

APPROVED

MAS 11-5-2019

ROADWAY GEOTECHNICAL REPORT

County Highway 9 over Interstate 80

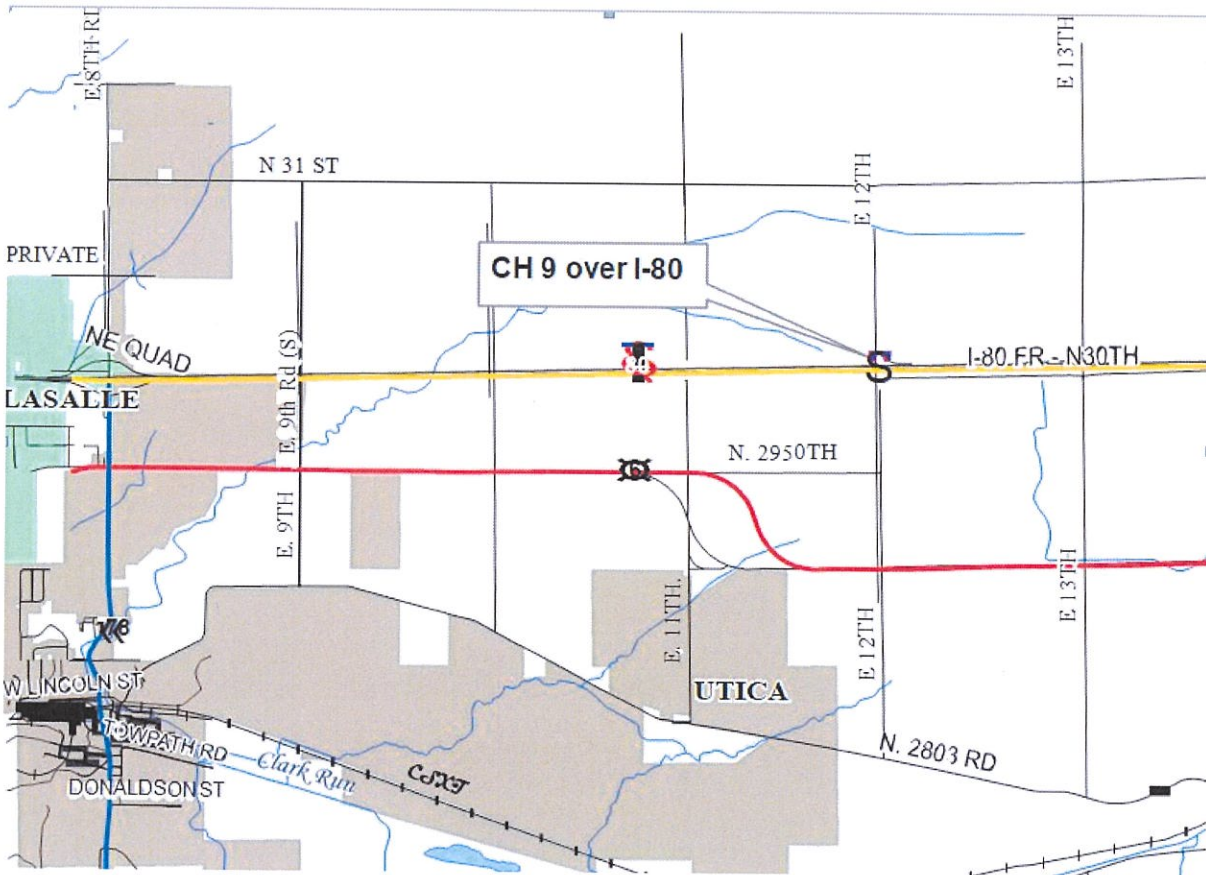
FAI 80 (I-80)

Section (50-3)HBR-3

La Salle County

P-93-042-04

Contract 66C59



Prepared by: Terry McCleary; McCleary Engineering; (815)-780-8486;
Terry@McClearyEngineering.com

October 20, 2019

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County Highway 9 over Interstate 80

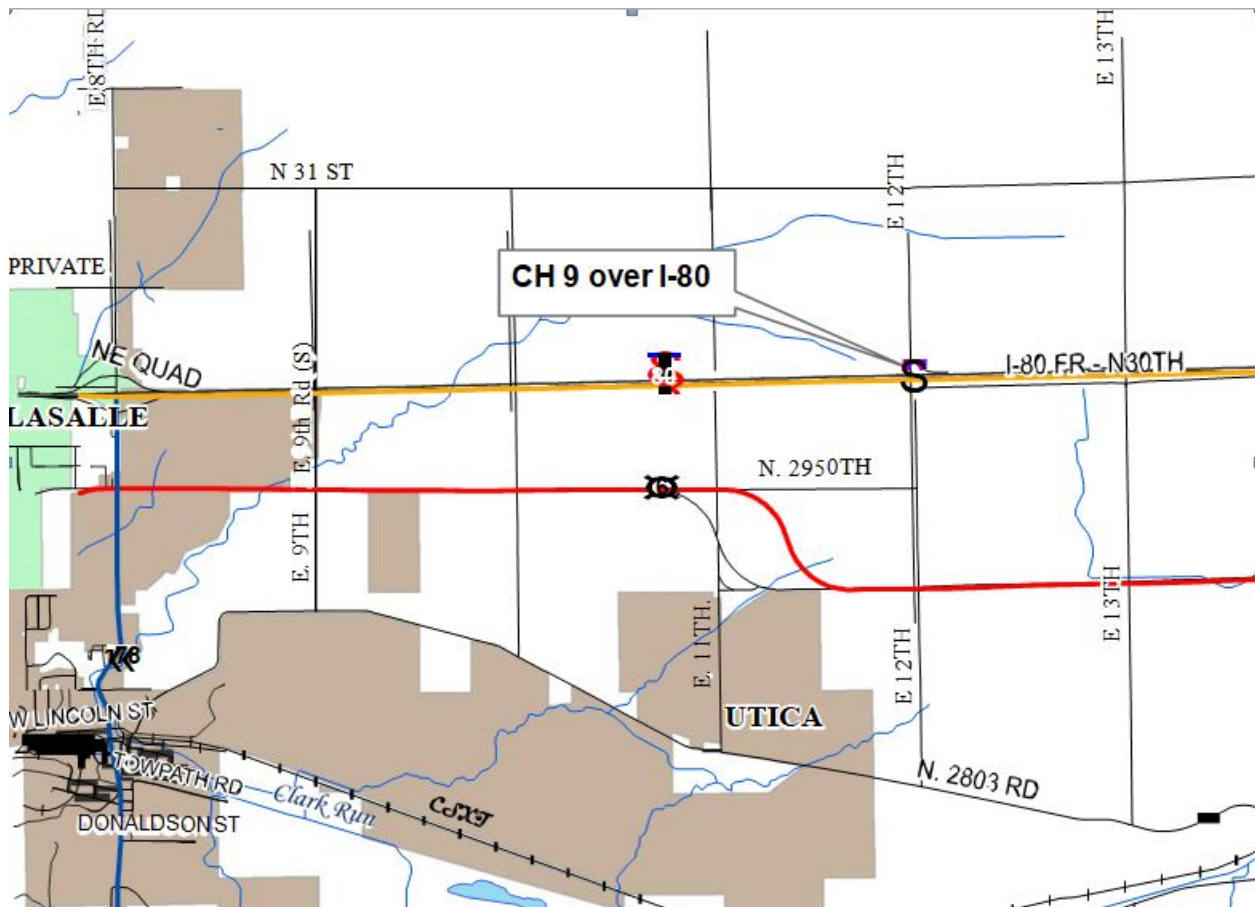
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I. General Information

A. Project Location and Existing Conditions

The proposed project is located where County Highway 9 (CH 9) crosses over interstate 80, approximately 4.0 miles east of IL 178. The approach roadway of CH 9 consists of two 11 ft. hot mix asphalt surfaced lanes over an aggregate base. There is one frontage road/service drive (FR 12.20) north of the interstate and 1 township road (TR 289/N 30th Road) south of the interstate. The north service drive is a 14 ft. wide gravel surface private entrance to a residence; the southern township road is an 18 ft. wide tar and chip surface road. A project Location Map is provided in Appendix A. Existing and proposed typical sections are provided in Appendix B.

B. Project Description and Scope

The proposed project includes the removal and replacement of SN 050-0081, carrying County Highway 9 over interstate 80, approximately 4.0 miles east of IL 178, and the associated approach roadway work required to match the longer structure on an improved alignment. The horizontal alignment will be shifted up to 15 ft. east to accommodate a building and the profile will be raised up to 10 ft. to allow for structure improvements. Approximately 2450 ft. of CH 9 will be improved to provide two 11 ft. HMA lanes with 4 ft. aggregate shoulders. The frontage road and township road, north and south of the interstate (respectively) will be improved to connect with CH 9. The frontage road and the township road will be improved to 16 ft. wide and 18 ft. wide (respectively) with an A-3 bituminous surface. A plan and profile of the improvement is in Appendix C. A separate structural geotechnical report has been prepared for the proposed structure.

The approach roadway will be reconstructed within the construction limits and the guardrail will be removed and replaced at all quadrants. In addition, the proposed CH 9 pavement design includes removing the existing pavement and constructing 12 inches of improved aggregate subgrade and 6 inches of Hot Mix Asphalt with aggregate shoulders. See existing and proposed typical sections in Appendix B. The soil profile is provided in Appendix D.

C. Geology and Soil Characteristics

The project area lies within the northern portion of the Bloomington Ridged Plain Physiographic Division of the Till Plains Section of the Central Lowlands Province near the Farm Ridge end moraine. This is an area of poor drainage, flat topography, and is predominantly Silty Loams and Silty Clay Loams materials. The surface geology in this division is characterized as orthents, loamy, and undulating. The soils generally consist of silty clay loam till as shown on the roadway soil boring logs included in Appendix E. An NRCS Soil Survey for the site was

developed and shows/ Silty Clay Loams and Silt Loams as the predominant soils in the area. This survey is also included at the end of Appendix D.

The bedrock geology in the general project area consists of Carbondale and Ancell formations which includes shale with sandstone, limestone, and coal and clay deposits. The 2011 structure borings 01 and 02 both hit an assumed rock surface at a depth of 62.5 ft. Boring 03 (2011) hit light gray shale at a depth of 50 ft. None of the 1961 borings (Borings 1 through 5) hit bedrock. As illustrated on the structure borings, the bedrock was not encountered and therefore is not expected to impact the roadway reconstruction portion of CH 9 or any associated drainage facilities. The Structure boring logs are shown in Appendix F.

II. Subsurface Exploration

A. Field Exploration

Three roadway soil borings were taken January 16, 2019, June 14, 2019 and July 18, 2019. The previous three months to the January boring (October 2018 – December 2018) had a below average precipitation shown on Table 1. The previous three months to the June boring (March 2019 – May 2019) had an above average precipitation shown on Table 1. The previous three months to the July boring (April 2019 – June 2019) had an above average precipitation shown on Table 1. The groundwater table was not encountered on any of the roadway soil borings; however, structure borings encountered groundwater ranging from elevation 627.9 to 628.6.

Year	Month	Observed Precipitation ¹ (in.)	Normal Precipitation ² (in.)	Departure from Normal (+/- in.)
2018	October	3.26	2.8	0.46
	November	1.1	2.95	-1.85
	December	1.74	2.13	-0.39
TOTAL		6.10	7.88	-1.78
2019	March	2.65	2.44	0.21
	April	3.97	3.23	0.74
	May	9.92	4.09	5.83
TOTAL		16.54	9.76	6.78
2019	April	3.97	3.23	0.74
	May	9.92	4.09	5.83
	June	4.91	3.98	0.93
TOTAL		18.8	11.3	7.5

¹Precipitation data for Ottawa, Illinois (US Climate Data (www.usclimatedata.com)

Table 1: Comparison of Actual (Observed) and Historical (Normal) Precipitation

The three roadway borings were taken to determine the depth and characteristics of the soils along the proposed roadway improvement. Three borings were taken with a truck mounted drill rig using a three-foot split spoon sampler driven by a CME automatic SPT hammer.

As mentioned before, the roadway soil borings and structure borings are located in Appendix E and Appendix F, respectively.

Soil samples were logged for the type of soil, and the unconfined compressive strength (Q_u) was determined using a pocket penetrometer (pp reading). Selected samples were also taken to the laboratory to analyze index properties such as moisture content, particle size, and Atterberg limits.

B. Laboratory Testing and Classification of Soil

Moisture content determination was performed for each sample according to Illinois Modified AASHTO T 265 and is indicated on the soil boring logs. Grain size analysis including sieve analysis and hydrometer analysis were performed for soil classification. The combined results of these two tests are reported graphically on a particle size distribution and summarized in a table with Atterberg limits and plasticity index values as shown in Appendix G. The results from this analysis were used to classify each soil samples using the Illinois Division of Highways (IDH) Textural Classification Chart illustrated at the end of Appendix G.

III. Geotechnical Analysis and Recommendations

A. Embankment Subgrade

Any existing soils that are unsuitable and unstable should be removed and disposed of per Section 202 in the IDOT Standard Specifications. In addition, unsuitable topsoil with roots and organic materials within the subgrade zone should be removed to a depth between 12 in. and 36 in. below the bottom of the proposed pavement.

The fill material for the embankment is not known at this time. However, the following requirements must be met:

1. Standard Dry Density (SSD) shall not be less than 90 lb/cu ft (1450 kg/cu m) according to Illinois Modified AASHTO T 99 (Method C).
2. Moisture Content shall be a minimum of 90 percent and no more than 110 percent of the proctor optimum content according to Illinois Modified AASHTO T 99.
3. Organic Content shall not exceed 10 percent according to AASHTO T 194.
4. Percent of silt and fine sand shall not exceed 65 percent according to AASHTO T 88.
5. Plasticity Index (PI) shall be 12 percent or more according to AASHTO T 90.
6. Liquid Limit (LL) shall be 50 percent or less according to AASHTO T 89.

Earth material not meeting requirements 3, 5, and 6 may be used in the core of an embankment. These restricted soils shall be capped or covered with at least thirty six inches of material meeting the requirements above. The special provisions for "Embankment" and "Borrow and Furnished Excavation" are provided in Appendix H and should be added to the contract documents.

B. Frost Susceptibility

Based on the soil boring logs, the water table elevation is deep enough that no capillary rise is anticipated within the depth of frost penetration (42 in.) below the proposed pavement. The particle size distributions indicate that each soil samples contain less than 65 percent silt and fine sand, and the plasticity index (PI) for all the samples is slightly greater than 12. Therefore,

none of soils are frost susceptible based on the Department's criteria to determine frost susceptibility.

C. Pavement Design Soil Parameters (SSR and IBR)

All but one of the samples, based on a particle size analysis, fall within the "fair" category of the Subgrade Support Rating (SSR) Chart as shown in Appendix I. However, a Subgrade Support Rating of "poor" is recommended because the Borrow Source is not known at this time.

The approximate Illinois Bearing Ratio (IBR) for a project soil may be estimated from Table 6.3.1-1 from the Geotechnical Manual. For the initial pavement design using Modified AASHTO procedure, an IBR value of 3 is recommended in correlation to the dominant A-6 soil classification encountered on the subgrade along CH 9.

D. Subgrade Improvement

The project proposes a 12 inch aggregate subgrade improvement for CH 9, and an 8 inch aggregate base for N 30th Road and FR 12.20. During construction, Dynamic Cone Penetrometer (DCP) tests should be conducted to determine whether or not additional depth of improved subgrade is warranted. The District Geotechnical Engineer should be contacted to inspect the subgrade and review the DCP test results for verification.

It is important that the finished subgrade does not exhibit more than 0.5 inches of rutting upon inspection. Field moisture should be controlled to provide proper compaction and achieve adequate short-term and long-term subgrade stability. No additional improvements are warranted in addition to the proposed 12 inch and 8 inch subgrade improvements shown in the typical sections at this time.

Refer to the excavation requirements shown in Section 204 of the IDOT Standard Specifications. This section should be able to address or minimize potential subgrade stability problems during construction.

