

Geotechnical Engineering Report

FAI-290 (Eisenhower Expressway) Drainage Improvements
From 22nd Avenue to Des Plaines River, Cook County, Illinois
IDOT PTB 213-002, D-91-226-24
Section 2024-991-DR, Contract 62X09
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Wang Project No. KE245518

Prepared for:

Accurate Group, Inc.
101 Schelter Road
Lincolnshire, Illinois 60069
(847) 613-1100

Prepared by:
Mohammed Kothawala, PE, BC.GE
Senior Project Manager
Senior Geotechnical Engineer

Reviewed by:
Azza Hamad, PE
QA/QC Reviewer



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Geotechnical Engineering Report

FAI 290 Drainage Improvements|Cook County, Illinois

Contract 62X09

March 6, 2026 | Wang/Terracon Project No. KE245518



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1.0 Introduction

This geotechnical report presents the results of Wang Engineering, Inc. (Wang) A Terracon Consultants Inc. company subsurface investigation, laboratory testing, groundwater conditions, and geotechnical evaluations performed to support the drainage improvement of the Frontage Road Storm Sewers (FRS) in Harrison Street in Cook County, Illinois. The project is part of the overall I-290 corridor improvement. The following work is included in Contract 62X09.

- Install FRS along Harrison St. from 22nd Ave. to west of 1st Ave. in open cut
- Install FRS along Harrison St. from west of 1st Ave. to east of 1st Ave by jacking
- Install Watermain along Harrison St. from 20th Ave to 5th Ave
- Install Combined sewer along Harrison St. from 21st Ave to 16th Ave and 11th Ave to 9th Ave
- Jack watermain and combined sewer from Harrison St. to Bataan Dr.
- Reconstruct Harrison St. from 22nd Ave to 1st Ave.
- Reconstruct sidewalk along Harrison St. on north side
- Reconstruct HMA path along Harrison St. on south side
- Reconstruct HMA path along Bataan Dr. on north side
- Construct conflict chambers where combined sewer crosses under I-290

Another Geotechnical Engineering Report for the Contract 80C98 from 1st Avenue to Des Plaines River will be submitted, which will include the following work.

- Bataan Drive FRS 3rd Avenue to end of ramp onto I-290
- Jacking 6X3 box culvert from end of entrance ramp for I-290 to Harrison Street
- Harrison Street FRS east of 1st Avenue to Contract 62U40
- Junction chamber at end of ramp and Harrison Street where the 6X3 box is being jacked

A *Site Location Map* is presented as Exhibit 1. The purpose of our geotechnical work was to evaluate the subsurface soil and groundwater conditions within this project area that would form a basis for design and construction recommendations and provide a report summarizing the results of our studies, conclusions, and recommendations.

2.0 Investigation Methods

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

2.1 Field Investigation

The subsurface investigation consisted of 37 soil borings drilled by Wang between March 10 and May 29 of 2025. The borings were drilled along Harrison Street, Bataan Drive and Interstate 290 from the pavement surface to depths of 20 to 62.5 feet below ground surface (bgs). The as-drilled northings and eastings were acquired with a mapping-grade GPS unit by Wang. The final as-drilled coordinates and grade elevation were provided by Accurate Group, Inc. (AGI). Boring location data are presented in the Boring Logs (Appendix A) and the as-drilled boring locations are shown in the Boring Location Plan (Exhibit 2) and Boring Locations Plan prepared by HBM Engineering Group, LLC. The summary of

investigation data including referenced borings, elevation, and depth for each interest alignment is presented in Table 1.

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" continuous, at 2-foot intervals to the boring termination depths.

At each boring location, the borehole was backfilled upon completion with cuttings and/or bentonite chips, and the surface was restored as much as possible to its original condition.

Field boring logs, prepared and maintained by a Wang field engineer, included lithological descriptions, visual-manual soil classifications, pocket penetrometer and Rimac unconfined compressive strength tests, and results of field standard penetration test (SPT) recorded as blows per 6 inches of penetration. Samples collected from each sampling interval were placed in sealed glass jars and transported to the laboratory for testing. Groundwater levels were measured while drilling and at completion of drilling. Ten selected boreholes were left open to develop wells and install piezometers for continuous monitoring of groundwater levels. The data is presented in Section 3.5 – Groundwater Conditions.

Table 1: Borings Summary

Alignment	Approximate Station / Limits	Boring ID	Grade Elevation At Boring (feet)	Boring depth (feet)	Piezometer Installed
Harrison Street	4302+77 to 4402+00	JPB-01, JPB-04, JPB-07, JPB-10, JPB-13, JPB-16, JPB-19, JPB-22, JPB-25, JPB-28, JPB-31, and SSB-01 to SSB-08	622.92 to 628.89	29.3 to 58.8	6 piezometers
Bataan Drive	3300+00 to 3395+45	JPB-03, JPB-06, JPB-09, JPB-12, JPB-15, JPB-18, JPB-21, JPB-24, JPB-27, JPB-30, JPB-33	624.35 to 628.59	30.0 to 62.5	5 piezometers
I-290 Pipe Jacking 01	177+00	JPB-01	628.57	30.0	yes
		JPB-02	629.40	20.0	
		JPB-03	628.55	30.0	
I-290 Pipe Jacking 02	180+50	JPB-04	628.37	58.0	
		JPB-05	626.73	50.5	
		JPB-06	628.28	54.0	yes
I-290 Pipe Jacking 03	190+00	JPB-07	628.69	58.7	yes
		JPB-08	613.02	20.0	
		JPB-09	628.30	62.5	
I-290 Pipe Jacking 04	199+50	JPB-10	627.33	55.0	
		JPB-11	621.97	30.0	

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Alignment	Approximate Station / Limits	Boring ID	Grade Elevation At Boring (feet)	Boring depth (feet)	Piezometer Installed
		JPB-12	626.82	54.5	yes
I-290 Pipe Jacking 05	204+00	JPB-13	627.04	58.0	yes
		JPB-14	623.40	39.5	
		JPB-15	626.75	55.0	
		JPB-16	628.19	50.0	
I-290 Pipe Jacking 06	211+00	JPB-17	619.11	28.6	
		JPB-18	627.02	47.0	yes
		JPB-19	628.24	52.5	
I-290 Pipe Jacking 07	214+00	JPB-20	613.75	23.9	
		JPB-21	627.66	48.0	
		JPB-22	628.36	32.0	yes
I-290 Pipe Jacking 08	218+00	JPB-23	612.06	35.0	
		JPB-24	628.56	53.5	
		JPB-25	626.73	43.5	
I-290 Pipe Jacking 09	230+50	JPB-26	611.96	33.5	
		JPB-27	626.44	53.5	yes
		JPB-28	624.94	45.5	yes
I-290 Pipe Jacking 10	237+50	JPB-29	614.21	30.0	
		JPB-30	624.24	59.5	
		JPB-31	623.81	57.0	yes
I-290 Pipe Jacking 11	243+00	JPB-32	606.78	50.0	
		JPB-33	624.25	60.0	yes

2.2 Laboratory Testing

The laboratory testing program included water content determination (AASHTO T265) on all samples, particle size (AASHTO T88), and Atterberg limits (AASHTO T89 and T90) tests on selected soil samples. Field visual descriptions of soil samples were verified in the laboratory and index tested soils were classified according to the IDH Soil Classification System. The laboratory test results are shown in the *Boring Logs* (Appendix A) and *Laboratory Test Results* (Appendix B).

3.0 Investigation Results

Detailed descriptions of the soil conditions encountered during the subsurface investigation are presented in the attached Boring Logs (Appendix A), in the Subsurface Data Profile (Exhibits 3-1

through 3-14), and in Harrison Street Subsurface Data Profile (Exhibit 4). IDH Textural Classification Chart is included as Exhibits 5-1 through 5-5. Please note that strata contact lines represent approximate boundaries between soil types. The actual transition between soil types in the field may be gradual in horizontal and vertical directions.

3.1 Harrison Street Sewer

The borings drilled along Harrison Street proposed improvements were advanced through the existing pavement. The pavement structure consists of 5 to 14 inches of either concrete, or just asphalt, or asphalt over concrete. The pavement structure rests over 3 to 25 inches of aggregate base or up to 4.8 feet of cohesive fill. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 5 feet of medium stiff to very stiff clay loam to silty clay loam fill and loose to medium dense sandy gravel to gravelly loam fill with unconfined compressive strength (Q_u) values of 0.5 to 3.1 tsf, SPT N-values of 5 to 15 blows-per-foot (bpf), and moisture content (MC) values of 3 to 24%.

(2) Medium stiff to hard clay to silty clay

From elevations of 627 to 619 feet, 0 to 6.0 feet bgs, borings advanced through up to 20 feet of medium stiff to hard, brown and gray clay to silty clay with Q_u values of 0.4 to 6.2 tsf, N-values of 5 to 24 bpf, MC of 14 to 26%, rarely 33%, liquid limit (LL) values of 33 to 51%, and plastic limit (PL) values of 15 to 19%.

(3) Stiff to hard silty clay to silty clay loam

From elevations of 617 to 623 feet, 5.0 to 20.0 feet bgs, borings advanced through up to 16 feet of stiff to hard, brown to gray silty clay to silty clay loam with Q_u values of 1.3 to 8.6 tsf, N-values of 11 to 35 bpf, MC of 10 to 18%, rarely 24%, LL values of 21 to 31%, and PL values of 11 to 16%.

(4) Medium dense to very dense silt to silty loam, and loam

From elevations of 609 to 613 feet, 15.0 to 28.0 feet bgs, borings advanced through up to 24 feet of medium dense to very dense, gray silt, silty loam, and loam to silty clay loam and clay loam with N-values of 20 bpf to sampler refusal, cohesive lenses with Q_u values of 2.5 to 10.3 tsf, general MC of 6 to 19%, non-plastic or LL values of 27 to 29%, and PL values of 14 to 18%.

(5) Dense to very dense gravelly sand to silty loam, and loam

From elevations of 585 to 590 feet, 39.0 to 42.0 feet bgs, borings advanced through 0 to 20 feet of water bearing, dense to very dense, gray gravelly sand, sandy loam, silty loam, and loam with N-values of 30 bpf to sampler refusal, MC of 6 to 16%.

(6) Dolostone bedrock

From elevations of 572 to 582 feet, 33.5 to 52.0 feet bgs, seven out of 19 borings encountered and cored through strong, very poor to good rock mass quality vuggy dolostone bedrock with RQD values of 10 to 89%.

3.2 Pipes Jackings

3.2.1 Pipe Jacking at 21st Avenue

Borings JPB-01, JPB-02, and JPB-03 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 7 feet of very stiff silty clay fill with Q_u values of 2.5 to 3.1 tsf, and MC values of 21 to 23%, and loose sandy gravel fill with SPT N-values of 6 to 8 bpf

(2) Very stiff to hard clay to silty clay

From elevations of 623 to 625 feet, 3.0 to 5.5 feet bgs, borings advanced through up to 6 feet of very stiff to hard, brown and gray clay to silty clay with Q_u values of 2.4 to 6.2 tsf, N-values of 9 to 24 bpf, MC of 18 to 20%, LL value of 34%, and PL value of 17%.

(3) Very stiff to hard clay loam to silty clay loam

From elevations of 618 to 619 feet, 9.0 to 10.5 feet bgs, borings advanced through up to 6 feet of very stiff to hard, brown to gray clay loam to silty clay loam with Q_u values of 3.0 to 9.8 tsf, N-values of 17 to 33 bpf, MC of 10 to 16%, LL value of 27%, and PL value of 14%.

(4) Dense to very dense silt to silty loam

From elevations of 612 to 614 feet, 15.5 feet bgs, borings advanced through up to 15 feet of medium dense to very dense, gray silt, silty loam with silty clay loam and sand lenses. The unit has N-values of 33 bpf to sampler refusal and MC of 9 to 15%. Up to 2.5-foot-thick silty clay lenses have Q_u values of 6.4 tsf, and MC of 15%.

3.2.2 Pipe Jacking at 20th Avenue

Borings JPB-04, JPB-05, and JPB-06 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings did not encounter fill except aggregate base below the pavement.

(2) Very stiff to hard clay to silty clay

Below the pavement structure borings advanced through up to 7 feet of very stiff to hard, brown and gray clay to silty clay with Qu values of 2.7 to 4.9 tsf, N-values of 7 to 15 bpf, MC of 19 to 24%

(3) Very stiff to hard silty clay to silty clay loam

From elevations of 620 to 626 feet, 1.0 to 5.5 feet bgs, borings advanced through up to 7 feet of very stiff to hard, brown to gray clay loam to silty clay loam with Qu values of 2.5 to 7.4 tsf, N-values of 7 to 28 bpf, MC of 15 to 21%.

(4) Medium dense to very dense silt to silty loam

From elevations of 613 to 616 feet, 13.0 to 15.5 feet bgs, borings advanced through up to 27 feet of medium dense to very dense, gray silt, silty loam with clay loam to silty clay loam and sand lenses. The unit has N-values of 29 bpf to sampler refusal, MC of 8 to 17%, LL value of 26%, and PL value of 14%. Up to 8.5-foot-thick silty clay loam lenses have Qu values of 9.6 to 10.3 tsf, and MC of 10 to 17%.

(5) Very dense gravelly sand to loam

From elevations of 586 to 590 feet, 40.0 to 42.0 feet bgs, borings advanced through up to 20 feet of water bearing, very dense, gray gravelly sand, sandy loam, silty loam, and loam with N-values of 33 bpf to sampler refusal, MC of 6 to 17%.

3.2.3 Pipe Jacking at 17th Avenue

Borings JPB-07, JPB-08, and JPB-09 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 2 feet of very stiff silty clay fill with Qu values of 2.5 to 3.4 tsf, and MC values of 23 to 24%.

(2) Stiff to hard clay to silty clay

From elevations of 625 to 629 feet, 1.5 to 3.0 feet bgs, borings advanced through up to 8 feet of stiff to hard, brown and gray clay to silty clay with Qu values of 1.1 to 5.5 tsf, N-values of 6 to 17 bpf, MC of 17 to 21%, LL value of 37%, and PL value of 16%.

(3) Very stiff to hard silty clay to silty clay loam

From elevations of 623 feet, 8.0 feet bgs, borings advanced through up to 10 feet of very stiff to hard, silty clay to silty clay loam with Qu values of 2.9 to 7.3 tsf, N-values of 13 to 26 bpf, MC of 15 to 17%. Occasional lenses of silt may be encountered.

(4) Medium dense to very dense silt to silty loam

From elevations of 613 to 616 feet, 3.0 to 20.5 feet bgs, borings advanced through up to 29 feet of medium dense to very dense, gray silt, silty loam with silty clay and sand lenses. The unit has N-values of 25 bpf to sampler refusal and MC of 5 to 15%. Interbedded silty clay lenses up to 7.5-foot-thick have Qu values of 2.5 to 10.3 tsf, MC of 13 to 14%. LL value of 30%, and PL value of 14%.

(5) Very dense gravelly sand to loam

From elevations of 581 to 584 feet, 47.0 feet bgs, borings advanced through up to 12 feet of water bearing, very dense, gray gravelly sand, sandy loam to loam with N-values of over 50 bpf, sampler refusal, MC of 9 to 12%.

(6) Dolostone bedrock

From elevations of 579.4 feet, 51.5 feet bgs, one out of three borings encountered and cored through strong, very poor to good rock mass quality dolostone bedrock with RQD values of 0 to 80%.

3.2.4 Pipe Jacking Between 14th and 15th Avenue

Borings JPB-10, JPB-11, and JPB-12 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 7 feet of medium stiff to very stiff clay loam to silty clay loam fill with Qu values of 0.7 to 2.0 tsf, and MC values of 11 to 24% and medium dense sand to sandy loam fill with N-values of 10 bpf and MC of 5%.

(2) Stiff to very stiff clay to silty clay

From elevations of 619 to 626 feet, 3.5 to 7.0 feet bgs, borings advanced through up to 5 feet of stiff to very stiff, brown and gray clay to silty clay with Qu values of 1.2 to 2.6 tsf, N-values of 5 to 14 bpf, MC of 15 to 26%.

(3) Very stiff to hard clay loam to silty clay loam

From elevations of 616 to 621 feet, 5.5 to 12.0 feet bgs, borings advanced through up to 9 feet of very stiff to hard, clay loam to silty clay loam with Qu values of 2.1 to 4.8 tsf, N-values of 10 to 26 bpf, MC of 13 to 17%, LL value of 23%, and PL value of 11%. Occasional lenses of silt may be encountered.

(4) Medium dense to very dense silt to silty loam

From elevations of 611 to 614 feet, 8.0 to 18.0 feet bgs, borings advanced through up to 25 feet of medium dense to very dense, gray silt, silty loam, loam with silty clay loam and sandy loam lenses. The unit has N-values of 14 bpf to sampler refusal and MC of 10 to 21%. Interbedded loam, clay loam, and silty clay loam lenses up to 7.5-foot-thick have Qu values of 2.0 to 8.2 tsf, MC of 10 to 13%. LL value of 23%, and PL value of 14%.

(5) Very dense gravelly sandy loam to loam

From elevations of 590 feet, 37.0 feet bgs, borings advanced through up to 8 feet of water baring, very dense, gray gravelly sandy loam to loam with N-values of over 50 bpf, sampler refusal, MC of 9 to 10%.

(6) Dolostone bedrock

From elevations of 582 to 589 feet, 44.0 to 45.0 feet bgs, two out of three borings encountered and cored through strong, fair to good rock mass quality dolostone bedrock with RQD values of 69 to 78%.

3.2.5 Pipe Jacking at 13th Avenue

Borings JPB-13, JPB-14, and JPB-15 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 5 feet of stiff clay loam fill with Q_u values of 1.5 tsf, and MC values of 14% and loose sand to sandy gravel fill with N-values of 5 to 8 bpf and MC of 5 to 9%.

(2) Stiff to very stiff clay to silty clay

From elevations of 621 to 625 feet, 1.0 to 5.5 feet bgs, borings advanced through up to 5 feet of stiff to very stiff, brown and gray clay to silty clay with Q_u values of 1.2 to 3.5 tsf, N-values of 6 to 11 bpf, MC of 20 to 23%.

(3) Stiff to hard silty clay to silty clay loam

From elevations of 619 to 621 feet, 3.0 to 8.0 feet bgs, borings advanced through up to 15 feet of very stiff to hard, silty clay to silty clay loam with Q_u values of 1.4 to 7.4 tsf, N-values of 10 to 26 bpf, MC of 12 to 18%. Interbedded up to 7-foot-thick lenses of medium dense, brown and gray loam to sandy loam with N-values of 10 to 20 bpf, and MC of 11 to 12% are encountered.

(4) Dense to very dense silt to silty loam

From elevations of 606 to 611 feet, 13.0 to 20.5 feet bgs, borings advanced through up to 27 feet of dense to very dense, gray silt, silty loam, and silty clay loam lenses. The unit has N-values of 33 bpf to sampler refusal and MC of 7 to 21%. Interbedded silty clay loam lenses up to 10-foot-thick have Q_u values of 3.5 to 8.0 tsf, MC of 10 to 21%.

(5) Very dense gravelly sand to loam

From elevations of 585 to 592 feet, 34.5 to 42.0 feet bgs, borings advanced through up to 10 feet of water baring, very dense, gray gravelly sand, sandy loam to loam with N-values of over 50 bpf, sampler refusal, MC of 6 to 12%.

(6) Dolostone bedrock

From elevations of 579 to 582 feet, 45.0 to 48.0 feet bgs, two out of three borings encountered and cored through strong, fair to good rock mass quality dolostone bedrock with RQD values of 50 to 89%.

3.2.6 Pipe Jacking at 11th Avenue

Borings JPB-16, JPB-17, and JPB-18 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 2 feet of very stiff clay fill with Q_u values of 2.4 tsf, and MC values of 23%.

(2) Stiff to very stiff clay to silty clay

From elevations of 623 to 627 feet, 1.0 to 3.0 feet bgs, borings advanced through up to 5 feet of stiff to very stiff clay to silty clay with Q_u values of 1.5 to 3.8 tsf, N-values of 5 to 15 bpf, MC of 21 to 24%.

(3) Very stiff to hard clay loam to silty clay loam

From elevations of 618 to 623 feet, 5.5 to 8.0 feet bgs, borings advanced through up to 15 feet of very stiff to hard silty clay to silty clay loam with Q_u values of 2.1 to 6.4 tsf, N-values of 9 to 39 bpf, MC of 11 to 17%.

(4) Dense to very dense silt to silty loam

From elevations of 607 feet, 1.0 to 21.0 feet bgs, borings advanced through up to 19 feet of dense to very dense, gray silt, silty loam with silty clay loam and clay loam lenses. The unit has N-values of 33 bpf to sampler refusal and MC of 8 to 13%. Interbedded silty clay loam, clay loam lenses up to 3.5-foot-thick have Q_u values of 6.3 to 10.3 tsf, MC of 8 to 13%. LL value of 21%, and PL value of 14%.

(5) Very dense gravelly sandy loam to loam

From elevations of 594 feet, 25.5 to 32.0 feet bgs, borings advanced through up to 5 feet of water bearing, very dense, gray gravelly loam to silty loam with N-values of over 50 bpf, sampler refusal, MC of 6 to 10%.

(6) Dolostone bedrock

From elevations of 589 feet, 37.0 to 40.0 feet bgs, two out of three borings encountered and cored through strong, very poor to good rock mass quality dolostone bedrock with RQD values of 15 to 80%.

3.2.7 Pipe Jacking at 10th Avenue

Borings JPB-19, JPB-20, and JPB-21 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In

descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 3 feet of very stiff clay loam fill with Q_u values of 2.7 tsf, and MC values of 21%.

(2) Very stiff to hard clay to silty clay

From elevations of 623 to 624 feet, 3.0 to 4.0 feet bgs, borings advanced through up to 7 feet of very stiff to hard clay to silty clay with Q_u values of 2.2 to 5.1 tsf, N-values of 10 to 14 bpf, MC of 18 to 21%.

(3) Stiff to hard clay loam to silty clay loam

From elevations of 616 to 617 feet, 10.5 feet bgs, borings advanced through up to 12 feet of stiff to hard clay loam to silty clay loam with Q_u values of 1.3 to 10.1 tsf, N-values of 11 to 28 bpf, MC of 12 to 17%, LL value of 26 to 29%, and PL value of 13 to 15%.

(4) Dense to very dense silt to silty loam

From elevations of 604 to 608 feet, 5.5 to 23.0 feet bgs, borings advanced through up to 18 feet of dense to very dense, gray silt, silty loam, loam with clay loam sand lenses. The unit has N-values of 35 bpf to sampler refusal and MC of 7 to 13%. Interbedded clay loam lenses up to 2.5-foot-thick have Q_u values of greater than 4.5 tsf, MC of 7 to 12%. LL value of 27%, and PL value of 14%.

(5) Very dense gravelly loam

From elevations of 592 feet, 35.5 feet bgs, borings advanced through up to 3 feet of water bearing, very dense, gray gravelly loam with N-values of over 50 bpf, sampler refusal, MC of 7%.

(6) Dolostone bedrock

From elevations of 589 feet, 38.0 to 38.5 feet bgs, two out of three borings encountered and cored through strong, very poor to good rock mass quality dolostone bedrock with RQD values of 39 to 75%.

3.2.8 Pipe Jacking at 9th Avenue

Borings JPB-22, JPB-23, and JPB-24 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 7 feet of loose to medium dense sandy gravel to sand with N-values of 5 to 14 bpf, MC of 4 to 11% and stiff silty clay fill with Q_u value of 1.5 tsf, and MC values of 14%.

(2) Stiff to hard clay to silty clay

From elevations of 620 to 623 feet, 5.5 to 8.0 feet bgs, borings advanced through up to 2.5 feet of stiff to hard clay to silty clay with Q_u values of 1.6 to 4.9 tsf, N-values of 9 to 10 bpf, MC of 16 to 22%.

(3) Stiff to hard clay loam to silty clay loam

From elevations of 618 to 620 feet, 8.0 to 10.5 feet bgs, borings advanced through up to 14 feet of stiff to hard clay loam to silty clay loam to silty loam with Q_u values of 1.2 to 8.5 tsf, N-values of 9 to 26 bpf, MC of 12 to 18%.

(4) Dense to very dense silt to silty loam

From elevations of 607 to 608 feet, 8.0 to 21.5 feet bgs, borings advanced through up to 16 feet of dense to very dense, gray silt, silty loam, loam with silty clay loam lenses. The unit has N-values of 30 bpf to sampler refusal and MC of 8 to 18%, LL value of 19%, and PL value of 12%. Interbedded silty clay loam lenses up to 5-foot-thick have Q_u values of 4.5 to 10.3 tsf, MC of 10 to 14%.

(5) Dense to very dense gravelly sandy loam

From elevations of 592 to 595 feet, 20.5 to 37.0 feet bgs, borings advanced through up to 5 feet of water bearing, very dense, gray gravelly sandy loam with N-values of over 50 bpf, sampler refusal, MC of 2 to 8%.

(6) Dolostone bedrock

From elevations of 585 to 591 feet, 25.0 to 43.5 feet bgs, two out of three borings encountered and cored through strong, fair rock mass quality dolostone bedrock with RQD values of 50 to 68%.

3.2.9 Pipe Jacking at 5th Avenue

Borings JPB-25, JPB-26, and JPB-27 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 2 feet of stiff clay loam fill with Q_u value of 1.8 tsf, and MC values of 6% and buried topsoil with MC 30%.

(2) Stiff to hard clay to silty clay

From elevations of 623 to 624 feet, 3.0 feet bgs, borings advanced through up to 8 feet of stiff to very stiff clay to silty clay with Q_u values of 1.3 to 4.0 tsf, N-values of 6 to 25 bpf, MC of 19 to 23%, LL value of 33%, and PL value of 18%.

(3) Stiff to hard clay loam to silty clay loam

From elevations of 616 feet, 10.5 feet bgs, borings advanced through up to 13 feet of stiff to hard clay loam to silty clay loam with Q_u values of 1.6 to 6.8 tsf, N-values of 6 to 35 bpf, MC of 15 to 18%, LL value of 26%, and PL value of 14%.

(4) Dense to very dense silt to silty loam

From elevations of 603 to 604 feet, 8.0 to 23.0 feet bgs, borings advanced through up to 15 feet of dense to very dense, gray silt, silty loam with clay loam lenses. The unit has N-values of 33 bpf to sampler refusal and MC of 6 to 15%. Interbedded clay loam lenses up to 5.0-foot-thick have Q_u values of 4.2 to 4.5 tsf, MC of 9 to 15%.

(5) Very dense gravelly sandy loam to loam

From elevations of 588 feet, 38.5 feet bgs, borings advanced through up to 5 feet of water bearing, very dense, gray gravelly loam with N-values of over 50 bpf, sampler refusal, MC of 11%.

(6) Dolostone bedrock

From elevations of 583 to 593 feet, 33.5 to 43.5 feet bgs, borings encountered and cored through strong, very poor to good rock mass quality dolostone bedrock with RQD values of 0 to 81%.

3.2.10 Pipe Jacking at 3rd Avenue

Borings JPB-28, JPB-29, and JPB-30 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 5 feet of very stiff silty clay to silty clay loam fill with Q_u values of 2.7 to 3.1 tsf, and MC values of 19 to 21%.

(2) Stiff clay to silty clay

From elevations of 619 feet, 5.5 feet bgs, borings advanced through up to 2 feet of stiff clay to silty clay with Q_u values of 1.6 tsf, N-values of 12 bpf, MC of 19%.

(3) Stiff to hard silty clay to silty clay loam

From elevations of 616 to 619 feet, 6.0 to 8.0 feet bgs, borings advanced through up to 15 feet of stiff to hard silty clay to silty clay loam and silty loam with Q_u values of 1.2 to 8.7 tsf, N-values of 6 to 24 bpf, MC of 9 to 20%.

(4) Dense to very dense silt to silty loam

From elevations of 604 to 605 feet, 10.5 to 20.5 feet bgs, borings advanced through up to 27 feet of dense to very dense, gray silt, silty loam and sand with silty clay lenses. The unit has N-values of 30 bpf to sampler refusal and MC of 7 to 13%. Interbedded silty clay lenses up to 3-foot-thick have Q_u values of 4.8 tsf, MC of 24%.

(5) Very dense gravelly sandy loam to loam

From elevations of 578 feet, 47.0 feet bgs, borings advanced through up to 3 feet of water baring, very dense, gray gravelly loam to silty loam with N-values of over 50 bpf, sampler refusal, MC of 8%.

(6) Dolostone bedrock

From elevations of 575 feet, 49.5 feet bgs, one out of three borings encountered and cored through strong, very poor rock mass quality dolostone bedrock with RQD values of 0%.

3.2.11 Pipe Jacking at 1st Avenue

Borings JPB-31, JPB-32, and JPB-33 advanced through the existing pavement on Harrison Street, I-290, and Bataan Drive. The pavement structure encountered is detailed in Sections 3.1 and 3.2. In descending order, the general lithologic succession encountered beneath the surface within the investigated depth includes:

(1) Man-made ground (Fill)

Below the surface, borings encountered up to 2 feet of very clay to stiff clay fill with Qu value of 2.1 tsf, and MC values of 21%.

(2) Stiff to hard clay to silty clay

From elevations of 615 to 621 feet, 1.0 to 3.0 feet bgs, borings advanced through up to 5 feet of stiff to hard clay to silty clay with Qu values of 1.2 to 5.5 tsf, N-values of 10 to 24 bpf, MC of 18 to 24%, LL value of 37 to 38%, and PL value of 16 to 18%.

(3) Very stiff to hard silty clay to silty clay loam

From elevations of 606 to 608 feet, 8.0 to 18.0 feet bgs, borings advanced through up to 18 feet of very stiff to hard silty clay to silty clay loam with Qu values of 2.1 to 10.3 tsf, N-values of 9 to 29 bpf, MC of 12 to 21%.

(4) Dense to very dense silt to silty loam

From elevations of 591 to 602 feet, 5.5 to 25.5 feet bgs, borings advanced through up to 26 feet of dense to very dense, gray silt, silty loam with clay loam lenses. The unit has N-values of 32 bpf to sampler refusal and MC of 2 to 17%. Interbedded clay loam lenses up to 10.0-foot-thick have Qu values of 3.0 to 10.3 tsf, MC of 11 to 13%.

(5) Very dense gravelly sandy loam to loam

From elevations of 566 to 572 feet, 42.0 to 45.0 feet bgs, borings advanced through up to 15 feet of water baring, very dense, gray gravelly sand to loam with N-values of over 50 bpf, sampler refusal, MC of 7 to 11%.

(6) Dolostone bedrock

From elevations of 562 to 572 feet, 45.0 to 52.0 feet bgs, two out of three borings encountered and cored through strong, very poor rock mass quality dolostone bedrock with RQD values of 10 to 37%.

3.3 Groundwater Conditions

Groundwater was encountered while drilling at elevations of 563 to 626 feet (3.5 to 48.5 feet bgs) within the granular unit 4 and unit 5. At drilling completion, groundwater level was measured at 20.0 to 60.0 feet, 564.6 to 608.5 feet elevation. It should be noted that groundwater levels might change with seasonal rainfall patterns and long-term climate fluctuations or may be influenced by local site conditions. To monitor groundwater levels, 11 groundwater monitoring wells were installed, and the data is summarized in Table 2 and Figures 1 through 3. Groundwater level in monitoring wells will be recorded on a monthly basis until final plans are completed.

Table 2: Monitoring Wells Data Summary

Well ID	Location	Existing Surface Elevation (feet)	Well Depth (feet)	Screen Interval	Groundwater elevation (feet)	Groundwater depth* (feet)
JPB-01well	Harrison St	628.55	26	15 – 25	618.10	10.45
JPB-06well	Bataan Dr	628.26	24	13 – 23	616.30	11.96
JPB-07well	Harrison St	628.49	32	21 – 31	604.79	23.7
JPB-12well	Bataan Dr	626.81	34	23 – 33	597.20	29.61
JPB-13well	Harrison St	626.57	25	14 – 24	603.71	22.86
JPB-18well	Bataan Dr	627.09	31	20 – 30	600.32	26.77
JPB-22well	Harrison St	628.36	32	21 – 31	597.28	31.08
JPB-27well	Bataan Dr	626.66	43.5	32.5-42.5	606.83	19.83
JPB-28well	Harrison St	625.19	31	20 – 30	597.28	27.91
JPB-31well	Harrison St	623.16	36	25 – 35	603.21	19.95
JPB-33well	Bataan Dr	624.65	41	30-40	601.19	23.46

*Data collected from June 24, 2025, through February 18th, 2026

Geotechnical Engineering Report

FAI 290 Drainage Improvements|Cook County, Illinois

Contract 62X09

March 6, 2026 | Wang/Terracon Project No. KE245518

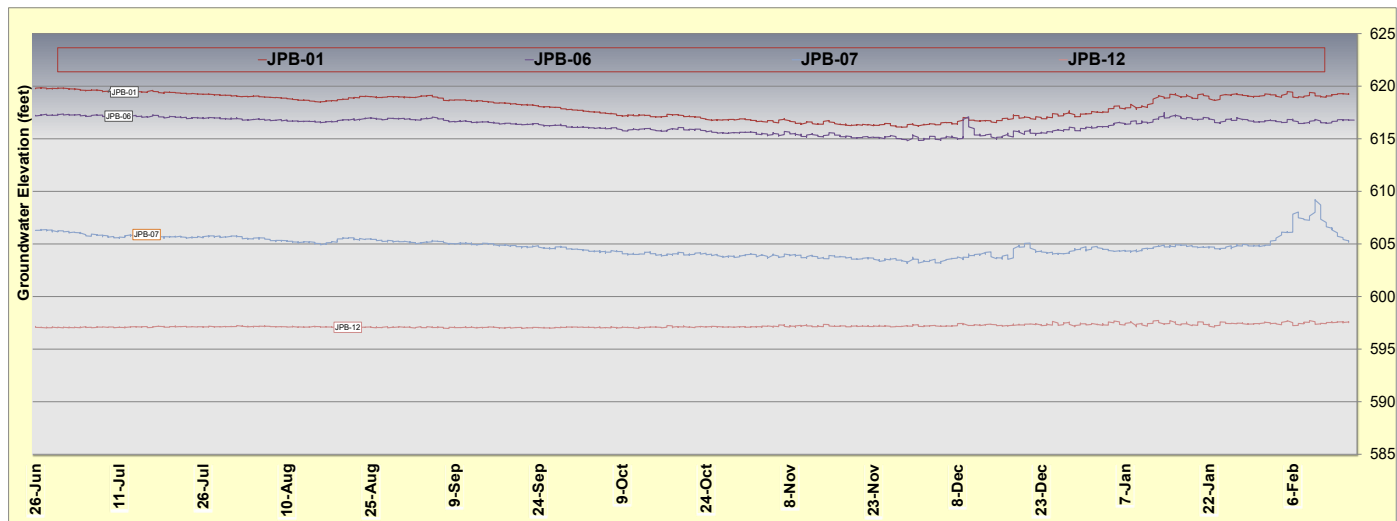


Figure 1: Groundwater Monitoring Well Data for JPB-01, JPB-06, JPB-07, and JPB-12

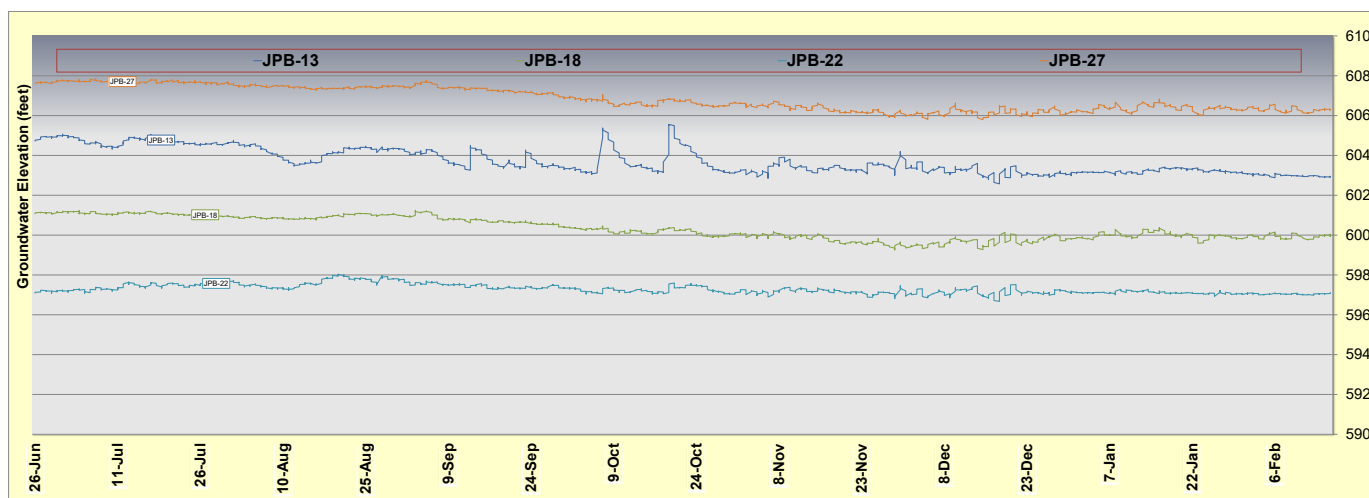


Figure 2: Groundwater Monitoring Well Data for JPB-13, JPB-18, JPB-22, and JPB-27

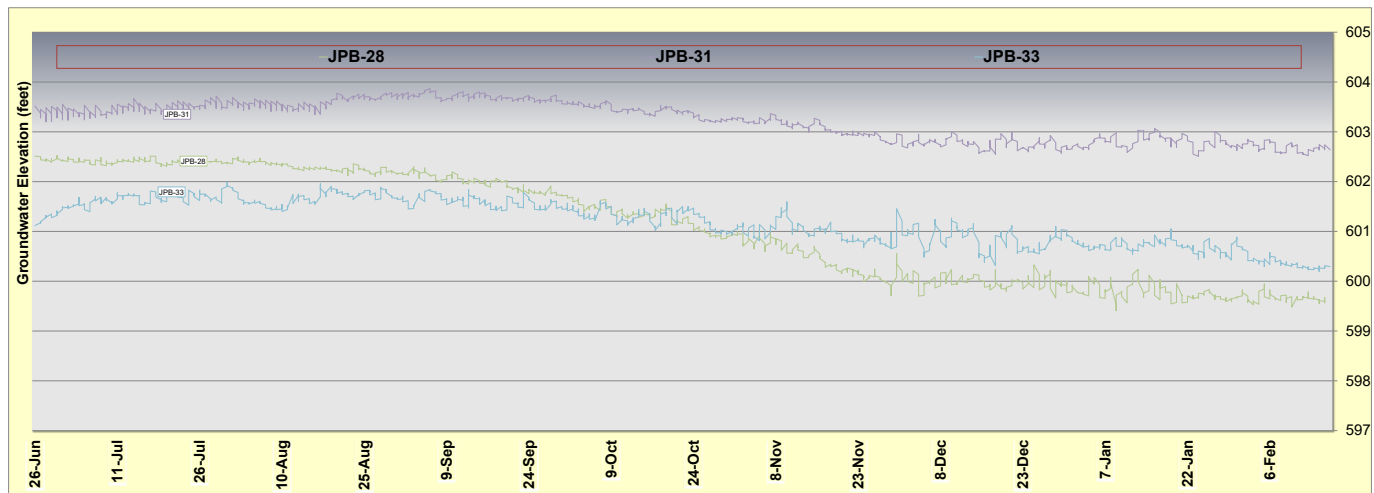


Figure 3: Groundwater Monitoring Well Data for JPB-28, JPB-31, and JPB-33

3.4 Laboratory Test Results

The results of the laboratory testing program are shown in the attached Boring Logs (Appendix A), and Laboratory Test Results (Appendix B)

4.0 Analyses and Recommendations

4.1 Seismic Design Considerations

The seismic site class was determined in accordance with the IDOT Design Guide *LRFD Soil Site Class Definition* (revised 2010). The results classify the site in the Seismic Site Class D. The project location belongs to the Seismic Performance Zone 1 (revised IDOT 2020). According to the IDOT *Bridge Manual* (IDOT 2012), liquefaction analysis is not required for sites located in Seismic Performance Zone 1. According to Article 3.10.1 of the AASHTO LRFD Bridge Design Specifications, buried structures are not designed for seismic effects. As such, they also are not designed for the seismic loading effects given in Articles 11.5.4 and 11.6.5 of the AASHTO LRFD Bridge Design Specifications, regardless of the adjusted peak ground acceleration (PGA) or liquefaction concerns.

4.2 Harrison Street Sewer

A new 66-inch RCP stormwater sewer pipe will be installed in an open cut trench. The proposed pipe invert elevation varies from 612.19 to 615.5 feet. The base and excavated soil will be very stiff to hard clay to silty clay, silty clay loam, and clay loam (Unit 3). Foundation soil is expected to offer a stable working platform during construction. If unstable/unsuitable soil is encountered during construction, they should be removed and replaced with compacted aggregate or removed granular soil reused after recompaction. Compaction should be as per IDOT Standard Specifications for Road Bridge Construction. Groundwater was observed during drilling in six out of 19 borings drilled along Harrison Street. The highest elevation was at about 2.5 feet below the proposed pipe foundation within Unit 4. Six piezometers were installed along Harrison Street and data is presented in Section 3.5 Groundwater

Conditions. None of the borings encountered groundwater above proposed pipe foundation elevation; however, perched groundwater may be encountered. Exhibits 3-1 and 3-2 include the soil profile along with the proposed sewer extension.

A 66-inch stormwater sewer pipe will be installed in a jacked steel casing west of 1st Avenue to east of 1st Avenue. A jacking pit of 30'x20' size on the east of 1st Avenue and receiving pit of 16'x15' size is anticipated; however it is Contractor designed. The bottom of casing pipe will be approximately 12.5 feet below Harrison Street pavement. Boring JPB-31 shows very stiff to hard clay to silty clay within this jacking zone. Steel pipe jacking is feasible. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of casing pipe in contact with the soil. In general groundwater was found in silt to silty loam layer below the jacking zone.

