CORDOGAN CLARK

ARCHITECTURE ▪ ENGINEERING ▪ CONSTRUCTION

ARCHITECT'S ADDENDUM

Addendum Number: 001

Date: December 23, 2019
Prepared By: Brian Kronewitter
Cordogan Clark & Associates

RE: Kane County Multi-Use Facility
CCA Project No.: 19348

To: Prospective Bidders

Subject: Addendum No. 001 to the Construction Documents for the Kane County Multi-Use Facility (MUF) project.

This Addendum forms a part of the Construction Documents and modifies the original Construction Documents, dated December 16, 2019. Acknowledge receipt of this Addendum in space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

THE FOLLOWING ITEMS ARE TO BE INCLUDED IN THE PROPOSAL.

General Information & Responses to Bidder Questions:
:

a. A pre-bid conference took place on 12/23/19 at 10:00 a.m. at the Juvenile Justice Center. The sign-in sheets and agenda have been provided with this addendum.
b. Brian Kronewitter provided an overview of the agenda highlighting key components of the project and rempasized the Value Engineering component of the Voluntary Alternates section.
c. It was emphasized that ALL questions be emailed to Cordogan Clark to Brian's attention at bkronewitter@cordoganclark.com. Answers will be provided by addendum. The next schedule addendum #2 for technical questions will be issued on December 30, 2019.
d. It was noted that the Salt Dome and Fueling Station will be part of this Contract and specifications will be provided in Adendum #2.
e. A question was raised regarding the Freezer/Cooler specifications and Autopsy tables. The specifcations of the Freezer & Cooler and any GC provided specialty equipment for thw Coroner/Morgue will be clarified & confirmed in Addendum #2.
f. It was noted that there is an existing construction entrance that was buildt during the Jail construction project that has an entry off of Peck Road. This construction entry can be re-used and modified as needed to allow construction access to the new MUF construction site.
g. It was asked IF the soil borings (Geotech Report) would be provided. See attached Geotech Report

End Of Addendum No. 001

Meeting Attendance Record

Project: KANE COUNTY MULTI-USE FACILITY

Date: 12/23/19 **Time:** 10:00

CORDOGAN CLARK
ARCHITECTURE • ENGINEERING • CONSTRUCTION

ATTENDANCE RECORD

ATTENDEE	ORGANIZATION	CELL PHONE	EMAIL
Ashlee Dameron	George Sollitt	630.860.7333	estimating@sollitt.com
JEFF WISE	SCHRAMM CONSTRUCTION	630 669 3625	JWISE@SCHRAMMCONSTRUCTION-CO.COM
SHANNON ERICKSON	OSMAN CONSTRUCTION	847 502-5780	shannon.erickson@osmanconstruction.com
Jacob Smith	Siemens	224-200-9419	jacob.smith@siemens.com
MIKE MUELLER	R.L. SCHOLL G.C.	815-436-1177	PMATZEN@RLSCHOL.COM
Matthew Mueller	CTVeach Construction	6182034089	mattmueller@ctveach.net
FRED MARANO	FQC	630-628-2500	Fmarano@fquinncorp.com
JOHN BOSMAN	CAMOSY CONSTR.	847-800-7097	JohnBosman@CAMOSY.COM
BOB CALEO	OLD VETERAN CONSTR/DRIVE CONSTR	630-696-7233	bcaleo@driveconstruction.com
BILL VOLTZ	ANTHONY ROOFING	815751-6789	bvoltz@anthonyroofing.com
Dennis Dowling	INTERSTATE ELECTRONICS	7089150810	DDowling@IECUSA.com
Chris Sokacz	M.I. Co	630 590 8345	CSokacz@m.idosystems.com
Joe Maiorana	J+K Const LLC	847-774-0452	jmaiorana@jkconstruction.com
Shawn Perkins	A.L.L. Masonry Const.	312-965-8338	sperkins@allconstructiongroup.com
Kevin Theis	DAI Scientific/Mopec	847-778-6114	Kevin.theis@daiscientific.com
George Sotos	Structures Const.	773-808-3917	gs@struxc.com
Sean Altenburg	Construction Solutions	708 2390001	BIDS@CSOFI.com
Rob Craig	BLADE	815-519-8708	Rob@blade-electric.com
Brandon Scheffler	Scheffler Electric	224-402-7528	bscheff20@gmail.com
MIKE SCHRADER	L.J. MORSE	630-723-3553	BIDS@LJMORSECO.COM
TOM CLARKE	F.H. PASCHEN	312-339-8003	TCLARKE@FHPASCHEN.COM
STEVE KAMPSCHROER	TROUP CONTRACTING	815-222-4953	STEVE@TROUPCONTRACTING.com
Jake Ghinazzi	G's R Plumbing	779-970-0124	jake@gsrplumbing.com
Stephen Sudley	AEA Electrical Contracting	281.786.7045	Ssudley@aeaenergy.com
Ben Richmond	AEA Electrical Contracting	815.899.3866	Sdudley@aeaenergy.com
Doug Harmon	Stenstrom	815-398-6250	dough@Rstenstrom.com
James W. Burke	Burke Plumbing Inc	708-597-9663	jburke@burkeplumbing.com
MICHELE DVORAK	SWEDBERG + ASSOC	815.895.9116	mdvorak@swedbergs.com
Doug Bohr	R.C. Wegman	6307795819	dougb@rcwegman.com

OVER →

Tim Campbell	Lake Construction Inc	630-896-7220	tim@lakeconstruction.com
Alex Eickenberg	Simplex - Johnson Controls	(224) 238-0087	alex.eickenberg@jci.com
Laura Meyer	Correct Electric Inc.	815-496-3000	laura@correct-electric.us
Jay Frazier	Mechanical Inc	815-238-3808	jfrazier@mechinc
Sam Aiuppa	Matrix Coating Solutions	630-478-1917	S.Aiuppa@matrixcoating.com
Joslyn Paredes	Industria Inc.	312.485.4737	Joslyn@industriainc.com
Chris Salomon	Carlson Const	Csalomon@Carlson-Construction.net 7087709466	

1. DIVISION 00
    a. Bids are due January 16, 2020 at 2:00 PM at the Kane County Purchasing Department, Building A, Room 210, 719 S. Batavia Ave., Geneva, IL.
    b. 5% Bid Bond or Cashier's Check made payable to Kane County Treasurer is required with the sealed bid. Money Orders or Company checks will not be accepted. 100% Performance & Payment Bonding Required
    c. Offer to Contract Bid Forms must be completely filled out (typewritten or in ink) and fully attached. Complete Relevant Experience Verification Form in whole. The Offer to Contract Bid Form shall be submitted, in triplicate with ***ONE ORIGINAL (CLEARLY MARKED), TWO COPIES (CLEARLY MARKED).***
    d. This Project is exempt from Taxes.
    e. Each bidder shall carefully examine all bid documents and all addenda thereto, and shall thoroughly familiarize themselves with the detailed requirements thereof prior to submitting a proposal. Should a bidder find discrepancies or ambiguities in, or omissions from documents, or should they be in doubt as to their meaning, they shall, at once, and in any event, not later than 72 hours prior to bid due date, notify the County of Kane, who will, if necessary, send written addendum to all bidders. The County of Kane shall not be responsible for any oral instructions. After sealed bids are received, the bidder will make no allowance for oversight.
    f. Contractor Qualifications – AIA A-305 Contractor Qualification Form must be filled out in its entirety and duly executed.
    g. Owner may deny qualification if it finds one or more of the following:
        1. The Prospective Bidder does not have sufficient financial capacity to perform the Work.
        2. The Prospective Bidder does not have the appropriate experience or reputation to perform the Work, including, but not limited to, having met the experience or reputation criteria set forth herein.
        3. The Prospective Bidder or any officer, director, or owner thereof has had judgments entered against him within the past five years for the breach of contracts for governmental or nongovernmental construction work including, but not limited to, design-build or construction management contracts.
        4. The Prospective Bidder has been in substantial noncompliance with the terms and conditions of prior construction with Owner, or in documented substantial noncompliance with the terms and conditions of prior construction with another public body without good cause.
        5. The Prospective Bidder or any officer, director, owner, or chief financial official thereof has been convicted within the past 10 years of a crime related to governmental or nongovernmental construction or contracting.
        6. The Prospective Bidder or any officer, director, or owner thereof is currently debarred pursuant to an established debarment procedure from bidding or contracting by any public body, agency of another state, or agency of the Federal Government.
        7. The Prospective Bidder failed to provide to the public body in a timely manner any information required by the public body relevant to the six preceding subparagraphs.

8. The Prospective Bidder provides false, nonresponsive, misleading, or incomplete information for items required herein.

h. Insurance Requirements as noted in the Specifications
i. This is a Prevailing Wage Project – Rates included in the Specs
j. Evaluation Criteria for Award:
   i. The ability, capacity and skill of the bidder to perform services or provide the goods required.
   ii. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference.
   iii. The character, integrity, reputations, judgment, experience and efficiency of the bidder.
   iv. The quality of performance of previous contracts or services.
   v. The previous and existing compliance by the bidder with laws and ordinances relating to the contract or service.
   vi. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service.
   vii. The quality, availability and adaptability of the supplies, or services to the particular use required by the Owner.
   viii. The combination of the base bid & defined alternates plus potential acceptable alternates will become part of the matrix to define the lowest responsive & responsible bidder, along with the defined evaluation criteria in the bid documents. Provide adequate information related to the Value Engineering voluntary alternates so they can be properly evaluated.
k. Award of the Bid is expected to occur at the March 2020 County Board Meeting
l. AIA General Conditions of the Contract Sample included in the Specifications
m. Project Logistics & Schedule: (Notice to Proceed estimated date: March 10, 2020,
   i. Project Start Date: March 15, 2020
   ii. Substantial Completion Date: March 15, 2021
n. SCHEDULE DEVELOPMENT:
   i. All work shall be performed during normal working hours unless disruptive activities that create parking or access challenges beyond what was anticipated. If such activities arise, the contractor shall coordinate completion of those activities with the Owner and Architect. Weekend hours must be coordinated with the Owner and Architect
   ii. All contractors will be required to collaborate with the Owner and Architect in developing and maintaining the Master Schedule. Contractors will provide schedule information in a timely manner so that the work of other trades can progress without delay or interruption.

2. DIVISION 01

   Section 000500 – Supplementary Conditions

   Article 1.2.3 – Should discrepancies appear among the Contract Documents or between the Contract Documents and existing conditions, the Contractor shall request an interpretation from the Architect before bidding. If the Contractor fails to make such request, it is presumed that both provisions were included in the bid and the Architect shall determine which of the conflicting requirements shall

govern. The contractor shall perform the Work at no additional cost to the Owner in accordance with the Architect's determination. Where conflicts exist between or within the Contract Documents or between the Contract Documents and applicable standards, codes ordinances or manufacturer's recommendations, and clarification has not been requested from the Architect prior to bidding as provided for above, the more stringent or higher quality standard shall prevail. Large scale drawings shall take precedence over small scale drawings, figured dimensions on the drawing over scales dimensions and noted material over graphic representations.

3. ALTERNATES

- ADD / DEDUCT ALTERNATE #1 – Expansion of Detention Basin
- DEDUCT ALTERNATE #2 – Exterior Finish Option 1
- DEDUCT ALTERNATE #3 – Exterior Finish Option 2
- DEDUCT ALTERNATE #4 – Interior Traffic Floor Finish Option
- DEDUCT ALTERNATE #5 – Embedded Electrical in Precast Option
- DEDUCT ALTERNATE #6 - Acoustical Deck Option 1
- DEDUCT ALTERNATE #7 – Acoustical Deck Option 2
- DEDUCT ALTERNATE #8 – Roofing Membrane Option
- DEDUCT ALTERNATE #9 – Exposed Structural Finish

4. VOLUNTARY ALTERNATES:

CONTRACTORS ARE ENCOURAGED TO SUBMIT VOLUNTARY VALUE ENGINEERING(VE) ALTERNATES THAT WILL BE EVALUATED BY THE ARCHITECT AND SELECTION COMMITTEE OF KANE COUNTY. THESE VE OPTIONS WILL BE REVIEWED AND ANALYZED TO DETERMINE THEIR IMPACTS ON QUALITY, PROGRAM & AESTHETIC IMPACTS. THE COMBINATION OF THE BASE BID & DEFINED ALTERNATES PLUS POTENTIAL ACCEPTABLE ALTERNATES WILL BECOME PART OF THE MATRIX TO DEFINE THE LOWEST RESPONSIVE & RESPONSIBLE BIDDER, ALONG WITH THE DEFINED EVALUATION CRITERIA IN THE BID DOCUMENTS. PROVIDE ADEQUATE INFORMATION RELATED TO THE VE ALTERNATES SO THEY CAN BE PROPERLY EVALUATED.

5. Bid Form Items
   i. Allowance #1 – Provide SF cost for 5,900 SF of Moisture Mitigation in Base Bid and the cost per SF for this work
   ii. Allowance #2 – Provide a $5,000 allowance for access doors and frames
   iii. Unit Prices: Bidder is also required to email the Schedule of Values as required in the specifications in Microsoft Excel (.XLS) electronic format following the bid opening when requested by the Architect so that a comprehensive Scope Review can be performed with the lowest responsive and responsible Bidder(s). Email file to bkronewitter@cordoganclark.com.
6. Open Forum for Questions

Construction & Geotechnical Material Testing, Inc.

60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

August 14, 2019

Brian K. Kronewiter, AIA, DBIA
Cordogan Clark & Associates
960 Ridgeway Avenue
Aurora, Illinois 60506

CGMT Project No. 19G0333

Reference: ***Report of Subsurface Exploration and Geotechnical Engineering Services, Proposed Kane County Multi-Use Facility, 37W655 Illinois 38, St. Charles, Illinois***

Dear Mr. Kronewiter:

CGMT, Inc. has completed the subsurface exploration and geotechnical engineering analyses for the proposed Kane County Multi-Use Facility to be located at 37W655 Illinois 38, in St. Charles, Illinois. This report describes the subsurface exploration procedures, laboratory testing, and geotechnical recommendations for project construction. A Boring Location Plan is included in the Appendix of this report along with the Boring Logs performed for the exploration.

