STRUCTURE GEOTECHNICAL REPORT
INTERSTATE 80 BRIDGES OVER
INTERSTATE 55 RAMP AA
PR SN 099-8329 (EB) AND 099-8335 (WB)
WILL COUNTY, ILLINOIS

For
Stantec

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Submitted by

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Original Report: June 24, 2022
Revised Report: November 4, 2022

Technical Report Documentation Page

1. Title and Subtitle Structure Geotechnical Report Interstate 80 Bridges over Interstate 55 Ramp AA		**2. Original Date:** June 24, 2022 **Revised Date:** November 4, 2022 **3. Report Type** ☒ SGR ☐ RGR ☐ Draft ☒ Final ☒ Revised
4. Route / Section / County/ District/ Region F.A.I 80 / 99-1HB / Will / 1 / 1		**5. IDOT Project No. / Contract No.** D-91-206-19 / 62R28
6. PTB / Item No. 194/010	**7. Existing Structure Number(s)** None	**8. Proposed Structure Number(s)** SN 099-8329 (EB) and 099-8335 (WB)
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11. Abstract

New, simple-span bridges will carry the Interstate 80 westbound and eastbound over the proposed Interstate 55 Ramp AA in Will County, Illinois. The proposed structures will have a back-to-back of abutments length of 120.3 feet and an out-to-out width of 62.8 feet (WB) and 68.8 feet (EB). The ramp cuts in front of the proposed bridge abutments will have end slopes graded at a slope of 1:2 (V:H). This report provides geotechnical recommendations for the design and construction of the proposed approach embankments, approach slabs, and bridge foundations.

Beneath the pavement or topsoil, the general lithologic profile includes up to 23.0 feet of existing embankment materials consisting of stiff to hard clay, silty clay loam to clay loam followed by 8.5 to 14.5 feet of stiff to hard silty clay and silty clay loam with infrequent lenses of loose to medium dense sandy gravel/silt overlying up to 7.5 feet of medium dense silt to silty loam. Shaly dolostone bedrock was encountered at elevations of about 572 to 577 feet. The groundwater level was encountered at elevations ranging from 580 to 605 feet.

The approach embankments behind the west and east abutments will undergo an estimated 0.2 inches of total long-term settlement. The maximum factored bearing resistance for the approach footings is 2,500 psf. Our global stability analyses show the slope walls will have the adequate FOS.

The bridge abutments could be supported on driven H-piles. To support the integral abutments, driven HP12x53, HP12x74, HP12x73, and HP14x89 steel piles will provide 230 to 388 kips of factored resistance at total lengths of 35 to 39 feet. We do not anticipate the need for downdrag allowances on the piles.

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WILL COUNTY, ILLINOIS
FOR
STANTEC

1.0 INTRODUCTION

This report presents the results of our subsurface investigation, laboratory testing, geotechnical evaluations, and recommendations in support of the design and construction of new Interstate 80 (I-80) bridges over the proposed Interstate 55 (I-55) Ramp AA in Troy Township, Will County Illinois. The project area is located in west central Will County, along I-80, just south of the Village of Shorewood. On the USGS *Channahon Quadrangle 7.5 Minute Series* map, the project is located in the E1/2 of Section 28, Tier 35 N, Range 9 E of the Third Principal Meridian. A *Site Location Map* is presented as Exhibit 1. The proposed bridges are part of the proposed widening and reconstruction of I-80 from east of Ridge Road to west of Houbolt Road in Will County, Illinois.

The purpose of this investigation was to characterize the site soil and groundwater conditions, perform geotechnical analyses, and provide recommendations for the design and construction of the proposed approach embankments, approach slabs, abutment walls, and bridge foundations.

1.1 Existing Structure and Ground Conditions

There is no existing structure at the proposed bridge location. Based on the revised *General Plan and Elevation* (GPE, Appendix E) drawing provided by Stantec and received on November 1, 2022, a large cut will be made through the existing I-80, essentially perpendicular to the I-80 alignment, for the new Ramp AA to be constructed following bridge construction. The existing I-80 ground surface is at an elevation of about 610 to 612 feet.

In the project area (see Exhibit 2), about 15 to 20-feet of man-made ground overlies an additional 15 to 20-feet of natural overburden consisting primarily of low to moderate plasticity, medium to high strength, and low to moderate moisture content silty clayey diamicton. Relatively thin bands of very dense, low compressibility silty loam diamicton unconformably covers shaley dolomite bedrock

(Bauer et al. 1991, Hansel and Johnson 1996, Leighton et al. 1948, Willman et al. 1971). The top of bedrock elevation is mapped at approximately 575 feet.

1.2 Proposed Structure

The GPE drawing shows new simple span bridges with integral abutments carrying I-80 over the proposed 20- to 25-foot-deep ramp cut. The new bridges will have a back-to-back of abutment length of 120.3 feet and an out-to-out width of 62.8 feet westbound and 68.8 feet eastbound.

Based on the *Cross-section* drawing (Appendix F), provided by Stantec, we understand the profile grade along I-80 will be raised by up to 1.0 foot along each centerline at the west and east approaches. About 4.0 to 5.0 feet of new fill will be placed along the existing median at the west and east approaches, respectively, to facilitate the internal widening up to 25.0 feet. The approach side slopes will be graded at a slope of 1:4 to 1:6 (V:H), and up to 2.0 feet of new fill will be placed along the existing embankment slope. The ramp cuts in front of the proposed bridge abutments will have end slopes graded at a slope of 1:2 (V:H).

2.0 METHODS OF INVESTIGATION

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

2.1 Field Investigation

The subsurface investigation consisted of four bridge borings, designated as 80AA-BSB-01 to 80AA-BSB-04 and one rock core boring designated as 80AA-BSB-04B drilled by Wang between January 4, 2022 and May 3, 2022. The borings were drilled from elevations of 607.05 to 611.5 feet and were advanced to depths of 37.5 to 54.0 feet bgs. The as-drilled northings and eastings were acquired with a mapping-grade GPS unit. Stations, offsets, and elevations were provided by Stantec. Boring location data are presented in the *Boring Logs* (Appendix A) and the as-drilled boring locations are shown in the *Boring Location Plan* (Exhibit 3).

Truck-mounted drilling rigs, equipped with hollow stem augers, were used to advance and maintain open boreholes. Soil sampling was performed according to AASHTO T206, *"Penetration Test and Split Barrel Sampling of Soils."* The soil in the bridge borings was sampled at 2.5-foot intervals to 30.0 feet bgs and at 5.0-foot intervals thereafter to the boring termination depth. Bedrock cores were collected from all the borings in 5- and 10-foot runs with an NWD4-sized core barrel. Soil samples collected from each sampling interval were placed in sealed jars and transported to the laboratory for further examination and testing.

Field boring logs, prepared and maintained by a Wang field engineer, included lithological descriptions, visual-manual soil (IDH Textural) classifications, 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.

Groundwater levels were measured while drilling and at completion of the borings. Borings 80AA-BSB-02 and 80AA-BSB-03 were kept open to measure 24-hour water levels. Each borehole location was backfilled upon completion with lean grout, soil cuttings, and/or bentonite chips and, where necessary, the pavement surface was restored as much as possible to its original condition.

2.2 Laboratory Testing

The soil samples were tested in the laboratory for moisture content (AASHTO T265). Atterberg limits (AASHTO T89 and T90) and particle size (AASHTO T88) analyses were performed on selected samples. Unconfined compressive strength tests were performed on selected bedrock cores. Field visual descriptions of the soil samples were verified in the laboratory and index tested soils were classified according to the IDH Soil Classification System. The laboratory test results are shown in the *Boring Logs* (Appendix A) and in the *Laboratory Test Results* (Appendix B).

3.0 INVESTIGATION RESULTS

Detailed descriptions of the soil conditions encountered during the subsurface investigation are presented in the attached *Boring Logs* (Appendix A) and in the *Soil Profile* (Exhibit 4). Please note that strata contact lines represent approximate boundaries between soil types. The actual transition between soil types in the field may be gradual in horizontal and vertical directions.

Our subsurface investigation results fit into the local geologic context. The borings drilled in the project area revealed the native sediments consists of silty clay to silty clay loam diamicton (unit 2) with occasional lenses of silt and sand, over silty diamicton (unit 3) resting over weathered bedrock. Top of dolostone bedrock was encountered at elevations of 572.2 to 577.2 feet (36.0 to 38.5 feet bgs) as predicted based on geologic data.

3.1 Lithological Profile

Borings 80AA-BSB-01, 80AA-BSB-03, and 80AA-BSB-04 were drilled along I-80 paved shoulders and encountered 9 to 12 inches of asphalt pavement overlying about 24 inches of sandy gravel aggregate base. Boring 80AA-BSB-02 was drilled within the I-80 grassy median and encountered 12

inches of silty clay topsoil at the surface. In descending order, the general lithologic succession encountered beneath the pavement or topsoil includes: 1) man-made ground (fill); 2) very stiff to hard silty clay and silty loam; 3) medium dense silt to silty loam; and 4) strong, very poor to poor quality dolostone.

1) Man-made ground (fill)

Beneath the pavement or topsoil, the borings encountered up to 23 feet of cohesive fill. The cohesive fill consists of stiff to hard, brown and gray clay, silty clay loam to clay loam with unconfined compressive strength (Q_u) values of 1.0 to more than 4.5 tsf and moisture content values of 11 to 29%. Laboratory index testing on a sample from the fill unit showed liquid limit (L_L) and plastic limit (P_L) values of 35 to 50% and 14 to 15%, respectively.

2) Very stiff to hard silty clay and silty clay loam

Beneath the fill, at elevations of 587.6 to 591.3 feet (18 to 23 feet bgs), the borings advanced through 8.5 to 14.5 feet of very stiff to hard, brown to gray silty clay occasional lenses of damp to saturated gravel and sand. The unit is characterized by Q_u values of 2.6 to more than 4.5 tsf and moisture content values of 17 to 30%. Boring 80AA-BSB-02 encountered an about 5-foot thick loose to medium dense sandy gravel lens.

3) Medium dense silt to silty loam

At depths of 29 to 32 feet bgs, or elevations of about 579 to 580 feet, Borings 80AA-BSB-01 through 80AA-BSB-03 encountered 6.0 to 7.5 feet of medium dense, brown to gray, damp to saturated silt to silty loam. This soil unit has an N-values of 12 to 24 blows per foot and moisture content values of 10 to 23%. Rig chatter indicating the presence of cobbles was noted throughout this unit.

4) Dolostone bedrock

At elevations of 572.2 to 577.2 feet (36.5 to 38.5 feet bgs), the borings encountered strong, very poor to poor quality, highly to moderately weathered shaly dolostone bedrock. The rock quality designation (RQD) ranges from 0 to 66% and uniaxial compressive strength tests revealed Q_u values of 6,988 to 10,600 psi. The bedrock core data are shown in the *Boring Logs* and *Bedrock Core Photographs* (Appendix C).

3.2 Groundwater Conditions

Groundwater was encountered while drilling at elevations of 580 to 605 feet (5.5 to 31.8 feet bgs) within the loose to medium dense silt and sandy gravel in Borings 80AA-BSB-01 and 80AA-BSB-02 and the fill in Borings 80AA-BSB-03 and 80AA-BSB-04. At the completion of drilling, the

groundwater was recorded at an elevation of 605 feet (5.0 feet bgs) in Boring 80AA-BSB-04 and at Boring 80AA-BSB-02, the 24-hour water level was recorded at an elevation of about 609 feet (0.0 feet bgs) with cave in at 607 feet (1.5 feet bgs). Boring 80AA-BSB-03 was kept open for 132 hours and the water level recorded at 602 feet (2.0 feet bgs). We estimate the water up high is very likely perched groundwater within thin outwash seams that drains into the augers and is unable to drain out through the base of the boring. Permanent, hydrostatic groundwater levels are more likely to be encountered deeper within the sand and silt. For the purposes of analysis, the design groundwater elevation is considered at elevation of 586 feet. It should be noted that groundwater levels might change with seasonal rainfall patterns and long-term climate fluctuations or may be influenced by local site conditions; the upper outwash seams with perched groundwater will drain into excavations, but should be removable via pumping.

4.0 FOUNDATION ANALYSIS AND RECOMMENDATIONS

The *Cross-Section* drawings (Appendix F) indicate the grade along I-80 will be raised by up to 12 inches along west and east approach centerlines. About 4.0 to 5.0 feet of new fill will be placed along the existing median at the west and east bridge approaches, respectively, to facilitate the internal widening up to 25.0 feet. The approach side slopes will be graded at a slope of 1:4 to 1:6 (V:H), and up to 2.0 feet of new fill will be placed along the existing embankment's slope. The ramp cuts in front of the proposed bridge abutments will have end slopes graded at 1:2 (V:H) extending down to the ramp elevation.

Wang has evaluated the possible foundation types that could be considered for support of the proposed bridge structures, and we recommend supporting the substructures on deep foundations. It is understood that the designer proposes to support the bridge structure on driven piles.

4.1 Seismic Design Considerations

The seismic site class was determined in accordance with the IDOT *Geotechnical Manual* (IDOT 2020a). The soils within the top 100 feet have a weighted average N-value value of 66 blows per foot (Method C controlling), and the results classify the site in the Seismic Site Class C.

The project location belongs to the Seismic Performance Zone 1 (IDOT 2020a). The seismic spectral acceleration parameters recommended for design in accordance with the AASHTO *LRFD Bridge Design Specifications* (AASHTO 2020) are summarized in Table 1. According to the IDOT *Bridge Manual* (IDOT 2012), liquefaction analysis is not required for sites located in Seismic Performance Zone 1.

Table 1: Recommended Seismic Design Parameters

Spectral Acceleration Period (sec)	Spectral Acceleration Coefficient[1)] (% g)	Site Factors	Design Spectrum for Site Class C[2)] (% g)
0.0	PGA= 4.9	F_{pga}= 1.2	**A_s= 5.9**
0.2	S_s= 10.6	F_a= 1.2	**S_{DS}= 12.7**
1.0	S_1= 4.0	F_v= 1.7	**S_{D1}= 6.8**

1) Spectral acceleration coefficients based on Site Class C

2) Site Class C Spectrum to be included on plans; $A_s = PGA*F_{pga}$; $S_{DS}= S_s*F_a$; $S_{D1}= S_1*F_v$

4.2 Approach Embankments and Slabs

Wang has performed evaluations of the settlement and global stability of the approach embankments. The drawings indicate the profile grade along the embankments near the bridge will be raised by about 1 foot along each centerline. The existing grassy median will be filled with approximately 4.0 to 5.0 feet of new fill to facilitate the internal pavement widening. As per the *Cross-Sections* (Appendix F), the approach side slopes will be graded between 1:4 to 1:6 (V:H), and will include up to 2.0 feet of new fill along the existing slopes.

4.2.1 Settlement

To facilitate the widenings, up to 5.0 feet of new fill will be placed along the existing medians and up to 2.0 feet of new fill will be placed along the existing east approach embankment slope. Settlement estimates have been made based on correlations to measured index properties obtained from the laboratory tests (Appendix B). Based on the soil conditions, we estimate the foundation soils at the approaches will undergo 0.2 inch of long-term consolidation settlement under the applied load of the new approach embankment fill material. These settlements are appropriate for the construction of the approach slabs and we do not anticipate downdrag allowances for the proposed abutment piles.