4.3 Harrison Street Watermain and Combined Sewer

Existing 6-inch watermain along Harrison Street will be removed and new watermain varying in diameter from 8-inch to 12-inch per utility plans will be constructed from west of 20th Avenue to 5th Avenue at approximate depth of 6 feet below Harrison Street pavement. Existing combined sewer will be removed and a new combined sewer varying in diameter from 15-inch to 36-inch will be constructed from 21st Avenue to west of 16th Avenue and 12-inch diameter from west of 10th Avenue to 9th Avenue will be constructed varying in depth approximately from 9 feet to 17 feet below Harrison Street pavement. The subsurface soils are expected to be Units 1 through 3 as described in Section 3.1. Groundwater conditions observed in the borings and water wells are described in Section 3.4.

4.4 Pipes Jackings

All pipe jackings is expected to be within clayey soils and expected to be feasible.

4.4.1 Pipe Jacking at 21st Avenue

It is understood that a 14-inch diameter steel casing pipe will be jacked for a 8-inch watermain with the top of the casing pipe at a depth of approximately 5 feet below existing I-290 grade. Borings show very stiff to hard clay to silty clay within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in two out of three borings drilled along the alignment. In general groundwater is found in Unit 4 below the jacking zone. Perched groundwater was encountered within the granular fill in one boring. One piezometers was installed in Boring JPB-01 and data is presented in Section 3.5 Groundwater Conditions. Exhibit 3-3 include the soil profile along with the proposed jacking alignment.

4.4.2 Pipe Jacking at 20th Avenue

It is understood that an 18-inch diameter steel casing pipe will be jacked for a 12-inch watermain with the top of the casing pipe at a depth of approximately 15 feet below I-290 existing grade. Borings show very stiff to hard soils consisting of silty clay to silty clay loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. No groundwater was observed during and at completion

of borings within the Jacking zone; however, perched groundwater may be encountered. Exhibit 3-4 include the soil profile along with the proposed Jacking alignment.

4.4.3 Pipe Jacking at 17th Avenue

It is understood that a 14-inch steel casing pipe will be jacked for 8-inch watermain with the top of the casing pipe at a depth of approximately 5 feet below I-290 grade. Borings show medium dense to very dense silt to silty loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in two out of three borings drilled along the alignment in granular lensed within Unit 3. In general groundwater is found in Unit 4 below the jacking zone. Exhibit 3-5 includes the soil profile along with the proposed jacking alignment.

4.4.4 Pipe Jacking Between 14th and 15th Avenues

It is understood that a 48-inch diameter steel casing pipe will be jacked for 30-inch RCP sewer with the top of the casing pipe at a depth of approximately 5 feet below existing I-290 grade. Borings show very stiff to hard soils consisting of clay loam to silty clay loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in two out of three borings drilled along the alignment perched in granular fill or within Unit 4. In general groundwater is found in Unit 4 below the jacking zone. Exhibit 3-6 includes the soil profile along with the proposed jacking alignment.

4.4.5 Pipe Jacking at 13th Avenue

It is understood that a 14-inch diameter steel casing pipe will be jacked for 8-inch watermain with the top of the casing pipe at a depth of approximately 12 feet below existing I-290 grade. Borings show stiff to hard soils consisting of silty clay to silty clay loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in two out of three borings drilled along the alignment perched in granular fill or within Unit 4. In general groundwater is found in Unit 4 below the jacking zone. Exhibit 3-7 includes the soil profile along with the proposed jacking alignment.

4.4.6 Pipe Jacking at 11th Avenue

It is understood that dual 42-inch diameter steel casing pipe will be jacked for dual 30-inch DIP sewer with the top of the casing pipe at a depth of approximately 3 feet below existing I-290 grade. Borings show very stiff to hard soils consisting of clay loam to silty clay loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. No groundwater was observed during and at completion of borings within the jacking zone; however, perched groundwater may be encountered within granular lenses. Groundwater was observed during drilling in two out of three borings drilled along the

alignment perched in granular fill or within Unit 4. In general groundwater is found in Unit 4 below the jacking zone. Exhibit 3-8 includes the soil profile along with the proposed jacking alignment.

4.4.7 Pipe Jacking at 10th Avenue

It is understood that an 18-inch diameter steel casing pipe will be jacked for a 12-inch watermain with the top of the casing pipe at a depth of approximately 9 feet below existing I-290 grade. Borings show dense to very dense soils consisting of dense to very dense silt to silty loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. No groundwater was observed during and at completion of borings within the jacking zone. Groundwater is deeper seated within Unit 4. However, perched groundwater may be encountered within the granular lenses or fill. Exhibit 3-9 includes the soil profile along with the proposed jacking alignment.

4.4.8 Pipe Jacking at 9th Avenue

It is understood that a 14-inch diameter steel casing pipe will be jacked for 8-inch watermain with the top of the pipe at a depth of approximately 7 feet below existing I-290 grade. Borings show dense to very dense soils consisting of silt to silty loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in one out of three borings drilled along the alignment within Unit 4 above the jacking zone. In general groundwater is found below the jacking zone. Exhibit 3-10 includes the soil profile along with the proposed jacking alignment.

4.4.9 Pipe Jacking at 5th avenue

It is understood that a 14-inch diameter steel pipe will be jacked for 8-inch watermain with the top of the casing pipe at a depth of approximately 10 feet below existing I-290 grade. Borings show dense to very dense soils consisting of silt to silty loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in one out of three borings drilled along the alignment within Unit 5 below the jacking zone. In general groundwater is found below the jacking zone. Exhibit 3-11 includes the soil profile along with the proposed jacking alignment.

4.4.10 Pipe Jacking at 3rd Avenue

It is understood that a 18-inch diameter steel casing pipe will be jacked for 12-inch watermain with the top of the casing pipe at a depth of approximately 7.5 feet below the existing I-290 grade. Borings show stiff to hard soils consisting of silty clay to silty clay loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in one out of three borings drilled along the alignment within Unit 4 below the jacking zone. In general groundwater is found below the jacking zone. Exhibit 3-12 includes the soil profile along with the proposed jacking alignment.

4.4.11 Pipe Jacking at 1st Avenue

It is understood that a 14-inch diameter steel pipe will be jacked for 8-inch watermain with the top of the casing pipe at a depth of approximately 9.5 feet below existing I-290 grade. Borings show dense to very dense soils consisting of silt to silty loam within this jacking zone. Frictional resistance to the jacking force can be estimated from the product of shear strength of soil and the surface area of pipe in contact with the soil. Groundwater was observed during drilling in one out of three borings drilled along the alignment within granular lenses in Unit 3 above the jacking zone. However, in general groundwater is found below the jacking zone. Exhibit 3-13 includes the soil profile along with the proposed jacking alignment.

4.5 Existing Pavement Removal

For the construction of the storm sewers and jacking/receiving pits removal of existing pavement will be required on Harrison Street and Bataan Drive. After installation of sewers and junction chambers the surface will be patched along Bataan Drive. The pavement will be reconstructed along Harrison Street. The existing pavement structure revealed by our investigation is described on the boring logs.

4.6 Storm Sewers Installation

In most areas the subgrade soil is expected to be suitable to support the proposed storm sewers and structures. During wet seasons, seepage groundwater is likely to be encountered from the granular soil layers. Accumulated groundwater in excavations can be removed using the sump pump method. The conditions exposed at the bottom of the trench subgrade should be inspected during construction. Any unstable soil found should be removed to a minimum depth of 1 foot below the design subgrade elevation and replaced with compacted bedding material. Although groundwater was not encountered in many borings during the investigation, the Contractor should be prepared to dewater and temporarily draw-down the water level in trench excavations should groundwater levels be above invert elevations at the time of construction. After the utility installation, all trench excavations should be backfilled to subgrade level with granular material placed in lifts and compacted. Storm sewers should be constructed in accordance with IDOT Standard Specifications for Road and Bridge Construction (SSRBC) Section 550 *Storm Sewers*.

4.7 Jacking pipe

The top of jacking pipe should be at least 4.5 feet below the lowest grade of the existing grade along the jacking length. The contractor should review this subsurface soil and groundwater conditions and judge their effects on means, methods, and progress of work. The jacking operation, once started, should be continued until completed. If continuous jacking cannot be maintained, the contractor should take the necessary precautions for not allowing the jacked pipes to freeze or set in the ground. The voids between the jacked steel pipe and watermain in pipe should be filled as required by the IDOT SSRBC. We recommend that the contractor be required to submit details of his means and methods for installing casing by jacking. The pipe can be jacked in general accordance with IDOT SSRBC Section 552, *Storm Sewers Jacked in Place* or equivalent specifications.

4.8 Jacking/Receiving Pits and Conflict Chambers

The jacking/receiving pit size should be large enough to provide a safe and adequate working area. The jacking/receiving pit walls should be supported in accordance with OSHA construction requirements to ensure a solid, stable base for boring machine and pit sides. Some stabilizing of pit base may be necessary by removal of unstable soils and replacing with crushed stone. Jacking load can be transferred to the soil behind the jacking pit through a thrust block constructed at the back of the pit. The resistance which the soil can provide to the jacking loads may be estimated from the allowable passive pressures. A shear strength at the thrust block can be considered for the soil shown on the boring logs to calculate passive pressure. A factor of safety of 2 should be considered.

The soil at the base should be evaluated from the borings depending on the depth of excavation. A layer of stabilization stone may be required at the base as a working platform depending on the weather conditions and if the foundation soils become unstable due to construction activities. Soil removal and replacement thickness should be determined in the field based on the contractor's method and equipment to be used. Provisions should be made to collect and remove groundwater seepage and water runoff that may accumulate in the pits.

It is understood that some of the jacking/receiving pits may be located on the cut slope of I-290 with Harrison Street and Bataan Drive. We also understand that cut slopes are at 1(V): 3(H). We do not anticipate any slope stability concern. The Contractor should be required to evaluate the local stability of the cut slope depending on the final location of pits.

We understand that mainline and/or shoulder of I-290 will not be allowed to close during pits construction and jacking operations. This restriction requirement should be included in the contract documents.

4.9 Conflict Chambers Bearing Resistance

Two conflict chambers are proposed as shown on the Plans sheet numbers 240-243 of 366. It is understood that the design of the Conflict chambers will be based on LRFD method. Factored soil bearing resistance at the base of the chambers will depend on the soils below the base. Bearing soil resistance values are shown in Table 3. A layer of stabilization stone may be required at the base as a working platform depending on the weather conditions and if the foundation soils become unstable due to construction activities. Soil removal and replacement thickness should be determined in the field based on the contractor's method and equipment to be used. Provisions should be made to collect and remove groundwater seepage and water runoff that may accumulate in the excavated area.

Table 3: Bearing Soil Resistance for Conflict Chambers

Conflict Chamber	Location	Base Elevation (feet)	Boring Number	Factored Bearing Resistance (ksf)
S-109CON	Harrison Street	612.05	JPB-10	10
S-206CON	Bataan Drive	612.49	JPB-12	7
S-112CON	Harrison Street	610.76	JPB-16	10
S-207CON	Battan Drive	610.70	JPB-18	7

4.10 Temporary Excavation Support System

Temporary excavation support systems (TESS) will need to be designed by the Contractor. Temporary trench excavation on Harrison Street for the storm sewers installation will be required. Sheet piling, shoring, or bracing systems can be used to create vertical excavation walls. The seepage groundwater and any rainfall water that might accumulate in the open excavation should be removed to prevent the loss of soil strength at the bottom of the excavation. The perched groundwater is expected to be encountered within the fill materials. We recommend providing weep holes to avoid water pressure developed during the wet season. It will be difficult to drive sheet piling below cohesive soils with an unconfined compressive strength (Q_u) value of 4.5 tsf or below granular soils with a blow count (N) value of 35 blows per foot. Soldier pile walls may be required. Soil parameters for the design can be determined from the field and laboratory test results and soil description shown on the boring logs depending on the support system selected by the Contractor. Lateral pressure from adjacent foundations and other surcharge loads such as construction equipment should also be considered in the design of the bracing system. Since the lateral soil pressure distribution behind a bracing system will be dependent on the scheme selected to support the excavation walls, the contractor should consider lateral design pressure diagram based on the support system selected. The temporary excavation support system should be designed by an Illinois Licensed Structural Engineer and should be submitted to IDOT for review and approval.

Soil parameters for lateral load analysis and lateral earth pressure for designing TESS and junction chambers are shown in Tables included in Appendix C.

4.11 Roadway Grade Monitoring

During construction, the roadway grades should be monitored for vertical displacement. The monitoring plan should comply with the criteria required by the IDOT. The excavation shoring systems should also be monitored for deflection and settlement. Monitoring should continue after final excavation backfill is completed or as required by the IDOT.

4.12 Harrison Street Reconstruction

Harrison Street will be reconstructed from Station 4311+85 to Station 4379+20. Reconstruction will

be omitted at 17th Ave, 9th Ave and 5th Ave. The pavement will be patched over the storm sewer and utility construction through these interscctions. No specific subgrade borings were performed. We considered borings performed for the Harrison Street sewer and sewer pipe jackings. Boring SSB-01 through SSB-08 and JPB-01, -04, -07, -10, -13 -16, -19, -22, -25, -28 and -31 were performed on Harrison Street. Generalized subsurface data profile along Harrison Street is shown in Exhibit 4.

4.12.1 Existing Pavement Structure

The borings drilled along the Harrison Street roadway alignments, encountered various pavement structures. The pavement structures encountered were either asphalt or asphalt over concrete, all resting over either an aggregate base or soil. The pavement composition and thicknesses as uncovered by our investigation are summarized in Table 4.

Table 4: Harrison Street Pavement Thickness Summary

Boring	Asphalt Concrete Inches	Cement Concrete Inches	Base Course Inches	Subgrade below bottom of pavement to 3 feet depth
JPB-01	0	8	0	Very Stiff Silty Clay, Fill
JPB-04	0	5	4	Hard, Clay to Silty Clay
SSB-01	14.5	0	4	Medium Stiff Silty Clay, Fill
SSB-02	13.5	0	0	Stiff Silty Clay, Fill
JPB-07	3	9	0	Very Stiff Silty Clay, Fill
SSB-03	12	0	0	Very Stiff Silty Clay
JPB-10	2	7	3	Silty Clay, Fill
JPB-13	4	9	0	Loose, Sandy Gravel/Loose Sand to 5ft
SSB-04	3.5	10.5	0	Stiff, Silty Clay Topsoil to 2 ft Stiff, Silty Clay 2 ft to 8 ft
JPB-16	3	9	0	Very Stiff, Clay to Silty Clay
Boring	Asphalt Concrete Inches	Cement Concrete Inches	Base Course Inches	Subgrade below bottom of pavement to 3 feet depth
JPB-19	4	7	25	Medium Dense, Sandy Gravel

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JPB-22	4	10	21.6	Very Stiff Silty Clay, Fill
SSB-05	5	0	6	Stiff Clay Loam, Fill to 2 ft
				Stiff Silty Clay to Silty Clay Loam from 2 ft to 8 ft
SSB-06	3.5	7.5	0	Medium Dense Sandy Gravel, Fill
JPB-25	3	8	4	Stiff Clay Loam, Fill
SSB-07	3.5	6.5	0	Medium Dense Gravelly Loam, Fill
JPB-28	7	0	0	Very Stiff Silty Clay, Fill

4.12.2 Subgrade Treatment

The existing grade will mainly be unchanged along Harrison Street. The subgrade will generally consist of stiff to very stiff silty clay to clay loam fill or stiff to very stiff natural silty clay to silty clay loam. Overall, the subgrade soils will provide a stable working platform for the construction of the new pavement structure and the aggregate base with some exceptions. Some of the borings encountered cohesive fill or natural soils with a moisture content of 24 to 26 percent with consistency of stiff to very stiff, mostly very stiff below existing pavement structure. Any such highly moist soils, if not otherwise unsuitable or unstable, encountered within the proposed roadway subgrade should be disked or tilled, dried, and compacted before placing the new pavement structure. Boring JPB-13 encountered loose sandy gravel base course. Any such loose granular soils encountered during construction should be recompacted or removed if necessary for providing new base course. Boring SSB-04 encountered topsoil below base course which should be removed and replaced with granular material during construction. All removal should be for a full width of the roadway and replacement material should be Aggregate Subgrade Improvement material same as proposed pavement base course.

We recommend including a plan quantity of Aggregate Subgrade Improvement (CU YD) equal to at least 25% of the planned full depth pavement area, assuming a thickness of 12 inches. This material should be used to replace any unsuitable soils below the bottom of the improved subgrade layer that are encountered in the field during construction. 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 or soils inspector. All potentially unstable soils should be tested with a cone penetrometer and treated in accordance with Article 301.04 of the SSRBC and the undercut guidelines in the IDOT Subgrade Stability Manual. 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 recommendation, 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 12" (SQ YD)** – This will be used for the 12 inch aggregate subgrade improvement below new pavement sections and widening pavement sections.
- **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.

Both of these pay items reference the IDOT Bureau of Design and Environment (BDE) Aggregate Subgrade Improvement Special Provision (April 1, 2022).

We also recommend including a plan quantity of **GEOTECHNICAL FABRIC FOR GROUND STABILIZATION (SQ YD)** equal to at least 25% of the planned full depth pavement area. 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 an undercut, and we do not recommend placing geotextile 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 or soils inspector at the time of construction. Fabric should meet the requirements of Article 210, Fabric for Ground Stabilization, of the SSRBC. Any material not needed at the time of construction should be deleted from the contract with no extra compensation to the contractor.

4.12.3 Drainage

The soils encountered beneath the proposed subgrade will exhibit poor drainage characteristics. Water reaching the surface will not drain rapidly. Proper surface grading and drainage of the existing subgrade is of significant importance to remove any water accumulation and to minimize the pooling of water. We recommend the new improvement be connected into the existing drainage system.

It is our opinion that an effective underdrain system would prevent any effects of detrimental frost action by eliminating capillary rise of water and dissipating water accumulated in the pavement base course. We recommend that transverse pipe underdrains be placed underneath the subgrade at low points of the roadway profile. A combination of longitudinal and transverse underdrains should be considered within the subgrade and tied into the proposed storm sewer drainage system. We recommend installing a transverse underdrain using a spacing of 300 feet. The underdrain should also be installed at the base of any undercuts. Underdrain should be installed per Section 601 of IDOT Standard Specifications and consist of Type 2 underdrains.

4.12.4 Pavement Design

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 (Exhibits 6-1 and 6-2). 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 2022).

For an AASHTO pavement design, the subgrade soil support is characterized using the Illinois Bearing Ratio (IBR). Based on soil tests and classifications we recommend the pavement be designed based on an IBR value of 2 (IDOT 2020).

We understand that Cook County Department of Highways and Transportation has proposed flexible pavement consisting of 12-inches of HMA over a 12-inch layer of Aggregate Subgrade Improvement.

5.0 Construction Considerations

5.1 Excavation and Backfilling

Temporary excavations should be sloped to no steeper than 1:1.5 (V:H) or as required to provide stable side slopes. All temporary cut excavation should be analyzed individually for excavation of more than 4 feet deep or slope steeper than 1:1.5 (V:H). A bracing and shoring system will be required for deeper vertical cut excavation. Excavations should be performed in accordance with local, state, and federal regulations. The potential effect of ground movements upon nearby roadways and utilities should also be taken into consideration.

Excavation and foundation preparation of the storm sewers should be in accordance with IDOT Standard Specifications for Road and Bridge Construction (SSRBC) Article 550.04. Backfilling for the storm sewers trenches should be in accordance with IDOT SSRBC Article 550.07. Excavation and backfilling for the junction chambers should be in accordance with IDOT SSRBC Section 502. Excess excavated soils should be disposed of according to IDOT SSRBC Article 202.03.

The Contractor should follow the IDOT procedures for soil waste management according to IDOT SSRBC Section 669 and applicable article of Section 202.

5.2 Dewatering

Groundwater level measurements were made in the borings at the time of drilling and in piezometers. The granular soils may present perched groundwater conditions during rainy seasons. These potential water bearing granular layers may be intercepted during cut slope excavation. Seepage water that accumulates in open excavations above the groundwater level can be removed using the sump pump method. Surface runoff should be directed away from the excavation to facilitate dewatering operations.

5.3 Temporary Erosion Control

During the construction the Contractor should provide temporary erosion and sediment control according to IDOT SSRBC Section 280. No soil, any debris and water should be allowed to enter I-290 expressway at any time.

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6.0 Qualifications and Limitations

The analysis and recommendations submitted in this report are based upon the data obtained from the borings drilled at the locations shown on the boring logs and in Exhibit 2. 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 improvements are planned, we should be timely informed in writing so that our recommendations can be adjusted accordingly. Wang Engineering/Terracon Consultants Inc. is not responsible for any claims, damages, or liability associated with the reinterpretation or re-use of the subsurface data in this report by others.

This memorandum was prepared for the exclusive use of the Accurate Group Project Team and the Illinois Department of Transportation for specific application to the design and construction of the proposed storm sewers and pipe jackings. No other warranty, expressed or implied, is made.

It has been a pleasure to assist Accurate Group and IDOT on this project. Please call if there are any questions, or if we can be of further service.

Geotechnical Engineering Report

FAI 290 Drainage Improvements|Cook County, Illinois

Contract 62X09

March 6, 2026 | Wang/Terracon Project No. KE245518



References

IDOT (2022) Standard Specifications for Road and Bridge Construction. Illinois Department of Transportation.

AASHTO (2024) LRFD Bridge Design Specification 10th Edition

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Geotechnical Engineering Report

FAI 290 Drainage Improvements|Cook County, Illinois

Contract 62X09

March 6, 2026 | Wang/Terracon Project No. KE245518



List of Attachments:

Exhibits

Exhibit 1: Site Locations Map

Exhibit 2: Boring Location Plan

Exhibit 3: Plan and Subsurface Data Profile

Exhibit 4: Harrison Street Subsurface Data Profile

Exhibit 5: IDH Classifications

Exhibit 6: Subgrade Support Rating Chart

Appendices

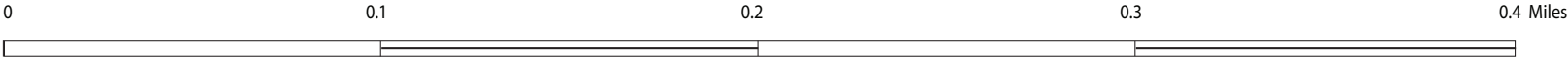
Appendix A: Boring Logs

Appendix B: Laboratory Test Results

Appendix C: Soil Parameters for TSRS and Junction Chambers

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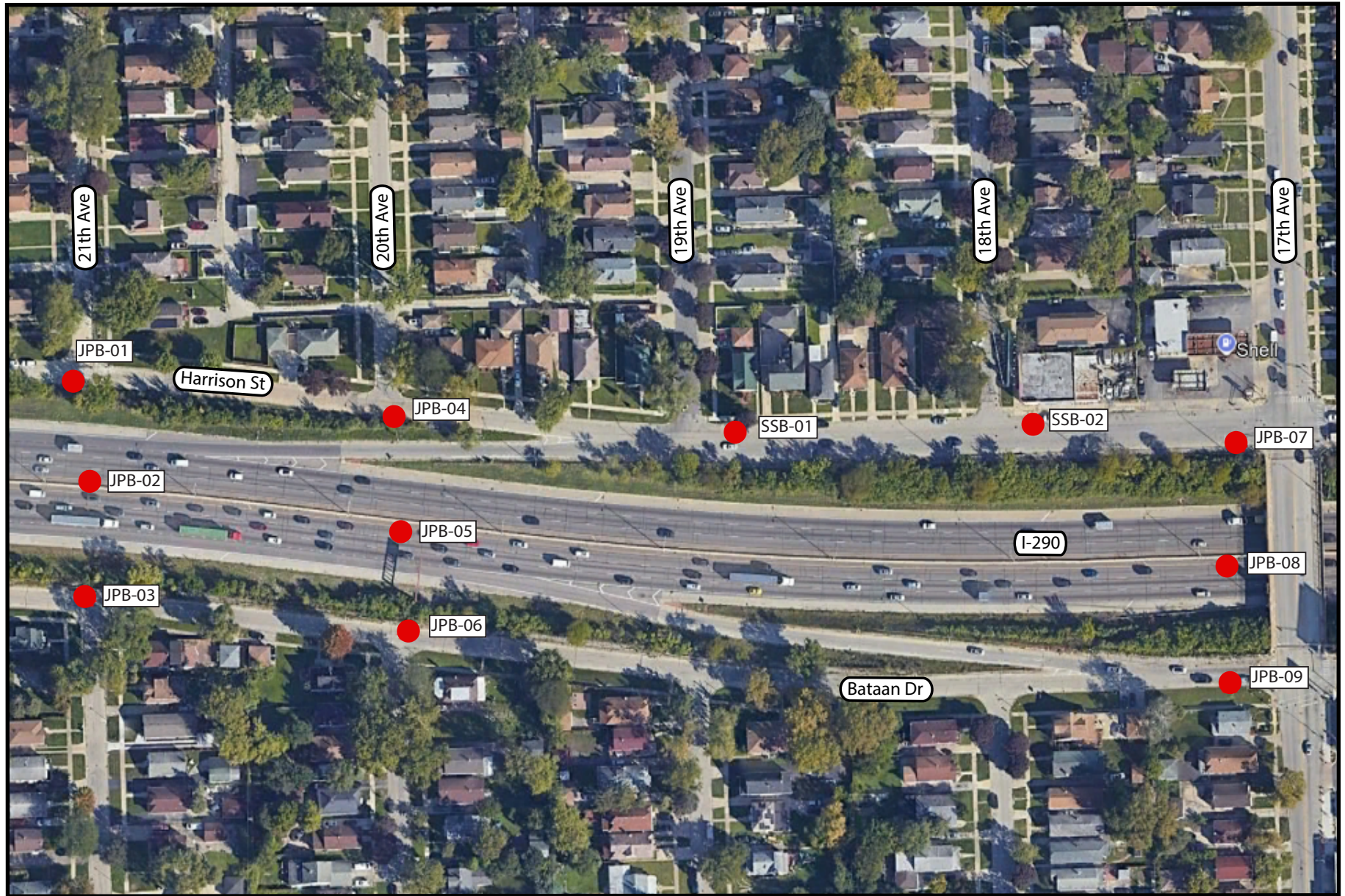
EXHIBITS



● Boring Location



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		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
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Legend

● Boring Location

0 200 400 Feet

BORING LOCATION MAP: FAI-290 DRAINAGE IMPROVEMENTS;
COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL

EXHIBIT 2-1

DRAWN BY: I. Romero
CHECKED BY: M. Kothawala



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Legend

● Boring Location

0 200 400 Feet

BORING LOCATION MAP: FAI-290 DRAINAGE IMPROVEMENTS;
COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL

EXHIBIT 2-2

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Legend

● Boring Location

0 200 400 Feet

BORING LOCATION MAP: FAI-290 DRAINAGE IMPROVEMENTS;
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SCALE: GRAPHICAL

EXHIBIT 2-3

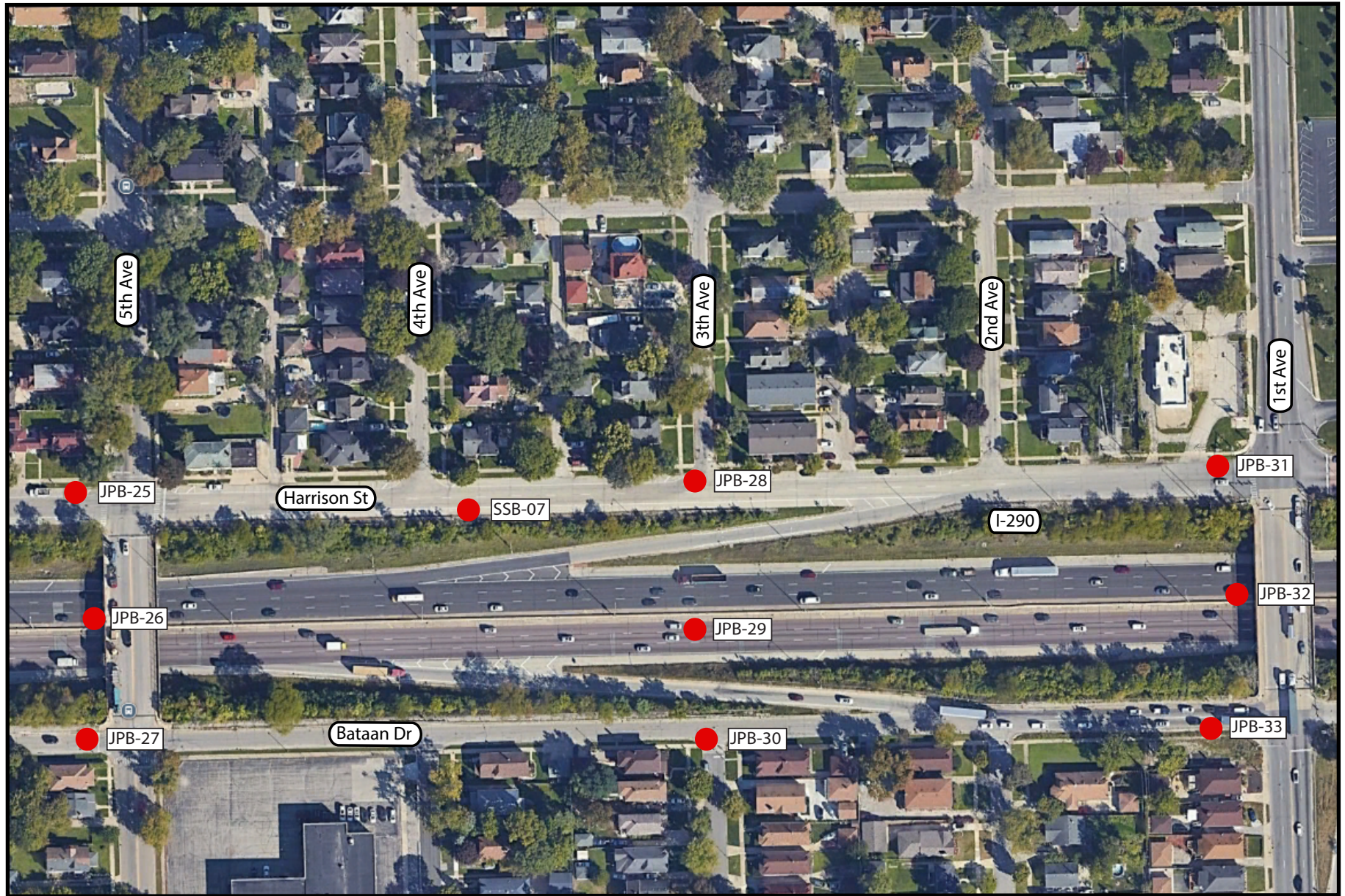
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CHECKED BY: M. Kothawala



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Legend

● Boring Location

0 200 400 Feet

BORING LOCATION MAP: FAI-290 DRAINAGE IMPROVEMENTS;
COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL

EXHIBIT 2-4

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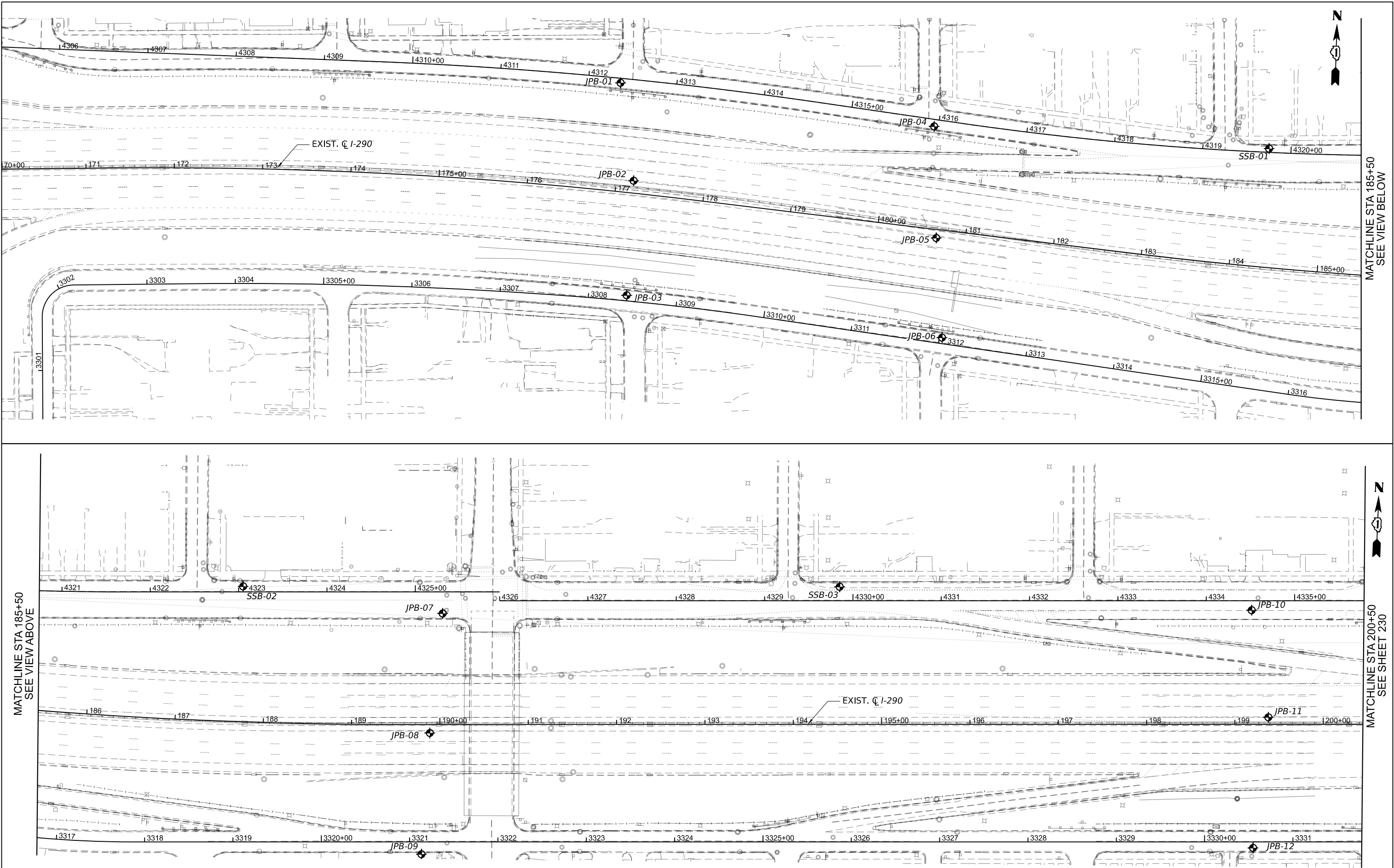
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS PLAN (SHEET 1 OF 3)
I-290 FROM 22ND AVE TO DES PLAINES RIVER

SHEET 1 OF 3 SHEETS

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CONTRACT NO. 62X09				
ILLINOIS FED. AID PROJECT 6WLW(875)				



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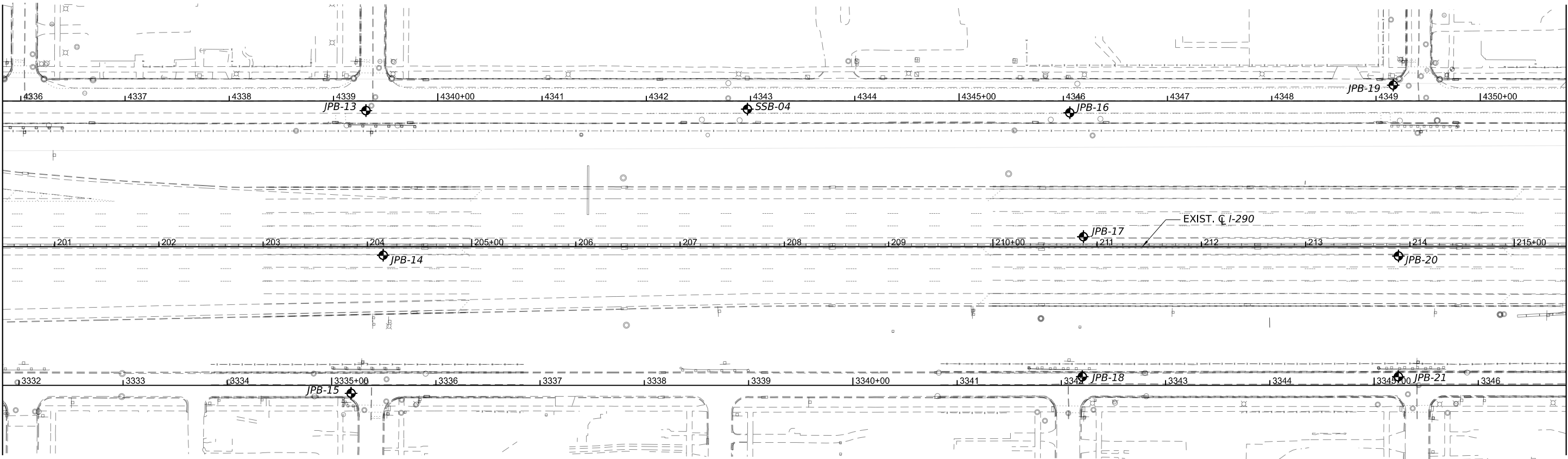
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS PLAN (SHEET 2 OF 3)
I-290 FROM 22ND AVE TO DES PLAINES RIVER

SHEET 2 OF 3 SHEETS

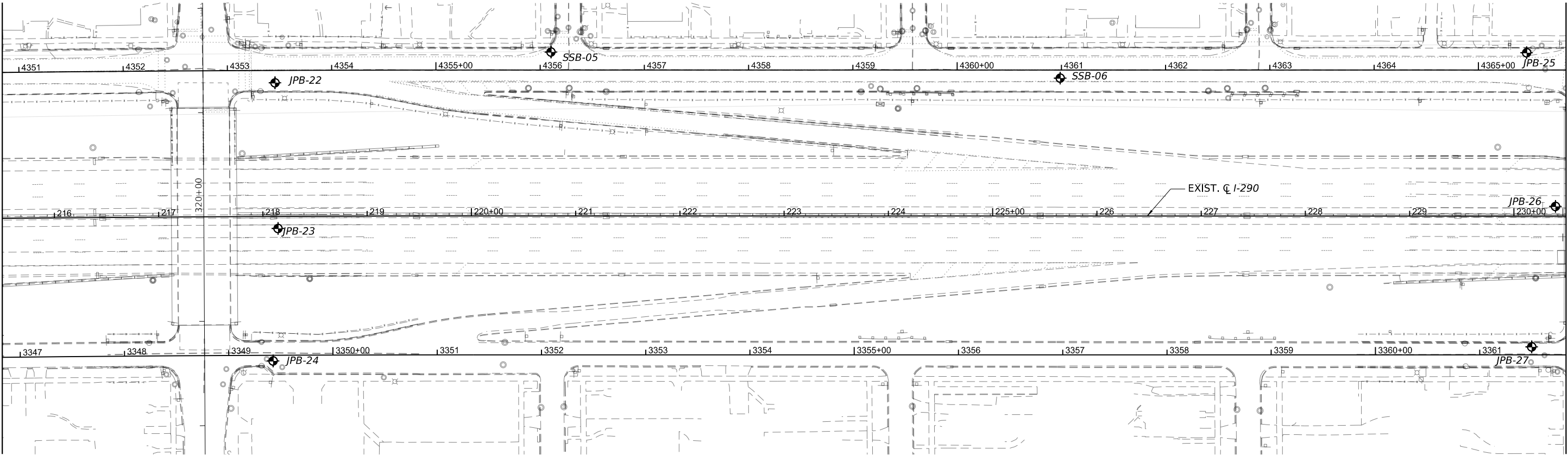
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SEE VIEW ABOVE

