STRUCTURE GEOTECHNICAL REPORT

Interstate 55 Bridge over Lemont Road

Proposed Structure No. 022-2036

IDOT P-91-762-10, PTB 188-002

Contract Number 62G39

DuPage County, Illinois

Prepared for:

T.Y. Lin International 200 South Wacker Drive Suite 1400 Chicago, Illinois 60606

Prepared by:

Geo Services, Inc. 805 Amherst Court Suite 204 Naperville, Illinois 60565 (630) 305-9186

GSI Project No. 18080

April 17, 2020





April 17, 2020 April 2, 2020 Draft: January 24, 2020

T.Y. Lin International 200 South Wacker Drive, Suite 1400 Chicago, IL. 60606

Attn: Ms. Lynn Stock, P.E., S.E. Principal Structural Engineer

Job No. 18080

Re: Structure Geotechnical Report Interstate 55 Bridge over Lemont Road Existing Structure Number 022-0001 IDOT P-91-762-10, PTB 188-002, Contract 62G39 DuPage County, Illinois

Dear Ms. Stock:

The following report presents the geotechnical analysis and recommendations for the construction of the proposed I-55 bridge structure over Lemont Road, DuPage County, Illinois. A total of twelve (12) structure borings (BSB-01 thru BSB-12) were completed at the site by Geo Services, Inc. (GSI). Copies of these boring logs, along with soil profiles are included in this report.

If there are any questions regarding the information submitted herein, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, Inc.

Richard Realeza Project Manager <u>richard@geoservicesinc.net</u>

John Htt

Andrew Ptak, P.E. Principal Engineer <u>drew@geoservicesinc.net</u>

TABLE OF CONTENTS

SECTION 01: INTRODUCTION2
SECTION 02: PROJECT DESCRIPTION2
SECTION 03: SUBSURFACE INVESTIGATION PROCEDURES
SECTION 04: LAB TESTING PROGRAM
SECTION 05: SUBSURFACE CONDITIONS4
SECTION 06: WATER TABLE CONDITIONS5
<u>SECTION 07: ANALYSES5</u> Seismic Analysis5
Seismic Analysis
Settlement Analysis6
Slope Stability Analysis6
SECTION 08: FOUNDATION RECOMMENDATIONS
Deep Foundation Pile Capacity Recommendations
Approach Slab Recommendations8
Wrap-around MSE Retaining Wall Recommendations
Lateral Soil Resistance Recommendations9
SECTION 09: CONSTRUCTION CONSIDERATIONS
SECTION 10: GENERAL QUALIFICATIONS 12

APPENDIX A – General Notes APPENDIX B – Boring Location Site, Plan & Profiles APPENDIX C – Boring Logs APPENDIX D – Pile Capacity Tables APPENDIX E – TS&L APPENDIX F – Disposition of Comments

SECTION 01: INTRODUCTION

This report presents the results of the geotechnical investigation for the construction of the proposed bridge structures along I-55 over Lemont Road, Municipality of Darien, DuPage County, Illinois. Approximate limits of the bridge are from Station 276+00 to 280+75 along F.A.I. Interstate 55 alignment, and width limits of approximately 197'-9" out-to-out. The results of the twelve (12) structure borings (BSB-01 thru BSB-12) were completed by Geo Services are included with this report. This report includes recommendations pertaining to the design and construction of the bridge foundations, a description of soil and groundwater conditions, general construction considerations for the site, boring diagrams, soil profile and boring logs.

SECTION 02: PROJECT DESCRIPTION

The existing bridge structure (SN 022-0001) was originally built in 1959 as FAI Route 55 (US 66) over Downers Grove Road (SA Route 9) under Project I-03-6(9), Section 22-2HB-1. The original construction utilized two parallel (carrying northbound and southbound traffic) 4-span precast prestressed concrete (PPC) I-beam structure. The abutment substructures are supported by cast-in-place reinforced concrete stub abutments. The piers, wingwalls and approach slabs are supported on creosoted timber piles. The length of the spans varied from approximately 49'-4" in Spans 1 and 4 to approximately 76'-6" in Spans 2 and 3 with a total structure length of approximately 258'-2" from back-to-back abutments. The bridge structure was later on rehabilitated and widened under Contract 32310, Project I-IR-FI-55-6(124)264, Section (22,29) R-4, in 1976, and under Contract 82453, Project NHI-55-6(197)270, Section 22-2HB-1 in 1995.

Per discussion with the bridge designer (TY Lin), it is planned that the existing structures will be removed, replaced, and widened to provide additional shoulder lanes. The proposed bridge will be using a 2-span bridge structure with integral abutments with a wrap-around MSE wall. The integral abutment piles will be encased through the MSE wall. Bottom of the MSE wall will be approximate elevation 751 feet (both west and east abutments). Preliminary service and factored loads were provided by the bridge designer, and are bulleted below:

For the Abutments:

- West Abutment DL = 7.9 k/ft (service), 10.5 k/ft (factored)
- West Abutment LL = 13.1 k/ft (service), 23 k/ft (factored)
- East Abutment DL = 6 k/ft (service), 8 k/ft (factored)
- East Abutment LL = 12.5 k/ft (service), 22 k/ft (factored)

For the Median Pier:

- DL = 23.5 k/ft (service), 31 k/ft (factored)
- LL = 22.1 k/ft (service), 39 k/ft (factored)

For the purposes of this report, we are using the information provided in the latest TS&L drawings, where the pile driving elevations at the abutments to be at the proposed bottom of the MSE wall (elevations ranging from 751 to 753 feet at the abutments), and at the median pier at the proposed bottom of the pier cap elevation at approximate elevation 751.4 feet.

Table 1 next page lists the corresponding borings used for analysis at the substructure areas.

Substructure	Corresponding Borings
West Approach Slab	BSB-01, BSB-02 and BSB-03
West Abutment	BSB-02, BSB-04 and BSB-05
Median Pier	BSB-06 to BSB-07
East Abutment	BSB-08, BSB-09, and BSB-11
East Approach Slab	BSB-10, BSB-11, and BSB-12

Table 1 – Corresponding Borings at Substructure Areas

SECTION 03: SUBSURFACE INVESTIGATION PROCEDURES

Boring locations were approved by the T.Y. Lin, and were laid out in the field by Geo Services, Inc. (GSI) personnel at the proposed locations. As-staked boring coordinates (northing/eastings) and elevations were taken from the field using a Trimble GeoExplorer surveying device. In addition to the survey elevation shots taken in the field, topographic information provided by T.Y. Lin was also used to correlate in the elevation estimation. Estimated elevations of the as-drilled borings can be seen on the logs.

The borings were performed during the months of December, 2019 through February, 2020 with either a truck-mounted or ATV drilling rig and were advanced by means of hollow stem augers and rotary drilling techniques. Representative soil samples were obtained employing split spoon sampling procedures in accordance with AASHTO Method T-206. Samples obtained in the field were returned to our laboratory for further examination and testing.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. Blow counts are recorded at 6" intervals and are shown on the boring logs. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The N value is an indication of the relative density of the soil.

All split-spoon samples obtained from the drilling operation were visually classified in the field. Cohesive samples were tested for unconfined compressive strength using an IDOT modified RIMAC test device and/or calibrated penetrometer in the field.

SECTION 04: LAB TESTING PROGRAM

The test procedures were performed in accordance with test procedures discussed in the IDOT Geotechnical Manual and ISHTA Geotechnical Manual. The soil testing program included performing water content, density and either unconfined compression and/or calibrated penetrometer tests on the cohesive samples recovered. Water content tests were performed on the non-cohesive samples recovered. The results of the above testing, along with a visual classification of the material based upon both the Illinois Division of Highways textural classification and the AASHTO Soil Classification System, are indicated on the boring logs.

SECTION 05: SUBSURFACE CONDITIONS

For specific boring information, soil profiles are provided in Appendix B and the individual boring logs are located in Appendix C. Below is a summary of soil conditions found in the borings.

At the West Abutment section of the existing bridge (at borings BSB-01 thru BSB-05), surficial materials indicated 6 to 12 inches of asphalt at BSB-02, 6 inches of topsoil at BSB-03, and 6 inches of crushed stone. Underlying the surficial materials were fill soils from near ground surface elevation (at approximate elevation 773 feet) to approximate elevation 760 feet. Below the fill soils, the boring typically indicated mainly stiff to hard clay to clay loam soils to boring termination at approximate elevation 650 feet at BSB-01 thru BSB-03, and approximate elevation 623 feet at BSB-04 and BSB-05. Note that cobbles/boulders were also encountered at boring BSB-02 at elevations 663 to 665 feet, medium dense silt at boring BSB-03 at elevations 718 to 724 feet, and a strata of dense sand and gravel was encountered at elevations 716 to 721 feet, and very dense silty loam was encountered at elevations 623 to 626 feet at boring BSB-04.

At the Median Pier section of the existing bridge (at borings BSB-06 and BSB-07), surficial materials indicated 6 inches of asphalt with 6 inches of crushed stone. Underlying the surficial materials were mainly stiff to very stiff clay to clay loam soils to approximate elevation 725 feet, medium to dense loam, sand and gravel to approximate elevation and stiff to very stiff clay loam to approximate elevation 676 feet. It was noted that a 2.5-feet stratum of soft silty clay was also encountered at approximate elevation 728 feet. Soil profile then transitioned to medium dense loam to approximate elevation 666 feet and very stiff to hard clay to clay loam soils to boring termination at approximate elevation 653 feet.

At the East Abutment section of the existing bridge (at borings BSB-08 and BSB-12), surficial materials indicated 12 to 14 inches of asphalt with underlying sand, gravel and stone to approximate elevation 770 feet. Below the surficial materials were mainly stiff to hard clay to clay loam with occasional loose to very dense silty loam to sand and gravel soils to boring termination at approximate elevation 650 feet. A 2.5-foot layer of organic silty clay was also noted at boring BSB-11 at approximate elevation 760.5 feet.

SECTION 06: WATER TABLE CONDITIONS

During drilling operations, groundwater was only encountered in boring BSB-03 at approximate elevation 763 feet. Groundwater was not encountered in the remaining borings within the top 10 feet before switching to rotary drilling (wash method). However, considering coloration change of the soils from brown and gray to gray, we anticipate the long-term groundwater level in the area to be at approximate elevations 747 to 752 feet (about 23 to 25 feet below ground level from the top of expressway grade). Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending on variations in precipitation and surface runoff.

SECTION 07: ANALYSES

<u>Seismic Analysis</u>

According to the AASHTO LRFD Bridge Design Specification 2017, the project site has a horizontal Response Spectral Acceleration Coefficient of 0.038 (S₁, AASHTO Figure: 3.10.2.1-3) at a period of 1.0 second and 5% critical dampening and 0.101 (S_s, AASHTO Figure: 3.10.2.1-2) at a period of 0.2 seconds and 5% critical dampening for a Site Class C according to the soil conditions. This results in a Design Spectral Acceleration at 1.0 second = 0.064 (S_{D1}) and at 0.2 seconds = 0.121 (S_{Ds}). The project site is considered to be in a low seismic area. Liquefaction is not expected to impact the design of the new bridge. Table 2 contains a summary of the seismic data to be used for design:

Site Class	С
S _{D1}	0.064
S _{Ds}	0.121
Seismic Performance Zone	1

Table 2 – Seismic Data Summary	,
--------------------------------	---

Settlement Analysis

Majority of the proposed grades for the bridge abutments are estimated to be the same as the existing grade (if existing embankments are to be retained), with the exception of the widened areas and wrap-around MSE wall sections of the proposed bridge where approximately 20 feet of fill are to be placed to match the top of expressway grade. Using worst soil conditions at borings BSB-02 at the west abutment and BSB-11 at the east abutment, we calculate an overall settlement of less than 0.4 inch for the widened sections of the bridge abutments. Pile settlement is considered negligible. Settlement and downdrag concerns are not anticipated at the abutment and wrap-around MSE wall areas.

At the median pier, grade changes (if any) is expected to be minimal. The proposed bridge foundations at the piers are expected to use deep foundation elements; therefore, settlement is not expected to be a concern at the median pier.

Slope Stability Analysis

Wrap-around MSE retaining walls are proposed at the abutments and are to be designed to resist slope-stability failures for the widened embankments. Based on the preliminary TS&L drawings provided by the designer (T.Y. Lin), we have modeled the bottom of the MSE wall at elevation 751 feet to top of expressway grade at approximately 773 feet. Using this soil profile with worst-case soil conditions from BSB-02, and assuming undrained (short-term) and drained (long-term) soil strengths and exposed wall height of 20 feet, we calculate Factors of Safety (FOS) of 3.8 and 1.6 for undrained and drained conditions, respectively. The resultant FOS satisfies the FOS requirement for a fill embankment per IDOT requirements.

SECTION 08: FOUNDATION RECOMMENDATIONS

Deep Foundation Pile Capacity Recommendations

Based on the results of the borings and anticipated high loads, a deep foundation system consisting of driven piles may be considered for the support of the proposed substructures. The use of spread footings is not recommended for support of the bridge structures due to the anticipated high loads for the bridge structure. Although driven piles are feasible for support of the bridge piers, we anticipate that large pile caps are to be constructed.

The proposed bottom-of-pile cap elevations, estimated driving elevations, and estimated pile cut-off elevations for the abutments and at the piers (provided by T.Y. Lin) are shown below in Table 3 – Bottom of Pile Cap Foundation, Estimated Driving Elevations,

Estimated Pile Cut-off Elevations at Substructure Areas. Estimated Pile Capacities and Lengths Tables are shown in the Appendix D section of this report.

Table 3 – Bottom of Pile Cap Foundation, Estimated Driving Elevations, Estimated Pile Cut-off Elevations at Substructure Areas

Substructure	Bottom of Pile Cap Foundation Elevation (ft)	Estimated Pile Driving Elevation (ft)	Estimated Pile Cut-off Elevation (ft) ^{2,3}
West Abutment	766.3	751.7	768.3
Median Pier	751.4	751.4	753.4
East Abutment	766.3	753.4	768.3

Notes:

1. Piles at the abutments also applies to wingwalls.

2. Pile Cap Foundation and Estimated Pile Driving Elevations are estimated based on the TS&L information provided by the designer.

3. Estimated Pile Cut-off elevation is based on the bottom of the pile cap elevation plus 2.0-ft cap embedment at the abutments, and 1-ft cap embedment at the median pier.

Pile capacities and lengths were calculated to the piles' maximum Nominal Required Bearing (NRB) for HP10x42, HP12X53, HP12x63, HP14X73, HP14X89, 12-inch Metal Shell Piles, and 14-inch Metal Shell Piles as prescribed by IDOT for drivability. High blow-count soils were encountered in the borings at about elevation 670 feet and below; the use of pile shoes considered necessary for the HP piles only as most "N" values exceeded a value 50 blows per 12 inches and at cobbles/boulders (noted at boring BSB-02) that were indicated in the boring logs.

As per the IDOT Design Guide AGMU Memo 10.2, dated October 2011, the Washington State DOT (WSDOT) formula has replaced the FHWA Gates Formula as the standard method of construction verification. A modified IDOT static method was used to develop the SGR pile design tables. Nominal required bearing was calculated from LRFD skin-friction (with pile type correction factors) and end-bearing calculations. A value of 1.04 is used for Bias Factor Ratio (I_G). A geotechnical resistance factor (Φ_G) of 0.55 was used in calculations for the Strength Limit State and a geotechnical resistance factor (Φ_G) of 1.0 was used for the Extreme Limit State (essentially the NRB = Extreme Limit State).

The estimated pile driving elevation used is the approximate ground surface elevation along the substructure. For the abutments, skin friction values are anticipated to start at the bottom elevation of the MSE retaining walls excavation (where the pile sleeves are assumed to terminate) near elevation of 752 feet, and pile cutoff is anticipated around elevation 768 feet (see Table 3). Considering this, friction values along the pile length within the pile sleeves from pile cutoff to elevation 766 feet is assumed to be zero. Skin

friction value at the median pier is anticipated to start at the base of pile cap at approximate elevation 751 feet.

We estimate that the piles will compress/settle less than $\frac{1}{2}$ inch at the maximum strength limit state, excluding elastic compression of the pile itself.

The pile tables, provided in Appendix D, are estimates, and test piles should be used for final pile length selections. We recommend that a minimum of one test pile be performed at each substructure unit. The piles should be driven until satisfactory driving resistance is developed in accordance with an appropriate pile driving formula. The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information. The pile size and capacity selected should be based on economic considerations and the loads imposed on the structures.

Approach Slab Recommendations

The approach slab will be supported on spread footing foundation system as shown in the TS&L drawings. The approach embankment and slab foundation will be supported on either new or existing embankment fill. We recommend using an assumed CBR of 2.0 for the compacted, fill for the embankment. Shallow footing for the new approach slab should be designed for a factored bearing resistance of 2,000 pounds per square foot. The new fill should be compacted per IDOT specifications for earth embankment. Any organics or soft, yielding subgrade (if any) should be removed prior to new fill placement. A qualified geotechnical engineer should observe the subgrade prior to any base course is placed. We estimate settlement of ½ inch or less for the approach slab.

Wrap-around MSE Retaining Wall Recommendations

Wrap-around MSE Retaining walls are proposed at the west abutment and east abutment to accommodate the geometry of the bridge and the spatial requirements of I-55 bridge widening. MSE walls will be approximately 20 feet high, and are considered fill walls.

At the widened portions of the bridge embankments at the abutments, we recommend that the piles be sleeved through the entire MSE fill (from bottom of MSE wall leveling pad at approximate elevation 751 feet to pile cut-off elevation estimated at 772 feet) due to the approximately 20-feet of proposed fill. An experienced engineer should oversee the driving of the piles as to not damage piles on/through the very dense granular soils on the deeper strata below approximate elevation 675 feet and below. Pile shoes are recommended on all of the H-piles when driving below approximate elevation 675 feet.

Per the Settlement Analysis section of this report, with the soil conditions at the abutments, and about 20 feet of fill soils at the widened areas, settlement at the proposed abutments is calculated to be less than 0.4 inch. In addition, the retaining wall global stability meets the minimum required factors of safety as discussed in the Slope Stability section of this report.

Lateral Soil Resistance Recommendations

For design of the lateral forces on piles, the following tables may be used for design of the deep foundation system or temporary earth retaining systems.

Table 4 – West Abutment Lateral Soil Properties (Borings BSB-01 thru BSB-05)

Material (elevation, feet)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci) ¹	Strain ¹
Clay Loam with Stone FILL (774 to 760)	120	28	1,000	300	0.007
Stiff to Very Stiff Silty Clay to Clay Loam (760 to 691)	125	28	2,500	1,000	0.006
Very Stiff to Hard Clay to Clay Loam (691 to 656) ²	125	32	3,500	1,500	0.005
Very Dense Silty Loam (656 to 653)	130	32	n/a	125	-

Notes: 1. Values recommended for use in design from L-pile Software Manual

2. A 2-ft strata of cobbles and boulders encountered at boring BSB-02 at approximate elevation 665 feet.

Table 5 – Median Pier Lateral Soil Properties (Boring BSB-06 to BSB-07)

Material (elevation, feet)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci) ¹	Strain ¹
Stiff to Very Stiff Clay to Clay Loam (753 to 725)	125	28	1,500	500	0.006
Medium Dense to Dense Loam, Sand and Gravel (725 to 711)	125	28	n/a	125	-
Stiff to Very Stiff Clay to Clay Loam (711 to 676)	125	28	2,500	1,000	0.006
Dense Loam (676 to 666)	130	28	n/a	125	-
Very Stiff to Hard Clay to Clay Loam (666 to 653)	125	32	4,500	1,800	0.005

Note: 1. Values recommended for use in design from L-pile Software Manual

Table 6 - East Abutment Lateral Soil Properties(Borings BSB-08 thru BSB-12)

Material (elevation, feet)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci) ¹	Strain ¹
Silty Clay to Clay Loam (773 to 760)	120	26	1,000	300	0.007
Loose to Medium Dense Sand and Gravel (760 to 755) ²	125	28	n/a	50	-
Organic Silty Clay ³ (760 to 758)	80	10	-	5	0.022
Stiff to Very Stiff Clay to Clay Loam (755 to 676)	125	30	1,600	500	0.007
Very Stiff to Hard Clay to Clay Loam (676 to 671)	125	32	4,500	1,800	0.005
Very Dense Silt, Sand and Gravel (671 to 661)	130	32	n/a	125	-
Hard Clay Loam (661 to 653)	125	32	4,500	1,800	0.005

Notes: 1. Values recommended for use in design from L-pile Software Manual.

