Technical Report IV

Phase 2 Analyses of MR-GO Reach 2 EBSB Breach Development

Report to

Katrina Canal Breaches Consolidated Litigation

[Civil Action Number: 05-4182 “K” (2)]

United States District Court

Eastern District of Louisiana

Pertains to MR-GO, Robinson

[No. 06-2268]

By

Dr. Robert Bea and Rune Storesund

Risk Assessment and Management Services

Moraga, California

January 28, 2009

TABLE OF CONTENTS

I. INTRODUCTION 1

II. SCOPE 3

III. SUMMARY 4

IV. ANALYSES METHOD 4

V. WAVE-INDUCED EROSION 6

VI. OVERTOPPING-INDUCED EROSION 11

VII. CONCLUSIONS 17

VIII. REFERENCES 18

APPENDICES

Appendix I 0530 Grass Cover Erosion & Freeboard Results

Appendix II 0630 Grass Cover Erosion & Freeboard Results

Appendix III 0730 Grass Cover Erosion & Freeboard Results

Appendix IV MR-GO Crest Soil Borings

Appendix V Location A Through F Overviews

I. INTRODUCTION

This report contains the analytic results of a preliminary Phase II erosion evaluation of the MR-GO Reach 2 alignment to corroborate Phase I classification of the MR-GO EBSB breaching mechanisms during Hurricane Katrina. Figure 1 shows an overview of the breach mechanisms and breach type examples (Locations A through F) identified as part of our Phase I erosion analyses. Phase I erosion analyses were cursory in nature, based on breach classification from features identified from photographs, LiDAR surveys, aerial video surveys, and field visits. Phase II erosion analyses consist of more detailed evaluation of geometry (crest elevation), soil type (and associated erodibility), storm surge levels (based on storm hydrographs), wave action (based on characteristics estimated by numerical models), and armor (grass cover) protection at the time of Hurricane Katrina.

Figure 2 shows a diagram listing important factors to be evaluated in order to assess the performance of coastal flood protection structures. Performance is a function both the "capacity" (the ability of the structure to resist imposed demands) and the "demands" (factors/forces imposed on a structure such as waves, water levels, etc.). A comprehensive analysis must evaluate both "capacity" and "demand" elements, not just the remnant traces of either poor or excellent performance.

It is also very important to note that the Demand and Capacity elements are not the same along the entire MR-GO Reach 2 alignment. There is significant heterogeneity, resulting in very different performance along Reach 2 and oversimplification can lead to incorrect conclusions regarding system performance.

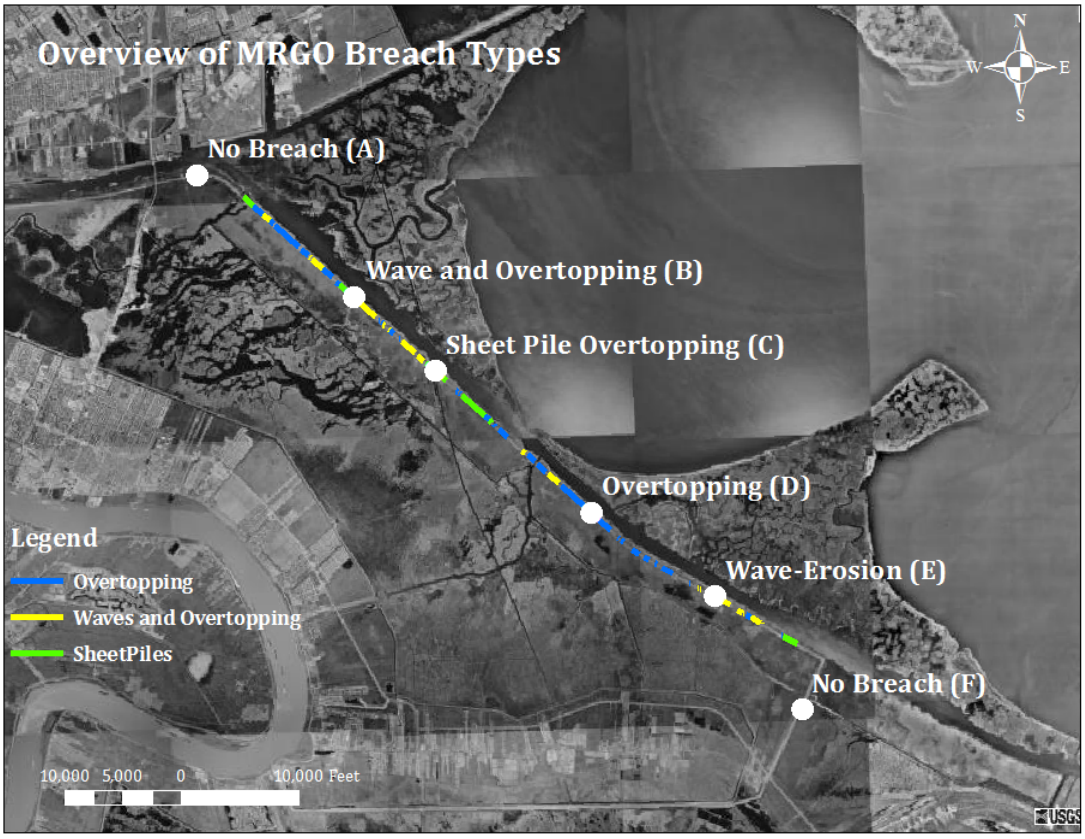


Figure 1. Overview of breach classifications along MR-GO Reach 2.

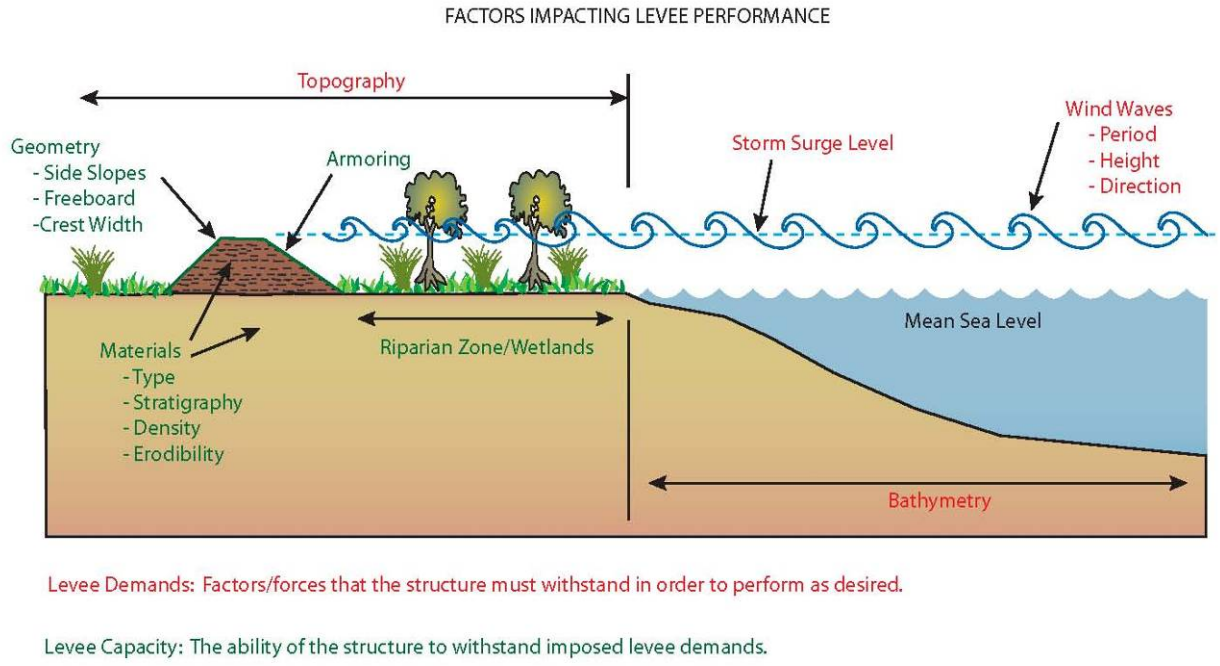


Figure 2. A summary of factors impacting the performance of levees. All factors need to be considered in order to evaluate performance.

II. SCOPE

The preliminary Phase II erosion analyses for the MR-GO Reach 2 alignment documented in this report consist of an initial analysis of the EBSB Demands (storm surge level, incident wave action) and Capacities (geometry (crest elevation, side slopes, grass cover armor, and material erodibility) to confirm the breach classifications identified during our Phase I erosion analysis. The Phase II analyses were performed within the "Overtopping" and "Wave and Overtopping" erosion zones identified during our Phase I evaluation (Figure 1).

The EBSB Demands (storm surge level, incident wave action) were characterized based on previously completed numerical SWAN models (Gautier et al, 2008) as well as wave height and water depth correlations (Ebersole, 2008). Bathymetric and topographic (including damping effects by the riparian/wetlands zone) information was incorporated within the hydrodynamic characterization conditions. Topographic information relative to the EBSB crest elevation was obtained from a data supplied by Chad Morris (Pre_Katrina_Levee_Floodwall_Max_Elev.shp).

The EBSB Capacity (geometry, materials, armoring) were based on 2000 Aerial LiDAR data (Chance, 2000) and on available soil boring information along the MR-GO Reach 2 alignment, supplied by the USACE. The grass cover armoring was assumed to be of medium quality (Bea, 2008).

These preliminary analyses will be refined as part of future work, with more analysis-location specific information (soil stratigraphy, erodibility, grass cover, etc.) being assigned to the analysis locations.

III. SUMMARY

MR-GO EBSBs highly heterogeneous with respect to topography, crest elevations (freeboard), grass cover (armor) characteristics, and soil erodibility characteristics. There was significant variation in these parameters, and a high-resolution analysis is required to capture and evaluate the impacts associated with these variations. Additionally, evaluating all important factors associate with the 'Demands' and 'Capacities' of the EBSBs are important in order to comprehensively evaluate performance. These analyses demonstrate that the variable conditions along the MR-GO Reach 2 alignment provide a logical explanation for the varied performance and the presence of multiple breach mechanisms.

IV. ANALYSES METHOD

The erosion analyses were performed using 1-hour time steps (with hydrodynamics at the half-hour increment representing the one-hour time step), starting at 0500 CDT and running through 0900 CDT (August 29, 2005). The analyses were consistent with the 'Wave Induced Erosion Method' for the conditions where the storm surge level is below the EBSB crest elevation. When the storm surge exceeds the EBSB crest elevation, conventional overtopping analyses were used. The calculation steps were:

1. Determine ground surface elevation at flood side toe of EBSB based on a spot elevation from the 2000 Aerial LiDAR data a distance of approximately 36 feet outboard of the EBSB crest;
2. Characterize the hurricane storm surge at 0530, 0630, 0730, and 0830 (from SWAN modeling). Active overtopping begins at around 0730 when the still water elevation generally exceeds the average MR-GO crest elevations;

3. The wave energy along the MR-GO EBSB Reach 2 alignment was locally assumed to be characterized by Hs=0.5*(Storm Surge Elevation – EBSB Toe Elevation), a similar method employed by Ebersole (2008);
4. For each time increment (0530, 0630, 0730) the maximum grass cover protection duration was calculated (Bea, 2008);
5. The percent grass cover lost for each time increment was calculated (Bea, 2008), in accordance with the linear Miner's fatigue damage accumulation model. At each analysis location, a green color was assigned for damage less than 50%, a yellow color was assigned for 50-85% damage, and a red color was assigned for damages in excess of 85%;
6. In addition to the grass damage determination, the quantity of freeboard at each time increment was also calculated. Freeboard from 0-2 feet was assigned a red color, from 2-4 feet was assigned a yellow color, and in excess of 4 feet was assigned a green color;
7. Soil conditions (stratigraphy) was assigned to the MR-GO Reach 2 alignment based on available MR-GO crest soil boring information (from USACE);
8. At 0730 an evaluation was performed at Location A – F to determine if grass cover erosion had occurred, if yes, an evaluation of wave-induced erosion magnitude was performed. If no grass cover erosion had occurred, no wave-induced erosion was calculated;
9. At 0830, the sites with no grass cover erosion at 0730 were checked for grass cover erosion on the protected side of the EBSB. If yes, erosion analyses were conducted;

V. WAVE-INDUCED EROSION (0730 CDT)

A short discussion of grass armor conditions at 0730 CDT for the identified Locations A through F is presented in this section. By 0730 CDT, the storm surge had risen very near (or in some cases over) the EBSB crest along a majority of the Reach 2 alignment. Wave-induced erosion occurs when the grass cover (armor) has been fully degraded, the soil types are erodible, and the crest elevation has not been exceeded by the storm surge. See Appendix I, II, and III for freeboard and grass armor damage between 0530 CDT and 0730 CDT.

LOCATION A

This location experienced little to no erosion and had a number of factors working for it. First, the crest elevation was at or near the target design elevation. There was a dense stand of trees and vegetation outboard that helped to damp incoming wave energy. The physical location of the site was not perpendicular to the incoming wave energy, rather, the waves were traveling in a more parallel orientation. The soils used to construct the EBSB was a denser clay (Bea, 2008), not the loose/soft hydraulic fills used south of Bayou Bienvenue. This compacted clay allowed a more competent grass cover armor to be established. No wave induced erosion was observed from either the PRE or POST surge wave impacts on the outboard face. This location is typified by the analyses presented in Bea (2008) relative to Scenario 1 hydrodynamic conditions with low erodibility materials (Figure 3).

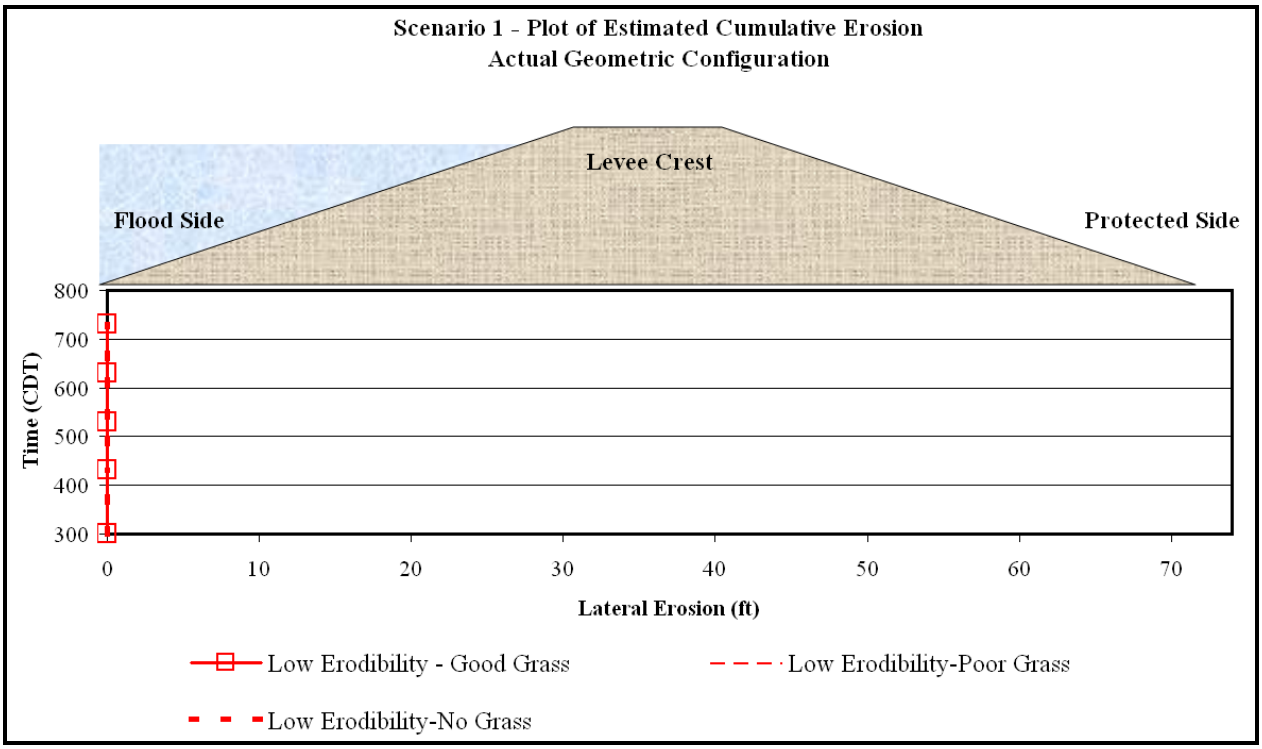


Figure 3. A plot of lateral erosion induced from wave attack (PRE MAXIMUM SURGE) for the Hurricane Katrina hydrodynamic conditions with low erodibility materials and different levels of grass armor.

LOCATION B

This site was analyzed in detail (Station 497+00) in Bea (2008). These Phase II analyses confirm that wave-induced erosion was possible at this location and the aggregation of site factors (demands and capacities) strongly support wave-induced erosion. Grass armor damage in this region of Reach 2 is extensive by 0630, allowing for significant wave-induced erosion to occur prior to active overtopping conditions. For a number of grass armor conditions, we found that the EBSB was susceptible to catastrophic erosion (Figure 4).

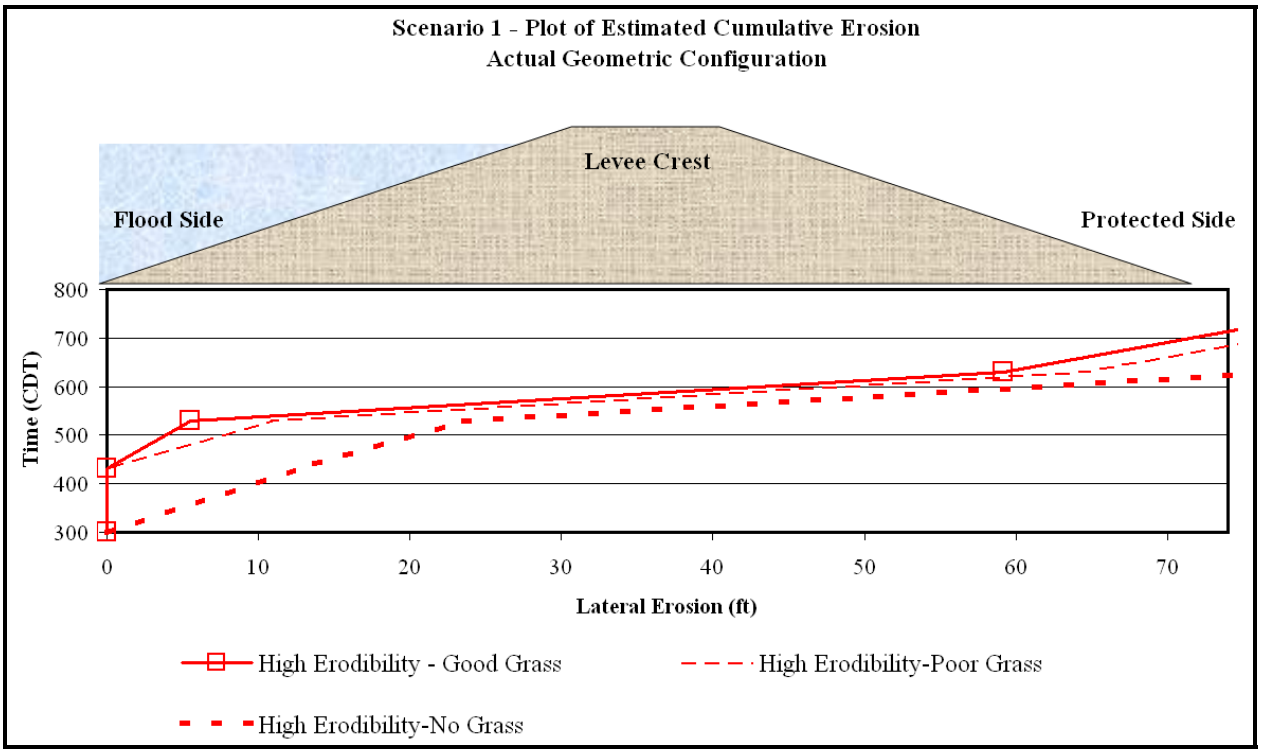


Figure 4. A plot of lateral erosion from wave-attack on the MR-GO EBSB wave attack (PRE MAXIMUM SURGE) for the Hurricane Katrina hydrodynamic conditions with high erodibility materials and different levels of grass armor.

LOCATION C

This location had sheet pile installed through the EBSB crest as a result of excessive vertical settlement and the presence of slope stability problems from the adjacent MR-GO Deep Water Navigation Channel that prevented reconstruction of the EBSB to target design elevations. No erosion analyses were performed here due to the presence of the sheet piles.

LOCATION D

This site had higher crest elevations than Location B (Appendix II, Appendix III) and appears, based on soil boring information in the vicinity, to consist of lower erodibility soils (medium stiff clays) as compared with Location B. The EBSB crest was not actively overtopped until 0730

CDT. The grass armor at this location would have been slightly more competent as a result of the stiffer soils and better substrate. Medium grass on sandy/clayey substrate, should show loss of grass armor and onset of erosion around 0730 CDT, resulting in overtopping being the predominant breach mechanism. Location D is discussed in more detail in the "Overtopping (0830 CDT)" section that follows.

LOCATION E

This site appears to consist of medium erodibility soils (medium stiff clays). Grass armor, as a result of the more competent materials, shows degradation and onset of erosion not until 0730 CDT. Crest elevation allows overtopping starting at 0730 CDT, with shorter duration overtopping than at Location B (0730-0830 CDT). By 0830 CDT, as the storm surge subsides, the flood side of the EBSB would have experienced its second round of wave-induced erosion, thus explaining flood side erosion without protected side erosion, because the grass armor had been degraded just prior to overtopping and as the waves impact the degraded grass, active erosion occurs (Figure 5).

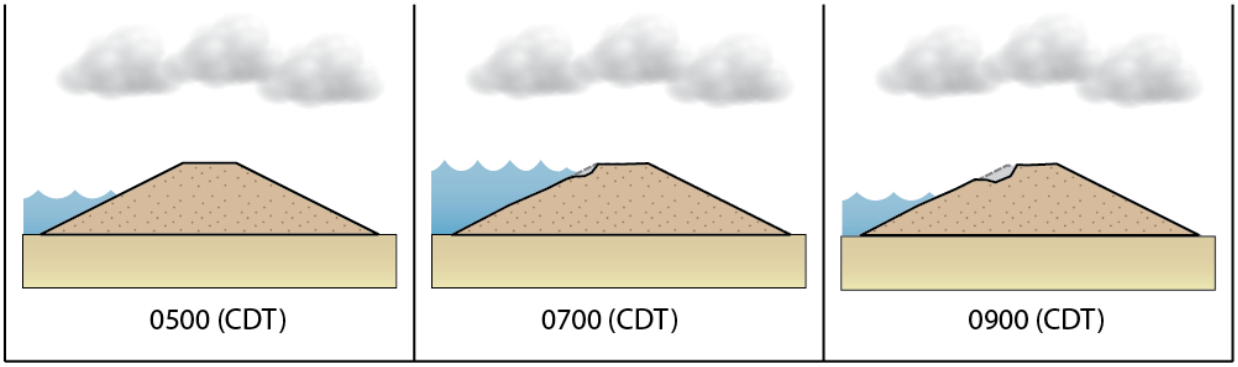


Figure 5. The rise and fall of the storm surge (for locations with high crest elevations that are not significantly overtopped) results in 'double' wave action on the EBSB face. Once as the storm surge rises, and then again, as the storm surge falls. Previously degraded grass armor is further degraded and wave-induced erosion is magnified (as can be seen in the difference between erosion at 0700 and 0900 in this figure).

LOCATION F

This location experienced little to no erosion and had a number of factors working for it. First, the crest elevation was at or near the target design elevation. The physical location of the site was not perpendicular to the incoming wave energy, rather, the waves were traveling in a more parallel orientation. The soils used to construct the EBSB was a denser clay, not the loose/soft hydraulic fills used along Reach 2 fronting the MR-GO. This compacted clay allowed a more competent grass cover armor to be established. No wave induced erosion was observed from either the PRE or POST surge wave impacts on the outboard face. This location is typified by the analyses presented in Bea (2008) relative to Scenario 1 hydrodynamic conditions with low erodibility materials (Figure 6).

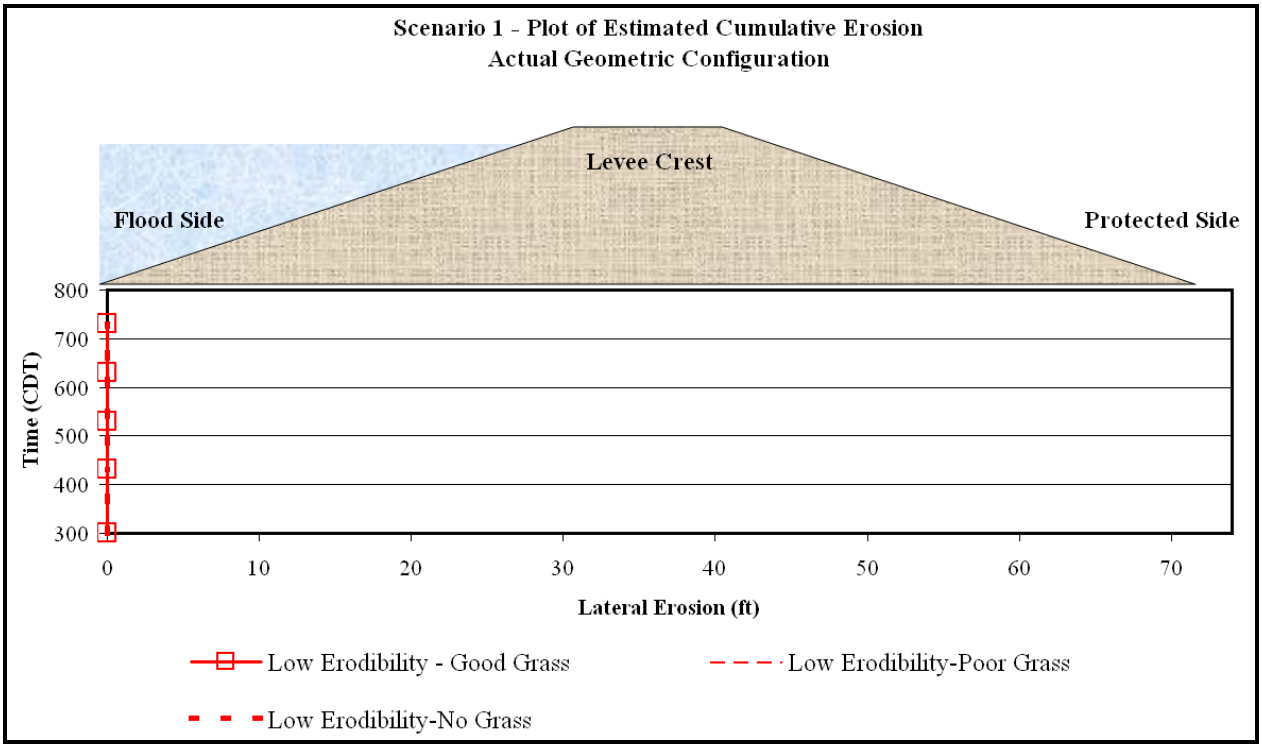


Figure 6. A plot of lateral erosion induced from wave attack (PRE MAXIMUM SURGE) for the Hurricane Katrina hydrodynamic conditions with low erodibility materials and different levels of grass armor.

VI. OVERTOPPING-INDUCED EROSION (0830 CDT)

A short discussion of grass armor conditions at 0830 CDT for the identified Locations A through F is presented in this section. Overtopping-induced erosion occurs when the grass cover (armor) has been fully degraded on the protected side, the soil types are erodible, and the crest elevation has not been exceeded by the storm surge.

LOCATION A

This site had crest elevations on the order of + 18ft (NAVD88) which minimized the quantity of water that overtopped the crest. Additionally the site was comprised of very low erodibility soils, with good grass armor (founded on clayey substrate). No damage occurred at this location from overtopping-induced erosion.

