ROADWAY GEOTECHNICAL REPORT
IL ROUTE 7 (SOUTHWEST HIGHWAY)
IMPROVEMENTS
FROM 131ST STREET TO 135TH STREET
COOK COUNTY, ILLINOIS

For

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11. Abstract

IL Route 7 (Southwest Highway) is proposed for improvement from 131St Street to south of 135th Street. In addition, 131st and 135th Streets will also be reconstructed near IL 7. The improvements will include resurfacing and reconstruction including widening of IL 7, construction of storm sewer culvert on the west side of IL 7, several culvert replacements along IL 7 and Mill Creek, and a new detention basin.

The existing pavement structure along IL 7 generally consists of either 5.0 to 16.0 inches of asphalt or 2.0 to 15.0 inches asphalt followed by 7.5 to 11.0 inches of concrete pavement. The borings and pavement cores drilled along 135th Street revealed either 11.0 to 12.0 inches of asphalt or 9.0 to 10.0 inches asphalt followed by 8.0 to 9.25 inches of concrete pavement. Pavement cores and subgrade borings along the 131st Street encountered either 20 inches of asphalt or 4.0 to 14.0 inches of asphalt overlying 5 to 9 inches of concrete. 15 borings encountered 2 to 10 inches of topsoil.

Beneath the pavement and topsoil, the borings encountered up to 8 feet of fill followed by medium stiff to hard clay to silty clay loam. Several borings encountered 0.7 to 3.9 feet of buried topsoil. In addition, several borings revealed organic soils and peat. Borings encountered the groundwater at depths of 3.0 to 21.0 bgs during drilling.

The proposed subgrade will consist primarily of cohesive soils. The existing subgrade will generally provide a stable working platform for construction of the pavement. Subgrade treatment recommendations for specific locations are provided in Section 5.2. For a mechanistic pavement design, the pavement sections should be designed using an SSR of POOR. For an AASHTO pavement design, the pavement sections should be designed using an IBR of 2.

Several culvert replacements along Mill Creek will require removal and replacement or ground improvements. Temporary soil retention system will be required at some culvert locations. The proposed storm sewer culvert on the west side will require ground improvement between Stations 105+10 and 110+10.

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FOR
JAMES J. BENES & ASSOCIATES, INC.

1.0 INTRODUCTION

This report presents the results of our subsurface investigation, laboratory testing, and geotechnical evaluations and recommendations in support of the roadway improvements proposed along IL Route 7 (Southwest Highway) from the 131st Street to 135th Street in Villages of Orland Park and Palos Park, Cook County, Illinois. A *Site Location Map* is presented as Exhibit 1.

Based on drawings and information provided by James J. Benes & Associates, Inc. (JJBenes), Wang Engineering, Inc. (Wang) understands the project extends along IL 7 between Station 71+40 north 96th Avenue (US Route 45) and Station 135+85 north of 131st Street. The proposed improvements will include resurfacing and roadway full width reconstruction including IL 7 widening, Mill Creek culvert replacements and channel reshaping, and a new detention basin. The improvements along 131st Street and 135th Street include reconstruction and resurfacing near the IL 7, adding turning lanes and several culvert replacements.

A separate Structure Geotechnical Report (SGR) has been prepared for the proposed triple box culvert at 131st Street over Mill Creek.

The purpose of our investigation was to characterize the site pavement, subgrade, and groundwater conditions; perform geotechnical engineering analyses; and provide geotechnical recommendations for the design and construction of the proposed roadway improvements.

2.0 GEOLOGICAL SETTING

The project area is located in southwest Cook County along IL 7, between 131st Street and north of 96th Avenue in the Villages of Orland Park and Palos Park, Illinois. On the USGS Palos Park Quadrangle map, the project runs through NW ¼ of Section 3, Tier 36N, Range 12E, and continues north through Section 34 of Tier 37N, Range 12E of the 3rd Principal Meridian.

The following review of published geologic data, with emphasis on factors that might influence the design and construction of the proposed engineering works, is meant to place the project area within a geological framework and confirm the dependability and consistency of the present subsurface investigation results. For the study of the regional geologic framework, Wang considered northeastern Illinois in general and Cook County in particular. *Exhibit 3* illustrates the Site and Regional Geology.

2.1 Physiography

The investigated site is located just south of the Chicago Outlet, within the Clarendon Moraine of the Valparaiso Morainic System. The site surroundings are characterized by a complex topography with mounds, basins, sags, valleys, and elongated hills that parallel the Lake Michigan shoreline (Leighton et al. 1948). The existing roadway follows the natural ground surface except for the lower areas south and north of 135th Street, where the road is sustained by low embankments. Within the project limits, the natural ground surface is generally flat with a hummocky appearance with elevations ranging from 662 feet to 678 feet.

2.2 Pedological Features

The project area was shaped during the Wisconsin glaciation. After the glaciation, several types of soils developed through weathering on the glacigenic sediments. In Cook County, the soil types were surveyed by the USDA (2019). Exhibits 2 summarize the USDA soil type within the project area, their relevant geotechnical index properties, and suitability rating as subgrade for light to medium traffic and as construction material for road fills. The pedologic ratings meant as general references in the absence of a site-specific investigation. Oftentimes, our findings regarding soil features affecting suitability for highway and street construction are not necessarily consistent with the USDA ratings. Though a useful guide to general surficial soil conditions within the county, the USDA ratings for soil frost susceptibility and suitability as road subgrade seem overly critical and are probably based on different criteria than those applied in roadway engineering works.

2.3 Surficial Cover

Glacial and postglacial deposits overlie the bedrock surface. Within the project area, post glacial Grayslake Peat deposits along with glacial Equality Formation deposits discontinuously overlain the Wadsworth Formation (Hansel and Johnson 1996) diamicton that makes up most of the glacial drift.

The Grayslake Peat deposits are made up of peat, muck and locally marl, with interbedded organic silt and clay (Willman and Lineback 1970). The Equality Formation deposits consists predominantly of bedded silt and clay with lenses of gravel, sand, diamicton and organic debris (Hansel and Johnson 1996). The Wadsworth Formation may be as thick as 100 feet, and it consists of low moisture content, and medium to high blow counts calcareous, gray, fine textured diamicton that contains lenses of sorted and stratified sediments (Bauer et al. 1991).

2.4 Bedrock

In Cook County, the surficial cover rests unconformably on top of Silurian-age bedrock that dips eastward at a pace of about 15 feet per mile. The project site is situated on the eastern flank of the southward-plunging Wisconsin Arch (Leetaru et al. 2004). The top of the bedrock elevation is about 575 feet, about 75 to 100 feet below ground surface (bgs).

Our subsurface investigation results fit into the local geologic context. The borings drilled in the project area revealed the native sediments consists of very soft to stiff organic silty clay, peat, and medium stiff to stiff clay occasionally layered with loose to medium dense sand to loam discontinuously overlaying the stiff to hard silty clay diamicton. None of the borings reach the bedrock.

2.5 Climatological Data

The subsurface investigation was performed in September 2019. To assess the possible effects of temperature and precipitation on water table and soil moisture data, the climatic conditions for the investigation period and three months prior to the start of investigation are summarized graphically in Figures 1 and 2. The precipitation and temperature data for the investigation period are compared against thirty-year monthly data (1981 to 2010) in box-and-whiskers format to illustrate deviations from “normal” climate conditions during the current investigation. Local climatologic data were obtained from the Chicago, O’Hare Station (NCDC 2019).

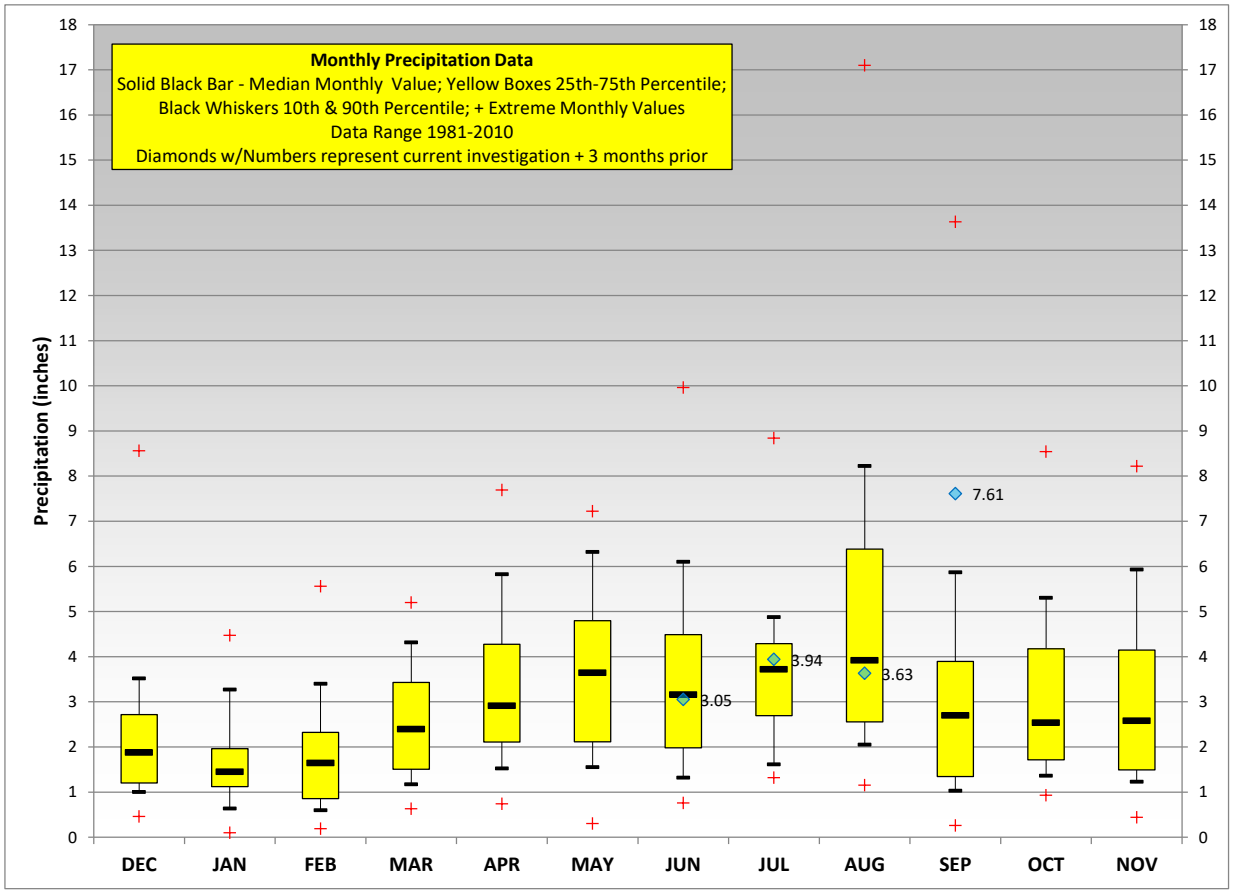

Figure 1: Monthly Precipitation Data

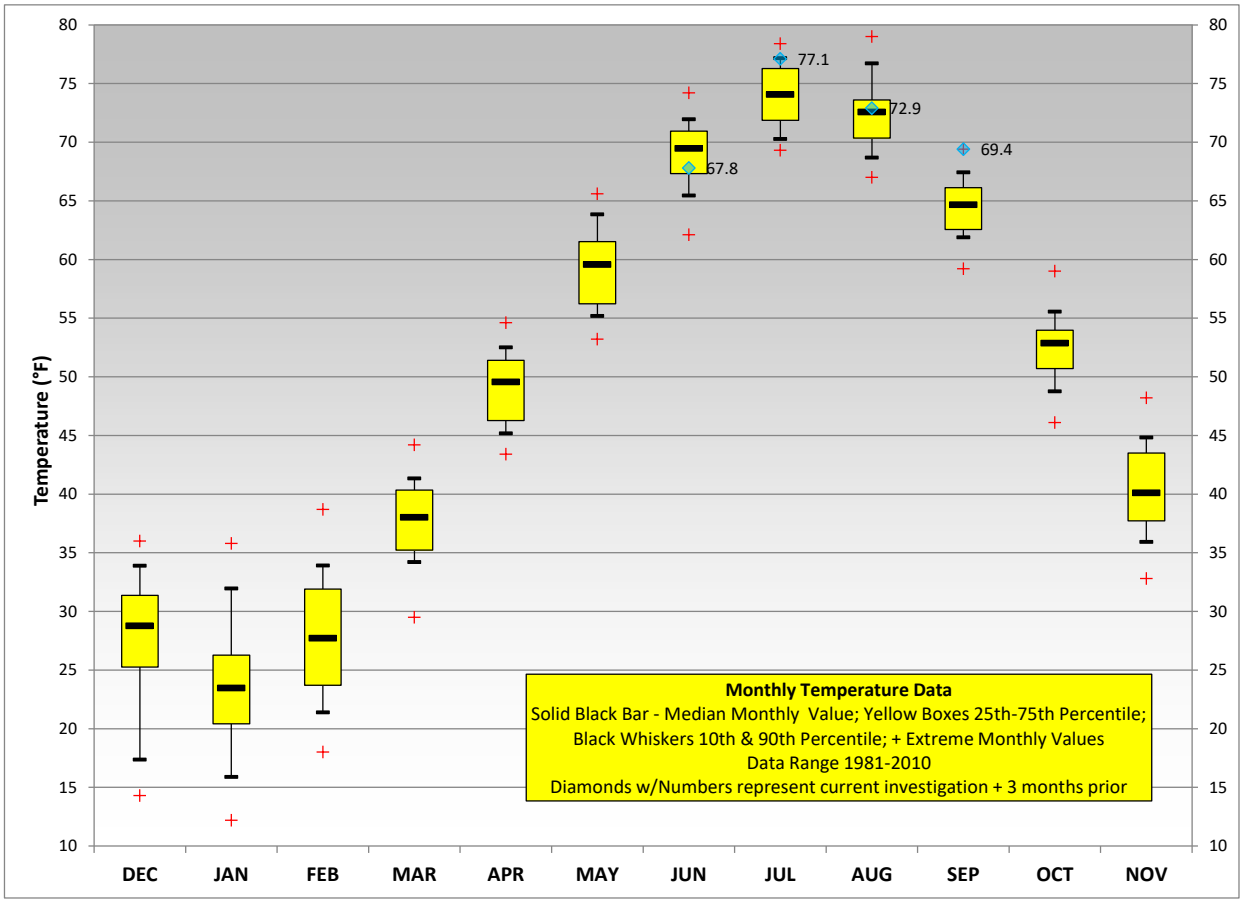

Figure 2: Monthly Temperature Data 2019

No significant precipitation deviations from the historical 30-year climate data were recorded prior the subsurface investigation period. Record temperature and precipitations were recorded during the investigation month, September 2019. The total precipitation for September was 7.61 inches. The presents of perched groundwater within the granular lenses may have been influenced by these climate factors.

3.0 METHODS OF INVESTIGATION

The following sections outline the subsurface and laboratory investigations performed by Wang.

3.1 Field Investigation

The initial subsurface investigation consisted of 21 subgrade borings designated as SB-01 through SB-13 and designated as RB-01 through RB-08, 15 culvert borings designated as CB-01 through CB-

15, and 8 detention pond borings designated as DB-01 through DB-08 drilled by Wang in October 2019. In addition, nine pavement cores, designated as PC-01 through PC-09 were collected. The first supplemental investigation included an additional eight borings designated as B-01 through B-09, and one Shelby tube boring designated as B-02ST, drilled by Wang in February and March 2021. The second supplemental investigation included an additional 12 borings, designated as C-1, C-2, R-01 through R-10, and one Shelby tube boring designated as R-04-ST. The reference borings/pavement cores, existing ground surface elevations, and boring/coring termination depths are summarized in Table 1. The as-drilled northings and eastings were acquired with a mapping-grade GPS unit. Stations, offsets, and elevations were provided by JJBenes. Boring location data are presented in the *Boring Logs* (Appendix A) and the as-drilled locations are shown in the *Boring Location Plans* (Appendix D).

Table 1: Boring Investigation Summary

Roadway Alignment	Reference Borings/Cores	Existing Surface Elevation (feet)	Boring/ Coring Depth (feet)
IL Route 7	C-1 and C-2	675.0 to 675.2	30.0
	CB-01 to CB-03, and CB-07 to CB-12	669.8 to 678.3	15.0 to 25.0
	DB-01 to DB-08	671.2 to 681.0	15.0 to 17.5
	RB-01 to RB-08	670.4 to 672.2	15.0 to 20.0
	R-01 to R-10, R-04-ST	670.4 to 672.0	14.0 to 32.5
	SB-01 to SB-04, SB-07, SB-08, and SB-13	644.4 to 660.9	11.0 to 15.0
	PC-05 to PC-09	670.5 to 675.2	1.0 to 2.0
	B-01, B-03, B-06, and B-08	670.6 to 681.0	30.0 to 40.0
135th Street	CB-05 and CB-06	672.7 and 673.9	25.0
	SB-05 and SB-06	671.3 and 677.0	17.5 and 20.0
	PC-01 and PC-02	671.0 and 677.0	1.0 and 1.5

Roadway Alignment	Reference Borings/Cores	Existing Surface Elevation (feet)	Boring/ Coring Depth (feet)
	B-02 and B-02ST	674.4 and 674.3	22.0 and 40.0
131st Street	CB-13 to CB-15	670.4 to 673.4	25.0
	SB-09 to SB-11	670.6 to 674.4	10.0 to 11.0
	PC-03 and PC-04	670.6 and 674.4	1.3 to 1.5
	B-04 and B-05	670.6 and 672.2	45.0

ATV- and truck-mounted drilling rigs equipped with hollow stem augers were used to advance and maintain open boreholes. Soil sampling was performed according to AASHTO T206, *"Penetration Test and Split Barrel Sampling of Soils."* The soil was sampled continuously to the boring termination depths. Soil samples collected from each sampling interval were placed in sealed jars and transported to the laboratory for further examination and laboratory testing. Four-inch diameter pavement cores were obtained with hand-operated coring equipment.

Field boring logs, prepared and maintained by a Wang field engineer, included lithological descriptions, visual-manual soil classifications, results of Rimac and/or pocket penetrometer unconfined compressive strength tests, and results of Standard Penetration Tests (SPT) recorded as blows per 6 inches of penetration. The N-values shown in the *Soil Profile* (Appendix D) are the sum of the second and third set of blows per 6 inches of penetration. The composition of the pavement cores was described, the thickness of each layer was measured, and the cores were photographed (Appendix C).

Groundwater levels were measured while drilling and at the completion of each boring. For safety considerations each borehole was backfilled upon completion with soil cuttings and bentonite chips and the pavement surface was restored as close as possible to its original condition.

3.2 Laboratory Testing

The soil samples were tested in the laboratory for moisture content (AASHTO T265). Atterberg limits (AASHTO T89 and T90) and particle size analysis (AASHTO T88) tests were performed on selected

samples. Shelby tube samples from Borings B04 and R-04-ST were tested for one-dimensional consolidation (AASHTO T216). Field visual descriptions of the soil samples were verified in the laboratory and the soils were classified according to the IDH and AASHTO Soil Classification Systems. The laboratory test results are shown in the *Boring Logs* (Appendix A), in the *Laboratory Test Results* (Appendix B), and in the *Soil Profile* (Appendix D).

4.0 INVESTIGATION RESULTS

Detailed descriptions of the soil conditions encountered during the subsurface investigation are presented in the attached *Boring Logs* (Appendix A) and in the *Soil Profile* (Appendix D). Please note that the strata contact lines shown on the logs and profiles represent approximate boundaries between soil types. The actual transition between soil types in the field may be gradual in horizontal and vertical directions.

4.1 Topsoil Characterization

At the surface, 15 borings, CB-05, CB-09, DB-01 through DB-08, RB-01, SB-06, and B-06 through B-08 encountered 2 to 10 inches of brown to black silty clay to silty clay loam topsoil.

4.2 Existing Pavement Structure

The pavement cores and soil borings revealed the existing pavement structure along IL 7 generally consists of either 5.0 to 16.0 inches of asphalt or 2.0 to 15.0 inches asphalt followed by 7.5 to 11.0 inches of concrete pavement. The borings and pavement cores drilled along 135th Street revealed either 11.0 to 12.0 inches of asphalt or 9.0 to 10.0 inches asphalt followed by 8.0 to 9.25 inches of concrete pavement. Pavement cores and subgrade borings along the 131st Street encountered either 20 inches of asphalt or 4.0 to 14.0 inches of asphalt overlying 5 to 9 inches of concrete. The pavement composition and thicknesses as uncovered by our investigation are summarized in Table 1 and exhibits with pictures are provided in Appendix C.

Table 2: Existing Pavement Structure Summary

Roadway Alignment	Boring[(1)]/Pavement Core[(2)] ID	Pavement Structure (inches)		
		Asphalt	Concrete	Aggregate Base
IL 7 (Southwest Highway)	CB-02	5.0	--	Sandy Gravel

Roadway Alignment	Boring[1]/Pavement Core[2] ID	Pavement Structure (inches)		
		Asphalt	Concrete	Aggregate Base
	CB-03	8.0	--	Gravel
	CB-04	5.0	--	Sandy Gravel
	CB-10	11.0	--	Sandy Gravel
	CB-11	12.0	--	--
	CB-12	10.0	12.0	--
	RB-03	3.5	7.0	Sandy Gravel
	RB-04	4.0	7.0	Gravel
	RB-06	5.0	--	Gravelly Sandy Loam
	RB-07	11.75	--	Gravel
	RB-08	11.0	--	Gravelly Loam
	R-03	2.0	10.0	Gravelly Sand
	R-06	10.0	8.0	--
	R-10	12.0	--	--
	SB-01	4.0	8.0	Sandy Gravel
	SB-02	11.0	--	Concrete fragments
	SB-03	3.0	9.0	Sandy Gravel
	SB-04	2.0	10.0	--
	SB-07	15.0	--	Gravel
	SB-08	15.0	12.0	--
	SB-13	10.0	8.0	--
	PC-05	16.0	--	--
	PC-06	4.25	8.0	Crushed Stone
	PC-07	12.25	--	Gravel
	PC-08	11.75	--	--
	PC-09	16.50	7.5	Gravel

Roadway Alignment	Boring[1]/Pavement Core[2] ID	Pavement Structure (inches)		
		Asphalt	Concrete	Aggregate Base
135th Street	B-01	14.0	--	--
	B-03	4.0	8.0	Sandy Gravel
	CB-06	11.0	--	--
	SB-05	10.0	8.0	Gravelly Sand
	PC-01	9.0	9.25	Crushed Stone
	PC-02	11.75	--	Crushed Stone
	B-02	12.0	--	Gravelly Loam
131st Street	CB-14	13.0	7.0	Sandy Gravel
	CB-15	4.0	9.0	Sandy Gravel
	SB-09	20.0	--	--
	SB-10	10.0	8.0	--
	SB-11	10.0	7.5	--
	SB-12	7.0	5.0	Sandy Gravel
	PC-03	10.0	6.0	--
	PC-04	10.0	7.5	--
	B-04	13.0	7.0	--
	B-05	14.0	--	--

[1] Measured in the borehole; [2] Measured from the pavement cores.

4.3 Soil Conditions

Beneath the pavement structure and topsoil, the borings mainly encountered cohesive soils. The following section presents the main subgrade conditions encountered along the roadway alignment by our subsurface investigation. In descending order, the general lithologic succession encountered beneath the pavement and topsoil includes 1) man-made ground (fill); 2) medium stiff to hard clay to silty clay loam; 3) soft to stiff organic soils and peat; and 4) stiff to hard silty clay loam.

1) Man-made ground (fill)

Beneath the surface, the borings generally encountered up to 13 feet of fill materials. The fill consists of both granular and cohesive fill. The granular fill consists of loose to medium dense sandy loam to sandy gravel and loam with N values of 9 to 28 blows per foot. The cohesive fill consists of very soft to hard clay loam to silty clay loam with unconfined compressive strength (Q_u) values of less than 0.25 to 5.5 tsf and moisture content values of 12 to 35%. Laboratory index testing on samples from this fill shows liquid limit (L_L) values of 31 to 41% and plastic limit (P_L) values of 17 to 19%.

Out of a total of 52 borings including supplement borings, 14 borings encountered 0.7 to 3.9 feet of medium stiff to stiff, black silty clay loam buried topsoil with Q_u values 0.5 to 2.8 tsf and moisture content values of 25 to 56%. Laboratory test on a sample from this layer shows an organic content of 12.1%.

2) Medium stiff to hard clay to silty clay loam

Beneath the fill, the borings advanced through medium stiff to hard, brown and gray to gray clay to silty clay loam. This layer is characterized by Q_u values of 0.5 to more than 4.5 tsf and moisture content values of 11 to 36%. Laboratory index testing on samples from this unit shows L_L values of 30 to 56% and P_L values of 18 to 20%.

3) Soft to stiff organic soils and peat

Beneath the fill or clayey soil, several borings advanced through very soft to medium stiff, black and gray organic soils and peat. The layer has Q_u values of less than 0.25 to 1.31 tsf and moisture content values of 45 to 125%. Laboratory index testing on samples from these organic soils shows L_L values of 42 and 79% and P_L values of 19 to 33%. Laboratory test shows organic content of 3.8 to 9.9%. The long-term consolidation properties of the organic silty clay from Boring B-04 were obtained from one-dimensional odometer testing. The resulting soil parameters are summarized in Table 3 and the laboratory sheets are attached in Appendix B.

Table 3: Summary of Consolidation Testing

Boring ID	Test Depth (feet)	Test Elevation (feet)	C_C	C_S	e_O	OCR	Moisture Content (%)	L_L/P_L
B-04	21 to 23	648.6	0.365	0.072	1.157	1.02	41	42/19
R-04-ST	8 to 10	661.5	0.659	0.156	1.708	1.41	63	--

4) Stiff to hard silty clay loam

Beneath the organic soils, the deep borings advanced through stiff to hard, gray silty clay loam interbedded with loose to medium dense, saturated sand to sandy loam and silt. This layer is characterized by Q_u values of 0.9 to 4.5 tsf and moisture content values of 13 to 23%.

4.4 Groundwater Conditions

Out of 44 borings, 13 borings encountered the groundwater at depths of 3.0 to 21.0 feet bgs during drilling in October 2019. At completion of drilling, in Borings CB-13, DB-04, DB-07, RB-04, and SB-08, the groundwater was measured at depths of 6.8 to 20.0 feet bgs in October 2019. Borings B-01 and B-03 through B-08 encountered the groundwater at depths of 3.5 to 18.5 bgs during drilling in February and March 2021. At completion of drilling, Borings B-01, B-03, B-04, B-07, and B-08, the groundwater was measured at depths of 12 to 33 feet bgs. Borings C-1, R-01, R-03, R-04, R-05, and R-10 encountered the groundwater at depths of 3.5 to 28.0 feet bgs in February 2022. At completion of drilling in Borings C-1, C-2, R-04, R-04-ST, the groundwater was measured at depths of 5.0 to 29.0 feet bgs. However, it should be noted that groundwater levels might change and may vary with seasonal rainfall patterns and long-term climate fluctuations or may be influenced by the Mill Creek water level that flows along IL 7 on east side under a series of culverts and open channels.

5.0 ANALYSIS AND RECOMMENDATIONS

According to the plan and profile drawings and preliminary cross-section drawings provided by JJ Benes, Wang understands the following improvements are proposed:

- IL 7 drainage improvements from Station 88+81.00 to 92+48.70 which includes east side ditch reshaping;
- IL 7 resurfacing and shoulder reconstruction from Station 92+48.00 to Station 97+24.91 including east side ditch reshaping;
- Full depth reconstruction from Station 97+24.91 to Station 101+15.08 including east side ditch reshaping;
- IL 7 reconstruction from Station 101+15.08 to Station 130+90.47 including IL 7 centerline will be shifted west side about 16.5 feet, a 11-foot lane at each direction, and 10-foot median. Also 7-to17-foot wide shoulder, 8-foot wide shared-use path, and 72-inch diameter storm sewer will be constructed on west side from Station 101+50 to 127+50;
- IL 7 full depth reconstruction between Station 130+90.47 to Station 133+01.64;

- IL 7 resurfacing and shoulder construction from 133+01.64 to 135+85.10
- 135th Street full depth reconstruction and drainage improvements from Station 9+67.70 to Station 11+65.50;
- 135th Street reconstruction from Station 12+44.96 to Station 14+30.46 including a new11-foot right turning lane;
- 131st Street reconstruction from 18+12.00 to Station 20+27.64 including right turning lane varies from 0 to 11 feet and 30-inch diameter culvert on the south side;
- 131St Street reconstruction from 20+27.64 to 22+00.00 including 11-foot right turning lane and 30-inch diameter culvert on the south side;
- IL 7 and 131st Street intersection - Southeast quadrant detention basin; and
- Several culvert replacements for the Mill Creek.

Design drawings indicate the proposed grade will be raised less than 1-foot. Based on the IDOT's pavement analysis memorandum dated October 15, 2016, the reconstructed section of IL7, 131st Street, and 135th Street will consist of:

- 2.0 inches of Hot Mix Asphalt;
- 8.0 inches of Hot Mix Asphalt base course; and
- 12 inches of aggregate base course.

Pavement resurfacing will consist of:

- Cold milling of Hot Mix Asphalt pavement of 2 inches minimum; and
- 2 inches of Hot Mix Surface Course.

5.1 Site Preparation

It is recommended that the existing pavement, topsoil, vegetation, and debris be stripped within the limits of the proposed improvements. The existing pavement thicknesses, as uncovered by our investigation, are summarized in Table 2. As per IDOT District One, a shrinkage factor of 15% should be used to measure borrowed and furnished excavation quantities.

As per IDOT District One, all of the topsoil that is stripped be stockpiled, sorted, and reused for the proposed landscaping improvements. The pay item for this is *Topsoil Excavation and Placement*. We recommend that a plan note containing the stockpiling information be included in the contract documents. The topsoil stripping depth of 6 inches is recommended for estimating purposes. The actual removal depth and the quantity of topsoil removal should be verified in the field.

After the surface removal, the stability of the exposed subgrade should be observed for the presence of any unsuitable and/or unstable soils to determine if remedial treatment is necessary. The prepared subgrade should be proofrolled to check for rutting and subgrade deformation. Using either a static or dynamic cone penetrometer, any unstable and/or unsuitable soils revealed during proofrolling should be tested and evaluated according to the IDOT *Subgrade Stability Manual* (IDOT 2005).

Where existing embankments are to be widened, the existing slopes should be deeply plowed or benched according to Section 205 (IDOT 2016). We recommend including the IDOT District One benching detail in the contract plans.

5.2 Subgrade Treatment Recommendations

Based on the results of our investigation, the subgrade soil will generally consist of stiff to very stiff clay loam to silty clay loam fill or new fill.

The soil borings indicate the proposed subgrade generally consists of soils with Q_u values greater than 1.0 tsf, moisture contents of less than 25%, and L_L values below 50%. Overall, the subgrade soils will provide a stable working platform for the construction of the new pavement structure and the placement of aggregate base. However, Borings R-02 to R-04, RB-03, RB-04, RB-06, and SB-08 along IL 7 revealed very soft to stiff clay loam to silty clay loam. Soil layers have Q_u values of 0.25 tsf and moisture content values of 28 to 35%. In addition, buried topsoil was encountered in Boring SB-13 along IL 7 and in Borings SB-09 and SB-10 along 131st Street under the existing asphalt pavement. At these boring locations we are recommending subgrade treatment as summarized in Tables 4 and 5 along IL Route 7 and 131st Street, respectively. The proposed undercuts are below the 12 inches of aggregate subgrade improvement that is included in as part of the proposed pavement section.

Table 4: Summary of Subgrade Treatment Recommendations along IL Route 7

Limits Station to Station	Treatment Width	Treatment Type	Treatment Depth (Inches)	Reference Boring, Subgrade Concerns
105+10 to 111+10	Northbound lanes/Widenings (10 feet LT to 40 feet LT)	Note 1	Note 1	R-02 to R-04, RB-03 and RB-04 (Q_u =0.25 to 1.0 tsf, MC=28 to 48%)
116+54 to 120+14	Northbound lanes	Evaluate in the field during construction	Determine in the field	RB-06 (MC=30%)

			during construction	
127+10 to 131+19	Full pavement width	Note 2	Note 2	SB-08 (Q_u=0.25 tsf)
131+19 to 133+00	Full pavement width	Aggregate Subgrade Improvement	48	SB-13 Buried Topsoil (MC=25%)

Note 1: See Section 5.6, Additional ground improvement will be required for the storm sewer and widening of embankment.
Note 2: Undercut of 24 inches with geogrid option can be considered. Use of geogrid layer to be evaluated by the specialty contractor.

Table 5: Summary of Subgrade Treatment Recommendations along 131St Street

Limits Station to Station	Treatment Width	Treatment Type	Treatment Depth (Inches)	Reference Boring, Subgrade Concerns
18+12 to 20+10	Full pavement width	Aggregate Subgrade Improvement	25	SB-09 and SB-10 Buried Topsoil (MC=25%)
20+10 to 22+00	Full pavement width	Aggregate Subgrade Improvement	47	SB-10 Buried Topsoil (MC=31 to 33% OC=12.1%)

The actual need for removal and replacement of unstable and/or unsuitable soils should be determined in the field at the time of construction. The subgrade should be proofrolled and tested as outlined in Section 5.1. If low strength and/or high moisture soils are encountered during construction other locations not shown in Tables 4 and 5, they should be removed to a minimum depth of 6 inches and replaced with compacted granular fill.

As per IDOT District One, in addition to the undercut recommended in Tables 4 and 5, we recommend that a plan quantity of Aggregate Subgrade Improvement (CY) equal to 20% of the planned full depth pavement area assuming a thickness of 12 inches should be added for estimating purposes. This material should be used to replace any unsuitable soils encountered below the bottom of the improved subgrade layer that are encountered in the field during construction and not revealed by our subsurface investigations. The actual need for removal and replacement with Aggregate Subgrade Improvement should be determined in the field at the time of construction by the Geotechnical Engineer. All potentially unstable soils should be tested with a cone penetrometer and treated in accordance with Article 301.04 of IDOT *Standard Specifications* (IDOT 2016) and the undercut guidelines in the IDOT *Subgrade Stability Manual* (IDOT 2005). Any material not needed

for undercut replacement at the time of construction should be deleted from the contract with no extra compensation to the contractor.

Based on the above recommendations, there will be a need for two separate Aggregate Subgrade Improvement line items in the Schedule of Quantities (SOQ) included in the design plans:

- Aggregate Subgrade Improvement of 12-inch (SQ YD) – This will be used for 12-inch aggregate subgrade improvement below new pavement sections; and
- Aggregate Subgrade Improvement (CU YD) – This will be used in locations where there are undercuts (below the 12 inch improved subgrade layer) where poor soils were removed.

It should be noted that both of above items refer to the IDOT District One Special Provision, *Aggregate Subgrade Improvement*.

As per IDOT District One, we also recommend including a plan quantity of Geotechnical Fabric for Ground Stabilization equal to at least 20% of planned pavement area, in addition to the areas in Tables 4 and 5. We recommend placing geotextile fabric at the base of undercut areas where low strength subgrade soils are encountered. The 12 inches of improved subgrade is not considered as undercut and we do not recommend placing the fabric at the base of the proposed 12-inch improved subgrade layer unless it is determined to be necessary to achieve stability by the Geotechnical Engineer at the time of construction. Fabric should meet the requirements of Article 210, Fabric for Ground Stabilization of IDOT *Standard Specifications* (IDOT 2016). Any material not needed at the time of construction should be deleted from the contract with no extra compensation to the contractor.

Any highly moist soils, if not otherwise unsuitable or unstable, encountered within the exposed roadway subgrade should be disked or tilled, dried, and compacted before placing the new pavement structure.

5.3 Pavement Design Recommendations

For a Mechanistic Pavement Design (MPD), IDOT rates the subgrade using the Subgrade Support Rating (SSR). Laboratory testing on representative samples of the subgrade soil shows SSR ratings of POOR to FAIR (Appendix B). Considering the worst subgrade conditions, we recommend that an SSR of POOR be used for the purpose of pavement design. Pavement structure conforming to IDOT's MPD requires a minimum of 12 inches of improved subgrade below the design pavement

structure to ensure stability during construction and long-term pavement performance (IDOT 2015).

For an AASHTO pavement design, the subgrade soil support is characterized using the Illinois Bearing Ratio (IBR). Based on soil tests and classifications (A-6 and A-7), we recommend that the pavement be designed based on an IBR value of 2 (IDOT 2015).

5.4 Pavement Drainage

The soils encountered beneath the proposed subgrade will exhibit poor to fair drainage characteristics. The fill material to be placed in support of the widening will likely to be cohesive and will exhibit poor drainage characteristics. We recommend installing both longitudinal and transverse pipe underdrains below the pavement for the roadways. We recommend installing the transverse drains using a spacing of 300 feet. The drains should also be installed in low areas and at the base of any undercuts. The underdrains should tie into the storm water drainage system or drain into Mill Creek channel and should be installed per Article 601 in the IDOT *Standard Specifications* (IDOT 2016) and consist of Type 2 underdrains (Adopted 1, 2016). Top of pipe underdrains shall be placed 6 inches below the subgrade or undercut.

5.5 Embankment and Cut Sections

The reconstruction of the roadway will have both fill and cut sections. The highest embankment fill of 7.5 feet will be located along IL 7 near Station 107+00 on the west side widening. The deepest cut of 10.0 feet will be located along IL 7 near Station 123+00 on the east side for Mill Creek channel reshaping.

5.5.1 Settlement

In general, we do not anticipate excessive settlement except the widening areas where the borings encountered organic soils and peat. The remaining locations the settlement estimated to be 1-inch or less.

5.5.2 Slope Stability

The proposed cut side slopes will be graded 1:2.5 (V:H). The global stability at Station 123+00 was analyzed based on the soil information from the nearest boring. The analysis indicates that the factor of safety (FOS) meet IDOT's minimum requirement of 1.7 for cut. The widening embankment will be sloped nearly flat; therefore, we do not see any slope stability concerns. Slope stability analyses results are included in Appendix E.

5.6 Storm Sewer Culvert

Based on the project report and cross-section drawings, we understand about 2500-foot long and 72-inch diameter storm sewer culvert will be installed along the existing west side ditch of IL 7 then the embankment fill will be placed for the widening portion of the IL 7. The proposed storm sewer culvert extends from Station 103+25 to Station 127+70 then it crosses the IL 7 at Station 127+70 and drains into the Mill Creek Channel on the east side.

Based on encountered soil conditions in our borings along the IL 7 as shown on soil profile Exhibits D-1A and D-1B (Appendix D), the soils at the culvert base are expected to be stiff to very stiff silty clay to silty loam except where the borings encountered organic soils and peat. The organic soils and peat are expected at two sections along the culvert; (1) between Stations 105+10 and 110+10; (2) between Stations 124+90 and 127+70. Based on the embankment widenings, we estimate the ground improvement will only be required between Stations 105+10 and 110+10 and discussed in Section 5.7.

5.7 Ground Improvement

The subsurface investigation along the IL 7 revealed the presence of compressible, soft to medium stiff organic soils and peat. The peat and organic soils are expected at a section along the IL 7 on the west side as described in Section 5.6 between Stations 105+10 and Station 110+10 (Exhibit D-1A).

We performed settlement analysis at Station 107+00. Our evaluations show estimated long-term settlement of 7 to 8 inches in the widening portion of the embankment under 7.5 feet high new fill placed on the top of storm sewer culvert.

To achieve less than one inch of long-term settlement, these areas will require treatment of the highly organic soils through removal and replacement or ground improvement. We anticipate the removal and replacement may not be feasible as organic soils and peat extend to depths of 19 feet bgs, thus not feasible.

The storm sewer culvert and the associated roadway embankments could be constructed on timber piles with a load transfer platform system through a section of IL 7 between Stations 105+10 and 110+10 for an estimated width as shown in Figure 3. We do not recommend lightweight fill since the improvement area is in high water level and flood areas.

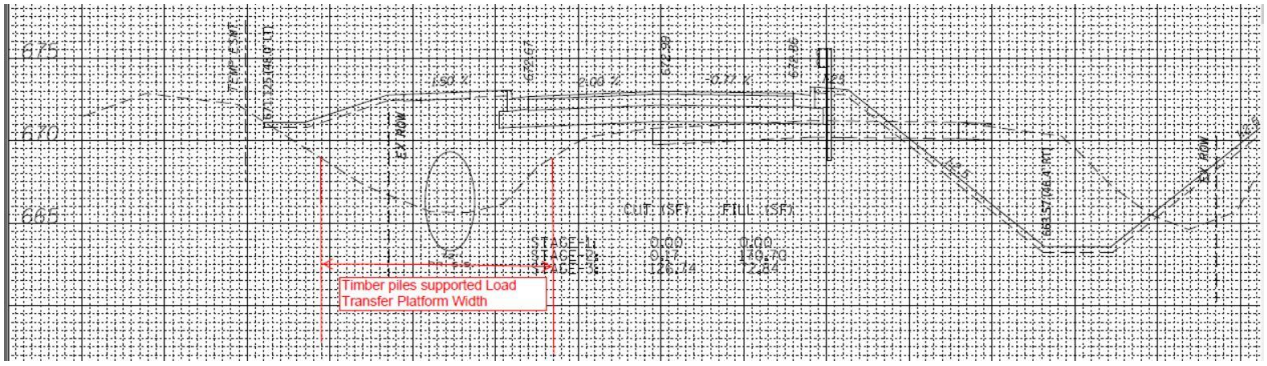

Figure 3: Timber piles with a load transfer platform to support embankment and storm sewer culvert at Sta. 108+00

For this system, we recommend excavating down to 3 feet below the storm sewer culvert base elevation and driving piles in a square pattern. For preliminary estimating purposes, the timber piles could be spaced 7 feet by 7 feet on the center in a square pattern and should be capped with 3.5-foot by 3.5-foot square, 12-inch thick caps and a 24-inch thick load transfer platform on the top. The maximum nominal load for a timber pile with 8-inch tip is 153 kips and corresponding factored resistance available is 84 kips based on the IDOT resistance factor of 0.55 (IDOT 2020). We estimate pile length of 33 feet will be required to reach the maximum pile capacity. We recommend contacting IDOT to get approval for this ground improvement method.

5.8 Detention Basin

Based cross-section drawings received in April 2021, the proposed detention basin base elevations varied from 663 to 664 feet. Based on soils conditions encountered in our borings as shown on Exhibit D-2 (Appendix D), the base of detention basin consists of medium stiff to stiff silty clay with organic matter and peat and buried topsoil. We recommend removing 2 feet of medium stiff buried topsoil and organic soils and replacing with compacted clayey soils. Depending on detention basin design, geotextile could also be placed prior to clayey soil placement. Groundwater was generally encountered about 3 to 4 feet below proposed base of the detention basin.

The cut slopes of 1:3 (V:H) are expected to be stable during and after construction. The analyses indicate the factors of safety meet IDOT's minimum requirement of 1.7 for cut. Slope stability analyses are included in Appendix E. The slope surfaces will require permanent protection to prevent erosion and storm water runoff and prevent water seepage from the cut slope. Slope protection such as rip rap or seeding can be considered.

5.9 Culverts

There are several culverts proposed for replacements along the IL 7 improvement. Based on the project report, proposed culverts are 48- to 72-inch diameter RCP culverts and 4 feet by 4 feet to 12 feet by 8 feet box culverts. The subsurface data profile at each culvert location is included in Appendix D. For the proposed triple box culvert for the Mill Creek crossing at 131St Street, a separate Structure Geotechnical Report (SGR) was prepared and issued. Proposed culverts are summarized in Table 6.

Table 6: Summary of Proposed Culverts

Alignment Approximate Station	Existing Culvert	Proposed Culvert	Invert Elevations (feet)	Reference Boring(s)	Reference Soil Profile
IL 7 73+30	60-inch RCP	48-inch RCP	669.52	CB-01	Exhibit D-3
IL 7 Mill Creek 71+50 to 76+80 78+00 to 79+80 80+75 to 81+25	48-inch CMP	48-inch RCP	669.59 to 668.80	CB-01 thru. CB-03	Exhibit D-4
IL 7 85+60	NA	48-inch RCP	668.30	CB-04 and B-01	Exhibit D-5
IL 7 Mill Creek 84+60 to 86+60 86+60 to 88+80	48-inch RCP	60-inch RCP 72-inch wide and 58-inch high Elliptical RCP	668.48 to 668.10	CB-04 and B-01	Exhibit D-5
IL 7 89+00 (SN 016-8349)	NA	4-foot by 4-foot Box, 59-foot long	668.10 to 668.00	C-1 and C-2	Exhibit D-5A
135th Street over Mill Creek 102+65.30 (SN 016-3941)	8-foot by 4-foot Box	8-foot by 6-foot Box, 128-foot long	663.10 to 663.00	CB-05 thru. CB-07 B-02 and B-02ST	Exhibit D-6
IL 7 103+70	NA	72-inch RCP	664.10	CB-07 and RB-02	Exhibit D-7
Driveway over Mill Creek 110+00 (SN 016-8351)	48-inch RCP	8-foot by 6-foot Box, 132-foot long	662.59 to 662.30	CB-08 thru. CB-10 and B-03	Exhibit D-8
Driveway over Mill Creek 120+32.00 (SN 016-8352)	60-inch CMP	12-foot by 8-foot Box, 90-foot long	660.88 to 660.66	CB-11 and CB-12	Exhibit D-9

Based on soil conditions encountered at the proposed RCP and CMP culvert locations, we do not anticipate any issues except at the culvert locations where very soft to medium stiff soils encountered at the culvert base: 1) IL 7, Station 85+60; and 2) IL 7 Mill Creek, Station 84+60 to 86+80 and 86+60

to 88+80. At these locations we recommend removing about 3 to 4 feet of very soft soils to elevation 664.0 and for a width of one diameter (or equivalent diameter) of the pipe on each side of the pipe culvert and replacing with aggregate in accordance with IDOT Standard Specifications (IDOT 2016). Actual removal and replacement depths should be determined in field at the time of construction.

The proposed box culverts along IL 7 are included in the following sections. As indicated previously, a separate SGR was prepared for the proposed triple box culvert for the Mill Creek crossing at 131St Street.

5.9.1 IL 7 Box Culvert at Station 89+00

Based on the General Plan and Elevation (GPE) drawing prepared by Lin Engineering, Ltd., we understand a new 4-foot by 4-foot box culvert will be installed at Station 89+00. There will be no grade change at the culvert location.

Based on subsurface investigation as shown on Exhibit D-5A (Appendix D), the soils at the base of the culvert box are expected to be stiff clay loam to silty clay loam at the upstream end and medium stiff, black silty clay buried topsoil clay loam at the downstream half below the culvert base. We recommend removing buried topsoil below the proposed culvert base to an elevation of 667 feet for downstream half of the culvert and replacing with IDOT District One *Aggregate Subgrade Improvement* material. We recommend placing geotextile prior to aggregate placement. The removal and replacement and geotextile should extend 2 feet beyond both side edge of the culvert. Actual removal and replacement should be determined during construction at the time of construction. Following recommended removal and replacement at the downstream half, we estimate the settlement will be about 0.5 inches at the upstream end and about 0.9 inches at the middle and downstream portion. Differential settlement will be less than 0.5 inches. Cast-in-place or precast culvert will be feasible.

We estimate the excavation of up to 8 feet below existing surface will be required including buried topsoil removal and replacement below the culvert base. We estimate sheeting design based on using IDOT charts will be feasible.

5.9.2 135th Street over Mill Creek at Sta. 103+65.30

Based on the GPE and cross section drawings, we understand the proposed 8-foot by 6-foot box culvert will replace the existing 8-foot by 4-foot box culvert at same location. We also understand the

135th street grade will be raised by 2 feet at the culvert location and roadway will be widened on both sides.

Based on subsurface investigation as shown on Exhibit D-6 (Appendix D), the soils at the base of the culvert box are expected to be soft to stiff clay loam with peat and organic silt extending to 18 feet below culvert base. Considering the proposed culvert will be at the same location as the existing one, 135th Street grade raise, and the proposed culvert height increase, we recommend removing 2 feet of peat and organic soils below the proposed culvert base for the entire length of the culvert and replacing with IDOT District One *Aggregate Subgrade Improvement* material. We recommend placing geotextile prior to aggregate placement. The removal and replacement and geotextile should extend 2 feet beyond both side edge of the culvert. Actual removal and replacement should be determined during construction at the time of construction. Following recommended removal and replacement, we estimate the settlement will be about 1.3 inches at the upstream end and about 0.9 inches at the middle and downstream portion. Differential settlement will be less than 0.5 inches. Cast-in-place or precast culvert will be feasible.

We estimate the excavation of up to 15 feet below existing surface will be required including soft soil removal and replacement below the culvert base. A temporary soil retention system will be required due to soft soil extending to 30 feet below ground surface.

5.9.3 Driveway over Mill Creek at Sta 110+00

Based on GPE drawing, the proposed 8-foot by 7-foot box culvert will replace the existing 48-inch RCP culvert at the existing driveway. The proposed culvert will be installed about 15 feet of west of the existing culvert. We also understand the driveway grade raise will be minimal and about less than 1.5 feet and the culvert will be exposed at the ends adjacent to driveways.

Based on subsurface investigation as shown on Exhibit D-8 (Appendix D), the soils at the base of the culvert box are expected to be very soft to soft organic silty clay to silty clay loam extending to 14 feet below culvert base at the upstream portion of 100 feet (Borings B-03, CB-08, and CB-09) and stiff to very stiff silty clay loam at the downstream of about 50 feet (Boring CB-10). We recommend removing 5 feet of soft soils below the proposed culvert base for the 100 feet of the upstream end of the culvert and replacing with rockfill and capped with 6 inches of CA-7 in accordance with 2017 IDOT *Culvert Manual* (IDOT 2017). Following the recommended removal and replacement, we estimate the settlement will be about 1.5 inches at the upstream end (exposed portion of 20 feet) and

about 0.1 inches at the middle and about 0.5 inches downstream portion. Differential settlement will be less than 1.5 inches at the upstream portion and less than 0.5 inches at the downstream end. We recommend cast-in-place culvert with cambering of 1.5 inches and inclusion of settlement of collar at the upstream portion.

Alternatively, the proposed culvert could be supported on timber piles and a load transfer platform. For this alternative, the precast culvert will be feasible.

We estimate the excavation of up to 15 feet below existing surface will be required including soft soil removal and replacement below the culvert base. A temporary soil retention system will be required due to soft soil extending to 23 feet below ground surface.

5.9.4 Driveway over Mill Creek at Sta. 120+32.00

Based on GPE drawing, we understand the proposed 12-foot by 8-foot box culvert will replace the existing 60-inch RCP culvert at the existing driveway. The proposed culvert will be installed at same location as the existing one. We also understand the driveway grade raise will be minimal and about less than 1.0 foot.

Based on subsurface investigation as shown on Exhibit D-9 (Appendix D), the soils at the base of the culvert box are expected to be up to 2.5 feet of soft to medium stiff clay to silty clay followed stiff silty clay at the upstream and gravelly sand followed by stiff to very stiff clay to silty clay loam. We recommend2 feet of soft to medium stiff soils below the proposed culvert base for the upstream of the culvert and replacing with IDOT District One *Aggregate Subgrade Improvement* material. We recommend placing geotextile prior to aggregate placement. The removal and replacement and geotextile should extend 2 feet beyond both side edge of the culvert. Actual removal and replacement should be determined during construction at the time of construction. Following recommended removal and replacement, we estimate the settlement will be about 0.3 inches at the upstream end, about 0.1 inches at the middle and 0.4 inches at the downstream portion. Differential settlement will be less than 0.5 inches. Precast or cast-in-place culvert will be feasible.

We estimate the excavation up to 13 feet below existing surface will be required including soft soil removal and replacement below the culvert base. A temporary sheet piling design using IDOT design charts will be feasible at this location.

5.10 Traffic Signals

This section is furnished by IDOT District One.

The project includes new traffic signals at the intersection of IL 7 and 131st Street and the intersection of IL 7 and 135th Street. Based on the plans the traffic signals will have mast arm lengths between 36 and 52 feet long. report should provide a summary of the soils encountered in the borings that were completed in the vicinity, as well as recommendations as to whether the IDOT standard details can be used to design the foundations.

In general, foundations for traffic signals may be designed based on the District One Standard Traffic Signal Design Details (TS-05) or Standard 878001-10, provided the soil requirements stated as part of the detail are met. These requirements state that the soils along the foundation shaft must be cohesive in nature, with an unconfined compressive strength of at least 1 ton per square foot. Low strength cohesive soils and granular deposits do not meet the requirements to use the design tables. If the soils encountered do not meet these requirements, then a custom foundation design must be completed. The IDOT District One Soils Unit can provide the foundation dimensions for these cases.

Several of the borings encountered soils that do not meet the requirements to use the tables in the standard details to design the foundations. The IDOT District One Soils Unit completed an analysis based on the soil information provided in the report and the traffic signal design information provided in the plans. The recommended foundation depths for the structures that required a custom foundation analysis are provided in the tables (Tables 7 and 8) *below. The structures not listed in the table can use the standard details.*

Table 7: Traffic Signal IL 7 at 131st Street Foundation Details Furnished by IDOT District One

IL 7 at 131st Street

Location	Mast Arm Length (feet)	Foundation Diameter (inches)	Foundation Depth (feet)
SE Corner	38	30	30
		36	26
SW Corner	36	30	30
		36	25

Table 8: Traffic Signal IL 7 at 135th Street Foundation Details Furnished by IDOT District One

IL 7 at 135th Street

Location	Mast Arm Length (feet)	Foundation Diameter (inches)	Foundation Depth (feet)
SE Corner	36	36	11 See Note 1
SW Corner	46	36	17

Note 1: The standard details can be used for this structure, but it is recommended that the 11 foot shaft depth (36 inch diameter) be used due to medium stiff cohesive soils encountered below this depth.

6.0 CONSTRUCTION CONSIDERATIONS

6.1 Excavation, Dewatering, and Utilities

Excavations should be performed in accordance with local, state, and federal regulations. The potential effect of ground movements upon nearby utilities should be considered during construction. Excavations should be sloped at no steeper than 1:2 (V: H) for cohesive soils and 1:2.5(V:H) for

granular soils. Open cut excavations may not feasible for the installation of storm sewer culvert along IL 7 west side and culverts replacements along IL 7 and Mill Creek. In addition, two sections with organic soils and peat along the proposed storm sewer culvert as described in Section 5.6 of this report will require temporary soil retention system due to the close proximity of IL 7. For the culvert replacement along IL 7 and Mill Creek will require temporary soil retention system where organic soils and peat encountered at the base of the culvert.

Excavations required for cuts, storm sewer culvert, and culverts replacements will require dewatering protected by temporary soil retention system or temporary sheet piling. The Contractor should ensure proper surface grading to prevent pooling of water and run-off into open excavations. Any water allowed to enter excavations should immediately be removed via sump-pump. Depending upon prevailing climate conditions and the time of the year when culverts replacements take place, control runoff and maintenance of existing flows may require temporary water diversion and control.

6.2 Filling and Backfilling

Fill material used for replacement of any poor soils encountered during construction should be pre-approved by the Engineer. The fill material should be free of organic matter and debris and should be placed in lifts compacted in accordance with Section 205, *Embankment* (IDOT 2016).

6.3 Reuse of Materials

Soil excavated from the existing embankment may be reused as embankment fill if testing shows it conforms to the following criteria: a) L_L less than 50%; b) PI value of more than 12%; c) maximum dry density greater than 90 pcf according to AASHTO T99; and d) organic content less than 10%. The excavated soils should be removed, brought to within ±2% of the optimum moisture content and recompacted according to Section 205, *Embankment* (IDOT 2016).

6.4 Earthwork Operations

The required earthwork can be accomplished with conventional construction equipment. Moisture and traffic will cause deterioration of the exposed subgrade soils. Precautions should be taken by the Contractor to prevent water erosion of the exposed subgrade. A compacted subgrade will minimize water runoff erosion.

Earth moving operations should be scheduled to avoid excessive cold or wet weather (early spring, late fall or winter). Any soil allowed to freeze or soften due to the standing water should be removed. Wet weather can cause problems with subgrade compaction.

It is recommended that an experienced geotechnical engineer be retained to inspect the exposed subgrade, monitor earthwork operations, and provide material inspection services during the construction phase of this project.

7.0 QUALIFICATIONS

The analysis and recommendations submitted in this report are based upon data obtained from the borings drilled at the locations shown on the *Boring Logs* (Appendix A) and in the *Boring Location Plans* (Appendix D). This report does not reflect any variations that may occur between the borings or elsewhere on the site, variations whose nature and extent may not become evident until the course of construction. In the event that any changes in the design and/or location of the proposed improvements are planned, we should be timely informed so that our recommendations can be adjusted accordingly.

It has been a pleasure to assist James J. Benes & Associates and the Illinois Department of Transportation on this project. Please call if there are any questions, or if we can be of further service.

Respectfully Submitted,

WANG ENGINEERING, INC.

