CONSULTING GROUP

Report on
Geotechnical Investigation

T-Mobile Site CH95363A
Washington & 75th WT Replacement
1301 Clyde Drive
Naperville, Illinois 60565

Latitude 41.747914° N
Longitude 88.135400° W

Prepared for:

KCS Corporation
1125 Remington Road
Schaumburg, Illinois 60173

G2 Project No. 242018
July 11, 2024

g2consultinggroup.com

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CONSULTING GROUP

July 11, 2024

Mr. Philip Arceo
KCS Corporation
1125 Remington Road
Schaumburg, Illinois 60173

Re: Report on Geotechnical Investigation
T-Mobile Site CH95363A Washington & 75th WT Replacement
1301 Clyde Drive
Naperville, Illinois 60565
G2 Project No. 242018

Dear Mr. Arceo:

We have completed the geotechnical investigation for T-Mobile Site CH95363A Washington & 75th WT Replacement in Naperville, Illinois. This report presents the results of our observations and analysis and our recommendations for subgrade preparation, foundation design, and construction considerations.

As always, we appreciate the opportunity to be of service to KCS Corporation and look forward to discussing the recommendations presented. In the meantime, if you have any questions regarding the report or any other matter pertaining to the project, please do not hesitate to contact us.

Sincerely,

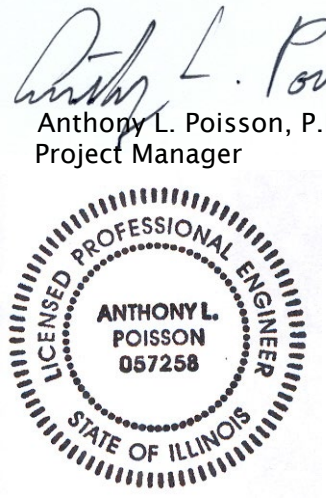
G2 Consulting Group, LLC

Harshavardhan Reddy Tekula
Staff Engineer

Anthony L. Poisson, P.E
Project Manager

HRT/ALP/jrn

Enclosures



7-11-24

EXECUTIVE SUMMARY

We understand the project includes construction of a 190-foot tall monopole tower. Approximately 6-1/2 inches of bituminous concrete with 5-1/2 inches of underlying aggregate base are present at the soil boring location. Stiff silty clay fill underlies the aggregate base and extends to an approximate depth of 3 feet. Native very stiff to hard silty clay is present below an approximate depth of 3 feet and extends to an approximate depth of 14-1/2 feet. Compact to very compact gravelly sand with trace cobbles underlies the silty clay and extends to an approximate depth of 22 feet. Medium compact gravelly sand with trace cobbles is present between approximate depths of 22 and 27 feet. Moderately weak, completely to highly weathered limestone extends from an approximate depth of 27 to 30 feet. Strong, slightly to faintly weathered limestone is present below an approximate depth of 30 feet and extends to the explored depth of 35 feet. The soil boring was terminated prior to the proposed drilling depth due to the existing rock conditions and sufficient information being obtained for foundation design. Groundwater was encountered at an approximate depth of 24 feet during drilling operations. An accurate measurement of the groundwater level at completion of drilling operations could not be determined due to the addition of water for rock coring operations.

Based on the encountered subsurface conditions and estimated tower loads, we recommend the proposed 190-foot tall monopole tower be supported on a drilled pier foundation. We anticipate the pier will have a shaft diameter of 7-1/2 to 8 feet, depending on the anchor bolt template diameter, and bear at a depth ranging from 28 to 33 feet below grade. The drilled shaft design is controlled by the overturning moment. Thus, bearing pressure imposed on the drilled shaft bottom is less than the recommended allowable bearing pressure of 15,000 pounds per square foot (psf) for the pier bearing on the moderately weak to strong, completely to faintly weathered limestone. The recommended allowable bearing pressure is based on a factor of safety of 3. The following soil parameters should be used for drilled pier design. Our soil design parameters are referenced from existing grade. The foundation design engineer must take into consideration any grade cut or fill operations required to develop the site.

