

October 21, 2019

Mr. Matthew Cooper, P.E.

AECOM

303 East Wacker Drive, Suite 1400

Chicago, IL 60601

Subject: Geotechnical Engineering Services
Accident Investigation Site Storage Tank
Jane Byrne Interchange Reconstruction
IDOT D-91-227-13, PTB 163/001
Wang No. 1100-04-01

Dear Mr. Cooper,

This letter report presents the results of Wang Engineering, Inc.'s (Wang) subsurface investigation, laboratory testing, and geotechnical engineering evaluations for the proposed construction of the underground detention tank. A *Site Location Map* is presented as Exhibit 1.

The purpose of our investigation was to characterize the site soil and groundwater conditions, perform geotechnical engineering analyses, and provide recommendations for the temporary soil retention system (TSRS) to remain partially in place required for the excavation.

A component of proposed Contract 62A77 (Reconstruction of Southbound I-90/94; Section No.: 2015-018R, Job No.: C-91-311-15) is the installation of drainage improvements within the area of the existing Polk Street Accident Investigation Area (AIS) located within the I-90/94 median north of Taylor Street and south of the existing Cermak Pump Station. The drainage improvements include the installation of a 60" RCP storm sewer, multiple manholes, a junction chamber connecting the proposed 60" storm sewer into the existing 4'-6" x 5'-0" main drain, and installation of precast concrete underground detention units along with associated inflow and outflow storm sewers. The underground detention units will have an approximate storage capacity of 4.7 ac-ft of storm water between the invert elevation of 553.0 feet and the high water elevation of 566.3 feet. The footprint of the underground detention units and the overall excavation will depend on the selection of the underground detention units as different

manufacturers have different configuration criteria. The invert elevation at the connection to the existing main drain is 550.9 feet. A temporary soil retention system (TSRS) will be needed to support the excavation. The TSRS interfering with any local drainage or pavement construction will be left in place. The bottom concrete slab varying in thickness will generally extend two feet below the bottom of the units.

FIELD INVESTIGATION

Wang performed four structure borings and one field vane shear test boring. We also installed one groundwater monitoring well to a depth of 46 feet below the ground surface elevation. As drilled borings and groundwater monitoring well locations are shown in the Boring Location Plan (Exhibit 2). A truck-mounted drilling rig, equipped with hollow stem augers and mud rotary equipment, was used to advance and maintain an open borehole. Soil sampling was performed according to AASHTO T 206, "Penetration Test and Split Barrel Sampling of Soils." The soil was sampled at 2.5-foot intervals to 40 feet bgs and at 5-foot intervals thereafter. Samples collected from each interval were placed in sealed jars for further examination and testing. NWD4-size bedrock cores were collected from all borings.

Field boring logs, prepared and maintained by a Wang engineer, include lithological descriptions, visual-manual soil classifications (IDH Soil Classification System), results of Rimac and pocket penetrometer unconfined compressive strength tests, and results of Standard Penetration Tests (SPT), recorded as blows per 6 inches of penetration. Based on as-drilled boring coordinate locations, AECOM provided grade elevations, stations, and offsets.

Vane Shear Tests

Wang performed vane shear (VST) tests in a separate near Boring BFB-03, designated as Boring DBT-VST-01 to determine in-situ shear strength of very soft to soft silty clay layer extending from 7.5 to 35.0 feet bgs. After drilling to the 46 feet bgs, casing was installed and vane shear test was performed using M-1000 Vane Borer Test Kit. Tests were performed in undisturbed and remolded conditions. In general, the vane shear values for soft clays were significantly higher than the unconfined compressive values from the RIMAC tests. These vane shear test results were used in our analysis.

Groundwater Monitoring Well

A monitoring well was installed in Boring DBT-VST-01 with a screen PVC pipe between elevations 577.24 and 537.24 feet (5 to 45 feet bgs). Exhibit 4 shows the detail of well installation.

To ensure that the installation allows for the free flow of groundwater, the monitoring well was developed by pumping to remove sediment incorporated in the screen and filter pack during installation. Pumping continued until the monitoring well produced a continuous flow of clear water.

Groundwater levels were recorded autonomously at defined intervals by digital pressure loggers suspended within the water column. Barometric effects were compensated by a second in-air pressure logger installed in the riser pipe. Groundwater monitoring data was retrieved from the digital logger periodically and downloaded to a computer for analyses.

LABORATORY TESTING

All soil samples were tested in the laboratory for moisture content (AASHTO T265). Atterberg limits (AASHTO T89/T90) and particle size (AASHTO T88) analyses were performed on selected soil samples representing the main soil layers encountered during the investigation. Unconfined compressive strength test (AASHTO T22) was performed on selected bedrock cores. Field visual descriptions of the soil samples were verified in the laboratory. Laboratory test results are shown in the Boring Logs (Appendix A) and in the Laboratory Test Results (Appendix B).

RESULTS OF FIELD INVESTIGATION AND LABORATORY TESTING

Detailed descriptions of lithological units encountered are presented in the Boring Logs (Appendix A), in the Boring Location Plan (Exhibit 2) and Soil Profile (Exhibit 3). Please note that strata contact lines shown on logs and profiles represent approximate boundaries between soil types; the actual transition between soil types might be gradual in horizontal and vertical directions.

Subsurface Soils and Groundwater Conditions

At the surface, the borings encountered 8.5-to 10-inch thick concrete followed by crushed stone or sandy gravel aggregate base.

Beneath the pavement, the borings encountered up to 3 feet of fill. The fill consists of medium stiff to stiff silty clay loam to clay loam with unconfined compressive strength (Q_u) values of 0.9 to 1.8 tsf with moisture content values of 14 to 20%. Laboratory index testing on a clay loam fill sample showed a liquid limit (L_L) value of 25% and a plastic limit (P_L) value of 17%.

Below the fill, at elevations of 575 to 580 feet (3 to 11 feet bgs), the borings encountered up to 32 feet of very soft to medium stiff clay to silty clay (Chicago Blue Clay) with Rimac Q_u values of 0.16 to 0.74 tsf and moisture content values of 22 to 26%. Laboratory index testing on samples from this layer showed L_L values of 34 to 37% and P_L values of 17 to 19%. In-situ undisturbed vane shear strengths obtained in Boring DBT-VST-01 between elevations 575 and 550 feet ranged from 690 to 1340 psf.

Beneath the Chicago Blue Clay, at elevations from 545 to 549 feet (34 to 38 feet bgs), the borings encountered up to 22 feet of stiff to hard silty clay to silty clay loam interbedded with silt and sand lenses. The layer has Q_u values of 1.8 to 10.0 tsf and moisture content values of 12 to 21%.

At elevations of 523 to 532 feet (52 to 58 feet bgs), the borings encountered medium dense to very dense sand to sandy gravel. The sand to sandy gravel have thickness of 5 to 10 feet in northern half with N values of 20 to 32 blows per foot and 20 to 25 feet in the southern half with N values of 28 to over 50 blows per foot.

At elevations of 506 to 520 feet (62 to 77 feet bgs), the borings advanced through 8 to 22 feet of hard silty loam (hard pan) with very stiff to hard clay layers. The unit has Q_u values of 3.0 to greater than 4.5 tsf and moisture content values of 9 to 26%. Laboratory index testing on samples from this layer showed L_L values of 22 and 42% and P_L values of 13 and 20%.

At elevations of 496 to 498 feet (84 to 85.5 feet bgs), the borings encountered 1.5 feet of weathered bedrock. Sound bedrock was encountered at elevations of 495 to 499 feet (85 to 87 feet bgs). Based on the 5-to-10-foot rock core obtained from the borings, the measured RQD values ranged from 80 to 95% indicating good to excellent quality bedrock. Bedrock core Photographs are shown in Appendix A

Groundwater Conditions

Groundwater levels/depths while drilling shown on the boring logs indicates at what depth the groundwater was first observed in split spoon samples. Groundwater levels/depths while drilling

varied from 39.0 to 52.5 feet bgs (elevations 532.1 to 541.3 feet) at the time of borings. Groundwater at completion of drilling was not noted since drilling was performed using rotary mud after a depth of ten feet.

The groundwater monitoring well showed water table stabilizing at elevation 570.5 feet. A summary of the monitoring data between June 28, 2019 and October 14, 2019 is shown in Exhibit 5. The data shows groundwater is under hydrostatic pressure head.

ENGINEERING ANALYSIS AND RECOMMENDATIONS

We understand ASD design method will be used in designing TSRS.

Bearing Capacity

We recommend a maximum net allowable soil bearing capacity of 2,200 psf with a factor of safety of 3.0 at elevation 551.0 feet. The soil shear strength values used in our analysis were obtained at elevation 551.0 feet which is the proposed concrete slab elevation from vane shear tests.

Settlement

We estimate expected settlement of less than 0.5 inches considering existing overburden stress at elevation of 551.0 feet and a maximum net bearing pressure of 2,200 psf.

Temporary Soil Retention System

Temporary excavation up to 31 feet deep below the existing grade will be required for the detention tank. Temporary soil retention system (TSRS) such as steel sheet pile wall, soldier pile wall, tangent drilled shaft wall can be used to create vertical excavation walls. Instead of wood lagging for the drilled soldier pile wall, secondary drilled shaft can be used with controlled low strength material (CLSM). It is likely that one or more tiers of ground anchors (tiebacks) will be necessary to obtain additional lateral support.

The soil parameters shown in Tables 1 and 2 can be used for the design of temporary bracing system or may be determined from the field and laboratory test results and soil description shown on the boring logs. Lateral pressure from adjacent foundations and other surcharge loads such as construction equipment should also be considered in the design of the bracing system. The lateral soil pressure distribution behind a bracing system will be dependent on the type of TSRS finally selected.

Table 1: Design Soil Parameters for Temporary Soil Retention System-Northside
(Reference Borings BFB-01, BFB-02, and DST-VST-01)

Approximate Elevation Range, feet	Subsurface Soil Description	Unit Weight, pcf	Shear Strength, psf	Internal Friction Angle, degree
Existing Ground surface to 580	M Stiff to Stiff SILTY CLAY LOAM FILL	120	1000	0
580 to 573	M Stiff CLAY to SILTY CLAY LOAM	120	1000	0
573 to 556	V Soft to M Stiff CLAY to SILTY CLAY	53 ⁽¹⁾	800	0
556 to 547	M Stiff to Stiff CLAY to SILTY CLAY	58 ⁽¹⁾	1000	0
547 to 531	V Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	63 ⁽¹⁾	6000	0
531 to 507	M Dense to V Dense GRAVELLY SANDY LOAM	68 ⁽¹⁾	0	36
507 to 499 ⁽²⁾	V Dense SILTY LOAM	68 ⁽¹⁾	0	36

⁽¹⁾Submerged Unit Weight; ⁽²⁾Bedrock

Table 2: Design Soil Parameters for Temporary Soil Retention System- Southside
(Reference Borings BFB-03, BFB-04, and DST-VST-01)

Approximate Elevation Range, feet	Subsurface Soil Description	Unit Weight, pcf	Shear Strength, psf	Internal Friction Angle, degree
Existing Ground surface to 575	M Stiff to Stiff CLAY LOAM to LOAM FILL	120	900	0
575 to 573	M Stiff CLAY to SILTY CLAY LOAM	115	1000	0
573 to 556	V Soft to M Stiff CLAY to SILTY CLAY	53 ⁽¹⁾	800	0
556 to 547	M Stiff to Stiff CLAY to SILTY CLAY	58 ⁽¹⁾	1000	0
547 to 540	Stiff to V Stiff SILTY CLAY to SILTY CLAY LOAM	58 ⁽¹⁾	3000	0
540 to 530	Hard SILTY CLAY LOAM	63 ⁽¹⁾	6500	0
530 to 520	M Dense to Dense SANDY GRAVEL to SAND	63 ⁽¹⁾	0	35
520 to 502	Hard SILTY LOAM to SILTY CLAY LOAM	63 ⁽¹⁾	7200	0
502 to 497 ⁽²⁾	V Dense SILTY LOAM	68 ⁽¹⁾	0	36

⁽¹⁾Submerged Unit Weight; ⁽²⁾Bedrock

We recommend considering design groundwater level at elevation 570.0 feet.

Ground Anchors

We expect that ground anchors tiebacks will be necessary for additional lateral support and control of wall deflection. For the purpose of preliminary design, the ultimate load transfer from the bond length to the soil may be estimated from the unit values for grout-to-ground bond strength shown in Tables 3 and 4. (Ref: Federal Highway Administration Publications FHWA-IF-99-015 and FHWA/Rd-82/047). These values are based on the boring performed at the tank area. These values may vary with actual ground conditions at the anchor bond length, drilling method, grouting and anchor installation procedures. Log of the surrounding borings and subsurface data profiles are included with this memo. Design values for evaluating anchor bond lengths should use a factor of safety of 2.5 on the ultimate load transfer value.

Table 3: Grout to Ground Bond Values for Preliminary Ground Anchor Design- Northside
(Reference Borings BFB-01, BFB-02, and DST-VST-01)

Elevation Range (feet)	Soil Description	Grout-to-Ground Bond Ultimate Strength (ksf)	
		Gravity Grouted Anchor	Pressure Grouted Anchor
547 to 531	Hard SILTY CLAY LOAM	1.5	5.5
531 to 507	M Dense to V Dense GRAVELLY SANDY LOAM	2.0	6.0
507 to 499	V Dense SILTY LOAM	2.0	6.5
Below 499	BEDROCK	30.0	--

Table 4: Grout to Ground Bond Values for Preliminary Ground Anchor Design- Southside
(Reference Borings BFB-03, BFB-04, and DST-VST-01)

Elevation Range (feet)	Soil Description	Grout-to-Ground Bond Ultimate Strength (ksf)	
		Gravity Grouted Anchor	Pressure Grouted Anchor
540 to 530	Hard SILTY CLAY LOAM	1.5	5.5
530 to 520	M Dense to Dense SANDY GRAVEL to SAND	2.0	6.0

Elevation Range (feet)	Soil Description	Grout-to-Ground Bond Ultimate Strength (ksf)	
		Gravity Grouted Anchor	Pressure Grouted Anchor
520 to 502	Hard SILTY LOAM to SILTY CLAY LOAM	1.5	5.5
502 to 497	V Dense SILTY LOAM	2.0	6.5
Below 497	BEDROCK	30.0	--

Storm Sewer

We understand, the proposed 60-inch diameter storm sewer, manholes and junction chambers will be constructed within the excavated area and supported on or above a 2-foot thick concrete slab. Therefore, no additional subgrade treatment will be required.

CONSTRUCTION CONSIDERATIONS

Excavation and Dewatering

Any temporary excavations should be performed in accordance with local, state, and federal regulations including current OSHA regulations. The potential effect of ground movements upon nearby structures and utilities should be considered during construction. Any open excavation to a depth of 4 feet should have a slope of 1:2 (V:H) for cohesive soils and 1:2.5 (V:H) for granular soils. Based on the results of our investigation and proposed shallow excavation depths, perched water in granular soils is likely to be encountered during construction during times of heavy precipitation which should be removed through conventional sump and pump methods.

Any excavation and lowering of groundwater could damage the nearby structures, utilities and roadways. We recommend that foundation system of nearby structures should be considered on the TSRS design. The design of TSRS should consider saturated granular soils; and lateral load from the nearby structure foundation, surcharge from the traffic and construction equipment. The allowable deflection of the TSRS should be as per city of Chicago requirements and to avoid any movement of the exiting building and settlement of the pavement.

The excavation subgrade soil at elevation 551.0 feet can become unstable due to construction equipment, forming and concrete placement. The Contractor will need a working platform to

properly construct the bottom slab. The proposed bottom concrete slab will serve as a working platform and to prevent excavation base heave. The thickness for such platform (bottom slab) will depend on the Contractor's means and methods and TSRS design. We recommend considering two feet of additional excavation in the TSRS design. However, the Engineer should make the determination that a working platform is required during construction based on the field conditions.

Filling and Backfilling

All fill and backfill materials will be as per IDOT Standard Specification for Road and Bridge Construction (IDOT 2016).

Drilled Shaft

Drilled shafts should be constructed in accordance with the IDOT Special Provision Drilled Shafts (GBSP No. 86). Drilled shaft installation procedure should be reviewed and approved by IDOT.

The groundwater is expected to be located within the granular soils layers encountered at various depths. The design and construction of the drilled shafts should consider any granular soils as water bearing even though groundwater was not observed during drilling. Temporary casing or a slurry method will be required in the granular soils to prevent groundwater from entering the shafts and prevent loss of ground around the shafts. Special care should be taken to prevent loss of ground during shaft installation adjacent to the existing structures, utilities and roadways. It is recommended to advance the casing ahead of the excavation operation. Groundwater is also expected from granular layers within very stiff to hard clay deposit and above the bedrock.

The soft soil layer is prone to squeeze if left open for long period of time. Therefore, to minimize the squeeze potential, casing should be provided. Casing may be pulled out or left in place, as determined by the Contractor at no cost to the Department.'

Steel Sheet Pile Wall Construction

The sheet piling wall should be constructed as per Article 522.06 of the IDOT Standard Specification for Road and Bridge Construction (IDOT 2016).

QUALIFICATIONS

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 3. 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 flyover ramp structure are planned, we should be timely informed so that our recommendations can be adjusted accordingly.

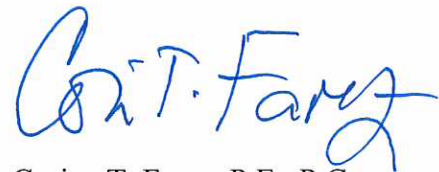
It has been a pleasure to assist AECOM and the Illinois Department of Transportation on this project. Please call if there are any questions, or if we can be of further service.

Respectfully Submitted,

WANG ENGINEERING, INC.



