



Illinois Department of Transportation

Memorandum

To: Dave Broviak Attn: Joe Kannel
From: Mike Short *MAS*
Subject: Roadway Geotechnical Report *
Date: August 26, 2019

* Route: FAI 55 (I-55)
 Section: [(32-3)HB-1]ES
 County: Grundy
 Contract No.: 66H15

Attached is the Roadway Geotechnical Report for the subject project, which consists of work on Illinois 47 at Interstate 55.

An electronic copy of the report is available in ProjectWise at:

pw:\\planroom.dot.illinois.gov:PWIDOT\Documents\IDOT Offices\District 3\Miscellaneous\SOILS\Archive\Roadway\Grundy County\IL 47 from Northbrook Dr to 0.32 mi North of I-55 - Co 66H15 - RGR 2019.pdf

If you have any questions, please contact Mike Short at 815-433-7085.

MS:bs/Soils/RoadwayGeotechReport #66H15

cc: Mike Short
 Kyle Videgar
 Resident Engineer

ROADWAY GEOTECHNICAL REPORT

Illinois 47 (FAP 326) over Interstate 55

FAI 55 (I-55)

Section [(32-3)HB-1]ES

P-93-027-17

Contract 66H15

Grundy County



Prepared by: Michael Short; IDOT District 3; 1-815-433-7085; Michael.Short@Illinois.gov

August 26, 2019

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I. General Information

A. Project Location and Existing Conditions

The proposed project limits are from the Northbrook Drive intersection to the south approach pavement of existing SN 032-0110 (north of the Interstate 55 interchange), approximately 0.65 miles along Illinois 47 (IL-47). It is a rural, four-lane divided highway with a curb median and approximately 12-foot wide hot-mix asphalt shoulders. The existing structure (SN 032-0079) over Interstate 55 (I-55) is a multi-span bridge built in 1974 with a skew angle of about 11 degrees, 254'-10 1/4" back-to-back of abutments, and 92'-0" out-to-out deck width. A project location map is in Appendix A.

Both roadway approaches are in "poor" condition based on the 2017 Condition Rating Survey (CRS). The pavement is critically deficient and in need of immediate improvement. The International Roughness Index (IRI) is unacceptable having the "roughest" ride quality. Longitudinal and transverse cracking are present throughout this section of IL-47 with a faulting severity of "low". See the pavement condition data on Table 1.

County	Route	CRS	IRI	Faulting
Grundy	IL-47 (FAP 326)	3.7 (Poor)	236 (Roughest)	0.18 (Low)

Table 1: Data for CRS, Rutting, and Faulting Data (2017)

Pavement cores were also taken to determine the condition and thickness of the existing pavement. The description, condition, and location of each core can be found in Appendix B.

B. Project Description and Scope

The project description and scope includes the removal and replacement of SN 032-0079 which carries IL-47 over I-55 including the reconstruction of the approach roadways extending to the project limits. The proposed bridge (SN 032-0125) is 247'-4" back-to-back of abutments with a clear width of 90'-0" face-to-face of parapets and will maintain the existing right forward skew. 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 pavement design includes removing the existing pavement and constructing 12 inches of improved subgrade, 4 inches of stabilized sub-base, underdrains, and 10.25 inches of Jointed Plain Concrete Pavement (JPCP) with tied shoulders. See existing and proposed typical sections in Appendix C. The corresponding plan and profile sheets, which include the soil profile are provided in Appendix D.

C. Geology and Soil Characteristics

The project area lies within the northwestern portion of the Kankakee Plain Physiographic Division of the Till Plains Section of the Central Lowlands Province. This is an area of poor drainage, flat topography, and is predominantly silty and clayey 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.

The bedrock geology in the general project area consists of Carbondale formation which includes shale with sandstone, limestone, and coal and clay deposits. As illustrated on the structure borings, the bedrock was not encountered and therefore is not expected to impact the roadway reconstruction portion of IL-47 or any associated drainage facilities. These boring logs are shown in Appendix F.

II. Subsurface Exploration

A. Field Exploration

Roadway soil borings were completed October 19, 2017. The previous five months (May 2017 – September 2017) had above average precipitation shown on Table 2. The groundwater table was not encountered on any of the roadway soil borings; however, structure borings encountered groundwater ranging from elevation 599 to 602 near the north abutment and center pier.

Year	Month	Observed Precipitation¹ (in.)	Normal Precipitation¹ (in.)	Departure from Normal (+/- in.)
2017	May	5.62	4.45	+1.17
	June	6.88	3.94	+2.94
	July	4.50	4.02	+0.48
	August	3.18	3.50	-0.32
	September	0.69	3.03	-2.34
TOTAL		20.87	18.94	+1.93

¹Data for Dwight, Illinois from US Climate Data web site:

(<https://www.usclimatedata.com/climate/dwight/illinois/united-states/usil0335>)

Table 2: Comparison of Actual (Observed) and Historical (Normal) Precipitation

A subsurface investigation was conducted to determine the depth and characteristics of the soils along the proposed roadway improvement. A total of eight borings were taken with a truck mounted drill rig using a three-foot split spoon sampler driven by a CME automatic SPT hammer. Borings were spaced at approximately 1,000 feet apart at each direction of travel and about 500 feet staggered spacing for both directions.

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 limit

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. Complete Soil Test Data is provided in Appendix H. The classification of each soil sample using the Illinois Division of Highways (IDH) Textural Classification Chart illustrated in Appendix I.

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 structure.

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 80 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 J 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)

Based on the particle size analysis of the representative soil samples, a Subgrade Support Rating (SSR) of “fair” is recommended. All the samples fall within the “fair” category of the SSR Chart as shown in Appendix K.

The approximate Illinois Bearing Ratio (IBR) for a project soil may be estimated from Table 6.3.1-1 from the IDOT 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 IL-47.

D. Subgrade Improvement

The project proposes a 12 inch aggregate subgrade improvement underlying a 4 inch stabilized subbase. 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.

DCP tests taken through pavement core holes show an average Immediate Bearing Value (IBV) greater than 3. This data is provided in Appendix L. Based on the Subgrade Stability Manual, the existing soil profile should be able to provide a stable working platform during construction without the need for geosynthetic fabric. However, 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 subgrade improvement 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

Most of the soil samples taken have moisture contents less than 25 percent accompanied with high unconfined compressive strength (Q_u) values ranging from 2.5 to 3.5 tons per square foot (tsf). Based on the proposed profile, it is estimated that up to one foot of fill material will be added to the minor embankment widening near the bridge abutments with 4:1 sideslopes. Existing conditions indicate no significant settlement at the approach embankments. In addition, the SGR has also determined that settlement is minor.

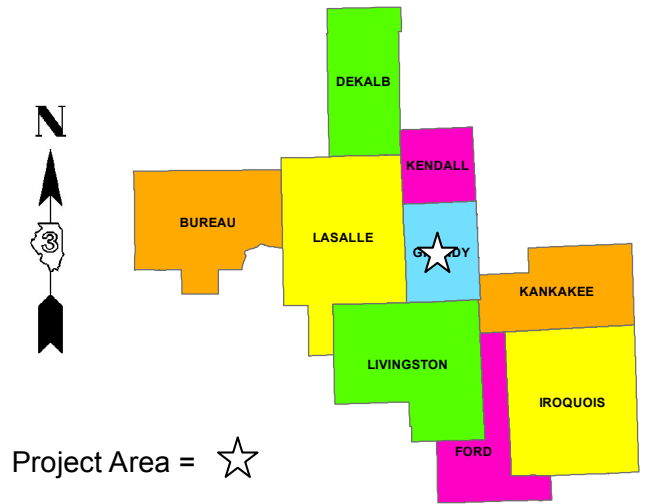
A slope stability analysis was performed for the worst case using five feet of embankment fill. The calculated factor of safety (FOS) was much higher than the minimum required. Therefore, the addition of fill material on both approach embankments is not expected to cause slope stability problems. Copies of the analyses are in Appendix M.

Appendix A

Project Location Map

Project Location Map

FAI 55 (I-55) & FAP 326 (IL 47)
Section [(32-3)HB-1]ES
Grundy County
Reconstruction & Bridge Replacement (SN 032-0079)
At IL 47 Interchange in Dwight
Phase I Job No: P-93-027-17
Contract No. 66H15



Appendix B

Pavement Cores



Illinois Department of Transportation

Memorandum

To: Dave Broviak Attn: Dave Alexander
From: Michael A. Short
Subject: Pavement Cores *
Date: January 2, 2018

- * Route: FAI 55 (I-55) & FAP 326 (IL 47)
Section: [(32-3)HB-1]ES
County: Grundy
Contract No.: 66H15

Attached are descriptions and pictures for the eight cores taken. The intent of the cores is to determine the condition and thickness of the existing pavement.

Cores were taken at the locations indicated.

If you have any questions, please contact Mike Short at Ext. 7085.

MS:bz/Pavement Cores – IL 47 @ I 55 Dwight Interchange

cc: Mike Short

Core #	1	Route:	IL 47 over I-55	Core Date:	10/19/2017	Logged By:	John Harmon
Station:	36+89.59	Latitude:	41.11372	Longitude:	-88.413723		
Offset:	29.5 Rt	Direction:	NB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9 1/2"	PCC	Good	None	None	Some	
2	Unknown	HMA Binder	Poor				Rubble
3							Dirt Subbase
4							
5							
6							
7							
8							

Core #	2	Route:	IL 47 over I-55	Core Date:	10/18/2017	Logged By:	John Harmon
Station:	43+77.99	Latitude:	41.115609	Longitude:	-88.413797		
Offset:	29.3 Rt	Direction:	NB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9 1/2"	PCC	Good	None	None	Some	
2	3 1/2"	HMA Binder	Poor	Many	Many	Many	
3							Dirt Subbase
4							
5							
6							
7							
8							

Core #	3	Route:	IL 47 over I-55	Core Date:	10/18/2017	Logged By:	John Harmon
Station:	53+28.88	Latitude:	41.118218	Longitude:	-88.413897		
Offset:	29.6 Rt	Direction:	NB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9"	PCC	Good	None	None	Some	
2	4 ¼"	HMA Binder	Poor	None	None	Many	
3							Dirt Subbase
4							
5							
6							
7							
8							

Core #	4	Route:	IL 47 over I-55	Core Date:	10/18/2017	Logged By:	John Harmon
Station:	62+09.29	Latitude:	41.120633	Longitude:	-88.413993		
Offset:	29.4 Rt	Direction:	NB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9"	PCC	Good	None	None	Some	
2	3 1/2"	HMA Binder	Poor	None	None	Many	Major Voids / Very Poor
3							Dirt Subbase
4							
5							
6							
7							
8							

Core #	5	Route:	IL 47 over I-55	Core Date:	10/18/2017	Logged By:	John Harmon
Station:	56+61.84	Latitude:	41.119126	Longitude:	-88.414149		
Offset:	30.0 Lt	Direction:	SB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9 3/4"	PCC	Good	None	None	Some	
2	3 1/2"	HMA Binder	Poor	None	None	Many	Major Voids / Very Poor
3							Dirt Subbase
4							
5							
6							
7							
8							

Core #	6	Route:	IL 47 over I-55	Core Date:	10/18/2017	Logged By:	John Harmon
Station:	47+61.82	Latitude:	41.116657	Longitude:	-88.414054		
Offset:	30.4 Lt	Direction:	SB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9 1/2"	PCC	Good	None	None	Some	
2	3 1/2"	HMA Binder	Poor	None	None	Many	
3							Dirt Subbase
4							
5							
6							
7							
8							

Core #	7	Route:	IL 47 over I-55	Core Date:	10/18/2017	Logged By:	John Harmon
Station:	43+31.46	Latitude:	41.115477		Longitude:	-88.414004	
Offset:	29.1 Lt		Direction:	SB	Lane:	Driving Lane	
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9 1/4"	PCC	Good	None	None	Some	
2	3 3/4"	HMA Binder	Poor	None	None	Many	
3							Dirt Subbase
4							
5							
6							
7							
8							

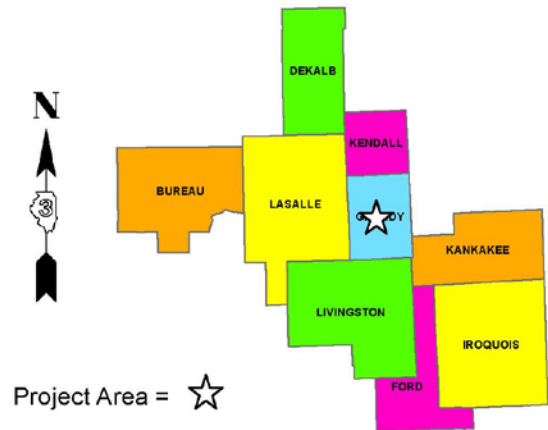
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Station:	38+44.59	Latitude:	41.114141	Longitude:	-88.413951		
Offset:	28.9 Lt	Direction:	SB	Lane:	Driving Lane		
Comments:							



Lift	Thickness	Material	Condition	Pavement Cracks	Aggregate Cracks	Voids	Comments
1	9 ½"	PCC	Fair	None	None	Some	
2	3"	HMA Binder	Poor	None	None	Many	
3							Dirt Subbase
4							
5							
6							
7							
8							

