APPENDIX B

SOIL BORING LOCATION MAP LOGS OF TEST BORINGS (14) LOG OF TEST BORING - GENERAL NOTES UNIFIED SOIL CLASSIFICATION SYSTEM To Valley View Road ↑ ...B10





Denotes Boring Location

Meadow Road -

KTOJ

Scale: Reduced

- 1. Soil borings performed by Badger State Drilling on December 11-12, 2018
- 2. Boring locations are approximate.

Job No. C17051-19

> Date: 12/22/17



SOIL BORING LOCATION MAP **Lower Badger Mill Creek Ponds** Madison, Wisconsin





Boring No. 1 Surface Elevation (ft) 1033.3 Project Lower Badger Mill Creek Ponds N470806 E772426 Job No. **C17051-19** Location Madison, Wisconsin Sheet **1** of **1**

	SA	MPL	E.		VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	Rec P(in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	w	LL	PL	LI
	<u> </u>			 	14 in. Dark Brown to Black TOPSOIL					
1	8	M	6	<u> </u>	Loose, Light Brown to Gray SILT (ML)					
2	18	M	4	L_ L L - - 5-	Medium Stiff, Brown Lean CLAY (CL)	(0.75)	22.2			
3	18	W	2	<u> </u>	Very Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Trace CLAY (SM)					
4	18	W	3	10-	Very Loose to Loose, Brown Fine to Medium SAND, Little to Some Silt (SP-SM/SM)					
5	16	W	8						-	
6	18	W	16		Medium Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
7	18	W	19							
8	14	W	34							
					End Boring at 25 ft Borehole backfilled with bentonite chips					
	Ш		W	I	R LEVEL OBSERVATIONS	GENERA	LNC)TE	\$	
Time Dep	th to V th to C	r Drilli Vater Cave in	<u>∇</u> ing	6.0'	Upon Completion of Drilling 10.8' Start 12 Driller 1	/12/17 End BSD Chie DC Edito od 2.25 H		B SF	Rig D	



Project Lower Badger Mill Creek Ponds N470291 E772609 Location Madison, Wisconsin

Boring No. **2** Surface Elevation (ft) 1035.0 Job No. **C17051-19** Sheet <u>1</u> of <u>1</u>

	SA	MPL	E		VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	T Rec P (in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	w	LL	PL	LI
				<u> </u>	12 in. Brown Sandy TOPSOIL					
1	18	М	13	- - - -	Medium Dense to Loose, Brown Fine to Coarse SAND, Some Silt and Gravel (SM)					
2	18	M	6							
3	18	M	8	⊢ 	Occasional Seams of Sandy Silt Near 7 ft					
				 	Soft to Stiff, Gray Silty CLAY (CL-ML)					
4	18	M/W	2	10-	Soft to Stiff, Gray Sitty CEAT (CE-ME)	(0.5-1.0)	24.8	30	22	
5	18	M/W	4	- - -		(0.5-1.0)	25.1			
6	18	M/W	20	15-	Medium Dense, Dark Brown to Gray SILT, Occasional Seams of Laminated Silt and Clay (ML)					
7	14	W	23		Medium Dense to Very Dense, Brown Fine to Coarse SAND and GRAVEL, Trace Silt, Scattered Cobbles (SP/GP)					
8	2	W	50/3'		End Boring at 23.9 ft					
				25- - - - - -	Borehole backfilled with bentonite chips					
			W		LEVEL OBSERVATIONS	GENERA	L NO))TE	S	
Tim Dep Der	oth to V oth to C	r Drilli Vater Cave in	<u>∑</u> ng	16.0'_	Upon Completion of Drilling 15.8' Start 12	2/12/17 End BSD Chief DC Edito	12/1 f D or ES	2/17 B SF	Rig <u>D</u>	



Boring No. 3 Surface Elevation (ft) 1042.1 Project Lower Badger Mill Creek Ponds N470240 E773420 Job No. **C17051-19** Location Madison, Wisconsin Sheet **1** of **1**

				_ 292	Perry Street,	Madison, WI 53713	(608) 288-4100), FAX (608)			DE		
	SA	MPL	E		VIS	UAL CLASS		N	SOIL	PRO	PEF	KTIE	S
No.	T Rec P (in.)	Moist	N	Depth (ft)		and Rem	arks		qu (qa) (tsf)	w	LL	PL	LI
				 	8 in. TOF	PSOIL							
1	10	М	6	 	Stiff, Bro	own Lean CLAY (C	CL)		(1.25)	26.2			
2	8	M	7	<u>L</u> L L ⊢ + 5-	Loose, B	rown Fine to Medi t (SP-SM/SM)	um SAND, Li	ttle to					
3	12	M	24	├ ├- ├-	Medium Silt (SP)	Dense, Light Brow	n Fine SAND	, Trace					
4	14	M	12		Medium	Dense, Light Brow		T(ML)					
				L 10		End Boring	g at 10 ft						
				- - - - - - - -	Во	rehole backfilled w	rith bentonite c	chips				To a second	
			Palada Salada										
				├- - - 20- - - -									
				L L L 25-								The state of the s	
				- - - - - - - - - -									
			W	ATE	LEVEL O	BSERVATIO	NS	(GENERA	AL NO)TE	S	
Tim Dep Dep	ile Dril ne Afte oth to V oth to C	r Drilli Vater Cave in	ng	NWlines_r		pletion of Drilling		Driller I	12/17 End 3SD Chie MG Editod 2,25 H		C]		ME-55



Project Lower Badger Mill Creek Ponds N469904 E773164 Location Madison, Wisconsin Boring No. 4 Surface Elevation (ft) 1041.3 Job No. **C17051-19** Sheet 1 of 1

	SA	MPL	.E	292:	1 Pe	VISUAL CLASSIFICATION		SOIL	PRO	PEF	RTIE	S
No.	T Rec	Moist	N	Depth		and Remarks	•	qu (qa) (tsf)	w	LL	PL	rı
	E					8 in. TOPSOIL						
1	10	M	7	<u> </u>		Stiff, Brown Lean CLAY (CL)		(1.5)	24.0			
2	10	M	5	L L L + 5-		Loose to Medium Dense, Light Brown to C Sandy SILT (ML)	Gray					
3	16	M	12	 - 								
4	16	M	18	† - -		(SM)	ND -					
				L 10-	1	End Boring at 10 ft						
						Borehole backfilled with bentonite cl	hips					
								CENED				
			W	ATE	R L	EVEL OBSERVATIONS		GENER/	AL NO)TE	S	****
Tin Dej De	nile Dril ne Afte pth to V	r Drilli Vater Cave in	ng	NW	epre	<u> </u>	Start Driller Logger Drill Me	12/12/17 End BSD Chie MG Edito thod 2,25 F		C]		ME-55



Project Lower Badger Mill Creek Ponds N469819 E772638 Location Madison, Wisconsin

Boring No. Surface Elevation (ft) 1036.1 Job No. **C17051-19** Sheet 1 of 1

	21	MPL	F		1 Pe	rry Street, Madison, WI 53713 (608) 288-4100, FAX (608		PROF	PERTIE	 :S
		IVII L	- L			VISUAL CLASSIFICATION	qu			
No.	Rec (in.)	Moist	N	Depth (ft)		and Remarks	(qa) (tsf)	w	LL PL	LI
				-	7777	8 in. Topsoil				
1	10	M	7	<u> </u>		Soft to Stiff, Brown Lean CLAY, Some Sand (CL)	(0.5-1.0)	18.4		
2	16	M	9	L L L + 5-		Loose, Gray to Light Brown Fine to Medium SAND, Little to Some Silt (SP-SM/SM)				
3	18	M	7	- - - - -		Loose to Medium Dense, Light Brown to Gray SILT, Some Sand, Occasional Seams of Gray Silty Clay (ML/ML-CL)	(1.25)			
4	12	M	13				(0.5)			
5	10	M	14	<u>├</u> ⊢ ⊢						
6	16	M	34	+ - - - - - - -	0 (Medium Dense to Dense, Brown Fine to Coarse SAND and GRAVEL, Trace Silt, Scattered Cobblet (SP/GP)	S			
7	10	W	26							
8	18	W	40			Dense, Brown Sandy SILT (ML)				
			-	25-	Ш	End Boring at 25 ft				
						Borehole backfilled with bentonite chips				
		1	W	ATE	R L	EVEL OBSERVATIONS	GENERA	L NO	TES	
Time Dept Dept	h to V h to C	Drilli Vater Cave in	<u></u>	18.5'			12/12/17 End BSD Chief MG Edito thod 2.25 H	r ESI	Rig C	



Project Lower Badger Mill Creek Ponds Surface Electron N469680 E772440 Job No.

