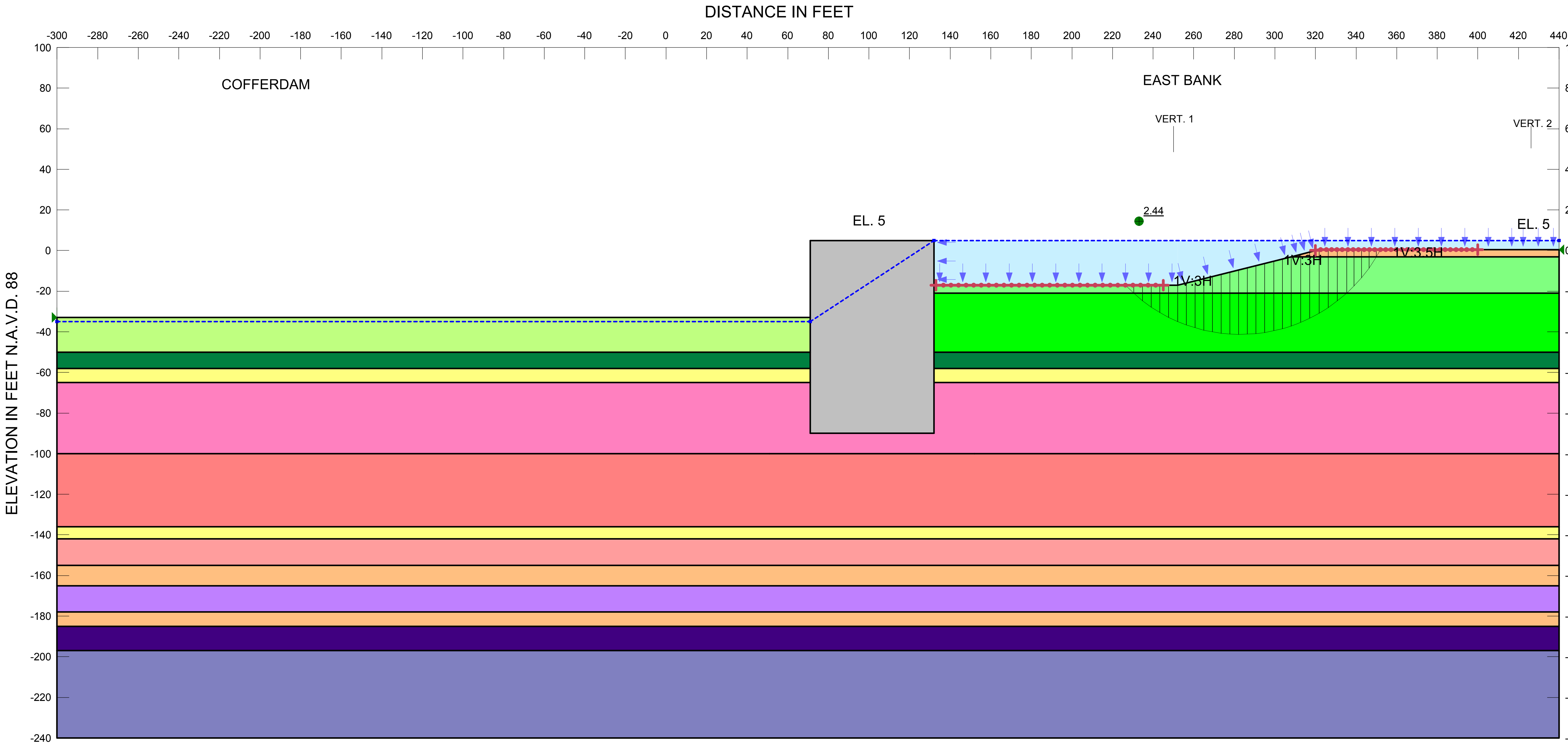
Eastern Cofferdam
Water EL +3.0
61 ft cell
Entry and Exit
Jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-8

Name: EE w jet grout
File Name: East bank coff el-33 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

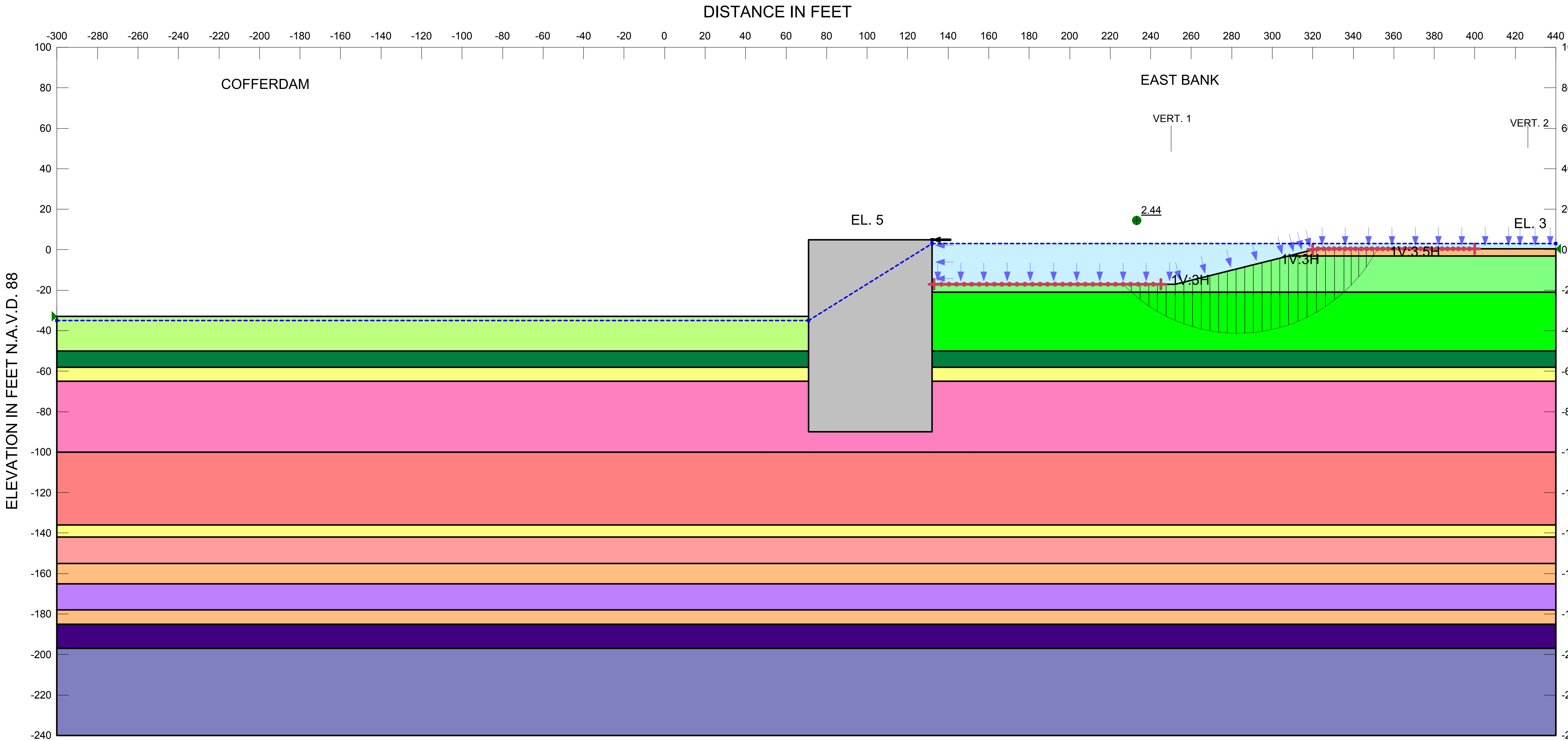
Eastern Cofferdam
Water EL +5.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-9

Name: EE no jet grout (slope in channel check)
File Name: East bank coff el-33_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -21.0 TO -50.0 EAST BANK Model: Spatial Mohr-Coulomb Unit Weight: 100 pcf Cohesion Spatial Fn: CH EL. -21.0 TO -50.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -100 to -136 Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 EAST BANK Model: Mohr-Coulomb Unit Weight: 95 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Spatial Fn: CH EL. -50 TO -58.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -165 to -178 Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -100.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -65 to -100 Cohesion Fn: CH -65 to -100 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -142 to -155 Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -27.5 TO -50.0 CHANNEL Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL -185.0 TO -197.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -185 to -240 Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Piezometric Line: 1
Name: CELL Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Piezometric Line: 1

Impact Load Coordinate: (132, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS feasability study

Eastern Cofferdam
Water EL +3.0
61 ft cell
Entry and Exit
No jet grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX C-10

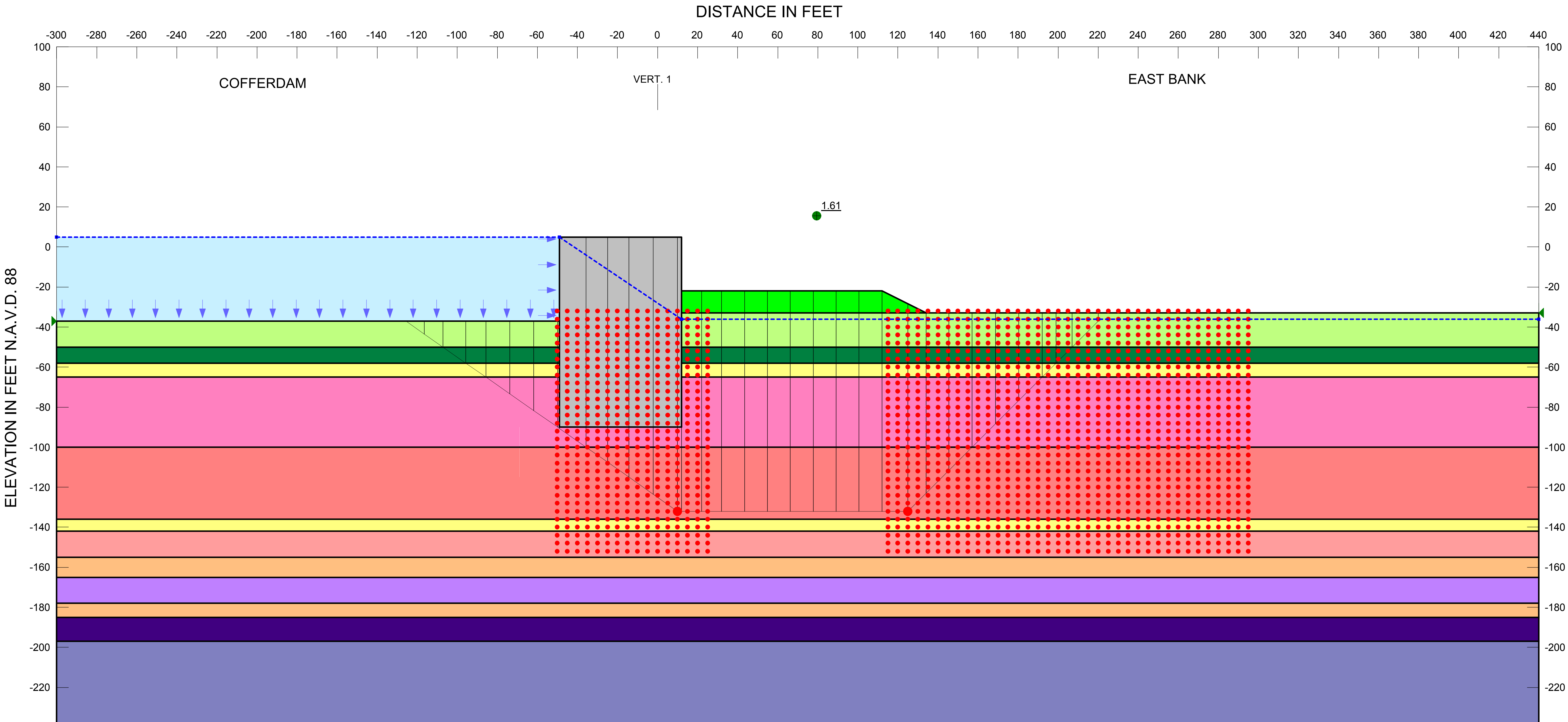
Name: EE no jet grout (slope in channel check)
File Name: East bank coff el-33 160k_new channel EL.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE

US Army Corps of Engineers
New Orleans District

APPENDIX D:

Global Stability Excavation EL -33.0 South Cofferdam



Use Passive Mode: Yes

Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 140 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

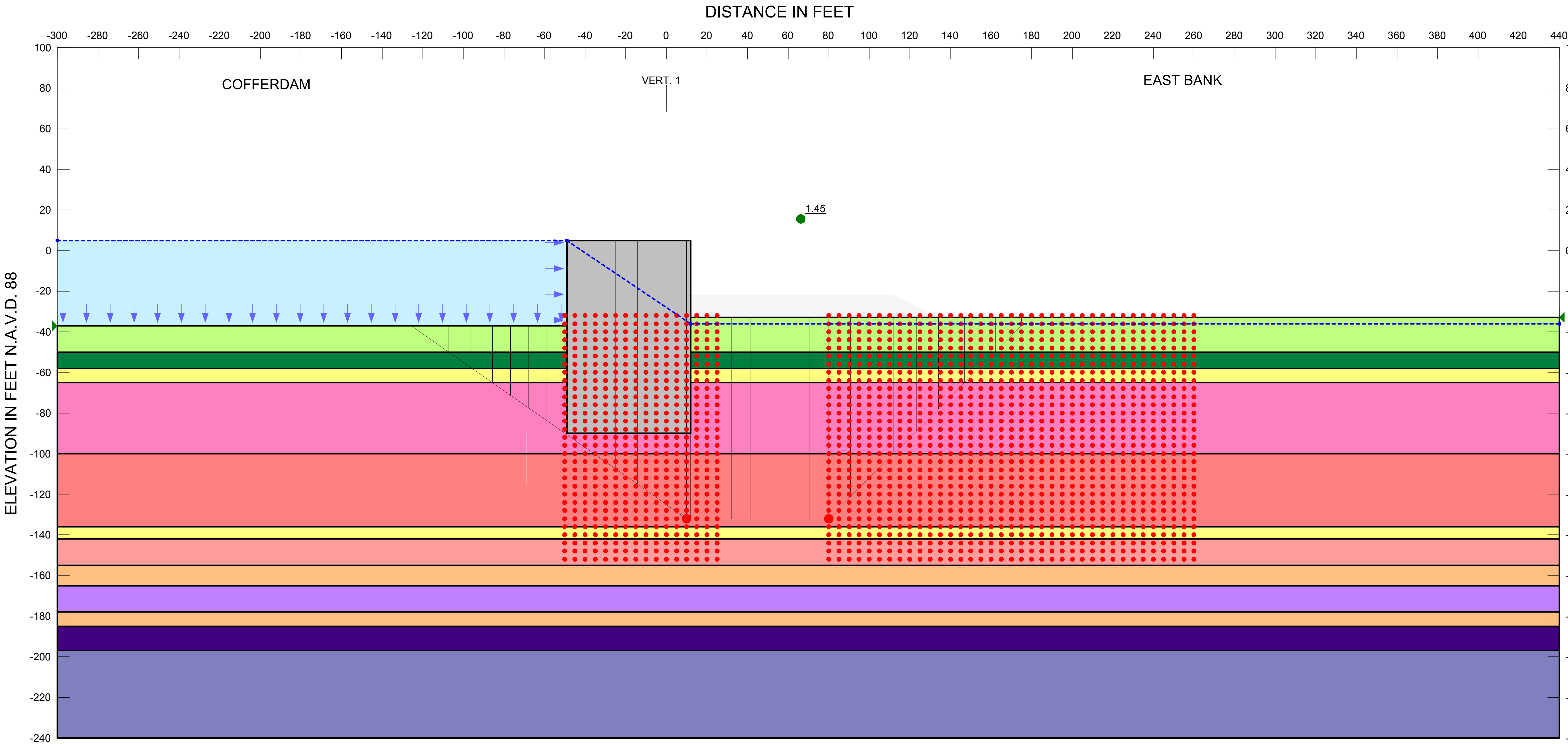
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-1