E. Settlement and Slope Stability Analysis

All but one of the soil samples taken have moisture contents less than 25 percent accompanied with high unconfined compressive strength (Q_u) values ranging from 4 to 6 tons per square foot (tsf). Based on the proposed profile, it is estimated that up to 10 feet of fill material will be added to the embankment widening near the bridge abutments with 3:1 side slopes. Existing conditions indicate no significant settlement at the approach embankments. In addition, the SGR author has also determined that settlement is minor.

A side slope stability analysis was performed by the SGR author for the worst case using +/- ten feet of embankment fill. The calculated factor of safety (FOS) was 1.573. Therefore, the addition of fill material on the approach embankments is not expected to cause slope stability problems. A copy of the analysis is in Appendix J.

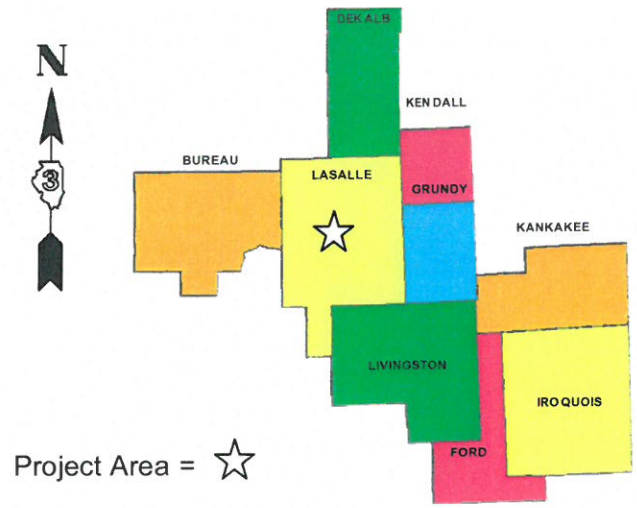
Appendix A

Project Location Map

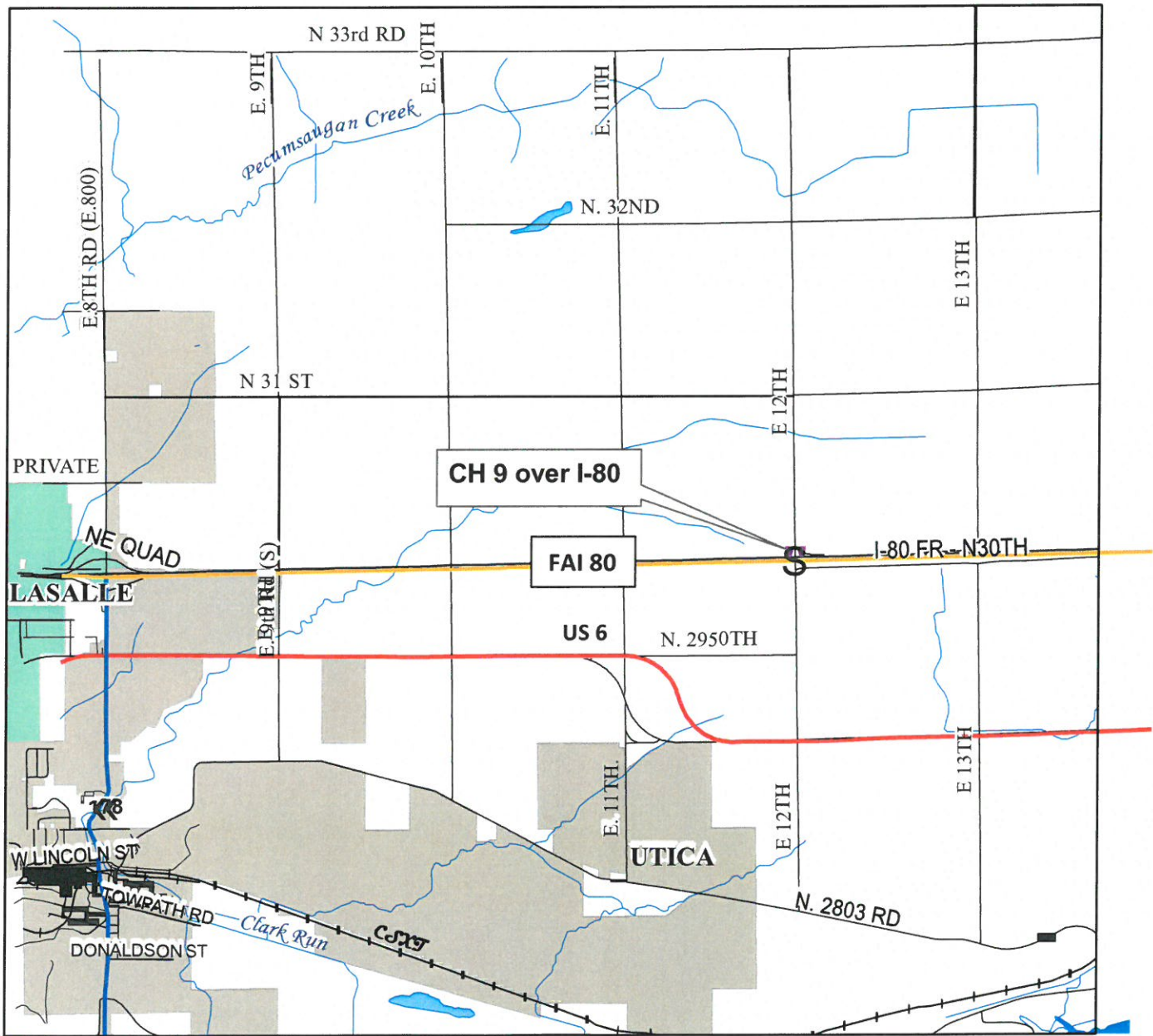
Project Location Map

FAI Route 80 (I-80)
 Section (50-3)HBR-3
 LaSalle County
 Structure Replacement (SN 050-0081)
 CH 9 Over I-80, 4 Miles East of IL 178
 Contract No. 66C59

Project includes replacement of structure, approaches, and frontage road connectors

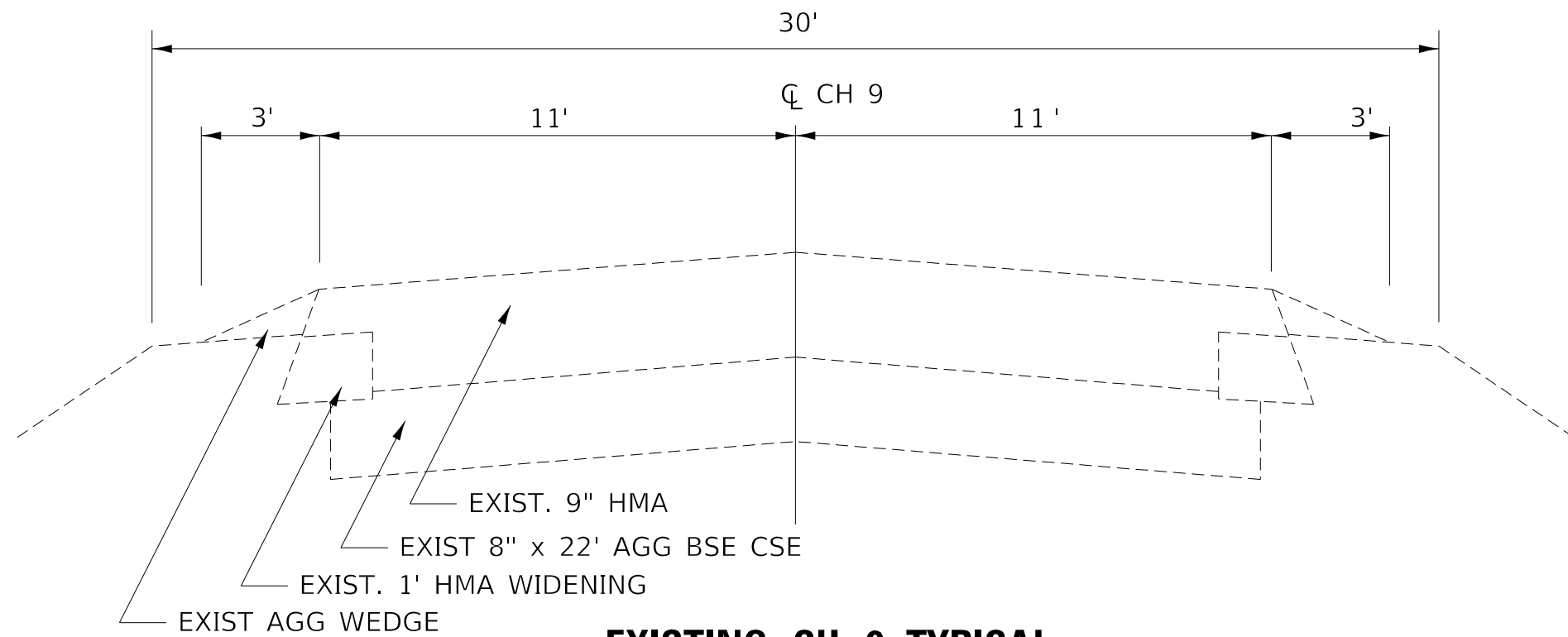


Project Area = ☆

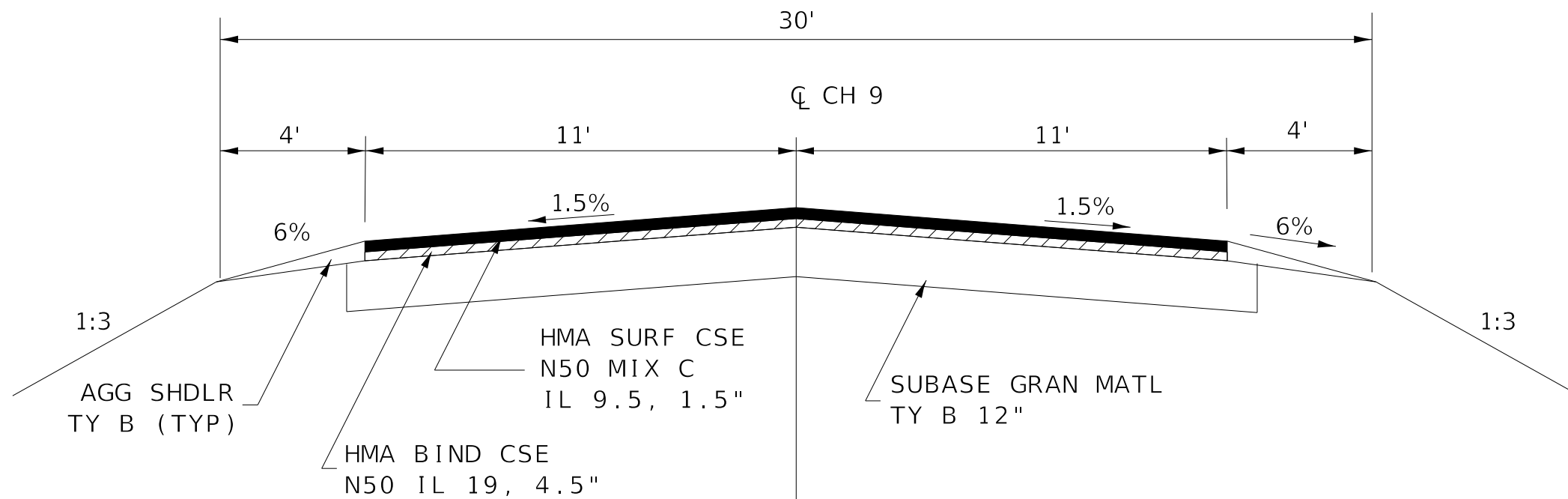


Appendix B

Existing and Proposed
Typical Sections

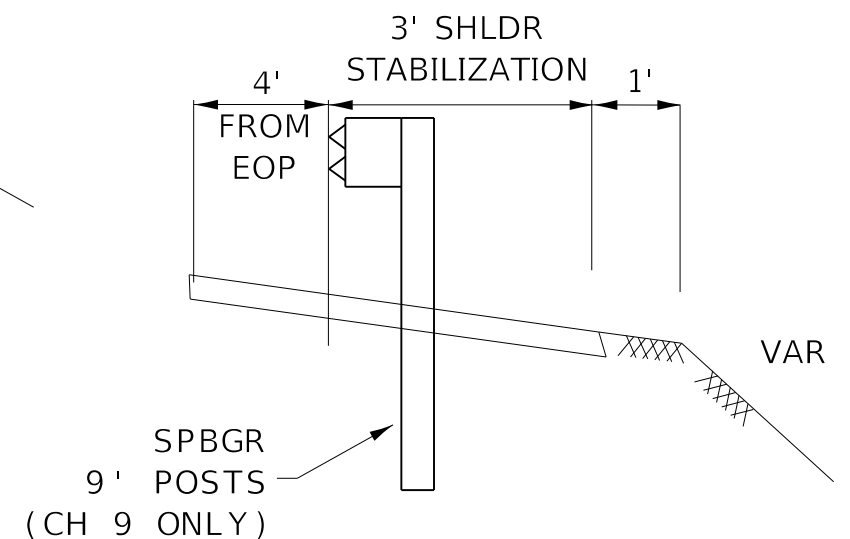


EXISTING CH 9 TYPICAL



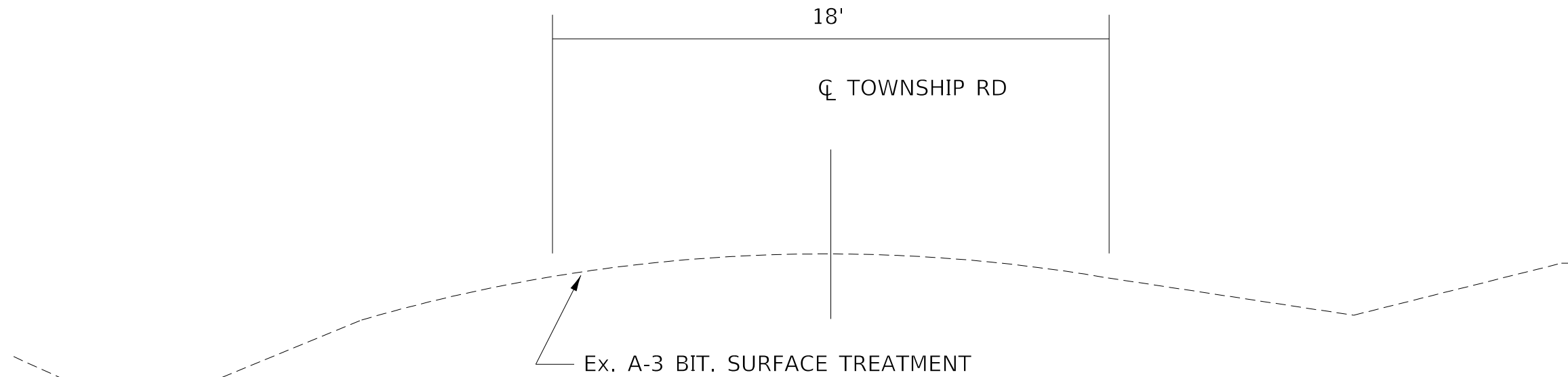
PROPOSED CH 9 TYPICAL

AREAS WITH GUARDRAIL (LT & RT)