Location Madison, Wisconsin Sheet

Boring No. **6**Surface Elevation (ft) **1034.8**Job No. **C17051-19**Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

	No. Moist N				VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	4	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	w	LL	PL	LI
P	-	-		 	8 in. TOPSOIL	(352)				
1	10	M	11		Very Stiff to Hard, Brown Silty CLAY (CL-ML)	(3.0-4.5)	16.0			
				L-	Medium Stiff To Stiff, Brown Lean CLAY (CL)					
2	10	M	6	└─ ├─ ├─ 5─		(0.75-1.25)	23.8			
3	16	M	4		Soft to Medium Stiff Near 7 ft	(0.5)	26.8			
3				<u>†</u>	\mathcal{O}/\mathcal{O}					
4	12	M	7	† 	Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Trace CLAY (SM)					
				L L	Very Dense, Brown Fine to Coarse SAND and					
5	8	M	52	- - -	GRAVEL, Some Silt, Scattered Cobbles (SM/GM)					
	1.6		21	 	Dense, Brown Fine to Medium SAND, Some Silt					
6	16	M	31	<u> </u>	and Gravel, Scattered Cobbles and Boulders (SM)					
7	18	M	40	15— [_ L_ L_ L_ L_ L_ L_						
				+ 20− - -	End Boring at 20 ft					
					Borehole backfilled with bentonite chips					
		1	W	1	LEVEL OBSERVATIONS	GENERA	LNC)TE	Š	
Time Dept Dept	h to W h to C	Drilli /ater ave in	<u>Ų</u> ng	NW		2/12/17 End BSD Chief MG Edito od 2.25 H	r ES	C I		ME-55



Project Lower Badger Mill Creek Ponds
N469684 E773031
Location Madison, Wisconsin

Boring No. 7
Surface Elevation (ft) 1037.1
Job No. C17051-19
Sheet 1 of 1

				292	Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608)					
	SA	MPL	E		VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	Rec (in.)	Moist	И	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LI
				lana .	8 in. TOPSOIL					
1	12	M	6	F F	Stiff, Brown Lean CLAY (CL)	(1.75)	25.9			
2	6	М	7	<u> </u>	Loose, Light Brown Silty Fine to Medium SAND, Trace to Little Clay (SM)					
3	16	M	28	- - - -	Medium Dense, Brown Fine SAND, Trace to Little Silt (SP/SP-SM)					
4	16	M	62	10-	Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5	18	M	58	- - - -	60) 60) 60)					
6	16	M	62	 						
7	10	M/W	65/11				1			
				<u> </u>	End Boring at 19.5 ft					
					Borehole backfilled with bentonite chips					
	1	<u> </u>	W	I 30-	LEVEL OBSERVATIONS	GENERA	L NC	TE	<u> </u> S	
Time Dept Dept	h to W h to C	Drilli ater ave in	<u>Ş</u> ng	NW	Upon Completion of Drilling Start 12 Driller	2/12/17 End BSD Chie MG Edito	12/1 f M	2/17 C]	Rig C	ME-55



Project Lower Badger Mill Creek Ponds
N469421 E772843
Location Madison, Wisconsin

Boring No. **8**Surface Elevation (ft) **1035.8**Job No. **C17051-19**Sheet **1** of **1**

	SA	MPL	E.		VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	Rec P (in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LI
				 	13 in. Black Silty TOPSOIL					
1	8	М	14		Soft to Medium Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(0.75)	21.4			
2	12	M	24	_ _ _ _ _ 		(0.5)	15.7			
3	18	M	11	- - - -	Soft to Medium Stiff, Brown to Gray Silty CLAY, Trace to Little Sand (CL-ML)	(0.5)	26.3	27	21	
4	18	М	12	- - - - -	Medium Dense, Light Brown to Gray SILT, Occasional Seams of Brown Sandy Silt (ML)					
5	18	W	5		Soft to Medium Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(0.75)				
6	18	M	12	 - - - - - - - -		(0.5)				
7	14	W	41	L L L H H 20-	Dense, Light Brown Fine to Coarse SAND, Trace Silt (SP)					
8	14	W	66		Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
				25- - -	End Boring at 25 ft Borehole backfilled with bentonite chips					
		<u></u>	W	- 30- ATE	R LEVEL OBSERVATIONS	GENERA	AL NO	TE	S	
Time Dept Dept	th to V th to C	r Drilli Vater Cave in	<u>⊽</u> ng	12.3'		2/12/17 End BSD Chie DC Edit od 2.25 I	ef D	SF	Rig D	



Boring No. 9 Project Lower Badger Mill Creek Ponds Surface Elevation (ft) 1048.2 N469409 E773375 Job No. **C17051-19** Location Madison, Wisconsin Sheet 1 of 1

				292	Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608)		DDA	חדר	711	0
	SA	MPL	.E		VISUAL CLASSIFICATION	SOIL	PRO	PER	(115	3
No.	T Rec	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LI
				 	8 in. TOPSOIL					
1	10	М	7		Stiff, Brown Lean CLAY (CL)	(1.75)	27.6			
2	14	M	8	L L L ↓ 5		(1.5)	20.2			
3	12	M	17	- 	Medium Dense, Brown Fine to Medium SAND, Little to Some Silt and Gravel(SP-SM/SM)					
4	12	M	40	- - - - -	Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
					End Boring at 10 ft					
					Borehole backfilled with bentonite chips					
Wł	nile Dri	lling		ATER		GENER / 2/12/17 End	12/1	2/17		
Tir De De	ne Afte pth to \ pth to (r Drilli Vater Cave in	ng		Driller Logger Drill Metlepresent the approximate boundary between ton may be gradual.	MG Edit nod 2.25 I		SF		'ME-55 r



Project Lower Badger Mill Creek Ponds N469124 E773319 Location Madison, Wisconsin

10 Boring No. Surface Elevation (ft) 1044.1 Job No. **C17051-19** Sheet **1** of **1**

	SAMPLE No. T Rec Moist N				VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	Rec	Moist	N	Depth (ft)	and Remarks	qu (qa)	w	LL	PL	LI
E	1				8 in. TOPSOIL	(tsf)				
1	10	M	6		Meduim Stiff to Stiff, Brown Lean CLAY, Some Sand (CL)	(1.0)	23.6			
2	10	М	6	L L L ⊢ 5−	Thin (<2 in.) Seam of Clayey Sand with Trace Gravel Near 5 ft	(1.0)	20.3			
3	8	M	8	- - - - -	Loose to Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
4	16	M	20							
				L 10-	End Boring at 10 ft					
					Borehole backfilled with bentonite chips					
					LEVEL ODSEDVATIONS	CENEDA	l No			
			W	ATE	LEVEL OBSERVATIONS	GENERA			>	
Time Dept Dept	h to W h to C	Drilli /ater ave in	-		Upon Completion of Drilling Upon Completion of Drilling Logger Drill Mo	12/12/17 End BSD Chief MG Edito ethod 2.25 H	r ES	C]		ME-55



Boring No. 11 Project Lower Badger Mill Creek Ponds Surface Elevation (ft) 1032.0 N468971 E772759 Job No. **C17051-19** Location Madison, Wisconsin Sheet 1 of 1

	SA	MPL	E	_ 2323	rei	VISUAL CLASSIFICATION		SOIL	PRO	PEF	RTIE	S
No.	T Y Rec P (in.)	Moist	N	Depth (ft)		and Remarks		qu (qa) (tsf)	w	ΓΓ	PL	LI
				 		3 ft Black Clayey TOPSOIL						
1	18	М	6	<u> </u>				(1.75)	35.6			
2	18	М	14	 		Medium Dense, Gray SILT (ML)						
3	18	M	5	├- 		Stiff Brown to Gray Mottled Lean CLAY, Sand (CL)	Trace	(1.25)	29.1			
4	18	W	2	10-		Very Loose, Dark Brown Clayey Fine SA Gravel (SC)	ND, Trace					
5	0	W	2									
6	16	W	2									
7	14	W	27			Medium Dense to Dense, Brown Fine to M SAND, Some Silt and Gravel, Scattered C and Boulders (SM)						
8	18	W	33									
				- 		End Boring at 25 ft Borehole backfilled with bentonite o	chips				And the second s	The paper of the control of the cont
		1	W	ATEF	LE	EVEL OBSERVATIONS		SENERA	L NC)TE	S	
Time Dept Dept	th to W th to C	Drilli /ater ave in		******		6 hrs	Driller B	12/17 End SD Chief DC Edito d 2.25 H		B SF	Rig D	
so	il typ	es and	the	transiti	ion m	ay be gradual.						



Boring No. 12 Project Lower Badger Mill Creek Ponds Surface Elevation (ft) 1030.7 N468724 E772926 Job No. **C17051-19** Location Madison, Wisconsin Sheet **1** of **1**

	SAMPLE VISUAL CLASSIFICATION SOIL PROPERTIES											
	SA	MPL	E				PRO	PER	TIE	S		
No.	Rec P(in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LI		
				 	13 in. Black Silty TOPSOIL							
1	14	M	6	F	Stiff Brown Lean CLAY (CL)	(1.75)	23.1					
2	18	М	3		Medium Stiff to Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(1.0)	29.0					
3	18	M/W	2	¥	Very Soft, Gray Silty CLAY, Trace to Little Sand (CL-ML)	(<0.2)	34.3					
4	18	M/W	3	<u> </u>		(<0.2)						
5	18	M/W	2			(<0.2)						
6	18	M	9	- - - - - -	Stiff, Gray Silty CLAY (CL-ML)	(1.5)						
7	16	M/W W	23		Medium Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)							
			-	L 25-	End Boring at 25 ft							
					Borehole backfilled with bentonite chips							
		L	W	ATE	R LEVEL OBSERVATIONS (SENERA	L NC	TES	3			
Time Dept Dept	h to W h to C	Drilling ater ave in	ng	20.6'	<u>Z4 hrs</u> Driller I	11/17 End 3SD Chief DC Editor d 2.25 H	r ES	В F	Rig D -			



Boring No. 13 Project Lower Badger Mill Creek Ponds Surface Elevation (ft) 1033.7 N468431 E772683 Job No. **C17051-19** Location Madison, Wisconsin Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887 ----

	SAMPLE					VISUAL CLASSIFICATION						
No.	Rec	Moist	И	Deptl	- 1	and Remarks		qu (qa) (tsf)	w	LL	PL	LI
				<u> </u>		12 in. Black Silty TOPSOIL						
1	18	М	3	F		Soft to Medium Stiff, Brown Lean CLAY (CI	L)	(0.5)	40.6			
2	8	M	9	 <u>-</u> - -		Stiff, Brown to Gray Mottled Lean CLAY, Tr Sand (CL)	race	(1.75)	31.1			
3	14	M	6	<u>∤</u> - -				(1.75)	30.2			
4	18	W	2	- - - - 10	-	Becomming Soft to Medium Stiff Near 9 ft	<u></u>	(0.5)	27.6			
5	18	W	3					(0.75)				
6	14	M	27			Medium Dense to Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scatte Cobbles and Boulders (SM)						
7	15	M	35									
8	14	М	58									
				<u> </u>		End Boring at 25 ft						
						Borehole backfilled with bentonite chip	os					
				40				- LIES		\ 	<u></u>	
						EVEL OBSERVATIONS		ENERA)	
	e Drill After	ling Drilli		NW		Upon Completion of Drilling 15.4 Sta Dri		1/17 End SD Chief		B I	Rig D	-50
Dept	h to W	ater	_			5.9' ¥ Log		C Edito				
		ave in		lines	repre	gent the approximate boundary between Dri	iii Methoc	2.25 H	SA; Al	itona	ıımer	-