Mohammed Kothawala, P.E., D.GE.
Senior Geotechnical Engineer



Corina T. Farez, P.E., P.G.
Vice President

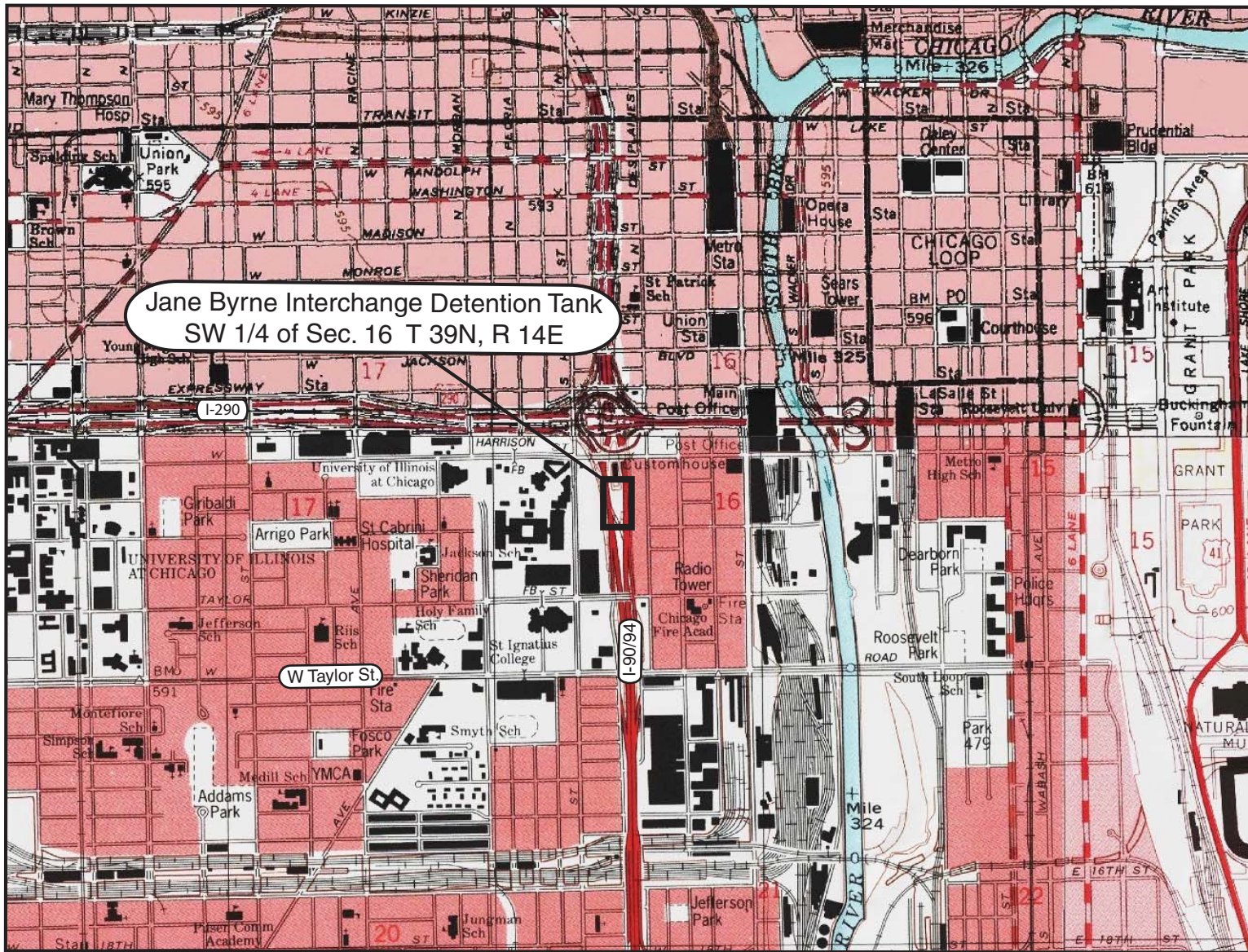
Attachments:

- Exhibit 1: Site Location Map
- Exhibit 2: Boring Location Plan
- Exhibit 3: Subsurface Data Profile
- Exhibit 4: Groundwater Monitoring Well
- Exhibit 5: Summary of Groundwater Monitoring Data
- Appendix A: Borings Logs and Rock core Photographs
- Appendix B: Laboratory Test Results

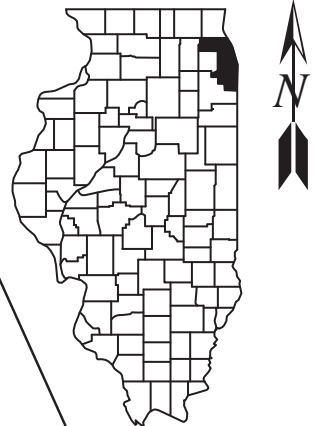


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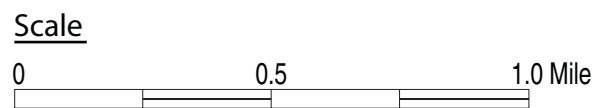
EXHIBITS



Jane Byrne Interchange Detention Tank
SW 1/4 of Sec. 16 T 39N, R 14E



Cook County



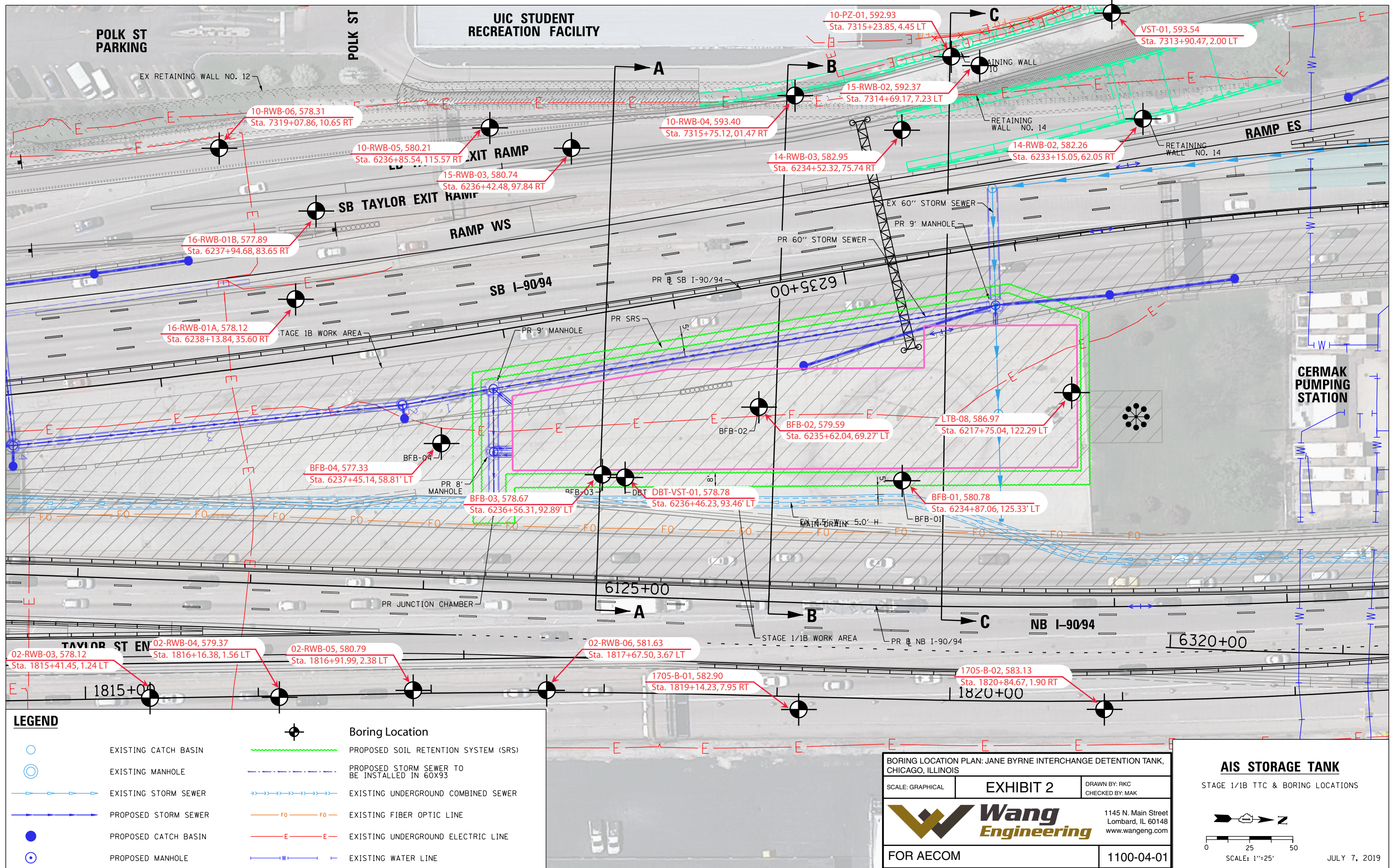
SITE LOCATION MAP: JANE BYRNE INTERCHANGE DETENTION TANK, CHICAGO, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 1	DRAWN BY: RKC CHECKED BY: MAK
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1145 N. Main Street
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FOR AECOM	1100-04-01
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LEGEND

- | | | | |
|--|----------------------|--|---|
| | EXISTING CATCH BASIN | | Boring Location |
| | EXISTING MANHOLE | | PROPOSED SOIL RETENTION SYSTEM (SRS) |
| | EXISTING STORM SEWER | | PROPOSED STORM SEWER TO BE INSTALLED IN 60X93 |
| | PROPOSED STORM SEWER | | EXISTING UNDERGROUND COMBINED SEWER |
| | PROPOSED CATCH BASIN | | EXISTING FIBER OPTIC LINE |
| | PROPOSED MANHOLE | | EXISTING UNDERGROUND ELECTRIC LINE |
| | | | EXISTING WATER LINE |

BORING LOCATION PLAN: JANE BYRNE INTERCHANGE DETENTION TANK, CHICAGO, ILLINOIS

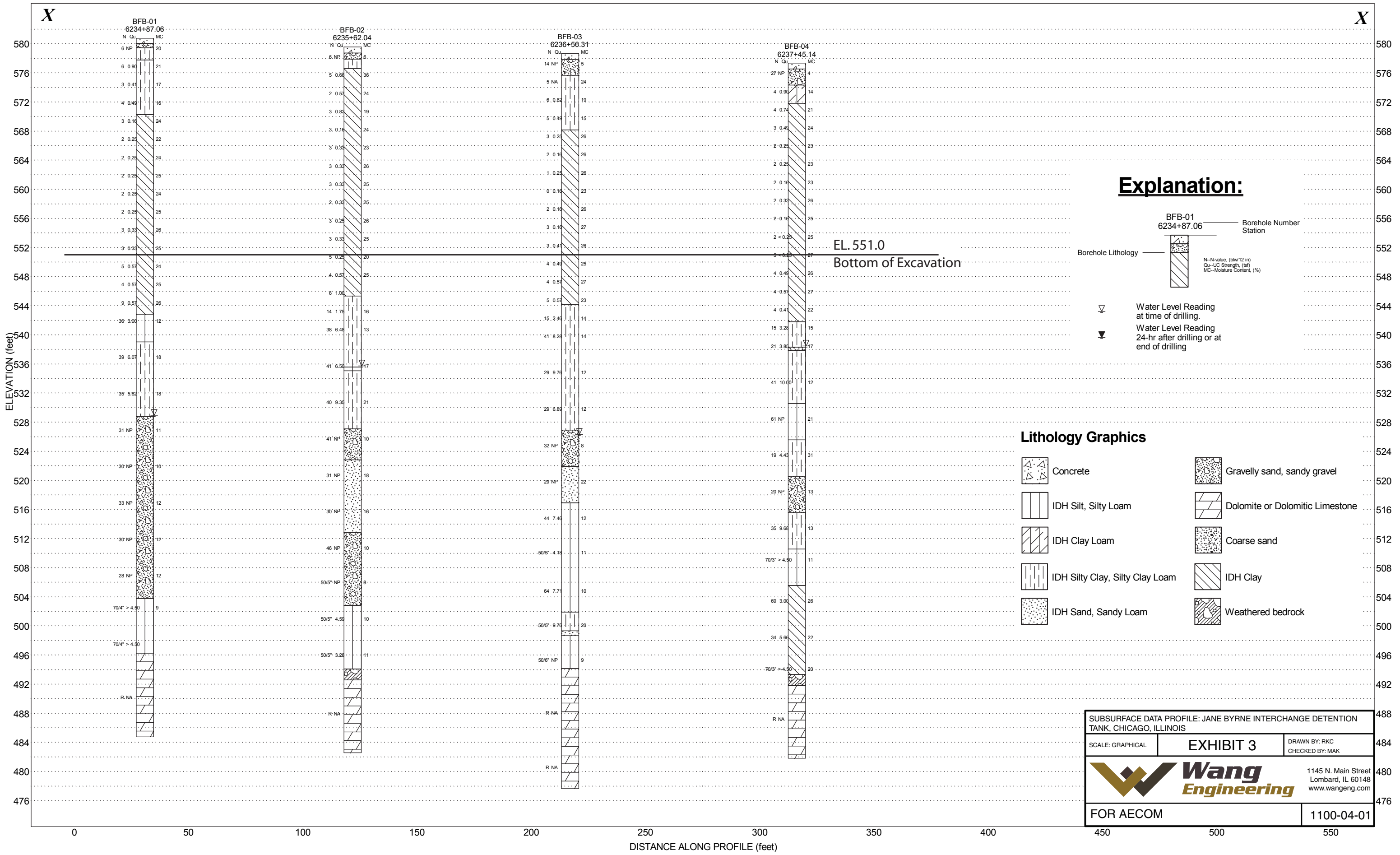
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		FOR AECOM

AVIS STORAGE TANK

STAGE 1/1B TTC & BORING LOCATIONS

SCALE: 1"=25'

JULY 7, 2019



SUBSURFACE DATA PROFILE: JANE BYRNE INTERCHANGE DETENTION TANK, CHICAGO, ILLINOIS

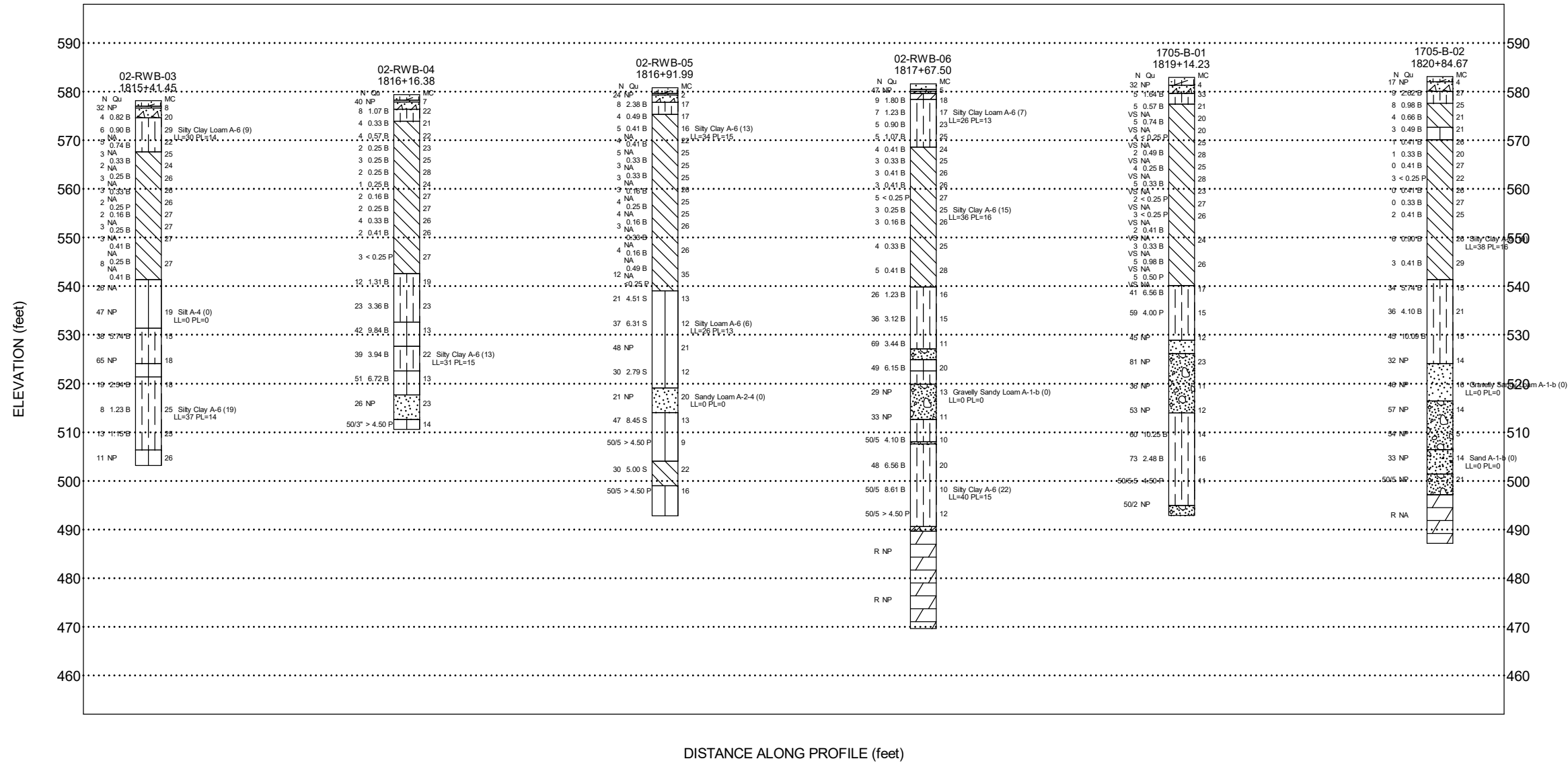
SCALE: GRAPHICAL **EXHIBIT 3** DRAWN BY: RKC
 CHECKED BY: MAK

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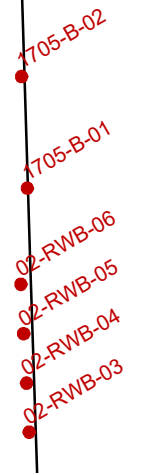
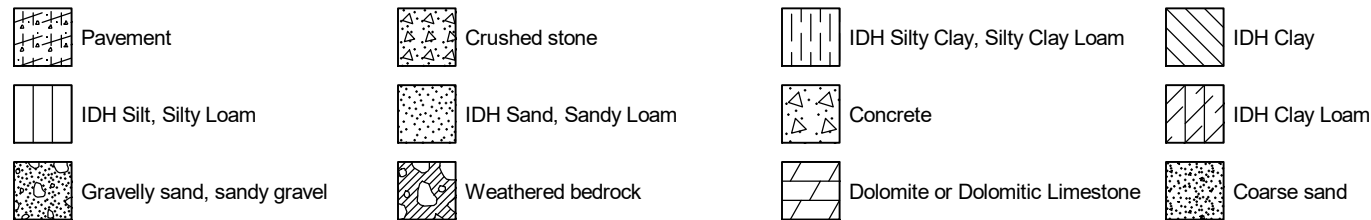
FOR AECOM 1100-04-01



EAST SIDE

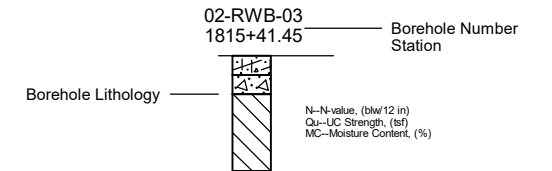


Lithology Graphics

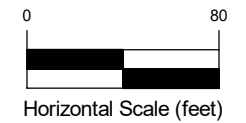


Site Map Scale 1 inch equals 295 feet

Explanation:



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



Vertical Exaggeration: 3x

Wang Engineering, Inc.
 1145 N. Main Street
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Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank

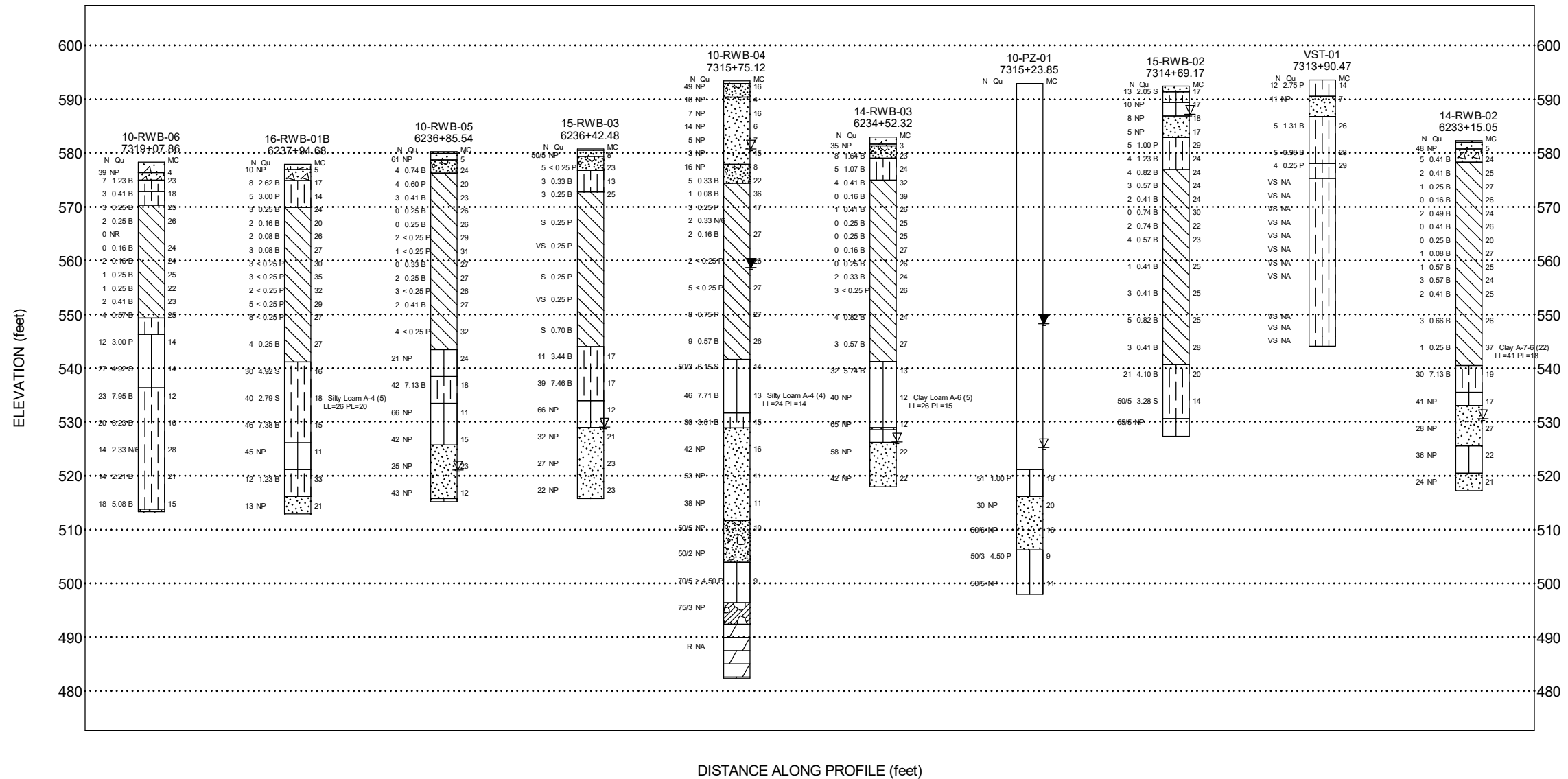


Jane Byrne Interchange
 Section 17, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-1













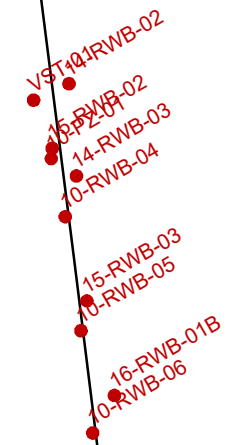
WEST SIDE



DISTANCE ALONG PROFILE (feet)

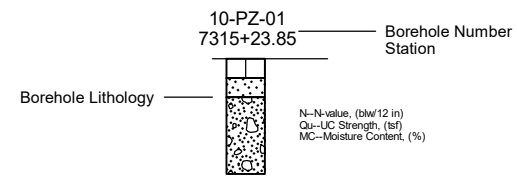
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

-  IDH Silt, Silty Loam
-  IDH Sand, Sandy Loam
-  Pavement
-  Gravelly sand, sandy gravel
-  IDH Clay
-  IDH Silty Clay, Silty Clay Loam
-  Weathered bedrock
-  Dolomite or Dolomitic Limestone
-  Concrete
-  Crushed stone

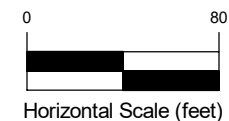


Site Map Scale 1 inch equals 295 feet

Explanation:



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



Vertical Exaggeration: 3.5x

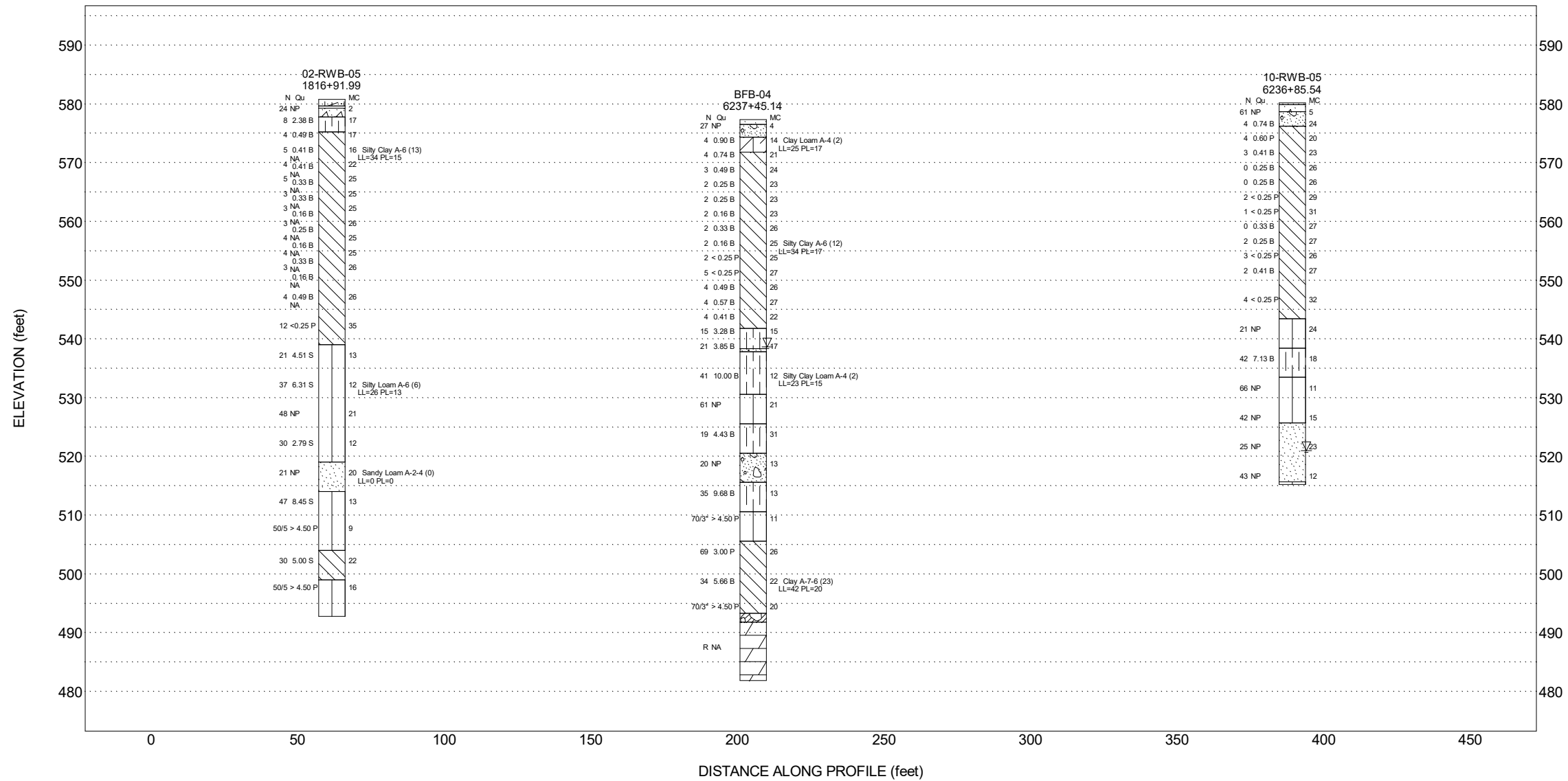
Wang Engineering, Inc.
 1145 N. Main Street
 Lombard/IL/60148

Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank

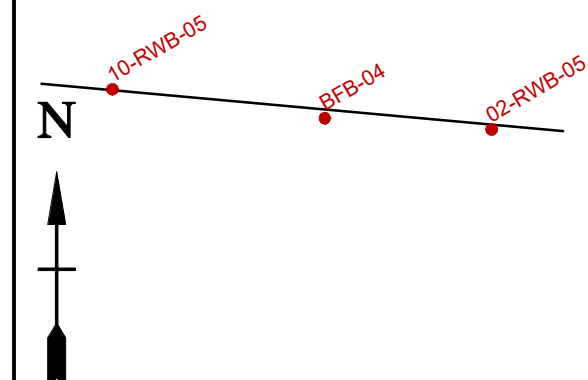
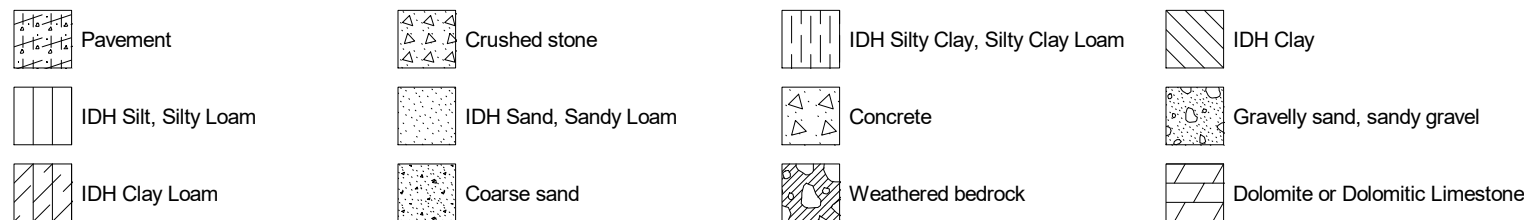


Jane Byrne Interchange
 Section 17, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-2

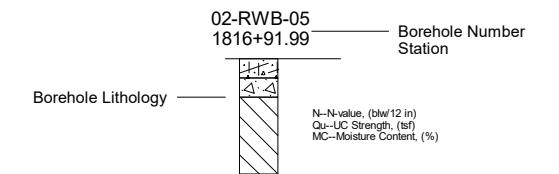


Lithology Graphics

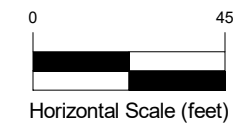


Site Map Scale 1 inch equals 165 feet

Explanation:



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



Vertical Exaggeration: 2x

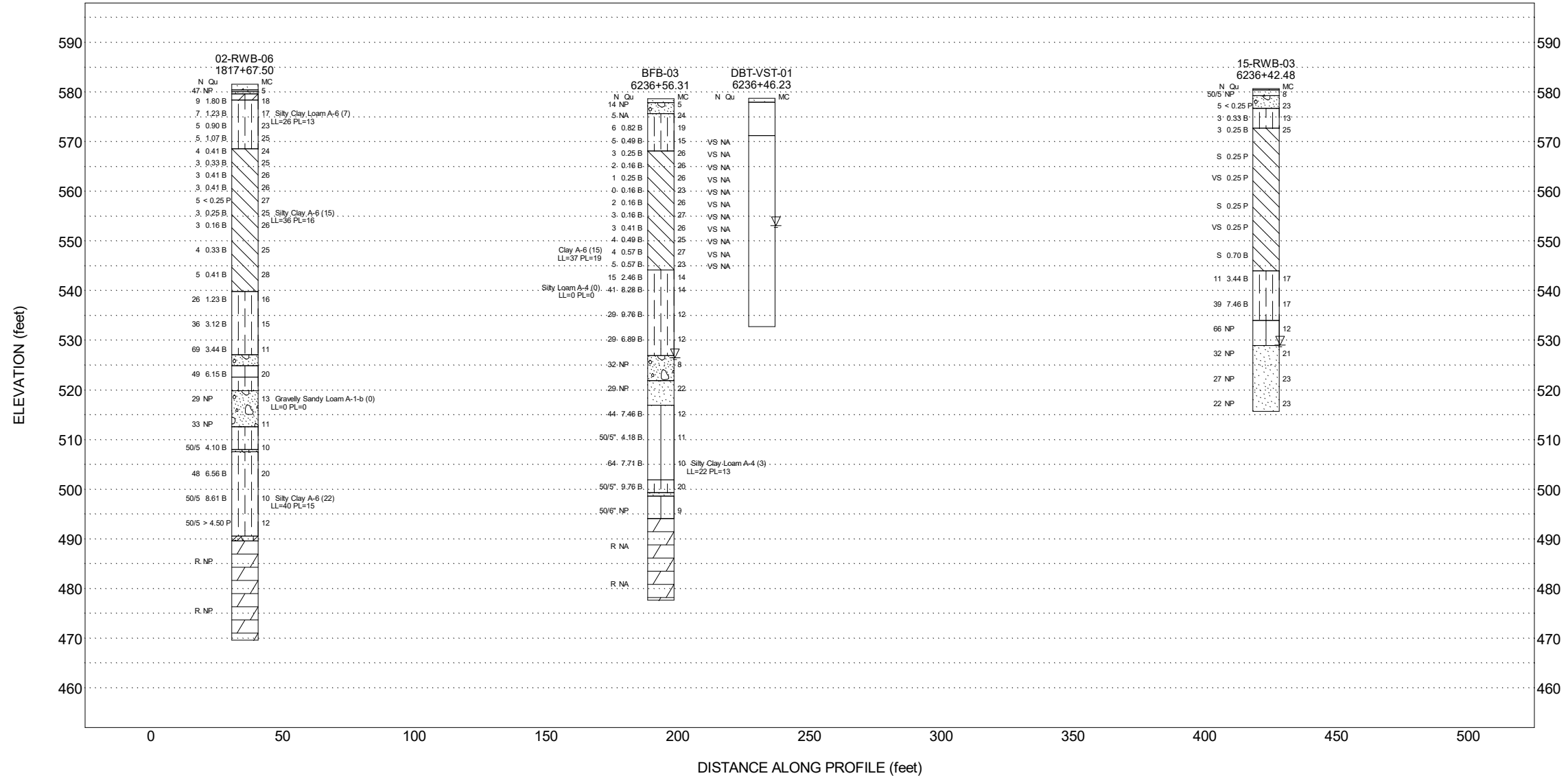
Wang Engineering, Inc.
1145 N Main Street
Lombard, IL 60148

Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank



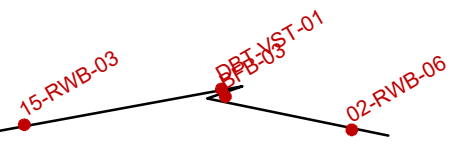
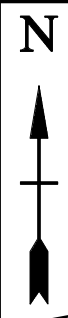
Jane Byrne Interchange
Section 16, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-3



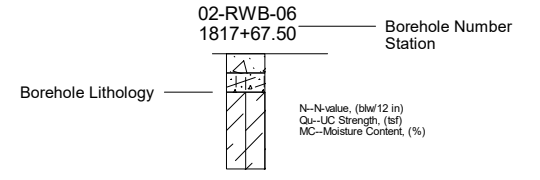
Lithology Graphics

- | | | | |
|---------------------------------|---------------------------------|-----------------------------|----------------------|
| Concrete | Pavement | Crushed stone | IDH Clay Loam |
| IDH Silty Clay, Silty Clay Loam | IDH Clay | Gravelly sand, sandy gravel | IDH Silt, Silty Loam |
| Weathered bedrock | Dolomite or Dolomitic Limestone | IDH Sand, Sandy Loam | |

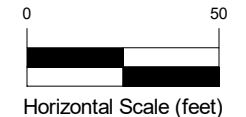


Site Map Scale 1 inch equals 185 feet

Explanation:



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



Vertical Exaggeration: 2x

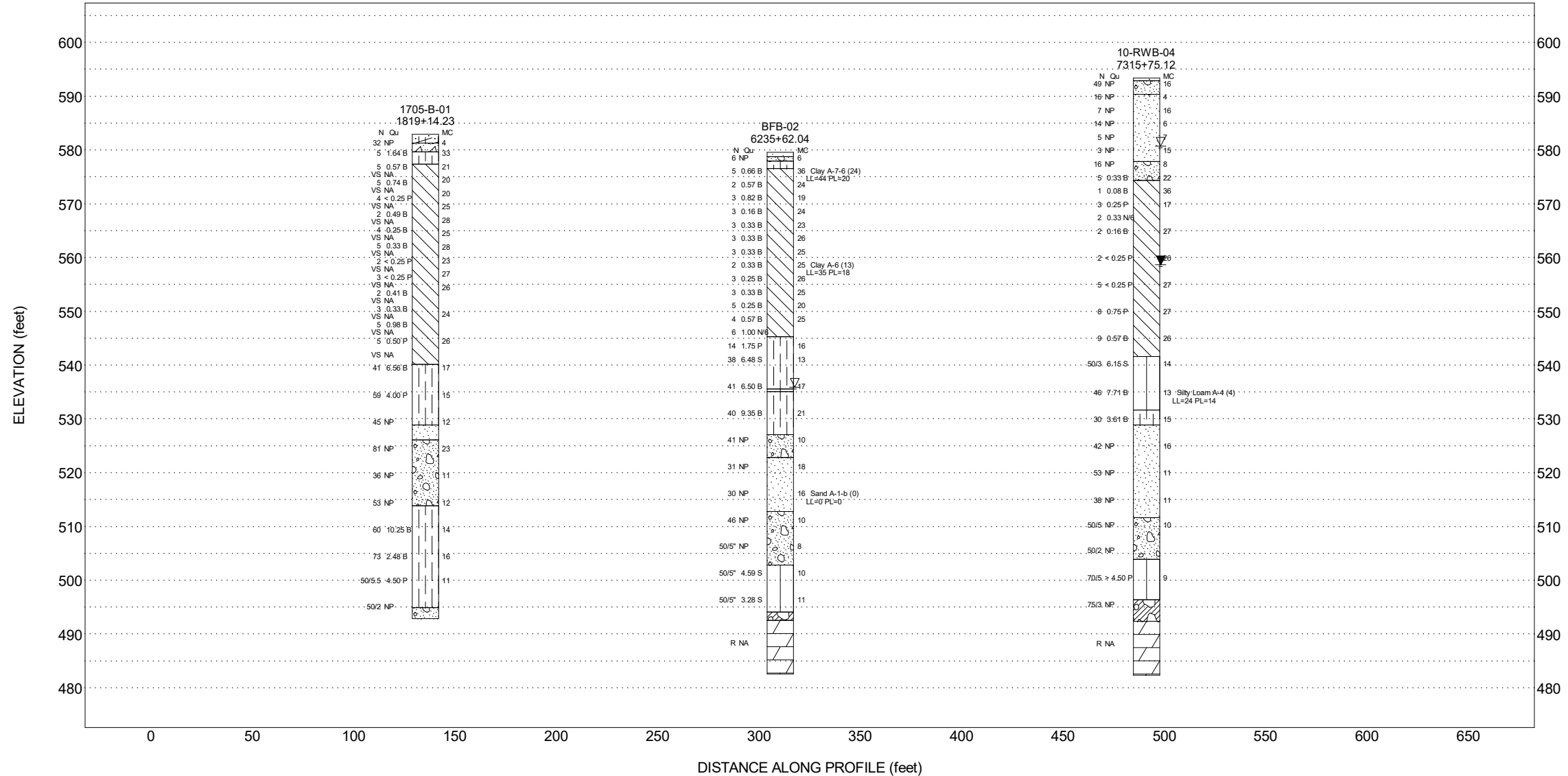
Wang Engineering, Inc.
1145 N Main Street
Lombard, IL 60148

Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank

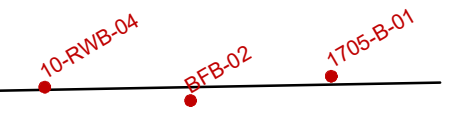
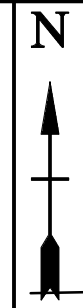
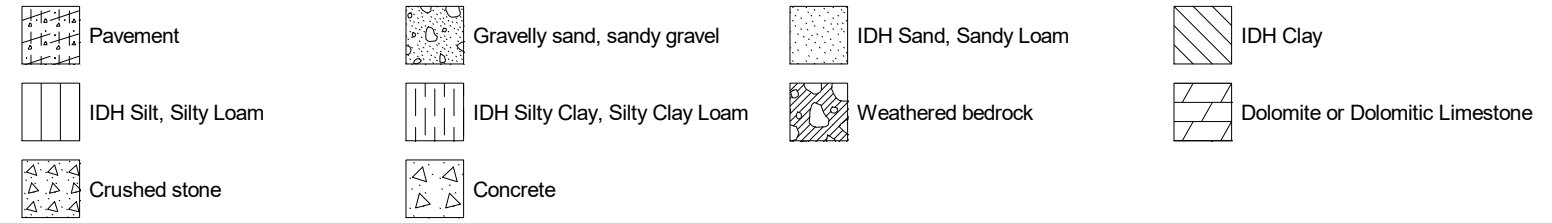