Name: Block no jet grout
File Name: South coff el-33 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

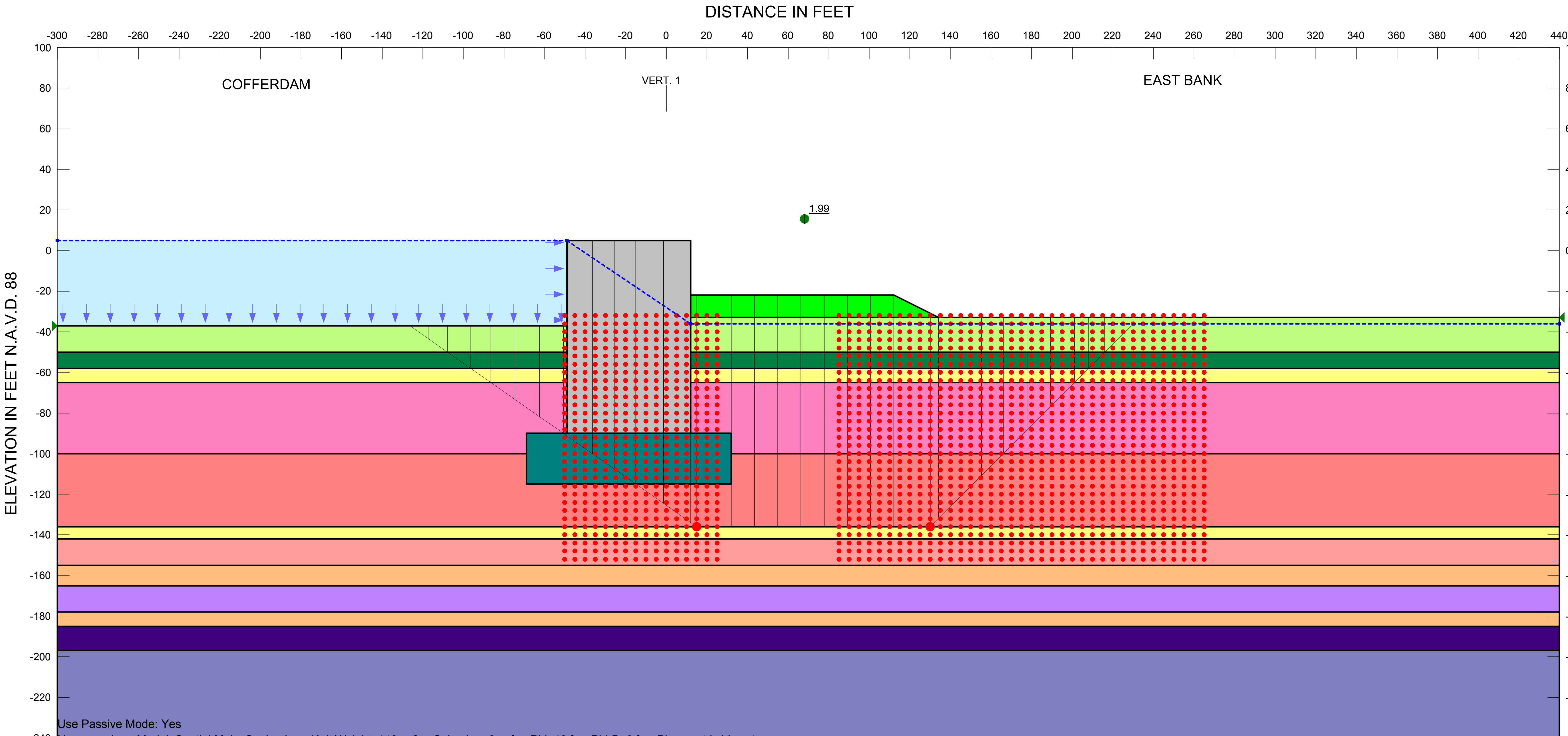
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE - APPENDIX D-2

Name: Block no jet grout (no rock)
File Name: South coff el-33 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Name: rock   Model: Spatial Mohr-Coulomb   Unit Weight: 140 pcf   Cohesion: 0 psf   Phi: 40 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -100 TO -136   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 1200 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -197.0 TO -240.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0   Model: Spatial Mohr-Coulomb   Unit Weight: 108 pcf   Cohesion: 600 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -165.0 TO -178.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -65.0 to -100.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 900 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -142.0 TO -155.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: ML   Model: Mohr-Coulomb   Unit Weight: 117 pcf   Cohesion: 200 psf   Phi: 15 °   Phi-B: 0 °   Piezometric Line: 1
Name: SM   Model: Mohr-Coulomb   Unit Weight: 122 pcf   Cohesion: 0 psf   Phi: 30 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel   Model: Mohr-Coulomb   Unit Weight: 98 pcf   Cohesion: 200 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL -185 to -197   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -185.0 TO -197.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: jet grouted soil zone   Model: Mohr-Coulomb   Unit Weight: 120 pcf   Cohesion: 3500 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: cell   Model: Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 10000 psf   Phi: 45 °   Phi-B: 0 °   Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

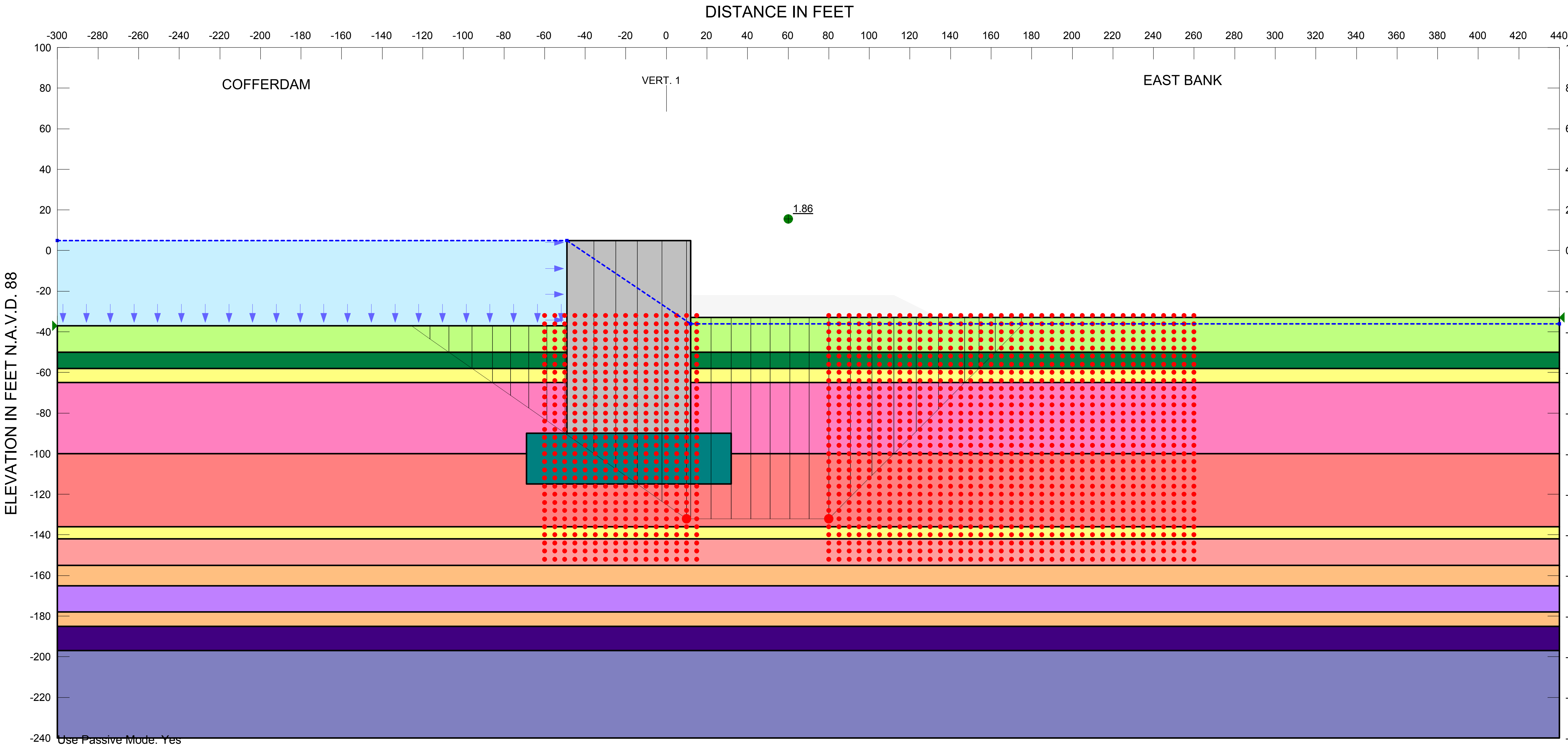
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-3

Name: Block w jet grout
File Name: South coff el-33 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

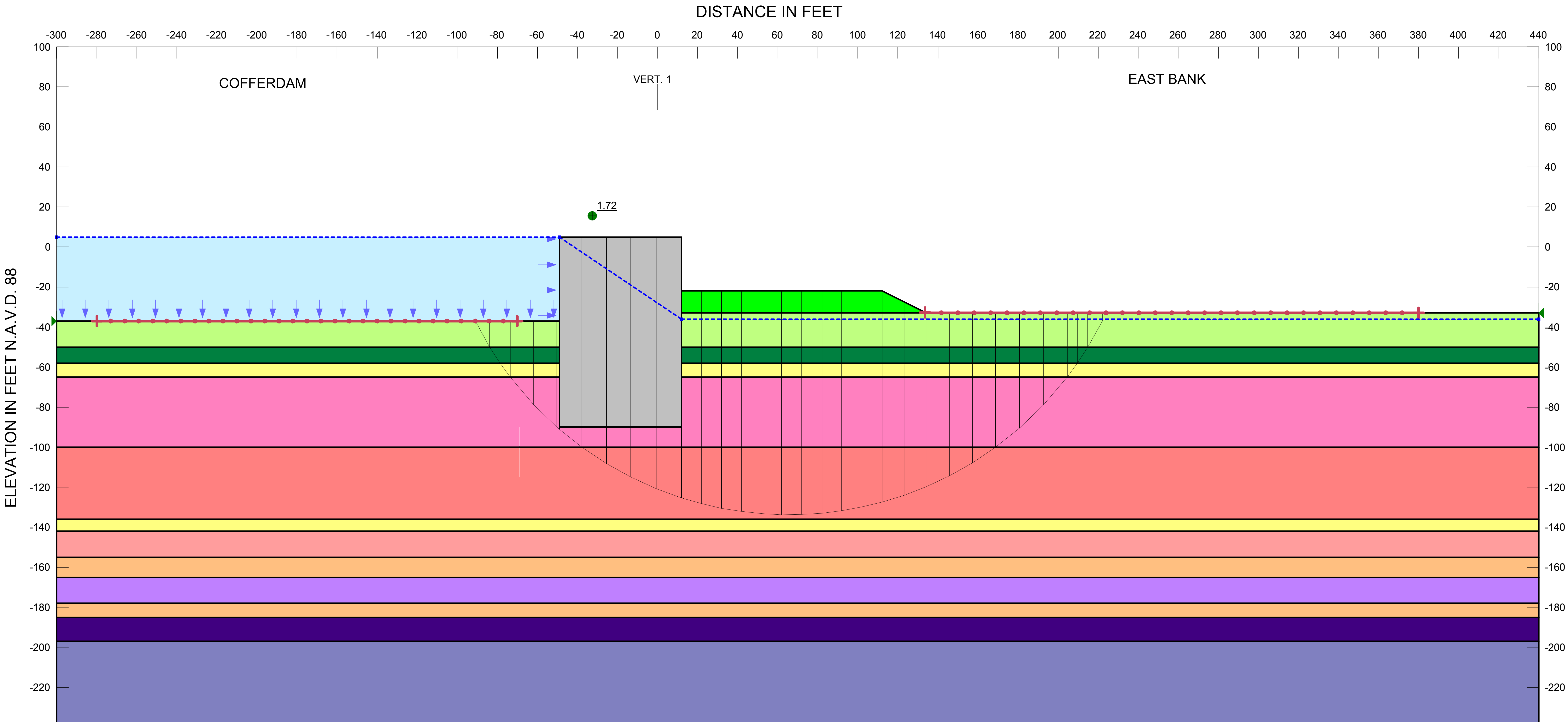
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-4

Name: Block w jet grout (no rock)
File Name: South coff el-33 - Channel.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 140 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

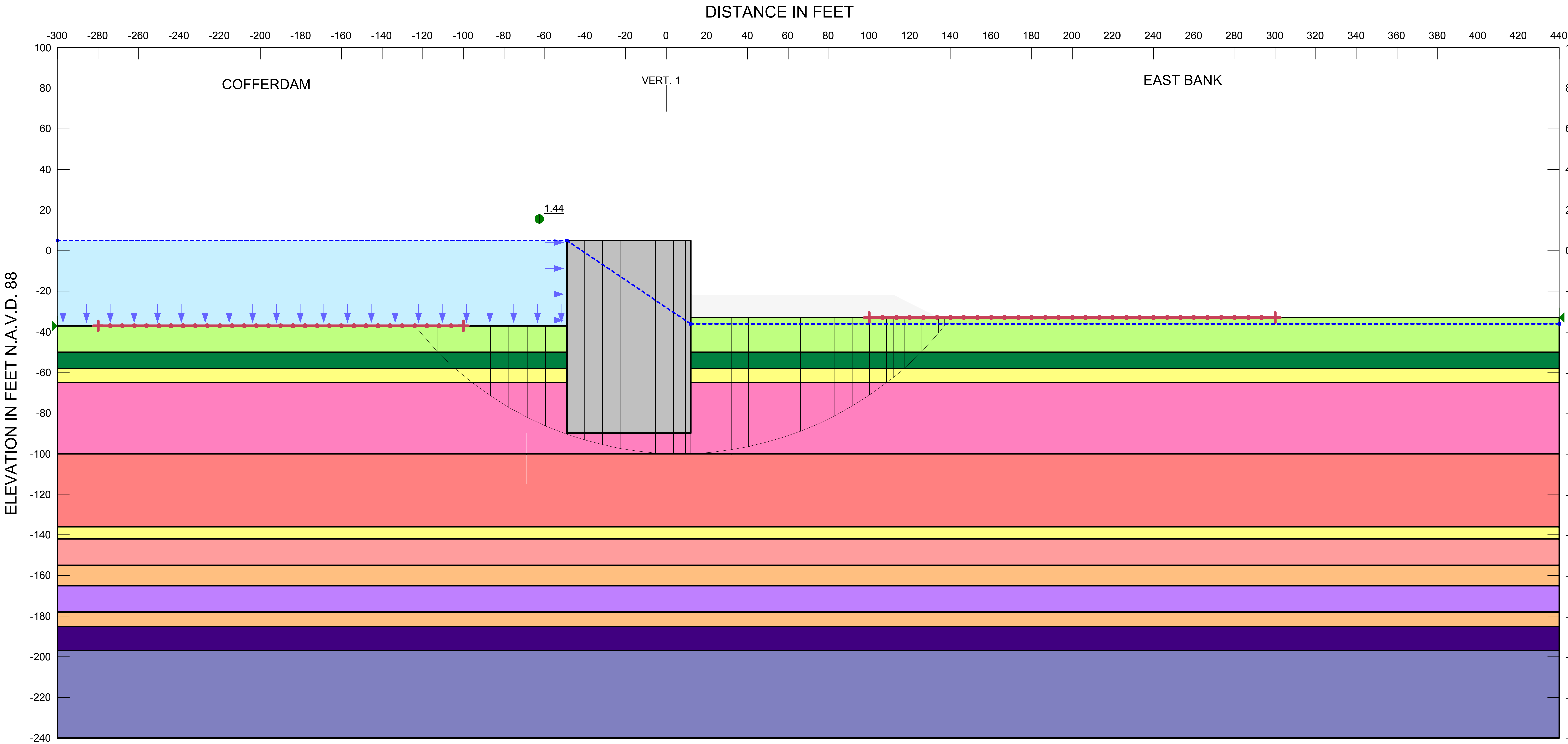
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-5

