

**Legend**

 Denotes Boring Location

**Notes**

1. Boring locations are approximate
2. Soil Borings performed by Badger State Drilling in November 2020

Scale: Reduced

Date:  
11/2020

Job No.  
C20051-26



**Soil Boring Location Map**  
**Melvin Court & Ridgeway Ave**  
**Madison, WI**



# LOG OF TEST BORING

Project Melvin/Ridgeway  
Melvin: 70'NW of Quincy, 10'NE of CL  
 Location Madison, WI

Boring No. 1  
 Surface Elevation (ft) 865±  
 Job No. C20051-26  
 Sheet 1 of 1

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q <sub>u</sub> (qa) (tsf)	W	LL	PL	LI
					5 in. Asphalt Pavement/7 in. Sandy Base Course					
1	16	M	5		Stiff, Brown Lean CLAY (CL)	(1.25)				
2	18	M	11			(1.5)				
3	16	M	10		Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
4	18	M	17							
5	14	M	25		Increasing Gravel/Cobble Content with Depth					
					End Boring at 15 ft					
					Borehole Backfilled with Bentonite Chips and Asphalt Patch					

WATER LEVEL OBSERVATIONS					GENERAL NOTES						
While Drilling	<input checked="" type="checkbox"/>	NW	Upon Completion of Drilling	<input type="checkbox"/>	NW	Start	11/24/20	End	11/24/20		
Time After Drilling						Driller	BSD	Chief	MC	Rig	CME-55
Depth to Water						Logger	DC	Editor	ESF		
Depth to Cave in						Drill Method	2.25" HSA; Autohammer				
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.											



# LOG OF TEST BORING

Project Melvin/Ridgeway  
Melvin: 110'NW of Ridgeway, 5'NE of CL  
 Location Madison, WI

Boring No. 2  
 Surface Elevation (ft) 896±  
 Job No. C20051-26  
 Sheet 1 of 1

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q <sub>u</sub> (qa) (tsf)	W	LL	PL	LI
				0	5 in. Asphalt Pavement/7 in. Sandy Base Course					
1	18	M	24	24	Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
2	12	M	8	8	Loose, Light Brown Fine SAND (SP)					
3	6	M	76/9"	76/9"	Very Dense, Light Brown Fine to Medium SAND, Some Gravel, Little to Some Silt (SP-SM/SM)					
4	0	M	81/7"	81/7"						
5	16	M	59	59						
				15	End Boring at 15 ft  Borehole Backfilled with Bentonite Chips and Asphalt Patch					

## WATER LEVEL OBSERVATIONS

## GENERAL NOTES

While Drilling  NW Upon Completion of Drilling NW  
 Time After Drilling \_\_\_\_\_  
 Depth to Water \_\_\_\_\_  
 Depth to Cave in \_\_\_\_\_

Start 11/24/20 End 11/24/20  
 Driller BSD Chief MC Rig CME-55  
 Logger DC Editor ESF  
 Drill Method 2.25" HSA; Autohammer

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



# LOG OF TEST BORING

Project Melvin/Ridgeway  
Melvin: 200' SE of Washington, 10' NE of CL  
 Location Madison, WI

Boring No. 3  
 Surface Elevation (ft) 883±  
 Job No. C20051-26  
 Sheet 1 of 1

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q <sub>u</sub> (qa) (tsf)	W	LL	PL	LI
				0	X	6 in. Asphalt Pavement/7 in. Sandy Base Course				
1	8	M	6	0		FILL: Loose Brown Sand with Silt and Clay				
				5		Stiff to Soft, Brown Lean CLAY (CL)				
2	16	M	7	5		(1.75)				
3	18	M	6	10		(0.75)				
4	18	M	4	15		(0.5)				
5	6	M	3	15						
6	7	M	4	15						
				15		Loose to Very Loose, Brown Clayey SAND, Some Silt, Trace Gravel (SC)				
				20		End Boring at 15 ft  Borehole Backfilled with Bentonite Chips and Asphalt Patch				

WATER LEVEL OBSERVATIONS					GENERAL NOTES				
While Drilling <input checked="" type="checkbox"/> NW      Upon Completion of Drilling <input type="checkbox"/> NW Time After Drilling _____ Depth to Water _____ Depth to Cave in _____					Start <u>11/24/20</u> End <u>11/24/20</u> Driller <u>BSD</u> Chief <u>MC</u> Rig <u>CME-55</u> Logger <u>DC</u> Editor <u>ESF</u> Drill Method <u>2.25" HSA; Autohammer</u>				
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.									



