

ILLINOIS BEACH STATE PARK SAND SOURCE SURVEY

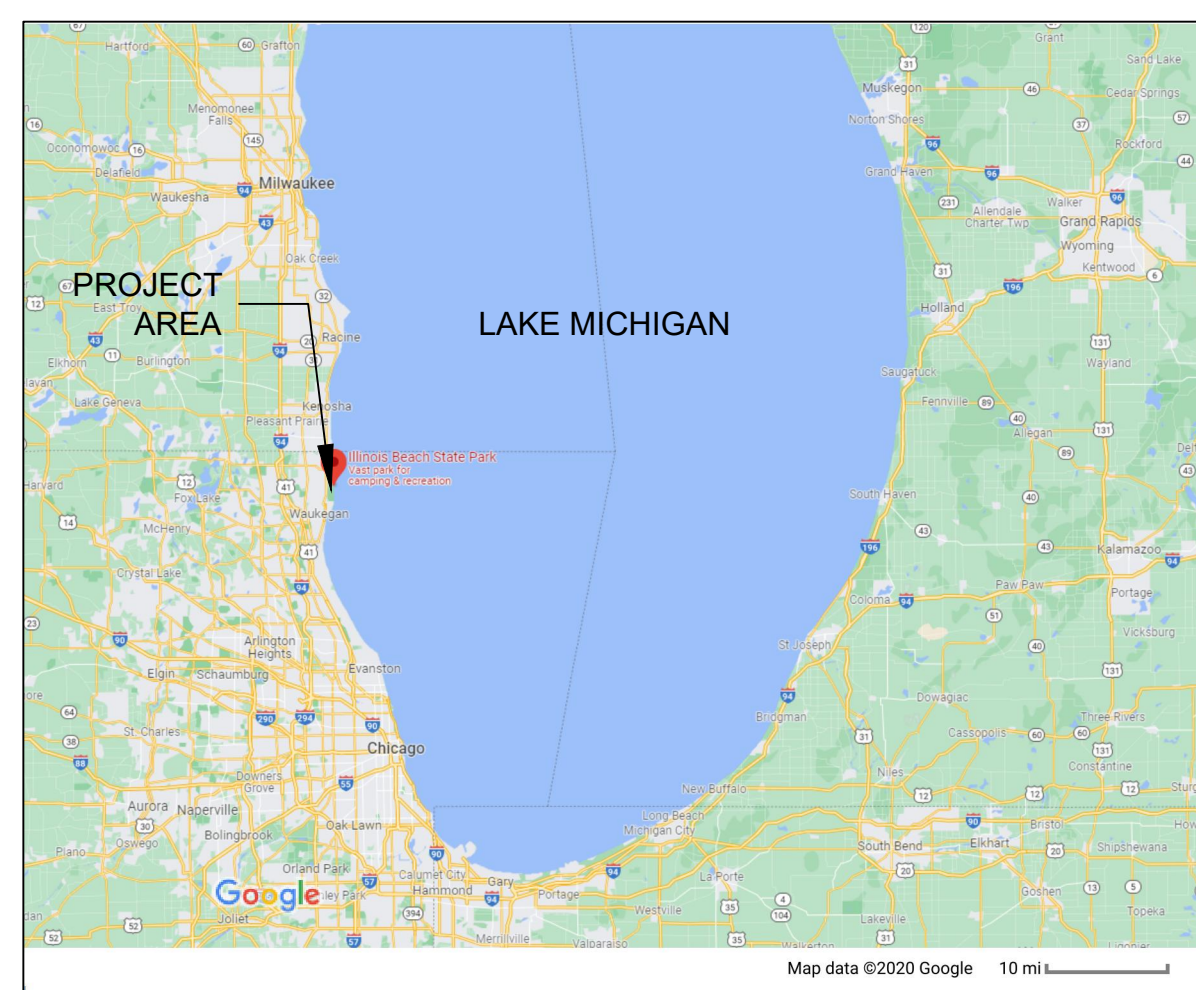


ZION, IL



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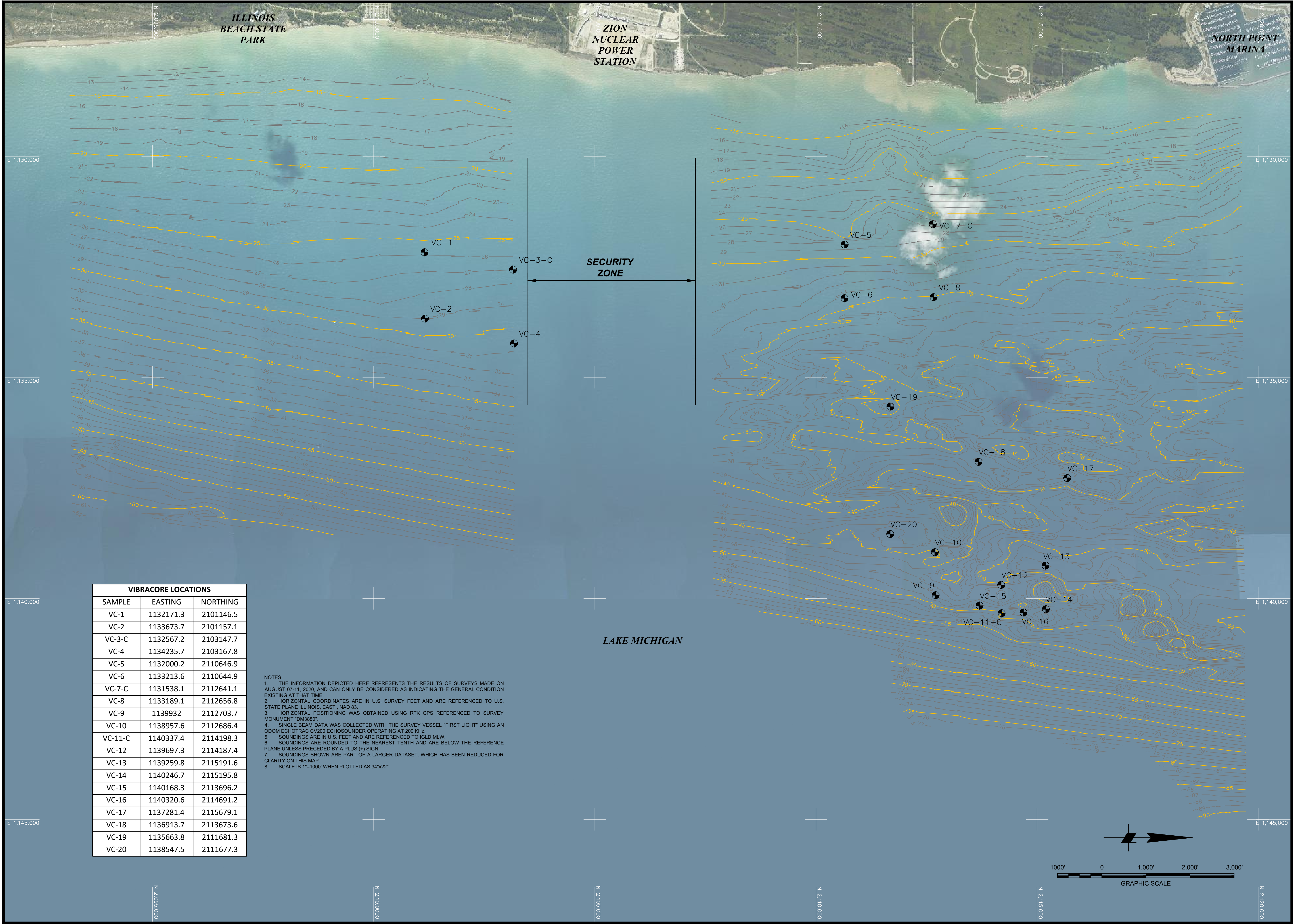
VICINITY MAP