Boring No. 14 Project Lower Badger Mill Creek Ponds Surface Elevation (ft) 1030.3 N468424 E773171 Job No. **C17051-19** Sheet **1** of **1** Location Madison, Wisconsin

SAMPLE					VISUAL CLASSIFICATION	SOIL PROPERTIES					
No. P	Rec	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	w	LL	PL	LI	
	1.0			<u> </u>	3 ft Black Silty TOPSOIL						
1	18	M	5	F F			33.8				
2	18	M	10	- - - - - -	Loose to Medium Dense, Dark Brown to Gray SILT (ML)		27.1				
3	18	M	12	- - -	Very Stiff to Very Soft, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(2.5)	23.1				
4	18	M/W	2	- - - - 10-		(<0.2)	31.7				
5	18	M/W	2			(<0.2)					
6	18	M/W	6	- - - - -	Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Trace CLAY (SM) Gravelly Layer with Cobbles Noted by Drillers from						
7	10	M/W	15	- - - -	17.6' to 18' Soft to Medium Stiff, Gray Silty CLAY, Little to						
7	10	1VI/ W	13	<u>├</u> 20-	Some Sand and Gravel (CL-ML)	(0.5)					
8	12	M/W	65	<u> </u>	Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)						
				25	End Boring at 25 ft						
					Borehole backfilled with bentonite chips						
				- - - - - -							
				35-							
				 - -							
				40-							
			W	ATE		GENER/			<u>ა</u>		
Time Deptl	h to W	Drilli /ater		NW	24 hrs Driller	/11/17 End BSD Chie DC Edite		B SF	Rig D		
The	ctra	ave in	tion the	lines r transit	present the approximate boundary between on may be gradual.	Ju <u>"""", ".</u>	1.5.Ch, Fh				

CGC, Inc.

LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	3/4" to 3"	¾" to 3"
Fine	4.76 mm to 3/4"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	1 #40 to #10
Fine	0.074 mm to 0.42 mm.	#200 to #40
Silt	0.005 mm to 0.074 mm	n Smaller than #200
Clay	Smaller than 0.005 mm	n Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Relative Density

Physical Characteristics	Term	"N" Value
Color, moisture, grain shape, fineness, etc.	Very Loose	0 - 4
Major Constituents	Loose	4 - 10
Clay, silt, sand, gravel	Medium Dens	se10 - 30
Structure	Dense	30 - 50
Laminated, varved, fibrous, stratified,	Very Dense	Over 50
cemented, fissured, etc.		

Relative Proportions Of Cohesionless Soils

Glacial, alluvial, eolian, residual, etc.

Geologic Origin

Consistency

Proportional	Defining Range by	Term	q _u -tons/sq. ft
Term	Percentage of Weight	Very Soft	0.0 to 0.25
		Soft	0.25 to 0.50
Trace	0% - 5%	Medium	0.50 to 1.0
Little	5% - 12%	Stiff	1.0 to 2.0
Some	12% - 35%	Very Stiff	2.0 to 4.0
And	35% - 50%	Hard	Over 4.0

Organic Content by Combustion Method

Plasticity

0 - 11 D	1 1	T	Diantia tadas
Soil Description	Loss on Ignition	<u>Term</u>	Plastic Index
Non Organic	Less than 4%	None to Slig	ıht0 - 4
Organic Silt/Clay	4 – 12%	Slight	5 - 7
Sedimentary Peat	12% - 50%	Medium	8 - 22
Fibrous and Woody	Peat More than 50%	High to Very	High Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS – Continuous Sampling

RC - Rock Coring: Size AW, BW, NW, 2"W

RQD - Rock Quality Designation

RB - Rock Bit/Roller Bit

FT - Fish Tail

DC - Drove Casing

C - Casing: Size 2 1/2", NW, 4", HW

CW - Clear Water

DM - Drilling Mud

HSA - Hollow Stem Auger

FA - Flight Auger

HA - Hand Auger

COA - Clean-Out Auger

SS - 2" Dia. Split-Barrel Sample

2ST - 2" Dia. Thin-Walled Tube Sample

3ST - 3" Dia. Thin-Walled Tube Sample

PT - 3" Dia. Piston Tube Sample

AS - Auger Sample

WS - Wash Sample

PTS - Peat Sample

PS - Pitcher Sample

NR - No Recovery

S - Sounding

PMT - Borehole Pressuremeter Test

VS - Vane Shear Test

WPT - Water Pressure Test

Laboratory Tests

qa - Penetrometer Reading, tons/sq ft

qa - Unconfined Strength, tons/sq ft

W - Moisture Content, %

LL - Liquid Limit, %

PL - Plastic Limit, %

SL - Shrinkage Limit, %

LI - Loss on Ignition

D - Dry Unit Weight, lbs/cu ft

pH - Measure of Soil Alkalinity or Acidity

FS - Free Swell, %

Water Level Measurement

∇- Water Level at Time Shown

NW - No Water Encountered

WD - While Drilling

BCR - Before Casing Removal

ACR - After Casing Removal

CW - Cave and Wet

CM - Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

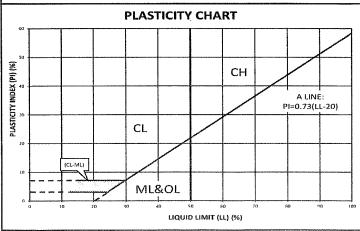
CGC, Inc.

Madison - Milwaukee

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size) Clean Gravels (Less than 5% fines) Well-graded gravels, gravel-sand mixtures, little or no fines **GRAVELS** Poorly-graded gravels, gravel-sand More than 50% of mixtures, little or no fines coarse fraction Gravels with fines (More than 12% fines) larger than No. 4 sieve size Silty gravels, gravel-sand-silt mixtures GC Clayey gravels, gravel-sand-clay mixtures Clean Sands (Less than 5% fines) Well-graded sands, gravelly sands, little or SW no fines SANDS Poorly graded sands, gravelly sands, little SP 50% or more of coarse fraction Sands with fines (More than 12% fines) smaller than No. 4 sieve size SM Silty sands, sand-silt mixtures SC Clayey sands, sand-clay mixtures FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.) Inorganic silts and very fine sands, rock MI flour, silty or clayey fine sands or clayey silts with slight plasticity SILTS AND Inorganic clays of low to medium plasticity, **CLAYS** CL gravelly clays, sandy clays, silty clays, Liquid limit less lean clays than 50% Organic silts and organic silty clays of low OL plasticity Inorganic silts, micaceous or МН diatomaceous fine sandy or silty soils, elastic silts SILTS AND CLAYS СН Inorganic clays of high plasticity, fat clays Liquid limit 50% or greater Organic clays of medium to high plasticity. ОН organic silts HIGHLY Peat and other highly organic soils **ORGANIC SOILS**

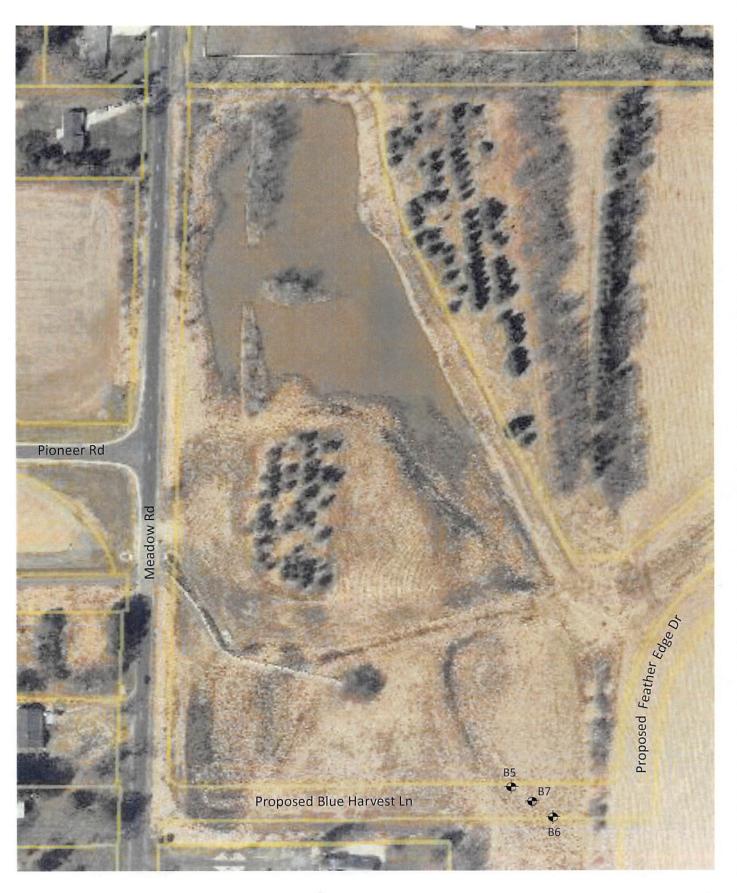
Unified Soil Classification System

	LABORA	ATOF	RY CL	.ASS	IFICAT	ION (CRITE	RIA		
	NIONO TOWNS						OVER 1			
GW	GW $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3									
GP Not meeting all gradation requirements for GW										
GM	Atterberg limts below "A" line or P.I. less than 4					Above "A" line with P.I. between 4				
GC	GC Atterberg limts above "A" line or P.I. greater than 7					and 7 are borderline cases requiring use of dual symbols				
SW $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3										
SP	Not meet	ing all	gradat	ion red	quiremer	nts for (ЭW			
SM	Atterberg line or P.			"A"	Limits p					
SC	Atterberg				cases r					
Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent										
	12 percent									
			PLAS	FICIT	Y CHA	RT				
50										



APPENDIX B

SOIL BORING LOCATION EXHIBIT LOGS OF TEST BORINGS (3) LOG OF TEST BORING – GENERAL NOTES UNIFIED SOIL CLASSIFICATION SYSTEM



Legend

Denotes Boring Location

Notes

 Soil Borings performed by Soil Essentials in August 2022 (B5, B6) or America's Drilling Co. in September 2022 (B7)

2. Boring locations are approximate



Scale: Reduced

Job No. C21051-31 Date: 10/2022 SOIL BORING LOCATION MAP Blue Harvest Ln Bridge Madison, Wisconsin

(CCC Inc.)	1
(CGC Inc.	