Project Location Map

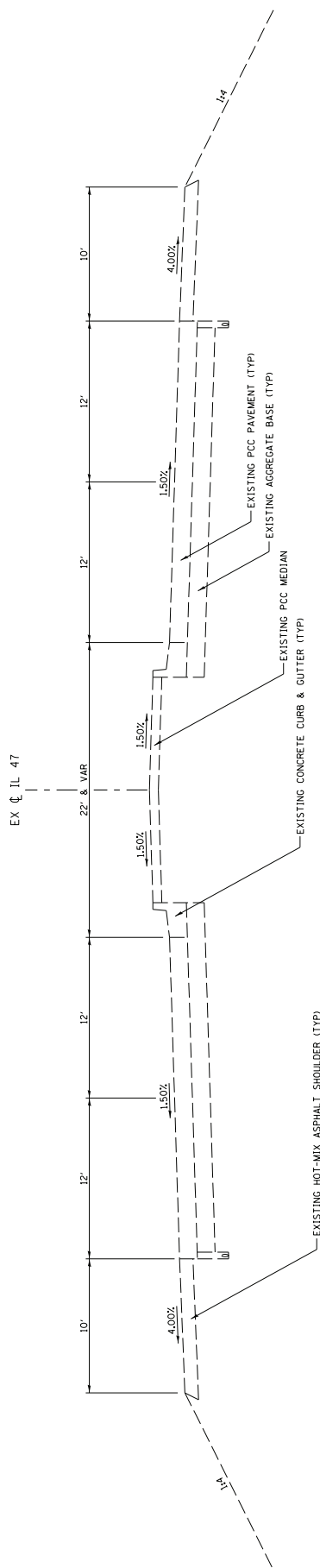
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Section [(32-3)HB-1]ES
Grundy County
Reconstruction & Bridge Replacement (SN 032-0079)
At IL 47 Interchange in Dwight
Phase I Job No: P-93-027-17
Contract No. 66H15



D3# 2262

Appendix C

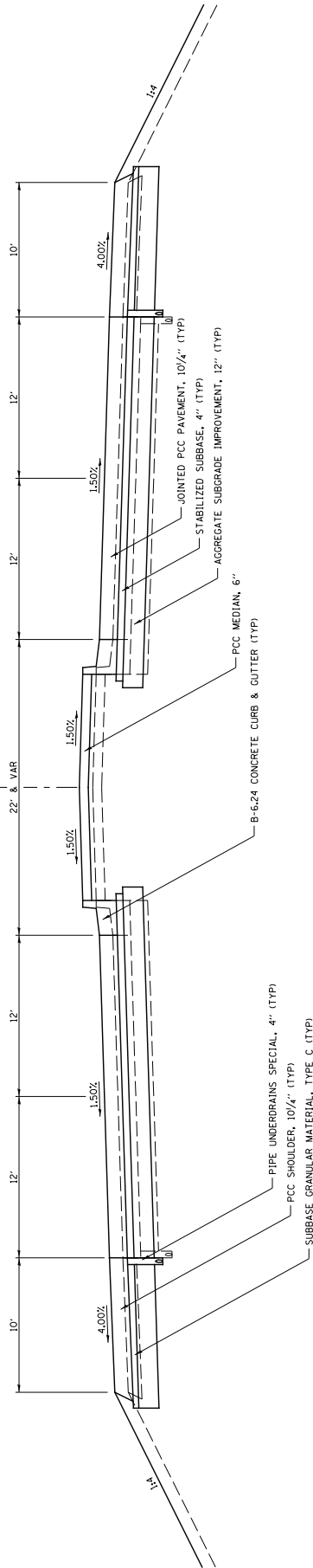
Existing and Proposed
Typical Sections



EXISTING TYPICAL SECTION
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DRAWN	-	REVISOR	-								
CHECKED	-	REVISOR	-								
DATE	-	REVISOR	-								
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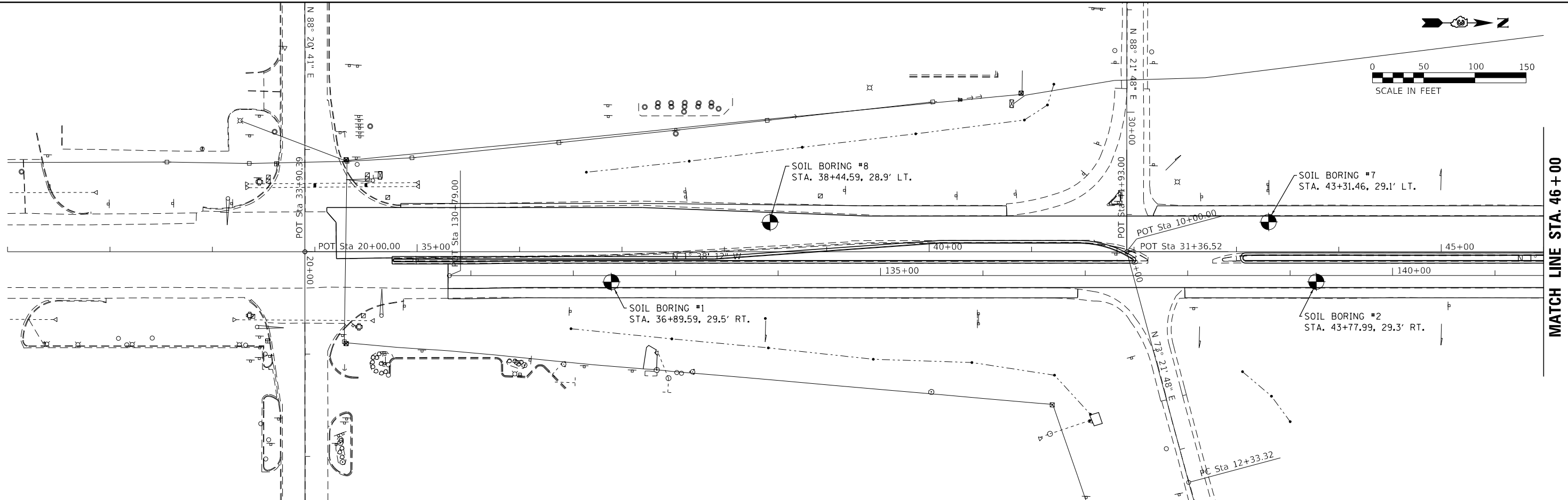
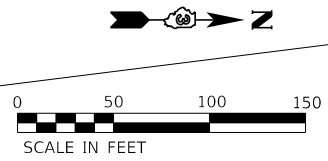


PROPOSED JPCP TYPICAL SECTION
FAP 326 (IL 47)

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Appendix D

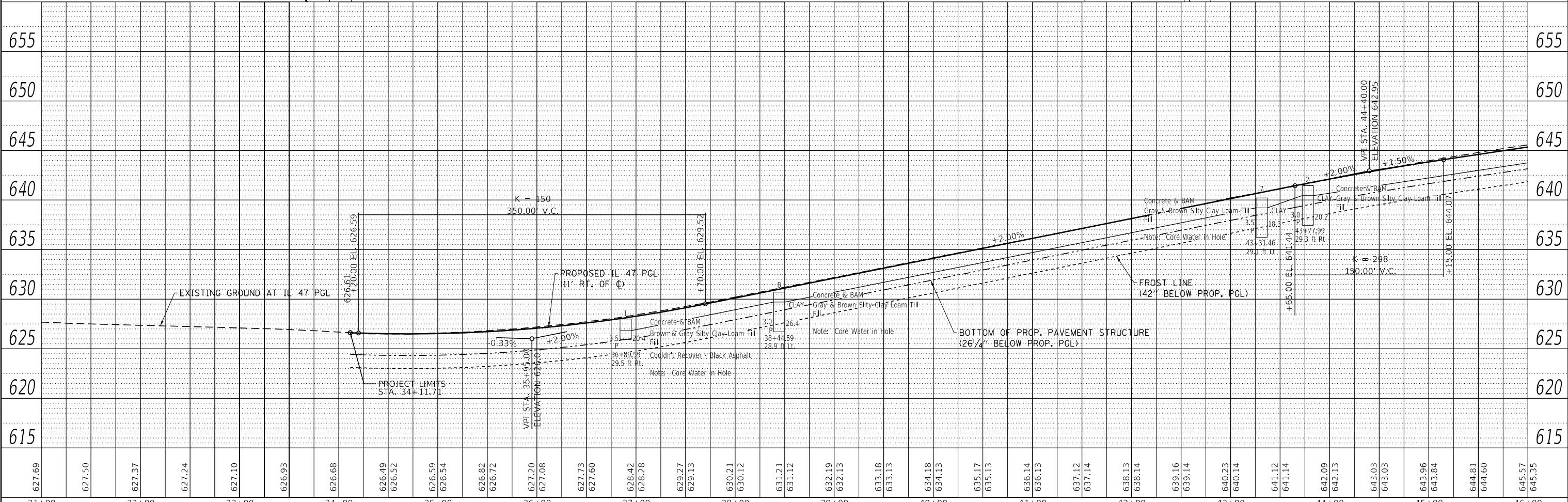
Proposed Plan and Profile,
Including Soil Profile



MATCH LINE STA. 46+00

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	NOTE BOOK NO.	
	CADD FILE NAME	