We appreciate this opportunity to be of service to the Cordogan Clark & Associates during the design phase of this project. If you have any questions with regard to the information and recommendations presented in this report, or if we can be of further assistance to you in any way during the planning or construction of this project, please do not hesitate to contact us.

Respectfully,

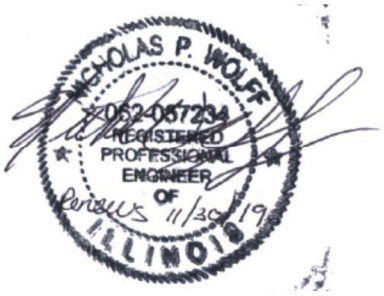
CONSTRUCTION AND GEOTECHNICAL MATERIAL TESTING, INC.

Pratik Patel, P.E.
Vice President

3pc: Encl.

REPORT OF

SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING SERVICES



KANE COUNTY MULTI-USE FACILITY
37W655 ILLINOIS 38
ST. CHARLES, ILLINOIS

CGMT PROJECT NO. 19G0333

FOR

CORDOGAN CLARK & ASSOCIATES
AURORA, ILLINOIS

AUGUST 14, 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Construction & Geotechnical Material Testing, Inc. (CGMT) has completed your subsurface exploration and geotechnical engineering project. The subsurface conditions encountered during our exploration and CGMT's conclusions and recommendations are summarized below. This summary should not be considered apart from the entire text of the report with all the qualifications and considerations mentioned herein. Details of our conclusions and recommendations are discussed in the following sections and in the Appendix of this report.

The project site is located at 37W655 Illinois 38 in St. Charles, Illinois. A total of thirty-seven (37) exploratory borings, B-1 through B-11, B-21 through B-31, and P-1 through P-15, were performed for this project. The soil conditions encountered at the borings performed at the site are summarized as follows.

Topsoil thicknesses at the boring locations ranged from approximately 12 inches to 3½ feet, with an average thickness of approximately 16.2 inches. Beneath the topsoil, the borings generally encountered brown and dark brown silty clay fill soils that extended to depths of approximately 3½ to 8½ feet below the existing ground surface. In Boring B-10, a layer of very soft, sandy clay fill was encountered between depths of approximately 6 to 8 ½ feet below existing grade. The fill soils in the borings were underlain by natural, brown and gray stiff to hard silty clay soils that extended to the boring termination depths of approximately 10 to 15 feet below existing grade. Boring B-3 encountered a layer of black, very stiff partly organic silty clay between depths of approximately 14 to 15 feet below grade.

The existing fill soils exhibited moisture content and dry density values that were not indicative of an appropriate degree of compactive effort. **As such, CGMT does not recommend support of buildings above elements of existing fill.** Within building areas, the existing fill soils, encountered to depths of approximately 3½ to 8½ feet below existing grade, should be completely removed to the depth encountered from building areas, and replaced with new engineered fill.

In pavement areas, the most prudent approach would also consist of complete removal of existing fill soils and replacement with new engineered fill. However, complete removal and replacement may be considered cost prohibitive. If Kane County is willing to accept some risk of total and differential settlement and associated long term maintenance, the existing fill material similar to those encountered in the borings extending to depths of approximately 3½ to 8½ feet below the surrounding grade may remain in place below pavements but the subgrade must pass a proofroll under the observation of a CGMT geotechnical engineer or soils technician. At a minimum, the upper 2 feet of existing fill soils should be completely removed from pavement areas and replaced with engineered, granular fill. **However, if Kane County is unwilling to accept the risk, then the existing fill soils should be completely removed and replaced with new engineered fill.**

As discussed in the **Site Preparation** section, CGMT anticipates existing fill soils will be removed from building areas and replaced with new, properly compacted engineered fill. Based on the anticipated structural loading and subsurface conditions, conventional shallow foundation systems consisting of spread and/or continuous footings bearing on the natural, stiff to hard silty clay or new engineered fill is considered feasible and appropriate to support the proposed warehouse buildings. **Building foundations shall not bear on existing fill soils.** For footings bearing at depths of approximately 3½ feet below grade on natural, stiff to hard silty clay or new, properly compacted, engineered fill, we recommend a maximum net allowable soil bearing pressure of 3,000 psf be used to proportion the footings.

We recommend that the excavation of building foundations be monitored full-time by a CGMT geotechnical engineer or his representative to verify that the exposed subgrade materials and the soil bearing pressure will be suitable for the proposed structure.

Report Prepared By:

Nicholas Wolff

Nicholas P. Wolff, P.E.
Geotechnical Engineer

Report Reviewed By:

Pratik Patel

Pratik Patel, P.E.
Vice President

PROJECT OVERVIEW

Introduction

This report presents the results of our subsurface exploration and engineering services for the proposed multi use facility in St. Charles, Illinois. A General Location Plan included in the Appendix of this report, shows the approximate location of this project.

Project Description

ITEM	DESCRIPTION
Site Layout	See Boring Location Diagram in the Appendix
Proposed Construction	We understand the project will consist of construction of two single-story, slab on grade warehouse facilities, each covering approximately 50,000 square feet of plan area as well as parking lots for passenger vehicles.
Structural Loads	Max. column loads: 150 kips (Assumed), Max. wall loads: 4 kips per lineal foot
Grading and Existing Site Considerations	CGMT anticipates the site will be leveled for building pads and adjacent pavements. CGMT anticipates maximum cuts and fills of approximately 8 to 10 feet will be needed to establish site grades. ***CGMT should be provided grading plans once completed to verify the recommendations in this report.***

Scope of Work

The conclusions and recommendations contained in this report are based on the soil borings performed in the vicinity of the proposed building and pavement areas, and associated laboratory testing of selected soil samples. The scope of the subsurface exploration included the following.

Number of Borings	Depth (feet)
22	15
15	10

The results of the soil borings, along with a Boring Location Plan showing the approximate locations where the borings were performed, are included in the Appendix of this report. Once the samples were returned to our laboratory we laboratory tests on selected representative soil samples from the borings to evaluate pertinent engineering properties, and, we analyzed the field and laboratory data to develop appropriate engineering recommendations.

The purpose of this report is to provide information and geotechnical engineering recommendations with regard to:

- Subsurface Soil and Groundwater Conditions
- Site Preparation and Earthwork
- Foundation Design and Construction
- Floor Slab Design and Construction
- Pavement Design and Construction

EXPLORATION RESULTS

Site Description

ITEM	DESCRIPTION
Project Locations	The project site is located at 37W655 Illinois Route 38 in St. Charles, Illinois.
Existing Site Improvements	At the time of our visit, the project site was a vacant parcel covered with topsoil. Several sparsely spaced trees were present in the central portion of the site.
Existing Topography	Topographically, the site was rolling with an overall slope down from the north to the south. Site grades across planned development areas ranged from Elevation 787 feet down to Elevation 758.

FEMA Flood Zone

CGMT consulted the FEMA flood hazard map, which indicated that the entirety of the site is located in Zone X (unshaded). Unshaded areas in Zone X are considered areas of minimal flood hazard, meaning above the 0.2-percent-annual chance flood event.

National Wetlands Inventory

CGMT consulted the National Wetlands Inventory map for the project site. Within the boundaries of the property, no registered wetlands were present. A freshwater pond is located along the northern boundary of the site.

Soil Pedology

CGMT consulted the USDA Soil Survey Map for Kane County, Illinois. A summary of the map units present across the site are summarized in the table below.

Map Unit Symbol	Map Unit Name	Acres	Percent of Area
146B	*Elliott Silt Loam* Composition: Silt Loam over Silty Clay Loam and Silty Clay Setting: Till plaines and ground moraines Slopes: 2 to 4 percent Drainage class: Somewhat poorly drained Depth to water table: 12 to 24 inches	0	0.4
223B	*Varna Silt Loam* Composition: Silt Loam over Silty Clay Loam and Silty Clay Setting: Ground moraines, end moraines Slopes: 2 to 4 percent Drainage class: Moderately well drained Depth to water table: 24 to 42 inches	2.6	33.5
223C2	*Varna Silt Loam* Composition: Silt Loam over Silty Clay Loam Setting: Ground moraines, end moraines Slopes: 4 to 6 percent Drainage class: Moderately well drained Depth to water table: 24 to 42 inches	3.7	48.0
232A	*Ashkum Silty Clay Loam* Composition: Silty Clay Loam with Silty Clay Setting: End moraines and ground moraines Slopes: 0 to 2 percent Drainage class: Poorly drained Depth to water table: 0 to 12 inches	1.4	18.0

Soil Conditions

A total of thirty-seven (37) borings, building borings B-1 through B-11 and B-21 through B-31 and pavement borings P-1 through P-15, were performed for this project. The subsurface conditions encountered at the borings performed at the site can be summarized as follows.

Topsoil thicknesses at the boring locations ranged from approximately 12 inches to 3½ feet, with an average thickness of approximately 16.2 inches. Beneath the topsoil, the borings generally encountered brown and dark brown silty clay

fill soils that extended to depths of approximately 3½ to 8½ feet below the existing ground surface. In Boring B-10, a layer of very soft, sandy clay fill was encountered between depths of approximately 6 to 8½ feet below existing grade. The fill soils in the borings were underlain by natural, brown and gray stiff to hard silty clay soils that extended to the boring termination depths of approximately 10 to 15 feet below existing grade. Boring B-3 encountered a layer of black, very stiff partly organic silty clay between depths of approximately 14 to 15 feet below grade.

SOILS	SOIL CHARACTERISTICS
Silty Clay and Sandy Clay (Fill)	Unconfined Compressive Strengths: <¼ tsf to 4½+ tsf (typically 1½ to 4½+ tsf) Dry Unit Weight: 79.0 to 111.0 pcf Moisture Contents: 14.2 to 30.5 percent
Silty Clay (Natural)	Unconfined Compressive Strengths: 1 to 4½+ tsf (typically 2½ to 4½+) Moisture Contents: 10.7 to 28.3 percent (typically 15 to 19 percent)

The specific soil types observed at the borings are noted on the boring logs, enclosed in the Appendix.

Groundwater Observations

Observations for groundwater were made during sampling and upon completion of the drilling operations at the boring locations. In auger drilling operations, water is not introduced into the boreholes, and the groundwater position can often be obtained by observing water flowing into or out of the boreholes. Furthermore, visual observation of the soil samples retrieved during the auger drilling exploration can often be used in evaluating the groundwater conditions. Groundwater levels were observed during drilling and immediately the completion of drilling. Groundwater measurements are summarized in the table below.

BORINGS	GROUNDWATER LEVELS (FEET)	
	DURING DRILLING	IMMEDIATELY AFTER COMPLETION
B-30	9	3
B-3, B-10, B-11, and B-22	6 to 13½	None
Other Borings	None	None

Glacial till soils in the Midwest frequently oxidize from gray to brown above the level at which the soil remains saturated. The long-term groundwater level is often interpreted to be near this zone of color change. Based on the results of this exploration, the long-term groundwater level may be located at a depth of approximately 8½ to 13½ feet below current grade.

It should be noted that the groundwater level can vary based on precipitation, evaporation, surface run-off and other factors not immediately apparent at the time of this exploration. Surface water runoff will be a factor during general construction, and steps should be taken during construction to control surface water runoff and to remove any water that may accumulate in the proposed excavations as well as floor slab and pavement areas. Precipitation generally varies seasonally. To assist in anticipating groundwater fluctuations changes throughout the year, average monthly precipitation is provided in the table below. Average precipitation levels were obtained from WeatherDB.com.

5

Seasonal Precipitation													
Month	January	February	March	April	May	June	July	August	September	October	November	December	Total
Normal Precipitation (inches)	1.73	1.79	2.50	3.38	3.68	3.45	3.70	4.90	3.21	3.15	3.15	2.25	36.89

6
ANALYSIS AND RECOMMENDATIONS

Overview

The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, CGMT should be consulted so that the recommendations of this report can be reviewed.

A summary of the results of the exploration is provided in the table below.

Exploration Summary						
Boring	Approx. Ground Surface Elevation	Boring Depth (feet)	Topsoil Thickness (inches)	Depth to Groundwater (feet)		Approximate Depth to Soils Suitable for a Net Allowable Bearing Pressure of 3,000 psf*
				During Drilling	After Completion	
Primary Site						
B-1	769.0	15	16	None	None	3.5
B-2	768.5	15	16	None	None	3.5
B-3	770.5	15	14	6	None	3.5
B-4	770.5	15	13	None	None	3.5
B-5	765.0	15	14	None	None	3.5
B-6	766.0	15	16	None	None	3.5
B-7	765.5	15	17	8.5	None	3.5
B-8	763.0	15	16	None	None	3.5
B-9	762.0	15	16	None	None	3.5
B-10	761.5	15	3.5 feet	6	None	8.5
B-11	761.5	15	19	11	None	3.5
Secondary Site						
B-21	771.0	15	10	None	None	6
B-22	778.0	15	13	13.5	None	3.5
B-23	773.0	15	22	None	None	3.5
B-24	770.5	15	19	None	None	3.5
B-25	767.5	15	12	None	None	3.5
B-26	769.5	15	14	None	None	3.5
B-27	768.5	15	14	None	None	3.5
B-28	763.5	15	16	None	None	3.5
B29	766.5	15	14	None	None	3.5
B-30	766.5	15	12	9	3	8.5
B-31	766.0	15	12	None	None	3.5

* To be used a minimum of 3½ feet below adjacent outside grade.

