Illinois Department of Transportation

Memorandum

To:	Dave Broviak	Attn: Brad Duncan	
From:	Michael A. Short MAS	By: Jeremy Brown	
Subject:	Roadway Geotechnical Report *		
Date:	August 5, 2020		

* Route: FAI 57 (I-57)
Section: [(139)VB, HB-3]BR, 139R
County: Kankakee
Contract No.: 66F74

Attached is the Roadway Geotechnical Report for the subject project.

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\Kankakee County\I-57 from 0.32 mi North of Grinnell Rd to 0.44 mi South of NS RR - Co 66F74 - RGR 2020.pd

If you have any questions, please contact Jeremy Brown at 815-433-7098.

JB:bs/RoadwayGeotechReport #66F74

cc: Kyle Videgar
Resident Engineer

ROADWAY GEOTECHNICAL REPORT

I-57 over Grinnell Rd and Norfolk Southern RR

FAI Route 57 (I-57)
Section (139)VB,HB-3)BR,139R
District 3 # 3295
P-93-013-17
D-93-046-19
R-93-001-19
C-93-069-19
Contract 66F74
Kankakee County

Illinois Department of Transportation

Region 2, District 3

Prepared by:
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July 13, 2020

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LIST OF APPENDICES

I. GENERAL INFORMATION

A. Project Location and Description

The improvement of I-57 begins at station 124+00 north of Grinnell Road and continues south approximately 0.758 miles where it ends at station 164+00 and is located within sections 27, 28, 33, and 34 of T31N, R12E, 3rd Principal Meridian, Kankakee County, Illinois.

The improvements through this section include the following:

- Raising the profile and reconstruction of I-57 from 124+00 to 164+00
- Construction of SN 046-0158 and 046-0159, which will carry Interstate 57 over Grinnell Road.
- Construction of SN 046-0156 and 046-0157, which will carry Interstate 57 over the Norfolk Southern Railway and a drainage ditch.

SGRs have been prepared for these structures and are available upon request. A project location map is provided in Appendix A.

B. Proposed Pavement Design

The northbound and southbound sections of I-57 will each consist of two 12' driving lanes with 12' concrete shoulders, and will be constructed of 11 inches of continuously reinforced PCC pavement, 4 inches of stabilized sub-base (hot-mix asphalt), and 12 inches of subbase granular material, type A.

Existing and Proposed typical sections are included in Appendix B.

C. Soils

The soils in the project area are primarily silty loam and clayey loam, which can be found in the Web Soil Survey in Appendix C. The project location consists mostly of embankment material that was used in constructing the existing four lane highway, therefore it is unlikely that there will be issues placing new embankment for the proposed improvements. Of the existing embankment material, there is a variety of different soil classifications that were found and can be seen on the IDH Textural Classification Charts in Appendix D. Most of these soils have unconfined compressive strengths greater or equal than 1.5 tons per square foot when measured with a pocket penetrometer.

D. Geology

The project lies within the Kankakee Plain, of the Till Plains Section of the Central Lowland Province of Illinois. The quaternary deposits within the limits of the project are in the till plain from intermorainal areas of the Wisconsin Episode. The bedrock in this area is limestone and the elevation varies between 625 and 632, while the original ground surface (at the bottom of the embankment) is at approximately elevation 638. The geological information can be found in Appendix E.

II. SUBSURFACE INVESTIGATION

A. Field Investigation

Soil boring and rock core locations are shown on the aerial photography in Appendix F and the typed roadway boring logs, rock core logs and pictures are included in Appendix G. A soil profile is also included in Appendix H.

Precipitation data for the period prior to the subsurface investigation is provided in Table 1 and Table 2. With the actual precipitation being higher than the average for these time periods, groundwater was encountered between elevations 626 to 632, which is well below any proposed roadway improvements. Groundwater is not likely to be encountered during construction and should not be a factor during construction.

Month	Year	Actual Precipitation	Normal Precipitation	Departure from Normal (+/-)	Cumulative Actual Precipitation	Cumulative Normal Precipitation
		inch	inch	inch	inch	inch
May	2016	4.62	4.81	0.19	4.62	4.81
June	2016	4.11	4.14	0.03	8.73	8.95
July	2016	6.30	4.65	-1.65	15.03	13.60
August	2016	5.79	3.31	-2.48	20.82	16.91
September	2016	3.96	3.19	-0.77	24.78	20.10
October	2016	2.18	3.11	0.93	26.96	23.21
November	2016	2.03	3.48	1.45	28.99	26.69
TOTALS		**28.99**	**26.69**	**-2.30**	**28.99**	**26.69**

Table 1: Precipitation Data for Bradley, Illinois 2016

Month	Year	Actual Precipitation	Normal Precipitation	Departure from Normal (+/-)	Cumulative Actual Precipitation	Cumulative Normal Precipitation
		inch	inch	inch	inch	inch
April	2019	2.86	3.46	-0.60	2.86	3.46
May	2019	9.18	4.8	4.38	12.04	8.26
June	2019	4.12	4.13	-0.01	16.16	12.39
July	2019	5.47	4.65	0.82	21.63	17.04
August	2019	1.61	3.31	-1.70	23.24	20.35
TOTALS		**23.24**	**20.35**	**2.89**	**23.24**	**20.35**

Table 2: Precipitation Data for Bradley, Illinois 2019

B. Laboratory Testing and Classification of Soils

Laboratory testing consisted of Atterberg Limit determination and grain size analysis. These results are included in Appendix I. Moisture contents were also determined and are indicated on the boring logs. The soil samples were classified in accordance with the IDOT textural classification chart and the AASHTO engineering designations with group indices were determined.

C. Existing Pavement Conditions

The condition of the existing pavement is typical for its age. The pavement does not exhibit any signs of geotechnical failures.

III. ANALYSIS AND RECOMMENDATIONS

A. Frost Susceptible Soils

The soils within the proposed improvement were analyzed for frost susceptibility in accordance to the criteria outlined in the IDOT Geotechnical Manual (2015). The design frost depth for this project is 42 inches. Frost susceptible soils must exhibit at least 65% of silt and fine sand and a plasticity index less than 12.

The results from analysis indicate that no soils with frost susceptible characteristics were encountered in the subsurface exploration.

B. Subgrade Support Rating and Illinois Bearing Ratio

For the purpose of pavement design, a Subgrade Support Rating (SSR) of poor is recommended for all existing subgrade soils. The SSR charts with data points plotted are in Appendix J. Based on Table 6.3.1-1 of the IDOT Geotechnical Manual (2015 edition), the Illinois Bearing Ratio for the existing project soils can be estimated as 3.

The source of the new embankment material is not known at this time, so a Subgrade Support Rating of poor is recommended for all new embankment materials.

C. Slope Stability

The slopes on this project are to be constructed at 2:1 (H:V) or flatter. Slope stability analysis was conducted at station 142+00 using Slide 2018. This station is located near the highest elevation of the embankment and poses the most risk for slope failure based on strength of the soils from the soil boring logs. Based on a factor of safety of 3.3, a slope failure is unlikely to occur so long as the new embankment is benched correctly according to IDOT's Standard Specifications. The slope stability analysis is included in Appendix K.

There were slope failures at the outside approaches on all four structures that were repaired in the early 1990s. The slopes have shown no sign of movement since these repairs took place. Stability is not a concern during construction, however if excavation is to be done in the repaired areas, special care should be taken to prevent the fabric from being torn. If the fabric gets torn the aggregate could potentially spill out and compromise the integrity of the slope. Plans and details from the slope repairs are included in Appendix L.

A side slope stability analysis was also performed by the SGR authors. The lowest calculated factor of safety out of all four proposed structures was 3.0, which is well above the required 1.5. The addition of fill material on the existing embankments is not expected to cause slope stability issues.

Because of the height and profile grades, it is recommended to install a storm sewer system with a curb or curb and gutter to help prevent erosion of the shoulders and side slopes of the proposed embankment.

D. Settlement

The embankment construction consists of building on top of existing embankments which have been in place for many years. The soil borings show high unconfined compressive strengths with relatively low moisture content. With the profile changes the most being built on top of the existing embankments is 5 feet. Settlement calculations were performed and can be found in Appendix M. The most settlement to be expected during construction is 0.25 inches, therefore settlement should not be an issue.

The SGR author also performed a settlement analysis and the maximum settlement to be expected is 0.43 inches, which is not significant. No soil remediation or settlement monitoring is required.

E. Geotechnical Reports

The Roadway Geotechnical Report for this project should be made available to the contractor. A special provision for this is included in Appendix N.

F. Embankment Material

The material to be used for the embankments is not known at this time, however the following requirements must be met:

1. Moisture content shall be between 80% and 110% of the proctor optimum moisture
2. Immediate bearing value of 4.0
3. Liquid limit less than 50
4. Plasticity index greater than 12.0
5. Silt and fine sand content less than 65%

Material not meeting requirements 3, 4, or 5 above shall be restricted to the core of the embankment and must be covered with a minimum of thirty-six inches of material meeting these requirements. This information comes from the District 3 Embankment special provision and the District 3 Borrow and Furnished Excavation special provision which are included in Appendix O and Appendix P respectively.

G. Improved Subgrade

Most of the improvements for this section of I-57 include raising the existing profile, therefore there are no anticipated issues with preparing an improved subgrade. A minimum of 12 inches of Aggregate Subgrade Improvement or subbase granular material type A is recommended throughout the project. These recommendations are based on a review of soil boring logs, laboratory data, and previous experience. A copy of the District 3 Aggregate Subgrade Improvement special provision is included in Appendix Q.

IV. FURTHER INFORMATION

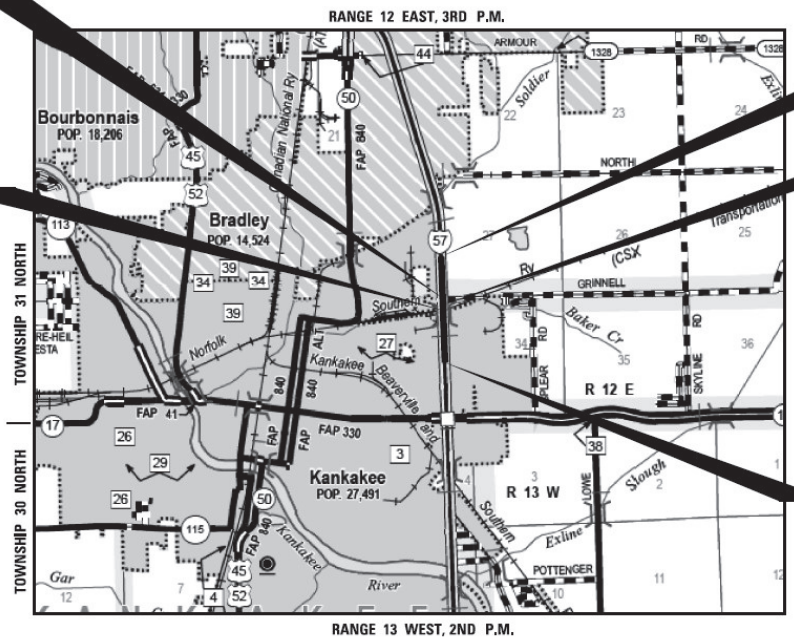
If there are any questions about this report or any additional information is required, please contact the District Geotechnical Engineer.

Appendix A

Project Location Map

BRIDGE REPLACEMENT
STA 138 + 90.74
EXIST SN 046–0010 (NB) / –0011 (SB)
PROP SN 046–0158 (NB) / –0159 (SB)

BRIDGE REPLACEMENT
STA 143 + 60.76
EXIST SN 046–0008 (NB) / –0009 (SB)
PROP SN 046–0156 (NB) / –0157 (SB)



BEGIN IMPROVEMENT
STA 124 + 00.00

PROJECT LOCATION

END IMPROVEMENT
STA 164 + 00.00

Appendix B

Existing and Proposed

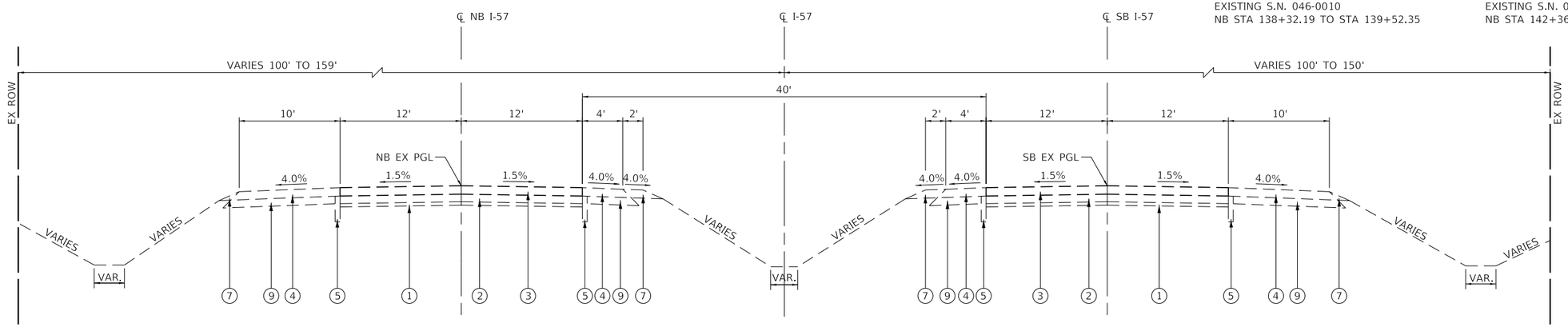
Typical Sections

(S.N. 046-0011)
EXISTING BRIDGE APPROACH PAVEMENT
SB STA 137+89.57 TO STA 138+29.57
SB STA 139+49.73 TO STA 139+89.73
EXISTING S.N. 046-0011
SB STA 138+29.57 TO STA 139+49.73

(S.N. 046-0010)
EXISTING BRIDGE APPROACH PAVEMENT
NB STA 137+92.19 TO STA 138+32.19
NB STA 139+52.35 TO STA 139+92.35
EXISTING S.N. 046-0010
NB STA 138+32.19 TO STA 139+52.35

(S.N. 046-0009)
EXISTING BRIDGE APPROACH PAVEMENT
SB STA 142+08.36 TO STA 142+48.36
SB STA 145+08.03 TO STA 145+48.03
EXISTING S.N. 046-0009
SB STA 142+48.36 TO STA 145+08.03

(S.N. 046-0008)
EXISTING BRIDGE APPROACH PAVEMENT
NB STA 141+96.02 TO STA 142+36.02
NB STA 144+95.69 TO STA 145+35.69
EXISTING S.N. 046-0008
NB STA 142+36.02 TO STA 144+95.69



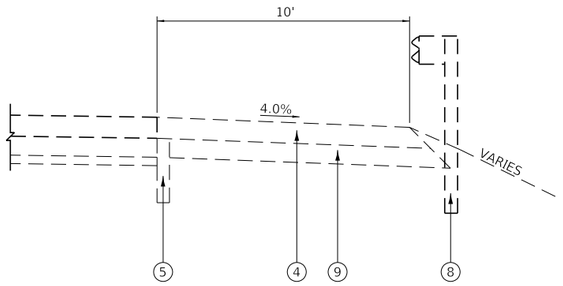
EXISTING TYPICAL CROSS SECTION

(LOOKING SOUTH)
F.A.I. ROUTE 57 (I-57)
STA 124+00.00 TO STA 138+30.88
STA 139+51.04 TO STA 142+42.19
STA 145+01.86 TO STA 164+00.00

LEGEND

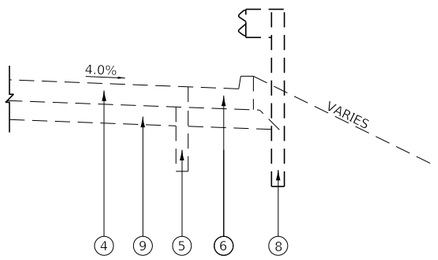
1. EXISTING SUB-BASE GRANULAR MATERIAL ±4"
2. EXISTING PCC PAVEMENT ±9"
3. EXISTING HOT-MIX ASPHALT OVERLAY ±10"
4. EXISTING HOT-MIX ASPHALT SHOULDERS ±14"
5. EXISTING PIPE UNDERDRAINS
6. EXISTING CONCRETE CURB AND GUTTER
7. EXISTING AGGREGATE SHOULDER
8. EXISTING GUARDRAIL
9. EXISTING GRAVEL/CRUSHED STONE ±6"

NOTE: INFORMATION SHOWN FOR MATERIALS AND THICKNESSES WERE TAKEN FROM PLANS PROVIDED BY IDOT FOR THE 1956 ORIGINAL CONSTRUCTION, 1984 RESURFACING, 1993 RESURFACING, AND 2019 RESURFACING PROJECTS.



DETAIL AT EXISTING GUARDRAIL WITH NO CURB AND GUTTER

F.A.I. ROUTE 57 (I-57)
SB STA 133+62.77 TO STA 135+26.08 (RT)
SB STA 134+58.07 TO STA 137+90.11 (LT)
SB STA 139+89.65 TO STA 142+01.18 (LT)
NB STA 139+91.75 TO STA 142+00.27 (RT)
NB STA 145+40.77 TO STA 148+71.35 (RT)
NB STA 133+77.55 TO STA 135+24.92 (LT)
NB STA 153+87.59 TO STA 154+32.34 (LT)



DETAIL AT EXISTING GUARDRAIL WITH CURB AND GUTTER

F.A.I. ROUTE 57 (I-57)
SB STA 135+26.08 TO STA 138+20.28 (RT)
SB STA 139+55.32 TO STA 142+43.20 (RT)
SB STA 145+19.70 TO STA 154+23.37 (RT)
SB STA 137+90.11 TO STA 138+23.57 (LT)
SB STA 139+58.05 TO STA 139+89.65 (LT)
SB STA 142+01.18 TO STA 142+35.38 (LT)
NB STA 139+58.15 TO STA 139+91.75 (RT)
NB STA 142+00.27 TO STA 142+28.93 (RT)
NB STA 145+06.89 TO STA 145+40.77 (RT)
NB STA 135+24.92 TO STA 138+25.16 (LT)
NB STA 139+61.06 TO STA 142+23.49 (LT)
NB STA 145+00.88 TO STA 153+87.59 (LT)

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USER NAME = dcerda	DESIGNED - AAS	REVISED -
	DRAWN - DC, DRR	REVISED -
PLOT SCALE = 12.0000 ' / in.	CHECKED - GAC	REVISED -
PLOT DATE = 1/13/2020	DATE - 01-13-2020	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.I. ROUTE 57 (I–57)
TYPICAL SECTIONS

SCALE: NTS | SHEET 1 OF 3 SHEETS | STA. 124+00.00 TO STA. 164+00.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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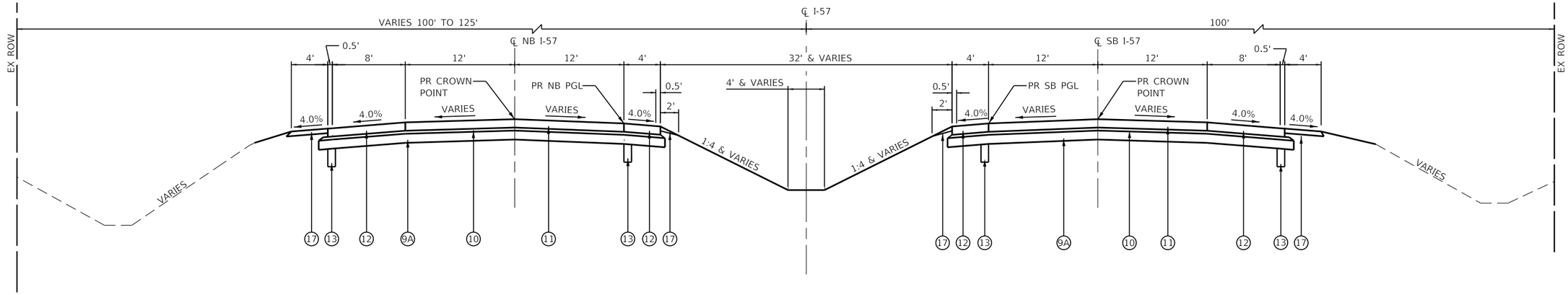
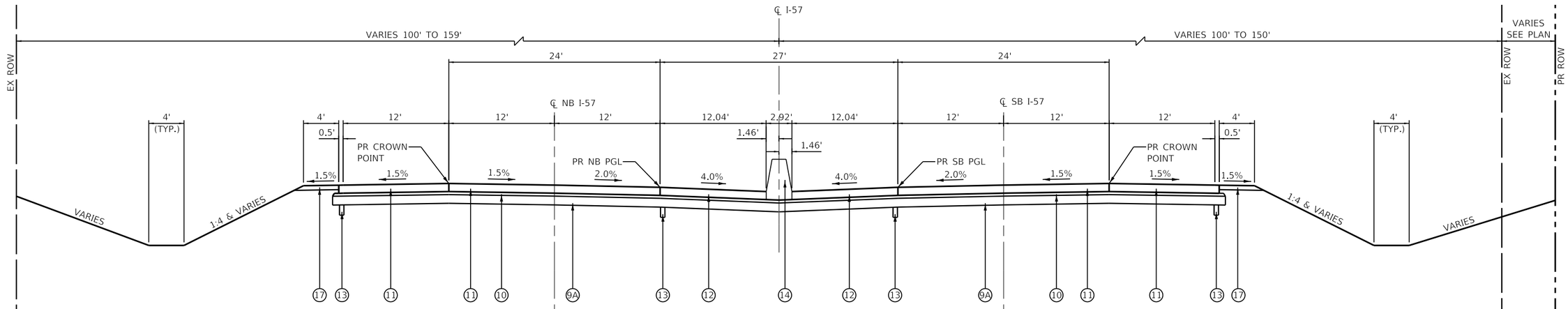
		CONTRACT NO. 66F74		
	ILLINOIS FED. AID PROJECT			



PROPOSED TYPICAL CROSS SECTION (1)

(LOOKING SOUTH)
F.A.I. ROUTE 57 (I-57)
STA 124+00.00 TO STA 125+50.00
STA 163+50.00 TO STA 164+00.00



PROPOSED TYPICAL CROSS SECTION (2)

(LOOKING SOUTH)
F.A.I. ROUTE 57 (I-57)
STA 125+50.00 TO STA 137+82.34
STA 139+99.59 TO STA 142+30.53
STA 144+90.99 TO STA 163+50.00

SEE HIGHWAY STANDARD 420401 PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB
STA 137+82.34 TO STA 138+12.34
STA 139+69.59 TO STA 139+99.59
SN 046-0158/0159
STA 142+27.93 TO STA 142+57.93
STA 144+58.39 TO STA 144+88.39
SN 046-0156
STA 142+33.13 TO STA 142+63.13
STA 144+63.60 TO STA 144+93.60
SN 046-0157

* THESE STATIONS ARE CALLED OUT AT THE EXISTING PGL OF NB/SB I-57.