Depth/Elevation (feet)	Total Unit Weight (pcf)	Cohesion (psf)	Angle of Friction (Degrees)	Soil Modulus (pci)
0 to 3 (686-1/2 to 683-1/2)	125	1,500	0	100
3 to 14-1/2 (683-1/2 to 672)	130	3,500	0	650
14-1/2 to 22 (672 to 664-1/2)	115	0	38	225
22 to 27 (664-1/2 to 659-1/2)	110	0	33	125
27 to 30 (659-1/2 to 656-1/2)	115	0	40	500
30 to 35 (656-1/2 to 651-1/2)	140	7,000	0	1,500

Caving and sloughing of the gravelly sand may occur during drilling operations. In addition, groundwater will be encountered at an approximate depth of 24 feet. Therefore, we recommend the contractor come to the site prepared to use temporary telescoped steel casing, drilling mud, and water, as necessary, to maintain stable excavation and control groundwater during construction operations. A minimum drilling mud head of 6 feet must be continuously maintained above static groundwater elevation to ensure a stable excavation. The contractor should be prepared to break-up and remove cobbles during excavation operations. Furthermore, a core barrel and rock auger will be required to excavate the moderately weak to strong, completely to faintly weathered limestone below an approximate depth of 27 feet. Once drilling is completed to the design depth, the reinforcing steel should be set and concrete placed by tremie method until a positive head of concrete has been established within the casing. This positive concrete head must be maintained while pulling the casing to prevent infiltration of loose soil and groundwater into the fresh concrete. After concrete has been placed to an appropriate grade, casing may be removed. Telescoped casing must be removed in the opposite order in which it was placed, i.e. From the inside out.

Do not consider this summary separate from the entire text of this report, with all the conclusions and qualifications mentioned herein. Details of our analysis and recommendations are discussed in the following sections and in the Appendix of this report.

PROJECT DESCRIPTION

We understand the project includes construction of a 190-foot tall monopole tower. At the time of this investigation, the tower manufacturer and actual loading conditions were not available. However, based on similar communication sites, we estimate the proposed tower will impose a maximum compression load of 60 to 80 kips, a total shear load of 50 to 70 kips, and an overturning moment of 5,000 to 7,000 foot-kips. Once the actual tower loading conditions are determined, G2 Consulting Group, LLC (G2) should be notified so we can evaluate our recommendations in light of the actual loading conditions.

Based on the Plat of Survey of Lease Area (Sheet L-1) prepared by ASM Consultants, Inc. dated March 14, 2024, the proposed tower location is relatively flat with an approximate elevation of 686-1/2 feet. Proposed finished grade elevations were not available at the time of this report. We anticipate the finished grade at the proposed tower location will be similar to existing and the top of the proposed tower pier foundation will extend 6 to 12 inches above finished grade. If proposed finished grade elevations vary significantly from existing, G2 must be contacted to re-evaluate our recommendations.

SCOPE OF SERVICES

Field operations, laboratory testing, and engineering report preparation were performed under the direction and supervision of a licensed professional engineer. Our services were performed according to generally accepted standards and procedures in the practice of geotechnical engineering in this area. Our scope of services for this project is as follows:

1. Our subcontract driller performed one soil boring extending to a depth of 35 feet below existing grade at the proposed tower location. The soil boring was terminated prior to the proposed drilling depth due to the existing rock conditions and sufficient information being obtained for foundation design.

2. We performed laboratory testing on representative soil and rock samples obtained from the soil boring. Laboratory testing included visual engineering classification, moisture content, unconfined compressive strength, rock core recovery, and rock quality designation (RQD) determinations.

3. We prepared this engineering report. The report includes recommendations regarding the soil bearing capacity, drilled pier design parameters, estimated settlement, and construction considerations related to foundation construction.

FIELD OPERATIONS

G2 selected the depth and location of the soil boring. The proposed tower center was determined in the field by a representative of G2 measuring from existing landmarks using conventional taping methods. The approximate soil boring location is shown on the Soil Boring Location Plan, Plate No. 1. The ground surface elevation at the soil boring location was interpolated from the topographic contour lines and spot elevations presented on the aforementioned survey.

The soil boring was drilled using a truck-mounted rotary drill rig. Continuous flight, 3-1/4 inch inside diameter hollow-stem augers were used to advance the borehole to auger refusal at an approximate depth of 30 feet. Soil and rock samples were obtained at approximate intervals of 2-1/2 feet within the upper 10 feet and at approximate intervals of 5 feet thereafter. These samples were obtained by the Standard Penetration Test method (ASTM D 1586), which involves driving a 2-inch diameter split-spoon sampler into the soil with a 140-pound weight falling 30 inches. The sampler is generally driven three successive 6-inch increments, with the number of blows for each increment recorded. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Test

resistance (N). The blow counts for each 6-inch increment and the resulting N-values are presented on the soil boring log.

