STRUCTURE GEOTECHNICAL REPORT
I-80 RECONSTRUCTION FROM RIDGE ROAD TO HOUBOLT ROAD
NORTHEAST RETAINING WALL ALONG RIVER ROAD
WILL COUNTY, ILLINOIS

For
Stantec

350 North Orleans Street, Suite 1301

Chicago, IL 60654

Submitted by

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11. Abstract

A new retaining wall is proposed along northbound River Road to support a new 10.0-foot wide multi-use path in Will County, Illinois. The wall will be about 317.7-foot long, extending from Station 22+50.00 to Station 25+66.42. The front face of the wall will be constructed about 27.4 to 28.0 feet east of the River Road centerline. The wall will have a maximum exposed height of 11.9 feet. This report provides geotechnical recommendations for the design and construction of the proposed retaining wall.

The pavement structure along River Road consists of 4 to 11 inches of asphalt pavement over 1 to 22 inches of aggregate base. Along the proposed wall alignment, the foundation soils consists of up to 19.5 feet of stiff to hard silty clay to silty clay loam fill followed by up to 3.5 feet of stiff to very stiff silty loam and silty clay to silty clay loam overlying loose to very dense silty loam to loam and very dense sandy gravel. Dolostone bedrock was encountered at 563 to 560 feet elevation. The groundwater level was measured at elevations ranging from 571 to 563 feet.

The proposed retaining wall will be in a cut and fill section. Fill wall types such as Mechanically Stabilized Earth (MSE) and Reinforced Concrete Cantilever (RCC) will require additional open cut excavations into the existing embankment slope and possibly a temporary soil retention system. Cut wall types such as drilled soldier pile walls could be considered as they will not require excavation and temporary support, thus would be easier to build and more economical.

The designer envisions a drilled soldier-pile wall type at the site. Geotechnical parameters for the design and construction of soldier pile walls are provided. A cantilevered pile embedment depth to a minimum pile tip elevation of 563.0 feet is necessary to achieve a minimum factor of safety of 1.7 for global stability. We understand the designer proposes soldier piles installed in the bedrock.

The drilled soldier-pile wall construction should expect hard drilling conditions in certain areas along the wall as discussed in the report. Excavation may be required.

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FOR
STANTEC

1.0 INTRODUCTION

This report presents the results of our subsurface investigation, laboratory testing, geotechnical evaluations, and recommendations in support of the design and construction of a new retaining wall proposed along northbound River Road just north of the bridge carrying River Road over Interstate 80 (I-80) in Troy Township, Illinois. The project area is located in west central Will County, along I-80, about 1.0 mile southwest of the City of Joliet limits. On the USGS *Channahon Quadrangle 7.5 Minute Series* map, the project is located in the NW ¼ of Section 28, Tier 35 N, Range 9 E of the Third Principal Meridian (Exhibit 1).

Wang Engineering, Inc. (Wang) understands the proposed work will also include the replacement of the River Road Bridge and the reconstruction and widening of about 300 and 350 feet of the approach roadway north and south of the bridge replacement, respectively. New retaining walls are proposed along the northeast and southeast sides of the River Road Bridge over I-80 to retain the new fill for the roadway widening. This report addresses the northeast wall. The southeast wall is addressed in a separate Structure Geotechnical Report (SGR). The River Road Bridge over I-80 replacement, new retaining walls along the River Road approach embankments, and the reconstruction of a section of River Road are part of the proposed widening and reconstruction of I-80 from east of Ridge Road to west of Houbolt Road in Will County, Illinois. The River Road Bridge, retaining walls, and roadway will be reconstructed as part of Advanced Contract CR-2.

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 retaining wall. Recommendations pertaining to the River Road roadway reconstruction will be included in the Roadway Geotechnical Report that will be prepared for the I-80 mainline (Contract ML-1) whereas recommendations pertaining to the construction of the River Road Bridge and southeast retaining wall are provided in separate SGRs.

1.1 Existing Structure and Ground Conditions

There is no existing structure at the proposed retaining wall site. The site surface elevation slopes gently east toward the DuPage River, from as high as 575.0 feet to as low as 562.0 feet near the River. DuPage River runs south about 0.25 miles east of the River Road Bridge over I-80. Surface elevations are about 593.0 feet along River Road near the abutments and about 571.0 feet along I-80 near the piers. Along River Road, the roadway elevation varies from 593.0 to 573.0 feet.

In the project area (see Exhibit 2), and below about 10- to 20-foot thick embankment fill, about 15-foot thick 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 sand and gravel outwash unconformably 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 shale and dolostone. Top of bedrock is mapped at about 565.0 feet elevation. The site is located within the inactive Sandwich Fault Zone (Kolata 2005). The shallow bedrock is highly weathered and may show the presence of cavities more likely filled with fine sediment. Records of mining activity in the vicinity of the bridge are missing. Neither the overburden nor the upper bedrock is known to include significant sources of water supply (Woller and Sanderson 1983).

1.2 Proposed Structure

Based on the *GPE* drawing prepared by HBM and dated January 21, 2022, Wang understands the proposed retaining wall will measure about 317.7 feet in length, extending along northbound River Road from Station 22+50.00 to Station 25+66.42. The front face of the wall will be constructed at a distance of about 27.4 to 28.0 feet east of the existing River Road centerline. The wall will support a new 10.0-foot wide multi use path to be constructed along northbound River Road. A drilled soldier-pile wall type installed in the bedrock is currently shown on the *GPE* sheets. Based on the drawings and *Cross-Sections*, we estimate the wall will have a maximum exposed height of approximately 11.9 feet at Station 25+06.60 where the wall meets the River Road Bridge north approach. The *GPE* drawing is included as Appendix E, whereas the *Cross-Sections* are included as Appendix F.

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 three retaining wall borings, designated as RIV-RWB-02 to RIV-RWB-04, four hand auger borings, designated as RIV-RWB-01HA to RIV-RWB-03HA and

RIV-RWB-05HA, two subgrade/stability borings, designated as RIV-SGB-01 and RIV-SGB-02, and one bridge boring, designated as RIV-BSB-01, drilled by Wang between November and December of 2021. The borings were drilled from elevations of 593.3 to 579.4 feet and were advanced to depths of 16.0 to 42.0 feet bgs. The as-drilled northings and eastings were acquired with a mapping-grade GPS unit. Stations, offsets, and elevations were provided by Stantec. Boring location data are presented in the *Boring Logs* (Appendix A) and the as-drilled boring locations are shown in the *Boring Location Plan* (Exhibit 3).

A truck-mounted drilling rig, equipped with hollow stem augers, was used to advance and maintain open boreholes. Soil sampling was performed according to AASHTO T206, *"Penetration Test and Split Barrel Sampling of Soils."* The soil in the bridge and retaining wall borings was sampled at 2.5-foot intervals to 30.0 feet bgs and at 5.0-foot intervals thereafter to the boring termination depth or top of bedrock whereas the soil in the stability borings was sampled continuously to 10.0 feet bgs and at 2.5-foot intervals thereafter to the boring termination depth. Jackhammer driven Geoprobe samplers were used to continuously sample the soil in the hand auger borings. Bedrock cores were obtained from Borings RIV-BSB-01, RIV-RWB-02, and RIV-RWB-04 in 3- to 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 boxes, and transported to the laboratory for further examination and testing.

Field boring logs, prepared and maintained by a Wang field engineer, included lithological descriptions, visual-manual soil (IDH Textural) classifications, results of Rimac and pocket penetrometer unconfined compressive strength tests, and results of Standard Penetration Tests (SPT) recorded as blows per 6 inches of penetration.

Groundwater levels were measured while drilling and at completion of each of the borings. Given the location of the boreholes and limited access requiring traffic control, it was not feasible to delay backfilling of the borings to obtain 24-hour water level measurements. Each borehole location was backfilled upon completion with lean grout, soil cuttings, and/or bentonite chips and, where necessary, the pavement surface was restored as much as possible to its original condition.

2.2 Laboratory Testing

The soil samples were tested in the laboratory for moisture content (AASHTO T265). Atterberg limits (AASHTO T89 and T90) and particle size (AASHTO T88) analyses were performed on selected samples. Unconfined compressive strength tests were performed on selected bedrock cores. Field visual descriptions of the soil samples were verified in the laboratory and index tested soils were

classified according to the IDH Soil Classification System. The laboratory test results are shown in the *Boring Logs* (Appendix A) and in the *Laboratory Test Results* (Appendix B).

3.0 INVESTIGATION RESULTS

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

Our subsurface investigation results fit into the local geologic context. The borings drilled in the project area revealed the native sediments consists of silty clay to silty clay loam diamicton (unit 2) with occasional lenses of silt and sand, over sand and gravel outwash (unit 3) resting over weathered bedrock. Unit 3 is water-bearing with seasonal fluctuation. Top of dolostone bedrock was encountered at elevations of 563 to 560 feet (23.5 to 34.0 feet bgs) as predicted based on geologic data.

3.1 Lithological Profile

Borings RIV-BSB-01, RIV-RWB-02 to RWB-04, RIV-SGB-01, and RIV-SGB-02 were drilled along River Road and encountered 4 to 11 inches of asphalt pavement overlying 1 to 22 inches of sandy gravel aggregate base. In descending order, the general lithologic succession encountered beneath the pavement or at the surface includes: 1) man-made ground (fill); 2) stiff to very stiff silty loam and silty clay to silty clay loam; 3) loose to very dense silty loam to loam; 4) very dense sandy gravel; and 5) strong, very poor quality dolostone.

1) Man-made ground (fill)

Beneath the pavement or at the surface, the borings encountered up to 19.5 feet of cohesive fill. The cohesive fill consists of stiff to hard, black, brown, and gray silty clay to silty clay loam with unconfined compressive strength (Q_u) values of 2.0 to 7.6 tsf and moisture content values of 10 to 29%. Laboratory index testing on a sample from the fill layer showed liquid limit (LL) and plastic limit (PL) values of 30 to 32% and 15 to 16%, respectively. Wood fragments and construction debris was noted within the fill in Boring RIV-RWB-05HA.

An 8- to 17-inch thick layer of buried, black silty clay to silty clay loam topsoil with moisture content values of 23 to 46% was sampled beneath the fill in Borings RIV-RWB-03, RIV-RWB-04, RIV-SGB-01, and RIV-BSB-01. A sample of the buried topsoil, from Boring RIV-SGB-02, revealed an organic

content of 13.8%. The presence of this layer most likely indicates the boundary between fill and natural soils.

2) Stiff to very stiff silty loam and silty clay to silty clay loam

Beneath the fill, at elevations of 570.5 to 570 feet (depths of 15.5 to 23.0 feet bgs), the borings advanced through up to 3.5 feet of stiff to very stiff , brown to gray silty loam and silty clay to silty clay loam. The silty loam to silty clay loam is characterized by Q_u values of 1.5 to 3.6 tsf and moisture content values of 21 to 26%. Laboratory index testing on a sample from this layer showed LL and PL values of 37 to 39 % and 15 to 20%, respectively. This layer was encountered to the termination depth in Boring RIV-SGB-02.

3) Loose to very dense silty loam to loam

At depths of 18.0 to 25.5 feet bgs, or elevations of about 572 to 568 feet, the borings encountered 1.0 to 5.0 feet of loose to very dense, brown to gray, damp to saturated silty loam to loam. This soil unit has N-values of 5 to 12 blows per foot or 50 blows per inch and moisture content values of 13 to 16%. This layer was encountered directly underneath the fill and buried topsoil in Boring RIV-RWB-03 and continued to its termination depth.

4) Very dense sandy gravel

At elevations of 567 to 566 feet, the borings advanced through 2.0 to 5.0 feet of very dense, brown and gray, damp sandy gravel with N-values of 60 blows per foot to more than 50 blows per inch and moisture content values of 3 to 11%. Rig chatter indicating the presence of cobbles was noted within this layer at a depth of 25.0 feet (elevation 565 feet) in Boring RIV-SGB-01.

At an elevation of 565 feet, the borings advanced through up to 4.5 feet of very dense, brown, damp to saturated weathered dolostone bedrock. This soil unit has N-values of 50 blows per inch and moisture content values of 4 to 16%. Rig chatter indicating the presence of cobbles was noted within this layer at a depth of 21.0 feet (elevation 565 feet) in Boring RIV-RWB-02.

5) Strong, very poor quality dolostone

At elevations of 563 to 560 feet (23.5 to 34.0 feet bgs), the borings encountered strong, very poor quality, highly to slightly weathered dolostone bedrock. The rock quality designation (RQD) ranges from 0 to 7% and uniaxial compressive strength tests revealed a Q_u value of 8,192 psi. The bedrock core data are shown in the *Bedrock Core Photographs* (Appendix C).

3.2 Groundwater Conditions

Groundwater was encountered while drilling at elevations of 571 to 563 feet (19.0 to 30.0 feet bgs) within the silty loam and weathered bedrock layers. For the purpose of analysis, the design groundwater elevation is considered at an average elevation 568 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.

4.0 FOUNDATION ANALYSIS AND RECOMMENDATIONS

The retaining wall will support a new 10.0-foot wide multi-use path proposed along northbound River Road. Based on the *GPE* and *Cross-Sections* (Appendixes E and F), the wall will have a total length of 317.7 feet and a maximum exposed height of 11.9 feet near Station 25+06.60. The proposed wall will retain the new fill to be placed for the roadway widening. Additionally, the plans indicate the existing grade in front of the wall will be lowered by up to 4.0 feet and the finished grade in front of the wall will be graded at slopes ranging from 1:2.5 to 1:3 (V: H). As such, the wall is a combination of cut and fill.

Fill wall types, such as Mechanically Stabilized Earth (MSE) and Reinforced Concrete Cantilever (RCC) walls would require large open cut excavations into the existing embankment slope, temporary soil retention systems, and will impact the existing roadway. The construction of these wall types would likely also require more backfilling thus longer construction time. In our opinion, non-gravity wall types such as a sheet pile or soldier pile type wall would be more appropriate considering the soil conditions, constructability, and cost. A driven sheet pile wall type will not be feasible due to potential difficulty of driving the sheet piles in cohesive soils with unconfined compressive strength values of greater than 4.5 tsf. The final wall type should be selected based on a wall-type study including cost and construction considerations. We understand a drilled-soldier pile wall type installed in the bedrock is proposed by the designer. Recommendations for the design and construction of the proposed wall type are discussed in the following sections.

4.1 Seismic Design Considerations

Seismic design is not required for retaining wall structures located in Seismic Performance Zone (SPZ) 1 in accordance with the IDOT *Bridge Manual* (2012).

4.2 Soldier-Pile and Lagging Wall

A soldier-pile wall type could be considered at this location. If soldier piles are designed to support the wall, they could be installed by setting them within prebored holes with diameters sized in

accordance with IDOT criteria. The wall should be designed for both lateral earth pressure and lateral deformation. The embedment depth in moment equilibrium for the wall sections should be designed in accordance with the AASHTO LRFD guidelines (AASHTO 2020).

Generally, both granular soils and overconsolidated clayey soils, such as the stiff to hard silty clay to silty clay loam encountered in the borings will exhibit lower overall shear strength in the long-term condition. Therefore, in accordance with AASHTO (2020), the lateral earth pressure analysis should be performed for walls in the long-term (drained) condition using the soil parameters recommended in Table 1. Elevations provided in the table are based on the average layer elevations across the soil profile and may vary from one boring location to another. The active and passive earth pressure coefficients are provided for straight backfill behind the wall and a slope of 1:3 (V: H) in front of the wall.

The design of the wall should ignore 3.0 feet of soil in front of the wall measured from the finished ground surface elevation in providing passive pressure due to excavations required for installation of concrete facing, drainage systems, and frost-heave conditions. In developing the design lateral pressure, the pressure due to construction equipment surcharge loads should be added to the lateral earth pressure. Drainage behind the wall should be in accordance with IDOT guidelines (IDOT 2012). The water pressures should be added to the earth pressure if drainage is not provided.

Table 1: Drained Geotechnical Parameters for Design of Soldier-Pile Walls

Elevation Range (feet) Soil Description (Layer)	Unit Weight, γ (pcf)	Drained Shear Strength Properties		Earth Pressure Coefficients	
		Cohesion (psf)	Friction Angle (°)	Active Pressure (Straight)	Passive Pressure
Proposed Finished Grade to Existing Grade NEW FILL	125	0	30	0.33	--
Existing Grade to EL 583 V Stiff SI CLAY to SI CLAY LOAM FILL	120	100	30	0.33	--
EL 583 to 571 V Stiff SI CLAY to SI CLAY LOAM FILL	120	100	30	0.33	2.29[(1)]
EL 571 to 570 V Stiff SI CLAY	120	100	30	0.33	2.29[(1)]
EL 570 to 567 Stiff SILTY LOAM to SILTY CLAY LOAM	120	0	30	0.33	3.00

Elevation Range (feet) Soil Description (Layer)	Unit Weight, γ (pcf)	Drained Shear Strength Properties		Earth Pressure Coefficients	
		Cohesion (psf)	Friction Angle (°)	Active Pressure (Straight)	Passive Pressure
EL 567 to 564 V Dense SANDY GRAVEL	58(2)	0	33	0.29	3.39
EL 565 to 560(3) V Dense WEATHERED BEDROCK	63(2)	0	35	0.27	3.69

(1) Earth pressure coefficients for 1:3 (V:H) front slope

(2) Submerged unit weight

(3) Approximate top of bedrock

The lateral deformation of the wall should be designed for movement and moment fixity at the base of the pile. The roadway and utilities should not be impacted by the lateral movement of the wall. Therefore, the design of the soldier pile wall should establish lateral movement limits. The evaluations should be performed using the recommended soil parameters shown in Tables 2 and 3, via the p-y curve (COM624) method. Elevations provided in Table 3 are based on the average layer elevations across the profile and may vary from one boring location to another.

