

COORDINATES N 228,511.9 E 19,441,342.2

MW-103D BORING NO.

PROJECT

LOCATION

GSWA: Spring Hill Camp Phase III

SHEET 5 OF 5

Osceola Township, MI

4065-005 PROJECT NO. GF/BM **LOGGED BY**

1	FACE ELI		N 11 4	47.73	DATUM USGS	LOGGED BY (GF/BM			
S Depth feet		Sample	i	Rec-	DESCRIPT	ION	USCS	Strata	REMARKS	Elevation Feet
		SSS			Dark gray Silty, CLAY with fine to c Gravel (coarse material is matrix so MOIST to DRY.	oarse Sand and fine upported), hard, and	CL-ML		sand in spoon.	945.23
205		333						<u> </u>	Auger refusal, end of boring - 206' bgl.	941.73



COORDINATES N 228,500.9 E 19,441,342.9

1500 Abbott Road, Suite 210 East Lansing, MI 48823 Telephone: (517) 337-0111

Fax: (517) 337-0417

MW-103I BORING NO.

PROJECT

SHEET 1 OF 2 **GSWA: Spring Hill Camp Phase III**

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

LOGGED BY Mike Brennan

SURFACE ELEVATION	√ 1147.89	DATUM	USGS	LOGGED BY	MIKE B	rennan	
DRILLING CONTRACT Stearns	OR		LOCATION DESCRIPT	TION:			
DRILLING METHOD 4 1/4" HSA DRILLING STARTED	EQUIPMENT CME 1050 ENDED		See attached S	ite Diagram for location.			
11/14/00	11/14/00						
STRA	TA KEY						
SAND	SILT						
CLAY	CLAYEY	SAND					
GRAVEL	SILTY S	AND					
SAMPLE INFOR	RMATION						u

_	CLAY			Ы (CLAYEY	SAND		
0	GRAVEL				SILTY S	AND		
S	SAMPLE	INF	OF	RMATI	ON		a l	ion t
Depth feet		Samp Typ		Blow Counts	Rec- overy %		DESCRIPTION USCS ET REMARKS	Elevation Feet
-		SS	S	2-2 2-2	75	Gravel,	MOIST. bwn very fine to medium SAND, little Silt, MOIST. SM during MW-103I drilling. Lithology and sample information	1147.89 1146.89
5-		a ss	ss	2-4 6-6	100	Light bro MOIST.	own, very fine to medium SAND, poorly graded, SP based on MW-103D coring log. coring log.	1144.89
-	-	ے		0-0		L	SM	1142.39
- - 10-		a s	S	3-3	75	Light bro	own, fine to medium SAND, poorly graded, MOIST. SP	1140.39
-				4-3	15			
-				2-3		Light bro	own, fine to medium SAND, poorly graded, DRY.	1135.39
15 - -		SS	SS	5-6	75	Light bro	own, very fine to fine SAND, poorly graded, MOIST.	1132.89
-	_			0.4		Light bro Sand is	own, fine SAND, trace Silt, poorly graded, DRY. sub-angular to sub-rounded.	1130.39
20 -	-	SS	S	3-4 6-9	100	Light bro	own, Clayey SILT with occasional Sand stringers,	1127.89
-						Brown,	medium to coarse SAND, poorly graded.	1125.89
25 -	-	ss	S		75	Light bro		1123.39 1122.89
-	-	7		5-10		Light bro with dep	th. Sand is well rounded, spherical.	1120.39
30-		SS	SS	27-20	75		SP SP	
-				F -7		Light bro	own, Silty fine SAND, trace Clay, loose, WET.	1115.39
35	-	SS	S	5-7 8-10		poorly g	raded, WET. Quartz grains are well rounded and SP	<u>7</u> 1112.89
- -						riigniy s		1110.39
	<u> </u>			3-5				



COORDINATES N 228,500.9 E 19,441,342.9

SURFACE ELEVATION 1147.89 DATUM USGS

MW-103I BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 2 OF 2

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

COIN	FACE ELL	- 77 (1101	1 11-	+1.03	DATOW USGS				
s	AMPLE	INFO	RMATI	ON			亞		tion
Depth feet	Lab Sample	Sample Type	Blow Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
-		Z SSS	9-16		Brown, medium SAND, trace fine Sand, poorly graded, WET. Sand is well rounded, highly spherical, and approximately 80% quartz. <i>(continued)</i>	SP			
45 - -		SSS	3-4 8-14			J. SP			
50-		sss	4-6 9-12		Brown, fine to coarse SAND, trace Silt, WET. Fine to medium component is well rounded, highly spherical, and approximately 80% quartz. Coarse sand component is sub-angular and sub-rounded.	SW			1100.39
-					Brown, fine SAND, trace to some Silt, WET.	SP			1097.39
55-		Sss	6-17		Brown and gray mottled Silty, CLAY, thinly laminated	CL-ML			1093.39
-			26-24		\(\(\text{(varved)}\), stiff, MOIST. \(Brown, fine SAND, trace Silt, poorly graded, WET. Sand is well rounded, highly spherical, and approximately 80% quartz.	SP			1092.64 1090.39
60-		SSS	10-14 38-30		Brown, fine to medium SAND, trace Silt, poorly graded, WET. Quartz component (approx. 80%) is well rounded and highly spherical. Non-quartz component is sub-angular to sub-rounded.	SP			
65 - -		SSS	18-27 100 / 5"		Gray Clayey fine to medium SAND, trace coarse Sand, trace Gravel, occasional seams (~1 inch thick) of medium Sand.	sc			1082.89
70-		SSS			Brown, medium to coarse SAND, trace fine Sand, poorly graded, WET. Sand is well rounded, highly spherical, and approximately 70% quartz.	SP		Driller noted change in lithology.	1080.39
75 -		SSS	12-60 65		Brown, fine to coarse GRAVEL, trace fine to coarse Sand, and WET.	GW			1072.39
-			6-8		Brown, medium to coarse SAND, trace fine Sand, occasional fine to medium Gravel layers, poorly graded, WET. Sand is well rounded, highly spherical, and				1070.39
80 - -		SSS	12-30		approximately 80% quartz.	SP			
85 - -		sss			Brown, fine to coarse SAND, and SILT, trace fine Gravel, and WET.	SM			1063.39
90-					Brown, fine to coarse SAND, trace to some fine to medium Gravel, trace Silt, well graded, and WET. Sand and gravel are well rounded and highly spherical. Sand is	sw			1060.39
					compositionally mature.			End of boring - 90' bgl	1057.89



COORDINATES N 228,228.8 E 19,442,629.5

1500 Abbott Road, Suite 210 East Lansing, MI 48823 Telephone: (517) 337-0111 Fax: (517) 337-0417

MW-104D BORING NO. PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 1 OF 5

Osceola Township, MI LOCATION

4065-005

PROJECT NO.

SURFACE ELEVATION	1148.35	DATUM	USGS	LO	GGED BY I	Mike B	rennan	
DRILLING CONTRACT Stearns	TOR	L	OCATION DESCR	RIPTION:				
DRILLING METHOD 4 1/4" HSA	EQUIPMENT CME 1050		See attache	ed Site Diagram for	location.			
DRILLING STARTED 11/2/00	ENDED 11/6/00							
STRA	TA KEY							
SAND	SILT							
CLAY	CLAYEY	'SAND						
GRAVEL	SILTY S	AND						
SAMPLE INFO	RMATION	-						_

	CLAY		F	CLAYEY	'SAND		
٠-	GRAVEL			SILTY S	AND		
Depth	SAMPLE Lab	INFO		ON Rec-		DESCRIPTION USCS ET REMARKS	Elevation Feet
feet		Туре	Counts	overy %		l o	Ele F
	_	sss	2-3 4-4	50	MOIST. Brown to		1148.35 1147.85
	}		2-2		Light bro	own, medium SAND, some Clay, MOIST.	1145.35
5-	- - -	SSS	4-5	80	Dark bro	own SILT , some fine Sand, MOIST. ML	1143.35
	<u> </u>		2-2		fine Sar	own to tan, medium to coarse SAND, little to some ad, well graded, MOIST. Sand is rounded with high ty. Seam of coarse SAND, little Gravel @ 10.5'.	1140.85
10-	1	⊆ SSS	4-5	100	Light bro	own, fine to medium SAND, trace to little Silt, poorly SP SP SP SP	1138.35 1137.85
	- - -		7.44		WET Light bro	h red, very fine SAND, little Silt, poorly graded, by Table 12' bgl. Canda MOIST. Driller felt change @	1136.35
15-	-	SSS	7-14 17-22	10			
	-					ieces medium GRAVEL, some medium to coarse rell graded, MOIST. Rock in spoon impeded sample. Driller indicates fine GW/SWo Gravel to coarse Sand.	1131.85
20-	_	SSS	54-50 (5")	5		GW/SWP CONTROL COARSE SAING.	
] 				trace fin	lded light brown to tan, medium to coarse SAND, e Gravel and very fine Sand, well graded, MOIST.	1125.85
25-	- - -	SSS	6-15 50 (5")	20	coarse (rounded with high sphericity. 3" seam of fine to GW/SW	
					fine to c	oarse Gravel, well graded, MOIST. Sand is well	1120.85
30-	_ 	SSS	18-50 (5")	25	rounded	l. Gravel is angular.	
						fine to medium SAND, some Silt, trace Clay, trace fine Gravel, well graded, MOIST.	1115.85
35-		SSS	5-12 18-32	100		e SAND, some medium Sand, poorly graded, little (1-2 cm thick) laminations, DRY to MOIST.	1113.95
			0.44			own, medium to coarse SAND, poorly graded, Sand is sub-rounded to rounded with high sphericity.	1110.85 -
			8-11		ļ.	[3.632.83]	



SURFACE ELEVATION 1148.35

1500 Abbott Road, Suite 210 East Lansing, MI 48823 Telephone: (517) 337-0111 Fax: (517) 337-0417

DATUM USGS

COORDINATES N 228,228.8 E 19,442,629.5

MW-104D BORING NO.