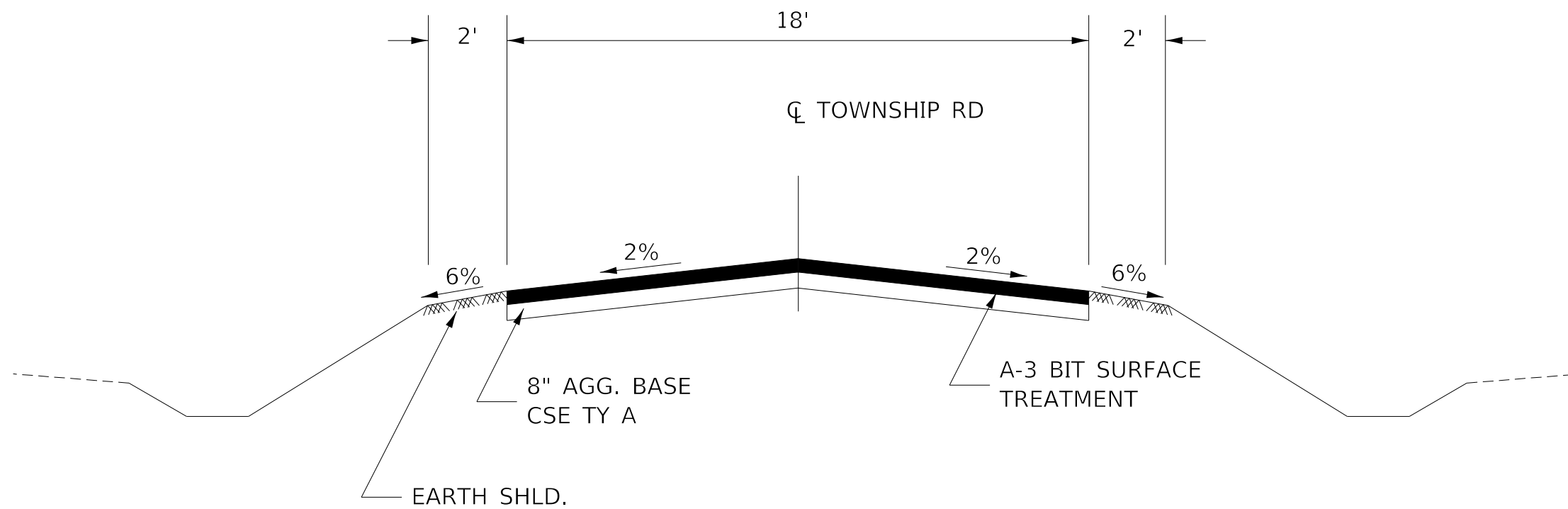


NOTES:
MAX SUPERELEVATION - 4%

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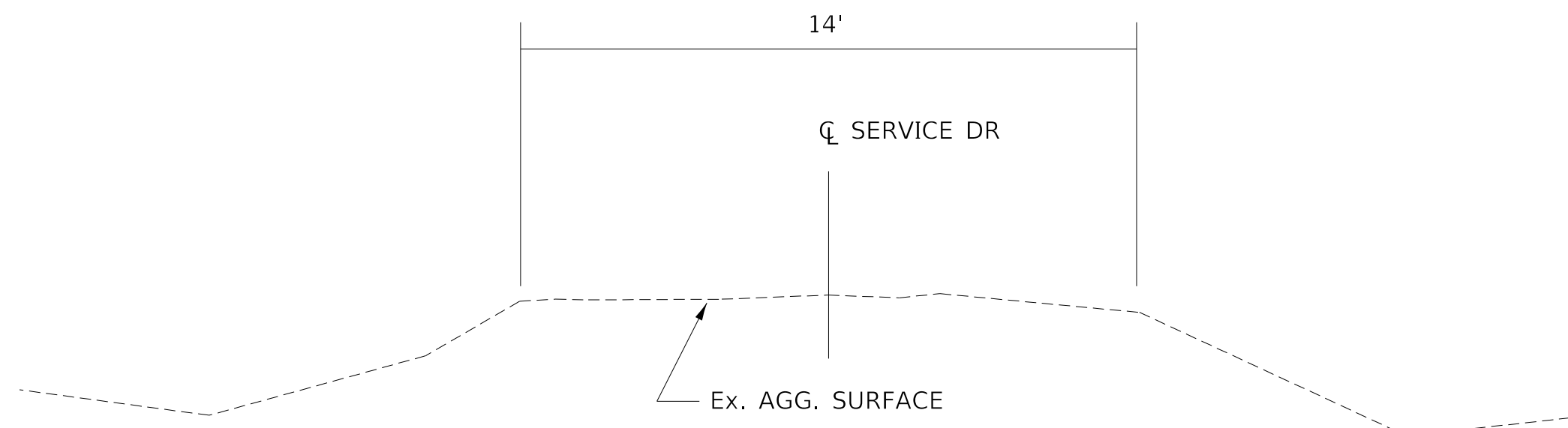
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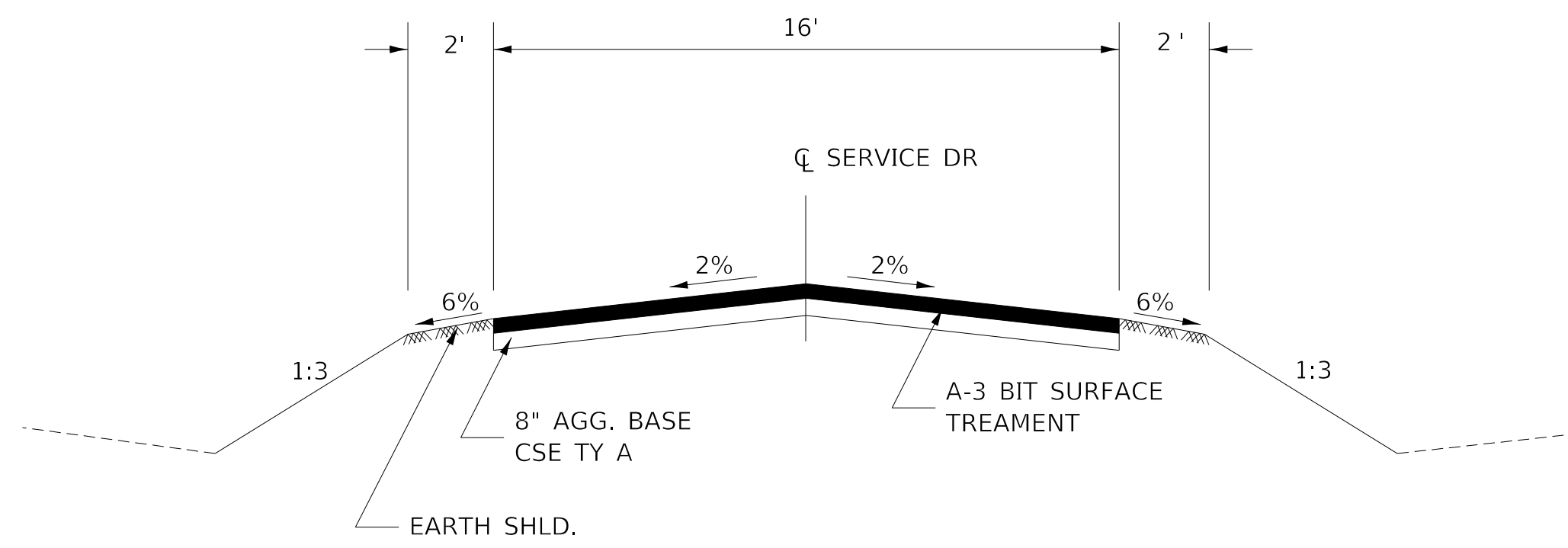
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NOTES:
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EXISTING FR 12.20 TYPICAL



PROPOSED FR 12.20 TYPICAL

Notes:
Max Superelevation - 4%

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					ILLINOIS FED. AID PROJECT							

Appendix C

Proposed Plan and Profile

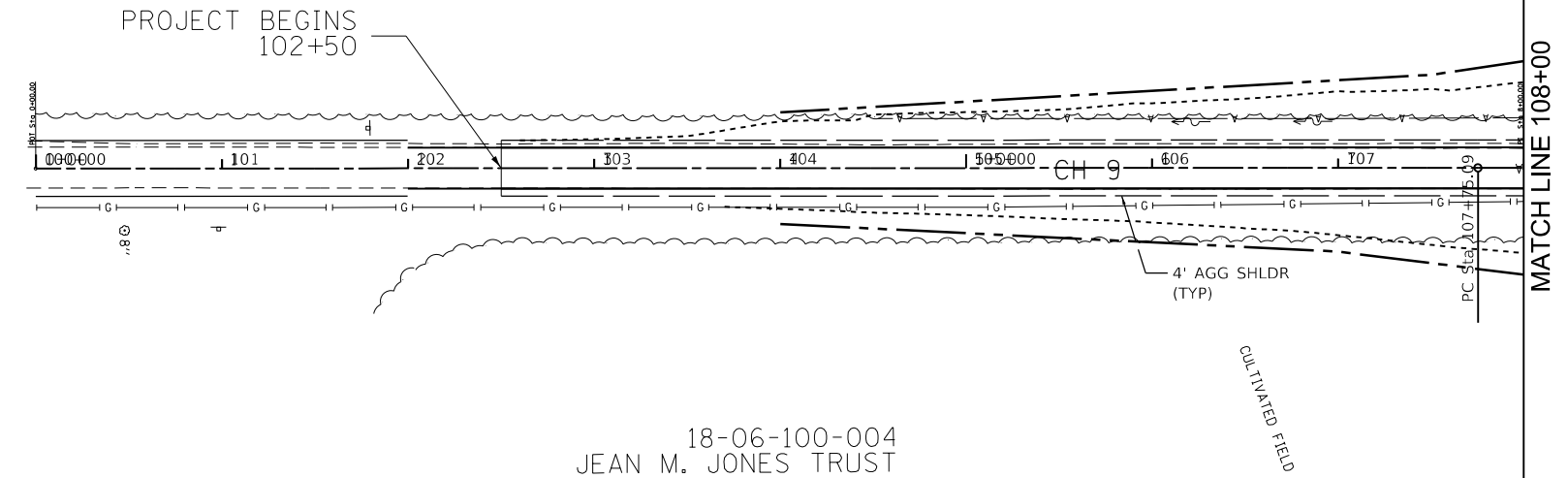
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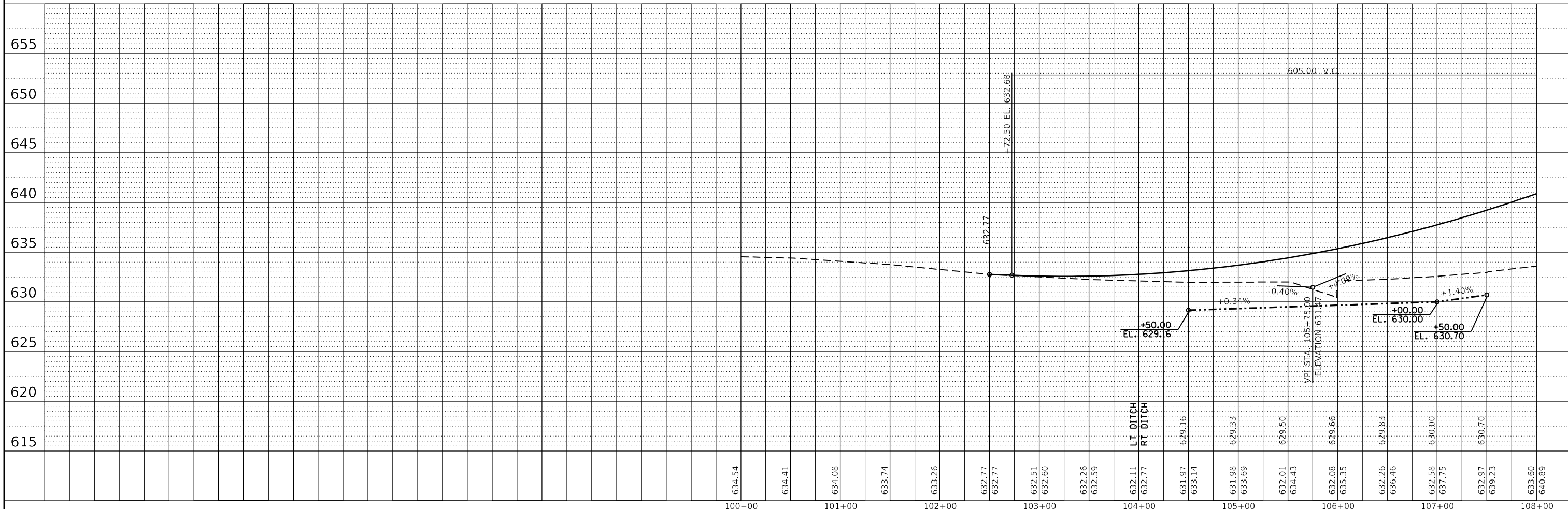
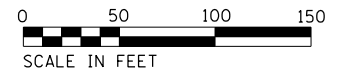
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V0 LaSalle Farms Inc.



CULTIVATED FIELD



18-06-100-004
JEAN M. JONES TRUST



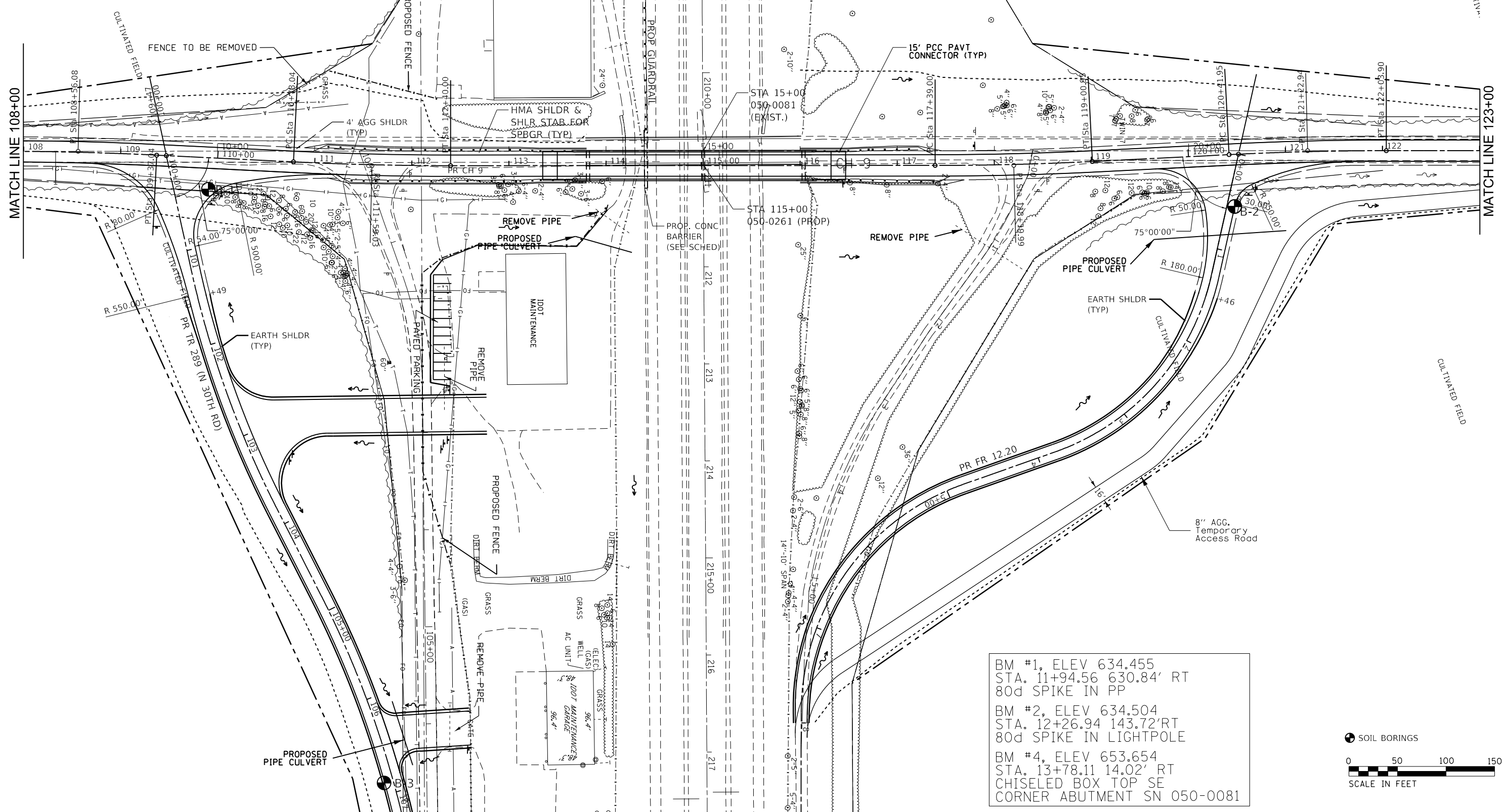
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 P.C. STA. = 107+75.09
 P.T. STA. = 109+37.04