LOCATION B

This location experienced significant erosion prior to overtopping. The breach mechanism was a combination of wave-induced erosion and some overtopping induced-erosion, with a majority of the erosion occurring from wave action as a result

LOCATION C

This location had sheet pile installed through the EBSB crest as a result of excessive vertical settlement and the presence of slope stability problems from the adjacent MR-GO Deep Water

Navigation Channel that prevented reconstruction of the EBSB to target design elevations. No erosion analyses were performed here due to the presence of the sheet piles.

LOCATION D

Location D represents a breach mechanism that is heavily overtopping-induced. This site is comprised of medium erodibility soils with medium grass armor quality. Analyses indicated that grasss armor degradation does not occur until 0730 CDT, at which point crest elevation allows overtopping. This type of breaching is also discussed by Ebersole (2008). Figure 7 shows a photograph of this breach type.

The EBSB at this location experienced sustained overtopping starting around 0730 CDT. This site did experience erosion (as seen in Figure 7). To confirm the grass armor properties and the erodibility of the EBSB materials, the observed (Figure 7) features must match the Demand and Capacity characteristics at this MR-GO Reach 2 location. Analyses indicate that degradation of the flood side grass armor did not occur until the storm surge reached the crest of the EBSB (which explains the lack of visible wave-induced erosion on the flood side of the EBSB). The crest elevation at this location at the time of Hurricane Katrina was reported to be +18 ft (NAVD88).

Ebersole (2008) presents a table (Figure 8) of hydrodynamic loading conditions that are assumed to be representative over MR-GO Reach 2 alignment from Bayou Bienvenue to Bayou Dupre (no similar table is presented for regions south of Bayou Dupre, so this table will be used for this region as well as there were no major hydrodynamic differences between the Bayou Bienvenue

to Bayou Dupre reach and south of Bayou Dupre). Ebersole predicts that (on average) no significant erosion would occur (Figure 8). This is not consistent with the observed EBSB performance (Figure 7). Based on the available LiDAR data (Appendix V), total vertical erosion at this location was on the order of 4.5 feet.



Figure A32. Levee crest degraded at many locations in this reach. All major head-cuts have reached a similar state of advance through the levee crest; less advanced toward the top of the photo. Clear steeper leading edge along the head-cut is visible. Predominant erosion signature is head-cutting induced by overtopping. Large overwash sediment deposits evident behind the head-cuts. Surficial wave-induced erosion on the front face is evident all along the levee. No significant wave-induced erosion of the levee crest is evident in areas where head-cutting has not eroded to or through the levee crest or in areas where the head-cuts are forming on the backside.

Figure 7. A photograph from Ebersole (2008) that shows primarily overtopping-induced erosion.

Table 7. Temporal Variation of Hydrodynamic Loading and Potential for Erosion Along the MRGO Reach 2 Levee						
Time, CDT August 29	Water Level (ft) NAVD 2004.65	Incident Wave Height (ft)	Wave Height at Levee Toe (ft)	Mean Wave Set-up (ft)	Mean Overtopping Rate (cfs/ft)	Vertical Erosion (ft) Average Grass Cover
3:00 a.m.	10.1	3	0.7	0.39	0	0.008
3:30 a.m.	10.7	3	1.0	0.39	0	0.016
4:00 a.m.	11.3	3.3	1.4	0.42	0	0.028
4:30 a.m.	12.1	3.6	1.9	0.44	0	0.044
5:00 a.m.	12.9	4.3	2.3	0.38	0.06	0.064
5:30 a.m.	13.9	4.6	2.9	0.31	0.24	0.088
6:00 a.m.	15.5	5.2	3.9	0.55	1.7	0.12
6:30 a.m.	16.8	5.9	4.7	0.48	6.0	0.16
7:00 a.m.	17.5	6.2	5.1	0.28	9.9	0.20
7:30 a.m.	17.5	6.6	5.1	0.3	10.2	0.25
8:00 a.m.	16.9	6.2	4.7	0.48	6.5	0.29
8:30 a.m.	15.9	4.9	4.1	0.56	2.0	0.32
9:00 a.m.	14.5	3.6	3.3	0.25	0.61	0.34
9:30 a.m.	13.1	3	2.5	0.18	0.03	0.34
10:00 a.m.	12.4	2	2	0.19	0	0.35
10:30 a.m.	12.7	2	2	0.13	0	0.35
11:00 a.m.	13.0	2	2	0.03	0	0.36

Figure 8. A summary of erosion analyses completed by Ebersole (2008) between Bayou Bienvenue and Bayou Dupre. These analyses indicate that little to no erosion (on average) would occur over this reach. Only about one third of a foot of erosion is estimated, inconsistent with observed erosion features.

In order to attain the observed vertical erosion extents (due to overtopping between 0730 and 0830 CDT) during the one hour of sustained overtopping, the grass cover armor must have been of poor quality and the EBSB materials must have consisted of a high erodibility-type materials. Both USA and Plaintiff experts agree that overtopping velocities were on the order of 10-25 ft/second (we will assume an 'average' value of 15 ft/second for this analysis). From Hewlett et al (1987), this velocity range would have resulted in degradation of the grass cover within about 0.5 to 1 hour (and requires the grass cover to be of a near 'poor turf' surface) (Figure 9).

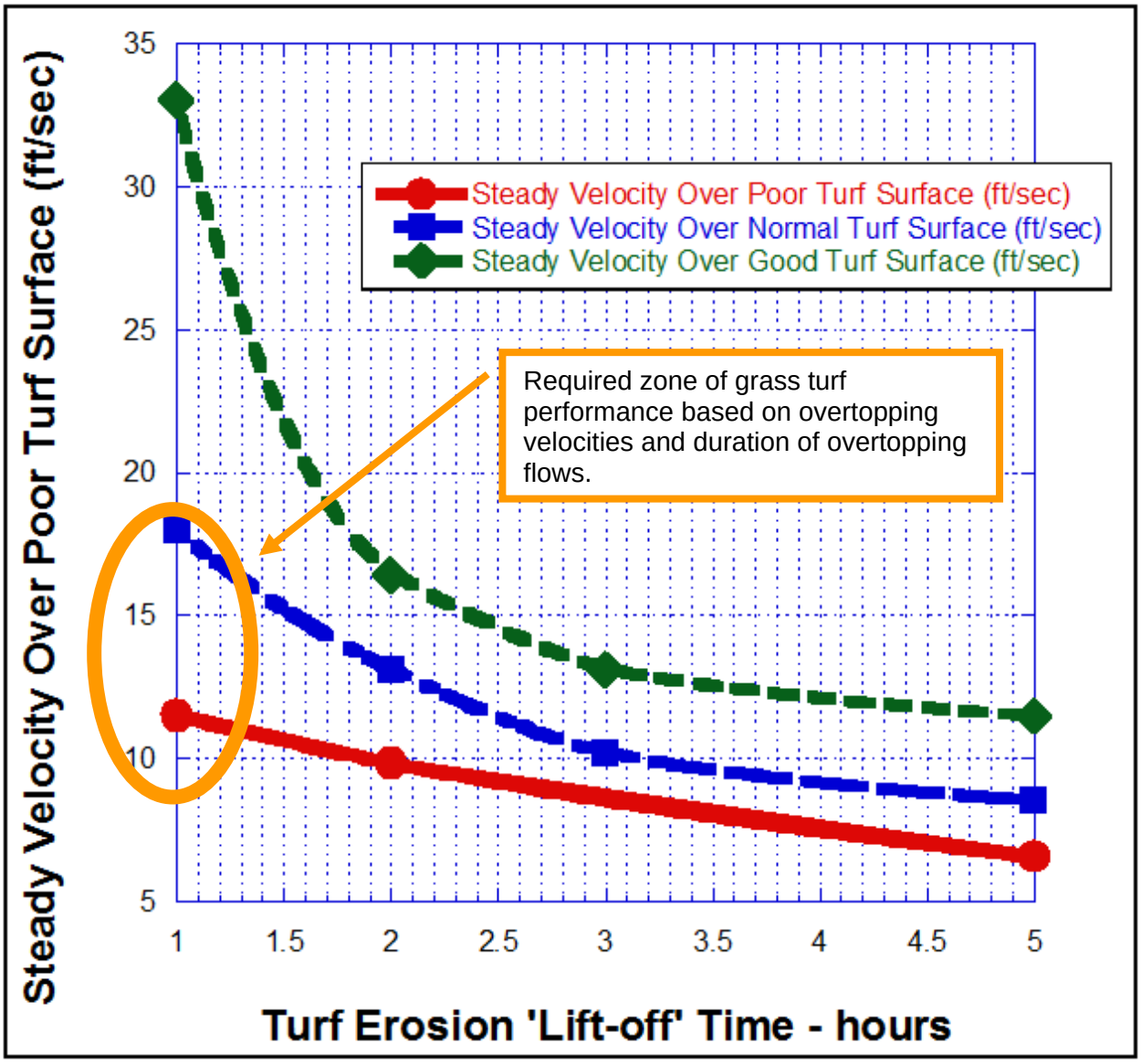


Figure 9. Relationship between overtopping velocity and grass armor degradation (Bea, 2008).

The final elevation of the erosion feature at this location was +13 ft (NAVD88). The storm surge attained this elevation at approximately 0930 CDT, resulting in a total 'erosion' time of 2 hours (0730 to 0930) for both removal of grass armor and removal of EBSB soil (to a depth of 4.5 feet).

Hanson et al (2001) presented (Figure 10) overtopping-induced headcut rates for embankments (they tested two different types of embankments with clayey and silty materials, Embankments #1 and #2, respectively). Based on these rates, very poor (low undrained shear strength) materials are required to attain the observed erosion extent (4.5 feet) in the available erosion time (2 hrs).

This example clearly demonstrates that the quality of EBSB materials was not a high quality erosion resistant clay, rather, a poor quality material with high erodibility potential.

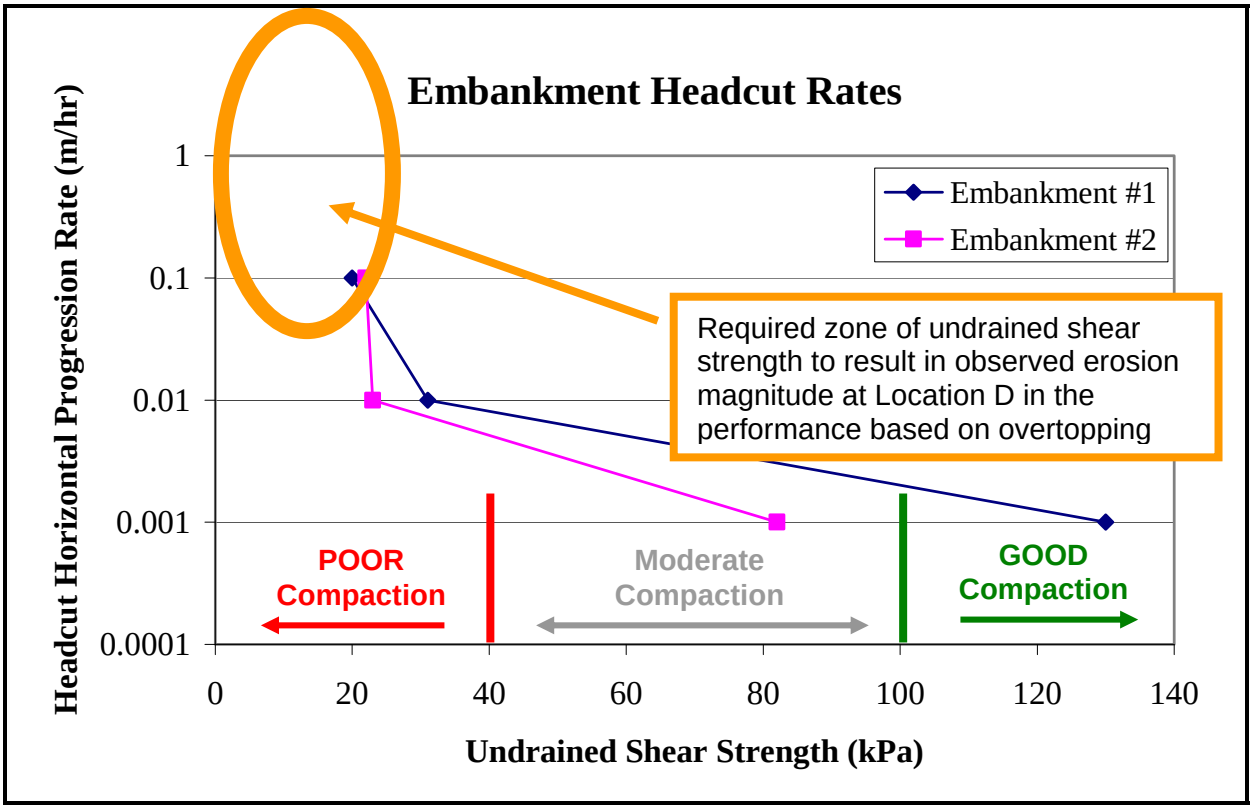


Figure 10. Very poor materials are required at Location D in order to develop the amount of erosion that was measured with the Aerial LiDAR surveys following Hurricane Katrina.

Location D directly demonstrates that EBSB materials were of poor quality and susceptible to both wave-induced and overtopping-induced erosion breaching during Hurricane Katrina.

LOCATION E

Similar to the wave-induced erosion discussion, this site appears to consist of medium erodibility soils (medium stiff clays) and coupled with more competent grass armor degradation and onset of erosion does not occur until 0730 CDT. Crest elevation allows overtopping starting at 0730, with shorter duration overtopping than at Location B (0730-0830 CDT). By 0830 CDT, as the storm surge subsides, the flood side of the EBSB would have experienced its second round of wave-induced erosion, thus explaining flood side erosion without protected side erosion, because the grass armor had been degraded just prior to overtopping and as the waves impact the degraded grass, active erosion occurs.

LOCATION F

This location experienced little to no erosion and had a number of factors working for it. First, the crest elevation was at or near the target design elevation. The physical location of the site was not perpendicular to the incoming wave energy, rather, the waves were traveling in a more parallel orientation. The soils used to construct the EBSB was a denser clay, not the loose/soft hydraulic fills used along Reach 2 fronting the MR-GO. This compacted clay allowed a more competent grass cover armor to be established. No wave induced erosion was observed from either the PRE or POST surge wave impacts on the outboard face.

VII. CONCLUSIONS

MR-GO EBSBs highly heterogeneous with respect to topography, crest elevations (freeboard), grass cover (armor) characteristics, and soil erodibility characteristics. There was significant

variation in these parameters, and a high-resolution analysis is required to capture and evaluate the impacts associated with these variations. Additionally, evaluating all important factors associate with the 'Demands' and 'Capacities' of the EBSBs are important in order to comprehensively evaluate performance. These analyses demonstrate that the variable conditions along the MR-GO Reach 2 alignment provide a logical explanation for the varied performance and the presence of multiple breach mechanisms.

VIII. REFERENCES

Bea, Robert Glenn. 2008a. "Robinson v. United States. Expert Report of Dr. Robert Glenn Bea. Engineering Forensic Studies of Performance of the Man-Made Features Bordering the Mississippi River-Gulf Outlet (MR-GO) during Hurricane Katrina." Dated July 11, 2008.

Ebersole, Bruce A. 2008. "Expert Report. Prepared for United States Department of Justice, Robinson v. United States." United States Army Corps of Engineers, Chief, Flood and Storm Protection Division, Coastal and Hydraulics Laboratory, Engineer and Development Center, Vicksburg, MS. December 17, 2008.

Gautier, C., M. Kok, and J.K. Vrijling. 2008. "Wave Modeling New Orleans – Mississippi River Gulf Outlet. Hurricane Katrina August 2005. Final Report." Ref: cg/1474/08109/F.

Hanson, G.J., et al (2001). "Evaluating Headcut Migration Rates of Earthen Embankment Breach Tests," *Proceedings of the Society for engineering agricultural, food, and biological systems*, Paper No. 01-012080, ASAE, St Joseph, MI.

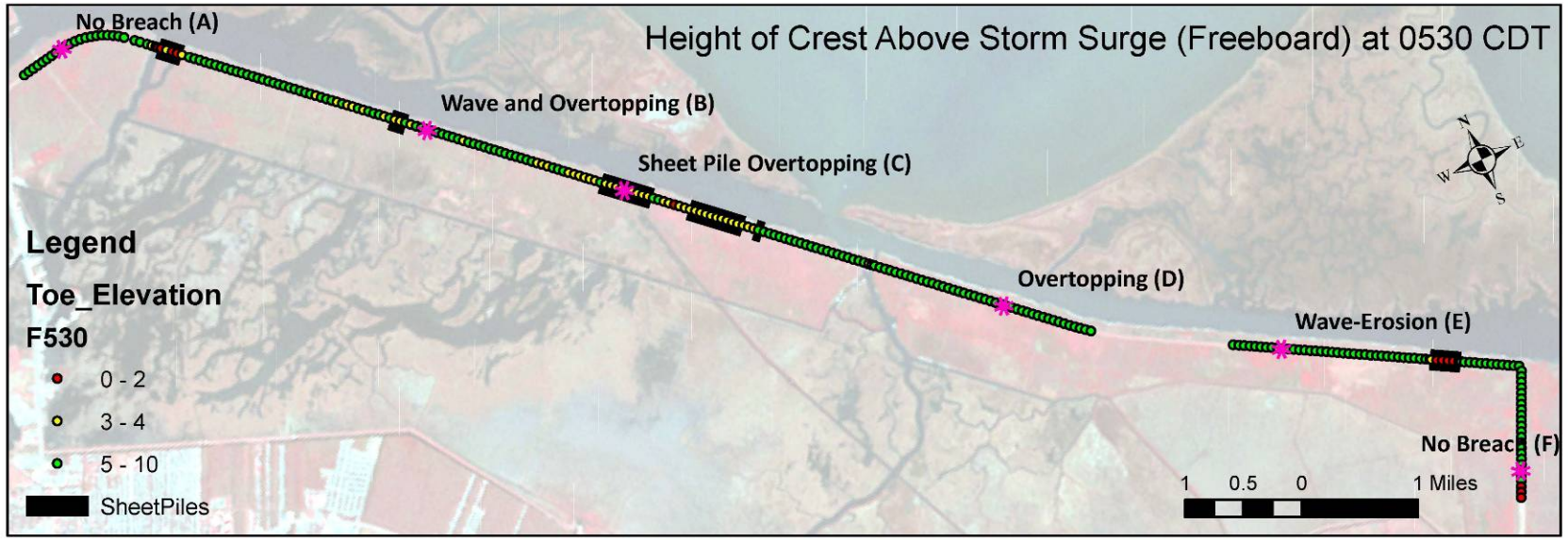
Hewlett, H.W.M., Boorman, L.A., and Bramley, M.E. (1987). Design of Reinforced Grass Waterways, CIRIA Report 116, Construction and Industry Research and Information Association, London UK.

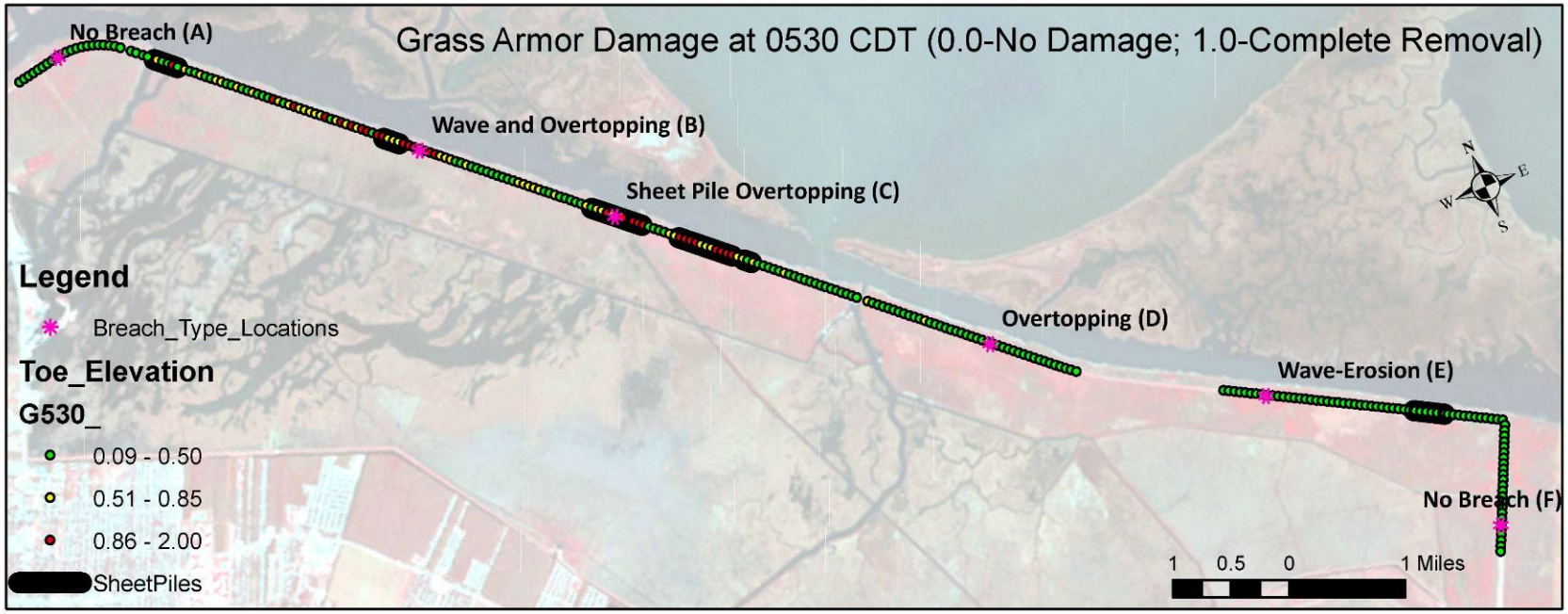
John Chance Land Surveys (Chance). 2000. "Pre-Katrina Chance 2000." Available from: https://erdcpw.erdc.usace.army.mil/LDR/mapapp/default.aspx.

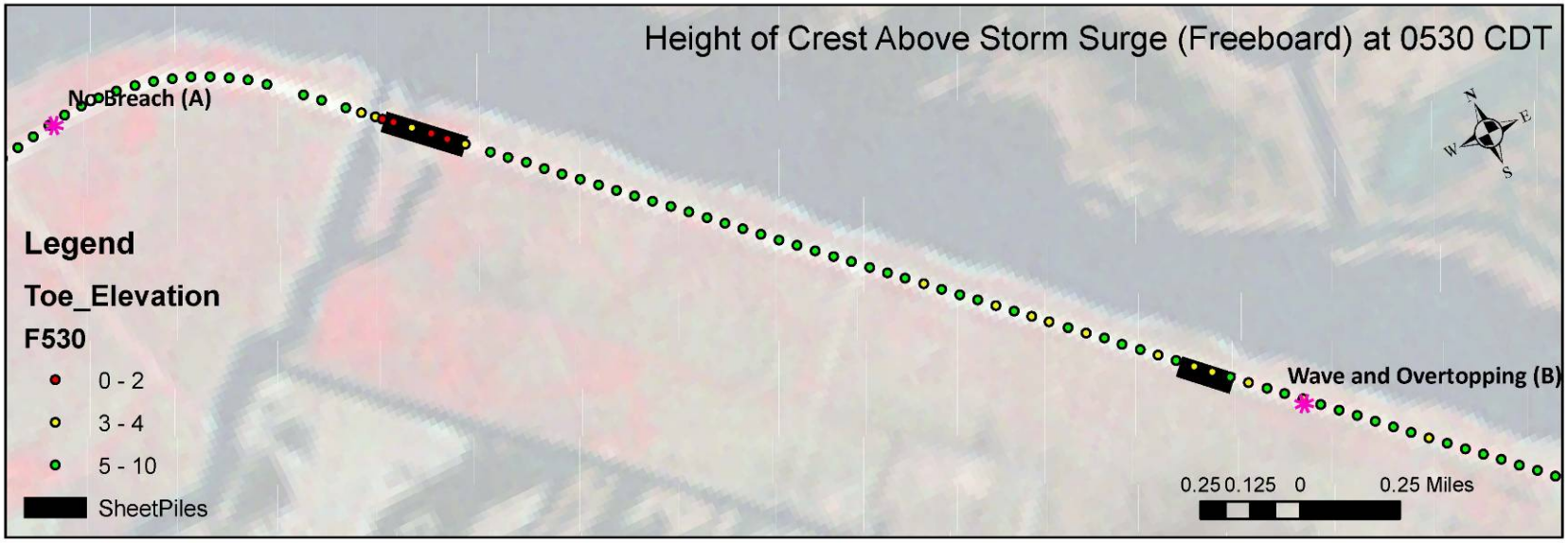
Morris, Chad. Undated. "Pre_Katrina_Levee_Floodwall_Max_Elevation.shp." GIS Shapefile with crest elevations for levees (EBSB MR-GO Reach 2) and floodwalls.