NOT TO SCALE

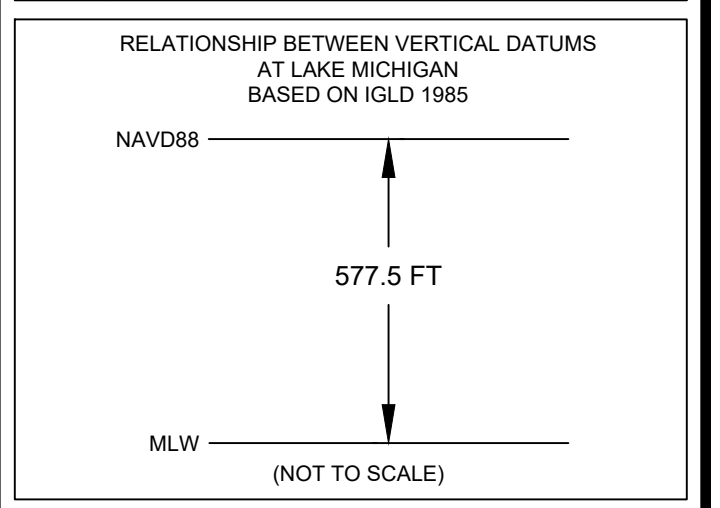
AUGUST 2020

GBA
ENGINEERS ★ SURVEYORS
GAHAGAN & BRYANT ASSOCIATES, INC.
3802 WEST BAY TO BAY BLVD., STE. B-22
TAMPA, FLORIDA 33629-6826
TEL: 813.831.4408 FAX: 813.831.4216
WWW.GBA-INC.COM



E 1,130,000
E 1,135,000
E 1,140,000
E 1,145,000

REV	REVISIONS	DATE	APP



LEGEND

- 94 1- FOOT CONTOURS
- 95 5- FOOT CONTOURS
- ⊕ SAMPLE LOCATION

CONDITION SURVEY

SURVEY DATE:	7-11 AUGUST 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	ILLINOIS - EAST
VERT. REFERENCE:	IGLD MLW
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC CV200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS 461



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Edgewater resources
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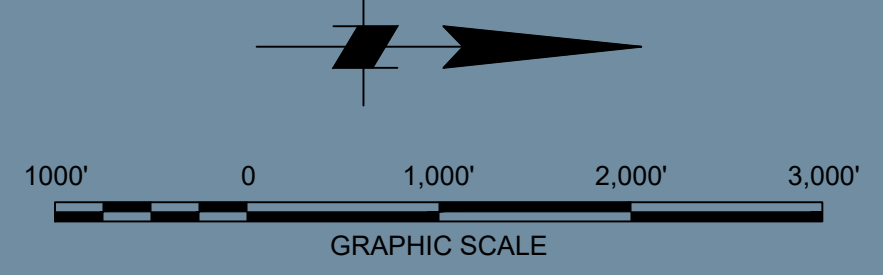
VIBRACORE LOCATIONS

DWG DATE:	11 NOVEMBER 2020
DWG NAME:	IL Beach State Park - Sand Survey.dwg
DRAWN BY:	T. LITTLEFIELD
CHECKED BY:	J. BARKER
ENGINEER:	C. BRYANT
SCALE:	AS SHOWN
SHEET NO.	3 OF 7
REVISION NO.	0

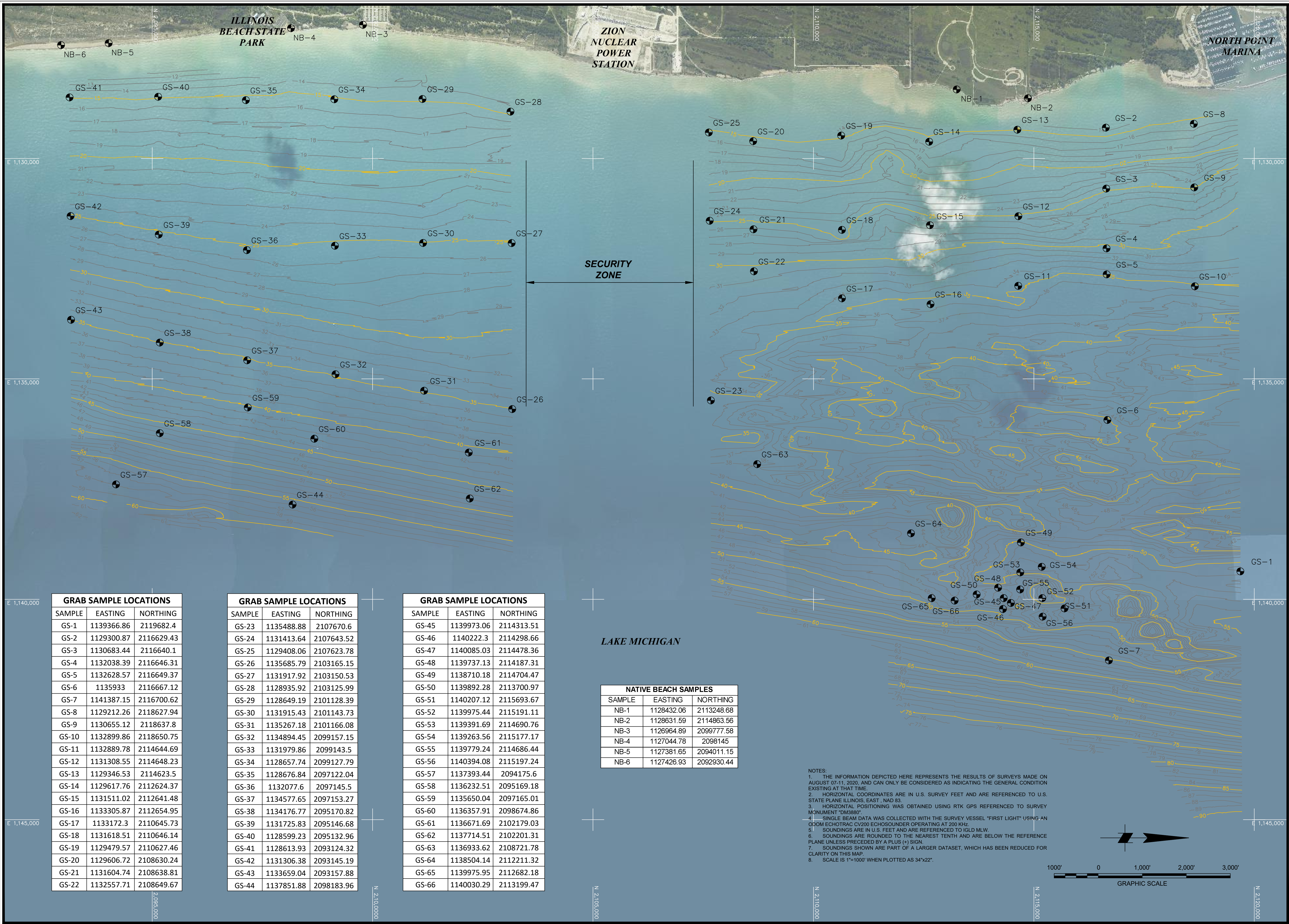
VIBRACORE LOCATIONS

SAMPLE	EASTING	NORTHING
VC-1	1132171.3	2101146.5
VC-2	1133673.7	2101157.1
VC-3-C	1132567.2	2103147.7
VC-4	1134235.7	2103167.8
VC-5	1132000.2	2110646.9
VC-6	1133213.6	2110644.9
VC-7-C	1131538.1	2112641.1
VC-8	1133189.1	2112656.8
VC-9	1139932	2112703.7
VC-10	1138957.6	2112686.4
VC-11-C	1140374	2114198.3
VC-12	1139697.3	2114187.4
VC-13	1139259.8	2115191.6
VC-14	1140246.7	2115195.8
VC-15	1140168.3	2113696.2
VC-16	1140320.6	2114691.2
VC-17	1137281.4	2115679.1
VC-18	1136913.7	2113673.6
VC-19	1135663.8	2111681.3
VC-20	1138547.5	2111677.3