LEGEND

(9A) PROPOSED SUBBASE GRANULAR MATERIAL, TYPE A 12"
(10) PROPOSED STABILIZED SUBBASE - HOT-MIX ASPHALT, 4"
(11) PROPOSED CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 11"
(12) PROPOSED PORTLAND CEMENT CONCRETE SHOULDERS 11"
(13) PROPOSED PIPE UNDERDRAIN TYPE 3
(14) PROPOSED CONCRETE BARRIER, DOUBLE FACE, 44 INCH HEIGHT
(15) PROPOSED STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS
(16) PROPOSED CONCRETE CURB, TYPE B
(17) PROPOSED AGGREGATE SHOULDERS, TYPE B 6"
(18) PROPOSED TURF SHOULDER
(19) PROPOSED TEMPORARY CONCRETE BARRIER

NOTE: SEE SHEET #___ FOR DETAILS AT PROPOSED GUARDRAIL LOCATIONS

Farnsworth GROUP
2709 McGRAW DRIVE
BLOOMINGTON, ILLINOIS 61704
(309) 663-8435 / info@f-w.com

USER NAME = dcerda	DESIGNED - AAS	REVISED -	
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.I. ROUTE 57 (I–57)
TYPICAL SECTIONS

SCALE: NTS | SHEET 2 OF 3 SHEETS | STA. 124+00.00 TO STA. 164+00.00

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		CONTRACT NO. 66F74		
	ILLINOIS	FED. AID PROJECT		

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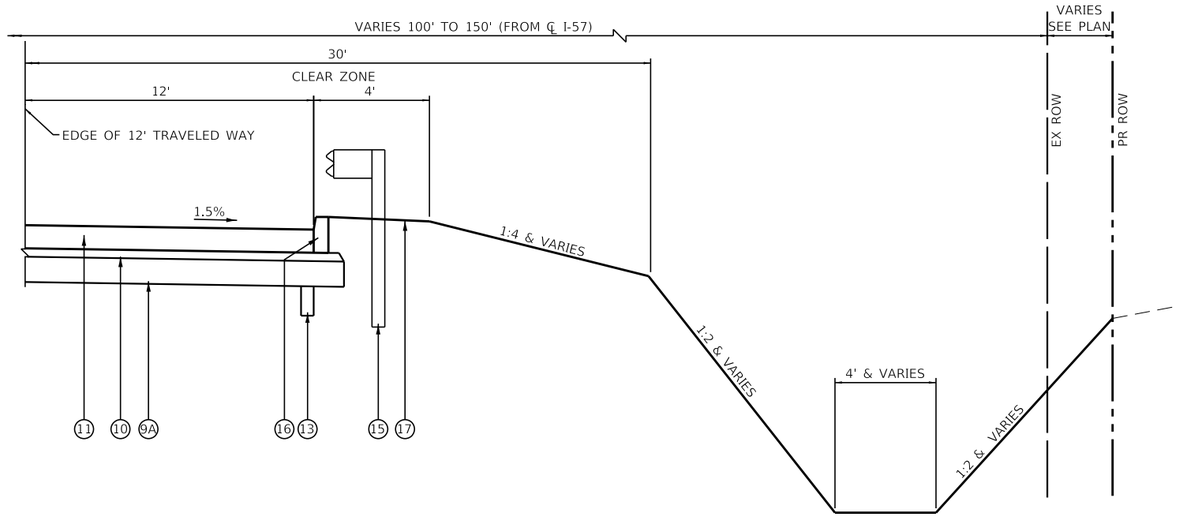

PROPOSED FORE SLOPE DETAIL

(LOOKING SOUTH)
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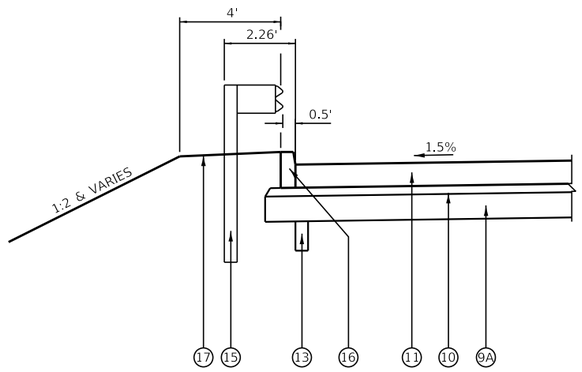

DETAIL AT PROPOSED GUARDRAIL

F.A.I. ROUTE 57 (I-57)
(SB) STA 128+47.94 TO STA 137+99.84
(SB) STA 139+84.59 TO STA 142+57.54
(SB) STA 144+85.54 TO STA 157+00.56
(NB) STA 131+82.32 TO STA 137+97.34
(NB) STA 139+82.09 TO STA 142+35.99
(NB) STA 144+63.96 TO STA 158+53.36

LEGEND

(9A) PROPOSED SUBBASE GRANULAR MATERIAL, TYPE A 12"
(10) PROPOSED STABILIZED SUBBASE - HOT-MIX ASPHALT, 4"
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(18) PROPOSED TURF SHOULDER
(19) PROPOSED TEMPORARY CONCRETE BARRIER

STRUCTURAL PAVEMENT DESIGN INFORMATION

STRUCTURAL DESIGN TRAFFIC: Year _____
PV = _____ SU = _____ MU = _____
ROAD/STREET CLASSIFICATION: Class _____
PERCENT OF STRUCTURAL DESIGN TRAFFIC IN DESIGN LANE:
P = _____ S = _____ M = _____
TRAFFIC FACTOR: Actual TF = _____ Minimum TF = _____
PG GRADE: Top Binder = _____ Lower Binder = _____
Surface = _____
SUBGRADE SUPPORT RATING:
SSR = _____

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PLOT SCALE = 12.0000 ' / in.	CHECKED - GAC	REVISED -	
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

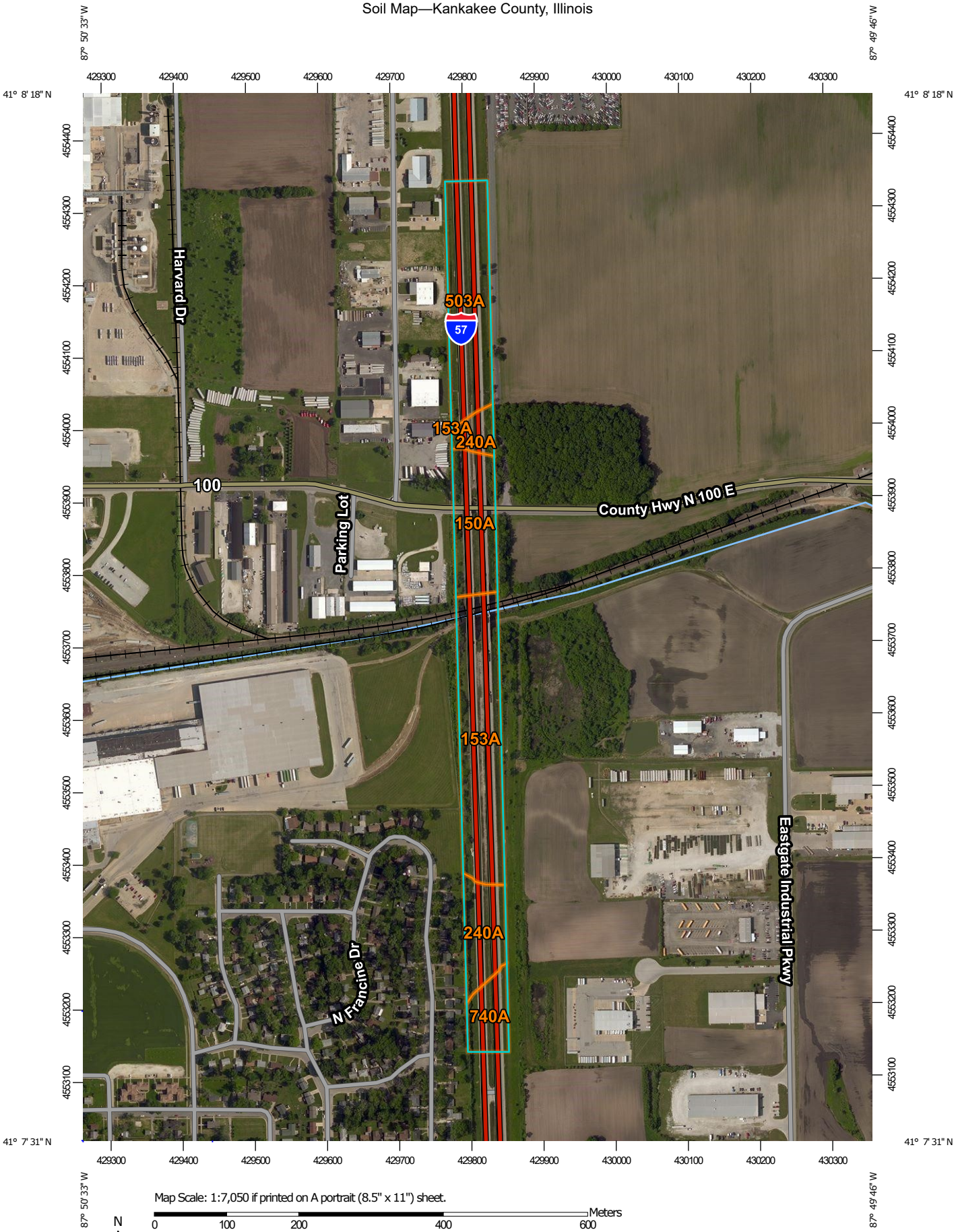
F.A.I. ROUTE 57 (I–57)
TYPICAL SECTIONS

SCALE: NTS | SHEET 3 OF 3 SHEETS | STA. 128+47.94 TO STA. 158+53.36

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	[(139)VB, HB-3]BR,139R	KANKAKEE	134	17
		CONTRACT NO. 66F74		
	ILLINOIS	FED. AID PROJECT		

Appendix C

Web Soil Survey



Map Scale: 1:7,050 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 300 600 1200 1800

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

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: Kankakee County, Illinois
Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Jun 2, 2015—Jun 9, 2015

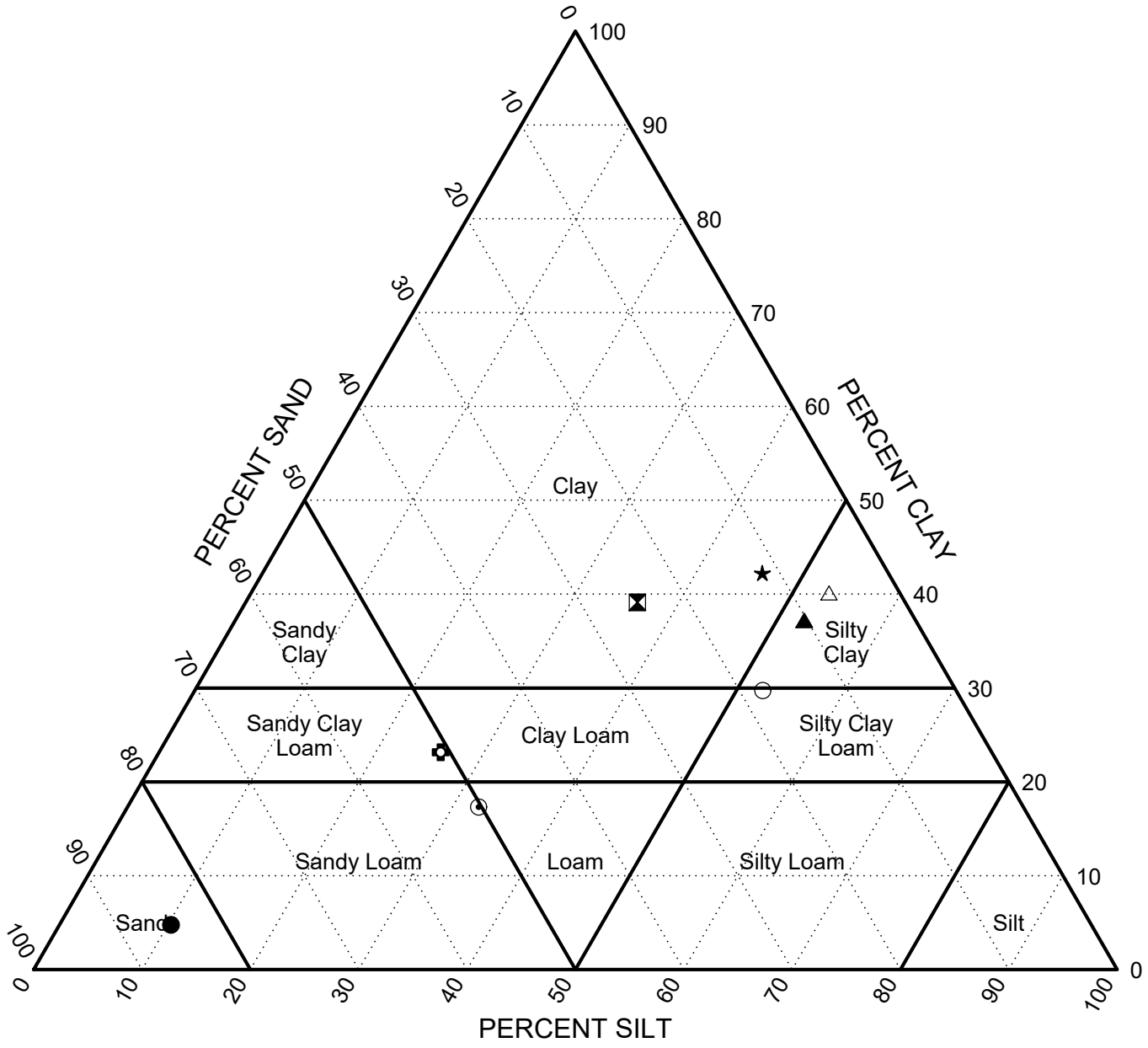
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
150A	Onarga fine sandy loam, 0 to 2 percent slopes	2.8	16.5%
153A	Pella silty clay loam, 0 to 2 percent slopes	5.7	32.9%
240A	Plattville silt loam, 0 to 2 percent slopes	2.7	15.5%
503A	Rockton silt loam, 0 to 2 percent slopes	4.7	27.2%
740A	Darroch silt loam, 0 to 2 percent slopes	1.4	7.9%
Totals for Area of Interest		**17.2**	**100.0%**

Appendix D

IDH Textural
Classification Charts



	Borehole	Station	Offset	Depth (ft)	Classification
●	**301**	**147+89.32**	**47.60 ft Rt.**	**2.50**	**SAND**
⊠	**301**	**147+89.32**	**47.60 ft Rt.**	**4.50**	**A-6 (9) CLAY**
▲	**302**	**151+13.66**	**48.11 ft Lt.**	**2.00**	**A-6 (9) SILTY CLAY**
★	**303**	**155+86.11**	**12.26 ft Lt.**	**0.00**	**A-6 (13) CLAY**
⊙	**304**	**158+63.31**	**58.81 ft Rt.**	**0.00**	**A-6 (4) SANDY LOAM**
✿	**304**	**158+63.31**	**58.81 ft Rt.**	**4.00**	**A-6 (4) SANDY CLAY LOAM**
○	**305**	**161+95.28**	**13.38 ft Rt.**	**0.00**	**A-6 (10) SILTY CLAY LOAM**
△	**305**	**161+95.28**	**13.38 ft Rt.**	**3.00**	**A-7-6 (20) SILTY CLAY**

Illinois Department of Transportation
Division of Highways
IDOT

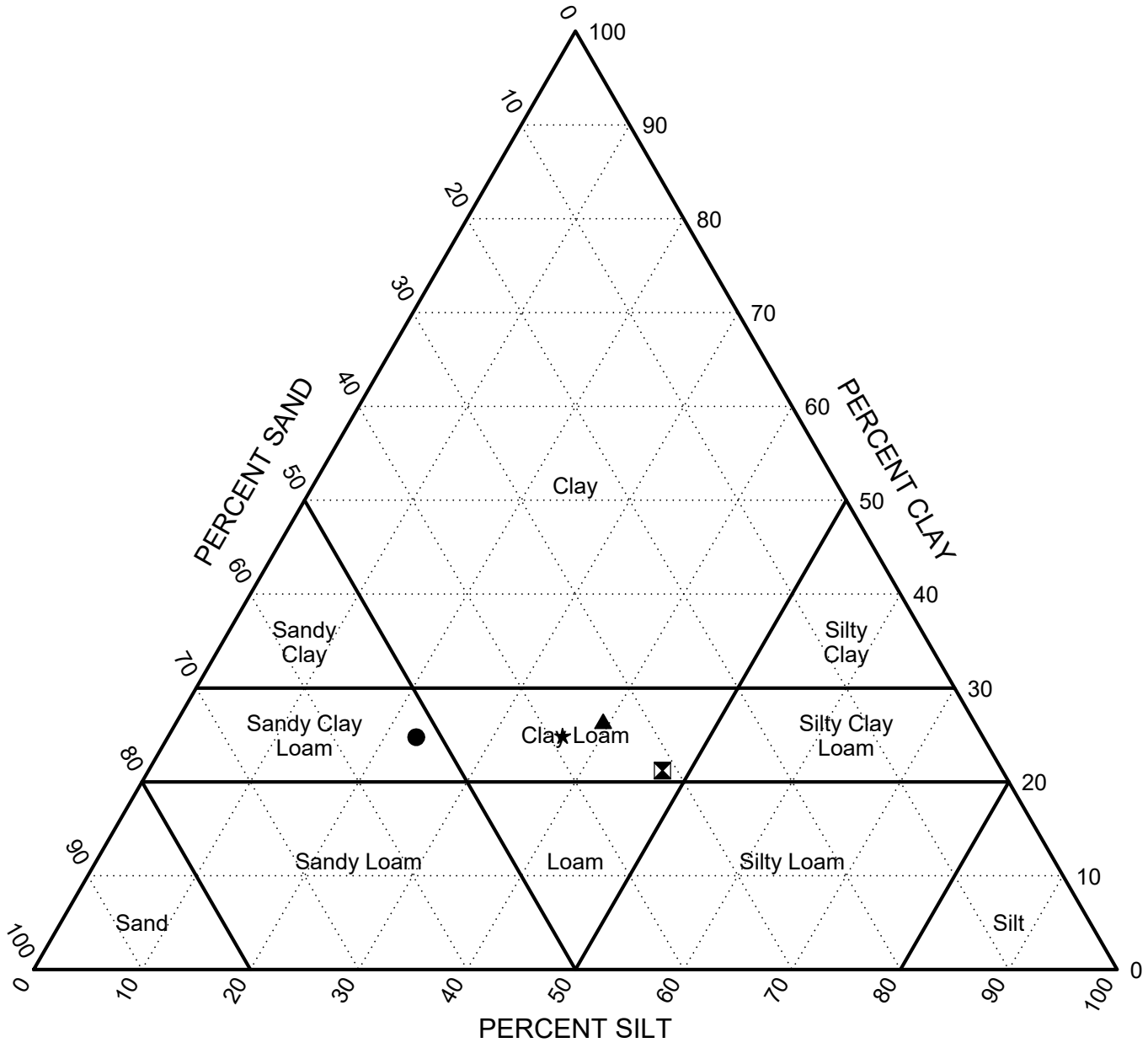
IDH Textural Classification Chart

Route: I-57 (FAI 57)

Section: (46-3)R, HBK, 5HBR, 6HBR

County: Kankakee

TEXTURAL CLASSIFICATION I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/24/20



	Borehole	Station	Offset	Depth (ft)	Classification
●	**502**	**126+54.90**	**57.16 ft Rt.**	**2.00**	**A-7-6 (8) SANDY CLAY LOAM**
⊠	**504**	**132+57.87**	**58.34 ft Lt.**	**0.00**	**A-6 (9) CLAY LOAM**
▲	**505**	**136+02.31**	**49.19 ft Rt.**	**1.00**	**A-6 (12) CLAY LOAM**
★	**601**	**141+03.25**	**49.07 ft Rt.**	**1.00**	**A-6 (7) CLAY LOAM**

Illinois Department of Transportation
Division of Highways
IDOT

IDH Textural Classification Chart

Route: FAI 57 (I-57)