PROJECT

LOCATION

GSWA: Spring Hill Camp Phase III

SHEET 2 OF 5

Osceola Township, MI

PROJECT NO. 4065-005

COIN	FACE ELL	- 1771101	1 11-	+0.33	DATON USGS =========				
s	AMPLE	INFO	RMATI	ON			g		ion t
Depth feet	Lab Sample	Sample Type	Blow Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
-		SSS		80	Light brown, medium to coarse SAND, poorly graded, WET. Sand is sub-rounded to rounded with high sphericity. (continued) Light brown, fine to medium SAND, poorly graded, WET. Sand is sub-rounded to rounded with high sphericity.	SP		Bailing ~2' heave.	1105.85
45 -		sss	8-11 14-13	100		SP			1100.05
50-		SSS	30-40 15-16	40	Light brown, medium to coarse SAND, trace fine Sand, poorly graded, WET. Sand is sub-rounded to rounded with high sphericity.	SP			1100.85
55 —		SSS	4-15 30-34	100	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is well rounded with high sphericity. Trace fine Gravel 54-54.5' bgl.	SP		Bailed ~1' heave.	1095.85
-			3-9		Light brown SILT , some fine Sand, soft, WET.	ML			1091.35
60		SSS	18-19	100	Light brown, fine to medium SAND, some Silt, trace fine Gravel to coarse Sand, WET. Sand is well rounded with high sphericity. Light brown, fine to medium SAND, trace to little Silt, poorly	SM			1088.35 1085.85
65-		SSS	12-15 17-23	100	graded, WET. Sand is well rounded with high sphericity. Light brown SILT , some fine Sand, soft, WET.	SP			1082.55
-					Light brown, medium to coarse SAND, little fine and very coarse Sand, trace fine Gravel, well graded, WET. 1"	ML ———			1080.85
70-		SSS	5-11 16-23	90	seam of fine to medium Gravel at 71 bgl.	SW			4075.05
75-		sss	10-12	100	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is well rounded with high sphericity.	SP			1075.85
-			22-27	100	Light brown, medium to coarse SAND, little fine Gravel, well graded, WET. Sand is well rounded with high sphericity; grades into more Gravel (some); Clay clast (2 cm diam.) at 75.5' bgl.	SW/GW SP			1073.35 1072.85
80-		SSS	17-34 50 (5")	70	Light brown, fine to medium SAND, poorly graded, WET. / Sand is well rounded with high sphericity Brown to gray SILT , some Clay, soft, MOIST.	ML		Driller felt change @ 78' bgl.	1070.35
85—		SSS	1-2 17-42	60	Light brown, medium to coarse SAND, little to some fine Sand, trace fine Gravel, well graded, WET. Sand is well rounded with high sphericity. 1" seam of, SILT, some fine Sand at 86' bgl.	sw		Driller feels sand @83' bgl. ~1' heave.	1065.35
90-		☐ sss	0-5	90	Light brown, medium to coarse SAND, trace fine Sand, poorly to moderately graded, WET. Sand is well rounded with high sphericity.	0.5		~2' heave	1060.85
-			8-13			SP			



COORDINATES N 228,228.8 E 19,442,629.5

SURFACE ELEVATION 1148.35 DATUM USGS

MW-104D BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 3 OF 5

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

LOGGED BY Mike Brennan

301	FACE ELL	_ v /	11101	۱ I I -	+0.33	DATOM 0303				
s	AMPLE	IN	IFOF	RMATI	ON			g		ion t
Depth feet	Lab Sample	ı	ample Type	Blow Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
95 - -		1111	SSS	7-10 16-20	90	Light brown, medium to coarse SAND, trace fine Sand, poorly to moderately graded, WET. Sand is well rounded with high sphericity. (continued)	SP			
100-		((SSS	4-11 20-32	75	Light brown to gray SILT , some fine Sand, WET.	ML		Driller feels change @98' bgl.	1050.85
-	 - 	Ź		20-32		Gray, CLAY, little Silt, hard, laminated with occasional Silt lenses, MOIST. Light brown to grey, fine to medium SAND, some Silt, WET.	CL		Varved? ~2' heave. Driller feels change 106-108', and @ 113'.	1047.45 1045.85
105— -		1111	SSS	7-11 20-27	90	Sand is well rounded with high sphericity.	SM			
110-		1111	SSS	10-28 30-30 (3")	100	Light brown to grey SILT , some fine Sand, little to some Clay, soft, low plasticity, MOIST to WET.	ML			1040.85
-		7		0-0		Light brown, medium SAND to medium GRAVEL, well graded, WET. Sand is rounded with high sphericity. Gravel is angular to sub-angular, coarsens downward. ~4			Driller notes change at 113' bgl. ~2' heave	1035.85
115		נוש	SSS	4-4	50	(~3mm thick) Clay clasts (till balls?). Light brown, fine to coarse SAND, trace fine to medium	SW			1030.85
- 120 <i>-</i> -		1111	SSS	5-14 30-33 (3")	10	Gravel, well graded, WET. Sand is well rounded with high sphericity.	SW			
- 125-		7	SSS	5-9	50	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is well rounded with high sphericity.	SP		~2' heave	1025.85
-		(333	20-25	50	Light brown, medium to coarse SAND, trace fine Sand, trace fine Gravel, well graded, WET. Sand is well rounded with high sphericity. Light brown, medium to coarse SAND, trace fine Sand,	sw		~4' heave	1023.35 1020.85
130 -		1111	SSS	3-10 27-40	80	poorly to moderately graded, WET. Sand is sub-rounded to rounded with low to high sphericity. Coarse Sand to fine Gravel seam (~1") @ 131'.	SP			
135-			SSS	7-8	10	Light brown, fine to medium SAND, little coarse Sand, well graded, and WET. Sand is well rounded and spherical.			~2' heave	1015.85
-		7	000	18-30 (3")	10		SW			
140-			SSS	10-15 30-34	70	Light brown to gray SILT, little Clay, soft, WET. Light brown, medium to coarse SAND, some very coarse	ML		Stiffer drilling.	1009.35 1007.55
-						Sand, trace fine Gravel, well graded, WET. Sand is sub-rounded to rounded with high sphericity. Light brown, medium to coarse SAND, some very coarse	SW		~1' heave	1007.55
145 -			SSS	10-22 50 (3")	50	Sand, trace fine Sand, well graded, WET. Sand is sub- to well rounded with high sphericity. Clast of gray Clay (~2" thick) at 145'10" (till ball?).	SW			



COORDINATES N 228,228.8 E 19,442,629.5

SURFACE ELEVATION 1148.35 DATUM USGS

MW-104D BORING NO.

PROJECT

LOCATION

GSWA: Spring Hill Camp Phase III

SHEET 4 OF 5

Osceola Township, MI

PROJECT NO. 4065-005

COIN	ACE ELE	- ٧/\ ١ (/N 11-	+0.33	DATOW 0303				
S	AMPLE	INFC	RMATI	ON			g		ion
Depth feet	Lab Sample	Sampl Type		Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
- - 150 -		C SSS	31-30 (3")	5	Light brown, fine to medium SAND, some coarse Sand, well graded, WET. Sand is rounded with high sphericity. ~1/4" lense of Clayey Silt @149.1' bgl.	SW		~1' heave	1000.85
- -			2-10		Light brown, fine to medium SAND, some coarse Sand, well graded, WET. Sand is rounded with high sphericity. ~1/4" lense of Clayey Silt at 155'.	SW		~1/2' heave	995.85
155 - - -		SSS	25-30 (3")	80	Light brown, coarse to very coarse SAND, some medium Sand, little fine Sand, little to some fine Gravel, well graded, WET. Sand is well rounded with high sphericity.	SW			993.35
-			0-3	70	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is rounded with high sphericity.	SP		~1' heave	990.85
160 -		7 55	12-35	70	Light brown, medium to coarse SAND, little very coarse Sand, well graded, WET. Sand is well rounded with high	SW			988.35
					Sand, well graded, WET. Sand is well rounded with high Sphericity. Gray SILT, trace fine Sand, soft, WET. Gray to light brown SILT, some Clay, soft, WET.	ML ML			987.45 985.85
165 - - - -		SSS	3-7 12-20	60	Interbedded: light brown, fine to medium SAND, trace coarse Sand, moderately graded, WET and light brown, medium to coarse SAND, some fine Sand, trace of fine Gravel, moderately to well graded, WET. Sand is rounded with high sphericity.	SP/SW		~1' heave	984.05 980.85
170 – -		SSS	2-6 19-30 (5")	20	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is rounded with high sphericity.	SP			
- 175 -		SSS	0-6 36-30	50	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is rounded and highly spherical.	SP		~4' heave	975.85
- - -			(2")		Light brown, fine to medium SAND, trace coarse Sand,			~3' heave	970.85
180 -		SSS	0-4 23-40 (3")	10	poorly graded, WET. Sand is rounded and highly spherical.	SP			
- - -			0-6		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is rounded and highly spherical.				965.85
185 - - -		SSS	26-40 (3")	60		SP			
- 190-		2 sss	0-4	50	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Two inch seam of coarse to very coarse Sand @190.8' bgl. Sand is rounded and highly				960.85
190]			21-65	30	spherical.	SP			
- 195 - - - -			3-8		Light brown, medium to coarse SAND, little fine Gravel, well graded, WET. Sand is sub-angular to well rounded, low to highly spherical, and >80% quartz. Gravel is sub-angular. Two inch lense of light brown to gray, CLAY, some Silt, stiff, high plasticity @ 200.8' bgl.	SW		~1' heave	953.35