Exploration Summary (Continued)						
Boring	Approx. Ground Surface Elevation	Boring Depth (feet)	Topsoil Thickness (inches)	Depth to Groundwater (feet)		Approximate Depth to Soils Suitable for a Net Allowable Bearing Pressure of 3,000 psf*
				During Drilling	After Completion	
Pavement Areas						
P-1	769.5	10	16	None	None	N/A
P-2	772.0	10	14	None	None	N/A
P-3	787.0	10	14	None	None	N/A
P-4	773.0	10	14	None	None	N/A
P-5	771.5	10	15	None	None	N/A
P-6	773.5	10	18	None	None	N/A
P-7	775.0	10	14	None	None	N/A
P-8	767.0	10	16	None	None	N/A
P-9	764.5	10	12	None	None	N/A
P-10	760.5	10	14	None	None	N/A
P-11	760.5	10	14	None	None	N/A
P-12	760.0	10	3.5 feet	None	None	N/A
P-13	763.0	10	12	None	None	N/A
P-14	759.0	10	12	None	None	N/A
P-15	760.0	10	17	None	None	N/A

Subgrade Preparation and Engineered Fill

Subgrade Preparation

Initial subgrade preparation should consist of complete stripping/removal of topsoil, asphalt pavement course, existing base course materials, vegetation, and any other soft or unsuitable/deleterious materials from the location of the new warehouse structure, as well as, pavement areas. Root systems of existing trees shall be satisfactorily grubbed. Unsuitable materials, such as topsoil/buried topsoil or organic soils, should either be stockpiled for later use in landscaping fills or placed in approved disposal areas either on-site or off-site.

Due to the widely spaced distribution of borings combined with the potential for soil disturbance, the accuracy of topsoil thicknesses based upon measurements at the boring locations is limited. In addition, the density of the surface soils also may impact the measured topsoil thickness. As such, the thicknesses reported on the boring logs should be considered approximate. To provide improved estimates for stripping volumes, CGMT recommends a supplemental topsoil survey be performed.

We recommend that the project geotechnical engineer or his representative should be on site to monitor stripping and site preparation operations and observe that unsuitable soils have been satisfactorily removed and to observe proofrolling.

The presence of field tiles should be considered when developing plans and specifications. Where field tiles are encountered, we recommend that they be rerouted to a storm sewer system or properly abandoned upgradient from the site. Field tiles in new building and pavement areas should be removed or grouted.

Existing utilities should be abandoned and relocated, and associated structures and backfill materials should be removed from proposed building areas unless they are planned to remain in service for the new warehouse facility. Prior to construction, we recommend all utilities in the proposed construction areas be positively identified and marked. Those utilities that can be relocated should be relocated to the extent practical and backfilled with compacted/densified engineered fill. Abandoned utilities should be removed or grouted full with lean concrete. Excavations resulting from removal/demolition of existing utilities and other structures should be completely filled with engineered fill. Active utilities to remain in the construction areas should be exposed and protected during construction to reduce the potential for damage or interruption of service. Where existing utilities will remain under any structure, we recommend that the utility backfill be removed and replaced with controlled fill.

After removal of unsuitable/deleterious materials and stripping to the desired grade, and prior to fill placement, we recommend the stripped/exposed subgrades be observed by an experienced geotechnical engineer or his authorized representative at the time of construction in order to aid in identifying localized soft/loose or unsuitable materials which should be removed. Proofrolling using a loaded dump truck having an axle weight of at least 10 tons, may be used at this time to aid in identifying localized soft or unsuitable material which should be removed. Any soft or unsuitable materials encountered during proofrolling should be compacted in place or removed and replaced with an approved backfill compacted to the criteria given below. Prior to proofrolling, pavement and floor slab areas that will receive less than 1 foot of new fill, should be scarified to a depth of about 9 inches, moisture conditioned, and recompacted as recommended below.

The existing fill soils exhibited moisture content and dry density values that were not indicative of an appropriate degree of compactive effort. **As such, CGMT does not recommend support of buildings above elements of existing fill.** Within building areas, the existing fill soils, encountered to depths of approximately 3½ to 8½ feet below existing grade, should be completely removed to the depth encountered from building areas, and replaced with new engineered fill.

In pavement areas, the most prudent approach would also consist of complete removal of existing fill soils and replacement with new engineered fill. However, complete removal and replacement may be considered cost prohibitive. If Kane County is willing to accept some risk of total and differential settlement and associated long term maintenance, the existing fill material similar to those encountered in the borings extending to depths of approximately 3½ to 8½ feet below the surrounding grade may remain in place below pavements but the subgrade must pass a proofroll under the observation of a CGMT geotechnical engineer or soils technician. At a minimum, the upper 2 feet of existing fill soils should be completely removed from pavement areas and replaced with engineered, granular fill. **However, if Kane County is unwilling to accept the risk, then the existing fill soils should be completely removed and replaced with new engineered fill.**

In general, scarifying, drying and recompacting moderately unstable soil areas is expected to be the most economical means of improving the silty clay soils prior to final preparation of pavement and building subgrades. Alternatives for subgrade stabilization could also include undercutting a limited thickness (6 to 12 inches) of the silty clay soils followed by the addition of crushed stone or gravel to improve subgrade stability, or the incorporation of chemical additives. Chemical additives such as Portland Cement, hydrated lime or byproduct lime could also be considered. The need for and most appropriate type of stabilization required will be dependent upon soil, groundwater and weather conditions, as well as, the construction schedule and methods of construction that will be used.

During final preparation of subgrades, a smooth drum roller is often used to provide a flat surface and provide for better drainage to reduce the negative impact of rain events. Due to the relative sensitivity of the silty clay soils, we recommend that these materials be static rolled (no vibrations) to reduce the potential for subgrade soil disturbance. We also recommend crowning the subgrade to provide positive drainage off the building pad and pavement area subgrades.

Engineered Fill

Where new fill material is required for backfill or to otherwise reach the design subgrade elevation beneath slabs-on-grade and pavements, we recommend that engineered fill be used. Any soil placed as engineered fill should be an approved material, free of organic matter or debris, be a non-frost susceptible soil, and have a liquid limit and plasticity

index less than 40 and 15, respectively. The project geotechnical engineer should be consulted to determine the suitability of off-site/on-site materials for use as engineered fill, prior to use or placement. **We do not recommend the use of 3-inch stone as engineered fill to backfill undercuts, particularly under floor slabs and foundations.** Fill materials containing large voids are more susceptible to future movement that may become unstable resulting in excessive and variable settlement.

Fill should be placed in lifts not exceeding 8 inches in loose thickness, moisture conditioned to within 2 percent of the optimum moisture content, and compacted to at least 95 percent of the maximum dry density obtained in accordance with ASTM Specification D 1557, Modified Proctor Method. Fill placed below footing base elevations should be compacted to at least 95 percent of the material's modified Proctor maximum dry density (ASTM D 1557). Engineered fill placed to support foundations should extend 1 foot beyond the outside edges of the footings and from that point outward laterally 1 foot for every 2 feet of fill thickness below the footings. Laboratory proctor tests should be performed on fill materials to determine the maximum dry density and optimum moisture content. A shrinkage factor of 15 percent can be assumed for estimating earthwork quantities for bidding purposes.

We recommend suitable silty clays used to raise the grade or backfill undercuts should be compacted with a sheepsfoot roller. Granular engineered fill should be compacted with a smooth drum roller or adequate heavy vibratory plate. Moisture control during earthwork operations, including the use of disking or appropriate drying equipment and techniques, should be expected.

In-place density tests should be performed with a minimum of 1 test per 2,000 square feet of fill area for each lift of fill placed. We recommend that the placement of engineered fill be monitored full-time by CGMT representative and in-place density tests should be performed to verify the adequacy of the compaction for each lift of fill placed.

Footing Foundations

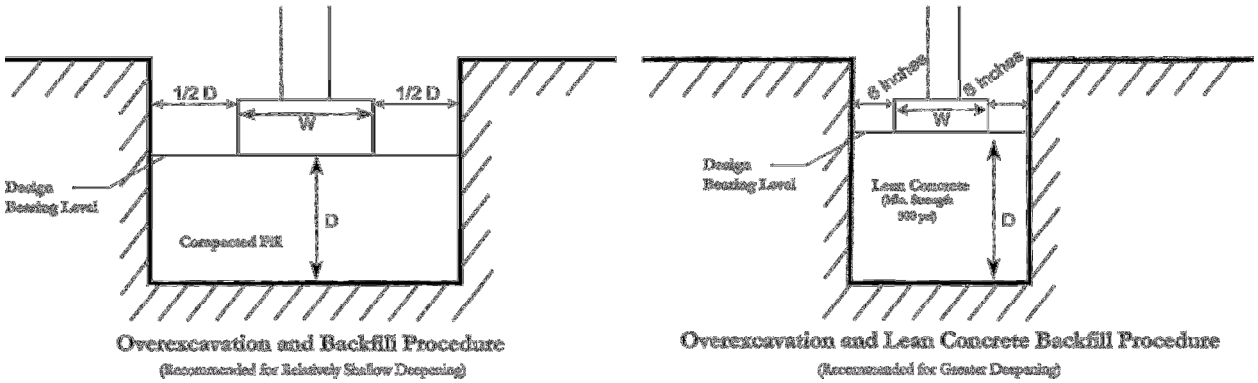
As discussed in the **Site Preparation** section, CGMT anticipates existing fill soils will be removed from building areas and replaced with new, properly compacted engineered fill. Based on the anticipated structural loading and subsurface conditions, conventional shallow foundation systems consisting of spread and/or continuous footings bearing on the natural, stiff to hard silty clay or new engineered fill is considered feasible and appropriate to support the proposed warehouse buildings. **Building foundations shall not bear on existing fill soils.** For footings bearing at depths of approximately 3½ feet below grade on natural, stiff to hard silty clay or new, properly compacted, engineered fill, we recommend a maximum net allowable soil bearing pressure of 3,000 psf be used to proportion the footings.

To reduce the potential for foundation bearing failure and excessive settlement due to local shear or "punching" action, we recommend that continuous footings have a minimum width of 18 inches and that isolated column footings have a minimum lateral dimension of 30 inches. In addition, footings should be placed at a depth to provide adequate frost cover protection. We recommend the footings be placed at a minimum depth of at least 3½ feet below finished grade. Interior footings in heated areas can be placed at a minimum of 2 feet below grade provided that suitable soils are encountered and that the foundations will not be subjected to freezing weather either during or after construction.

We recommend that the excavation of building foundations be monitored on a full-time basis by a CGMT geotechnical engineer or his representative to verify that the exposed subgrade materials and the soil bearing capacity will be suitable for the proposed buildings and is consistent with the boring log information obtained during the geotechnical exploration.

The contractor should be prepared to undercut/overexcavate and extend the footings to soils of adequate bearing capacity. As an alternative, after overexcavation and removal of weaker/low bearing capacity soils or unsuitable soils, the foundation subgrade can be raised using compacted engineered fill or lean concrete to a minimum frost depth of 3½ feet below final exterior grade. Engineered fill should be compacted to a minimum of 95 percent of the maximum dry density as discussed in the **Subgrade Preparation and Engineered Fill** section. The zone of the engineered fill placed

below the foundations should extend 1 foot beyond the outside edges of the footings and from that point, outward laterally 1 foot inches for every 2 feet of fill thickness below the footing. The overexcavation and backfill procedure is depicted in the figure below. If lean concrete is used to replace weaker/low bearing soils or unsuitable soils, no lateral overexcavation will be necessary, but the excavation should be 1 foot wider than the footing (6 inches on each side).



Settlement of the conventional shallow foundations, designed in accordance with our recommendations presented in this report, is expected to be within tolerable limits for the proposed building. For footings, placed on natural, stiff to hard silty clay or properly compacted engineered fill and designed as discussed above, maximum total settlement is expected to be in the range of 1 inch or less. These settlement values are based on our engineering experience with the soil and the anticipated structural loading, and are to guide the structural engineer with his design.

Floor Slab Design

For the design and construction of the new building slabs-on-grade for the proposed building, we recommend that all existing vegetation, pavement, topsoil or organic soils, and any unsuitable/deleterious materials should be removed and replaced with compacted engineered fill as discussed in the **Site Preparation and Engineered Fill** section. If the removal is performed in accordance with these recommendations, we anticipate floor slabs for the structures will be supported on new, properly compacted engineered fill extending down to natural silty clay (encountered to depths of approximately 3½ to 8½ feet.), or on new engineered fill.

We recommend that floor slabs be underlain by a minimum of 6 inches of granular material having a maximum aggregate size of 1½ inches and no more than 2 percent of fines. Prior to placing the granular material, the floor subgrade soil should be properly compacted, proofrolled, and free of standing water, mud, and frozen soil. For design of Portland cement concrete slabs-on-grade, a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci) can be used for slabs constructed on subgrade prepared as discussed herein.

A properly designed and constructed capillary break layer can often mitigate the need for a moisture retarder and can assist in more uniform curing of concrete. If a vapor retarder is considered to provide additional moisture protection, special attention should be given to the surface curing of the slabs to reduce uneven drying of the slabs and associated cracking and/or slab curling. The use of a blotter or cushion layer above the vapor retarder can also be considered for project specific reasons. Please refer to ACI 302.1R96 *Guide for Concrete Floor and Slab Construction* and ASTM E 1643 *Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs* for additional guidance on this issue.

We recommend that the floor slab be isolated from the foundation footings so differential settlement of the structure will not induce shear stresses on the floor slab. Also, in order to reduce the crack width of any shrinkage cracks that may develop near the surface of the slab, we recommend mesh reinforcement as a minimum be included in the design of the floor slab. Temperature and shrinkage reinforcements in slabs on ground should be positioned in the upper third of

the slab thickness. The Wire Reinforcement Institute recommends the mesh reinforcement be placed 2 inches below the slab surface or upper one-third of slab thickness, whichever is closer to the surface. Adequate construction joints, contraction joints and isolation joints should also be provided in the slab to reduce the impacts of cracking and shrinkage. Please refer to ACI 302.1R96 *Guide for Concrete Floor and Slab Construction* for additional information regarding concrete slab joint design.

