## APPENDIX 2: SOIL BORING REPORT –

## BRITTINGHAM PARK ACCESSIBLE PLAYGROUND PROJECT AREA

This soil boring summary and geotechnical report are intended to provide assistance in bidding by the Contractor.

The Contractor shall refer to the site plan in Contract 7927, 2017 Brittingham Park Accessible Playground for project location relative to the soil boring information shown.


**Time:** 9/28/2016 1:31:47 PM
**Session:** C:\Users\pakik\Desktop\GT viewer.gts
***City of Madison, WI - GIS/Mapping data***

GENERAL MAP- BRITTINGHAM PARK FACILITY

*Printed By: pakik*
*Disclaimer: The City makes no representation about the accuracy of these records and shall not be liable for any damages*


BRITTINGHAM PARK FACILITY - BORING LOCATION MAP

# LOG OF TEST BORING

CGC Inc.

Project: Brittingham Park Facility
829 W. Washington Avenue
Location: Madison, WI

Boring No. 1
Surface Elevation (ft) 849±
Job No. C16051-22
Sheet 1 of 1

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

| SAMPLE No. | TYPE | Rec (in.) | Moist | N | Depth (ft) | VISUAL CLASSIFICATION and Remarks | qu (qa) (tsf) | W | LL | PL | LI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 4 in. ± Asphalt Pavement | | | | | |
| 1 | | 15 | M | 10 | | Loose to Medium Dense, Brown/Black Silty Fine to Coarse SAND, Some Gravel, Numerous Silt Seams (SM - Possible Fill) | | | | | |
| 2 | | 4 | M/W | 4 | ▽ | Very Loose to Loose, Dark Gray Silty Fine to Medium SAND, Little Gravel, Scattered Organic Seams (SM) | | | | | |
| | | | | | 5 | | | | | | |
| 3 | | 3 | W | 4 | | Very Loose to Loose, Gray to Brown Silty Fine to Coarse SAND, Trace Gravel (SM) | | | | | |
| 4 | | 10 | W | 6 | | Stiff to Very Stiff, Gray Silty to Lean CLAY (CL-ML/CL) | (1.5-3.25) | | | | |
| | | | | | 10 | | | | | | |
| | | | | | | Medium Stiff to Stiff, Brown Silty CLAY (CL-ML) | | | | | |
| 5 | | 18 | W | 5 | | | (0.75-1.25) | | | | |
| | | | | | 15 | End Boring at 15 ft<br>Borehole backfilled with bentonite chips | | | | | |
| | | | | | 20 | | | | | | |

## WATER LEVEL OBSERVATIONS

While Drilling ▽ 4.1' Upon Completion of Drilling ______
Time After Drilling 0.5 HR
Depth to Water
Depth to Cave in

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

## GENERAL NOTES

Start 10/31/16 End 10/31/16
Driller SE Chief DAP Rig 7822DT
Logger DAP Editor TFG
Drill Method 2.25" HSA; Automatic Hammer

# LOG OF TEST BORING

CGC Inc.

| | |
|---|---|
| Project | Brittingham Park Facility |
| | 829 W. Washington Avenue |
| Location | Madison, WI |

| | |
|---|---|
| Boring No. | 2 |
| Surface Elevation (ft) | 849.5± |
| Job No. | C16051-22 |
| 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. | TYPE | Rec (in.) | Moist | N | Depth (ft) | | qu (qa) (tsf) | W | LL | PL | LI |
| | | | | | | 16 in. ± TOPSOIL (OL) | | | | | |
| 1 | | 4 | M | 4 | | Very Loose to Loose, Brown Silty Fine to Medium SAND, Little Clay, Trace Gravel, Scattered Thin Silt Seams (SM-Possible Fill) | | | | | |
| 2 | | 13 | M/W | 2 | ▽ | Very Loose, Brown/Gray Silty Fine to Mediumm SAND, Some Clay, Trace Gravel, Scattered to Numerous Organic Pockets (SM-SC) | | | | | |
| | | | | | 5 | | | | | | |
| 3 | | 10 | W | 3 | | Very Loose, Gray Silty to Clayey Fine to Medium SAND (SM-SC) with Brown Silty Clay Seams | | | | | |
| 4 | | 10 | W | 5 | | Medium Stiff, Grayish-Brown Silty CLAY (CL-ML) | (0.5-1.0) | | | | |
| | | | | | 10 | | | | | | |
| 5 | | 14 | W | 7 | | Thin Gray Silt Seams Near 14 ft | (0.75-1.0) | | | | |
| | | | | | 15 | End Boring at 15 ft<br>Borehole backfilled with bentonite chips | | | | | |
| | | | | | 20 | | | | | | |