# LOG OF TEST BORING

Project Melvin/Ridgeway  
Ridgeway: 235'SW of Melvin, 10'NW of CL  
 Location Madison, WI

Boring No. 4  
 Surface Elevation (ft) 894±  
 Job No. C20051-26  
 Sheet 1 of 1

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q <sub>u</sub> (qa) (tsf)	W	LL	PL	LI
				0	X	5 in. Asphalt Pavement/6 in. Base Course				
1	6	M	11	6	Hatched	FILL: Stiff Brown Clay with Sand and Gravel				
				10	Dotted	Medium Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)				
2	14	M	19	14	Dotted					
3	18	M	29	18	Dotted					
4	16	M	34	16	Dotted					
				10	Dotted					
				15	Dotted	Very Dense, Brown Silty Fine SAND, Some Gravel (SM)				
5	16	M	71	16	Dotted					
				15	Dotted	End Boring at 15 ft				
				20	Dotted	Borehole Backfilled with Bentonite Chips and Asphalt Patch				

WATER LEVEL OBSERVATIONS					GENERAL NOTES				
While Drilling <input checked="" type="checkbox"/> NW    Upon Completion of Drilling <input type="checkbox"/> NW					Start <u>11/24/20</u> End <u>11/24/20</u>				
Time After Drilling _____					Driller <u>BSD</u> Chief <u>MC</u> Rig <u>CME-55</u>				
Depth to Water _____					Logger <u>DC</u> Editor <u>ESF</u>				
Depth to Cave in _____					Drill Method <u>2.25" HSA; Autohammer</u>				
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.									

**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.....	¾" to 3" .....	¾" to 3"
Fine .....	4.76 mm to ¾" .....	#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**

**Physical Characteristics**  
 Color, moisture, grain shape, fineness, etc.  
**Major Constituents**  
 Clay, silt, sand, gravel  
**Structure**  
 Laminated, varved, fibrous, stratified,  
 cemented, fissured, etc.  
**Geologic Origin**  
 Glacial, alluvial, eolian, residual, etc.

**Relative Density**

Term	"N" Value
Very Loose.....	0 - 4
Loose.....	4 - 10
Medium Dense.....	10 - 30
Dense.....	30 - 50
Very Dense.....	Over 50

**Relative Proportions Of Cohesionless Soils**

Proportional Term	Defining Range by Percentage of Weight
Trace.....	0% - 5%
Little.....	5% - 12%
Some.....	12% - 35%
And .....	35% - 50%

**Consistency**

Term	q <sub>u</sub> -tons/sq. ft
Very Soft.....	0.0 to 0.25
Soft.....	0.25 to 0.50
Medium.....	0.50 to 1.0
Stiff.....	1.0 to 2.0
Very Stiff.....	2.0 to 4.0
Hard.....	Over 4.0

**Organic Content by Combustion Method**

Soil Description	Loss on Ignition
Non Organic.....	Less than 4%
Organic Silt/Clay.....	4 - 12%
Sedimentary Peat.....	12% - 50%
Fibrous and Woody Peat...	More than 50%

**Plasticity**

Term	Plastic Index
None to Slight.....	0 - 4
Slight.....	5 - 7
Medium.....	8 - 22
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 ½", 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**

- q<sub>a</sub> – Penetrometer Reading, tons/sq ft
- q<sub>u</sub> – 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 System

## UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART








### COARSE-GRAINED SOILS

(more than 50% of material is larger than No. 200 sieve size)

GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
		GW Well-graded gravels, gravel-sand mixtures, little or no fines
		GP Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
		GM Silty gravels, gravel-sand-silt mixtures
		GC Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
		SW Well-graded sands, gravelly sands, little or no fines
		SP Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
		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.)

SILTS AND CLAYS Liquid limit less than 50%		ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH Inorganic clays of high plasticity, fat clays
		OH Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT Peat and other highly organic soils

## LABORATORY CLASSIFICATION CRITERIA

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 limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line or P.I. greater than 7	
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 meeting all gradation requirements 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 cases requiring use of dual symbols
SC	Atterberg limits above "A" 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 ..... GW, GP, SW, SP  
 More than 12 percent ..... GM, GC, SM, SC  
 5 to 12 percent ..... Borderline cases requiring dual symbols

### PLASTICITY CHART