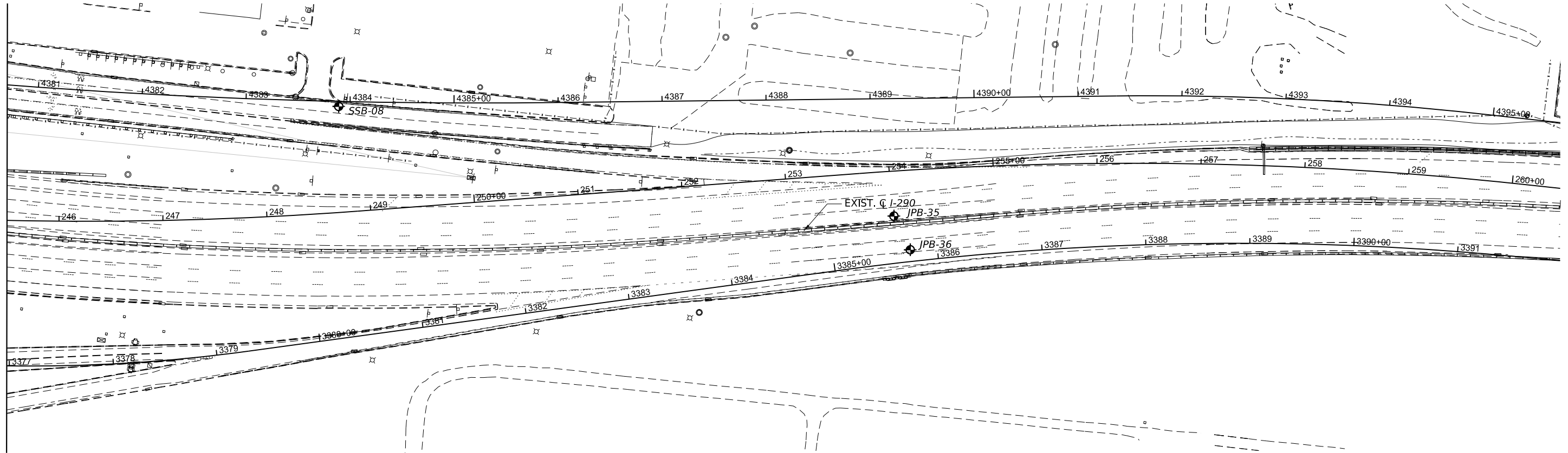


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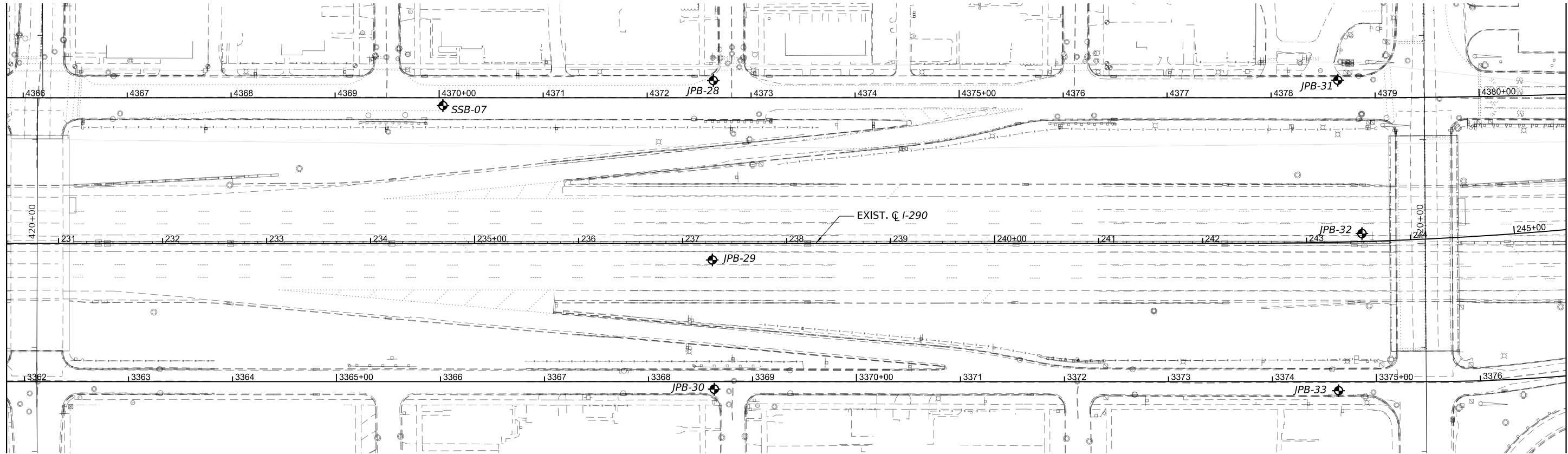
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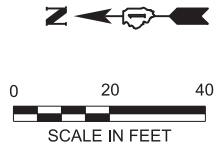
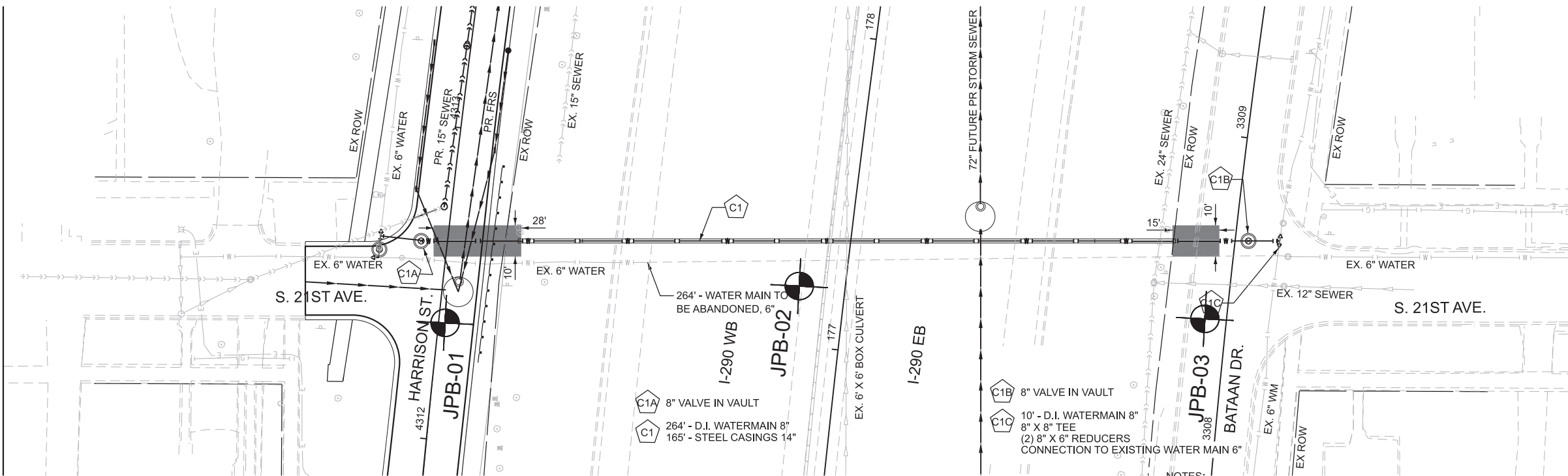
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS PLAN (SHEET 3 OF 3)
I-290 FROM 22ND AVE TO DES PLAINES RIVER

SHEET 3 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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ILLINOIS FED. AID PROJECT 6WLW(875)				



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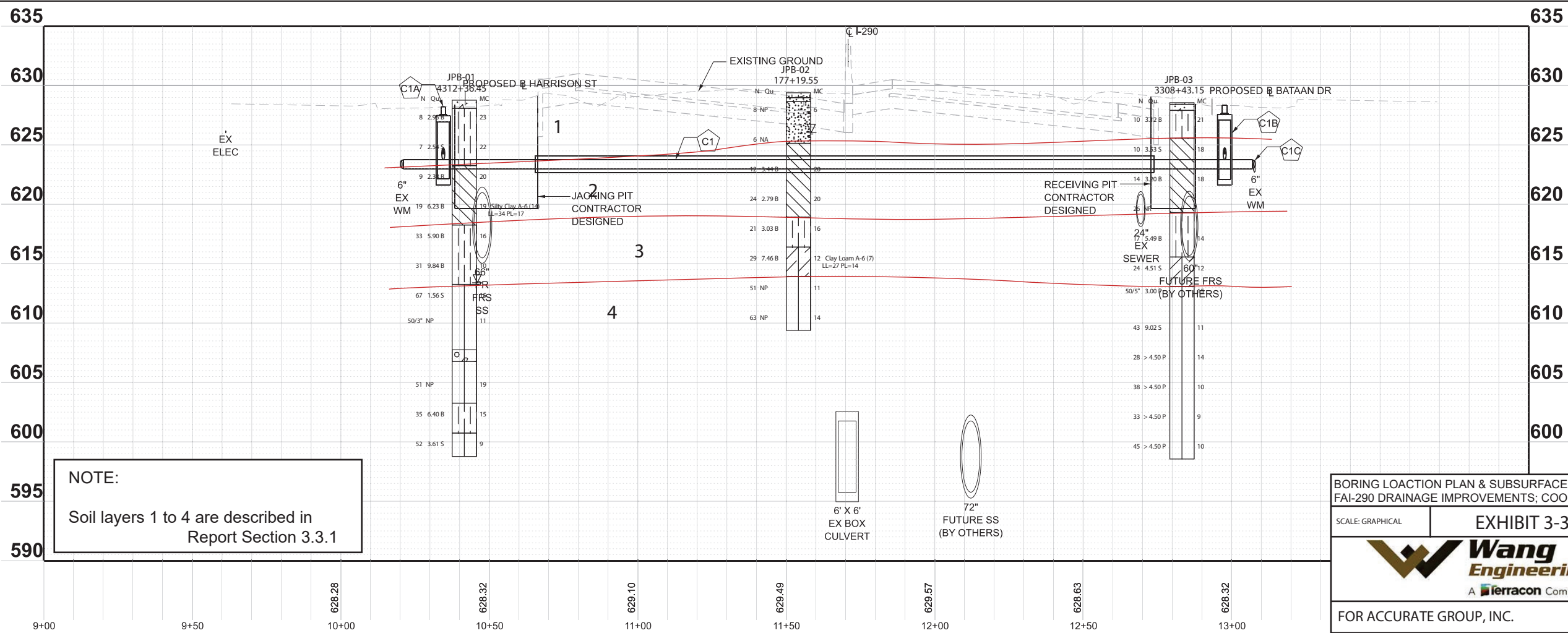


UTILITY LEGEND

- PR WATERMAIN, AND PR WATERMAIN FITTINGS
- PROPOSED COMBINED SEWER PIPES *
- PROPOSED COMBINED SEWER STRUCTURES *
- PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
- PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

- NOTES:
- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
 - SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
 - COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:
Soil layers 1 to 4 are described in
Report Section 3.3.1

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FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

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CHECKED BY: M. Kothawala

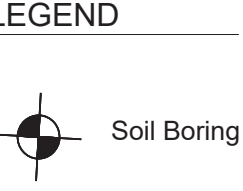
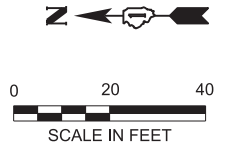
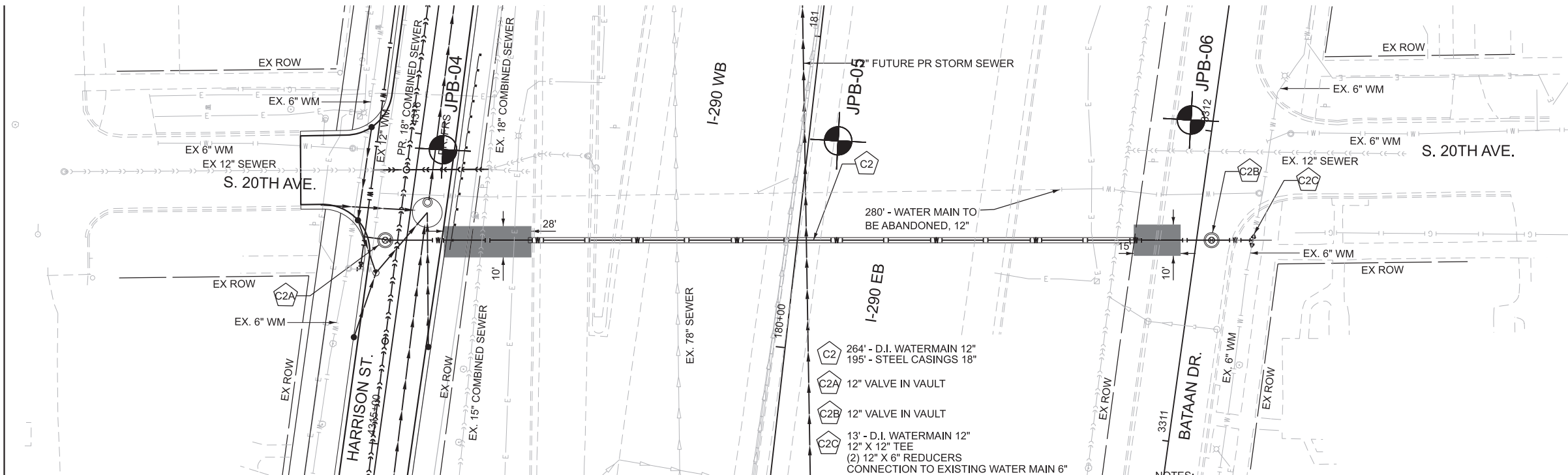
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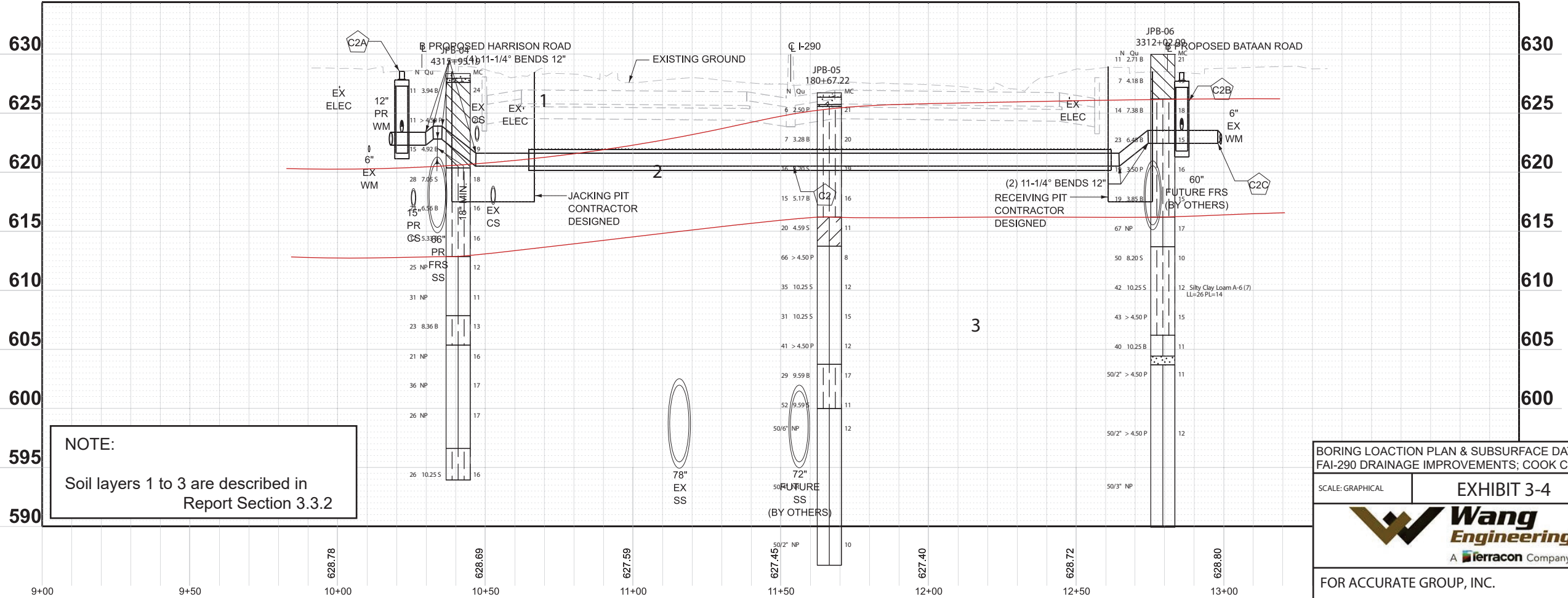
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- UTILITY LEGEND
- PR WATERMAIN, AND PR WATERMAIN FITTINGS
 - PROPOSED COMBINED SEWER PIPES *
 - PROPOSED COMBINED SEWER STRUCTURES *
 - PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
 - PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)
- * SEE UTILITY SCHEDULES

- NOTES:
- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
 - SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
 - COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 3-4	DRAWN BY: C. Marin CHECKED BY: M. Kothawala
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WATERMAIN CROSSING (20TH AVENUE)
I-290 FROM 22ND AVE TO DES PLAINES RIVER

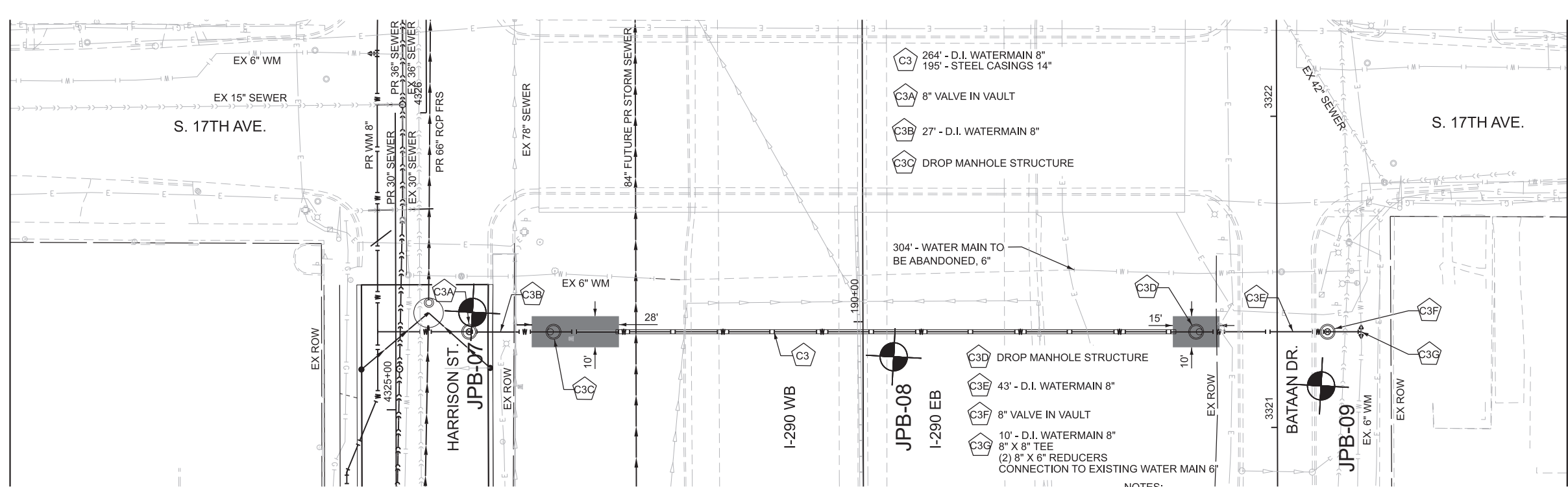
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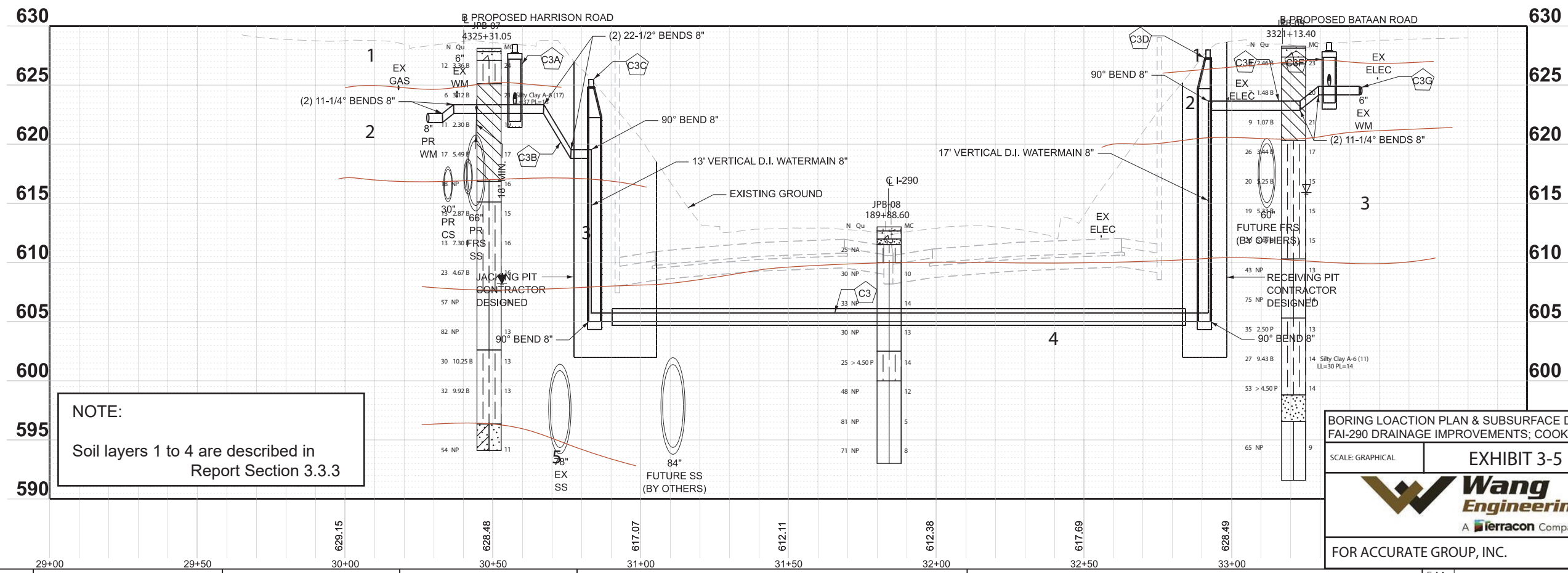
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UTILITY LEGEND

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- XX PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
- XXX PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

NOTES:
1. SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
2. SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
3. COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL

EXHIBIT 3-5

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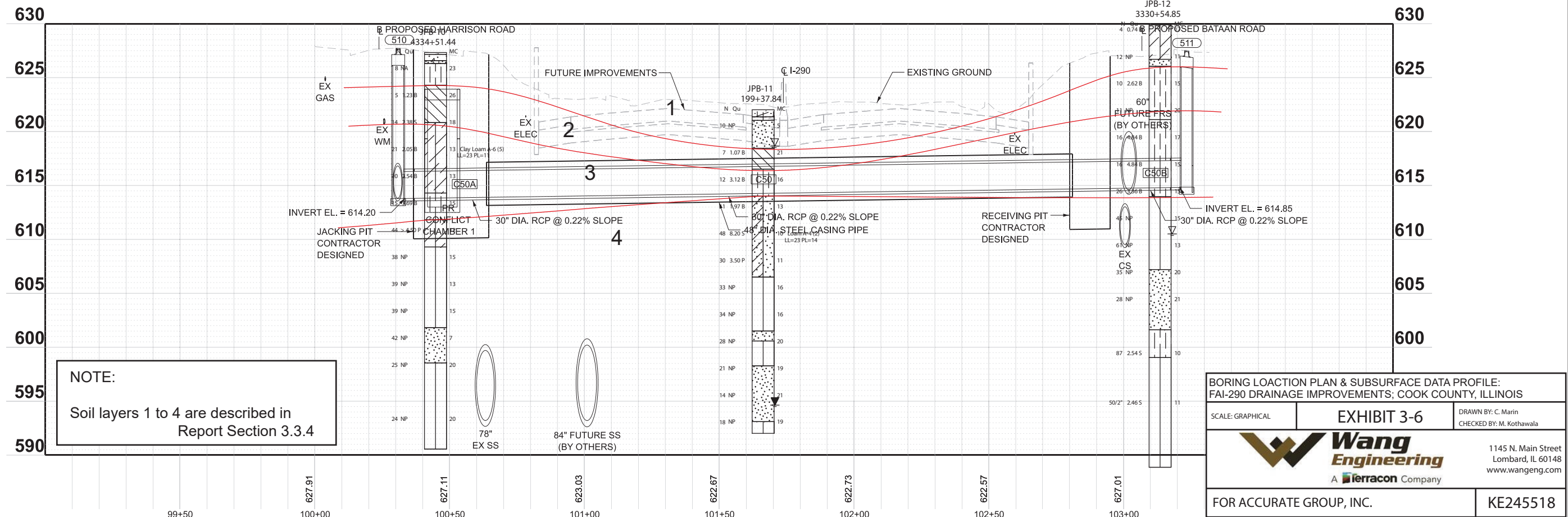
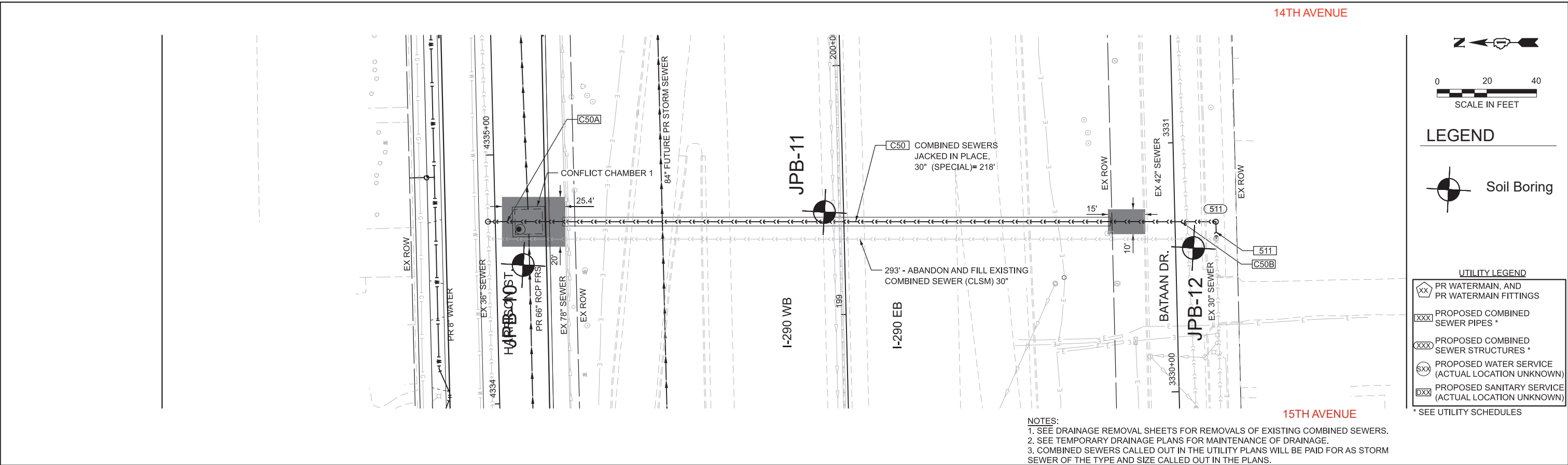
FOR ACCURATE GROUP, INC.

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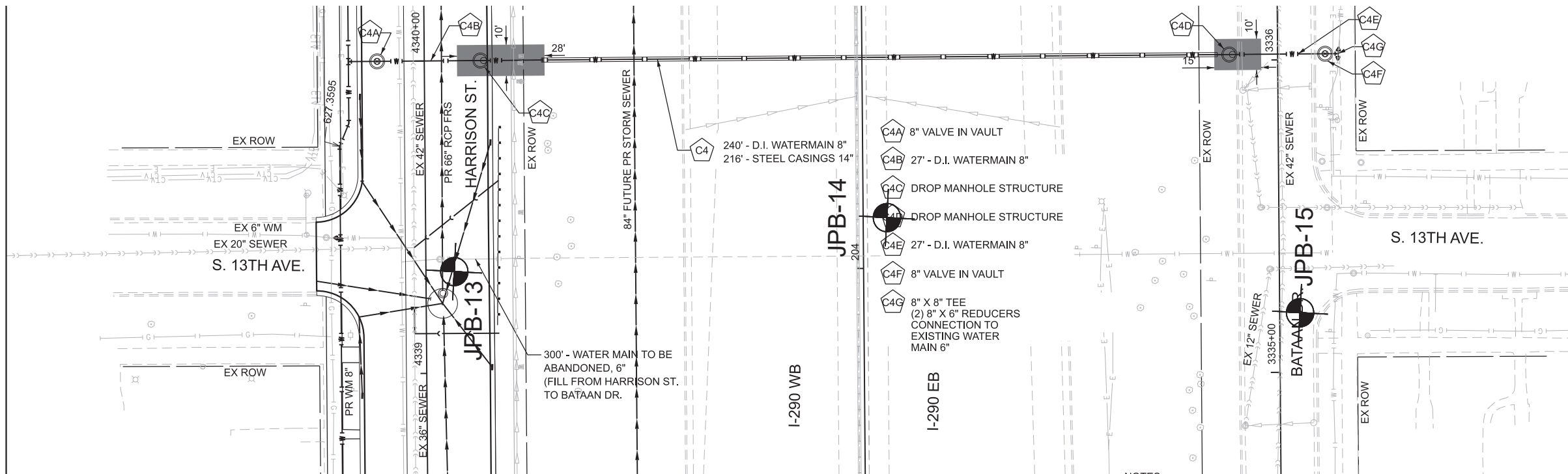
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Bowman 10 S. LaSalle Street, Suite 210 Chicago, Illinois 60603 312-454-0360 www.bowman.com	USER NAME = issm-bowpw215		DESIGNED - JWM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WATERMAIN CROSSING (17TH AVENUE) I-290 FROM 22ND AVE TO DES PLAINES RIVER				F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - JRD		CHECKED - MBL	REVISED -		SCALE: 1"=20'				290	2024-991-DR	COOK	364	160
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	PLOT DATE = 1/29/2026									ILLINOIS FED. AID PROJECT 6W/LW(875)				

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FILE NAME: \\bestm-bowpw2\1\CS_pdf_work_dri\30323836_20D162X09-shit\utility-1B-Crossing(14-15th CS).dgn



Bowman 10 S. LaSalle Street, Suite 210 Chicago, Illinois 60603 312-454-0360 www.bowman.com	USER NAME = isaM-bowpw215		DESIGNED - JWM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	COMBINED SEWER CROSSING (B/T 14TH AND 15TH) I-290 FROM 22ND AVE TO DES PLAINES RIVER			F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - JRD		REVIS	REVISED -		SCALE: 1"=20'			290	2024-991-DR	COOK	364	161
	PLOT SCALE = 0.16666667' / in.		CHECKED - MBL	REVISED -		SHEET 4 OF 11 SHEETS			CONTRACT NO. 62X09				
	PLOT DATE = 1/29/2026		DATE - 01/19/2026	REVISED -		TO STA.			ILLINOIS FED. AID PROJECT 6W/LW(875)				



LEGEND

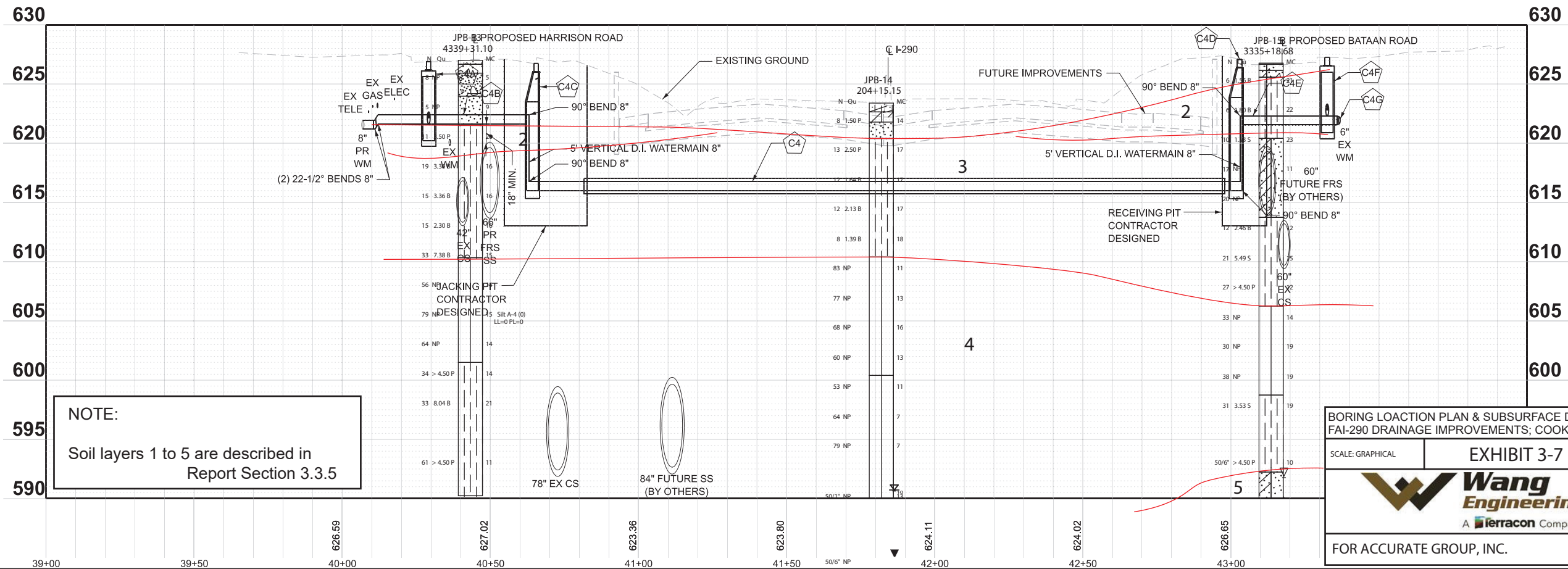
Soil Boring

UTILITY LEGEND

- PR WATERMAIN, AND PR WATERMAIN FITTINGS
- PROPOSED COMBINED SEWER PIPES *
- PROPOSED COMBINED SEWER STRUCTURES *
- PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
- PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

NOTES:
1. SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
2. SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
3. COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:
Soil layers 1 to 5 are described in Report Section 3.3.5

BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL **EXHIBIT 3-7** DRAWN BY: C. Marin
CHECKED BY: M. Kothawala

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FOR ACCURATE GROUP, INC. **KE245518**

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**WATERMAIN CROSSING (13TH AVENUE)
I-290 FROM 22ND AVE TO DES PLAINES RIVER**

SCALE: 1"=20' SHEET 5 OF 11 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
290	2024-991-DR	COOK	364	162
CONTRACT NO. 62X09				

ILLINOIS FED. AID PROJECT 6W/LW(875)

MODEL: WM_13th_WM_13th
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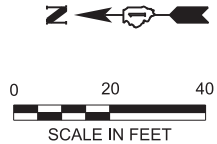
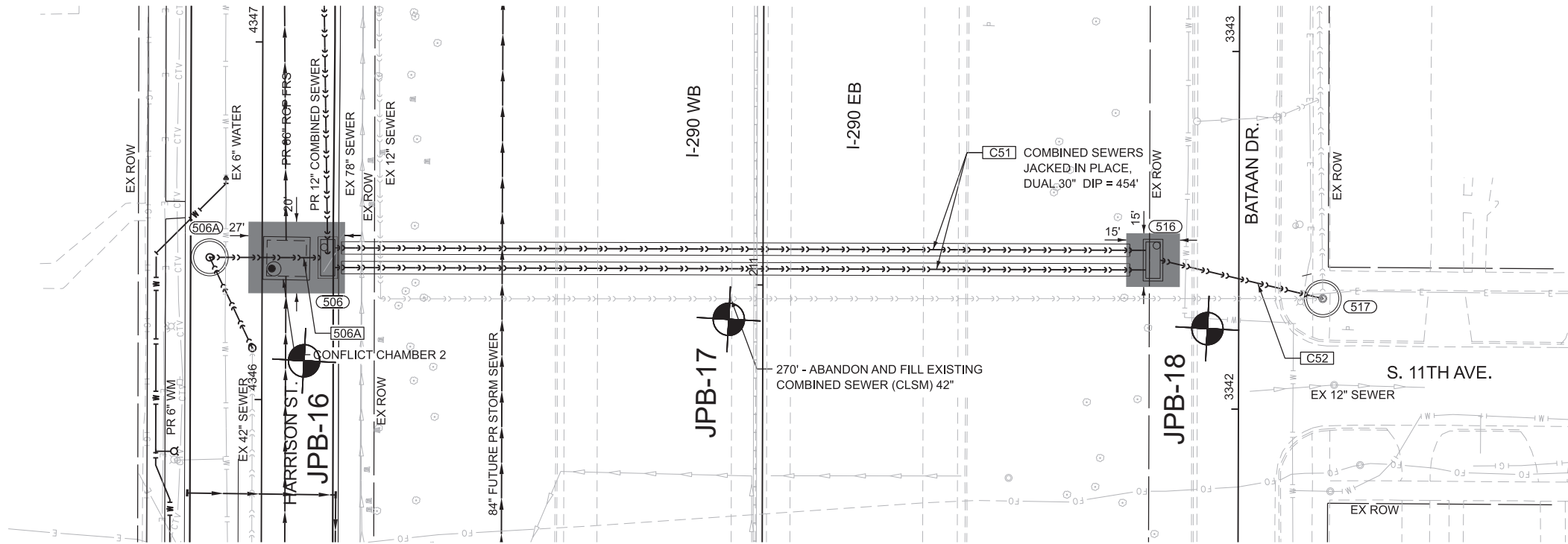
Bowman

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312-454-0360
www.bowman.com

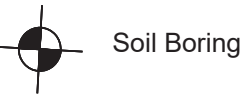
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DESIGNED -	JWM
DRAWN -	JRD
PLOT SCALE =	0.16666667' / in.
PLOT DATE =	1/29/2026

REVISED -	
REVISED -	
REVISED -	
REVISED -	

DATE -	01/19/2026
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LEGEND



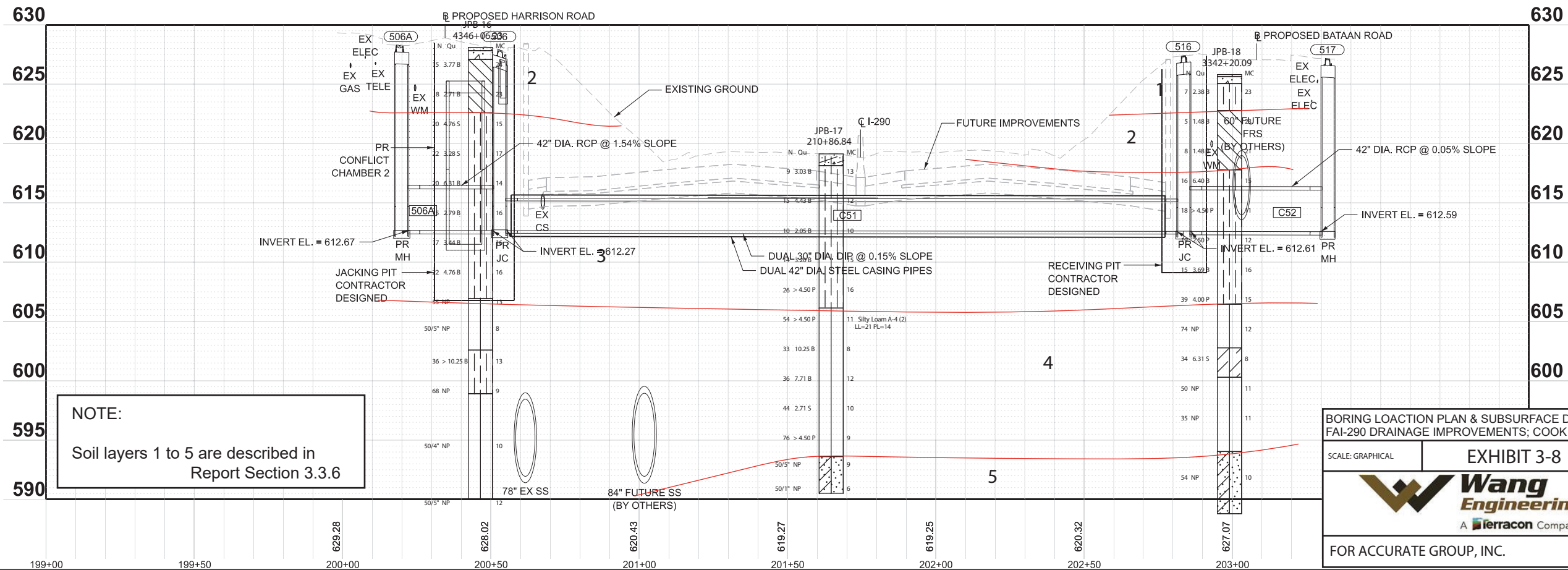
Soil Boring

UTILITY LEGEND

- PR WATERMAIN, AND PR WATERMAIN FITTINGS
- PROPOSED COMBINED SEWER PIPES *
- PROPOSED COMBINED SEWER STRUCTURES *
- PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
- PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

- NOTES:
- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
 - SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
 - COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



BORING LOACTION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL EXHIBIT 3-8

DRAWN BY: C. Marin
CHECKED BY: M. Kothawala

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

COMBINED SEWER CROSSING (11TH AVENUE)
I-290 FROM 22ND AVE TO DES PLAINES RIVER

SCALE: 1"=20' SHEET 6 OF 11 SHEETS STA. TO STA.