2. Encountered at boring BSB-10.

3. Encountered at boring BSB-11.

For temporary or permanent earth retention systems, allowances should be made for surcharge loads adjacent to the retaining structure (if any). Proper drainage should be provided behind the walls. For the long-term active case (permanent case), cohesion in the clay layers should be ignored and the effective stress condition (drained friction angle) should be used. For the long-term passive case, the undrained cohesion should be used at undisturbed depths below the frost line (greater than 4 feet below the ground line).

For the properties/values of new backfill areas, we recommend the design team use these typical backfill parameters for design.

Material	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci)	Strain
New Fill Clay	120	26	1,000	230	0.009
Aggregate Stone Fill	120	32	-	90	-

Table 7 – New Fill Soil Properties

SECTION 09: CONSTRUCTION CONSIDERATIONS

It is proposed that the I-55 mainline be built in staged construction, and embankment will need to be temporarily retained at the abutments. It is anticipated that wall heights may be about 20 feet tall, and sporadic very stiff to hard clay soils (+4.5 tsf, according to the boring logs) will be encountered in the embankment. IDOT temporary sheet pile wall design tables may be used for temporary soil retention where the retained heights are less than 20 feet and hard clay soils (+4.5 tsf, according to the boring logs) are not encountered in the embankment. Soil properties provided in **Section 08: Recommendations** may be used for temporary soil retention wall design.

At the abutments and piers, the concrete and timber piles (at the abutments and piers, respectively) should be spaced to miss any footings, or the piles will need to be cored through.

During excavation for the proposed improvements, movement of adjacent soils into the excavation should be prevented. For design purposes, the designer may use a 1.5H:1V or flatter slope above the water table for temporary slopes; however, excavations slopes is the responsibility of the contractor and should be performed in accordance with the latest Occupational Safety and Health Administration (OSHA) requirements. Allowances should be made for surcharge loads adjacent to the retaining structures.

SECTION 10: GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

APPENDIX A

GENERAL NOTES

GENERAL NOTES

CLASSIFICATION

American Association of State Highway & Transportation Officials (AASHTO) System used for soil classification.

Cohesionless Soils

Relative

Density

Loose

Dense Very Dense

Very Loose

TERMINOLOGY

Streaks are considered to be paper thick. **Lenses** are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

Cohesive Soils

Medium Dense

<u>Consistency</u>	Unconfined Compressive Strength - qu (tsf)
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

No. of Blows

per foot N

0 to 4

4 to 10

10 to 30 30 to 50

Over 50

DRILLING AND SAMPLING SYMBOLS

SS:	Split Spoon 1-3/8" I.D., 2" O.D.
cт۰	Shalby Tube 2" O.D. execut where note

- ST: Shelby Tube 2" O.D., except where noted
- AS: Auger Sample
- DB: Diamond Bit NX: BX: AX
- CB: Carboloy Bit NX: BX: AX
- OS: Osterberg Sampler

WS:	Wash Sample
FT:	Fish Tail
RB:	Rock Bit
WO:	Wash Out

Housel Sampler

HS:

Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

WATER LEVEL MEASUREMENT SYMBOLS

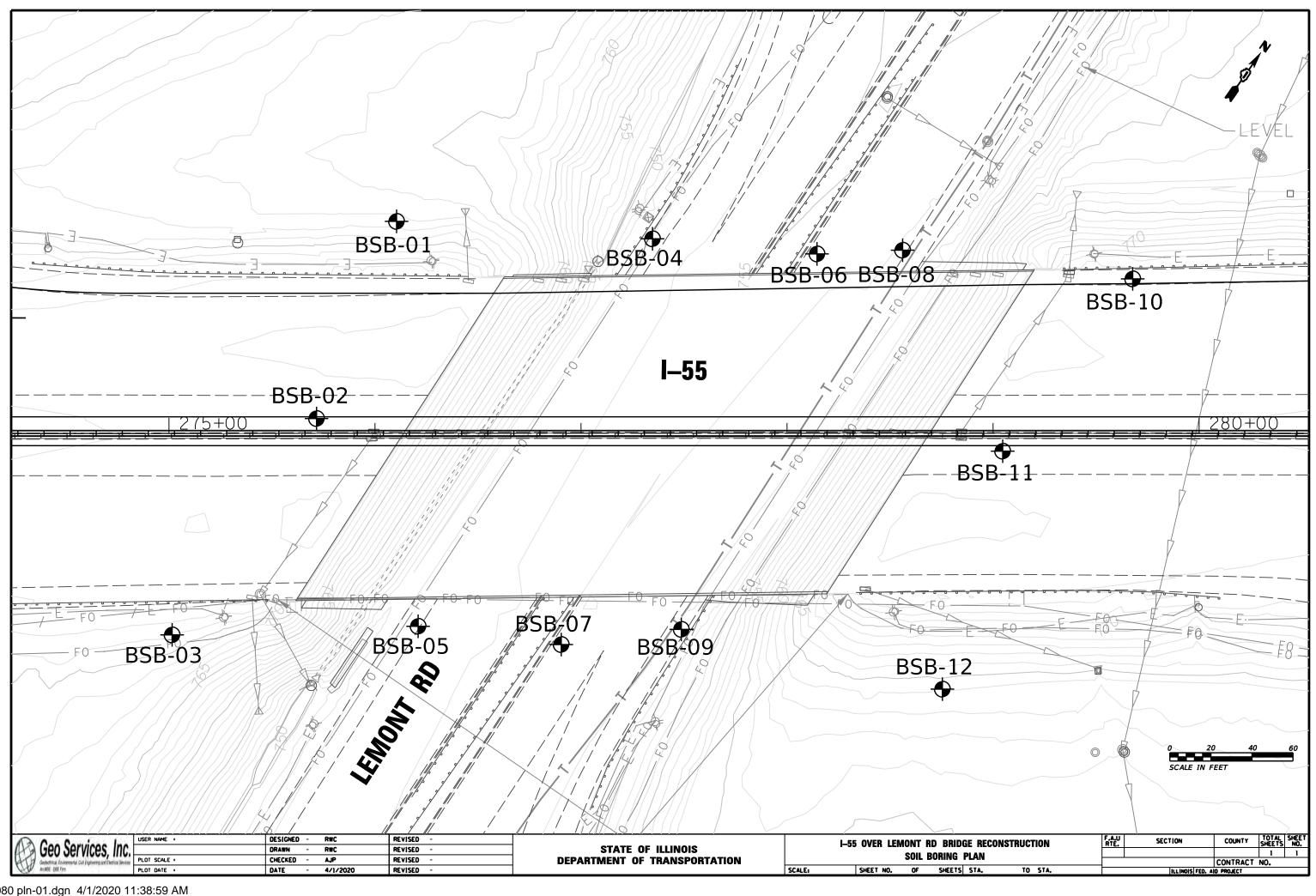
WL:	Water	WD:	While Drilling
WCI:	Wet Cave In	BCR:	Before Casing Removal
DCI:	Dry Cave In	ACR:	After Casing Removal
WS:	While sampling	AB:	After Boring

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

APPENDIX B

BORING LOCATION SITE, PLAN AND PROFILES





.\Profiles\18080 pln-01.dgn 4/1/2020 11:38:59 AM

Geo Se	I CHETERINATE AND A CHETERINA CHETER	DRAWN	- RWC REVISED - - RWC REVISED - - AJP REVISED -	STATE 0	F ILLINOIS TRANSPORTATION	I-55 OVER LEMONT RD BRIDGE REG SOIL BORING PROFILE	ONSTRUCTIO	N F.A.U RTE.	SECTION	COUNTY TOTAL SHEE SHEETS NO. 1 1
	275+00		276+00	277+00		278+00 279	00		280+00	
690	63 4.5	P 20 SILTY CLAY				SILTY CLAY LOAM		CLAY LOAM		690
600				41 CLAY LOAM	4.5P 16			CLAYEY SAND 3"	14	600
695	41	21	21 1.5P 19				2.0P 15	CLAYEY SAND		695
			9 1.5P 19	19	18		2.0P 11	22	1.5P 20	
700	39 3.5									700
705	CLAY LOAM 40 2.0	P 13 2	4 4.0P 13	21	2.0P 15	2	2.8P 18	30	2.3P 15	705
		2	5 12		2.0P 14	2	3.5P 14	19	2.0P 15	
710		P 14		SILTY CLAY	2.5P 13		2,5P 14	29	1.0P 20	710
715	SILTY CLAY 21 1.5	CLAY LOAM	4 4.0P 13					CLAY LOAM		715
	SILT 15	23	2 10	SIL TY SAND 39	2.5P 10		2.5P 11	26	2.0P 12	
720		23	21 1.0B 24	20	2.5P 16		1.5P 15	17	1.3P 14	720
725	15 1.56				1.28 22					725
730	13 1.3	5 26	2 0.9B 21	CLAY 15	2.0P 21	2	2.5P 20	19	1.5B 21	730
720	CLAY	1		15	1.5P 22 2.0P 21		2.0P 19	15	1.4B 23	700
735		3 22 CLAY			2.0P 15					735
740	18 1.8	2	2 1.0P 22		2.0P 16		2,5P 23	CLAY 17	2.0P 26	740
740	18 2.5	P 15	9 2.5P 13		2.0B 15 2.6B 14	2	3.0P 15	21	1.8P 21	740
745	15 1.6	3 17 2		CLAY LOAM 13	2.5P 15	CLAY LOAM	NR		1.8B 16	745
100	50/2"	23	0 2.5P 15	16	2.58 14		2.5P 16		1.8B 16	100
750	18 2.0	P 18 CLAY LOAM	8 2.0P 18 2 3.5P 14			& GRAVEL	2.5P 16	CLAY LOAM 24		750
755	CLAY LOAM 16 1.5F	2 18	9 2.5P 18		Ueff 33.2 Ou W%	SILTY CLAY		GRAVEL 7	15	755
	20 5.5 14 3.0			27	3-04 7+35 Left		1.5P 36	SAND & 10	13	100
760	10 0.5 20 3.5	CRUSHED ,	2 17 31 9				3.5P 17	SILTY CLAY	2.3B 25 1.5P 22	760
765	SILTY CLAY 6 0.5	P 17	2 1.5P 22			GLAY LOAM 1 (FILL)		12	2.08 17	765
770	TOPSOIL 9 3.0	25 W/ STONE ,	5 3.5P 15			W/ STONE (FILL)	4.4B 14	& STONE		770
770	770.3 N Ou					PAVEMENT CLAY LOAM 1 W/ STONE	F			770
775	BSB-03 275+02 97.9' Righ 770.3		773.6 N Qu W?				73.5 0u W%	71	Left 3.3 Ou W%	775
		7 .	275+72 2' Left				79+05 Right	21	9+68	

...\Profiles\18080 prf-01.dgn 1/14/2020 1:44:22 PM

APPENDIX C

BORING LOGS

4 5

9

5

9

11

8 8

9

6

9

10

-20

-15

1.6

В

1.8

В

2.8

В

2.9

В

16

14

14

13

CLAY-gray-stiff to very stiff

ROUTE	<u>I-55</u> D	ESCR		I _1-5	5 Ovei	r Lemont Road Bridge	Reconstruction	<u>1</u> LC	DGG	ED BY	N	1M
SECTION			LOCA		SW 1/	4, SEC. 5, TWP. T37N	I, RNG. R11E, 3	3 rd PM				
COUNTY DuP	age DRILLIN	IG ME	THOD			HSA/Rotary	HAMMER T	YPE	(<u> ME A</u>	utoma	tic
STRUCT. NO Station		D E P	B L O	U C S	M O I	Surface Water Elev. Stream Bed Elev.		ft	D E P	B L O	U C S	M O I
BORING NO Station1 Offset1	276+10 02.90ft Left	н		Qu	S T	Groundwater Elev.: First Encounter Upon Completion	<u>Dry to -10.0</u> n/a	ft	T H (ft)	W S (/6")	Qu (tsf)	S T (%)
Ground Surface Ele 4.0" TOPSOIL			(/0)	(tsf)	(%)	After Hrs.		ft	(11)	(/0)	((5))	(70)
CLAY LOAM-brown-		<u>ں</u>			22	(continued)						
			4							8		
			4	2.3 B	15					10 11	4.0 B	13
		_										
		_	4						_	5		
		-5	5	1.0 B	15				-25	10 13	4.0 P	17
			2							6		
			7 8	2.5 P	16					11 13	2.5 B	12
			1									
		_	5							7		
		-10	5	1.7 B	17				-30	10 9	2.0 P	14
			1	1		11						

SOIL BORING LOG

Page <u>1</u> of <u>3</u>

Date 1/9/20

becoming gray @ -13.0'

Geo Services Inc. Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 00565 (630) 355-2828

735.17

8

7

9

4

7

8

-40

-35

2.3

В

1.7

В

19

23

GSI Job No. 18080

Geo Services, Inc. Geotechnical Environmental & Civil Engineering 805 Amhrest Court, Suid Engineering Naperville, Illihois 60565
(630) 355-2878

GSI Job No. 18080

SOIL BORING LOG

Page <u>2</u> of <u>3</u>

Date 1/9/20

	ROUTE	I-55	DE\$	SCRI	PTION	<u> </u>	5 Over	Lemont Road Bridge F	Reconstruction	_ LO	GGE	ED BY	N	IM
				_ L	OCAT		SW 1/4	4, SEC. 5, TWP. T37N,	RNG. R11E, 3 ^{rc}	^d PM				
		DuPage D	RILLING	ME	THOD			HSA/Rotary	_ HAMMER TY	′PE _	C	ME A	utoma	tic
	Station BORING NO Station Offset	BSB-01 276+10 102.90ft Left		DEPTH	B L O W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	Dry to -10.0 f	ft ft	D E P T H	BLOWS	С С С С С С С	∀ 0 − 0
		ice Elev. 767.17	/ft	(ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs.	f	it	(ft)	(/6")	(tsf)	(%)
	CLAY-gray-stif (continued) SILTY CLAY-g		725.17		4			CLAY LOAM-gray-stif (continued)	f to very stiff	_		3		
					4	1.5	18			-		9	1.0	22
20				-45	5	Р				_	-65	13	Р	
ORING LOGS/18080_LOG.GPJ 4/	CLAY LOAM-g	ray-stiff to very stif	<u>720.17</u> f		6	1.1	13			-		4	1.3	17
8080 B				-50	8	В				_	-70	14	В	
10NT ROAD (PTB 188, ITEM 2)/18					7		10			_		4		
R LEM				-55	7 11	1.8 P	12				-75	6 10	1.3 B	17
Z:PROJECTS/2018/18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG: GPJ 4/1/20					3 8 11	1.0 P	14			-		6 7 11	2.8 B	15

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

End Of Boring @ -120.0'. Boring

backfilled with cuttings.

10

23

35

-100

2.8

В

SOIL BORING LOG ROUTE _____ I-55 ____ DESCRIPTION _ I-55 Over Lemont Road Bridge Reconstruction _ LOGGED BY ____MM LOCATION _ SW 1/4, SEC. 5, TWP. T37N, RNG. R11E, 3rd PM COUNTY _____ DuPage ____ DRILLING METHOD ___ HSA/Rotary HAMMER TYPE CME Automatic D В U Μ D В Surface Water Elev. ft E L

Е L С 0 Stream Bed Flev ff

		Ρ	ο	S	1		_ "	Р	ο	S	1
BORING NO. BSB-01		Т	W		S	Groundwater Elev.:		Т	W		S
Station 276+10		н	S	Qu	т	First Encounter Dry to -10.0) ft	н	s	Qu	S T
Offset 102.90ft Left							a ft				
Ground Surface Elev	7 ft	(ft)	(/6")	(tsf)	(%)	After Hrs.	ft	(ft)	(/6'')	(tsf)	(%)
CLAY LOAM-gray-stiff to very stif						CLAY LOAM-gray-very stiff to					
(continued)						hard (continued)					
,											
			-								
			7						12		
			13	2.0	16				19	4.5	8
		-85		В				-105		Р	
		00						-105			
	680.17		1								
SILT-gray-very dense			1								
			1								
			1								
			31						11		
			46		21				17	1.8	15
		-90	50/1"					-110	23	Р	
	675.17						655.17				
SILTY CLAY LOAM-gray-very			-			SILTY LOAM-gray-dense					
dense			-								
			50/01						10		
			50/3"		10				18		10
			-		10			_	19		19
		-95						-115	21		
			-								
			-								
CLAY LOAM-gray-very stiff to	670.17		-			SILTY CLAY LOAM-gray-dense	650.17				
hard			-								
			1								
			12						15		

GSI Job No. 18080

U

С

21

22

647.17 -120

2.9

В

13

Μ

0

Date 1/9/20



SECTION

STRUCT. NO.

Station

Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20

GSI Job No. 18080

SOIL BORING LOG

Page <u>1</u> of <u>3</u>

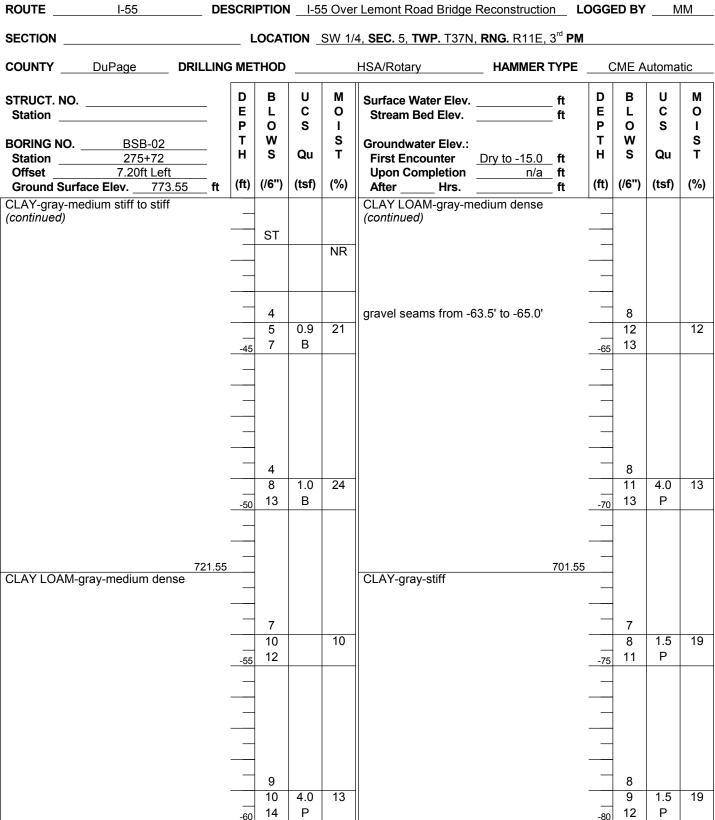
Date 1/2/20

	ROUTE	I-55	DES	SCR	IPTION	<u> </u>	5 Ove	Lemont Road Bridge Reconstruction	on LC	DGGE	ED BY	N	1M
	SECTION	I		_ I			SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E,	3 rd PM				
	COUNTY	DuPage DI	RILLING	ME	THOD			HSA/Rotary HAMMER	TYPE	C	CME A	utoma	tic
	Station BORING Station Offset	NO		D E P T H	B L O W S	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion After Hrs.	_ ft _ ft _ ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
	12.0" AS			()		. ,		CLAY LOAM-brown-very stiff	_ n	. ,	. ,	. ,	• •
			772.55		0			(continued) becoming gray @ -20.5'			0		
		OAM with STONE-dark gray-stiff to hard (Fill)			8 13	4.5	11			_	6 9	3.5	14
					13	P					13	P	
					3					_	5		
					7	3.5	15				8	2.5	15
20				-5	8	Р				-25	12	Р	
D (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20					-					_			
G.GP					4						10		
0_LO					10	1.5	22				11		17
11808			765 55		12	Р				_	13		
OGS	SANDY (CLAY LOAM with	765.55										
SING I	STONE-0	dark gray-dense (Fill)			6						4		10
D BOF					22 20		17			-30	8 11	2.5 P	13
11808			763.05	-10						30		•	
EM 2)	CRUSHE	D ASPHALT-dense (Fill)											
88, ITI					4 12		9		744 55	_			
TB 1					19			CLAY-gray-medium stiff to stiff	741.55				
			760.55										
NT RO	gray-stiff	_AY-dark brown &			3					_	7		
EMO					4	1.5	25				11	1.0	22
VER L				-15	5	В				-35	11	Р	
-55 O	CLAYIC	AM-brown-very stiff	758.05	. <u> </u>	-					_			
LIN, I					4								
30 TY					4	2.5	18						
Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROA					5	P				_			
S\2018													
JECT!					5						3		
PRO ,					7	2.0 P	18			_	5 8		31
Ň				-20		l '	1			-40	5		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