Jane Byrne Interchange
Section 16, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-4

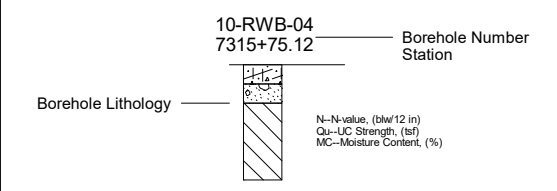


Lithology Graphics

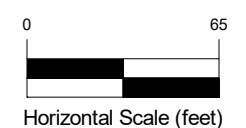


Site Map Scale 1 inch equals 240 feet

Explanation:



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



Vertical Exaggeration: 2.5x

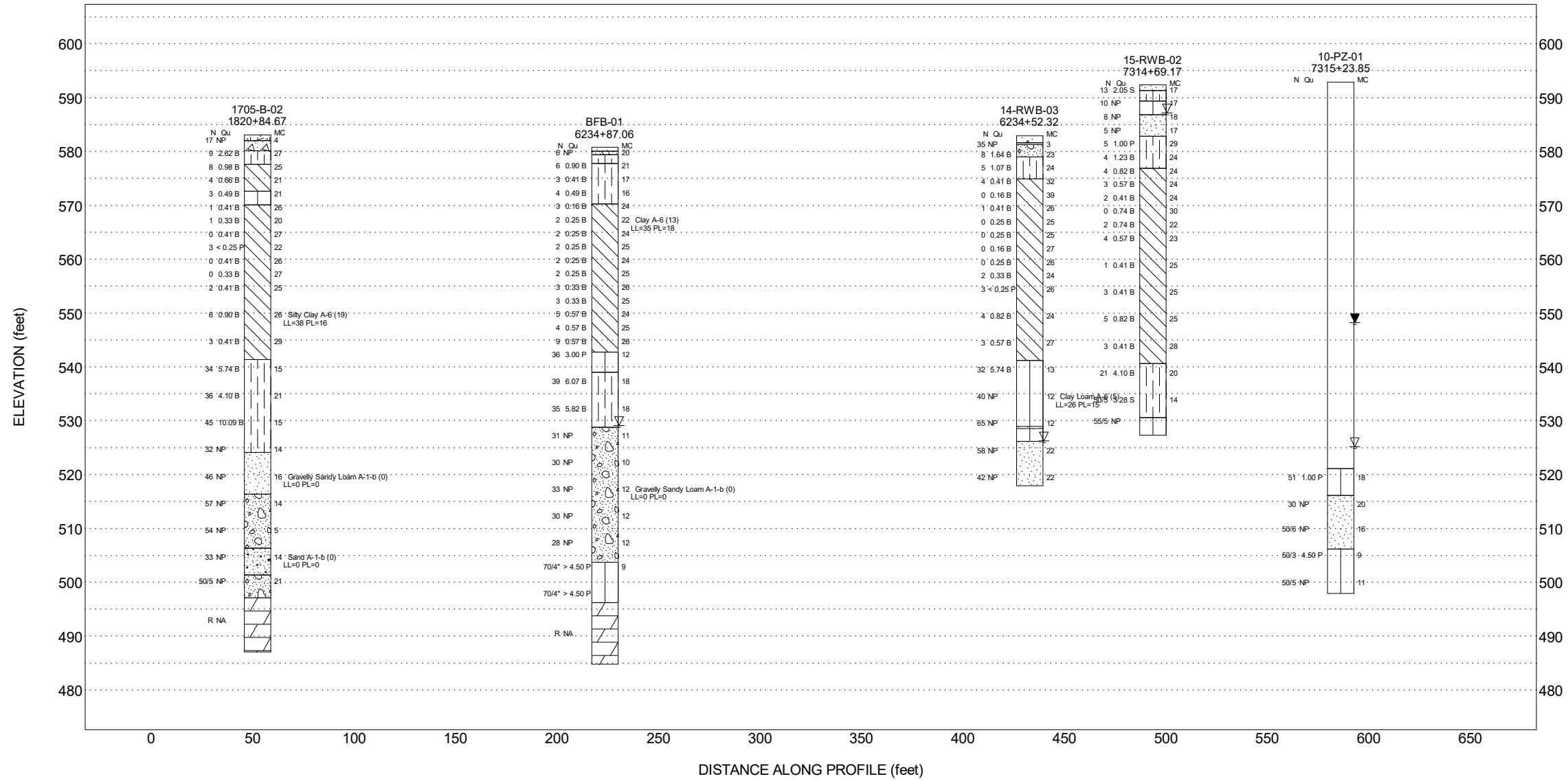
Wang Engineering, Inc.
1145 N Main Street
Lombard, IL 60148

Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank

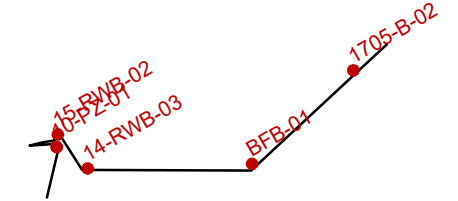
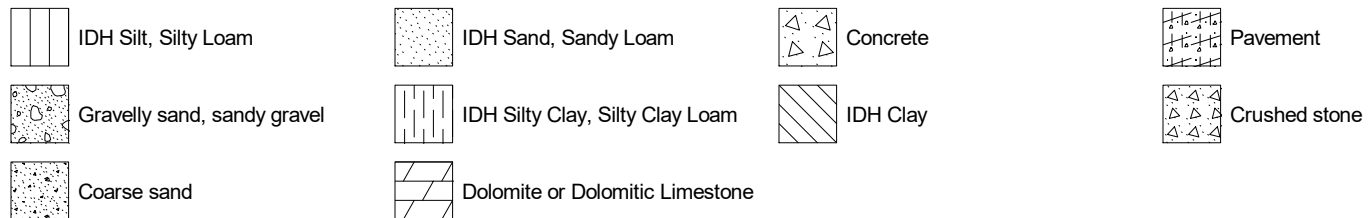


Jane Byrne Interchange
Section 16, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-5

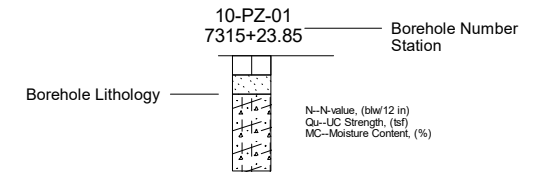


Lithology Graphics

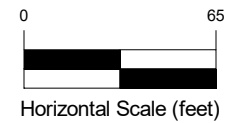


Site Map Scale 1 inch equals 240 feet

Explanation:



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



Vertical Exaggeration: 2.5x

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Lombard, IL 60148

Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank



Jane Byrne Interchange
Section 16, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-6



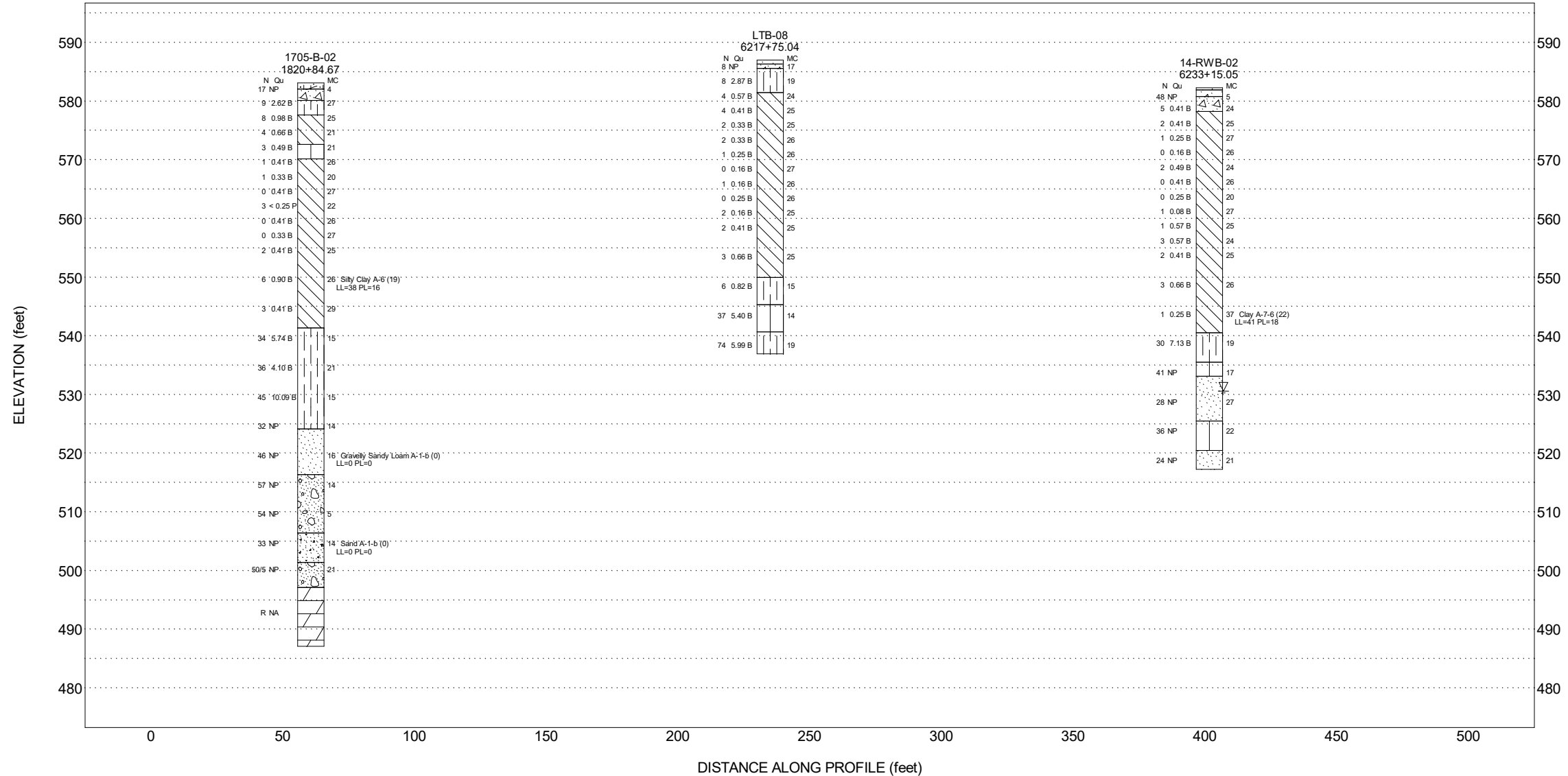
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14-RWB-02

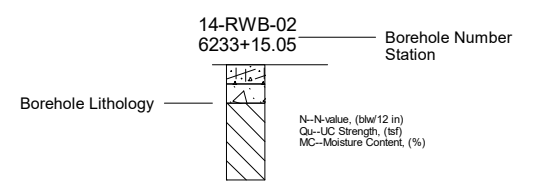
LTB-08

1705-B-02

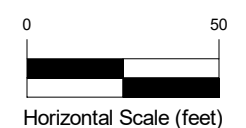


Site Map Scale 1 inch equals 185 feet

Explanation:



- ▽ Water Level Reading at time of drilling.
- ▼ Water Level Reading 24-hr after drilling or at end of drilling



Vertical Exaggeration: 2x

Wang Engineering, Inc.
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Subsurface Data Profile
Jane Byrne Interchange Detention Storage Tank



Jane Byrne Interchange
 Section 16, T39N, R14E of 3rd PM

JOB NUMBER	PLATE NUMBER
1100-04-01	EXHIBIT 3-7

WEI 11X17 11000401.GPJ_WANGENG.GDT_10/22/19

GROUNDWATER MONITORING WELL INSTALLATION

Monitoring Well/Boring ID: DBT-VST-01

Well Location

Northing: 1896835.88
 Easting: 1171705.33

Coordinant System: NAVD 88

Annular Space Details

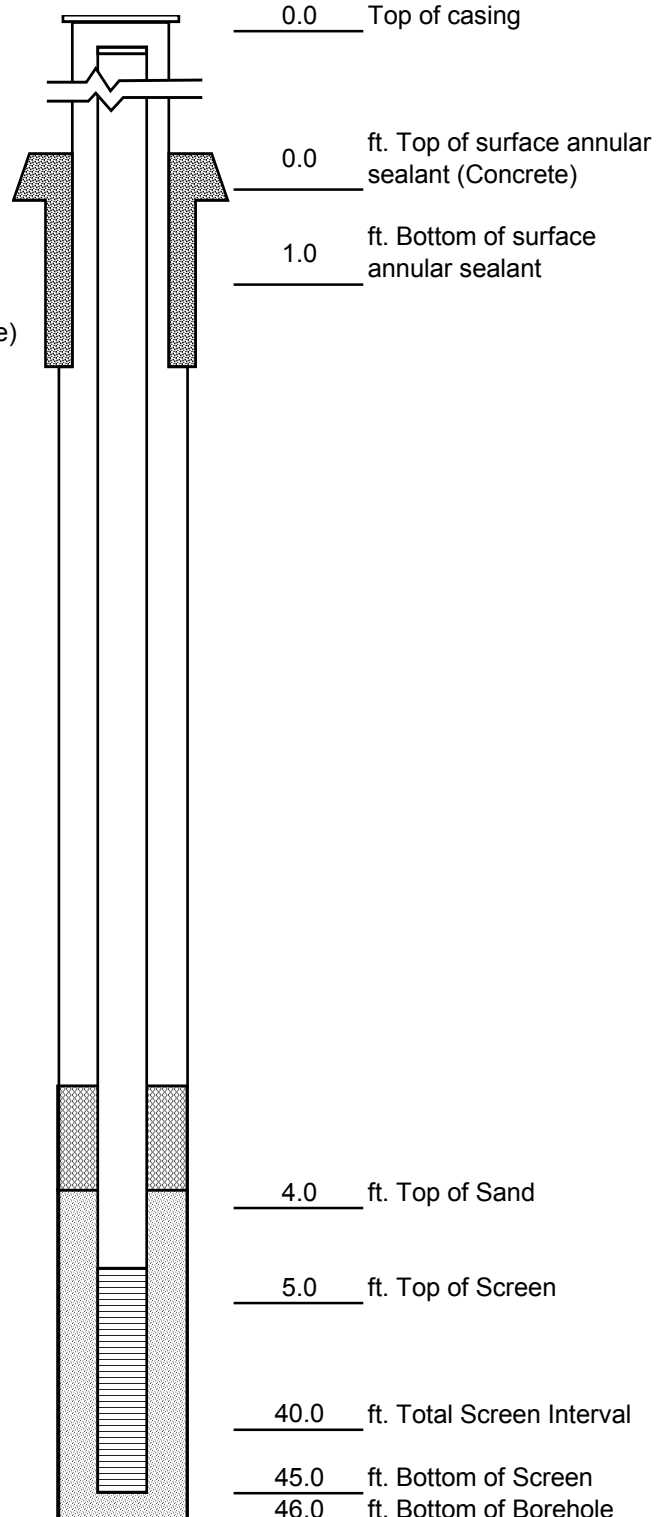
Type of Surface Seal: Concrete (6-inch Manhole)
 Type of Annular Sealant: Bentonite
 Type of Sand Pack: Silica Sand

Well Construction Materials

Riser coupling joints: Internal threads
 Screen: SCH 40 PVC
 Coupling joint screen to riser: Internal threads

Well Measurements

Screen length (ft): 40.0
 Diameter of borehole (in): 6.0
 ID of riser pipe (in): 2.0 inches



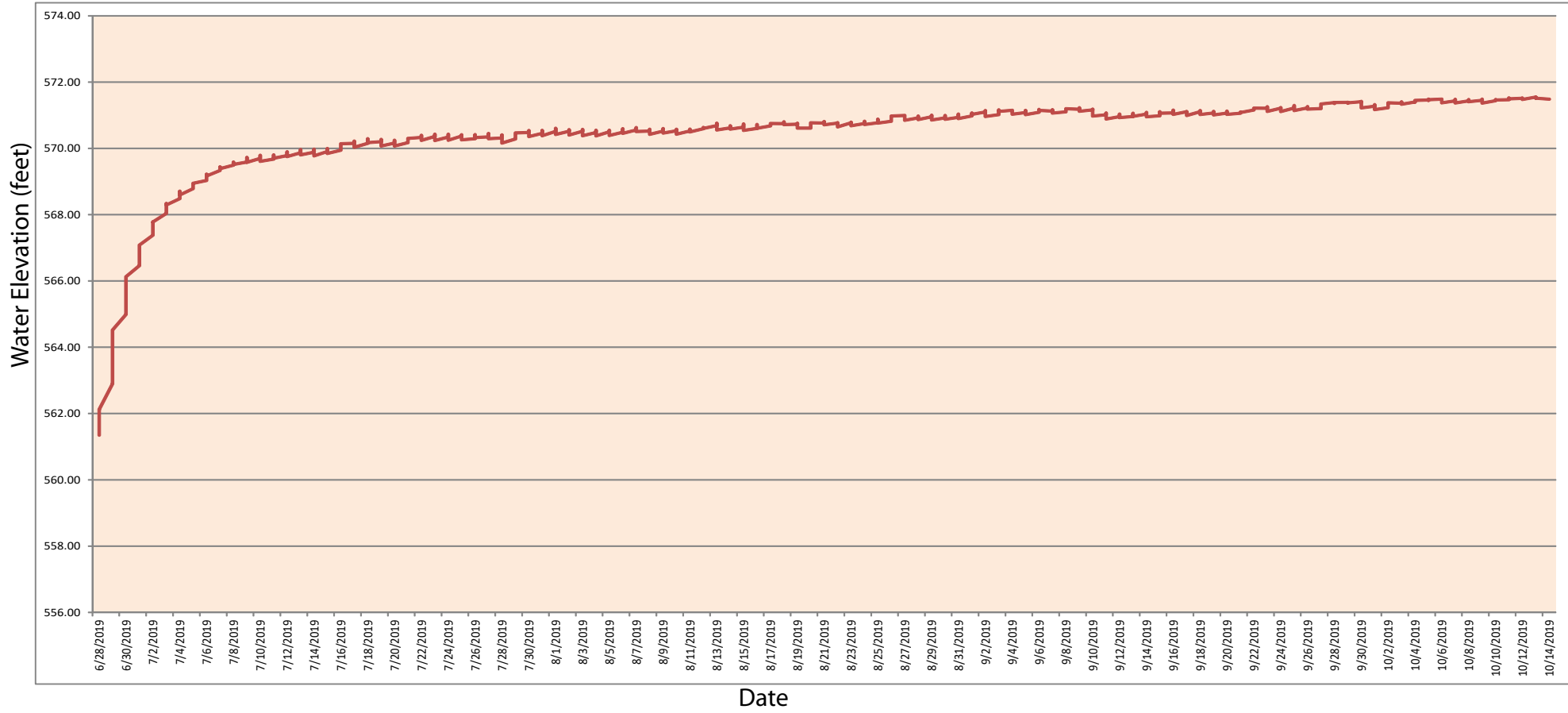
GROUNDWATER MONITORING WELL: JANE BYRNE INTERCHANGE, DETENTION TANK, CHICAGO, ILLINOIS