COORDINATES N 228,228.8 E 19,442,629.5

SURFACE ELEVATION 1148.35 DATUM USGS

MW-104D BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 5 OF 5

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

SUKI	FACE ELL	- ۷۸1101	N 11-	+0.33	DATON 0303				
S	AMPLE	INFO	RMATI				Ita		tion
Depth feet	Lab Sample	Sample Type	Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
-		SSS	40-30 (3")	70	Light brown, medium to coarse SAND, some very coarse	SW		~2' heave	945.85
205 -		SSS	9-17 24-30 (2")	70	Sand to fine Gravel, well graded, WET. Medium to very coarse sand is sub-angular to rounded, low to highly spherical, and >80% quartz. Very coarse sand and fine gravel are sub-angular.	SW		~2 Heave	945.65
- - 210 <i>-</i> -		sss	3-16	100	Light brown, medium to coarse SAND, little fine Gravel, well graded, WET. Medium to coarse sand is sub-angular to well rounded, highly spherical, and >80% quartz. Fine	SW		~1' heave	940.85
-			28-30 (3")	100	\[\text{Gravel is sub-angular.} \] \[\text{Light brown to gray SILT}, some very fine Sand, little Clay, trace very coarse Sand, stiff, low plasticity, MOIST TO DRY. \]	ML			938.35
215 -		SSS	11-5	60	Light brown, medium to fine SAND, trace coarse Sand, poorly graded, WET. Sand is sub-angular to well rounded,	SP	T, 55 56.	Driller felt change @213'.	935.35
-			5-15	60	highly spherical, and >80% Quartz. Light brown to gray, CLAY, some Silt, little fine Sand, trace very coarse Sand, stiff, low plasticity, MOIST.	CL	 	~5' heave	933.35
- - 220 -		SSS	-10 15-15	60	Light brown to gray, CLAY, some fine Sand, trace fine Gravel, soft, moderate plasticity, WET; interbedded with light brown to gray,, CLAY, some fine Sand, trace fine Gravel, stiff, high plasticity, MOIST TO DRY. Fine gravel is	CL/CH		~1' heave in 219-221 spoon.	930.85
-			15-15		sub-rounded. Light brown to gray, CLAY, some fine Sand, trace fine Gravel, stiff, low plasticity, MOIST. Fine gravel is sub-rounded.	CL		Drilling harder @221'.	927.35
225 –		sss	17 70	100			 		
-			(3")		Light brown to gray SILT , some Clay, stiff, low plasticity, laminated, MOIST. Laminations are Silt lenses, some Clay, non-plastic, (Clayey Silt).	ML	<u> </u>	Rig beginning to overheat (very stiff).	922.55
- 230 - - -		SSS	-5 48-30 (3")	60	Light brown to gray, CLAY, some fine Sand, trace fine Gravel, stiff, low to moderate plasticity, MOIST; interbedded with light brown to gray SILT, some Clay, stiff, laminated, MOIST. Laminations are Clayey Silt. Fine gravel is sub-rounded. Two inch seam of light brown, medium to coarse SAND, WET. Medium to coarse sand is well	CL/ML		Feel sand @228'.	920.35
_			-7		\rounded, highly spherical, and >80% quartz	SP		~1' heave	915.85
235 - - -		SSS	27-40 (3")	60	stiff, poorly graded, MOIST. Fine gravel is sub-rounded. Light brown to gray, CLAY, some fine Sand, trace fine Gravel, stiff, low to moderate plasticity, MOIST. Fine gravel is sub-rounded.	CL		Driller feels ~1' sand seam.	913.35
- - 240 <i>-</i> -		SSS	10-10	80	Light brown to gray, CLAY, some fine Sand, trace fine Gravel, stiff, low to moderate plasticity, MOIST. Fine gravel is sub-rounded.	CL		~1' heave	910.85
-			15-50	00	Light brown to gray, CLAY, some fine Sand, trace fine Gravel, stiff, moderate to high plasticity, WET. Fine gravel is sub-rounded. Light brown, fine to medium SAND, trace coarse Sand,	CL_		Driller feels sand @241'. ~1' heave.	9 <u>07.85</u> 907.35
- 245 - -		SSS	11-24 50	50	dense, moderately graded, interbedded, WET, with light brown to grey, CLAY, some fine Sand, trace fine Gravel, soft, moderate plasticity, WET. Sand is rounded to sub-angular, low to high sphericity, >80% quartz.	sc			
- - 250 		sss	12-18 27-30		Light brown, medium to coarse SAND, some very coarse Sand to fine Gravel, trace Clay, well graded, WET. Sand is sub- to well rounded, low to highly spherical, and >80% quartz. Clay occurs as lenses (~1" thick) of light brown to	sw			900.85
-			(3")		gray, CLAY, soft, moderate plasticity, WÉT.		* * * * * * * * * * * * * * * * * * *	End of boring - 251' bgs.	897.35



BORING NO. MW-104I

SHEET 1 OF 3

PROJECT

GSWA: Spring Hill Camp Phase III Osceola Township, MI

LOCATION Osceola To PROJECT NO. 4065-005

COORDINATES N 228,238.9 E 19,442,631.1

SURFACE ELEVATION 1148.09 DATUM USGS LOGGED BY Larry Jordan

DRIL	LING CO	NΤ	RACT	OR			LOCATION DESCRIPTION:				
DRIL 41.	earns LING ME /4" HSA LING STA 16/00			EQUIP CME ENDEI	1050		See attached Site Diagram for location.				
	SAND		STRA	TA KEY							
	CLAY			F	CLAYEY	' SAND					
	GRAVEL				SILTY S	AND					
S	AMPLE	۱N	NFOF	RMATI	ON						nc
Depth feet	Lab Sample			Blow Counts	Rec- overy %		DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
_		П	SSS	2-3	50		SILT, some fine Sand, trace Clay, little Root debris, (TOPSOIL)	ML/OL	Y'Y'Y	No samples taken during MW-104I	1148.09 1147.59
_		Н		4-4		Brown to	o reddish brown SILT , some fine Sand, little to lay, laminated, mottled, MOIST.	ML		drilling. Lithology and sample information	1147.53
-						Light bro	own, medium SAND, some Clay, MOIST.	sc		pased on MW-104D /	1145.09
5-		111	SSS	2-2 4-5	80	Dark bro	own SILT , some fine Sand, MOIST.	ML		Rotting log.	1143.09
-)		2.2		fine Sar	own to tan, medium to coarse SAND, little to some nd, well graded, MOIST. Sand is rounded with high ity. Seam of coarse SAND, little Gravel @ 10.5'.	sw			1140.59
10-		1))	SSS	2-2 4-5	100	Light bro	well sold with high sphericity. WET. Sand is rounded with high sphericity. Sh red, very fine SAND, little Silt, poorly graded,	SP SP	A 40 A 3 A 3		1138.09 1137.59
-)		7-14		WET Light bro	own to brown, CLAY, some Silt, trace fine Gravel to Sand, MOIST.	CL	-	Driller felt change @ 12' bgl.	1136.09
15 -		ΙΙΙ	SSS	17-22	10			L		- - 	
-							eleces medium GRAVEL, some medium to coarse vell graded, MOIST.			impeded sample. Driller indicates fine	1131.59
20-		1111	SSS	54-50 (5")	5			GW/SW	500 000	Gravel to coarse Sand.	
-						trace fin	dded light brown to tan, medium to coarse SAND, ne Gravel and very fine Sand, well graded, MOIST.		.O.C	Observe fine to coarse gravel in cuttings.	1125.59
25-		. (((SSS	6-15 50 (5")	20		rounded with high sphericity. 3" seam of fine to Gravel at 24' bgs.	GW/SW		시 작 작 작 작 작 작 작 작 작 작 작 작 작 작 작 작 작 작 작	
-		7				fine to c	own to brown, coarse to very coarse SAND, some coarse Gravel, well graded, MOIST. Sand is well d. Gravel is angular.			~ ^ ^	1120.59
30-		111	SSS	18-50 (5")	25	Tourided	a. Graveris arigular.	SW			
-							fine to medium SAND, some Silt, trace Clay, trace in fine Gravel, well graded, MOIST.	sw	^^^2,0	^1	1115.59
35-		1111	SSS	5-12 18-32	100		e SAND, some medium Sand, poorly graded, little e (1-2 cm thick) laminations, DRY to MOIST.	SP			1113.69
-							own, medium to coarse SAND, poorly graded, Sand is sub-rounded to rounded with high sphericity.	SP		Wet at 39' bgl.	1110.59
				8-11					A 21 A 3 2	^:	



COORDINATES N 228,238.9 E 19,442,631.1

SURFACE ELEVATION 1148.09 DATUM USGS

MW-104I BORING NO.