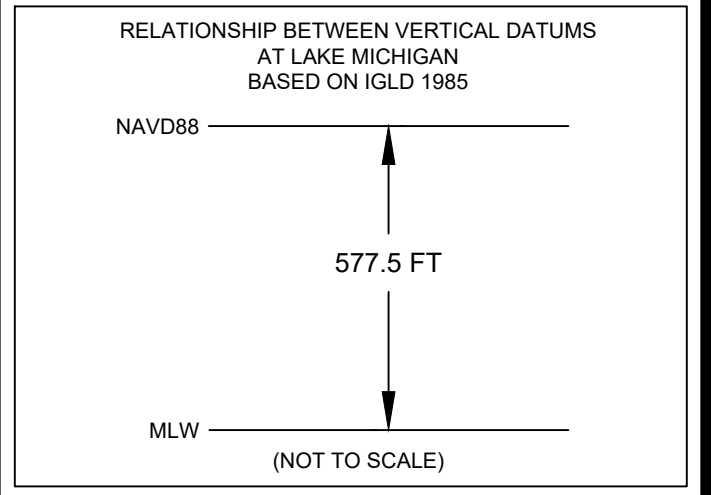
NOTES:
1. THE INFORMATION DEPICTED HERE REPRESENTS THE RESULTS OF SURVEYS MADE ON AUGUST 07-11, 2020, AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME.
2. HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET AND ARE REFERENCED TO U.S. STATE PLANE ILLINOIS, EAST, NAD 83.
3. HORIZONTAL POSITIONING WAS OBTAINED USING RTK GPS REFERENCED TO SURVEY MONUMENT "DM3880".
4. SINGLE BEAM DATA WAS COLLECTED WITH THE SURVEY VESSEL "FIRST LIGHT" USING AN ODOM ECHOTRAC CV200 ECHOSOUNDER OPERATING AT 200 KHz.
5. SOUNDINGS ARE IN U.S. FEET AND ARE REFERENCED TO IGLD MLW.
6. SOUNDINGS ARE ROUNDED TO THE NEAREST TENTH AND ARE BELOW THE REFERENCE PLANE UNLESS PRECEDED BY A PLUS (+) SIGN.
7. SOUNDINGS SHOWN ARE PART OF A LARGER DATASET, WHICH HAS BEEN REDUCED FOR CLARITY ON THIS MAP.
8. SCALE IS 1"=1000' WHEN PLOTTED AS 34"x22".



N 2,095,000
N 2,100,000
N 2,105,000
N 2,110,000
N 2,115,000
N 2,120,000



REV	REVISIONS	DATE	APP



LEGEND

- 94 1- FOOT CONTOURS
- 95 5- FOOT CONTOURS
- SAMPLE LOCATION

CONDITION SURVEY

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VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC CV200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS 461



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ILLINOIS BEACH STATE PARK SAND SOURCE SURVEY

GRAB & BEACH SAMPLE LOCATIONS

DWG DATE:	11 NOVEMBER 2020
DWG NAME:	IL Beach State Park - Sand Survey.dwg
DRAWN BY:	T. LITTLEFIELD
CHECKED BY:	J. BARKER
ENGINEER:	C. BRYANT
SCALE:	AS SHOWN
SHEET NO.:	4 OF 7
REVISION NO.:	0

GRAB SAMPLE LOCATIONS

SAMPLE	EASTING	NORTHING
GS-1	1139366.86	2119682.4
GS-2	1129300.87	2116629.43
GS-3	1130683.44	2116640.1
GS-4	1132038.39	2116646.31
GS-5	1132628.57	2116649.37
GS-6	1135933	2116667.12
GS-7	1141387.15	2116700.62
GS-8	1129212.26	2118627.94
GS-9	1130655.12	2118637.8
GS-10	1132899.86	2118650.75
GS-11	1132889.78	2114644.69
GS-12	1131308.55	2114648.23
GS-13	1129346.53	2114623.5
GS-14	1129617.76	2112624.37
GS-15	1131511.02	2112641.48
GS-16	1133305.87	2112654.95
GS-17	1133172.3	2110645.73
GS-18	1131618.51	2110646.14
GS-19	1129479.57	2110627.46
GS-20	1129606.72	2108630.24
GS-21	1131604.74	2108638.81
GS-22	1132557.71	2108649.67

GRAB SAMPLE LOCATIONS

SAMPLE	EASTING	NORTHING
GS-23	1135488.88	2107670.6
GS-24	1131413.64	2107643.52
GS-25	1129408.06	2107623.78
GS-26	1135685.79	2103165.15
GS-27	1131917.92	2103150.53
GS-28	1128935.92	2103125.99
GS-29	1128649.19	2101128.39
GS-30	1131915.43	2101143.73
GS-31	1135267.18	2101166.08
GS-32	1134894.45	2099157.15
GS-33	1131979.86	2099143.5
GS-34	1128657.74	2099127.79
GS-35	1128676.84	2097122.04
GS-36	1132077.6	2097145.5
GS-37	1134577.65	2097153.27
GS-38	1134176.77	2095170.82
GS-39	1131725.83	2095146.68
GS-40	1128599.23	2095132.96
GS-41	1128613.93	2093124.32
GS-42	1131306.38	2093145.19
GS-43	1133659.04	2093157.88
GS-44	1137851.88	2098183.96

GRAB SAMPLE LOCATIONS

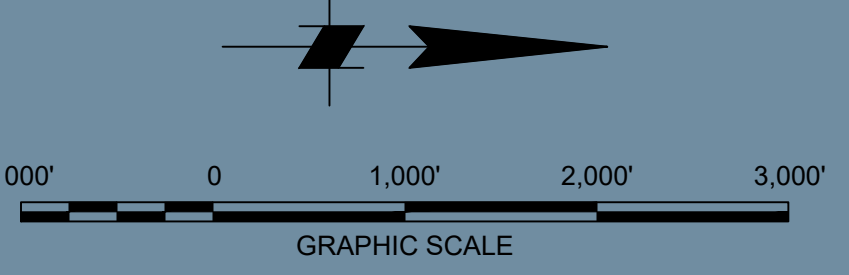
SAMPLE	EASTING	NORTHING
GS-45	1139973.06	2114313.51
GS-46	1140222.3	2114298.66
GS-47	1140085.03	2114478.36
GS-48	1139737.13	2114187.31
GS-49	1138710.18	2114704.47
GS-50	1139892.28	2113700.97
GS-51	1140207.12	2115693.67
GS-52	1139975.44	2115191.11
GS-53	1139391.69	2114690.76
GS-54	1139263.56	2115177.17
GS-55	1139779.24	2114686.44
GS-56	1140394.08	2115197.24
GS-57	1137393.44	2094175.6
GS-58	1136232.51	2095169.18
GS-59	1135650.04	2097165.01
GS-60	1136357.91	2098674.86
GS-61	1136671.69	2102179.03
GS-62	1137714.51	2102201.31
GS-63	1136933.62	2108721.78
GS-64	1138504.14	2112211.32
GS-65	1139975.95	2112682.18
GS-66	1140030.29	2113199.47

