Abbreviated Structure Geotechnical Report

F.A.I. 39 (I-39)
Section (201-3)K & (4-1, 5)R
Winnebago County
Job No. P-92-111-06
Contract No. 64C62
PTB No. 141-004
NB I-39 (Ramp DB) over Linden Rd.
Structure No. 101-0212
Existing Structure No. None

Submitted June 2016
Revised November 2016; February 2017

Prepared for:
Illinois Department of
Transportation, District 2
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Dixon, Illinois 61021

Structure Designer:
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Prepared By:
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Exp 11/30/17

02/09/2017

Illinois Department of Transportation

Abbreviated Structure Geotechnical Report

Original Report Date: 6/30/16	**Proposed SN:** 101-0212	**Route:**	F.A.I. 39 (I-39)
Revised Date: 11/29/16; 02/09/17	**Existing SN:** None	**Section:**	(201-3)K & (4-1, 5)R
Geotechnical Engineer: Kipkoech Chepkoit		**County:**	Winnebago
Structural Engineer: Fehr Graham		**Contract:**	64C62

Indicate the proposed structure type, substructure types, and foundation locations (attach plan and elevation drawing):

The new structure will be a single-span, 72" PPC IL Beam bridge. The substructures will consist of pile supported integral abutments with vertical cantilever wingwall extensions. According to information provided by the structural designer, the estimated vertical factored substructure loads are 2,850 kips at each abutment. The TSL general plan and elevation drawing for the new structure is attached.

The proposed bridge will be constructed over the low ground between the existing Ramp DA embankment to the west and the existing SB I-39 embankment to the east. Ramp DA will remain in service after completion of the overall project. The SB I-39 embankment will be in service during construction of the proposed structure, but may be partially or completely removed after traffic is relocated to the new alignment on the west side of Ramp DA.

Discuss the existing boring data, existing plans foundation information, new subsurface exploration and need for any additional exploration to be provided with SGR Technical Memo (attach all data and subsurface profile plot):

A total of six boring logs were provided to Hanson Professional Services Inc. (Hanson) by IDOT. Borings B-22 and B-23 were drilled in March 2006. Borings B-1b through B-4b were drilled in March 2016. Locations of the borings are shown on Boring Location Plan. The stations and offsets on the logs for B-22 and B-23 are relative to a superseded alignment. Boring locations along the current Ramp DB alignment are shown on the attached Subsurface Data Profile. The available boring data is sufficient to design the structure.

The subsurface condition is generally a thin layer of overburden on limestone bedrock. The overburden consist of silty loam and loam. Weathered limestone on sound bedrock was encountered in most of the soil borings. The thickness of the overburden plus weathered limestone at the north and south abutment varies from approximately 1.5 to 3.5 feet and 3.5 to 4.5 feet, respectively. Bedrock at the north and south abutment varies from El. 817 to 816 and El. 818 to 816, respectively. Rock cores were performed in all borings and varied in depth from 5 to 15 feet.

Underground coal mine information available from ISGS indicates that the project area has not been undermined.

Provide the location and maximum height of any new soil fill or magnitude of footing bearing pressure. Estimate the amount and time of the expected settlement. Indicate if further testing, analysis, and/or ground improvement/treatment is necessary:

The maximum height of the new embankment fill at the abutments will be approximately 33 feet. No long term consolidation-type settlement is expected at this site. Up to 1.5 inches of immediate settlement may occur at the base of embankment and up to 0.5 inch at the bottom of abutment due to elastic compression of the embankment material. The estimated immediate settlements will be complete by the time pile driving commences.

Identify any new cuts or fill slope angles and heights. Estimate the factor of safety against slope failure. Indicate if further testing, analysis or ground improvement/treatment is necessary:

The maximum fill height in the vicinity of the bridge will be approximately 33 feet with 1V:3H side slopes and 1V:2H end slopes. The embankment will bear on either a thin layer of soil or on the slopes of the adjacent, existing embankments. Because of the very favorable conditions at the base of the embankment, the factor of safety against slope failure can be assumed to exceed 1.5 without analysis. No improvement or treatment is necessary.

Indicate at each substructure, the 100-year and 200-year total scour depths in the Hydraulics report, the non-granular scour depth reduction, the proposed ground surface, and the recommended foundation design scour elevations:

N/A

Determining the seismic soil site class, the seismic performance zone, the 0.2 and 1.0 second design spectral accelerations and indicate if that the soils are liquefiable:

The seismic Site Class is C, the SPZ is 1, SDS = 0.102g, and SD1 = 0.056g. The soils are not considered to be liquefiable for the design earthquake.

Confirm feasibility of the proposed foundation or wall type and provide design parameters. Attach a pile design table indicating feasible pile types, various nominal required bearings, factored resistances available and corresponding estimated lengths at locations where piles will be used. Provide factored bearing resistance and unit sliding resistance at various elevations and confirm no ground improvement/treatment is necessary where spread footings are proposed. Estimated top of rock elevations as well as preliminary factored unit side and tip resistance values shall be indicated when drilled shafts are proposed:

A Pile Design Table including nominal required bearing on limestone bedrock for several pile types at each substructure is attached. Steel H-piles that extend to bedrock are recommended.

Shoes are required for H-piles.

One test pile should be specified at the south abutment to determine the pile lengths for all production piles.

If the vertical cantilever wing extensions are not structurally connected to the abutments, they may be designed for active earth pressure assuming Ka of 0.333 (φ=30°) and unit weight of 125 pcf for the backfill. L- or T-type wingwall footings bearing on compacted embankment fill should be designed for a factored bearing resistance of 2.5 ksf and a factored sliding resistance of 0.85 ksf. This assumes that the proposed embankment will be constructed of either granular material or cohesive material with a compacted compressive strength of at least 1.0 tsf.