Section: [(139)VB, HB-3]BR,139R

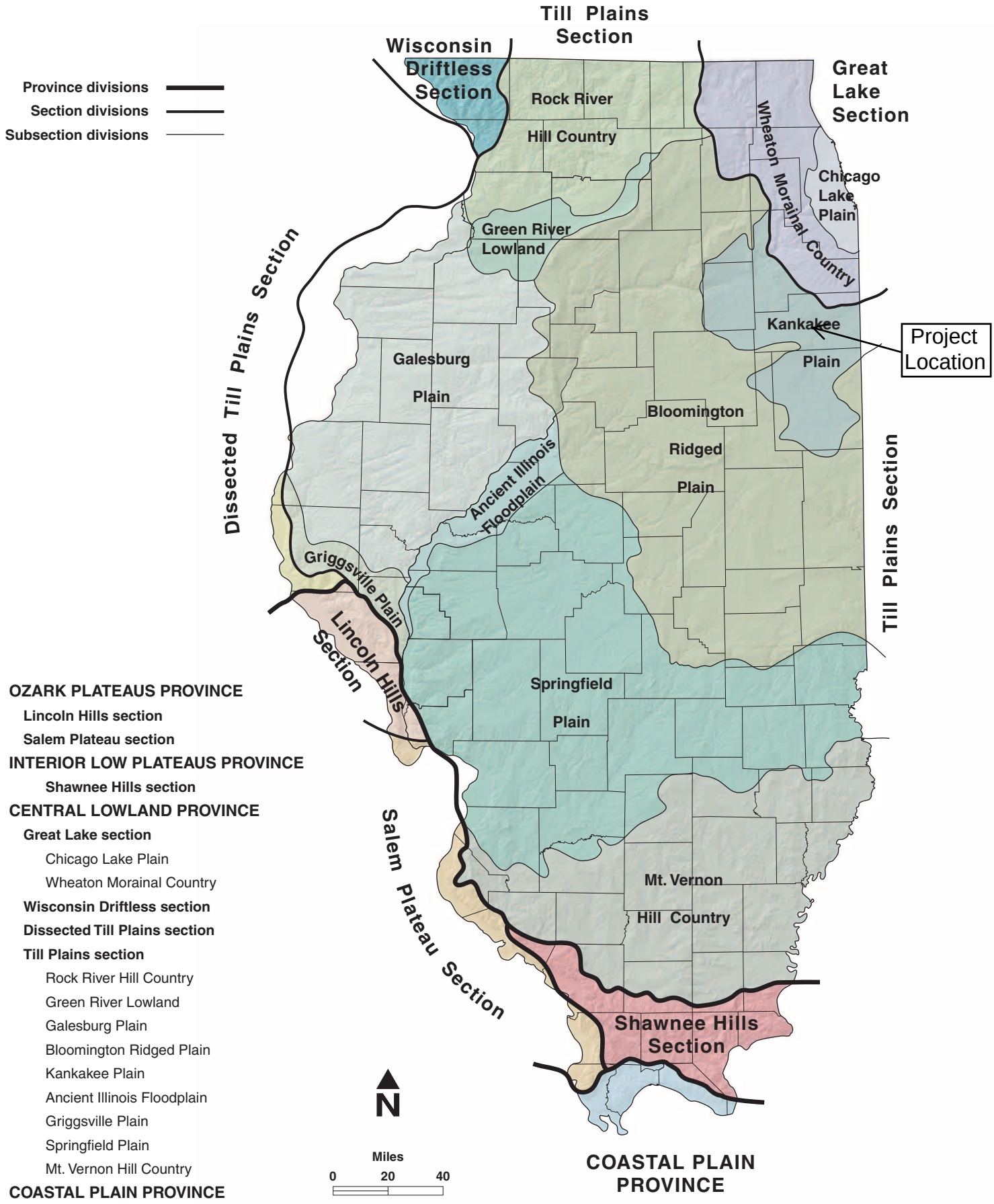
County: Kankakee

TEXTURAL CLASSIFICATION I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 2/21/20

Appendix E

Geological Information

Physiographic Divisions of Illinois



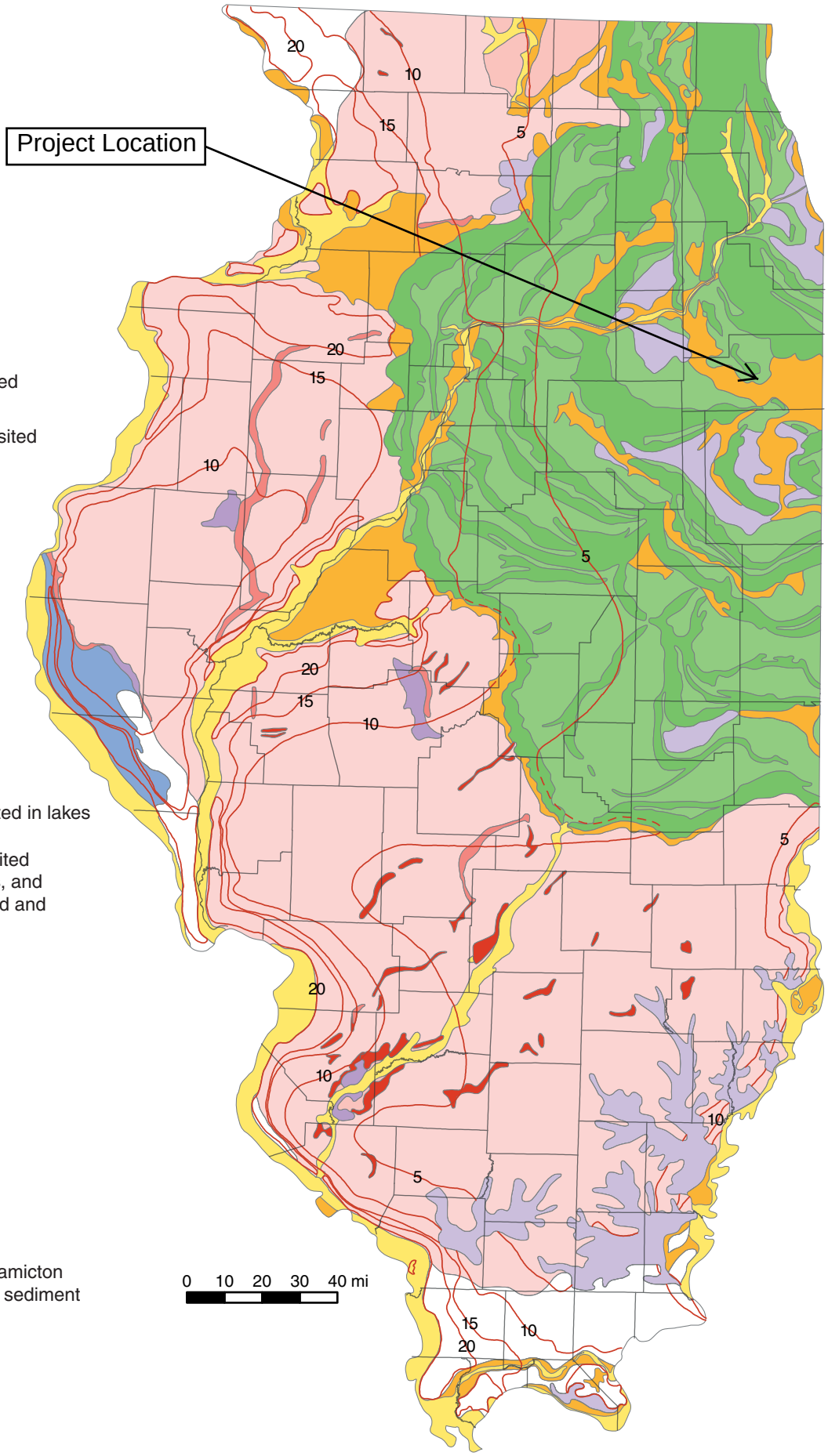
OZARK PLATEAUS PROVINCE
- **Lincoln Hills section**
- **Salem Plateau section**

INTERIOR LOW PLATEAUS PROVINCE
- **Shawnee Hills section**

CENTRAL LOWLAND PROVINCE
- **Great Lake section**
  - Chicago Lake Plain
  - Wheaton Morainal Country
- **Wisconsin Driftless section**
- **Dissected Till Plains section**
- **Till Plains section**
  - Rock River Hill Country
  - Green River Lowland
  - Galesburg Plain
  - Bloomington Ridged Plain
  - Kankakee Plain
  - Ancient Illinois Floodplain
  - Griggsville Plain
  - Springfield Plain
  - Mt. Vernon Hill Country

COASTAL PLAIN PROVINCE

Quaternary Deposits



HUDSON EPISODE

Cahokia Fm; river sand, gravel, and silt

WISCONSIN EPISODE

Mason Group

Thickness of Peoria and Roxanna Silts; silt deposited as loess (5-ft contour interval)

Equality Fm; silt and clay deposited in lakes

Henry Fm; sand and gravel deposited in glacial rivers, outwash fans, beaches, and dunes

Wedron Group (Tiskilwa, Lemont, and Wadsworth Fms) and Trafalgar Fm; diamicton deposited as till and ice-marginal sediment

End moraine

Till plain

ILLINOIS EPISODE

Teneriffe Silt; silt and clay deposited in lakes

Pearl Fm; sand and gravel deposited in glacial rivers and outwash fans, and Hagarstown Mbr; ice-contact sand and gravel deposited in ridges

Winnebago Fm; diamicton deposited as till and ice-marginal sediment

Till plain

Glasford Fm; diamicton deposited as till and ice-marginal sediment

End moraine

Till plain

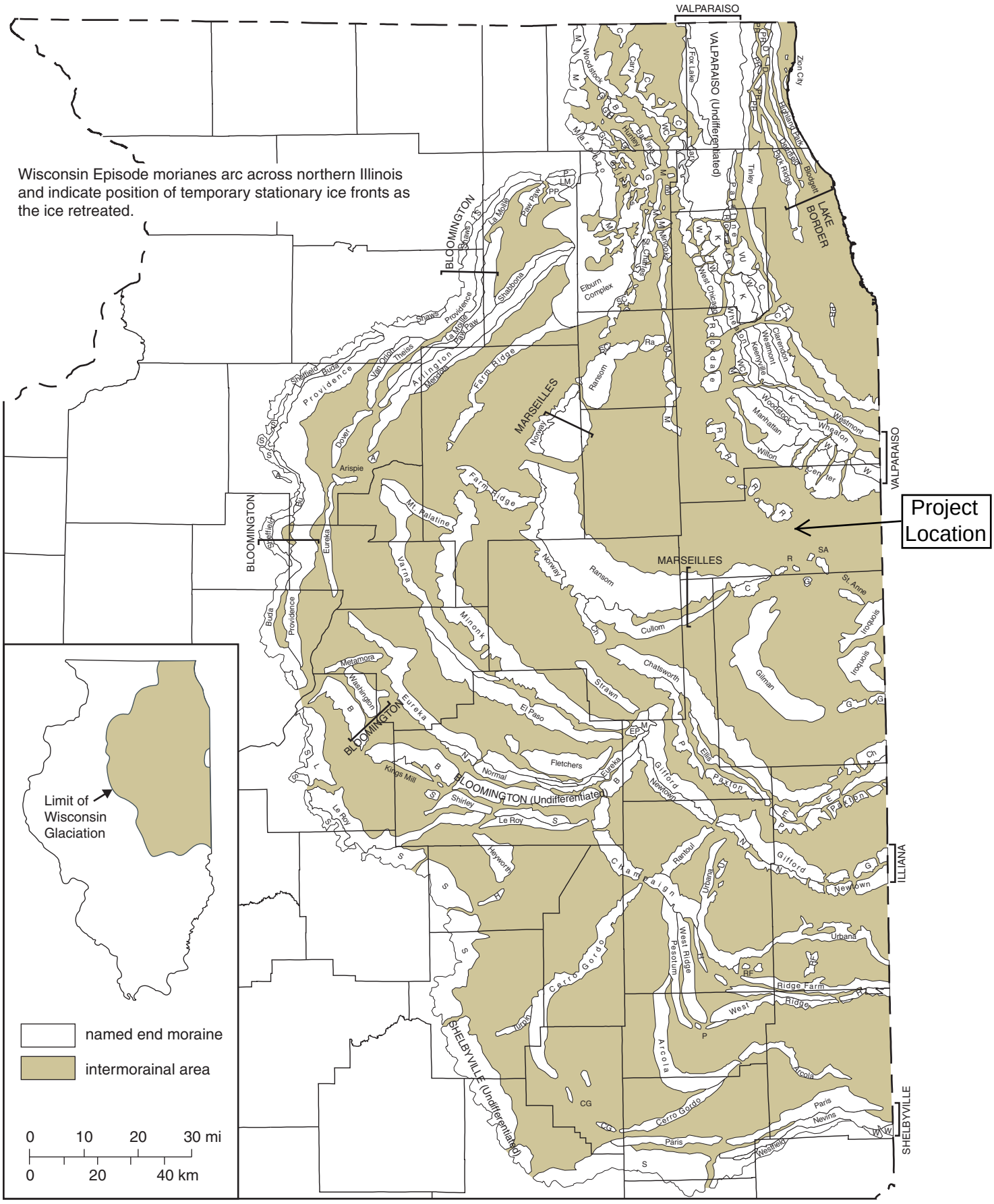
PRE-ILLINOIS EPISODE

Wolf Creek Fm; predominantly diamicton deposited as till and ice-marginal sediment

Unglaciated

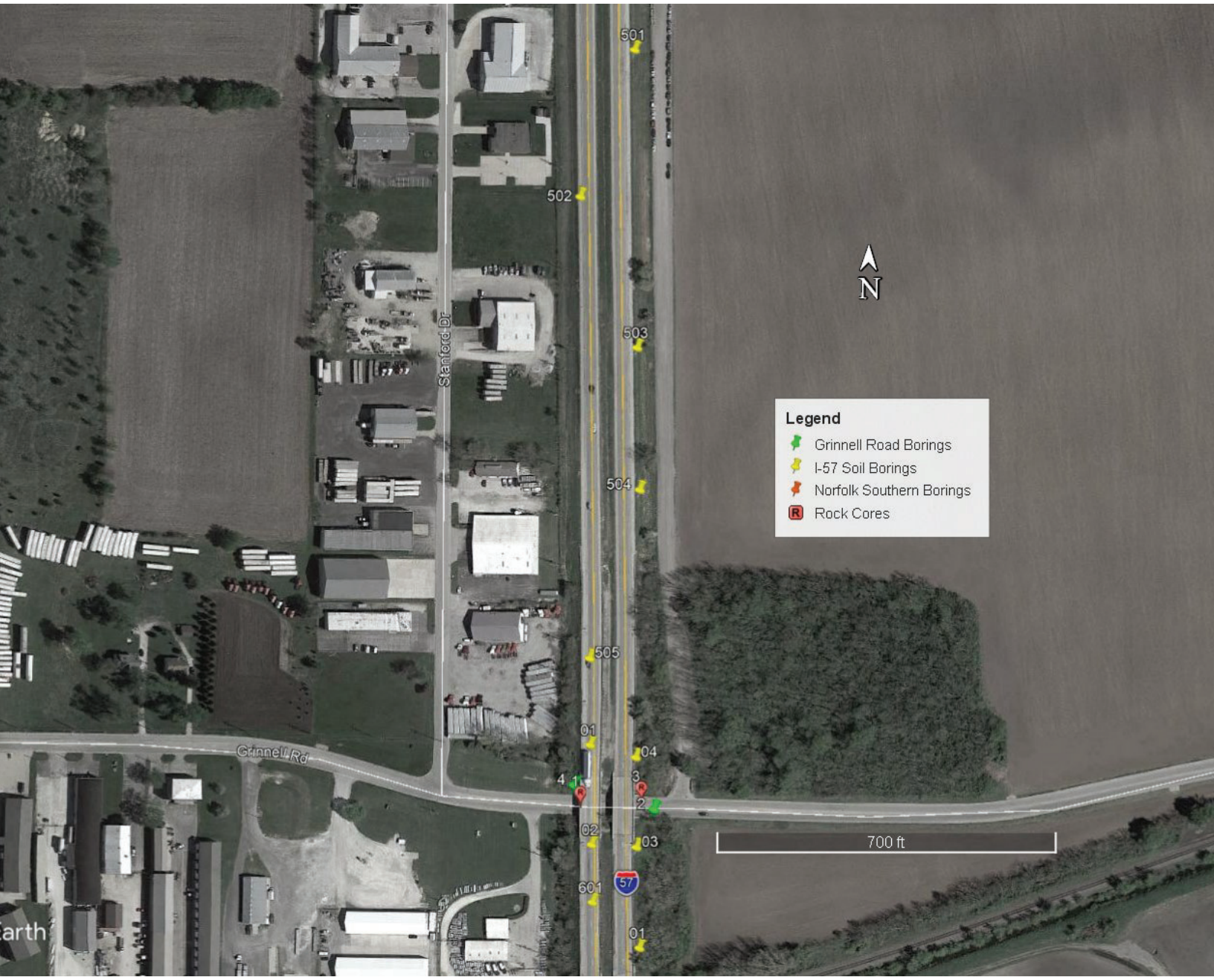
Suggested citation:
ISGS Staff, 2005, Quaternary deposits: Illinois State Geological Survey, ISGS 8.5 × 11 map series.

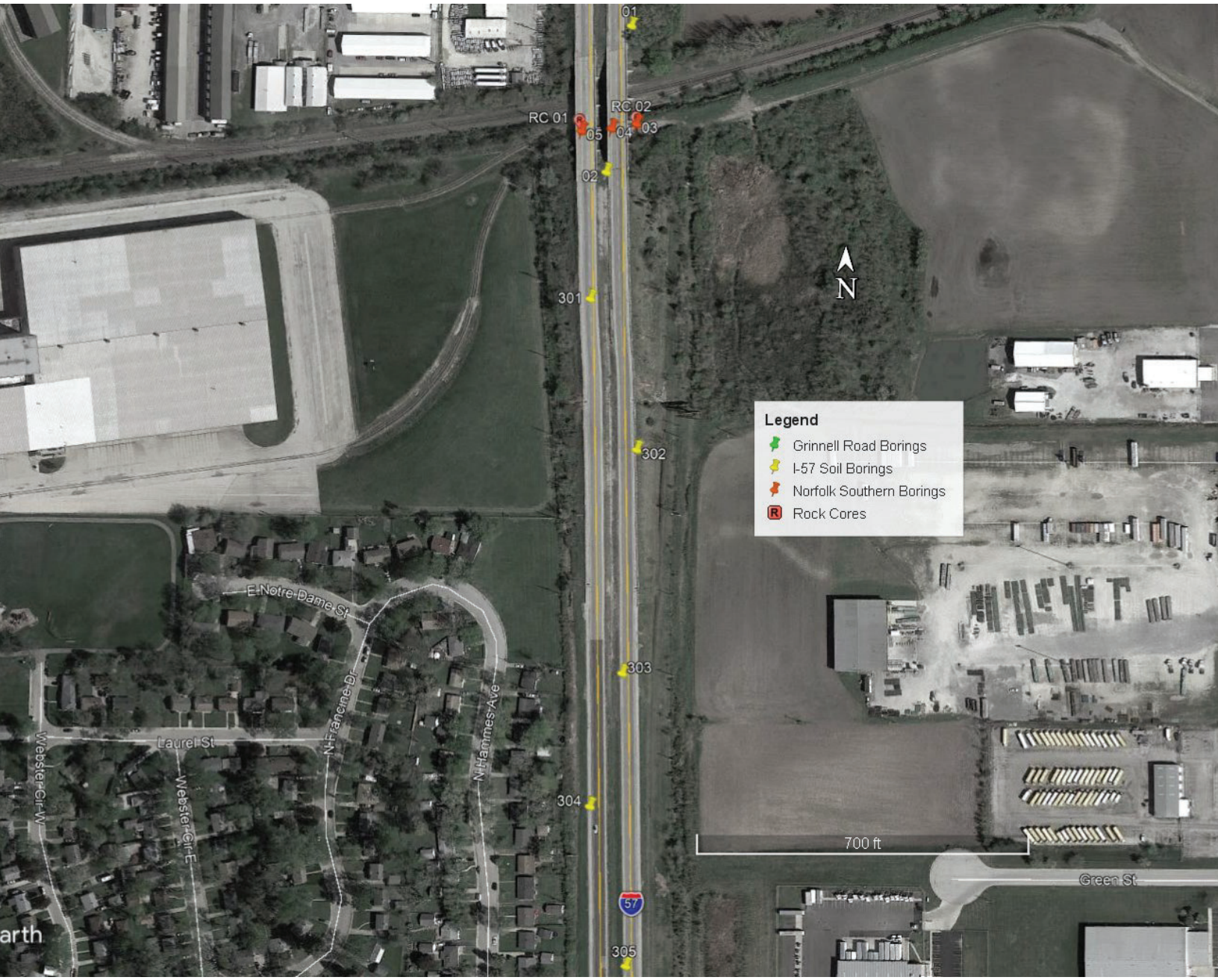
End Moraines Of The Wisconsin Glacial Episode



Appendix F

Soil Boring Locations


501
502
503
504
505
01
04
3
2
4
1
02
03
601
01
Stanford Dr
Grinnell Rd
N
Legend
Grinnell Road Borings
I-57 Soil Borings
Norfolk Southern Borings
Rock Cores
700 ft
57


01
RC 01
RC 02
05
04
03
02
301
N
302
303
304
305
Legend
Grinnell Road Borings
I-57 Soil Borings
Norfolk Southern Borings
Rock Cores
E Notre Dame St
Laurel St
N Francine Dr
N Hammes Ave
Webster Cir W
Webster Cir E
700 ft
Green St
57