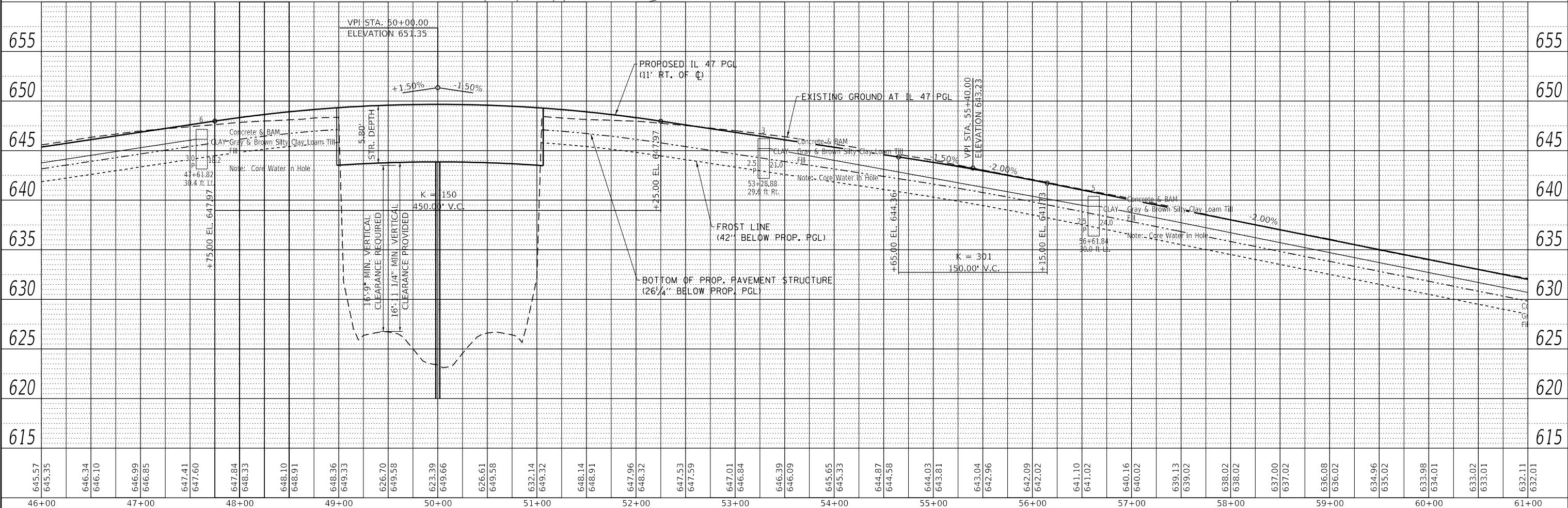
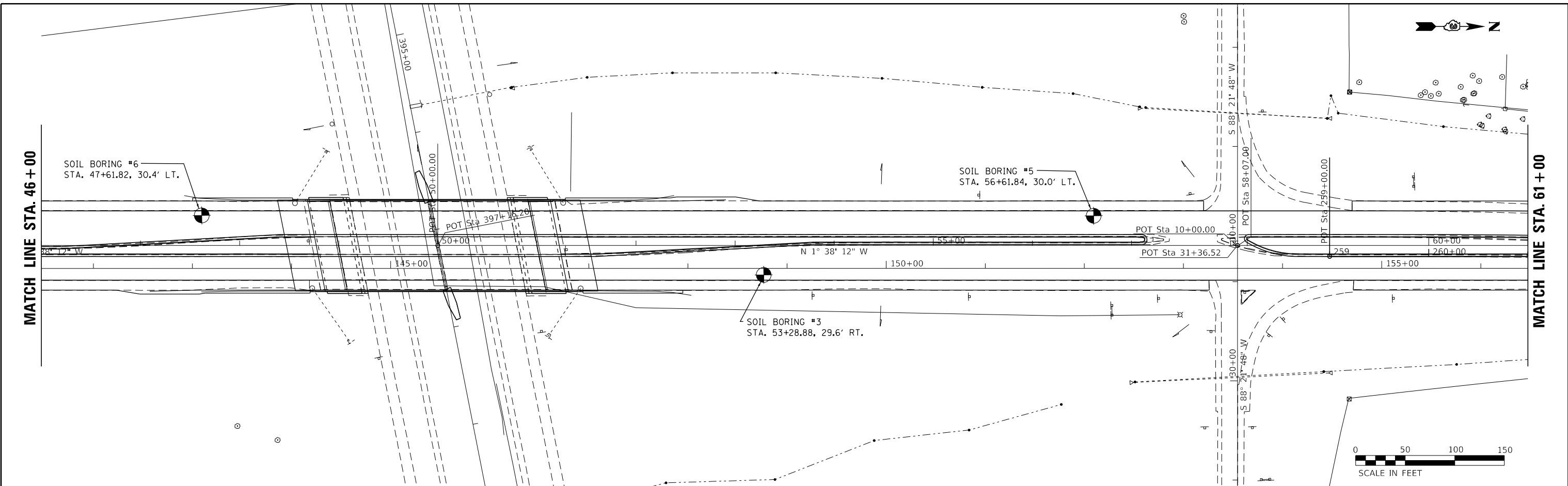
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31+00	32+00	33+00	34+00	35+00	36+00	37+00	38+00	39+00	40+00	41+00	42+00	43+00	44+00	45+00	46+00																																							
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	FILED	
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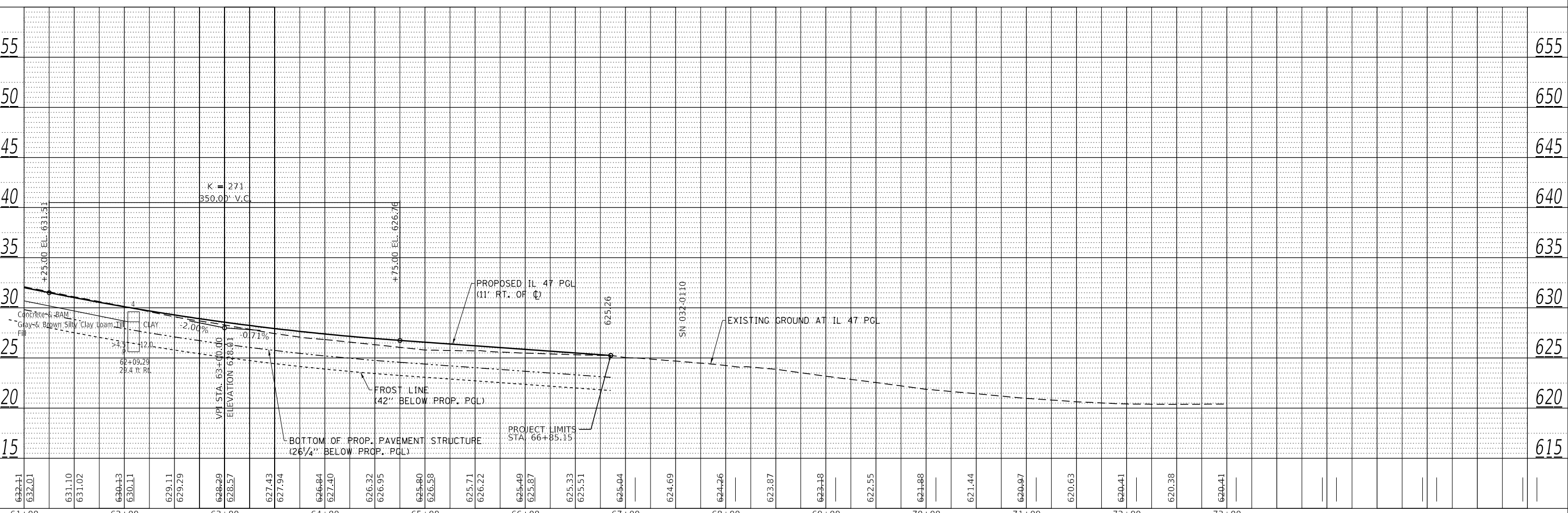
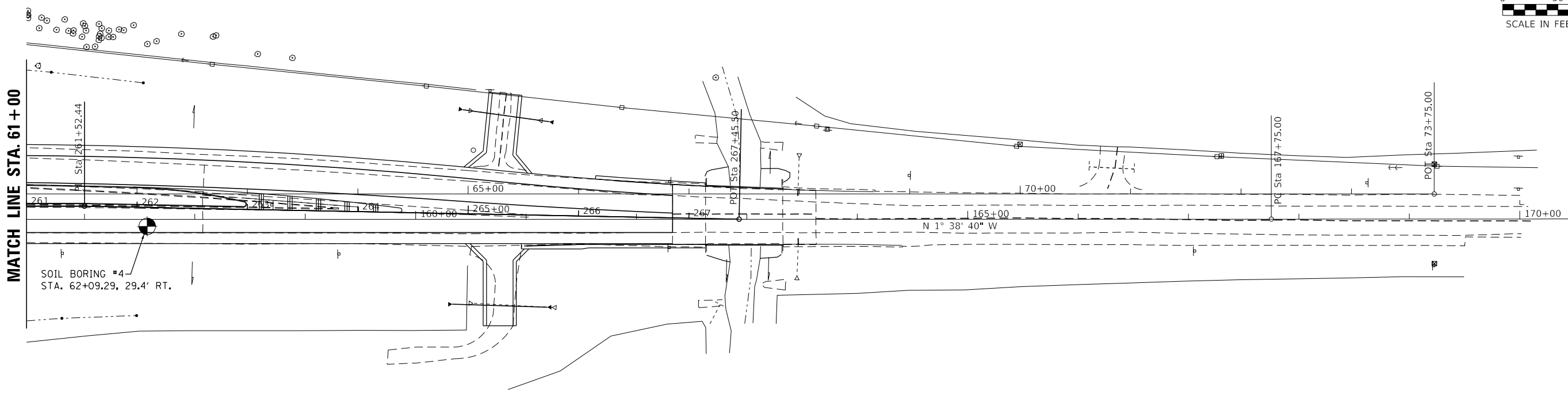
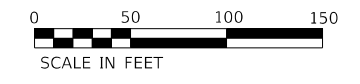
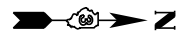


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PLOT DATE	= 8/13/2019	DATE	-	REVISED	-

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

FAP 326 (IL 47) SOIL BORING LOCATIONS				
SCALE:	SHEET	OF	SHEETS	STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	[(32-3)HB-1]E5	GRUNDY	3	2
CONTRACT NO. 66H15				
ILLINOIS FED. AID PROJECT				



PLAN	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	ALIGNED		
	CHECKED		
	NO.		

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	GRADES CHECKED		
	STRUCTURE NOTATIONS CHECKED		
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	DRAWN -	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -
PLOT DATE = 8/13/2019	DATE -	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

FAP 326 (IL 47) SOIL BORING LOCATIONS

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	[(32-3)HB-1]E5	GRUNDY	3	3
CONTRACT NO. 66H15			ILLINOIS FED. AID PROJECT	

Appendix E

Roadway Soil Borings
(FAP 326)



SOIL BORING LOG

ROUTE IL 47 DESCRIPTION _____ LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.11372, Longitude -88.413723

COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO. _____ Station _____	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
BORING NO. <u>1</u> Station <u>36+89.59</u> Offset <u>29.5 ft Rt.</u> Ground Surface Elev. <u>628.00</u> ft					Groundwater Elev.: _____ ft
					First Encounter _____ ft Upon Completion _____ ft After _____ Hrs. _____ ft

Concrete & BAM					
	626.83				
Brown & Gray Silty Clay Loam Till Fill	626.08		3.5	20	
Couldn't Recover - Black Asphalt	625.92		P		
Note: Core Water in Hole					
End of Boring					
	-5				
	-10				
	-15				
	-20				

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

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)
BBS, form 137 (Rev. 8-99)



SOIL BORING LOG

ROUTE IL 47 DESCRIPTION _____ Sample #1 LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.115609, Longitude -88.413797

COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO. _____ Station _____	D E P T H H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft
BORING NO. <u>2</u> Station <u>43+77.99</u> Offset <u>29.3 ft Rt.</u> Ground Surface Elev. <u>641.45</u> ft					Stream Bed Elev. _____ ft
Ground Surface Elev. _____ ft	(ft)	(/6")	(tsf)	(%)	Groundwater Elev.: First Encounter _____ ft Upon Completion _____ ft After _____ Hrs. _____ ft
Concrete & BAM 640.45					
Gray & Brown Silty Clay Loam Till Fill					
637.45			3.0 P	20	
End of Boring	-5				
	-10				
	-15				
	-20				

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

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 IL 47 DESCRIPTION _____ Sample #3 LOGGED BY Larry Myers
 SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
 Latitude 41.120633, Longitude -88.413993
 COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO. _____ Station _____	D E P T H S P T	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft
					Stream Bed Elev. _____ ft
BORING NO. <u>4</u> Station <u>62+09.29</u> Offset <u>29.4 ft Rt.</u>					Groundwater Elev.: _____
Ground Surface Elev. <u>629.62</u> ft					First Encounter _____ ft
					Upon Completion _____ ft
					After _____ Hrs. _____ ft

Description	ft	(ft)	(/6")	(tsf)	(%)	
Concrete & BAM	628.62					
Gray & Brown Silty Clay Loam Till Fill						
	625.62			>4.5 P	12	
End of Boring						
		-5				
		-10				
		-15				
		-20				

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

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)



Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Page 1 of 1

Date 10/19/17

ROUTE IL 47 DESCRIPTION _____ Sample # _____ LOGGED BY Larry Myers

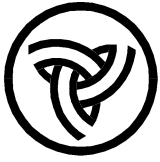
SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.119126, Longitude -88.414149

COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO. _____ Station _____		D E P T H H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft						
BORING NO. <u>5</u> Station <u>56+61.84</u> Offset <u>30.0 ft Lt.</u> Ground Surface Elev. <u>640.38</u> ft						(ft)	(/6")	(tsf)	(%)	Stream Bed Elev. _____ ft		
Concrete & BAM						639.38						
Gray & Brown Silty Clay Loam Till Fill												
Note: Core Water in Hole									2.5	24		
									P			
End of Boring						636.38						
						-5						
						-10						
						-15						
						-20						

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

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 IL 47 DESCRIPTION _____ Sample #5 LOGGED BY Larry Myers
SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.116657, Longitude -88.414054
COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO. _____ Station _____	D E P T H B L O W S U C S M O I S T Qu	(ft)	(/6")	(tsf)	(%)	Surface Water Elev. _____ ft
						Stream Bed Elev. _____ ft
BORING NO. <u>6</u> Station <u>47+61.82</u> Offset <u>30.4 ft Lt.</u> Ground Surface Elev. <u>647.15</u> ft						Groundwater Elev.:
						First Encounter _____ ft Upon Completion _____ ft After _____ Hrs. _____ ft

Concrete & BAM						
646.15						
Gray & Brown Silty Clay Loam Till Fill						
Note: Core Water in Hole						
643.15			3.0	18		
P						
End of Boring						
	-5					
	-10					
	-15					
	-20					

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

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)
 BBS, form 137 (Rev. 8-99)



SOIL BORING LOG

ROUTE IL 47 DESCRIPTION _____ Sample #6 LOGGED BY Larry Myers
 SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.115477, Longitude -88.414004
 COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO. _____ Station _____
 BORING NO. 7 Station 43+31.46
 Offset 29.1 ft Lt.
 Ground Surface Elev. 640.22 ft (ft) (SPT) (blows) (blows) (blows) (blows)
 Surface Water Elev. _____ ft
 Stream Bed Elev. _____ ft
 Groundwater Elev.:
 First Encounter _____ ft
 Upon Completion _____ ft
 After _____ Hrs. _____ ft

Concrete & BAM						
639.22						
Gray & Brown Silty Clay Loam Till Fill						
Note: Core Water in Hole			3.5 P	18		
	636.22					
End of Boring						
	-5					
	-10					
	-15					
	-20					

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19



SOIL BORING LOG

ROUTE IL 47 DESCRIPTION _____ Sample #7 LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.114141, Longitude -88.413951

COUNTY Grundy DRILLING METHOD Push HAMMER TYPE CME Automatic

STRUCT. NO.	D	B	U	M	Surface Water Elev.
Station	E	L	C	O	Stream Bed Elev.
	P	O	S	I	
	T	W		S	Groundwater Elev.:
BORING NO.	H	S	Qu	T	First Encounter
Station					Upon Completion
Offset	(ft)	(/6")	(tsf)	(%)	After _____ Hrs.
Ground Surface Elev.					
Concrete & BAM					
	629.71				
Gray & Brown Silty Clay Loam Till Fill					
Note: Core Water in Hole					
	626.71		3.0	26	
			P		
End of Boring					
	-5				
	-10				
	-15				
	-20				

SOIL BORING IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

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 032-0125)



SOIL BORING LOG

ROUTE FAI 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.117773, Longitude -88.413854

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 01 (N.E. Quad.)
Station 397+54
Offset 165.0 ft Lt.
Ground Surface Elev. 647.74 ft