4.2.2 Global Stability

Based on the cross-section drawings (Appendix F), the embankment side slopes due to the minor raise in grade will be 1:4 to 1:6 (V:H). Based on the encountered soil conditions and proposed and existing side slopes, we estimate there is no stability concern.

4.2.3 Approach Slabs

We understand the approach slabs will be supported on approach footings which act as spread

footing foundations (IDOT 2012). Based on the soil conditions revealed in the borings and the grade raise along I-80, the approach footings will be supported mainly on the new embankment fill. We estimate the fill has a maximum factored bearing resistance of 2,500 psf calculated for a geotechnical resistance factor (Φ_b) of 0.45 (AASHTO 2020). Settlement of the approach footing is not anticipated.

4.2.4 Abutment End Slopes

The proposed abutments will have end slopes graded at a slope of 1:2 (V:H). We analyzed the stability of the end slope based on the GPE and soil profile encountered along west abutment specifically considering Boring 80AA-BSB-02. The analysis discounts any beneficial effect of the abutment piles. The minimum required FOS for both short (undrained) and long-term (drained) conditions is 1.5 (IDOT 2012). *Slide v6.0* evaluation exhibits employing the Bishop Simplified method of analysis are shown in Appendix D. The FOS values meet the minimum requirement.

4.3 Structure Foundations

Wang recommends supporting the abutments on steel H-piles driven to maximum nominal bearing at the top of bedrock. The soil conditions along the structure show stiff to hard clayey soils followed by medium dense silty loam overlying shaly dolostone bedrock.

The preliminary loading information provided by Stantec on November 1, 2022, and pile cap base elevations shown on the GPE drawings are summarized in Table 2.

Table 2: Preliminary Factored Loads and Proposed Pile Cap Elevations

Structure	Substructure	Pile Cap Elevations (feet)	Total Factored Load (kips)
Eastbound	West Abutment	603.44	4323
	East Abutment	603.91	4323
Westbound	West Abutment	604.52	4015
	East Abutment	604.99	4015

4.3.1 Driven Piles

IDOT specifies the maximum nominal required bearing (R_{NMAX}) for each pile and states the factored resistance available (R_F) for steel H-piles should be based on a geotechnical resistance factor (Φ_G) of 0.55 (IDOT 2012). Nominal tip and side resistance were estimated using the methods and empirical equations presented in the latest *IDOT Geotechnical Pile Design Guide* (IDOT 2020). Based on the loads provided by Stantec and the proposed width of the substructure, the load per pile at the abutments will range between about 188 and 511 kips for a single row of piles spaced at 3- to 8-feet.

Based on IDOT standards, piles with greater than 0.4-inch of relative settlement along the sides require allowances for downdrag loads. We estimate that downdrag allowances will not be required for the abutment piles.

The foundation soils within 10.0 feet below the abutment pile cap elevations consist of very stiff to hard clayey soils with average Q_u values of greater than 3.0 tsf. In accordance with the *All Bridge Designers Memo 19.8* (IDOT 2019), when the average soil strengths at an integral abutment exceed 3.0 tsf, the piles at the abutments should be precored to a depth of 10.0 feet below the abutment cap elevation and backfilled with bentonite having a Q_u value of 1.0 tsf to increase pile flexibility (IDOT 2019). The pile capacity evaluations have been performed assuming pile driving begins about 10.0 feet below the proposed abutment pile cap elevations.

The R_F, R_N, estimated pile tip elevations, and pile lengths for HP12x53, HP12x74, HP14x73, and HP14x89 steel H-piles for the abutments are summarized in Table 3. The driving elevation was taken from the proposed cap elevations as shown on the GPE (Appendix E). The estimated pile lengths shown in Table 3 assume a 2-foot pile embedment into the abutment pile cap.

Due to hard drilling and possible cobble zones noted within the borings below an approximate elevation of 588 feet we recommend pile shoes be included for the piles Additionally, to achieve the maximum nominal required bearing at the abutments, the analysis shows the H-piles would need to be driven about 1.0 to 3.0 feet into the shaly dolostone. In these instances, the piles should be considered end bearing and designed for the maximum factored resistance of the pile.

Table 3: Estimated Pile Lengths and Tip Elevations for Steel H-Piles Driven to R_{NMAX}

Structure Unit (Reference Boring)	Pile Cap Base Elevations (feet)	Pile Size	Maximum Nominal Bearing, R_N (kips)	Factored Geotechnical Loss (kips)	Factored Geotechnical Load Loss (kips)	Factored Resistance Available, R_F (kips)	Total Estimated Pile Length (feet)	Estimated Pile Tip Elevation (feet)
Westbound West Abutment (80AA-BSB-02)	604.52	HP 12x53	418	0	0	230	37	570
		HP 12x74	589	0	0	324	38	569
		HP 14x73	578	0	0	319	38	569
		HP 14x89	705	0	0	388	38	569
Eastbound West Abutment (80AA-BSB-03)	603.44	HP 12x53	418	0	0	230	38	567
		HP 12x74	589	0	0	324	39	566
		HP 14x73	578	0	0	319	39	566
		HP 14x89	705	0	0	388	39	566
Westbound East Abutment (80AA-BSB-01)	604.99	HP 12x53	418	0	0	230	36	571
		HP 12x74	589	0	0	324	37	570
		HP 14x73	578	0	0	319	37	570
		HP 14x89	705	0	0	388	37	570
Eastbound East Abutment (80AA-BSB-04 and 80AA-BSB-04B)	603.91	HP 12x53	418	0	0	230	35	571
		HP 12x74	589	0	0	324	36	570
		HP 14x73	578	0	0	319	36	570
		HP 14x89	705	0	0	388	36	570

4.3.2 Lateral Loading

Lateral loads on the piles should be analyzed for maximum moments and lateral deflections. Recommended lateral soil modulus and strain parameters required for analysis via the p-y curve method are included in Table 4.

Table 4: Recommended Soil Parameters for Lateral Load Pile Analysis

Elevation Range (feet) Soil Type (Layer)	Unit Weight, γ (pcf)	Undrained Shear Strength, c_u (psf)	Estimated Friction Angle, Φ (°)	Estimated Lateral Soil Modulus Parameter, k (pci)	Estimated Soil Strain Parameter, ε_{50} (%)
Pre-core Bentonite Cap Base to EL 593 feet	120	1000	0	500	0.7
Very Stiff CLAY to SILTY CLAY FILL EL 593 to 588 feet	120	2500	0	1000	0.5
Very Stiff to Hard SI CLAY to SI CLAY LOAM EL 588 to 585 feet	120	2600	0	1000	0.5
Loose to Medium Dense SANDY GRAVEL EL 585 to 582 feet	58 (submerged)	0	30	40	--
Very Stiff to Hard SI CLAY to SI CLAY LOAM EL 582 to 577 feet	58 (submerged)	3000	0	1000	0.4
Medium Dense SILT to SILTY LOAM EL 577 to Top of Rock	58 (submerged)	0	32	90	--

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Site Preparation

Vegetation, surface topsoil, and debris should be cleared and stripped where the structure will be placed. If unstable or unsuitable materials are exposed during excavation, they should be removed and replaced with compacted structural fill as described in Section 5.3.

5.2 Excavation, Dewatering, and Utilities

Excavations should be performed in accordance with local, state, and federal regulations. The potential effect of ground movements upon nearby utilities should be considered during construction. In accordance with IDOT Section 205, *Embankment*, the embankments proposed for widening should be properly benched or deeply plowed prior to placement of new fill along the slopes (IDOT 2022). Any slope that cannot be graded at 1:2 (V:H) should be properly shored. We recommend including the pay item, *Temporary Soil Retention System* for the shoring.

During the subsurface investigation, the water was encountered at elevations ranging from 580 to 605 feet, as discussed in Section 4.2. At the abutments, the perched water will be encountered at or above the pile cap base elevations; therefore, the contractor should be prepared for dewatering efforts. For the drilled soldier pile installations, temporary casing and/or wet installation methods will be required. In addition, the hard driving/hard drilling should be anticipated during driven/drilled soldier pile installation at or below 588 feet elevation.

Water that does accumulate in open excavations by seepage or runoff should be immediately removed by sump pump.

5.3 Stage Construction

Stage construction is identified in the *GPE* (Appendix E). Wang understands that the bridge construction will be performed utilizing two stages of construction to maintain traffic on each bridge. During Stage I, two lanes of traffic would be moved to the outside lanes and shoulders so that the new bridge abutments can be constructed within the existing median area. During Stage II, the two lanes of traffic would utilize the bridge sections constructed during Stage I so that the remaining section of abutments can be constructed.

The construction activities will involve total excavations of up to 25.0 feet to the existing I-80 pavement for the ramp. We understand the initial stages of construction will see minor cuts of 5 to 10 feet while the I-80 bridges are constructed. Following bridge construction, the remainder of the ramp excavation and end slopes construction will be completed from beneath the new bridge. Temporary support systems will be required along the stage line, as well as any location where the ground cannot be sloped at 1:2 (V: H). Temporary steel sheet piling may be feasible considering the minor cut depth, as well as the N-values in the mid to high teens for the bridge construction. However, due to Q_u values higher than 4.5 tsf, we recommend to utilizing the pay item *Temporary Soil Retention System*.

5.4 Filling and Backfilling

Fill material used to attain final design elevations should be pre-approved, compacted, cohesive or granular soil conforming to Section 204, *Borrow and Furnished Excavation* (IDOT 2022). The fill material should be free of organic matter and debris and should be placed in lifts and compacted according to Section 205, *Embankment* (IDOT 2022).

Backfill materials for the abutments and piers must be pre-approved by the Resident Engineer. To backfill the abutments, we recommend porous granular material conforming to the requirements

specified in the IDOT Supplemental Special and Recurring Special Provisions, *Granular Backfill for Structures* (IDOT 2020b).

5.5 Earthwork Operations

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

Earth moving operations should be scheduled to not coincide with excessive cold or wet weather (early spring, late fall or winter). Any soil allowed to freeze or soften due to the standing water should be removed. Wet weather can cause problems with subgrade compaction.

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

5.6 Pile Installation

The driven piles shall be furnished and installed according to the requirements of IDOT Section 512, *Piling* (IDOT 2022). Wang recommends performing one test pile at each substructure location. Since hard driving is expected below an elevation of 588 feet, pile shoes are required as indicated in Section 5.4.1.

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

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

Respectfully Submitted,

WANG ENGINEERING, INC.

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Project Geotechnical Engineer	QC/QA Reviewer

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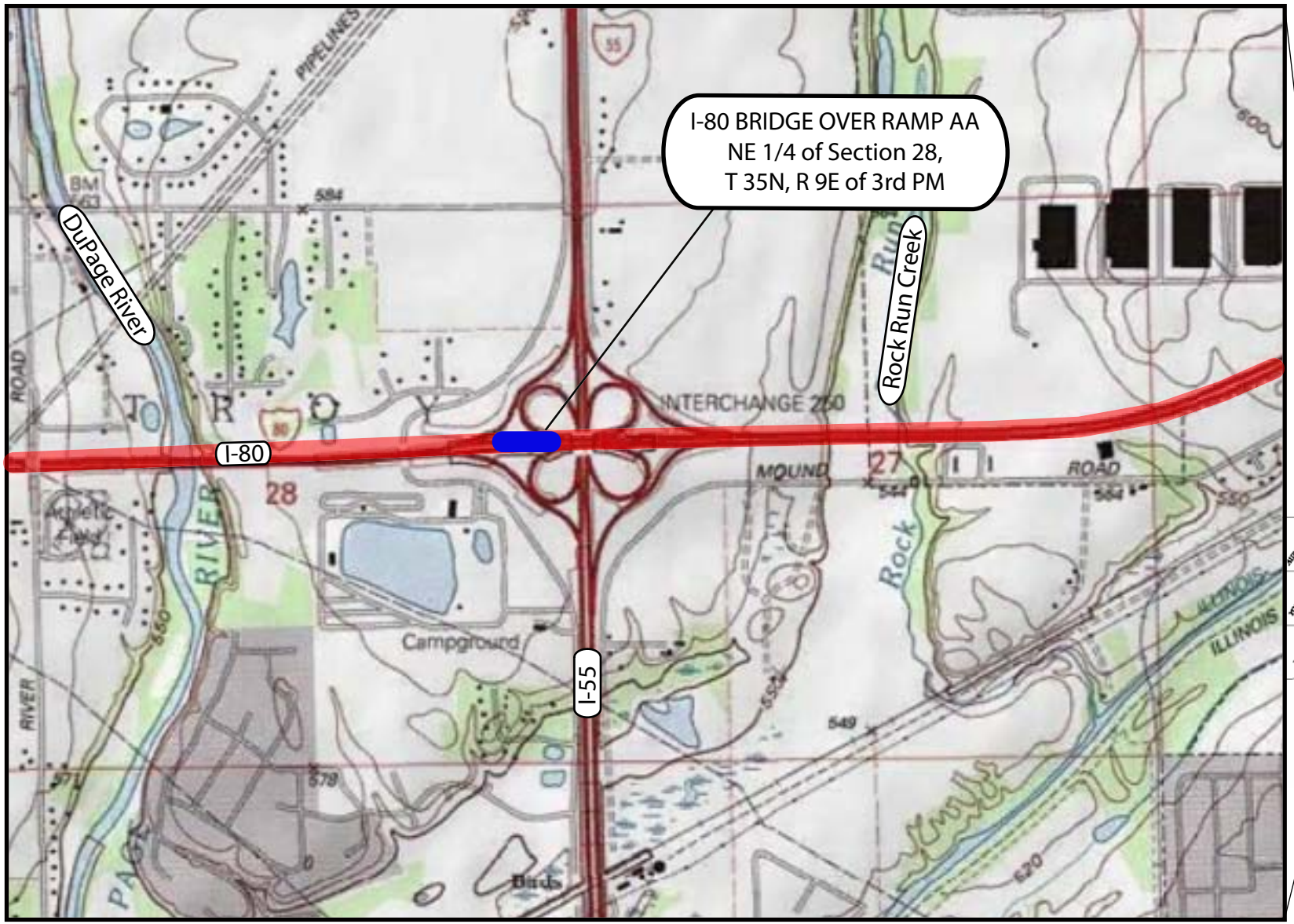
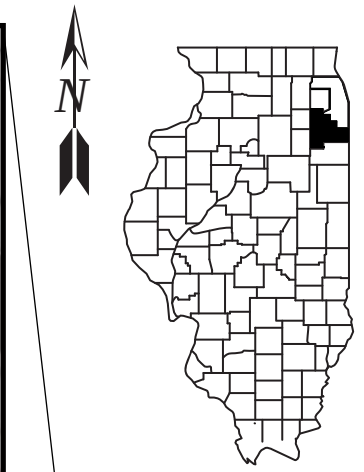
EXHIBITS





Will County

0 0.5 1.0 Mile

SITE LOCATION MAP: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 1	DRAWN BY: J. Bensen CHECKED BY: A. Hamad