SCALE: GRAPHICAL **EXHIBIT 4** DRAWN BY: RKC
 CHECKED BY: MAK



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 Lombard, IL 60148
 www.wangeng.com

FOR AECOM 1100-04-01



SUMMARY OF GROUNDWATER MONITORING DATA: JANE BYRNE INTERCHANGE DETENTION TANK, CHICAGO, ILLINOIS		
SCALE: GRAPHICAL	EXHIBIT 5	DRAWN BY: RKC CHECKED BY: MAK
		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR AECOM		1100-04-01

APPENDIX A



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 Fax: 6309539938

BORING LOG BFB-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.78 ft
 North: 1896998.21 ft
 East: 1171705.12 ft
 Station: 6234+87.06
 Offset: 125.33' 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 (%)
	580.1	8.5-inch thick CONCRETE --PAVEMENT--															
	579.5	7.5-inch thick, gray SANDY GRAVEL; damp --BASE COURSE--			1	3 2 4	NP	20						9	0 1 1	0.25 B	24
	577.8	Stiff (1.75P), brown SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			2	1 3 3	0.90 B	21						10	1 1 1	0.25 B	25
		Soft to medium stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 1--			3	1 1 2	0.41 B	17						11	1 2 1	0.33 B	26
					4	1 2 2	0.49 B	16						12	1 1 2	0.33 B	25
	570.3	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel; damp to moist --RDR 1--			5	1 1 2	0.16 B	24						13	1 2 3	0.57 B	24
		--L _L (%)=35, P _L (%)=18-- --%Gravel=5.3-- --%Sand=14.1-- --%Silt=46.6-- --%Clay=33.9-- --A-6 (13)--			6	1 1 1	0.25 B	22						14	1 2 2	0.57 B	25
					7	1 1 1	0.25 B	24						15	2 3 6	0.57 B	26
					8	0 1 1	0.25 B	25		542.8	Very stiff, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp --RDR 2--			16	2 12 24	3.00 P	12

GENERAL NOTES

Begin Drilling **06-27-2019** Complete Drilling **06-27-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10' mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **52.00 ft**
 At Completion of Drilling **9 ft Mud**
 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 11000401.GPJ WANGENG.GDT 7/22/19



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BORING LOG BFB-01

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.78 ft
 North: 1896998.21 ft
 East: 1171705.12 ft
 Station: 6234+87.06
 Offset: 125.33' 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 (%)
		--possible cobbles--															
	496.3	--slow advancement from 83.5 to 86.0 feet--			25	70/4	4.50 P										
		--cobbles and boulders--															
		Strong, light grayish gray, good quality, DOLOSTONE; Moderately spaced, fresh, horizontal and oblique joints, with 0-0.2 inch opening, slicken to slightly rough walls, and <0.2 inch thick sand infill. Run 1 : 86 to 96 feet															
		--Recovery=100%															
		--RQD=87%															
		--Q _u =16,270 psi															
			85														
			90														
			95														
	484.8	Boring terminated at 96.00 ft															
			100														

WANGENGINC 11000401.GPJ WANGENG.GDT 7/22/19

GENERAL NOTES

Begin Drilling **06-27-2019** Complete Drilling **06-27-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
 **backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **52.00 ft**
 At Completion of Drilling ▽ **9 ft Mud**
 Time After Drilling **NA**
 Depth to Water ▽ **NA**

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

RUN #1
TOP



Qu = 16,270 psi

0 3 6 9 12 inches

Boring BFB-01
 RUN #1, 86 to 96 FEET
 RECOVERY = 100%
 RQD = 87%

BEDROCK CORE: JANE BYRNE INTERCHANGE DETENTION TANK,
 CHICAGO, ILLINOIS

SCALE : GRAPHIC

BFB-01

DRAWN BY: E. GREENWOOD
 CHECKED BY: M. KOTHAWALA



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FOR AECOM

1100-04-01



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BORING LOG BFB-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 579.59 ft
 North: 1896913.63 ft
 East: 1171664.99 ft
 Station: 6235+62.04
 Offset: 69.27' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	
	578.8	10-inch thick CONCRETE --PAVEMENT--																
	577.9	10-inch thick, loose, gray SANDY GRAVEL; moist --BASE COURSE--			1	7 3 3	NP	6			--L _L (%)=35, P _L (%)=18-- --%Gravel=4.2-- --%Sand=13.9-- --%Silt=46.9-- --%Clay=34.9-- --A-6 (13)--			9	1 1 1	0.33 B	25	
	576.6	Medium stiff (0.75P), brown to gray SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			2	2 2 3	0.66 B	36						10	0 1 2	0.25 B		26
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel; damp to moist --RDR 1-- --L _L (%)=44, P _L (%)=20-- --%Gravel=0.5-- --%Sand=5.3-- --%Silt=38.6-- --%Clay=55.5-- --A-7-6 (24)--	5		3	0 1 1	0.57 B	24						11	1 1 2	0.33 B		25
			10		4	2 1 2	0.82 B	19						12	1 2 3	0.25 B		20
					5	1 1 2	0.16 B	24						13	0 2 2	0.57 B		25
			15		6	1 1 2	0.33 B	23		545.3	Stiff to hard, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--			14	2 2 4	1.00 N/6		
					7	0 1 2	0.33 B	26						15	4 6 8	1.75 P		16
			20		8	1 1 2	0.33 B	25						16	10 15 23	6.48 S		13

GENERAL NOTES

Begin Drilling **06-26-2019** Complete Drilling **06-26-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10' mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **44.00 ft**
 At Completion of Drilling **10 ft Mud**
 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 BFB-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 579.59 ft
 North: 1896913.63 ft
 East: 1171664.99 ft
 Station: 6235+62.04
 Offset: 69.27' LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			85		25	25 50/5"	3.28 S	11									
	494.1	--slow auger advancement from 85.5 to 87.0 feet-- --WEATHERED BEDROCK--															
	492.6	Strong, light grayish gray, good quality, DOLOSTONE; Moderately spaced, fresh, horizontal and oblique joints, with 0-0.2 inch opening, slicken to slightly rough walls, and 0 - 0.2 inch thick clay infill. Run 1 : 87 to 97 feet --Recovery=100% --RQD=83% --Q _u =6,930 psi	90						C O R E								
			95														
	482.6	Boring terminated at 97.00 ft	100		26												

GENERAL NOTES

Begin Drilling **06-26-2019** Complete Drilling **06-26-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10' mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **44.00 ft**
 At Completion of Drilling ∇ **10 ft Mud**
 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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RUN #1
TOP



RUN #1
BOTTOM

Boring BFB-02
RUN #1, 87 to 97 FEET
RECOVERY = 100%
RQD = 88%

BEDROCK CORE: JANE BYRNE INTERCHANGE DETENTION TANK,
CHICAGO, ILLINOIS

SCALE : GRAPHIC | BFB-02 | DRAWN BY: E. GREENWOOD
CHECKED BY: M. KOTHAWALA

 **Wang**
Engineering | 1145 N. Main Street
Lombard, IL 60148
www.wangeng.com

FOR AECOM | 1100-04-01



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BORING LOG BFB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.67 ft
 North: 1896828.82 ft
 East: 1171708.99 ft
 Station: 6236+56.31
 Offset: 92.89' 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 (%)
	577.8	10-inch thick CONCRETE --PAVEMENT--															
	575.7	Medium dense, gray CRUSHED STONE --AGGREGATE BASE--			1	12 10 4	NP	5						9	1 1 1	0.16 B	26
		Soft to medium stiff, gray SILTY CLAY LOAM, trace gravel --RDR 1--			2	4 2 3	NA	24				25		10	0 1 2	0.16 B	27
					3	2 2 4	0.82 B	19						11	1 1 2	0.41 B	26
					4	1 2 3	0.49 B	15				30		12	1 2 2	0.49 B	25
	568.2	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel --RDR 1--			5	1 1 2	0.25 B	26						13	1 2 2	0.57 B	27
					6	1 1 1	0.16 B	26		544.2				14	2 2 3	0.57 B	23
					7	1 1 0	0.25 B	26						15	5 5 10	2.46 B	14
					8	0 0 0	0.16 B	23						16	15 21 20	8.28 B	14

GENERAL NOTES

Begin Drilling **06-24-2019** Complete Drilling **06-24-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10' mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **52.50 ft**
 At Completion of Drilling **9 ft Mud**
 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 BFB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.67 ft
 North: 1896828.82 ft
 East: 1171708.99 ft
 Station: 6236+56.31
 Offset: 92.89' 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 (%)
		--%Clay=12.1-- --A-4 (0)--															
	516.9	Hard, gray SILTY LOAM to SILTY CLAY LOAM, trace to little gravel; damp --RDR 3 to 4--															
		--<1-inch thick silt lenses; wet--	45		17	7 13 16	9.76 B	12				65		21	19 20 24	7.46 B	12
			50		18	9 12 17	6.89 B	12				70		22	29 50/5"	4.18 B	11
	526.9	Dense, gray SANDY GRAVEL, trace cobbles; wet --RDR 3--															
		--rig chatter; possible cobbles--	55		19	14 17 15	NP	8						23	26 35 29	7.71 B	10
	521.9	Medium dense, dark gray, fine SAND, few silt lenses; wet --RDR 2--															
			60		20	14 14 15	NP	22				80		24	33 50/5"	9.76 B	20
	501.9	Hard, gray SILTY CLAY, trace gravel; moist --RDR 3 to 4--															
	499.4	Gray, fine SAND; wet															
	498.7																

GENERAL NOTES

Begin Drilling **06-24-2019** Complete Drilling **06-24-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **52.50 ft**
 At Completion of Drilling **9 ft Mud**
 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 BFB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.67 ft
 North: 1896828.82 ft
 East: 1171708.99 ft
 Station: 6236+56.31
 Offset: 92.89' 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 (%)
	494.2	--RDR 4-- --hard drilling, from 80 feet-- Very dense, gray SILTY LOAM, fe cobbles and boulders, some dolostone fragments; wet --RDR 5--			25	50/6"	NP	9		477.7	Boring terminated at 101.00 ft						
		Strong, light brownish gray, good quality, DOLOSTONE; Closely spaced, fresh, horizontal and oblique joints, with 0.05 - > 0.2 inch opening, slightly rough to rough walls, and 0 - 0.2 inch thick clay infill. Run 1 : 86 to 96 feet --Recovery=100% --RQD=80% --Q _u =9,840 psi	85						C O R E			105					
		--Q _u =7,650 psi	90		26							110					
		Run 2 : 96 to 101 feet --Recovery=93% --RQD=82%	95						C O R E			115					
		--Q _u =7,960 psi	100		27							120					

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-24-2019** Complete Drilling **06-24-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **52.50 ft**
 At Completion of Drilling **9 ft Mud**
 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 11000401.GPJ WANGENG.GDT 7/22/19

RUN #1
TOP



0 3 6 9 12 inches

Boring BFB-03
RUN #1, 86 to 96 FEET
RECOVERY = 100%
RQD = 80%

BEDROCK CORE: JANE BYRNE INTERCHANGE DETENTION TANK,
CHICAGO, ILLINOIS

SCALE : GRAPHIC

BFB-03

DRAWN BY: E. GREENWOOD
CHECKED BY: M. KOTHAWALA



1145 N. Main Street
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FOR AECOM


1100-04-01

RUN #2
TOP



0 3 6 9 12 inches

Boring BFB-03
RUN #2, 96 to 101 FEET
RECOVERY = 93%
RQD = 82%

BEDROCK CORE: JANE BYRNE INTERCHANGE DETENTION TANK, CHICAGO, ILLINOIS		
SCALE : GRAPHIC	BFB-03	DRAWN BY: E. GREENWOOD CHECKED BY: M. KOTHAWALA
		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR AECOM		1100-04-01



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BORING LOG BFB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.34 ft
 North: 1896731.22 ft
 East: 1171690.68 ft
 Station: 6237+45.14
 Offset: 58.81' 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 (%)	
	576.5	9.5-inch thick CONCRETE --PAVEMENT--																
	574.3	Medium dense, gray SANDY GRAVEL; damp --BASE COURSE-- --RDR 2--			1	12 13 14	NP	4			--L _L (%)=34, P _L (%)=17-- --%Gravel=6.1-- --%Sand=14.1-- --%Silt=47.2-- --%Clay=32.6-- --A-6 (12)--			9	0 1 1	0.16 B	25	
	571.8	Medium stiff, gray CLAY LOAM to LOAM, trace gravel; damp --FILL-- --RDR 1-- --L _L (%)=25, P _L (%)=17-- --%Gravel=12.7-- --%Sand=28.1-- --%Silt=41.7-- --%Clay=17.5-- --A-4 (2)--			2	1 2 2	0.90 B	14						10	1 1 1	< 0.25 P		25
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel; damp to moist --RDR 1--			3	1 2 2	0.74 B	21						11	1 2 3	< 0.25 P		27
					4	1 1 2	0.49 B	24						12	1 1 3	0.49 B		26
					5	1 1 1	0.25 B	23						13	1 1 3	0.57 B		27
					6	1 1 1	0.25 B	23						14	1 1 3	0.41 B		22
					7	1 1 1	0.16 B	23		541.8	Very stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2--			15	5 7 8	3.28 B		15
					8	1 1 1	0.33 B	26		538.3	Gray, coarse SAND; saturated			16A	6 10	3.85 B		17
										537.8	Hard, gray SILTY CLAY LOAM to				11			40

GENERAL NOTES

Begin Drilling **06-28-2019** Complete Drilling **06-28-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10' mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **39.00 ft**
 At Completion of Drilling **9 ft Mud**
 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 BFB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.34 ft
 North: 1896731.22 ft
 East: 1171690.68 ft
 Station: 6237+45.14
 Offset: 58.81' 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 (%)
		SILTY LOAM, trace gravel; damp --RDR 2--															
	530.6	--L _L (%)=23, P _L (%)=15-- --%Gravel=11.8-- --%Sand=23.8-- --%Silt=46.6-- --%Clay=17.8--45 --A-4 (2)--			17	12 15 26	10.00 B	12									
		Very dense, gray SILT; saturated --RDR 2--															
			50		18	27 27 34	NP	21									
		Hard, gray CLAY; moist --RDR 2--															
	525.6				19	7 10 9	4.43 B	31									
		Hard, gray SILTY CLAY, trace gravel --RDR 2--															
			75		23	38 32 37	3.00 P	26									
		Very stiff to hard, gray CALY to SILTY CLAY, trace gravel and cobbles; damp --RDR 2--															
	505.6																
		Medium dense, gray GRAVELLY SAND; wet --RDR 2--															
	520.6	--L _L (%)=42, P _L (%)=20-- --%Gravel=1.0-- --%Sand=2.4-- --%Silt=42.4--			20	9 10 10	NP	13									
			80		24	13 15 19	5.66 B	22									

GENERAL NOTES

Begin Drilling **06-28-2019** Complete Drilling **06-28-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **39.00 ft**
 At Completion of Drilling **9 ft Mud**
 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 BFB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.34 ft
 North: 1896731.22 ft
 East: 1171690.68 ft
 Station: 6237+45.14
 Offset: 58.81' 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 (%)
	493.3	--%Clay=54.2-- --A-7-6 (23)--															
	491.8	--slow auger advancement from 84.0 to 85.5 feet-- --WEATHERED BEDROCK--	85		25	70/3	4.50 P	20									
		Strong, light grayish gray, excellent quality, DOLOSTONE; moderately spaced, fresh, horizontal and vertical joints, with 0-0.2 inch opening, rough walls, and <0.2 inch thick sand infill. Run 1 : 85.5 to 95.5 feet --Recovery=99% --RQD=95% --Q _u =8,670 psi							C O R E								
	481.8	Boring terminated at 95.50 ft	95		26												

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-28-2019** Complete Drilling **06-28-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **39.00 ft**
 At Completion of Drilling **9 ft Mud**
 Time After Drilling **NA**
 Depth to Water **NA**

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RUN #1
TOP



RUN #1
BOTTOM



Boring BFB-04
RUN #1, 85.5 to 95.5 FEET
RECOVERY = 99.2%
RQD = 95%

BEDROCK CORE: JANE BYRNE INTERCHANGE DETENTION TANK, CHICAGO, ILLINOIS		
SCALE : GRAPHIC	BFB-04	DRAWN BY: E. GREENWOOD CHECKED BY: M. KOTHAWALA
		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR AECOM		1100-04-01



BORING LOG DBT-VST-01

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.78 ft
 North: 1896835.88 ft
 East: 1171705.33 ft
 Station: 6236+46.23
 Offset: 93.46' 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 (%)
	578.0	10-inch thick CONCRETE --PAVEMENT--									--S _{u undis} = 775.7-- --S _{u remold} = 409.4-- --Sensitivity = 1.89--						
		Blind drill to 7.5 feet									--In-Situ Vane Shear, 22.0 feet-- --S _{u undis} = 969.6-- --S _{u remold} = 538.7-- --Sensitivity = 1.80--	6	VS				
			5								--In-Situ Vane Shear, 24.5 feet-- --S _{u undis} = 689.5-- --S _{u remold} = 387.8-- --Sensitivity = 1.78--	25	VS				
	571.3	--In-Situ Vane Shear, 7.5 feet-- --S _{u undis} = 1335.9-- --S _{u remold} = 817.8-- --Sensitivity = 1.63--									--In-Situ Vane Shear, 27.0 feet-- --S _{u undis} = 1012.7-- --S _{u remold} = 624.9-- --Sensitivity = 1.63--			8	VS		
			10		1	VS					--In-Situ Vane Shear, 29.5 feet-- --S _{u undis} = 1034.2-- --S _{u remold} = 646.4-- --Sensitivity = 1.60--	30	VS	9	VS		
		--In-Situ Vane Shear, 12.0 feet-- --S _{u undis} = 905.0-- --S _{u remold} = 603.3-- --Sensitivity = 1.50--			2	VS					--In-Situ Vane Shear, 32.0 feet-- --S _{u undis} = 1206.6-- --S _{u remold} = 646.4-- --Sensitivity = 1.87--			10	VS		
		--In-Situ Vane Shear, 14.5 feet-- --S _{u undis} = 797.2-- --S _{u remold} = 409.4-- --Sensitivity = 1.95--	15		3	VS					--maxed out vane shear before failure--	35		11	VS		
		--In-Situ Vane Shear, 17.0 feet-- --S _{u undis} = 883.4-- --S _{u remold} = 474.0-- --Sensitivity = 1.86--			4	VS						40					
		--In-Situ Vane Shear, 19.5 feet--	20		5												

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-25-2019** Complete Drilling **06-25-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **JAR**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

While Drilling **26.00 ft**
 At Completion of Drilling **DRY**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG DBT-VST-01

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.78 ft
 North: 1896835.88 ft
 East: 1171705.33 ft
 Station: 6236+46.23
 Offset: 93.46' 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 (%)
	532.8	Boring terminated at 46.00 ft	45														
			50														
			55														
			60														

GENERAL NOTES

Begin Drilling **06-25-2019** Complete Drilling **06-25-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **N&A** Logger **F. Bozga** Checked by **JAR**
 Drilling Method **3.25" HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **26.00 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.



