STRUCTURE GEOTECHNICAL REPORT
INTERSTATE 80 BRIDGES OVER
WEST FRONTAGE ROAD
EX SNS 099-0042 (EB) AND 099-0043 (WB)
PR SNS 099-8314 (EB) AND 099-8315 (WB)
WILL COUNTY, ILLINOIS

For
Stantec

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Submitted by

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11. Abstract

Two new, single-span bridges will replace the existing single-span bridges carrying Interstate 80, Ramp A, and Ramp D over West Frontage Road in Will County, Illinois. The proposed structures will have back-to-back of abutments length of 50.0 feet and out-to-out widths ranging from 94.4 to 115.1 feet. The proposed east and west abutment cap base elevations are 595.98 to 597.87 and 595.58 to 597.21 feet, respectively. Mechanically Stabilized Earth (MSE) walls are proposed in front of each of the abutments. The walls will have maximum total heights of 16.9 and 16.2 feet at the east and west abutments, respectively. This report provides geotechnical recommendations for the design and construction of the proposed approach embankments, approach slabs, retaining walls, and bridge foundations.

The pavement structure along I-80 consists of 12 to 14 inches of asphalt or 15 to 27 inches of concrete over 12 to 25 inches of aggregate base or granular fill. Beneath the I-80 pavement structure, the general lithologic profile includes up to 19.0 feet of embankment materials consisting of medium stiff to hard silty clay to silty clay loam overlying up to 20.0 feet of stiff to hard silty clay to silty clay loam with lenses of loose to medium dense silty loam and sand to sandy gravel. Shaly dolostone to dolostone bedrock was encountered at elevations of about 569 to 564 feet. The groundwater level was measured at elevations ranging from 584 to 574 feet.

The MSE walls will undergo long-term consolidation settlements of up to 0.8 inches. Global stability analyses at the MSE walls show FOS meeting the IDOT minimum requirement of 1.5. The maximum factored bearing resistance for the approach footings is 2,500 psf.

The bridge abutments could be supported on driven piles and downdrag allowances will be required. To support the integral abutments, driven HP12x53, HP 12x74, HP 14x73, HP14x89, and HP 14x102 steel piles will provide 176 to 392 kips of factored resistance at total lengths of 32 to 36 feet.

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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 reconstruction of the bridges carrying eastbound (EX SN 099-0042) and westbound (EX SN 099-0043) Interstate 80 (I-80) over West Frontage Road in Will County, Illinois. We understand the adjacent exit Ramp A carrying eastbound I-80 traffic to southbound Interstate 55 and entrance Ramp D carrying southbound I-55 traffic to westbound I-80 will also be reconstructed as part of this improvement and are addressed in this report.

The project area is located in west central Will County, along I-80, south of the Village of Shorewood. On the USGS *Channahon Quadrangle 7.5 Minute Series* map, the project is in the E ½ of Section 28, Tier 35 N, Range 9 E of the Third Principal Meridian. A *Site Location Map* is presented as Exhibit 1. The bridge replacements 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 and will be reconstructed as part of Contract ML-4.

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 bridge foundations, approach embankments, approach slabs, and retaining walls.

1.1 Existing Structures and Ground Conditions

Based on the *Bridge Condition Reports (BCRs)*, dated March 11, 2020 and provided by Stantec, Wang Engineering, Inc. (Wang) understands the existing bridges were originally built in 1960 as single-span structures supported by cast-in-place reinforced concrete closed abutments (restrained top and bottom) supported on spread footings. The wingwalls were supported on spread footings and the approach slabs are supported on timber piles. The existing bridges have lengths of 28.0 feet from back-to-back of abutments and out-to-out widths varying from 67.6 to 69.0 feet. The structures were repaired in 1980, 1993, and 2001. In 2005, the existing eastbound mainline structure was extended towards the south and a new bridge was constructed to the north to accommodate Ramps A and D, respectively. The existing north and south wingwalls were removed and the abutments were widened to the outside. New wingwalls were constructed at the widened ends. Based on the existing drawings, we understand the Ramp A abutments are supported on HP 8x36 piles whereas the Ramp D abutments are supported on spread footings similar to the I-80 bridges.

The site surface elevation is generally flat gently sloping westward toward DuPage River. The bridges are located between the two valleys. DuPage River runs south about 0.3 miles west of the new bridges and Rock Run Creek runs south about 0.9 miles east of the bridges. The ground surface is about 605 feet along the I-80 embankment near the bridges and at about 590 feet along West Frontage Road.

In the project area (see Exhibit 2), about 15- to 19-foot thick mainly cohesive man-made ground, the roadway embankment, is placed over about 15 to 25 feet of overburden made up of low to moderate plasticity, medium to high strength, and low to moderate moisture content silty clayey diamicton resting over granular, very dense, low compressibility silty loam diamicton unconformably which covers the bedrock (Bauer et al. 1991, Hansel and Johnson 1996, Leighton et al. 1948, Willman et al. 1971). The bedrock is made up of shaly dolostone and top of bedrock is mapped at about 565 feet elevation. The site is located just north of the inactive Sandwich Fault Zone (Kolata 2005). The shallow bedrock is highly to moderately weathered and may show the presence of cavities more likely filled with fine sediment. There are no records of mining activity within the bridge site. Cavities were not observed during our subsurface investigation at the site but might be uncovered during our additional investigation or during construction. Neither the overburden nor the upper bedrock is known to include significant sources of water supply (Woller and Sanderson 1983).

1.2 Proposed Structures

Based on the *General Plan and Elevation Drawings* (Appendix E), prepared by HBM Engineering Group, LLC (HBM) and dated May 18, 2023, Wang understands the existing single-span bridges carrying I-80, Ramp A, and Ramp D will be removed and replaced with two new, single-span bridges with integral abutments. The new bridges will have back-to-back of abutments length of 50.0 feet and out-to-out widths of 94.4 to 115.1 feet to accommodate four 12-foot wide lanes (EB only), three 12-foot wide lanes (WB only), a 9.6- to 25.9-foot wide gore, the 16-foot wide Ramp A lane (EB only), the 16-foot wide Ramp D Lane (WB only), 4-to 12-foot wide shoulders, and 1.4-foot wide parapets.

Based on the *Cross-sections* (Appendix F) provided by Stantec, and dated October 20, 2022, the existing grade along I-80 is approximately 604.0 to 605.0 feet and the proposed back of abutment elevations range from 602.13 to 606.45 feet; therefore, the grade will be raised by up to 24 inches near the median and lowered by about 12 inches along the shoulders at the west and east approaches, respectively. We estimate the east and west abutments will be constructed about 8.0 to10.0 feet behind the existing abutments. About 2.0 to 3.0 feet of new fill will be placed along the existing median at the west and east approaches, respectively, to facilitate the inward widening of the bridges by about 22.5 to 27.1 feet at the north and south sides of the eastbound and westbound bridges, respectively.

The plans show Mechanically Stabilized Earth (MSE) walls proposed in front of each of the abutments. The MSE walls will be placed along the existing end slopes and will support the embankment fill at the bridge approaches and behind the abutments. The MSE walls will run parallel to West Frontage Road and will partially wrap around the north and south side of the bridge approaches, extending about 38.0 and 40.0 feet along the southeast and southwest ends and about 36.0 and 28.0 feet along the northeast and northwest ends, respectively. The walls will have maximum total heights of 16.9 and 16.2 feet at the east and west abutments, respectively.

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 nine bridge borings, designated as FR-BSB-01 to FR-BSB-09, drilled by Wang between October 2022 and February 2023. The borings were drilled from elevations of 587.5 to 605.3 feet and were advanced to depths of 35.0 to 54.5 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).

To supplement our subsurface investigation, we considered the historical borings drilled in 1992 as part of the bridge widening and designated as Borings SB-01, SB-02, and SB-46 to SB-49. These borings are also included in the *Boring Logs* (Appendix A) and 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 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 rock cores were placed into marked core boxes and transported to the laboratory for further examination and testing.

Field boring logs, prepared and maintained by Wang field engineers, 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 the borings and prior to coring the bedrock in Borings FR-BSB-01, FR-BSB-02, FR-BSB-04, FR-BSB-05, FR-BSB-06, and FR-BSB-09. Given the location of the boreholes and limited access requiring traffic control, it was not feasible to delay backfilling of borings to obtain 24-hour water level measurements. Each borehole 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 analysis (AASHTO T88) tests 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 with occasional lenses of sand and gravel resting over weathered bedrock. The granular soil is water-bearing with seasonal fluctuation. Top of dolostone bedrock was encountered at elevations of 565 to 567 feet (38 to 39.5 feet bgs) as predicted based on geologic data. The borings did not expose the presence of sediment filled cavities; however, the geologic site information indicates the possible presence of cavities.

3.1 Lithological Profile

Boring FR-BSB-01 was drilled along the Frontage Road shoulder and measured 13 inches of asphalt pavement overlying granular soil. Borings FR-BSB-02 to FR-BSB-04 were drilled along the I-80 and Ramp shoulders and revealed the pavement structure consists of 12 to 14 inches of asphalt overlying 12 to 25 inches of dry sandy gravel aggregate base or cohesive/granular fill. Borings FR-BSB-08 and FR-BSB-09 were drilled along the ramp shoulders and sampled 15 to 27 inches of concrete overlying fill. Borings FR-BSB-05 to FR-BSB-07 were drilled closer to the lane along I-80 and measured 1 to 6 inches of asphalt followed by 8 to 20 inches of concrete pavement overlying cohesive fill. In descending order, the general lithologic succession encountered beneath the pavement includes: 1) man-made ground (fill); 2) stiff to hard silty clay to silty clay loam; and 3) strong, poor to good quality shaly dolostone to dolostone.

1) Man-made ground (fill)

Beneath the pavement structure, the borings drilled along I-80 encountered up to 19.0 feet of cohesive fill. The cohesive fill consists of medium stiff to hard, brown and gray silty clay to silty clay loam and clay to clay loam with unconfined compressive strength (Q_u) values of 0.8 to 6.3 tsf and moisture content values of 5 to 28%. Laboratory index testing on samples from this layer showed liquid limit (LL) values of 25 to 42% and plastic limit (PL) values of 12 to 18%.

A layer of granular fill with a thickness of 1.0 to 3.0 feet was noted either directly underneath the pavement or within the cohesive fill in Borings FR-BSB-03, FR-BSB-06, and FR-BSB-09. The granular fill consists of loose to medium dense, brown and gray loam to clay loam and sand to sandy gravel with SPT N values of 6 to 11 blows per foot and moisture content values of 5 to 12%.

An 11- to 46-inch thick layer of buried, black silty clay to silty clay loam topsoil with moisture content values of 16 to 29% was sampled beneath the fill in the borings. The presence of this layer most likely indicates the boundary between fill and natural soils.

2) Stiff to hard silty clay to silty clay loam

Beneath the fill, at elevations of 587 to 583 feet, the borings advanced through 10.0 to 20.0 feet of stiff to hard, brown to gray silty clay to silty clay loam and clay to clay loam characterized by Q_u

values of 1.5 to 10.2 tsf and moisture content values of 12 to 28%. Laboratory index testing on samples from this layer showed LL and PL values of 39 to 40% and 17 to 19%, respectively. The possible presence of cobbles was noted at an elevation of 569 feet (35.0 feet bgs) within Boring FR-BSB-04. Saturated sand seams were noted within this layer.

A 1.0- to 10.0-foot thick, brown and gray, moist to saturated, loose to medium dense silty loam and sand to sandy gravel layer was encountered in Borings FR-BSB-01, FR-BSB-02, and FR-BSB-04 to FR-BSB-09 at elevations of 584 to 574 feet. Heaving sands were also present in the augers at this elevation range. This granular material is characterized by SPT N values of 5 to 33 blows per foot and moisture contents of 9 to 25%. This layer is considered saturated.

3) Strong, poor to good quality shaly dolostone to dolostone

At elevations of 568 to 566 feet, Borings FR-BSB-02 and FR-BSB-03 advanced through 2.0 to 3.0 feet of very dense, weathered bedrock. This soil unit has N-values of greater than 50 blows per inch and moisture content values of 6to 12%.

At elevations of 569 to 564 feet (depths of 19.5 to 39.5 feet bgs), the borings encountered and cored strong, poor to good quality, slightly to highly weathered shaly dolostone to dolostone bedrock. The Rock Quality Designation (RQD) ranges from 4 to 89% and uniaxial compressive strength tests revealed Q_u values of 8,205 to 12,298 psi. The bedrock core data is shown in the *Bedrock Core Photographs* (Appendix C).

3.2 Groundwater Conditions

Along I-80, groundwater was encountered while drilling the borings at elevations of 584 to 574 feet (4.0 to 31.0 feet bgs) primarily within the sand to sandy gravel and silty loam layers. At the completion of drilling and before coring, Borings FR-BSB-01, FR-BSB-02, FR-BSB-04 to FR-BSB-06, and FR-BSB-09 recorded groundwater at elevations of 589 to 576 feet (9.0 to 28.0 feet bgs) mainly within the sand and silty loam layers. The sand to silty loam layer is saturated. For analysis purposes, the design groundwater level was considered to be at an approximate elevation of 582 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. Additionally, water perched within the upper granular fill layers underneath the pavement structure may be encountered.

4.0 FOUNDATION ANALYSIS AND RECOMMENDATIONS

The *Cross-Section* drawings (Appendix F) indicate the grade along I-80 will be raised by up to 24 inches near the median and lowered by about 12 inches along the shoulders at the west and east approaches, respectively. We understand the east and west integral abutments will be constructed about 8.0 feet behind the existing abutments. About 2.0 to 3.0 feet of new fill will be placed along the existing median at the west and east bridge approaches, respectively, to facilitate the inward widening of the bridges by about 22.5 to 27.1 feet to the north and south sides of the eastbound and westbound bridges, respectively.

MSE walls are proposed in front of each of the abutments with maximum total heights of 16.9 and 16.2 feet at the east and west abutments, respectively. The MSE walls will be placed along the existing end slopes and will support the embankment fill at the bridge approaches and behind the abutments. The walls will run parallel to West Frontage Road and will partially wrap around the north and south side of the bridge approaches.

Wang has evaluated the possible foundation types that could be considered for support of the proposed bridge structures and we recommend supporting the integral abutments on driven piles. Supporting the abutment substructures on shallow foundations is not feasible due to the large loads anticipated from the abutments and drilled shaft foundations are not approved for use with integral abutments (IDOT 2020a). Geotechnical evaluations and recommendations for the approach embankments, approach slabs, substructure foundations, and retaining walls are included in the following sections.

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 of 82 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 *Geotechnical Manual* (IDOT 2020a), 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 Mechanically Stabilized Earth Walls

The plans indicate the existing retaining walls along West Frontage Road will be removed and MSE walls are proposed in front of each of the abutments. The MSE walls will support the embankment fill behind the abutments and will also partially wrap around the north and south side of the bridge approaches, extending about 38.0 and 40.0 feet along the southeast and southwest ends and about 36.0 and 28.0 feet along the northeast and northwest ends, respectively. Based on the GPE, the MSE walls will have an approximate top of leveling pad elevation ranging from 580.0 to 589.0 feet. The wall station limits and maximum total wall heights are summarized in Table 2.

Table 2: Proposed MSE Walls

Retaining Wall ID	Station Limits	Maximum Total Height (feet)
West Wall	43+84.04, 38.07 RT to 46+42.17, 47.57 RT	16.2
East Wall	43+75.78, 45.79 LT to 46+52.78, 43.74 LT	16.9

The following sections provide our bearing resistance, settlement, sliding, and global stability evaluation for the MSE walls supporting the abutments and approach embankments. The borings show primarily low moisture, cohesive soils within the zone of influence of strength and deformation. Wang estimates these soils will provide adequate bearing resistance and global stability along with suitable total and differential long-term consolidation settlement performance.

4.2.1 Bearing Resistance

The top of the MSE leveling pads should be established at a depth of at least 3.5 feet below the finished grade at the front face of the wall (IDOT 2023). The reinforcement width should be taken as 0.7 times the total height or a minimum of 8.0 feet. For our geotechnical evaluation, we estimate equivalent factored bearing pressures of 4,900 and 4,700 psf for maximum total wall heights of approximately 16.9 and 16.2 feet at the east and west walls, respectively. The final equivalent factored bearing pressure should be provided and/or reevaluated by the designer.

Wang evaluated the suitability of the soils encountered below the estimated top of the leveling pad elevations of 580.0 to 589.0 feet. The foundation soils primarily consist of stiff to hard silty clay to silty clay loam and silty loam. However, historical Boring SB-01, drilled in the southeast corner of the bridge, encountered silty clay at or near the proposed top of levelling pad with moisture content values of 25 to 29% and SPT N values of 5 blows per foot indicating possible unsuitable soils. To provide sufficient bearing resistance and minimize potential settlement, potential removal of the unsuitable soils and replacing them with compacted granular fill may be required. Before placing the granular fill, the base of the excavation should be underlain with geotextile fabric. While the more recently drilled borings did not reveal the presence of unsuitable soil near the proposed leveling pad elevation, other patches of similar unsuitable soils may occur near the leveling pad elevation in the vicinity of Boring SB-01 or elsewhere within the footprint of the retaining walls. We recommend including in the contract documents a pay item for soil removal and replacement. Estimated limits for the area that may require removal and replacement are summarized in Table 3.

Table 3: Summary of Foundation Soil Treatment Recommendations

Approximate Wall Station Limits(1)	Treatment Width(1)	Treatment Vertical Extent (feet)	Reference Borings, Concerns
46+42.17, 47.5 RT to 46+17.64, 18.11 RT	MSE Wall Reinforcement Width	3.0	SB-01 (MC=25 to 29% and N=5 blows/foot)

(1) Treatment limits were estimated based on approximate boring location and wall limits.

The actual need for removal and replacement of soils, including the required width and depth of improvement shown in Table 3, should be determined in the field at the time of construction. Following the recommended foundation treatment, we estimate the foundation soils will provide a maximum factored bearing resistance of 5,000 psf based on a geotechnical resistance factor of 0.65 (AASHTO 2020).

4.2.2 Lateral Design Pressure and Resistance

Lateral earth pressure distribution for the design of the MSE walls should be taken as per the 2020 AASHTO LRFD *Bridge Design Specifications* Article 3.11.5.8 (AASHTO 2020); and applicable 2023 IDOT *Bridge Manual* (IDOT 2023). Design lateral pressure from surcharge loads due to roadway traffic and construction equipment should be added to the lateral earth pressure load. The estimated friction angles between the base of the MSE walls and the underlying silty clay to silty clay loam or granular backfill are 28° and 30°, respectively and the corresponding friction coefficients are 0.53 and 0.58, respectively (AASHTO 2020). MSE retaining walls are designed based on an AASHTO sliding resistance factor of 1.0 for soil-on-soil contact (AASHTO 2020). We estimate the eccentricity lies within the middle 2/3 of the walls and resistance against overturning is sufficient. The MSE walls must have both internal and external stability. The wall supplier is responsible for all internal stability aspects of the wall design.

4.2.3 Settlement

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 MSE walls will undergo maximum long-term consolidation settlements of up to 0.8 inches. We anticipate that less than 0.4 inches of settlement will remain after construction of the MSE walls. As such, the estimated settlements are appropriate for the construction of the approach slabs and MSE walls. However, the abutment piles will be driven prior to the MSE wall construction, and downdrag allowances for the proposed abutment piles will be required.

4.2.4 Global Stability

The global stability of the MSE walls was analyzed at the critical sections based on the soil profile described in Section 3.1 and the information provided in the *General Plan and Elevation* and *Cross-sections* (Appendixes E and F). The minimum required FOS for both short (undrained) and long-term (drained) conditions is 1.5 (IDOT 2020). Our analysis indicates that the MSE walls have adequate FOS. *Slide2* exhibits employing the Bishop Simplified method of analysis are shown in Appendix D.

4.2.5 Approach Slabs

The approach slabs will be supported on spread footing foundations (IDOT 2023). Based on the design drawings and soil conditions revealed in the borings, the approach slab footings will be supported mainly on the new fill to be placed along the median. 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 estimated to be 1.0 inch or less.

4.3 Structure Foundations

The soil conditions along the structures show stiff to hard clayey soils with intermittent layers of medium dense to dense saturated silty loam and sand to sandy gravel overlying shaly dolostone and dolostone bedrock. Wang recommends supporting the integral abutments on steel H-piles driven to maximum nominal bearing at the top of bedrock.

The preliminary loading information provided by HBM on June 1, 2023 and proposed abutment cap base elevations as shown in the *GPE* are summarized in Table 4.

Table 4: Preliminary Factored Loads and Proposed Pile Cap Elevations

Direction	Substructure	Pile Cap Elevations (feet)	Total Factored Load (kips)
Eastbound	West Abutment	597.21	2133
	East Abutment	597.87	2133
Westbound	West Abutment	595.58	2562
	East Abutment	595.98	2561

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 2023). Nominal tip and side resistance were estimated using the methods and empirical equations presented in the latest *IDOT Geotechnical Pile Design Guide* (IDOT 2020a). Based on the loads provided by HBM and the proposed width of the substructures, the load per pile at the abutments will range between about 64 and 205 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. Since the MSE walls will be constructed after the abutment piles are driven, the relative settlement will be greater than 0.4-inch. Therefore, downdrag allowances will be required for the abutment piles.

In accordance with the IDOT *Bridge Manual* (IDOT 2023), a pile sleeve of either polymer, plastic, or steel pipe shall be placed around each pile for the top 10 feet of the MSE select backfill when the structure length is greater than 100 feet. As per IDOT guidance, for bridge lengths of less than 100 feet, pile sleeves are not required. Pile capacity evaluations have been performed assuming that pile driving begins at the base of the MSE walls at an average elevation of 581.5 feet. The pile lengths shown in the tables assume a 2-foot pile embedment into the pile cap and include the section of the pile within the MSE reinforced zone. The R_F, R_N, estimated pile tip elevations, and pile lengths for HP12x53, HP 12x74, HP 14x73, HP 14x89, and HP 14x102 steel H-piles for the abutments are summarized in Tables 5 and 6.

High blow counts, Q_u values of greater than 4.5 tsf, and sampler refusal were noted within the borings below an approximate elevation of 585 feet. As such, pile shoes should be used for the driven piles to avoid damage to 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 weathered bedrock and/or shaly dolostone. In these instances, the piles should be considered end bearing and designed for the maximum capacity of the pile. IDOT generally recommends that H-piles be driven to their maximum nominal required bearing.

Based on the geometry shown in the *GPE* (Appendix E), the existing abutment footings and/or piles at the existing Ramp A abutments may conflict with driving some of the piles and the proposed abutment pile locations should be selected to miss the existing footings and/or piles.

Table 5: Estimated Pile Lengths and Tip Elevations for Steel H-Piles Driven to R_{NMAX} without Pile Sleeves (WB)

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 (1) (feet)	Estimated Pile Tip Elevation (feet)
I-80 WB and Ramp D West Abutment FR-BSB-02, FR-BSB-04, FR-BSB-06, FR-BSB-08, SB-47, and SB-48	595.58	HP 12x53	418	15	29	186	33	565
		HP 12x74	589	15	30	279	34	564
		HP 14x73	578	17	35	266	34	564
		HP 14x89	705	18	35	335	34	564
		HP 14x102	810	18	36	392	35	563
I-80 WB and Ramp D East Abutment FR-BSB-01, FR-BSB-03, FR-BSB-05, FR-BSB-07, FR-BSB-09, SB-02, SB-46, and	595.98	HP 12x53	418	17	34	179	32	566
		HP 12x74	589	17	35	272	33	565
		HP 14x73	578	20	40	257	33	565
		HP 14x89	705	20	41	326	33	565

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 (1) (feet)	Estimated Pile Tip Elevation (feet)
SB-49		HP 14x102	810	21	41	384	34	564

(1) Pile lengths were estimated primarily based on the more conservative borings at each abutment.

Table 6: Estimated Pile Lengths and Tip Elevations for Steel H-Piles Driven to R_{NMAX} without Pile Sleeves (EB)

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 (1) (feet)	Estimated Pile Tip Elevation (feet)
I-80 EB and Ramp A West Abutment FR-BSB-02, FR-BSB-04, FR-BSB-06, FR-BSB-08, SB-47, and SB-48	597.21	HP 12x53	418	15	31	184	35	564
		HP 12x74	589	16	31	277	36	563
		HP 14x73	578	18	36	264	35	564
		HP 14x89	705	18	37	333	35	564
		HP 14x102	810	19	37	390	36	563
I-80 EB and Ramp A East Abutment FR-BSB-01, FR-BSB-03, FR-BSB-05, FR-BSB-07, FR-BSB-09, SB-02, SB-46, and SB-49	597.87	HP 12x53	418	18	36	176	34	566
		HP 12x74	589	18	36	269	35	565
		HP 14x73	578	21	42	255	34	565
		HP 14x89	705	21	43	324	35	565
		HP 14x102	810	22	43	381	36	564

(1) Pile lengths were estimated primarily based on the more conservative borings at each abutment.

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 Tables 7 to 9. The estimated parameters assume the piles are installed without sleeves. If the design requires pile sleeves, not filled with bentonite, for the first ten feet below the abutment pile cap, the lateral soil parameters should be considered from an estimated depth of 10.0 feet below the pile cap elevation to the top of leveling pad elevation.

Table 7: Recommended Soil Parameters for Lateral Load Analysis at West Abutments

Reference Borings FR-BSB-02, FR-BSB-04, FR-BSB-06, FR-BSB-08, SB-47, and SB-48

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} (%)
Proposed Pile Cap Base to Top of Leveling Pad MSE Wall Select FILL (without pile sleeve)	120	0	34	50	--
Top of Leveling Pad to 577.0 Stiff to Hard SILTY CLAY to SILTY CLAY LOAM	120	4500	0	1000	0.5
577.0 to 573.0 Medium Dense SAND and SILTY LOAM	53(1)	0	30	60	--
573.0 to 565.0(2) Very Stiff to Hard SILTY CLAY LOAM to CLAY LOAM	58(1)	2200	0	1000	0.5

(1) Submerged unit weight; (2) Approximate top of bedrock

Table 8: Recommended Soil Parameters for Lateral Load Analysis at East Abutments

Reference Borings FR-BSB-01, FR-BSB-03, FR-BSB-05 FR-BSB-07, FR-BSB-09, SB-46, SB-49, and SB-02

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} (%)
Proposed Pile Cap Base to Top of Leveling Pad MSE Wall Select FILL (without pile sleeve)	120	0	34	50	--
Top of Leveling Pad to 574.0 Very Stiff to Hard SILTY CLAY	58(1)	4500	0	1000	0.5
574.0 to 566.0(2) Stiff to Hard CLAY LOAM to SILTY CLAY LOAM	58(1)	2000	0	1000	0.5

(1) Submerged unit weight; (2) Approximate top of bedrock

Table 9: Bedrock Parameters for Lateral Load Analysis
Reference Borings FR-BSB-01 to FR-BSB-09

Bedrock	Total Unit Weight, γ (pcf)	Modulus of Rock Mass (ksi)	Uniaxial Compressive Strength (psi)	RQD (%)	Strain Factor
Shaly Dolostone/Dolostone	140	350	8,205 to 9,763	0 to 41	0.0005
Shaly Dolostone/Dolostone	140	500	8,816 to 12,298	41 to 89	0.0005

4.4 Stage Construction

Stage construction is identified in the *GPE* (Appendix E). Wang understands that the bridge replacements will be performed utilizing two main 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 of the existing bridges so that the widening can advance within the existing median area. The traffic would remain along the ramps during Stage I. During Stage II, the two lanes of traffic would utilize the roadway constructed during Stage I so that the existing bridges can be removed and the outside portion of the I-80 bridges along with the ramp bridges can be replaced.

The construction activities will likely involve excavations of up to 24.0 feet along the sides of the existing east and west abutments, respectively. Due to the presence of very hard cohesive soils with Q_u values of greater than 4.5 tsf, we estimate these excavations may not be supported with cantilever steel sheet piling, and we recommend including the pay item, *Temporary Soil Retention System* for the shoring. Temporary MSE walls could also be considered for support of the fill portions at the stage line as this is the preferred method as per IDOT guidance. A value engineering analysis is recommended to select the most suitable type of temporary support system.

Based on the geometry shown in the *GPE* (Appendix E), the existing abutment and retaining wall spread footings may conflict with the construction of MSE walls. The existing structures should be removed in accordance with Section 501, *Removal of Existing Structures* of the IDOT *Standard Specifications* (IDOT 2022).

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Site Preparation

Vegetation, surface topsoil, pavements, and debris should be cleared and stripped where structures and new fill 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 including current OSHA regulations. The potential effect of ground movements upon nearby utilities should be considered during construction. Any slope that cannot be graded at 1:2 (V: H) should be properly shored. OSHA guidelines allow for the sloping of embankments with heights of up to 20 feet. As such, we anticipate that excavations greater than 20 feet in height, such as those required for construction of the MSE walls, will require temporary shoring.

During the subsurface investigation, the groundwater was encountered at elevations ranging from 584 to 574 feet, as discussed in Section 3.2. At the abutments, the groundwater will be about 9.0 to 22.0 feet below the proposed pile cap base elevations at the abutments; therefore, we do not anticipate the need for dewatering. Groundwater was noted at elevations of 584 to 589 feet while drilling Borings FR-BBSB-02, FR-BSB-03, FR-BSB-06, and FR-BSB-09, which is about 3.0 to 7.5 feet above the estimated top of leveling pad elevation, and the Contractor should be prepared for dewatering efforts. Additionally, perched or temporary water may be encountered during times of heavy precipitation while excavating within the upper fill soils and will require dewatering efforts. Water that does accumulate in open excavations by seepage or runoff should be immediately removed by sump pump.

5.3 Filling and Backfilling

Fill material used to attain final design elevations should be pre-approved, 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). In accordance with IDOT Section 205, *Embankment*, any embankments proposed for widening should be properly benched or deeply plowed prior to placement of new fill along the slopes (IDOT 2022).