Pavements

Borings P-1 through P-15 were performed within new pavement areas for the proposed multi-use development. As discussed in the **Site Preparation** section, CGMT recommends the existing fill soils be removed from pavement areas and replaced with new engineered fill. However, CGMT understands that complete removal of existing fill may be cost prohibitive. For the design and construction of exterior pavements, we recommend that topsoil be removed before construction of new pavements and that new pavements will be supported by a minimum of 2 feet of new, properly compacted engineered fill placed above a stable subgrade.

It is assumed that the existing pavement subgrade has performed satisfactorily during the proofroll discussed in the **Subgrade Preparation** subsection, even though existing fill soils were encountered to depths of 3½ to 8½ feet. Provided that the pavement subgrade passes a proofroll, the risk of excessive settlement is low. However, if the pavement subgrade does not pass the proofroll, some undercutting and placement of controlled backfill will be required.

We anticipate the new pavement will be constructed of asphaltic concrete or Portland cement concrete. We expect that the proposed parking lot will generally be utilized for light duty traffic, and the driveways and loading and unloading areas be utilized for light to medium duty traffic. Heavy traffic loads would be anticipated for areas near any dumpsters where garbage trucks would often cross. We recommend the pavement subjected to light traffic be underlain by a minimum of 8 inches of base course granular material, similar to Illinois Department of Transportation gradation CA-6.

Assuming the pavement subgrade will consist predominantly of the cohesive soils and new fill prepared in accordance with the recommendations given in this report, an estimated IBR value of 3 could be used in proportioning a flexible pavement section. Similarly, an estimated modulus of subgrade reaction value equal to 100 pounds per cubic inch could be used for design of rigid concrete pavement sections. A Subgrade Stability Rating (SSR) rating of (Poor) should be used for pavement design. Concrete pavements should be air-entrained Portland cement concrete with a minimum compressive strength of 4,000 psi and a minimum flexural strength of 650 psi. Concrete strength requirements are outlined in article 1020.04 of the Standard Specifications for Road and Bridge Construction, effective April 1, 2016.

Some typical pavement sections used in this region of the country are given below which could be considered for preliminary estimating purposes. Other sections can also be considered. These sections assume a low volume of light vehicle loads (automobiles, vans, pickups, etc.). They should also be considered minimum thicknesses, and, as such, periodic maintenance should be anticipated. Final design sections should consider details such as final grades, traffic loadings, traffic volumes, the desired design life and any local, county or city codes. If you wish, we would be pleased to perform a detailed pavement section design using AASHTO or Asphalt Institute procedures when this information is available. It should also be noted that these sections do not consider if the binder course will be subject to construction vehicle traffic for an extended period of time. Some distress to the binder course and aggregate base could occur, if this is the case.

12
TYPICAL PAVEMENT SECTIONS*

	Light Duty (Parking Lots)	Heavy Duty ** (Drives)
Portland Cement Concrete	5 inches	6 inches
Full Depth Asphalt	5.5 inches	7 inches
Combined Section:		
Asphalt	3 inches	4 inches
Crushed Stone Base Course	8 inches	10 inches

* All materials should meet the current Illinois Department of Transportation Standard Specifications for Road and Bridge Construction requirements.

** In areas of anticipated heavy traffic, delivery trucks, or concentrated loads, a minimum concrete thickness of 7 inches is recommended but should be evaluated further when loading conditions are known.

Minimum design requirements for hot-mix asphalt (HMA) shall follow Article 1030.05 of the Standard Specifications for Road and Bridge Construction, effective April 1, 2016. During asphalt pavement construction, the wearing and leveling course should be compacted to a minimum of 93 percent of the theoretical density value. Prior to placing the granular material, the pavement subgrade soil should be properly compacted, proofrolled, and free of standing water, mud, and frozen soil.

An important consideration with the design and construction of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the base course layer, softening of the subgrade and other problems related to the deterioration of the pavement can be expected. Furthermore, good drainage should reduce the possibility of the subgrade materials becoming saturated over a long period of time. We would be pleased to be of further assistance to you in the design of the project pavements by providing additional recommendations during construction of the project.

Periodic maintenance of pavements should be anticipated. The subgrade parameters provided in this report consider that significant changes in the subgrade moisture content do not occur. To reduce the potential for changes in subgrade moisture, all paved areas should be sloped to provide rapid drainage of surface water and to drain water away from the pavement edges. Water that is allowed to pond on or adjacent to the pavement can saturate and soften the subgrade soils and subsequently accelerate pavement deterioration.

Granular base or subbase materials directly below pavement sections can also collect infiltrated surface water and soften the subgrade as well as increase the effects of frost action, both of which can be detrimental to pavements. For these reasons, where granular materials are used over a cohesive soil subgrade or where the groundwater level is within 3.5 feet of finished pavement subgrade, we recommend that consideration be given to using pavement underdrains hydraulically connected to the granular base or subbase to improve the pavement performance and extend its service life. Underdrains should be installed at 300 to 500 feet intervals and at low points in the roadway profile. Pipe underdrains shall be installed according to Check Sheet #19 of the Supplemental Specifications and Recurring Special Provisions, effective January 1, 2015.

General Construction Considerations

We recommend that the subgrade preparation, installation of the foundations, and construction of slabs-on-grade be monitored by a CGMT geotechnical engineer or his representative. Methods of verification and identification such as proofrolling and hand auger probe holes will be necessary to further evaluate the subgrade soils and identify unsuitable soils. The contractor should be prepared to overexcavate footing excavations at isolated locations. We recommend that excavations of new foundations be monitored on a full-time basis by a CGMT geotechnical engineer or his

representative to verify that the soil bearing pressure and the exposed subgrade materials will be suitable for the proposed warehouse structures and are consistent with the boring log information obtained during this geotechnical exploration. We would be pleased to provide these services.

Since localized areas of soft/unsuitable soils may be present below the bearing elevation of foundations, we recommend that hand-auger borings be performed to at least half the footing width, or a minimum of 3 feet below each isolated column footing and to at least 2 feet below continuous footings. Hand auger borings should be performed at each column footing and at approximately 20-foot intervals along continuous footings to verify the suitability of the soils to support the recommended maximum net allowable bearing pressure. If soft/unsuitable soils are encountered, the footings should be extended until suitable bearing soils are encountered or the unsuitable soils should be removed beneath the base of the footing and replaced with compacted engineered fill or lean concrete. The foundation contractor should expect undercutting/overexcavation or removal of unsuitable material without delay and replacement with engineered fill at the time of foundation excavation/construction.

All loose or soft soils in the subgrade or foundation excavation areas should be densified or removed before placing any concrete or fill. Accumulated water or runoff water at the base of the foundation excavations should also be promptly removed. Groundwater seepage is anticipated not to be a major factor during foundation excavations or undercutting. If encountered, we believe sump and pump system should be adequate to remove accumulated seepage from the bottom of excavations prior to placement of concrete or crushed stone. Concrete should not be placed in water. To reduce the potential for frost heave related problems; forms should be used prior to the placement of foundation concrete.

Exposure to the environment may weaken the soils at the foundations bearing level if the excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are opened, when possible. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the immediately prior to placement of concrete.

We recommend adequate surface and subsurface drainage be considered in the design and construction of floor slabs and pavements. Where standing water develops, either on slab or pavement surfaces or within the base course layer, softening of the subgrade and other problems related to the deterioration of the floor slabs and pavements can be expected. Adequate drainage should reduce the possibility of the subgrade materials becoming saturated over a long period of time. To reduce water infiltration to the pavement section and within the base course layer resulting in softening of the subgrade and deterioration of the slabs and pavements, we recommend the timely repair or sealing of joints and cracks in slabs and pavement.

All unsuitable materials should be removed and replaced with environmentally clean, inorganic fill and free of debris or harmful matter. Unsuitable materials removed from the project site should be disposed of in accordance with all applicable federal, state, and local regulations.

The contractor should avoid stockpiling excavated materials immediately adjacent to the excavation walls. We recommend that stockpile materials be kept back from the excavation a minimum distance equal to the excavation depth to avoid surcharging the excavation walls. If this is impractical due to space constraints, the excavation walls should be retained with bracing designed for the anticipated surcharge loading.

Excavations should comply with the requirements of OSHA 29CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes. This document states that the contractor is solely responsible for the design and construction of stable, temporary excavations. The excavations should not only be in accordance with current OSHA excavation and trench safety standards but also with applicable local, state, and federal regulations. The contractor should shore, slope or bench the excavation sides when appropriate. Site safety is the sole responsibility of the contractor, who shall also be responsible for the means, methods and sequencing of construction operations.

14

EXPLORATION PROCEDURES

Subsurface Exploration Procedures

The soil borings were located in the field by a CGMT Field Engineer based on the proposed boring site plan provided to us. As required by the State of Illinois, the driller notified Illinois One-Call System, JULIE, to verify underground utilities in the vicinity of the project site prior to drilling operations. Ground surface elevations (rounded to the nearest ½ foot), noted on the boring logs were interpolated from the topographic plan which was provided to us.

The soil borings were performed with a truck-mounted rotary-type auger drill rig, which utilized continuous hollow stem augers to advance the boreholes. Representative soil samples were obtained at 2½ foot intervals for the first 10 feet and 5 foot intervals thereafter by means of conventional split-barrel sampling procedures. In this procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through a 12-inch interval, after initial setting of 6 inches, is termed the Standard Penetration Test (SPT) or N-value and is indicated for each sample on the boring logs. The SPT value can be used as a qualitative indication of the in-place relative density of cohesionless soils. In a less reliable way, it also indicates the consistency of cohesive soils. This indication is qualitative, since many factors can significantly affect the standard penetration resistance value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies. The drill rig utilized an automatic trip hammer to drive the sampler. Consideration of the effect of the automatic hammer's efficiency was included in the interpretation of subsurface information for the analyses prepared for this report.

The drill crew maintained a field log of the soils encountered in the borings. After recovery, each geotechnical soil sample was removed from the sampler and visually classified. Representative portions of each soil sample were then sealed in jars and brought to our laboratory in Elk Grove Village, Illinois for further visual examination and laboratory testing. After completion of the drilling operations, the boreholes were backfilled with auger cuttings to the existing ground surface.

Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to check field classifications and to determine pertinent engineering properties. The laboratory testing program included visual classifications and unconfined compressive strength and moisture content determinations. Dry density determinations were performed on selected examples of existing fill soils. One organic content test was performed on a sample of partly organic silty clay.

An experienced geotechnical engineer classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. A brief explanation of the Unified System is included with this report. The geotechnical engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in situ, the transitions may be gradual.

Unconfined compressive strength tests were performed on cohesive soil samples with the use of a calibrated hand penetrometer. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated, to a maximum of 4½ tons per square foot (tsf) by measuring the resistance of a soil sample to penetration of a small, calibrated spring-loaded cylinder.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposal.

15

CLOSING

We recommend that the construction activities be monitored by CGMT to provide the necessary overview and to check the suitability of the subgrade soils for supporting the foundations. Once final loads become available, CGMT must be contacted to review the recommendations presented herein.

This report has been prepared in order to aid in the evaluation of this property and to assist the architect and/or engineer in the design of this project. The scope is limited to the specific project and locations described herein and our description of the project represents our understanding of the significant aspects relative to soil and foundation characteristics. In the event that any change in the nature or location of the proposed construction outlined in this report are planned, we should be informed so that the changes can be reviewed and the conclusions of this report modified or approved in writing by the geotechnical engineer. It is recommended that all construction operations dealing with earthwork and foundations be reviewed by an experienced geotechnical engineer to provide information on which to base a decision as to whether the design requirements are fulfilled in the actual construction. If you wish, we would welcome the opportunity to provide field construction services for you during construction.

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings and tests performed at the locations as indicated on the Boring Location Plan and other information referenced in this report. This report does not reflect any variations, which may occur between the borings. In the performance of the subsurface exploration, specific information is obtained at specific locations at specific times. However, it is a well known fact that variations in soil conditions exist on most sites between boring locations and also such situations as groundwater levels vary from time to time. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, after performing on-site observations during the construction period and noting characteristics and variations, a reevaluation of the recommendations for this report will be necessary.