An NQ diamond-tipped core barrel was used to extend the boring after auger refusal at an approximate depth of 30 feet. The boring was terminated at an approximate depth of 35 feet due to the existing rock conditions and sufficient information being obtained for foundation design. Core samples were obtained for rock classification, core recovery, and RQD determination.

The soil and rock samples were placed in sealed containers and a core box in the field and brought to our laboratory for testing and classification. During field operations, the driller maintained a log of the subsurface conditions, including changes in stratigraphy and observed groundwater levels. The final boring log is based on the driller's field boring log supplemented by laboratory soil and rock classification and test results. The borehole was backfilled with bentonite chips and capped with cold patch upon completion upon completion of drilling operations.

LABORATORY TESTING

Representative soil and rock samples were subjected to laboratory testing to determine soil parameters pertinent to foundation design and site preparation. An experienced geotechnical engineer classified the samples in general conformance with the Unified Soil Classification System.

Laboratory testing included moisture content and unconfined compressive strength determinations. The unconfined compressive strengths were determined using a spring-loaded hand penetrometer. The hand penetrometer estimates the unconfined compressive strength to a maximum of 4-1/2 tons per square foot (tsf) by measuring the resistance of the soil sample to the penetration of a calibrated spring-loaded cylinder.

Additionally, the rock core was logged for classification, core recovery, and RQD. Core recovery is presented as the percentage of core recovered relative to the core length. The RQD is a relative measure of the quality of intact rock mass and equals the percentage of core unbroken by natural joints in pieces greater than 4 inches in length relative to the total length of the core.

The results of the laboratory tests are indicated on the boring log at the depths the samples were obtained. We will hold the soil and rock samples for 60 days from the date of this report, after which time they will be discarded. If you would like to retain the samples beyond that date, please let us know.

SITE CONDITIONS

The proposed tower is located at 1301 Clyde Drive in Naperville, Illinois. The tower will be situated in a bituminous concrete and portland cement concrete covered area approximately 65 feet northeast of an existing water tower and to the west of an existing equipment building. Based on the provided survey and visual observations, the proposed tower location is relatively flat with an approximate elevation of 686-1/2 feet. An existing school is located to the west of the site and residential properties are located to the north, east, and south. The tower will be accessed from the existing driveway and pavement areas for the water tower.

SOIL CONDITIONS

Approximately 6-1/2 inches of bituminous concrete with 5-1/2 inches of underlying aggregate base are present at the soil boring location. Silty clay fill underlies the aggregate base and extends to an approximate depth of 3 feet. Native silty clay underlies the fill and extends to an approximate depth of 14-1/2 feet. Gravelly sand with trace cobbles is present below the silty clay and extends to an

approximate depth of 27 feet. Completely to highly weathered limestone extends from an approximate depth of 27 to 30 feet. Slightly to faintly weathered limestone is present below an approximate depth of 30 feet and extends to the explored depth of 35 feet. The soil boring was terminated prior to the proposed drilling depth due to the existing rock conditions and sufficient information being obtained for foundation design.

The silty clay fill is stiff in consistency with a moisture content of 29 percent and an unconfined compressive strength of 3,000 psf. The underlying native silty clay is very stiff to hard in consistency with natural moisture contents ranging from 16 to 20 percent and unconfined compressive strengths ranging from 6,000 to 9,000 psf. The gravelly sand present below the silty clay and extending to an approximate depth of 22 feet is compact to very compact with Standard Penetration Test N-values of 56 and 36 blows per foot. The gravelly sand between approximate depths of 22 and 27 feet is medium compact with an N-value of 19 blows per foot. The completely to highly weathered limestone is moderately weak in rock strength with an N-value of 50 blows per 1-1/4 inches of penetration. The underlying slightly to faintly weathered limestone is strong in rock strength with a rock core recovery value of 100 percent and a RQD value of 78 percent.

The stratification depths shown on the soil boring log represent the soil and rock conditions at the boring location. Variations may occur away from the boring location. Additionally, the stratigraphic lines represent the approximate boundary between soil and rock types. The transition may be more gradual than what is shown. We have prepared the boring log on the basis of the field log of soils and rock encountered supplemented by laboratory classification and testing.