Backfill materials for the abutments 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).

5.4 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.

5.5 Pile Installation

The driven piles shall be furnished and installed according to the requirements of IDOT Section 512, *Piling* (IDOT 2022). Since hard driving is expected below an approximate elevation of 585 feet, pile shoes are required as indicated in Section 4.3.1. Due to the proximity of the substructures and minimal noted change in bedrock elevation, . The preferred

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

It has been a pleasure to assist Stantec, HBM, 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.

Azza Hamad, P.E.	Corina Farez, P.E., P.G.
Senior Geotechnical Engineer	QC/QA Reviewer

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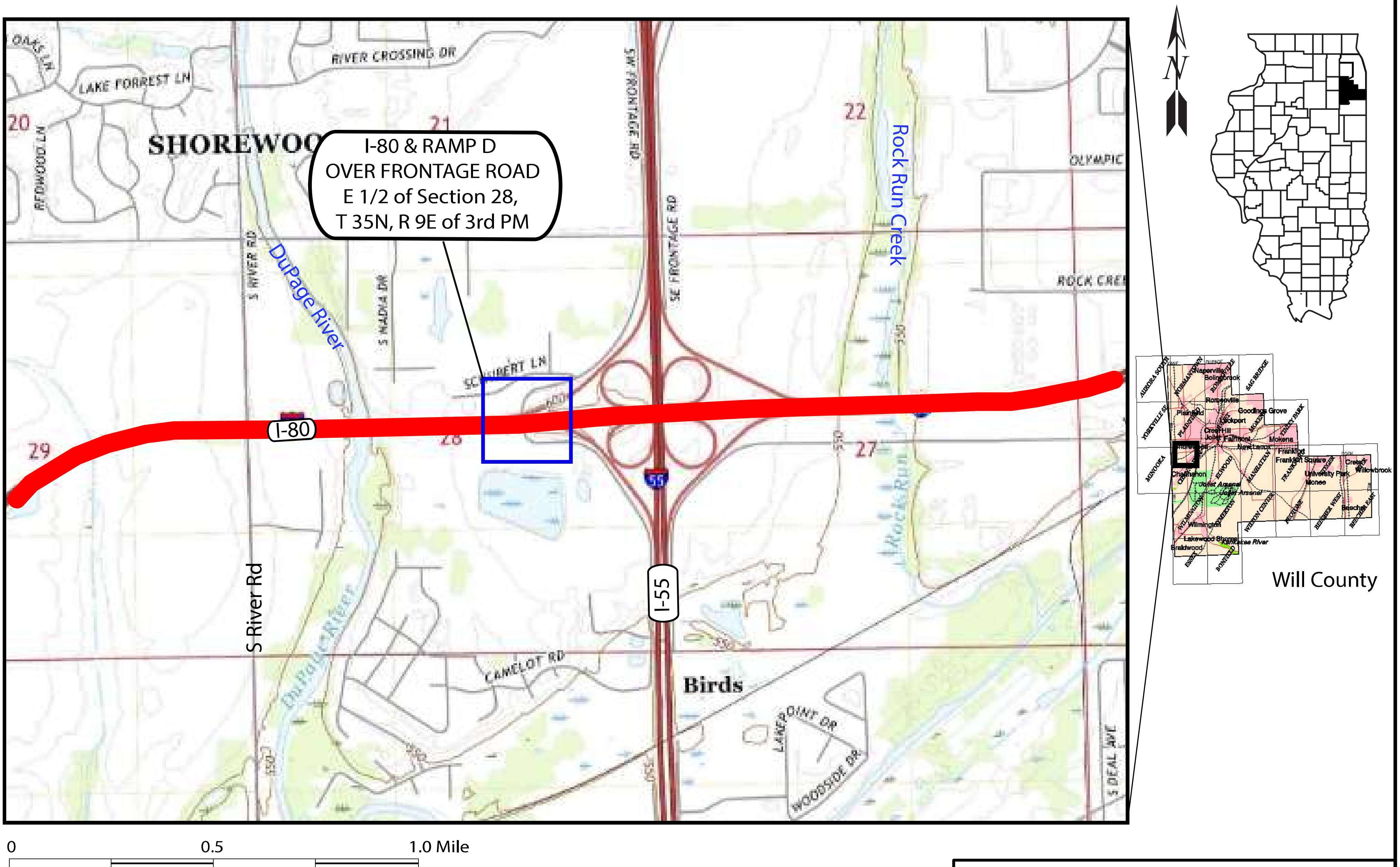
EXHIBITS



SITE LOCATION MAP: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, 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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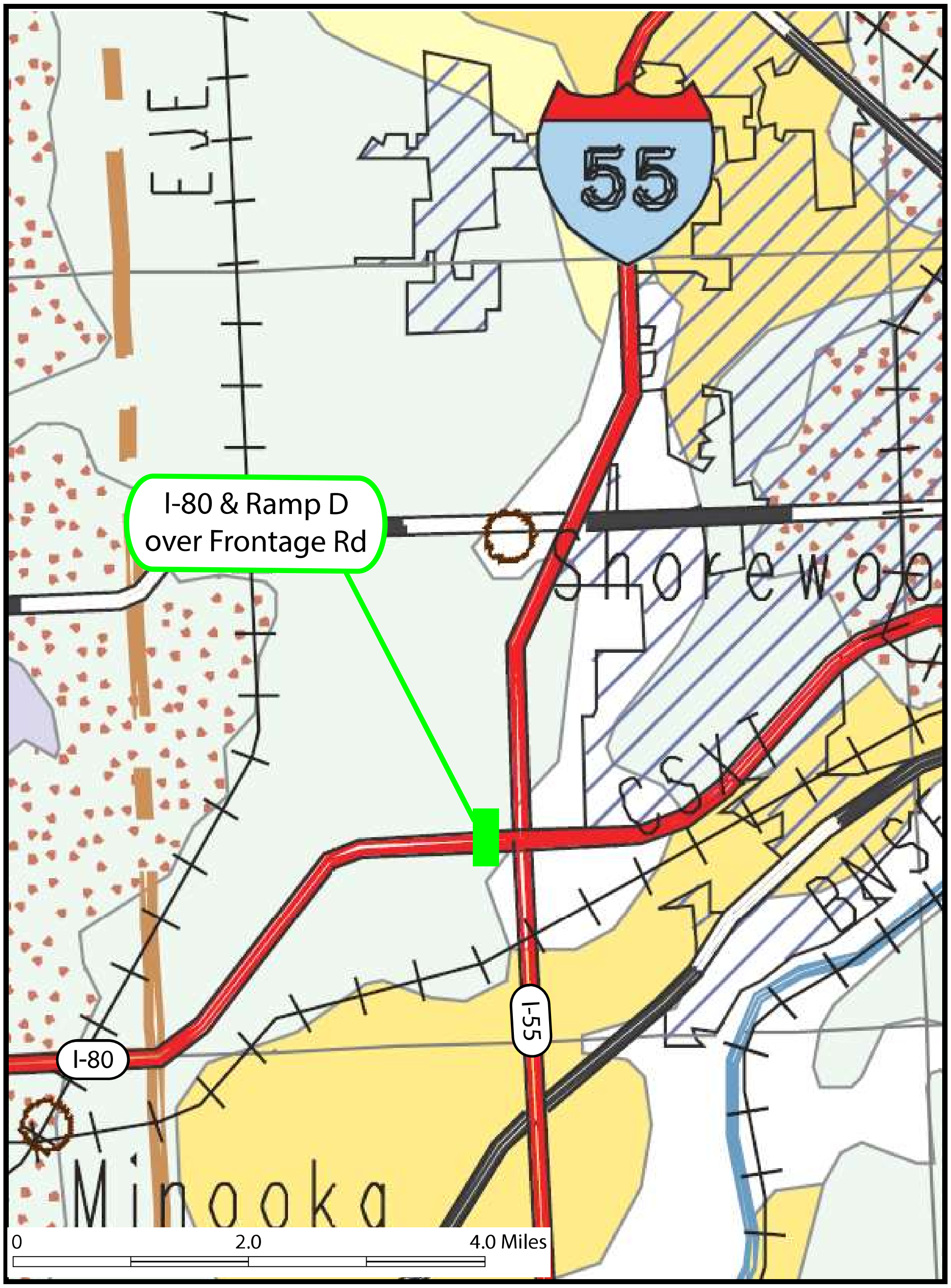
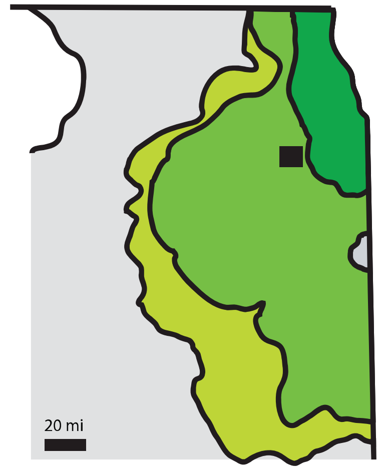
FOR STANTEC

255-39-01



Modified after William W. Shilts (2000)

REGIONAL GEOLOGY



Wedron Group

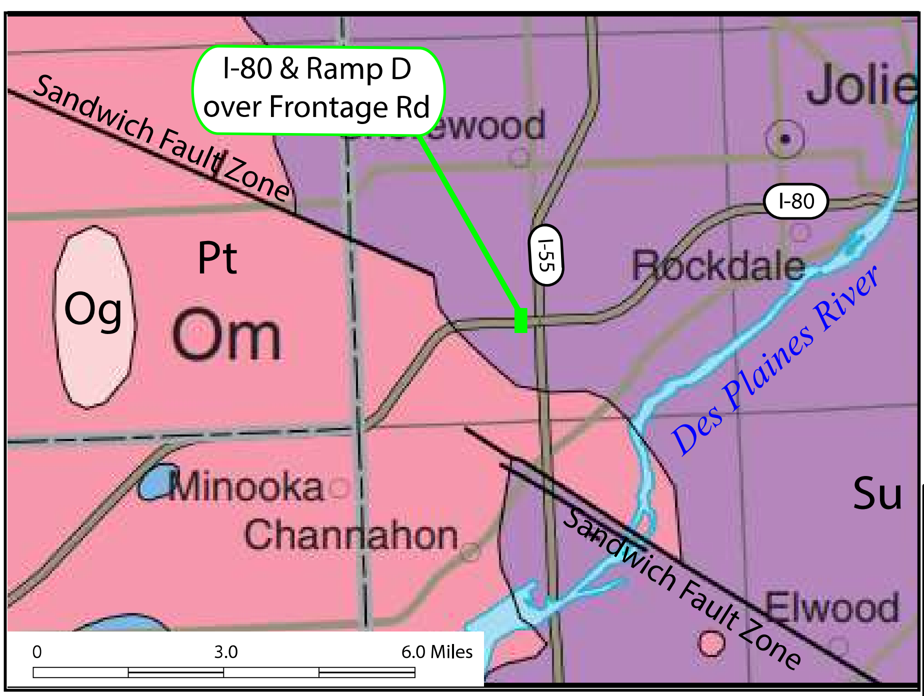
- Wadsworth Formation
- Lemont Formation
- Tiskilwa Formation

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)

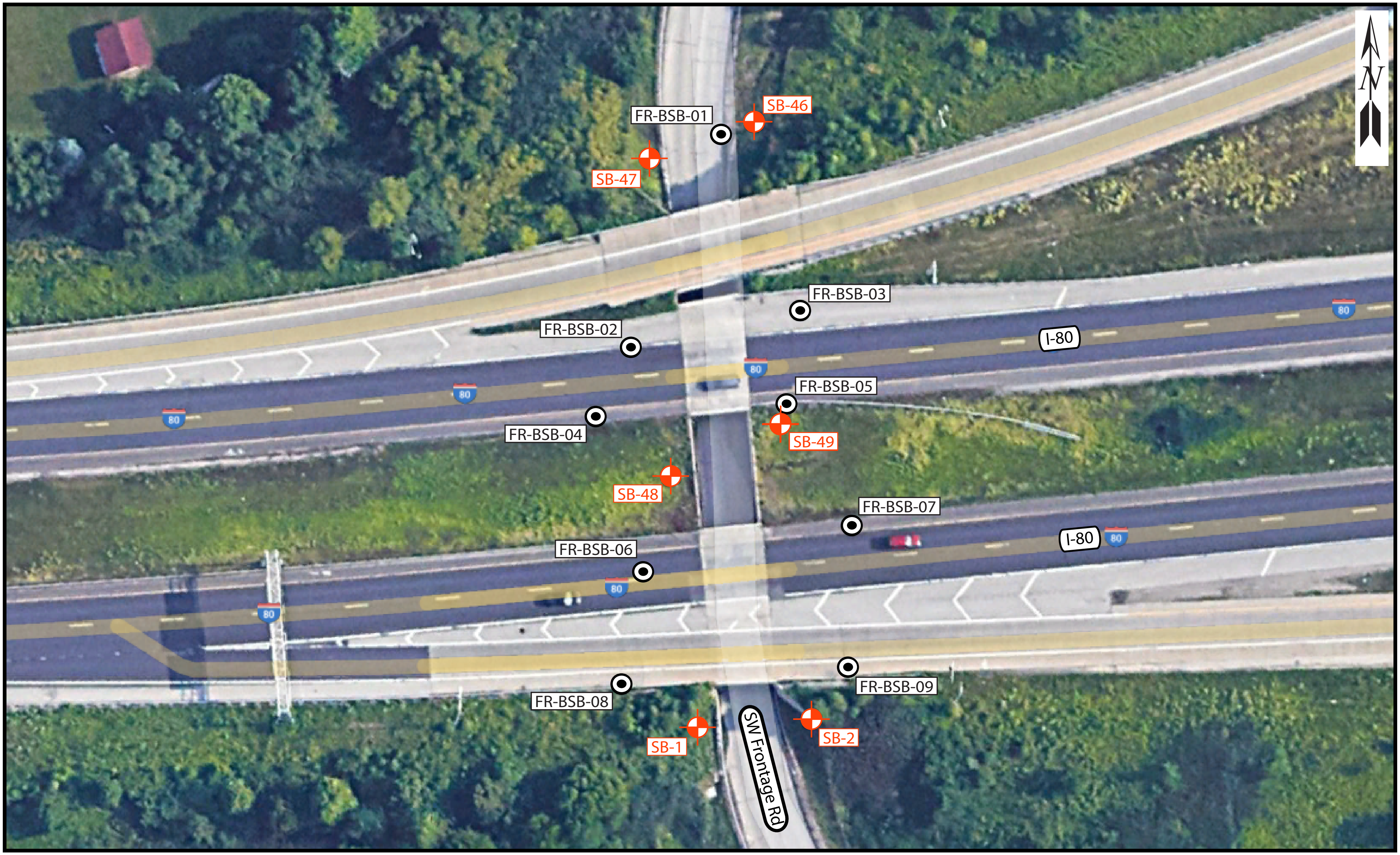


Modified after Dennis R. Kolata (2005)

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 AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	EXHIBIT 2	DRAWN BY: J. Bensen CHECKED BY: A. Hamad
Wang Engineering		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR STANTEC		255-39-01



Legend

Boring Location

Historical Boring Location
*Approximate location

0 | 100 | 200 Feet

BORING LOCATION PLAN: I-80 BRIDGE OVER FRONTAGE ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	EXHIBIT 3	DRAWN BY: D. You CHECKED BY: A. Hamad
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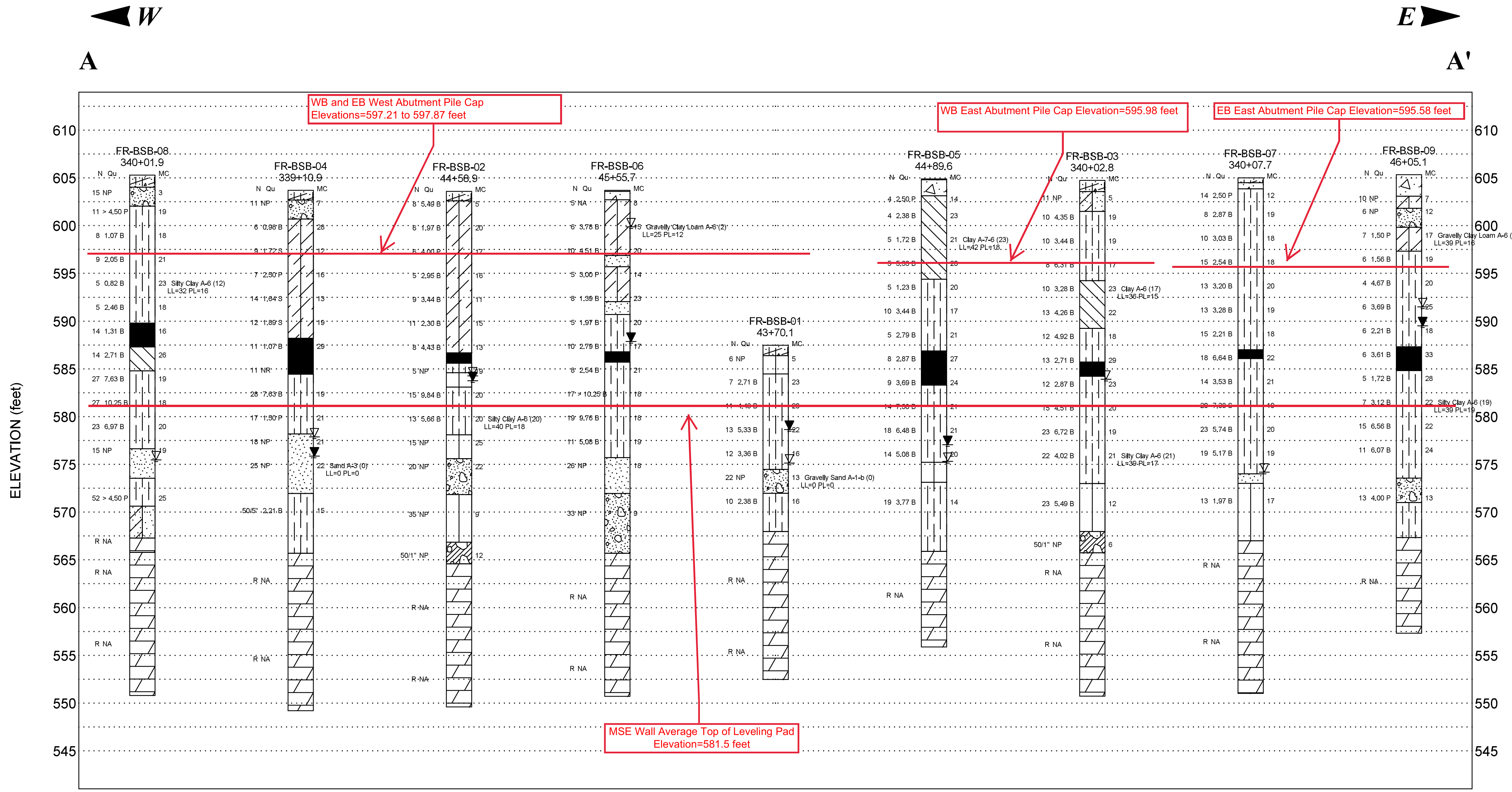
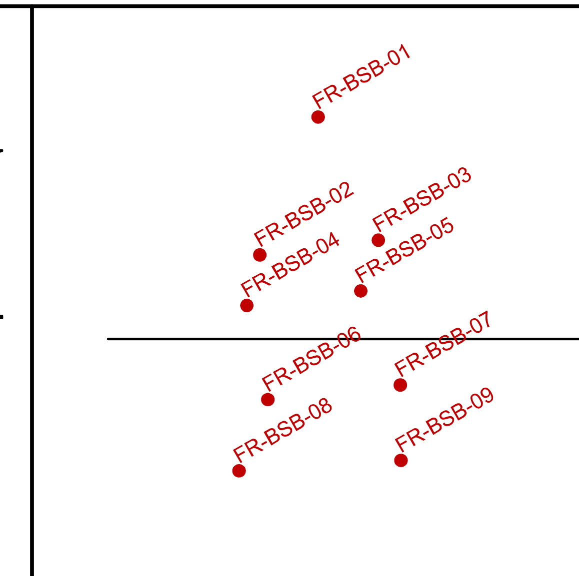
FOR STANTEC		255-39-01

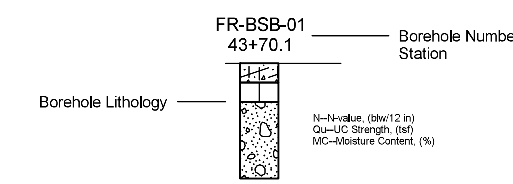


DISTANCE ALONG PROFILE (feet)



Site Map Scale 1 inch equals 130 feet

Explanation:



Water Level Reading at time of drilling.

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

0 35

Horizontal Scale (feet)

Vertical Exaggeration: 2.5x

Lithology Graphics

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

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Soil Profile A-A'
I-80 Over Frontage Road Bridges

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

WEI SINCE 1982

JOB NUMBER	PLATE NUMBER
255-39-01	EXHIBIT 4

WEI 11X17 2553901.GPJ WANGENG.GDT 6/6/23

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APPENDIX A

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BORING LOG FR-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: 587.46 ft
North: 1755473.92 ft
East: 1019764.32 ft
Station: 43+70.1
Offset: 9.8 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
586.4	13-inch thick ASPHALT --PAVEMENT--					
584.5	Loose, brown SILTY LOAM, trace gravel; damp --RDR 2--		1	5 3 3	NP	5
	Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp --RDR 2--	5	2	4 3 4	2.71 B	23
			3	3 5 6	4.43 B	20
		10	4	4 5 8	5.33 B	22
574.5	--silt seam; wet--		5	3 6 6	3.36 B	16
572.0	Medium dense, brown and gray SANDY GRAVEL; wet --RDR 2-- --L_L(%)=NP, P_L(%)=NP-- --%Gravel=47.9-- --%Sand=45.5-- --%Silt=5.8-- --%Clay=0.8--	15	6	4 12 10	NP	13
568.0	Very stiff, gray SILTY CLAY, trace gravel; damp --RDR 2--		7	4 3 7	2.38 B	16
	Strong, light gray, very poor quality, DOLOSTONE; closely spaced, highly weathered, horizontal, oblique, and vertical joints with <0.05 inch opening, slightly rough walls, and <0.2 inch thick clay infill. --RUN 1: 20.0 to 30.0 feet-- --Recovery: 62%-- --RQD: 4%--	20–25	8	CORE		
	--Qu=9,763 psi		8			
552.5	--RUN 2: 30.0 to 35.0 feet-- --Recovery: 97%-- --RQD: 64%--	30–35	9	CORE		
	Boring terminated at 35.00 ft					

GENERAL NOTES

Begin Drilling **02-01-2023** Complete Drilling **02-01-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **20B57T [91%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **12.50 ft**
At Completion of Drilling ▼ **9.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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

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BORING LOG FR-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: 603.59 ft
North: 1755381.64 ft
East: 1019725.33 ft
Station: 44+58.9
Offset: 37.9 RT

Elevation (ft)	Soil and Rock Description	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
602.6	12-inch thick ASPHALT --PAVEMENT--					
586.7	Stiff to hard, brown and gray SILTY CLAY LOAM to CLAY LOAM, trace to little gravel; dry to damp --FILL-- --RDR 2--		1	7, 4, 4	5.49 B	5
		5	2	3, 3, 3	1.97 B	20
			3	2, 3, 3	4.00 P	17
		10	4	2, 2, 3	2.95 B	16
			5	4, 4, 5	3.44 B	11
		15	6	3, 3, 8	2.30 B	15
			7	4, 4, 4	4.43 B	13
585.6	Very stiff (2.00P), black SILTY CLAY LOAM --Buried TOPSOIL--					
584.6	Very stiff (2.30B), brown SILTY CLAY, trace gravel; damp					
583.1	Loose, brown SILTY LOAM, trace gravel; saturated	20	8	3, 3, 2	NP	19
578.1	Hard, brown SILTY CLAY, trace gravel; damp --RDR 2-- --L_L(%)=40, P_L(%)=18-- --%Gravel=3.1-- --%Sand=6.9-- --%Silt=49.7-- --%Clay=40.3--		9	5, 7, 8	9.84 B	20
		25	10	4, 6, 7	5.66 B	20
575.6	Medium dense, brown and tan SILTY LOAM, trace gravel; wet --RDR 2--		11	4, 7, 8	NP	25
571.8	Medium dense, brown and gray Gravelly SAND; wet --RDR 2--	30	12	3, 8, 12	NP	22
566.8	Hard, gray SILTY LOAM, some gravel; wet --RDR 2--	35	13	23, 16, 19	NP	9
564.6	Very dense, gray SANDY GRAVEL; saturated --Weathered BEDROCK-- --RDR 2-3--		14	50/1"	NP	12
	Strong, light gray, poor to fair quality, DOLOSTONE; closely spaced, highly weathered, horizontal, oblique, and vertical joints, with 0.05 - 0.2 inch opening, slightly rough walls, and <0.2 inch thick clay infill. --RUN 1: 39.0 to 49.0 feet-- --Recovery: 86%-- --RQD: 33%-- --Qu=8,205 psi	40, 45	15	CORE		
	--RUN 2: 49.0 to 54.0 feet-- --Recovery: 93%--	50		C		

GENERAL NOTES

Begin Drilling **01-15-2023** Complete Drilling **01-15-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **19.50 ft**
At Completion of Drilling ▼ **20.00 ft**
Time After Drilling **NA**
Depth to Water ▽ **NA**

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

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BORING LOG FR-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: 603.59 ft
North: 1755381.64 ft
East: 1019725.33 ft
Station: 44+58.9
Offset: 37.9 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type *recovery*	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--RQD: 64%--			16	CORE		
	549.6	Boring terminated at 54.00 ft						
			55					
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling **01-15-2023** Complete Drilling **01-15-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **19.50 ft**
At Completion of Drilling **20.00 ft**
Time After Drilling **NA**
Depth to Water **NA**

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BORING LOG FR-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: 604.73 ft
North: 1755391.52 ft
East: 1019804.59 ft
Station: 340+02.8
Offset: 65.4 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	14-inch thick ASPHALT --PAVEMENT--					
603.6	Medium dense, brown LOAM, little gravel; dry --FILL--		1	14 7 4	NP	5
601.5	Very stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to moist --FILL-- --RDR 2--	5	2	5 4 6	4.35 B	19
			3	4 5 5	3.44 B	19
		10	4	8 4 4	6.31 B	17
594.2	Very stiff to hard, brown and gray CLAY to SILTY CLAY, trace gravel; damp --FILL-- --RDR 2-- --L_L(%)=36, P_L(%)=15-- --%Gravel=3.7-- --%Sand=10.8-- --%Silt=45.8-- --%Clay=39.6-- --A-6 (17)--		5	3 4 6	3.28 B	23
		15	6	4 6 7	4.26 B	22
589.2	Hard, brown and gray SILTY CLAY, trace gravel; damp --FILL-- --RDR 2--		7	4 6 6	4.92 B	18
585.7	Very stiff, black SILTY CLAY, trace organic matter; damp to moist --Buried TOPSOIL--	20	8	4 8 5	2.71 B	29
584.2	--1-inch thick sand seam; saturated--		9	3 6 6	2.87 B	23
	Very stiff to hard, brown to gray SILTY CLAY, trace gravel; damp to moist --RDR 2--	25	10	5 6 9	4.51 B	20
			11	6 10 13	6.72 B	19
	--L_L(%)=39, P_L(%)=17-- --%Gravel=0.8-- --%Sand=4.8-- --%Silt=50.8-- --%Clay=43.5-- --A-6 (21)--	30	12	6 10 12	4.02 B	21
573.0	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; damp --RDR 2--	35	13	9 10 13	5.49 B	12
568.0	Very dense, gray SANDY GRAVEL; moist to wet --Weathered BEDROCK-- --RDR 4--		14	50/1"	NP	6
565.7	Strong, dark gray, fair rock mass quality, Shaly DOLOSTONE, horizontally bedded; closely spaced, fresh, horizontal joints, with 0-0.2 inch opening, rough walls, and 0 - 0.2 inch thick clay and shale infill. --RUN 1: 39.0 to 44.0 feet-- --Recovery: 98%-- --RQD: 67%-- --Q_u@39.5 feet=9,126 psi-- --RUN 2: 44.0 to 54.0 feet-- --Recovery: 93%-- --RQD: 67%--	40	15	CORE		
		45, 50	16	CORE		

GENERAL NOTES

Begin Drilling **10-24-2022** Complete Drilling **10-24-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **RH&TC** Logger **D. Morken** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **21.00 ft**
At Completion of Drilling ▼ **NA**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG FR-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: 604.73 ft
North: 1755391.52 ft
East: 1019804.59 ft
Station: 340+02.8
Offset: 65.4 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type *recovery*	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	550.7							
		Boring terminated at 54.00 ft						
			55					
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling **10-24-2022** Complete Drilling **10-24-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **RH&TC** Logger **D. Morken** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **21.00 ft**
At Completion of Drilling ▼ **NA**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG FR-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: 603.69 ft
North: 1755347.84 ft
East: 1019716.69 ft
Station: 339+10.9
Offset: 30.7 LT