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BORING LOG 02-RWB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.12 ft
 North: 1896571.20 ft
 East: 1171842.41 ft
 Station: 1815+41.45
 Offset: 1.2416 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 (%)
	577.0	13.25-inch thick CONCRETE --PAVEMENT--									--S _{u undis} = 725.2 psf-- --S _{u remold} = 621.6 psf-- --Sensitivity = 1.16--						
	576.6	4.25-inch thick ASPHALT --PAVEMENT--															
		Dense, brown CRUSHED STONE --BASE COURSE--			1	23 19 13	NP	8						9	0 1 1	0.16 B	26
	574.6	Medium stiff, gray SILTY CLAY LOAM, trace gravel			2	2 2 2	0.82 B	20			--In-Situ Vane Shear, 23.0 feet-- --S _{u undis} = 984.2 psf-- --S _{u remold} = 647.5 psf-- --Sensitivity = 1.52--			10	0 1 1	0.25 B	27
		--L _L (%)=30, P _L (%)=14-- --%Gravel=3.1-- --%Sand=26.3-- --%Silt=51.1-- --%Clay=19.5-- --A-6 (9)--			3	1 3 3	0.90 B	29			--In-Situ Vane Shear, 25.5 feet-- --S _{u undis} = 828.8 psf-- --S _{u remold} = 673.4 psf-- --Sensitivity = 1.23--			11	1 1 2	0.41 B	27
		--In-Situ Vane Shear, 8.0 feet-- --S _{u undis} = 1447.6 psf-- --S _{u remold} = 1034.0 psf-- --Sensitivity = 1.40--			4	1 2 3	0.74 B	22			--In-Situ Vane Shear, 28.0 feet-- --S _{u undis} = 751.1 psf-- --S _{u remold} = 647.5 psf-- --Sensitivity = 1.16--			12	1 2 1	0.25 B	27
	567.6	Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			2	0 1 2	0.33 B	25			--In-Situ Vane Shear, 30.5 feet-- --S _{u undis} = 1191.4 psf-- --S _{u remold} = 880.6 psf-- --Sensitivity = 1.35--			9			
		--In-Situ Vane Shear, 10.5 feet-- --S _{u undis} = 1344.2 psf-- --S _{u remold} = 930.6 psf-- --Sensitivity = 1.44--			5												
		--In-Situ Vane Shear, 13.0 feet-- --S _{u undis} = 1036.0 psf-- --S _{u remold} = 673.4 psf-- --Sensitivity = 1.53--			6	0 1 1	0.25 B	24						13	1 3 5	0.41 B	27
		--In-Situ Vane Shear, 15.5 feet-- --S _{u undis} = 958.3 psf-- --S _{u remold} = 647.5 psf-- --Sensitivity = 1.48--			7	0 1 2	0.33 B	26		541.4	Medium dense to dense, gray SILT, trace gravel						
		--In-Situ Vane Shear, 18.0 feet--			8	0 1 2	0.25 P	26						14	8 12 14	NA	

GENERAL NOTES

Begin Drilling **06-06-2013** Complete Drilling **06-09-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



BORING LOG 02-RWB-03

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.12 ft
 North: 1896571.20 ft
 East: 1171842.41 ft
 Station: 1815+41.45
 Offset: 1.2416 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 (%)
		--%Gravel=4.4-- --%Sand=10.2-- --%Silt=80.9-- --%Clay=4.5-- --A-4 (0)--	45	X	15	12 23 24	NP	19			--L _L (%)=37, P _L (%)=14-- --%Gravel=1.1-- --%Sand=11.1-- --%Silt=51.8-- --%Clay=36.1-- --A-6 (19)--	65	X	19	3 3 5	1.23 B	25
	531.4	Hard, gray SILTY CLAY LOAM, trace gravel	50	X	16	7 15 23	5.74 B	15			--Trace SAND and SILT lenses--	70	X	20	5 6 7	1.15 B	25
	524.1	Very dense, gray SILTY LOAM, trace gravel	55	X	17	11 36 29	NP	18		506.4	Medium dense, gray SILTY LOAM	75	X	21	4 5 6	NP	26
	521.4	Stiff to very stiff, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel	60	X	18	4 7 12	2.54 B	18		503.1	Boring terminated at 75.00 ft	75	X				

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-06-2013** Complete Drilling **06-09-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling ∇ **DRY**
 At Completion of Drilling ∇ **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



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BORING LOG 02-RWB-04

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 579.37 ft
 North: 1896646.03 ft
 East: 1171838.48 ft
 Station: 1816+16.38
 Offset: 1.5665 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 (%)
		13.5-inch thick CONCRETE --PAVEMENT--															
	578.3																
	577.94	94-inch thick ASPHALT --PAVEMENT--															
		Dense, brown CRUSHED STONE --FILL--			1	15 17 23	NP	7						9	0 0 2	0.16 B	27
	576.4				2	4 3 5	1.07 B	22						10	0 0 2	0.25 B	27
		Stiff, gray SILTY CLAY LOAM, trace gravel			3	1 1 3	0.33 B	21						11	0 2 2	0.33 B	26
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			4	2 2 2	0.57 B	22						12	0 0 2	0.41 B	26
					5	1 1 1	0.25 B	23						13	1 1 2	< 0.25 P	27
					6	0 2 1	0.25 B	25						14	3 4 8	1.31 B	19
					7	0 0 2	0.25 B	28		542.6	Stiff to very stiff, gray SILTY CLAY, trace gravel						
					8	0 0 1	0.25 B	24									

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-04-2013** Complete Drilling **06-04-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



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BORING LOG 02-RWB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 579.37 ft
 North: 1896646.03 ft
 East: 1171838.48 ft
 Station: 1816+16.38
 Offset: 1.5665 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 (%)
	517.6									517.6	Medium dense, gray SANDY LOAM						
			45	X	15	5 10 13	3.36 B	23				65	X	19	7 11 15	NP	23
	532.6	Hard, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel								512.6	Hard, gray SILTY LOAM, trace gravel						
			50	X	16	12 15 27	9.84 B	13		510.6	Boring terminated at 68.75 ft		X	20	50/3	4.50 P	14
	527.6	Very stiff, gray SILTY CLAY, trace gravel															
		--L _L (%)=31, P _L (%)=15-- --%Gravel=1.0-- --%Sand=7.8-- --%Silt=58.9-- --%Clay=32.3-- --A-6 (13)--	55	X	17	12 18 21	3.94 B	22				75					
	522.6	Hard, gray SILTY LOAM, trace gravel															
			60	X	18	12 24 27	6.72 B	13				80					

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-04-2013** Complete Drilling **06-04-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



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BORING LOG 02-RWB-05

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.79 ft
 North: 1896721.51 ft
 East: 1171834.02 ft
 Station: 1816+91.99
 Offset: 2.3899 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 (%)
	579.7	13.5-inch thick CONCRETE --PAVEMENT--									--In-Situ Vane Shear, 20.5 feet-- --S _{u undis} = 802.9 psf-- --S _{u remold} = 595.7 psf-- --Sensitivity = 1.34--			5			
	579.34	3.4-inch thick ASPHALT --PAVEMENT--												9	0 2 1	0.25 B	26
	577.8	Medium dense, brown CRUSHED STONE --FILL--			1	20 15 9	NP	2			--In-Situ Vane Shear, 23.0 feet-- --S _{u undis} = 1061.9 psf-- --S _{u remold} = 699.3 psf-- --Sensitivity = 1.51--			6			
		Very stiff, gray SILTY CLAY LOAM, trace gravel			2	3 4 4	2.38 B	17						10	1 2 2	0.16 B	25
	575.3	Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			3	3 2 2	0.49 B	17			--In-Situ Vane Shear, 25.5 feet-- --S _{u undis} = 854.7 psf-- --S _{u remold} = 595.7 psf-- --Sensitivity = 1.43--			7	1 2 2	0.33 B	25
		--L _L (%)=34, P _L (%)=15-- --%Gravel=4.2-- --%Sand=17.7-- --%Silt=47.9-- --%Clay=30.2-- --A-6 (13)--			4	1 2 3	0.41 B	16			--In-Situ Vane Shear, 28.0 feet-- --S _{u undis} = 984.2 psf-- --S _{u remold} = 725.2 psf-- --Sensitivity = 1.35--			8	1 2 1	0.16 B	26
		--In-Situ Vane Shear, 10.5 feet-- --S _{u undis} = 1217.3 psf-- --S _{u remold} = 932.4 psf-- --Sensitivity = 1.30--			5	1 2 2	0.41 B	22			--In-Situ Vane Shear, 30.5 feet-- --S _{u undis} = 958.3 psf-- --S _{u remold} = 751.1 psf-- --Sensitivity = 1.27--			9			
		--In-Situ Vane Shear, 13.0 feet-- --S _{u undis} = 1036.0 psf-- --S _{u remold} = 828.8 psf-- --Sensitivity = 1.25--			2	2 2 3	0.33 B	25						13	2 2 2	0.49 B	26
		--In-Situ Vane Shear, 15.5 feet-- --S _{u undis} = 1061.9 psf-- --S _{u remold} = 700.0 psf-- --Sensitivity = 1.46--			3	1 1 2	0.33 B	25			--In-Situ Vane Shear, 35.5 feet-- --S _{u undis} = 1269.1 psf-- --S _{u remold} = 984.2 psf-- --Sensitivity = 1.28--			10			
		--In-Situ Vane Shear, 18.0 feet-- --S _{u undis} = 751.1 psf-- --S _{u remold} = 543.9 psf-- --Sensitivity = 1.38--			4	0 1 2	0.16 B	25						14	1 2 10	<0.25 P	35

GENERAL NOTES

Begin Drilling **06-09-2013** Complete Drilling **06-11-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&T** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 7.5', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **mud in the borehole**
 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 02-RWB-05

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.79 ft
 North: 1896721.51 ft
 East: 1171834.02 ft
 Station: 1816+91.99
 Offset: 2.3899 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 (%)	
	539.0	Very stiff to hard, gray SILTY LOAM, trace gravel								519.0	Medium dense, gray fine SANDY LOAM, trace silt lenses							
			45	X	15	9 10 11	4.51 S	13			--%Gravel=0.1-- --%Sand=75.9-- --%Silt=23.0-- --%Clay=1.0-- --A-2-4 (0)--	65	X	19	10 11 10	NP	20	
		--L _L (%)=26, P _L (%)=13-- --%Gravel=5.0-- --%Sand=26.3-- --%Silt=55.4-- --%Clay=13.3-- --A-6 (6)--	50	X	16	13 14 23	6.31 S	12		514.0	Hard, gray SILTY LOAM, trace gravel	70	X	20	14 18 29	8.45 S		13
		--Dense, gray SILT--	55	X	17	17 21 27	NP	21				75	X	21	50/5	4.50 P		9
			60	X	18	11 14 16	2.79 S	12		504.0	Hard, gray CLAY	80	X	22	13 18 12	5.00 S		22

GENERAL NOTES

Begin Drilling **06-09-2013** Complete Drilling **06-11-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&T** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 7.5', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **mud in the borehole**
 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 02-RWB-05

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.79 ft
 North: 1896721.51 ft
 East: 1171834.02 ft
 Station: 1816+91.99
 Offset: 2.3899 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 (%)
	499.0	Hard, gray SILTY LOAM, trace gravel															
			85	X	23	50/5	4.50 P	16									
		--HARD DRILLING (at 88')-- --Possible Cobbles--															
	492.8	Boring terminated at 88.00 ft															
			90														
			95														
			100														

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-09-2013** Complete Drilling **06-11-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&T** Logger **D. Kolpacki** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 7.5', mud rotary thereafter, boring**
 **backfilled upon completion**

While Drilling ▽ **DRY**
 At Completion of Drilling ▽ **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water ▽ **NA**

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BORING LOG 02-RWB-06

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 581.64 ft
 North: 1896796.97 ft
 East: 1171829.83 ft
 Station: 1817+67.50
 Offset: 3.6732 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 (%)
		13.75-inch thick CONCRETE --PAVEMENT--															
	580.4																
	580.1	14-inch thick ASPHALT --PAVEMENT--															
	579.6																
		6-inch thick CRUSHED STONE --BASE COURSE--			1	11 20 27	NP	5						9	1 1 2	0.41 B	26
	578.4	Very stiff (2.75P), gray and brown CLAY LOAM, trace gravel --FILL--			2	1 4 5	1.80 B	18						10	1 2 3	< 0.25 P	27
		Medium stiff to stiff, gray and brown SILTY CLAY LOAM, trace gavel			5									25			
		--L _L (%)=26, P _L (%)=13-- --%Gravel=4.2-- --%Sand=22.5-- --%Silt=49.7-- --%Clay=23.6-- --A-6 (7)--			3	3 3 4	1.23 B	17						11	1 1 2	0.25 B	25
					4	2 2 3	0.90 B	23						12	0 1 2	0.16 B	26
					5	2 2 3	1.07 B	25									
	568.6	Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			6	1 2 2	0.41 B	24						13	0 2 2	0.33 B	25
					7	1 1 2	0.33 B	25									
					8	1 1 2	0.41 B	26						14	1 2 3	0.41 B	28

GENERAL NOTES

Begin Drilling **06-16-2013** Complete Drilling **06-17-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 02-RWB-06

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 581.64 ft
 North: 1896796.97 ft
 East: 1171829.83 ft
 Station: 1817+67.50
 Offset: 3.6732 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 (%)
	539.9	Stiff to very stiff, gray SILTY CLAY LOAM, trace gravel								519.9	Medium dense, gray GRAVELLY SANDY LOAM						
			45	X	15	13 13 13	1.23 B	16			--%Gravel=35.8-- --%Sand=43.9-- --%Silt=17.7-- --%Clay=2.6-- --A-1-b (0)--	65	X	19	14 15 14	NP	13
			50	X	16	14 16 20	3.12 B	15		512.6	Hard (4.5P), gray SILTY CLAY LOAM	70	X	20	12 13 20	NP	11
	527.1	Gray SANDY GRAVEL	55	X	17	17 21 48	3.44 B	11		508.0 507.5	Gray SANDY GRAVEL Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel	75	X	21	17 50/5	4.10 B	10
	524.9	Gray SILT															
	522.6	Hard, gray SILTY CLAY, trace gravel	60	X	18	20 26 23	6.15 B	20				80	X	22	21 20 28	6.56 B	20

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-16-2013** Complete Drilling **06-17-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 10-PZ-01

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.93 ft
 North: 1897019.14 ft
 East: 1171462.69 ft
 Station: 7315+23.85
 Offset: 4.45 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 (%)
		--Drilled without sampling--	5									25					
			10									30					
			15									35					
			20									40					

Piezometer Data:
 --Installed in Dec. 11, 2014
 --Bentonite Seal 66 to 71 feet
 --Top of Sand Pack at 71 feet
 --Top of Screen at 73 feet
 --Screen Length 20 feet
 --Bottom of Screen at 93 feet

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **12-10-2014** Complete Drilling **12-11-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&P** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **4.25" HSA, monitoring water well; pizometer**
 **installed on 12/11/2014**

While Drilling ▽ **68.00 ft**
 At Completion of Drilling ▼ **74.00 ft**
 Time After Drilling **24 hours**
 Depth to Water ▼ **45.04 ft**

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



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BORING LOG 10-PZ-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.93 ft
 North: 1897019.14 ft
 East: 1171462.69 ft
 Station: 7315+23.85
 Offset: 4.45 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 (%)
	506.2		85	3	3	50/6	NP	16									
		Very dense, gray SILTY LOAM, trace gravel		4	4	50/3	4.50 P	9									
		--Moist--	90														
		--Wet--		5	5	50/5	NP	11									
	497.9	--HARD DRILLING--	95														
		Boring terminated at 95.00 ft															

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **12-10-2014** Complete Drilling **12-11-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&P** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **4.25" HSA, monitoring water well; pizometer**
installed on 12/11/2014

While Drilling ∇ **68.00 ft**
 At Completion of Drilling ∇ **74.00 ft**
 Time After Drilling **24 hours**
 Depth to Water ∇ **45.04 ft**

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



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BORING LOG 10-RWB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 593.40 ft
 North: 1896930.29 ft
 East: 1171484.09 ft
 Station: 7315+75.12
 Offset: 1.47 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 (%)
	592.9	6-inch thick ASPHALT --PAVEMENT--									gravel						
		Dense, brown GRAVELLY LOAM --BASE COURSE--		X	1	29 29 20	NP	16					X	9	0 0 1	0.08 B	36
	590.4	Very loose to medium dense, brown, coarse SAND --Dry to saturated-- --FILL--		X	2	6 9 7	NP	4					X	10	1 1 2	0.25 P	17
			5														
				X	3	3 3 4	NP	16						11	0 0 2	0.33 N/6	
				X	4	4 8 6	NP	6						12	1 1 1	0.16 B	27
			10														
				X	5	3 2 3	NP	7									
				X	6	2 2 1	NP	15						13	0 0 2	< 0.25 P	26
			15														
	577.9	Medium dense, gray GRAVELLY SAND --Wet--		X	7	3 7 9	NP	8									
				X	8	10 3 2	0.33 B	22						14	1 2 3	< 0.25 P	27
	574.4	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace		X													
			20														

GENERAL NOTES

Begin Drilling **03-10-2014** Complete Drilling **03-13-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 15', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **13.00 ft**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **72 hours**
 Depth to Water **35.00 ft**

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

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BORING LOG 10-RWB-04

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 593.40 ft
 North: 1896930.29 ft
 East: 1171484.09 ft
 Station: 7315+75.12
 Offset: 1.47 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 (%)
	511.7	--HARD DRILLING-- --Possible Cobbles--								492.4							
		Very dense, gray GRAVELLY SAND									Strong, light gray, fair rock mass quality, bedded fresh DOLOSTONE, up to 19-inch beds, 11-inch joint spacing, horizontal and vertical joints with none to more than 0.2-inch greenish gray infilling, hard joint wall, with stylolitic surfaces, and moderately vuggy porosity.						
		--Wet--	85	X	23	45 50/5	NP	10			--Run 1 - RECOVERY=96%-- --RQD=71%--	105		1			
		-HARD DRILLING up to 89.5 ft-- --Possible Cobbles--															
	503.9				24	50/2	NP										
		Hard, gray SILTY LOAM, trace to little gravel	90							482.4	Boring terminated at 111.00 ft						
		--Dry--															
			95	X	25	70/5	4.50 P	9									
		--HARD DRILLING at 97 ft-- --Possible Cobbles--															
	496.4																
		--WEATHERED BEDROCK--															
		--HARD DRILLING--															
			100		26	75/3	NP										

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **03-10-2014** Complete Drilling **03-13-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 15', mud rotary thereafter, boring backfilled upon completion**

While Drilling **13.00 ft**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **72 hours**
 Depth to Water **35.00 ft**

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

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BORING LOG 10-RWB-05

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.22 ft
 North: 1896756.05 ft
 East: 1171508.19 ft
 Station: 6236+85.54
 Offset: 115.5731 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 (%)
	579.94	4-inch thick ASPHALT --PAVEMENT--															
	578.7	14-inch thick CONCRETE --PAVEMENT--															
	576.2	Very dense, grayish white SANDY GRAVEL --FILL--			1	12 28 33	NP	5						9	0 0 0	0.33 B	27
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	5		2	4 2 2	0.74 B	24				25		10	0 1 1	0.25 B	27
					3	1 2 2	0.60 P	20						11	0 1 2	< 0.25 P	26
			10		4	0 1 2	0.41 B	23				30		12	0 0 2	0.41 B	27
					5	0 0 0	0.25 B	26									
			15		6	0 0 0	0.25 B	26				35		13	1 2 2	< 0.25 P	32
					7	0 0 2	< 0.25 P	29		543.5	Medium dense, SILTY LOAM, trace gravel						
					8	0 0 1	< 0.25 P	31				40		14	5 7 14	NP	24

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **07-31-2014** Complete Drilling **07-31-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 15', mud rotary thereafter, boring**
backfilled upon completion

While Drilling ∇ **59.50 ft**
 At Completion of Drilling ∇ **mud in the borehole**
 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 10-RWB-05