The Soil Boring Location Plan, Plate No. 1, and Soil Boring Log, Figure No. 1, are presented in the Appendix. The soil and rock profiles described above are generalized descriptions of the conditions encountered at the boring location. General Notes Terminology and Classification of Rock Strata defining the nomenclature used on the soil boring log and elsewhere in this report are presented on Figure Nos. 2 and 3, respectively.

GROUNDWATER CONDITIONS

Groundwater was encountered at an approximate depth of 24 feet during drilling operations. An accurate measurement of the groundwater level at completion of drilling operations could not be determined due to the addition of water for rock coring operations.

Fluctuations in perched and long-term groundwater levels should be anticipated due to seasonal variations and following periods of prolonged precipitation. It should also be noted that groundwater observations made during drilling operations in predominantly cohesive soils are not necessarily indicative of the static groundwater level. This is due to the low permeability of such soils and the tendency of drilling operations to seal off the natural paths of groundwater flow.

SITE PREPARATION

On the basis of available data, it appears little earthwork will be required to achieve final design grades. Earthwork operations are anticipated to consist of removing existing bituminous and Portland cement concrete from the limits of the proposed lease parcel and excavating for the tower foundation. We recommend all earthwork operations be performed under adequate specifications and properly monitored in the field.

At the start of earthwork operations, the any existing bituminous and Portland cement concrete should be saw cut and removed in their entirety from within the limits of the proposed lease parcel. The exposed subgrade should be proof rolled with a loaded tandem-axle dump truck and visually evaluated

for instability and/or unsuitable soil conditions. Any unstable or unsuitable areas noted should be improved by additional compaction or removed and replaced with engineered fill.

Any engineered fill required should be free of organic matter, frozen soil, clods, or other harmful material. The fill should be placed in uniform horizontal layers that are not more than 9 inches in loose thickness. The engineered fill should be compacted to achieve a density of at least 95 percent of the maximum dry density as determined by the Modified Proctor compaction test (ASTM D 1557). All engineered fill material should be placed and compacted at approximately the optimum moisture content. Frozen material should not be used as fill, nor should fill be placed on a frozen subgrade.

FOUNDATION RECOMMENDATIONS

Based on the encountered subsurface conditions and estimated tower loads, we recommend the proposed 190-foot tall monopole tower be supported on a drilled pier foundation. We anticipate the pier will have a shaft diameter of 7-1/2 to 8 feet, depending on the anchor bolt template diameter, and bear at a depth ranging from 28 to 33 feet below grade. The drilled shaft design is controlled by the overturning moment. Thus, bearing pressure imposed on the drilled shaft bottom is less than the recommended allowable bearing pressure of 15,000 psf for the pier bearing on the moderately weak to strong, completely to faintly weathered limestone. The recommended allowable bearing pressure is based on a factor of safety of 3. The following soil parameters should be used for drilled pier design. Our soil design parameters are referenced from existing grade. The foundation design engineer must take into consideration any grade cut or fill operations required to develop the site.

Depth/Elevation (feet)	Total Unit Weight (pcf)	Cohesion (psf)	Angle of Friction (Degrees)	Soil Modulus (pci)
0 to 3 (686-1/2 to 683-1/2)	125	1,500	0	100
3 to 14-1/2 (683-1/2 to 672)	130	3,500	0	650
14-1/2 to 22 (672 to 664-1/2)	115	0	38	225
22 to 27 (664-1/2 to 659-1/2)	110	0	33	125
27 to 30 (659-1/2 to 656-1/2)	115	0	40	500
30 to 35 (656-1/2 to 651-1/2)	140	7,000	0	1,500

CONSTRUCTION CONSIDERATIONS

Caving and sloughing of the gravelly sand may occur during drilling operations. In addition, groundwater will be encountered at an approximate depth of 24 feet. Therefore, we recommend the contractor come to the site prepared to use temporary telescoped steel casing, drilling mud, and water, as necessary, to maintain stable excavation and control groundwater during construction operations. A minimum drilling mud head of 6 feet must be continuously maintained above static groundwater elevation to ensure a stable excavation. The contractor should be prepared to break-up and remove cobbles during excavation operations through the medium compact to very compact granular soils below an approximate depth of 14-1/2 feet. Furthermore, a core barrel and rock auger will be required to excavate the moderately weak to strong, completely to faintly weathered limestone below an approximate depth of 27 feet.