Elevation (ft)	Soil and Rock Description	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	12-inch thick ASPHALT --PAVEMENT--						
602.7	Medium dense, brown SANDY GRAVEL; dry --BASE COURSE--		SS	1	6, 6, 5	NP	7
600.7	Medium stiff to very stiff, brown to gray SILTY CLAY LOAM to CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--	5	SS	2	2, 2, 4	0.98 B	28
			SS	3	2, 4, 5	1.72 S	12
		10	SS	4	3, 2, 5	2.50 P	16
			SS	5	4, 5, 9	1.64 S	13
		15	SS	6	5, 5, 7	1.89 S	19
588.2	Stiff, black SILTY CLAY, trace gravel; damp --Buried TOPSOIL-- --RDR 2--		SS	7	4, 5, 6	1.07 B	29
584.4	Stiff to hard, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --RDR 2--	20	SS (no recovery)	8	5, 5, 6	NR	
			SS	9	8, 13, 15	7.63 B	19
		25	SS	10	6, 7, 10	1.50 P	21
578.2	Medium dense, brown, fine SAND; moist to wet --RDR 2--		SS	11	7, 8, 10	NP	21
	--L_L(%)=NP, P_L(%)=NP-- --%Gravel=1.0-- --%Sand=92.3-- --%Silt=4.5-- --%Clay=2.2-- --A-3 (0)--	30	SS	12	6, 9, 16	NP	22
571.9	Very stiff, gray SILTY CLAY LOAM, trace gravel; damp --RDR 2-3--		SS	13	5, 50/5"	2.21 B	15
	--possible cobbles--	35					
565.7	Strong, dark gray, fair to good rock mass quality, horizontally bedded, Shaly DOLOSTONE; slightly weathered rock, slightly weathered to moderately weathered joints, closely spaced horizontal joints, with less than 0.05-inch opening, hard joint wall, slightly rough joint wall, hard infill strength, and less than 0.2-inch infill thickness. --Run 1: 38.0 to 44.5 feet-- --Recovery: 74%-- --RQD: 56%-- --drilling rate: 3.5 min/ft --	40	Core		CORE		
	--Run 2: 44.5 to 54.5 feet-- --Recovery: 99%-- --RQD: 89%-- --drilling rate: 2.6 min/ft --	45, 50	Core		CORE		

GENERAL NOTES

Begin Drilling **10-30-2022** Complete Drilling **10-30-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **RH&TC** Logger **N. Karahalios** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **26.00 ft**
At Completion of Drilling ▼ **28.00 ft**
Time After Drilling **NA**
Depth to Water ▽ **NA**

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BORING LOG FR-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: 603.69 ft
North: 1755347.84 ft
East: 1019716.69 ft
Station: 339+10.9
Offset: 30.7 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type *recovery*	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	549.2							
		Boring terminated at 54.50 ft	55					
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling **10-30-2022** Complete Drilling **10-30-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **RH&TC** Logger **N. Karahalios** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **26.00 ft**
At Completion of Drilling ▼ **28.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG FR-BSB-05

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: 604.88 ft
North: 1755357.58 ft
East: 1019792.84 ft
Station: 44+89.6
Offset: 26.9 LT

Elevation (ft)	Soil and Rock Description	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
604.8	1-inch thick ASPHALT					
	20-inches thick CONCRETE --PAVEMENT--					
603.1	Stiff to hard, brown, gray and green CLAY to SILTY CLAY, trace to little gravel; damp --FILL-- --RDR 2--		1	3, 3, 1	2.50 P	14
		5	2	2, 2, 2	2.38 B	23
	--L_L(%)=42, P_L(%)=18-- --%Gravel=2.4-- --%Sand=5.2-- --%Silt=48.5-- --%Clay=44.0--		3	2, 3, 2	1.72 B	21
		10	4	3, 2, 3	5.33 B	20
594.4	Stiff to very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--		5	3, 3, 2	1.23 B	20
		15	6	3, 5, 5	3.44 B	17
			7	5, 2, 3	2.79 B	21
586.9	Very stiff, black SILTY CLAY, trace gravel; damp --Buried TOPSOIL-- --RDR 2--	20	8	3, 3, 5	2.87 B	27
583.3	Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp --RDR 2--		9	3, 3, 6	3.69 B	24
		25	10	6, 6, 8	7.38 B	21
			11	6, 8, 10	6.48 B	21
			12	6, 6, 8	5.08 B	20
575.2	Gray SILTY LOAM; wet --RDR 2--	30				
573.1	Very stiff, gray SILTY CLAY, trace gravel; damp --RDR 2--	35	13	5, 7, 12	3.77 B	14
565.9	Strong, light gray, fair quality, DOLOSTONE; closely spaced, moderately weathered, horizontal, oblique, and vertical joints, with 0-0.2 inch opening, slightly rough walls, and 0 - 0.2 inch thick clay infill. --RUN 1: 39.0 to 49.0 feet-- --Recovery: 97%-- --RQD: 64%--	40, 45	14	CORE		
555.9	Boring terminated at 49.00 ft	50				

GENERAL NOTES

Begin Drilling **01-24-2023** Complete Drilling **01-25-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **20CME55T[81%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **29.75 ft**
At Completion of Drilling **28.00 ft**
Time After Drilling **NA**
Depth to Water **NA**

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BORING LOG FR-BSB-06

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: 603.70 ft
North: 1755284.88 ft
East: 1019730.73 ft
Station: 45+55.7
Offset: 42.2 RT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
603.6	1-inch thick ASPHALT					
602.7	11-inch thick CONCRETE --PAVEMENT--					
	Very stiff, brown Gravelly CLAY LOAM; damp to wet --FILL-- --RDR 2-- --L_L(%)=25, P_L(%)=12-- --%Gravel=31.0-- --%Sand=26.6-- --%Silt=286-- --%Clay=13.8--		1	4 3 2	NA	8
		5	2	3 3 3	3.78 B	15
596.9	Brown SAND, trace gravel; damp --FILL-- --RDR 2--		3	3 3 7	4.51 B	20
595.7	Stiff to very stiff, brown CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--	10	4	5 3 2	3.00 P	14
592.0	Brown SAND, little gravel; moist --FILL-- --RDR 2--		5	2 4 4	1.39 B	23
590.7	Stiff to very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace to little gravel; damp --FILL-- --RDR 2--	15	6	2 2 3	1.97 B	20
			7	5 5 5	2.79 B	17
586.8	Hard (>4.50P), black SILTY CLAY LOAM, trace gravel; damp --Buried TOPSOIL--					
585.7	Very stiff to hard, brown and gray SILTY CLAY, trace gravel; damp --RDR 2--	20	8	3 3 5	2.54 B	21
			9	7 8 9	>10.25 B	18
		25	10	7 8 11	9.76 B	18
			11	5 5 6	5.08 B	19
575.7	Medium dense, brown SAND, trace gravel; wet --RDR 2--	30	12	7 13 13	NP	18
571.9	Dense, gray SANDY GRAVEL; wet --RDR 2--	35	13	14 16 17	NP	9
565.7	Strong, light gray, poor to good quality, slightly weathered DOLOSTONE; closely spaced, moderately to slightly weathered horizontal joints, with 0-0.2 inch opening, slightly rough walls, and 0 - 0.2 inch thick clay infill. --RUN 1: 38.0 to 48.0 feet-- --Recovery: 88%-- --RQD: 29%--	40, 45	14	CORE		
	--RUN 2: 48.0 to 53.0 feet-- --Recovery: 95%-- --RQD: 80%--	50		CORE		

GENERAL NOTES

Begin Drilling **01-23-2023** Complete Drilling **01-23-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **4.00 ft**
At Completion of Drilling: **16.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG FR-BSB-06

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: 603.70 ft
North: 1755284.88 ft
East: 1019730.73 ft
Station: 45+55.7
Offset: 42.2 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					15			
	550.7	Boring terminated at 53.00 ft						
			55					
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling **01-23-2023** Complete Drilling **01-23-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **4.00 ft**
At Completion of Drilling ▼ **16.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG FR-BSB-07

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: 605.00 ft
North: 1755294.63 ft
East: 1019819.27 ft
Station: 340+07.7
Offset: 32.4 RT

Elevation (ft)	Soil and Rock Description	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
604.5	6-inch thick ASPHALT --PAVEMENT--					
603.9	8-inch thick CONCRETE --PAVEMENT--					
	Very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--		1	6, 8, 6	2.50 P	12
		5	2	4, 3, 5	2.87 B	19
			3	3, 5, 5	3.03 B	18
		10	4	4, 6, 9	2.54 B	18
			5	4, 6, 7	3.20 B	20
		15	6	3, 5, 8	3.28 B	19
			7	7, 7, 8	2.21 B	18
587.0	Very stiff (3.00P), black SILTY CLAY, trace gravel; damp to moist --Buried TOPSOIL--					
586.1	Hard, brown SILTY CLAY, trace gravel; damp to moist --RDR 2--	20	8	4, 8, 10	6.64 B	22
			9	4, 6, 8	3.53 B	21
		25	10	5, 8, 12	7.38 S	19
			11	6, 8, 15	5.74 B	20
		30	12	5, 8, 11	5.17 B	19
574.0	Possible SAND; wet --sand heaving in augers--					
573.0	Stiff, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel; wet --RDR 2--	35	13	3, 5, 8	1.97 B	17
567.0	Strong, dark grayish gray, poor to good quality, horizontally bedded, Shaly DOLOSTONE; closely spaced, fresh to slightly weathered, horizontal and oblique joints, with <0.05 inch opening, rough walls, and <0.2 inch thick clay infill. --RUN 1: 38.0 to 44.0 feet-- --Recovery: 100%-- --RQD: 41%-- --Q_u@40.0 feet=8,816 psi-- --RUN 2: 44.0 to 54.0 feet-- --Recovery: 95%-- --RQD: 81%--	40	14	CORE		
		45, 50	15	CORE		

GENERAL NOTES

Begin Drilling: **10-27-2022** Complete Drilling: **10-27-2022**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20D50T [80%]**
Driller: **RH&TC** Logger: **D. Morken** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **31.00 ft**
At Completion of Drilling: **NA**
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 FR-BSB-07

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: 605.00 ft
North: 1755294.63 ft
East: 1019819.27 ft
Station: 340+07.7
Offset: 32.4 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	551.0	Boring terminated at 54.00 ft						
			55					
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling **10-27-2022** Complete Drilling **10-27-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **RH&TC** Logger **D. Morken** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **31.00 ft**
At Completion of Drilling **NA**
Time After Drilling **NA**
Depth to Water **NA**

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BORING LOG FR-BSB-08

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: 605.29 ft
North: 1755237.20 ft
East: 1019711.46 ft
Station: 340+01.9
Offset: 89.6 RT

Elevation (ft)	Soil and Rock Description	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	15-inch thick CONCRETE --PAVEMENT--					
604.0	Medium dense, brown SANDY GRAVEL; dry --FILL--		1	8, 9, 6	NP	3
602.0	Medium stiff to very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp to moist --FILL-- --RDR 2--	5	2	3, 4, 7	>4.50 P	19
			3	4, 4, 4	1.07 B	18
		10	4	3, 3, 6	2.05 B	21
	--L_L(%)=32, P_L(%)=16-- --%Gravel=3.4-- --%Sand=13.6-- --%Silt=48.5-- --%Clay=34.4-- --A-6 (12)--		5	2, 2, 3	0.82 B	23
		15	6	3, 2, 3	2.46 B	18
589.8	Stiff, black and greenish gray SILTY CLAY, trace gravel; damp to moist --Buried TOPSOIL--		7	6, 7, 7	1.31 B	16
587.3	Very stiff, black and greenish gray CLAY to SILTY CLAY, trace gravel; damp to moist --RDR 2--	20	8	4, 6, 8	2.71 B	26
584.8	Hard, brown to gray SILTY CLAY, trace gravel; damp to moist --RDR 2--		9	8, 12, 15	7.63 B	19
		25	10	7, 12, 15	10.25 B	18
			11	6, 10, 13	6.97 B	20
576.6	Medium dense, brown to yellowish brown, fine to medium SAND, trace gravel; wet to saturated --RDR 2--	30 ▽	12	5, 6, 9	NP	19
573.5	Hard, gray SILTY CLAY LOAM to CLAY LOAM, trace gravel, few silt seams; moist --RDR 2--	35	13	7, 15, 37	>4.50 P	25
570.6	Very dense, gray Gravelly LOAM; wet --heaving sand in augers--					
567.3	Very weak, dark gray, very poor quality, weathered Shaly DOLOSTONE; very closely spaced, slightly weathered, horizontal joints, with <0.05 inch opening, rough walls, and <0.2 inch thick clay infill. --RUN 1: 38.0 to 39.5 feet-- --Recovery: 94%-- --RQD: 0%--	40	14	CORE		
565.8	Strong, gray, fair rock mass quality, horizontally bedded Shaly DOLOSTONE; closely spaced, fresh to slightly weathered, horizontal and oblique joints, with 0-0.2 inch opening, rough walls, and <0.2 inch thick clay infill. --RUN 2: 39.5 to 44.5 feet-- --Recovery: 95%-- --RQD: 57%-- --Q_u@=12,298 psi--	45	15	CORE		
		50	16	CORE		

GENERAL NOTES

Begin Drilling: 10-26-2022 — Complete Drilling: 10-26-2022
Drilling Contractor: Wang Testing Services — Drill Rig: 20D50T [80%]
Driller: RH&TC — Logger: D. Morken — Checked by: C. Marin
Drilling Method: 3.25" ID HSA; boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 30.00 ft
At Completion of Drilling ▼ NA
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
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG FR-BSB-08

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: 605.29 ft
North: 1755237.20 ft
East: 1019711.46 ft
Station: 340+01.9
Offset: 89.6 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--RUN 3: 44.5 to 54.5 feet-- --Recovery: 98%-- --RQD: 61%--						
	550.8	Boring terminated at 54.50 ft	55					
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling **10-26-2022** Complete Drilling **10-26-2022**
Drilling Contractor **Wang Testing Services** Drill Rig **20D50T [80%]**
Driller **RH&TC** Logger **D. Morken** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **30.00 ft**
At Completion of Drilling **NA**
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

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BORING LOG FR-BSB-09

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: 605.32 ft
North: 1755244.21 ft
East: 1019819.71 ft
Station: 46+05.1
Offset: 42.2 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	27-inch thick CONCRETE --PAVEMENT--					
603.1	Medium dense, gray CLAY LOAM, little gravel; damp --FILL--		1	13 7 3	NP	7
601.8	Loose, brown and gray SANDY GRAVEL; damp --FILL-- --RDR 2--	5	2	4 3 3	NP	12
599.8	Stiff, black and brown Gravelly CLAY LOAM; damp --FILL-- --RDR 2--		3	4 3 4	1.50 P	17
597.3	--L_L(%)=39, P_L(%)=16-- --%Gravel=15.2-- --%Sand=20.3-- --%Silt=42.1-- --%Clay=22.4--	10	4	3 2 4	1.56 B	19
	Stiff to hard, brown SILTY CLAY LOAM to SILTY CLAY, trace to little gravel; damp --FILL-- --RDR 2--		5	3 2 2	4.67 B	20
		15	6	3 3 3	3.69 B	25
			7	3 3 3	2.21 B	18
587.3	Very stiff, black SILTY CLAY LOAM, trace gravel; damp --Buried TOPSOIL-- --RDR 2--	20	8	3 3 3	3.61 B	33
584.8	Stiff to hard, brown to gray SILTY CLAY, trace gravel; damp --RDR 2--		9	3 2 3	1.72 B	28
	--L_L(%)=39, P_L(%)=19-- --%Gravel=1.3-- --%Sand=5.2-- --%Silt=52.9--	25	10	4 4 3	3.12 B	22
	--%Clay=40.6--		11	5 7 8	6.56 B	22
		30	12	5 5 6	6.07 B	24
573.6	Medium dense, gray and tan Gravelly SAND; wet --RDR 2--					
571.0	Hard, gray SILTY CLAY, trace gravel; moist --RDR 2--	35	13	5 6 7	4.00 P	13
567.3	Strong, light gray, poor quality, DOLOSTONE; closely spaced, highly weathered, horizontal and oblique joints, with 0-0.2 inch opening, slightly rough walls, and 0 - 0.2 inch thick clay infill. --RUN 1: 38.0 to 48.0 feet-- --Recovery: 94%-- --RQD: 37%--	40, 45	14	CORE		
557.3	Boring terminated at 48.00 ft	50				

GENERAL NOTES

Begin Drilling **01-22-2023** Complete Drilling **01-22-2023**
Drilling Contractor **Wang Testing Services** Drill Rig **17B57T [91%]**
Driller **KG&TC** Logger **B. Miller** Checked by **C. Marin**
Drilling Method **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ∇ **14.00 ft**
At Completion of Drilling ▼ **16.00 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.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	99-1(K,BY&AC-B)	COOK	497	318
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Sheet S-19 of S-21

CONTRACT 80906

Illinois Department of Transportation — Bridge Foundation Boring Log

Sh. 1 of 1 Sh.

PROJECT D-91-425-90 BRIDGE SN 099-0042 Date January 6, 1993
ROUTE FAI-80 I-80 over West Frontage Road Bored By Robert N. Marshall
SEC. 99-1(RS-3-BR&HB-2-R) STA. 1931+99.35 Checked By David L. Sturn
COUNTY Will T35R9

Boring No. 1
Station 1931+71
Offset 103' Right CL

Surface Water El.
Groundwater El. at Completion 579.1
After ____ Hours

Description	Elevation	N	Qu t/s.f.	w (%)
Ground Surface	587.1			
VERY STIFF Mottled - Brown -Black SILTY CLAY with pebbles & fibers		2 3 4	B@ 15% 3.3	20
STIFF Brown-Gray Mottles SILTY CLAY with SAND seams	581.6	1 2 3	B@ 15% 1.2	25
		0 2 3	P 2.0	29
LOOSE Gray SAND fine to medium grain	577.1	1 2 2	-	29
LOOSE Brown SAND fine to medium grading -STARTED WASHING-	574.1	0 0 1	-	23
VERY LOOSE Gray SAND fine to medium	571.6	0 1 3	-	24
WEATHERED BEDROCK	568.1	9 21 20	-	10
END OF BORING @ -19.0'	568.1			

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 No. hammer falling 30".

Qu-Unconfined Compressive Strength - t/sf

w - Water Content - percentage of oven dry weight-%.

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer

BD 137 (Rev. 4-78)

Illinois Department of Transportation — Bridge Foundation Boring Log

Sh. 1 of 1 Sh.

PROJECT D-91-425-90 BRIDGE SN 099-0042 Date January 6, 1993
ROUTE FAI - 80 I-80 over West Frontage Rd Bored By Robert N. Marshall
SEC. 99-1(RS-3-BR&HB-2-R) STA. 1931+99.35 Checked By David L. Sturn
COUNTY Will T35R9

Boring No. 2
Station 1932+25
Offset 100' Right CL

Surface Water El.
Groundwater El. at Completion [illegible]
After ____ Hours

Description	Elevation	N	Qu t/s.f.	w (%)
Ground Surface	586.6			
STIFF Black-Brown-Mottled SILTY CLAY with pebbles & fibers		3 2 4	B@ 15% 1.9	23
HARD Brown SILTY CLAY with streaks of Gray & pebbles	581.5	2 5 9	B@ 15% 4.3	22
HARD Olive Brown SILTY CLAY LOAM with pebbles - Till	579.3	6 10 12	B@ 11% 6.8	20
		5 8 10	B@ 15% 5.0	19
LOOSE Gray SAND fine to medium grain	574.5	2 5 4	—	20
MEDIUM Gray SAND & Dolomite Gravel + CLAY	571.1	8 4 5	P 2.0	15
REFUSAL Auger & Sampler	567.3 567.8	8 36 100	B@ 5.74 @5"	8
END OF BORING @ -19.0'				

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 No. hammer falling 30".

Qu-Unconfined Compressive Strength - t/sf

w - Water Content - percentage of oven dry weight-%.

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer

O'BRIEN & ASSOCIATES, INC. — Bridge Foundation Boring Log

CONSULTING ENGINEERS
1233 E. DAVIS ST/ARLINGTON HTS. IL 60005
(312)398-1441

Sh. 1 of 1 Sh.

JOB NO. D-91-425-90
PROJECT I-80 and I-55 BRIDGE SN 099-0042 and 43 Existing & Proposed Bridge Over West Frontage Road Date 2-12-92
ROUTE FAI-80 Bored By TOB
SEC. Township 35 N, Range 9 E, 28 & 29 STA. 1932+00 Checked By DOB
COUNTY Will

Boring No. 46
Station 1932+19.28
Offset 151.27' LT

Surface Water El.
Groundwater El. at Completion 578.8
After 48 Hours 579.6

Description	Elevation	N	Qu t/s.f.	w (%)
Ground Surface	587.8			
Black SILTY CLAY (Topsoil Fill) Very Stiff	587.3	2 5 6	P 2.5 5.48	29 19
Hard				
Brown & gray SILTY CLAY (Fill) Med.	584.3	3 5 7	B@20% B @ 20% 1.58	29
Brown & gray CLAY Stiff	583.3			
Brown & gray SILTY CLAY		6 12 15	S @ 15% 6.71	20
Hard		6 12 15	B @ 20% 6.54	20
	577.8			
Gray SILTY CLAY Hard		7 12 15	B @ 20% 5.45	19
Very Stiff	573.8 ▽	4 8 15	B @ 20% 2.84	17
Gray poorly graded SAND trace gravel Med.		5 7 7	NP	12
	570.8			
Gray CLAYEY SILT Hard	567.8	4 7 10	B @ 20% 4.72	16
Gray fractured LIMESTONE with sand & gravel Hard	566.8	100 51 100/3"	E 4.5+	9
Light to medium gray DOLOMITE (continued)		DB		

Slightly fossiliferous-high fracture dark gray argillaceous banding throughout

93% Recovery
14% RQD

559.8

End of Boring at -28.0'

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 No. hammer falling 30".

Qu-Unconfined Compressive Strength - t/sf

w - Water Content - percentage of oven dry weight-%.

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer

BD 137 (Rev. 4-78)

Ciorba Group, Inc.
CONSULTING ENGINEERS
5507 NORTH CUMBERLAND AVENUE :: CHICAGO, ILLINOIS 60656 :: (773) 775-4009

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SOIL BORINGS 1
FAI-80 OVER WEST FRONTAGE ROAD
FAI-80 SECTION 99-1 (K,BY & AC-B)
WILL COUNTY
FAI-80 STA. 1931+99.35
STRUCTURE NO. 099-0042, 099-0043, 099-0308
SCALE: NONE DRAWN BY BWS
DATE: OCTOBER 2004 CHECKED BY GDW

DATE: 1/3/2005
FILENAME: n:\proj\2890\2890-02\design\structural\2890-02-s-19-borings1.dgn

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	99-1(K,BY&AC-B)	COOK	497	319
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Sheet S-20 of S-21

CONTRACT 80906

O'BRIEN & ASSOCIATES, INC.
CONSULTING ENGINEERS
1235 E. DAVIS ST/ARLINGTON HTS, IL 60005
(312)398-1441

Bridge Foundation Boring Log

Sh. 1 of 1 Sh.

Job No. D-91-425-90
PROJECT I-80 and I-55 BRIDGE SN 099-0042 and 43 Existing & Proposed Bridge Over West Frontage Road Date 2-14-92
ROUTE FAI-80 Bored By TOB
SEC. Township 35 N, Range 9 E, 28 & 27 STA. 1932+00 Checked By DOB
COUNTY Will

Boring No. 47
Station 1931+81.25
Offset 141.22' LT

Surface Water El. —
Groundwater El. at Completion 580.0
After 48 Hours 579.8

Ground Surface 588.0

Description	Elevation	N	Qu t/s.f.	w (%)
Black & brown SILTY CLAY (Topsoil Fill) — Very Stiff		3 / 3 / 6	B 20% 2.04	22
	584.5	5 / 4 / 6	B 20% 1.79	28 / --
Brown & gray CLAY — Stiff	-5	3 / 6 / 7	B 20% 1.96	25
	581.0			
Brown & gray SILTY CLAY — Hard		7 / 9 / 11	S 15% 7.57	21
	-10	7 / 9 / 13	B 20% 7.03	17
Stiff	574.5	10 / 11	S 15% 1.49	22
Brown poorly graded SAND (A-3)		14	NP	18
	-15 / 572.5	9	NP	21
Gray poorly graded SAND with gravel — Med.		11 / 13	NP	18
	569.5	7 / 10	NP	15
Gray SILTY CLAY-some sand & gravel — Very Stiff		16	4.0 P	18
	568.5			
Brown poorly graded sand (possible wash-in) — Dense	-20 / 568.0	31	NP	21
Gray fractured limestone with gravel, sand & cobbles — Very Dense		28 / 22	NP	10
	567.0	DB		--
Light to med. gray DOLOMITE (continued)				

Description	Elevation	N	Qu t/s.f.	w (%)
Slightly fossiliferous-dark gray argillaceous banding throughtout-slightly vertical fracturing throughout	-25	100% Recovery 48% RQD		
	-30			
End of Boring at -31.0'	-35 / -40 / -45			

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 No. hammer falling 30".

Qu-Unconfined Compressive Strength - t/sf

w - Water Content - percentage of oven dry weight-%.

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer
NP-Non Plastic

BD 137 (Rev. 4-78)

O'BRIEN & ASSOCIATES, INC.

Bridge Foundation Boring Log

Sh. 1 of 2 Sh.

Job No. D-91-425-90
PROJECT I-55 & I-80 BRIDGE SN 099-0042 and 43 Existing & Proposed Bridge Over West Frontage Road Date 2-14-92
ROUTE FAI-80 Bored By TOB
SEC. Township 35 N, Range 9 E, 28 & 27 STA. Checked By DOB
COUNTY Will

Boring No. 48
Station 1931+71.32
Offset Centerline

Surface Water El.
Groundwater El. at Completion
After Hours

Ground Surface

Description	Elevation	N	Qu t/s.f.	w (%)
Black SILTY CLAY (topsoil) (Fill) — Very Stiff				
	602.6			
Dark gray to brown & gray SILTY CLAY (Fill)	-5			
Very Stiff		3 / 3 / 4	S 15% 2.24	19
Stiff		4 / 4 / 6	B 20% 1.34	21
Med.	-10	4 / 5 / 4	S 20% 0.96	16
Stiff		7 / 6 / 9	P 2.0	17
Stiff	-15	3 / 4 / 6	S 11% 1.18	21
2" Brown clayey sand 'Layer' — Med.		3 / 3	0.95 / NP	20 / 17
Dark gray & brown to brown CLAY — Stiff		4	2.0P	30
Hard	-20	3 / 9 / 14	S 15% 4.74	21

Description	Elevation	N	Qu t/s.f.	w (%)
Very Stiff		18 / 20 / 27	B/B 20% 3.60 / 6.05	21 / 21
Brown SILTY CLAY — Hard	-25	7 / 13 / 15	B @ 20% 5.86	19
Trace shale fragments at 30' — Very Stiff		9 / 12 / 13	NP	18 / 19
Med.				
Brown poorly graded SAND	-30	11 / 16	NP	19
Gray poorly graded SAND — Dense		25	NP	17
Gray SANDY CLAY — Hard		10 / 15 / 30	B @ 20% 2.98	13 *
Gray GRAVEL with fractured limestone, clay & sand	-35	29 / 40 / 19	E 4.5+	8
		100/1.5"	E 4.5+	13
Gray SANDY CLAY 'Hardpan' with fractured limestone fragments	-40	100/3.5"	E 4.5+	8
Dark gray DOLOMITE-dark gray argillaceous banding throughout-slightly fossiliferous		DB		
(continued)	-45			

*NOTE: Sample Disturbed P=4.0

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 No. hammer falling 30".

Qu-Unconfined Compressive Strength - t/sf

w - Water Content - percentage of oven dry weight-%.

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer
NP-Non Plastic

BD 137 (Rev. 4-78)

O'BRIEN & ASSOCIATES, INC.
CONSULTING ENGINEERS
1235 E. DAVIS ST/ARLINGTON HTS, IL 60005
(312)398-1441

Sh. 2 of 2 Sh.

Job No. D-91-425-90
Project FAI-80
Boring 48
Station 1931+71.32 Centerline

Will County
Dated Bored 2-14-92
Bridge SN 099-0042 and SN 099-0043

Description	Elevation	N	Qu t/s.f.	w (%)
(continued)	-45			
Dark gray DOLOMITE		100% Recovery 83.5% RQD		
	-50 / 552.6			
End of Boring at -55.5'	-55 / -60 / -65 / -70			

Elevation	N	Qu t/s.f.	w (%)
-75 / -80 / -85 / -90 / -95			

BD 137 (Rev. 4-78)

Ciorba Group, Inc.
CONSULTING ENGINEERS
5507 NORTH CUMBERLAND AVENUE :: CHICAGO, ILLINOIS 60656 :: (773) 775-4009

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SOIL BORINGS 2
FAI-80 OVER WEST FRONTAGE ROAD
FAI-80 SECTION 99-1 (K,BY & AC-B)
WILL COUNTY
FAI-80 STA. 1931+99.35
STRUCTURE NO. 099-0042, 099-0043, 099-0308

SCALE: NONE DRAWN BY BWS
DATE: OCTOBER 2004 CHECKED BY GDW

DATE: 1/3/2005
FILENAME: n:\proj\2890\2890-02\design\structural\2890-02-s-20-borings2.dgn

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	99-1(K,BY&AC-B)	COOK	497	320
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Sheet S-21 of S-21

CONTRACT 80906

O'BRIEN & ASSOCIATES, INC.
CONSULTING ENGINEERS
1995 E. DAVIS ST/ARLINGTON HTS IL 60005
(312) 395-1441

Bridge Foundation Boring Log

Sh. 1 of 2 Sh.