DEPTH H S ft	BLOW W S (/6")	UCS Qu (tsf)	MOIST S (%)	Surface Water Elev. _____ ft Stream Bed Elev. _____ ft Groundwater Elev.: First Encounter <u>605.2</u> ft ▼ Upon Completion <u>607.7</u> ft ▼ After _____ Hrs. _____ ft	DEPTH H S ft	BLOW W S (/6")	UCS Qu (tsf)	MOIST S (%)
				Very Stiff Brown & Gray Silty Clay Loam Till Fill (<i>continued</i>)		4		
						5	3.9	17
						8	S	
645.24								
				Very Stiff Gray Silty Clay Loam Till Fill		4		
	4					5	3.5	21
	7	2.0	17			7	S	
-5								
	4					4		
	5	3.5	15	Very Stiff Black Silty Clay Loam		5	3.0	22
						9	P	
640.74								
				Hard Gray Silty Clay Loam Till Fill		3		
	4					4	2.9	23
	5	4.0	20	Very Stiff Brown & Gray Silty Clay Loess		5	B	
	7							
-10								
	3			Hard Brown Silty Clay Loam Till		5		
	6	4.4	13			8	9.2	17
	12	S						
	4					7		
	5	4.1	16			9	7.6	19
	8	S				9	S	
633.24								
				Very Stiff Brown & Gray Silty Clay Loam Till Fill		5		
	3					7	4.1	21
	4	3.5	21	Hard to Very Stiff Gray Silty Clay Loam Till		9	S	
	5	S						
	4					4		
	5	3.9	20			5	3.7	23
	8	S				7	S	
-20								

SOIL BORING 032-0079.GPJ IL_DOT.GDT 1/15/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.117773, Longitude -88.413854

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 01 (N.E. Quad.)
Station 397+54
Offset 165.0 ft Lt.
Ground Surface Elev. 647.74 ft

DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)	Surface Water Elev. ft	Stream Bed Elev. ft	GROUNDWATER ELEV. (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOISTURE (%)
4							7		
5	3.7		20				7	4.5	15
8	S					586.24	8	S	
▼									
1									
1	3.0		20						
5	P								
-45									
6									
8	4.1		16						
9	S								
-50									
6									
8	4.3		15						
9	S								
-55									
8									
9	5.6		15						
12	S								
-60									
7									
8	4.5		15						
10	S								
-65									
7									
8	4.7		14						
10	S								
-70									
6									
7	4.5		15						
9	S								
-75									
6									
7	4.5		15						
9	S								
-80									

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 032-0079.GPJ IL_DOT.GDT 1/15/19



SOIL BORING LOG

ROUTE FAI 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude 41.116896, Longitude -88.414099

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 032-0079
 Station 397+16.20
 BORING NO. 02 (S.W. Quad.)
 Station 396+77
 Offset 150.0 ft Rt.
 Ground Surface Elev. 647.71 ft

D E P T H (ft)	B L O W S (/6")	U C S (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 (tsf)	M O I S T (%)	Stream Bed Elev. _____ ft
				Groundwater Elev.: _____					
				First Encounter _____ Dry ft					
				Upon Completion _____ Dry ft					
				After _____ Hrs. _____ ft					

Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)	Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)
Augered Bituminous Shoulder, Gray & Brown Silty Clay Loam Till Fill	645.21				Hard Gray & Brown Silty Clay Loam Till Fill (continued)	3			
						6	6.6	16	
						9	S		
Hard Gray & Brown Silty Clay Loam Till Fill		6				5			
		6	4.0	15		7	6.2	19	
		9	P			9	S		
	-5								
		5			Hard Black Silty Clay Loam with Organics	622.71	5		
		6	4.0	16			8	4.5	22
		8	P				11	P	
						620.71			
		4			Very Stiff Gray & Brown Silty Clay Loess		3		
		5	4.0	18			4	2.0	21
		7	P				5	P	
	-10					618.21			
		4			Hard Brown & Gray Silty Clay Loam Till	-30	4		
		4	4.1	20			6	6.8	19
		7	B				9	S	
		4					8		
		6	4.4	17			10	7.2	18
		9	S				12	S	
	-15								
		6					6		
		8	4.7	17			9	7.2	19
		12	S				14	S	
						610.71			
					Very Stiff Gray Silty Clay Till		4		
		3					4	3.0	23
		5	6.2	18			6	B	
		8	S						
	-20								

SOIL BORING 032-0079.GPJ IL_DOT.GDT 1/15/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM, Latitude 41.116896, Longitude -88.414099

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 02 (S.W. Quad.)
Station 396+77
Offset 150.0 ft Rt.
Ground Surface Elev. 647.71 ft

DEPTH H S	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

Very Stiff Gray Silty Clay Till (continued)	2		
	4	3.0	15
	8	B	
605.71			
Hard Gray Silty Clay Loam Till	5		
	7	7.2	13
	9	S	
-45			
	6		
	9	7.8	13
	11	S	
-50			
	7		
	8	7.6	13
	11	S	
-55			
	7		
	9	7.4	14
	11	S	
-60			
End of Boring	8		
	10	7.6	13
	12	S	
-60			
	7		
	12	7.8	13
	14	S	
591.21			

SOIL BORING 032-0079.GPJ IL_DOT.GDT 1/15/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM, Latitude 41.117318, Longitude -88.413775

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 032-0079
 Station 397+16.20

BORING NO. 03 (Center Pier)
 Station 397+63
 Offset 14.0 ft Lt.
 Ground Surface Elev. 623.47 ft

D
E
P
T
H

B
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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 606.0 ft ▼
 Upon Completion 607.5 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) (%)

Augered Black Silty Clay Loam
 Fill, Asphalt Millings Fill
 620.97

Stiff Brown & Gray Silty Clay
 Loess
 618.97

Hard Brown & Gray Silty Clay
 Loam Till
 -5
 -10
 611.47

Very Stiff Gray Silty Clay Loam Till
 -15

Thin Sand Seams @ 17.5 Ft. with
 Free Water
 -20

Very Stiff Gray Silty Clay Loam Till
 (continued)
 4
 5 3.6 15
 7 B
 3
 4 3.2 15
 7 B
 598.97

Hard Gray Silty Clay Loam Till -
 Very Monolithic
 -25
 3
 5 5.8 14
 7 S
 5
 7 6.4 14
 10 S
 -30
 5
 7 6.4 13
 10 S

5
 7 5.7 15
 9 S
 -35
 4
 6 5.4 15
 8 S
 5
 6 5.7 15
 8 S
 -40

SOIL BORING 032-0079.GPJ IL_DOT.GDT 1/15/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY Larry Myers

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM, Latitude 41.117318, Longitude -88.413775

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 03 (Center Pier)
Station 397+63
Offset 14.0 ft Lt.
Ground Surface Elev. 623.47 ft

DEPTH (ft)	BLOW COUNT (blows/10')	UCS (tsf)	MOISTURE (%)	Surface Water Elev. (ft)	Stream Bed Elev. (ft)	DEPTH (ft)	BLOW COUNT (blows/10')	UCS (tsf)	MOISTURE (%)
6						6			
8	5.9		14			9	5.7		15
10	S				561.97	10	S		
End of Boring									
6									
7	5.7		16						
10	S								
-45						-65			
5									
7	5.7		16						
10	S								
6									
7	5.7		15						
10	S								
-50						-70			
6									
8	5.7		15						
10	S								
-55						-75			
6									
9	5.7		15						
10	S								
-60						-80			

SOIL BORING 032-0079.GPJ IL_DOT.GDT 1/15/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. <u>032-0079</u>	D E P T H H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft	D E P T H H	B L O W S	U C S Qu	M O I S T
Station <u>397+16.20</u>					Stream Bed Elev. _____ ft				
BORING NO. <u>1 (S. Abut.)</u>					Groundwater Elev.: _____				
Station <u>397+49</u>					First Encounter <u>Dry</u> ft				
Offset <u>99.0 ft Rt.</u>					Upon Completion <u>Dry</u> ft				
Ground Surface Elev. <u>619.70</u> ft	(ft)	(/6")	(tsf)	(%)	After _____ Hrs. _____ ft	(ft)	(/6")	(tsf)	(%)

Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)	Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)
Brownish Black Silty Clay	618.20				Hard Gray Clay Till (<i>continued</i>)		16	5.5 B	12
Very Stiff Gray Clay Till		7	2.7 B	19			21	5.7 B	13
		10	2.7 B	20			17	5.7 B	13
Hard Gray Clay Till	612.20								
		20	5.5 B	19			18	4.6 S	14
Very Stiff Gray Clay Till	607.70								
		17	4.2 B	19			14	4.2 B	13
Very Stiff Gray Clay Till		14	3.6 B	20		15	4.4 B	14	
Hard Gray Clay Till	602.20								
		21	5.0 B	17		18	5.5 B	14	

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 1 (S. Abut.)
Station 397+49
Offset 99.0 ft Rt.
Ground Surface Elev. 619.70 ft

DEPTH (ft)	BLOWS (/6")	UCS (tsf)	MOIST (%)
------------	-------------	-----------	-----------

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

Hard Gray Clay Till (*continued*)

17	4.7	13	B
----	-----	----	---

18	4.7	13	S
----	-----	----	---

-45

16	4.2	14	B
----	-----	----	---

573.20

End of Boring

-50

-55

-60

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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)



Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation

SOIL BORING LOG

ROUTE FAI 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. <u>032-0079</u>	D E P T H H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft	D E P T H H	B L O W S	U C S Qu	M O I S T
Station <u>397+16.20</u>					Stream Bed Elev. _____ ft				
BORING NO. <u>2 (Pier)</u>	ft (ft)	(/6")	(tsf)	(%)	Groundwater Elev.: _____	ft (ft)	(/6")	(tsf)	(%)
Station <u>397+67.5</u>					First Encounter _____ Dry ft				
Offset <u>0.0 ft CL</u>					Upon Completion _____ Dry ft				
Ground Surface Elev. <u>619.90</u>					After _____ Hrs. _____ ft				

Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)	Soil Description	Depth (ft)	Blow Count (/6")	UCS (tsf)	Moisture (%)
Brownish Black Silty Clay	618.40				Very Stiff Gray Clay Till (continued)	11	3.3 B		14
Stiff Yellowish Brown and Gray Clay Till	597.90				Hard Gray Clay Till	17	5.2 B		14
	-5					-25			
	612.90	6	2.0 B	24		14	4.7 B		13
Hard Gray Clay Till		21	5.7 B	17		15	4.6 B		14
	609.90					-30			
Very Stiff Gray Clay Till		10	2.0 B	19		14	4.2 B		14
	605.40	12	2.4 B	21		12	4.0 B		14
Medium Gray Fine Sand	-15					-35			
	602.90	12				14	4.0 B		14
Hard Gray Clay Till		15	4.5 B	18		16	5.4 B		14
	600.40								
Very Stiff Gray Clay Till	-20					-40			

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 2 (Pier)
Station 397+67.5
Offset 0.0 ft CL
Ground Surface Elev. 619.90 ft

DEPTH (ft)	BLOW COUNT (/6")	UCS (tsf)	MOISTURE (%)
	20	5.2 B	15
	18	4.2 B	13
	18	5.2 S	12

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

Hard Gray Clay Till (*continued*)

573.40

End of Boring

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. <u>032-0079</u>	D	B	U	M	Surface Water Elev. _____ ft	D	B	U	M
Station <u>397+16.20</u>	E	L	C	O	Stream Bed Elev. _____ ft	E	L	C	O
BORING NO. <u>3 (N. Abut.)</u>	P	O	S	I	Groundwater Elev.: _____	T	W	S	S
Station <u>397+87</u>	T	S	Qu	T	First Encounter _____ Dry ft	H	S	Qu	T
Offset <u>99.0 ft Lt.</u>	H	S	Qu	T	Upon Completion _____ Dry ft	(ft)	(/6")	(tsf)	(%)
Ground Surface Elev. <u>619.70</u> ft	(ft)	(/6")	(tsf)	(%)	After _____ Hrs. _____ ft				

Brownish Black Silty Clay 618.20					Very Stiff Gray Clay Till (continued) 9	2.8	14		
Hard Yellowish Brown and Gray Clay Till 597.70					Loose Gray Silt Loam 8				
	17	5.5	17						
		B							
	-5								
	19	7.0	18		Hard Gray Clay Till -25	14	4.7	14	
		B							
	612.70								
Hard Gray Clay Till									
	20	5.9	17			22	5.2	13	
		B							
	609.70								
Very Stiff Gray Clay Till									
	13	3.4	18			14	4.1	14	
		B							
	11	3.4	19			14	4.1	14	
		B							
	-15								
	10	2.8	19			15	4.2	14	
		B							
	11	2.8	18			21	5.9	14	
		B							
	-20								

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
 Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
 Station 397+16.20

BORING NO. 3 (N. Abut.)
 Station 397+87
 Offset 99.0 ft Lt.
 Ground Surface Elev. 619.70 ft

DEPTH H	B L O W S	U C S Qu	M O I S T (%)
------------	-----------------------	-----------------------	----------------------------------

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

Hard Gray Clay Till (*continued*)

22	6.1 B	13
19	5.0 S	13
-45		
18	4.4 B	14

573.20

End of Boring

-50		
-55		
-60		

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 4 (N. Abut.)
Station 397+30
Offset 99.0 ft Lt.
Ground Surface Elev. 619.70 ft