Table 2: Recommended Soil Parameters for Lateral Load Analysis of Soldier Pile Walls

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} (%)
Finished Grade to Existing Grade NEW FILL	125	1000	0	500	0.7
Existing Grade to EL 583 V Stiff SI CLAY to SI CLAY LOAM FILL	120	2500	0	1000	0.5
EL 583 to 571 V Stiff SI CLAY to SI CLAY LOAM FILL	120	3500	0	1000	0.5
EL 571 to 570 V Stiff SI CLAY	120	3500	0	1000	0.5
EL 570 to 567 Stiff SILTY LOAM to SILTY CLAY LOAM	120	1800	0	500	0.7
EL 567 to 564 V Dense SANDY GRAVEL	58(2)	0	33	125	--
EL 565 to 560(3) V Dense WEATHERED BEDROCK	63(2)	0	35	125	--

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

Table 3: Recommended Bedrock Parameters for Lateral Load Analysis of Soldier Pile Walls (Borings RIV-BSB-01, RIV-RWB-02, and RIV-RWB-04)

Bedrock	Total Unit Weight, γ (pcf)	Modulus of Rock Mass (ksi)	Poisson's Ratio, μ	Uniaxial Compressive Strength (psi)	RQD (%)	Strain Factor
Dolostone	140	300	0.3	8,192	0 to 7	0.0005

4.3 Settlement

On the east side of River Road, where the retaining wall is proposed, the widening for the multi-use path will require the placement of up to 8.5 feet of new fill along the existing embankment slopes. Wang has performed evaluations of the potential consolidation settlements resulting from the proposed grade change for the wall. Settlement estimates have been made based on correlations to measured index properties obtained from the laboratory tests (Appendix B). Based on the soil conditions, we estimate the foundation soils will undergo long-term settlements of less than 1.0 inch under the new fill.

4.4 Global Stability

The global stability of the proposed wall was analyzed based on the soil profile described in Section 3.1 and the information provided in the design drawings and cross-sections. The stability was analyzed at the critical section near Station 25+00 where the maximum exposed height is 11.9 feet. The minimum required factor of safety (FOS) is 1.7 in both short-term (undrained) and long-term (drained) conditions (IDOT 2020a).

Details of the global stability analysis with critical failure surfaces and results are presented in Appendix D. The short-term and long-term analyses do not consider the resistance from the top 3.0 feet measured from the proposed finished grade at the front face of the wall. We estimate the wall will have an adequate FOS of 3.5 (Appendix D-1) in the undrained condition. Global stability evaluations were performed to estimate the minimum pile tip elevation required to achieve an FOS of 1.7 in the drained condition. The embedded portion of the cantilevered piles will provide resistance against the slope instability above the tip of the piles. The results of our analysis are summarized in Table 4. We recommend that the wall tip elevations be installed at or deeper than the minimum elevation shown in Table 4 to provide long-term global stability FOS values of at least 1.7 as shown in Appendix D-2. It should be noted that typically, the lateral earth pressure and deformation analyses will determine the minimum embedment depth for cantilevered pile walls. Therefore, the designer should perform other

analyses including lateral earth pressure and deflection analyses to determine the required design pile embedment. We understand the designer proposes soldier piles installed in the bedrock.

Table 4: Results of Global Stability Analysis

Station	Reference Boring(s)	Exposed Wall Height (feet)	Short-term (Undrained) Condition		Long-term (Drained) Condition	
			FOS	Minimum Tip Elevation (feet)	FOS	Minimum Tip Elevation (feet)
25+00	RIV-BSB-01 and RIV-RWB-05HA	11.9	3.5	-/-	1.7	563.0

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Site Preparation

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

5.2 Excavation, Dewatering, and Utilities

Excavations should be performed in accordance with local, state, and federal regulations. The potential effect of ground movements upon nearby utilities should be considered during construction. Excavations for the construction of the wall should be sloped at no steeper than 1:2 (V: H). Any slope that cannot be graded at 1:2 (V:H) should be properly shored in accordance with the temporary sheet piling charts provided in *IDOT Design Guide-Simplified Temporary Sheet Piling Design Charts* (IDOT 2020a). Dewatering may be necessary if groundwater perched within the granular layers is encountered.

For cantilevered pile walls, it should be noted that hard drilling conditions, frequent rig chatter, and possible cobbles were noted in Borings RIV-RWB-02 and RIV-SGB-01 at an elevation of 565 feet (21.0 to 25.0 feet bgs), and should be anticipated during pile drilling. Excavation may be needed due to the presence of cobbles as observed by drill rig chatter during drilling.

Groundwater was encountered while drilling at elevations of 571 to 563 feet (19.0 to 30.0 feet bgs) within the silty loam and weathered bedrock layers. If drilled soldier piles are designed, temporary casing and wet installation methods will be needed for drilling and setting into the granular layers below an elevation of 571 feet. 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. Any soils allowed to soften under standing water should be removed and replaced with compacted fill as described in Section 5.3.

The construction of the new walls should be coordinated with the pile driving for the proposed River Road bridge replacement and the Contractor should perform a vibration analysis and provide vibration monitoring during construction, if needed.

5.3 Filling and Backfilling

Fill material used to attain final design elevations should be pre-approved, compacted, cohesive or granular soil conforming to Section 204, *Borrow and Furnished Excavation* (IDOT 2016). 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 2016). Backfill materials must be pre-approved by the Resident Engineer.

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.

6.0 QUALIFICATIONS

The analysis and recommendations submitted in this report are based upon the data obtained from the borings drilled at the locations shown on the boring logs and in Exhibit 3. This report does not reflect any variations that may occur between the borings or elsewhere on the site, variations whose nature and extent may not become evident until the course of construction. In the event that any changes in the design and/or location of the structure are planned, we should be timely informed so that our recommendations can be adjusted accordingly.

It has been a pleasure to assist Stantec, HBM Engineering Group, LLC, 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,

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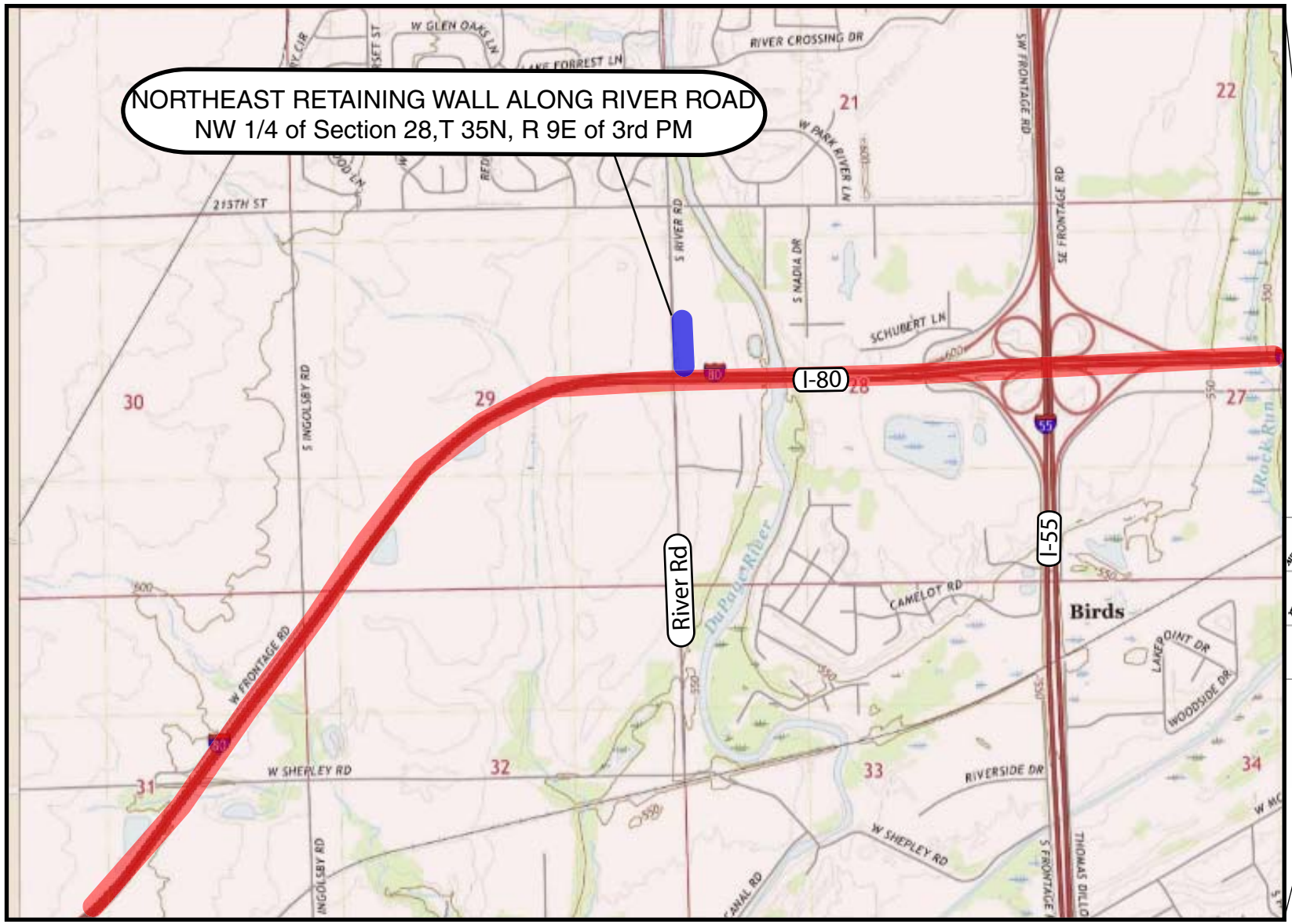
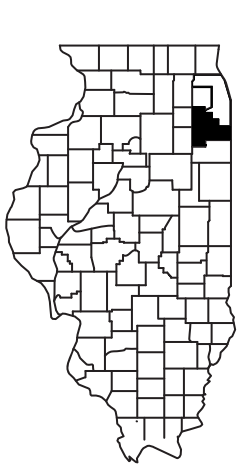
EXHIBITS





Will County

0 0.5 1.0 Mile

SITE LOCATION MAP: NORTHEAST RETAINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE ROAD TO HOUBOLT ROAD, WILL COUNTY, ILLINOIS

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

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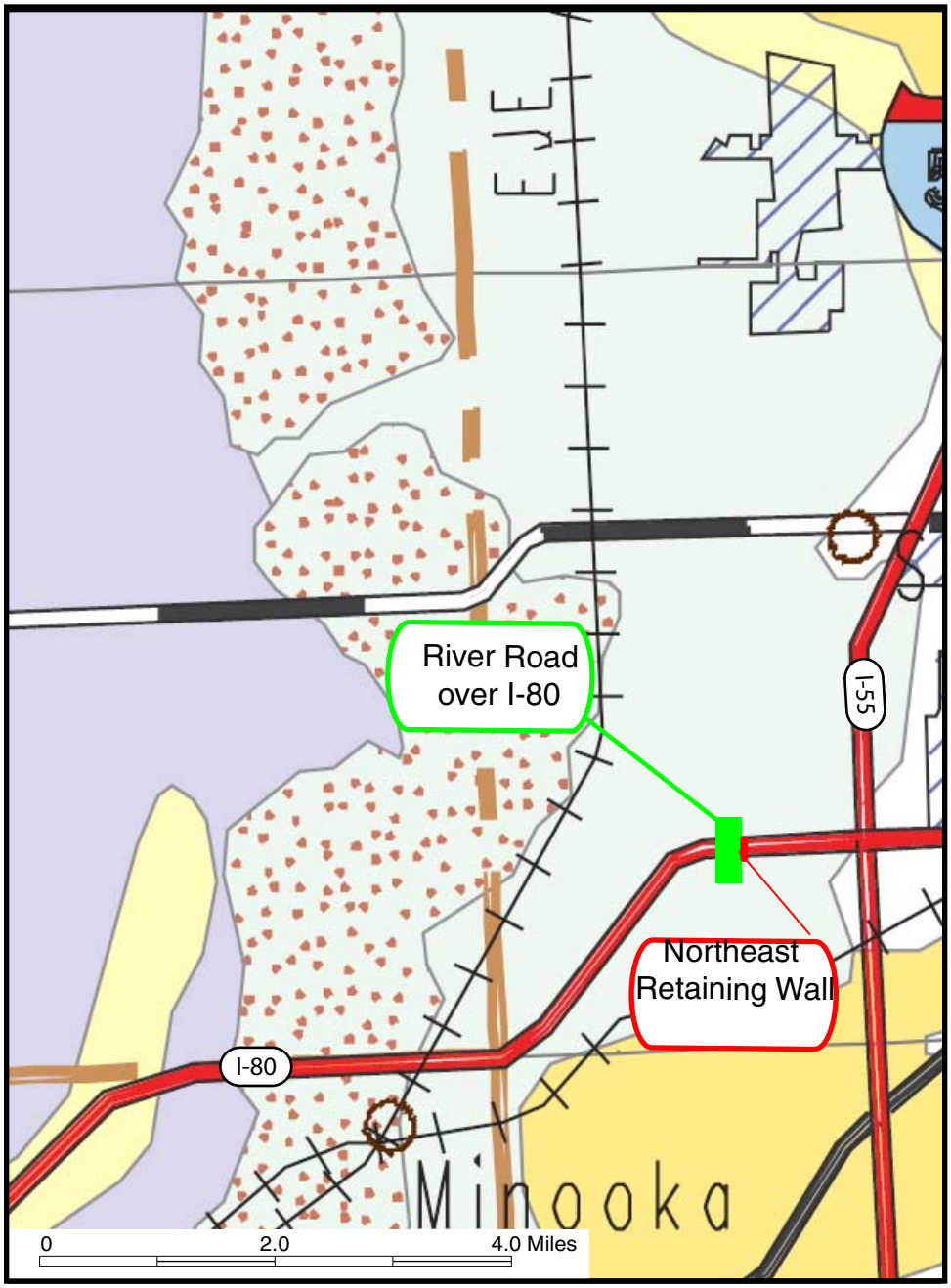
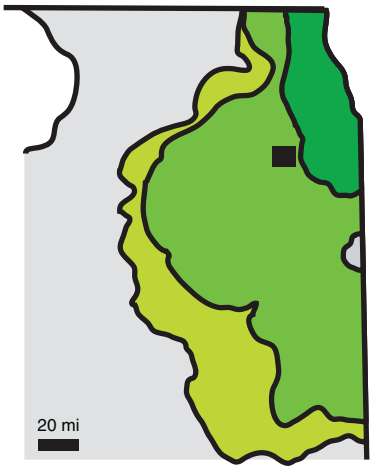


Modified after William W. Shilts (2000)

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

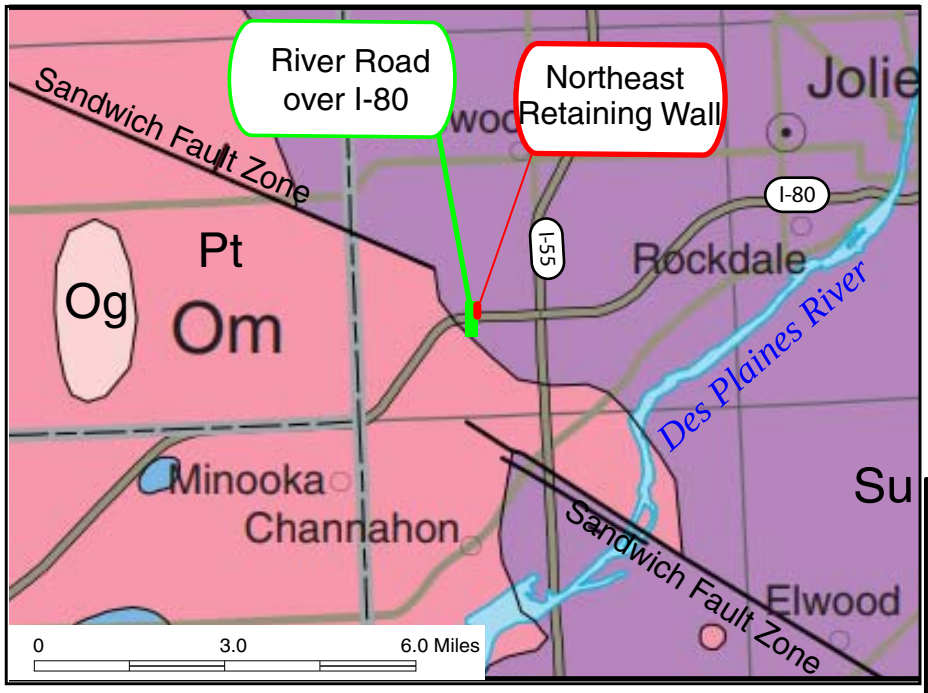
Henry Formation
Predominantly stratified sand and gravel; locally occurring silt, clay, organic debris, wood, shell lenses; outwash on floodplains

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: NORTHEAST RETAINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE ROAD TO HOUBOLT ROAD, WILL COUNTY, ILLINOIS