Boring No. **5** Surface Elevation (ft) 1033.1 Project Feather Edge Pond Job No. **C21051-31** (Blue Harvest Lane Bridge) Location Madison, WI Sheet 1 of 2

	SA	MPL	E.			VISUAL CLASSIFICATION		SOIL	PRO	PEF	RTIE	S						
No.	T Rec P (in.)	Moist	N	Depth (ft)		and Remarks		qu (qa) (tsf)	W	IT	PL	LOI						
	1			Ļ		9 in. Dark Brown Clayey TOPSOIL												
1	16	M	4	Ē	<i>V///</i> // >	Stiff to Soft, Brown Lean CLAY, Trace Sand	d (CL -	(1.5)				-						
	ŀ			⊨		Possible Fill)	·	(1.5)										
2	17	M/W	2	F				(0.5)										
	-			<u>-</u> 5-				(0.5)										
3	16	M	2	<u> </u>		Very Soft, Stratified Brown, Dark Brown and		(.0.0)										
				F		Lean to Silty CLAY, Trace Sand (CL/CL-MI	L)	(<0.2)										
4	1.4	M/W	3	E		Y Y D C'I. E' CANE												
	17	1417 44		∟ - 10-	l; · .: l	Very Loose, Brown Silty Fine SAND, Some Gravel, Trace Clay (SM)	;											
		1	0.5	<u> </u>	المالنا	Medium Dense, Brown Fine to Medium SAN	/											
5	4	M	85	E		Some Silt and Gravel, Scattered Cobbles and												
				<u> </u>		Boulders (SM)	u.	_										
6	6	M	20	L		(Rough drilling/cobbles/very dense condition	ns from											
				<u> </u> 15-	fii	11'-13')												
				느														
				<u> </u>														
7	15	M	21	<u> </u>														
				L 20-	111													
				F	111													
8	14	М	17	<u>ˈ</u>														
				 25-	iri													
					111													
				<u></u>	111													
9	7	M	26	 	[
	<u> </u>	IVI	20	└ ├ 30−	I- 1.1 - I													
				_ `	irii													
					i i i													
				Ā	-	Medium Dense, Brown Fine to Coarse SAND	<u></u>											
10	15	W	11	<u> </u>	1:1!	Some Silt and Gravel, Scattered Cobbles (SM												
				<u>├</u> 35—		,	,											
				L ⊢		Medium Dense, Brown Sandy SILT, Trace G	 Travel											
	L			<u> </u>		and Clay, Scattered Cobbles (ML)												
11	17	M/W	16	-														
			127	40-	111	/FI ABAFBWATIANA												
	<u> </u>		VV	AIEK	LE/	/EL OBSERVATIONS	G	ENERAL	<u>. NO</u>	IES	<u> </u>	_						
	e Drill	_		3.5'	Up	on Completion of Drilling 34.5' Star	art 8/2	2/22 End	8/22/	22								
		Drillin	ng				iller S	E Chief	CR		ig 78 2	22DT						
	h to W h to Ca					20.8'	gger A ill Method	R Editor 1 2.25" H	ES									
The	strat	lficat	ion 1	ines rep	present	the approximate poundary between	iii ivietnot	1 2.25 H	oa, a	utona	mme	Ţ						
soi	1 type	s and	the t	ransiti	on may	be gradual.			The stratification lines represent the approximate boundary between soil types and the transition may be gradual.									



LC	G OF TEST BORING	Boring No.		5	
Project	OG OF TEST BORING Feather Edge Pond	Surface Ele	1033.1		
((Blue Harvest Lane Bridge) Madison, WI	Job No	C210	51-31	
Location	Madison, WI	Sheet	2 of	2	
	ADISON, WIS. 53713 (608) 288-4100, FAX (608)				

	SAMPLE			721	PER	VISUAL CLASSIFICATION	SOIL PROPERTIES						
No.	TYPE	Rec	Moist	N	Dept	- 1		and Remarks	qu (qa) (tsf)	W	ГТ	PL	LI
	E							Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)	(402)				
12		15	M/W	11	F .	_							
						5							
13		16	M/W	27	Ē,	0_							
								Medium Dense, Brown Fine to Coarse SAND,					
14		15	W	28	Ē,		igi. Igi.	Some Silt and Gravel, Scattered Cobbles (SM)					
						~		Medium Dense, Brown Sandy SILT, Trace Gravel					
15		0		11	Ē,	۰		and Clay, Scattered Cobbles (ML)					
16		16	W	11	Ė,								
17		11	W	32	Ē		1.11	Dense, Brown Fine to Coarse SAND, Some Silt		<u>- </u>			
					E,	5—		\and Gravel, Scattered Cobbles (SM) End of Boring at 63 ft					
								Backfilled with Bentonite Chips					
					<u> </u>	,							
			:			0—							
						5—							
					- - - - - - - - - - - - - - - - - - -	c—							
					<u></u>	5-							

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	II IO.

L	OG OF TEST BORING Feather Edge Pond	Boring No.	•	3
Project	Feather Edge Pond	Surface Ele	evation (ft)	1033.1
		Job No	C21051	l -31
Location	Madison, WI	Sheet	1 of	2

	SA	MPL	E		21 F	VISUAL CLASSIFICATION	18, 26	SOIL	PRO	PEF	RTIE	S
No.	Rec P (in.)	Moist	N	Depth (ft)		and Remarks	ļ	qu (qa) (tsf)	W	LL	PL	roi
				F		9 in. Brown Clayey TOPSOIL		(402)				
1	16	М	6	Ė		Stiff to Very Soft, Stratified Brown, Dark Brown	_ [(1.5)				
				<u>↓</u>		and Gray Lean to Silty CLAY, Trace Sand with	H	(1.5)	 			
2	15	M	4	<u>†</u>		thin (<1") Sandy Seams and Lenses (CL - Possible	╸┝	(0.5)	-			
				- 5-		Fill to 5')	-	(0.5)				
3	17	M/W	0	느			-					
	- '	101		F			F	(<0.2)				
4	16	M/W	0	-			-					
4	10	IVI/ VV	<u> </u>	<u> </u>				(<0.2)				
				<u> </u>								
	1			<u>⊢</u>	""	Medium Dense, Brown Fine to Medium SAND,	-7					
				<u> </u>	11:11. 1:11	Some Silt and Gravel, Scattered Cobbles and	L					
5	15	M	14			Boulders (SM)	- 1					
				<u> </u>	1:11		Ī					
				E	EU.							
				<u> </u>								
6	17	M	19				ı					
		<u> </u>	-	<u> </u>	iri							
				⊥ ⊥	iri							
				E		Medium Dense, Brown Sandy SILT to Silty Fine	-7					
7	15	М	23	Ė		SAND, Some Gravel, Scattered Cobbles (ML/SM)) -					
				├ 			L					
				Ē								
				<u></u>								
O	16	3.4	24	 -			-		_			
8	16	M	24	30-								
				֡֡֡֡֡֡֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓								
				⊢								
				<u> </u>								
9	17	W	18	_		Medium Dense, Brown Silty Fine SAND, Some	-					
				├ 35−	111	Gravel, Trace Clay (SM)	F					
					1:11							
				<u> -</u>		Very Stiff, Brownish-Gray Lean CLAY, Scattered						
10	16	M/W	12	<u> </u>		Sand, Gravel and Cobbles (CL)		(2.5)				
				40				(2.5)				
	WATER LEVEL OBSERVATIONS GENERAL NOTES											
	Drill			33.5'	ι	Jpon Completion of Drilling 39.8' Start	8/22	/22 End	8/22/	22		
Time	After	Drillin				Driller	SI	E Chief	CR	JR	ig 78	22DT
Depth						Logger Logger	Logger AR Editor ESF					
	Depth to Cave in 48.1' Drill Method 2.25" HSA; Autohammer The stratification lines represent the approximate boundary between							r				
soi	l type	s and	the t	ransiti	on ma	y be gradual.						



LOG OF TEST BORING | Boring No. 6

		Boring No.			
Project	Feather Edge Pond	Surface Ele	vation	1033.1	• • •
	Blue Harvest Lane Bridge)	Job No.	C210	51-31	
Location	Madison, WI	Sheet	2 of	2	

SAMPLE VISUAL CLASSIFICATION SOIL PROPERTIES			. PRC	PEI	RTIE	S						
No.	T Rec	Moist	N	De	epth		and Remarks	qu (qa)	w	LL	PL	LI
	P (in.)	FIOISC		(ft)	////		(tsf)			P.L	
							Very Stiff, Brownish-Gray Lean CLAY, Scattered Sand, Gravel and Cobbles (CL) Loose, Grayish-Brown SILT (ML)					
11	15	M/W	9	E	45-		Loose, drayish-brown order (wile)					
							Dense to Medium Dense, Brown Fine to Coarse					
12	16	W	31	F	50-		SAND, Some Silt and Gravel, Scattered Cobbles (SM)		1			
					30—							
13	0	•	11	E	55-							
			:				Stiff, Grayish-Brown Lean CLAY, Trace Sand, Scattered Gravel and Cobbles (CL)	(1.5)				
14	12	M/W	16	Ē	60—							
							End of Boring at 60 ft					
				E			Backfilled with Bentonite Chips					
					65—							
				E	70—							
					75—							
					80-					-		
					95							
			_									

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Project Feather Edge Pond Str.

(Blue Harvest Lane Bridge) Jo.