DEPTH H S	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

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

Brownish Black Silty Clay				Stiff Gray Clay Till (<i>continued</i>)			
					10	1.3 B	14
618.20				597.70			
Hard Yellowish Brown Clay Till				Hard Gray Clay Till			
	9	4.5 S	16		14	5.7 B	14
-5				-25			
	15	5.0 S	17		18	5.0 B	13
	18	6.8 S	17		18	4.9 B	14
609.70 -10				-30			
Very Stiff to Hard Gray Clay Till					16	4.2 B	13
	13	3.4 B	18				
	8	2.6 B	19		18	4.7 B	13
-15				-35			
	11	2.6 B	23		16	4.4 B	13
	15	4.2 B	16		17	5.4 B	13
600.20							
Stiff Gray Clay Till				579.70 -40			
-20							

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION NE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
 Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
 Station 397+16.20

BORING NO. 4 (N. Abut.)
 Station 397+30
 Offset 99.0 ft Lt.
 Ground Surface Elev. 619.70 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 Dry ft
 Upon Completion Dry ft
 After _____ Hrs. _____ ft

Very Stiff Gray Clay Till	15	3.8	18
		B	
575.20	14	3.6	16
		B	
Hard Gray Clay Till	-45		
573.20	20	4.7	13
		S	
End of Boring			
	-50		
	-55		
	-60		

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO.	Station	DEPTH (ft)	BLOW S Qu (/6")	UCS (tsf)	MOIST (%)	Surface Water Elev. ft	Stream Bed Elev. ft	Groundwater Elev.: First Encounter Dry ft	Upon Completion Dry ft	After Hrs. ft	DEPTH (ft)	BLOW S Qu (/6")	UCS (tsf)	MOIST (%)
032-0079	397+16.20													
5 (Pier)	397+08													
	0.0 ft CL													
	620.00													
Brownish Black Silty Clay		618.50										17	6.7 B	14
Stiff Yellowish Brown Clay Till												17	5.4 B	15
		-5												
			7	1.4 B	28							17	6.3 B	14
	613.00													
Hard Gray Clay Till														
			15	6.0 B	18							15	5.0 B	14
	610.50									590.50				
Stiff to Very Stiff Gray Clay Till		-10												
			8	2.4 B	21							13	3.3 B	15
										587.50				
			5	2.0 B	23							13	4.2 B	16
		-15												
6 in. Sand Seam @ 16 Ft.			11	1.8 B	23							15	4.5 B	15
	602.50													
Hard Gray Clay Till														
			22	7.6 B	13							16	4.5 S	15
		-20								580.00	-40			

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 5 (Pier)
Station 397+08
Offset 0.0 ft CL
Ground Surface Elev. 620.00 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 _____ Hrs. _____ ft

Hard Gray Clay Till	17	4.7 B	16
577.50			
Medium to Dense Gray Clay Till (Stone Fragments)	45	3.0 S	9
-45			
573.50	22	5.7 S	13
End of Boring			
-50			
-55			
-60			

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 55 (I-55) DESCRIPTION IL 47 over I-55 Interchange at Dwight LOGGED BY W. Carter

SECTION [(32-3)HB-1]ES LOCATION SE 1/4, SEC. 33, TWP. 31N, RNG. 7E, 3rd PM,
Latitude , Longitude

COUNTY Grundy DRILLING METHOD Hollow Stem Auger HAMMER TYPE _____

STRUCT. NO. 032-0079
Station 397+16.20

BORING NO. 6 (S. Abut.)
Station 396+89
Offset 99.0 ft Rt.
Ground Surface Elev. 619.30 ft

DEPTH H S	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

Hard Gray Clay Till (*continued*)

11	4.9 B	13	
11	5.2 B	12	
-45			
12	4.7 B	12	

572.80

End of Boring

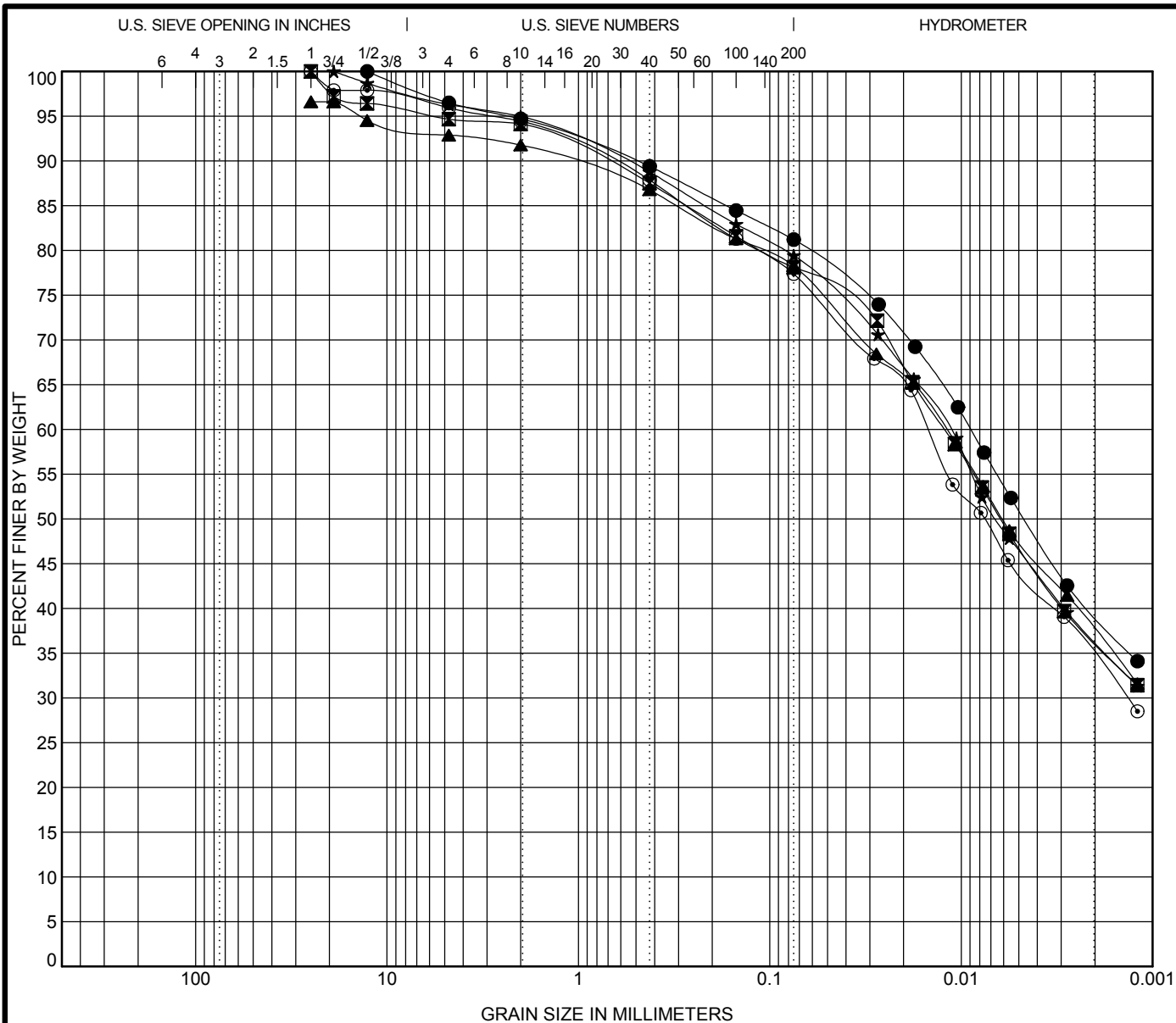
-50			
-55			
-60			

SOIL BORING 032-0079.GPJ IL_DOT.GDT 8/20/19

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 G

Grain Size Distribution with
Atterberg Limits



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 2	A-6 (11) CLAY	33.0	17.7	15.3		
■ 3	A-6 (9) CLAY	29.0	15.1	13.9		
▲ 4	A-6 (10) CLAY	32.3	17.3	15.0		
★ 5	A-6 (10) CLAY	30.7	16.4	14.3		
◎ 6	A-6 (9) CLAY	29.0	15.3	13.7		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 2	1.00	12.7	0.009		5.3	13.5	42.0	39.2
■ 3	1.00	25	0.012		5.9	16.0	41.9	36.2
▲ 4	1.00	25	0.012		4.8	13.5	40.7	37.5
★ 5	1.00	19	0.011		5.0	15.5	43.1	36.3
◎ 6	1.00	25	0.015	0.001	5.6	17.1	42.8	34.6

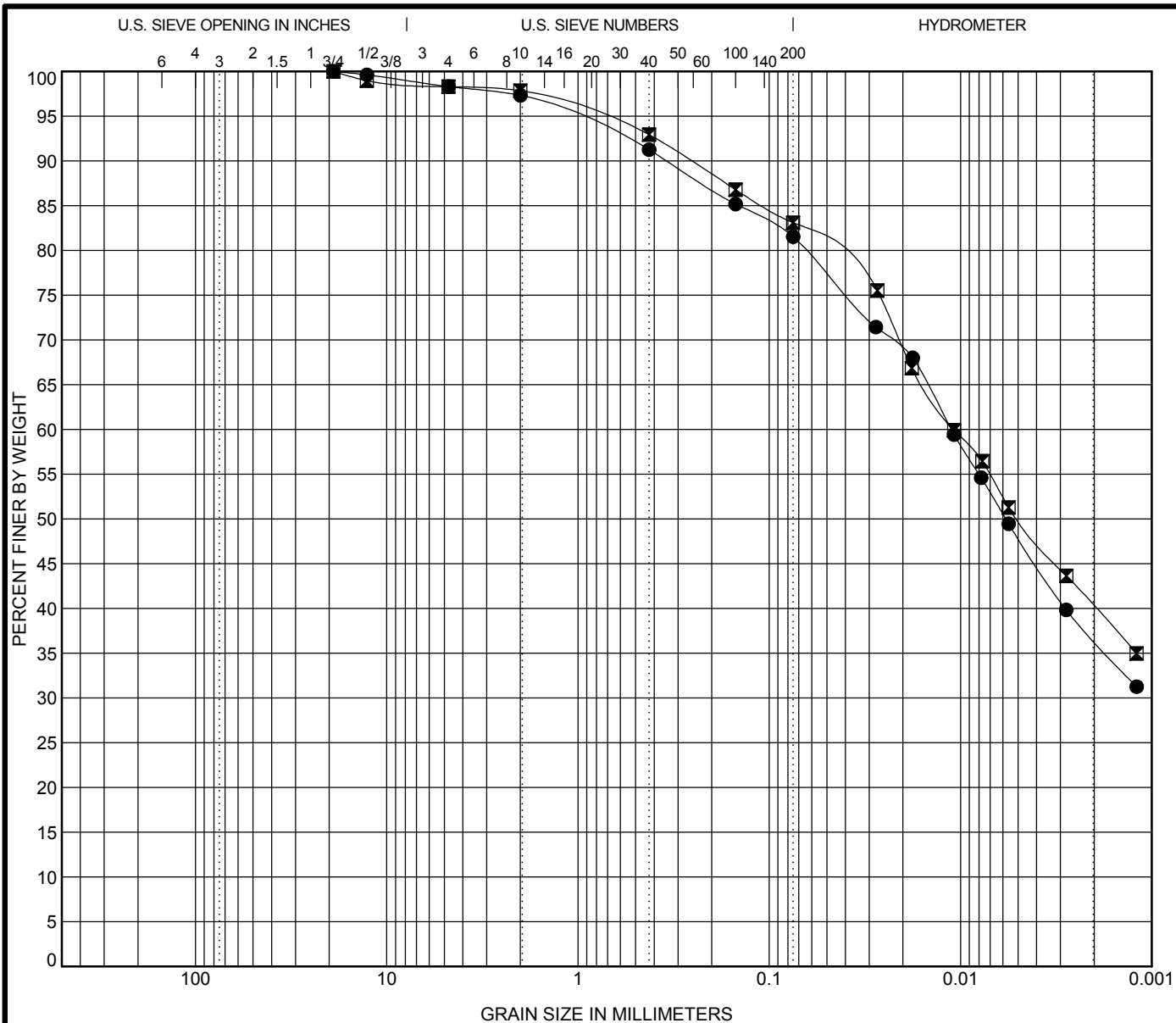
GRAIN SIZE IDH 3-18-11 IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19



Illinois Department of Transportation
Division of Highways
IDOT

IDH GRAIN SIZE DISTRIBUTION

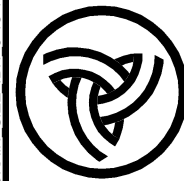
Route: IL 47
Section: [(32-3)HB-1]ES
County: Grundy



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 7	A-6 (9) CLAY	29.5	16.4	13.1		
☒ 8	A-6 (12) CLAY	32.8	17.3	15.5		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 7	100	19	0.011		2.7	15.8	45.1	36.4
☒ 8	100	19	0.011		2.2	14.8	42.9	40.2



Illinois Department of Transportation
 Division of Highways
 IDOT

IDH GRAIN SIZE DISTRIBUTION

Route: IL 47
 Section: [(32-3)HB-1]ES
 County: Grundy

GRAIN SIZE IDH 3-18-11 IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/10/19

Appendix H

Soil Test Data
(BMPR 508A)



Route IL 47
 Section [(32-3)HB-1]ES
 County Grundy
 Location IL 47 over I-55 at Dwight Interchange
 Job No. _____