Job No. 0-91-425-90
PROJECT I-55 & I-80 BRIDGE SN 099-0042,43 Existing & Proposed Bridge Over West Frontage Road Date 2-3-92
ROUTE FAI -80 Bored By TOB
SEC. Township 35 N Range 9 E, 28 & 27 STA. 1932+00 Checked By DOB
COUNTY Will

Boring No. 49
Station 1932+24.33
Offset 21.27 LT

Surface Water El.
Groundwater El. at Completion 590.7
After 168 Hours 570.7
After 408 hours 593.7

Description	Elevation	N	Qu t/s.f.	w (%)
Ground Surface 604.7	0		P	
Black SILTY CLAY * (Topsoil Fill) Soft		2	0.5	41
		4	--	--
604.2		5		
Brown & gray SILTY CLAY (Fill) Stiff		2	B	
		3	20%	22
		3	1.08	
	-5	3	B	
		4	20%	21
		5	2.26	
Very Stiff		3	B 20%	
		4	3.14	20
		6	2.65	20
			B 20%	
Stiff	-10	3	P	
		5	1.5	22
		5	2.5	
			P*	
		5	B 20%	
		7	3.24	22
Very Stiff		9	3.05	26
			B 20%	
	-15	6	B	
		8	20%	19
		11	3.34	
Stiff		5	B	
		6	20%	25
584.7		7	1.67	
Dark gray & brown CLAY Stiff	-20	4	P	
583.7		7	2.0	28
Brown SILTY CLAY Hard		10	4.62	18
			B @ 20%	

Description	Elevation	N	Qu t/s.f.	w (%)
Continued from previous column Hard		7	S	
		11	15%	16
		13	6.29	
	-25	12	S	
Trace shale fragments at -26'		17	20%	17
		24	10.03	
		11	B	
		15	20%	22
574.7		19	4.81	
Gray poorly graded SAND with gravel Dense	-30	12	NP	13
573.7		22		
		19	NP	7
Gray dolomite LIMESTONE COBBLES, GRAVEL & SAND Dense 572.2				
571.7 Gray poorly graded SAND with gravel (Possible wash-in)		8	NP	15
		12	S 13%	15
		13	5.40	
Gray CLAYEY SILT Hard 569.7	-35			
Gray poorly graded with gravel (Possible wash-in) 569.2		10	NP	16
Gray SILTY CLAY some sand 'Hardpan' SAND Hard 568.7		100/6	4.42	13
			B 20%	
Apparent fractured bedrock from -36' to -46'			DB	
No recovery from 10' core barrel	-40		0% Recovery	
(continued)	-45			

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 No. hammer falling 30".

Qu-Unconfined Compressive Strength - t/sf

w - Water Content - percentage of oven dry weight-%.

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer
NP- Non Plastic

* Qu = B @ 20% 1.77 Sample disturbed

BD 137 (Rev. 4-78)

O'BRIEN & ASSOCIATES, INC.
CONSULTING ENGINEERS

Sh. 2 of 2 Sh.

Job No. 0-91-425-90
Project FAI -80
Boring 49
Station 1932+24.33 21.27' LT

Description	Elevation	N	Qu t/s.f.	w (%)
Apparent bedrock (Continued)				
End of Boring at -46'				
	-50			
	-55			
	-60			
	-65			
	-70			
	-75			
	-80			
	-85			
	-90			
	-95			

BD 137 (Rev. 4-78)

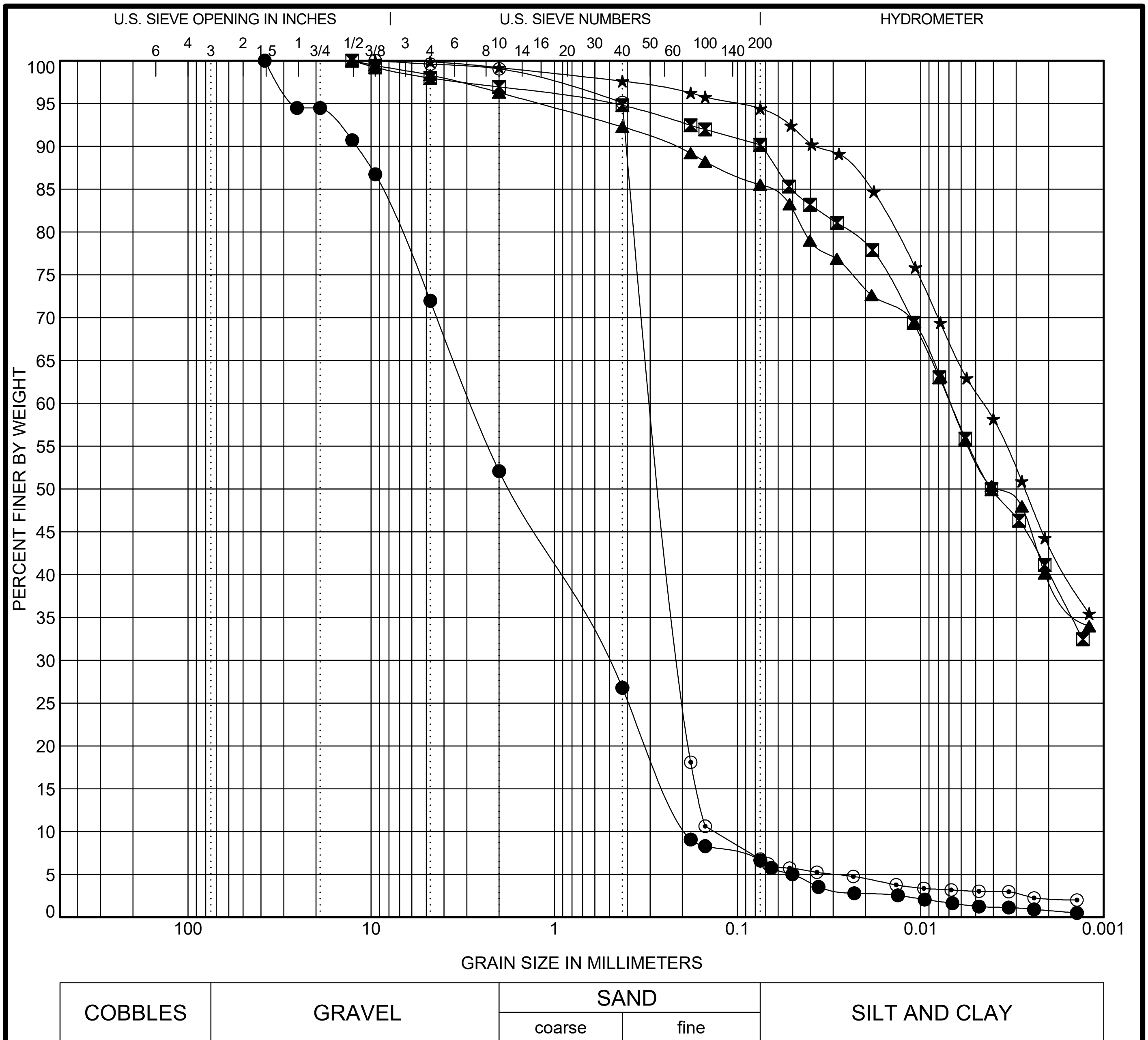
REVISIONS	
NAME	DATE

Ciorba Group, Inc.
CONSULTING ENGINEERS
5507 NORTH CUMBERLAND AVENUE :: CHICAGO, ILLINOIS 60656 :: (773) 775-4009

ILLINOIS DEPARTMENT OF TRANSPORTATION
SOIL BORINGS 3
FAI-80 OVER WEST FRONTAGE ROAD
FAI-80 SECTION 99-1 (K,BY & AC-B)
WILL COUNTY
FAI-80 STA. 1931+99.35
STRUCTURE NO. 099-0042, 099-0043, 099-0308
SCALE: NONE DRAWN BY BWS
DATE: OCTOBER 2004 CHECKED BY GDW

DATE: 1/3/2005
FILENAME: n:\proj\2890\2890-02\design\structural\2890-02-s-21-borings3.dgn

APPENDIX B



	Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
●	FR-BSB-01#6	13.5 ft	**Gravelly Sand**	**NP**	**NP**	**NP**	**0.50**	**15.00**
⧗	FR-BSB-02#10	23.5 ft	**Silty Clay**	**40**	**18**	**22**		
▲	FR-BSB-03#5	11.0 ft	**Clay**	**36**	**15**	**21**		
★	FR-BSB-03#12	28.5 ft	**Silty Clay**	**39**	**17**	**22**		
⊙	FR-BSB-04#12	28.5 ft	**Sand**	**NP**	**NP**	**NP**	**1.10**	**2.15**

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	FR-BSB-01#6	13.5 ft	**38.1**	**2.823**	**0.517**	**0.188**	**47.9**	**45.5**	**5.8**	**0.8**
⧗	FR-BSB-02#10	23.5 ft	**12.7**	**0.007**			**3.1**	**6.9**	**49.7**	**40.3**
▲	FR-BSB-03#5	11.0 ft	**12.7**	**0.007**			**3.7**	**10.8**	**45.8**	**39.6**
★	FR-BSB-03#12	28.5 ft	**9.5**	**0.005**			**0.8**	**4.8**	**50.8**	**43.5**
⊙	FR-BSB-04#12	28.5 ft	**9.5**	**0.287**	**0.206**	**0.134**	**1.0**	**92.3**	**4.5**	**2.2**

WEI
SINCE 1982

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

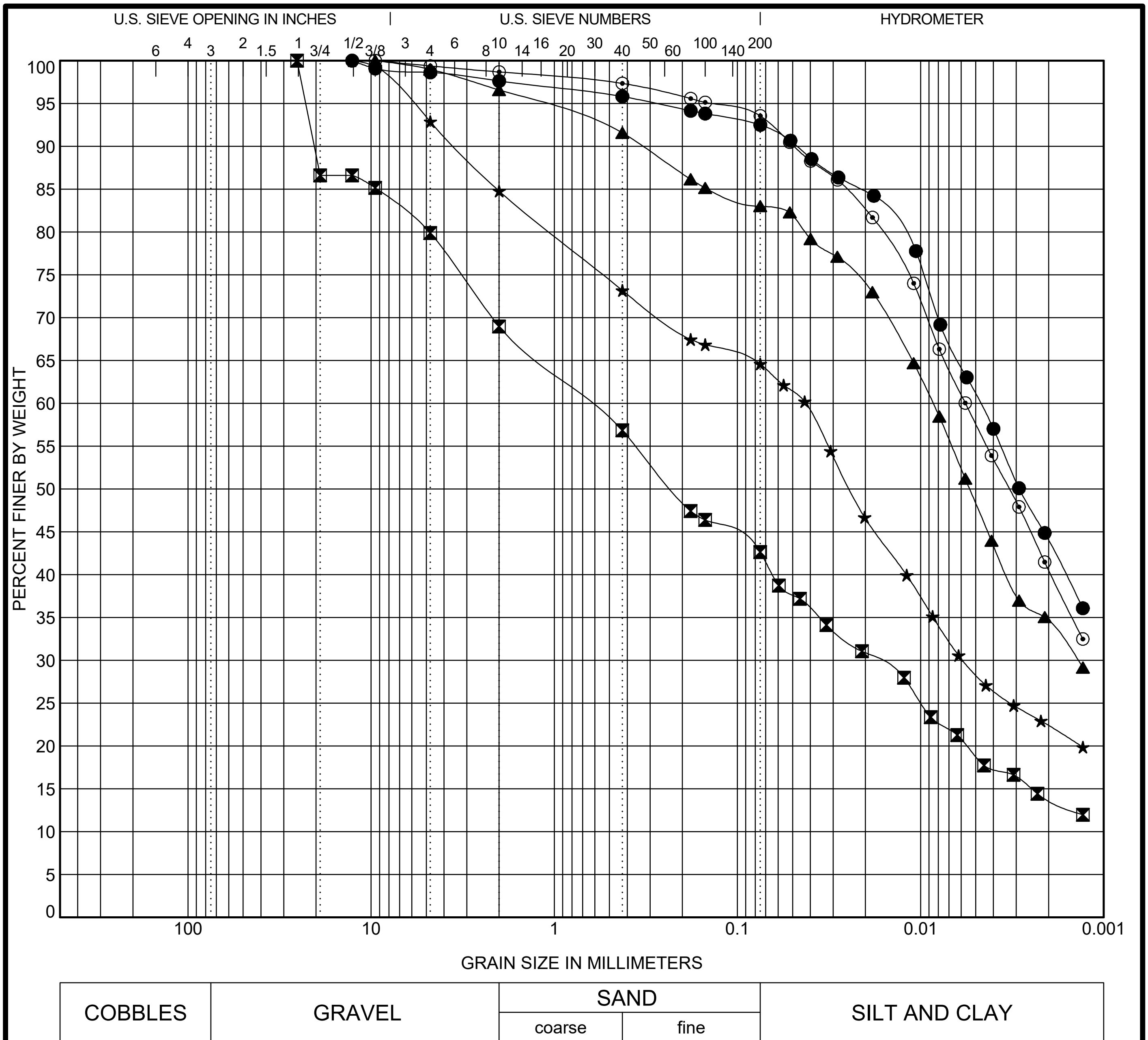
GRAIN SIZE DISTRIBUTION

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

Location: Will County, Illinois

Number: 255-39-01

WEI GRAIN SIZE IDH 2553901.GPJ US LAB.GDT 3/30/23



Specimen Identification			IDH Classification	LL	PL	PI	Cc	Cu
●	FR-BSB-05#3	6.0 ft	**Clay**	42	18	24		
⧗	FR-BSB-06#2	3.5 ft	**Gravelly Clay Loam**	25	12	13		
▲	FR-BSB-08#5	11.0 ft	**Silty Clay**	32	16	16		
★	FR-BSB-09#3	6.0 ft	**Gravelly Clay Loam**	39	16	23		
⊙	FR-BSB-09#10	23.5 ft	**Silty Clay**	39	19	20		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	FR-BSB-05#3	6.0 ft	12.7	0.005			2.4	5.2	48.5	44.0
⧗	FR-BSB-06#2	3.5 ft	25.4	0.636	0.017		31.0	26.6	28.6	13.8
▲	FR-BSB-08#5	11.0 ft	9.5	0.009	0.001		3.4	13.6	48.5	34.4
★	FR-BSB-09#3	6.0 ft	12.7	0.042	0.006		15.2	20.3	42.1	22.4
⊙	FR-BSB-09#10	23.5 ft	9.5	0.006			1.3	5.2	52.9	40.6

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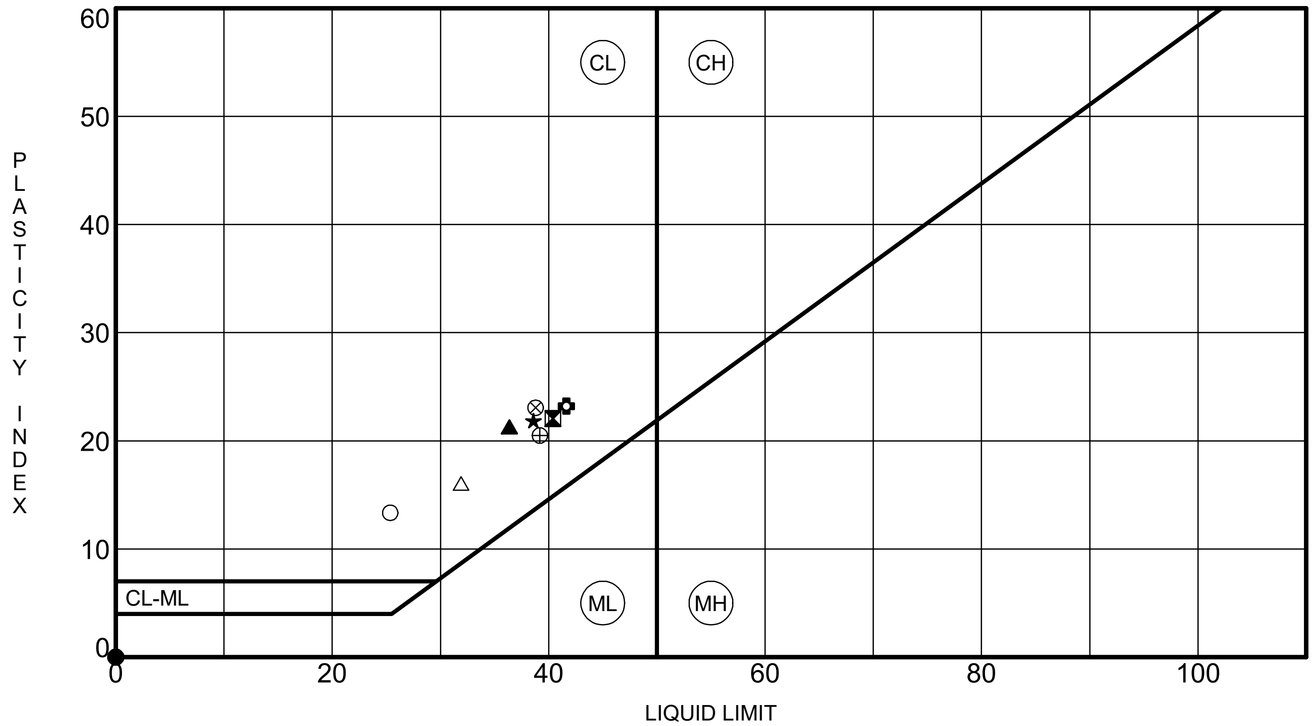
Project: I-80 Reconstruction, Ridge Road to Houbolt Road

Location: Will County, Illinois

Number: 255-39-01

WEI GRAIN SIZE IDH 2553901.GPJ US LAB.GDT 3/30/23



	Specimen Identification		LL	PL	PI	Fines	IDH Classification
●	**FR-BSB-01#6**	**13.5 ft**	**NP**	**NP**	**NP**	**7**	**Gravelly Sand**
⧗	**FR-BSB-02#10**	**23.5 ft**	**40**	**18**	**22**	**90**	**Silty Clay**
▲	**FR-BSB-03#5**	**11.0 ft**	**36**	**15**	**21**	**86**	**Clay**
★	**FR-BSB-03#12**	**28.5 ft**	**39**	**17**	**22**	**94**	**Silty Clay**
⊙	**FR-BSB-04#12**	**28.5 ft**	**NP**	**NP**	**NP**	**7**	**Sand**
✿	**FR-BSB-05#3**	**6.0 ft**	**42**	**18**	**24**	**92**	**Clay**
○	**FR-BSB-06#2**	**3.5 ft**	**25**	**12**	**13**	**43**	**Gravelly Clay Loam**
△	**FR-BSB-08#5**	**11.0 ft**	**32**	**16**	**16**	**83**	**Silty Clay**
⊗	**FR-BSB-09#3**	**6.0 ft**	**39**	**16**	**23**	**65**	**Gravelly Clay Loam**
⊕	**FR-BSB-09#10**	**23.5 ft**	**39**	**19**	**20**	**94**	**Silty Clay**

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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

Client: Stantec

WEI Job No.: KE225039

Field Sample ID	Run #	Depth (ft)	Location	Sample Description	Length (in) Before Capping	Length (in) After Capping	Diameter (in)	Total Load (lbs)	Total Pressure (psi)	Fracture Type*	Break Date	Tested By	Area (in^2)
FR-BSB-01	1	20.5	East Abutment	Dolostone	4.20	NA	2.06	32570	9763	3	3/1/23	KJ	3.33
FR-BSB-02	1	40.0	West Abutment	Dolostone	4.22	NA	2.05	26950	8205	3	3/1/23	KJ	3.28
FR-BSB-03	1	39.5	East Abutment	Dolostone	4.05	NA	2.05	30240	9126	3	10/31/22	KJ	3.31
FR-BSB-07	1	40.0	East Abutment	Dolostone	4.11	NA	2.06	29270	8816	3	11/2/22	KJ	3.32
FR-BSB-08	2	40.0	West Abutment	Dolostone	4.22	NA	2.06	40830	12298	3	10/31/22	KJ	3.32

*** 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 FR-BSB-01:
Run #1, 20.0 to 30.0 feet, RECOVERY=62%, RQD=4.2%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, 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
Wang Engineering A Terracon Company		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR STANTEC		2553901 KE225039

Run #2

0 6 inches

Boring FR-BSB-01:
Run #2, 30.0 to 35.0 feet, RECOVERY=97%, RQD=64%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, 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
Wang Engineering A Terracon Company		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR STANTEC		2553901 KE225039

Run #1

0 6 inches

Boring FR-BSB-02:
Run #1, 39.0 to 49.0 feet, RECOVERY=86%, RQD=33%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-3	DRAWN BY: D. You CHECKED BY: A. Hamad
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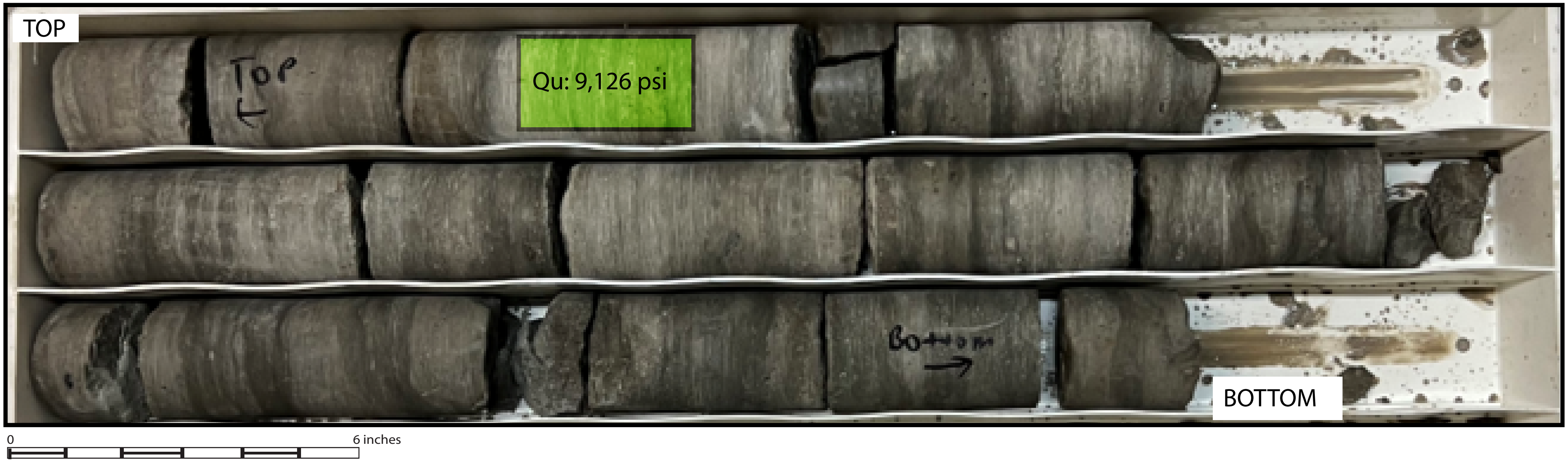
FOR STANTEC		2553901 KE225039

Run #2

Boring FR-BSB-02:
Run #2, 49.0 to 54.0 feet, RECOVERY=93%, RQD=64%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-4	DRAWN BY: D. You CHECKED BY: A. Hamad
Wang Engineering A Terracon Company		1145 N. Main Street Lombard, IL 60148 www.wangeng.com
FOR STANTEC		2553901 KE225039

Run #1



Boring FR-BSB-03:
Run #1, 39.0 to 44.0 feet, RECOVERY=98%, RQD=67%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, 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

Boring FR-BSB-03:
Run #2, 44.0 to 54.0 feet, RECOVERY=92%, RQD=67%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, 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 FR-BSB-04:
Run #1, 38.0 to 44.5 feet, RECOVERY=95%, RQD=56%

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

Run #2

0 6 inches

Boring FR-BSB-04:
Run #2, 44.5 to 56.5 feet, RECOVERY=99%, RQD=89%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-8	DRAWN BY: D. You CHECKED BY: A. Hamad
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FOR STANTEC		255-39-01

Run #1

0 6 inches

Boring FR-BSB-05:
Run #1, 39.0 to 49.0 feet, RECOVERY=97%, RQD=64%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-9	DRAWN BY: D. You CHECKED BY: A. Hamad
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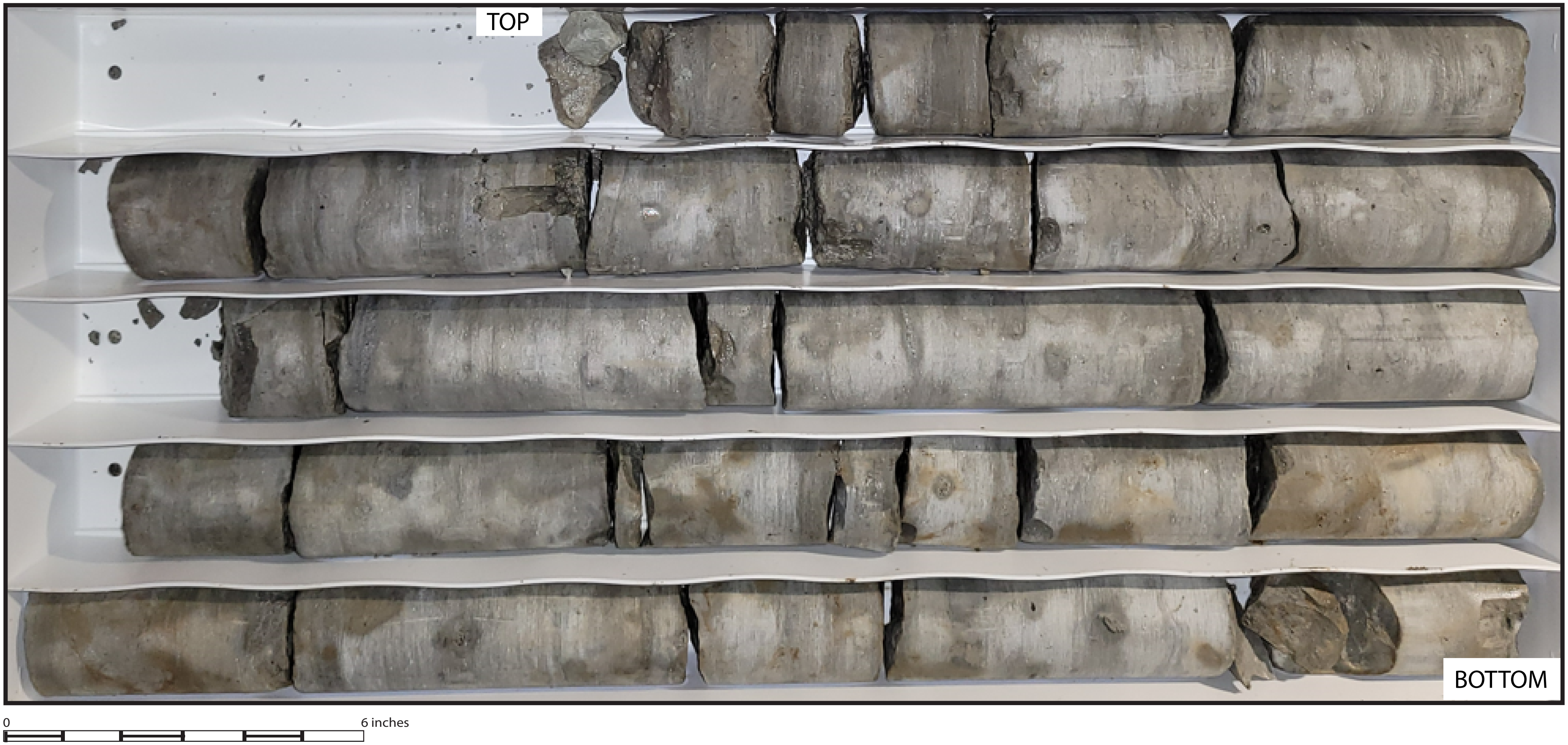
FOR STANTEC		255-39-01

Run #1



Boring FR-BSB-06:
Run #1, 38.0 to 48.0 feet, RECOVERY=88%, RQD=29%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-10	DRAWN BY: D. You CHECKED BY: A. Hamad
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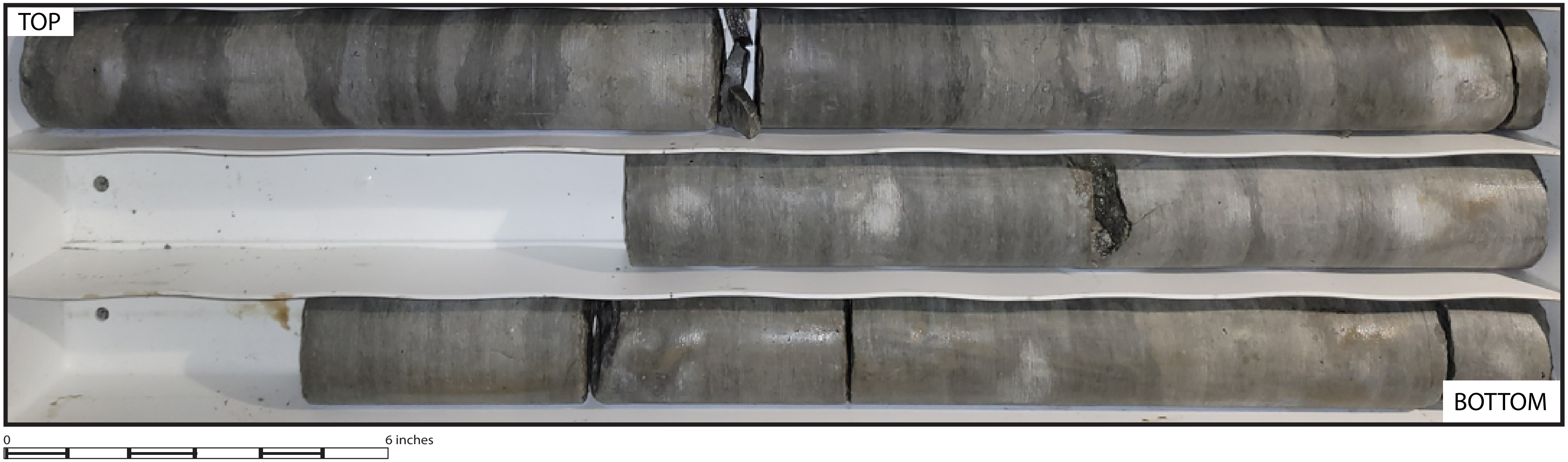
FOR STANTEC		255-39-01