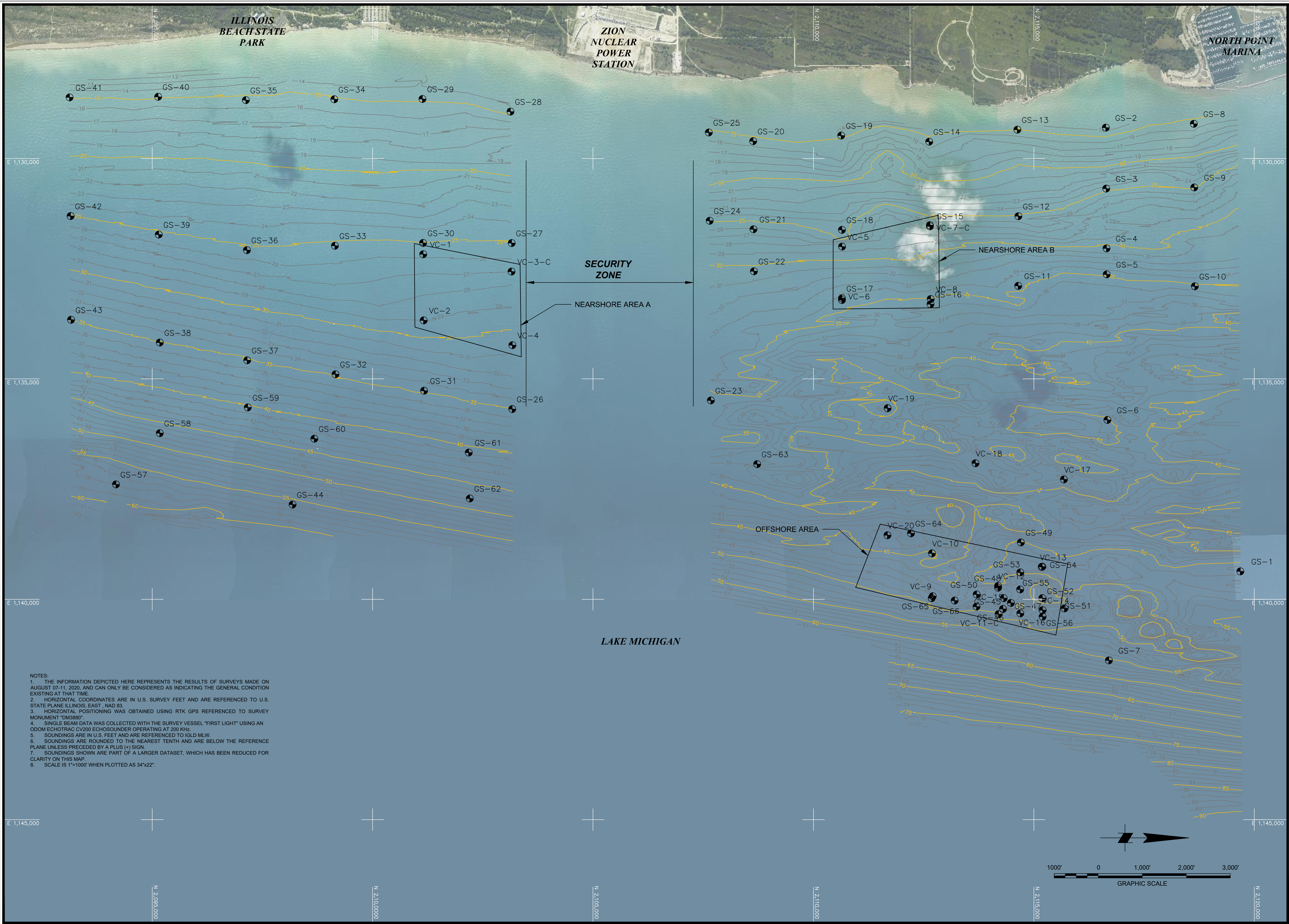
LAKE MICHIGAN

NATIVE BEACH SAMPLES

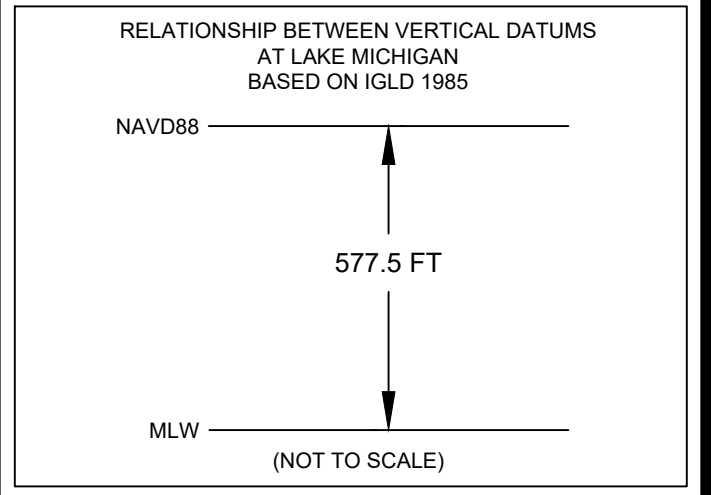
SAMPLE	EASTING	NORTHING
NB-1	1128432.06	2113248.68
NB-2	1128631.59	2114863.56
NB-3	1126964.89	2099777.58
NB-4	1127044.78	2098145
NB-5	1127381.65	2094011.15
NB-6	1127426.93	2092930.44

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REV	REVISIONS	DATE	APP



LEGEND

- 94 1- FOOT CONTOURS
- 95 5- FOOT CONTOURS
- SAMPLE LOCATION

CONDITION SURVEY

SURVEY DATE:	7-11 AUGUST 2020
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VERT. REFERENCE:	IGLD MLW
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VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC CV200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS 461