Once the drilled pier excavation has been completed to the design bearing depth, reinforcing steel should be set and concrete placed by tremie method until a positive head of concrete has been established within the casing. This positive concrete head must be maintained while pulling the casing to prevent infiltration of loose soil and groundwater into the fresh concrete. After concrete has been

placed to an appropriate grade, casing may be removed. Telescoped casing must be removed in the opposite order in which it was placed, i.e. From the inside out.

To reduce lateral movement of the drilled pier foundation, the contractor must place the concrete for the piers in intimate contact with undisturbed soil. Fill any voids or enlargements in the drilled pier shaft excavation with concrete at the time of concrete placement. We recommend using a concrete mix design with a slump of 7 to 9 inches for tremie placement to reduce the potential for concrete arching and provide a workable material.

We recommend using a temporary form, such as sono tube, to form the top portion of the drilled piers. The use of this top form is a very beneficial aid to the correct placement and orientation of the anchor bolts on free-standing towers.

GENERAL COMMENTS

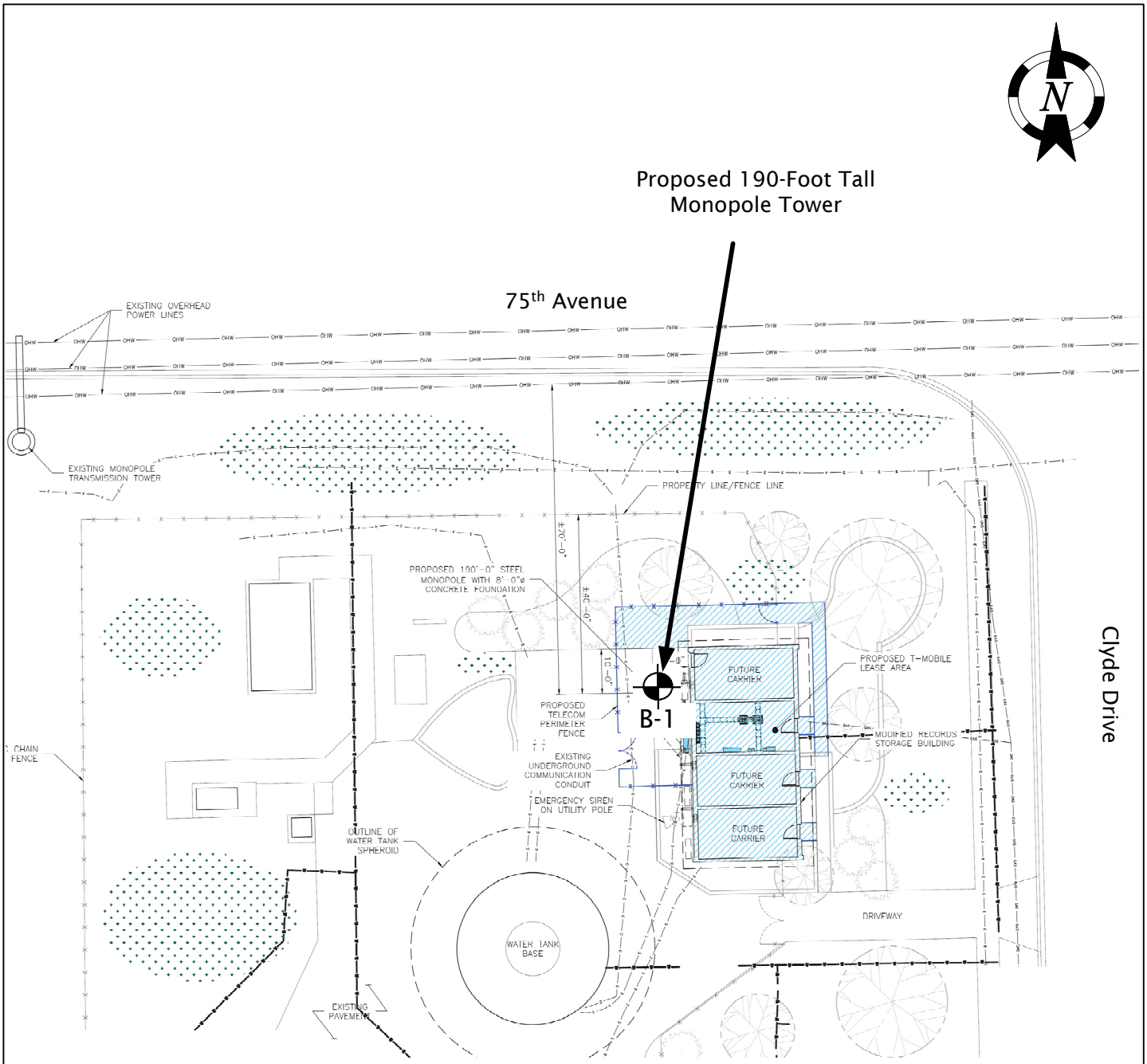
We have formulated the evaluations and recommendations presented in this report relative to site preparation and foundations on the basis of data provided to us relating to the location, type, and grade for the proposed site. Any significant change in this data should be brought to our attention for review and evaluation with respect to the prevailing subsurface conditions. Furthermore, if changes occur in the design, location, or concept of the project, the conclusions and recommendations contained in this report are not valid unless G2 Consulting Group, LLC reviews the changes. G2 Consulting Group, LLC will then confirm the recommendations presented herein or make changes in writing.

