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Roadway Geotechnical Report

F.A.P. Route 317 (US 150 EB)
Section [15B;(102-1)BR]BR
Peoria and Tazewell Counties
Job No. P-94-018-13
Contract No. 68B46
PTB No. 169-028

November 2018

Table of Contents

1.0 General Information

1.1 Project Description

This report provides geotechnical data and recommendations for the roadway portion of the proposed McClugage Bridge Project. The project includes the replacement of two existing U.S. 150 EB bridges, replacement of a double box culvert, and related mainline and ramp reconstruction in Peoria and Tazewell Counties.

Nearby project features that have an impact on the design or construction of the proposed roadway include the U.S. 150 EB Over Illinois River Bridge (S.N. 090-0180), the U.S. 150 (EB) over IL 29 (Adams Street) Bridge (S.N. 072-0250), and Ramp SW over Illinois River Tributary Box Culvert (S.N. 090-2020). Geotechnical recommendations for S.N. 090-0180, 072-0250, and 090-2020 are presented in separate structure geotechnical reports prepared by Hanson Professional Services Inc. (Hanson).

The project was originally scoped to include improvements to the US 150 WB and IL 29 interchange ramps. This work was removed from the project after completion of the subsurface investigation. This report provides geotechnical recommendations only for the current limits of the project. Boring and laboratory test data collected for the westbound interchange have been included for reference and possible use in a future project.

The proposed improvements are located in the east central portion of Peoria County and the northwest portion of Tazewell County, within Section 35 of Township 9 North, Range 8 East (4th Principle Meridian) and Sections 10, 11, and 14 of Township 26 North, Range 4 West (3rd Principle Meridian). The new structure over the Illinois River is located at US 150 EB Sta. 2134+06.00. The north edge of the new bridge is located approximately 40 feet downstream (south) of the existing EB bridge and 100 feet downstream of the existing WB bridge.

West of the river, the roadway improvements begin at U.S. 150 Station 2097+57.68 and end at Sta. 2106+75.18. Improvements on Ramps A and B are planned from Sta. 1100+00 to 1107+75.25 and 1206+12.98 to 1210+91, respectively. Improvements on Ramp E are planned from Sta. 1500+00 to Sta. 1505+61.77.

East of the river, the roadway improvements begin at Sta. 2157+36.3 and continue to 2179+38.36. Ramp SW improvements begin at Sta. 10+00 and continue to Sta. 45+13.33.

The location of the project is shown on Figure 1.1.

1.2 Report Limitations

This report has been prepared to provide information and recommendations to the designer. The specific design recommendations included in this report may not be reflected in the final plans or special provisions. Revisions may be made after the report submittal. Contact the Geotechnical Engineer at Hanson Professional Services, Inc. if there are questions regarding this report or if there are any changes to the horizontal alignments, profiles, cross sections, or location and type of structures.

The Geotechnical Data section of this report has been prepared to provide information to Contractors and Field Inspection Personnel. The subsurface investigation has been carried out in a manner consistent with reasonable engineering judgment. However, because of variations in subsurface conditions between borings, there is a possibility that differing subsurface conditions may be encountered during construction. Contact the Geotechnical Engineer if there are questions about the data or if differing conditions are encountered during construction.

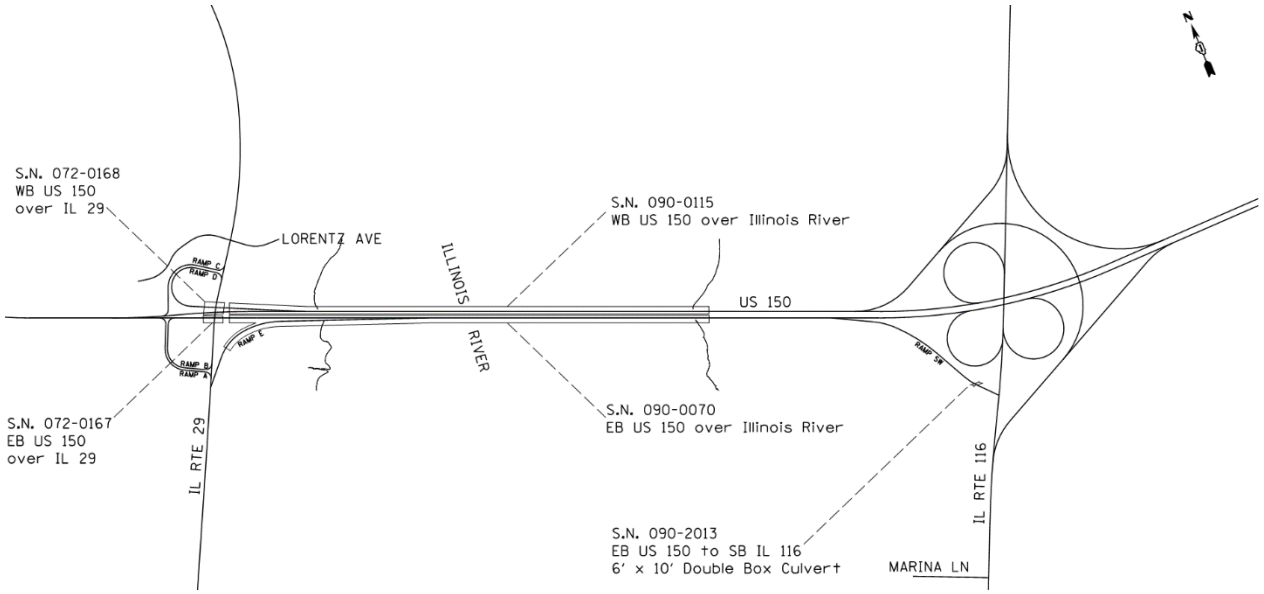

Figure 1.1 – Location Map

1.3 Pedololgy

According to the USDA Web Soil Survey, the most prevalent soil associated with the proposed alignment is the Orthents, loamy, undulating. This soil is found over nearly the entire alignment. The remainder of the roadway alignment is covered by intermittent, very small, areas of various soil types. The distribution of the various soil types over the proposed alignment is shown on the USDA soil map in Appendix A. Table 1.1 summarizes the soil types along the proposed alignment.

Table 1.1 Soil Types Along the Proposed Alignment

West of Illinois River Soil	Map Units	Percent of Alignment Covered
Orthents, loamy, undulating	802B	100
East of Illinois River Soil	**Map Units**	**Percent of Alignment Covered**
Orthents, loamy, 2 to 20 percent slopes	802D	100

Orthents (802B) consists of disturbed materials such as fills. This soil is generally well drained, has a low shrink-swell potential, is moderately susceptible to frost action, and low corrosion potential for steel and concrete.

Orthents (802D) consists of disturbed materials such as fills. This soil is moderately well drained, has a low to moderate shrink-swell potential, is moderately susceptible to frost action, and high corrosion potential for steel and a low corrosion potential for concrete.

1.4 Bedrock Geology

Bedrock outcrops were not encountered during the subsurface investigation. Bedrock was not encountered within the soil borings drilled for the proposed roadway improvements. Deeper borings drilled for the proposed bridges encountered shale bedrock at depths exceeding 40 feet below the normal river pool. Top of bedrock as measured in the structure borings ranged from Elev. 397.4 to Elev. 364.6.

1.5 Geomorphology

The project area is located in an urban area within a major river valley. Subsurface materials consists of fill material and alluvial soils overlying bedrock. The fill is generally located in the existing eastern roadway embankments and near the surface on the west shore. Alluvial soils and bedrock are present at depth over the entire site. Strata elevations and depth are variable due to the site's location in a river valley.

1.6 Coal Mining

The Illinois State Geological Survey Directory of Coal Mines does not list any mines beneath the site.

2.0 Soils Investigation

2.1 Drilling and Sampling

Soil borings for the roadway generally were completed in September 2016. Structure borings were completed in August to September 2016 and November 2016. Soils plan and profile sheets and final boring logs are included in Appendix A.

Logs of borings drilled along US 150 WB, which is not part of the current project, are included in Appendix B.

Boring logs for structure borings can be found in the Structure Geotechnical Reports for the various structures.

2.2 Groundwater

Groundwater conditions vary due to topography on either side of the river. The west approach to the structure is situated on the bluff overlooking the river and the east approach is situated in the river valley. Groundwater generally was not encountered in borings that terminated above the normal river pool of Elev. 439.7. When groundwater was encountered at higher elevations, it was typically within a coarse grained soil layer and a lower water level was measured at the completion of drilling. This is usually indicative of a perched groundwater condition. Groundwater levels, as measured at the time of drilling, are recorded on the boring logs and on the soils profile sheets.

2.3 Climatic Conditions

The National Weather Service reported above average precipitation for Peoria, Illinois during September of 2016.

3.0 Analyses and Recommendations

3.1 Topsoil

Some areas where new pavements or embankments will be constructed currently support vegetation and would be suitable sources for topsoil. Based on the borings, at least 6 inches of topsoil is found in existing turfed areas. Up to 18 inches of topsoil is found at the base of the existing embankment along the east approach to the McClugage Bridge. Portions of these areas that will be excavated or filled over may be stripped and the material stockpiled for use as topsoil on unpaved areas. It is anticipated that these sources would provide most of the topsoil needed for the project.

3.2 Subgrade Support Rating

Tests on subgrade soils resulted in textural classifications of loam, silty loam, clay loam and sandy loam. Sandy subgrade soils with a subgrade support rating of granular are found along US 150 EB west of the Illinois Route 29 Bridge and along Ramps A and B. All other subgrades consist of silty soils with a subgrade support rating of poor. A rating of poor is recommended for the design of all pavements. If the Modified AASHTO procedure for pavement design is used, an IBR value of 3 may be used for pavement design.

3.3 Subgrade Treatment

Per IDOT policy, all pavement locations require a stable subgrade for base course and surface course placement. A minimum 12-inch thick layer of improved subgrade will be sufficient for all locations. The actual required thickness will be determined by field testing during construction.

Some of the soils found at the subgrade level would be reactive with lime; however, lime modification is not recommended due to the urban setting of the project. The improved subgrade layer should be an aggregate such as Subgrade Granular Material or Aggregate Subgrade Improvement.

The maximum frost depth is estimated to be 42 inches. Frost susceptible soils have a PI less than 12 and a silt and fine sand content greater than 65%. Most existing soils that will serve as pavement subgrades are generally too plastic or too coarse-grained to be considered frost susceptible. Existing soils within the east approach embankment meet the classification criteria for frost-susceptibility; however, the pavement will be constructed well above groundwater levels. No remediation of existing subgrade soils is required. Borrow material that is not frost susceptible should be utilized within the top 3 feet of all fills. District 4 Special Provision 204.00 should be included in the contract documents.

3.4 Unsuitable Soils

Soft clay and silt layers are present in the low-lying areas on the east side of the Illinois River. Analyses indicate that constructing the east approach embankment over these soil layers will result in large settlements and potential slope failure. The poor soils extend to a depth greater than 30 feet, making removal and replacement impracticable. Special treatments will be required to construct the embankment.

Soft clay loam and very soft, sandy loam are expected below a portion of the Ramp SW box culvert. These soils are unsuitable for bearing and should be removed and replaced where encountered. The unsuitable soils are likely to be found only at the extreme west end of the culvert. Replacement should be with rock fill according to District Standard 540000-D4.

The borings did not encounter any soils that would require overexcavation and replacement for pavement subgrade.

3.5 Slope Stability

The IDOT Geotechnical Manual requires slope stability analyses for cut and fill slopes that are greater than 15 feet in height. For this project, there are no tall cut slopes. New fill slopes up to 29 feet high will be constructed for the east approach embankment. The new fill will be placed on the south side of the existing embankment and will be up to 5 feet higher than the existing profile grade line.

A slope stability analysis was completed at the tallest point of the embankment, located at the back of the Illinois River Bridge Abutment (Sta. 2157+06.8). The factor of safety for the completed embankment is less than 1.0, assuming no strength gain of the existing soils. Several treatment options were considered. There is not enough right-of-way to bench or flatten the side slopes and meet the minimum factor of safety. The soft soils are too deep and too close to the existing embankment to allow removal and replacement. Ground improvement with aggregate columns is feasible at this site, but would add significant cost to the project. Stage construction of the embankment is feasible and cost-effective. The embankment can be built in two stages within the currently proposed three-year construction schedule.

Additional slope stability analyses were completed to determine the maximum height of the first stage, the degree of consolidation required before placing the second stage, and the station limits where stage construction is needed. These analyses used the results of laboratory consolidation and consolidated-undrained triaxial strength tests. It was determined that without assuming any strength gain of the existing soils, the embankment can be constructed to Elev. 460 at Sta. 2157+06.8 and the embankment can be constructed to the full height at Sta. 2161+50. After 73% consolidation under the first stage, the full embankment will meet the IDOT required minimum factor of safety if no traffic surcharge is applied. After 84% consolidation under the first stage, the full embankment with traffic surcharge will meet the stability criteria.

Results of the slope stability analyses are included in Appendix C. The degree of consolidation of each soil layer where strength gain is assumed is shown on the results summary. The rates of consolidation of the layers vary significantly. For instance, at an overall 73% degree of consolidation, the individual layers range from 45% to 99%.

For plans and specifications, staged embankment construction should be required from the East Abutment of SN 090-0180 to Sta. 2162+00. Settlement platforms should be installed and the embankment constructed to its full width up to Elev. 460. Further embankment construction should be suspended while waiting for consolidation and strength gain. The target degree of consolidation is 73%, measured at the settlement platform closest to the bridge abutment. Estimated waiting period is 110 calendar days. After the waiting period has elapsed, a soil test boring should be drilled to collect samples for strength testing. If all samples have an unconfined strength of at least 0.7 tsf, then the remaining embankment may be placed without further restriction. If unconfined strengths less than 0.7 tsf are encountered, then the geotechnical engineer should be contacted to re-evaluate the slope stability using the consolidated soil strengths.

3.6 Settlement

On the west side of the river, only a very small quantity of new fill will be placed. This fill is located in areas that will be regraded to accommodate the proposed bridge abutments. The fill will be placed over granular or stiff

subgrades. Maximum fill height is approximately 12 feet and maximum estimated settlement is less than one-half inch. No further analyses or treatment is required.

Along Ramp SW, up to 10 feet of fill will be placed with the maximum height located near SN 090-2020. This area is known to be overconsolidated because a ramp and box culvert similar to the proposed construction was located here from 1963 to 1993. Maximum estimated settlement is less than one-half inch. No further analyses or treatment is required.

Large settlements of up to 12.0 inches are anticipated along the east approach embankment. The proposed embankment is a southward extension of the existing embankment. At any cross-section the settlement at the right edge of pavement will be much greater than the settlement at the left edge due to the variance in the height of fill. Estimated settlements at three sections across the proposed US 150 EB roadway are provided in Figure 3.1. Total settlements across the proposed embankment are provided for both the first and second stages of the embankment construction. Total settlements at settlement platform locations are indicated by open circles on the figure. The target settlement under the first stage needed before placing the second stage is indicated by a solid circle.

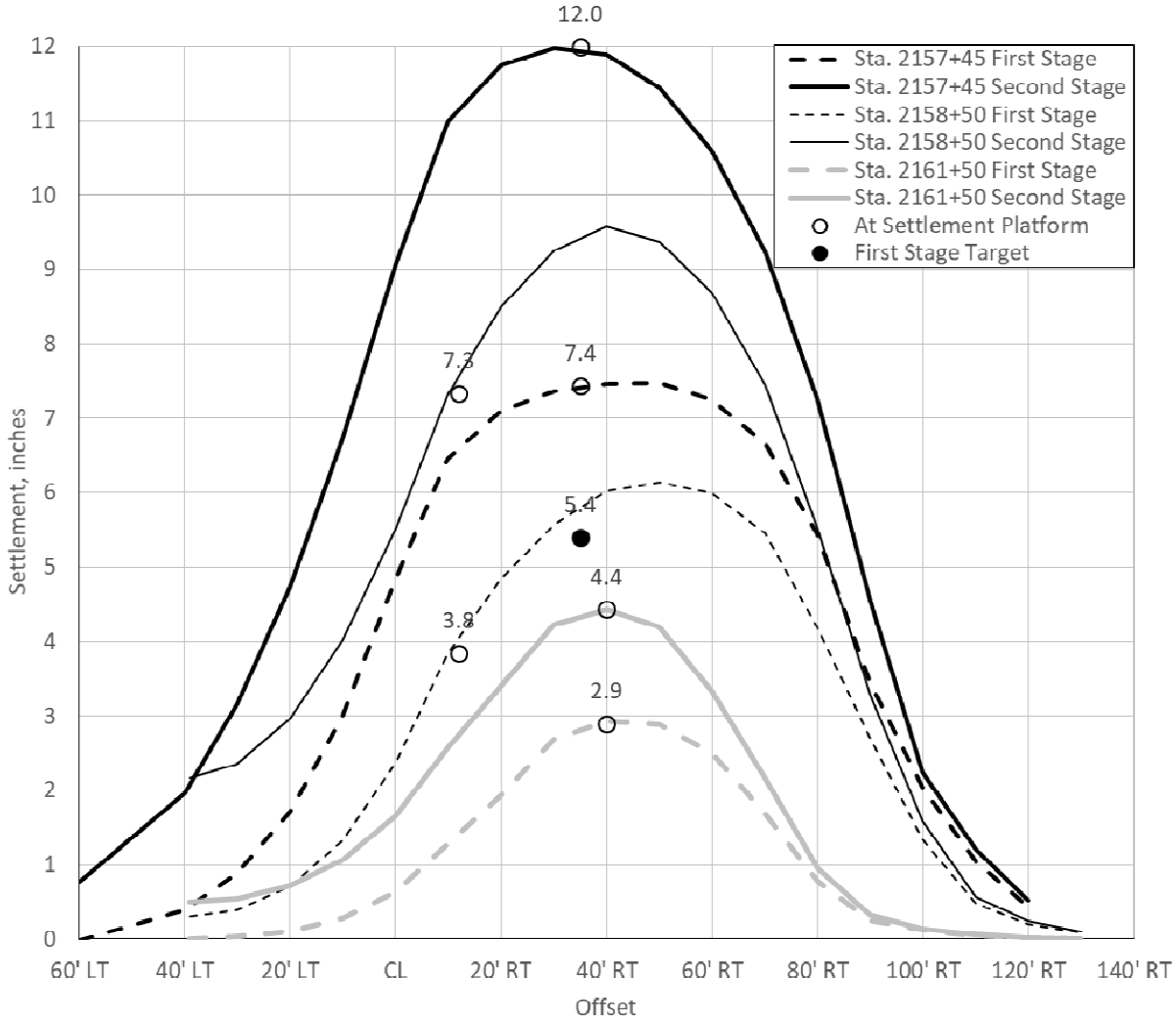

Figure 3.1 – Estimated Settlement of East Approach Embankment

The rate of consolidation was estimated using data from the laboratory consolidation tests. The soil profile consists of layers of silts and clays interspersed with layers of sand. Settlement rates of the individual silt and clay layers vary greatly depending on the layer thickness and type of soil. Some layers will attain a 90% degree of consolidation within a month or two while others will take more than a year. It was determined that there was sufficient time to construct the east approach embankment in two stages and complete the project within the proposed three-year construction schedule.

Additional analyses were completed to evaluate the effects of wick drains on the construction schedule. The wick drains were assumed to be installed from the existing ground surface through all layers where consolidation is anticipated. Settlement times were evaluated for several trial wick spacings, ranging from 4 to 12 feet in a triangular grid. The required waiting period to place the second stage embankment after the first stage is completed varied from 43 days at 4 feet spacing to 97 days at 12 feet spacing. This compares to a 110-day waiting period without wick drains. The required total embankment construction and waiting periods to pave after the first stage is completed varied from 180 days at 4 feet spacing to 470 days at 12 feet spacing. This compares to a 570-day waiting period without wick drains.

In a typical application, wick drains would be installed across the full width of the proposed embankment. For this project, the left side of the proposed embankment is being placed over an existing embankment. Installing wick drains on the left side of this embankment would require removal of part of the existing embankment or installing wick drains through the existing embankment with the tops at different levels. In order to minimize the difficulty of construction, installation time and cost, it is recommended that the wick drain limits extend into the existing embankment only as far as the lowest sidehill bench will be cut. This will allow for a single level of sand drainage blanket, from which all of the wick drains can be installed. Plan limits of the wick drains should begin 10 feet into the proposed embankment from the toe and extend to the sidehill cut and Sta. 2162+00.

With the recommended wick drain limits, consolidation of the left side of the proposed embankment will not be accelerated. Although the settlement on the left side will be much less than the maximum settlement experienced on the right side, it will still be significant. The required waiting period between completing the first stage embankment and placing the left side of the proposed pavement is estimated to be 420 days assuming no acceleration from the wick drains. This means that accelerating the wicked areas faster than 420 days will not shorten the overall construction schedule. A 10 feet wick spacing is recommended to match the settlement time of the unwicked areas.

Tables 3.1 and 3.2 provide the estimated settlements and settlement times for three locations within the east approach embankment. Time rates are included for the condition where wick drains are installed to the plan limits and spacing recommended in this report and the condition where no wick drains are used. The length of the first stage waiting period should be as needed to reach the required strength gain at the tallest embankment section. Full consolidation under the first stage is not required to place the second stage. The estimated time to reach an overall 73% degree of consolidation is 90 days with wick drains or 110 days without wick drains.

The total settlement time after the second stage is placed is dependent upon the waiting period between the first and second stages. Construction is currently proposed to start in the summer. Considering the embankment construction time and the required waiting period, placement of the second stage could be completed in the first construction year. This would require earthwork in the late fall, when weather conditions may not be favorable. The range of times shown in Table 3.2 were determined by assuming that the second stage is placed in the spring of the second construction year or in the late fall of the first construction year.

Table 3.1 First Stage Estimated Settlements

Location	Total Settlement (U=100%)	End of Stage Settlement	With Wicks		No Wicks	
			t_{50}	t_{90}	t_{50}	t_{90}
Sta. 2157+45, 35' RT	7.4 in	5.4 in	24	260	27	350
Sta. 2158+50, 12' RT	3.8 in	2.6 in	35	220	44	300
Sta. 2161+50, 40' RT	2.9 in	2.7 in	12	80	13	90

Settlement times shown are in days from end of first stage embankment placement.

Table 3.2 Total Estimated Settlements

Location	Total Settlement (U=100%)	With Wicks		No Wicks	
		t_{90}	t_{95}	t_{90}	t_{95}
Sta. 2157+45, 35' RT	12.0 in	160 - 200	290 - 340	250 - 290	440 - 480
Sta. 2158+50, 12' RT	7.3 in	240 - 260	370 - 390	240 - 260	370 - 390
Sta. 2161+50, 40' RT	4.4 in	26 - 35	52 - 63	44 - 47	80 - 85

Settlement times shown are in days from end of second stage embankment placement.

A special provisions for Wick Drains is included in Appendix D.

3.7 Embankment

Sidehill fill is required at the east approach embankment. Existing 1V:3H or steeper slopes should be benched in accordance with District 4 Standard 50.4 prior to placing new fill.

To satisfy slope stability criteria, staged embankment construction is required between the Illinois River and Sta. 2162+00. A special provision for the construction contract documents is included in Appendix D.

A sand drainage blanket should be placed at the bottom of the proposed east approach embankment fill. The drainage blanket will intercept porewater seepage from the consolidating soil layers below and drain it outside the limits of the embankment. The drainage blanket should be a minimum 2 feet thick layer of FA 1, FA 2, FA 6 or FA 20, Class A or B quality aggregate sloped to drain towards the edge of the embankment. The edge of the drainage blanket should be left free-to-drain (daylighted) along its entire length throughout all settlement periods. After settlement is complete, the edge of the drainage blanket may be covered with topsoil and seeded, except that 10 feet square French drains should be installed at maximum 150 feet spacing. The French drains will provide a permanent drainage outlet and should consist of 12 inches of Class B3 riprap on nonwoven geotextile fabric.

3.8 Storm Sewers

Storm sewers located in or below the US 150 EB east approach embankment may experience settlements of up to 12 inches depending on location and sequence of construction. Settlement of the sewers can be minimized by locating the pipes near the top of the embankment and placing them after most of the settlement has occurred.

3.9 Construction Monitoring

Settlement platforms should be installed at the base of the east approach embankment to monitor settlements during the staged embankment construction. It is recommended that two settlement platforms be located within the area where the wick drains will accelerate consolidation and one settlement platform be installed beyond the

influence of the wick drains. The settlement platforms will be used to determine when the subgrade soils have reached the required degree of consolidation under the first stage embankment and when the settlement has tapered off to tolerable levels under the second stage embankment. Settlement readings should be taken weekly.

Settlement monitoring points should be installed on the bridge approach parapet at the SN 090-0070 East Abutment and on the east end of the bridge approach slab. Measurements of these points should be taken weekly until the bridge is removed.

A soil test boring should drilled through the first stage of the embankment near the point of maximum settlement after the first stage settlement period. This boring is intended to confirm strength gains of the subgrade soils. Standard penetration test samples should be collected at 2.5 feet intervals through the first stage embankment and sand drainage blanket. Shelby tube samples should be continuously through the subgrade soils to Elev. 410. Laboratory moisture content and unconfined strength tests should be run on the samples.

Special provisions for Settlement Platforms and Soil Sampling and Testing are included in Appendix D.

References

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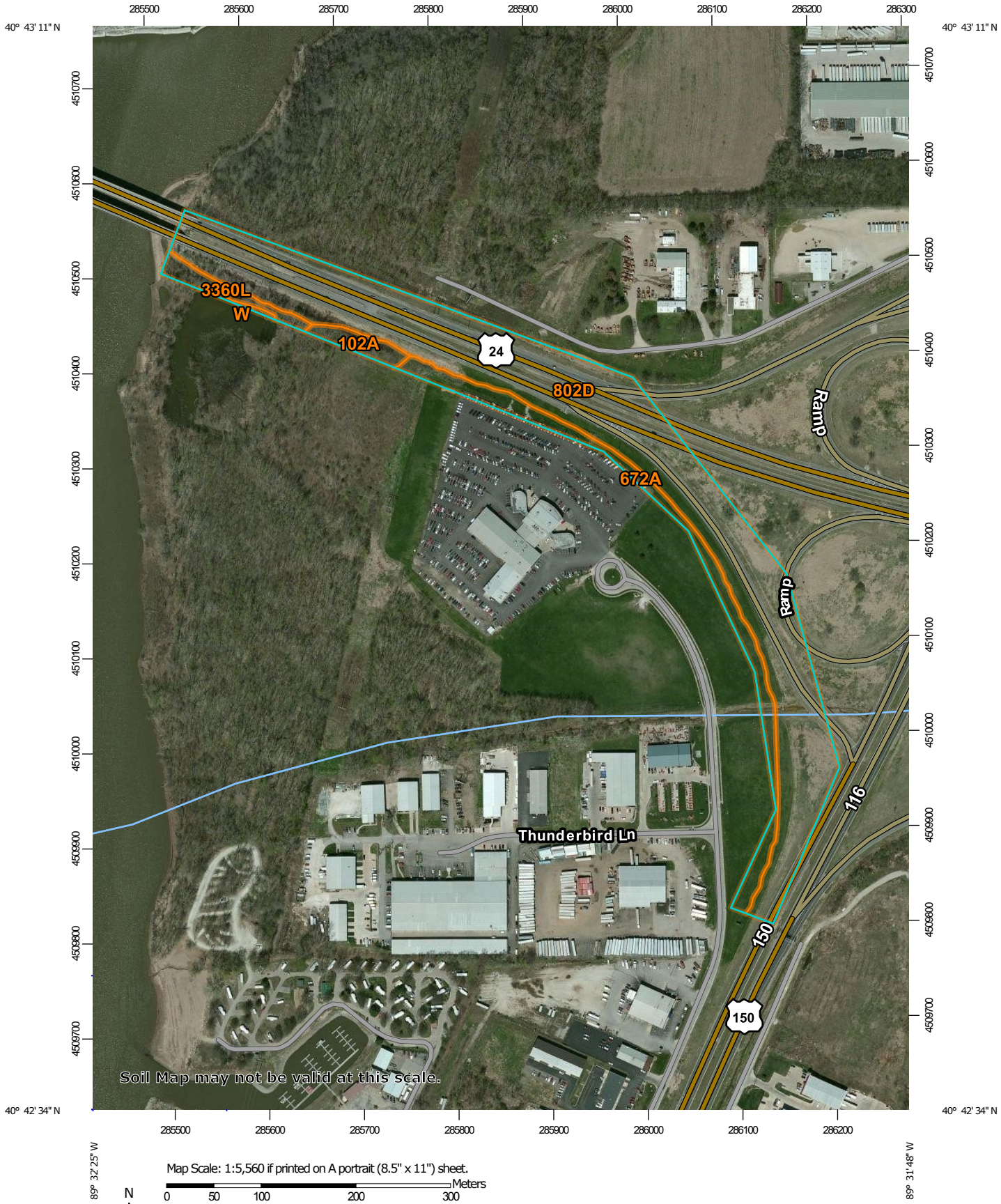
Hanson Professional Services Inc. (February 2018). *Structure Geotechnical Report, US 150 over Illinois River, Structure No. 090-0180.*

Appendix A - Subsurface Investigation

USDA Soil Survey Maps

Soil Map—Tazewell County, Illinois
(US 150 East Soil Map)



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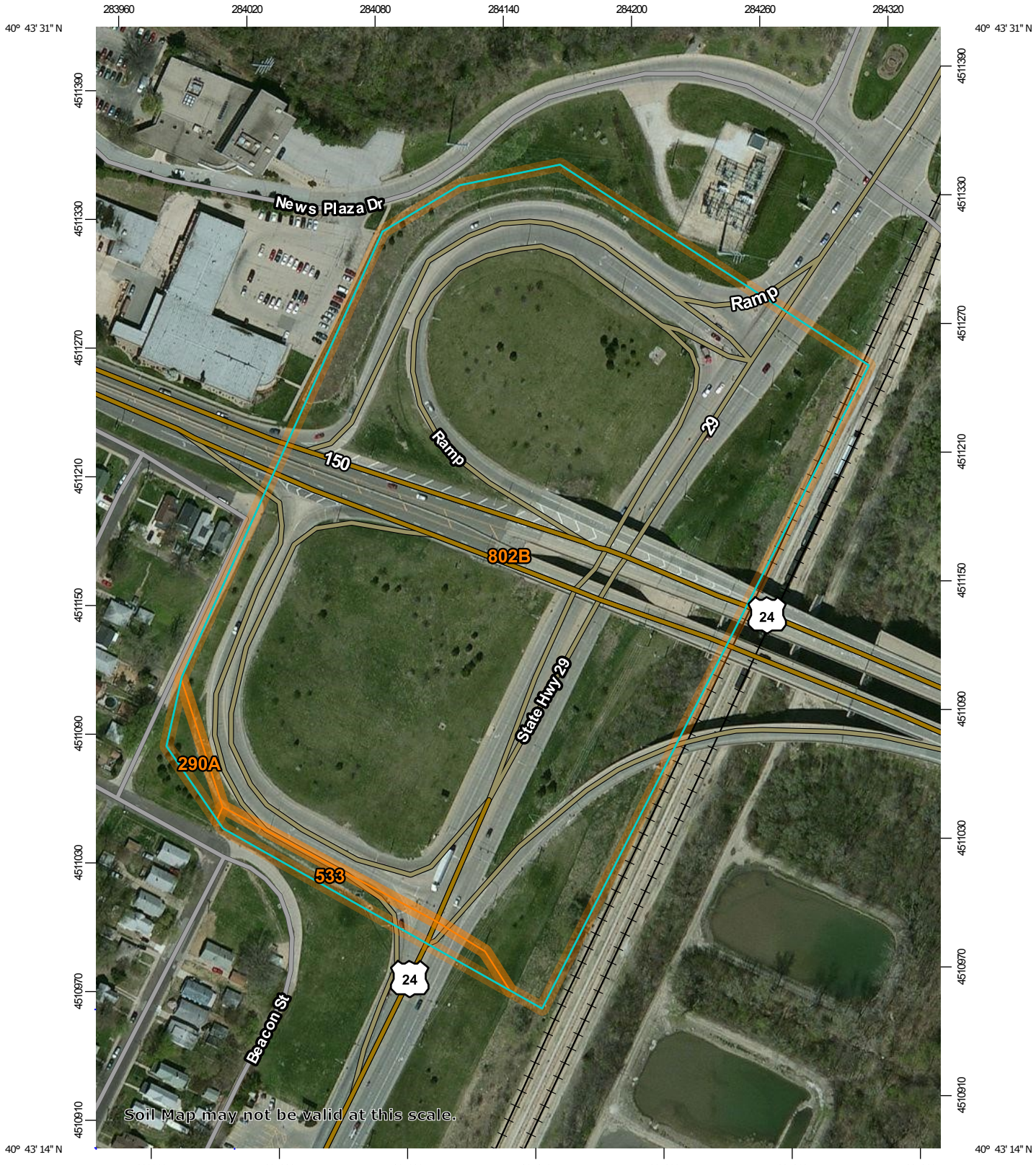
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Soil Map—Peoria County, Illinois
(IL 150 West Soil Map)



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Soils Plan and Profile Sheets

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
BORING LOCATION PLAN

SCALE: 1" =50' | SHEET 1 OF 7 SHEETS | STA. 2090+00.00 TO STA. 2101+00.00

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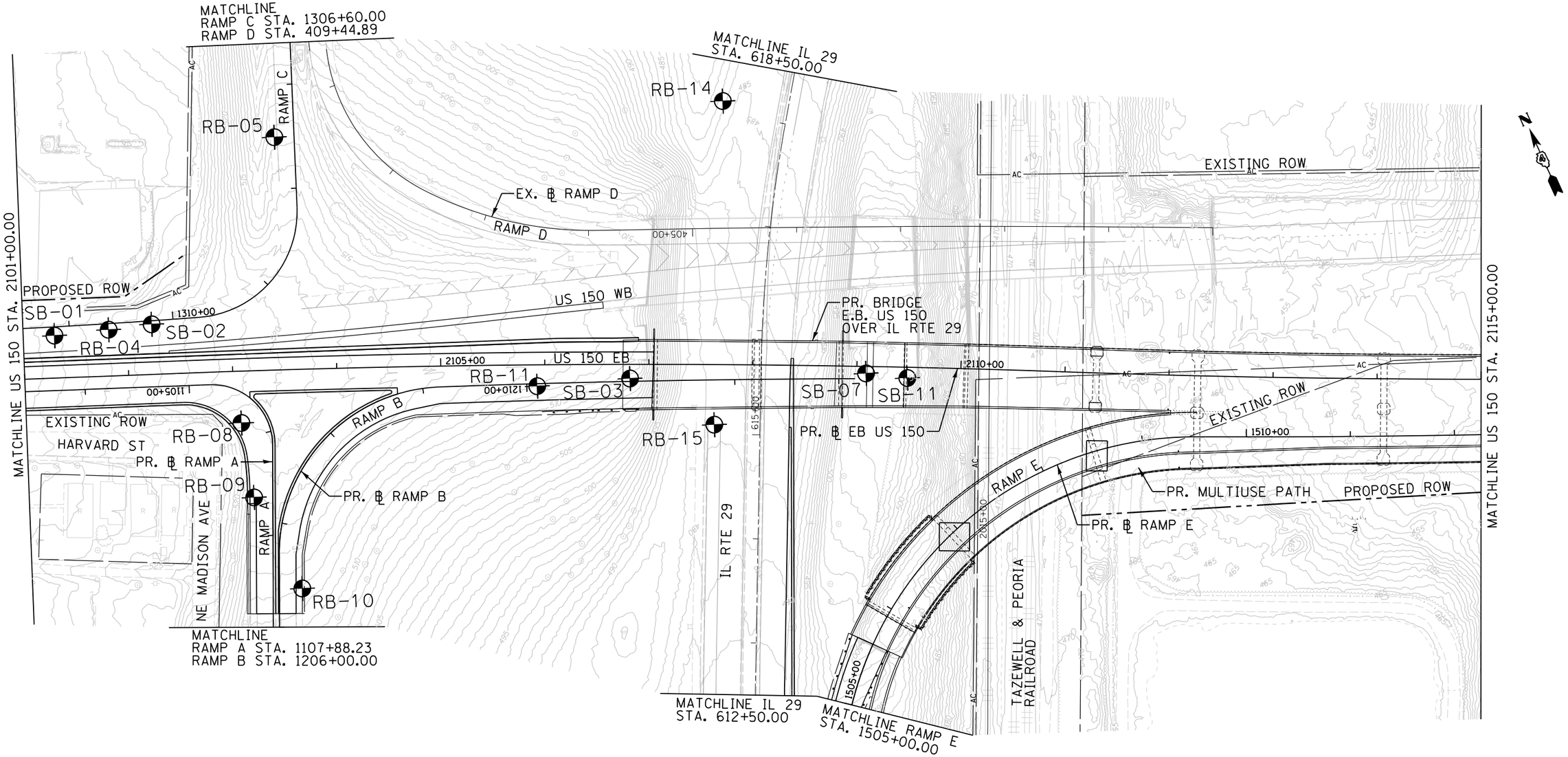

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
BORING LOCATION PLAN

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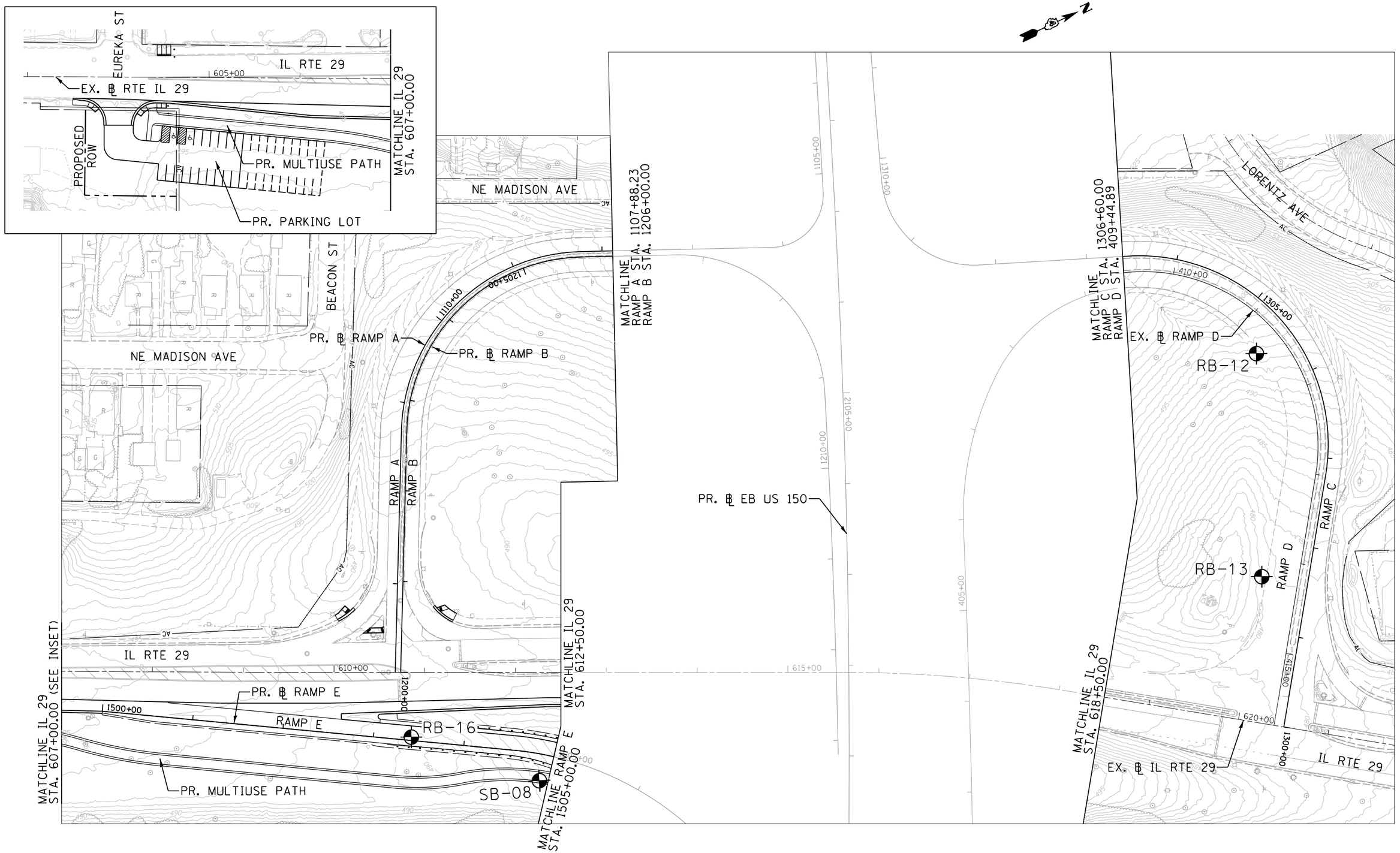

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
BORING LOCATION PLAN

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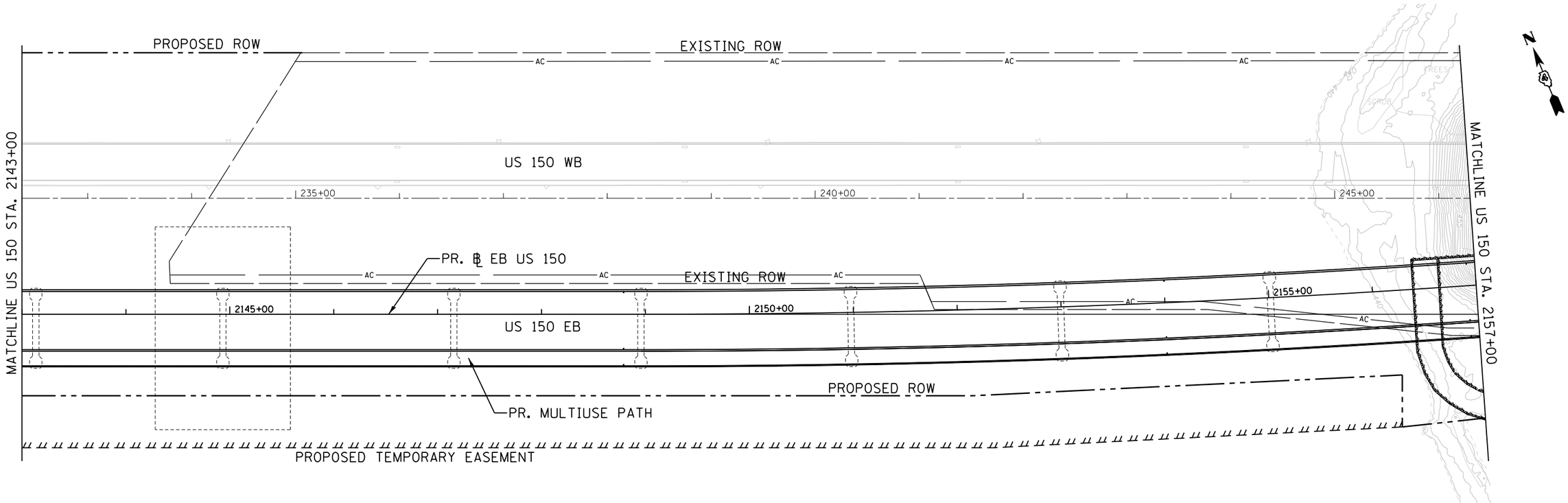