Name: EE no jet grout
File Name: South coff el-33 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

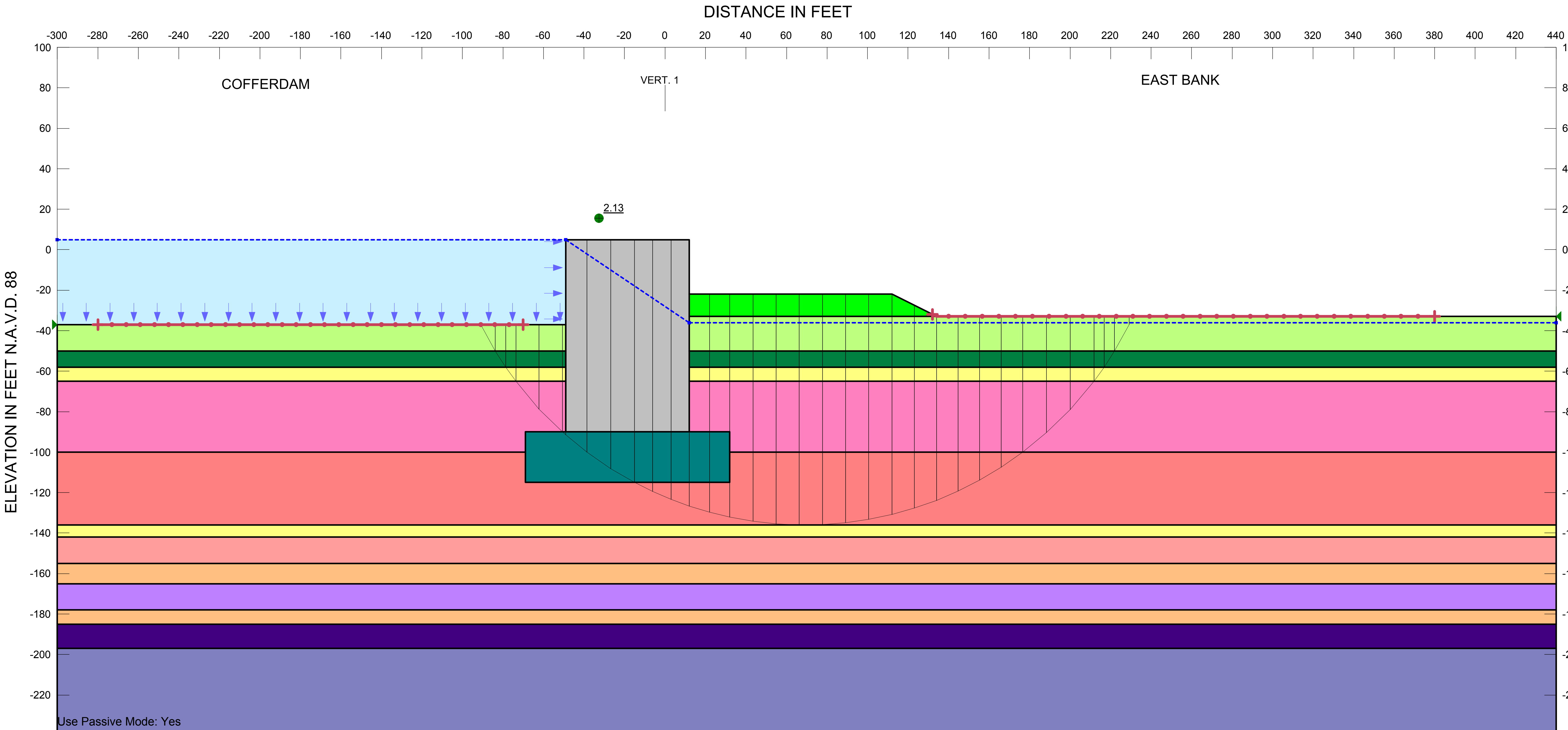
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-6

Name: EE no jet grout (no rock)
File Name: South coff el-33 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 140 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

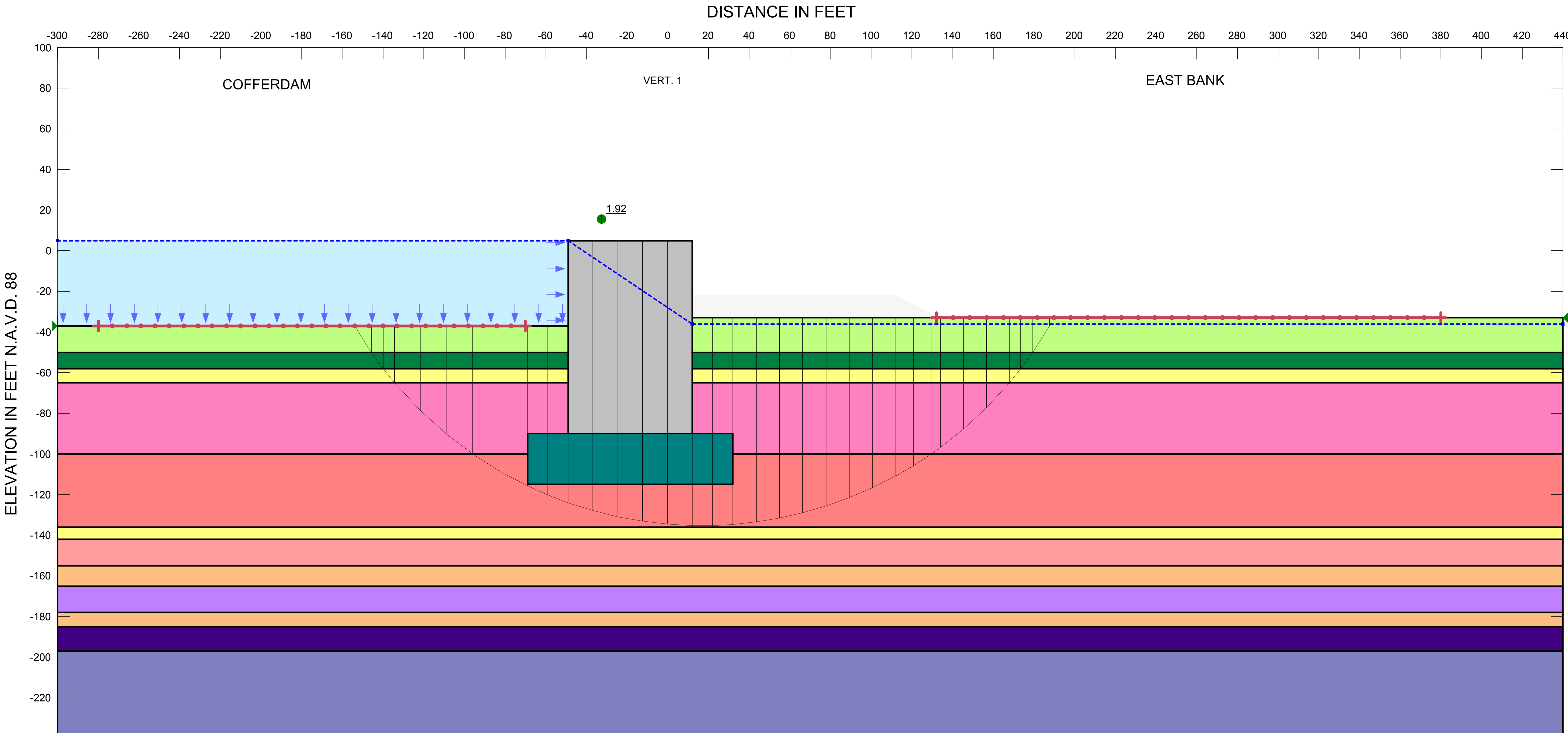
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-7

Name: EE w jet grout
File Name: South coff el-33 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

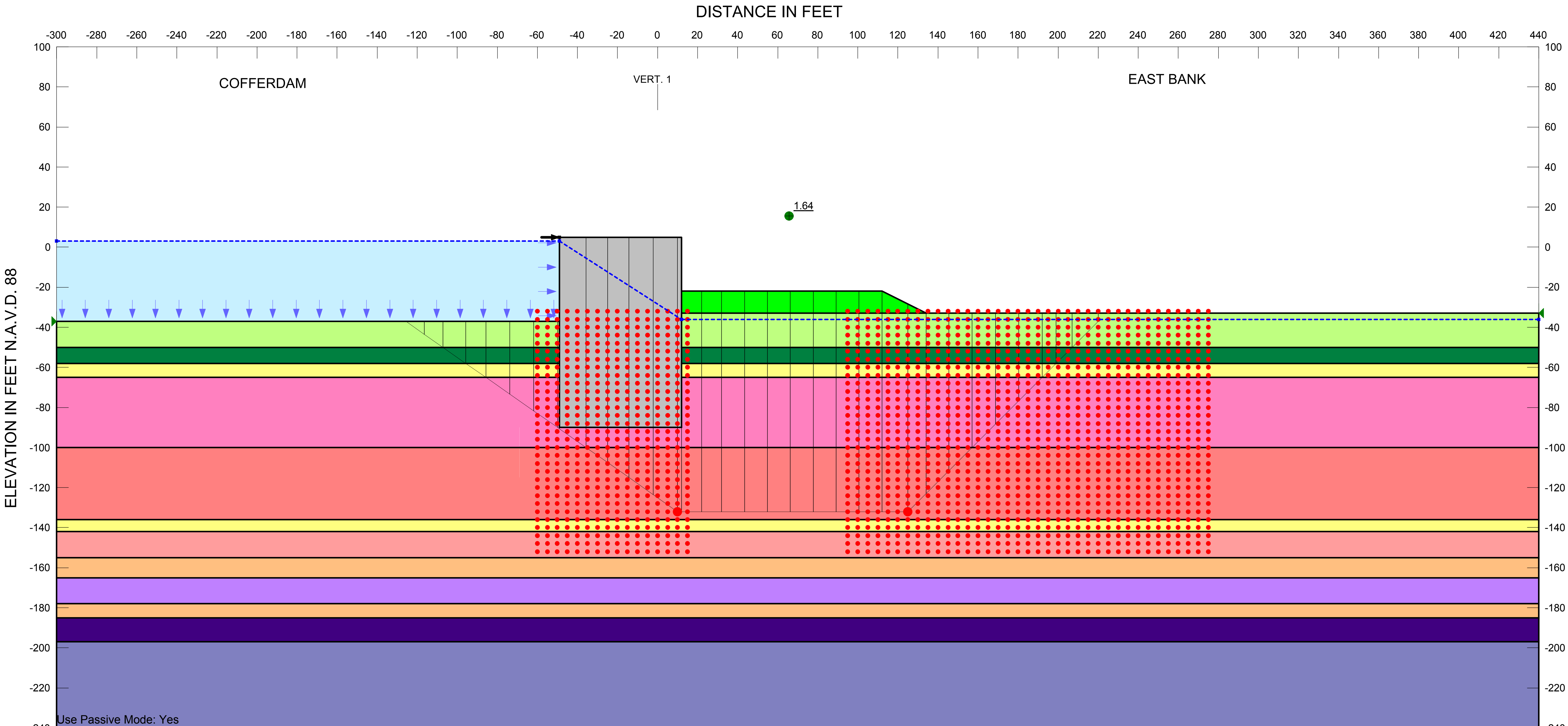
North and South Cofferdam
Water EL +5.0
Excavation at EL -33
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-8

Name: EE w jet grout (no rock)
File Name: South coff el-33 - Channel.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 140 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

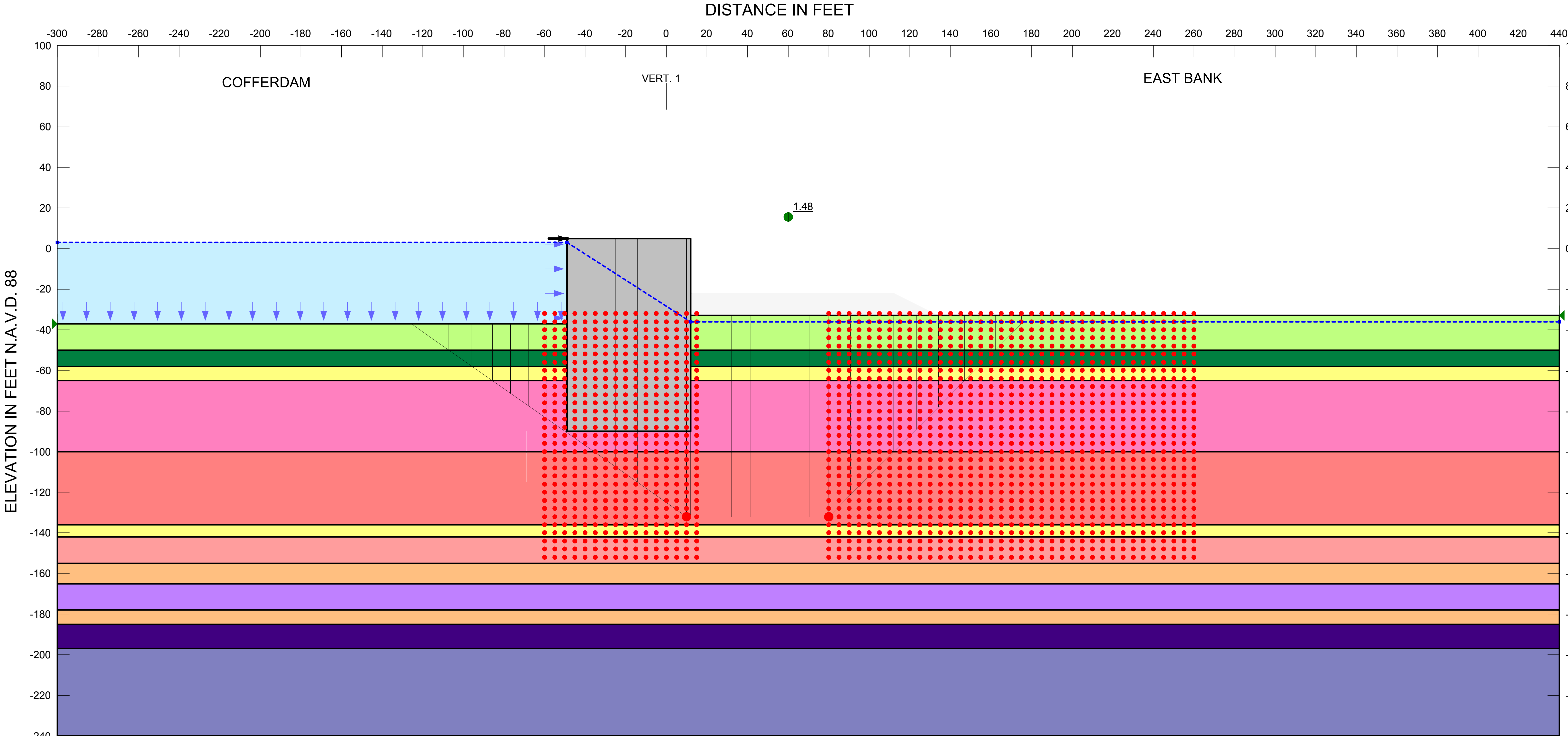
North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-9