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Nesam S. Balakumaran, PE, PEng
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Corina Farez, PE, PG
Vice President

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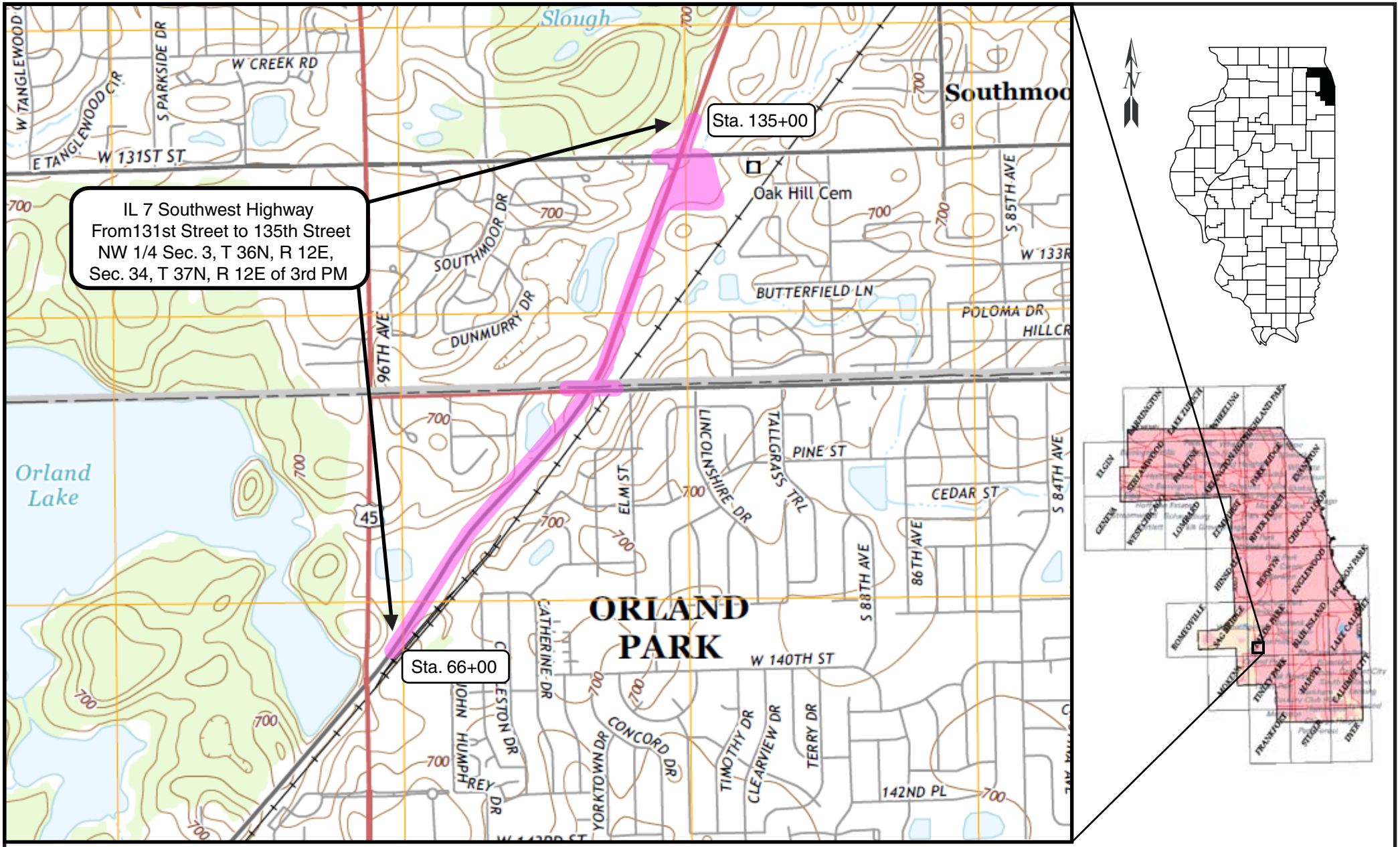
EXHIBITS



0 0.25 0.5 1.0 Mile

Contours are 10 feet intervals

Modified after USGS (2015)

SITE LOCATION MAP: IL 7 SOUTHWEST HIGHWAY,
131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 1	DRAWN BY: E. Yim CHECKED BY: C. Marin

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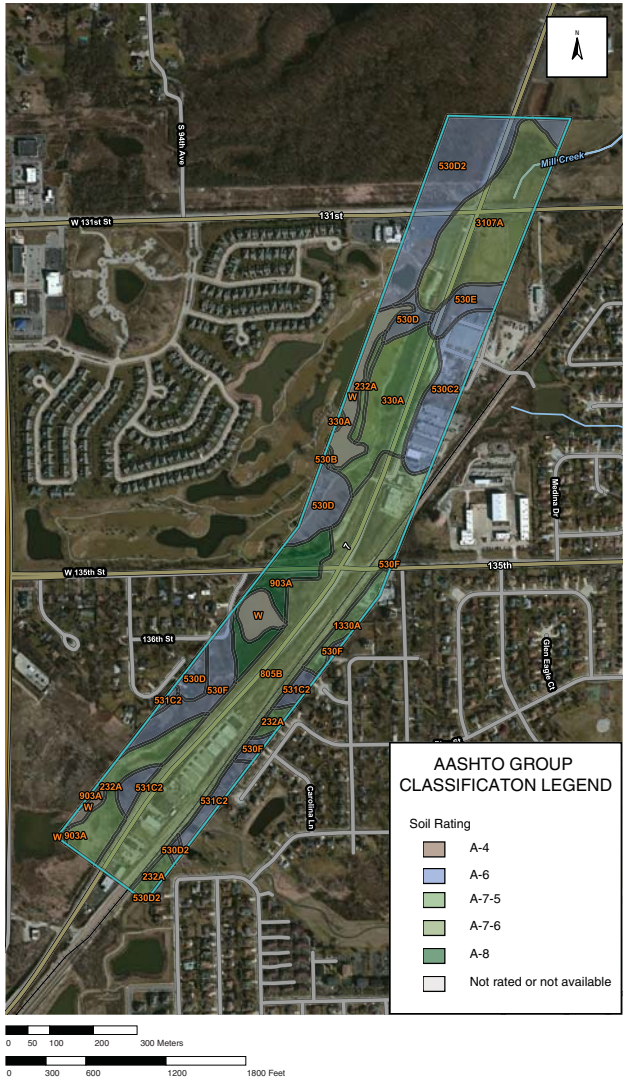
FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01

Soil Map

AASHTO Group Classification (Surface)



Organic Matter

Source: USDA, Natural Resources Conservation Service; Web Soil Survey
Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 13, Sep 16, 2019

SITE PEDOLOGICAL MAPS: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL | EXHIBIT 2-1 | DRAWN BY: E. Yim CHECKED BY: C. Marin

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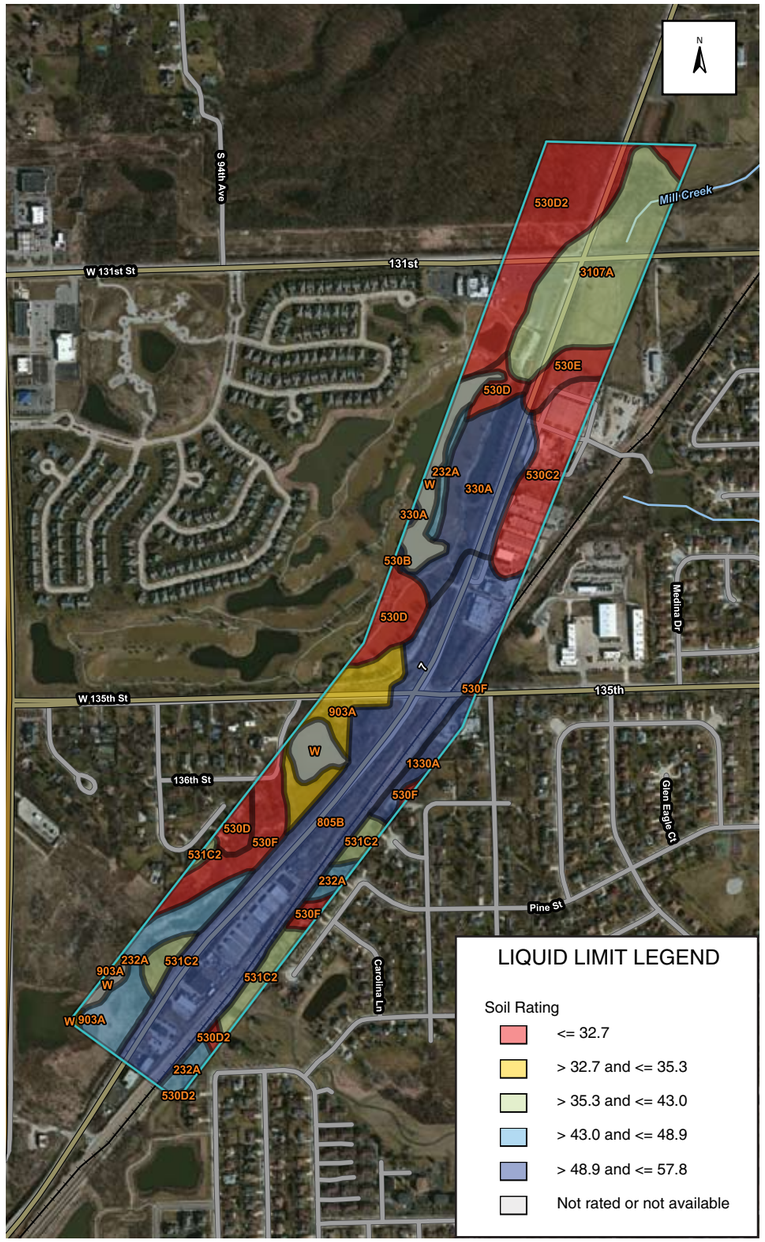
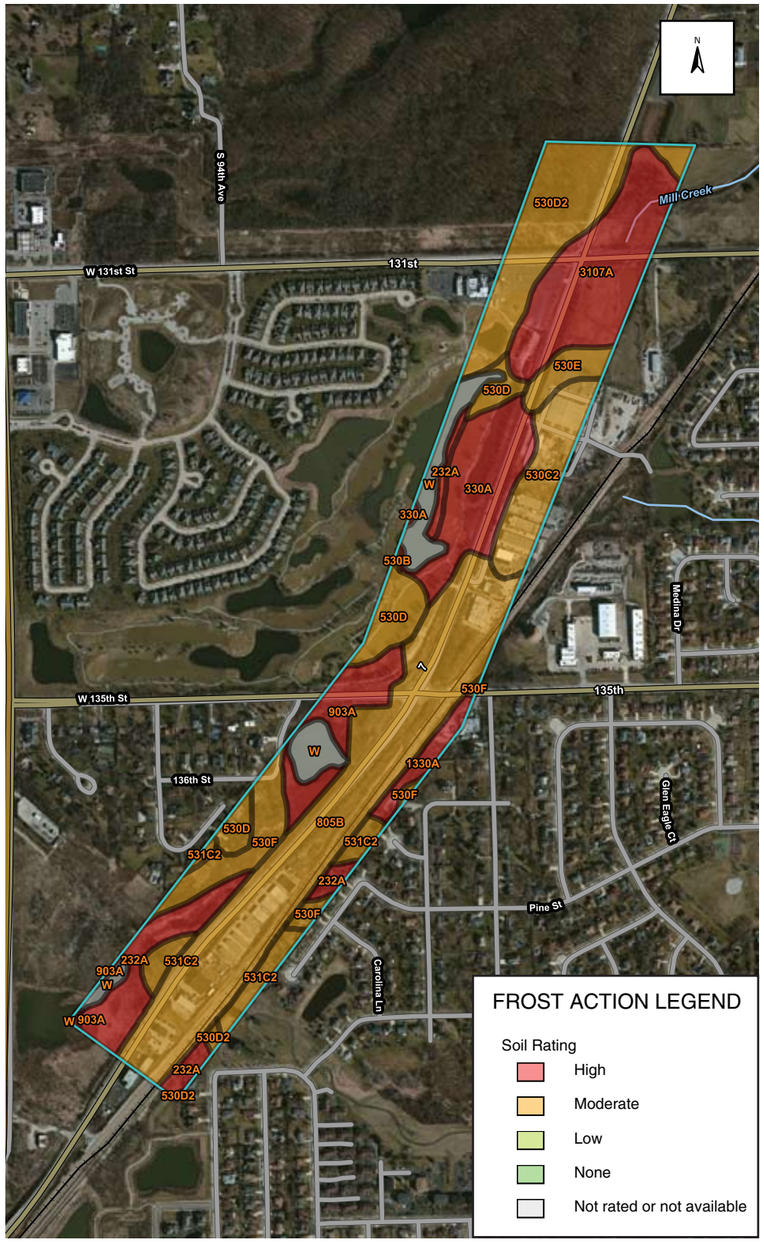
Liquid Limit



0 50 100 200 300 Meters

0 300 600 1200 1800 Feet

Frost Action



0 50 100 200 300 Meters

0 300 600 1200 1800 Feet

Source: USDA, Natural Resources Conservation Service; Web Soil Survey
Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 13, Sep 16, 2019

SITE PEDOLOGICAL MAPS: IL 7 SOUTHWEST HIGHWAY,
131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 2-2	DRAWN BY: E. Yim CHECKED BY: C. Marin

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Map symbol and soil name	Depth	USDA texture	Classification	Fragments		Sand	Slit	Clay	Moist bulk density	Saturated hydraulic conductivity	Organic matter	Liquid limit	Plasticity Index	Erosion Factors			Potential as a source of roadfill	Local roads and streets	Shallow excavations
			AASHTO	>10 Inches	3-10 Inches									Kw	Kf	T	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
	In			*Pet*	*Pet*	*Pet*	*Pet*	*Pet*	*glee*	*micromlsec*	*Pet*	*Pet*							
232A—Ashkum silty clay loam, 0 to 2 percent slopes																			
Ashkum, drained	0-12	Silty clay loam	A-7-6, A-7-5	0-0-0	0-0-0	1- 8- 15	45-55- 64	35-37- 40	1.20-1.35-1.45	1.41-2.82-4.23	3.0- 5.0-8.0	51-58-67	25-26-28	0.20	0.20	5	Very limited, Ponding, Depth to saturated zone, Dusty	Very limited, Ponding, Depth to saturated zone, Shrink-swell, Frost action Low strength	Very limited, Ponding, Depth to saturated zone, Dusty, Unstable excavation walls, Too clayey
	12-29	Silty clay loam, silty clay	A-7-6	0-0-0	0-0-0	2- 8- 15	43-51- 63	35-41- 42	1.30-1.40-1.50	1.41-2.82-4.23	0.5- 1.3-2.5	46-54-58	25-30-30	0.32	0.32				
	29-54	Silty clay loam, silty clay	A-6, A-7-6	0-0-0	0-0-1	5- 9- 20	40-58- 65	30-33- 42	1.50-1.60-1.70	1.41-2.82-4.23	0.1- 0.3-1.0	39-43-53	21-23-30	0.43	0.43				
	54-60	Silty clay loam	A-6, A-7-6	0-0-0	0-0-1	5- 9- 20	45-61- 68	27-30- 35	1.55-1.65-1.75	1.41-2.82-4.23	0.0- 0.3-1.0	37-41-47	19-21-25	0.43	0.43				
330A—Peotone silty clay loam, 0 to 2 percent slopes																			
Peotone, drained	0-7	Silty clay loam	A-7-6, A-7-5	0-0-0	0-0-0	1- 5- 10	50-60- 67	32-35- 40	1.20-1.30-1.40	1.41-2.82-4.23	4.5- 6.2-7.5	50-57-65	22-25-28	0.24	0.24	5	Very limited, Ponding, Depth to saturated zone, Dusty	Very limited, Ponding, Depth to saturated zone, Shrink-swell, Frost action Low strength	Very limited, Ponding, Depth to saturated zone, Unstable excavation walls, Dusty, Too clayey
	7-27	Silty clay loam, silty clay	A-7-6, A-7-5	0-0-0	0-0-0	1- 5- 10	45-56- 64	35-39- 45	1.30-1.40-1.55	1.41-2.82-4.23	1.5- 3.2-6.0	48-56-68	25-28-32	0.28	0.28				
	27-50	Silty clay loam, silty clay	A-7-6	0-0-0	0-0-1	1- 6- 12	43-53- 66	33-41- 45	1.35-1.45-1.60	1.41-2.82-4.23	0.5- 1.3-2.7	43-54-61	23-29-33	0.32	0.32				
	50-60	Silty clay loam, silt loam	A-6, A-7-6	0-0-0	0-0-3	1-11- 20	40-55- 74	25-34- 40	1.40-1.53-1.65	1.41-2.82-4.23	0.0- 0.5-1.2	34-44-52	17-24-29	0.37	0.37				
530B—Ozaukee silt loam, 2 to 4 percent slopes																			
Ozaukee	0-4	Silt loam	A-4,A-7-6, A-6	0-0-0	0-0-1	7-14- 23	52-67- 76	15-19- 27	1.30-1.40-1.50	4.23-9.17-14.11	1.2- 2.0-3.0	28-33-43	9-12-18	0.43	0.43	3	Somewhat limited, Dusty, Depth to saturated zone	Very limited, Low strength, Frost action, Depth to saturated zone	Very limited, Depth to saturated zone, Dusty, Unstable excavation walls, Too clayey
	4-10	Silt loam	A-6	0-0-0	0-0-1	5-10- 18	57-69- 76	17-21- 27	1.35-1.45-1.55	4.23-9.17-14.11	0.3- 0.6-1.0	27-32-38	11-15-19	0.55	0.55				
	10-21	Clay, silty clay loam, silty clay	A-7-6, A-6	0-0-1	0-1-4	5-11- 18	34-48- 58	35-41- 50	1.45-1.55-1.65	0.42-2.33-4.23	0.2- 0.5-0.9	31-38-48	15-19-25	0.32	0.32				
	21-39	Silty clay loam, silty clay	A-6	0-1-2	0-1-5	5-12- 20	40-52- 64	29-36- 42	1.55-1.65-1.70	0.42-0.92-1.41	0.1- 0.3-0.6	24-31-37	11-15-19	0.37	0.37				
	39-60	Silty clay loam, clay loam	A-4, A-6	0-1-2	0-2-7	7-14- 23	50-55- 64	27-31- 35	1.60-1.70-1.85	0.42-0.75-1.41	0.0- 0.2-0.5	21-26-30	9-12-14	0.43	0.43				
530C2—Ozaukee silt loam, 4 to 6 percent slopes, eroded																			
Ozaukee, eroded	0-7	Silt loam	A-6, A-7-6	0-0-0	0-0-1	5-12- 22	53-66- 75	18-22- 27	1.30-1.43-1.55	4.23-9.17-14.11	1.0- 1.7-2.5	30-35-42	12-14-18	0.43	0.43	3	Somewhat limited, Dusty	Very limited, Low strength, Frost action	Somewhat limited, Depth to saturated zone, Dusty, Unstabel excavation walls, Too clayey
	7-26	Silty clay loam, clay, silty clay	A-7-6, A-6	0-0-1	0-1-4	5-11- 18	34-48- 58	35-41- 50	1.45-1.55-1.65	0.42-2.33-4.23	0.2- 0.5-0.9	31-38-48	15-19-25	0.32	0.32				
	26-37	Silty clay loam, silty clay	A-6	0-1-2	0-1-5	5-12- 20	40-52- 64	29-36- 42	1.55-1.65-1.70	0.42-0.92-1.41	0.1- 0.3-0.6	24-31-37	11-15-19	0.37	0.37				
	37-60	Silty clay loam, clay loam	A-6, A-4	0-1-2	0-2-7	7-14- 23	50-55- 64	27-31- 35	1.60-1.70-1.85	0.42-0.75-1.41	0.0- 0.2-0.5	21-26-30	9-12-14	0.43	0.43				
530D—Ozaukee silt loam, 6 to 12 percent slopes																			
Ozaukee	0-4	Silt loam	A-4, A-6, A-7-6	0-0-0	0-0-1	7-14- 23	52-67- 76	15-19- 27	1.30-1.40-1.50	4.23-9.17-14.11	1.2- 2.0-3.0	28-33-43	9-12-18	0.43	0.43	3	Somewhat limited, Slope, Dusty	Very limited, Low strength, Frost action, Slope, Shrink-swell	Somewhat limited, Depth to saturated zone, Slope, Dusty, Unstable excavation walls
	4-9	Silt loam	A-6, A-4	0-0-0	0-0-1	5-10- 18	57-69- 77	16-21- 27	1.35-1.45-1.55	4.23-9.17-14.11	0.3- 0.8-1.2	27-32-39	10-14-19	0.55	0.55				
	9-16	Silt loam, silty clay loam	A-6, A-7-6	0-0-0	0-0-1	5-10- 18	50-59- 69	24-31- 34	1.40-1.50-1.60	4.23-9.17-14.11	0.3- 0.6-1.0	34-41-45	16-21-24	0.43	0.43				
	16-34	Clay, silty clay loam, silty clay	A-7-6, A-6	0-0-1	0-1-4	5-11- 18	34-50- 58	35-39- 50	1.45-1.55-1.65	0.42-2.33-4.23	0.2- 0.5-0.9	30-38-52	15-19-26	0.37	0.37				
	34-39	Silty clay loam, silty clay	A-6	0-1-2	0-1-5	5-12- 20	40-52- 64	29-36- 42	1.55-1.65-1.70	0.42-0.92-1.41	0.1- 0.3-0.6	24-31-37	11-15-19	0.37	0.37				
	39-60	Silty clay loam, clay loam	A-6, A-4	0-1-2	0-2-7	7-14- 23	50-55- 64	27-31- 35	1.60-1.70-1.85	0.42-0.75-1.41	0.0- 0.2-0.5	21-26-31	9-12-15	0.43	0.43				

Source: USDA, Natural Resources Conservation Service; Web Soil Survey
Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 13, Sep 16, 2019

SITE PEDOLOGICAL TABLE: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL | EXHIBIT 2-3 | DRAWN BY: E. Yim, CHECKED BY: C. Marin

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FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01

Map symbol and soil name	Depth	USDA texture	Classification	Fragments		Sand	Slit	Clay	Moist bulk density	Saturated hydraulic conductivity	Organic matter	Liquid limit	Plasticity Index	Erosion Factors			Potential as a source of roadfill	Local roads and streets	Shallow excavations
			AASHTO	>10 Inches	3-10 Inches									Kw	Kf	T	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
	In			*Pct*	*Pct*	*Pct*	*Pct*	*Pct*	*glee*	*micromlsec*	*Pct*	*Pct*							
530D2—Ozaukee silt loam, 6 to 12 percent slopes, eroded																			
Ozaukee, eroded	0-7	Silt loam	A-6, A-7-6	0-0-0	0-0-1	7-14- 23	52-65- 73	18-21- 27	1.30-1.45-1.55	4.23-9.17-14.11	1.0- 1.7-2.5	30-35-42	12-15-19	0.43	0.43	3	Somewhat limited, Dusty, Slope	Very limited, Low strength, Frost action, Slope	Somewhat limited, Depth to saturated zone, dusty, Slope, Unstable excavation walls
	7-11	Silty clay loam, silt loam	A-6, A-7-6	0-0-0	0-0-1	5-10- 18	50-59- 69	24-31- 34	1.40-1.50-1.60	4.23-9.17-14.11	0.3- 0.6-1.0	34-41-45	16-21-24	0.43	0.43				
	11-27	Silty clay, silty clay loam, clay	A-7-6, A-6	0-0-1	0-1-4	5-11- 18	34-48- 58	35-41- 50	1.45-1.55-1.65	0.42-2.33-4.23	0.2- 0.5-0.9	30-38-52	15-19-26	0.32	0.32				
	27-32	Silty clay loam, silty clay	A-6	0-1-2	0-1-5	5-12- 20	40-52- 64	29-36- 42	1.55-1.65-1.70	0.42-0.92-1.41	0.1- 0.3-0.6	24-31-37	11-15-19	0.37	0.37				
	32-60	Silty clay loam, clay loam	A-6, A-4	0-1-2	0-2-7	7-14- 23	50-55- 64	27-31- 35	1.65-1.75-1.85	0.42-0.75-1.41	0.0- 0.2-0.5	21-26-31	9-12-15	0.43	0.43				
530E—Ozaukee silt loam, 12 to 20 percent slopes																			
Ozaukee	0-6	Silt loam	A-4, A-6, A-7-6	0-0-0	0-0-1	7-14- 23	52-67- 76	15-19- 27	1.30-1.40-1.50	4.23-9.17-14.11	1.2- 2.0-3.0	28-33-43	9-12-18	0.43	0.43	3	Very limited, Slope, Dusty	Very limited, Slope, Low strength, Frost action	Very limited, Slope, Depth to saturated zone, Dusty, Unstable Excavation walls
	6-11	Silt loam	A-6, A-4	0-0-0	0-0-1	5-10- 18	57-69- 77	16-21- 27	1.35-1.45-1.55	4.23-9.17-14.11	0.3- 0.8-1.2	27-32-39	10-14-19	0.55	0.55				
	11-25	Silty clay loam, clay, silty clay	A-7-6, A-6	0-0-1	0-1-4	5-11- 18	34-50- 58	35-39- 50	1.45-1.55-1.65	0.42-2.33-4.23	0.2- 0.5-0.9	30-36-52	15-18-26	0.37	0.37				
	25-39	Silty clay loam, silty clay	A-6	0-1-2	0-1-5	5-12- 20	40-52- 64	29-36- 42	1.55-1.65-1.70	0.42-0.92-1.41	0.1- 0.3-0.6	24-31-37	11-15-19	0.37	0.37				
	39-60	Silty clay loam, clay loam	A-6, A-4	0-1-2	0-2-7	7-14- 23	50-55- 64	27-31- 35	1.65-1.75-1.85	0.42-0.75-1.41	0.0- 0.2-0.5	21-26-31	9-12-15	0.43	0.43				
530F—Ozaukee silt loam, 20 to 30 percent slopes																			
Ozaukee	0-5	Silt loam	A-4, A-6, A-7-6	0-0-0	0-0-1	7-14- 23	52-67- 76	15-19- 27	1.30-1.40-1.50	4.23-9.17-14.11	1.2- 2.0-3.0	28-33-43	9-12-18	0.43	0.43	3	Very limited, Slope, Low strength, Frost action	Very limited, Slope, Low strength, Frost action	Very limited, Slope, Depth to saturated zone, Dusty, Unstable Excavation walls
	5-9	Silt loam	A-6, A-4	0-0-0	0-0-1	5-10- 18	57-69- 77	16-21- 27	1.35-1.45-1.55	4.23-9.17-14.11	0.3- 0.8-1.2	27-32-39	10-14-19	0.55	0.55				
	9-14	Silty clay loam, silt loam	A-6, A-7-6	0-0-0	0-0-1	5-10- 18	50-59- 69	24-31- 34	1.40-1.50-1.60	4.23-9.17-14.11	0.3- 0.6-1.0	34-41-45	16-21-24	0.43	0.43				
	14-29	Silty clay loam, clay, silty clay	A-7-6, A-6	0-0-1	0-1-4	5-11- 18	34-50- 58	35-39- 50	1.45-1.55-1.65	0.42-2.33-4.23	0.2- 0.5-0.9	30-36-52	15-18-26	0.37	0.37				
	29-36	Silty clay loam, silty clay	A-6	0-1-2	0-1-5	5-12- 20	40-52- 64	29-36- 42	1.55-1.65-1.70	0.42-0.92-1.41	0.1- 0.3-0.6	24-31-37	11-15-19	0.37	0.37				
	36-60	Silty clay loam, clay loam	A-6, A-4	0-1-2	0-2-7	7-14- 23	50-55- 64	27-31- 35	1.65-1.75-1.85	0.42-0.75-1.41	0.0- 0.2-0.5	21-26-31	9-12-15	0.43	0.43				
531C2—Markham silt loam, 4 to 6 percent slopes, eroded																			
Markham, eroded	0-8	Silt loam	A-6, A-7-6	0-0-0	0-0-1	5-10- 15	58-66- 75	20-24- 27	1.30-1.40-1.50	4.23-9.17-14.11	2.0- 2.5-3.0	34-39-43	13-16-19	0.37	0.37	3	Very limited, Low strength, Frost action, Depth to saturated zone	Very limited, Low strength, Frost action, Depth to saturated zone	Very limited, Depth to saturated zone, Dusty, Unstable excavation walls
	8-21	Silty clay, silty clay loam, clay	A-7-6	0-0-1	0-1-4	5-12- 20	30-49- 60	35-39- 50	1.40-1.50-1.60	0.42-2.33-4.23	0.2- 0.6-1.0	43-48-60	25-28-36	0.37	0.37				
	21-32	Silty clay loam, silty clay	A-6, A-7-6	0-1-1	0-3-4	5-12- 20	40-52- 65	30-36- 45	1.55-1.65-1.75	0.42-0.92-1.41	0.1- 0.3-0.5	37-44-53	19-25-32	0.37	0.37				
	32-60	Clay loam, silty clay loam	A-7-6, A-6	0-1-1	0-2-4	5-15- 25	40-53- 68	27-32- 38	1.65-1.75-1.85	0.42-0.92-1.41	0.0- 0.3-0.5	34-40-47	17-22-27	0.43	0.43				

Source: USDA, Natural Resources Conservation Service; Web Soil Survey
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Map symbol and soil name	Depth	USDA texture	Classification	Fragments		Sand	Slit	Clay	Moist bulk density	Saturated hydraulic conductivity	Organic matter	Liquid limit	Plasticity Index	Erosion Factors			Potential as a source of roadfill	Local roads and streets	Shallow excavations
			AASHTO	>10 Inches	3-10 Inches									Kw	Kf	T	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
	In			*Pct*	*Pct*	*Pct*	*Pct*	*Pct*	*glee*	*micromlsec*	*Pct*	*Pct*							
805B—Orthents, clayey, undulating																			
Orthents, clayey, undulating	0-7	Silty clay	A-7-6	0-0-0	0-1-3	2-8-20	40-48- 58	40-44- 55	1.50-1.58-1.65	0.42-0.92-1.41	0.5- 1.3-2.0	50-56-68	29-32-40	0.32	0.32	2	Very limited, Shrink-swell, Low strength, Frost action	Very limited, Shrink-swell, Low strength, Frost action	Somewhat limited, Depth to saturated zone, Unstable excavation walls, Too clayey, Dusty
	7-60	Silty clay, clay, silty clay loam	A-7-6	0-0-0	0-1-2	2-11- 30	10-41- 60	35-48- 60	1.60-1.75-1.90	0.14-0.28-0.42	0.2- 0.6-1.0	46-58-70	25-35-44	0.32	0.32				
903A—Muskego and Houghton mucks, 0 to 2 percent slopes																			
Muskego	0-5	Muck	A-8	—	—	—	—	—	0.10-0.16-0.21	4.23-23.29-42.34	60.0-75.0-90.0	0-0-0	NP			1	Very limited, Ponding, Depth to saturated zone, Subsidence, Frost action, Low strength	Very limited, Ponding, Depth to saturated zone, Subsidence, Frost action, Low strength	Very limited, Ponding, Depth to saturated zone, Organic matter content, Dusty, Unstable excavation walls, Not rated
	5-36	Muck	A-8	—	—	—	—	—	0.10-0.16-0.21	4.23-23.29-42.34	60.0-75.0-90.0	0-0-0	NP						
	36-80	Coprogenous silt loam, coprogenous silty clay loam, coprogenous earth	A-7-5	0-0-0	0-0-0	4-14- 25	40-60- 78	18-26- 35	0.30-0.70-1.10	0.42-0.92-1.41	6.0-13.0-20.0	42-64-86	12-17-23	0.37	0.37				
Houghton	0-19	Muck	A-8	—	—	—	—	—	0.20-0.28-0.35	1.41-21.88-42.34	70.0-84.5-99.0	0-0-0	NP			2			
	19-60	Muck	A-8	—	—	—	—	—	0.15-0.20-0.25	1.41-21.88-42.34	70.0-84.5-99.0	0-0-0	NP						
1330A—Peotone silty clay loam, undrained, 0 to 2 percent slopes																			
Peotone, undrained	0-25	Silty clay loam	A-7-5	0-0-0	0-0-0	0- 7- 10	50-57- 67	33-37- 40	1.20-1.30-1.40	1.41-2.82-4.23	5.0- 6.0-7.0	54-60-65	23-26-28	0.24	0.24	5	Very limited, Pondin, Depth to saturated zone, Shrink-swell, Frost action, Low strength	Very limited, Ponding, Depth to saturated zone, Shrink-swell, Frost action, Low strength	Very limited, Ponding, Depth to saturated zone, Unstable excavation walls, Dusty, Too clayey
	25-53	Silty clay loam, silty clay	A-7-6	0-0-0	0-1-3	0- 7- 10	45-52- 65	35-42- 45	1.30-1.45-1.60	1.41-2.82-4.23	0.5- 1.8-3.0	46-56-61	25-30-32	0.28	0.28				
	53-60	Silty clay loam, silt loam, silty clay	A-7-6, A-6	0-0-0	0-3-5	0-11- 20	38-56- 75	25-34- 42	1.40-1.53-1.65	1.41-2.82-4.23	0.2- 0.3-0.5	35-44-52	17-24-30	0.37	0.37				
3107A—Sawmill silty clay loam, heavy till plain, 0 to 2 percent slopes, frequently flooded																			
Sawmill, heavy till plain, frequently flooded	0-8	Silty clay loam	A-7-6, A-6	0-0-0	0-0-0	2- 7- 15	50-62- 71	27-31- 35	1.43-1.44-1.46	4.23-9.17-14.11	1.0- 3.0-4.0	39-47-53	19-22-25	0.28	0.28	5	Very limited, Ponding, Depth to saturated zone, Frost action, Flooding, Low strength	Very limited, Ponding, Depth to saturated zone, Frost action, Flooding, Low strength	Very limited, Ponding, Depth to saturated zone, Flooding, Dusty, Unstable excavation walls
	8-30	Silty clay loam	A-7-6, A-6	0-0-0	0-0-0	2-10- 15	50-59- 71	27-31- 35	1.30-1.34-1.39	4.23-9.17-14.11	1.0- 2.0-4.0	39-45-53	19-22-25	0.32	0.32				
	30-51	Silty clay loam, clay loam, loam, silt loam	A-7-6, A-6	0-0-0	0-0-0	3-11- 25	45-59- 72	20-30- 35	1.35-1.38-1.41	4.23-9.17-14.11	0.0- 0.8-2.0	31-42-49	14-21-25	0.43	0.43				
	51-65	Clay loam, silty clay loam, silt loam, loam	A-6, A-7-6	0-0-0	0-0-0	5-11- 25	40-65- 77	18-24- 35	1.40-1.42-1.44	4.23-9.17-14.11	0.0- 0.4-1.0	29-39-47	12-19-25	0.49	0.49				

Source: USDA, Natural Resources Conservation Service; Web Soil Survey
Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 13, Sep 16, 2019

SITE PEDOLOGICAL TABLE: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL | EXHIBIT 2-5 | DRAWN BY: E. Yim, CHECKED BY: C. Marin

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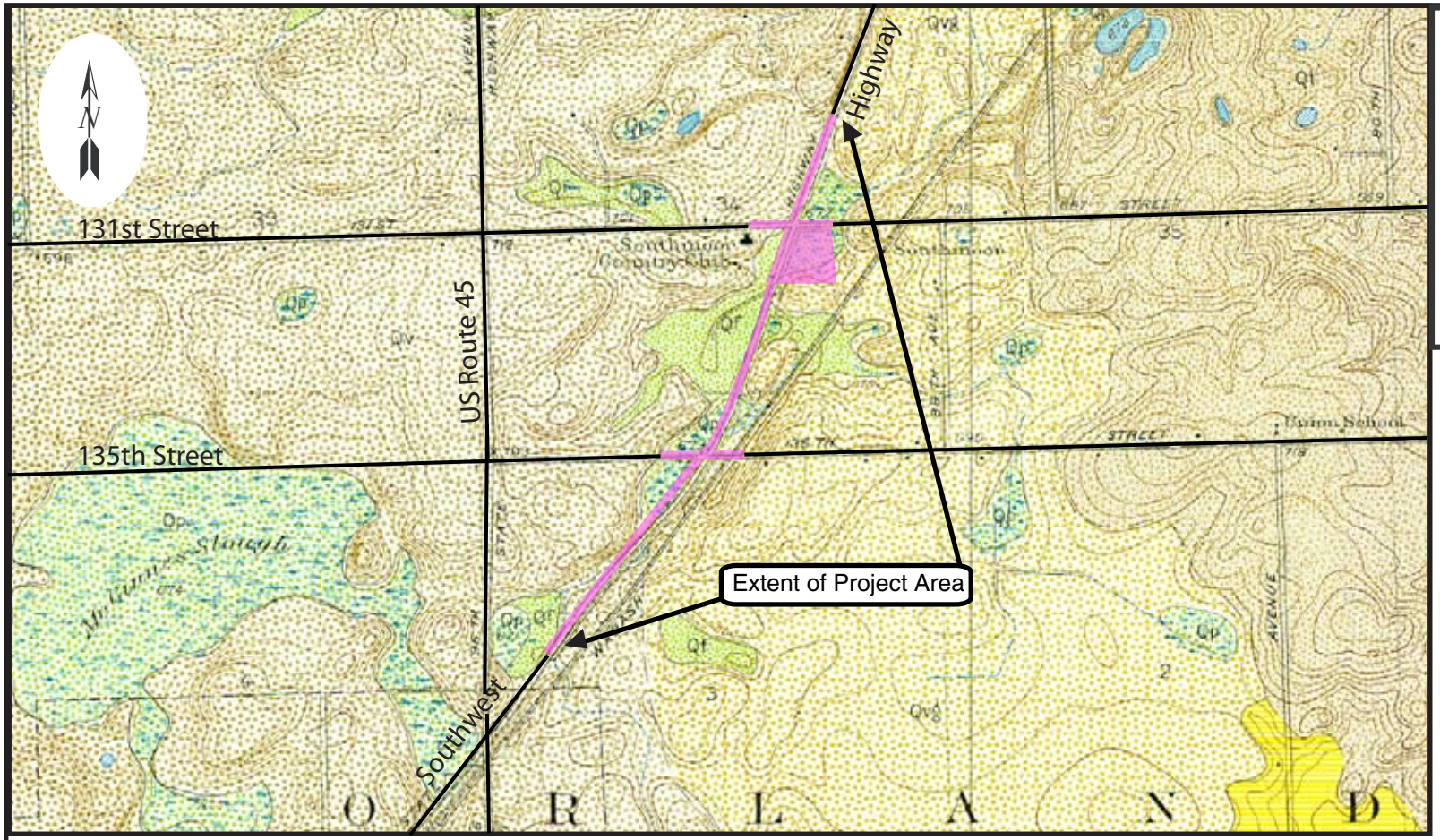
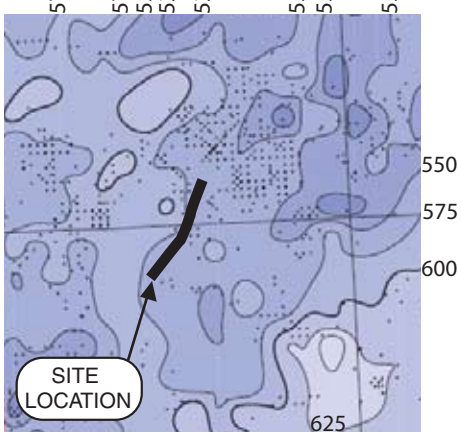
FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01

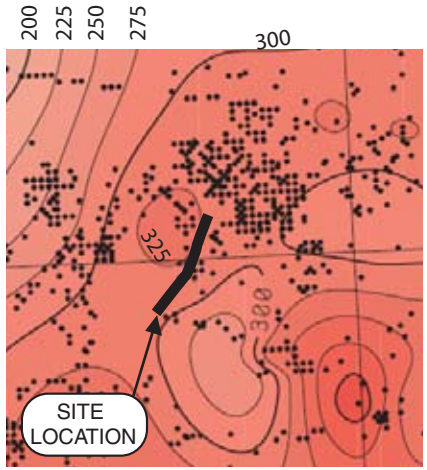


0 0.25 0.5 1.0 Mile

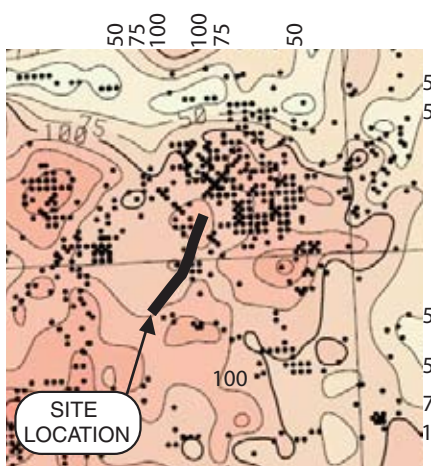
Modified after Bretz (1939)



BEDROCK TOPOGRAPHY



BEDROCK THICKNESS



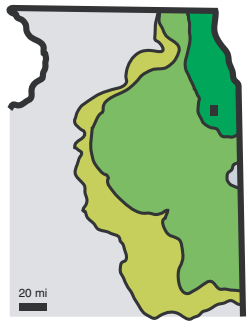
DRIFT THICKNESS

0 2 4 6 Miles

Contours are 25 feet intervals

Modified after Leetaru (2004)

REGIONAL GEOLOGY



Modified after Hansel and Johnson (1996)

LEGEND

Hudson Episode

Qp **Grayslake Peat**

Peat, muck, and locally marl; dominantly organic deposits with interbedded silt and clay in places; mostly in glacial lake basins; locally in lake basins on floodplains of major rivers.

Qf **Basin Fills of Surface Wash**

Qls **Glacial Lake Bottom**

Covered by lacustrine silt and sand

Wisconsin Episode

Wadsworth Formation

Mostly gray clayey and silty till; fine-textured diamicton; relatively low gravel content; contains local lenses of silt and sand.

Qvg **Valparaiso Ground Moraine**

Qv **Valparaiso Moraine**

Qtg **Tinley Ground Moraine**

Modified after Bretz (1939), Hansel and Johnson (1996)

SITE AND REGIONAL GEOLOGY: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL | EXHIBIT 3 | DRAWN BY: E. Yim | CHECKED BY: C. Marin

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FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01

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APPENDIX A

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Fax: 6309539938

BORING LOG CB-01

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 678.09 ft
North: 1811540.21 ft
East: 1116129.18 ft
Station: 74+99.4
Offset: 18.4' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	677.3	9-inch thick, gray, SANDY GRAVEL; damp						
		--RDR 2--			1	11 6 5 6	4.51 B	21
		Very stiff to hard, black, brown, and gray SILTY CLAY, trace to some gravel; damp						
		--FILL--						
		--RDR 2--			2	5 5 5 8	2.46 B	23
	673.8							
		Medium stiff, black SILTY CLAY LOAM, little organic matter	5		3	3 2 2 3	0.50 P	33
		--BURIED TOPSOIL--						
		--RDR 2--						
	672.1							
		Stiff to hard, brown and gray SILTY CLAY, little gravel; damp to moist						
		--RDR 2--			4	3 4 4 4	1.64 B	26
					5	3 2 6 8	2.38 B	21
			10					
		--moist silt lens--			6	4 7 10	4.92 B	21
					7	3 5 6	2.21 B	16
	663.1	--moist sand lens--	15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-18-2019** Complete Drilling: **09-18-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&I** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG CB-02

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 678.25 ft
North: 1811841.75 ft
East: 1116318.88 ft
Station: 78+34.1
Offset: 23.9' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	677.8	5-inch thick ASPHALT --PAVEMENT--						
	677.3	Gray SANDY GRAVEL --BASE COURSE--						
		Hard, brown SILTY CLAY, trace gravel; damp --FILL--			1	2 4 4 4	4.10 B	15
	674.8	--RDR 2--						
	674.5	Coarse SAND, little clay; moist --RDR 2--			2	3 3 4 6	4.50 P	18
		Hard, brown and gray SILTY CLAY LOAM, trace to little gravel; damp	5					
		--RDR 2-- --L_L(%)=30, P_L(%)=18-- --%Gravel=2.6-- --%Sand=16.2-- --%Silt=54.7-- --%Clay=26.6-- --A-6(8)--			3	5 8 11 11	4.92 B	17
					4	3 6 8 13	6.40 B	14
			10		5	8 8 12 14	4.10 B	17
	667.0	Gray SILT; saturated --RDR 2--			6	5 5 4	NP	20
	664.3							
	663.8	Gray, SANDY LOAM; saturated			7	4 4 4	1.39 B	13
		Stiff to hard, brown to gray SILTY CLAY; damp --RDR 2--	15					
					8	3 6 11	4.02 B	16
	660.8	Boring terminated at 17.50 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-18-2019** Complete Drilling: **09-18-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&I** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **11.00 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-03

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 678.06 ft
North: 1812019.85 ft
East: 1116433.52 ft
Station: 80+59.5
Offset: 6.0' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	677.4	8-inch thick, ASPHALT --PAVEMENT--						
	677.1	Brown GRAVEL --BASE COURSE--						
		Very stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to moist --RDR 2--			1	5 6 7 8	NR	17
					2	5 7 7 10	6.72 B	17
			5		3	6 8 8 9	10.25 B	17
					4	4 7 7 11	10.25 B	14
			10		5	4 6 8 8	5.74 B	17
					6	3 5 7	4.84 B	17
		--gray--						
		--gray saturated silty loam--			7	3 3 5	2.95 B	14
	663.1		15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E.Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG CB-04

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 675.36 ft
North: 1812473.21 ft
East: 1116858.67 ft
Station: 86+82.1
Offset: 23.4' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	674.9	5-inch thich ASPHALT						
	674.6	--PAVEMENT--						
		Gray SANDY GRAVEL --BASE COURSE--						
		Stiff, brownish gray to brown SILTY CLAY, trace to some gravel and asphalt fragments; damp --FILL-- --RDR 2--			1	3 3 2 2	1.50 P	15
			5		2	4 2 2 3	1.64 B	17
	669.9	Soft to medium stiff, black to brown and black CLAY to SILTY CLAY LOAM; moist --trace organic matter-- --RDR 2--			3	2 2 2 3	0.25 B	38
					4	2 1 2 3	0.74 B	34
			10		5	1 1 2 1	0.82 B	43
					6	1 2 4	0.41 B	32
	661.0	Hard, brown SILTY CLAY, trace gravel --RDR 2--			7	5 8 10	4.43 B	14
	660.4	Boring terminated at 15.00 ft	15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: **09-18-2019** Complete Drilling: **09-18-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&I** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-05

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 672.71 ft
North: 1813620.62 ft
East: 1117842.08 ft
Station: 101+83.7
Offset: 62.9' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	672.1	7-inch thick, brown SILTY CLAY LOAM; damp						
	671.8	--TOPSOIL--						
		4-inch thick, black GRAVEL --FILL--			1	2 19 7 6	2.50 P	14
		Very stiff to hard, brown SILTY CLAY, trace to little gravel; damp to moist --FILL-- --RDR 2--			2	4 5 4 5	4.25 P	20
			5		3	4 4 6 4	2.13 B	18
	666.5	Medium stiff, black SILTY CLAY LOAM; moist to wet --BURIED TOPSOIL--			4	2 2 2 3	0.82 B	33
	665.1	--RDR 2--						
		Very soft to medium stiff, brown to dark brown ORGANIC SILT; wet --RDR 2--	10		5	1 2 2 1	0.57 B	51
					6	1 1 2	0.16 B	48
			15		7	0 2 2	< 0.25 P	72
	657.2	Very soft, gray CLAY to CLAY LOAM, trace organic matter; wet --RDR 2--			8	0 4 3	< 0.25 P	44
	655.6	Stiff to very stiff, gray to brownish gray to gray SILTY CLAY, trace gravel; damp to moist --RDR 2--			9	2 3 4	1.15 B	21
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					10	2 3 6	2.21 B	18
					11	3 3 5	2.13 B	19
	647.7	Boring terminated at 25.00 ft	25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-06

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 673.86 ft
North: 1813693.82 ft
East: 1117926.49 ft
Station: 102+86.8
Offset: 100.7' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	672.9	11-inch thick, ASPHALT --PAVEMENT--						
		Medium stiff to very stiff, brown, black and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to moist --FILL-- --RDR 2--			1	5 5 7 6	3.12 B	19
	670.4	Medium stiff to very stiff, gray CLAY to SILTY CLAY; damp to wet --RDR 2--	5		2	7 5 4 5	3.69 B	23
					3	3 2 3 5	0.90 B	27
					4	3 4 5 5	3.77 B	22
	663.6		10		5	4 3 3 4	0.98 B	29
		Medium stiff, black CLAY LOAM, trace to some organic matter; moist --RDR 2-- --L_L(%)=47, P_L(%)=17-- --%Gravel=0.6-- --%Sand=37.7-- --%Silt=36.7-- --%Clay=25.1-- --A-7-6(16)--			6	3 2 2	0.82 B	56
					7	3 2 2	0.82 B	47
	658.4		15					
		Very loose to loose, brown Organic SILT and PEAT; moist to wet --RDR 2--			8	2 2 2	0.90 B	105
			20		9	2 2 1	1.31 B	87

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	653.4							
		Soft, black and gray SILTY CLAY, little to some organic matter; wet --laminated-- --RDR 2--			10	2 1 1	0.41 B	57
					11	0 2 2	0.25 B	57
	648.9		25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-07

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 673.34 ft
North: 1813778.39 ft
East: 1117899.02 ft
Station: 103+47.2
Offset: 37.5' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	672.9	Brown LOAM, trace gravel; damp						
	672.7	--FILL--						
		Gray SANDY GRAVEL; damp			1	4 5 3 5	2.25 P	23
		Stiff to very stiff, brown SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to moist						
		--FILL--						
		--RDR 2--			2	8 6 8 9	1.39 B	16
	668.7							
		Stiff, black SILTY CLAY LOAM; moist	5		3	3 3 5 5	1.25 P	35
	667.8	--BURIED TOPSOIL--						
		Stiff, gray and brown CLAY to SILTY CLAY; moist						
		--RDR 2--			4	2 3 4 4	1.58 B	23
	664.8							
		Very stiff to hard, brown to brown and gray SILTY CLAY, trace gravel; damp to moist						
		--RDR 2--	10		5	3 4 8 7	6.48 B	18
	661.5	▽						
	661.2	Brown SAND; saturated			6	3 3 5	2.05 B	20
		Gray SILT; saturated						
	660.3							
		Medium stiff to very stiff, gray SILTY CLAY LOAM, trace gravel; moist						
		--RDR 2--	15		7	2 3 4	0.98 B	15
					8	2 4 5	2.05 B	15
	655.3							
		Very stiff, gray CLAY to SILTY CLAY, trace gravel; moist						
		--RDR 2--	20		9	5 4 6	2.87 B	20

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	652.8							
		Very stiff, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; moist						
		--RDR 2--			10	2 6 8	3.03 B	12
					11	4 4 6	2.21 B	11
	648.3		25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&AG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽: **11.80 ft**
At Completion of Drilling ▼: **DRY**
Time After Drilling: **NA**
Depth to Water ▼: **NA**

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

WANGENGINC 4110501.GPJ WANGENG.GDT 8/19/20

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BORING LOG CB-08

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 669.84 ft
North: 1814297.42 ft
East: 1118109.03 ft
Station: 109+05.6
Offset: 48.8' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.3	6-inch thick, gray SANDY GRAVEL						
		Stiff to hard, black and brown SILTY CLAY to SILTY CLAY LOAM, and gravel; damp			1	18 9 10 17	1.15 S	12
		--FILL--						
		--RDR 2--			2	8 6 9 6	4.76 B	20
	665.3							
		Stiff, black SILTY CLAY, trace gravel; damp	5		3	3 2 3 4	1.23 B	29
	664.3	--BURIED TOPSOIL--						
		Medium stiff, black and gray CLAY to SILTY CLAY, little organic matter; wet			4	2 2 2 3	0.90 B	55
		--RDR 1--						
	661.3							
		Soft to medium stiff, dark brown and gray Organic SILTY CLAY; damp to moist			5	0 1 1 2	0.33 B	71
		--RDR 1--	10		6	1 1 1 1	< 0.25 P	83
					7	0 0 1	0.16 B	80
			15		8	0 0 1	< 0.25 P	58
					9	0 1 1	0.33 B	63
	649.8		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-09

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.58 ft
North: 1814348.16 ft
East: 1118138.83 ft
Station: 109+58.0
Offset: 47.0' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.3	4-inch thick, black SILTY CLAY LOAM						
		--TOPSOIL--			1	2 3 4 9	2.54 B	20
	668.8	Very stiff, brown SILTY CLAY, trace gravel; damp						
		--FILL--						
		--RDR 2--			2	10 17 11 9	NP	14
	667.1	Medium dense, brown SAND, trace clay; damp						
		--FILL--						
		--RDR 2--	5		3	2 2 3 4	1.23 B	20
		Stiff, gray and brown SILTY CLAY, trace gravel; damp to moist						
		--FILL--						
	663.6	--RDR 1--			4	2 2 2 4	1.23 S	47
		Stiff, black and gray CLAY to SILTY CLAY, trace organic matter; damp						
		--RDR 1--						
		--L_L(%)=68, P_L(%)=26--			5	2 2 2 3	1.07 B	45
		--%Gravel=0.8--						
		--%Sand=4.8--	10					
		--%Silt=48.6--						
	660.1	--%Clay=45.7--						
		--A-7-6(45)--						
		Soft to medium stiff, brown, black and gray SILTY CLAY, some organic matter; moist			6	1 2 2	0.41 B	70
		--RDR 1--						
					7	1 1 2	0.66 B	63
			15					
					8	0 0 1	0.41 B	59
					9	1 1 2	0.41 B	59
	650.6		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-10

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.76 ft
North: 1814422.42 ft
East: 1118149.54 ft
Station: 110+34.5
Offset: 29.3' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	11-inch thick, ASPHALT --PAVEMENT--						
	668.3	Loose, black SANDY GRAVEL, little clay --FILL--			1	5 5 4 4	NP	13
		Very soft, black CLAY to SILTY CLAY, trace organic matter; moist --RDR 1--	5		2	3 2 3 4	< 0.25 P	61
	665.3	Medium stiff to very stiff, brown and gray SILTY CLAY, trace gravel; damp --RDR 1 to 2-- --L_L(%)=41, P_L(%)=19-- --%Gravel=1.8-- --%Sand=8.4-- --%Silt=49.1-- --%Clay=40.7-- --A-7-6(20)--			3	2 3 2 4	1.72 B	26
					4	2 3 3 5	3.12 B	21
			10		5	3 5 6 7	2.87 B	22
	659.5							
	659.1	Medium stiff, brown and gray LOAM; damp			6	2 3 3	0.82 B	23
		Medium stiff to hard, brown and gray SILTY CLAY, little gravel; damp to moist --RDR 2--			7	2 3 3	1.23 B	17
			15		8	4 5 6	4.35 B	18
					9	3 3 6	1.48 B	19
	650.8		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-11

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.44 ft
North: 1815336.00 ft
East: 1118473.62 ft
Station: 120+02.2
Offset: 29.0' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.4	12-inch thick, ASPHALT --PAVEMENT--						
		Medium stiff to very stiff, black and brown SILTY CLAY, some gravel; damp --FILL-- --RDR 2--			1	3 5 5 3	2.50 P	19
	666.2				2	2 4 3 4	0.50 B	22
	665.8	Brown, medium SAND; saturated	5					
		Very soft to medium stiff, black and brown SILTY CLAY, trace to some organic matter; damp --RDR 1--			3	2 1 2 3	0.82 B	44
					4	0 0 1 1	0.16 B	48
	660.9			▽				
	660.7	Brown, medium SAND; saturated	10		5	0 2 3 2	< 0.25 P	53
		Medium stiff, gray CLAY to SILTY CLAY; damp --RDR 2--			6	2 3 4	0.50 P	32
	657.4	Stiff, gray SILTY CLAY, little gravel; damp --RDR 2--	15		7	3 4 6	1.43 B	20
	653.7	Medium dense, brown SAND; saturated			8	3 5 6	1.39 B	19
	652.4	Stiff, gray SILTY CLAY, trace gravel; damp --RDR 2--			9	2 3 4	1.15 B	19
	650.4	Boring terminated at 20.00 ft	20					

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **9.50 ft**
At Completion of Drilling ▼ **DRY**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG CB-12

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.59 ft
North: 1815409.20 ft
East: 1118490.90 ft
Station: 120+77.6
Offset: 25.0' RT

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	668.8	10-inch ASPHALT over 12-inch CONCRETE --PAVEMENT--					
	668.3	Very stiff, brown and black SILTY CLAY LOAM, trace gravel; damp --FILL--		1	5 5 7 6	3.77 B	24
	667.8	Very stiff, black SILTY CLAY LOAM; damp to moist --BURIED TOPSOIL-- --RDR 2--					
5		Stiff to hard, brown to gray SILTY CLAY, trace gravel; damp to moist --RDR 2--		2	3 3 5 6	NA	21
				3	2 3 6 8	7.38 B	19
				4	4 5 6 5	4.02 B	19
10		--silt and sand lamiantion; wet--					
	659.7	Gray GRAVELLY SAND; saturated		5	4 6 6 5	1.60 B	20
	657.8	Stiff, gray SILTY CLAY LOAM, trace gravel; damp to saturated --saturated sand lenses-- --RDR 2--		6	3 5 5	1.97 B	14
15							
	655.1	Very stiff, gray CLAY to SILTY CLAY, trace gravel; moist --RDR 2--		7	3 4 5	2.05 B	21
	652.6	Soft, gray CLAY LOAM; wet --saturated sand lenses-- --RDR 2--		8	2 2 3	0.49 B	16
20							
	650.1	Medium stiff to stiff, gray SILTY CLAY LOAM, trace gravel; moist to wet --RDR 2--		9	3 4 7	0.57 B	27
	646.3	Gray SAND; saturated		10	4 6 9	1.07 B	17
25	645.6	Boring terminated at 25.00 ft					
30							
35							
40							

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **11.90 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-13

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 673.36 ft
North: 1816295.07 ft
East: 1118992.69 ft
Station: 130+86.4
Offset: 186.4' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		15-inch thick dense, brown SANDY GRAVEL; damp			1	12 17 14 8	4.50 P	15
	672.1	--RDR 2--						
		Very stiff, brown and black SILTY CLAY, some gravel, fragments of asphalt and brick--						
		--FILL--			2	7 7 10 10	2.30 B	15
		--RDR 2--						
			5		3	3 5 5 7	2.62 B	18
	667.4	Medium stiff, black SILTY CLAY LOAM, some gravel; moist						
		--BURIED TOPSOIL--			4	2 2 3 3	0.66 B	31
	665.9	--RDR 2--						
		Soft to medium stiff, black and brown CLAY to SILTY CLAY, trace to little organic matter; moist			5	2 2 2 4	0.41 B	54
		--RDR 2--	10					
					6	2 2 2	0.82 B	49
			15		7	3 2 2	0.41 B	56
	657.9	Very soft, gray and black organic SILT; wet						
		--RDR 1--			8	2 1 1	0.08 B	88
	655.4	Very soft to soft, gray CLAY to SILTY CLAY, trace organic matter; moist						
		--RDR 1--			9	0 0 0	0.08 B	39
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	651.9	Loose, gray SILT, few sand and clay lamination; wet			10	0 4 4	0.25 B	35
		--RDR 2--						
	650.4	Gray SAND; saturated						
		--RDR 2--			11	7 5 6	2.00 P	27
	649.4	Very stiff, brown SILTY CLAY, trace gravel; damp						
	648.4	--RDR 2--	25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-19-2019** Complete Drilling: **09-19-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **21.00 ft**
At Completion of Drilling: **18.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-14

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.35 ft
North: 1816356.10 ft
East: 1119001.35 ft
Station: 131+47.4
Offset: 173.8' RT

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
668.7		13-inch thick, ASPHALT over 7-inch thick, CONCRETE --PAVEMENT--					
668.4		Brown SANDY GRAVEL --BASE COURSE--					
		Stiff, brown and gray SILTY CLAY; damp --RDR 2--		1	2 2 3 2	1.64 B	20
665.4	5			2	3 2 1 2	NR	20
		Soft to medium stiff, brown, gray and black SILTY CLAY, trace to some organic matter; damp to wet --RDR 1--		3	0 0 2 3	0.41 B	53
				4	0 0 2 2	0.82 B	51
	10						
				5	0 0 0	0.66 B	51
657.4		Soft, blak and gray Organic CLAY and PEAT; wet --RDR 1--		6	0 0 2	0.33 B	98
	15						
654.9		Soft, black and dark gray SILTY CLAY, some organic matter; moist --RDR 1-- --L_L(%)=55, P_L(%)=24-- --%Gravel=0.2-- --%Sand=0.8-- --%Silt=66.4-- --%Clay=32.6-- --Organic Content = 6.9%--		7	0 0 1	0.41 B	59
				8	0 0 2	0.25 P	54
	20						
				9	0 2 1	0.41 B	68
				10	1 1 1	0.25 B	43
645.4	25	Boring terminated at 25.00 ft					
	30						
	35						
	40						

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG CB-15

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.73 ft
North: 1816394.26 ft
East: 1119081.48 ft
Station: 132+10.5
Offset: 234.3' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		20-inch thick, ASPHALT --PAVEMENT--						
	670.1	Stiff, brown and gray SILTY CLAY; damp --FILL-- --RDR 2--			1	3 3 4 3	1.64 B	22
			5		2	5 3 3 2	1.50 P	20
	666.1	Medium stiff, brown and gray CLAY to SILTY CLAY; damp --RDR 2--			3	3 2 2 2	0.82 B	33
	664.9	Medium stiff, black SILTY CLAY, trace to some organic matter; moist --RDR 1--			4	0 2 2 1	0.74 B	66
			10		5	1 2 1	0.82 B	95
	660.0	Medium stiff, dark brown Organic SILTY CLAY to PEAT; moist --RDR 1--						
	658.0	Soft, gray and black SILTY CLAY, some organic matter; moist to saturated --RDR 1--	15		6	0 0 2	0.25 P	52
	656.2	Very soft, gray CLAY to SILTY CLAY; wet --RDR 1-- --L_L(%)=36, P_L(%)=19-- --%Gravel=6.5-- --%Sand=15.2-- --%Silt=46.0-- --%Clay=32.3--			7	2 2 3	0.16 B	35
	653.7	Medium stiff to very stiff, brown SILTY CLAY to SILTY CLAY	20		8	2 2 3	0.57 B	13
		LOAM, trace to little gravel; damp --RDR 2--			9	3 4 6	0.74 B	18
	646.7	Boring terminated at 25.00 ft	25		10	4 5 8	2.30 B	20
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **17.50 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-01

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 677.28 ft
North: 1815762.17 ft
East: 1118762.37 ft
Station: 125+01.8
Offset: 159.3' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	676.5	Stiff, brown SILTY CLAY, trace gravel; damp			1	3 4 8 11	NP	16
		--TOPSOIL--						
		Medium dense, brown LOAM, some gravel; damp						
	674.7	--FILL--						
		--RDR 2--			2	4 8 4 5	2.71 B	21
		Very stiff, gray to black and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp						
		--FILL--						
		--RDR 2--	5		3	2 1 4 5	3.25 P	17
	671.5							
		Very stiff, black and gray CLAY to SILTY CLAY; damp						
		--RDR 2--			4	4 5 7 8	3.50 P	22
					5	4 6 7 9	2.87 B	22
			10					
	666.8							
		Hard, brown and gray SILTY CLAY, trace gravel; damp						
		--RDR 2--			6	4 6 7	4.43 B	17
					7	5 9 11	5.49 B	20
	662.3		15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-20-2019** Complete Drilling: **09-20-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&JD** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-02

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 678.86 ft
North: 1815694.59 ft
East: 1118925.41 ft
Station: 124+93.0
Offset: 335.5' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	678.3	7-inch thick, balck SILTY CLAY --TOPSOIL--						
		Medium stiff to hard, gray, black and brown CLAY LOAM to SILTY CLAY LOAM, trace to some gravel; damp to wet --FILL-- --RDR 2--			1	2 4 5 4	3.50 P	21
					2	4 6 7 8	1.23 B	19
			5		3	2 4 5 3	0.90 B	15
					4	2 4 6 6	4.92 B	16
	670.7	Hard, gray SILTY CLAY, trace gravel; damp --RDR 2--			5	4 4 7 7	4.00 P	13
			10					
	668.4	Gray SILTY LOAM, trace gravel; damp --RDR 2--			6	5 4 5	1.80 B	16
	667.7	Stiff to very stiff, gray SILTY CLAY, trace gravel; moist to wet --RDR 2--			7	2 6 9	2.71 B	16
	663.9		15					
		Boring terminated at 15.00 ft						
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: **09-20-2019** Complete Drilling: **09-20-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&JD** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG DB-03

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.21 ft
North: 1815879.25 ft
East: 1118915.33 ft
Station: 126+64.6
Offset: 264.7' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.8	Medium stiff, black SILTY CLAY LOAM --TOPSOIL--			1	2 5 7 7	7.13 B	16
		Medium stiff to hard, brown CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			2	7 6 7 10	3.03 B	19
			5		3	4 4 4 4	0.98 B	23
	664.5	Stiff, black SILTY CLAY --BURIED TOPSOIL-- --RDR 2--			4	4 3 4 4	1.23 B	39
	663.0	Stiff, black to gray SILTY CLAY, trace organic matter; moist --RDR 1--	10		5	2 3 3 4	1.39 B	36
	660.7	Very loose, brown Organic SILT and PEAT; moist --RDR 1--			6	2 2 2	NP	112
	658.2	Soft, black and gray SILTY CLAY, little to some organic matter; wet --RDR 2--			7	1 2 2	0.33 B	57
	656.2	Boring terminated at 15.00 ft	15					
			20					

GENERAL NOTES

Begin Drilling: **09-20-2019** Complete Drilling: **09-20-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&JD** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-04

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.93 ft
North: 1816035.74 ft
East: 1118847.95 ft
Station: 127+90.7
Offset: 146.0' RT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
671.5	Medium stiff, black SILTY CLAY LOAM; moist to wet --trace organic matter-- --TOPSOIL-- --RDR 2--			1	3 6 4 8	5.74 B	15
	Stiff to hard, black, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp to moist --FILL-- --RDR 2--	5		2	6 6 7 9	1.80 B	20
				3	4 4 6 10	2.71 B	24
				4	7 7 8 9	2.71 B	20
664.2	Stiff, black to dark gray CLAY to SILTY CLAY, trace orgaic matter; moist --RDR 2--	10		5	3 4 4 5	1.97 B	30
				6	3 4 4	1.56 B	27
659.7	Medium stiff, gray SILTY CLAY, some organic matter; moist to wet --RDR 2--						
658.9	Stiff brown to gray Organic SILT and PEAT; moist --RDR 1--	15		7	2 2 3	NP	101
656.4	Soft gray SILTY CLAY, some organic matter; wet --RDR 2--			8	3 3 2	0.41 B	53
654.4	Boring terminated at 17.50 ft	20					

GENERAL NOTES

Begin Drilling: **09-20-2019** Complete Drilling: **09-20-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&JD** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **15.50 ft**
At Completion of Drilling: **6.75 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-05

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 681.00 ft
North: 1815621.02 ft
East: 1119144.30 ft
Station: 124+98.2
Offset: 565.1' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	680.6	5-inch balck SILTY CLAY --TOPSOIL--						
		Stiff to very stiff, black and brown CLAY LOAM to SILTY CLAY, trace to some gravel, few brick fragments; damp --FILL-- --RDR 2--			1	4 5 3 3	2.50 P	22
					2	3 6 8 6	1.56 B	17
			5		3	3 4 6 8	2.50 P	25
	673.0				4	12 11 13 16	3.94 B	17
		Medium stiff, brown SILTY CLAY; moist --some silt laminations-- --RDR 2--	10		5	2 4 4 7	0.82 B	16
	670.5							
		Stiff, brown SILTY LOAM to SILTY CLAY LOAM, trace gravel; damp to moist --RDR 2-- --moist sand lenses--			6	5 5 6	1.23 B	12
		--damp sand lenses--			7	3 4 5	1.23 B	12
	666.0		15					
		Boring terminated at 15.00 ft						
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: **09-19-2019** Complete Drilling: **09-19-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-06

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 675.93 ft
North: 1815898.17 ft
East: 1119151.47 ft
Station: 127+61.2
Offset: 484.0' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	675.6	3.5-inch thick black SILTY CLAY LOAM						
		--TOPSOIL--						
		Stiff to very stiff, black, gray and brown CLAY LOAM to SILTY CLAY, trace to some gravel and brick fragments; damp			1	2 3 3 5	1.50 P	30
		--FILL--			2	3 3 10 11	1.89 B	18
		--RDR 2--	5		3	3 5 7 7	1.23 B	22
					4	5 5 8 11	2.46 B	35
					5	3 5 5 8	1.48 B	23
			10					
	665.4	Stiff, gray and brown SILTY CLAY, trace organic matter; damp			6	3 4 5	1.23 B	22
		--RDR 2--						
	662.9	Medium stiff, black SILTY CLAY; damp to moist			7	4 3 3	0.82 B	52
		--little organic matter--						
		--RDR 2--						
	660.9		15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-19-2019** Complete Drilling: **09-19-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-07

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.89 ft
North: 1815991.76 ft
East: 1119032.97 ft
Station: 128+34.2
Offset: 329.4' RT

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
0	671.6	Black SILTY CLAY LOAM --TOPSOIL-- --RDR 2--		1	3 4 6 9	4.50 P	15
		Very stiff to hard, brown CLAY LOAM to SILTY CLAY, trace to some gravel; damp --FILL-- --RDR 2--		2	8 8 10 13	4.50 P	12
5				3	8 8 8 8	3.69 B	16
				4	2 3 5 5	1.31 B	22
	663.6	Stiff, black SILTY CLAY, little to some organic matter; damp --RDR 2--		5	2 2 4 5	1.15 B	42
10				6	2 2 2	0.41 B	41
	659.9	Medium stiff, dark brown Organic SILTY CLAY and PEAT; moist --RDR 1--		7	1 1 2	0.57 B	125
15				8	0 0 0	0.41 B	61
	655.1	Soft, gray and black SILTY					
	654.4	CLAY, some organic matter; moist --RDR 2--					
		Boring terminated at 17.50 ft					
20							

GENERAL NOTES

Begin Drilling: **09-19-2019** Complete Drilling: **09-19-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **13.00 ft**
At Completion of Drilling: **13.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG DB-08

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 676.21 ft
North: 1816238.78 ft
East: 1119018.39 ft
Station: 130+46.3
Offset: 231.9' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	675.8	5-inch thick brown SANDY LOAM --TOPSOIL-- --RDR 2--			1	2 3 5 7	4.50 P	17
		Very stiff to hard, brown and gray CLAY LOAM to SILTY CLAY LOAM, little to some gravel; dry to damp --FILL-- --RDR 2--			2	7 5 8 8	4.50 P	12
			5		3	6 7 8 10	4.50 P	13
					4	10 8 8 12	2.05 B	14
					5	4 4 4 7	5.33 B	17
			10		6	5 5 8	4.18 B	14
	662.6	Medium stiff, black SILTY CLAY, trace to little organic matter; damp			7	3 3 4	0.66 B	47
	661.2	--RDR 2--	15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-19-2019** Complete Drilling: **09-19-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-01

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 672.09 ft
North: 1813714.69 ft
East: 1117778.35 ft
Station: 102+34.5
Offset: 46.8' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.6	5-inch thick, black SILTY CLAY --TOPSOIL--						
		Medium stiff to very stiff, brown SILTY CLAY to CLAY LOAM, little to some gravel; damp			1	2 5 6 5	2.46 B	15
		--FILL--						
		--RDR 2--			2	3 4 5 6	1.64 B	17
		--L_L(%)=31, P_L(%)=18--						
		--%Gravel=3.8--						
		--%Sand=16.2--						
		--%Silt=49.0--						
		--%Clay=31.0--	5		3	7 4 6 6	0.82 B	16
		--A-6(9)--						
	665.6							
	665.3	Brown SANDY GRAVEL; moist			4	4 5 5 6	1.23 B	17
		Stiff to very stiff, brown and gray to gray SILTY CLAY LOAM, little gravel; damp						
		--RDR 2--			5	3 4 7 6	2.05 B	13
			10					
					6	2 4 4	1.23 B	13
	659.1							
		Medium stiff, gray and brown SILTY LOAM to SILTY CLAY LOAM; moist						
		--RDR 2--			7	4 4 7	0.74 B	12
	657.1		15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-02