Appendix G

Soil Boring Logs

G-1: I-57 Roadway Boring Logs

G-2: Norfolk Southern Boring Logs

G-3: Grinnell Road Boring Logs

Appendix G-1

I-57 Roadway

Boring Logs

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/16/16

ROUTE I-57 (FAI 57) **DESCRIPTION** Slope Stability **LOGGED BY** Larry Myers

SECTION (46-3)R, HBK, 5HBR, 6HBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.13076903, **Longitude** -87.83630817

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO.
Station

BORING NO. 301
Station 147+89.32
Offset 47.6 ft Rt.
Ground Surface Elev. 662.52 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 632.5 ft ▼
Upon Completion 632.5 ft ▽
After Hrs. ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered Bituminous Shoulder, White CA6 & Brown Fill Sand - Fill				
660.02				
Loose Brown Fill Sand		3		
		2 2		9
658.02				
Very Stiff to Hard Gray Silty Clay Loam Till Fill	-5	2		
		3 5	4.0 P	17
		3		
		4 7	4.8 S	16
652.52	-10			
Hard Gray & Brown Silty Clay Loam Till Fill with some Black Silty Clay Loam mixed in after 17'		3		
		4 5	4.1 S	14
		3		
		5 8	4.8 S	14
	-15			
		3		
		5 7	4.8 S	16
		3		
		5 8	4.8 S	16
	-20			
Hard Gray & Brown Silty Clay Loam Till Fill with some Black Silty Clay Loam mixed in after 17' *(continued)*		3		
		4 5	4.1 B	20
	-25	3		
		4 7	4.4 B	17
		3		
		5 8	4.4 S	15
635.02				
Hard Gray & Brown Clay Loam Till Grading to Sandy Loam		5		
		7 9	4.6 S	13
633.02				
Loose Gray Fine to Medium Sand with Free Water ▽▼	-30	3		
		4 5		20
630.52				
Medium Gray Fine to Coarse Sand with Fine to Coarse Gravel		4		
		8 10		15
	-35			
		2		
		6 10		18
625.02				
Dense Gray Weathered Limestone		100/4"		9
624.69				
End of Boring				
	-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)

BBS, form 137 (Rev. 8-99)

SOIL BORING I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/21/20

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/3/16

ROUTE I-57 (FAI 57) **DESCRIPTION** Sample 25 **LOGGED BY** Larry Myers

SECTION (46-3)R, HBK, 5HBR, 6HBR **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.12988739, **Longitude** -87.83592456

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 302
Station 151+13.66
Offset 48.1 ft Lt.
Ground Surface Elev. 654.78 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After _____ **Hrs.** _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material Description
				Augered Shoulder Pavement, CA6, Brown & Gray Silty Clay Loam Till Fill
652.78				
				Brown & Gray Silty Clay Loam Till Fill
-5		4.5 P	16	
646.78				
		>4.5 P	15	End of Boring
-10				
-15				
-20				

SOIL BORING I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/21/20

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/4/16

ROUTE I-57 (FAI 57) **DESCRIPTION** Sample 36 **LOGGED BY** Larry Myers

SECTION (46-3)R, HBK, 5HBR, 6HBR **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.12858831, **Longitude** -87.83600164

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 303
Station 155+86.11
Offset 12.3 ft Lt.
Ground Surface Elev. 642.51 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After _____ **Hrs.** _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material Description
				Brown & Gray Silty Clay Loam Till Fill
		4.5 P	15	
-5				
636.51				
		>4.5 P	26	End of Boring
-10				
-15				
-20				

SOIL BORING I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/21/20

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/4/16

ROUTE I-57 (FAI 57) **DESCRIPTION** Samples 22A & 23A **LOGGED BY** Larry Myers

SECTION (46-3)R, HBK, 5HBR, 6HBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.12782186, **Longitude** -87.83622842

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 304
Station 158+63.31
Offset 58.8 ft Rt.
Ground Surface Elev. 639.85 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After _____ **Hrs.** _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
Black Silty Clay Loam Fill with Debris & Gravel Layers				
		2.0 P	12	
635.85				
Brown & Gray Sandy Loam				
-5				
633.85				
End of Boring		1.0 P	22	
-10				
-15				
-20				

SOIL BORING I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/21/20

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/4/16

ROUTE I-57 (FAI 57) **DESCRIPTION** Samples 34 & 35 **LOGGED BY** Larry Myers

SECTION (46-3)R, HBK, 5HBR, 6HBR **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.12691728, **Longitude** -87.83592931

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 305
Station 161+95.28
Offset 13.4 ft Rt.
Ground Surface Elev. 641.65 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After _____ **Hrs.** _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
Black & Brown Silty Clay Loam Fill				
638.65				
Brown & Gray Silty Clay Loam Till		4.0 P	21	
-5				
635.65				
End of Boring		3.5 P	19	
-10				
-15				
-20				

SOIL BORING I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/21/20

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/23/19

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road and NS RR **LOGGED BY** Larry Myers

SECTION [(139)VB, HB-3]BR,139R **LOCATION** SW 1/4, **SEC.** 27, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.137456, **Longitude** -87.836197

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO.
Station

BORING NO. 501
Station 123+55.04
Offset 58.3 ft Lt.
Ground Surface Elev. 643.38 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion ft
After Hrs. ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Black, Gray Silty Clay Loam Fill				
			1.5 P	20
639.38				
Brown Silty Clay Loam Till	-5			
637.38				
Buff Weathered Dolomite			2.0 P	26
End of Boring	-10, -15, -20			

SOIL BORING I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 1/22/20

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)

Illinois Department of Transportation

Division of Highways
IDOT

SOIL BORING LOG

Date 8/23/19

ROUTE FAI 57 (I-57) **DESCRIPTION** Sample #1 **LOGGED BY** Larry Myers

SECTION [(139)VB, HB-3]BR,139R **LOCATION** SE 1/4, **SEC.** 28, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.136623, **Longitude** -87.836582

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 502
Station 126+54.90
Offset 57.2 ft Rt.
Ground Surface Elev. 644.67 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion _____ ft
After _____ **Hrs.** _____ ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
White CA 6 Fill				
643.67				
Brown / Black Silty Clay Loam Fill				
642.67				
Brown Clay Loam Till			1.5 P	21
			1.5 P	23
639.67	-5			
Buff Silt / Dolomite - Weathered & Reworked				
638.67				
End of Boring				11
	-10			
	-15			
	-20			

SOIL BORING I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 1/22/20

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)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/23/19

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road and NS RR **LOGGED BY** Larry Myers

SECTION [(139)VB, HB-3]BR,139R **LOCATION** SW 1/4, **SEC.** 27, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.135779, **Longitude** -87.836135

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO.
Station

BORING NO. 503
Station 129+66.40
Offset 56.5 ft Lt.
Ground Surface Elev. 645.81 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion ft
After Hrs. ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Black / Gray Silty Clay Loam Fill				
			1.5 P	19
	-5			
639.81				
End of Boring			1.5 P	19
	-10			
	-15			
	-20			

SOIL BORING I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 1/22/20

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)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/23/19

ROUTE FAI 57 (I-57) **DESCRIPTION** Sample #4 **LOGGED BY** Larry Myers

SECTION [(139)VB, HB-3]BR,139R **LOCATION** SW 1/4, **SEC.** 27, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.134979, **Longitude** -87.836096

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 504
Station 132+57.87
Offset 58.3 ft Lt.
Ground Surface Elev. 647.21 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion _____ ft
After _____ **Hrs.** _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Black, Gray Silty Clay Loam / Silty Clay Fill			
		1.0 P	21
-5			
641.21			
End of Boring		1.5 P	23
-10			
-15			
-20			

SOIL BORING I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 1/22/20

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)

Illinois Department of Transportation

Division of Highways
IDOT

SOIL BORING LOG

Date 8/23/19

ROUTE FAI 57 (I-57) **DESCRIPTION** Sample #2 **LOGGED BY** Larry Myers

SECTION [(139)VB, HB-3]BR,139R **LOCATION** SE 1/4, **SEC.** 28, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.134025, **Longitude** -87.836447

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO.
Station

BORING NO. 505
Station 136+02.31
Offset 49.2 ft Rt.
Ground Surface Elev. 655.05 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Black Asphalt Shoulder			
654.05			
Black, Gray Silty Clay Loam Fill with Gravel Pieces and Debris			
		2.5 P	23
-5			
647.55		3.5 P	18
End of Boring			
-10			
-15			
-20			

SOIL BORING I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 1/22/20

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)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/23/19

ROUTE FAI 57 (I-57) **DESCRIPTION** Sample #3 **LOGGED BY** Larry Myers

SECTION [(139)VB, HB-3]BR,139R **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.132651, **Longitude** -87.83639

COUNTY Kankakee **DRILLING METHOD** Push **HAMMER TYPE** CME Automatic

STRUCT. NO. _____
Station _____

BORING NO. 601
Station 141+03.25
Offset 49.1 ft Rt.
Ground Surface Elev. 664.97 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion _____ ft
After _____ **Hrs.** _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Black Asphalt Shoulder			
663.97			
Black & Gray Silty Clay Loam Fill			
		2.0 P	18
-5			
658.97			
End of Boring		2.5 P	21
-10			
-15			
-20			

SOIL BORING I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 1/22/20

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)

Appendix G-2

Norfolk Southern

Boring Logs

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/2/16

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.132399, **Longitude** -87.836033

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. 01 (N. Abut. NBL)
Station 142+12
Offset 47.0 ft Lt.
Ground Surface Elev. 665.93 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 630.9 ft ▼
Upon Completion 630.9 ft ▽
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Augered Bituminous Shoulder, Gravel Fill, Black Silty Clay Loam Fill
				663.43
	3			Stiff to Very Stiff Black Silty Clay Loam / Silty Loam with Minor Gray & Brown Silty Clay Loam - all Fill
	3 3	2.0 P	19	
-5				
	2			
	2 2	1.0 P	20	
	1			
	2 2	1.3 P	22	
-10				
	1			
	2 3	1.3 P	22	
				654.43
				Very Stiff Brown & Gray Silty Clay Fill with some Layers of Black Silty Clay Loam Fill
	2			
	2 4	2.1 B	25	
-15				
	2			
	2 4	2.0 P	26	
	4			
	4 5	3.8 B	21	
				646.43
-20				
	4			Very Stiff to Hard Gray, Black & Brown Sandy Clay Loam & Sandy Loam with Sand Seams - Fill *(continued)*
	5 7	3.4 S	14	
	3			
	4 7	4.0 P	16	
-25				
	4			
	5 6	3.5 P	17	
	5			
	6 10	5.1 S	16	
				636.43
-30				Very Stiff Gray & Brown Sandy Clay Loam / Sandy Loam
	5			
	6 6	3.9 S	17	
				633.93
	4			Medium Gray & Brown Fine to Coarse Sand - Minor Loam Layers - Free Water @ 35 Ft.
	5 6		17	
-35 ▽▼				
	7			
	10 13		21	
				628.43
	100/4"			628.10 Dense Gray Weathered Limestone Auger Refusal @ 38 Ft.
			12	
-40				End of Boring

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 046-0008,0009.GPJ IL_DOT.GDT 2/21/20

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/3/16

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.131521, **Longitude** -87.836207

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. 02
Station 145+27
Offset 10.0 ft Rt.
Ground Surface Elev. 665.51 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered Black Silty Clay Loam Fill & Gray / Brown Silty Clay Loam Fill			
663.01			
Very Stiff to Hard Gray & Brown Silty Clay Loam Till Fill with some Black Silty Clay Loam Layers	2		
	4 4	3.5 P	15
-5			
	3		
	4 5	4.0 B	17
658.51			
Very Stiff to Hard Gray & Brown Sandy Clay Loam, Loam Fill & some Sand & Gravel Fill @ 20 Ft.	3		
	4 5	4.4 S	19
-10			
	3		
	4 6	3.4 B	16
	4		
	5 6	3.8 S	17
-15			
	3		
	5 7	4.2 S	17
	4		
	5 7	4.2 S	14
-20			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	5		
Very Stiff to Hard Gray & Brown Sandy Clay Loam, Loam Fill & some Sand & Gravel Fill @ 20 Ft. *(continued)*	5 9	4.5 P	13
	5		
	6 5	4.5 P	18
-25			
	5		
	6 7	3.5 P	15
638.51			
Hard to Very Stiff Black, Gray & Brown Silty Clay Loam & Sandy Clay Loam Fill	5		
	5 6	4.0 P	17
-30			
	4		
	5 7	4.0 P	17
	4		
	5 6	4.0 P	20
631.01			
Very Stiff Gray & Black Silty Clay Loam -35	3		
	5 5	3.2 B	24
	3		
	4 5	3.0 B	19
626.51			
-40			

SOIL BORING 046-0008,0009.GPJ IL_DOT.GDT 2/21/20

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

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/3/16

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.131521, **Longitude** -87.836207

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. 02
Station 145+27
Offset 10.0 ft Rt.
Ground Surface Elev. 665.51 ft

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

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After _____ **Hrs.** _____ ft

		DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Gray Limestone Gravel in Gray Silty Loam / Silty Clay Loam Matrix *(continued)*	624.51		8		
			12		9
	624.34		100/2"		
Dense Gray Limestone					
End of Boring					
		-45			
		-50			
		-55			
		-60			

SOIL BORING 046-0008,0009.GPJ IL_DOT.GDT 2/21/20

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/22/16

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.131812, **Longitude** -87.835977

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. 03 (Pier)
Station 144+20
Offset 55.0 ft Lt.
Ground Surface Elev. 638.08 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 628.1 ft ▼
Upon Completion 628.1 ft ▽
After Hrs. ft

Material Description	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered Black & Brown Silty Clay Loam / Silty Loam Fill with Oversize Stone 0 - 3 Ft.				
633.08	-5			
Stiff to Very Stiff Black & Brown Silty Loam, Silty Clay Loam Fill with Gravel Pieces & Debris		3 2 2	2.5 P	16
631.08				
Loose to Medium Brown Loamy Sand with Layers of Brown Sandy Clay Loam / Sandy Loam (Fill ?)		4 5 5		13
628.58				
Very Stiff Gray Silt / Silty Loam with Limestone Gravel Pieces and Sand & Gravel Pockets	-10	4 6 9	3.5 P	16
625.08		18		
624.91 Dense Gray Limestone - Weathered Surface		100/2"		13
End of Boring	-15			
	-20			

SOIL BORING 046-0008,0009.GPJ IL_DOT.GDT 2/21/20

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

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/22/16

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**, **Latitude** 41.131782, **Longitude** -87.836172

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. 04 (Pier)
Station 144+23
Offset 0.0 ft Centerline
Ground Surface Elev. 638.49 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 626.5 ft ▼
Upon Completion 626.5 ft ▽
After Hrs. ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered CA6, Black Silty Clay Loam / Silty Loam Fill with Heavy Gravel Pieces & Sand Layers - Fill				
633.49	-5			
Stiff Gray & Black Silt, Silty Clay Loam Fill with Gravel Pieces		2		
		3 3	1.5 P	15
631.49				
Soft Brown, Gray & Black Silty Loam, Silty Clay Loam with Sand Layers & Gravel Pieces - (Fill?)		WH		
		1 2	0.5 P	26
	-10			
		WH		
		2 2	0.5 P	16
▽▼ 625.99				
625.57 Gray Limestone - Weathered Surface		100/5"		9
End of Boring				
	-15			
	-20			

SOIL BORING 046-0008,0009.GPJ IL_DOT.GDT 2/21/20

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

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/22/16

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**, **Latitude** 41.131764, **Longitude** -87.836406

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. 05
Station 144+29
Offset 58.0 ft Rt.
Ground Surface Elev. 638.70 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 626.2 ft ▼
Upon Completion 626.2 ft ▽
After Hrs. ft

Material	Elev. (ft)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered Black & Brown Silty Clay Loam Fill with Large Gravel & Oversize Gravel Pieces					
	633.70	-5	2		
Stiff Black & Brown Silty Clay Loam, Silty Loam Fill with Gravel & Debris			2 3	1.5 P	20
	631.70				
Very Stiff Brown & Gray Silt, Silty Loam, Silty Clay with Limestone Gravel Pieces			3		
			5 7	3.0 P	17
	629.20				
Medium Brown Fine to Coarse Loamy Sand with Layers of Brown Sandy Clay Loam / Sandy Loam		-10	4		
			5 9		17
	626.20 ▼				
Gray Limestone - Weathered Surface	625.53		61 100/2"		9
End of Boring		-15			
		-20			

SOIL BORING 046-0008,0009.GPJ IL_DOT.GDT 2/21/20

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

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

ROCK CORE LOG

Date 11/24/17

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.13179, **Longitude** -87.836406

COUNTY Kankakee **CORING METHOD** Split Barrel Wire Line

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. RC 01
Station 144+23
Offset 61.0 ft Rt.
Ground Surface Elev. 638.78 ft

CORING BARREL TYPE & SIZE N W/L 2
Core Diameter 1.9 in
Top of Rock Elev. 625.78 ft
Begin Core Elev. 625.78 ft

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dense Gray Limestone, Horizontally Fractured. Vertical Fracturing to 15 ft. Tight Joints	625.78	1	90	20	5.6	697.3 692.7
	-15	2	100	43	4.4	724.0 759.5 719.7 723.7 676.6
	-20	3	95	52	4.8	713.6 657.2 741.7
	-25					
End of Boring	610.78					
	-30					

ROCK CORE 046-0008,0009.GPJ IL_DOT.GDT 2/25/20

Color pictures of the cores Yes
Cores will be stored for examination until Construction Complete
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

BBS, form 138 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

ROCK CORE LOG

Date 11/24/17

ROUTE FAI-57 (I-57) **DESCRIPTION** I-57 over Con-Rail Corp. Railroad, 0.9 miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139VBR **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.131812, **Longitude** -87.83596

COUNTY Kankakee **CORING METHOD** Split Barrel Wire Line

STRUCT. NO. 046-0008/0009
Station 143+72

BORING NO. RC 02
Station 144+26
Offset 59.0 ft Lt.
Ground Surface Elev. 638.45 ft

CORING BARREL TYPE & SIZE N W/L 2
Core Diameter 1.9 in
Top of Rock Elev. 624.45 ft
Begin Core Elev. 624.45 ft

		DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dense Gray Limestone - Horizontally Fractured with Loose to Tight Joints	624.45		1	93	0	4.6	
		-15					
19 Ft. to 20.5 Ft. Layers of Gray Interclays up to several inches thick.			2	100	38	10.2	
Note: Coring time affected by Interclay Layers jammed in barrel and had to be cleaned out.		-20					761.3
							678.9
			3	100	72	3.8	729.5
		-25					770.6
							673.3
							704.3
							692.9
							716.4
							697.1
	609.45						694.0
End of Boring		-30					

ROCK CORE 046-0008,0009.GPJ IL_DOT.GDT 2/25/20

Color pictures of the cores Yes
Cores will be stored for examination until Construction Complete
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

I-57 over R x R in Kankakee

SN 046-0008 / 0009 11-24 2017

Hole #1

Depth 13 Ft to 23 Ft

Box 1 of 2

#1 T R 1
13'

12/11/2017

I-57 over KKR in Kankakee

SN 046-0008 / 0009

Hole #1 11-24-2017

Depth 23 Ft to 28 FT

Box 2 of 2

Start Run 3

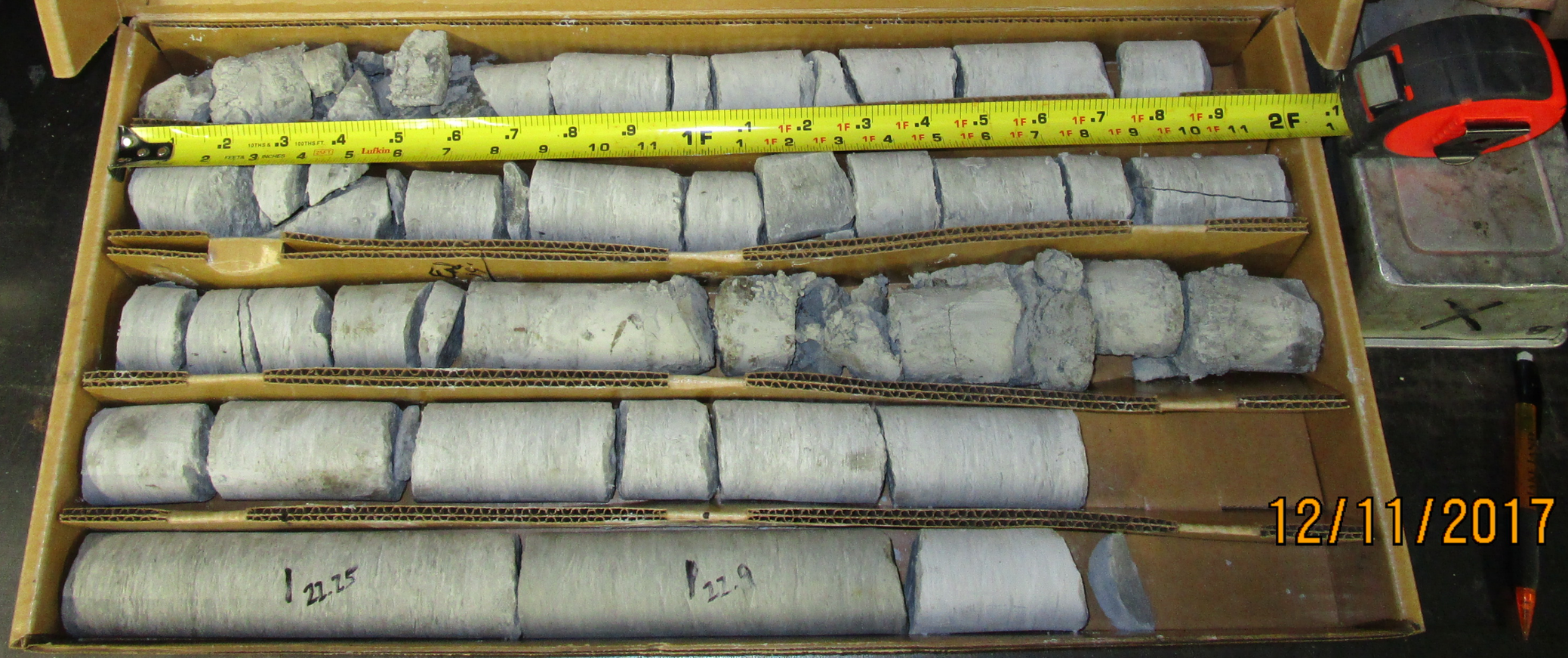
125.5

126.6

127.4

12/11/2017

I-57 over R x R in Kankakee
SN 046-0008 / 0009
Hole #2 11-24-2017
Depth 14 Ft. to 23.5 Ft.
Box 1 of 2



12/11/2017

I-57 over R×R in Kankakee

SN 046-0008 / 0009

Hole #2 11-24-2017

Depth 23.5 Ft to 29 Ft

Box #2 of 2

Appendix G-3

Grinnell Road

Boring Logs

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/21/17

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.133231, **Longitude** -87.836477

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 1
Station 138+95
Offset 60.0 ft Rt.
Ground Surface Elev. 641.47 ft

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

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter None ft
Upon Completion ft
After Hrs. ft

Augered Material - Not Documented

-5

631.47 -10

Borehole continued with rock coring.