## WATER LEVEL OBSERVATIONS

| | | | | | |
|---|---|---|---|---|---|
| While Drilling | ▽ 4.4' | Upon Completion of Drilling | | | |
| Time After Drilling | 0.5 HR | | | | |
| Depth to Water | | | | | ▼ |
| Depth to Cave in | | | | | |

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

## GENERAL NOTES

| | | | | | |
|---|---|---|---|---|---|
| Start | 10/31/16 | End | 10/31/16 | | |
| Driller | SE | Chief | DAP | Rig | 7822DT |
| Logger | DAP | Editor | TFG | | |
| Drill Method | 2.25" HSA; Automatic Hammer | | | | |

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 | 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 | $q_u$-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

$q_a$ – Penetrometer Reading, tons/sq ft
$q_a$ – 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) | | |
| | | Clean Gravels (Less than 5% fines) |
| **GRAVELS** More than 50% of coarse fraction larger than No. 4 sieve size | 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 |
| | | Clean Sands (Less than 5% fines) |
| **SANDS** 50% or more of coarse fraction smaller than No. 4 sieve size | 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 |

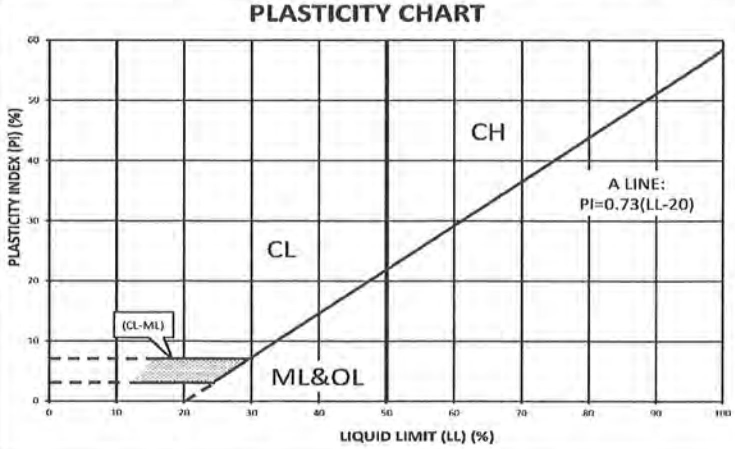
## LABORATORY CLASSIFICATION CRITERIA

| | | |
|---|---|---|
| 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 limts 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 limts 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



# APPENDIX C
# DOCUMENT QUALIFICATIONS

## I. GENERAL RECOMMENDATIONS/LIMITATIONS

CGC, Inc. should be provided the opportunity for a general review of the final design and specifications to confirm that earthwork and foundation requirements have been properly interpreted in the design and specifications. CGC should be retained to provide soil engineering services during excavation and subgrade preparation. This will allow us to observe that construction proceeds in compliance with the design concepts, specifications and recommendations, and also will allow design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction. CGC does not assume responsibility for compliance with the recommendations in this report unless we are retained to provide construction testing and observation services.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and no other warranties are expressed or implied. The opinions and recommendations submitted in this report are based on interpretation of the subsurface information revealed by the test borings indicated on the location plan. The report does not reflect potential variations in subsurface conditions between or beyond these borings. Therefore, variations in soil conditions can be expected between the boring locations and fluctuations of groundwater levels may occur with time. The nature and extent of the variations may not become evident until construction.

## II. IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes. While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

### READ THE FULL REPORT

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

### A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *CGC cannot accept responsibility or liability for problems that occur because our reports do not consider developments of which we were not informed.*

### SUBSURFACE CONDITIONS CAN CHANGE

A geotechnical engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

### MOST GEOTECHNICAL FINDINGS ARE PROFESSIONAL OPINION

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ - sometimes significantly - from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

## A REPORT'S RECOMMENDATIONS ARE NOT FINAL

Do not over-rely on the confirmation-dependent recommendations included in your report. *Those confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *CGC cannot assume responsibility or liability for the report's confirmation-dependent recommendations if we do not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

## A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical engineering report. Confront that risk by having CGC participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

## DO NOT REDRAW THE ENGINEER'S LOGS

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

## GIVE CONSTRUCTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

## READ RESPONSIBILITY PROVISIONS CLOSELY

Some clients, design professionals, and constructors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineer's responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

## ENVIRONMENTAL CONCERNS ARE NOT COVERED

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

## OBTAIN PROFESSIONAL ASSISTANCE TO DEAL WITH MOLD

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

## RELY ON YOUR GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE

Membership in the Geotechnical Business Council (GBC) of Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with CGC, a member of GBC, for more information.