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 672.24 ft
North: 1813836.23 ft
East: 1117882.17 ft
Station: 103+92.3
Offset: 4.10' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.7	Medium dense, black to gray GRAVELLY SAND; damp --FILL--			1	9 7 5 4	NP	11
	670.7	Medium dense, black SANDY LOAM, trace gravel; damp --FILL-- --RDR 2--			2	6 6 5 6	1.75 P	28
	668.0	Stiff, black and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp to moist --FILL-- --RDR 2--	5		3	3 3 5 4	NP	8
	666.7	Loose, brown GRAVELLY SAND; saturated --RDR 2--			4	4 5 8 10	8.04 B	17
	665.5	Hard, brown SILTY CLAY LOAM, trace gravel; damp --RDR 2--			5	3 5 4 6	2.95 B	18
	663.7	Gray and brown SILTY LOAM; saturated						
	663.2	Very stiff, brown and gray SILTY CLAY, trace gravel; damp	10					
		Brown SILT; saturated						
		Hard, brown SILTY CLAY LOAM, trace gravel; damp --RDR 2--			6	4 4 6	6.64 B	15
	659.2	Medium stiff, brown SILTY LOAM to SILTY CLAY LOAM, trace gravel; damp to moist --RDR 2--			7	3 3 4	0.74 B	14
	657.2	Boring terminated at 15.00 ft	15					
			20					

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&AG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **4.20 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-03

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.25 ft
North: 1814100.31 ft
East: 1118005.95 ft
Station: 106+82.5
Offset: 2.4' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.4	3.5-inch thick ASPHALT over 7-inch CONCRETE						
		--PAVEMENT--						
		Medium dense, gray SANDY GRAVEL; dry			1	11 8 14 13	NP	4
		--BASE COURSE--						
	668.3	--RDR 2--						
		Stiff, gray CLAY to SILTY CLAY; damp			2	6 2 2 2	1.00 P	21
	667.1	--RDR 2--	5					
		Gray, medium SAND; wet			3	3 1 2 2	0.74 B	39
	665.8	Medium stiff, black and gray CLAY, trace to some organic matter; damp to moist						
		--RDR 1--						
		--L_L(%)=74, P_L(%)=26--						
		--%Gravel=0.3--						
		--%Sand=3.8--			4	0 2 1 1	0.74 B	40
		--%Silt=46.9--						
		--%Clay=48.9--						
	661.8	--A-7-6(53)--						
		Soft to medium stiff, dark brown and black Organic SILTY CLAY and PEAT; moist	10		5	2 1 2 2	0.66 B	93
		--RDR 1--						
					6	1 1 1	0.49 B	106
					7	1 1 2	0.16 B	79
			15					
	655.8	Medium stiff, black and gray SILTY CLAY, little to some organic matter; wet						
		--RDR 1--			8	0 1 1	0.50 P	47
		--silt seams--						
	651.8				9	2 3 3	0.66 B	20
	651.3	Medium stiff, brownish gray	20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		SILTY CLAY, little gravel; damp						
		Boring terminated at 20.00 ft						
			25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: ▽ **5.00 ft**
At Completion of Drilling: ▼ **DRY**
Time After Drilling: **NA**
Depth to Water: ▼ **NA**

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BORING LOG RB-04

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.62 ft
North: 1814358.95 ft
East: 1118097.43 ft
Station: 109+57.6
Offset: 3.6' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.7	4-inch thick ASPHALT over 7-inch thick broken CONCRETE						
	669.6	--PAVEMENT--						
		White GRAVEL; damp to dry						
	668.4	--BASE COURSE--			1	5 7 4 2	0.25 P	35
		Soft, black CLAY LOAM, little gravel; wet						
	667.4	--FILL--			2	3 3 2 1	1.25 P	45
	666.4	Brown SANDY GRAVEL; saturated						
		--FILL--	5					
		--RDR 3--			3	2 1 1 1	0.49 B	48
		Stiff, black CLAY; moist						
		--RDR 2--			4	0 0 0 0	0.74 B	48
		Very soft to medium stiff, black and gray SILTY CLAY, trace to some organic matter; moist to wet						
		--RDR 1--	10		5	0 0 2 2	NP	57
					6	0 0 3	0.25 P	71
			15		7	0 0 2	< 0.25 P	52
					8	0 0 2	< 0.25 P	51
	651.4							
	650.6	Very stiff, SILTY CLAY LOAM, trace gravel; moist	20		9	3 4 6	2.21 B	17

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--RDR 2--						
		Boring terminated at 20.00 ft						
			25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&AG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **3.00 ft**
At Completion of Drilling: **20.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-05

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.73 ft
North: 1814898.20 ft
East: 1118289.50 ft
Station: 115+29.4
Offset: 3.3' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.4	16-inch, black SANDY GRAVEL; damp --FILL-- --RDR 2--			1	10 7 4 5	3.53 B	18
	668.7	Very stiff, black SILTY CLAY, little gravel --BURIED TOPSOIL-- Very stiff to hard, brown SILTY CLAY, trace to little gravel; damp --RDR 2--			2	4 4 4 6	2.05 B	24
			5		3	3 3 5 6	4.10 B	18
					4	4 4 7 11	4.18 B	18
	661.2				5	7 8 14 13	7.79 B	20
		Stiff, gray SILTY CLAY LOAM to SILTY LOAM, trace to little gravel; damp --RDR 2--	10		6	3 3 7	1.31 B	14
	655.7		15		7	4 3 6	1.64 B	15
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG RB-06

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.44 ft
North: 1815132.82 ft
East: 1118376.81 ft
Station: 117+78.5
Offset: 9.5' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.0	5-inch thick ASPHALT --PAVEMENT--						
	669.2	Brown and black GRAVELLY SANDY LOAM; damp --BASE COURSE--			1	5 4 5 4	2.25 P	30
		Stiff to hard, black, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp to moist --FILL-- --RDR 2--	5		2	3 3 5 5	1.64 B	20
					3	3 4 4 8	4.59 B	18
	662.7							
		Soft, gray CLAY to SILTY CLAY, trace organic matter; wet			4	3 3 3 10	0.41 B	32
	661.7	--RDR 2--						
		Very stiff, gray SILTY CLAY, trace gravel --RDR 2--	10		5	5 10 8 9	3.77 B	21
	659.0			▽				
		Medium dense, gray LOAM to SANDY LOAM, trace to little gravel; saturated			6	4 5 5	NP	16
	657.4	--RDR 2--						
		Medium stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to wet --RDR 2--			7	3 4 3	0.98 B	19
	655.4	--wet silt lenses--	15					
		Boring terminated at 15.00 ft						
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&AG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **11.40 ft**
At Completion of Drilling ▼ **DRY**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG RB-07/PC-08

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.53 ft
North: 1815575.68 ft
East: 1118532.91 ft
Station: 122+49.3
Offset: 5.6' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.6	11.75-inch thick ASPHALT --PAVEMENT--						
	669.4	2-inch thick GRAVEL --BASE COURSE--						
		Very stiff to hard, brown CLAY to SILTY CLAY, some gravel; damp --FILL-- --RDR 2-- --L_L(%)=34, P_L(%)=18-- --%Gravel=4.1-- --%Sand=16.0-- --%Silt=46.6-- --%Clay=33.3-- --A-6(12)--			1	8 4 6 6	4.51 B	23
					2	29 3 5 6	2.46 B	18
	665.5		5		3	3 2 5 4	1.23 B	21
		Stiff to very stiff, brown to gray SILTY CLAY, trace gravel; damp --RDR 2--			4	2 4 3 5	1.15 B	22
			10		5	2 4 6 7	3.20 B	18
		--wet sand lens--			6	4 3 4	0.82 B	14
					7	5 5 9	3.85 B	17
	655.5		15					
		Boring terminated at 15.00 ft						
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **13.00 ft**
At Completion of Drilling: **13.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-08

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.70 ft
North: 1815854.48 ft
East: 1118630.78 ft
Station: 125+45.3
Offset: 4.1' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	11-inch thick ASPHALT --PAVEMENT--						
	669.3	Loose, brown Gravelly LOAM; damp to moist --FILL--			1	3 2 2 3	1.48 B	22
	668.0	Stiff, black SILTY CLAY LOAM; moist --RDR 2--			2	3 2 3 3	1.07 B	26
		Stiff, black to brown and gray CLAY to SILTY CLAY; moist --RDR 2--	5		3	2 2 3 4	1.07 B	24
					4	2 2 2 3	1.15 B	26
			10		5	1 2 2 2	1.31 B	30
	660.0	Very soft to soft, gray, organic SILT; moist to wet --RDR 1--			6	1 1 1	NP	52
			15		7	0 0 0	0.41 B	51
					8	1 1 1	0.16 B	52
					9	1 0 1	0.25 B	45
	650.7		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&AG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-01

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 675.33 ft
North: 1812924.36 ft
East: 1117219.06 ft
Station: 92+57.7
Offset: 11.4' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	674.3	4-inch thick ASPHALT over 8-inch CONCRETE --PAVEMENT--						
	673.6	Gray SANDY GRAVEL; dry --BASE COURSE--			1	9 21 19 8	1.00 P	22
		Stiff, brown CLAY to SILTY CLAY, trace gravel; damp --RDR 2-- --L_L(%)=45, P_L(%)=19-- --%Gravel=6.5-- --%Sand=15.2-- --%Silt=46.0--	5		2	5 3 3 3	1.15 B	26
	670.0	--%Clay=32.3-- --A-7-6(20)--			3	2 7 3 2	1.00 P	40
	668.8	Medium dense, brown and black LOAM, trace organic matter; wet --RDR 2--						
		Soft, black CLAY to SILTY CLAY, trace organic matter; damp --RDR 2--			4	1 2 2 3	0.49 B	32
	666.3	Medium stiff, brown and gray SILTY CLAY; damp --RDR 2--	10		5	2 3 3 4	0.98 B	25
	664.3	Boring terminated at 11.00 ft	15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-02

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 674.82 ft
North: 1813100.46 ft
East: 1117393.13 ft
Station: 95+05.4
Offset: 6.2' RT

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
673.9	0	11-inch thick ASPHALT --PAVEMENT--					
673.1		Concrete fragments --RDR 2 to 3-- --FILL--					
672.2		Hard, brown SILTY CLAY, trace gravel; damp --FILL-- --RDR 2 to 3--		1	2 4 13 13	6.89 B	17
669.6	5	Medium dense, black and brown SANDY LOAM to LOAM, trace to some gravel; damp --FILL-- --RDR 2--		2	12 10 8 5	NP	12
668.1		Very stiff (2.05B), gray SILTY CLAY; damp		3	3 4 4 6	1.39 B	23
		Stiff, gray to black CLAY to SILTY CLAY, trace organic matter; moist to wet --RDR 1-- --L_L(%)=56, P_L(%)=20-- --%Gravel=0.0-- --%Sand=12.6-- --%Silt=48.5-- --%Clay=38.9--		4	2 3 3 5	1.15 B	36
663.8	10	--A-7-6(34)--		5	1 3 3 3	0.49 B	32
		Medium stiff, blue, gray and black to gray and brown SILTY CLAY, little to some organic matter; moist to wet --RDR 2--		6	1 2 1	0.50 P	50
659.8	15	Boring terminated at 15.00 ft					
	20						

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **KS&AG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-03

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 674.34 ft
North: 1813333.00 ft
East: 1117571.91 ft
Station: 98+03.5
Offset: 1.8' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	673.3	3-inch thick ASPHALTover 9-inch thick CONCRETE --PAVEMENT--						
	673.0	SANDY GRAVEL --BASE COURSE--			1	6 4 5 8	3.77 B	16
		Stiff to hard, brown CLAY LOAM to SILTY CLAY, trace gravel; damp --FILL-- --RDR 2--	5		2	5 6 9 8	5.47 B	17
	668.1				3	6 7 8 9	1.31 B	17
	667.6	Brown, medium SAND; saturated						
		Stiff, gray SILTY CLAY to CLAY LOAM, trace gravel; damp to moist --RDR 2--			4	1 3 4 3	1.23 B	16
			10		5	4 4 3 5	1.07 B	15
	663.3	Boring terminated at 11.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **09-24-2019** Complete Drilling: **09-24-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-04

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 674.07 ft
North: 1813561.95 ft
East: 1117765.94 ft
Station: 100+96.2
Offset: 27.5' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	673.1	2-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
		Very stiff to hard, brown SILTY CLAY, trace gravel; damp --FILL-- --RDR 2 to 3--			1	10 7 6 6	3.50 P	20
					2	6 3 3 6	NR	12
	669.1		5					
		Stiff, black SILTY CLAY --BURIED TOPSOIL--			3	3 2 3 4	1.00 P	22
	667.8	Stiff, gray and brown SILTY CLAY, trace gravel; moist --RDR 2--			4	3 2 3 4	1.31 B	23
			10		5	3 3 5 4	1.72 B	20
	663.1	Boring terminated at 11.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-05

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.25 ft
North: 1813654.32 ft
East: 1117510.53 ft
Station: 100+35.6
Offset: 237.5' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	10-inch thick ASPHALT over 8-inch thick CONCRETE --PAVEMENT--						
	668.9	Gray GRAVELLY SAND; wet --BASE COURSE--						
		Very stiff, brown CLAY LOAM to SILTY CLAY LOAM, little gravel; moist --FILL-- --RDR 2--			1	7 11 6 4	3.00 P	21
			5		2	4 4 4 4	2.79 B	21
	664.0				3	2 2 2 2	3.00 P	26
		Soft, gray CLAY to SILTY CLAY; wet --RDR 2--						
	662.8	Soft, gray SILTY CLAY, little organic matter; wet --RDR 1--			4	3 1 2 2	0.41 B	59
	661.5		10					
		Soft to medium stiff, brown Organic SILT and PEAT; moist to wet --RDR 1--			5	1 2 1 2	0.90 B	120
			15		6	2 1 2	0.41 B	118
	654.8							
		Very soft, gray, brown and black SILTY CLAY, little to some organic matter; wet --RDR 1--			7	2 1 1	< 0.25 P	61
	653.8	Boring terminated at 17.50 ft						
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-06

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 677.01 ft
North: 1813707.92 ft
East: 1118000.38 ft
Station: 103+23.5
Offset: 164.4' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	676.2	Black and brownSILTY CLAY LOAM			1	4 3 7 8	2.87 B	18
	675.5	--TOPSOIL--						
		SANDY GRAVEL; damp						
		--FILL--						
		--RDR 2--			2	5 5 5 6	2.05 B	16
		Stiff to very stiff, brown SILTY CLAY to CLAY LOAM, little to some gravel; damp						
		--FILL--						
		--RDR 2--	5		3	3 3 3 4	1.00 P	23
	671.5	Medium stiff, black SILTY CLAY, little to some organic matter; damp						
		--RDR 2--			4	2 3 6 6	0.82 B	34
					5	2 2 3 4	0.74 B	39
			10					
	665.5	Soft, gray SILTY CLAY, trace organic matter; moist			6	0 3 3	0.41 B	29
		--RDR 1--						
					7	2 1 3	0.41 B	40
			15					
	660.5	Medium stiff, black SILTY CLAY, some organic matter			8	2 1 2	0.82 B	71
	659.4	--RDR 1--						
		Stiff brown Organic SILTY CLAY and PEAT; moist						
		--RDR 1--			9	0 1 2	1.23 B	117
	657.0		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling: **09-18-2019** Complete Drilling: **09-18-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&I** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-07/PC-07

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.82 ft
North: 1814670.34 ft
East: 1118235.64 ft
Station: 112+97.5
Offset: 25.9' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		15-inch thick ASPHALT --PAVEMENT--						
	669.6							
	669.1	GRAVEL --BASE COURSE--						
		Very stiff to hard, brown and gray to brown SILTY CLAY, trace gravel; damp to moist --RDR 2--			1	5 3 6 7	4.00 P	18
			5		2	8 5 8 8	6.48 B	20
					3	7 5 10 10	4.02 B	20
	662.3							
	661.3	Medium dense, brown SILTY LOAM to SILTY CLAY LOAM; moist	10		4	4 5 6 6	3.85 B	14
		Stiff to very stiff, brown to brownish gray SILTY CLAY LOAM, trace gravel; damp to moist --RDR 2--			5	3 4 5 8	2.05 B	15
	658.8	Boring terminated at 12.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-08/PC-09

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.92 ft
North: 1816154.20 ft
East: 1118765.76 ft
Station: 128+74.5
Offset: 29.0' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		15-inch thick ASPHALT over about 12-inch thick CONCRETE --RDR 4--						
	668.7							
		Very soft, brown CLAY LOAM, trace gravel; wet --FILL-- --RDR 2-- --L_L(%)=39, P_L(%)=17-- --%Gravel=8.1-- --%Sand=22.8-- --%Silt=42.5-- --%Clay=26.6-- --A-6(13)--			1	5 2 3 2	< 0.25 P	19
	666.4		5					
					2	1 1 1 2	0.25 P	22
	664.4	Soft, gray SILTY CLAY, trace gravel; wet						
		Soft to medium stiff, black and gray SILTY CLAY, little to some organic matter; wet --RDR 2--			3	0 5 2 2	0.66 B	42
			10		4	2 2 2 2	0.90 B	34
					5	0 1 1 2	0.25 B	61
	657.9							
		Boring terminated at 13.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **09-25-2019** Complete Drilling: **09-25-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **K&A** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **13.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG SB-09/PC-03

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 674.43 ft
North: 1816382.00 ft
East: 1118621.41 ft
Station: 130+28.2
Offset: 188.2' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	672.8	12-inch thick, ASPHALT over 7-inch thick, CONCRETE --PAVEMENT--						
	670.7	Very stiff, black SILTY CLAY; damp --BURIED TOPSOIL-- --RDR 1--			1	0 3 4 4	2.36 B	25
		Medium stiff to hard, brown SILTY CLAY, trace gravel; damp --RDR 2--	5		2	2 3 3 4	2.05 B	21
					3	2 2 4 6	0.90 B	15
	664.4		10		4	4 8 7 12	5.99 B	17
		Boring terminated at 10.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-10

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 672.94 ft
North: 1816346.08 ft
East: 1118725.71 ft
Station: 130+39.0
Offset: 80.6' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.6	10-inch thick, ASPHALT over 6-inch thick, CONCRETE --PAVEMENT--						
		Stiff to very stiff, black SILTY CLAY; damp --BURIED TOPSOIL-- -- Organic Content = 12.1%-- --RDR 2-- --trace organic matter-- --Organic Content = 12.1%--			1	2 2 4	1.50 P	31
					2	2 2 3 7	1.56 B	33
	667.7		5					
		Stiff to very stiff, black, brown and gray CLAY to SILTY CLAY; damp --RDR 2--			3	3 5 6 9	3.36 B	20
					4	4 5 5 9	2.87 B	22
	661.9		10		5	3 3 3 5	1.48 B	31
		Boring terminated at 11.00 ft	15					
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-11/PC-04

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.59 ft
North: 1816390.55 ft
East: 1118917.60 ft
Station: 131+45.8
Offset: 84.0' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.1	10-inch thick, ASPHALT over 7.5-inch thick, CONCRETE --PAVEMENT--						
	666.1	Soft to stiff, brown and black SILTY CLAY, some gravel; damp --FILL-- --RDR 2--			1	2 2 3	1.07 B	22
					2	2 1 1 2	0.33 B	18
		Soft to stiff, black, brown and gray CLAY to SILTY CLAY; damp --RDR 1 to 2--	5		3	1 2 1 2	0.33 B	32
					4	1 1 2 2	0.33 B	28
	659.6		10		5	1 2 2 2	1.07 B	35
		Boring terminated at 11.00 ft	15					
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG SB-12

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 672.76 ft
North: 1816385.37 ft
East: 1118748.82 ft
Station: 130+80.6
Offset: 71.8' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.8	7-inch thick, ASPHALT over 5-inch thick, CONCRETE --PAVEMENT--						
	671.5	Gray SANDY GRAVEL --BASE COURSE--			1	3 4 3 3	1.50 P	23
		Medium stiff to stiff, black and brown SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2-- --L_L(%)=41, P_L(%)=19-- --%Gravel=3.2-- --%Sand=18.1-- --%Silt=50.3-- --%Clay=28.4-- --A-7-6 (17)--			2	2 3 2 3	0.98 B	24
	667.3		5		3	2 2 4 5	1.64 B	22
		Stiff, brown and gray CLAY to SILTY CLAY; damp --RDR 2--			4	2 3 4 5	1.64 B	26
		--trace organic matter--	10		5	2 2 2 3	1.39 B	33
	661.8	Boring terminated at 11.00 ft	15					
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-13

WEI Job No.: 411-05-01

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 673.75 ft
North: 1816615.96 ft
East: 1118928.10 ft
Station: 133+62.8
Offset: 13.3' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	672.3	10-inch thick, ASPHALT over 8-inch thick, CONCRETE --PAVEMENT--						
	671.3	Medium stiff, CLAY LOAM, some gravel; damp --FILL--			1	3 3 4	0.74 S	15
		Medium stiff, black SILTY CLAY LOAM; damp --BURIED TOPSOIL-- --RDR 2--	5		2	5 3 3 5	0.74 B	25
	668.5	Very stiff, brown SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--			3	2 3 4 9	3.03 B	23
					4	6 7 10 11	3.03 S	17
			10		5	6 8 8 11	3.69 B	18
	662.8	Boring terminated at 11.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **09-26-2019** Complete Drilling: **09-26-2019**
Drilling Contractor: **Wang Testing Services** Drill Rig:
Driller: **R&J** Logger: **I. Nenn** Checked by: **C. Marin**
Drilling Method: **2.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-01

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 675.96 ft
North: 1812458.85 ft
East: 1116823.97 ft
Station: 86+48.06
Offset: 10.67 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	674.8	14-inch thick ASPHALT --PAVEMENT--						
		Soft to very stiff, dark brown to brown and black CLAY LOAM to SILTY CLAY LOAM, little gravel and brick fragments; damp to wet --FILL-- --RDR 2-- --wet spoon--			1	6 5 5	3.75 P	13
			5		2	1 2 2	0.75 P	26
					3	1 2 2	0.33 B	28
	668.0	Soft, brown and black SILTY CLAY, trace organic matter; wet --RDR 1--			4	1 1 1	0.25 B	55
		--shelby tube, 10.0 to 12.0 ft-- --L_L(%)=50, P_L(%)=20-- --%Gravel=1.2-- --%Sand=16.4-- --%Silt=47.0-- --%Clay=35.4--	10		5	P U S H	< 0.25 P	38
	663.5	--L_L(%)=33, P_L(%)=16-- --%Gravel=2.6-- --%Sand=17.3-- --%Silt=49.7-- --%Clay=30.4--			6	4 8 9	3.61 B	21
		Stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--	15		7	4 5 5	2.13 B	15
			20		8	4 5 8	2.54 B	15
					9	4 5 8	1.97 B	15
	653.0	Loose, gray, medium SAND; saturated --RDR 1--	25		10	4 4 4	NP	20
	650.5	Stiff to very stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--			11	2 5 6	1.23 B	16
	646.0	Boring terminated at 30.00 ft	30		12	4 6 9	2.05 B	14
			35					
			40					

GENERAL NOTES

Begin Drilling: **03-04-2021** Complete Drilling: **03-04-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20D50T [80%]**
Driller: **R&J** Logger: **F. Bozga** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **3.50 ft**
At Completion of Drilling: **12.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-02

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 674.44 ft
North: 1813691.79 ft
East: 1117933.44 ft
Station: 102+88.18
Offset: 107.22 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	673.4	12-inch thick ASPHALT --PAVEMENT--						
		Medium dense, brown GRAVELLY LOAM; dry --FILL--			1	8 12 8	NP	5
	671.4	Stiff to very stiff, brown, gray and black SILTY CLAY LOAM to SILTY CLAY, trace gravel; damp --FILL-- --RDR 2--	5		2	5 5 5	2.00 P	24
					3	4 5 5	1.89 B	21
			10		4	3 4 5	1.39 B	28
	663.9	Soft to stiff, black to brown PEAT, some organic matter --RDR 1--			5	2 3 3	0.57 B	89
			15		6	2 2 2	0.41 B	114
					7	0 1 3	0.82 B	99
			20		8	2 2 2	1.07 B	94
	653.9	Very soft to medium stiff, black to gray SILTY CLAY, some organic matter --RDR 1--	25		9	0 0 0	0.18 B	59
					10	0 1 1	0.49 B	61
			30		11	0 2 3	0.49 B	51
	643.9	Stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel --RDR 2--			12	0 2 2	0.66 B	64
					13	1 2 3	1.00 P	23
			35		14	3 4 5	1.07 B	19
					15	4 5 6	2.30 B	19
	634.4	Boring terminated at 40.00 ft	40		16	4 4 7	2.46 B	19

GENERAL NOTES

Begin Drilling: **03-05-2021** Complete Drilling: **03-05-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20D50T [80%]**
Driller: **R&J** Logger: **F. Bozga** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-02ST

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 674.63 ft
North: 1813690.58 ft
East: 1117937.52 ft
Station: 102+89.01
Offset: 111.38 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--drilled without sampling to 12 ft--						
	662.6	Selby tube 1		◯	1	PUSH	NR	
	660.6							
		Shelby tube 2			2	PUSH	0.50 P	101
			5					
			10					
			15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Shelby tube 3 --L_L(%)=79, P_L(%)=33-- --%Gravel=0.0-- --%Sand=8.9-- --%Silt=68.7-- --%Clay=22.4-- --%Organics= 9.9--			3	PUSH	0.50 P	79
	652.6	Boring terminated at 22.00 ft						
			25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **03-05-2021** Complete Drilling: **03-05-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20D50T [80%]**
Driller: **R&J** Logger: **F. Bozga** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **DRY**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG B-03

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 670.57 ft
North: 1814295.09 ft
East: 1118104.66 ft
Station: 108+99.67
Offset: 31.57 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.2	4-inch thick ASPHALT --PAVEMENT--						
	669.6	8-inch thick CONCRETE --PAVEMENT--						
		Medium dense, brown and black SANDY GRAVEL; moist			1	11 8 9	NP	8
	667.6	--FILL--						
		Medium stiff to very stiff, brown and black SILTY CLAY LOAM, trace gravel; damp to wet			2	5 4 4	2.13 B	16
		--FILL--	5					
		--RDR 2--						
		--wet spoon recovery--			3	1 1 1	0.75 P	22
	662.6							
		Very soft to soft, brown, black and gray SILTY CLAY to SILTY CLAY LOAM, some organic matter			4	0 0 0	0.16 B	62
		--RDR 1--	10					
					5	PUSH	0.25 P	84
			15		6	0 1 1	0.25 B	62
		--L_L(%)=65, P_L(%)=24-- --%Gravel=0.0-- --%Sand=1.4-- --%Silt=62.8-- --%Clay=35.8-- --%Organics = 7.5--			7	1 0 0	0.16 B	66
			20		8	0 0 0	0.16 B	59
	647.6				9	1 1 1	0.25 B	49
		Medium stiff, gray and brown SILTY CLAY, trace gravel; damp --RDR 1-2--	25		10	1 3 3	0.90 B	20
					11	3 5 6	1.64 B	18
	640.6		30		12	3 5 5	1.48 B	19
		Boring terminated at 30.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling: **03-04-2021** Complete Drilling: **03-04-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20D50T [80%]**
Driller: **R&J** Logger: **F. Bozga** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **5.50 ft**
At Completion of Drilling: **22.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-04

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 670.59 ft
North: 1816356.32 ft
East: 1119018.40 ft
Station: 131+53.67
Offset: 189.17 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.5	13-inch thick ASPHALT --PAVEMENT--						
	668.9	7-inch thick CONCRETE --PAVEMENT--						
		Very stiff, brown, black and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	5 5 6	3.00 P	16
			5		2	4 2 3	2.50 P	21
	665.1	Gray SANDY GRAVEL; damp						
	664.5	Soft, gray SILTY CLAY LOAM; wet --RDR 2--			3	2 1 1	0.49 B	24
	662.6	Stiff, black Organic SILTY CLAY LOAM; wet			4	1 1 1	1.00 P	55
			10					
	660.1	Medium stiff, brown PEAT, few organic silt lenses; moist --RDR 2--			5	0 0 0	0.90 B	161
	656.8	Very soft to medium stiff, black and gray Organic SILTY CLAY; wet --RDR 2--			6	0 0 0	0.49 B	57
			15		7	PUSH	< 0.25 P	52
					8	0 0 0	0.33 B	49
			20					
		--L_L(%)=42, P_L(%)=19-- --%Gravel=0.0-- --%Sand=0.2-- --%Silt=58.7-- --%Clay=41.0-- --%Organics=3.8--			9	PUSH	< 0.25 P	41
			25		10	0 0 0	0.50 P	29
	645.1	Brown SANDY LOAM, trace gravel; saturated						
	644.3	Stiff to very stiff, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to moist --RDR 2--			11	4 3 4	1.80 B	17
			30		12	2 3 5	1.80 B	19
					13	5 7 10	3.36 B	16
			35		14	5 7 10	2.71 B	19
					15	5 7 9	1.80 B	20
	632.6	Very stiff, brown SILTY LOAM to SILTY CLAY LOAM, trace gravel; moist			16	4 5 7	3.12 B	16
			40					

GENERAL NOTES

Begin Drilling: **02-23-2021** Complete Drilling: **02-23-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **8.00 ft**
At Completion of Drilling: **33.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-04

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 670.59 ft
North: 1816356.32 ft
East: 1119018.40 ft
Station: 131+53.67
Offset: 189.17 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	628.6				17	7 8 10	3.28 B	18
		Very stiff, brown SILTY CLAY LOAM, trace gravel; damp --RDR 2--						
					18	3 6 8	2.05 B	16
	625.6		45					
		Boring terminated at 45.00 ft						
			50					
			55					
			60					

GENERAL NOTES

Begin Drilling: **02-23-2021** Complete Drilling: **02-23-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **8.00 ft**
At Completion of Drilling: **33.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG B-05

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 672.17 ft
North: 1816376.05 ft
East: 1119090.62 ft
Station: 131+97.17
Offset: 249.41 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		14-inch thick ASPHALT						
	671.0	Very stiff, brown and gray CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	7 7 6	3.50 P	16
			5		2	3 3 5	3.00 P	20
	666.7	Soft to stiff (1.0P), gray SILTY CLAY; moist to wet			3	3 2 3	0.49 B	25
	664.2	Stiff, black SILTY CLAY LOAM, some organic matter; moist --RDR 2--	10		4	1 2 2	1.07 B	91
	661.7	Medium stiff, brown PEAT, some clay						
	660.7	Very soft to medium stiff, black and gray Organic SILTY CLAY; wet --RDR 2--			5	1 2 2	0.90 B	98
			15		6	0 0 0	0.14 B	41
					7	0 0 0	< 0.25 P	33
	654.2	Loose, gray SANDY LOAM, trace gravel; saturated --RDR 2--	20		8	0 4 2	NP	18
	651.7	Medium stiff, pinkish gray CLAY LOAM, trace gravel; moist --RDR 2--			9	0 0 0	0.66 B	15
	649.2	Stiff to very stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--	25		10	3 5 6	2.87 B	17
					11	P U S H	3.00 P	20
			30		12	3 5 8	2.62 B	17
					13	3 4 6	1.97 B	14
	639.2	Gray SILT; saturated						
	638.2	Stiff to very stiff, gray SILTY CLAY LOAM, trace gravel; damp to moist --RDR 2--	35		14	2 4 5	1.48 B	17
					15	3 5 6	1.89 B	16
			40		16	4 5 6	1.39 B	15

GENERAL NOTES

Begin Drilling: **02-23-2021** Complete Drilling: **02-23-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **18.50 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-05

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 672.17 ft
North: 1816376.05 ft
East: 1119090.62 ft
Station: 131+97.17
Offset: 249.41 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					17	4 5 8	1.80 B	15
	629.2	Brownish gray SILTY LOAM, few silt and clay laminations; damp						
	628.2	Very stiff, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp			18	7 6 8	2.46 B	13
	627.2		45					
		Boring terminated at 45.00 ft						
			50					
			55					
			60					

GENERAL NOTES

Begin Drilling: **02-23-2021** Complete Drilling: **02-23-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: ▽ **18.50 ft**
At Completion of Drilling: ▼ **DRY**
Time After Drilling: **NA**
Depth to Water: ▼ **NA**

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BORING LOG B-06

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 680.97 ft
North: 1815749.28 ft
East: 1118771.77 ft
Station: 124+93.35
Offset: 172.48 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	680.7	3-inch thick, dark brown SILTY CLAY LOAM --TOPSOIL--						
		Stiff to very stiff, brown, gray and black SILTY CLAY, trace gravel; damp --FILL-- --RDR 2--			1	3 4 5	2.87 S	12
			5		2	2 3 4	1.23 B	18
	674.7	Very stiff, black SILTY CLAY LOAM; damp --BURIED TOPSOIL--			3	6 5 6	2.75 P	25
	673.0	Dark gray SILTY LOAM; damp						
	672.2	Hard, gray CLAY to SILTY CLAY, trace organic matter; damp	10		4	3 5 6	4.59 B	22
	670.5	Stiff to hard, brown and gray to gray SILTY CLAY, trace gravel; damp --RDR 2--			5	4 8 12	4.67 B	17
			15		6	5 8 11	8.12 B	18
		--3-inch thick, silty loam lens; damp--			7	4 4 6	1.39 B	15
		--gray--	20		8	4 5 9	5.74 B	16
			25		9	2 3 4	1.64 B	18
					10	2 3 4	0.82 B	17
	655.5	Medium dense, gray SILTY LOAM, trace gravel; damp --RDR 2--			11	5 12 13	NP	13
	653.0	Very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--			12	4 5 6	2.62 B	17
	651.2	Medium stiff, gray CLAY LOAM, trace gravel; moist --RDR 2--	30		13	2 3 4	0.74 B	15
	648.7	Stiff, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp --RDR 2--			14	3 4 6	1.64 B	13
			35		15	6 6 7	NR	
					16	4 5 10	1.56 B	14
	641.0	Boring terminated at 40.00 ft	40					

GENERAL NOTES

Begin Drilling: **02-22-2021** Complete Drilling: **02-22-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **11.00 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-07

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 671.45 ft
North: 1815870.04 ft
East: 1118911.69 ft
Station: 126+54.58
Offset: 263.79 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.9	7-inch thick, dark brown SILTY CLAY LOAM						
		--TOPSOIL--						
		Very stiff to hard, brown to gray SILTY CLAY, trace gravel; damp						
		--FILL--						
		--RDR 2--			1	6 5 5	> 4.50 P	14
			5		2	3 4 6	2.46 B	18
					3	4 4 4	2.21 B	27
	663.5	Stiff, black SILTY CLAY LOAM; moist						
		--BURIED TOPSOIL--	10		4	2 3 4	1.56 B	43
	661.0	Very soft to mediun stiff, black and gray SILTY CLAY, trace to some organic matter; moist to wet			5	2 2 2	0.90 B	63
		--RDR 1--						
		--few PEAT lenses--	15		6	1 1 1	NP	56
					7	0 0 0	0.33 B	52
		--L_L(%)=55, P_L(%)=22--						
		--%Gravel=0.0--						
		--%Sand=0.3--	20		8	0 0 0	0.16 B	54

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	651.0	--%Silt=64.2--						
		--%Clay=35.5--						
		--%Organics=4.8--						
		Very soft, gray and black CLAY to SILTY CLAY, trace organic matter; wet						
		--RDR 1--			9	0 0 0	0.08 B	39
			25		10	0 0 0	0.16 B	32
	646.0	Medium dense, gray SANDY LOAM to LOAM, trace gravel; moist						
		--RDR 2--			11	7 7 6	NP	16
	643.5	Stiff to hard, brownish gray to gray SILTY CLAY LOAM, trace gravel; damp						
		--RDR 2--	30		12	4 6 10	2.79 B	17
					13	4 5 6	1.80 B	13
			35		14	4 6 10	3.77 B	17
					15	4 8 10	4.51 B	19
	631.5		40		16	5 6 7	3.03 B	21
		Boring terminated at 40.00 ft						

GENERAL NOTES

Begin Drilling: **02-22-2021** Complete Drilling: **02-22-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **13.50 ft**
At Completion of Drilling: **28.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG B-08

WEI Job No.: 411-05-02

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, Illinois**

Datum: NAVD 88
Elevation: 675.50 ft
North: 1815883.03 ft
East: 1119151.99 ft
Station: 127+52.61
Offset: 485.18 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	675.3	2-inch thick, black SILTY CLAY --TOPSOIL--						
		Very stiff, brown and black SILTY CLAY LOAM to CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--			1	4 2 5	NA	23
			5		2	5 5 5	2.00 P	19
					3	9 6 8	3.85 B	27
	667.5	Medium dense, gray SILTY LOAM; damp --FILL-- --RDR 3--	10		4	3 5 7	NP	26
	665.0	Very stiff, gray SILTY CLAY LOAM to CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			5	4 3 3	2.87 B	25
	662.5	Medium stiff, black SILTY CLAY LOAM; moist to wet --BURIED TOPSOIL--	15		6	2 2 2	0.50 P	56
	660.0	Stiff, gray, organic SILTY CLAY; wet						
	659.0	Medium stiff, brown PEAT, some organic silt; damp to moist --RDR 2--			7	2 1 2	0.90 B	97
			20		8	2 2 1	0.98 B	91
	655.0	Very soft to medium stiff, black and gray, Organic SILTY CLAY; wet --RDR 2--			9	0 0 0	0.41 B	53
			25		10	0 0 0	0.49 B	50
					11	0 0 0	0.16 B	48
			30		12	0 0 0	0.50 P	32
	645.0	Loose, brown SANDY LOAM, trace gravel; saturated --RDR 2--			13	0 0 5	NP	18
	641.0	Very stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--	35		14	2 3 4	4.00 P	14
					15	4 7 8	2.21 B	16
	635.5	Boring terminated at 40.00 ft	40		16	5 8 11	2.05 B	16

GENERAL NOTES

Begin Drilling: **02-22-2021** Complete Drilling: **02-22-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17D50A [87%]**
Driller: **KS&MG** Logger: **E. Yim** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **18.50 ft**
At Completion of Drilling: **12.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG C-1

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 675.18 ft
North: 1812663.91 ft
East: 1116971.11 ft
Station: 88+98.55
Offset: 20.27' LT

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
674.9		4-inch thick, gray well-graded SANDY GRAVEL; damp to moist --FILL--					
		Very stiff, black, brown and gray SILTY CLAY; damp --FILL--		1	4 4 3	3.69 B	22
672.2		--RDR 2--					
		Medium stiff to stiff, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp --FILL--		2	2 2 3	0.82 B	22
	5	--RDR 2--					
				3	3 3 3	1.56 B	23
667.2							
		Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp --RDR 2--		4	4 5 8	4.51 B	20
	10						
				5	5 7 10	3.77 B	19
662.2							
		Medium stiff, gray CLAY LOAM, trace gravel; moist --RDR 2--		6	3 4 5	0.75 P	18
660.2	15						
		Stiff to hard, gray SILTY CLAY; damp --RDR 2--		7	3 4 8	1.75 P	17
				8	3 6 8	5.82 B	14
	20						

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	25			9	3 4 8	3.20 B	18
				10	2 4 7	3.36 B	17
				11	4 6 9	4.26 B	17
647.2							
		Gray fine SAND; saturated --RDR 2--		12	4 4 6	NP	24
645.9		Gray SILTY LOAM; few clay seams; saturated					
645.2	30						
		Boring terminated at 30.00 ft					
	35						
	40						

GENERAL NOTES

Begin Drilling: **02-01-2022** Complete Drilling: **02-01-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D25 ATV [93%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **28.00 ft**
At Completion of Drilling: **23.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG C-2

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 674.95 ft
North: 1812620.63 ft
East: 1116985.06 ft
Station: 88+76.21
Offset: 19.33' RT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
674.8	2-inch thick organic CLAY LOAM --TOPSOIL--						
	Medium stiff to stiff, black, brown, and gray SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--			1	4 4 5	1.48 B	27
		5		2	2 2 3	0.90 B	28
669.5	Medium stiff, black organic SILTY CLAY; damp --Buried TOPSOIL-- --RDR 2--			3	1 2 3	0.98 B	34
667.0	Stiff, brown and gray SILTY CLAY, trace organic; damp --RDR 2--	10		4	2 2 3	1.15 B	27
664.5	Soft, brown and gray CLAY to SILTY CLAY; damp to moist --RDR 2-- --L_L(%)=57, P_L(%)=19-- --%Gravel=0.1-- --%Sand=2.2-- --%Silt=57.7-- --%Clay=39.0--			5	2 2 2	0.41 B	49
		15		6	1 2 2	0.41 B	34
659.5	Medium stiff, gray LOAM to CLAY LOAM; moist to wet --RDR 2--			7	3 3 4	0.75 P	26
657.0	Medium stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM; damp --RDR 2--	20		8	4 4 6	0.82 B	19
	--wet spoon--	25		9	3 6 7	2.05 B	19
				10	3 4 6	2.13 B	14
				11	3 4 7	1.89 B	17
645.0		30		12	4 4 7	2.21 B	17
	Boring terminated at 30.00 ft	35					
		40					

GENERAL NOTES

Begin Drilling: **02-01-2022** Complete Drilling: **02-01-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D25 ATV [93%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **29.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-01

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.96 ft
North: 1813942.63 ft
East: 1117933.95 ft
Station: 105+09.96
Offset: 2.53' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.5	6-inch thick SANDY GRAVEL						
		Stiff to very stiff, black, brown and gray to black and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	5 5 5	3.77 B	29
		--trace organic matter--	5		2	3 2 2	1.00 P	43
	666.5							
		Stiff to very stiff, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--			3	2 1 2	1.72 B	26
			10		4	2 2 4	1.97 B	18
					5	3 3 5	2.13 B	15
			15		6	2 3 6	1.97 B	18
					7	5 6 8	2.38 B	17
	653.2			▽				
		Loose, gray fine SAND; saturated --RDR 2--			8	1 2 4	NP	21
	652.1		20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Loose, gray SILTY LOAM; wet to saturated --clay seams--			9	3 3 3	NP	24
	649.0							
		Stiff, gray SILTY CLAY LOAM; damp to moist --RDR 2--			10	2 3 3	1.00 P	16
	647.0		25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17B57T [91%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽: **18.75 ft**
At Completion of Drilling ▼: **Dry**
Time After Drilling: **NA**
Depth to Water ▼: **NA**

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BORING LOG R-02

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.47 ft
North: 1814017.59 ft
East: 1117964.52 ft
Station: 105+90.99
Offset: 3.88' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.9	7-inch thick gray SANDY GRAVEL						
		--FILL--						
	670.1	Hard, brown and gray CLAY LOAM; damp			1	8 12 10	9.02 B	16
		--FILL--						
	668.5	Medium dense, gray GRAVEL, some crushed cobbles; damp						
		--FILL--			2	3 2 2	0.90 B	21
		Medium stiff, black and brown SILTY CLAY LOAM; damp to moist	5					
		--FILL--						
		--RDR 2--			3	2 2 2	0.66 B	28
	663.5	Medium stiff, brown and gray CLAY to SILTY CLAY; damp						
		--RDR 2--			4	1 2 1	0.82 B	28
		--trace organic matter--	10					
					5	1 1 1	0.57 B	32
	658.5	Soft, gray SILTY CLAY, trace organic matter; damp to moist						
		--RDR 2--			6	0 0 0	0.33 B	65
			15					
					7	0 0 0	0.41 B	52
		--trace organic matter--			8	0 0 0	0.33 B	48
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--trace organic matter--						
	650.0	Stiff, brown and gray to brown SILTY CLAY LOAM, trace gravel; damp			9	2 4 5	1.64 B	20
		--RDR 2--						
					10	2 2 4	1.25 P	19
	646.5	Boring terminated at 25.00 ft	25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **21GeoT[92%]**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG R-03

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.93 ft
North: 1814181.72 ft
East: 1118031.84 ft
Station: 107+68.44
Offset: 0.97' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.8	2-inch thick ASPHALT --PAVEMENT--						
	669.9	10-inch thick CONCRETE --PAVEMENT--						
		Medium dense, gray and white Gravelly SAND; dry --AGGREGATE BASE--						
		--wet spoon--			1	29 16 7	NP	5
	666.7	--sample blocked by cobble--			2	3 3 3	NR	
		Soft, black SILTY CLAY; damp --RDR 1--	5					
					3	0 1 1	0.41 B	29
	662.9	Soft, black, gray and green Organic SILTY CLAY; damp --RDR 1--	10		4	0 1 0	0.33 B	53
	660.4	Very soft, black, brown and green PEAT; moist --organic odor-- --RDR 1--			5	0 1 0	< 0.25 P	81
			15		6	0 1 1	< 0.25 P	74
	655.4	Very soft, black and green SILTY CLAY; moist --trace peat-- --RDR 1--			7	0 0 0	0.16 B	62
			20		8	0 0 0	0.16 B	52
	650.4	Medium stiff to stiff, black and gray CLAY to SILTY CLAY; damp --RDR 2--			9	1 2 3	0.66 B	27
	647.9	Stiff to very stiff, brown SILTY CLAY, trace to little gravel; damp --RDR 2--	25		10	2 3 4	1.23 B	22
					11	3 4 4	2.46 B	18
	643.4	Boring terminated at 27.50 ft	30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **CME55 TMR [85%]**
Driller: **RH&P** Logger: **E. Greenwood** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **3.50 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-04

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.42 ft
North: 1814276.76 ft
East: 1118060.67 ft
Station: 108+67.65
Offset: 3.73' LT

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
669.9		6-inch thick gray SANDY GRAVEL					
		Very stiff, brown and gray SILTY CLAY LOAM, little gravel; damp					
		--RDR 2--		1	4 4 5	2.00 P	25
667.4		Gray GRAVEL; wet					
		--FILL--					
666.5		Medium stiff, gray CLAY LOAM, trace gravel; damp		2	2 1 1	NP	39
	5	--RDR 2--					
664.9		--wet spoon--					
		Soft, gray CLAY to SILTY CLAY, trace organic matter; moist					
		--RDR 1--		3	1 2 1	0.25 P	65
				4	0 0 0	0.25 B	60
660.9		Very loose,, brown PEAT; damp					
	10	--RDR 1--					
				5	1 1 1	NP	96
				6	1 1 1	NP	75
	15						
654.9		Very soft to soft, gray SILTY CLAY, trace to little organic matter; wet					
		--RDR 1--		7	0 0 0	0.16 B	73
		--L_L(%)=70, P_L(%)=29--					
		--%Gravel=0.0--					
		--%Sand=0.3--		8	0 0 0	0.25 B	71
	20						

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--%Silt=61.2--					
		--%Clay=38.5--					
		--%Organics=9.4--					
				9	0 1 1	0.25 B	65
				10	0 0 0	0.16 B	47
	25						
644.9		Medium stiff to stiff, gray SILTY CLAY LOAM, trace gravel; damp					
		--RDR 2--		11	0 0 0	0.50 P	29
				12	4 6 8	1.80 B	24
640.4	30	Boring terminated at 30.00 ft					
	35						
	40						

GENERAL NOTES

Begin Drilling: **02-01-2022** Complete Drilling: **02-01-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D25 ATV [93%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **3.50 ft**
At Completion of Drilling: **25.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-04-ST

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.49 ft
North: 1814283.36 ft
East: 1118065.87 ft
Station: 108+75.61
Offset: 1.05' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--Blind drilling to 8 feet--						
			5 ▼					
	662.5							
		--wet shelby tube-- Very soft, brown and gray SILTY CLAY, trace organic matter; wet			1	PUSH	< 0.25 P	
			10					
	659.5							
		Very soft, brown and gray PEAT; wet			2	PUSH	< 0.25 P	
	656.5							
		Boring terminated at 14.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **GEOPROBE**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: ▽ **NA**
At Completion of Drilling: ▼ **5.00 ft**
Time After Drilling: **NA**
Depth to Water: ▼ **NA**

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BORING LOG R-05

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.83 ft
North: 1814452.34 ft
East: 1118128.63 ft
Station: 110+55.85
Offset: 1.42' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.2	8-inch thick SANDY GRAVEL --AGGREGATE BASE--						
		Very stiff, black, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--			1	6 5 6	2.50 P	21
			5		2	2 2 3	2.50 P	21
	665.3							
		Stiff to very stiff, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, little gravel; damp --RDR 2--			3	2 3 4	1.80 B	20
			10		4	4 4 5	1.89 B	16
					5	3 3 4	2.54 B	17
	655.8		15		6	3 4 6	2.25 P	16
		--wet spoon-- Loose, gray SANDY LOAM, trace gravel; wet --RDR 2 to 3--			7	2 3 3	NP	18
	652.8							
		Mediumstiff to stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--			8	2 1 2	1.31 B	15
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					9	2 1 3	0.90 B	15
			25		10	2 3 4	1.23 B	14
	645.8	Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17B57T [91%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **15.00 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-06

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.92 ft
North: 1814585.40 ft
East: 1118180.88 ft
Station: 111+98.73
Offset: 6.04' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.1	10-inch thick ASPHALT --PAVEMENT--						
	669.4	8-inch thick CONCRETE --PAVEMENT--						
		Very stiff, black and brown CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	4 7 6	3.12 B	32
			5		2	4 4 4	2.38 B	25
	665.4	Medium stiff to stiff, brown and gray CLAY LOAM to SILTY CLAY, trace gravel; damp to moist --FILL-- --RDR 2--			3	2 3 3	0.90 B	31
			10		4	2 3 3	0.74 B	26
					5	3 5 7	1.56 B	23
	657.9	Very stiff, brown to gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--			6	8 14 14	3.50 P	19
			15		7	7 8 11	3.50 P	18
			20		8	3 6 7	2.79 B	15
					9	3 5 7	2.46 B	15
					10	6 5 14	3.61 B	15
	645.9	Boring terminated at 25.00 ft	25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **CME55 TMR [85%]**
Driller: **RH&P** Logger: **E. Greenwood** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-07

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.58 ft
North: 1815679.70 ft
East: 1118564.46 ft
Station: 123+58.3
Offset: 0.5' RT

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
670.1		6-inch thick SANDY GRAVEL					
		Stiff, black and gray to gray CLAY LOAM to SILTY CLAY LOAM, little gravel; damp --FILL-- --RDR 2--		1	4 4 4	1.50 P	17
	5			2	2 3 3	1.15 B	23
665.1		Medium stiff, brown and gray CLAY to SILTY CLAY; damp --trace organic matter-- --RDR 2--		3	1 1 2	0.66 B	31
662.8		Very stiff to hard, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--		1	PUSH	2.75 P	
	10	--gray--		2	PUSH	2.75 P	
	15			4	4 6 7	4.18 B	14
				5	3 6 8	3.36 B	17
	20			6	2 3 4	1.39 B	20
	25			7	3 5 6	2.30 B	14
645.6		Boring terminated at 25.00 ft		8	5 5 7	2.30 B	15
	30						
	35						
	40						

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **GEOPROBE**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-08

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.56 ft
North: 1815753.29 ft
East: 1118587.42 ft
Station: 124+35.33
Offset: 2.54' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	9-inch thick gray SANDY GRAVEL						
		Very stiff, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp			1	5 5 5	2.50 P	17
		--FILL--						
		--RDR 2--						
			5		2	2 2 2	2.00 B	17
	665.1							
		Medium stiff, gray SILTY CLAY, trace to little organic matter; damp to moist			3	0 0 2	0.98 B	29
		--RDR 2--						
		--trace organic matter--						
		--L_L(%)=45, P_L(%)=18--			4	0 1 1	0.66 B	42
		--%Gravel=0.4--						
		--%Sand=1.0--						
		--%Silt=64.0--	10					
		--%Clay=34.6--						
		--%Organics=8.8--						
		--little organic matter--			5	0 1 3	0.57 B	28
	657.6							
		Stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			6	3 3 5	2.00 B	18
		--RDR 2--	15					
					7	3 5 6	2.87 B	17
					8	3 4 6	3.44 B	15
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					9	6 6 8	3.53 B	23
					10	6 7 7	1.64 B	17
	645.6		25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **GEOPROBE**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-09

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.51 ft
North: 1815911.28 ft
East: 1118641.69 ft
Station: 126+02.37
Offset: 4.39' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.9	7-inch thick SANDY GRAVEL						
		Stiff, black, brown and gray to brown and gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp			1	3 4 5	1.56 B	16
		--FILL--						
		--RDR 2--						
	666.8	Stiff, black organic SILTY CLAY; damp			2	5 4 3	1.89 B	31
	665.8	--BURIED TOPSOIL--	5					
		Stiff, brown and gray SILTY CLAY; damp			3	2 2 2	1.23 B	25
		--RDR 2--						
	662.5	Medium stiff, brown and gray CLAY to SILTY CLAY; damp to moist			4	2 2 2	0.82 B	33
		--trace organic matter--	10					
		--RDR 2--						
	660.0	Very soft to medium stiff, brown and gray Organic SILTY CLAY to SILTY CLAY, little organic matter; damp to moist			5	1 1 1	0.57 B	72
		--RDR 2--						
			15		6	1 1 1	0.41 B	65
					7	1 1 1	< 0.25 P	42
			20		8	0 0 0	< 0.25 P	58
			25		9	0 0 0	< 0.25 P	52
					10	0 0 1	< 0.25 P	45
					11	0 0 1	< 0.25 P	50
	642.5	Very soft, gray CLAY to SILTY CLAY; moist	30		12	0 0 1	< 0.25 P	39
		--RDR 1 to 2--						
	638.8	Stiff, brown SILTY CLAY, trace gravel; damp			13	2 3 5	1.25 P	20
	638.0	--RDR 2--						
		Boring terminated at 32.50 ft	35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17B57T [91%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-10

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.76 ft
North: 1816049.13 ft
East: 1118698.07 ft
Station: 127+51.17
Offset: 1.83' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	12-inch thick ASPHALT --PAVEMENT--						
		Hard, black, brown and gray CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	8 7 6	4.92 B	20
	667.8	Medium stiff, black, brown and gray to black and gray SILTY CLAY; moist --FILL-- --RDR 2--	5		2	2 1 1	0.41 B	31
		--wet spoon-- --moist to wet--			3	1 2 2	0.74 B	32
			10		4	0 2 1	0.82 B	34
	660.3	Very soft to medium stiff, blackish gray SILTY CLAY, little organic matter; moist --trace peat-- --RDR 1--			5	1 0 1	0.74 B	45
			15		6	0 0 0	0.16 B	44
					7	0 0 0	< 0.25 P	50
		--trace peat--	20		8	0 0 0	< 0.25 P	54
	647.8				9	0 0 0	< 0.25 P	40
		Very soft, blackish gray CLAY to SILTY CLAY LOAM; moist --RDR 1--	25		10	0 0 1	< 0.25 P	38
	645.3	Stiff to very stiff, black, brown and gray to brown SILTY CLAY LOAM; damp --RDR 2-- --sand seam--			11	2 4 4	1.23 B	13
	640.8		30		12	4 5 7	2.48 B	16
		Boring terminated at 30.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **CME55 TMR [85%]**
Driller: **RH&P** Logger: **E. Greenwood** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **6.00 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG C-1

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 675.18 ft
North: 1812663.91 ft
East: 1116971.11 ft
Station: 88+98.55
Offset: 20.27' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	674.9	4-inch thick, gray well-graded SANDY GRAVEL; damp to moist						
		--FILL--						
		Very stiff, black, brown and gray SILTY CLAY; damp			1	4 4 3	3.69 B	22
	672.2	--FILL--						
		--RDR 2--						
		Medium stiff to stiff, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp	5		2	2 2 3	0.82 B	22
		--FILL--						
		--RDR 2--			3	3 3 3	1.56 B	23
	667.2							
		Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp			4	4 5 8	4.51 B	20
		--RDR 2--	10					
					5	5 7 10	3.77 B	19
	662.2							
		Medium stiff, gray CLAY LOAM, trace gravel; moist			6	3 4 5	0.75 P	18
		--RDR 2--						
	660.2		15					
		Stiff to hard, gray SILTY CLAY; damp						
		--RDR 2--			7	3 4 8	1.75 P	17
					8	3 6 8	5.82 B	14
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			25		9	3 4 8	3.20 B	18
					10	2 4 7	3.36 B	17
					11	4 6 9	4.26 B	17
	647.2							
		Gray fine SAND; saturated						
		--RDR 2--						
	645.9				12	4 4 6	NP	24
		Gray SILTY LOAM; few clay seams; saturated						
	645.2		30					
		Boring terminated at 30.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-01-2022** Complete Drilling: **02-01-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D25 ATV [93%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **28.00 ft**
At Completion of Drilling: **23.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG C-2

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 674.95 ft
North: 1812620.63 ft
East: 1116985.06 ft
Station: 88+76.21
Offset: 19.33' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	674.8	2-inch thick organic CLAY LOAM --TOPSOIL-- Medium stiff to stiff, black, brown, and gray SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--			1	4 4 5	1.48 B	27
			5		2	2 2 3	0.90 B	28
	669.5	Medium stiff, black organic SILTY CLAY; damp --Buried TOPSOIL-- --RDR 2--			3	1 2 3	0.98 B	34
	667.0	Stiff, brown and gray SILTY CLAY, trace organic; damp --RDR 2--	10		4	2 2 3	1.15 B	27
	664.5	Soft, brown and gray CLAY to SILTY CLAY; damp to moist --RDR 2-- --L_L(%)=57, P_L(%)=19-- --%Gravel=0.1-- --%Sand=2.2-- --%Silt=57.7-- --%Clay=39.0--			5	2 2 2	0.41 B	49
			15		6	1 2 2	0.41 B	34
	659.5	Medium stiff, gray LOAM to CLAY LOAM; moist to wet --RDR 2--			7	3 3 4	0.75 P	26
	657.0	Medium stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM; damp --RDR 2--	20		8	4 4 6	0.82 B	19
		--wet spoon--			9	3 6 7	2.05 B	19
			25		10	3 4 6	2.13 B	14
					11	3 4 7	1.89 B	17
	645.0		30		12	4 4 7	2.21 B	17
		Boring terminated at 30.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-01-2022** Complete Drilling: **02-01-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D25 ATV [93%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **29.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-01

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.96 ft
North: 1813942.63 ft
East: 1117933.95 ft
Station: 105+09.96
Offset: 2.53' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.5	6-inch thick SANDY GRAVEL						
		Stiff to very stiff, black, brown and gray to black and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp			1	5 5 5	3.77 B	29
		--FILL--						
		--RDR 2--						
		--trace organic matter--	5		2	3 2 2	1.00 P	43
	666.5							
		Stiff to very stiff, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			3	2 1 2	1.72 B	26
		--RDR 2--						
			10		4	2 2 4	1.97 B	18
					5	3 3 5	2.13 B	15
			15		6	2 3 6	1.97 B	18
					7	5 6 8	2.38 B	17
	653.2							
		Loose, gray fine SAND; saturated			8	1 2 4	NP	21
	652.1	--RDR 2--	20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Loose, gray SILTY LOAM; wet to saturated						
		--clay seams--			9	3 3 3	NP	24
	649.0							
		Stiff, gray SILTY CLAY LOAM; damp to moist						
		--RDR 2--			10	2 3 3	1.00 P	16
	647.0		25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17B57T [91%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **18.75 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-02

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 671.47 ft
North: 1814017.59 ft
East: 1117964.52 ft
Station: 105+90.99
Offset: 3.88' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.9	7-inch thick gray SANDY GRAVEL						
		--FILL--						
	670.1	Hard, brown and gray CLAY LOAM; damp			1	8 12 10	9.02 B	16
		--FILL--						
	668.5	Medium dense, gray GRAVEL, some crushed cobbles; damp						
		--FILL--						
		Medium stiff, black and brown SILTY CLAY LOAM; damp to moist	5		2	3 2 2	0.90 B	21
		--FILL--						
		--RDR 2--			3	2 2 2	0.66 B	28
	663.5	Medium stiff, brown and gray CLAY to SILTY CLAY; damp						
		--RDR 2--			4	1 2 1	0.82 B	28
		--trace organic matter--	10					
					5	1 1 1	0.57 B	32
	658.5	Soft, gray SILTY CLAY, trace organic matter; damp to moist						
		--RDR 2--			6	0 0 0	0.33 B	65
			15					
					7	0 0 0	0.41 B	52
		--trace organic matter--			8	0 0 0	0.33 B	48
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--trace organic matter--						
	650.0	Stiff, brown and gray to brown SILTY CLAY LOAM, trace gravel; damp			9	2 4 5	1.64 B	20
		--RDR 2--						
					10	2 2 4	1.25 P	19
	646.5	Boring terminated at 25.00 ft	25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **21GeoT[92%]**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-03

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.93 ft
North: 1814181.72 ft
East: 1118031.84 ft
Station: 107+68.44
Offset: 0.97' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.8	2-inch thick ASPHALT --PAVEMENT--						
	669.9	10-inch thick CONCRETE --PAVEMENT--						
		Medium dense, gray and white Gravelly SAND; dry --AGGREGATE BASE--			1	29 16 7	NP	5
		--wet spoon--						
	666.7	--sample blocked by cobble--			2	3 3 3	NR	
		Soft, black SILTY CLAY; damp --RDR 1--	5					
					3	0 1 1	0.41 B	29
	662.9	Soft, black, gray and green Organic SILTY CLAY; damp --RDR 1--			4	0 1 0	0.33 B	53
			10					
	660.4	Very soft, black, brown and green PEAT; moist --organic odor-- --RDR 1--			5	0 1 0	< 0.25 P	81
					6	0 1 1	< 0.25 P	74
			15					
	655.4	Very soft, black and green SILTY CLAY; moist --trace peat-- --RDR 1--			7	0 0 0	0.16 B	62
					8	0 0 0	0.16 B	52
			20					
	650.4	Medium stiff to stiff, black and gray CLAY to SILTY CLAY; damp --RDR 2--			9	1 2 3	0.66 B	27
	647.9	Stiff to very stiff, brown SILTY CLAY, trace to little gravel; damp --RDR 2--			10	2 3 4	1.23 B	22
			25					
					11	3 4 4	2.46 B	18
	643.4	Boring terminated at 27.50 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **CME55 TMR [85%]**
Driller: **RH&P** Logger: **E. Greenwood** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **3.50 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-04

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.42 ft
North: 1814276.76 ft
East: 1118060.67 ft
Station: 108+67.65
Offset: 3.73' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.9	6-inch thick gray SANDY GRAVEL						
		Very stiff, brown and gray SILTY CLAY LOAM, little gravel; damp --RDR 2--			1	4 4 5	2.00 P	25
	667.4	Gray GRAVEL; wet --FILL--						
	666.5	Medium stiff, gray CLAY LOAM, trace gravel; damp --RDR 2--	5		2	2 1 1	NP	39
	664.9	--wet spoon-- Soft, gray CLAY to SILTY CLAY, trace organic matter; moist --RDR 1--			3	1 2 1	0.25 P	65
					4	0 0 0	0.25 B	60
	660.9	Very loose,, brown PEAT; damp --RDR 1--	10					
					5	1 1 1	NP	96
			15		6	1 1 1	NP	75
	654.9	Very soft to soft, gray SILTY CLAY, trace to little organic matter; wet --RDR 1--			7	0 0 0	0.16 B	73
		--L_L(%)=70, P_L(%)=29-- --%Gravel=0.0-- --%Sand=0.3--	20		8	0 0 0	0.25 B	71
		--%Silt=61.2-- --%Clay=38.5-- --%Organics=9.4--			9	0 1 1	0.25 B	65
			25		10	0 0 0	0.16 B	47
	644.9	Medium stiff to stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--			11	0 0 0	0.50 P	29
	640.4		30		12	4 6 8	1.80 B	24
		Boring terminated at 30.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-01-2022** Complete Drilling: **02-01-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D25 ATV [93%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **3.50 ft**
At Completion of Drilling: **25.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-04-ST

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.49 ft
North: 1814283.36 ft
East: 1118065.87 ft
Station: 108+75.61
Offset: 1.05' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--Blind drilling to 8 feet--						
			5 ▼					
	662.5							
		--wet shelby tube-- Very soft, brown and gray SILTY CLAY, trace organic matter; wet			1	PUSH	< 0.25 P	
			10					
	659.5							
		Very soft, brown and gray PEAT; wet			2	PUSH	< 0.25 P	
	656.5							
		Boring terminated at 14.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **GEOPROBE**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **NA**
At Completion of Drilling ▼ **5.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG R-05

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.83 ft
North: 1814452.34 ft
East: 1118128.63 ft
Station: 110+55.85
Offset: 1.42' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.2	8-inch thick SANDY GRAVEL --AGGREGATE BASE--						
		Very stiff, black, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--			1	6 5 6	2.50 P	21
			5		2	2 2 3	2.50 P	21
	665.3							
		Stiff to very stiff, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, little gravel; damp --RDR 2--			3	2 3 4	1.80 B	20
			10		4	4 4 5	1.89 B	16
					5	3 3 4	2.54 B	17
	655.8		15		6	3 4 6	2.25 P	16
		--wet spoon-- Loose, gray SANDY LOAM, trace gravel; wet --RDR 2 to 3--			7	2 3 3	NP	18
	652.8							
		Mediumstiff to stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--	20		8	2 1 2	1.31 B	15