Run #2



Boring FR-BSB-06:
Run #2, 48.0 to 53.0 feet, RECOVERY=95%, RQD=80%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-11	DRAWN BY: D. You CHECKED BY: A. Hamad
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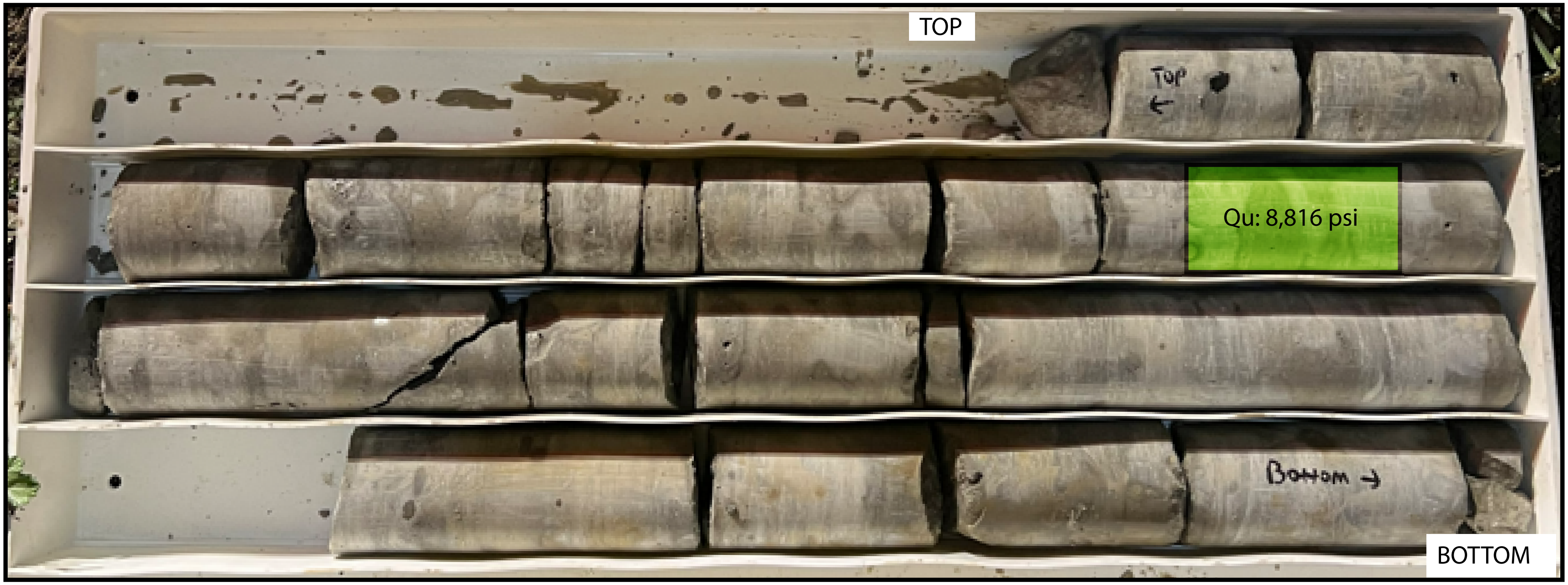
FOR STANTEC		255-39-01

Run #1



0 6 inches

Boring FR-BSB-07:
Run #1, 38.0 to 44.0 feet, RECOVERY=100%, RQD=41%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-12	DRAWN BY: J. Bensen CHECKED BY: A. Hamad
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FOR STANTEC		255-39-01

Run #2

0 6 inches

Boring FR-BSB-07:
Run #2, 44.0 to 54.0 feet, RECOVERY=95%, RQD=81%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-13	DRAWN BY: J. Bensen CHECKED BY: A. Hamad
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FOR STANTEC		255-39-01

Run #1

Run #2

0 6 inches

Boring FR-BSB-08:
Run #1, 38.0 to 39.5 feet, RECOVERY=94%, RQD=0%
Run #2, 39.5 to 44.5 feet, RECOVERY=95%, RQD=57%

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

SCALE: GRAPHICAL | APPENDIX C-14 | DRAWN BY: J. Bensen | CHECKED BY: A. Hamad

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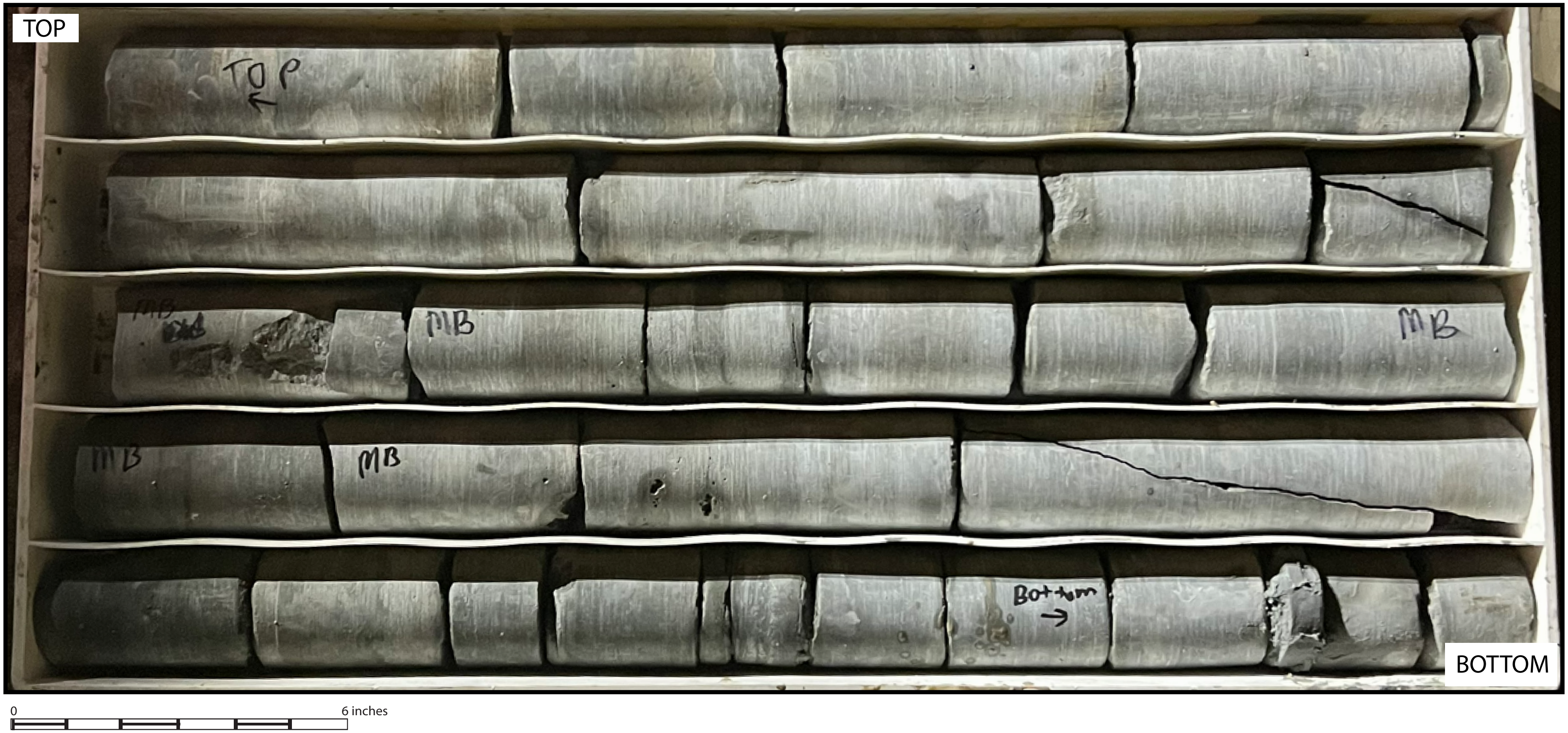
Run #3



Boring FR-BSB-08:
Run #3, 44.5 to 54.5 feet, RECOVERY=98%, RQD=61%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-15	DRAWN BY: J. Bensen CHECKED BY: A. Hamad
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FOR STANTEC		255-39-01

Run #1

0 6 inches

Boring FR-BSB-09:
Run #1, 38.0 to 48.0 feet, RECOVERY=94%, RQD=37%

BEDROCK CORE: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS		
SCALE: GRAPHICAL	APPENDIX C-16	DRAWN BY: D. You CHECKED BY: A. Hamad
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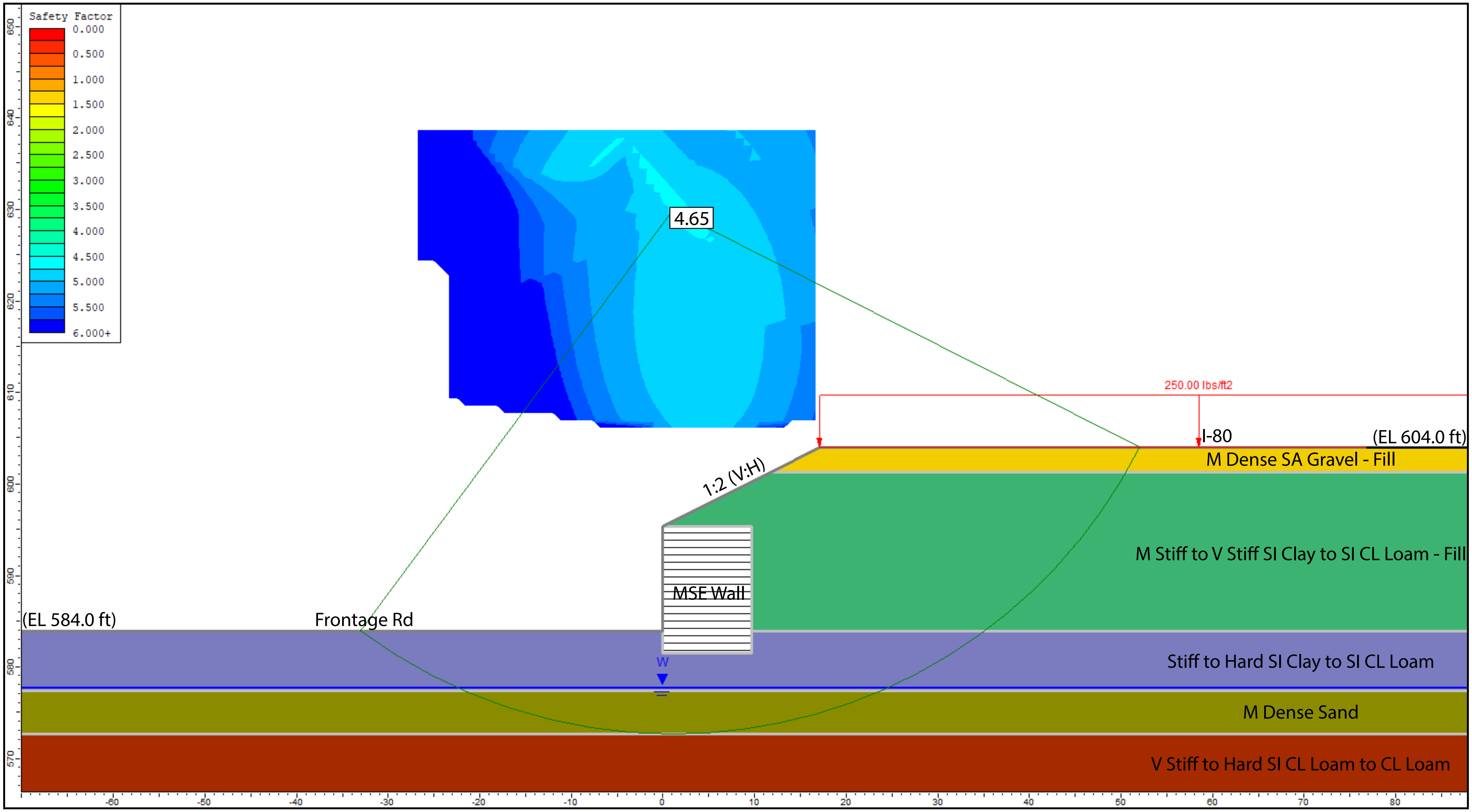
APPENDIX D



Undrained Analysis, Sta.44+40.00, West Abutment, Ref Boring: FR-BSB-04 & FR-BSB-08

Layer ID	Description	Total Unit Weight (pcf)	Undrained Cohesion (psf)	Undrained Friction Angle (degrees)
1	M Dense SA Gravel - Fill	115	0	29
2	M Stiff to V Stiff SI Clay to SI CL Loam - Fill	120	1500	0
3	Stiff to Hard SI Clay to SI CL Loam	120	4500	0
4	M Dense Sand	115	0	30
5	V Stiff to Hard SI CL Loam to CL Loam	120	2200	0

GLOBAL STABILITY: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL

APPENDIX D-1

DRAWN BY: D. You
CHECKED BY: A. Hamad

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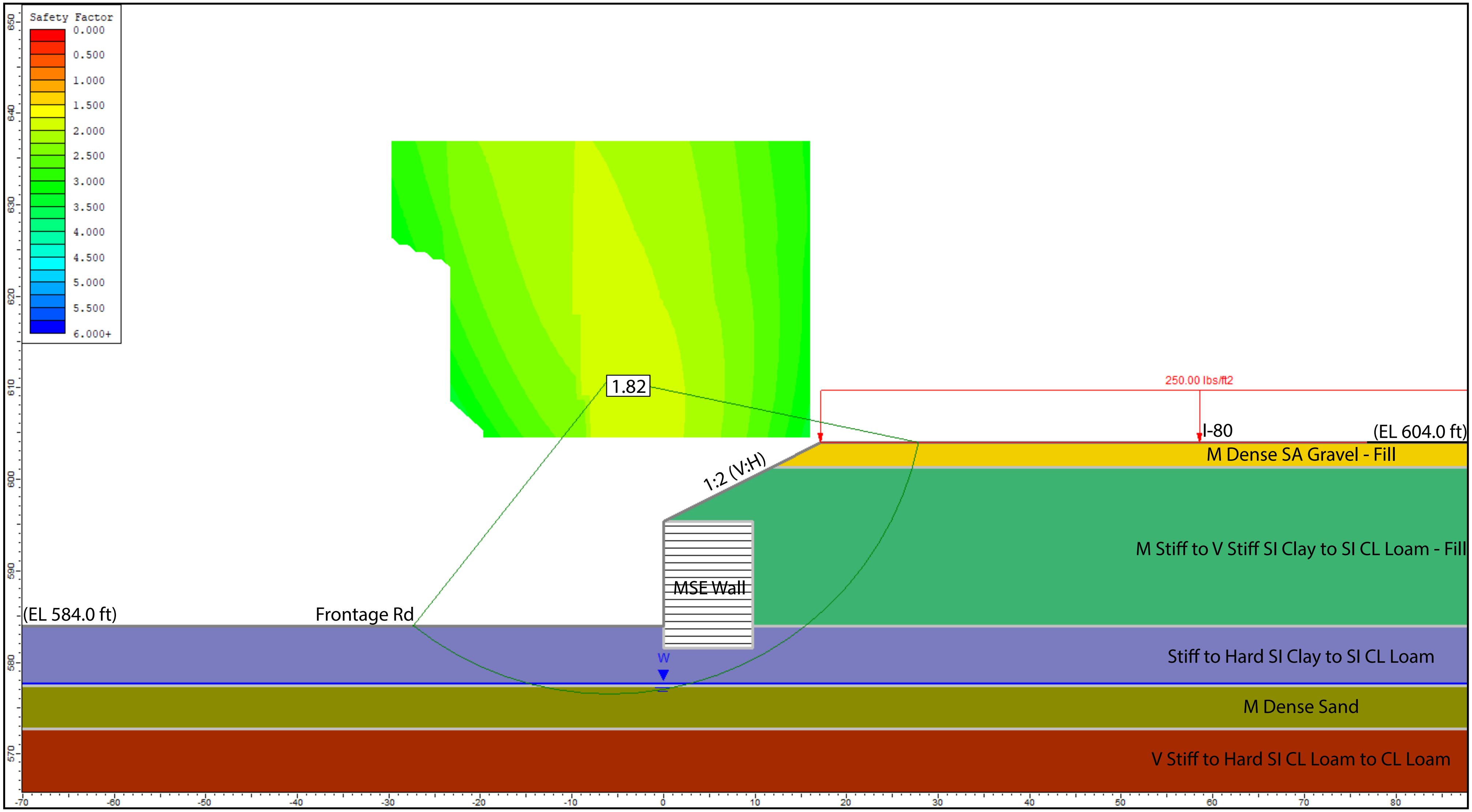

Drained Analysis, Sta.44+40.00, West Abutment, Ref Boring: FR-BSB-04 & FR-BSB-08

Layer ID	Description	Total Unit Weight (pcf)	Drained Cohesion (psf)	Drained Friction Angle (degrees)
1	M Dense SA Gravel - Fill	115	0	29
2	M Stiff to V Stiff SI Clay to SI CL Loam - Fill	120	100	32
3	Stiff to Hard SI Clay to SI CL Loam	120	100	30
4	M Dense Sand	115	0	30
5	V Stiff to Hard SI CL Loam to CL Loam	120	100	30

GLOBAL STABILITY: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL | APPENDIX D-2 | DRAWN BY: D. You | CHECKED BY: A. Hamad

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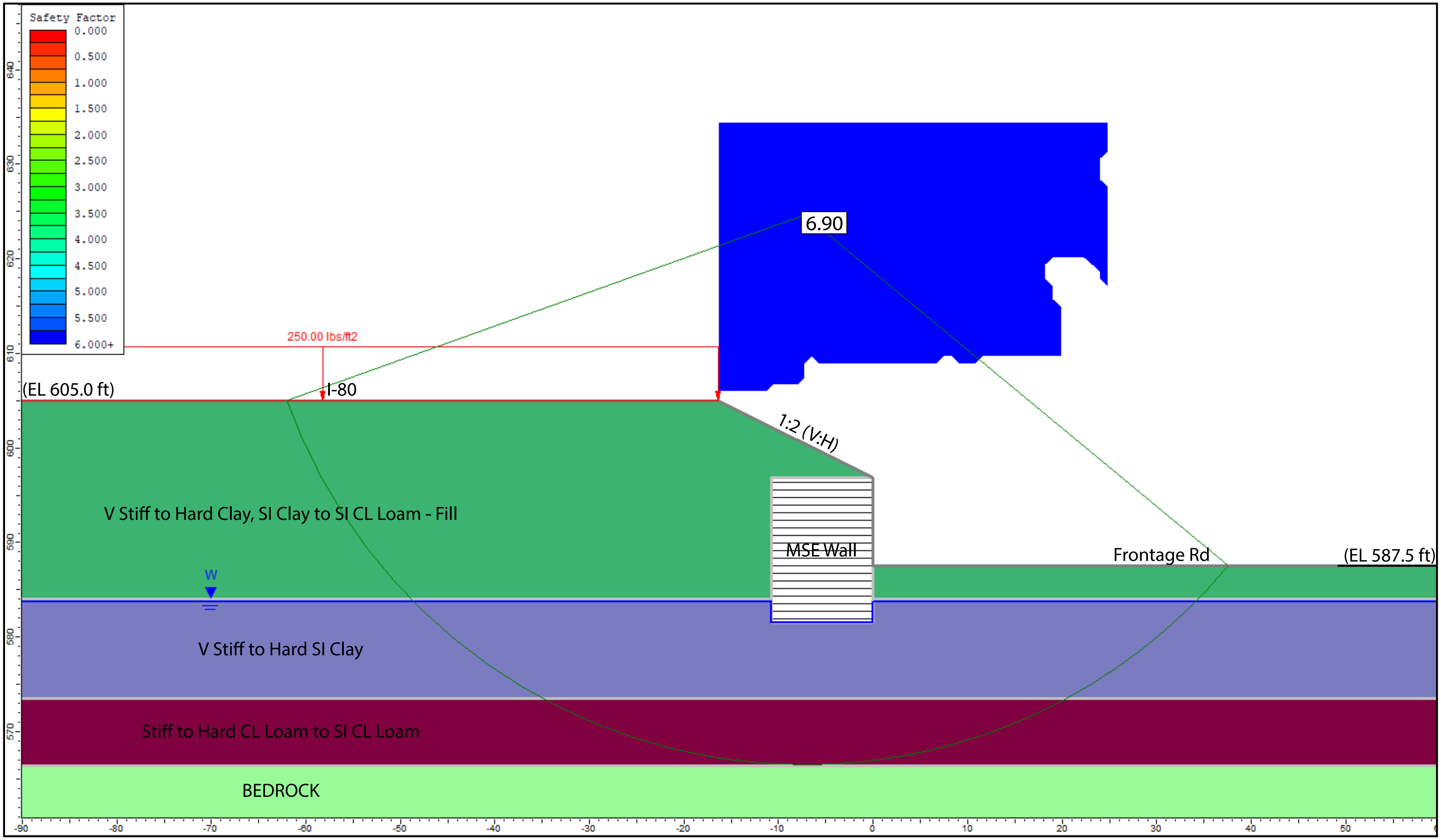

Undrained Analysis, Sta.44+40.00, East Abutment, Ref Boring: FR-BSB-03 & FR-BSB-07

Layer ID	Description	Total Unit Weight (pcf)	Undrained Cohesion (psf)	Undrained Friction Angle (degrees)
1	V Stiff to Hard Clay, SI Clay to SI CL Loam - Fill	120	2800	0
2	V Stiff to Hard SI Clay	120	4500	0
3	Stiff to Hard CL Loam to SI CL Loam	120	2000	0

GLOBAL STABILITY: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL

APPENDIX D-3

DRAWN BY: D. You
CHECKED BY: A. Hamad

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FOR STANTEC

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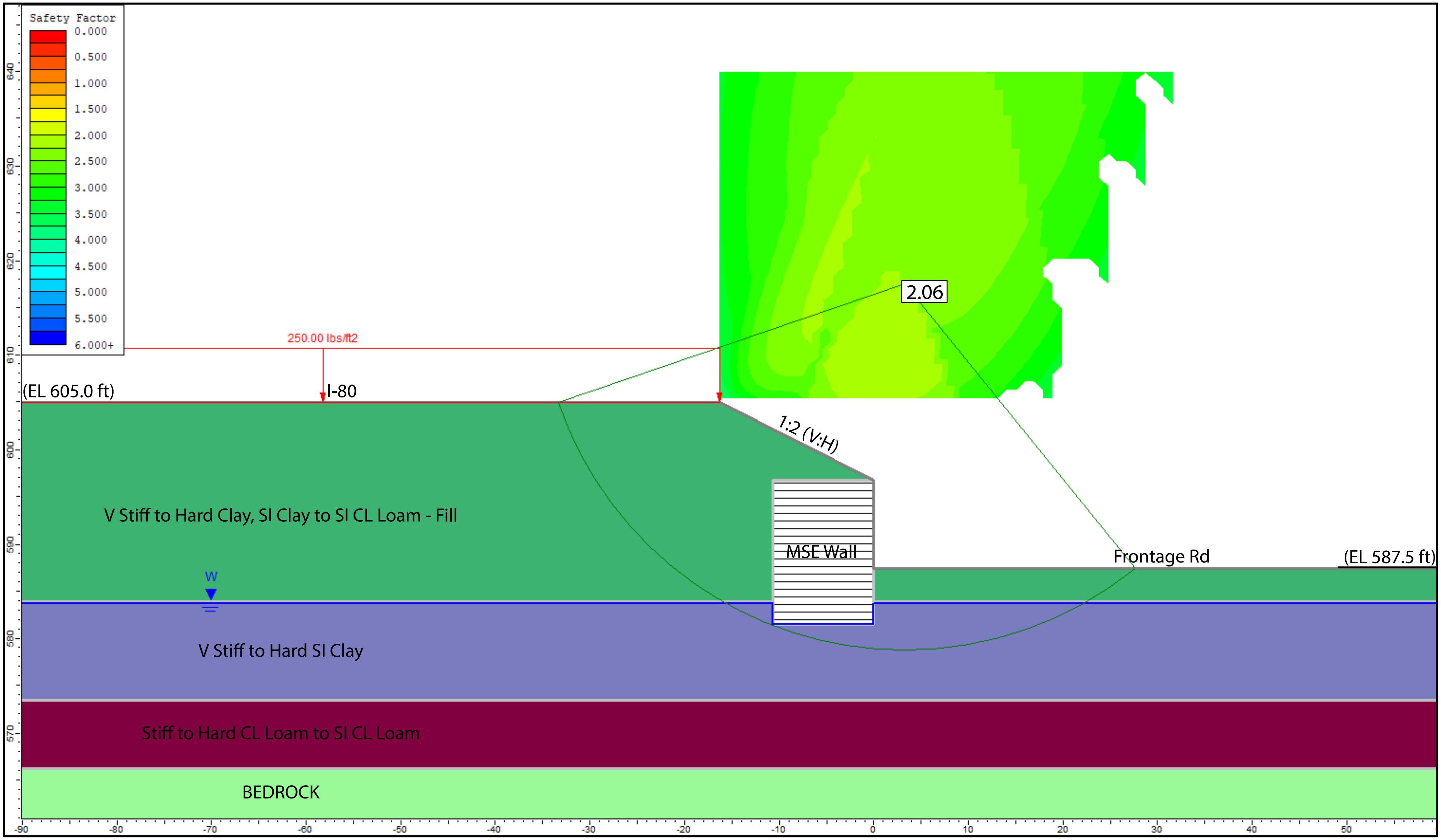

Drained Analysis, Sta.44+40.00, East Abutment, Ref Boring: FR-BSB-03 & FR-BSB-07

Layer ID	Description	Total Unit Weight (pcf)	Drained Cohesion (psf)	Drained Friction Angle (degrees)
1	V Stiff to Hard Clay, SI Clay to SI CL Loam - Fill	120	100	31
2	V Stiff to Hard SI Clay	120	100	30
3	Stiff to Hard CL Loam to SI CL Loam	120	100	30

GLOBAL STABILITY: I-80 BRIDGE AND RAMP D OVER FRONTAGE RD, I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD; WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL | APPENDIX D-4 | DRAWN BY: D. You | CHECKED BY: A. Hamad

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APPENDIX E

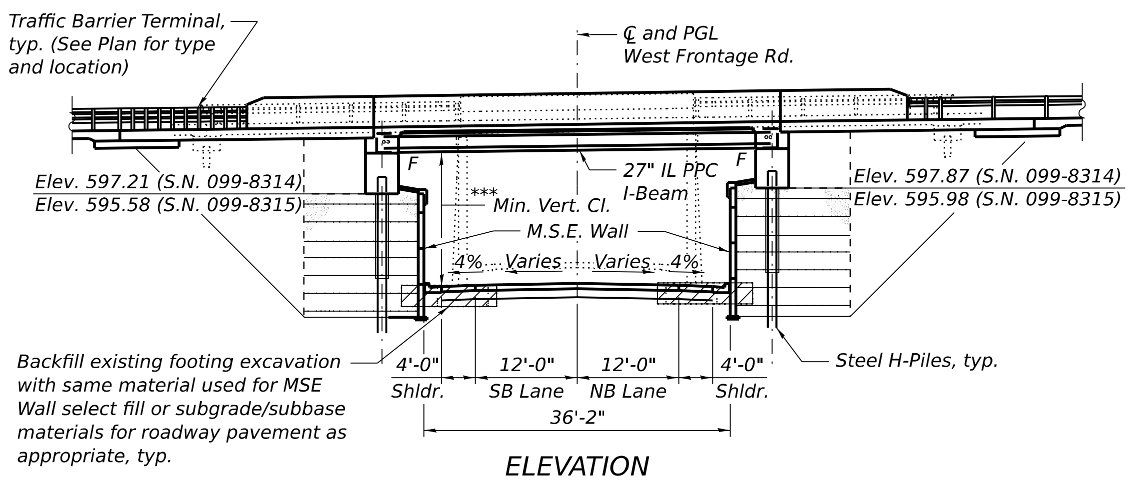
Benchmark: Set 2" CWA aluminum disc in northerly bridge parapet wall in westbound I-80 bridge over southwest Frontage Road, approximately 500'± west of mile marker 126 on north side of westbound I-80, Elevation 606.973.

Existing Structure: Exist. S.N.s 099-0042 (EB I-80) and 099-0043 (WB I-80) were originally constructed in 1960 as single-span structures carrying two lanes of eastbound I-80, two lanes of westbound I-80, and one lane of westbound Ramp A-6 traffic over West Frontage Road (F.A.I. Route I-80; Section 99-1; Contract No. 20086). In 2005, the existing eastbound bridge was widened to the south to accommodate the Ramp G roadway, and a new ramp structure was added to the north thereby removing the Ramp A-6 roadway from the westbound bridge cross-section (F.A.I. Route I-55; Section 99-1(K, BY & AC-B); Contract No. 80906). The bridges have overall lengths of 28'-0" (back-to-back abutments) and consist of minimum 18"-thick reinforced concrete slab superstructures with 24"-thick edge beams along the 1" longitudinal open joints. The S.N. 099-0042 out-to-out deck width varies from 67'-6¾" at west end to 69'-0½" at east end, whereas the S.N. 099-0043 out-to-out deck width varies from ±47'-7¾" at west end to ±49'-10⅝" at east end. The substructures consist of reinforced concrete abutments (restrained top and bottom) founded on soil. A small portion of the eastbound bridge abutments at the south end, as well as the adjacent reinforced concrete wingwalls, are founded on steel HP piles.

Exist. S.N. 099-0308 (Ramp A) was originally constructed in 2005 as a single-span structure carrying one lane of ramp traffic from southbound I-55 to westbound I-80 over West Frontage Road (F.A.I. Route I-55; Section 99-1(K, BY & AC-B); Contract No. 80906). The bridge has an overall length of approximately 28'-9¼" (back-to-back abutments; measured along outside face of parapet), an overall width of 33'-2" (out-to-out deck; measured radially to BL Ramp A) and consists of an 18"-thick reinforced concrete slab superstructure with no overlay. The substructure consists of reinforced concrete abutments (restrained top and bottom), and reinforced concrete wingwalls, founded on soil.

These structures will be removed and replaced. Traffic will be maintained utilizing staged construction.

Salvage: None.