Lab. No.			Sample #1		Sample #2
Station		36+89.59	43+77.99	43+77.99	53+28.88
Offset		29.5 ft Rt.	29.3 ft Rt.	29.3 ft Rt.	29.6 ft Rt.
Depth	ft	1.67	1.00 - 4.00	3.00	1.00 - 4.00
AASHTO Classification (AASHTO M 145)			A-6(11)		A-6(9)
Illinois Textural Classification			Clay		Clay
Gradation Passing - 1"	%		100		100.0
3/4"	%		100		97.2
1/2"	%		99.9		96.4
No. 4	%		96.5		94.7
No. 10	%		94.7		94.1
No. 40	%		89.4		87.5
No. 100	%		84.5		81.6
No. 200	%		81.2		78.1
Sand (AASHTO T 88)	%		18.8		21.9
Silt (AASHTO T 88)	%		42.0		41.9
CLAY (AASHTO T 88)	%		39.2		36.2
Liquid Limit (AASHTO T 89)	%		33.0		29.0
Plasticity Index (AASHTO T 90)	%		15.3		13.9
Organic Matter Content	%				
Std. Dry Density (IL Mod AASHTO T 99)	pcf				
Optimum Moisture (IL Mod AASHTO T 99)	%				
Subgrade Support Rating			FAIR		FAIR
In situ Moisture	%	20		20	



**Illinois Department
of Transportation**

Soil Test Data

Route IL 47
 Section [(32-3)HB-1]ES
 County Grundy
 Location IL 47 over I-55 at Dwight Interchange
 Job No. _____

Lab. No.			Sample #3		Sample #4
Station		53+28.88	62+09.29	62+09.29	56+61.84
Offset		29.6 ft Rt.	29.4 ft Rt.	29.4 ft Rt.	30.0 ft Lt.
Depth	ft	2.50	1.00 - 4.00	3.00	1.00 - 4.00
AASHTO Classification (AASHTO M 145)			A-6(10)		A-6(10)
Illinois Textural Classification			Clay		Clay
Gradation Passing - 1"	%		96.6		100
3/4"	%		96.6		100.0
1/2"	%		94.5		98.7
No. 4	%		92.9		96.3
No. 10	%		91.8		95.0
No. 40	%		86.8		88.8
No. 100	%		81.3		82.9
No. 200	%		78.3		79.4
Sand (AASHTO T 88)	%		21.7		20.6
Silt (AASHTO T 88)	%		40.7		43.1
CLAY (AASHTO T 88)	%		37.5		36.3
Liquid Limit (AASHTO T 89)	%		32.3		30.7
Plasticity Index (AASHTO T 90)	%		15.0		14.3
Organic Matter Content	%				
Std. Dry Density (IL Mod AASHTO T 99)	pcf				
Optimum Moisture (IL Mod AASHTO T 99)	%				
Subgrade Support Rating			FAIR		FAIR
In situ Moisture	%	21		12	



Route IL 47
 Section [(32-3)HB-1]ES
 County Grundy
 Location IL 47 over I-55 at Dwight Interchange
 Job No. _____

Lab. No.			Sample #5		Sample #6
Station		56+61.84	47+61.82	47+61.82	43+31.46
Offset		30.0 ft Lt.	30.4 ft Lt.	30.4 ft Lt.	29.1 ft Lt.
Depth	ft	2.50	1.00 - 4.00	3.00	1.00 - 4.00
AASHTO Classification (AASHTO M 145)			A-6(9)		A-6(9)
Illinois Textural Classification			Clay		Clay
Gradation Passing - 1"	%		100.0		100
3/4"	%		97.9		100.0
1/2"	%		97.9		99.6
No. 4	%		95.9		98.3
No. 10	%		94.4		97.3
No. 40	%		87.9		91.3
No. 100	%		81.3		85.2
No. 200	%		77.4		81.5
Sand (AASHTO T 88)	%		22.6		18.5
Silt (AASHTO T 88)	%		42.8		45.1
CLAY (AASHTO T 88)	%		34.6		36.4
Liquid Limit (AASHTO T 89)	%		29.0		29.5
Plasticity Index (AASHTO T 90)	%		13.7		13.1
Organic Matter Content	%				
Std. Dry Density (IL Mod AASHTO T 99)	pcf				
Optimum Moisture (IL Mod AASHTO T 99)	%				
Subgrade Support Rating			FAIR		FAIR
In situ Moisture	%	24		18	



**Illinois Department
of Transportation**

Soil Test Data

Route IL 47

Section [(32-3)HB-1]ES

County Grundy

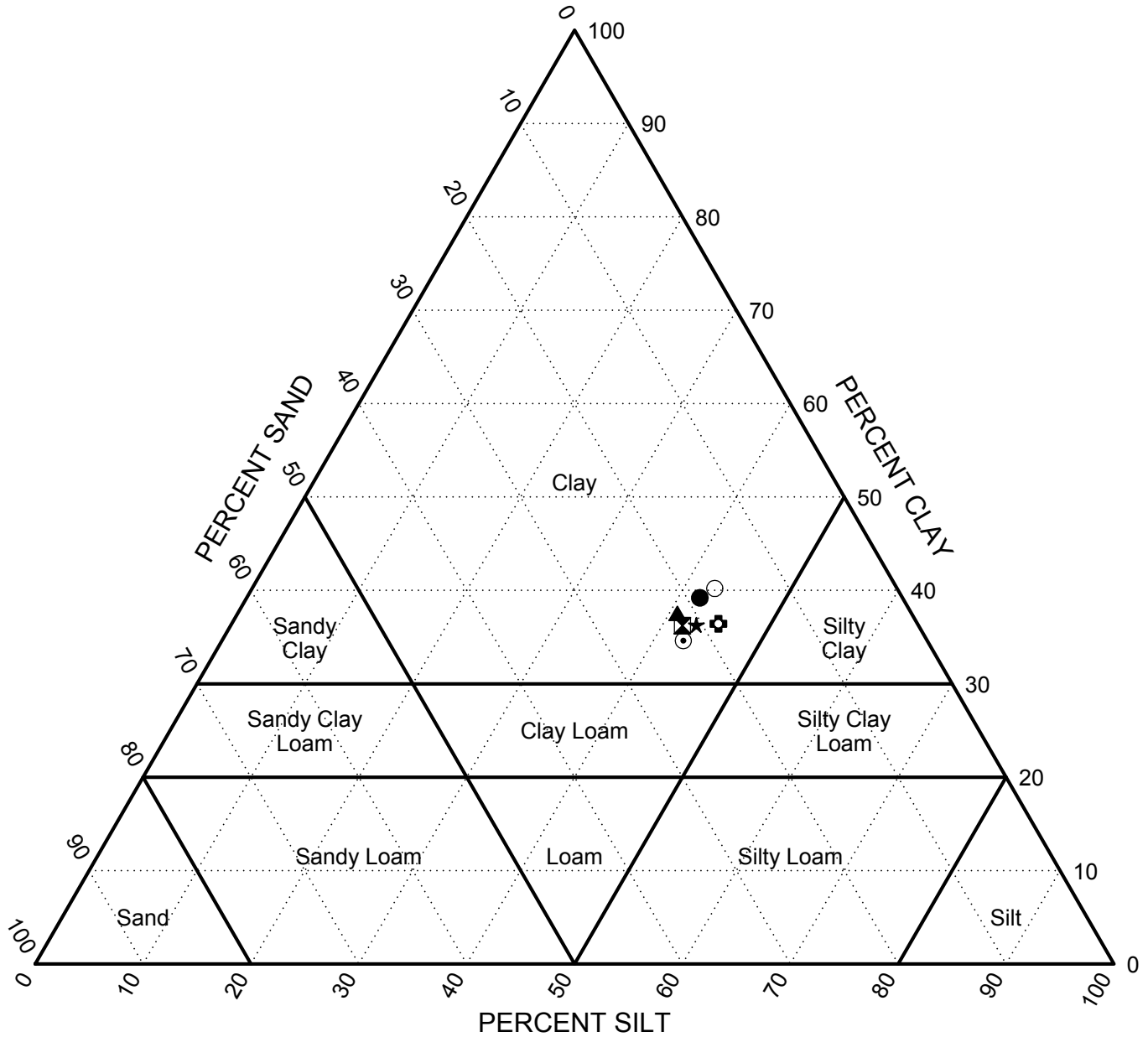
Location IL 47 over I-55 at Dwight Interchange

Job No. _____

Lab. No.			Sample #7		
Station		43+31.46	38+44.59	38+44.59	
Offset		29.1 ft Lt.	28.9 ft Lt.	28.9 ft Lt.	
Depth	ft	2.50	1.00 - 4.00	3.00	
AASHTO Classification (AASHTO M 145)			A-6(12)		
Illinois Textural Classification			Clay		
Gradation Passing - 1"	%		100		
3/4"	%		100.0		
1/2"	%		99.0		
No. 4	%		98.3		
No. 10	%		97.8		
No. 40	%		92.9		
No. 100	%		86.8		
No. 200	%		83.1		
Sand (AASHTO T 88)	%		16.9		
Silt (AASHTO T 88)	%		42.9		
CLAY (AASHTO T 88)	%		40.2		
Liquid Limit (AASHTO T 89)	%		32.8		
Plasticity Index (AASHTO T 90)	%		15.5		
Organic Matter Content	%				
Std. Dry Density (IL Mod AASHTO T 99)	pcf				
Optimum Moisture (IL Mod AASHTO T 99)	%				
Subgrade Support Rating			FAIR		
In situ Moisture	%	18		26	

Appendix I

IDH Textural Classification Chart



	Borehole	Station	Offset	Depth (ft)	Classification
●	2	43+77.99	29.31 ft Rt.	1.00	A-6 (11) CLAY
☒	3	53+28.88	29.62 ft Rt.	1.00	A-6 (9) CLAY
▲	4	62+09.29	29.36 ft Rt.	1.00	A-6 (10) CLAY
★	5	56+61.84	30.00 ft Lt.	1.00	A-6 (10) CLAY
⊙	6	47+61.82	30.38 ft Lt.	1.00	A-6 (9) CLAY
⊕	7	43+31.46	29.13 ft Lt.	1.00	A-6 (9) CLAY
○	8	38+44.59	28.91 ft Lt.	1.00	A-6 (12) CLAY



Illinois Department of Transportation
 Division of Highways
 IDOT

IDH Textural Classification Chart

Route: IL 47
 Section: [(32-3)HB-1]ES
 County: Grundy

Appendix J

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.

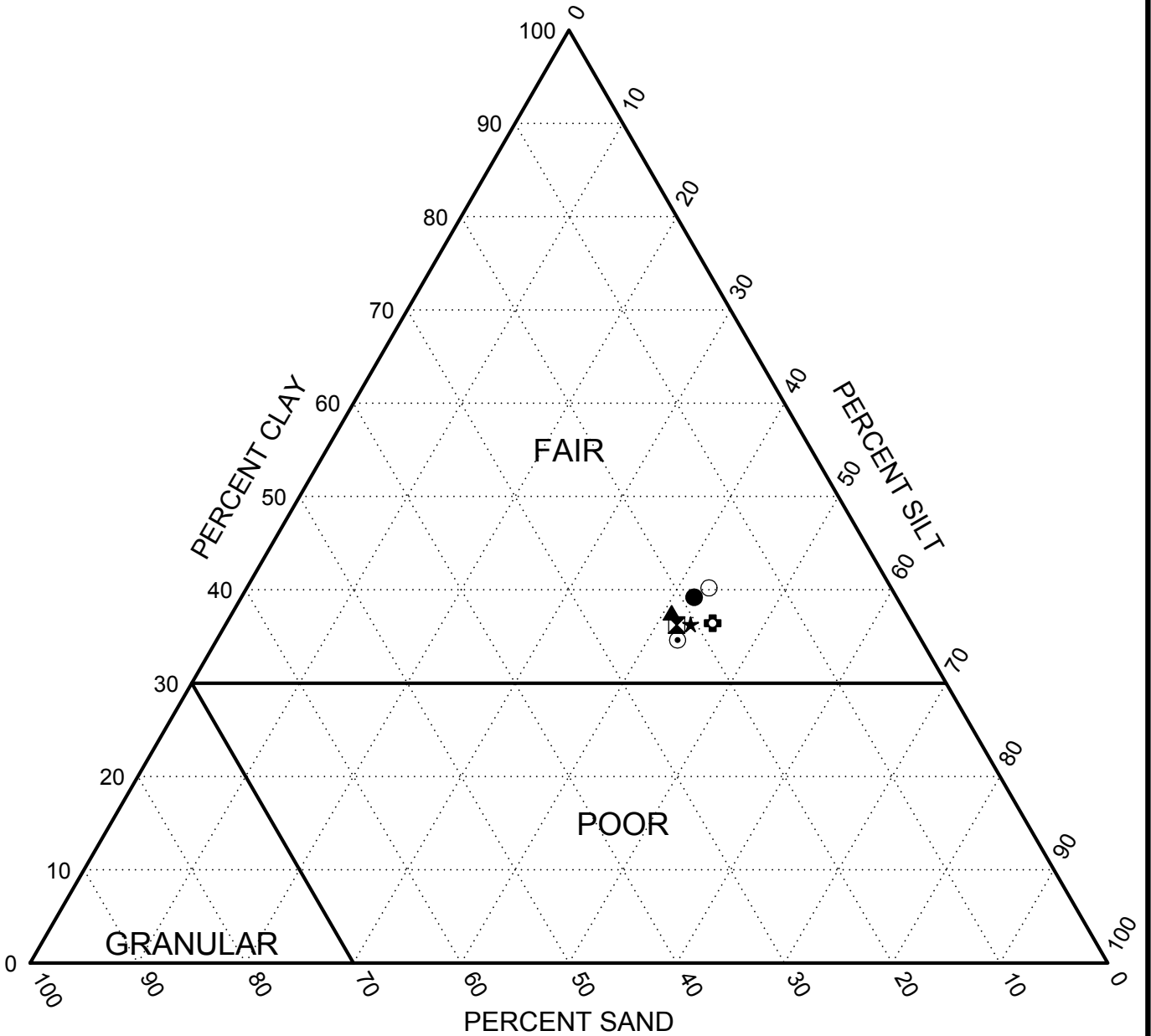
DESIGNER NOTE:

To be used when requested by Bureau of Project Implementation.