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					9	2 1 3	0.90 B	15
					10	2 3 4	1.23 B	14
	645.8		25					
		Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17B57T [91%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **15.00 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-06

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.92 ft
North: 1814585.40 ft
East: 1118180.88 ft
Station: 111+98.73
Offset: 6.04' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.1	10-inch thick ASPHALT --PAVEMENT--						
	669.4	8-inch thick CONCRETE --PAVEMENT--						
		Very stiff, black and brown CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	4 7 6	3.12 B	32
			5		2	4 4 4	2.38 B	25
	665.4	Medium stiff to stiff, brown and gray CLAY LOAM to SILTY CLAY, trace gravel; damp to moist --FILL-- --RDR 2--			3	2 3 3	0.90 B	31
			10		4	2 3 3	0.74 B	26
					5	3 5 7	1.56 B	23
	657.9	Very stiff, brown to gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--	15		6	8 14 14	3.50 P	19
					7	7 8 11	3.50 P	18
			20		8	3 6 7	2.79 B	15
					9	3 5 7	2.46 B	15
					10	6 5 14	3.61 B	15
	645.9	Boring terminated at 25.00 ft	25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **CME55 TMR [85%]**
Driller: **RH&P** Logger: **E. Greenwood** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-07

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.58 ft
North: 1815679.70 ft
East: 1118564.46 ft
Station: 123+58.3
Offset: 0.5' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	670.1	6-inch thick SANDY GRAVEL						
		Stiff, black and gray to gray CLAY LOAM to SILTY CLAY LOAM, little gravel; damp --FILL-- --RDR 2--			1	4 4 4	1.50 P	17
			5		2	2 3 3	1.15 B	23
	665.1							
		Medium stiff, brown and gray CLAY to SILTY CLAY; damp --trace organic matter-- --RDR 2--			3	1 1 2	0.66 B	31
	662.8							
		Very stiff to hard, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2-- --gray--	10		1	PUSH	2.75 P	
					2	PUSH	2.75 P	
			15		4	4 6 7	4.18 B	14
					5	3 6 8	3.36 B	17
			20		6	2 3 4	1.39 B	20
			25		7	3 5 6	2.30 B	14
	645.6							
		Boring terminated at 25.00 ft			8	5 5 7	2.30 B	15
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **GEOPROBE**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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

WANGENGINC 4110503.GPJ WANGENG.GDT 9/9/22

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BORING LOG R-08

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.56 ft
North: 1815753.29 ft
East: 1118587.42 ft
Station: 124+35.33
Offset: 2.54' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	9-inch thick gray SANDY GRAVEL						
		Very stiff, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--			1	5 5 5	2.50 P	17
			5		2	2 2 2	2.00 B	17
	665.1	Medium stiff, gray SILTY CLAY, trace to little organic matter; damp to moist --RDR 2--			3	0 0 2	0.98 B	29
		--trace organic matter-- --L_L(%)=45, P_L(%)=18-- --%Gravel=0.4-- --%Sand=1.0-- --%Silt=64.0-- --%Clay=34.6-- --%Organics=8.8-- --little organic matter--	10		4	0 1 1	0.66 B	42
					5	0 1 3	0.57 B	28
	657.6	Stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--	15		6	3 3 5	2.00 B	18
					7	3 5 6	2.87 B	17
			20		8	3 4 6	3.44 B	15
					9	6 6 8	3.53 B	23
	645.6		25		10	6 7 7	1.64 B	17
		Boring terminated at 25.00 ft	30					
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-14-2022** Complete Drilling: **02-14-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **GEOPROBE**
Driller: **J&M** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG R-09

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.51 ft
North: 1815911.28 ft
East: 1118641.69 ft
Station: 126+02.37
Offset: 4.39' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.9	7-inch thick SANDY GRAVEL						
		Stiff, black, brown and gray to brown and gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp			1	3 4 5	1.56 B	16
		--FILL--						
		--RDR 2--						
	666.8	Stiff, black organic SILTY CLAY; damp			2	5 4 3	1.89 B	31
	665.8	--BURIED TOPSOIL--	5					
		Stiff, brown and gray SILTY CLAY; damp			3	2 2 2	1.23 B	25
		--RDR 2--						
	662.5	Medium stiff, brown and gray CLAY to SILTY CLAY; damp to moist			4	2 2 2	0.82 B	33
		--trace organic matter--						
		--RDR 2--	10					
	660.0	Very soft to medium stiff, brown and gray Organic SILTY CLAY to SILTY CLAY, little organic matter; damp to moist			5	1 1 1	0.57 B	72
		--RDR 2--						
					6	1 1 1	0.41 B	65
			15					
					7	1 1 1	< 0.25 P	42
					8	0 0 0	< 0.25 P	58
			20					
			25		9	0 0 0	< 0.25 P	52
					10	0 0 1	< 0.25 P	45
					11	0 0 1	< 0.25 P	50
	642.5	Very soft, gray CLAY to SILTY CLAY; moist						
		--RDR 1 to 2--	30		12	0 0 1	< 0.25 P	39
	638.8	Stiff, brown SILTY CLAY, trace			13	2 3 5	1.25 P	20
	638.0	gravel; damp						
		--RDR 2--						
		Boring terminated at 32.50 ft	35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **17B57T [91%]**
Driller: **A&T** Logger: **M. Sadowski** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Dry**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG R-10

WEI Job No.: 411-05-03

Client: **James J. Benes & Associates**
Project: **IL Route 7 from 131st Street to 135th Street**
Location: **Cook County, IL**

Datum: NAVD 88
Elevation: 670.76 ft
North: 1816049.13 ft
East: 1118698.07 ft
Station: 127+51.17
Offset: 1.83' RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	669.8	12-inch thick ASPHALT --PAVEMENT--						
		Hard, black, brown and gray CLAY LOAM, trace gravel; damp --FILL--			1	8 7 6	4.92 B	20
	667.8	--RDR 2--						
		Medium stiff, black, brown and gray to black and gray SILTY CLAY; moist --FILL-- --RDR 2--	5		2	2 1 1	0.41 B	31
		--wet spoon-- --moist to wet--			3	1 2 2	0.74 B	32
			10		4	0 2 1	0.82 B	34
	660.3	Very soft to medium stiff, blackish gray SILTY CLAY, little organic matter; moist --trace peat-- --RDR 1--			5	1 0 1	0.74 B	45
			15		6	0 0 0	0.16 B	44
					7	0 0 0	< 0.25 P	50
		--trace peat--	20		8	0 0 0	< 0.25 P	54

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					9	0 0 0	< 0.25 P	40
	647.8	Very soft, blackish gray CLAY to SILTY CLAY LOAM; moist --RDR 1--	25		10	0 0 1	< 0.25 P	38
	645.3	Stiff to very stiff, black, brown and gray to brown SILTY CLAY LOAM; damp --RDR 2-- --sand seam--			11	2 4 4	1.23 B	13
	640.8		30		12	4 5 7	2.48 B	16
		Boring terminated at 30.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling: **02-04-2022** Complete Drilling: **02-04-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **CME55 TMR [85%]**
Driller: **RH&P** Logger: **E. Greenwood** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; Boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **6.00 ft**
At Completion of Drilling: **Dry**
Time After Drilling: **NA**
Depth to Water: **NA**

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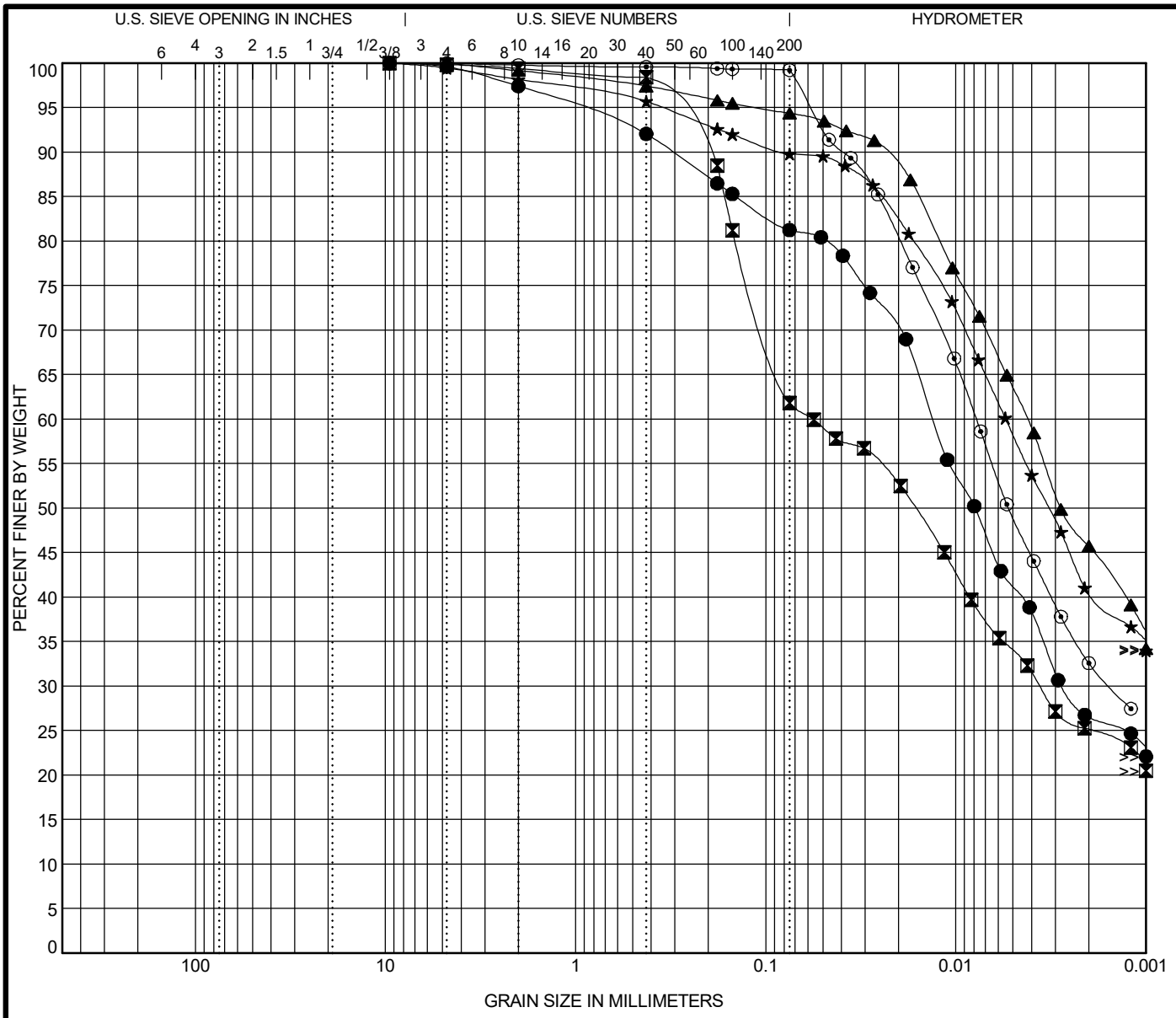
APPENDIX B



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
● CB-02#3	5.0 ft	**Silty Clay Loam**	**30**	**18**	**12**		
⊠ CB-06#6	11.0 ft	**Clay Loam**	**47**	**17**	**30**		
▲ CB-09#5	8.0 ft	**Clay**	**68**	**26**	**42**		
★ CB-10#4	7.0 ft	**Silty Clay**	**41**	**19**	**22**		
⊙ CB-14#7	16.0 ft	**Silty Clay**	**55**	**24**	**31**		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● CB-02#3	5.0 ft	**9.5**	**0.013**	**0.003**		**2.6**	**16.2**	**54.7**	**26.6**
⊠ CB-06#6	11.0 ft	**9.5**	**0.056**	**0.004**		**0.6**	**37.7**	**36.7**	**25.1**
▲ CB-09#5	8.0 ft	**4.75**	**0.004**			**0.8**	**4.8**	**48.6**	**45.7**
★ CB-10#4	7.0 ft	**9.5**	**0.005**			**1.8**	**8.4**	**49.1**	**40.7**
⊙ CB-14#7	16.0 ft	**4.75**	**0.008**	**0.002**		**0.2**	**0.8**	**66.4**	**32.6**

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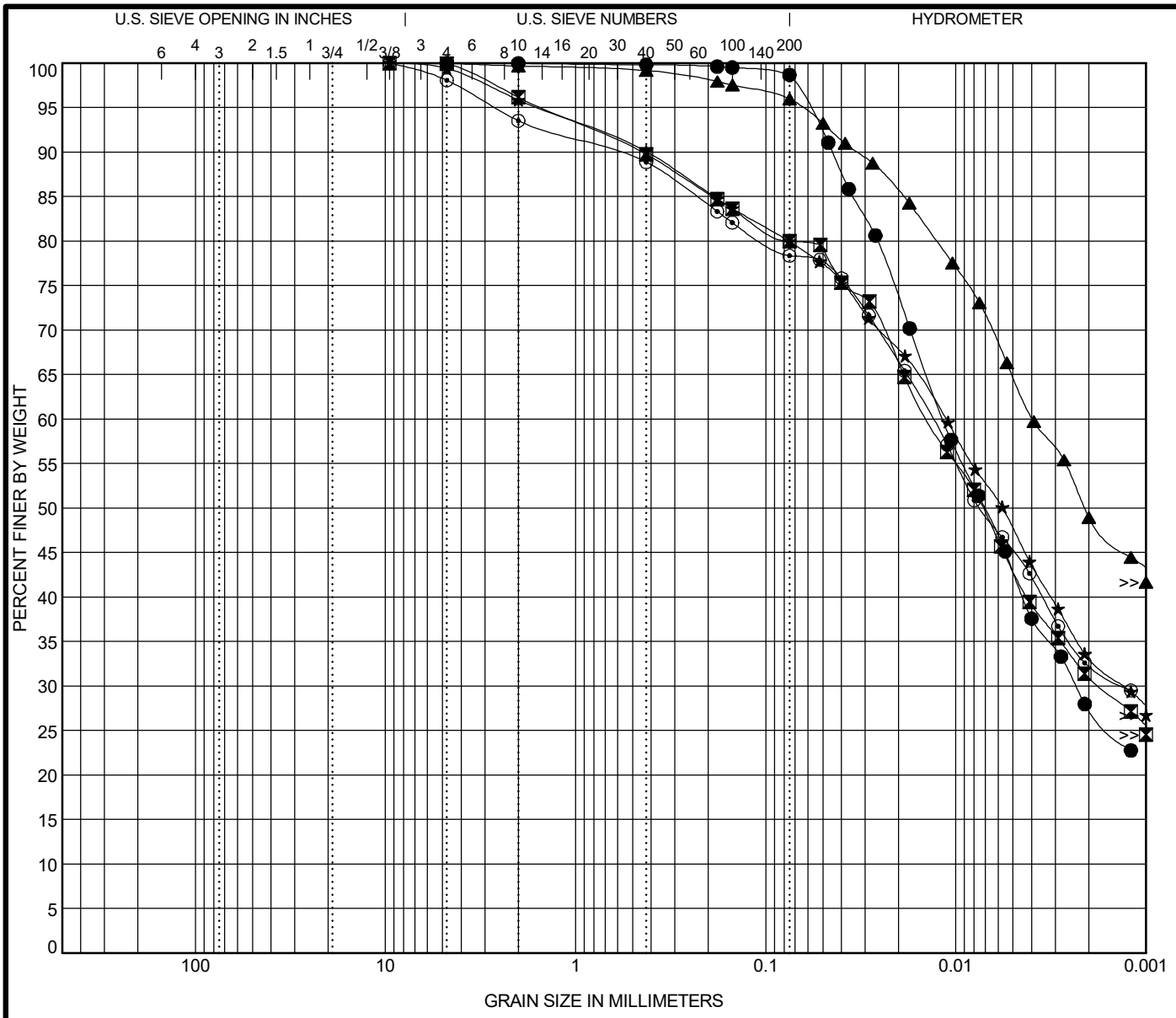
GRAIN SIZE DISTRIBUTION

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI GRAIN SIZE IDH 4110501.GPJ US LAB.GDT 8/19/20



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
● CB-15#7	16.0 ft	**Silty Clay Loam**	**36**	**19**	**17**		
⊠ RB-01#2	2.0 ft	**Silty Clay**	**31**	**18**	**13**		
▲ RB-03#4	7.0 ft	**Clay**	**74**	**26**	**48**		
★ RB-07/PC-08#1	1.0 ft	**Clay**	**34**	**18**	**16**		
⊙ SB-01#2	3.0 ft	**Clay**	**45**	**19**	**26**		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● CB-15#7	16.0 ft	**4.75**	**0.012**	**0.002**		**0.0**	**1.5**	**70.9**	**27.5**
⊠ RB-01#2	2.0 ft	**9.5**	**0.014**	**0.002**		**3.8**	**16.2**	**49.0**	**31.0**
▲ RB-03#4	7.0 ft	**4.75**	**0.004**			**0.3**	**3.8**	**46.9**	**48.9**
★ RB-07/PC-08#1	1.0 ft	**9.5**	**0.011**	**0.001**		**4.1**	**16.0**	**46.6**	**33.3**
⊙ SB-01#2	3.0 ft	**9.5**	**0.013**	**0.001**		**6.5**	**15.2**	**46.0**	**32.3**

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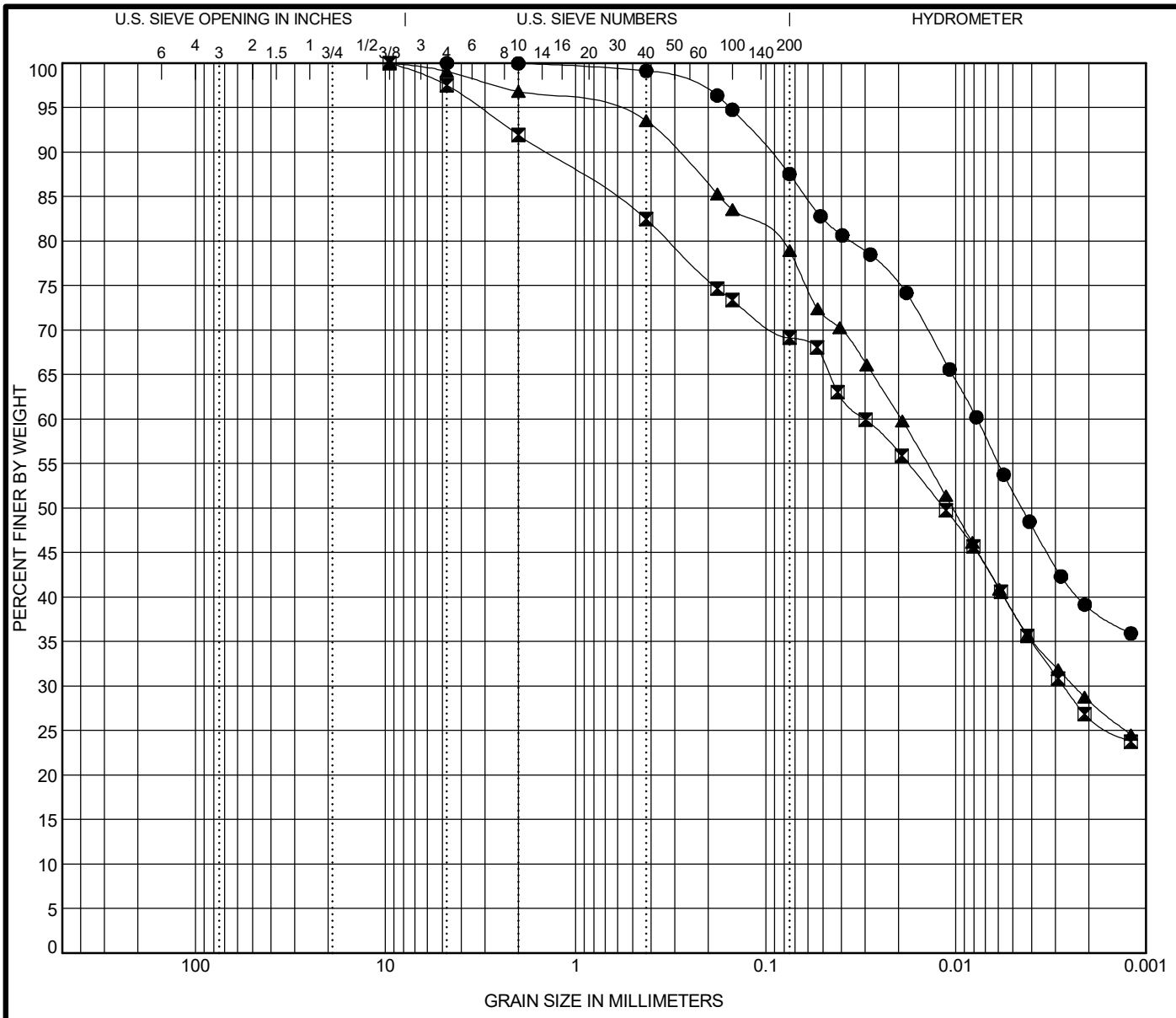
Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI GRAIN SIZE IDH 4110501.GPJ US LAB.GDT 8/19/20



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

	Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
●	SB-02#4	8.0 ft	**Clay**	**56**	**20**	**36**		
⊠	SB-08/PC-09#1	3.0 ft	**Clay Loam**	**39**	**17**	**22**		
▲	SB-12#2	3.0 ft	**Silty Clay Loam**	**41**	**19**	**22**		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SB-02#4	8.0 ft	**4.75**	**0.008**			**0.0**	**12.6**	**48.5**	**38.9**
⊠	SB-08/PC-09#1	3.0 ft	**9.5**	**0.03**	**0.003**		**8.1**	**22.8**	**42.5**	**26.6**
▲	SB-12#2	3.0 ft	**9.5**	**0.019**	**0.002**		**3.2**	**18.1**	**50.3**	**28.4**

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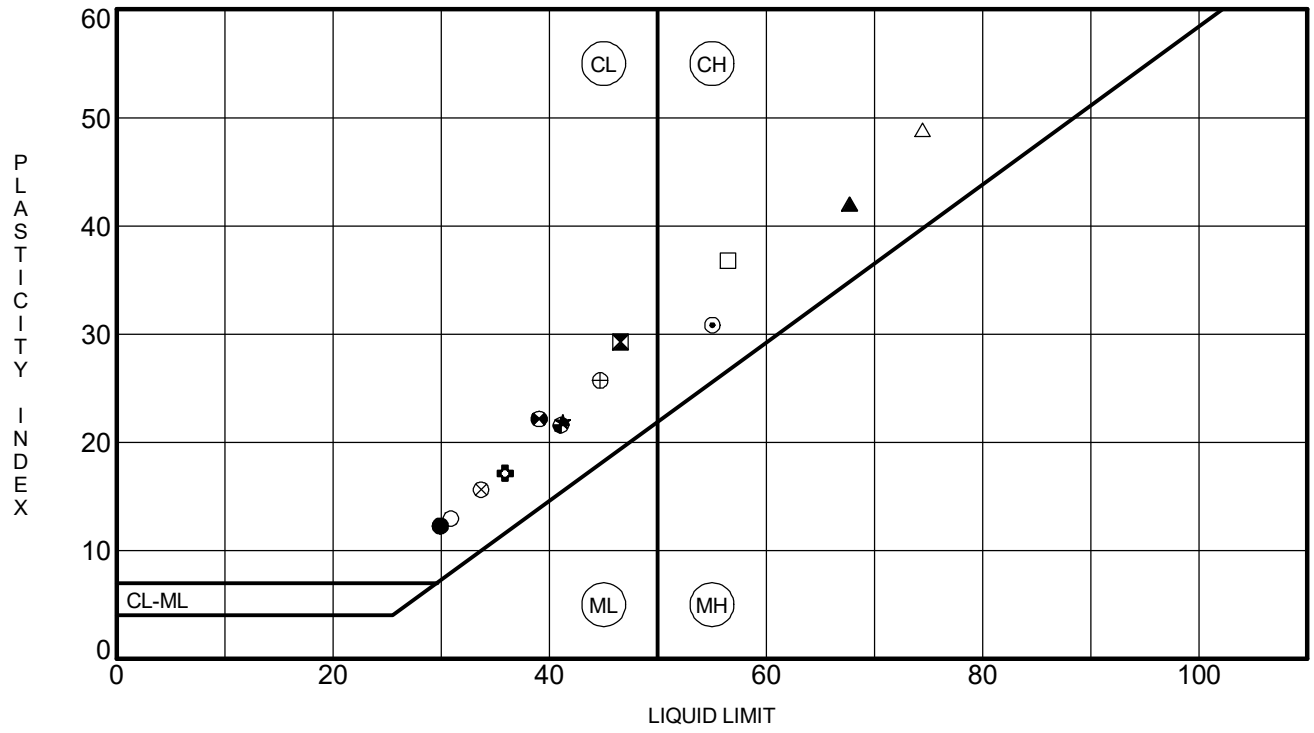
GRAIN SIZE DISTRIBUTION

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI GRAIN SIZE IDH 4110501.GPJ US LAB.GDT 8/19/20



Specimen Identification			LL	PL	PI	Fines	IDH Classification
●	CB-02#3	5.0 ft	30	18	12	81	Silty Clay Loam
⊠	CB-06#6	11.0 ft	47	17	30	62	Clay Loam
▲	CB-09#5	8.0 ft	68	26	42	94	Clay
★	CB-10#4	7.0 ft	41	19	22	90	Silty Clay
⊙	CB-14#7	16.0 ft	55	24	31	99	Silty Clay
✿	CB-15#7	16.0 ft	36	19	17	99	Silty Clay Loam
○	RB-01#2	2.0 ft	31	18	13	80	Silty Clay
△	RB-03#4	7.0 ft	74	26	48	96	Clay
⊗	RB-07/PC-08#1	1.0 ft	34	18	16	80	Clay
⊕	SB-01#2	3.0 ft	45	19	26	78	Clay
□	SB-02#4	8.0 ft	56	20	36	88	Clay
◓	SB-08/PC-09#1	3.0 ft	39	17	22	69	Clay Loam
◕	SB-12#2	3.0 ft	41	19	22	79	Silty Clay Loam

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ATTERBERG LIMITS' RESULTS

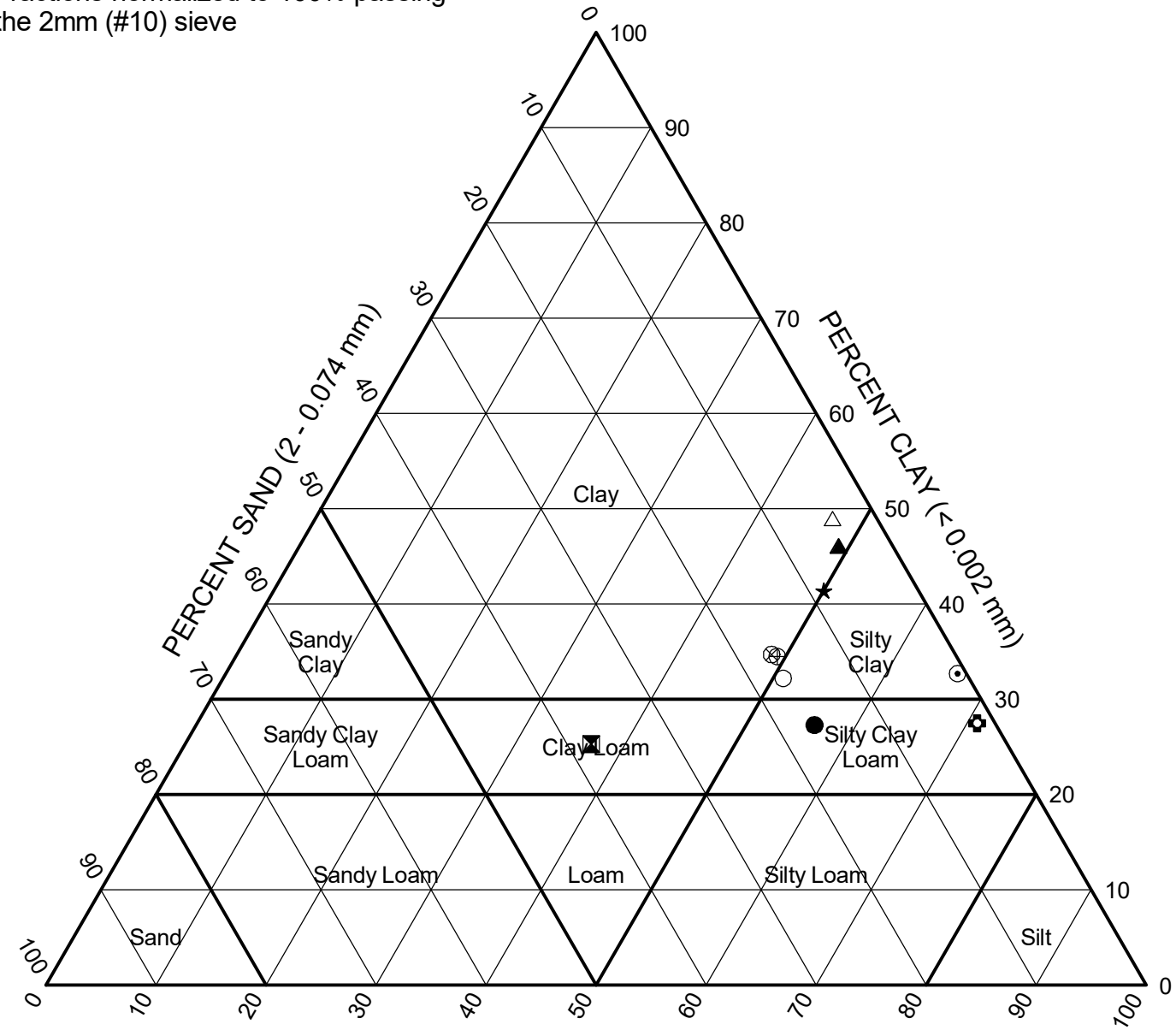
Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI ATTERBERG LIMITS IDH 4110501.GPJ US LAB.GDT 8/19/20

Fractions normalized to 100% passing the 2mm (#10) sieve



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	CB-02#3	5.0	16.6	56.2	27.3	Silty Clay Loam	A-6 (8)	CL
⊠	CB-06#6	11.0	37.9	36.9	25.3	Clay Loam	A-7-6 (16)	CL
▲	CB-09#5	8.0	4.8	49.0	46.1	Clay	A-7-6 (45)	CH
★	CB-10#4	7.0	8.6	50.0	41.4	Silty Clay	A-7-6 (20)	CL
⊙	CB-14#7	16.0	0.8	66.5	32.7	Silty Clay	A-7-6 (35)	CH
✿	CB-15#7	16.0	1.5	70.9	27.5	Silty Clay Loam	A-6 (17)	CL
○	RB-01#2	2.0	16.8	50.9	32.2	Silty Clay	A-6 (9)	CL
△	RB-03#4	7.0	3.8	47.0	49.0	Clay	A-7-6 (53)	CH
⊗	RB-07/PC-08#1	1.0	16.7	48.6	34.7	Clay	A-6 (12)	CL
⊕	SB-01#2	3.0	16.3	49.2	34.5	Clay	A-7-6 (20)	CL

WEI SINCE 1982

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IDH Textural Classification Chart

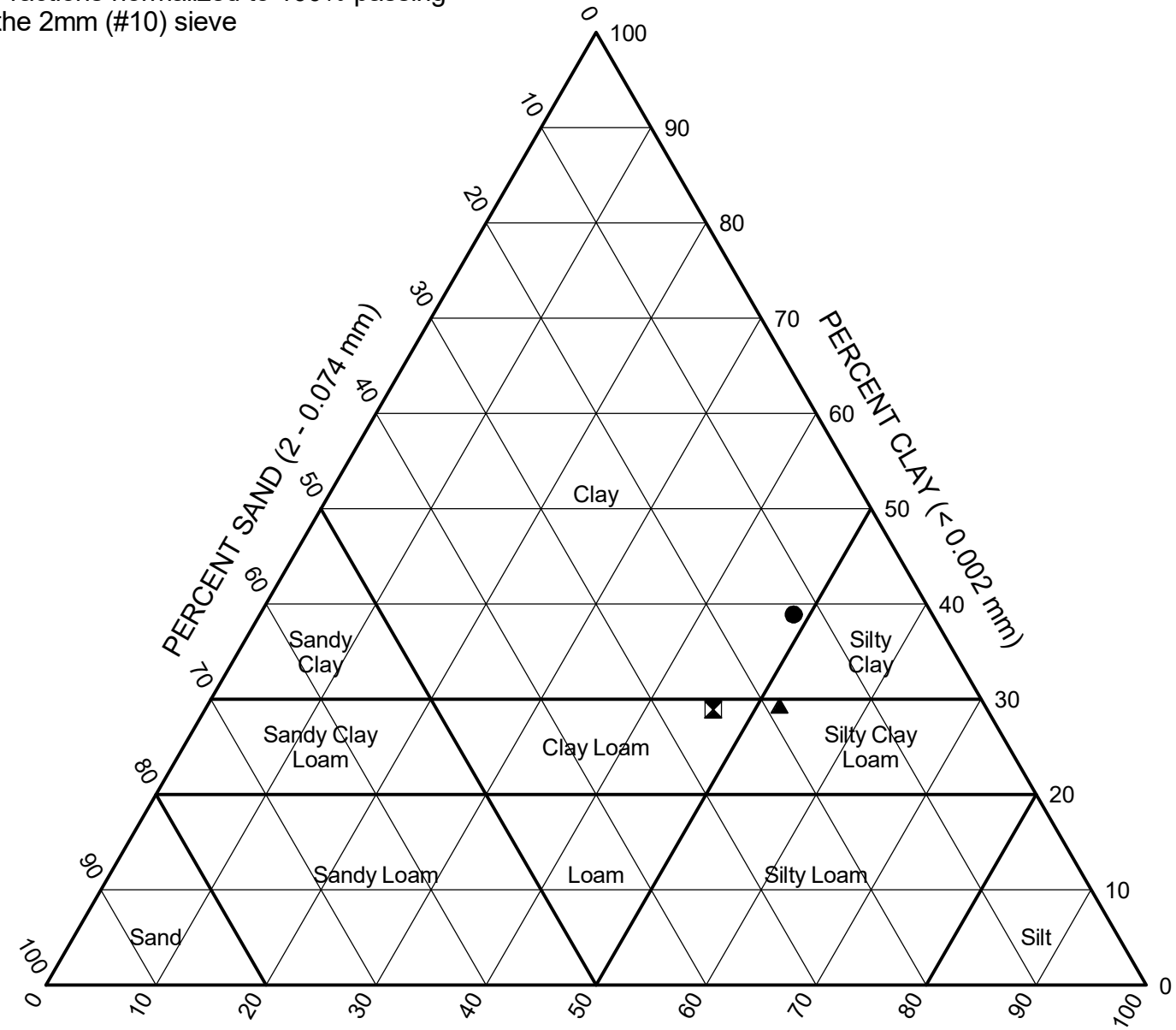
Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI IDH 4110501.GPJ WANGENG.GDT 8/19/20

Fractions normalized to 100% passing the 2mm (#10) sieve



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	**SB-02#4**	**8.0**	**12.6**	**48.5**	**38.9**	**Clay**	**A-7-6 (34)**	**CH**
⧓	**SB-08/PC-09#1**	**3.0**	**24.8**	**46.2**	**28.9**	**Clay Loam**	**A-6 (13)**	**CL**
▲	**SB-12#2**	**3.0**	**18.7**	**52.0**	**29.3**	**Silty Clay Loam**	**A-7-6 (17)**	**CL**

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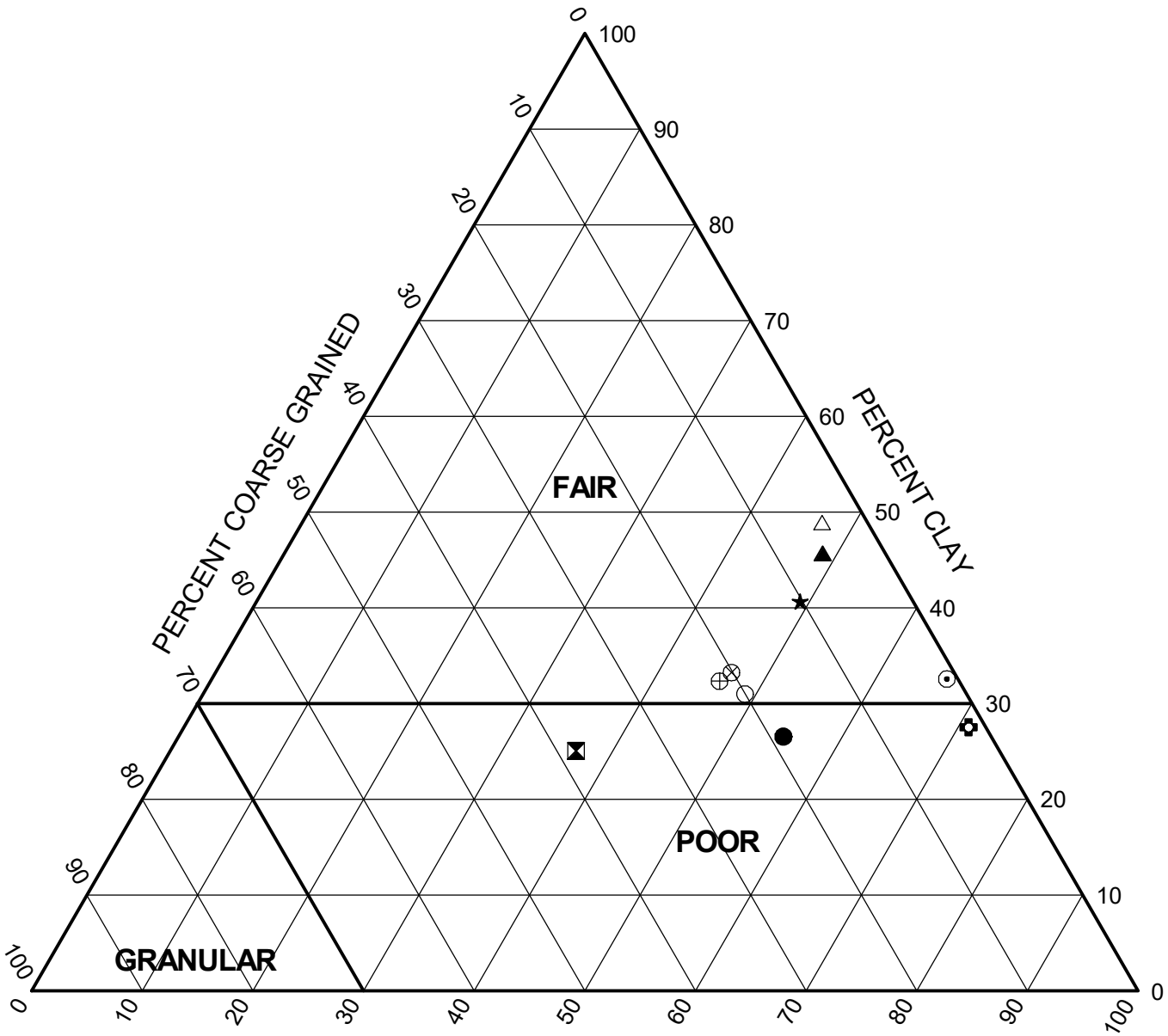
IDH Textural Classification Chart

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI IDH 4110501.GPJ WANGENG.GDT 8/19/20



	Sample	Depth (ft)	Coarse (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	RATING
●	CB-02#3	5.0	18.8	54.7	26.6	Silty Clay Loam	A-6 (8)	POOR
⊠	CB-06#6	11.0	38.3	36.7	25.1	Clay Loam	A-7-6 (16)	POOR
▲	CB-09#5	8.0	5.7	48.6	45.7	Clay	A-7-6 (45)	FAIR
★	CB-10#4	7.0	10.2	49.1	40.7	Silty Clay	A-7-6 (20)	FAIR
⊙	CB-14#7	16.0	1.0	66.4	32.6	Silty Clay	A-7-6 (35)	FAIR
✿	CB-15#7	16.0	1.5	70.9	27.5	Silty Clay Loam	A-6 (17)	POOR
○	RB-01#2	2.0	20.0	49.0	31.0	Silty Clay	A-6 (9)	FAIR
△	RB-03#4	7.0	4.1	46.9	48.9	Clay	A-7-6 (53)	FAIR
⊗	RB-07/PC-08#1	1.0	20.1	46.6	33.3	Clay	A-6 (12)	FAIR
⊕	SB-01#2	3.0	21.7	46.0	32.3	Clay	A-7-6 (20)	FAIR

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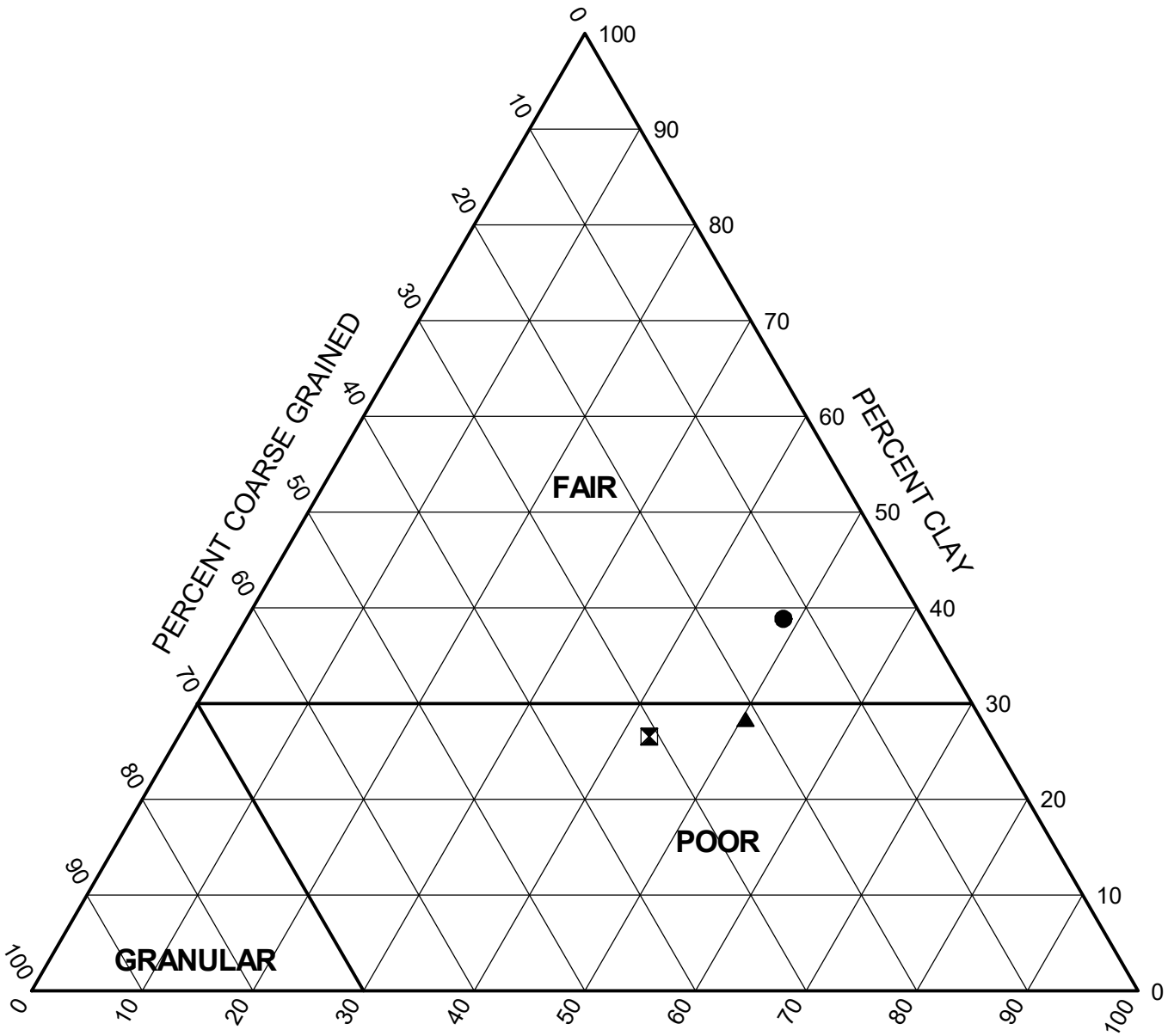
Subgrade Support Rating Chart

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI SSR 4110501.GPJ WANGENG.GDT 8/19/20



	Sample	Depth (ft)	Coarse (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	RATING
●	SB-02#4	8.0	12.6	48.5	38.9	Clay	A-7-6 (34)	FAIR
⊠	SB-08/PC-09#1	3.0	30.9	42.5	26.6	Clay Loam	A-6 (13)	POOR
▲	SB-12#2	3.0	21.3	50.3	28.4	Silty Clay Loam	A-7-6 (17)	POOR

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Subgrade Support Rating Chart

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-01

WEI SSR 4110501.GPJ WANGENG.GDT 8/19/20

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ORGANIC CONTENT in SOILS by LOSS on IGNITION

ASTM D 2974, Method C

Client: JJ Benes
Project: IL 7
WEI Job: 411-05-01
Type/Condition: SS
Testing Furnace Temp °C.: 440

Analyst Name: C. Iordache
Date Received: 9/26/2019
Date Tested: 10/24/2019
Soil Sample ID: SB-10, SS#2 (3-5 ft.)
Sample Description: Top Soil

Moisture Content	Wet soil + tare (g)	Dry Soil + tare (g)	Tare mass (g)	w (%)
oven-dry method	92.53	79.43	41.64	35

Ash Content	Dry Soil + tare (g)	Ash + tare (g)	Tare mass (g)	Ash Content (%)
Loss On Ignition	79.43	75.36	41.64	12

Organic Content (%)= 12.1

Prepeared By:_____

Reviwed By:_____

AASHTO R18

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ORGANIC CONTENT in SOILS by LOSS on IGNITION

ASTM D 2974, Method C

Client: JJ Benes
Project: IL 47
WEI Job: 411-05-01
Type/Condition: SS
Testing Furnace Temp °C.: 440

Analyst Name: C. Iordache
Date Received: 9/26/2020
Date Tested: 6/26/2020
Soil Sample ID: CB-14, SS#7+8 (16-20 ft.)
Sample Description: Brown Silty Clay

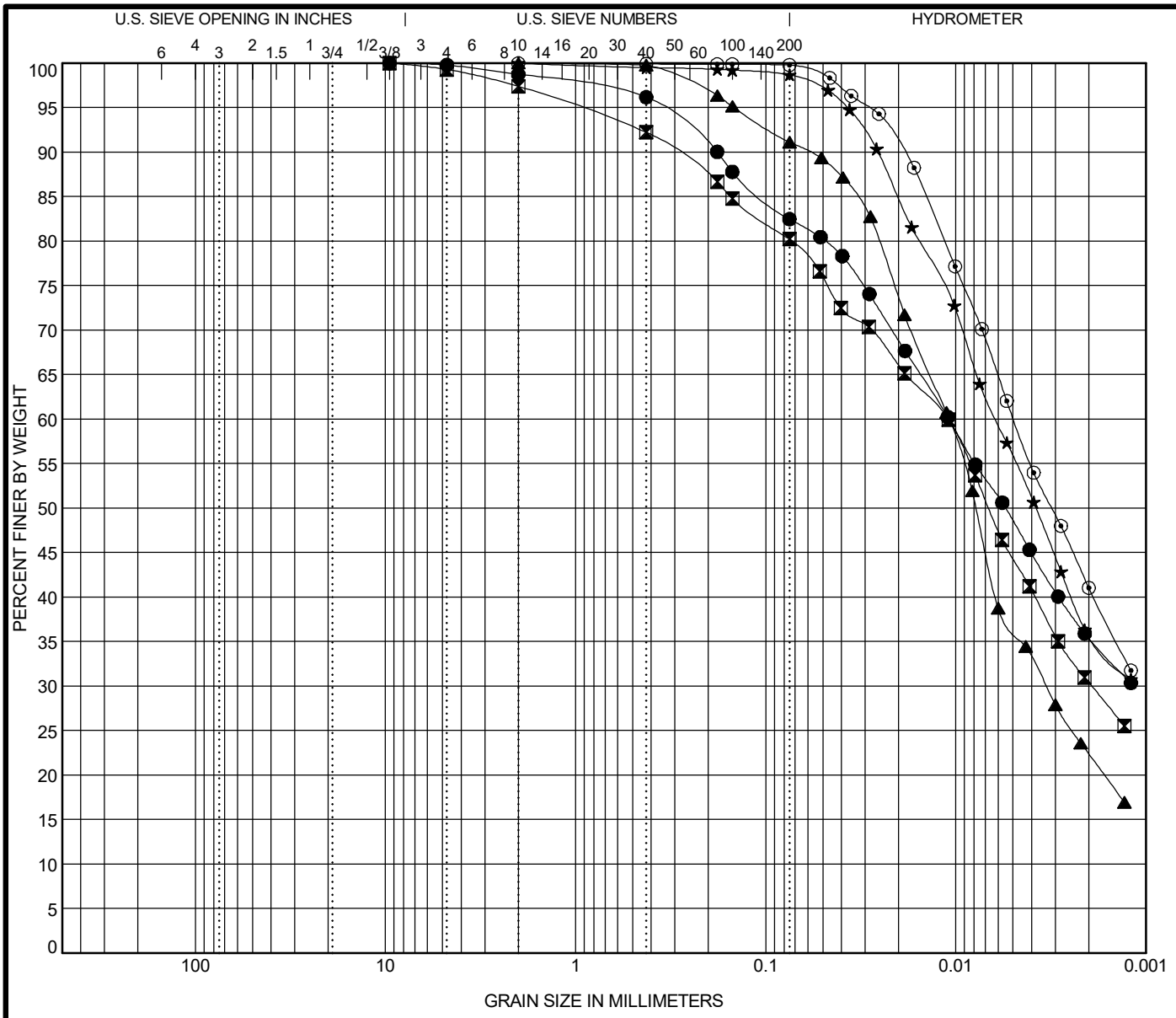
Moisture Content	Wet soil + tare (g)	Dry Soil + tare (g)	Tare mass (g)	w (%)
oven-dry method	80.55	68.12	41.83	47

Ash Content	Dry Soil + tare (g)	Ash + tare (g)	Tare mass (g)	Ash Content (%)
Loss On Ignition	68.12	66.42	41.83	7

Organic Content (%)= 6.9

Prepeared By:_____

Reviwed By:_____



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification	LL	PL	PI	Cc	Cu
●	B-01#5	10.0 ft	**Clay**	**50**	**20**	**30**		
⊠	B-01#	11.0 ft	**Silty Clay**	**33**	**16**	**17**		
▲	B-02ST#3	20.0 ft	**Silty Clay Loam**	**79**	**33**	**46**		
★	B-03#7	16.0 ft	**Silty Clay**	**65**	**24**	**41**		
⊙	B-04#9	21.0 ft	**Silty Clay**	**42**	**19**	**23**		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-01#5	10.0 ft	**9.5**	**0.011**			**1.2**	**16.4**	**47.0**	**35.4**
⊠	B-01#	11.0 ft	**9.5**	**0.011**	**0.002**		**2.6**	**17.3**	**49.7**	**30.4**
▲	B-02ST#3	20.0 ft	**2**	**0.011**	**0.003**		**0.0**	**8.9**	**68.7**	**22.4**
★	B-03#7	16.0 ft	**2**	**0.006**			**0.0**	**1.4**	**62.8**	**35.8**
⊙	B-04#9	21.0 ft	**2**	**0.005**			**0.0**	**0.2**	**58.7**	**41.0**

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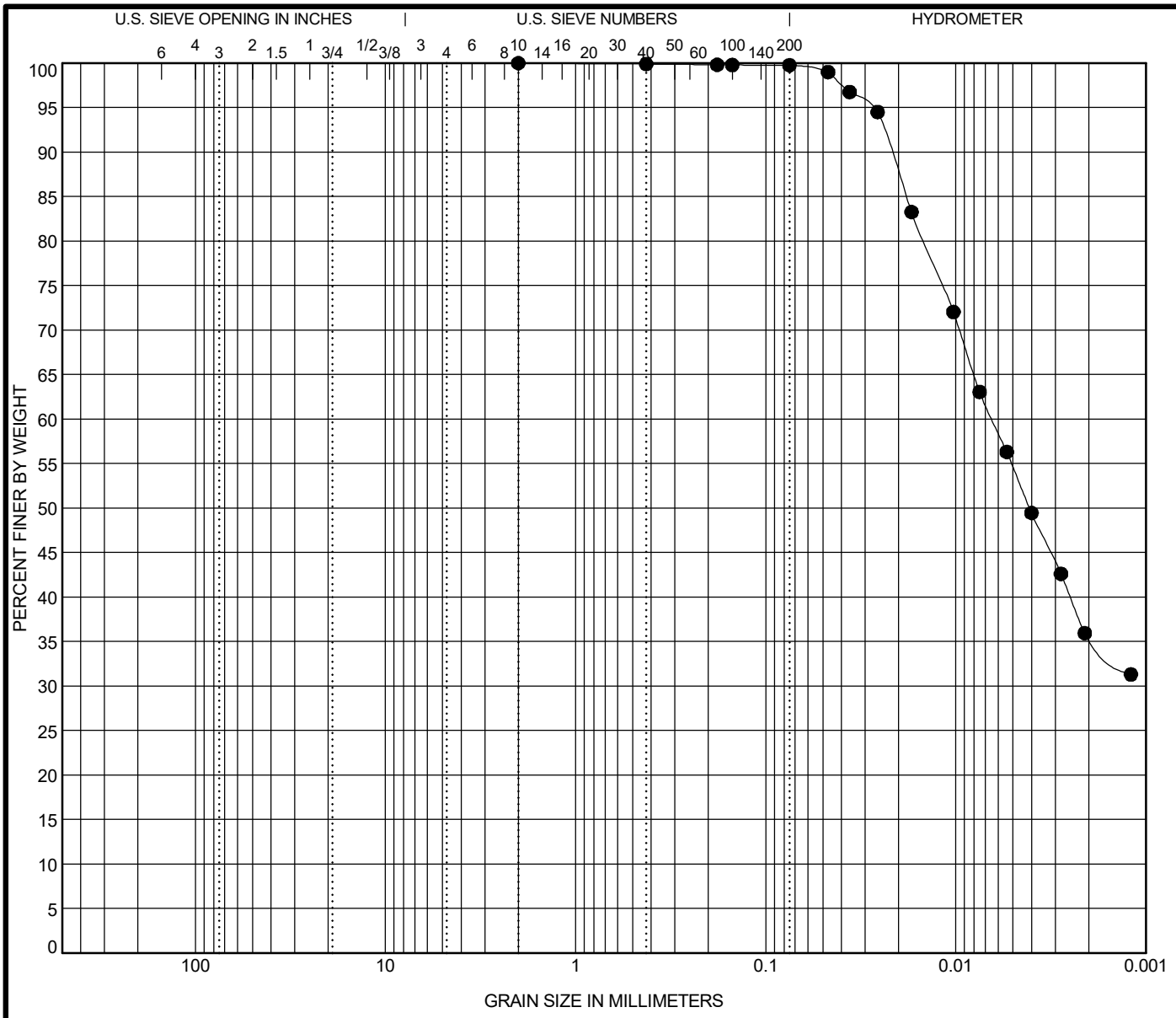
GRAIN SIZE DISTRIBUTION

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, Illinois

Number: 411-05-02

WEI GRAIN SIZE IDH 4110502.GPJ US LAB.GDT 5/27/21



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
● B-07#8	18.5 ft	**Silty Clay**	**55**	**22**	**33**		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-07#8	18.5 ft	**2**	**0.006**			**0.0**	**0.3**	**64.2**	**35.5**

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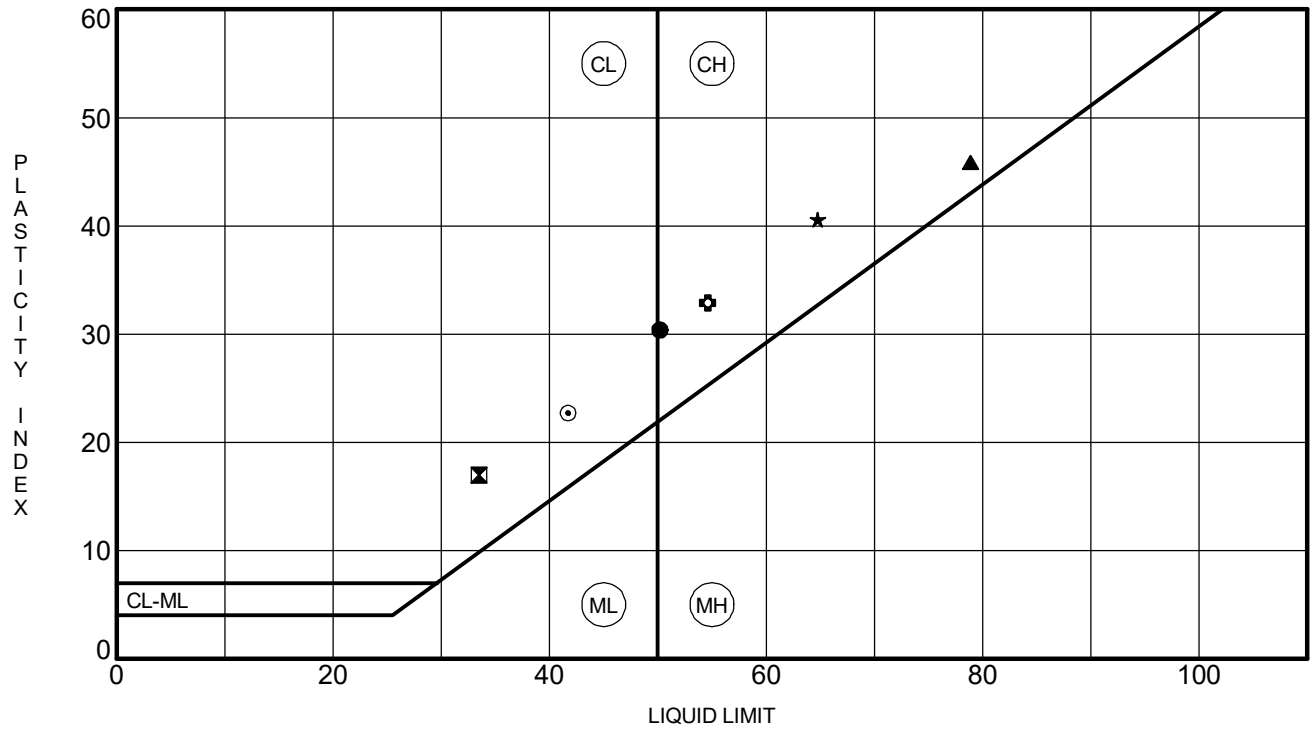
GRAIN SIZE DISTRIBUTION

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, Illinois

Number: 411-05-02

WEI GRAIN SIZE IDH 4110502.GPJ US LAB.GDT 5/27/21



Specimen Identification			LL	PL	PI	Fines	IDH Classification
●	B-01#5	10.0 ft	50	20	30	82	Clay
⊠	B-01#	11.0 ft	33	16	17	80	Silty Clay
▲	B-02ST#3	20.0 ft	79	33	46	91	Silty Clay Loam
★	B-03#7	16.0 ft	65	24	41	99	Silty Clay
⊙	B-04#9	21.0 ft	42	19	23	100	Silty Clay
✿	B-07#8	18.5 ft	55	22	33	100	Silty Clay

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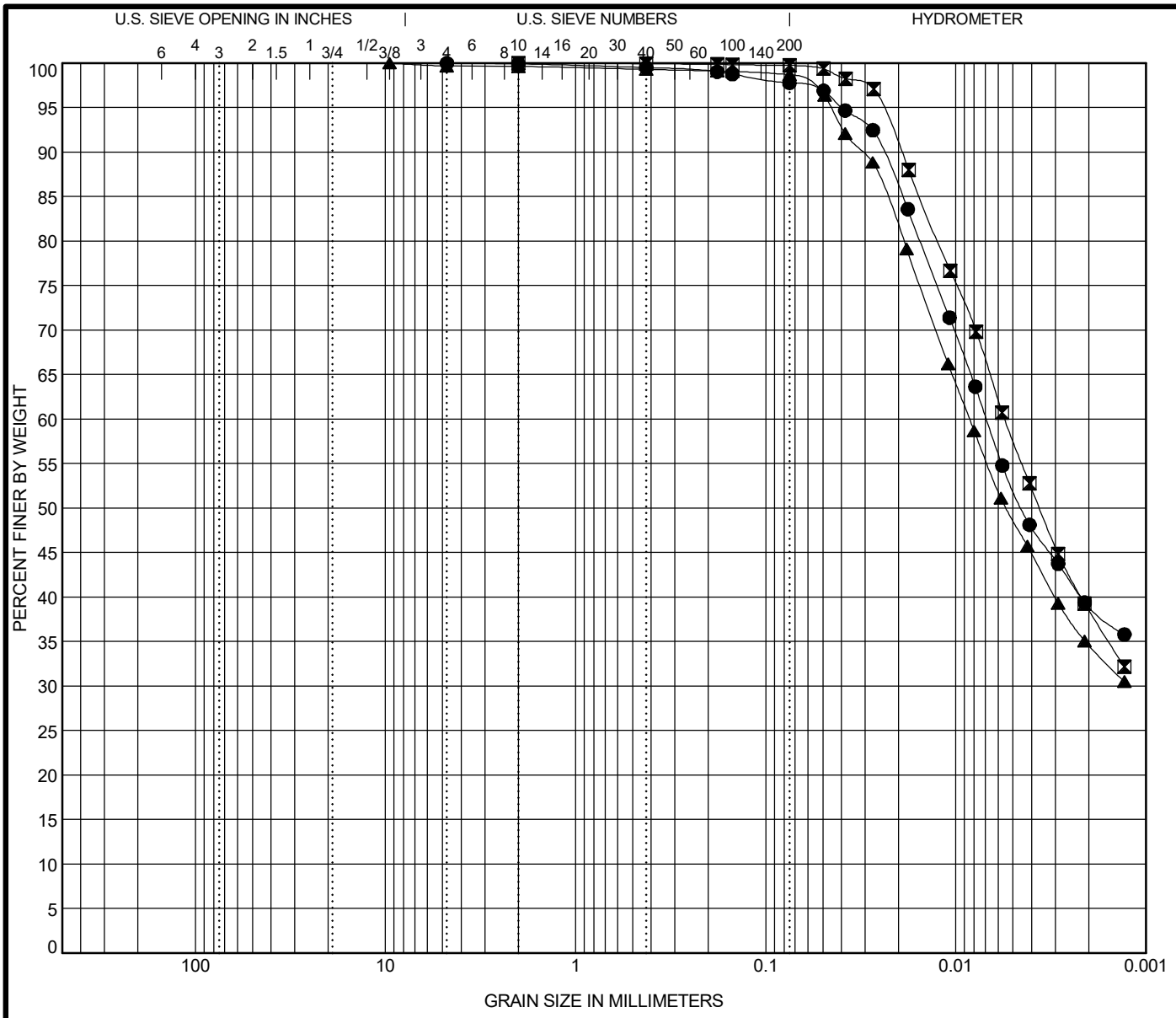
ATTERBERG LIMITS' RESULTS

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, Illinois

Number: 411-05-02

WEI ATTERBERG LIMITS IDH 4110502.GPJ US LAB.GDT 5/27/21



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
● C-2#5	11.0 ft	**Silty Clay**	**57**	**19**	**38**		
⊠ R-04#8	18.5 ft	**Silty Clay**	**70**	**29**	**41**		
▲ R-08#4	8.5 ft	**Silty Clay**	**45**	**18**	**27**		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● C-2#5	11.0 ft	**4.75**	**0.007**			**0.1**	**2.2**	**58.7**	**39.0**
⊠ R-04#8	18.5 ft	**2**	**0.006**			**0.0**	**0.3**	**61.2**	**38.5**
▲ R-08#4	8.5 ft	**9.5**	**0.008**			**0.4**	**1.0**	**64.0**	**34.6**