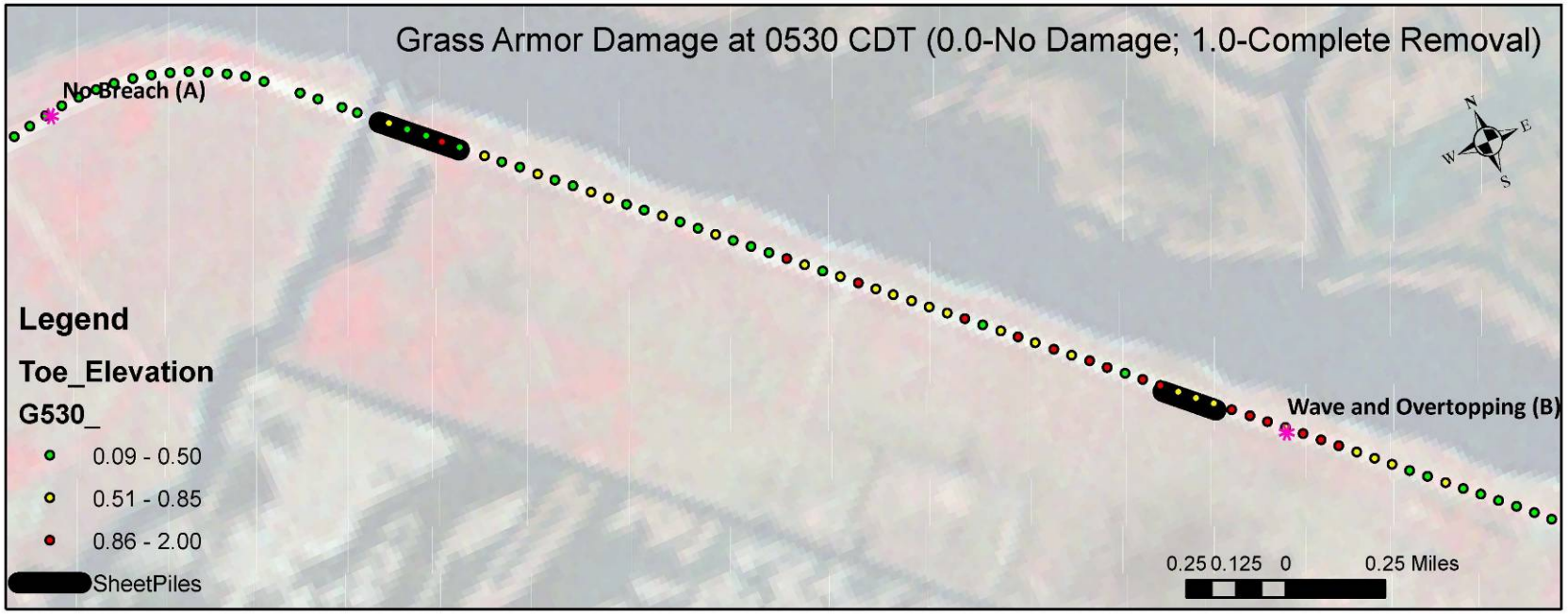
Appendix I

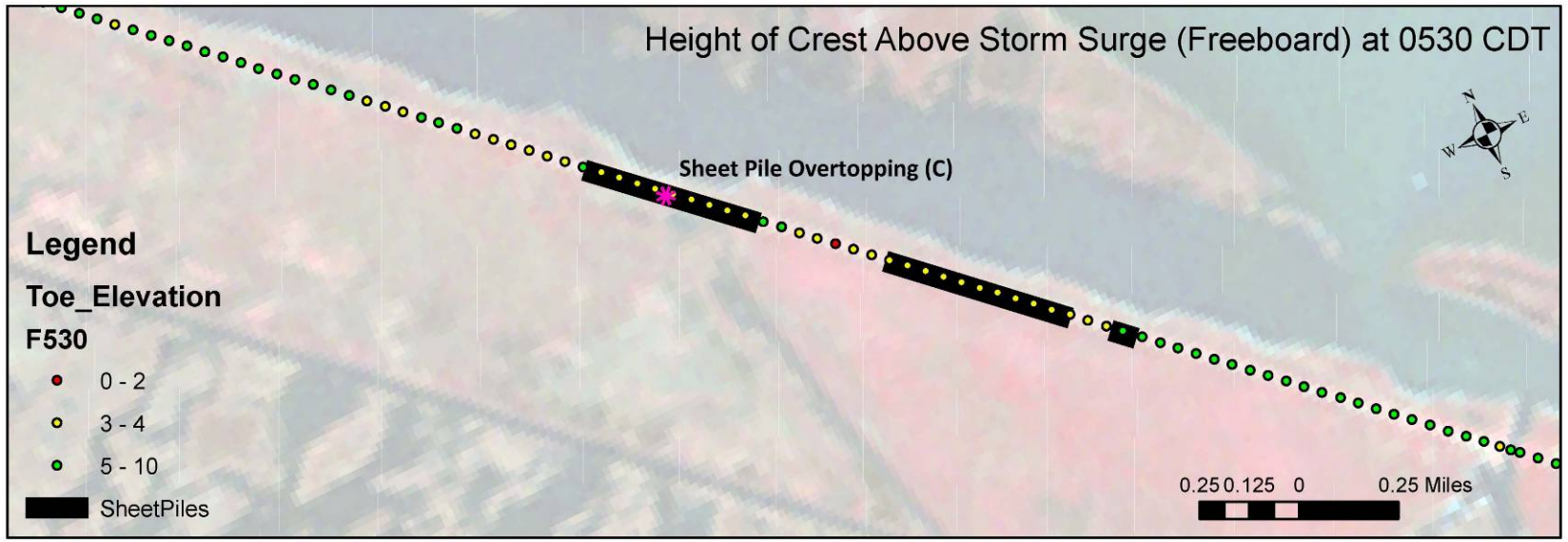
0530 Grass Cover Erosion & Freeboard Results

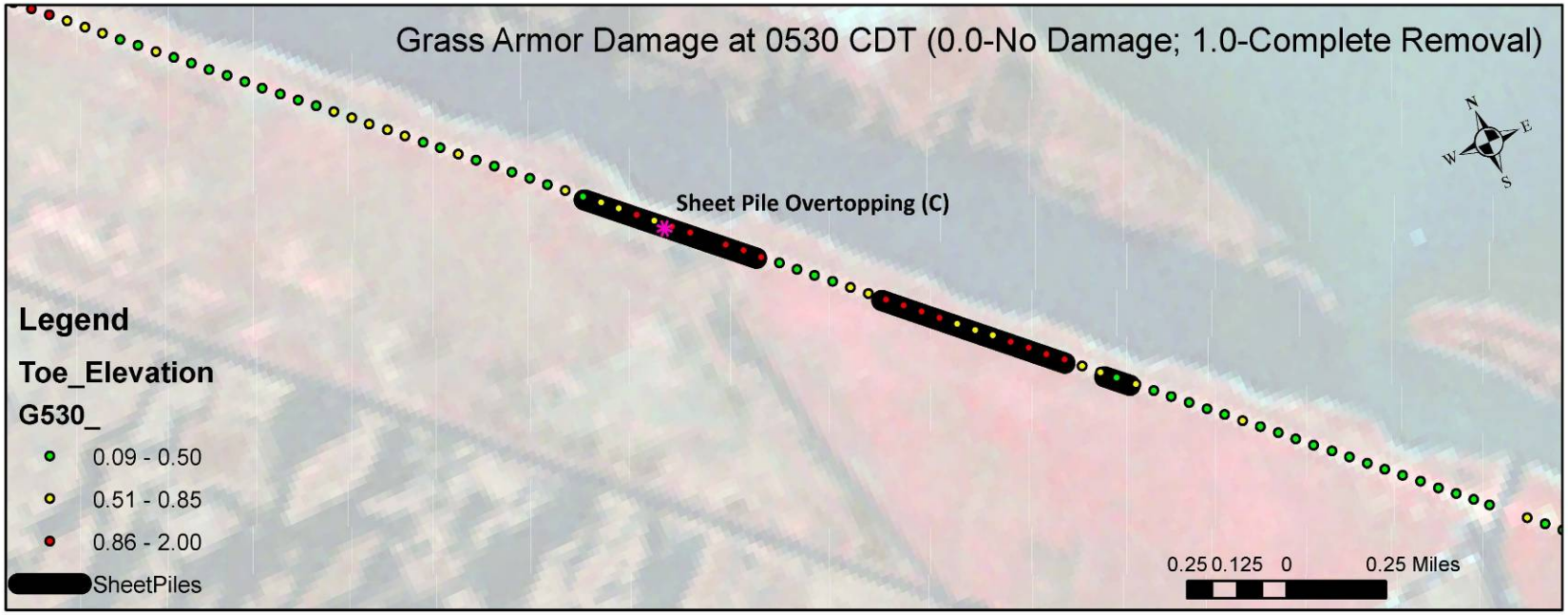

Height of Crest Above Storm Surge (Freeboard) at 0530 CDT
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breac (F)
Legend
Toe_Elevation
F530
0 - 2
3 - 4
5 - 10
SheetPiles
1 0.5 0 1 Miles


Grass Armor Damage at 0530 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Breach_Type_Locations
Toe_Elevation
G530_
0.09 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
1 0.5 0 1 Miles

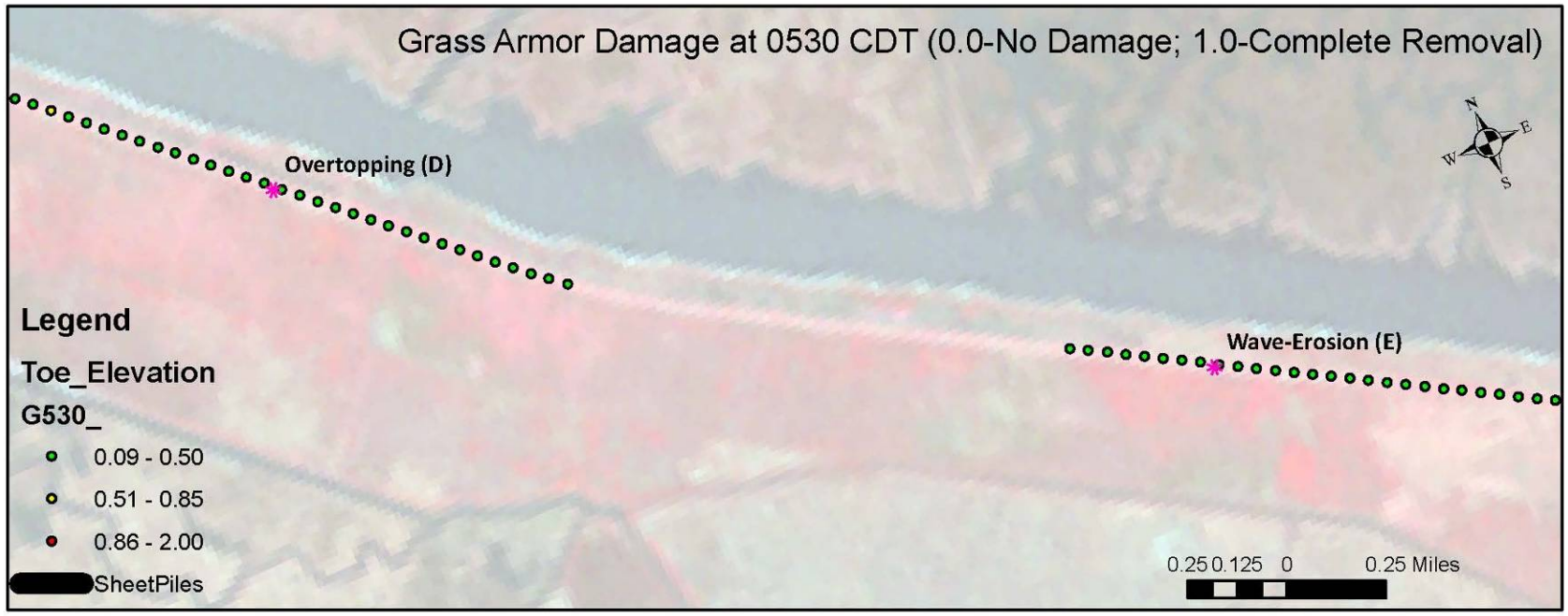

Height of Crest Above Storm Surge (Freeboard) at 0530 CDT
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
F530
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles
N
E
W
S

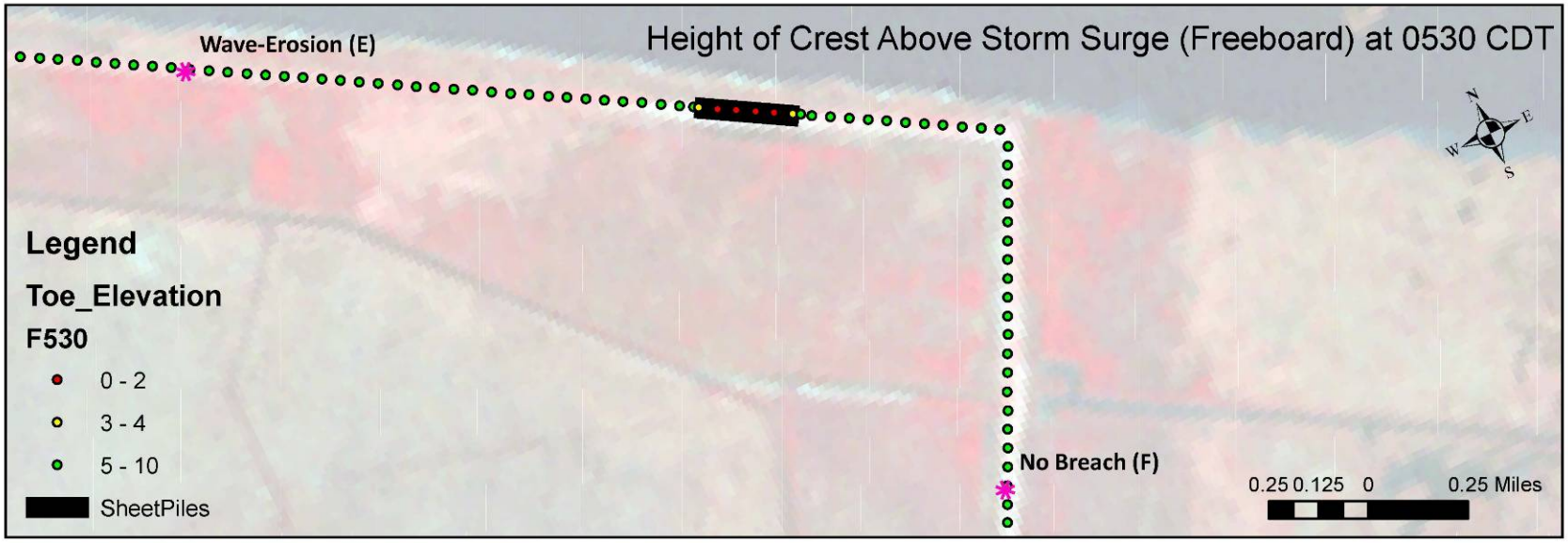

Grass Armor Damage at 0530 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
G530_
0.09 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
0.25 0.125 0 0.25 Miles
N
E
W
S

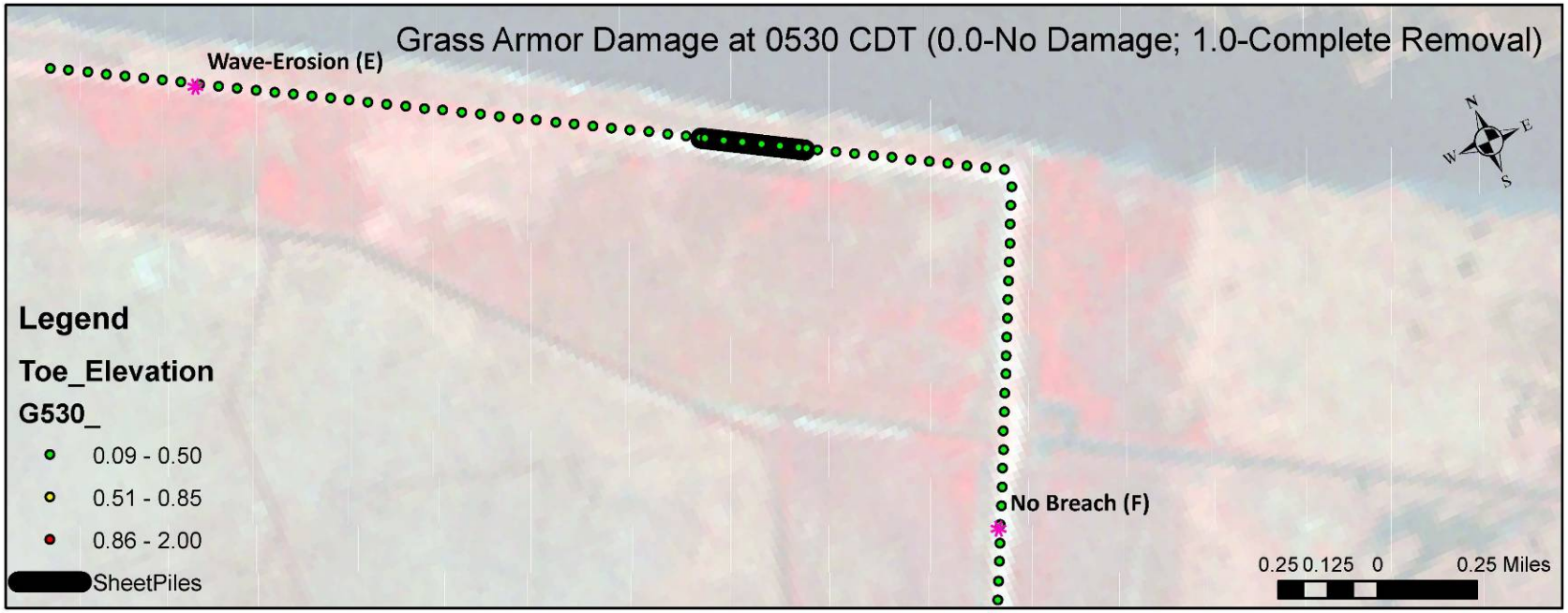

Height of Crest Above Storm Surge (Freeboard) at 0530 CDT
Sheet Pile Overtopping (C)
N
E
W
S
Legend
Toe_Elevation
F530
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles


Grass Armor Damage at 0530 CDT (0.0-No Damage; 1.0-Complete Removal)
Sheet Pile Overtopping (C)
N
E
W
S
Legend
Toe_Elevation
G530_
0.09 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
0.25 0.125 0 0.25 Miles


Height of Crest Above Storm Surge (Freeboard) at 0530 CDT
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
F530
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles

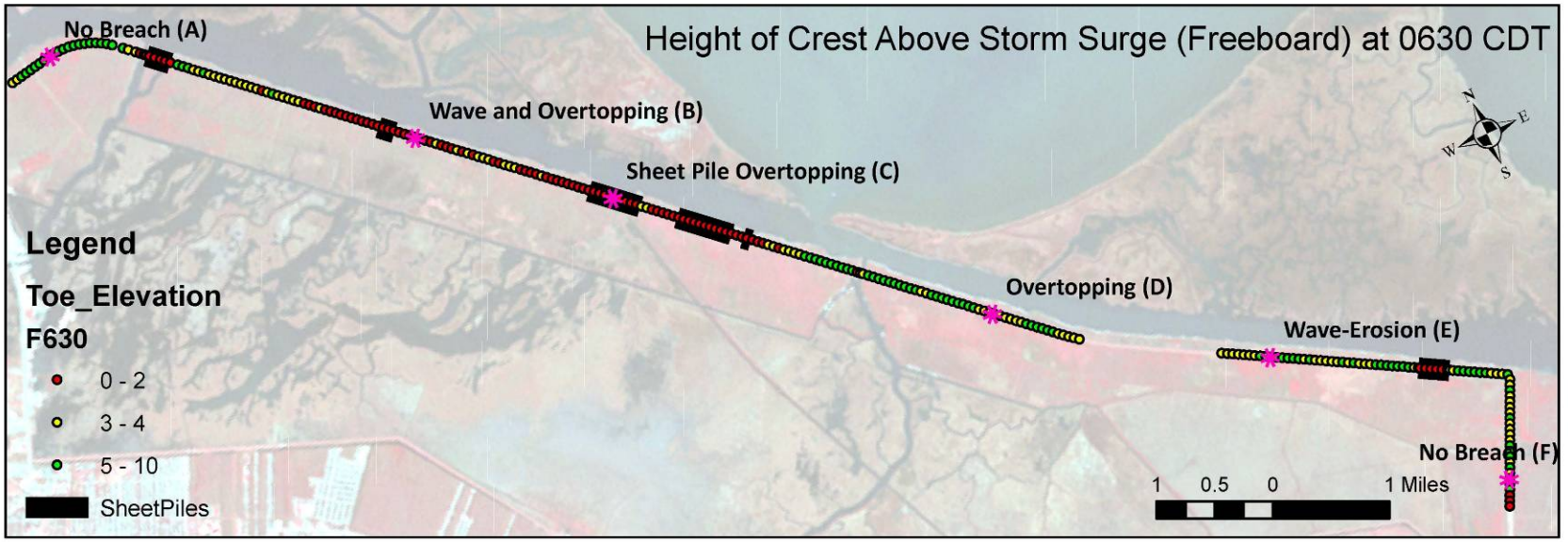

Grass Armor Damage at 0530 CDT (0.0-No Damage; 1.0-Complete Removal)
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
G530_
0.09 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
0.25 0.125 0 0.25 Miles

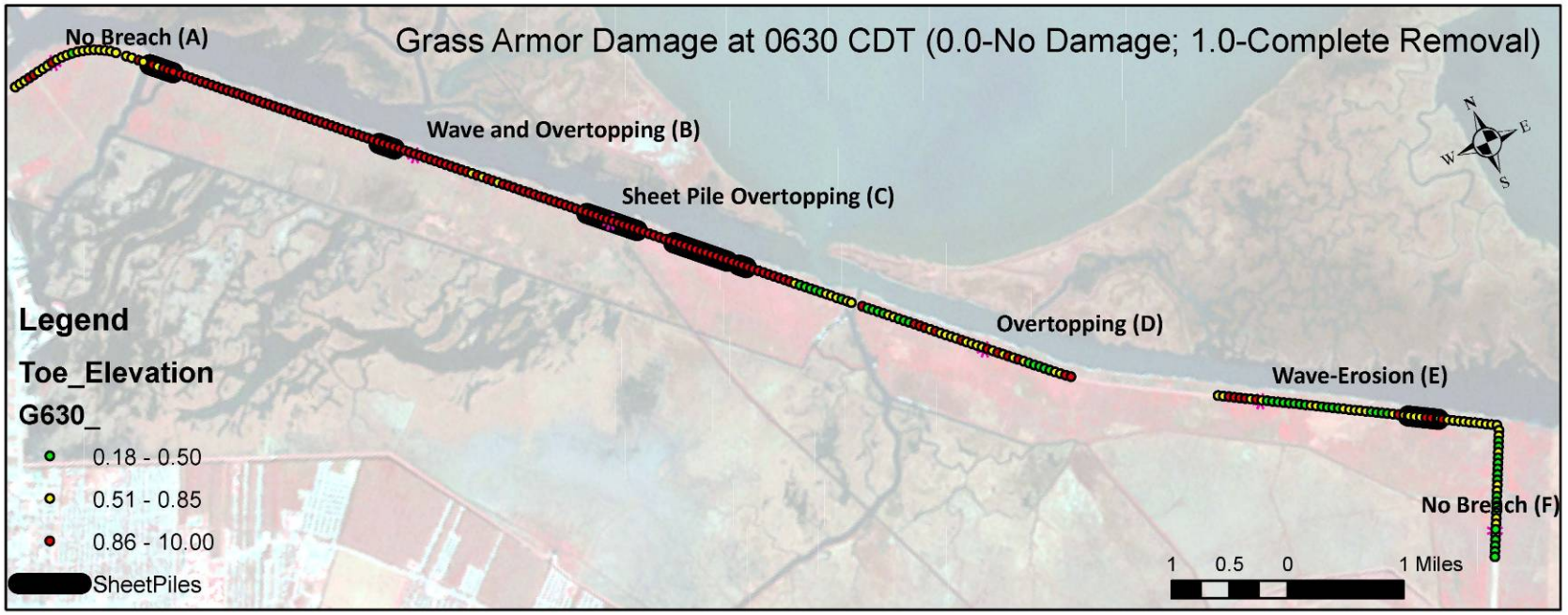

Height of Crest Above Storm Surge (Freeboard) at 0530 CDT
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
F530
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles
N
E
W
S

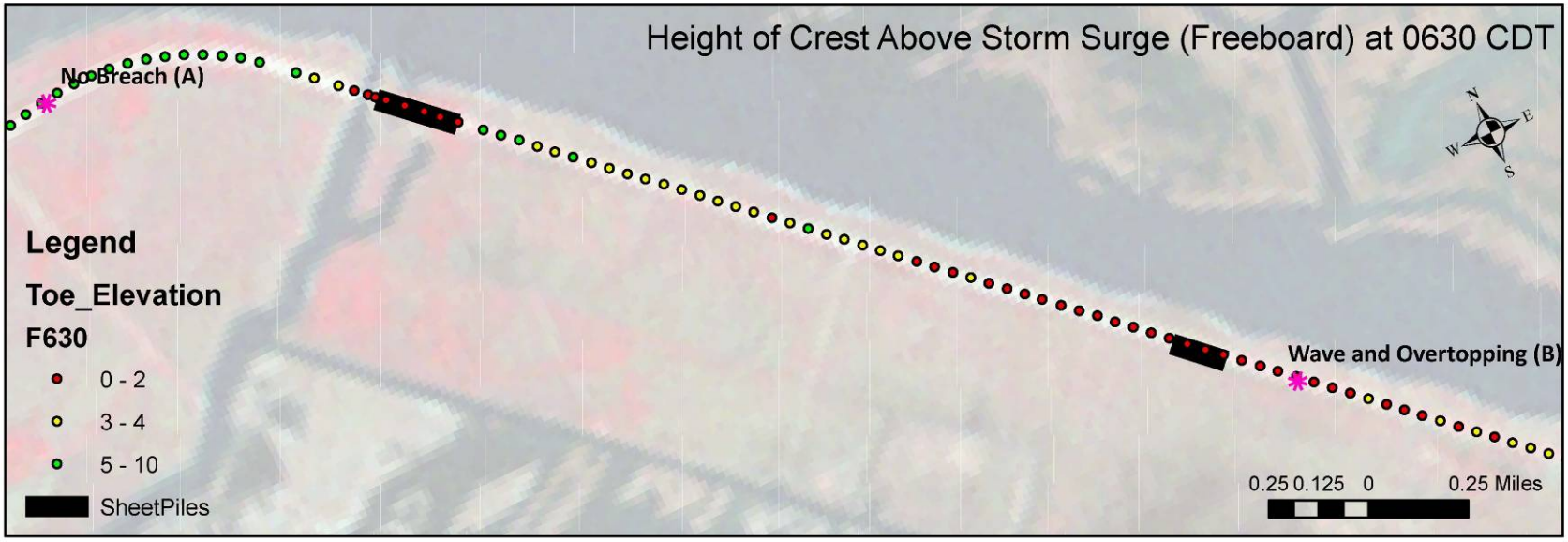

Grass Armor Damage at 0530 CDT (0.0-No Damage; 1.0-Complete Removal)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
G530_
0.09 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
0.25 0.125 0 0.25 Miles
N
E
W
S

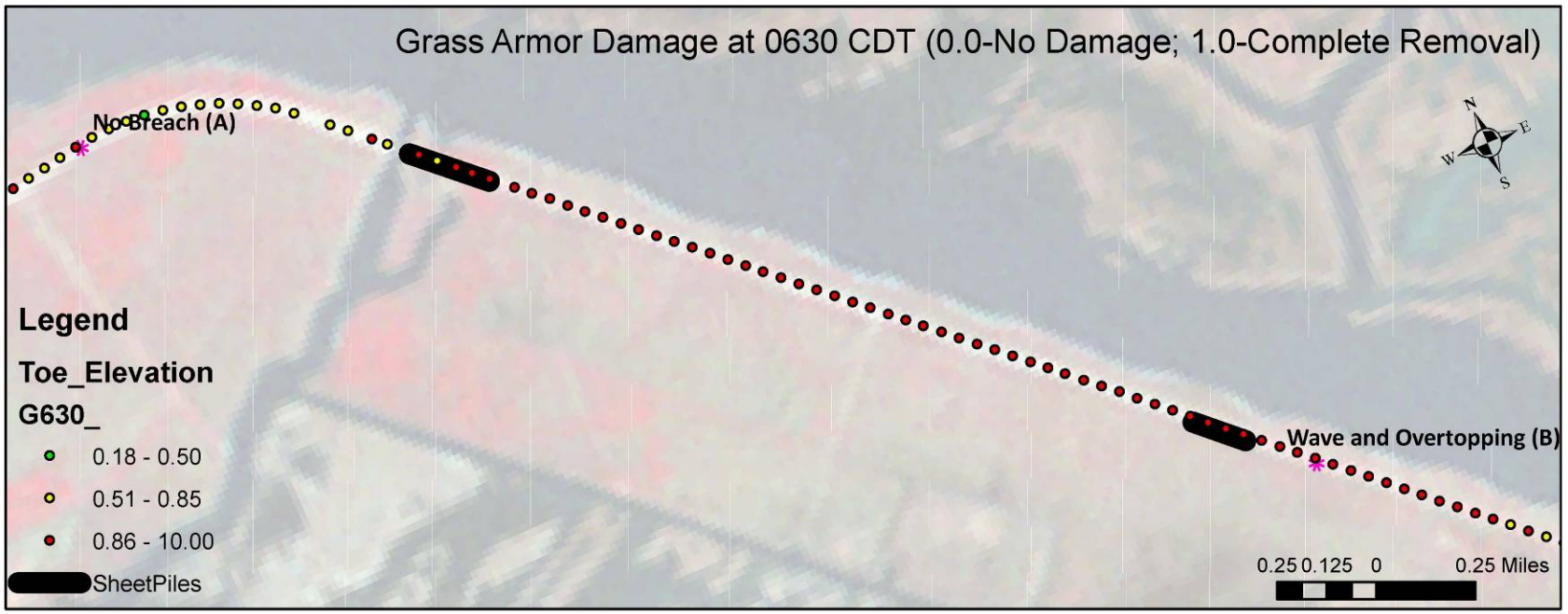
Appendix II

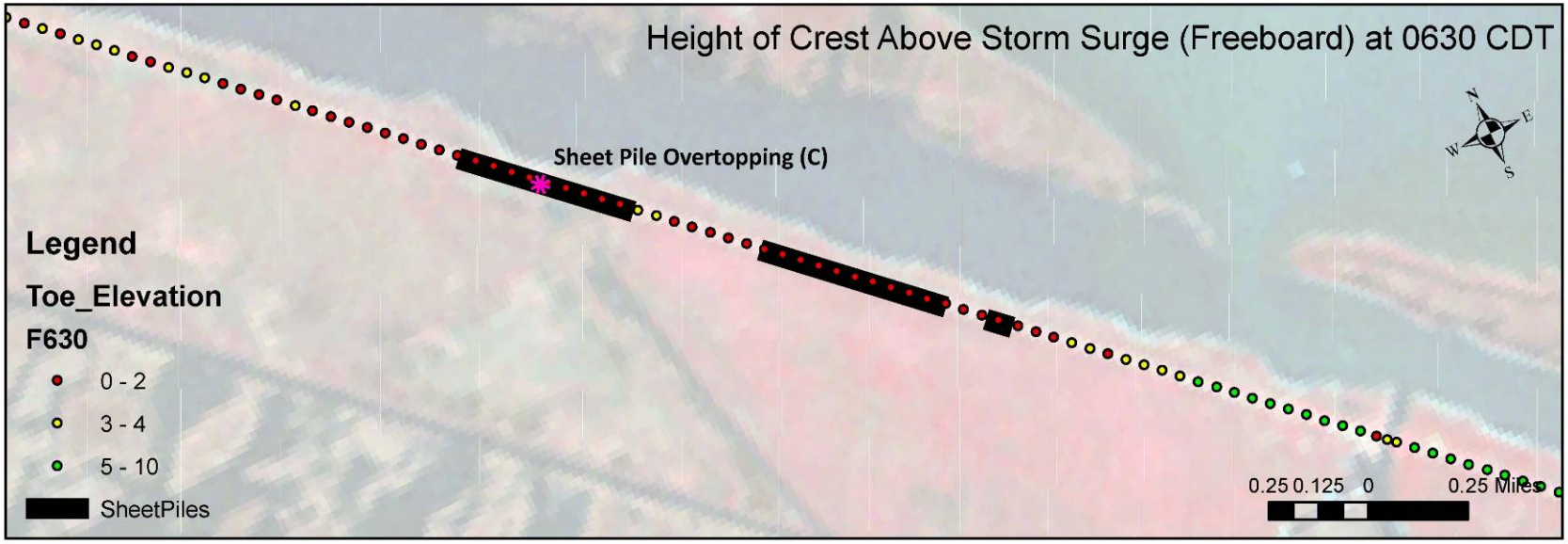
0630 Grass Cover Erosion & Freeboard Results