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
BORING LOCATION PLAN

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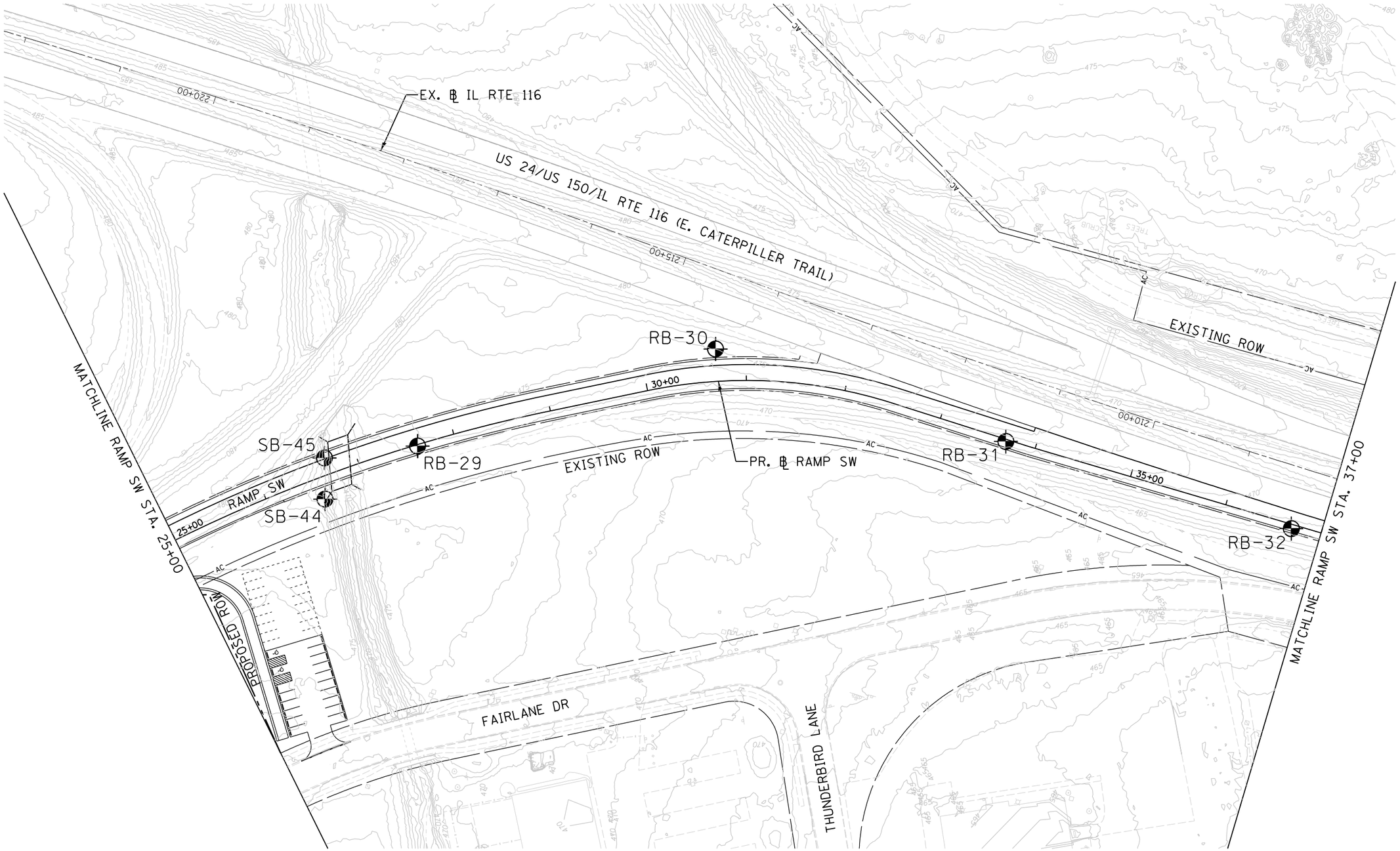
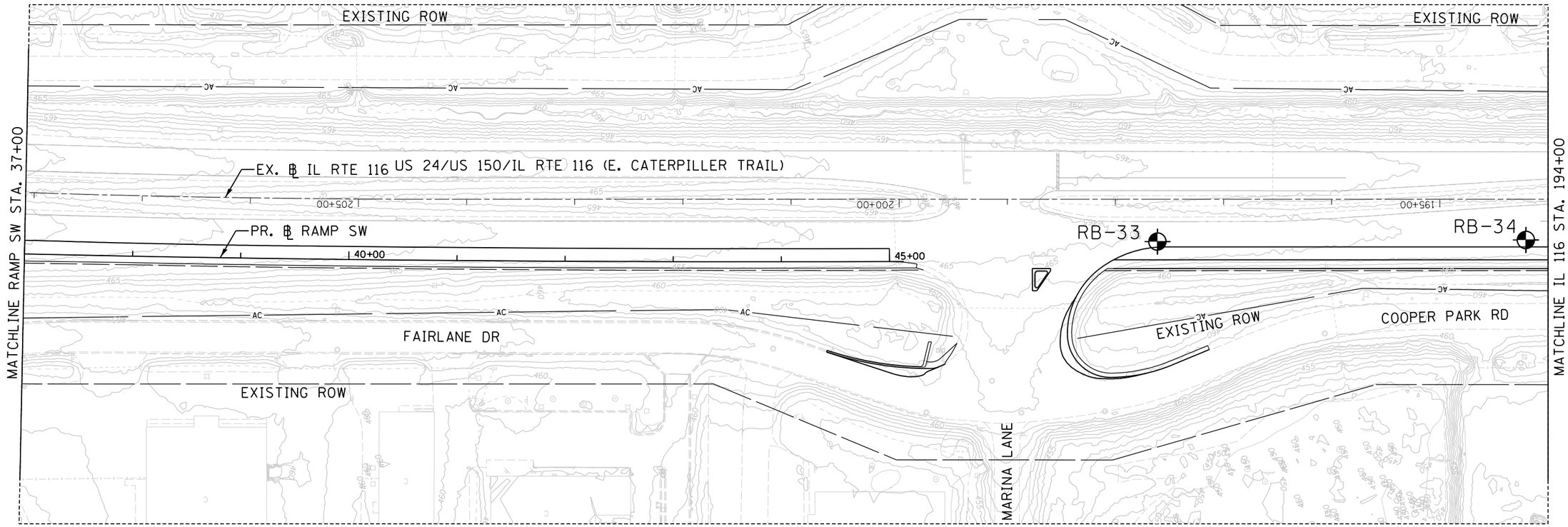
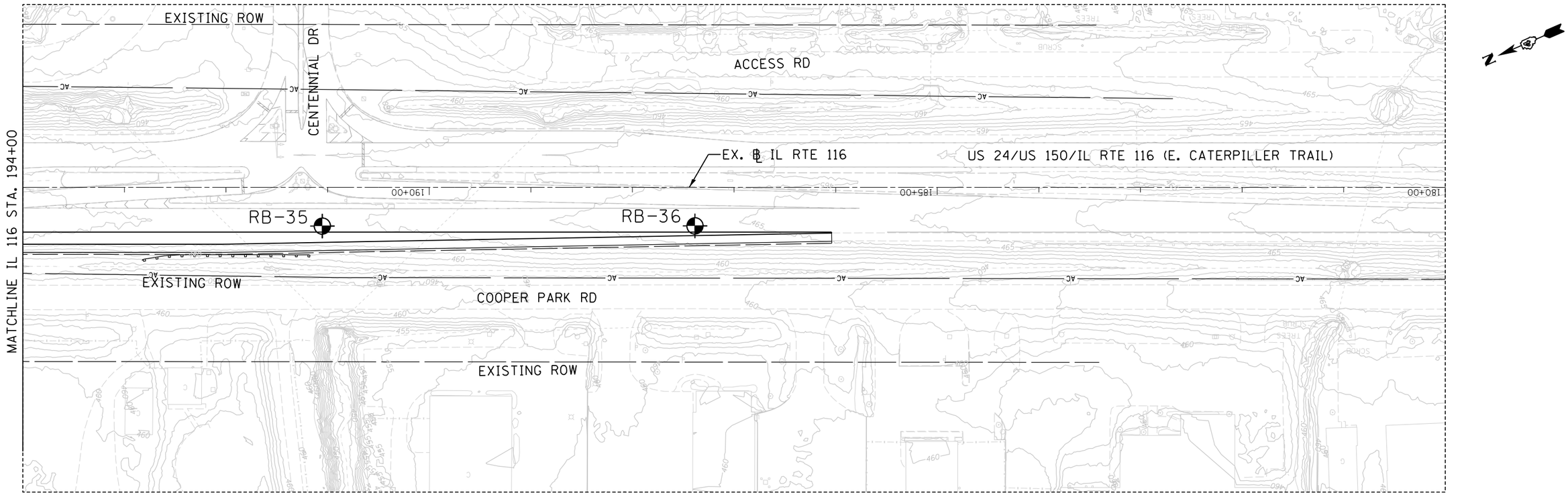
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -							CONTRACT NO.		TBD
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -		SCALE: 1" =50'	SHEET 5 OF 7 SHEETS	STA. 2171+00.00 TO STA. 2179+38.36			ILLINOIS FED. AID PROJECT		



FILE NAME = D413H0106-sht-soil00 Sheet06	USER NAME = madau00223	DESIGNED - RGC	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	**US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT BORING LOCATION PLAN**	F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - EJM	REVISED -			317	15B(BR)	TAZWELL	7	6
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -					CONTRACT NO.		TBD
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -		SCALE: 1" =50' SHEET 6 OF 7 SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		





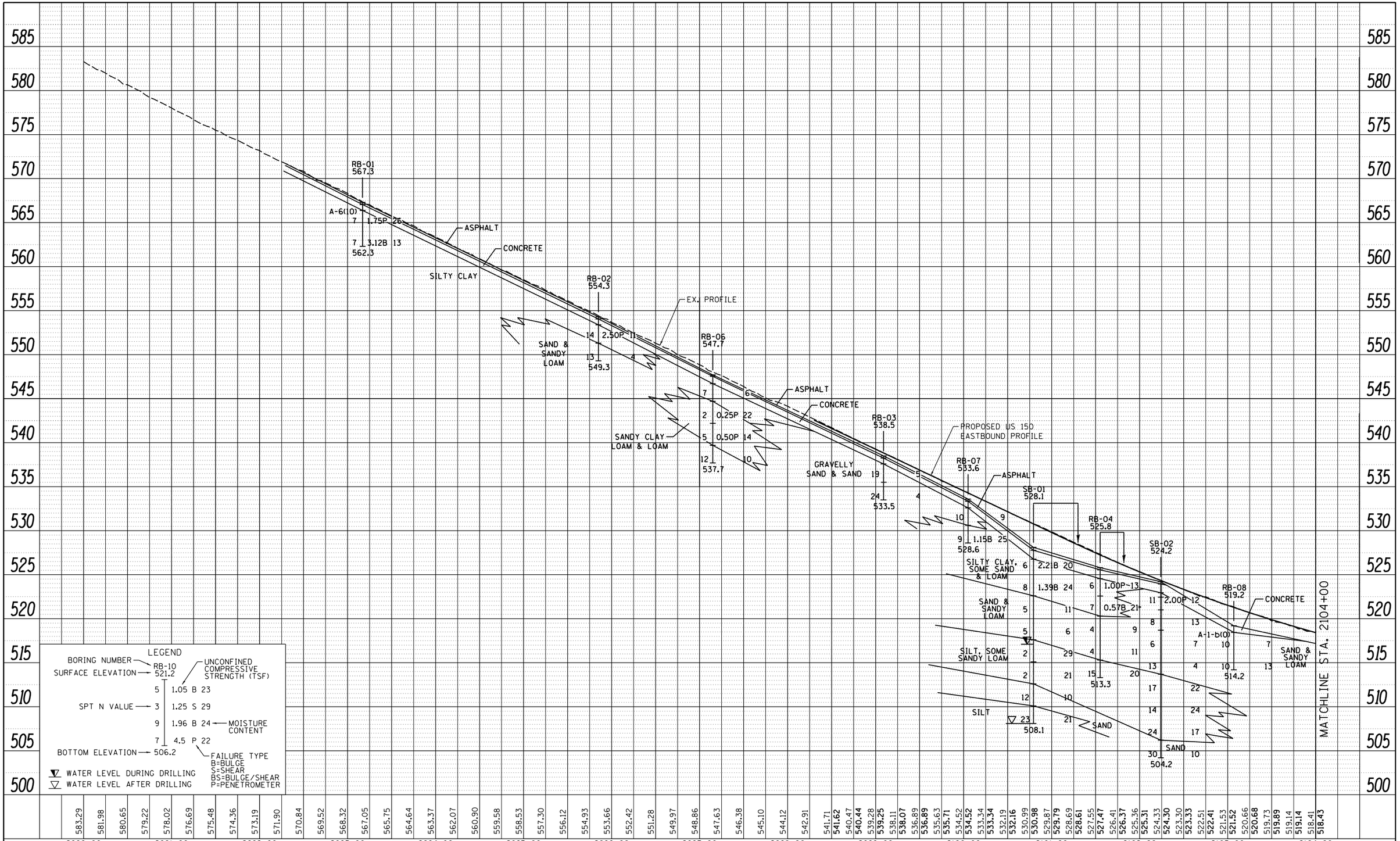
FILE NAME = D413H0106-sht-so100 Sheet07	USER NAME = madau00223	DESIGNED - RGC	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	**US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT BORING LOCATION PLAN**	F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - EJM	REVISED -			317	15B(BR)	TAZWELL	7	7
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -					CONTRACT NO. TBD		
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -		SCALE: 1" =50' SHEET 7 OF 7 SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		

PLAN

DATE	BY	
		SURVEYED
		PLOTTED
		ALIGNMENT CHECKED
		RT. OF WAY CHECKED
		CADD FILE NAME
		NOTE BOOK
		NO.

PROFILE

DATE	BY	
		SURVEYED
		PLOTTED
		GRADES CHECKED
		BM. NOTED
		STRUCTURE NOTATNS CHKD
		NOTE BOOK
		NO.



FILE NAME = D413H0106-sht-soi100	USER NAME = madau00223	DESIGNED - RGC	REVISED -
		DRAWN - EJM	REVISED -
SheetP01	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

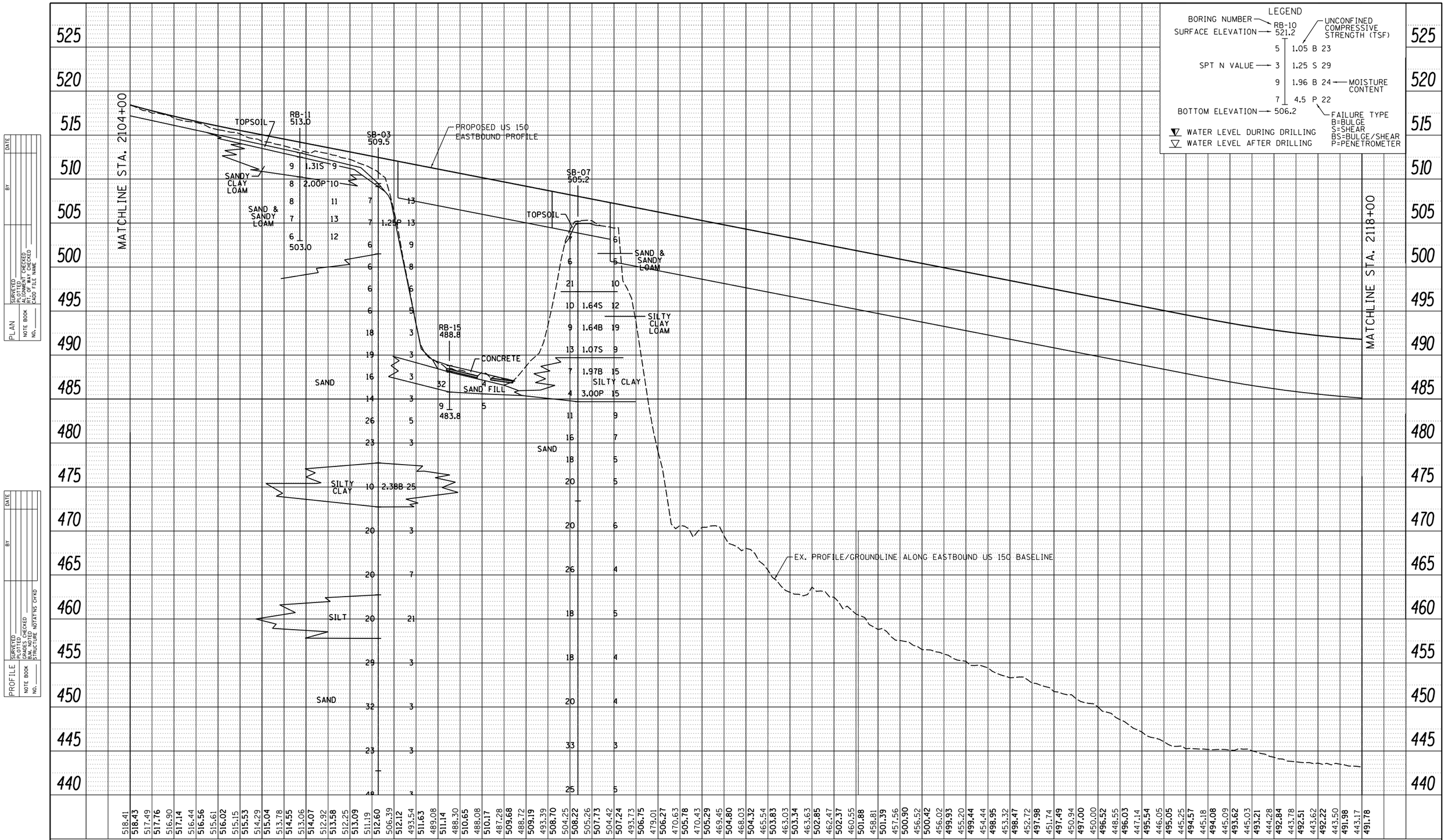
US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – US 150

SCALE: 1"=50'H, 5'V | SHEET 1 OF 4 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	PEORIA	4	1
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
CHANGES CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE



FILE NAME = D413H0106-sht-soil00 SheetP02	USER NAME = madau00223	DESIGNED - RGC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT SOILS PROFILE – US 150
		DRAWN - EJM	REVISED -		
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -		SCALE: SHEET 2 OF 4 SHEETS STA. TO STA.
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -		

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	PEORIA	4	2
		CONTRACT NO. TBD		
	ILLINOIS FED. AID PROJECT			

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
BM. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

495 490 485 480 475 470 465 460 455 450 445 440 435 430 425 420 415 410

MATCHLINE STA. 2146+00

PROPOSED EASTBOUND US 150 PROFILE

EX. PROFILE EASTBOUND US 150 BASELINE

LEGEND
BORING NUMBER — RB-10
SURFACE ELEVATION — 521.2
UNCONFINED COMPRESSIVE STRENGTH (TSF)
SPT N VALUE — 5 1.05 B 23 / 3 1.25 S 29 / 9 1.96 B 24 / 7 4.5 P 22
MOISTURE CONTENT
BOTTOM ELEVATION — 506.2
FAILURE TYPE
B=BULGE
S=SHEAR
BS=BULGE/SHEAR
P=PENETROMETER
WATER LEVEL DURING DRILLING
WATER LEVEL AFTER DRILLING

RB-18 462.9
ASPHALT
14 3.36S 11
14 1.80B 13
8 >4.50P 11
6 2.30B 14
7 2.05B 14
9 2.05B 15
9 2.30B 12
5 2.30B 15
7 1.48B 16
7 1.15B 21
437.9
RB-17 447.1
SB-43 443.1
SILTY CLAY TO SILTY CLAY LOAM
SAND
LOAM
SILT
SILTY LOAM
SILTY CLAY
0 0.50P 47
3 0.75P 21
0 0.25P 28
4 0.66B 33
5 0.74B 19
4 18
2 23
5 0.41B 34
0 0.33B 32
4 24
3 0.33B 64
3 29
3 0.50P 38
2 0.16B 30
3 0.33B 34
2 0.33B 36
6 20
7 23
3 24
3 0.16B-31
4 0.33B 32
7 19
3 0.25B 24
3 16
2 19

MATCHLINE STA. 2160+00

437.50 494.68 437.41 494.17 437.30 493.66 437.20 493.15 437.34 492.64 437.45 492.13 437.48 491.62 437.52 491.11 437.54 490.60 437.54 490.09 437.51 489.58 437.77 489.07 437.72 488.56 437.69 488.05 437.67 487.54 437.65 487.03 437.52 486.52 437.58 486.01 437.60 485.50 437.66 484.99 437.71 484.48 437.77 483.97 437.83 483.46 437.86 482.95 437.36 482.44 437.31 481.93 437.34 481.42 437.58 480.91 437.80 480.40 437.76 479.89 437.75 479.38 437.83 478.87 437.88 478.36 438.07 477.85 438.14 477.34 438.13 476.83 438.35 476.32 438.58 475.81 438.78 475.30 438.97 474.79 440.14 474.28 441.85 473.77 442.00 473.26 443.73 472.75 451.21 472.24 452.58 471.73 456.74 471.22 457.04 470.71 456.90 470.20 457.07 469.69 456.33 469.18 455.96 468.67 458.08 468.16 459.47 467.65 460.13 467.14 460.81 466.63 461.12 466.12

2146+00 2147+00 2148+00 2149+00 2150+00 2151+00 2152+00 2153+00 2154+00 2155+00 2156+00 2157+00 2158+00 2159+00 2160+00

FILE NAME = D413H0106-sht-soi100	USER NAME = madau00223	DESIGNED - RGC	REVISED -
		DRAWN - EJM	REVISED -
SheetP03	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – US 150

SCALE: | SHEET 3 OF 4 SHEETS | STA. | TO STA.

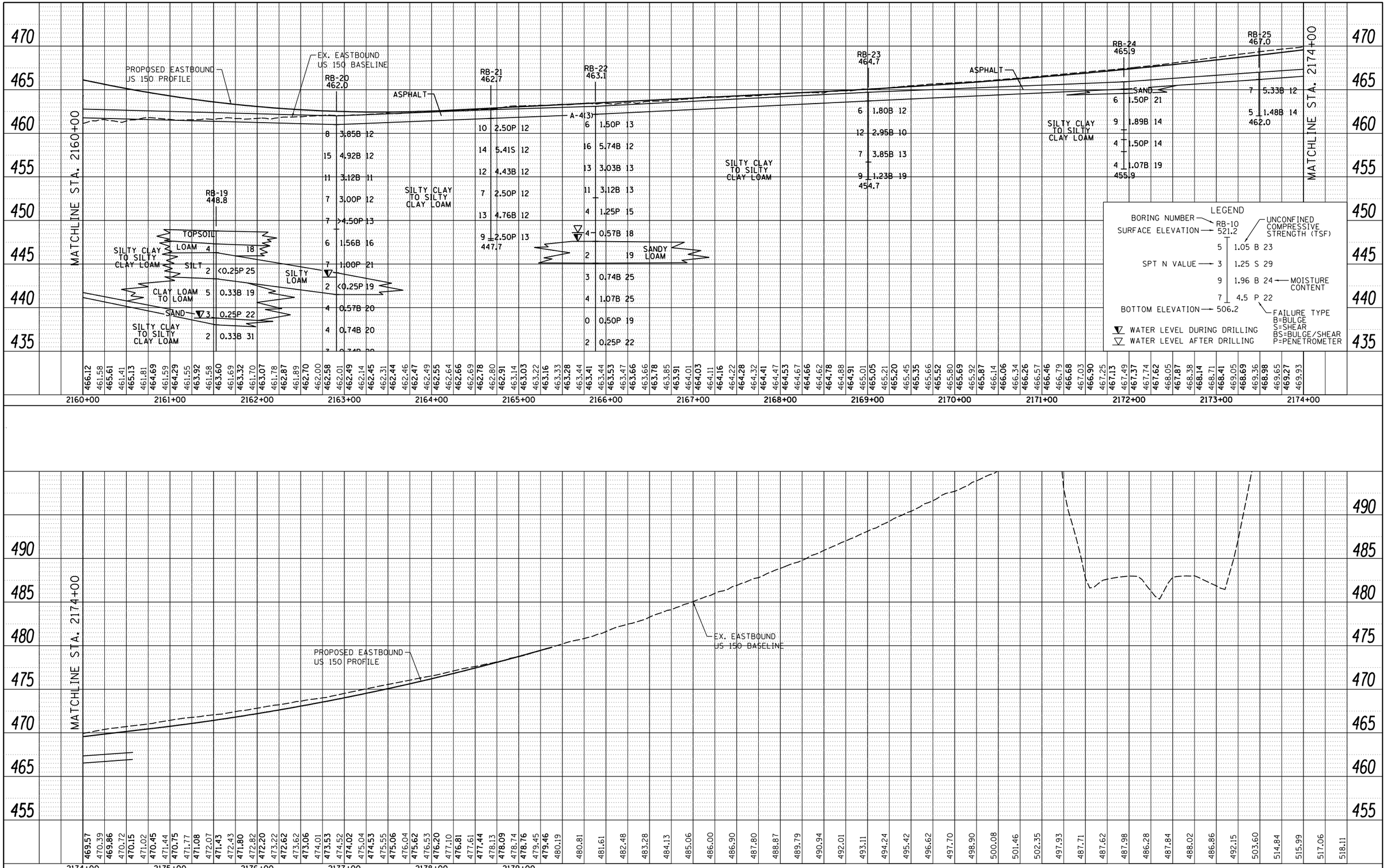
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	TAZWELL	4	3
		CONTRACT NO. TBD		
	ILLINOIS FED. AID PROJECT			

PLAN

BY	DATE
SURVEYED	
PLOTTED	
DRAWN & CHECKED	
R/W, EASEMENT CHECKED	
BM. NOTED	
STRUCTURE NOTATNS CHKD	
NOTE BOOK	
NO.	

PROFILE

BY	DATE
SURVEYED	
PLOTTED	
DRAWN & CHECKED	
BM. NOTED	
STRUCTURE NOTATNS CHKD	
NOTE BOOK	
NO.	



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		DRAWN - EJM	REVISED -
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
SheetP04	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – US 150

SCALE: | SHEET 4 OF 4 SHEETS | STA. | TO STA.

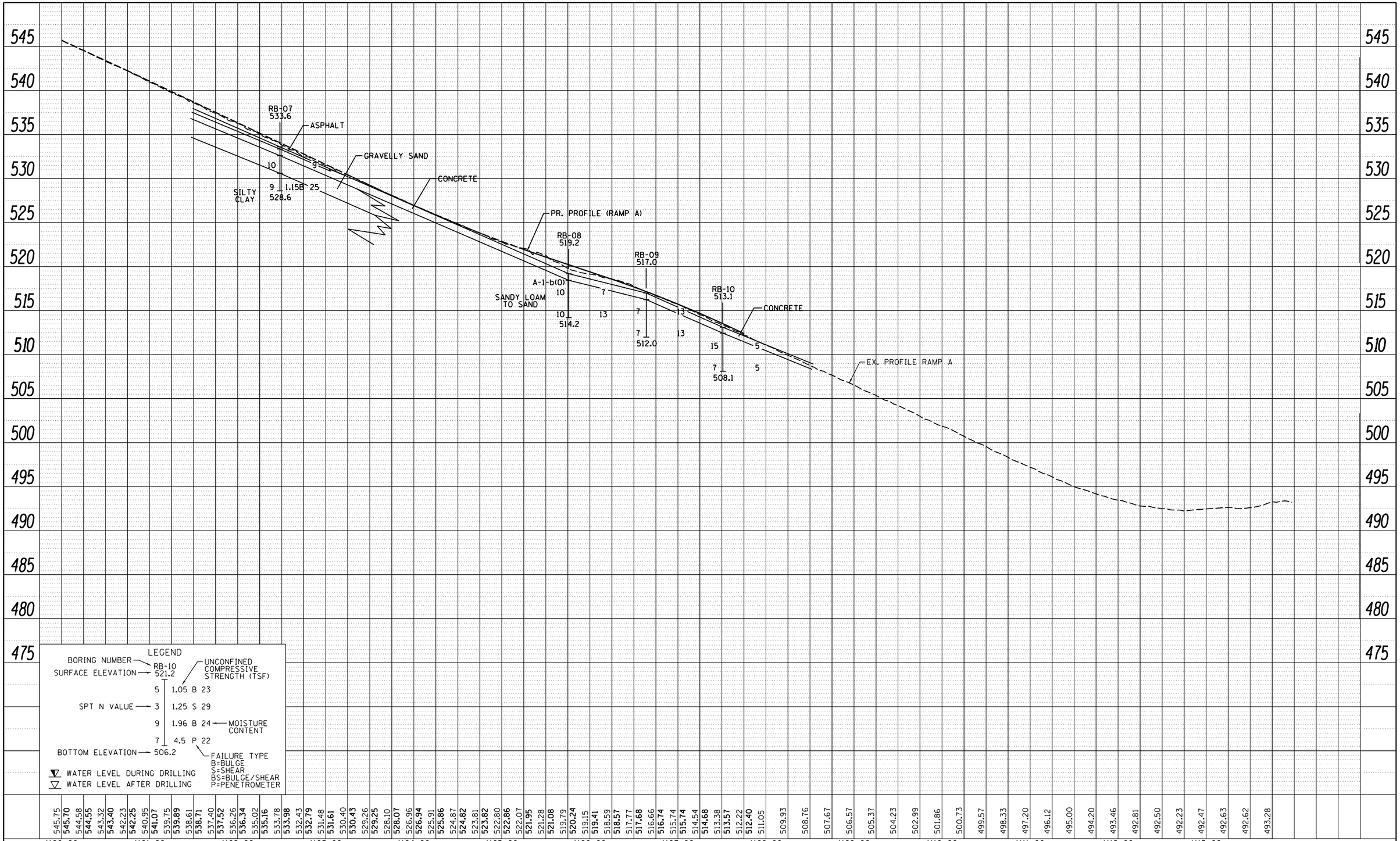
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	TAZWELL	4	4
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

PLAN

SURVEYED	BY
PLOTTED	DATE
ALIGNMENT CHECKED	
RT. OF WAY CHECKED	
CADD FILE NAME	
NOTE BOOK	
NO.	

PROFILE

SURVEYED	BY
PLOTTED	DATE
GRADES CHECKED	
B.M. NOTED	
STRUCTURE NOTATNS CHKD	
NOTE BOOK	
NO.	



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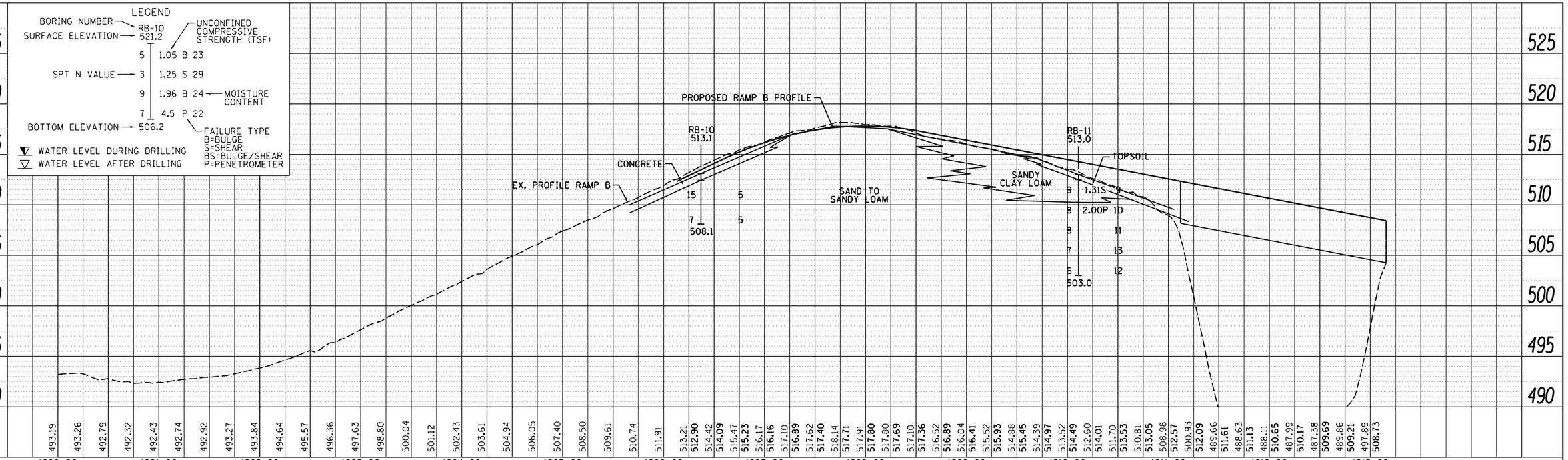
D413H0106-sht-soil00		DRAWN - EJM	REVISED -
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
SheetP05	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – RAMP A

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	PEORIA	1	1
		CONTRACT NO. TBD		
	ILLINOIS FED. AID PROJECT			



PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
PROFILE CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

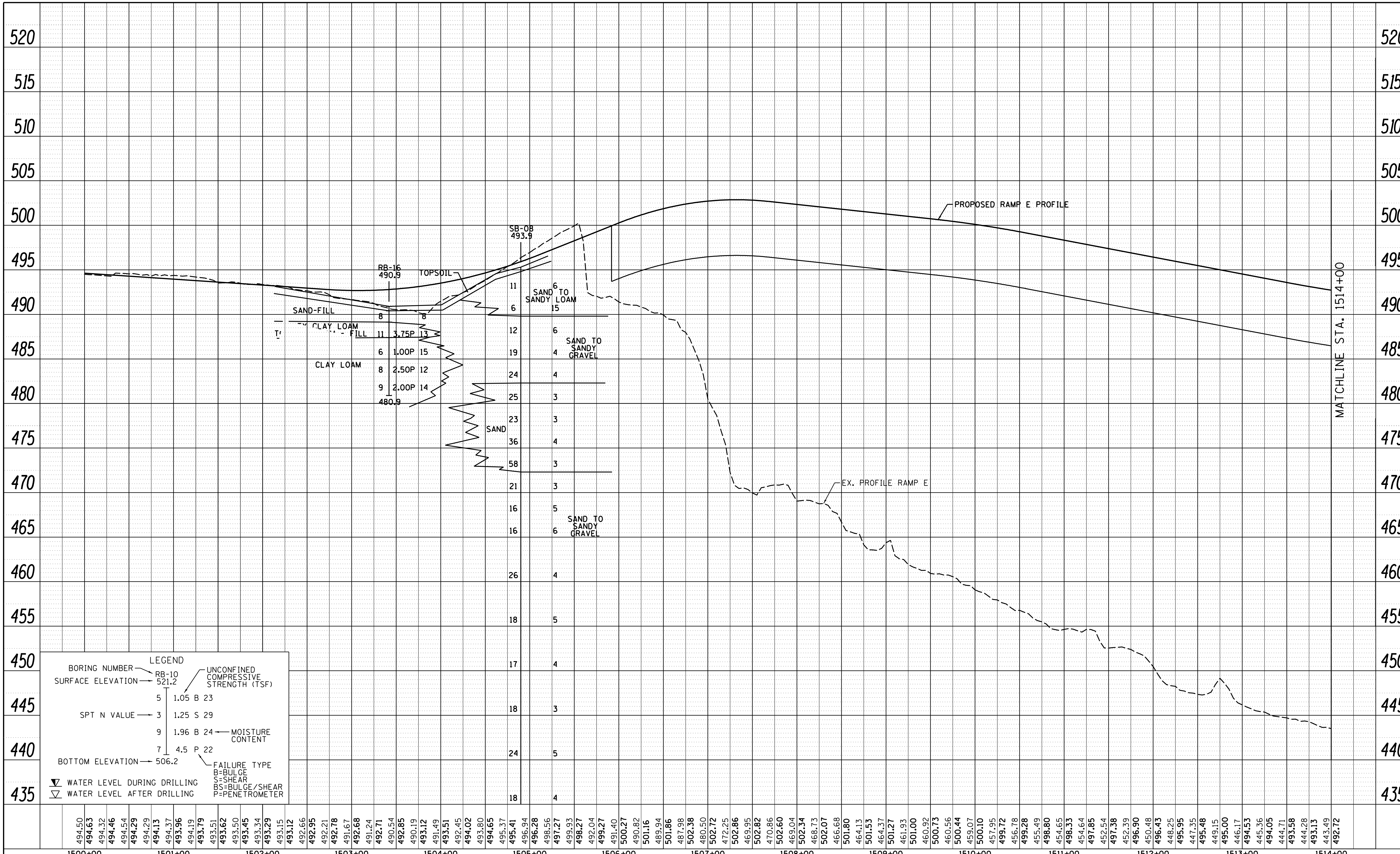
FILE NAME = D413H0106-sht-soil00	USER NAME = madau00223	DESIGNED - RGC	REVISED -
		DRAWN - EJM	REVISED -
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
SheetP06	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – RAMP B

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	PEORIA	1	1
		CONTRACT NO.		
	ILLINOIS	FED. AID PROJECT		



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SheetP09	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

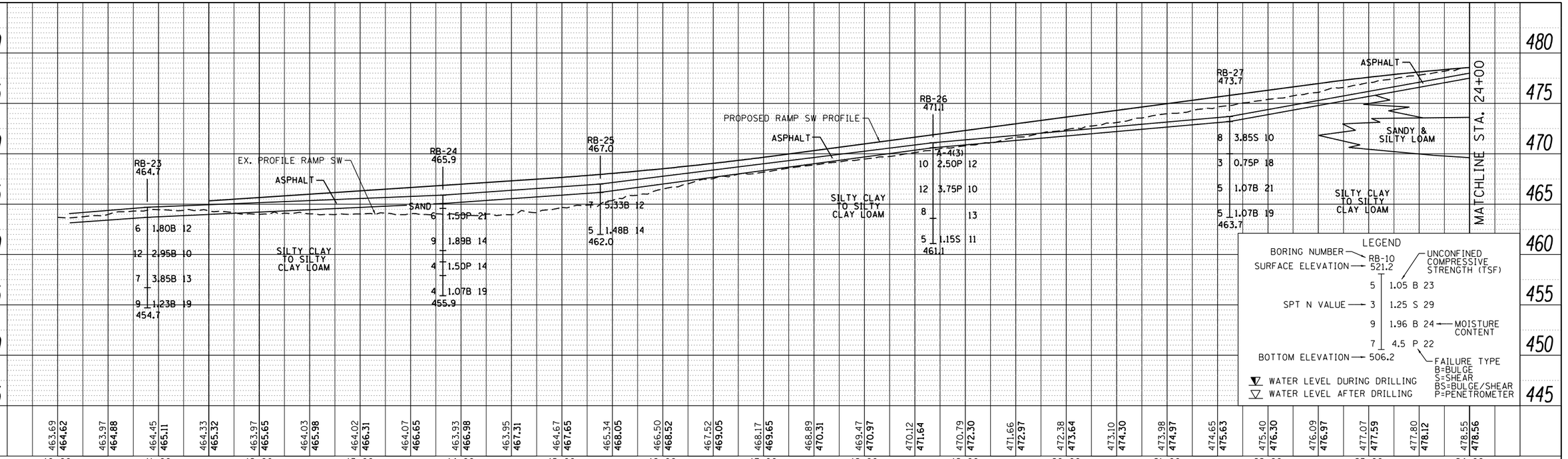
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – RAMP E

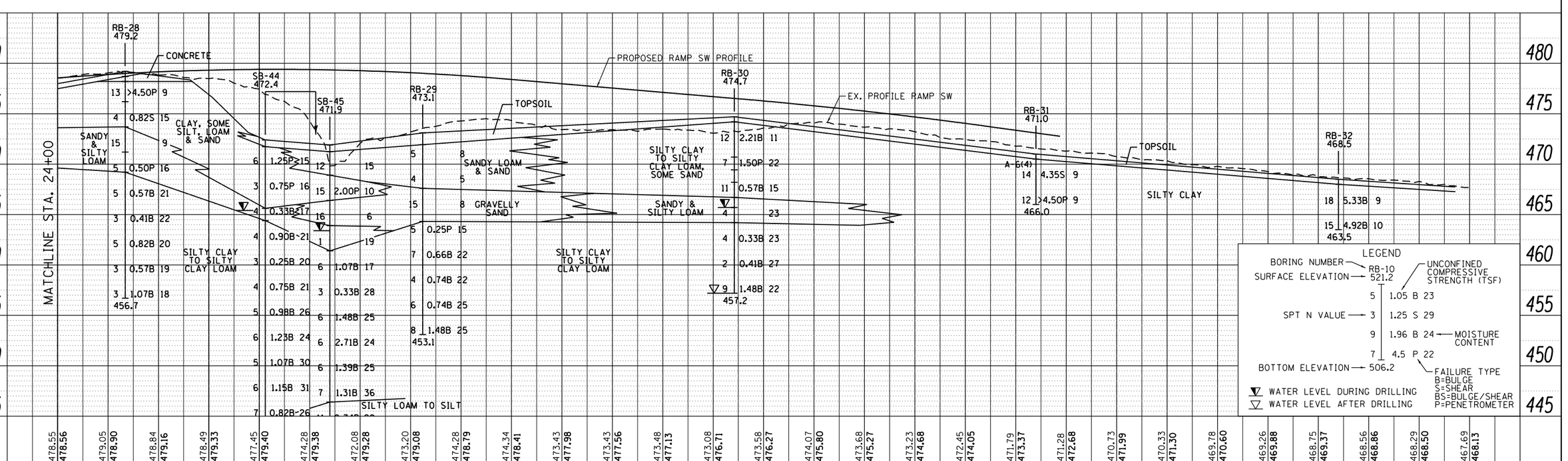
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	PEORIA	1	1
		CONTRACT NO. TBD		
		ILLINOIS FED. AID PROJECT		

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE



PROFILE
SURVEYED
PLOTTED
ALIGNMENT CHECKED
R.O.W. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE



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SheetP10	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
	PLOT DATE = 11/27/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – RAMP SW2

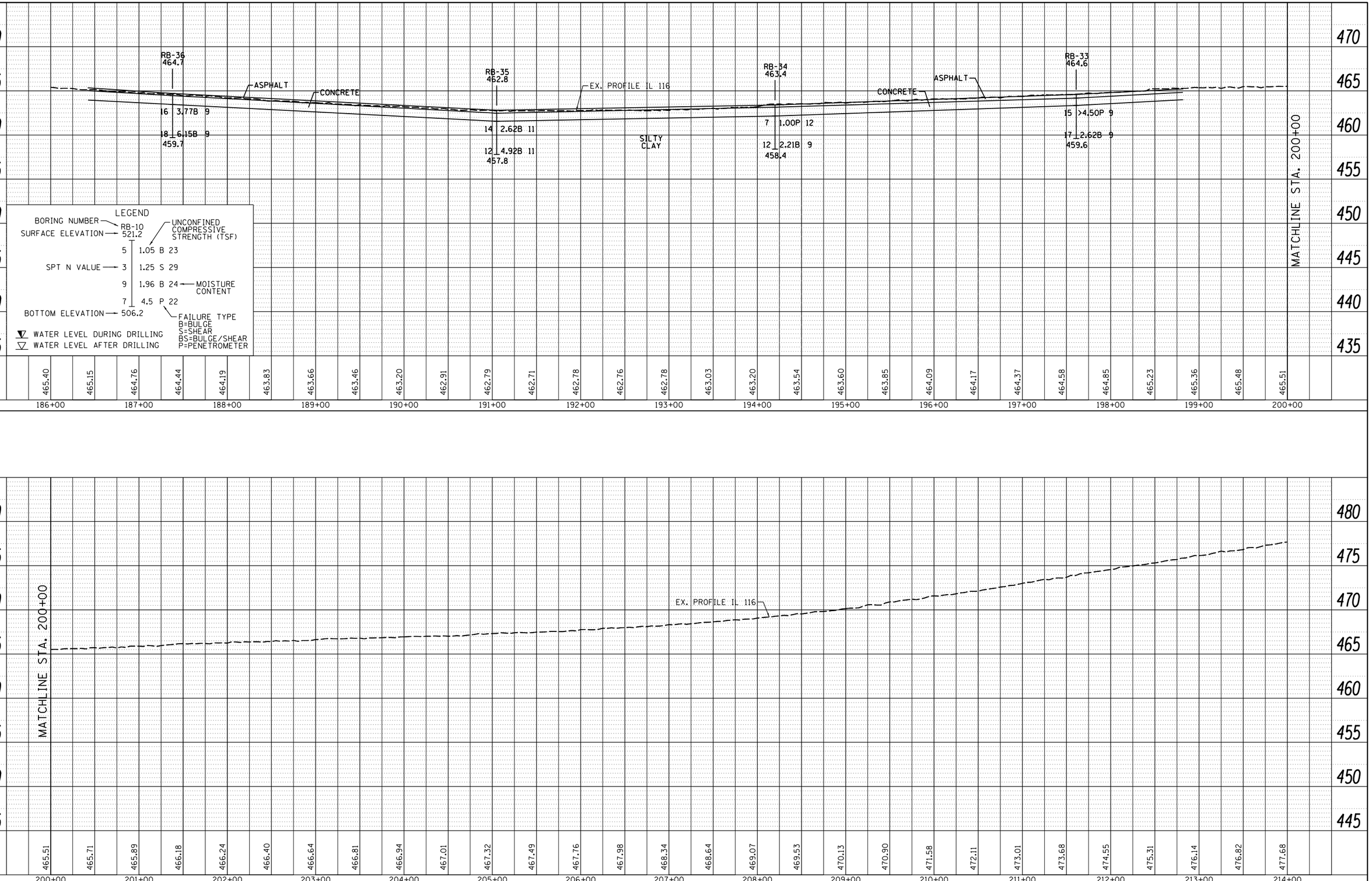
SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	TAZWELL	1	1
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

PLAN

SURVEYED	BY
PLOTTED	
ALIGNMENT CHECKED	
RT. OF WAY CHECKED	
CADD FILE NAME	DATE

NOTE BOOK
NO.



PROFILE

SURVEYED	BY
PLOTTED	
ALIGNMENT CHECKED	
R.O.W. NOTED	
B.M. NOTED	
STRUCTURE NOTATNS CHKD	DATE

NOTE BOOK
NO.