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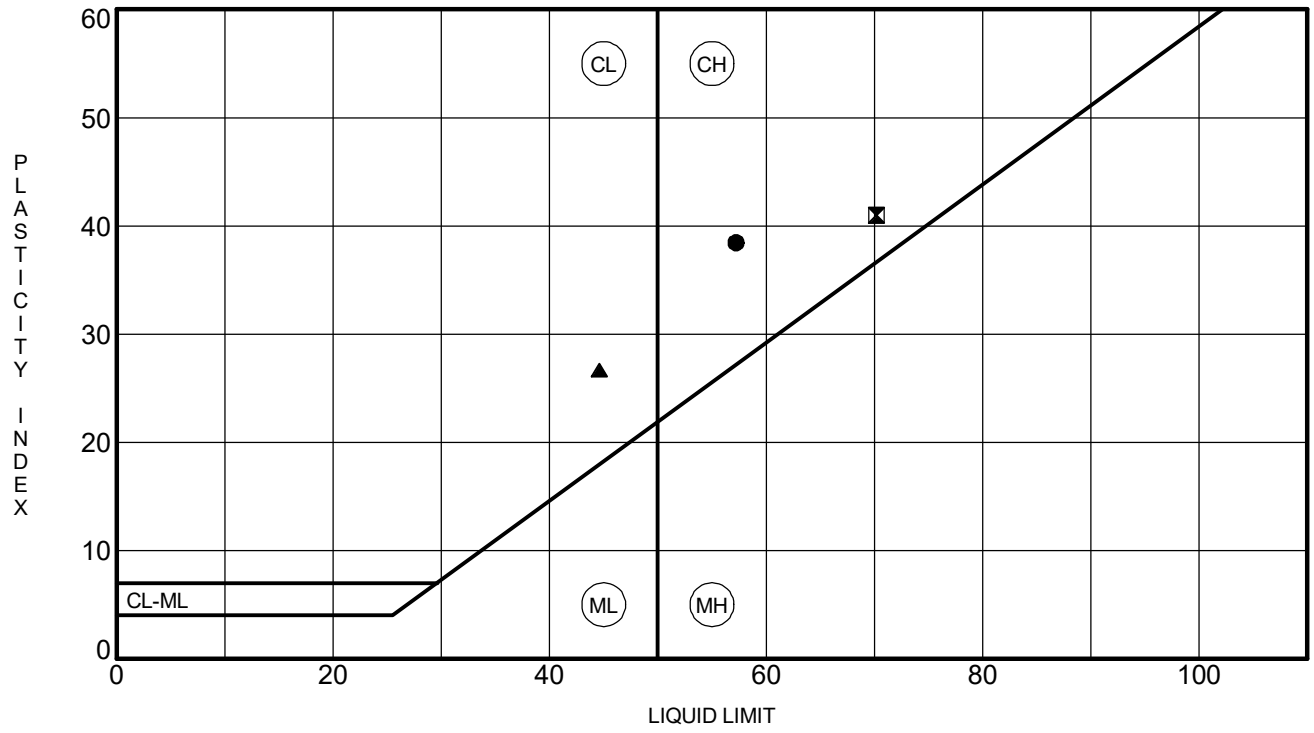
GRAIN SIZE DISTRIBUTION

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-03

WEI GRAIN SIZE IDH 4110503.GPJ US LAB.GDT 4/8/22



Specimen Identification			LL	PL	PI	Fines	IDH Classification
●	C-2#5	11.0 ft	57	19	38	98	Silty Clay
⊠	R-04#8	18.5 ft	70	29	41	100	Silty Clay
▲	R-08#4	8.5 ft	45	18	27	99	Silty Clay

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ATTERBERG LIMITS' RESULTS

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-03

WEI ATTERBERG LIMITS IDH 4110503.GPJ US LAB.GDT 4/8/22

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ORGANIC CONTENT in SOILS by LOSS on IGNITION

ASTM D 2974, Method C

Client: JJ Benes & Associates
Project: IL 7
WEI Job: 411-05-02
Type/Condition: SS/ST
Testing Furnace Temp °C.: 440

Analyst Name: L. Varzaru
Date Received: Various
Date Tested: 4/1/2021

Sample No./ Depth	B-02 ST#3 (20-22ft.)	B-03 SS#6 (16-17.5ft.)	B-04 ST#2 (21-23ft.)	B-07 SS#8 (18.5-20ft.)	
wet soil + tare	107.25	67.67	120.61	74.24	
Dry Soil + Tare	79.76	57.81	97.26	63.01	
Tare Mass	43.26	43.24	41.37	42.44	
w (%)	75	68	42	55	
Dry Soil + Tare	79.76	57.81	97.26	63.01	
Ash+ Tare	76.13	56.71	95.11	62.03	
Tare Mass	43.26	43.24	41.37	42.44	
Ash Content (%)	90	92	96	95	
Organic Content (%)	9.9	7.5	3.8	4.8	

Prepeared By:_____

Reviwed By:_____

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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: Illinois Route 7
Client: JJ Benes & Associates
Soil Sample ID: Boring B-04, ST#2, 21 to 23 feet
Sample Description: Dark Brown SI CLAY

Tested by: M. Snider
Prepared by: M. Snider
Test date: 3/24/2021
WEI: 411-05-02

Initial sample height =	1.001	in	Ring diameter =	2.499	in
Initial sample mass =	144.54	g	Ring mass =	109.44	g
Initial water content =	41.51%		Initial sample and ring mass =	253.98	g
Initial dry unit weight =	79.27	pcf	Tare mass =	163.14	g
Initial void ratio =	1.157		Final ring and sample mass =	240.16	g
Initial degree of saturation =	98.31%		Mass of wet sample and tare =	293.58	g
			Mass of dry sample and tare =	265.28	g
Final sample mass =	130.44	g	Initial dial reading =	0.01000	in
Final dry sample mass =	102.14	g	Final dial reading =	0.19930	in
Final water content =	27.71%		LL =	42	%
Final dry unit weight =	97.75	pcf	PL =	19	%
Final void ratio =	0.749		% Sand =	0.2	%
Final degree of saturation =	100.00%		% Silt =	58.7	%
Estimated specific gravity =	2.74		% Clay =	41.0	%
			In-Situ Vertical Effective Stress =	1400	psf

Compression and Swelling Indices

Compression index C_c =	0.344	**Preconsolidation pressure,s_C**	
Field corrected C_c =	0.365	Casagrande Method =	1427 psf
Swelling index C_s =	0.072	**Over-Consolidation Ratio (OCR) =**	1.02

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.01158	0.00010	0.17	1.153	N/A	N/A	720
2	200.0	0.01391	0.00023	0.41	1.148	0.1479	0.07	720
3	500.0	0.02231	0.00058	1.29	1.129	0.1381	0.16	720
4	1000.0	0.03606	0.00090	2.69	1.099	0.1369	0.27	720
5	2000.0	0.06065	0.00135	5.20	1.045	0.1280	0.51	720
6	4000.0	0.09987	0.00193	9.17	0.959	0.1107	0.74	720
7	8000.0	0.14751	0.00253	13.99	0.855	0.1328	0.82	1440
8	16000.0	0.19470	0.00324	18.77	0.752	0.1436	0.70	720
9	32000.0	0.23934	0.00413	23.32	0.654	0.1520	0.65	720
10	8000.0	0.24183	0.00295	23.45	0.651	N/A	N/A	720
11	2000.0	0.22473	0.00198	21.65	0.690	N/A	N/A	720
12	500.0	0.20309	0.00123	19.41	0.738	N/A	N/A	720

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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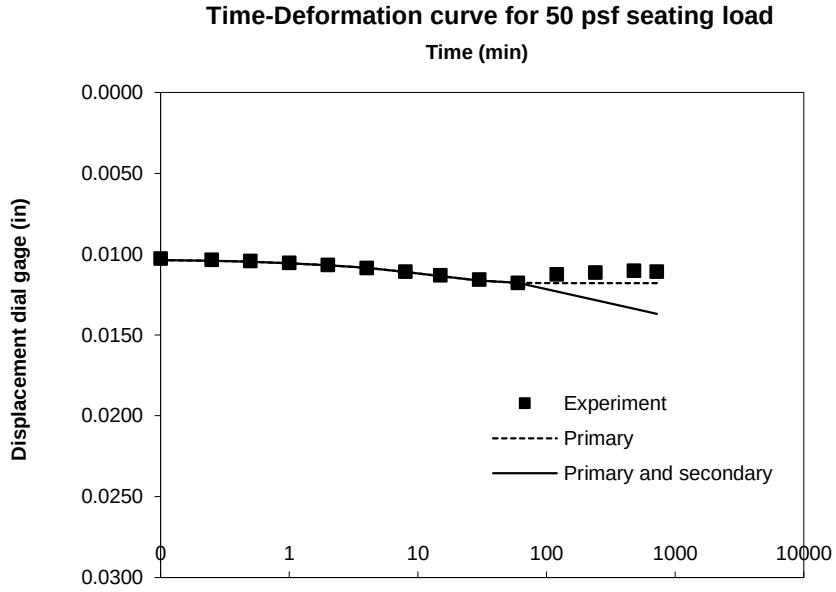
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
50.0	*0.00*	0.01000	0.01027	0.01027
	0.10	0.01027	0.01036	0.01036
	0.25	0.01034	0.01041	0.01041
	0.50	0.01042	0.01048	0.01048
	1.00	0.01053	0.01056	0.01056
	2.00	0.01068	0.01068	0.01068
	4.00	0.01086	0.01085	0.01085
	8.00	0.01109	0.01109	0.01109
	15.00	0.01131	0.01137	0.01137
	30.00	0.01157	0.01164	0.01164
	60.00	0.01178	0.01177	0.01177
	120.00	0.01125	0.01179	0.01232
	240.00	0.01115	0.01179	0.01285
	480.00	0.01103	0.01179	0.01338
	720.00	0.01109	0.01179	0.01369

h_0 =	1.00100	in
U_s =	99%	
t_s =	61.28	min
d_s =	0.01177	in
d_0 =	0.01027	in
d_{100} =	0.01179	in
d =	0.49999	in
C_v =	0.0073	in^2/min
r_i =	24.7%	
r_p =	139.2%	
r_s =	-63.9%	
Slope =	-0.0018	
Intercept =	0.0149	
h_c =	0.9992	in
t_c =	59.87	min
C_{ae} =	0.176%	



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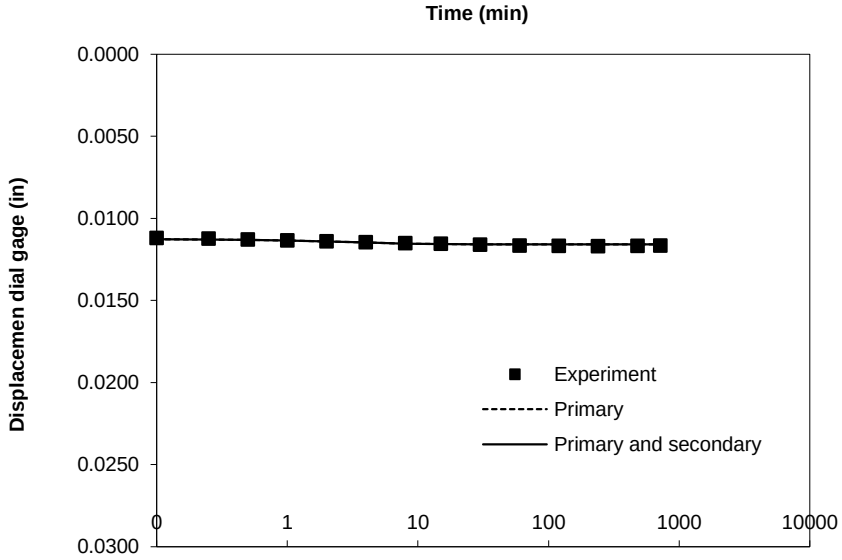
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
100.0	*0.00*	0.01108	0.01123	0.01123
	0.10	0.01120	0.01127	0.01127
	0.25	0.01125	0.01129	0.01129
	0.50	0.01129	0.01132	0.01132
	1.00	0.01135	0.01135	0.01135
	2.00	0.01141	0.01140	0.01140
	4.00	0.01147	0.01147	0.01147
	8.00	0.01151	0.01154	0.01154
	15.00	0.01156	0.01157	0.01157
	30.00	0.01162	0.01158	0.01158
	60.00	0.01166	0.01158	0.01158
	120.00	0.01169	0.01158	0.01158
	240.00	0.01171	0.01158	0.01158
	480.00	0.01169	0.01158	0.01158
	720.00	0.01168	0.01158	0.01158

h_0 =	0.99992	in
U_s =	99%	
t_s =	17.76	min
d_s =	0.01157	in
d_0 =	0.01123	in
d_{100} =	0.01158	in
d =	0.49980	in
C_v =	0.0250	in^2/min
r_i =	25.2%	
r_p =	58.3%	
r_s =	16.5%	
Slope =	-0.0001	
Intercept =	0.0119	
h_c =	0.9994	in
t_c =	28357.55	min
C_{ae} =	0.006%	

Time-Deformation curve for 100 psf load



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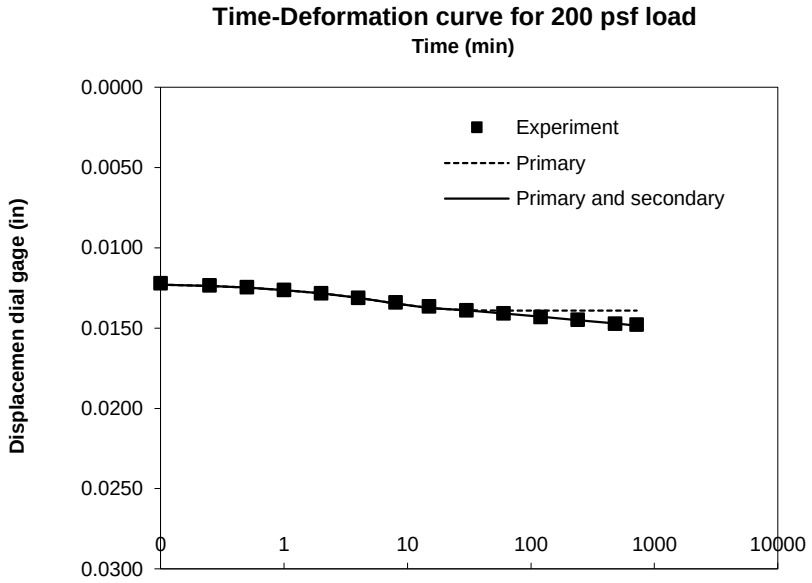
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
200.0	*0.00*	0.01181	0.01214	0.01214
	0.10	0.01220	0.01229	0.01229
	0.25	0.01234	0.01238	0.01238
	0.50	0.01245	0.01248	0.01248
	1.00	0.01262	0.01262	0.01262
	2.00	0.01283	0.01283	0.01283
	4.00	0.01311	0.01311	0.01311
	8.00	0.01339	0.01346	0.01346
	15.00	0.01365	0.01375	0.01375
	30.00	0.01389	0.01389	0.01389
	60.00	0.01408	0.01391	0.01408
	120.00	0.01430	0.01391	0.01429
	240.00	0.01448	0.01391	0.01450
	480.00	0.01473	0.01391	0.01471
	720.00	0.01479	0.01391	0.01484

h_0 =	0.99919	in
U_s =	99%	
t_s =	29.99	min
d_s =	0.01389	in
d_0 =	0.01214	in
d_{100} =	0.01391	in
d =	0.49899	in
C_v =	0.0148	in^2/min
r_i =	10.9%	
r_p =	59.4%	
r_s =	29.7%	
Slope =	0.0007	
Intercept =	0.0128	
h_c =	0.9971	in
t_c =	33.74	min
C_{ae} =	0.070%	



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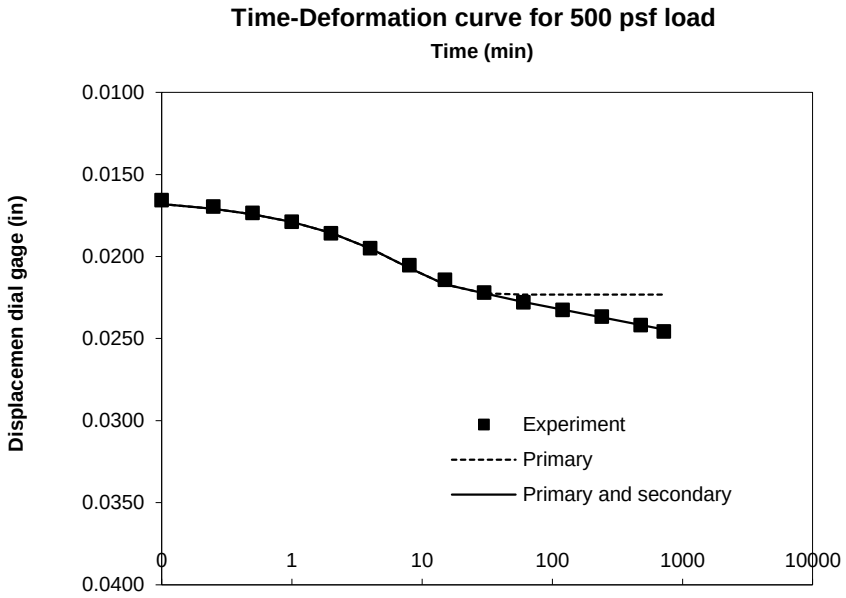
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
500.0	*0.00*	0.01545	0.01629	0.01629
	0.10	0.01659	0.01680	0.01680
	0.25	0.01697	0.01709	0.01709
	0.50	0.01736	0.01743	0.01743
	1.00	0.01788	0.01790	0.01790
	2.00	0.01859	0.01857	0.01857
	4.00	0.01950	0.01951	0.01951
	8.00	0.02054	0.02070	0.02070
	15.00	0.02144	0.02170	0.02170
	30.00	0.02221	0.02224	0.02224
	60.00	0.02279	0.02231	0.02277
	120.00	0.02326	0.02231	0.02324
	240.00	0.02367	0.02231	0.02370
	480.00	0.02419	0.02231	0.02417
	720.00	0.02458	0.02231	0.02444

h_0 =	0.99555	in
U_s =	99%	
t_s =	31.70	min
d_s =	0.02225	in
d_0 =	0.01629	in
d_{100} =	0.02231	in
d =	0.49585	in
C_v =	0.0138	in^2/min
r_i =	9.1%	
r_p =	66.0%	
r_s =	24.9%	
Slope =	0.0015	
Intercept =	0.0200	
h_c =	0.9887	in
t_c =	30.30	min
C_{ae} =	0.157%	



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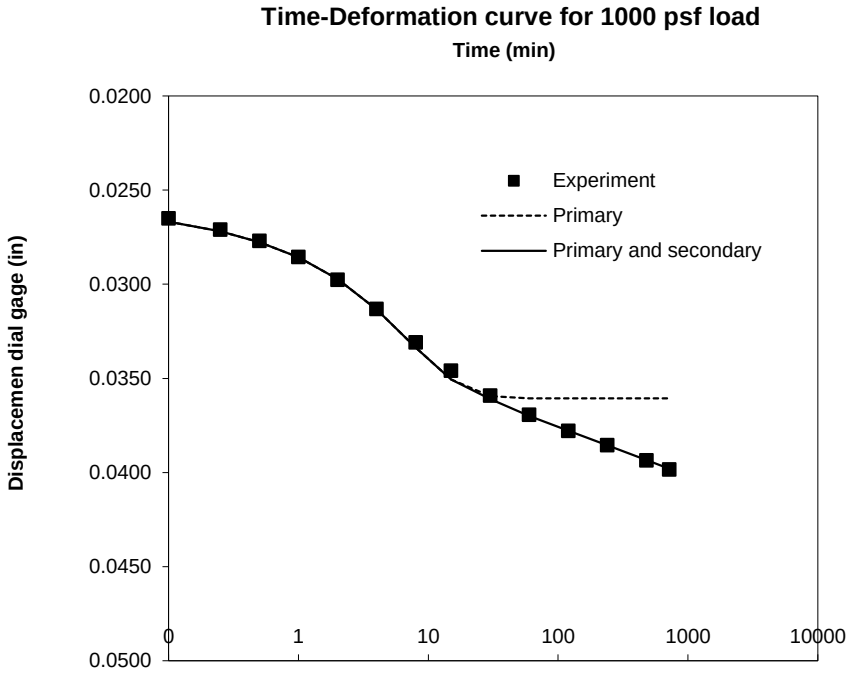
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
1000.0	*0.00*	0.02506	0.02580	0.02580
	0.10	0.02650	0.02668	0.02668
	0.25	0.02709	0.02719	0.02719
	0.50	0.02770	0.02776	0.02776
	1.00	0.02854	0.02857	0.02857
	2.00	0.02976	0.02971	0.02971
	4.00	0.03131	0.03133	0.03133
	8.00	0.03309	0.03336	0.03336
	15.00	0.03460	0.03505	0.03505
	30.00	0.03591	0.03594	0.03610
	60.00	0.03693	0.03606	0.03700
	120.00	0.03779	0.03606	0.03778
	240.00	0.03855	0.03606	0.03857
	480.00	0.03935	0.03606	0.03935
	720.00	0.03984	0.03606	0.03980

h_0 =	0.98594	in
U_s =	99%	
t_s =	31.23	min
d_s =	0.03596	in
d_0 =	0.02580	in
d_{100} =	0.03606	in
d =	0.49003	in
C_v =	0.0137	in^2/min
r_i =	5.0%	
r_p =	69.4%	
r_s =	25.6%	
Slope =	0.0026	
Intercept =	0.0324	
h_c =	0.9749	in
t_c =	25.99	min
C_{ae} =	0.266%	



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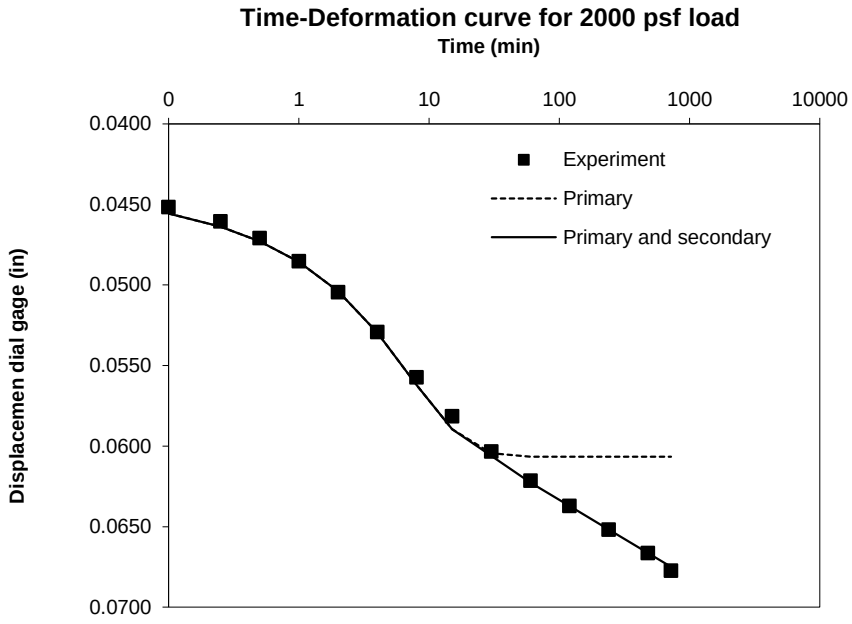
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
2000.0	*0.00*	0.04298	0.04419	0.04419
	0.10	0.04517	0.04557	0.04557
	0.25	0.04607	0.04638	0.04638
	0.50	0.04709	0.04729	0.04729
	1.00	0.04853	0.04857	0.04857
	2.00	0.05046	0.05039	0.05039
	4.00	0.05293	0.05296	0.05296
	8.00	0.05574	0.05621	0.05621
	15.00	0.05815	0.05896	0.05896
	30.00	0.06035	0.06044	0.06059
	60.00	0.06215	0.06065	0.06226
	120.00	0.06372	0.06065	0.06373
	240.00	0.06519	0.06065	0.06519
	480.00	0.06664	0.06065	0.06665
	720.00	0.06774	0.06065	0.06750

h_0 =	0.96802	in
U_s =	99%	
t_s =	31.95	min
d_s =	0.06049	in
d_0 =	0.04419	in
d_{100} =	0.06065	in
d =	0.47929	in
C_v =	0.0128	in^2/min
r_i =	4.9%	
r_p =	66.5%	
r_s =	28.6%	
Slope =	0.0048	
Intercept =	0.0536	
h_c =	0.9503	in
t_c =	27.91	min
C_{ae} =	0.510%	



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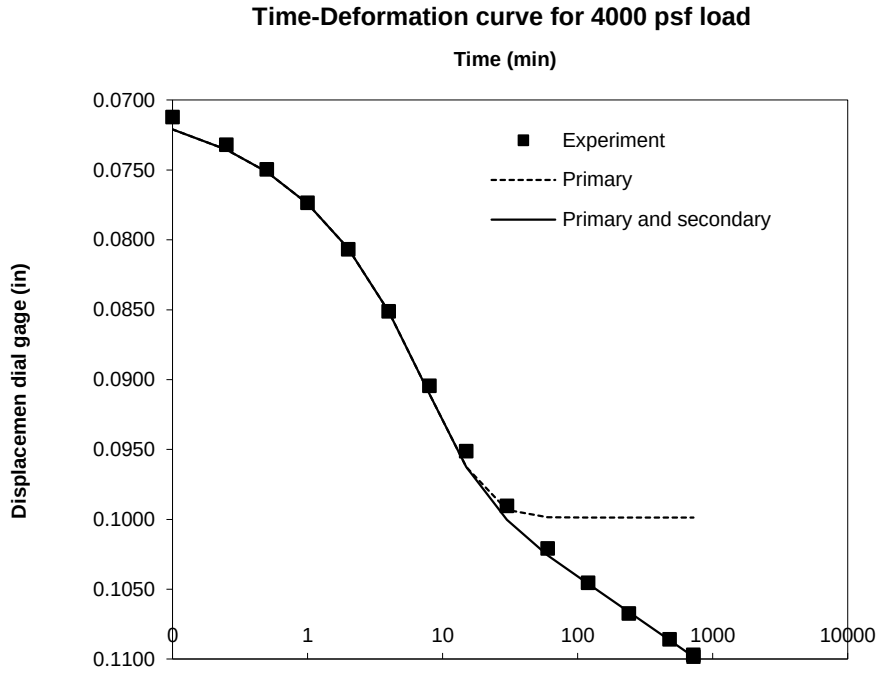
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
4000.0	0.00	0.06935	0.06966	0.06966
	0.10	0.07122	0.07211	0.07211
	0.25	0.07319	0.07353	0.07353
	0.50	0.07497	0.07513	0.07513
	1.00	0.07736	0.07740	0.07740
	2.00	0.08068	0.08061	0.08061
	4.00	0.08512	0.08515	0.08515
	8.00	0.09044	0.09103	0.09103
	15.00	0.09513	0.09625	0.09625
	30.00	0.09903	0.09933	0.10002
	60.00	0.10209	0.09986	0.10257
	120.00	0.10455	0.09987	0.10460
	240.00	0.10674	0.09987	0.10663
	480.00	0.10859	0.09987	0.10865
	720.00	0.10971	0.09987	0.10983

h_0 =	0.94165	in
U_s =	99%	
t_s =	34.49	min
d_s =	0.09957	in
d_0 =	0.06966	in
d_{100} =	0.09987	in
d =	0.46312	in
C_v =	0.0111	in^2/min
r_i =	0.8%	
r_p =	74.9%	
r_s =	24.4%	
Slope =	0.0067	
Intercept =	0.0906	
h_c =	0.9111	in
t_c =	23.68	min
C_{ae} =	0.737%	



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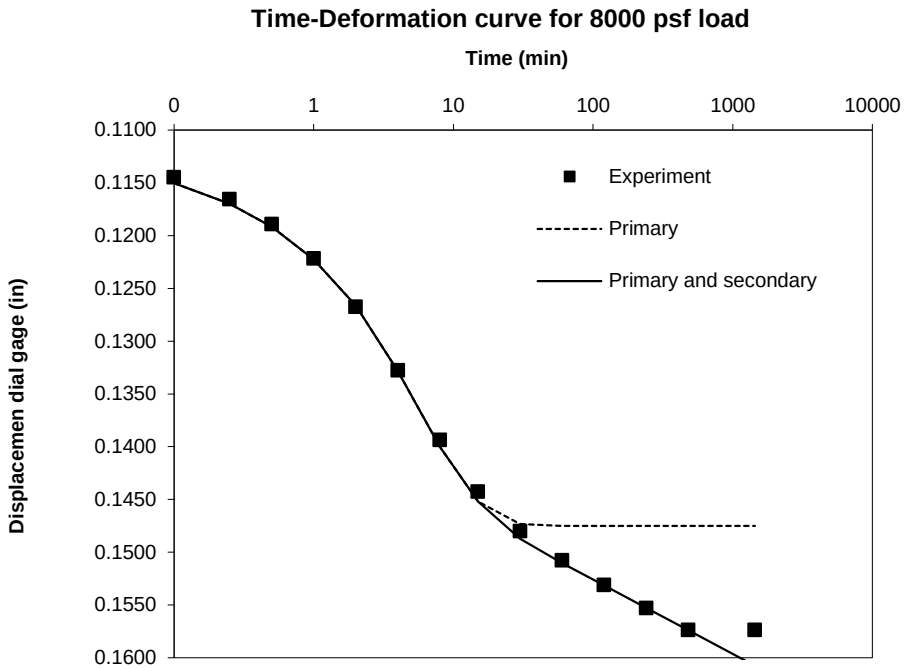
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
8000.0	0.00	0.11075	0.11169	0.11169
	0.10	0.11447	0.11503	0.11503
	0.25	0.11657	0.11697	0.11697
	0.50	0.11892	0.11916	0.11916
	1.00	0.12218	0.12226	0.12226
	2.00	0.12677	0.12664	0.12664
	4.00	0.13277	0.13283	0.13283
	8.00	0.13937	0.13998	0.13998
	15.00	0.14426	0.14520	0.14520
	30.00	0.14803	0.14733	0.14873
	60.00	0.15079	0.14751	0.15103
	120.00	0.15313	0.14751	0.15315
	240.00	0.15532	0.14751	0.15527
	480.00	0.15737	0.14751	0.15739
	1440.00	0.15737	0.14751	0.16076

h_0 =	0.90025	in
U_s =	99%	
t_s =	26.06	min
d_s =	0.14716	in
d_0 =	0.11169	in
d_{100} =	0.14751	in
d =	0.44070	in
C_v =	0.0133	in^2/min
r_i =	2.0%	
r_p =	76.8%	
r_s =	21.1%	
Slope =	0.0070	
Intercept =	0.1385	
h_c =	0.8635	in
t_c =	19.00	min
C_{ae} =	0.816%	



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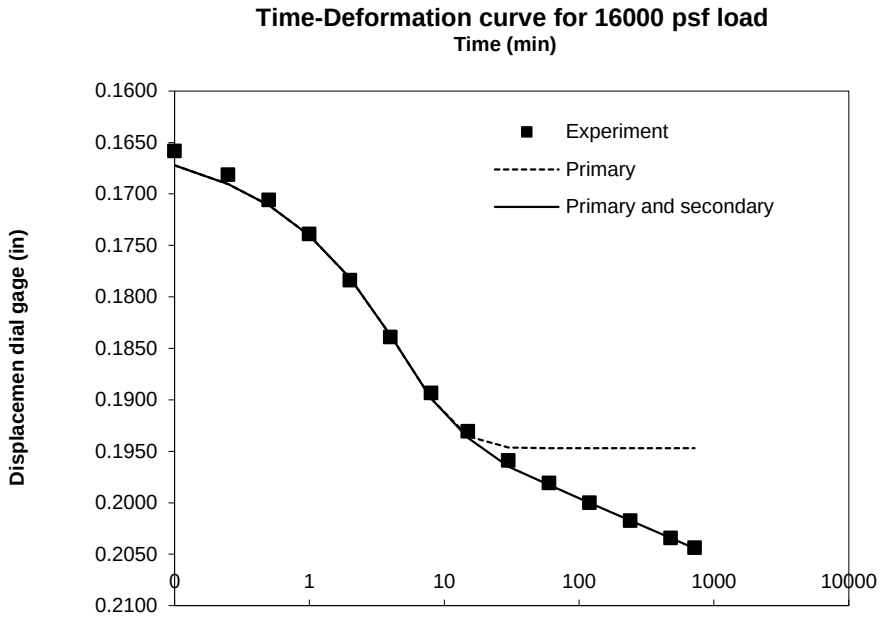
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
16000.0	*0.00*	0.16244	0.16407	0.16407
	0.10	0.16583	0.16722	0.16722
	0.25	0.16814	0.16905	0.16905
	0.50	0.17058	0.17112	0.17112
	1.00	0.17391	0.17403	0.17403
	2.00	0.17838	0.17816	0.17816
	4.00	0.18390	0.18376	0.18376
	8.00	0.18935	0.18988	0.18988
	15.00	0.19305	0.19355	0.19369
	30.00	0.19589	0.19464	0.19651
	60.00	0.19807	0.19470	0.19828
	120.00	0.19998	0.19470	0.20000
	240.00	0.20174	0.19470	0.20172
	480.00	0.20342	0.19470	0.20344
	720.00	0.20436	0.19470	0.20444

h_0 =	0.84856	in
U_s =	99%	
t_s =	21.44	min
d_s =	0.19439	in
d_0 =	0.16407	in
d_{100} =	0.19470	in
d =	0.41581	in
C_v =	0.0144	in^2/min
r_i =	3.9%	
r_p =	73.1%	
r_s =	23.0%	
Slope =	0.0057	
Intercept =	0.1881	
h_c =	0.8163	in
t_c =	14.16	min
C_{ae} =	0.699%	



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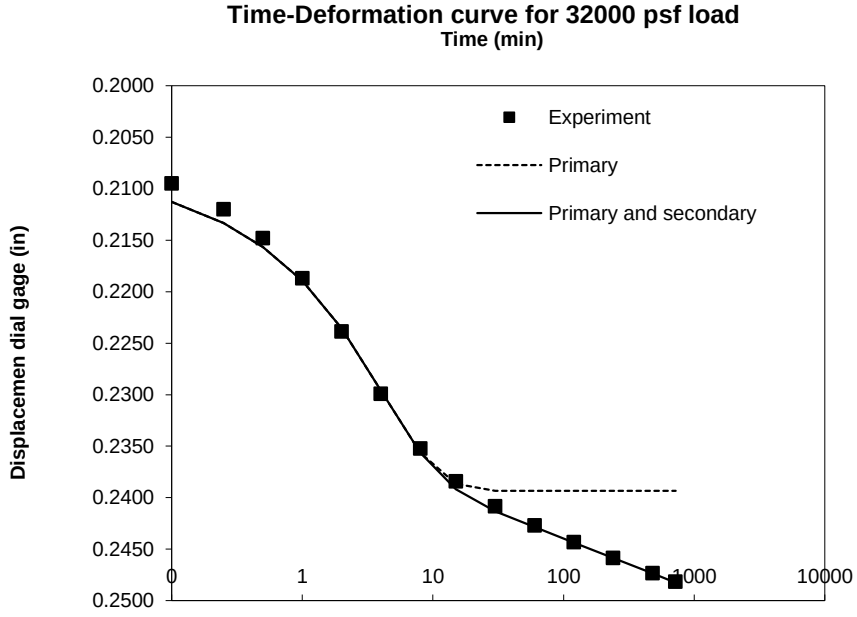
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
32000.0	*0.00*	0.20530	0.20775	0.20775
	0.10	0.20950	0.21128	0.21128
	0.25	0.21201	0.21333	0.21333
	0.50	0.21481	0.21565	0.21565
	1.00	0.21871	0.21892	0.21892
	2.00	0.22388	0.22354	0.22354
	4.00	0.22994	0.22962	0.22962
	8.00	0.23526	0.23565	0.23565
	15.00	0.23844	0.23866	0.23918
	30.00	0.24085	0.23932	0.24134
	60.00	0.24271	0.23934	0.24286
	120.00	0.24435	0.23934	0.24436
	240.00	0.24589	0.23934	0.24587
	480.00	0.24736	0.23934	0.24737
	720.00	0.24820	0.23934	0.24825

h_0 =	0.80570	in
U_s =	99%	
t_s =	18.16	min
d_s =	0.23903	in
d_0 =	0.20775	in
d_{100} =	0.23934	in
d =	0.39373	in
C_v =	0.0152	in^2/min
r_i =	5.7%	
r_p =	73.6%	
r_s =	20.6%	
Slope =	0.0050	
Intercept =	0.2340	
h_c =	0.7717	in
t_c =	11.83	min
C_{ae} =	0.647%	



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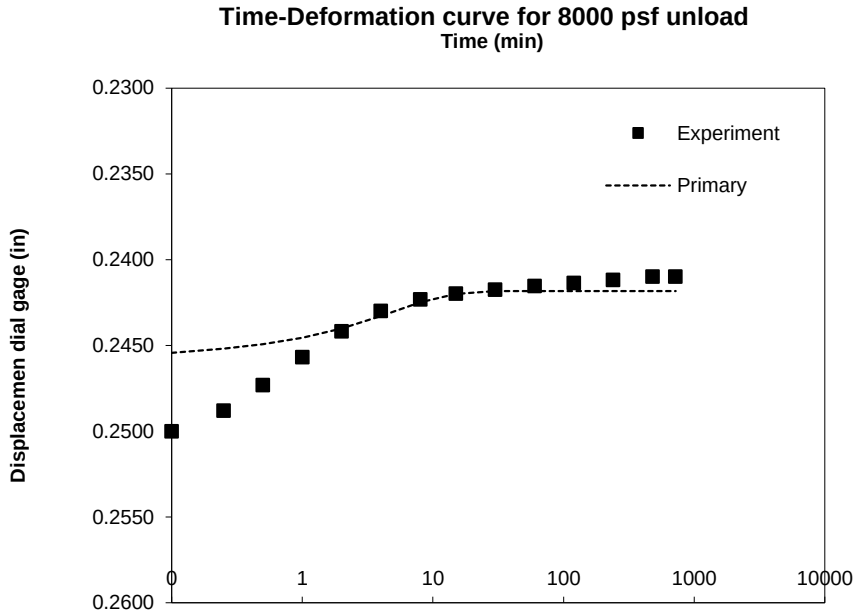
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
8000.0	*0.00*	0.25211	0.24583	0.24583
	0.10	0.25002	0.24543	0.24543
	0.25	0.24881	0.24519	0.24519
	0.50	0.24732	0.24492	0.24492
	1.00	0.24568	0.24455	0.24455
	2.00	0.24418	0.24402	0.24402
	4.00	0.24299	0.24329	0.24329
	8.00	0.24232	0.24249	0.24249
	15.00	0.24199	0.24199	0.24199
	30.00	0.24176	0.24184	0.24191
	60.00	0.24155	0.24183	0.24209
	120.00	0.24138	0.24183	0.24229
	240.00	0.24118	0.24183	0.24248
	480.00	0.24099	0.24183	0.24267
	720.00	0.24099	0.24183	0.24279

h_0 =	0.75889	in
U_s =	99%	
t_s =	22.04	min
d_s =	0.24187	in
d_0 =	0.24583	in
d_{100} =	0.24183	in
d =	0.38358	in
C_v =	0.0119	in^2/min
r_i =	56.5%	
r_p =	36.0%	
r_s =	7.6%	
Slope =	-0.0006	
Intercept =	0.2427	
h_c =	0.7692	in
t_c =	23.50	min
C_{ae} =	0.084%	



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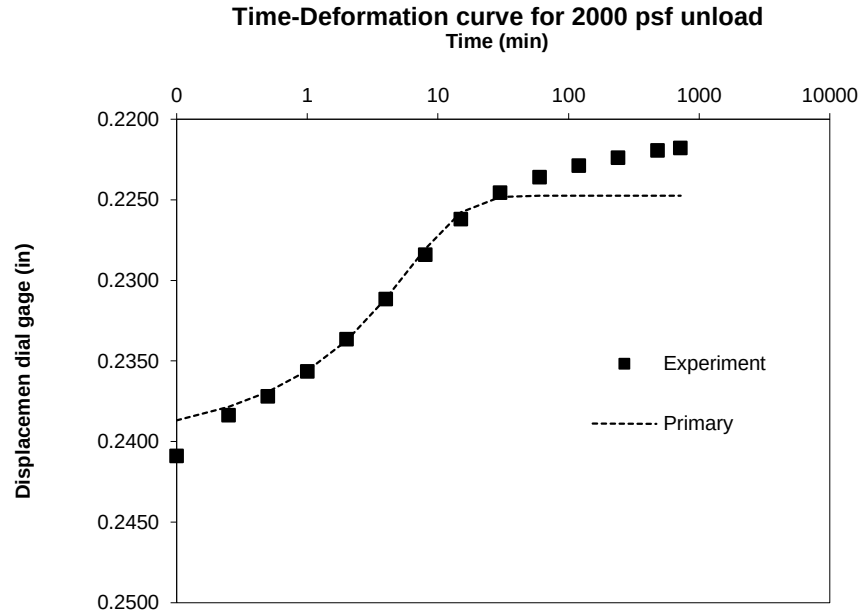
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
2000.0	*0.00*	0.24090	0.24010	0.24010
	0.10	0.24090	0.23868	0.23868
	0.25	0.23836	0.23785	0.23785
	0.50	0.23719	0.23692	0.23692
	1.00	0.23566	0.23561	0.23561
	2.00	0.23366	0.23375	0.23375
	4.00	0.23115	0.23112	0.23112
	8.00	0.22840	0.22805	0.22805
	15.00	0.22620	0.22577	0.22620
	30.00	0.22455	0.22482	0.22573
	60.00	0.22360	0.22473	0.22611
	120.00	0.22288	0.22473	0.22659
	240.00	0.22239	0.22473	0.22706
	480.00	0.22193	0.22473	0.22754
	720.00	0.22179	0.22473	0.22782

h_0 =	0.77010	in
U_s =	99%	
t_s =	26.55	min
d_s =	0.22489	in
d_0 =	0.24010	in
d_{100} =	0.22473	in
d =	0.38929	in
C_v =	0.0102	in^2/min
r_i =	4.2%	
r_p =	80.4%	
r_s =	15.4%	
Slope =	-0.0016	
Intercept =	0.2262	
h_c =	0.7863	in
t_c =	7.99	min
C_{ae} =	0.201%	



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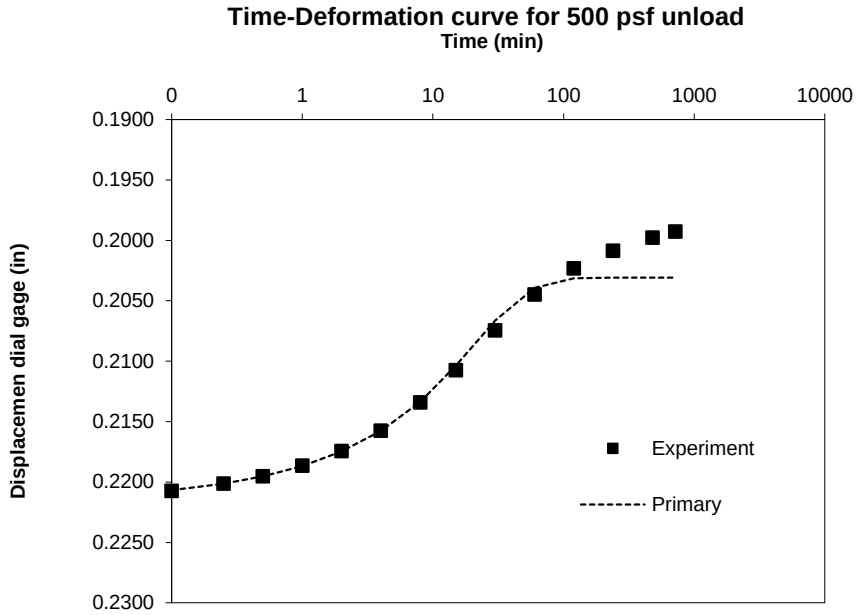
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
500.0	*0.00*	0.22166	0.22159	0.22159
	0.10	0.22074	0.22067	0.22067
	0.25	0.22015	0.22013	0.22013
	0.50	0.21954	0.21953	0.21953
	1.00	0.21868	0.21867	0.21867
	2.00	0.21746	0.21747	0.21747
	4.00	0.21576	0.21576	0.21576
	8.00	0.21344	0.21335	0.21335
	15.00	0.21077	0.21038	0.21038
	30.00	0.20748	0.20663	0.20663
	60.00	0.20449	0.20393	0.20393
	120.00	0.20234	0.20313	0.20313
	240.00	0.20087	0.20309	0.20379
	480.00	0.19979	0.20309	0.20507
	720.00	0.19930	0.20309	0.20581

h_0 =	0.78934	in
U_s =	99%	
t_s =	91.43	min
d_s =	0.20327	in
d_0 =	0.22159	in
d_{100} =	0.20309	in
d =	0.39933	in
C_v =	0.0031	in^2/min
r_i =	0.3%	
r_p =	82.8%	
r_s =	16.9%	
Slope =	-0.0042	
Intercept =	0.2125	
h_c =	0.8079	in
t_c =	163.46	min
C_{ae} =	0.524%	



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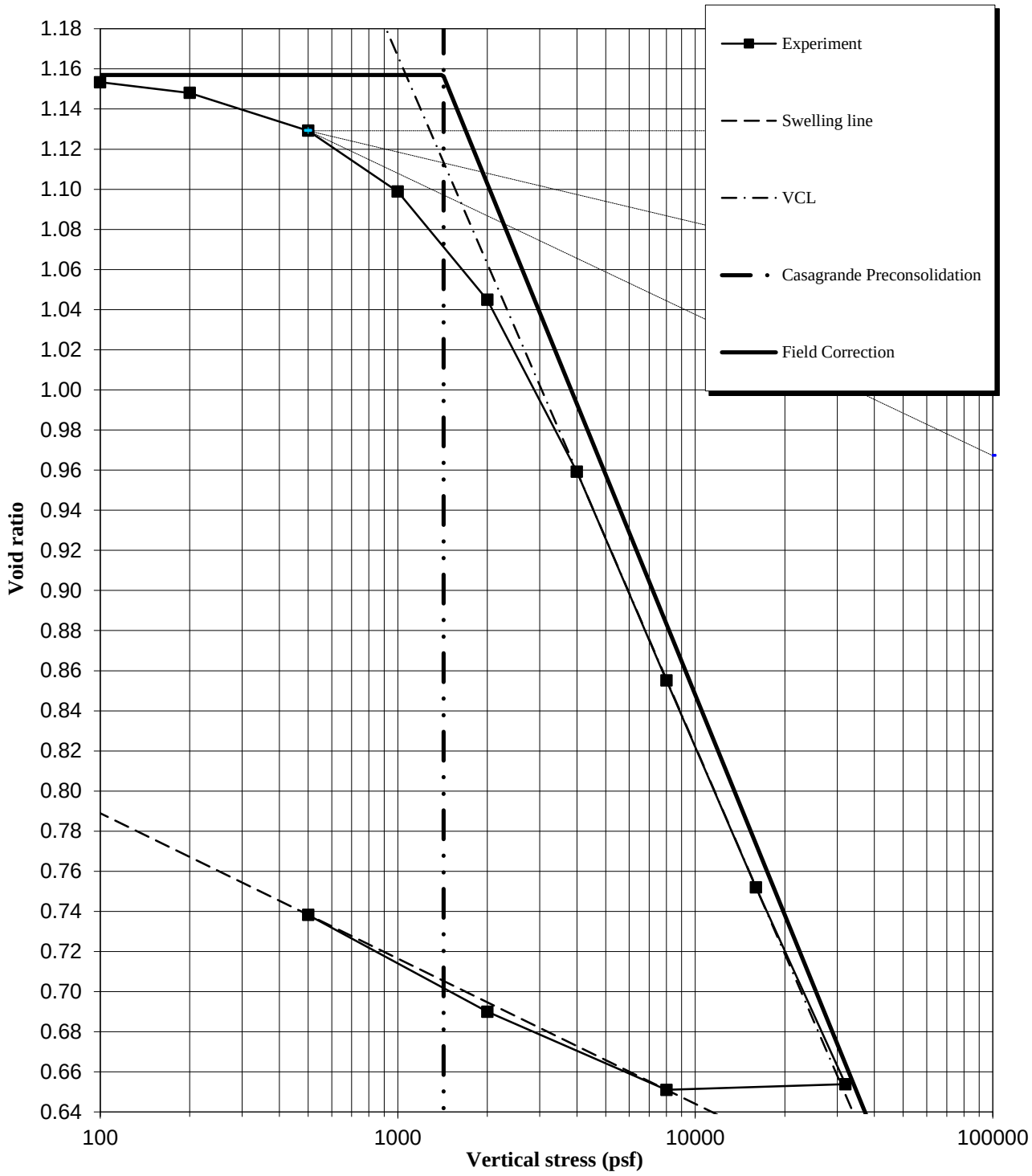
CONSOLIDATION CURVE

Sample B-04, ST#2, 21 to 23 feet



AASHTO R18

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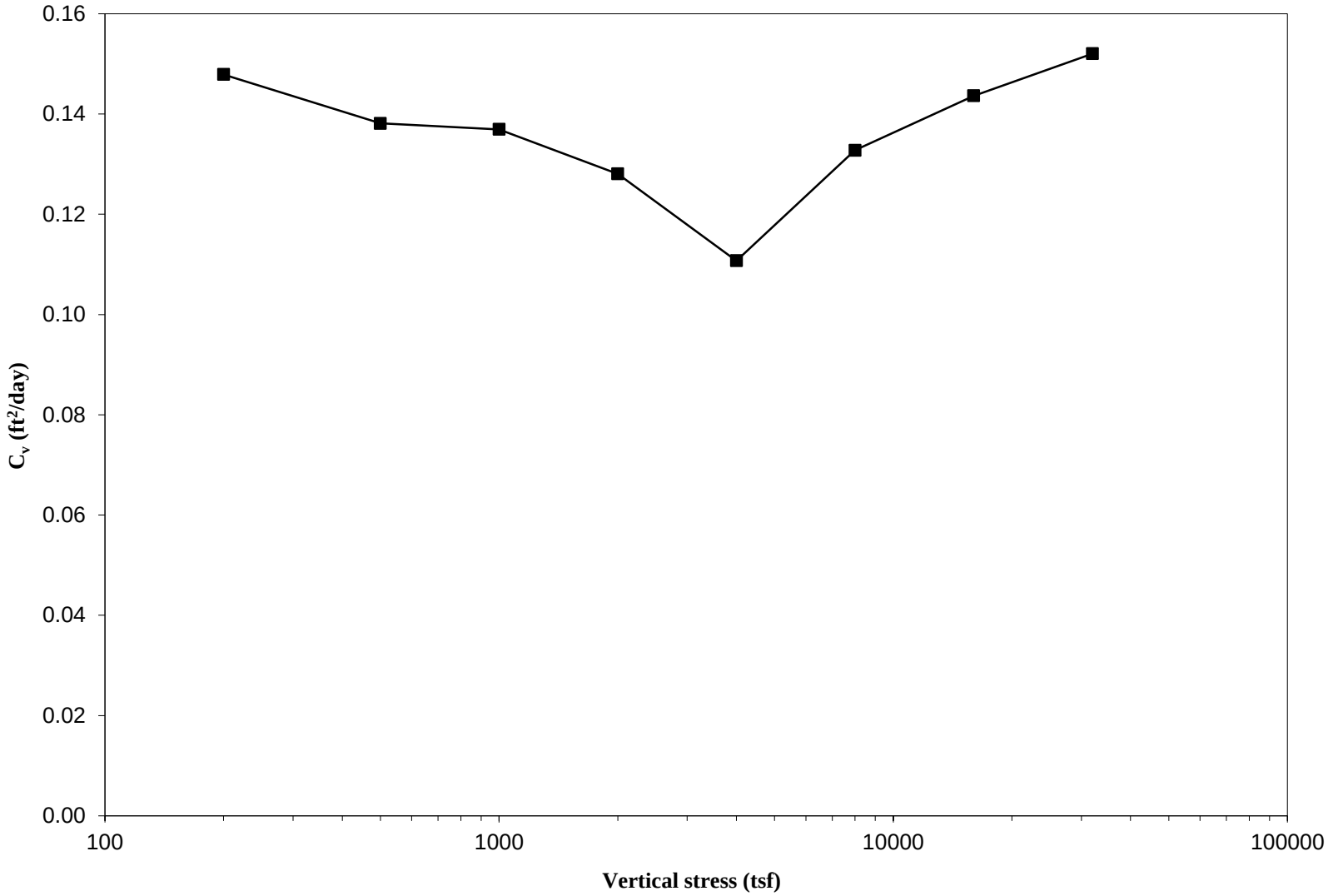
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Sample B-04, ST#2, 21 to 23 feet



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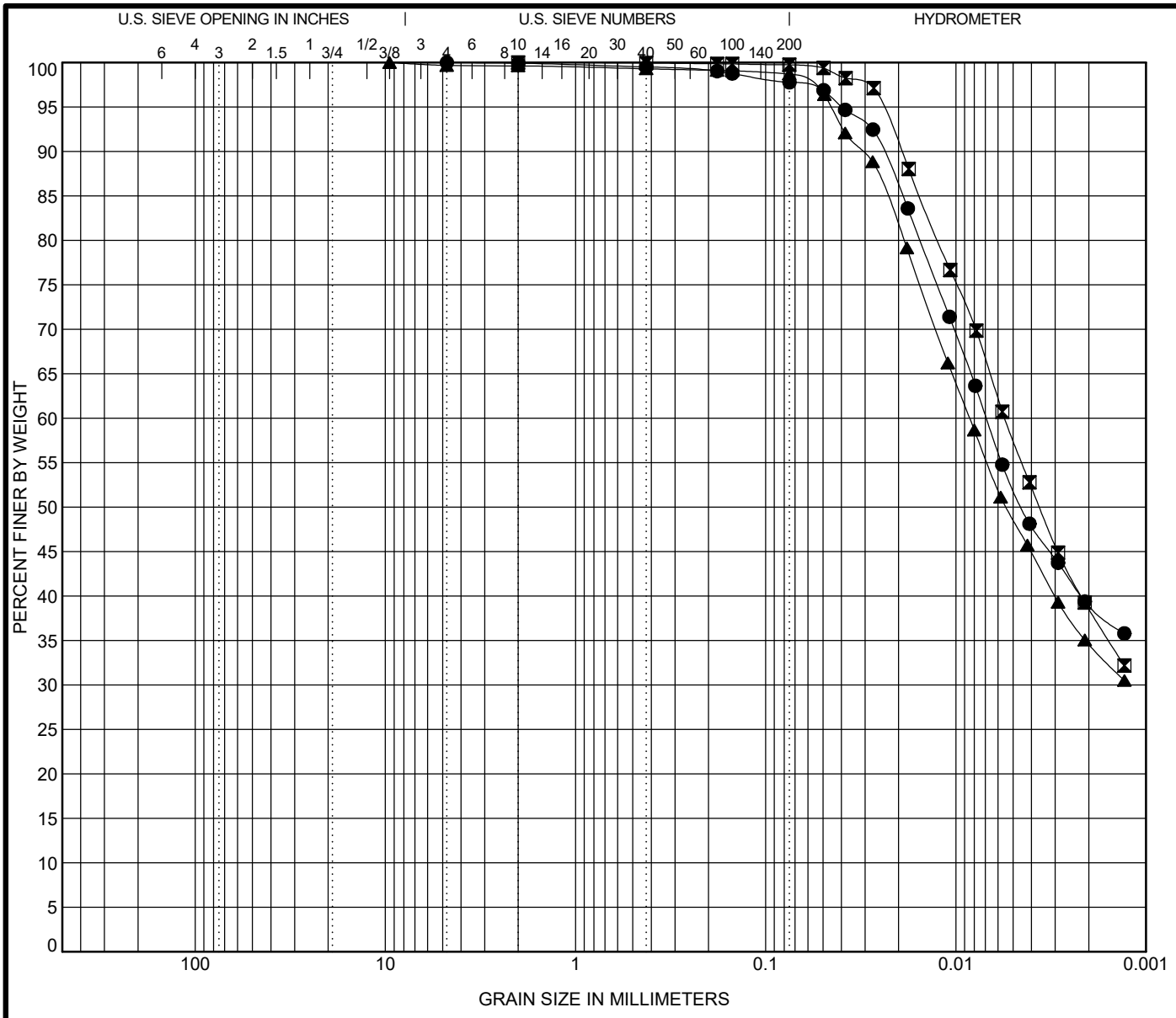

COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

	Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
●	C-2#5	11.0 ft	**Silty Clay**	**57**	**19**	**38**		
⊠	R-04#8	18.5 ft	**Silty Clay**	**70**	**29**	**41**		
▲	R-08#4	8.5 ft	**Silty Clay**	**45**	**18**	**27**		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	C-2#5	11.0 ft	**4.75**	**0.007**			**0.1**	**2.2**	**58.7**	**39.0**
⊠	R-04#8	18.5 ft	**2**	**0.006**			**0.0**	**0.3**	**61.2**	**38.5**
▲	R-08#4	8.5 ft	**9.5**	**0.008**			**0.4**	**1.0**	**64.0**	**34.6**

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Fax: 630 953 9938

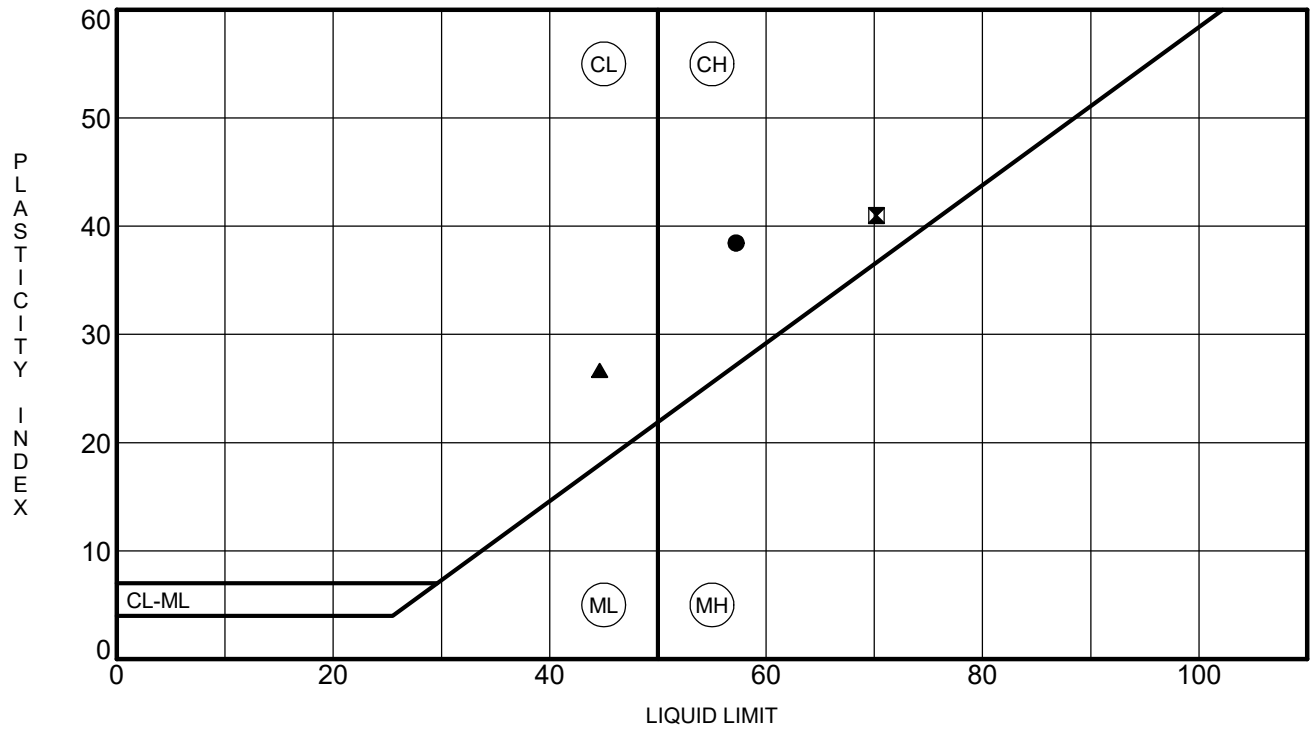
GRAIN SIZE DISTRIBUTION

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-03

WEI GRAIN SIZE IDH 4110503.GPJ US LAB.GDT 9/9/22



	Specimen Identification		LL	PL	PI	Fines	IDH Classification
●	C-2#5	11.0 ft	57	19	38	98	Silty Clay
⊠	R-04#8	18.5 ft	70	29	41	100	Silty Clay
▲	R-08#4	8.5 ft	45	18	27	99	Silty Clay

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ATTERBERG LIMITS' RESULTS

Project: IL Route 7 from 131st Street to 135th Street

Location: Cook County, IL

Number: 411-05-03

WEI ATTERBERG LIMITS IDH 4110503.GPJ US LAB.GDT 9/9/22

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ORGANIC CONTENT in SOILS by LOSS on IGNITION

ASTM D 2974, Method C

Client: JJ Benes & Associates
Project: IL-7 / Supplemental #2
WEI Job: 411-05-03
Type/Condition: SS
Testing Furnace Temp °C.: 440

Analyst Name: M. Ciapas
Date Sampled: 2/1/2022
Date Tested: 3/16/2022
Soil Sample ID: R-04, S#8 (18.5-20.0 ft.)
Sample Description: Dark Brown to Black Silty Clay

Moisture Content	Wet soil + tare (g)	Dry Soil + tare (g)	Tare mass (g)	w (%)
oven-dry method	86.18	69.75	43.45	62

Ash Content	Dry Soil + tare (g)	Ash + tare (g)	Tare mass (g)	Ash Content (%)
Loss On Ignition	69.75	67.49	43.45	9

Organic Content (%)= 9.4

Prepeared By:_____

Reviwed By:_____

AASHTO R18

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ORGANIC CONTENT in SOILS by LOSS on IGNITION

ASTM D 2974, Method C

Client: JJ Benes & Associates
Project: IL-7 / Supplemental #2
WEI Job: 411-05-03
Type/Condition: SS
Testing Furnace Temp °C.: 440

Analyst Name: M. Ciapas
Date Sampled: 2/14/2022
Date Tested: 3/16/2022
Soil Sample ID: RB-08, S#4 (8.5-10.0 ft.)
Sample Description: Gray Silty Clay

Moisture Content	Wet soil + tare (g)	Dry Soil + tare (g)	Tare mass (g)	w (%)
oven-dry method	73.57	66.09	42.16	31

Ash Content	Dry Soil + tare (g)	Ash + tare (g)	Tare mass (g)	Ash Content (%)
Loss On Ignition	66.09	64.15	42.16	9

Organic Content (%)= 8.8

Prepeared By:_____

Reviwed By:_____

AASHTO R18

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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: Illinois Route 7
Client: JJ Benes and Associates
Soil Sample ID: Boring R-04ST, ST#1, 8 to 10 feet
Sample Description: Br/Bl Organic SI LOAM to SI CL LOAM

Tested by: M. Snider
Prepared by: M. Snider
Test date: 3/17/2022
WEI: 411-05-01

Initial sample height =	0.761 in	Ring diameter =	2.501 in
Initial sample mass =	100.4 g	Ring mass =	62.36 g
Initial water content =	63.25%	Initial sample and ring mass =	162.76 g
Initial dry unit weight =	62.68 pcf	Tare mass =	14.06 g
Initial void ratio =	1.708	Final ring and sample mass =	147.30 g
Initial degree of saturation =	100.00%	Mass of wet sample and tare =	98.93 g
		Mass of dry sample and tare =	75.56 g
Final sample mass =	84.87 g	Initial dial reading =	0.01000 in
Final dry sample mass =	61.50 g	Final dial reading =	0.22033 in
Final water content =	38.00%	LL=	%
Final dry unit weight =	86.62 pcf	PL=	%
Final void ratio =	0.959	% Sand=	%
Final degree of saturation =	100.00%	% Silt=	%
Estimated specific gravity =	2.72	% Clay=	%
		Estimated In-Situ Vertical Stress=	850 psf

Compression and Swelling Indices

Compression index C_c =	0.582	**Preconsolidation pressure,σ_C**	
Field corrected C_c =	0.659	Casagrande Method =	1199 psf
Swelling index C_s =	0.156	**Estimated Overconsolidation Ratio=**	1.41

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.01053	0.00047	0.13	1.704	N/A	N/A	480
2	200.0	0.01452	0.00066	0.68	1.689	0.0506	0.13	480
3	500.0	0.03432	0.00087	3.31	1.618	0.0319	0.55	720
4	1000.0	0.06319	0.00138	7.17	1.514	0.0376	0.67	720
5	2000.0	0.09755	0.00198	11.76	1.389	0.0396	0.82	720
6	4000.0	0.13745	0.00425	17.31	1.239	0.0392	1.20	720
7	8000.0	0.18144	0.00648	23.38	1.075	0.0357	1.14	720
8	16000.0	0.22810	0.00903	29.85	0.900	0.0338	0.96	720
9	8000.0	0.23186	0.00648	30.01	0.895	N/A	N/A	480
10	2000.0	0.21440	0.00198	27.12	0.973	N/A	N/A	720
11	500.0	0.19171	0.00087	23.99	1.058	N/A	N/A	480
12	1000.0	0.19153	0.00138	24.03	1.057	0.0555	0.02	240
13	2000.0	0.19679	0.00198	24.81	1.036	0.0383	0.11	720
14	4000.0	0.20721	0.00425	26.47	0.991	0.0331	0.21	720
15	8000.0	0.22131	0.00648	28.62	0.933	0.0436	0.26	490
16	16000.0	0.23914	0.00903	31.30	0.860	0.0466	0.40	720
17	32000.0	0.27108	0.01063	35.70	0.741	0.0271	1.20	720
18	8000.0	0.26672	0.00809	34.80	0.766	N/A	N/A	720
18	2000.0	0.24493	0.00386	31.38	0.858	N/A	N/A	720
18	500.0	0.22028	0.00183	27.87	0.953	N/A	N/A	720

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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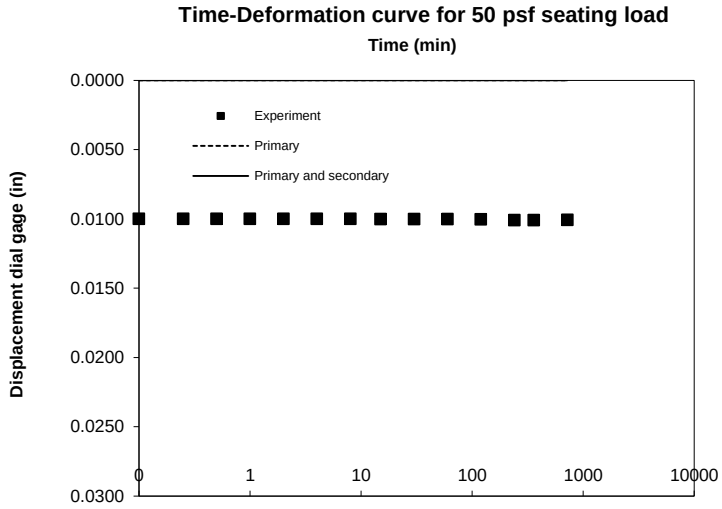
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
50.0	*0.00*	0.01000	#VALUE!	#VALUE!
	0.10	0.01000	#VALUE!	#VALUE!
	0.25	0.01000	#VALUE!	#VALUE!
	0.50	0.01001	#VALUE!	#VALUE!
	1.00	0.01000	#VALUE!	#VALUE!
	2.00	0.01000	#VALUE!	#VALUE!
	4.00	0.01001	#VALUE!	#VALUE!
	8.00	0.01001	#VALUE!	#VALUE!
	15.00	0.01001	#VALUE!	#VALUE!
	30.00	0.01001	#VALUE!	#VALUE!
	60.00	0.01001	#VALUE!	#VALUE!
	120.00	0.01003	#VALUE!	#VALUE!
	240.00	0.01010	#VALUE!	#VALUE!
	360.00	0.01010	#VALUE!	#VALUE!
	720.15	0.01008	#VALUE!	#VALUE!

h_0 = 0.76100 in
U_s = 99%
t_s = #VALUE! min
d_s = #VALUE! in
d_0 = #VALUE! in
d_{100} = #VALUE! in
d = #VALUE! in
C_v = #VALUE! in^2/min
r_i = #VALUE!
r_p = #VALUE!
r_s = #VALUE!
Slope = 0.0001
Intercept = 0.0098
h_c = #VALUE! in
t_c = #VALUE! min
C_{ae} = #VALUE!