The scope of the present investigation was limited to evaluation of subsurface conditions for support of the proposed tower and other related aspects of the development. No chemical, environmental or hydrogeological testing or analyses were included in the scope of this investigation.

We base the analyses and recommendations submitted in this report upon the data from the soil boring performed at the approximate location shown on the Soil Boring Location Plan, Plate No. 1. This report does not reflect variations that may occur away from the actual boring location. The nature and extent of any such variations may not become clear until the time of construction. If significant variations then become evident, it may be necessary for us to re-evaluate our report recommendations.

Accordingly, we recommend G2 Consulting Group, LLC observe all geotechnical related work, including foundation construction, subgrade preparation, and engineered fill placement. G2 Consulting Group, LLC will perform the appropriate testing to confirm the geotechnical conditions given in the report are found during construction.

APPENDIX



Legend

Soil Boring Performed by C.S. Drilling on July 8, 2024

Soil Boring Location Plan

T-Mobile Site CH95363-A Washington & 75th
WT Replacement
1301 Clyde Drive
Naperville, Illinois 60565

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Project No. 242018	
Drawn By: LB	
Date: 7/8/24	Plate No. 1
Scale: NTS	

Project Name: T-Mobile CH95363A Washington & 75th WT Replacement

Project Location: 1301 Clyde Drive
Naperville, Illinois 60565

G2 Project No. 242018

Latitude: N/A Longitude: N/A

Soil Boring No. B-1

G2 CONSULTING GROUP

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 686.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Bituminous Concrete (6-1/2 inches) 0.5							
		Aggregate Base 1.0							
		Fill: Stiff Dark Brown Silty Clay with trace sand and gravel		S-1	2 2 3	5	28.6		3000*
		3.0							
681.5		Very Stiff Mottled Brown and Gray Silty Clay with trace sand and gravel	5	S-2	2 5 6	11	16.3		6000*
		6.0		4	4 7 9	16	17.7		9000*
676.5		Very Stiff to Hard Brown Silty Clay with trace sand and gravel	10	S-4	3 6 8	14	20.3		6000*
		14.5	15	S-5	7 12 44	56	16.8		8000*
671.5		Compact to Very Compact Tan Gravelly Sand with trace clay, silt, and cobbles							
666.5			20	S-6	10 16 20	36			
		22.0							
661.5		Medium Compact Tan Gravelly Sand with trace clay, silt, and cobbles	25	S-7	9 10 9	19			
		27.0							
		Moderately Weak Tan Completely to Highly Weathered Limestone		S-8	50/1-1/4"	---			
656.5		30.0	30						
		Strong Gray Slightly to Faintly Weathered Limestone Rock Core RC-9 (30 to 35 feet) Recovery = 100% RQD = 78%							
651.5		35.0	35	RC-9					
		End of Boring @ 35 ft							

Total Depth: 35 ft
Drilling Date: July 8, 2024
Inspector:
Contractor: C.S. Drilling, Inc.
Driller: Marc

Drilling Method:
3-1/4-inch inside diameter hollow-stem auger and NQ diamond-tipped core barrel

Water Level Observation:
24 feet during drilling operations

Notes:
Borehole collapsed at 22-1/2 ft after auger removal
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 1

SOIL / PAVEMENT BORING 242018.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 7/11/24

GENERAL NOTES TERMINOLOGY

Unless otherwise noted, all terms herein refer to the Standard Definitions presented in ASTM 653.