			Deme

Page 2 of 3



The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

Geo Services, Inc. Beotechnical Environmental & Civil Engineering 805 Amherist Court, Swife 204 Naperville, Jungis 60565 (630) 355-2828

SOIL BORING LOG

Date 1/2/20

GSI Job No. 18080



SECTION LOCATION SW 1/4, SEC. 5, TWP. T37N, RNG. R11E, 3 rd PM											
COUNTY DuPage DRILLING					HSA/Rotary HAMMER	TYPE	C	ME A	utoma	tic	
STRUCT. NO.	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Dry to -15.0 Upon Completion After Hrs.	_ ft _ ft _ ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	
CLAY-gray-stiff <i>(continued)</i> 691.55 SILTY CLAY-gray-very stiff to hard		9			SILTY CLAY-gray-very stiff to hard (continued)			50/4"			
	 	16	4.0 P	14			 			20	
		11 16 24	2.5 P	15	Driller Note: cobbles & boulders	665.05	 -110	50/0"		NR	
					SILTY CLAY-gray-hard	663.05					
	 95 	11 17 22	3.0 P	15				17 25 27	4.5 P	13	
		13 18 31		17	SILTY LOAM-gray-very dense End Of Boring @ -120.0'. Boring backfilled with cuttings.	<u>656.55</u> <u>653.55</u>		18 30 24		14	

SOIL BORING LOG

DESCRIPTION 1-55 Over Lemont Road Bridge Reconstruction LOGGED BY MM

Date 1/2/20

GSI Job No. 18080

Geo Services Inc. nical Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois (0565 Engineering (630) 355-2828

ROUTE

I-55

Z'PROJECTS/2018118080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20

Page 3 of 3

Geo Services, Inc.
Geotechnical Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2878

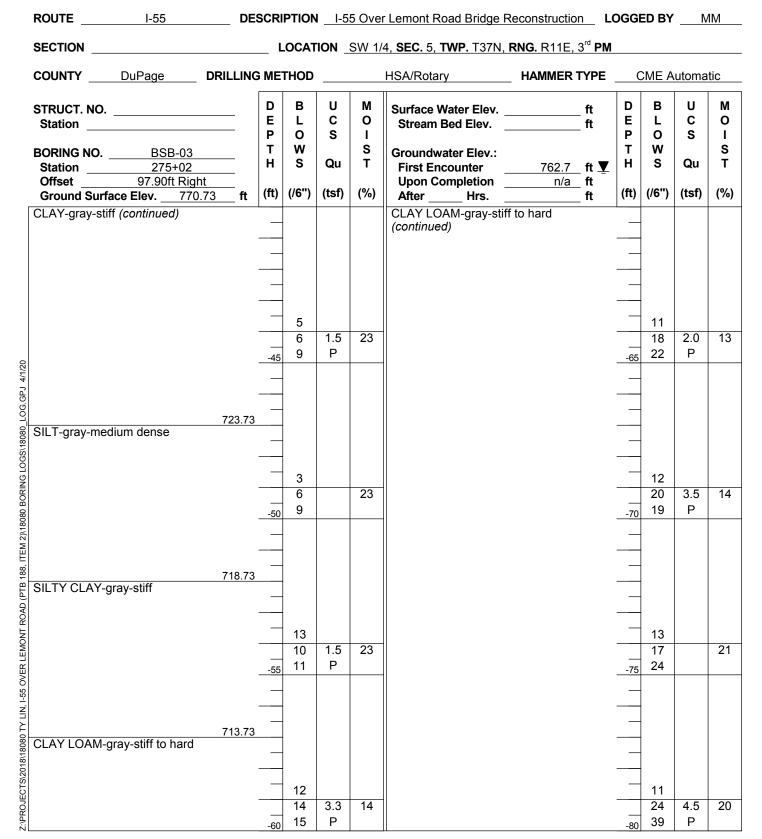
SOIL BORING LOG

Page <u>1</u> of <u>3</u>

Date 1/8/20

	ROUTE I-55 DE	SCR	IPTION	I <u> </u>	5 Ove	r Lemont Road Bridge Rec	onstructio	<u>n LC</u>	GGI	ED BY	N	1M
	SECTION	I			SW 1/	4, SEC. 5, TWP. T37N, RN	G. R11E,	3 rd PM				
	COUNTY DuPage DRILLIN	G ME	THOD			HSA/Rotary H	HAMMER		C	CME A	utoma	tic
	STRUCT. NO. Station BORING NO. BSB-03 Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.:		_ ft	U H A H D	в∟оУо	p soc	M O I S T
	Station 275+02 Offset 97.90ft Right				-	First Encounter		_π_⊻_ ft		•	~~	•
	Ground Surface Elev. 770.73 ft		(/6")	(tsf)	(%)	Upon Completion After Hrs		ft	(ft)	(/6")	(tsf)	(%)
	6.0" TOPSOIL-black 770.23 SILTY CLAY-dark brown, gray &	<u> </u>				CLAY LOAM-brown & gra	ay-stiff to					
	SILTY CLAY-dark brown, gray & spotted black-medium stiff to very				25	very stiff (continued)						
	stiff		4	2.0	27					50/2"		NR
			5	3.0 P	21							INIT
				•		becoming gray @-23.0'						
			2							9		
			3	0.5	17					8	1.6	17
20		5	3	Р					-25	7	В	
4/1/2			-									
GPJ			4							5		
LOG			5	0.5	22					7	2.5	15
080_			5	Р						11	Р	
3S\18		▼										
5 LOG			10									
RING			16 10	3.5	18					6 7	1.8	15
0 BO		-10	10	P.0.0					-30		г.о Р	15
1808	760.23	_		-					-30			
M 2)	CLAY LOAM-brown & gray-stiff to											
3, ITE	very stiff		5									
B 18			77	3.0 P	17	CLAY-gray-stiff		738.73				
D (PT				Г		CLAT-gray-Suit						
ROAI			-									
ONT			4							4		
LEM			7	1.5	18				_	6	1.2	22
VER		-15	9	P					-35	8	В	
-55 O			-									
-IN, I			5									
TΥΙ			7	2.0	18							
8080		_	11	Р								
018/1			-									
TS\2		_	36						_	1		
OJEC			50/2"		23					4 5	1.3	26
Z:PROJECTS/2018/18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20		-20							-40	8	В	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSI Job No. 18080

Date 1/8/20

Geo Services, Inc. Beotechnical Environmental & Civil Engineering 805 Amherst Court: Suite 204 Naperville, Illinois 60565 (630) 355-2828

Page 2 of 3

End Of Boring @ -120.0'. Boring

backfilled with cuttings.

13

Ρ

3.0

Ρ

-95

18

23

31

-100

673.73

ROUTE I-55 DESCRIPTION I-55 Over Lemont Road Bridge Reconstruction LOGGED BY MM SECTION LOCATION SW 1/4, SEC, 5, TWP. T37N, RNG, R11E, 3" PM COUNTY DuPage DRILLING METHOD HSA/Rotary HAMMER TYPE CME Automatic STRUCT, NO.										Dale		0/20
COUNTY DuPage DRILLING METHOD HSA/Rotary HAMMER TYPE CME Automatic STRUCT. NO.	ROUTE 1-55 DE	SCR	IPTION	I <u>-5</u>	5 Ove	r Lemont Road Bridge R	econstructio	n L(DGG	ED BY	N	1M
STRUCT. NO.	SECTION	I			SW 1/	4, SEC. 5, TWP. T37N, I	RNG. R11E,	3 rd PM				
Station	COUNTY DuPage DRILLIN	G ME	THOD			HSA/Rotary	HAMMER	TYPE	(CME A	utoma	ıtic
Documentation Documentation Documentation Documentation Documentation Documentation Test Encounter Test Encounter <thtest encounter<="" th=""> <thtest encounte<="" th=""><th>STRUCT. NO Station</th><th>E P</th><th>L</th><th>С</th><th>0 </th><th>Surface Water Elev Stream Bed Elev</th><th></th><th>_ ft _ ft</th><th>E</th><th>L</th><th>С</th><th>ο</th></thtest></thtest>	STRUCT. NO Station	E P	L	С	0 	Surface Water Elev Stream Bed Elev		_ ft _ ft	E	L	С	ο
CLAY LOAM-gray-stiff to hard	Offset 97.90ft Right	н	S		Т	First Encounter _ Upon Completion _	n/a	ft	Ĥ	S		Т
(continued)		(ft)	(/6")	(tst)	(%)	After Hrs	v stiff to	ft	(ft)	(/6")	(tsf)	(%)
26 7 -85 40 05 29 05 10 10 11 05 20 10 33 10 10 10 10 10 10 10 10 10 10 10 10 10			-			hard (continued)	y Sun to					
26 7 -85 40 -05 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 12 -105 12 -105 12 -105 12 -105 12 -100 33 -110 33 -110 -110 -110 -110 -110 -110 -110 -110 -110 -110 -105 -110 -105 -110 -105 -110 -105 -110 -105 -110 -105 -110 -10		_							_			
26 7 -85 40 -05 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 12 -105 12 -105 12 -105 12 -105 12 -100 33 -110 33 -110 -110 -110 -110 -110 -110 -110 -110 -110 -110 -105 -110 -105 -110 -105 -110 -105 -110 -105 -110 -105 -110 -10			-									
26 7 -85 40 -05 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 29 -105 12 -105 12 -105 12 -105 12 -105 12 -100 33 -110 33 -110 -110 -110 -110 -110 -110 -110 -110 -110 -110 -105 -110 -105 -110 -105 -110 -105 -110 -105 -110 -105 -110 -10			1									
-85 40 -005 29 P -005 29 P -005 29 P -005 -005 -005 -005 -005 -005 -005 CLAY-gray-very stiff -005 -005 -005 -005 -005 -005 -005 -005 -005 -	some gravel from -83.5' to -85.0'		-							-		
		_	40		7							12
CLAY-gray-very stiff		85	40						-105	29	1	
CLAY-gray-very stiff	5											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	683.73	. —	-									
27 1.0 17 -90 32 P - - -	CLAY-gray-very stiff											
27 1.0 17 -90 32 P - - -			-									
				1.0	17						15	12
		-90		-					-110		-	12
			-									
			-									
			-									
		_	10							10		
<u> 12 16 22 4.5 15 </u>				2.0	17					-	4.5	15

SOIL BORING LOG

Ρ

4.0

Ρ

13

31

18

23

30

650.73 -120

-115

1/8/20

GSI Job No. 18080

Geo Services Inc. Engineering Environmenta & Civ 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838

Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20

hard

CLAY LOAM-gray-very stiff to

Page <u>3</u> of <u>3</u>

Date

22

8

11

11

-20

1.5

Ρ

	ROUTE I-55	DE	SCRI	IPTION	I <u> </u>	5 Ovei	Lemont Road Bridge	Reconstructio	<u>n L(</u>	ogge	ED BY	T	Ċ
	SECTION		_ L	OCAT		SW 1/	4, SEC. 5, TWP. T37N	, RNG. R11E,	3 rd PM				
	COUNTY DuPage DF	RILLING	6 ME	THOD			HSA/Rotary	HAMMER ⁻	TYPE	C	CME A	utoma	tic
	STRUCT. NO. Station BORING NO. BSB-04 Station 277+35 Offset 94.50ft Left		D E P T H		U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	Dry to -10.0	_ft _ft	D E P T H	B L O W S	U C S Qu	M O I S T
	Ground Surface Elev. 753.21	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.		ft	(ft)	(/6")	(tsf)	(%)
	6.0" ASPHALT, 6.0" CRUSHED STONE CLAY LOAM-brown-very stiff	752.21		4 4 4	2.7 B	16	CLAYgray-stiff to ve (continued)	ery stiff			7 7 8	2.0 P	21
120	becoming gray @-3.0'			5 6 10	2.5 B	14					8 6 9	2.0 P	21
				5 5 8	2.5 P	15					5 6 8	1.2 B	22
			 _10	5 4 8	2.0 B	15					7 8 12	2.5 P	16
1 D 100, 11 E M 2 / 100				6 7 8	2.6 B	14	SILTY SAND &		721.21				
			 	6	2.0 P	16	GRAVEL-gray-dense	9			14 26 13	2.5 P	10
UOU I I LIN, I-33 OVER LEMOINI RUAU (F				5 7 9	2.0 P	15	SILTY CLAY-gray-ve	erv stiff	716.21	 			
181/81.07/61	CLAYgray-stiff to very stiff	735.21						ay Sun			6		

SOIL BORING LOG

Date 12/30/19

GSI Job No. 18080

6

9

13 -40

2.5

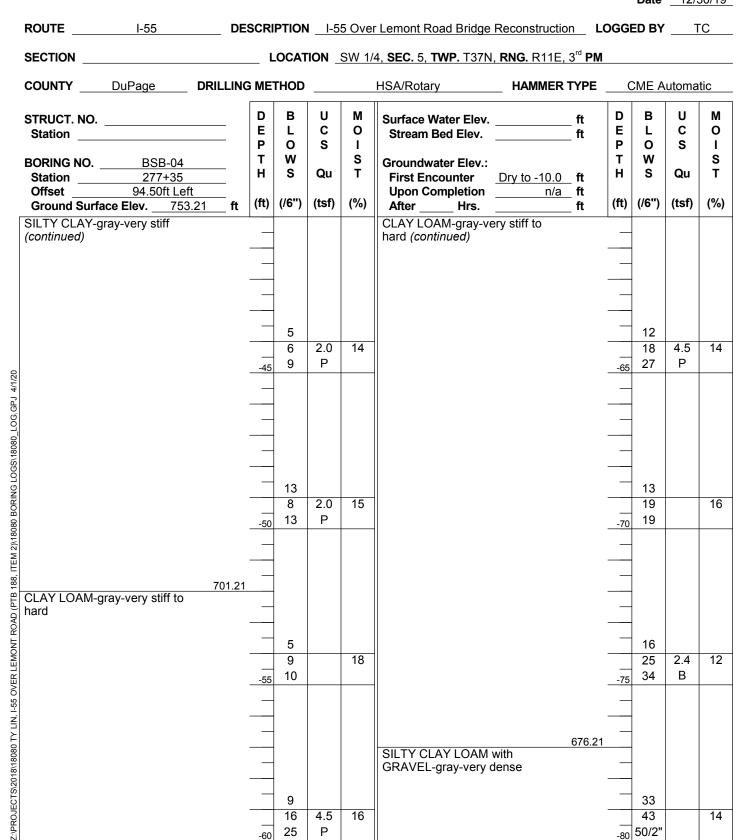
Ρ

13

Geo Services Inc. nical Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois 60565 Engineering (630) 355-2838

Z'PROJECTS/2018118080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20

Page <u>1</u> of <u>4</u>



SOIL BORING LOG



GSI Job No. 18080

Page <u>2</u> of <u>4</u>

Date 12/30/19

12

Geotechnical, Environmental & Civil Engineerin 805 Amherst Court, Suite 204 Naperville, Illinois (10565 (630) 355-2838	g			SC		G LOG	ì	•	<u>3</u> 12/3	
ROUTEI-55	DES	CRIPTION	I <u> </u>	5 Ovei	r Lemont Road Bridge R	Reconstruction	_ LOGG	ED BY	T	C
SECTION		_ LOCAT		SW 1/	4, SEC. 5, TWP. T37N, I	RNG. R11E, 3 [°]	^d PM			
COUNTY DuPage	DRILLING I	METHOD			HSA/Rotary	HAMMER TY	′PE	CME A	utoma	tic
STRUCT. NO Station		DB EL PO	U C S	M O I	Surface Water Elev Stream Bed Elev	f	ft D ft E P	B L O	U C S	M O I
BORING NO.BSB-04Station277+35Offset94.50ft LeftGround Surface Elev.753.2		T W H S (ft) (/6")	Qu (tsf)	S T (%)	Groundwater Elev.: First Encounter <u>I</u> Upon Completion After <u> </u>	n/a f	ft	W S (/6")	Qu (tsf)	S T (%)
SILTY CLAY LOAM with GRAVEL-gray-very dense		_			CLAY LOAM-gray-har (continued)	ď				

14

15

13

805 Amh Naper	contential & Civil Enginee erst Court, Swite 204 ville, Juliots (0565 30) 355-2888	ring				SC	DIL BORIN		GS
UTE	I-55	DE	SCR	IPTION	I <u>1-5</u>	5 Ove	r Lemont Road Bridge F	Reconstruction L	.0
			L			SW 1/	4, SEC. 5, TWP. T37N,	RNG. R11E, 3 rd PN	
UNTY	DuPage	DRILLING	G ME	THOD			HSA/Rotary	_ HAMMER TYPE	
RUCT. NO.			D E	B L	U C	M O	Surface Water Elev. Stream Bed Elev.	ft ft	

671.21

18

22

25

14 24

28 -90

25

28

24

20

23

27

-100

-95

-85

4.5

Ρ

4.5

Р

4.5

Ρ

4.5

Ρ

SILTY CLAY LOAM with GRAVEL-gray-very dense

SILTY CLAY-gray-hard

4.5

Ρ

4.5

Ρ

4.5

Ρ

4.5

Ρ

24

35

43

27

50/2"

33

33

43

23

27

21

-120

115

-110

-105

646.21

641.21

12

10

11

15

Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20

(continued)

CLAY LOAM-gray-hard

SOIL	BORING	LOG
------	--------	-----

GSI Job No. 18080

	ROUTE _		I-55	DE	SCRI	PTION	l_l-5	5 Over	Lemont Road Bridge Reconstruction LOGGED BY TC
	SECTION				_ L	OCAT		SW 1/-	4, SEC. 5, TWP. T37N, RNG. R11E, 3 rd PM
	COUNTY	DuP	age D	RILLING	6 ME	THOD			HSA/Rotary HAMMER TYPE CME Automatic
	Station BORING N Station	10	BSB-04 277+35 94.50ft Left		D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. ft Stream Bed Elev. ft Groundwater Elev.: ft First Encounter Dry to -10.0 ft Upon Completion n/a ft
			ev. 753.21		(ft)	(/6")	(tsf)	(%)	After Hrs ft
	SILTY CLA (continued) CLAY-gray	4)		631.21					
					_	20			
						20	3.5	21	
0					-125	24	Р		
Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20	SILTY LO.	pring @ -13	30.0'. Boring	626.21		32 44 50/4"		16	
::\PROJECTS\2					-140				



Page $\underline{4}$ of $\underline{4}$ Date 12/30/19

ROUTE	I-55	DES	CRI	PTION	l <u> </u>	5 Ove	r Lemont Road Bridge	Reconstructic	n LC	DGGE	ED BY	N	W
			_ L	OCAT		SW 1/	4, SEC. 5, TWP. T37N,	, RNG. R11E,	3 rd PM				
	DuPage DR	RILLING	ME	THOD			HSA/Rotary	_ HAMMER	TYPE	C	ME A	utoma	tic
BORING NO.	BSB-05 276+21	_	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter		_ ft	D E P T H	B L O W S	U C S Qu	M O I S T
Offset	93.70ft Right ce Elev. 754.70		(ft)	(/6'')	(tsf)	(%)	Upon Completion	n/a	ft	(ft)	(/6")	(tsf)	(%)
	, 8.0" CONCRETE	_ "	. ,	· ,	. ,				_ n 734.20		. ,	. ,	. ,
CLAY LOAM-bi	rown & gray-stiff to	753.70		6			SILTY LOAM-gray-m	edium dense			10		
very stiff		_		7	3.0	17					12		19
				5	Р				731.70	_	16		
becoming gray	@ -3.0'	-	_	F			CLAY-gray-stiff		101.10		F		
		-		5 10	2.0	16					5 7	1.8	23
		-	-5	11	Р				700.00	-25	10	Р	
		_					CLAY LOAM-gray-sti	ff	729.20				
				6 9	1.5	18				_	4	1.5	16
		-		11	Р						6	Р	
		-											
		-		7 10		22					3 5	1.0	23
		_	-10	17						-30	_	P	20
			_							_			
		-		6 7	2.0	16							
		-		9	2.0 P	10							
		-											
		-		4							4		
			-15	8 13	2.0 P	14				-35	8 9	1.5 P	14
		-											
		-		6									
		-		8 11	3.3 P	18	SILTY CLAY LOAM-	grav-dense	717.70				
		-			-			, ,					
			_	11						_	8		
		-	_	14 13	2.5 D	15					17		6
		_	-20	13	Р					-40	31		