PROJECT

LOCATION

GSWA: Spring Hill Camp Phase III

SHEET 2 OF 3

Osceola Township, MI

PROJECT NO. 4065-005

Larry Jordan LOGGED BY

SAMPLE INFORMA	TION					c
Depth Lab Sample Blov feet Sample Type Cour	ts overy	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
45 - SSS 8-11	100	Light brown, medium to coarse SAND, poorly graded, WET. Sand is sub-rounded to rounded with high sphericity. (continued) Light brown, fine to medium SAND, poorly graded, WET. Sand is sub-rounded to rounded with high sphericity.	SP SP		Bailing ~2' heave.	1105.59
50 2 30-4	0 40	Light brown, medium to coarse SAND, trace fine Sand, poorly graded, WET. Sand is sub-rounded to rounded with high sphericity.	SP			1100.59
55 - SSS 4-1! 55 - SSS 30-3	5 400	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is well rounded with high sphericity. Trace fine Gravel 54-54.5' bgl.	SP		Bailed ~1' heave.	1095.59
		Light brown SILT , some fine Sand, soft, WET.	ML		<u>-</u>	1091.09
60 – SSS 3-9 18-1		Light brown, fine to medium SAND, some Silt, trace fine Gravel to coarse Sand, WET. Sand is well rounded with high sphericity. Light brown, fine to medium SAND, trace to little Silt, poorly	SM			1088.09 1085.59
65 – SSS 12-1 17-2		graded, WET. Sand is well rounded with high sphericity. Light brown SILT , some fine Sand, soft, WET.	SP			1082.29
70- SSS 5-10		Light brown, medium to coarse SAND, little fine and very coarse Sand, trace fine Gravel, well graded, WET. 1" seam of fine to medium Gravel at 71' bgl.	ML ————			1080.59
70 – SSS 16-2	90	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is well rounded with high	SW			1075.59
75 – SSS 10-1 22-2		sphericity.	SW/GW SP			1073.09 1072.59
80 – SSS 17-3 50 (5	4 ") 70	Light brown, fine to medium SAND, poorly graded, WET. / Sand is well rounded with high sphericity. Brown to gray SILT, some Clay, soft, MOIST.	ML		Driller felt change @ 78' bgl.	1070.09
85 – SSS 1-2 17-4		Light brown, medium to coarse SAND, little to some fine Sand, trace fine Gravel, well graded, WET. Sand is well rounded with high sphericity. 1" seam of, SILT, some fine Sand at 86' bgl.	SW		Driller feels sand @83' bgl. ~1' heave.	1065.09
90 – SSS 0-5 8-13		Light brown, medium to coarse SAND, trace fine Sand, poorly to moderately graded, WET. Sand is well rounded with high sphericity.	SP		~2' heave	1060.59



COORDINATES N 228,238.9 E 19,442,631.1

SURFACE ELEVATION 1148.09 DATUM USGS

MW-104I BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 3 OF 3

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

Larry Jordan LOGGED BY

	CAMPLE INCORMATION						<u> </u>			
S	SAMPLE INFORMATION			RMATI	ON					uo
Depth feet	Lab Sample		ample Гуре	Blow Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
95 -			SSS	7-10 16-20	90	Light brown, medium to coarse SAND, trace fine Sand, poorly to moderately graded, WET. Sand is well rounded with high sphericity. (continued)	SP			
100-			SSS	4-11	75	Light brown to gray SILT , some fine Sand, WET.	ML		Driller feels change @98' bgl.	1050.59
-		(000	20-32	13	Gray, CLAY, little Silt, hard, laminated with occasional Silt lenses, MOIST. Light brown to grey, fine to medium SAND, some Silt, WET.	CL		Varved? ~2' heave. Driller feels change 106-108', and @ 113'.	1047.19 1045.59
105 -		1111	SSS	7-11 20-27	90	Sand is well rounded with high sphericity.	SM			
- - 110-		111	SSS	10-28 30-30	100	Light brown to grey SILT , some fine Sand, little to some Clay, soft, low plasticity, MOIST to WET.	ML			1040.59
-				(3")		Light brown, medium SAND to medium GRAVEL, well graded, WET. Sand is rounded with high sphericity.	<u></u>		Driller notes change at 113' bgl. ~2' heave	1035.59
115 - -			SSS	0-0 4-4	50	Gravel is angular to sub-angular, coarsens downward. ~4 (~3mm thick) Clay clasts (till balls?).	sw			
120 —		τιι	SSS	5-14 30-33 (3")	10	Light brown, fine to coarse SAND, trace fine to medium Gravel, well graded, WET. Sand is well rounded with high sphericity.	sw			1030.59
- -		~		5.0		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is well rounded with high sphericity.	SP		~2' heave	1025.59
125			SSS	20-25	50	Light brown, medium to coarse SAND, trace fine Sand, trace fine Gravel, well graded, WET. Sand is well rounded with high sphericity. Light brown, medium to coarse SAND, trace fine Sand,	SW		~4' heave	1023.09 1020.59
130 -						poorly to moderately graded, WET. Sand is sub-rounded to rounded with low to high sphericity. Coarse Sand to fine Gravel seam (~1") @ 131'.	SP			1018.09
									Ü	



COORDINATES N 229,025.3 E 19,443,869.6

1500 Abbott Road, Suite 210 East Lansing, MI 48823 Telephone: (517) 337-0111 Fax: (517) 337-0417

MW-105D BORING NO. PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 1 OF 4

Osceola Township, MI LOCATION

4065-005 PROJECT NO.

SUR	FACE ELE	E۷	OITA	v 11	65.02	DATU	м USGS	LOGGED BY	Bobbi	McCle	ad	
Ste	LING COL Parns LING ME				PMENT		LOCATION DESCRIP	PTION:				
4 1 DRIL	.LING ME /4" HSA .LING STA 17/00			CME ENDE	E 1050		See attached	Site Diagram for location.				
		;	STRA	TA KE	Y		1					
	SAND				SILT							
	CLAY				CLAYEY	'SAND						
٥٠	GRAVEL				SILTY S	AND						
S	AMPLE	I١	1FOF	RMAT	ION		•					C.
Depth feet	l		-	Blow Counts	Rec- overy		DESCRI	PTION	uscs	Strata	REMARKS	Elevation Feet
- - - -							rown, fine to medium SA DIST. Sand is well rour	AND, some Silt, trace Roots, aded and spherical.	SM		No samples taken during MW-105D drilling. Lithology and sample information based on MW-105L	1165.02
5-			SSS	1-1 2-2	90	-∖Sand is	rown to tan, fine SAND, s rounded and spherical.		SP ML		boring log.	1160.77 1160.27
-						Light bro	own to gray SILT, someown, medium to coarse	e fine Sand, MOIST. SAND, little very coarse	sw		1	1159.52
-						☐ Sand, tr	race fine Sand, well gra	ded, MOIST. Fine to coarse rical. Very coarse sand is	! [1157.52
10-		1111	SSS	7-13 13-17	100	medium Gravel i	fine to very fine SAND, n Gravel, MOIST. Seam is sub-angular. Sand is	n of Silty, CLAY @10.7 (~2"). rounded and spherical.	SM			
-		Ц				coarse S	Sand, poorly graded, ar	coarse SAND, trace very nd MOIST. Lense of brown				1152.52
15-			SSS	2-3 6-7	100	Clay @	15.75' (~2" thick). Sand	d is rounded and spherical.	SP			
-						Tan to li	light brown, medium to o	coarse SAND, trace very led, trace reddish brown				1147.52
20-		((((SSS	5-6 8-6	100		tions. Sand is rounded a		SW			
-							rown, fine to very fine Sarace Silt, moderately gra			T. 154 T. S. 14 AS		1142.52
25 -		1111	SSS	6-11 13-9	60	Caria, a	account, moderatory gro	ausu, meter.	SW			
-								AND, some coarse Sand,			Driller feels gravelly	1137.52
30-		1111	SSS	0-0 40 (3")	10	and sph	ne Gravel, well graded, l herical. Gravel is sub-al	MOIST. Sand is rounded ngular.	SW		material @28' bgl.	
-			ı				edium SAND, trace coa					1132.52
35 -		7 7 7 7	SSS	8-12 15-20	100	laminati sub-ang spherica	iions, well graded, MOIS gular. Medium sand is v al.	ST. Coarse sand is well rounded and highly	SW			
-				0.42		MOIST.		rse Sand, poorly graded, ngular. Medium Sand is	SP			1127.52



COORDINATES N 229,025.3 E 19,443,869.6

SURFACE ELEVATION 1165.02 DATUM USGS

MW-105D BORING NO.