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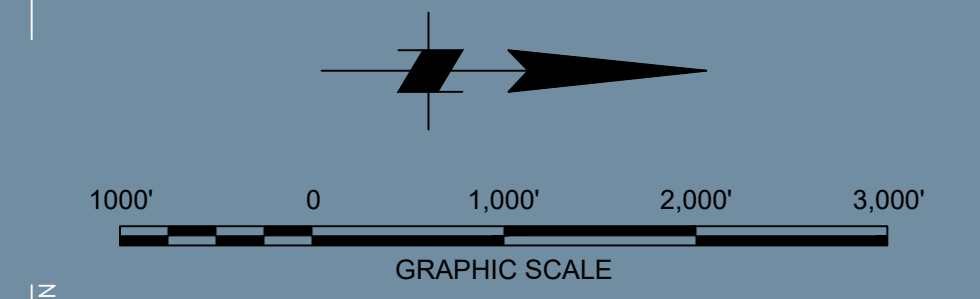
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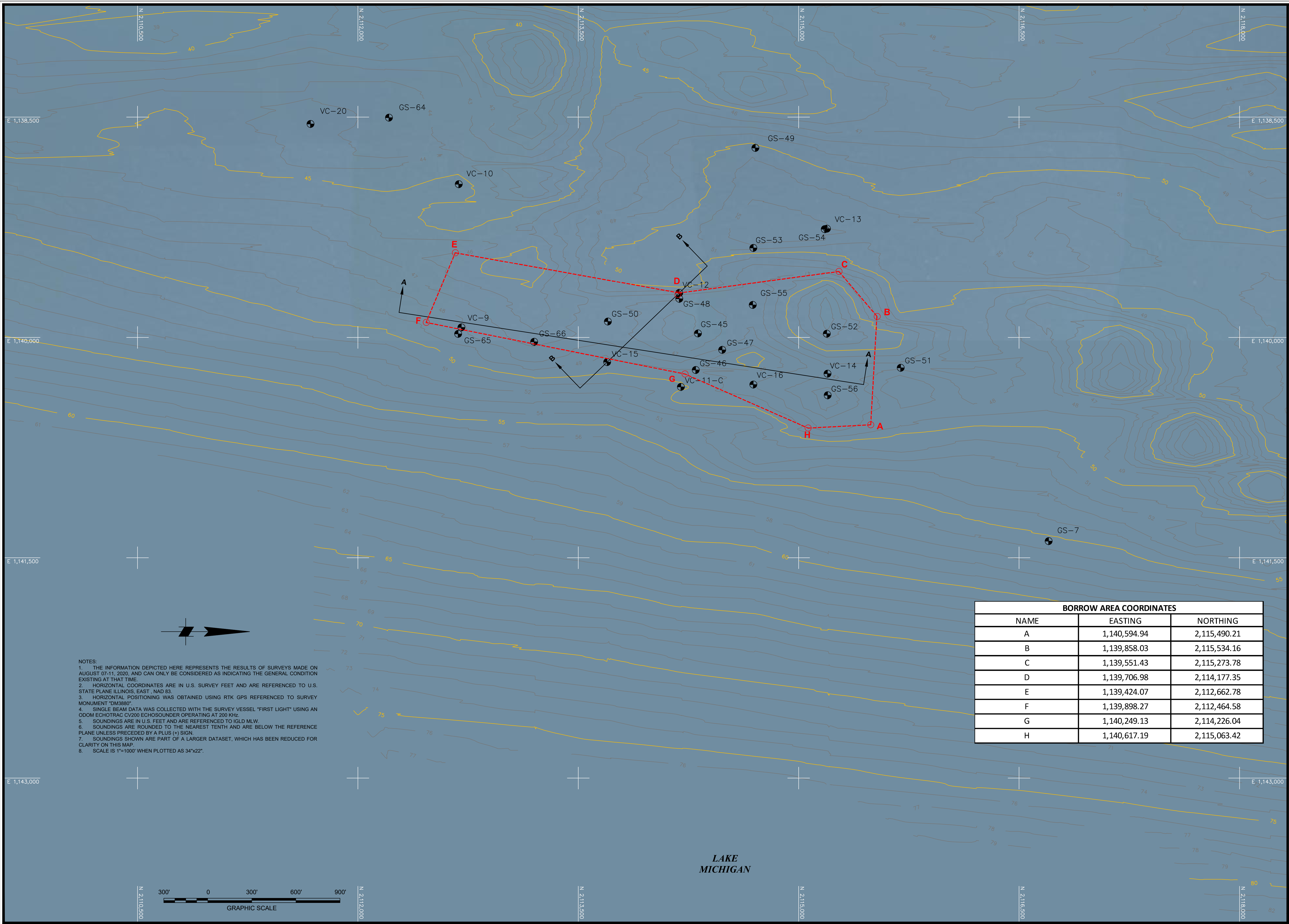
**ILLINOIS BEACH STATE
PARK
SAND SOURCE SURVEY**

BORROW SITE OVERVIEW

DWG DATE:	11 NOVEMBER 2020
DWG NAME:	IL Beach State Park - Sand Survey.dwg
DRAWN BY:	T. LITTLEFIELD
CHECKED BY:	J. BARKER
ENGINEER:	C. BRYANT
SCALE:	AS SHOWN
SHEET NO.	5 OF 7
REVISION NO.	0

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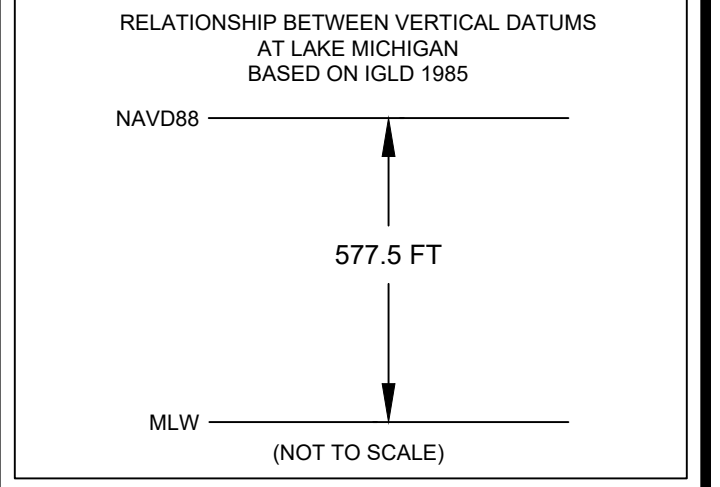




BORROW AREA COORDINATES		
NAME	EASTING	NORTHING
A	1,140,594.94	2,115,490.21
B	1,139,858.03	2,115,534.16
C	1,139,551.43	2,115,273.78
D	1,139,706.98	2,114,177.35
E	1,139,424.07	2,112,662.78
F	1,139,898.27	2,112,464.58
G	1,140,249.13	2,114,226.04
H	1,140,617.19	2,115,063.42

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REV	REVISIONS	DATE	APP



LEGEND

- 1- FOOT CONTOURS
- 5- FOOT CONTOURS
- SAMPLE LOCATION
- POTENTIAL BORROW AREA

CONDITION SURVEY

SURVEY DATE:	7-11 AUGUST 2020
HORIZ. PROJECTION:	U.S. STATE PLANE, NAD 83
ZONE:	ILLINOIS - EAST
VERT. REFERENCE:	IGLD MLW
SURVEY UNITS:	U.S. SURVEY FEET
VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC CV200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS 461