Name: Block no jet grout
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

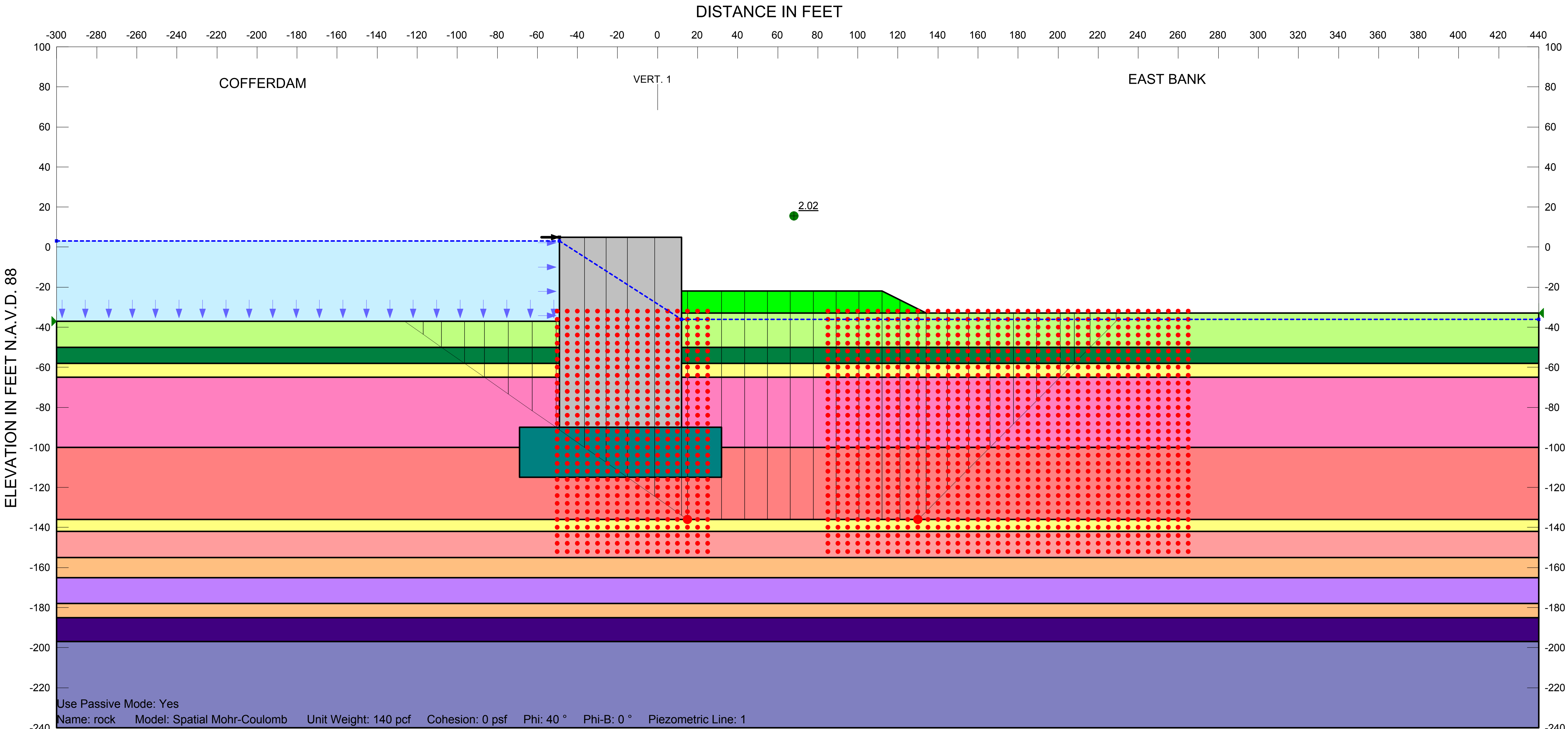
North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Block Search
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-10

Name: Block no jet grout (no rock)
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Use Passive Mode: Yes

Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 140 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

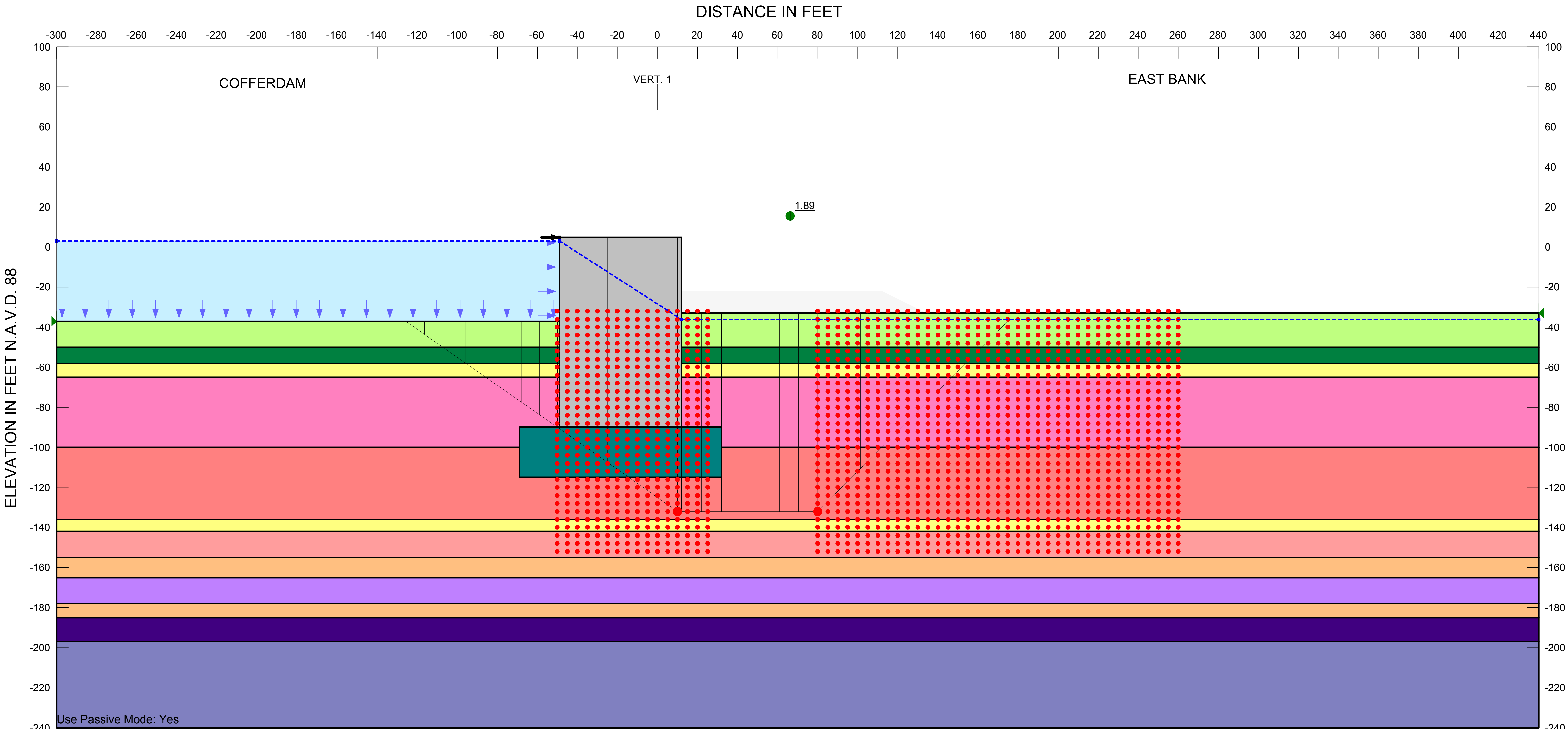
Inner Harbor
Navigational Canal
TRS Feasibility Study

North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-11

Name: Block w jet grout
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)



Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

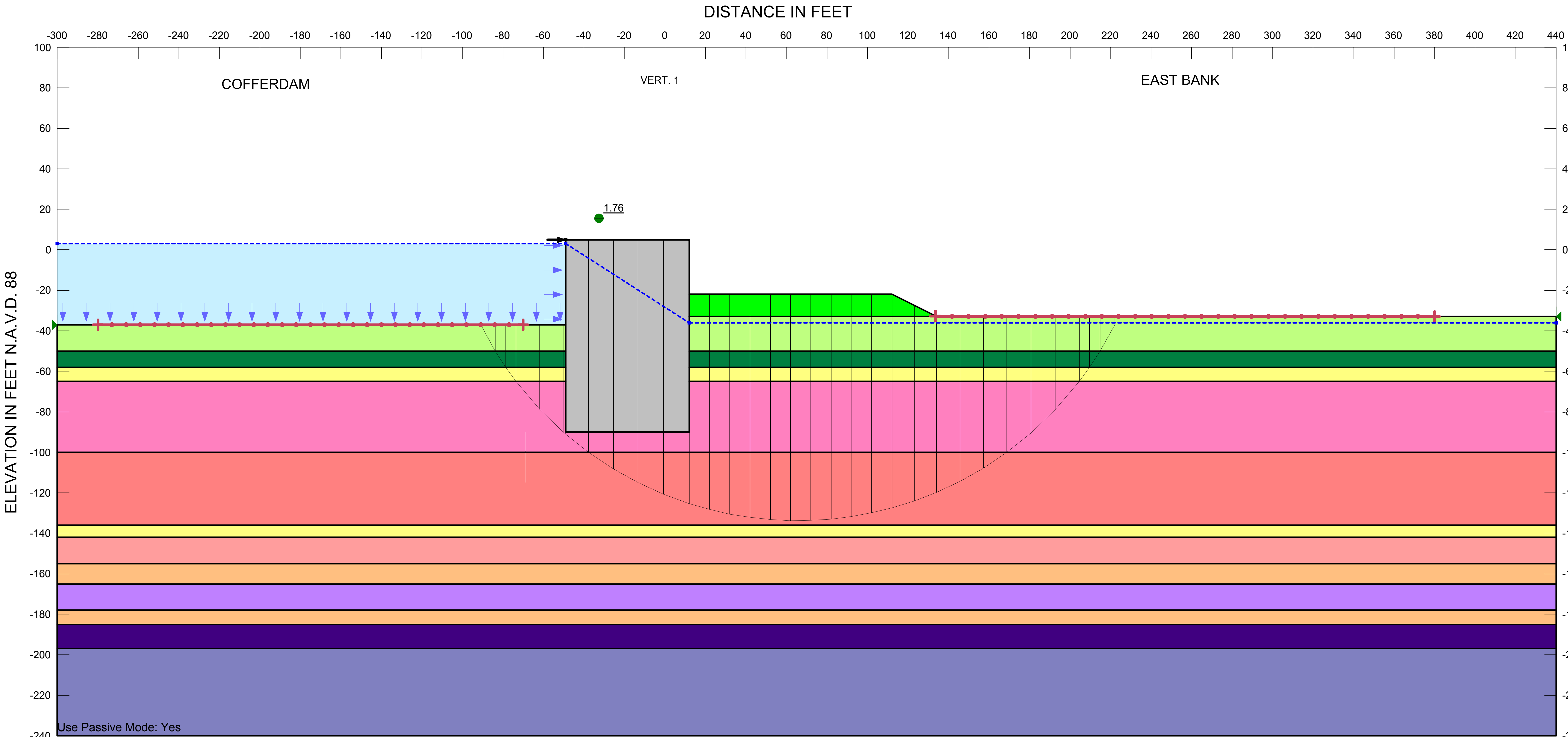
North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Block Search
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-12

Name: Block w jet grout (no rock)
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Alrahahleh, Hashim I CIV USARMY CEMVN (US)

LWL-EE



Name: rock   Model: Spatial Mohr-Coulomb   Unit Weight: 140 pcf   Cohesion: 0 psf   Phi: 40 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -100 TO -136   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 1200 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -197.0 TO -240.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0   Model: Spatial Mohr-Coulomb   Unit Weight: 108 pcf   Cohesion: 600 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -165.0 TO -178.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -65.0 to -100.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 900 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -142.0 TO -155.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: ML   Model: Mohr-Coulomb   Unit Weight: 117 pcf   Cohesion: 200 psf   Phi: 15 °   Phi-B: 0 °   Piezometric Line: 1
Name: SM   Model: Mohr-Coulomb   Unit Weight: 122 pcf   Cohesion: 0 psf   Phi: 30 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel   Model: Mohr-Coulomb   Unit Weight: 98 pcf   Cohesion: 200 psf   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: CH EL -185 to -197   Model: Spatial Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion Spatial Fn: CH EL. -185.0 TO -197.0   Phi: 0 °   Phi-B: 0 °   Piezometric Line: 1
Name: cell   Model: Mohr-Coulomb   Unit Weight: 115 pcf   Cohesion: 10000 psf   Phi: 45 °   Phi-B: 0 °   Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft   Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

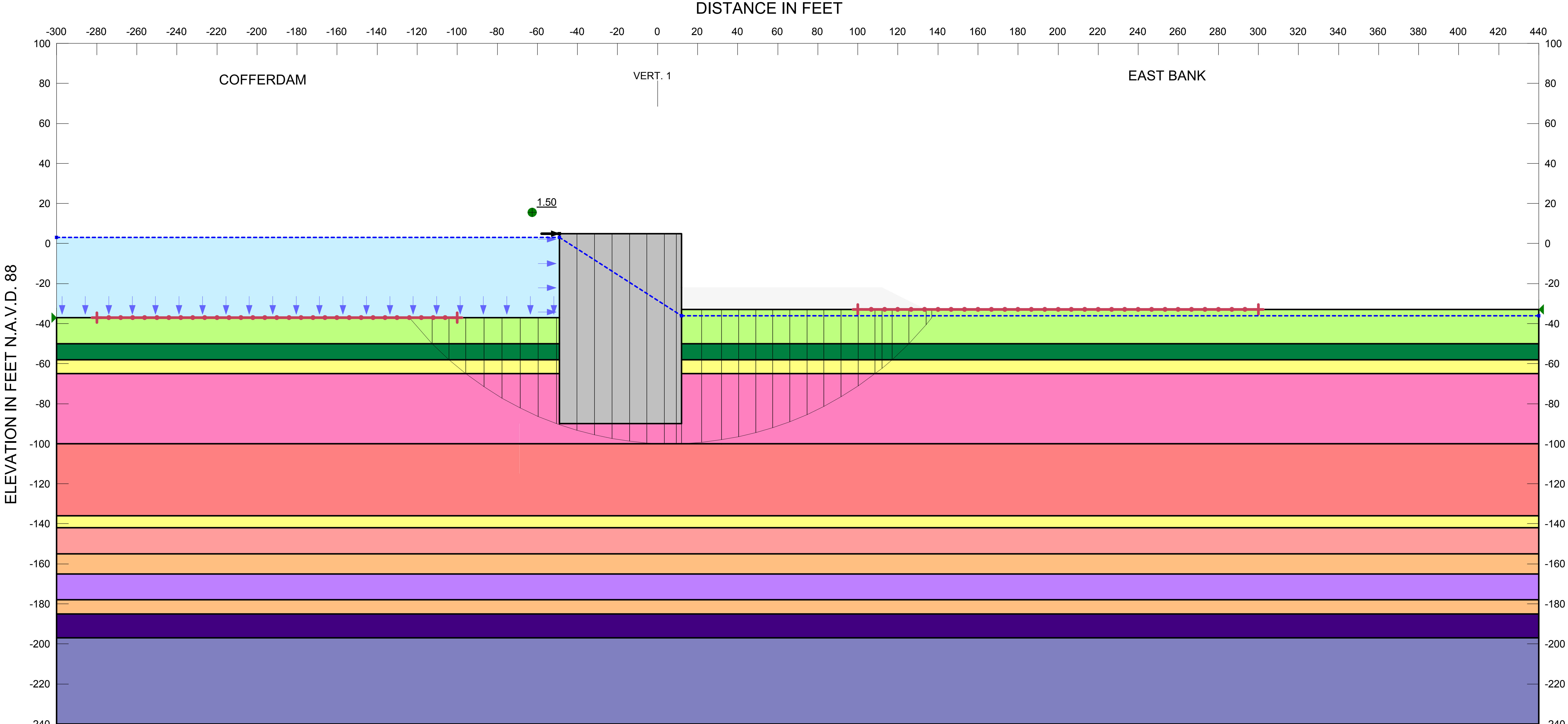
North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-13