-15

-20

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 4/24/20

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)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/21/17

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.133181, **Longitude** -87.835945

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 2
Station 139+12
Offset 84.0 ft Lt.
Ground Surface Elev. 641.42 ft

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

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 631.4 ft ▼
Upon Completion ft
After Hrs. ft

Augered Material - Not Documented

-5

▼-10

630.42

Rock Surface
End of Boring

-15

-20

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 4/24/20

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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/22/17

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.133265, **Longitude** -87.836022

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 3
Station 138+83
Offset 58.0 ft Lt.
Ground Surface Elev. 641.47 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
-5			
-10			
-15			
-20			

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter None ft
Upon Completion ft
After Hrs. ft

Augered Material - Not Documented

630.47

Borehole continued with rock coring.

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 4/24/20

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)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 11/22/17

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.13331, **Longitude** -87.836545

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 4
Station 138+73
Offset 82.0 ft Rt.
Ground Surface Elev. 641.35 ft

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

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. ft

Augered Material - Not Documented

-5

632.35

Rock Surface
End of Boring

-10

-15

-20

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 4/24/20

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)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/12/18

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**, **Latitude** 41.133537, **Longitude** -87.836429

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 01
Station 137+88
Offset 48.0 ft Rt.
Ground Surface Elev. 660.19 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered Bituminous Shoulder. Black, Gray & Brown Silty Clay Loam Fill			
657.69			
Very Stiff Black Silty Clay Loam with some Gray & Brown Silty Clay Loam mixed in - Fill	4		
	5 6	3.5 P	26
655.69			
Stiff to Very Stiff Gray Silty Clay Loam Till Fill with some Black & Brown Silty Clay Loam mixed in	-5 2		
	2 3	2.0 P	28
	2		
	4 5	3.5 P	25
	-10 2		
	4 4	3.1 B	28
	3		
	4 5	3.7 B	25
	-15 4		
	5 7	3.9 B	24
643.19			
Very Stiff Brown & Gray Silty Clay Loam Till Fill with Asphalt & Gravel @ 20.5 Ft.	4		
	5 5	3.7 B	19
	-20		

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Very Stiff Brown & Gray Silty Clay Loam Till Fill with Asphalt & Gravel @ 20.5 Ft. *(continued)*	10		
	49 18		6
	4		
	6 8	3.9 B	20
635.69			
Loose Brown / Rust Red Fine to Coarse Sand	-25 3		
	4 5		17
	21		
632.19			
Weathered Limestone / Dolostone Surface 631.61	61 100/1"		6
End of Boring	-30		
	-35		
	-40		

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 2/21/20

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

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/12/18

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.132976, **Longitude** -87.836405

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 02
Station 139+89
Offset 46.0 ft Rt.
Ground Surface Elev. 663.81 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Augered Asphalt Shoulder. Black Silty Clay Loam Fill
661.31				
	2			Very Stiff Black, Gray & Brown Silty Clay Loam Intermixed - Fill
	3 3	2.5 P	21	
-5	3			
	3 4	3.0 P	24	
	2			
	3 4	2.5 P	19	
-10	2			
	3 4	2.3 P	24	
	2			
	3 5	3.1 B	19	
-15	3			
	4 5	3.4 B	21	
	3			
	4 5	3.1 B	21	
643.81	-20			
	3			Very Stiff to Hard Gray Silty Clay Loam Till Fill
	5 6	4.1 S	20	
	3			
	5 5	4.0 S	20	
639.31				
-25	3			Loose Black to Brown Loamy Fine to Coarse Sand
	3 4		16	
636.81				
	3			Loose to Medium Brown / Rust Red Fine to Coarse Sand
	4 5		19	
-30	3			
	5 6		17	
	3			
	5 7		14	
629.81				
-35				Dense Gray Limestone / Dolostone Surface
	61			
628.14	100/2"		9	
				End of Boring
-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)

BBS, form 137 (Rev. 8-99)

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 2/21/20

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/13/18

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.132966, **Longitude** -87.836069

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 03
Station 139+94
Offset 47.0 ft Lt.
Ground Surface Elev. 664.04 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Augered Bituminous Shoulder. White & Brown Sand & Gravel Fill			
661.54			
Medium Brown Sand / Gravel Fill	4		
	6 9		5
659.54			
Very Stiff Black & Gray Silty Clay Loam Fill	-5 2		
	3 4	2.5 P	22
	2		
	3 4	2.5 P	17
	-10 3		
	5 7	3.9 B	19
	3		
	5 6	3.7 B	19
	-15 3		
	4 6	3.9 B	22
	3		
	5 6	3.7 B	19
644.54			
	-20		
Very Stiff to Hard Gray & Brown Silty Clay Loam Till Fill with some Black Silty Clay Loam *(continued)*	-25 2		
	3		
	6 6	4.1 B	20
	3		
	5 6	4.1 B	19
	2		
	3 8	4.0 B	17
	2		
	4 6	3.1 B	19
634.54			
Medium Brown Fine to Coarse Sand	-30 3		
	5 7		19
	4		
	6 9		16
629.04	-35		
Gray Limestone Surface - Highly Weathered & Reworked in top 12"	21		
	34 100/3"		11
627.79			
End of Boring			
	-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)

BBS, form 137 (Rev. 8-99)

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 2/21/20

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/13/18

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.133472, **Longitude** -87.836087

COUNTY Kankakee **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** CME Automatic

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 04
Station 138+07
Offset 48.0 ft Lt.
Ground Surface Elev. 660.59 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Augered Bituminous Shoulder. Black Silty Clay Loam Fill
658.09				
	2			Stiff to Very Stiff Black Silty Clay Loam and Brown & Gray Silty Clay Loam Fill
	3 3	1.8 P	29	
-5				
	2			
	3 2	2.0 P	29	
	2			
	1 2	1.5 P	28	
-10				
	1			
	1 2	1.5 P	26	
648.59				
	3			Very Stiff Black, Gray, Brown Silty Clay Loam Fill with Asphalt Pieces at 21.5 ft.
	4 5	2.9 B	19	
-15				
	2			
	5 6	3.2 B	17	
	3			
	6 7	3.5 B	15	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	6			Very Stiff Black, Gray, Brown Silty Clay Loam Fill with Asphalt Pieces at 21.5 ft. *(continued)*
	8 16	3.7 B	10	
637.59	4			
	5 6		18	Medium Rust Red / Brown Fine to Coarse Sand
-25				
	4			
	5 5		10	
	4			
	5 6		7	
631.59				
-30				Dense Gray Limestone / Dolostone - Weathered at Surface
630.34	100/3"		6	
				End of Boring
-35				
-40				

SOIL BORING 046-0010,0011.GPJ IL_DOT.GDT 2/21/20

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

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

ROCK CORE LOG

Date 11/21/17

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NE 1/4, **SEC.** 33, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.133231, **Longitude** -87.836477

COUNTY Kankakee **CORING METHOD** Split Barrel Wire Line

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 1
Station 138+95
Offset 60.0 ft Rt.
Ground Surface Elev. 641.47 ft

CORING BARREL TYPE & SIZE N W/L 2
Core Diameter 1.9 in
Top of Rock Elev. 631.47 ft
Begin Core Elev. 631.47 ft

		DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Tan & Gray Dolomitic Limestone - Highly Vertical & Horizontally Fractured, Very Loose Joints	631.47		1	100	0	3.2	
	629.47						
Gray Limestone, Tan Oxidation at Joints, Highly Horizontally Fractured with some Tight Joints.							
	626.47	-15					
Gray Limestone, Horizontal Fractures with Tight Joints, Minor Tan Oxidation at Joints.			2	100	44	4	1308.9 1242.5 1241.0 1224.5 1535.6 1442.3
		-20					1325.4
			3	93	81	3.8	1188.2 1156.8 1013.9 1035.5 1059.9 1037.4 1053.9
	616.47	-25					1087.5
End of Boring							
		-30					

ROCK CORE 046-0010,0011.GPJ IL_DOT.GDT 2/25/20

Color pictures of the cores Yes
Cores will be stored for examination until Construction Complete
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

Illinois Department of Transportation
Division of Highways
IDOT

ROCK CORE LOG

Date 11/22/17

ROUTE FAI 57 (I-57) **DESCRIPTION** I-57 over Grinnell Road, 0.95 Miles North of IL 17 **LOGGED BY** Larry Myers

SECTION 139HBR-3 **LOCATION** NW 1/4, **SEC.** 34, **TWP.** 31N, **RNG.** 12E, 3rd **PM**,
Latitude 41.133265, **Longitude** -87.836022

COUNTY Kankakee **CORING METHOD** Split Barrel Wire Line

STRUCT. NO. 046-0010/0011
Station 138+90.96

BORING NO. 3
Station 138+83
Offset 58.0 ft Lt.
Ground Surface Elev. 641.47 ft

CORING BARREL TYPE & SIZE N W/L 2
Core Diameter 1.9 in
Top of Rock Elev. 630.47 ft
Begin Core Elev. 630.47 ft

		DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dense Gray Limestone with Minor Tan Oxidation at Joints. Tight Joints, Some Horizontal Fracturing, Highly Fractured in top 1 Ft.	630.47		1	87	23	5.4	
							951.9
		-15					1187.6
	625.47						1029.7
Dense Gray Limestone with some Horizontal Fractures & Tight Joints			2	97	50	4.8	
							1168.0
							634.4
		-20					1023.9
							977.8
							975.6
			3	95	80	5.2	
							1034.9
							1005.1
							1000.5
							1009.3
		-25					
	615.47						1034.0
End of Boring							
		-30					

Color pictures of the cores Yes
Cores will be stored for examination until Construction Complete
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

BBS, form 138 (Rev. 8-99)

ROCK CORE 046-0010,0011.GPJ IL_DOT.GDT 2/25/20

I-57 over Grinnell Road
SN 046-0010 / 0011
Hole #1 11-21-2017
Depth 10 FT to 19.5 FT
Box 1 of 2

Core Run 1
Start 10'

SAMPLE 17.05
SAMPLE 17.45
17.05
2 17.45
SAMPLE 17.85
SAMPLE 18.3
17.85
18.3
18.05
19.25

12/11/2017

I-57 over Grinnell Road
SN 046-0010 / 0011
Hole #1 11-21-2017
Depth 19.5 FT to 25.0 FT
Box 2 of 2

12/11/2017


Grinnell Road under I-57
SN 046-0010/0011
Hole #3 11-22-2017
Depth 11 Ft to 21 FT
Box 1 of 2
12/11/2017


Grinnell Road under I-57
SN 046-0010/0011
Hole #3 11-22-2017
Depth 21 FT to 26 FT
Box 2 of 2
12/11/2017

Appendix H

Soil Profile

NOTE:
SEE STAGING AND JOINTING PLANS FOR SHOULDER AND CR PCC PAVEMENT TRANSITION DETAILS NOT SHOWN AT LOCATIONS OUTSIDE MAINLINE IMPROVEMENTS.

BM #124
STA. 124+03, 60' LT
CUT "□" ON UNDERDRAIN HEADWALL
ELEV. 658.185'

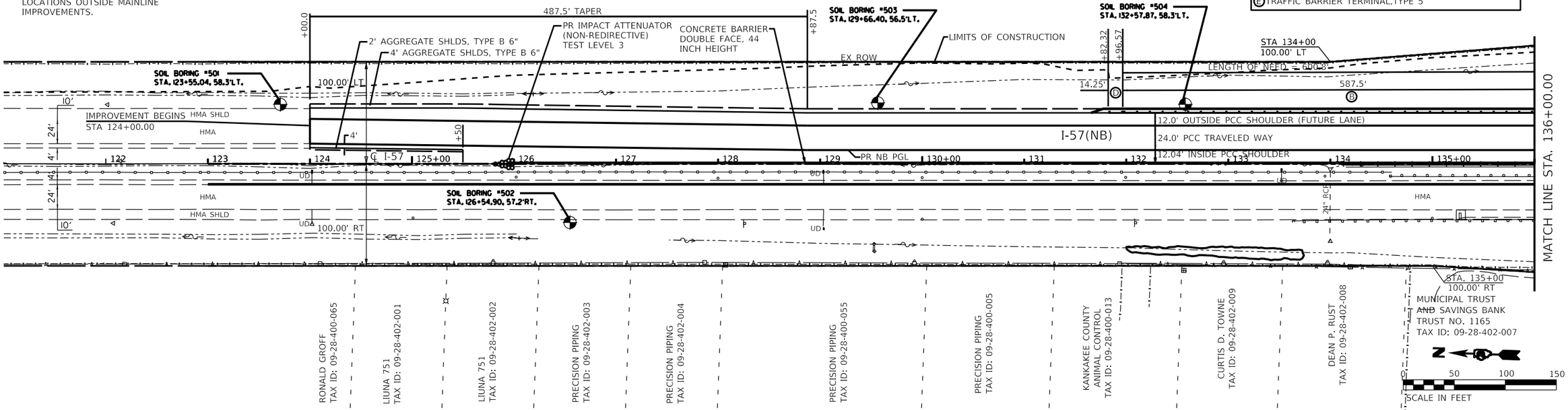
BM #129
STA. 129+03, 61' LT
CUT "□" ON UNDERDRAIN HEADWALL
ELEV. 643.899'

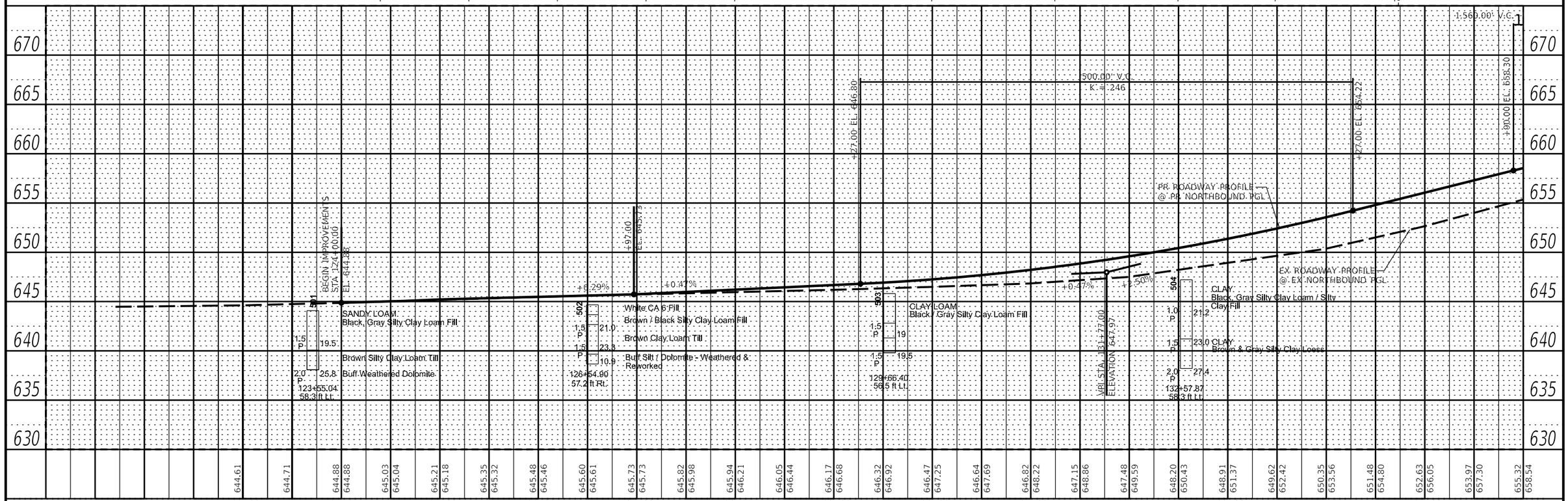
BM #135
STA. 135+32, 44' LT
CUT "□" ON SW CORNER OF RIM INLET
ELEV. 658.185'

MUNICIPAL TRUST
AND SAVINGS BANK
TAX ID: 09-27-300-018

LEGEND

- (A) TRAFFIC BARRIER TERMINAL TYPE 1 (SPECIAL) TANGENT
- (B) STEEL PLATE BEAM GUARDRAIL, TYPE A 6 FOOT POST
- (C) TRAFFIC BARRIER TERMINAL, TYPE 6
- (D) TRAFFIC BARRIER TERMINAL, TYPE 2
- (E) TRAFFIC BARRIER TERMINAL,TYPE 5





				F.A.I. ROUTE 57 (I-57) PLAN AND PROFILE	
				1 6 124+00.00 136+00.00	

LEGEND

- (A) TRAFFIC BARRIER TERMINAL TYPE 1 (SPECIAL) TANGENT
- (B) STEEL PLATE BEAM GUARDRAIL TYPE A 6 FOOT POST
- (C) TRAFFIC BARRIER TERMINAL TYPE 6
- (D) TRAFFIC BARRIER TERMINAL TYPE 2
- (E) TRAFFIC BARRIER TERMINAL TYPE 5

BM #140
STA. 139+61, 54' LT
CUT "□" ON TOP OF CURB
@SE END OF E PARAPET
WALL OF SN 046-0010
ELEV. 663.408'

BM #145
STA. 145+03, 54' LT
CUT "□" ON TOP OF CURB
AT SE END OF E PARAPET
WALL SN 046-0008
ELEV. 658.185

BM #150
STA. 150+09, 44' LT
SW CORNER OF RIM INLET
ELEV. 658.185'

MUNICIPAL TRUST
AND SAVINGS BANK
TAX ID: 09-27-300-018

HAMILTON MEYER
TAX ID: 09-34-100-001

JAMES W. HAIGH III
TAX ID: 09-34-100-009

CITY OF KANKAKEE
LEGAL DEPARTMENT
TAX ID: 09-34-100-016

JOHN PANOZZO
TAX ID:
09-34-100-038

SPACE CENTER CHICAGO
TAX ID: 09-33-201-003

STA 138+38
135' LT

STA 139+08
140' LT

142+62.00
140.00' LT

143+50.00
160.00' LT

144+11.00
159.00' LT

LIMITS OF CONSTRUCTION
EX ROW

EX ROW

GRINNELL ROAD

NORFOLK SOUTHERN RAILROAD
EX STRUCT. ℄

LENGTH OF NEED = 600.8'
587.5'
+84.01
+97.34
13.27'

LENGTH OF NEED = 253.9'
+82.09
+21.49
39.4'
201.23'
+22.72
+35.99
13.27'

LENGTH OF NEED = 1389.4'
+63.96
+03.36
39.4'
1300.0'

48" RCP
24" RCP
48" RCP
24" RCP

MATCH LINE STA. 136+00.00

MATCH LINE STA. 151+00.00

I-57(NB)

PR NB PGL

℄ I-57

12.0' OUTSIDE PCC SHOULDER (FUTURE LANE)
24.0' PCC TRAVELED WAY
12.04' INSIDE PCC SHOULDER

SHLD
CONC DITCH

HMA
CONC
HMA
CONC
CONC
HMA
TOP=657.952

SOIL BORING #505
STA. 136+02.34, 49.2'RT.

SOIL BORING #601
STA. 141+03.25, 49.1'RT.

SOIL BORING #301
STA. 147+89.32, 47.6'RT.