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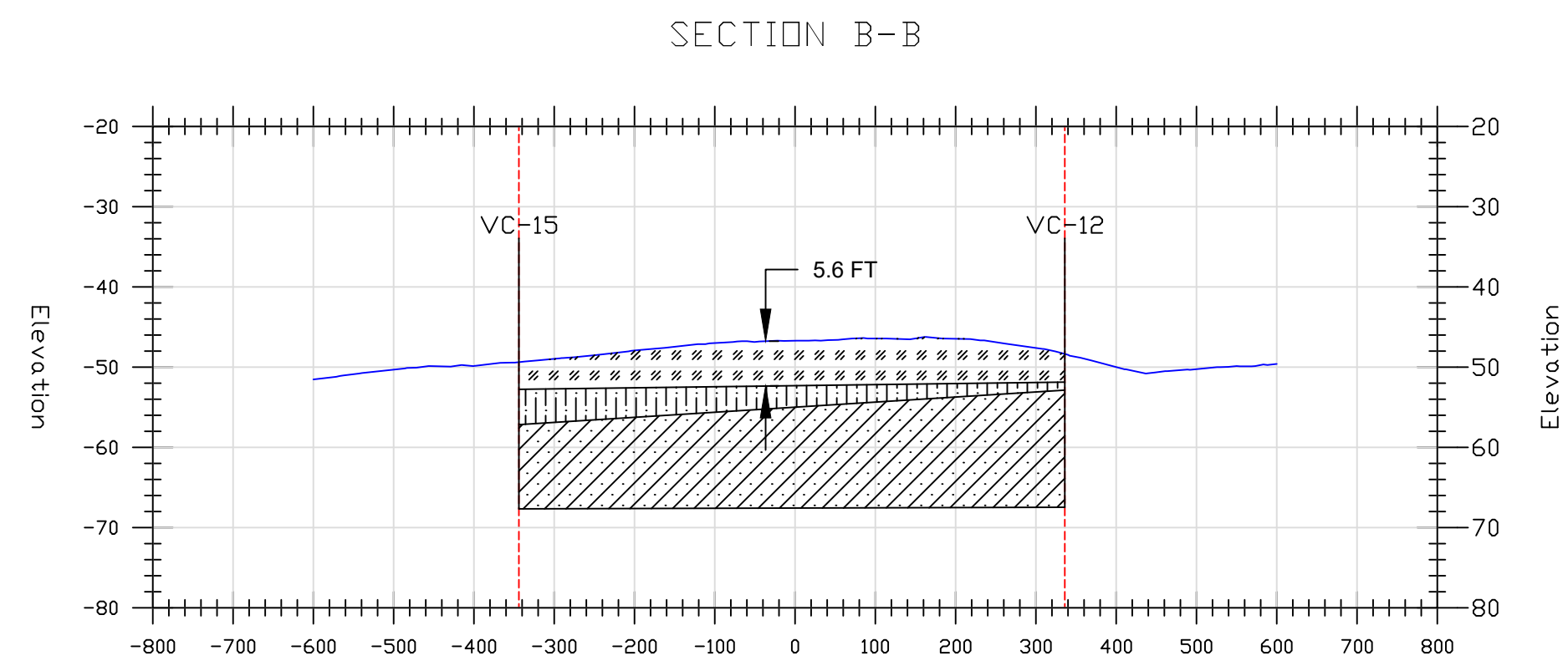
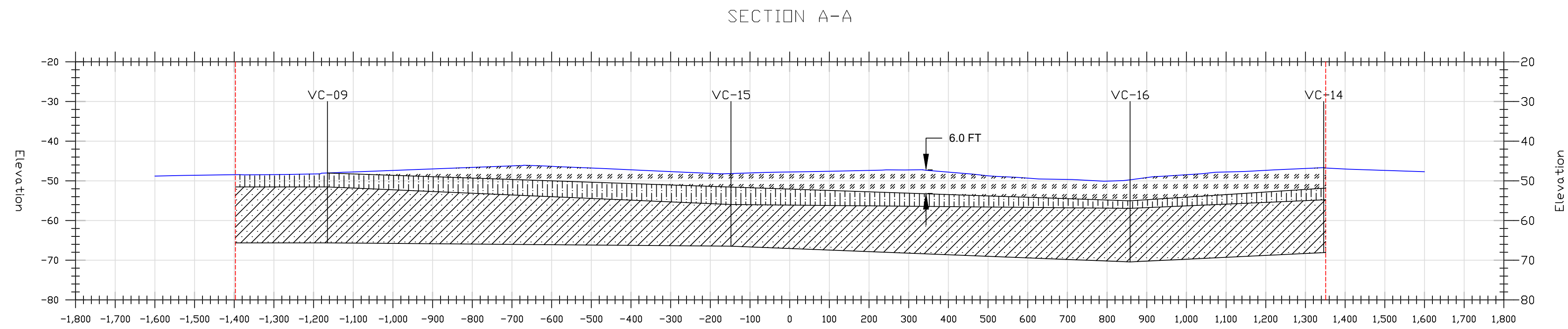
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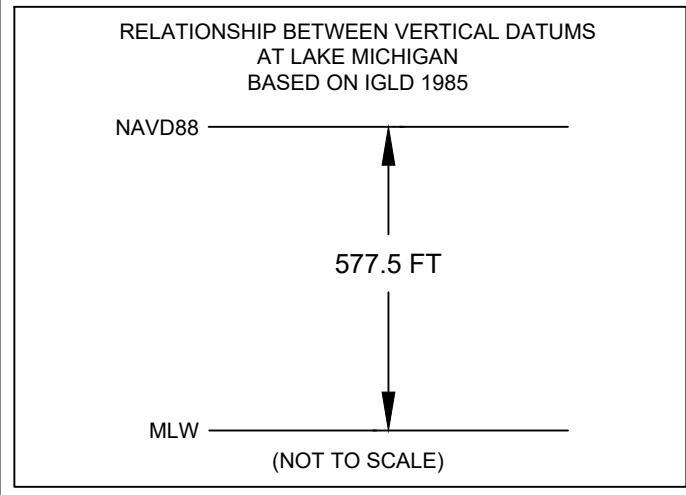
ILLINOIS BEACH STATE PARK SAND SOURCE SURVEY

POTENTIAL BORROW SITE

DWG DATE:	11 NOVEMBER 2020
DWG NAME:	IL Beach State Park - Sand Survey.dwg
DRAWN BY:	T. LITTLEFIELD
CHECKED BY:	J. BARKER
ENGINEER:	C. BRYANT
SCALE:	AS SHOWN
SHEET NO.	6 OF 7
REVISION NO.	0



REV	REVISIONS	DATE	APP



LEGEND

	SAND SOURCE BOUNDARY
	EXISTING BOTTOM
	MEDIUM SAND (SP)
	SILTY FINE SAND (SM)
	FINE SAND WITH INTERBEDDED CLAY (SC)

CONDITION SURVEY

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VESSEL:	FIRST LIGHT
SOUNDER:	ODOM ECHOTRAC CV200
SOUNDER FREQ.:	200KHz
POSITIONING:	TRIMBLE SPS 461

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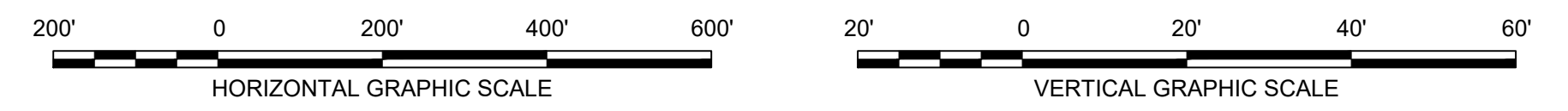
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ILLINOIS BEACH STATE PARK SAND SOURCE SURVEY

SECTION VIEWS

DWG DATE:	11 NOVEMBER 2020
DWG NAME:	IL Beach State Park - Sand Survey.dwg
DRAWN BY:	T. LITTLEFIELD
CHECKED BY:	J. BARKER
ENGINEER:	C. BRYANT
SCALE:	AS SHOWN
SHEET NO.	7 OF 7
REVISION NO.	0

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APPENDIX B

VIBRACORE LOGS

Boring Designation VC-01

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-01			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,132,171 Y = 2,101,147			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Vibracore <input type="checkbox"/> MANUAL HAMMER	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 2	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			DISTURBED 2	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			UNDISTURBED (UD)	
8. TOTAL DEPTH OF BORING 9.8 Ft.			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -25.8 Ft.	
			17. TOTAL RECOVERY FOR BORING 7.9 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-25.8	0.0					
			Silty Sand, clay lenses at 2.2', 3.6', and 4.8', (SP-SM).		1	Sample #1, Depth = 1.0' Mean (mm): 0.11, Phi Sorting: 0.47 Fines (230): 2.55% (SP-SM)
-31.1	5.3		Silty Sand, clay lenses at 5.6', and 6.5', (SM).		2	Sample #2, Depth = 5.5' Mean (mm): 0.11, Phi Sorting: 0.50 Fines (230): 6.50% (SM)
-33.8	8.0		End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-02

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-02			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,139,697 Y = 2,114,187			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			12. TOTAL SAMPLES 2	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			DISTURBED 2	
8. TOTAL DEPTH OF BORING 15.0 Ft.			UNDISTURBED (UD)	
			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -29.0 Ft.	
			17. TOTAL RECOVERY FOR BORING 14 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-29.0	0.0					
			Silty Sand, clay lenses at 2.3', and 6.7', (SP-SM).		1	Sample #1, Depth = 1.0' Mean (mm): 0.12, Phi Sorting: 0.50 Fines (230): 1.94% (SP-SM)
					2	Sample #2, Depth = 6.5' Mean (mm): 0.11, Phi Sorting: 0.58 Fines (230): 4.88% (SP-SM)
-37.8	8.8					
-38.0	9.0		Clay, (CL).			
			Fine sand, (SP).			
-41.0	12.0					
-41.3	12.3		Fine sand with clay, (SC).			
			Fine sand, (SP).			
-43.0	14.0					
			End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-03-C