ELEVATION

(Looking North)

(Exist. steel piles at the southwest and southeast ends of exist. abutments/wingwalls not shown for clarity)

*** For locations of Min. Vert. Cl., see plan view.
Final Min. Vert. Cl. to prop. W. Frontage Rd.:
16'-1" S.N. 099-8314
15'-3" S.N. 099-8315
Interim Min. Vert. Cl. to temporary pavement W. Frontage Rd.:
15'-8" S.N. 099-8314
15'-4" S.N. 099-8315

HIGHWAY CLASSIFICATION

F.A.I. Rte. 80 - I-80
Functional Class: Interstate
ADT: 49,400 (2019); 69,600 (2040)
ADTT: 17,848 (2019); 25,147 (2040)
DHV: 8,352 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 70 m.p.h.
2-Way Traffic
Directional Distribution: 50-50

I-55 Ramp A
Functional Class: Interstate
ADT: 1,630 (2017); 3,900 (2040)
ADTT: 900 (2017); 2,154 (2040)
DHV: 468 (2040)
Design Speed: 50 m.p.h.
Posted Speed: 50 m.p.h.
1-Way Traffic

I-55 Ramp D
Functional Class: Interstate
ADT: 8,690 (2017); 8,900 (2040)
ADTT: 2,216 (2017); 2,270 (2040)
DHV: 1,068 (2040)
Design Speed: 50 m.p.h.
Posted Speed: 50 m.p.h.
1-Way Traffic

West Frontage Rd.
Functional Class: Local Road
ADT: 4,700 (2019); 6,768 (2046)
ADTT: 611 (2019); 880 (2046)
DHV: 517 (2040)
Design Speed: 35 m.p.h. (Rdwy Curve North of I-80)
25 m.p.h. (Rdwy Curve South of I-80)
Posted Speed: 35 m.p.h. (Rdwy Curve North of I-80)
25 m.p.h. (Rdwy Curve South of I-80)
2-Way Traffic
Directional Distribution: 50-50

* Varies from 9'-6½" at Bk. W. Abut. to 12'-2½" at Bk. E. Abut.
** Varies from 19'-4½" at Bk. W. Abut. to 26'-1¼" to Bk. E. Abut.

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

LOADING HL-93

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

SEISMIC DATA

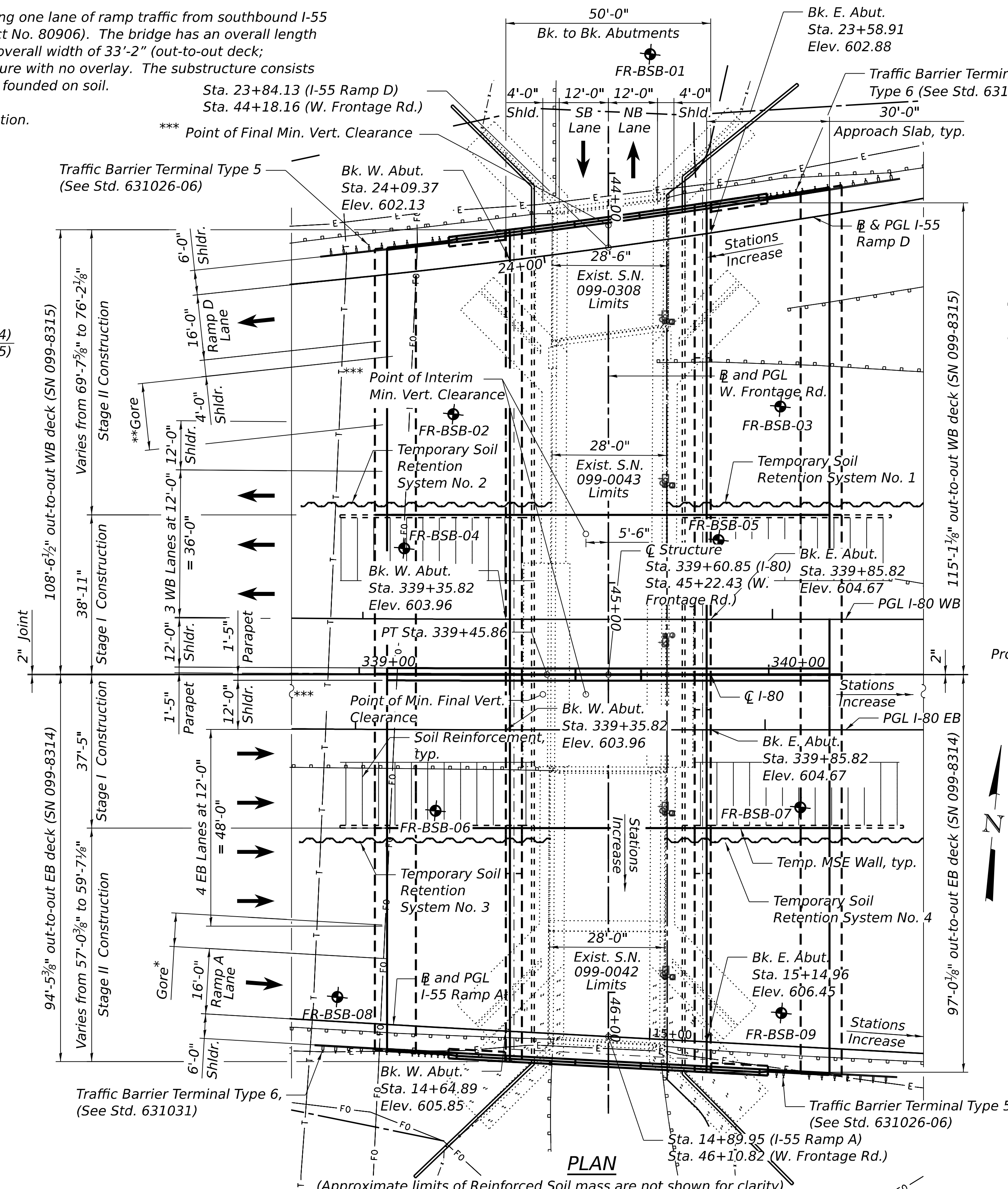
Seismic Performance Zone (SPZ) = 1
Design Spectral Accelaraton at 1.0 sec. (SD1) = 0.068g
Design Spectral Accelaraton at 0.2 sec. (SDS) = 0.127g
Soil Site Class = C

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi (Substructure)
f'c = 4,000 psi (Superstructure)
fy = 60,000 psi (Reinforcement)

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

MSE Precast Units
f'c = 4,500 psi



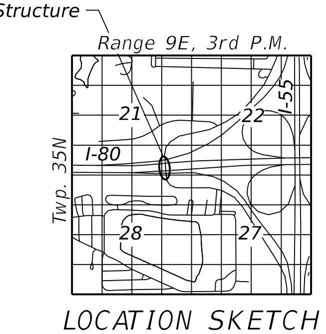
PLAN

(Approximate limits of Reinforced Soil mass are not shown for clarity)

LEGEND

- Exist. Guardrail, to be removed
- Temporary Soil Retention System
- Exist. Fence
- Exist. Telephone Line
- Exist. Fiber Optic
- Exist. Electric
- Prop. Lighting Cable in duct
- Prop. Underpass Lighting
- Soil Boring
- Exist. Footing Removal

Prop. Structure



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
I-80 EB/WB AND I-55 RAMPS A & D
OVER W. FRONTAGE RD.
F.A.I. RTE. I-80
SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 339+60.85
STRUCTURE NO. 099-8314 (EB)
STRUCTURE NO. 099-8315 (WB)

HBM ENGINEERING GROUP, LLC

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	CHECKED - MAI, MI	REVISED -	
PLOT SCALE =	DRAWN - SK	REVISED -	
PLOT DATE =	CHECKED - MAI, MI	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NOS. 099-8314 (EB) & 099-8315 (WB)

SHEET 1 OF 6 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	6	1

CONTRACT NO. 62R28

ILLINOIS FED. AID PROJECT

MODEL: Default
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/099-8314 & 099-8315 I80 over Frontage Rd/0998314_0998315-D162R28-TSL1

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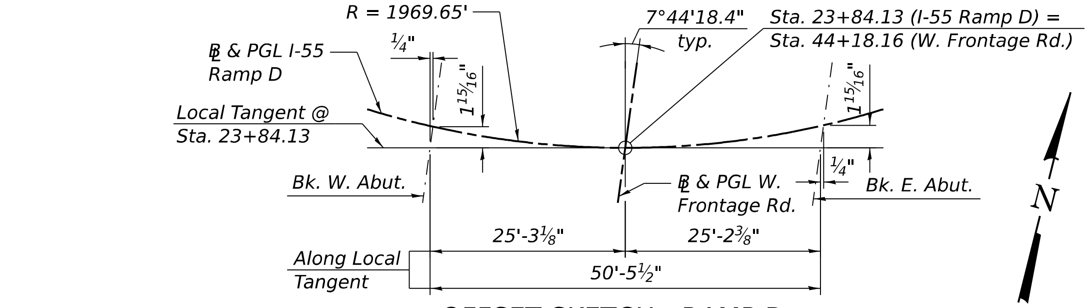
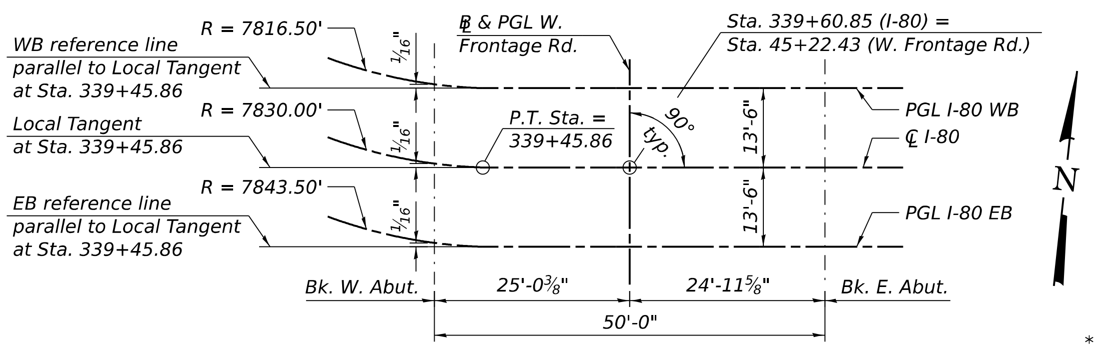
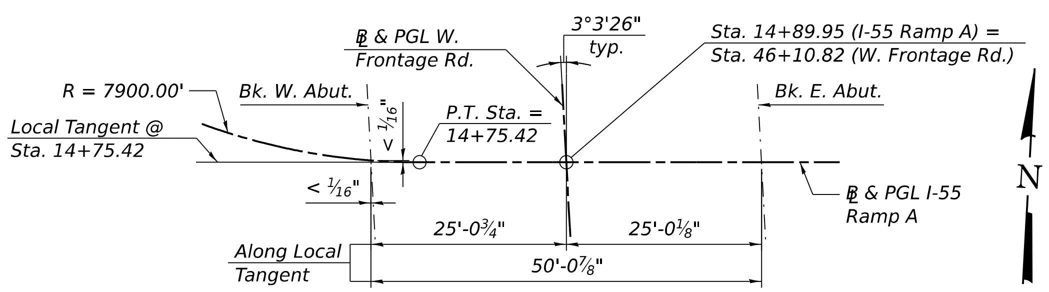


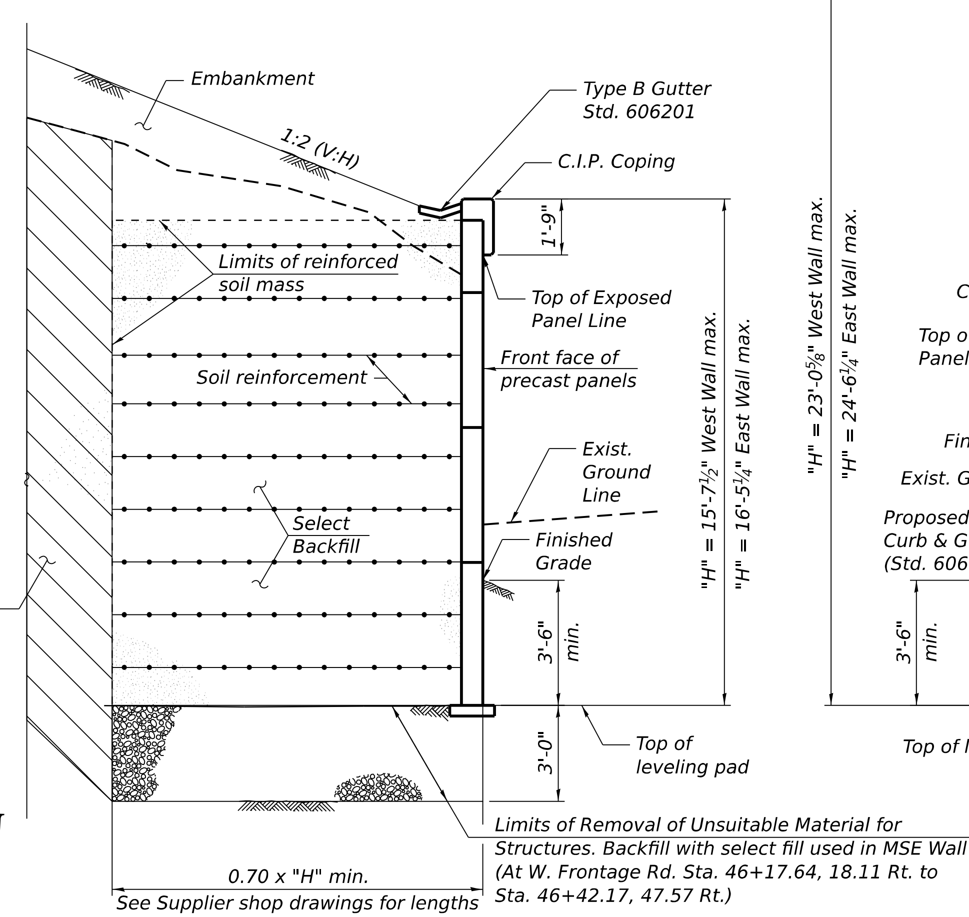
OFFSET SKETCH - RAMP D



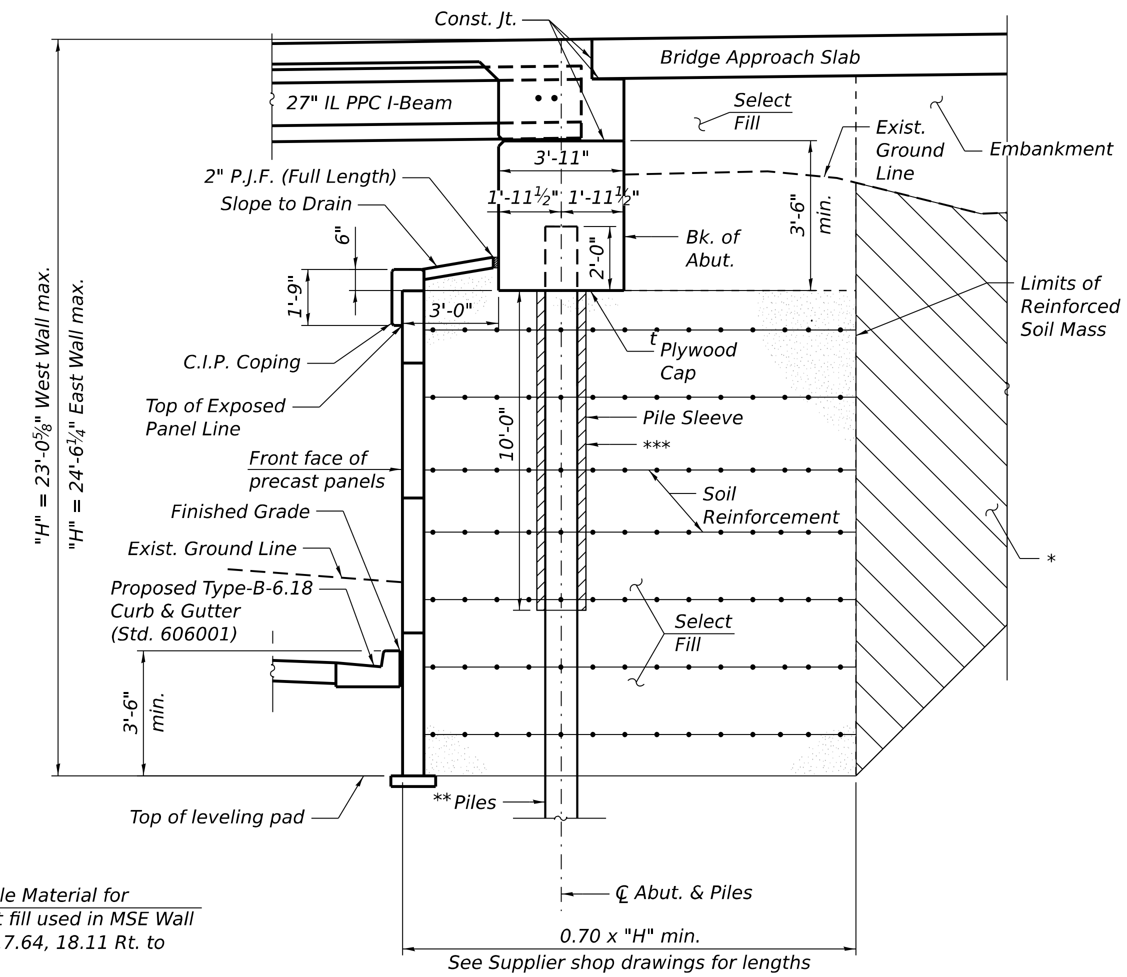
OFFSET SKETCH - I-80



OFFSET SKETCH - RAMP A



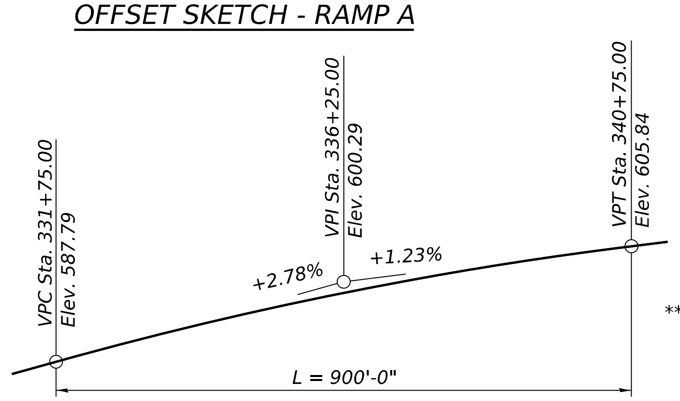
SECTION THRU MSE WALLS



SECTION THRU INTEGRAL ABUTMENTS

CURVE DATA - I-80
(P_CURVE-I80-3)

P.I. Sta. = 336+16.87
Δ = 04°49'03" (Lt)
D = 00°43'54"
R = 7,830.00'
T = 329.38'
L = 658.37'
E = 6.92'
e = 2.6%
T.R. = WB 86.67', EB 98.91'
S.E. Run = 78'
P.C. Sta. = 332+87.50
P.T. Sta. = 339+45.86

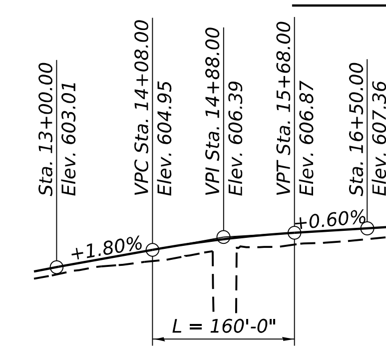


**** I-80 PROFILE GRADE
(Along ℄ I-80)
(The profile grade shows the final elevations after grinding)

**** The stations provided in the Profile Grade sketch are measured along the ℄ I-80; however, the elevations provided are identical along the WB PGL, EB PGL and ℄ I-80.

CURVE DATA - RAMP A
(PR CURVE PRBL-RAMP A)

P.I. Sta. = 12+37.78
Δ = 03°26'53" (Lt)
D = 00°43'31"
R = 7,900.00'
T = 237.78'
L = 475.42'
E = 3.58'
e = 2.60%
T.R. = N/A
S.E. Run = N/A
P.C. Sta. = 10+00.00
P.T. Sta. = 14+75.42



RAMP A PROFILE GRADE
(Along ℄ Roadway)
(The profile grade shows the final elevations after grinding)

t Bottom of cap poured against top of plywood. Cut opening to match pile perimeter within ⅛". Support with bars tack welded to webs rated for 500 lbs. Seal gaps to keep concrete out.

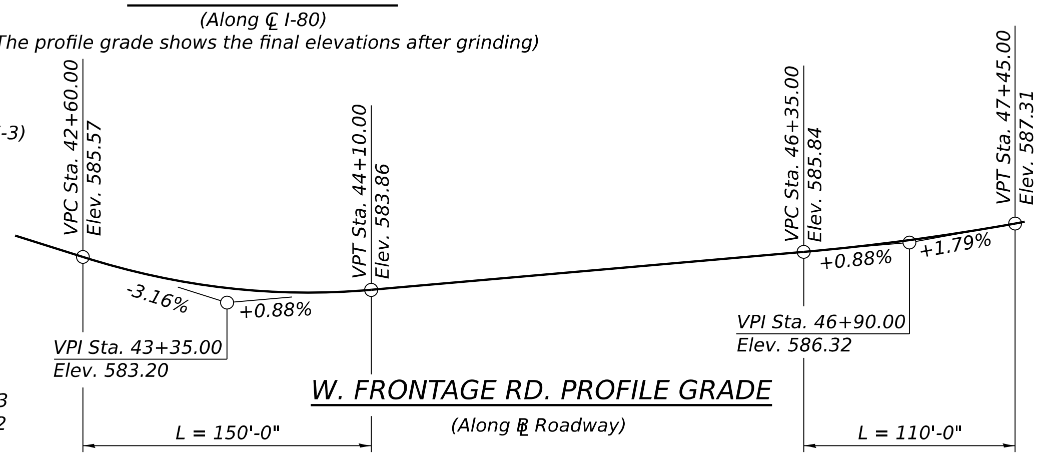
* Overexcavation beyond structure excavation and removal of unsuitable material. This area not measured for payment. Backfill overexcavation with same material used for select fill used in MSE Wall.

** Spacing, tip elevation and steel pile size to be determined during final design.

*** Sleeve to remain empty in hatched region

CURVE DATA - FRONTAGE RD.

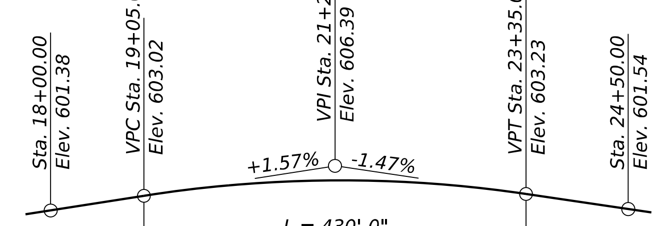
(PR CURVE FRONTAGE-4)	(PR CURVE FRONTAGE-3)
P.I. Sta. = 42+33.76	P.I. Sta. = 47+94.74
Δ = 82°22'49" (Lt)	Δ = 88°34'06" (Lt)
D = 20°50'05"	D = 33°50'41"
R = 275.00'	R = 169.29'
T = 240.66'	T = 165.11'
L = 395.40'	L = 261.69'
E = 90.43'	E = 67.19'
e = 7.70%	e = 7.70%
T.R. = 25'	T.R. = 25'
S.E. Run = 130'	S.E. Run = 125'
P.C. Sta. = 39+93.10	P.C. Sta. = 46+29.63
P.T. Sta. = 43+88.50	P.T. Sta. = 48+91.32



W. FRONTAGE RD. PROFILE GRADE
(Along ℄ Roadway)

CURVE DATA - RAMP D
(PR CURVE PRBL-RAMP D_2)

P.I. Sta. = 21+91.93
Δ = 24°15'47" (Rt)
D = 02°54'32"
R = 1,969.65'
T = 423.39'
L = 834.09'
E = 44.99'
e = 4.40%
T.R. = N/A
S.E. Run = N/A
P.C. Sta. = 17+68.54
P.T. Sta. = 26+02.62



RAMP D PROFILE GRADE
(Along ℄ Roadway)
(The profile grade shows the final elevations after grinding)

PROFILE GRADE LINES, CURVE DATA AND DETAILS
I-80 EB/WB AND I-55 RAMPS A & D OVER FRONTAGE RD.
F.A.I. RTE. I-80
SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 339+60.85
STRUCTURE NO. 099-8314 (EB)
STRUCTURE NO. 099-8315(WB)

HBM ENGINEERING GROUP, LLC

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PLOT DATE =	CHECKED - MAI, MI	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NOS. 099-8314 (EB) & 099-8315 (WB)

SHEET 2 OF 6 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	6	2

CONTRACT NO. 62R28

ILLINOIS FED. AID PROJECT

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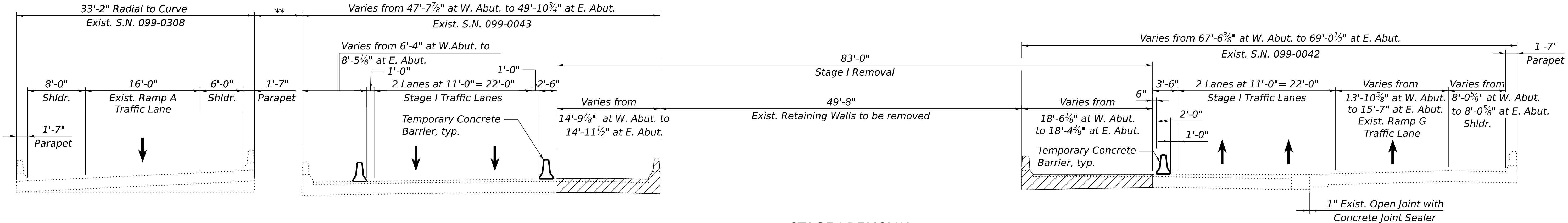
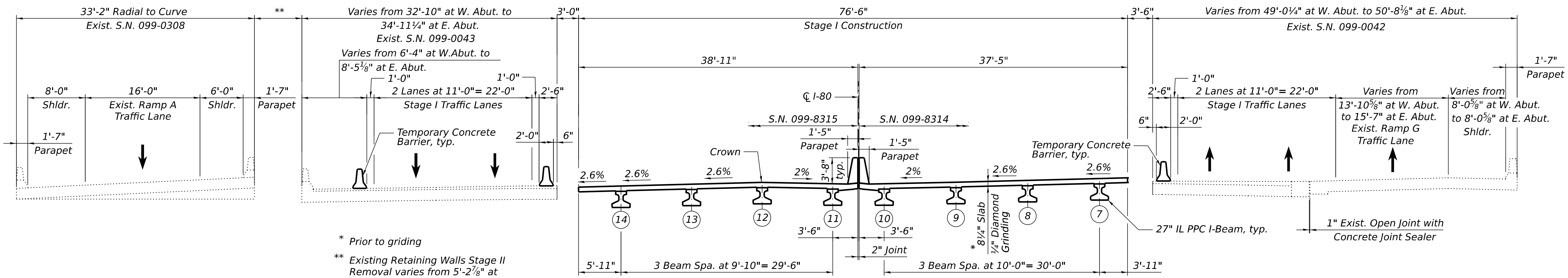


STAGE I REMOVAL

(Looking East)



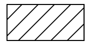
* Prior to griding

** Existing Retaining Walls Stage II Removal varies from 5'-2⅞" at F.F. of W. Abut. to 6'-10⅛" at F.F. of E. Abut.

STAGE I CONSTRUCTION

(Looking East)

LEGEND


Removal of Existing Structure

WEST FRONTAGE RD. MAINTENANCE OF TRAFFIC (MOT) NOTES:

1. Install Temporary Soil Retention System (TSRS) and Temporary Concrete Barrier along the ℄ W. Frontage Road to locate traffic on the west side of roadway.
2. Excavate to top of existing East Abutment footing and construct temporary pavement.
3. Shift W. Frontage Road traffic to east side of roadway (on newly constructed temporary pavement), excavate to top of existing West Abutment footing and construct temporary pavement.
4. Shift W. Frontage Road traffic to ℄ of temporary pavement and complete Stage I removal and construction of I-80 EB/WB bridge structures and associated roadways at W. Frontage Road.
5. Locate W. Frontage Road traffic on the east side of temporary roadway, Perform Stage II Removal of existing structure and Construction of Proposed West Abutment, and concurrently excavate west side of W. Frontage Road temporary pavement and reconstruct roadway to its final condition.
6. Relocate W. Frontage Road traffic to newly constructed west side of roadway, perform Stage II removal of existing structure and construction of Proposed East Abutment, and concurrently excavate east side of W. Frontage Road temporary pavement and reconstruct roadway to its final condition.
7. Erect Proposed Stage II PPC Beams and construct Stage II deck, barriers and associated roadways.