Location Madison, WI Sl

Boring No. 7
Surface Elevation (ft) 1033.1
Job No. C21051-31
Sheet 1 of 3

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

	SA	MPL	E.			VISUAL CLASSIFICATION		SOIL PROPERTIES			S	
No.	Rec	Moist	N	Depth (ft)		and Remarks		qu (qa) (tsf)	W	ш	PL	roi
				L	,,,,,	7 in. TOPSOIL						
1	10	M	9	-		Stiff to Soft Brown Lean Clay, Trace Sand Possible Fill to 3')	d (CL -	(1.0)				
2	16	М	4	E		Numerous Sand Partings Beginning Near 4	4'					
	10	IVI		├ ├ 5				(0.5)				
	1.0	2 6 7 7 7		Ė.								
3	10	M/W	4	F		Landa Wandana Banas Cila Cin Cin	ANID	4				
				E	i ri	Loose to Very Loose, Brown Silty Fine SA Trace Gravel and Clay (SM)	AND,					
4	14	M	3		iii	Increasing Clay Content with Depth						
		<u> </u>		10-	i (i	Increasing Clay Content with Depth						
				<u></u>	Ш	Dense to Very Dense, Brown Fine to Medi		1				
				F	Ιij.	SAND, Some Silt and Gravel, Scattered Co		1				
-	1.4	N /	42	<u> </u>	f H	and Boulders (SM)						
5	14	M	42	<u>├</u> 15−	1:11	, ,						
				<u> </u>								
				上	1.11							
				<u> </u>	iii							
6	18	М	45	<u> </u>	1:11							
		<u>-</u>		<u> </u>	i i i							-
]			<u> </u>	1:11							
					111			}				
				<u> </u>	- - - - - -							
7	12	M	64	<u> </u>	iii							
				25—	111							
				-	i i i							
					i i i							
8	8	W	65	<u> </u>								
	L ů	•	05	└ ─ 30─	1-11							
				<u></u>								
				⊢				.				
				∇	iii	Very Dense, Brown Fine to Coarse SAND,	, some					
9	8	W	42		i ri	Silt and Gravel, Scattered Cobbles (SM)						
				├ 35-	l i i							
				<u> </u>		Stiff, Brown Lean CLAY, Trace to Little S	Sand and					
				-		Gravel (CL)						
10	8	W	19	E		` ´						
10	Ů	**	17	40_				(1.25)				
			W	ATER	LE	EVEL OBSERVATIONS	G	ENERAL	NO	TES		
While	Drill	ina	∇ 2	3.5'	1	Jpon Completion of Drilling S	Start 9/8	8/22 End	9/9/2))		
		Drillir			•			DC Chief	KI		ig C N	Æ
Depth	to W	ater	-0					DB Editor			18 C.N	·***·····
Depth	to Ca	ave in					Orill Method	d 4.25" H	SA to			3
The soi	The stratification lines represent the approximate boundary between soil types and the transition may be gradual.											
			<u>-</u>			, J						

Inc.)

Boring No. 7
Surface Elevation 1033.1 Project Feather Edge Pond (Blue Harvest Lane Bridge) Job No. **C21051-31** Sheet 2 of 3 Location Madison, WI

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887											
	SA	MPL	E.		VISUAL CLASSIFICATION	SOIL PROPERTIES					
No.	Rec P (in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LI	
11	18	W	11	- - - - - - - - - - - - - - - - - - -	Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL) Medium Dense, Stratified Brown and Light Brown Sandy SILT and Silty Fine SAND, Trace Clay (ML/SM)						
12	10	W	88		Very Dense, Brown Fine to Coarse Sand, Some Silt and Gravel, Trace Clay (SM)					-	
				50-							
13	12	W	73	55-							
14	10	117	13	<u>-</u> -	Very Soft, Brown Lean CLAY, Trace Sand (CL)						
14	18	W	12	E 60-		(<0.2)					
15	6	w	61/9"		Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)						
13			71/7	65-							
16	6	W	24	70-	(Medium Dense with Scattered Clay Lenses Near 69')						
17	10	W	31	75-							
18	10	W	36	80-							
19	8	W	82								
.,		•••	/10"	- 85-							



	LOG OF TEST BORING Feather Edge Pond	Boring No.	·	7	
Project	Feather Edge Pond	Surface Ele	1033.1		
	(Blue Harvest Lane Bridge)	Job No.	C210	51-31	
Location	Madison, WI	Sheet	3 of	3	

				292	1 PER	RY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608)	288-7887 —				
		MPL	Æ			VISUAL CLASSIFICATION	SOIL	PRC	PE	RTIE	S
No.	Rec P (in.)	Moist	N	Depth (ft)		and Remarks	qu (qa) (tsf)	W	LL	PL.	LI
						Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)					
20	4	W	98 /11"	90-							
21	10	W	70 /10"	Ē							
			710	E		End of Boring at 92.5 ft					
				95-		Backfilled with Bentonite Slurry and Chips					

CGC, Inc.

LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	3/4" to 3"	¾" to 3"
Fine	4.76 mm to 3/4"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm.	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Relative Density

Physical Characteristics	Term	"N" Value
Color, moisture, grain shape, fineness, etc.	Very Loose	0 - 4
Major Constituents	Loose	4 - 10
Clay, silt, sand, gravel	Medium Dens	e10 - 30
Structure	Dense	30 - 50
Laminated, varved, fibrous, stratified, cemented, fissured, etc.	Very Dense	Over 50
Geologic Origin		

Relative Proportions Of Cohesionless Soils

Glacial, alluvial, eolian, residual, etc.

Consistency

Proportional	Defining Range by	Term	q _u -tons/sq. ft
Term	Percentage of Weight	Very Soft	0.0 to 0.25
		Soft	0.25 to 0.50
Trace	0% - 5%	Medium	0.50 to 1.0
Little	5% - 12%	Stiff	1.0 to 2.0
Some	12% - 35%	Very Stiff	2.0 to 4.0
And	35% - 50%	Hard	Over 4.0

Organic Content by Combustion Method

Plasticity

Soil Description	Loss on Ignition	<u>Term</u>	Plastic Index
Non Organic	Less than 4%	None to Slight	0 - 4
Organic Silt/Clay	4 – 12%	Slight	5 - 7
Sedimentary Peat	12% - 50%	Medium	8 - 22
Fibrous and Woody	Peat More than 50%	High to Very Hig	ıh Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS - Continuous Sampling

RC - Rock Coring: Size AW, BW, NW, 2"W

RQD - Rock Quality Designation

RB - Rock Bit/Roller Bit

FT - Fish Tail

DC - Drove Casing

C - Casing: Size 2 1/2", NW, 4", HW

CW - Clear Water

DM - Drilling Mud

HSA - Hollow Stem Auger

FA - Flight Auger

HA - Hand Auger

COA - Clean-Out Auger

SS - 2" Dia. Split-Barrel Sample

2ST - 2" Dia. Thin-Walled Tube Sample

3ST – 3" Dia. Thin-Walled Tube Sample

PT - 3" Dia. Piston Tube Sample

AS - Auger Sample

WS - Wash Sample

PTS - Peat Sample

PS - Pitcher Sample

NR - No Recovery

S - Sounding

PMT - Borehole Pressuremeter Test

VS - Vane Shear Test

WPT - Water Pressure Test

Laboratory Tests

qa - Penetrometer Reading, tons/sq ft

qa - Unconfined Strength, tons/sq ft

W - Moisture Content, %

LL - Liquid Limit, %

PL - Plastic Limit, %

SL – Shrinkage Limit, %

LI - Loss on Ignition

D - Dry Unit Weight, Ibs/cu ft

pH - Measure of Soil Alkalinity or Acidity

FS - Free Swell, %

Water Level Measurement

abla- Water Level at Time Shown

NW - No Water Encountered

WD - While Drilling

BCR – Before Casing Removal

ACR - After Casing Removal

CW - Cave and Wet

CM - Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

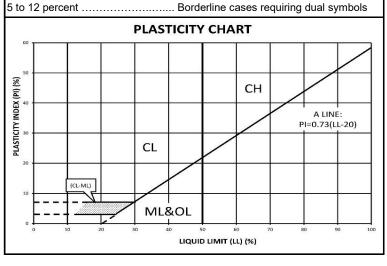
CGC, Inc.

Madison - Milwaukee

Unified Soil Classification System

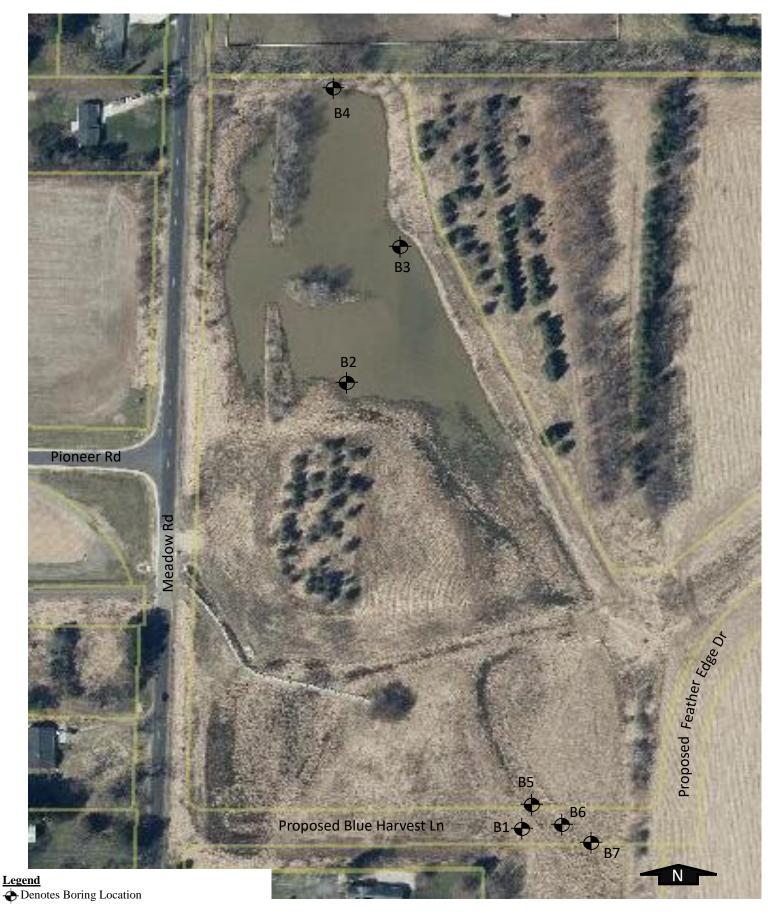
UNIFIED SO	IL CL	ASSIF	ICATION AND SYMBOL CHART
	C	OARSE	-GRAINED SOILS
(more than	1 50% c	of mater	ial is larger than No. 200 sieve size)
	.~	Clean G	ravels (Less than 5% fines)
		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
GRAVELS More than 50% of		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
coarse fraction larger than No. 4	(Gravels	with fines (More than 12% fines)
sieve size		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	(Clean S	ands (Less than 5% fines)
		SW	Well-graded sands, gravelly sands, little or no fines
SANDS 50% or more of		SP	Poorly graded sands, gravelly sands, little or no fines
coarse fraction smaller than No. 4	(Sands v	vith fines (More than 12% fines)
sieve size		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
(50% or m	ore of r		GRAINED SOILS is smaller than No. 200 sieve size.)
SILTS AND		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
CLAYS Liquid limit less than 50%		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
man 6070		OL	Organic silts and organic silty clays of low plasticity
SILTS AND		МН	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
CLAYS Liquid limit 50% or		СН	Inorganic clays of high plasticity, fat clays
greater		ОН	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	26 26 26	PT	Peat and other highly organic soils