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

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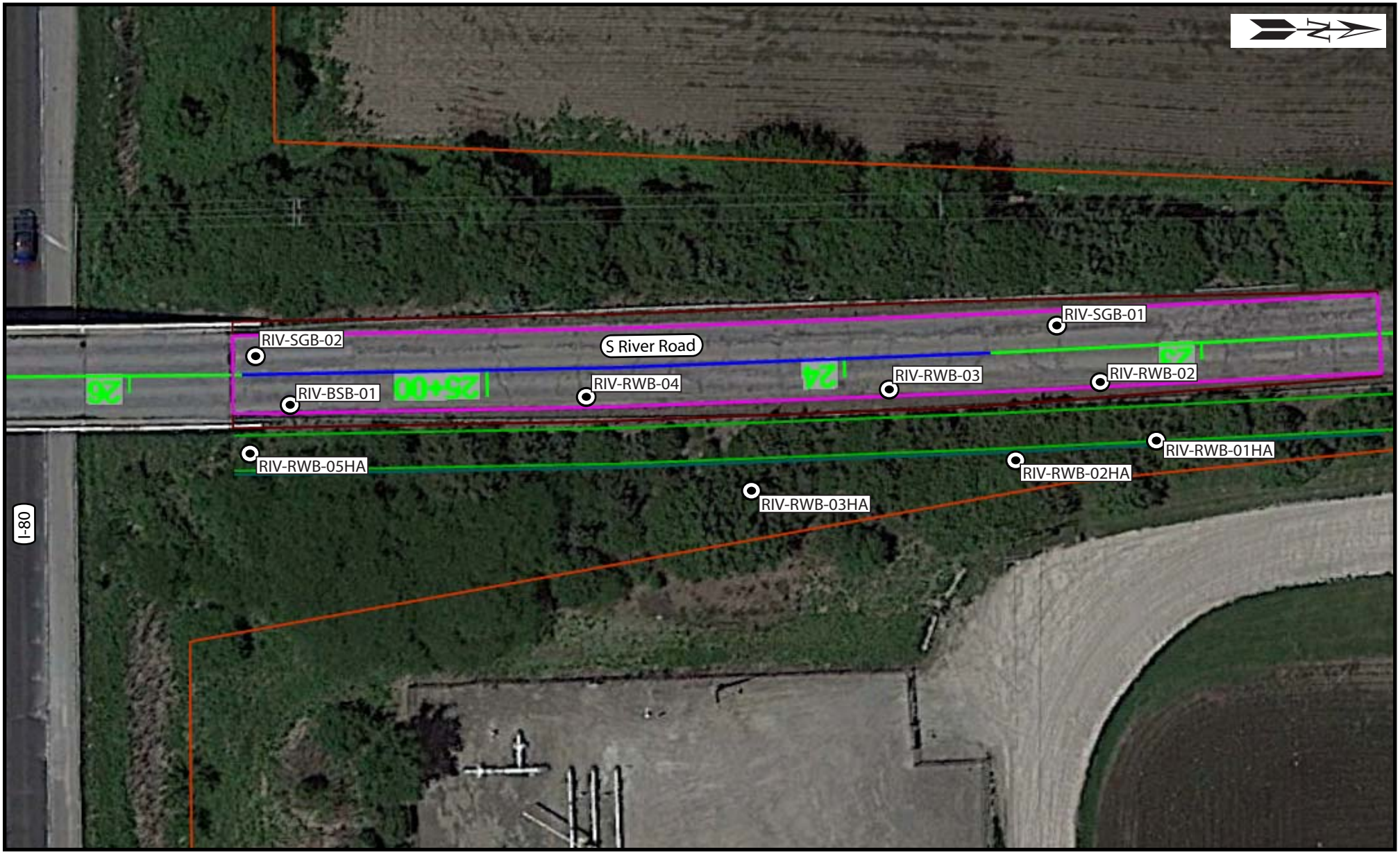

0 100 200 Feet

Legend

Boring Location

BORING LOCATION PLAN: NORTHEAST RETAINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE ROAD TO HOUBOLT ROAD, WILL COUNTY, ILLINOIS

SCALE: GRAPHICAL	EXHIBIT 3	DRAWN BY: J. Bensen CHECKED BY: A. Hamad

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◄S

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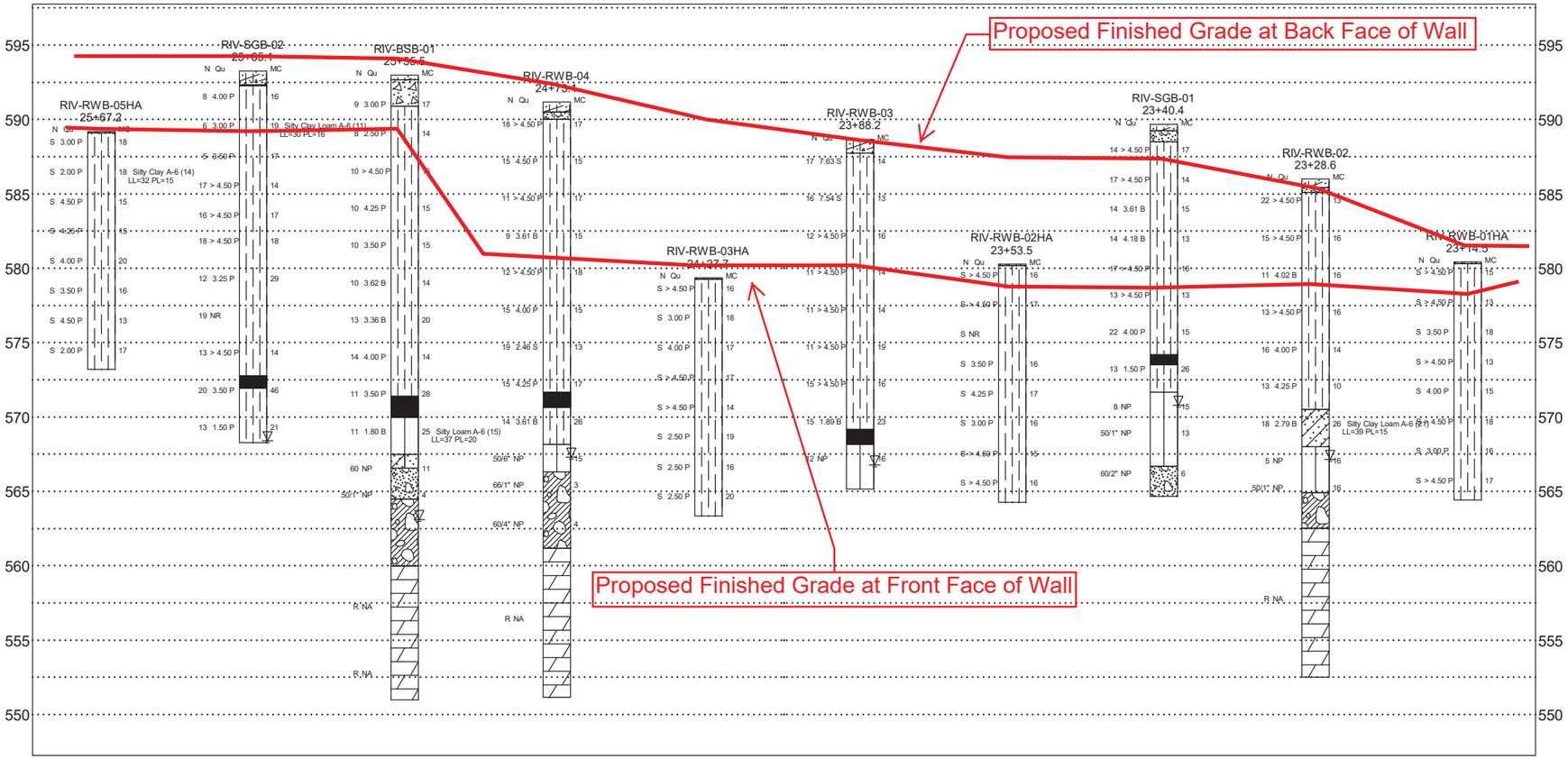
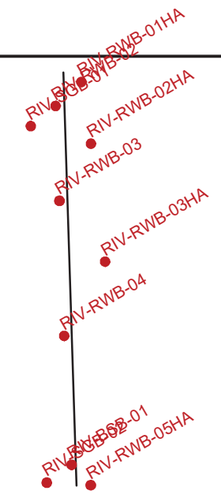


Lithology Graphics

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



Site Map Scale 1 inch equals 95 feet

Explanation:

RIV-BSB-01
25+55.5 — Borehole Number Station

Borehole Lithology

N--N-value, (blw/12 in)
Qu--UC Strength, (tsf)
MC--Moisture Content, (%)

▽ Water Level Reading at time of drilling.

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

0 — 26

Horizontal Scale (feet)

Vertical Exaggeration: 3x

Wang Engineering, Inc.
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Section Name
Northeast Retaining Wall Along RIver Road

WEI SINCE 1982

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

JOB NUMBER	PLATE NUMBER
255-39-01	EXHIBIT 4

WEI 11X17 2553901.GPJ WANGENG.GDT 1/7/22

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APPENDIX A

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BORING LOG RIV-BSB-01

WEI Job No.: 255-39-01

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

Datum: NAVD88
Elevation: 592.99 ft
North: 1755364.55 ft
East: 1016267.85 ft
Station: 25+55.5
Offset: 9.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	592.7	4-inch thick ASPHALT --PAVEMENT--						
	590.9	White and gray SANDY GRAVEL; damp --AGGREGATE BASE--						
		Very stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp						
		--FILL--	5		1	8 4 5	3.00 P	17
		--RDR 2--			2	3 4 4	2.50 P	14
					3	2 3 7	> 4.50 P	15
			10		4	3 4 6	4.25 P	15
					5	3 4 6	3.50 P	15
			15		6	3 6 4	3.62 B	14
		--brown, black and gray--			7	4 7 6	3.36 B	20
			20		8	3 7 7	4.00 P	14
	571.4	Very stiff, black SILTY CLAY; damp			9	4 4 7	3.50 P	28
	570.0	--Buried TOPSOIL--						
		Stiff, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel; damp						
		--RDR 2--	25		10	4 4 7	1.80 B	25

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	567.5	--L_L(%)=37, P_L(%)=20--						
		--%Gravel=0.4--						
	566.6	--%Sand=9.6--						
		--%Silt=71.3--			11	6 27 33	NP	11
		--%Clay=18.7--						
		--A-6 (15)--						
	564.5	Brown SILTY LOAM to LOAM, little gravel; moist			12	50/1"	NP	4
		Very dense, brown SANDY GRAVEL; damp	30					
		--RDR 2--						
		Very dense, brown weathered dolostone fragments; damp to saturated						
	560.0	--Weathered BEDROCK--						
		--slow hard drilling; possible bedrock at 30 feet--						
			35			CORE		
		Strong, light bluish gray, very poor quality, DOLOSTONE; Very closely to closely spaced, highly weathered, horizontal and vertical JOINTS, with <0.05 inch opening, slicken to slightly rough walls, and <0.2 inch thick clay infill.			13			
		--RUN 1: 33.0 to 39.0 feet--						
		--Recovery: 76%--	40					
		--RQD: 0%--			14	CORE		
		--RUN 2: 39.0 to 42.0 feet--						
		--Recovery: 51%--						
	551.0	--RQD: 0%--						
		Boring terminated at 42.00 ft						
			45					
			50					

GENERAL NOTES

Begin Drilling: **11-17-2021** Complete Drilling: **11-17-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20D50T [80%]**
Driller: **RH&JD** Logger: **M. Rojo** 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: **core wash 3ft**
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 RIV-RWB-01HA

WEI Job No.: 255-39-01

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

Datum: NAVD88
Elevation: 580.42 ft
North: 1755605.33 ft
East: 1016273.97 ft
Station: 23+14.5
Offset: 27.3 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	580.3	1-inch thick, brown SANDY GRAVEL --FILL--			1	PUSH	> 4.50 P	15
		Very stiff to hard, brown and gray CL AY LOAMto SILTY CLAY LOAM, trace gravel; damp --FILL--			2	PUSH	> 4.50 P	13
			5		3	PUSH	3.50 P	18
					4	PUSH	> 4.50 P	13
					5	PUSH	4.00 P	15
			10		6	PUSH	> 4.50 P	18
					7	PUSH	3.00 P	16
			15		8	PUSH	> 4.50 P	17
	564.4	Boring terminated at 16.00 ft						
			20					
			25					

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

GENERAL NOTES

Begin Drilling **12-02-2021** Complete Drilling **12-02-2021**
Drilling Contractor **Wang Testing Services** Drill Rig **Geoprobe HA**
Driller **RH&AG** Logger **M. Rojo** Checked by **C. Marin**
Drilling Method **1" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RIV-RWB-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: 586.01 ft
North: 1755590.26 ft
East: 1016257.77 ft
Station: 23+28.6
Offset: 10.3 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
585.4	7-inch thick ASPHALT						
585.1	--PAVEMENT--						
	4-inch thick, gray and white SANDY GRAVEL						
	--BASE COURSE--						
	Very stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp						
	--FILL--	5		1	6 12 10	> 4.50 P	13
	--RDR 2--			2	6 7 8	> 4.50 P	16
				3	4 5 6	4.02 B	16
		10		4	5 6 7	> 4.50 P	16
				5	4 7 9	4.00 P	14
		15		6	5 7 6	4.25 P	10
570.5	Very stiff, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp						
	--RDR 2--			7	4 6 12	2.79 B	26
568.0	--L_L(%)=39, P_L(%)=15--						
	--%Gravel=2.8--						
	--%Sand=8.8--			8	2 2 3	NP	16
	--%Silt=60.5--	20					
	--%Clay=28.0--						
	--A-6 (21)--						
564.9	Loose to very dense, brown and gray SILTY LOAM to LOAM, trace gravel; moist			9	50/1"	NP	16
	--RDR 2--						
562.5	--Rig chatter--						
	--RDR 3--				C O R		
	--Weathered BEDROCK--	25					

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	Strong, light grayish gray, very poor quality, DOLOSTONE; Closely spaced, slightly weathered, horizontal and vertical joints, with <0.05 inch opening, slightly rough walls, and <0.2 inch thick clay infill.				E		
	--RUN 1: 23.5 to 33.5 feet--			10			
	--Recovery: 100%--						
	--RQD: 7%--	30					
552.5	Boring terminated at 33.50 ft						
		35					
		40					
		45					
		50					

GENERAL NOTES

Begin Drilling: **11-22-2021** Complete Drilling: **11-22-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20CME55T[81%]**
Driller: **RR&AG** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **19.00 ft**
At Completion of Drilling: **core wash 12ft**
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 RIV-RWB-02HA

WEI Job No.: 255-39-01

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

Datum: NAVD88
Elevation: 580.28 ft
North: 1755566.55 ft
East: 1016280.01 ft
Station: 23+53.5
Offset: 31.1 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	580.21	1-inch thick, brown SANDY GRAVEL --FILL--			1	PUSH	> 4.50 P	16
		Very stiff to hard, brown and gray SILTY CLAY LOAM, trace gravel; damp --FILL--			2	PUSH	> 4.50 P	17
			5		3	PUSH	NR	
					4	PUSH	3.50 P	16
					5	PUSH	4.25 P	17
			10		6	PUSH	3.00 P	16
					7	PUSH	> 4.50 P	15
			15		8	PUSH	> 4.50 P	16
	564.3	Boring terminated at 16.00 ft						
			20					
			25					

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

GENERAL NOTES

Begin Drilling: **12-02-2021** Complete Drilling: **12-02-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **Geoprobe HA**
Driller: **RH&AG** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **1" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RIV-RWB-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: 588.66 ft
North: 1755530.59 ft
East: 1016260.22 ft
Station: 23+88.2
Offset: 9.4 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	587.7	11-inch thick ASPHALT --PAVEMENT--						
		Stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--			1	6 8 9	7.63 S	14
			5		2	5 8 8	7.54 S	13
					3	4 6 6	> 4.50 P	16
			10		4	3 5 6	> 4.50 P	14
					5	3 5 6	> 4.50 P	14
			15		6	4 5 6	> 4.50 P	19
					7	4 7 8	> 4.50 P	16
	569.2		20		8	3 5 10	1.89 B	23
	568.2	Stiff (1.50P), black SILTY CLAY to SILTY CLAY LOAM, trace gravel and organic matter; damp --BURIED TOPSOIL-- Medium dense, brown SILTY LOAM, trace gravel; saturated --RDR 2--			9	5 4 8	NP	16
	565.2	--AUGER REFUSAL-- Boring terminated at 23.50 ft	25					

GENERAL NOTES

Begin Drilling: **11-18-2021** Complete Drilling: **11-18-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20CME55T[81%]**
Driller: **RR&AG** Logger: **D. You** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RIV-RWB-03HA

WEI Job No.: 255-39-01

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

Datum: NAVD88
Elevation: 579.35 ft
North: 1755492.34 ft
East: 1016288.92 ft
Station: 24+27.7
Offset: 36.2 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	579.31	1-inch thick, brown SANDY GRAVEL --FILL--			1	PUSH	> 4.50 P	16
		Very stiff to hard, gray and brown SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL--			2	PUSH	3.00 P	18
			5		3	PUSH	4.00 P	17
					4	PUSH	> 4.50 P	17
					5	PUSH	> 4.50 P	14
			10		6	PUSH	2.50 P	19
					7	PUSH	2.50 P	16
			15		8	PUSH	2.50 P	20
	563.4	Boring terminated at 16.00 ft						
			20					
			25					