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-03-C			10. COORDINATE SYSTEM/DATUM State Plane	
3. DRILLING AGENCY Athena Technologies			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
4. NAME OF DRILLER Palmer McClellan			12. TOTAL SAMPLES 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			15. DATE BORING 08-14-20	
8. TOTAL DEPTH OF BORING 12.0 Ft.			16. ELEVATION TOP OF BORING -27.0 Ft.	
			17. TOTAL RECOVERY FOR BORING 12 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-27.0	0.0					
		↑↑↑↑↑	Silty Sand, (SM).		1	Sample #1, Depth = 6.0' Mean (mm): 0.12, Phi Sorting: 0.64 Fines (230): 17.47% (SM)
-39.0	12.0		End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-04

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1
1. PROJECT IBSP Sand Source Survey Zion, Illinois		9. SIZE AND TYPE OF BIT 3.0 In.		OF 1 SHEETS
2. BORING DESIGNATION VC-04		10. COORDINATE SYSTEM/DATUM State Plane		HORIZONTAL NAD 1983
LOCATION COORDINATES X = 1,140,168 Y = 2,113,696		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		VERTICAL IGLD MLW
3. DRILLING AGENCY Athena Technologies		CONTRACTOR FILE NO.		<input type="checkbox"/> AUTO HAMMER
4. NAME OF DRILLER Palmer McClellan		12. TOTAL SAMPLES 2		<input type="checkbox"/> MANUAL HAMMER
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		UNDISTURBED (UD)
6. THICKNESS OF OVERBURDEN 0.0 Ft.		13. TOTAL NUMBER CORE BOXES		14. ELEVATION GROUND WATER
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		15. DATE BORING 08-14-20		STARTED 08-14-20
8. TOTAL DEPTH OF BORING 16.0 Ft.		16. ELEVATION TOP OF BORING -30.6 Ft.		COMPLETED 08-14-20
		17. TOTAL RECOVERY FOR BORING 14.2 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-30.6	0.0					
		•••••	Silty sand , clay lenses at 0.5', 5.7', (SP-SM).		1	Sample #1, Depth = 1.5' Mean (mm): 0.12, Phi Sorting: 0.45 Fines (230): 1.96% (SP-SM)
-38.4	7.8	•••••	Silty sand, clay lens at 7.9', trace clay from 8-9', (SM).		2	Sample #2, Depth = 8.0' Mean (mm): 0.12, Phi Sorting: 0.65 Fines (230): 6.86% (SM)
-41.1	10.5	•••••	Fine sand with interbedded clay layers, (SC).			
-44.8	14.2	•••••	End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-05

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-05			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,140,321 Y = 2,114,691			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Vibracore <input type="checkbox"/> MANUAL HAMMER	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 2	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			DISTURBED 2	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			UNDISTURBED (UD)	
8. TOTAL DEPTH OF BORING 8.8 Ft.			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -28.8 Ft.	
			17. TOTAL RECOVERY FOR BORING 7.4 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-28.8	0.0					
			Silty sand, clay lenses at 0.7', 2.7', 3.1', (SW-SM).		1	Sample #1, Depth = 0.5' Mean (mm): 0.12, Phi Sorting: 0.89 Fines (230): 4.33% (SW-SM)
-33.1	4.3		Silty Sand, clay lens at 6.0', (SM).		2	Sample #2, Depth = 5.0' Mean (mm): 0.10, Phi Sorting: 0.23 Fines (230): 10.31% (SM)
-36.2	7.4		End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-06

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-06			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,137,281 Y = 2,115,679			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			12. TOTAL SAMPLES 2	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			DISTURBED 2	
8. TOTAL DEPTH OF BORING 8.5 Ft.			UNDISTURBED (UD)	
			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -34.3 Ft.	
			17. TOTAL RECOVERY FOR BORING 7.4 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-34.3	0.0					
		↑↑↑↑↑	Silty sand, trace clay at 0.9', (SM).		1	Sample #1, Depth = 2.0' Mean (mm): 0.10, Phi Sorting: 0.33 Fines (230): 7.09% (SM)
-37.5	3.2					
-37.7	3.4		Clay, (CL).			
		●●●●●	Fine sand, (SP).			
-38.9	4.6					
		▨▨▨▨▨	Fine sand with interbedded clay layers, (SC).			
-41.7	7.4					
			End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-07-C

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-07-C			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,136,914 Y = 2,113,674			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Vibracore <input type="checkbox"/> MANUAL HAMMER	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 1	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			DISTURBED	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			UNDISTURBED (UD)	
8. TOTAL DEPTH OF BORING 11.0 Ft.			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -26.6 Ft.	
			17. TOTAL RECOVERY FOR BORING 9.3 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-26.6	0.0					
			Silty sand, (SM).		1	Sample #1, Depth = 4.5' Mean (mm): 0.11, Phi Sorting: 0.41 Fines (230): 13.95% (SM)
-35.9	9.3		End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-08

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-08			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,135,664 Y = 2,111,681			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 1	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 9.8 Ft.			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -35.1 Ft.	
			17. TOTAL RECOVERY FOR BORING 7.4 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-35.1	0.0					
-35.5	0.4		Fine sand, (SP).			
-35.7	0.6		Clay, (CL).			
			Silty sand clay lenses at 1.2', 1.9', and 2.3', (SW-SM).		1	Sample #1, Depth = 1.5' Mean (mm): 0.12, Phi Sorting: 1.11 Fines (230): 4.24% (SW-SM)
-40.3	5.2					
-40.7	5.6		Clay, (CL).			
			Fine sand, (SP).			
-42.5	7.4					
			End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-09

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-09			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,138,547 Y = 2,111,677			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 1	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			DISTURBED	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			UNDISTURBED (UD)	
8. TOTAL DEPTH OF BORING 22.0 Ft.			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING STARTED COMPLETED 08-14-20 08-14-20	
			16. ELEVATION TOP OF BORING -48.1 Ft.	
			17. TOTAL RECOVERY FOR BORING 17.6 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-48.1	0.0					
		•••••	Fine sand, (SP).		1	Sample #1, Depth = 1.0' Mean (mm): 0.22, Phi Sorting: 0.77 Fines (230): 1.04% (SP)
-51.6	3.5	•••••				
		▨▨▨▨▨	Fine sand with interbedded clay layers, (SC).			
-60.6	12.5	▨▨▨▨▨				
		▨▨▨▨▨	Fine sand with interbedded clay layers, (SC).			
-65.6	17.5	▨▨▨▨▨				
		▨▨▨▨▨				

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-10

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-10			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,133,674 Y = 2,101,157			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 2	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 22.0 Ft.			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -45.6 Ft.	
			17. TOTAL RECOVERY FOR BORING 16 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-45.6	0.0					
-47.5	1.9	•••••	Silty Sand, (SP-SM).		1	Sample #1, Depth = 1.0' Mean (mm): 0.13, Phi Sorting: 0.50 Fines (230): 7.62% (SP-SM)
-51.3	5.7	•••••	Silty sand with numerous clay lenses, (SM).		2	Sample #2, Depth = 4.2' Mean (mm): 0.12, Phi Sorting: 0.59 Fines (230): 10.21% (SM)
-61.6	16.0	▨▨▨▨▨	Fine sand with interbedded clay layers, (SC).			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-11-C

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	OF 1 SHEETS
		10. COORDINATE SYSTEM/DATUM State Plane	HORIZONTAL NAD 1983	
2. BORING DESIGNATION VC-11-C	LOCATION COORDINATES X = 1,132,567 Y = 2,103,148		11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Vibracore <input type="checkbox"/> MANUAL HAMMER	
3. DRILLING AGENCY Athena Technologies	CONTRACTOR FILE NO.		12. TOTAL SAMPLES 1	DISTURBED UNDISTURBED (UD)
4. NAME OF DRILLER Palmer McClellan			13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			DEG. FROM VERTICAL	BEARING
6. THICKNESS OF OVERBURDEN 0.0 Ft.			14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			15. DATE BORING	STARTED 08-14-20
8. TOTAL DEPTH OF BORING 12.0 Ft.			16. ELEVATION TOP OF BORING -50.2 Ft.	COMPLETED 08-14-20
			17. TOTAL RECOVERY FOR BORING 11.3 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-50.2	0.0	↑↑↑↑↑				
			Silty sand, (SM).		1	Sample #1, Depth = 3.5' Mean (mm): 0.16, Phi Sorting: 0.67 Fines (230): 15.55% (SM)
-61.5	11.3		End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-13