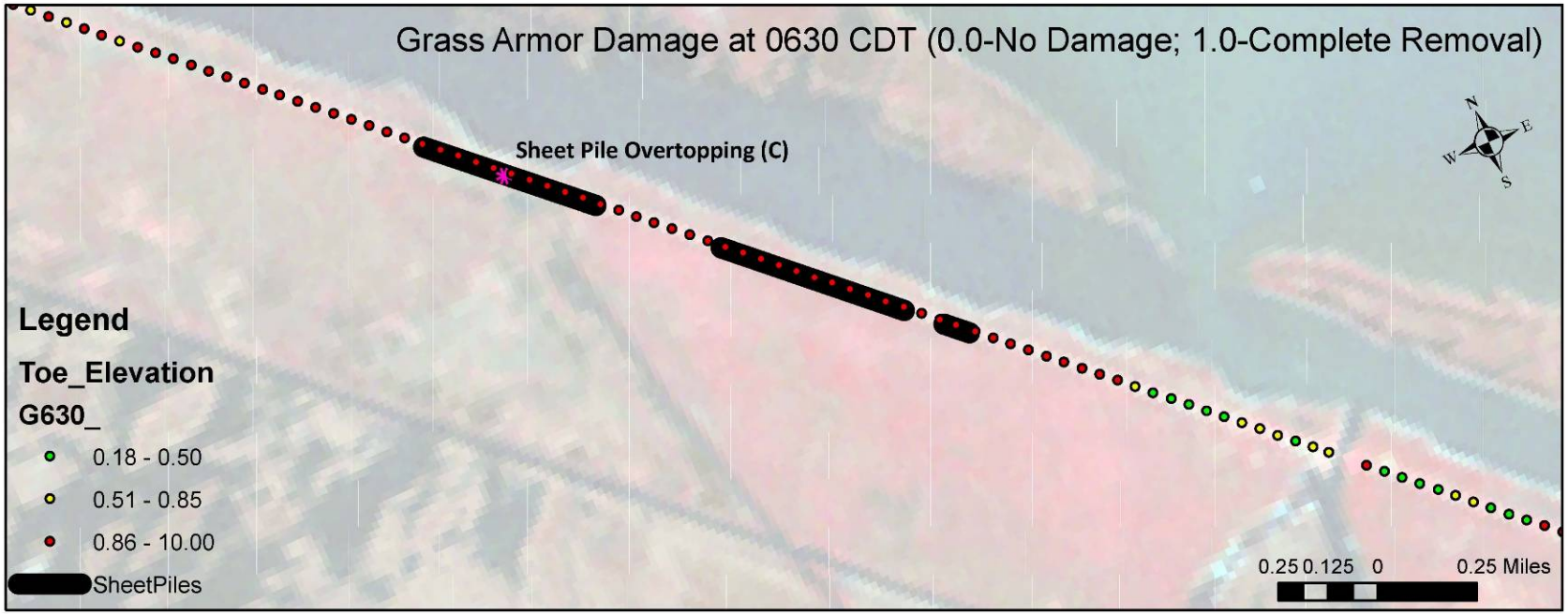

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
1 0.5 0 1 Miles

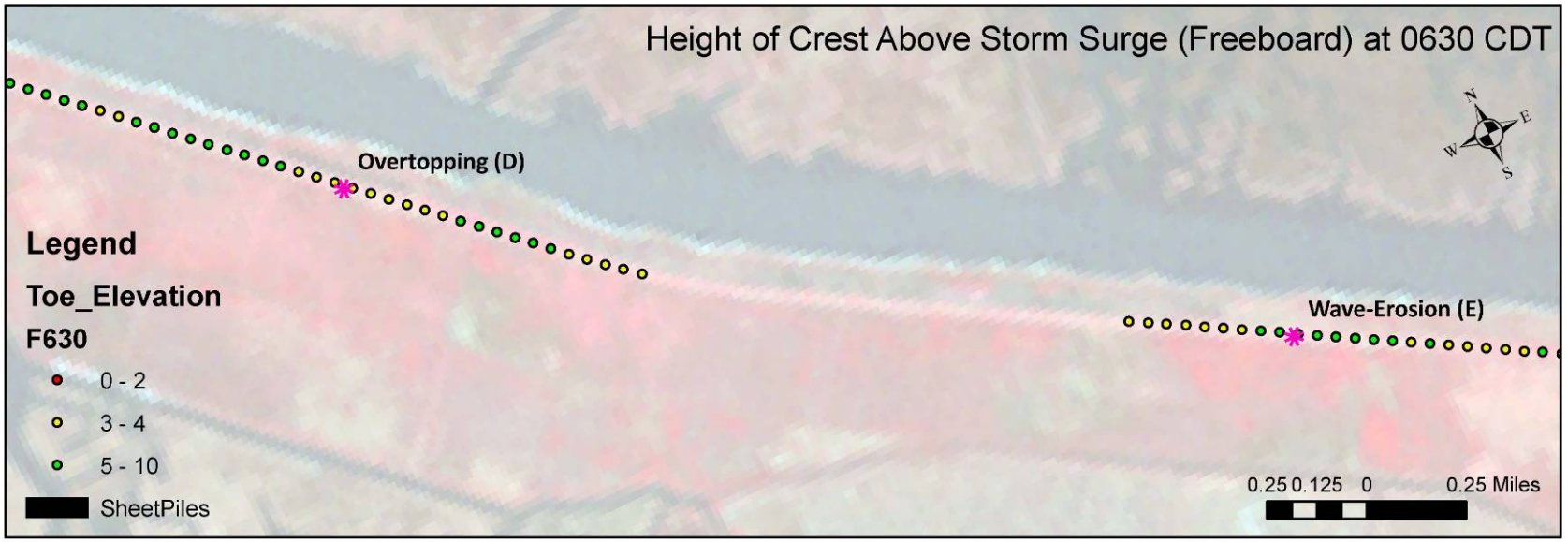

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
1 0.5 0 1 Miles

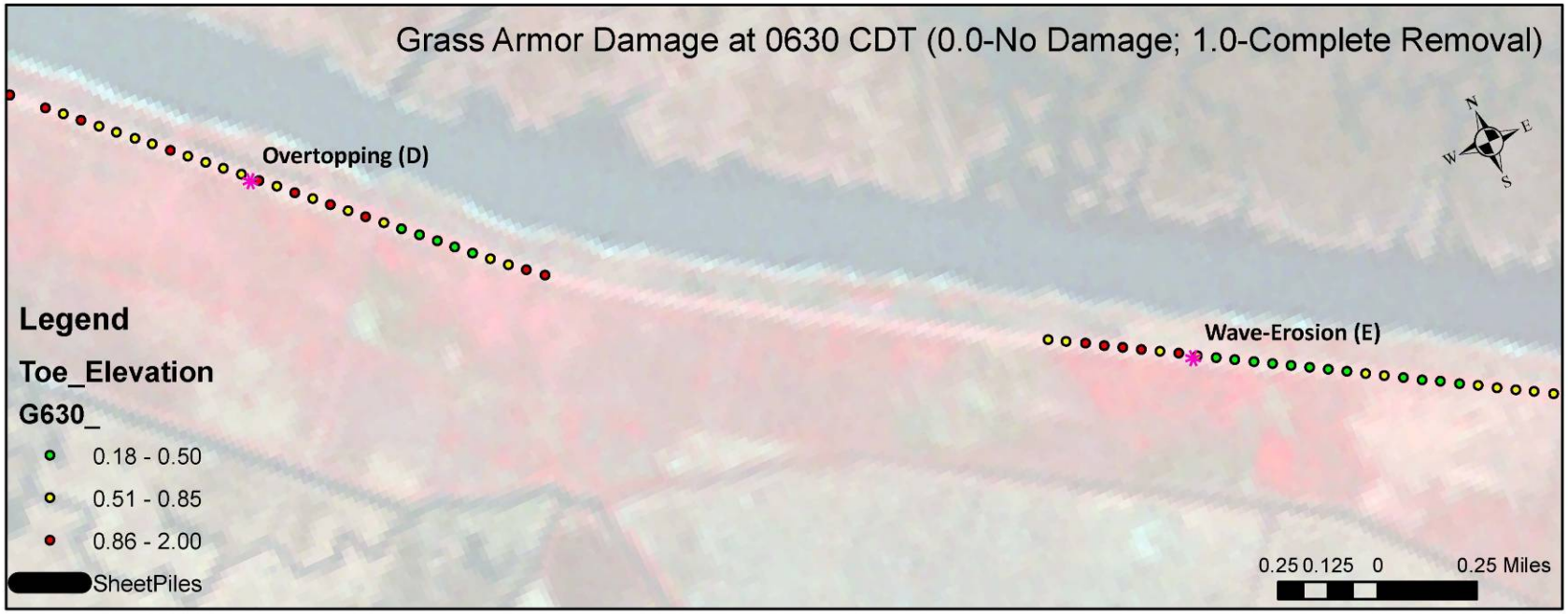

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles

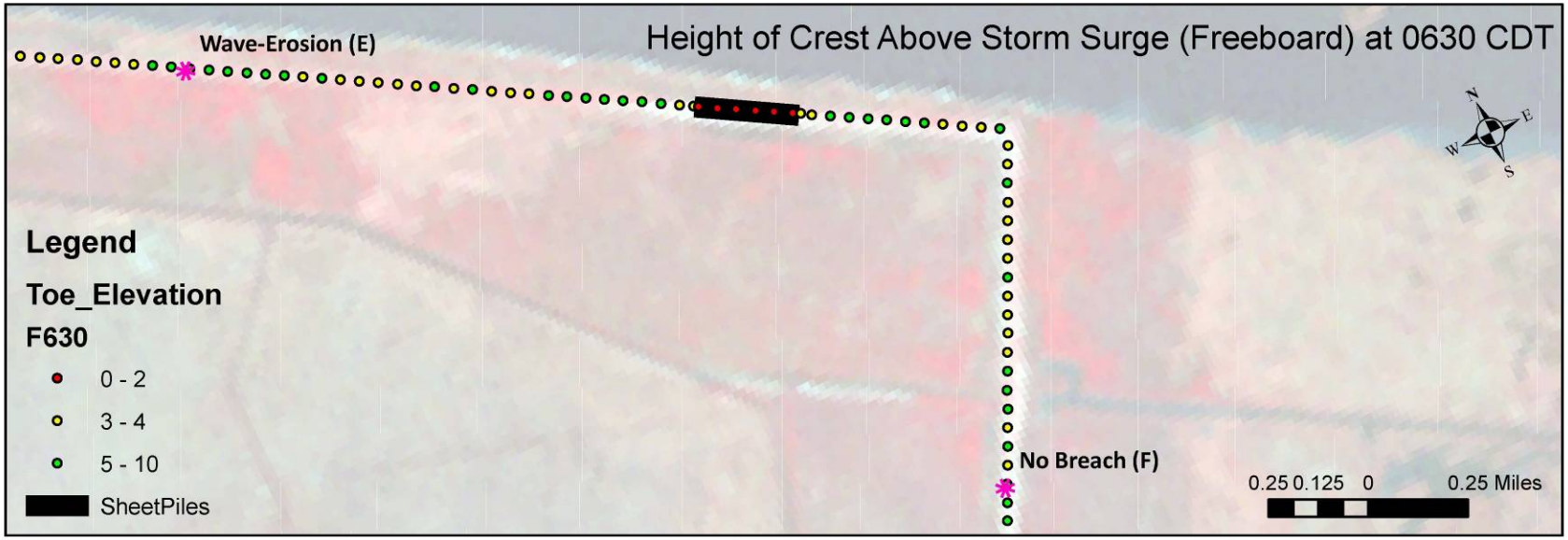

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
0.25 0.125 0 0.25 Miles

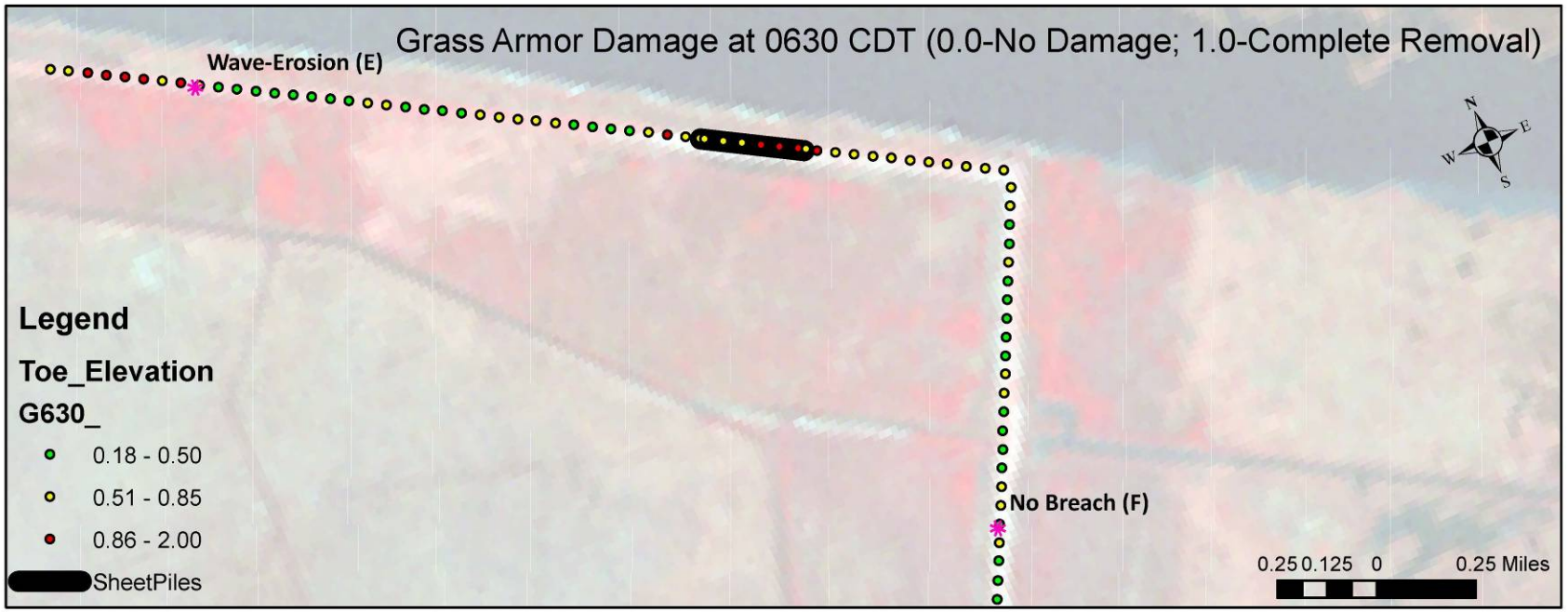

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
Sheet Pile Overtopping (C)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles

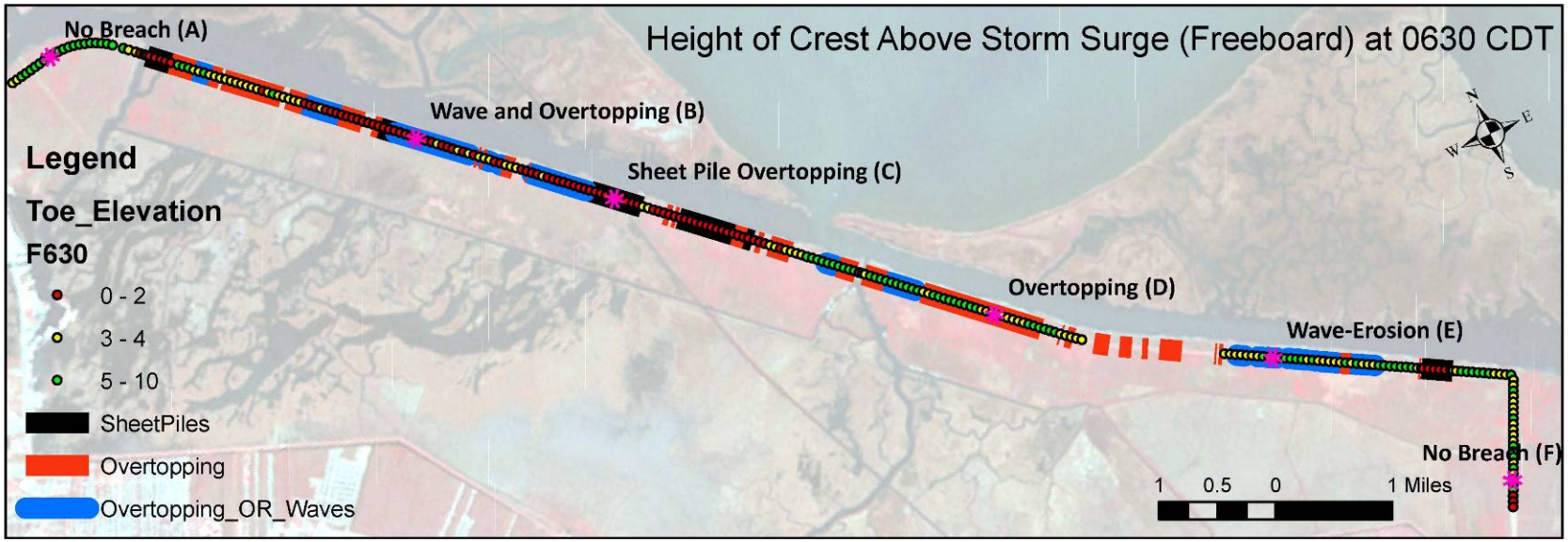

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
Sheet Pile Overtopping (C)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
0.25 0.125 0 0.25 Miles

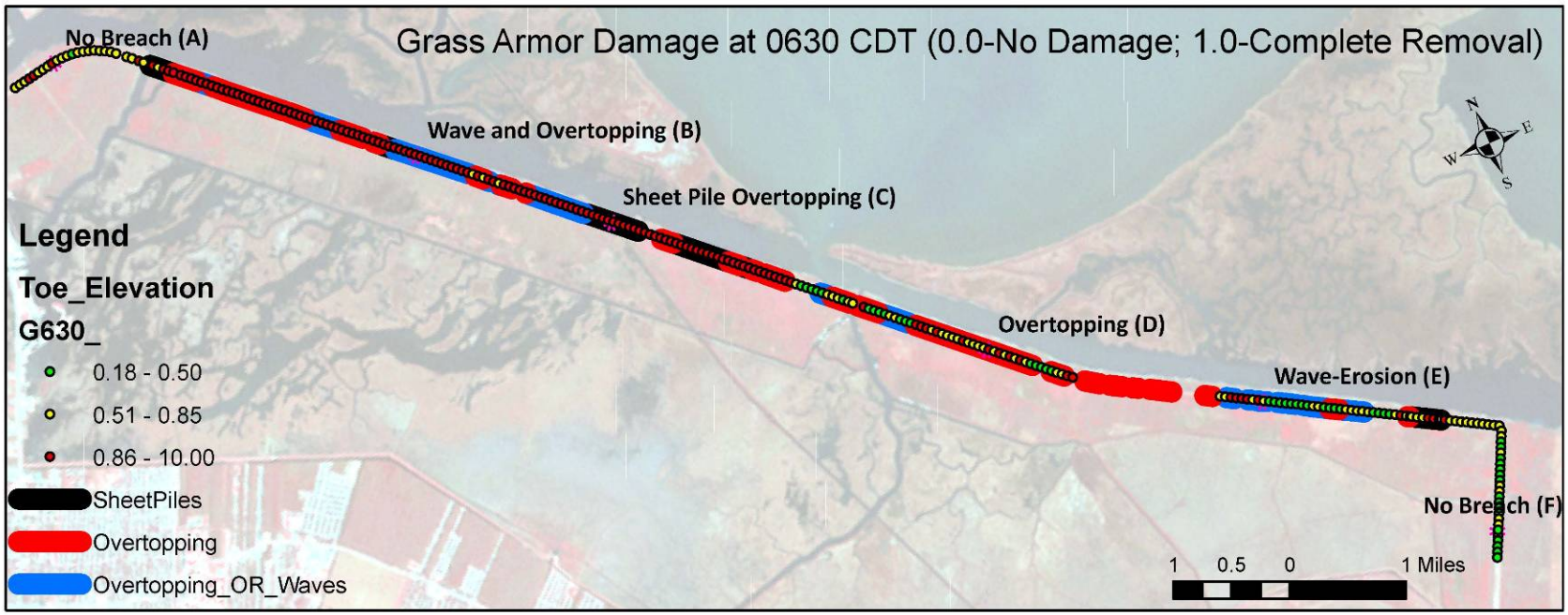

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles

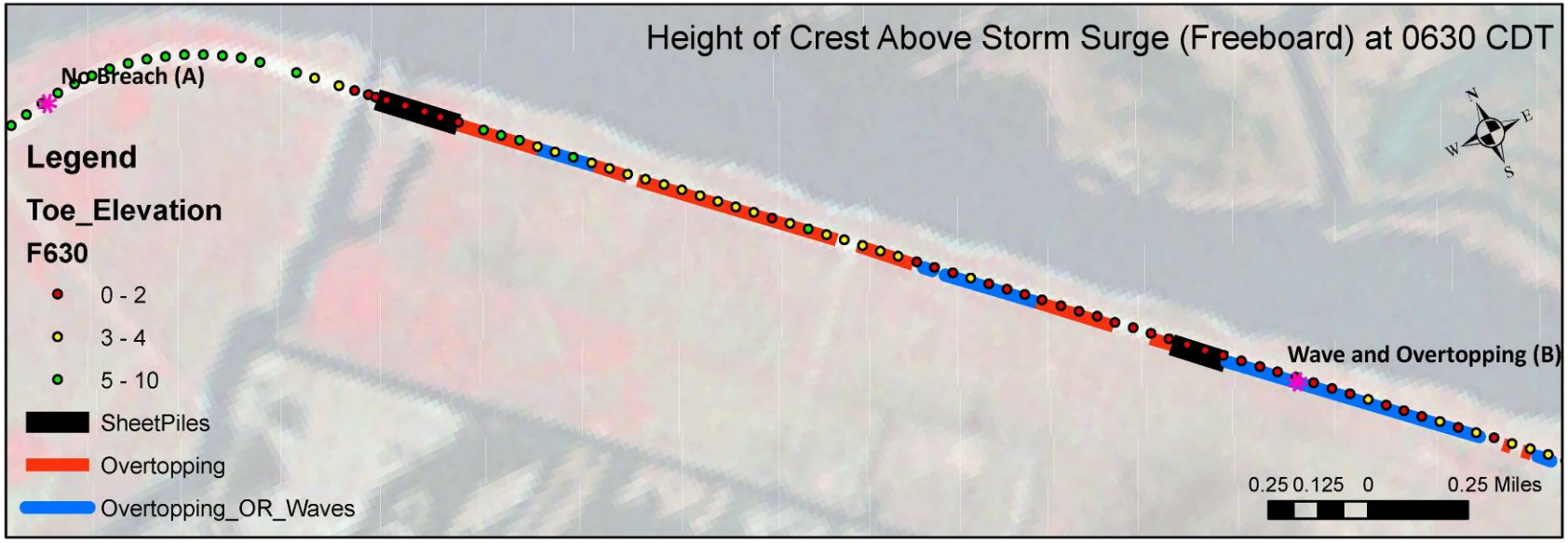

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
0.25 0.125 0 0.25 Miles

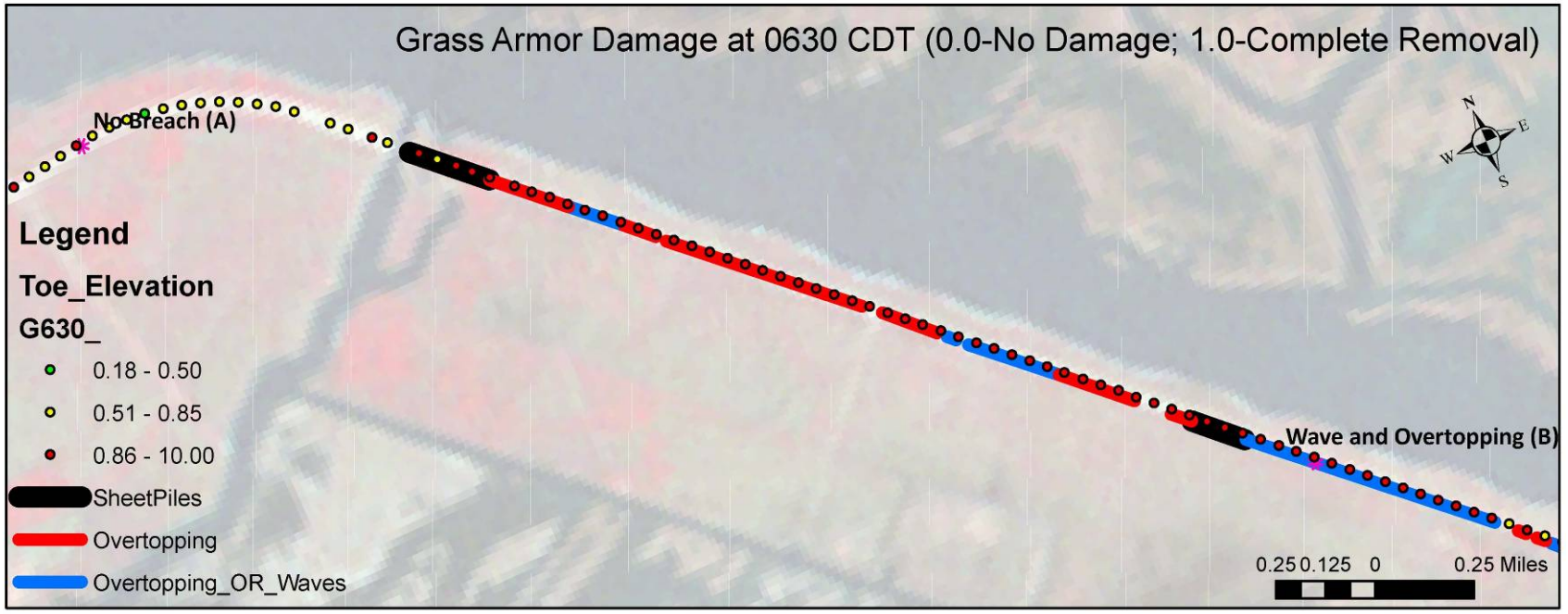

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
0.25 0.125 0 0.25 Miles
N
E
W
S