FILE NAME = D413H0106-sht-soil00	USER NAME = madau00223	DESIGNED - RGC	REVISED -
		DRAWN - EJM	REVISED -
	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
SheetPIL	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 EASTBOUND MCCLUGAGE BRIDGE PROJECT
SOILS PROFILE – IL 116

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	TAZWELL	1	1
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

Boring Logs

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG RB-01

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 567.26 ft
North: 1478488.36 ft
East: 2464740.39 ft
Station: 2093+17
Offset: 41.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	566.3	3-inch thick ASPHALT over 8-inch thick CONCRETE --PAVEMENT--						
		Stiff to very stiff, dark brown to brown SILTY LOAM to SILTY CLAY LOAM, trace fine gravel; moist --FILL-- --RDR 3-- --L_L(%)=38, P_L(%)=22-- --%Gravel=4.2-- --%Sand=26.5-- --%Silt=52.8-- --%Clay=16.4-- --A-6 (10)--			1	3 2 5	1.75 P	26
	562.3		5		2	2 3 4	3.12 B	13
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

WANGENGINC 4140901.GPJ WANGENG.GDT 4/3/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG RB-02

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 554.28 ft
North: 1478386.44 ft
East: 2464986.49 ft
Station: 2095+85
Offset: 40.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	553.4	3-inch thick ASPHALT over 8-inch thick CONCRETE --PAVEMENT--						
		Stiff, brown SILTY CLAY, trace fine gravel; damp --FILL-- --RDR 2--			1	8 8 6	2.50 P	11
	551.3							
		Medium dense, brown, fine SAND; damp			2	4 6 7	NP	4
	549.3		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

WANGENGINC 4140901.GPJ WANGENG.GDT 4/3/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG RB-03

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 538.45 ft
North: 1478264.31 ft
East: 2465286.59 ft
Station: 2099+09
Offset: 40.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	537.5	3-inch thick ASPHALT over 8-inch thick CONCRETE --PAVEMENT--						
		Medium dense, brown GRAVELLY SAND; damp --FILL-- --RDR 3--			1	8 8 11	NP	5
	535.5	Medium dense, brown, fine SAND, little fine to medium gravel; damp --RDR 3--			2	8 10 14	NP	4
	533.5	Boring terminated at 5.00 ft	5					
			10					
			15					

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

WANGENGINC 4140901.GPJ WANGENG.GDT 4/3/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG RB-04

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 525.82 ft
North: 1478164.93 ft
East: 2465541.62 ft
Station: 2101+82
Offset: 44.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	524.6	3-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	522.6	Stiff, brown CLAY LOAM to LOAM, trace fine gravel; moist --FILL-- --RDR 2 to 3--			1	5 4 2	1.00 P	13
	520.3	Medium stiff, brown SILTY CLAY; moist --RDR 3--	5		2	3 3 4	0.57 B	21
	515.3	Loose, brown, fine SAND; moist --RDR 3--			3	1 2 2	NP	9
			10		4	2 1 3	NP	11
	513.3	Medium dense, brown SILT, few fine sand lenses; moist --RDR 3--			5	6 6 9	NP	20
		Boring terminated at 12.50 ft	15					

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-05

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 513.35 ft
North: 1478267.76 ft
East: 2465762.93 ft
Station: 1307+50
Offset: 19.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	512.6	9-inch thick CONCRETE --PAVEMENT--						
		Loose to medium dense, brown, medium to coarse SAND, trace fine to medium gravel; damp --FILL-- --RDR 3--			1	10 12 10	NP	6
					2	3 4 4	NP	3
	508.4		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-06

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 547.68 ft
North: 1478292.21 ft
East: 2465088.87 ft
Station: 2097+15
Offset: 8.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	546.7	2-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
		Loose, brown SANDY LOAM, little fine to medium gravel; damp --FILL-- --RDR 3--			1	3 3 4	NP	6
	544.7	Soft, brown CLAY LOAM to LOAM, trace medium gravel; wet --RDR 3--	5		2	1 1 1	0.25 P	22
	542.2	Medium stiff, brown SANDY CLAY LOAM, trace fine gravel; moist --RDR 3--			3	2 3 2	0.50 P	14
	539.7	Medium dense, brown, fine SAND; moist --RDR 3--			4	4 6 6	NP	10
	537.7	Boring terminated at 10.00 ft	10					
			15					

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-07

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 533.61 ft
North: 1478177.03 ft
East: 2465355.35 ft
Station: 2100+05
Offset: 15.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	532.6	3-inch thick ASPHALT over 9-inch thick CONCRETE --PAVEMENT--						
		Medium dense, brown and gray GRAVELLY SAND, few silty clay seams; damp --FILL-- --RDR 3--			1	9 7 3	NP	9
	530.6	Stiff, brown SILTY CLAY, trace fine gravel; moist --RDR 3--				2		
		--sand lenses; wet--	5		2	3 6	1.15 B	25
	528.6	Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-08

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 519.19 ft
North: 1478030.74 ft
East: 2465621.02 ft
Station: 1105+76
Offset: 23.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	518.4	9-inch thick CONCRETE --PAVEMENT--						
		Medium dense, brown GRAVELLY SANDY LOAM; moist --FILL-- --RDR 3-- --%Gravel=45.2-- --%Sand=38.7-- --%Silt=11.6-- --%Clay=4.5-- --A-4 (0)--			1	4 4 6	NP	7
					2	3 5 5	NP	13
	514.2		5					
		Boring terminated at 5.00 ft						
			10					
			15					

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

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-09

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 516.95 ft
North: 1477960.57 ft
East: 2465602.64 ft
Station: 1106+64
Offset: 18.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	516.2	9-inch thick CONCRETE --PAVEMENT--						
		Loose, brown, fine to medium SAND, trace fine to medium gravel; moist to wet --FILL-- --RDR 3--			1	2 2 5	NP	13
					2	3 3 4	NP	13
	512.0		5					
		Boring terminated at 5.00 ft						
			10					
			15					

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

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-10

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 513.12 ft
North: 1477861.79 ft
East: 2465608.83 ft
Station: 1206+37
Offset: 22.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	512.5	8-inch thick CONCRETE --PAVEMENT--						
		Loose to medium dense, brown, fine SAND, trace fine gravel; damp --FILL-- --RDR 3--			1	9 7 8	NP	5
					2	3 3 4	NP	5
	508.1		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-11

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 512.99 ft
North: 1477944.46 ft
East: 2465894.73 ft
Station: 1210+11
Offset: 4.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	512.5	6-inch thick, dark brown CLAY LOAM						
		--TOPSOIL--						
		Stiff to very stiff, brown LOAM to CLAY LOAM, trace fine gravel; moist			1	3 4 5 6	1.31 S	9
		--FILL--						
		--RDR 2--				7 6 2 3		
	510.2				2		2.00 P	10
		Loose, brown, fine SAND to SANDY LOAM; moist				4 4 4 3		
		--FILL--						
		--RDR 2--						
			5		3		NP	11
					4	3 4 3 4	NP	13
					5	3 3 3 4	NP	12
	503.0		10					
		Boring terminated at 10.00 ft						
			15					

GENERAL NOTES

Begin Drilling **09-15-2016** Complete Drilling **09-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-12

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 494.77 ft
North: 1478431.63 ft
East: 2465973.95 ft
Station: 1304+52
Offset: 45.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	494.1	8-inch thick CONCRETE --PAVEMENT--						
		Medium dense, brown SILTY LOAM; damp --FILL-- --RDR 3 to 4-- --%Gravel=6.6-- --%Sand=26.3-- --%Silt=60.5-- --%Clay=6.7-- --A-4 (0)--			1	11 8 10	NP	9
	490.6				2	7 8 9	NP	7
	489.8	Brown, fine to medium SAND; damp	5					
		Boring terminated at 5.00 ft	10					
			15					

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

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-13

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 479.21 ft
North: 1478331.82 ft
East: 2466198.56 ft
Station: 1301+59
Offset: 51.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	478.5	9-inch thick CONCRETE --PAVEMENT--						
	477.9	7-inch thick, brown SILTY LOAM, little fine gravel; damp --FILL--				9		
		Loose, brown, fine SAND, trace fine gravel; damp to moist --RDR 3--			1	8 12	NP	6
					2	3 4 4	NP	12
	474.2		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-14

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 483.27 ft
North: 1478121.65 ft
East: 2466169.93 ft
Station: 618+11
Offset: 63.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	482.6	8-inch thick, dark brown SILTY CLAY LOAM; moist --TOPSOIL--						
		Loose to medium dense, brown, coarse SAND, little fine to medium gravel; damp --RDR 2--			1	4 5 8 8	NP	5
					2	5 6 5 4	NP	6
			5		3	4 2 3 3	NP	4
					4	5 6 6 5	NP	4
					5	7 7 8 8	NP	5
	473.3	Boring terminated at 10.00 ft	10					
			15					

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

GENERAL NOTES

Begin Drilling **09-15-2016** Complete Drilling **09-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-15

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 488.84 ft
North: 1477841.90 ft
East: 2466034.39 ft
Station: 615+09
Offset: 44.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	488.1	9-inch thick CONCRETE --PAVEMENT--						
	487.3	Brown GRAVELLY SAND; damp --BASE COURSE--						
		Loose to dense, brown SAND, trace gravel; damp --RDR 3--			1	13 16 16	NP	4
					2	4 4 5	NP	5
	483.8		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-16

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 490.92 ft
North: 1477409.64 ft
East: 2465957.17 ft
Station: 1503+42
Offset: 4.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	490.4	6-inch thick, black SILTY CLAY LOAM; moist						
		--TOPSOIL--			1	2 4 4 5	NP	8
		Loose, brown, fine SAND, trace coarse gravel; moist						
	489.2	--FILL--						
		Stiff to very stiff, brown CLAY LOAM, trace brick fragments				10 6 5 6		
		--FILL--			2		3.75 P	13
		--RDR 2--				3 2 4 5		
			5		3		1.00 P	15
					4	4 4 4 12	2.50 P	12
					5	7 6 3 3	2.00 P	14
	480.9		10					
		Boring terminated at 10.00 ft						
			15					

GENERAL NOTES

Begin Drilling **09-15-2016** Complete Drilling **09-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-17

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 447.14 ft
North: 1475926.84 ft
East: 2470749.61 ft
Station: 2158+49
Offset: 41.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	446.8	4-inch thick, brown SAND						
	446.1	8-inch thick, brown LOAM, some roots; damp						
		Very loose, brown SILT; moist to wet				3		
		--RDR 2--			1	2	NP	16
		--few sand lenses--				1		
		--organic matter debris--						
						2		
			5		2	1	NP	19
						1		
	441.6							
		Very soft to medium stiff, dark gray to brown and gray SILTY CLAY, trace roots; moist to wet				0		
		--RDR 3--			3	0	0.50	38
		--trace organic matter debris--				3	P	
		--possible sand; saturated--						
		--wet spoon--				2		
					4	1	0.16	30
			10			1	B	
		--few sand and silt lenses--				3		
					5	1	0.33	34
						2	B	
						1		
					6	1	0.33	36
			15			1	B	

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	431.6	Loose, gray SILT; saturated						
		--RDR 3--				1		
					7	3	NP	20
						3		
						3		
			20		8	3	NP	23
						4		
						0		
	425.1				9	1	NP	24
		Gray SAND; saturated				2		
	424.1	Gray SILT; saturated						
						1		
	422.8				10	2	0.16	31
		Very soft to soft, gray SILTY CLAY; moist to wet	25			1	B	
		--RDR 3--						
		--few fine sand lenses; wet--				1		
					11	2	0.33	32
						2	B	
	419.1	Loose, gray SILTY LOAM; moist						
		--RDR 3--				2		
					12	4	NP	19
			30			3		

GENERAL NOTES

Begin Drilling **09-26-2016** Complete Drilling **09-26-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&S** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **8.00 ft**
At Completion of Drilling ▼ **14.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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

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BORING LOG RB-17

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 447.14 ft
North: 1475926.84 ft
East: 2470749.61 ft
Station: 2158+49
Offset: 41.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	415.4	Soft, gray SILTY CLAY --RDR 3--						
		--few silt lenses; moist--			13	1 2 1	0.25 B	24
			35					
	410.4	Gray SAND, little gravel; saturated --RDR 3--						
	408.1	Gray SILT; saturated --RDR 3-- --trace wood fragments--	40		14	3 2 1	NP	31
	405.4	Very loose to dense, gray, fine SAND; saturated --RDR 3 to 4--						
			45		15	0 1 2	NP	21
		--chatter, 47 feet-- --possible cobbles--						
	397.1	Boring terminated at 50.00 ft	50		16	7 11 22	NP	17
			55					
			60					

GENERAL NOTES

Begin Drilling **09-26-2016** Complete Drilling **09-26-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&S** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **8.00 ft**
At Completion of Drilling ▼ **14.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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

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BORING LOG RB-18

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 462.93 ft
North: 1475932.91 ft
East: 2470908.92 ft
Station: 2159+99
Offset: 13.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	461.9	12-inch thick ASPHALT --PAVEMENT--						
		Stiff to hard, dark brown to gray SILTY CLAY LOAM to CLAY LOAM, little fine gravel; moist --FILL-- --RDR 3--			1	4 7 7	3.36 S	11
		--few fine sand seams--			2	7 5 9	1.80 B	13
			5					
					3	5 5 3	> 4.50 P	11
					4	1 2 4	2.30 B	14
			10					
					5	5 2 5	2.05 B	14
					6	3 3 6	2.05 B	15
			15					
			20		7	5 5 4	2.30 B	12
					8	2 3 2	2.30 B	15
	442.7	SAND; saturated		▽				
	442.2	--Wet spoon--						
		Stiff, dark brown SILTY CLAY LOAM; damp --BURIED TOPSOIL--			9	3 3 4	1.48 B	16
	439.9	Stiff, brown SILTY CLAY, trace fine gravel; trace shells; moist --RDR 3--			10	3 3 4	1.15 B	21
	437.9	Boring terminated at 25.00 ft	25 ▼					
			30					

GENERAL NOTES

Begin Drilling **09-19-2016** Complete Drilling **09-19-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **20.50 ft**
At Completion of Drilling ▼ **25.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG RB-19

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 448.77 ft
North: 1475828.73 ft
East: 2471035.82 ft
Station: 2161+53
Offset: 45.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		18-inch thick, black to dark brown SILTY LOAM; moist --TOPSOIL--						
	447.3	Loose, light brown LOAM; wet --RDR 2--			1	5 2 2	NP	18
	445.8	Very loose, dark brown SILT, trace organic matter; wet	5		2	1 1 1	< 0.25 P	25
	443.3	Soft, brown to gray CLAY LOAM to LOAM, trace fine gravel; moist to wet			3	2 2 3	0.33 B	19
					4	2 2 1	0.25 P	22
	438.8	SAND; saturated --wet spoon--	10					
	438.0	Soft, dark gray CLAY to SILTY CLAY; moist to wet --trace organic matter debris--			5	1 1 1	0.33 B	31
		--some shells and roots--	15		6	0 0 0	0.25 B	31
	433.3	Gray SILT; saturated			7	0 2 1	NP	22
		--trace organic matter--	20		8	3 1 2	NP	26
		--trace organic matter-- --few sand lenses--			9	0 0 3	NP	26
	425.8	Very soft, gray CLAY to SILTY CLAY, trace black organic matter debris; moist to wet --few silt and sand lenses--	25		10	0 0 0	0.16 B	37
	423.3	Loose, gray SILT; wet			11	3 4 3	NP	22
	420.8	Medium stiff, gray SILTY CLAY, trace organic matter; moist --RDR 2 to 3-- --few sand and silt lenses; wet--	30		12	1 1 3	0.50 P	33

GENERAL NOTES

Begin Drilling: **09-26-2016** Complete Drilling: **09-26-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&S** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **10.00 ft**
At Completion of Drilling: **15.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-19

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 448.77 ft
North: 1475828.73 ft
East: 2471035.82 ft
Station: 2161+53
Offset: 45.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	417.0							
		Very loose, gray SILT; saturated --RDR 2--						
		--few sand and clay lenses--	35		13	0 0 2	NP	28
	412.0							
		Gray, fine SAND; saturated --RDR 3--						
	409.8							
		Loose, gray SILT; saturated --RDR 3--	40		14	4 4 3	NP	26
	407.0							
		Medium dense, gray, fine to medium SAND; saturated --RDR 3--						
					15	3 8 13	NP	20
	403.8		45					
		Boring terminated at 45.00 ft						

GENERAL NOTES

Begin Drilling **09-26-2016** Complete Drilling **09-26-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&S** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **10.00 ft**
At Completion of Drilling ▼ **15.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG RB-19ST

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 448.87 ft
North: 1475816.22 ft
East: 2471040.44 ft
Station: 2161+61
Offset: 56.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Drilled without sampling						
	444.9	Soft to stiff, gray CLAY LOAM to LOAM, trace to little gravel; moist --Q_u=1.50 tsf (P), w_n(%)=18-- --S_u =0.14 tsf (UU TXC) --w_n(%)=25, L_L=31, P_L=16--	5	PUSH	1		0.25 P	25
	442.9	Medium stiff, brown LOAM; saturated --w_n(%)=17, L_L=NP, P_L=NP-- --Laboratory Q_u=0.47 tsf, w_n(%)=18-- --w_n(%)=18-- --C_c=0.102, OCR=2.0-- --w_n(%)=15--		PUSH	2		0.47 S	18
	440.9	Brown SAND, some fine to medium GRAVEL		PUSH				
	440.3	--w_n(%)=13--						
		Soft to Medium stiff, brown LOAM; saturated --Laboratory Q_u=0.42 tsf, w_n(%)=18--		PUSH	3		0.42 S	18
	439.2	--Laboratory Q_u=0.14 tsf, w_n(%)=29--	10					
		Brown SAND, some GRAVEL; moist		PUSH				
	438.2	Very soft, pinkish brown CLAY --Q_u<0.25 tsf (P), w_n(%)=24--		PUSH	4		< 0.25 P	24
	437.6	Gray SAND; moist		PUSH				
	436.9	Medium stiff, gray CLAY, with bioclasts and sand lenses --w_n(%)=25-- --w_n(%)=28, L_L=42, P_L=20-- --Laboratory Q_u=0.50 tsf, w_n(%)=36--		PUSH	5		0.50 B	36
	434.9	434.7 Brown SAND; wet Gray CLAY, with bioclast, trace plant matter --Q_u=0.25 tsf (P), w_n(%)=28-- --Rimac Q_u=0.66 tsf (B), w_n(%)=33-- --brown and gray, w_n(%)=24--	15	PUSH	6		0.66 B	33
	432.9		20					

GENERAL NOTES

Begin Drilling: **11-16-2016** Complete Drilling: **11-16-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&J&B** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **4.00 ft**
At Completion of Drilling: **2.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG RB-19ST

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 448.87 ft
North: 1475816.22 ft
East: 2471040.44 ft
Station: 2161+61
Offset: 56.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	424.9	Medium stiff, gray SILTY CLAY, trace organic matter --Laboratory Q_u=0.79 tsf, w_n(%)=35--				P		
	423.9	--w_n(%)=39, L_L=42, P_L=22--	25			U		
		--C_c=0.281, OCR=1.0--			7	S	0.79 B	39
		Gray SAND, with shell fragments; saturated				H		
	422.9							
	419.9	Gray, fine SAND, trace shell fragments; saturated				P		
		--3-inch CLAY lens, w_n(%)=42--	30			U		
			35					
			40					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					8	S	NP	42
						H		
	417.9	Boring terminated at 31.00 ft						

GENERAL NOTES

Begin Drilling **11-16-2016** Complete Drilling **11-16-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **4.00 ft**
At Completion of Drilling ▼ **2.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG RB-20

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 461.95 ft
North: 1475823.09 ft
East: 2471179.60 ft
Station: 2162+91
Offset: 3.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		12-inch thick ASPHALT --PAVEMENT--						
	461.0							
		Stiff to hard, dark gray to gray and brown CLAY LOAM, trace fine gravel; moist --FILL-- --RDR 3--			1	4 5 3	3.85 B	12
			5		2	7 8 7	4.92 B	12
					3	5 5 6	3.12 B	11
			10		4	4 3 4	3.00 P	12
					5	2 3 4	> 4.50 P	13
	449.0							
		Stiff, dark brown SILTY CLAY; moist --RDR 3--	15		6	3 3 3	1.56 B	16

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					7	3 3 4	1.00 P	21
	444.0							
		Very soft, gray SILTY LOAM; wet --RDR 3--	20		8	1 1 1	< 0.25 P	19
	441.5							
		Medium stiff, gray SILTY CLAY LOAM, trace organic matter; moist --RDR 2--			9	1 2 2	0.57 B	20
			25		10	1 2 2	0.74 B	20
					11	1 2 1	0.74 B	29
	434.0							
		Loose, gray SILTY LOAM, trace organic matter; saturated --RDR 2--	30		12	2 1 2	0.82 B	21

GENERAL NOTES

Begin Drilling **09-19-2016** Complete Drilling **09-19-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **18.50 ft**
At Completion of Drilling ▼ **43.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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

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BORING LOG RB-20

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 461.95 ft
North: 1475823.09 ft
East: 2471179.60 ft
Station: 2162+91
Offset: 3.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	430.2							
		Soft, gray CLAY to SILTY CLAY, trace plant debris; moist --RDR 2--						
					13	1 2 2	0.25 P	28
			35					
	425.2							
		Medium dense, gray, fine SAND to SANDY LOAM, little fine gravel; saturated --RDR 3--						
					14	4 5 4	NP	19
			40					
	420.2							
		Stiff, gray SILTY CLAY, trace organic matter; moist --RDR 3--						
					15	2 3 2	1.15 B	43
	417.0		45					
		Boring terminated at 45.00 ft						

GENERAL NOTES

Begin Drilling **09-19-2016** Complete Drilling **09-19-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **18.50 ft**
At Completion of Drilling ▼ **43.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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

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BORING LOG RB-21

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 462.70 ft
North: 1475756.79 ft
East: 2471343.95 ft
Station: 2164+68
Offset: 9.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		12-inch thick ASPHALT --PAVEMENT--						
	461.7							
		Very stiff to hard, black and brown CLAY LOAM, trace fine to medium gravel; moist --FILL-- --RDR 3--			1	4 4 6	2.50 P	12
					2	4 4 10	5.41 S	12
			5					
		--few sand seams; damp--			3	5 5 7	4.43 B	12
					4	3 4 3	2.50 P	12
			10					
					5	5 5 8	4.76 B	12
					6	3 3 6	2.50 P	13
	447.9							
	447.7		15					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Black SILTY CLAY LOAM; moist --BURIED TOPSOIL--						
		Boring terminated at 15.00 ft	20					
			25					
			30					

GENERAL NOTES

Begin Drilling **09-19-2016** Complete Drilling **09-19-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-22

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 463.07 ft
North: 1475708.89 ft
East: 2471454.14 ft
Station: 2165+88
Offset: 15.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		11-inch thick ASPHALT --PAVEMENT--						
	462.2							
		Stiff to hard, brown and gray CLAY LOAM to LOAM, trace fine gravel; damp to moist --FILL-- --RDR 2-- --L_L(%)=22, P_L(%)=13-- --%Gravel=5.6-- --%Sand=31.8-- --%Silt=44.6-- --%Clay=18.1-- --A-4 (3)--			1	3 3 3	1.50 P	13
			5		2	3 8 8	5.74 B	12
					3	3 5 8	3.03 B	13
			10		4	2 6 5	3.12 B	13
					5	2 2 2	1.25 P	15
	450.1							
		Medium stiff, brown SILTY CLAY LOAM to CLAY LOAM, trace fine gravel; moist --RDR 2--			6	1 2 2	0.57 B	18
			15					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	447.6							
		Very loose, brown SANDY LOAM, trace fine gravel; saturated --RDR 2--			7	2 1 1	NP	19
	445.1							
		Soft to stiff, dark gray to gray SILTY CLAY to SILTY CLAY LOAM, trace fine gravel; moist --RDR 2--			8	0 0 3	0.74 B	25
			20					
					9	0 2 2	1.07 B	25
		--trace shells--			10	0 0 0	0.50 P	19
			25					
		--trace shells--			11	0 1 1	0.25 P	22
					12	0 2 2	0.82 B	26
			30					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R+J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **15.50 ft**
At Completion of Drilling ▼ **14.50 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG RB-22

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 463.07 ft
North: 1475708.89 ft
East: 2471454.14 ft
Station: 2165+88
Offset: 15.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	431.3							
		Loose, gray, fine SAND; saturated --RDR 2--			13	4 3 3	NP	25
			35					
	423.8				14	0 2 2	0.74 B	28
		Medium stiff, gray SILTY CLAY; moist --RDR 2--	40					
	421.3							
		Possibly gray, medium SAND --heaving sand-- --RDR 2--						
	419.6							
		Boring terminated at 43.50 ft	45					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R+J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **15.50 ft**
At Completion of Drilling ▼ **14.50 ft**
Time After Drilling **NA**
Depth to Water ⧩ **NA**

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

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BORING LOG RB-23

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 464.70 ft
North: 1475589.19 ft
East: 2471743.41 ft
Station: 10+89
Offset: 6.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	463.7	12-inch thick ASPHALT --PAVEMENT--						
		Stiff to very stiff, brown and gray CLAY LOAM, trace fine to medium gravel; moist --FILL-- --RDR 2--			1	3 3 3	1.80 B	12
			5		2	6 8 4	2.95 B	10
					3	2 3 4	3.85 B	13
	456.7	Stiff, black SILTY CLAY LOAM; moist --BURIED TOPSOIL-- --RDR 2--			4	3 4 5	1.23 B	19
	454.7		10					
		Boring terminated at 10.00 ft						
			15					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R&J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-24

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 465.93 ft
North: 1475466.35 ft
East: 2472008.95 ft
Station: 13+82
Offset: 12.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	465.1	10-inch thick ASPHALT --PAVEMENT--						
	464.6	6-inch thick, gray SAND --FILL--						
		Stiff, gray and brown SILTY CLAY LOAM, trace fine gravel and glass fragments; moist --FILL-- --RDR 2 to 3--			1	2 2 4	1.50 P	21
			5		2	3 3 6	1.89 B	14
	460.4	Stiff, dark brown SILTY CLAY; moist --BURIED TOPSOIL--						
	459.3	--RDR 2--			3	4 2 2	1.50 P	14
		Medium stiff, brown CLAY LOAM; moist						
	457.9	Stiff, brown SILTY CLAY; moist --RDR 3--			4	2 1 3	1.07 B	19
	455.9		10					
		Boring terminated at 10.00 ft						
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-25

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 467.03 ft
North: 1475394.67 ft
East: 2472147.12 ft
Station: 15+38
Offset: 9.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		10-inch thick ASPHALT --PAVEMENT--						
	466.2	Stiff to hard, brown and gray CLAY LOAM, trace fine to medium gravel; moist --FILL-- --RDR 3--			1	2 3 4	5.33 B	12
	462.3				2	2 2 3	1.48 B	14
	462.0	Black SILTY CLAY LOAM; moist --BURIED TOPSOIL--	5					
		Boring terminated at 5.00 ft	10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-26

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 471.05 ft
North: 1475191.33 ft
East: 2472411.60 ft
Station: 18+68
Offset: 20.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	470.6	6-inch thick ASPHALT --PAVEMENT--						
		Very stiff, brown and gray LOAM to CLAY LOAM, trace fine to medium gravel; damp --FILL-- --RDR 3-- --L_L(%)=23, P_L(%)=13-- --%Gravel=6.4-- --%Sand=33.2-- --%Silt=42.5-- --%Clay=17.9-- --A-4 (3)--			1	4 3 7	2.50 P	12
					2	7 6 6	3.75 P	10
	465.6		5					
	465.0	Dark gray and brown SILTY CLAY; damp --BURIED TOPSOIL-- Stiff, brown LOAM to CLAY LOAM; damp --RDR 3--			3	5 4 4	1.50 P	13
					5	3 3 2	1.15 S	11
	461.1	Boring terminated at 10.00 ft	10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-27

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 473.70 ft
North: 1474937.24 ft
East: 2472562.86 ft
Station: 21+62
Offset: 6.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	473.2	6-inch thick ASPHALT --PAVEMENT--						
		Very stiff, brown CLAY LOAM, trace fine to medium gravel; moist --FILL-- --RDR 3--			1	3 4 4	3.85 S	10
	470.0	Medium stiff to stiff, brown SILTY CLAY to SILTY CLAY LOAM; moist --RDR 3--	5		2	6 2 1	0.75 P	18
					3	2 2 3	1.07 B	21
					4	1 2 3	1.07 B	19
	463.7	Boring terminated at 10.00 ft	10					
			15					

GENERAL NOTES

Begin Drilling **09-20-2016** Complete Drilling **09-20-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-28

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 479.18 ft
North: 1474665.68 ft
East: 2472702.80 ft
Station: 24+67
Offset: 6.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	478.2	6-inch thick ASPHALT over 6-inch thick CONCRETE --PAVEMENT--						
		Hard, gray CLAY LOAM, trace fine gravel; dry to damp --FILL-- --RDR 3--			1	7 5 8	> 4.50 P	9
	476.2	Medium stiff, brown CLAY LOAM to LOAM, trace fine gravel; moist --RDR 3--	5		2	2 2 2	0.82 S	15
	473.7	Medium dense, brown, fine SAND to SANDY LOAM, trace fine to medium gravel; moist --RDR 3--			3	4 7 8	NP	9
	471.2	Medium stiff, brown SILTY LOAM; moist to wet --RDR 2--	10		4	5 2 3	0.50 P	16
	469.2	Soft to stiff, brown SILTY CLAY to SILTY CLAY LOAM; moist --RDR 2 to 3--			5	6 2 3	0.57 B	21
			15		6	2 1 2	0.41 B	22
			20		7	1 3 2	0.82 B	20
					8	1 1 2	0.57 B	19
	456.7	Boring terminated at 22.50 ft	25		9	2 2 1	1.07 B	18
			30					

GENERAL NOTES

Begin Drilling: **09-20-2016** Complete Drilling: **09-20-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **CME55 TMR [85%]**
Driller: **K&N** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG RB-29

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 473.09 ft
North: 1474378.06 ft
East: 2472766.63 ft
Station: 27+62
Offset: 1.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	472.3	10-inch thick, dark brown SILTY CLAY LOAM; moist						
		--TOPSOIL--						
	471.9	4-inch thick, brown SILTY CLAY LOAM				3		
		Loose, brown, fine SAND; damp to moist			1	2	NP	8
		--RDR 3--				3		
						3		
					2	3	NP	5
			5			1		
	467.6	Medium dense, brown GRAVELLY SAND, few silty clay seams; moist				5		
					3	7	NP	8
						8		
	464.3	Soft to stiff, brown to gray SILTY CLAY to SILTY CLAY LOAM, trace gravel; moist				5		
		--RDR 3--	10		4	4	0.25 P	15
						1		
						2		
					5	3	0.66 B	22
						4		
						1		
					6	2	0.74 B	22
			15			2		

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
						2		
					7	3	0.74 B	25
						3		
						3		
					8	4	1.48 B	25
	453.1		20			4		
		Boring terminated at 20.00 ft						
			25					
			30					

GENERAL NOTES

Begin Drilling: **09-22-2016** Complete Drilling: **09-22-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&N** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-30

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 474.66 ft
North: 1474067.55 ft
East: 2472821.15 ft
Station: 30+71
Offset: 33.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	474.2	6-inch thick, dark brown SILTY CLAY LOAM						
		--TOPSOIL--						
		Very stiff, brown CLAY LOAM, trace fine gravel; moist				5		
		--FILL--			1	5	2.21 B	11
		--RDR 3--				7		
	470.7	Stiff, dark brown SILTY CLAY LOAM, trace organic matter; moist	5		2	3 3 4	1.50 P	22
		--BURIED TOPSOIL--						
		--RDR 3--						
	468.2	Medium stiff, brown CLAY LOAM to LOAM; wet			3	4 5 6	0.57 B	15
		--RDR 3--						
	466.7	Brown SANDY LOAM; wet						
		--RDR 2--						
	465.7	Brown SILTY LOAM; saturated			4	2 2 2	NP	23
		--RDR 2--	10					
	464.2	Soft to stiff, gray SILTY CLAY to SILTY CLAY LOAM; moist						
		--RDR 2 to 3--			5	1 2 2	0.33 B	23
					6	2 1 1	0.41 B	27
			15					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					7	3 4 5	1.48 B	22
	457.2	Boring terminated at 17.50 ft	20					
			25					
			30					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **9.00 ft**
At Completion of Drilling ▼ **17.50 ft**
Time After Drilling **NA**
Depth to Water ▽ **NA**

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BORING LOG RB-31

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 470.99 ft
North: 1473791.47 ft
East: 2472687.83 ft
Station: 33+70
Offset: 2.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	470.5	6-inch thick, dark brown CLAY LOAM --TOPSOIL--						
		Hard, brown CLAY LOAM to LOAM, trace gravel; dry to moist --FILL-- --RDR 3-- --L_L(%)=26, P_L(%)=14-- --%Gravel=8.9-- --%Sand=31.6-- --%Silt=41.1-- --%Clay=18.4-- --A-6 (4)--			1	8 7 7	4.35 S	9
					2	5 6 6	> 4.50 P	9
	466.0		5					
		Boring terminated at 5.00 ft						
			10					
			15					

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

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-32

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 468.47 ft
North: 1473519.48 ft
East: 2472560.57 ft
Station: 36+70
Offset: 4.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	468.0	6-inch thick, dark brown CLAY LOAM --TOPSOIL-- Hard, brown CLAY LOAM, trace fine to medium gravel; dry to damp --FILL-- --RDR 3--			1	8 9 9	5.33 B	9
					2	3 5 10	4.92 B	10
	463.5	Boring terminated at 5.00 ft	5					
			10					
			15					

GENERAL NOTES

Begin Drilling: **09-22-2016** Complete Drilling: **09-22-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&N** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-33

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 464.63 ft
North: 1472524.46 ft
East: 2472145.99 ft
Station: 197+61
Offset: 39.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	463.4	5-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
		Very stiff to hard, brown CLAY LOAM, trace fine to medium gravel; dry to damp --FILL-- --RDR 2--			1	4 3 12	> 4.50 P	9
					2	4 8 9	2.62 B	9
	459.6		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R&J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-34

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 463.37 ft
North: 1472211.21 ft
East: 2472011.94 ft
Station: 194+20
Offset: 38.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	462.1	3-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
		Stiff to very stiff, gray CLAY LOAM, trace fine gravel; dry to damp --FILL-- --RDR 2--			1	2 3 4	1.00 P	12
					2	4 6 6	2.21 B	9
	458.4		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R&J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-35

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 462.76 ft
North: 1471922.17 ft
East: 2471886.23 ft
Station: 191+05
Offset: 38.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		4-inch thick ASPHALT over 11-inch thick CONCRETE --PAVEMENT--						
	461.5							
		Very stiff to hard, gray CLAY LOAM, trace fine to medium gravel; dry to damp --FILL-- --RDR 2--			1	2 4 10	2.62 B	11
					2	4 5 7	4.92 B	11
	457.8		5					
		Boring terminated at 5.00 ft						
			10					
			15					

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

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R&J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG RB-36

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 464.68 ft
North: 1471585.59 ft
East: 2471740.59 ft
Station: 187+38
Offset: 38.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	463.4	3-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
		Very stiff to hard, brown to gray CLAY LOAM, trace fine to medium gravel; dry to damp --FILL-- --RDR 2--			1	4 6 10	3.77 B	9
					2	4 7 11	6.15 B	9
	459.7		5					
		Boring terminated at 5.00 ft						
			10					
			15					

GENERAL NOTES

Begin Drilling **09-22-2016** Complete Drilling **09-22-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **R&J** Logger **M. Schmelzel** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-01

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 528.10 ft
North: 1478181.24 ft
East: 2465491.91 ft
Station: 1311+14
Offset: 8.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	526.8	4-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	524.9	Very stiff, brown SILTY CLAY, trace fine gravel; moist --FILL-- --RDR 3--			1	2 2 4	2.21 B	20
	522.6	Stiff, brown CLAY to SILTY CLAY; moist --RDR 3--	5		2	2 3 5	1.39 B	24
	517.6	Loose, brown, fine SAND to SANDY LOAM; moist to wet --RDR 3--	10		3	1 2 3	NP	11
					4	2 2 3	NP	6
	515.1	Very loose, brown SILT, few silty clay lenses; saturated --RDR 3--		▽	5	2 1 1	NP	29
	512.6	Very loose, brown SANDY LOAM to LOAM; wet --RDR 3--	15		6	1 1 1	NP	21
	510.1	Medium dense, brown, fine SAND; moist --RDR 3--			7	2 4 8	NP	10
	508.1	Medium dense, brown SILT, few fine sand lenses; moist --RDR 3--	20	▼	8	6 9 14	NP	21
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling **09-21-2016** Complete Drilling **09-21-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **2.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **11.00 ft**
At Completion of Drilling ▼ **20.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG SB-02

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 524.15 ft
North: 1478152.66 ft
East: 2465581.42 ft
Station: 1310+21
Offset: 3.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	522.9	3-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	522.2	6-inch thick, brown SANDY LOAM, little fine gravel; moist --BASE COURSE--			1	7 8 3	2.00 P	12
	520.9	Very stiff, brown CLAY LOAM; moist --FILL-- --RDR 3--			2	7 4 4	NP	13
		Loose, brown LOAM to SANDY LOAM, trace fine gravel; moist	5					
	518.7	--RDR 3--						
		Loose to medium dense, brown, medium to coarse SAND; moist --RDR 3--			3	2 2 4	NP	7
		--few silt lenses--			4	4 7 6	NP	4
			10					
	513.7	Medium dense, brown SILT; moist to wet --RDR 3--			5	9 8 9	NP	22
		--few silty clay seams--			6	3 5 9	NP	24
			15					
					7	12 12 12	NP	18
	506.2	Dense, brown, medium SAND, little fine gravel; moist --RDR 3--			8	14 16 14	NP	10
	504.2		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling **09-16-2016** Complete Drilling **09-16-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **CME55 TMR [85%]**
Driller **K&N** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG SB-43

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 443.13 ft
North: 1475973.94 ft
East: 2470612.41 ft
Station: 2157+05
Offset: 38.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		18-inch thick, black GRAVELLY LOAM; wet						
	441.6	Very loose, gray SILT; wet --RDR 2-- --trace organic matter--			1	2 2 1	NP	29
	440.1	Brown LOAM; saturated						
	439.1	Medium stiff, dark gray SILTY CLAY, trace organic matter; moist	5		2	1 0 0	0.50 P	47
	437.6	--RDR 2--						
		Medium stiff, light gray CLAY LOAM, few silt and loam lenses; moist			3	1 1 2	0.75 P	21
	435.1	Soft to medium stiff, gray SILTY CLAY to SILTY CLAY LOAM; moist to wet --RDR 2 to 3-- --trace organic matter--	10		4	0 0 0	0.25 P	28
					5	2 2 2	0.66 B	33
			15		6	2 2 3	0.74 B	19
	427.6	Loose, brown, coarse SAND, little gravel; saturated --RDR 3--			7	6 2 2	NP	18
	425.1	Very loose, gray SAND; wet to saturated --RDR 3-- --silt and clay lenses--	20		8	0 1 1	NP	23
	421.3	Soft, gray SILTY CLAY, trace plant matter and shells; wet --RDR 3--			9	2 3 2	0.41 B	34
			25		10	0 0 0	0.33 B	32
	417.6	Gray SAND; wet --silt lenses--						
	416.3	Gray LOAM; wet --RDR 3--			11	1 2 2	NP	24
	415.1	Soft, gray SILTY CLAY, trace plant matter and shells; moist to wet	30		12	1 2 1	0.33 B	64
	411.4	Loose, gray SILT; saturated --RDR 3--						
		--sand lenses--	35		13	1 3 3	NP	25
	406.4	Medium dense, gray, fine to medium SAND; wet --RDR 3--						
		--silt lenses--	40		14	4 6 5	NP	19

GENERAL NOTES

Begin Drilling: **09-27-2016** Complete Drilling: **09-27-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&S** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **6.00 ft**
At Completion of Drilling: **0.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-43

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 443.13 ft
North: 1475973.94 ft
East: 2470612.41 ft
Station: 2157+05
Offset: 38.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	399.1	Medium dense, gray SILT; moist	45		15	3 5 10	NP	23
	396.4	Medium dense, gray SAND; saturated --RDR 3-- --silt lenses--	50		16	4 4 8	NP	13
	388.6	Gray SHALE --RDR 3 to 4--	55		17	5 6 39	NP	13
		Run 1: 56.0 to 61.0 feet RECOVERY= 100% RQD = 68%	60	CORE	18			
		Run 2: 61.0 to 66.0 feet RECOVERY= 85% RQD = 0%	65	CORE	19			
	377.1	Boring terminated at 66.00 ft	70					
			75					
			80					

GENERAL NOTES

Begin Drilling **09-27-2016** Complete Drilling **09-27-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&S** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **6.00 ft**
At Completion of Drilling ▼ **0.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG SB-43ST

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 443.17 ft
North: 1475968.47 ft
East: 2470616.90 ft
Station: 2157+10
Offset: 42.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Drilled without sampling						
	439.2	Very soft, gray SANDY LOAM, trace organic matter; wet to saturated						
	438.7					P U S H		
	438.4	Gray SILT, trace organic matter; saturated	5		1		0.31 S	41
		Soft, dark gray SILTY CLAY LOAM, trace shells and organic matter; wet --w_n(%)=32, L_L=42, P_L=19-- --C_c=0.204, OCR=2.3-- --w_n(%)=41, L_L=51, P_L=22-- -- Laboratory Q_u=0.31 tsf-- --w_n(%)=20-- --c'=135 psf, phi'=31 deg (CU TXC)-- --2 inches sand and gravel--				P U S H		
	436.1				2			31
		Very soft, gray CLAY to SILTY CLAY; wet --w_n(%)=24--						
	434.9	--w_n(%)=31-- --Q_u<0.25 tsf (P)--				P U S H		
	434.4	Gray, medium to coarse SAND; saturated			3		0.60 B	25
	433.7	Medium stiff, gray CLAY LOAM; moist --w_n(%)=25, L_L=38, P_L=19--						
	433.2		10					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--S_u=0.30 tsf (UU TXC)--						
	432.7	Brown SAND, some gravel; wet						
		Very soft, black to gray SILTY CLAY, trace organic and plant matter; wet --Q_u<0.25 tsf (P), w_n(%)=28--			4	P U S H	< 0.25 P	31
	431.7	Gray SAND, some shells; moist						
		Soft, gray SILTY CLAY; moist						
	431.2	--w_n(%)=31, L_L=42, P_L=19--						
	430.9	--C_c=0.292, OCR=1.4--						
		Gray, fine SAND; moist				P U S H		
		Medium stiff, gray SILTY CLAY, trace gravel; moist --w_n(%)=27--			5		0.75 P	27
	429.4	--w_n(%)=16--						
		Gray, fine SAND, trace wood fragments; wet						
	429.1							
		Stiff, gray CLAY; moist				P U S H		
	428.6	----w_n(%)=30 --w_n(%)=20--						
		Gray SILT; wet	15		6		1.00 P	30
	428.0	Gray GRAVELLY SAND; wet						
	427.2		20					

GENERAL NOTES

Begin Drilling: **11-16-2016** Complete Drilling: **11-16-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&J&B** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **8.00 ft**
At Completion of Drilling: **2.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-43ST

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 443.17 ft
North: 1475968.47 ft
East: 2470616.90 ft
Station: 2157+10
Offset: 42.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	420.2							
	419.9	Brown SAND; wet						
		Soft, gray CLAY, trace organic matter; wet				P		
		--w_n(%)=32--				U		
		--w_n(%)=36, L_L=54, P_L=23--			7	S	0.74 B	36
		--Q_u=0.25 tsf (P)--				H		
		--sand lenses; wet--						
	418.3	--Laboratory Q_u=0.74 tsf, w_n(%)=28--	25					
	418.2	Gray, fine SAND; wet						
	414.2							
	413.9	Gray, fine SAND; wet				P		
		Gray SILTY LOAM; wet				U		
		--w_n(%)=19, L_L=30, P_L=19--						
	413.2		30					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Soft to medium stiff, gray SILTY CLAY LOAM			8	S	0.60 S	29
		--w_n(%)=51--				H		
		-- Laboratory Q_u=0.60 tsf--						
	412.2	--w_n(%)=48, L_L=57, P_L=23--						
		--C_c=0.321, OCR=1.0--						
		--Q_u=0.25 tsf (P)--						
		Boring terminated at 31.00 ft						
			35					
			40					

GENERAL NOTES

Begin Drilling **11-16-2016** Complete Drilling **11-16-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **8.00 ft**
At Completion of Drilling ▼ **2.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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WANGENGINC 4140901.GPJ WANGENG.GDT 4/3/17

Laboratory Test Results

SOIL TEST DATA

ROUTE
US 150 - McCluglage Bridge over Illinois River

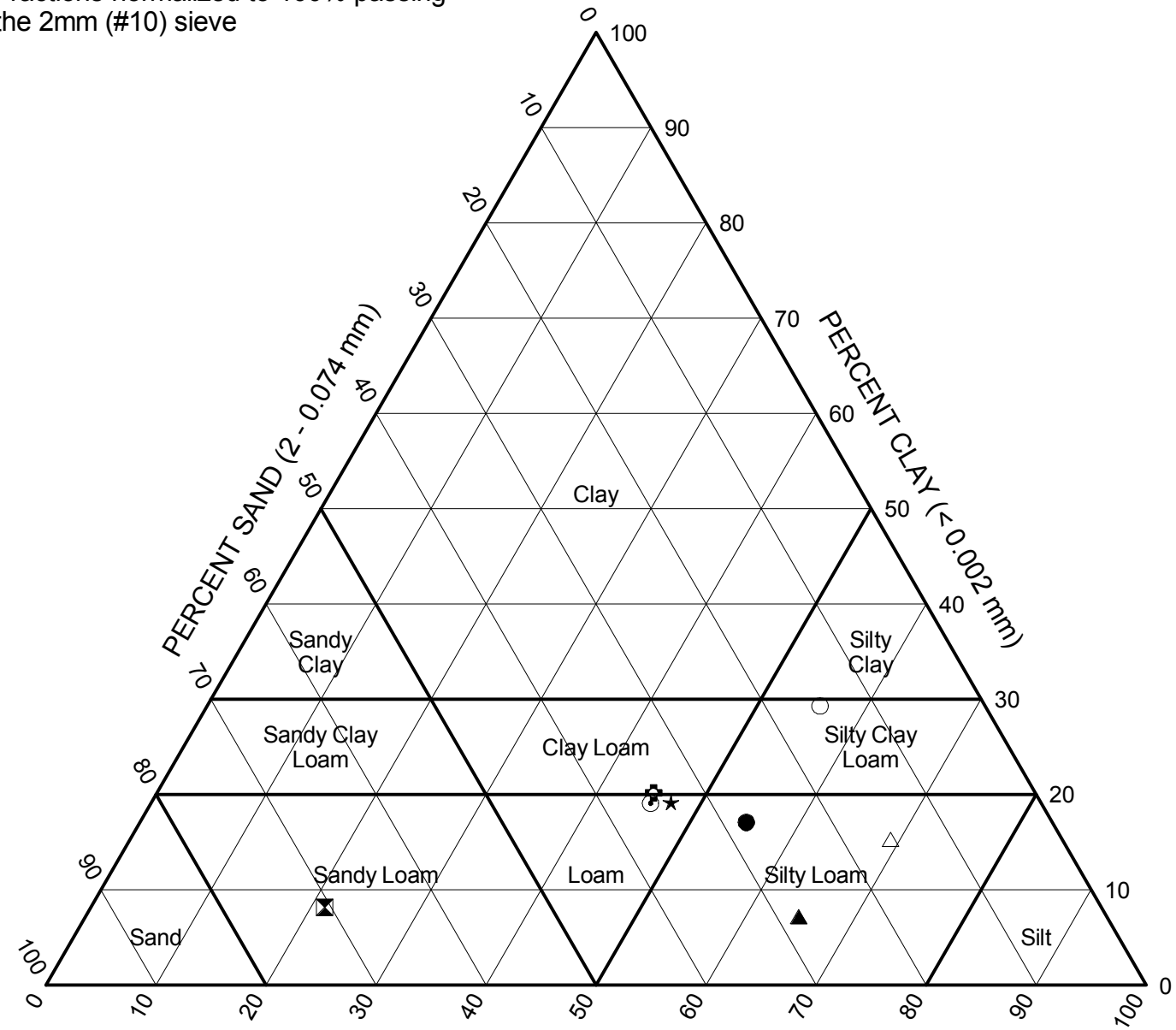
PROJECT
414-09-01

SECTION
Roadway and Ramps

COUNTY
Peoria and Tazewell Counties

Lab. No.	RB-01 No.1	RB-08 No.1	RB-12 No.1	RB-22 No.1	RB-26 No.1	RB-31 No.1
Station ft)	2093+17	1105+76	1304+52	2165+88	18+68	33+70
Offset (ft)	41.0 LT	23.0 RT	45.0 LT	15.0 RT	20.0 LT	2.0 RT
Depth (ft)	1	1	1	1	1	1
AASHTO M 145 Classification and Group Index	A-6 (10)	A-1-b (0)	A-4 (0)	A-4 (3)	A-4 (3)	A-6 (4)
Illinois Textural Classification (Illinois Method)	Silty Loam	Gravelly Sandy Loam	Silty Loam	Loam	Loam	Clay Loam
Gradation--Passing 1" Sieve %		99.8				
--"-- 3/4" Sieve %		95.5				
--"-- 1/2" Sieve %	100.0	86.3	100.0	100.0	100.0	100.0
--"-- No.4 Sieve %	98.9	69.4	96.2	97.1	97.5	97.5
--"-- No.10 Sieve %	95.8	54.8	93.4	94.4	93.6	91.1
--"-- No.40 Sieve %	90.3	39.2	84.5	87.5	85.0	79.6
--"-- No.100 Sieve %	77.0	19.1	74.9	73.1	68.4	66.2
--"-- No.200 Sieve %	69.3	16.0	67.1	62.6	60.4	59.5
Sand % (AASHTO T 88)	26.5	38.7	26.3	31.8	33.2	31.6
Silt % (AASHTO T 88)	52.8	11.6	60.5	44.6	42.5	41.1
Clay % (AASHTO T 88)	16.4	4.5	6.7	18.1	17.9	18.4
Liquid limit % (AASHTO T 89)	38.0	0.0	0.0	22.0	23.0	26.0
Plasticity index % (AASHTO T 90)	16.0	0.0	0.0	9.0	10.0	12.0
IBR % (Illinois Method)						
Standard Dry Density % (AASHTO T 99)						
Optimum Moisture % (AASHTO T 99)						
Subgrade Support Rating	POOR	GRANULAR	POOR	POOR	POOR	POOR
Insitu Moisture % (AASHTO T 99)	26	7	9	13	12	9