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-13			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,132,000 Y = 2,110,647			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 2	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 22.0 Ft.			15. DATE BORING 08-13-20	
			STARTED 08-13-20	
			COMPLETED 08-13-20	
			16. ELEVATION TOP OF BORING -52.0 Ft.	
			17. TOTAL RECOVERY FOR BORING 18.7 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-52.0	0.0					
-52.7	0.7		Silty sand, (SM).		1	Sample #1, Depth = 0.5' Mean (mm): 0.21, Phi Sorting: 1.38 Fines (230): 24.12% (SM)
			Fine sand with interbedded clay layers, (SC).		2	Sample #2, Depth = 3.0' Mean (mm): 0.12, Phi Sorting: 0.87 Fines (230): 28.71% (SM)
-70.7	18.7					

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-14

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-14			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,133,214 Y = 2,110,645			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			VERTICAL IGLD MLW	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Vibracore <input type="checkbox"/> MANUAL HAMMER	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 3	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			DISTURBED 3	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			UNDISTURBED (UD)	
8. TOTAL DEPTH OF BORING 22.0 Ft.			13. TOTAL NUMBER CORE BOXES	
			14. ELEVATION GROUND WATER	
			15. DATE BORING STARTED COMPLETED 08-13-20 08-13-20	
			16. ELEVATION TOP OF BORING -47.0 Ft.	
			17. TOTAL RECOVERY FOR BORING 21.4 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-47.0	0.0					
			Fine sand, (SP).		1	Sample #1, Depth = 1.0' Mean (mm): 0.37, Phi Sorting: 0.84 Fines (230): 0.25% (SP)
-52.2	5.2		Silty Sand with trace clay, (SM).		2	Sample #2, Depth = 4.2' Mean (mm): 0.16, Phi Sorting: 0.58 Fines (230): 2.56% (SP)
-55.1	8.1		Fine sand with interbedded clay layers, (SC).		3	Sample #3, Depth = 6.0' Mean (mm): 0.13, Phi Sorting: 0.45 Fines (230): 11.07% (SM)
-68.4	21.4					

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-15

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-15			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,131,538 Y = 2,112,641			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 3	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 22.0 Ft.			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -49.4 Ft.	
			17. TOTAL RECOVERY FOR BORING 18.3 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-49.4	0.0					
			Fine sand, (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.22, Phi Sorting: 0.76 Fines (230): 1.13% (SP)
-52.8	3.4		Silty sand with some clay lenses, (SM).		2	Sample #2, Depth = 4.5' Mean (mm): 0.11, Phi Sorting: 0.44 Fines (230): 17.96% (SM)
-57.2	7.8		Fine sand with interbedded clay layers, (SC).		3	Sample #3, Depth = 7.5' Mean (mm): 0.11, Phi Sorting: 0.48 Fines (230): 20.06% (SM)
-67.7	18.3					

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-16

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-16			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,133,189 Y = 2,112,657			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 3	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 22.0 Ft.			15. DATE BORING 08-13-20	
			STARTED 08-13-20	
			COMPLETED 08-13-20	
			16. ELEVATION TOP OF BORING -48.1 Ft.	
			17. TOTAL RECOVERY FOR BORING 20.7 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-48.1	0.0					
-49.9	1.8		Fine Sand, (SW).		1	Sample #1, Depth = 0.5' Mean (mm): 0.40, Phi Sorting: 1.05 Fines (230): 1.24% (SW)
-53.4	5.3		Fine sand, clay lens at 3.2', (SP).		2	Sample #2, Depth = 2.0' Mean (mm): 0.31, Phi Sorting: 0.84 Fines (230): 0.29% (SP)
-55.3	7.2		Silty sand, (SP-SM).		3	Sample #3, Depth = 5.5' Mean (mm): 0.13, Phi Sorting: 0.36 Fines (230): 3.47% (SP-SM)
-68.8	20.7		Fine sand with interbedded clay layers, (SC).			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-17

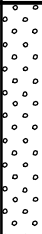


DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-17			10. COORDINATE SYSTEM/DATUM State Plane	
3. DRILLING AGENCY Athena Technologies			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
4. NAME OF DRILLER Palmer McClellan			12. TOTAL SAMPLES 2	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			15. DATE BORING 08-13-20	
8. TOTAL DEPTH OF BORING 21.0 Ft.			16. ELEVATION TOP OF BORING -42.1 Ft.	
			17. TOTAL RECOVERY FOR BORING 16.4 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-42.1	0.0					
			Fine sand, (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.20, Phi Sorting: 0.63 Fines (230): 0.70% (SP)
-44.2	2.1				2	Sample #2, Depth = 2.1' Mean (mm): 0.11, Phi Sorting: 0.47 Fines (230): 5.08% (SP-SM)
-44.4	2.3		Silty sand, (SP-SM).			
			Fine sand with interbedded clay layers, (SC).			
-58.5	16.4					
			End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-18

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-18			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,138,958 Y = 2,112,686			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 3	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 22.0 Ft.			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -40.8 Ft.	
			17. TOTAL RECOVERY FOR BORING 20.3 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-40.8	0.0					
			Fine sand, (SW).		1	Sample #1, Depth = 1.0' Mean (mm): 0.40, Phi Sorting: 0.98 Fines (230): 0.28% (SW)
-45.6	4.8				2	Sample #2, Depth = 4.5' Mean (mm): 0.33, Phi Sorting: 1.07 Fines (230): 1.94% (SW)
-45.8	5.0		Silty sand, (SM).		3	Sample #3, Depth = 4.9' Mean (mm): 0.12, Phi Sorting: 0.94 Fines (230): 17.12% (SM)
			Fine sand with interbedded clay layers, (SC).			
-61.1	20.3					

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20

Boring Designation VC-20

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT IBSP Sand Source Survey Zion, Illinois			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION VC-20			10. COORDINATE SYSTEM/DATUM State Plane	
LOCATION COORDINATES X = 1,139,260 Y = 2,115,192			HORIZONTAL NAD 1983	
3. DRILLING AGENCY Athena Technologies			CONTRACTOR FILE NO.	
4. NAME OF DRILLER Palmer McClellan			11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 2	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 21.0 Ft.			15. DATE BORING 08-14-20	
			STARTED 08-14-20	
			COMPLETED 08-14-20	
			16. ELEVATION TOP OF BORING -42.9 Ft.	
			17. TOTAL RECOVERY FOR BORING 19.8 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Jonathan Barker P.G.	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-42.9	0.0					
			Fine sand, clay lenses at 3.3' and 3.4', (SP).		1	Sample #1, Depth = 1.0' Mean (mm): 0.16, Phi Sorting: 0.54 Fines (230): 3.91% (SP)
-46.5	3.6					
-46.8	3.9		Silty sand, (SM).		2	Sample #2, Depth = 3.7' Mean (mm): 0.13, Phi Sorting: 0.77 Fines (230): 11.01% (SM)
			Fine sand with interbedded clay layers, (SC).			
-61.9	19.0					
-62.7	19.8		Fine sand, (SP).			
			End of Boring			

FLORIDA DEP ROSS IBSP.GPJ FL DEP ROSS.GDT 11/10/20