	LABORATORY CLASS	IFICATION CRITERIA							
GW	$C_{\rm u} = \frac{D_{60}}{D_{10}}$ greater than 4; $C_{\rm u}$	$C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3							
GP	Not meeting all gradation red	quirements for GW							
GM	Atterberg limts below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring							
GC	Atterberg limts above "A" line or P.I. greater than 7	use of dual symbols							
SW	$C_{\rm u} = \frac{D_{60}}{D_{10}}$ greater than 4; C	$D_{\rm C} = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3							
SP	Not meeting all gradation red	quirements for GW							
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline							
SC	Atterberg limits above "A" line with P.I. greater than 7	cases requiring use of dual symbols							
on percen	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:								
	12 percent	GW, GP, SW, SP GM, GC, SM, SC							



APPENDIX A

SOIL BORING LOCATION EXHIBITS (2) LOGS OF TEST BORINGS (7) LOG OF TEST BORING – GENERAL NOTES UNIFIED SOIL CLASSIFICATION SYSTEM

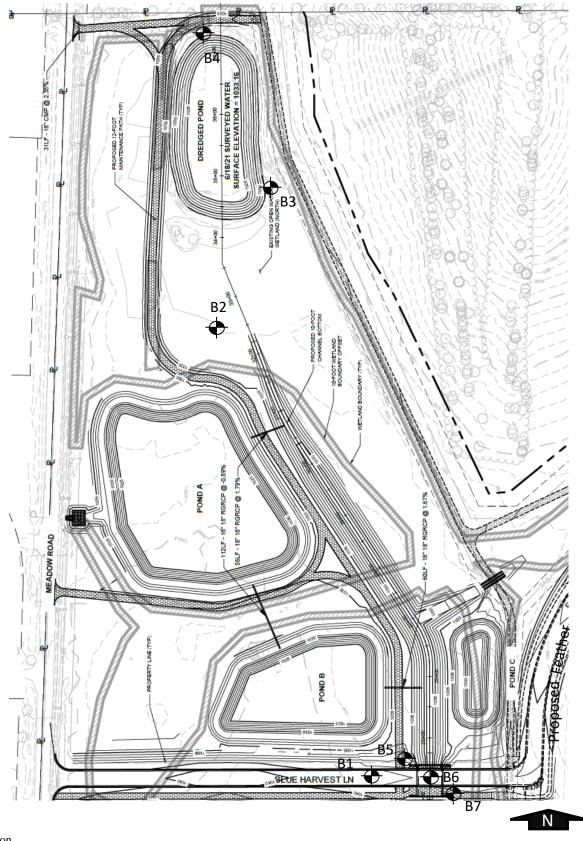


<u>Notes</u>

- 1. Soil borings B1 through B4 performed by Badger State Drilling in February
- 2. Soil borings B5 and B6 performed by Soil Essentials in August 2022, and B7 performed by B in September 2022.
- 3. Boring locations are approximate

Scale: Reduced

Job No. C21051-31 Date: 10/2022 SOIL BORING LOCATION MAP Feather Edge Pond Madison, Wisconsin



Legend

Denotes Boring Location

Notes

- 1. Soil borings B1 through B4 performed by Badger State Drilling in February 2022.
- 2. Soil borings B5 and B6 performed by Soil Essentials in August 2022, and B7 performed by B in September 2022.
- 3. Boring locations are approximate

Scale: Reduced

Job No. C21051-31 Date: 10/2022 SOIL BORING LOCATION MAP Feather Edge Pond Madison, Wisconsin



Project Feather Edge Pond
N469744.5 E772822.3
Location Madison, WI

Boring No. 1
Surface Elevation (ft) 1033.4
Job No. C21051-31
Sheet 1 of 1

				_ 29	21 Per	ry Street, Madison, WI 53713 (608) 288-4100, F	AX (608) 28	8-7887 —				
	SA	MPL	E	_		VISUAL CLASSIFICATION		SOIL	PRO	PEF	RTIE	S
No.	T Y Rec P (in.)	Moist	N	Depth (ft)		and Remarks		qu (qa) (tsf)	w	LL	PL	roi
						12 in. TOPSOIL						
1	18	M	7	E		FILL: Stiff Brown Clay to 3'						
2	18	M	7	<u></u>		Loose Brown Silty Sand with Clay and Grav	vel to 5'					
3	12	M/W	5	 5- - -		Loose, Brown Fine to Medium SAND, Some Trace Gravel, Scattered Thin (<1/2 in.) Clay						
				L		(SM)	-					
4	14	M	5	 								
5	18	M	20	10— L L		Medium Dense to Very Dense, Brown Fine t Medium SAND, Some Silt and Gravel, Scatt						
6	14	M	77/8'	<u> </u>		Cobbles and Boulders (SM)						
	14	IVI	/ // 8			Hard Drilling Noted Near 14'	-					
					1.11							
7	18	M	45	<u> </u>								
				20-		End of Boring at 20 ft						
						Backfilled with Bentonite Chips						
				<u></u>								
				25—								
				<u> </u>								
				<u>⊢</u> ⊢ 30−								
				- - - 35-								
				<u> </u>								
			W	ATER	R LE	VEL OBSERVATIONS	G	ENERA	L NC	TES	3	
	le Dril			NW_	Uj	pon Completion of DrillingNWSta		/22 End	2/17			=0
	e After th to W	Drilli Zater	ng				riller BS ogger G				lig D -	50
Dept	h to C	ave in				Dri	Drill Method 2.25" HSA; Autohammer					
Th	e strat il type	tificat es and	tion l	ines re ransiti	preser	nt the approximate boundary between						



Project Feather Edge Pond N470419.5 E772526.1 Location Madison, WI

Boring No. **2** Surface Elevation (ft) 1033.6 Job No. **C21051-31** Sheet **1** of **1**

				_ 29	21 P	erry Street, Madison, WI 53713 (608) 288-4100, FAX (608)	288-7887 —				
	SAMPLE					VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	T Y Rec P (in.)	Moist	N	Depth (ft)		and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						12 in. TOPSOIL	(651)				
1	16	M	9	 		FILL: Loose Brown Silt with Clay and Sand					
2	18	M	10	├- - - - 5-		Medium Stiff to Stiff, Brown and Gray (Mottled) Lean CLAY, Trace Sand (CL)					
3	18	M	10	 -		Loose to Dense, Brown Fine to Medium SAND,					
4	18	M	45	L - -		Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5	0		50/1"	├─ 10─ ├ └ ├─		Large Cobble/Possible Boulder Noted Near 11'					
6	29	M/W	29	- - - -							
				₁₅ _ - - - -							
7	31	M	31	<u>├</u> <u> </u> 							
				20-	1	End of Boring at 20 ft					
				 - - - - - 25-		Backfilled with Bentonite Chips					
				├─ 30- - - -							
				⊢ <u>−</u> ⊢ 35− ⊢							
			W	ATER	R LE	EVEL OBSERVATIONS (GENERA	L NC	TES	5	
Time Dept Dept	le Dril e After th to W th to C	Drillinater ave in	ng	NW		Driller LoggerDrill Metho	17/22 End 3SD Chief GB Editor od 2.25" I	r ES) F F	ig D-	
Th so	e strat il type	ificat es and	ion l	ines re ransiti	pres on m	ent the approximate boundary between					



Project Feather Edge Pond
N470654.2 E772620.2
Location Madison, WI

Boring No. 3
Surface Elevation (ft) 1031.3
Job No. C21051-31
Sheet 1 of 1

				_ 29	221 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288					
	SA	MPL	.E		VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	T Y Rec P (in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	FOI
				-	8 in. TOPSOIL					
1	18	M	10	<u>-</u> - - -	Medium Stiff, Brown Silty CLAY, Scattered Sand Partings (CL-ML) (Possible Fill)	(0.75)				
2	18	M/W	9	_ 5—	Loose, Brown SILT, Trace Sand and Clay (ML)					
3	18	M/W	8		Medium Stiff, Brown Silty CLAY, Scattered Sand Partings (CL-ML)	(0.75)				
				<u> </u>						
4	18	M/W	9							
5	18	M/W	13	<u>├</u> ├- +	Stratified Medium Dense, Brown Silty SAND and					
	1.0	2.6/337	70	<u> </u>	Sandy SILT, Trace Clay (SM/ML)					
6	18	M/W	70	├- └- ₁₅ ├-	SAND, Some Sitt and Graver, Scattered Cobbles					
				<u>├</u> - -	and Boulders (SM)					
7	18	M	37	<u> </u>						
/	18	M	3/	<u> </u>	[6] [2] [2] [3] [4] [4] [4] [4] [4] [4] [4] [4] [4] [4					
					End of Boring at 20 ft					
					Backfilled with Bentonite Chips					
							No			
			VV	AIER	R LEVEL OBSERVATIONS GE	ENERA	L NO	IES		
Time Dept Dept	th to With to C	Drillinater ave in	ng	ines re	Upon Completion of Drilling NW Start 2/17// Driller BSI Logger GP Drill Method	B Editor	ES) R F	ig D -	