Appendix K

Subgrade Support Rating Chart

SUBGRADE SUPPORT RATINGS IL 47 OVER I-55 AT DWIGHT INTERCHANGE.GPJ IL_DOT.GDT 1/8/19



	Borehole	Station	Offset	Depth (ft)	Classification
●	2	43+77.99	29.31 ft Rt.	1.00	A-6 (11) CLAY
☒	3	53+28.88	29.62 ft Rt.	1.00	A-6 (9) CLAY
▲	4	62+09.29	29.36 ft Rt.	1.00	A-6 (10) CLAY
★	5	56+61.84	30.00 ft Lt.	1.00	A-6 (10) CLAY
⊙	6	47+61.82	30.38 ft Lt.	1.00	A-6 (9) CLAY
⊕	7	43+31.46	29.13 ft Lt.	1.00	A-6 (9) CLAY
○	8	38+44.59	28.91 ft Lt.	1.00	A-6 (12) CLAY



Illinois Department of Transportation
 Division of Highways
 IDOT

SUBGRADE SUPPORT RATING

Route: IL 47
 Section: [(32-3)HB-1]ES
 County: Grundy

Appendix L

Dynamic Cone Penetrometer Testing

PROJECT LOCATION	Contract 66H15, IL 47 at I-55 Dwight Interchange Roadway								IBV < 1		2 < IBV < 3	
									1 < IBV < 2		IBV > 3	
DCP NUMBER	CORE #1 NB				CORE #2 NB				CORE #3 NB			
ELEVATION	628.00				641.45				646.20			
STATION	36+89.59				43+77.99				53+28.88			
OFFSET	29.47' Rt.				29.31' Rt.				29.62' Rt.			
BLOWS	DEPTH	IN / BLOW	DEPTH (in)	IBV	DEPTH	IN / BLOW	DEPTH (in)	IBV	DEPTH	IN / BLOW	DEPTH (in)	IBV
0	13.9	0			14.3	0			12.9	0		
1	17.7	3.8	3.8	1.3	17.1	2.8	2.8	1.9	16.0	3.1	3.1	1.66
2	19.2	1.5	5.3	4.2	18.7	1.60	4.4	3.83	18.1	2.10	5.2	2.72
3	21.4	2.2	7.5	2.6	19.9	1.20	5.6	5.50	19.4	1.30	6.5	4.97
4	23.7	2.3	9.8	2.4	21.0	1.10	6.7	6.14	20.4	1.00	7.5	6.92
5	24.5	0.8	10.6	9.2	22.1	1.10	7.8	6.14	21.3	0.90	8.4	7.90
6	24.6	0.1	10.7	125.9	23.1	1.00	8.8	6.92	22.3	1.00	9.4	6.92
7	24.6	0.0	10.7	2290.9	24.2	1.10	9.9	6.14	23.3	1.00	10.4	6.92
8	24.6	0.0	10.7	2290.9	25.4	1.20	11.1	5.50	24.2	0.90	11.3	7.90
9	24.7	0.1	10.8	166.8	26.6	1.20	12.3	5.50	25.0	0.80	12.1	9.16
10	24.7	0.0	10.8	2290.9	27.8	1.20	13.5	5.50	25.7	0.70	12.8	10.84
11	24.7	0.0	10.8	2290.9	29.0	1.20	14.7	5.50	26.5	0.80	13.6	9.16
12	24.8	0.1	10.9	166.8	30.4	1.40	16.1	4.53	27.2	0.70	14.3	10.84
13	24.8	0.0	10.9	2290.9	31.6	1.20	17.3	5.50	28.0	0.80	15.1	9.16
14	24.8	0.0	10.9	2290.9	32.9	1.30	18.6	4.97	28.6	0.60	15.7	13.17
15					34.0	1.10	19.7	6.14	29.3	0.70	16.4	10.84
16					34.7	0.70	20.4	10.84	30.0	0.70	17.1	10.84
17					35.1	0.40	20.8	21.95	30.5	0.50	17.6	16.57
18					35.5	0.40	21.2	21.95	31.5	1.00	18.6	6.92
19					36.1	0.60	21.8	13.17	31.6	0.10	18.7	125.89
20					36.7	0.60	22.4	13.17	32.1	0.50	19.2	16.57
21					37.4	0.70	23.1	10.84	32.7	0.60	19.8	13.17
22					37.9	0.50	23.6	16.57	33.2	0.50	20.3	16.57
23					38.4	0.50	24.1	16.57	33.6	0.40	20.7	21.95
24					39.0	0.60	24.7	13.17	34.1	0.50	21.2	16.57
25					39.5	0.50	25.2	16.57	34.6	0.50	21.7	16.57
26					40.0	0.50	25.7	16.57	35.0	0.40	22.1	21.95
27					40.5	0.50	26.2	16.57	35.4	0.4	22.5	21.9
28					40.8	0.30	26.5	31.54	35.8	0.4	22.9	21.9
29					41.4	0.60	27.1	13.17	36.2	0.4	23.3	21.9
30					42.0	0.60	27.7	13.17	36.6	0.4	23.7	21.9
31					42.5	0.50	28.2	16.57	37.1	0.5	24.2	16.6
32					43.0	0.50	28.7	16.57	37.5	0.4	24.6	21.9
33					43.3	0.30	29.0	31.54	37.9	0.4	25.0	21.9
34					43.7	0.40	29.4	21.95	38.3	0.4	25.4	21.9
35					44.0	0.30	29.7	31.54	38.7	0.4	25.8	21.9
36									39.0	0.3	26.1	31.5
37									39.4	0.4	26.5	21.9
38									39.8	0.4	26.9	21.9
39									40.1	0.3	27.2	31.5
40									40.5	0.4	27.6	21.9
41									40.9	0.4	28.0	21.9
42									41.2	0.3	28.3	31.5
43									41.5	0.3	28.6	31.5
44									41.9	0.4	29.0	21.9
45									42.3	0.4	29.4	21.9
46									42.6	0.3	29.7	31.5
47									43.0	0.4	30.1	21.9
48									43.3	0.3	30.4	31.5
49									43.6	0.3	30.7	31.5
50									44.0	0.4	31.1	21.9
51												