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



	Sample	Depth (ft)	Sand (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	ASTM
●	**RB-01#1**	**1.0**	**27.7**	**55.1**	**17.1**	**Silty Loam**	**A-6 (10)**	**CL**
⧓	**RB-08#1**	**1.0**	**70.6**	**21.2**	**8.2**	**Gravelly Sandy Loam**	**A-1-b (0)**	**SM**
▲	**RB-12#1**	**1.0**	**28.2**	**64.8**	**7.2**	**Silty Loam**	**A-4 (0)**	**ML**
★	**RB-22#1**	**1.0**	**33.7**	**47.2**	**19.2**	**Loam**	**A-4 (3)**	**CL**
⊙	**RB-26#1**	**1.0**	**35.5**	**45.4**	**19.1**	**Loam**	**A-4 (3)**	**CL**
✿	**RB-31#1**	**1.0**	**34.7**	**45.1**	**20.2**	**Clay Loam**	**A-6 (4)**	**CL**
○	**SB-43ST#**	**4.5**	**14.9**	**55.7**	**29.3**	**Silty Clay Loam**	**A-7-6 (26)**	**CH**
△	**SB-43ST#**	**29.5**	**15.6**	**69.1**	**15.3**	**Silty Loam**	**A-6 (8)**	**CL**

WEI SINCE 1982

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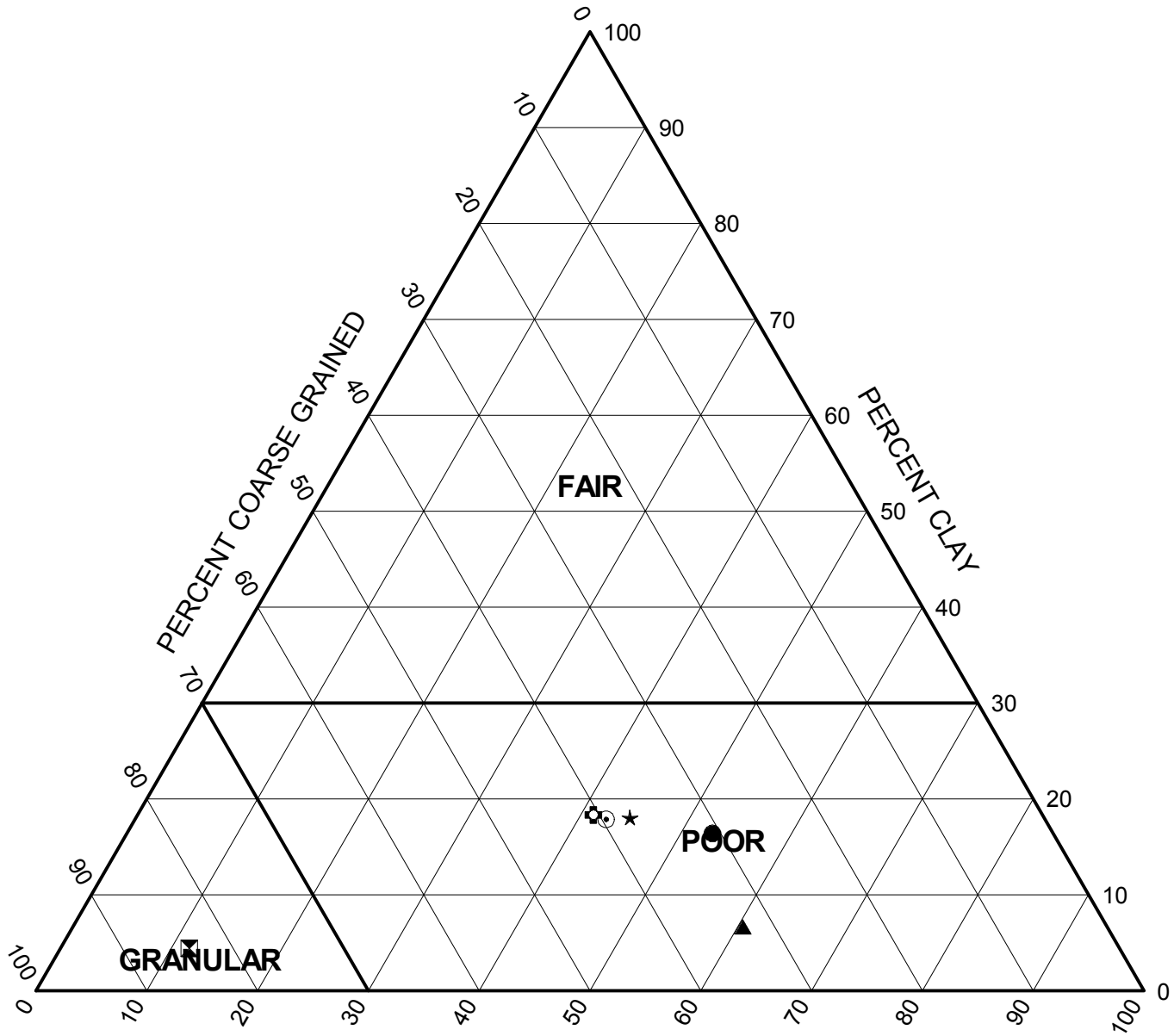
IDH Textural Classification Chart

Project: US 150 over Illinois River - McClugage

Location: Peoria and Tazewell Counties, IL

Number: 414-09-01

WEI IDH 4140901.GPJ WANGENG.GDT 4/5/17



	Sample	Depth (ft)	Coarse (%)	Silt (%)	Clay (%)	Classification		
						IL DOT	AASHTO	RATING
●	RB-01#1	1.0	30.7	52.8	16.4	Silty Loam	A-6 (10)	POOR
⧓	RB-08#1	1.0	84.0	11.6	4.5	Gravelly Sandy Loam	A-1-b (0)	GRANULAR
▲	RB-12#1	1.0	32.9	60.5	6.7	Silty Loam	A-4 (0)	POOR
★	RB-22#1	1.0	37.4	44.6	18.1	Loam	A-4 (3)	POOR
⊙	RB-26#1	1.0	39.6	42.5	17.9	Loam	A-4 (3)	POOR
✿	RB-31#1	1.0	40.5	41.1	18.4	Clay Loam	A-6 (4)	POOR

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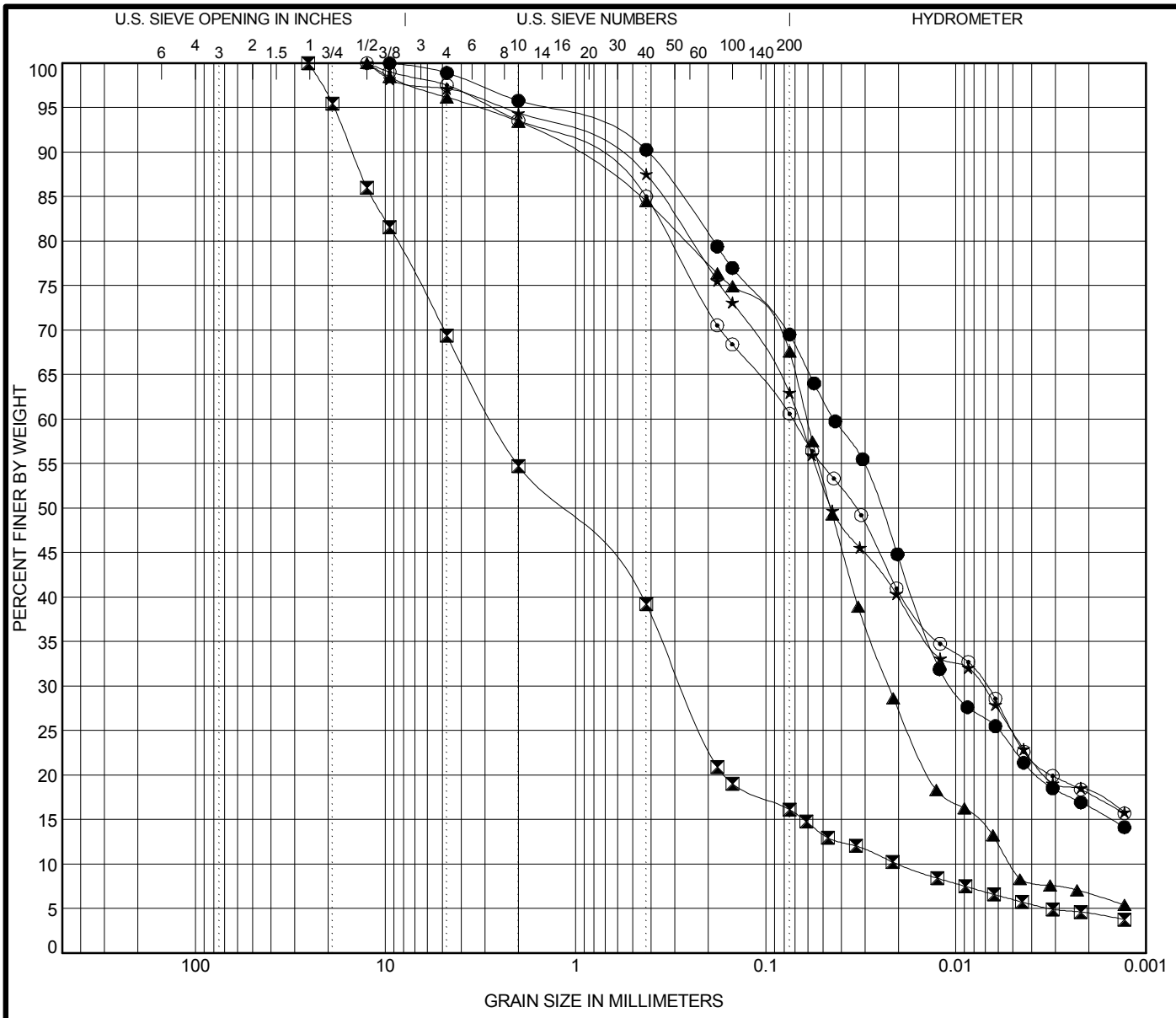
Subgrade Support Rating Chart

Project: US 150 over Illinois River - McClugage

Location: Peoria and Tazewell Counties, IL

Number: 414-09-01



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
● RB-01#1	1.0 ft	**Silty Loam**	**38**	**22**	**16**		
⊠ RB-08#1	1.0 ft	**Gravelly Sandy Loam**	**NP**	**NP**	**NP**	**1.38**	**135.46**
▲ RB-12#1	1.0 ft	**Silty Loam**	**NP**	**NP**	**NP**	**1.62**	**11.82**
★ RB-22#1	1.0 ft	**Loam**	**22**	**13**	**9**		
⊙ RB-26#1	1.0 ft	**Loam**	**23**	**13**	**10**		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RB-01#1	1.0 ft	**9.5**	**0.044**	**0.01**		**4.2**	**26.5**	**52.8**	**16.4**
⊠ RB-08#1	1.0 ft	**25.4**	**2.727**	**0.276**	**0.02**	**45.2**	**38.7**	**11.6**	**4.5**
▲ RB-12#1	1.0 ft	**12.5**	**0.061**	**0.023**	**0.005**	**6.6**	**26.3**	**60.5**	**6.7**
★ RB-22#1	1.0 ft	**12.5**	**0.067**	**0.007**		**5.6**	**31.8**	**44.6**	**18.1**
⊙ RB-26#1	1.0 ft	**12.5**	**0.072**	**0.007**		**6.4**	**33.2**	**42.5**	**17.9**

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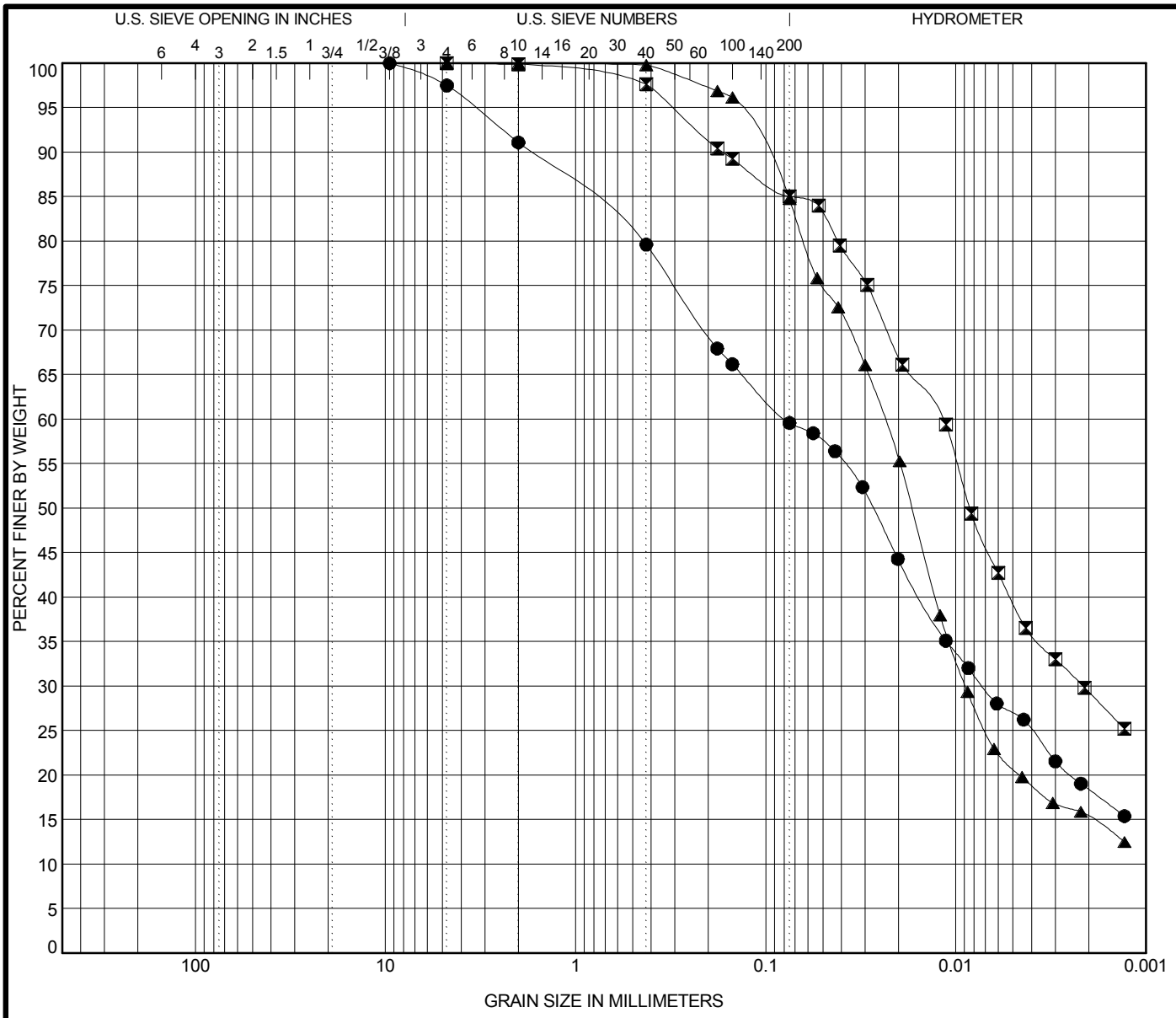
GRAIN SIZE DISTRIBUTION

Project: US 150 over Illinois River - McClugage

Location: Peoria and Tazewell Counties, IL

Number: 414-09-01



COBBLES	GRAVEL	SAND		SILT AND CLAY
		coarse	fine	

	Specimen Identification		IDH Classification	LL	PL	PI	Cc	Cu
●	RB-31#1	1.0 ft	**Clay Loam**	**26**	**14**	**12**		
⊠	SB-43ST#	4.5 ft	**Silty Clay Loam**	**51**	**22**	**29**		
▲	SB-43ST#	29.5 ft	**Silty Loam**	**30**	**19**	**11**		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RB-31#1	1.0 ft	**9.5**	**0.079**	**0.007**		**8.9**	**31.6**	**41.1**	**18.4**
⊠	SB-43ST#	4.5 ft	**4.75**	**0.012**	**0.002**		**0.1**	**14.9**	**55.6**	**29.3**
▲	SB-43ST#	29.5 ft	**4.75**	**0.024**	**0.009**		**0.0**	**15.6**	**69.1**	**15.3**

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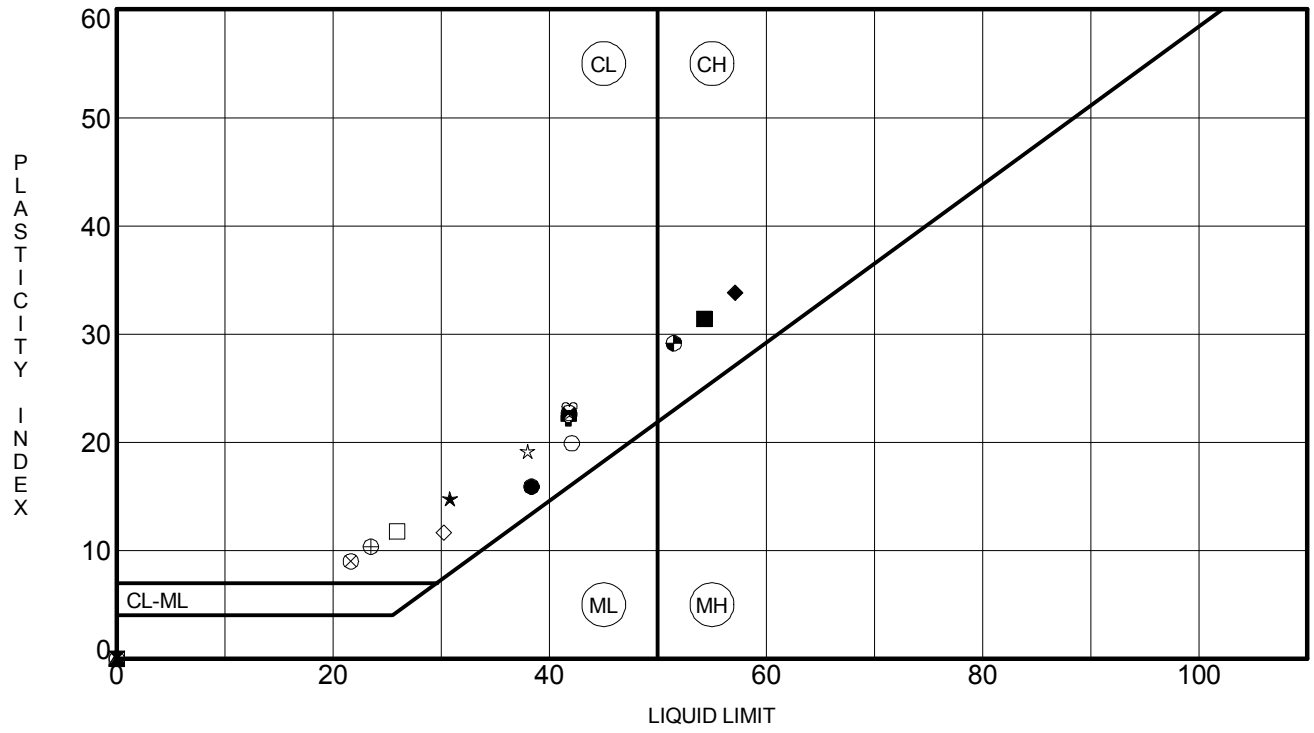
GRAIN SIZE DISTRIBUTION

Project: US 150 over Illinois River - McClugage

Location: Peoria and Tazewell Counties, IL

Number: 414-09-01



Specimen Identification			LL	PL	PI	Fines	IDH Classification
●	RB-01#1	1.0 ft	38	22	16	70	Silty Loam
⧓	RB-08#1	1.0 ft	NP	NP	NP	16	Gravelly Sandy Loam
▲	RB-12#1	1.0 ft	NP	NP	NP	68	Silty Loam
★	RB-19ST#1	4.0 ft	31	16	15		
⊙	RB-19ST#2	6.0 ft	NP	NP	NP		
✪	RB-19ST#5	12.0 ft	42	20	22		
○	RB-19ST#7	24.0 ft	42	22	20		
△	RB-19ST#8	29.0 ft	NP	NP	NP		
⊗	RB-22#1	1.0 ft	22	13	9	63	Loam
⊕	RB-26#1	1.0 ft	23	13	10	61	Loam
□	RB-31#1	1.0 ft	26	14	12	60	Clay Loam
⊛	SB-43ST#1	4.0 ft	42	19	23		
◕	SB-43ST#	4.5 ft	51	22	29	85	Silty Clay Loam
☆	SB-43ST#3	8.0 ft	38	19	19		
⊠	SB-43ST#4	10.0 ft	42	19	23		
■	SB-43ST#7	23.0 ft	54	23	31		
◆	SB-43ST#8	29.0 ft	57	23	34		
◇	SB-43ST#	29.5 ft	30	19	11	85	Silty Loam

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ATTERBERG LIMITS' RESULTS

Project: US 150 over Illinois River - McClugage

Location: Peoria and Tazewell Counties, IL

Number: 414-09-01

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UNCONFINED COMPRESSIVE STRENGTH of COHESIVE SOIL

(AASHTO T 208 / ASTM D 2166)

Project: US 150 over IL River-McClugage
Client: T.Y.Lin Group
WEI Job No.: 414-09-01
Soil Sample ID: RB-19ST, ST#2 (6.0-8.0 ft.)
Type/Condition: ST/Undisturbed
Liquid Limit (%): NP
Plastic Limit (%): NP

Analyst name: A. Mohammed
Date received: 11/16/2016
Test date: 1/5/2017
Sample description: Brown Clay Loam

Sand(%): NA
Silt(%): NA
Clay(%): NA

Average initial height h_0 =	6.11	in
Average initial diameter d_0 =	2.86	in
Height to diameter ratio=	2.14	
Mass of wet sample =	1376.97	g
Mass of dry sample and tare =	1175.94	g
Mass of tare =	13.76	g
Specific gravity =	2.76	(estimated)

Initial water content w =	18.48%	(specimen)
Initial unit weight g =	133.72	pcf
Initial dry unit weight g_d =	112.86	pcf
Initial void ratio e_0 =	0.53	
Initial degree of saturation S_r =	97%	
Average Rate of Strain=	1%/min	
Unconfined compressive strength q_u =	0.47	tsf
Shear Strength=	0.23	tsf

Displacement (in) Δh	Force (lbs) F	Strain (%) e	Stress (tsf) s
0.00	0.00	0.00	0.00
0.03	7.26	0.49	0.08
0.06	16.59	0.98	0.18
0.09	22.81	1.47	0.25
0.12	29.04	1.96	0.32
0.15	32.15	2.46	0.35
0.18	37.33	2.95	0.41
0.21	41.48	3.44	0.45
0.24	43.55	3.93	0.47
0.27	42.52	4.42	0.46
0.30	41.48	4.91	0.44
0.35	33.18	5.73	0.35
0.40	26.96	6.55	0.28
0.45	22.81	7.37	0.24
0.50	16.59	8.19	0.17
0.55	10.37	9.01	0.11
0.60	8.30	9.82	0.08
0.65	8.30	10.64	0.08
0.70	7.26	11.46	0.07
0.80	6.22	13.10	0.06
0.90	6.22	14.74	0.06
1.00	6.22	16.37	0.06

NOTES:

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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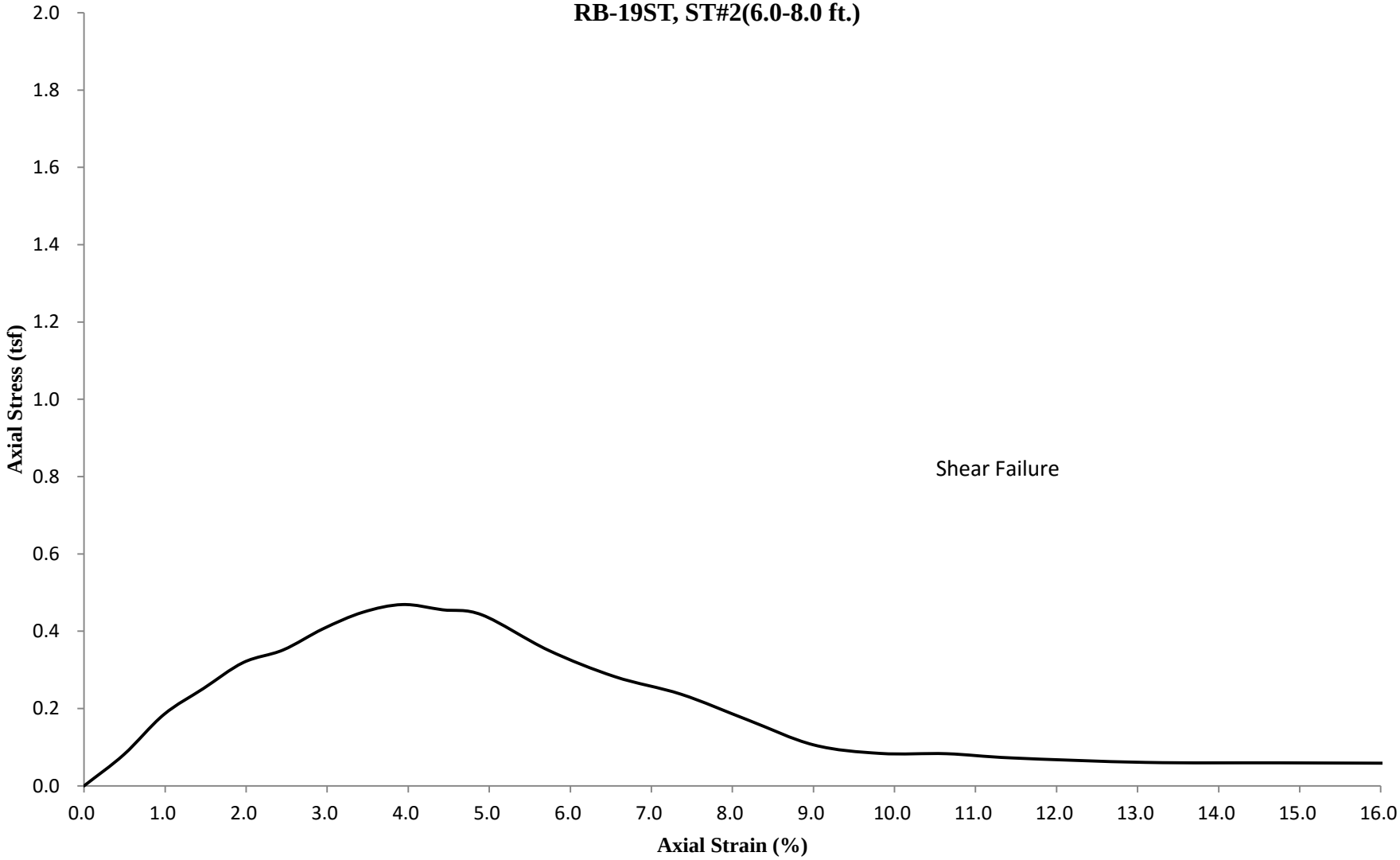
Unconfined Axial Stress v. Axial Strain
RB-19ST, ST#2(6.0-8.0 ft.)



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UNCONFINED COMPRESSIVE STRENGTH of COHESIVE SOIL

(AASHTO T 208 / ASTM D 2166)

Project: US 150 over IL River-McClugage
Client: T.Y.Lin Group
WEI Job No.: 414-09-01
Soil Sample ID: RB-19ST, ST#5 (12.0-14.0 ft.)
Type/Condition: ST/Undisturbed
Liquid Limit (%): 42
Plastic Limit (%): 20

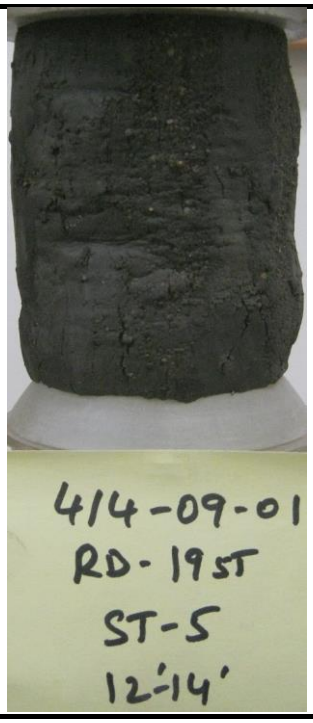
Analyst name: A. Mohammed
Date received: 11/16/2016
Test date: 1/5/2017
Sample description: Gray Clay

Sand(%): NA
Silt(%): NA
Clay(%): NA

Average initial height h_0 =	4.32	in
Average initial diameter d_0 =	2.16	in
Height to diameter ratio=	2.00	
Mass of wet sample =	459.93	g
Mass of dry sample and tare =	352.12	g
Mass of tare =	14.07	g
Specific gravity =	2.76	(estimated)

Initial water content w =	36.05%	(specimen)
Initial unit weight g =	110.47	pcf
Initial dry unit weight g_d =	81.20	pcf
Initial void ratio e_0 =	1.12	
Initial degree of saturation S_r =	89%	
Average Rate of Strain=	1%/min	
Unconfined compressive strength q_u =	0.50	tsf
Shear Strength=	0.25	tsf

Displacement (in) Δh	Force (lbs) F	Strain (%) e	Stress (tsf) s
0.00	0.00	0.00	0.00
0.03	3.11	0.69	0.06
0.06	5.19	1.39	0.10
0.09	7.26	2.08	0.14
0.12	8.30	2.78	0.16
0.15	10.37	3.47	0.20
0.18	11.41	4.17	0.21
0.21	12.44	4.86	0.23
0.24	13.48	5.56	0.25
0.27	14.52	6.25	0.27
0.30	15.56	6.95	0.28
0.35	17.63	8.11	0.32
0.40	18.67	9.27	0.33
0.45	20.74	10.42	0.36
0.50	22.81	11.58	0.40
0.55	23.85	12.74	0.41
0.60	24.89	13.90	0.42
0.65	24.89	15.06	0.41
0.70	26.96	16.21	0.44
0.80	31.11	18.53	0.50
0.90	29.04	20.85	0.45
1.00	30.07	23.16	0.45



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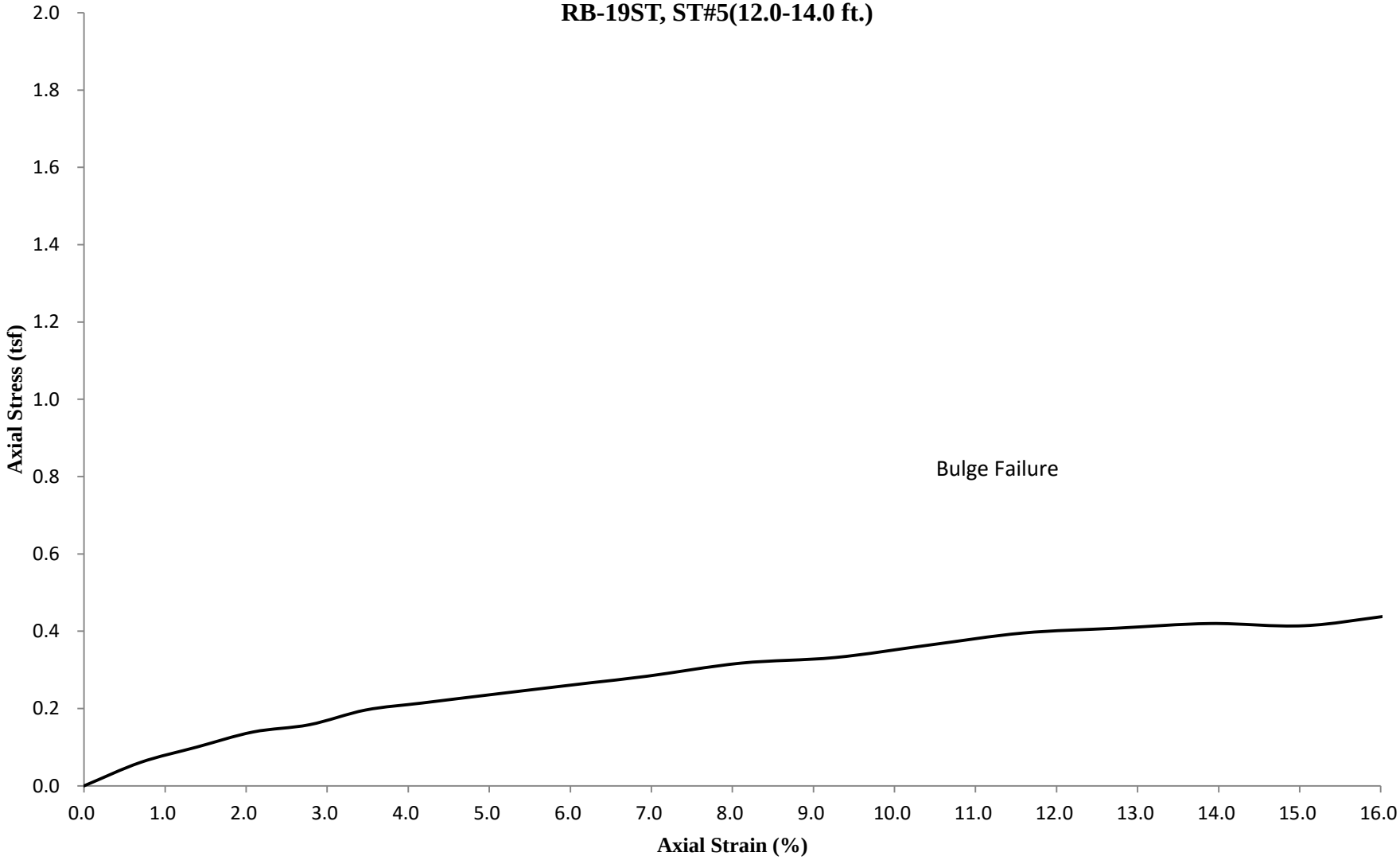
Unconfined Axial Stress v. Axial Strain
RB-19ST, ST#5(12.0-14.0 ft.)



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UNCONFINED COMPRESSIVE STRENGTH of COHESIVE SOIL

(AASHTO T 208 / ASTM D 2166)

Project: US 150 over IL River-McClugage
Client: T.Y.Lin Group
WEI Job No.: 414-09-01
Soil Sample ID: RB-19ST, ST#7 (24.0-26.0 ft.)
Type/Condition: ST/Undisturbed
Liquid Limit (%): 42
Plastic Limit (%): 22

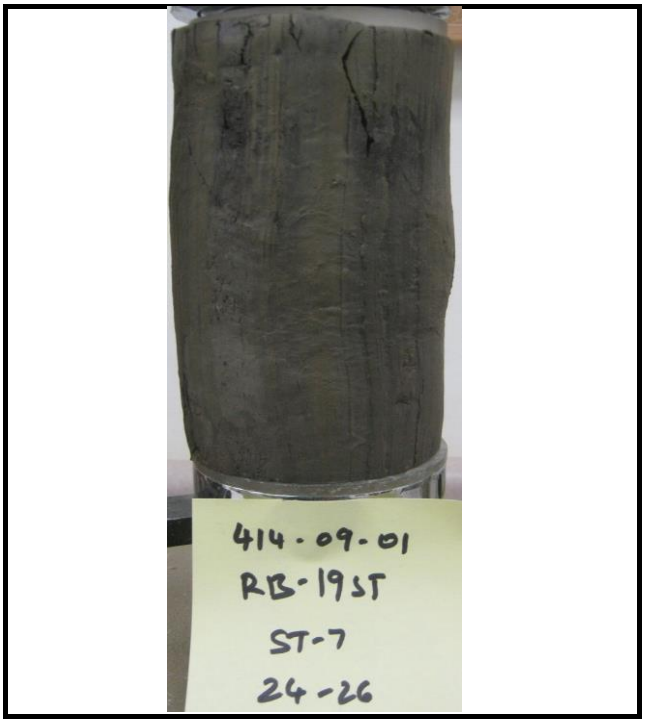
Analyst name: A. Mohammed
Date received: 11/16/2016
Test date: 1/5/2017
Sample description: Gray Silty Clay

Sand(%): NA
Silt(%): NA
Clay(%): NA

Average initial height h_0 =	6.01	in
Average initial diameter d_0 =	2.83	in
Height to diameter ratio=	2.13	
Mass of wet sample =	1142.91	g
Mass of dry sample and tare =	859.18	g
Mass of tare =	13.71	g
Specific gravity =	2.76	(estimated)

Initial water content w =	35.18%	(specimen)
Initial unit weight g =	115.46	pcf
Initial dry unit weight g_d =	85.41	pcf
Initial void ratio e_0 =	1.02	
Initial degree of saturation S_r =	96%	
Average Rate of Strain=	1%/min	
Unconfined compressive strength q_u =	0.79	tsf
Shear Strength=	0.40	tsf

Displacement (in) Δh	Force (lbs) F	Strain (%) e	Stress (tsf) s
0.00	0.00	0.00	0.00
0.03	4.15	0.50	0.05
0.06	8.30	1.00	0.09
0.09	12.44	1.50	0.14
0.12	18.67	2.00	0.21
0.15	24.89	2.50	0.28
0.18	29.04	3.00	0.32
0.21	35.26	3.49	0.39
0.24	43.55	3.99	0.48
0.27	47.70	4.49	0.52
0.30	51.85	4.99	0.57
0.35	58.07	5.82	0.63
0.40	64.29	6.66	0.69
0.45	67.41	7.49	0.72
0.50	70.52	8.32	0.74
0.55	72.59	9.15	0.76
0.60	74.66	9.99	0.77
0.65	74.66	10.82	0.76
0.70	76.74	11.65	0.78
0.80	77.78	13.31	0.77
0.90	80.89	14.98	0.79
1.00	82.96	16.64	0.79



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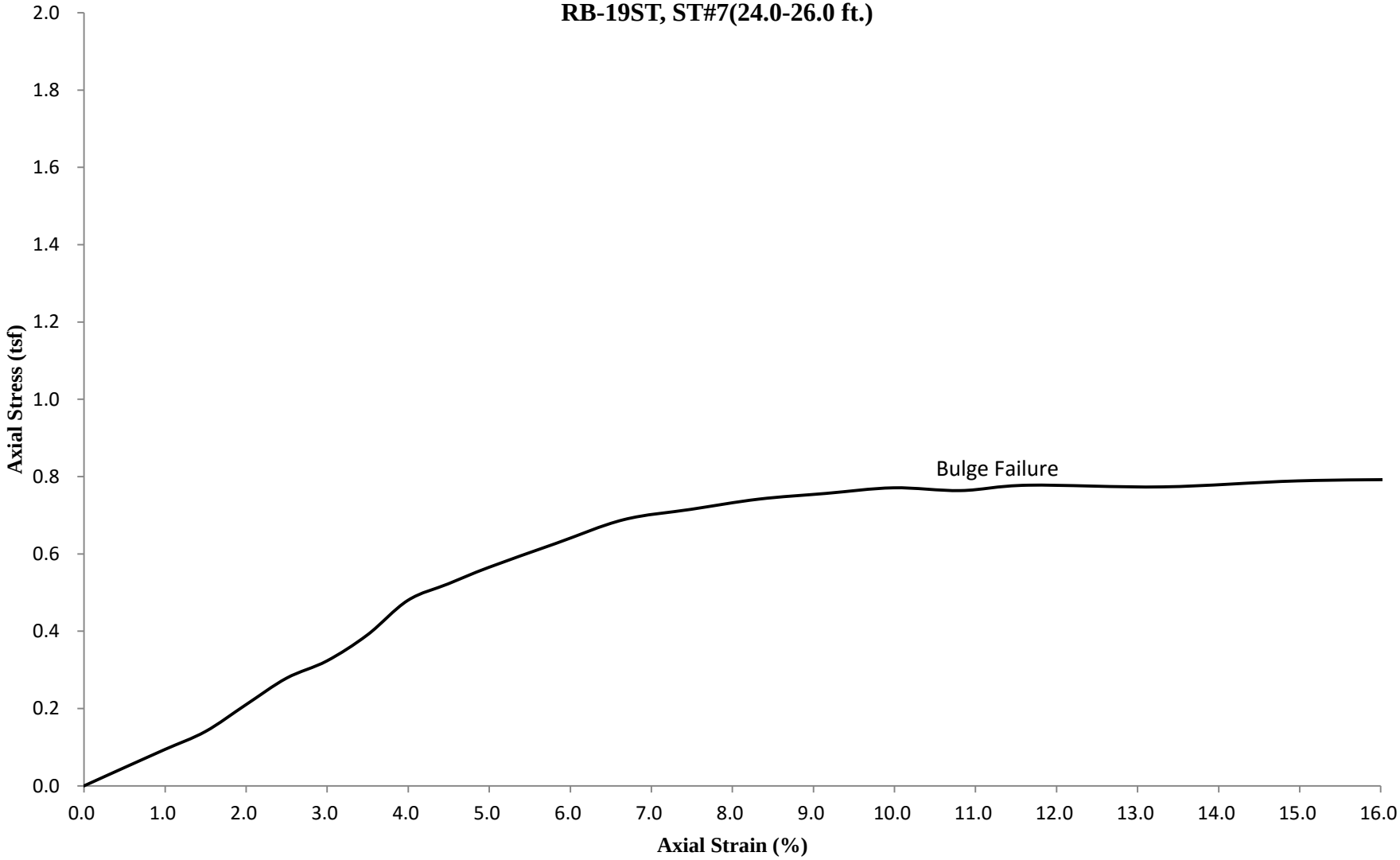
Unconfined Axial Stress v. Axial Strain
RB-19ST, ST#7(24.0-26.0 ft.)