PARTICLE SIZE

Boulders		- greater than 12 inches
Cobbles		- 3 inches to 12 inches
Gravel	- Coarse	- 3/4 inches to 3 inches
	- Fine	- No. 4 to 3/4 inches
Sand	- Coarse	- No. 10 to No. 4
	- Medium	- No. 40 to No. 10
	- Fine	- No. 200 to No. 40
Silt		- 0.005mm to 0.074mm
Clay		- Less than 0.005mm

CLASSIFICATION

The major soil constituent is the principal noun, i.e. clay, silt, sand, gravel. The second major soil constituent and other minor constituents are reported as follows:

Second Major Constituent (percent by weight)	Minor Constituent (percent by weight)
Trace - 1 to 12%	Trace - 1 to 12%
Adjective - 12 to 35%	Little - 12 to 23%
And - over 35%	Some - 23 to 33%

COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modifier, i.e. sandy clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohesionless soils, i.e. silty clay, trace sand, little gravel.

Consistency	Unconfined Compressive Strength (psf)	Approximate Range of (N)
Very Soft	Below 500	0 - 2
Soft	500 - 1,000	3 - 4
Medium	1,000 - 2,000	5 - 8
Stiff	2,000 - 4,000	9 - 15
Very Stiff	4,000 - 8,000	16 - 30
Hard	8,000 - 16,000	31 - 50
Very Hard	Over 16,000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

COHESIONLESS SOILS

Density Classification	Relative Density %	Approximate Range of (N)
Very Loose	0 - 15	0 - 4
Loose	16 - 35	5 - 10
Medium Compact	36 - 65	11 - 30
Compact	66 - 85	31 - 50
Very Compact	86 - 100	Over 50

Relative Density of cohesionless soils is based upon the evaluation of the Standard Penetration Resistance (N), modified as required for depth effects, sampling effects, etc.

SAMPLE DESIGNATIONS

AS - Auger Sample – Cuttings directly from auger flight
BS - Bottle or Bag Samples
S - Split Spoon Sample - ASTM D 1586
LS - Liner Sample with liner insert 3 inches in length
ST - Shelby Tube sample - 3 inch diameter unless otherwise noted
PS - Piston Sample - 3 inch diameter unless otherwise noted
RC - Rock Core - NX core unless otherwise noted

STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0 inch outside-diameter, 1-3/8 inch inside-diameter split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments. The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).

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CLASSIFICATION OF ROCK STRATA

Rock shall be described in accordance with the following items of classification:

Type Shale, sandstone, limestone, gneiss, etc.

Jointing Solid, broken (horizontal), fractured (vertical or inclined), weathered, disintegrated, seamy, etc. Note any significant features such as iron stain, classification, slickensides, clay filling, etc.

Color Gray, yellow, brown, black, etc.

Percent Recovery Equals length of core recovered divided by length of drill run.

Hardness Very weak, moderately weak, moderately strong, strong, very strong.

Very Weak	Can be scratched with thumbnail or plastic.
Moderately Weak	Can be scratched with copper penny, but not with thumbnail or plastic.
Moderately Strong	Can be scratched by steel (knife, screwdriver, nail, etc.), but not with penny, thumbnail or plastic.
Strong	Can be scratched only with considerable pressure on steel edge.

"Scratched" means a permanent impression left after core or rock surface is brushed or rubbed.

Weathering Completely Weathered, Highly Weathered, Moderately Weathered, Slightly Weathered, Faintly Weathered, Fresh.

Completely Weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Highly Weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Moderately Weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Slightly Weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker than in its fresh condition.
Faintly Weathered	Discoloration on major discontinuity surfaces.
Fresh	No visible sign of rock material weathering.

Rock Quality Determination (RQD) Length of core unbroken by natural joints in pieces greater than 4 inches in length divided by length of core run.

An example of a rock description is as follows: Moderately Weak Gray Highly Weathered Limestone.