PROJECT LOCATION	IBV < 1								2 < IBV < 3			
	1 < IBV < 2								IBV > 3			
DCP NUMBER	CORE #4 NB				CORE #5 SB				CORE #6 SB			
ELEVATION	629.62				640.38				647.15			
STATION	62+09.29				56+61.84				47+61.82			
OFFSET	29.36' Rt.				30.00' Lt.				30.38' Lt.			
BLOWS	DEPTH	IN / BLOW	DEPTH (in)	IBV	DEPTH	IN / BLOW	DEPTH (in)	IBV	DEPTH	IN / BLOW	DEPTH (in)	IBV
0	12.5	0			12.9	0			12.0	0		
1	15.2	2.7	2.7	1.98	16.2	3.3	3.3	1.54	14.5	2.5	2.5	2.18
2	17.1	1.90	4.6	3.08	19.1	2.90	6.2	1.81	16.0	1.50	4.0	4.15
3	18.7	1.60	6.2	3.83	20.5	1.40	7.6	4.53	17.5	1.50	5.5	4.15
4	19.6	0.90	7.1	7.90	21.9	1.40	9.0	4.53	19.0	1.50	7.0	4.15
5	20.4	0.80	7.9	9.16	23.1	1.20	10.2	5.50	20.5	1.50	8.5	4.15
6	21.4	1.00	8.9	6.92	24.3	1.20	11.4	5.50	21.5	1.00	9.5	6.92
7	22.6	1.20	10.1	5.50	25.5	1.20	12.6	5.50	22.5	1.00	10.5	6.92
8	23.7	1.10	11.2	6.14	26.8	1.30	13.9	4.97	23.5	1.00	11.5	6.92
9	24.9	1.20	12.4	5.50	27.9	1.10	15.0	6.14	24.6	1.10	12.6	6.14
10	25.8	0.90	13.3	7.90	29.0	1.10	16.1	6.14	25.6	1.00	13.6	6.92
11	26.6	0.80	14.1	9.16	30.3	1.30	17.4	4.97	26.7	1.10	14.7	6.14
12	27.2	0.60	14.7	13.17	31.5	1.20	18.6	5.50	27.9	1.20	15.9	5.50
13	27.7	0.50	15.2	16.57	32.5	1.00	19.6	6.92	29.0	1.10	17.0	6.14
14	28.3	0.60	15.8	13.17	33.6	1.10	20.7	6.14	29.7	0.70	17.7	10.84
15	28.8	0.50	16.3	16.57	34.8	1.20	21.9	5.50	30.4	0.70	18.4	10.84
16	29.4	0.60	16.9	13.17	35.7	0.90	22.8	7.90	30.9	0.50	18.9	16.57
17	29.8	0.40	17.3	21.95	36.5	0.80	23.6	9.16	31.5	0.60	19.5	13.17
18	30.3	0.50	17.8	16.57	37.2	0.70	24.3	10.84	32.0	0.50	20.0	16.57
19	30.8	0.50	18.3	16.57	37.9	0.70	25.0	10.84	32.6	0.60	20.6	13.17
20	31.2	0.40	18.7	21.95	38.5	0.60	25.6	13.17	33.2	0.60	21.2	13.17
21	31.6	0.40	19.1	21.95	39.0	0.50	26.1	16.57	33.7	0.50	21.7	16.57
22	32.1	0.50	19.6	16.57	39.5	0.50	26.6	16.57	34.3	0.60	22.3	13.17
23	32.5	0.40	20.0	21.95	40.0	0.50	27.1	16.57	34.8	0.50	22.8	16.57
24	32.9	0.40	20.4	21.95	40.5	0.50	27.6	16.57	35.4	0.60	23.4	13.17
25	33.5	0.60	21.0	13.17	41.0	0.50	28.1	16.57	36.0	0.60	24.0	13.17
26	34.2	0.70	21.7	10.84	41.4	0.40	28.5	21.95	36.7	0.70	24.7	10.84
27	34.9	0.70	22.4	10.84	41.8	0.40	28.9	21.95	37.5	0.80	25.5	9.16
28	35.6	0.70	23.1	10.84	42.3	0.50	29.4	16.57	38.3	0.80	26.3	9.16
29	36.5	0.90	24.0	7.90	42.8	0.50	29.9	16.57	39.3	1.00	27.3	6.92
30	37.1	0.60	24.6	13.17	43.3	0.50	30.4	16.57	40.2	0.90	28.2	7.90
31	37.6	0.50	25.1	16.57	43.7	0.40	30.8	21.95	40.9	0.70	28.9	10.84
32	38.2	0.60	25.7	13.17	44.2	0.50	31.3	16.57	41.4	0.50	29.4	16.57
33	38.7	0.50	26.2	16.57					42.0	0.60	30.0	13.17
34	39.2	0.50	26.7	16.57					42.6	0.60	30.6	13.17
35	39.8	0.60	27.3	13.17					43.6	1.00	31.6	6.92
36	40.4	0.60	27.9	13.17					44.9	1.30	32.9	4.97
37	41.0	0.60	28.5	13.17								
38	41.5	0.50	29.0	16.57								
39	42.0	0.50	29.5	16.57								
40	42.6	0.60	30.1	13.17								
41	43.3	0.70	30.8	10.84								
42	44.0	0.70	31.5	10.84								
43												
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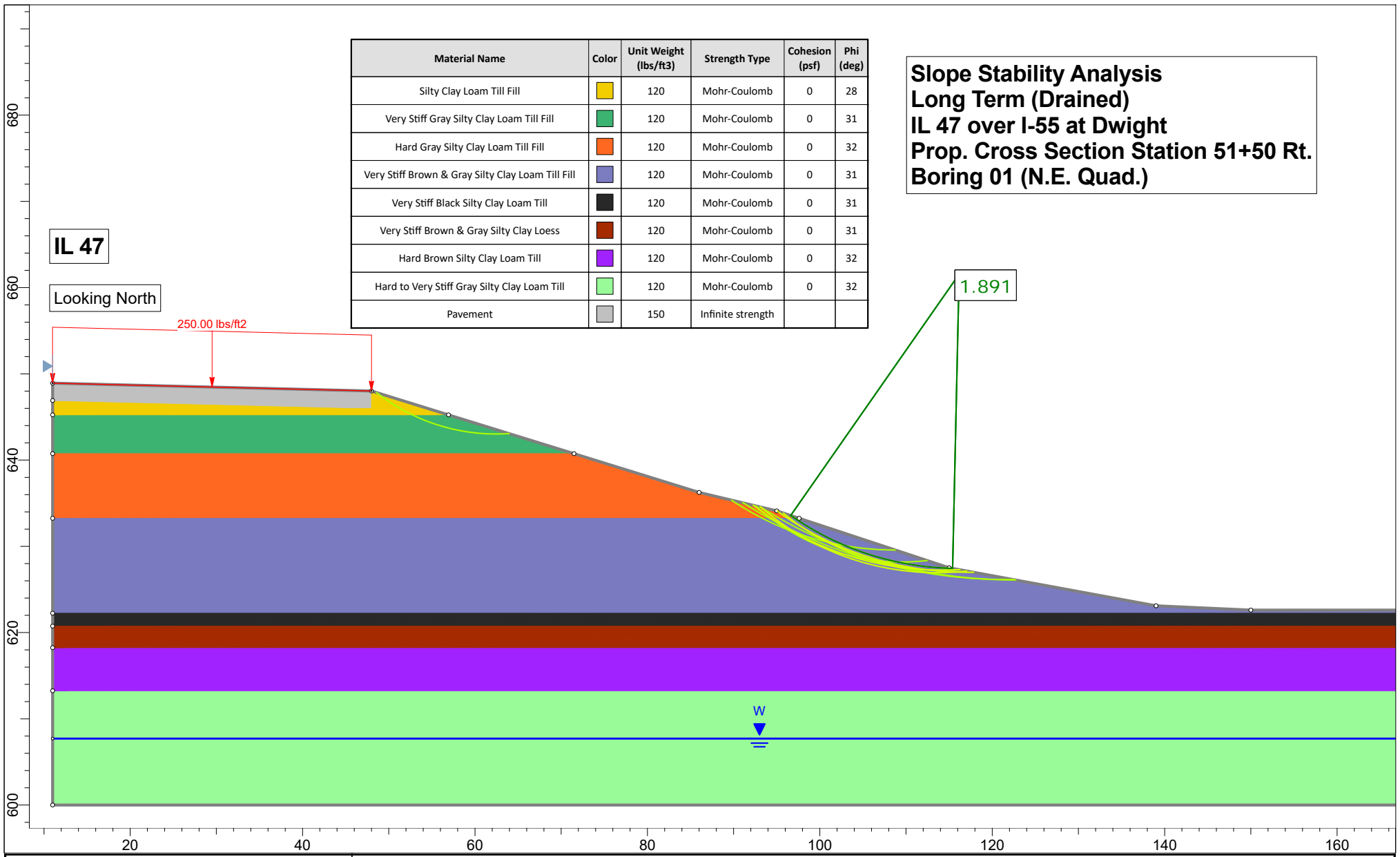
PROJECT LOCATION	IBV < 1								2 < IBV < 3			
	1 < IBV < 2								IBV > 3			
DCP NUMBER	CORE #7 SB				CORE #8 SB				CORE #			
ELEVATION	640.22				630.71							
STATION	43+31.46				38+44.59							
OFFSET	29.13' Lt.				28.91' Lt.							
BLOWS	DEPTH	IN / BLOW	DEPTH (in)	IBV	DEPTH	IN / BLOW	DEPTH (in)	IBV	DEPTH	IN / BLOW	DEPTH (in)	IBV
0	12.2	0			12.8	0	0	0		0		
1	14.0	1.8	1.8	3.3	15.6	2.8	2.8	1.89				
2	15.0	1.0	2.8	6.9	17.2	1.60	4.4	3.83				
3	15.5	0.5	3.3	16.6	18.4	1.20	5.6	5.50				
4	16.2	0.7	4.0	10.8	19.6	1.20	6.8	5.50				
5	17.0	0.8	4.8	9.2	20.5	0.90	7.7	7.90				
6	18.0	1.0	5.8	6.9	21.5	1.00	8.7	6.92				
7	19.2	1.2	7.0	5.5	22.5	1.00	9.7	6.92				
8	20.4	1.2	8.2	5.5	23.8	1.30	11.0	4.97				
9	21.5	1.1	9.3	6.1	25.2	1.40	12.4	4.53				
10	22.4	0.9	10.2	7.9	26.7	1.50	13.9	4.15				
11	23.4	1.0	11.2	6.9	28.6	1.90	15.8	3.08				
12	24.4	1.0	12.2	6.9	30.4	1.80	17.6	3.30				
13	25.3	0.9	13.1	7.9	31.8	1.40	19.0	4.53				
14	26.1	0.8	13.9	9.2	33.5	1.70	20.7	3.55				
15	27.0	0.9	14.8	7.9	36.2	2.70	23.4	1.98				
16	28.5	1.5	16.3	4.2	38.2	2.00	25.4	2.89				
17	29.4	0.9	17.2	7.9	39.3	1.10	26.5	6.14				
18	30.1	0.7	17.9	10.8	40.5	1.20	27.7	5.50				
19	30.8	0.7	18.6	10.8	41.8	1.30	29.0	4.97				
20	31.3	0.5	19.1	16.6	43.1	1.30	30.3	4.97				
21	31.8	0.5	19.6	16.6	44.4	1.30	31.6	4.97				
22	32.3	0.5	20.1	16.6								
23	33.0	0.7	20.8	10.8								
24	33.7	0.7	21.5	10.8								
25	34.4	0.7	22.2	10.8								
26	35.0	0.6	22.8	13.2								
27	35.7	0.7	23.5	10.8								
28	36.5	0.8	24.3	9.2								
29	37.2	0.7	25.0	10.8								
30	37.8	0.6	25.6	13.2								
31	38.4	0.6	26.2	13.2								
32	39.0	0.6	26.8	13.2								
33	39.6	0.6	27.4	13.2								
34	40.1	0.5	27.9	16.6								
35	40.7	0.6	28.5	13.2								
36	41.3	0.6	29.1	13.2								
37	41.9	0.6	29.7	13.2								
38	42.4	0.5	30.2	16.6								
39	43.0	0.6	30.8	13.2								
40	43.7	0.7	31.5	10.8								
41	44.3	0.6	32.1	13.2								
42												
43												
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51												

Appendix M

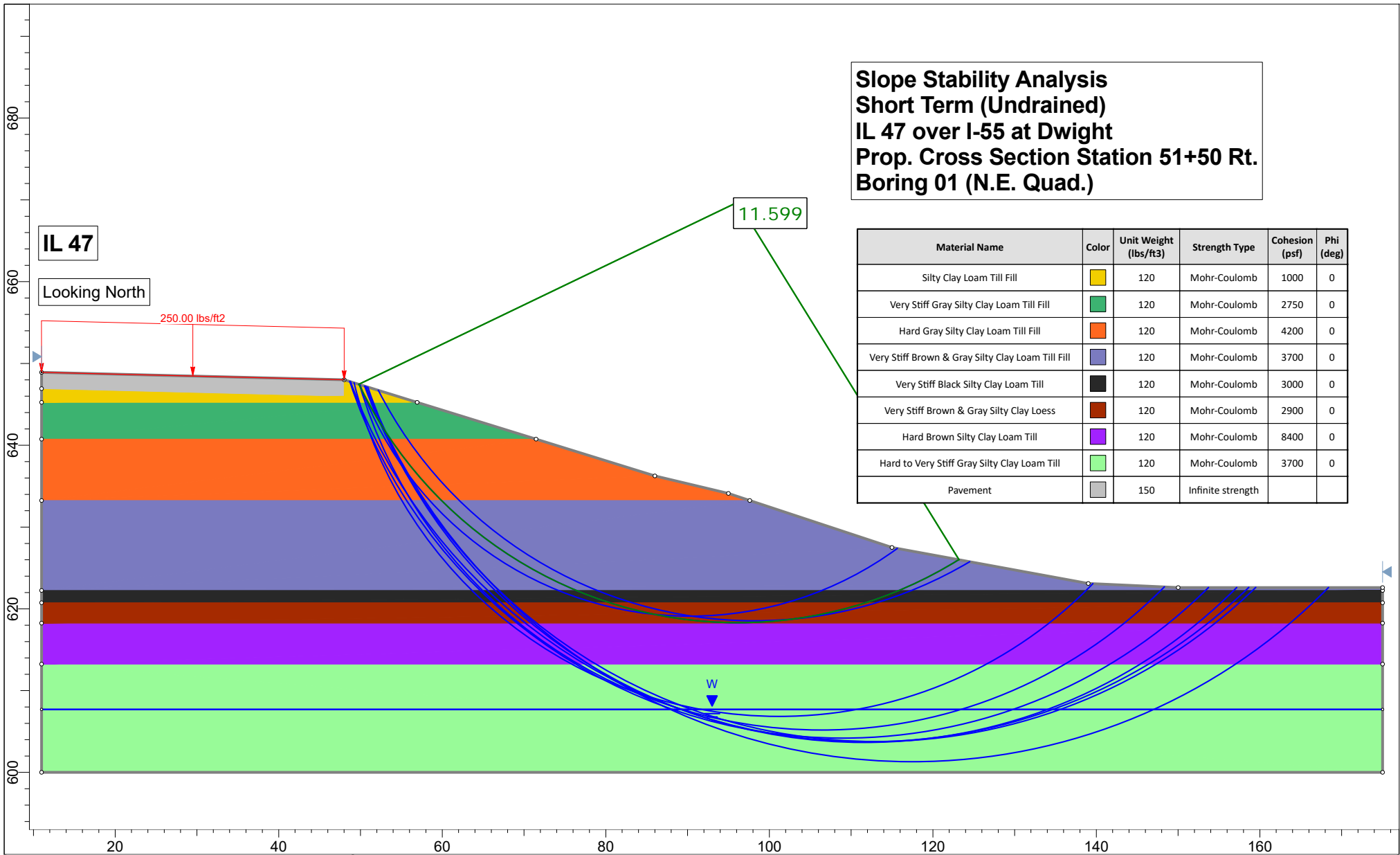
Slope Stability Analysis

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Silty Clay Loam Till Fill	Yellow	120	Mohr-Coulomb	0	28
Very Stiff Gray Silty Clay Loam Till Fill	Green	120	Mohr-Coulomb	0	31
Hard Gray Silty Clay Loam Till Fill	Orange	120	Mohr-Coulomb	0	32
Very Stiff Brown & Gray Silty Clay Loam Till Fill	Blue-Gray	120	Mohr-Coulomb	0	31
Very Stiff Black Silty Clay Loam Till	Black	120	Mohr-Coulomb	0	31
Very Stiff Brown & Gray Silty Clay Loess	Brown	120	Mohr-Coulomb	0	31
Hard Brown Silty Clay Loam Till	Purple	120	Mohr-Coulomb	0	32
Hard to Very Stiff Gray Silty Clay Loam Till	Light Green	120	Mohr-Coulomb	0	32
Pavement	Gray	150	Infinite strength		

**Slope Stability Analysis
Long Term (Drained)
IL 47 over I-55 at Dwight
Prop. Cross Section Station 51+50 Rt.
Boring 01 (N.E. Quad.)**



	Project IL 47 over I-55 Slope Stability Analysis		
	Analysis Method SLIDEINTERPRET 8.025 Bishop simplified		
	Drawn By MEJ	Scale 1:185	Company McCleary Engineering
	Date 6/12/2019		File Name Sta 51+50 Rt Revised Boring 01 NE Quad Drained.slmd



**Slope Stability Analysis
Short Term (Undrained)
IL 47 over I-55 at Dwight
Prop. Cross Section Station 51+50 Rt.
Boring 01 (N.E. Quad.)**

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Silty Clay Loam Till Fill	Yellow	120	Mohr-Coulomb	1000	0
Very Stiff Gray Silty Clay Loam Till Fill	Green	120	Mohr-Coulomb	2750	0
Hard Gray Silty Clay Loam Till Fill	Orange	120	Mohr-Coulomb	4200	0
Very Stiff Brown & Gray Silty Clay Loam Till Fill	Blue-Gray	120	Mohr-Coulomb	3700	0
Very Stiff Black Silty Clay Loam Till	Black	120	Mohr-Coulomb	3000	0
Very Stiff Brown & Gray Silty Clay Loess	Brown	120	Mohr-Coulomb	2900	0
Hard Brown Silty Clay Loam Till	Purple	120	Mohr-Coulomb	8400	0
Hard to Very Stiff Gray Silty Clay Loam Till	Light Green	120	Mohr-Coulomb	3700	0
Pavement	Gray	150	Infinite strength		

IL 47

Looking North

250.00 lbs/ft2

11.599

W

	Project			IL 47 over I-55 Slope Stability Analysis		
	<i>Analysis Method</i>			SLIDEINTERPRET 8.025 Bishop simplified		
	<i>Drawn By</i>	MEJ	<i>Scale</i>	1:195	<i>Company</i>	McCleary Engineering
	<i>Date</i>	6/12/2019		<i>File Name</i>	Sta 51+50 Rt Revised Boring 01 NE Quad Undrained.slmd	