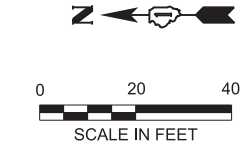
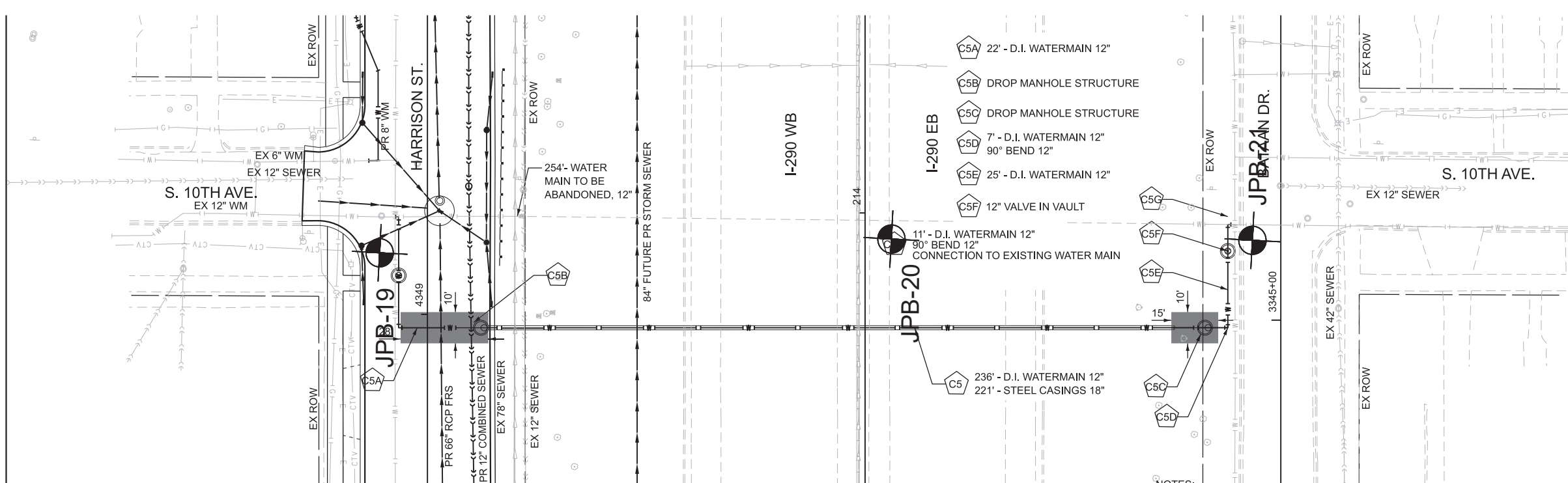
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
290	2024-991-DR	COOK	364	163
CONTRACT NO. 62X09				

ILLINOIS FED. AID PROJECT 6W/LW(875)

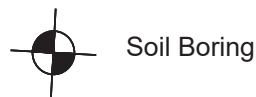
Bowman

10 S. LaSalle Street, Suite 210
Chicago, Illinois 60603
312-454-0360
www.bowman.com

USER NAME =	iosM-bowpw21\$	DESIGNED -	JWM	REVISED -	
DRAWN -	JRD	REVIS		REVISED -	
PLOT SCALE =	0.16666667' / in.	CHECKED -	MBL	REVISED -	
PLOT DATE =	1/29/2026	DATE -	01/19/2026	REVISED -	



LEGEND

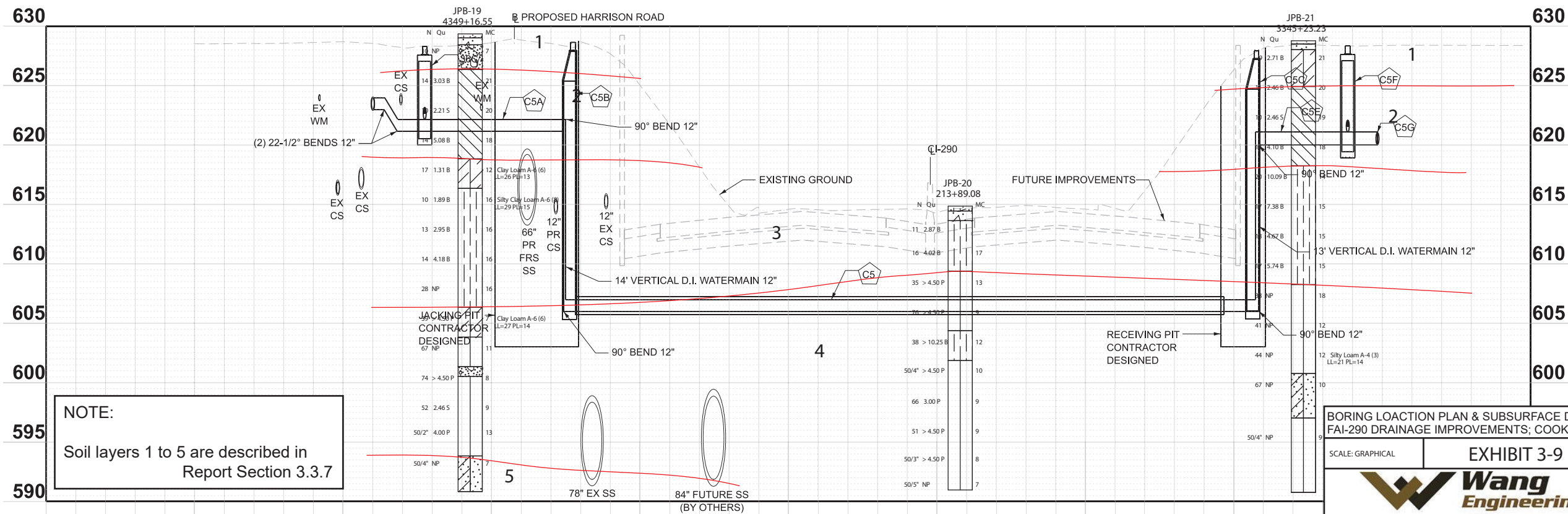


UTILITY LEGEND

- PR WATERMAIN, AND PR WATERMAIN FITTINGS
- PROPOSED COMBINED SEWER PIPES *
- PROPOSED COMBINED SEWER STRUCTURES *
- PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
- PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

- NOTES:
- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
 - SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
 - COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:
Soil layers 1 to 5 are described in
Report Section 3.3.7

BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL EXHIBIT 3-9 DRAWN BY: C. Marin
CHECKED BY: M. Kothawala

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WATERMAIN CROSSING (10TH AVENUE)
I-290 FROM 22ND AVE TO DES PLAINES RIVER

SCALE: 1"=20' SHEET 7 OF 11 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
290	2024-991-DR	COOK	364	164
CONTRACT NO. 62X09				
ILLINOIS FED. AID PROJECT 6W/LW(875)				

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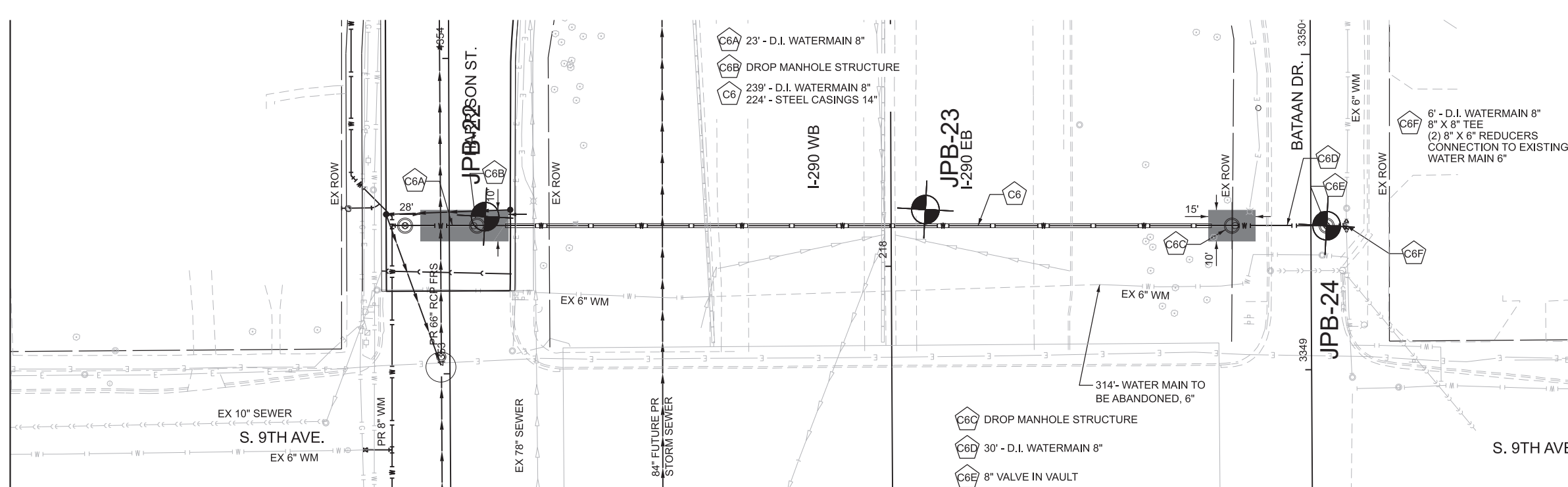
Bowman

10 S. LaSalle Street, Suite 210
Chicago, Illinois 60603
312-454-0360
www.bowman.com

USER NAME =	issm-bowpw21\$
PLOT SCALE =	0.16666667' / in.
PLOT DATE =	1/29/2026

DESIGNED -	JWM
DRAWN -	JRD
CHECKED -	MBL
DATE -	01/19/2026

REVISED -	
REVISED -	
REVISED -	
REVISED -	



0 20 40
SCALE IN FEET

LEGEND

Soil Boring

UTILITY LEGEND

PR WATERMAIN, AND
PR WATERMAIN FITTINGS

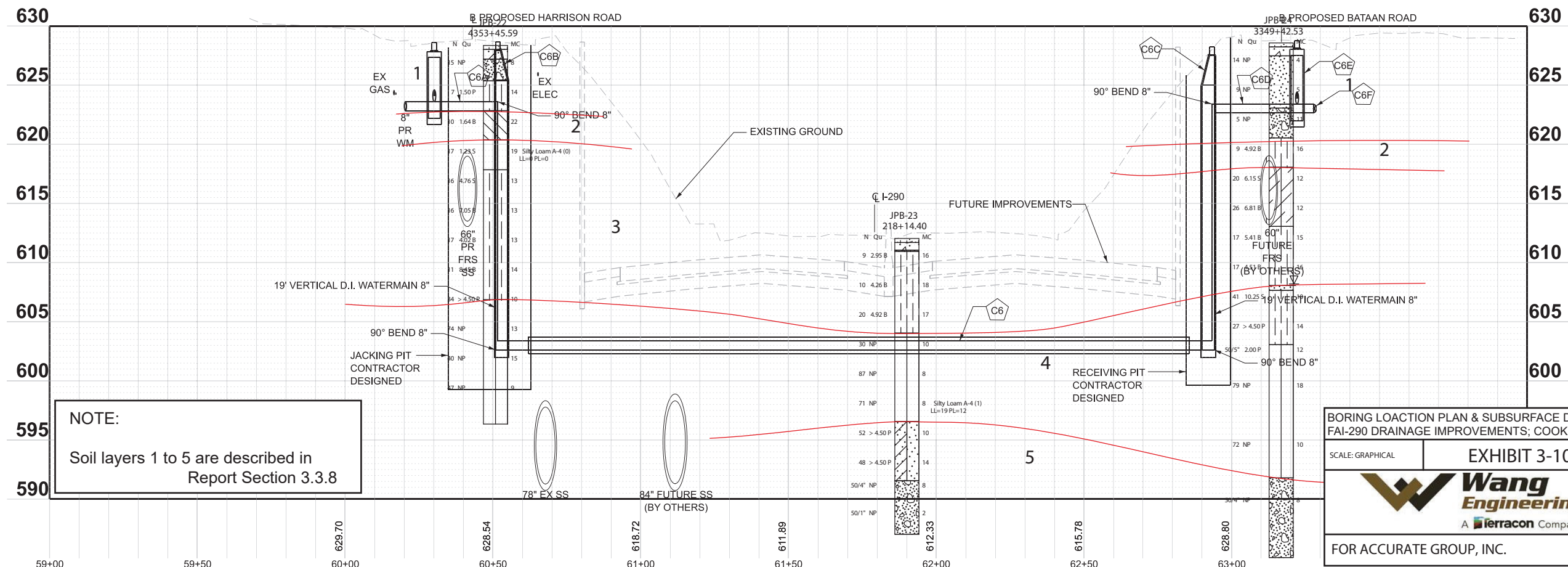
PROPOSED COMBINED
SEWER PIPES *

PROPOSED COMBINED
SEWER STRUCTURES *

PROPOSED WATER SERVICE
(ACTUAL LOCATION UNKNOWN)

PROPOSED SANITARY SERVICE
(ACTUAL LOCATION UNKNOWN)
* SEE UTILITY SCHEDULES

NOTES:
1. SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
2. SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
3. COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:
Soil layers 1 to 5 are described in
Report Section 3.3.8

BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL

EXHIBIT 3-10

DRAWN BY: C. Marin
CHECKED BY: M. Kothawala

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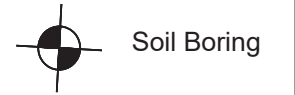
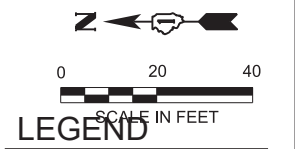
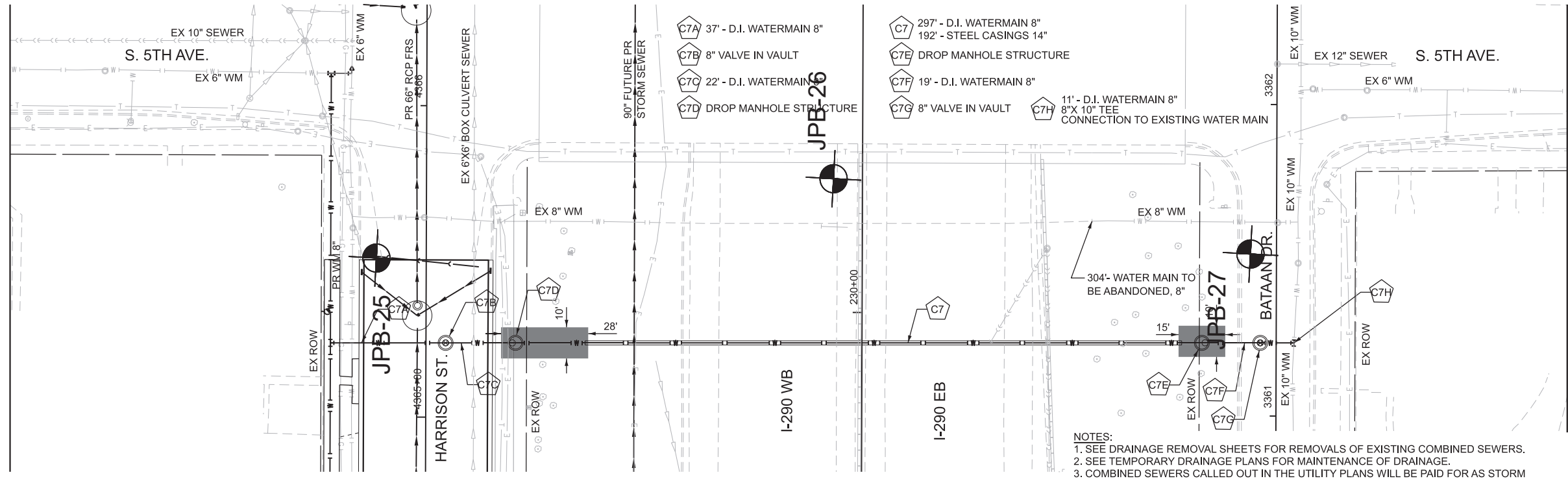
1145 N. Main Street
Lombard, IL 60148
www.wangeng.com

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KE245518

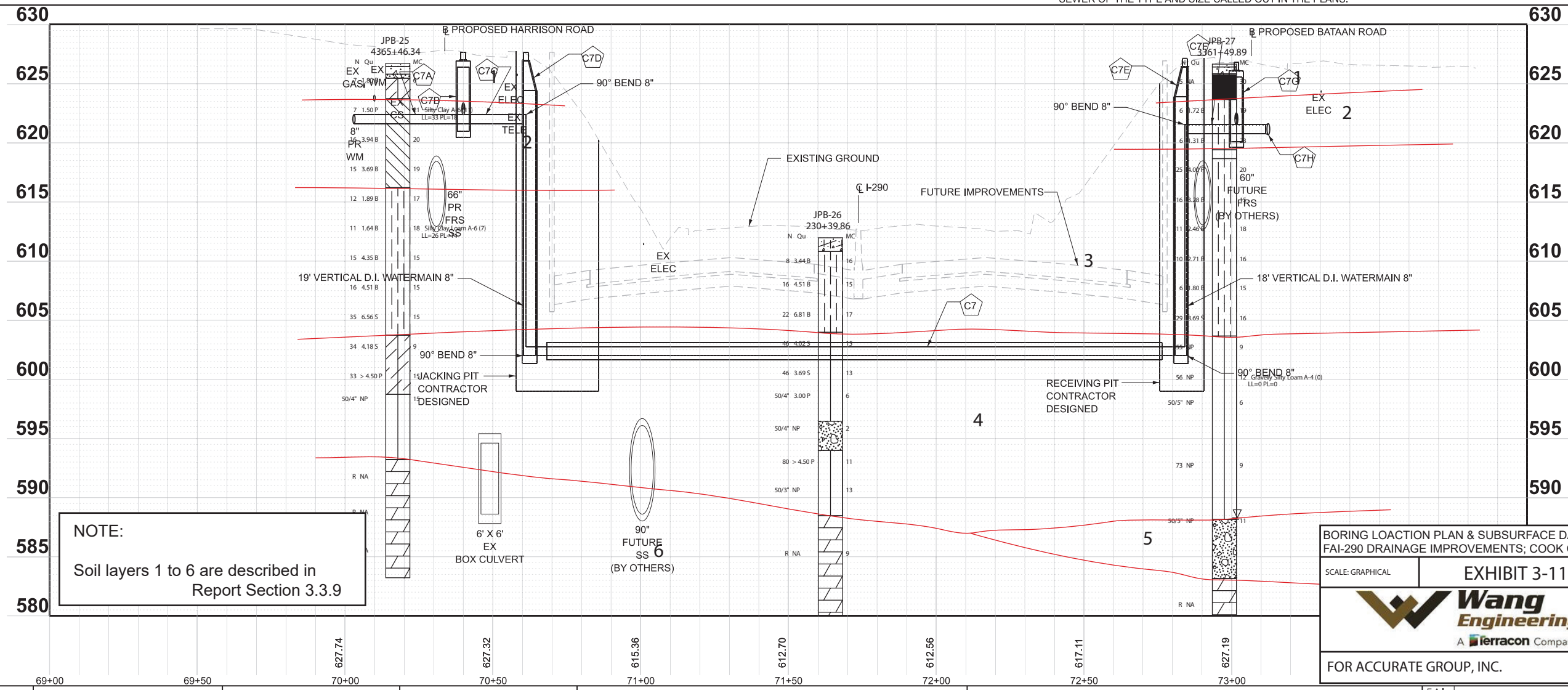
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Bowman 10 S. LaSalle Street, Suite 210 Chicago, Illinois 60603 312-454-0360 www.bowman.com	USER NAME = ism-bowpw21\$			DESIGNED - JWM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WATERMAIN CROSSING (9TH AVENUE) I-290 FROM 22ND AVE TO DES PLAINES RIVER			F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - JRD			REVIS	REVISED -		SCALE: 1"=20'			290	2024-991-DR	COOK	364	165
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	PLOT DATE = 1/29/2026			DATE - 01/19/2026	REVISED -		TO STA.			ILLINOIS FED. AID PROJECT 6W/LW(875)				



- UTILITY LEGEND
- PR WATERMAIN, AND PR WATERMAIN FITTINGS
 - PROPOSED COMBINED SEWER PIPES *
 - PROPOSED COMBINED SEWER STRUCTURES *
 - PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
 - PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)
- * SEE UTILITY SCHEDULES

- NOTES:
- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
 - SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
 - COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:
Soil layers 1 to 6 are described in Report Section 3.3.9

BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL

EXHIBIT 3-11

DRAWN BY: C. Marin
CHECKED BY: M. Kothawala

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FOR ACCURATE GROUP, INC.

KE245518

MODEL: WM_5th_WM_5th
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Bowman

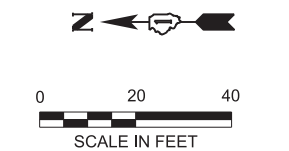
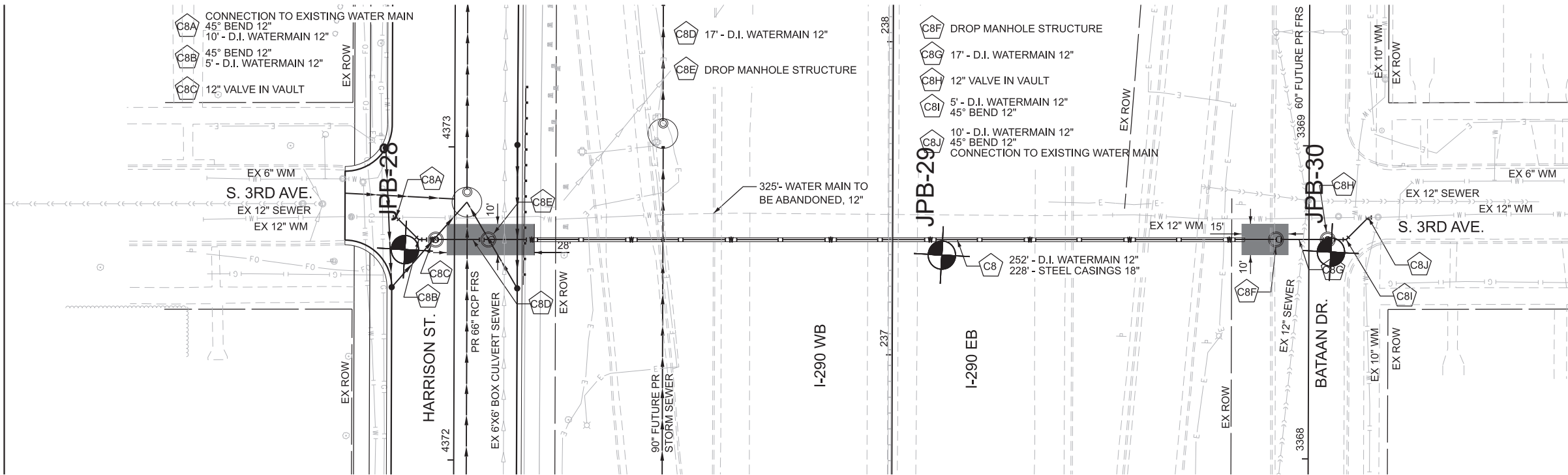
10 S. LaSalle Street, Suite 210
Chicago, Illinois 60603
312-494-4360
www.bowman.com

USER NAME	=	lsm-bowpw21s	DESIGNED	-	JWM	REVISED	-
			DRAWN	-	JRD	REVISED	-
PLOT SCALE	=	0.16666667' / in.	CHECKED	-	MBL	REVISED	-
PLOT DATE	=	1/29/2026	DATE	-	01/19/2026	REVISED	-

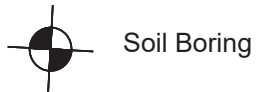
STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

WATERMAIN CROSSING (5TH AVENUE)					F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-290 FROM 22ND AVE TO DES PLAINES RIVER					290	2024-991-DR	COOK	364	166
SCALE: 1"=20'					CONTRACT NO. 62X09				
SHEET 9		OF 11	SHEETS	STA.	TO STA.				
					ILLINOIS FED. AID PROJECT 6W/LW(875)				



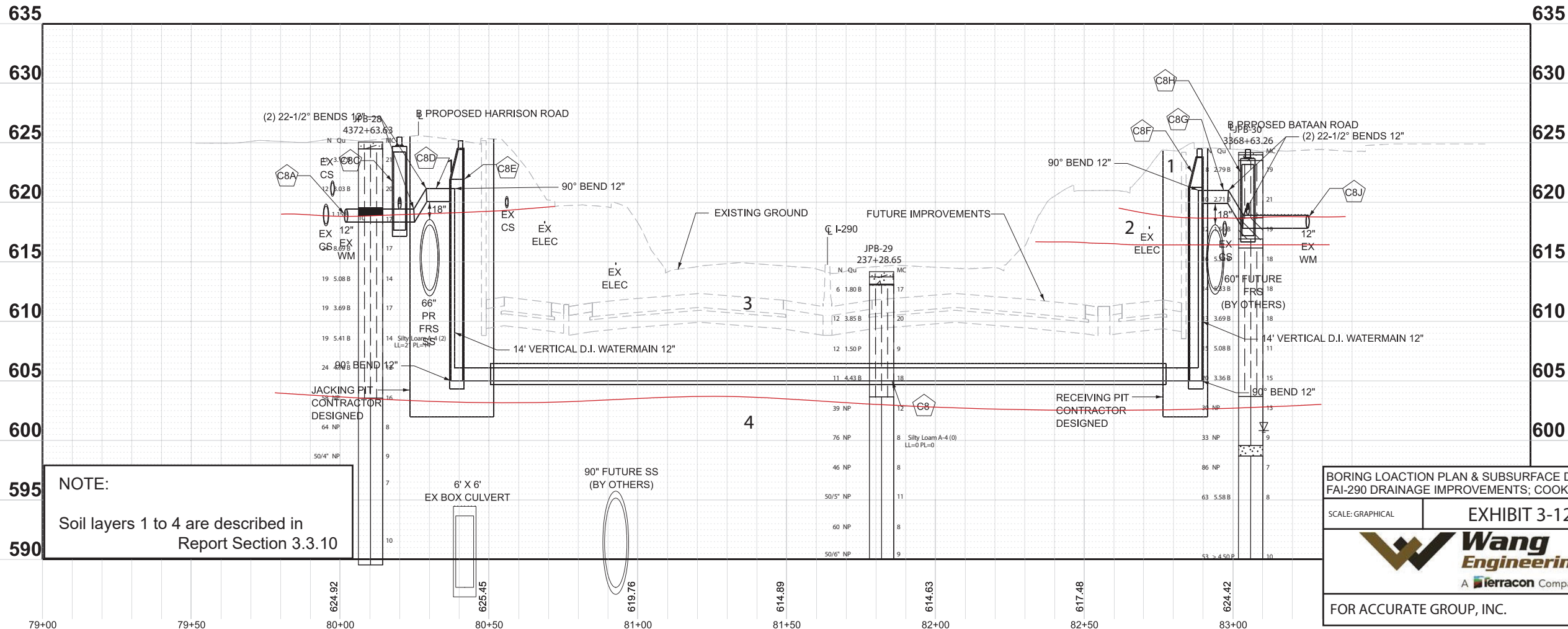
LEGEND



UTILITY LEGEND	
	PR WATERMAIN, AND PR WATERMAIN FITTINGS
	PROPOSED COMBINED SEWER PIPES *
	PROPOSED COMBINED SEWER STRUCTURES *
	PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
	PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

- NOTES:
- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
 - SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
 - COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:
Soil layers 1 to 4 are described in Report Section 3.3.10

BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

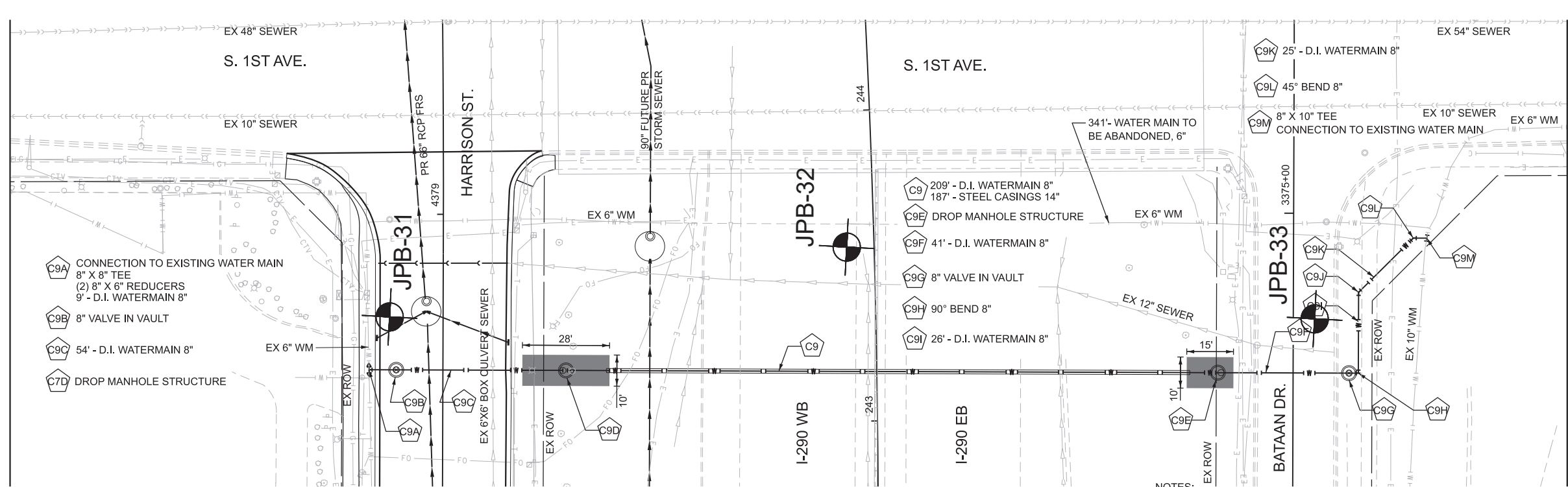
SCALE: GRAPHICAL	EXHIBIT 3-12	DRAWN BY: C. Marin CHECKED BY: M. Kothawala
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FOR ACCURATE GROUP, INC.		KE245518
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MODEL: WM 3rd-WM 3rd
FILE NAME: \\srm-bowp\w2\1\CS_pdf_work_dfr\3032\3836_83\D162\X09-shit\utility-24-Crossing(3rd_WM).dgn

10 S. LaSalle Street, Suite 210 Chicago, Illinois 60603 312-454-0360 www.bowman.com	USER NAME = ksM-bowpw21\$		DESIGNED - JWM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WATERMAIN CROSSING (3RD AVENUE) I-290 FROM 22ND AVE TO DES PLAINES RIVER		F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - JRD		CHECKED - MBL	REVISED -		SCALE: 1"=20'		290	2024-991-DR	COOK	364	167
	PLOT SCALE = 0.16666667' / in.		DATE - 01/19/2026	REVISED -		SHEET 10 OF 11 SHEETS STA. TO STA.		CONTRACT NO. 62X09				
	PLOT DATE = 1/29/2026							ILLINOIS FED. AID PROJECT 6W/LW(875)				



LEGEND

Soil Boring

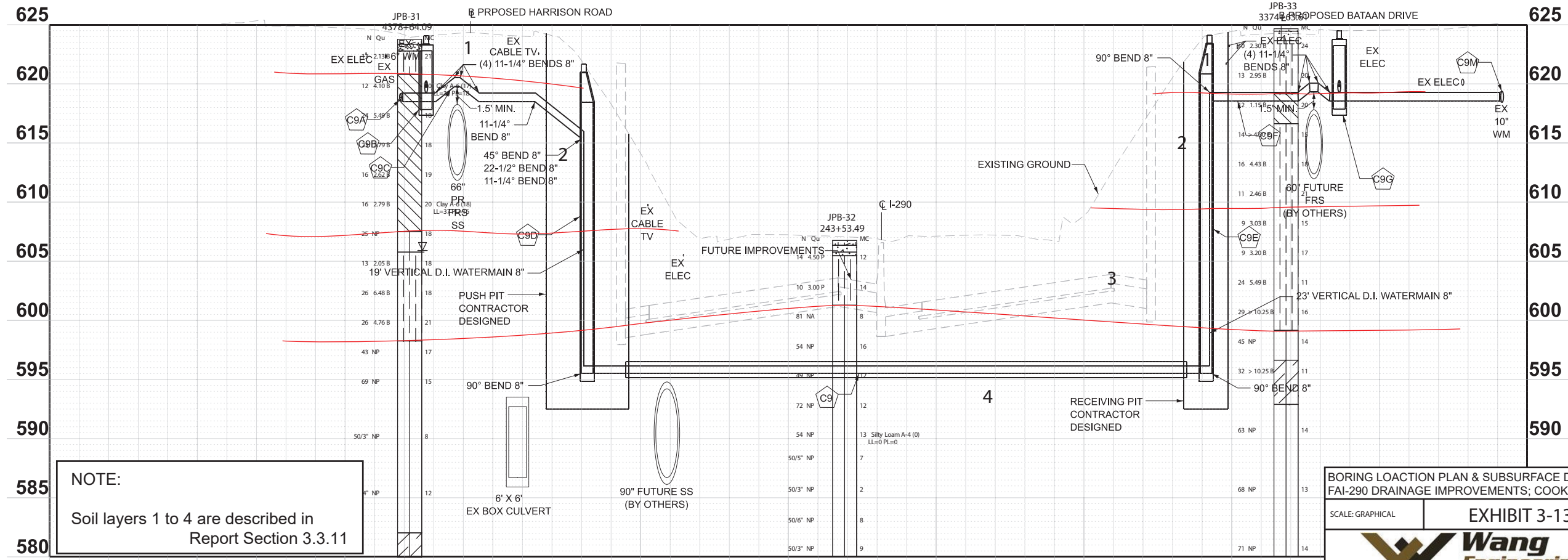
UTILITY LEGEND

- XX PR WATERMAIN, AND PR WATERMAIN FITTINGS
- XXX PROPOSED COMBINED SEWER PIPES *
- XXX PROPOSED COMBINED SEWER STRUCTURES *
- XX PROPOSED WATER SERVICE (ACTUAL LOCATION UNKNOWN)
- XX PROPOSED SANITARY SERVICE (ACTUAL LOCATION UNKNOWN)

* SEE UTILITY SCHEDULES

NOTES:

- SEE DRAINAGE REMOVAL SHEETS FOR REMOVALS OF EXISTING COMBINED SEWERS.
- SEE TEMPORARY DRAINAGE PLANS FOR MAINTENANCE OF DRAINAGE.
- COMBINED SEWERS CALLED OUT IN THE UTILITY PLANS WILL BE PAID FOR AS STORM SEWER OF THE TYPE AND SIZE CALLED OUT IN THE PLANS.



NOTE:

Soil layers 1 to 4 are described in Report Section 3.3.11

BORING LOCATION PLAN & SUBSURFACE DATA PROFILE:
FAI-290 DRAINAGE IMPROVEMENTS; COOK COUNTY, ILLINOIS

SCALE: GRAPHICAL **EXHIBIT 3-13** DRAWN BY: C. Marin
 CHECKED BY: M. Kothawala

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 Lombard, IL 60148
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FOR ACCURATE GROUP, INC. **KE245518**

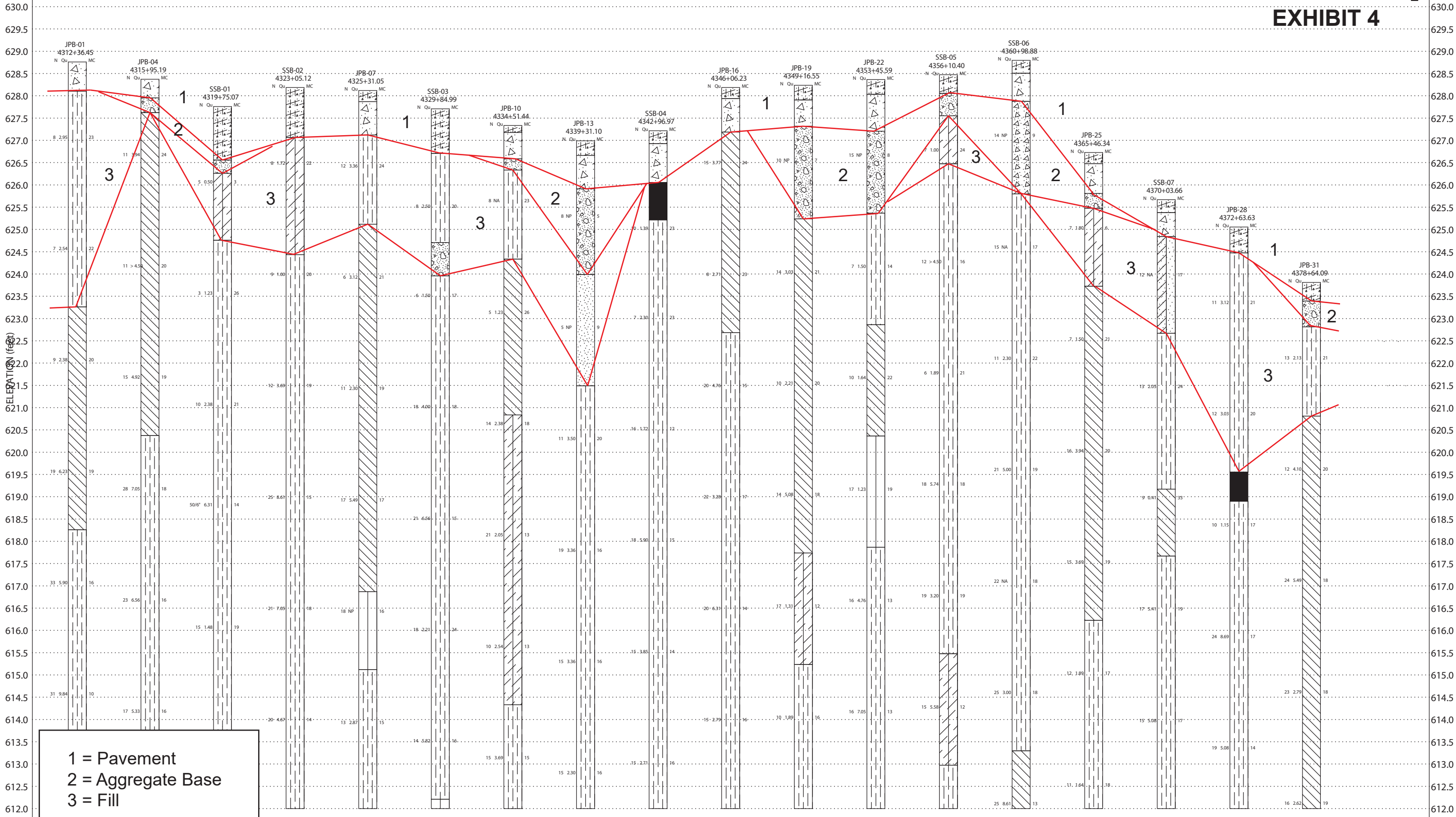
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Bowman		10 S. LaSalle Street, Suite 210 Chicago, Illinois 60603 312-454-0360 www.bowman.com		STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		WATERMAIN CROSSING (1ST AVENUE) I-290 FROM 22ND AVE TO DES PLAINES RIVER		SCALE: 1"=20'		SHEET 11 OF 11 SHEETS		STA. TO STA.		F.A.I. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.		290 2024-991-DR COOK 364 168		CONTRACT NO. 62X09		ILLINOIS FED. AID PROJECT 6W/LW(875)	
USER NAME = ksM-bowpw215		DESIGNED - JWM		REVISED -		DRAWN - JRD		REVISED -		PLOT SCALE = 0.16666667' / in.		CHECKED - MBL		REVISED -		PLOT DATE = 1/29/2026		DATE - 01/19/2026		REVISED -	

W

E

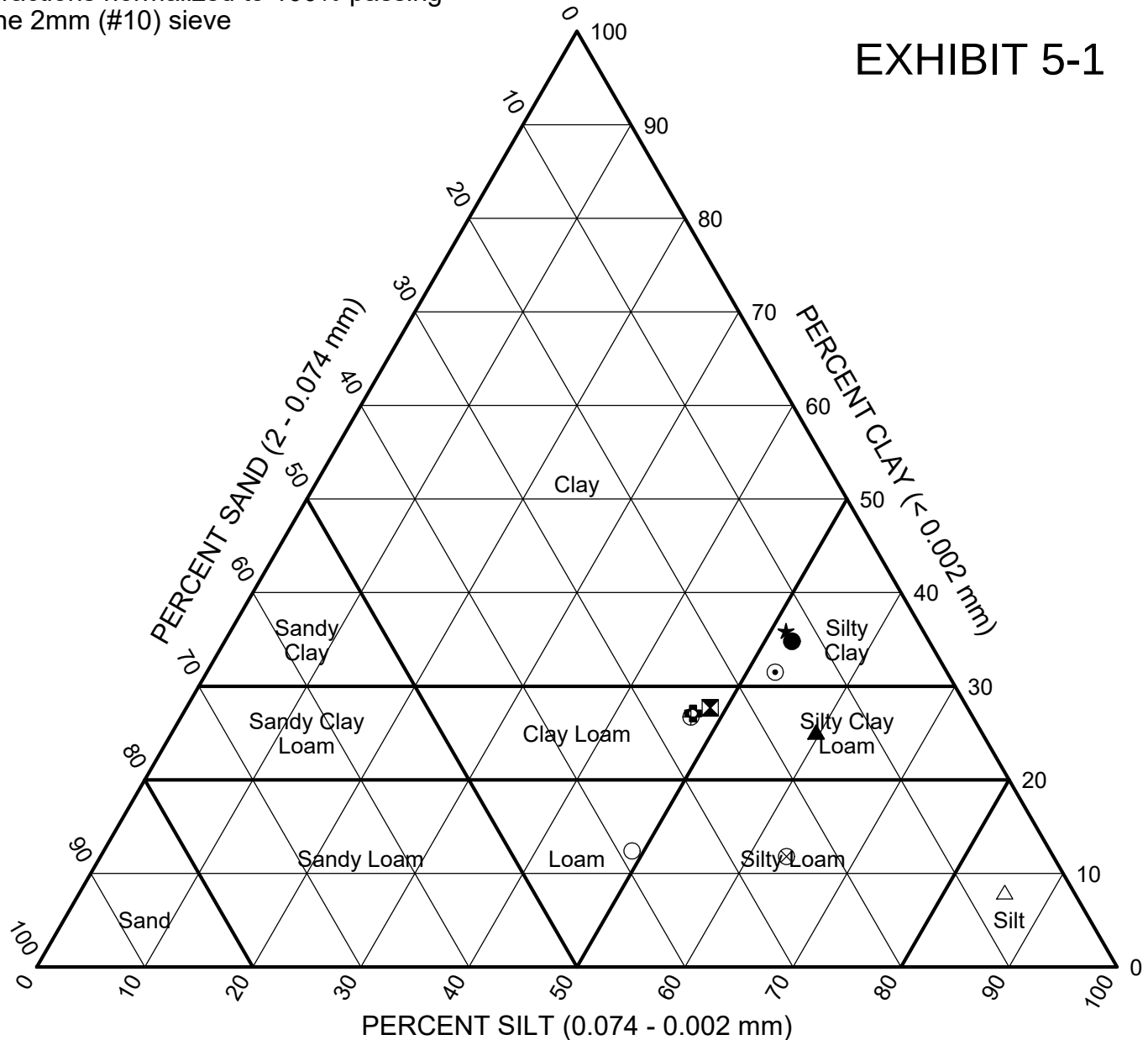
EXHIBIT 4



DISTANCE ALONG PROFILE (feet)

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

EXHIBIT 5-1



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	JPB-01#4	8.5	12.7	52.5	34.8	Silty Clay	A-6 (14)	CL
⊠	JPB-02#6	13.5	23.9	48.5	27.7	Clay Loam	A-6 (7)	CL
▲	JPB-06#9	21.0	15.2	59.6	25.1	Silty Clay Loam	A-6 (7)	CL
★	JPB-07#2	3.5	12.7	51.4	35.9	Silty Clay	A-6 (17)	CL
⊙	JPB-09#11	26.0	16.1	52.6	31.5	Silty Clay	A-6 (11)	CL
⊞	JPB-10#4	8.5	25.7	47.2	27.1	Clay Loam	A-6 (5)	CL
○	JPB-11#5	11.0	38.9	48.9	12.4	Loam	A-4 (2)	CL
△	JPB-13#9	21.0	6.5	85.6	8.0	Silt	A-4 (0)	ML
⊗	JPB-17#6	13.5	24.7	63.5	11.8	Silty Loam	A-4 (2)	CL-ML
⊕	JPB-19#5	11.0	26.2	47.2	26.7	Clay Loam	A-6 (6)	CL



Terracon Consultants

Telephone:
Fax:

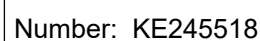
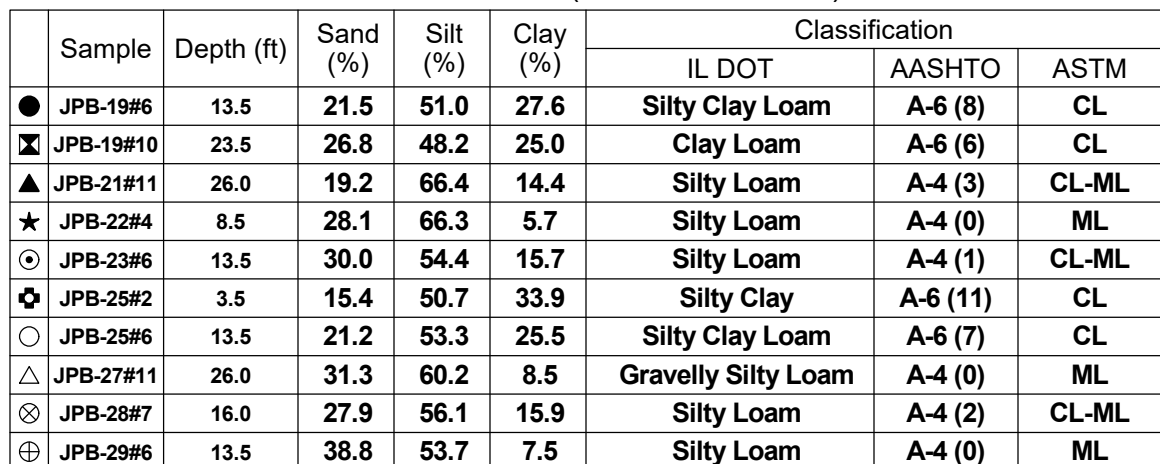
IDH Textural Classification Chart

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

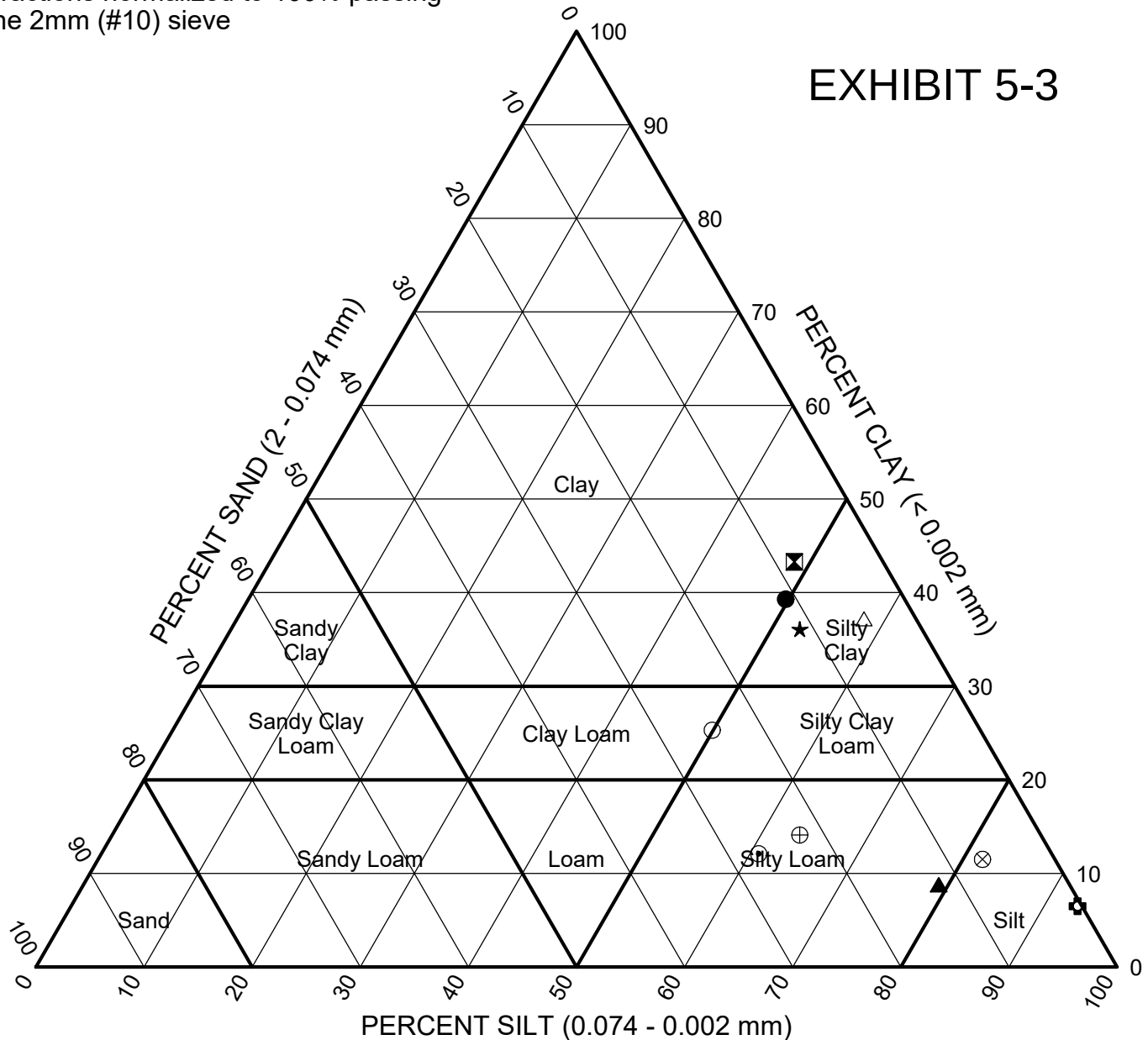
Number: KE245518

EXHIBIT 5-2



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

EXHIBIT 5-3



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	JPB-31#2	3.5	10.9	49.7	39.3	Clay	A-6 (17)	CL
⊠	JPB-31#6	13.5	8.2	48.5	43.3	Clay	A-6 (18)	CL
▲	JPB-32#7	16.0	12.1	79.1	8.8	Silty Loam	A-4 (0)	ML
★	JPB-35#4	8.5	11.2	52.6	36.1	Silty Clay	A-6 (13)	CL
⊙	JPB-35#12	28.5	27.0	60.8	12.1	Silty Loam	A-4 (0)	CL-ML
⊕	JPB-35#14	38.5	0.5	93.1	6.5	Silt	A-4 (0)	ML
○	JPB-36#5	11.0	24.9	49.9	25.3	Clay Loam	A-6 (7)	CL
△	JPB-36#10	23.5	4.8	58.0	37.2	Silty Clay	A-6 (15)	CL
⊗	JPB-36#12	28.5	6.7	81.8	11.5	Silt	A-4 (1)	ML
⊕	JPB-36#16	48.5	22.4	63.6	14.1	Silty Loam	A-4 (1)	CL-ML



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Fax:

IDH Textural Classification Chart

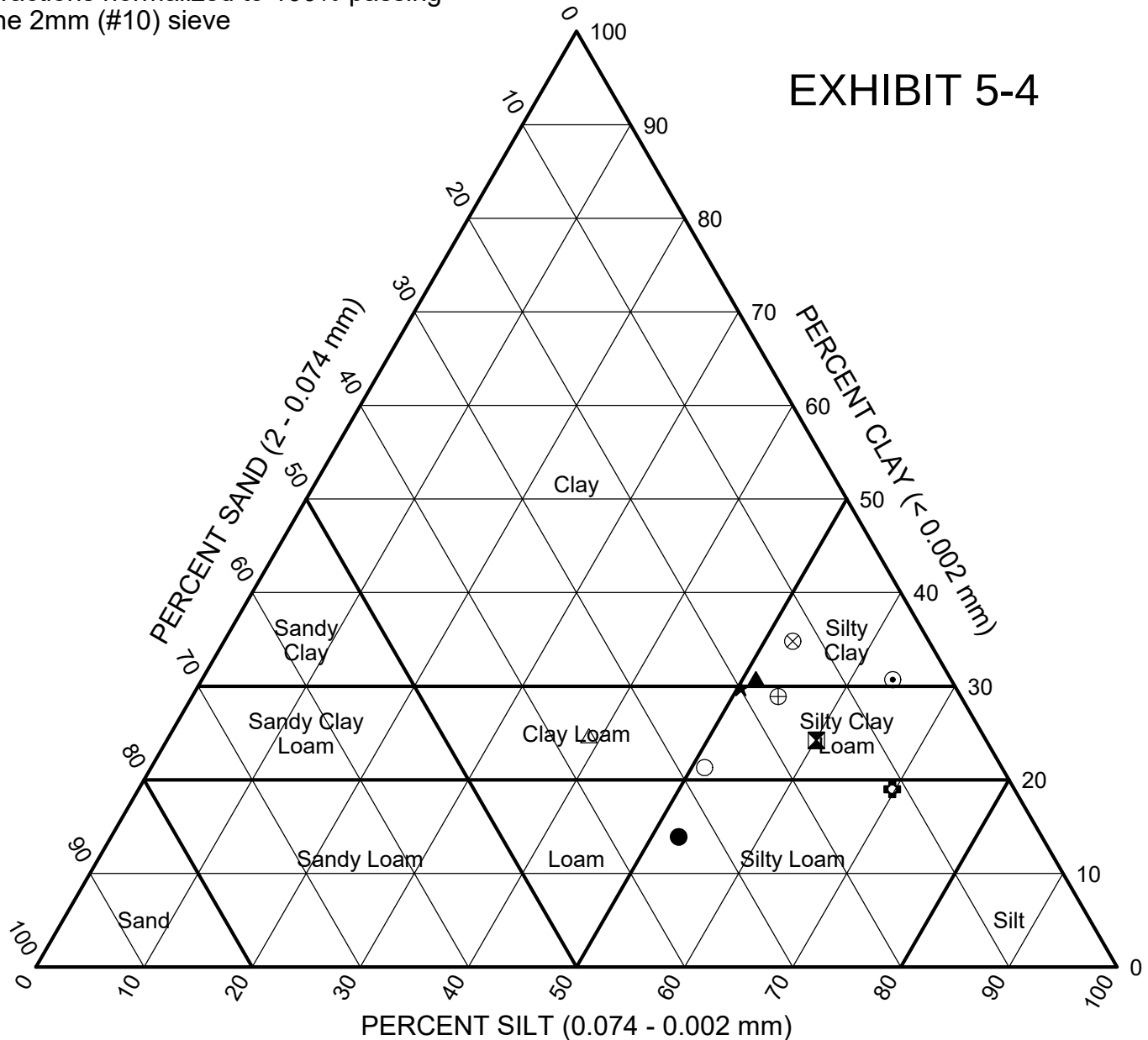
Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518

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

EXHIBIT 5-4



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	SSB-01#7	16.0	33.6	52.5	13.9	Silty Loam	A-4 (0)	CL-ML
⊠	SSB-01#8	18.5	15.7	60.1	24.2	Silty Clay Loam	A-6 (8)	CL
▲	SSB-02#3	6.0	18.0	51.2	30.8	Silty Clay	A-6 (9)	CL
★	SSB-02#6	13.5	20.0	50.3	29.8	Silty Clay Loam	A-6 (9)	CL
⊙	SSB-03#5	11.0	5.4	63.9	30.7	Silty Clay	A-6 (12)	CL
⊕	SSB-03#8	18.5	11.2	69.7	19.0	Silty Loam	A-6 (8)	CL
○	SSB-04#3	6.0	27.6	51.2	21.3	Silty Clay Loam	A-6 (5)	CL
△	SSB-04#8	18.5	36.5	38.8	24.7	Clay Loam	A-6 (6)	CL
⊗	SSB-05#5	11.0	12.5	52.6	34.8	Silty Clay	A-6 (14)	CL
⊕	SSB-05#	11.8	16.8	54.2	28.9	Silty Clay Loam	A-6 (10)	CL



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Telephone:
Fax:

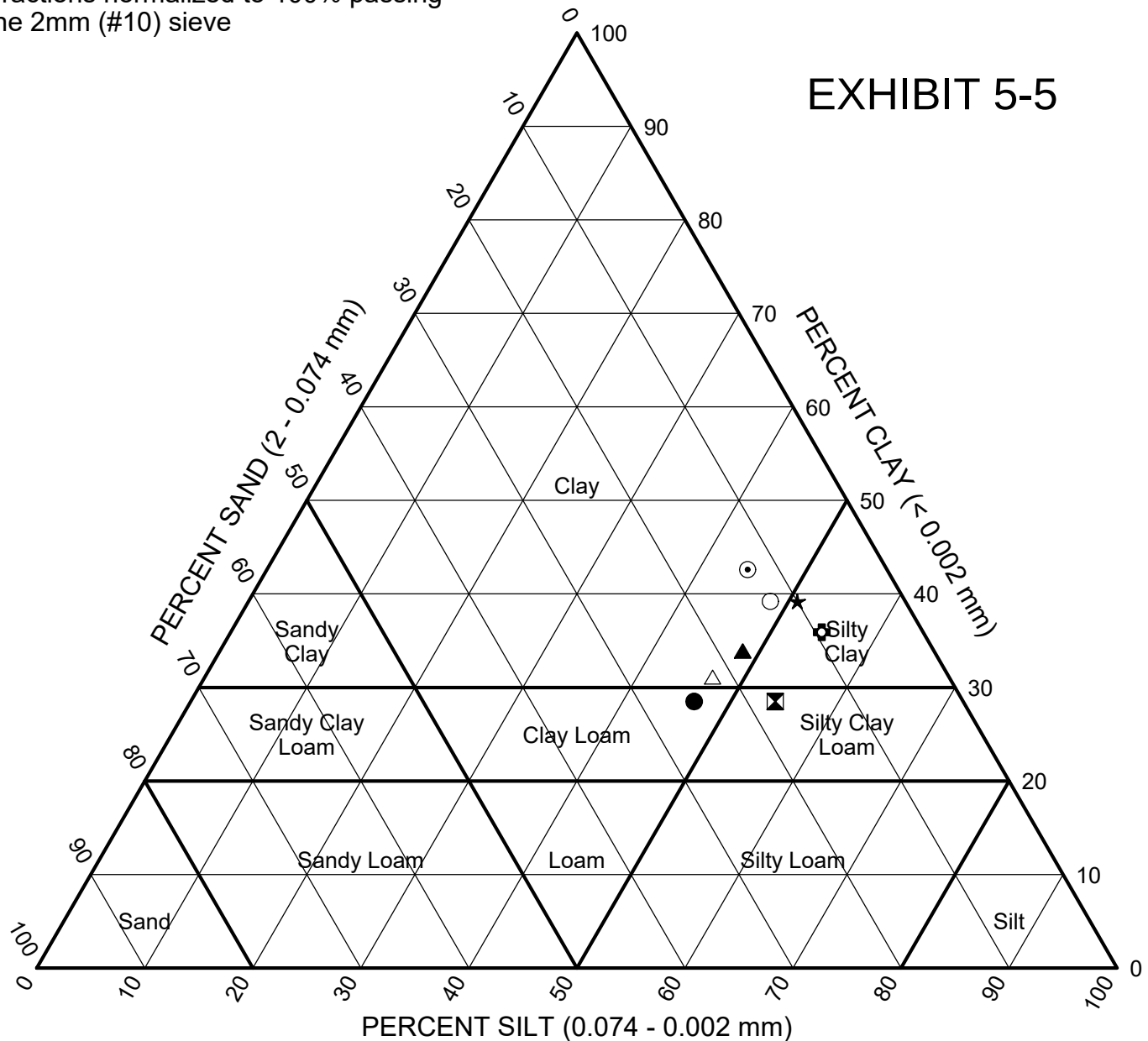
IDH Textural Classification Chart

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518

EXHIBIT 5-5

[illegible]

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Telephone:
Fax:

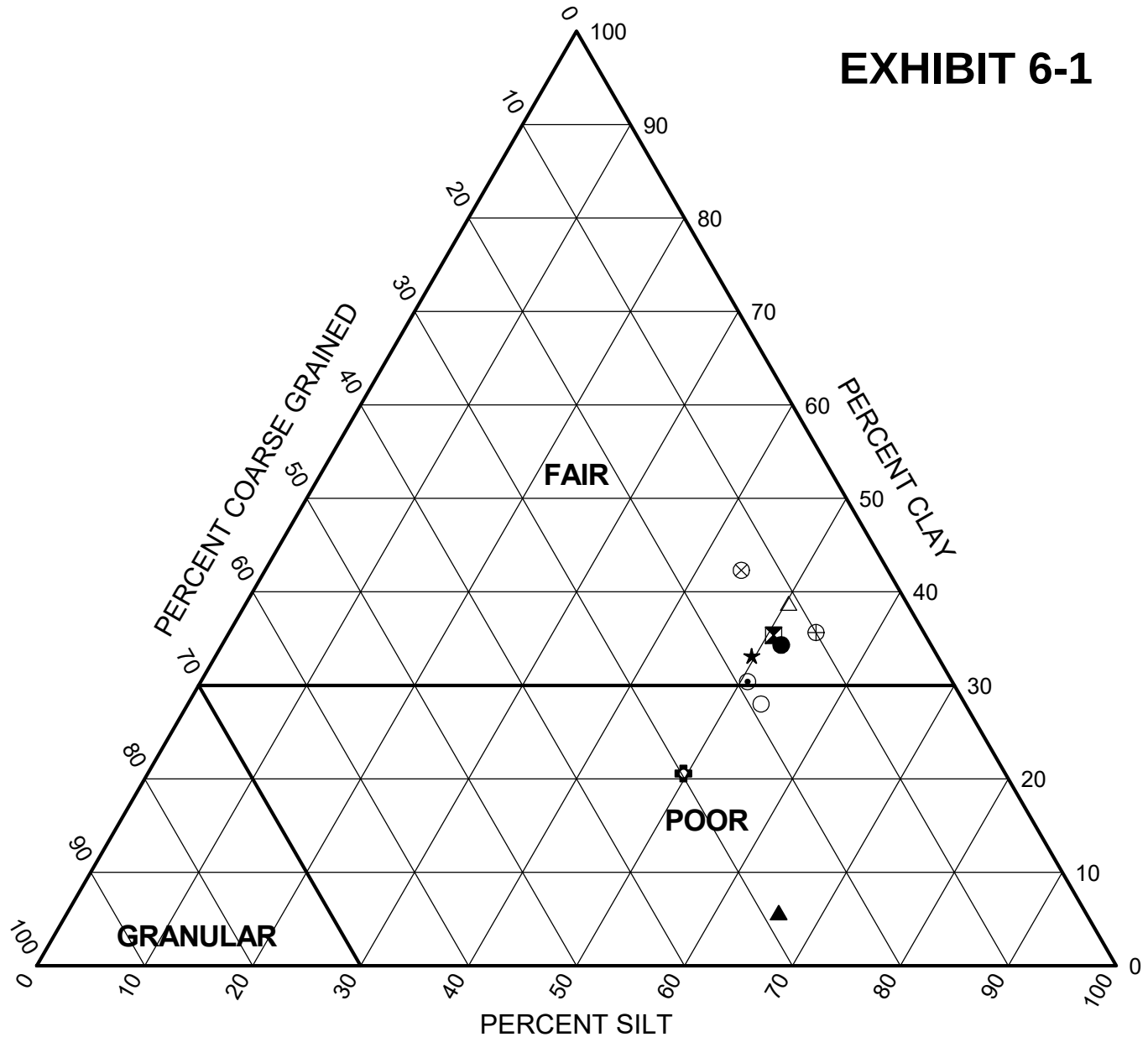
IDH Textural Classification Chart

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518

EXHIBIT 6-1



	Sample	Depth (ft)	Coarse (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	RATING
●	JPB-01#4	8.5	13.9	51.8	34.3	Silty Clay	A-6 (14)	FAIR
⊠	JPB-07#2	3.5	14.1	50.6	35.4	Silty Clay	A-6 (17)	FAIR
▲	JPB-22#4	8.5	28.4	65.9	5.7	Silty Loam	A-4 (0)	POOR
★	JPB-25#2	3.5	17.2	49.6	33.2	Silty Clay	A-6 (11)	FAIR
⊙	SSB-02#3	6.0	19.0	50.6	30.4	Silty Clay	A-6 (9)	FAIR
⊕	SSB-04#3	6.0	29.8	49.6	20.6	Silty Clay Loam	A-6 (5)	POOR
○	SSB-06#2	3.5	18.9	53.1	28.0	Silty Clay Loam	A-6 (14)	POOR
△	SSB-07#2	3.5	11.0	50.3	38.8	Silty Clay	A-7-6 (22)	FAIR
⊗	SSB-07#3B	6.0	13.6	44.1	42.3	Clay	A-7-6 (29)	FAIR
⊕	SSB-07#	6.8	10.0	54.4	35.7	Silty Clay	A-7-6 (20)	FAIR



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Subgrade Support Rating Chart

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518

APPENDIX A

BORING LOG LEGEND

Relative Drilling Resistance		
RDR	Term	Criterion
1	Very Easy	No chatter, very little resistance, very fast and steady drill advance
2	Easy	No chatter, some resistance, fast and steady drill advance rate
3	Moderate	Some chatter, firm drill resistance, moderate advance
4	Hard	Frequent chatter, variable drill resistance, slow advance rate
5	Very Hard	Constant chatter, variable and very slow drill advance, nearly refusal

Coarse Gradation (mm) (ASTM D2488)	
Gravel	4.75 to 75
Cobbles	75 to 300
Boulders	> 300

Proportional Terms (%) (ASTM D2488)	
Trace	< 5
Few	5 to 10
Little	15 to 25
Some	30 to 45
Mostly	50 to 100

Soil Moisture Conditions	
Term	Appearance and Feel
Dry	Soil sample looks and feels powdery or dusty; no indication of moisture. Free-running granular soils.
Damp	Cohesive soils cannot be molded easily without adding water. Granular soil may not flow very easily.
Moist	Soil is near the optimum moisture content. Cohesive soils are near the plastic limit. Soil changes color slightly when exposed to air for a short period.
Wet	One may feel a high degree of moisture, yet no free water is visible. Water may become visible if the sample is squeezed. Cohesive soil appears weak and sticks to and/or stains hands. Granular soils tend to cohere.
Saturated	Applied to granular soils that have free surface water; water drains freely from the sample.

Relative Density of Non-Cohesive Soils (ASTM D1586)	
No. of Blows/ft	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

Consistency of Cohesive Soils (ASTM D1586)	
Qu (tsf)	Consistency
< 0.25	Very Soft
0.25 - 0.50	Soft
0.50 - 1.00	Medium Stiff
1.00 - 2.00	Stiff
2.00 - 4.00	Very Stiff
> 4.00	Hard

Rock Quality Designation (ASTM D6032)	
RQD (%)	Classification
0 - 25	Very Poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

Sample Type Symbols



Split Spoon



Shelby Tube



No Recovery (NR)



Pitcher



Auger Cuttings



Rock Core

Drill Rig:

17 D50 A [87%]

— SPT Hammer Efficiency

— Rig Type (A or T)

— Rig Model

— Calibration Year

A = All Terrain Vehicle Rig

T = Truck Mounted Rig

SPT = Standard Penetration Test

Q_u = Unconfined Compressive Strength Test

P = Pocket Penetrometer

S = Shear failure (Rimac)

B = Bulge failure (Rimac)

SSA = Solid Stem Auger

HSA = Hollow Stem Auger



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-01

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.76 ft
North: 1896114.79 ft
East: 1113628.63 ft
Station: 4312+36.45
Offset: 5.145 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	628.1	8-inch thick CONCRETE --PAVEMENT--															
		Very stiff, dark brown to brown SILTY CLAY, trace gravel; moist --FILL-- --RDR 2--			1	2 3 5	2.95 B	23		606.8	--slow hard drilling from 21 to 22 feet; possible boulder--						
			5		2	2 2 5	2.54 S	22				25		9	21 27 24	NP	19
	623.3	Very stiff to hard, brown to gray CLAY to SILTY CLAY, trace gravel; moist --RDR 2--			3	3 3 6	2.38 B	20		603.3	--slow drilling-- Hard, gray SILTY CLAY, trace gravel; moist --RDR 4--			10	12 14 21	6.40 B	15
		--silt seams-- --L _L (%)=34, P _L (%)=17-- --%Gravel=1.3-- --%Sand=12.5-- --%Silt=51.8-- --%Clay=34.3-- --A-6 (14)--	10		4	5 8 11	6.23 B	19		600.8	--slow drilling-- Very dense, gray SILTY LOAM, trace gravel; moist --RDR 3-4--			11	11 16 36	3.61 S	9
	618.3	--slow drilling-- Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel, silt and sand seams; moist --RDR 2-3-- --slow drilling--			5	7 12 21	5.90 B	16		598.8	Boring terminated at 30.00 ft	30					
			15		6	10 16 15	9.84 B	10				35					
	613.3	Very dense, gray SILTY LOAM, trace gravel; damp to moist --RDR 2-4-- --slow drilling--			7	16 29 38	1.56 S	15									
		--possible cobbles--	20		8	20 50/3"	NP	11				40					

GENERAL NOTES

Begin Drilling **03-21-2025** Complete Drilling **03-21-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **21GeoT[92%]**
Driller **TC&AP** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **4.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **15.50 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-02

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 629.01 ft
North: 1896004.75 ft
East: 1113646.95 ft
Station: 177+19.55
Offset: 13.939 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	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	5-inch thick ASPHALT															
	628.3	4-inch thick, gray GRAVEL --AGGREGATE BASE--															
		Loose, brown medium SAND, trace gravel; damp			1	3 4 4	NP	6									
		--FILL-- --RDR 2--															
	624.8	Very stiff, brown and gray to gray CLAY to SILTY CLAY, trace gravel; damp	5		2	4 3 3	NA										
		--RDR 2--															
					3	2 5 7	3.44 B	20									
					4	6 11 13	2.79 B	20									
	618.5	Very stiff, gray SILTY CLAY LOAM, trace gravel; damp			5	4 9 12	3.03 B	16									
		--RDR 2--															
	616.0	Hard, gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp			6	6 12 17	7.46 B	12									
		--RDR 2--															
		--L _L (%)=27, P _L (%)=14--															
		--%Gravel=4.6--															
	613.5	--%Sand=22.8--			7	9 23 28	NP	11									
		--%Silt=46.3--															
		--%Clay=26.4--															
		Very dense, gray SILT to SILTY LOAM, trace gravel; damp															
		--RDR 2--			8	22 33 30	NP	14									
	609.0	Boring terminated at 20.00 ft	20														

GENERAL NOTES

Begin Drilling **05-29-2025** Complete Drilling **05-30-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **KG&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **3.50 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-03

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 628.02 ft

North: 1895874.90 ft

East: 1113643.24 ft

Station: 3308+43.15

Offset: 6.303 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	627.92	2-inch thick ASPHALT															
	627.4	6-inch thick CONCRETE															
		--PAVEMENT--															
		Very stiff, brown SILTY CLAY, trace gravel; damp			1	3 4 6	3.12 B	21						9	6 12 16	> 4.50 P	14
		--FILL--															
	625.0	Very stiff, brown CLAY to SILTY CLAY, trace to little gravel; damp			2	3 4 6	3.53 S	18						10	12 22 16	> 4.50 P	10
		--RDR 2--	5														
					3	3 6 8	3.20 B	18						11	6 13 20	> 4.50 P	9
	618.8	Hard, gray SILTY CLAY LOAM, trace to little gravel; damp			4	6 11 15	NR							12	19 26 19	> 4.50 P	10
		--RDR 2-3--	10							598.0	Boring terminated at 30.00 ft	30					
					5	4 7 10	5.49 B	14									
	615.0	Hard, gray CLAY LOAM, trace gravel; damp			6	6 11 13	4.51 S	12									
		--RDR 2--	15														
	612.5	Very stiff to hard, gray SILTY CLAY LOAM to SILTY LOAM, trace to little gravel; damp			7	50/5"	3.00 P	15									
		--RDR 2-4--															
					8	15 21 22	9.02 S	11									
			20														

GENERAL NOTES

Begin Drilling **04-11-2025** Complete Drilling **04-11-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; 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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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-04

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.78 ft
North: 1896077.03 ft
East: 1113984.97 ft
Station: 4315+95.19
Offset: 7.847 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	628.45	5-inch thick CONCRETE								608.3	Hard, gray SILTY CLAY LOAM, trace gravel; damp						
	628.0	--PAVEMENT--															
		4-inch thick, brown SANDY GRAVEL			1	2 5 6	3.94 B	24			--RDR 2--			9	9 10 13	8.36 B	13
		--AGGREGATE BASE--															
		Very stiff to hard, brown and gray CLAY to SILTY CLAY, trace gravel; damp								605.8	Medium dense to dense, gray SILTY LOAM to SILT; damp to moist			10	9 11 10	NP	16
		--RDR 2--			2	4 5 6	4.50 P	20			--RDR 3--						
			5									25					
					3	3 7 8	4.92 B	19						11	7 14 22	NP	17
	620.8	Hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp									--trace gravel--						
		--RDR 2--			4	5 12 16	7.05 S	18						12	6 15 11	NP	17
		--gray--			5	4 9 14	6.56 B	16		597.0	Hard, gray SILTY CLAY, trace gravel; damp						
											--RDR 3--						
			15		6	4 7 10	5.33 B	16		594.4	Gray SILTY LOAM, trace gravel; moist			13	2 12 14	10.25 S	16
	613.3	Medium dense to dense, gray SILTY LOAM; damp									--RDR 3--						
		--RDR 2--			7	7 12 13	NP	12		592.0	Hard, gray CLAY LOAM to LOAM, little gravel; moist						
		--little gravel--									--RDR 3--						
										589.8							
			20		8	11 13 18	NP	11						14	8 14 15	> 4.50 P	11
												40					

GENERAL NOTES

Begin Drilling **04-08-2025** Complete Drilling **04-08-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **40.00 ft**
 At Completion of Drilling **44.00 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148Telephone: (630) 953-9928
Fax: (630) 953-9938**BORING LOG JPB-04**

WEI Job No.: KE245518

Client **Accurate Group, Inc.**Project **FAI-290 Drainage Improvement D-91-226-24**Location **Cook County, IL**

Datum: NAVD 88

Elevation: 628.78 ft

North: 1896077.03 ft

East: 1113984.97 ft

Station: 4315+95.19

Offset: 7.847 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Dense, gray Gravelly SANDY LOAM; wet --RDR 3-4--															
			45		15	13 16 18	NP	16									
			50		16	12 18 15	NP	7									
					17	4 23 46	NP	6									
	574.3	Gray SILTY LOAM to LOAM, little gravel; moist --RDR 3-4--	55														
	572.0	Very dense, gray Gravelly SAND; wet --RDR 4--															
	570.0	Boring terminated at 58.80 ft			18	50/4"	NP	17									
			60														

GENERAL NOTES

Begin Drilling **04-08-2025** Complete Drilling **04-08-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **40.00 ft**
 At Completion of Drilling **44.00 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-05

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.30 ft
North: 1895950.89 ft
East: 1113991.39 ft
Station: 180+67.22
Offset: 9.566 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	625.94	4.5-inch thick ASPHALT															
	625.3	7.5-inch thick CONCRETE															
	625.1	--PAVEMENT--															
		Gray SAND, some gravel; damp			1	2 3 3	2.50 P	21						9	14 13 28	4.50 P	12
		--AGGREGATE BASE--															
		Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp															
		--RDR 2--			2	3 3 4	3.28 B	20		603.3	Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			10	10 11 18	9.59 B	17
			5								--RDR 2--	25					
					3	4 6 10	3.20 S	19		599.5	Very dense, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel; damp			11	9 14 38	9.59 S	11
											--RDR 3-4--			12	50/6"	NP	12
			10		4	3 6 9	5.17 B	16				30					
	615.8	Hard, reddish gray CLAY LOAM, trace gravel; damp			5	3 9 11	4.59 S	11									
		--RDR 2--															
	613.3	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace to little gravel; damp			6	14 24 42	4.50 P	8			--possible cobbles--			13	50/4"	NR	
		--RDR 2-4--	15									35					
					7	17 15 20	10.25 S	12			--possible cobbles--			14	50/2"	NP	10
					8	11 13 18	10.25 S	15		586.3		40					

GENERAL NOTES

Begin Drilling **03-24-2025** Complete Drilling **03-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **RR&KA** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; 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 JPB-05

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.30 ft
North: 1895950.89 ft
East: 1113991.39 ft
Station: 180+67.22
Offset: 9.566 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Light bluish gray DOLOSTONE BOULDERS, some silty clay loam to silty loam --Run 1: 40.0 to 50.0 feet-- --Recovery: 13%-- --RQD: 8%--	45		1												
	576.3	Very dense, gray SANDY LOAM, trace gravel; wet Boring terminated at 50.50 ft	50		15	60/6"	NP										
	575.8		55														
			60														

GENERAL NOTES

Begin Drilling **03-24-2025** Complete Drilling **03-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **RR&KA** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; 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 JPB-06

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 631.71 ft

North: 1895838.34 ft

East: 1114001.49 ft

Station: 3312+02.99

Offset: 6.87 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	631.53	3-inch thick ASPHALT															
	631.1	5-inch thick CONCRETE															
	630.95	--PAVEMENT--															
		2-inch thick SANDY GRAVEL															
		--AGGREGATE BASE--															
		Very stiff to hard, brown and gray CLAY to CLAY LOAM, trace gravel; damp			1	2 5 6	2.71 B	21						9	11 18 24	10.25 S	12
		--RDR 2--			2	3 3 4	4.18 B	19						10	16 21 22	4.50 P	15
	626.2	Very stiff to hard, brown to gray SILTY CLAY, trace to little gravel; damp			3	3 8 6	7.38 B	18						11	9 18 22	10.25 B	11
		--RDR 2--			4	4 10 13	6.48 B	15						12	25 40 50/2"	4.50 P	11
					5	4 9 10	3.50 P	16						13	14 26 50/2"	4.50 P	12
					6	4 8 11	3.85 B	15						14	50/3"	NP	
	616.2	Very dense, gray SILTY LOAM; damp			7	16 26 41	NP	17									
	613.7	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace to little gravel; damp			8	15 23 27	8.20 S	10									
		--RDR 2-3--															

GENERAL NOTES

Begin Drilling **04-14-2025** Complete Drilling **04-15-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

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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Fax: (630) 953-9938

BORING LOG JPB-06

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 631.71 ft
North: 1895838.34 ft
East: 1114001.49 ft
Station: 3312+02.99
Offset: 6.87 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	590.0	Very dense, gray Gravelly SILTY LOAM to LOAM; moist --RDR 4-5--															
	587.7	Strong, light brownish gray, very poor quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal and oblique joints, slightly rough walls, >0.5 inch thick clay infill. --Run 1: 44.0 to 46.0 feet-- --Recovery: 50%-- --RQD: 0%-- --Run 2: 46.0 to 49.0 feet-- --Recovery: 28%-- --RQD: 0%-- --Run 3: 49.0 to 54.0 feet-- --Recovery: 18%-- --RQD: 7%--	15 45 50		1 2 3	50/1" C O R E C O R E C O R E	NP										
	577.7	Boring terminated at 54.00 ft	55 60														

GENERAL NOTES

Begin Drilling **04-14-2025** Complete Drilling **04-15-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

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

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Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-07

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.12 ft
North: 1896052.63 ft
East: 1114921.44 ft
Station: 4325+31.05
Offset: 24.409 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	627.93	3-inch thick ASPHALT								607.6	Very dense, gray SILTY LOAM; damp						
	627.1	9-inch thick CONCRETE									--RDR 3-4--			9	8 23 34	NP	14
		--PAVEMENT--															
		Very stiff, dark gray SILTY CLAY, trace gravel; damp			1	2 5 7	3.36 B	24									
		--FILL--															
	625.1	Very stiff to hard, brown to gray CLAY to SILTY CLAY, trace gravel; damp			2	3 3 3	3.12 B	21						10	17 36 46	NP	13
		--RDR 2--															
		--L _L (%)=37, P _L (%)=16--															
		--%Gravel=1.5--															
		--%Sand=12.5--															
		--%Silt=50.6--															
		--%Clay=35.4--															
		--A-6 (17)--															
					3	3 4 7	2.30 B	19		602.6	Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp			11	6 12 18	10.25 B	13
											--RDR 2-3--						
					4	3 8 9	5.49 B	17						12	6 13 19	9.92 B	13
	616.9	Medium dense, gray SILT, trace gravel; moist			5	2 8 10	NP	16		596.4	Gray LOAM, little gravel; moist						
		--RDR 2--									--RDR 3--						
	615.1	Very stiff to hard, gray to reddish gray SILTY CLAY LOAM, trace to little gravel; damp to moist			6	3 5 8	2.87 B	15		594.1	Very dense, gray SILTY LOAM, little gravel; damp to wet			13	22 22 32	NP	11
		--RDR 2--									--RDR 3-4--						
					7	3 6 7	7.30 B	16									
					8	3 8 15	4.67 B	16						14	41 50/6"	NP	8

GENERAL NOTES

Begin Drilling **04-17-2025** Complete Drilling **04-17-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **40.00 ft**
At Completion of Drilling **20.00 ft**
Time After Drilling **NA**
Depth to Water **NA**

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Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-07

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.12 ft
North: 1896052.63 ft
East: 1114921.44 ft
Station: 4325+31.05
Offset: 24.409 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	586.4	Very dense, gray SANDY LOAM, little gravel; moist --RDR 3-4--															
	583.6	Gray SILT to SILTY LOAM, trace gravel; moist --RDR 3--	45		15	17 30 43	NP	15									
	581.4	Very dense, gray Gravelly SAND; moist --RDR 3--															
			50		16	14 33 50/3"	NP	11									
	576.4	Very dense, gray Gravelly SILTY LOAM; moist --RDR 4--															
			55		17	50/4"	NP	9									
	571.4	Very dense, gray Gravelly LOAM; damp --RDR 4-5--															
	569.4	Boring terminated at 58.70 ft	60		18	50/2"	NP	12									

GENERAL NOTES

Begin Drilling **04-17-2025** Complete Drilling **04-17-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **40.00 ft**
At Completion of Drilling **20.00 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.