SOIL BORING LOG

Page

Date 2/19/20

GSI Job No. 18080



<u>1</u> of <u>4</u>

											Date	2/1	9/20
ROUTE	I-55	DE	SCR	IPTION	I <u>-5</u>	5 Ove	r Lemont Road Bridge I	Reconstruction	<u>n L</u>	OGGE	ED BY	N	W
SECTION			I			SW 1/	4, SEC. 5, TWP. T37N,	RNG. R11E,	3 rd PM				
	DuPage	DRILLIN	G ME	THOD			HSA/Rotary	HAMMER	TYPE	C	ME A	utoma	itic
STRUCT. NO. Station			D E P	L	U C S	M O I	Surface Water Elev. Stream Bed Elev.		ft ft	D E P		U C S	M O I
Station Offset	BSB-05 276+21 93.70ft Righ	it	T H	S	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	<u>Dry to -10.0</u> n/a	ft	T H	W S	Qu	S T
	oce Elev. 754.		(π)	(/6")	(tsf)	(%)	After Hrs. CLAY LOAM-gray-sti			(π)	(/6")	(tsf)	(%
(continued)	chini gray dense	•	_	-			(continued)			_			
			_							_			
				-									
				7						_	9		
				11		12					13	2.0	1
			45	28						-65	13	Р	
			_	-						_			
			_]						_			
CLAY LOAM-g	ray-stiff to very s	707.70											
-	-												
			_	5						_	9		
				9	3.0	25					11	2.5	1
			-50	13	Р					-70	11	Р	
			_	-						_			
			_	1						_			
				-									
			_	9						_	40		
				10	1.0	16					20	2.0	1
			-55	13	P					-75	27	Р	
				-						_			
			_	1						_			
				{			SILTY LOAM-gray-ve	ery dense	677.70				
				1				,					
			_	7						_	9		
				14	2.0	14					34		1
			-60	42	Р					-80	50/4"		

SOIL BORING LOG

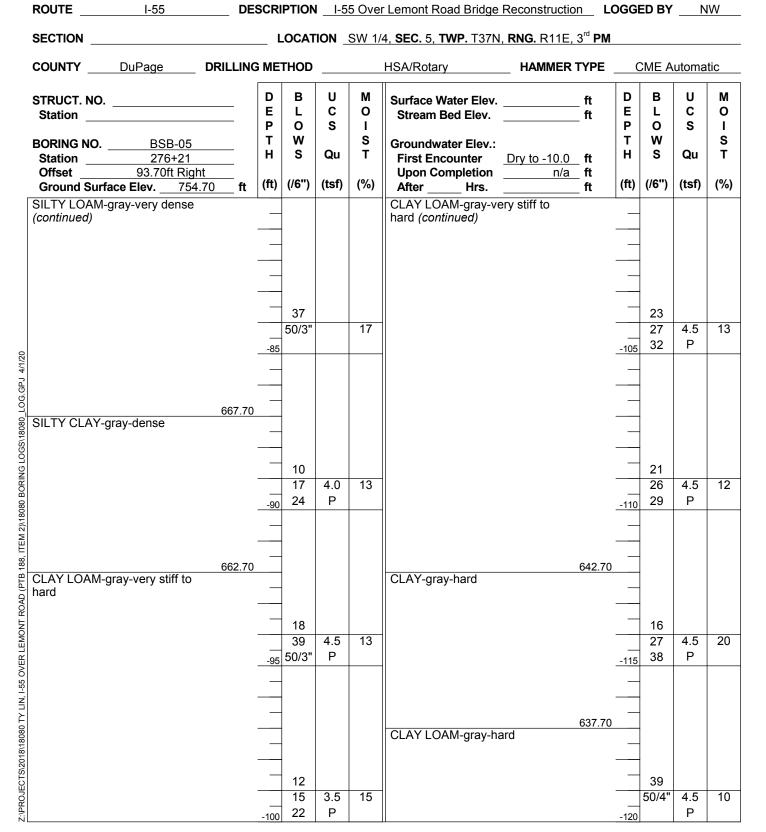
2/19/20 Date

Geo Services Inc. Engineering nical Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois 10565 (630) 355-28/8

Page <u>2</u> of <u>4</u>

GSI Job No.

18080

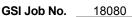


SOIL BORING LOG

Page 3 of 4

Geo Services, Inc. Beotechnical Environmental & Civil Engineering 805 Amherist Court, Swife 204 Naperville, Jungis 60565 (630) 355-2828

Date 2/19/20



SOIL BORING LOG

Page 4 of 4

2/19/20

18080

	ROUTE	I-55	DES	CRIPTIO	N <u> </u>	5 Ove	r Lemont Road Bridge	Reconstruction LC	DGGED BY NW	
				_ LOCA	TION _	SW 1/	4, SEC. 5, TWP. T37N	, RNG. R11E, 3 rd PM		
		DuPage DI	RILLING	METHOD)		HSA/Rotary	HAMMER TYPE	CME Automatic	
	Station BORING NO Station Offset	BSB-05 276+21 93.70ft Right e Elev754.70		DB EL PO TW HS	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	ft n/aft		
	CLAY LOAM-gra (continued)		n	(it) (/0) 		(70)	After Hrs.	π		
	SILTY LOAM-gra	ay-very dense		 						
			-	42 -125 50/3		15				
BORING LOGS/18080_LOG.GPJ 4/1/20	SILTY CLAY-gra	y-hard	- 627.70 -			21				
080 BOI			624.70		4.5 P	21				
Z:/PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)\18080	End Of Boring @ backfilled with cu) -130.0'. Boring uttings.	-							



GSI Job No.

Date

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)	
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Au	Jger
BBS, from 137 (Rev	<i>ı</i> . 8-99)

BORING NO. BSB-06 F V C O S I S O S I S O S I S O S I S O S I S O S I S O S I S O O S I S O I T W O S I Groundwater Elev:: T T W O T W O T W O T W O T W O T W O T W O T W O T W O T W O T W O T W O T W O T W O T T W O T T W O T T W O T T W O T T W O T T W O T T T T	ROUTEI-55	DE\$	SCRI	PTION	N <u> </u>	5 Ove	r Lemont Road Bridge Reconstruction	on Lo	oggi	ED BY		ΓZ		
Brucht, NO. B U K Surface Water Elev. ft D B U K BORING NO. BSB-06 T Y Surface Water Elev. T T Surface Water Elev. T T Y Surface Water Elev. T T Surface Water Elev. T	SECTION		_ L	OCA1		SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E	3 rd PM						
Bitation Borning model	COUNTY DuPage I	ORILLING	ME.	THOD			HSA/Rotary HAMMER TYPE CME Autom							
Ground Surface Elev. 754.42 ft (fb) (fc) (fb) (fc) (fb) (fb)<	Station BORING NO. BSB-06 Station 278+15		E P T	L O W	C S	O I S	Stream Bed Elev. Groundwater Elev.: First Encounter Dry to -10.0	_ ft _ ft	E P T	L O W	C S	M O I S T		
STONE 753.26 11 4 4 CLAY LOAM-brown-very stiff 1 5 3.1 14 8 8 1 6 2.0 20 - 6 - - 6 2.0 20 - 6 - - 6 2.0 20 - 6 - - 6 1.2 24 - 6 - - - - - - - 6 7 3.0 16 12 24 -	Ground Surface Elev. 754.4	2 ft	(ft)	(/6")	(tsf)	(%)	After Hrs	ft	(ft)	(/6")	(tsf)	(%)		
753.26 11														
- 5 3.1 14 - 8 8 - - 8 - - 8 - - 8 8 - - - 8 8 - - - 8 8 - - - - - 8 8 - <td></td> <td>753.26</td> <td></td> <td>11</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4</td> <td></td> <td></td>		753.26		11						4				
becoming gray @ -5.5' 				-	-	14	-			-		20		
becoming gray @ -5.5' 							-							
becoming gray @ -5.5' 				6						4				
becoming gray @ -5.5' -3 -4 -7 <t< td=""><td></td><td></td><td></td><td>-</td><td></td><td>16</td><td></td><td></td><td></td><td>10</td><td></td><td>24</td></t<>				-		16				10		24		
4 - - 3 - - 3 - - 3 0.3 23 - - - - - - - - - 4 P - - 4 P - - 4 P - <td></td> <td></td> <td>-5</td> <td>0</td> <td>- '</td> <td></td> <td>-</td> <td>728.92</td> <td></td> <td>10</td> <td></td> <td></td>			-5	0	- '		-	728.92		10				
7 P 4 P 3 - - 4 P - 3 - - 3 - - 5 2.5 11 - - 3 - - - 7 P - - 3 - - 5 2.5 11 - - 3 - - - 6 4.5 8 P - - - SILTY CLAY LOAM with Sand - - - - - - 6 4.5 8 P - - - - SAND & GRAVEL-gray-medium - - - - - - - - 13 3 - - - - - - 10 - - - - - - 10 - - - - - - - 10 - - - - - - - - - - - - - - - - - - - - -<	becoming gray @ -5.5'			4			SILTY CLAY-gray-soft			3				
The second sec				-		14	-					23		
-3 -3 -3 -3 -3 -3 -3 -4 18 -5 2.5 11 -30 5 -4 18 SILTY CLAY LOAM with Sand Seams-gray-medium dense -4 -4 -4 -4 18 -6 4.5 8 P -30 5 -4 18 SAND & GRAVEL-gray-medium dense -4 -5 1.0 15 -5 1.0 15 -5 1.0 15 -3 6 P -4 -4 -4 -4 -4 -5 1.0 15 -3 6 P -3 6 P -3 6 P -3 6 P -4 -4 -4 -4 <				7	Р		-	726 42		4	Р			
743.92				3			SILTY CLAY LOAM-gray-loose			3				
743.92					2.5	11						18		
SILTY CLAY LOAM with Sand 4 - Seams-gray-medium dense 4 - - 6 4.5 8 - 6 4.5 8 SAND & GRAVEL-gray-medium dense - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - </td <td></td> <td>742.00</td> <td></td> <td>7</td> <td>Р</td> <td></td> <td>-</td> <td></td> <td>-30</td> <td>5</td> <td></td> <td></td>		742.00		7	Р		-		-30	5				
741.42 6 4.5 8 P SAND & GRAVEL-gray-medium -4 -4 -13 -3 -15 17 -10 -35 -10 -35 -11 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -11 -35 -10 -35 -11 -35 -10 -35 -11 -35 -10 -35 -11 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35 -10 -35	SILTY CLAY LOAM with Sand	743.92												
741.42 8 P CLAY LOAM-gray-stiff SAND & GRAVEL-gray-medium 4 4 4 4 13 3 -15 17 10 - 11 - 10 - 11 - 6 - - -	Seams-gray-medium dense			-	4.5	8	_	700 40						
SAND & GRAVEL-gray-medium 4				8			CLAY LOAM-gray-stiff	122.72						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	SAND & GRAVEL-gray-medium	741.42												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	dense					2	_				1.0	15		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			-15						-35			15		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			_											
736.42 11 CLAY-gray-stiff to very stiff 10 6 10 7 0														
736.42						8								
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	CLAY grow stiff to year stiff	736.42												
	OLA I-GIAY-SUII (O VERY SUIT		_	10						6				
-20 / P -40 11 P				6 7	2.0 P	24				10 11	1.3 P	16		

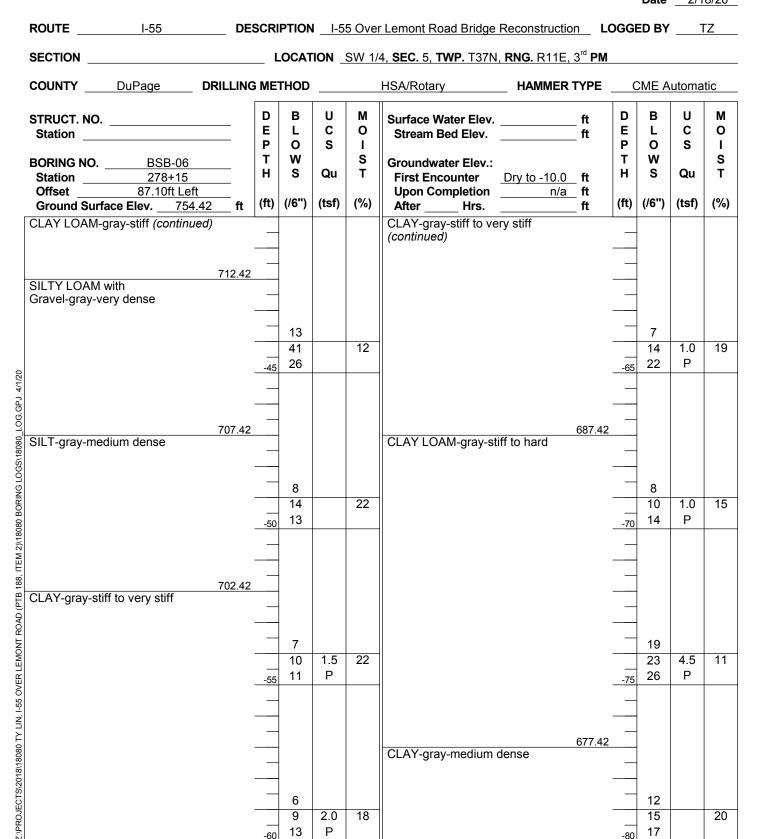
SOIL BORING LOG

Date 2/18/20

GSI Job No. 18080

Geo Services, Inc. Geotechnical Environmental & Civil Engineering 805 Ammerst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2848

Page <u>1</u> of <u>3</u>



SOIL BORING LOG

Date 2/18/20

GSI Job No. 18080



Page 2 of 3

Geo Services, Inc. Geotechnical Environmental & Civil Engineering 805 Amhrest Court, Suid Engineering Naperville, Illihois 60565
(630) 355-2878

SOIL BORING LOG

Page <u>3</u> of <u>3</u>

Date 2/18/20

ROUTEI-55	DE	SCRI	PTION	l <u> </u>	5 Ove	Lemont Road Bridge Reconstruction	on L	ogge	ED BY	T	Z
SECTION		_ L	OCAT		SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E	, 3 rd PM				
			THOD			HSA/Rotary HAMMER	TYPE		ME A	utoma	tic
STRUCT. NO. Station BORING NO. BSB-06 Station 278+15 Offset 87.10ft Left		D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Dry to -10.0	_ ft _ ft	D E P T H	B L O W S	С С С С С С С С	M O I S T
Ground Surface Elev. 754.42	ft	(ft)	(/6")	(tsf)	(%)		_π _ft	(ft)	(/6")	(tsf)	(%)
CLAY-gray-medium dense (continued)	672.42					End Of Boring @ -100.0'. Boring backfilled with cuttings.					
CLAYEY SAND & GRAVEL-gray-very dense	072.42		50/5"								
			50/5		9						
		-85						-105			
	667.42	_						_			
CLAY LOAM-gray-hard											
			15 21	4.5	13						
		-90	27	Р				-110			
、											
		_						_			
			17 50/4"	4.5	12						
		-95		Р				-115			
								_			
								_			
			16 19	4.5	13						
	654.42	-100	26	Р				-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

ROUTEI-55	_ DESC	CRIPTIO	N <u> </u>	5 Ove	r Lemont Road Bridge Reconstruction	<u>on </u> L(oggi	ED BY	<u> </u>	W
SECTION		LOCA	TION _	SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E,	3 rd PM				
COUNTY DuPage DR		METHOD)		HSA/Rotary HAMMER	TYPE	(CME A	utoma	atic
STRUCT. NO Station	_	D B E L P O	U C S	M 0 1	Surface Water Elev Stream Bed Elev	ft ft	D E P	B L O	U C S	M O I
BORING NO. BSB-07 Station 276+90 Offset 102.60ft Right Ground Surface Elev. 753.92	_ '	T W H S	Qu (tsf)	S T (%)	Groundwater Elev.: First Encounter Dry to -10.0 Upon Completion n/a After Hrs.	ft	H (ft)	W S (/6")	Qu (tsf)	S T (%
4.0" ASPHALT, 8.0" CONCRETE	n		()	(/0)	CLAY-gray-medium stiff to stiff	_ n	,	()	(,	
CLAY LOAM-gray-stiff to very stiff	752.92	4			(continued)			4		
	_	5	3.5 P	15				7 10	1.5 P	2
	_				CLAY LOAM-gray-stiff	730.92		10	Г	
	_	4 8 5 12	2.5 P	14	-			5 7 9	1.5 P	1
	_	<u>-5</u> 12			-		25	9		
	_	5	1.2	15	-			6 8	1.1	1
		10	B		-	725.92		21	В	
		5			CLAYEY SAND & GRAVEL-gray-medium dense			9		
		11 14	3.0 P	13			-30	11 16		1
CLAY-gray-medium stiff to stiff	<u>743.42</u> —	6								
	_	10 14	1.6 B	19	SILTY CLAY LOAM-gray-medium	721.92				
	_	5			dense			8		
		7 10	0.8 B	21			-35	12 17		1
	_	3								
	_	6 9		23	SANDY LOAM-gray-medium	716.92				
	_	6						6		
		8 -20 11	1.5 P	21			-40	8 9		1

SOIL BORING LOG

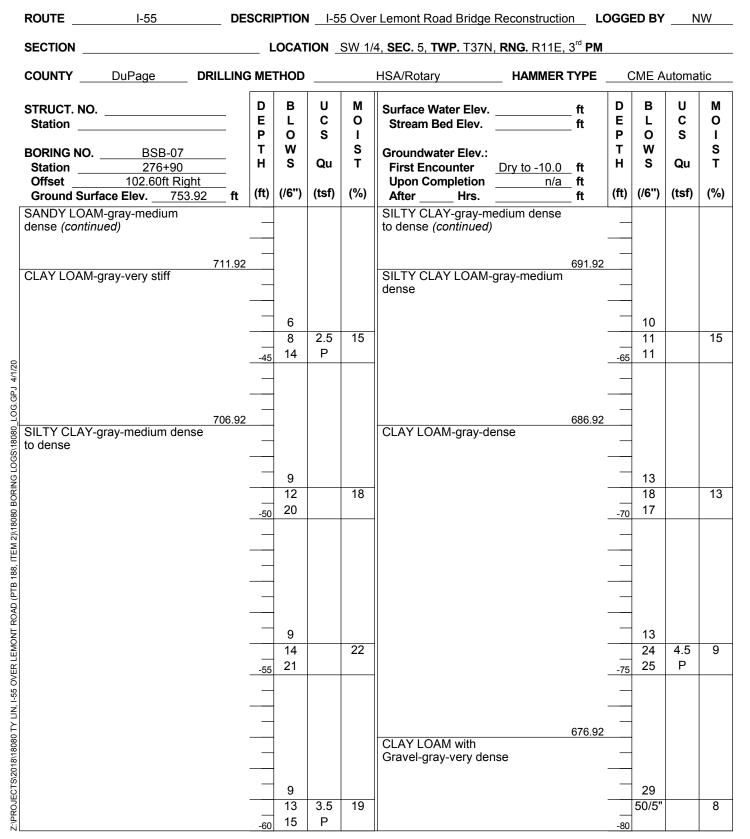
Page <u>1</u> of <u>3</u>

Date 2/18/20

GSI Job No. 18080

Geo Services Inc. nical Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois (10565 Engineering (630) 355-2838