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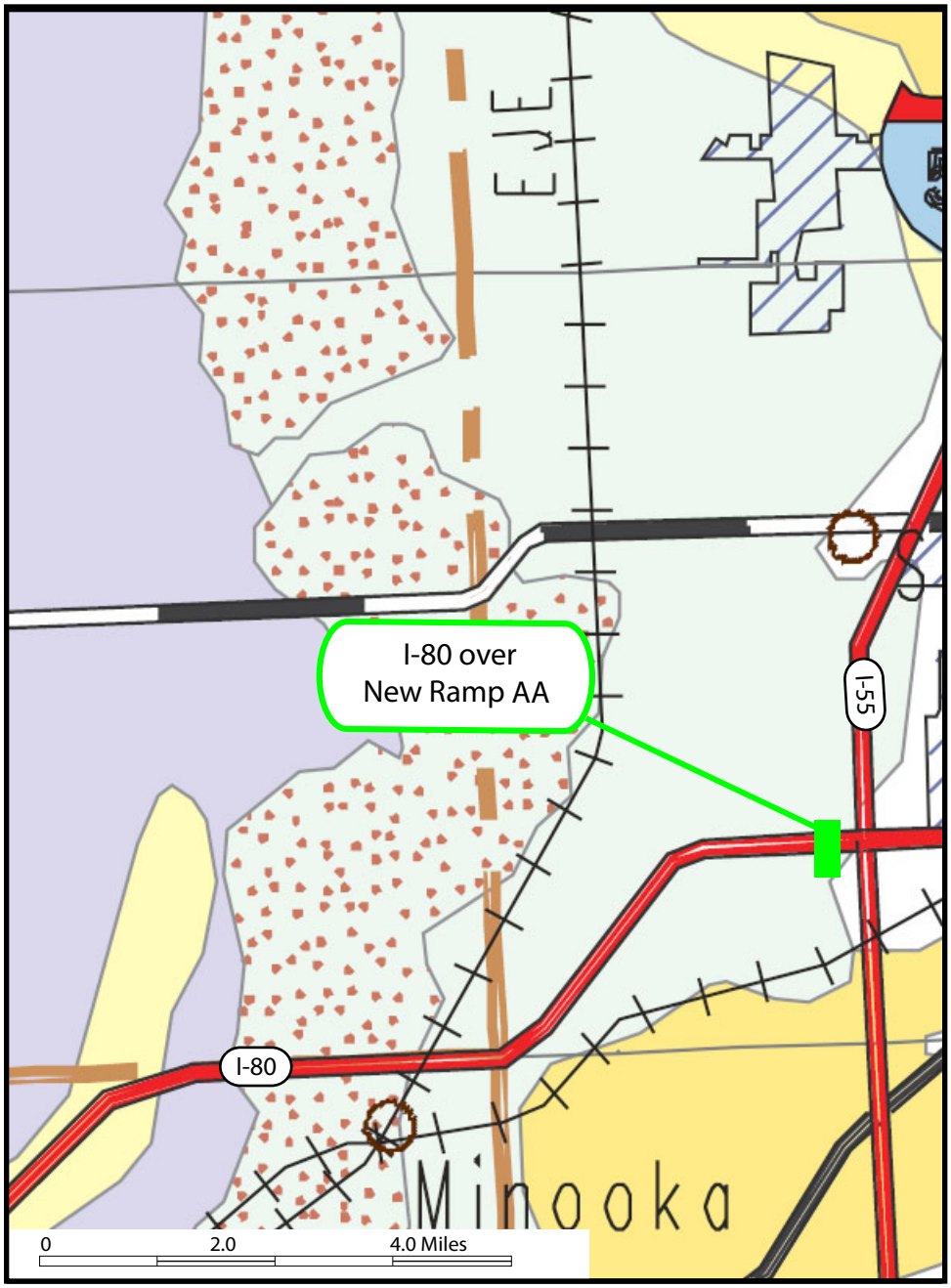
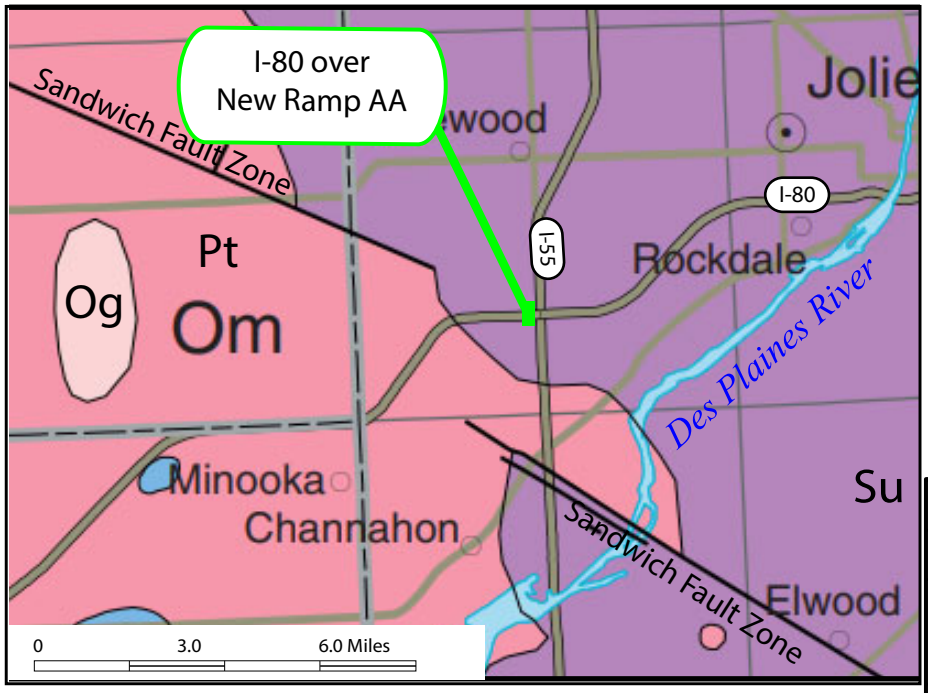
FOR STANTEC	255-39-01



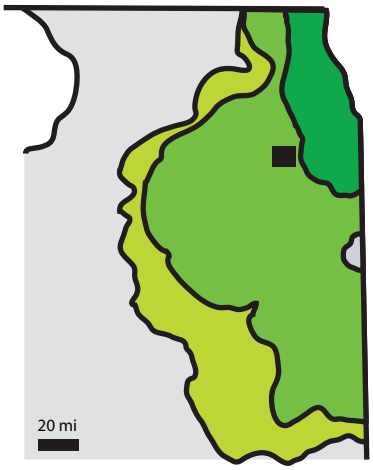


Modified after Dennis R. Kolata (2005)

N

Modified after William W. Shilts (2000)

REGIONAL GEOLOGY



Wedron Group

- Wadsworth Formation
- Lemont Formation
- Tiskilwa Formation

Modified after Hansel and Johnson (1996)

Legend

- **Cahokia Formation** — Bedded silts, clays and sand and gravel deposited in floodplains and channels of modern rivers and streams
- **Equality Formation** — Laminated silt, clay, or fine sand deposited in slackwater, glacial, and postglacial lakes; massive to bedded, calcareous
- **Henry Formation** — Predominantly stratified sand and gravel; locally occurring silt, clay, organic debris, wood, shell lenses; outwash on floodplains
- **Lemont Formation** — Diamicton; silty clay loam to silty clay; fine grained matrix; unsorted, unstratified mixture of gravel, sand, silt, and clay; containing lenses of sand, gravel and/or silt.
- Bedrock near or at the surface
- Major metropolitan area

Modified after William W. Shilts (2000)

Legend

- Pt — Pennsylvanian Shale, Tadewater Formation
- Su — Silurian Dolomitic Limestone
- Om — Ordovician Formation, Maquoketa Group
- Og — Ordovician Formation, Galena Group

SITE AND REGIONAL GEOLOGY: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 2	DRAWN BY: C. Marin CHECKED BY: L. Iordache

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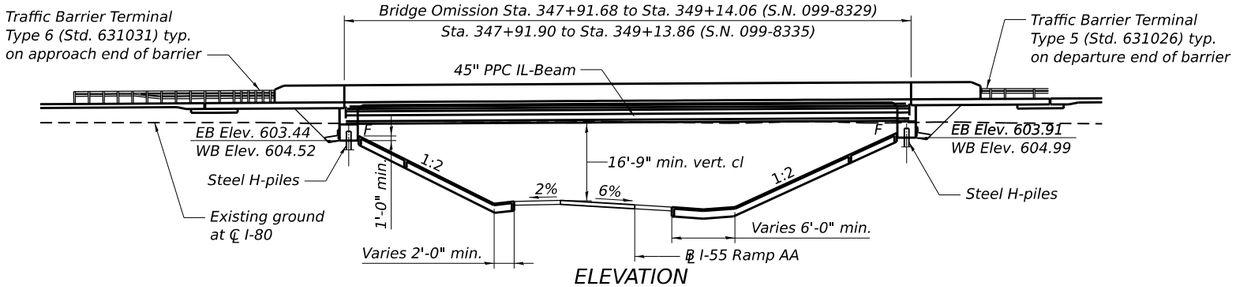
FOR STANTEC | 255-39-01

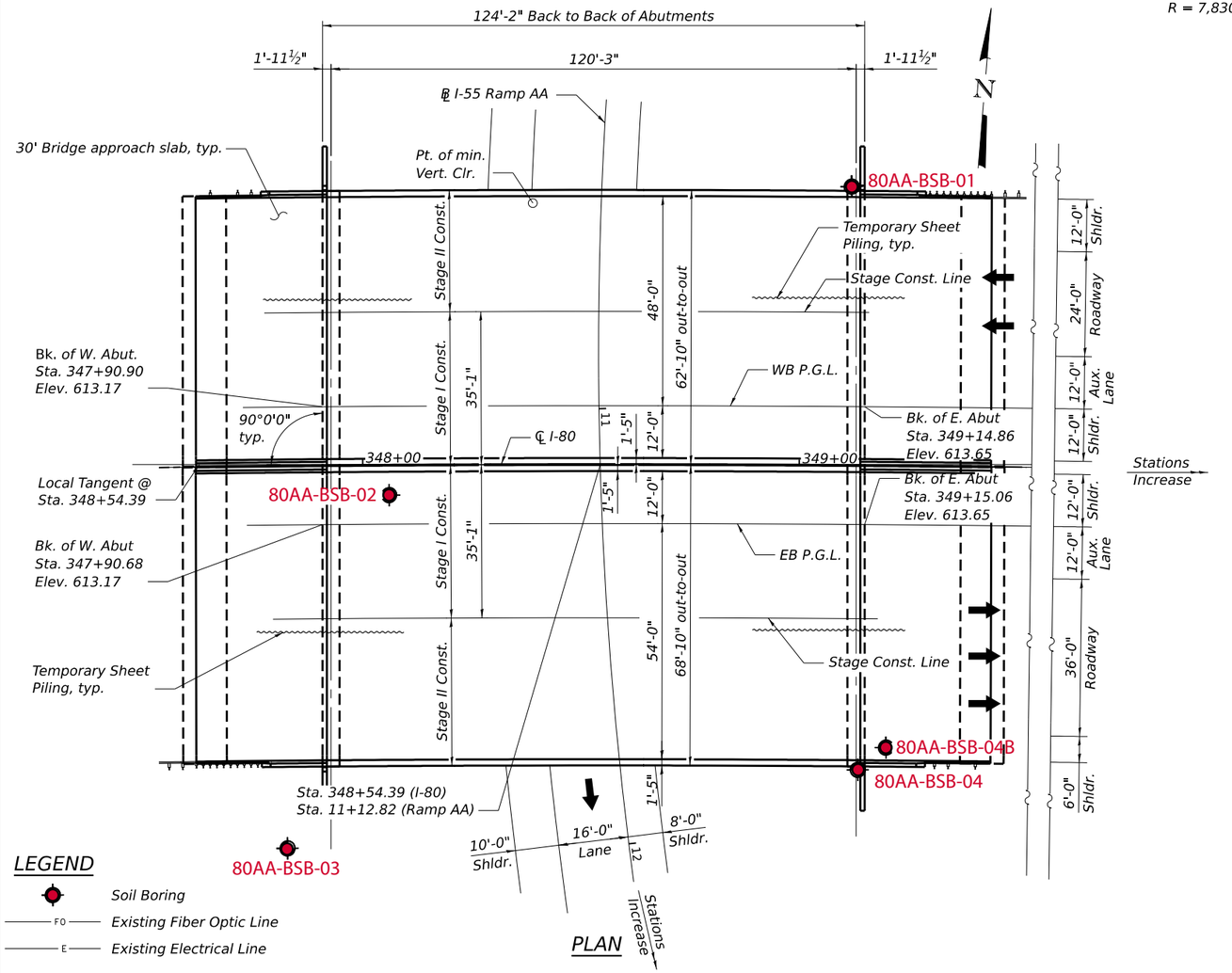
Benchmark: Set 2" CWA aluminum disc in northernly bridge parapet wall in west bound I-80 over southwest frontage road, approximately 500'± west of mile marker 126 on north side of westbound I-80. Elevation 606.973

Existing Structure: None. Traffic to be maintained utilizing staged construction.

No Salvage.



ELEVATION



PLAN

LEGEND

- Soil Boring
- FO — Existing Fiber Optic Line
- E — Existing Electrical Line

HIGHWAY CLASSIFICATION

FAI Rte. 80 - I-80	FAI Rte. 55 - I-55 Ramp AA
Functional Class: Interstate	Functional Class: Interstate
ADT: 48,900 (2021); 31,700 (2040)	ADT: 7,600 (2021) 15,800 (2040)
ADTT: 12,420 (2021); 10,140 (2040)	ADTT: 1,930 (2021) 5,060 (2040)
DHV: 5,900	DHV: 2,270
Design Speed: 70 m.p.h.	Design Speed: 50 m.p.h.
Posted Speed: 65 m.p.h.	Posted Speed: 50 m.p.h.
Two-Way Traffic	One-Way Traffic
Directional Distribution: 50:50	

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

DESIGN STRESSES

FIELD UNITS

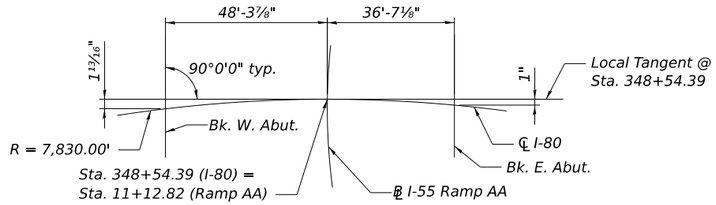
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50) (Soldier Pile)

PRECAST PRESTRESSED UNITS

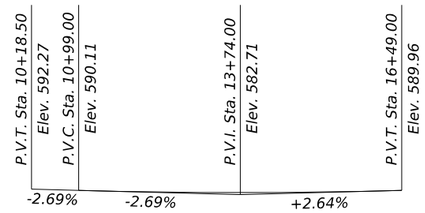
f'ci = 6,500 psi
f'c = 8,500 psi
fpu = 270,000 psi (0.6" ∅ low lax strands)
fpbt = 202,300 psi (0.6" ∅ low lax strands)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.068g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.127g
Soil Site Class = C

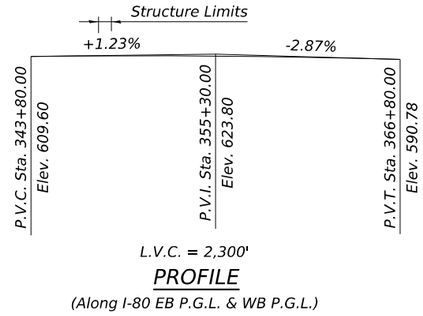


OFFSET SKETCH



PROFILE

(Along ℄ I-55 Ramp AA)

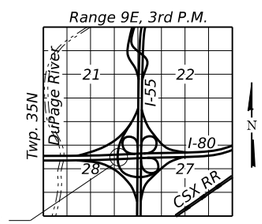


PROFILE

(Along I-80 EB P.G.L. & WB P.G.L.)