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

GENERAL NOTES

Begin Drilling: **12-01-2021** Complete Drilling: **12-01-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **Geoprobe HA**
Driller: **RH&AG** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **1" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RIV-RWB-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: 591.16 ft
North: 1755445.63 ft
East: 1016263.17 ft
Station: 24+73.1
Offset: 8.6 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	590.5	8-inch thick ASPHALT						
	590.0	--PAVEMENT--						
		White and gray SANDY GRAVEL; damp			1	5 8 10	> 4.50 P	17
		--BASE COURSE--						
		Very stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp			2	7 7 8	4.50 P	15
		--FILL--	5					
		--RDR 2--			3	5 5 6	> 4.50 P	17
					4	4 4 5	3.61 B	15
			10					
					5	5 5 7	> 4.50 P	18
					6	5 6 9	4.00 P	15
			15					
					7	5 9 10	2.46 S	13
	571.7				8	5 8 7	4.25 P	17
		Very stiff, black SILTY CLAY	20					
	570.7	--BURIED TOPSOIL--						
		Very stiff, brown and gray SILTY CLAY, trace gravel; damp to moist			9	6 7 7	3.61 B	26
		--RDR 2--						
	568.2	Very dense, brown SILTY LOAM to LOAM, trace gravel; saturated						
		--RDR 2--			10	4 8 50/6"	NP	15
	566.3		25					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Very dense, brown, white, and gray SANDY GRAVEL; damp			11	66/1"	NP	3
		--Weathered BEDROCK--						
		--RDR 3--			12	60/4"	NP	4
	561.2		30					
		Strong, light grayish gray, very poor quality, DOLOSTONE; very closely spaced, moderately weathered, horizontal, oblique, and vertical joints, with <0.05 inch opening, slightly rough walls, and <0.2 inch thick clay infill.				CORE		
		--RUN 1: 30.0 to 40.0 feet--						
		--Recovery: 95%--						
		--RQD: 4%--	35		13			
	551.2		40					
		Boring terminated at 40.00 ft						
			45					
			50					

GENERAL NOTES

Begin Drilling: **11-19-2021** Complete Drilling: **11-19-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20CME55T[81%]**
Driller: **RH&JD** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **24.00 ft**
At Completion of Drilling: **core wash 10ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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

WANGENGINC 2553901.GPJ WANGENG.GDT 12/13/21

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Fax: (630) 953-9938

BORING LOG RIV-RWB-05HA

WEI Job No.: 255-39-01

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

Datum: NAVD88
Elevation: 589.19 ft
North: 1755351.72 ft
East: 1016279.92 ft
Station: 25+67.2
Offset: 22.8 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	589.1	1-inch thick, brown SANDY GRAVEL --FILL--			1	PUSH	3.00 P	18
		Very stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL--			2	PUSH	2.00 P	18
		--trace wood fragments--						
		--L_L(%)=32, P_L(%)=15--	5		3	PUSH	4.50 P	15
		--%Gravel=3.5--						
		--%Sand=8.0--						
		--%Silt=58.2--						
		--%Clay=30.3--						
		--A-6 (14)--			4	PUSH	4.25 P	15
					5	PUSH	4.00 P	20
			10		6	PUSH	3.50 P	16
					7	PUSH	4.50 P	13
			15		8	PUSH	2.00 P	17
	573.2	Boring terminated at 16.00 ft						
			20					
			25					

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

GENERAL NOTES

Begin Drilling: **12-01-2021** Complete Drilling: **12-01-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **Geoprobe HA**
Driller: **RH&AG** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **1" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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Fax: (630) 953-9938

BORING LOG RIV-SGB-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: 589.67 ft
North: 1755577.56 ft
East: 1016242.15 ft
Station: 23+40.4
Offset: 6.0 RT

Depth (ft)	Elevation (ft)	Profile	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
0	589.3		5-inch thick ASPHALT --PAVEMENT--					
0	588.5		Gray and white SANDY GRAVEL; damp --BASE COURSE--					
0			Very stiff to hard, brown and gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --FILL-- --RDR 2--	1	1	5 6 8 10	> 4.50 P	17
2				2	2	8 8 9 8	> 4.50 P	14
5				3	3	6 7 7 7	3.61 B	15
4				4	4	5 6 8 10	4.18 B	13
10				5	5	6 7 10 9	> 4.50 P	16
6				6	6	5 6 7	> 4.50 P	13
15				7	7	6 12 10	4.00 P	15
0	574.2		Very stiff (2.00P), black SILTY CLAY to SILTY CLAY LOAM, trace gravel; damp --BURIED TOPSOIL--	8	8	5 6 7	1.50 P	26
1.7	573.5		Stiff, bluish gray SILTY CLAY, trace gravel; moist --RDR 2--					
0	571.7		Loose to very dense, brown and gray SILTY LOAM to LOAM, trace gravel; damp to moist --RDR 2--	9	9	6 4 4	NP	15
20				10	10	50/1"	NP	13
0	566.7		Very dense, white and gray SANDY GRAVEL; damp --RDR 3-- --rig chatter; possible cobbles--	11	11	19 60/2"	NP	6
25	564.7		Boring terminated at 25.00 ft					
30								

GENERAL NOTES

Begin Drilling: **11-22-2021** Complete Drilling: **11-22-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20CME55T[81%]**
Driller: **RR&AG** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **2.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **19.00 ft**
At Completion of Drilling: **DRY**
Time After Drilling: **NA**
Depth to Water: **NA**

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

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BORING LOG RIV-SGB-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: 593.27 ft
North: 1755353.25 ft
East: 1016252.19 ft
Station: 25+65.1
Offset: 4.9 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	592.3	11-inch thick ASPHALT --PAVEMENT--						
	592.3	1-inch, gray and white SANDY GRAVEL --AGGREGATE BASE--						
		Very stiff to hard, brown and gray SILTY CLAY LOAM, trace gravel; damp			1	5 4 4 3	4.00 P	16
		--FILL-- --RDR 2-- --L_L(%)=30, P_L(%)=16-- --%Gravel=2.9-- --%Sand=10.6-- --%Silt=61.4-- --%Clay=25.0-- --A-6 (11)--	5		2	3 3 3 4	3.00 P	19
					3	2 2 3 3	3.50 P	17
					4	4 5 12 10	> 4.50 P	14
			10		5	10 7 9 9	> 4.50 P	17
					6	7 8 10	> 4.50 P	18
		--black; trace organic matter--	15		7	6 7 5	3.25 P	29
		--FILL--			8	9 9 10	NR	
			20		9	6 6 7	> 4.50 P	14
	572.8	Very stiff, black SILTY CLAY, trace organic matter; damp						
	571.9	--Buried TOPSOIL--			10	8 11 9	3.50 P	46
		Stiff to very stiff, brown and gray SILTY CLAY, trace gravel; damp to moist --RDR 2--						
					11	8 6 7	1.50 P	21
	568.3	Boring terminated at 25.00 ft	25					
			30					

GENERAL NOTES

Begin Drilling: **11-19-2021** Complete Drilling: **11-19-2021**
Drilling Contractor: **Wang Testing Services** Drill Rig: **20CME55T[81%]**
Driller: **RR&AG** Logger: **M. Rojo** Checked by: **C. Marin**
Drilling Method: **3.25" ID HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

WANGENGINC 2553901.GPJ WANGENG.GDT 12/15/21

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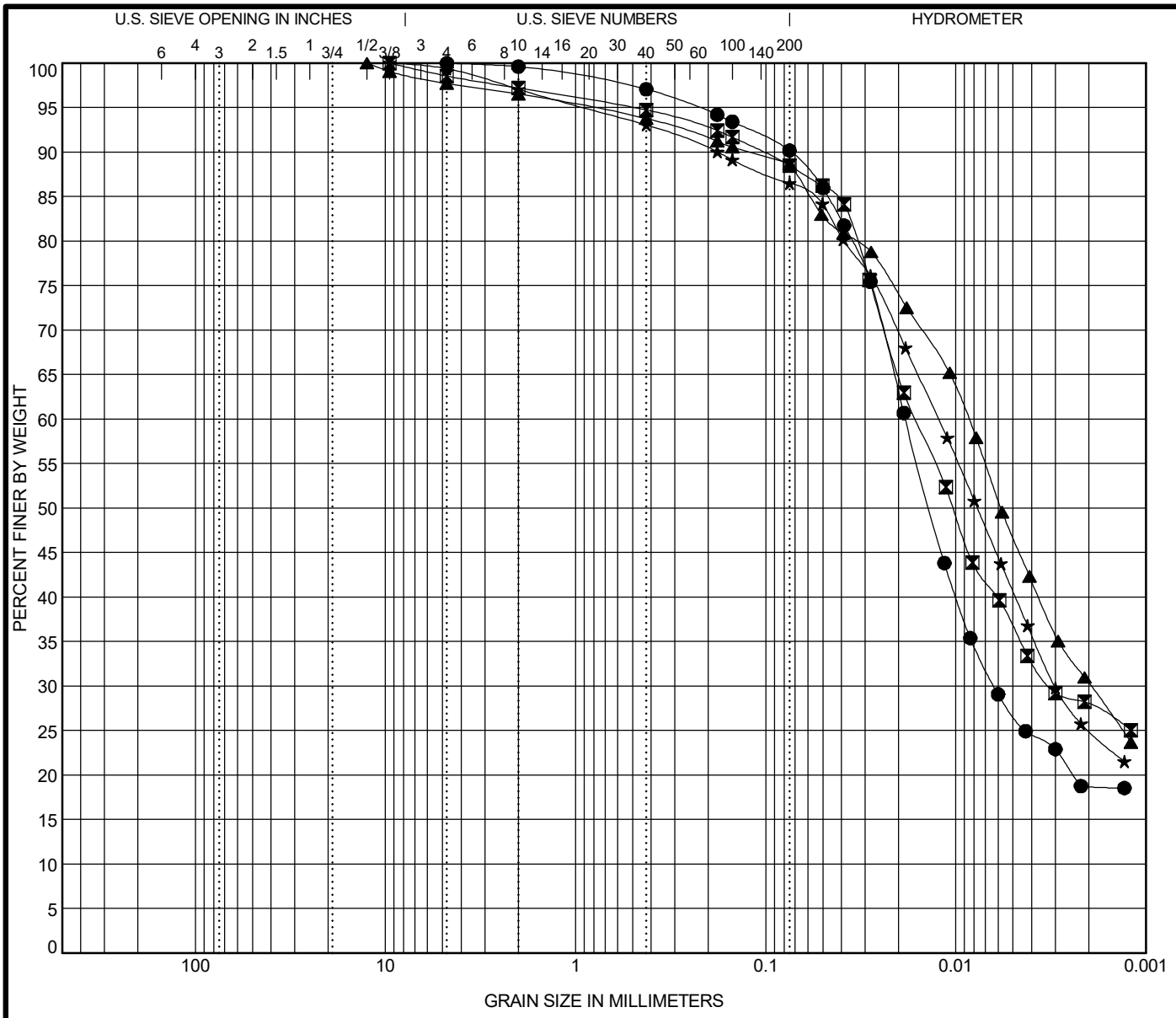
APPENDIX B



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

	Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
●	RIV-BSB-01#10	23.5 ft	**Silty Loam**	**37**	**20**	**17**		
⊠	RIV-RWB-02#7	16.0 ft	**Silty Clay Loam**	**39**	**15**	**24**		
▲	RIV-RWB-05HA#2	2.0 ft	**Silty Clay**	**32**	**15**	**17**		
★	RIV-SGB-02#2	3.0 ft	**Silty Clay Loam**	**30**	**16**	**14**		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RIV-BSB-01#10	23.5 ft	**4.75**	**0.018**	**0.006**		**0.4**	**9.6**	**71.3**	**18.7**
⊠	RIV-RWB-02#7	16.0 ft	**9.5**	**0.016**	**0.003**		**2.8**	**8.8**	**60.5**	**28.0**
▲	RIV-RWB-05HA#2	2.0 ft	**12.5**	**0.009**	**0.002**		**3.5**	**8.0**	**58.2**	**30.3**
★	RIV-SGB-02#2	3.0 ft	**9.5**	**0.012**	**0.003**		**2.9**	**10.6**	**61.4**	**25.0**

WEI SINCE 1982
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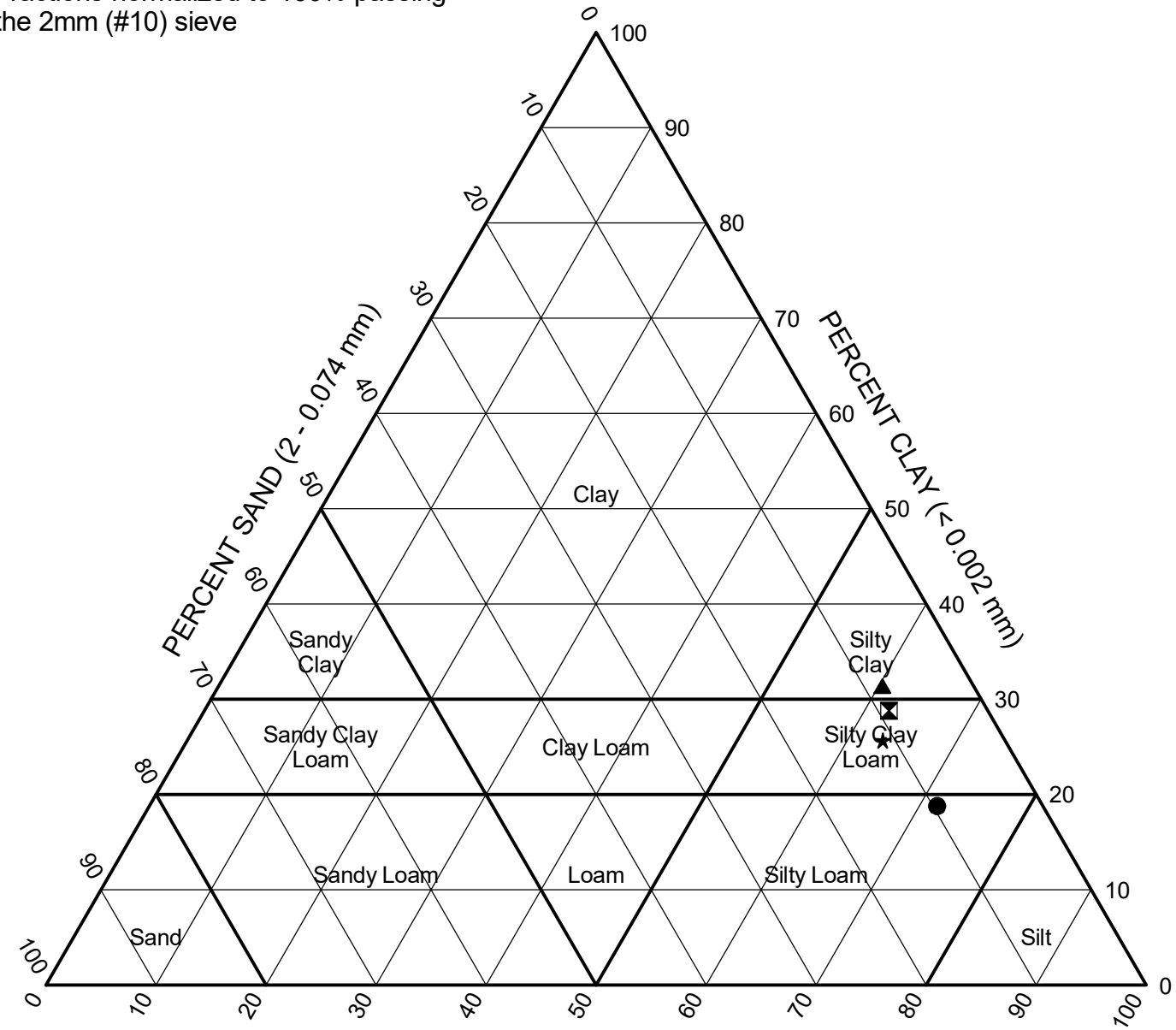
GRAIN SIZE DISTRIBUTION

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

Location: Will County, Illinois

Number: 255-39-01

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



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	RIV-BSB-01#10	23.5	**9.6**	**71.6**	**18.8**	**Silty Loam**	**A-6 (15)**	**CL**
⊠	RIV-RWB-02#7	16.0	**9.1**	**62.2**	**28.8**	**Silty Clay Loam**	**A-6 (21)**	**CL**
▲	RIV-RWB-05HA#2	2.0	**8.3**	**60.3**	**31.4**	**Silty Clay**	**A-6 (14)**	**CL**
★	RIV-SGB-02#2	3.0	**10.9**	**63.2**	**25.7**	**Silty Clay Loam**	**A-6 (11)**	**CL**

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IDH Textural Classification Chart

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

Location: Will County, Illinois

Number: 255-39-01

1145 North Main Street
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ORGANIC CONTENT in SOILS by LOSS on IGNITION

ASTM D 2974, Method C

Client: Stantec
Project: I-80
WEI Job: 255-39-01
Type/Condition: SS
Testing Furnace Temp °C.: 440

Analyst Name: M> Ciapas
Date Received: 11/192021
Date Tested: 12/6/2021
Soil Sample ID: RIV-SGB-02,S#10(21-22.5 ft)
Sample Description: Dark Brown Loam

Moisture Content	Wet soil + tare (g)	Dry Soil + tare (g)	Tare mass (g)	w (%)
oven-dry method	82.39	71.87	41.61	35

Ash Content	Dry Soil + tare (g)	Ash + tare (g)	Tare mass (g)	Ash Content (%)
Loss On Ignition	71.87	68.21	41.61	14

Organic Content (%)= 13.8

Prepeared By:_____

Reviwed By:_____

AASHTO R18

Unconfined Compressive Strength of Intact Rock Core Specimens

Project: I-80 Reconstruction

Client: Stantec

WEI Job No.: 255-39-01

Field Sample ID	Run #	Depth (ft)	Location	Sample Description	Length (in)		Diameter (in)	Total Load (lbs)	Total Pressure (psi)	Fracture Type*	Break Date	Tested By	Area (in^2)
					Before Capping	After Capping							
RIV-RWB-04	1	30.0	Northeast Retaining Wall	Dolostone	4.13	NA	2.05	27040	8192	3	12/13/21	MAC	3.30

*** 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 RIV-RWB-02:
Run #1, 23.5 to 33.5 feet, RECOVERY=100%, RQD=7%

BEDROCK CORE: NORTHEAST RETAINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