APPENDIX

Vicinity Map

Boring Location Plan

USDA Soil Survey Map

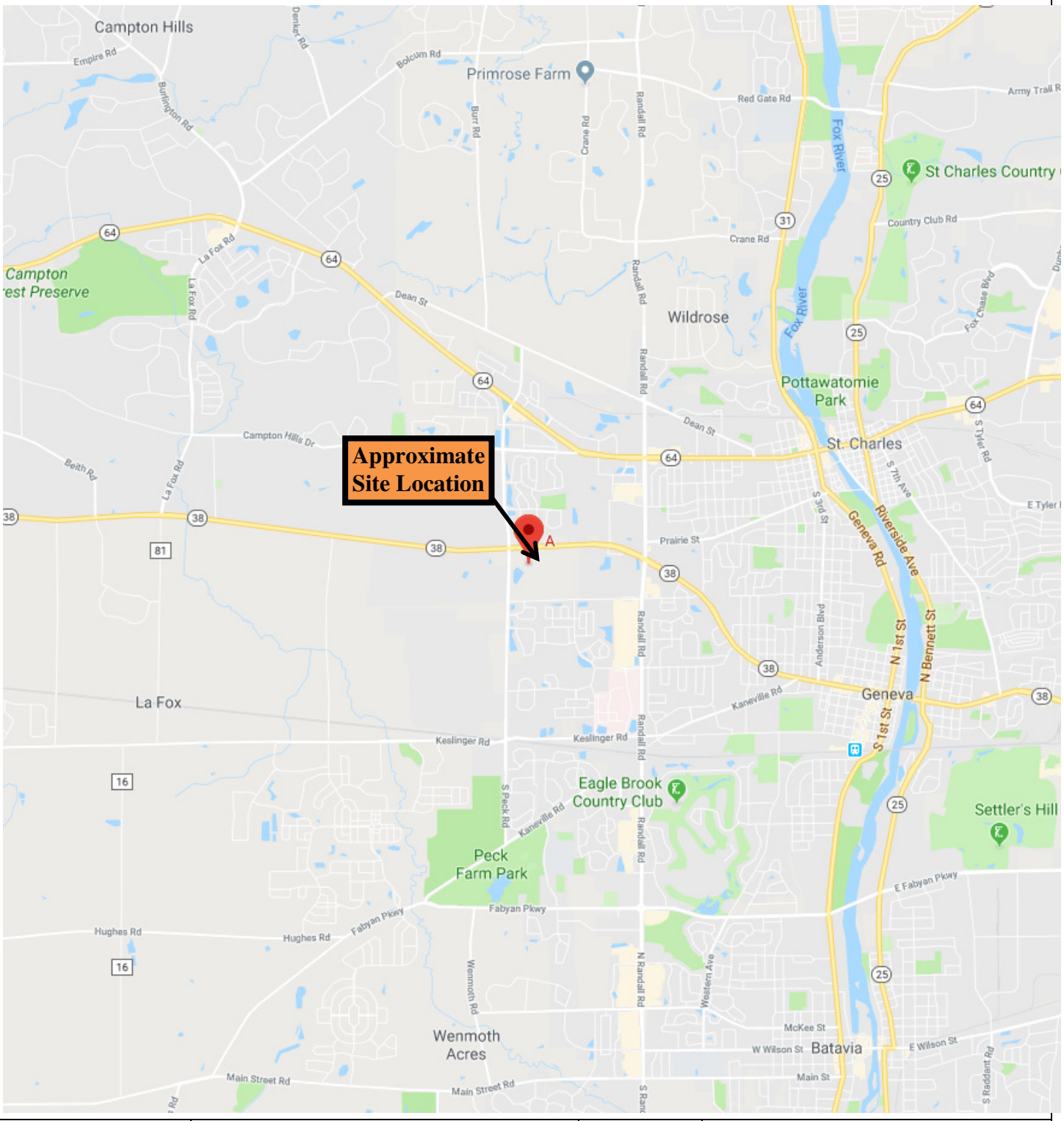
Wetlands Map

FEMA Flood Map

Boring Logs

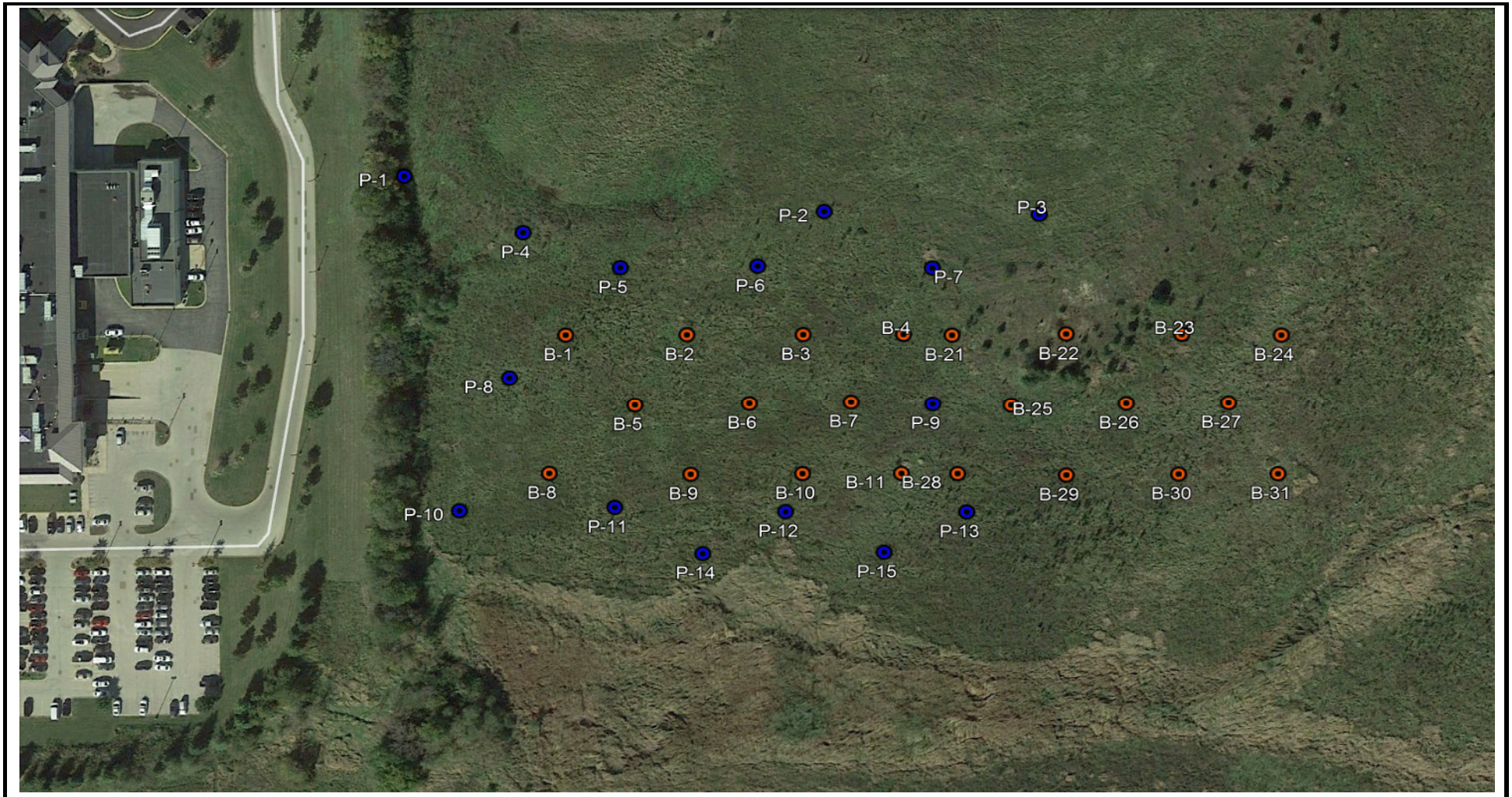
Unified Soil Classification System

Reference Notes For Boring Logs



VICINITY MAP

CGMT Project No. 19G0333
Kane County Multi-Use Facility
37W655 Illinois 38
St. Charles, Kane County, Illinois



Drawing Not To Scale

LEGEND

- Approximate Soil Boring Location

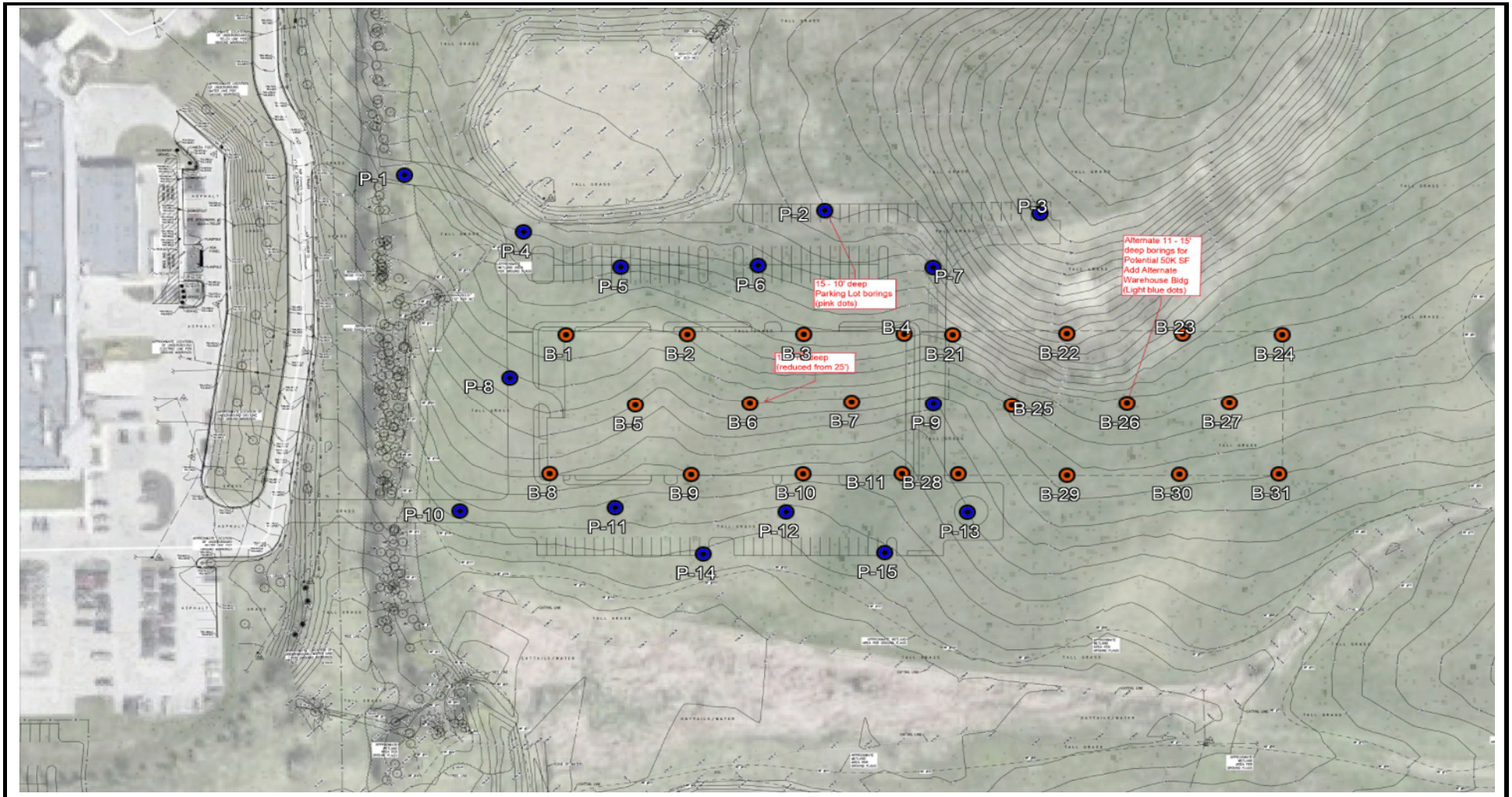
N

Soil Boring Location Diagram

Proposed Multi-Use Facility

37W655 IL-38
St. Charles, Illinois 60175

Project Manager	Project Number
P. Patel	19G0333
Date	Sheet Number
8/14/2019	Fig. 1



Drawing Not To Scale

LEGEND

- Approximate Soil Boring Location

N

Soil Boring Location Diagram

Proposed Multi-Use Facility

37W655 IL-38
St. Charles, Illinois 60175

Project Manager	Project Number
P. Patel	19G0333
Date	Sheet Number
8/14/2019	Fig. 2

USDA Soil Survey Map

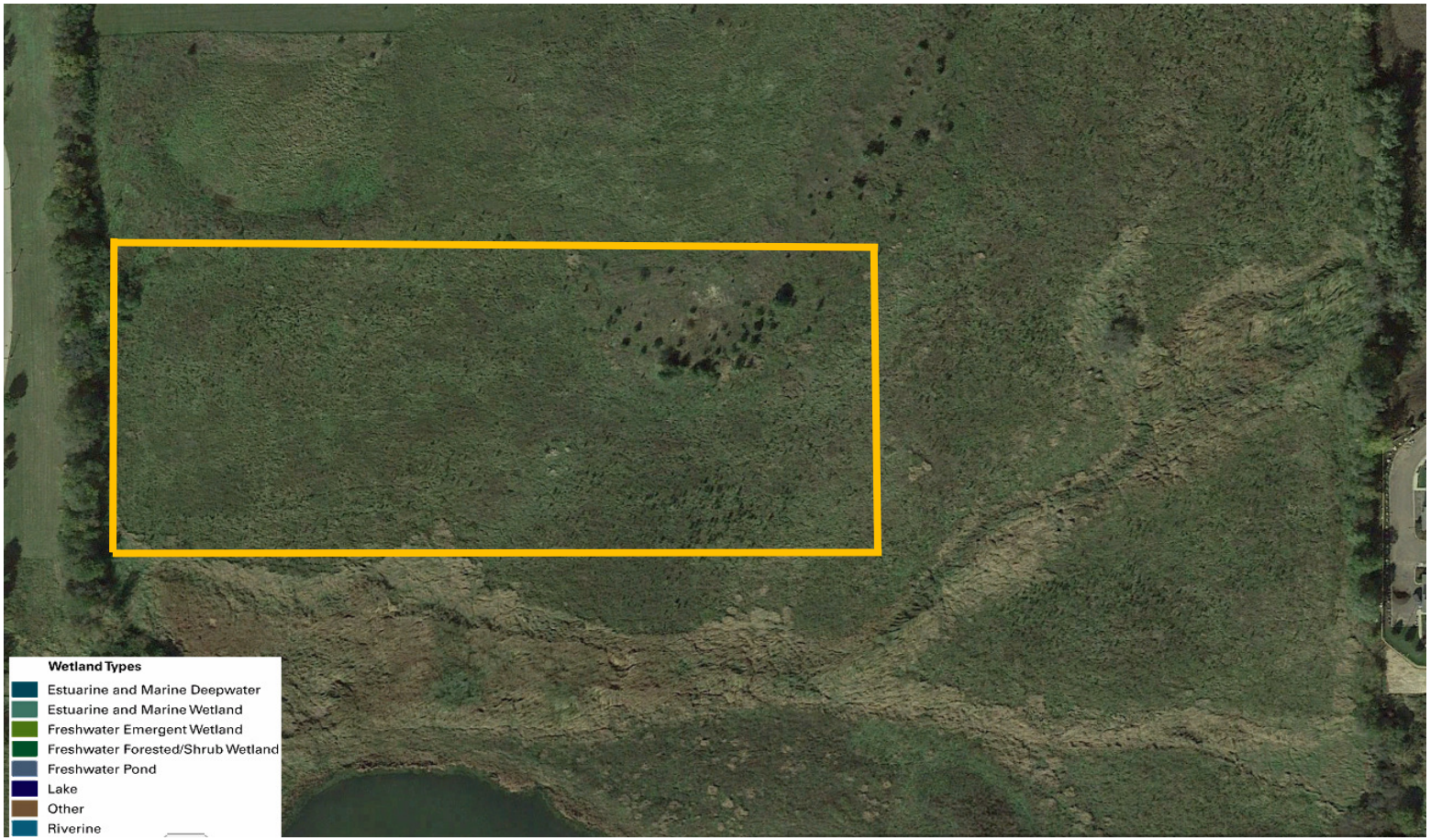
Proposed Multi-Use Facility

37W655 IL-38

St. Charles, Illinois 60175

Drawing Not To Scale

Project Number	Project Manager	Date	Sheet Number
19G0333	N. Wolff	8/12/2019	Fig. 3