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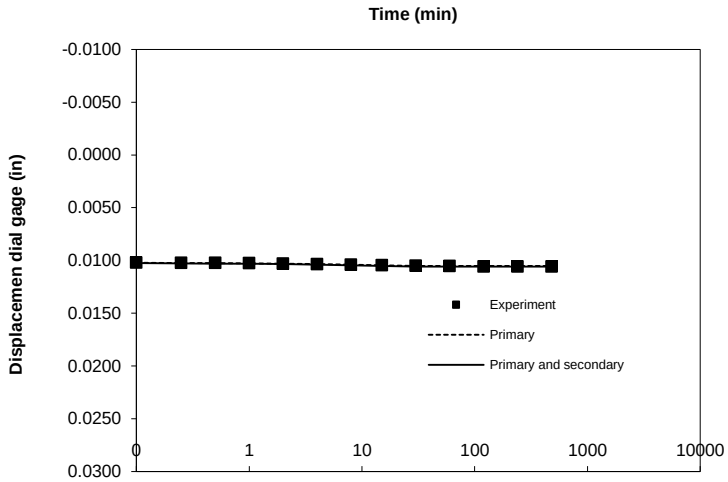
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
100.0	*0.00*	0.01008	0.01020	0.01020
	0.10	0.01022	0.01023	0.01026
	0.25	0.01023	0.01024	0.01028
	0.50	0.01024	0.01025	0.01030
	1.00	0.01026	0.01028	0.01032
	2.00	0.01030	0.01031	0.01035
	4.00	0.01036	0.01035	0.01040
	8.00	0.01041	0.01041	0.01046
	15.00	0.01046	0.01047	0.01052
	30.00	0.01051	0.01052	0.01057
	60.00	0.01055	0.01053	0.01058
	120.00	0.01058	0.01053	0.01058
	240.00	0.01059	0.01053	0.01059
	480.00	0.01059	0.01053	0.01059
	480.15	0.00000	0.01053	0.01059

h_0 =	0.76092	in
U_s =	99%	
t_s =	42.91	min
d_s =	0.01053	in
d_0 =	0.01020	in
d_{100} =	0.01053	in
d =	0.38032	in
C_v =	0.0060	in^2/min
r_i =	-1.2%	
r_p =	-3.3%	
r_s =	104.5%	
Slope =	0.0000	
Intercept =	0.0106	
h_c =	0.7605	in
t_c =	0.00	min
C_{ae} =	0.001%	

Time-Deformation curve for 100 psf load



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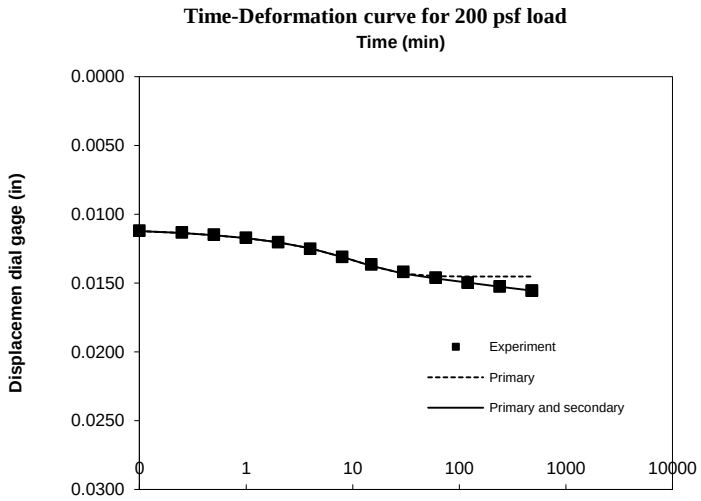
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
200.0	*0.00*	0.01064	0.01098	0.01098
	0.10	0.01120	0.01122	0.01122
	0.25	0.01132	0.01135	0.01135
	0.50	0.01147	0.01151	0.01151
	1.00	0.01170	0.01173	0.01173
	2.00	0.01203	0.01204	0.01204
	4.00	0.01250	0.01248	0.01248
	8.00	0.01309	0.01310	0.01310
	15.00	0.01364	0.01374	0.01374
	30.00	0.01419	0.01431	0.01431
	60.00	0.01460	0.01450	0.01465
	120.00	0.01497	0.01452	0.01496
	240.00	0.01526	0.01452	0.01526
	480.00	0.01555	0.01452	0.01555
	480.15	0.01555	0.01452	0.01555

h_0 =	0.76036	in
U_s =	99%	
t_s =	50.64	min
d_s =	0.01449	in
d_0 =	0.01098	in
d_{100} =	0.01452	in
d =	0.37913	in
C_v =	0.0051	in^2/min
r_i =	7.0%	
r_p =	72.1%	
r_s =	21.0%	
Slope =	0.0010	
Intercept =	0.0129	
h_c =	0.7565	in
t_c =	42.11	min
C_{ae} =	0.129%	



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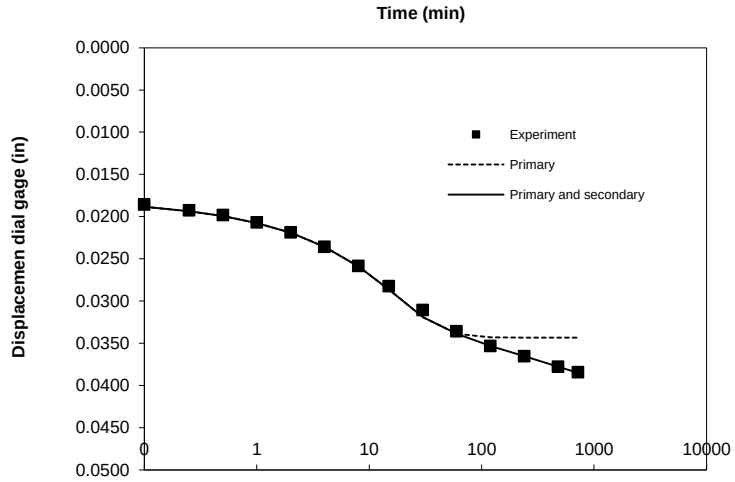
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
500.0	*0.00*	0.01647	0.01796	0.01796
	0.10	0.01859	0.01884	0.01884
	0.25	0.01928	0.01936	0.01936
	0.50	0.01983	0.01993	0.01993
	1.00	0.02068	0.02075	0.02075
	2.00	0.02189	0.02191	0.02191
	4.00	0.02359	0.02355	0.02355
	8.00	0.02585	0.02587	0.02587
	15.00	0.02824	0.02865	0.02865
	30.00	0.03108	0.03189	0.03189
	60.00	0.03358	0.03387	0.03387
	120.00	0.03532	0.03430	0.03531
	240.00	0.03654	0.03432	0.03654
	480.00	0.03779	0.03432	0.03777
	720.15	0.03843	0.03432	0.03849

h_0 =	0.75453	in
U_s =	99%	
t_s =	77.55	min
d_s =	0.03415	in
d_0 =	0.01796	in
d_{100} =	0.03432	in
d =	0.37243	in
C_v =	0.0032	in^2/min
r_i =	7.0%	
r_p =	76.7%	
r_s =	16.3%	
Slope =	0.0041	
Intercept =	0.0269	
h_c =	0.7367	in
t_c =	68.05	min
C_{ae} =	0.552%	

Time-Deformation curve for 500 psf load



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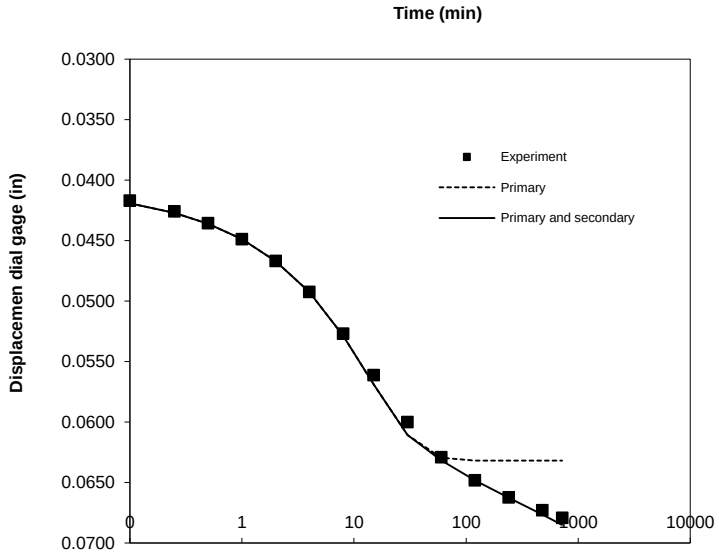
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
1000.0	*0.00*	0.03850	0.04054	0.04054
	0.10	0.04171	0.04191	0.04191
	0.25	0.04260	0.04272	0.04272
	0.50	0.04357	0.04362	0.04362
	1.00	0.04490	0.04489	0.04489
	2.00	0.04669	0.04670	0.04670
	4.00	0.04926	0.04925	0.04925
	8.00	0.05269	0.05286	0.05286
	15.00	0.05613	0.05693	0.05693
	30.00	0.06001	0.06106	0.06106
	60.00	0.06292	0.06294	0.06315
	120.00	0.06482	0.06319	0.06482
	240.00	0.06624	0.06319	0.06624
	480.00	0.06729	0.06319	0.06766
	720.15	0.06792	0.06319	0.06849

h_0 =	0.73250	in
U_s =	99%	
t_s =	61.28	min
d_s =	0.06297	in
d_0 =	0.04054	in
d_{100} =	0.06319	in
d =	0.35957	in
C_v =	0.0038	in^2/min
r_i =	6.9%	
r_p =	77.0%	
r_s =	16.1%	
Slope =	0.0047	
Intercept =	0.0550	
h_c =	0.7078	in
t_c =	54.24	min
C_{ae} =	0.666%	

Time-Deformation curve for 1000 psf load



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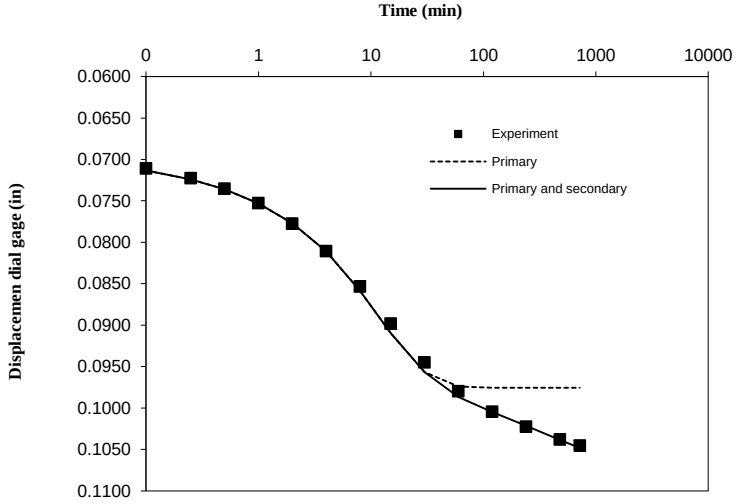
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
2000.0	*0.00*	0.06792	0.06951	0.06951
	0.10	0.07110	0.07134	0.07134
	0.25	0.07228	0.07240	0.07240
	0.50	0.07353	0.07360	0.07360
	1.00	0.07528	0.07530	0.07530
	2.00	0.07774	0.07770	0.07770
	4.00	0.08108	0.08109	0.08109
	8.00	0.08535	0.08589	0.08589
	15.00	0.08981	0.09097	0.09097
	30.00	0.09448	0.09565	0.09565
	60.00	0.09797	0.09739	0.09866
	120.00	0.10044	0.09755	0.10049
	240.00	0.10225	0.09755	0.10216
	480.00	0.10379	0.09755	0.10384
	720.15	0.10454	0.09755	0.10481

h_0 =	0.70308	in
U_s =	99%	
t_s =	53.14	min
d_s =	0.09727	in
d_0 =	0.06951	in
d_{100} =	0.09755	in
d =	0.34374	in
C_v =	0.0040	in^2/min
r_i =	4.4%	
r_p =	78.2%	
r_s =	17.4%	
Slope =	0.0056	
Intercept =	0.0889	
h_c =	0.6735	in
t_c =	35.43	min
C_{ae} =	0.825%	

Time-Deformation curve for 2000 psf load



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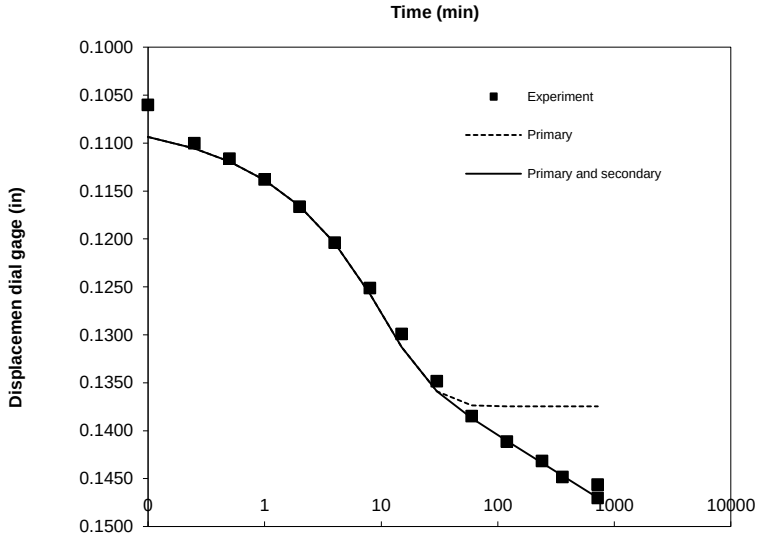
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
4000.0	0.00	0.10602	0.10727	0.10727
	0.10	0.10602	0.10935	0.10935
	0.25	0.11000	0.11056	0.11056
	0.50	0.11163	0.11192	0.11192
	1.00	0.11380	0.11385	0.11385
	2.00	0.11664	0.11657	0.11657
	4.00	0.12039	0.12042	0.12042
	8.00	0.12513	0.12573	0.12573
	15.00	0.12992	0.13129	0.13129
	30.00	0.13484	0.13590	0.13590
	60.00	0.13849	0.13735	0.13868
	120.00	0.14115	0.13745	0.14108
	240.00	0.14316	0.13745	0.14337
	360.00	0.14485	0.13745	0.14471
	720.15	0.14562	0.13745	0.14701

h_0 =	0.66498	in
U_s =	99%	
t_s =	47.79	min
d_s =	0.13715	in
d_0 =	0.10727	in
d_{100} =	0.13745	in
d =	0.32432	in
C_v =	0.0039	in^2/min
r_i =	3.2%	
r_p =	77.7%	
r_s =	19.1%	
Slope =	0.0076	
Intercept =	0.1252	
h_c =	0.6336	in
t_c =	40.14	min
C_{ae} =	1.203%	

Time-Deformation curve for 4000 psf load



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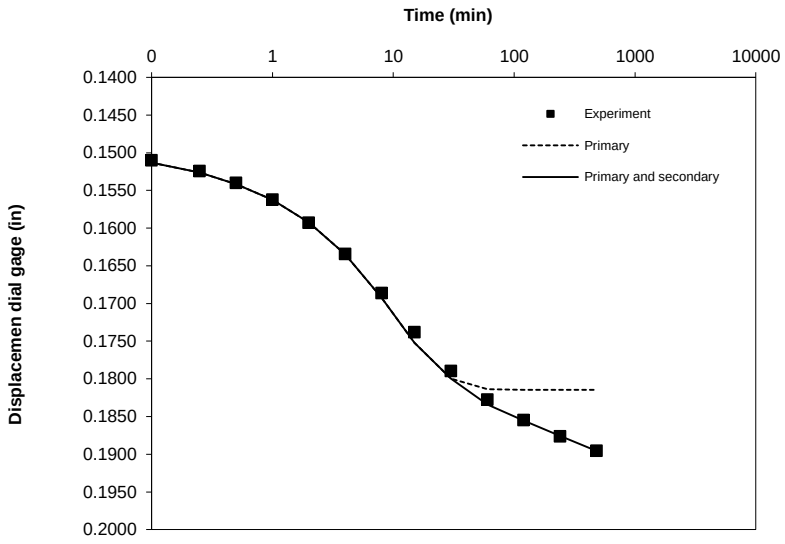
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
8000.0	0.00	0.14659	0.14904	0.14904
	0.10	0.15101	0.15132	0.15132
	0.25	0.15244	0.15264	0.15264
	0.50	0.15401	0.15414	0.15414
	1.00	0.15622	0.15625	0.15625
	2.00	0.15928	0.15923	0.15923
	4.00	0.16343	0.16345	0.16345
	8.00	0.16861	0.16925	0.16925
	15.00	0.17381	0.17521	0.17521
	30.00	0.17895	0.17996	0.17999
	60.00	0.18276	0.18136	0.18341
	120.00	0.18548	0.18144	0.18552
	240.00	0.18763	0.18144	0.18755
	480.00	0.18954	0.18144	0.18958
	720.15	0.19050	0.18144	0.19077

h_0 =	0.62441	in
U_s =	99%	
t_s =	45.82	min
d_s =	0.18112	in
d_0 =	0.14904	in
d_{100} =	0.18144	in
d =	0.30288	in
C_v =	0.0036	in^2/min
r_i =	5.7%	
r_p =	75.4%	
r_s =	18.9%	
Slope =	0.0067	
Intercept =	0.1715	
h_c =	0.5896	in
t_c =	29.75	min
C_{ae} =	1.143%	

Time-Deformation curve for 8000 psf load



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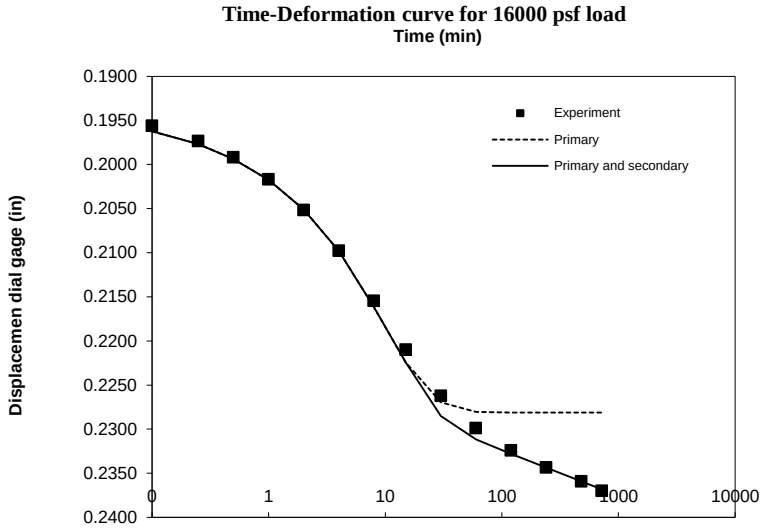
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
16000.0	*0.00*	0.19059	0.19368	0.19368
	0.10	0.19563	0.19622	0.19622
	0.25	0.19736	0.19771	0.19771
	0.50	0.19919	0.19937	0.19937
	1.00	0.20169	0.20173	0.20173
	2.00	0.20515	0.20507	0.20507
	4.00	0.20976	0.20979	0.20979
	8.00	0.21544	0.21617	0.21617
	15.00	0.22097	0.22243	0.22243
	30.00	0.22622	0.22695	0.22850
	60.00	0.22987	0.22805	0.23117
	120.00	0.23240	0.22810	0.23278
	240.00	0.23435	0.22810	0.23435
	480.00	0.23591	0.22810	0.23591
	720.15	0.23699	0.22810	0.23682

h_0 =	0.58041	in
U_s =	99%	
t_s =	41.37	min
d_s =	0.22776	in
d_0 =	0.19368	in
d_{100} =	0.22810	in
d =	0.28006	in
C_v =	0.0034	in^2/min
r_i =	6.8%	
r_p =	76.0%	
r_s =	17.2%	
Slope =	0.0052	
Intercept =	0.2220	
h_c =	0.5429	in
t_c =	15.04	min
C_{ae} =	0.956%	



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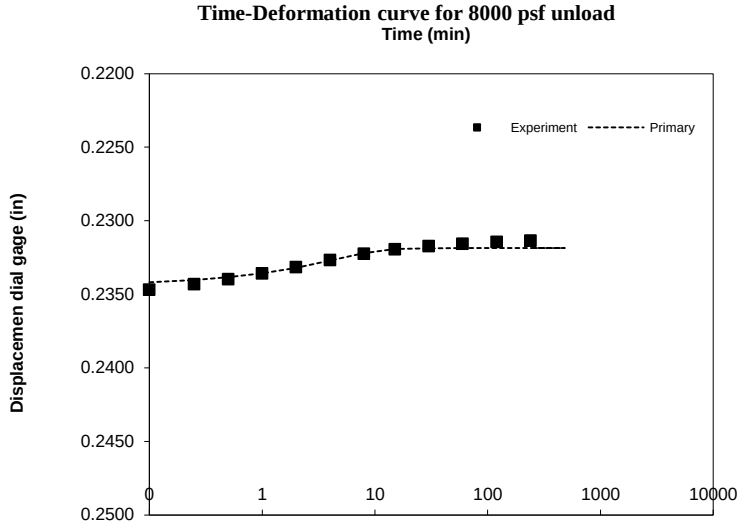
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
8000.0	*0.00*	0.23708	0.23447	0.23447
	0.10	0.23470	0.23419	0.23419
	0.25	0.23432	0.23402	0.23402
	0.50	0.23398	0.23384	0.23384
	1.00	0.23359	0.23357	0.23357
	2.00	0.23316	0.23320	0.23320
	4.00	0.23269	0.23270	0.23270
	8.00	0.23225	0.23220	0.23220
	15.00	0.23196	0.23193	0.23193
	30.00	0.23173	0.23187	0.23187
	60.00	0.23158	0.23186	0.23186
	120.00	0.23146	0.23186	0.23186
	240.00	0.23137	0.23186	0.23236
	480.00	0.00000	0.23186	0.46373
	240.15	0.00000	0.23186	0.23257

h_0 =	0.53392	in
U_s =	99%	
t_s =	19.06	min
d_s =	0.23189	in
d_0 =	0.23447	in
d_{100} =	0.23186	in
d =	0.26892	in
C_v =	0.0068	in^2/min
r_i =	1.1%	
r_p =	1.1%	
r_s =	97.8%	
Slope =	-0.7686	
Intercept =	2.0608	
h_c =	0.5391	in
t_c =	239.65	min
C_{ae} =	142.560%	

Time-Deformation curve for 8000 psf unload



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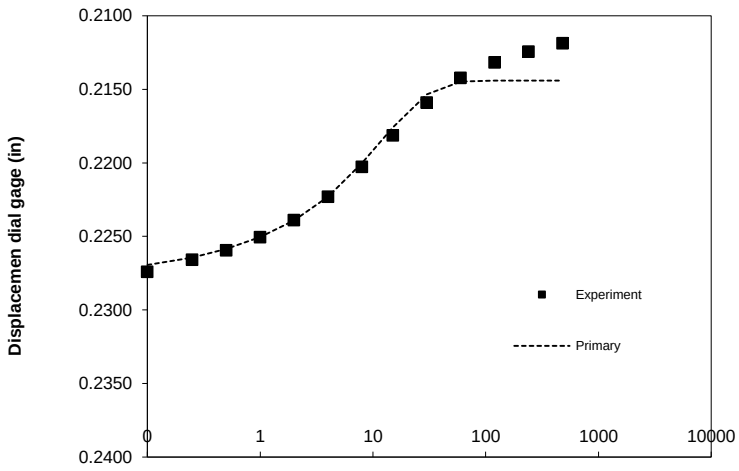
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
2000.0	*0.00*	0.23132	0.22781	0.22781
	0.10	0.22741	0.22694	0.22694
	0.25	0.22660	0.22643	0.22643
	0.50	0.22594	0.22586	0.22586
	1.00	0.22506	0.22505	0.22505
	2.00	0.22390	0.22391	0.22391
	4.00	0.22230	0.22230	0.22230
	8.00	0.22027	0.22001	0.22001
	15.00	0.21814	0.21758	0.21758
	30.00	0.21590	0.21533	0.21533
	60.00	0.21422	0.21448	0.21497
	120.00	0.21317	0.21440	0.21563
	240.00	0.21244	0.21440	0.21636
	480.00	0.21187	0.21440	0.21709
	720.15	0.21157	0.21440	0.21752

h_0 =	0.53968	in
U_s =	99%	
t_s =	53.69	min
d_s =	0.21453	in
d_0 =	0.22781	in
d_{100} =	0.21440	in
d =	0.27495	in
C_v =	0.0025	in^2/min
r_i =	18.1%	
r_p =	68.9%	
r_s =	13.0%	
Slope =	-0.0024	
Intercept =	0.2182	
h_c =	0.5566	in
t_c =	37.62	min
C_{ae} =	0.438%	

Time-Deformation curve for 2000 psf unload



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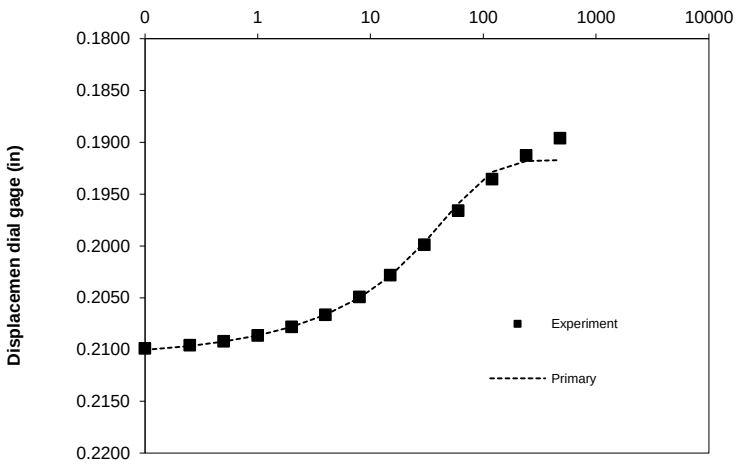
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
500.0	*0.00*	0.21151	0.21065	0.21065
	0.10	0.20991	0.21002	0.21002
	0.25	0.20959	0.20965	0.20965
	0.50	0.20921	0.20924	0.20924
	1.00	0.20865	0.20865	0.20865
	2.00	0.20783	0.20782	0.20782
	4.00	0.20665	0.20665	0.20665
	8.00	0.20494	0.20499	0.20499
	15.00	0.20283	0.20290	0.20290
	30.00	0.19990	0.19969	0.19969
	60.00	0.19661	0.19590	0.19590
	120.00	0.19355	0.19285	0.19285
	240.00	0.19128	0.19179	0.19202
	480.00	0.18961	0.19171	0.19391

h_0 =	0.55949	in
U_s =	99%	
t_s =	203.14	min
d_s =	0.19190	in
d_0 =	0.21065	in
d_{100} =	0.19171	in
d =	0.28491	in
C_v =	0.0007	in^2/min
r_i =	3.9%	
r_p =	86.5%	
r_s =	9.6%	
Slope =	-0.0066	
Intercept =	0.2071	
h_c =	0.5793	in
t_c =	221.36	min
C_{ae} =	1.131%	

Time-Deformation curve for 500 psf unload



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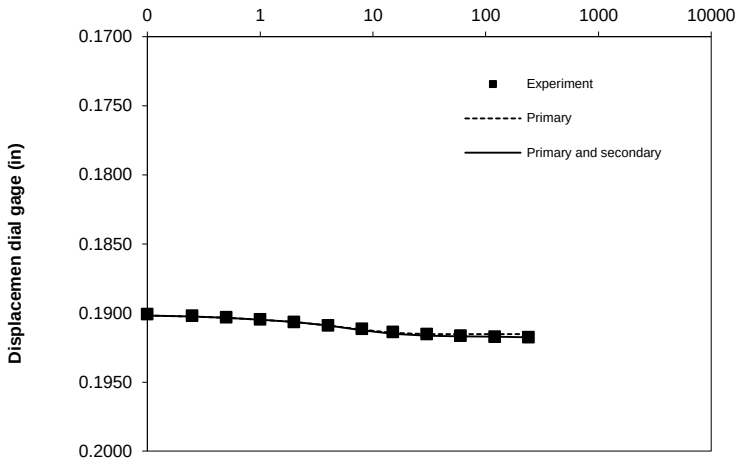
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
1000.0	*0.00*	0.18955	0.19004	0.19004
	0.10	0.19009	0.19017	0.19017
	0.25	0.19020	0.19025	0.19025
	0.50	0.19031	0.19034	0.19034
	1.00	0.19046	0.19047	0.19047
	2.00	0.19066	0.19065	0.19065
	4.00	0.19090	0.19090	0.19090
	8.00	0.19116	0.19120	0.19123
	15.00	0.19138	0.19142	0.19149
	30.00	0.19154	0.19152	0.19163
	60.00	0.19165	0.19153	0.19168
	120.00	0.19172	0.19153	0.19172
	240.00	0.19176	0.19153	0.19176

h_0 =	0.58145	in
U_s =	99%	
t_s =	26.98	min
d_s =	0.19151	in
d_0 =	0.19004	in
d_{100} =	0.19153	in
d =	0.29011	in
C_v =	0.0056	in^2/min
r_i =	22.0%	
r_p =	67.6%	
r_s =	10.4%	
Slope =	0.0001	
Intercept =	0.1914	
h_c =	0.5795	in
t_c =	4.36	min
C_{ae} =	0.023%	

Time-Deformation curve for 1000 psf reload



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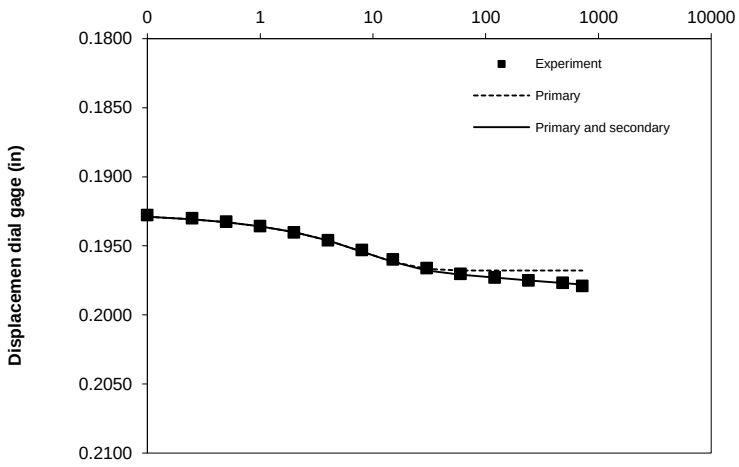
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
2000.0	*0.00*	0.19176	0.19256	0.19256
	0.10	0.19277	0.19288	0.19288
	0.25	0.19300	0.19307	0.19307
	0.50	0.19324	0.19328	0.19328
	1.00	0.19358	0.19358	0.19358
	2.00	0.19402	0.19401	0.19401
	4.00	0.19460	0.19461	0.19461
	8.00	0.19531	0.19541	0.19541
	15.00	0.19598	0.19617	0.19617
	30.00	0.19661	0.19668	0.19679
	60.00	0.19703	0.19678	0.19709
	120.00	0.19730	0.19679	0.19730
	240.00	0.19750	0.19679	0.19750
	480.00	0.19768	0.19679	0.19769
	720.15	0.19791	0.19679	0.19781

h_0 =	0.57924	in
U_s =	99%	
t_s =	38.63	min
d_s =	0.19675	in
d_0 =	0.19256	in
d_{100} =	0.19679	in
d =	0.28816	in
C_v =	0.0038	in^2/min
r_i =	14.0%	
r_p =	73.7%	
r_s =	12.3%	
Slope =	0.0007	
Intercept =	0.1959	
h_c =	0.5742	in
t_c =	20.37	min
C_{ae} =	0.115%	

Time-Deformation curve for 2000 psf reload



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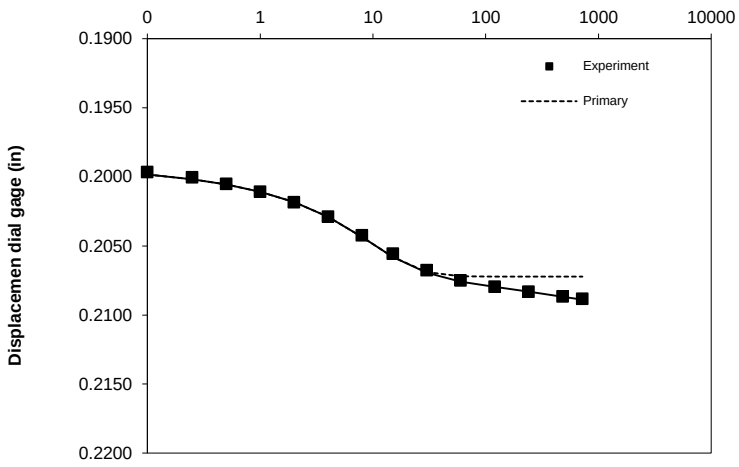
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
4000.0	*0.00*	0.19815	0.19926	0.19926
	0.10	0.19966	0.19984	0.19984
	0.25	0.20004	0.20017	0.20017
	0.50	0.20051	0.20055	0.20055
	1.00	0.20108	0.20108	0.20108
	2.00	0.20184	0.20183	0.20183
	4.00	0.20289	0.20290	0.20290
	8.00	0.20423	0.20434	0.20434
	15.00	0.20557	0.20580	0.20580
	30.00	0.20677	0.20690	0.20694
	60.00	0.20751	0.20720	0.20759
	120.00	0.20796	0.20721	0.20796
	240.00	0.20832	0.20721	0.20832
	480.00	0.20867	0.20721	0.20867
	720.15	0.20883	0.20721	0.20888

h_0 =	0.57285	in
U_s =	99%	
t_s =	43.41	min
d_s =	0.20713	in
d_0 =	0.19926	in
d_{100} =	0.20721	in
d =	0.28388	in
C_v =	0.0033	in^2/min
r_i =	10.6%	
r_p =	75.5%	
r_s =	13.9%	
Slope =	0.0012	
Intercept =	0.2055	
h_c =	0.5638	in
t_c =	27.70	min
C_{ae} =	0.210%	

Time-Deformation curve for 4000 psf reload



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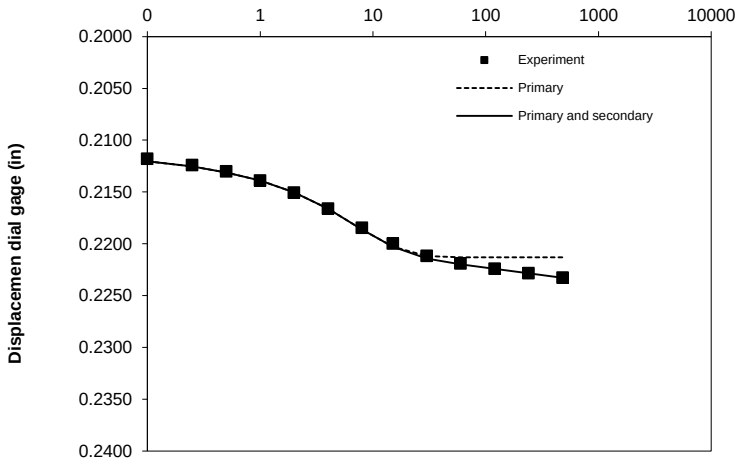
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
8000.0	*0.00*	0.20912	0.21118	0.21118
	0.10	0.21178	0.21204	0.21204
	0.25	0.21239	0.21254	0.21254
	0.50	0.21300	0.21311	0.21311
	1.00	0.21389	0.21390	0.21390
	2.00	0.21506	0.21503	0.21503
	4.00	0.21661	0.21662	0.21662
	8.00	0.21845	0.21863	0.21863
	15.00	0.21998	0.22030	0.22030
	30.00	0.22117	0.22119	0.22143
	60.00	0.22190	0.22131	0.22198
	120.00	0.22241	0.22131	0.22241
	240.00	0.22284	0.22131	0.22284
	480.00	0.22328	0.22131	0.22328
	490.15	0.22329	0.22131	0.22329

h_0 =	0.56188	in
U_s =	99%	
t_s =	31.42	min
d_s =	0.22121	in
d_0 =	0.21118	in
d_{100} =	0.22131	in
d =	0.27738	in
C_v =	0.0044	in^2/min
r_i =	14.6%	
r_p =	71.5%	
r_s =	13.9%	
Slope =	0.0014	
Intercept =	0.2194	
h_c =	0.5497	in
t_c =	20.35	min
C_{ae} =	0.261%	

Time-Deformation curve for 8000 psf reload



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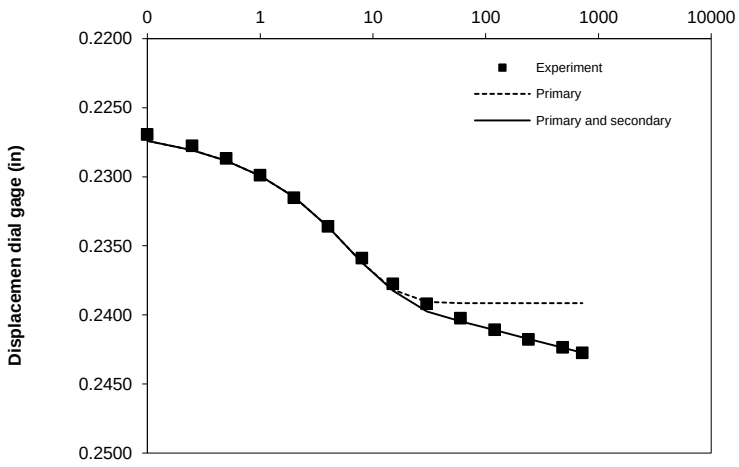
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
16000.0	*0.00*	0.22331	0.22623	0.22623
	0.10	0.22693	0.22740	0.22740
	0.25	0.22776	0.22808	0.22808
	0.50	0.22866	0.22884	0.22884
	1.00	0.22988	0.22992	0.22992
	2.00	0.23152	0.23145	0.23145
	4.00	0.23359	0.23362	0.23362
	8.00	0.23590	0.23620	0.23620
	15.00	0.23775	0.23817	0.23823
	30.00	0.23920	0.23905	0.23975
	60.00	0.24024	0.23914	0.24047
	120.00	0.24109	0.23914	0.24110
	240.00	0.24177	0.23914	0.24174
	480.00	0.24235	0.23914	0.24237
	720.15	0.24275	0.23914	0.24274

h_0 =	0.54769	in
U_s =	99%	
t_s =	27.69	min
d_s =	0.23901	in
d_0 =	0.22623	in
d_{100} =	0.23914	in
d =	0.26916	in
C_v =	0.0047	in^2/min
r_i =	15.3%	
r_p =	67.8%	
r_s =	16.9%	
Slope =	0.0021	
Intercept =	0.2367	
h_c =	0.5319	in
t_c =	13.99	min
C_{ae} =	0.396%	

Time-Deformation curve for 16000 psf reload



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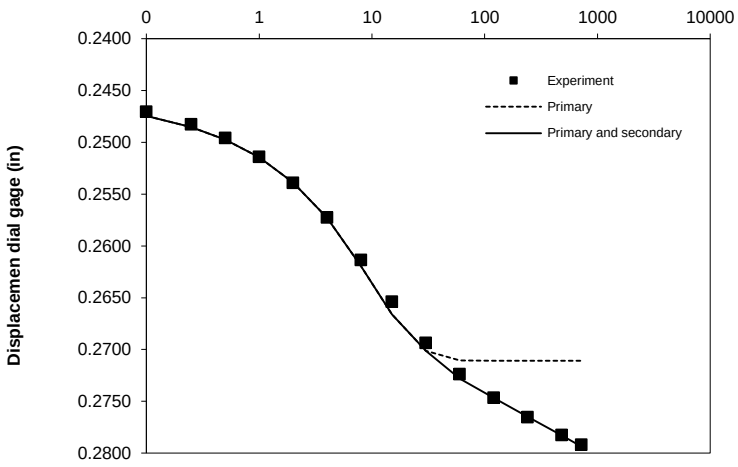
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
32000.0	*0.00*	0.24297	0.24561	0.24561
	0.10	0.24705	0.24745	0.24745
	0.25	0.24827	0.24853	0.24853
	0.50	0.24959	0.24973	0.24973
	1.00	0.25141	0.25145	0.25145
	2.00	0.25392	0.25386	0.25386
	4.00	0.25726	0.25729	0.25729
	8.00	0.26137	0.26194	0.26194
	15.00	0.26540	0.26660	0.26660
	30.00	0.26938	0.27011	0.27011
	60.00	0.27239	0.27104	0.27282
	120.00	0.27465	0.27108	0.27467
	240.00	0.27653	0.27108	0.27648
	480.00	0.27827	0.27108	0.27829
	720.15	0.27919	0.27108	0.27935

h_0 =	0.52803	in
U_s =	99%	
t_s =	43.16	min
d_s =	0.27083	in
d_0 =	0.24561	in
d_{100} =	0.27108	in
d =	0.25633	in
C_v =	0.0027	in^2/min
r_i =	7.5%	
r_p =	72.2%	
r_s =	20.4%	
Slope =	0.0060	
Intercept =	0.2622	
h_c =	0.4999	in
t_c =	30.37	min
C_{ae} =	1.203%	

Time-Deformation curve for 32000 psf load



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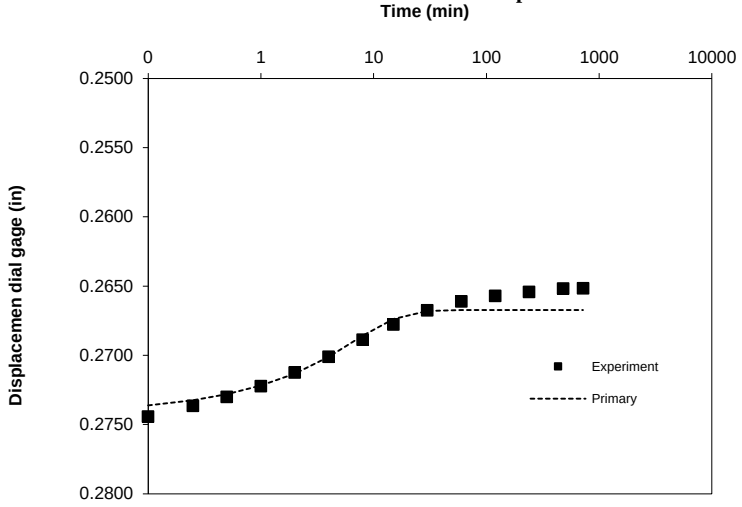
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
8000.0	*0.00*	0.27933	0.27429	0.27429
	0.10	0.27444	0.27363	0.27363
	0.25	0.27365	0.27324	0.27324
	0.50	0.27301	0.27281	0.27281
	1.00	0.27223	0.27219	0.27219
	2.00	0.27126	0.27132	0.27132
	4.00	0.27012	0.27010	0.27010
	8.00	0.26889	0.26859	0.26859
	15.00	0.26779	0.26738	0.26759
	30.00	0.26677	0.26679	0.26727
	60.00	0.26611	0.26672	0.26747
	120.00	0.26572	0.26672	0.26773
	240.00	0.26543	0.26672	0.26800
	480.00	0.26518	0.26672	0.26827
	720.15	0.26517	0.26672	0.26842

h_0 =	0.49167	in
U_s =	99%	
t_s =	29.53	min
d_s =	0.26680	in
d_0 =	0.27429	in
d_{100} =	0.26672	in
d =	0.25025	in
C_v =	0.0038	in^2/min
r_i =	35.6%	
r_p =	53.5%	
r_s =	10.9%	
Slope =	-0.0009	
Intercept =	0.2675	
h_c =	0.5043	in
t_c =	8.57	min
C_{ae} =	0.175%	

Time-Deformation curve for 8000 psf unload



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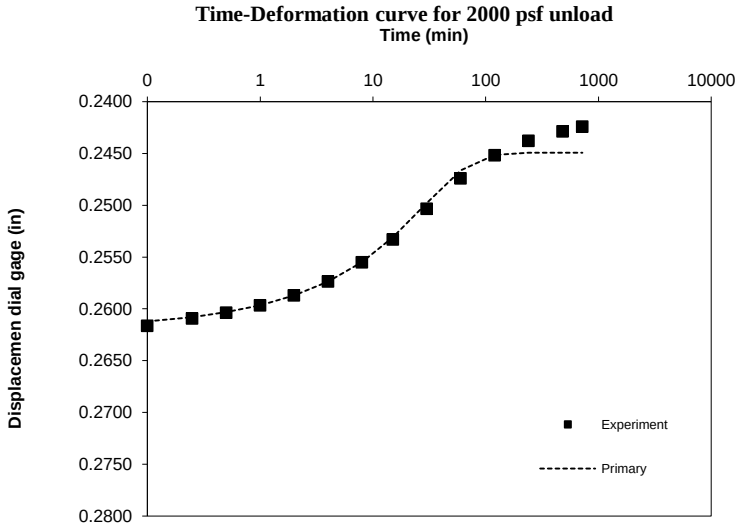
Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
2000.0	*0.00*	0.26513	0.26193	0.26193
	0.10	0.26164	0.26121	0.26121
	0.25	0.26093	0.26079	0.26079
	0.50	0.26038	0.26032	0.26032
	1.00	0.25965	0.25965	0.25965
	2.00	0.25870	0.25870	0.25870
	4.00	0.25737	0.25737	0.25737
	8.00	0.25552	0.25548	0.25548
	15.00	0.25330	0.25309	0.25309
	30.00	0.25035	0.24976	0.24976
	60.00	0.24742	0.24662	0.24662
	120.00	0.24518	0.24513	0.24513
	240.00	0.24378	0.24493	0.24591
	480.00	0.24287	0.24493	0.24706
	720.15	0.24242	0.24493	0.24774

h_0 =	0.50587	in
U_s =	99%	
t_s =	125.88	min
d_s =	0.24510	in
d_0 =	0.26193	in
d_{100} =	0.24493	in
d =	0.25879	in
C_v =	0.0009	in^2/min
r_i =	14.4%	
r_p =	76.4%	
r_s =	9.2%	
Slope =	-0.0038	
Intercept =	0.2531	
h_c =	0.5261	in
t_c =	132.94	min
C_{ae} =	0.728%	



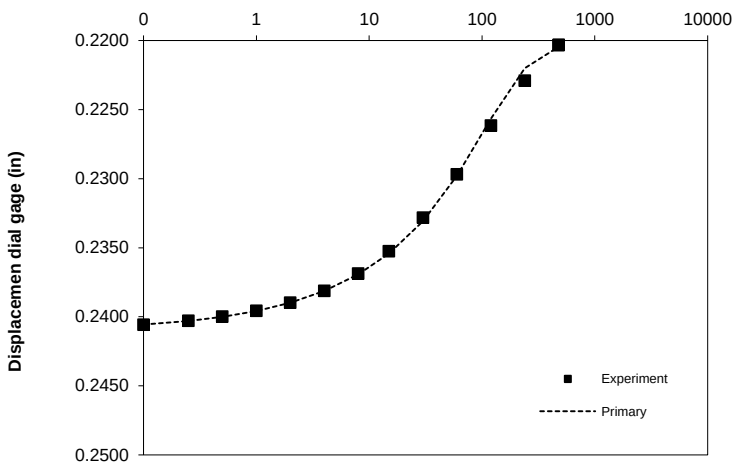
AASHTO ACCREDITATION PROGRAM

1145 North Main Street
Lombard, Illinois 60148
Phone (630) 953-9928
www.wangeng.com

Applied stress	Elapsed time	Dial	Fitted Primary	Fitted Primary and Secondary
psf	min	in	in	in
500.0	*0.00*	0.24192	0.24103	0.24103
	0.10	0.24057	0.24057	0.24057
	0.25	0.24029	0.24030	0.24030
	0.50	0.23999	0.24000	0.24000
	1.00	0.23957	0.23958	0.23958
	2.00	0.23898	0.23898	0.23898
	4.00	0.23812	0.23812	0.23812
	8.00	0.23687	0.23692	0.23692
	15.00	0.23526	0.23541	0.23541
	30.00	0.23283	0.23308	0.23308
	60.00	0.22970	0.22978	0.22978
	120.00	0.22617	0.22567	0.22567
	240.00	0.22291	0.22200	0.22200
	480.00	0.22033	0.22045	0.22051
	480.15	0.22033	0.22045	0.22051

h_0 =	0.52908	in
U_s =	99%	
t_s =	463.31	min
d_s =	0.22048	in
d_0 =	0.24103	in
d_{100} =	0.22028	in
d =	0.27017	in
C_v =	0.0003	in^2/min
r_i =	4.1%	
r_p =	96.1%	
r_s =	-0.2%	
Slope =	-0.0097	
Intercept =	0.2462	
h_c =	0.5507	in
t_c =	473.20	min
C_{ae} =	1.763%	

Time-Deformation curve for 500 psf unload



Wang Engineering

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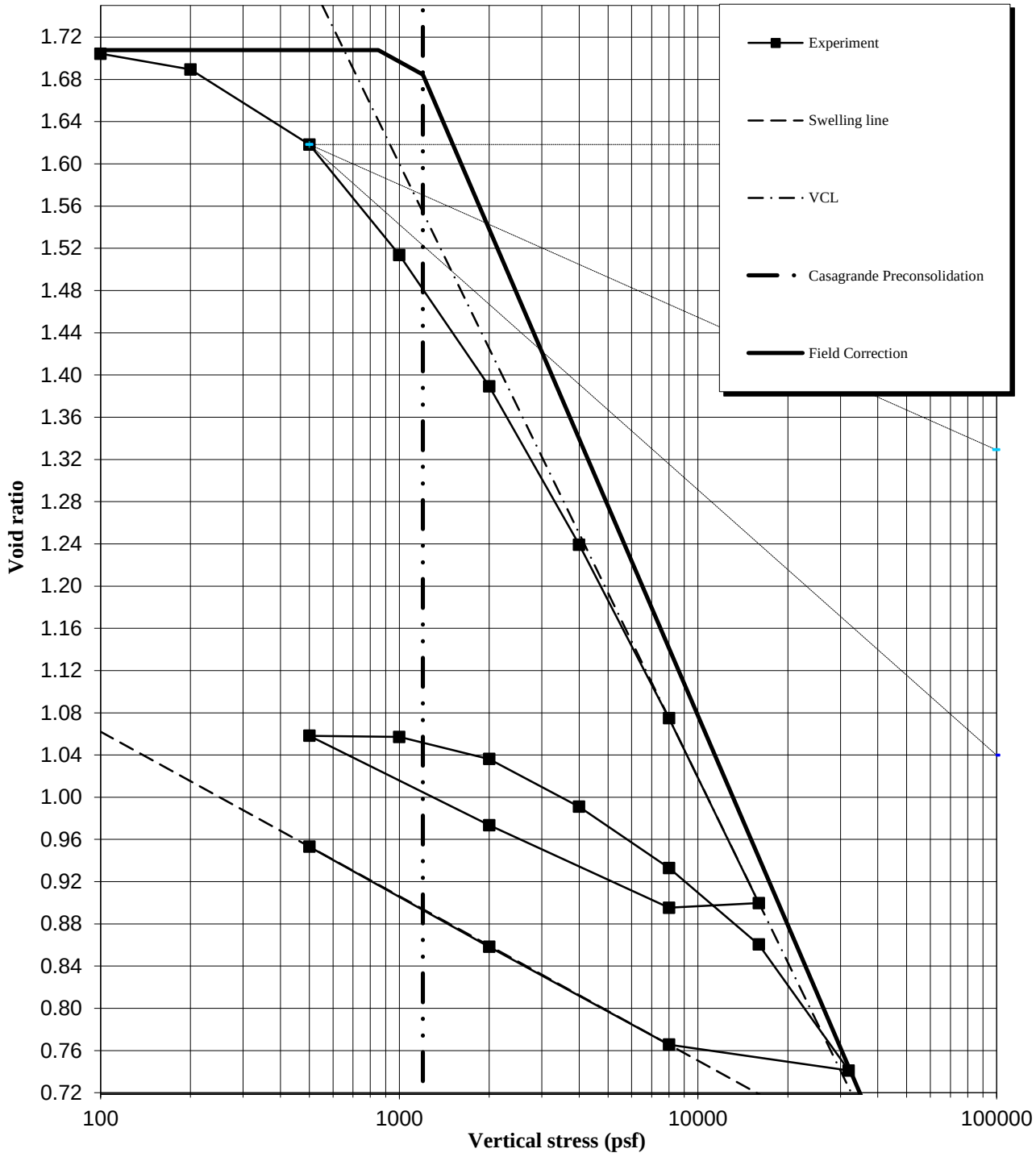
CONSOLIDATION CURVE

Boring R-04ST, ST#1, 8 to 10 feet



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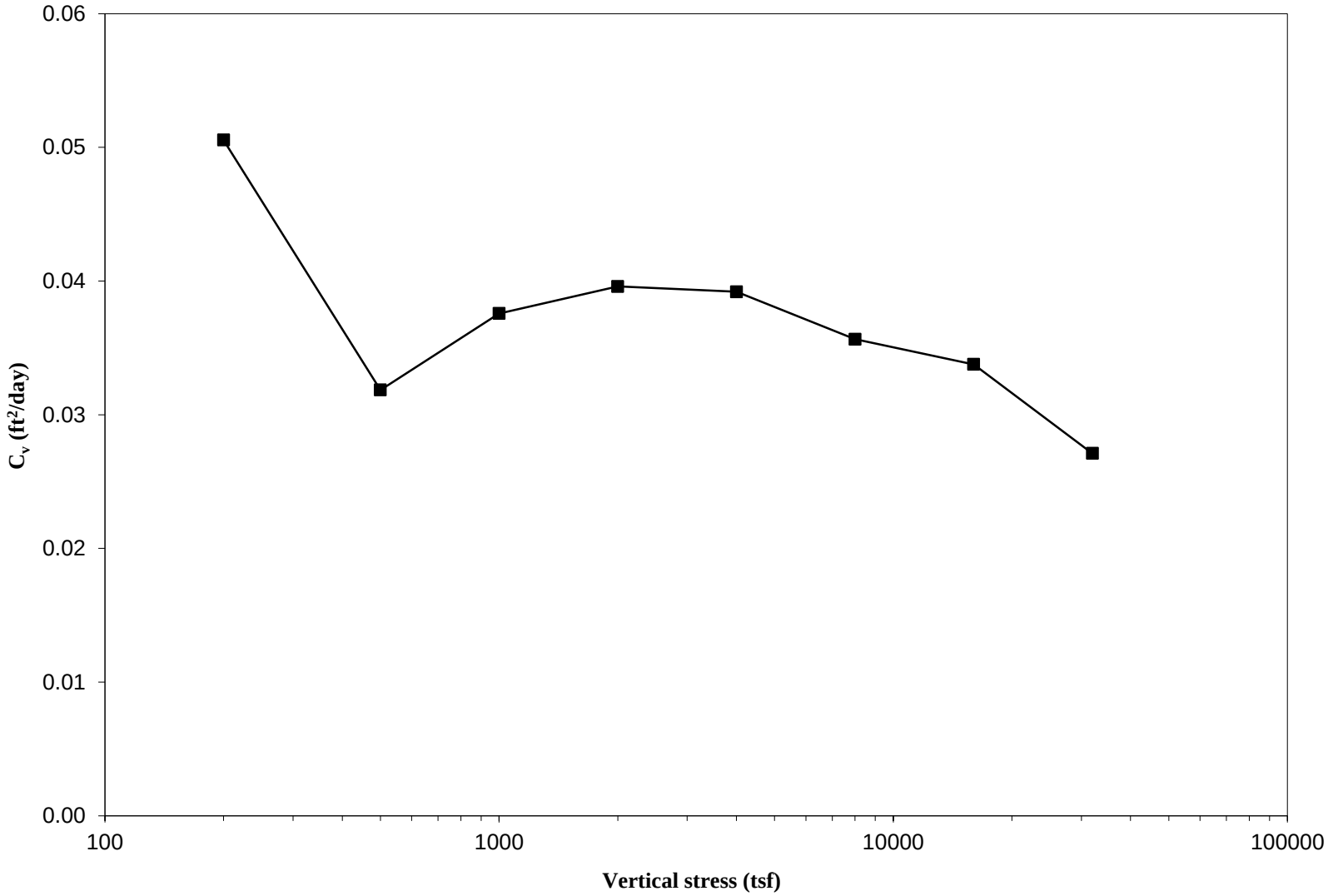
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Boring R-04ST, ST#1, 8 to 10 feet



AASHTO R18

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Phone (630) 953-9928
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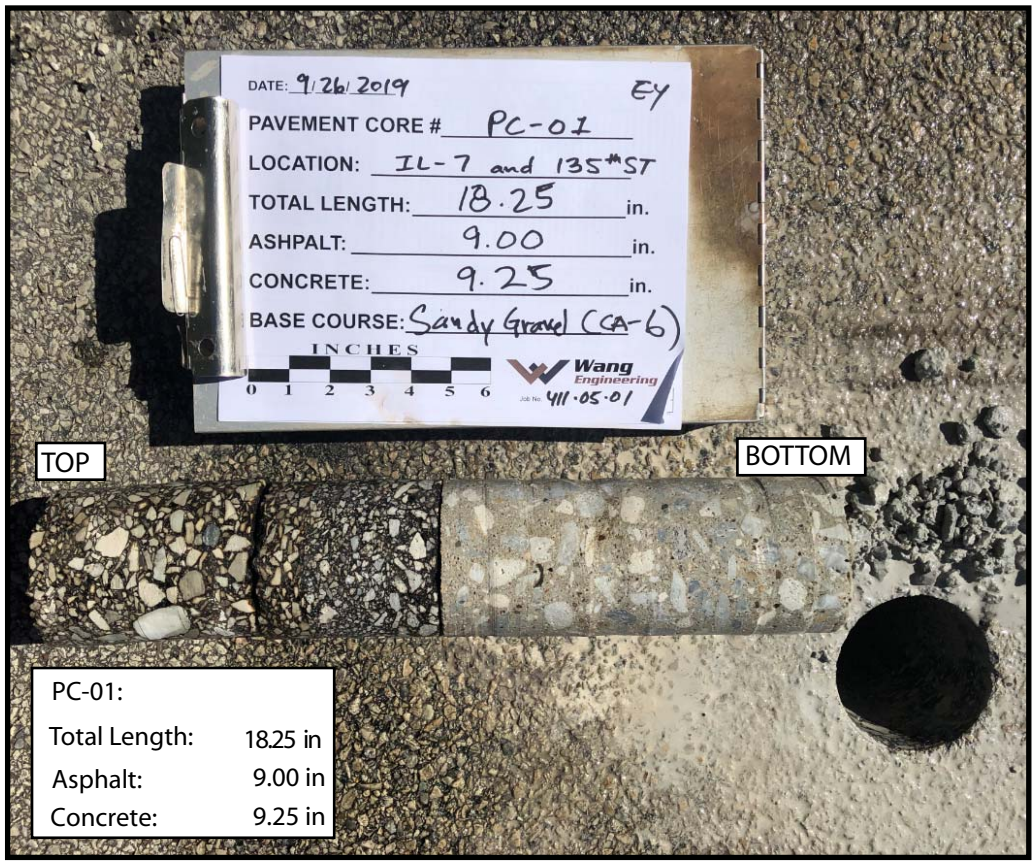
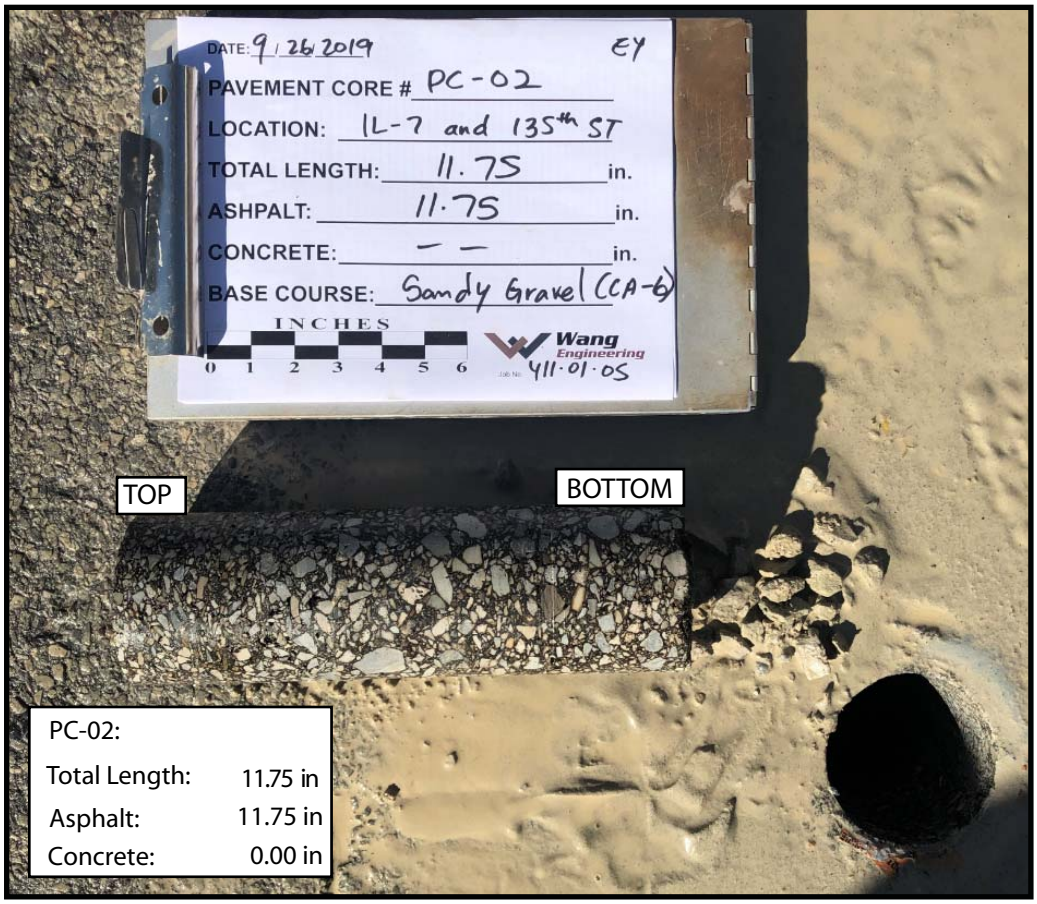
APPENDIX C