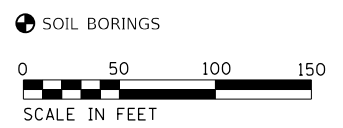
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 P.T. STA. = 112+40.00

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 P.T. STA. = 119+00.95

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 P.C. STA. = 120+41.95
 P.T. STA. = 122+03.90



BM #1, ELEV 634.455
 STA. 11+94.56 630.84' RT
 80d SPIKE IN PP
 BM #2, ELEV 634.504
 STA. 12+26.94 143.72' RT
 80d SPIKE IN LIGHTPOLE
 BM #4, ELEV 653.654
 STA. 13+78.11 14.02' RT
 CHISELED BOX TOP SE
 CORNER ABUTMENT SN 050-0081



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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

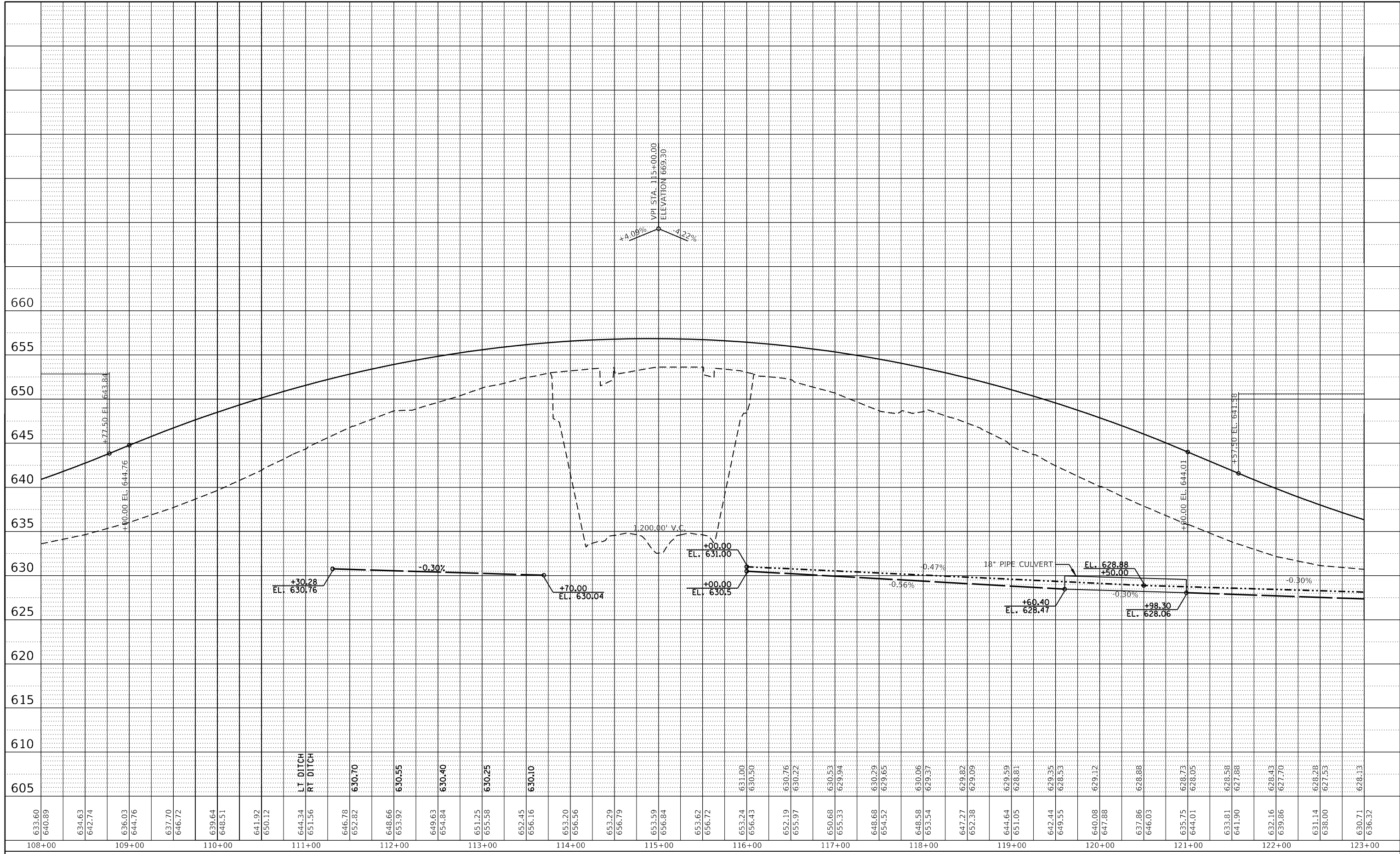
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DEPARTMENT OF TRANSPORTATION**

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PLAN & PROFILE**

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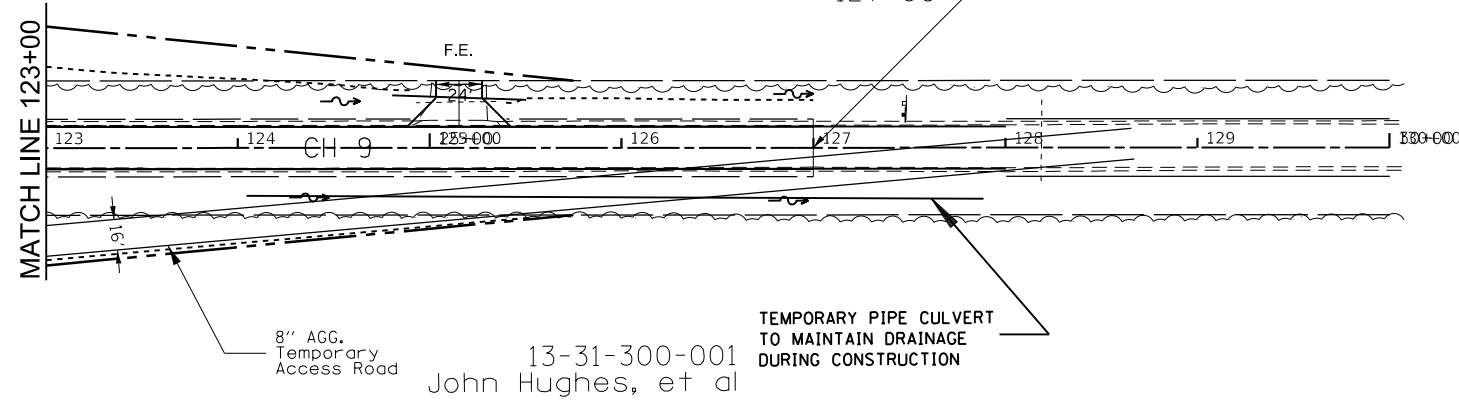
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V0 LaSalle Farms Inc.

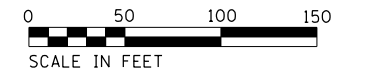


CULTIVATED FIELD

PROJECT ENDS
127+00

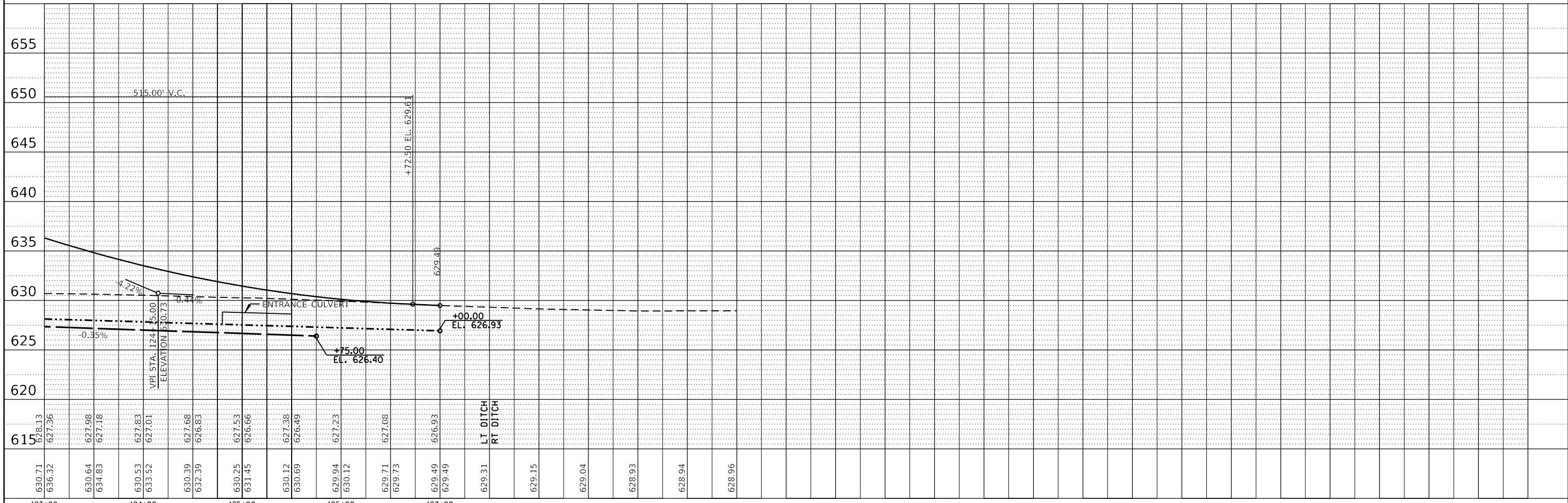


13-31-300-001
John Hughes, et al



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123+00	124+00	125+00	126+00	127+00																									

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

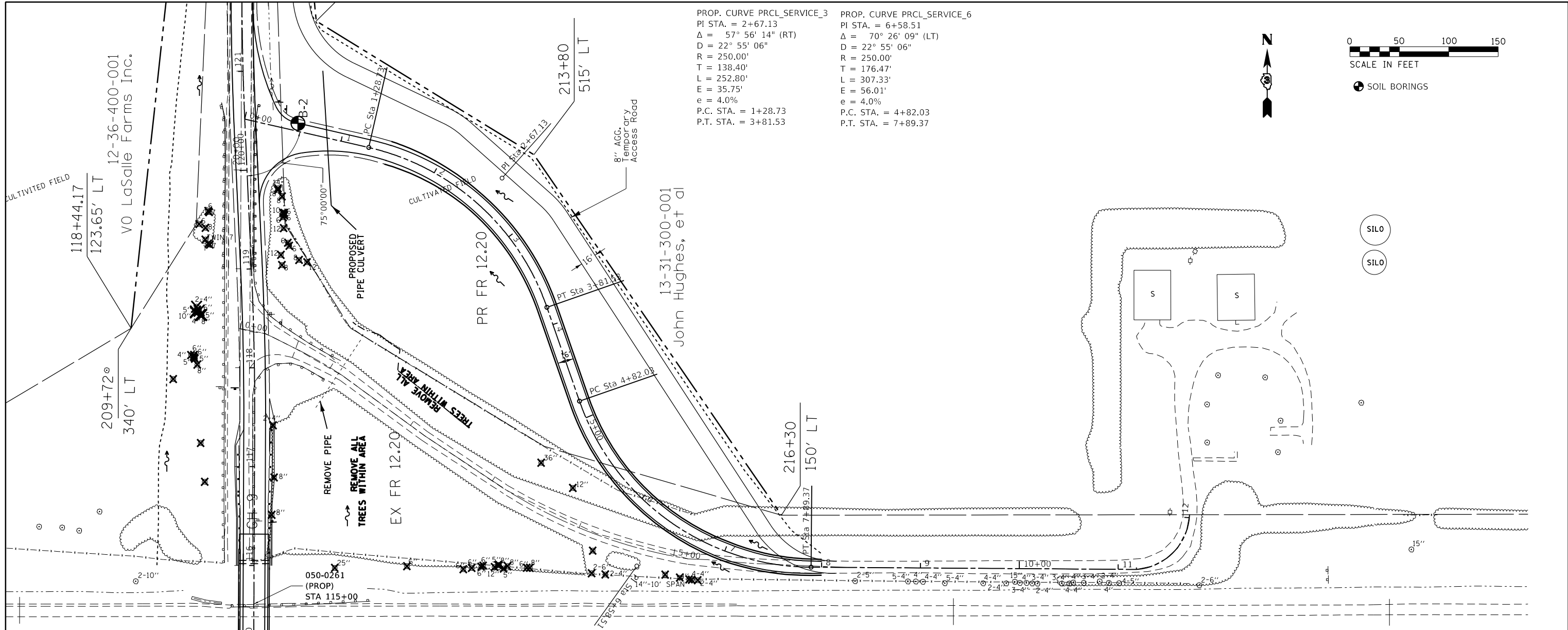
CH9 OVER I-80
PLAN & PROFILE

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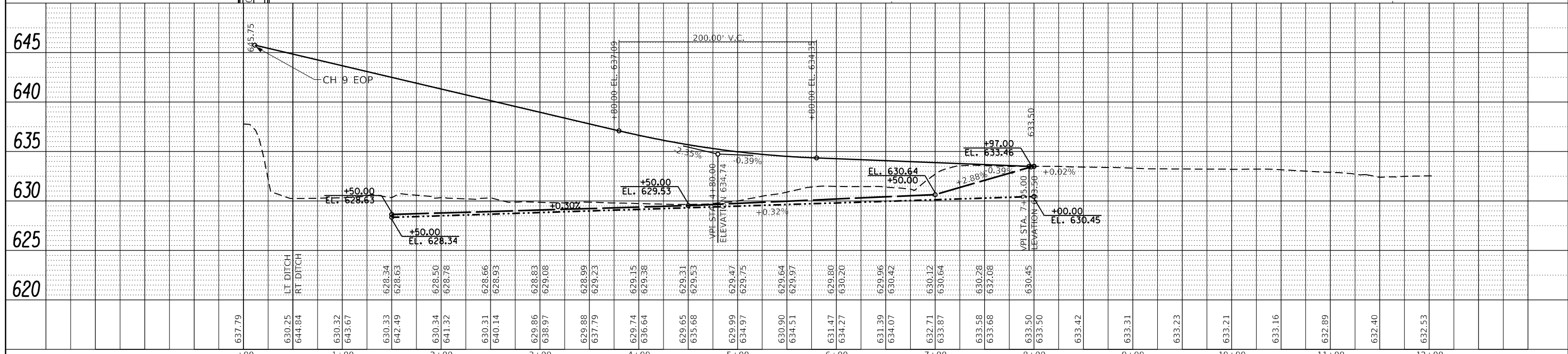
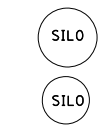
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 $L = 252.80'$
 $E = 35.75'$
 $e = 4.0\%$
 P.C. STA. = 1+28.73
 P.T. STA. = 3+81.53

PROP. CURVE PRCL_SERVICE_6
 PI STA. = 6+58.51
 $\Delta = 70^\circ 26' 09''$ (LT)
 $D = 22^\circ 55' 06''$
 $R = 250.00'$
 $T = 176.47'$
 $L = 307.33'$
 $E = 56.01'$
 $e = 4.0\%$
 P.C. STA. = 4+82.03
 P.T. STA. = 7+89.37