National Wetlands Registry Map

Proposed Multi-Use Facility

37W655 IL-38

St. Charles, Illinois 60175

Drawing Not To Scale

Project Number	Project Manager	Date	Sheet Number
19G0333	N. Wolff	8/12/2019	Fig. 4

FEMA Flood Map

Proposed Multi-Use Facility

37W655 IL-38

St. Charles, Illinois 60175

Drawing Not To Scale

Project Number	Project Manager	Date	Sheet Number
19G0333	N. Wolff	8/12/2019	Fig. 5

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: **B-01**
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 769.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
769.0	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
768.0	1.0		Silty Clay, brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 5 6	26.2	1.5	
767.0	2.0							
766.0	3.0							Dry Densities:
765.0	4.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 6 9	16.7	4.5+	1.0' - 2.5' = 93.1 lbs/ft^3
764.0	5.0							
763.0	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	6 15 19	15.4	4.5+	
762.0	7.0							
761.0	8.0							
760.0	9.0			SS-4 8.5' - 10.0' 18" Recovery	4 8 19	16.5	4.5+	
759.0	10.0							
758.0	11.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-5 11.0' - 12.5' 18" Recovery	12 18 19	19.5	4.5+	
757.0	12.0							
756.0	13.0							
755.0	14.0			SS-6 13.5' - 15.0' 18" Recovery	6 12 15	20.0	4.0	
754.0	15.0		END of BORING at 15 Feet					
753.0	16.0							
752.0	17.0							
751.0	18.0							
750.0	19.0							
749.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-02
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 768.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
768.5	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
767.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 6 7	17.3	3.0	
766.5	2.0							
765.5	3.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 9 12	15.4	4.5+	
764.5	4.0							
763.5	5.0							
762.5	6.0		Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-3 6.0' - 7.5' 18" Recovery	6 14 18	16.0	3.25	
761.5	7.0							
760.5	8.0							
759.5	9.0		Silty Clay, Trace Sand and Gravel, gray to brown, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	8 10 12	14.4	4.5+	
758.5	10.0							
757.5	11.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-5 11.0' - 12.5' 18" Recovery	7 9 13	16.9	3.5	
756.5	12.0							
755.5	13.0							
754.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	3 5 10	18.1	4.0	
753.5	15.0		END of BORING at 15 Feet					
752.5	16.0							
751.5	17.0							
750.5	18.0							
749.5	19.0							
748.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-03
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 770.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
770.5	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
769.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 12" Recovery	5 5 7	23.9	2.5	
768.5	2.0							
767.5	3.0							Dry Densities:
766.5	4.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	5 7 8	16.0	4.0	1.0' - 2.5' = 92.7 lbs/ft^3
765.5	5.0							
764.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	6 8 14	18.2	2.5	
763.5	7.0							
762.5	8.0							
761.5	9.0		Silty Clay, Trace Sand and Gravel, gray to brown, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	8 14 20	16.0	4.5+	
760.5	10.0							
759.5	11.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 11.0' - 12.5' 18" Recovery	7 13 14	18.0	3.5	
758.5	12.0							
757.5	13.0							
756.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	6 12 11	16.3	3.75	
755.5	15.0		END of BORING at 15 Feet					
754.5	16.0							
753.5	17.0							
752.5	18.0							
751.5	19.0							
750.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 6 feet
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-04
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 770.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
770.5	0.0		13" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
769.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 6 8	26.9	2.5	
768.5	2.0							
767.5	3.0							Dry Densities:
			Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	3 5 7	16.0	3.5	1.0' - 2.5' = 89.5 lbs/ft^3
766.5	4.0							
765.5	5.0							
764.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	3 7 8	15.4	2.5	
763.5	7.0							
762.5	8.0							
761.5	9.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	4 8 11	15.9	4.5+	
760.5	10.0							
759.5	11.0			SS-5 11.0' - 12.5' 18" Recovery	4 9 10	16.9	4.25	
758.5	12.0							
757.5	13.0							
756.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	2 4 6	19.1	2.0	
755.5	15.0		END of BORING at 15 Feet					
754.5	16.0							
753.5	17.0							
752.5	18.0							
751.5	19.0							
750.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-05
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 765.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
765.0	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
764.0	1.0		Silty Clay, brown to gray, hard (CL-FILL)	SS-1 1.0' - 2.5' 16" Recovery	5 7 10	16.1	4.5+	
763.0	2.0							
762.0	3.0							Dry Densities:
761.0	4.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	6 11 12	15.8	4.5+	1.0' - 2.5' = 111.8 lbs/ft^3
760.0	5.0							
759.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	8 18 20	16.5	4.5+	
758.0	7.0							
757.0	8.0							
756.0	9.0		Silty Clay, Trace Sand and Gravel, gray to brown, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	9 15 20	16.3	4.5+	
755.0	10.0							
754.0	11.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 11.0' - 12.5' 18" Recovery	9 13 18	17.1	3.5	
753.0	12.0							
752.0	13.0							
751.0	14.0			SS-6 13.5' - 15.0' 18" Recovery	7 10 14	17.6	3.5	
750.0	15.0		END of BORING at 15 Feet					
749.0	16.0							
748.0	17.0							
747.0	18.0							
746.0	19.0							
745.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-06
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 766.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
766.0	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
765.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 14" Recovery	5 6 8	20.7	3.5	
764.0	2.0							
763.0	3.0							Dry Densities:
762.0	4.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	6 9 13	16.5	4.5+	1.0' - 2.5' = 97.1 lbs/ft^3
761.0	5.0							
760.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	6 11 14	17.7	4.5+	
759.0	7.0							
758.0	8.0							
757.0	9.0			SS-4 8.5' - 10.0' 18" Recovery	9 16 19	16.4	4.5+	
756.0	10.0							
755.0	11.0		Silty Clay, Trace Sand and Gravel, gray to brown, very stiff (CL)	SS-5 11.0' - 12.5' 18" Recovery	6 9 11	18.3	3.75	
754.0	12.0							
753.0	13.0							
752.0	14.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-6 13.5' - 15.0' 18" Recovery	10 11 12	12.7	4.0	
751.0	15.0		END of BORING at 15 Feet					
750.0	16.0							
749.0	17.0							
748.0	18.0							
747.0	19.0							
746.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: **B-07**
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 765.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
765.5	0.0		17" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
764.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 15" Recovery	4 5 7	27.0	2.5	
763.5	2.0							
762.5	3.0		Silty Clay, Trace Sand and Gravel, brown to gray, very stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 7 7	15.0	3.75	
761.5	4.0							
760.5	5.0							
759.5	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 12" Recovery	7 13 12	15.2	4.0	
758.5	7.0							
757.5	8.0							
756.5	9.0		Silty Clay, Trace Sand and Gravel, gray to brown, very stiff (CL)	SS-4 8.5' - 10.0' 16" Recovery	5 9 11	17.7	2.75	
755.5	10.0							
754.5	11.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 11.0' - 12.5' 18" Recovery	4 6 7	19.0	2.0	
753.5	12.0							
752.5	13.0							
751.5	14.0			SS-6 13.5' - 15.0' 16" Recovery	4 4 7	18.7	2.5	
750.5	15.0		END of BORING at 15 Feet					
749.5	16.0							
748.5	17.0							
747.5	18.0							
746.5	19.0							
745.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 8.5 feet
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-08
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 763.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
763.0	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
762.0	1.0		Silty Clay, dark brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 6" Recovery	3 4 6	29.8	1.5	
761.0	2.0							
760.0	3.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 8 11	16.2	4.5+	
759.0	4.0							
758.0	5.0			SS-3 6.0' - 7.5' 18" Recovery	5 10 14	16.2	4.5+	
757.0	6.0							
756.0	7.0							
755.0	8.0			SS-4 8.5' - 10.0' 18" Recovery	4 10 15	17.2	4.5+	
754.0	9.0							
753.0	10.0							
752.0	11.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-5 11.0' - 12.5' 18" Recovery	8 12 15	15.6	4.25	
751.0	12.0							
750.0	13.0			SS-6 13.5' - 15.0' 18" Recovery	5 8 10	17.5	4.0	
749.0	14.0							
748.0	15.0		END of BORING at 15 Feet					
747.0	16.0							
746.0	17.0							
745.0	18.0							
744.0	19.0							
743.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-09
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 762.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
762.0	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
761.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 16" Recovery	3 4 6	24.3	2.0	
760.0	2.0							
759.0	3.0							Dry Densities:
758.0	4.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	3 10 12	18.6	4.5+	1.0' - 2.5' = 103.0 lbs/ft^3
757.0	5.0							
756.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	5 11 16	16.1	4.5+	
755.0	7.0							
754.0	8.0							
753.0	9.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	7 14 19	17.6	4.5+	
752.0	10.0							
751.0	11.0			SS-5 11.0' - 12.5' 18" Recovery	8 12 15	17.2	3.75	
750.0	12.0							
749.0	13.0							
748.0	14.0			SS-6 13.5' - 15.0' 18" Recovery	5 8 11	17.5	3.5	
747.0	15.0		END of BORING at 15 Feet					
746.0	16.0							
745.0	17.0							
744.0	18.0							
743.0	19.0							
742.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-10
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 761.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
761.5	0.0		Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
760.5	1.0			SS-1 1.0' - 2.5' 7" Recovery	3 5 5	28.0	-	
759.5	2.0							
758.5	3.0							Dry Densities:
			Silty Clay, brown to gray, stiff (CL-FILL)	SS-2 3.5' - 5.0' 14" Recovery	3 3 3	29.3	1.75	3.5' - 5.0' = 88.9 lbs/ft^3
757.5	4.0							
756.5	5.0							
755.5	6.0		Sandy Clay, brown, very soft (CL-FILL)	SS-3 6.0' - 7.5' 18" Recovery	4 3 3	21.6	<0.25	
754.5	7.0							
753.5	8.0							
			Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-4 8.5' - 10.0' 16" Recovery	2 4 7	15.1	2.0	
752.5	9.0							
751.5	10.0							
750.5	11.0			SS-5 11.0' - 12.5' 18" Recovery	6 10 17	17.2	3.75	
749.5	12.0							
748.5	13.0							
			Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-6 13.5' - 15.0' 18" Recovery	6 10 12	15.1	4.5+	
747.5	14.0							
746.5	15.0		END of BORING at 15 Feet					
745.5	16.0							
744.5	17.0							
743.5	18.0							
742.5	19.0							
741.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 6 feet
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-11
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 761.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
761.5	0.0		19" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
760.5	1.0		Silty Clay, brown, hard (CL-FILL)	SS-1 1.0' - 2.5' 10" Recovery	3 4 7	28.5	4.0	
759.5	2.0							
758.5	3.0							Dry Densities:
757.5	4.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 6 9	14.9	4.5+	1.0' - 2.5' = 90.0 lbs/ft^3
756.5	5.0							
755.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	4 7 8	15.5	2.5	
754.5	7.0							
753.5	8.0							
752.5	9.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-4 8.5' - 10.0' 17" Recovery	6 9 10	13.9	4.5+	
751.5	10.0							
750.5	11.0			SS-5 11.0' - 12.5' 7" Recovery	16 35 9	18.7	2.5	
749.5	12.0							
748.5	13.0							
747.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	6 9 11	14.7	4.5+	
746.5	15.0		END of BORING at 15 Feet					
745.5	16.0							
744.5	17.0							
743.5	18.0							
742.5	19.0							
741.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 11 feet
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-21
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 771.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
771.0	0.0		10" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
770.0	1.0		Silty Clay, dark brown, hard (CL-FILL)	SS-1 1.0' - 2.5' 12" Recovery	7 5 6	20.5	4.5+	
769.0	2.0							
768.0	3.0							Dry Densities:
767.0	4.0		Silty Clay, brown, very stiff (CL-FILL)	SS-2 3.5' - 5.0' 10" Recovery	5 4 4	22.8	2.5	3.5' - 5.0' = 107.5 lbs/ft^3
766.0	5.0							
765.0	6.0		Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-3 6.0' - 7.5' 18" Recovery	3 3 8	13.8	3.0	
764.0	7.0							
763.0	8.0							
762.0	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	5 11 13	12.1	4.5+	
761.0	10.0							
760.0	11.0			SS-5 11.0' - 12.5' 18" Recovery	6 9 15	10.8	4.5+	
759.0	12.0							
758.0	13.0							
757.0	14.0			SS-6 13.5' - 15.0' 18" Recovery	6 8 10	17.6	4.0	
756.0	15.0		END of BORING at 15 Feet					
755.0	16.0							
754.0	17.0							
753.0	18.0							
752.0	19.0							
751.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-22
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 778.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
778.0	0.0		13" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
777.0	1.0		Silty Clay, brown, hard (CL-FILL)	SS-1 1.0' - 2.5' 16" Recovery	3 6 8	18.2	4.5+	
776.0	2.0							
775.0	3.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 16" Recovery	4 6 9	13.6	3.25	
774.0	4.0							
773.0	5.0							
772.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	4 8 11	14.7	4.5+	
771.0	7.0							
770.0	8.0							
769.0	9.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	5 10 13	15.9	4.5+	
768.0	10.0							
767.0	11.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 11.0' - 12.5' 18" Recovery	5 7 8	14.3	3.5	
766.0	12.0							
765.0	13.0							
764.0	14.0			SS-6 13.5' - 15.0' 18" Recovery	4 6 8	15.4	3.0	
763.0	15.0		END of BORING at 15 Feet					
762.0	16.0							
761.0	17.0							
760.0	18.0							
759.0	19.0							
758.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 13.5 feet
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-23
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 773.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
773.0	0.0		22" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
772.0	1.0		Silty Clay, dark brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 12" Recovery	4 4 7	24.7	3.5	
771.0	2.0							
770.0	3.0		Silty Clay, Trace Sand and Gravel, brown to gray, very stiff (CL)	SS-2 3.5' - 5.0' 15" Recovery	4 6 6	19.5	2.0	
769.0	4.0							
768.0	5.0							
767.0	6.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	4 6 7	16.8	2.5	
766.0	7.0							
765.0	8.0			SS-4 8.5' - 10.0' 18" Recovery	4 8 11	13.7	4.5+	
764.0	9.0							
763.0	10.0							
762.0	11.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-5 11.0' - 12.5' 18" Recovery	8 13 13	13.2	4.5+	
761.0	12.0							
760.0	13.0			SS-6 13.5' - 15.0' 18" Recovery	6 8 13	15.1	4.5+	
759.0	14.0							
758.0	15.0		END of BORING at 15 Feet					
757.0	16.0							
756.0	17.0							
755.0	18.0							
754.0	19.0							
753.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-24
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 770.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
770.5	0.0		19" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
769.5	1.0		Silty Clay, brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	3 4 4	28.8	1.75	
768.5	2.0							
767.5	3.0		Silty Clay, Trace Sand and Gravel, brown, stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	2 3 2	17.7	1.5	
766.5	4.0							
765.5	5.0							
764.5	6.0			SS-3 6.0' - 7.5' 16" Recovery	3 5 10	16.4	1.75	
763.5	7.0							
762.5	8.0							
761.5	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 17" Recovery	4 5 7	12.5	4.5+	
760.5	10.0							
759.5	11.0			SS-5 11.0' - 12.5' 18" Recovery	7 10 15	16.0	4.5+	
758.5	12.0							
757.5	13.0							
756.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	5 8 11	15.5	4.5+	