Project Feather Edge Pond N470949.2 E772501.7 Location Madison, WI

Boring No. **4** Surface Elevation (ft) 1035.6 Job No. **C21051-31** Sheet **1** of **1**

	SA	MPL	E		21 P	VISUAL CLASSIFICATION		SOIL	PRO	PER	RTIE	S
No.	Rec P (in.)	Moist	N	Depth (ft)		and Remarks	•	qu (qa) (tsf)	W	LL	PL	LOI
				<u> </u>		√8 in. TOPSOIL		(651)				
1	8	M/W	7	-		FILL: Loose Brown Silt with Clay and San	nd					
2	18	M	7			Stiff, Brown and Gray (Mottled) Lean CLA Trace Sand (CL)	ĀŸ,	(1.5)				
3	12	M	9	<u> </u>		Loose to Medium Dense, Brown Fine to Co SAND, Some Silt and Gravel (SM)	oarse					
4	10	M	17	 - - -		Medium Dense, Brown Fine to Medium SA	AND					
5	18	M	13	<u> </u>		Some Silt and Gravel, Scattered Cobbles as Boulders (SM)						
6	18	M	27	<u>+</u> + -		Boulders (SWI)	-					
7	18	M	21	15— 								
/	18	IVI	21	<u> </u> 20	1:11	End of Boring at 20 ft						
				 		Life of Boring at 20 ft						
			\ \			Backfilled with Bentonite Chips		ENIEDAI	NO	TES		
			W	ATER		EVEL OBSERVATIONS	G	ENERA	_ NO	TES	5	
Time Deptl Deptl	h to W h to Ca	Drillinater ave in	ng	ines re			Oriller B S	6/22 End SD Chief B Editor 1 2.25" H	2/16/ KI ES SA; A) R F	ig D -	



Project Feather Edge Pond
(Blue Harvest Lane Bridge)
Location Madison, WI

Boring No. 5
Surface Elevation (ft) 1033.1
Job No. C21051-31
Sheet 1 of 2

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

	SA	MPL	E.			VISUAL CLASSIFICATION		SOIL	PRO	PEF	RTIE	S
No.	Rec (in.)	Moist	N	Depth (ft)		and Remarks		qu (qa) (tsf)	w	LL	PL	LOI
				<u> </u>		9 in. Dark Brown Clayey TOPSOIL						
1	16	M	4			Stiff to Soft, Brown Lean CLAY, Trace Sand (CL Possible Fill)	. -	(1.5)				
2	17	M/W	2			,						
	1.7	101/ 00		└ ├ ─ 5−				(0.5)				
2	1.0	N f	_	Ė		Very Soft, Stratified Brown, Dark Brown and Gra						
3	16	M	2	 		Lean to Silty CLAY, Trace Sand (CL/CL-ML)	'	(<0.2)				
				<u> </u>		2000 00 000 0000 0000 (02.02 10.2)						
4	14	M/W	3	<u></u>		Very Loose, Brown Silty Fine SAND, Some						
				 10− ⊢	- 11:11. - 11:11.	Gravel, Trace Clay (SM)						
5	4	M	85	Ė		Medium Dense, Brown Fine to Medium SAND,						
-				 	1.11	Some Silt and Gravel, Scattered Cobbles and						
6	6	M	20	Ē	hii.	Boulders (SM)						
0		1V1	20	L 15-		(Rough drilling/cobbles/very dense conditions fro	m					
				⊢ ⊢	1.11	11'-13')						
				<u> </u>								
				<u> -</u>								
7	15	M	21	<u> </u>								
-				<u> </u>								
				<u> </u>	i ii							
				<u> </u>	irri.							
0	1.4	M	17	<u> </u>								
8	14	M	17	<u> </u>								
				<u></u>								
				∟ 								
9	7	M	26	<u> </u>								
_				<u>├</u> 30-	∤i;ii.							
					i-ri							
				<u> </u>	1:11							
				፟፟፟	H:	Medium Dense, Brown Fine to Coarse SAND,						
10	15	W	11		1:11	Some Silt and Gravel, Scattered Cobbles (SM)						
				├ 35- ├	1011	,						
						Medium Dense, Brown Sandy SILT, Trace Grave	1					
				<u></u>		and Clay, Scattered Cobbles (ML)	1					
11	17	M/W	16	<u></u> ⊢		and Stay, Seattered Coooles (WIL)						
	-	1.2.11		<u> </u>	- - -							
			W	ATEF	L	EVEL OBSERVATIONS	GE	NERA	L NC	TES	3	
While	e Dril	ling	<u> </u>	33.5'	1	Upon Completion of Drilling 34.5' Start	8/22/2	22 End	8/22	/22		
Time	After	Drilli				24 Hours Driller	SE	Chief	CF	J F	Rig 78	22DT
Deptl			-				AR	Edito		F		
		ave in				Drill Mo	ethod	2.25" I	ISA; A	utoha	ımme	r
The soi	strat l type	ificat s and	ion l	ines re ransiti	pres	ent the approximate boundary between ay be gradual.						



Project Feather Edge Pond
(Blue Harvest Lane Bridge)
Location Madison, WI

Boring No. 5
Surface Elevation 1033.1
Job No. C21051-31
Sheet 2 of 2

				_ 2921	PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887				
		MPL	E.		VISUAL CLASSIFICATION	IL PRO	PEF	RTIE	S
No.	Rec P (in.)	Moist	N	Depth (ft)	and Remarks qu (qa) (tsf)		LL	PL	LI
					Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)				
12	15	M/W	11	45-					
13	16	M/W	27	50-					
14	15	W	28		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)				
15 16	0 16	- W	11 11	55-	Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)				
17	11	W	32	<u>-</u> - - -	Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)				
				65— —	End of Boring at 63 ft Backfilled with Bentonite Chips				
				70-					
				80—					



Project Feather Edge Pond
(Blue Harvest Lane Bridge) Location Madison, WI

Boring No. **6** Surface Elevation (ft) 1033.1 Job No. **C21051-31** Sheet **1** of **2**

	SA	MPL	E.	_ 29	VISUAL CLASSIFICATION	SOIL	PRO	PEF	RTIE	S
No.	Rec (in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
	-			<u> </u>	9 in. Brown Clayey TOPSOIL	((51)				
1	16	M	6	<u> </u>	Stiff to Very Soft, Stratified Brown, Dark Brown	(1.5)				
				<u>L</u> ├─	and Gray Lean to Silty CLAY, Trace Sand with	(1.3)				
2	15	M	4	<u> </u>	thin (<1") Sandy Seams and Lenses (CL - Possible	(0.5)				
				5-	Fill to 5')	(0.3)				
3	17	M/W	0	<u></u>		(<0.2)				
						(<0.2)				
4	16	M/W	0	 		(<0.2)				
				<u> </u>						
				L ⊢	Medium Dense, Brown Fine to Medium SAND,	-				
				<u> -</u>	Some Silt and Gravel, Scattered Cobbles and					
5	15	M	14	-	Boulders (SM)					
				└─ 15─ ├						
				<u> </u>						
6	17	M	19	Ė						
				L 20-						
				⊢ -						
				<u> </u>	Medium Dense, Brown Sandy SILT to Silty Fine					
7	15	M	23	Ė.	SAND, Some Gravel, Scattered Cobbles (ML/SM)					
				<u>-</u> 25-						
				<u> </u>						
8	16	M	24	<u></u>						
				⊢ ├ ─ 30−						
				<u> </u>						
				<u></u> ⊢						
9	17	W	18	ĮΣ						
	1 /	''	10	<u>L</u> → 35—	Medium Dense, Brown Silty Fine SAND, Some					
					Gravel, Trace Clay (SM)					
				⊢ -	Very Stiff, Brownish-Gray Lean CLAY, Scattered	-				
10	16	M/W	12	Ē	Sand, Gravel and Cobbles (CL)					
10	10	141/ 44	14	<u></u>		(2.5)				
			W	ATER	LEVEL OBSERVATIONS	GENERA	L NO	TES	5	
While	e Drill	ling	<u> </u>	33.5'	Upon Completion of Drilling 39.8' Start8	/22/22 End	8/22	/22		
		Drilli	ng			SE Chief			ig 78	22DT
Depth						AR Editor od 2.25" H				
		ave in	ion l	ines re	present the approximate boundary between on may be gradual.	ou 2.25 F	13A; A	นเบแล	iiiiiie	<u> </u>
soi	l type	es and	the t	ransiti	on may be gradual.		• • • • • • • • • •			



Project Feather Edge Pond
(Blue Harvest Lane Bridge) Location Madison, WI

Boring No. 6
Surface Elevation 1033.1 Job No. **C21051-31** Sheet **2** of **2**

				_	292	1 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 2		DD-0	DE:	_ !-	
	S	A	MPL	.E		VISUAL CLASSIFICATION	SOIL	PKC)YEI	< E	5
No.	1.51	ec n.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						Very Stiff, Brownish-Gray Lean CLAY, Scattered Sand, Gravel and Cobbles (CL)					
11	1	15	M/W	9		Loose, Grayish-Brown SILT (ML)					
					45-						
						Dense to Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles					
12	1	16	W	31	50-	(SM)					
13		0	<u> </u>	11	E						
					55-	Stiff Cravials Drawn Loan CLAY Trace Sand					
					E	Stiff, Grayish-Brown Lean CLAY, Trace Sand, Scattered Gravel and Cobbles (CL)	(1.5)				
14		12	M/W	16	60-	End of Boring at 60 ft					
					<u>-</u>	End of Bornig at 60 ft					
					E	Backfilled with Bentonite Chips					
					65-	-					
					70-						
					<u></u>						
					75-	_					
					80-						
					_						
					8 5-	-					