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99



SOIL BORING LOG



GSI Job No. 18080

Page <u>2</u> of 3

Date 2/18/20

Geo Services, Inc. Geotechnical Environmental & Civil Engineering 805 Amherist Court, Suite 204 Naperville, Illizois 60565 (630) 355-2836
(630) 355-2868

GSI Job No. 18080

SOIL BORING LOG

Page <u>3</u> of <u>3</u>

Date 2/18/20

	ROUTEI-55	5	DESCRI	PTION	l_l-5	5 Ovei	Lemont Road Bridge	Reconstruction	<u>n L</u> C	OGGE	ED BY	N	W
	SECTION		I	OCAT	ION _	SW 1/	4, SEC. 5, TWP. T37N	, RNG. R11E,	3 rd PM				
	COUNTY DuPage			THOD			HSA/Rotary	HAMMER	TYPE		ME A	utoma	tic
	STRUCT. NO Station BORING NO Station27 Offset102.6 Over 51000	8B-07 6+90 0ft Right	P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	<u>Dry to -10.0</u> n/a	_ft _ft _ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
	Ground Surface Elev CLAY LOAM with	753.92	# (")	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	((3))	(/0)	End Of Boring @ -10	0.0'. Boring		(11)		((3))	(/0)
	Gravel-gray-very dense (continued)			28			backfilled with cutting	gs.					
				37 46		9							
4/1/20			-85							-105			
RING LOGS\18080_LOG.GPJ_4/1/20	SILTY CLAY-gray-very s hard	666 tiff to	.92 	12	3.5	14							
3080 BC			-90	20	P.					-110			
) (PTB 188, ITEM 2)/18080 BORING LOGS/18080													
T ROAL				45									
/ER LEMON			-95	15 22 31	4.5 P	14				-115			
Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROAD													
JECTS/2018/18				13	15	15							
Z:\PRO		653	.92 -100	19 27	4.5 P	15				-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

ROUTE	I-55	DE	SCRI	PTION	I <u>I-5</u>	5 Ove	r Lemont Road Bridge Reconstructi	ion L	OGG	ED BY		ΓZ
			_ L			SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E	, 3 rd PM				
	DuPage DI	RILLING	6 ME	THOD			HSA/Rotary HAMMER	R TYPE	(CME A	utoma	itic
BORING NO.	BSB-08		D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter	ft	D E P T H	B L O W S	U C S Qu	M O I S T
Offset Ground Surfa	278+56 88.90ft Left ce Elev. 753.77	ft	(ft)	(/6'')	(tsf)	(%)	Upon Completion n/a	ft	(ft)	(/6'')	(tsf)	(%)
	, 8.0" CONCRETE						CLAY-gray-stiff (continued)					
CRUSHED ST	ONE-medium	752.77		11						4		
dense				5 6		8				7	1.5 P	18
		750.77									•	
CLAY LOAM-g	ray-stiff to very stiff		_	4					_	4		
				5 6	3.0 P	14				7 12	1.9 B	19
			5		•				-25	12		
				3						4		
			_	4	2.0 B	13				4 8	1.0 P	20
								725.77				
			_	4			SANDY CLAY LOAM with Gravel-gray-medium dense			6		
			-10	7 12	2.1 B	14			-30	9 10		7
			-10						30			
				5								
				9 14	1.2 B	14	CLAY-gray-stiff	721.77				
CLAY-gray-stiff	-	740.77										
CLAT-yray-sun				6						4		
			-15	9 13		23			-35	7	1.5 P	16
				6								
				8 15	1.2 B	21	SILTY CLAY-gray-stiff	716.77				
				4						4		
			-20	6 8	1.0 P	21			-40	9 12	1.0 B	11

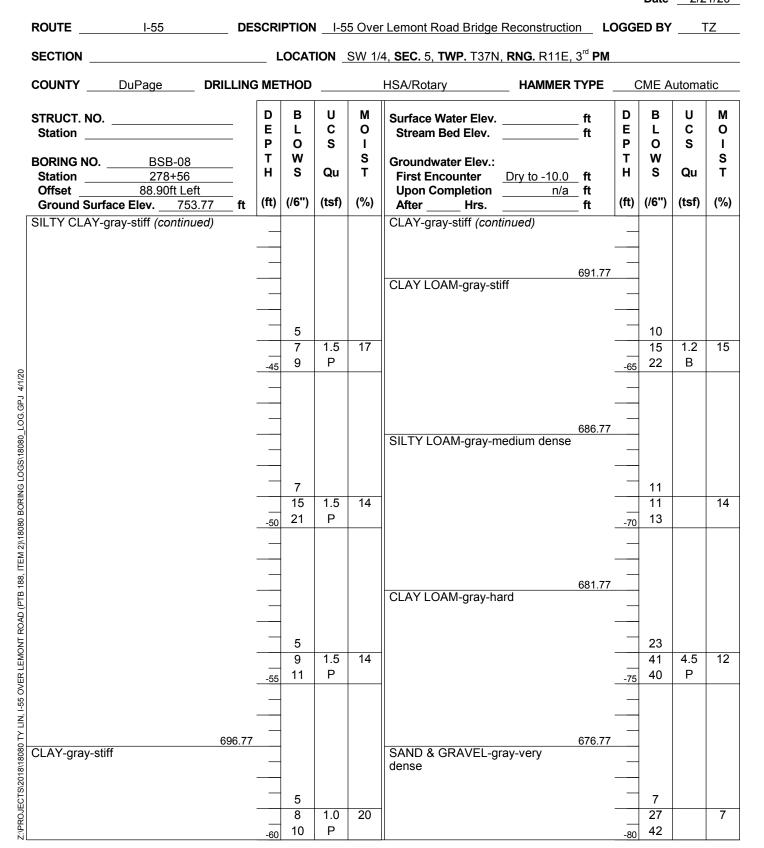
SOIL BORING LOG



GSI Job No. 18080

Page <u>1</u> of <u>3</u>

Date 2/21/20





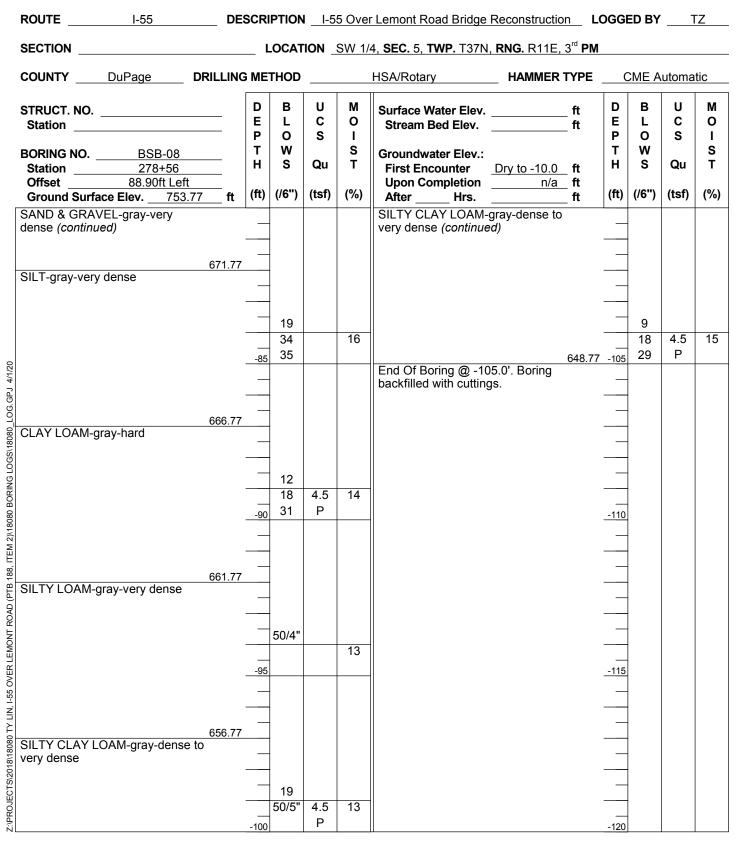
GSI Job No. 18080

SOIL BORING LOG

Page <u>2</u> of <u>3</u>

Date 2/21/20

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger
BBS, from 137 (Rev. 8-99)





SOIL BORING LOG

Page 3 of 3

Date 2/21/20

GSI Job No. 18080

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger
BBS, from 137 (Rev. 8-99)

	ROUTE	I-5	5	DESCR	RIPTION	I <u>1-5</u>	5 Over	Lemont Road Bridge Reconstr	uction L	OGGE	D BY	T	Z
	SECTION	I			LOCAT		SW 1/4	4, SEC. 5, TWP. T37N, RNG. R ⁴	1E, 3 rd PM				
	COUNTY	DuPag	e DRILL	LING MI	ethod			HSA/Rotary HAMN	IER TYPE	C	ME A	utoma	tic
	Station BORING Station Offset	NOB	20ft Right	E P T H	L O W S	U C S Qu (tsf)	МО о Г (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	ft 0.0 ft n/a ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
1	3.0" ASP	HALT, 10.0"	752.90	π	, ,,,,,	((3))	(70)	After Hrs	ft 732.40		(,0,)	((3))	(70)
	STONE	TE, 2.0" CRU	751	- 1.65	7			CLAY LOAM-gray stiff			4		
	Stiff	AM-brown-stil	if to very		3 5		8			_	4 5	1.5 P	20
					3					_	3		
0					4 5 4	2.5 P	16			-25	4 5	1.5 P	25
LOG.GPJ 4/1/2	becoming	gray @ -5.5'			4	3.0	12				3	1.0	22
_OGS\18080					8	В					6	Р	
80 BORING I				- 	3 6 0 9	2.7 B	15			-30	3 7 8		17
ITEM 2)/180					4								
) (PTB 188,					6 10	2.0 P	15	SILTY CLAY LOAM-gray-med dense	720.90 um)			
ONT ROAL					6					_	4		
LIN, I-55 OVER LEMONT ROAD				_ 1	9 5 11	1.5 P	18			-35	5 8		12
18080 TY LIN, I-55 (5 6 10	2.0 P	17	SAND & GRAVEL-gray-mediu	<u>715.90</u> m				
JECTS/2018/		GRAVEL & ay-medium de		4.90	11			dense			11		
Z:\PROJE				-2	7 0 8		10			-40	9 8		16



GSI Job No. 18080 **SOIL BORING LOG**

Page 1 of 4

Date 2/20/20

Ρ

20

-60

ROUTE I-55	DESCRIPTION 1-55 Over Lemont Road Bridge Reconstruction L	OGGED BY TZ
SECTION	LOCATION _SW 1/4, SEC. 5, TWP. T37N, RNG. R11E, 3 rd PN	1
COUNTY DuPage DRILI	ING METHOD HSA/Rotary HAMMER TYPE	CME Automatic
STRUCT. NO. Station BORING NO. BSB-09 Station 277+49 Offset 95.20ft Right	E L C O Stream Bed Elev. ft P O S I Stream Bed Elev. ft T W S Groundwater Elev.: First Encounter Dry to -10.0 ft H S Qu T First Encounter Dry to -10.0 ft Upon Completion n/a ft	D B U M E L C O P O S I T W S H S Qu T
Ground Surface Elev. 752.90 SAND & GRAVEL-gray-medium		(ft) (/6") (tsf) (%)
dense (continued)	.90	
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	5 7 3.0 15 -65 11 P
	5 7 1.5 20 -50 12 P	6 9 1.0 17 -70 10 P
	4 2.0 19 6 P 	17 4.5 17 20 P



Geo Services

Z'PROJECTS/2018118080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20

nical, Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2848

GSI Job No. 18080

22

-80

Page <u>2</u> of <u>4</u>

Date 2/20/20

12

16

20

31

-100

									Date	2/2	0/20
ROUTE I-55	DES	SCRI	PTION	l <u> </u>	5 Ove	Lemont Road Bridge Reconstruction	<u>on L</u> (oggi	ED BY	Т	Z
SECTION		_ L	.OCAT		SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E,	3 rd PM				
COUNTY DuPage DRIL	LING	ME	THOD			HSA/Rotary HAMMER	TYPE	C	CME A	utoma	tic
STRUCT. NO Station BORING NO Station277+49 Offset95.20ft Right Ground Surface Elev752.90	-	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev.	ft ft ft ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
SILTY CLAY LOAM-gray-dense to very dense (continued)			10	4.5	12	SILTY CLAY LOAM-gray-dense to very dense <i>(continued)</i> CLAY LOAM-gray-very dense	650.90		18		11
			15	P				 	25		
		-90	23 22	4.5 P	14	SAND with Gravel-gray-very	640.90	110 	24 33	4.5 P	19
		-95	23 22 23		14	dense		 	39 50/4"		12
						SILTY CLAY LOAM with Fractured Rock-gray-very dense	635.90				

SOIL BORING LOG

GSI Job No.

32

50/5"

-120

4.5

Ρ

11

2/20/20

Geo Services Inc. nical Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois 60565 Engineering (630) 355-2838

Z'PROJECTS/2018118080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20

Page <u>3</u> of <u>4</u>

18080

SUI	BORING L	
JUIL	DURING L	

GSI Job No.

OG

Page 4 of 4

2/20/20 Date

18080

	ROUTE I-55	DESCRI	PTION	l	5 Over	LOGGED BY TZ
	SECTION	L	OCAT		SW 1/4	4, SEC. 5, TWP. T37N, RNG. R11E, 3 rd PM
	COUNTY DuPage DRI	LLING ME	THOD			HSA/Rotary HAMMER TYPE CME Automatic
	STRUCT. NO Station BORING NO Station277+49 Offset95.20ft Right Ground Surface Elev. 752.90	- P T - H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. ft Stream Bed Elev. ft Groundwater Elev.: ft First Encounter Dry to -10.0 ft Upon Completion n/a ft After Hrs. ft
	SILTY CLAY LOAM with Fractured Rock-gray-very dense (continued)		50/3"			
-0G.GPJ 4/1/20		 			9	
DRING LOGS/18080_L	SILTY LOAM-gray-very dense		16 28		18	
Z:PROJECTS/2018/18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20	6 End Of Boring @ -130.0'. Boring backfilled with cuttings.	22.90 -130 				



Geo Services, Inc. Geotechnical Environmental & Civil Engineering 805 Amherst Court; Suide 204 Naperville, Illihois 60565
(630) 355-2838

GSI Job No. 18080

SOIL BORING LOG

Page <u>1</u> of <u>3</u>

Date 1/7/20

	ROUTE	I-55	DES	SCR	IPTION	l <u> </u>	5 Ove	r Lemont Road Bridge Reconstruction	LC	GGI	ED BY	T	C
				_ เ	OCAT		<u>SW 1/</u>	4, SEC. 5, TWP. T37N, RNG. R11E, 3	rd PM				
		DuPage DI	RILLING	ME	THOD			HSA/Rotary HAMMER T	YPE	C	CME A	utoma	tic
	Station BORING NO Station Offset	BSB-10 279+68 75.00ft Left ace Elev773.31		D E P T H	B L O W S	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Dry to -10.0 Upon Completion n/a After Hrs.	ft ft ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
[14.0" ASPHAL		''	. ,	, ,	. ,		CLAY LOAM-brown-stiff	it.	. ,	. ,	. ,	. ,
			772.14					(continued)			_		
	CLAYEY SAN	D, GRAVEL & -medium dense			20 8		8				7 10	1.4	17
	STONE-DIOWI	-medium dense			8						14	В	
	CLAY LOAM-b	rown yong ofiff	770.31					basaming grou @ 22.0'					
	CLAT LUAIVI-D	nown-very sun			4			becoming gray @-23.0'			5		
					8	3.5	16				8	1.8	16
20				-5	8	Р		-		-25	12	В	
J 4/1/													
G.GP					4						5		
0 LO					5	2.0 B	17				9 12	1.8 B	16
\$\1808			765.31		1	Б		-	745.31		12	D	
D (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20	SILTY CLAY-d	ark brown &	100.01					CLAY-gray-stiff to very stiff	10.01				
RING	gray-stiff to ver	y sun			6 6	2.3	25				5 8	1.8	21
80 BO				-10	-	B	20			-30	40	P	21
2)/180								-					
TEM					4								
188, 1					11	1.5	22						
(PTB					9	Р			·		-		
۱∢.	SAND & GRAV	/EL-brown-loose to	760.31										
ONT	medium dense				4						5		
K LEM					5		13				7 10	2.0 P	26
OVEF				- <u>15</u>	5			-		-35	10	1	
l, I-55													
Σ					4		15						
3080 T			-		3		15						
Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT RO			755.31										
CTS/2	CLAY LOAM-b	rown-stiff		_	6						5		
ROJEC					11	1.2	17				7	1.4	23
Z:\PF				-20	15	В				-40	8	В	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

ROUTEI-55					
COUNTY DuPage DR			HAMMER TYPE		
STRUCT. NO Station BORING NO Station Offset Ground Surface Elev 773.31	- POS TW HSQu	O Stream Bed Elev. I S Groundwater Elev. T First Encounter Upon Completion	: n/aft	D B E L P O T W H S (ft) (/6")	U M C O S I S Qu T (tsf) (%
CLAY-gray-stiff to very stiff (continued)	7 7 7 9 1.5 45 10 B 726.31	CLAY LOAM-gray-s (continued)			2.0 1 P
	6 8 1.3 9 P 	14			2.3 1: P
	13 2.0 13 P 	12 CLAYEY SAND & GRAVEL-gray-very	696.31 r dense	10 12 	1.5 20 P

SOIL BORING LOG

Page <u>2</u> of <u>3</u>

Date 1/7/20

GSI Job No. 18080



GSI Job No. 18080

SOIL BORING LOG

Page <u>3</u> of <u>3</u>

Date 1/7/20

	ROUTE _		I-55	DE:	SCR	IPTION	I	5 Ove	r Lemont Road Bridge Reconstruction	on L (DGGI	ED BY	T	С
	SECTION				_ I			SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E	, 3 rd PM				
	COUNTY		DuPage	DRILLING	ME	THOD			HSA/Rotary HAMMER	TYPE	(CME A	utoma	tic
	Station _	0.	BSB-10		D E P T	B L O W	U C S	M O I S	Surface Water Elev Stream Bed Elev Groundwater Elev.:	_ ft	D E P T	B L O W	U C S	M 0 5
	Station		279+68 75.00ft Left		Н	S	Qu	Т	First Encounter Dry to -10.0	_ ft	н	S	Qu	Т
	Ground S	Surfac	e Elev773.	. <u></u>	(ft)	(/6'')	(tsf)	(%)	Upon Completionn/a After Hrs	ft	(ft)	(/6")	(tsf)	(%)
	CLAYEY S GRAVEL-((continued	gray-v				-			SILTY CLAY-gray-very dense (continued)					
	CLAY LOA	M-gra	ay-stiff to very s	691.31 stiff		-			SILTY SAND & GRAVEL-gray-very dense	671.31				
						10						50/4"		
/20					-85	15 14	1.5 B	15			-105			11
G.GPJ 4/1						-								
18080 LO	I					-			SILT-gray-very dense	666.31				
NG LOGS						8						28		
8080 BOR					-90	13 15	2.5 P	18			-110	50/5"		20
, ITEM 2)/1						-								
Z:/PROJECTS/2018/18080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080 LOG.GPJ 4/1/20	SILTY LO	\M-gr	ay-very dense	681.31		-			CLAY LOAM-gray-hard	661.31				
JONT ROA						32		20			_	30	4.5	10
OVER LEN					-95	50/4"		20			-115	17 17	4.5 P	12
/ LIN, I-55						-								
8/18080 TN	SILTY CLA	\Y-gra	ay-very dense	676.31		-								
IECTS/201					_	13					_	15		
Z:\PROJ					-100	18 50/3"		14	End Of Boring @ -120.0'. Boring backfilled with cuttings.	653.31	-120	18 48	4.0 P	13

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger
BBS, from 137 (Rev. 8-99