SCALE IN FEET

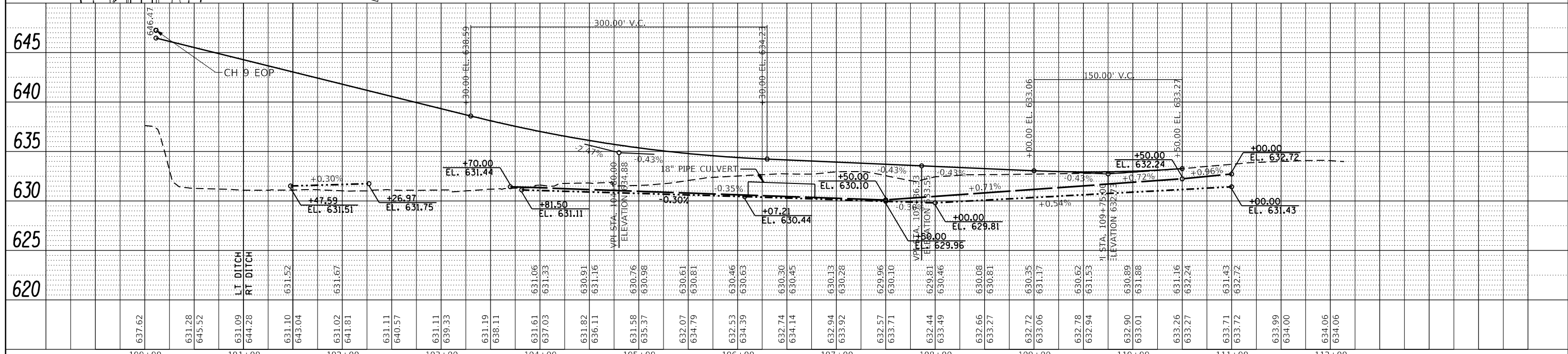
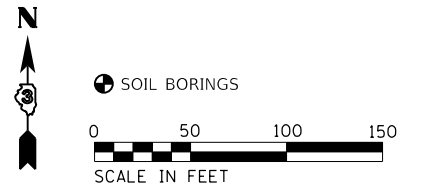
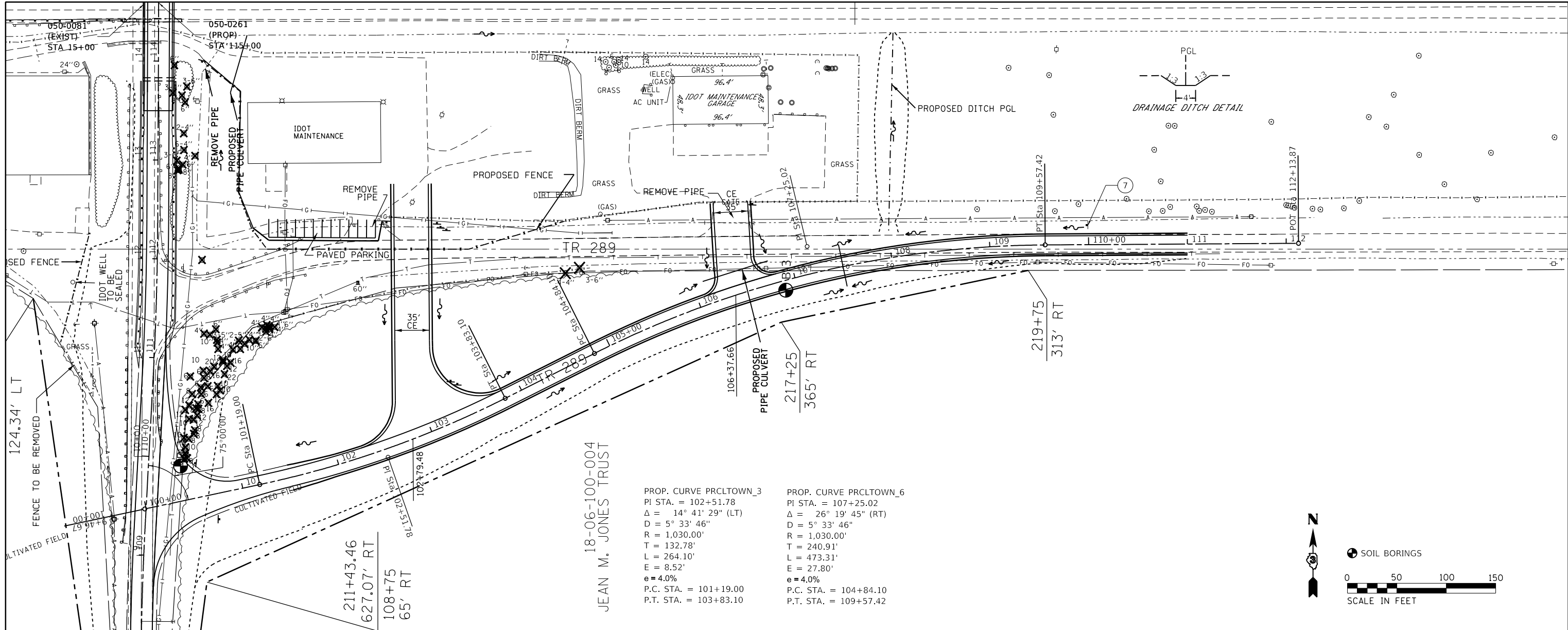
SOIL BORINGS



FILE NAME =	USER NAME = calderoni	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FR 12.20	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
c:\pwork\pwidot\calderoni\d0318968\036659-sht-plnprf-Township&service_GEO TECH.dgn		DRAWN -	REVISED -			80	(50-3)HBR-3	LASALLE	137	33	
PLOT SCALE = 100.0000' / 1"		CHECKED -	REVISED -			CONTRACT NO. 66C59					
MODELNAME =		DATE -	REVISED -			ILLINOIS FED. AID PROJECT					

PLAN	SURVEYED	BY	DATE
	PLOTTED		
	ALIGNED		
	CHECKED		
	FILED		
	NO. _____		
	FILE NAME _____		

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	STRUCTURE NOTATIONS OK'D		
	NO. _____		



FILE NAME =	USER NAME = calderoni	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TR 289 (N. 30th Road)	SCALE:	SHEET	OF	SHEETS	STA.	TO STA.	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
c:\pwork\pwork\calderoni\d0318968\036659-shd-plnprf-TownshipService_GEO TECH.dgn	DRAWN -	REVISED -	80									(50-3)HR-3	LASALLE	137	34	
PLOT SCALE = 100.0000' / 1"	CHECKED -	REVISED -	CONTRACT NO. 66C59													
\$MODELNAME\$	DATE -	REVISED -	ILLINOIS FED. AID PROJECT													

Appendix D

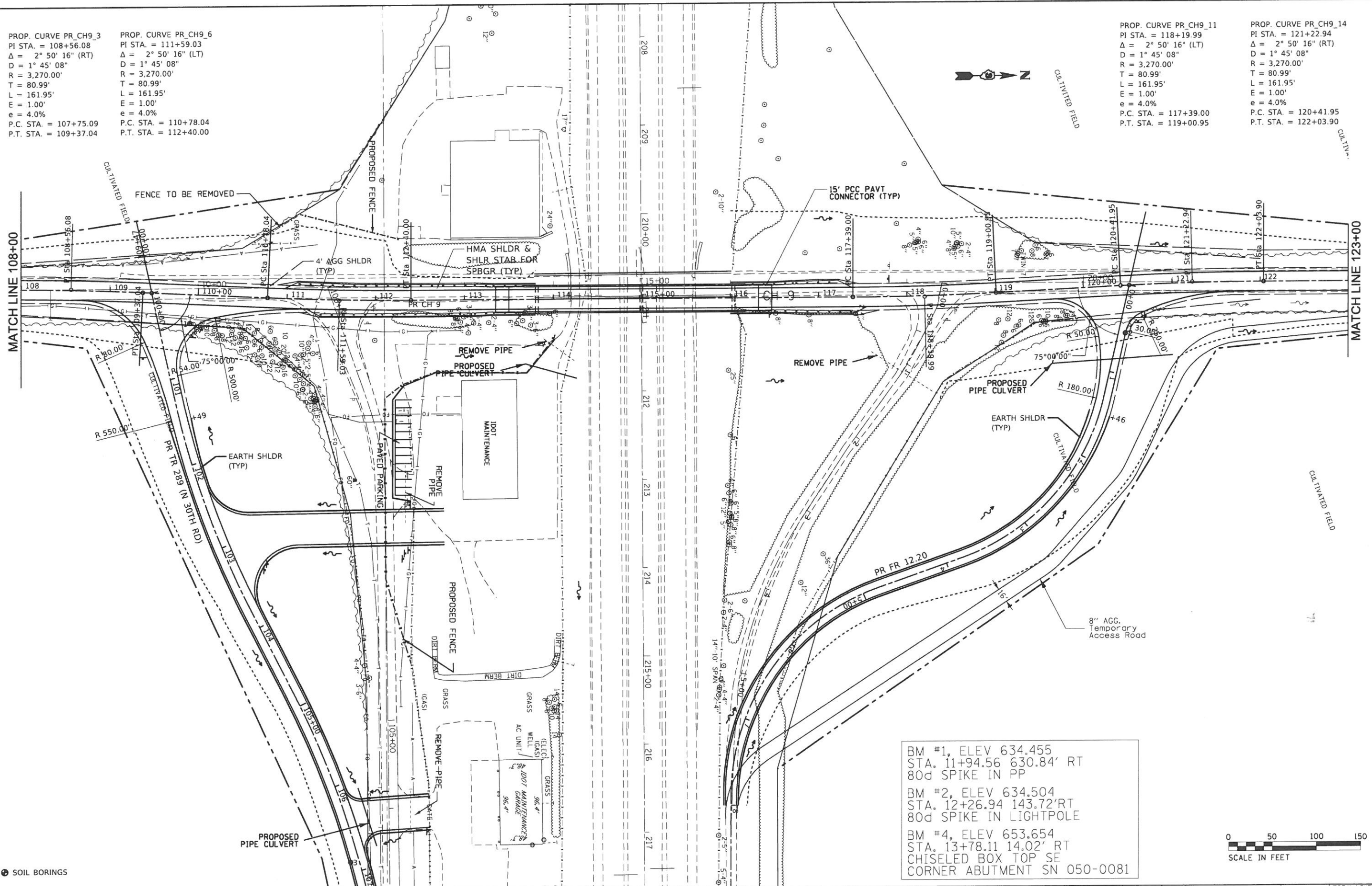
Soil Profile and NRCS Soil Survey

PROP. CURVE PR_CH9_3
 PI STA. = 108+56.08
 $\Delta = 2^\circ 50' 16''$ (RT)
 $D = 1^\circ 45' 08''$
 $R = 3,270.00'$
 $T = 80.99'$
 $L = 161.95'$
 $E = 1.00'$
 $e = 4.0\%$
 P.C. STA. = 107+75.09
 P.T. STA. = 109+37.04

PROP. CURVE PR_CH9_6
 PI STA. = 111+59.03
 $\Delta = 2^\circ 50' 16''$ (LT)
 $D = 1^\circ 45' 08''$
 $R = 3,270.00'$
 $T = 80.99'$
 $L = 161.95'$
 $E = 1.00'$
 $e = 4.0\%$
 P.C. STA. = 110+78.04
 P.T. STA. = 112+40.00

PROP. CURVE PR_CH9_11
 PI STA. = 118+19.99
 $\Delta = 2^\circ 50' 16''$ (LT)
 $D = 1^\circ 45' 08''$
 $R = 3,270.00'$
 $T = 80.99'$
 $L = 161.95'$
 $E = 1.00'$
 $e = 4.0\%$
 P.C. STA. = 117+39.00
 P.T. STA. = 119+00.95

PROP. CURVE PR_CH9_14
 PI STA. = 121+22.94
 $\Delta = 2^\circ 50' 16''$ (RT)
 $D = 1^\circ 45' 08''$
 $R = 3,270.00'$
 $T = 80.99'$
 $L = 161.95'$
 $E = 1.00'$
 $e = 4.0\%$
 P.C. STA. = 120+41.95
 P.T. STA. = 122+03.90



BM #1, ELEV 634.455
 STA. 11+94.56 630.84' RT
 80d SPIKE IN PP

BM #2, ELEV 634.504
 STA. 12+26.94 143.72' RT
 80d SPIKE IN LIGHTPOLE

BM #4, ELEV 653.654
 STA. 13+78.11 14.02' RT
 CHISELED BOX TOP SE
 CORNER ABUTMENT SN 050-0081



SOIL BORINGS

FILE NAME =	USER NAME = calderon	DESIGNED -	REVISED -
c:\pwork\pwork\calderon\10318968\03659-shr-plnprf.dgn		DRAWN -	REVISED -
#MODELNAME#	PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -
	PLOT DATE = 10/19/2019	DATE -	REVISED -

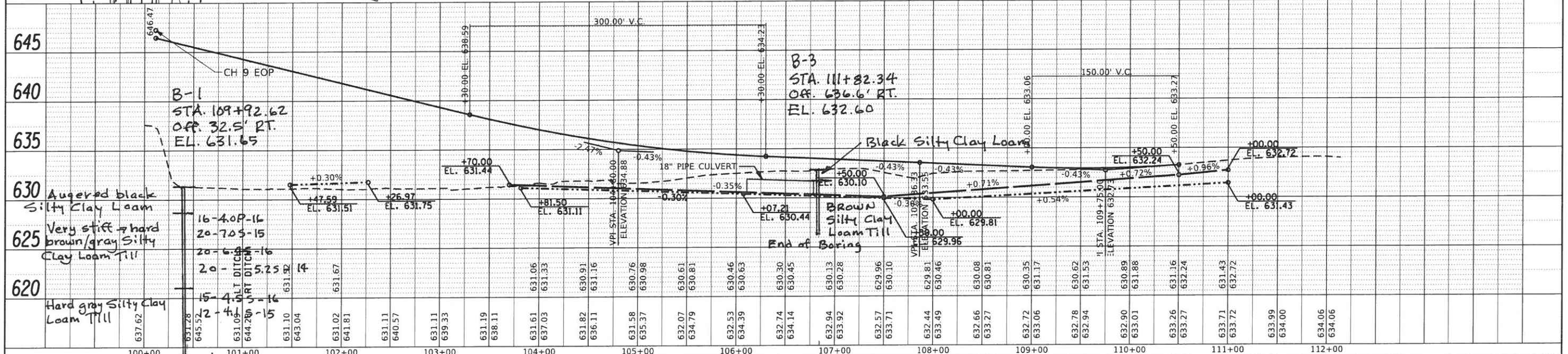
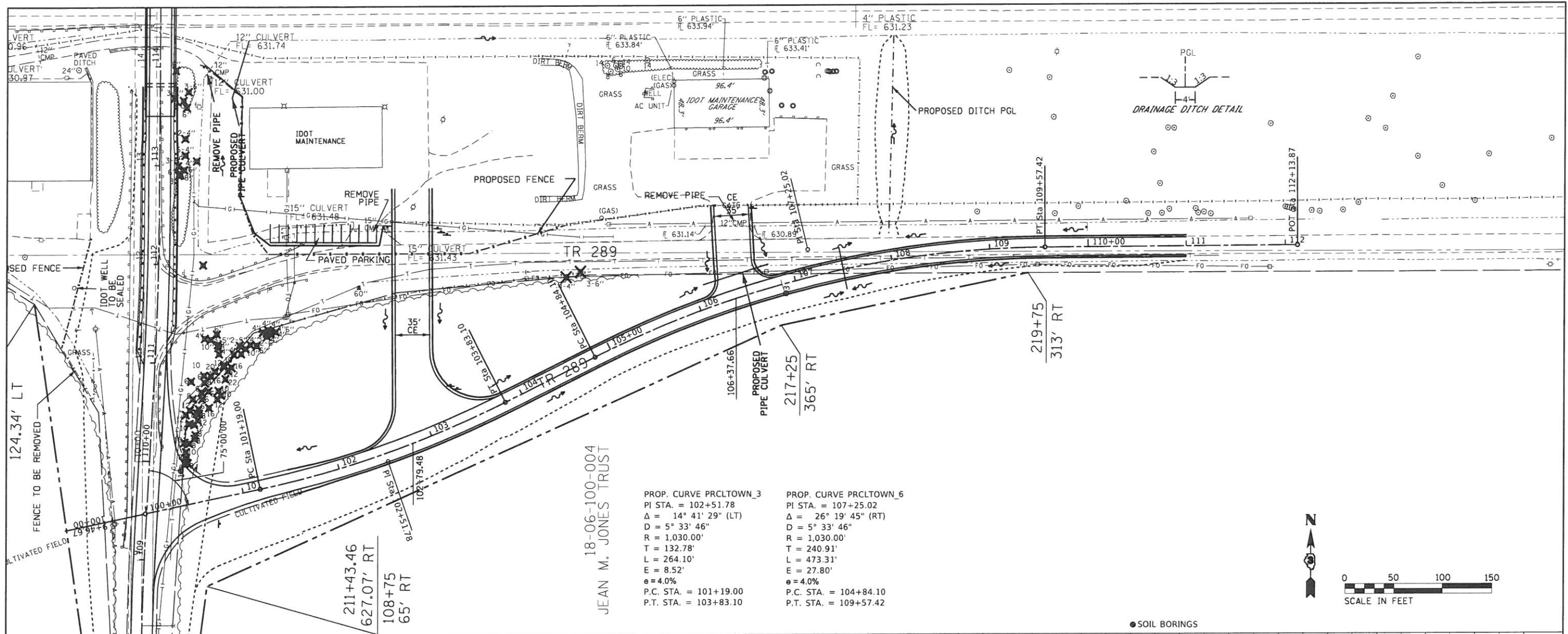
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

CH9 OVER I-80			
PLAN & PROFILE			
SCALE:	SHEET	OF SHEETS	STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	(50-3)HR-3	LASALLE	4	2
CONTRACT NO. 66C59				
ILLINOIS FED. AID PROJECT				

PLAN	SURVEYED	DATE
	PLOTTED	BY
	CHECKED	
	REVISIONS	
	NO. OF WAYS CHECKED	
	CADD FILE NAME	
	NO.	