CURVE DATA

(I-80)	(Ramp AA)
P.I. Sta. = 349+83.73	P.I. Sta. = 16+71.68
Δ = 4° 00' 13" (RT)	Δ = 94° 06' 00" (LT)
D = 0° 43' 54"	D = 6° 11' 39"
R = 7,830.00'	R = 925.00'
T = 273.67'	T = 993.68'
L = 547.11'	L = 1,519.18'
E = 4.78'	E = 432.58'
e = 2.60%	e = 6.00%
T.R. = 86'	T.R. = N/A'
S.E. Run = 156'	S.E. Run = N/A'
P.C. Sta. = 347+10.06	P.C. Sta. = 6+78.00
P.T. Sta. = 352+57.18	P.T. Sta. = 21+97.18



LOCATION SKETCH

BORING LOCATION PLAN: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 3	DRAWN BY: N. Balakumaran CHECKED BY: A. Hamad

Wang Engineering
1145 N. Main Street
Lombard, IL 60148
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FOR STANTEC | 255-39-01

GENERAL PLAN AND ELEVATION
I-80 OVER I-55 RAMP AA
F.A.I. ROUTE 80 - SEC. 2021-154-R
WILL COUNTY
STA. 348+54.39
STRUCTURE NO. 099-8329 (E.B.)
STRUCTURE NO. 099-8335 (W.B.)

Stantec

USER NAME = $USER$	DESIGNED - CRS	REVISED -		
	CHECKED - DTS	REVISED -		
PLOT SCALE = $SCALE$	DRAWN - CRS	REVISED -		
PLOT DATE = $DATE$	CHECKED - DTS	REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	2021-154-R	WILL	3	1
		CONTRACT NO. 62R28		
	ILLINOIS	FED. AID PROJECT		

MODEL: Slopewall
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/401180022/01-Stantec/CAD/ML_04_62R28/04-Sheets/04-Structures/099-8329 & 8335 I-80 over Ramp AA/0998329_0998335-ML-04-001-TSL.dgn

10/13/2022 3:39:52 PM

W

E

N

80AA-BSB-02
348+06.01

80AA-BSB-03
347+81.98

80AA-BSB-01
349+12.14

80AA-BSB-04B
349+20.39

80AA-BSB-04
349+13.92

WB West Abut Pile Cap
Base Elev. 604.52 feet

EB West Abut Pile Cap
Base Elev. 603.44 feet

WB East Abut Pile Cap
Base Elev. 604.99 feet

EB East Abut Pile Cap
Base Elev. 603.91 feet

ELEVATION (feet)

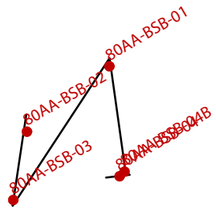
615 610 605 600 595 590 585 580 575 570 565 560 555 550

0 50 100 150 200 250 300 350 400 450 500

DISTANCE ALONG PROFILE (feet)

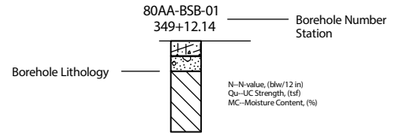
Lithology Graphics

- Pavement
- Gravelly sand, sandy gravel
- IDH Silty Clay, Silty Clay Loam
- IDH Clay
- IDH Clay Loam
- IDH Silt, Silty Loam
- Dolomite or Dolomitic Limestone
- Topsoil
- Crushed stone



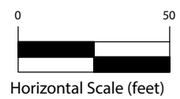
Site Map Scale 1 inch equals 185 feet

Explanation:



Water Level Reading at time of drilling.

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



Horizontal Scale (feet)

Vertical Exaggeration: 4x

Terracon

Soil Profile
I-80 over I-55 Ramp AA

WEI SINCE 1982

I-80 Reconstruction, Ridge Road to Houbolt Road
Will County, Illinois

JOB NUMBER	PLATE NUMBER
255-39-01	EXHIBIT 4

WEI 11X17 2553901.GPJ WANGENG.GDT 5/9/22

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APPENDIX A

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Fax:

BORING LOG 80AA-BSB-01

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 611.46 ft
North: 1755478.84 ft
East: 1020710.73 ft
Station: 349+12.14
Offset: 63.49 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		9-inch thick ASPHALT						
	610.7	--PAVEMENT--						
		Dense, gray, black and brown Gravelly SAND, trace brick fragments; dry			1	5 16 14	NP	7
		--FILL--						
	608.5	--RDR 2-3--						
		Very stiff to hard, black, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			2	3 5 7	2.48 B	17
		--FILL--	5					
		--RDR 2-3--			3	3 3 11	4.76 B	19
					4	3 4 8	4.10 B	19
			10					
					5	3 4 6	2.12 B	19
	598.5	Very stiff, black, brown, and gray CLAY to SILTY CLAY, trace gravel; damp			6	5 6 5	2.54 B	24
		--FILL--						
		--RDR 2--	15					
	596.0	--L_L(%)=50, P_L(%)=15-- --%Gravel=1.2-- --%Sand=15.0-- --%Silt=47.6-- --%Clay=36.2-- --A-7-6 (30)-- --rig chatter; possible cobbles--			7	3 5 9	2.95 B	20
		Very stiff to hard, black, brown, and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp			8	5 7 12	> 10.25 B	17
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	591.0	--FILL--						
		Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp			9	5 6 8	3.28 B	29
		--RDR 2--						
			25		10	4 7 12	8.28 B	18
	586.0	Medium dense, brown and gray SILTY LOAM; dry						
		--RDR 2--			11	3 6 6	NP	18
	583.5	Hard, brown and gray SILTY CLAY						
		--RDR 2--			12	4 7 9	4.92 B	22
			30					
	579.7	Medium dense, gray SILT; saturated						
		--RDR 2--						
		--L_L(%)=NP, P_L(%)=NP-- --%Gravel=0.0-- --%Sand=1.3-- --%Silt=88.1-- --%Clay=10.7-- --A-4 (0)--	35		13	5 6 17	NP	23
	573.0	Strong, light grayish gray, very poor to fair quality, shaly DOLOSTONE, occasionally				C O R		
			40					

GENERAL NOTES

Begin Drilling **01-04-2022** Complete Drilling **01-04-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **JS&AP** Logger **E. Greenwood** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **31.75 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.

Wang Engineering
wangeng@wangeng.com
Telephone:
Fax:

BORING LOG 80AA-BSB-01

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 611.46 ft
North: 1755478.84 ft
East: 1020710.73 ft
Station: 349+12.14
Offset: 63.49 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		vuggy; few shale partings, bedded, very closely to closely spaced, moderately to slightly weathered, horizontal, oblique, and vertical joints, with 0.00 - > 0.2 inch opening, slicken to slightly rough walls, and no infill.			14	E		
		--RUN 1: 38.5 to 43.5 feet--				C		
		--Recovery: 97%--				O		
		--RQD: 0%--				R		
		--RUN 2: 43.5 to 53.5 feet--	45			E		
		--Recovery: 92%--						
		--RQD: 55%--						
		--Q_u=10,600 psi			15			
			50					
	558.0	Boring terminated at 53.50 ft						
			55					
			60					

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

GENERAL NOTES

Begin Drilling **01-04-2022** Complete Drilling **01-04-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **JS&AP** Logger **E. Greenwood** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **31.75 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 80AA-BSB-02

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 608.67 ft
North: 1755399.72 ft
East: 1020610.93 ft
Station: 348+06.01
Offset: 6.83 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	607.7	12-inch thick, brown SILTY CLAY						
		--TOPSOIL--						
		Stiff to hard, brown and gray SILTY CLAY, trace gravel and wood fragments; damp			1	7 2 4	1.39 B	12
		--FILL--						
		--RDR 2--			2	7 7 10	2.50 P	29
			5					
					3	5 7 11	5.33 B	18
	600.7							
		Very stiff to hard, brown and gray CLAY LOAM to SILTY CLAY LOAM, trace gravel; damp			4	5 14 14	4.10 S	18
		--FILL--	10					
		--RDR 2-3--			5	7 8 9	4.02 S	19
		--rig chatter; possible cobbles--			6	8 8 10	NR	
			15					
					7	4 6 8	3.20 S	16
	590.7							
		Hard, gray and black SILTY CLAY, trace gravel and organic matter; damp			8	6 9 10	4.50 P	20
		--RDR 2--	20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	588.2	Hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			9	7 11 16	6.31 B	21
		--RDR 2--						
	585.7	Loose to medium dense, gray SANDY GRAVEL; damp to saturated			10	5 6 5	NP	
		--RDR 2-3--	25					
		--rig chatter; possible cobbles--			11	5 3 4	NP	16
	580.7	Very stiff, gray SILTY CLAY, trace gravel; moist						
	579.7	Medium dense, gray SILT, trace gravel; damp to moist			12	3 7 8	2.05 B	17
		--RDR 2-3--	30					
		--hard drilling; possible cobbles--						
		--hard drilling; possible cobbles--	35		13	9 12 12	NP	14
	572.2	--hard slow drilling at 35.5 feet; possible bedrock--				C O R E		
		Strong, light grayish gray, poor to good quality, shaly DOLOSTONE, occasionally vuggy; few shale partings, bedded, closely spaced, slightly weathered, horizontal, oblique,	40					

GENERAL NOTES

Begin Drilling **01-12-2022** Complete Drilling **01-12-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **21GeoT[92%]**
Driller **JS&AP** Logger **M. Rojo** Checked by **C. Marin**
Drilling Method **2.25" ID HSA to 10 ft; mud rotary thereafter; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **27.00 ft**
At Completion of Drilling ▼ **NA**
Time After Drilling **24 hours**
Depth to Water **0 ft (▽cave in 1.5 ft) ft**

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

WANGENGINC 2553901.GPJ WANGENG.GDT 5/9/22

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Fax:

BORING LOG 80AA-BSB-02

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 608.67 ft
North: 1755399.72 ft
East: 1020610.93 ft
Station: 348+06.01
Offset: 6.83 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		and vertical JOINTS, with 0-0.2 inch opening, slicken walls, and 0 inch thick clay infill.						
		--RUN 1: 36.5 to 46.5 feet--			14			
		--Recovery: 90%--						
		--RUN 2: 46.5 to 52.0 feet--				CORE		
		--Recovery: 100%--						
		--RUN 2: 46.5 to 52.0 feet--			15			
		--RUN 2: 46.5 to 52.0 feet--						
		--RUN 2: 46.5 to 52.0 feet--						
	556.7	Boring terminated at 52.00 ft						

GENERAL NOTES

Begin Drilling **01-12-2022** Complete Drilling **01-12-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **21GeoT[92%]**
Driller **JS&AP** Logger **M. Rojo** Checked by **C. Marin**
Drilling Method **2.25" ID HSA to 10 ft; mud rotary thereafter; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **27.00 ft**
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WANGENGINC 2553901.GPJ WANGENG.GDT 5/9/22

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wangeng@wangeng.com
Telephone:
Fax:

BORING LOG 80AA-BSB-03

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 607.05 ft
North: 1755317.15 ft
East: 1020594.39 ft
Station: 347+81.98
Offset: 87.59 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		9.5-inch thick ASPHALT						
	606.3	--PAVEMENT--						
		Very dense, brown SANDY GRAVEL, trace asphalt fragments; dry			1	23 50 19	NP	2
		--FILL--						
	604.1	Very stiff to hard, black, brown and gray CLAY to SILTY CLAY LOAM, trace to little gravel; damp			2	3 3 3	3.00 P	20
		--FILL--	5					
		--RDR 2--			3	2 3 5	3.44 B	16
		--wet spoon recovery; possible saturated sand lens--						
		--L_L(%)=35, P_L(%)=14--						
		--%Gravel=3.5--						
		--%Sand=17.6--						
		--%Silt=47.5--						
		--%Clay=31.4--						
		--A-6 (15)--			4	5 7 10	4.50 P	11
			10					
					5	4 5 8	3.10 B	18
					6	5 6 4	5.33 B	18
			15					
					7	6 9 10	5.00 B	14
					8	5 6 13	4.00 P	11
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	586.6	Very stiff, black, brown and gray CLAY to SILTY CLAY, trace organic matter; damp			9	3 4 7	2.57 B	30
		--RDR 2--						
	584.1	Hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			10	6 6 9	4.51 B	20
		--RDR 2--	25					
					11	5 8 11	4.92 B	17
					12	7 8 12	5.33 B	20
			30					
	575.3	Medium dense, gray SILTY LOAM, trace gravel; saturated						
		--RDR 2--			13	4 5 7	NP	10
			35					
	569.1	Strong, light grayish gray, poor to fair quality, shaly DOLOSTONE, occasionally vuggy; few shale partings,				CORE		
			40					

GENERAL NOTES

Begin Drilling **01-05-2022** Complete Drilling **01-05-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **JS&AP** Logger **E. Greenwood** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **5.50 ft**
At Completion of Drilling ▼ **NA**
Time After Drilling **132 hours**
Depth to Water ▼ **2.00 ft**

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

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BORING LOG 80AA-BSB-03

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 607.05 ft
North: 1755317.15 ft
East: 1020594.39 ft
Station: 347+81.98
Offset: 87.59 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		bedded, occasionally with interbedded mudstone, closely spaced, slightly weathered, horizontal and oblique joints, with <0.05 inch opening, slicken to slightly rough walls, and no infill.						
		--RUN 1: 38.0 to 48.0 feet--			14			
		--Recovery: 96%--						
		--RQD: 42%--						
			45					
		--Q_u=6,988 psi						
		--RUN 2: 48.0 to 53.0 feet--				CORE		
		--Recovery: 100%--						
		--RQD: 61%--						
			50		15			
	554.1							
		Boring terminated at 53.00 ft						
			55					
			60					

GENERAL NOTES

Begin Drilling **01-05-2022** Complete Drilling **01-05-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **JS&AP** Logger **E. Greenwood** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **5.50 ft**
At Completion of Drilling ▼ **NA**
Time After Drilling **132 hours**
Depth to Water ▼ **2.00 ft**

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

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BORING LOG 80AA-BSB-04

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 610.72 ft
North: 1755345.82 ft
East: 1020723.07 ft
Station: 349+13.92
Offset: 69.69 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	609.7	12-inch thick ASPHALT --PAVEMENT--						
	607.7	Dense, brown SANDY GRAVEL; moist --BASE COURSE-- --RDR 2--			1	12 22 26	NP	7
		Stiff to very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace to few gravel; damp --FILL-- --RDR 2--	5		2	5 4 3	1.00 P	22
					3	3 5 9	3.69 B	17
			10		4	3 5 8	3.50 P	20
					5	5 8 11	NR	
			15		6	5 8 10	3.61 B	18
					7	6 7 11	3.00 P	21
			20		8	8 10 14	2.50 P	24
	587.7	Very stiff to hard, brown and gray SILTY CLAY, trace gravel --RDR 2--	25		9	5 5 7	1.50 P	28
					10	5 10 12	4.16 B	22
					11	3 6 11	3.20 B	21
			30		12	5 7 11	3.36 B	23
	573.2	--AUGER REFUSAL-- Boring terminated at 37.50 ft	35		13	7 11 16	2.75 P	22
			40					