WANGENGINC KE245518.GPJ WANGENG.GDT 7/7/25



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Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-08

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 615.72 ft
North: 1895916.80 ft
East: 1114912.43 ft
Station: 189+88.60
Offset: 9.761 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	615.44	4-inch thick ASPHALT															
	614.7	8-inch thick CONCRETE															
	614.2	--PAVEMENT--															
		Brown SANDY GRAVEL				15	NA										
		--AGGREGATE BASE--				14											
	612.7	Brown Gravelly SILTY CLAY; damp			1	11											
		--FILL--															
		Dense, gray SILTY LOAM, trace gravel; damp			2	8	NP	10									
		--RDR 2--	5			11											
						19											
					3	9	NP	14									
						13											
						20											
					4	8	NP	13									
						15											
			10			15											
	605.2	Hard, gray SILTY CLAY, trace gravel; damp															
		--RDR 2--			5	6	> 4.50 P	14									
						11											
						14											
	602.7	Dense to very dense, gray SILTY LOAM to SILT, trace gravel; damp															
		--RDR 2--			6	5	NP	12									
						13											
			15			35											
					7	20	NP	5									
						43											
						38											
					8	20	NP	8									
						31											
						40											
	595.7	Boring terminated at 20.00 ft	20														

GENERAL NOTES

Begin Drilling **03-24-2025** Complete Drilling **03-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **RR&KA** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; 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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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-09

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 630.94 ft
North: 1895779.28 ft
East: 1114908.56 ft
Station: 3321+13.40
Offset: 14.007 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	630.8	2-inch thick ASPHALT															
	630.0	9-inch thick CONCRETE															
	629.4	--PAVEMENT-- Very stiff (3.0P), dark gray SILTY CLAY; damp			1	4 4 5	2.46 B	23						9	19 33 42	NP	14
		--FILL-- Stiff, brown to brown and gray CLAY to SILTY CLAY, trace gravel; damp			2	4 3 4	1.48 B	20		607.9	Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp			10	10 15 20	2.50 P	13
		--RDR 2--	5		3	2 4 5	1.07 B	21			--L _L (%)=30, P _L (%)=14-- --%Gravel=4.1-- --%Sand=15.4-- --%Silt=50.4-- --%Clay=30.2--			11	9 10 17	9.43 B	14
	622.9	Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp			4	4 11 15	3.44 B	17		601.4	Gray SANDY LOAM, trace gravel; saturated			12	17 24 29	4.50 P	14
		--RDR 2--	10		5	4 9 11	5.25 B	15			--RDR 3--						
					6	4 8 11	5.33 B	15		599.2	Very dense, gray SILTY LOAM, trace to some gravel; damp to moist			13	25 34 31	NP	9
			15		7	4 8 12	5.49 B	15			--RDR 3-4--						
	612.9	Dense to very dense, gray SILTY LOAM, trace gravel; moist			8	10 20 23	NP	13						14	50/4"	NP	7
		--RDR 2--	20														

GENERAL NOTES

Begin Drilling **04-18-2025** Complete Drilling **04-22-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **12.50 ft**
At Completion of Drilling **Coring water**
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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WEI Job No.: KE245518

Location **Cook County, IL**

Offset: 14.007 RT

WANGENGINC KE245518.GPJ WANGENG.GDT 7/7/25

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



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Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-10

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 626.83 ft

North: 1896093.87 ft

East: 1115836.33 ft

Station: 4334+51.44

Offset: 10.753 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	626.7	2-inch thick ASPHALT																
	626.1	7-inch thick CONCRETE																
	623.6	--PAVEMENT--																
		3-inch thick SANDY GRAVEL			1	2 3 5	NA	23							9	11 16 23	NP	13
		--AGGREGATE BASE--																
		Brown and gray SILTY CLAY, trace gravel; damp																
	623.8	--FILL--																
		Stiff to very stiff, brown to gray CLAY to SILTY CLAY, trace gravel; damp			2	2 2 3	1.23 B	26							10	13 22 17	NP	15
	--RDR 2--	5																
	620.3	Very stiff, brown to gray CLAY LOAM to SILTY CLAY LOAM, trace to little gravel; damp			3	3 7 7	2.38 S	18										
		--RDR 2--												11	11 19 23	NP	7	
		--L _L (%)=23, P _L (%)=11-- --%Gravel=3.6-- --%Sand=24.8-- --%Silt=45.5-- --%Clay=26.1-- --A-6 (5)-- --gray--	10		4	4 10 11	2.05 B	13						12	9 13 12	NP	20	
					5	3 5 5	2.54 B	13										
	613.8	Very stiff, gray SILTY CLAY LOAM, trace to little gravel; damp			6	4 6 9	3.69 B	15										
		--RDR 2--	15											13	7 9 15	NP	20	
	611.3	Hard, gray CLAY LOAM to SILTY LOAM, trace gravel; damp			7	9 17 27	4.50 P	12										
		--RDR 3--																
	608.8	Dense, gray SILTY LOAM, trace to little gravel; damp to moist			8	11 18 20	NP	15										
		--RDR 3-4--	20											14	13 18 44	> 4.50 P	9	
		</																

GENERAL NOTES

Begin Drilling	04-07-2025	Complete Drilling	04-07-2025
Drilling Contractor	Wang Testing Services	Drill Rig	20D50T [80%]
Driller	GT&MN	Logger	I. Romero
		Checked by	C. Marin
Drilling Method	3.25" ID HSA; backfilled upon completion		

WATER LEVEL DATA

While Drilling		38.00 ft
At Completion of Drilling		Coring water
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 KE245518.GPJ WANGENG.GDT 7/7/25



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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-10

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.83 ft
North: 1896093.87 ft
East: 1115836.33 ft
Station: 4334+51.44
Offset: 10.753 RT

Page 2 of 2

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		LOAM, little to some gravel; moist to wet --RDR 3-4--															
	581.8		45		15	32	4.50	10									
		Strong, light gray, good quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with <0.05 inch opening, slightly rough walls, <0.2 inch thick clay infill, and vuggy. --Run 1: 45.0 to 55.0 feet-- --Recovery: 95%-- --RQD: 78%--															
			50		1												
	571.8		55														
		Boring terminated at 55.00 ft															
			60														

GENERAL NOTES

Begin Drilling **04-07-2025** Complete Drilling **04-07-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **38.00 ft**
At Completion of Drilling **Coring water**
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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Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-11

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 622.30 ft
North: 1895973.52 ft
East: 1115860.14 ft
Station: 199+37.84
Offset: 8.023 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	621.6	8-inch thick ASPHALT								601.8	Gray SAND, trace gravel; damp						
	621.3	--PAVEMENT--								600.9	Medium dense, gray SILT, trace gravel; moist			9	7 12 16	NP	20
		4-inch thick, black SILTY CLAY LOAM			1	6 5 5	NP	5			--RDR 2--						
		Medium dense, brown SAND, trace gravel; damp to wet															
	618.7	--FILL--								598.5	Medium dense, gray SANDY LOAM to SAND, trace gravel; moist to saturated	25		10	7 9 12	NP	19
		Stiff, gray CLAY, trace gravel; moist			2	3 2 5	1.07 B	21			--RDR 2--						
	616.8	--RDR 2--	5														
		Very stiff, gray SILTY CLAY, trace gravel; moist			3	3 5 7	3.12 B	16						11	3 7 7	NP	21
		--RDR 2--															
	614.3	Stiff to hard, gray LOAM to SILTY LOAM, trace gravel; moist			4	3 5 6	1.97 B	13		593.4	Medium dense, gray SILT, trace gravel; wet	30		12	4 7 11	NP	19
		--RDR 2--	10							592.3	Boring terminated at 30.00 ft						
		--L _L (%)=23, P _L (%)=14--			5	5 18 30	8.20 S	10									
		--%Gravel=9.4--															
		--%Sand=35.2--															
		--%Silt=44.3--															
		--%Clay=11.2--															
					6	7 15 15	3.50 P	11									
	606.8	Dense, gray SILT, trace gravel; damp to moist															
		--RDR 2--			7	8 17 16	NP	16									
		--clay seam--															
					8	12 15 19	NP	16									

GENERAL NOTES

Begin Drilling **03-23-2025** Complete Drilling **03-23-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **21GeoT[92%]**
Driller **TC&AP** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **3.50 ft**
At Completion of Drilling **27.50 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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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-12

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 633.49 ft
North: 1895825.11 ft
East: 1115848.92 ft
Station: 3330+54.85
Offset: 6.804 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	633.23	23-inch thick ASPHALT									to SILTY LOAM, trace gravel; damp to moist						
	632.7	6-inch thick CONCRETE									--RDR 2--						
	632.2	--PAVEMENT--															
		7-inch thick, gray GRAVEL; damp			1	2 2 4	1.97 B	24						9	12 22 23	NP	15
		--AGGREGATE BASE--															
		Medium stiff to stiff, dark gray and brown CLAY LOAM to SILTY CLAY LOAM, trace gravel; moist			2	2 2 2	0.74 B	17						10	16 32 29	NP	13
		--FILL--			5												
		--RDR 2--															
	626.8																
	626.2	Brown SANDY LOAM, trace gravel; moist			3	4 6 6	NP	11			Medium dense to dense, gray SANDY LOAM, trace gravel; moist to wet			11	7 19 16	NP	20
		--FILL--									--RDR 2--						
		Stiff to very stiff, gray CLAY to SILTY CLAY, trace gravel; moist			4	3 4 6	2.62 B	15						12	9 13 15	NP	21
		--RDR 2--															
		--wet silt lens--			10												
	622.0																
	621.2	Gray SILT, trace gravel; saturated			5	3 5 6	NP	20			Very stiff, gray SILTY CLAY LOAM, trace gravel; moist						
		Very stiff to hard, gray SILTY CLAY LOAM, trace gravel; moist									--RDR 2--						
		--RDR 2--			6	3 7 9	4.84 B	17						13	21 42 45	2.54 S	10
		--silt seams--			7	3 6 10	4.84 B	15									
		--silt seams--															
	614.1				8	3 9 17	3.36 B	15						14	43 50 52	2.46 S	11
		Dense to very dense, gray SILT									--possible cobbles--						

GENERAL NOTES

Begin Drilling **05-05-2025** Complete Drilling **05-05-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **23.00 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-12

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 633.49 ft
North: 1895825.11 ft
East: 1115848.92 ft
Station: 3330+54.85
Offset: 6.804 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	589.0	Strong, light brownish gray, fair quality, slightly to moderately weathered, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with 0.05 - 0.2 inch opening, slightly rough walls, and <0.2 inch thick clay infill. --Run 1: 44.5 to 54.5 feet-- --Recovery: 100%-- --RQD: 69%--	45														
	579.0	Boring terminated at 54.50 ft	55														

GENERAL NOTES

Begin Drilling **05-05-2025** Complete Drilling **05-05-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **23.00 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**

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Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-13

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

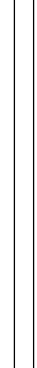
Elevation: 626.99 ft

North: 1896115.11 ft

East: 1116315.52 ft

Station: 4339+31.10

Offset: 9.197 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	626.7	4-inch thick ASPHALT								626.7	4-inch thick ASPHALT							
	625.9	9-inch thick CONCRETE								625.9	9-inch thick CONCRETE							
		--PAVEMENT--									--PAVEMENT--							
		Loose, gray SANDY GRAVEL; damp			1	6 5 3	NP	5				Loose, gray SANDY GRAVEL; damp			9	13 33 46	NP	15
		--AGGREGATE BASE--										--AGGREGATE BASE--						
	624.0	Loose, gray, coarse SAND, little gravel; damp			2	4 3 2	NP	9				Loose, gray, coarse SAND, little gravel; damp			10	12 26 38	NP	14
		--FILL-- --offset 1' west due to obstruction at 5' bgs--	5									--FILL-- --offset 1' west due to obstruction at 5' bgs--	5					
	621.5	Very stiff to hard, brown to gray SILTY CLAY, trace to little gravel; damp			3	3 5 6	3.50 P	20			601.5	Hard, gray SILTY CLAY LOAM, trace to little gravel; damp to wet			11	6 13 21	> 4.50 P	14
	--RDR 2--									--RDR 2--								
				4	3 9 10	3.36 B	16						12	7 14 19	8.04 B	21		
				5	3 6 9	3.36 B	16											
				6	3 7 8	2.30 B	16						13	13 26 35	> 4.50 P	11		
				7	5 13 20	7.38 B	15		590.2	Very dense, gray SILTY LOAM, little gravel; wet			14	20 50/5"	NP			
	Dense to very dense, gray SILT; damp			8	18 33 23	NP	14			--RDR 4--								
	--RDR 3--									--RDR 3--								

GENERAL NOTES

Begin Drilling	04-09-2025	Complete Drilling	04-10-2025
Drilling Contractor	Wang Testing Services	Drill Rig	20D50T [80%]
Driller	GT&MN	Logger	I. Romero
		Checked by	C. Marin
Drilling Method	3.25" ID HSA; installed monitoring well after drilling		

WATER LEVEL DATA

While Drilling		38.50 ft
At Completion of Drilling		Coring water
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 KE245518.GPJ WANGENG.GDT 7/7/25



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Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-13

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.99 ft
North: 1896115.11 ft
East: 1116315.52 ft
Station: 4339+31.10
Offset: 9.197 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	585.2	Very dense, gray SANDY GRAVEL, trace cobbles; moist --RDR 4--															
			15			50/4	NP										
			45														
	579.0	Strong, light brownish gray, poor quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with 0-0.2 inch opening, slightly rough walls, <0.2 inch thick clay infill. --Run 1: 48.0 to 58.0 feet-- --Recovery: 34%-- --RQD: 89%--	50														
			55														
	569.0	Boring terminated at 58.00 ft	60														

GENERAL NOTES

Begin Drilling **04-09-2025** Complete Drilling **04-10-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **38.50 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-14

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 623.86 ft
North: 1895976.98 ft
East: 1116337.72 ft
Station: 204+15.15
Offset: 8.115 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	623.1	9-inch thick ASPHALT --PAVEMENT--															
	622.3	Stiff, brown CLAY LOAM to LOAM, trace gravel; moist --FILL--			1	4 4 4	1.50 P	14						9	14 24 36	NP	13
	620.9	Tan SAND, trace gravel; damp --FILL--															
		Stiff to very stiff, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; moist --RDR 2--	5		2	7 5 8	2.50 P	17		600.9	Very dense, gray SILTY LOAM, trace to little gravel; moist to wet --RDR 2--	25		10	15 24 29	NP	11
					3	3 5 7	1.64 B	17						11	20 35 29	NP	7
			10		4	4 5 7	2.13 B	17				30		12	27 30 49	NP	7
					5	3 3 5	1.39 B	18									
	610.9	Very dense, gray SILT to SILTY LOAM, trace gravel; damp to moist --RDR 2--	15		6	16 33 50	NP	11				35		13	50/1"	NP	13
					7	20 36 41	NP	13									
			20		8	15 28 40	NP	16		584.4	Boring terminated at 39.50 ft	40		14	35 50/6"	NP	10

GENERAL NOTES

Begin Drilling **03-24-2025** Complete Drilling **03-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&JD** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **38.50 ft**
At Completion of Drilling **38.50 ft**
Time After Drilling **NA**
Depth to Water **NA**

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a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-15

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.48 ft
North: 1895843.23 ft
East: 1116312.39 ft
Station: 3335+18.68
Offset: 7.72 RT

Page 1 of 2

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	626.41	1-inch thick ASPHALT								606.0							
	625.9	6-inches thick CONCRETE									Dense, gray SILT to SILTY LOAM, trace gravel; damp to moist						
	625.3	--PAVEMENT--									--RDR 2--			9	3 14 19	NP	14
		Gray SANDY GRAVEL; damp			1	1 3 3	1.56 B	21									
		--AGGREGATE BASE--															
		Stiff, brown and gray CLAY to SILTY CLAY, trace gravel; damp															
		--RDR 2--															
					2	2 3 3	1.80 B	22						10	9 12 18	NP	19
			5														
	620.2	Medium dense, brown to gray LOAM to SANDY LOAM, trace gravel; damp to moist			3	3 4 6	1.23 S	23						11	10 15 23	NP	19
		--RDR 2--															
					4	3 8 9	NP	11						12	7 12 19	3.53 S	19
			10														
					5	6 10 10	NP	12									
	613.5	Very stiff to hard, reddish gray to gray SILTY CLAY LOAM, little to some gravel; damp			6	3 5 7	2.46 B	12						13	20 50/6"	> 4.50 P	10
		--RDR 2--															
			15														
					7	1 7 14	5.49 S	15									
					8	4 12 15	> 4.50 P	12						14	50/6"	NP	6
			20														

GENERAL NOTES

Begin Drilling **04-24-2025** Complete Drilling **04-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **35.00 ft**
At Completion of Drilling **Coring water**
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 KE245518.GPJ WANGENG.GDT 7/7/25



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-15

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.48 ft
North: 1895843.23 ft
East: 1116312.39 ft
Station: 3335+18.68
Offset: 7.72 RT

Page 2 of 2

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	581.5	--possible cobbles--	45		15	50/3	NP	12									
		Strong, light brownish gray, fair quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with 0-0.2 inch opening, slightly rough walls, no infill.															
		--Run 1: 45.0 to 55.0 feet--															
		--Recovery: 96%--															
		--RQD: 50%--															
			50		1												
	571.5	Boring terminated at 55.00 ft	55														
			60														

GENERAL NOTES

Begin Drilling **04-24-2025** Complete Drilling **04-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **35.00 ft**
At Completion of Drilling **Coring water**
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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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-16

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.47 ft
North: 1896140.73 ft
East: 1116990.16 ft
Station: 4346+06.23
Offset: 11.284 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	628.23	3-inch thick ASPHALT															
	627.5	9-inch thick CONCRETE															
		--PAVEMENT--															
		Very stiff, black and brown CLAY to SILTY CLAY, trace gravel; moist			1	4 7 8	3.77 B	24						9	9 21 34	NP	13
		--RDR 2--															
					2	3 4 4	2.71 B	23						10	34 50/5"	NP	8
	623.0	Very stiff to hard, pinkish brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; moist			3	4 8 12	4.76 S	15						11	12 16 20	10.25 B	13
		--RDR 2--															
					4	4 10 12	3.28 S	17						12	13 29 39	NP	9
		--slow hard drilling--															
		Hard, gray SILTY CLAY LOAM, trace gravel; moist															
		--RDR 3--															
		--sand and silt seams--															
	599.3	Very dense, gray SILTY LOAM to SILT, trace gravel; damp to moist															
		--RDR 3--															
		--slow hard drilling; added water to advance augers--															
					6	4 7 8	2.79 B	16						13	22 50/4"	NP	10
		--possible cobbles--															
		--slow hard drilling; added water to advance augers--															
					7	4 7 10	3.44 B	16									
					8	5 9 13	4.76 B	16						14	50/5"	NP	12
	588.5																

GENERAL NOTES

Begin Drilling **04-04-2025** Complete Drilling **04-04-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **GT&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
Time After Drilling **NA**
Depth to Water **▽ NA**

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



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-16

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.47 ft
North: 1896140.73 ft
East: 1116990.16 ft
Station: 4346+06.23
Offset: 11.284 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--water loss from 40.5'-- Strong, light brownish gray, fair to good quality, slightly to moderately weathered, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with 0.05 - > 0.2 inch opening, slicken to slightly rough walls, and <0.2 inch thick clay infill. --Run 1: 40.0 to 43.5 feet-- --Recovery: 92%--45 --RQD: 80%-- --Run 2: 43.5 to 50.0 feet-- --Recovery: 100%-- --RQD: 54%--			1	CORE											
					2	CORE											
	578.5	Boring terminated at 50.00 ft	50														
			55														
			60														

GENERAL NOTES

Begin Drilling **04-04-2025** Complete Drilling **04-04-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **GT&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
Time After Drilling **NA**
Depth to Water **▼ NA**

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



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-17

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 619.51 ft
North: 1896022.32 ft
East: 1117008.11 ft
Station: 210+86.84
Offset: 9.667 LT

Page 1 of 1

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	618.5	12-inch thick ASPHALT --PAVEMENT--															
		Very stiff to hard, brown to gray SILTY CALY LOAM to SILTY LOAM, trace gravel; moist --RDR 2--			1	3 3 6	3.03 B	13						9	8 23 21	2.71 S	10
			5		2	5 5 10	4.43 B	12				25		10	22 30 46	4.50 P	9
		--sand seam--			3	3 5 5	2.05 B	10		594.0	Very dense, gray Gravelly LOAM to SILTY LOAM, trace cobbles; moist --RDR 2--			11	22 50/5"	NP	9
			10		4	4 6 8	3.20 B	15		590.9	Boring terminated at 28.60 ft			12	50/1"	NP	6
		--silt seams--			5	3 14 12	4.50 P	16									
	606.5	Hard, gray SILTY LOAM, trace gravel; moist --RDR 2-- --L _L (%)=21, P _L (%)=14-- --%Gravel=4.2-- --%Sand=23.7-- --%Silt=60.8-- --%Clay=11.3--			6	12 21 33	4.50 P	11									
					7	9 14 19	10.25 B	8									
		--sand seams--			8	6 13 23	7.71 B	12									
			20														

GENERAL NOTES

Begin Drilling **03-23-2025** Complete Drilling **03-23-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **21GeoT[92%]**
Driller **TC&AP** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-18

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 625.90 ft

North: 1895888.00 ft

East: 1117012.52 ft

Station: 3342+20.09

Offset: 8.287 LT

Page 1 of 2

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	625.72	72-inch thick ASPHALT									trace gravel; damp						
	625.27	7-inch thick CONCRETE with rebar									--RDR 3-4--						
		--PAVEMENT--															
		Very stiff, dark gray SILTY CLAY, trace gravel; damp			1	2 3 4	2.38 B	23						9	12 24 50	NP	12
	622.9	--FILL--															
		Stiff, brown and gray CLAY to SILTY CLAY, trace gravel; damp			2	2 3 2	1.48 B	23			Hard, gray CLAY LOAM to LOAM, little to some gravel; damp			10	10 14 20	6.31 S	8
		--RDR 2--	5								--RDR 3--	25					
					3	2 3 5	1.48 B	21			Dense to very dense, gray SILTY LOAM, trace gravel; damp			11	8 24 26	NP	11
		--RDR 2--									--RDR 2-3--						
	617.9	Very stiff to hard, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp to moist			4	3 6 10	6.40 B	15						12	9 18 17	NP	11
		--RDR 2--	10														
					5	5 9 9	4.50 P	11			Very dense, gray LOAM to SILTY LOAM, little gravel; damp						
											--RDR 3--						
					6	6 9 10	2.50 P	12						13	14 22 32	NP	10
			15														
					7	2 6 9	3.69 B	16									
											Strong, light brownish gray, very poor to good quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with <0.05 inch opening, slightly rough walls, no infill.						
	606.6	Very dense, gray SILTY LOAM,	20		8	3 16 23	4.00 P	15									

GENERAL NOTES

Begin Drilling **04-22-2025** Complete Drilling **04-23-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
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 KE245518.GPJ WANGENG.GDT 7/7/25



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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-18

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 625.90 ft
North: 1895888.00 ft
East: 1117012.52 ft
Station: 3342+20.09
Offset: 8.287 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--Run 1: 37.0 to 43.0 feet-- --Recovery: 100%-- --RQD: 15%--			1												
		--Run 2: 43.0 to 47.0 feet-- --Recovery: 100%-- --RQD: 76%--															
			45		2												
	578.9	Boring terminated at 47.00 ft															
			50														
			55														
			60														

GENERAL NOTES

Begin Drilling **04-22-2025** Complete Drilling **04-23-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
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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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-19

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 627.31 ft

North: 1896180.01 ft

East: 1117299.13 ft

Station: 4349+16.55

Offset: 15.289 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	627.0	4-inch thick ASPHALT								604.3	Hard, gray Gravelly CLAY LOAM; damp							
	626.4	7-inch thick CONCRETE with rebar																
		--PAVEMENT--		X	1	5 5 5	NP	7					X	9	4 14 14	NP	16	
		Medium dense, gray SANDY GRAVEL; damp		X									X					
	624.3	--AGGREGATE BASE--		X	2	4 6 8	3.03 B	21					X	10	18 16 23	> 4.50 P	7	
		Very stiff to hard, brown to brown and gray CLAY to SILTY CLAY, trace gravel; damp	5	X									X					
		--RDR 2--		X	3	4 4 6	2.21 S	20					X	11	15 30 37	NP	11	
			10	X	4	4 9 5	5.08 B	18					X	12	33 41 33	> 4.50 P	8	
616.8	Stiff, gray CLAY LOAM, trace to little gravel; damp		X	5	4 8 9	1.31 B	12				X	13	15 22 30	2.46 S	9			
614.3	--RDR 2-- --L _L (%)=26, P _L (%)=13-- --%Gravel=9.9-- --%Sand=23.6-- --%Silt=42.5-- --%Clay=24.1-- --A-6 (6)--		X	6	4 5 5	1.89 B	16				X	14	35 50/2"	4.00 P	13			
	Stiff to hard, brown to gray SILTY CLAY LOAM to CLAY LOAM, trace to little gravel; damp	15	X								X							
	--RDR 2-- --L _L (%)=29, P _L (%)=15-- --%Gravel=5.4-- --%Sand=20.3-- --%Silt=48.2-- --%Clay=26.1-- --A-6 (8)--		X	7	4 5 8	2.95 B	16				X	15	44 50/4"	NP	7			
	--2 inches sandy loam lens--	20	X	8	4 6 8	4.18 B	16							C O R				

GENERAL NOTES

Begin Drilling **03-14-2025** Complete Drilling **03-14-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling		Dry
At Completion of Drilling		Coring water
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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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-19

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 627.31 ft
North: 1896180.01 ft
East: 1117299.13 ft
Station: 4349+16.55
Offset: 15.289 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		closely spaced, horizontal, oblique, and vertical joints, with 0-0.2 inch opening, slightly rough walls, <0.2 inch thick clay infill. --Run 1: 38.5 to 42.5 feet-- --Recovery: 90%-- --RQD: 10%-- --Run 2: 42.5 to 47.5 feet-- --Recovery: 87%-- --RQD: 75%-- 45 --Run 3: 47.5 to 52.5 feet-- --Recovery: 90%-- --RQD: 55%-- 50 574.8 Boring terminated at 52.50 ft 55 60			1 2 3												

GENERAL NOTES

Begin Drilling **03-14-2025** Complete Drilling **03-14-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽** **Dry**
At Completion of Drilling **▼** **Coring water**
Time After Drilling **NA**
Depth to Water **▼** **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-20

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 613.66 ft
North: 1896016.24 ft
East: 1117310.85 ft
Station: 213+89.08
Offset: 8.829 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	613.2	5-inch thick ASPHALT															
	612.4	10-inch thick CONCRETE															
		--PAVEMENT--															
		Very stiff to hard, gray SILTY CLAY, trace gravel; moist			1	3 5 6	2.87 B							9	9 27 50/3"	> 4.50 P	8
		--RDR 2--			2	5 7 9	4.02 B	17		589.8	--silt seams--			10	50/5"	NP	7
			5								--possible cobbles--						
											Boring terminated at 23.90 ft						
	608.2	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp to moist			3	6 17 18	> 4.50 P	13									
		--RDR 2--			4	19 26 50	> 4.50 P	9									
			10														
	603.2	Hard, gray SILTY CLAY, trace gravel, sand seams; moist			5	9 18 20	> 10.25 B	12									
		--RDR 2--			6	10 26 50/4"	> 4.50 P	10									
	600.7	Very dense, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel; damp to moist															
		--RDR 2--	15														
		--sand seams--			7	19 33 33	3.00 P	9									
					8	18 25 26	> 4.50 P	9									
			20														

GENERAL NOTES

Begin Drilling **03-24-2025** Complete Drilling **03-24-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&JD** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; 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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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-21

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
 Project **FAI-290 Drainage Improvement D-91-226-24**
 Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.62 ft
North: 1895900.40 ft
East: 1117315.44 ft
Station: 3345+23.23
Offset: 8.246 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type <i>recovery</i>	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type <i>recovery</i>	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	626.3	5.5-inch thick ASPHALT								606.1	Dense to very dense, gray SILTY LOAM, trace gravel; damp --RDR 3--			9	6 17 21	NP	18	
	625.9	--PAVEMENT-- Very stiff, brown and gray CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--		X	1	2 4 5	2.71 B	21										
	622.8	Very stiff to hard, brown to gray CLAY to SILTY CLAY, trace gravel; damp --RDR 2--	5	X	2	2 5 6	2.46 B	20					25	X	10	6 20 21	NP	12
				X	3	2 4 6	2.46 S	19				--L _L (%)=21, P _L (%)=14-- --%Gravel=2.4-- --%Sand=18.7-- --%Silt=64.8-- --%Clay=14.1--		X	11	4 18 26	NP	12
				X	4	2 6 7	4.10 B	18			598.6	Very dense, gray LOAM to CLAY LOAM, little gravel; moist --RDR 3--		X	12	6 17 50	NP	10
	616.1	Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--	10	X	5	2 8 12	10.09 B	14			594.9	Very dense, gray SILTY LOAM, trace gravel; damp --RDR 4-5--						
				X	6	3 6 11	7.38 B	15						X	13	50/41	NP	9
				X	7	2 7 11	4.67 B	15										
				X	8	3 6 11	5.74 B	15		588.6	Strong, light brownish gray, poor to fair quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal and				CORE			
			20										40					

GENERAL NOTES

Begin Drilling **04-29-2025** Complete Drilling **04-29-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling		Dry
At Completion of Drilling		Coring water
Time After Drilling		NA
Depth to Water		NA

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-21

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.62 ft
North: 1895900.40 ft
East: 1117315.44 ft
Station: 3345+23.23
Offset: 8.246 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		oblique joints, with 0 inch opening, slightly rough wall <0.2 inch thick clay infill. --Run 1: 38.0 to 44.0 feet-- --Recovery: 65%-- --RQD: 39%-- --Run 2: 44.0 to 48.0 feet-- --Recovery: 98%-- --RQD: 67%--			1												
					2	CORE											
	578.6	Boring terminated at 48.00 ft															
			50														
			55														
			60														

GENERAL NOTES

Begin Drilling **04-29-2025** Complete Drilling **04-29-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
Time After Drilling **NA**
Depth to Water **▼ NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-22

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
 Project **FAI-290 Drainage Improvement D-91-226-24**
 Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.36 ft
North: 1896169.35 ft
East: 1117728.88 ft
Station: 4353+45.59
Offset: 11.92 RT

[illegible]

GENERAL NOTES

Begin Drilling **03-17-2025** Complete Drilling **03-17-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; installed monitoring well after drilling**

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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-23

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 615.95 ft
North: 1896029.95 ft
East: 1117735.89 ft
Station: 218+14.40
Offset: 11.472 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	615.64	4.5-inch thick ASPHALT								595.4							
	614.9	7.5-inch thick CONCRETE									Very dense, gray Gravelly SANDY LOAM, trace cobbles; damp			9	50/4"	NP	8
	614.8	--PAVEMENT--									--RDR 4--						
		Brown SANDY GRAVEL			1	1 4 5	2.95 B	16			--possible cobbles--			10	50/1"	NP	2
		--AGGREGATE BASE--															
		Very stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp															
		--RDR 2--			2	2 4 6	4.26 B	18									
			5							590.9							
					3	2 10 10	4.92 B	17			Strong, light brownish gray, fair quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal joints, with <0.05 inch opening, rough walls, no infill.						
											--Run 1: 25.0 to 35.0 feet--						
											--Recovery: 85%--						
											--RQD: 68%--						
	607.9	Dense to very dense, gray SILTY LOAM, trace to little gravel; damp			4	15 17 13	NP	10						1			
		--RDR 2-3--	10														
					5	25 38 49	NP	8									
		--L _L (%)=19, P _L (%)=12--															
		--%Gravel=6.2--															
		--%Sand=28.1--															
		--%Silt=51.0--			6	22 39 32	NP	8									
		--%Clay=14.7--	15							580.9							
	600.4	Hard, gray LOAM to SILTY LOAM, trace to little gravel; damp to moist			7	13 19 33	> 4.50 P	10			Boring terminated at 35.00 ft						
		--RDR 3--															
					8	9 25 23	> 4.50 P	14									
		--1-inch silt seam--	20														

GENERAL NOTES

Begin Drilling **03-25-2025** Complete Drilling **03-25-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **RR&KA** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
Time After Drilling **NA**
Depth to Water **▼ NA**

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



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-24

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.37 ft
North: 1895902.87 ft
East: 1117734.95 ft
Station: 3349+42.53
Offset: 5.447 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	628.04	1/4-inch thick ASPHALT								607.9							
	627.3	9-inch thick CONCRETE								607.5	--wet sand lenses--						
		--PAVEMENT--									Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; moist						
		--FILL--									--RDR 2--						
					1	7 7 7	NP	4						9	5 16 25	10.25 S	10
					2	5 4 5	NP	5						10	7 15 12	4.50 P	14
	622.9	Loose, gray SANDY GRAVEL; moist								602.9	Very dense, gray SILTY LOAM, trace gravel; moist						
		--FILL--									--RDR 3-4--						
					3	2 2 3	NP	11						11	50/5"	2.00 P	12
	620.4	Hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp															
		--RDR 2--												12	8 29 50	NP	18
	617.9	Hard, gray CLAY LOAM, trace gravel; damp															
		--RDR 2--															
					5	6 10 10	6.15 S	12									
					6	4 13 13	6.81 B	12						13	12 24 48	NP	10
	612.9	Hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp															
		--RDR 2-3--															
					7	3 7 10	5.41 B	15		591.6	Very dense, gray Gravelly SANDY LOAM, trace cobbles; moist						
					8	3 6 11	4.51 B	16			--RDR 4--						
														14	33 50/4"	NP	8

GENERAL NOTES

Begin Drilling **05-02-2025** Complete Drilling **05-02-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **20.50 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-24

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.37 ft
North: 1895902.87 ft
East: 1117734.95 ft
Station: 3349+42.53
Offset: 5.447 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	584.9	Strong, light brownish gray, fair quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with <0.05 inch opening, slicken walls, <0.2 inch thick clay infill. --Run 1: 43.5 to 47.0 feet-- --Recovery: 95%-- --RQD: 50%-- --Run 2: 47.0 to 53.5 feet-- --Recovery: 99%-- --RQD: 50%-- --water loss--	45		1												
	574.9	Boring terminated at 53.50 ft	55		2												
			60														

GENERAL NOTES

Begin Drilling **05-02-2025** Complete Drilling **05-02-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&CG** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **20.50 ft**
At Completion of Drilling **Coring water**
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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Fax: (630) 953-9938

BORING LOG JPB-25

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.11 ft
North: 1896233.61 ft
East: 1118928.20 ft
Station: 4365+46.34
Offset: 16.472 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	625.93	3-inch thick ASPHALT															
	625.2	8-inch thick CONCRETE with rebar															
	624.9	--PAVEMENT--															
		4-inch thick, gray Gravelly SAND			1	1 3 4	1.80 B	6						9	9 12 23	6.56 S	15
		--AGGREGATE BASE--															
	623.1	Stiff, dark gray and brown CLAY LOAM, trace gravel; damp			2	4 3 4	1.50 P	21		603.1	Hard, gray CLAY LOAM to SILTY LOAM, trace gravel; damp			10	9 18 16	4.18 S	9
		--FILL--									--RDR 2-3--						
		Stiff to very stiff, brown CLAY to SILTY CLAY, trace gravel; damp to moist	5									25					
		--RDR 2--															
		--L _c (%)=33, P _L (%)=18--			3	3 5 11	3.94 B	20			--2-inch thick silt seam; moist--			11	13 15 18	4.50 P	15
		--%Gravel=2.1--															
		--%Sand=15.1--															
		--%Silt=49.6--															
		--%Clay=33.2--															
		--A-6 (11)--															
					4	5 6 9	3.69 B	19		598.1	Very dense, gray SILTY LOAM, little gravel; moist			12	50/4"	NP	15
			10								--RDR 4--						
	615.6	Stiff to hard, gray SILTY CLAY LOAM to CLAY LOAM, trace gravel; damp to moist			5	3 5 7	1.89 B	17			--slow auger advancement; possible cobbles--						
		--RDR 2-3--															
		--L _c (%)=26, P _L (%)=14--			6	3 5 6	1.64 B	18		592.6	Strong, light brownish gray, very poor to good quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with >0.2 inch opening, slightly rough to rough walls.	35		1			
		--%Gravel=2.8--									--Run 1: 33.5 to 37.0 feet--						
		--%Sand=20.6--									--Recovery: 81%--						
		--%Silt=51.8--	15								--RQD: 81%--						
		--%Clay=24.8--			7	5 6 9	4.35 B	15			--Run 2: 37.0 to 39.5 feet--			2			
		--A-6 (7)--									--Recovery: 30%--						
											--RQD: 0%--						
					8	3 7 9	4.51 B	15			--Run 3: 39.5 to 43.5 feet--	40					

GENERAL NOTES

Begin Drilling **03-13-2025** Complete Drilling **03-13-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
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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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-25

WEI Job No.: KE245518

Client **Accurate Group, Inc.**Project **FAI-290 Drainage Improvement D-91-226-24**Location **Cook County, IL**

Datum: NAVD 88

Elevation: 626.11 ft

North: 1896233.61 ft

East: 1118928.20 ft

Station: 4365+46.34

Offset: 16.472 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--Recovery: 79%-- --RQD: 73%--			3	C O R E											
	582.6	Boring terminated at 43.50 ft															
			45														
			50														
			55														
			60														

GENERAL NOTES

Begin Drilling **03-13-2025** Complete Drilling **03-13-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **Dry**
 At Completion of Drilling ∇ **Coring water**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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1145 N Main Street
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BORING LOG JPB-26

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 611.78 ft
North: 1896087.21 ft
East: 1118960.15 ft
Station: 230+39.86
Offset: 9.188 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	610.6	14-inch thick ASPHALT --PAVEMENT--									--RDR 2-3--						
		Very stiff to hard, gray SILTY CLAY LOAM, trace gravel; moist --RDR 2--			1	3 4 4	3.44 B	16		588.3				9	8 40 50/3"	NP	13
			5		2	4 7 9	4.51 B	15			--water loss at 24 feet-- Strong, light brownish gray, poor quality, slightly to moderately weathered, vuggy DOLOSTONE, closely spaced, horizontal, oblique, and vertical joints, with 0.05 - 0.2 inch opening, slightly rough to rough walls, and 0 - 0.2 inch thick clay infill. --Run 1: 23.5 to 30.5 feet-- --Recovery: 96%-- --RQD: 40%--	25		1			9
	603.8	Very stiff to hard, gray SILTY LOAM, trace gravel; moist --RDR 2--	10		4	7 17 29	4.02 S	15									
		--gravel seams--			5	13 28 18	3.69 S	13			--Run 2: 30.5 to 33.5 feet-- --Recovery: 93%-- --RQD: 40%--	30		2			
		--possible cobbles--	15		6	50/4"	3.00 P	6		578.3	Boring terminated at 33.50 ft	35					
	596.3	Very dense, gray and white GRAVEL; damp --RDR 2--			7	35 50/4"	NP	2									
	593.8	--added water to help with augering-- Very dense, gray SILTY LOAM to CLAY LOAM, trace gravel and cobbles; moist	20		8	13 30 50	4.50 P	11				40					

GENERAL NOTES

Begin Drilling **03-25-2025** Complete Drilling **03-25-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **RR&KA** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **▽ Dry**
At Completion of Drilling **▼ Coring water**
Time After Drilling **NA**
Depth to Water **▽ NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-27

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.66 ft
North: 1895951.96 ft
East: 1118941.37 ft
Station: 3361+49.89
Offset: 7.553 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	626.43	4-inch thick ASPHALT															
	625.87	7-inch thick CONCRETE															
	625.7	1-inch thick ASPHALT															
		Black SILTY CLAY, trace gravel; damp			1	4 3 2	NA	30						9	7 11 18	8.69 S	16
	623.7	Stiff, brown and gray SILTY CLAY, trace gravel; damp			2	3 3 3	1.72 B	19						10	11 24 31	NP	9
		--RDR 2--	5														
					3	2 2 4	1.31 B	23						11	18 26 30	NP	12
	619.4	Brown and gray SILT; wet															
	618.7	Very stiff to hard, brown and gray to gray SILTY CLAY LOAM, trace gravel; damp to moist			4	9 11 14	4.00 P	20						12	26 50/5"	NP	6
		--RDR 2--	10														
		--gray--			5	5 7 9	3.28 B	15									
					6	4 5 6	2.46 B	18						13	22 34 39	NP	9
			15														
					7	3 4 6	2.71 B	16									
					8	3 3 3	1.80 B	15						14	28 50/5"	NP	11
			20														

GENERAL NOTES

Begin Drilling **05-12-2025** Complete Drilling **05-13-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **MC&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **38.50 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-27

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.66 ft
North: 1895951.96 ft
East: 1118941.37 ft
Station: 3361+49.89
Offset: 7.553 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	583.2	Strong, light brownish gray, poor to fair quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, slightly to moderately weathered joints, horizontal, oblique, and vertical joints, with 0.05 - 0.2 inch opening, slightly rough to rough walls, and 0 - 0.2 inch thick clay infill.	45		15												
		--Run 1: 43.5 to 48.5 feet-- --Recovery: 67%-- --RQD: 42%--															
		--Run 2: 48.5 to 53.5 feet-- --Recovery: 63%-- --RQD: 57%--	50		16												
	573.2	Boring terminated at 53.50 ft	55														
			60														

GENERAL NOTES

Begin Drilling **05-12-2025** Complete Drilling **05-13-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **MC&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **38.50 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-28

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 625.06 ft

North: 1896254.79 ft

East: 1119645.19 ft

Station: 4372+63.63

Offset: 16.462 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	624.5	7-inch thick ASPHALT --PAVEMENT--			1	3 5 6	3.12 B	21		603.6	Very dense, gray SILT to SILTY LOAM, trace gravel; damp to moist --RDR 2-3--			9	6 19 39	NP	16	
		Very stiff, black to greenish gray and brown SILTY CLAY, trace gravel; moist --FILL--																
			5		2	3 6 6	3.03 B	20			25			10	17 31 33	NP	8	
	619.6	Black SILTY CLAY; moist			3	4 4 6	1.15 B	17						11	27 49 50/4"	NP	9	
	618.9	--Buried TOPSOIL-- Stiff to hard, brown to gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; moist --RDR 2--																
		--silt seam--	10		4	6 11 13	8.69 B	17			30			12	28 50/4"	NP	7	
						5	4 8 11	5.08 B		14					13	50/6"	NP	10
		--silt seam--	15								6	4 9 10	3.69 B					
	--L _L (%)=21, P _L (%)=14-- --%Gravel=3.2-- --%Sand=27.0-- --%Silt=54.3-- --%Clay=15.4--				7	7 8 11	5.41 B	14		589.6				Strong, light brownish gray, very poor quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, moderately weathered joints, horizontal, oblique, and vertical joints, with 0.05 - > 0.2 inch opening, slicken to slightly rough walls, and > 0.2 inch thick clay infill. --Run 1: 35.5 to 45.5 feet--			C O R E	
		20							8	6 10 14	4.76 B	12						

GENERAL NOTES

Begin Drilling **04-03-2025** Complete Drilling **04-03-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **▽ Dry**
 At Completion of Drilling **▼ Coring water**
 Time After Drilling **NA**
 Depth to Water **▼ NA**

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



a Terracon Company

1145 N Main Street
Lombard, IL 60148Telephone: (630) 953-9928
Fax: (630) 953-9938**BORING LOG JPB-28**

WEI Job No.: KE245518

Client **Accurate Group, Inc.**Project **FAI-290 Drainage Improvement D-91-226-24**Location **Cook County, IL**

Datum: NAVD 88

Elevation: 625.06 ft

North: 1896254.79 ft

East: 1119645.19 ft

Station: 4372+63.63

Offset: 16.462 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--Recovery: 51%-- --RQD: 21%--			1												
	579.6	Boring terminated at 45.50 ft	45														
			50														
			55														
			60														

GENERAL NOTES**WATER LEVEL DATA**

Begin Drilling **04-03-2025** Complete Drilling **04-03-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

While Drilling **∇** **Dry**
 At Completion of Drilling **▼** **Coring water**
 Time After Drilling **NA**
 Depth to Water **∇** **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-29

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 615.72 ft
North: 1896082.34 ft
East: 1119649.38 ft
Station: 237+28.65
Offset: 16.038 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	615.3	5-inch thick ASPHALT															
	614.7	7.5-inch thick CONCRETE															
	614.6	--PAVEMENT--															
		Gray SANDY GRAVEL			1	2 3 3	1.80 B	17						9	19 28 32	NP	8
		--AGGREGATE BASE--															
		Stiff to hard, gray SILTY CLAY, trace to little gravel; damp															
		--RDR 2--			2	3 5 7	3.85 B	20						10	24 50/6"	NP	9
			5									25					
					3	4 6 6	1.50 P	9						11	23 25 47	NP	9
					4	2 4 7	4.43 B	18						12	24 39 50/5"	NP	13
			10									30					
	605.2	Dense to very dense, gray SILTY LOAM, trace to little gravel and cobbles; damp			5	14 18 21	NP	12		585.7	Boring terminated at 30.00 ft						
		--RDR 2-3--															
		--L _L (%)=NP, P _L (%)=NP--			6	17 41 35	NP	8				35					
		--%Gravel=4.1--															
		--%Sand=37.2--															
		--%Silt=51.5--	15														
		--%Clay=7.2--															
		--RDR 3--			7	10 20 26	NP	8									
		--little gravel--															
		--possible cobbles--			8	22 28 50/5"	NP	11				40					
			20														

GENERAL NOTES

Begin Drilling **03-26-2025** Complete Drilling **03-26-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **RR&KA** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; 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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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-30

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 624.21 ft

North: 1895958.21 ft

East: 1119654.86 ft

Station: 3368+63.26

Offset: 7.279 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	624.0	2-inch thick ASPHALT								603.7	Dense, gray SILTY LOAM, trace gravel; damp						
	623.5	5-inch thick CONCRETE									--RDR 2--			9	11 14 16	NP	13
		Very stiff, brown to brown and gray SILTY CLAY LOAM, trace gravel; damp			1	3 4 4	2.79 B	19									
		--FILL--															
		--RDR 2--															
					2	3 4 6	2.71 B	21						10	10 16 17	NP	9
	618.7	Stiff, brown CLAY to SILTY CLAY, trace gravel; moist			3	2 5 7	1.56 B	19						11	18 36 50	NP	7
	617.0	Gray SILT; moist												12	21 32 31	5.58 B	8
	616.2	Very stiff to hard, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			4	2 7 9	5.33 B	18									
		--RDR 2--															
		--gray--			5	4 5 9	5.33 B	18									
					6	4 6 7	3.69 B	18									
					7	4 7 8	5.08 B	11									
					8	4 7 13	3.36 B	15						14	22 50/4"	NP	9
											--possible cobbles--						

GENERAL NOTES

Begin Drilling **05-14-2025** Complete Drilling **05-14-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
 Driller **MC&MN** Logger **A. Scifers** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **23.50 ft**
 At Completion of Drilling **Coring water**
 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 JPB-30