GSWA: Spring Hill Camp Phase III

SHEET 2 OF 4

PROJECT Osceola Township, MI LOCATION

PROJECT NO. 4065-005

Bobbi McClead LOGGED BY

s	SAMPLE INFORMATION							э		on
Depth feet	l			Blow Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
_		7	SSS	15-22	100		SP			
-						Tan to light brown, medium to coarse SAND, trace fine Sand, poorly graded, trace (<1 cm) laminations black in	0.		Manganese staining?	1122.52
45-		1111	SSS	7-16 17-23	100	color, MOIST. Sand is rounded and spherical.	SP			
-		_		5-11		Tan to light brown, medium to coarse SAND, trace fine Sand, poorly graded, trace laminations (<2 cm thickness) of Silt, WET @50' bgl. Sand is rounded and spherical.			Saturated @50'	1117.52
50 -		111	SSS	15-23	100	on, Were good by. Canalis rounded and spherioa.	SP			
- - 55-		1)	SSS	9-13	100	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium Sand is rounded and spherical. Coarse sand is sub-rounded.			<u>.</u>	1112.52 ¥
-		Ţ		13-17	.00		SP			
60-		ונונע	SSS	7-9 13-18	50					
-		_		12-14		Light brown, fine to medium SAND, trace very fine Sand, poorly graded, WET. Sand is rounded and moderately spherical.				1102.52
65		lll	SSS	19-26	100	эрпенеа.	SP			
70-		ιιι	SSS	10-12 12-15	100	Light brown SILT , some fine Sand, little Clay, WET.	ML			1095.77
-		_		0.4		Light brown SILT, some fine Sand, little Clay, soft, WET; interbedded with light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Silt ~4" seams, Sand			L	1092.52
75 -		1))	SSS	3-4 7-11	100	~2" seams. Coarse sand is sub-angular. Fine to medium sand is rounded and spherical.	ML-SP			
-		Įζ	SSS	9-13	100	Light brown SILT , some fine Sand, little Clay, soft, WET.	ML			1087.52
80-		(<i>ა</i> აა	16-19	100	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. Coarse sand is sub-angular. Fine to medium sand is rounded and spherical.	SP			1084.52
-						Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. Fine to medium sand has some	SP			1082.52
85		ָ יַנע	SSS	7-12 14-18	100	reddish staining, is rounded, and spherical. Coarse sand is sub-rounded. Light brown, fine to medium SAND, some Silt, and WET. Sand is rounded and spherical. Light brown, fine to medium SAND, some coarse Sand,	SM SP			1080.77/ 1080.52
-		H	000	6-21	100	poorly graded, and WET. Fine to medium sand is rounded hand spherical.	ML			1076.02
90-			SSS	40-33	100	Light brown SILT , some fine to medium Sand, little Clay, and WET. Light brown, medium to coarse SAND, trace fine Sand,	SP			1075.52
		Ц					SP-SW			1072.52



COORDINATES N 229,025.3 E 19,443,869.6

SURFACE ELEVATION 1165.02 DATUM USGS

MW-105D BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 3 OF 4

Osceola Township, MI LOCATION

4065-005 PROJECT NO.

Bobbi McClead LOGGED BY

						T			1
	AMPLE	1		ON Rec-	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
Depth feet	Lab Sample	Sample Type	Blow Counts	overy %	220.1 7.0		ts .	TALIMITATE OF	Elev F
95 -		SSS	3-8 13-17	70	spherical. Light brown, medium to coarse SAND, little very coarse Sand, trace fine Sand, moderately graded, WET. Sand is rounded and moderately spherical, (continued)	SP-SW			
-		2000	11-29	70	Light brown, medium to coarse SAND, some fine Sand, little Silt, modeately graded, WET. Sand is rounded and spherical.	SP-SW			1067.52
100 -		SSS	40 (4")	70	Light brown SILT , some fine to very fine Sand, WET.	ML			1065.02
- 105 - -		SSS	10-17 17-29	100	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Two inch seam of brown SILT, some fine Sand, little Clay @105.75' bgl. Fine to medium sand is rounded and moderately spherical. Coarse sand is sub-rounded.	SP			1062.52
110-		sss	7-16 30-30	90	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium sand is rounded and spherical. Coarse sand is sub-rounded. Sands are ~50-70% Quartz.	SP			1057.52
- - - 115 –		sss	7-14 25-30	60	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium sand is rounded and spherical. Coarse sand is sub-angular. Sands are ~50-70% Quartz.	SP			1052.52
120-		SSS	8-15	50	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium Sand is sub-rounded to rounded and moderately spherical. Coarse sand is	SP		Drilling easier at 118' bgl.	1047.52
- - -			25-30 (4")	50	sub-angular. Sands are ~50-70% Quartz. Light brown, medium to coarse SAND, some very coarse Sand to fine Gravel, little fine Sand, moderately graded, WET. Sand and gravel are sub-angular to sub-rounded. Light brown, fine to medium SAND, trace coarse Sand,	SP SP			1044.52 1042.52
125 — - - -		SSS	0-9 21-22	60	poorly graded, WET. Fine to medium Sand is rounded and spherical. Coarse sand is sub-rounded. Light brown, medium to coarse SAND, trace to little very coarse Sand, poorly graded, WET, 1" seam of fine Gravel, sub-angular to sub-rounded @126' bgl. Fine to medium sand is rounded and spherical. Very coarse sand is	SP			1040.02 1037.52
130 -		SSS	2-5 7-10	50	sub-rounded. Light brown, medium to coarse SAND, trace fine Sand, poorly graded, WET. Sand is rounded and highly spherical.	SP			
-			1-8		Light brown SILT , some fine Sand, soft, WET.	ML			1032.52
135 - - - -		SSS	8-14	60	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sand is rounded and spherical. Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. Two inch soam of brown SUT.	SP			1030.02 1027.52
140 - -		SSS	2-11 14-20	100	poorly graded, and WET. Two inch seam of brown SILT, some very fine Sand @140'. Fine to medium Sand is rounded and spherical. Coarse sand is sub-rounded.	SP			
- 145 -		SSS	0-3 11-22	80	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. One inch seam of coarse to very coarse Sand @145.8' bgl. Fine to medium sand is rounded and spherical. Coarse sand is sub-rounded.	SP		~1.5' heave	1022.52



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Fax: (517) 337-0417

COORDINATES N 229,025.3 E 19,443,869.6

SURFACE ELEVATION 1165.02 DATUM USGS

BORING NO. MW-105D

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 4 OF 4

LOCATION Osceola Township, MI

PROJECT NO. 4065-005

LOGGED BY Bobbi McClead

SUK	SURFACE ELEVATION 1103.02			v 110	JJ.UZ	DATOM 0303				
S	AMPLE	I١	VFO F	RMATI	ON					n
Depth feet				Blow Counts	Rec- overy %	DESCRIPTION	uscs	Strata	REMARKS	Elevation Feet
- - 150-			sss	0-0 13-30	70	Light brown, fine to medium SAND, trace coarse to very coarse Sand, poorly graded, WET. Fine to medium sand is rounded and spherical. Very coarse sand is sub-angular.	SP SP		~1.5' heave	1017.52
- - -		1		0-0		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. Fine to medium sand is rounded and spherical. Coarse sand is sub-angular.			~1.5' heave	1012.52
155 - - -			SSS	14-30	100	Light brown, fine to medium SAND, trace to little coarse	SP			1007.52
- 160 - -		111	SSS	0-0 3-12	100	Sand, poorly graded, WET. Fine to medium sand is rounded and spherical. Coarse sand is sub-angular.	SP			
- - 165						Light brown, fine to medium SAND, trace to little coarse Sand, poorly graded, WET. Coarse sand is sub-rounded.	SP		End of haring 405	1002.52
									End of boring - 165' bgl	1000.02



COORDINATES N 229,026.0 E 19,443,861.7

1500 Abbott Road, Suite 210 East Lansing, MI 48823 Telephone: (517) 337-0111 Fax: (517) 337-0417 BORING NO. MW-105L PROJECT GSWA: Sp

GSWA: Spring Hill Camp Phase III

SHEET 1 OF 6

LOCATION Osceola Township, MI

PROJECT NO. **4065-005**

PROJECT NO. 4003-003

SURFACE ELEVATION	i 1165.06 datui	M USGS LOG	GED BY	Mike Brennan
DRILLING CONTRACT Stearns	OR	LOCATION DESCRIPTION:		
DRILLING METHOD 4 1/4" HSA	EQUIPMENT CME 1050	See attached Site Diagram for lo	ocation.	
DRILLING STARTED 11/7/00	ENDED 11/8/00			
STRA	TA KEY			
SAND	SILT			
CLAY	CLAYEY SAND			
GRAVEL	SILTY SAND			