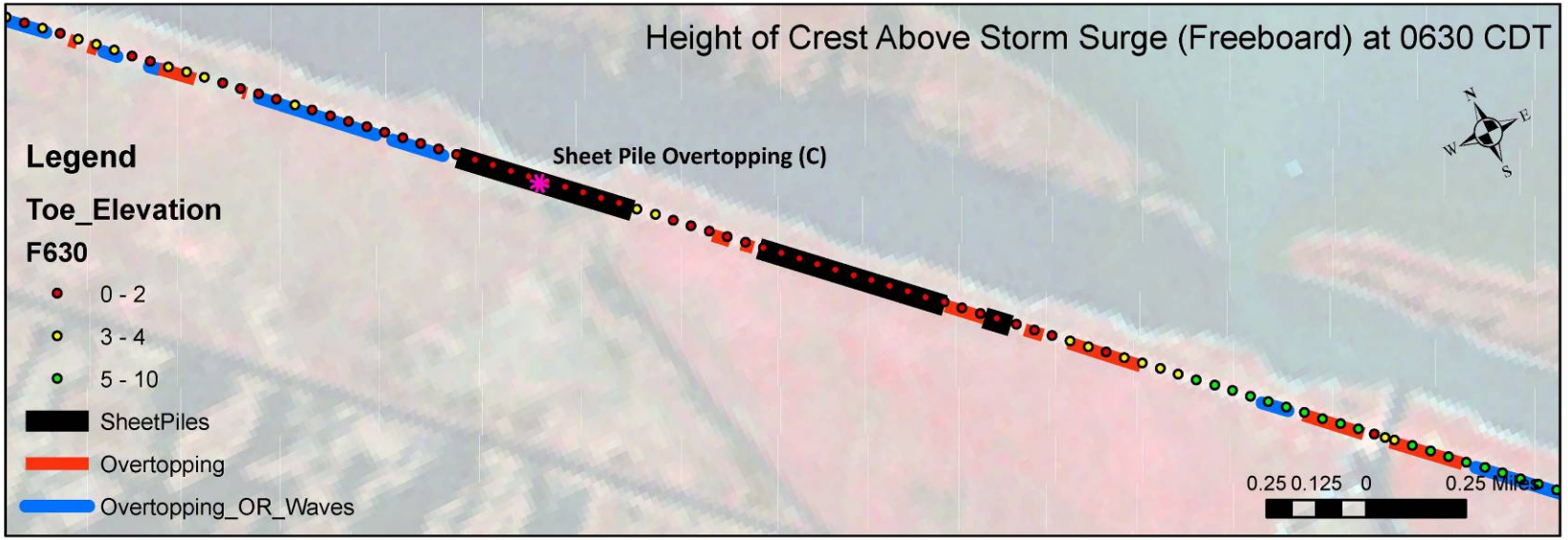

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
0.25 0.125 0 0.25 Miles
N
E
W
S

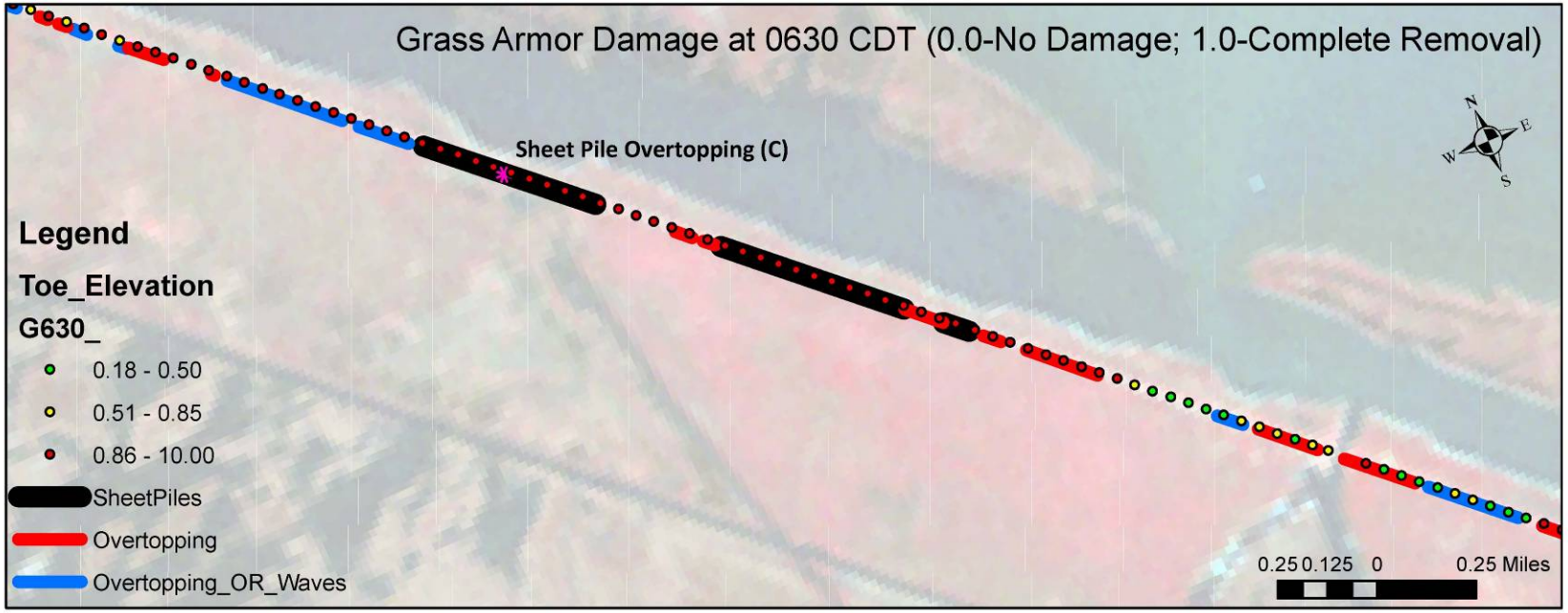

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
1 0.5 0 1 Miles

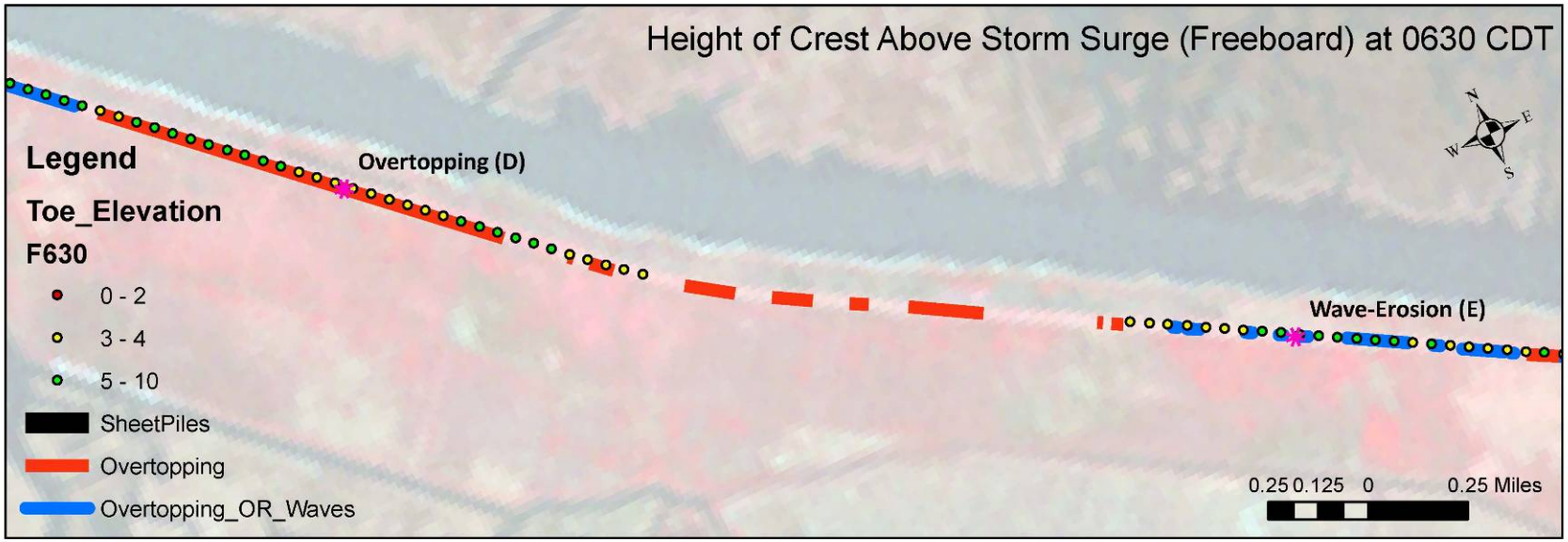

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
Overtopping
Overtopping_OR_Waves
1 0.5 0 1 Miles

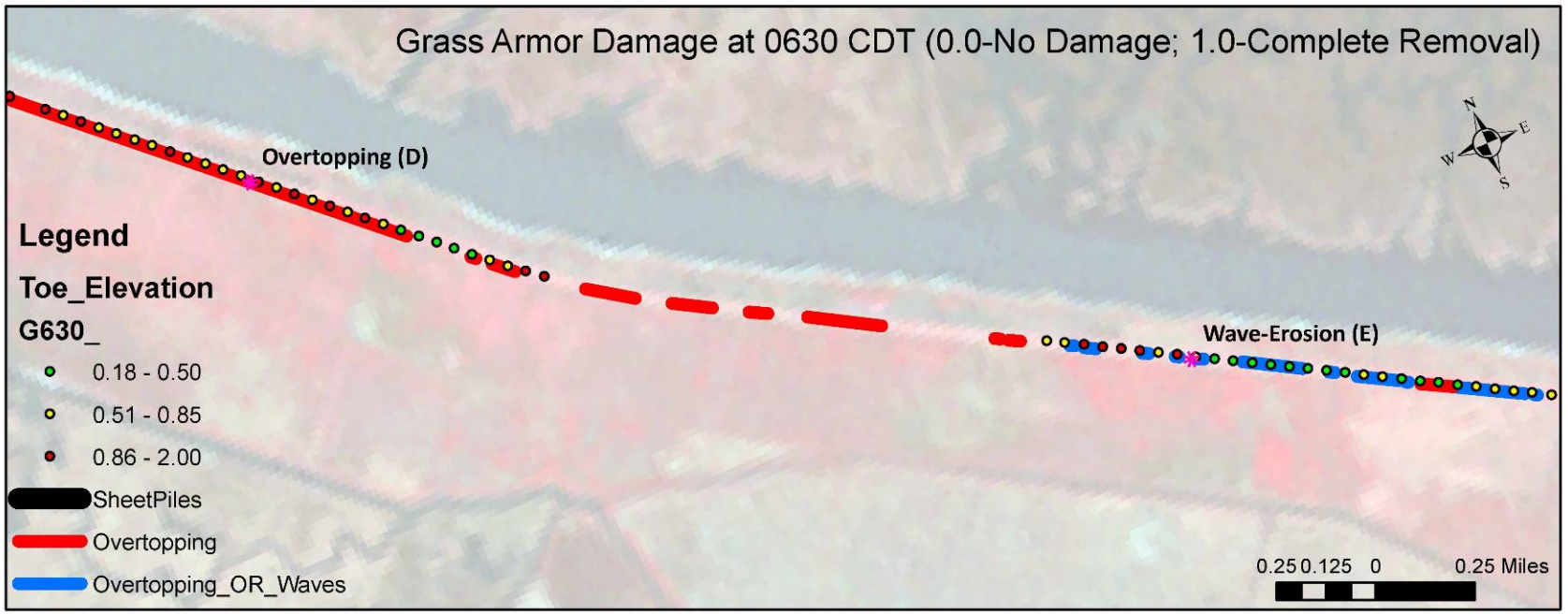

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
0.25 0.125 0 0.25 Miles
N
E
W
S

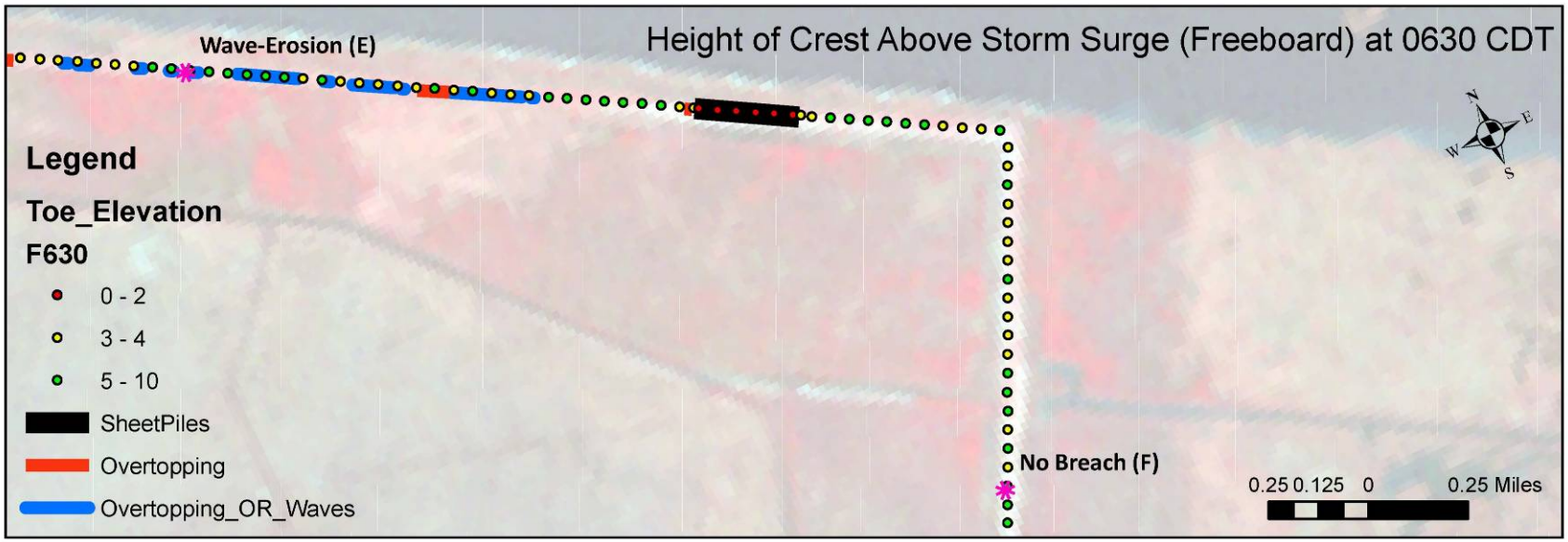

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
Overtopping
Overtopping_OR_Waves
0.25 0.125 0 0.25 Miles
N
E
W
S

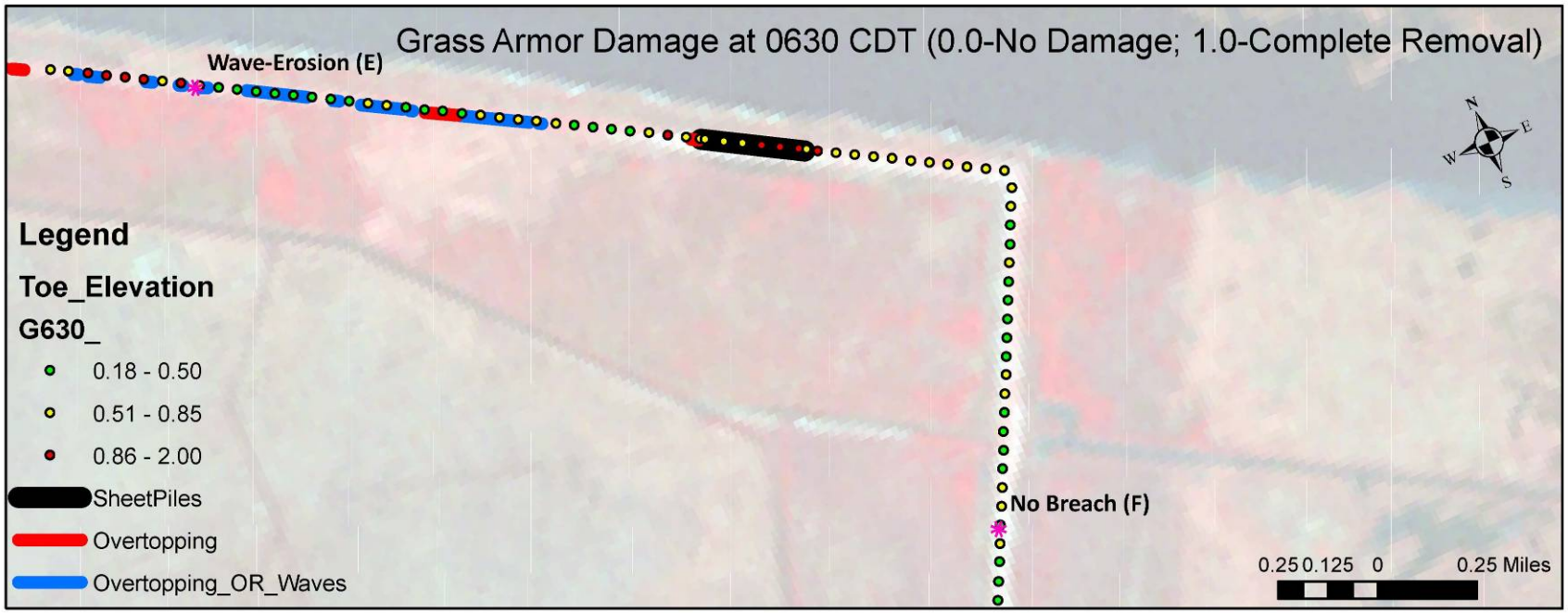

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
Sheet Pile Overtopping (C)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
0.25 0.125 0 0.25 Miles


Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
Sheet Pile Overtopping (C)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
Overtopping
Overtopping_OR_Waves
0.25 0.125 0 0.25 Miles


Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
Overtopping (D)
Wave-Erosion (E)
N
E
W
S
0.25 0.125 0 0.25 Miles

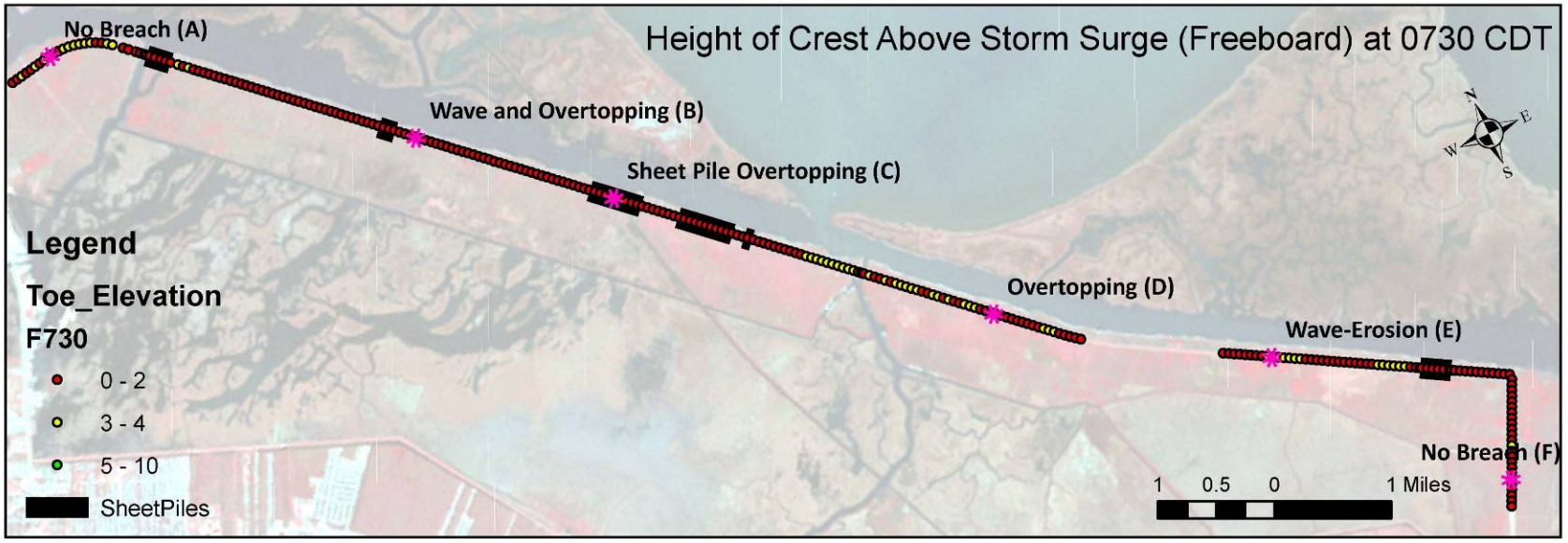

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
Overtopping
Overtopping_OR_Waves
Overtopping (D)
Wave-Erosion (E)
N
E
W
S
0.25 0.125 0 0.25 Miles

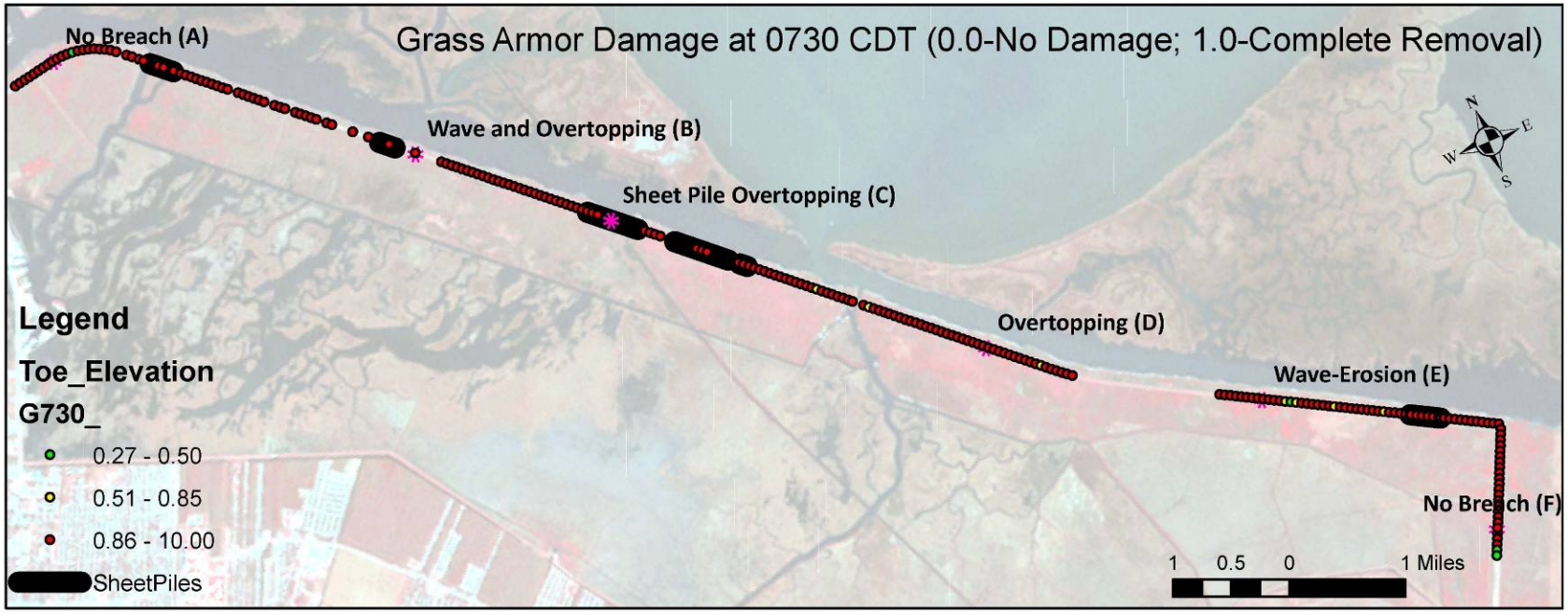

Height of Crest Above Storm Surge (Freeboard) at 0630 CDT
Wave-Erosion (E)
Legend
Toe_Elevation
F630
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
No Breach (F)
0.25 0.125 0 0.25 Miles
N
E
W
S

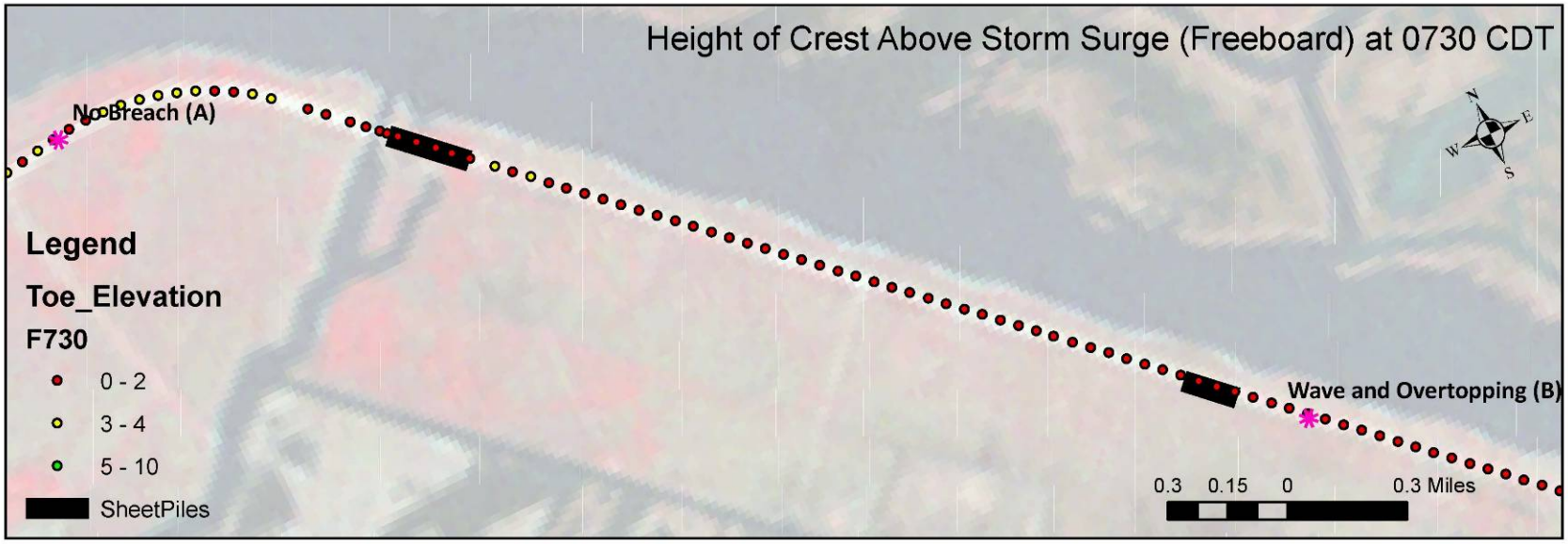

Grass Armor Damage at 0630 CDT (0.0-No Damage; 1.0-Complete Removal)
Wave-Erosion (E)
Legend
Toe_Elevation
G630_
0.18 - 0.50
0.51 - 0.85
0.86 - 2.00
SheetPiles
Overtopping
Overtopping_OR_Waves
No Breach (F)
0.25 0.125 0 0.25 Miles
N
E
W
S