	ROUTE I-55	DES	SCRI	PTION	l <u> </u>	5 Ove	r Lemont Road Bridge Reconstruction	LOGO	GED BY	N	/M
	SECTION		_ L	OCAT		SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E, 3 rd F	M			
	COUNTY DuPage DRIL	LING	ME	THOD			HSA/Rotary HAMMER TYP	E	CME A	utoma	itic
	STRUCT. NO	-	D E P	B L O	U C S	M O I	Surface Water Elev ft Stream Bed Elev ft	D E P	L	U C S	M O I
	BORING NO. BSB-11 Station 279+05 Offset 8.70ft Right		T H	S	Qu	S T	Groundwater Elev.: First Encounter Dry to -10.0 ft Upon Completionn/a ft	T H	S	Qu	S T
	Ground Surface Elev. 773.51	ft	(ft)	(/6")	(tsf)	(%)	After Hrs ft	(ft) (/6")	(tsf)	(%)
	12.0" ASPHALT		_				753 CLAY LOAM-brown-stiff to very	.01	_		
	CLAY LOAM with STONE-dark	2.51		3			stiff		5		
	brown & gray-medium dense (Fill)		_	9		11	-	-	6	2.5	16
		-		8					9	Р	
	77	0.51							_		
	CLAY LOAM-brown & gray-very stiff (Fill)		_	6				-	6		
		-		7	4.4	14	-		5	2.5	16
~			-5	8	В			-2	5 7	Р	
PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20		-	_					_			
ΓdΘ		-		2			becoming gray @-25.5'		7		
0.0			_	4	3.5	21		-	8		NR
1_080		-		8	P				10		
S\18(_									
DOG:			_	•				_			
RING		-		3 5	3.5	17			4	3.0	15
0 BO			-10	5	9.5 P			-3		P.0	15
1808		-	-10	-	-			3			
EM 2)		_									
8, ITE			_	2	25			-	_		
LB 18		-		2 3	2.5 P	23			_		
	76	60.51	_				-	_	_		
ROAD	ORGANIC SILTY CLAY-dark										
OVER LEMONT	brown & black-stiff	-		5	4 5	20			3	25	
R LEN				6 8	1.5 P	36		_	5 5	2.5 P	23
OVEF	75	8.01	-15		•			3	5 0	- ·	
	SILTY CLAY-brown & gray-stiff							-			
, LIN,		-		2				_			
80 T.		-		2 2	1.5 P	25			_		
3\180		5 54	_	2	٢		1	-	-		
Z:\PROJECTS\2018\18080 TY LIN, I-55	SILTY SAND &	5.51							-		
ECTS	GRAVEL-gray-medium dense			3					3		
ROJI		-		9		11			5	2.0	19
Z:\F			-20	9				-4	0 8	Р	

SOIL BORING LOG

Geo Services, Inc. Geotechnical Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illihois 60565 (630) 355-2848

GSI Job No. 18080

Page <u>1</u> of <u>3</u>

Date 1/6/20

9

-60

Ρ

(650) 353-2000						D	ate	1/6	6/20
ROUTE I-55		DN <u>1-5</u> :	5 Ove	r Lemont Road Bridge Reconstruction	<u> </u>		-		
SECTION			SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E, 3	B rd PM				
				HSA/Rotary HAMMER T			E Au	tomat	tic
STRUCT. NO Station BORING NOBSB-11	— P O	C S	M O I S	Surface Water Elev Stream Bed Elev Groundwater Elev.:	ft ft	E P	B L O W	U C S	M O I S
Station 279+05 Offset 8.70ft Right	H_S		Т	First Encounter Dry to -10.0 Upon Completion n/a	ft ft			Qu	Т
Ground Surface Elev. 773.51	ft (ft) (/6"	') (tsf)	(%)	After Hrs	ft	(ft) (/	6")	(tsf)	(%)
CLAY LOAM-brown-stiff to very stiff (continued)				stiff (continued)					
	6 9	2.5 P	20					3.5 P	14
	45 12 					_ <u>-65</u> 1	12	<u>Р</u>	
							6		
	5 5 _50 8 	1.5 P	15			1	-	2.8 P	18
	7 6 5_11	2.5 P	11				10 9 11	2.0 P	11
	55 1 					75	-		
	6	2.5	14				6 8	2.0	15

SOIL BORING LOG

Page <u>2</u> of <u>3</u>

18080

GSI Job No.

-80

14

Р



Z'PROJECTS/2018118080 TY LIN, I-55 OVER LEMONT ROAD (PTB 188, ITEM 2)/18080 BORING LOGS/18080_LOG.GPJ 4/1/20

GSI Job No. 18080

SOIL BORING LOG

Page <u>3</u> of <u>3</u>

Date 1/6/20

	ROUTE	I-55	DES	SCRI	PTION	l <u> </u>	5 Over	Lemont Road Bridge Reconstruction	on LC	oggi	ED BY	N	1M
	SECTION			_ L	OCAT		SW 1/	4, SEC. 5, TWP. T37N, RNG. R11E	, 3 rd PM				
	COUNTY	DuPage D	RILLING	ME	THOD			HSA/Rotary HAMMER	TYPE	C	CME A	utoma	tic
	Station BORING Station Offset	NO NO		DEPTH (ft)	BLO¥S	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion Marcon	ft ft ft	DEPTH	B L O ♥ S (/6")	U C S Qu (tsf)	M O I S T (%)
	CLAY LO	AM-brown-stiff to very	<u> </u>	(,	(, , ,	(101)	(70)	After Hrs SILT-gray-very dense (continued)		(,	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(101)	(70)
	SILTY CL	AY LOAM-gray-loose	691.51		3			CLAY LOAM-gray-very stiff to hard	671.51		9		
_				-85	2 5	2.5 P	14			-105	16 19	3.5 P	14
D (PTB 188, ITEM 2)\18080 BORING LOGS\18080_LOG.GPJ 4/1/20	SILT-gray	<i>i-</i> dense	686.51		12						9		
80 BOR				-90	16 21		21			-110	14 17	2.9 B	13
EMONT ROAD (PTB 188, ITEM 2)/180	CLAY LO	AM-gray-very stiff	681.51		24 27	2.8	11				12 50/2"	4.5	12
Z:\PROJECTS\2018\18080 TY LIN, I-55 OVER LEMONT ROA	SILT-gray	/-very dense	676.51	95 	25 39 43	B	20	End Of Boring @ -120.0'. Boring backfilled with cuttings.		_ <u>-115</u> 	23 19 28	P 4.5	13

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206), GP-Geoprobe Hand Auger BBS, from 137 (Rev. 8-99)

				_	_					Date		9/20
SECTION		_ L		ION _	500 1/	4, SEC. 5, TVVP. 137N,	RNG. RIIE,					
COUNTY DuPage DI	RILLING	ME	THOD			HSA/Rotary	HAMMER 1	YPE	C	ME A	utoma	tic
STRUCT. NO Station BORING NOBSB-12		D E P T	o w	U C S	M O I S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:		ft	D E P T	BLOW	U C S	N C I S
Station278+75Offset124.20ft RightGround Surface Elev.763.76		H (ft)	S (/6")	Qu (tsf)	т (%)	First Encounter Upon Completion After Hrs.	n/a	ft	H (ft)	S (/6")	Qu (tsf)	ד (%
CLAY LOAM-dark brown & gray-stiff (Fill)						CLAY LOAM-brown 8 very stiff (continued)	& gray-stiff to					
jray-sun (rm)			50/3"		26					6		
				1.3	18					7	3.5	1
				В						12	Р	
			4	4.5	- 00					6	4 7	
		-5	4	1.5 P	30				-25	7 8	1.7 B	1
SILTY CLAY-dark gray to	758.26	·	-						_			
plack-stiff			4							3		
			4	1.5 B	29					4 6	2.5 P	2
becoming brown & gray @ -8.0'												
			3							4		
			3	1.5	27				_	6	2.0	1
	752.00	-10	4	B					-30	7	В	
SANDY CLAY LOAM-brown &	753.26								-			
gray-medium dense			3									
			4		17							
	750.76		0						_			
CLAY LOAM-brown & gray-stiff to very stiff	130.70		6							5		
			6	1.9	16					7	3.0	2
		-15	0	B					-35	9	Р	
			-									
			6									
			7	3.8	16			726.76				
		_	9	В		SILTY CLAY LOAM-Q	gray-medium					
becoming gray @ -18.0'						stiff						
			4							9	<u> </u>	
			6	1.5	16					6	0.5	1

SOIL BORING LOG

Page 1 of 3

Date 1/9/20

GSI Job No. 18080

Geo Services Inc. Engineering nical Environmental & Civil Eng 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2848

	ROUTE I-55	DESCR		I <u>1-5</u>	5 Ovei	Lemont Road Bridge	Reconstruction	LC	oggi	ED BY	T	C
	SECTION		LOCAT	ION _	SW 1/-	4, SEC. 5, TWP. T37N	, RNG. R11E, 3	rd PM				
	COUNTY DuPage DRIL	LING ME	THOD			HSA/Rotary	HAMMER T	YPE	C	OME A	utoma	tic
	STRUCT. NO.	P T H	L O W S	U C S Qu (tsf)	МОІ SТ (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion After Hrs.	 	ft ft ft	D E P T H (ft)	В L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
	SILTY CLAY LOAM-gray-medium stiff (continued)		3			CLAY LOAM-gray-st (continued)	iff to very stiff			8		
21/18/08/0 BOBING LOGS/18/08/0 LOG GP1 4/4/20			-	2.5 P	14	CLAY LOAM-gray-st	iff to very stiff	<u>696.76</u>	65	10 13 7		17
(PTR 188 ITEM			9 12 12 12 8	3.5 P	16				 	11	1.6 B	13
Z-VERO JECTS/2018/18080 TV I IN 1-55 OV/ER I EMONT ROAD			7	1.7 B	19				 	8 10 9 9 19	1.0 P 2.0 P	10

SOIL BORING LOG

Page 2 of 3

1/9/20 Date

GSI Job No. 18080

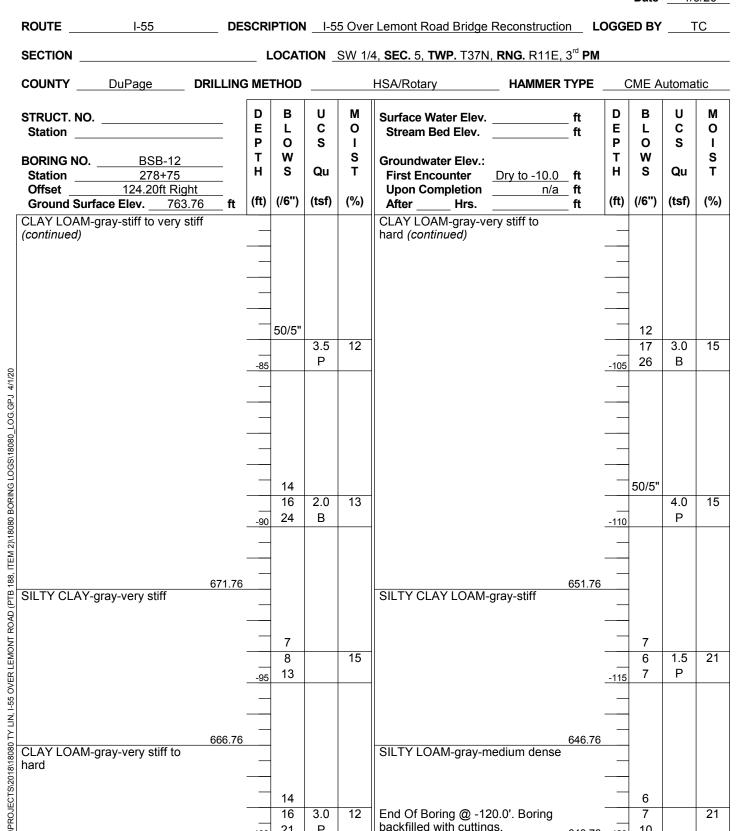
Geo Services Inc. nical, Environmental & Civil En 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-28-8 Engineering

21

-100

Ρ

backfilled with cuttings.





GSI Job No. 18080

10

643.76 -120

SOIL BORING LOG

Page 3 of 3

Date 1/9/20

APPENDIX D

PILE CAPACITY TABLES

West Abutment (Ground Surface Elevation against Pile during driving = 751.68', Pile Cutoff Elevation = 768.3') Metal Shell 14"² Metal Shell 14" 3 HP 10x42 HP 12x53 HP 12x63 HP 14x73 HP 14x89 Metal Shell 12"1 Estimated Factored Nominal **Pile Length** Resistance Requred (ft.) Available, Available, Bearing, Available, Bearing, Bearing, Available, Bearing, Available, Bearing, Available, Bearing, Available, Bearing, Available, Bearing, NRB (Kips) NRB (Kips) FRA (Kips) NRB (Kips) FRA (Kips) FRA (Kips) NRB (Kips) FRA (Kips) NRB (Kips) FRA (Kips) FRA (Kips) NRB (Kips) FRA (Kips) NRB (Kips) FRA (Kips) NRB (Kips)

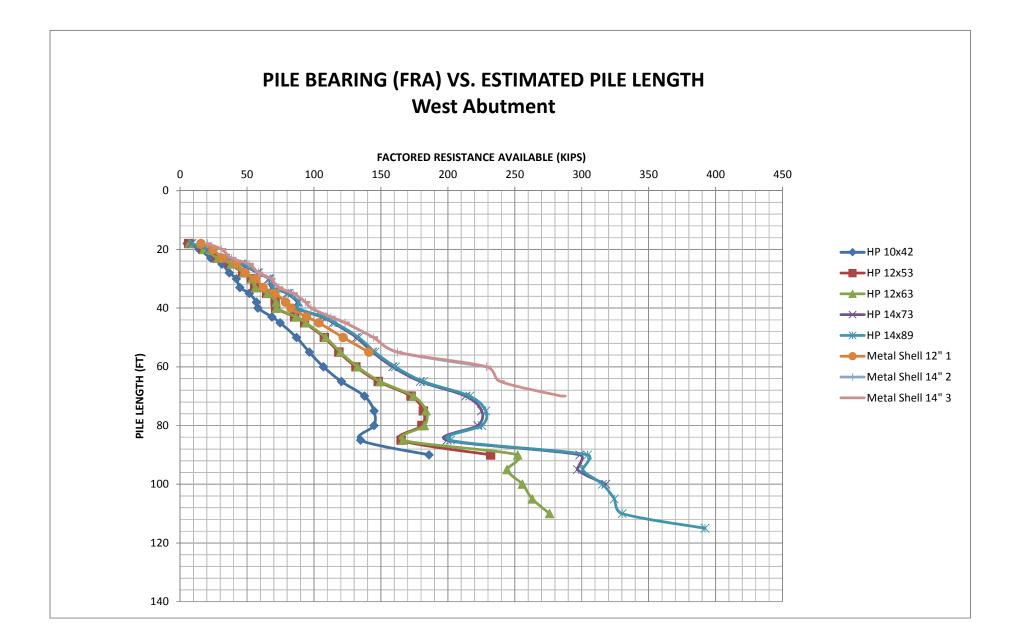
Estimated Pile Lengths and Capacities for West Abutment

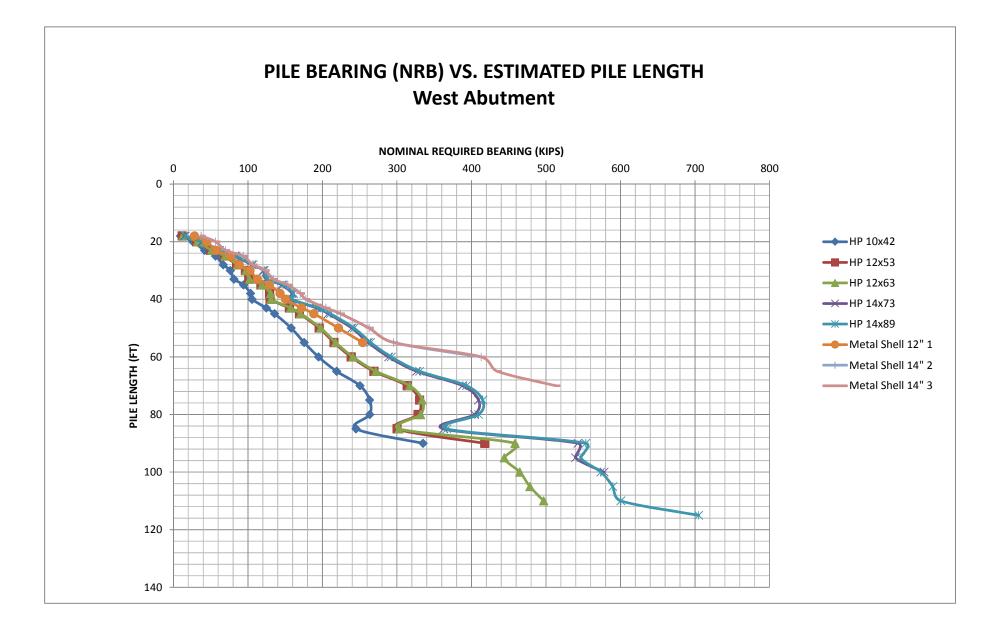
Note: Majority of the piles reach Max Available NRB based on Pile Driving Stresses through soil layers, except HP 14x89.

¹ Metal Shell Pile 12" diameter with 0.179" walls

² Metal Shell Pile 14" diameter with 0.250" walls

³ Metal Shell Pile 14" diameter with 0.312" walls





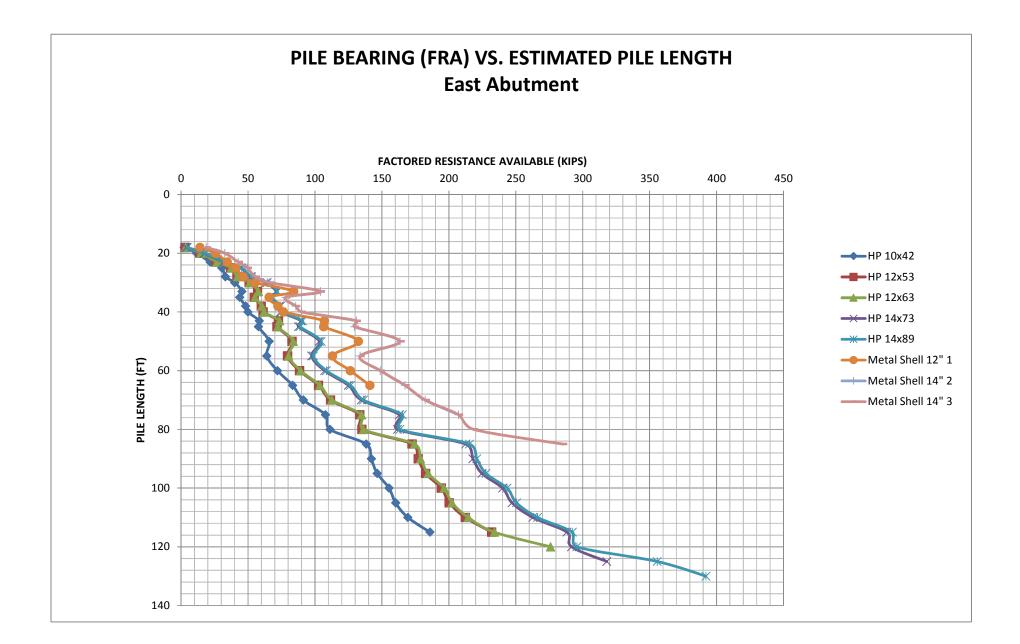
				East A	butment (Gro	ound Surface E	levation agai	nst Pile during	driving = 753	.35', Pile Cuto	off Elevation =	768.3')				
	HP 1	0x42	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	Metal Sl	nell 12" ¹	Metal Sl	14" ²	Metal Sl	hell 14" ³
Estimated Pile Length (ft.)	Factored Resistance Available, FRA (Kips)	Nominal Requred Bearing, NRB (Kips)														
18	2	4	3	5	3	6	4	7	4	8	14	26	19	34	19	34
20	12	21	14	26	15	27	17	32	18	33	26	46	33	59	33	59
23	22	39	26	47	27	49	32	58	33	59	34	63	43	78	43	78
25	30	55	37	67	38	68	44	81	45	82	41	74	49	90	49	90
28	33	60	42	76	42	77	52	94	53	96	46	84	55	101	55	101
30	40	73	51	92	51	93	63	115	64	117	55	100	66	120	66	120
33	45	83	57	104	58	105	71	129	72	131	84	153	104	189	104	189
35	44	80	55	99	55	100	67	122	68	124	66	120	78	142	78	142
38	48	88	60	109	60	110	73	133	74 75	135 137	72	131	86	156	86	156 164
40 43	50 58	91 106	61 73	111 132	62 73	112 134	74 89	135 163	91	137	76 107	139 195	90 131	164 238	90 131	238
43	58	105	73	132	73	134	89	163	89	165	107	195	131	238	131	238
50	66	105	83	150	84	151	103	139	105	192	107	241	129	235	129	235
55	64	116	80	145	80	146	98	177	99	130	1132	241	103	243	134	243
60	72	131	88	145	89	140	107	195	109	100	115	230	149	271	149	245
65	83	151	103	187	104	189	125	227	105	230	141	254	145	304	145	304
70	91	166	103	203	113	205	135	245	136	248	141	234	182	332	182	332
75	108	196	133	243	135	245	163	297	165	300			207	377	207	377
80	111	202	135	245	136	248	162	294	163	297			218	397	218	397
85	138	251	173	314	174	317	213	387	215	392			229	413	285	513
90	142	258	177	322	179	325	218	396	221	402						
95	147	266	183	332	184	335	225	409	228	414						
100	155	282	194	353	196	357	240	437	243	443						
105	160	291	200	364	202	368	247	449	251	456						
110	169	308	212	386	214	390	263	478	266	484						
115	186	335	232	418	234	426	288	524	292	531						
120					276	497	292	530	296	538						
125							318	578	356	647						
130									392	705						ļ
																┟────┤
																┟────┤