GENERAL NOTES

Begin Drilling **02-03-2022** Complete Drilling **02-03-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **N&K** Logger **F. Bozga** Checked by **C. Marin**
Drilling Method **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **5.50 ft**
At Completion of Drilling ▼ **5.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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

WANGENGINC 2553901.GPJ WANGENG.GDT 5/9/22

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BORING LOG 80AA-BSB-04B

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 611.15 ft
North: 1755351.42 ft
East: 1020729.09 ft
Station: 349+20.39
Offset: 64.55 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--Drilled without sampling to 39 feet--	5					
			10					
			15					
			20					
		--Drilled without sampling to 39 feet--	25					
			30					
			35					
		--slow hard drilling; possible bedrock at 37 feet--						
	574.2	Medium strong, dark grayish gray, poor rock quality, shally DOLOSTONE; closely spaced, slightly weathered, horizontal and oblique joints, with 0 inch opening, slightly rough walls, and no infill.	40			C O		

GENERAL NOTES

Begin Drilling **05-03-2022** Complete Drilling **05-03-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **JS&AG** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA to 10 ft; mud rotary thereafter; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **NA**
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 2553901.GPJ WANGENG.GDT 5/9/22

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BORING LOG 80AA-BSB-04B

WEI Job No.: 255-39-01

Client **Stantec**
Project **I-80 Reconstruction, Ridge Road to Houbolt Road**
Location **Will County, Illinois**

Datum: NAVD 88
Elevation: 611.15 ft
North: 1755351.42 ft
East: 1020729.09 ft
Station: 349+20.39
Offset: 64.55 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--RUN 1: 39.0 to 49.0 feet--				R		
		--Recovery: 95%--				E		
		--RQD: 43%--			1			
			45					
		--RUN 2: 49.0 to 54.0 feet--				C		
		--Recovery: 100%--				O		
		--RQD: 48%--	50			R		
					2	E		
	557.2	Boring terminated at 54.00 ft						
			55					
			60					

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

GENERAL NOTES

Begin Drilling **05-03-2022** Complete Drilling **05-03-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **JS&AG** Logger **A. Scifers** Checked by **C. Marin**
Drilling Method **2.25" ID HSA to 10 ft; mud rotary thereafter; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **NA**
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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A Terracon Company

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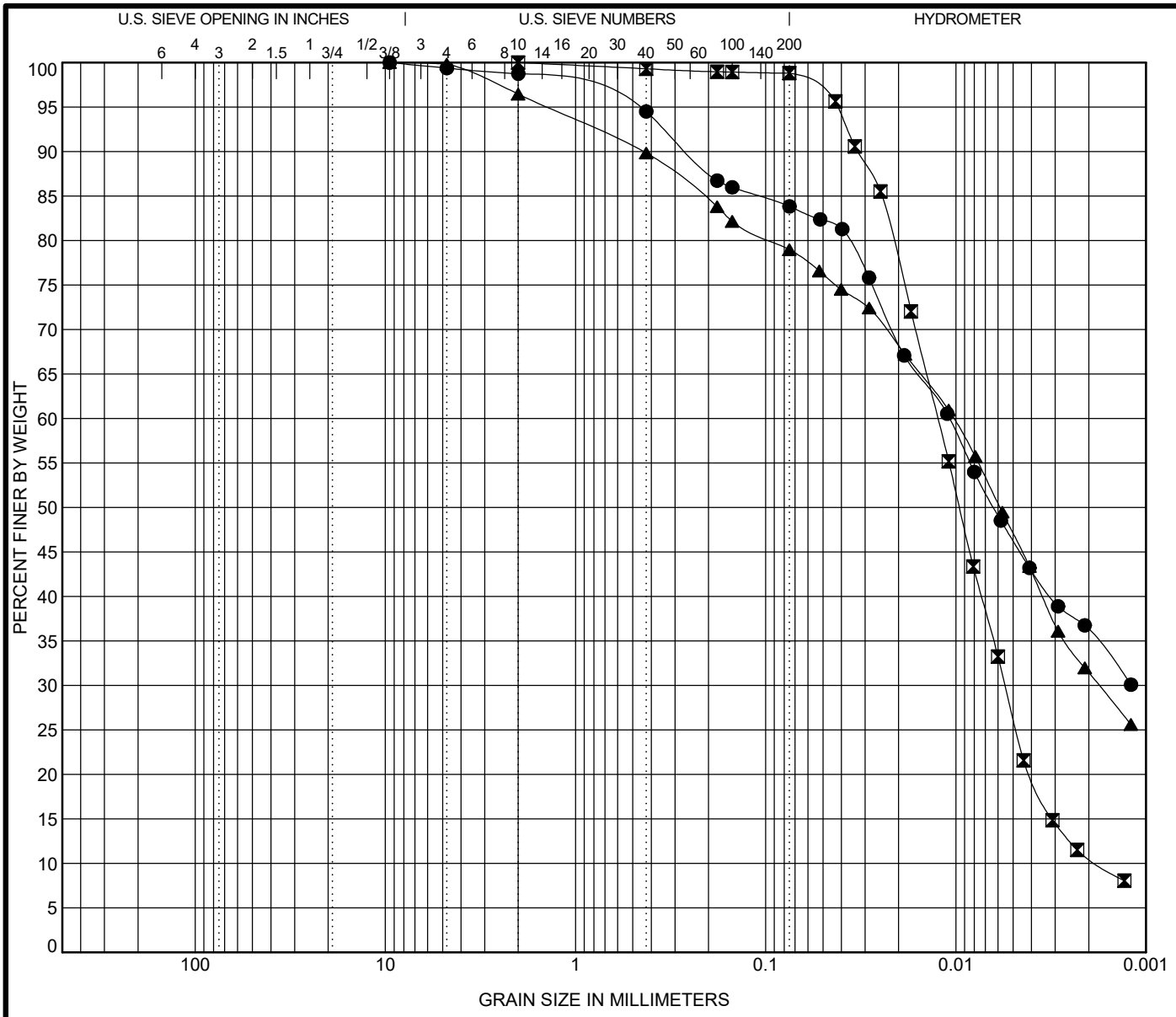
APPENDIX B



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

	Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
●	80AA-BSB-01#6	13.5 ft	Clay	50	15	35		
⊠	80AA-BSB-01#13	33.5 ft	Silt	NP	NP	NP	1.36	6.93
▲	80AA-BSB-03#3	6.0 ft	Clay	35	14	21		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	80AA-BSB-01#6	13.5 ft	9.5	0.011			1.2	15.0	47.6	36.2
⊠	80AA-BSB-01#13	33.5 ft	2	0.012	0.006	0.002	0.0	1.3	88.1	10.7
▲	80AA-BSB-03#3	6.0 ft	9.5	0.01	0.002		3.5	17.6	47.5	31.4

WEI GRAIN_SIZE_IDH 2553901.GPJ US_LAB.GDT 5/9/22

WEI SINCE 1982

Terracon

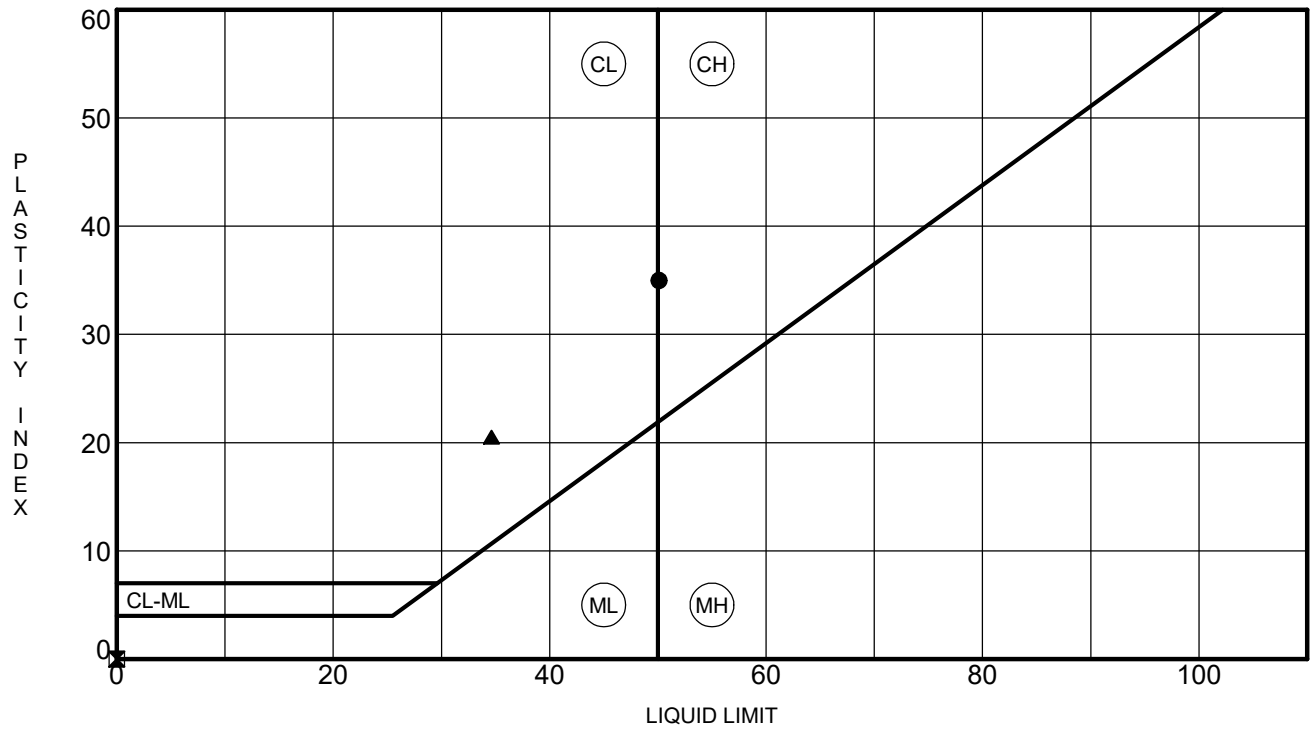
Telephone:
Fax:

GRAIN SIZE DISTRIBUTION

Project: I-80 Reconstruction, Ridge Road to Houbolt Road

Location: Will County, Illinois

Number: 255-39-01



Specimen Identification		LL	PL	PI	Fines	IDH Classification
● 80AA-BSB-01#6	13.5 ft	50	15	35	84	Clay
⊠ 80AA-BSB-01#13	33.5 ft	NP	NP	NP	99	Silt
▲ 80AA-BSB-03#3	6.0 ft	35	14	21	79	Clay

WEI SINCE 1982

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Fax:

ATTERBERG LIMITS' RESULTS

Project: I-80 Reconstruction, Ridge Road to Houbolt Road

Location: Will County, Illinois

Number: 255-39-01

Unconfined Compressive Strength of Intact Rock Core Specimens

Project: I-80 Reconstruction

Client: Stantec

WEI Job No.: 255-39-01

Field Sample ID	Run #	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							
80AA-BSB-03	1	45.0	I-80	Mudstone	4.12	NA	2.06	23290	6988	3	1/13/22	MAC	3.33
80AA-BSB-01	2	44.5	I-80	Mudstone	4.16	NA	2.06	35330	10600	3	1/13/22	MAC	3.33

*** 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:_____

Checked by: _____

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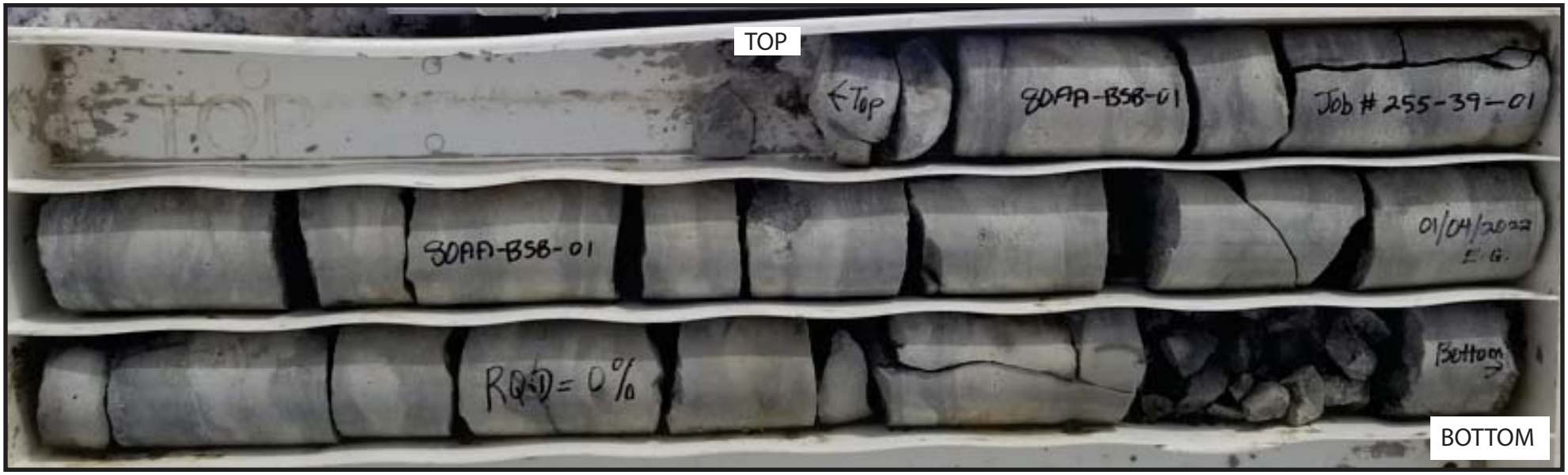
APPENDIX C

Run #1



0 6 inches

Boring 80AA-BSB-01:
Run #1, 38.5 to 43.5 feet, RECOVERY=97%, RQD=0%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

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

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FOR STANTEC | 255-39-01

Run #2

0 6 inches

Boring 80AA-BSB-01:
Run #2, 43.5 to 53.5 feet, RECOVERY=96%, RQD=55%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

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

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FOR STANTEC | 255-39-01

Run #1

0 6 inches

Boring 80AA-BSB-02:
Run #1, 36.5 to 46.5 feet, RECOVERY=90%, RQD=36%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