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

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Lombard, IL 60148
www.wangeng.com

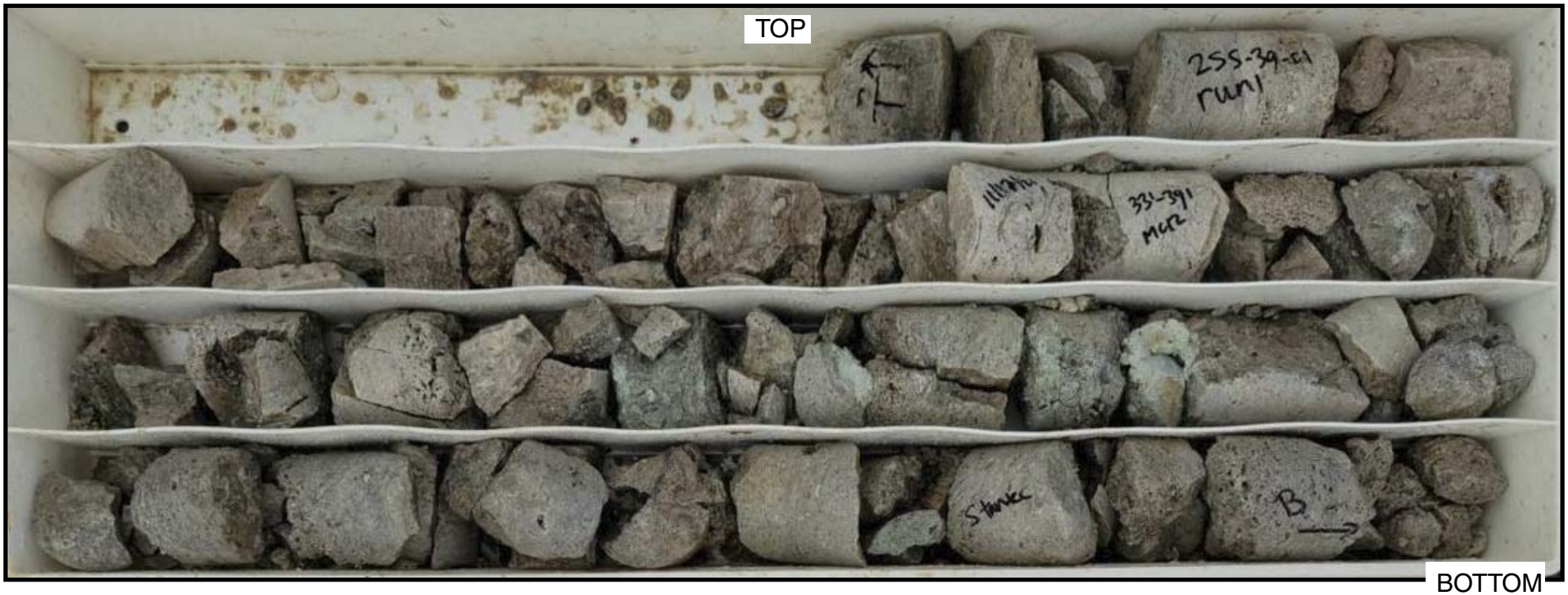
FOR STANTEC	255-39-01

Run #1

Boring RIV-RWB-04:
Run #1, 30.0 to 40.0 feet, RECOVERY=95%, RQD=4%

BEDROCK CORE: NORTHEAST RETAINING WALL ALONG RIVER ROAD; 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		1145 N.Main Steet Lombard, IL 60148 www.wangeng.com
FOR STANTEC		255-39-01

Run #1



0 6 inches

Run #2

0 6 inches

Boring RIV-BSB-01:
Run #1, 33.0 to 39.0 feet, RECOVERY=76%, RQD=0%
Run #2, 39.0 to 42.0 feet, RECOVERY=51%, RQD=0%

BEDROCK CORE: NORTHEAST RETAINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT RD, WILL COUNTY, ILLINOIS

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

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FOR STANTEC | 255-39-01

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Lombard, Illinois 60148
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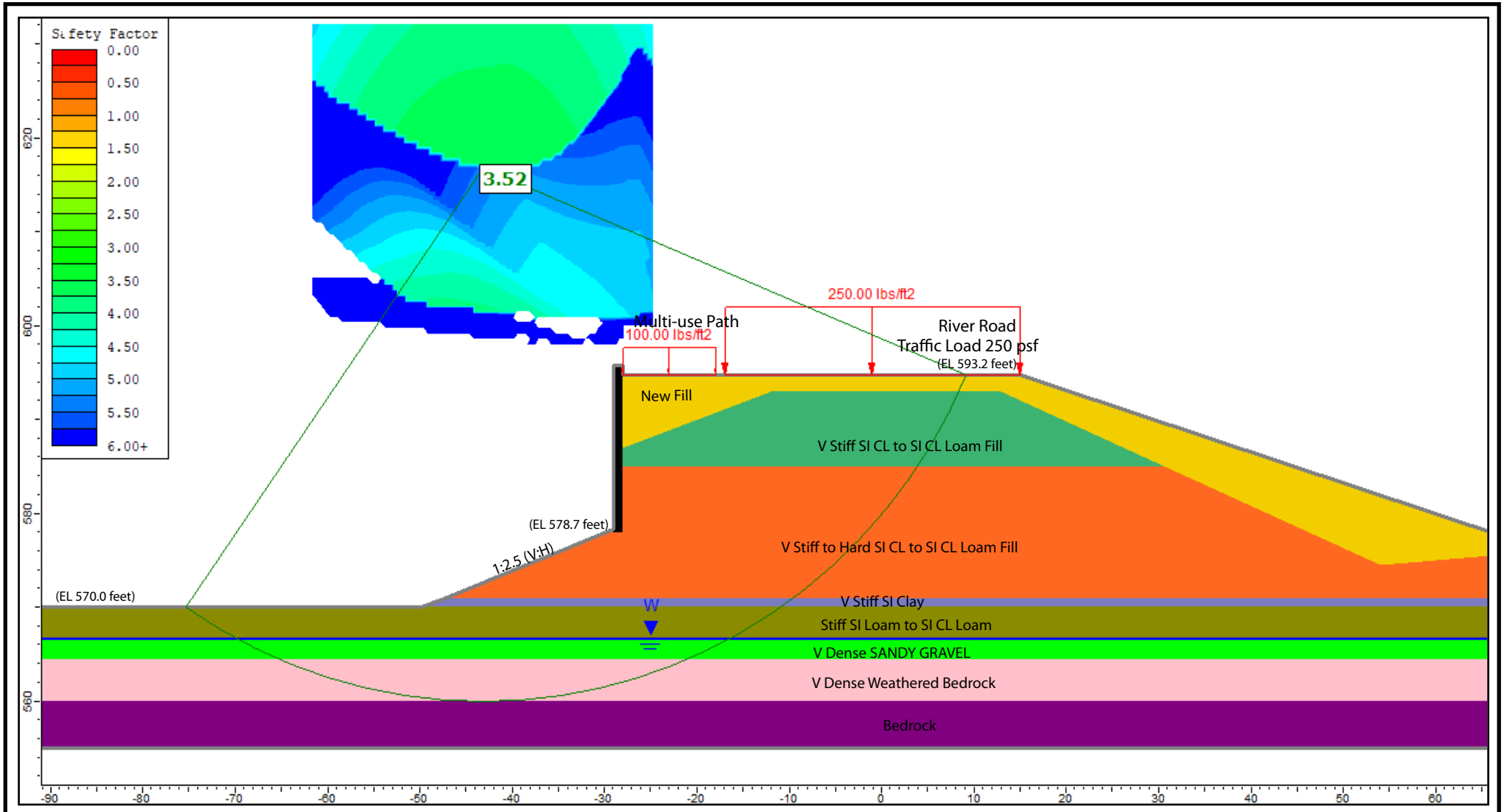
APPENDIX D



Undrained Analysis, Northeast Retaining Wall, Sta. 25+00, Ref Borings: RIV-BSB-01 and RIV-RWB-05HA

Layer ID	Description	Total Unit Weight (pcf)	Undrained Cohesion (psf)	Undrained Friction Angle (degrees)
1	New Fill	125	1000	0
2	V Stiff SI CL to SI CL Loam Fill	120	2600	0
3	V Stiff to Hard SI CL to SI CL Loam Fill	120	3700	0
4	V Stiff SI Clay	120	3500	0
5	M Dense SI CL to SI Loam	120	1800	0
6	V Dense Sa GRAVEL	125	0	33
7	V Dense Weathered Bedrock	130	0	35

GLOBAL STABILITY: NORTHEAST REATINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION FROM EAST OF RIDGE RD TO HOUBOLT ROAD, WILL COUNTY, IL

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

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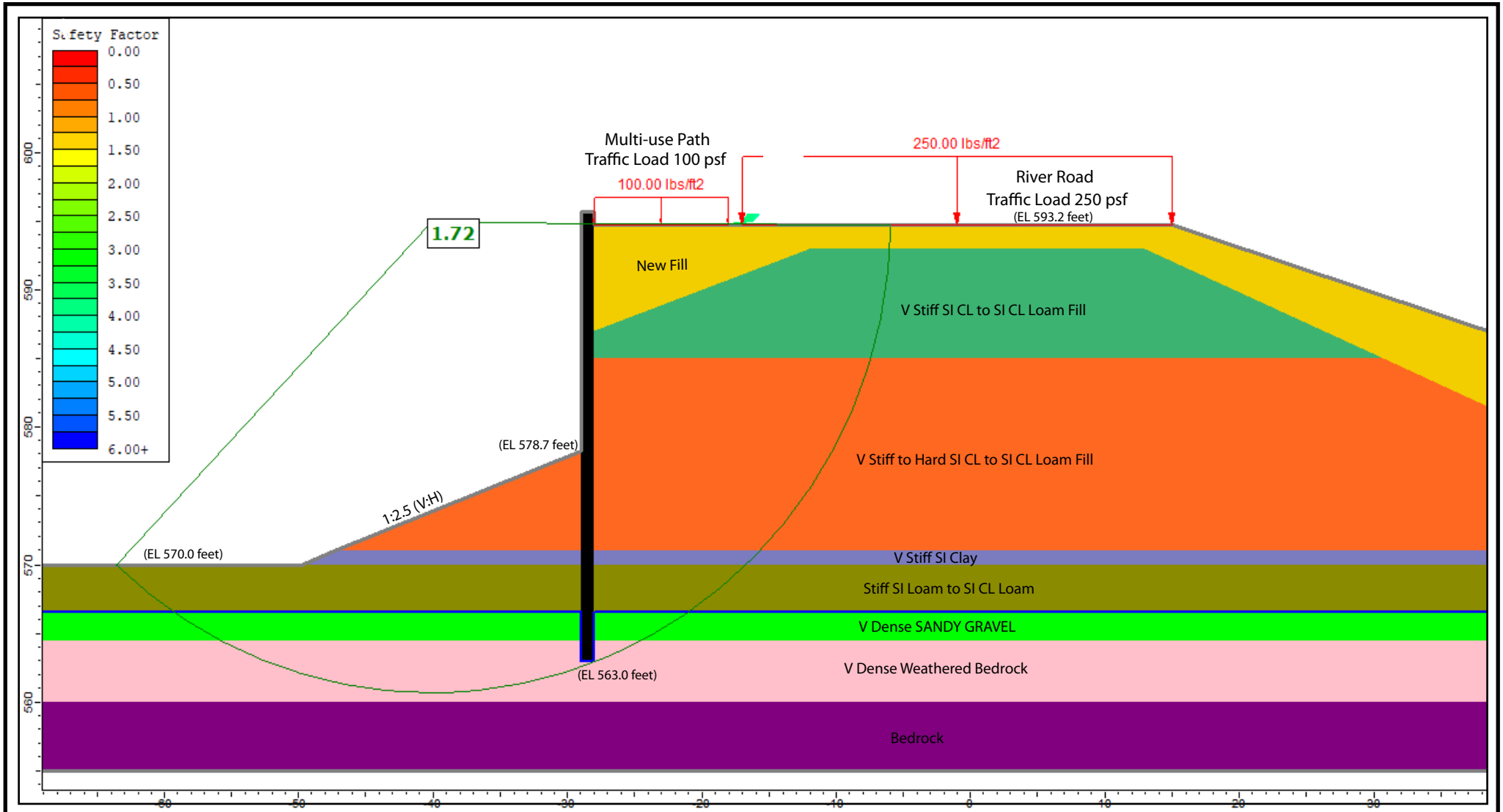
FOR STANTEC | 255-39-01



Drained Analysis, Northeast Retaining Wall, Sta. 25+00, Ref Borings: RIV-BSB-01 and RIV-RWB-05HA

Layer ID	Description	Total Unit Weight (pcf)	Drained Cohesion (psf)	Drained Friction Angle (degrees)
1	New Fill	125	100	30
2	V Stiff SI CL to SI CL Loam Fill	120	100	30
3	V Stiff to Hard SI CL to SI CL Loam Fill	120	100	30
4	V Stiff SI Clay	120	100	30
5	M Dense SI CL to SI Loam	120	0	29
6	V Dense Sa GRAVEL	125	0	33
7	V Dense Weathered Bedrock	130	0	35

GLOBAL STABILITY: NORTHEAST REATINING WALL ALONG RIVER ROAD; I-80 RECONSTRUCTION
FROM EAST OF RIDGE RD TO HOUBOLT ROAD, WILL COUNTY, ILLINOIS

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

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FOR STANTEC | 255-39-01

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APPENDIX E

Benchmark: Set 2" CWA Aluminum disc in concrete pier seat in southerly pier of River Road bridge on south side of eastbound I-80, Elev. 575.61

Existing Structure: None.

Traffic Control: Traffic will be detoured during construction.

DESIGN STRESSES

FIELD UNITS

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

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

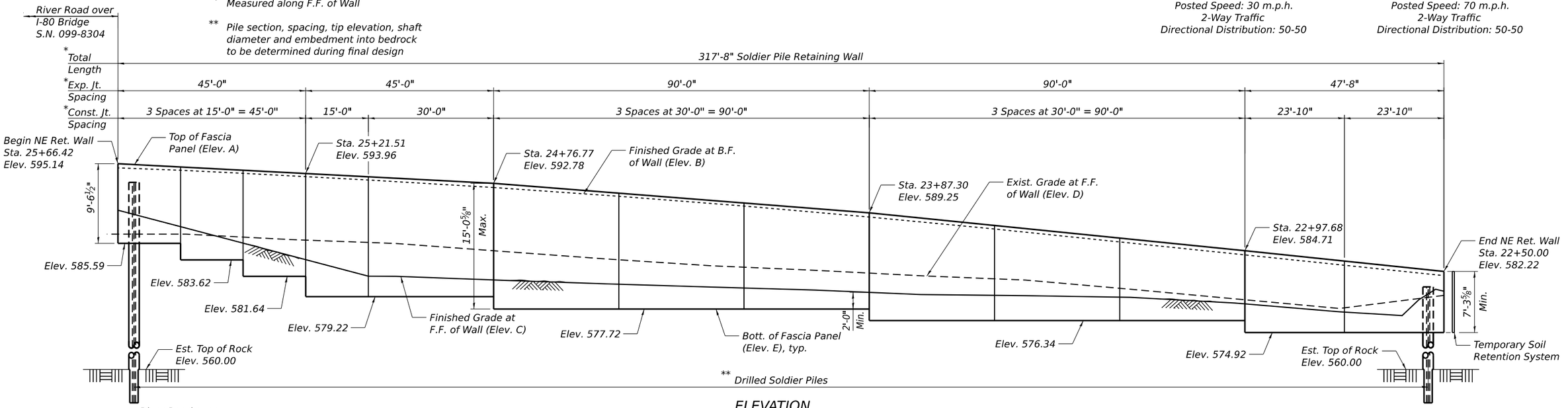
HIGHWAY CLASSIFICATION

Township Road 056 - River Rd.
Functional Class: Local Road
ADT: 1,750 (2019); 2,146 (2032)
ADTT: 158 (2019); 194 (2032)
DHV: 236 (2032)
Design Speed: 40 m.p.h.
Posted Speed: 30 m.p.h.
2-Way Traffic
Directional Distribution: 50-50

F.A.I. Rte. 80 - I-80
Functional Class: Interstate
ADT: 57,400 (2019); 61,284 (2032)
ADTT: 10,906 (2019); 11,644 (2032)
DHV: 6,741 (2032)
Design Speed: 70 m.p.h.
Posted Speed: 70 m.p.h.
2-Way Traffic
Directional Distribution: 50-50

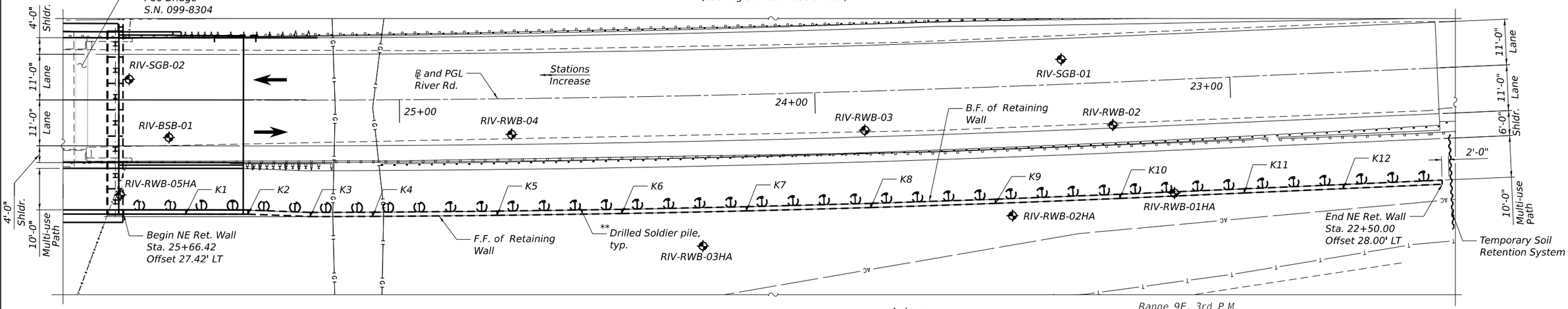
* Measured along F.F. of Wall

** Pile section, spacing, tip elevation, shaft diameter and embedment into bedrock to be determined during final design



ELEVATION

(Looking at Front Face of Wall)



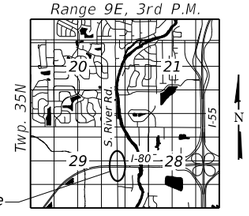
PLAN

NOTES:

1. Stations and offsets are measured from the ℄ of River Rd. to the front face of the cast-in-place concrete facing.
2. Wall to be built along straight chords between construction joints.
3. The Contractor shall exercise extreme caution during wall construction to make certain that construction activities will not have detrimental effects on the adjacent utilities and other facilities.
4. "K1" denotes wall kink point- Number 1.