Project Feather Edge Pond
(Blue Harvest Lane Bridge)
Location Madison, WI

Boring No. **7**Surface Elevation (ft) **1033.1**Job No. **C21051-31**Sheet **1** of **3**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE					VISUAL CLASSIFICATION			SOIL PROPERTIES						
No.	Rec P (in.)	Moist	N	Depth (ft)	•	and Remarks		qu (qa) (tsf)	W	LL	PL	LOI		
				<u></u>	////	7 in. TOPSOIL		(031)						
1	10	M	9	<u> </u>		Stiff to Soft Brown Lean Clay, Trace Sand	l (CL -	(1.0)						
	1.6		4	<u>-</u>		Possible Fill to 3') Numerous Sand Partings Beginning Near 4	1'							
2	16	M	4	<u>├</u> - 5–		Trumerous sand rurtings Beginning recu	•	(0.5)						
3	10	M/W	4	<u></u>										
	10	141/ 44	•			Loose to Very Loose, Brown Silty Fine SA	AND,							
4	14	M	3	+		Trace Gravel and Clay (SM)								
				10-		Increasing Clay Content with Depth								
						Dense to Very Dense, Brown Fine to Medi								
						SAND, Some Silt and Gravel, Scattered Co and Boulders (SM)	obbles							
5	14	M	42	├- 15-		una Boulders (SIVI)								
				⊢ [†] ັ										
				<u>Г</u> Н										
6	18	M	45											
				<u>L</u> 20-										
				<u> </u>										
7	12	M	64	L -										
				25- -										
				<u> </u>	: [. :									
8	8	W	65	<u> </u>	1:11									
		- "	0.5	<u>├</u> 30−	HELL Herri									
				<u></u>										
						Very Dense, Brown Fine to Coarse SAND	, Some							
9	8	W	42	 _ -		Silt and Gravel, Scattered Cobbles (SM)								
				- 35− -	111	 								
				∟ ⊢ ⊢		Stiff, Brown Lean CLAY, Trace to Little S Gravel (CL)	Sand and							
10	8	W	19	E		Graver (CL)								
10	0		19	40-				(1.25)						
WATER LEVEL OBSERVATIONS							G	ENERA	L NC	TES	3			
	e Drill		<u> </u>	33.5'	1			8/ 22 End	9/9/					
		Drillii ater	ng			· 		DC Chief DB Editor	KI ES		ig CN 55			
Depth to Cave in Drill Method 4.25" HSA to 10 ft; 3-7														
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.														



Project Feather Edge Pond
(Blue Harvest Lane Bridge) Location Madison, WI

Boring No. **7**Surface Elevation **1033.1** Job No. **C21051-31** Sheet **2** of **3**

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887												
	SAMPLE				VISUAL CLASSIFICATION	SOIL PROPERTIES						
No.	Rec P (in.)	Moist	N	Depth (ft)	and Remarks	qu (qa) (tsf)	w	LL	PL	LI		
					Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL)	- (551)						
11	18	W	11	45-	Medium Dense, Stratified Brown and Light Brown Sandy SILT and Silty Fine SAND, Trace Clay (ML/SM)							
12	10	W	88		Very Dense, Brown Fine to Coarse Sand, Some Silt and Gravel, Trace Clay (SM)							
12	10		00	50-								
12	12	337	72									
13	12	W	73	55-								
					Very Soft, Brown Lean CLAY, Trace Sand (CL)							
14	18	W	12	60-		(<0.2)						
				Ē	Very Dense, Brown Fine to Coarse SAND and	_						
15	6	W	61/9"	65-	GRAVEL, Some Silt (SM/GM)							
16	6	W	24	70-	(Medium Dense with Scattered Clay Lenses Near 69')							
17	10	W	31	75—								
				_								
18	10	W	36	80-								
19	8	W	82 /10"	85-								
				85-								



Project Feather Edge Pond
(Blue Harvest Lane Bridge) Location Madison, WI

Boring No. **7**Surface Elevation **1033.1** Job No. **C21051-31** Sheet **3** of **3**

				_ 292	1 PERR	Y STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 2							
SAMPLE				1		VISUAL CLASSIFICATION	SOIL PROPERTIES						
No.	T Y Rec P (in.)	Moist	N	Depth (ft)		and Remarks	qu (qa) (tsf)	W	LL	PL	LI		
						Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)	(232)						
20	4	W	98 /11"	90-									
21	10	W	70	E									
			/10"	<u></u>		End of Boring at 92.5 ft							
				- 95- - 100- - 105- - 115- - 125- - 125-		Backfilled with Bentonite Slurry and Chips							

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LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	3/4" to 3"	¾" to 3"
Fine	4.76 mm to 3/4"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm.	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Relative Density

Physical Characteristics	Term	"N" Value
Color, moisture, grain shape, fineness, etc.	Very Loose	0 - 4
Major Constituents	Loose	4 - 10
Clay, silt, sand, gravel	Medium Dens	e10 - 30
Structure	Dense	30 - 50
Laminated, varved, fibrous, stratified, cemented, fissured, etc.	Very Dense	Over 50
Geologic Origin		

Relative Proportions Of Cohesionless Soils

Glacial, alluvial, eolian, residual, etc.

Consistency

Proportional	Defining Range by	Term	q _u -tons/sq. ft
Term	Percentage of Weight	Very Soft	0.0 to 0.25
		Soft	0.25 to 0.50
Trace	0% - 5%	Medium	0.50 to 1.0
Little	5% - 12%	Stiff	1.0 to 2.0
Some	12% - 35%	Very Stiff	2.0 to 4.0
And	35% - 50%	Hard	Over 4.0

Organic Content by Combustion Method

Plasticity

Soil Description	Loss on Ignition	<u>Term</u>	Plastic Index
Non Organic	Less than 4%	None to Slight	0 - 4
Organic Silt/Clay	4 – 12%	Slight	5 - 7
Sedimentary Peat	12% - 50%	Medium	8 - 22
Fibrous and Woody	Peat More than 50%	High to Very Hig	ıh Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS - Continuous Sampling

RC - Rock Coring: Size AW, BW, NW, 2"W

RQD - Rock Quality Designation

RB - Rock Bit/Roller Bit

FT - Fish Tail

DC - Drove Casing

C - Casing: Size 2 1/2", NW, 4", HW

CW - Clear Water

DM - Drilling Mud

HSA - Hollow Stem Auger

FA - Flight Auger

HA - Hand Auger

COA - Clean-Out Auger

SS - 2" Dia. Split-Barrel Sample

2ST - 2" Dia. Thin-Walled Tube Sample

3ST – 3" Dia. Thin-Walled Tube Sample

PT - 3" Dia. Piston Tube Sample

AS - Auger Sample

WS - Wash Sample

PTS - Peat Sample

PS - Pitcher Sample

NR - No Recovery

S - Sounding

PMT - Borehole Pressuremeter Test

VS - Vane Shear Test

WPT - Water Pressure Test

Laboratory Tests

qa - Penetrometer Reading, tons/sq ft

qa - Unconfined Strength, tons/sq ft

W - Moisture Content, %

LL - Liquid Limit, %

PL - Plastic Limit, %

SL - Shrinkage Limit, %

LI - Loss on Ignition

D - Dry Unit Weight, Ibs/cu ft

pH - Measure of Soil Alkalinity or Acidity

FS - Free Swell, %

Water Level Measurement

abla- Water Level at Time Shown

NW - No Water Encountered

WD - While Drilling

BCR – Before Casing Removal

ACR – After Casing Removal

CW - Cave and Wet

CM - Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

CGC, Inc.

Madison - Milwaukee

Unified Soil Classification System

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART						
COARSE-GRAINED SOILS						
(more than 50% of material is larger than No. 200 sieve size)						
Clean Gravels (Less than 5% fines)						
		GW	Well-graded gravels, gravel-sand mixtures, little or no fines			
GRAVELS More than 50% of		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines			
coarse fraction larger than No. 4	(Gravels	with fines (More than 12% fines)			
sieve size		GM	Silty gravels, gravel-sand-silt mixtures			
		GC	Clayey gravels, gravel-sand-clay mixtures			
	(Clean S	ands (Less than 5% fines)			
		SW	Well-graded sands, gravelly sands, little or no fines			
SANDS 50% or more of		SP	Poorly graded sands, gravelly sands, little or no fines			
coarse fraction smaller than No. 4	(Sands v	vith fines (More than 12% fines)			
sieve size		SM	Silty sands, sand-silt mixtures			
		SC	Clayey sands, sand-clay mixtures			
(50% or m	ore of r		GRAINED SOILS is smaller than No. 200 sieve size.)			
SILTS AND		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity			
CLAYS Liquid limit less than 50%		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
man 6070		OL	Organic silts and organic silty clays of low plasticity			
SILTS AND		МН	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
CLAYS Liquid limit 50% or		СН	Inorganic clays of high plasticity, fat clays			
greater		ОН	Organic clays of medium to high plasticity, organic silts			
HIGHLY ORGANIC SOILS	26 26 26	PT	Peat and other highly organic soils			

LABORATORY CLASSIFICATION CRITERIA							
GW	$C_{\rm u} = \frac{D_{60}}{D_{10}}$ greater than 4; C	$C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3					
GP	GP Not meeting all gradation requirements for GW						
GM	Atterberg limts below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring					
GC	Atterberg limts above "A" line or P.I. greater than 7	use of dual symbols					
SW	$C_{\rm u} = \frac{D_{60}}{D_{10}}$ greater than 4; C	$D_{\rm C} = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3					
SP	SP Not meeting all gradation requirements for GW						
SM	line or P.I. less than 4 Limits plotting in snaded zone with						
SC Atterberg limits above "A" cases requiring use of dual symbols line with P.I. greater than 7							
Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:							
Less than 5 percent							