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 624.21 ft
North: 1895958.21 ft
East: 1119654.86 ft
Station: 3368+63.26
Offset: 7.279 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	582.5	Hard, gray SILTY CLAY, trace gravel; moist --RDR 3--															
	579.7	Gray SILT; wet	45		15	11 15 48	4.76 B	24									
	577.5	Very dense, gray SITY LOAM to LOAM, little gravel, trace cobbles; moist --RDR 3--															
	574.7	Strong, light gray, very poor rock mass quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with 0-0.2 inch opening, slightly rough walls, soft infill. --Run 1: 49.5 to 59.5 feet-- --Recovery: 36%-- --RQD: 0%--	50		16	22 50/5"	NP	8									
			55		17												
	564.7	Boring terminated at 59.50 ft	60														

GENERAL NOTES

Begin Drilling **05-14-2025** Complete Drilling **05-14-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **MC&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **23.50 ft**
At Completion of Drilling **Coring water**
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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Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-31

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 624.18 ft

North: 1896272.87 ft

East: 1120245.37 ft

Station: 4378+64.09

Offset: 16.806 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	623.8	5-inch thick ASPHALT															
	623.2	--PAVEMENT--															
		7-inch thick, gray SANDY GRAVEL			1	3 6 7	2.13 B	21						9	5 11 15	6.48 B	18
		--AGGREGATE BASE--															
	621.2	Very stiff, greenish gray CLAY to SILTY CLAY, trace gravel; moist			2	3 6 6	4.10 B	20						10	6 11 15	4.76 B	21
		--FILL--															
		--RDR 2--															
		Very stiff to hard, brown to gray CLAY to SILTY CLAY, trace gravel; moist	5														
		--RDR 2-3--															
		--L _L (%)=38, P _L (%)=18--			3	5 10 14	5.49 B	18		598.7	Dense to very dense, gray SILT to SILTY LOAM, trace to little gravel; damp			11	11 19 24	NP	17
		--%Gravel=1.1--															
		--%Sand=10.8--															
		--%Silt=49.2--															
		--%Clay=38.9--															
		--silt seams--															
		--silt seams--			4	4 10 13	2.79 B	18			--sand seams--			12	9 28 41	NP	15
		--rig chatter--	10														
					5	4 7 9	2.62 B	19									
		--L _L (%)=37, P _L (%)=16--															
		--%Gravel=1.9--			6	4 7 9	2.79 B	20			--possible cobbles--			13	49 50/3"	NP	8
		--%Sand=8.0--															
		--%Silt=47.6--															
		--%Clay=42.5--															
	607.9	Medium dense, gray SILT to SILTY LOAM, trace gravel, few sand seams; moist to wet			7	8 12 13	NP	18									
	606.2	Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; moist			8	3 5 8	2.05 B	18			--possible cobbles--			14	50/4"	NP	12
		--RDR 2--															
			20														

GENERAL NOTES

Begin Drilling **03-31-2025** Complete Drilling **03-31-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **A. Scifers** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **18.00 ft**
 At Completion of Drilling **Coring water**
 Time After Drilling **NA**
 Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-31

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 624.18 ft
North: 1896272.87 ft
East: 1120245.37 ft
Station: 4378+64.09
Offset: 16.806 LT

[illegible]

GENERAL NOTES

Begin Drilling **03-31-2025** Complete Drilling **03-31-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
 Driller **GT&MN** Logger **A. Scifers** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling		18.00 ft
At Completion of Drilling		Coring water
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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Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-32

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 607.21 ft
North: 1896126.20 ft
East: 1120272.94 ft
Station: 243+53.49
Offset: 7.762 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	606.8	5-inch thick ASPHALT															
	606.2	7-inch thick CONCRETE															
	605.9	4-inch thick Gravel															
		--AGGREGATE BASE--															
		Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			1	6 8 6	4.50 P	12			--RDR 3--			9	47 50/3"	NP	2
		--RDR 2--			2	3 5 5	3.00 P	14						10	44 50/6"	NP	8
	601.7	Very dense, gray SILT to SILTY LOAM, trace gravel and cobbles; damp			3	22 35 46	NA	8			--possible cobbles--			11	49 50/3"	NP	9
		--RDR 2-4--			4	19 24 30	NP	16						12	50/5"	NP	9
					5	20 26 23	NP	12									
					6	22 36 36	NP	12			--RDR 4--			13	14 34 50/2"	NP	11
		--L _L (%)=NP, P _L (%)=NP-- --%Gravel=1.6-- --%Sand=11.9-- --%Silt=77.8-- --%Clay=8.7--			7	15 20 34	NP	13									
					8	50/5"	NP	7						14	1 35 46	NP	12

GENERAL NOTES

Begin Drilling **05-28-2025** Complete Drilling **05-29-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **KG&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **43.50 ft**
At Completion of Drilling **Coring water**
Time After Drilling **NA**
Depth to Water **NA**
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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG JPB-32

WEI Job No.: KE245518

Client **Accurate Group, Inc.**Project **FAI-290 Drainage Improvement D-91-226-24**Location **Cook County, IL**

Datum: NAVD 88

Elevation: 607.21 ft

North: 1896126.20 ft

East: 1120272.94 ft

Station: 243+53.49

Offset: 7.762 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	565.5	Very dense, gray Gravelly SAND, trace cobbles; wet --RDR 4--															
	562.2		45		15	50/6"	NP	7									
		Strong, light gray, poor rock mass quality, slightly weathered to fresh, vuggy DOLOSTONE; closely spaced, horizontal, oblique, and vertical joints, with 0-0.2 inch opening, slightly rough to rough walls, and <0.2 inch thick clay infill. --Run 1: 45.0 to 50.0 feet-- --Recovery: 66%-- --RQD: 10%--			16												
	557.2	Boring terminated at 50.00 ft	50														
			55														
			60														

GENERAL NOTES

Begin Drilling **05-28-2025** Complete Drilling **05-29-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **KG&MN** Logger **A. Scifers** Checked by **C. Marin**
 Drilling Method **3.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **43.50 ft**
 At Completion of Drilling **Coring water**
 Time After Drilling **NA**
 Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-33

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 616.21 ft
North: 1895974.45 ft
East: 1120255.00 ft
Station: 3374+63.61
Offset: 8.773 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	616.02	2-inch thick ASPHALT															
	615.2	10-inch thick CONCRETE															
		Very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			1	2 4 6	2.30 B	24						9	7 10 14	5.49 B	11
		--RDR 2--															
					2	4 6 7	2.95 B	20						10	6 13 16	10.25 B	16
	610.7	Stiff, brown CLAY to SILTY CLAY, trace gravel; moist			3	3 5 7	1.15 B	20						11	13 20 25	NP	14
		--RDR 2--															
	608.2	Very stiff to hard, brown and gray to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			4	4 6 8	4.50 P	15						12	12 12 20	10.25 B	11
		--RDR 2--															
		--gray--			5	4 7 9	4.43 B	18									
					6	4 5 6	2.46 B	21						13	19 38 25	NP	14
					7	2 4 5	3.03 B	15									
					8	3 4 5	3.20 B	17						14	18 33 35	NP	13

GENERAL NOTES

Begin Drilling **05-15-2025** Complete Drilling **05-15-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **MC&MN** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; installed monitoring well after drilling.**

WATER LEVEL DATA

While Drilling **48.50 ft**
At Completion of Drilling **60.00 ft**
Time After Drilling **NA**
Depth to Water **NA**

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG JPB-33

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
 Project **FAI-290 Drainage Improvement D-91-226-24**
 Location **Cook County, IL**

Datum: NAVD 88
Elevation: 616.21 ft
North: 1895974.45 ft
East: 1120255.00 ft
Station: 3374+63.61
Offset: 8.773 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	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	05-15-2025	Complete Drilling	05-15-2025
Drilling Contractor	Wang Testing Services	Drill Rig	17B57T [91%]
Driller	MC&MN	Logger	A. Scifers
		Checked by	C. Marin
Drilling Method	3.25" ID HSA; installed monitoring well after drilling		

WATER LEVEL DATA

While Drilling		48.50 ft
At Completion of Drilling		60.00 ft
Time After Drilling		NA
Depth to Water		NA

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1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG SSB-01

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 626.22 ft
North: 1896063.84 ft
East: 1114364.86 ft
Station: 4319+75.07
Offset: 4.233 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		14.5-inch thick ASPHALT --PAVEMENT--									--L _L (%)=27, P _L (%)=14-- --%Gravel=2.4-- --%Sand=15.3-- --%Silt=58.7-- --%Clay=23.6--						
	625.0																
	624.7	4-inch thick, dark gray and black SANDY GRAVEL --AGGREGATE BASE--			1	2 3 2	0.50 P	3						9	6 19 25	3.28 S	15
	623.2	Medium stiff, brown and gray SILTY CLAY, trace gravel; damp --FILL-- Stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp to moist --RDR 2--			2	1 1 2	1.23 B	26			603.2	Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp --RDR 2--		10	14 16 18	4.50 P	12
			5									25					
					3	3 4 6	2.38 B	21						11	7 12 18	7.71 B	19
					4	5 50/6"	6.31 B	14						12	7 14 15	8.12 B	21
			10								596.2	30					
					5	8 5 10	1.48 S	19			Boring terminated at 30.00 ft						
					6	6 7 8	5.74 S	12									
			15									35					
	610.7	Very stiff to hard, gray SILTY CLAY LOAM to SILTY LOAM, trace to little gravel; damp to moist --RDR 3-4-- --L _L (%)=19, P _L (%)=14-- --%Gravel=3.8-- --%Sand=32.3-- --%Silt=50.5-- --%Clay=13.4--			7	11 33 43	4.50 P	8									
					8	8 17 20	8.61 S	10									
			20									40					

GENERAL NOTES

Begin Drilling **03-12-2025** Complete Drilling **03-12-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; 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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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG SSB-02

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 628.56 ft

North: 1896073.95 ft

East: 1114694.44 ft

Station: 4323+05.12

Offset: 6.201 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	627.4	13.5-inch thick ASPHALT --PAVEMENT--								608.1	Very dense, gray SILTY LOAM, trace gravel; damp						
		Stiff, brown and gray SILTY CLAY, trace to some gravel; damp			1	2 3 5	1.72 B	22			--RDR 3-4--			9	14 34 46	NP	14
		--FILL-- --RDR 2--															
	624.8	Very stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp	5		2	2 4 5	1.00 P	20						10	29 50/6"	NP	13
		--RDR 2--															
		--L _L (%)=29, P _L (%)=16-- --%Gravel=1.2-- --%Sand=17.8-- --%Silt=50.6-- --%Clay=30.4--			3	2 5 7	3.69 S	19			Hard, gray SILTY CLAY, trace to little gravel; damp			11	8 11 21	7.30 S	13
		--RDR 2-4--															
			10		4	5 10 15	8.61 S	15						12	6 15 29	9.59 S	13
					5	3 9 12	7.05 B	18			Boring terminated at 30.00 ft						
		--L _L (%)=29, P _L (%)=14-- --%Gravel=3.3-- --%Sand=19.3-- --%Silt=48.6-- --%Clay=28.8--			6	4 8 12	4.67 B	14									
		--RDR 2--			7	4 12 13	6.89 S	12									
	610.6	Dense, gray SANDY LOAM, trace gravel; moist			8	10 23 16	NP	10									

GENERAL NOTES

Begin Drilling **03-11-2025** Complete Drilling **03-11-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; 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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1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG SSB-03

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 627.33 ft

North: 1896101.21 ft

East: 1115369.17 ft

Station: 4329+84.99

Offset: 15.749 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	626.3	12-inch thick ASPHALT --PAVEMENT--								606.8	--%Silt=68.5-- --%Clay=18.7--						
	624.3	Very stiff, brown and gray SILTY CLAY, trace gravel; damp --FILL--			1	2 3 5	2.50 P	20			Medium dense, gray SANDY LOAM to SAND, trace to little gravel; damp --RDR 2--			9	7 12 12		NP 8
	623.6	Dark gray and black SANDY GRAVEL; damp --FILL--			2	3 2 4	1.50 P	17						10	8 9 11		NP 6
		Stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--	5														
					3	4 7 11	4.00 P	18			Medium dense, gray LOAM, trace gravel; moist --RDR 2--			11	6 11 17		NP 20
					4	6 10 11	6.56 B	15			Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp --RDR 2--			12	6 17 21	10.25 B	17
		--L _L (%)=29, P _L (%)=15-- --%Gravel=0.0-- --%Sand=5.4-- --%Silt=63.9-- --%Clay=30.7--			5	4 6 12	2.21 S	24			Boring terminated at 30.00 ft						
					6	3 6 8	5.82 B	16									
	611.8	Very stiff to hard, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel; damp --RDR 2--	15		7	6 13 17	10.25 B	15									
		--L _L (%)=29, P _L (%)=18-- --%Gravel=1.7-- --%Sand=11.0--			8	9 14 16	3.28 S	19									

GENERAL NOTES

Begin Drilling **03-11-2025** Complete Drilling **03-11-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG SSB-04

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 627.10 ft
North: 1896131.50 ft
East: 1116681.02 ft
Station: 4342+96.97
Offset: 7.818 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	626.8	3.5-inch thick ASPHALT								606.6	--%Gravel=3.8-- --%Sand=35.1-- --%Silt=37.3-- --%Clay=23.8--						
	625.9	10.5-inch thick CONCRETE									Very dense, gray SILT to SILTY LOAM, little gravel; damp --RDR 2-4--			9	11 35 40	NP	12
	625.1	Stiff, black SILTY CLAY; damp --Buried TOPSOIL--			1	3 4 6	1.39 B	23									
		Stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp --RDR 2--			2	3 3 4	2.30 B	23						10	20 29 32	4.50 P	10
		--L _L (%)=27, P _L (%)=16-- --%Gravel=3.1-- --%Sand=26.7-- --%Silt=49.6-- --%Clay=20.6--			3	4 7 9	1.72 B	12		600.7	Hard, gray SILTY CLAY, trace gravel; damp --RDR 3--			11	27 11 15	10.25 B	10
					4	5 9 9	5.90 B	15		599.1	Gray SILTY LOAM, trace gravel; damp				15 23 50	NP	11
					5	3 6 9	3.85 B	14		597.9	Very stiff, reddish gray SILTY CLAY LOAM, little gravel; damp			12			
					6	5 6 9	2.71 B	16		597.1	Boring terminated at 30.00 ft						
					7	2 5 7	2.87 B	16									
	609.1	Very stiff, gray CLAY LOAM, trace gravel; damp --RDR 2-- --L _L (%)=29, P _L (%)=14--			8	5 15 23	2.50 P	12									

GENERAL NOTES

Begin Drilling **03-12-2025** Complete Drilling **03-12-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG SSB-05

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
Project **FAI-290 Drainage Improvement D-91-226-24**
Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.35 ft
North: 1896206.66 ft
East: 1117992.66 ft
Station: 4356+10.40
Offset: 17.164 LT

Page 1 of 1

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	627.9	5-inch thick ASPHALT															
	627.4	--PAVEMENT--															
	626.4	6-inch thick SANDY GRAVEL															
		--AGGREGATE BASE--															
		Stiff, brown and gray CLAY LOAM, trace gravel; damp			1	2 3 4	1.00 P	24						9	6 11 13	6.97 B	13
		--FILL--															
		Stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			2	8 6 6	4.50 P	16		605.4	Very dense, gray SILTY LOAM to SILT, trace to little gravel; damp			10	9 32 26	NP	12
		--RDR 2--	5								--RDR 3-4--	25					
					3	2 3 3	1.89 B	21						11	8 24 31	NP	15
					4	4 8 10	5.74 S	18						12	29 46 50/4"	NP	10
			10							598.4	Boring terminated at 29.30 ft	30					
		--L _L (%)=33, P _L (%)=15--			5	2 8 11	3.20 S	19									
		--%Gravel=1.7--															
		--%Sand=12.3--															
		--%Silt=51.7--															
		--%Clay=34.2--															
	615.4	Hard, gray CLAY LOAM, trace gravel; damp			6	5 6 9	5.58 S	12									
		--RDR 2--	15														
		--L _L (%)=26, P _L (%)=13--															
		--%Gravel=3.4--															
		--%Sand=24.1--															
		--%Silt=45.0--															
		--%Clay=27.5--															
	612.9	Very stiff to hard, gray ILTY CLAY LOAM, trace gravel; damp			7	7 13 19	2.50 P	13									
		--RDR 2--															
					8	5 9 13	6.72 B	14									
			20														

GENERAL NOTES

Begin Drilling **03-12-2025** Complete Drilling **03-12-2025**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; backfilled upon completion**

WATER LEVEL DATA

While Drilling **NA** **Dry**
At Completion of Drilling **NA** **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 KE245518.GPJ WANGENG.GDT 7/17/25



1145 N Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG SSB-06

WEI Job No.: KE245518

Client **Accurate Group, Inc.**
 Project **FAI-290 Drainage Improvement D-91-226-24**
 Location **Cook County, IL**

Datum: NAVD 88
Elevation: 628.55 ft
North: 1896196.14 ft
East: 1118481.66 ft
Station: 4360+98.88
Offset: 7.798 RT

[illegible]

GENERAL NOTES

Begin Drilling **03-10-2025** Complete Drilling **03-10-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; 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.



a Terracon Company

1145 N Main Street
Lombard, IL 60148

Telephone: (630) 953-9928

Fax: (630) 953-9938

BORING LOG SSB-07

WEI Job No.: KE245518

Client **Accurate Group, Inc.**

Project **FAI-290 Drainage Improvement D-91-226-24**

Location **Cook County, IL**

Datum: NAVD 88

Elevation: 627.45 ft

North: 1896223.02 ft

East: 1119386.04 ft

Station: 4370+03.66

Offset: 7.641 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	627.1	23.5-inch thick ASPHALT						
	626.66	6.5-inch thick CONCRETE with rebar						
		--PAVEMENT--						
		Dark brown Gravelly LOAM; damp		1	6 6 6	NA	17	
	624.4	--FILL--						
		Very stiff, brown and gray SILTY CLAY, trace gravel; damp		2	17 7 6	2.05 S	24	
		--RDR 2-- --L _L (%)=43, P _L (%)=19-- --%Gravel=0.9-- --%Sand=10.1-- --%Silt=50.3-- --%Clay=38.8--	5					
	620.9	--Qu=2.50P; MC=22%-- --L _L (%)=41, P _L (%)=19--		3B	3 4 5	0.41 B	33	
619.4	Soft, gray and brown CLAY to SILTY CLAY, trace gravel; moist							
	--L _L (%)=51, P _L (%)=18--							
	Stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp		4	5 7 10	5.41 B	19		
	--RDR 2--	10						
			5	5 6 9	5.08 B	17		
		15	6	3 5 8	3.44 B	18		
			7	3 5 7	2.21 B	13		
		20	8	2 3 5	1.97 B	18		

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	605.9	Very dense, gray SILTY LOAM to SILT, trace gravel; damp		9	2 11 39	7.05 B	10	
		--RDR 2-4--						
			25	10	7 30 45	> 4.50 P	13	
				11	6 27 39	> 4.50 P	10	
			12	15 50/5"	> 4.50 P	6		
	597.4	Boring terminated at 29.40 ft	30					

GENERAL NOTES

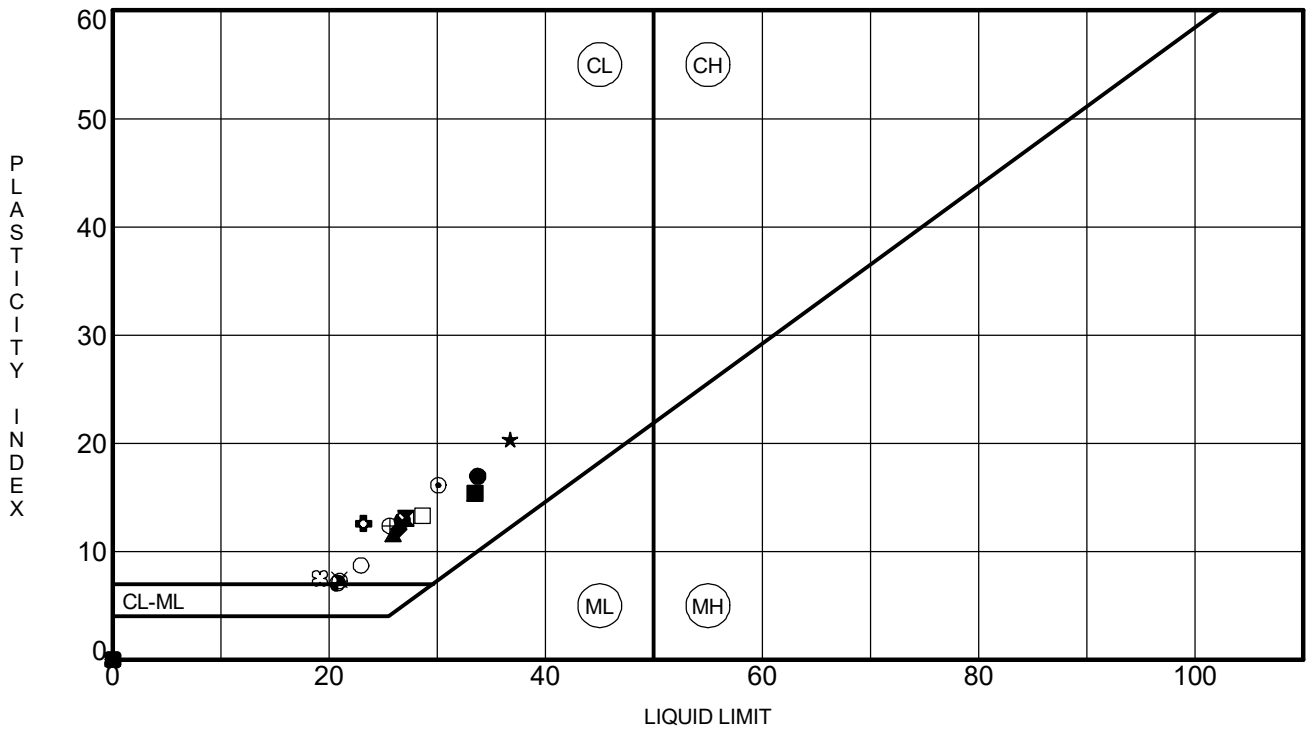
Begin Drilling **03-10-2025** Complete Drilling **03-10-2025**
 Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
 Driller **GT&MN** Logger **I. Romero** Checked by **C. Marin**
 Drilling Method **2.25" ID HSA; backfilled upon completion.**

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.

APPENDIX B



	Specimen Identification	LL	PL	PI	Fines	IDH Classification
●	JPB-01#4 8.5 ft	34	17	17	86	Silty Clay
⊠	JPB-02#6 13.5 ft	27	14	13	73	Clay Loam
▲	JPB-06#9 21.0 ft	26	14	12	82	Silty Clay Loam
★	JPB-07#2 3.5 ft	37	16	21	86	Silty Clay
⊙	JPB-09#11 26.0 ft	30	14	16	81	Silty Clay
⊕	JPB-10#4 8.5 ft	23	11	12	72	Clay Loam
○	JPB-11#5 11.0 ft	23	14	9	55	Loam
△	JPB-13#9 21.0 ft	NP	NP	NP	93	Silt
⊗	JPB-17#6 13.5 ft	21	14	7	72	Silty Loam
⊕	JPB-19#5 11.0 ft	26	13	13	67	Clay Loam
□	JPB-19#6 13.5 ft	29	15	14	74	Silty Clay Loam
⊕	JPB-19#10 23.5 ft	27	14	13	67	Clay Loam
⊕	JPB-21#11 26.0 ft	21	14	7	79	Silty Loam
☆	JPB-22#4 8.5 ft	NP	NP	NP	72	Silty Loam
⊗	JPB-23#6 13.5 ft	19	12	7	66	Silty Loam
■	JPB-25#2 3.5 ft	33	18	15	83	Silty Clay
◆	JPB-25#6 13.5 ft	26	14	12	77	Silty Clay Loam
◇	JPB-27#11 26.0 ft	NP	NP	NP	58	Gravelly Silty Loam
×	JPB-28#7 16.0 ft	21	14	7	70	Silty Loam
■	JPB-29#6 13.5 ft	NP	NP	NP	59	Silty Loam



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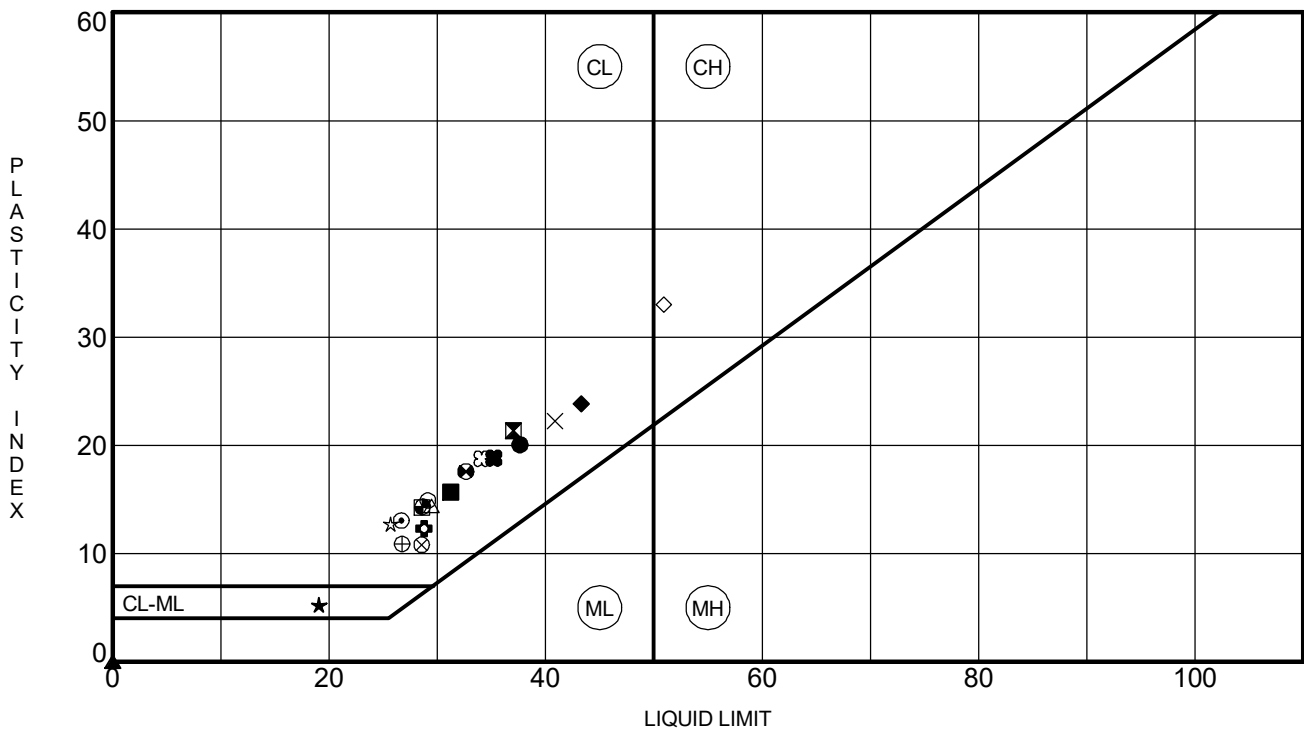
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ATTERBERG LIMITS' RESULTS

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



Specimen Identification	LL	PL	PI	Fines	IDH Classification
● JPB-31#2 3.5 ft	38	18	20	88	Clay
⊠ JPB-31#6 13.5 ft	37	16	21	90	Clay
▲ JPB-32#7 16.0 ft	NP	NP	NP	87	Silty Loam
★ SSB-01#7 16.0 ft	19	14	5	64	Silty Loam
⊙ SSB-01#8 18.5 ft	27	14	13	82	Silty Clay Loam
⊕ SSB-02#3 6.0 ft	29	16	13	81	Silty Clay
○ SSB-02#6 13.5 ft	29	14	15	78	Silty Clay Loam
△ SSB-03#5 11.0 ft	29	15	14	95	Silty Clay
⊗ SSB-03#8 18.5 ft	29	18	11	87	Silty Loam
⊕ SSB-04#3 6.0 ft	27	16	11	70	Silty Clay Loam
□ SSB-04#8 18.5 ft	29	14	15	61	Clay Loam
⊗ SSB-05#5 11.0 ft	33	15	18	86	Silty Clay
⊕ SSB-05# 11.8 ft	29	14	15	81	Silty Clay Loam
☆ SSB-05#6 13.5 ft	26	13	13	73	Clay Loam
⊗ SSB-06#2 3.5 ft	34	15	19	81	Silty Clay Loam
■ SSB-06#7 16.0 ft	31	16	15	79	Clay
◆ SSB-07#2 3.5 ft	43	19	24	89	Silty Clay
◇ SSB-07#3B 6.0 ft	51	18	33	86	Clay
⊠ SSB-07# 6.8 ft	41	19	22	90	Silty Clay



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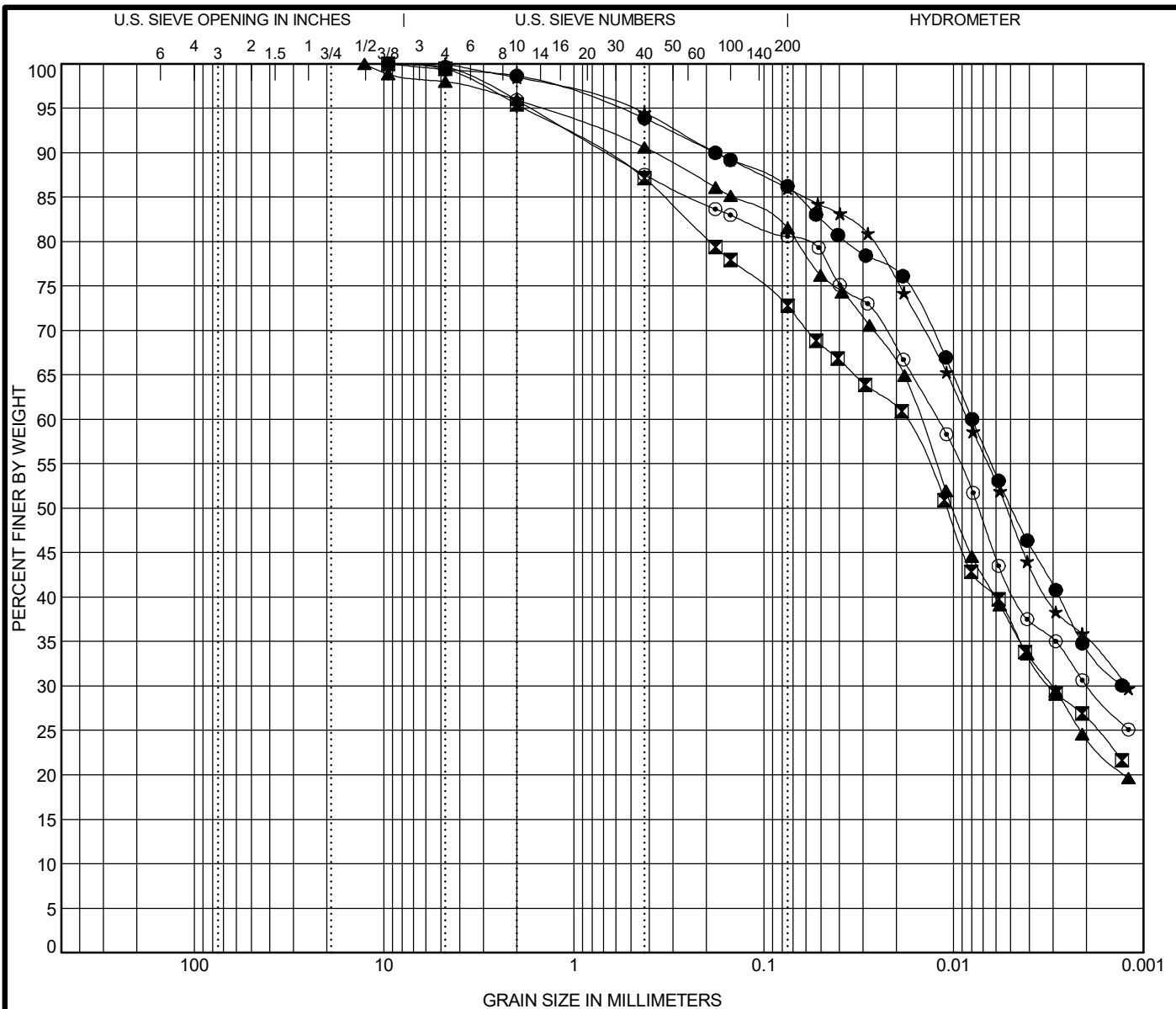
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ATTERBERG LIMITS' RESULTS

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification			LL	PL	PI	Cc	Cu
●	JPB-01#4	8.5 ft	Silty Clay			34	17	17		
⊠	JPB-02#6	13.5 ft	Clay Loam			27	14	13		
▲	JPB-06#9	21.0 ft	Silty Clay Loam			26	14	12		
★	JPB-07#2	3.5 ft	Silty Clay			37	16	21		
◎	JPB-09#11	26.0 ft	Silty Clay			30	14	16		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	JPB-01#4	8.5 ft	9.5	0.008			1.3	12.5	51.8	34.3
⊠	JPB-02#6	13.5 ft	9.5	0.018	0.003		4.6	22.8	46.3	26.4
▲	JPB-06#9	21.0 ft	12.7	0.015	0.003		4.0	14.6	57.2	24.1
★	JPB-07#2	3.5 ft	4.75	0.008	0.001		1.5	12.5	50.6	35.4
◎	JPB-09#11	26.0 ft	9.5	0.012	0.002		4.1	15.4	50.4	30.2



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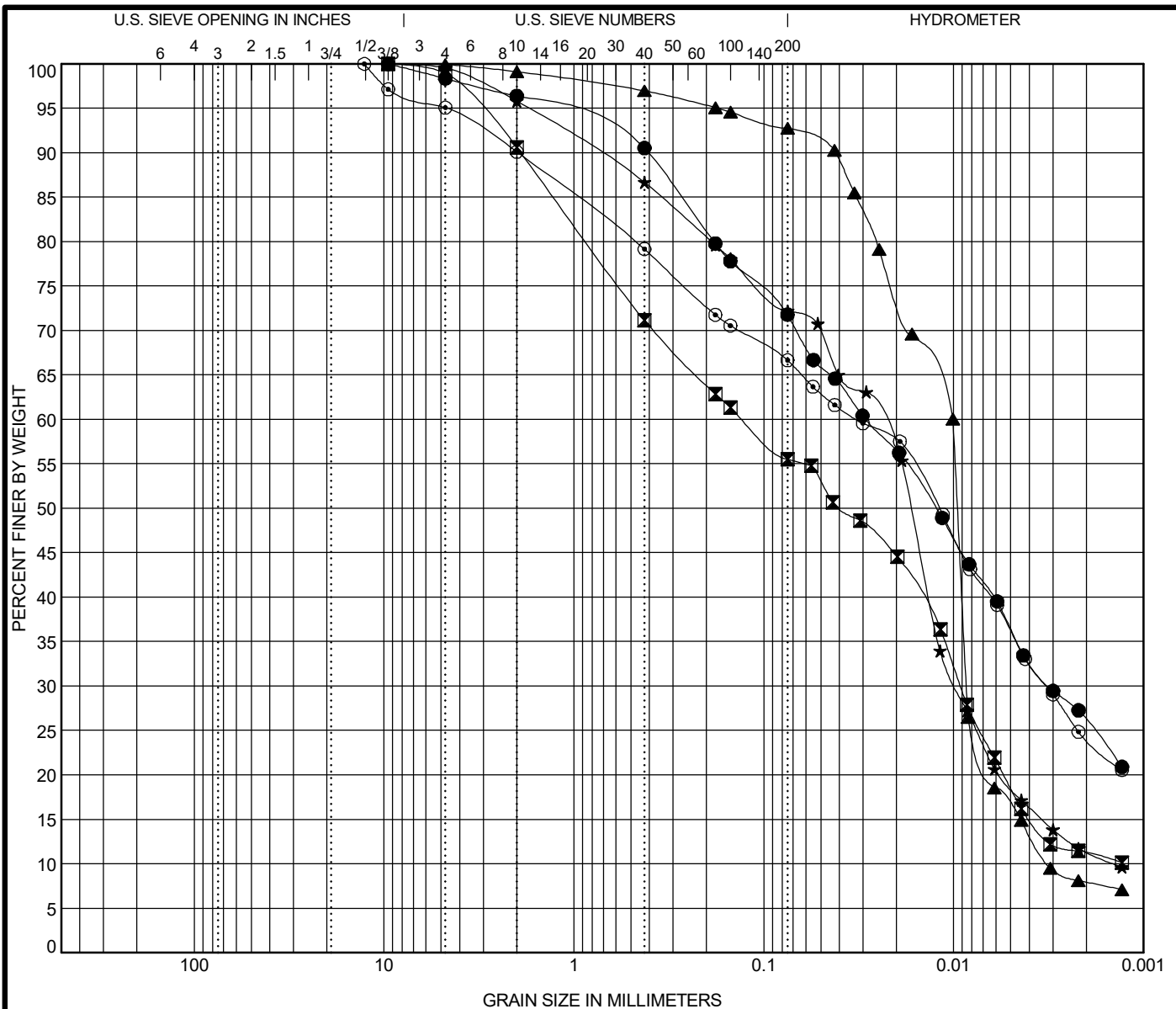
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification				LL	PL	PI	Cc	Cu
●	JPB-10#4	8.5 ft	Clay Loam				23	11	12		
⊠	JPB-11#5	11.0 ft	Loam				23	14	9		
▲	JPB-13#9	21.0 ft	Silt				NP	NP	NP	2.26	3.15
★	JPB-17#6	13.5 ft	Silty Loam				21	14	7	2.73	17.03
⊙	JPB-19#5	11.0 ft	Clay Loam				26	13	13		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	JPB-10#4	8.5 ft	9.5	0.029	0.003		3.6	24.8	45.5	26.1	
⊠	JPB-11#5	11.0 ft	9.5	0.128	0.009		9.4	35.2	44.3	11.2	
▲	JPB-13#9	21.0 ft	9.5	0.01	0.009	0.003	0.9	6.4	84.8	7.9	
★	JPB-17#6	13.5 ft	9.5	0.024	0.01	0.001	4.2	23.7	60.8	11.3	
⊙	JPB-19#5	11.0 ft	12.7	0.032	0.003		9.9	23.6	42.5	24.1	



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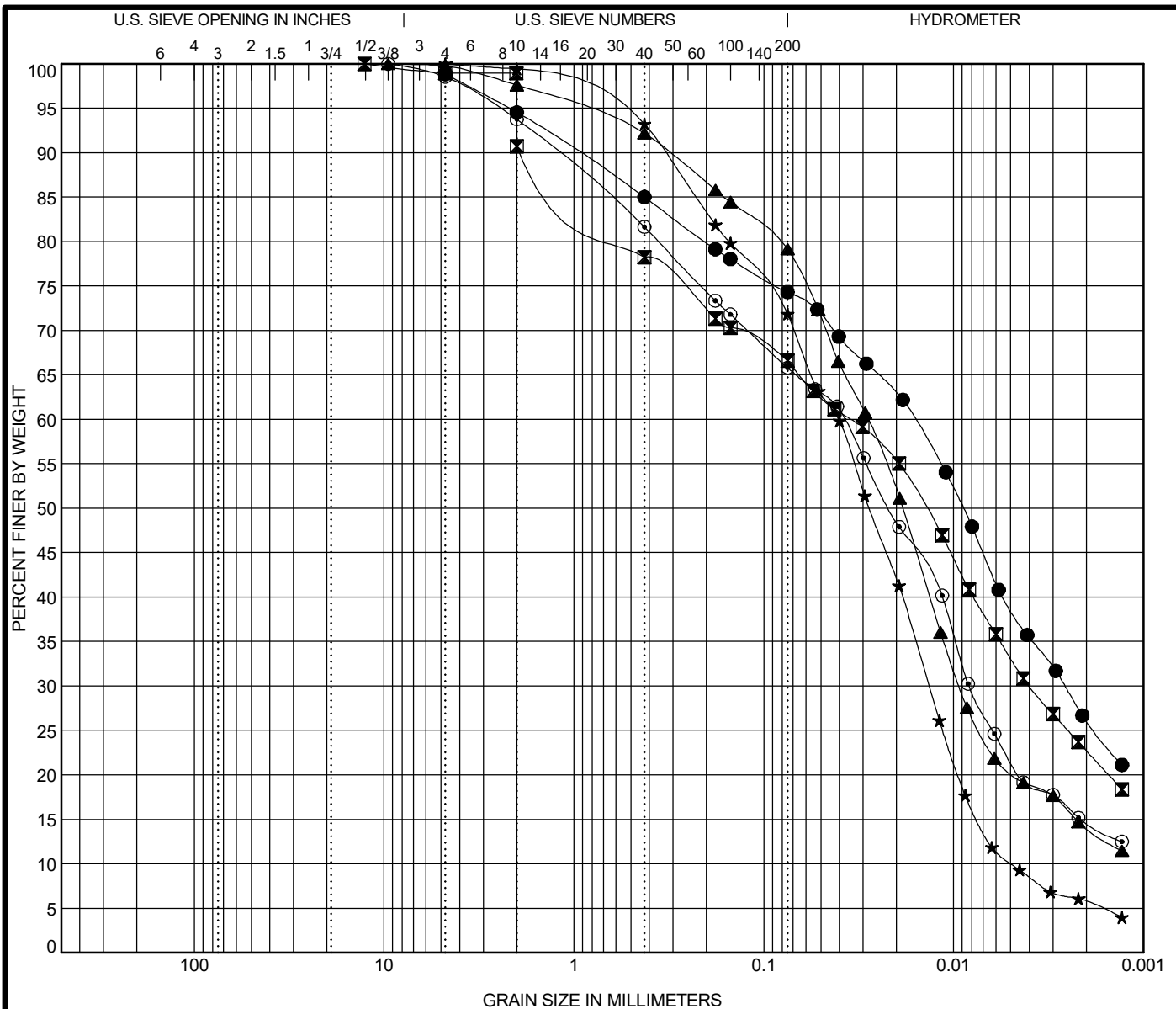
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification				LL	PL	PI	Cc	Cu
●	JPB-19#6	13.5 ft	Silty Clay Loam				29	15	14		
⊠	JPB-19#10	23.5 ft	Clay Loam				27	14	13		
▲	JPB-21#11	26.0 ft	Silty Loam				21	14	7		
★	JPB-22#4	8.5 ft	Silty Loam				NP	NP	NP	0.91	8.20
⊙	JPB-23#6	13.5 ft	Silty Loam				19	12	7		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	JPB-19#6	13.5 ft	4.75	0.016	0.003		5.4	20.3	48.2	26.1	
⊠	JPB-19#10	23.5 ft	12.7	0.035	0.004		9.3	24.3	43.7	22.7	
▲	JPB-21#11	26.0 ft	9.5	0.028	0.009		2.4	18.7	64.8	14.1	
★	JPB-22#4	8.5 ft	4.75	0.04	0.013	0.005	0.6	27.9	65.9	5.7	
⊙	JPB-23#6	13.5 ft	9.5	0.038	0.008		6.2	28.1	51.0	14.7	