LEGEND:

Soil Boring		Exist. Guardrail	
Prop. Fence		Exist. Gas line	G
ROW		Exist. Telephone	T
Prop. Guardrail		F.F.	Front Face
Private Entrance		B.F.	Back Face



LOCATION SKETCH

GENERAL PLAN & ELEVATION NORTHEAST RETAINING WALL ALONG RIVER ROAD F.A.I. RTE. I-80 SECTION 2021-151-B WILL COUNTY STA. 22+50.00 TO STA. 25+66.42 STRUCTURE NO. 099-W805

HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - SK, JJS	REVISED -	
	CHECKED - MI, JJS	REVISED -	
PLOT SCALE =	DRAWN - EBK, SK	REVISED -	
PLOT DATE =	CHECKED - MI, JJS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	2021-151-B	WILL	3	1
		CONTRACT NO. 62P67		
		ILLINOIS	FED. AID PROJECT	

MODEL: Default
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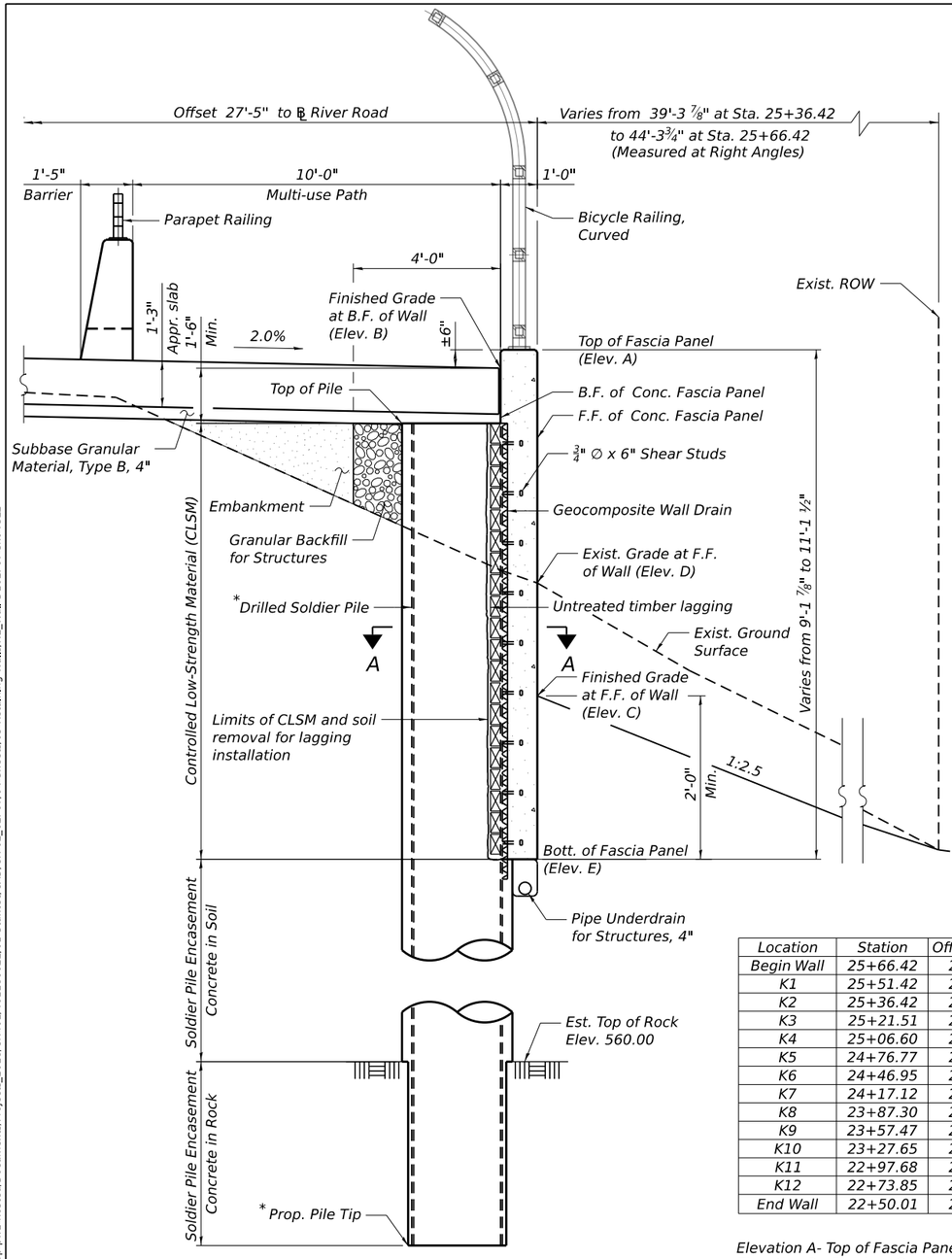


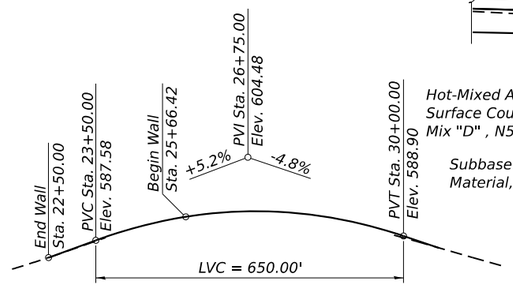
TYPICAL CROSS SECTION

(Looking North)
(Sta. 25+36.42 to Sta. 25+66.42)

*Pile section, spacing, tip elevation, shaft diameter and embedment into bedrock to be determined during final design.

PR CURVE
RR CURVE 1

P.I. Sta. = 24+28.73
Δ = 02°34'01" (RT)
D = 01°12'04"
R = 4,770.00'
T = 106.87'
L = 213.70'
E = 1.20'
e = N.C.
T.R. = N/A
S.E. Run = N/A
P.C. Sta. = 23+21.87
P.T. Sta. = 25+35.57



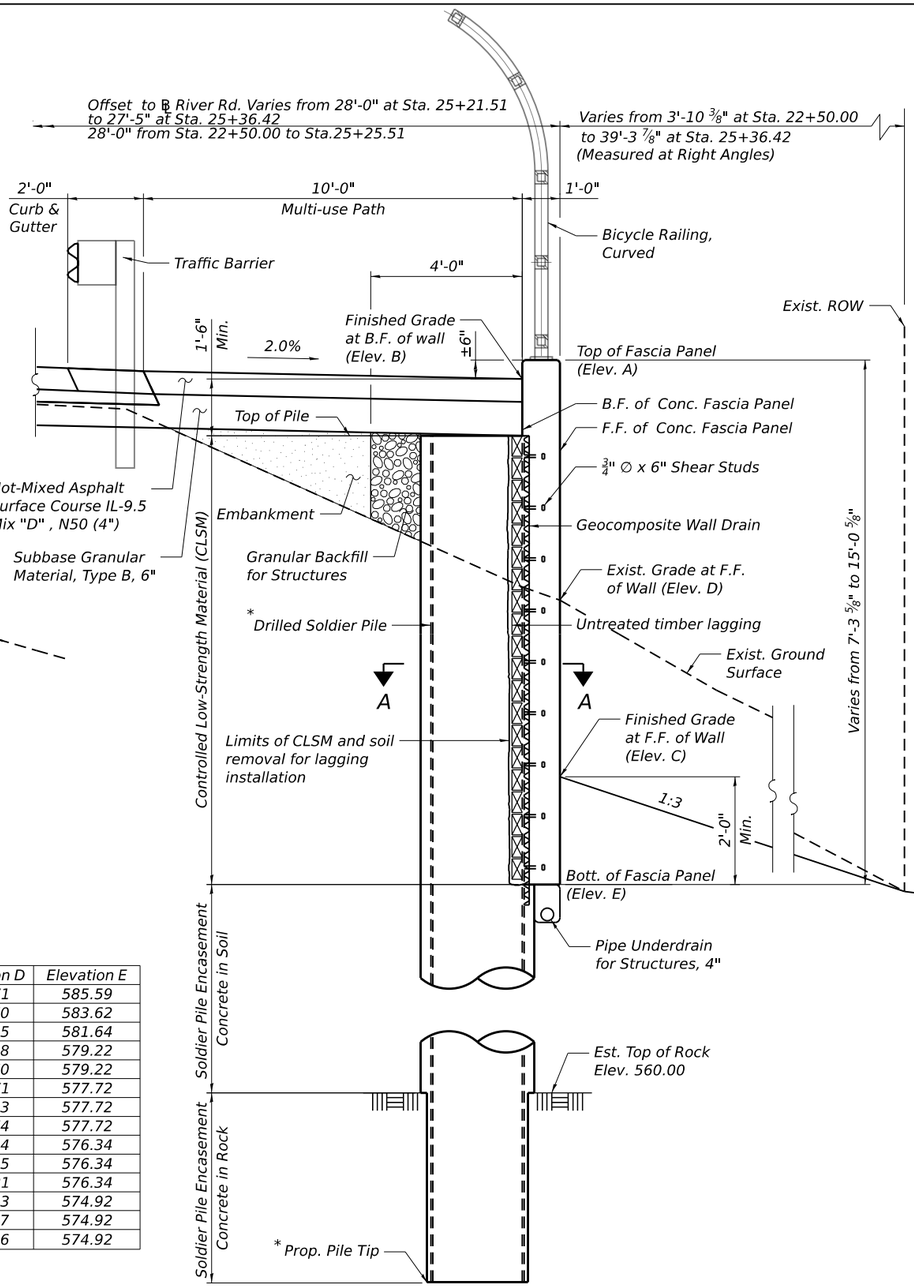
RIVER RD. PROFILE GRADE

(Along ℄ River Road)

TABLE 1 - WALL ELEVATIONS

Location	Station	Offset (Lt.)	Elevation A	Elevation B	Elevation C	Elevation D	Elevation E
Begin Wall	25+66.42	27.42'	595.14	594.64	589.57	586.71	585.59
K1	25+51.42	27.42'	594.75	594.35	587.60	586.70	583.62
K2	25+36.42	27.42'	594.35	593.98	585.62	586.35	581.64
K3	25+21.51	28.00'	593.96	593.58	583.64	585.98	579.22
K4	25+06.60	28.00'	593.57	593.18	581.67	585.70	579.22
K5	24+76.77	28.00'	592.78	592.28	581.22	584.71	577.72
K6	24+46.95	28.00'	591.60	591.24	580.70	583.63	577.72
K7	24+17.12	28.00'	590.43	590.07	580.24	582.74	577.72
K8	23+87.30	28.00'	589.25	588.75	579.72	582.04	576.34
K9	23+57.47	28.00'	587.74	587.31	579.37	581.35	576.34
K10	23+27.65	28.00'	586.22	585.77	579.15	580.21	576.34
K11	22+97.68	28.00'	584.71	584.21	578.34	578.83	574.92
K12	22+73.85	28.00'	583.47	582.97	577.37	577.87	574.92
End Wall	22+50.01	28.00'	582.22	581.72	579.86	579.36	574.92

Elevation A- Top of Fascia Panel
Elevation B - Finished Grade at B.F. of Wall
Elevation C - Finished Grade at F.F. of Wall
Elevation D - Exist. Grade at F.F. of Wall
Elevation E - Bott. of Fascia Panel



TYPICAL CROSS SECTION

(Looking North)
(Sta. 22+50.00 to Sta. 25+36.42)

NOTE:

1. For Section A-A and additional wall details, see Sheet 3 of 3.

TYPICAL CROSS SECTION NORTHEAST RETAINING WALL ALONG RIVER ROAD F.A.I. RTE. I-80 SECTION 2021-151-B WILL COUNTY STA. 22+50.00 TO STA. 25+66.42 STRUCTURE NO. 099-W805

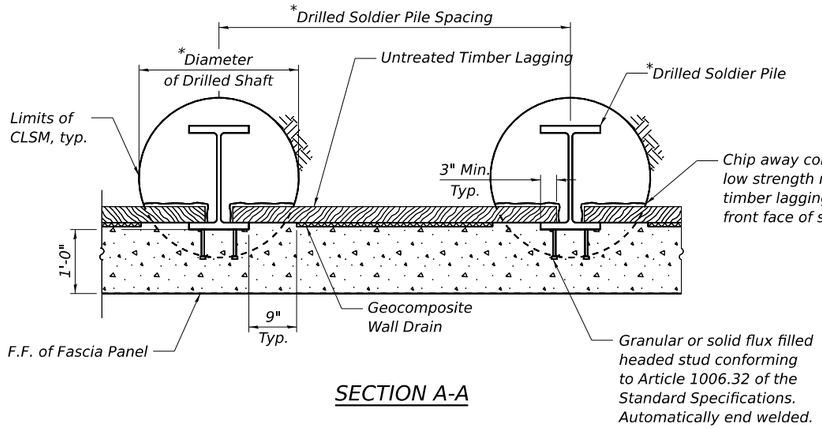
HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - SK, JJS	REVISED -	
	CHECKED - MI, JJS	REVISED -	
PLOT SCALE =	DRAWN - EBK, SK	REVISED -	
PLOT DATE =	CHECKED - MI, JJS	REVISED -	

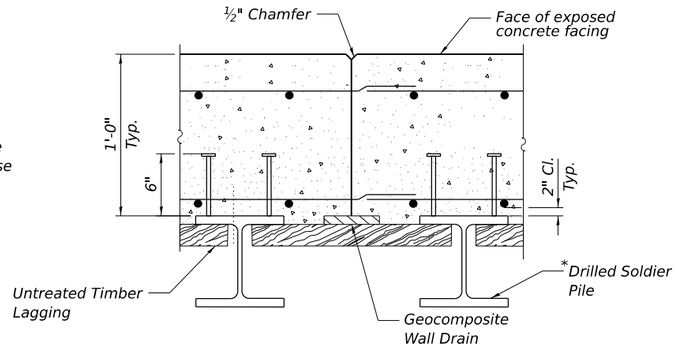
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 3 SHEETS

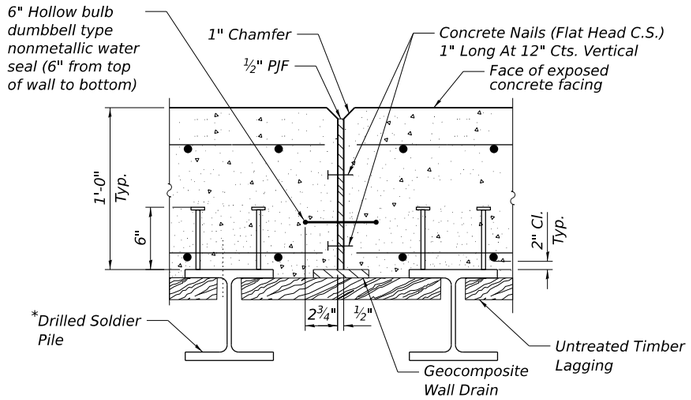
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	2021-151-B	WILL	3	2
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		



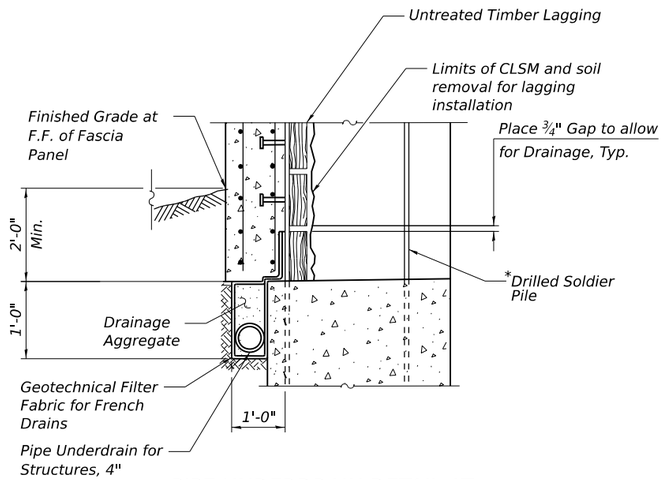
SECTION A-A



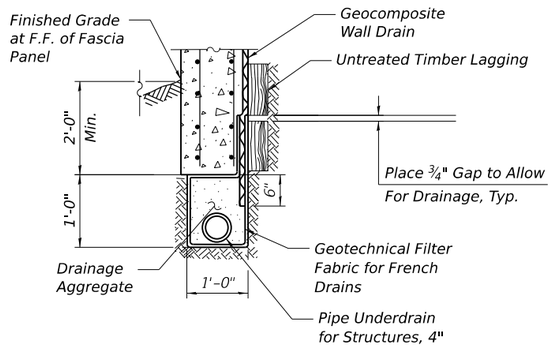
CONSTRUCTION JOINT DETAILS



EXPANSION JOINT DETAILS



PIPE UNDERDRAIN DETAIL AT SOLDIER PILE



PIPE UNDERDRAIN DETAIL BETWEEN SOLDIER PILES

*Pile section, spacing, tip elevation, shaft diameter and embedment into bedrock to be determined during final design.