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

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FOR STANTEC | 255-39-01

Run #2

0 6 inches

Boring 80AA-BSB-02:
Run #2, 46.5 to 52.0 feet, RECOVERY=100%, RQD=66%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-4	DRAWN BY: J. Bensen CHECKED BY: A. Hamad
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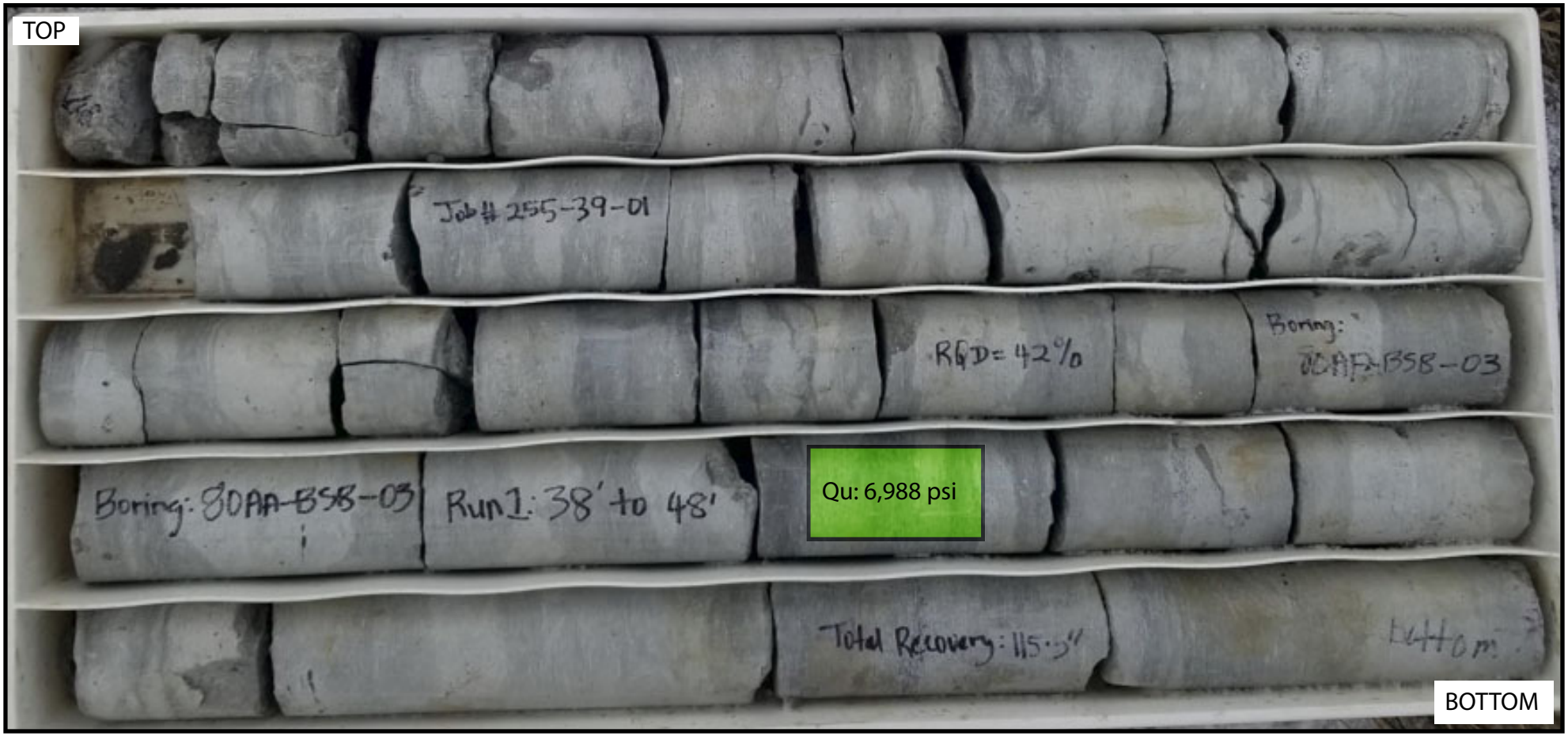
FOR STANTEC		255-39-01

Run #1



0 6 inches

Boring 80AA-BSB-03:
Run #1, 38.0 to 48.0 feet, RECOVERY=96%, RQD=42%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-5	DRAWN BY: J. Bensen CHECKED BY: A. Hamad
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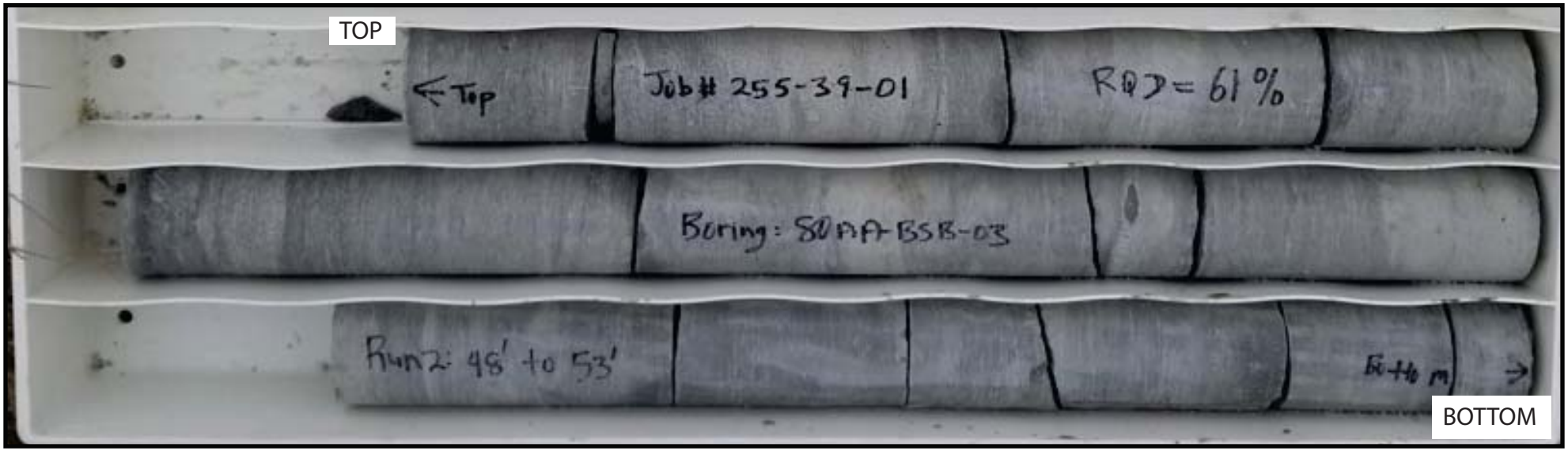
FOR STANTEC		255-39-01

Run #2



0 6 inches

Boring 80AA-BSB-03:
Run #2, 48.0 to 53.0 feet, RECOVERY=100%, RQD=61%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-6	DRAWN BY: J. Bensen CHECKED BY: A. Hamad

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FOR STANTEC	255-39-01

Run #1

0 6 inches

Boring 80AA-BSB-04:
Run #1, 39.0 to 49.0 feet, RECOVERY=95%, RQD=42.5%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-7	DRAWN BY: C. Davis CHECKED BY: A. Hamad
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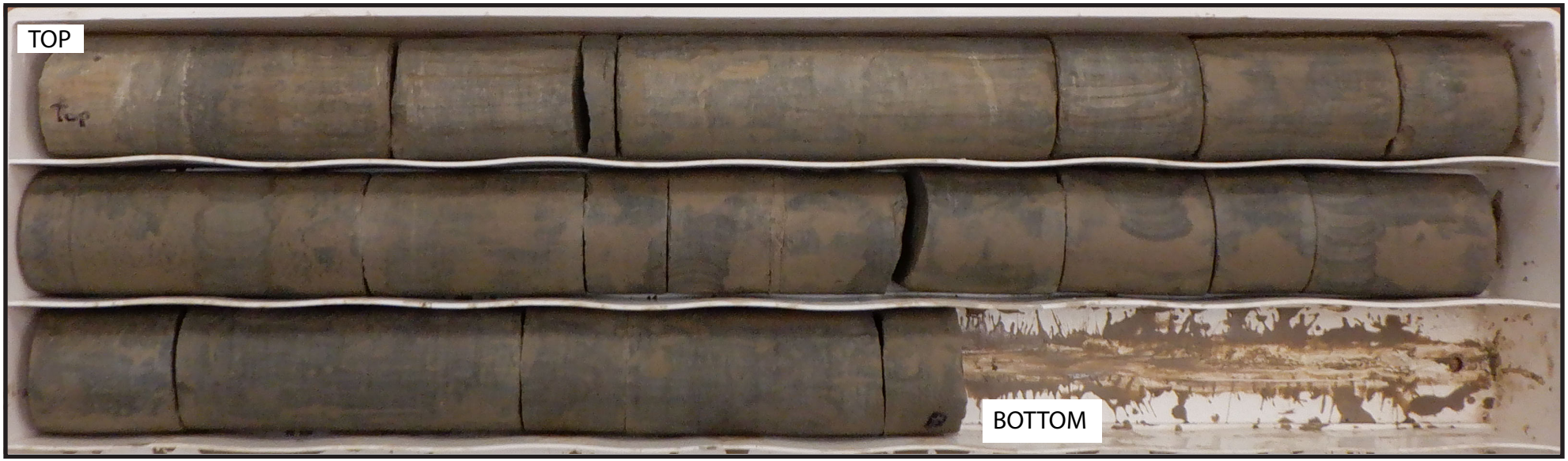
FOR STANTEC		255-39-01

Run #2



0 6 inches

Boring 80AA-BSB-04:
Run #2, 49.0 to 54.0 feet, RECOVERY=100%, RQD=48%

BEDROCK CORE: I-80 BRIDGE OVER RAMP AA; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL	APPENDIX C-8	DRAWN BY: C. Davis CHECKED BY: A. Hamad

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FOR STANTEC	255-39-01

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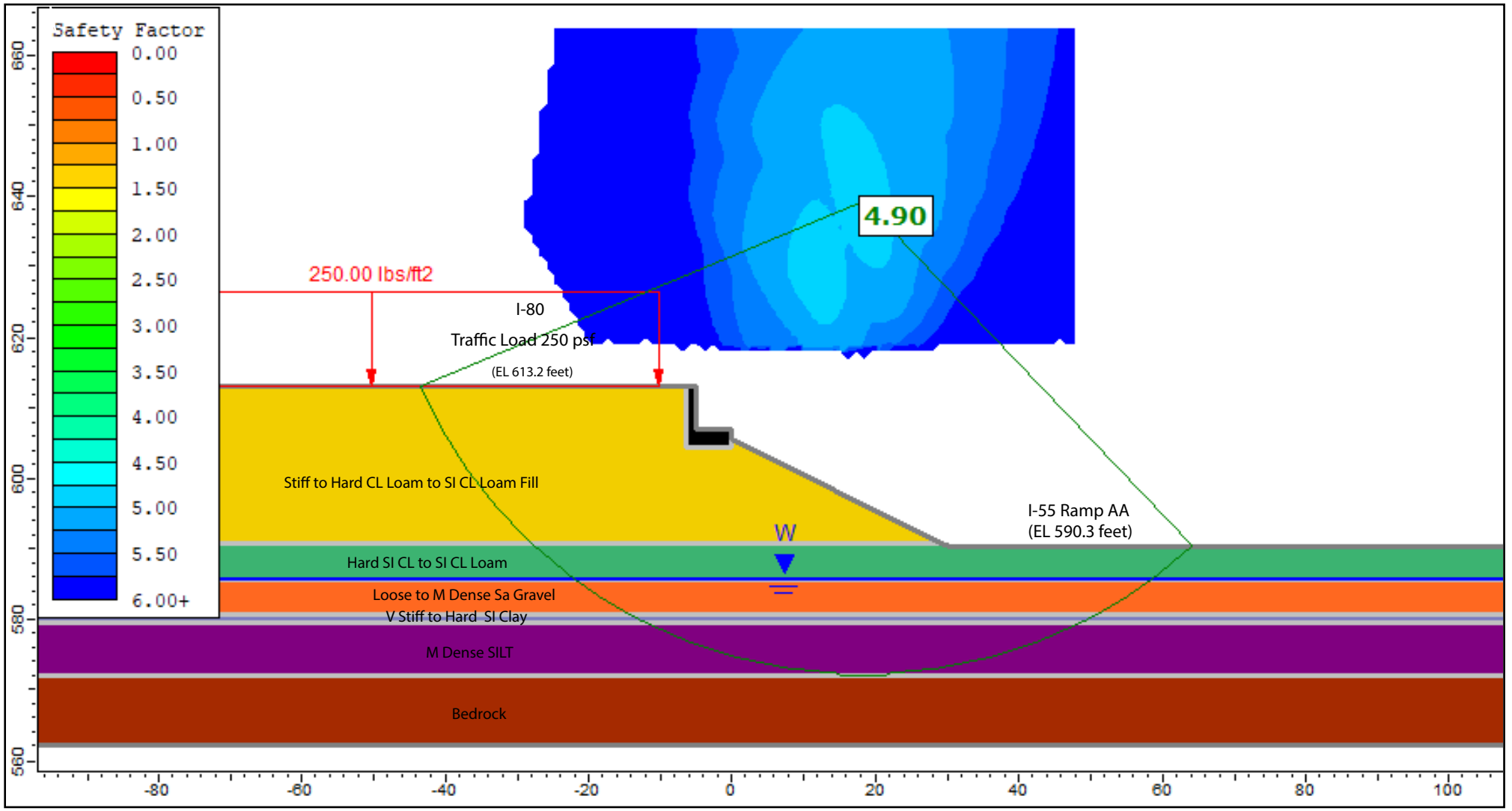
APPENDIX D



Undrained Analysis, West Abutment End Slope, Ref Boring: 80AA-BSB-02

Layer ID	Description	Total Unit Weight (pcf)	Undrained Cohesion (psf)	Undrained Friction Angle (degrees)
1	Stiff to Hard CL Loam to SI CL Loam Fill	125	4000	0
2	Hard SI CL to SI CL Loam Fill	120	4500	0
3	Loose to M Dense SA Gravel	120	0	30
4	V Stiff to Hard SI Clay	120	2000	0
5	M Dense SILT	120	0	32

GLOBAL STABILITY: I-80 OVER I-55 RAMP AA BRIDGES; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT ROAD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL | APPENDIX D-1 | DRAWN BY: D. You | CHECKED BY: N. Balakumaran