ᆸ	CLAY		⊢ (CLAYEY	/ SAND					
0	GRAVEL			SILTY S	AND					
S	SAMPLE	INFO	RMATI	ON				в		uo
Depth feet		Sample Type	Blow Counts	Rec- overy %		DESCRIPTION	USCS	Strata	REMARKS	Elevation
- - -						own, fine to medium SAND, some Silt, trace Roots, IST. Sand is well rounded and spherical.	SM			1165.0
5		sss _	1-1 2-2	90	Sand is Light bro Light bro Sand, tr	own to tan, fine SAND, poorly graded, MOIST. rounded and spherical. own to gray SILT, some fine Sand, MOIST. own, medium to coarse SAND, little very coarse ace fine Sand, well graded, MOIST. Fine to coarse well rounded and spherical. Very coarse sand is	SP ML SW			1160.8 1160.3 1159.5 1157.5
10-		SSS	7-13 13-17	100	\sub-ang Brown, f medium Gravel is Tan to li	ular	SM			1152.5
15— - -		SSS	2-3 6-7	100	Clay @	Sand, poorly graded, and MOIST. Lense of brown 15.75' (~2" thick). Sand is rounded and spherical. ght brown, medium to coarse SAND, trace very	SP			1147.5
20 - -		SSS	5-6 8-6	100	coarse s	Sand, moderately graded, trace reddish brown ons. Sand is rounded and spherical.	SW			
25 —		SSS	6-11 13-9	60		own, fine to very fine SAND, trace very coarse ace Silt, moderately graded, MOIST.	SW			1142.5
30-		SSS	0-0 40 (3")	10	trace fin	own, fine to medium SAND, some coarse Sand, e Gravel, well graded, MOIST. Sand is rounded erical. Gravel is sub-angular.	SW		Driller feels gravelly material @28' bgl.	1137.5
35-		SSS	8-12 15-20	100	laminati	dium SAND, trace coarse Sand, trace Silt ons, well graded, MOIST. Coarse sand is ular. Medium sand is well rounded and highly il.	SW			1132.5
- - -			8-13			dium SAND, trace coarse Sand, poorly graded, Coarse sand is sub-angular. Medium Sand is oherical.	SP			1127.5



COORDINATES N 229,026.0 E 19,443,861.7

SURFACE ELEVATION 1165.06 DATUM USGS

MW-105L BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 2 OF 6

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

COIN	FACE ELE	- ۷/\	JIV 1	05.00	DATOW 0303				
S	AMPLE	INFO	DRMAT	ION					on
Depth feet	Lab Sample	Samp Type		OVERV	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
_		a ss	S 15-22	100		SP			
-			7.40		Tan to light brown, medium to coarse SAND, trace fine Sand, poorly graded, trace (<1 cm) laminations black in			Manganese staining?	1122.56
45-		SS	S 7-16 17-23	100	color, MOIST. Sand is rounded and spherical.	SP			
-					Tan to light brown, medium to coarse SAND, trace fine Sand, poorly graded, trace laminations (<2 cm thickness) of			Saturated @50'	1117.56
50-		ss	S 5-11 15-23		Silt, WET @50' bgl. Sand is rounded and spherical.	SP			¥
_					Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium Sand is rounded and				1112.56
55-		ss	S 9-13	, 100	spherical. Coarse sand is sub-rounded.				
-						SP			
-			7-9						
60-		ss	S 13-18	50					
-					Light brown, fine to medium SAND, trace very fine Sand,				1102.56
65-		∫ ∫ss	S 12-14	100	poorly graded, WET. Sand is rounded and moderately spherical.				
-		7	19-26			SP			
-									
70-		ss	S 10-12 12-15		Light brown SILT , some fine Sand, little Clay, WET.	ML			1095.81
-						IVIL			<u></u>
-			2.4	_	Light brown SILT, some fine Sand, little Clay, soft, WET; interbedded with light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Silt ~4" seams, Sand				1092.56
75 - -		SS	S 7-11	100	~2" seams. Coarse sand is sub-angular. Fine to medium sand is rounded and spherical.	ML-SP			
-					Light brown SILT , some fine Sand, little Clay, soft, WET.	ML			1087.56
80-		ss	S 9-13 16-19	100	Light brown, fine to medium SAND, trace coarse Sand,	""-	2143243		1084.56
_					poorly graded, and WET. Coarse sand is sub-angular. Fine to medium sand is rounded and spherical.	SP			
-			o 7-12		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. Fine to medium sand has some	SP SM			1082.56 1080.81
85-		ss	S 14-18		reddish staining, is rounded, and spherical. Coarse sand is sub-rounded. Light brown, fine to medium SAND, some Silt, and WET.				1080.56
-					Sand is rounded and spherical. Light brown, fine to medium SAND, some coarse Sand,	SP			
90-		∫ ∫ss	S 6-21		poorly graded, and WET. Fine to medium sand is rounded hand spherical.	ML			- <u>1076.06</u> 1075.56
			40-33	3	Light brown SILT , some fine to medium Sand, little Clay, and WET.	SP			10/3.36
					Light brown, medium to coarse SAND, trace fine Sand, poorly graded, WET. Sand is well rounded and highly	SP-SW			1072.56



COORDINATES N 229,026.0 E 19,443,861.7

SURFACE ELEVATION 1165.06 DATUM USGS

MW-105L BORING NO.

PROJECT

LOCATION

GSWA: Spring Hill Camp Phase III

SHEET 3 OF 6

Osceola Township, MI

PROJECT NO. 4065-005

SURI	-ACE ELE	VATIO	V 110	თ.სხ	DATUM USGS	ECOCED B1		· Cillia	•	
S	AMPLE	INFO	RMATI	ON				ZZ		tion
Depth feet	Lab Sample	Sample Type	Blow Counts	Rec- overy %	DESCRIPTION		USCS	Strata	REMARKS	Elevation Feet
95 - -		SSS	3-8 13-17	70	spherical. Light brown, medium to coarse SAND, Sand, trace fine Sand, moderately gra rounded and moderately spherical, (co	ded, WET. Sand is ntinued)	SP-SW			
100-		_ sss	11-29	70	Light brown, medium to coarse SAND, little Silt, modeately graded, WET. Sar spherical.	id is rounded and	SP-SW			1067.56
-			40 (4")		Light brown SILT , some fine to very fir		ML			1065.06
- 105 - -		SSS	10-17 17-29	100	Light brown, fine to medium SAND, tracpoorly graded, WET. Two inch seam of fine Sand, little Clay @105.75' bgl. Fin rounded and moderately spherical. Cosub-rounded.	f brown SILT , some e to medium sand is	SP			1062.56
110		SSS	7-16	00	Light brown, fine to medium SAND, trac poorly graded, WET. Fine to medium s spherical. Coarse sand is sub-rounded	and is rounded and	SP			1057.56
110 -		555	30-30 (5")	90	~50-70% Quartz. Light brown, fine to medium SAND, tra	ce coarse Sand.	51			1052.56
 115 -		SSS	7-14 25-30 (3")	60	poorly graded, WET. Fine to medium spherical. Coarse sand is sub-angular. ~50-70% Quartz.	sand is rounded and	SP			
100			8-15	50	Light brown, fine to medium SAND, trace poorly graded, WET. Fine to medium sto rounded and moderately spherical.	Sand is sub-rounded	SP		Drilling easier at 118' bgl.	1047.56
120 - - -		SSS	25-30 (4")	50	sub-angular. Sands are ~50-70% Qua Light brown, medium to coarse SAND, Sand to fine Gravel, little fine Sand, mo WET. Sand and gravel are sub-angula	some very coarse derately graded,	SP			1044.56 1042.56
125-		sss	0-9 21-22	60	Light brown, fine to medium SAND, train poorly graded, WET. Fine to medium spherical. Coarse sand is sub-rounded	ce coarse Sand, Sand is rounded and I.	SP			1042.56
-					Light brown, medium to coarse SAND, coarse Sand, poorly graded, WET, 1" s sub-angular to sub-rounded @126' bgl. sand is rounded and spherical. Very or	eam of fine Gravel, Fine to medium	SP			1037.56
130 -		SSS	2-5 7-10	50	sub-rounded. Light brown, medium to coarse SAND, poorly graded, WET. Sand is rounded spherical.	trace fine Sand,	SP			
					Light brown SILT , some fine Sand, sof	 t, WET.	ML			1032.56
135 - - -		SSS	1-8 8-14	60	Light brown, fine to medium SAND, tra- poorly graded, WET. Sand is rounded		SP			1030.06
- 140 <i>-</i> -		SSS	2-11	100	Light brown, fine to medium SAND, tra- poorly graded, and WET. Two inch sea some very fine Sand @140'. Fine to m	am of brown SILT , edium Sand is	SP			1027.56
-			14-20		rounded and spherical. Coarse sand is Light brown, fine to medium SAND, train				~1.5' heave	1022.56
145 -		SSS	0-3 11-22	80	poorly graded, and WET. One inch secoarse Sand @145.8' bgl. Fine to med and spherical. Coarse sand is sub-rou	am of coarse to very lium sand is rounded	SP			



COORDINATES N 229,026.0 E 19,443,861.7

SURFACE ELEVATION 1165.06 DATUM USGS

MW-105L BORING NO.