DRILLED SOLDIER PILE WALL DETAILS
NORTHEAST RETAINING WALL
ALONG RIVER ROAD
F.A.I. RTE. I-80
SECTION 2021-151-B
WILL COUNTY
STA. 22+50.00 TO STA.25+66.42
STRUCTURE NO. 099-W805

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HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - SK, JJS	REVISED -	
	CHECKED - MI, JJS	REVISED -	
PLOT SCALE =	DRAWN - EBK, SK	REVISED -	
PLOT DATE =	CHECKED - MI, JJS	REVISED -	

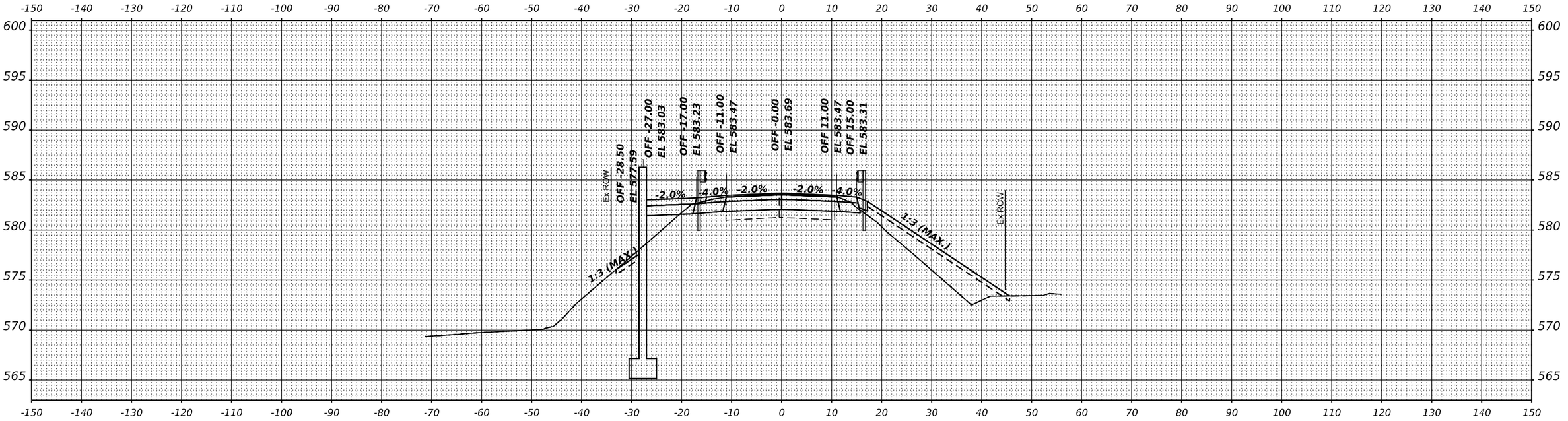
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 3 OF 3 SHEETS

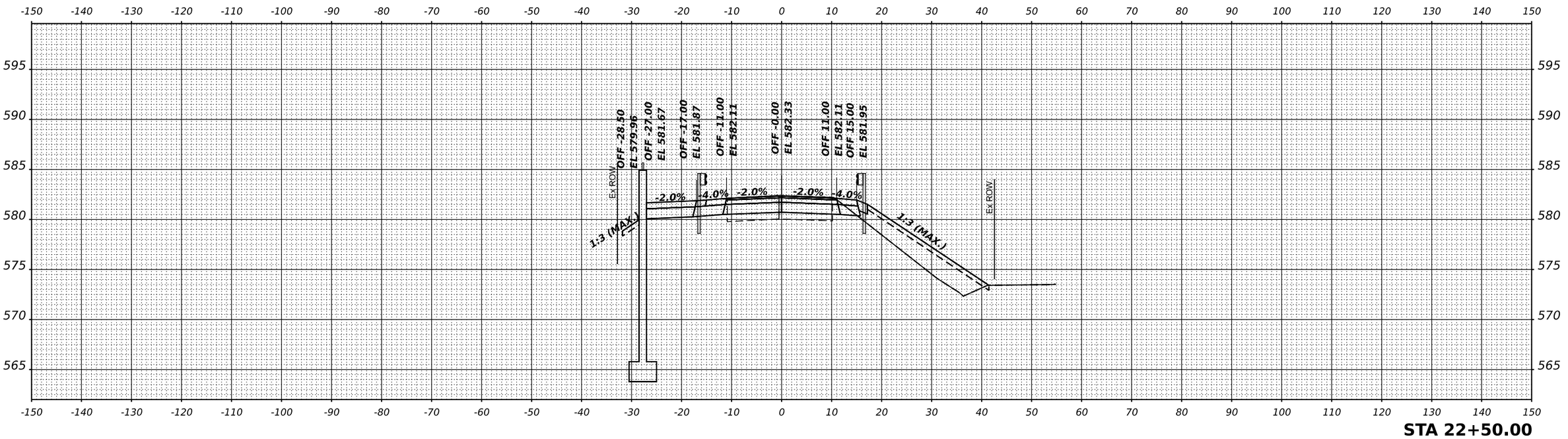
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	2021-151-B	WILL	3	3
		CONTRACT NO. 62P67		
		ILLINOIS	FED. AID PROJECT	

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

APPENDIX F



STA 22+75.00



STA 22+50.00

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	PLOTTED		
NOTE BOOK	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		

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

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PLOT DATE = 11/12/2021	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.
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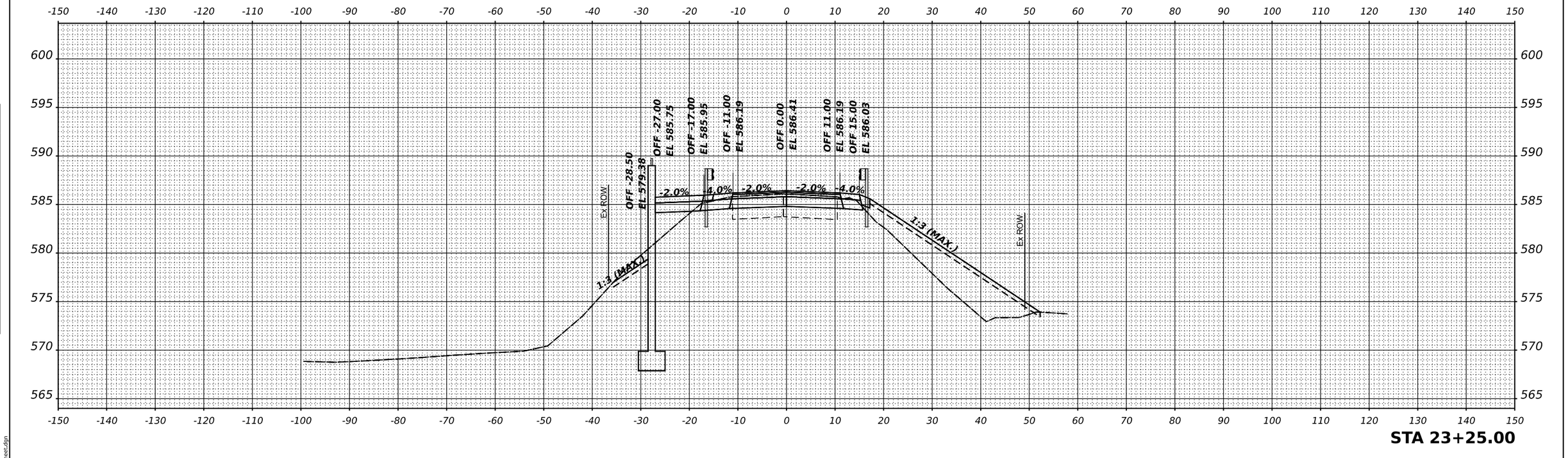
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		



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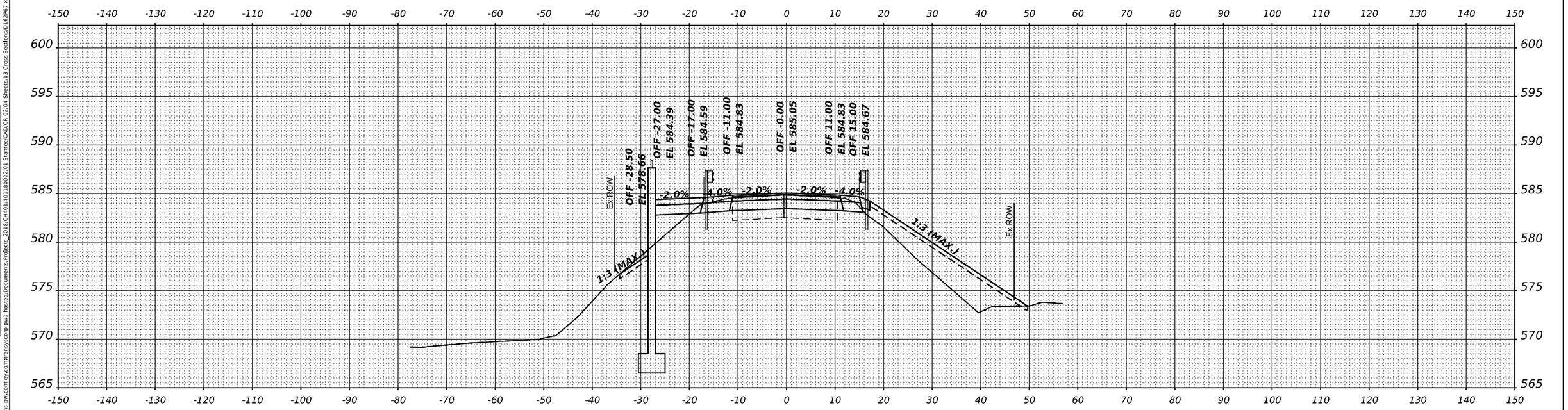

STA 23+00.00

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

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

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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	2021-151-B	WILL	48	44
		CONTRACT NO. 62P67		
		ILLINOIS	FED. AID PROJECT	

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

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NOTE BOOK	SURVEYED		
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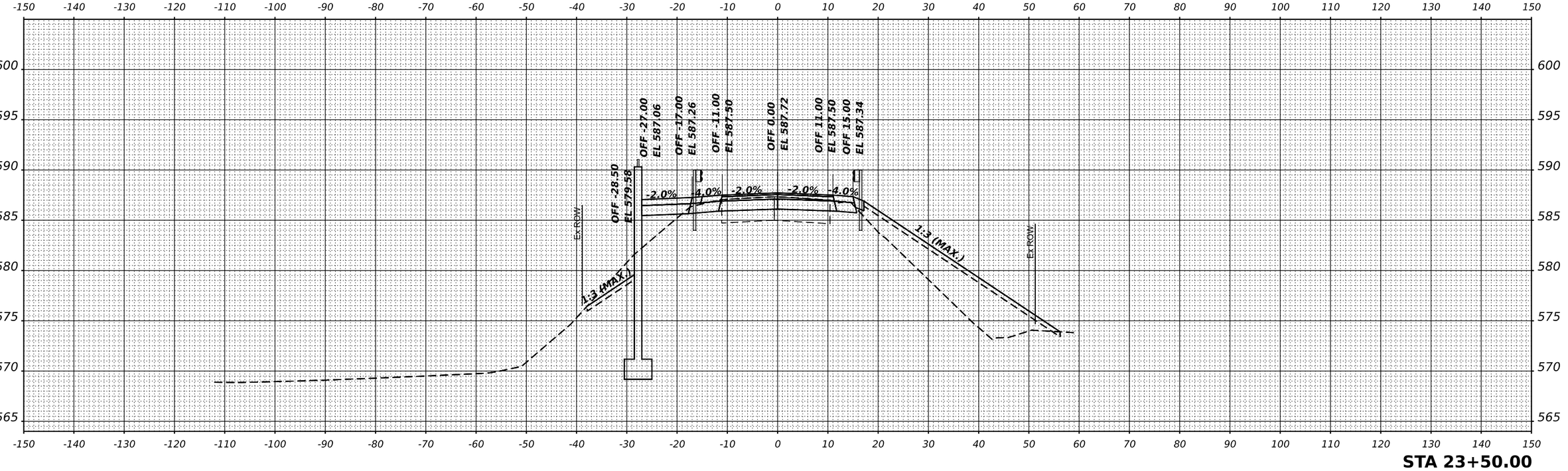
	AREAS		
	AREAS CHECKED		



STA 23+50.00

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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	2021-151-B	WILL	48	45
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

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

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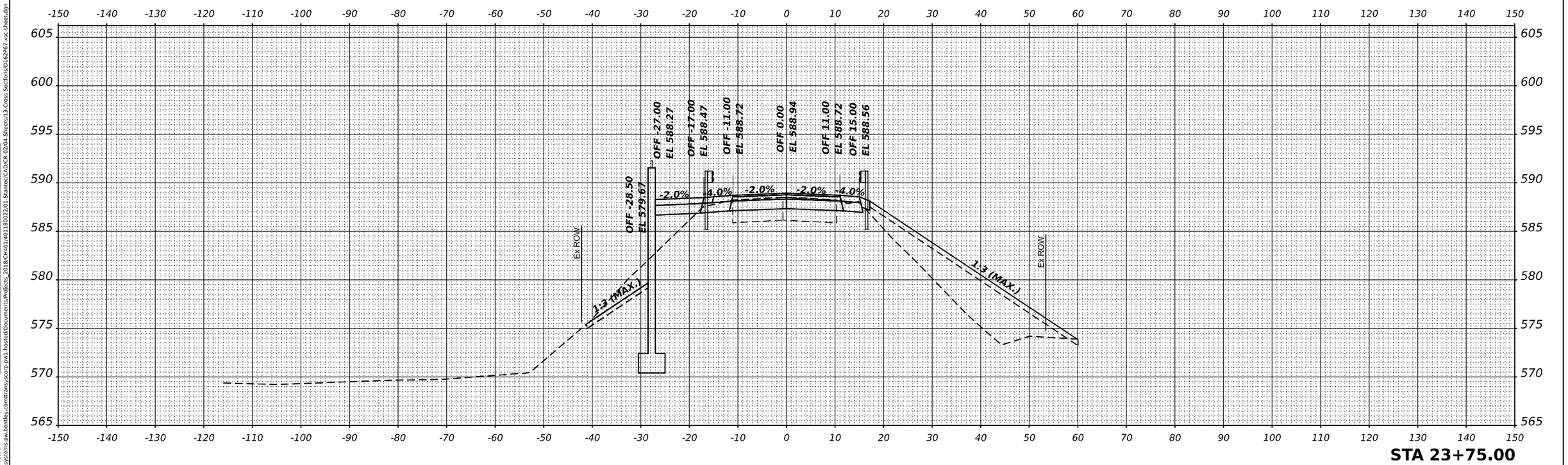
	SURVEYED		
	PLOTTED		
NOTE BOOK	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		



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PLOT DATE = 11/12/2021	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	2021-151-B	WILL	48	46
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
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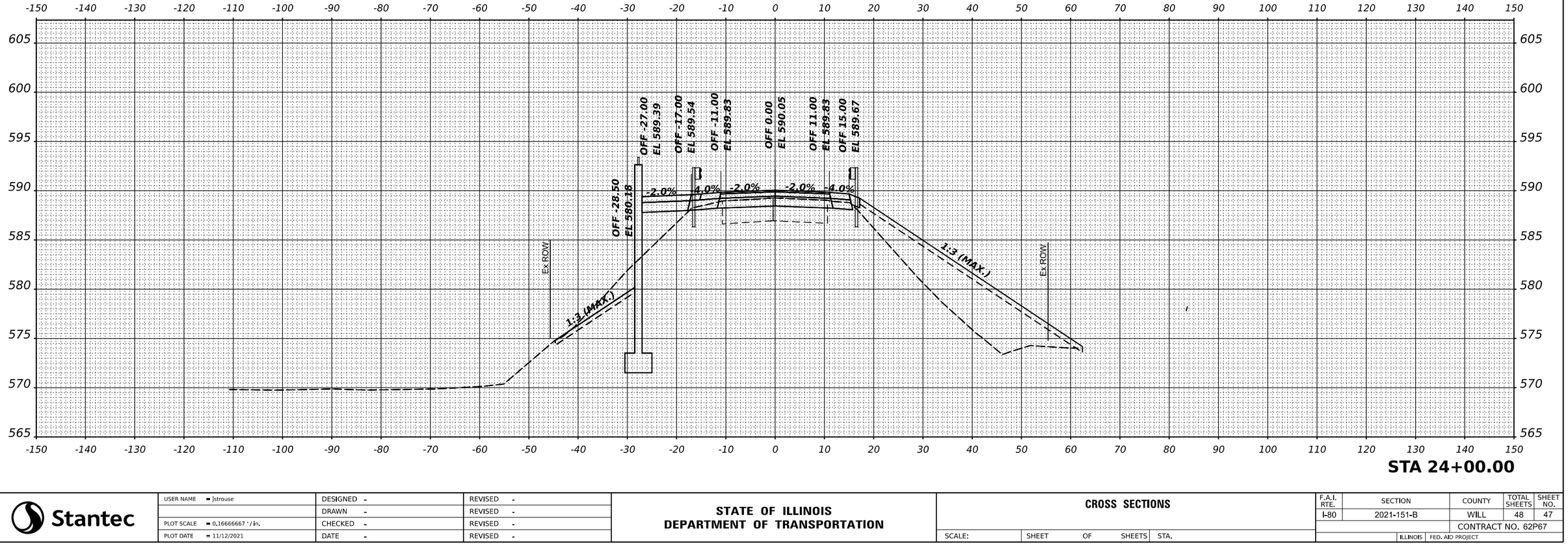