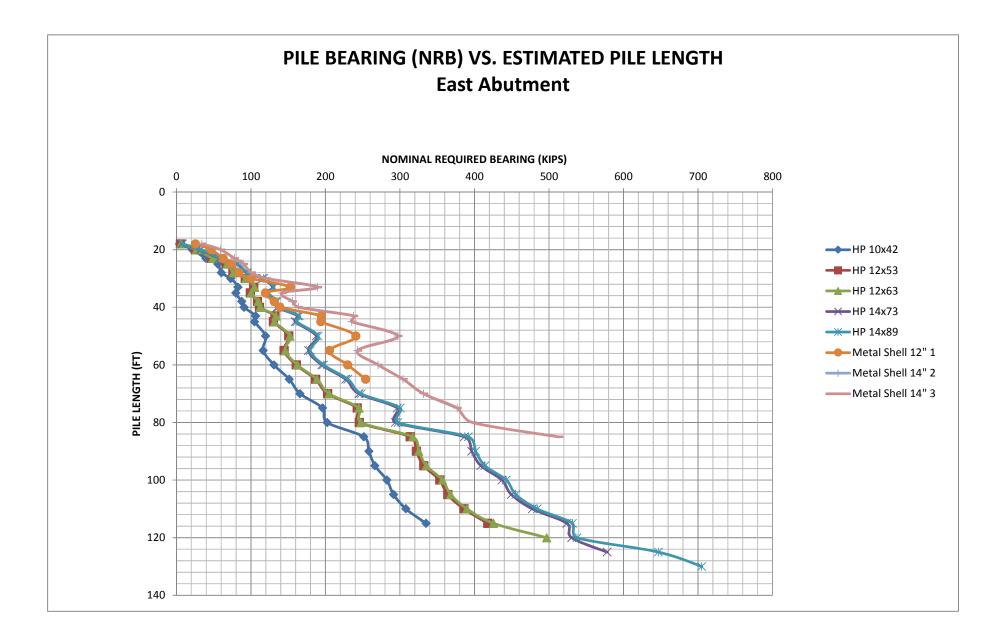
Estimated Pile Lengths and Capacities for East Abutment

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

¹ Metal Shell Pile 12" diameter with 0.179" walls ² Metal Shell Pile 14" diameter with 0.250" walls

³ Metal Shell Pile 14" diameter with 0.312" walls





Median Pier (Ground Surface Elevation against Pile during driving = 751.40', Pile Cutoff Elevation = 752.4') Metal Shell 14"² Metal Shell 14" 3 HP 10x42 HP 12x53 HP 12x63 HP 14x73 HP 14x89 Metal Shell 12"1 Estimated Factored Nominal **Pile Length** Resistance Requred (ft.) Available, Available, Bearing, Available, Bearing, Available, Bearing, Available, Bearing, Available, Bearing, Available, Bearing, Bearing, Available, Bearing, NRB (Kips) NRB (Kips) FRA (Kips) NRB (Kips) FRA (Kips) FRA (Kips) NRB (Kips) FRA (Kips) NRB (Kips) NRB (Kips) FRA (Kips) NRB (Kips) FRA (Kips) FRA (Kips) NRB (Kips) FRA (Kips)

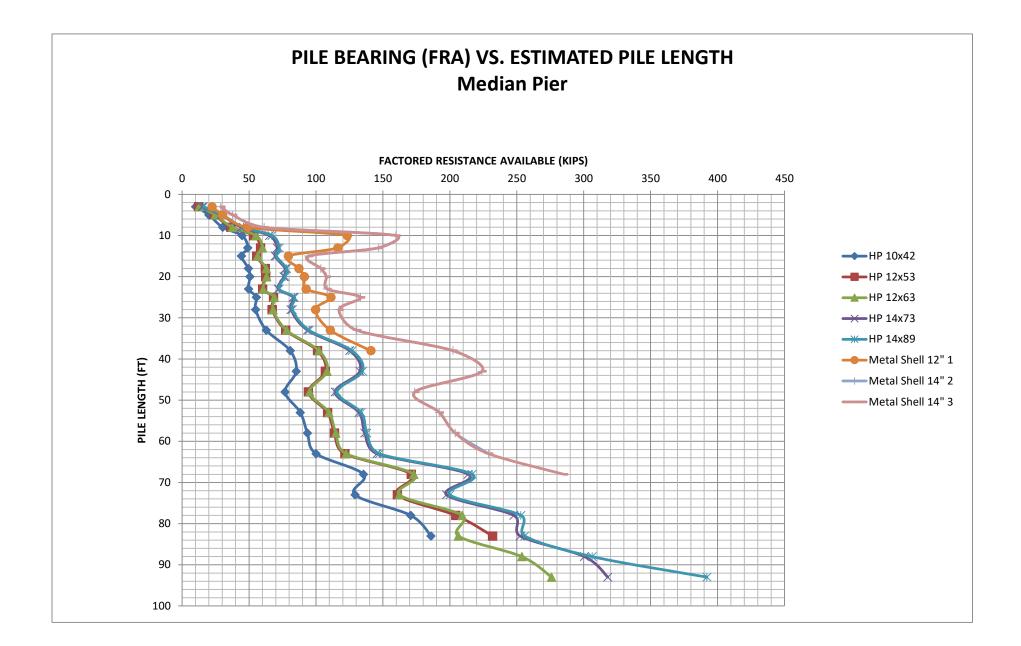
Estimated Pile Lengths and Capacities for Median Pier

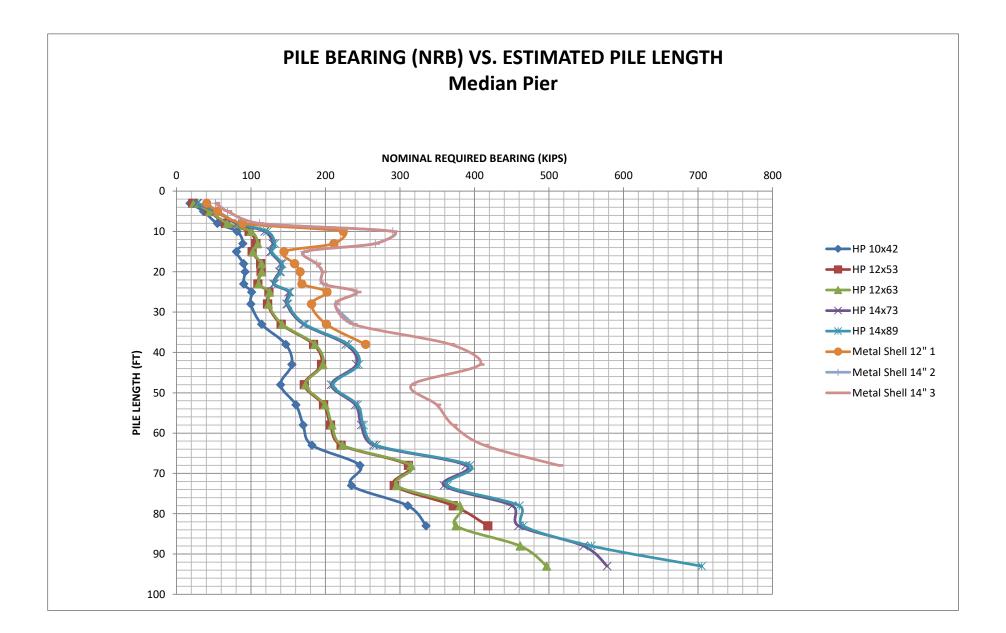
Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

¹ Metal Shell Pile 12" diameter with 0.179" walls

² Metal Shell Pile 14" diameter with 0.250" walls

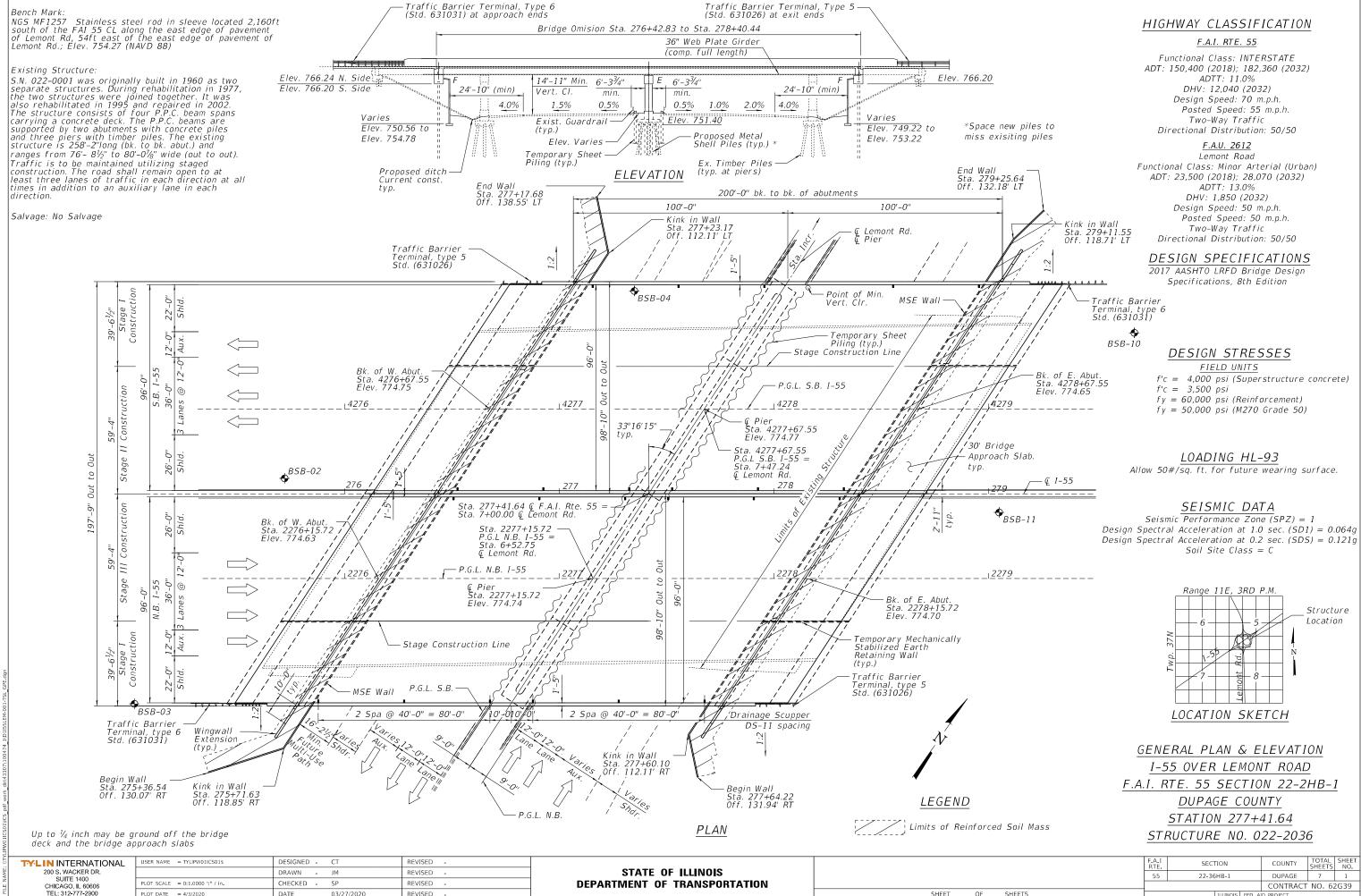
³ Metal Shell Pile 14" diameter with 0.312" walls





APPENDIX E

TS&L



PLOT DATE = 4/3/2020

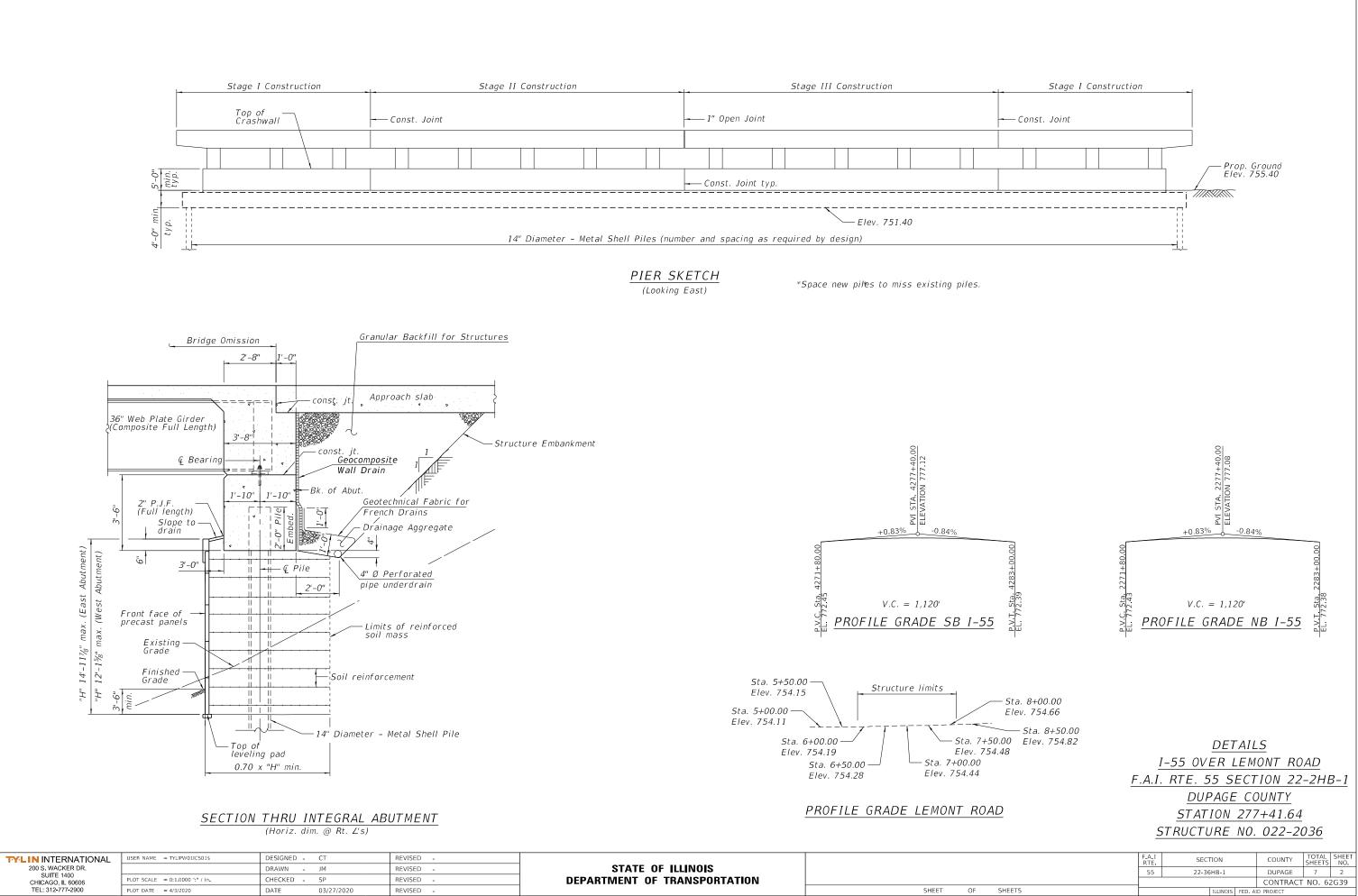
DATE

03/27/2020

REVISED

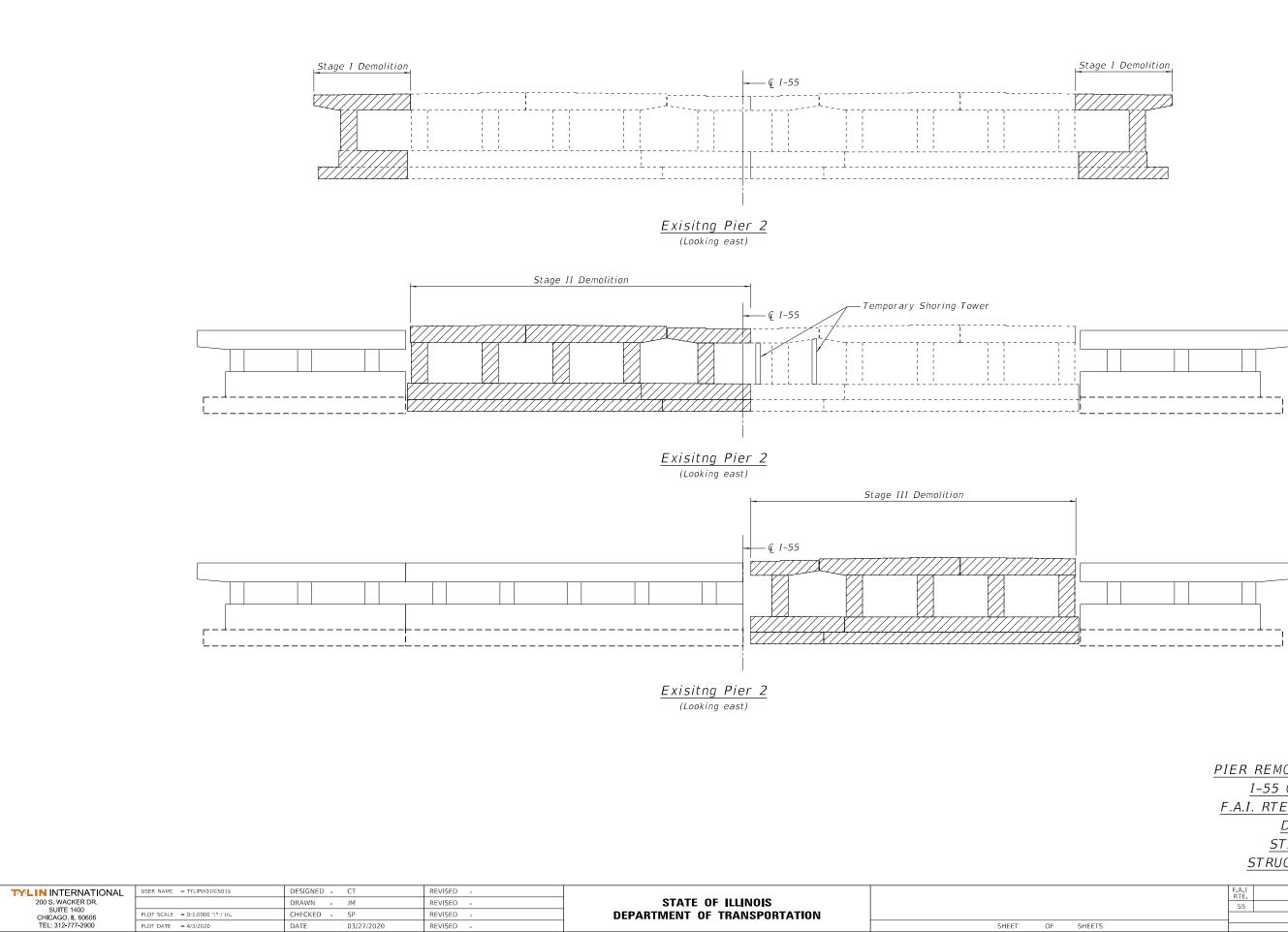
SHEET OF

	F.A.I RTE	SECT	ION		COUNTY	TOTAL SHEETS	SHEET NO.
	55	22-36	HB-1		DUPAGE	7	1
					CONTRACT	NO. 62	2G39
SHEETS			ILLINOIS	FED. A	ID PROJECT		