PROJECT

LOCATION

GSWA: Spring Hill Camp Phase III

SHEET 4 OF 6

Osceola Township, MI

PROJECT NO. 4065-005

SUK	BURFACE ELEVATION 1165.06					DATUM USGS EGGED BT	· ·	· · · · · · ·	! !	
s	SAMPLE INFORMATION					DEGGE PERSON		g		ion
Depth feet	l		-	Blow Counts	Rec- overy %	DESCRIPTION	USCS	Strata	REMARKS	Elevation Feet
- - 150 <i>-</i> -		ו ע נ ג	SSS	0-0 13-30	70	Light brown, fine to medium SAND, trace coarse to very coarse Sand, poorly graded, WET. Fine to medium sand is rounded and spherical. Very coarse sand is sub-angular.	SP SP		~1.5' heave	1017.56
- - -		É		13-30		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, and WET. Fine to medium sand is rounded			~1.5' heave	1012.56
155 - - -		עווע	SSS	0-0 14-30	100	and spherical. Coarse sand is sub-angular.	SP			
- - 160 - -		1111	SSS	0-0 3-12	100	Light brown, fine to medium SAND, trace to little coarse Sand, poorly graded, WET. Fine to medium sand is rounded and spherical. Coarse sand is sub-angular.	SP			1007.56
- - 165 <i>-</i> -		7.7	SSS	5-18	80	Light brown, fine to medium SAND, trace to little coarse Sand, poorly graded, WET. Coarse sand is sub-rounded.	SP			1002.56
-		(q		20 (5")		Light brown SILT, some fine Sand, soft, WET. Trace laminations of gray Silt. Gray SILT, trace Clay, medium stiff, non-plastic, laminated.	ML		Driller feels clay @167'. ~1.5' heave.	999.56 997.56
- 170 - - -		וווע	SSS	1-0 2-5	60	Laminations are varve like sequences (dark and light laminae). Light brown, medium to coarse SAND, little coarse Sand and fine Gravel, little fine Sand, well graded, WET. Fine to medium sand is rounded and spherical. Gravel is sub-rounded.	SW			995.06
- 175 -		111	SSS	4-8 10-20	90	Light brown, medium to coarse SAND, poorly graded. Sand is rounded and spherical. Light brown to gray SILT . some Clay, soft, WET:	SP		Harder drilling, possible diamicton.	992.56
- - -		4				interbedded with gray, CLAY, some fine Sand, trace fine Gravel, soft, low plasticity, WET. Silt ~4" thick; Clay 1-2" thick. Gravel is sub-rounded. Light brown to gray SILT, little Clay, soft, WET. At 180': two inch seam of gray, CLAY, some fine Sand, trace fine	ML		~1.5' heave	987.56
180 <i>-</i> - - -			SSS	4-22 40 (5")	50	Gravel, stiff, WET. Gravel is sub-rounded.	ML			
- - 185 - -		7 7 7 7	SSS	4-7 20-30 (4")	70	Light brown, fine to medium SAND, some coarse to very coarse Sand, WET; interbedded with light gray SILT, and CLAY, trace fine Gravel. Sand ~4"seams, Silt and Clay ~2" seams. Fine to medium sand is rounded and spherical. Coarse to very coarse sand is sub-angular.	SP/CL /ML		Easier drilling @183'.	982.56
- - 190 <i>-</i> -			SSS	6-12	40	Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Sands are rounded, spherical, and ~50-80% Quartz.	SP			977.56
- 190			333	24-35 (5")	40	Light brown, medium to coarse SAND, trace to little very	35		~3' heave	972.56
- 195 -		777	SSS	8-17 40 (5")	70	coarse Sand, poorly graded, WET. Medium to coarse sand is rounded, spherical, and 50-80% Quartz Very coarse sand is sub-angular.	SP			
- - -		7		3-8		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium sand is rounded, spherical, and 50-80% quartz. Coarse sand is sub-angular.	SP			967.56



COORDINATES N 229,026.0 E 19,443,861.7

SURFACE ELEVATION 1165.06 DATUM USGS

MW-105L BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 5 OF 6

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

S	AMPLE	I١	NFO F	RMATI	ON					ın
Depth feet	Lab Sample		ample Type	Blow Counts	Rec- overy %	DESCRIPTION	uscs	Strata	REMARKS	Elevation Feet
_		4	SSS	35-30 (3")	30		SP	a, Zanda.		
205—		11	SSS	11-10	90	Light brown, fine to medium SAND, little coarse Sand, poorly graded, WET. Fine to medium sand is rounded, moderately spherical, and ~50-80% quartz. Coarse sand is sub-angular to sub-rounded.	SP	., a - a.,	~2' heave	962.56
-		ح		(3")		Light brown, fine to medium SAND, trace to little coarse			~2' heave	957.56
- 210 - - -		1111	SSS	3-8 16-30 (3")	50	Sand, poorly graded, WET. Fine to medium sand is rounded, moderately spherical, and ~50-80% quartz. Coarse sand is sub-rounded to rounded.	SP			
215 -		111	SSS	7-13 28-30 (4")	90	Light brown to gray SILT , some very fine Sand, trace Clay, soft, non-plastic, WET.	ML		Harder drilling @217'.	950.81
220-			SSS	2-9 31-30	80	Light brown to gray SILT , some very fine Sand, trace Clay, soft, laminated, WET. Lamination occurs as ~2" thick seam of light brown to gray SILT (lighter), and Clay (darker), stiff.	ML		Varved	948.06
-		4		(3")		Light brown to gray SILT , little to some Clay and fine Sand,			Harder drilling @223'.	942.06
- 225 — - - -		1111	SSS	1-3 3-7	40	soft, WET. Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium sand is rounded, moderately spherical, and ~50-80% Quartz. Coarse sand is sub-rounded.	ML SP			940.06
230 - -		τιτ	SSS	3-5 4-13	90	Light brown to gray SILT , some very fine Sand, soft, laminated, WET; interbedded with light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET.	ML/SP		~2' heave	935.06
235		777	SSS	3-2 5-13	70	Silt seams ~1" thick, sand seams ~4" thick. ~1" diameter Clast of gray SILT, some Clay @230.5'. Fine to medium sand is rounded with moderate sphericity. Coarse sand is sub-rounded	SP			932.56
- - 240-		7,1	SSS	7-18	25	poorly graded, WET. Occasional Silt laminations. Fine to medium sand is rounded and spherical with ~50-80% quartz. Coarse sand is sub-rounded. Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium sand is rounded,	SP		~1' heave	927.56
-				30 (5")		spherical, and ~50-80% quartz. Coarse sand is sub-rounded. Light brown, fine to medium SAND, trace coarse Sand,				922.56
245 -		777	SSS	3-5 17-25	50	poorly graded, WET. ~1" seam of gray SILT @245.8'. Fine to medium sand is rounded, moderately spherical, and ~50-80% quartz. Coarse sand is sub-rounded.	SP			
250-		[[SSS	2-2		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium sand is well rounded, moderately spherical, and ~50-80% quartz. Coarse sand is _sub-rounded.	SP		~2' heave	917.56
-		4		4-7		Light brown, medium to coarse SAND, little fine Sand, well graded, trace very coarse Sand, WET; interbedded with	SW-ML			914.56
_		Ш				light brown to gray SILT , some very fine Sand, soft, WET.	SM		~1' heave	912.56



COORDINATES N 229,026.0 E 19,443,861.7

SURFACE ELEVATION 1165.06 DATUM USGS

MW-105L BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 6 OF 6

Osceola Township, MI LOCATION

PROJECT NO. 4065-005

SUK	FACE ELE	VATIO	N III	o0.cc	DATUM USGS		,, C	••	
S	AMPLE	INFO	RMATI	ON					no
Depth feet		Sample Type	Blow Counts	Rec- overy %	DESCRIPTION	uscs	Strata	REMARKS	Elevation Feet
- 255 — - - -		SSS	0-0 0-0		Sand ~4" seams, Silt ~1" seams. Medium to coarse sand is rounded, and moderately spherical. Very coarse sand is sub-rounded. Light brown, fine to medium SAND, some Silt, trace to little coarse Sand. Sand is sub-angular. (continued) Light brown to gray, fine SAND and, CLAY, trace to little very coarse Sand to fine Gravel, very soft, non-plastic.	SM SC/CL		Hammer never drove split spoon, very unconsolidated unit? Drove spoon further to get sample (254-257').	910.06
260 - - -		SSS	1-0 0-10	80	Grável is sub-angular. Material becómes stiffer @257'. Light brown to gray, fine to coarse SAND and, CLAY, little Silt, trace to little fine to medium Gravel, very soft, WET. Gravel is sub-angular. Light brown to gray, CLAY, some fine to medium Sand and	SC/CL	 		902.56
- 265 -		SSS	0-0 28-25	60	Silt, trace fine Gravel to very coarse Sand, soft, low plasticity, WET; interbedded with light brown to gray, SILT, some fine Sand, little Clay. Light brown, medium to coarse SAND, some fine Sand, little very coarse Sand to fine Gravel. Gravel is	ML/CL SP CL			\ <u>899.36</u> /
-					\sub-rounded. \Light brown to gray, CLAY, some fine to medium Sand,	sw		11-8 Phil Odenkirk took over logging	897.56
270 -		sss	4-13 28-28	80	\little Silt, trace to little fine to medium Gravel, stiff, DRY. \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SM		@269' through well construction. End of boring - 271'	895.76 894.06
					WET. Sand is rounded, spherical, and 80-90% quartz. Clay occurs as gravel size clasts. Grayish brown, very fine to medium SAND, some Silt, WET. Sand is rounded, spherical, and 80-90% quartz.			bgl.	