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UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

AASHTO T 296 / ASTM D 2850-95

Project: US 150 over the Illinois River
Client: TY Lin International
WEI Job No.: 414-09-01
Soil Sample ID: Boring RB-19ST, ST#1, 4 to 6 feet
Type/Condition: ST/Undisturbed

Analyst name: M. Snider
Date received: 11/16/2016
Test date: 12/6/2016
Sample description: Soft, gray/brown CLAY LOAM

Initial height h_0 =	5.82	in	Initial water content w =	24.82%	
Initial diameter d_0 =	2.76	in	Initial unit weight γ_w =	127.54	pcf
Initial area A_0 =	6.00	in^2	Initial dry unit weight γ_d =	102.18	pcf
Mass of wet sample and tare M_i =	1181.57	g	Initial void ratio e_0 =	0.679	
Mass of dry sample and tare M_d =	949.26	g	Initial degree of saturation S_r =	100%	
Mass of tare M_t =	13.37	g			
Mass of sample Ms=	1168.20	g	Liquid Limit (%):	31	
Estimated specific gravity G_s =	2.75		Plastic Limit (%):	16	
Cell confining pressure σ_3 =	10.0	psi	Sand(%):	NA	
Rate of strain =	1	%/min	Silt(%):	NA	
Proving Ring Factor =	1.000		Clay(%):	NA	
Height to diameter ratio =	2.11				

Deviator stress at failure $\Delta\sigma_f$ = 0.27 tsf
Major principal stress at failure σ_1 = 0.99 tsf

Axial Displacement (in) Δh	Axial Force (lbs) F	Axial Strain (%) e	Deviator Stress (psi) σ_1-σ_3
0.00	0.00	0.00	0.00
0.01	0.54	0.09	0.09
0.01	1.08	0.19	0.18
0.02	1.62	0.29	0.27
0.02	2.17	0.39	0.36
0.03	2.78	0.48	0.46
0.03	3.39	0.58	0.56
0.04	4.09	0.68	0.68
0.04	4.77	0.77	0.79
0.05	5.48	0.87	0.91
0.06	6.22	0.96	1.03
0.08	9.78	1.43	1.61
0.11	12.61	1.91	2.06
0.14	14.64	2.37	2.38
0.17	15.85	2.88	2.57
0.20	17.04	3.37	2.74
0.23	17.93	3.87	2.87
0.25	17.93	4.36	2.86
0.28	18.56	4.85	2.94
0.31	19.14	5.33	3.02
0.34	19.66	5.81	3.09
0.37	20.19	6.32	3.15
0.40	20.75	6.80	3.22
0.42	21.29	7.30	3.29
0.45	21.81	7.78	3.35
0.48	22.32	8.25	3.41
0.51	22.97	8.76	3.49
0.54	23.21	9.24	3.51
0.57	23.68	9.73	3.56
0.62	24.35	10.70	3.62
0.68	25.12	11.64	3.70

Bulge Failure

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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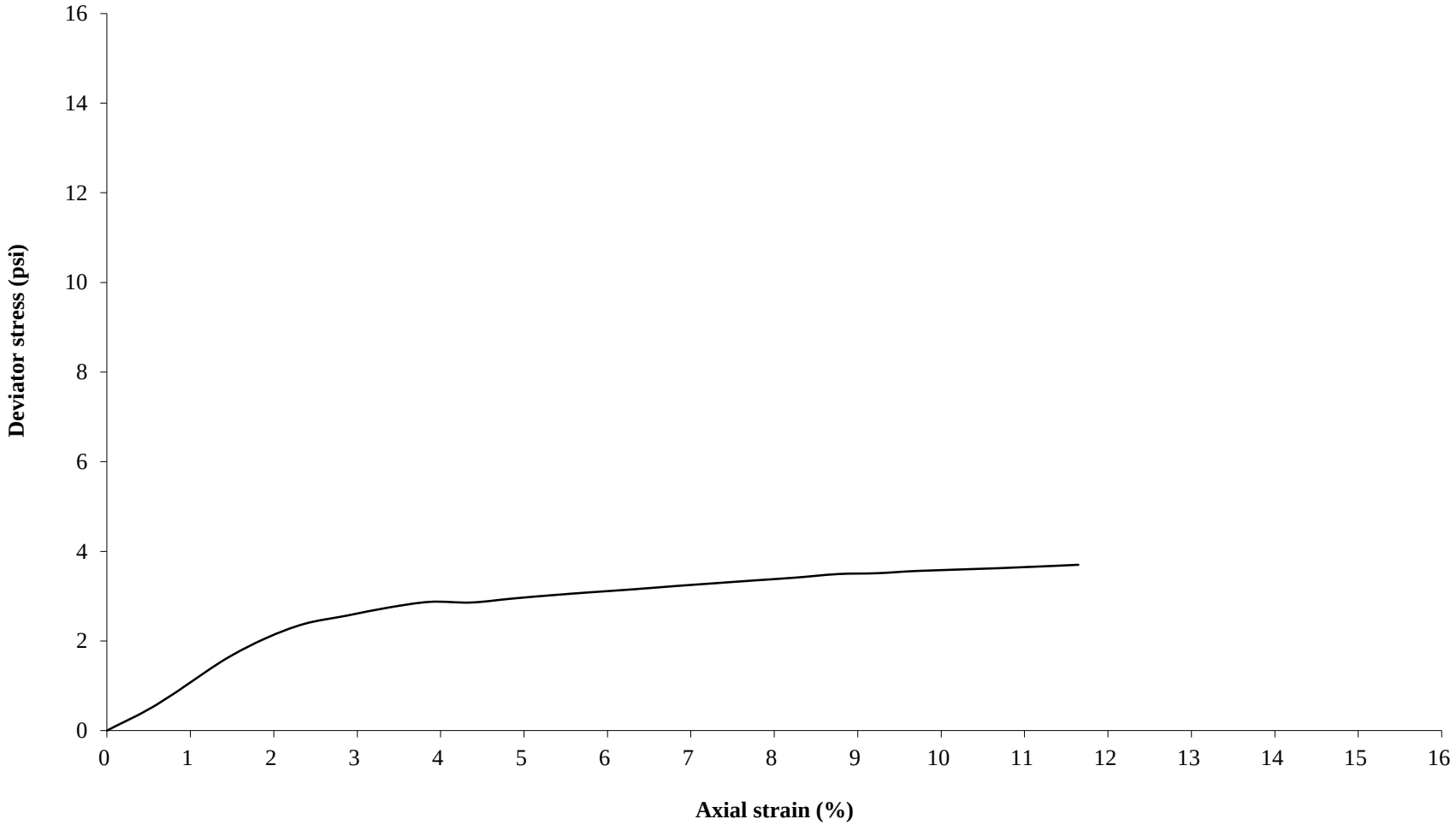
Unconsolidated-Undrained Triaxial Test

Deviator Stress v. Axial Strain

Boring RB-19ST, ST#1, 4 to 6 feet @ 3 psi



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UNCONFINED COMPRESSIVE STRENGTH of COHESIVE SOIL

(AASHTO T 208 / ASTM D 2166)

Project: US 150 over IL River-McClugage
Client: T.Y.Lin Group
WEI Job No.: 414-09-01
Soil Sample ID: SB-43ST, ST#1, 4.0 to 6.0 feet
Type/Condition: ST/Undisturbed
Liquid Limit (%): NA
Plastic Limit (%): NA

Analyst name: A. Mohammed
Date received: 11/16/2016
Test date: 12/28/2016
Sample description: Dark Gray SILTY CLAY

Sand(%): NA
Silt(%): NA
Clay(%): NA

Average initial height h_0 =	6.19	in
Average initial diameter d_0 =	2.81	in
Height to diameter ratio=	2.21	
Mass of wet sample =	1117.05	g
Mass of dry sample and tare =	805.18	g
Mass of tare =	13.94	g
Specific gravity =	2.76	(estimated)

Initial water content w =	41.18%	(specimen)
Initial unit weight g =	110.97	pcf
Initial dry unit weight g_d =	78.61	pcf
Initial void ratio e_0 =	1.19	
Initial degree of saturation S_r =	95%	
Average Rate of Strain=	1%/min	
Unconfined compressive strength q_u =	0.31	tsf
Shear Strength=	0.15	tsf

Displacement (in) Δh	Force (lbs) F	Strain (%) e	Stress (tsf) s
0.00	0.00	0.00	0.00
0.03	4.15	0.48	0.05
0.06	6.22	0.97	0.07
0.09	8.30	1.45	0.10
0.12	10.37	1.94	0.12
0.15	12.44	2.42	0.14
0.18	15.56	2.91	0.18
0.21	16.59	3.39	0.19
0.24	18.67	3.88	0.21
0.27	20.74	4.36	0.23
0.30	21.78	4.84	0.24
0.35	22.81	5.65	0.25
0.40	24.89	6.46	0.27
0.45	25.93	7.27	0.28
0.50	26.96	8.07	0.29
0.55	28.00	8.88	0.30
0.60	29.04	9.69	0.30
0.65	29.04	10.50	0.30
0.70	29.04	11.30	0.30
0.80	30.07	12.92	0.30
0.90	31.11	14.53	0.31
1.00	31.11	16.15	0.30

NOTES:

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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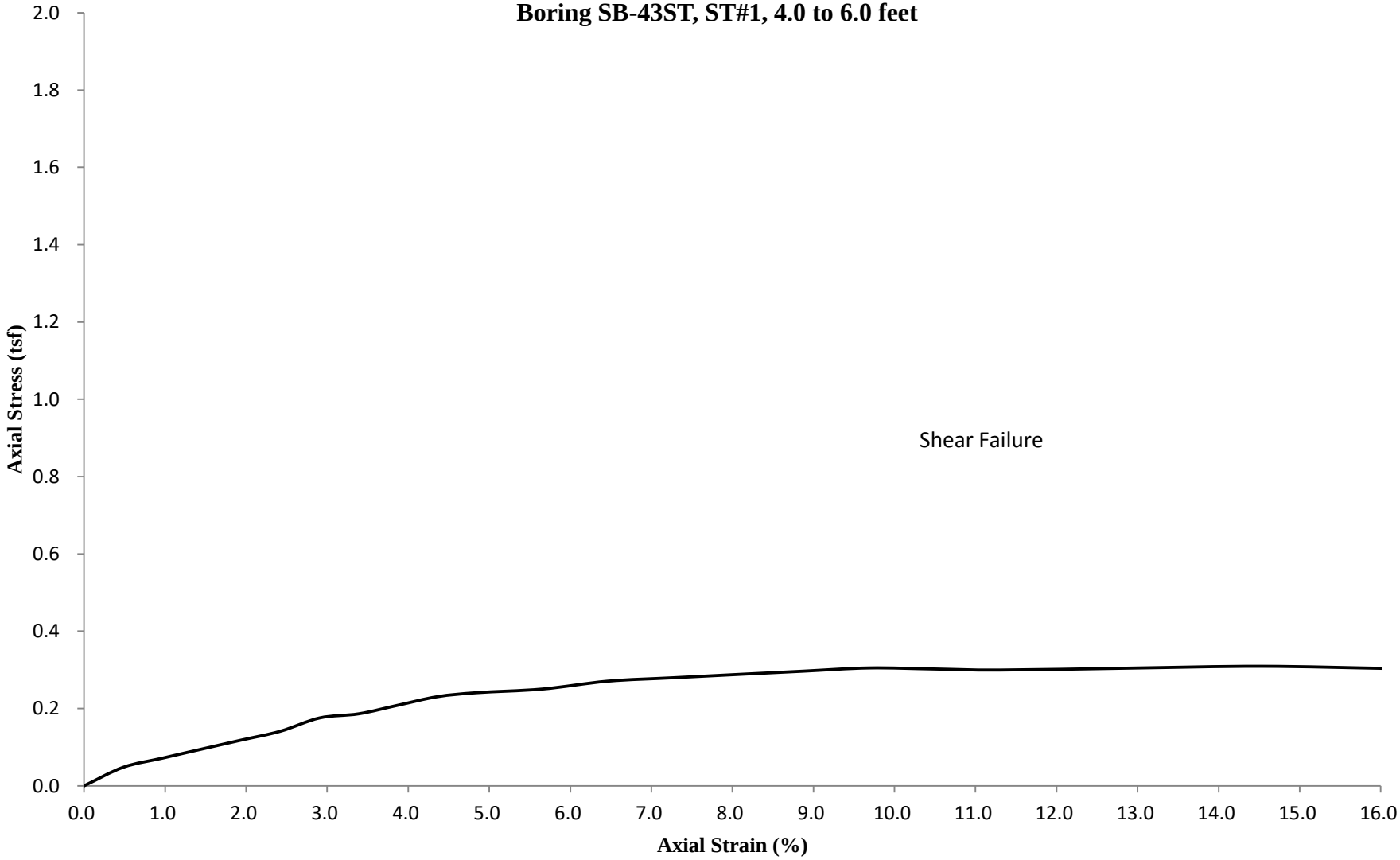
Unconfined Axial Stress v. Axial Strain
Boring SB-43ST, ST#1, 4.0 to 6.0 feet



AASHTO R18

Wang Engineering

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UNCONFINED COMPRESSIVE STRENGTH of COHESIVE SOIL

(AASHTO T 208 / ASTM D 2166)

Project: US 150 over IL River-McClugage
Client: T.Y.Lin Group
WEI Job No.: 414-09-01
Soil Sample ID: SB-43ST, ST#8, 29.0 to 31.0 feet
Type/Condition: ST/Undisturbed
Liquid Limit (%): NA
Plastic Limit (%): NA

Analyst name: A. Mohammed
Date received: 11/16/2016
Test date: 12/28/2016
Sample description: Gray SILTY CLAY

Sand(%): NA
Silt(%): NA
Clay(%): NA

Average initial height h_0 =	6.25	in
Average initial diameter d_0 =	2.81	in
Height to diameter ratio=	2.23	
Mass of wet sample =	1082.55	g
Mass of dry sample and tare =	729.38	g
Mass of tare =	13.40	g
Specific gravity =	2.76	(estimated)

Initial water content w =	51.20%	(specimen)
Initial unit weight g =	106.68	pcf
Initial dry unit weight g_d =	70.56	pcf
Initial void ratio e_0 =	1.44	
Initial degree of saturation S_r =	98%	
Average Rate of Strain=	1%/min	
Unconfined compressive strength q_u =	0.60	tsf
Shear Strength=	0.30	tsf

Displacement (in) Δh	Force (lbs) F	Strain (%) e	Stress (tsf) s
0.00	0.00	0.00	0.00
0.03	5.19	0.48	0.06
0.06	8.30	0.96	0.10
0.09	10.37	1.44	0.12
0.12	12.44	1.92	0.14
0.15	16.59	2.40	0.19
0.18	19.70	2.88	0.22
0.21	23.85	3.36	0.27
0.24	26.96	3.84	0.30
0.27	30.07	4.32	0.33
0.30	33.18	4.80	0.37
0.35	39.41	5.60	0.43
0.40	44.59	6.40	0.49
0.45	48.74	7.20	0.53
0.50	51.85	8.00	0.56
0.55	53.92	8.80	0.57
0.60	56.00	9.60	0.59
0.65	56.00	10.40	0.58
0.70	58.07	11.20	0.60
0.80	58.07	12.80	0.59
0.90	58.07	14.40	0.58
1.00	53.92	16.00	0.53

NOTES:

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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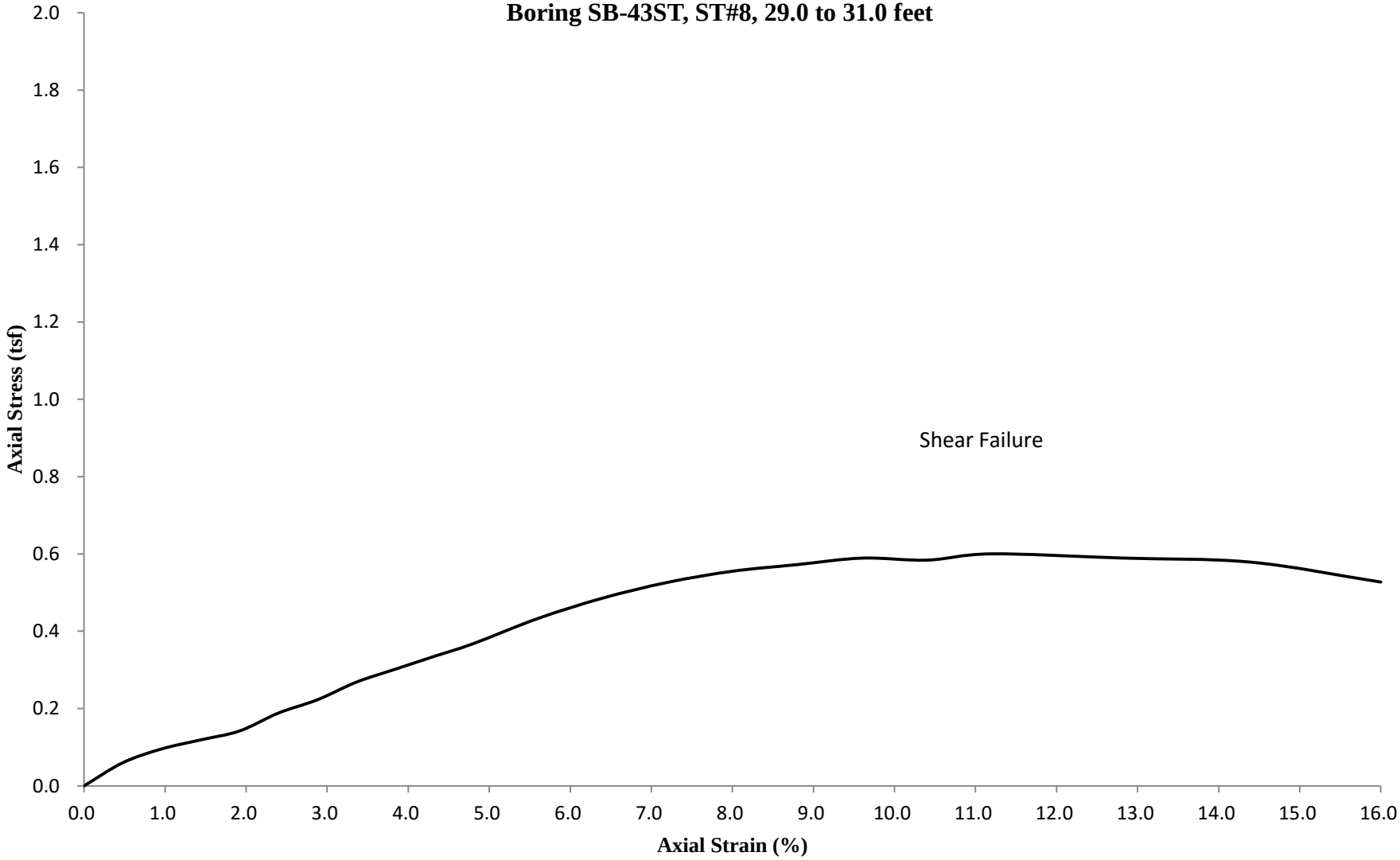
Unconfined Axial Stress v. Axial Strain
Boring SB-43ST, ST#8, 29.0 to 31.0 feet



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UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

AASHTO T 296 / ASTM D 2850-95

Project: US Route 150 over the Illinois River
Client: TY Lin International
WEI Job No.: 414-09-01
Soil Sample ID: Boring SB-43ST, ST#3, 8 to 10 feet
Type/Condition: ST/Undisturbed

Analyst name: M. Snider
Date received: 11/16/2016
Test date: 12/6/2016
Sample description: M Stiff, gray CLAY LOAM

Initial height h_0 =	5.29	in	Initial water content w =	25.54%	
Initial diameter d_0 =	2.82	in	Initial unit weight γ_w =	128.39	pcf
Initial area A_0 =	6.27	in^2	Initial dry unit weight γ_d =	102.27	pcf
Mass of wet sample and tare M_i =	1129.54	g	Initial void ratio e_0 =	0.678	
Mass of dry sample and tare M_d =	902.47	g	Initial degree of saturation S_r =	100%	
Mass of tare M_t =	13.30	g			
Mass of sample Ms=	1116.24	g	Liquid Limit (%):	38	
Estimated specific gravity G_s =	2.75		Plastic Limit (%):	19	
Cell confining pressure σ_3 =	4.0	psi	Sand(%):	NA	
Rate of strain =	1	%/min	Silt(%):	NA	
Proving Ring Factor =	1.000		Clay(%):	NA	
Height to diameter ratio =	1.87				

Deviator stress at failure $\Delta\sigma_f$ = 0.60 tsf
Major principal stress at failure σ_1 = 0.89 tsf

Axial Displacement (in) Δh	Axial Force (lbs) F	Axial Strain (%) e	Deviator Stress (psi) σ_1-σ_3
0.00	0.00	0.00	0.00
0.00	4.34	0.06	0.69
0.01	6.77	0.15	1.08
0.01	8.46	0.25	1.35
0.02	9.81	0.34	1.56
0.02	10.99	0.44	1.75
0.03	12.10	0.54	1.92
0.03	13.16	0.64	2.09
0.04	14.21	0.74	2.25
0.04	15.19	0.84	2.40
0.05	16.06	0.94	2.54
0.08	19.59	1.44	3.08
0.10	22.52	1.92	3.52
0.13	25.68	2.42	4.00
0.15	28.67	2.90	4.44
0.18	30.88	3.38	4.76
0.20	33.27	3.86	5.11
0.23	35.72	4.34	5.45
0.26	38.34	4.86	5.82
0.28	40.39	5.36	6.10
0.31	42.56	5.86	6.39
0.34	44.99	6.36	6.73
0.36	46.90	6.85	6.97
0.39	48.47	7.35	7.17
0.41	50.52	7.85	7.43
0.44	51.69	8.37	7.56
0.47	52.70	8.94	7.66
0.50	53.45	9.44	7.73
0.53	54.11	9.94	7.78
0.58	55.33	10.93	7.87
0.63	56.93	11.92	8.00
0.68	57.43	12.92	7.98
0.74	58.44	13.90	8.03
0.79	61.46	14.87	8.35

Bulge Failure

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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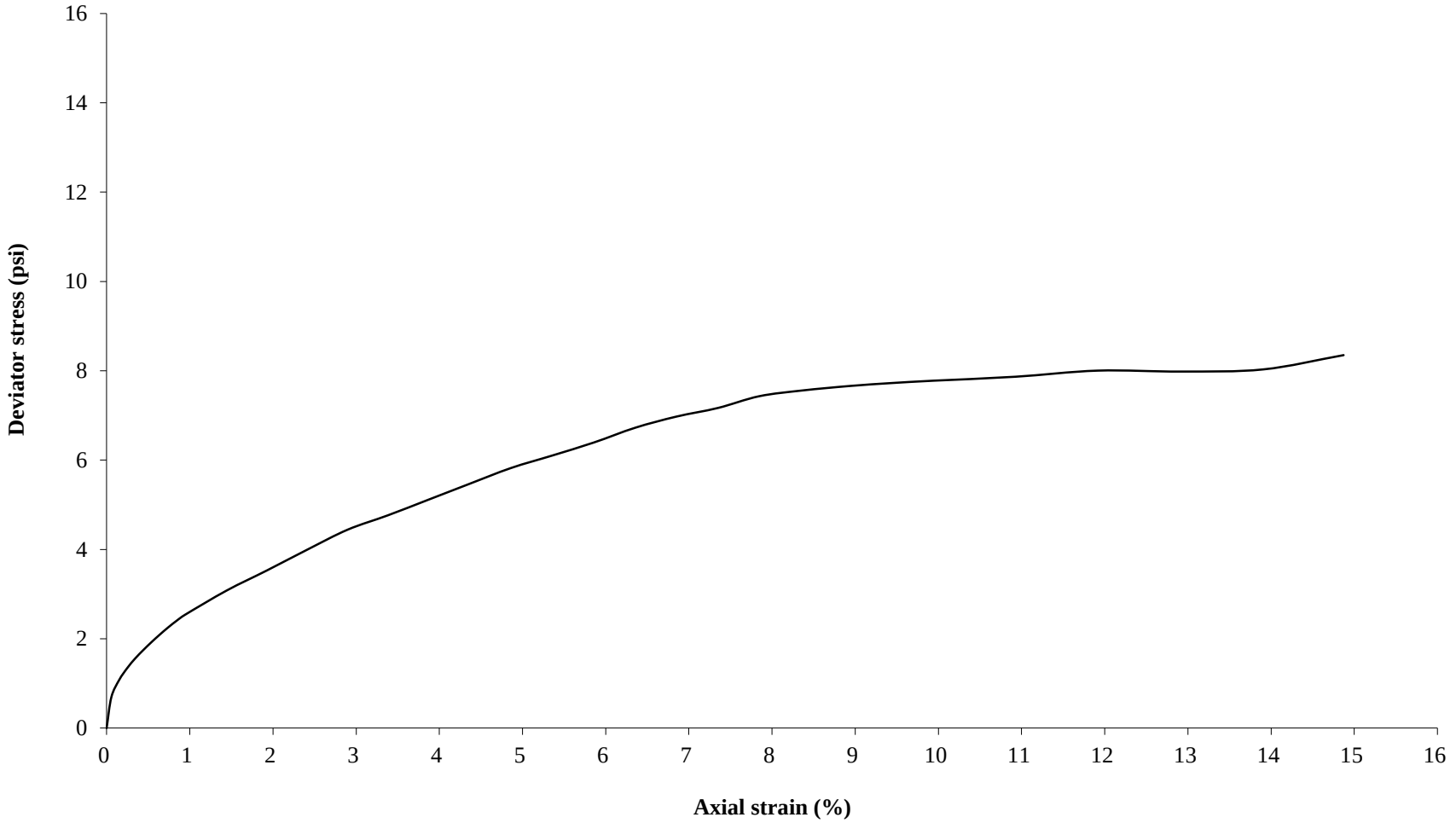
Unconsolidated-Undrained Triaxial Test

Deviator Stress v. Axial Strain

Boring SB-43ST, ST#3, 8 to 10 feet @ 4 psi



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CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

AASHTO T 297 / ASTM D 4767

Project: US 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring SB-43ST, ST#2, 6 to 8 feet
Sample description: Gray LEAN CLAY with SAND (CL)

Tested by: Wang Engineering, Inc.
Prepared by: M. Snider
Test date: March 10, 2017
WEI Job No.: 414-09-01

Initial sample height:	5.74	in	Tare mass:	13.54	g
Initial sample diameter:	2.75	in	Measured sample mass w/out Tare:	1137.05	g
Initial sample mass:	1137.05	g	Tare and final sample mass:	1149.50	g
Soil specific gravity:	2.78	(estimated)	Tare and dry sample mass:	916.29	g
Dry sample mass:	902.75	g			
Final sample mass:	1135.96	g	Saturation (B) coefficient:	99%	
Initial water content:	25.95%	(specimen)	Rate of loading:	1.0E-02	%/min
Initial unit weight:	127.03	pcf	Volume change during consolidation:	0.32	in^3
Initial dry unit weight:	100.86	pcf	Void ratio after consolidation:	0.704	
Initial void ratio:	0.720		Dry unit weight after consolidation:	101.82	pcf
Initial saturation:	100.0%		Height after consolidation:	5.72	in
Final water content:	25.83%	(specimen)	Volume after consolidation:	33.78	in^3
Liquid Limit, %:	34		Area after consolidation:	5.90	in^2
Plastic Limit, %:	16		Time at 50% Consolidation:	96.39	min
% Sand:	n.a.				
% Silt:	n.a.		Effective consolidation stress:	5.0	psi
% Clay:	n.a.		Secant modulus @ 50%:	379.40	psi
			Strain @ 50%:	1.50	%

Axial displacement (Dh)	Axial force (F)	Pore pressure (u)	Axial strain (eps)	Deviator stress	Total vertical stress	Effective vertical stress	Effective horizontal stress	Shear stress, q=q'	Effective spherical stress, p'	Total spherical stress, p	Effective Principal Stress Ratio
in	pound	psi	%	psi	psi	psi	psi	psi	psi	psi	psi
0.00	0.000	0.0	0.00	0.0	5.0	5.0	5.00	0.00	5.00	5.00	1.00
0.01	11.285	0.8	0.10	1.9	6.9	6.1	4.24	0.96	5.19	5.96	1.45
0.01	16.836	1.3	0.20	2.8	7.8	6.6	3.73	1.42	5.15	6.42	1.76
0.02	20.264	1.6	0.30	3.4	8.4	6.8	3.42	1.71	5.13	6.71	2.00
0.02	22.785	1.8	0.40	3.8	8.8	7.0	3.20	1.92	5.12	6.92	2.20
0.03	24.558	2.0	0.50	4.1	9.1	7.2	3.04	2.07	5.11	7.07	2.36
0.03	25.416	2.1	0.60	4.3	9.3	7.2	2.94	2.14	5.08	7.14	2.46
0.04	26.724	2.2	0.70	4.5	9.5	7.3	2.81	2.25	5.06	7.25	2.60
0.05	27.678	2.2	0.80	4.7	9.7	7.4	2.78	2.33	5.10	7.33	2.67
0.05	28.746	2.3	0.90	4.8	9.8	7.5	2.72	2.41	5.13	7.41	2.78
0.06	29.627	2.3	1.00	5.0	10.0	7.7	2.70	2.48	5.18	7.48	2.84
0.09	34.101	2.4	1.50	5.7	10.7	8.3	2.57	2.85	5.42	7.85	3.21
0.11	38.697	2.4	2.00	6.4	11.4	9.0	2.56	3.21	5.77	8.21	3.51
0.14	42.571	2.3	2.50	7.0	12.0	9.7	2.65	3.52	6.17	8.52	3.65
0.17	46.076	2.3	3.00	7.6	12.6	10.3	2.73	3.79	6.52	8.79	3.77
0.20	50.688	2.2	3.50	8.3	13.3	11.1	2.84	4.14	6.98	9.14	3.92
0.23	56.707	2.0	4.00	9.2	14.2	12.2	3.01	4.61	7.62	9.61	4.06
0.26	60.021	1.8	4.50	9.7	14.7	12.9	3.17	4.86	8.02	9.86	4.07
0.29	64.606	1.6	5.00	10.4	15.4	13.8	3.37	5.20	8.57	10.20	4.09
0.32	68.609	1.4	5.50	11.0	16.0	14.5	3.56	5.49	9.05	10.49	4.09
0.34	71.637	1.3	6.00	11.4	16.4	15.2	3.75	5.70	9.45	10.70	4.05
0.37	74.359	1.1	6.50	11.8	16.8	15.7	3.93	5.89	9.82	10.89	4.00
0.40	78.404	0.9	7.00	12.4	17.4	16.5	4.11	6.18	10.29	11.18	4.00
0.43	82.785	0.7	7.50	13.0	18.0	17.3	4.31	6.49	10.80	11.49	4.01
0.46	84.791	0.5	8.00	13.2	18.2	17.8	4.54	6.61	11.15	11.61	3.91
0.49	88.202	0.3	8.50	13.7	18.7	18.4	4.74	6.84	11.57	11.84	3.89
0.52	91.578	0.1	9.00	14.1	19.1	19.0	4.91	7.06	11.97	12.06	3.88
0.55	93.386	-0.1	9.50	14.3	19.3	19.4	5.10	7.16	12.26	12.16	3.81
0.57	94.148	-0.3	10.00	14.4	19.4	19.6	5.28	7.18	12.46	12.18	3.72
0.63	101.311	-0.5	11.00	15.3	20.3	20.8	5.52	7.64	13.16	12.64	3.77
0.69	105.032	-0.8	12.00	15.7	20.7	21.5	5.79	7.83	13.62	12.83	3.70
0.75	108.562	-1.1	13.00	16.0	21.0	22.1	6.06	8.00	14.06	13.00	3.64
0.80	112.012	-1.3	14.00	16.3	21.3	22.6	6.32	8.16	14.48	13.16	3.58
0.86	114.078	-1.6	15.00	16.4	21.4	23.0	6.60	8.21	14.82	13.21	3.49

Notes:

$p=\sigma_1+\sigma_3/2$ $q=\sigma_1-\sigma_3/2$

$p'=\sigma_1'+\sigma_3'/2$ $q'=\sigma_1'-\sigma_3'/2$

Wet Method Saturation

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

AASHTO T 297 / ASTM D 4767

Project: US 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring SB-43ST, ST#2, 6 to 8 feet
Sample description: Gray LEAN CLAY with SAND (CL)

Tested by: Wang Engineering, Inc.
Prepared by: M. Snider
Test date: March 10, 2017
WEI Job No.: 414-09-01

Initial sample height:	5.44	in	Tare mass:	13.37	g
Initial sample diameter:	2.78	in	Measured sample mass w/out Tare:	1182.98	g
Initial sample mass:	1182.98	g	Tare and final sample mass:	1174.92	g
Soil specific gravity:	2.78	(estimated)	Tare and dry sample mass:	1009.40	g
Dry sample mass:	996.03	g			
Final sample mass:	1161.55	g	Saturation (B) coefficient:	99%	
Initial water content:	18.77%	(specimen)	Rate of loading:	1.0E-02	%/min
Initial unit weight:	136.15	pcf	Volume change during consolidation:	1.51	in^3
Initial dry unit weight:	114.63	pcf	Void ratio after consolidation:	0.444	
Initial void ratio:	0.513		Dry unit weight after consolidation:	120.09	pcf
Initial saturation:	100.0%		Height after consolidation:	5.36	in
Final water content:	16.62%	(specimen)	Volume after consolidation:	31.60	in^3
Liquid Limit, %:	34		Area after consolidation:	5.89	in^2
Plastic Limit, %:	16		Time at 50% Consolidation:	8.33	min
% Sand:	n.a.				
% Silt:	n.a.		Effective consolidation stress:	15.0	psi
% Clay:	n.a.		Secant modulus @ 50%:	1616.43	psi
			Strain @ 50%:	0.70	%

Axial displacement (Dh)	Axial force (F)	Pore pressure (u)	Axial strain (eps)	Deviator stress	Total vertical stress	Effective vertical stress	Effective horizontal stress	Shear stress, q=q'	Effective spherical stress, p'	Total spherical stress, p	Effective Principal Stress Ratio
in	pound	psi	%	psi	psi	psi	psi	psi	psi	psi	psi
0.00	0.000	0.0	0.00	0.0	15.0	15.0	15.00	0.00	15.00	15.00	1.00
0.01	24.530	1.9	0.10	4.2	19.2	17.3	13.11	2.08	15.19	17.08	1.32
0.01	41.440	4.3	0.20	7.0	22.0	17.7	10.71	3.51	14.22	18.51	1.66
0.02	50.557	5.9	0.30	8.6	23.6	17.6	9.05	4.28	13.33	19.28	1.94
0.02	56.483	7.0	0.40	9.5	24.5	17.5	7.98	4.77	12.76	19.77	2.20
0.03	60.539	7.8	0.50	10.2	25.2	17.5	7.25	5.11	12.36	20.11	2.41
0.03	64.112	8.3	0.60	10.8	25.8	17.5	6.72	5.41	12.13	20.41	2.61
0.04	67.161	8.7	0.70	11.3	26.3	17.7	6.35	5.66	12.00	20.66	2.78
0.04	70.025	8.9	0.80	11.8	26.8	17.8	6.06	5.89	11.96	20.89	2.94
0.05	72.762	9.1	0.90	12.2	27.2	18.1	5.85	6.12	11.97	21.12	3.09
0.05	75.417	9.3	1.00	12.7	27.7	18.4	5.70	6.33	12.03	21.33	3.22
0.08	87.489	9.6	1.50	14.6	29.6	20.0	5.38	7.31	12.69	22.31	3.72
0.11	99.520	9.6	2.00	16.5	31.5	22.0	5.44	8.27	13.71	23.27	4.04
0.14	111.056	9.2	2.50	18.4	33.4	24.1	5.76	9.19	14.95	24.19	4.19
0.16	122.353	8.9	3.00	20.1	35.1	26.3	6.13	10.07	16.20	25.07	4.28
0.19	133.285	8.4	3.50	21.8	36.8	28.4	6.57	10.91	17.48	25.91	4.32
0.22	142.448	8.1	4.00	23.2	38.2	30.1	6.94	11.60	18.54	26.60	4.34
0.24	152.400	7.6	4.50	24.7	39.7	32.1	7.40	12.35	19.75	27.35	4.34
0.27	161.542	7.1	5.00	26.0	41.0	34.0	7.91	13.02	20.93	28.02	4.29
0.30	170.884	6.6	5.50	27.4	42.4	35.8	8.43	13.70	22.13	28.70	4.25
0.33	179.468	6.1	6.00	28.6	43.6	37.5	8.89	14.31	23.20	29.31	4.22
0.35	188.941	5.7	6.50	30.0	45.0	39.3	9.35	14.99	24.33	29.99	4.21
0.38	197.275	5.2	7.00	31.1	46.1	40.9	9.80	15.56	25.37	30.56	4.18
0.41	202.628	4.7	7.50	31.8	46.8	42.1	10.26	15.90	26.16	30.90	4.10
0.44	208.793	4.3	8.00	32.6	47.6	43.3	10.68	16.29	26.97	31.29	4.05
0.46	215.525	3.9	8.50	33.5	48.5	44.5	11.07	16.73	27.79	31.73	4.02
0.49	221.212	3.6	9.00	34.2	49.2	45.5	11.38	17.08	28.46	32.08	4.00
0.52	227.363	3.3	9.50	34.9	49.9	46.6	11.73	17.45	29.19	32.45	3.98
0.54	234.096	3.0	10.00	35.7	50.7	47.8	12.02	17.87	29.89	32.87	3.97
0.60	241.611	2.4	11.00	36.5	51.5	49.1	12.57	18.24	30.81	33.24	3.90
0.65	247.297	2.1	12.00	36.9	51.9	49.9	12.95	18.46	31.41	33.46	3.85
0.71	254.344	1.7	13.00	37.5	52.5	50.8	13.28	18.77	32.05	33.77	3.83
0.73	259.363	1.5	13.50	38.1	53.1	51.5	13.45	19.03	32.48	34.03	3.83
0.76	261.801	1.4	14.00	38.2	53.2	51.8	13.62	19.10	32.72	34.10	3.80

Notes:

$p=\sigma_1+\sigma_3/2$ $q=\sigma_1-\sigma_3/2$

$p'=\sigma_1'+\sigma_3'/2$ $q'=\sigma_1'-\sigma_3'/2$

Wet Method Saturation

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

AASHTO R18

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CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

AASHTO T 297 / ASTM D 4767

Project: US 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring SB-43ST, ST#2, 6 to 8 feet
Sample description: Gray LEAN CLAY with SAND (CL)

Tested by: Wang Engineering, Inc.
Prepared by: M. Snider
Test date: March 10, 2017
WEI Job No.: 414-09-01

Initial sample height:	5.60	in	Tare mass:	14.25	g
Initial sample diameter:	2.71	in	Measured sample mass w/out Tare:	1136.11	g
Initial sample mass:	1136.11	g	Tare and final sample mass:	1124.15	g
Soil specific gravity:	2.78	(estimated)	Tare and dry sample mass:	958.07	g
Dry sample mass:	943.82	g			
Final sample mass:	1109.90	g	Saturation (B) coefficient:	99%	
Initial water content:	20.37%	(specimen)	Rate of loading:	1.0E-02	%/min
Initial unit weight:	134.23	pcf	Volume change during consolidation:	1.34	in^3
Initial dry unit weight:	111.51	pcf	Void ratio after consolidation:	0.491	
Initial void ratio:	0.556		Dry unit weight after consolidation:	116.34	pcf
Initial saturation:	100.0%		Height after consolidation:	5.52	in
Final water content:	17.60%	(specimen)	Volume after consolidation:	30.91	in^3
Liquid Limit, %:	34		Area after consolidation:	5.60	in^2
Plastic Limit, %:	16		Time at 50% Consolidation:	9.60	min
% Sand:	n.a.				
% Silt:	n.a.		Effective consolidation stress:	25.0	psi
% Clay:	n.a.		Secant modulus @ 50%:	2037.13	psi
			Strain @ 50%:	0.60	%

Axial displacement (Dh)	Axial force (F)	Pore pressure (u)	Axial strain (eps)	Deviator stress	Total vertical stress	Effective vertical stress	Effective horizontal stress	Shear stress, q=q'	Effective spherical stress, p'	Total spherical stress, p	Effective Principal Stress Ratio
in	pound	psi	%	psi	psi	psi	psi	psi	psi	psi	psi
0.00	0.000	0.0	0.00	0.0	25.0	25.0	25.00	0.00	25.00	25.00	1.00
0.01	22.796	1.6	0.10	4.1	29.1	27.5	23.39	2.04	25.42	27.04	1.17
0.01	45.830	4.9	0.20	8.2	33.2	28.2	20.06	4.09	24.15	29.09	1.41
0.02	55.804	7.4	0.30	9.9	34.9	27.6	17.63	4.97	22.60	29.97	1.56
0.02	61.615	9.1	0.40	11.0	36.0	26.8	15.86	5.48	21.35	30.48	1.69
0.03	65.712	10.4	0.50	11.7	36.7	26.3	14.57	5.84	20.41	30.84	1.80
0.03	68.802	11.5	0.60	12.2	37.2	25.8	13.54	6.11	19.65	31.11	1.90
0.04	71.258	12.2	0.70	12.6	37.6	25.4	12.77	6.32	19.10	31.32	1.99
0.04	73.530	12.9	0.80	13.0	38.0	25.2	12.12	6.52	18.64	31.52	2.08
0.05	75.468	13.4	0.90	13.4	38.4	25.0	11.64	6.68	18.32	31.68	2.15
0.06	77.298	13.8	1.00	13.7	38.7	24.9	11.18	6.84	18.02	31.84	2.22
0.08	83.192	15.2	1.50	14.6	39.6	24.5	9.84	7.32	17.17	32.32	2.49
0.11	88.562	15.6	2.00	15.5	40.5	24.9	9.44	7.76	17.19	32.76	2.64
0.14	93.450	16.1	2.50	16.3	41.3	25.2	8.91	8.14	17.05	33.14	2.83
0.17	99.582	16.2	3.00	17.3	42.3	26.1	8.79	8.63	17.42	33.63	2.96
0.20	103.673	16.2	3.50	17.9	42.9	26.7	8.78	8.94	17.72	33.94	3.04
0.22	109.708	16.1	4.00	18.8	43.8	27.7	8.86	9.41	18.27	34.41	3.12
0.25	116.543	16.0	4.50	19.9	44.9	28.9	8.97	9.95	18.91	34.95	3.22
0.28	121.595	15.9	5.00	20.6	45.6	29.8	9.14	10.32	19.46	35.32	3.26
0.31	125.526	15.7	5.50	21.2	46.2	30.5	9.34	10.60	19.94	35.60	3.27
0.34	130.058	15.4	6.00	21.9	46.9	31.4	9.58	10.93	20.51	35.93	3.28
0.36	135.498	15.3	6.50	22.6	47.6	32.3	9.69	11.32	21.01	36.32	3.34
0.39	139.358	15.1	7.00	23.2	48.2	33.0	9.87	11.58	21.46	36.58	3.35
0.42	144.764	14.9	7.50	23.9	48.9	34.0	10.08	11.97	22.05	36.97	3.37
0.45	150.896	14.6	8.00	24.8	49.8	35.2	10.39	12.41	22.79	37.41	3.39
0.48	154.840	14.2	8.50	25.3	50.3	36.1	10.80	12.66	23.46	37.66	3.34
0.50	157.572	14.0	9.00	25.6	50.6	36.6	10.98	12.81	23.80	37.81	3.33
0.53	161.449	13.7	9.50	26.1	51.1	37.4	11.28	13.06	24.33	38.06	3.32
0.56	166.147	13.9	10.00	26.7	51.7	37.8	11.12	13.36	24.49	38.36	3.40
0.62	173.555	13.5	11.00	27.6	52.6	39.1	11.48	13.80	25.29	38.80	3.40
0.67	180.891	13.2	12.00	28.5	53.5	40.3	11.83	14.23	26.05	39.23	3.41
0.73	185.145	12.8	13.00	28.8	53.8	41.0	12.17	14.39	26.56	39.39	3.37
0.76	188.636	12.4	13.50	29.2	54.2	41.8	12.64	14.58	27.22	39.58	3.31
0.78	189.693	12.6	13.85	29.2	54.2	41.6	12.42	14.60	27.03	39.60	3.35

Notes:

$p=\sigma_1+\sigma_3/2$ $q=\sigma_1-\sigma_3/2$

$p'=\sigma_1'+\sigma_3'/2$ $q'=\sigma_1'-\sigma_3'/2$

Wet Method Saturation

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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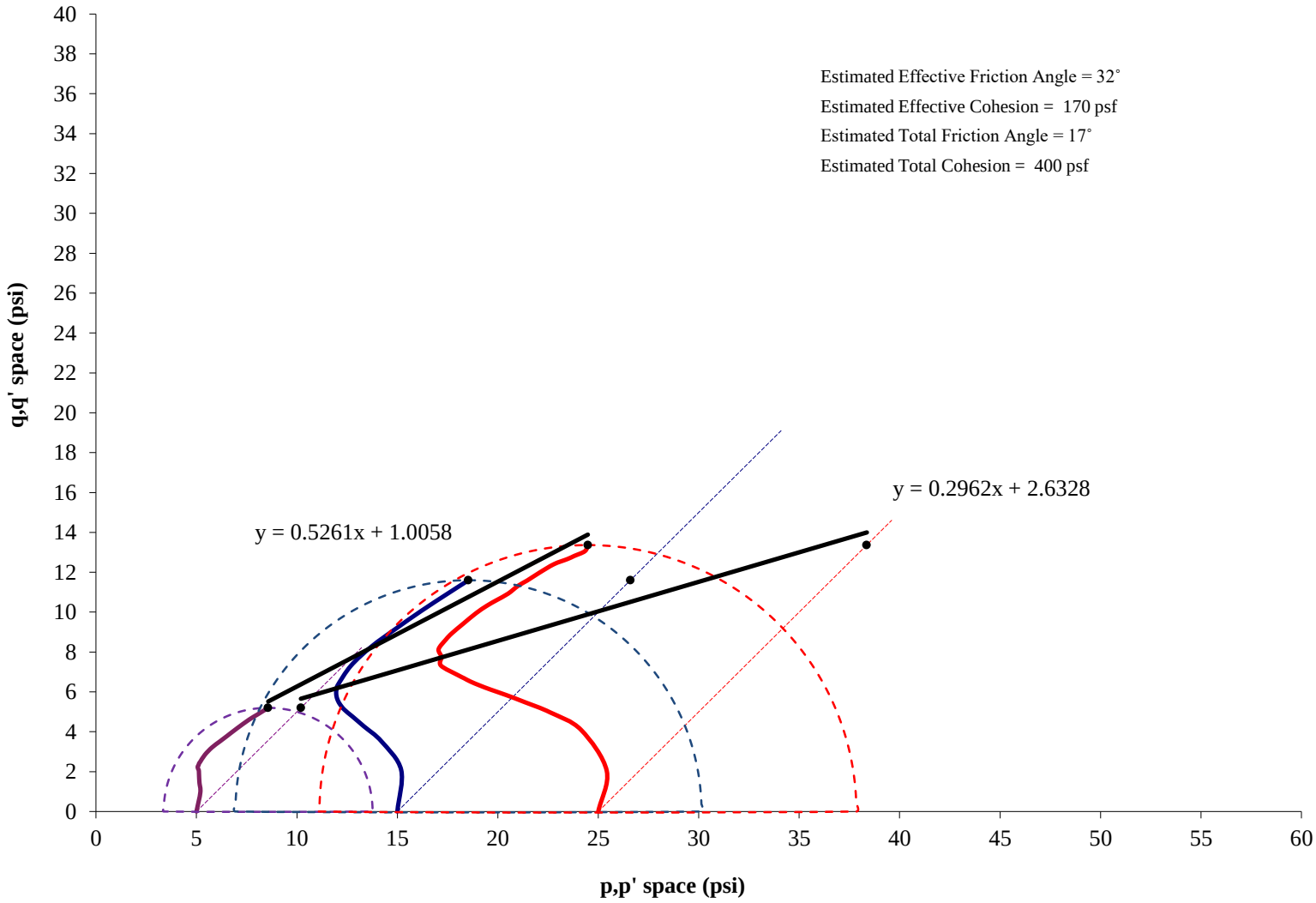
Triaxial Compression Total and Effective Stress Paths at Failure (p-q Space)
Max Effective Stress Ratio, Sample SB-43ST, ST#2, 6' to 8'



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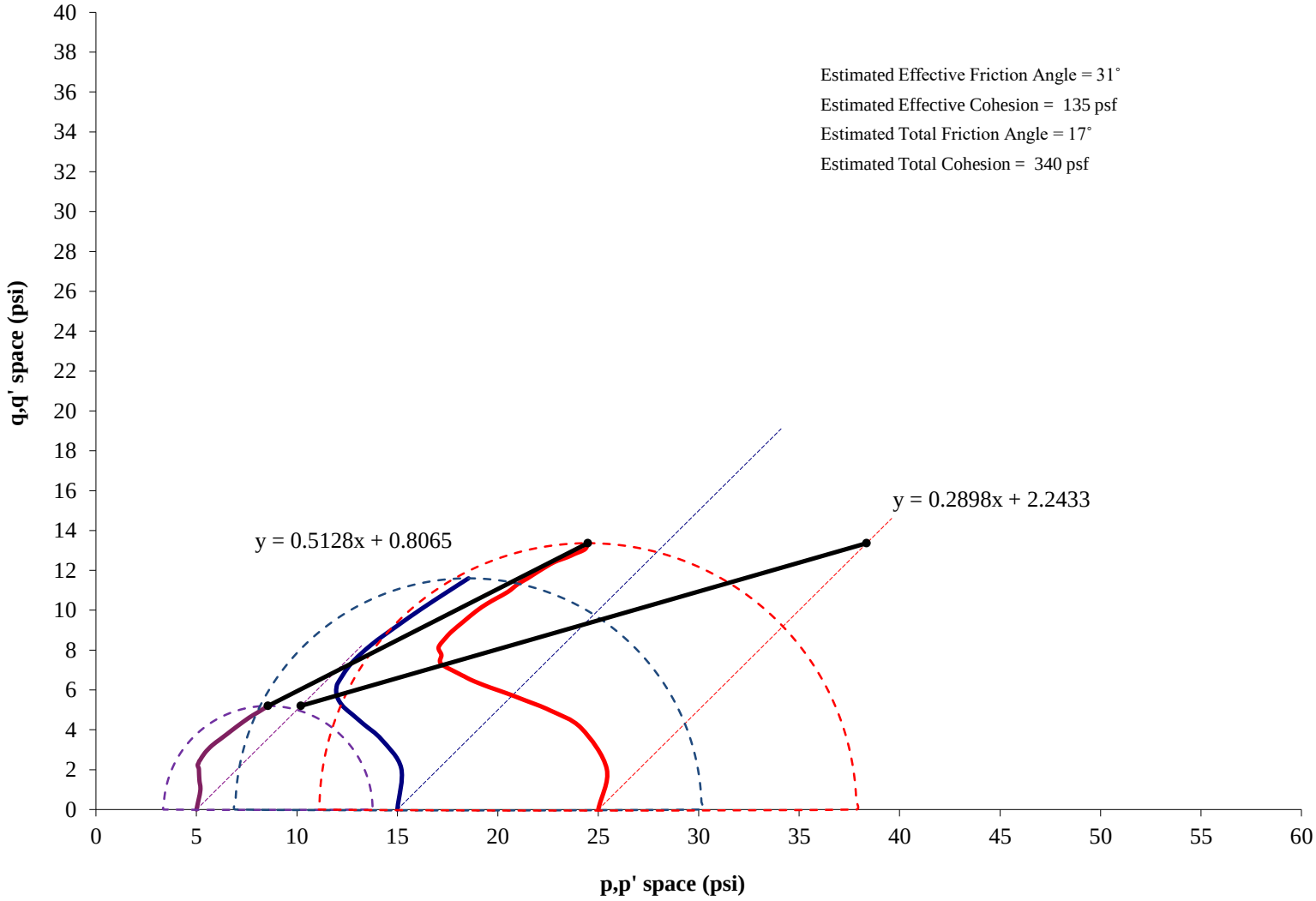
Max Effective Stress Ratio, Sample SB-43ST, ST#2, 6' to 8'