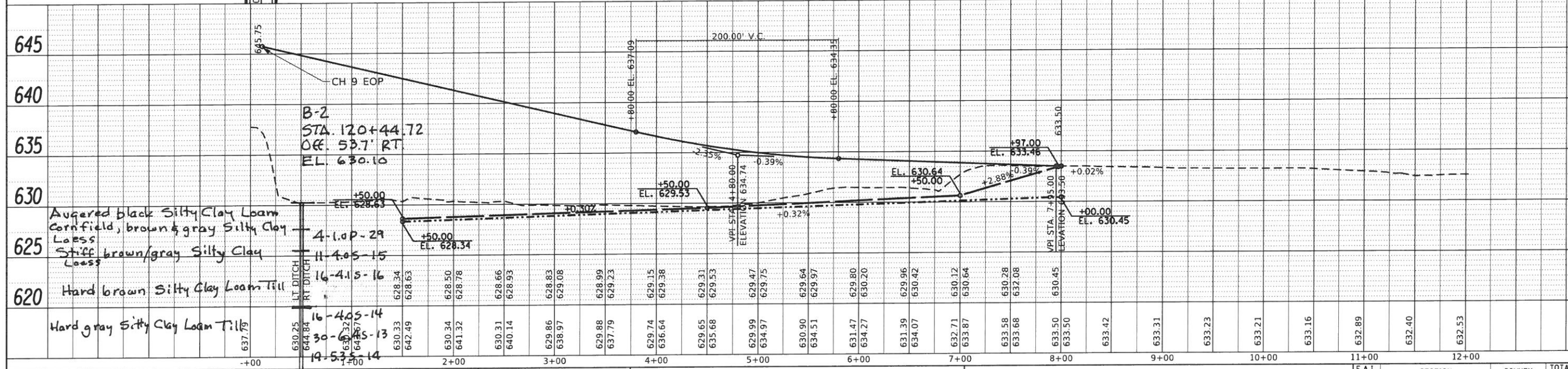
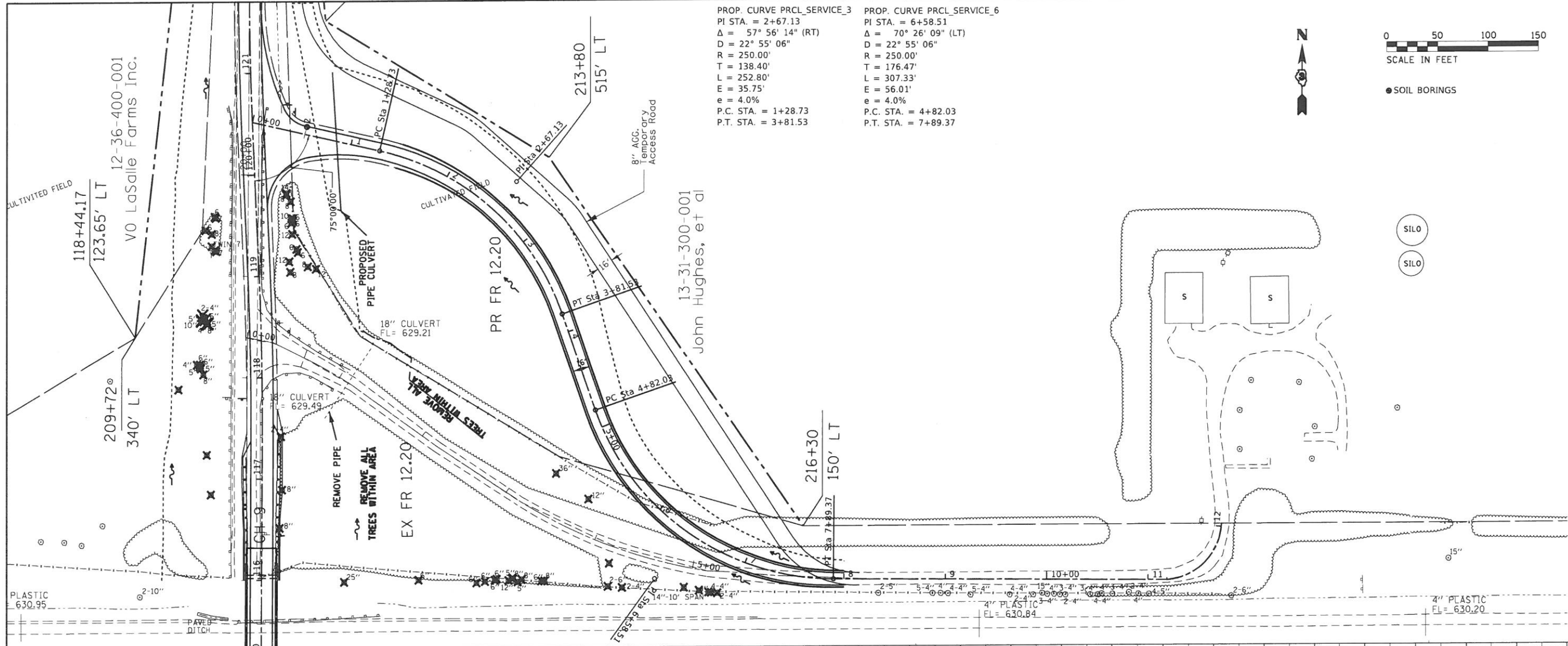
PROFILE	SURVEYED	DATE
	PLOTTED	BY
	CHECKED	
	REVISIONS	
	NO. OF WAYS CHECKED	
	STRUCTURE NOTATIONS CIPND	
	NO.	



FILE NAME: \\pwwork\pwwork\caldaroni\0318968\036659-shr-plnprf-Township.dgn	DESIGNED: -	REVISED: -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TR 289 (N. 30th Road)		F.A.I. RTE. 80	SECTION 150-31BR-3	COUNTY LASALLE	TOTAL SHEETS 2	SHEET NO. 2	
PLOT SCALE: 1/8" = 100.0000' / 1"	CHECKED: -	REVISED: -		SCALE: SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT					
PLOT DATE: 10/19/2019	DATE: -	REVISED: -									
CONTRACT NO. 66C59											

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

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	CHECKED		
	B.M. NOTED		
	STRUCTURE NOTATIONS OK'D		







































FILE NAME =	USER NAME = calderoni	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FR 12.20	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
ci:\pw\work\p\ridat\calderoni\00318968\036659-ah-t-plnprf-Township318968.dgn		DRAWN -	REVISED -			80	(50-3)HR-3	LASALLE	2	1	
PLOT SCALE = 100.0000 / in.		CHECKED -	REVISED -			CONTRACT NO. 66C59					
MODELNAME	PLOT DATE = 10/19/2019	DATE -	REVISED -			ILLINOIS FED. AID PROJECT					

Soil Map—La Salle County, Illinois



MAP LEGEND

- | | | | |
|---|------------------------|---|--|
| Area of Interest (AOI) | |  Spoil Area | |
|  | Area of Interest (AOI) |  Stony Spot | |
| Soils | |  Very Stony Spot | |
|  | Soil Map Unit Polygons |  Wet Spot | |
|  | Soil Map Unit Lines |  Other | |
|  | Soil Map Unit Points |  Special Line Features | |
| Special Point Features | | Water Features | |
|  | Blowout |  Streams and Canals | |
|  | Borrow Pit | Transportation | |
|  | Clay Spot |  Rails | |
|  | Closed Depression |  Interstate Highways | |
|  | Gravel Pit |  US Routes | |
|  | Gravelly Spot |  Major Roads | |
|  | Landfill |  Local Roads | |
|  | Lava Flow | Background | |
|  | Marsh or swamp |  Aerial Photography | |
|  | Mine or Quarry | | |
|  | Miscellaneous Water | | |
|  | Perennial Water | | |
|  | Rock Outcrop | | |
|  | Saline Spot | | |
|  | Sandy Spot | | |
|  | Severely Eroded Spot | | |
|  | Sinkhole | | |
|  | Slide or Slip | | |
|  | Sodic Spot | | |

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: La Salle County, Illinois
 Survey Area Data: Version 11, Sep 16, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2011—Mar 14, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

La Salle County, Illinois (IL099)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
67A	Harpster silty clay loam, 0 to 2 percent slopes	2.4	3.3%
152A	Drummer silty clay loam, 0 to 2 percent slopes	7.0	9.5%
154A	Flanagan silt loam, 0 to 2 percent slopes	8.6	11.7%
356A	Elpaso silty clay loam, 0 to 2 percent slopes	12.1	16.5%
614B	Chenoa silty clay loam, 2 to 5 percent slopes	7.8	10.6%
679B	Blackberry silt loam, 2 to 5 percent slopes	1.2	1.7%
802B	Orthents, loamy, undulating	24.4	33.1%
818A	Flanagan-Catlin silt loams, 0 to 3 percent slopes	10.1	13.7%
Totals for Area of Interest		73.6	100.0%

Appendix E

Roadway Soil Borings
(CH 9)



SOIL BORING LOG

ROUTE FAI 80 (I-80) DESCRIPTION CH 9 over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION (50-3)HBR-3 LOCATION NW 1/4, SEC. 6, TWP. 33N, RNG. 3E, 3rd PM,
Latitude 41.366752, Longitude -88.933187

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. _____
 Station _____

BORING NO. 01
 Station 109+92.62
 Offset 32.5 ft Rt.
 Ground Surface Elev. 631.65 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter _____ Dry ft
 Upon Completion _____ Dry ft
 After 24 Hrs. _____ Dry ft

Augered Black Silty Clay Loam Topsoil				
629.15				
Very Stiff to Hard Brown and Gray Silty Clay Loam Till (Bag Sample #1 - 2.5' to 5.0')	4	6	4.0	16
	10		P	
-5				
(Bag Sample #2 - 5.0' to 7.5')	8	8	7.0	15
	12		S	
-10				
(Bag Sample #3 - 7.5' to 10.0')	6	9	6.4	16
	11		S	
-15				
Hard Gray Silty Clay Loam Till (Bag Sample #4 - 10.0' to 12.5')	7	7	4.5	15
	9		S	
	11		S	
-20				
	5			
	7	4.1		15
	8		S	
-20				
End of Boring				

SOIL BORING CH 9 OVER I-80, 4 MILES EAST OF IL 178.GPJ IL_DOT.GDT 10/1/19

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE FAI 80 (I-80) DESCRIPTION CH 9 over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION (50-3)HBR-3 LOCATION SW 1/4, SEC. 31, TWP. 34N, RNG. 3E, 3rd PM,
Latitude 41.36965, Longitude -88.93313

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. _____
 Station _____

BORING NO. 02
 Station 120+44.72
 Offset 53.7 ft Rt.
 Ground Surface Elev. 630.10 ft

D E P T H H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter _____ Dry ft
 Upon Completion _____ Dry ft
 After _____ Hrs. _____ ft

Augered Black Silty Clay Loam
 Corn Field, Brown & Gray Silty
 Clay Loess

627.60

Stiff Brown & Gray Silty Clay
 Loess
 (Bag Sample #1 - 2.5' to 4.5')

625.60

Hard Brown Silty Clay Loam Till
 (Bag Sample #2 - 4.5' to 9.5')

-5

620.60

Hard Gray Silty Clay Loam Till

-10

-15

613.60

End of Boring

-20

SOIL BORING CH 9 OVER I-80, 4 MILES EAST OF IL 178.GPJ IL_DOT.GDT 10/1/19

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE FAI 80 (I-80) DESCRIPTION CH 9 over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION (50-3)HBR-3 LOCATION NW 1/4, SEC. 6, TWP. 33N, RNG. 3E, 3rd PM,
Latitude 41.36725, Longitude -88.93096

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. _____
 Station _____

BORING NO. 03
 Station 111+82.34
 Offset 636.6 ft Rt.
 Ground Surface Elev. 632.60 ft

D
E
P
T
H

B
L
O
W
S

U
C
S
Qu

M
O
I
S
T

(ft) (/6") (tsf) (%)

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft

Groundwater Elev.:

First Encounter _____ Dry ft
 Upon Completion _____ Dry ft
 After 24 Hrs. _____ Dry ft

Black Silty Clay Loam Topsoil
 631.60

Brown Silty Clay Loam Till

627.60 -5

End of Boring

-10

-15

-20

SOIL BORING CH 9 OVER I-80, 4 MILES EAST OF IL 178.GPJ IL_DOT.GDT 10/1/19

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Appendix F

Structure Borings
(SN 050-0081)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION FAS 174 (CH 9) over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION 50-3HB-1 LOCATION SE 1/4, SEC. 36, TWP. 34N, RNG. 2E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 050-0081 (Exist.)
Station 210+80.6

BORING NO. 02 (N. Abut.)
Station 210+75.1
Offset 142.0 ft Lt.
Ground Surface Elev. 654.02 ft

Surface Water Elev. _____ ft
Stream Bed Elev. _____ ft
Groundwater Elev.:
First Encounter _____ ft
Upon Completion 628.0 ft ∇
After _____ Hrs. _____ ft

D E P T H H	B L O W S	U C S Qu	M O I S T		D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)
651.52				Augered Bituminous Pavement, Brown Sand & Gravel Fill	631.52	4		
						5	4.4	15
						6	S	
649.02	7	4.9	16	Hard Gray & Black Silty Clay Loam Topsoil & Till Fill	629.52	8		
	7	S				8	5.4	14
	8					9	S	
647.02				Medium Gray Loamy Sand & Gravel Fill	629.02	3		
	10		8			4	3.1	25
	10			Very Stiff Gray & Brown Silty Clay Loess		5	B	
						10		23
						10		
	4	3.7	25	Very Stiff to Hard Brown, Black & Gray Silty Clay & Silty Clay Loam Till Fill				
	5	B						
	6							
-10						5		
	3	4.1	21			9		13
	7	B				12		
	3			Hard Gray Silty Clay Loam Till with Silt Layers @ 48' - 53'	622.02	3		
	6	4.6	14			5	4.1	16
	8	S				10	B	
-15								
	3					7		
	4	3.4	24			10	7.8	13
	5	B				12	S	
	4					5		
	5	4.1	16			7	6.4	14
	6	B				10	S	
-20								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION FAS 174 (CH 9) over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION 50-3HB-1 LOCATION SE 1/4, SEC. 36, TWP. 34N, RNG. 2E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 050-0081 (Exist.)
 Station 210+80.6