PLOT DATE = 4/3/2020 03/27/2020 DATE REVISED

SHEET OF SHEETS



PLOT DATE = 4/3/2020

DATE

03/27/2020

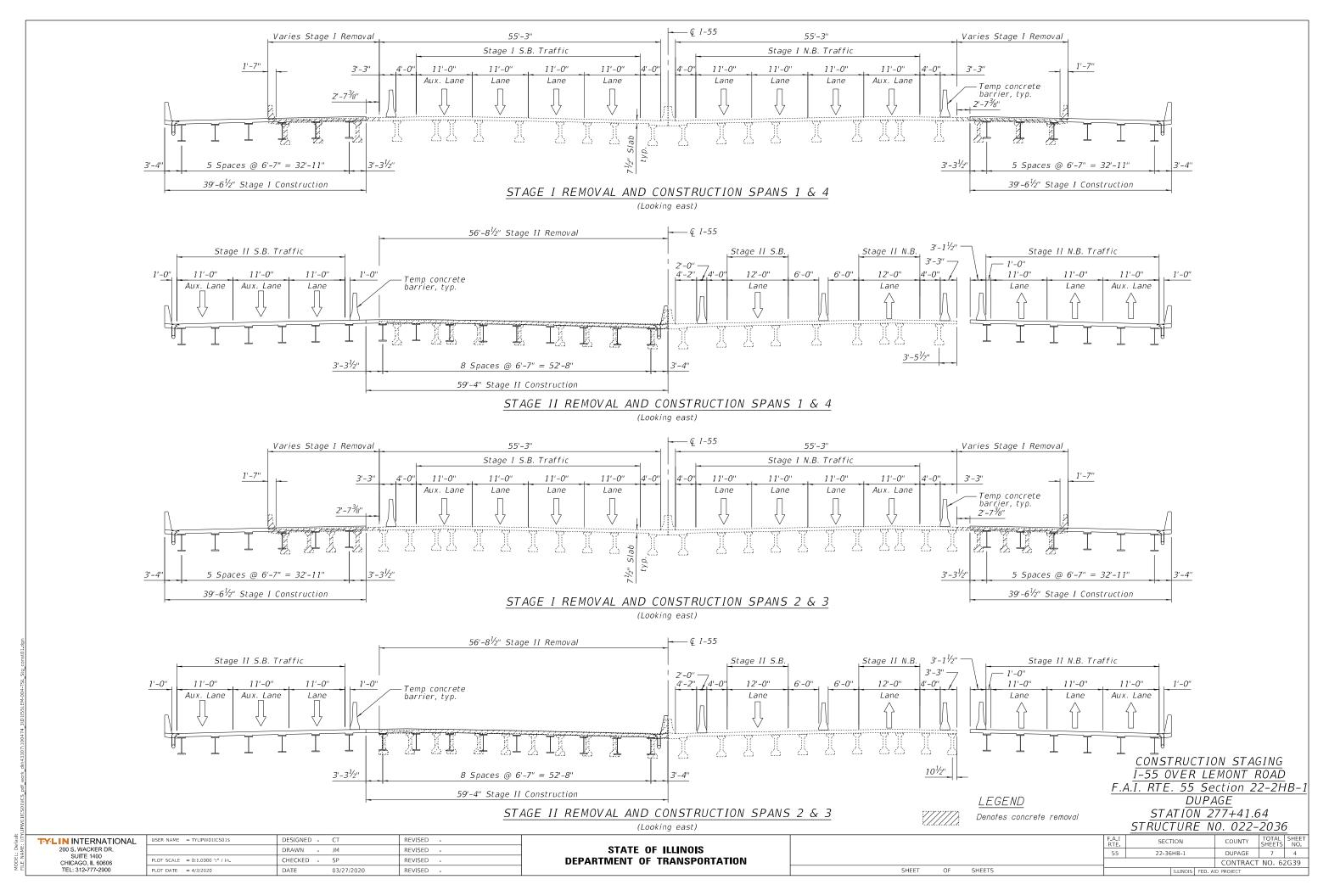
REVISED

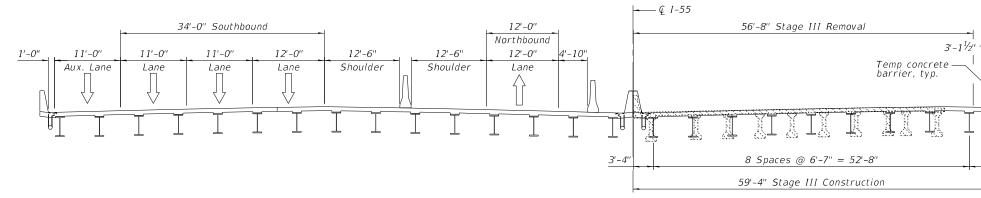
SHEET

OF

PIER REMOVAL AND CONSTRUCTION I-55 OVER LEMONT ROAD F.A.I. RTE. 55 SECTION 22-2HB-1 DUPAGE COUNTY STATION 277+41.64 STRUCTURE NO. 022-2036

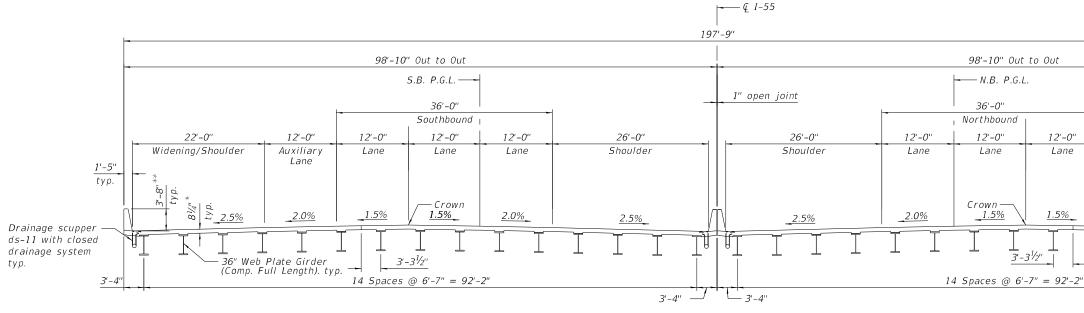
	F.A.I RTE	SECT	ION		COUNTY	TOTAL SHEETS	SHEET NO.
	55	22-36	HB-1		DUPAGE	7	3
					CONTRACT	NO. 62	2G39
SHEETS			ILLINOIS	FED. AI	ID PROJECT		





STAGE III REMOVAL AND CONSTRUCTION

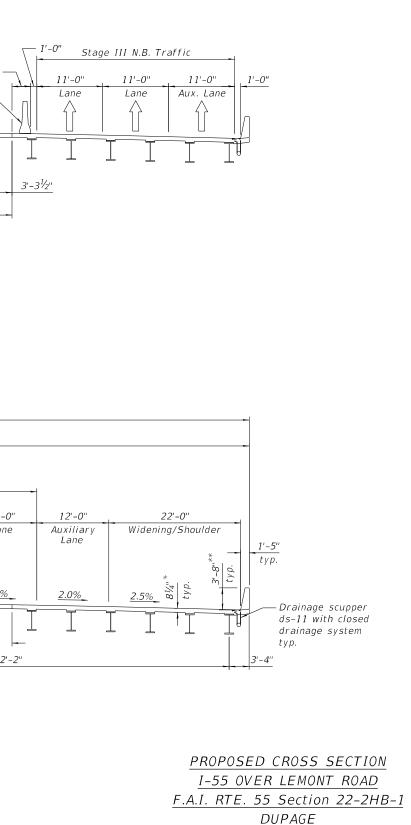
(Looking east) Span 2 and 3 exisitng beams shown



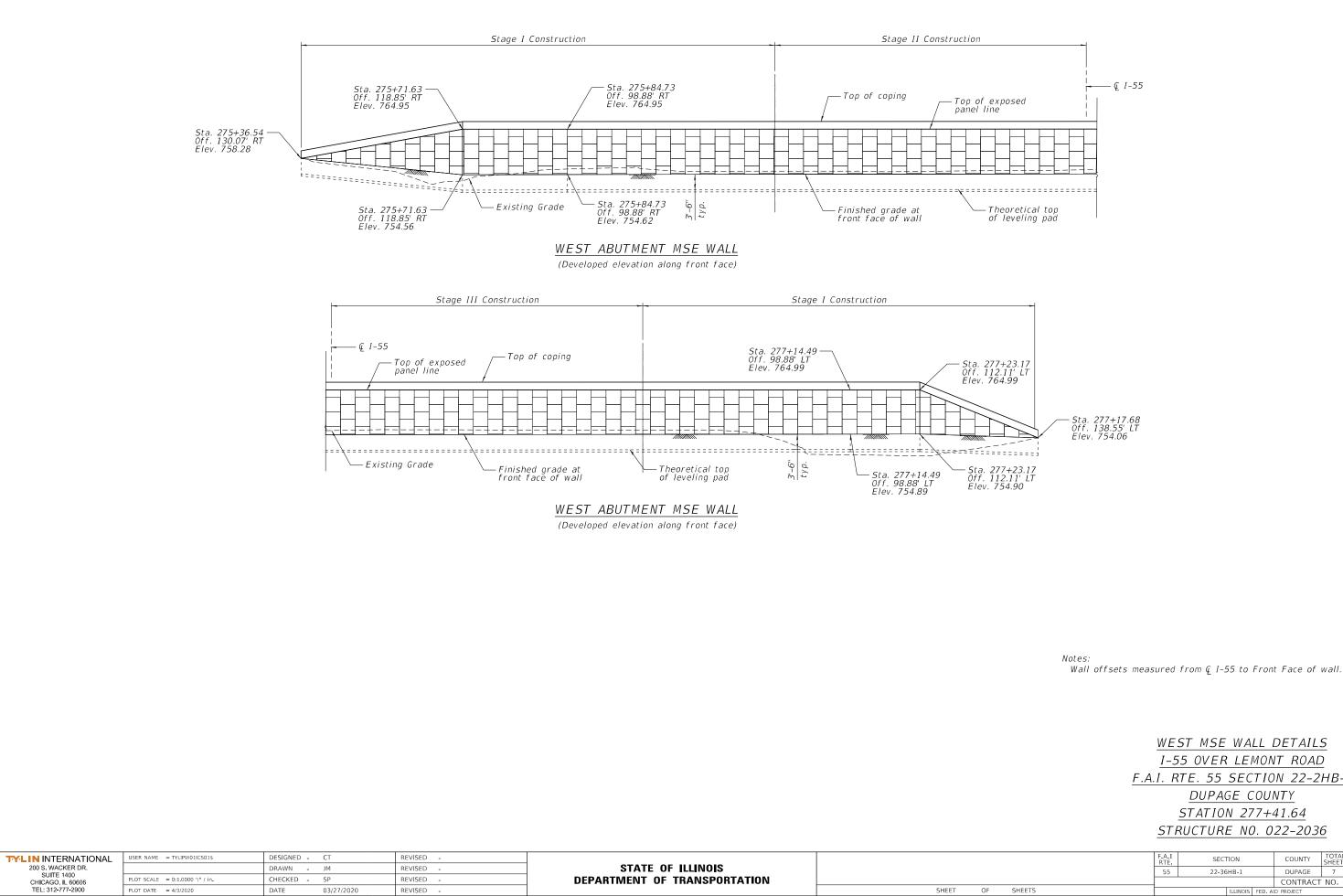
PROPOSED CROSS SECTION

Note: Dimensions are measured perpendicular to ∉ I-55 * Prior to grinding ** After grinding

efault NTY	TYLIN INTERNATIONAL	USER NAME = TYLIPW01ICS01\$	DESIGNED -	СТ	REVISED -				F.A.I BTE	SECTION	COUNTY	TOTAL SHEET
AME	200 S. WACKER DR.		DRAWN -	JM	REVISED -	STATE OF ILLINOIS			55	22-36HB-1	DUPAGE	7 5
DDEI N II	SUITE 1400 CHICAGO, IL 60606	PLOT SCALE = 0:1.0000 ':" / in.	CHECKED -	SP	REVISED -	DEPARTMENT OF TRANSPORTATION					CONTRACT	
ž E	TEL: 312-777-2900	PLOT DATE = 4/3/2020	DATE	03/27/2020	REVISED -		SHEET O	SHEETS		ILLINOIS FED.	AID PROJECT	



STATION	277	
STRUCTURE	NO.	022-2036



DEPARTMENT OF TRANSPORTATION

SHEET

OF

PLOT SCALE = 0:1.0000 ':" / in.

PLOT DATE = 4/3/2020

CHECKED -

DATE

SP

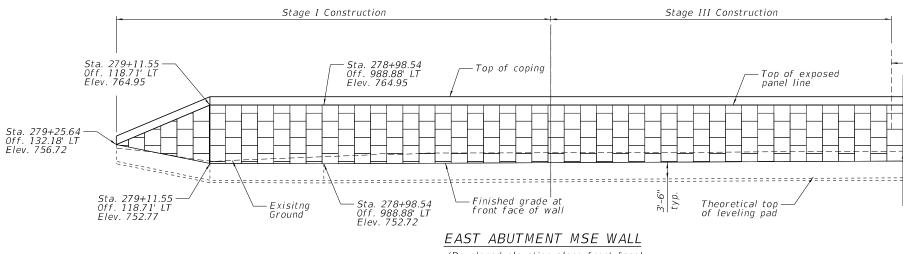
03/27/2020

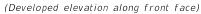
REVISED

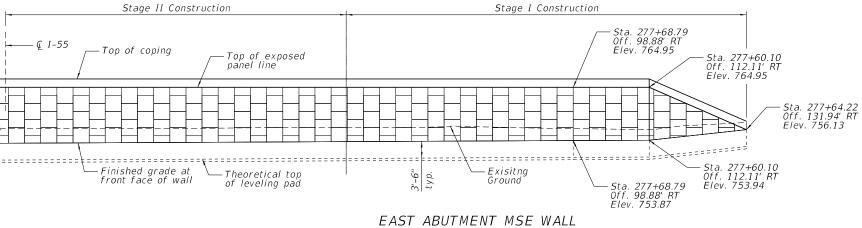
REVISED

F.A.I. RTE. 55 SECTION 22-2HB-1

	F.A.I RTE	SECT	ION	COUNTY	TOTAL SHEETS	SHEET NO.			
	55	22-36	DUPAGE	7	6				
			CONTRACT	NO. 62	2G39				
SHEETS	ILLINOIS FED. AID PROJECT								







(Developed elevation along front face)

TYLIN INTERNATIONAL 200 S. WACKER DR. SUITE 1400	USER NAME = TYLIPW01ICS01\$	DESIGNED - CT	REVISED -			F.A.I	SECTION	COUNTY	TOTAL SHEET
		DRAWN - JM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		55	22-36HB-1	DUPAGE	7 7
CHICAGO, IL 60606 TEL: 312-777-2900	PLOT SCALE = 0:1.0000 ':" / in. PLOT DATE = 4/3/2020	DATE 03/27/2020	REVISED -		SHEET OF SHEETS	_	ILLINOIS FED. 4	CONTRACT AID PROJECT	⁻ NO. 62G39
P	200 S. WACKER DR. SUITE 1400 CHICAGO, IL 60606	200 S. WACKER DR. SUITE 1400 CHICAGO, IL 60606 PLOT SCALE = 0:1.0000 ':" / in.	200 S. WACKER DR. SUTE 1400 CHICAGO, IL 60606 DRAWN JM	200 S. WACKER DR. SUITE 1400 CHICAGO, IL 60606 DRAWN JM REVISED - REVISED PLOT SCALE = 0:1.0000 ''' / in. CHECKED SP REVISED -	200 S. WACKER DR. SUITE 1400 CHICAGO, IL 60606 DRAWN JM REVISED STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	200 S. WACKER DR. SUITE 1400 CHICKG06 DRAWN JM REVISED STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DEPARTMENT OF TRANSPORTATION DEPARTMENT OF TRANSPORTATION	200 S. WACKER DR. SUITE 1400 CHICKGO IL EGOGO DRAWN - JM REVISED - STATE OF ILLINOIS DPLOT SCALE = 0:1.0000 '." / in. CHECKED - SP REVISED -	200 S. WACKER DR. SUITE 1400 CHICK0606 DRAWN - JM REVISED - STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DEPARTMENT OF TRANSPORTATION	200 S. WACKER DR. SUITE 1400 CHICK060 DRAWN - JM REVISED - REVISED - Drage Dupage 0 Drage PLOT SCALE = 0:1,0000 '' / in. CHECKED - SP REVISED - DEPARTMENT OF TRANSPORTATION DUPAGE DUPAGE

-ÇI-55

Notes: Wall offsets measured from & I-55 to Front Face of wall.

EAST MSE WALL DETAILS I-55 OVER LEMONT ROAD F.A.I. RTE. 55 SECTION 22-2HB-1 DUPAGE COUNTY STATION 277+41.64 STRUCTURE NO. 022-2036

APPENDIX F

DISPOSITION OF COMMENTS

		Comments by: IDOT Date received: 04/ I-55 over Lemont Road Proposed Structure Number SN 022-20 IDOT Job No. P-91-762-10, PTB 188-0 FAP Route 55, Section 22-2HB-1 DuPage County, IL DISPOSITION OF COMMENTS	036
Spec./Item No.	Dwg. No./Page No.	Comments	Responses
Report	r		1
1	Cover Sheet, all pages	The proposed structure number (022-2036) needs to be added to the SGR cover sheet.	The SN 022-2036 has been added to the latest versions of the SGR $(4/2/20 \text{ and } 4/17/20)$.
2	Page 3	On page 3, Note 1 alludes to borings that were taken but not included in the SGR. Please add these borings to the SGR and modify any recommendations pertinent based on this new information.	The complete set of borings has been added to the latest versions of the SGR $(4/2/20 \text{ and } 4/17/20)$. Both versions of SGRs were modified to include recommendations pertinent based on the new boring information.
3	Page 5	Under Section 7 "Analysis" the Coal Mine Activity" portion of the report should be deleted. Please only provide the information that is requested by the IDOT Geotechnical Manual.	The "Coal Mine Activity" portion of the report has been deleted from the latest SGR date 4/17/2020.
4	Page 5	The project is specified to be designed under the AASHTO LRFD Design code. In the Seismic Analysis section, references to the ASD design code, such as "Seismic Design Category", should be deleted.	The "Seismic Design Category" reference in the report has been deleted from the latest SGR date 4/17/2020.
5	Pages 6 to 7	Table 3 shows 1.5 feet of pile embedment into the abutments, and 2 feet at the median pier. Please verify that the pile embedment at the abutments should be 2 feet, and the pier should be 1 foot as well as modifying the table and Note 3 as necessary.	Per SGR, the 2 feet pile embedment for the abutments matches with the TS&L. However, the pier had 2 feet of pile embedment shown in Table 3 of the SGR (including the Pile Tables in the Appendix section of the SGR); this has been revised to 1 foot per commentary and TS&L drawings. Table 3 and the Pile Table and Graphs for the Median Pier has been modified in the revised SGR to reflect this commentary.
6	Page 8	Please verify that the approach slab will be supported by a spread footing and delete your pile length recommendations at these locations.	Revised per commentary. See page 8 of the revised SGR.
7	Appendix E	The report did not contain a copy of the TS&L plan, therefore please include one in the revised report.	The latest TS&L plan has been included in the Appendix section of the revised SGR.
By: Richard R	ealeza		Date: 4/17/2020