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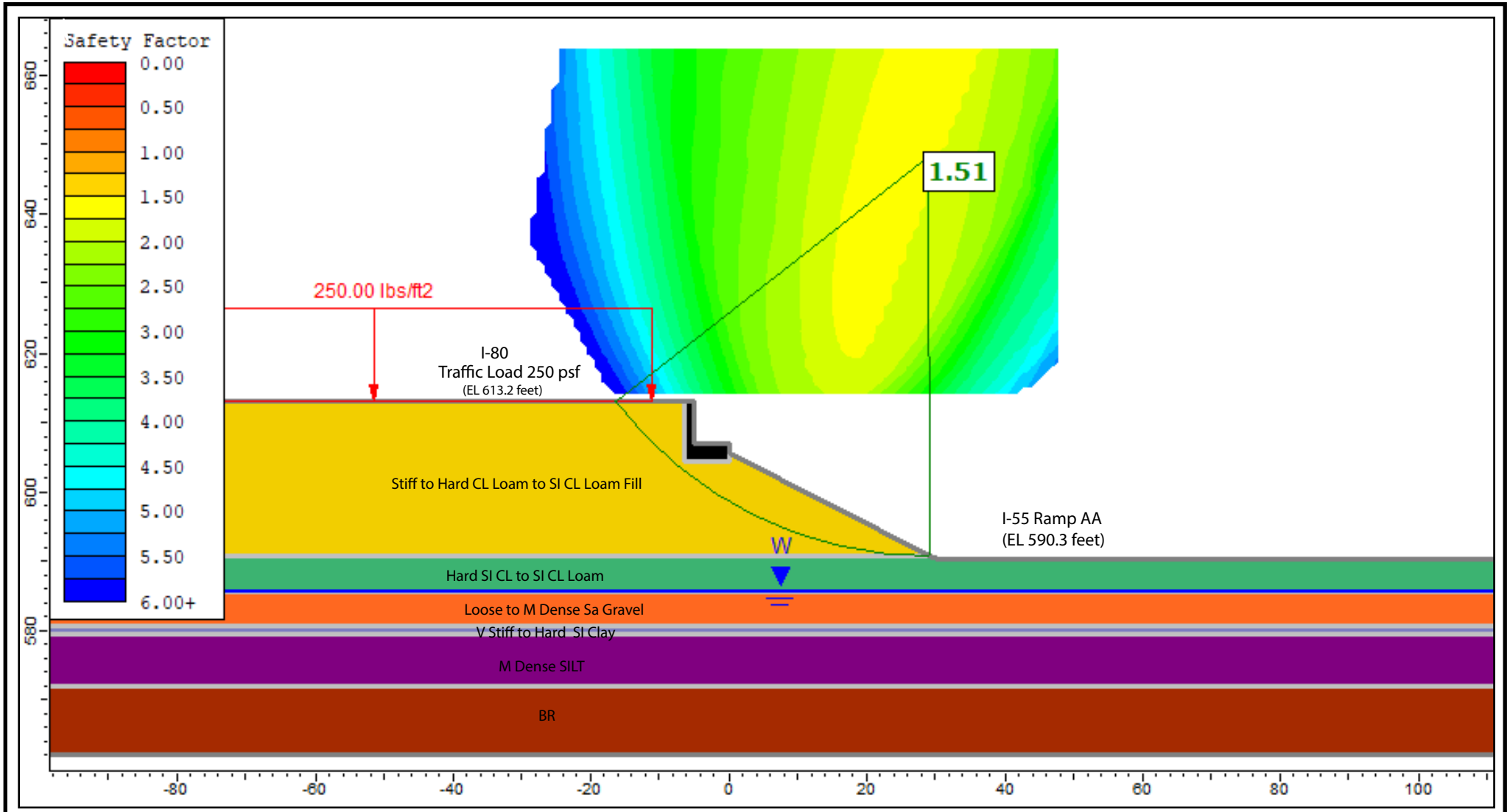
FOR STANTEC | 255-39-01



Drained Analysis, West Abutment End Slope, Ref Boring: 80AA-BSB-02

Layer ID	Description	Total Unit Weight (pcf)	Drained Cohesion (psf)	Drained Friction Angle (degrees)
1	Stiff to Hard CL Loam to SI CL Loam Fill	125	100	30
2	Hard SI CL to SI CL Loam	120	100	30
3	Loose to M Dense SA Gravel	120	0	30
4	V Stiff to Hard SI Clay	120	100	30
5	M Dense SILT	120	0	32

GLOBAL STABILITY: I-80 OVER I-55 RAMP AA BRIDGES; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT ROAD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL | APPENDIX D-2 | DRAWN BY: D. You | CHECKED BY: N. Balakumaran

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FOR STANTEC | 255-39-01

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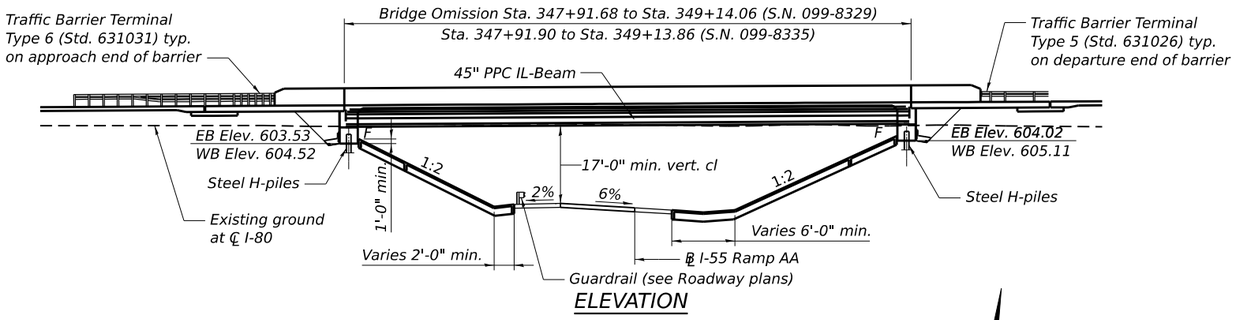
APPENDIX E

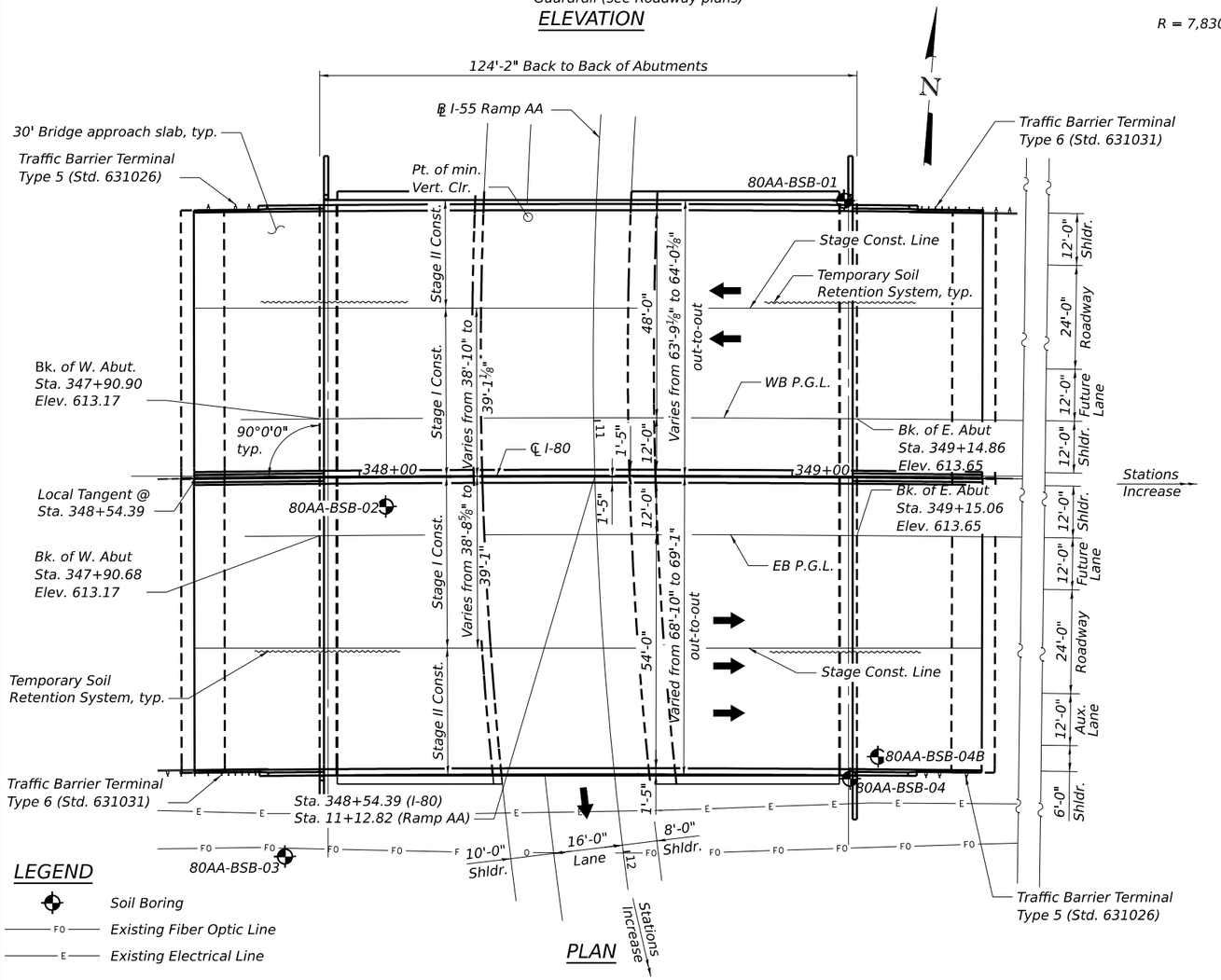
Benchmark: Set 2" CWA aluminum disc in northernly bridge parapet wall in west bound I-80 over southwest frontage road, approximately 500'± west of mile marker 126 on north side of westbound I-80. Elevation 606.973

Existing Structure: None. Traffic to be maintained utilizing staged construction.

No Salvage.



ELEVATION



PLAN

LEGEND

- Soil Boring
- FO — Existing Fiber Optic Line
- E — Existing Electrical Line

UTILITIES SCOPE OF WORK

Existing fiber optic and electrical lines to be relocated.

HIGHWAY CLASSIFICATION

FAI Rte. 80 - I-80	FAI Rte. 55 - I-55 Ramp AA
Functional Class: Interstate	Functional Class: Interstate
ADT: 48,900 (2021); 31,700 (2040)	ADT: 7,600 (2021) 15,800 (2040)
ADTT: 12,420 (2021); 10,140 (2040)	ADTT: 1,930 (2021) 5,060 (2040)
DHV: 5,900	DHV: 2,270
Design Speed: 70 m.p.h.	Design Speed: 50 m.p.h.
Posted Speed: 65 m.p.h.	Posted Speed: 50 m.p.h.
Two-Way Traffic	One-Way Traffic
Directional Distribution: 50:50	Directional Distribution: 100:0

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

DESIGN STRESSES

FIELD UNITS

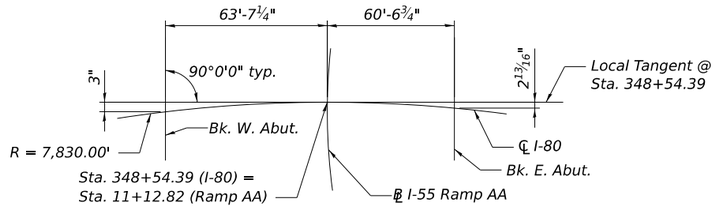
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50) (Soldier Pile)

PRECAST PRESTRESSED UNITS

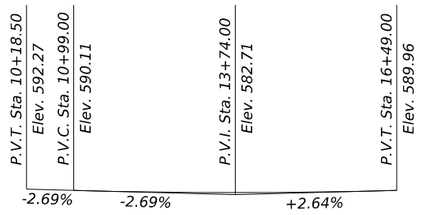
f'ci = 6,500 psi
f'c = 8,500 psi
fpu = 270,000 psi (0.6" ∅ low lax strands)
fpbt = 202,300 psi (0.6" ∅ low lax strands)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.068g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.127g
Soil Site Class = C

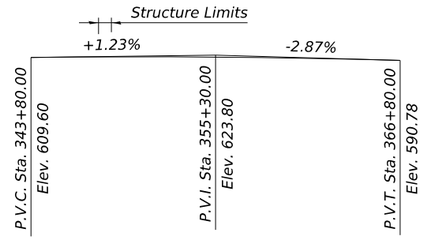


OFFSET SKETCH



PROFILE

(Along ℄ I-55 Ramp AA)

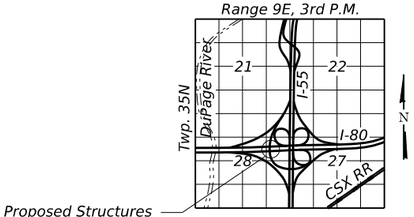


PROFILE

(Along I-80 EB P.G.L. & WB P.G.L.)

CURVE DATA

(I-80)	(Ramp AA)
P.I. Sta. = 349+83.73	P.I. Sta. = 16+71.68
Δ = 4° 00' 13" (RT)	Δ = 94° 06' 00" (LT)
D = 0° 43' 54"	D = 6° 11' 39"
R = 7,830.00'	R = 925.00'
T = 273.67'	T = 993.68'
L = 547.11'	L = 1,519.18'
E = 4.78'	E = 432.58'
e = 2.60%	e = 6.00%
T.R. = 86'	T.R. = N/A'
S.E. Run = 156'	S.E. Run = N/A'
P.C. Sta. = 347+10.06	P.C. Sta. = 6+78.00
P.T. Sta. = 352+57.18	P.T. Sta. = 21+97.18



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
I-80 OVER I-55 RAMP AA
F.A.I. ROUTE 80 - SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 348+54.39
STRUCTURE NO. 099-8329 (E.B.)
STRUCTURE NO. 099-8335 (W.B.)

Stantec

USER NAME = $USER$	DESIGNED - CRS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
	CHECKED - DTS	REVISED -		
PLOT SCALE = $SCALE$	DRAWN - CRS	REVISED -		
PLOT DATE = $DATE$	CHECKED - DTS	REVISED -		SHEET 1 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	3	1
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	

MODEL: Slopewall
FILE NAME: pw:\transystems-pw.bentley.com:transyscorp-pw1-hosted\Documents\Projects_2018\CH401\401180022\01-Stantec\CAD\ML-04_62R28\04-Sheets\04-Structures\099-8329 & 8335 I-80 over Ramp AA\0998329_0998335-ML-04-001-TSL.dgn
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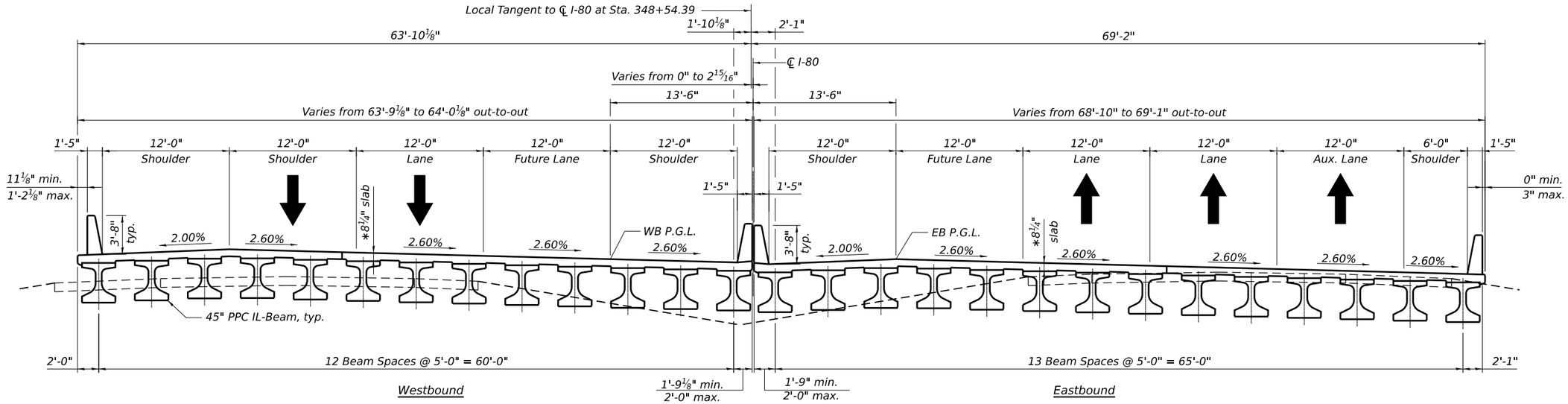
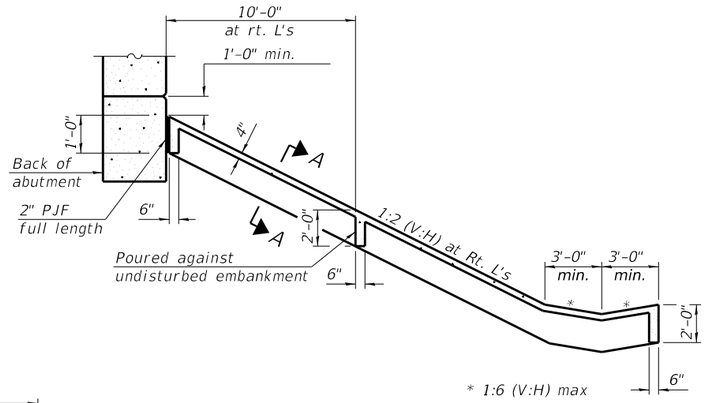