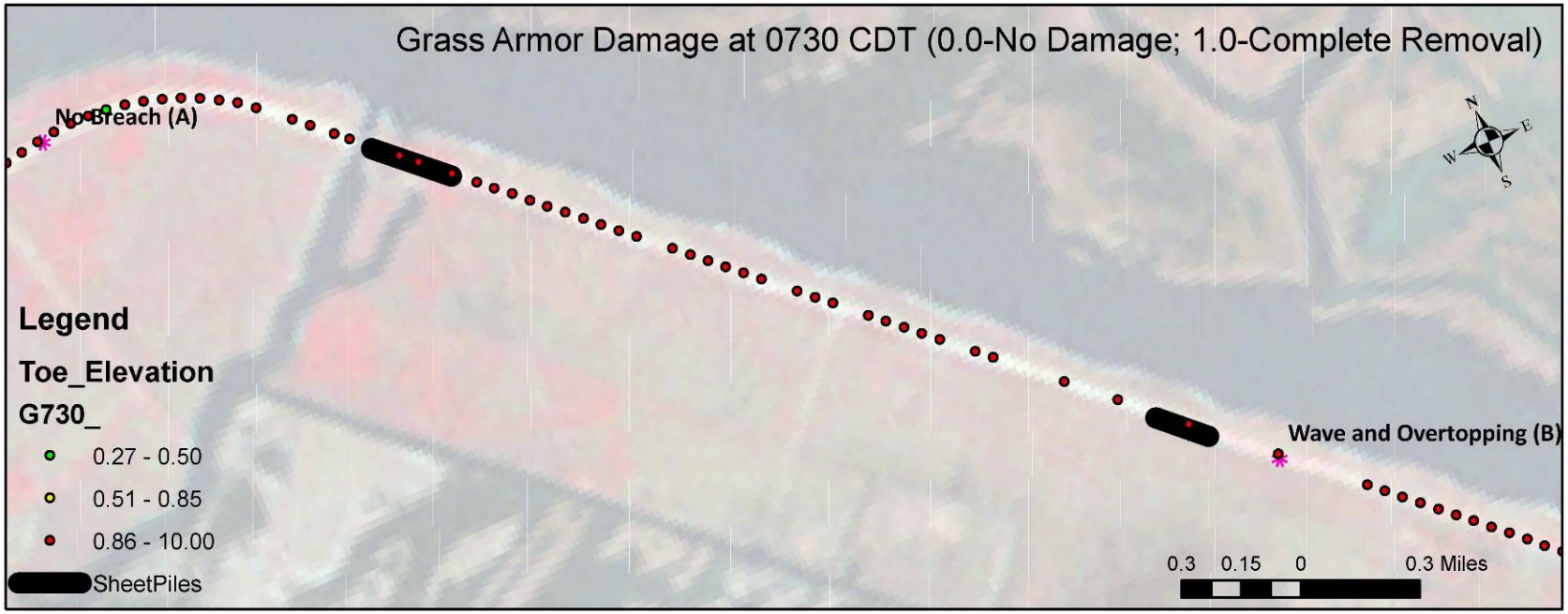
Appendix III

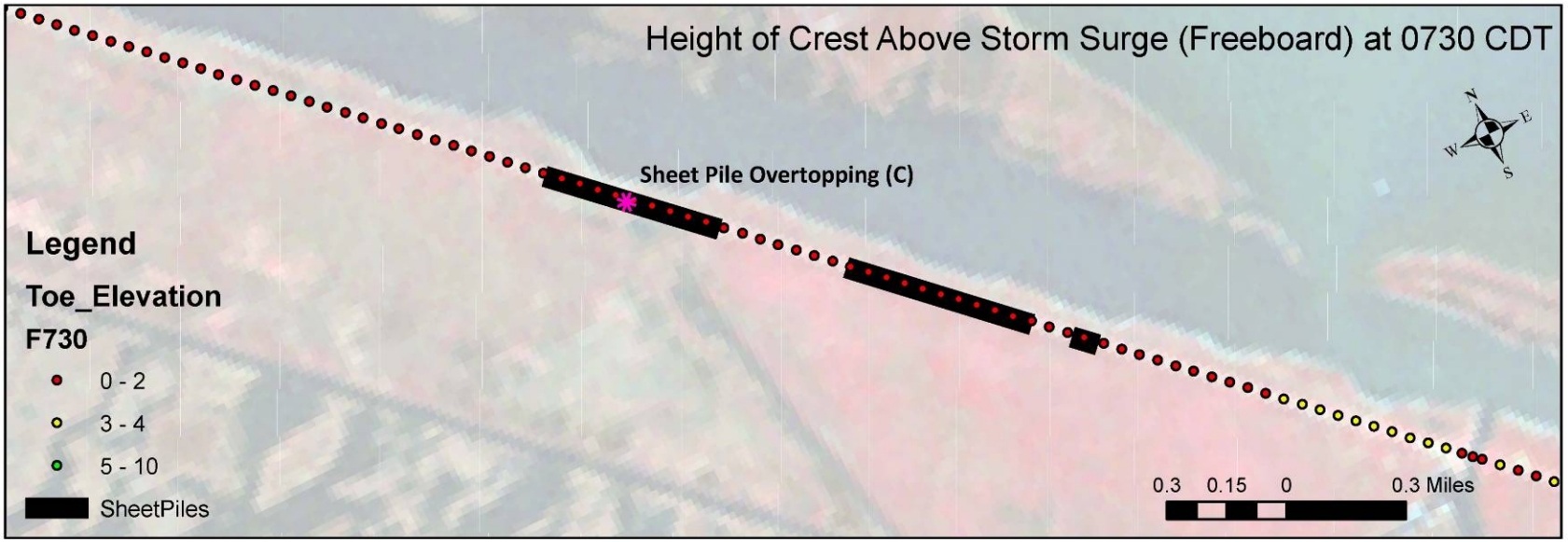
0730 Grass Cover Erosion & Freeboard Results

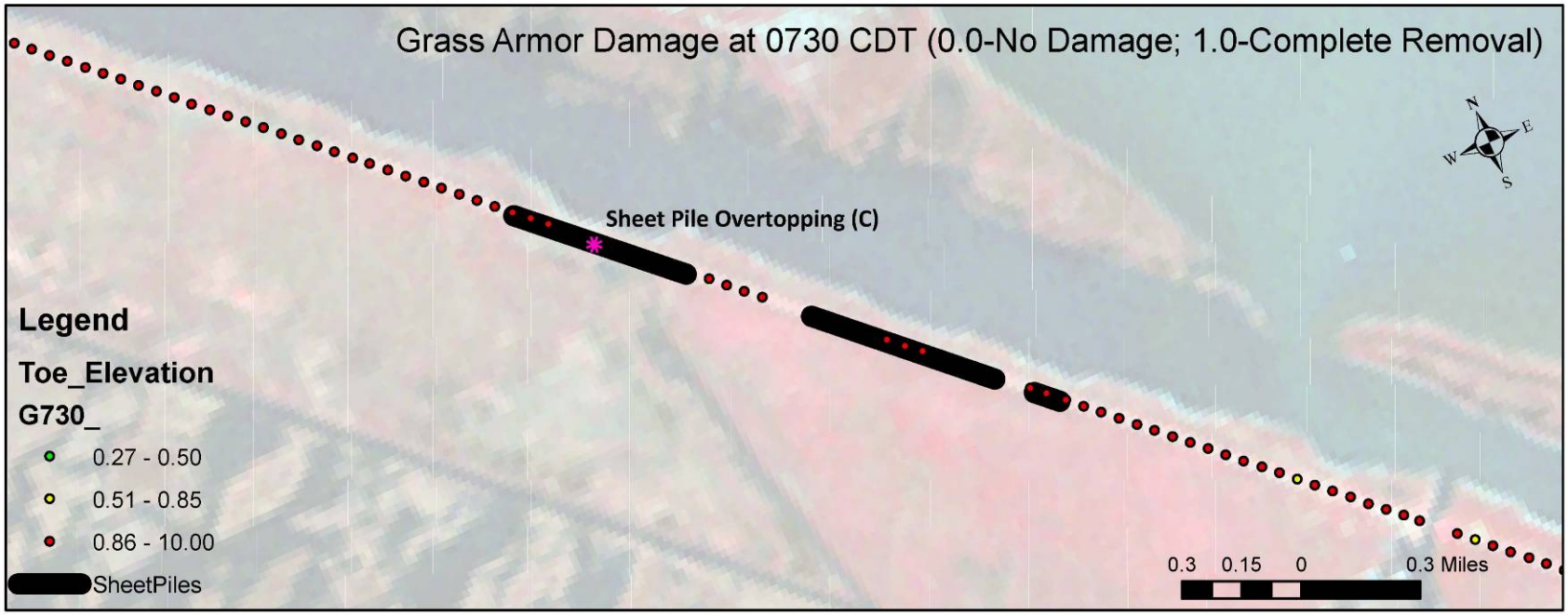

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
1 0.5 0 1 Miles
N
E
W
S

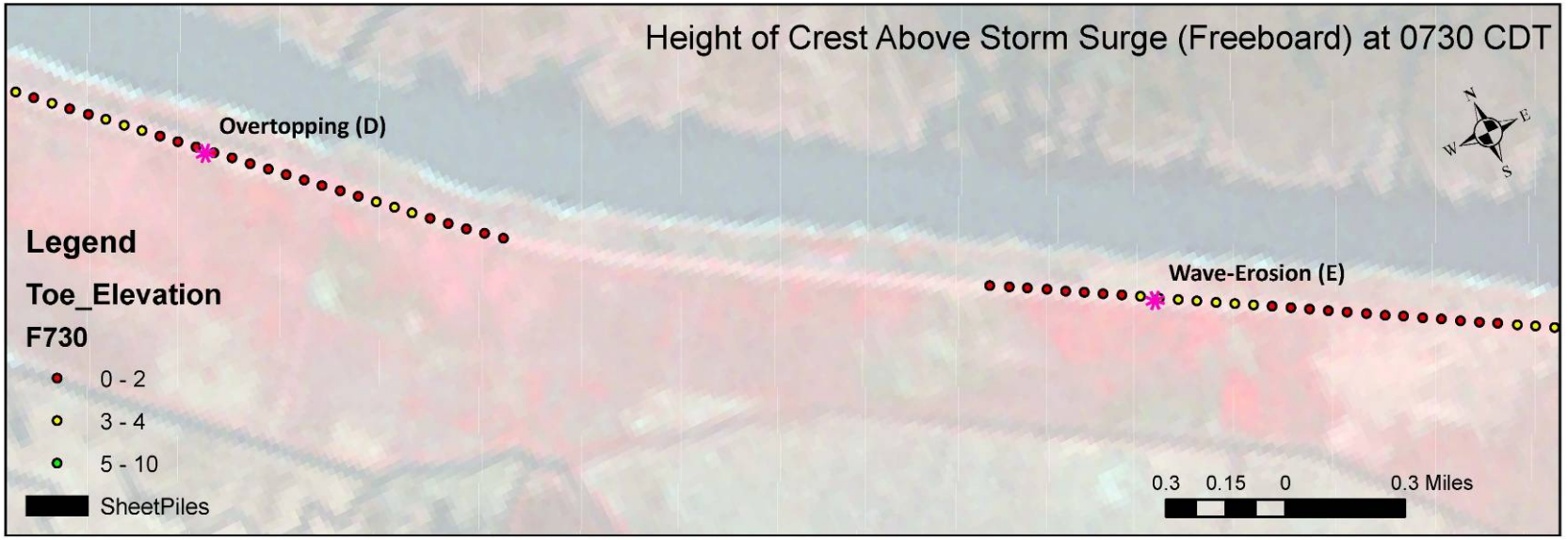

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
1 0.5 0 1 Miles
N
E
W
S

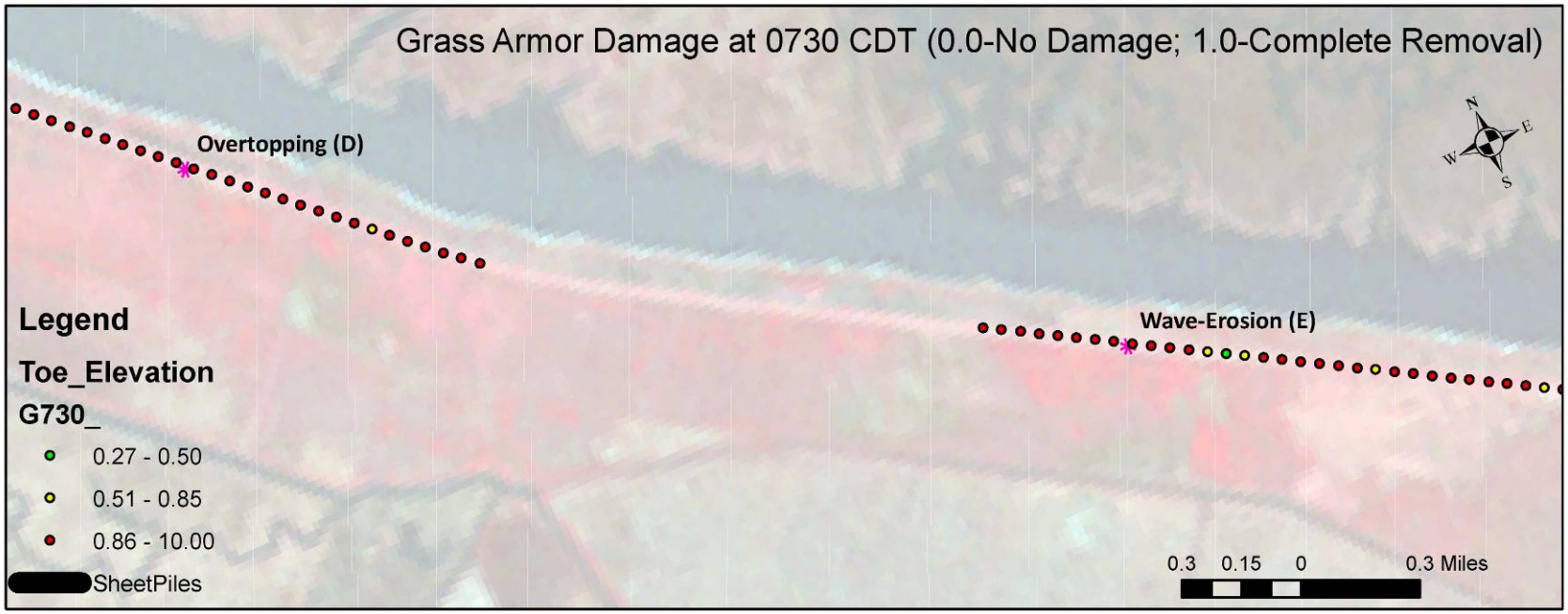

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
0.3 0.15 0 0.3 Miles

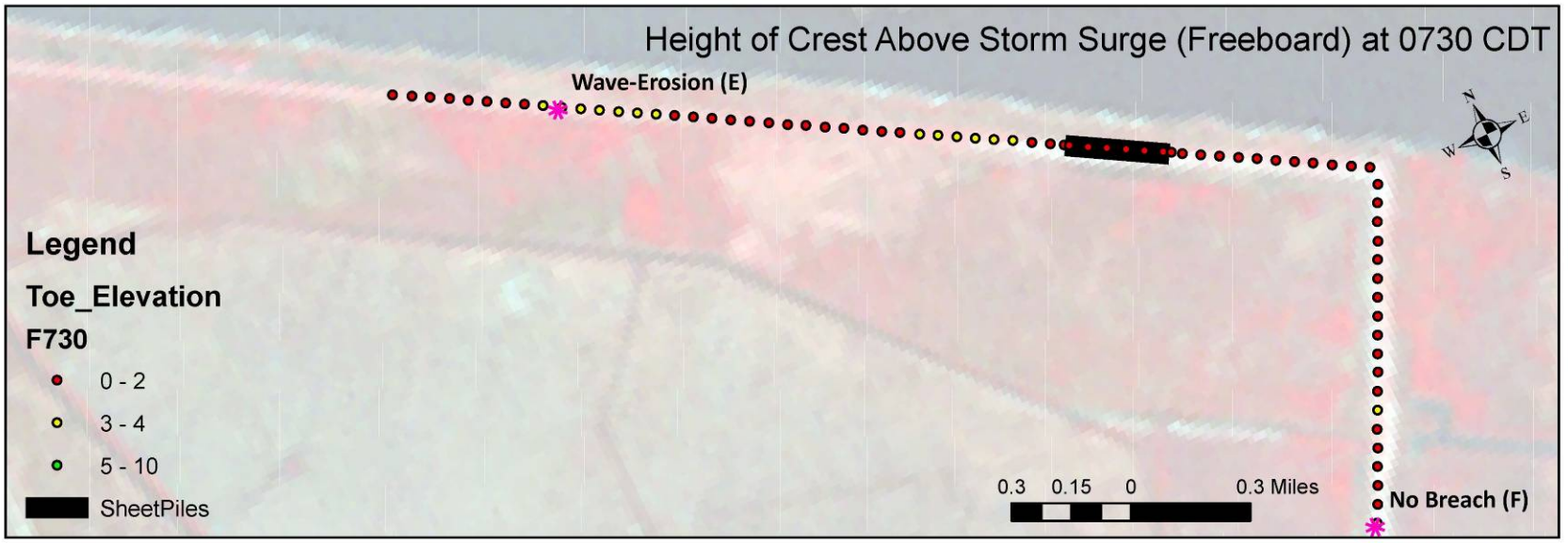

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
0.3 0.15 0 0.3 Miles

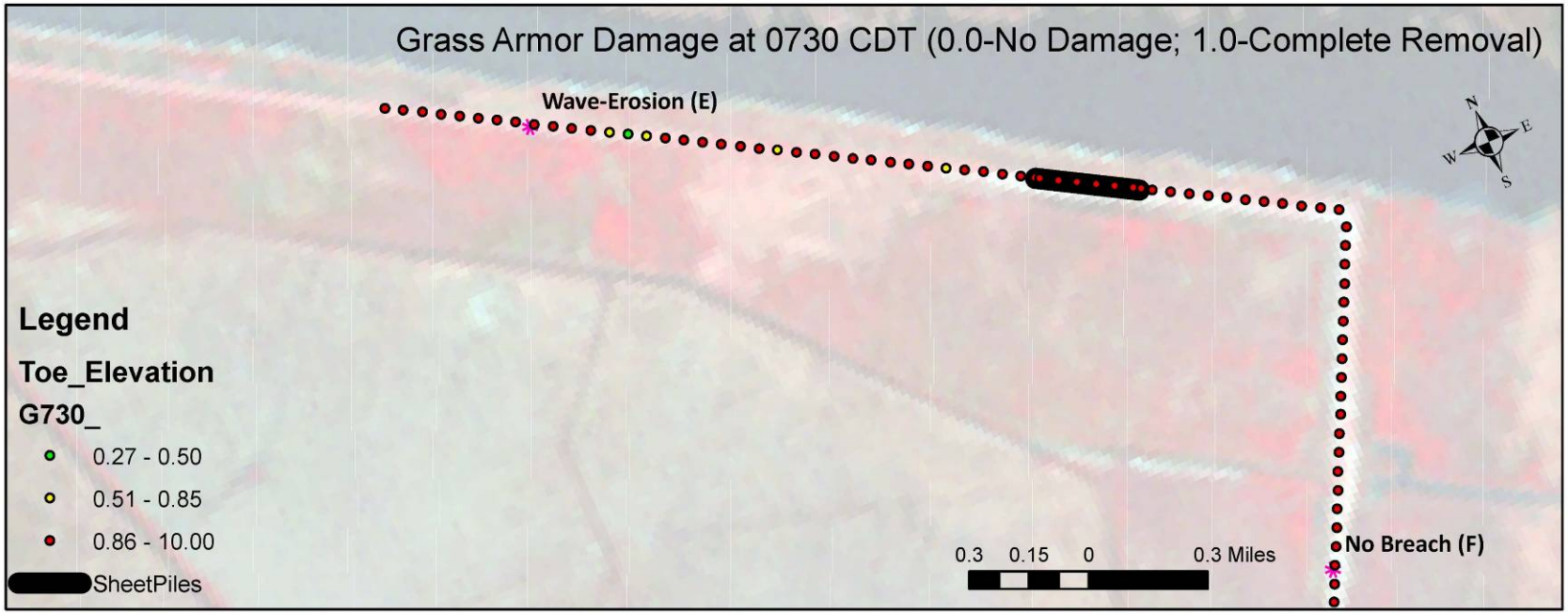

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
Sheet Pile Overtopping (C)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
0.3 0.15 0 0.3 Miles

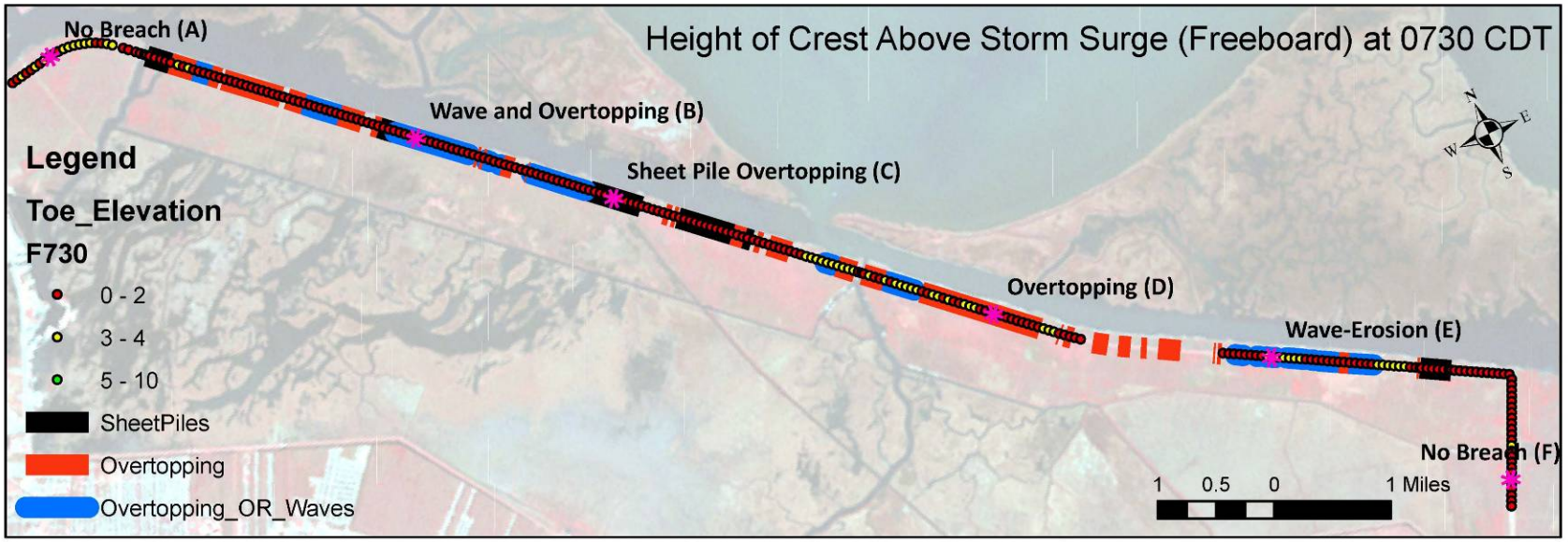

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
Sheet Pile Overtopping (C)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
0.3 0.15 0 0.3 Miles

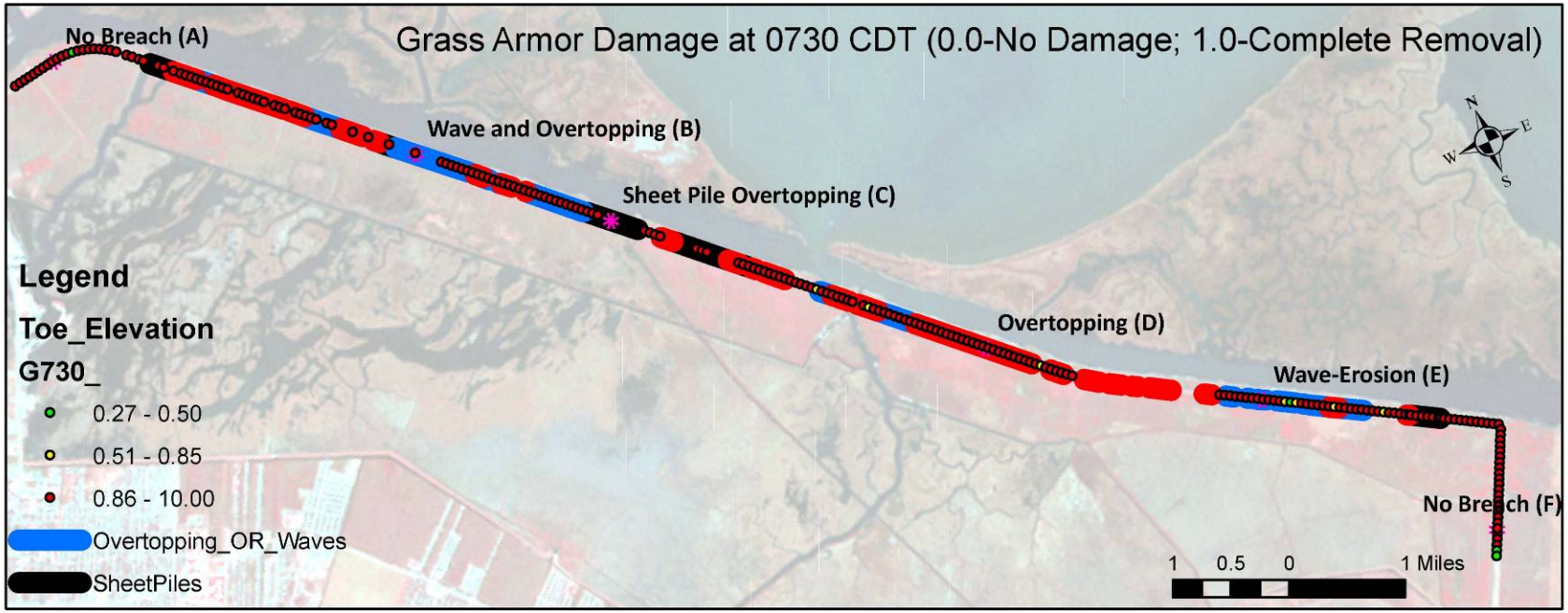

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
0.3 0.15 0 0.3 Miles

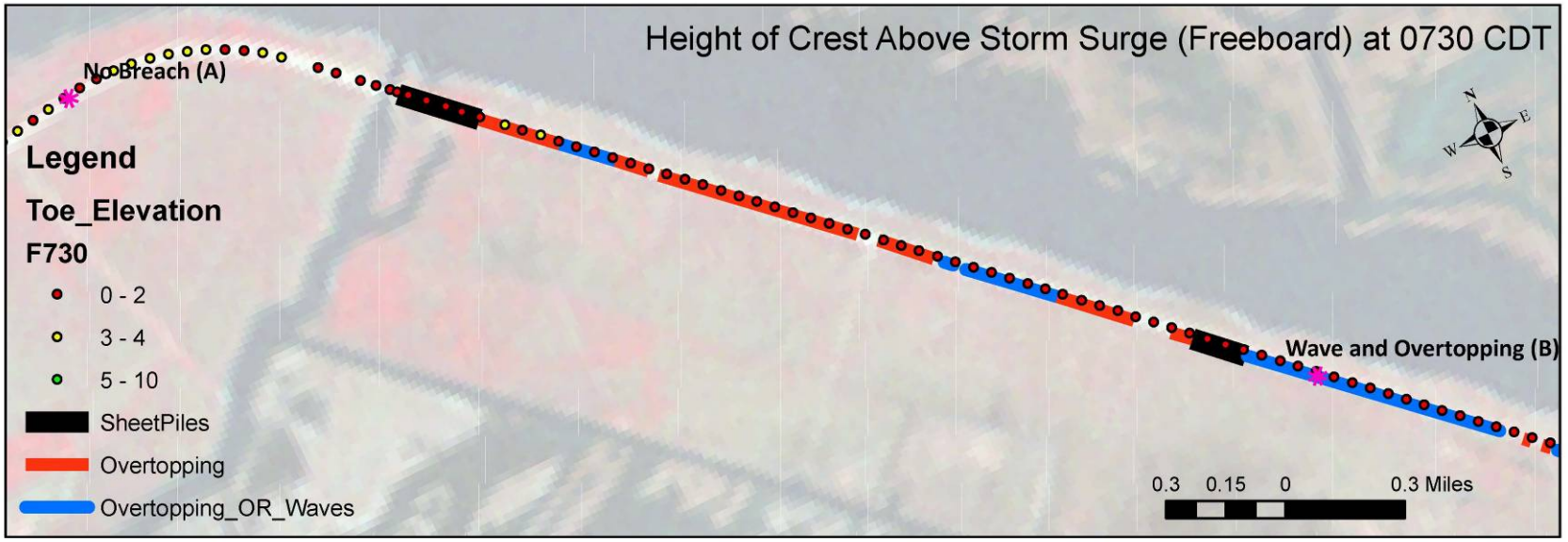

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
0.3 0.15 0 0.3 Miles

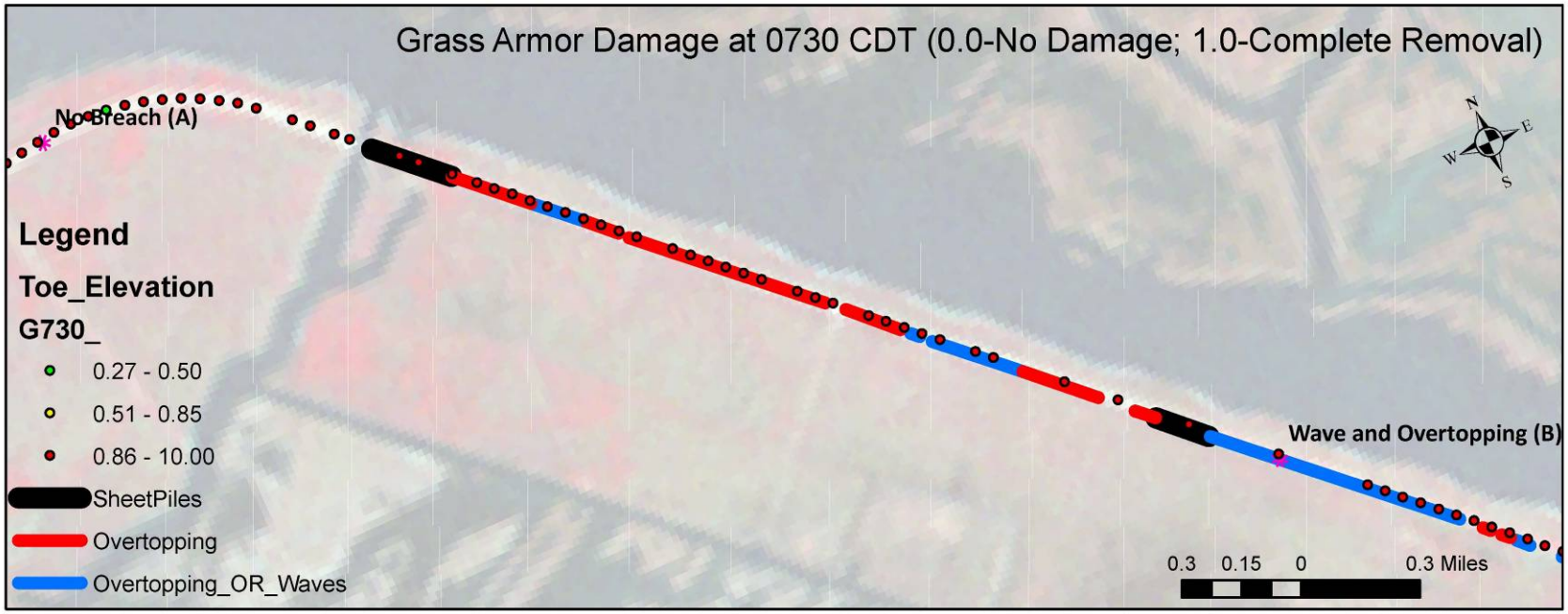

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
Wave-Erosion (E)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
0.3 0.15 0 0.3 Miles
No Breach (F)