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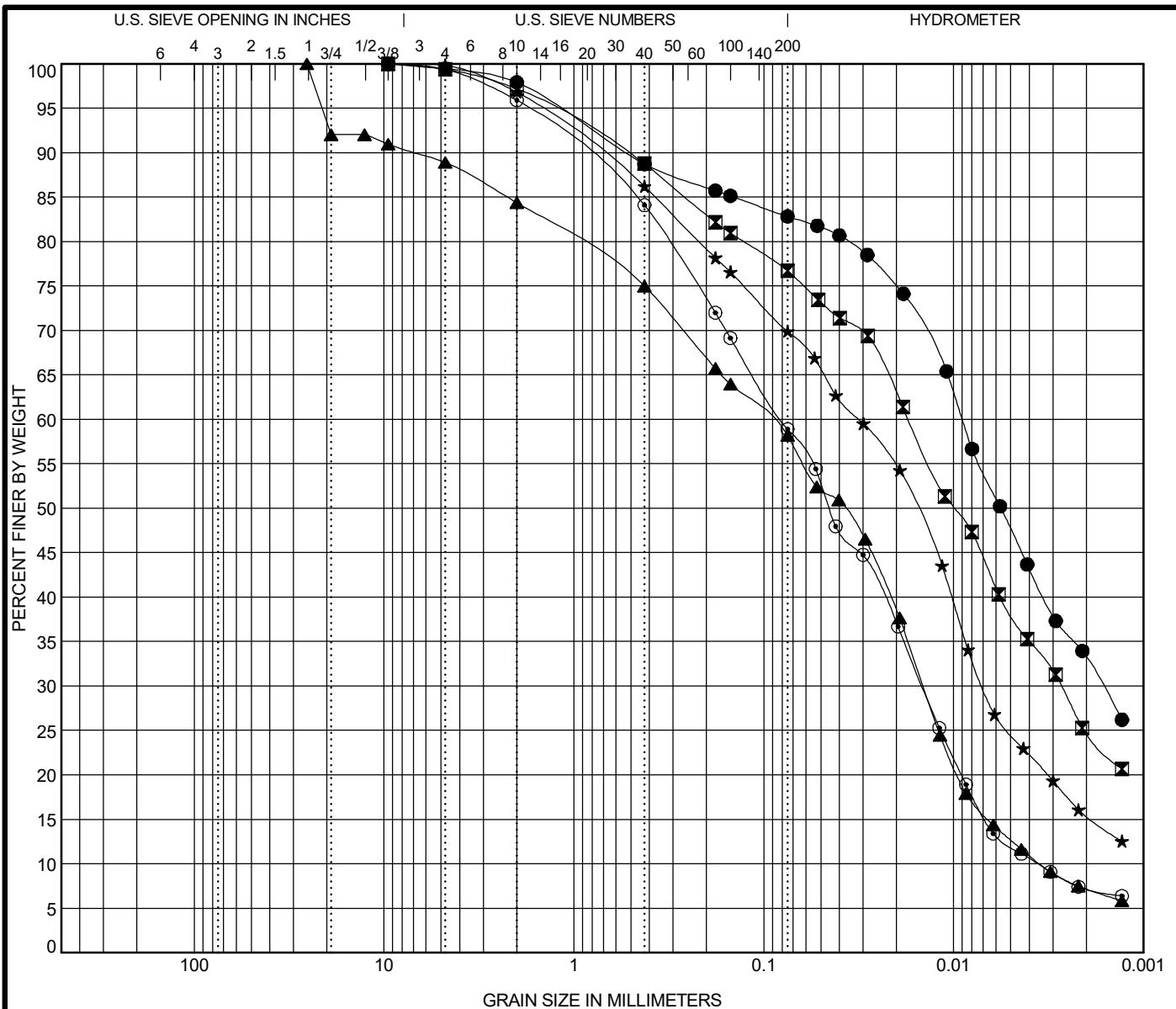
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification					LL	PL	PI	Cc	Cu
●	JPB-25#2	3.5 ft	Silty Clay					33	18	15		
☒	JPB-25#6	13.5 ft	Silty Clay Loam					26	14	12		
▲	JPB-27#11	26.0 ft	Gravelly Silty Loam					NP	NP	NP	0.64	26.49
★	JPB-28#7	16.0 ft	Silty Loam					21	14	7		
⊙	JPB-29#6	13.5 ft	Silty Loam					NP	NP	NP	0.73	22.25
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
●	JPB-25#2	3.5 ft	9.5	0.009	0.002		2.1	15.1	49.6	33.2		
☒	JPB-25#6	13.5 ft	9.5	0.017	0.003		2.8	20.6	51.8	24.8		
▲	JPB-27#11	26.0 ft	25.4	0.093	0.015	0.004	15.6	26.4	50.8	7.2		
★	JPB-28#7	16.0 ft	9.5	0.031	0.007		3.2	27.0	54.3	15.4		
⊙	JPB-29#6	13.5 ft	9.5	0.081	0.015	0.004	4.1	37.2	51.5	7.2		



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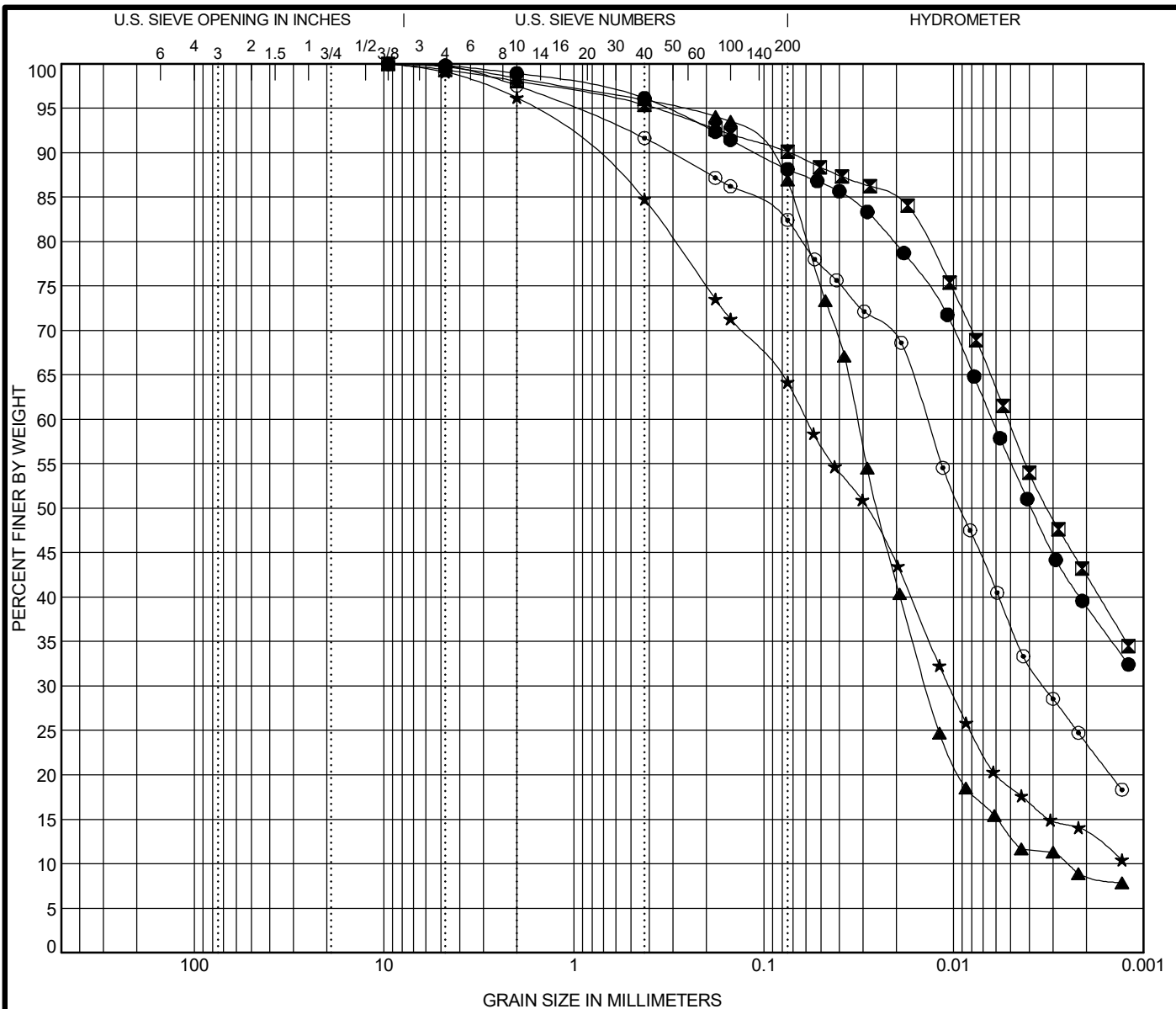
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification					LL	PL	PI	Cc	Cu
●	JPB-31#2	3.5 ft	Clay					38	18	20		
⊠	JPB-31#6	13.5 ft	Clay					37	16	21		
▲	JPB-32#7	16.0 ft	Silty Loam					NP	NP	NP	2.40	12.64
★	SSB-01#7	16.0 ft	Silty Loam					19	14	5		
⊙	SSB-01#8	18.5 ft	Silty Clay Loam					27	14	13		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
●	JPB-31#2	3.5 ft	9.5	0.006			1.1	10.8	49.2	38.9		
⊠	JPB-31#6	13.5 ft	9.5	0.005			1.9	8.0	47.6	42.5		
▲	JPB-32#7	16.0 ft	9.5	0.032	0.014	0.003	1.6	11.9	77.8	8.7		
★	SSB-01#7	16.0 ft	9.5	0.06	0.011		3.8	32.3	50.5	13.4		
⊙	SSB-01#8	18.5 ft	9.5	0.014	0.003		2.4	15.3	58.7	23.6		



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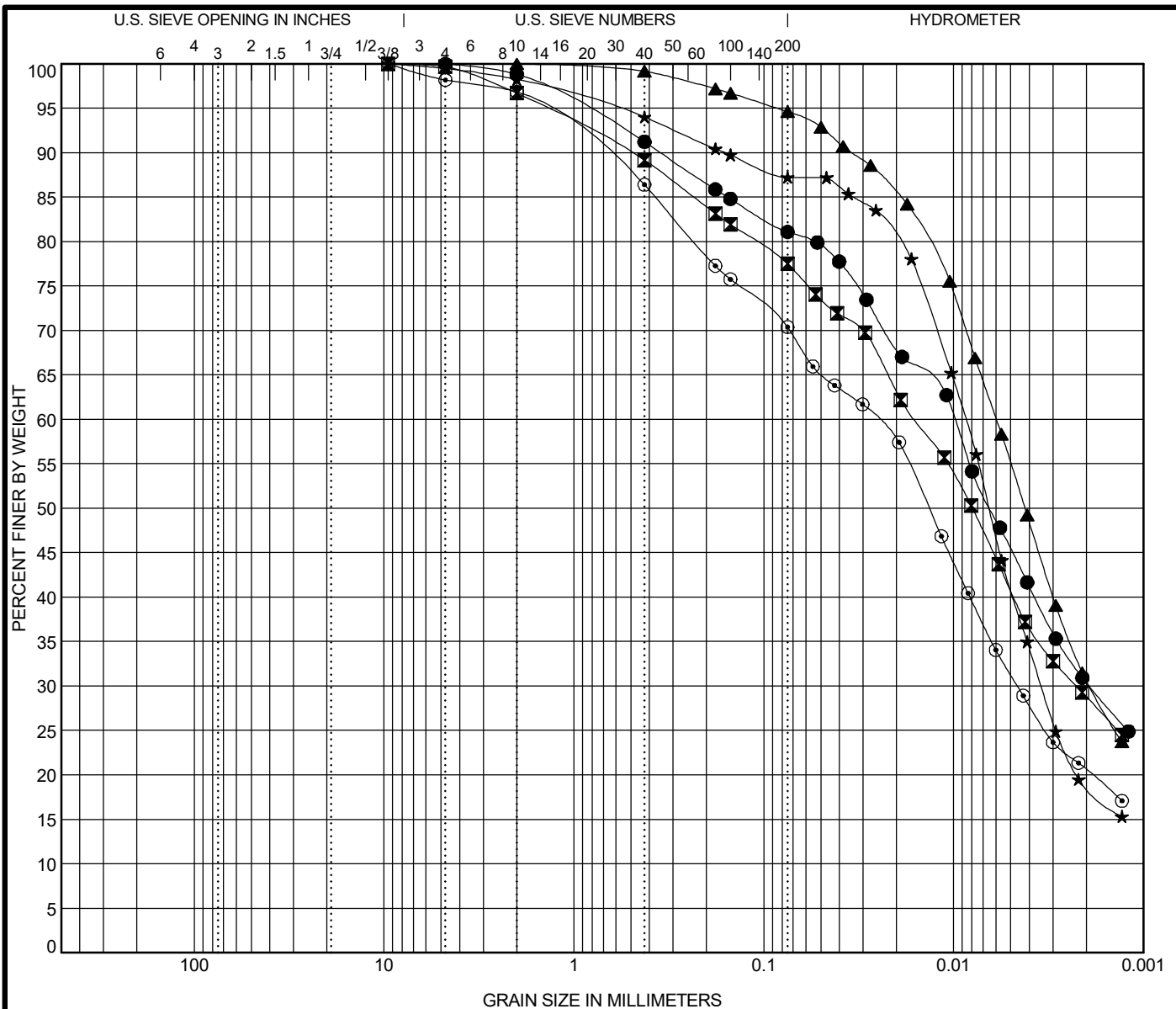
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification				LL	PL	PI	Cc	Cu
●	SSB-02#3	6.0 ft	Silty Clay				29	16	13		
⊠	SSB-02#6	13.5 ft	Silty Clay Loam				29	14	15		
▲	SSB-03#5	11.0 ft	Silty Clay				29	15	14		
★	SSB-03#8	18.5 ft	Silty Loam				29	18	11		
⊙	SSB-04#3	6.0 ft	Silty Clay Loam				27	16	11		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	SSB-02#3	6.0 ft	4.75	0.01	0.002		1.2	17.8	50.6	30.4	
⊠	SSB-02#6	13.5 ft	9.5	0.016	0.002		3.3	19.3	48.6	28.8	
▲	SSB-03#5	11.0 ft	2	0.006	0.002		0.0	5.4	63.9	30.7	
★	SSB-03#8	18.5 ft	9.5	0.009	0.003		1.7	11.0	68.5	18.7	
⊙	SSB-04#3	6.0 ft	9.5	0.025	0.005		3.1	26.7	49.6	20.6	



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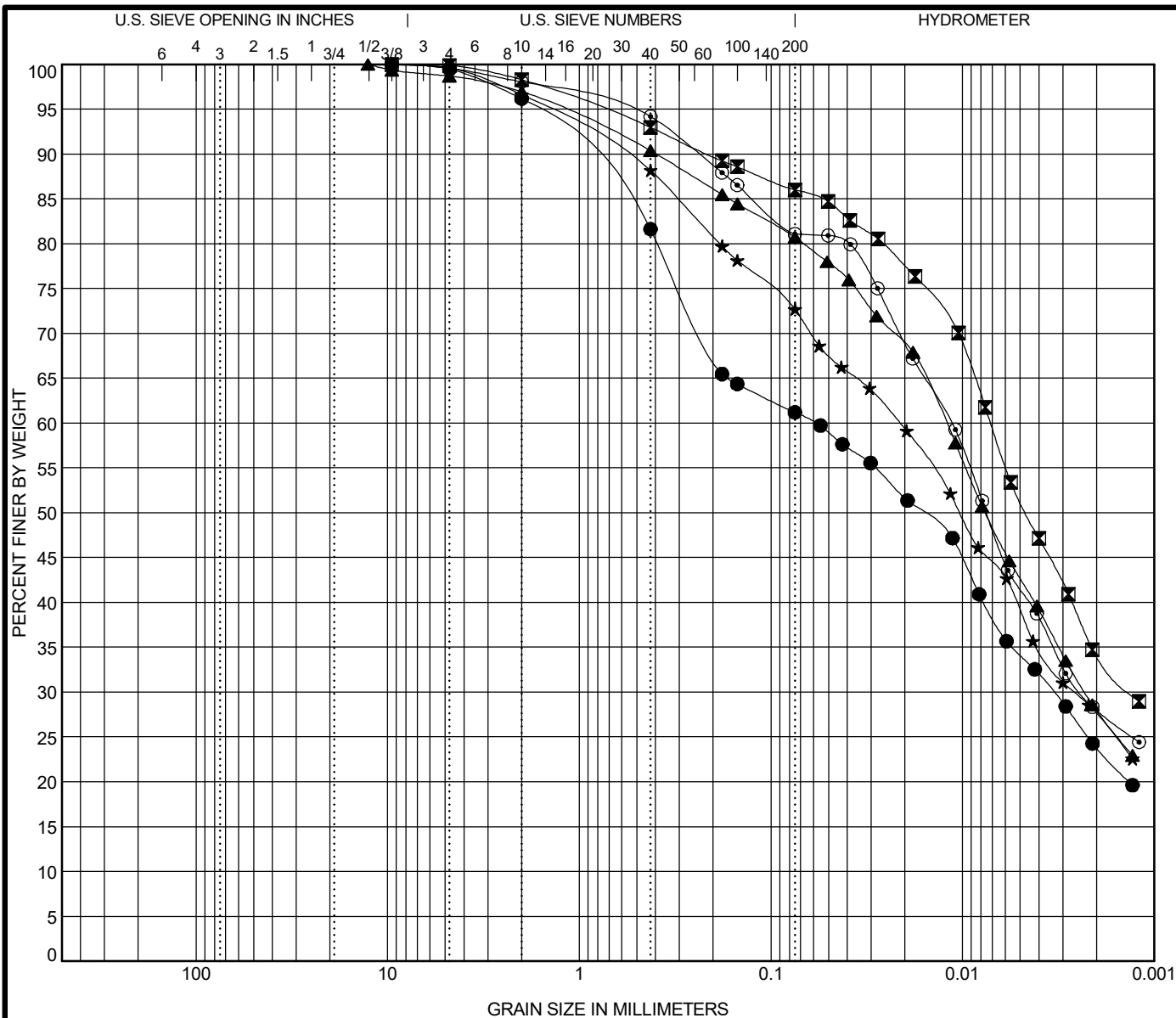
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification				LL	PL	PI	Cc	Cu
●	SSB-04#8	18.5 ft	Clay Loam				29	14	15		
☒	SSB-05#5	11.0 ft	Silty Clay				33	15	18		
▲	SSB-05#	11.8 ft	Silty Clay Loam				29	14	15		
★	SSB-05#6	13.5 ft	Clay Loam				26	13	13		
◎	SSB-06#2	3.5 ft	Silty Clay Loam				34	15	19		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	SSB-04#8	18.5 ft	9.5	0.058	0.003		3.8	35.1	37.3	23.8	
☒	SSB-05#5	11.0 ft	9.5	0.007	0.001		1.7	12.3	51.7	34.2	
▲	SSB-05#	11.8 ft	12.7	0.012	0.002		3.0	16.3	52.6	28.0	
★	SSB-05#6	13.5 ft	9.5	0.021	0.003		3.4	24.1	45.0	27.5	
◎	SSB-06#2	3.5 ft	9.5	0.011	0.002		1.9	17.0	53.1	28.0	



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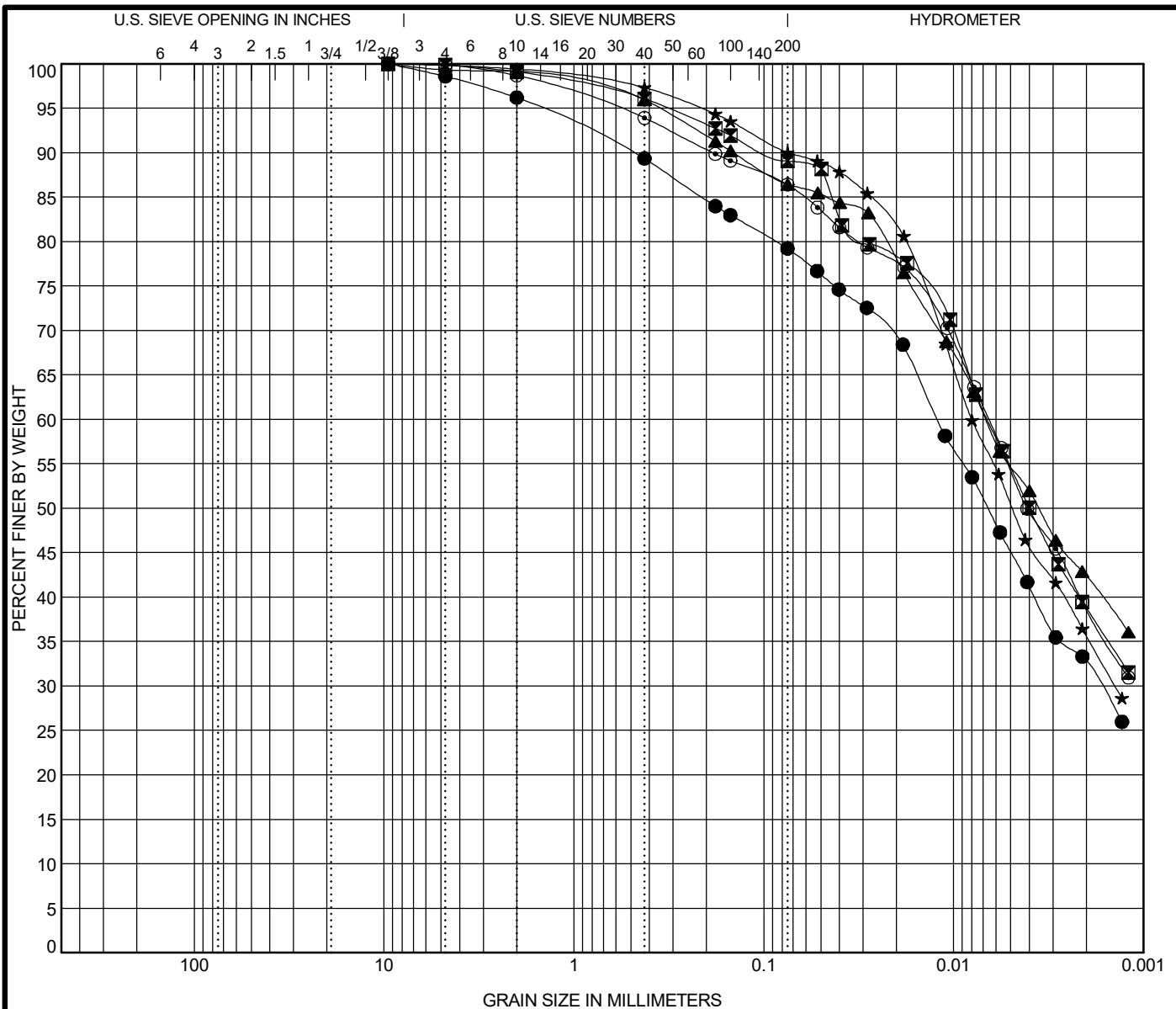
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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification			IDH Classification				LL	PL	PI	Cc	Cu
●	SSB-06#7	16.0 ft	Clay				31	16	15		
☒	SSB-07#2	3.5 ft	Silty Clay				43	19	24		
▲	SSB-07#3B	6.0 ft	Clay				51	18	33		
★	SSB-07#	6.8 ft	Silty Clay				41	19	22		
◎	SSB-08#4	8.5 ft	Clay				35	16	19		
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	SSB-06#7	16.0 ft	9.5	0.012	0.002		3.8	17.1	46.6	32.6	
☒	SSB-07#2	3.5 ft	9.5	0.007			0.9	10.1	50.3	38.8	
▲	SSB-07#3B	6.0 ft	9.5	0.007			0.8	12.8	44.1	42.3	
★	SSB-07#	6.8 ft	9.5	0.008	0.001		0.6	9.4	54.4	35.7	
.											



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GRAIN SIZE DISTRIBUTION

Project: FAI-290 Drainage Improvement D-91-226-24

Location: Cook County, IL

Number: KE245518

APPENDIX C

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-01

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.8 ⁽¹⁾ to 628.1 PAVEMENT (8-inch of concrete)	130	0	32		
628.1 to 623.1 V Stiff SILTY CLAY FILL	120	2,700	0	1.00	1.00
623.1 to 618.1 V Stiff to Hard CLAY to SILTY CLAY	125	4,300	0	1.00	1.00
618.1 to 613.1 Hard SILTY CLAY LOAM to SILTY LOAM	120	7,000	0	1.00	1.00
613.1 to 603.3 V Dense SILTY LOAM	130	0	38	0.24	4.20
603.3 to 600.8 Hard SILTY CLAY	125	6,000	0	1.00	1.00
600.8 to 598.8 V Dense SILTY LOAM	130	0	38	0.24	4.20

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber

Reference Boring: JPB-03

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.6 ⁽¹⁾ to 627.9 PAVEMENT (2-inch of Asphalt over 6-inch of concrete)	130	0	32		
627.9 to 625.6 V Stiff SILTY CLAY FILL	120	3,100	0	1.00	1.00
625.6 to 619.3 V Stiff CLAY to SILTY CLAY	120	3,300	0	1.00	1.00
619.3 to 598.6 V Stiff to Hard SILTY CLAY LOAM to CLAY LOAM	125	4,500	0	1.00	1.00

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-04

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.4 ⁽¹⁾ to 627.6 PAVEMENT (5-inch of Concrete over 4-inch of Sandy Gravel Base course)	130	0	32		
627.6 to 612.9 Hard SILTY CLAY to SILTY CLAY LOAM	125	5,000	0	1.00	1.00
612.9 to 607.9 M Dense to Dense SILTY LOAM	120	0	34	0.28	3.54
607.9 to 605.4 Hard SILTY CLAY LOAM	125	8,000	0	1.00	1.00
605.4 to 596.6 M Dense to Dense SILTY LOAM to SILT	120	0	34	0.28	3.54
596.6 to 589.4 Hard SILTY CLAY to SILTY LOAM to CLAY LOAM	125	8,000	0	1.00	1.00
589.4 to 573.9 Dense Gravelly SANDY LOAM	125	0	36	0.26	3.85
573.9 to 569.6 V Dense SILTY LOAM to Gravelly SAND	130	0	38	0.24	4.20

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber

Reference Boring: JPB-06

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
631.7 ⁽¹⁾ to 630.9 PAVEMENT (3-inch of Asphalt over 5-inch of Concrete and 2-inch of Sandy Gravel Base course)	130	0	32		
630.9 to 616.2 V Stiff to Hard SILTY CLAY	120	3,800	0	1.00	1.00
616.2 to 613.7 V Dense SILTY LOAM	130	0	38	0.24	4.20
613.7 to 604.5 Hard SILTY CLAY LOAM to SILTY LOAM	125	8,000	0	1.00	1.00
604.5 to 587.7 V Dense SILTY LOAM to Gravelly SILTY LOAM	130	0	38	0.24	4.20
587.7 to 577.7 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber

Reference Boring: JPB-07

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.1 ⁽¹⁾ to 627.1 PAVEMENT (3-inch of Asphalt over 9-inch of Concrete)	130	0	32		
627.1 to 625.1 V Stiff SILTY CLAY FILL	120	3,300	0	1.00	1.00
625.1 to 616.9 V Stiff to hard CLAY to SILTY CLAY	120	3,600	0	1.00	1.00
616.9 to 615.1 M Dense SILT	120	0	34	0.28	3.54
615.1 to 607.6 V Stiff to Hard SILTY CLAY LOAM	125	4,500	0	1.00	1.00
607.6 to 602.6 V Dense SILTY LOAM	130	0	38	0.24	4.20
602.6 to 596.4 Hard SILTY CLAY to SILTY CLAY LOAM	125	10,000	0	1.00	1.00
596.4 to 569.4 V Dense SILTY LOAM to SANDY LOAM TO Gravelly SAND	130	0	38	0.24	4.20

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber

Reference Boring: JPB-09

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.3 ⁽¹⁾ to 627.4 PAVEMENT (2-inch of Asphalt over 9-inch of Concrete)	130	0	32		
627.4 to 626.8 V Stiff SILTY CLAY FILL	120	2,400	0	1.00	1.00
626.8 to 620.3 Stiff CLAY to SILTY CLAY	120	1,200	0	1.00	1.00
620.3 to 610.3 V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	125	4,800	0	1.00	1.00
610.3 to 605.3 Dense to V Dense SILTY LOAM	125	0	36	0.26	3.85
605.3 to 598.8 V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	125	5,000	0	1.00	1.00
598.8 to 576.8 V Dense SANDY LOAM to SILTY LOAM to SAND	130	0	38	0.24	4.20
576.8 to 565.8 DOLOSTONE	140	0	45	0.17	5.83

(1) Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-10

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
627.3 ⁽¹⁾ to 626.3 PAVEMENT (2-inch of Asphalt over 7-inch of Concrete and 3-inch of Sandy Gravel Base course)	130	0	32		
626.3 to 624.3 SILTY CLAY FILL	120	1,000	0	1.00	1.00
624.3 to 614.3 Stiff to V Stiff CLAY to SILTY CLAY to SILTY CLAY LOAM	120	2,200	0	1.00	1.00
614.3 to 609.3 V Stiff to Hard SILTY CLAY to CLAY LOAM to SILTY LOAM	125	4,000	0	1.00	1.00
609.3 to 598.6 Dense SILTY LOAM to SANDY LOAM	125	0	36	0.26	3.85
598.6 to 590.6 M Dense SILTY LOAM to SILT	120	0	34	0.28	3.54
590.6 to 588.0 V Dense SANDY LOAM to LOAM	130	0	38	0.24	4.20
588.0 to 582.3 Hard LOAM to CLAY LOAM	125	4,500	0	1.00	1.00
582.3 to 572.3 DOLOSTONE	140	0	45	0.17	5.83

(1) Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-12

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
633.5 ⁽¹⁾ to 632.2 PAVEMENT (3-inch of Asphalt over 6-inch of Concrete and 7-inch of Sandy Gravel Base course)	130	0	32		
632.2 to 626.2 M Stiff to Stiff CLAY LOAM to SILTY CLAY LOAM FILL	120	1,300	0	1.00	1.00
626.2 to 622.0 Stiff to V Stiff SILTY CLAY to SILTY CLAY LOAM	120	2,600	0	1.00	1.00
622.0 to 614.1 V Stiff to Hard SILTY CLAY LOAM	125	4,300	0	1.00	1.00
614.1 to 607.3 Dense to V Dense SILT to SILTY LOAM	125	0	36	0.26	3.85
607.3 to 601.7 M Dense to Dense SANDY LOAM	120	0	34	0.28	3.54
601.7 to 599.2 V Stiff SILTY CLAY LOAM	120	2,500	0	1.00	1.00
599.2 to 589.0 V Stiff to Hard SILTY LOAM to SILTY CLAY LOAM	120	2,500	0	1.00	1.00
589.0 to 579.0 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-13

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
627.0 ⁽¹⁾ to 624.0 PAVEMENT (4-inch of Asphalt over 9-inch of Concrete and Sandy Gravel Base course)	130	0	32		
624.0 to 621.5 Loose SAND FILL	115	0	30	0.33	3.00
621.5 to 610.3 V Stiff to Hard SILTY CLAY	120	3,100	0	1.00	1.00
610.3 to 601.5 Dense to V Dense SILT	125	0	36	0.26	3.85
601.5 to 590.2 Hard SILTY CLAY LOAM	125	4,500	0	1.00	1.00
590.2 to 579.0 V Dense SILTY LOAM to SANDY GRAVEL	130	0	38	0.24	4.20
579.0 to 569.0 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-15

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
626.8 ⁽¹⁾ to 625.6 PAVEMENT (1-inch of Asphalt over 6-inch of Concrete and Sandy Gravel Base course)	130	0	32		
625.6 to 620.4 Stiff CLAY to SILTY CLAY	120	1,600	0	1.00	1.00
620.4 to 613.8 M Dense LOAM to SANDY LOAM	120	0	34	0.28	3.54
613.8 to 606.3 V Stiff to Hard SILTY CLAY LOAM	125	4,100	0	1.00	1.00
606.3 to 598.8 Dense SILT to SILTY LOAM	125	0	36	0.26	3.85
598.8 to 592.3 V Stiff to Hard SILTY CLAY LOAM	125	4,000	0	1.00	1.00
592.3 to 581.8 V Dense Gravelly LOAM	130	0	38	0.24	4.20
581.8 to 571.8 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-16

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.2 ⁽¹⁾ to 627.2 PAVEMENT (3-inch of Asphalt over 9-inch of Concrete)	130	0	32		
627.2 to 607.0 V Stiff to hard CLAY to SILTY CLAY to SILTY CLAY LOAM	120	3,500	0	1.00	1.00
607.0 to 602.7 V Dense SILT to SILTY LOAM	130	0	38	0.24	4.20
602.7 to 599.0 Hard SILTY CLAY LOAM	125	10,000	0	1.00	1.00
599.0 to 588.2 V Dense SILTY LOAM to SILT	130	0	38	0.24	4.20
588.2 to 578.2 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-18

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
625.9 ⁽¹⁾ to 625.2 PAVEMENT (2-inch of Asphalt over 7-inch of Concrete)	130	0	32		
625.2 to 622.9 V Stiff SILTY CLAY FILL	120	2,300	0	1.00	1.00
622.9 to 617.9 Stiff CLAY to SILTY CLAY	120	1,400	0	1.00	1.00
617.9 to 606.6 V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	120	3,400	0	1.00	1.00
606.6 to 602.9 V Dense SILTY LOAM	130	0	38	0.24	4.20
602.9 to 600.4 Hard CLAY LOAM	125	6,300	0	1.00	1.00
600.4 to 588.9 Dense to V Dense SILTY LOAM to LOAM	125	0	36	0.26	3.85
588.9 to 578.9 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-19

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.2 ⁽¹⁾ to 625.2 PAVEMENT (4-inch of Asphalt over 7-inch of Concrete and Sandy Gravel Base Course)	130	0	32		
625.2 to 617.7 V Stiff to Hard CLAY to SILTY CLAY	120	3,400	0	1.00	1.00
617.7 to 605.2 Stiff to Hard CLAY LOAM to SILTY CLAY LOAM	120	2,500	0	1.00	1.00
605.2 to 602.7 Hard Gravelly CLAY LOAM	125	4,500	0	1.00	1.00
602.7 to 599.4 V Dense SILTY LOAM to SILT to SANDY GRAVEL	130	0	38	0.24	4.20
599.4 to 592.7 V Stiff to Hard SILTY LOAM	120	3,600	0	1.00	1.00
592.7 to 589.7 V Dense Gravelly LOAM	130	0	38	0.24	4.20
589.7 to 575.7 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-21

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
627.7 ⁽¹⁾ to 626.9 PAVEMENT (3.5-inch of Asphalt over 5.5-inch of Concrete)	130	0	32		
626.9 to 623.8 V Stiff CLAY LOAM FILL	120	2,700	0	1.00	1.00
623.8 to 617.2 V Stiff to Hard CLAY to SILTY CLAY	120	2,500	0	1.00	1.00
617.2 to 607.2 Hard SILTY CLAY to SILTY CLAY LOAM	125	6,500	0	1.00	1.00
607.2 to 599.7 Dense SILTY LOAM	125	0	36	0.26	3.85
599.7 to 589.7 V Dense LOAM to CLAY LOAM to SILTY LOAM	130	0	38	0.24	4.20
589.7 to 579.7 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-22

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.4 ⁽¹⁾ to 625.4 PAVEMENT (4-inch of Asphalt over 10-inch of Concrete and Sandy Gravel Base Course)	130	0	32		
625.4 to 620.4 Stiff SILTY CLAY to CLAY to SILTY LOAM	120	1,500	0	1.00	1.00
620.4 to 617.9 M Dense SILTY LOAM	120	0	34	0.28	3.54
617.9 to 606.9 Hard SILTY CLAY to SILTY CLAY LOAM	125	5,700	0	1.00	1.00
606.9 to 596.4 Dense to V Dense SILTY LOAM	125	0	36	0.26	3.85

⁽¹⁾ Existing grade at boring location

⁽²⁾ Auger Refusal at 596.4 feet

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-24

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
628.6 ⁽¹⁾ to 627.5 PAVEMENT (4-inch of Asphalt over 9-inch of Concrete)	130	0	32		
627.4 to 620.6 Loose to M Dense SAND to SANDY GRAVEL FILL	115	0	30	0.33	3.00
620.6 to 608.1 Hard SILTY CLAY to SILTY CLAY LOAM to CLAY LOAM	125	5,500	0	1.00	1.00
608.1 to 603.1 Hard SILTY CLAY LOAM to SILTY CLAY	125	7,000	0	1.00	1.00
603.1 to 585.1 V Dense SILTY LOAM to Gravelly SANDY LOAM	130	0	38	0.24	4.20
585.1 to 575.1 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-25

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
626.7 ⁽¹⁾ to 625.5 PAVEMENT (3-inch of Asphalt over 8-inch of Concrete and 4-inch of Sandy Gravel Base Course)	130	0	32		
625.5 to 623.7 Stiff CLAY LOAM FILL	120	1,800	0	1.00	1.00
623.7 to 610.7 Stiff to V Stiff CLAY to SILTY CLAY	120	2,500	0	1.00	1.00
610.7 to 598.7 Hard SILTY CLAY LOAM to CLAY LOAM to SILTY LOAM	125	4,500	0	1.00	1.00
598.7 to 593.2 V Dense SILTY LOAM	130	0	38	0.24	4.20
593.2 to 583.2 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-27

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
626.7 ⁽¹⁾ to 625.7 PAVEMENT (3-inch of Asphalt over 7-inch of Concrete)	130	0	32		
625.7 to 618.7 Stiff SILTY CLAY	120	1,500	0	1.00	1.00
618.5 to 603.7 V Stiff to Hard SILTY CLAY LOAM	120	2,800	0	1.00	1.00
603.7 to 588.2 V Dense Gravelly SILTY LOAM to Gravelly LOAM	130	0	38	0.24	4.20
583.0 to 573.2 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-28

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
625.1 ⁽¹⁾ to 624.5 PAVEMENT (7-inch of Asphalt)	130	0	32		
624.5 to 618.9 V Stiff SILTY CLAY to SILTY CLAY LOAM FILL	120	3,000	0	1.00	1.00
618.9 to 603.6 V Stiff SILTY CLAY LOAM to SILTY LOAM	125	4,000	0	1.00	1.00
603.6 to 589.6 V Dense SILT to SILTY LOAM	130	0	38	0.24	4.20
589.6 to 579.6 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-30

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
624.2 ⁽¹⁾ to 623.6 PAVEMENT (2-inch of Asphalt over 5-inch of Concrete)	130	0	32		
623.6 to 618.7 V Stiff SILTY CLAY LOAM	120	2,700	0	1.00	1.00
618.7 to 616.2 Stiff CLAY to SILTY CLAY to SILT	120	1,500	0	1.00	1.00
616.2 to 603.7 V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	125	4,500	0	1.00	1.00
603.7 to 598.7 Dense SILTY LOAM to SANDY LOAM	120	0	36	0.26	3.85
598.7 to 579.7 Hard SILTY CLAY LOAM to SILTY LOAM to SILTY CLAY	125	4,800	0	1.00	1.00
579.7 to 574.7 V Dense SILT to SILTY LOAM to LOAM	130	0	38	0.24	4.20
574.7 to 564.7 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-31

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
623.8 ⁽¹⁾ to 622.8 PAVEMENT (5-inch of Asphalt over 7-inch of Sandy Gravel Base Course)	130	0	32		
622.8 to 620.8 V Stiff CLAY to SILTY CLAY FILL	120	2,100	0	1.00	1.00
620.8 to 607.6 V Stiff to Hard CLAY to SILTY CLAY	120	3,500	0	1.00	1.00
607.6 to 605.8 M Dense SILT to SILTY LOAM	120	0	34	0.28	3.54
605.8 to 598.3 V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	125	4,400	0	1.00	1.00
598.3 to 582.1 Dense to V Dense SILT to SILTY LOAM	120	0	36	0.26	3.85
582.1 to 571.8 V Stiff to Hard SILTY CLAY LOAM to SILTY LOAM	125	4,000	0	1.00	1.00
571.8 to 566.8 DOLOSTONE	140	0	45	0.17	5.83

⁽¹⁾ Existing grade at boring location

Geotechnical Parameters for Design of Temporary Soil Retention System and
Junction chamber
Reference Boring: JPB-33

Elevation Range (feet) Soil Type (Layer)	Unit Weight (pcf)	Undrained Shear Strength Properties		Earth Pressure Coefficients (Straight backfill)	
		Cohesion (psf)	Friction Angle (°)	Active Pressure	Passive Pressure
624.6 ⁽¹⁾ to 623.6 PAVEMENT (2-inch of Asphalt over 10-inch of Concrete)	130	0	32		
623.6 to 616.6 Stiff to V Stiff SILTY CLAY to SILTY CLAY LOAM	120	2,100	0	1.00	1.00
616.6 to 599.1 V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	120	3,800	0	1.00	1.00
599.1 to 596.6 Dense SILT	120	0	36	0.26	3.85
596.6 to 592.9 Hard SILTY CLAY LOAM to SILTY LOAM	125	10,000	0	1.00	1.00
592.9 to 564.6 V Dense SILT to LOAM to SILTY LOAM	130	0	38	0.24	4.20

⁽¹⁾ Existing grade at boring location