PC-01:	
Total Length:	18.25 in
Asphalt:	9.00 in
Concrete:	9.25 in



PC-02:	
Total Length:	11.75 in
Asphalt:	11.75 in
Concrete:	0.00 in

PAVEMENT CORE PHOTOS: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-1	DRAWN BY: J. Bensen CHECKED BY: C. Marin

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Lombard, IL 60148
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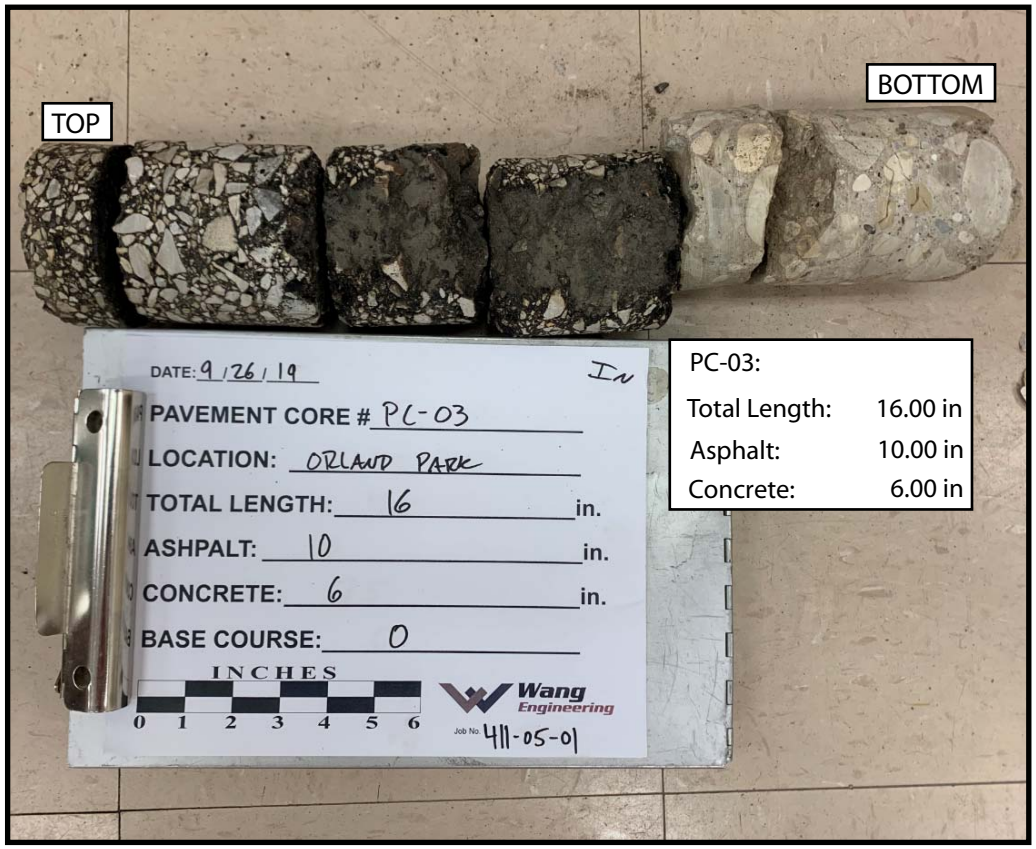
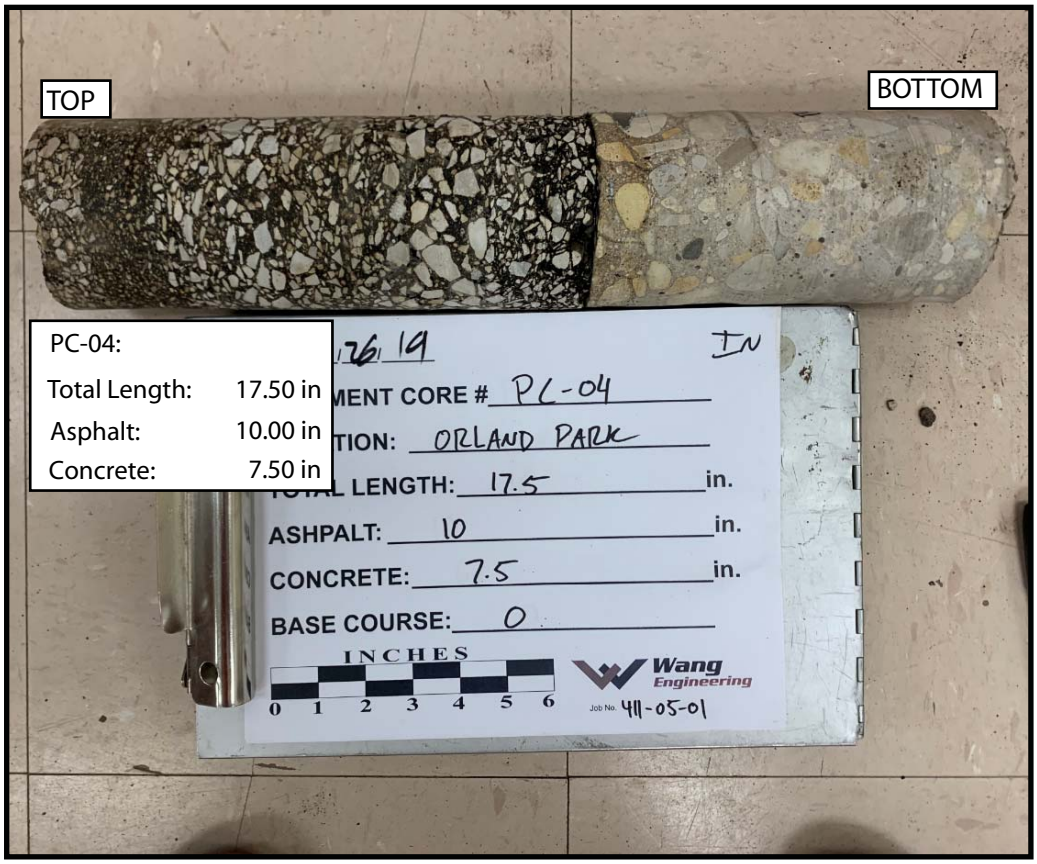
FOR JAMES J. BENES & ASSOCIATES, INC.	411-05-01





PAVEMENT CORE PHOTOS: IL 7 SOUTHWEST HIGHWAY,
131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-2	DRAWN BY: J. Bensen CHECKED BY: C. Marin

Wang Engineering
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Lombard, IL 60148
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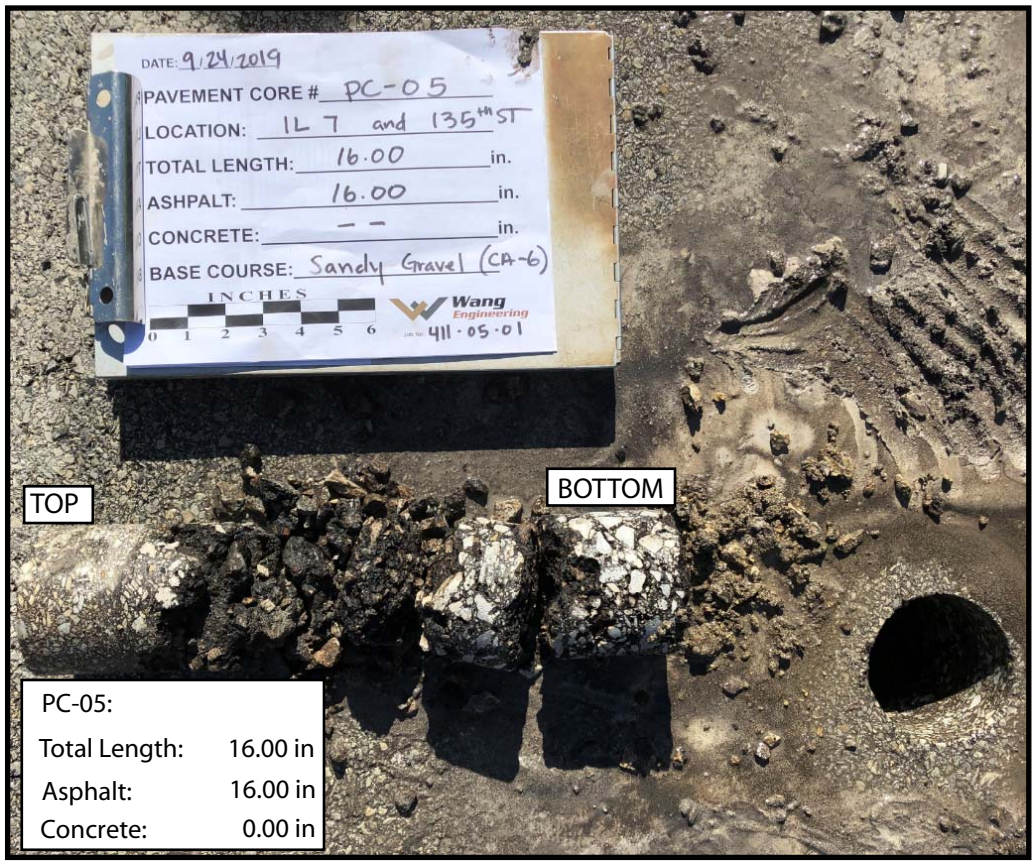
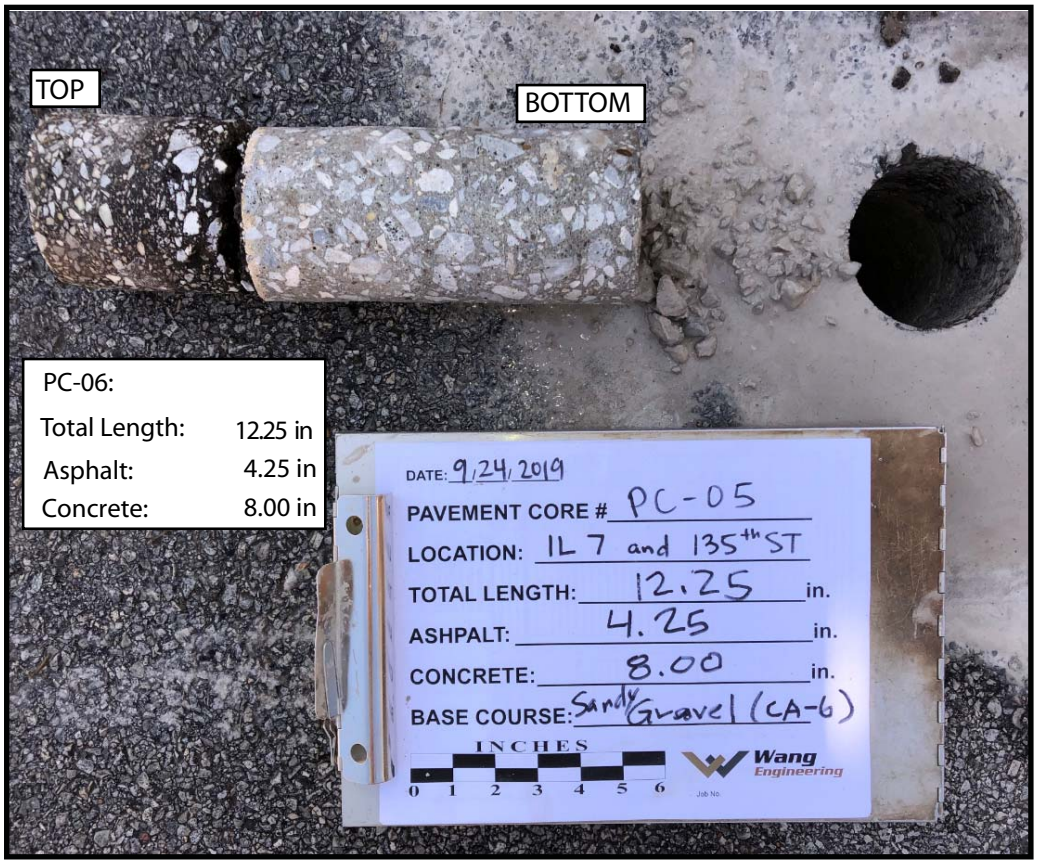
FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01



PC-05:

Total Length:	16.00 in
Asphalt:	16.00 in
Concrete:	0.00 in



PC-06:

Total Length:	12.25 in
Asphalt:	4.25 in
Concrete:	8.00 in

PAVEMENT CORE PHOTOS: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-3	DRAWN BY: J. Bensen CHECKED BY: C. Marin

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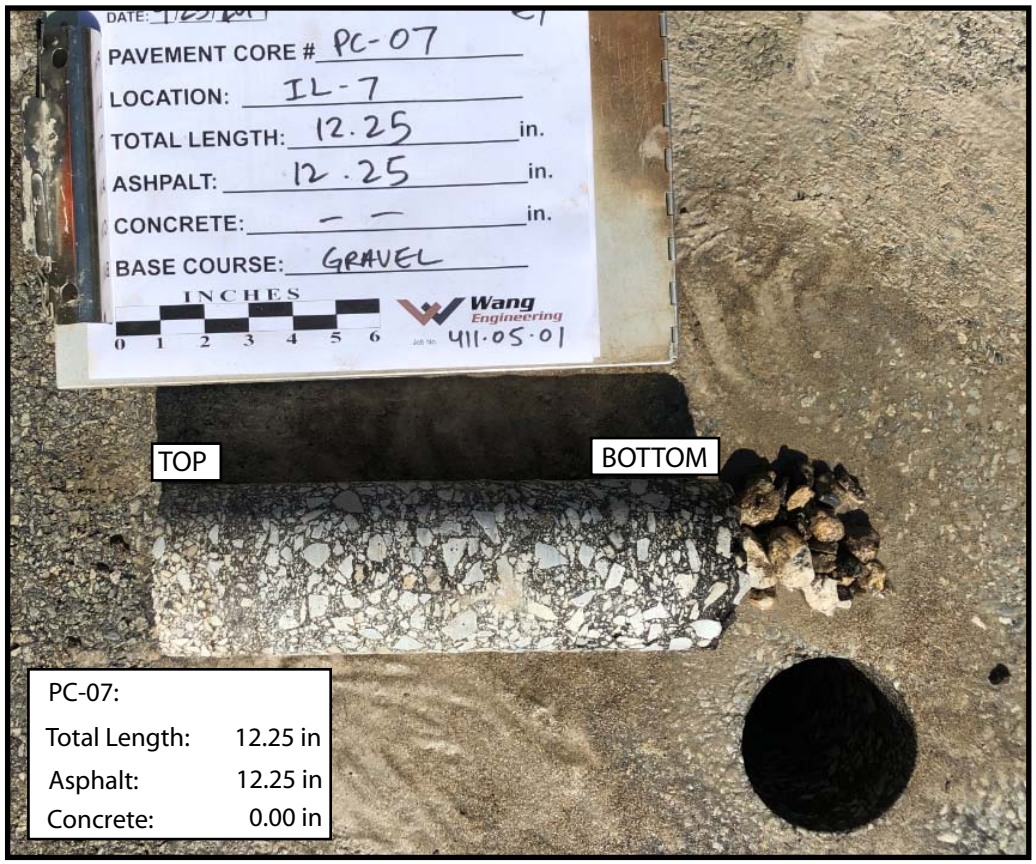
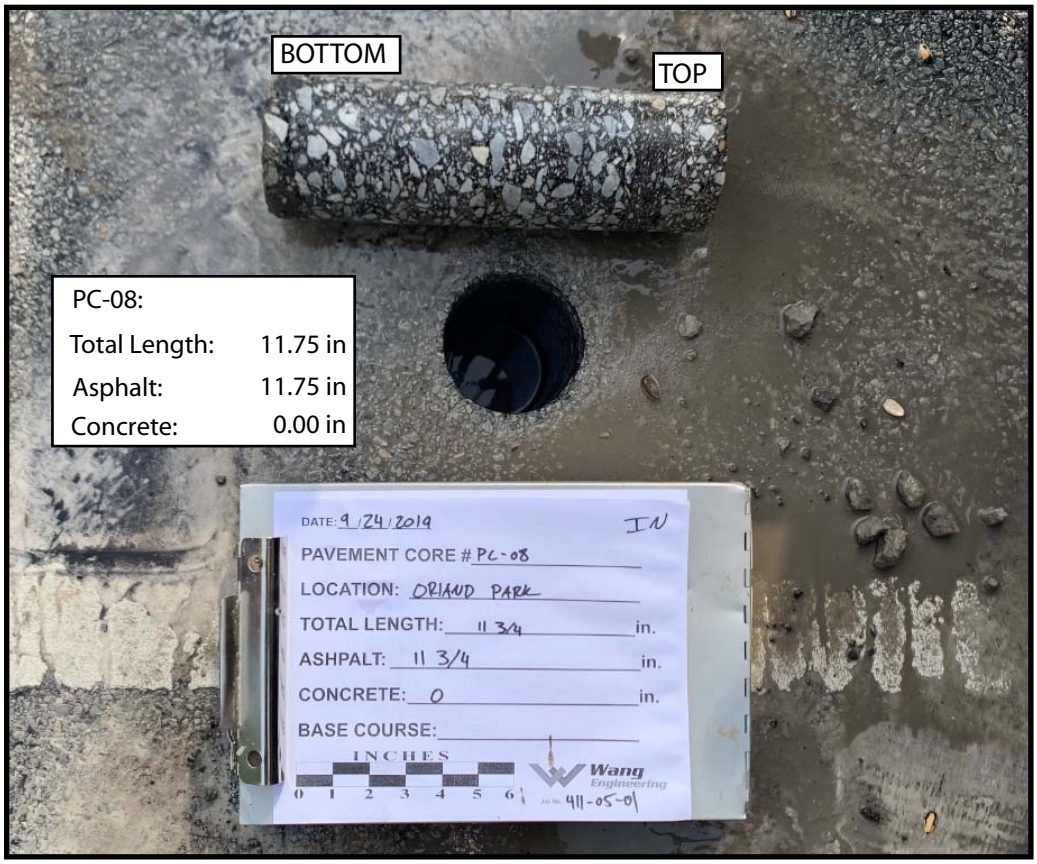
FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01





PAVEMENT CORE PHOTOS: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-4	DRAWN BY: J. Bensen CHECKED BY: C. Marin

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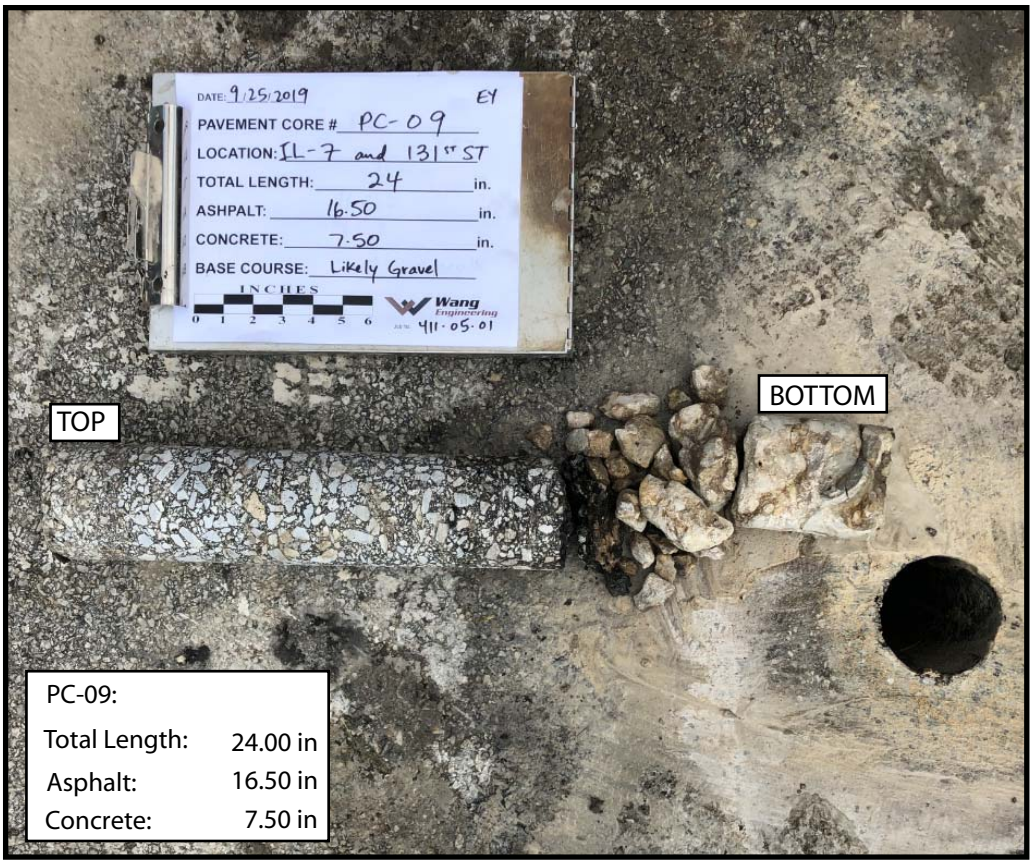
FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01



PAVEMENT CORE PHOTOS: IL 7 SOUTHWEST HIGHWAY, 131ST STREET TO 135TH STREET, COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-5	DRAWN BY: J.Bensen CHECKED BY: C. Marin

Wang Engineering

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Lombard, IL 60148
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FOR JAMES J. BENES & ASSOCIATES, INC. | 411-05-01

Wang Engineering
1145 North Main Street
Lombard, Illinois 60148
Phone (630) 953-9928
www.wangeng.com

APPENDIX D

APPENDIX D
BORING AND PAVEMENT CORE LOCATION PLANS AND SOIL PROFILES

ROADWAY GEOTECHNICAL REPORT

IL ROUTE 7 IMPROVEMENTS
FROM 131ST STREET TO 135TH STREET
VILLAGE OF ORLAND PARK
COOK COUNTY, ILLINOIS

FOR

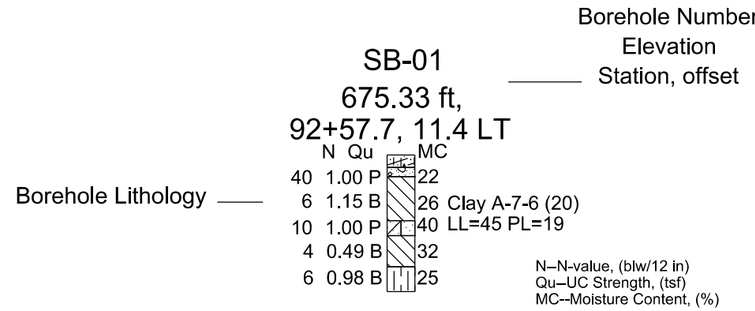
FOR JAMES J. BENES & ASSOCIATES, INC.
950 WARRENVILLE ROAD, SUITE 101
LISLE, IL 60532

Prepared by
WANG ENGINEERING
1145 NORTH MAIN STREET
LOMBARD, IL 60148

APRIL 6, 2022
WANG PROJECT 411-05-03

LEGEND:

Soil Boring & Pavement Core



Water Level Reading at time of drilling.

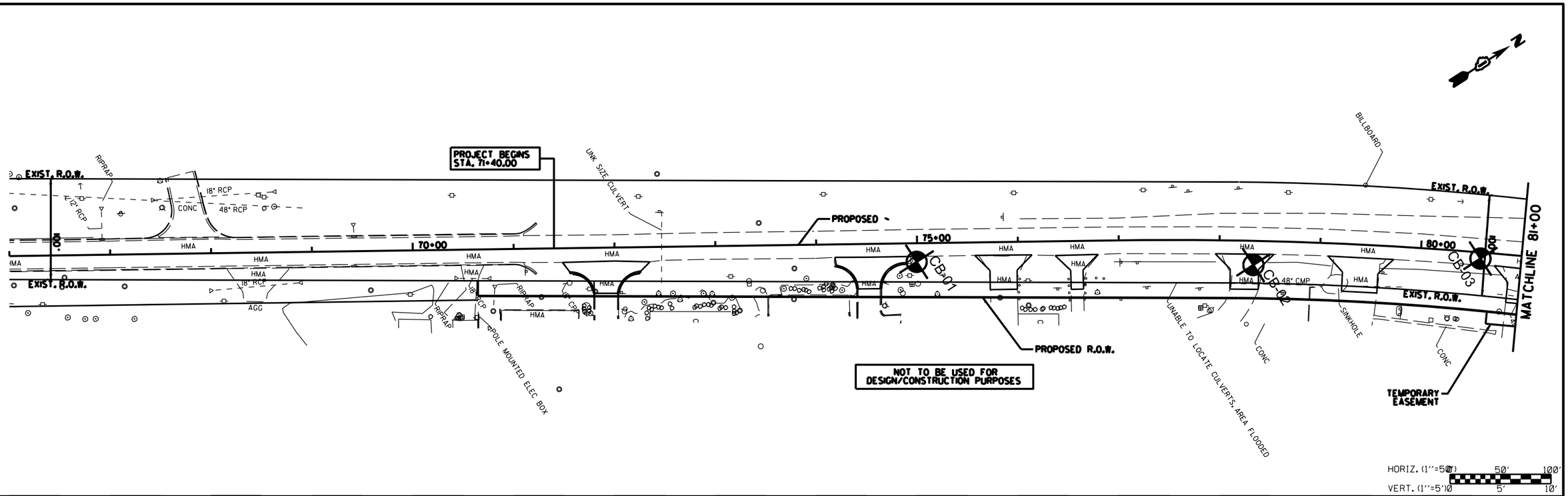
Water Level Reading 24-hr after drilling or at end of drilling

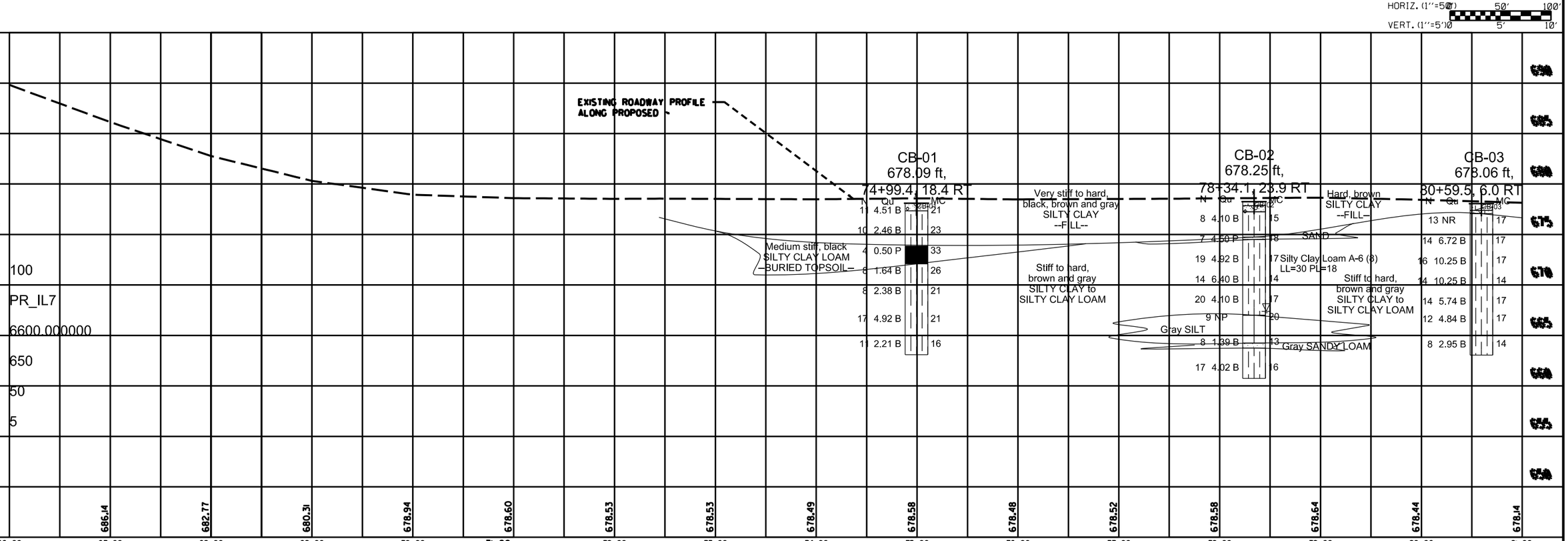
Lithology Graphics

- Topsoil
- IDH Sand, Sandy Loam
- IDH Clay
- Gravelly sand, sandy gravel
- IDH Loam
- IDH Clay Loam
- IDH Silt, Silty Loam
- Pavement
- IDH Silty Clay, Silty Clay Loam
- Crushed stone

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
R.T. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
BM.NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE





USER NAME = $USER$	DESIGNED - BLG	REVISED -	
PLOT SCALE = $SCALE$	DRAWN - JY	REVISED -	
PLOT DATE = $DATE$	CHECKED - BDH	REVISED -	
	DATE - 05/05/2020	REVISED -	

JAMES J. BENES & ASSOCIATES
CONSULTING ENGINEERS
1011 WARRENVILLE ROAD, SUITE 420
LISLE, IL 60532
(630) 719-7570

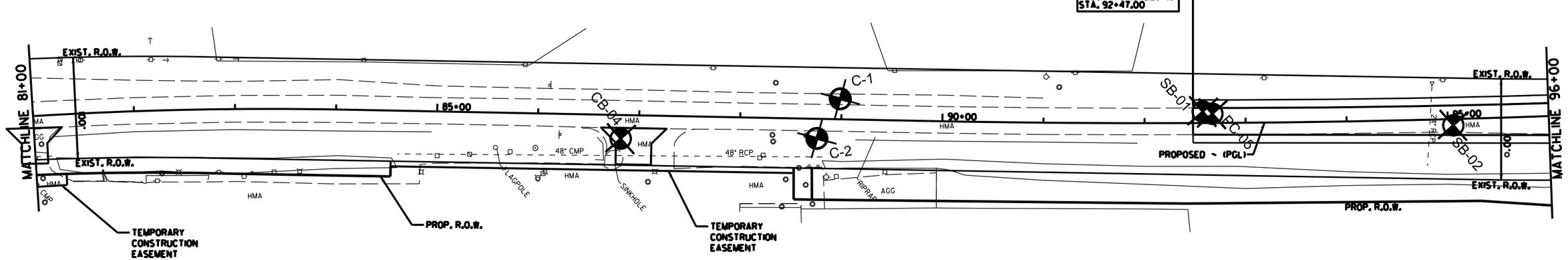
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL PLAN AND PROFILE
IL RTE 7 - SOUTH OF 135th ST TO 131st ST

SCALE: 1"=50' | SHEET OF SHEETS | STA. 66+00 TO STA. 81+00

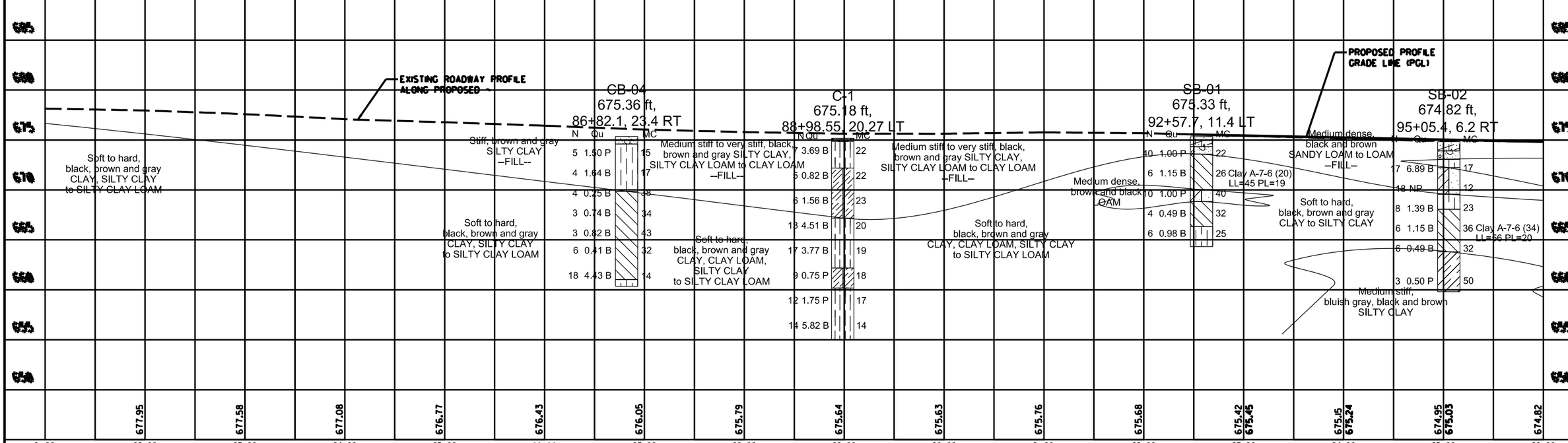
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
6278	2019-001-R	COOK		
		CONTRACT NO. 62H82		
	ILLINOIS FED. AID PROJECT			

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT.-OF-WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE



NOT TO BE USED FOR DESIGN/CONSTRUCTION PURPOSES

PROFILE
SURVEYED
PLOTTED
ALIGNMENT CHECKED
BM.-NOTED
STRUCTURE NO(TA)TNS CHKD
NOTE BOOK
NO.
BY
DATE



JAMES J. BENES & ASSOCIATES
CONSULTING ENGINEERS
1011 WARRENVILLE ROAD, SUITE 420
LISLE, IL 60532
(630) 719-7570

USER NAME = $USER$	DESIGNED - BLG	REVISED -	
	DRAWN - SMP	REVISED -	
PLOT SCALE = $SCALE$	CHECKED - BDH	REVISED -	
PLOT DATE = $DATE$	DATE - 05/05/2020	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL PLAN AND PROFILE
IL RTE 7 - SOUTH OF 135th ST TO 131st ST

SCALE: 1"=50' | SHEET OF SHEETS | STA. 81+00 TO STA. 96+00

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2378	2019-001-R	COOK		
		CONTRACT NO. 62H82		
		ILLINOIS FED. AID PROJECT		

PLAN

SURVEYED
PLOTTED
ALIGNMENT CHECKED
R.T. OF WAY CHECKED
CADD FILE NAME

NOTE BOOK
NO.

DATE | BY

MATCHLINE 96+00

EXIST. R.O.W.

RECONSTRUCTION BEGINS
STA. 97+24.91

100

EXIST. R.O.W.

PROP. R.O.W.

12'

36'

100+00

HMA

PC-06/SB-03

PROP. R.O.W.

SB-04

CB-05

PC-01

SB-05

100

PROP. R.O.W.

RB-01

DETECTOR LOOP

HMA

PROPOSED - (PGL)

CB-01

RB-02

CB-06

DETECTOR LOOP

PC-02/SB-06

- STA. 102+15.08 (IL ROUTE 7) =
- STA. 12+04.79 (135th STREET)

GARAGE

TEMPORARY CONSTRUCTION EASEMENT

PROP. R.O.W.

HMA

4' X 6' BOX CULVERT

RIPRAP

HMA

EXIST. R.O.W.

PROP. R.O.W.

100+00

R-01

R-02

RB-03

R-03

R-04

R-04 ST

RB-04

R-05

100

MATCHLINE 111+00

HMA

48" RCP

CB-08

CB-09

RIPRAP

EXIST. R.O.W.

PROP. R.O.W.

15" RCP

NOT TO BE USED FOR
DESIGN/CONSTRUCTION PURPOSES

N

EXISTING ROADWAY PROFILE ALONG PROPOSED -

PROPOSED PROFILE GRADE LINE (PGL)

SE-03
674.34 ft,
98+03.5, 1.8 LT

SB-04
674.07 ft,
100+96.2, 27.5 RT

RB-01
672.09 ft,
102+34.5, 46.8 LT

RB-02
672.24 ft,
103+92.3, 4.1 LT

R-01
671.96 ft,
105+09.96, 2.53 LT

RB-03
671.25 ft,
106+82.5, 2.4 RT

R-03
670.93 ft,
107+68.44, 0.97 RT

CB-08
669.84 ft,
109+05.6, 48.8 RT

CB-10
670.76 ft,
110+34.5, 29.3 RT

N	Qu	MC
9	3.77 B	16
15	5.47 B	17
15	1.31 B	17
7	1.23 B	16
7	1.07 B	15
13	3.50 P	20
6	NR	12
5	1.00 P	22
5	1.31 B	23
8	1.72 B	20
11	2.05 B	20
8	1.23 B	17
11	0.74 B	12
11	2.46 B	15
9	1.64 B	17
10	0.82 B	16
10	1.23 B	14
13	8.04 B	17
9	2.95 B	18
10	6.64 B	15
7	0.74 B	14
11	1.75 P	28
6	NP	8
13	8.04 B	17
6	1.97 B	18
8	2.13 B	15
9	1.97 B	18
14	2.38 B	17
10	3.77 B	29
4	1.00 P	43
3	1.72 B	26
22	NP	4
4	1.00 P	21
3	0.74 B	39
3	0.66 B	40
3	0.49 B	93
3	0.16 B	66
2	0.41 B	29
1	0.33 B	53
1	< 0.25 P	74
1	0.16 B	79
9	NP	15
15	1.15 S	12
15	4.76 B	20
5	1.23 B	28
4	0.90 B	55
2	0.33 B	71
2	< 0.25 P	83
1	0.16 B	80
9	NP	13
5	< 0.25 P	61
6	1.72 B	26
6	3.12 B	21
11	2.87 B	22
6	0.82 B	23
6	1.23 B	17

Stiff to hard, black and brown SILTY CLAY, CLAY LOAM –FILL–

Soft to hard, black, brown and gray CLAY, SILTY CLAY to CLAY LOAM

Brown SAND

Stiff to hard brown SILTY CLAY to CLAY LOAM --FILL--

Stiff, brown and gray SILTY CLAY to CLAY LOAM

Stiff, black SILTY CLAY --BURIED TOPSOIL--

Stiff to very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM

Medium stiff to hard, brown SILTY CLAY to CLAY LOAM –FILL–

Loose, brown GRAVELLY SAND to SANDY GRAVEL

Stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM

Medium stiff, brown and gray SILTY LOAM to

Medium stiff to very stiff, black, brown and gray SILTY CLAY LOAM, SILTY CLAY, CLAY LOAM, –FILL–

Silty Clay A-6 (9) LL=31 PL=18

Medium dense, black SANDY LOAM –FILL–

SILTY LOAM

Stiff to hard, brown and gray

Stiff to hard, black and gray CLAY LOAM to SILTY CLAY LOAM –FILL–

Very soft to medium stiff, dark brown and black organic SILTY CLAY, and PEAT

Medium dense, gray SANDY GRAVEL --FILL–

Gray SAND

Medium stiff, black and gray organic SILTY CLAY

Stiff, black SILTY CLAY --BURIED TOPSOIL--

Soft to medium stiff, black and gray CLAY to SILTY CLAY

Very soft to medium stiff, black, brown and gray CLAY to organic SILTY CLAY

Stiff to hard, black and brown SILTY CLAY to SILTY CLAY LOAM –FILL–

Loose, black SANDY GRAV –FILL–

Very so black CL to SILTY C

21 Silty Clay LL=41 PL

23 LOAM

Medium brown

674.82 | 674.62 674.62 | 674.38 674.41 | 674.12 674.20 | 673.82 674.00 | 673.57 673.79 | 673.57 673.58 | 672.88 673.28 | 672.60 672.88 | 672.10 672.48 | 671.47 672.31 | 671.22 672.69 | 670.77 672.99 | 670.56 672.59 | 670.59 670.99 | 670.61

96+00 | 97+00 | 98+00 | 99+00 | 100+00 | 101+00 | 102+00 | 103+00 | 104+00 | 105+00 | 106+00 | 107+00 | 108+00 | 109+00 | 110+00 | 111+00

PROFILE

SURVEYED
PLOTTED
ALIGNMENT CHECKED
BM. NOTED
STRUCTURE NOTATNS CHKD

NOTE BOOK
NO.

DATE | BY

JAMES J. BENES & ASSOCIATES
CONSULTING ENGINEERS
1011 WARRENVILLE ROAD, SUITE 420
LISLE, IL 60532
(630) 719-7570

USER NAME = $USER$	DESIGNED - BLG	REVISED -	
PLOT SCALE = $SCALE$	DRAWN - SMP	REVISED -	
PLOT DATE = $DATE$	CHECKED - BDH	REVISED -	
	DATE - 05/05/2020	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL PLAN AND PROFILE
IL RTE 7 - SOUTH OF 135th ST TO 131st ST

SCALE: 1"=50' | SHEET OF SHEETS | STA. 96+00 TO STA. 111+00

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
6378	2019-001-R	COOK		
		CONTRACT NO. 62H82		
	ILLINOIS FED. AID PROJECT			

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
NOTE BOOK
NO.
R.O.W. CHECKED
CADD FILE NAME
DATE
BY

PROFILE
SURVEYED
PLOTTED
BASELINE CHECKED
NOTE BOOK
BAR NOTED
NO.
STRUCTURE NOTATNS CHKD
DATE
BY

MATCHLINE 111+00

MATCHLINE 126+00

EXIST. R.O.W.

PROP. R.O.W.

TEMPORARY CONSTRUCTION EASEMENT

PROPOSED - (PGL)

HMA

CONC

LIGHT

FLAGPOLE

GARAGE

AGG

COVERED CISTERN WITH PUMP HOUSE

4' X 8' BOX CULVERT

12" RCP
15" RCP
12" RCP

24" RCP

4" IPC
12" PVC
4" PVC

8" PVC

12" RCP

12" DIP

30" CMP

R-06

SB-07/PC-07

RB-05

RB-06

CB-11

CB-12

RB-07/PC-08

R-07

R-08

RB-08

DB-01

115+00

120+00

125+00

NOT TO BE USED FOR DESIGN/CONSTRUCTION PURPOSES

EXISTING ROADWAY PROFILE ALONG PROPOSED -

PROPOSED PROFILE GRADE LINE (PGL)

edium stiff to very stiff, black, brown and gray TY CLAY LOAM, CLAY LOAM to SILTY CLAY EL –FILL–

ft, AY LAY

A-7-6 (20) =19

stiff to hard and gray

R-06
670.92 ft,
111+98.73, 6.04 RT

SB-07/PC-07
670.82 ft,
112+97.5 25.9 RT

Very stiff to hard, brown and gray SILTY CLAY to

Very stiff, black SILTY CLAY –BURIED TOPSOIL–

Very stiff to hard, brown and gray SILTY CLAY

Stiff, brown and gray SILTY LOAM to SILTY CLAY LOAM

RB-05
670.73 ft,
115+29.4, 3.3 RT

Stiff to hard, black, brown and gray CLAY LOAM to SILTY CLAY LOAM –FILL–

Medium stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM

Medium dense, gray LOAM to SANDY LOAM

RB-06
670.44 ft,
117+78.5, 9.5 RT

Medium stiff to hard, black, brown and gray SILTY CLAY, CLAY LOAM to SILTY CLAY LOAM –FILL–

Soft to medium stiff, gray CLAY to SILTY CLAY

Medium stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM

CB-11
670.44 ft,
120+02.2, 20.9 RT

Brown SAND

Very soft to medium stiff, black to brown SILTY CLAY

Medium stiff to hard, black and brown CLAY to SILTY CLAY –FILL–

Stiff to very stiff, brown and gray SILTY CLAY

RB-07/PC-08
670.53 ft,
122+49.3, 5.6 RT

23 Clay A-6 (12) LL=34 PL=18

Stiff to very stiff, brown and gray SILTY CLAY

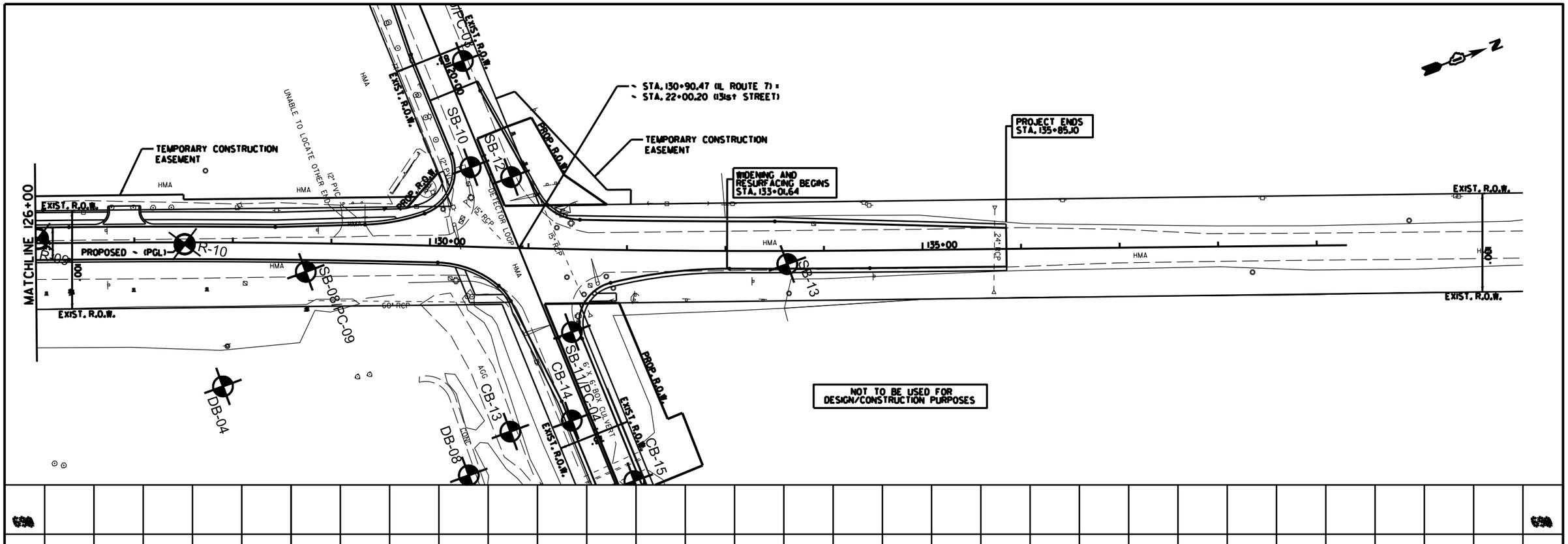
Very stiff to hard, brown and gray CLAY, CLAY LOAM, SILTY CLAY to SILTY CLAY LOAM –FILL–

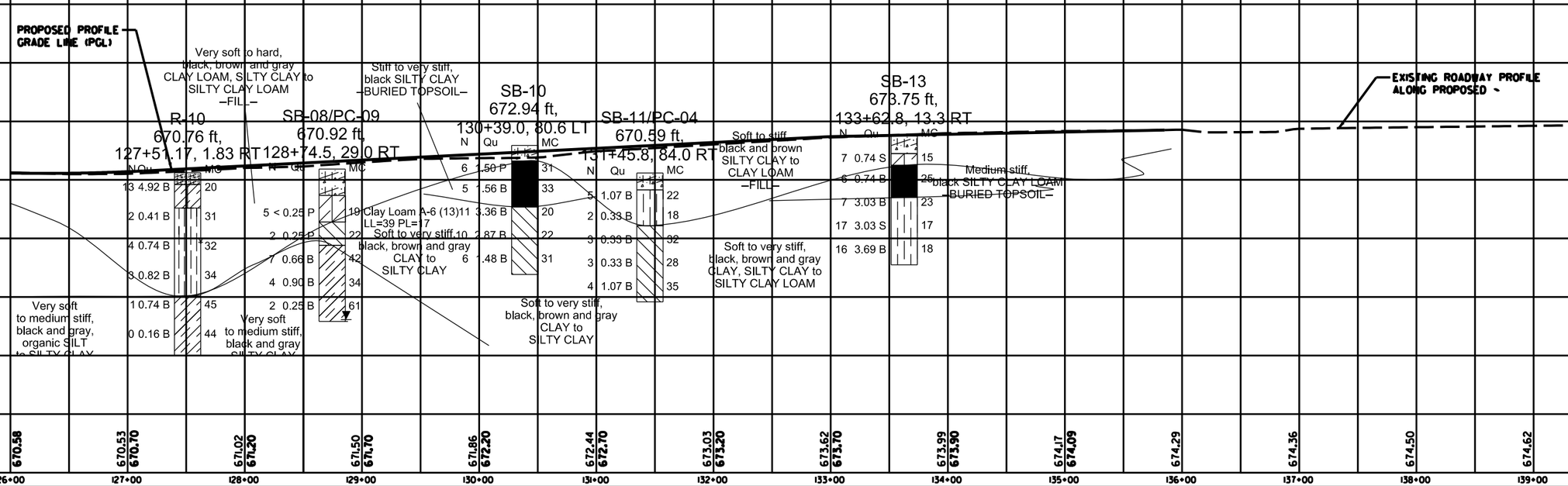
R-08
670.56 ft,
124+35.33, 2.54 LT

Medium stiff to stiff, black, brown and gray CLAY, SILTY CLAY to SILTY CLAY LOAM

RB-08
670.7 ft,
125+45.3 4.1 RT

| | | |





PLAN — SURVEYED — PLOTTED — GRADES CHECKED — QUANTITIES CHECKED — STRUCTURE NOTATNS CHKD — NOTE BOOK — NO. — BY — DATE

PROFILE — SURVEYED — PLOTTED — GRADES CHECKED — QUANTITIES CHECKED — STRUCTURE NOTATNS CHKD — NOTE BOOK — NO. — BY — DATE

JAMES J. BENES & ASSOCIATES
CONSULTING ENGINEERS
1011 WARRENVILLE ROAD, SUITE 420
LISLE, IL 60532
(630) 719-7570

USER NAME = $USER$ | PLOT SCALE = $SCALE$ | PLOT DATE = $DATE$

DESIGNED	-	BLG	REVISED -
DRAWN	-	SMP	REVISED -
CHECKED	-	BDH	REVISED -
DATE	-	05/05/2020	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL PLAN AND PROFILE
IL RTE 7 - SOUTH OF 135th ST TO 131st ST

SCALE: 1"=50' | SHEET OF SHEETS | STA. 126+00 TO STA. 139+31

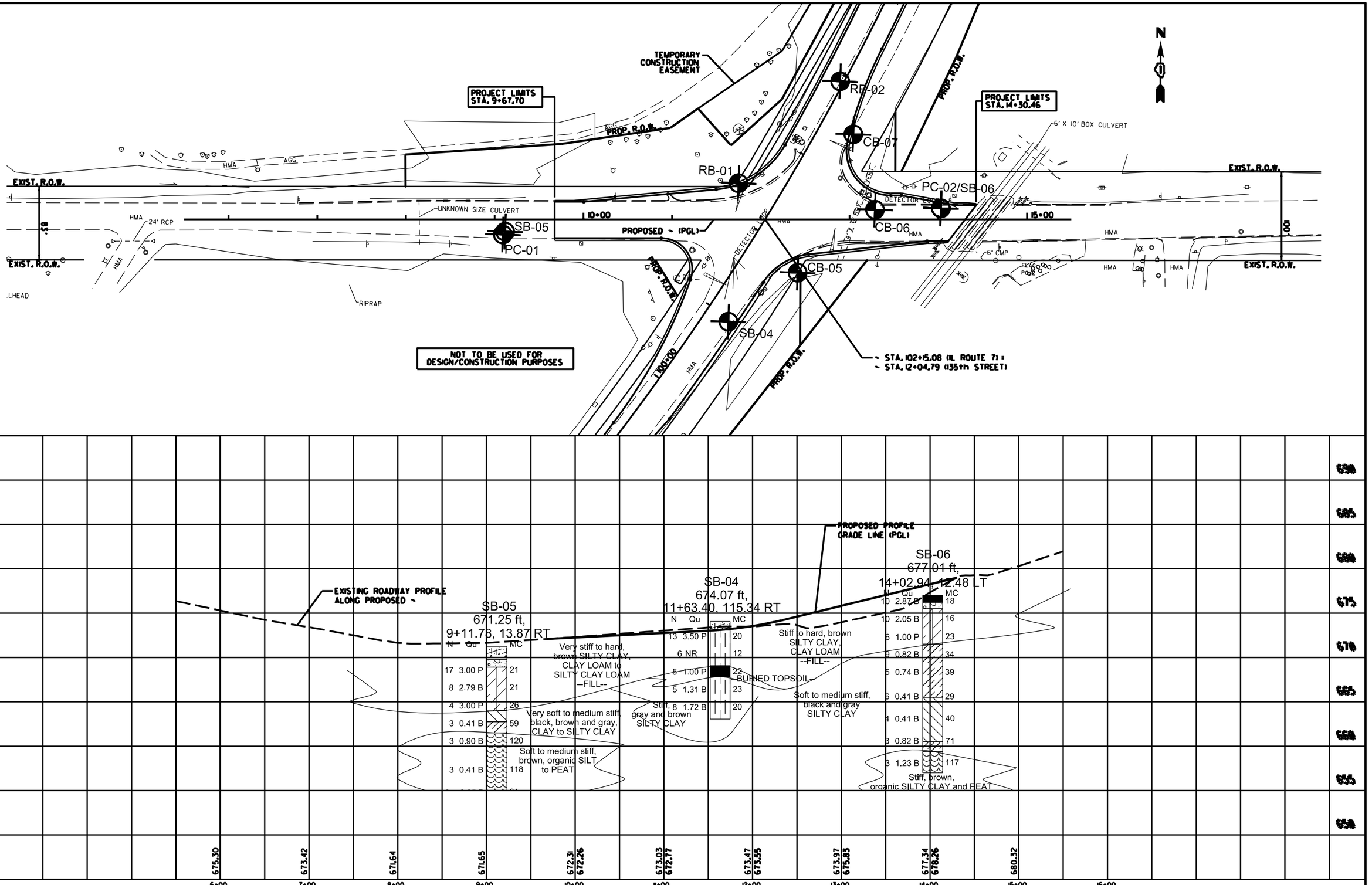
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4578	2019-001-R	COOK		
		CONTRACT NO. 62H82		
	ILLINOIS FED. AID PROJECT			

PLAN

DATE	BY	
		SURVEYED
		PLOTTED
		ALIGNMENT CHECKED
		RT. OF WAY CHECKED
		CADD FILE NAME
		NOTE BOOK
		NO.

PROFILE

DATE	BY	
		SURVEYED
		PLOTTED
		GRADES CHECKED
		BM. NOTED
		STRUCTURE NOTATNS CHKD
		NOTE BOOK
		NO.

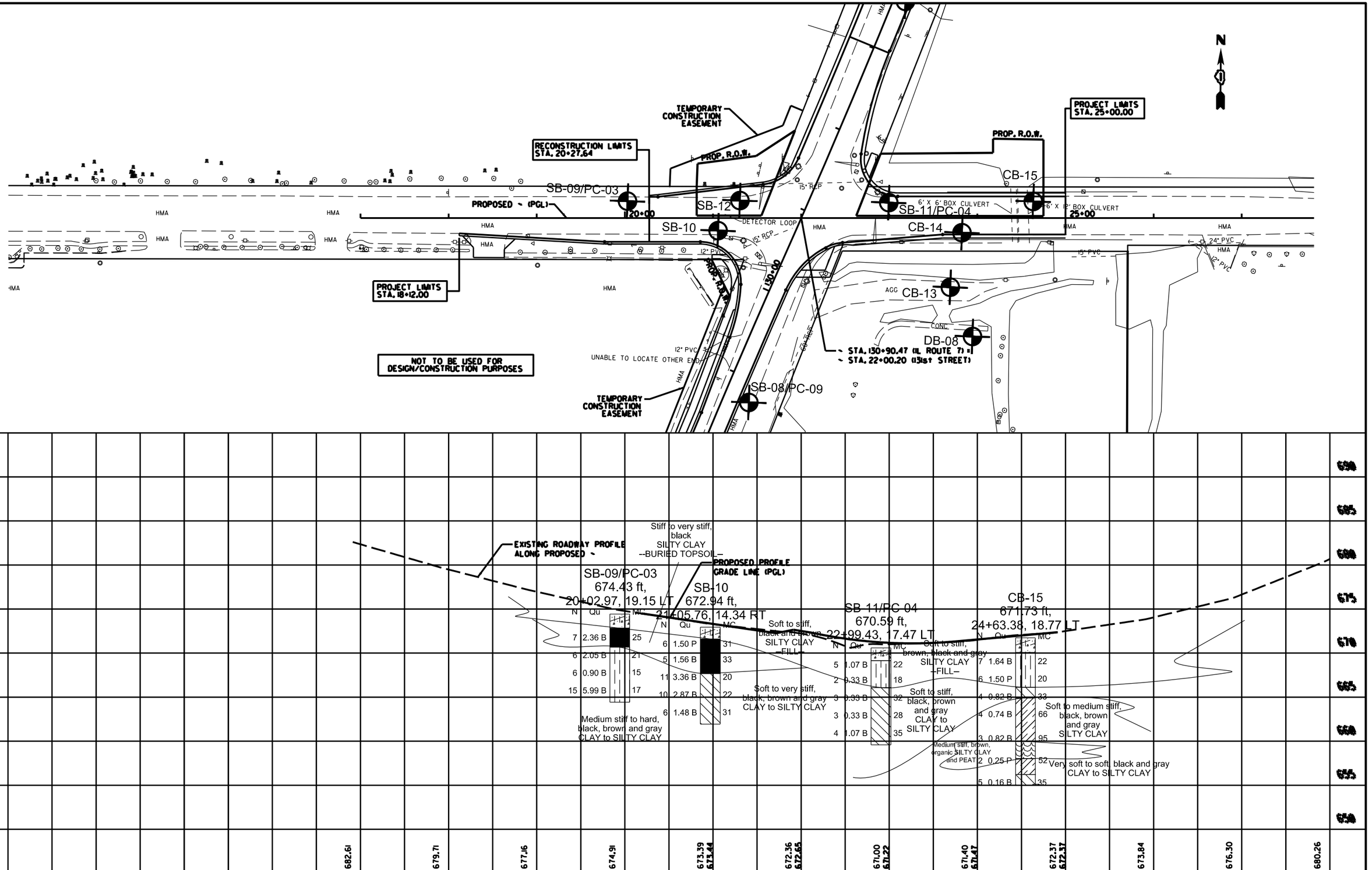


JAMES J. BENES & ASSOCIATES CONSULTING ENGINEERS 1011 WARRENVILLE ROAD SUITE 420 LISLE, IL 60532 (630) 719-7570	USER NAME = $USER$	DESIGNED - BLG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GEOTECHNICAL PLAN AND PROFILE IL RTE 7 - 135th ST
	PLOT SCALE = $SCALE$	DRAWN - SMP	REVISED -		SCALE: 1"=50' SHEET OF SHEETS STA. 5+50 TO STA. 15+15
	PLOT DATE = $DATE$	CHECKED - BDH	REVISED -		
		DATE - 05/05/2020	REVISED -		

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3578	2019-001-R	COOK		
		CONTRACT NO. 62H82		
		ILLINOIS FED. AID PROJECT		

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
CROSS CHECKED
BAR. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE



JAMES J. BENES & ASSOCIATES
CONSULTING ENGINEERS
1011 WARRENVILLE ROAD, SUITE 420
LISLE, IL 60532
(630) 719-7570

USER NAME = $USER$	DESIGNED - BLG	REVISED -	
	DRAWN - SMP	REVISED -	
PLOT SCALE = $SCALE$	CHECKED - BDH	REVISED -	
PLOT DATE = $DATE$	DATE - 05/05/2020	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL PLAN AND PROFILE
IL RTE 7 - 131st ST

SCALE: 1"=50' | SHEET OF SHEETS | STA. 17+00 TO STA. 27+82

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3578	2019-001-R	COOK		
		CONTRACT NO. 62H82		
		ILLINOIS	FED. AID PROJECT	

S

N

Pile supported Embankment /Storm Sewer Culvert
with Load Transfer Platform from Sta. 105+10 to 110+10

U/S Invert
Ele. 664.04 feet

RB-01
102+34.5

RB-02
103+92.3

R-01
105+09.96

R-02
105+90.99

RB-03
106+82.5

R-03
107+68.44

R-04
108+67.65

RB-04
109+57.6

R-05
110+55.85

R-06
111+98.73

Silty Clay A-6 (9)
LL=31 PL=18

Clay A-7-6 (53)
LL=74 PL=26

Silty Clay A-7-6 (49)
LL=70 PL=29

ELEVATION (feet)

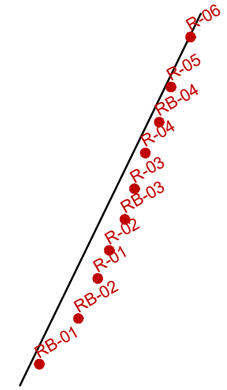
675
670
665
660
655
650
645
640

0
100
200
300
400
500
600
700
800
900
1,000
1,100

DISTANCE ALONG PROFILE (feet)

Lithology Graphics

- Gravelly sand, sandy gravel
- IDH Clay Loam
- IDH Silty Clay, Silty Clay Loam
- IDH Sand, Sandy Loam
- IDH Silt, Silty Loam
- IDH Clay
- USCS High Plasticity Organic silt or clay
- Pavement
- Concrete
- USCS Peat
- Topsoil



Site Map Scale 1 inch equals 405 feet

Explanation:

R-01
105+09.96
Borehole Number
Station

Borehole Lithology

N--N-value, (blw/12 in)
Qu--UC Strength, (tsf)
MC--Moisture Content, (%)

Water Level Reading
at time of drilling.