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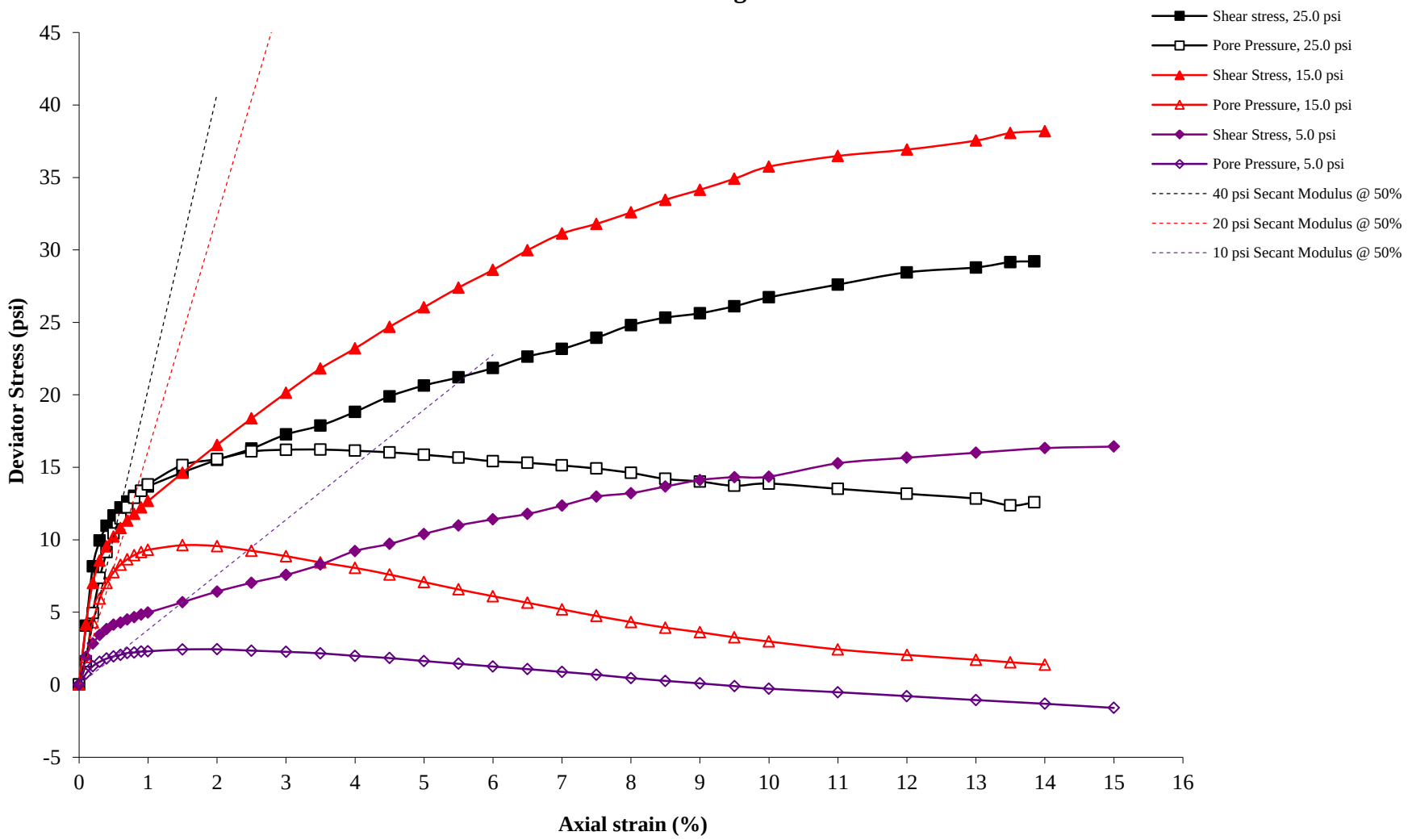
Sample SB-43ST, ST#2, 6' to 8': Stress v. Strain and Pore Pressure v. Strain Curves
All Confining Pressures



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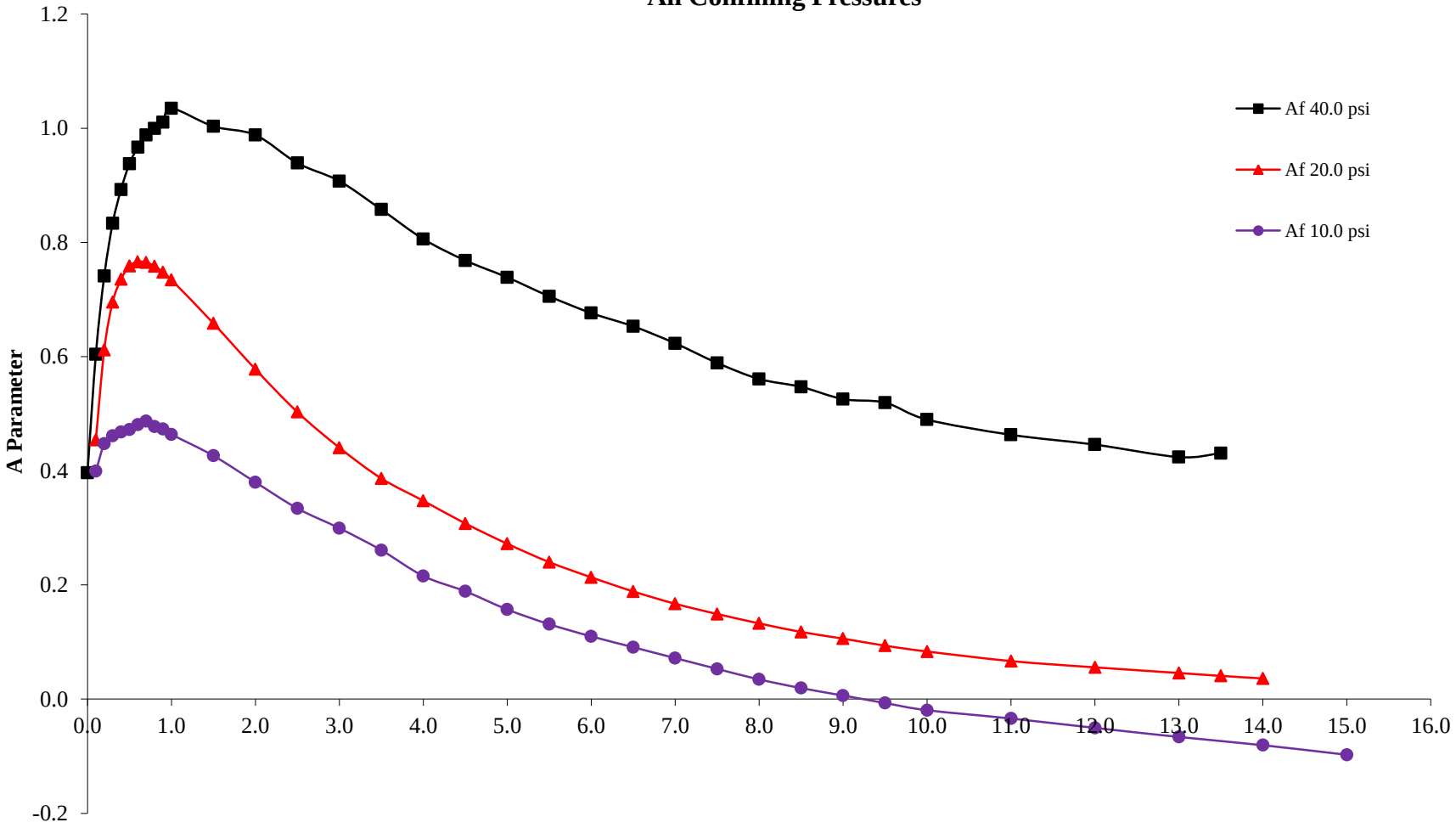
Sample SB43-ST, ST#2, 6' to 8': A-Parameter During Shearing
All Confining Pressures



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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: US Route 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring RB-19ST, ST#2, 6 to 8 feet
Sample Description: Gray SILTY LOAM

Tested by: M. Snider
Prepared by: M. Snider
Test date: 1/5/2017
WEI: 414-09-01

Initial sample height =	0.997	in	Ring diameter =	2.498	in
Initial sample mass =	169.06	g	Ring mass =	109.80	g
Initial water content =	18.01%		Initial sample and ring mass =	278.86	g
Initial dry unit weight =	111.71	pcf	Tare mass =	13.43	g
Initial void ratio =	0.519		Final ring and sample mass =	273.77	g
Initial degree of saturation =	94.33%		Mass of wet sample and tare =	177.13	g
			Mass of dry sample and tare =	156.69	g
Final sample mass =	163.70	g	Initial dial reading =	0.01000	in
Final dry sample mass =	143.26	g	Final dial reading =	0.09649	in
Final water content =	14.27%		LL=	NP	
Final dry unit weight =	122.33	pcf	PL=	NP	
Final void ratio =	0.388		% Sand=	NA	
Final degree of saturation =	100.00%		% Silt=	NA	
Estimated specific gravity =	2.72		% Clay=	NA	
			In-Situ Vertical Effective Stress =	1000	psf

Compression and Swelling Indices

Compression index C_c =	0.102	**Preconsolidation pressure,σ_C**		
Field corrected C_c =	0.111	Casagrande Method =	2015	psf
Swelling index C_s =	0.013	**Over-Consolidation Ratio (OCR) =**	2.02	

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.01281	0.00010	0.29	0.515	N/A	N/A	720
2	200.0	0.01548	0.00023	0.57	0.511	0.1369	0.03	720
3	500.0	0.02265	0.00058	1.33	0.499	0.1374	0.06	720
4	1000.0	0.03019	0.00090	2.12	0.487	0.2112	0.10	720
5	2000.0	0.04060	0.00135	3.20	0.471	0.2447	0.09	720
6	4000.0	0.05305	0.00193	4.51	0.451	0.2200	0.14	720
7	8000.0	0.06862	0.00253	6.13	0.426	0.2357	0.17	720
8	16000.0	0.08668	0.00324	8.02	0.398	0.2332	0.16	720
9	8000.0	0.08850	0.00253	8.13	0.396	N/A	N/A	720
10	4000.0	0.08695	0.00193	7.91	0.399	N/A	N/A	720
11	2000.0	0.08539	0.00135	7.70	0.402	N/A	N/A	480
12	1000.0	0.08341	0.00090	7.45	0.406	N/A	N/A	720
13	500.0	0.08127	0.00058	7.21	0.410	N/A	N/A	720
14	200.0	0.07815	0.00023	6.86	0.415	N/A	N/A	480
15	500.0	0.07876	0.00058	6.95	0.414	0.2281	0.01	480
16	1000.0	0.07996	0.00090	7.11	0.411	0.2551	0.02	720
17	2000.0	0.08207	0.00135	7.36	0.407	0.2139	0.04	480
18	4000.0	0.08444	0.00193	7.66	0.403	0.1663	0.03	480
19	8000.0	0.08727	0.00253	8.00	0.398	0.1675	0.01	480
20	16000.0	0.09134	0.00324	8.48	0.390	0.1372	0.07	480
21	32000.0	0.10587	0.00413	10.03	0.367	0.2177	0.17	720
22	8000.0	0.10583	0.00295	9.91	0.369	N/A	N/A	720
23	2000.0	0.10185	0.00198	9.41	0.376	N/A	N/A	480
24	500.0	0.09760	0.00123	8.91	0.384	N/A	N/A	480

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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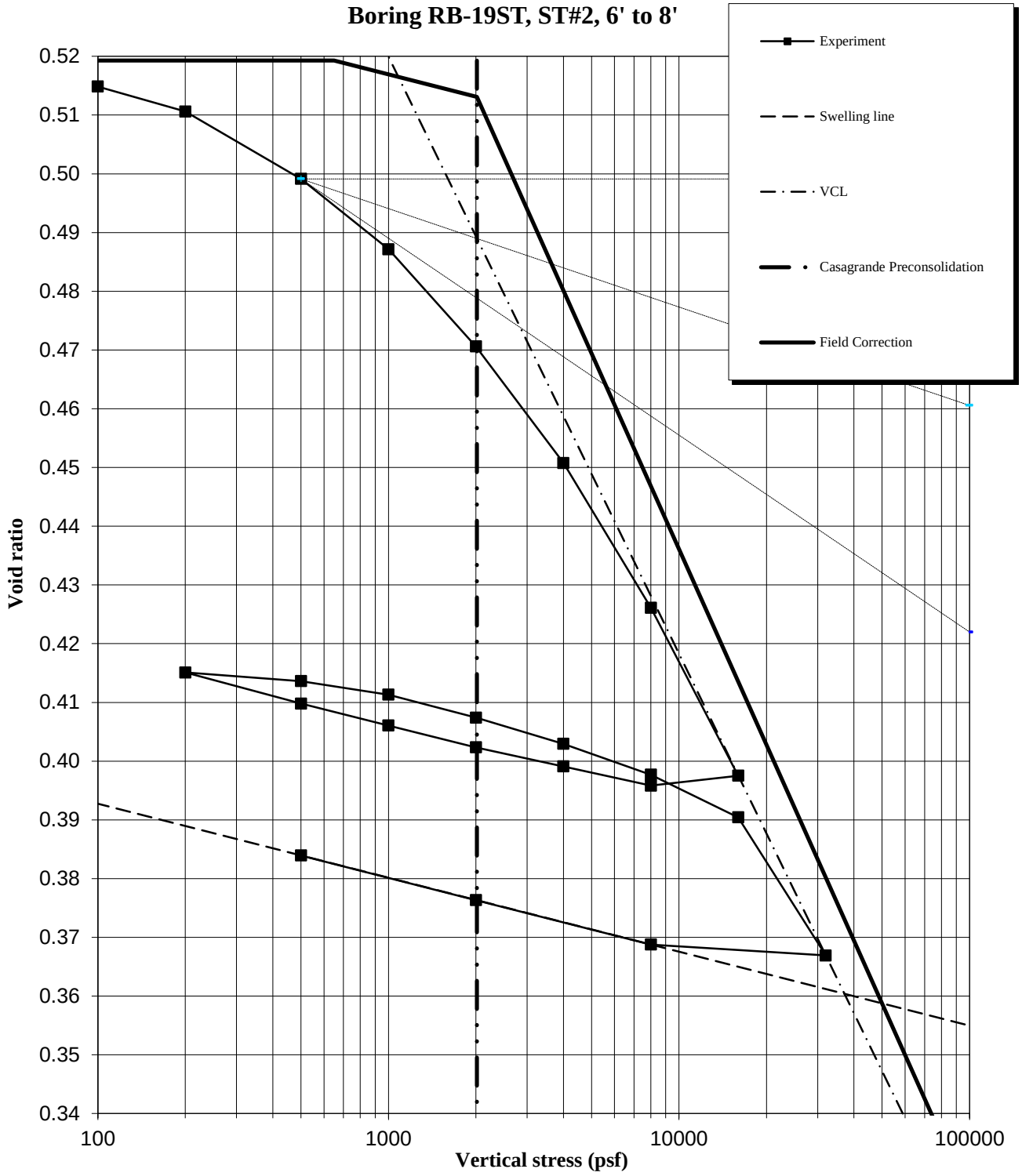
CONSOLIDATION CURVE

Boring RB-19ST, ST#2, 6' to 8'



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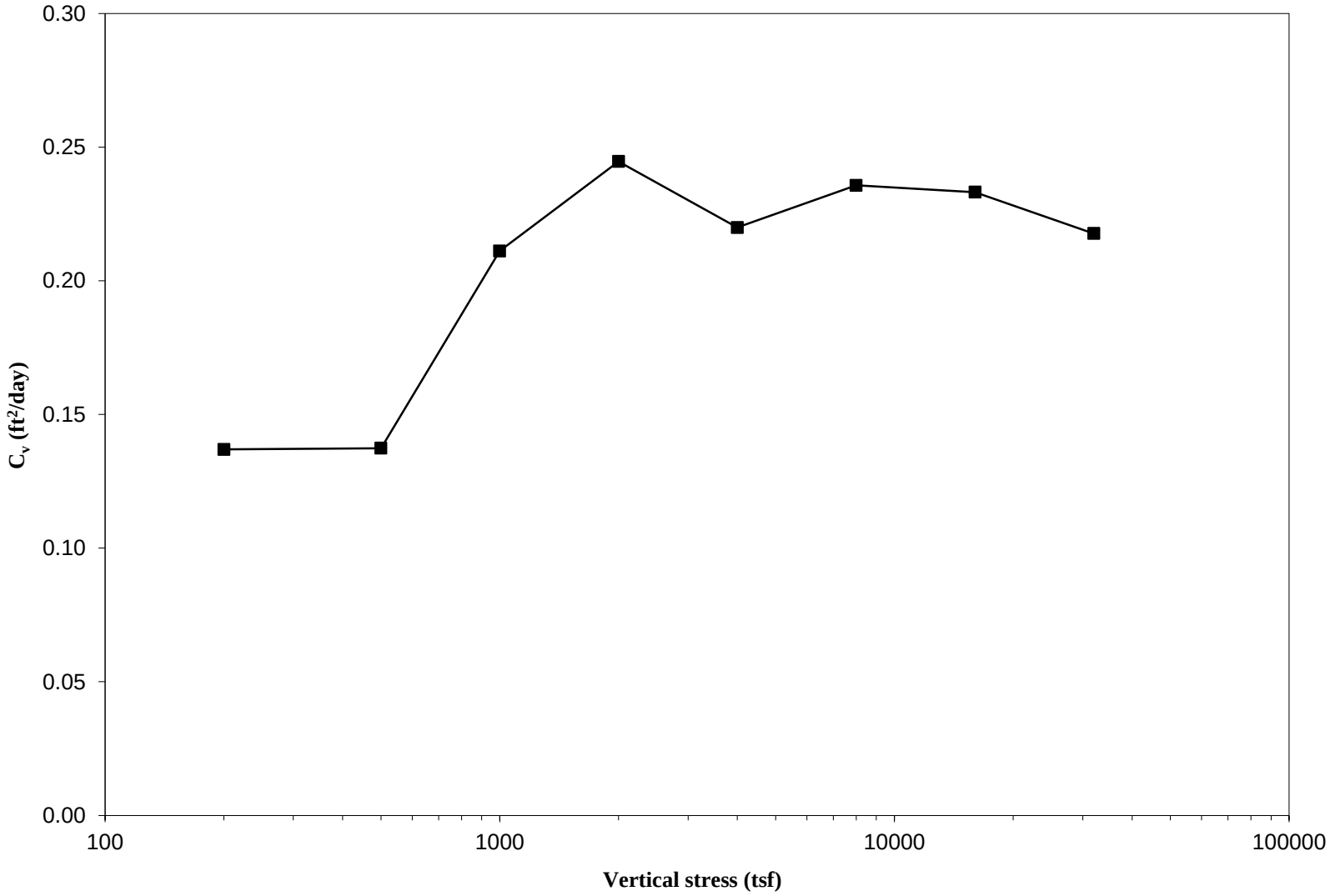
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Boring RB-19ST, ST#2, 6' to 8'



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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: US Route 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring RB-19ST, ST#7, 24 to 26 feet
Sample Description: Gray SILTY CLAY

Tested by: M. Snider
Prepared by: M. Snider
Test date: 1/5/2017
WEI: 414-09-01

Initial sample height =	1.000 in	Ring diameter =	2.499 in
Initial sample mass =	147.6 g	Ring mass =	109.45 g
Initial water content =	39.11%	Initial sample and ring mass =	257.05 g
Initial dry unit weight =	82.42 pcf	Tare mass =	13.37 g
Initial void ratio =	1.059	Final ring and sample mass =	244.07 g
Initial degree of saturation =	100.44%	Mass of wet sample and tare =	147.57 g
		Mass of dry sample and tare =	119.47 g
Final sample mass =	134.20 g	Initial dial reading =	0.01000 in
Final dry sample mass =	106.10 g	Final dial reading =	0.19213 in
Final water content =	26.48%	LL=	42%
Final dry unit weight =	100.78 pcf	PL=	22%
Final void ratio =	0.684	% Sand=	NA
Final degree of saturation =	100.00%	% Silt=	NA
Estimated specific gravity =	2.72	% Clay=	NA
		In-Situ Vertical Effective Stress =	1900 psf

Compression and Swelling Indices

Compression index C_c =	0.281	**Preconsolidation pressure,σ_C**	
Field corrected C_c =	0.323	Casagrande Method =	1925 psf
Swelling index C_s =	0.048	**Over-Consolidation Ratio (OCR) =**	1.01

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.01708	0.00010	0.72	1.044	N/A	N/A	720
2	200.0	0.02440	0.00023	1.46	1.029	0.0458	0.13	720
3	500.0	0.04188	0.00058	3.25	0.992	0.0538	0.26	720
4	1000.0	0.06139	0.00090	5.23	0.952	0.0723	0.40	720
5	2000.0	0.08463	0.00135	7.60	0.903	0.0857	0.35	720
6	4000.0	0.11436	0.00193	10.63	0.840	0.1096	0.50	720
7	8000.0	0.14583	0.00253	13.84	0.774	0.1276	0.61	720
8	16000.0	0.18059	0.00324	17.38	0.701	0.1409	0.53	720
9	8000.0	0.18693	0.00253	17.95	0.690	N/A	N/A	720
10	4000.0	0.18394	0.00193	17.59	0.697	N/A	N/A	720
11	2000.0	0.17918	0.00135	17.05	0.708	N/A	N/A	480
12	1000.0	0.17292	0.00090	16.38	0.722	N/A	N/A	720
13	500.0	0.16548	0.00058	15.61	0.738	N/A	N/A	720
14	200.0	0.15679	0.00023	14.70	0.756	N/A	N/A	480
15	500.0	0.15546	0.00058	14.60	0.758	0.1955	0.01	480
16	1000.0	0.15793	0.00090	14.88	0.753	0.1619	0.06	720
17	2000.0	0.16319	0.00135	15.45	0.741	0.1513	0.14	480
18	4000.0	0.17137	0.00193	16.33	0.723	0.1769	0.12	480
19	8000.0	0.18104	0.00253	17.36	0.702	0.2103	0.09	480
20	16000.0	0.19342	0.00324	18.67	0.675	0.1909	0.27	480
21	32000.0	0.22081	0.00413	21.49	0.617	0.1550	0.49	720
22	8000.0	0.22239	0.00295	21.53	0.616	N/A	N/A	720
23	2000.0	0.21231	0.00198	20.43	0.639	N/A	N/A	480
24	500.0	0.19620	0.00123	18.74	0.673	N/A	N/A	480

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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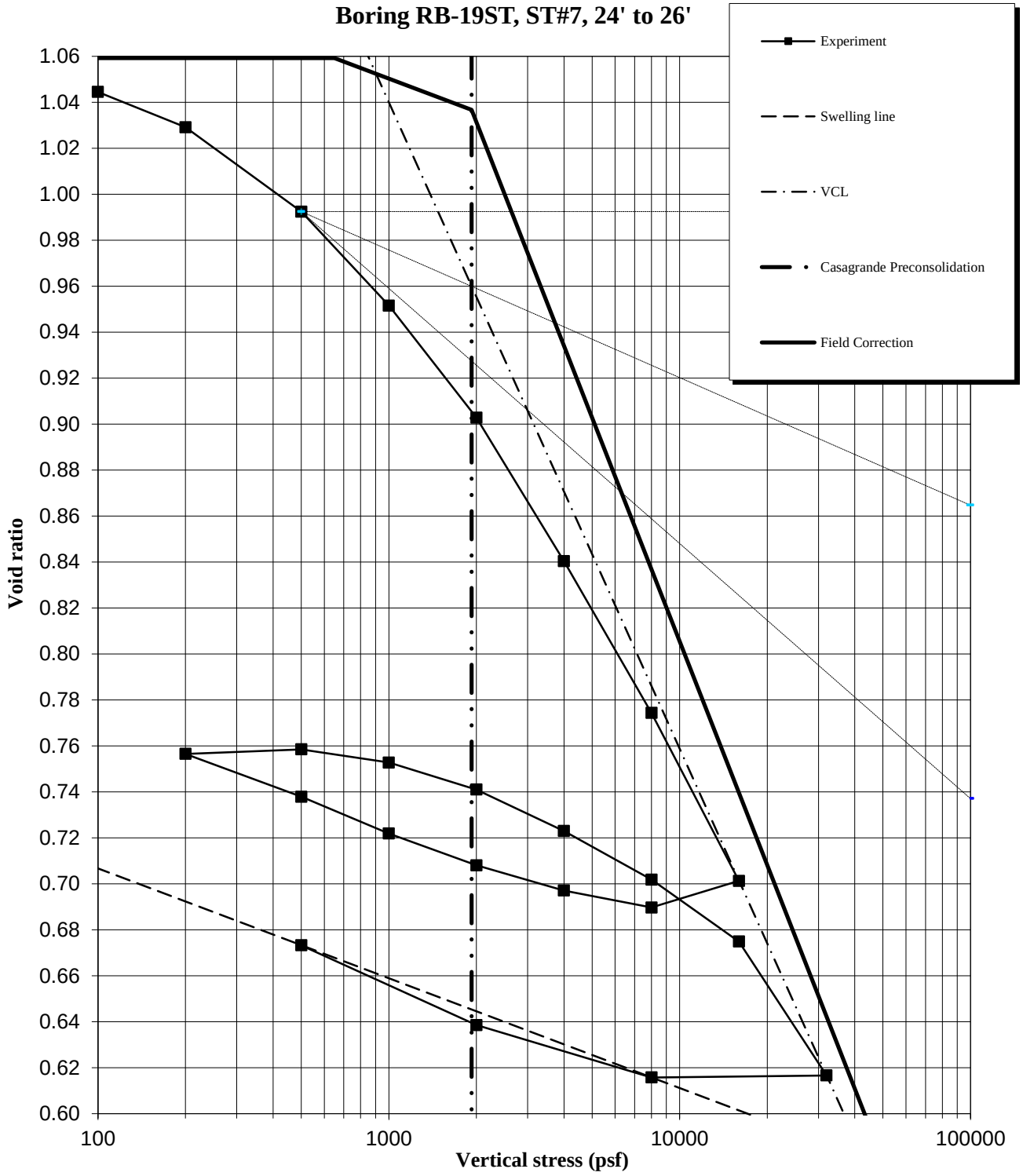
CONSOLIDATION CURVE

Boring RB-19ST, ST#7, 24' to 26'



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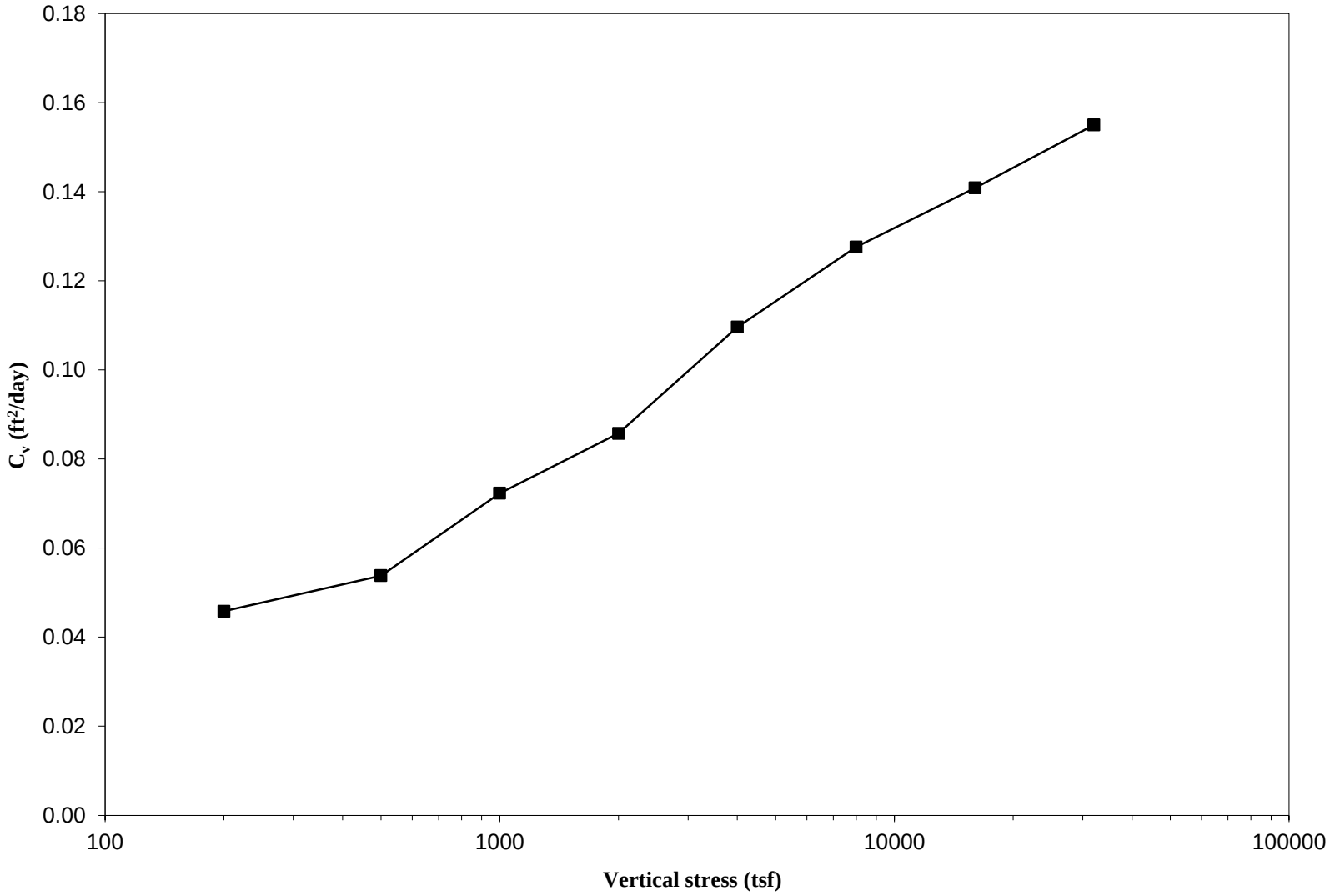
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Boring RB-19ST, ST#7, 24' to 26'



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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: US Route 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring SB-43ST, ST#1, 4 to 6 feet
Sample Description: Gray SILTY CLAY

Tested by: M. Snider
Prepared by: M. Snider
Test date: 11/23/2016
WEI: 414-09-01

Initial sample height =	1.010	in	Ring diameter =	2.499	in
Initial sample mass =	161.36	g	Ring mass =	109.43	g
Initial water content =	25.67%		Initial sample and ring mass =	270.79	g
Initial dry unit weight =	98.76	pcf	Tare mass =	69.44	g
Initial void ratio =	0.719		Final ring and sample mass =	263.12	g
Initial degree of saturation =	97.16%		Mass of wet sample and tare =	222.99	g
			Mass of dry sample and tare =	197.84	g
Final sample mass =	153.55	g	Initial dial reading =	0.01000	in
Final dry sample mass =	128.40	g	Final dial reading =	0.13385	in
Final water content =	19.59%		LL=	42	%
Final dry unit weight =	112.56	pcf	PL=	19	%
Final void ratio =	0.508		% Sand=	NA	
Final degree of saturation =	100.00%		% Silt=	NA	
Estimated specific gravity =	2.72		% Clay=	NA	
			In-Situ Vertical Effective Stress =	750	psf

Compression and Swelling Indices

Compression index C_c =	0.202		**Preconsolidation pressure,s_C**		
Field corrected C_c =	0.204		Casagrande Method =	1731	psf
Swelling index C_s =	0.047		**Over-Consolidation Ratio (OCR) =**	2.31	

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.00951	0.00010	-0.04	0.719	N/A	N/A	720
2	200.0	0.01096	0.00023	0.12	0.717	0.1447	0.04	720
3	500.0	0.01533	0.00058	0.58	0.709	0.1439	0.18	720
4	1000.0	0.02601	0.00090	1.67	0.690	0.1021	0.08	720
5	2000.0	0.04017	0.00135	3.12	0.665	0.0742	0.30	720
6	4000.0	0.06412	0.00193	5.55	0.623	0.0527	0.50	720
7	8000.0	0.09608	0.00253	8.77	0.568	0.0366	0.60	720
8	16000.0	0.13356	0.00324	12.55	0.503	0.0351	0.55	720
9	32000.0	0.16846	0.00413	16.10	0.442	0.0327	0.60	720
10	8000.0	0.16566	0.00295	15.70	0.449	N/A	N/A	480
11	2000.0	0.15165	0.00198	14.22	0.474	N/A	N/A	720
11	500.0	0.13381	0.00123	12.38	0.506	N/A	N/A	890

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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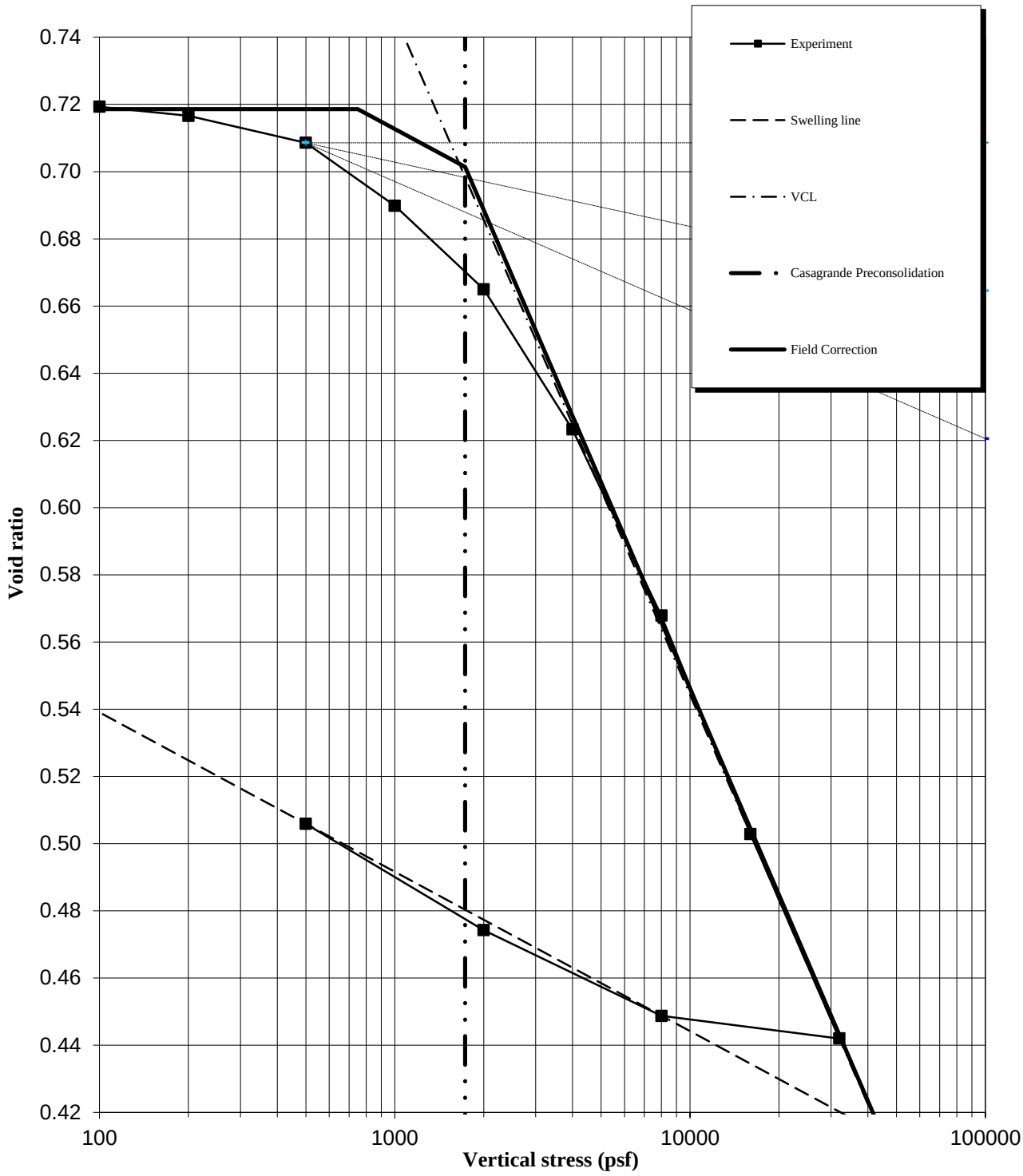
CONSOLIDATION CURVE

Sample SB-43ST, ST#1, 4' to 6'



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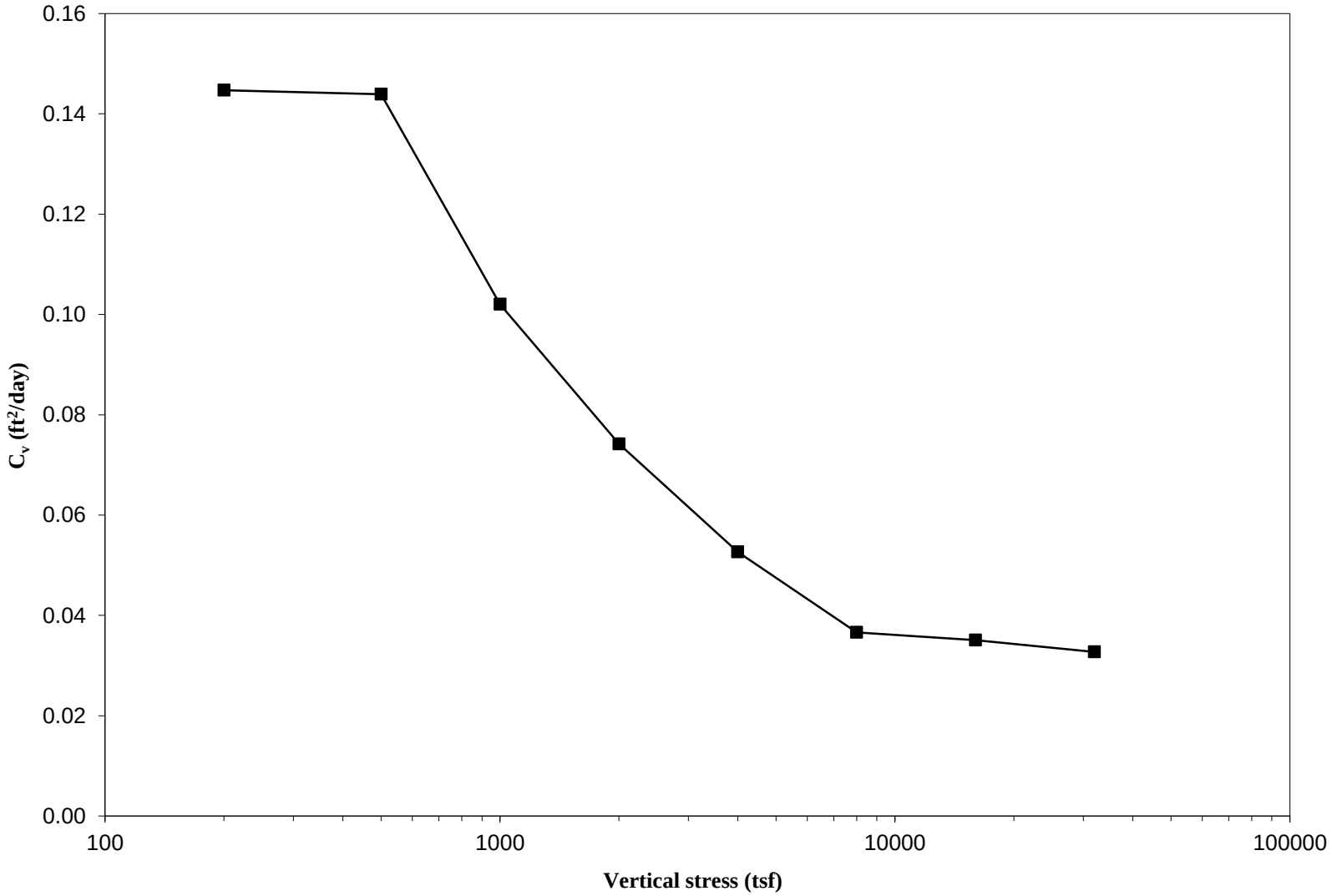
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Sample SB-43ST, ST#1, 4' to 6'



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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: US Route 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring SB-43ST, ST#4, 10 to 12 feet
Sample Description: Gray SILTY CLAY

Tested by: M. Snider
Prepared by: M. Snider
Test date: 11/23/2016
WEI: 414-09-01

Initial sample height =	1.010	in	Ring diameter =	2.498	in
Initial sample mass =	153.74	g	Ring mass =	109.83	g
Initial water content =	30.54%		Initial sample and ring mass =	263.57	g
Initial dry unit weight =	90.66	pcf	Tare mass =	71.02	g
Initial void ratio =	0.872		Final ring and sample mass =	252.59	g
Initial degree of saturation =	95.25%		Mass of wet sample and tare =	213.55	g
			Mass of dry sample and tare =	188.79	g
Final sample mass =	142.53	g	Initial dial reading =	0.01000	in
Final dry sample mass =	117.77	g	Final dial reading =	0.17601	in
Final water content =	21.02%		LL=	42	%
Final dry unit weight =	108.49	pcf	PL=	19	%
Final void ratio =	0.564		% Sand=	NA	
Final degree of saturation =	100.00%		% Silt=	NA	
Estimated specific gravity =	2.72		% Clay=	NA	
			In-Situ Vertical Effective Stress =	1300	psf

Compression and Swelling Indices

Compression index C_c =	0.270		**Preconsolidation pressure,s_C**		
Field corrected C_c =	0.292		Casagrande Method =	1822	psf
Swelling index C_s =	0.056		**Over-Consolidation Ratio (OCR) =**	1.40	

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.01038	0.00010	0.05	0.871	N/A	N/A	720
2	200.0	0.01173	0.00023	0.19	0.869	0.2169	0.03	720
3	500.0	0.01507	0.00058	0.56	0.862	0.2159	0.14	720
4	1000.0	0.02684	0.00090	1.76	0.839	0.1529	0.11	720
5	2000.0	0.04743	0.00135	3.84	0.800	0.1688	0.35	720
6	4000.0	0.08168	0.00193	7.29	0.736	0.1122	0.58	720
7	8000.0	0.12474	0.00253	11.61	0.655	0.0718	0.71	720
8	16000.0	0.16903	0.00324	16.07	0.571	0.0571	0.65	720
9	32000.0	0.21196	0.00413	20.40	0.490	0.0469	0.64	720
10	8000.0	0.21086	0.00295	20.18	0.494	N/A	N/A	480
11	2000.0	0.19680	0.00198	18.69	0.522	N/A	N/A	720
11	500.0	0.17627	0.00123	16.58	0.562	N/A	N/A	720

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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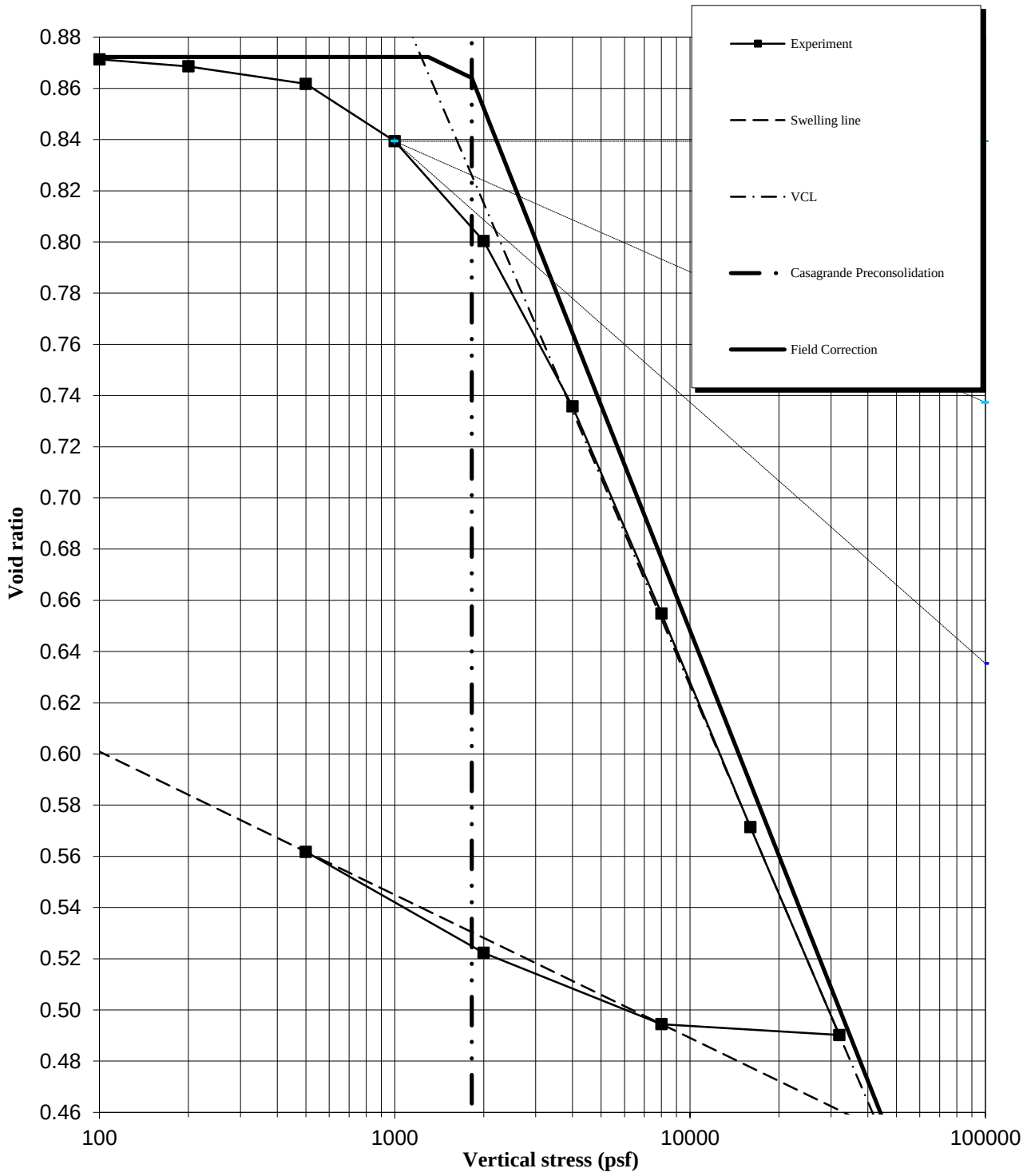
CONSOLIDATION CURVE

Sample SB-43ST, ST#4, 10' to 12'