STAGE CONSTRUCTION I
I-80 EB/WB AND I-55 RAMPS A & D
OVER FRONTAGE RD.
F.A.I. RTE. I-80
SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 339+60.85
STRUCTURE NO. 099-8314 (EB)
STRUCTURE NO. 099-8315 (WB)

MODEL: Default
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HBM ENGINEERING GROUP, LLC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NOS. 099-8314 (EB) & 099-8315 (WB)

SHEET 3 OF 6 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	6	3
		CONTRACT NO. 62R28		
	ILLINOIS	FED. AID PROJECT		

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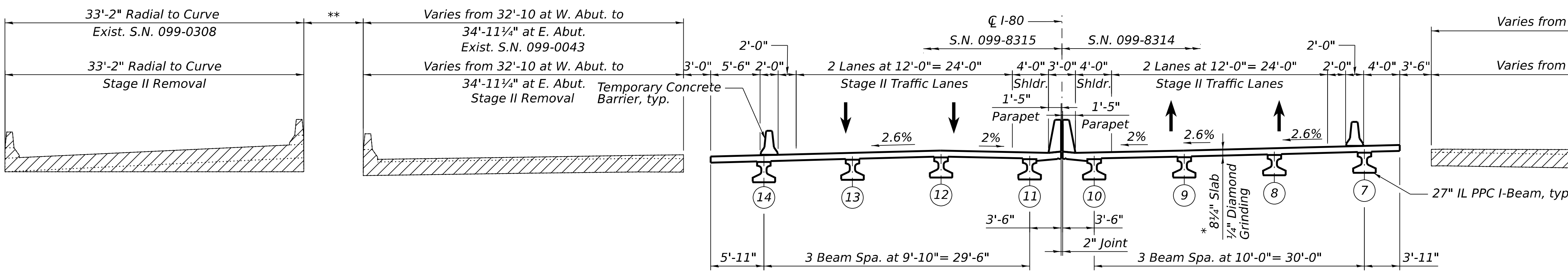
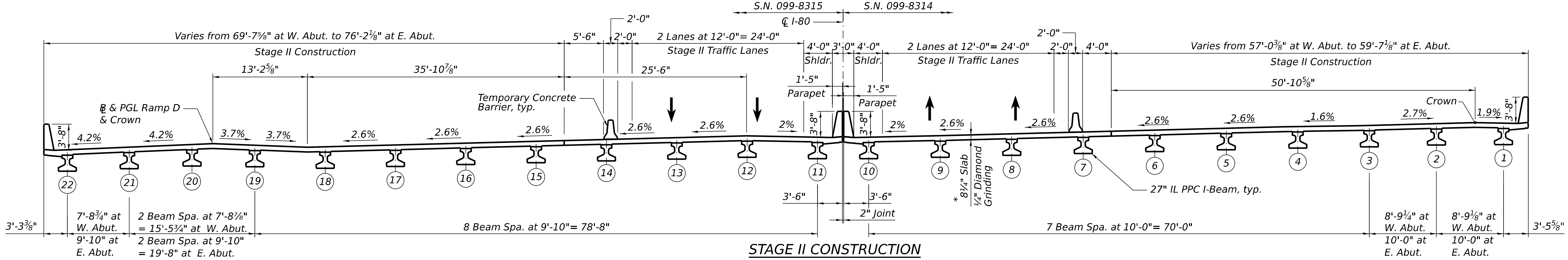


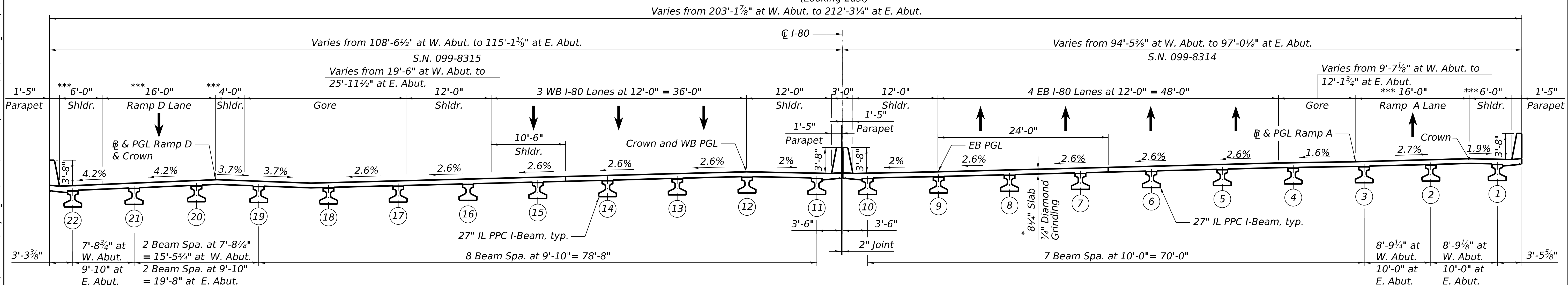
STAGE II REMOVAL

(Looking East)



STAGE II CONSTRUCTION

(Looking East)



FINAL CROSS SECTION

(Looking East)

* Prior to griding

** Existing Retaining Walls Stage II Removal varies from 5'-2⅞" at F.F. of W. Abut. to 6'-10⅛" at F.F. of E. Abut.

*** Dimensions are radial to curve

LEGEND

Removal of Existing Structure

STAGE CONSTRUCTION II
I-80 EB/WB AND I-55 RAMPS A & D
OVER FRONTAGE RD.
F.A.I. RTE. I-80
SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 339+60.85
STRUCTURE NO. 099-8314 (EB)
STRUCTURE NO. 099-8315 (WB)

MODEL: Default
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PLOT SCALE =	DRAWN - AMS	REVISED -		
PLOT DATE =	CHECKED - MAI, MI	REVISED -		SHEET 4 OF 6 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	6	4
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	

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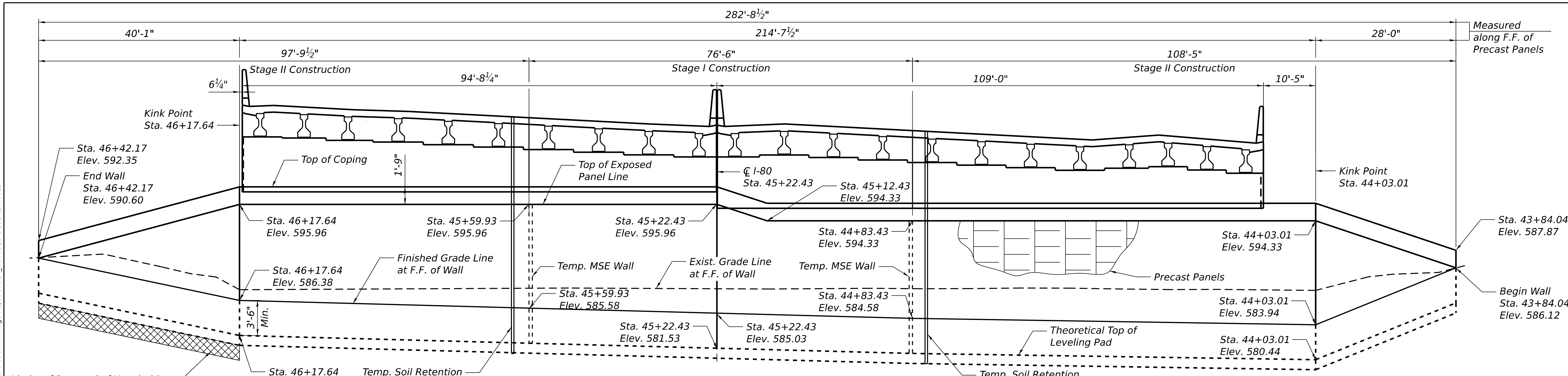
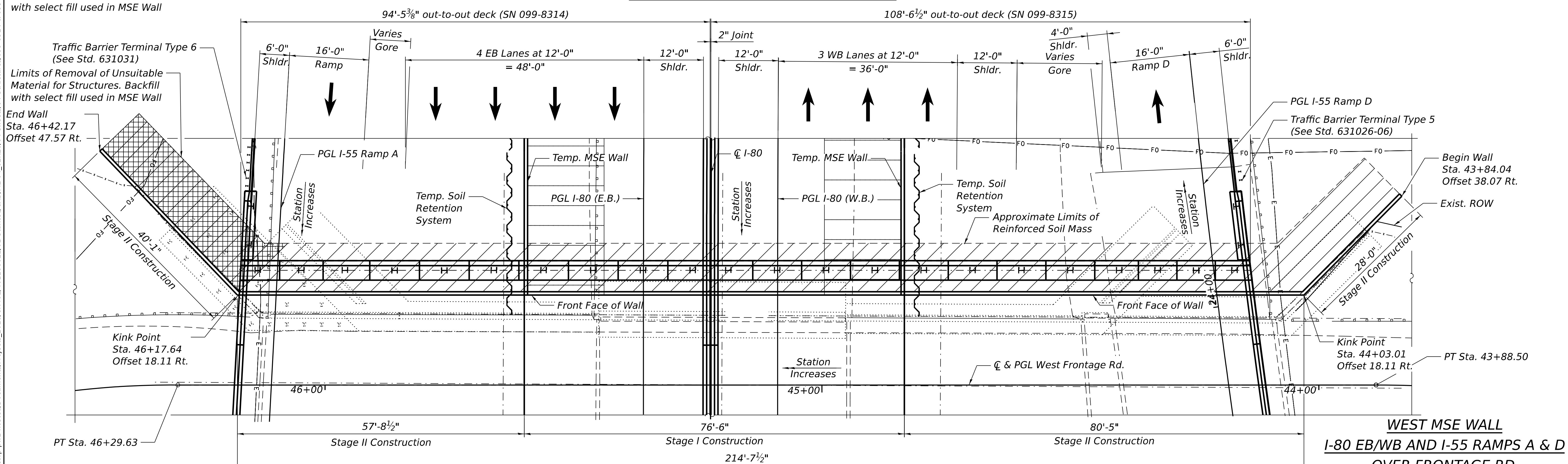


UNFOLDED ELEVATION OF WEST WALL



PLAN OF WEST WALL

N

NOTES:

1. Stations and offsets are measured from ℄ Frontage Rd. to the front face of the wall.
2. Limits of soil improvement for temporary MSE wall to be determined in final design.

WEST MSE WALL
I-80 EB/WB AND I-55 RAMPS A & D
OVER FRONTAGE RD.
F.A.I. RTE. I-80
SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 339+60.85
STRUCTURE NO. 099-8314 (EB)
STRUCTURE NO. 099-8315 (WB)

MODEL: Default
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/099-8314 & 099-8315 I80 over Frontage Rd/0998314_0998315-D162R28-TSL5

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PLOT DATE =	CHECKED - MAI, MI	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NOS. 099-8314 (EB) & 099-8315 (WB)

SHEET 5 OF 6 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	6	5
		CONTRACT NO. 62R28		
	ILLINOIS	FED. AID PROJECT		

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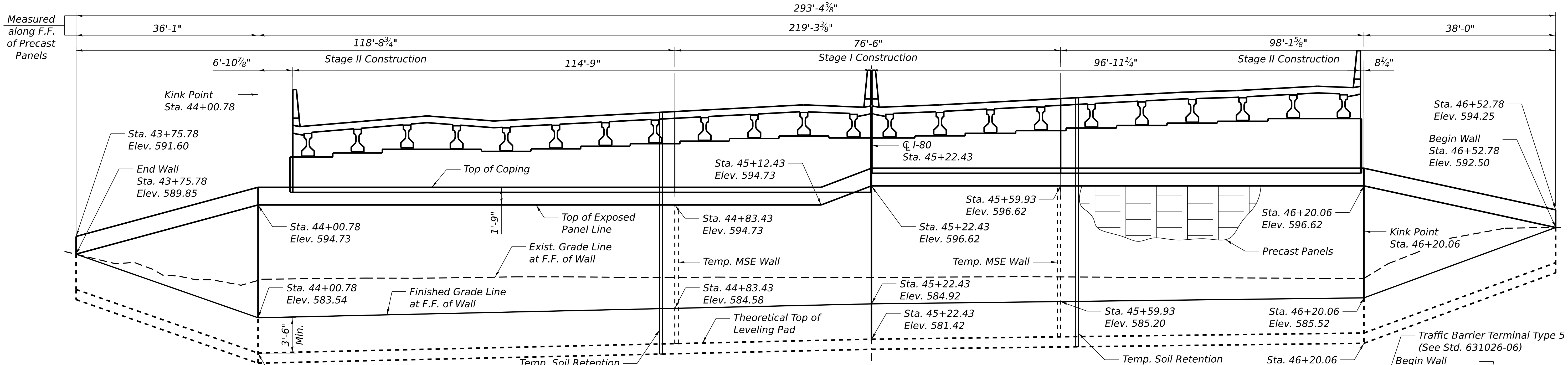
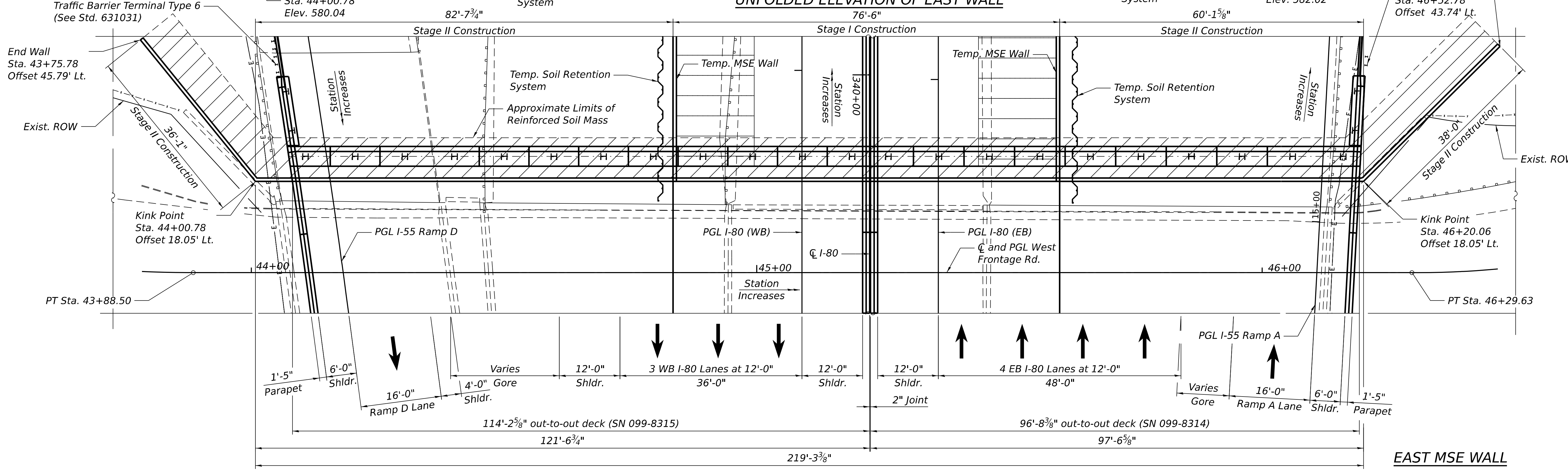


UNFOLDED ELEVATION OF EAST WALL



PLAN OF EAST WALL

N

EAST MSE WALL
I-80 EB/WB AND I-55 RAMPS A &D
OVER FRONTAGE RD.
F.A.I. RTE. I-80
SEC. FAI 80 21 STRUCTURE 7
WILL COUNTY
STA. 339+60.85
STRUCTURE NO. 099-8314 (EB)
STRUCTURE NO. 099-8315 (WB)

NOTE:

1. Stations and offsets are measured from ℄ Frontage Rd. to the front face of wall.
2. Limits of soil improvement for temporary MSE wall to be determined in final design.

HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - JJS, PG	REVISED -	
	CHECKED - MAI, MI	REVISED -	
PLOT SCALE =	DRAWN - PG	REVISED -	
PLOT DATE =	CHECKED - MAI, MI	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NOS. 099-8314 (EB) & 099-8315 (WB)

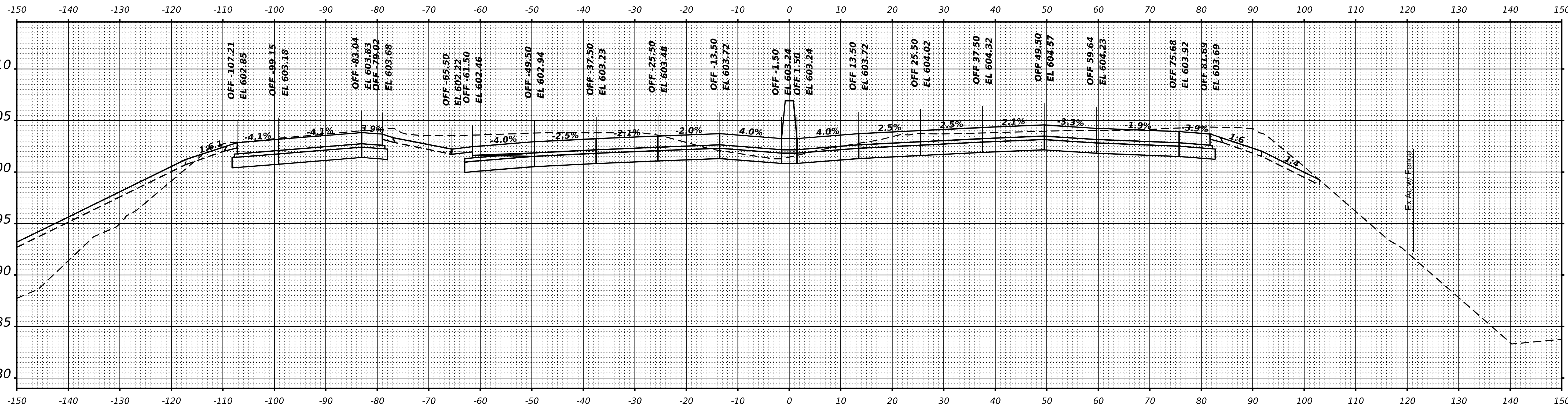
SHEET 6 OF 6 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	FAI 80 21 STRUCTURE 7	WILL	6	6
		CONTRACT NO. 62R28		
	ILLINOIS	FED. AID PROJECT		

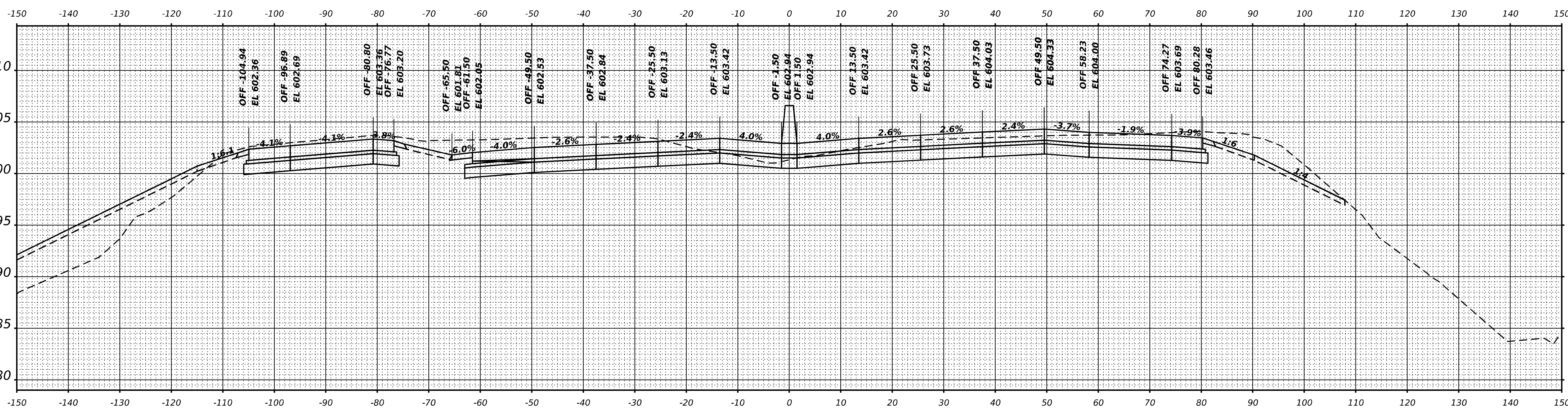
MODEL: Default
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/401180022/01-Stantec/CAD/ML-04_62R28/04-Sheets/04-Structures/099-8314 & 099-8315 I80 over Frontage Rd/0998314_0998315-D162R28-TSL6

5/18/2023 1:07:03 PM

APPENDIX F



STA 339+20.00



STA 339+00.00

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

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

MODEL: I-80 PrCL-1 - 339+00.00
FILE NAME: pw:\\transystems-pw.bentley.com:transyscorp-pw1-hosted\Documents\Projects_2018\CH401\4018002\01-Stantec\CAD\03-Exhibits\MI-04 20'XSC\D162R28-xcs-mI04-stage2 20'.dgn

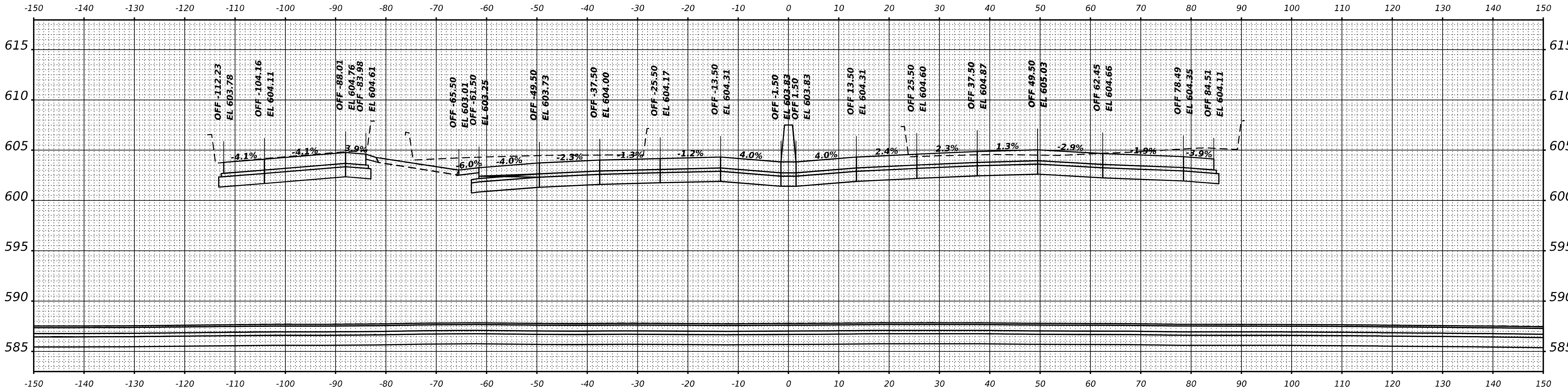
Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

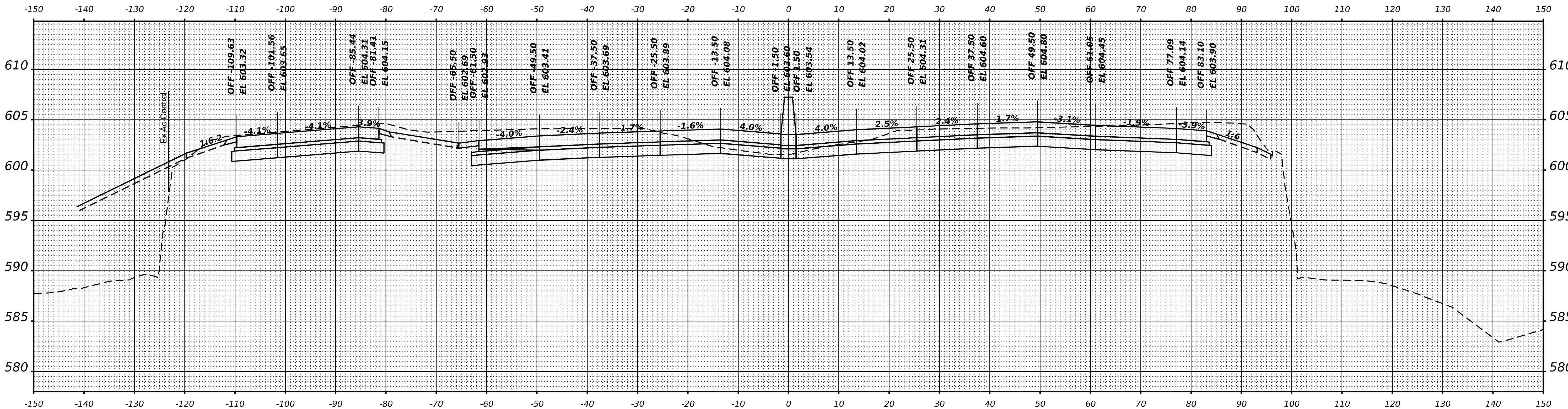
CROSS SECTIONS

SCALE: SHEET OF SHEETS STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	



STA 339+60.00



STA 339+40.00

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

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

MODEL: I-80 PrCL-1 - 339+40.00
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/401180022/01-Stantec/CAD/03-Exhibits/Mi-04 20' XS/CD162R28-xcs-m104-stage2 20'.dgn

Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

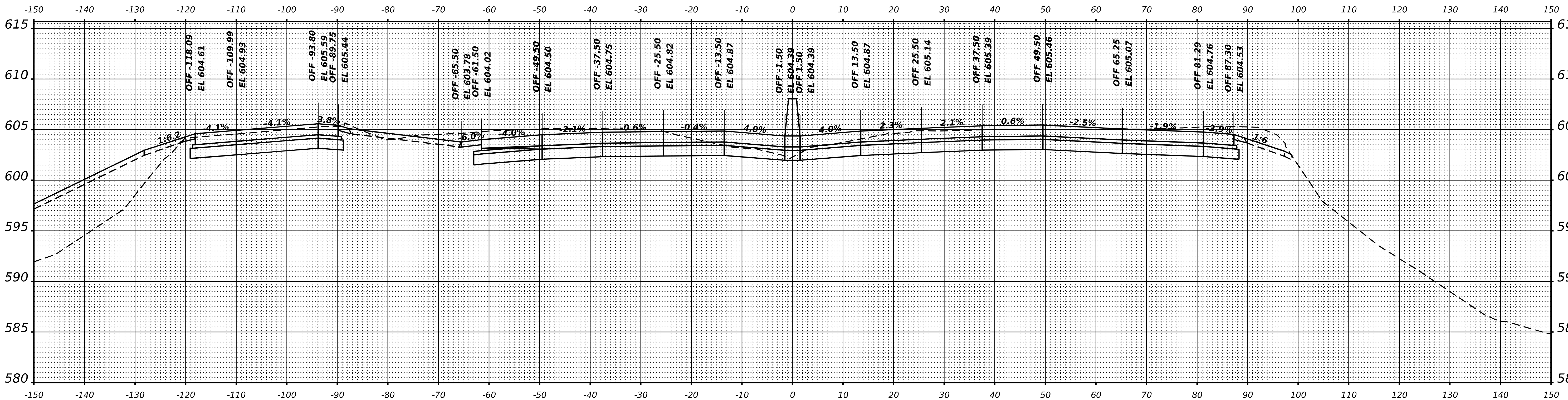
CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA.