BORING NO. 02 (N. Abut.)
 Station 210+75.1
 Offset 142.0 ft Lt.
 Ground Surface Elev. 654.02 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter _____ ft
 Upon Completion 628.0 ft
 After _____ Hrs. _____ ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Hard Gray Silty Clay Loam Till with Silt Layers @ 48' - 53' (continued)	7			Hard Reddish Gray Silty Clay Loam Till	17		
	11	7.0	15		21	11.5	11
	15	S			33	S*	
				* Max Rimac @ 5% (continued)			
					591.52		
	7			Assumed Rock Surface with Auger Refusal @ 62.5' End of Boring	100/0"		
	12	7.2	14				
	15	S					
	-45				-65		
	7						
	9	7.2	17				
	15	S					
	10						
	18	7.8	16				
	22	S					
	-50				-70		
	10						
	12	7.4	19				
	12	S					
	6						
	10	6.8	14				
	12	S					
	-55				-75		
	8						
	10	7.0	23				
	14	S					
	9						
	12	7.0	24				
	17	S					
	594.52				-80		
	-60						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION FAS 174 (CH 9) over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION 50-3HB-1 LOCATION SW 1/4, SEC. 31, TWP. 34N, RNG. 3E, 3rd PM, Latitude 41.368118, Longitude -88.933246

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 050-0081 (Exist.)
Station 210+80.6

BORING NO. 03 (Pier)
Station 211+04.6
Offset 13.0 ft Rt.
Ground Surface Elev. 633.92 ft

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
-------------------------------	--------------------------------	--------------------------------	------------------------------

Surface Water Elev. _____ ft
Stream Bed Elev. _____ ft
Groundwater Elev.:
First Encounter 627.4 ft
Upon Completion 627.9 ft
After _____ Hrs. _____ ft

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
-------------------------------	--------------------------------	--------------------------------	------------------------------

Augered Shoulder Stone, Black Silty Clay Loam Fill, Brown Silty Clay 631.42				Very Stiff to Hard Gray Silty Clay Loam Till with Numerous Layers of Gray Silt (continued)				
						5		
						7	4.9	18
Very Stiff Brown Silty Clay 629.42		3						
		3	2.5	26		4		
Stiff Brown Silty Loam / Loam 627.42		4	P			5	4.7	19
						10	S	
		1						
		2	1.0	18		6		
Medium Brown Fine Sand to Coarse Gravel with Free Water 623.92		3	P			5	4.3	19
						6	B	
		5						
		7		12		5		
Very Stiff to Hard Gray Silty Clay Loam Till with Numerous Layers of Gray Silt 594.42		7				7	5.6	18
						11	S	
		3						
		4	3.5	17		7		
		6	P			9	6.4	18
						12	S	
		4						
		6	4.3	16		7		
		8	S			9	6.6	22
						13	S	
		5						
		6	5.7	15		4		
		10	S			7	5.7	21
		2						
		5	4.8	17		4		
	7	S			8	5.4	21	
					10	S		

SOIL BORING 050-0081.GPJ IL_DOT.GDT 6/15/16

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



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION FAS 174 (CH 9) over I-80, 4 miles East of IL 178 LOGGED BY Larry Myers

SECTION 50-3HB-1 LOCATION SW 1/4, SEC. 31, TWP. 34N, RNG. 3E, 3rd PM,

Latitude 41.368118, Longitude -88.933246

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 050-0081 (Exist.)
 Station 210+80.6

BORING NO. 03 (Pier)
 Station 211+04.6
 Offset 13.0 ft Rt.
 Ground Surface Elev. 633.92 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)
7			
12			11
15			
8			
10			17
12			
27			
36	11.5	9	
41	S*		
25			
35	11.5	11	
45	S*		
50			
100/2*			10

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter 627.4 ft ▼
 Upon Completion 627.9 ft ▼
 After _____ Hrs. _____ ft

Medium Gray Fine Sand to
 Coarse Gravel (continued)
 589.92
 Hard Reddish Brown Silty Clay
 Loam Till
 -45
 * Max Rimac @ 5%
 583.92
 583.75
 Light Gray Shale
 End of Boring

SOIL BORING 050-0081.GPJ IL_DOT.GDT 6/15/16

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION County Highway 9-D over FAI 80 (Sta 210+80.6) LOGGED BY Gehler

SECTION 50-3HB-1 LOCATION SW 1/4, SEC. 31, TWP. 34N, RNG. 3E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 050-0081
Station 210+80.6

BORING NO. 1 (Pier #2)
Station 15+00
Offset 15.0 ft Lt.
Ground Surface Elev. 632.97 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev.	ft
Stream Bed Elev.	ft
Groundwater Elev.:	
First Encounter	ft
Upon Completion	625.0 ft ∇
After 24 Hrs.	625.5 ft ∇

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Very Stiff Brownish Black Silty Clay				Hard Gray Clay (Till) (continued)				S			
		15	2.9	25			16	4.4	18		
			S					B			
	629.47										
Stiff Yellowish Brown Silty Clay											
	627.97	-5	7	1.7	26		-25	16	4.1	19	
				S				B			
Loose Yellowish Brown Sandy Loam											
	626.97										
Medium Yellowish Brown Coarse Rounded Sand to Coarse Rounded Gravel			14					27	5.5	18	
	624.47							B			
Hard Brown Clay (Till)			14	4.3	17			37	6.2	17	
	-10			B			602.97	-30	B		
	621.97										
Hard Gray Clay (Till)			24	6.2	15			24	3.9	18	
				S				S			
							599.47				
			22	8.3	14			-35	28	3.1	24
				B					S		
			21	5.4	17				27	4.3	21
				S					B		
							594.47				
			18	4.3	19				54	6.3	9
							592.97	-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION County Highway 9-D over FAI 80 (Sta 210+80.6) LOGGED BY Gehler

SECTION 50-3HB-1 LOCATION SW 1/4, SEC. 31, TWP. 34N, RNG. 3E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 050-0081
 Station 210+80.6

BORING NO. 1 (Pier #2)
 Station 15+00
 Offset 15.0 ft Lt.
 Ground Surface Elev. 632.97 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter _____ ft
 Upon Completion 625.0 ft ▽
 After 24 Hrs. 625.5 ft ▽

Hard Gray Clay (Till)	591.97		B	
Hard Gray Clay Loam (Till)		175	9.7	9
	589.97		+	
End of Boring				
	-45			
	-50			
	-55			
	-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION County Highway 9-D over FAI 80 (Sta 210+80.6) LOGGED BY Gehler

SECTION 50-3HB-1 LOCATION SE 1/4, SEC. 36, TWP. 34N, RNG. 2E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 050-0081
Station 210+80.6

BORING NO. 2 (Pier #1)
Station 14+40.75
Offset 15.5 ft Rt.
Ground Surface Elev. 632.53 ft

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
-------------------------------	--------------------------------	----------------------------	------------------------------

Surface Water Elev. _____ ft
Stream Bed Elev. _____ ft
Groundwater Elev.:
First Encounter _____ ft
Upon Completion 624.5 ft ▽
After 24 Hrs. 625.4 ft ▽

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
-------------------------------	--------------------------------	----------------------------	------------------------------

Very Stiff Yellowish Brown and Black Silty Clay				Hard Gray Clay (Till) (continued)				B		
		17	3.3	24				18	4.3	15
			S					B		
629.03					609.03					
Stiff Yellowish Brown Silty Clay				Very Stiff Gray Clay (Till)						
628.03										
Loose Yellowish Brown Sandy Loam	-5	9	1.2	22				23	3.5	16
			B					B		
626.53										
Medium Yellowish Brown Gravely Loam										
	▽	20						25	3.4	16
	▽							B		
624.03										
Very Stiff Brown Clay (Till)										
	-10	15	2.6	17				21	3.3	20
			B					B		
621.53					601.53					
Stiff Gray Clay (Till)					Medium Gray Silt Loam					
		14	1.8	17				30	1.7	17
			S					S		
619.03					599.03					
Very Stiff Gray Clay (Till)					Hard Gray Clay					
	-15	13	2.7	16				30	4.3	25
			S					S		
					596.53					
					Very Stiff Gray Clay					
		17	2.3	16	595.53			33	2.9	23
			S		594.53			B		
614.03					Medium Gray Coarse Angular Sand to Coarse Angular Gravel					
Hard Gray Clay (Till)					End of Boring					
	-20	19	5.2	16						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION County Highway 9-D over FAI 80 (Sta 210+80.6) LOGGED BY Gehler

SECTION 50-3HB-1 LOCATION SE 1/4, SEC. 36, TWP. 34N, RNG. 2E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 050-0081
 Station 210+80.6

BORING NO. 3 (Pier #3)
 Station 15+59.25
 Offset 17.0 ft Rt.
 Ground Surface Elev. 634.15 ft

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Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter _____ ft
 Upon Completion 625.8 ft ▽
 After 24 Hrs. 626.2 ft ▽

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Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)	Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)
Medium Brownish Black Silty Clay					Hard Gray Clay (Till) (continued)				E
		13	0.5 E	26			22	6.4 B	15
630.65									
Very Stiff Yellowish Brown Silty Clay									
	-5	13	2.8 S	24		-25	30	Lost Sample	
628.15									
Loose Yellowish Brown Gravelly Loam									
		8		14			24	3.9 B	18
625.65									
Very Stiff Brown Clay Loam (Till)									
	-10	14	2.7 B	17		-30	29	4.1 B	19
623.15									
Hard Brown Clay Loam (Till)					Very Stiff Gray Clay				
		19	4.1 B	16			26	3.5 S	25
620.65									
Hard Gray Clay (Till)									
	-15	27	4.3 B	15		-35	23	Lost Sample	
					598.15				
					End of Boring				
		24	4.9 B	15					
	-20	21	4.0	16		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE I-80 (FAI 80) DESCRIPTION County Highway 9-D over FAI 80 (Sta 210+80.6) LOGGED BY Gehler

SECTION 50-3HB-1 LOCATION SW 1/4, SEC. 31, TWP. 34N, RNG. 3E, 3rd PM,

Latitude , Longitude

COUNTY LaSalle DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 050-0081
Station 210+80.6

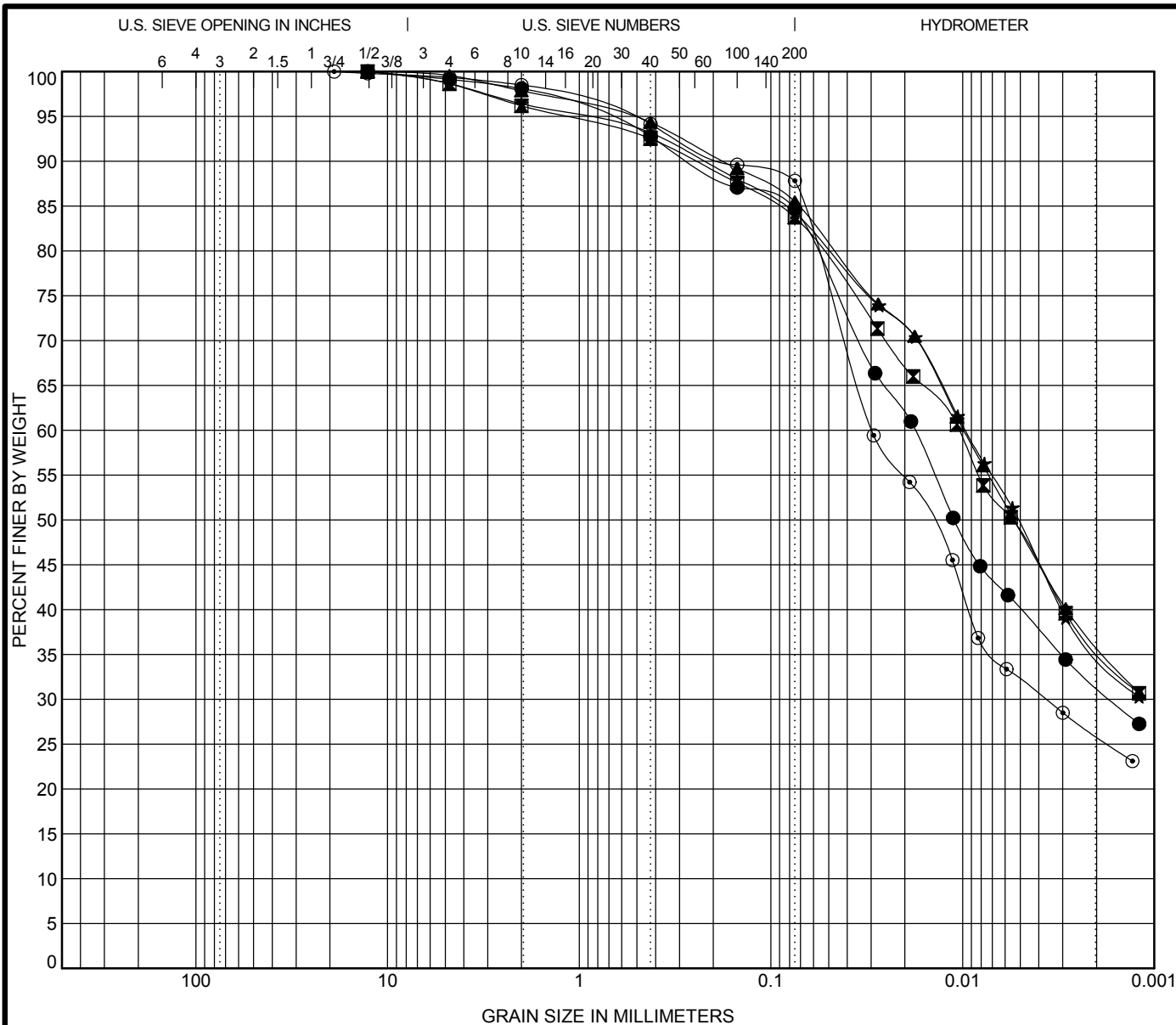
BORING NO. 4 (S. Abut.)
Station 16+02.25
Offset 13.0 ft Lt.
Ground Surface Elev. 632.81 ft

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. _____ ft	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
				Stream Bed Elev. _____ ft				
				Groundwater Elev.: First Encounter _____ ft				
				Upon Completion <u>624.5</u> ft ∇				
				After <u>24</u> Hrs. <u>625.0</u> ft ∇				
								B
	18	1.0 S	22			24	Lost Sample	
629.31					609.31			
	10	1.7 S	25		-25	19		20
627.81	-5							
	11	2.0 E	21		606.81			
625.31						27	4.3 B	19
	17	3.3 B	20		604.31			
	17	3.3 B	20		-30	21		19
621.81	-10							
	21	5.0 S	17			24	3.7 B	26
					599.31			
	28	6.2 S	17		598.31			
	22	2.4 S	26		-35	22	2.4 S	26
					597.31			
	23	5.0 S	17					
614.31								
	25	3.7	19		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Appendix G

Grain Size Distribution with
Atterberg Limits and IDH
Textural Classification Chart



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 01 2.50	A-6 (15) SILTY CLAY	33.8	14.8	19.0		
☒ 01 5.00	A-6 (10) CLAY	29.4	15.0	14.4		
▲ 01 7.50	A-6 (11) CLAY	29.6	14.7	14.9		
★ 01 10.00	A-6 (8) CLAY	26.4	13.8	12.6		
◎ 02 2.50	A-6 (18) SILTY CLAY LOAM	38.3	16.6	21.7		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 01 2.50	12.7	0.018	0.002		1.9	13.4	53.3	31.4
☒ 01 5.00	12.7	0.01			3.8	12.4	47.9	35.8
▲ 01 7.50	12.7	0.01			2.2	12.3	49.3	36.2
★ 01 10.00	12.7	0.01			3.6	12.1	48.9	35.4
◎ 02 2.50	19	0.03	0.004		1.5	10.7	61.9	25.9