Name: EE no jet grout
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes

Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1

Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1

Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

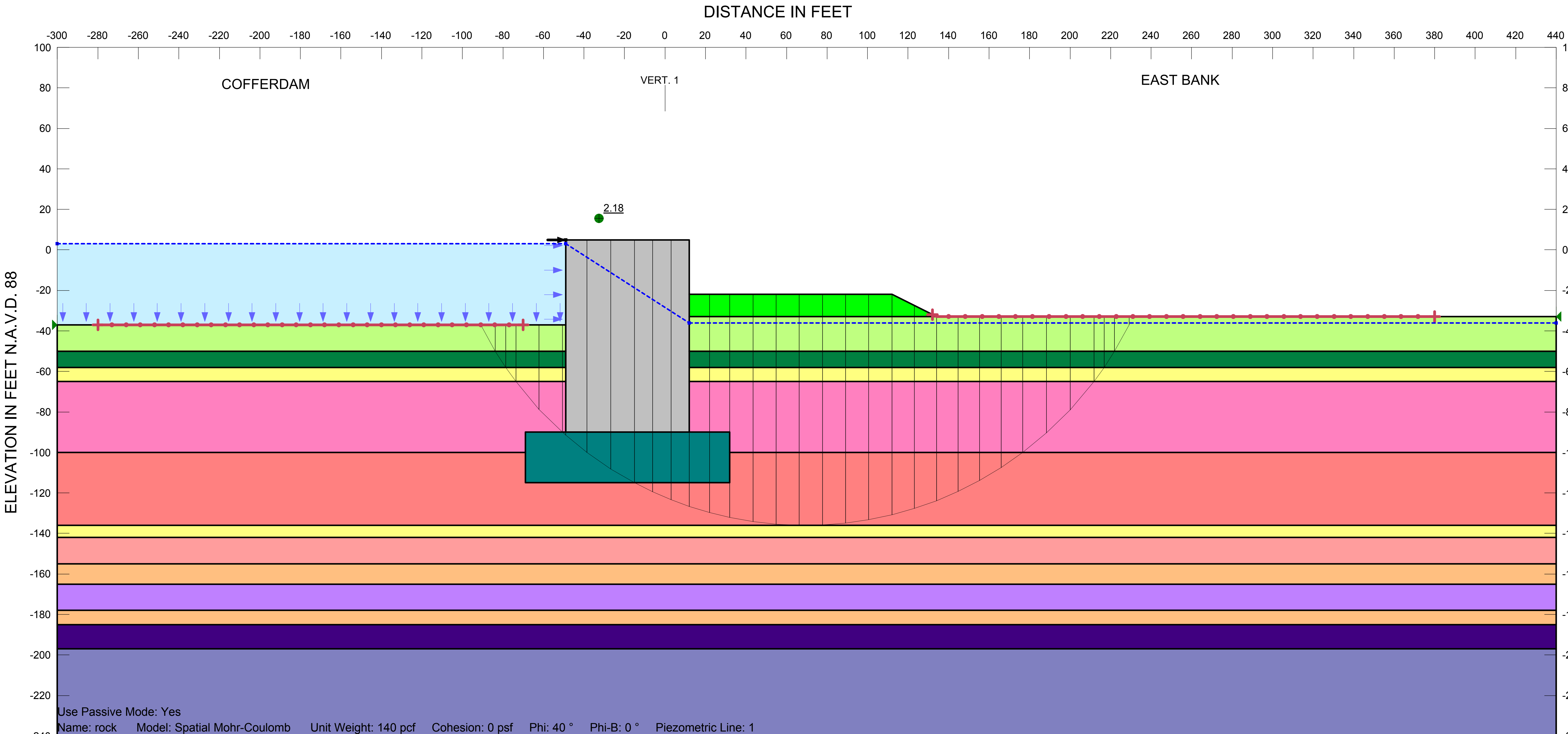
North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Entry and Exit
No Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-14

Name: EE no jet grout (no rock)
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Use Passive Mode: Yes
Name: rock Model: Spatial Mohr-Coulomb Unit Weight: 140 pcf Cohesion: 0 psf Phi: 40 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

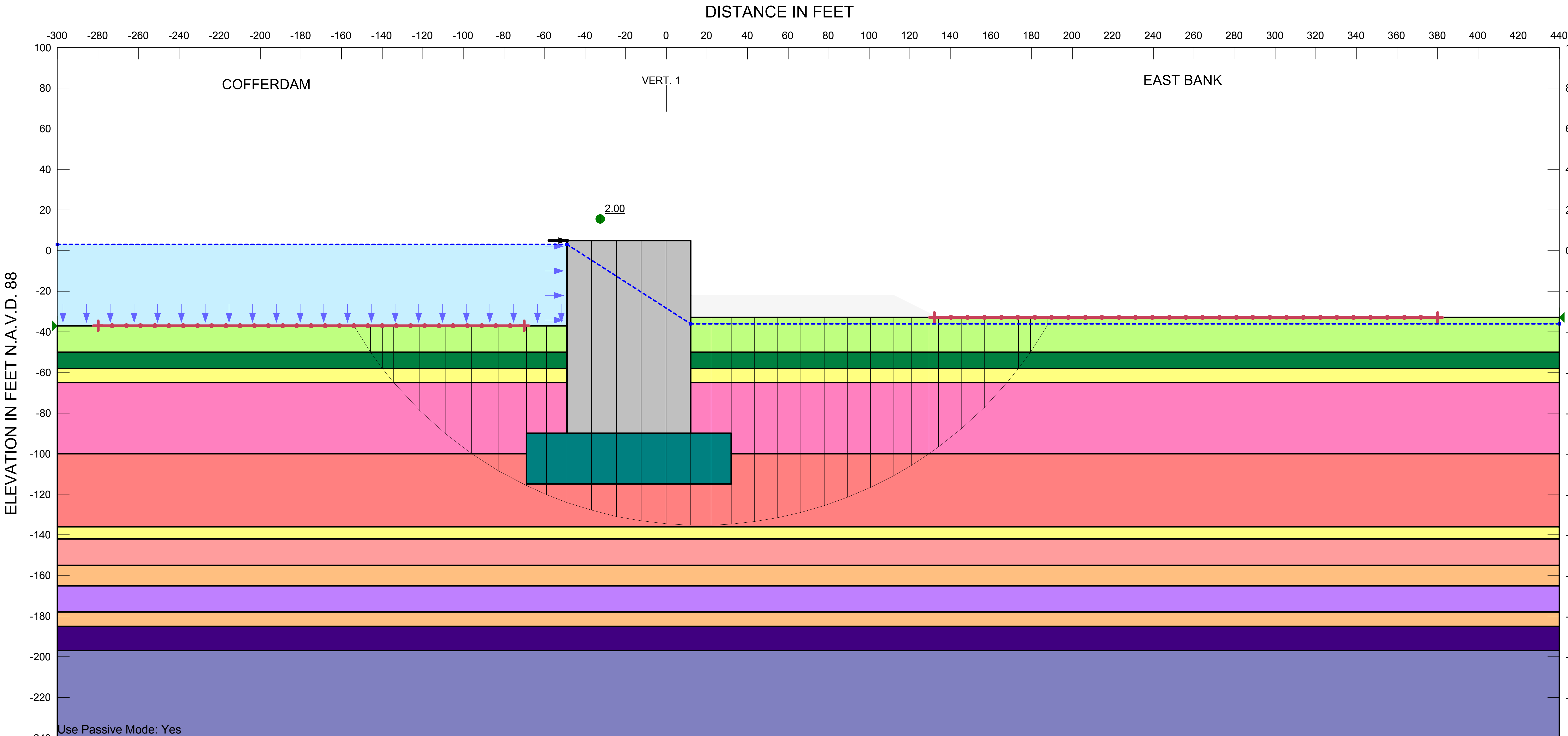
North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-15

Name: EE w jet grout
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE



Name: CH EL. -100 TO -136 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 1200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -197.0 TO -240.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -197.0 TO -240.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Unit Weight: 108 pcf Cohesion: 600 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -165.0 TO -178.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -165.0 TO -178.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 to -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 900 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. -142.0 TO -155.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -142.0 TO -155.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: ML Model: Mohr-Coulomb Unit Weight: 117 pcf Cohesion: 200 psf Phi: 15 ° Phi-B: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL. ground TO -50.0 channel Model: Mohr-Coulomb Unit Weight: 98 pcf Cohesion: 200 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: CH EL -185 to -197 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Spatial Fn: CH EL. -185.0 TO -197.0 Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: jet grouted soil zone Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion: 3500 psf Phi: 0 ° Phi-B: 0 ° Piezometric Line: 1
Name: cell Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion: 10000 psf Phi: 45 ° Phi-B: 0 ° Piezometric Line: 1

Impact Load Coordinate: (-49, 5) ft Magnitude: 2600 lbs

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasibility Study

North and South Cofferdam
Water EL +3.0
Excavation at EL -33
61 ft cell
Entry and Exit
Jet Grout

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE - APPENDIX D-16

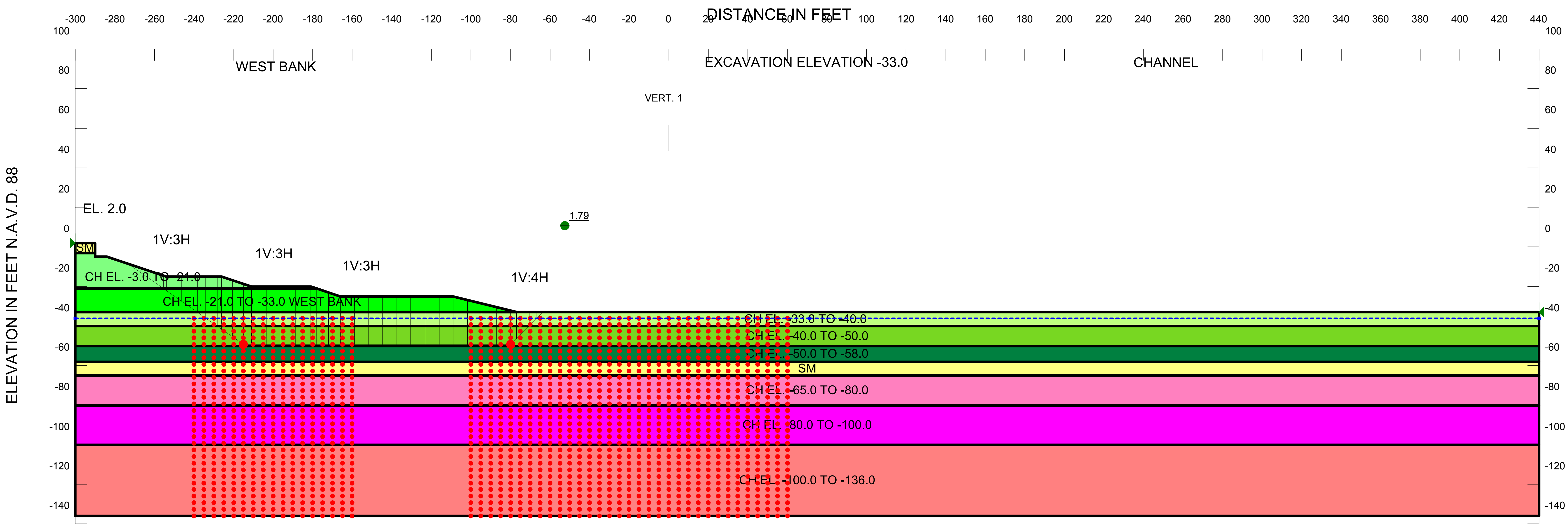
Name: EE w jet grout (no rock)
File Name: South coff el-33 - Channel - 160 k.gsz
Last Edited By: Middleton, Mark C MVN

LWL-EE

US Army Corps of Engineers
New Orleans District

APPENDIX E:

West Bank Stability Excavation EL-33.0



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

ENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasability Study

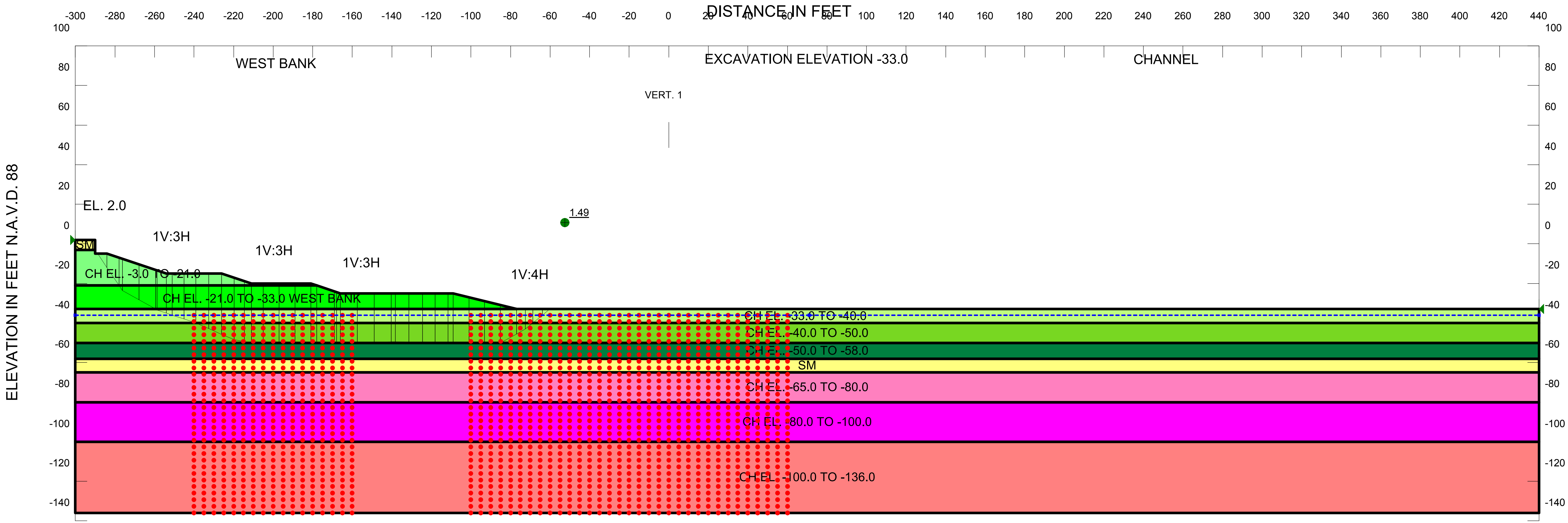
Eastern Cofferdam
Excavation at EL -33
61 ft Cell
Block Search

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE APPENDIX E1

Name: Block search non-optimized
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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