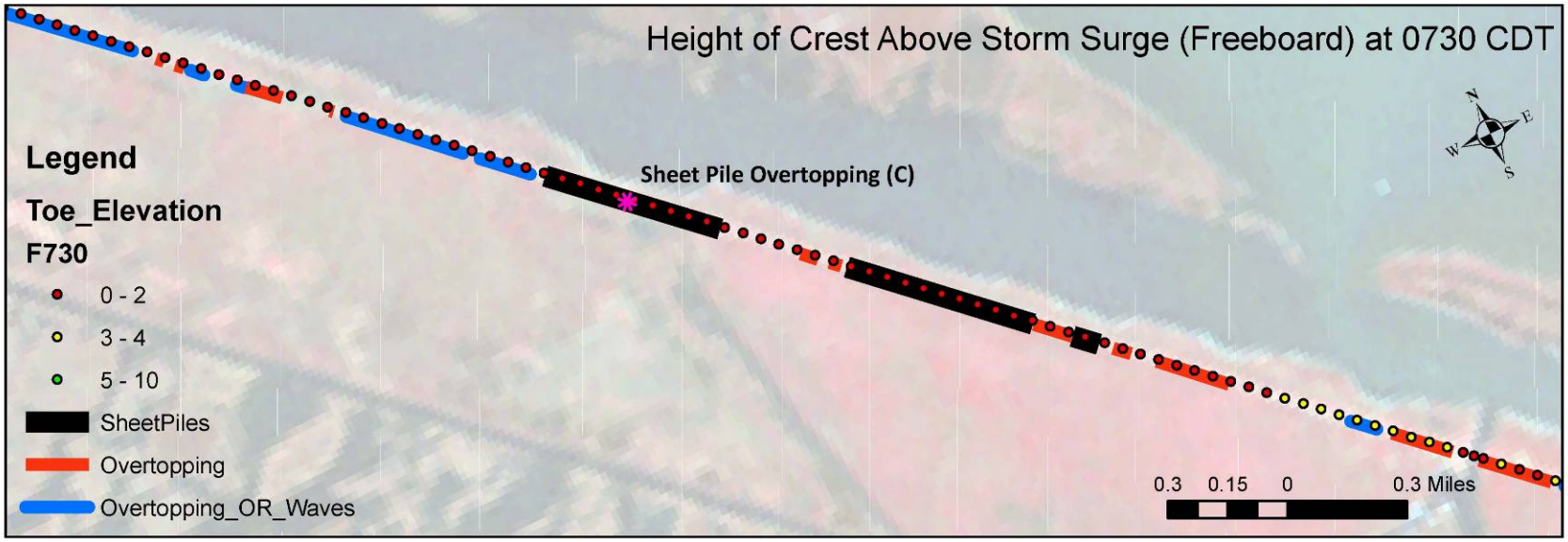

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
Wave-Erosion (E)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
0.3 0.15 0 0.3 Miles
No Breach (F)

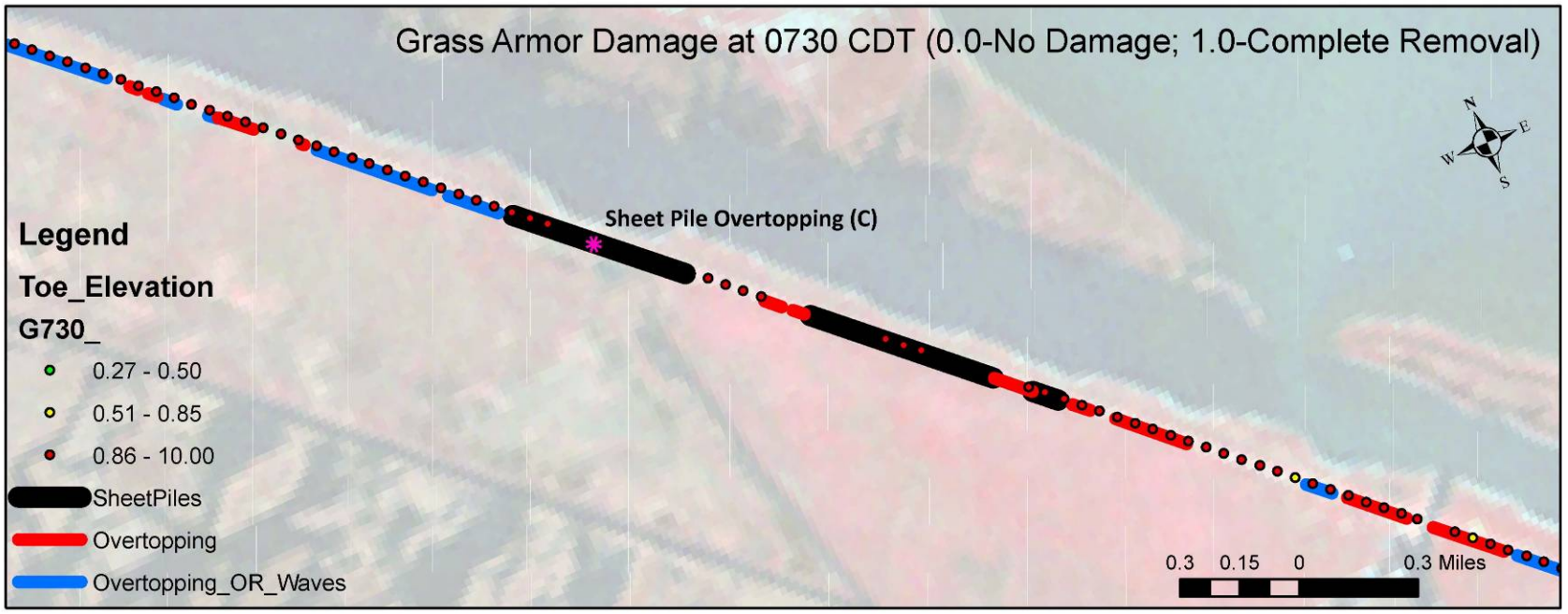

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
1 0.5 0 1 Miles

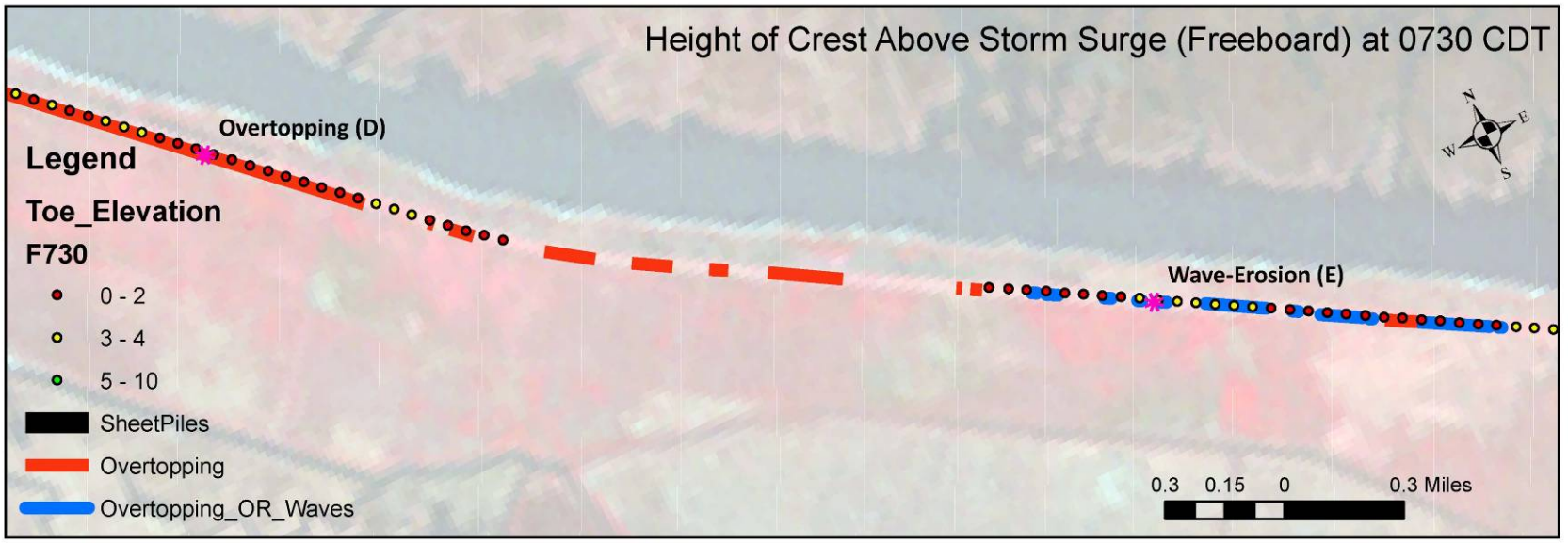

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Sheet Pile Overtopping (C)
Overtopping (D)
Wave-Erosion (E)
No Breach (F)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
Overtopping_OR_Waves
SheetPiles
1 0.5 0 1 Miles

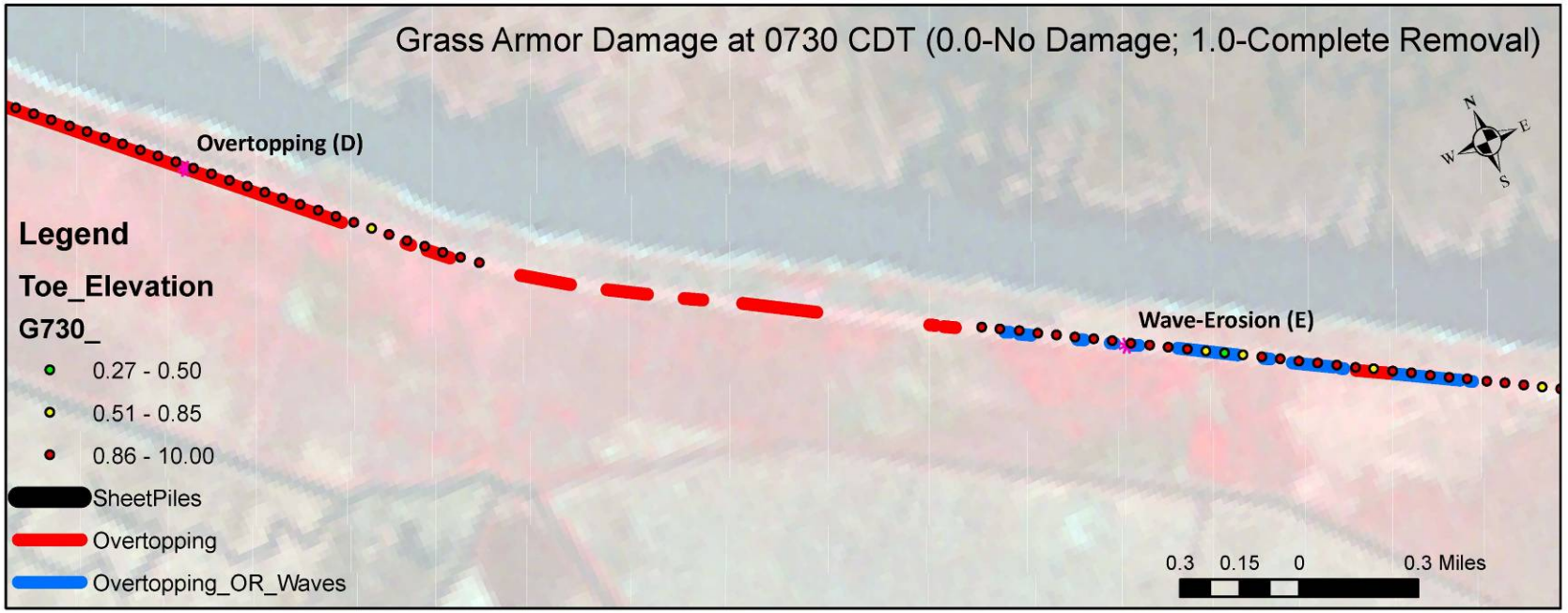

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
0.3 0.15 0 0.3 Miles
N
E
W
S

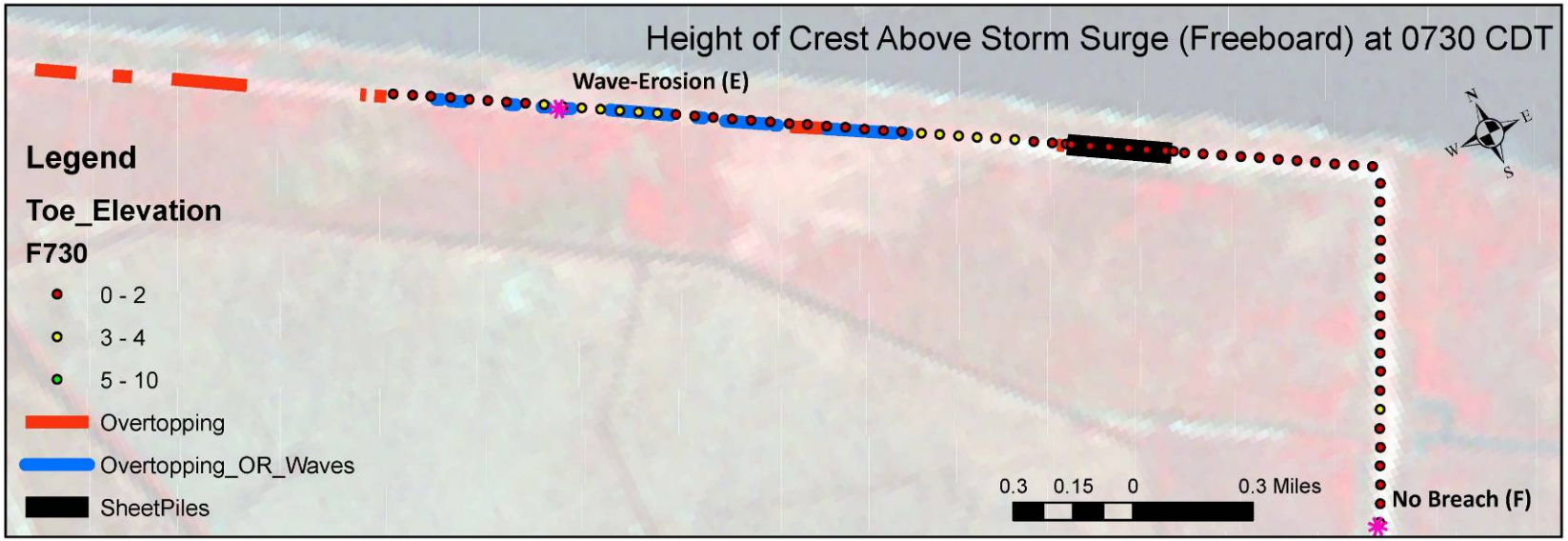

Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
No Breach (A)
Wave and Overtopping (B)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
Overtopping
Overtopping_OR_Waves
0.3 0.15 0 0.3 Miles
N
E
W
S

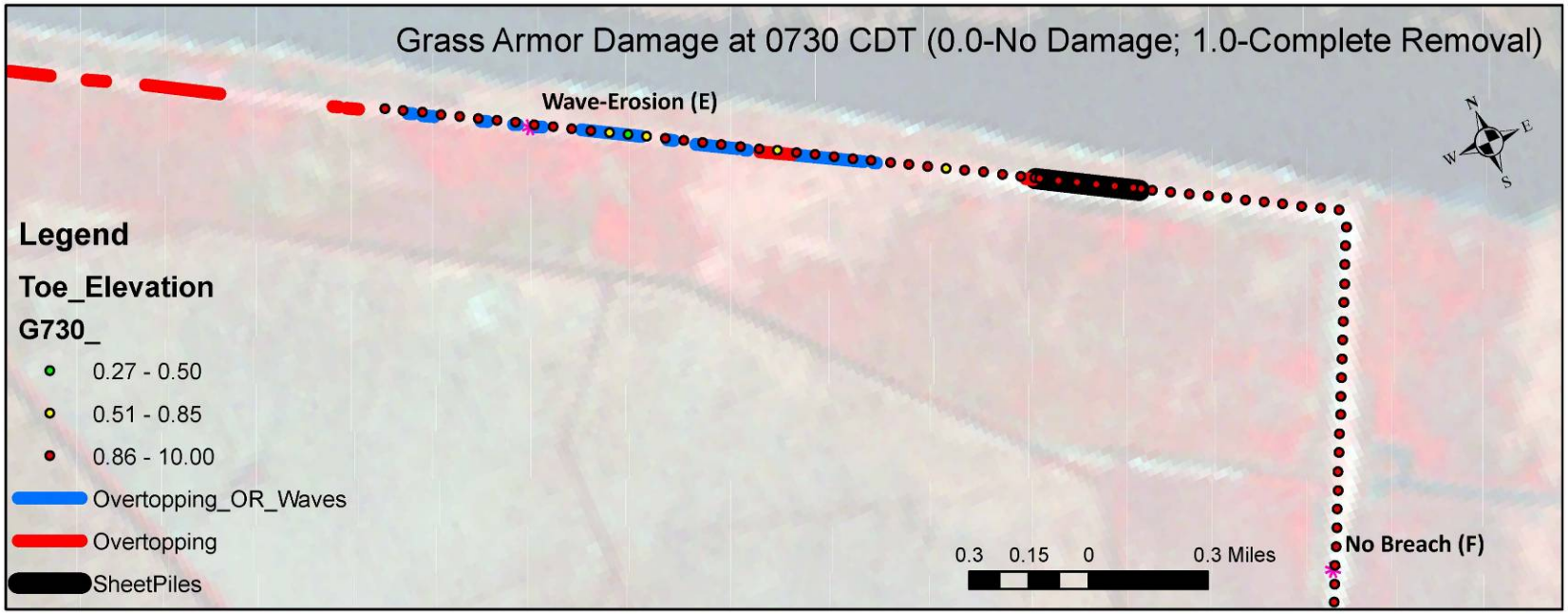

Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
Sheet Pile Overtopping (C)
N
W
E
S
0.3 0.15 0 0.3 Miles


Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
Overtopping
Overtopping_OR_Waves
Sheet Pile Overtopping (C)
N
W
E
S
0.3 0.15 0 0.3 Miles


Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
SheetPiles
Overtopping
Overtopping_OR_Waves
0.3 0.15 0 0.3 Miles
N
E
W
S


Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
Overtopping (D)
Wave-Erosion (E)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
SheetPiles
Overtopping
Overtopping_OR_Waves
0.3 0.15 0 0.3 Miles
N
E
W
S


Height of Crest Above Storm Surge (Freeboard) at 0730 CDT
Wave-Erosion (E)
Legend
Toe_Elevation
F730
0 - 2
3 - 4
5 - 10
Overtopping
Overtopping_OR_Waves
SheetPiles
0.3 0.15 0 0.3 Miles
No Breach (F)
N
E
W
S


Grass Armor Damage at 0730 CDT (0.0-No Damage; 1.0-Complete Removal)
Wave-Erosion (E)
Legend
Toe_Elevation
G730_
0.27 - 0.50
0.51 - 0.85
0.86 - 10.00
Overtopping_OR_Waves
Overtopping
SheetPiles
0.3 0.15 0 0.3 Miles
No Breach (F)
N
E
W
S

Appendix IV

MR-GO Crest Soil Borings


Available MR-GO EBSB Crest Soil Borings
No Breach (A)
1-UBD
9-UBD
11-UBD
Wave and Overtopping (B)
12-UBD
3-UBD
14-UBD
13-UBD
G-59
Sheet Pile Overtopping (C)
G-56
19-UBD
5-UBD
15-UBD
9-CUA
Overtopping (D)
Wave-Erosion (E)
Legend
Breach_Type_Locations
N
W
E
S
No Breach (F)
1 0.5 0 1 Miles

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 1-UBD (76-528)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 13.9 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, LIGHT GRAY, BROWN, TAN, Shell fragments, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, BLACK, TAN, Shell fragments, Oxidized						
5		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, LIGHT GRAY, GRAY, GREENISH-GRAY, Oxidized, Wood, decayed wood, or roots						
		No Sample Retrieved (NS)						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, GREEN, YELLOW, Oxidized						
10		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, GREEN, YELLOW, Oxidized						
		SAND, Poorly Graded, gravelly sands (SP): Fine, GRAY, Medium, Shell fragments, Clay strata or lenses, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments						
15		No Sample Retrieved (NS)						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Wood, decayed wood, or roots, Shell fragments						
		SAND, Poorly Graded, gravelly sands (SP): Fine, GRAY, Clay strata or lenses, Shell fragments						
20		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots, Organic matter						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Wood, decayed wood, or roots, Organic matter, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK BROWN, DARK GRAY, Wood, decayed wood, or roots, Rootlets						
25		PEAT, and other highly organic soil (PT): MEDIUM; cohesion between 500-1000 lbs/sqft, DARK BROWN, BLACK						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK BROWN, BLACK, Silt strata or lenses, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK BROWN, Silt strata or lenses, Concretions						
30		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK BROWN, Silt strata or lenses, Concretions, Rootlets						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, BROWN, GRAY, Silt strata or lenses, Wood, decayed wood, or roots						
35		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or					57	

236
426
290
255
278
167
101
111
211

(Continued Next Page)

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 1-UBD (76-528)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL / 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		lenses, SOFT; cohesion between 250-500 lbs/sqft, BROWN, GRAY, Wood, decayed wood, or roots, Organic matter						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Shell fragments						
40		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Si strata or lenses					85	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Concretions						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
45		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY *(continued)*						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
50		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					60	
55		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		SILTY SAND, sand-silt mixtures (SM): GRAY, Sandy, Clay strata or lenses, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
60		SAND, Poorly Graded, gravelly sands (SP): Fine, GRAY, Clay strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY						
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					77	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY						
70		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY					83	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
75		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/26/08 14:50 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 1-UBD (76-528)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL / ☐ FINES CONTENT (%) ☐ 20 40 60 80
75		No Sample Retrieved (NS)						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Shell fragments						
80		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Shell fragments						
85		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Shell fragments						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, VERY STIFF; cohesion between 2000-4000 lbs/sqft, GREENISH-GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GREENISH-GRAY, Oxidized						
90		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY STIFF; cohesion between 2000-4000 lbs/sqft, GREENISH-GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY STIFF; cohesion between 2000-4000 lbs/sqft, GREENISH-GRAY, Oxidized						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, VERY STIFF; cohesion between 2000-4000 lbs/sqft, LIGHT GRAY, Oxidized *(continued)*						
		SILTY SAND, sand-silt mixtures (SM): WHITE, TAN, GREEN, Oxidized						
		No Sample Retrieved (NS)						
		SILTY SAND, sand-silt mixtures (SM): LIGHT GRAY, Sandy, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): GREENISH-GRAY, Sandy, Clay strata or lenses, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized, Concretions						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Wood, decayed wood, or roots						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Wood, decayed wood, or roots, Oxidized						

Bottom of borehole at 91.2 feet.

GEOTECH BH PLOTS - RUNE.GDT - 4/26/08 14:50 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 9-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 16.5 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0		SILTY SAND, sand-silt mixtures (SM): BROWN, Clay strata or lenses, Rootlets, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, TAN, Sand strata or lenses, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
5		SILTY SAND, sand-silt mixtures (SM): BROWN, GRAY, Clay strata or lenses, Oxidized, Wood, decayed wood, or roots, Shell fragments						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY, Rootlets, Shell fragments						
10		No Sample Retrieved (NS)						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
15		SILTY SAND, sand-silt mixtures (SM): BROWNISH-GRAY, Clay strata or lenses, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments					75	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
20		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, GREENISH-GRAY, Shell fragments, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): GRAY, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Oxidized						
25		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots						157
30		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots						268
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, DARK GRAY, Oxidized						
35		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY,						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 5/2/08 13:15 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 9-UBD (83-66)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		Wood, decayed wood, or roots, Silt strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots, Silt strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, STIFF; cohesion between 1000-2000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots, Silt strata or lenses						
40		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Sand strata or lenses *(continued)*						
45		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Oxidized						
		No Sample Retrieved (NS)						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses						
55		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					62	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Sand strata or lenses, Oxidized						
60		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Sand strata or lenses					58	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Sand strata or lenses					62	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized, Shell fragments, Slickenslides						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized, Shell fragments, Slickenslides						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Sand strata or lenses, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 5/2/08 13:15 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 9-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
		lenses, Shell fragments						
		Bottom of borehole at 67.2 feet.						