TOP=640.682
TOP=640.571
635.98
636.61

CONCRETE BARRIER
DOUBLE FACE, 44
INCH HEIGHT

STA. 143+42.33 (I-57) =
STA. 50+00.00 MILEPOST
KS-99-40 (N.S. RY)

PR STRUCT. ℄

12" CMP
FL=633.15

PR ROW

EX ROW

STA. 139+24
150'/140' LT

STA. 138+09
115' RT

143+17.00
140.00' RT

146+00.00
150.00' RT

149+00.00
144.00' RT

* EXISTING SKEW OF GRINNELL ROAD
STRUCTURES IS 2°10'00" LEFT AHEAD

** EXISTING AND PROPOSED SKEW
OF RR STRUCTURES IS
10°54'30" RIGHT AHEAD

℄ SN 046-0010/0011
STA. 138+90.96 (I-57)
EXISTING THREE SPAN
STEEL BEAM STRUCTURE
PROPOSED THREE SPAN
IL PPC BEAM STRUCTURE

℄ SN 046-0156/0157
STA. 143+60.76 (I-57)
PROPOSED THREE SPAN
IL PPC BEAM STRUCTURE

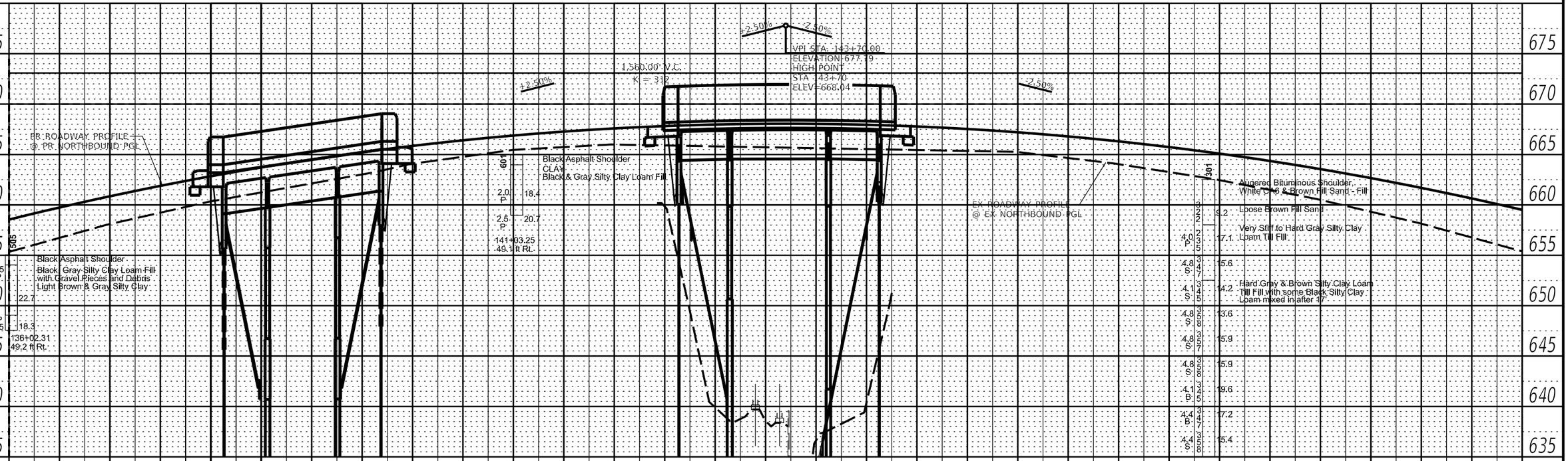
℄ SN 046-0008/0009
STA. 143+72 (I-57)
EXISTING FIVE SPAN
STEEL BEAM STRUCTURE

APPARENT ℄

0 50 100 150
SCALE IN FEET

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

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



MODEL: $MODELNAME$
FILE NAME: $FILE$

USER NAME = $USER$	DESIGNED - AAS	-	
	DRAWN - DC, DRR	-	
PLOT SCALE = $SCALE$	CHECKED - GAC	-	
PLOT DATE = $DATE$	DATE - 01-13-2020	-	

F.A.I. ROUTE 57 (I-57)
PLAN AND PROFILE

SCALE: H=50,V=5 | SHEET 2 OF SHEETS | STA. 136+00.00 TO STA. 151+00.00

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(139)VB, HB-3]BR, 139R	KANKAKEE		
		CONTRACT NO. 66F74		
		ILLINOIS	FED. AID PROJECT	

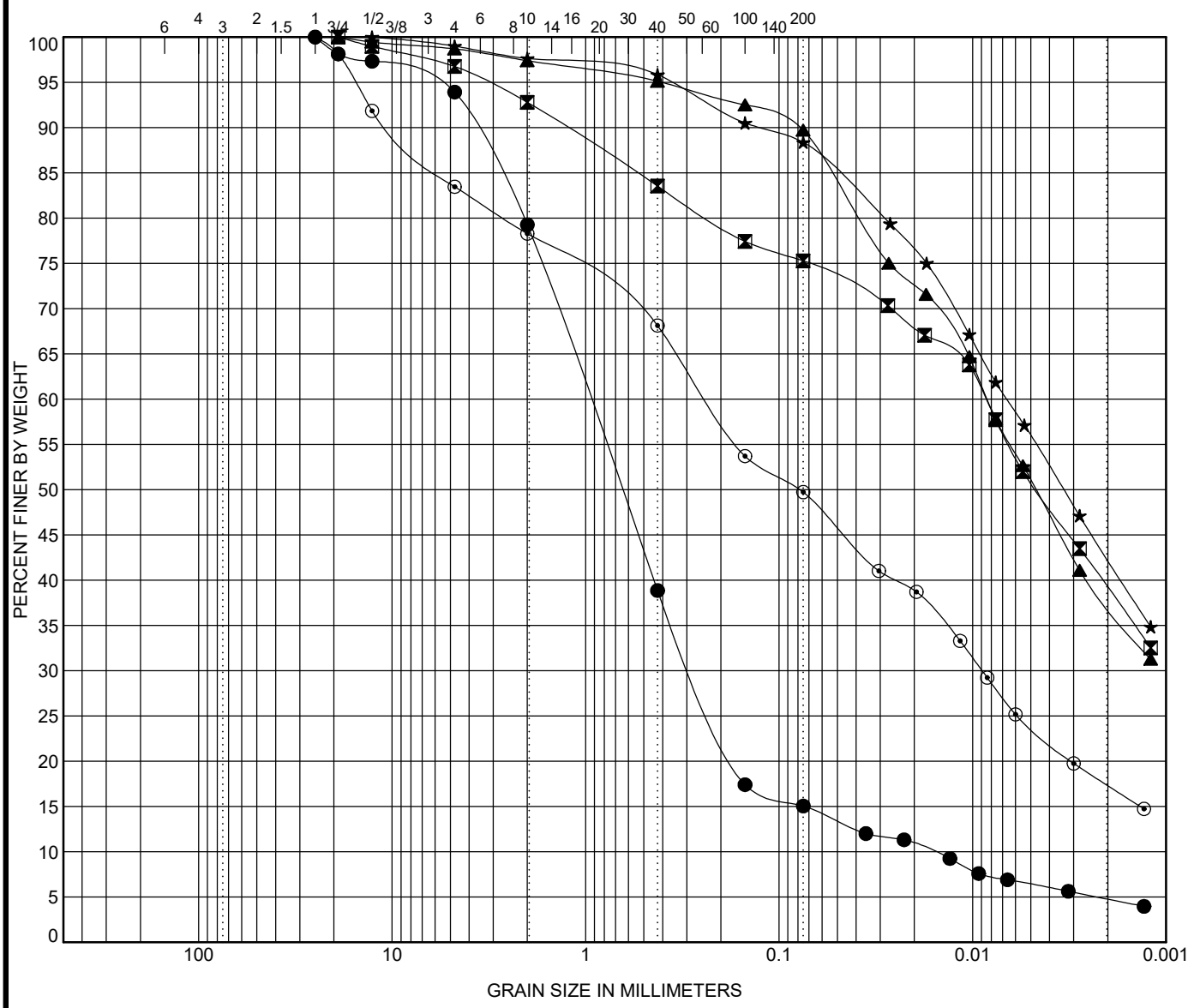
NOTE:
SEE STAGING AND JOINTING PLANS FOR SHOULDER AND CR PCC PAVEMENT TRANSITION DETAILS NOT SHOWN AT LOCATIONS OUTSIDE MAINLINE IMPROVEMENTS.

F.A.I. ROUTE 57 (I-57)
PLAN AND PROFILE

3	6	151+00.00	164+00.00

Appendix I

Atterberg Limits and Grain Size Analysis



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	301	2.50	SAND				5.01	59.85
⊠	301	4.50	A-6 (9) CLAY	29.7	15.4	14.3		
▲	302	2.00	A-6 (9) SILTY CLAY	29.3	16.9	12.4		
★	303	0.00	A-6 (13) CLAY	34.1	18.1	16.0		
⊙	304	0.00	A-6 (4) SANDY LOAM	32.8	18.8	14.0		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	301	2.50	25	0.956	0.276	0.016	20.7	64.2	10.3	4.8
⊠	301	4.50	19	0.009			7.2	17.5	36.2	39.1
▲	302	2.00	19	0.008			2.6	7.7	52.5	37.2
★	303	0.00	12.7	0.007			2.4	9.3	46.1	42.2
⊙	304	0.00	25	0.236	0.009		21.7	28.6	32.4	17.3

Illinois Department of Transportation
Division of Highways
IDOT

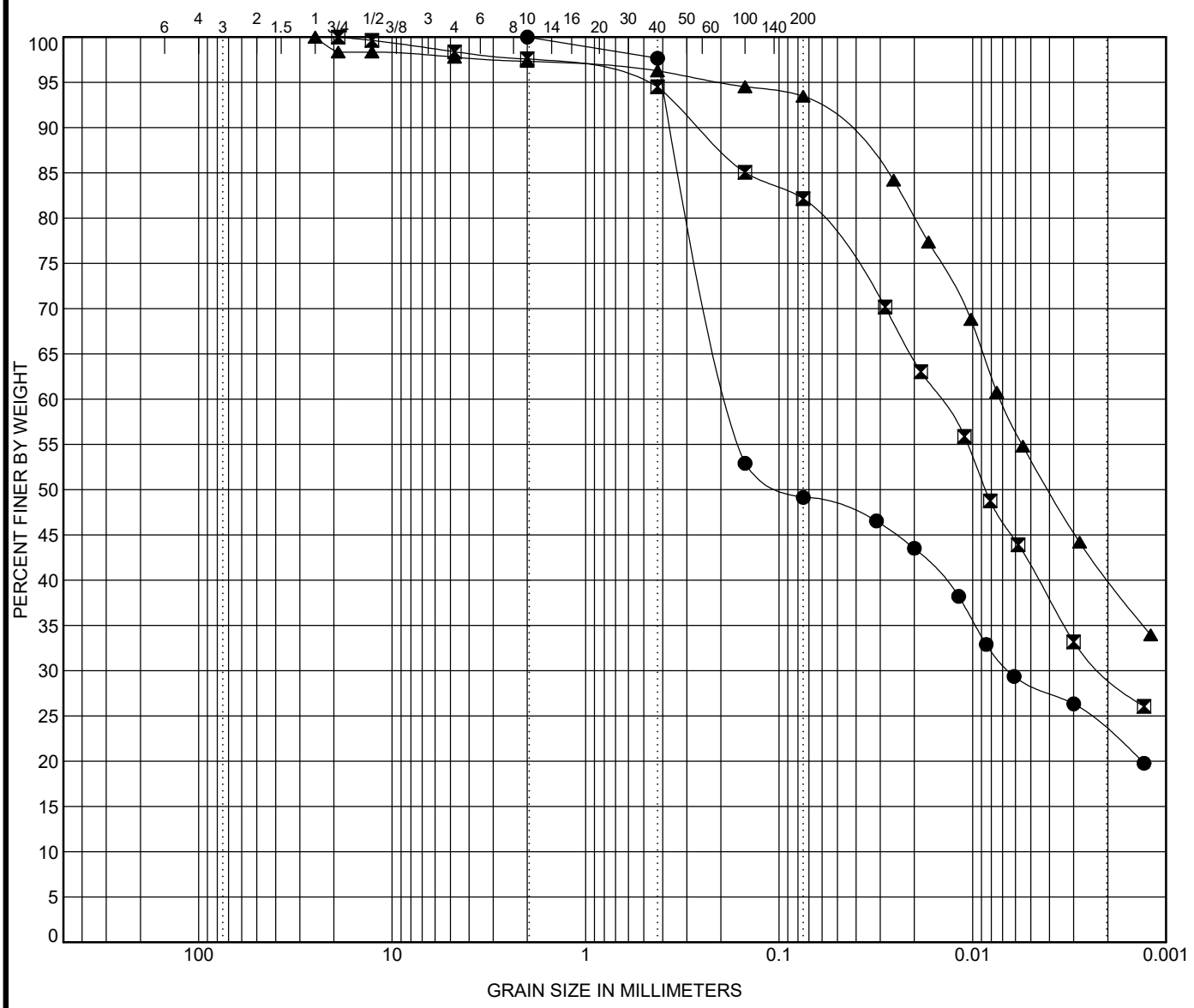
IDH GRAIN SIZE DISTRIBUTION

Route: I-57 (FAI 57)

Section: (46-3)R, HBK, 5HBR, 6HBR

County: Kankakee

GRAIN SIZE IDH 3-18-11 I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/24/20



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	304	4.00	A-6 (4) SANDY CLAY LOAM	28.5	12.6	15.9		
⊠	305	0.00	A-6 (10) SILTY CLAY LOAM	30.3	16.3	14.0		
▲	305	3.00	A-7-6 (20) SILTY CLAY	40.9	20.2	20.7		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	304	4.00	2	0.177	0.006		0.0	50.9	26.0	23.2
⊠	305	0.00	19	0.015	0.002		2.4	15.4	52.4	29.7
▲	305	3.00	25	0.007			2.7	3.8	53.3	40.1

Illinois Department of Transportation
Division of Highways
IDOT

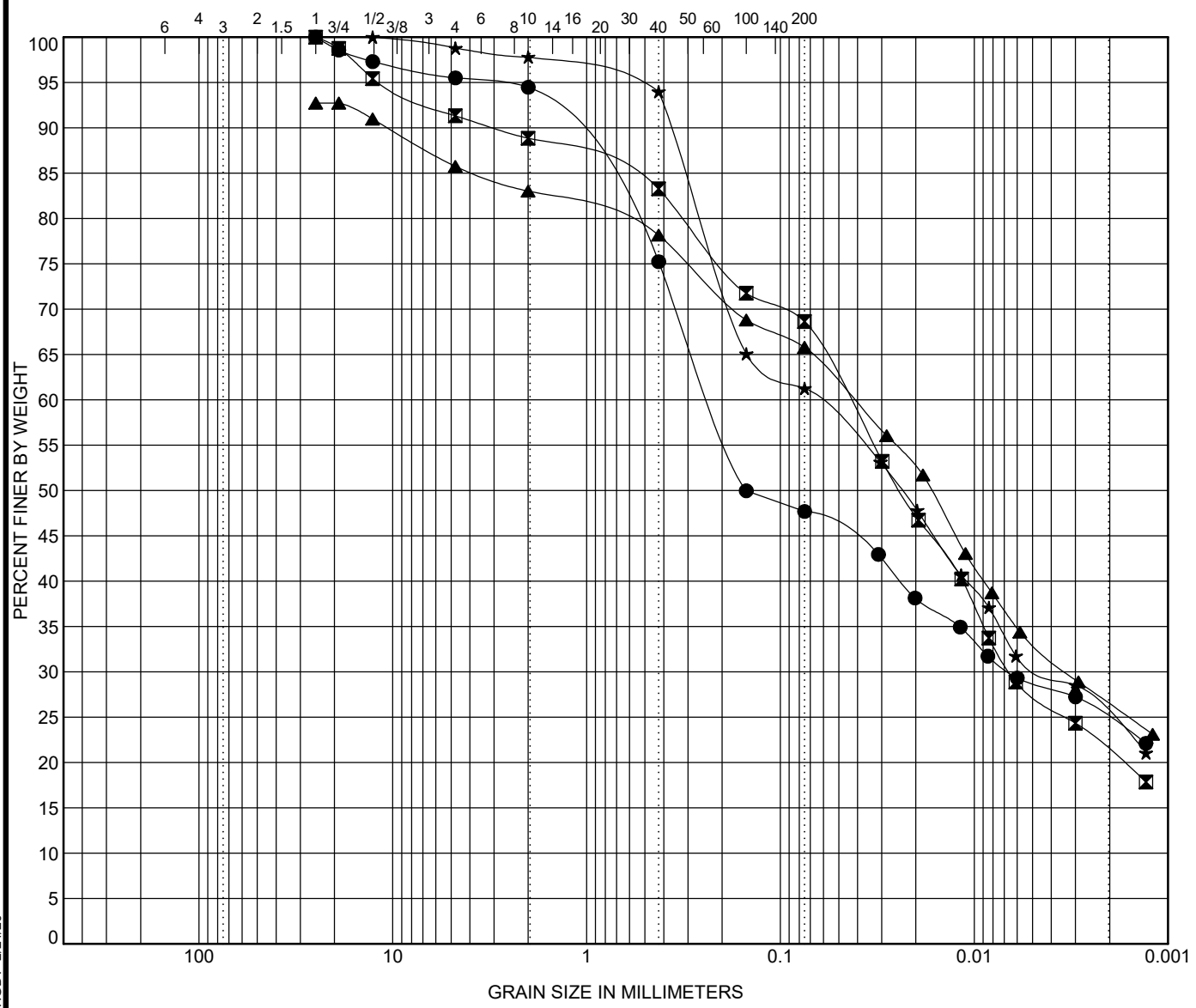
IDH GRAIN SIZE DISTRIBUTION

Route: I-57 (FAI 57)

Section: (46-3)R, HBK, 5HBR, 6HBR

County: Kankakee

GRAIN SIZE IDH 3-18-11 I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/24/20



COBBLES	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	502	2.00	A-7-6 (8) SANDY CLAY LOAM	42.2	15.9	26.3		
⊠	504	0.00	A-6 (9) CLAY LOAM	33.5	17.3	16.2		
▲	505	1.00	A-6 (12) CLAY LOAM	40.1	18.2	21.9		
★	601	1.00	A-6 (7) CLAY LOAM	32.4	14.8	17.6		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	502	2.00	25	0.227	0.007		5.5	46.8	22.9	24.8
⊠	504	0.00	25	0.045	0.007		11.1	20.2	47.4	21.2
▲	505	1.00	25	0.042	0.003		9.7	17.2	39.3	26.5
★	601	1.00	12.7	0.065	0.004		2.2	36.5	36.4	24.9

Illinois Department of Transportation
Division of Highways
IDOT

IDH GRAIN SIZE DISTRIBUTION

Route: FAI 57 (I-57)

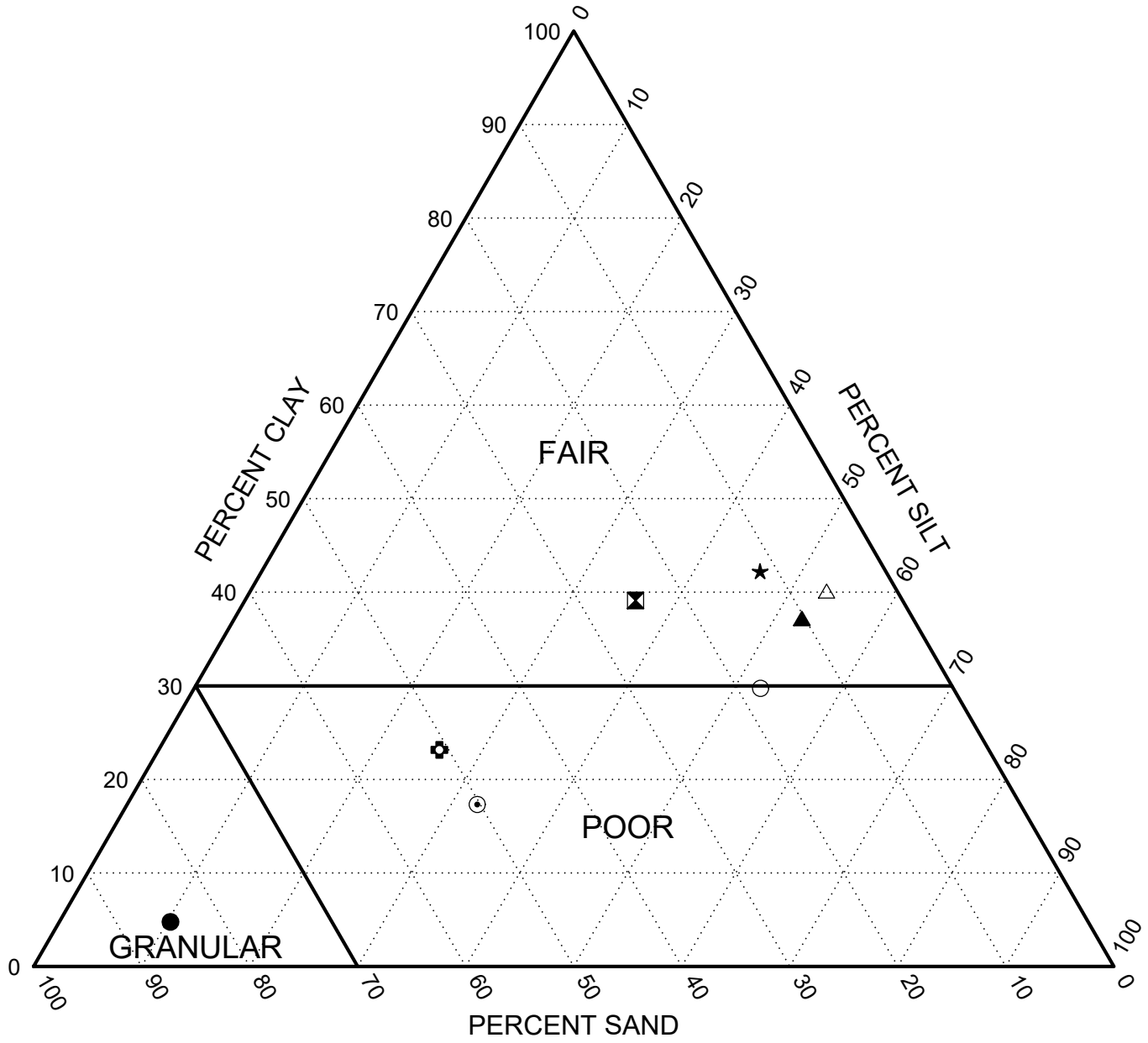
Section: [(139)VB, HB-3]BR,139R

County: Kankakee

GRAIN SIZE IDH 3-18-11 I-57 OVER GRINNELL ROAD AND NS RR. CONTRACT 66F74.GPJ IL_DOT.GDT 2/21/20

Appendix J

Subgrade Support Rating



	Borehole	Station	Offset	Depth (ft)	Classification
●	**301**	**147+89.32**	**47.60 ft Rt.**	**2.50**	**SAND**
⊠	**301**	**147+89.32**	**47.60 ft Rt.**	**4.50**	**A-6 (9) CLAY**
▲	**302**	**151+13.66**	**48.11 ft Lt.**	**2.00**	**A-6 (9) SILTY CLAY**
★	**303**	**155+86.11**	**12.26 ft Lt.**	**0.00**	**A-6 (13) CLAY**
⊙	**304**	**158+63.31**	**58.81 ft Rt.**	**0.00**	**A-6 (4) SANDY LOAM**
✿	**304**	**158+63.31**	**58.81 ft Rt.**	**4.00**	**A-6 (4) SANDY CLAY LOAM**
○	**305**	**161+95.28**	**13.38 ft Rt.**	**0.00**	**A-6 (10) SILTY CLAY LOAM**
△	**305**	**161+95.28**	**13.38 ft Rt.**	**3.00**	**A-7-6 (20) SILTY CLAY**