755.5	15.0		END of BORING at 15 Feet					
754.5	16.0							
753.5	17.0							
752.5	18.0							
751.5	19.0							
750.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-25
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 767.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
767.5	0.0		12" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
766.5	1.0		Silty Clay, brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 16" Recovery	3 4 6	14.5	4.5+	
765.5	2.0							
764.5	3.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 17" Recovery	3 6 7	15.8	4.25	
763.5	4.0							
762.5	5.0			SS-3 6.0' - 7.5' 18" Recovery	5 11 19	15.1	3.5	
761.5	6.0							
760.5	7.0							
759.5	8.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	4 8 11	13.0	4.5+	
758.5	9.0							
757.5	10.0			SS-5 11.0' - 12.5' 18" Recovery	7 12 14	15.7	4.5+	
756.5	11.0							
755.5	12.0							
754.5	13.0			SS-6 13.5' - 15.0' 18" Recovery	4 9 12	16.7	3.75	
753.5	14.0							
752.5	15.0		END of BORING at 15 Feet					
751.5	16.0							
750.5	17.0							
749.5	18.0							
748.5	19.0							
747.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-26
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 769.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
769.5	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
768.5	1.0		Silty Clay, brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 16" Recovery	3 4 6	24.9	1.5	
767.5	2.0							
766.5	3.0							Dry Densities:
765.5	4.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 17" Recovery	4 5 6	17.2	3.25	1.0' - 2.5' = 93.7 lbs/ft^3
764.5	5.0							
763.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	4 5 8	15.5	4.5+	
762.5	7.0							
761.5	8.0							
760.5	9.0			SS-4 8.5' - 10.0' 18" Recovery	5 7 21	14.2	4.5+	
759.5	10.0							
758.5	11.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-5 11.0' - 12.5' 6" Recovery	35 16 19	12.4	4.5+	
757.5	12.0							
756.5	13.0							
755.5	14.0			SS-6 13.5' - 15.0' 15" Recovery	6 8 12	14.1	3.75	
754.5	15.0		END of BORING at 15 Feet					
753.5	16.0							
752.5	17.0							
751.5	18.0							
750.5	19.0							
749.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-27
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 768.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
768.5	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
767.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	3 4 7	25.3	3.25	
766.5	2.0							
765.5	3.0							Dry Densities:
			Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	3 4 6	14.9	3.5	1.0' - 2.5' = 90.9 lbs/ft^3
764.5	4.0							
763.5	5.0							
762.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	3 6 6	15.5	3.5	
761.5	7.0							
760.5	8.0							
759.5	9.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	4 10 15	14.6	4.5+	
758.5	10.0							
757.5	11.0			SS-5 11.0' - 12.5' 4" Recovery	35 50/6" -	15.5	4.5+	
756.5	12.0							
755.5	13.0							
754.5	14.0			SS-6 13.5' - 15.0' 15" Recovery	6 8 12	14.4	4.5+	
753.5	15.0		END of BORING at 15 Feet					
752.5	16.0							
751.5	17.0							
750.5	18.0							
749.5	19.0							
748.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-28
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 763.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
763.5	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
762.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 13" Recovery	4 5 5	24.1	2.75	
761.5	2.0							
760.5	3.0							Dry Densities:
759.5	4.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 16" Recovery	3 6 7	15.8	3.0	1.0' - 2.5' = 94.5 lbs/ft^3
758.5	5.0							
757.5	6.0			SS-3 6.0' - 7.5' 15" Recovery	4 9 15	14.4	3.0	
756.5	7.0							
755.5	8.0							
754.5	9.0			SS-4 8.5' - 10.0' 18" Recovery	7 14 19	14.3	4.5+	
753.5	10.0							
752.5	11.0		Silty Clay, Trace Sand and Gravel, brown to gray, very stiff to hard (CL)	SS-5 11.0' - 12.5' 4" Recovery	14 50/5" -	13.3	3.75	
751.5	12.0							
750.5	13.0							
749.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	10 12 16	13.7	4.0	
748.5	15.0		END of BORING at 15 Feet					
747.5	16.0							
746.5	17.0							
745.5	18.0							
744.5	19.0							
743.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-29
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 766.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
766.5	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
765.5	1.0		Silty Clay, brown, hard (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 5 8	19.9	4.5+	
764.5	2.0							
763.5	3.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	7 8 11	14.3	4.5+	
762.5	4.0							
761.5	5.0							
760.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	5 6 8	15.5	4.5+	
759.5	7.0							
758.5	8.0							
757.5	9.0			SS-4 8.5' - 10.0' 18" Recovery	5 10 16	13.8	4.5+	
756.5	10.0							
755.5	11.0			SS-5 11.0' - 12.5' 18" Recovery	9 25 30	16.3	4.5+	
754.5	12.0							
753.5	13.0							
752.5	14.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-6 13.5' - 15.0' 18" Recovery	7 8 15	12.7	4.5+	
751.5	15.0		END of BORING at 15 Feet					
750.5	16.0							
749.5	17.0							
748.5	18.0							
747.5	19.0							
746.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: B-30
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 766.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
766.5	0.0		12" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
765.5	1.0		Silty Clay, brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	3 3 4	30.5	1.5	
764.5	2.0							
763.5	3.0							Dry Densities:
762.5	4.0			SS-2 3.5' - 5.0' 18" Recovery	2 3 3	18.1	1.5	1.0' - 2.5' = 79.0 lbs/ft^3
761.5	5.0							
760.5	6.0			SS-3 6.0' - 7.5' 17" Recovery	2 4 5	17.5	1.5	
759.5	7.0							
758.5	8.0							
757.5	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	3 7 9	13.1	4.0	
756.5	10.0							
755.5	11.0			SS-5 11.0' - 12.5' 18" Recovery	5 8 50	13.5	4.0	
754.5	12.0							
753.5	13.0							
752.5	14.0			SS-6 13.5' - 15.0' 18" Recovery	5 11 13	14.0	4.0	
751.5	15.0		END of BORING at 15 Feet					
750.5	16.0							
749.5	17.0							
748.5	18.0							
747.5	19.0							
746.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 9 feet
Immediately After Drilling: 3 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: B-31
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 766.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
766.0	0.0		12" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
765.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 4 5	29.0	2.5	
764.0	2.0							
763.0	3.0							Dry Densities:
762.0	4.0		Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	3 5 6	15.9	2.5	1.0' - 2.5' = 85.8 lbs/ft^3
761.0	5.0							
760.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	4 6 6	15.8	2.5	
759.0	7.0							
758.0	8.0							
757.0	9.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	4 9 10	13.5	4.25	
756.0	10.0							
755.0	11.0			SS-5 11.0' - 12.5' 18" Recovery	5 10 11	14.1	4.5+	
754.0	12.0							
753.0	13.0							
752.0	14.0			SS-6 13.5' - 15.0' 18" Recovery	4 7 12	14.5	2.0	
751.0	15.0		END of BORING at 15 Feet					
750.0	16.0							
749.0	17.0							
748.0	18.0							
747.0	19.0							
746.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-01
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 769.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
769.5	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
768.5	1.0		Silty Clay, brown, very stiff to hard (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	5 6 9	18.5	4.5+	
767.5	2.0							
766.5	3.0							Dry Densities:
765.5	4.0			SS-2 3.5' - 5.0' 18" Recovery	4 4 7	26.3	2.5	3.5' - 5.0' = 93.6 lbs/ft^3
764.5	5.0							
763.5	6.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	5 9 12	16.8	4.5+	
762.5	7.0							
761.5	8.0							
760.5	9.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	6 16 22	15.6	4.5+	
759.5	10.0		END of BORING at 10 Feet					
758.5	11.0							
757.5	12.0							
756.5	13.0							
755.5	14.0							
754.5	15.0							
753.5	16.0							
752.5	17.0							
751.5	18.0							
750.5	19.0							
749.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: P-02
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 772.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
772.0	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
771.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 7 8	21.9	2.5	
770.0	2.0							
769.0	3.0							Dry Densities:
768.0	4.0		Silty Clay, Trace Sand and Gravel, brown to gray, very stiff to hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 7 9	15.6	4.5+	1.0' - 2.5' = 95.0 lbs/ft^3
767.0	5.0							
766.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	4 9 12	17.8	2.75	
765.0	7.0							
764.0	8.0							
763.0	9.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-4 8.5' - 10.0' 18" Recovery	4 9 17	14.5	2.75	
762.0	10.0		END of BORING at 10 Feet					
761.0	11.0							
760.0	12.0							
759.0	13.0							
758.0	14.0							
757.0	15.0							
756.0	16.0							
755.0	17.0							
754.0	18.0							
753.0	19.0							
752.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: P-03
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 787.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
787.0	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
786.0	1.0		Silty Clay, brown, very stiff to hard (CL-FILL)	SS-1 1.0' - 2.5' 10" Recovery	6 4 5	15.1	4.5+	
785.0	2.0							
784.0	3.0							Dry Densities:
783.0	4.0			SS-2 3.5' - 5.0' 9" Recovery	3 3 3	15.1	2.5	6.0' - 7.5' = 107.2 lbs/ft^3
782.0	5.0							
781.0	6.0			SS-3 6.0' - 7.5' 7" Recovery	3 7 6	17.9	2.75	
780.0	7.0							
779.0	8.0							
778.0	9.0		Partly Organic Silty Clay, Trace Sand and Gravel, black, very stiff (OL)	SS-4 8.5' - 10.0' 16" Recovery	3 3 6	31.8	2.75	Organic content = 9.7%
777.0	10.0		END of BORING at 10 Feet					
776.0	11.0							
775.0	12.0							
774.0	13.0							
773.0	14.0							
772.0	15.0							
771.0	16.0							
770.0	17.0							
769.0	18.0							
768.0	19.0							
767.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-04
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 773.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
773.0	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
772.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 14" Recovery	4 5 9	19.4	2.5	
771.0	2.0							
770.0	3.0							
769.0	4.0			SS-2 3.5' - 5.0' 18" Recovery	6 7 8	17.8	3.75	
768.0	5.0							
767.0	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	5 7 14	17.8	4.5+	
766.0	7.0							
765.0	8.0							
764.0	9.0			SS-4 8.5' - 10.0' 18" Recovery	6 13 16	17.6	4.5+	
763.0	10.0		END of BORING at 10 Feet					
762.0	11.0							
761.0	12.0							
760.0	13.0							
759.0	14.0							
758.0	15.0							
757.0	16.0							
756.0	17.0							
755.0	18.0							
754.0	19.0							
753.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-05
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 771.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
771.5	0.0		15" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
770.5	1.0		Silty Clay, brown, stiff to hard (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	3 4 4	26.3	1.25	
769.5	2.0							
768.5	3.0							Dry Densities:
767.5	4.0			SS-2 3.5' - 5.0' 17" Recovery	5 9 13	16.0	4.5+	1.0' - 2.5' = 90.1 lbs/ft^3
766.5	5.0							
765.5	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	7 13 21	15.8	4.5+	
764.5	7.0							
763.5	8.0							
762.5	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	5 7 14	15.4	4.5+	
761.5	10.0		END of BORING at 10 Feet					
760.5	11.0							
759.5	12.0							
758.5	13.0							
757.5	14.0							
756.5	15.0							
755.5	16.0							
754.5	17.0							
753.5	18.0							
752.5	19.0							
751.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: P-06
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 773.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
773.5	0.0		18" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
772.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 17" Recovery	4 5 7	25.0	2.75	
771.5	2.0							
770.5	3.0							Dry Densities:
769.5	4.0			SS-2 3.5' - 5.0' 18" Recovery	3 3 6	17.2	3.75	3.5' - 5.0' = 111.0 lbs/ft^3
768.5	5.0							
767.5	6.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	4 7 7	16.5	2.0	
766.5	7.0							
765.5	8.0							
764.5	9.0			SS-4 8.5' - 10.0' 18" Recovery	4 7 15	15.6	4.5+	
763.5	10.0		END of BORING at 10 Feet					
762.5	11.0							
761.5	12.0							
760.5	13.0							
759.5	14.0							
758.5	15.0							
757.5	16.0							
756.5	17.0							
755.5	18.0							
754.5	19.0							
753.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-07
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 775.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
775.0	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
774.0	1.0		Silty Clay, brown, very stiff to hard (CL-FILL)	SS-1 1.0' - 2.5' 15" Recovery	5 7 8	19.3	4.5+	
773.0	2.0							
772.0	3.0							Dry Densities:
771.0	4.0			SS-2 3.5' - 5.0' 18" Recovery	5 6 7	14.2	4.5+	3.5' - 5.0' = 112.3 lbs/ft^3
770.0	5.0							
769.0	6.0			SS-3 6.0' - 7.5' 2" Recovery	7 10 13	15.3	3.5	
768.0	7.0							
767.0	8.0							
766.0	9.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	7 11 15	15.6	4.5+	
765.0	10.0		END of BORING at 10 Feet					
764.0	11.0							
763.0	12.0							
762.0	13.0							
761.0	14.0							
760.0	15.0							
759.0	16.0							
758.0	17.0							
757.0	18.0							
756.0	19.0							
755.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-08
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 767.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
767.0	0.0		16" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
766.0	1.0		Silty Clay, brown, very stiff to hard (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 6 6	17.0	3.75	
765.0	2.0							
764.0	3.0							
763.0	4.0			SS-2 3.5' - 5.0' 18" Recovery	5 10 15	16.1	4.5+	
762.0	5.0							
761.0	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	6 11 13	16.8	4.5+	
760.0	7.0							
759.0	8.0							
758.0	9.0			SS-4 8.5' - 10.0' 14" Recovery	6 15 19	13.6	4.5+	
757.0	10.0		END of BORING at 10 Feet					
756.0	11.0							
755.0	12.0							
754.0	13.0							
753.0	14.0							
752.0	15.0							
751.0	16.0							
750.0	17.0							
749.0	18.0							
748.0	19.0							
747.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Boring No.: P-09
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram
Logged By: LSH
Ground Elevation: 764.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
764.5	0.0		12" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
763.5	1.0		Silty Clay, dark brown, hard (CL-FILL)	SS-1 1.0' - 2.5' 14" Recovery	5 6 9	20.4	4.5+	
762.5	2.0							
761.5	3.0		Silty Clay, Trace Sand and Gravel, brown to gray, very stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	2 4 5	26.5	2.0	
760.5	4.0							
759.5	5.0							
758.5	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	8 18 22	14.3	4.5+	
757.5	7.0							
756.5	8.0							
755.5	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 18" Recovery	8 11 11	13.5	4.5+	
754.5	10.0		END of BORING at 10 Feet					
753.5	11.0							
752.5	12.0							
751.5	13.0							
750.5	14.0							
749.5	15.0							
748.5	16.0							
747.5	17.0							
746.5	18.0							
745.5	19.0							
744.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-10
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 760.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
760.5	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
759.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	5 6 6	30.2	2.75	
758.5	2.0							
757.5	3.0							Dry Densities:
			Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	5 6 9	17.4	2.75	1.0' - 2.5' = 87.6 lbs/ft^3
756.5	4.0							
755.5	5.0							
754.5	6.0			SS-3 6.0' - 7.5' 18" Recovery	12 23 13	16.0	4.5+	
753.5	7.0							
752.5	8.0							
751.5	9.0			SS-4 8.5' - 10.0' 14" Recovery	5 8 12	19.7	3.75	
750.5	10.0		END of BORING at 10 Feet					
749.5	11.0							
748.5	12.0							
747.5	13.0							
746.5	14.0							
745.5	15.0							
744.5	16.0							
743.5	17.0							
742.5	18.0							
741.5	19.0							
740.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-11
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 760.5