MW-105S BORING NO. **PROJECT**

SHEET 1 OF 2

GSWA: Spring Hill Camp Phase III Osceola Township, MI

LOCATION

PROJECT NO. 4065-005

COORDINATES N 229,024.5 E 19,443,879.9 **Bobbi McClead LOGGED BY** SURFACE ELEVATION 1164.53 DATUM USGS

DRIL	LING CO	NT	RACT	OR			LOCATION DESCRIPTION:				
DRIL 41.	earns LING ME /4" HSA LING STA 20/00	١.		EQUIPMENT CME 1050 ENDED 11/20/00			See attached Site Diagram for location.				
	SAND	;	STRA	TA KE							
	CLAY GRAVEL				CLAYEY SILTY S						
S	AMPLE	IN	IFOF	RMATI			DECODIDATION	USCS	ata	DEMARKO	ation et
Depth feet	Lab Sample			Blow Counts	Rec- overy %		DESCRIPTION		Strata	REMARKS	Elevation Feet
							own, fine to medium SAND, some Silt, trace Roots, IST. Sand is well rounded and spherical.	SM		No samples taken during MW-105S drilling. Lithology and sample information based on MW-105L	1164.53
5-			SSS	1-1 2-2	90	Light bro	own to tan, fine SAND, poorly graded, MOIST. rounded and spherical.	SP ML		toring log.	1160.28 1159.78
-						\Light bro	own to gray SILT , some fine Sand, MOIST. own, medium to coarse SAND, little very coarse	SW			1159.03
-		Ц				Sand, tr ∫sand is	ace fine Sand, well graded, MOIST. Fine to coarse / well rounded and spherical. Very coarse sand is				1157.03
10-		1111	SSS	7-13 13-17	100	medium	ular J fine to very fine SAND, some Silt, little fine to Gravel, MOIST. Seam of Silty, CLAY @10.7 (~2"). s sub-angular. Sand is rounded and spherical.	SM			
-		7	222	2-3		coarse S	ght brown, medium to coarse SAND, trace very Sand, poorly graded, and MOIST. Lense of brown 15.75' (~2" thick). Sand is rounded and spherical.				1152.03
15 - -		ľζ	SSS	6-7	100	,	,	SP			
-						coarse \$	ght brown, medium to coarse SAND, trace very Sand, moderately graded, trace reddish brown				1147.03
20-		. (((SSS	5-6 8-6	100	iaminati	ons. Sand is rounded and spherical.	SW			
-							own, fine to very fine SAND, trace very coarse ace Silt, moderately graded, MOIST.		nji njiki i njiji na kat		1142.03
25 -		. (((SSS	6-11 13-9	60			SW			
-							own, fine to medium SAND, some coarse Sand, e Gravel, well graded, MOIST. Sand is rounded			Driller feels gravelly material @28' bgl.	1137.03
30-		lll	SSS	0-0 40 (3")	10	and sph	erical. Gravel is sub-angular.	SW			
- -				<u> </u>		laminati	adium SAND, trace coarse Sand, trace Silt ons, well graded, MOIST. Coarse sand is				1132.03
35-		. (((SSS	8-12 15-20	100	sub-ang spherica	ular. Medium sand is well rounded and highly al.	SW			
-				0.40		MOIST.	edium SAND, trace coarse Sand, poorly graded, Coarse sand is sub-angular. Medium Sand is	SP			1127.03
		Ы		8-13		riigriiy S	pherical.				



COORDINATES N 229,024.5 E 19,443,879.9

SURFACE ELEVATION 1164.53 DATUM USGS

MW-105S BORING NO.

PROJECT

GSWA: Spring Hill Camp Phase III

SHEET 2 OF 2

Osceola Township, MI LOCATION

4065-005 PROJECT NO.

Bobbi McClead LOGGED BY

SUK	FACE ELE	. ٧ 🗆 ١ ١١	JIN 1	104.	55	DATOW USUS				
S	AMPLE	INFO	RMA	TION	7					nc
Depth feet	Lab Sample	Samp Type		w I ov	Rec- very	DESCRIPTION	uscs	Strata	REMARKS	Elevation Feet
ieet	Sample	TSS		- `	% 100					
-		+					SP			
-						Tan to light brown, medium to coarse SAND, trace fine Sand, poorly graded, trace (<1 cm) laminations black in			Manganese staining?	1122.03
45 -		SS	S 7-1 17-2	6 1	100	color, MOIST. Sand is rounded and spherical.	SP			
- 			F 1	1		Tan to light brown, medium to coarse SAND, trace fine Sand, poorly graded, trace laminations (<2 cm thickness) of Silt, WET @50' bgl. Sand is rounded and spherical.			Saturated @50'	1117.03
50 - -		SS	S 5-1 15-2	23 1	100	Ont, WET @ 30 Bgt. Gand is founded and spherical.	SP			
- -		1	9-1	3 .		Light brown, fine to medium SAND, trace coarse Sand, poorly graded, WET. Fine to medium Sand is rounded and spherical. Coarse sand is sub-rounded.		Ta de alla de	7	1112.03 ¥
55 - - -		SS	13-1	7 1	100	·	0.0			
-			7-9) ,			SP			
60 -		SS	³ 13-1		50					
- 65 -						Light brown, fine to medium SAND, trace very fine Sand, poorly graded, WET. Sand is rounded and moderately spherical.	SP			1102.03
00									End of boring - 65' bgl	1099.53



MW-106D BORING NO.

PROJECT NO.

SHEET 1 OF 5

GSWA: Spring Hill Camp Phase III PROJECT LOCATION

4065-005

Osceola Township, MI

COORDINATES N 229,936.2 E 19,442,633.1

GF/PO LOGGED BY SURFACE ELEVATION 1183.75 DATUM USGS

	LING CO	NT	RACT	OR			LOCATION DESCRIPTION:				
DRIL 41 DRIL	earns LING ME' /4" HSA LING STA 2/00	١.		EQUIF CMI ENDE 11/7	D		See attached Site Diagram for location.				
	_,		STRA	TA KE							
	SAND				SILT						
	CLAY				CLAYEY	SAND					
0	GRAVEL				SILTY S	AND					
S	AMPLE	11	NFOF	RMAT	ION						_
Depth feet		Sa	ample	Blow Counts Rec-			DESCRIPTION		Strata	REMARKS	Elevation Feet
_		7	SSS	4-4	10		own to brown, fine to medium SAND, some Silt, arse Sand, poorly graded.			Drillers indicate cobbles.	1183.75
-		٦		4-6		liace co	arse Sand, poonly graded.	SM		cobbles.	
5 -		lili	SSS	5-6 6-8	100	coarse	Sand, trace Sand, trace Sand, trace Sand, stiff, low plasticity, massive, MOIST. Sand is upported.	CL-ML		Elevation of change in lithology indicated by drillers.	1180.75
-		1 1	000	1-2	100	Gravel,	Ity, CLAY, some fine to coarse Sand, some fine medium stiff, low plasticity, massive, MOIST. Sand supported.	CL-ML		Elevation of change in lithology indicated by drillers.	1176.25
10-		(प	SSS	2-4	100	Brown	ine to medium SAND, some Silt, some Clay, trace	CL-IVIL		Elevation of change in	1171.25
-		_		5-7		coarse	Sand, medium dense, MOIST TO WET.	sc		lithology indicated by drillers.	1171.20
15 - - -		lll	SSS	16-8	100	Brown, coarse S	ine to medium SAND, some Silt, some Clay, trace Sand, medium dense, MOIST.	SC		dilloro.	1168.75
20-		7	SSS		0	L		L		L	<u>L</u>
- - -		lλ	333			Sand, tr	own, fine to medium SAND, trace to some coarse ace fine Gravel, loose, well graded, massive, DRY. med. sand is well rounded with moderate sphericity -80% quartz.	SW		No recovery in 19-21' split spoon sample. Rock in tip of spoon.	1163.75
25-		1111	SSS	5-9 10-11	100						
30-		lil	SSS	14-20 37-25	100	Sand, tr DRY. F and ~70	own, fine SAND, some medium Sand, trace coarse ace fine Gravel, loose, poorly graded, massive, ine sand is well rounded with moderate sphericity, -80% quartz. Coarse fraction is sub-rounded with ericity and ~10% quartz.	SP			1156.25
35-		1111	SSS	21-34 60 for 5"		Light bro Sand, tr DRY. F spherici	own, fine SAND, some medium Sand, trace coarse ace fine Gravel, loose, poorly graded, massive, ine to medium sand is well rounded with moderate by and ~70-80% quartz. Coarse fraction is coarse with low sphericity and ~10% quartz.	SP			1151.25
-		\ \ \		9-20		Light bro	own, fine to medium SAND, trace to some coarse ace fine Gravel, loose, well graded, massive, DRY. medium sand is well rounded with moderate	SW			1146.25