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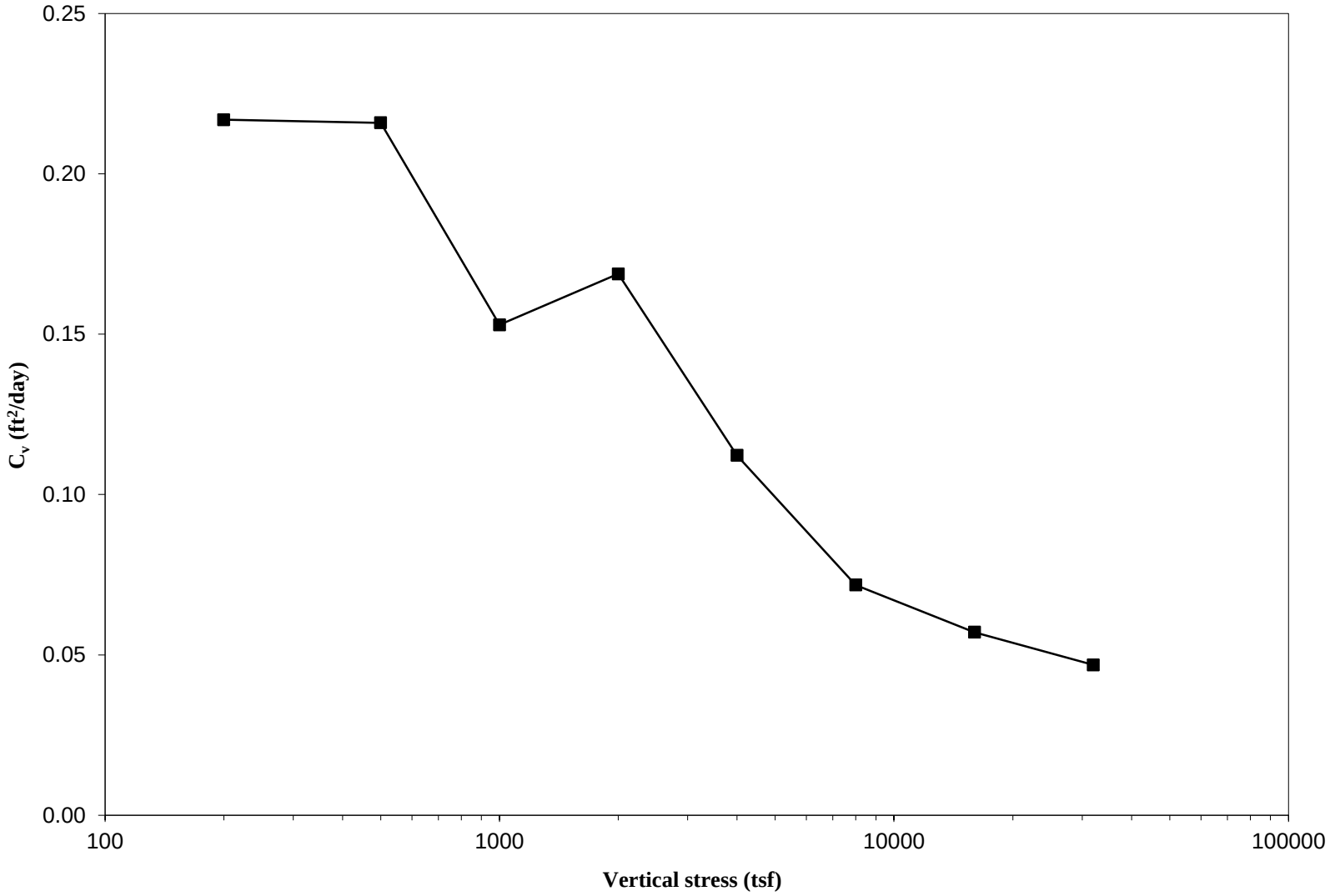
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Sample SB-43ST, ST#4, 10' to 12'



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ONE-DIMENSIONAL CONSOLIDATION TEST

AASHTO T 216 / ASTM D 2435

Project: US Route 150 over the Illinois River
Client: TY Lin International
Soil Sample ID: Boring SB-43ST, ST#8, 29 to 31 feet
Sample Description: Gray SILTY CLAY

Tested by: M. Snider
Prepared by: M. Snider
Test date: 11/23/2016
WEI: 414-09-01

Initial sample height =	0.798	in	Ring diameter =	2.511	in
Initial sample mass =	111.16	g	Ring mass =	62.84	g
Initial water content =	47.64%		Initial sample and ring mass =	174.00	g
Initial dry unit weight =	72.59	pcf	Tare mass =	102.03	g
Initial void ratio =	1.252		Final ring and sample mass =	162.93	g
Initial degree of saturation =	99.69%		Mass of wet sample and tare =	201.74	g
			Mass of dry sample and tare =	177.32	g
Final sample mass =	99.71	g	Initial dial reading =	0.01000	in
Final dry sample mass =	75.29	g	Final dial reading =	0.09632	in
Final water content =	32.43%		LL=	57	%
Final dry unit weight =	81.40	pcf	PL=	23	%
Final void ratio =	1.008		% Sand=	NA	
Final degree of saturation =	84.27%		% Silt=	NA	
Estimated specific gravity =	2.62		% Clay=	NA	
			In-Situ Vertical Effective Stress =	2450	psf

Compression and Swelling Indices

Compression index C_c =	0.303		**Preconsolidation pressure,s_C**		
Field corrected C_c =	0.321		Casagrande Method =	2478	psf
Swelling index C_s =	0.087		**Over-Consolidation Ratio (OCR) =**	1.01	

Load number	Vertical stress	Dial reading	System deflection	Vertical strain	Void ratio	C_v	Cae	Elapsed time
	psf	in	in	%		ft^2/day	%	min
1	100.0	0.00989	0.00047	0.05	1.251	N/A	N/A	720
2	200.0	0.00993	0.00066	0.07	1.250	0.1341	0.00	720
3	500.0	0.01030	0.00087	0.15	1.249	0.1340	0.01	720
4	1000.0	0.01700	0.00138	1.05	1.228	0.0368	0.11	720
5	2000.0	0.02889	0.00198	2.62	1.193	0.0296	0.28	720
6	4000.0	0.04790	0.00425	5.28	1.133	0.0260	0.56	720
7	8000.0	0.07674	0.00648	9.18	1.045	0.0176	0.74	720
8	16000.0	0.10777	0.00903	13.38	0.951	0.0190	0.62	720
9	32000.0	0.13349	0.01063	16.81	0.874	0.0188	0.56	720
10	8000.0	0.12739	0.00809	15.72	0.898	N/A	N/A	480
11	2000.0	0.11239	0.00386	13.31	0.952	N/A	N/A	720
11	500.0	0.09632	0.00183	11.05	1.003	N/A	N/A	720

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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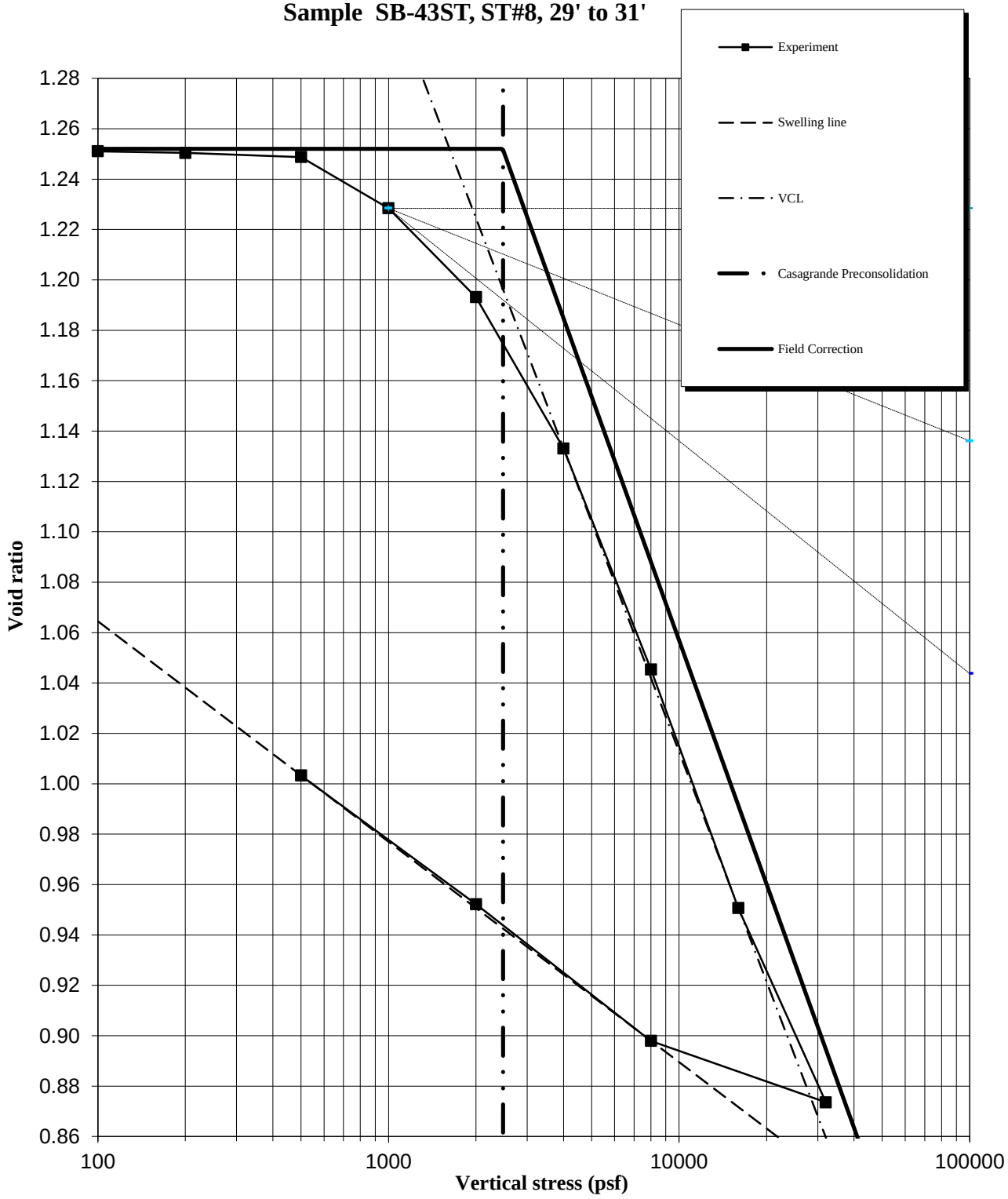
CONSOLIDATION CURVE

Sample SB-43ST, ST#8, 29' to 31'



AASHTO R18

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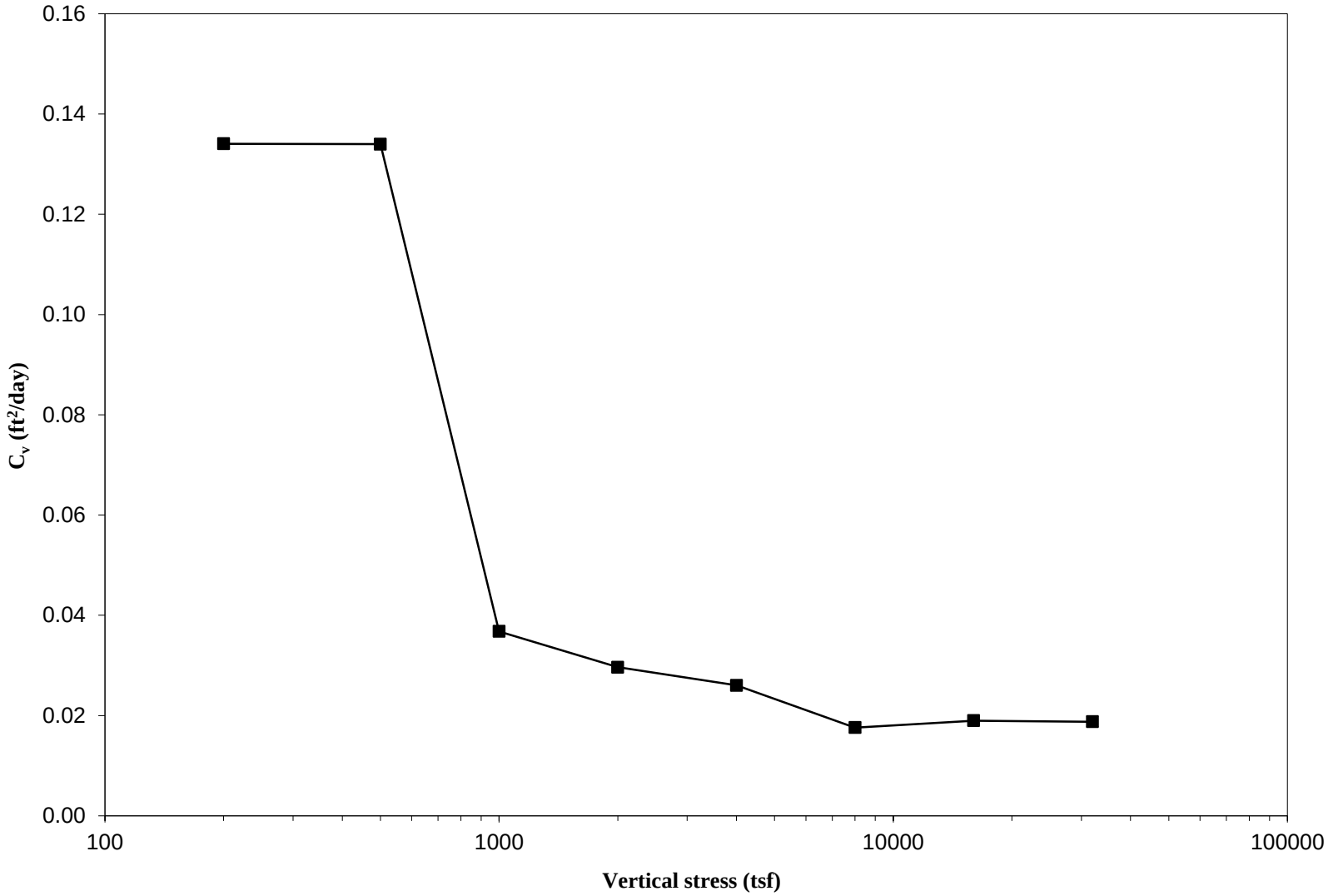
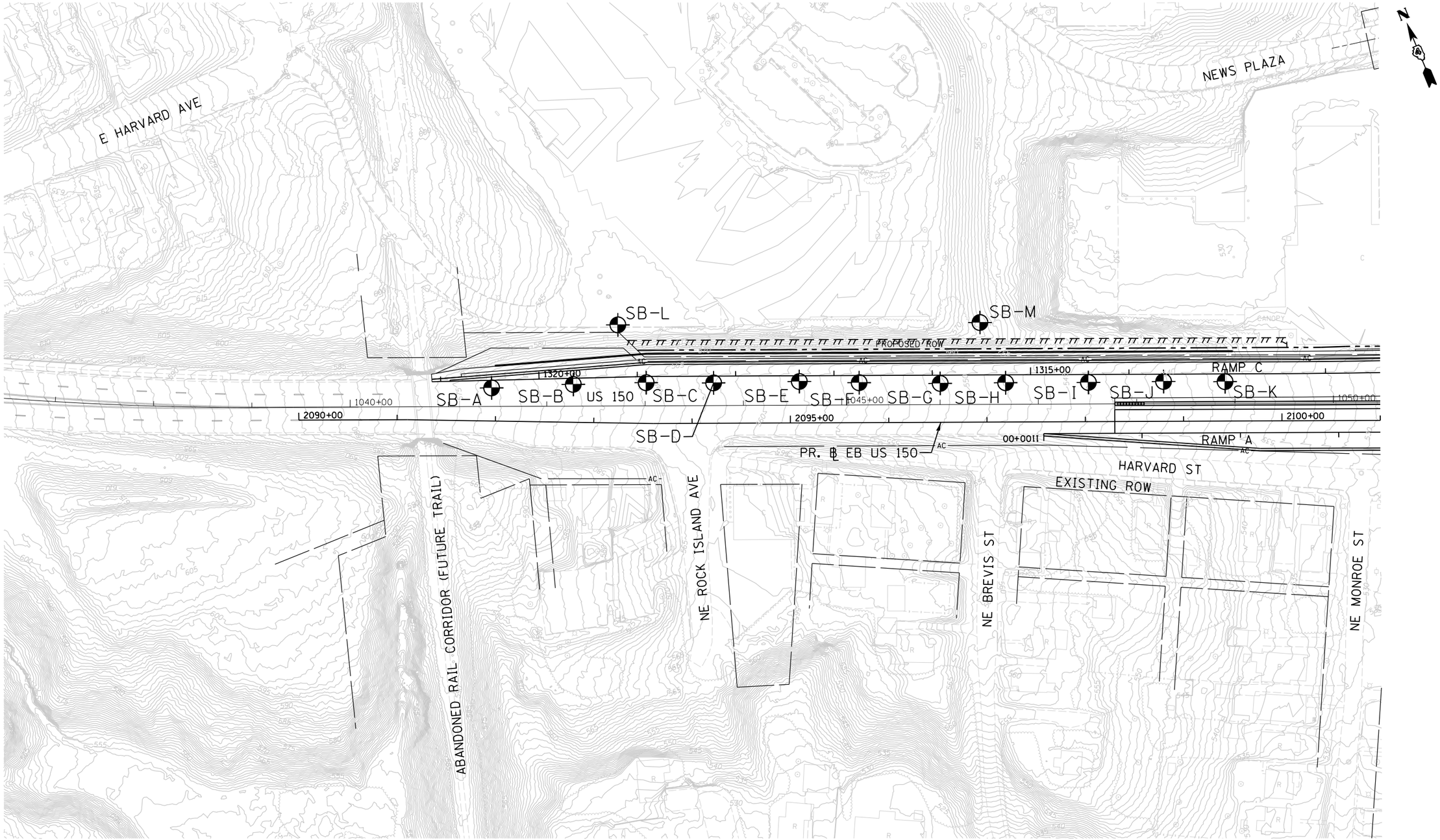
CONSOLIDATION COEFFICIENT (C_v) vs. VERTICAL STRESS

Sample SB-43ST, ST#8, 29' to 31'



AASHTO R18

Appendix B – US 150 WB Borings



FILE NAME = D413H0106-sht-soil00	USER NAME = madau00223	DESIGNED - RGC	REVISED -
		DRAWN - EJM	REVISED -
Sheet-Appendix	PLOT SCALE = 100.0000 ' / in.	CHECKED - JPK	REVISED -
	PLOT DATE = 1/17/2018	DATE - 01/16/18	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

US 150 WESTBOUND MCCLUGAGE BRIDGE PROJECT
BORING LOCATION PLAN

SCALE: 1" =50' | SHEET 1 OF 1 SHEETS | STA. 2090+00.00 TO STA. 2101+00.00

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
317	15B(BR)	PEORIA	1	1
		CONTRACT NO.		TBD
		ILLINOIS FED. AID PROJECT		

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BORING LOG SB-A

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 573.35 ft
North: 1478530.00 ft
East: 2464625.56 ft
Station: 1320+48
Offset: 8.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	572.1	3-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	571.9							
	571.7	3-inch thick CRUSHED STONE --BASE COURSE--						
		Very stiff, brown CLAY LOAM, trace gravel			1	9 12 8	2.50 P	11
	570.1	Brown SANDY LOAM; moist --RDR 3--						
		Medium dense, brown SILTY LOAM to SILT; moist --RDR 3--	5		2	8 7 8	NP	13
		--sand lenses; moist--			3	12 6 8	NP	14
	565.4							
	564.6	Very stiff (3.5P), gray SILTY CLAY LOAM						
		Dense, gray SILT; moist			4	5 11 20	NP	15
	563.4		10					
		Boring terminated at 10.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling **11-15-2016** Complete Drilling **11-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-B

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 569.26 ft
North: 1478501.57 ft
East: 2464703.71 ft
Station: 1319+65
Offset: 6.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	567.9	4-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	567.7	3-inch thick CRUSHED STONE --BASE COURSE--						
		Very stiff, brown SILTY CLAY LOAM, trace gravel --RDR 3--			2	4 4 6	2.79 B	14
			3.5			3 4 4	2.00 P	17
	563.8		5					
		Loose, brown LOAM; saturated --RDR 3--			6	2 3 4	NP	17
		--silt and sand lenses--	8.5			2 3 2	NP	15
	558.8		10					
		Very stiff, gray SILTY CLAY LOAM, trace gravel			11	4 5 5	2.54 B	15
			13.5			5 7 9	2.54 B	14
	554.3		15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling: **11-14-2016** Complete Drilling: **11-14-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&J&B** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **6.00 ft**
At Completion of Drilling: **14.00 ft**
Time After Drilling: **24 hours**
Depth to Water: **8.10 ft**

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BORING LOG SB-C

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 565.64 ft
North: 1478474.96 ft
East: 2464772.94 ft
Station: 1318+91
Offset: 6.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	564.3	4-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	564.1	3-inch thick CRUSHED STONE --BASE COURSE--						
		Very stiff, gray SILTY CLAY LOAM, trace gravel --FILL--			1	4 5 6	2.75 P	15
	562.5	--RDR 3--						
	561.5	Medium stiff (0.5P), brown CLAY LOAM	5		2	2 2 2	1.75 P	16
		Stiff to hard, brown SILTY CLAY LOAM, trace gravel --RDR 3--			3	2 3 5	2.21 B	20
			10		4	4 6 7	4.59 B	13
					5	4 5 6	3.77 B	14
					6	3 5 7	3.61 B	15
	550.6		15					
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling **11-15-2016** Complete Drilling **11-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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BORING LOG SB-D

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 562.31 ft
North: 1478448.59 ft
East: 2464836.21 ft
Station: 1318+22
Offset: 7.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	561.2	3-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
	560.8	3-inch thick CRUSHED STONE --BASE COURSE--						
		Stiff to very stiff, brown SILTY CLAY LOAM, trace gravel --RDR 3--			1	6 4 4	1.50 P	14
			5		2	7 5 7	3.44 B	14
					3	4 8 10	2.62 B	14
			10		4	7 7 8	2.38 B	14
	551.8	Dense, brown, fine to coarse SAND to SANDY LOAM; saturated --RDR 3-- --silt and clay lenses--			5	10 16 16	NP	16
			15		6	6 13 17	NP	16
		--silt and clay lenses--			7	8 15 17	NP	18
	544.3	Medium dense, brown SILT to SILTY LOAM; saturated --RDR 3-- --sand and clay lenses--			8	7 11 13	NP	14
	542.3	Boring terminated at 20.00 ft	20					

GENERAL NOTES

Begin Drilling **11-15-2016** Complete Drilling **11-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **10.50 ft**
At Completion of Drilling ▼ **18.50 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

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BORING LOG SB-E

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 558.18 ft
North: 1478416.69 ft
East: 2464917.36 ft
Station: 1317+35
Offset: 6.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	557.1	3-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
	556.9	3-inch thick CRUSHED STONE --BASE COURSE--						
		Medium stiff, brown CLAY LOAM to LOAM			1	7 8 7	0.75 P	13
	554.9	--RDR 3--						
		Loose, brown LOAM to SANDY LOAM --RDR 3--	5		2	3 3 3	NP	12
	552.7	Medium dense, brown, fine SAND; moist to wet --RDR 3--			3	5 7 8	NP	8
			10		4	3 5 5	NP	13
					5	5 8 7	NP	8
			15		6	4 5 7	NP	11
	542.7	Medium dense, brown SILTY LOAM; saturated --RDR 3-- --sand lenses--			7	3 5 8	NP	17
	540.2	Medium dense, brown LOAM, trace gravel; saturated --RDR 3-- --silt and sand lenses--			8	8 11 10	NP	11
	538.2	Boring terminated at 20.00 ft	20					

GENERAL NOTES

Begin Drilling: **11-15-2016** Complete Drilling: **11-15-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&J&B** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **15.50 ft**
At Completion of Drilling: **20.00 ft**
Time After Drilling: **NA**
Depth to Water: **NA**

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BORING LOG SB-F

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 555.17 ft
North: 1478392.37 ft
East: 2464973.19 ft
Station: 1316+74
Offset: 7.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	554.1	3-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
	553.9	3-inch thick CRUSHED STONE --BASE COURSE--						
		Stiff, brown CLAY LOAM --RDR 3--			1	5 4 5	1.50 P	10
	551.9	Medium dense, brown SAND to SANDY LOAM, trace gravel; moist --RDR 3--	5		2	3 3 7	NP	7
					3	6 6 8	NP	6
			10		4	6 8 7	NP	7
					5	6 9 6	NP	7
			15		6	7 9 7	NP	7
					7	8 8 12	NP	6
					8	8 8 9	NP	6
	535.2	Boring terminated at 20.00 ft	20					

GENERAL NOTES

Begin Drilling **11-15-2016** Complete Drilling **11-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-G

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 551.23 ft
North: 1478360.28 ft
East: 2465049.10 ft
Station: 1315+92
Offset: 8.0 LT

Depth (ft)	Elevation (ft)	Profile	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
0	549.7		6-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--					
	549.4		4-inch thick CRUSHED STONE --BASE COURSE--					
			Medium dense, brown SAND to SANDY LOAM; moist to wet --RDR 3--		1	5 5 6	NP	9
					2	5 9 10	NP	7
5					3	5 9 11	NP	6
					4	5 8 10	NP	9
10					5	5 9 12	NP	6
			--silt lenses--					
	538.2		Medium dense, brown SILT to SILTY LOAM; saturated --RDR 3--		6	8 10 12	NP	16
15					7	5 8 20	NP	11
					8	8 11 15	NP	17
20					9	8 10 8	NP	21
			--sand lenses--		10	8 9 9	NP	18
25					11	4 8 10	NP	24
			--sand lenses--		12	6 8 8	NP	18
30	521.2		Boring terminated at 30.00 ft					
35								
40								

GENERAL NOTES

Begin Drilling **11-14-2016** Complete Drilling **11-14-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling ▽ **13.00 ft**
At Completion of Drilling ▼ **30.00 ft**
Time After Drilling **24 hours**
Depth to Water ▼ **29.80 ft**

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

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BORING LOG SB-H

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 548.09 ft
North: 1478335.54 ft
East: 2465110.90 ft
Station: 1315+25
Offset: 8.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	547.0	3-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
	546.8	3-inch thick CRUSHED STONE --BASE COURSE--			1	50/2	NP	5
	545.5	Very dense, brown GRAVELLY SANDY LOAM; moist --RDR 3--						
		Medium dense to dense, brown SAND, trace to little gravel; moist --RDR 3--	5		2	12 12 10	NP	4
					3	12 13 17	NP	5
			10		4	12 14 15	NP	4
					5	10 16 16	NP	5
			15		6	11 18 22	NP	5
					7	17 17 15	NP	5
					8	13 16 20	NP	6
	528.1	Boring terminated at 20.00 ft	20					

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

GENERAL NOTES

Begin Drilling **11-15-2016** Complete Drilling **11-15-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-I

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 543.86 ft
North: 1478303.68 ft
East: 2465188.83 ft
Station: 1314+41
Offset: 8.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	542.4	5-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--						
	542.1	3-inch thick CRUSHED STONE --BASE COURSE--						
		Medium dense to dense, brown SAND to SANDY LOAM, trace gravel; moist --RDR 3--			1	6 8 11	NP	9
			5		2	9 12 12	NP	6
					3	11 16 22	NP	6
			10		4	9 16 16	NP	6
					5	10 17 21	NP	5
	528.9		15		6	13 14 21	NP	5
		Boring terminated at 15.00 ft						
			20					

GENERAL NOTES

Begin Drilling **11-14-2016** Complete Drilling **11-14-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-J

WEI Job No.: 414-09-01

Client: **TYLin/Hanson**
Project: **US 150 over Illinois River - McClugage**
Location: **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 540.10 ft
North: 1478275.42 ft
East: 2465259.93 ft
Station: 1313+65
Offset: 7.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		3-inch thick ASPHALT over 12-inch thick CONCRETE						
	538.9	--PAVEMENT--						
	538.6	3-inch thick CRUSHED STONE --BASE COURSE--						
		Medium dense to dense, brown, fine to coarse SAND, trace gravel; moist to wet			1	7 11 13	NP	4
		--RDR 3--			2	10 11 11	NP	4
			5		3	7 18 19	NP	6
					4	7 15 18	NP	5
			10		5	6 14 17	NP	5
	526.1	--wet--			6	7 8 15	NP	19
	525.1	Medium dense, brown SILT; saturated	15					
		Boring terminated at 15.00 ft						
			20					

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

GENERAL NOTES

Begin Drilling: **11-14-2016** Complete Drilling: **11-14-2016**
Drilling Contractor: **Wang Testing Service** Drill Rig: **D50 ATV [88%]**
Driller: **K&J&B** Logger: **J. Foote** Checked by: **C. Marin**
Drilling Method: **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **14.00 ft**
At Completion of Drilling: **14.00 ft**
Time After Drilling: **24 hours**
Depth to Water: **Caved at 12 ft ft**

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BORING LOG SB-K

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 537.06 ft
North: 1478251.49 ft
East: 2465317.63 ft
Station: 1313+02
Offset: 8.0 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		3-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--						
	535.8							
	535.6	3-inch thick CRUSHED STONE --BASE COURSE--						
	535.3	Stiff (1.0P), brown CLAY LOAM			1	7 10 14	NP	8
		Medium dense, brown, fine to coarse SAND, trace gravel; moist --RDR 3--			2	5 12 14	NP	6
			5		3	6 12 13	NP	7
					4	6 14 14	NP	7
	527.1		10					
		Boring terminated at 10.00 ft						
			15					
			20					

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

GENERAL NOTES

Begin Drilling **11-14-2016** Complete Drilling **11-14-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J&B** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-L

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 581.52 ft
North: 1478540.30 ft
East: 2464768.69 ft
Station: 1319+19
Offset: 53.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	581.0	6-inch thick ASPHALT						
	580.7	--PAVEMENT--						
		4-inch thick CRUSHED STONE --BASE COURSE-- --RDR 3--						
		Stiff to very stiff, reddish brown SILTY CLAY LOAM to CLAY LOAM, trace gravel --RDR 3--			1	3 2 4	1.25 P	20
			5		2	2 2 3	1.00 P	22
					3	2 4 3	1.89 B	16
			10		4	3 3 4	2.54 B	14
					5	2 2 2	1.97 B	16
		--sand seams; moist--			6	2 3 3	2.05 B	17
	566.0		15					
		Medium dense, brown SANDY LOAM; moist --RDR 3--			7	5 8 9	NP	8
					8	9 7 7	NP	9
	561.5		20					
		Boring terminated at 20.00 ft						

GENERAL NOTES

Begin Drilling **11-11-2016** Complete Drilling **11-11-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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BORING LOG SB-M

WEI Job No.: 414-09-01

Client **TYLin/Hanson**
Project **US 150 over Illinois River - McClugage**
Location **Peoria and Tazewell Counties, IL**

Datum: NAVD 88
Elevation: 565.53 ft
North: 1478402.09 ft
East: 2465110.04 ft
Station: 1315+51
Offset: 53.0 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	565.0	6-inch thick, brown SILTY CLAY LOAM						
		--TOPSOIL--						
		Stiff to very stiff, reddish brown SILTY CLAY LOAM to CLAY LOAM			1	4 4 4	2.50 P	26
		--RDR 3--						
			5		2	3 3 2	1.50 P	20
	560.0	Medium dense, brown SILT; moist to wet						
		--RDR 3--			3	6 6 13	NP	19
	557.5	Brown, fine SAND; moist to wet						
	556.5	Brown SILTY LOAM to LOAM; moist			4	8 7 9	NP	15
		--RDR 3--	10					
	555.0	Medium dense to dense, brown, fine to coarse SAND, trace gravel; dump to moist			5	5 11 16	NP	6
		--RDR 3--						
		--silt lenses--			6	10 12 14	NP	5
			15					
					7	9 14 18	NP	5
					8	14 15 18	NP	5
	545.5		20					
		Boring terminated at 20.00 ft						

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

GENERAL NOTES

Begin Drilling **11-11-2016** Complete Drilling **11-11-2016**
Drilling Contractor **Wang Testing Service** Drill Rig **D50 ATV [88%]**
Driller **K&J** Logger **J. Foote** Checked by **C. Marin**
Drilling Method **3.25" IDA HSA; boring backfilled upon completion**

WATER LEVEL DATA

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

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

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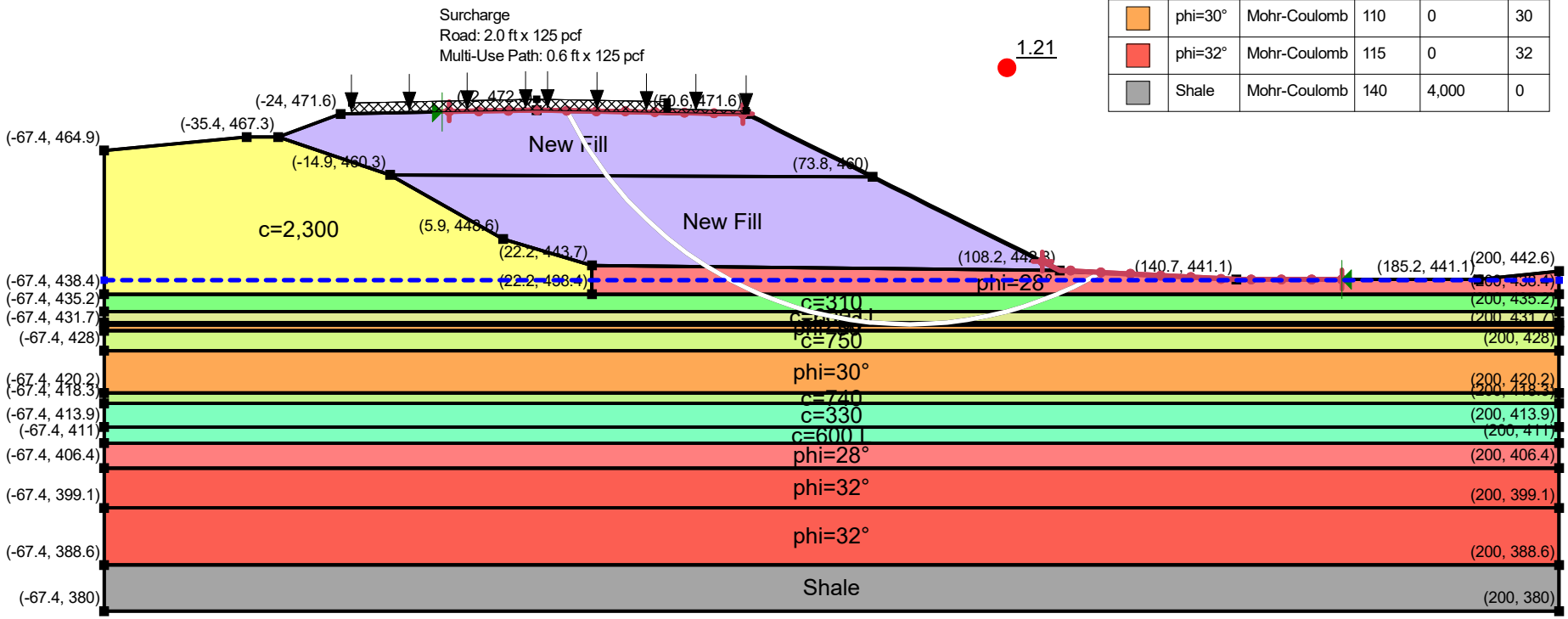
Appendix C – Slope Stability Analyses

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=310	Mohr-Coulomb	120	310	0
	c=330	Mohr-Coulomb	120	330	0
	c=600 L	Mohr-Coulomb	122.5	800	0
	c=600 U	Mohr-Coulomb	122.5	600	0
	c=740	Mohr-Coulomb	122.5	740	0
	c=750	Mohr-Coulomb	122.5	750	0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

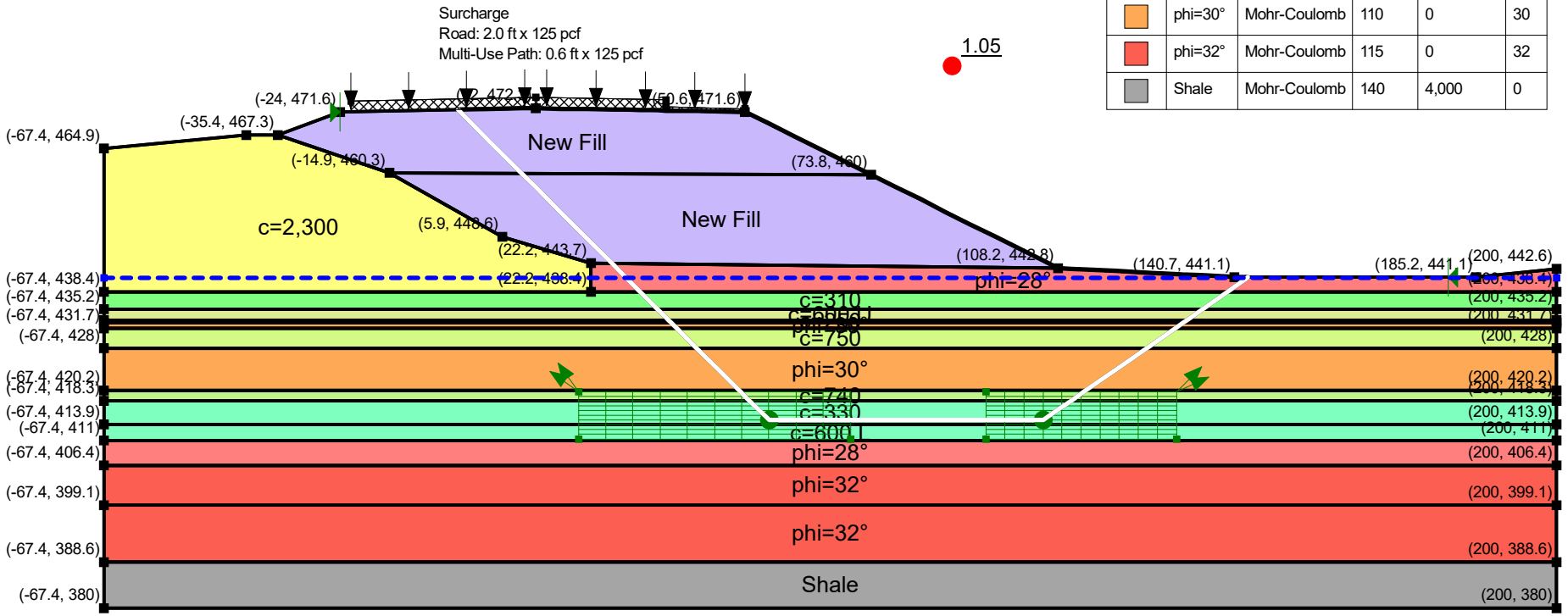


F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage
October 2018

HANSON

Last Edited By: Robert Chantome Run: 10/17/2018 11:03:37 AM
I:\13jobs\13H0106\Phase-I\Admin\13-Calculations\Geotechnical\Roadway Geotechnical Report\Slope\WEastApproachStability.gsz Model: Sta 2157+06.8 Second Stage

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=310	Mohr-Coulomb	120	310	0
	c=330	Mohr-Coulomb	120	330	0
	c=600 L	Mohr-Coulomb	122.5	800	0
	c=600 U	Mohr-Coulomb	122.5	600	0
	c=740	Mohr-Coulomb	122.5	740	0
	c=750	Mohr-Coulomb	122.5	750	0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Lower Block
October 2018

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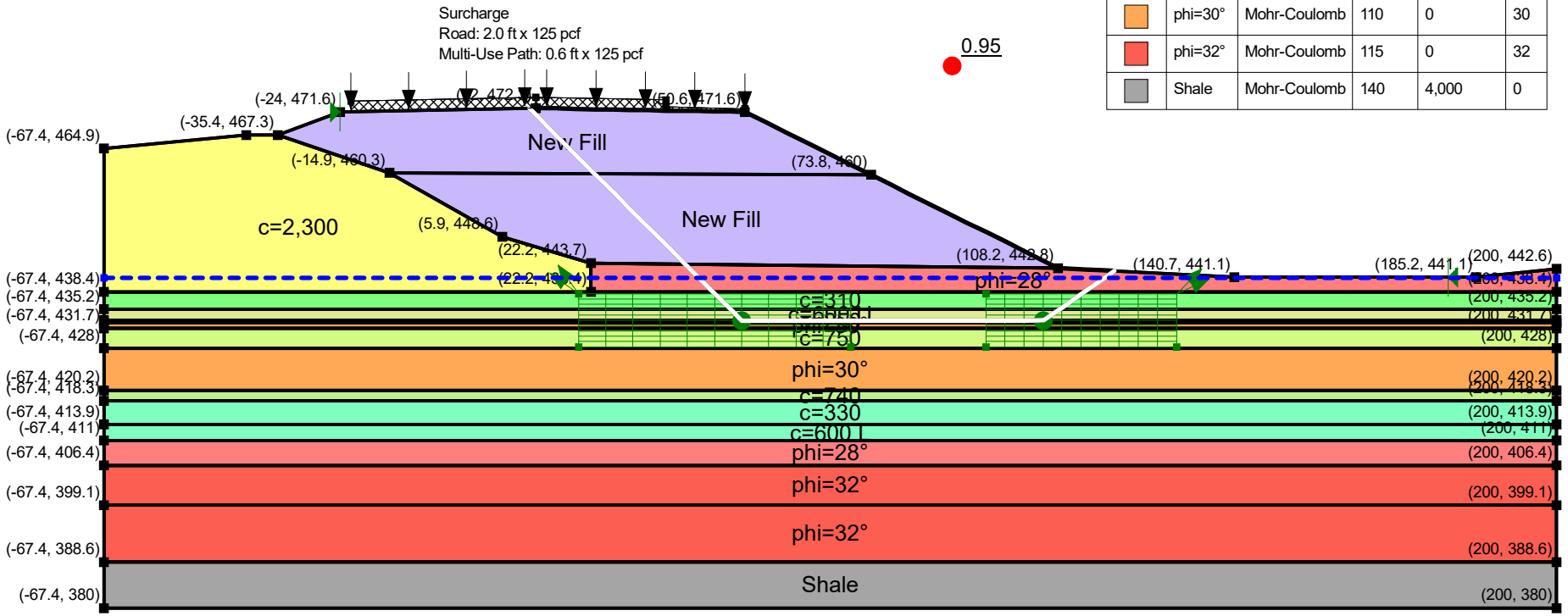
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=310	Mohr-Coulomb	120	310	0
	c=330	Mohr-Coulomb	120	330	0
	c=600 L	Mohr-Coulomb	122.5	800	0
	c=600 U	Mohr-Coulomb	122.5	600	0
	c=740	Mohr-Coulomb	122.5	740	0
	c=750	Mohr-Coulomb	122.5	750	0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Upper Block
October 2018

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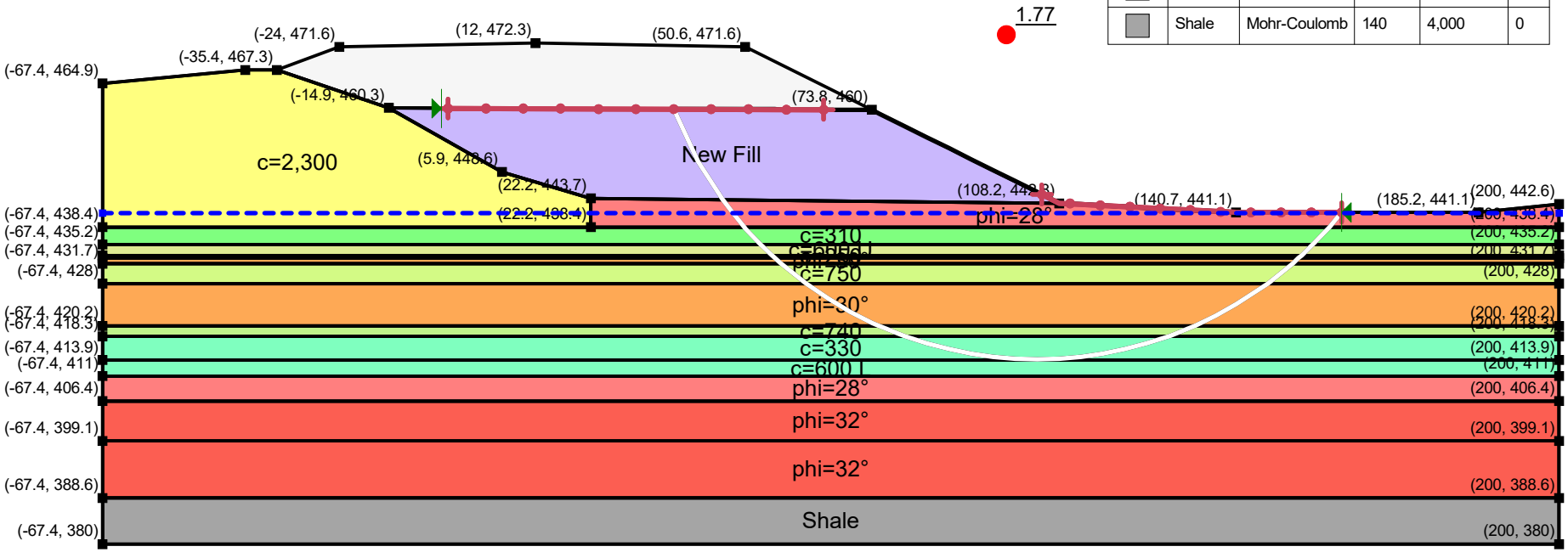
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=310	Mohr-Coulomb	120	310	0
	c=330	Mohr-Coulomb	120	330	0
	c=600 L	Mohr-Coulomb	122.5	800	0
	c=600 U	Mohr-Coulomb	122.5	600	0
	c=740	Mohr-Coulomb	122.5	740	0
	c=750	Mohr-Coulomb	122.5	750	0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 First Stage
October 2018