Water Level Reading
24-hr after drilling or at
end of drilling

0
110

Horizontal Scale (feet)

Vertical Exaggeration: 15.5x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

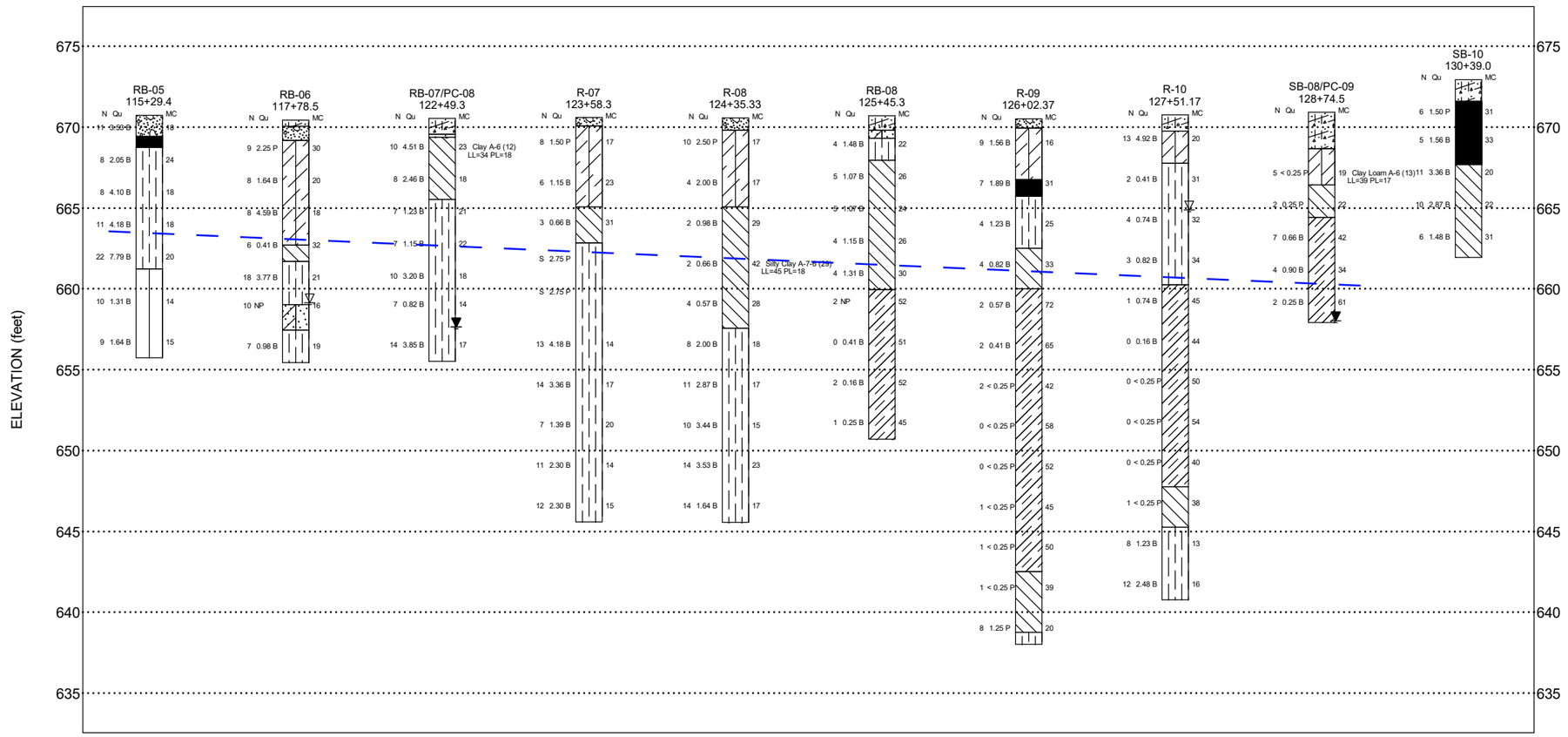
Soil Profile
Storm Sewer Culvert along IL 7

WEI
SINCE 1982

IL Route 7 from 131st Street to 135th Street
Cook County, Illinois

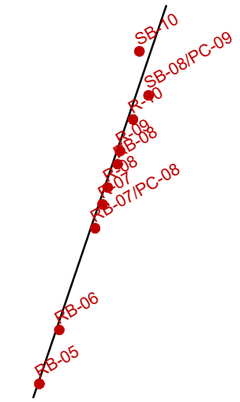
JOB NUMBER	PLATE NUMBER
411-05-02	EXHIBIT D-1A

WEI 11X17 4110502.GPJ WANGENG.GDT 4/12/22



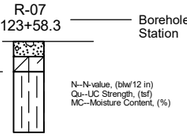
Lithology Graphics

- Gravelly sand, sandy gravel
- Topsoil
- IDH Loam
- IDH Clay Loam
- USCS High Plasticity Organic silt or clay
- IDH Clay
- Pavement
- IDH Silty Clay, Silty Clay Loam
- IDH Silt, Silty Loam



Site Map Scale 1 inch equals 660 feet

Explanation:



- Water Level Reading at time of drilling.
- Water Level Reading 24-hr after drilling or at end of drilling

0 — 180

Horizontal Scale (feet)

Vertical Exaggeration: 22x

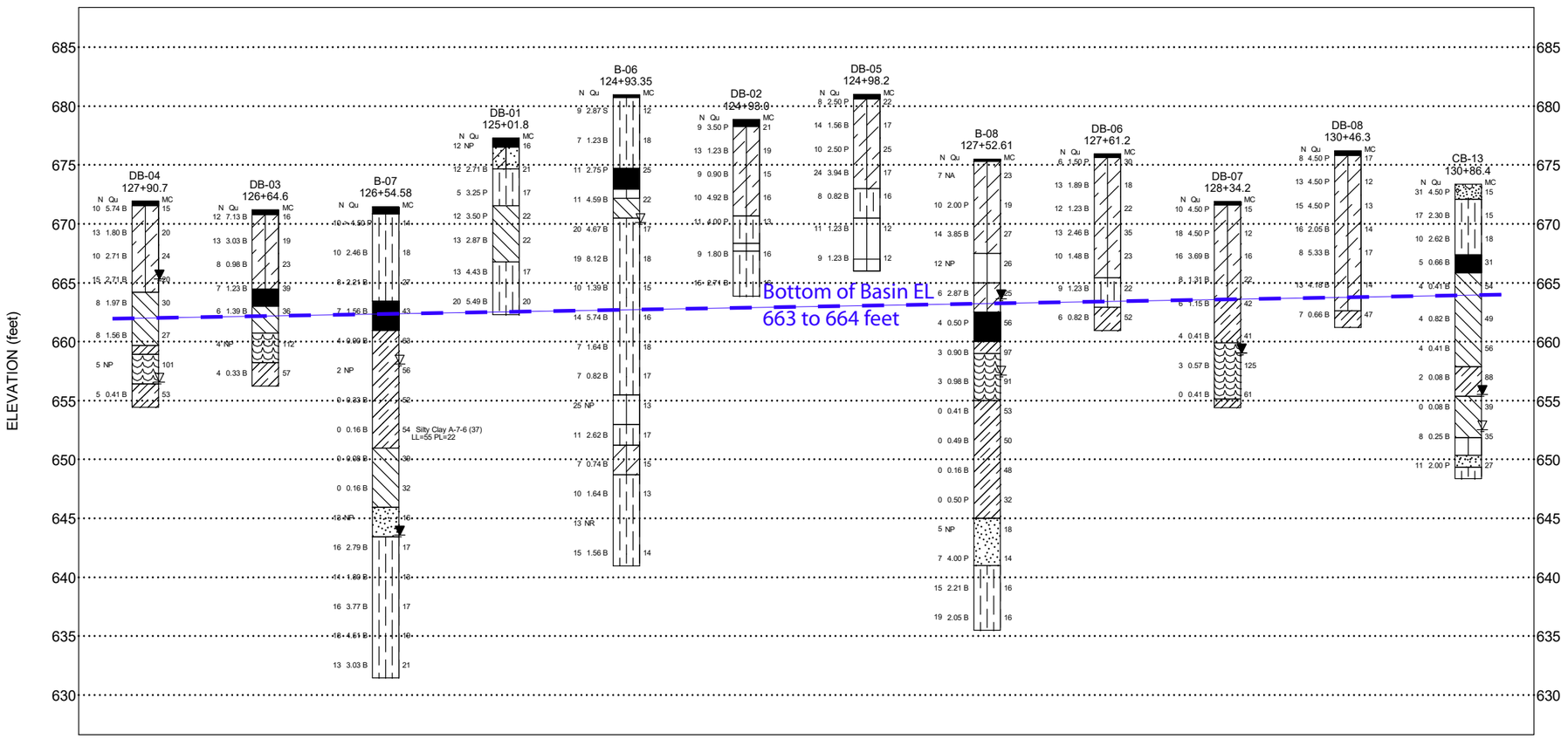
Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

Soil Profile
Storm Sewer Culvert along IL 7

IL Route 7 from 131st Street to 135th Street
Cook County, Illinois

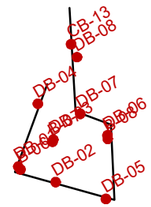
JOB NUMBER	PLATE NUMBER
411-05-02	EXHIBIT D-1B

WEI 11X17 4110502.GPJ WANGENG.GDT 4/14/22



Lithology Graphics

- Topsoil
- IDH Silty Clay, Silty Clay Loam
- IDH Silt, Silty Loam
- IDH Clay
- IDH Clay Loam
- Organic Soil
- IDH Sand, Sandy Loam
- USCS Peat
- Gravelly sand, sandy gravel
- USCS High Plasticity Organic silt or clay
- IDH Loam



Site Map Scale 1 inch equals 660 feet

Explanation:

B-06
124+93.35 — Borehole Number Station

Borehole Lithology

N--N-value, (blw/12 in)
Qu--UC Strength, (tsf)
MC--Moisture Content, (%)

Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

0 — 180

Horizontal Scale (feet)

Vertical Exaggeration: 16x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

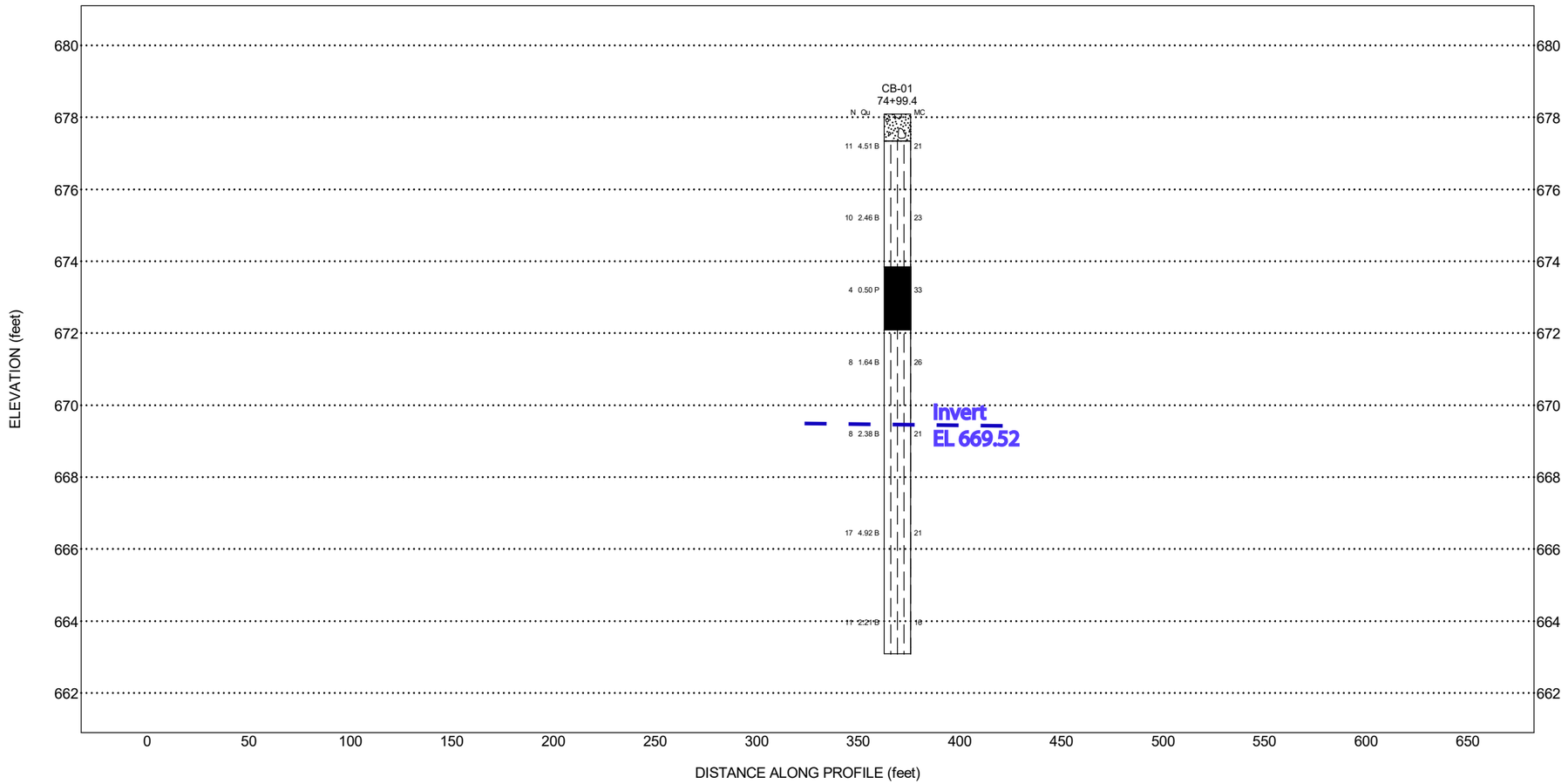
Soil Profile
Detention Basin

IL Route 7 from 131st Street to 135th Street
Cook County, Illinois

JOB NUMBER	PLATE NUMBER
411-05-02	EXHIBIT D-2

WEI SINCE 1982

WEI 11X17 411050Z.GPJ WANGENG.GDT 5/17/21

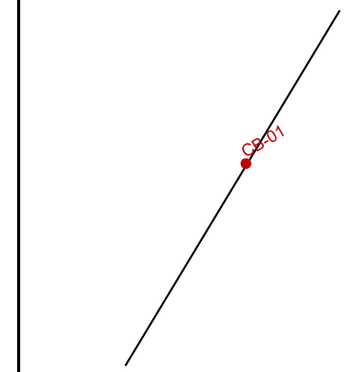


Lithology Graphics

Gravelly sand, sandy gravel

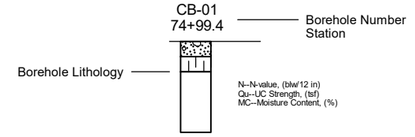
IDH Silty Clay, Silty Clay Loam

Topsoil



Site Map Scale 1 inch equals 240 feet

Explanation:



Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

Horizontal Scale (feet)

Vertical Exaggeration: 17.5x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

Soil Profile
IL 7 Culvert near Sta. 73+30

IL Route 7 from 131st Street to 135th Street
Cook County, IL

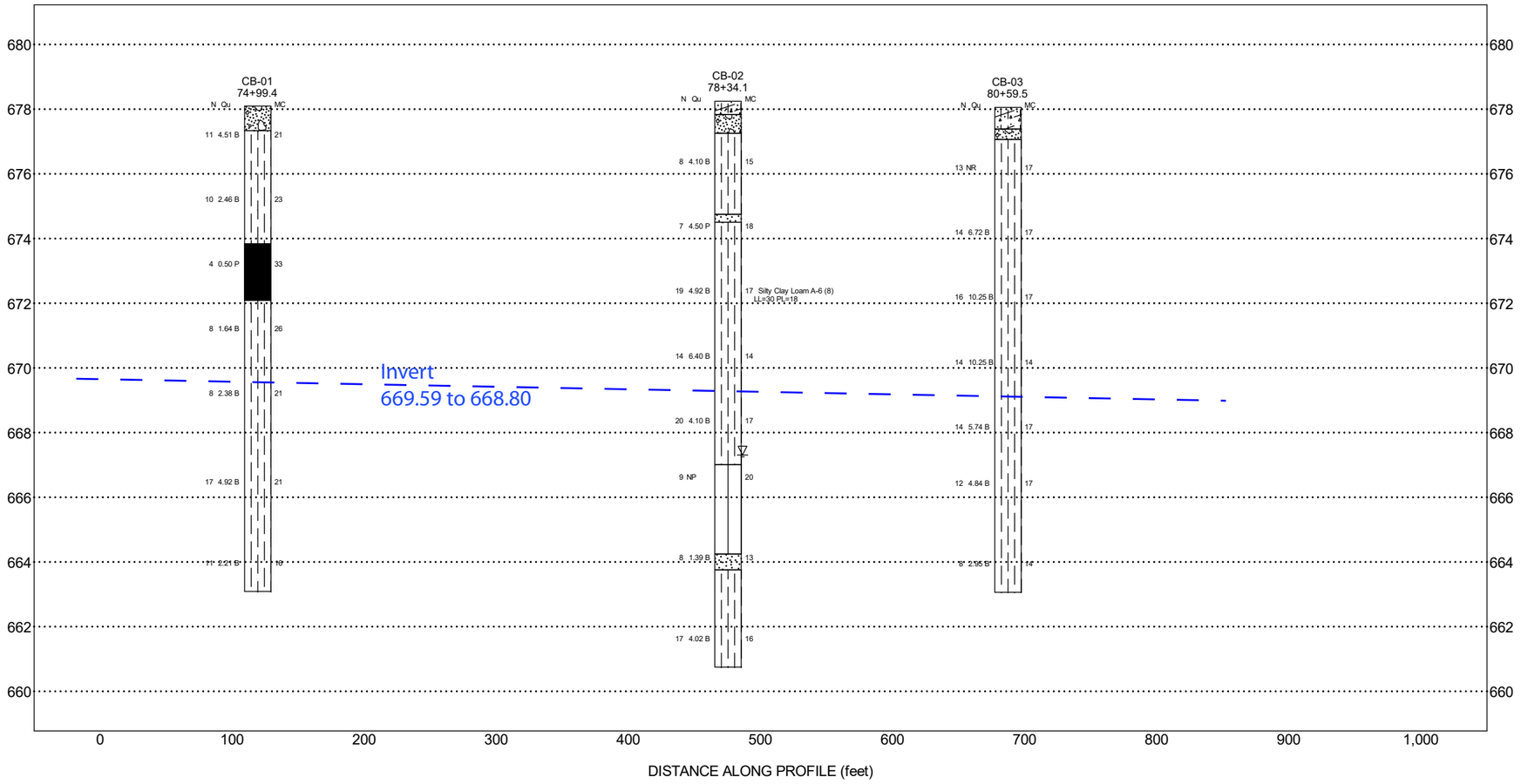
JOB NUMBER	PLATE NUMBER
411-05-01	EXHIBIT D-3

WEI SINCE 1982

WEI 11X17 4110501.GPJ BEARING-TRIAL.GDT 8/19/20

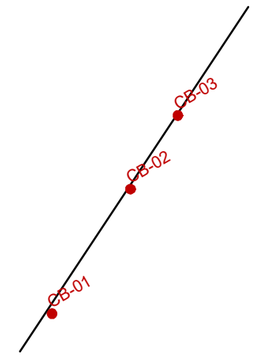
S

N



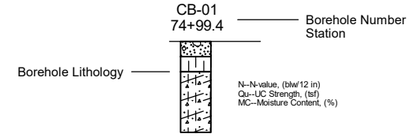
Lithology Graphics

- Gravelly sand, sandy gravel
- IDH Silty Clay, Silty Clay Loam
- Topsoil
- Pavement
- IDH Sand, Sandy Loam
- IDH Silt, Silty Loam



Site Map Scale 1 inch equals 365 feet

Explanation:



Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

0 100

Horizontal Scale (feet)

Vertical Exaggeration: 24.5x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

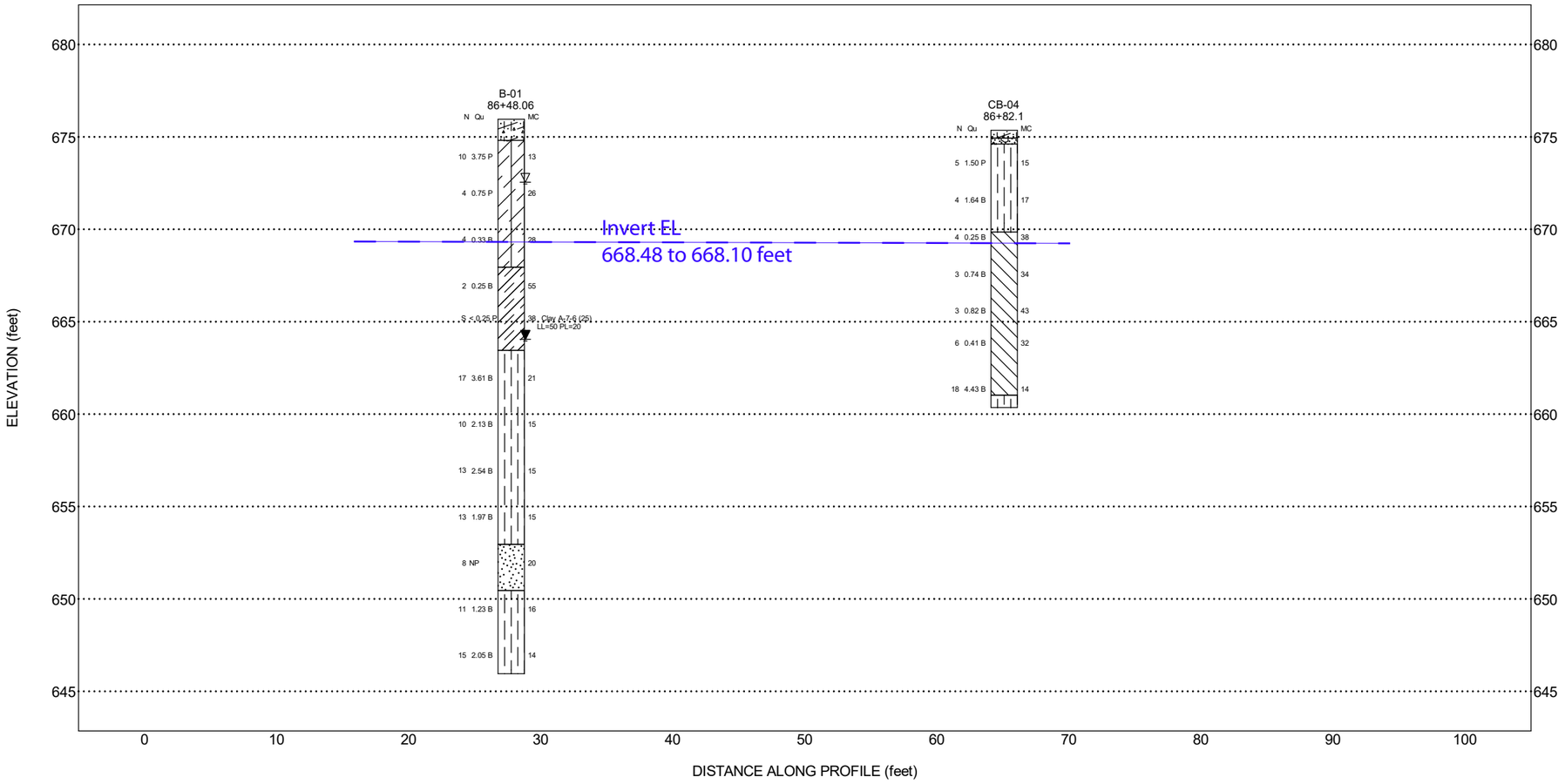
Soil Profile
IL 7 Mill Creek Culverts
Sta. 71+50 to 76+80, 78+00 to 79+80, and 80+75 to 81+25

IL Route 7 from 131st Street to 135th Street
Cook County, IL

JOB NUMBER	PLATE NUMBER
411-05-01	EXHIBIT D-4

WEI SINCE 1982

WEI 11X17 4110501.GPJ BEARING-TRIAL.GDT 8/19/20



Lithology Graphics

Pavement

IDH Clay Loam

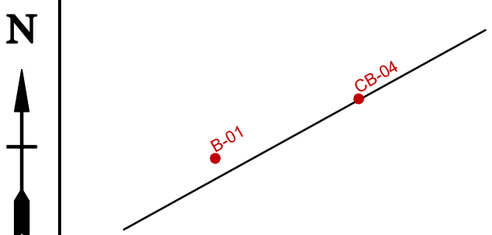
Organic Soil

IDH Silty Clay, Silty Clay Loam

IDH Sand, Sandy Loam

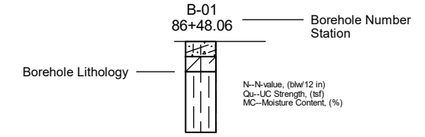
Gravelly sand, sandy gravel

IDH Clay



Site Map Scale 1 inch equals 35 feet

Explanation:



Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

Horizontal Scale (feet)

Vertical Exaggeration: 1.5x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

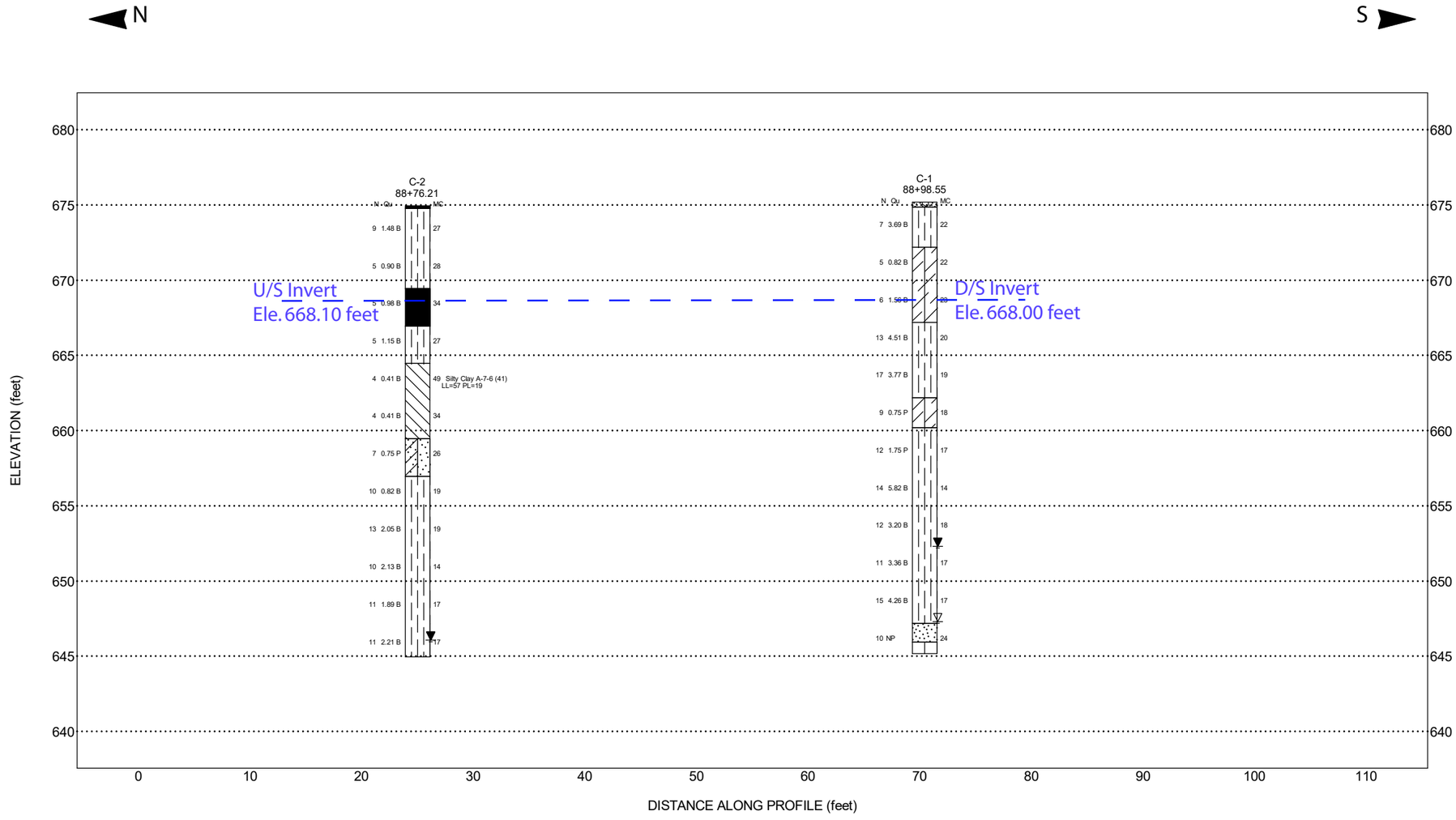
Soil Profile
IL 7 at 85+60, IL 7 Mill Creek Culvert Sta. 84+60 to 88+80

WEI SINCE 1982

IL Route 7 from 131st Street to 135th Street
Cook County, Illinois

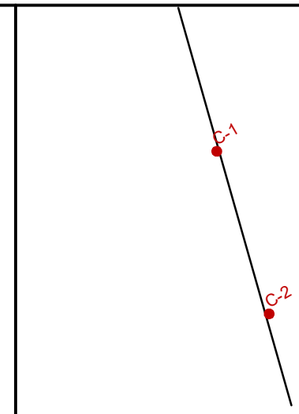
JOB NUMBER	PLATE NUMBER
411-05-02	EXHIBIT D-5

WEI 11X17 4110502.GPJ WANGENG.GDT 5/20/21



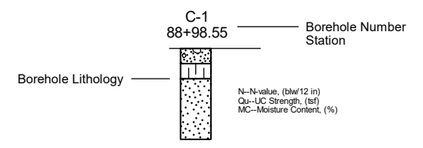
Lithology Graphics

- Gravelly sand, sandy gravel
- IDH Silty Clay, Silty Clay Loam
- IDH Clay Loam
- IDH Sand, Sandy Loam
- IDH Silt, Silty Loam
- Topsoil
- IDH Clay
- IDH Loam



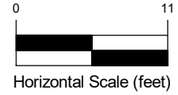
Site Map Scale 1 inch equals 40 feet

Explanation:



Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling



Horizontal Scale (feet)

Vertical Exaggeration: 1.5x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

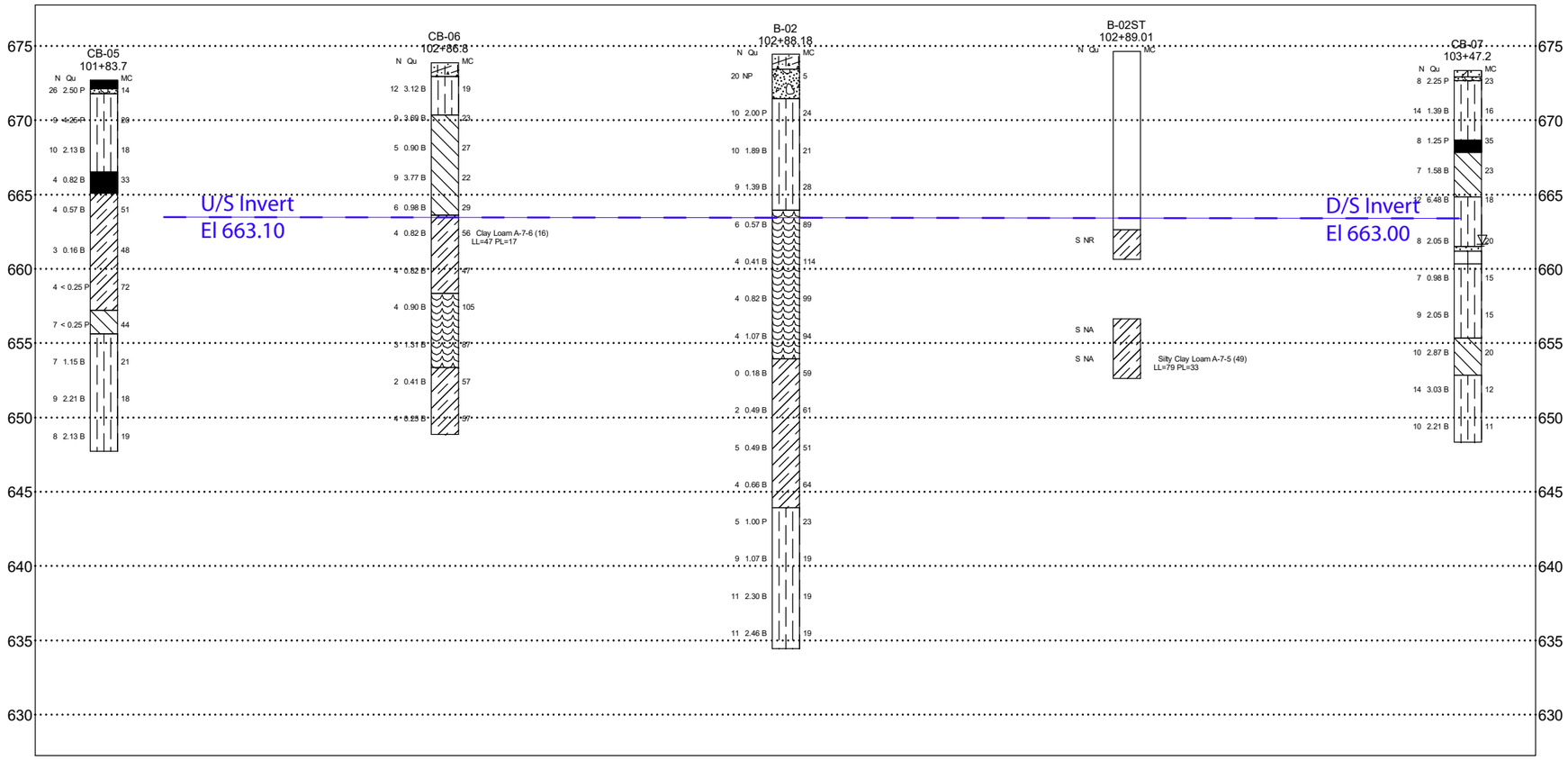
Soil Profile
Culvert at 88+85

WEI SINCE 1982

IL Route 7 from 131st Street to 135th Street
Cook County, IL

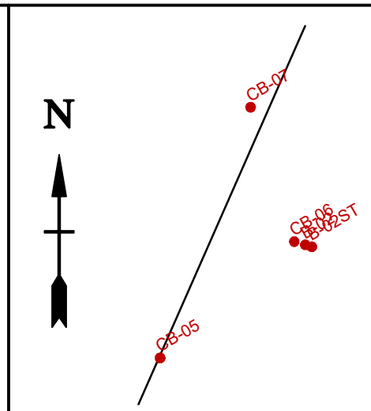
JOB NUMBER	PLATE NUMBER
411-05-03	EXHIBIT D-5A

WEI 11X17 4110503.GPJ WANGENG.GDT 4/12/22



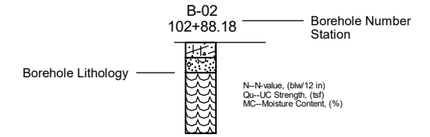
Lithology Graphics

- Pavement
- Gravelly sand, sandy gravel
- IDH Silty Clay, Silty Clay Loam
- USCS Peat
- USCS High Plasticity Organic silt or clay
- Topsoil
- IDH Clay
- IDH Loam
- IDH Sand, Sandy Loam
- IDH Silt, Silty Loam



Site Map Scale 1 inch equals 95 feet

Explanation:



Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

0 26

Horizontal Scale (feet)

Vertical Exaggeration: 3x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

Soil Profile
135th Street Mill Creek Crossing

IL Route 7 from 131st Street to 135th Street
Cook County, Illinois

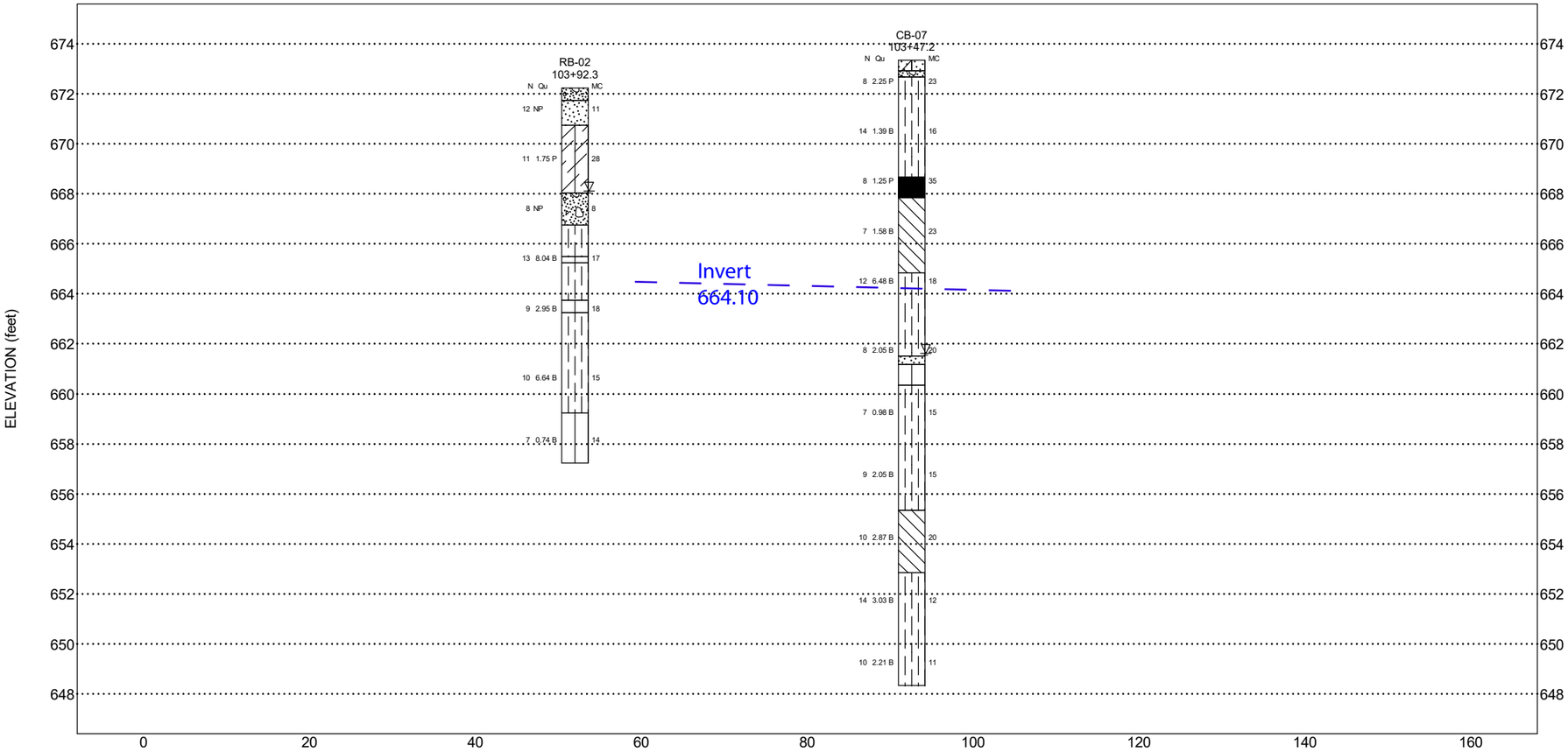
JOB NUMBER	PLATE NUMBER
411-05-02	EXHIBIT D-6

WEI 11X17 4110502.GPJ WANGENG.GDT 5/18/21

W

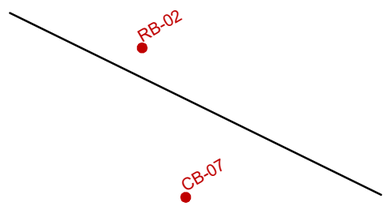
E

N



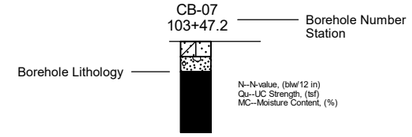
Lithology Graphics

- IDH Loam
- Gravelly sand, sandy gravel
- IDH Silty Clay, Silty Clay Loam
- Topsoil
- IDH Clay
- IDH Sand, Sandy Loam
- IDH Silt, Silty Loam
- IDH Clay Loam



Site Map Scale 1 inch equals 60 feet

Explanation:



- Water Level Reading at time of drilling.
- Water Level Reading 24-hr after drilling or at end of drilling

Horizontal Scale (feet)

Vertical Exaggeration: 3x

Wang Engineering, Inc.
1145 N. Main Street
Lombard/IL/60148

Soil Profile
IL 7 at Sta. 103+70

WEI SINCE 1982

IL Route 7 from 131st Street to 135th Street
Cook County, IL

JOB NUMBER	PLATE NUMBER
411-05-01	EXHIBIT D-7

WEI 11X17 4110501.GPJ BEARING-TRIAL.GDT 8/19/20

S

N

N

ELEVATION (feet)

675
670
665
660
655
650
645
640

B-03
108+99.67

N	Qu		MC
17	NP		8
8	2.13 B		16
2	0.75 P		22
0	0.16 B		62
S	NA		
2	0.25 B		62
0	0.16 B	66	Silty Clay A-7-6 (47) LL=65 PL=24
0	0.16 B		59
2	0.25 B		29
6	0.90 B		20
11	1.64 B		18
10	1.48 B		19

CB-08
109+05.6

N	Qu		MC
19	1.15 S		12
15	4.76 B		20
5	1.23 B		20
4	0.90 B		55
2	0.33 B		71
2	< 0.25 P		83
1	0.16 B		80
1	< 0.25 P		58
2	0.33 B		63

CB-09
109+58.0

N	Qu		MC
7	2.34 B		20
28	NP		14
5	1.23 B		20
4	1.23 S		47
4	1.07 B	45	Clay A-7-6 (45) LL=68 PL=26
4	0.41 B		70
3	0.66 B		63
1	0.41 B		59
3	0.41 B		59

CB-10
110+34.5

N	Qu		MC
9	NP		13
5	< 0.25 P		61
5	1.70 B		26
6	3.12 B	21	Silty Clay A-7-6 (20) LL=41 PL=19
11	2.87 B		22
6	0.82 B		23
6	1.23 B		17
11	4.35 B		18
9	1.48 B		19

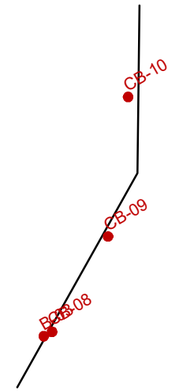
U/S Invert
662.59 feet

D/S Invert
662.30 feet

DISTANCE ALONG PROFILE (feet)

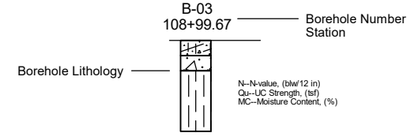
Lithology Graphics

- Pavement
- Concrete
- Gravelly sand, sandy gravel
- IDH Silty Clay, Silty Clay Loam
- USCS High Plasticity Organic silt or clay
- Topsoil
- IDH Clay
- IDH Sand, Sandy Loam
- IDH Loam



Site Map Scale 1 inch equals 80 feet

Explanation:



Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

0 22

Horizontal Scale (feet)

Vertical Exaggeration: 3x

Wang Engineering, Inc.
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Lombard/IL/60148

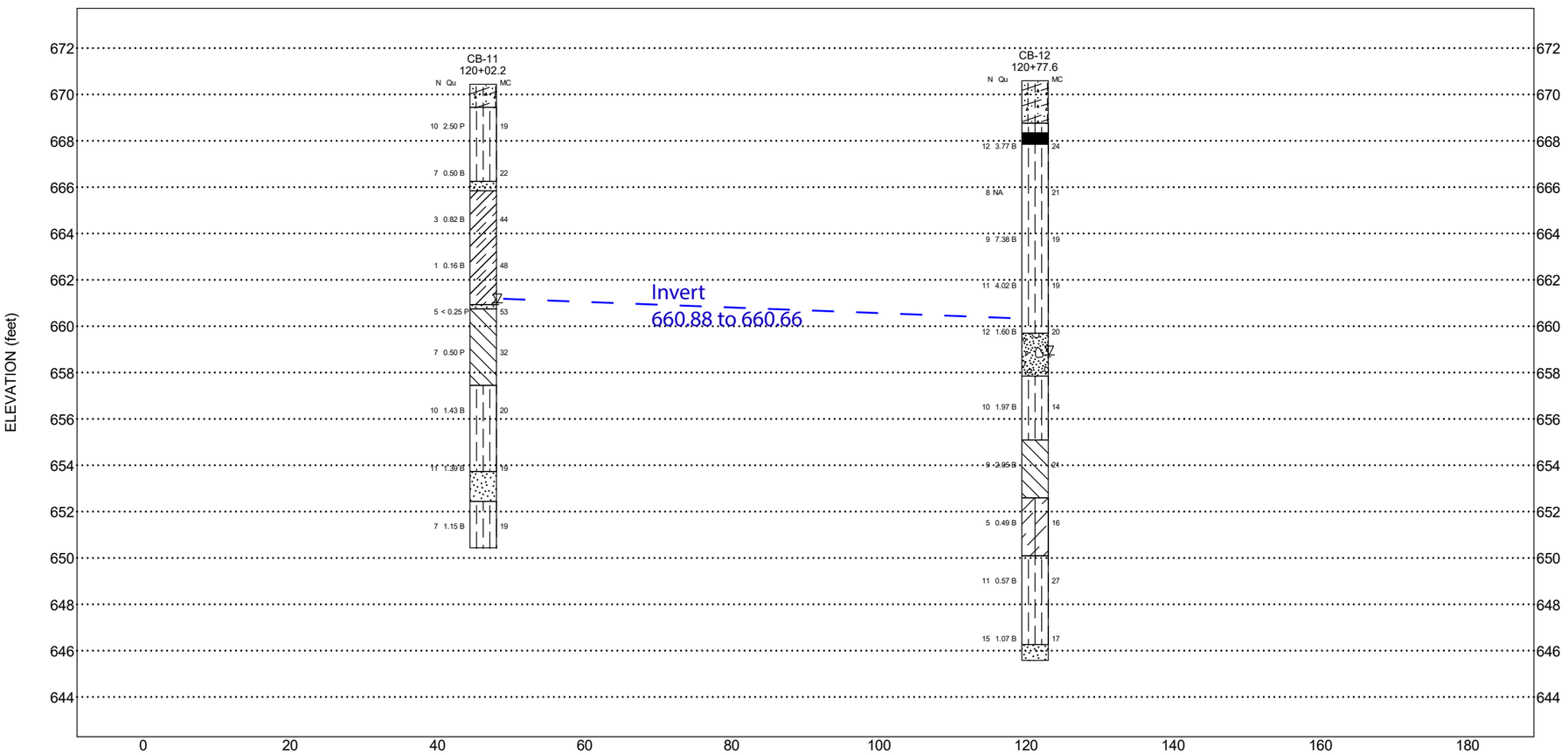
Soil Profile
IL 7 Mill Creek Culvert

WEI SINCE 1982

IL Route 7 from 131st Street to 135th Street
Cook County, Illinois

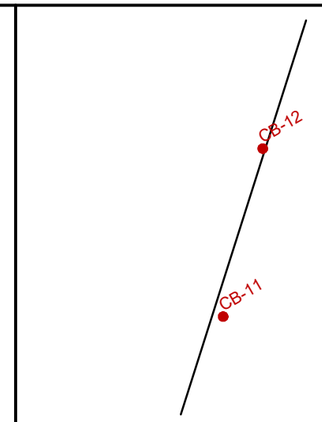
JOB NUMBER	PLATE NUMBER
411-05-02	EXHIBIT D-8

WEI 11X17 4110502.GPJ WANGENG.GDT 5/17/21



Lithology Graphics

- Pavement
- IDH Silty Clay, Silty Clay Loam
- IDH Sand, Sandy Loam
- USCS High Plasticity Organic silt or clay
- IDH Clay
- Topsoil
- Gravelly sand, sandy gravel
- IDH Clay Loam



Site Map Scale 1 inch equals 65 feet

Explanation:

CB-11
120+02.2 — Borehole Number Station

Borehole Lithology

N--N-value, (blw/12 in)
Qu--UC Strength, (tsf)
MC--Moisture Content, (%)

Water Level Reading at time of drilling.

Water Level Reading 24-hr after drilling or at end of drilling

0 18

Horizontal Scale (feet)

Vertical Exaggeration: 3x

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Lombard/IL/60148

Soil Profile
IL 7 Mill Creek Culvert
Sta. 120+10 to 120+60

WEI SINCE 1982

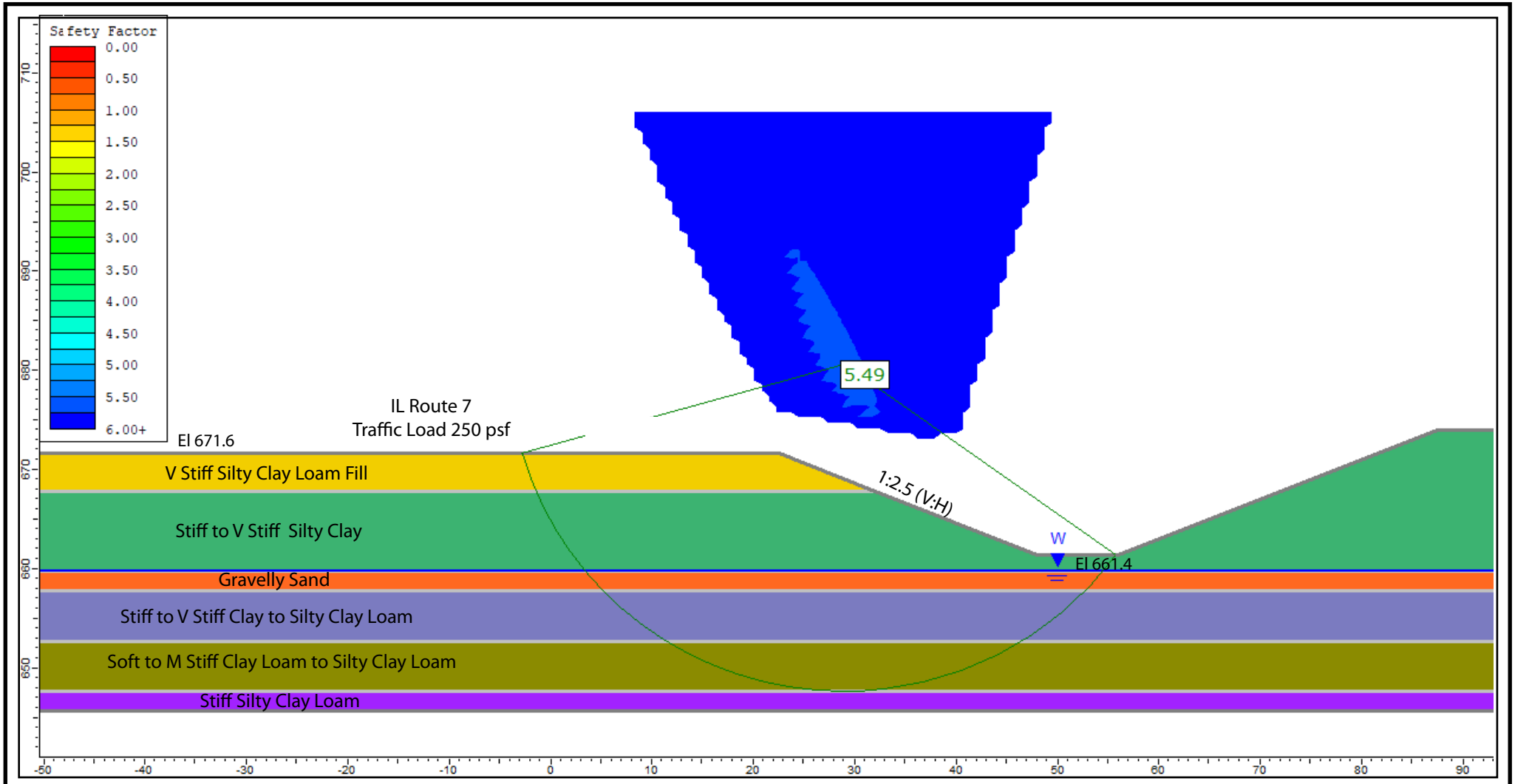
IL Route 7 from 131st Street to 135th Street
Cook County, IL

JOB NUMBER	PLATE NUMBER
411-05-01	EXHIBIT D-9

WEI 11X17 4110501.GPJ BEARING-TRIAL.GDT 8/19/20

Wang Engineering
1145 North Main Street
Lombard, Illinois 60148
Phone (630) 953-9928
www.wangeng.com

APPENDIX E



Undrained Analysis, IL Route 7, Station 123+00, Ref Borings: RB-07 and CB-12

Layer ID	Description	Total Unit Weight (pcf)	Undrained Cohesion (psf)	Undrained Friction Angle (degrees)
1	V Stiff Silty Clay Loam Fill	120	2700	0
2	Stiff to V Stiff Silty Clay	120	3000	0
3	Gravelly Sand	120	0	30
4	Stiff to V Stiff Clay to Silty Clay Loam	120	2000	0
5	Soft to M Stiff Clay Loam to Silty Clay Loam	115	500	0
6	Stiff Silty Clay Loam	120	1100	0

GLOBAL STABILITY: IL ROUTE 7 / SOUTHWEST HIGHWAY, COOK COUNTY, IL

SCALE: GRAPHICAL | APPENDIX E-1 | DRAWN BY: N. Balakumaran, CHECKED BY: M. Seyhun

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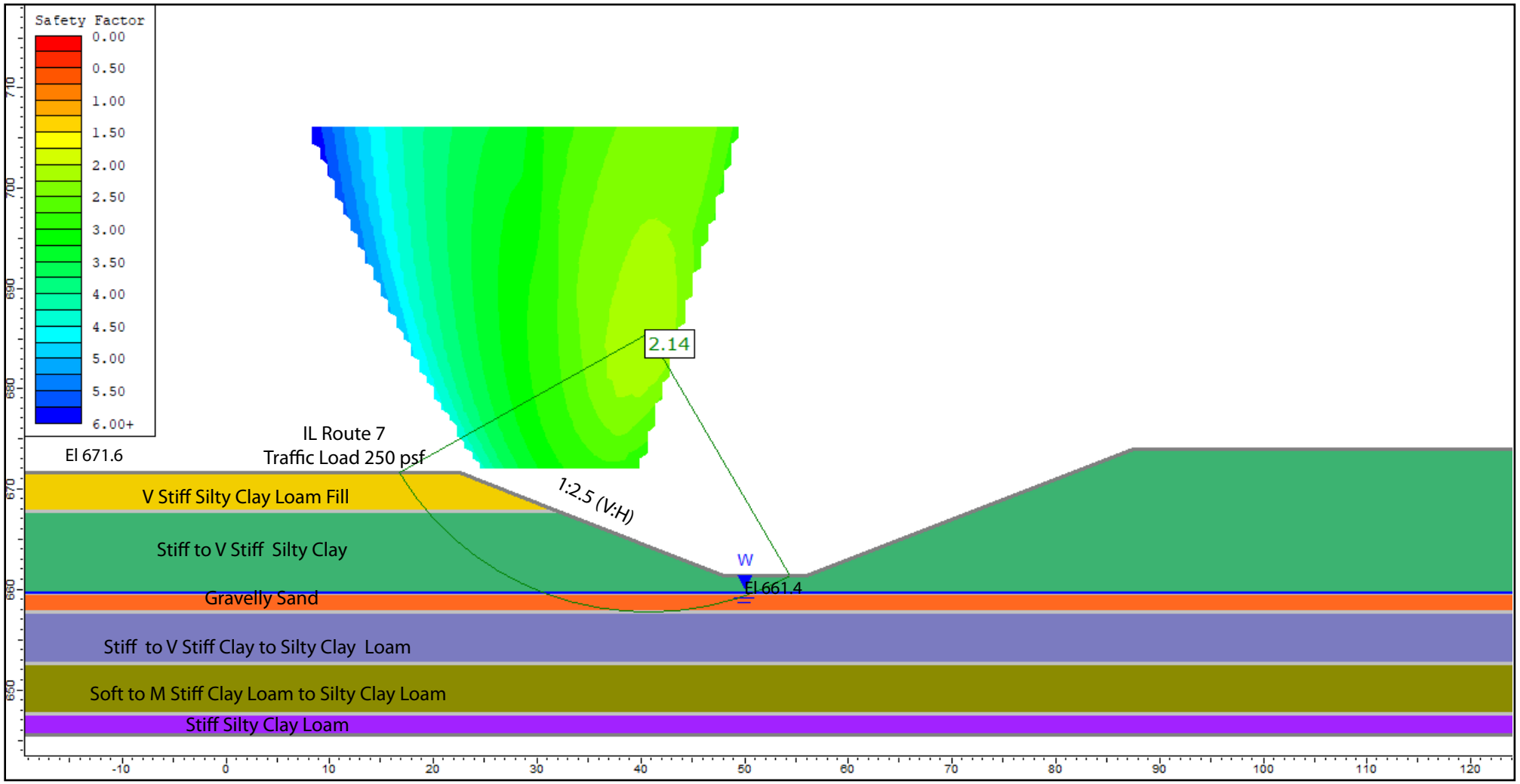

Drained Analysis, IL Route 7, Station 123+00, Ref Borings: RB-07 and CB-12

Layer ID	Description	Total Unit Weight (pcf)	Drained Cohesion (psf)	Drained Friction Angle (degrees)
1	V Stiff Silty Clay Loam Fill	120	100	30
2	Stiff to V Stiff Silty Clay	120	100	30
3	Gravelly Sand	120	0	30
4	Stiff to V Stiff Clay to Silty Clay Loam	120	100	30
5	Soft to M Stiff Clay Loam to Silty Clay Loam	115	0	29
6	Stiff Silty Clay Loam	120	100	30

GLOBAL STABILITY: IL ROUTE 7 / SOUTHWEST HIGHWAY, COOK COUNTY, IL

SCALE: GRAPHICAL | APPENDIX E-2 | DRAWN BY: N. Balakumaran | CHECKED BY: M. Seyhun

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Lombard, IL 60148
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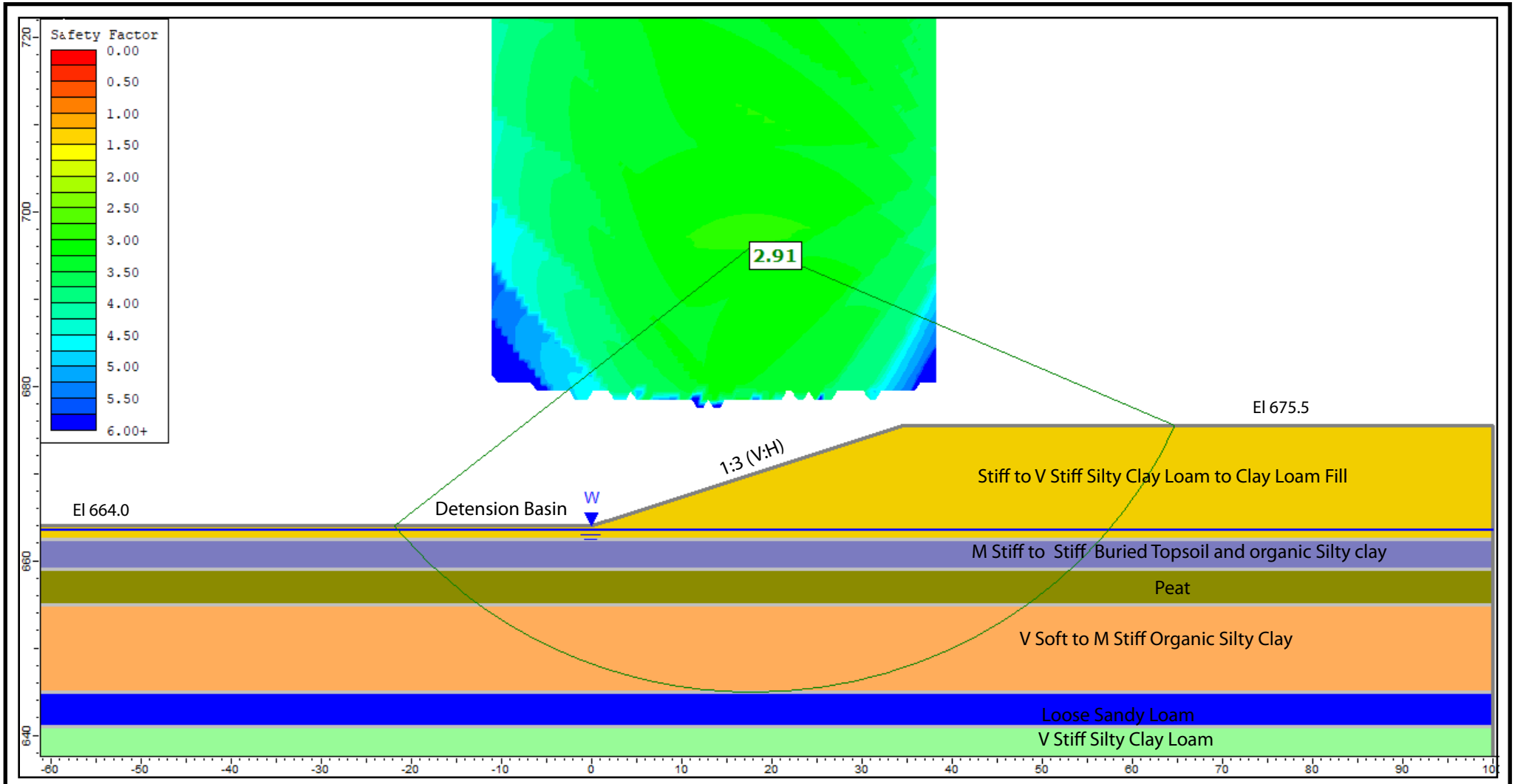

Undrained Analysis, IL Route 7 Detension Basin, Station 127+00, Ref Borings: DB-06 and B-08

Layer ID	Description	Total Unit Weight (pcf)	Undrained Cohesion (psf)	Undrained Friction Angle (degrees)
1	Stiff to V Stiff Silty Clay Loam to Clay Loam Fill	120	1600	0
2	M Stiff to Stiff Buried Topsoil and Organic Silty Clay	110	600	0
3	M Stiff Peat	100	900	0
4	V Soft to M Stiff Organic Silty Clay	105	400	0
5	Loose Sandy Loam	110	0	28
6	V Stiff Silty Clay Loam	120	2700	0

GLOBAL STABILITY: IL ROUTE 7 / SOUTHWEST HIGHWAY, DETENSION BASIN, COOK COUNTY, IL

SCALE: GRAPHICAL | APPENDIX E-3 | DRAWN BY: N. Balakumaran | CHECKED BY: M. Seyhun

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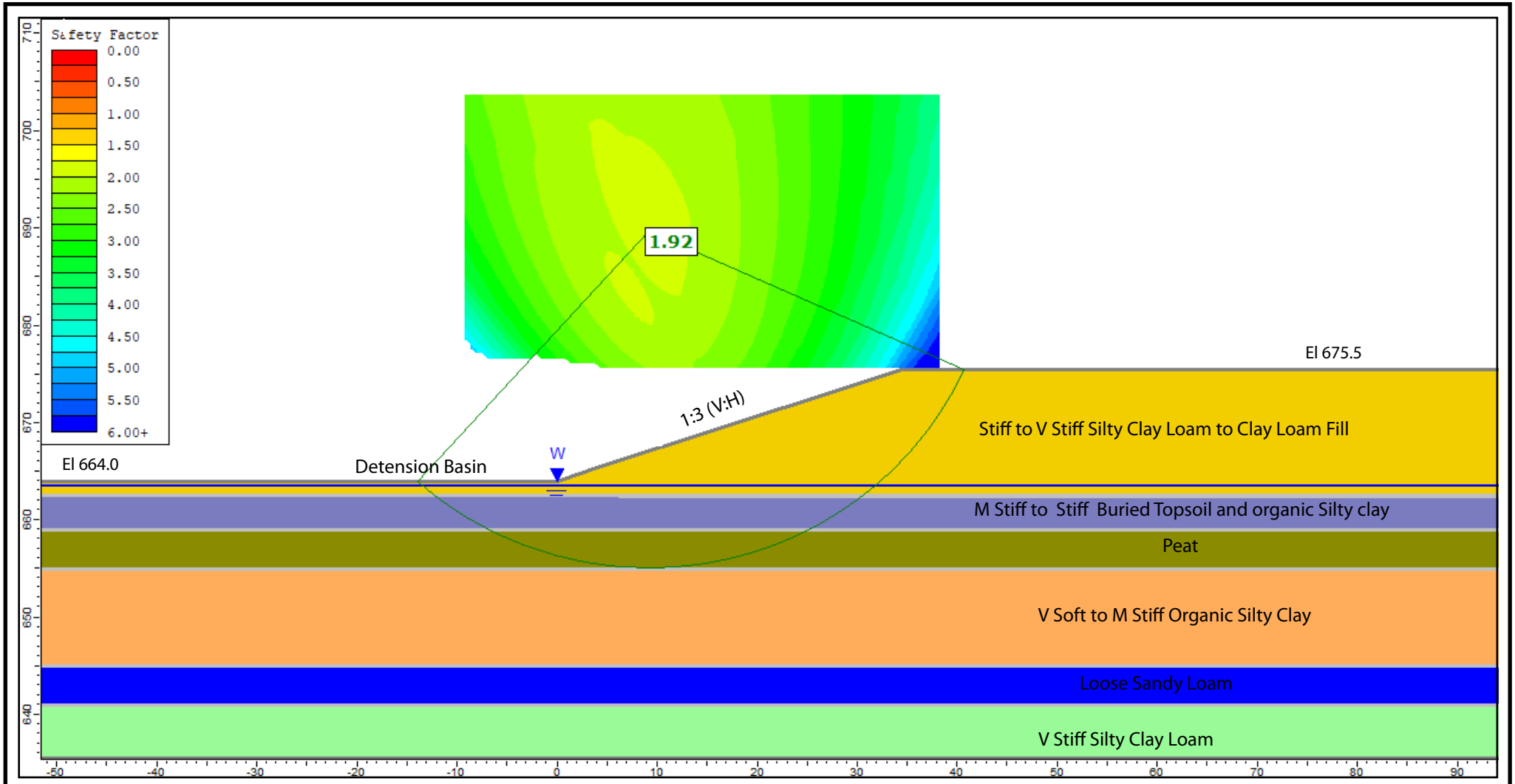

Drained Analysis, IL Route 7 Detension Basin, Station 127+00, Ref Borings: DB-06 and B-08

Layer ID	Description	Total Unit Weight (pcf)	Drained Cohesion (psf)	Drained Friction Angle (degrees)
1	Stiff to V Stiff Silty Clay Loam to Clay Loam Fill	120	100	30
2	M Stiff to Stiff Buried Topsoil and Organic Silty Clay	110	0	28
3	M Stiff Peat	100	0	25
4	V Soft to M Stiff Organic Silty Clay	105	0	26
5	Loose Sandy Loam	110	0	28
6	V Stiff Silty Clay Loam	120	100	30

GLOBAL STABILITY: IL ROUTE 7 / SOUTHWEST HIGHWAY, DETENSION BASIN, COOK COUNTY, IL

SCALE: GRAPHICAL | APPENDIX E-4 | DRAWN BY: N. Balakumaran | CHECKED BY: M. Seyhun

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FOR James J. Benes & Associates | 411-05-01