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Geotechnical Business Council
of the Geoprofessional Business Association
8811 Colesville Road, Suite G 106
Silver Spring, MD 20910

## Kane, Kathleen

**From:** Lerner, Sarah
**Sent:** Wednesday, November 23, 2016 8:48 AM
**To:** Kane, Kathleen; Sturm, Michael
**Subject:** FW: Brittingham Park Facility
**Attachments:** Brittingham Park Facility Borings.zip

**Sarah Lerner, LEED AP, RLA**
Landscape Architect
City of Madison Parks Division
City-County Building, Rm 104
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703-3342
slerner@cityofmadison.com
T: 608.261.4281

Like us on Facebook. Follow us on Twitter @PlayMadison.

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**From:** Mike Schultz [mailto:mschultz@cgcinc.net]
**Sent:** Wednesday, November 23, 2016 8:46 AM
**To:** Lerner, Sarah
**Subject:** Brittingham Park Facility

Sarah –

At your request, CGC completed two soil borings where playground facilities are planned in Brittingham Park. We understand that the facilities will utilize concrete footings founded at a 4-ft frost depth. The borings were done by Soil Essentials (under subcontract to CGC) on October 31, 2016 at the locations selected by City of Madison personnel (location maps attached), with the borings field staked by CGC. The soil profile observed at the borings revealed about 4-in. of asphalt pavement (Boring 1) or 16-in. of topsoil (Boring 2) underlain by generally very loose to loose sands that contained varying percentages of silt and gravel, followed by medium stiff to very stiff clays to the maximum depths explored. Groundwater was encountered at a depth of 4.1 to 4.4 ft shortly after drilling completion, which corresponds to an elevation of about EL 845 (USGS Datum) based on an estimated DCi ground surface elevation interpolation of EL849 to 849.5+/-. Note that the observed water level in the borings is about 1 ft lower than the recorded water level for nearby Lake Monona of EL 846.04.

In our opinion, the observed granular soils at a minimum footing depth of 4 ft (for frost protection) are acceptable for support of foundations designed for a maximum design soil bearing pressure of 1000psf. Foundations should be a minimum of 18-in. wide for strip footings and 30-in. square for column pads. Footing subgrades should be cut with a smooth-edged bucket IN CONJUNCTION WITH NECESSARY DEWATERING TO CONDUCT FOOTING CONSTRUCTION "IN THE DRY". Note that sumps are typically acceptable for drawdowns of about a foot, with means and methods the contractor's responsibility. We recommend that a 3-in. concrete mud mat or at least 6-in. of compacted clear stone be placed IMMEDIATELY below footing subgrade after footing excavations are complete and checked by CGC. If loose areas are detected, extra stone or concrete will be required. To minimize the dewatering effort, possibly one could consider final grades in the area being raised by placing fill prior to facility construction. Provided that the above recommendations are implemented, it is our opinion that potential settlements will not exceed typical tolerable levels of 1-in. total and 0.5-in. differential.

If slabs are to be built for the facilities, they can be founded on re-compacted sands (after topsoil removal at B-2) and designed assuming a subgrade modulus of 100 pci. Bedding material should be placed below the slab involving 4 to 6-in. of granular soils having a P200 content of less than 5%. If asphalt pavement is to be used, we recommend it be 3-in. thick underlain by 8-in. of compacted base course. Additional details can be provided upon request.

We trust this brief report addresses your present needs. Please contact CGC if we can be of further service or should questions develop upon review of this transmittal. Information regarding limitations pertaining to opinions presented in this submittal is attached. Thank you.

Michael N. Schultz, P.E.
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Madison, WI 53713
Phone: 608-288-4100
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Cell: 608-712-0571
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CGC, Inc.
Celebrating 20 Years
1994–2014

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