Inner Harbor
Navigational Canal
TRS Feasability Study

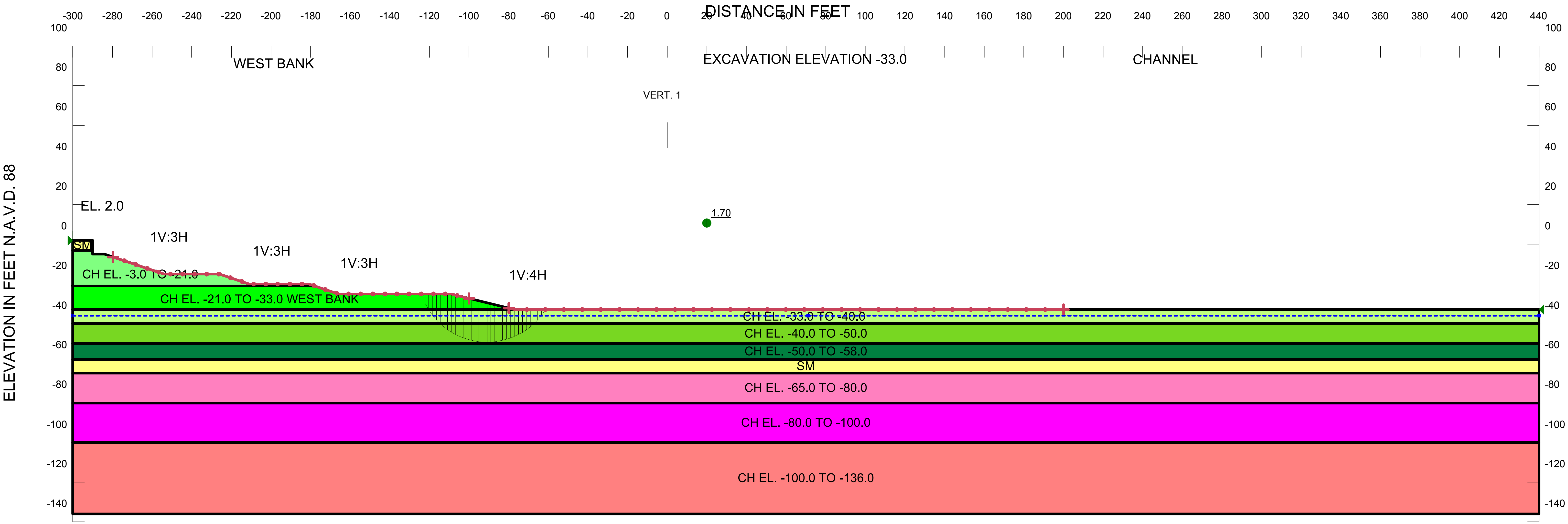
Eastern Cofferdam
Excavation at EL -33
61 ft Cell
Block Search

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE APPENDIX E2

Name: Block search optimized
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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

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Inner Harbor
Navigational Canal
TRS Feasability Study

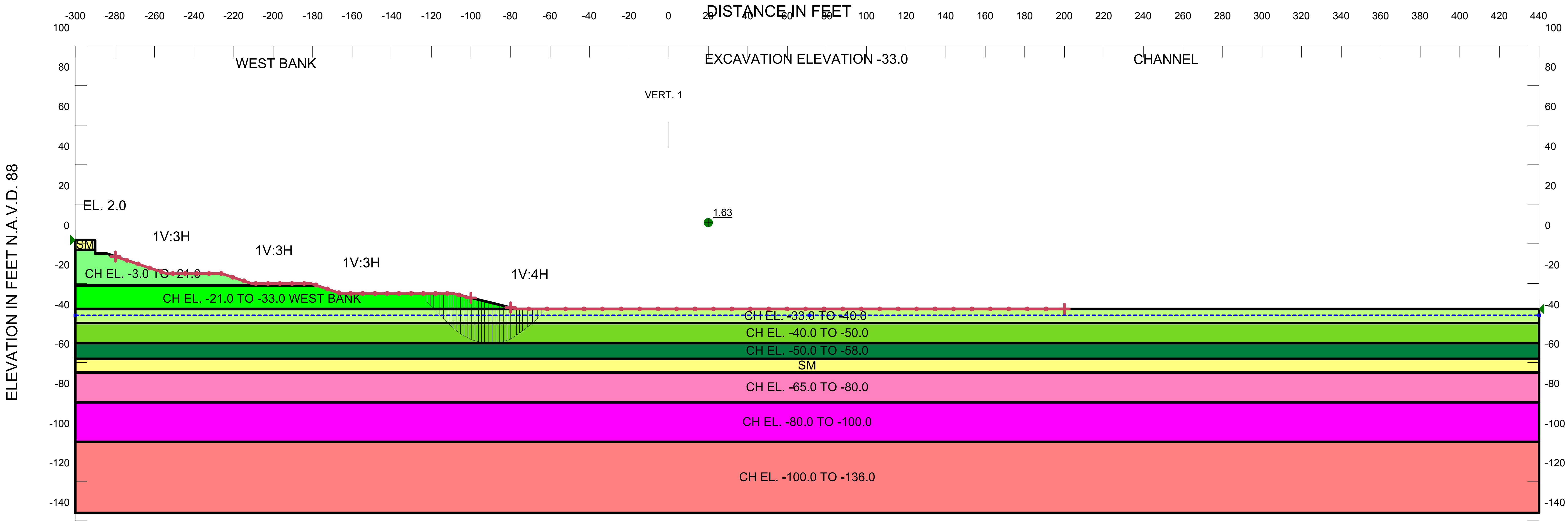
Eastern Cofferdam
Excavation at EL -33
61 ft Cell
Entry and Exit

US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE APPENDIX E3

Name: EE search non-optimized
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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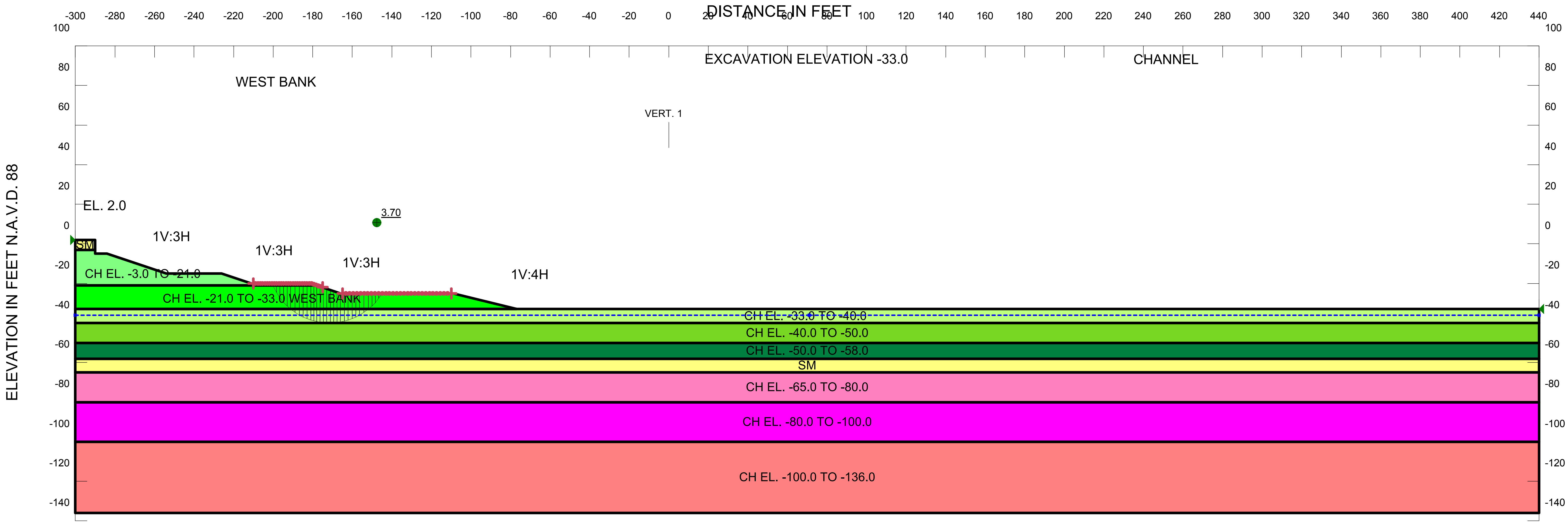
PLATE/FIGURE APPENDIX E4

Name: EE search optimized
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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Excavation at EL -33
61 ft Cell
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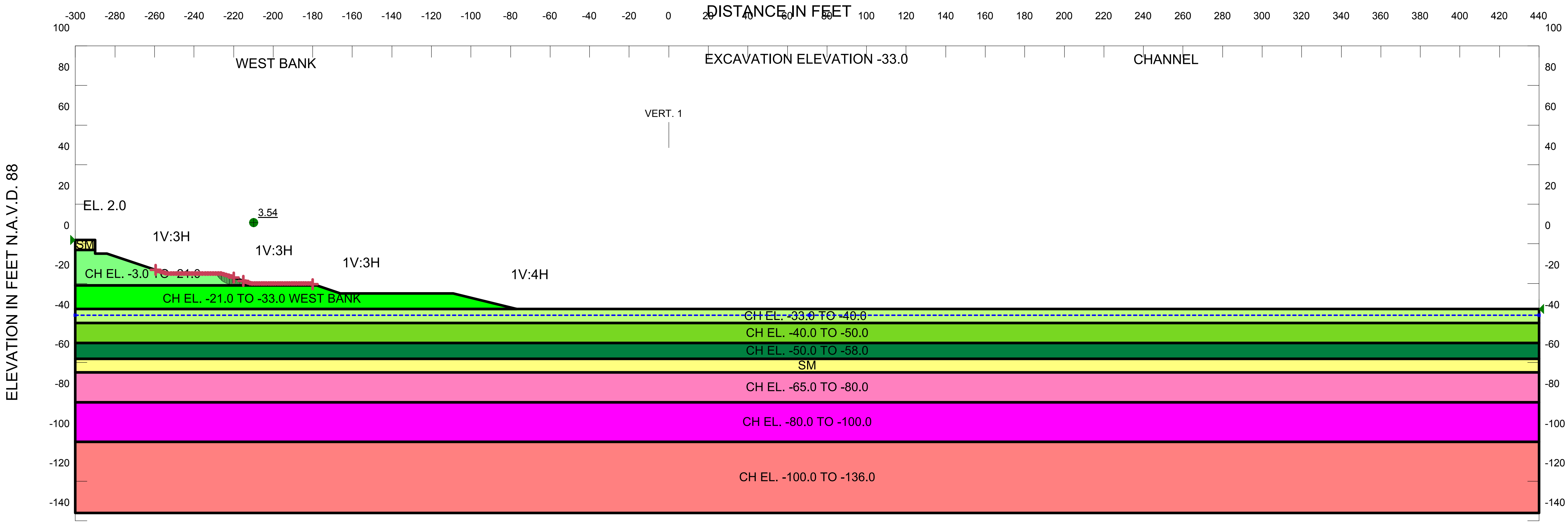
US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE APPENDIX E5

Name: EE search non-optimized (lower slope)
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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Eastern Cofferdam
Excavation at EL -33
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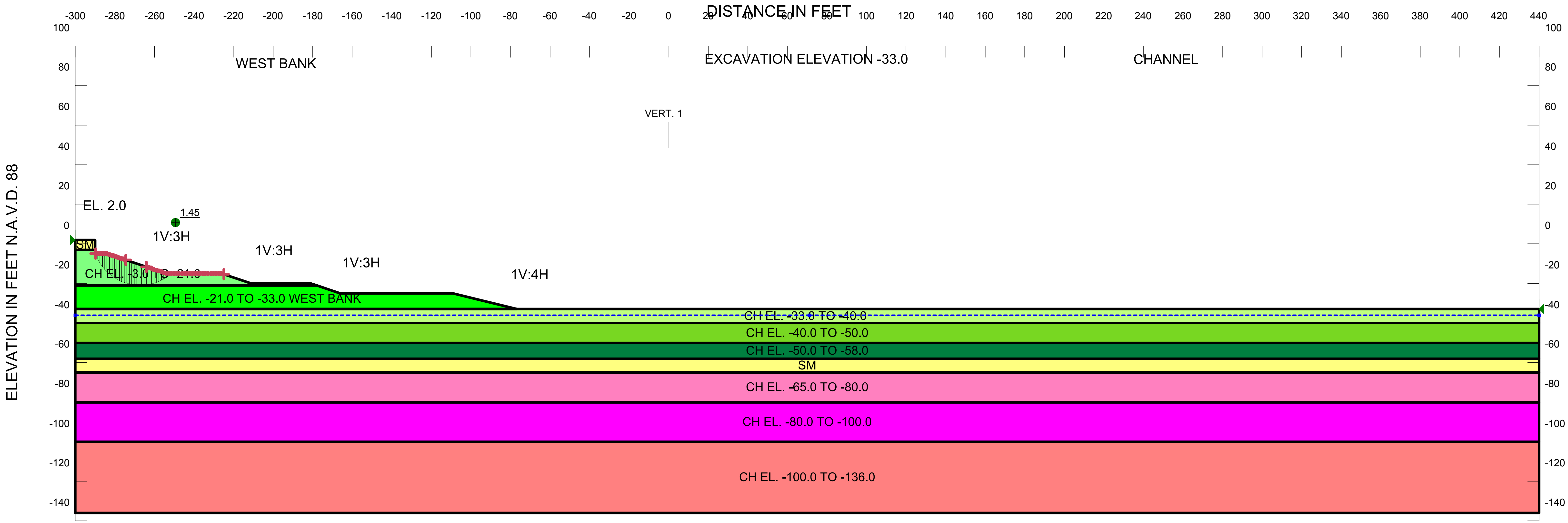
US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE APPENDIX E6

Name: EE search non-optimized (middle slope)
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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Eastern Cofferdam
Excavation at EL -33
61 ft Cell
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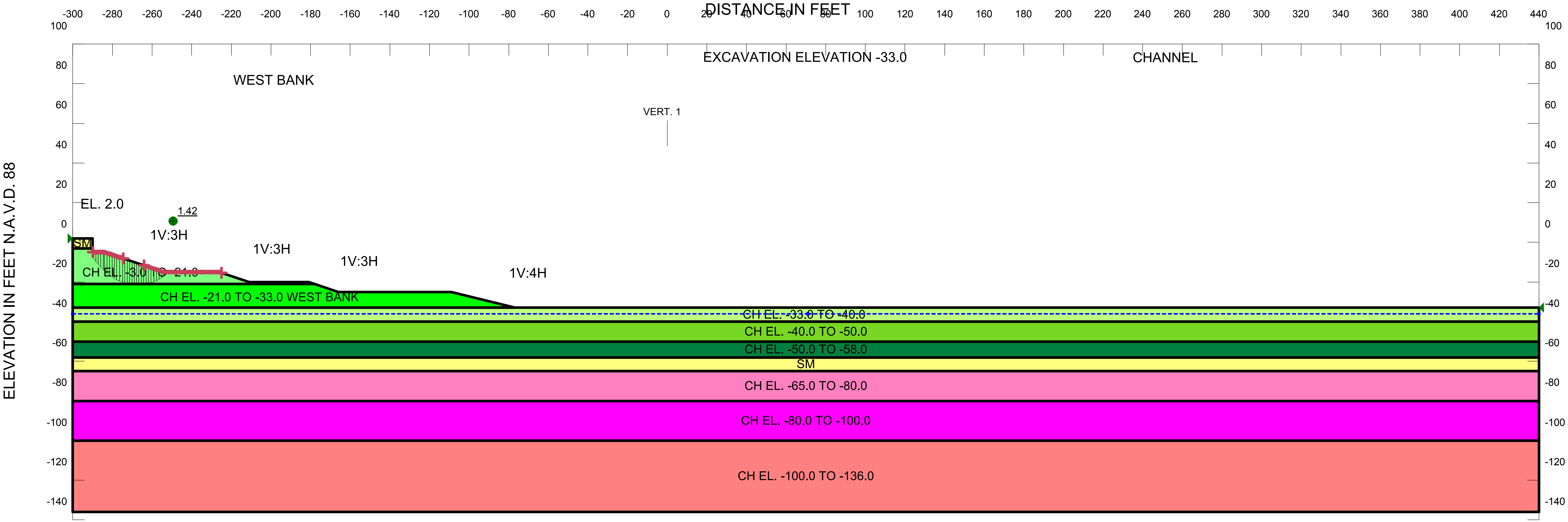
US Army Corps of Engineers®
New Orleans District

PLATE/FIGURE APPENDIX E7

Name: EE search non-optimized (upper slope)
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE