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
760.5	0.0		14" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
759.5	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 14" Recovery	3 4 5	29.8	2.0	
758.5	2.0							
757.5	3.0		Silty Clay, Trace Sand and Gravel, brown to gray, hard (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 8 11	15.7	4.5+	
756.5	4.0							
755.5	5.0							
754.5	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	5 11 14	15.6	4.5+	
753.5	7.0							
752.5	8.0							
751.5	9.0			SS-4 8.5' - 10.0' 18" Recovery	6 15 10	16.0	4.5+	
750.5	10.0		END of BORING at 10 Feet					
749.5	11.0							
748.5	12.0							
747.5	13.0							
746.5	14.0							
745.5	15.0							
744.5	16.0							
743.5	17.0							
742.5	18.0							
741.5	19.0							
740.5	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-12
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 760.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
760.0	0.0		Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
759.0	1.0			SS-1	3			
				1.0' - 2.5'	3	28.3	-	
758.0	2.0			10" Recovery	5			
757.0	3.0							Dry Densities:
			Silty Clay, brown, stiff (CL-FILL)	SS-2	3			3.5 - 5.0' = 91.0 lbs/ft^3
756.0	4.0			3.5' - 5.0'	3	29.1	1.5	
755.0	5.0			16" Recovery	4			
754.0	6.0		Silty Clay, Trace Sand and Gravel, gray, stiff (CL)	SS-3	2			
				6.0' - 7.5'	3	28.3	1.0	
753.0	7.0			18" Recovery	2			
752.0	8.0							
			Silty Clay, Trace Sand and Gravel, brown, very stiff (CL)	SS-4	3			
751.0	9.0			8.5' - 10.0'	5	14.5	3.75	
				18" Recovery	7			
750.0	10.0		END of BORING at 10 Feet					
749.0	11.0							
748.0	12.0							
747.0	13.0							
746.0	14.0							
745.0	15.0							
744.0	16.0							
743.0	17.0							
742.0	18.0							
741.0	19.0							
740.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-13
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 763.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
763.0	0.0		12" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
762.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 4 6	21.3	2.5	
761.0	2.0							
760.0	3.0							Dry Densities:
759.0	4.0		Silty Clay, Trace Sand and Gravel, brown to gray, very stiff (CL)	SS-2 3.5' - 5.0' 18" Recovery	4 5 6	15.9	3.75	1.0' - 2.5' = 91.8 lbs/ft^3
758.0	5.0							
757.0	6.0		Silty Clay, Trace Sand and Gravel, brown, hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	5 10 10	15.5	4.25	
756.0	7.0							
755.0	8.0							
754.0	9.0			SS-4 8.5' - 10.0' 18" Recovery	4 10 15	14.2	4.5+	
753.0	10.0		END of BORING at 10 Feet					
752.0	11.0							
751.0	12.0							
750.0	13.0							
749.0	14.0							
748.0	15.0							
747.0	16.0							
746.0	17.0							
745.0	18.0							
744.0	19.0							
743.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-14
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 759.0

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
759.0	0.0		12" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
758.0	1.0		Silty Clay, dark brown, stiff (CL-FILL)	SS-1 1.0' - 2.5' 15" Recovery	2 3 5	28.0	1.5	
757.0	2.0							
756.0	3.0							Dry Densities:
			Silty Clay, brown, stiff (CL-FILL)	SS-2 3.5' - 5.0' 10" Recovery	2 2 24	26.3	1.0	1.0' - 2.5' = 93.1 lbs/ft^3 3.5' - 5.0' = 98.1 lbs/ft^3
755.0	4.0							
754.0	5.0							
753.0	6.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	7 14 21	15.9	3.75	
752.0	7.0							
751.0	8.0							
				SS-4 8.5' - 10.0' 18" Recovery	7 14 15	18.6	4.5+	
750.0	9.0							
749.0	10.0		END of BORING at 10 Feet					
748.0	11.0							
747.0	12.0							
746.0	13.0							
745.0	14.0							
744.0	15.0							
743.0	16.0							
742.0	17.0							
741.0	18.0							
740.0	19.0							
739.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Boring No.: P-15
Date: Wednesday, July 24, 2019
Project: Kane County Multi-Use Facility
IL 38, St. Charles, Illinois
Project No.: 19G0333
Boring Location: See Boring Location Diagram

Soil Boring Prepared for:
Cordogan Clark
Brian K. Kronewiter AIA, DBIA
960 Ridgeway Avenue
Aurora, Illinois 60506

Logged By: LSH
Ground Elevation: 760.0

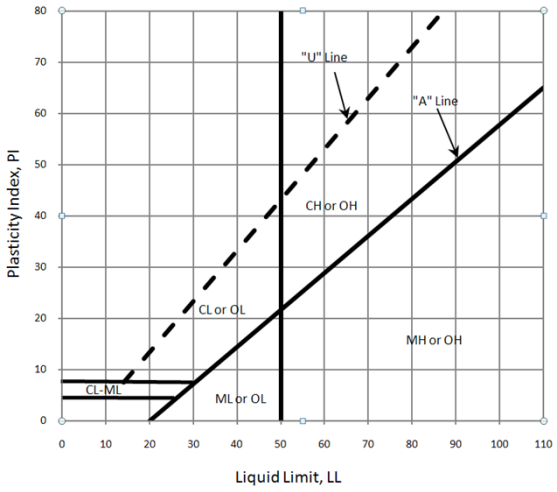
Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
760.0	0.0		17" Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
759.0	1.0		Silty Clay, brown, very stiff (CL-FILL)	SS-1 1.0' - 2.5' 18" Recovery	4 5 6	23.7	3.5	
758.0	2.0							
757.0	3.0							Dry Densities:
			Silty Clay, Trace Sand and Gravel, brown, stiff to very stiff (CL)	SS-2 3.5' - 5.0' 14" Recovery	4 6 8	16.0	1.5	1.0' - 2.5' = 92.2 lbs/ft^3
756.0	4.0							
755.0	5.0							
754.0	6.0			SS-3 6.0' - 7.5' 18" Recovery	5 6 9	16.0	3.0	
753.0	7.0							
752.0	8.0							
751.0	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 17" Recovery	5 7 12	10.7	4.5+	
750.0	10.0		END of BORING at 10 Feet					
749.0	11.0							
748.0	12.0							
747.0	13.0							
746.0	14.0							
745.0	15.0							
744.0	16.0							
743.0	17.0							
742.0	18.0							
741.0	19.0							
740.0	20.0							

Drilling Contractor: JS
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-All-Terrain Vehicle
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

UNITED SOIL CLASSIFICATION SYSTEM
(ASTM D-2487)

Major Division		Group Symbol	Typical Names	Classification on basis of percentage of fines	Classification Criteria
Coarse-grained soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Less than 5% pass No. 200 sieve	$C_u = D_{60}/D_{10}$ greater than 4 $C_z = (D_{30})^2/(D_{10}XD_{60})$ between 1 & 3
		GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW
		GM	Silty gravels, gravel-sand-silt mixtures	More than 12% pass No. 200 sieve	Atterberg limits plot below "A" line or plasticity index less than 4
		GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits plot above "A" line and plasticity index greater than 7
	Sands: More than 50% of coarse fraction passes No. 4 sieve	SW	Well-graded sands and gravelly sands, little or no fines	5% to 12% pass No. 200 sieve	$C_u = D_{60}/D_{10}$ greater than 6 $C_z = (D_{30})^2/(D_{10}XD_{60})$ between 1 & 3
		SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW
		SM	Silty sands, sand-silt mixtures	Borderline classification requiring use of dual symbol: GW, GP, SW, SP; GM, GC, SM, SC	Atterberg limits plot below "A" line or plasticity index less than 4
		SC	Clayey sands, sand-clay mixtures		Atterberg limits plot above "A" line and plasticity index greater than 7
Fine-grained soils: 50% or more passing No. 200 sieve	Silts and Clays: Liquid limit 50% or less	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	Note: U-line represents approximate upper limit of LL and PI combinations natural soils (empirically determined). ASTM D-2487	
		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 greater than 50%	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts		
		CH	Inorganic clays of high plasticity, fat clays		
		OH	Organic clays of medium to high plasticity		
Highly organic soils		Pt	Peat, muck and other highly organic soils		Fibrous organic matter; will char, burn or glow



Plasticity chart for the classification of fine-grained soils. Tests made on fraction finer than No. 40 sieve

Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder

UNIFIED SOIL CLASSIFICATION SYSTEM

REFERENCE NOTES FOR BORING LOGS

I. Drilling and Sampling Symbols:

SS – Split Spoon Sampler
ST – Shelby Tube Sampler
RC – Rock Core: NX, BX, AX
PM – Pressuremeter
DC – Dutch Cone Penetrometer
RB – Rock Bit Drilling
BS – Bulk Sample of Drilling
PA – Power Auger (no sample)
HSA – Hollow Stem Auger
WS – Wash Sample

Standard Penetration (Blows/Ft) refers to the blows per foot of a 140 lb. hammer falling 30 inches on a 2 inch O.D. split spoon sampler, as specified in ASTM D-1586. The blow count is commonly referred to as the N-value.

II. Correlation of Penetration Resistances to Soil Properties:

Relative Density-Sands, Silts

SPT – N	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 49	Dense
50 – 80	Very Dense

Consistency of Cohesive Soils

Unconfined Compressive Strength, Qp, tsf	Consistency
under 0.25	Very Soft
0.25 – 0.49	Soft
0.50 – 0.99	Firm
1.00 – 1.99	Stiff
2.00 – 3.99	Very Stiff
4.00 – 8.00	Hard
over 8.00	Very Hard

III Unified Soil Classification Symbols:

GP – Poorly Graded Gravel
GW – Well Graded Gravel
GM – Silty Gravel
GC – Clayey Gravel
SP – Poorly Graded Sand
SW – Well Graded Sand
SM – Silty Sand
SC – Clayey Sand
ML – Low Plasticity Silt
MH – High Plasticity Silt
CL – Low Plasticity Clay
CH – High Plasticity Clay
OL – Low Plasticity Organic
OH – High Plasticity Organic
CL-ML – Dual Classification (Typical)

IV. Water Level Measurement Symbol:

WL – Water Level
WS – While Sampling
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
WCI – Wet Cave In
DCI – Dry Cave In

The water levels are those water levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in a granular soil. In clays and plastic silts, the accurate determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally applied.