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PLOT DATE = 11/12/2021	DATE -	REVISED -	

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	2021-151-B	WILL	48	47
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

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NOTE BOOK	SURVEYED		
NO.	PLOTTED		
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	AREAS		
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NOTE BOOK	SURVEYED		
NO.	PLOTTED		
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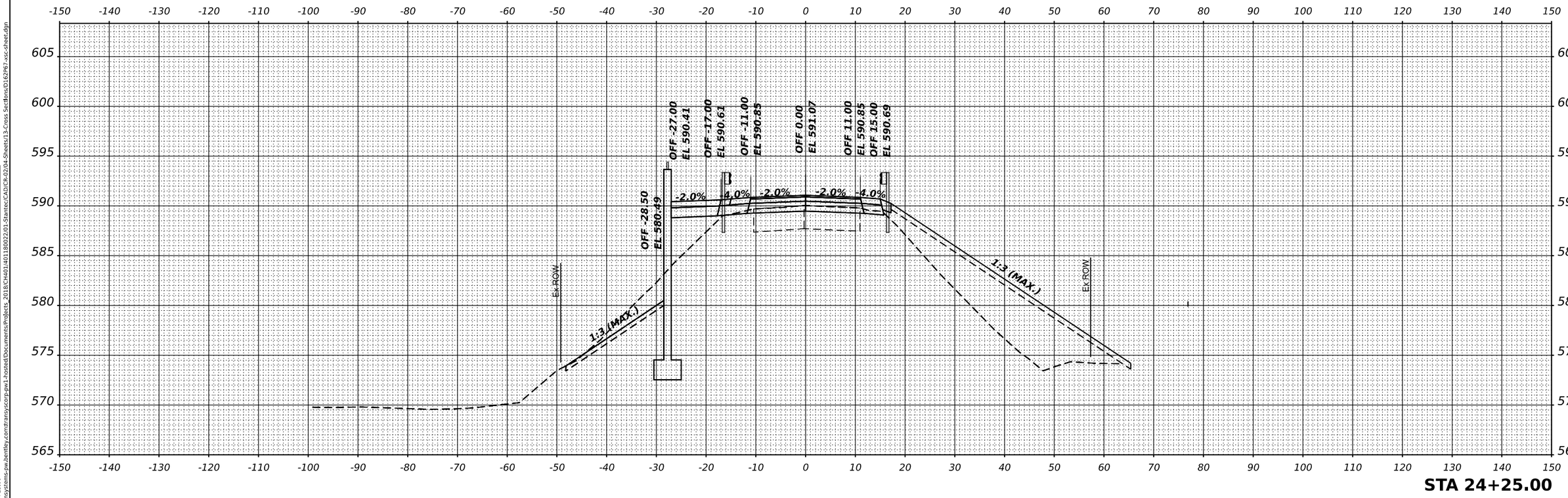
	AREAS CHECKED		



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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	2021-151-B	WILL	48	48
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

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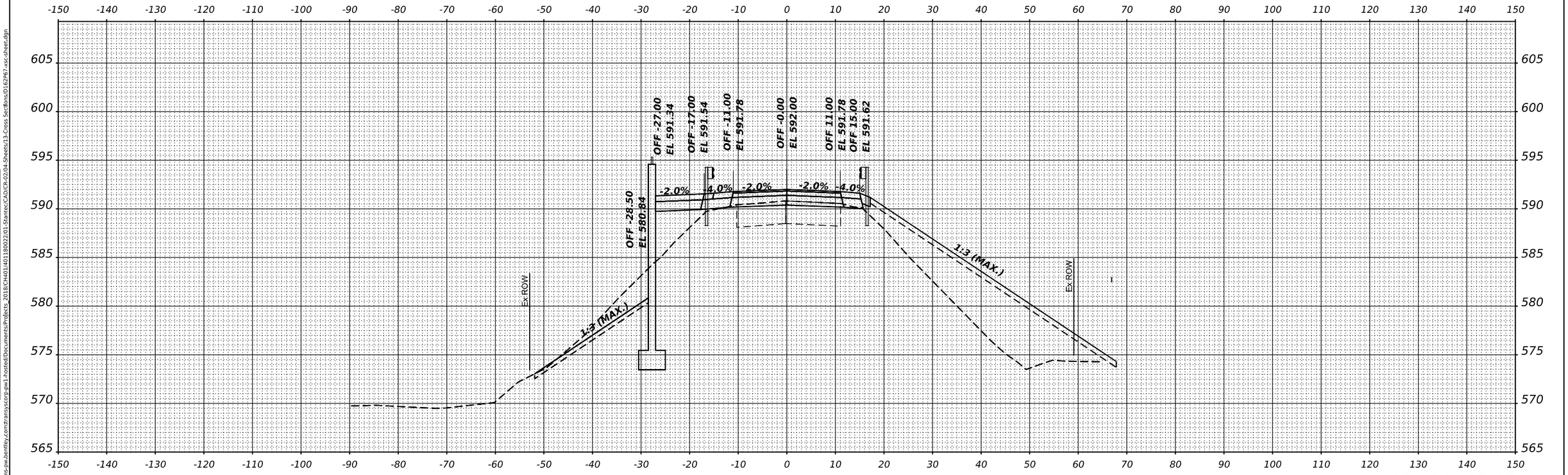

STA 24+50.00

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

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PLOT DATE = 11/12/2021	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	2021-151-B	WILL	48	49
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY		BY	DATE
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	TEMPLATE		
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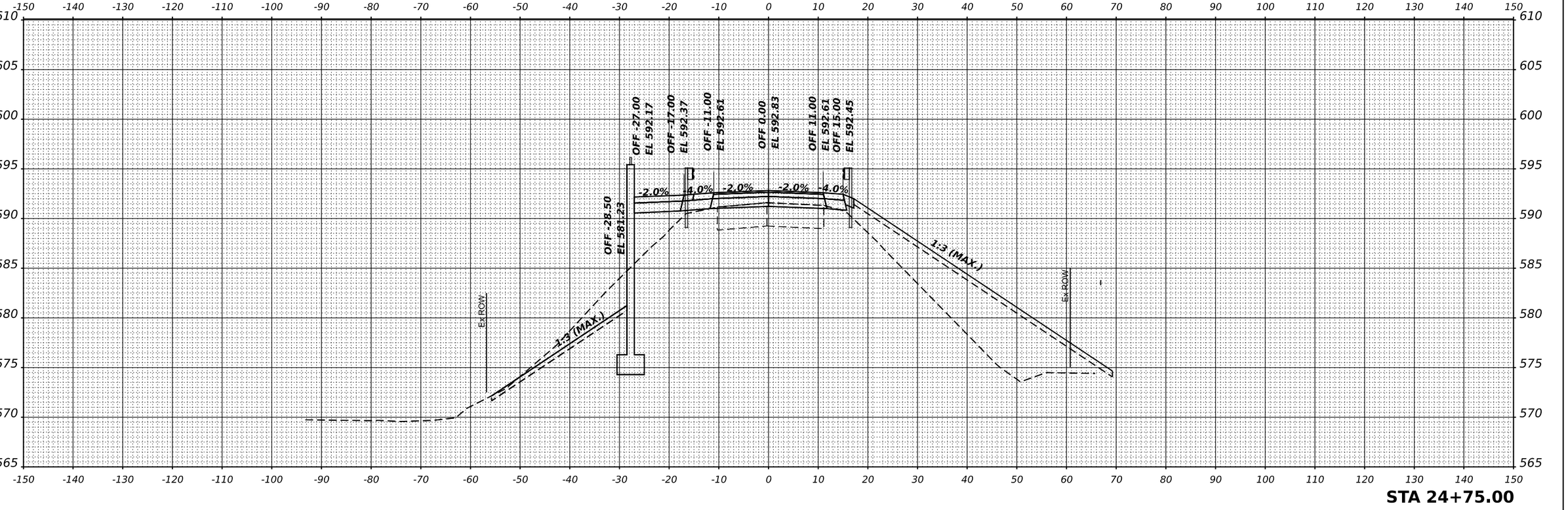

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PLOT DATE = 11/12/2021	DATE -	REVISED -	

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	2021-151-B	WILL	48	50
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY		BY	DATE
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NOTE BOOK	TEMPLATE		
	AREAS		
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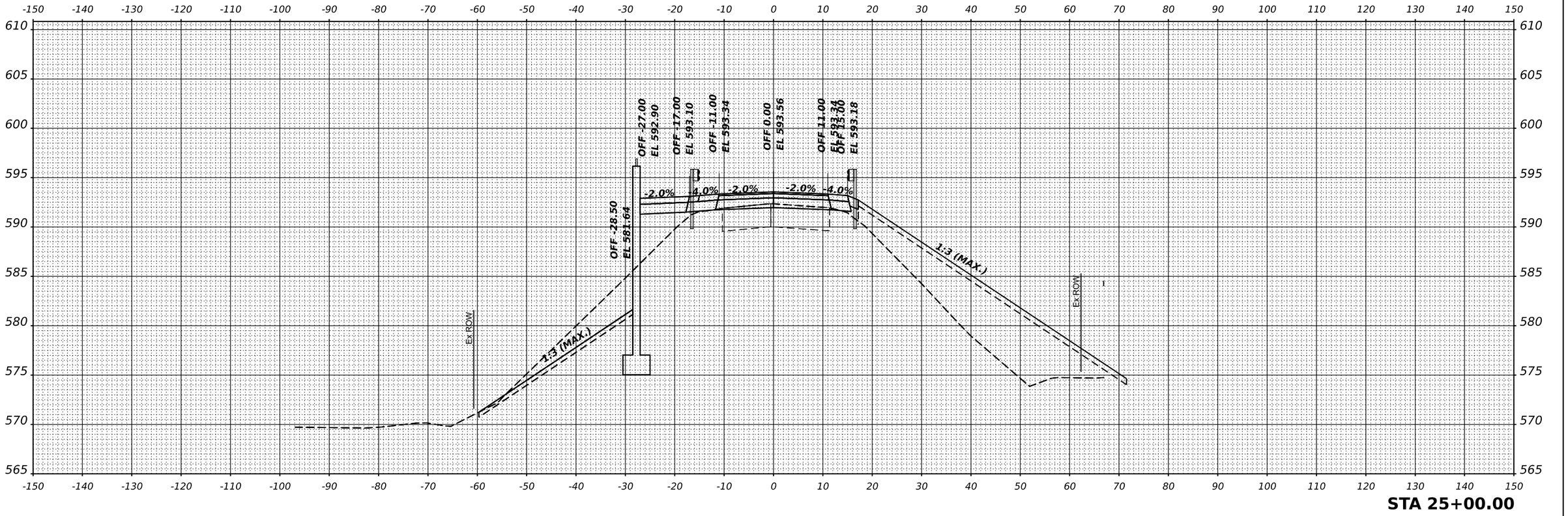

STA 25+00.00

ORIGINAL SURVEY		BY	DATE
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NOTE BOOK	TEMPLATE		
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PLOT DATE = 11/12/2021	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	2021-151-B	WILL	48	51
		CONTRACT NO. 62P67		
		ILLINOIS	FED. AID PROJECT	

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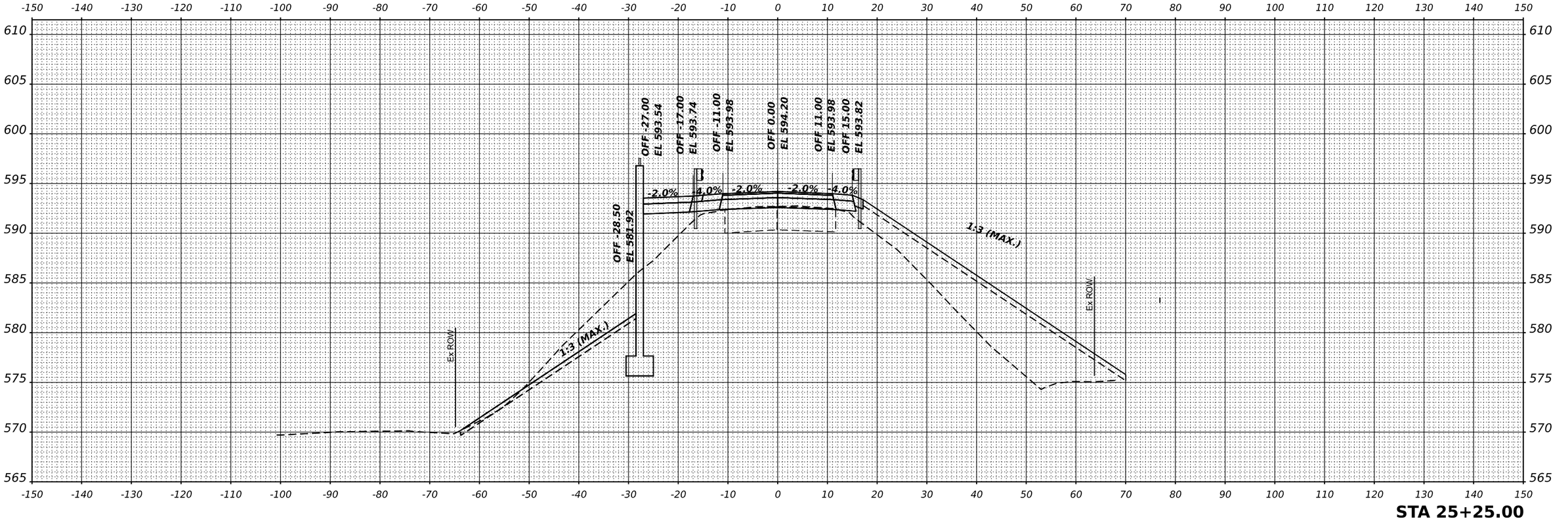
	PLOTTED		
NOTE BOOK	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		



STA 25+25.00

ORIGINAL SURVEY		BY	DATE
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NOTE BOOK	TEMPLATE		
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NO.	AREAS CHECKED		

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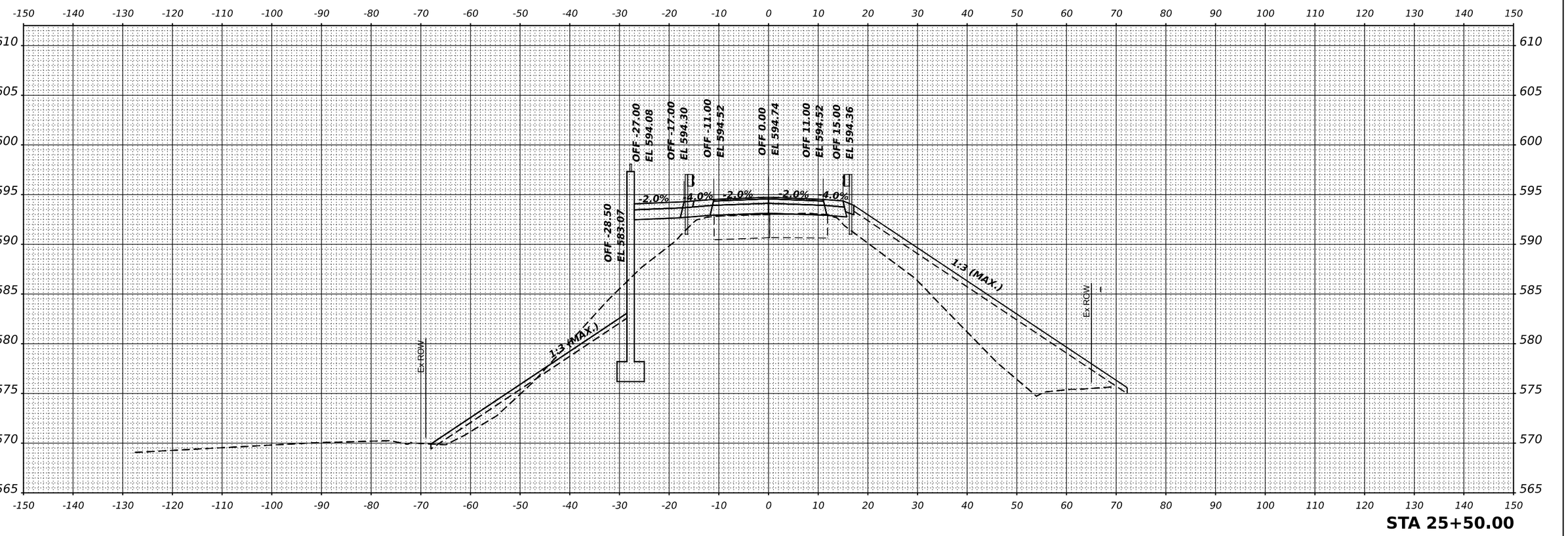
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-80	2021-151-B	WILL	48	52
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		

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



STA 25+50.00

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

MODEL: PrCLRR - 25+50.00
FILE NAME: pw://transystems-pw.bentley.com:transyscorp-pw1-hosted/Documents/Projects 2018/CH401/401180022/01-Stantec/CAD/CR-02/04-Sheets/13-Cross Sections/D1626P67-xscr-sheet.dgn

Stantec

USER NAME = jstrouse	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 0.16666667 ' / in.	CHECKED -	REVISED -
PLOT DATE = 11/12/2021	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	2021-151-B	WILL	48	53
		CONTRACT NO. 62P67		
	ILLINOIS	FED. AID PROJECT		