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.22 ft
 North: 1896756.05 ft
 East: 1171508.19 ft
 Station: 6236+85.54
 Offset: 115.5731 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 (%)	
	538.5	Hard, gray SILTY CLAY, trace gravel	45	X	15	6 13 29	7.13 B	18	[Pattern]	515.7 515.2	Dense, gray SILTY LOAM, trace gravel	65	X	19	19 25 18	NP	12	
	533.5	Very dense, gray SILTY LOAM, trace gravel	50	X	16	11 27 39	NP	11				70						
	525.7	Medium dense to dense, gray, fine SAND, trace gravel	55	X	17	12 18 24	NP	15				75						
			60	X	18	10 11 14	NP	23				80						

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **07-31-2014** Complete Drilling **07-31-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 15', mud rotary thereafter, boring backfilled upon completion**

While Drilling ∇ **59.50 ft**
 At Completion of Drilling ∇ **mud in the borehole**
 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 10-RWB-06

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.32 ft
 North: 1896599.90 ft
 East: 1171526.13 ft
 Station: 7319+07.86
 Offset: 10.6588 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 (%)
		24-inch thick, CONCRETE --PAVEMENT--															
	576.3	Dense, white CRUSHED STONE --BASE COURSE--			1	28 27 12	NP	4						9	0 0 1	0.25 B	25
	574.9	Stiff, brown and gray SILTY CLAY LOAM, trace gravel --FILL--			2	2 3 4	1.23 B	23						10	0 0 1	0.25 B	22
	572.8	Soft, gray SILTY CLAY LOAM, trace gravel			3	0 1 2	0.41 B	18						11	0 0 2	0.41 B	23
	570.3	Very soft to soft, gray CLAY			4	1 1 2	0.25 B	25						12	0 1 3	0.57 B	25
					5	0 0 2	0.25 B	26		549.3	Medium stiff, gray SILTY CLAY			13	3 6 6	3.00 P	14
					6	0 0 0	NR			546.3	Very stiff to hard, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel			14	9 14 13	4.92 S	14
					7	0 0 0	0.16 B	24									
					8	0 0 2	0.16 B	24									

GENERAL NOTES

Begin Drilling **07-15-2014** Complete Drilling **07-15-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **A&K** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 14-RWB-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.26 ft
 North: 1897133.58 ft
 East: 1171489.78 ft
 Station: 6233+15.05
 Offset: 62.0541 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 (%)
	581.94	14-inch thick, ASPHALT --PAVEMENT--															
	580.8	14-inch thick, CONCRETE --PAVEMENT--															
		Dense, grayish white CRUSHED STONE --FILL--			1	37 30 18	NP	5						9	0 0 1	0.08 B	27
	578.3	Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			2	1 2 3	0.41 B	24				25		10	0 0 1	0.57 B	25
					3	0 1 1	0.41 B	25						11	0 1 2	0.57 B	24
					4	0 0 1	0.25 B	27						12	0 0 2	0.41 B	25
					5	0 0 0	0.16 B	26									
					6	0 0 2	0.49 B	24						13	0 1 2	0.66 B	26
					7	0 0 0	0.41 B	26									
					8	0 0 0	0.25 B	20						14	0 0 1	0.25 B	37

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **07-30-2014** Complete Drilling **07-30-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling ∇ **52.00 ft**
 At Completion of Drilling ∇ **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 14-RWB-03

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.96 ft
 North: 1896992.53 ft
 East: 1171501.15 ft
 Station: 6234+52.32
 Offset: 75.7462 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 (%)
		16-inch thick CONCRETE --PAVEMENT--															
	581.6																
	581.34	3/4-inch thick ASPHALT --PAVEMENT--															
		Dense, grayish white SANDY GRAVEL --FILL--		X	1	22 22 13	NP	3					X	9	0 0 0	0.16 B	27
	579.0			X	2	4 3 5	1.64 B	23					X	10	0 0 0	0.25 B	26
		Stiff, gray SILTY CLAY, trace gravel		X	3	2 2 3	1.07 B	24					X	11	0 1 1	0.33 B	24
	575.0			X	4	1 2 2	0.41 B	32					X	12	1 1 2	< 0.25 P	26
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel		X	5	0 0 0	0.16 B	39					X	13	1 2 2	0.82 B	24
				X	6	0 0 1	0.41 B	26					X	14	1 1 2	0.57 B	27
				X	7	0 0 0	0.25 B	25					X	14	1 1 2	0.57 B	27
				X	8	0 0 0	0.25 B	25					X	14	1 1 2	0.57 B	27

GENERAL NOTES

Begin Drilling **07-20-2014** Complete Drilling **07-20-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **57.00 ft**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 14-RWB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.96 ft
 North: 1896992.53 ft
 East: 1171501.15 ft
 Station: 6234+52.32
 Offset: 75.7462 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 (%)
	541.2	Dense to very dense, gray CLAY LOAM to SILTY LOAM, trace gravel															
		--Dry--	45		15	8 12 20	5.74 B	13		518.0		65		19	16 20 22	NP	22
											Boring terminated at 65.00 ft						
		--L _L (%)=26, P _L (%)=15-- --%Gravel=5.1-- --%Sand=25.2-- --%Silt=47.0-- --%Clay=22.7-- --A-6 (5)--	50		16	13 20 20	NP	12				70					
	528.5	--5-inch, brown, coarse SAND--	55		17	9 18 47	NP	12				75					
	526.2	Dense to very dense, brown, fine SAND															
		--Moist--	60		18	15 21 37	NP	22				80					

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **07-20-2014** Complete Drilling **07-20-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **57.00 ft**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 15-RWB-02

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 592.37 ft
 North: 1897034.79 ft
 East: 1171464.06 ft
 Station: 7314+69.17
 Offset: 7.23 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 (%)
	591.4	12-inch thick, brown SANDY LOAM															
		--FILL--															
		Very stiff, gray SILTY CLAY LOAM, trace gravel and roots			1	3 6 7	2.05 S	17						9	0 0 2	0.41 B	24
	589.4	Medium dense, SILTY LOAM to SILTY CLAY LOAM, trace gravel, sand and brick			2	6 5 5	NP	17				25		10	0 0 0	0.74 B	30
		--FILL--															
	586.9	Very loose to loose, brown, fine SAND			3	3 4 4	NP	18						11	1 1 1	0.74 B	22
		--Wet--															
	582.9	Stiff, brown and gray SILTY CLAY, trace gravel	10		4	2 3 2	NP	17				30		12	0 2 2	0.57 B	23
					5	2 2 3	1.00 P	29									
					6	0 2 2	1.23 B	24				35		13	0 0 1	0.41 B	25
	576.9	Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			7	0 2 2	0.82 B	24									
					8	0 1 2	0.57 B	24				40		14	0 1 2	0.41 B	25

GENERAL NOTES

Begin Drilling **04-03-2014** Complete Drilling **04-03-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **M. de los Reyes** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 11', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **5.50 ft**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 15-RWB-03

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 580.75 ft
 North: 1896801.76 ft
 East: 1171517.06 ft
 Station: 6236+42.48
 Offset: 97.8444 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 (%)
	534.0	Very dense, gray SILTY LOAM, trace gravel --Dry--	45	X	6	8 14 25	7.46 B	17		515.7	Boring terminated at 65.00 ft	65	X	10	9 11 11	NP	23
	529.0	Medium dense to dense, brown fine SAND --Moist--	50	X	7	13 28 38	NP	12				70					
			55	X	8	13 14 18	NP	21				75					
			60	X	9	9 13 14	NP	23				80					

GENERAL NOTES

Begin Drilling **08-08-2014** Complete Drilling **08-08-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25 SSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **52.00 ft**
 At Completion of Drilling ∇ **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water ∇ **NA**

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BORING LOG 16-RWB-01A

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 578.13 ft
 North: 1896646.77 ft
 East: 1171609.88 ft
 Station: 6238+13.84
 Offset: 35.6064 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 (%)
	577.1	12-inch thick, CONCRETE --PAVEMENT--															
		Dense to very dense, white and brown fine and medium SAND, trace to little gravel --FILL--			1	10 18 20	NP	3									
					2	20 22 23	NP	4									
					3	15 22 42	NP	8									
					4	50/3	NP	4									
	568.6	--Steel plate--															
		Boring terminated at 10.00 ft	10														
			15														
			20														

GENERAL NOTES

Begin Drilling **07-29-2014** Complete Drilling **07-29-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

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

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



BORING LOG 16-RWB-01B

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 577.89 ft
 North: 1896657.18 ft
 East: 1171559.32 ft
 Station: 6237+94.68
 Offset: 83.6541 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 (%)
	576.9	12-inch thick, ASPHALT --PAVEMENT--															
	574.9	Medium dense, gray CRUSHED STONE --BASE COURSE--			1	5 5 5	NP	5						9	0 1 2	< 0.25 P	35
	569.9	Very stiff, grayish SILTY CLAY LOAM, trace gravel			2	2 4 4	2.62 B	17						10	0 1 1	< 0.25 P	32
					3	1 2 3	3.00 P	14						11	1 2 3	< 0.25 P	29
		Very soft to soft, gray CLAY to SILTY CLAY, trace to little gravel			4	0 1 2	0.25 B	24						12	4 4 4	< 0.25 P	27
					5	0 0 2	0.16 B	20									
					6	0 1 1	0.08 B	26						13	0 1 3	0.25 B	27
					7	1 1 2	0.08 B	27		541.1	Very stiff to hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel						
					8	0 1 2	< 0.25 P	30			--Dry--			14	9 14 16	4.92 S	16

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **08-06-2014** Complete Drilling **08-06-2014**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **S. Woods** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water **NA**

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BORING LOG 1705-B-01

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WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.91 ft
 North: 1896943.83 ft
 East: 1171839.55 ft
 Station: 1819+14.23
 Offset: 7.9591 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 (%)
	581.3	17-inch thick CONCRETE --PAVEMENT--															
	579.7	Dense, gray CRUSHED STONE --FILL--			1	23 18 14	NP	4			--In-Situ Vane Shear, 20.5 feet-- --S _{u undis} = 854.7 psf-- --S _{u remold} = 207.2 psf-- --Sensitivity = 4.13--			6 9	VS 1 1 1		
	577.4	Stiff, gray SILTY CLAY, trace gravel			2	2 2 3	1.64 B	33			--In-Situ Vane Shear, 23.0 feet-- --S _{u undis} = 492.1 psf-- --S _{u remold} = 181.3 psf-- --Sensitivity = 2.71--			7 10	VS 1 1 2		
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			3	1 2 3	0.57 B	21			--In-Situ Vane Shear, 25.5 feet-- --S _{u undis} = 440.3 psf-- --S _{u remold} = 284.9 psf-- --Sensitivity = 1.54--			8 11	VS 0 0 2		
		--In-Situ Vane Shear, 8.0 feet-- --S _{u undis} = 1034.0 psf-- --S _{u remold} = 336.05 psf-- --Sensitivity = 3.07--			1	VS					--In-Situ Vane Shear, 28.0 feet-- --S _{u undis} = 880.6 psf-- --S _{u remold} = 103.6 psf-- --Sensitivity = 8.5--			9 12	VS 0 1 2		
		--In-Situ Vane Shear, 10.5 feet-- --S _{u undis} = 1189.1 psf-- --S _{u remold} = 620.4 psf-- --Sensitivity = 1.92--			2	VS					--In-Situ Vane Shear, 31.5 feet-- --S _{u undis} = 259 psf-- --S _{u remold} = 25.9 psf-- --Sensitivity = 10.0--			10 13	VS		
		--In-Situ Vane Shear, 13.0 feet-- --S _{u undis} = 1706.1 psf-- --S _{u remold} = 620.4 psf-- --Sensitivity = 2.75--			3	VS								11 14	VS		
		--In-Situ Vane Shear, 15.5 feet-- --S _{u undis} = 620.4 psf-- --S _{u remold} = 361.9 psf-- --Sensitivity = 1.71--			4	VS								12 15	VS		
		6-inch, gray SILTY LOAM, little gravel			7	1 2 2	0.25 B	28						13 16	VS		
		--In-Situ Vane Shear, 18.0 feet-- --S _{u undis} = 543.9 psf-- --S _{u remold} = 336.7 psf-- --Sensitivity = 1.63--			5	VS								14 17	VS		
					8	0 2 3	0.33 B	25						15 18	VS		
														16 19	VS		

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-18-2013** Complete Drilling **06-20-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



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BORING LOG 1705-B-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.91 ft
 North: 1896943.83 ft
 East: 1171839.55 ft
 Station: 1819+14.23
 Offset: 7.9591 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 (%)
		--In-Situ Vane Shear, 41.5 feet-- -- $S_{u\text{undis}}$ = 2171.4 psf-- -- $S_{u\text{remold}}$ = 1447.6 psf-- --Sensitivity = 1.5--			12	VS											
	540.2	Hard, gray SILTY CLAY LOAM, trace to little gravel	45		15	6 14 27	6.56 B	17				65		19	12 18 18	NP	11
			50		16	18 19 40	4.00 P	15		513.9	Hard, gray SILTY CLAY LOAM, trace gravel	70		20	9 23 30	NP	12
	528.9	Dense, gray SANDY LOAM, little gravel --MOIST--	55		17	24 17 28	NP	12				75		21	18 32 28	10.25 B	14
	526.2	Dense to very dense, gray SANDY GRAVEL	60		18	10 34 47	NP	23				80		22	28 36 37	2.48 B	16

GENERAL NOTES

Begin Drilling **06-18-2013** Complete Drilling **06-20-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **Rotary wash**
 At Completion of Drilling ∇ **mud in the borehole**
 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 1705-B-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 582.91 ft
 North: 1896943.83 ft
 East: 1171839.55 ft
 Station: 1819+14.23
 Offset: 7.9591 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 (%)
		--HARD DRILLING-- --Possible Cobbles--															
	494.9	Very dense, brown GRAVEL			23	50/5.5	4.50 P	11									
	492.9	--AUGER REFUSAL--			24	50/2	NP										
		Boring terminated at 90.00 ft															

GENERAL NOTES

Begin Drilling **06-18-2013** Complete Drilling **06-20-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 Time After Drilling **NA**
 Depth to Water **NA**

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



BORING LOG 1705-B-02

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 583.14 ft
 North: 1897114.28 ft
 East: 1171830.86 ft
 Station: 1820+84.67
 Offset: 1.9068 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 (%)
	582.0	13-inch thick CONCRETE --PAVEMENT--															
	580.1	Medium dense, gray CRUSHED STONE --FILL--			1	14 11 6	NP	4						9	0 1 2	< 0.25 P	22
	577.6	Very stiff, gray SILTY CLAY, trace gravel			2	2 4 5	2.62 B	27						10	0 0 0	0.41 B	26
	572.6	Medium stiff, gray CLAY to SILTY CLAY, trace gravel			3	1 3 5	0.98 B	25						11	0 0 0	0.33 B	27
	570.1	Soft, gray SILTY LOAM, trace gravel			4	1 2 2	0.66 B	21						12	0 0 2	0.41 B	25
	570.1	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			5	1 1 2	0.49 B	21						13	1 3 3	0.90 B	26
					6	0 0 1	0.41 B	26						14	1 2 1	0.41 B	29
					7	0 0 1	0.33 B	20									
					8	0 0 0	0.41 B	27									

--L_L(%)=38, P_L(%)=16--
 --%Gravel=1.9--
 --%Sand=10.7--
 --%Silt=49.3--
 --%Clay=38.0--
 --A-6 (19)--

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-20-2013** Complete Drilling **06-21-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



BORING LOG 1705-B-02

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 583.14 ft
 North: 1897114.28 ft
 East: 1171830.86 ft
 Station: 1820+84.67
 Offset: 1.9068 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 (%)
	541.4	Hard, gray SILTY CLAY LOAM, trace gravel	45	X	15	10 14 20	5.74 B	15									
			50	X	16	10 15 21	4.10 B	21		516.4	Dense, gray GRAVEL	70	X	20	16 26 31		
			55	X	17	12 18 27	10.09 B	15				75	X	21	5 20 34		
			60	X	18	11 14 18	NP	14		506.4	Dense, gray, medium to coarse SAND, trace gravel	80	X	22	16 15 18		
	524.1	Dense, gray GRAVELLY SANDY LOAM															

--%Gravel=28.5--
 --%Sand=49.5--
 --%Silt=19.2--
 --%Clay=2.9--
 --A-1-b (0)--

GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-20-2013** Complete Drilling **06-21-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring**
backfilled upon completion

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



BORING LOG 1705-B-02

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WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 583.14 ft
 North: 1897114.28 ft
 East: 1171830.86 ft
 Station: 1820+84.67
 Offset: 1.9068 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 (%)
	501.4	--%Clay=2.2-- --A-1-b (0)-- Very dense, gray GRAVEL															
	497.1	Strong, excellent rock quality, light gray, fresh, joint breaks with little to no infill, slightly vuggy DOLOSTONE --Run 1 - RECOVERY =100%-- --RQD=95%--			23	50/5	NP	21									
	487.1	Boring terminated at 96.00 ft			1												

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GENERAL NOTES

WATER LEVEL DATA

Begin Drilling **06-20-2013** Complete Drilling **06-21-2013**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **P&N** Logger **A. Happel** Checked by **C. Marin**
 Drilling Method **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 VST-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 593.55 ft
 North: 1897108.36 ft
 East: 1171435.63 ft
 Station: 7313+90.47
 Offset: 2.00 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 (%)
		Very stiff, brown SILTY CLAY LOAM, trace gravel --FILL--			1	3 5 7	2.75 P	14			--S _{u undis} = 786.3 psf-- --S _{u remold} = 371.3 psf-- --Sensitivity = 2.1--						
	590.5	Medium dense, fine SAND	5		2	5 5 6	NP	7			--In-Situ Vane Shear, 22.0 feet-- --S _{u undis} = 742.6 psf-- --S _{u remold} = 305.8 psf-- --Sensitivity = 2.4--			2			
	586.8	Medium stiff to stiff, gray SILTY CLAY	10		3	2 2 3	1.31 B	26			--In-Situ Vane Shear, 24.5 feet-- --S _{u undis} = 578.8 psf-- --S _{u remold} = 382.2 psf-- --Sensitivity = 1.5--			3			
			15		4	2 2 3	0.98 B	28			--In-Situ Vane Shear, 27.0 feet-- --S _{u undis} = 742.6 psf-- --S _{u remold} = 415.0 psf-- --Sensitivity = 1.8--			4			
	578.0	Soft, gray SILTY CLAY			5	1 2 2	0.25 P	29			--In-Situ Vane Shear, 29.5 feet-- --S _{u undis} = 589.7 psf-- --S _{u remold} = 283.9 psf-- --Sensitivity = 2.1--			5			
	575.3										--In-Situ Vane Shear, 32.0 feet-- --S _{u undis} = 1026.6 psf-- --S _{u remold} = 447.8 psf-- --Sensitivity = 2.3--			6			
											--In-Situ Vane Shear, 34.5 feet-- --S _{u undis} = 764.5 psf-- --S _{u remold} = 480.5 psf-- --Sensitivity = 1.6--			7			
											--In-Situ Vane Shear, 37.0 feet-- --S _{u undis} = 1026.6 psf-- --S _{u remold} = 589.7 psf-- --Sensitivity = 1.7--			8			
		--In-Situ Vane Shear, 19.5 feet--	20		1												

GENERAL NOTES

Begin Drilling **12-01-2015** Complete Drilling **12-01-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&N** Logger **F. Bozga** Checked by **A. Kurnia**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring**
backfilled upon completion

WATER LEVEL DATA

While Drilling **Rotary wash**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 7/2/19