∗ Prior to grinding

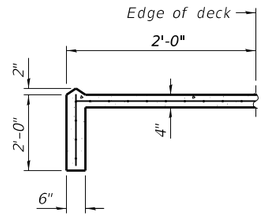
CROSS SECTION

(Looking East)

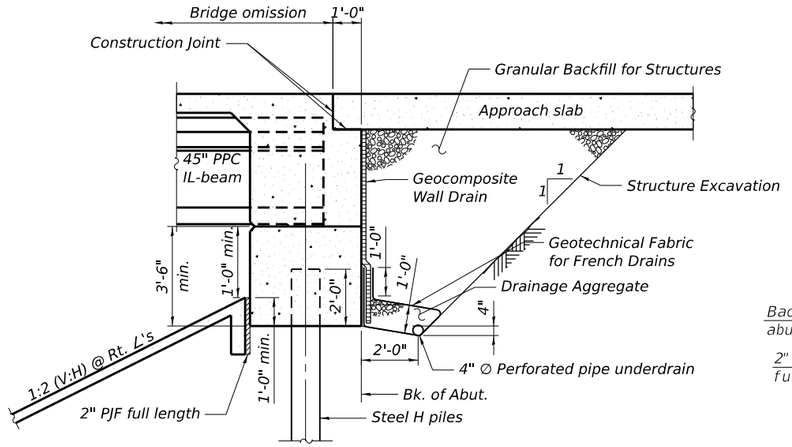
Note:
All dimensions measured perpendicular to local tangent at Sta. 348+54.39 radially except lane widths, which are measured radial.



SECTION THRU CONCRETE SLOPEWALL AT EAST ABUTMENT

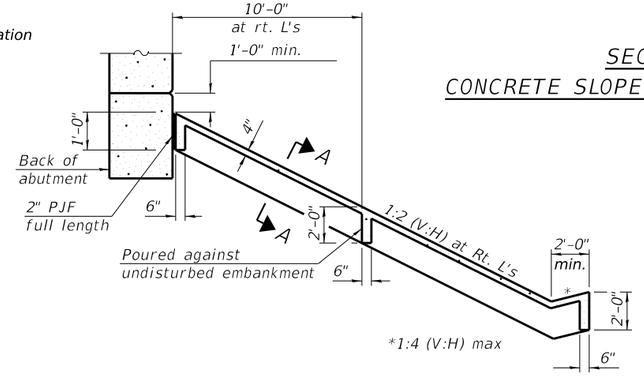


SECTION A-A



SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. ∠'s)



SECTION THRU CONCRETE SLOPEWALL AT WEST ABUTMENT

DETAILS
I-80 OVER I-55 RAMP AA
F.A.I. ROUTE 80 - SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 348+54.39
STRUCTURE NO. 099-8329 (E.B.)
STRUCTURE NO. 099-8335 (W.B.)

Stantec

USER NAME = $USER$		DESIGNED - CRS		REVISED -	
		CHECKED - DTS		REVISED -	
PLOT SCALE = $SCALE$		DRAWN - CRS		REVISED -	
PLOT DATE = $DATE$		CHECKED - DTS		REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	3	2
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	

MODEL: 2D Sheet H - Slopewall
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/401180022/01-Stantec/CAD/ML-04_62R28/04-Sheets/04-Structures/099-8329 & 8335 I-80 over Ramp AA/0998329_0998335-ML-04-002-TSL.dgn

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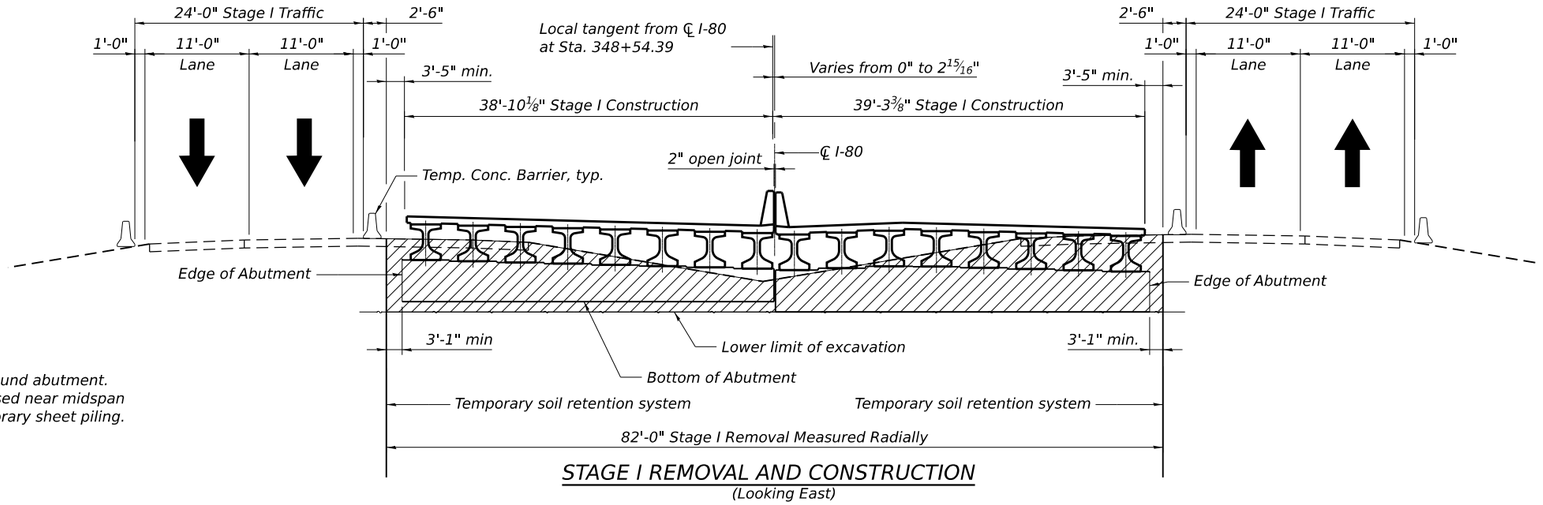
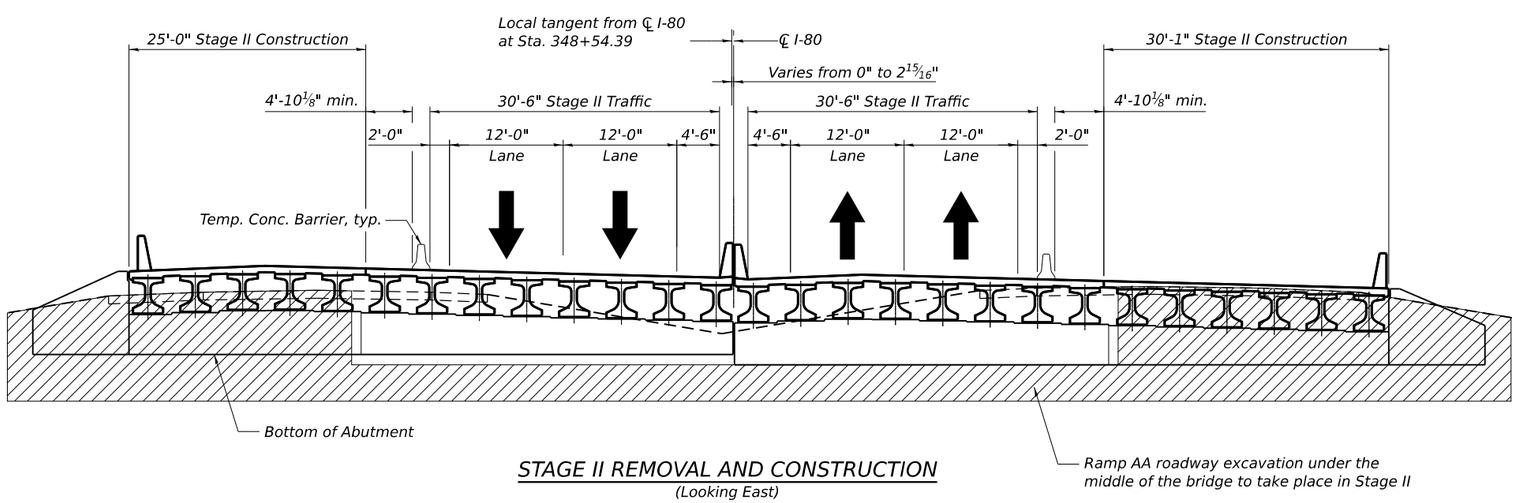


Note:
Section showing grading around abutment.
Sloped excavation can be used near midspan of bridge to eliminate temporary sheet piling.

STAGE I REMOVAL AND CONSTRUCTION
(Looking East)

LEGEND

Soil excavation and roadway removal



STAGE II REMOVAL AND CONSTRUCTION
(Looking East)

CONSTRUCTION STAGING
I-80 OVER I-55 RAMP AA
F.A.I. ROUTE 80 - SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 348+54.39
STRUCTURE NO. 099-8329 (E.B.)
STRUCTURE NO. 099-8335 (W.B.)

MODEL: 2D Sheet H - Slopewall
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/401180022/01-Stantec/CAD/ML-04_62R28/04-Sheets/04-Structures/099-8329 & 8335 I-80 over Ramp AA/0998329_0998335-ML-04-003-TSL.dgn

Stantec

USER NAME = $USER$	DESIGNED - CRS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
	CHECKED - DTS	REVISED -		
PLOT SCALE = $SCALE$	DRAWN - CRS	REVISED -		
PLOT DATE = $DATE$	CHECKED - DTS	REVISED -		SHEET 3 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	3	3
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	

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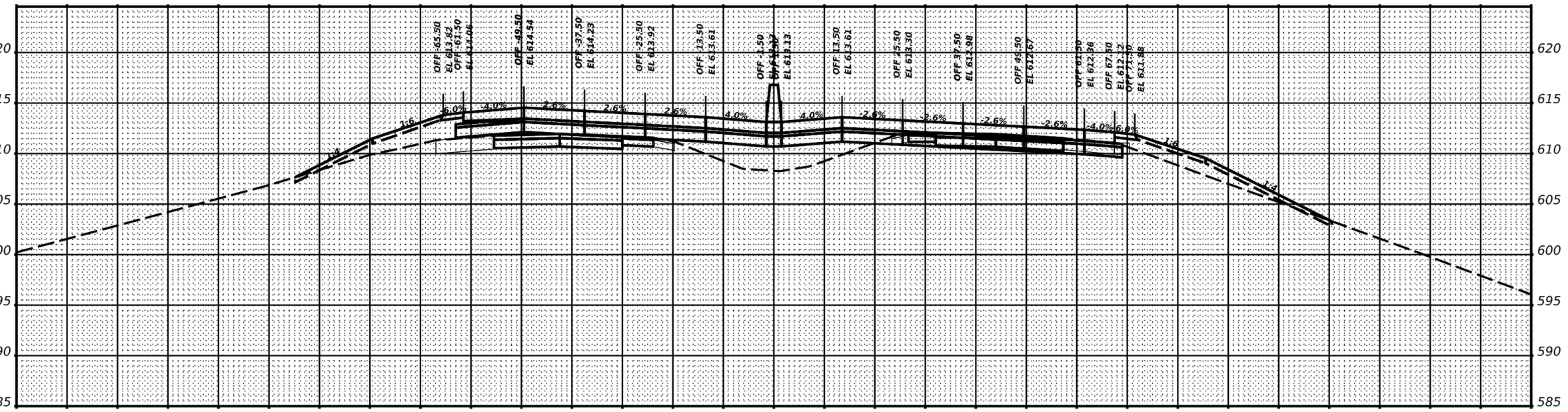
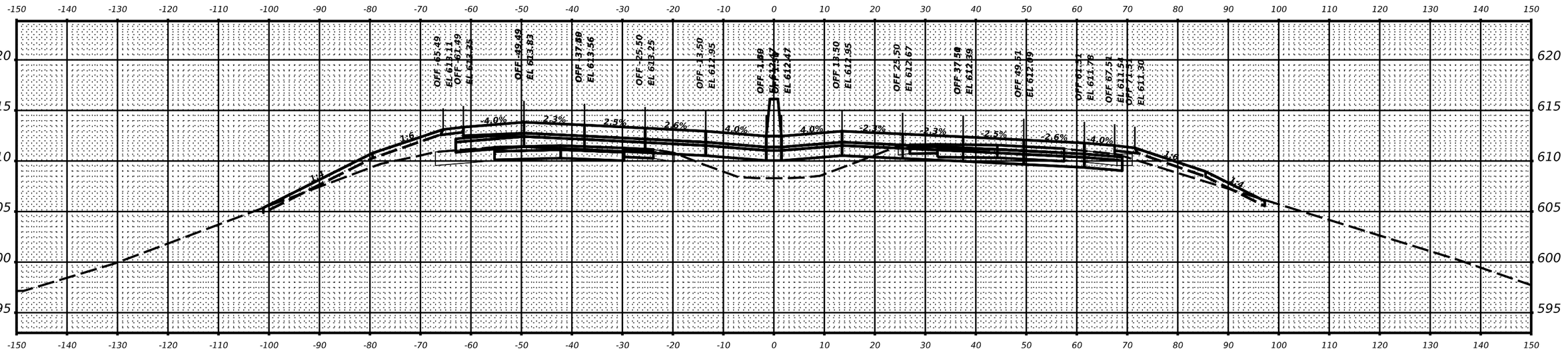
Wang Engineering
1145 North Main Street
Lombard, Illinois 60148
Phone (630) 953-9928
www.wangeng.com

APPENDIX F



STA 349+00.00



STA 347+50.00

Stantec	USER NAME = $USER$	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CROSS SECTIONS
		DRAWN -	REVISED -		
	PLOT SCALE = $SCALE$	CHECKED -	REVISED -		SCALE: SHEET OF SHEETS STA.
	PLOT DATE = $DATE$	DATE -	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
$RTE	$SEC	$CNTY	$TOT	
		CONTRACT NO. $CONTRACT		
	ILLINOIS FED. AID PROJECT			

FINAL SURVEY / ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

MODEL: $MODELNAME$
FILE NAME: $FILE$