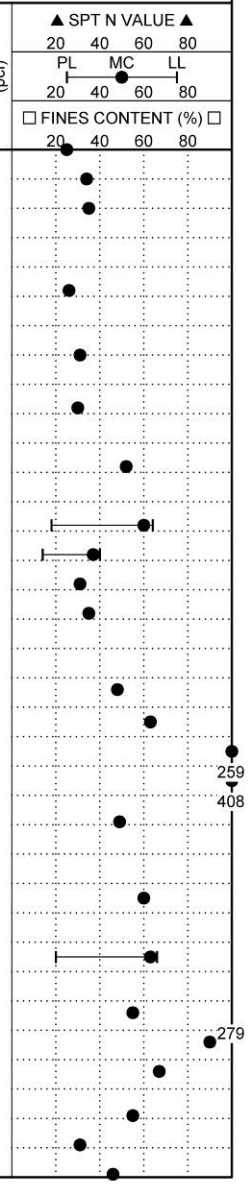
GEOTECH BH PLOTS - RUNE.GDT - 5/2/08 13:15 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 12-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 15.2 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, BROWN, GRAY, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, BROWN, GRAY, Shell fragments					
5		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, DARK GRAY, GREENISH-GRAY, Organic matter, Wood, decayed wood, or roots					
		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or lenses, Rootlets, Shell fragments, Organic matter					
10		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, DARK GRAY, Clay strata or lenses					
		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or lenses, Rootlets, Organic matter					
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, GRAY, Organic matter, Concretions					
15		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, YELLOW, GRAY, Oxidized, Wood, decayed wood, or roots					
		SILTY SAND, sand-silt mixtures (SM): DARK GRAY, GRAY, Clay strata or lenses, Organic matter					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, DARK GRAY, Wood, decayed wood, or roots, Shell fragments					
20		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, LIGHT GRAY GRAY, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM cohesion between 500-1000 lbs/sqft, GRAY, LIGHT GRAY, Oxidized					
25		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY, LIGHT GRAY, Oxidized, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM cohesion between 500-1000 lbs/sqft, LIGHT GRAY, TAN, Shell fragments, Oxidized					
30		SILTY SAND, sand-silt mixtures (SM): LIGHT BROWN					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Shell fragments, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Shell fragments					
35							



(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 06:37 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 12-UBD (83-66)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, GRAY, Wood, decayed wood, or roots, Organic matter						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots						
40		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments					58	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Sand strata or lenses, Shell fragments						
45		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY GRAY, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots						
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, BROWN, Wood, decayed wood, or roots					60	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					59	
55		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized, Concretions *(continued)*						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Wood, decayed wood, or roots						
60		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					57	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Sand strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Sand strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 06:37 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 12-UBD (83-66)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or lenses, Shell fragments						

Bottom of borehole at 66.6 feet.

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 06:37 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 3-UBD (76-528)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 13.5 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, LIGHT GRAY, TAN, Oxidized, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, LIGHT GRAY, TAN, Oxidized, Shell fragments						
5		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GREEN, GRAY, Concretions, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GREEN, GRAY, Oxidized, Wood, decayed wood, or roots, Shell fragments						
10		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					63	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, BROWN, GRAY, Sand strata or lenses, Shell fragments, Oxidized, Rootlets						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Sand strata or lenses, Shell fragments						
15		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Sand strata or lenses, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Oxidized						177
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Oxidized						367
20		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, DARK GRAY, Wood, decayed wood, or roots, Organic matter, Rootlets						250
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Wood, decayed wood, or roots, Oxidized						385
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, Silt strata or lenses, Wood, decayed wood, or roots						190
25		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, Silt strata or lenses, Wood, decayed wood, or roots, Rootlets						257
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, BROWN, Silt strata or lenses, Wood, decayed wood, or roots						241
30		PEAT, and other highly organic soil (PT): SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, BLACK						470
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, BROWN, Wood, decayed wood, or roots						124
35		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter,						110

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/29/08 08:07 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 3-UBD (76-528)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
35		SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, BROWN					59
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, DARK GRAY, GRAY, Silt strata or lenses, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, BROWN, GRAY, Silt strata or lenses, Wood, decayed wood, or roots					
40		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Organic matter, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, BROWN, Wood, decayed wood, or roots, Organic matter					
45		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY *(continued)*					72
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY					72
55		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized					74
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized					
60		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Slickenslides					64
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY Slickenslides					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY					
70		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Oxidized					
75		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY,					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/29/08 08:07 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 3-UBD (76-528)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
75		DARK GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
80		No Sample Retrieved (NS)						
		SILTY SAND, sand-silt mixtures (SM): GRAY, Shell fragments						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Shell fragments						
		No Sample Retrieved (NS)						
85		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, GRAY YELLOW, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): LIGHT GRAY, YELLOW, Clay strata or lenses						
		No Sample Retrieved (NS)						
		SAND, Poorly Graded, gravelly sands (SP): Fine, LIGHT GRAY						
		SILTY SAND, sand-silt mixtures (SM): GREENISH-GRAY, RED, Sandy						

Bottom of borehole at 89.5 feet.

GEOTECH BH PLOTS - RUNE.GDT - 4/29/08 08:07 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 14-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 14.4 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, BROWN, Shell fragments					74
		No Sample Retrieved (NS)					
5		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, BROWN, Wood, decayed wood, or roots, Oxidized, Sand strata or lenses					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, BROWN, GRAY, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, LIGHT GRAY, TAN, Oxidized, Sand strata or lenses					
10		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, TAN, Oxidized, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, TAN, GRAY, Oxidized, Shell fragments					
15		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, TAN, BROWN, Shell fragments					66
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, TAN, GRAY, Oxidized, Shell fragments					
20		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or lenses					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, DARK GRAY, Oxidized					
25		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, DARK GRAY, GRAY, Oxidized, Wood, decayed wood, or roots					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
30		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, GRAY, DARK GRAY, Silt strata or lenses, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Oxidized, Wood, decayed wood, or roots					
35		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

242
422
263
128
138

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 15:05 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 14-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		(CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots, Rootlets						
40		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, GRAY, DARK GRAY, Silt strata or lenses, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, DARK GRAY, GRAY, Wood, decayed wood, or roots						
45		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, STIFF; cohesion between 1000-2000 lbs/sqft, DARK BROWN, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Concretions						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses *(continued)*					64	
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized					71	
55		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Wood, decayed wood, or roots					63	
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
60		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					66	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					64	
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Slickenslides						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Slickenslides						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 15:05 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 14-UBD (83-66)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		Bottom of borehole at 67.3 feet.						

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 15:05 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 13-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 11.2 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		SILTY SAND, sand-silt mixtures (SM): BROWNISH-GRAY, Clay strata or lenses					
		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or lenses, Organic matter					
		No Sample Retrieved (NS)					
5		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GREENISH-GRAY, BROWN, Concretions, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GREENISH-GRAY, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GREENISH-GRAY, Shell fragments, Oxidized					
10		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, LIGHT GRAY, GREEN, Sand strata or lenses, Oxidized, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, LIGHT GRAY, GREEN, Sand strata or lenses, Oxidized, Shell fragments					
15		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, GREEN, Oxidized, Concretions					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, GREEN, Oxidized, Slickenslides					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, LIGHT GRAY, Shell fragments					
20		No Sample Retrieved (NS)					
		SHELLS (SI): WHITE, Clay strata or lenses					
		No Sample Retrieved (NS)					
		SHELLS (SI): WHITE					
25		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): DARK GRAY, GRAY, Clay strata or lenses, Organic matter, Shell fragments, Wood, decayed wood, or roots					
		No Sample Retrieved (NS)					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, DARK GRAY, GRAY, Shell fragments, Organic matter					61
30		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Concretions, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAYISH-BROWN, Wood, decayed wood, or roots, Oxidized					
35		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 11:06 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 13-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL / 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized *(continued)*						
40		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
45		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					59	
55		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY					66	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
60		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Organic matter					63	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): GRAY, Shell fragments						

Bottom of borehole at 65.6 feet.

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 11:06 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER G-59 (66-527)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 6.0 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0		FAT CLAY, inorganic clay of high plasticity (CH): MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, TAN						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY						
5		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
10		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
15		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
20		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						181
25		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
30		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
35		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 5/5/08 09:00 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER G-59 (66-527)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
35		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
40		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
45		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
50		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY					
55		FAT CLAY, inorganic clay of high plasticity (CH): SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): SOFT; cohesion between 250-500 lbs/sqft, GRAY					
60		FAT CLAY, inorganic clay of high plasticity (CH): SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		Bottom of borehole at 63.0 feet.					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

GEOTECH BH PLOTS - RUNE.GDT - 5/5/08 09:00 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER G-56 (66-527)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 8.0 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
5		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
10		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
15		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
20		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
25		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
30		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
35								

GEOTECH BH PLOTS - RUNE.GDT - 5/5/08 08:57 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

(Continued Next Page)

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER G-56 (66-527)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY *(continued)*						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
40		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
45		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
55		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): SOFT; cohesion between 250-500 lbs/sqft, GRAY						
60		FAT CLAY, inorganic clay of high plasticity (CH): SOFT; cohesion between 250-500 lbs/sqft, GRAY						

Bottom of borehole at 63.0 feet.

GEOTECH BH PLOTS - RUNE.GDT - 5/5/08 08:57 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 19-UBD (91-02)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 18.6 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0		SILTY SAND, sand-silt mixtures (SM): TAN, Clay strata or lenses, Oxidized, Rootlets, Wood, decayed wood, or roots						
		No Sample Retrieved (NS)						
5		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Shell fragments, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Wood, decayed wood, or roots, Oxidized, Rootlets						
10		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, GRAYISH-BROWN, Shell fragments, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, BROWNISH-GRAY, Oxidized, Wood, decayed wood, or roots, Shell fragments, Rootlets						
15		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, BROWNISH-GRAY, Oxidized, Shell fragments, Rootlets						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, BROWNISH-GRAY, Oxidized						
20		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY, Shell fragments, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, MOTTLED, GREEN, GRAY, Shell fragments						
25		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, LIGHT GRAY, Shell fragments, Oxidized					64	
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, LIGHT GRAY, DARK GRAY, Oxidized, Rootlets, Shell fragments						
30		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, LIGHT GRAY, DARK GRAY, Oxidized, Shell fragments						164
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), SOFT; cohesion between 250-500 lbs/sqft, GRAY, LIGHT GRAY, Shell fragments, Oxidized						356
35		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, LIGHT GRAY, DARK GRAY,					58	278
								108

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/26/08 07:38 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 19-UBD (91-02)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
35		Shell fragments, Oxidized						
		SILTY SAND, sand-silt mixtures (SM): LIGHT GRAY, Shell fragments, Oxidized						191
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Shell fragments, Oxidized						
40		SILTY SAND, sand-silt mixtures (SM): GRAY, Clay strata or lenses					66	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Oxidized, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots, Shell fragments						
45		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, DARK GRAY, Oxidized, Wood, decayed wood, or roots, Rootlets					58	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots						
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Wood, decayed wood, or roots, Organic matter, Oxidized, Rootlets					63	
55		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Si strata or lenses, Wood, decayed wood, or roots, Rootlets, Oxidized					61	
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots, Rootlets						
60		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, SOFT; cohesion between 250-500 lbs/sqft, BROWN, DARK BROWN, Silt strata or lenses, Wood, decayed wood, or roots, Rootlets					63	
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, BROWN, DARK BROWN, Silt strata or lenses, Wood, decayed wood, or roots, Rootlets						
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, BROWNISH-GRAY, Wood, decayed wood, or roots, Rootlets						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAYISH-BROWN, Wood, decayed wood, or roots, Organic matter, Oxidized *(continued)*						
70		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK BROWN, Silt strata or lenses, Wood, decayed wood, or roots, Oxidized					64	
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Oxidized						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Concretions						

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/26/08 07:38 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 19-UBD (91-02)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY SOFT; cohesion < 250 lbs/sqft, GRAY, Oxidized						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Oxidized						
		Bottom of borehole at 70.4 feet.						

GEOTECH BH PLOTS - RUNE.GDT - 4/26/08 07:38 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 15-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 17.6 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, TAN, BROWN, Oxidized, Wood, decayed wood, or roots, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, TAN, BROWN, Oxidized, Wood, decayed wood, or roots, Shell fragments					
5		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, TAN, BROWN, Oxidized, Wood, decayed wood, or roots, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, TAN, YELLOW, Oxidized, Shell fragments					
10		FAT CLAY, inorganic clay of high plasticity (CH): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), MEDIUM; cohesion between 500-1000 lbs/sqft, TAN, YELLOW, Oxidized, Shell fragments					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Sand strata or lenses, Oxidized					
15		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Sand strata or lenses and/or > 30% sand (between 30% - 50% sand), STIFF; cohesion between 1000-2000 lbs/sqft, BROWNISH-GRAY, Oxidized					82
		No Sample Retrieved (NS)					
		SHELLS (SI): Clay strata or lenses					
20		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GREENISH-GRAY, Oxidized, Wood, decayed wood, or roots					77
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GREENISH-GRAY, Oxidized, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GREENISH-GRAY, Oxidized, Wood, decayed wood, or roots					
25		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, DARK GRAY, Oxidized, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots					
30		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Oxidized					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots					
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
35		SILT & very fine sand, silty or clayey fine sand or clayey silt with					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

178

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 19:04 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 15-UBD (83-66)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
35		slight plasticity (ML): GRAY					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
40		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, BROWNISH-GRAY, Oxidized					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Wood, decayed wood, or roots					
45		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY					
		No Sample Retrieved (NS)					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
50		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, BROWN, Clay strata or lenses					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, BROWN, Clay strata or lenses					
55		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY					
		No Sample Retrieved (NS)					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY					
		No Sample Retrieved (NS)					
60		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Wood, decayed wood, or roots					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
65		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized					

Bottom of borehole at 65.5 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

GEOTECH BH PLOTS - RUNE.GDT - 4/25/08 19:04 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 9-CUA (81-52)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 17.9 ft **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
AT TIME OF DRILLING ---
LOGGED BY _____ **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, BROWN, Oxidized, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, VERY STIFF; cohesion between 2000-4000 lbs/sqft, BROWN, GRAY, Oxidized, Rootlets					
5		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): BROWN, Clay strata or lenses, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, BROWNISH-GRAY, Oxidized, Wood, decayed wood, or roots					76
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, BROWN, Oxidized, Wood, decayed wood, or roots					80
10		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, BROWN, Oxidized, Wood, decayed wood, or roots					75
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					
15		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized, Wood, decayed wood, or roots					
20		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, Concretions, Oxidized, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					
25		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Wood, decayed wood, or roots, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH)					
		FAT CLAY, inorganic clay of high plasticity (CH): Organic matter, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, DARK GRAY, Wood, decayed wood, or roots, Rootlets					
30		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, DARK GRAY, Organic matter, Wood, decayed wood, or roots, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY, DARK GRAY, Organic matter, Wood, decayed wood, or roots, Rootlets					
35							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

134

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 5/2/08 11:04 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

gINT software
Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 9-CUA (81-52)

CLIENT Import from CEMVN Text Files
PROJECT NAME Import from CEMVN Text Files
PROJECT NUMBER 123-ABC
PROJECT LOCATION ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
35		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Rootlets					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Rootlets					
40		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Wood decayed wood, or roots, Rootlets					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Rootlets, Wood, decayed wood, or roots					
45		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Rootlets, Wood, decayed wood, or roots					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Wood, decayed wood, or roots *(continued)*					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Organic matter, Wood, decayed wood, or roots, Rootlets					
50		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Wood, decayed wood, or roots, Concretions					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY, Wood, decayed wood, or roots, Concretions					86
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
55		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					83
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses, Wood, decayed wood, or roots					
60		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY, Oxidized					89
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					
65		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					82
70		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, Oxidized					79
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, STIFF; cohesion between 1000-2000 lbs/sqft, GRAY					
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					
75		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

107

(Continued Next Page)

GEOTECH BH PLOTS - RUNE.GDT - 5/2/08 11:04 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

Storesund Consulting
555 Pierce Street, Suite 107B
Albany, CA 94706
Telephone: 510-526-5849

BORING NUMBER 9-CUA (81-52)

CLIENT Import from CEMVN Text Files **PROJECT NAME** Import from CEMVN Text Files

PROJECT NUMBER 123-ABC **PROJECT LOCATION** ACE, MVD

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
75		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, SOFT; cohesion between 250-500 lbs/sqft, GRAY						
		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity (ML): GRAY, Clay strata or lenses						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY					79	
80		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		LEAN CLAY, Sandy Clay, Silty Clay, of low to medium plasticity (CL): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY *(continued)*						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY						
		FAT CLAY, inorganic clay of high plasticity (CH): Silt strata or lenses, MEDIUM; cohesion between 500-1000 lbs/sqft, GRAY, DARK GRAY						

Bottom of borehole at 82.2 feet.

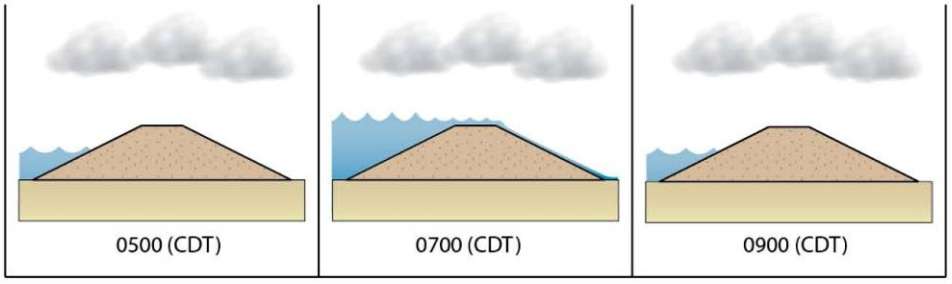
GEOTECH BH PLOTS - RUNE.GDT - 5/2/08 11:04 - C:\PROGRAM FILES\GINT\PROJECTS\RUNE.GPJ

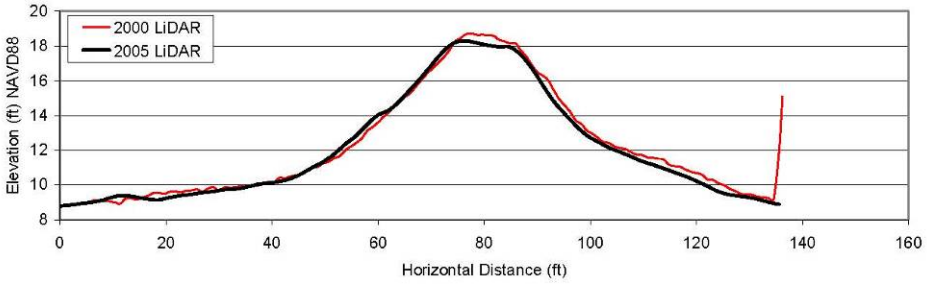
Appendix V

Locations A Through F
Overviews

No Breaching (A)

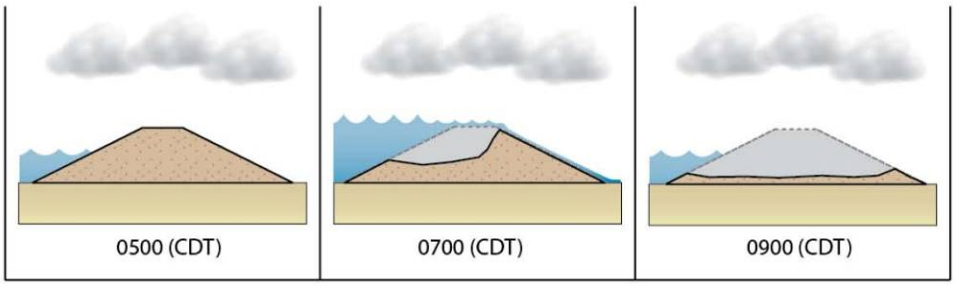


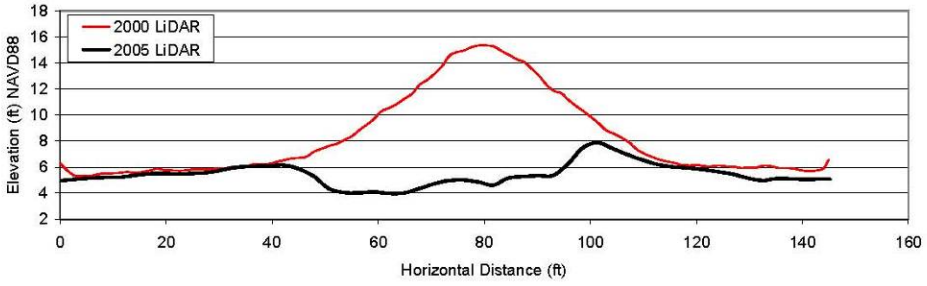




Wave and Overtopping (B)

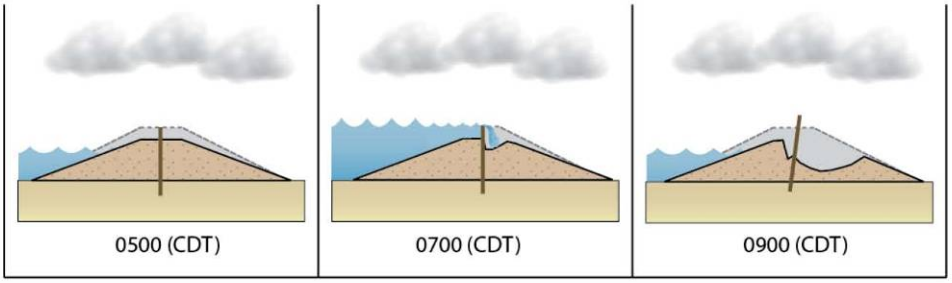


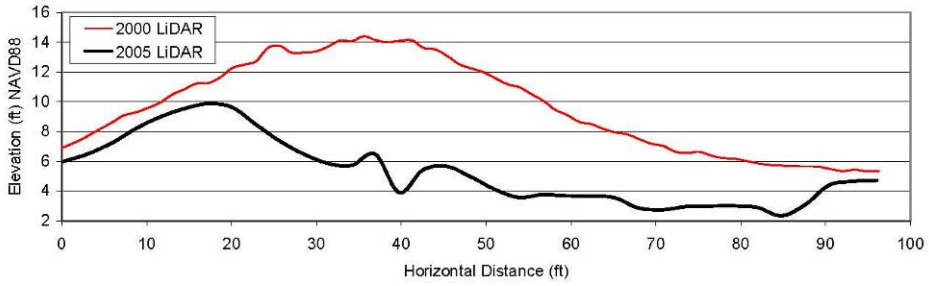




Sheet Pile Overtopping (C)

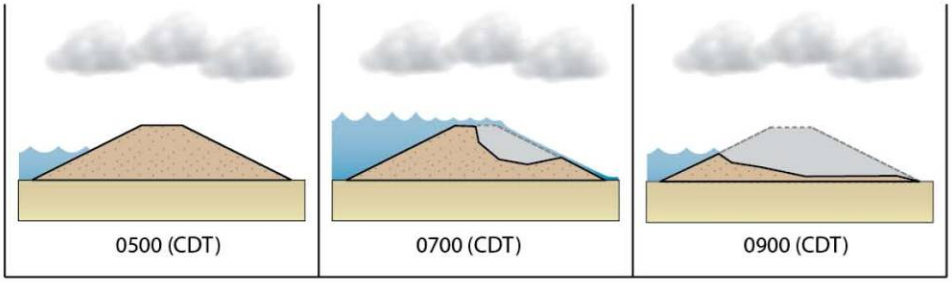


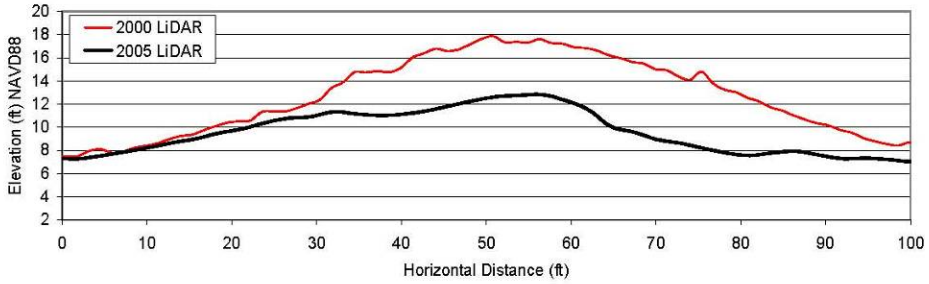




Overtopping (D)

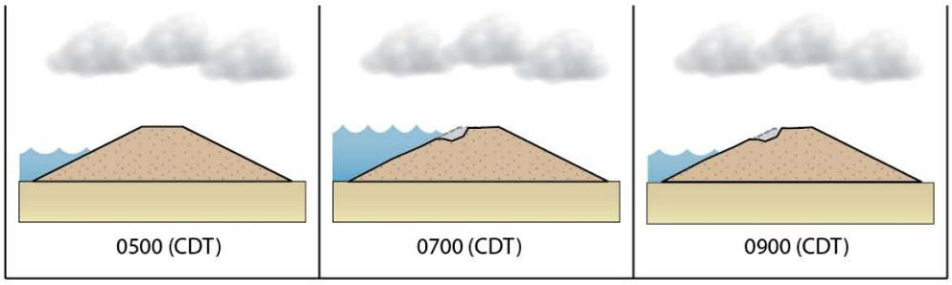


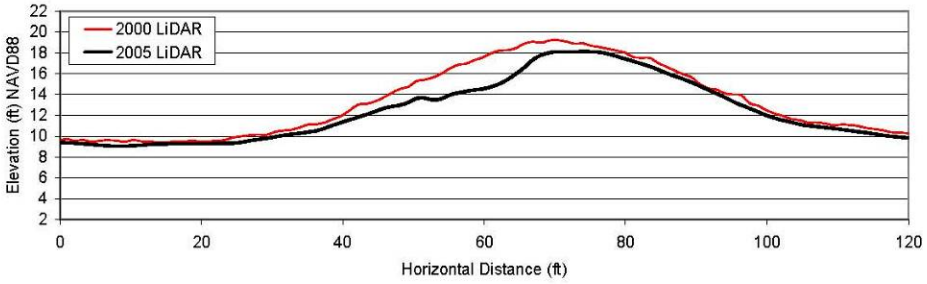




Wave Erosion (E)

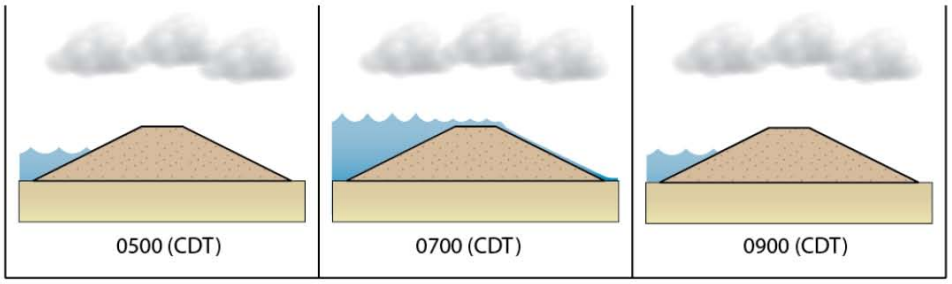


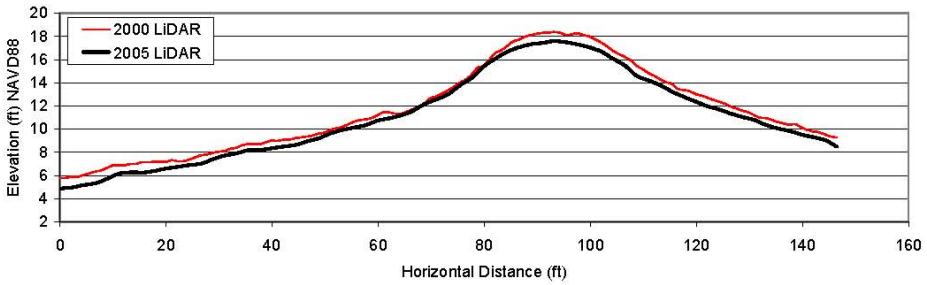




No Breach (F)




0500 (CDT)
0700 (CDT)
0900 (CDT)


2000 LiDAR
2005 LiDAR
Elevation (ft) NAVD88
Horizontal Distance (ft)
20
18
16
14
12
10
8
6
4
2
0
20
40
60
80
100
120
140
160