GRAIN SIZE IDH 3-18-11 CH 9 OVER I-80 4 MILES EAST OF IL 178 GPJ IL DOT.GDT 10/1/19



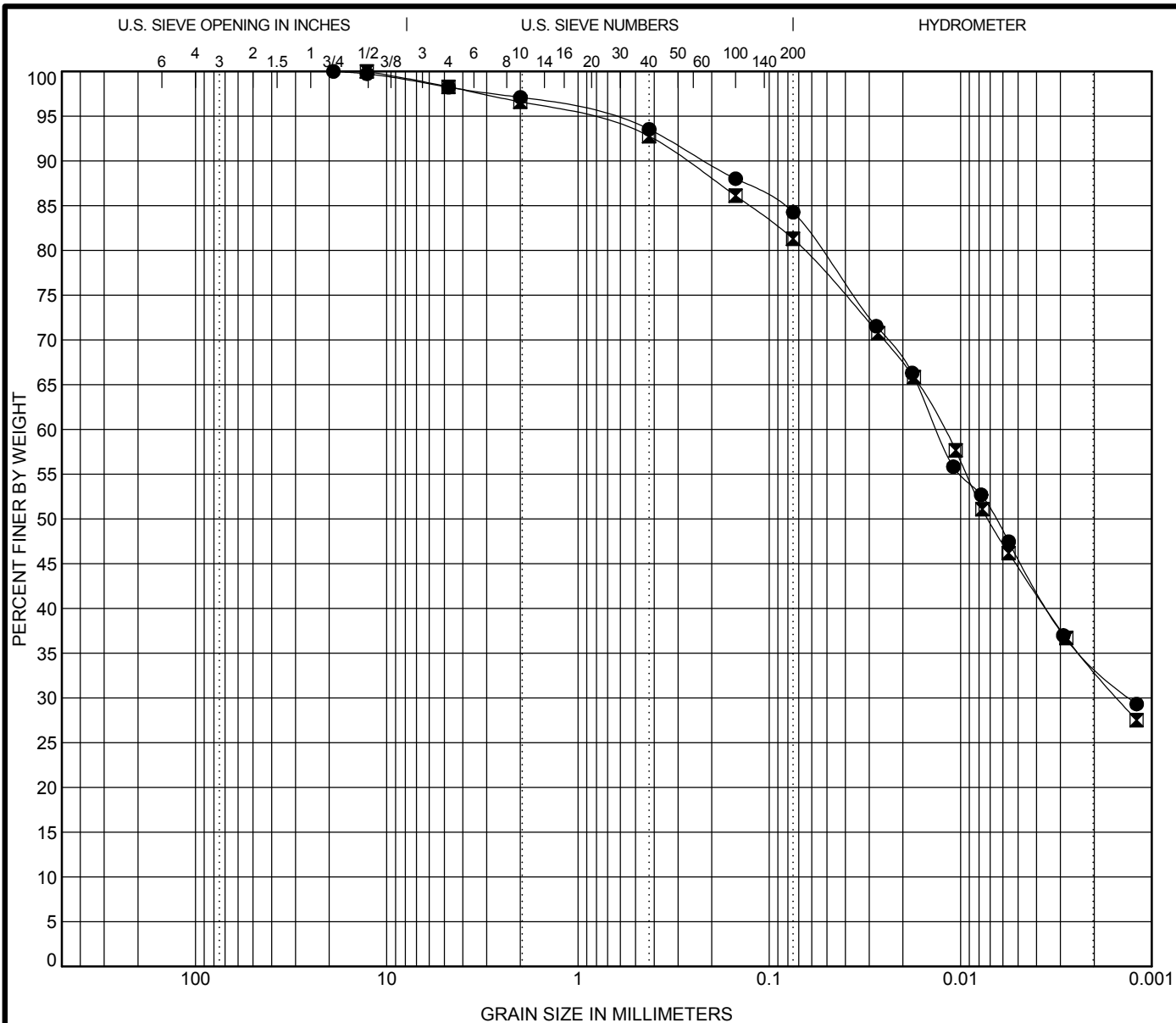
Illinois Department of Transportation
 Division of Highways
 Illinois Department of Transportation

IDH GRAIN SIZE DISTRIBUTION

Route: FAI 80 (I-80)

Section: (50-3)HBR-3

County: LaSalle



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 02 4.50	A-6 (11) SILTY CLAY	28.6	13.5	15.1		
☒ 02 9.50	A-6 (7) CLAY	24.8	12.8	12.0		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 02 4.50	19	0.013	0.001		2.9	12.8	50.5	33.8
☒ 02 9.50	12.7	0.012	0.002		3.4	15.3	48.2	33.0



Illinois Department of Transportation
 Division of Highways
 Illinois Department of Transportation

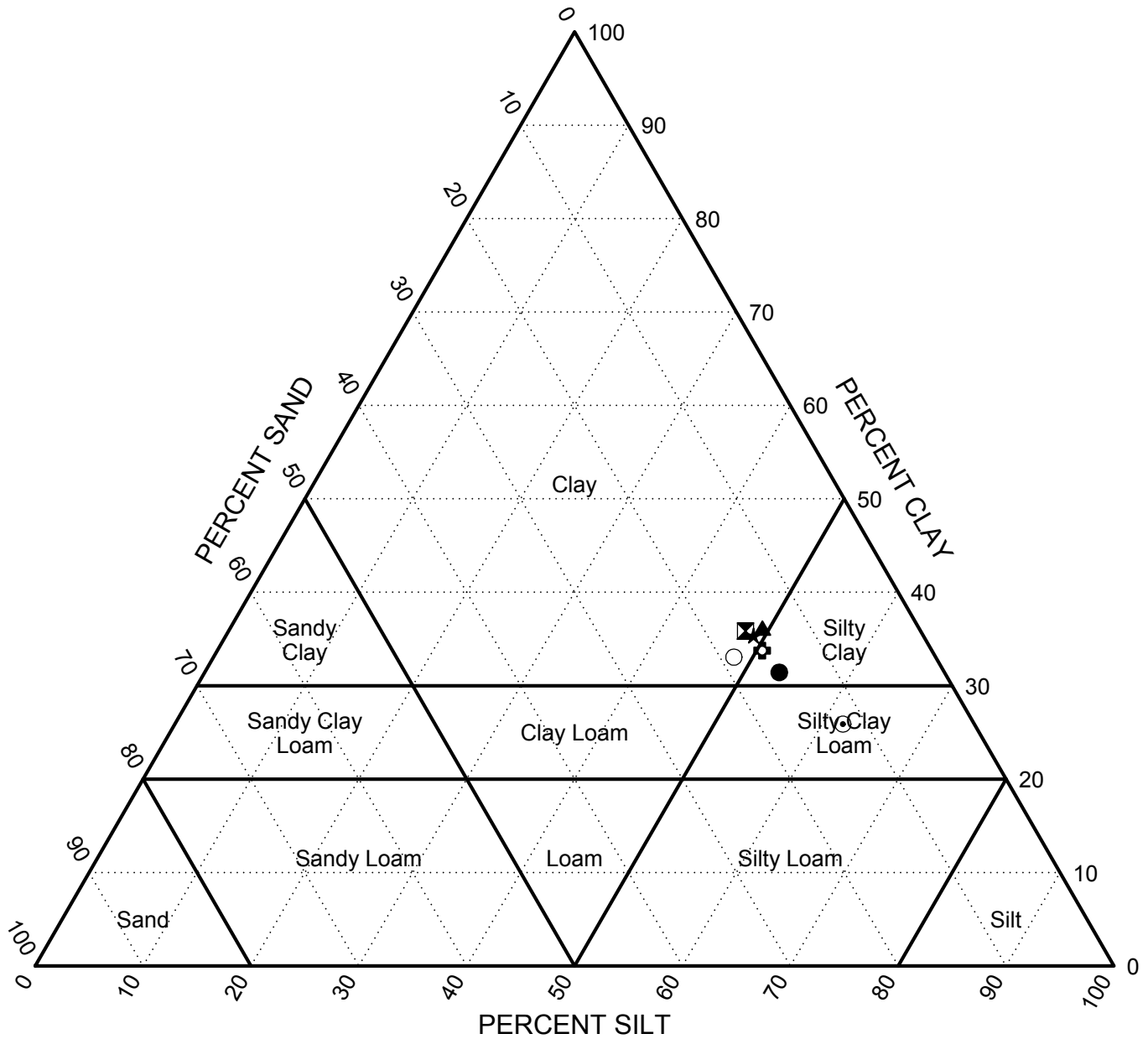
IDH GRAIN SIZE DISTRIBUTION

Route: FAI 80 (I-80)

Section: (50-3)HBR-3

County: LaSalle

GRAIN SIZE IDH 3-18-11 CH 9 OVER I-80 4 MILES EAST OF IL 178.GPJ IL DOT.GDT 10/1/19



	Borehole	Station	Offset	Depth (ft)	Classification
●	01	109+92.62	32.52 ft Rt.	2.50	A-6 (15) SILTY CLAY
⊠	01	109+92.62	32.52 ft Rt.	5.00	A-6 (10) CLAY
▲	01	109+92.62	32.52 ft Rt.	7.50	A-6 (11) CLAY
★	01	109+92.62	32.52 ft Rt.	10.00	A-6 (8) CLAY
⊙	02	120+44.72	53.70 ft Rt.	2.50	A-6 (18) SILTY CLAY LOAM
⊕	02	120+44.72	53.70 ft Rt.	4.50	A-6 (11) SILTY CLAY
○	02	120+44.72	53.70 ft Rt.	9.50	A-6 (7) CLAY



Illinois Department of Transportation
 Division of Highways
 Illinois Department of Transportation

IDH Textural Classification Chart

Route: FAI 80 (I-80)

Section: (50-3)HBR-3

County: LaSalle

Appendix H

Special Provisions

2D

EMBANKMENT

(Effective July 1, 1990; Revised July 23, 2018)

This work shall be performed in accordance with Section 205 of the Standard Specifications except the embankment material shall not be placed and compacted at moisture contents in excess of 110 percent of optimum moisture unless authorized, in writing, by the Engineer.

Topsoil material shall not be placed in the embankment within 12 inches (300 mm) of the pavement structure.

DESIGNER NOTE:

To be included on all projects involving earthwork compaction when measurement will be other than truck count.

2B

BORROW AND FURNISHED EXCAVATION

(Revised January 1, 2010)

In addition to the requirements of Section 204 of the Standard Specifications for suitable materials, the following restrictions shall apply:

1. The moisture content of the material as it is incorporated into the embankment shall be between 80% to 110% of AASHTO T99 optimum.
2. A 3 ft. (1 m) minimum cover of other suitable material shall be maintained outside of and on top of the embankment.
3. If the liquid limit of the material is greater than or equal to 50, the material shall not be used for capping, shall not be placed within 20 feet of any structure, and shall not be placed in locations where it may come into contact with water.
4. Embankment capping material (as outlined in #2) shall meet non-frost susceptibility criteria as outlined in the statewide Geotechnical Manual. Materials are considered frost susceptible when the soil contains at least 65% silt and sand content, according to AASHTO T88 and the Plasticity Index is less than 12.

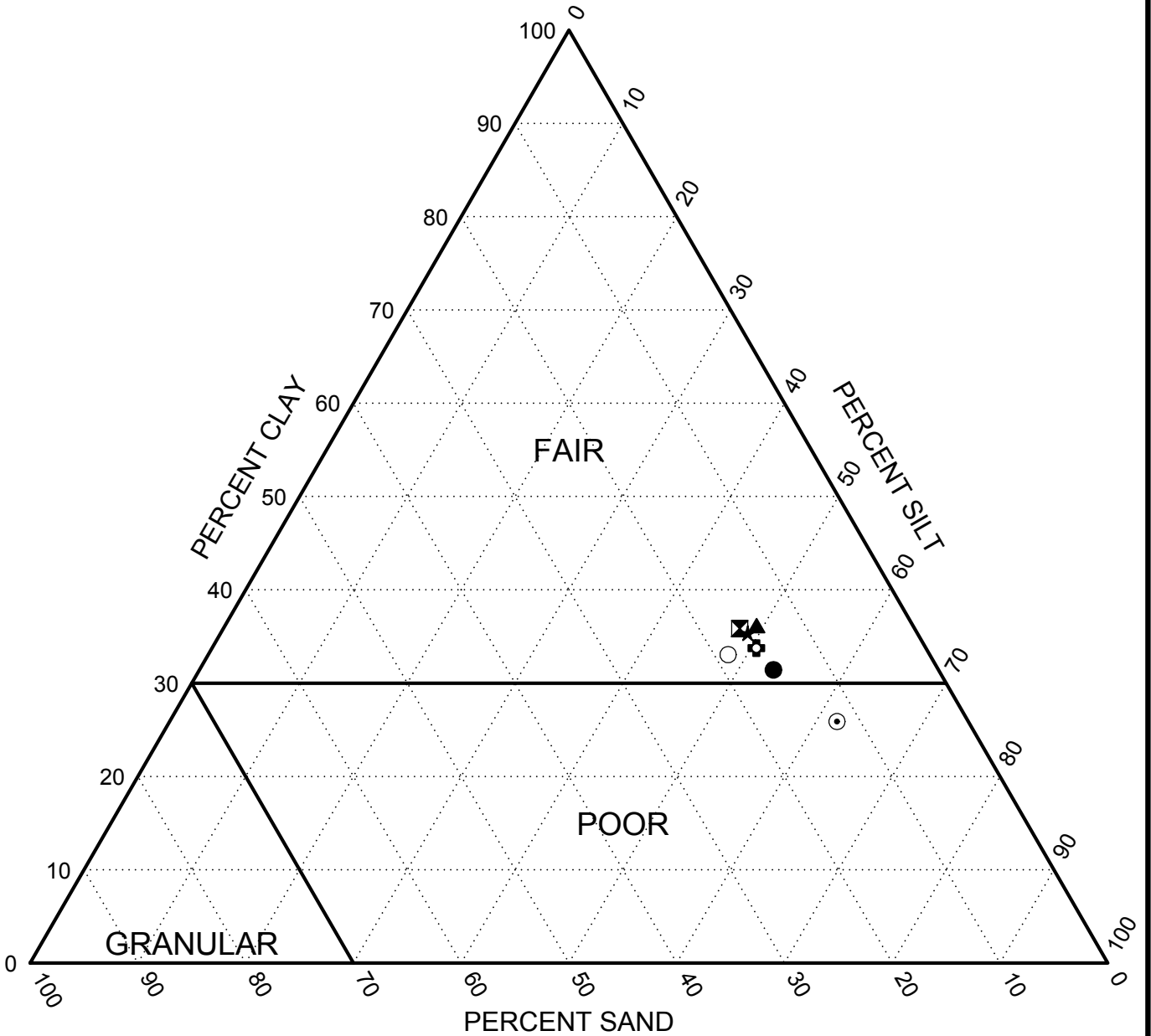
DESIGNER NOTE:

To be used when requested by Bureau of Project Implementation.

Appendix I

Subgrade Support Rating (SSR) Chart

SUBGRADE SUPPORT RATINGS CH 9 OVER I-80, 4 MILES EAST OF IL 178, GPJ IL DOT, GDT 10/17/19



	Borehole	Station	Offset	Depth (ft)	Classification
●	01	109+92.62	32.52 ft Rt.	2.50	A-6 (15) SILTY CLAY
⊠	01	109+92.62	32.52 ft Rt.	5.00	A-6 (10) CLAY
▲	01	109+92.62	32.52 ft Rt.	7.50	A-6 (11) CLAY
★	01	109+92.62	32.52 ft Rt.	10.00	A-6 (8) CLAY
⊙	02	120+44.72	53.70 ft Rt.	2.50	A-6 (18) SILTY CLAY LOAM
⊕	02	120+44.72	53.70 ft Rt.	4.50	A-6 (11) SILTY CLAY
○	02	120+44.72	53.70 ft Rt.	9.50	A-6 (7) CLAY



Illinois Department of Transportation
 Division of Highways
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SUBGRADE SUPPORT RATING

Route: FAI 80 (I-80)

Section: (50-3)HBR-3

County: LaSalle

Appendix J

Slope Stability Analysis

Slope Stability - CH 9 over I-80, Abutment Cross Section, Long Term Conditions