Illinois Department of Transportation
Division of Highways
IDOT

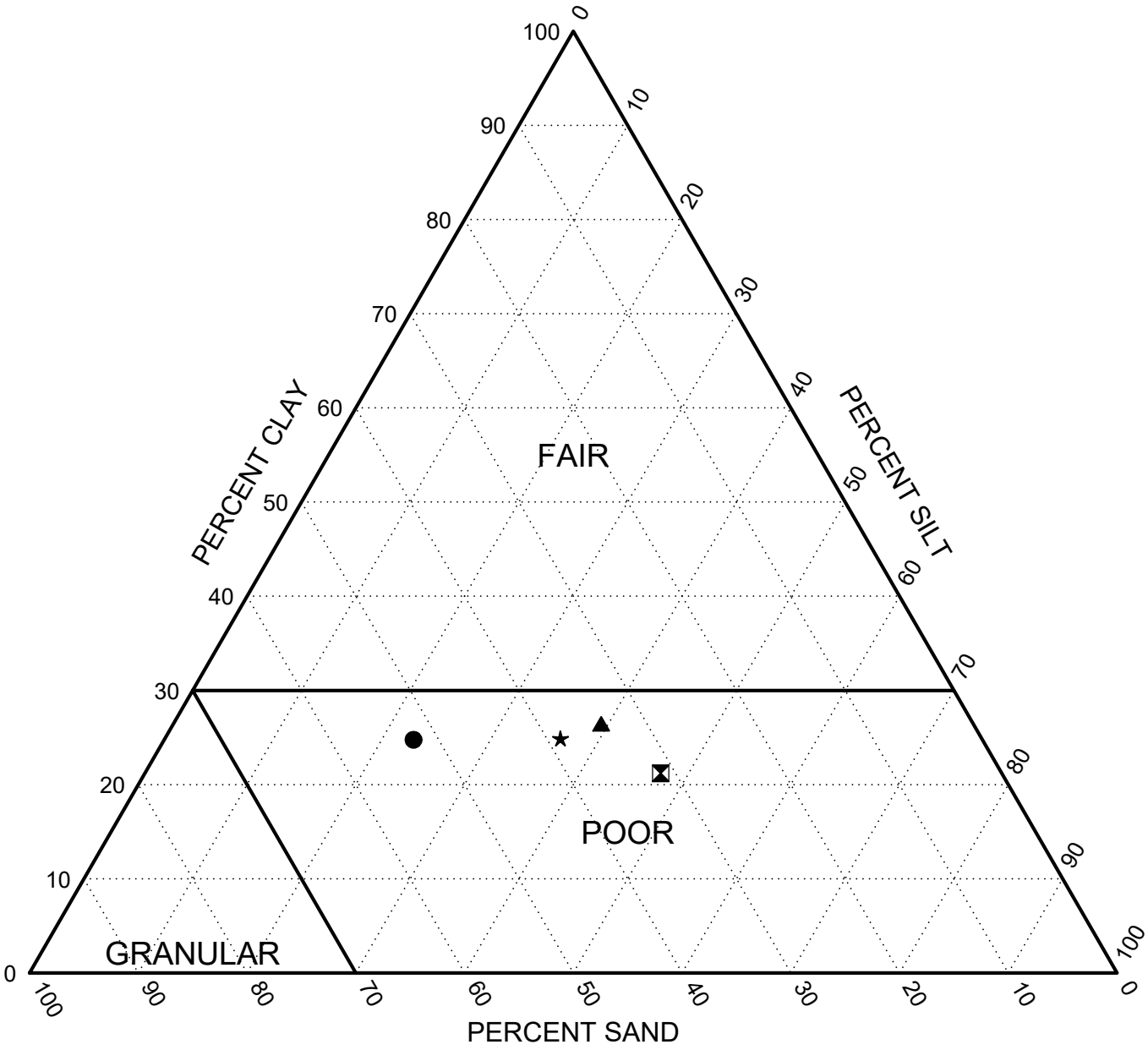
SUBGRADE SUPPORT RATING

Route: I-57 (FAI 57)

Section: (46-3)R, HBK, 5HBR, 6HBR

County: Kankakee

SUBGRADE SUPPORT RATINGS I-57 & IL 17 INTERCHANGE.GPJ IL_DOT.GDT 2/24/20



	Borehole	Station	Offset	Depth (ft)	Classification
●	**502**	**126+54.90**	**57.16 ft Rt.**	**2.00**	**A-7-6 (8) SANDY CLAY LOAM**
⊠	**504**	**132+57.87**	**58.34 ft Lt.**	**0.00**	**A-6 (9) CLAY LOAM**
▲	**505**	**136+02.31**	**49.19 ft Rt.**	**1.00**	**A-6 (12) CLAY LOAM**
★	**601**	**141+03.25**	**49.07 ft Rt.**	**1.00**	**A-6 (7) CLAY LOAM**

Illinois Department of Transportation
Division of Highways
IDOT

SUBGRADE SUPPORT RATING

Route: FAI 57 (I-57)

Section: [(139)VB, HB-3]BR,139R

County: Kankakee

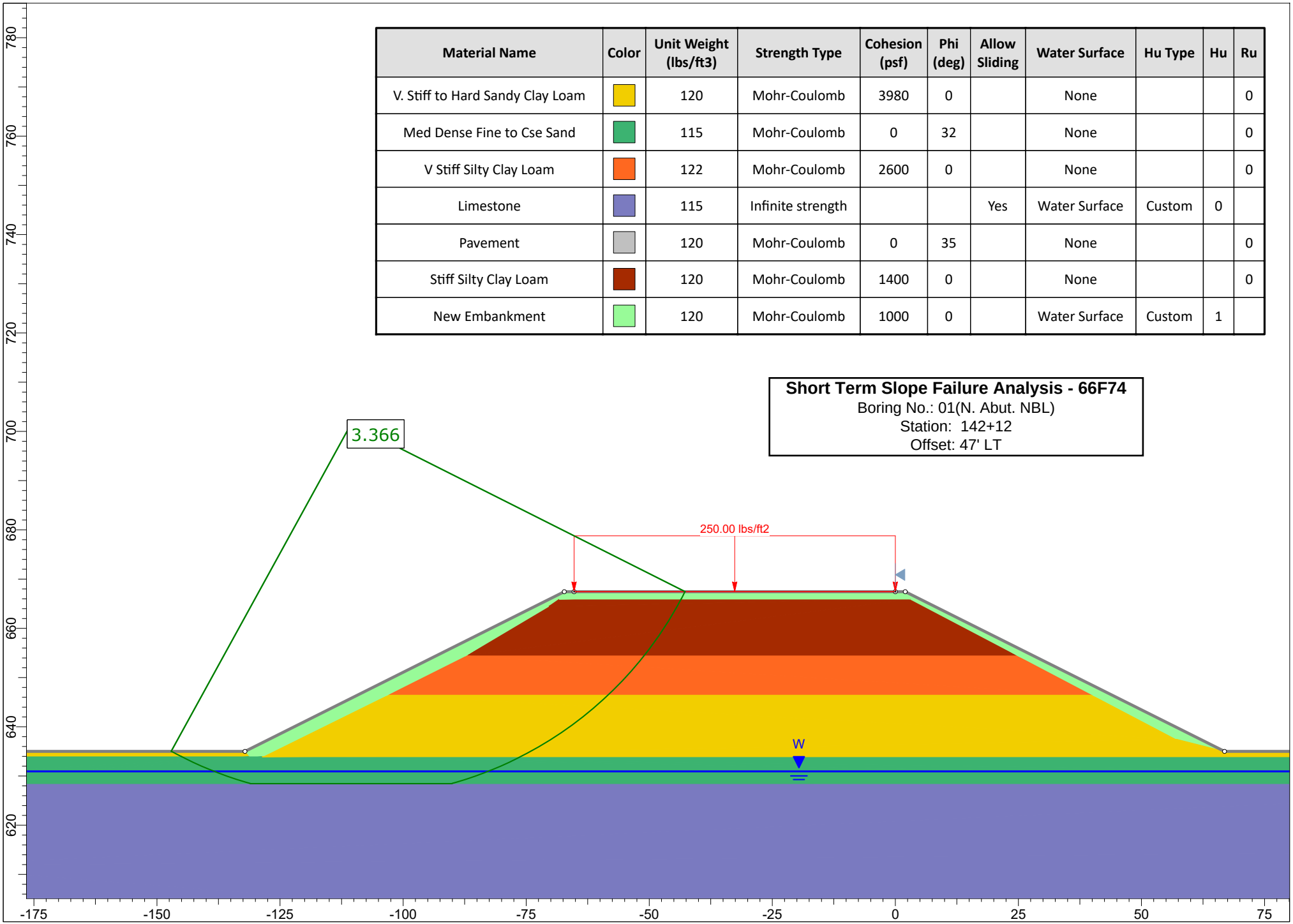
SUBGRADE SUPPORT RATINGS I-57 OVER GRINNELL ROAD AND NS RR, CONTRACT 66F74.GPJ IL_DOT.GDT 2/21/20

Appendix K

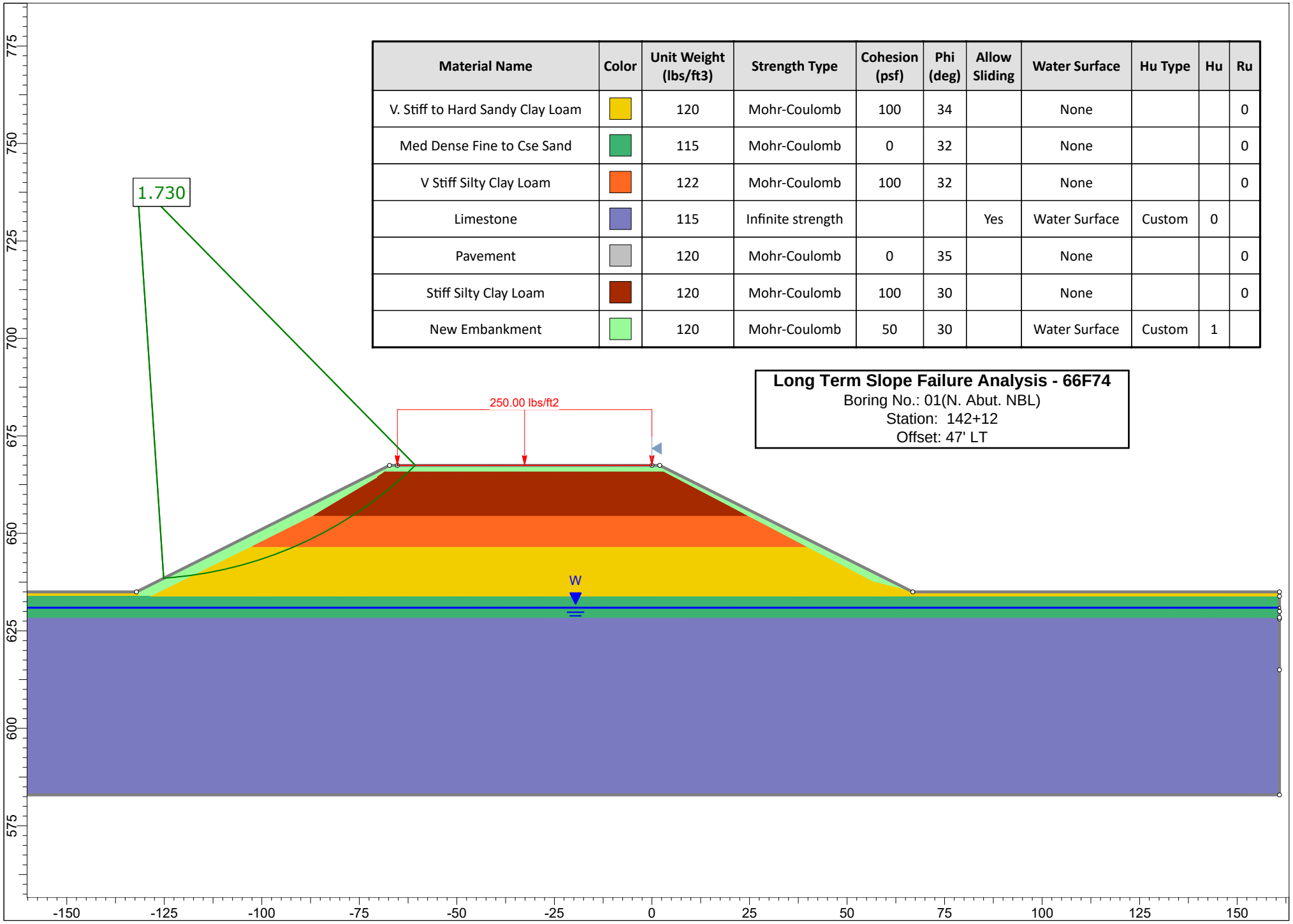
Slope Stability Analysis

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	Water Surface	Hu Type	Hu	Ru
V. Stiff to Hard Sandy Clay Loam		120	Mohr-Coulomb	3980	0		None			0
Med Dense Fine to Cse Sand		115	Mohr-Coulomb	0	32		None			0
V Stiff Silty Clay Loam		122	Mohr-Coulomb	2600	0		None			0
Limestone		115	Infinite strength			Yes	Water Surface	Custom	0	
Pavement		120	Mohr-Coulomb	0	35		None			0
Stiff Silty Clay Loam		120	Mohr-Coulomb	1400	0		None			0
New Embankment		120	Mohr-Coulomb	1000	0		Water Surface	Custom	1	

Short Term Slope Failure Analysis - 66F74
Boring No.: 01(N. Abut. NBL)
Station: 142+12
Offset: 47' LT



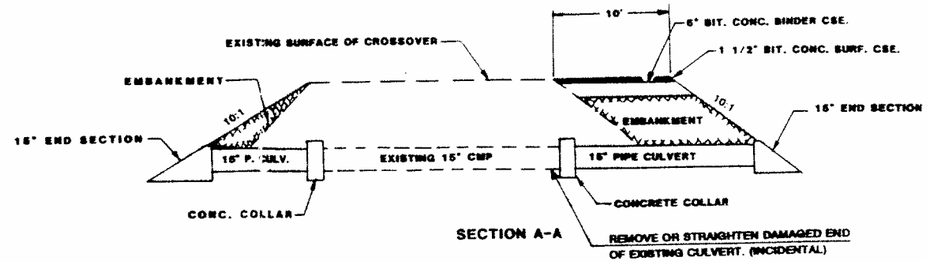
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	Water Surface	Hu Type	Hu	Ru
V. Stiff to Hard Sandy Clay Loam		120	Mohr-Coulomb	100	34		None			0
Med Dense Fine to Cse Sand		115	Mohr-Coulomb	0	32		None			0
V Stiff Silty Clay Loam		122	Mohr-Coulomb	100	32		None			0
Limestone		115	Infinite strength			Yes	Water Surface	Custom	0	
Pavement		120	Mohr-Coulomb	0	35		None			0
Stiff Silty Clay Loam		120	Mohr-Coulomb	100	30		None			0
New Embankment		120	Mohr-Coulomb	50	30		Water Surface	Custom	1	



Long Term Slope Failure Analysis - 66F74
Boring No.: 01(N. Abut. NBL)
Station: 142+12
Offset: 47' LT

Appendix L

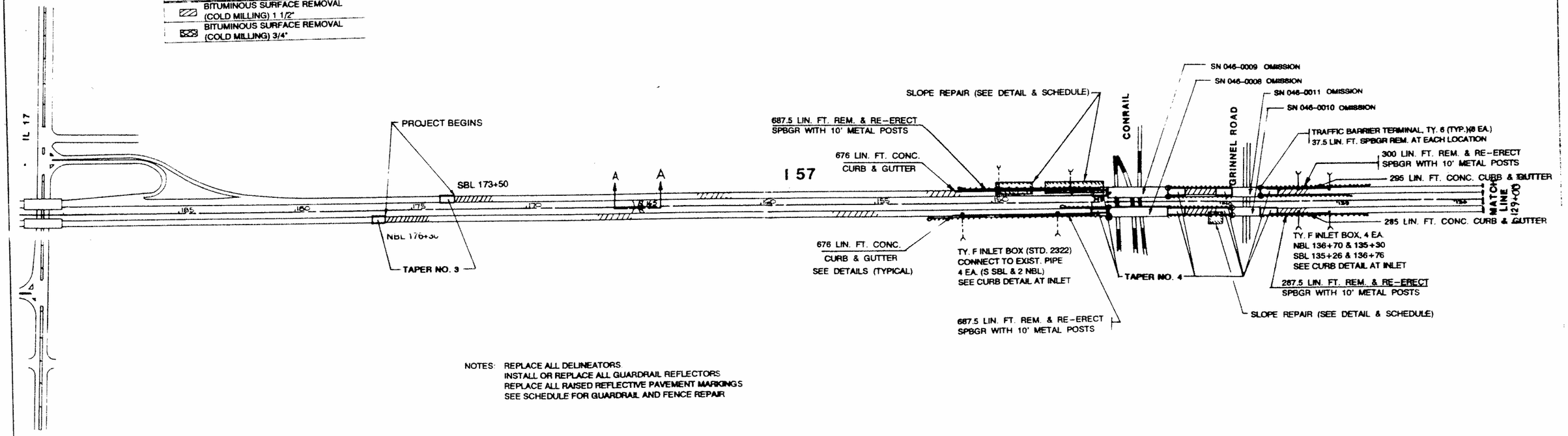
Previous Slope Repairs



SECTION A-A

LEGEND

- BITUMINOUS SURFACE REMOVAL (COLD MILLING) 1 1/2"
- BITUMINOUS SURFACE REMOVAL (COLD MILLING) 3/4"



NOTES: REPLACE ALL DELINEATORS.
INSTALL OR REPLACE ALL GUARDRAIL REFLECTORS.
REPLACE ALL RAISED REFLECTIVE PAVEMENT MARKINGS.
SEE SCHEDULE FOR GUARDRAIL AND FENCE REPAIR.

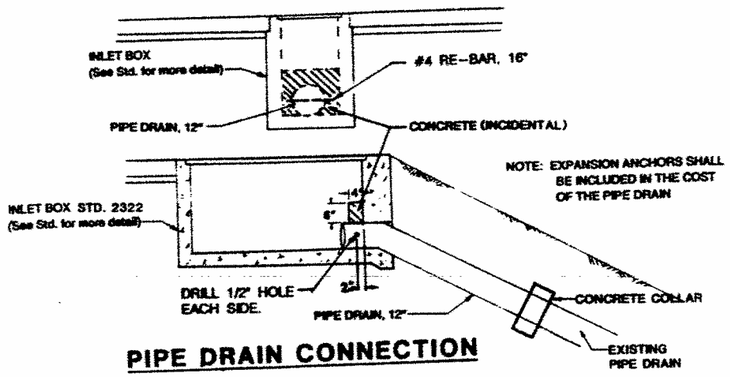
NOT TO SCALE

STA 129+00 TO 176+30 PLAN VIEW

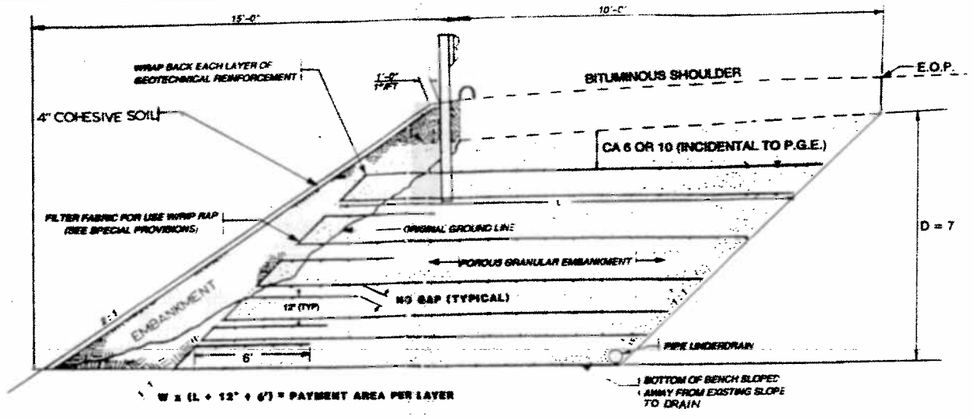
86 582

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NUMBER
57	*	KANKAKEE	25	20
FED. ROAD DIST. #	ILLINOIS	FEDERAL AID PROJECT		

* (46-1,3) RS-2



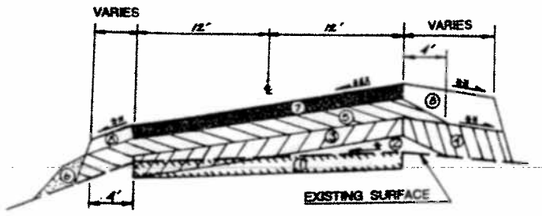
PIPE DRAIN CONNECTION



NOTES: FABRIC WRAPS SHALL BE 12" WITH NO GAP BETWEEN THEM. SEE SLOPE REPAIR SPECIAL PROVISIONS.