Name: CH EL. -21.0 TO -33.0 WEST BANK Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 400 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -100.0 TO -136.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -100 to -136 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -3.0 TO -21.0 Model: Mohr-Coulomb Unit Weight: 100 pcf Cohesion: 215 psf Phi: 0 ° Piezometric Line: 1
Name: CH EL. -50.0 TO -58.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -50 to -58 Cohesion Fn: CH -50 to -58 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -65.0 TO -80.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -65 to -80 Phi: 0 ° Piezometric Line: 1
Name: SM Model: Mohr-Coulomb Unit Weight: 122 pcf Cohesion: 0 psf Phi: 30 ° Piezometric Line: 1
Name: CH EL. -33.0 TO -40.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -33 to -40 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -40.0 TO -50.0 Model: Spatial Mohr-Coulomb Weight Fn: CH -33 to -50 Cohesion Fn: CH -40 to -50 Phi: 0 ° Piezometric Line: 1
Name: CH EL. -80.0 TO -100.0 Model: Spatial Mohr-Coulomb Unit Weight: 115 pcf Cohesion Fn: CH -80 to -100 Phi: 0 ° Piezometric Line: 1

GENERAL NOTES

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Eastern Cofferdam
Excavation at EL -33
61 ft Cell
Entry and Exit

US Army Corps of Engineers
New Orleans District

PLATE/FIGURE APPENDIX E8

Name: EE search optimized (upper slope)
File Name: West bank coff el-33 - Copy.gsz
Last Edited By: Duthu, David E MVN

LWL-EE

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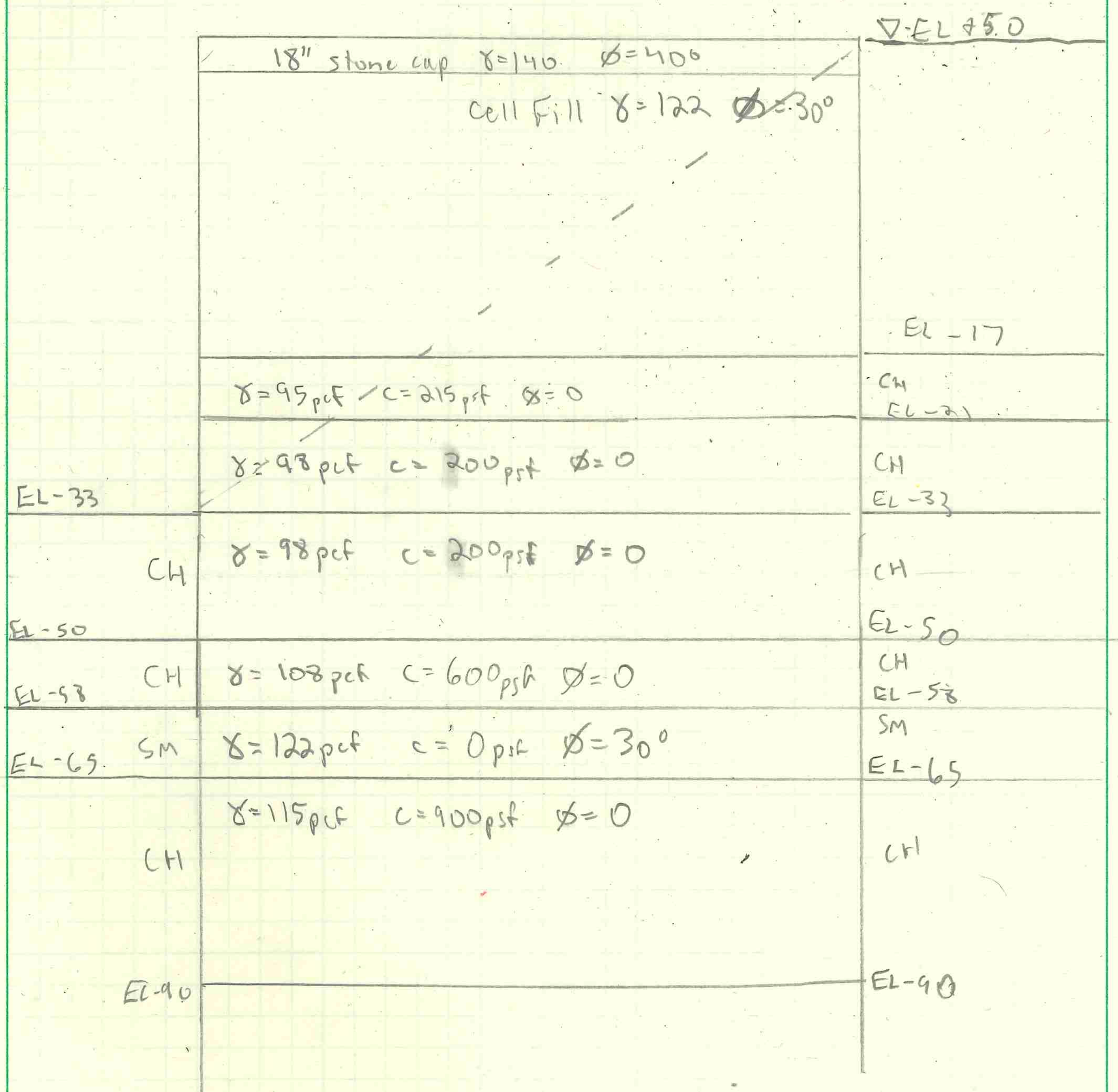
APPENDIX F:

Cofferdam Internal Stability Hand Calculations



∇ EL +5.0
18" stone cap γ=140 Ø=40°
Cell Fill γ=122 Ø=30°
EL -17
γ=95pcf c=215psf Ø=0
CH
EL -21
γ=98pcf c=200psf Ø=0
CH
EL -33
EL -33
CH
γ=98pcf c=200psf Ø=0
CH
EL -50
EL -50
CH
γ=108pcf c=600psf Ø=0
CH
EL -58
EL -58
SM
γ=122pcf c=0psf Ø=30°
SM
EL -65
EL -65
γ=115pcf c=900psf Ø=0
CH
CH
EL -90
EL -90

Cell Weight: $\gamma h A$

Stone Cap: $(140\text{pcf})(1.5')(\frac{\pi}{4}(61')^2)$

$= 613,717.97 \text{ lb.} = 613.7 \text{ k}$

Cell Fill: $(122-62.4)(10.25')(\frac{\pi}{4}(61')^2) = 1,785 \text{ k}$ (2922.5)

$(122\text{pcf})(10.25')(\frac{\pi}{4}(61')^2) = 3,655 \text{ k}$

½ wet/½ dry $5,440 \text{ k}$

all dry: 7320

In-Situ Soil: $(95-62.4)(4')(\frac{\pi}{4}(61')^2) = 381 \text{ k}$

$(98-62.4)(29')(\frac{\pi}{4}(61')^2) = 3,017.2 \text{ k}$

$(108-62.4)(8')(\frac{\pi}{4}(61')^2) = 1,066.1 \text{ k}$

$(122-62.4)(7')(\frac{\pi}{4}(61')^2) = 1,219.3 \text{ k}$

$(115-62.4)(25')(\frac{\pi}{4}(61')^2) = 3,843.1 \text{ k}$

$9,526.7 \text{ k}$

Sheet Pile:

EL 5 to EL -90

$(31 \text{ psf})(95')\pi(61')$

$= 564,371.4 \text{ lbs} = 564.4 \text{ k}$

Total Weight: $613.7 \text{k} + 5,440 \text{k} + 9,526.7 \text{k} + 564.4 \text{k}$

$= 16,144.1 \text{ k}$

or 18,014 k dry condition (most conservative estimate)

Rankine's Active Earth Pressure

At EL -21: $K_a = \tan^2(45 - \phi/2) = 1$

CH

$P_a = \gamma' h (K_a) - 2c\sqrt{K_a}$

$= (95 - 62.4\,pcf)(4')(1) - 2(215\,psf)\sqrt{1}$

$= -300$ no P_a

At EL -33: $K_a = 1$

CH

$P_a = [(95-62.4)(4') + (98-62.4)(12')](1) - 2(200\,psf)\sqrt{1}$

$= 157.6\,psf$ or $0.16\,ksf$

At EL -50: $K_a = 1$

CH

$P_a = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(17')](1) - 2(200\,psf)\sqrt{1}$

$= 762.8\,psf$ or $0.76\,ksf$

At EL -58: $K_a = 1$

CH

$P_a = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(17')$
$+ (108-62.4)(8')](1) - 2(600\,psf)\sqrt{1}$

$= 327.6\,psf$ or $0.33\,ksf$

At EL -65: $K_a = \tan^2(45 - \phi/2) = 0.33$

SM

$P_a = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(17')$
$+ (108-62.4)(8') + (122-62.4)(7')](0.33) - 2(0)\sqrt{0.33}$

$= 641.8\,psf$ or $0.64\,ksf$

At EL -90: $K_a = 1$

CH

$P_a = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(17')$
$+ (108-62.4)(8') + (122-62.4)(7') + (115-62.4)(25')](1)$
$-2(900\,psf)\sqrt{1} = 1459.8\,psf$ or $1.46\,ksf$

Water Pressure Active and Passive

Water Pressure for active side at EL +5

$$\left(\frac{1}{2}(62.4\,pcf)(95')^2\right) - \left(\frac{1}{2}(62.4\,pcf)(57')^2\right)$$

$= 281,580\text{ lb} - 101,369\text{ lb.}$

$= 180,211\text{ lb. or } 180.\text{ k net}$

Passive Water Pressure

$$\frac{1}{2}(62.4\,pcf)(57')^2 = 101,369\text{ lb or } 101.4K$$

Water Pressure for active side at EL +3

$$\left(\frac{1}{2}(62.4\,pcf)(93')^2\right) = 269.8K$$

Rankine's Active Earth Pressure elevations

$P_a = \gamma' h K_a - 2c\sqrt{K_a}$ $P_a = 0$, $h = ?$

P_a EL between -21 and -33

$0 = [(95 - 62.4\,pcf)(4') + (98 - 62.4)(h)](1) - 2(200\,psf)\sqrt{1}$

$h = 7.5$ EL $= -21 - 7.5 = -28.5$

P_a goes from -28.5 to -33

P_a EL between -33 and -50

$0 = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(h)](1) - 2(200\,psf)\sqrt{1}$

$h \approx 4.5$ EL $= -33 - 4.5 = -37.5$

P_a goes from -37.5 to -50

P_a EL between -50 and -58

$0 = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(17') + (108-62.4)(h)](1)$
$- 2(600\,psf)\sqrt{1} \Rightarrow h \approx 1$ EL $= -50 - 1 = -51$

P_a goes from -51 to -58

P_a EL between -65 and -90

$0 = [(95-62.4)(4') + (98-62.4)(12') + (98-62.4)(17') + (108-62.4)(8')$
$+ (122-62.4)(7') + (115-62.4)(h)](1) - 2(900\,psf)\sqrt{1}$

$h \approx 3$ EL $= -65 - 3 = -68$

P_a goes from -68 to -90

SM P_a from EL -58 to EL -65

Rankine's Passive Earth Pressure:

$K_p = \tan^2(45 + \phi/2) = 1$ for clay and 3 for sand

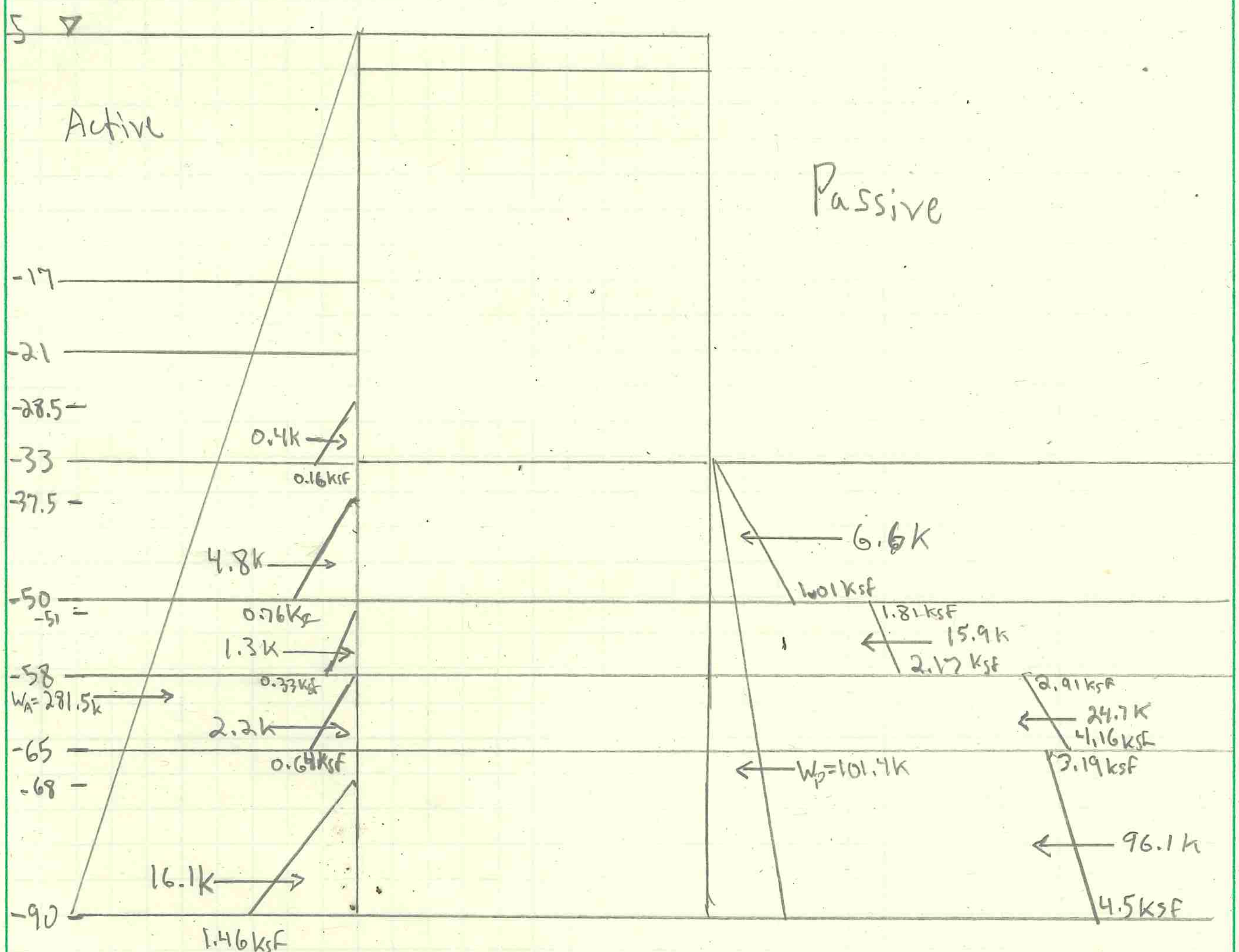
At EL -33: $p_p = \gamma' h K_p + 2c\sqrt{K_p} = 0$
$= 0 + 0$

At EL -50: $P_p = [(98 - 62.4_{pcf})(17')](1) + 2(200psf)\sqrt{(1)}$
$= 1005$ psf or 1.01 ksf above
$P_p = [(98 - 62.4_{pcf})(17')](1) + 2(600_{psf})\sqrt{(1)}$
$= 1805$ psf or 1.81 ksf below

At EL -58: $P_p = [(98-62.4)(17') + (108-62.4)(8')](1) + 2(600psf)\sqrt{(1)}$
$= 2170$ psf or 2.17 ksf above
$P_p = [(98-62.4)(17') + (108-62.4)(8')](3) + 2(0)\sqrt{3}$
$= 2910$ psf or 2.91 ksf below

At EL -65: $P_p = [(98-62.4)(17') + (108-62.4)(8') + (122-62.4)(7')](3)$ (605.2, 364.8, 417.2)
$+ 2(0)\sqrt{3}$
$= 4162$ psf or 4.16 ksf above
$P_p = [(98-62.4)(17') + (108-62.4)(8') + (122-62.4)(7')](1)$
$+ 2(900)\sqrt{1}$
$= 3187$ psf or 3.19 ksf below

At EL -90: $P_p = [(98-62.4)(17') + (108-62.4)(8') + (122-62.4)(7')$
$+ (115-62.4)(25')](1) + 2(900)\sqrt{(1)}$
$= 4502$ psf or 4.5 ksf


5 ▽
Active
Passive
-17
-21
-28.5
0.4k
0.16ksf
-33
-37.5
4.8k
0.76ksf
-50
-51
1.3k
0.33ksf
-58
WA=281.5k
2.2k
0.64ksf
-65
-68
16.1k
-90
1.46ksf
6.6k
1.01ksf
1.81ksf
15.9k
2.17ksf
2.91ksf
24.7k
4.16ksf
3.19ksf
Wp=101.4k
96.1k
4.5ksf

Overturning: $M_O = M_{impact} + M_{active}$

M_{active}: (Water EL +5)

$M_{WA} = (281.5k)(\frac{1}{3}(95')) = 8{,}914$ k-Ft. ← for water at EL +5.0

$M_{A_1} = (0.4k)(\frac{1}{3}(4.5') + 57') = 23.4$ k-Ft.