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BORING LOG VST-01

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 593.55 ft
 North: 1897108.36 ft
 East: 1171435.63 ft
 Station: 7313+90.47
 Offset: 2.00 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 (%)
	544.0																
		--Equipment Slipped--	45		9	VS											
		--In-Situ Vane Shear, 46.5 feet-- -- $S_{u\text{ undis}} = 1070.2$ psf-- -- $S_{u\text{ remold}} = 633.4$ psf-- --Sensitivity = 1.7--			10	VS											
		--In-Situ Vane Shear, 49.0 feet-- -- $S_{u\text{ undis}} = 1157.6$ psf-- -- $S_{u\text{ remold}} = 611.6$ psf-- --Sensitivity = 2.3-- Boring terminated at 49.50 ft	50		11	VS											
			55														
			60														

GENERAL NOTES

Begin Drilling **12-01-2015** Complete Drilling **12-01-2015**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&N** Logger **F. Bozga** Checked by **A. Kurnia**
 Drilling Method **2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **Rotary wash**
 At Completion of Drilling ∇ **mud in the borehole**
 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 LTB-08

WEI Job No.: 1100-04-01

Client: **AECOM**
 Project: **Jane Byrne Interchange**
 Location: **Section 16, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 586.97 ft
 North: 1897093.86 ft
 East: 1171652.78 ft
 Station: 6217+75.04
 Offset: 122.29 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 (%)
	586.3	8-inch, CONCRETE --PAVEMENT--															
	585.6	6-inch, gray CRUSHED STONE --FILL--			1	2 3 5	NP	17						9	0 0 1	0.16 B	26
		Very stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 1-- --FILL--			2	2 3 5	2.87 B	19				25		10	0 0 0	0.25 B	26
	581.5	Soft, gray CLAY to SILTY CLAY, trace gravel; damp to moist --RDR 2--			3	1 2 2	0.57 B	24						11	0 0 2	0.16 B	25
					4	1 2 2	0.41 B	25				30		12	0 0 2	0.41 B	25
					5	0 1 1	0.33 B	25									
					6	0 1 1	0.33 B	26				35		13	1 1 2	0.66 B	25
					7	0 0 1	0.25 B	26		550.0	Medium stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 1--						
					8	0 0 0	0.16 B	27				40		14	3 3 3	0.82 B	15

GENERAL NOTES

Begin Drilling **07-05-2019** Complete Drilling **07-05-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **DRY**
 At Completion of Drilling **mud in the borehole**
 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 11000401.GPJ WANGENG.GDT 10/22/19



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BORING LOG LTB-08

WEI Job No.: 1100-04-01

Client **AECOM**
 Project **Jane Byrne Interchange**
 Location **Section 16, T39N, R14E of 3rd PM**

Datum: NAVD 88
 Elevation: 586.97 ft
 North: 1897093.86 ft
 East: 1171652.78 ft
 Station: 6217+75.04
 Offset: 122.29 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 (%)
	545.3	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp --RDR--2															
			45		15	6 17 20	5.40 B	14									
	540.7		Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--														
		50			16	11 30 44	5.99 B	19									
	537.0	Boring terminated at 50.00 ft															
			55														
			60														

GENERAL NOTES

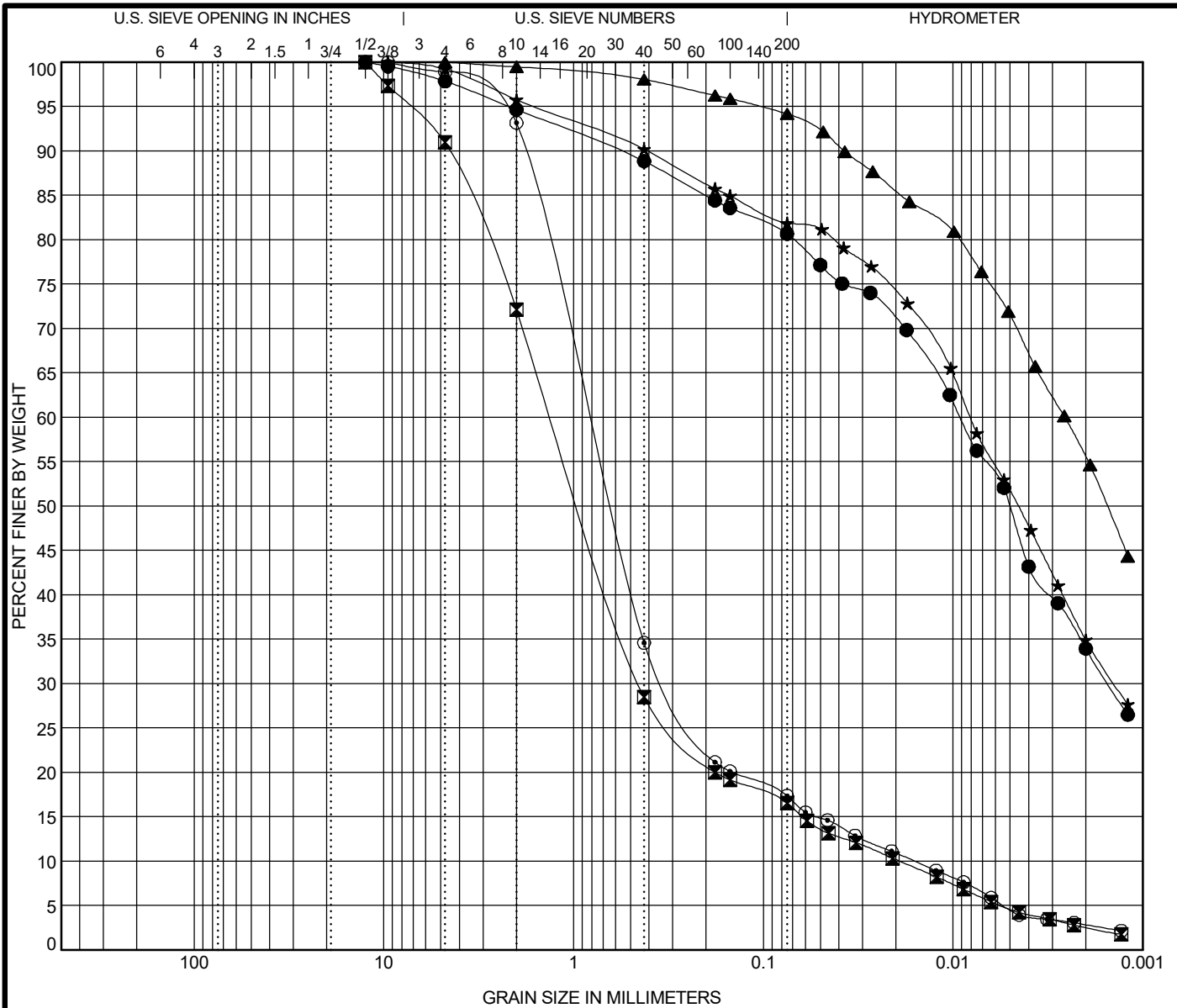
Begin Drilling **07-05-2019** Complete Drilling **07-05-2019**
 Drilling Contractor **Wang Testing Services** Drill Rig
 Driller **R&J** Logger **F. Bozga** Checked by **C. Marin**
 Drilling Method **2.25" IDA HSA, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **DRY**
 At Completion of Drilling ▽ **mud in the borehole**
 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



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification		IDH Classification				LL	PL	PI	Cc	Cu
●	BFB-01#6 13.5 ft	Clay				35	18	17		
☒	BFB-01#21 63.5 ft	Gravelly Sandy Loam				NP	NP	NP	8.09	68.00
▲	BFB-02#2 3.5 ft	Clay				44	20	24		
★	BFB-02#9 21.0 ft	Clay				35	18	17		
◎	BFB-02#21 63.5 ft	Sand				NP	NP	NP	7.55	52.02
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
● BFB-01#6 13.5 ft	12.5	0.009	0.002		5.3	14.1	46.6	33.9		
☒ BFB-01#21 63.5 ft	12.5	1.301	0.449	0.019	27.9	55.7	13.9	2.5		
▲ BFB-02#2 3.5 ft	4.75	0.003			0.5	5.3	38.6	55.5		
★ BFB-02#9 21.0 ft	9.5	0.008	0.001		4.2	13.9	46.9	34.9		
◎ BFB-02#21 63.5 ft	9.5	0.832	0.317	0.016	6.8	75.9	14.4	2.8		

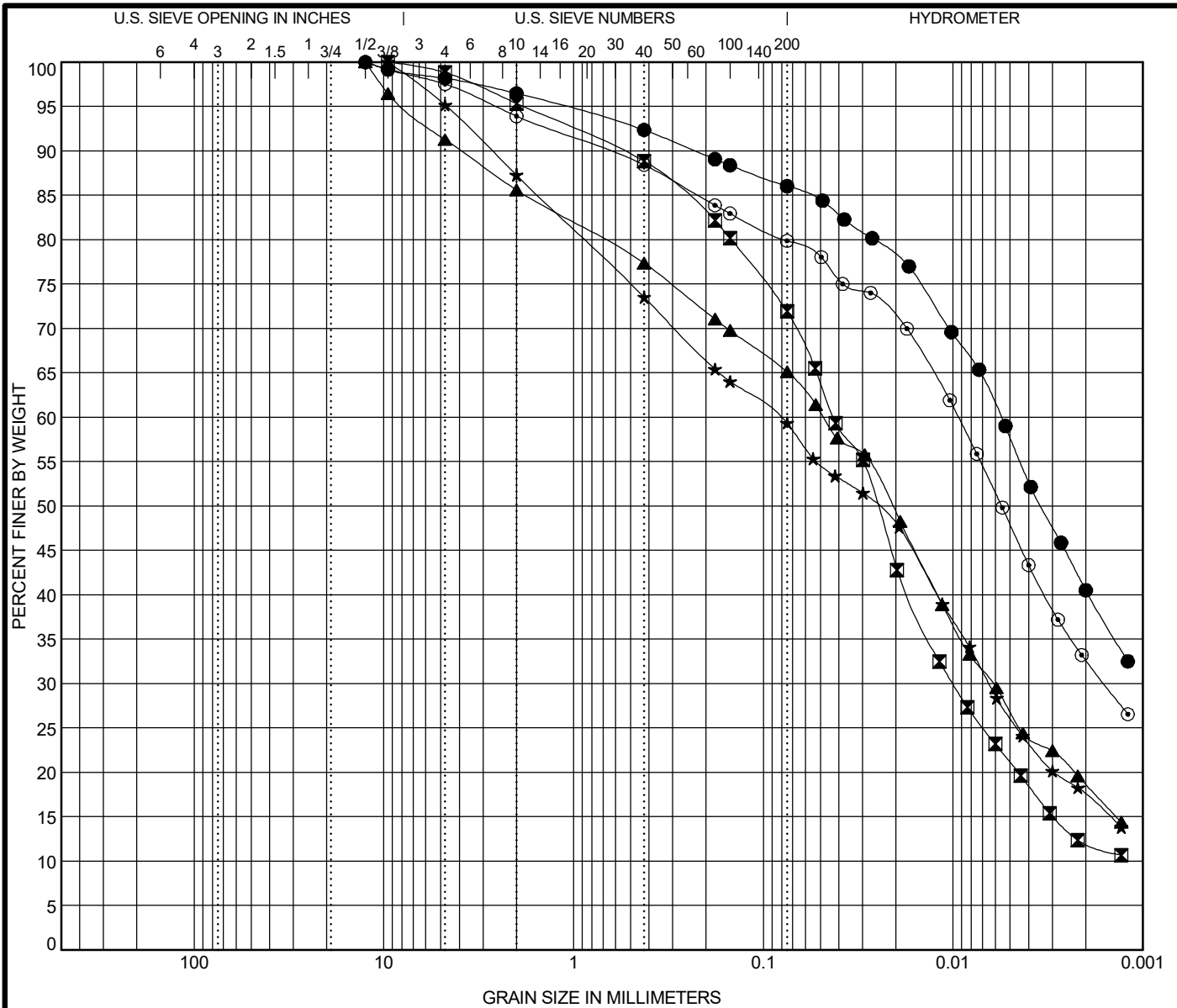
WEI GRAIN SIZE IDH 11000401.GPJ US_LAB.GDT 7/22/19



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GRAIN SIZE DISTRIBUTION

Project: Jane Byrne Interchange
 Location: Section 17, T39N, R14E of 3rd PM
 Number: 1100-04-01



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification	IDH Classification	LL	PL	PI	Cc	Cu
● BFB-03#13 31.0 ft	Clay	37	19	18		
☒ BFB-03#16 38.5 ft	Silty Loam	NP	NP	NP		
▲ BFB-03#23 73.5 ft	Silty Clay Loam	22	13	9		
★ BFB-04#2 3.5 ft	Clay Loam	25	17	8		
◎ BFB-04#9 21.0 ft	Silty Clay	34	17	17		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BFB-03#13 31.0 ft	12.5	0.006			3.5	10.5	45.5	40.5
☒ BFB-03#16 38.5 ft	9.5	0.043	0.01		4.7	23.7	59.6	12.1
▲ BFB-03#23 73.5 ft	12.5	0.048	0.006		14.4	20.6	46.3	18.7
★ BFB-04#2 3.5 ft	9.5	0.082	0.006		12.7	28.1	41.7	17.5
◎ BFB-04#9 21.0 ft	12.5	0.009	0.002		6.1	14.1	47.2	32.6

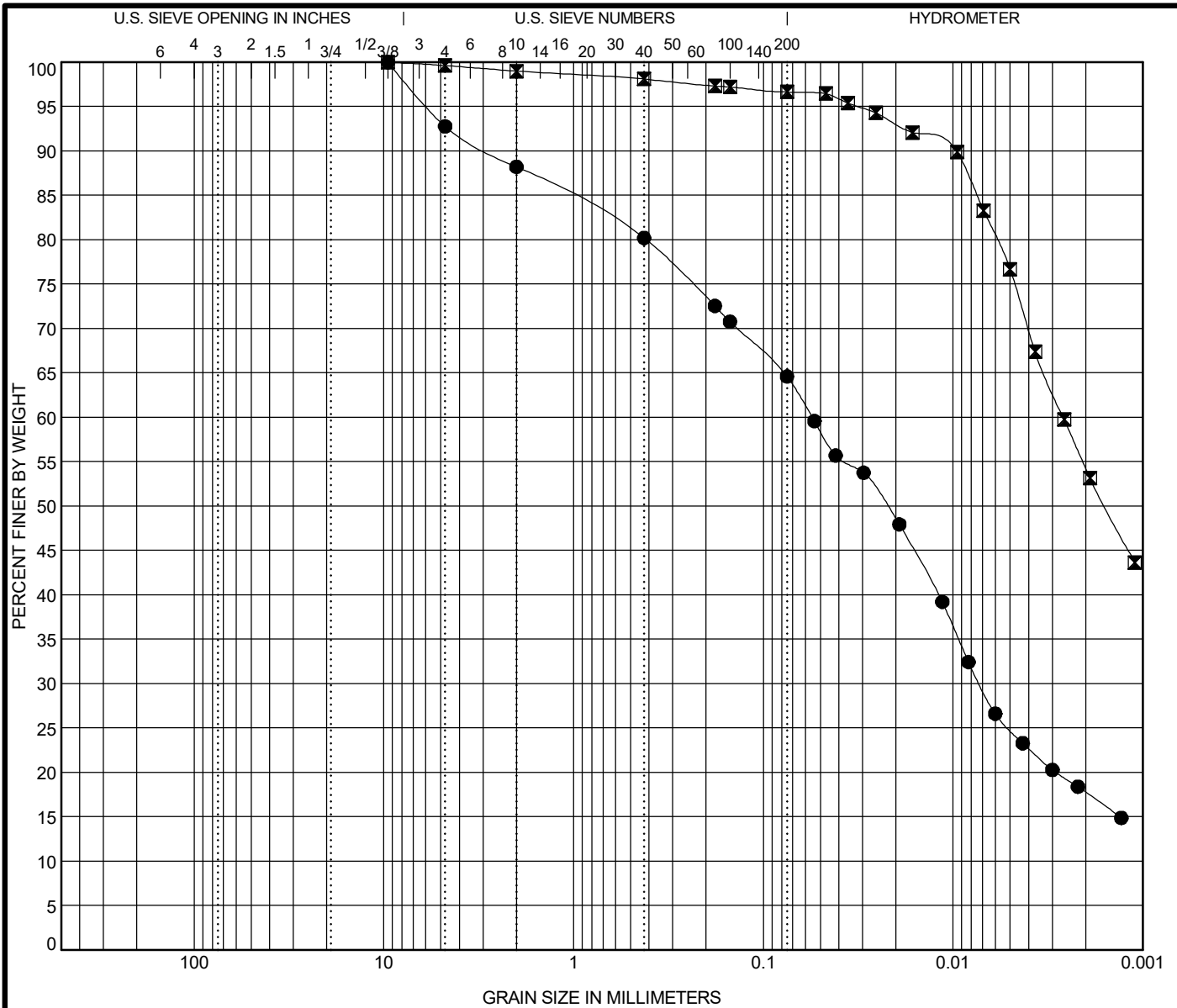
WEI GRAIN SIZE IDH 11000401.GPJ US LAB.GDT 7/22/19



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GRAIN SIZE DISTRIBUTION

Project: Jane Byrne Interchange
 Location: Section 17, T39N, R14E of 3rd PM
 Number: 1100-04-01



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification	IDH Classification	LL	PL	PI	Cc	Cu
● BFB-04#17 43.5 ft	Silty Clay Loam	23	15	8		
■ BFB-04#24 78.5 ft	Clay	42	20	22		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BFB-04#17 43.5 ft	9.5	0.055	0.007		11.8	23.8	46.6	17.8
■ BFB-04#24 78.5 ft	9.5	0.003			1.0	2.4	42.4	54.2



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GRAIN SIZE DISTRIBUTION
 Project: Jane Byrne Interchange
 Location: Section 17, T39N, R14E of 3rd PM
 Number: 1100-04-01

WEI GRAIN SIZE IDH 11000401.GPJ US_LAB.GDT 7/22/19

Unconfined Compressive Strength of Intact Rock Core Specimens

Project: Circle Interchange

Client: AECOM

WEI Job No.: 1100-04-01

Note: The specimens were sulphur capped for a more uniform break

Field Sample ID	Lab Specimen ID	Depth (ft)	Location	Sample Description	Length (in)		Diameter (in)	Total Load (lbs)	Total Pressure (psi)	Fracture Type*	Break Date	Tested By	Area (in ²)
					Before Capping	After Capping							
BFB-1, Run-1	2278	89.25	Detention Tank	Dolomite	3.84	4.08	2.04	53210	16270	3	7/18/19	RG	3.27
BFB-2, Run-2	2279	91.75	Detention Tank	Dolomite	3.97	4.24	2.04	22670	6930	3	7/18/19	RG	3.27
BFB-3, Run-1	2280	87.5	Detention Tank	Dolomite	3.92	4.12	2.04	32190	9840	3	7/18/19	RG	3.27
BFB-3, Run-1	2281	92.0	Detention Tank	Dolomite	4.06	4.20	2.04	25020	7650	3	7/18/19	RG	3.27
BFB-3, Run-2	2282	99.0	Detention Tank	Dolomite	4.18	4.36	2.04	26020	7960	3	7/18/19	RG	3.27
BFB-4, Run-1	2283	89.0	Detention Tank	Dolomite	3.99	4.21	2.04	28360	8670	3	7/18/19	RG	3.27

*** Fracture Types:**

- Type 1 - Reasonably well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps;
- Type 2 - Well-formed cone on one end, vertical cracks running through caps, no well defined cone on other end;
- Type 3 - Columnar vertical cracking through both ends, no well-formed cones;
- Type 4 - Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1;
- Type 5 - Side fractures at top or bottom (occur commonly with unbonded caps);
- Type 6 - Similar to Type 5 but end of cylinder is pointed.

Prepared by: GPO 7-22-19

Checked by: AL 7/22/19