FABRIC MAY NEED TO BE CUT AFTER INSTALLATION TO FACILITATE PIPE DRAIN INSTALLATION (INCIDENTAL)

SLOPE REPAIR



NOTES: THIS DETAIL REPRESENTS BOTH LANES OF TRAFFIC.

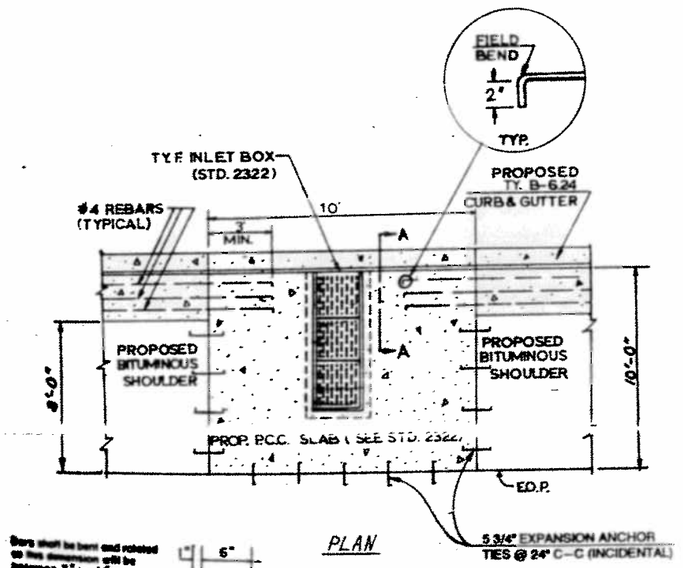
MEDIAN SIDE SHLDR. = 4', OUTSIDE SHLDR. = 10'

PAVING SEQUENCE SHALL BE AS FOLLOWS:
1) 1 1/2" BIT. SURF. REM. (COLD MILLING)
2) CROWN CORRECTION – LEV. BINDER (M.M.) MIX C, TYPE 1 (162#/SQ. YD.)
3) 1 3/4" CONC. BINDER CSE., TYPE 1
4) BIT. CONC. SURF. CSE., MIX C, CL I, TYPE 3
5) 1 3/4" CONC. BINDER CSE., TYPE 1, PAVE THE 4' SHLDR CONCURRENTLY
6) AGG. SHLDR.
7) 1 1/2" BIT. CONC. SURF. CSE., MIX D, CL I, TYPE 1
8) BIT. CONC. SURF. CSE., MIX C, CL I, TYPE 3 (THIS OPERATION CAN BE PERFORMED CONCURRENTLY WITH OPERATION #7 AT THE CONTRACTOR'S OPTION)

PAVEMENT SLOPES SHALL BE AS FOLLOWS:
* .03 FT/FT EXIST. SLOPE
** SLOPE IN ACCORDANCE WITH STD. 2430
*** .04 FT/FT CORRECTED SLOPE

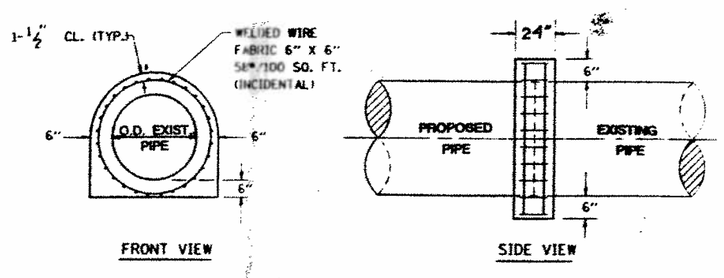
PAVING SEQUENCE FOR CROWN CORRECTION

CURVE 1: STA. 284+11.96 TO STA. 310+44.75
CURVE 2: STA. 330+48.51 TO STA. 368+04.20

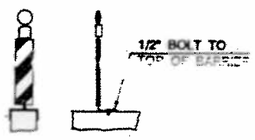


NOTE: FOR DIMENSIONS NOT SHOWN, SEE APPLICABLE PORTIONS OF STANDARD 2322

CURB DETAIL AT INLET

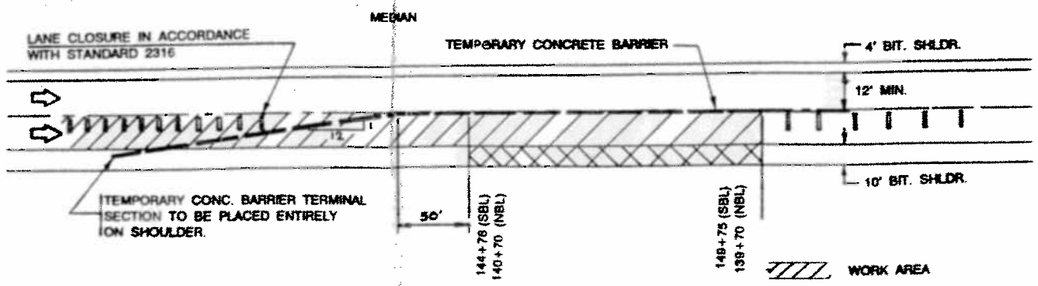


CONCRETE COLLAR FOR PIPE DRAINS

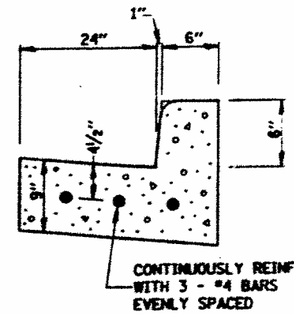


SUGGESTED MOUNTING DETAIL

STEADY BURNING LIGHTS AND VERTICAL PANELS SHALL BE MOUNTED ON THE TAPERED CONCRETE BARRIER AT 20' CENTERS AND AT 50' CENTERS (3 MINIMUM) ON THE REMAINING PORTION OF THE TEMPORARY CONC. BARRIER. (INCIDENTAL) DETAIL 'A' SHOWS THE SUGGESTED MOUNTING. OTHER METHODS OF MOUNTING MAY BE USED UPON APPROVAL OF THE ENGINEER.



TRAFFIC CONTROL AT SLOPE REPAIR LOCATIONS



REINFORCEMENT SHALL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CC&G.

REINFORCEMENT DETAIL FOR COMBO. CONC. CURB & GUTTER TYPE B-6.24

DETAILS

Appendix M

Cohesive Soil

Settlement Estimate

COHESIVE SOIL SETTLEMENT ESTIMATE

I.D.O.T. BBS FOUNDATIONS AND GEOTECHNICAL UNIT — Modified on 12/9/14

LOCATION AND BORING USED ==== 132+50/ Boring 504
TYPE OF SURCHARGE ========== 2 (1=2:1 bridge cone, 2=continuous embank., 3=rectangular surch.)
DEPTH TO WATER TABLE (below top of existing embankment) == 17 FT

NEW EMBANKMENT:
- NEW EMBANKMENT FILL UNIT WEIGHT ========== 130 PCF
- NEW EMBANKMENT FILL HEIGHT ========== 11 FT
- PROPOSED WIDTH AT TOP ========== 110 FT
- PROPOSED WIDTH AT BOTTOM ========== 156 FT (which is a 2.1:1 slope)

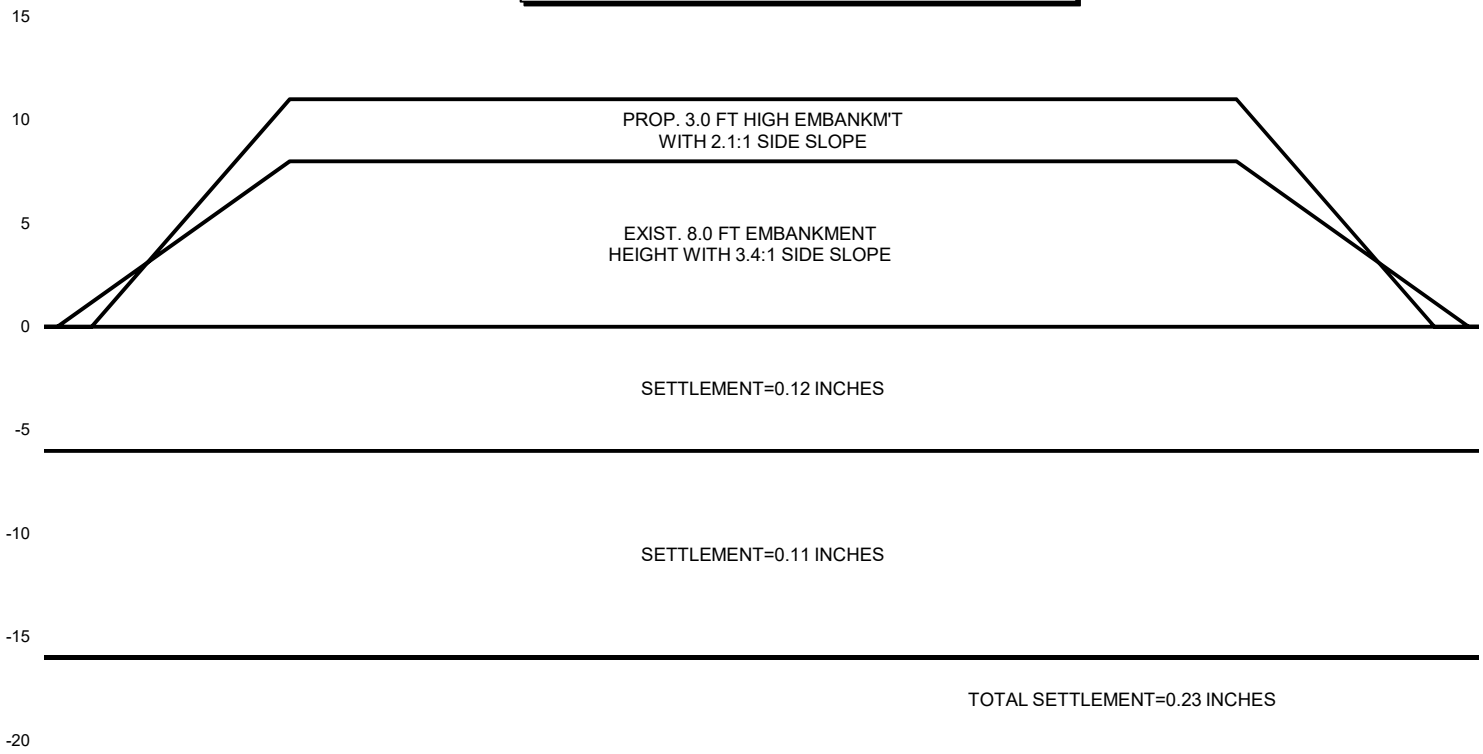
ASSUMPTIONS:
Soil Deposit is Normally Consolidated
Cohesive Layers are Saturated
Soils have a Low Sensitivity
Liquid Limit (LL)=Moist. Content (MC%)
Initial Void Ratio (Eo)=2.7*(MC%)/100
Comp. Index (Cc)=0.009*(LL-10)
Neglecting Granular & Secondary Settlem't

EXISTING EMBANKMENT (IF ANY):
- EXISTING EMBANKMENT UNIT WEIGHT ========== 120 PCF
- EXISTING EMBANKMENT HEIGHT ========== 8 FT
- EXISTING WIDTH AT TOP ========== 110 FT
- EXISTING WIDTH AT BASE ========== 164 FT (which is a 3.4:1 slope)

LAYER THICK (FT)	*TOTAL UNIT WT. (PCF)*	*UNCONF. COMP. STRENGTH (Qu) (TSF)*	*MOIST. CONTENT (%)*	*EXISTING PRESSURE (KSF)*	*PRESSURE INCREASE (KSF)*	*INITIAL VOID RATIO*	*COMPRESSION INDEX (Cc)*	*Qu CORRECTION FACTOR*	*LAYER SETTLEMENT (IN.)*
6.0	120	1.00	21	1.320	0.470	0.567	0.099	0.200	**0.12**
10.0	120	1.50	23	2.153	0.469	0.621	0.117	0.142	**0.11**

TOTAL SETTLEMENT UNDER CENTER OF CONTINUOUS EMBANKMENT = 0.23 IN.

EMBANKMENT AND SOIL PROFILE



COHESIVE SOIL SETTLEMENT ESTIMATE

I.D.O.T. BBS FOUNDATIONS AND GEOTECHNICAL UNIT — Modified on 12/9/14

LOCATION AND BORING USED ==== 142+00/ Boring 01 N. Abut
TYPE OF SURCHARGE ========== 1 (1=2:1 bridge cone, 2=continuous embank., 3=rectangular surch.)
DEPTH TO WATER TABLE (below top of existing embankment) == 35 FT

NEW EMBANKMENT:
- NEW EMBANKMENT FILL UNIT WEIGHT ========== 120 PCF
- NEW EMBANKMENT FILL HEIGHT ========== 33 FT
- PROPOSED WIDTH AT TOP ========== 114 FT
- PROPOSED WIDTH AT BOTTOM ========== 240 FT (which is a 1.9:1 slope)

EXISTING EMBANKMENT (IF ANY):
- EXISTING EMBANKMENT UNIT WEIGHT ========== 120 PCF
- EXISTING EMBANKMENT HEIGHT ========== 31 FT
- EXISTING WIDTH AT TOP ========== 110 FT
- EXISTING WIDTH AT BASE ========== 222 FT (which is a 1.8:1 slope)

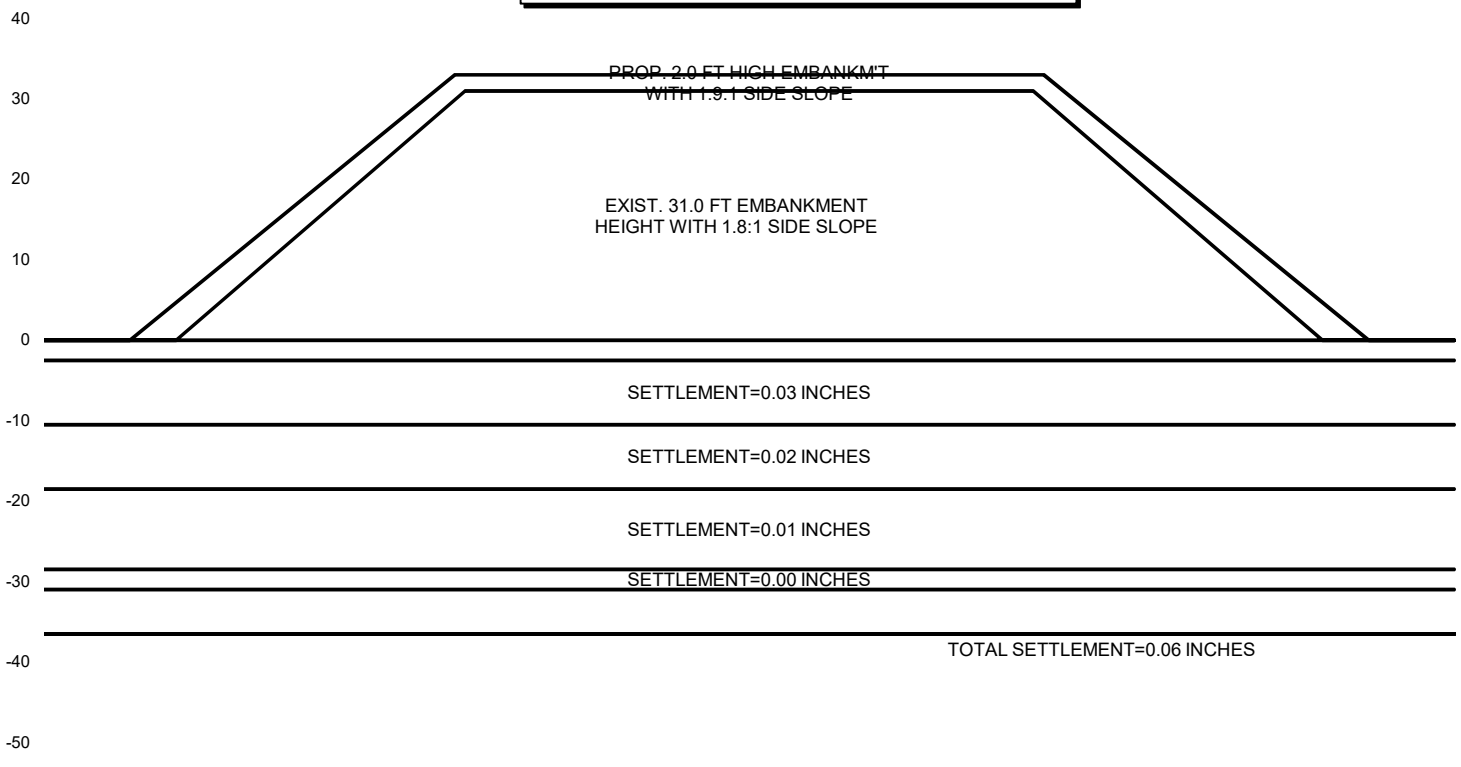
ASSUMPTIONS:

Soil Deposit is Normally Consolidated
Cohesive Layers are Saturated
Soils have a Low Sensitivity
Liquid Limit (LL)=Moist. Content (MC%)
Initial Void Ratio (Eo)=2.7*(MC%)/100
Comp. Index (Cc)=0.009*(LL-10)
Neglecting Granular & Secondary Settlem't

LAYER THICK (FT)	*TOTAL UNIT WT. (PCF)*	*UNCONF. COMP. STRENGTH (Qu) (TSF)*	*MOIST. CONTENT (%)*	*EXISTING PRESSURE (KSF)*	*PRESSURE INCREASE (KSF)*	*INITIAL VOID RATIO*	*COMPRESSION INDEX (Cc)*	*Qu CORRECTION FACTOR*	*LAYER SETTLEMENT (IN.)*
2.5	120	0.00	0	3.846	0.240	0.000	0.000	1.000	**Granular**
8.0	120	1.00	22	4.220	0.240	0.594	0.108	0.200	**0.03**
8.0	120	2.00	26	4.528	0.240	0.702	0.144	0.111	**0.02**
10.0	120	3.50	17	4.874	0.240	0.459	0.063	0.100	**0.01**
2.5	120	3.90	17	5.115	0.239	0.459	0.063	0.100	**0.00**
5.5	120	0.00	20	5.271	0.239	0.540	0.090	1.000	**Granular**

TOTAL SETTLEMENT UNDER CENTER OF BRIDGE CONE = 0.06 IN.

EMBANKMENT AND SOIL PROFILE



Appendix N

Geotechnical Reports

Special Provisions

Geotechnical Reports
Revised 5-19-2020

A Roadway Geotechnical Report has been prepared for this project. Copies can be obtained by contacting Jeremy Brown, District Geotechnical Engineer, at 1-815-433-7098 or Jeremy.Brown@Illinois.gov.

Appendix O

Embankment (District 3)

Special Provision

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.

Appendix P

Borrow and Furnished Excavation (District 3) Special Provision

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 Q

Aggregate Subgrade Improvement (District 3) Special Provision

3A

AGGREGATE SUBGRADE IMPROVEMENT (District 3)
(Effective April 1, 2012; Revised July 8, 2019)

Add the following Section to the Standard Specifications:

"**SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT**

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement.

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.07
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2, and 3)	1031

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradations CS 01 or CS 02 but shall not exceed 40 percent of the total product. The top size of the RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in. (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradations CS 01 or CS 02 are used in lower lifts. The RAP shall not be gap graded, single sized, or have a maximum size of less than 3/4 in. (19 mm).

Note 3. The RAP used for aggregate subgrade improvement shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".

303.03 Equipment. The vibratory machine shall be according to Article 1101.01 or as approved by the Engineer.

303.04 Soil Preparation. The stability of the soil shall be according to the Department's Subgrade Stability Manual for the aggregate thickness specified.

303.05 Placing Aggregate. The maximum nominal lift thickness of aggregate gradations CS 01 and CS 02 shall be 24 in. (600 mm).

303.06 Capping Aggregate. The top surface of the aggregate subgrade shall consist of a minimum 3 inches (75 mm) of aggregate gradations CA 06 or CA 10.

303.07 Compaction. All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.08 Finishing and Maintenance of Aggregate Subgrade Improvement. The aggregate subgrade improvement shall be finished to the lines, grades, and cross

sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.09 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.10 Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified."

Add the following to Section 1004 of the Standard Specifications:

"**1004.07 Coarse Aggregate for Aggregate Subgrade Improvement.** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete.

(b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.

(c) Gradation.

(1) The coarse aggregate gradation for total subgrade thickness less than or equal to 12 inches (300 mm) shall be CS 02.

The coarse aggregate gradation for total subgrade thickness more than 12 inches (300 mm) shall be CS 01 or CS 02.

	COARSE AGGREGATE SUBGRADE GRADATIONS				
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
Grad No.	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

(2) The 3 inch (75 mm) capping aggregate shall be gradation CA 6 or CA 10."

DESIGNER NOTES:

Replaces BDE Special Provision - Do NOT check BDE Special.

Must obtain prior approval from Materials if using a thickness less than 12” or greater than 24”.

Must include BDE Special Provision for Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS).

Underdrains are required when using this pay item and are paid for separately.

Pay for Geotextile Fabric for Ground Stabilization as a separate pay item if used.