$M_{A_2} = (4.8k)(\frac{1}{3}(12.5') + 40') = 212$ k-Ft.

$M_{A_3} = (1.3k)(\frac{1}{3}(7') + 32') = 44.6$ k-Ft.

$M_{A_4} = (2.2k)(\frac{1}{3}(7') + 25') = 60.1$ k-Ft.

$M_{A_5} = (16.1k)(\frac{1}{3}(22')) = 118$ k-Ft.

$M_A = 9372$ k-Ft. for water at EL +5.0

For water at EL +3 + 160k impact

$M_{WA} = (269.8k)(\frac{1}{3}(93')) = 8{,}364$ k-Ft.

$M_{impact} = \left(\frac{160k}{61}\right)(95') = 249.2$ k-Ft.

$M_A = 8{,}364 + 249.2 = 8613$ k-Ft.

or M_{impact} for smaller diameter cell:

$M_{impact} = \left(\frac{160k}{54.75'}\right)(95') = 277.6$ k-Ft.

$M_A = 8{,}364 + 277.6 = 8{,}642$ k-Ft.

Use M_A at water EL = 5.0 for analyses as that is worst case.

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Overturning : $M_R = M_{weight} + M_{passive}$

$M_{passive}$: $M_{wp} = (101.4k)\left(\frac{1}{3}(57')\right) = 1927$ k-ft.

moment arm of passive forces

$h_{6.6k} = \frac{2(0) + 1.01\,ksf}{3(0 + 1.01\,ksf)}(17') + (90' - 50') = 45.7'$

$h_{15.9k} = \frac{2(1.81) + 2.17\,ksf}{3(1.81 + 2.17\,ksf)}(8') + (90' - 58') = 35.9'$

$h_{24.7k} = \frac{2(2.91) + 4.16\,ksf}{3(2.91 + 4.16\,ksf)}(7') + (90' - 65') = 28.3'$

$h_{96.1k} = \frac{2(3.19) + 4.5\,ksf}{3(3.19 + 4.5\,ksf)}(25') = 11.8'$

$M_{passive} = 6.6k(45.7') + 15.9k(35.9') + 24.7k(28.3')$
$+ 96.1k(11.8') + 1927$ k-ft.
$= 4,632$ k-ft.

M_{weight} (For 61' diameter cell) $= (16,144\,k)\left(\frac{61'}{2}\right) = 492,392$ k-ft

M_{weight} (For 54.75' d cell) $= (13,053k)\left(\frac{54.75'}{2}\right) = 357,326$ k-ft.

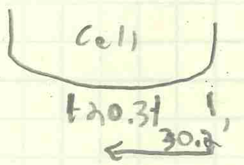
Check eccentricity of both cell diameters.

eccentricity of 61' diameter cell:

$$M = M_{weight} + M_{passive} - M_{active}$$

$$= 492{,}392 \text{ k-ft.} + 4632 \text{ k-ft} - 9372 \text{ k-ft} = 487{,}652 \text{ k-ft}$$

$$\frac{M}{W} = \frac{487{,}652 \text{ k-ft}}{16{,}144 \text{ k}} = 30.2' \quad \frac{B}{3} = \frac{61}{3} = 20.3$$

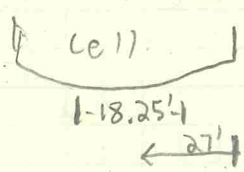


* inside kern by 10'

eccentricity of 54.75' diameter cell:

$$M = 357{,}326 \text{ k-ft} + 4{,}632 \text{ k-ft} - 9372 \text{ k-ft} = 352{,}586 \text{ k-ft}$$

$$\frac{M}{W} = \frac{352{,}586 \text{ k-ft}}{13{,}053 \text{ k}} = 27' \quad \frac{B}{3} = \frac{54.75}{3} = 18.25'$$



* inside kern by 8.75'

Either option is good for moment.

Sliding:

$$F.o.S. = \frac{\sum W \tan\phi + \sum P_p + cL}{\sum P_i + \sum P_a}$$

$P_i = 0$ since checking water at EL 45

$W \tan\phi = 0$, because $\phi = 0$ for clay.

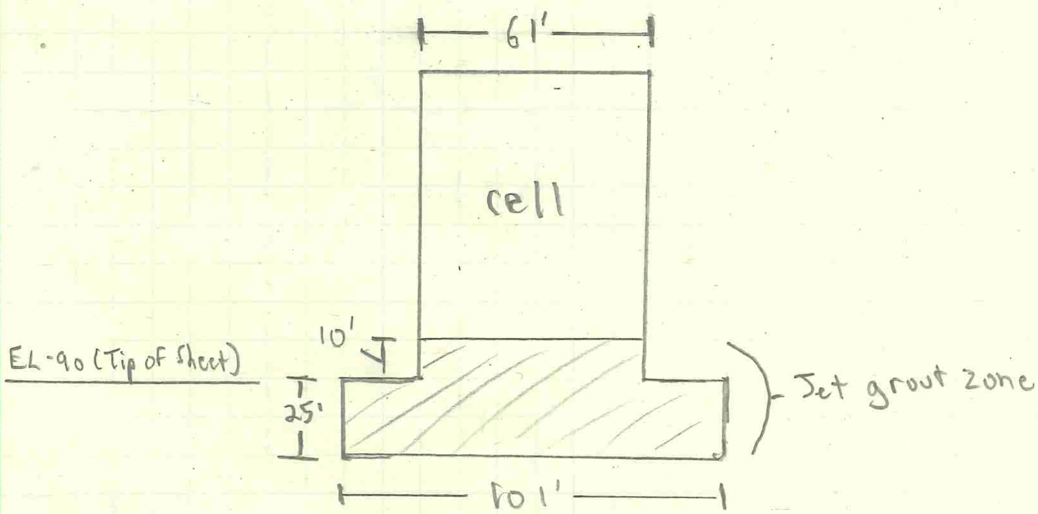
$$= \frac{0 + (6.6k + 15.9k + 24.7k + 96.1k + 900_{psf}(61'))}{0 + (180k + 0.4k + 4.8k + 1.3k + 2.2k + 16.1k)}$$

$= 0.97$

Cell will not work when sliding along clay with $c = 900psf$. Will try to add jet grout to the interior of the cell for 10 ft. Jet grouted soil will be the same as jet grouted base that is recommended to help with bearing.

$$F.o.S. = \frac{0 + (6.6k + 15.9k + 24.7k + 96.1k + 3500_{psf}(61'))}{0 + (180k + 0.4k + 4.8k + 1.3k + 2.2k + 16.1k)}$$

$= 1.75$



Bearing Capacity:

$q_u = 1.3cN_c + qN_q + 0.3\gamma DN_\gamma$

for soil that sheets are tipped in: $c = 900psf$ & $\phi = 0$

$q = \sum \gamma' h$

$= (95 - 62.4pcf)(4') + (98 - 62.4pcf)(29') + (108 - 62.4pcf)(8') + (122 - 62.4pcf)(7') + (115 - 62.4pcf)(25')$

(130.4, 1032.4, 364.8, 417.2, 1315)

$= 3,259.8\ psf$

for $\phi = 0$: $N_c = 5.70$, $N_q = 1.0$, $N_\gamma = 0$ ← from EM 1110-1-1905

$q_u = 1.3(900psf)(5.7) + (3259.8psf)(1) + 0$

$= 9929\ psf$ or $9.93\ ksf$

$M_{net} = M_O - M_R = 9372 - 492,392 - 4632 < 0$, so $M_{net} = 0$

<u>For 61' diameter</u>

$W_{avg} = \dfrac{16,144\ k}{\frac{\pi}{4}(61')^2} = 5.5\ ksf$

$F.o.S = \dfrac{9.93\ ksf}{5.5\ ksf} = 1.81 < 3$, so not okay

Bearing capacity with jet-grouted base of cell.

$q_u = 1.3cN_c + qN_q + 0.3\gamma DN_\gamma$

for jet grouted base with $c = 3500$ psf and $\phi = 0$

$q = \Sigma\gamma' h = 3{,}259.8$ psf (see page)

for $\phi = 0$: $N_c = 5.70$, $N_q = 1.0$, $N_\gamma = 0$

$q_u = 1.3\,(3500\text{psf})\,(5.7) + (3{,}259.8\,\text{psf})(1) + 0$

$= 29{,}194.8$ psf or 29.2 ksf

$W_{avg} = \dfrac{18{,}014\ k}{\frac{\pi}{4}(61')^2} = 6.2$ ksf for 61' diameter

for most conservative weight

$W_{avg.} = \dfrac{14{,}558\,k}{\frac{\pi}{4}(54.75')^2} = 6.2$ ksf for 54.75' diameter

for most conservative weight

$F.o.S. = \dfrac{29.2\,\text{ksf}}{6.2\,\text{ksf}} = 4.7 > 3$ so, okay

Will work for 61' diameter or 54.75' diameter

Will work with grout base with $c = 2500$

Weight of cell and jet-grouted soil:

Cell Weight: $\gamma h A$

Stone Cap: $(140_{pcf})(1.5')(\frac{\pi}{4}(61')^2)$
$= 613{,}717.97\text{ lb} = 613.7\text{ k}$

Cell Fill: $(122-62.4)(10.25')(\frac{\pi}{4}(61')^2) = 1{,}785\text{ k}$
$(122\text{pcf})(10.25')(\frac{\pi}{4}(61')^2) = 3{,}655\text{k}$
$5{,}440\text{k}$ ½ wet ½ dry

all dry 7,310

In-situ soil:
$(95-62.4)(4')(\frac{\pi}{4}(61')^2) = 381\text{ k}$
$(98-62.4)(29')(\frac{\pi}{4}(61')^2) = 3{,}017.2\text{k}$
$(108-62.4)(8')(\frac{\pi}{4}(61')^2) = 1{,}066.1\text{ k}$
$(122-62.4)(7')(\frac{\pi}{4}(61')^2) = 1{,}219.3\text{ K}$
$(115-62.4)(25')(\frac{\pi}{4}(61')^2) = 3{,}843.1\text{k}$
$9{,}526.7\text{k}$

Sheet Pile: $(31_{pcf})(95')\pi(61') = 564.4\text{K}$

Jet Grouted Soil Zone: $(120-62.4\text{pcf})(25')(\frac{\pi}{4}(101)^2)$
$= 11{,}537\text{ k}$

Total Weight: $613.7\text{k} + 5440\text{k} + 9526.7\text{ k} + 564.4\text{k} + 11{,}537\text{K}$
$= 27{,}681\text{ k}$ ½ wet ½ dry fill
or $29{,}551\text{k}$ all dry fill

Bearing Capacity under soil zone:

$q_u = 1.3cN_c + qN_q + 0.3\gamma DN_\gamma$

For bearing soil $c = 1200\,psf$ and $\emptyset = 0$

$q = \Sigma \gamma' h$

$= (95 - 62.4\,pcf)(4') + (98 - 62.4\,pcf)(29') + (108 - 62.4\,pcf)(8') + (122 - 62.4\,pcf)(7') + (115 - 62.4\,pcf)(25') + (120 - 62.4\,pcf)(25')$

$= 4{,}700\,psf$

For $\emptyset = 0$: $N_c = 5.70$, $N_q = 1.0$, $N_\gamma = 0$ ← from EM 1110-1-1905

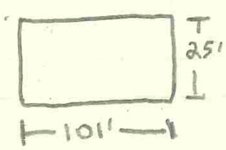
$q_u = 1.3(1200\,psf)(5.7) + 4{,}700\,psf\,(1) + 0$

$= 13{,}592\,psf$ or $13.6\,ksf$

For 61' diameter

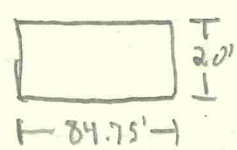
$W_{avg} = \dfrac{27{,}621\,k}{\frac{\pi}{4}(101')^2} = 3.7\,ksf$

$F.O.S. = \dfrac{13.6\,ksf}{3.7\,ksf} = 3.67$, so ok ⇒ for soil zone 101' x 25'



For 54.74' diameter

$W_{avg} = \dfrac{21{,}056\,K}{\frac{\pi}{4}(84.75')^2} = 3.7$, so ok ⇒ for soil zone 84.75' x 20'



Tilting: $F.O.S. = \frac{M_r + M_f}{M_o}$

$M_r = 492{,}392 + 4632 = 497{,}024$ k-ft. (see page 10)

$M_o = 9372$ k-ft. (see page 8)

F.O.S. = 53 with just $\frac{M_r}{M_o}$. M_f will only bring F.O.S. up.

Tilting is okay

Vertical Shear:

$M_o - M_r < 0$, so vertical shear is okay.

Interlock tension:

rock: $\phi = 40°$, $K_a = 0.22$, Factor applied 1.2

fill: $\phi = 30°$, $K_a = 0.33$, factor applied 1.3

$\sigma_T = K_a \gamma h = 1.2(0.22)(140pcf)(1.5') + 1.3(0.33)(122 - 62.4pcf)(20.5')$

$= 580 pcf$

$t = \frac{\sigma_T R}{12} = \frac{580 psf \left(\frac{61'}{2}\right)}{12 in/ft} = 1474$

$F.O.S. = \frac{20{,}000 lb/in.}{1474 lb/in.}$ ⇐ interlock strength of sheets

$= 13.6 > 2.0$ so, okay.

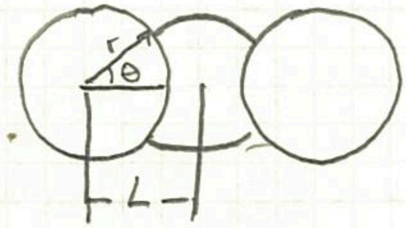
Interlock tension at wyes

for 61' diameter cells

$r = 30.5'$

$\theta = 31.1°$

$L = 38.61'$



$p = \sigma_T = 580$ psf ← calculated on pg. 16a

$$t_{max} = pL\sec\theta$$

$$= \frac{580\,psf\,(38.61')}{12\,in/ft}\sec(31.1°) = 2183\,lb/in$$

$$F.O.S. = \frac{20{,}000\,lb/in.}{2183\,lb/in.} = 9.2 > 2.0 \text{ so, okay}$$

For 54.74' diameter cells

$r = 27.37'$

$\theta = 31.3°$

$L = 34.86'$

$p = \sigma_T = 580$ psf

$$t_{max} = pL\sec\theta$$

$$= \frac{580\,psf\,(34.86')}{12\,in/ft}\sec(31.3°) = 1971\,lb/in$$

$$F.O.S. = \frac{20{,}000\,lb/in.}{1971\,lb/in.} = 10.15 > 2.0 \text{ so, okay}$$

equation from EM 1110-2-2503