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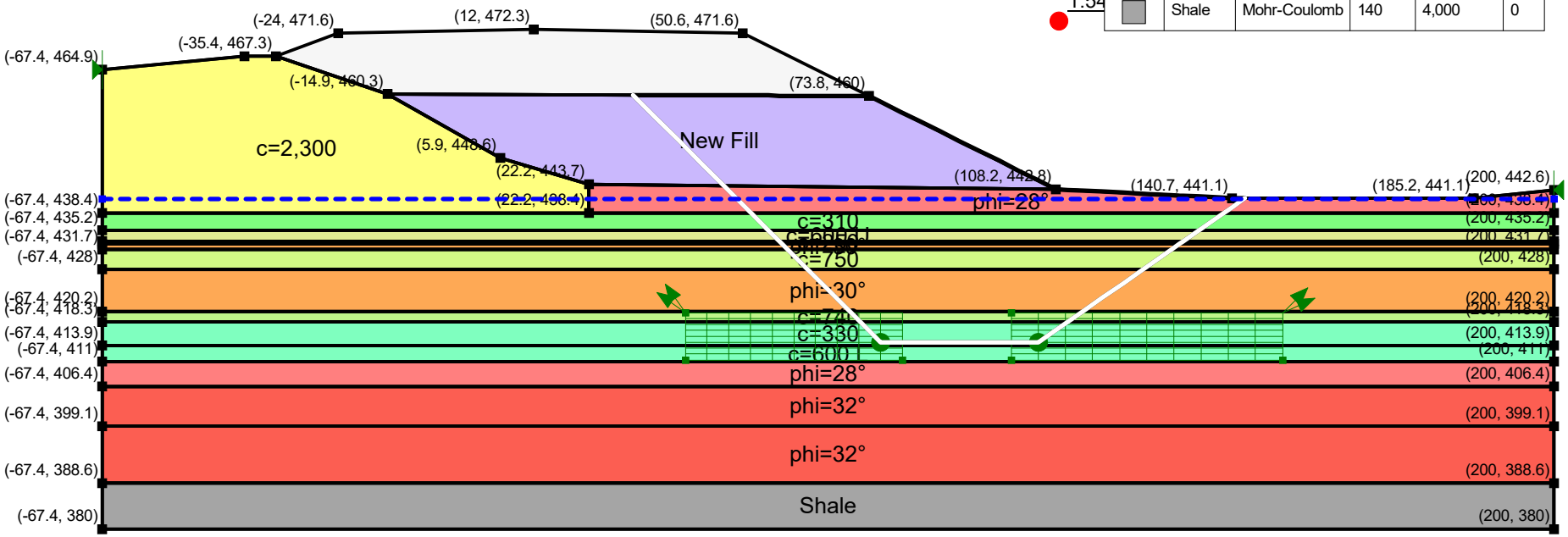
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=310	Mohr-Coulomb	120	310	0
	c=330	Mohr-Coulomb	120	330	0
	c=600 L	Mohr-Coulomb	122.5	800	0
	c=600 U	Mohr-Coulomb	122.5	600	0
	c=740	Mohr-Coulomb	122.5	740	0
	c=750	Mohr-Coulomb	122.5	750	0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 First Stage Lower Block
October 2018

HANSON

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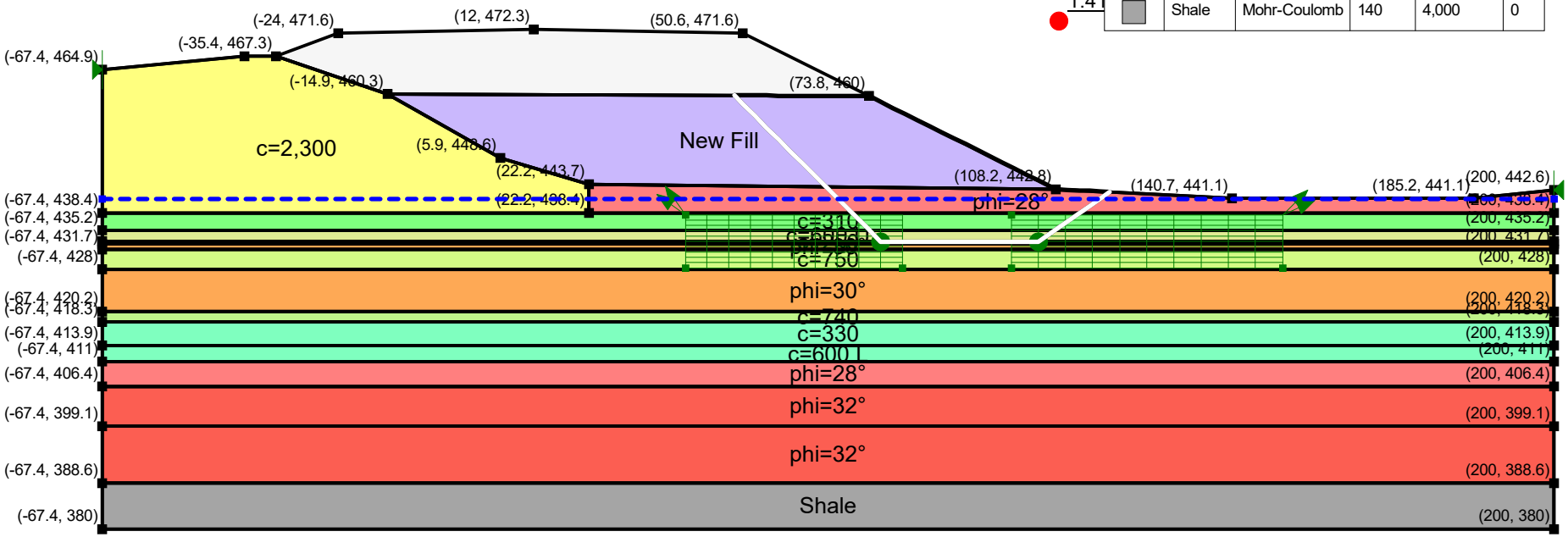
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=310	Mohr-Coulomb	120	310	0
	c=330	Mohr-Coulomb	120	330	0
	c=600 L	Mohr-Coulomb	122.5	800	0
	c=600 U	Mohr-Coulomb	122.5	600	0
	c=740	Mohr-Coulomb	122.5	740	0
	c=750	Mohr-Coulomb	122.5	750	0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 First Stage Upper Block
October 2018

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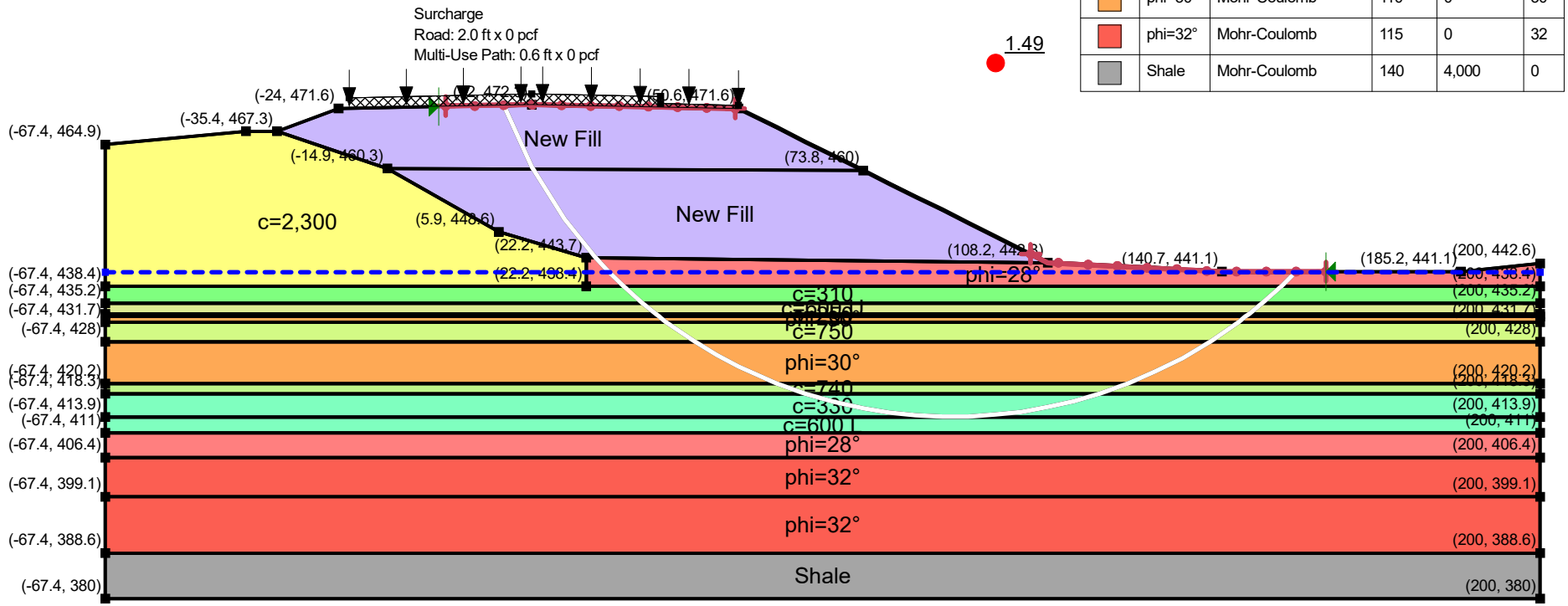
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Spatial Mohr-Coulomb	120		0
	c=310	Spatial Mohr-Coulomb	120		0
	c=330	Spatial Mohr-Coulomb	120		0
	c=600 L	Spatial Mohr-Coulomb	122.5		0
	c=600 U	Spatial Mohr-Coulomb	122.5		0
	c=740	Spatial Mohr-Coulomb	122.5		0
	c=750	Spatial Mohr-Coulomb	122.5		0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

Layer Consolidation %
250 99%
310 77%
330 45%
600 L 45%
600 U 99%
740 45%
750 99%



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Consol
October 2018

HANSON

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Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Spatial Mohr-Coulomb	120		0
	c=310	Spatial Mohr-Coulomb	120		0
	c=330	Spatial Mohr-Coulomb	120		0
	c=600 L	Spatial Mohr-Coulomb	122.5		0
	c=600 U	Spatial Mohr-Coulomb	122.5		0
	c=740	Spatial Mohr-Coulomb	122.5		0
	c=750	Spatial Mohr-Coulomb	122.5		0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

Layer Consolidation %
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600 L 45%
600 U 99%
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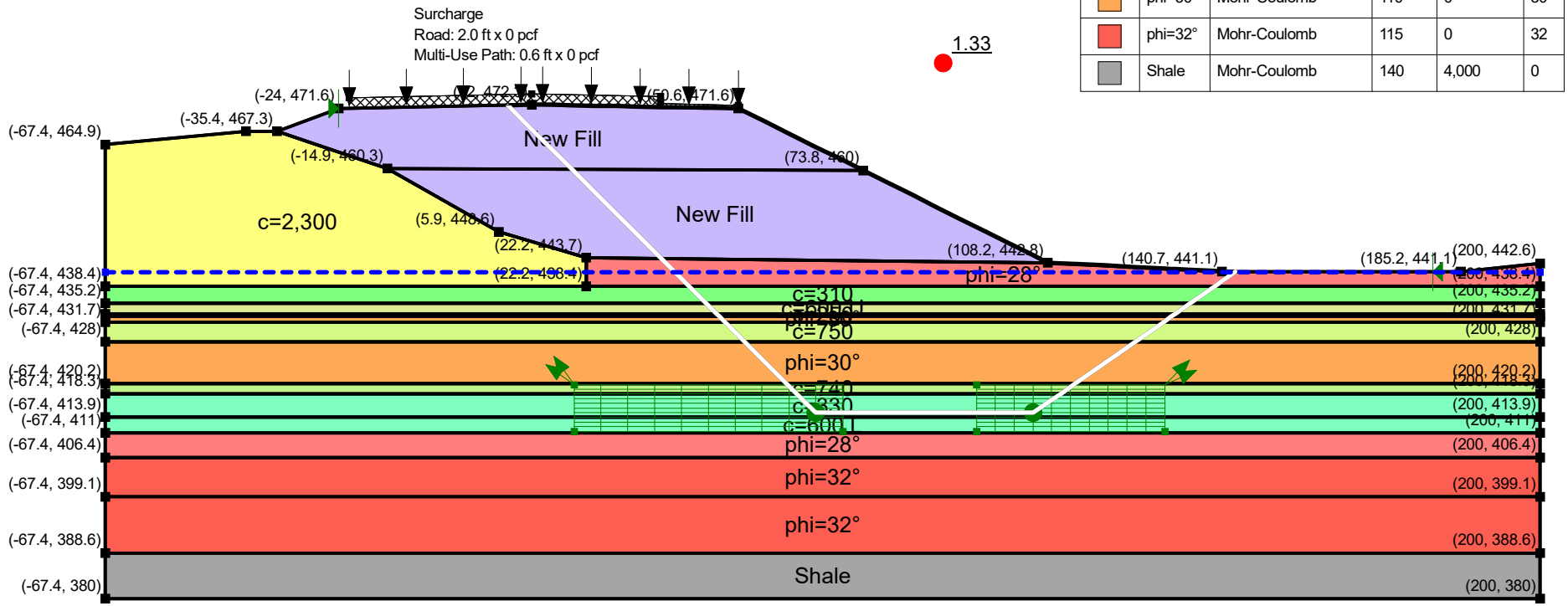
750 99%



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Consol. L. Block
October 2018

HANSON

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I:\13jobs\13H0106\Phase-I\Admin\13-Calculations\Geotechnical\Roadway Geotechnical Report\Slope\WEastApproachStabilityConsol.gsz Model: Sta 2157+06.8 Second Stage Consol. L. Block

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	c=250	Spatial Mohr-Coulomb	120		0
	c=310	Spatial Mohr-Coulomb	120		0
	c=330	Spatial Mohr-Coulomb	120		0
	c=600 L	Spatial Mohr-Coulomb	122.5		0
	c=600 U	Spatial Mohr-Coulomb	122.5		0
	c=740	Spatial Mohr-Coulomb	122.5		0
	c=750	Spatial Mohr-Coulomb	122.5		0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

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600 L 45%
600 U 99%
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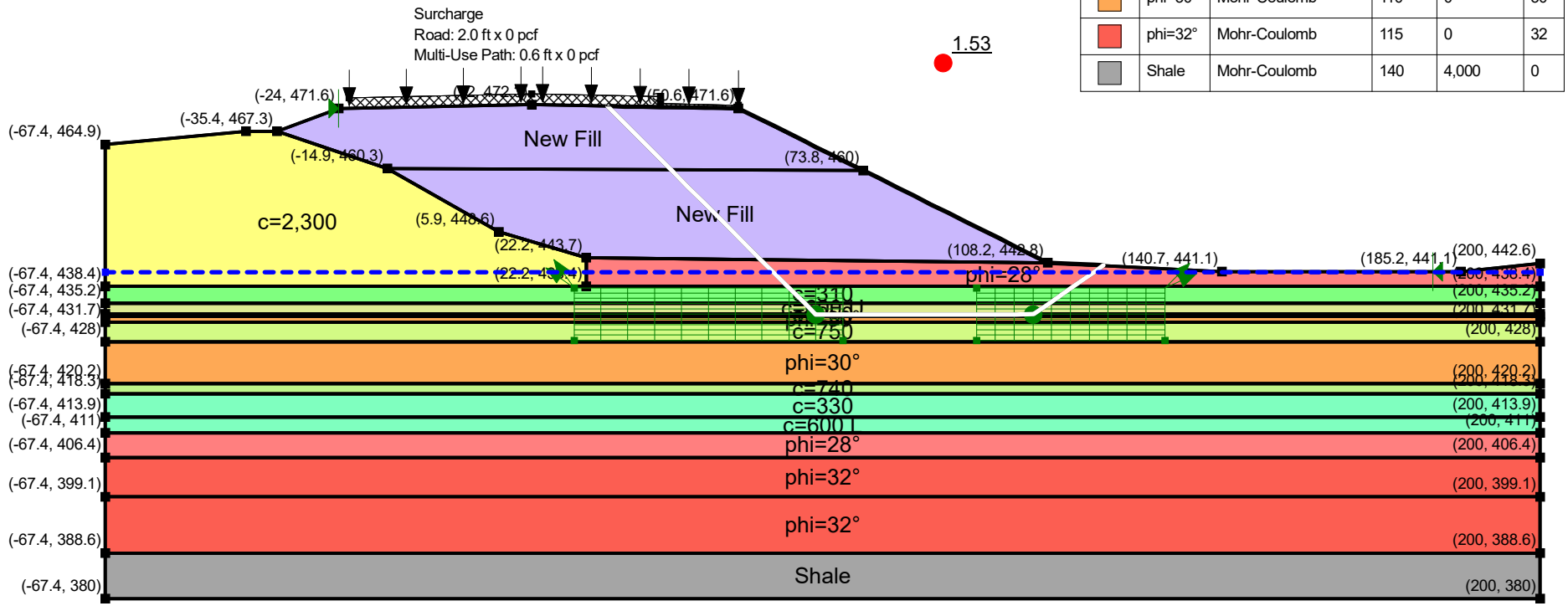

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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Consol. U. Block
October 2018

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Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
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	c=250	Spatial Mohr-Coulomb	120		0
	c=310	Spatial Mohr-Coulomb	120		0
	c=330	Spatial Mohr-Coulomb	120		0
	c=600 L	Spatial Mohr-Coulomb	122.5		0
	c=600 U	Spatial Mohr-Coulomb	122.5		0
	c=740	Spatial Mohr-Coulomb	122.5		0
	c=750	Spatial Mohr-Coulomb	122.5		0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

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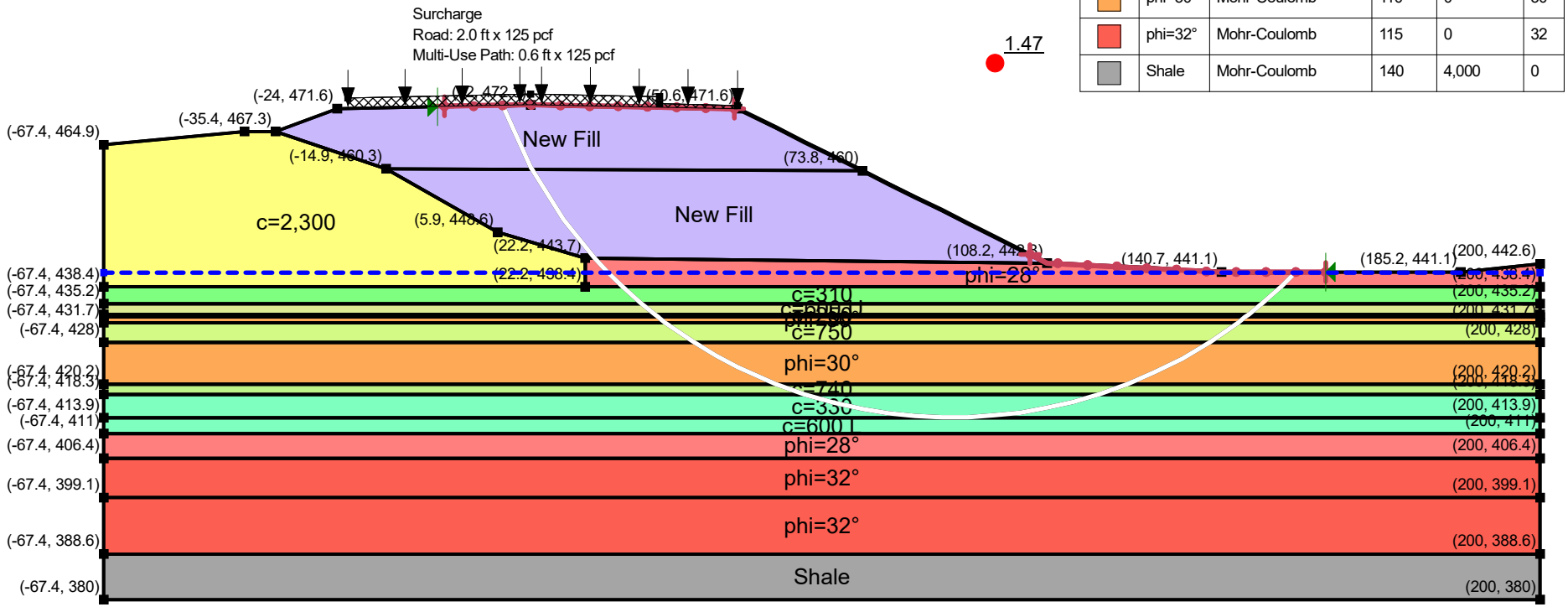
600 L 64%
600 U 99%
740 64%
750 99%



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Consol
October 2018

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Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Spatial Mohr-Coulomb	120		0
	c=310	Spatial Mohr-Coulomb	120		0
	c=330	Spatial Mohr-Coulomb	120		0
	c=600 L	Spatial Mohr-Coulomb	122.5		0
	c=600 U	Spatial Mohr-Coulomb	122.5		0
	c=740	Spatial Mohr-Coulomb	122.5		0
	c=750	Spatial Mohr-Coulomb	122.5		0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

Layer Consolidation %
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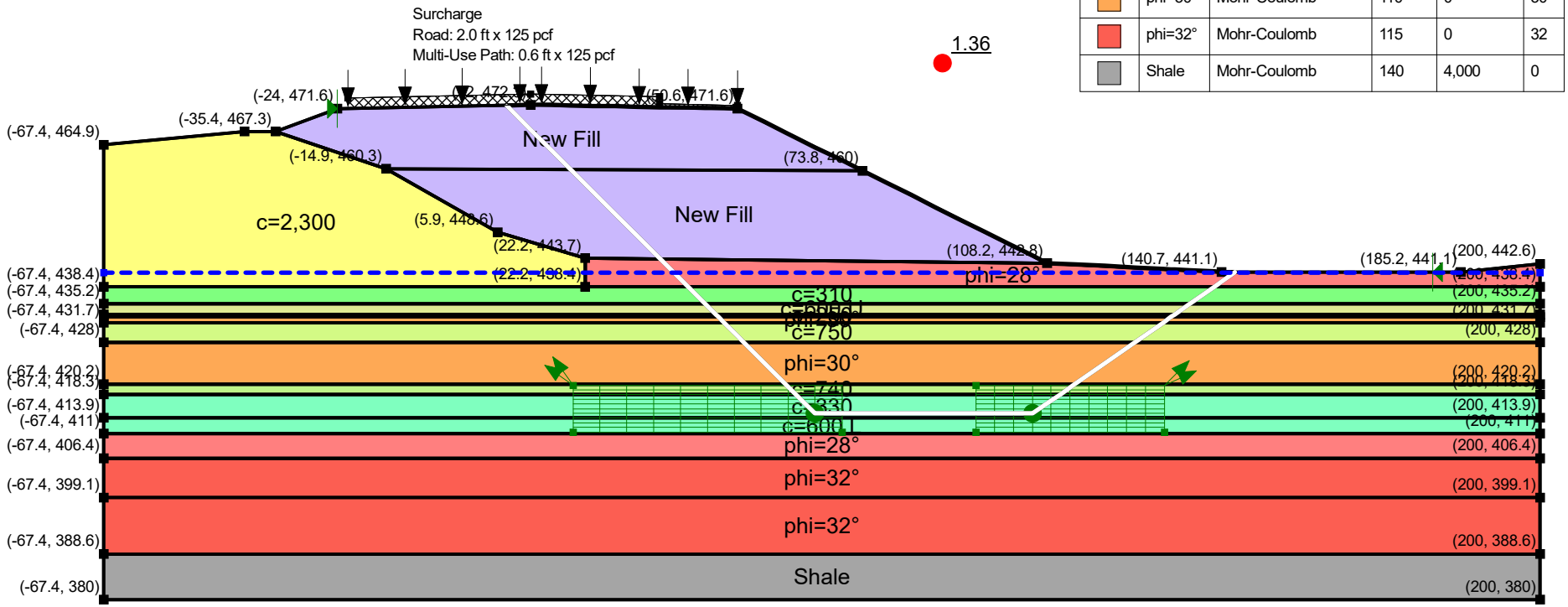
330 64%
600 L 64%
600 U 99%
740 64%
750 99%



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Consol. L. Block
October 2018

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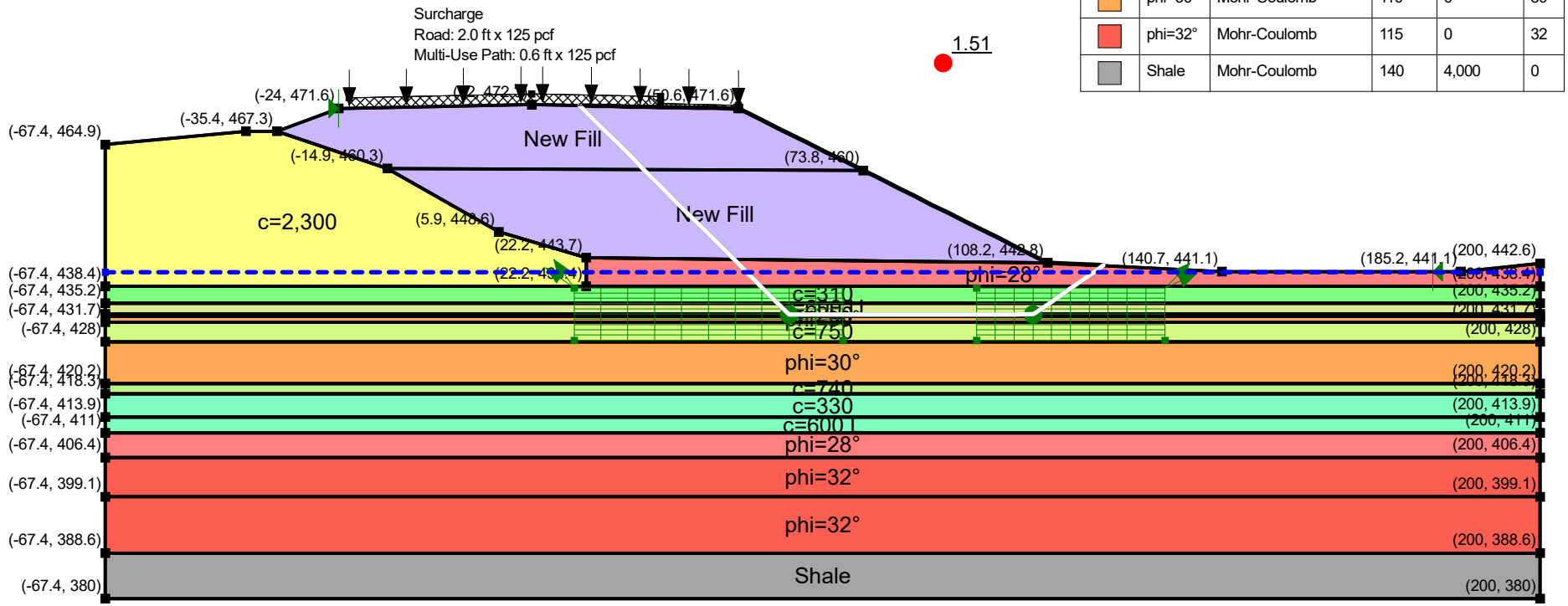
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Spatial Mohr-Coulomb	120		0
	c=310	Spatial Mohr-Coulomb	120		0
	c=330	Spatial Mohr-Coulomb	120		0
	c=600 L	Spatial Mohr-Coulomb	122.5		0
	c=600 U	Spatial Mohr-Coulomb	122.5		0
	c=740	Spatial Mohr-Coulomb	122.5		0
	c=750	Spatial Mohr-Coulomb	122.5		0
	New Fill	Mohr-Coulomb	122.5	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	phi=32°	Mohr-Coulomb	115	0	32
	Shale	Mohr-Coulomb	140	4,000	0

Layer Consolidation %
250 99%
310 94%
330 64%
600 L 64%
600 U 99%
740 64%
750 99%



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F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2157+06.8 Second Stage Consol. U. Block
October 2018

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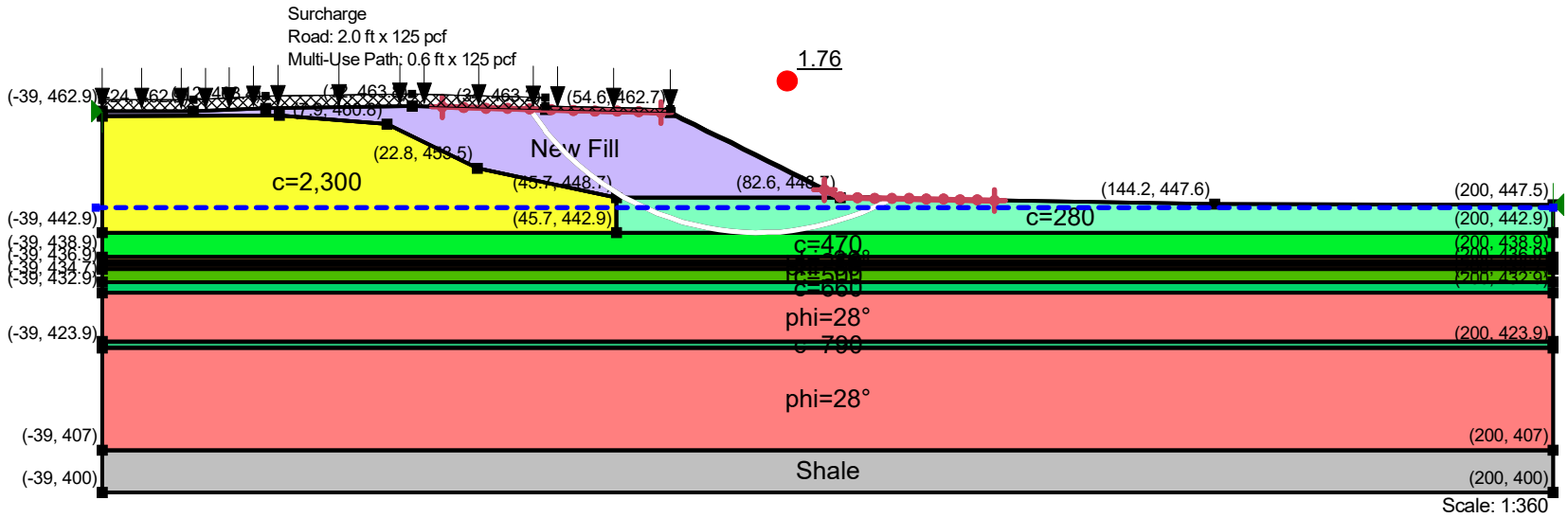
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=280	Mohr-Coulomb	120	280	0
	c=470	Mohr-Coulomb	120	470	0
	c=500	Mohr-Coulomb	122.5	500	0
	c=660	Mohr-Coulomb	122.5	660	0
	c=790	Mohr-Coulomb	122.5	790	0
	New Fill	Mohr-Coulomb	125	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	Shale	Mohr-Coulomb	140	4,000	0



F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2161+50
October 2018

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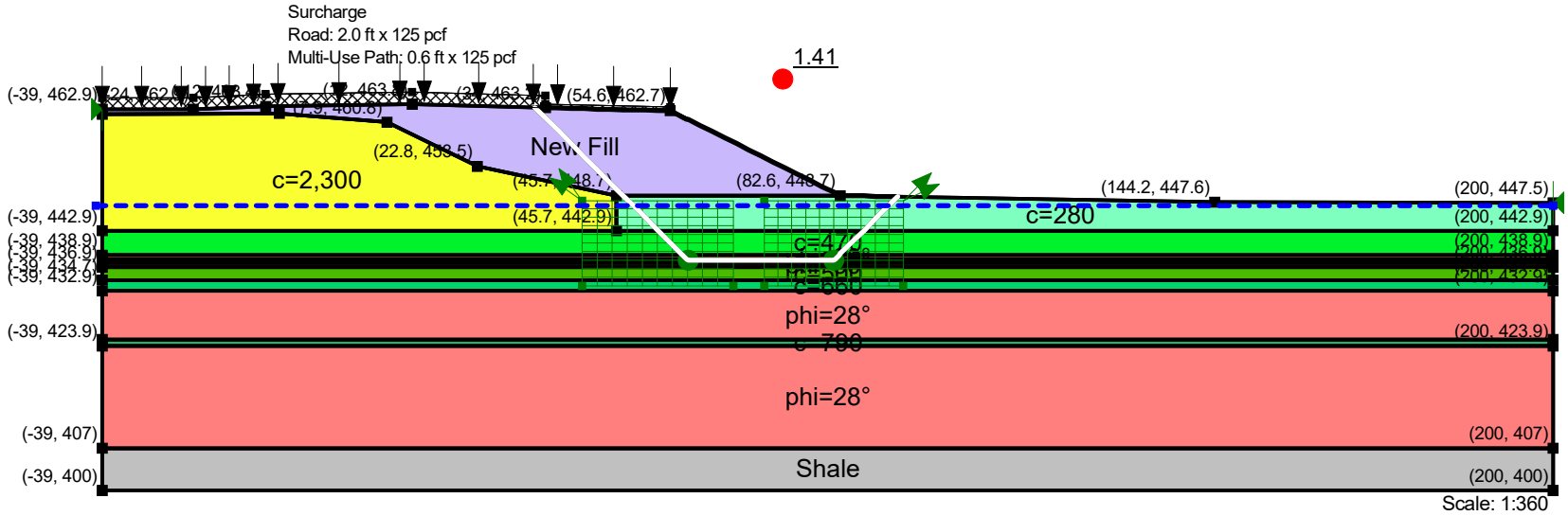
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	c=2,300	Mohr-Coulomb	125	2,300	0
	c=250	Mohr-Coulomb	120	250	0
	c=280	Mohr-Coulomb	120	280	0
	c=470	Mohr-Coulomb	120	470	0
	c=500	Mohr-Coulomb	122.5	500	0
	c=660	Mohr-Coulomb	122.5	660	0
	c=790	Mohr-Coulomb	122.5	790	0
	New Fill	Mohr-Coulomb	125	1,000	0
	phi=28°	Mohr-Coulomb	110	0	28
	phi=30°	Mohr-Coulomb	110	0	30
	Shale	Mohr-Coulomb	140	4,000	0



F.A.P. Route 317 (US 150)
Peoria & Tazewell Counties
Sta 2161+50 Block
October 2018

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Appendix D – Special Provisions

WICK DRAINS

Description: This work shall consist of all labor, materials, equipment and services necessary to complete the wick drain installation according to the details and dimensions shown on the plans, this specification, and as directed by the Engineer.

Submittals:

Within two weeks of the preconstruction meeting, the Contractor shall submit to the Engineer the following for review:

1. Details of the equipment, sequence, and method of installation.
2. Wick Drain samples indicating the source of the materials.
3. List of a minimum of three projects of similar size and scope, where the same type of wick drains were installed, including details of the performance on those projects.
4. Manufacturer's literature documenting the physical and mechanical properties of the wick drains recommended, including a letter of certification from the manufacturer documenting test results indicating that the required wick drain materials are in accordance with this specification.

Four weeks prior to installation, the Contractor shall submit the wick drain detailed drawings to the Engineer for review. The detailed plans shall indicate the wick drain layout and spacing, within the limits as shown on the plans and tied to the roadway alignment baseline. Top and bottom elevations of the wick drains shall also be listed on the plan.

At the end of each working day, the Contractor shall supply a daily summary of the wick drain installation. The summary shall include the drain type, locations, and quantity, (i.e. length to the nearest 4 inches). In addition, the documentation shall include any field adjustments, and splicing information at each location.

Materials: The materials used for construction of the wick drains shall satisfy the following requirements:

1. Wick drains shall be of newly-manufactured materials and shall consist of a core enclosed in, or integrated with, a jacket. The jacket shall allow free passage of pore water to the core without loss of soil material or piping. The core shall provide continuous vertical draining
2. The wick drains shall be a pre-fabricated band-shaped drain with an aspect ratio (width divided by thickness) not exceeding 50.
3. The jacket material shall be a synthetic non-woven geotextile capable of resisting all bending, punching, and tensile forces imposed during installation and during the design life of the wick drain, including localized damage (e.g. punching through the filter by sand/gravel particles).
4. The jacket shall be sufficiently rigid to withstand lateral earth pressures due to embedment and surcharge so that the vertical flow capacity through the core will not be adversely affected.
5. The jacket shall be sufficiently flexible to bend smoothly during installation and induced consolidation settlement without damage.
6. The jacket shall not undergo cracking and peeling during installation of the wick drain.

7. The jacket shall conform to the following additional criteria:

Test Property	Test Method	Minimum Value*
Grab Tensile Strength	ASTM D4632	80 lbs.
Trapezoidal Tear	ASTM D4533	25 lbs.
Puncture Strength	ASTM D4833	50 lbs.
Mullen Burst Strength	ASTM D3786	130 psi

* The jacket material shall be tested in saturated and dry conditions. These requirements apply to the lower of the two tested conditions.

These criteria must be demonstrated by manufacturer's test results and a letter of certification, as requested under the submittals section above.

The core shall be a continuous plastic material fabricated to promote drainage along the axis of the vertical wick drain.

Assembly:

The mechanical properties (strength and modulus) of the assembled wick drain shall be equal or exceed those specified for the jacket and core.

The assembled wick drain shall be resistant against wet rot, mildew, bacterial action, insects, salts in the groundwater, acids, alkalis, solvents, and any other significant ingredients in the site groundwater.

One single type of assembled wick drain should be used on the project unless otherwise directed by the Engineer.

The assembled wick drain shall have a minimum equivalent diameter of 2.1 inches using the following definition of equivalent diameter:

$D_W = (A + B)/2$
D_W = diameter of a circular drain equivalent to the band shaped drain
A = width of a band shaped drain
B = thickness of a band shaped drain

Protection of Materials: During shipment and on-site storage, the wick drain shall be wrapped in heavy paper, burlap, or similar protective covering and protected from sunlight, mud, dirt, dust, debris, or other detrimental substances until installation.

Installation: Wick drains shall be installed with approved modern equipment, which will minimize disturbance of the subsoil during installation. The wick installation rig shall utilize either vibratory or static push methods. Installation shall be in accordance with the following procedure:

Wick drains shall be staked out by the Contractor. The locations of the wick drains shall not vary by more than 6-inches from the locations on the drawings, as specified, or as directed by the Engineer. Wick drains that are out of their proper location by more than 6 inches, are damaged during installation, or are improperly completed, will be abandoned in-place and no compensation will be allowed for any material furnished or for work performed on such wick drains.

The Engineer may vary the depths, spacing, or the number of wick drains to be installed, and may revise the plan limits for this work, as necessary.

The drainage wick shall be installed using a mandrel or sleeve that is continuously vibrated or statically pushed into the soil. The sleeve shall protect the wick material from tears, cuts, or abrasion during installation, and shall be retracted after each drainage wick is installed. The sleeve shall be rhombic or rectangular in shape, and of a cross-sectional area not to exceed 10 square inches. To minimize disturbance to the subsoil, the sleeve shall not be advanced into the subsoil using impact methods. In no case will alternate raising and lowering of the mandrel be permitted. Raising of the mandrel will only be permitted after completion of a wick drain installation. The equipment must be carefully checked for plumbness prior to advancing each wick, and must not deviate more than one inch per five feet from vertical.

Wick drains shall completely penetrate the compressible soft to stiff clay overburden at the site.

The Contractor is permitted to use augering or other methods to loosen stiff upper fill soils, such as existing pavement fragments or granular sub-bases, prior to wick drain installation. No additional compensation will be made for augering or loosening of the existing fill soils.

Where obstructions other than existing pavement fragments or existing granular sub-bases are encountered below the working surface, which cannot easily be removed or penetrated using normal and accepted procedures, the Contractor shall complete the wick drain from the elevation of the obstruction to the working surface and notify the Engineer immediately.

Splices or connections of wick drain material shall be done by stapling in a workman-like manner so as to assure structural and hydraulic continuity of the wick drain. The jacket and core shall be overlapped a minimum of 6-inches at any splice. A maximum of one splice per drain installed will be permitted, unless otherwise directed by the Engineer.

The installed wick drains shall be neatly cut at its upper end at the working surface at each drain location.

Quality Assurance:

Prior to the installation of wick drains within the designated areas, the Contractor shall demonstrate his equipment, methods, and materials, to produce a satisfactory installation in accordance with these specifications. For this purpose, the Contractor shall install 6 trial wick drains totaling approximately 240 linear feet at locations designated by the Engineer. Payment will be made at the bid price per linear foot for wick drains. Payment will not be made for unsatisfactory trial wick drains.

Approval by the Engineer of the method and equipment to install the trial wicks shall not necessarily constitute acceptance of the means and methods for the remainder of the project. If, at any time, the Engineer considers that the method of installation does not produce a satisfactory wick, the Contractor shall alter his method and/or equipment as necessary to comply with these specifications.

Wick drain materials shall be labeled or tagged in such a manner that the information for sample identification and other quality control purposes can be read. As a minimum, each roll shall be identified by the manufacturer as to lot or control numbers, individual roll number, date of manufacture, manufacturer and product identification of the jacket and core.

The Contractor shall provide the Engineer with suitable means of making a linear determination of the quantity of wick material used in each wick location. During installation, the Contractor shall provide suitable means of determining the depths of the wick drains at any given time.

Measurement of Quantities: Wick drains will be measured for payment in feet in-place for the full length of wick drain complete and in-place. Wick drains that are out of the proper location by more than 6 inches, or wick drains that are damaged in construction, or wick drains that are improperly completed will not be measured for payment, and no compensation will be allowed for any material furnished, or for work performed on such wick drains.

Basis of Payment: This work will be paid for at the contract unit price per foot for WICK DRAINS. The prices shall be full compensation for the cost of furnishing the full length of wick drain material, installing the wick drains, altering of the equipment and methods of installation in order to produce the required end result and shall also include the cost of furnishing all tools, materials, labor, equipment, services and all other costs necessary to complete the required work.

No direct payment will be made for unacceptable wick drains or for any delays or expenses incurred through change necessitated by improper or unacceptable material or equipment, but the costs of such shall be included in the Unit Prices bid for this work. No additional compensation will be allowed for the cost of constructing any work platform to provide stability for the wick drain installation equipment and to allow movement of the wick drain installation equipment across the site.

STAGED EMBANKMENT CONSTRUCTION

Design analyses predict large settlements and slope instability for the proposed embankment at the eastern approach to the Illinois River Bridge. Staged embankment construction is required to allow subgrade soil consolidation and strength gain before fill is placed to its maximum height. The restrictions in this special provision shall apply to the proposed US 150 EB embankment between the Illinois River and Sta. 2162+00.

Construction Requirements: Install settlement platforms and settlement monitoring points in accordance with the Settlement Platforms special provision before placing any embankment fill. Survey and record initial readings on these devices. Contractor and Engineer shall perform visual inspection of adjacent EB US 150 pavement, bridge approach slab, and bridge abutment. Document any signs of prior detrimental settlement for comparison to future inspections.

First Stage

Place sand drainage blanket and wick drains. Begin settlement monitoring program and take readings at the intervals defined in the special provisions throughout the remainder of the construction period. Place embankment fill up to Elev. 460.00 as shown on the plans.

Suspend further embankment construction while waiting for consolidation and strength gain. Waiting period shall continue for no less than 90 calendar days with wick drains installed per plans or 110 days without wick drains installed and until 73% consolidation of the subgrade soil layers at Sta. 2157+45 has been attained. The other settlement platforms shall be monitored and recorded, without enforcement of any settlement criteria during this stage.

The estimated settlements at the end of the first stage waiting period are provided in the following table. Estimated times, in days, for 50% and 90% settlement at each of the settlement platforms are provided in the table.

First Stage Estimated Settlements

Location	Total Settlement (U=100%)	End of Stage Settlement	With Wicks		No Wicks	
			t_{50}	t_{90}	t_{50}	t_{90}
Sta. 2157+45, 35’ RT	7.4 in	5.4 in	24	260	27	350
Sta. 2158+50, 12’ RT	3.8 in	2.6 in	35	220	44	300
Sta. 2161+50, 40’ RT	2.9 in	2.7 in	12	80	13	90

After waiting period, complete verification boring to confirm strength gain of native soil. Construction of embankment may resume upon approval of verification boring results by Engineer.

Second Stage

Place embankment fill up to bottom of pavement. Wait for settlement rate to taper off to tolerable levels before placing final pavement. Settlement times in table below are from completion of second stage embankment, assuming second stage is completed between 250 and 140 days after first stage.

Total Estimated Settlements

Location	Total Settlement (U=100%)	With Wicks		No Wicks	
		t_{90}	t_{95}	t_{90}	t_{95}
Sta. 2157+45, 35’ RT	12.0 in	160 - 200	290 - 340	250 - 290	440 - 480
Sta. 2158+50, 12’ RT	7.3 in	240 - 260	370 - 390	240 - 260	370 - 390
Sta. 2161+50, 40’ RT	4.4 in	26 - 35	52 - 63	44 - 47	80 - 85

Bridge abutment and temporary pavement may be constructed before second stage settlement period is complete.

Basis of Payment: This work will not be measured or paid for separately, but shall be considered as included in the unit prices for other related items.

SETTLEMENT PLATFORMS

Settlement platforms shall be erected at the locations listed below. The settlement platforms shall be constructed according to the details in the plans and Section 204 of the Standard Specifications.

Settlement Platforms

#1 Sta. 2157+45, 35’ RT
#2 Sta. 2158+50, 12’ RT
#3 Sta. 2161+50, 40’ RT

Settlement monitoring points shall be marked or attached to the existing bridge at the locations listed below.

Settlement Monitoring Points

A	Sta. 2157+06, 35’ LT	Back side of bridge approach parapet at bridge abutment
B	Sta. 2157+36, 35’ LT	Top of bridge approach slab

Settlement readings will be taken by the Engineer on a weekly basis.

Basis of Payment: This work will be paid for at the contract unit price per each for SETTLEMENT PLATFORMS complete in place and includes all labor, material and equipment necessary to complete the work.

Settlement monitoring points will not be measured for payment, but will be considered included in this work.

SOIL SAMPLING AND TESTING

Description: This work shall consist of all labor, materials, equipment and services necessary to collect subsurface soil samples and perform geotechnical testing on the samples. The tests are intended to provide verification of soil strength gain after settlement of the first stage of embankment.

Prequalification: This work shall be performed by a subcontractor or engineering consultant with prequalification in Subsurface Explorations and/or Geotechnical Services – General Geotechnical Services. Prequalification shall be based on the current List of Prequalified Engineering Consultant Firms as published by the IDOT Bureau of Design and Environment.

Construction Requirements: Drilling, sampling, laboratory testing, and reporting shall be in accordance with the IDOT Geotechnical Manual.

A soil test boring shall be drilled through the first stage of the proposed embankment after the settlement period has completed. Boring shall be located within 10 feet of the location shown on the plans. Contractor shall adjust location to avoid interference with installed wick drains and survey as-drilled location for station, offset and ground elevation.

Borings shall be advanced using auger or rotary techniques. Standard Penetration Test (AASHTO T 206) samples shall be performed at 2.5 feet intervals between the embankment surface and the bottom of the sand drainage blanket. 3 inch diameter Shelby tubes (AASHTO T 207) shall be collected continuously (at 2 feet intervals) between the bottom of the sand drainage layer and Elev. 410.

Testing shall consist of:

- Rimac unconfined compressive strength tests and natural moisture content (Illinois Modified AASHTO T 265) on all SPT samples
- Unconfined compression test (AASHTO T 208) on representative samples from Shelby Tubes with a minimum of 2 tests per Shelby Tube
- Natural moisture content (Illinois Modified AASHTO T 285) at 6 inch intervals from Shelby Tube samples

Final boring log shall be prepared using IDOT BBS Form 137 or equal. Shelby Tube Test Results shall be reported on Form BMPR SL24 or equal.

Submittals: Submit final, typed boring log and lab test report no later than 10 days after completion of boring.

Basis of Payment: The work under this special provision will be paid for at the contract unit price per each for SOIL SAMPLING AND TESTING. Each will be defined as a single soil boring of the depth indicated, including all drilling, sampling, testing, and reporting.