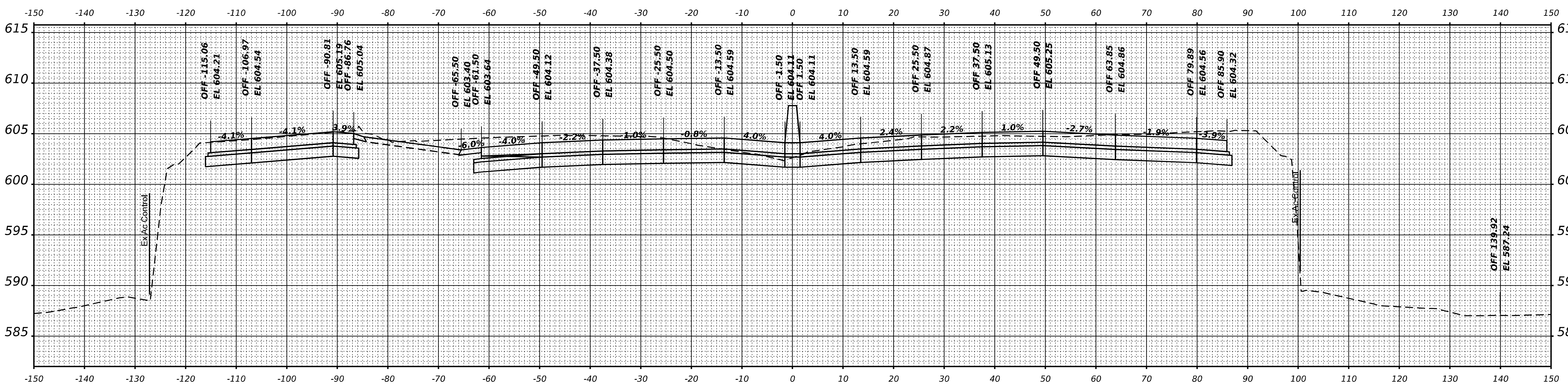
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1

CONTRACT NO. 62R28

ILLINOIS | FED. AID PROJECT



STA 340+00.00



STA 339+80.00

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

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

MODEL: I-80 PrCL-1 - 339+80.00
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/4018002201-Stantec/CAD/03-Exhibits/MI-04 20' XSC/D162R28-xcs-ml04-stage2 20'.dgn

Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

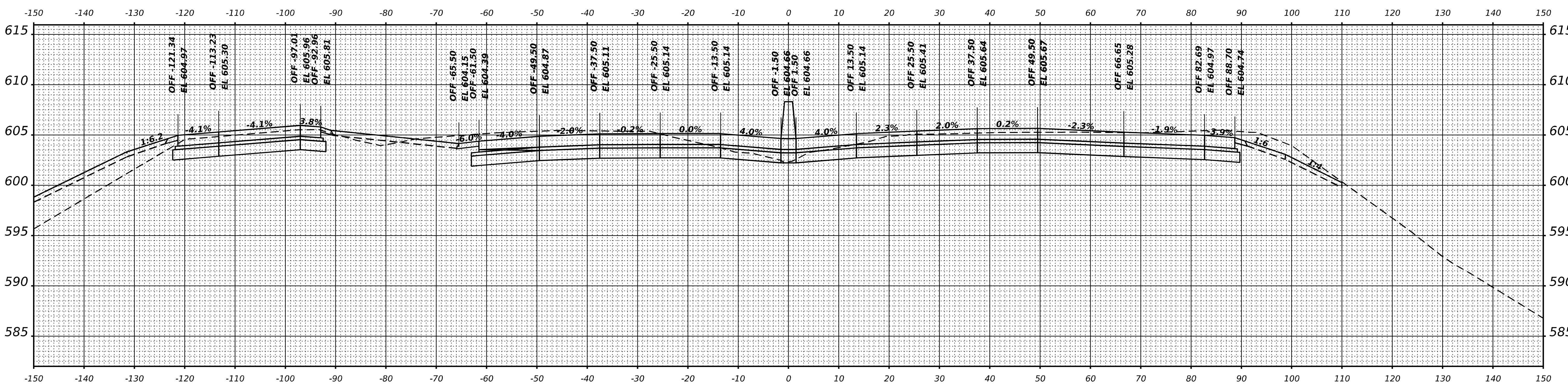
CROSS SECTIONS

SCALE: | SHEET | OF | SHEETS | STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
CONTRACT NO. 62R28				
ILLINOIS	FED. AID PROJECT			

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

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



STA 340+20.00

MODEL: I-80 PrCL-1 - 340+20.00
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Stantec

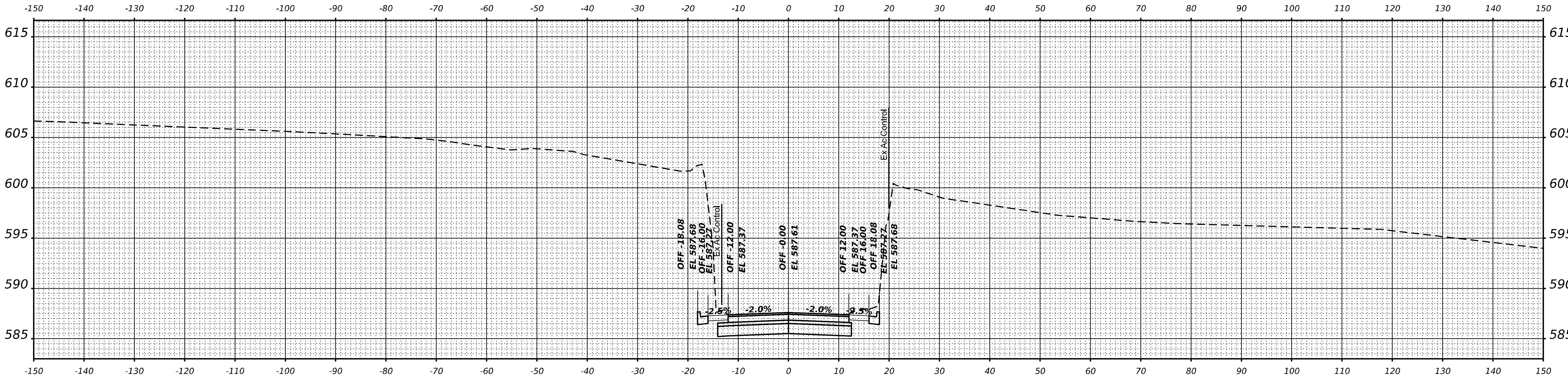
USER NAME = jstrouse	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -
PLOT DATE = 10/20/2022	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

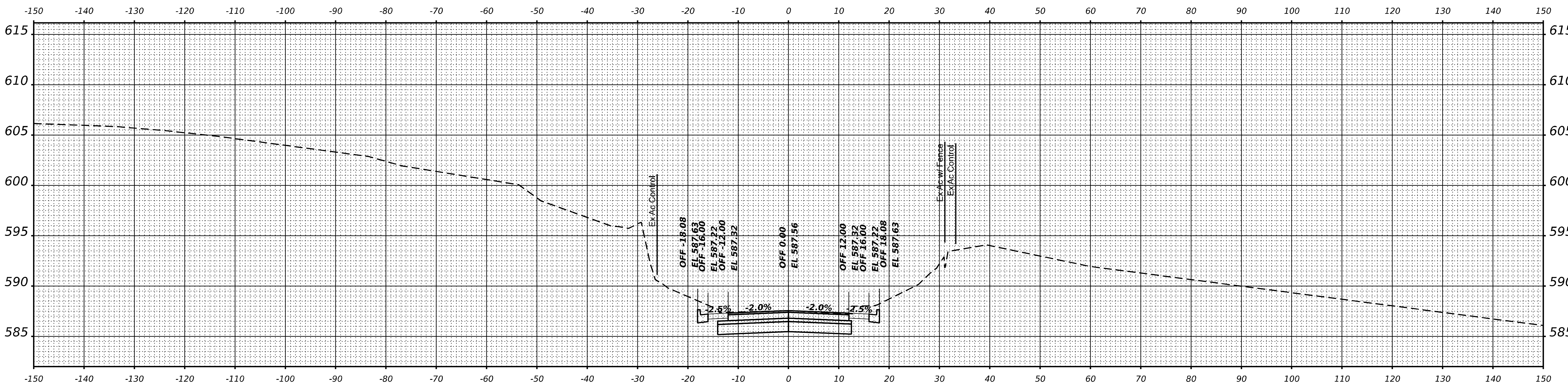
CROSS SECTIONS

SCALE: SHEET OF SHEETS STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		
		ILLINOIS FED. AID PROJECT		



STA 44+00.00



STA 43+88.17

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

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

MODEL: PrCL3 - 43+88.17
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Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

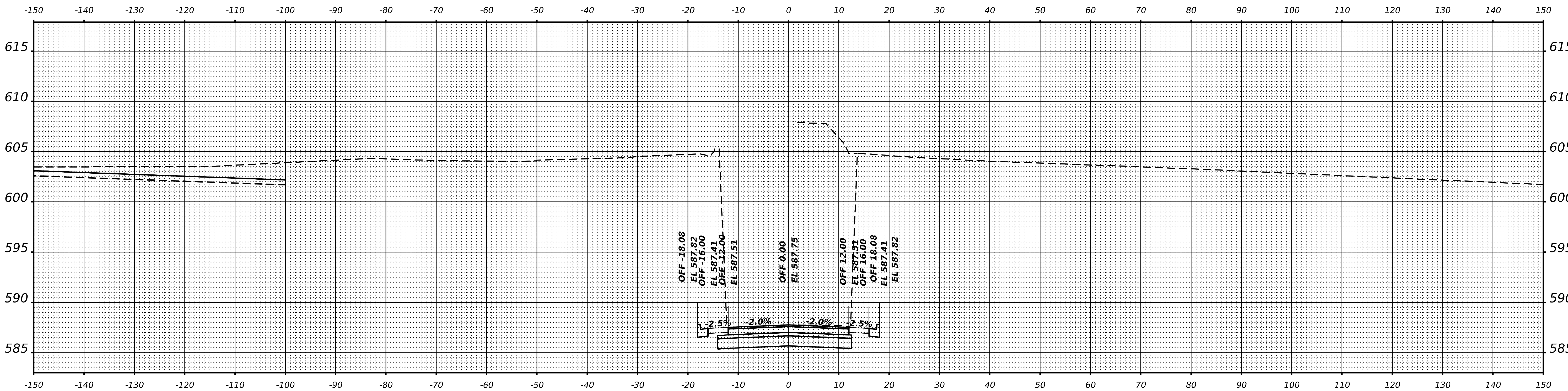
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS

SCALE: SHEET OF SHEETS STA.

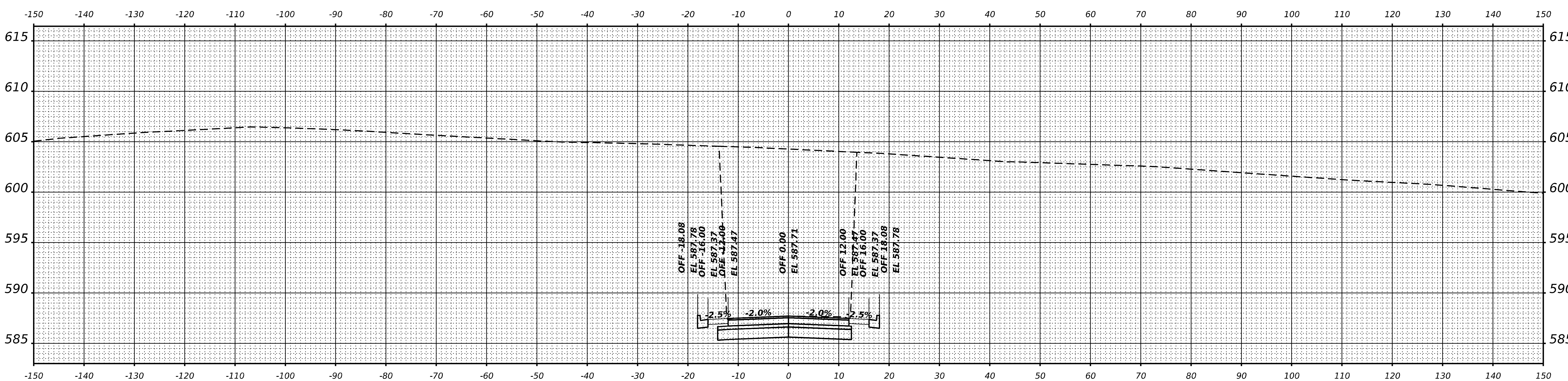
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	

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



STA 44+40.00

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



STA 44+20.00

MODEL: PJCL3 - 44+20.00
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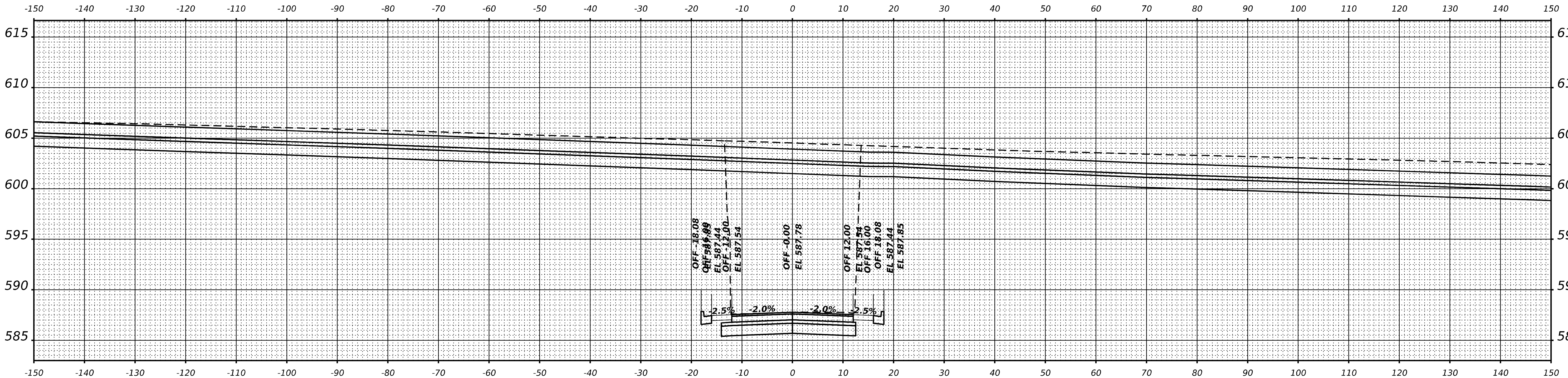
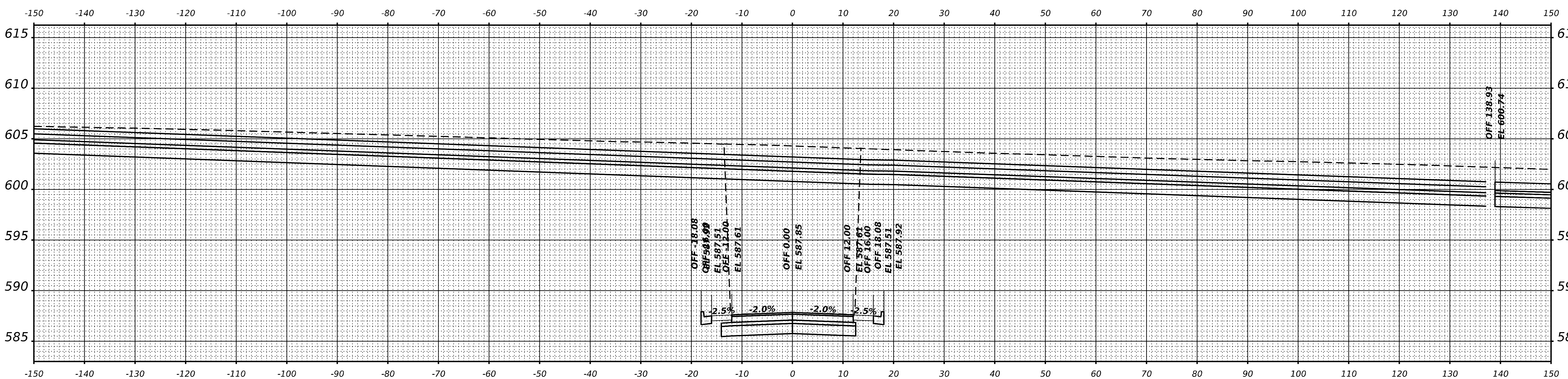
Stantec	USER NAME = jstrouse	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CROSS SECTIONS
		DRAWN -	REVISED -		
	PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -		
	PLOT DATE = 10/20/2022	DATE -	REVISED -		SCALE: SCALE · SHEET · OF · SHEETS · STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		
		ILLINOIS FED. AID PROJECT		



STA 44+80.00



STA 44+60.00

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

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

MODEL: PrCL3 - 44+60.00
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/401180022/01-Stantec/CAD/03-Exhibits/MI-04-20_XSC/D162R28-xsc-mI04-WFrontage-20-XSC.dgn

Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

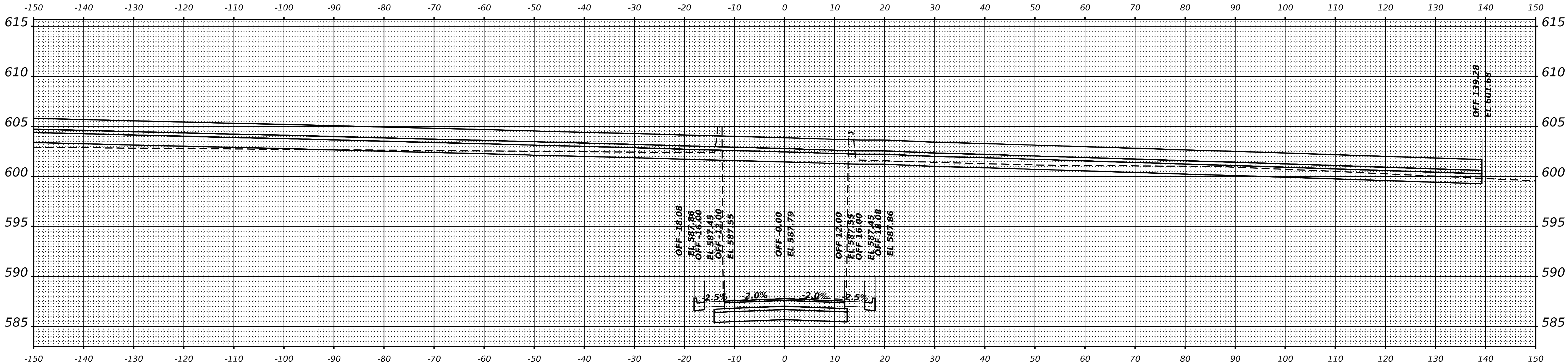
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS

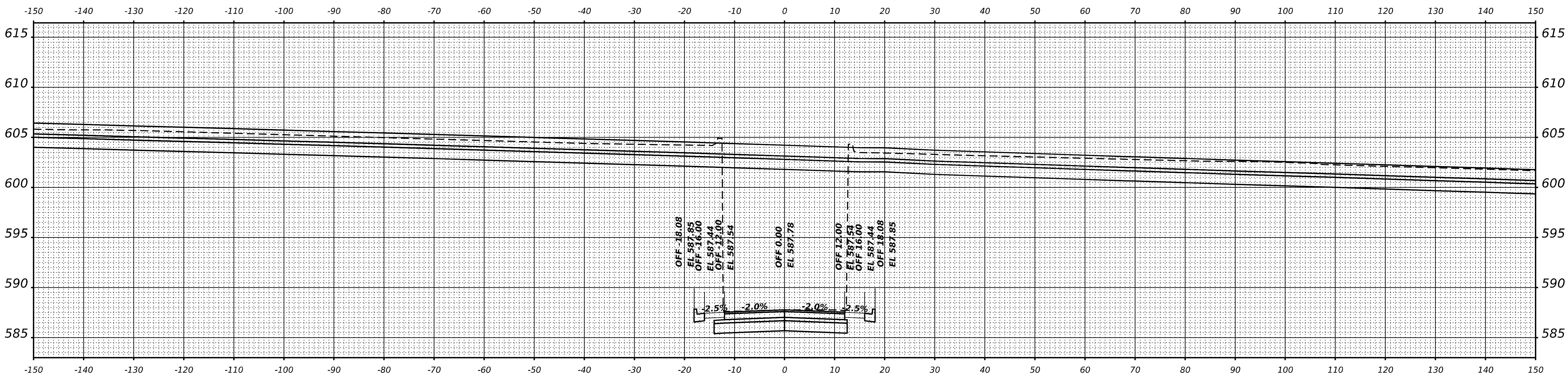
SCALE: | SHEET | OF | SHEETS | STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		

ILLINOIS | FED. AID PROJECT



STA 45+20.00



STA 45+00.00

Stantec	USER NAME = jstrouse	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		DRAWN -	REVISED -	
	PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
	PLOT DATE = 10/20/2022	DATE -	REVISED -	

CROSS SECTIONS

SCALE: SHEET OF SHEETS STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		
		ILLINOIS FED. AID PROJECT		

MODEL: PrCL3 - 45+00.00
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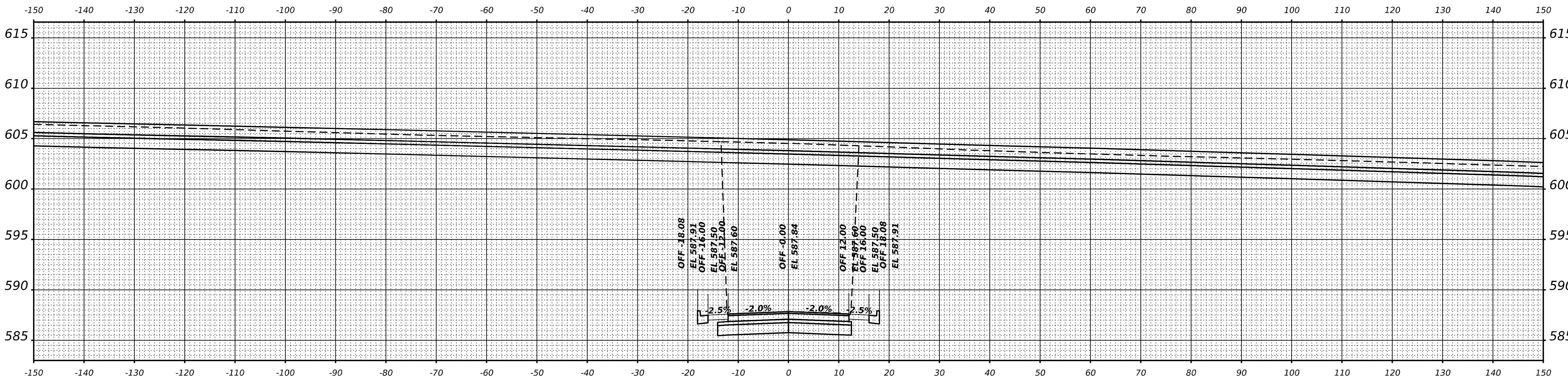
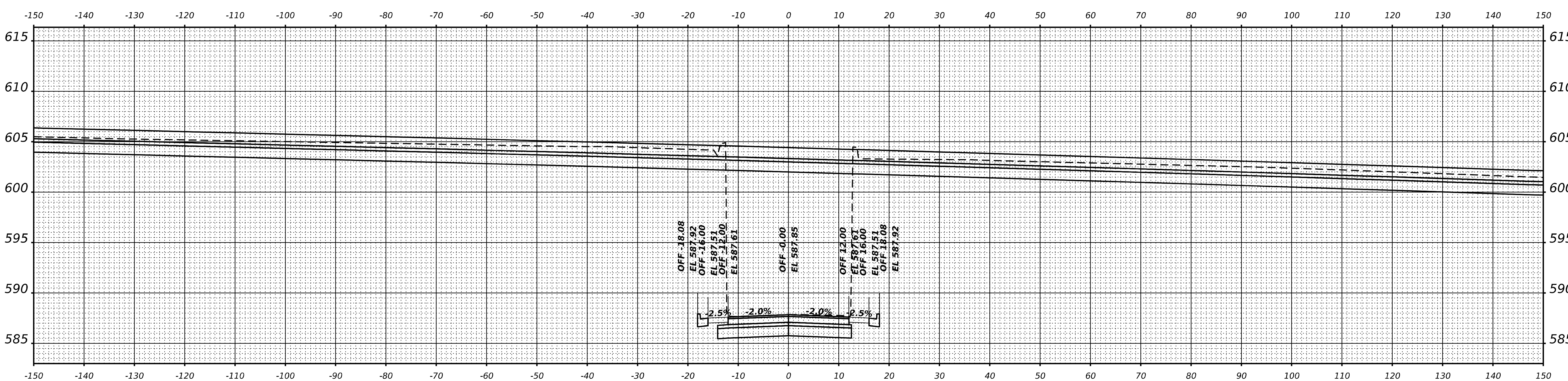
FINAL SURVEY: NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — BY — DATE

ORIGINAL SURVEY: NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — BY — DATE



STA 45+60.00



STA 45+40.00

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

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

MODEL: PCL3 - 45+40.00
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects_2018/CH401/40180022/01-Stantec/CAD/03-Exhibits/M-04-20 XSC/D162R28-xsc-m804-WFrontage-20-XSC.dgn

Stantec

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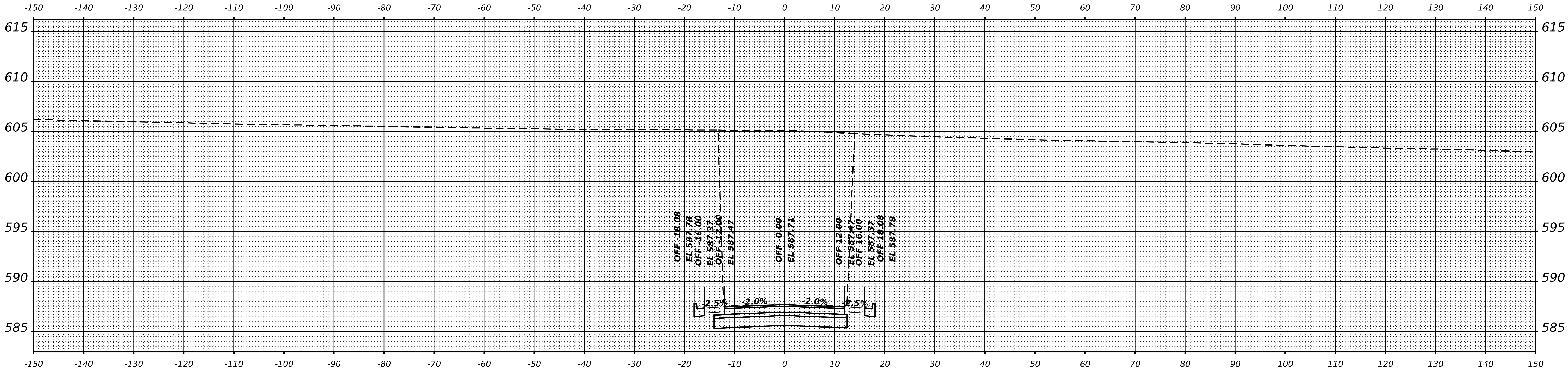
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

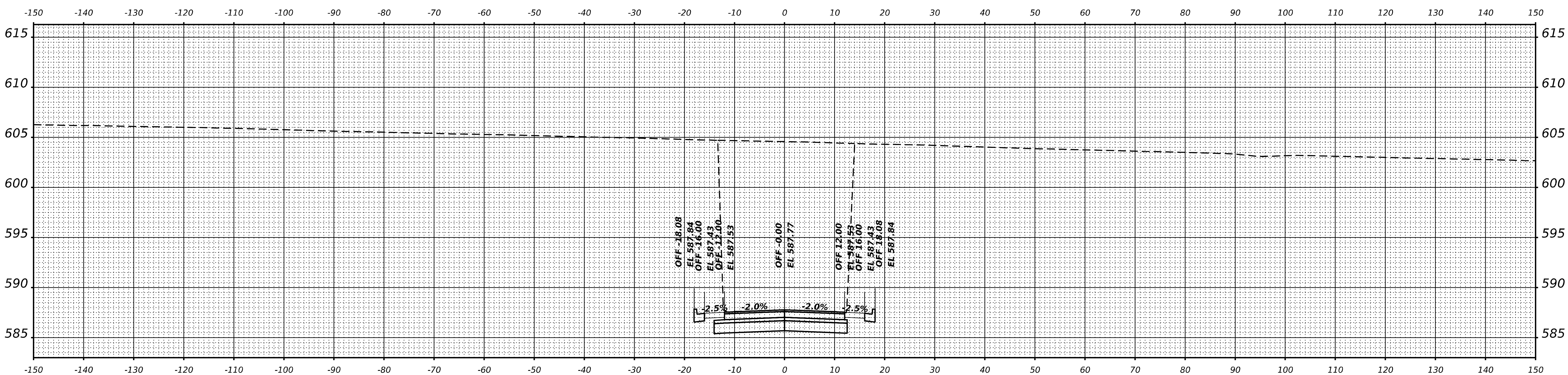
CROSS SECTIONS

SCALE: SHEET OF SHEETS STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		
		ILLINOIS	FED. AID PROJECT	



STA 46+00.00



STA 45+80.00

Stantec	USER NAME = jstrouse	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		DRAWN -	REVISED -	
	PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
	PLOT DATE = 10/20/2022	DATE -	REVISED -	

CROSS SECTIONS

SCALE: SHEET 0 OF SHEETS STA.

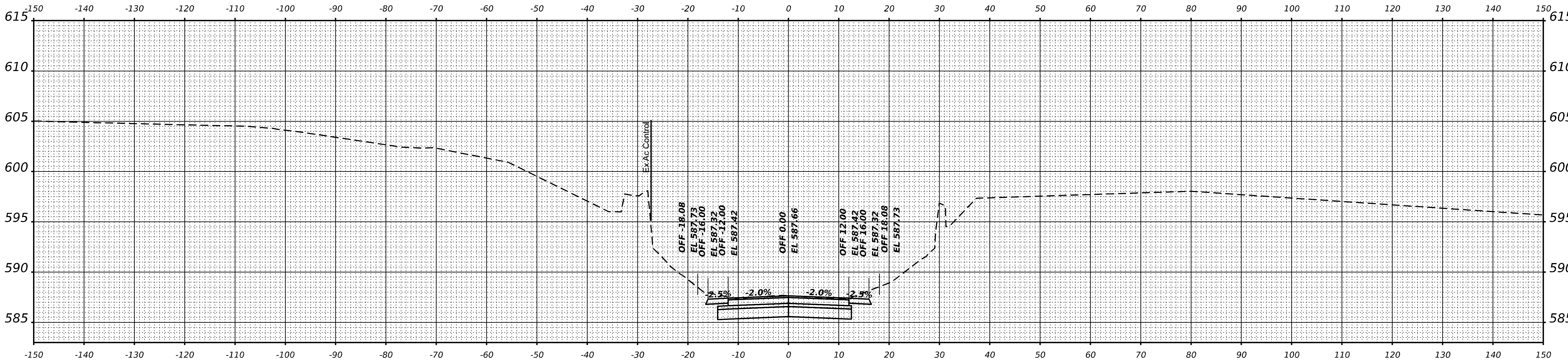
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1
		CONTRACT NO. 62R28		

ILLINOIS FED. AID PROJECT

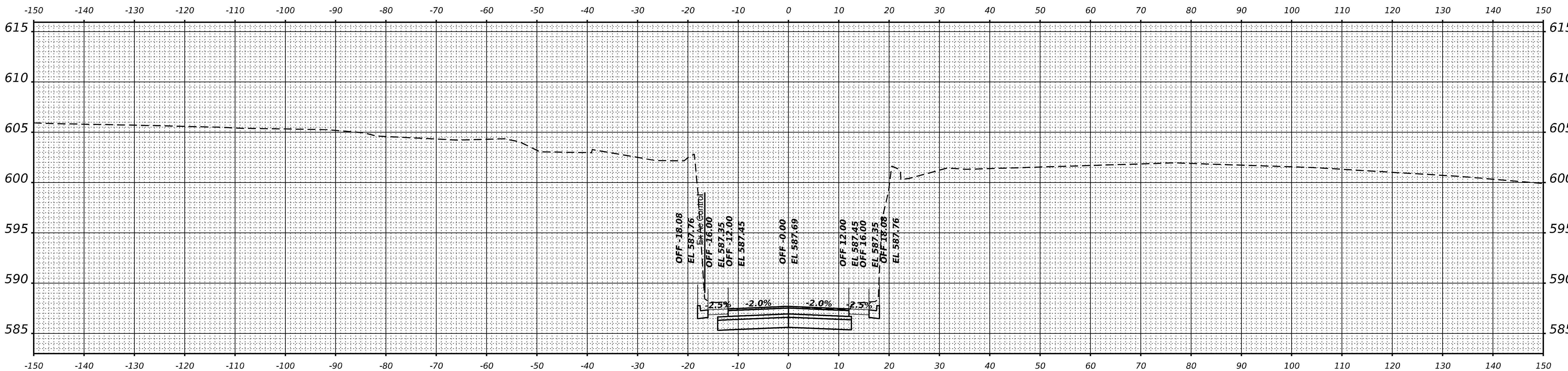
MODEL: PXCL3 - 45+80.00

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

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



STA 46+29.30



STA 46+20.00

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

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

MODEL: PrCL3 - 46+20.00

Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN -	REVISED -	
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/20/2022	DATE -	REVISED -	

CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	$SEC	WILL	11	1

CONTRACT NO. 62R28

ILLINOIS | FED. AID PROJECT