Calculate the estimated water surface elevation and determine the need for cofferdams (type 1 or 2), and seal coat:

N/A

Assess the need for sheeting or soil retention or temporary construction slope and provide recommendation for other construction concerns:

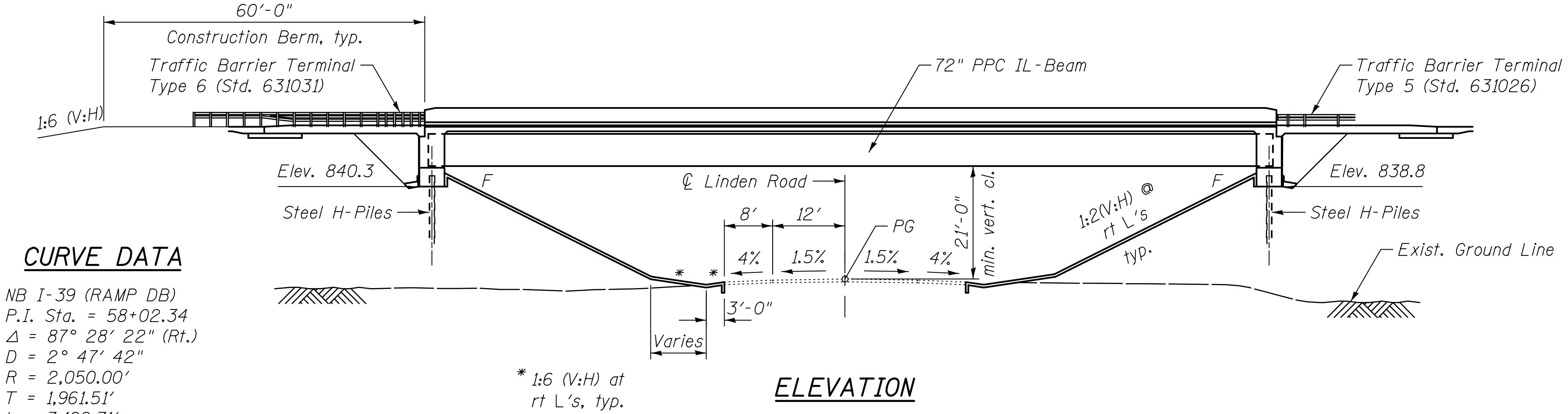
Sheeting or soil retention is not anticipated. Temporary construction slopes should be excavated in accordance with current OSHA regulations.

Structure No. 101-0212
Pile Design Table

Location	Cutoff Elevation (ft)	Pile Type	Factored Resistance Available, R_F (kips)	Geotechnical Losses, R_{Sdd} (kips)	Nominal Required Bearing, R_N (kips)	Estimated Pile Length (ft)
South Abutment B-1b, B-2b and B-22	842.3	HP 12x74	324	0	589	28
		HP 14x73	318	0	578	28
		HP 14x89	388	0	705	28
		HP 14x102	446	0	810	29
		HP 14x117	511	0	929	30
North Abutment B-3b, B-23 and B-4b	840.8	HP 12x74	324	0	589	27
		HP 14x73	318	0	578	26
		HP 14x89	388	0	705	27
		HP 14x102	446	0	810	28
		HP 14x117	511	0	929	28

Benchmark: Cut "□" south side of eastern base of 30 mph ramp sign located east of the ramp connecting I-39 NB to US 20 West (Ramp DA) 0.1 mile north of the centerline of Linden Road. Elev. 851.37, 42°-13'-06.37" N. 89°-00'-39.64" W.

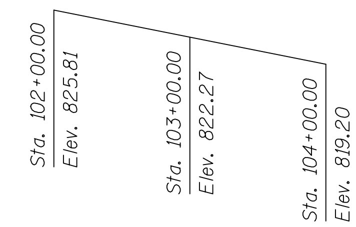
Existing Structure: None



ELEVATION

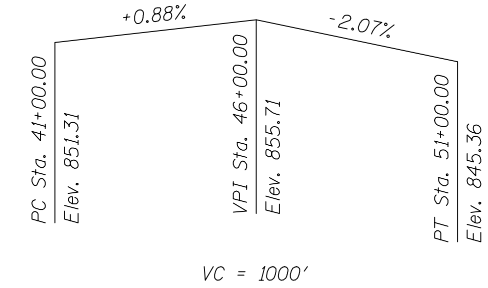
CURVE DATA

NB I-39 (RAMP DB)
P.I. Sta. = 58+02.34
Δ = 87° 28' 22" (Rt.)
D = 2° 47' 42"
R = 2,050.00'
T = 1,961.51'
L = 3,129.71'
E = 787.26
SE = 6%
P.C. Sta. = 38+40.82
P.T. Sta. = 69+70.53



EXISTING PROFILE GRADE

Along ℄ Linden Road



PROFILE GRADE

Along BL NB I-39 (Ramp DB)

HIGHWAY CLASSIFICATION

F.A.U. Rte. 5118 - Linden Road
Functional Class: Minor Arterial
ADT: 6650 (2013); 18,000 (2040)
ADTT: 330 (2013); 900 (2040)
DHV: 1805 (2040)
Design Speed: 45 m.p.h.
Posted Speed: 45 m.p.h.
Two-Way Traffic
Directional Distribution: 50/50

F.A.I. Rte. 39 - NB I-39 Ramp DB
Functional Class: Interstate
ADT: 10,500 (2013); 30,200 (2040)
ADTT: 4400 (2013); 12,700 (2040)
DHV: 3000 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
One-Way Traffic

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims

DESIGN STRESSES

FIELD UNITS

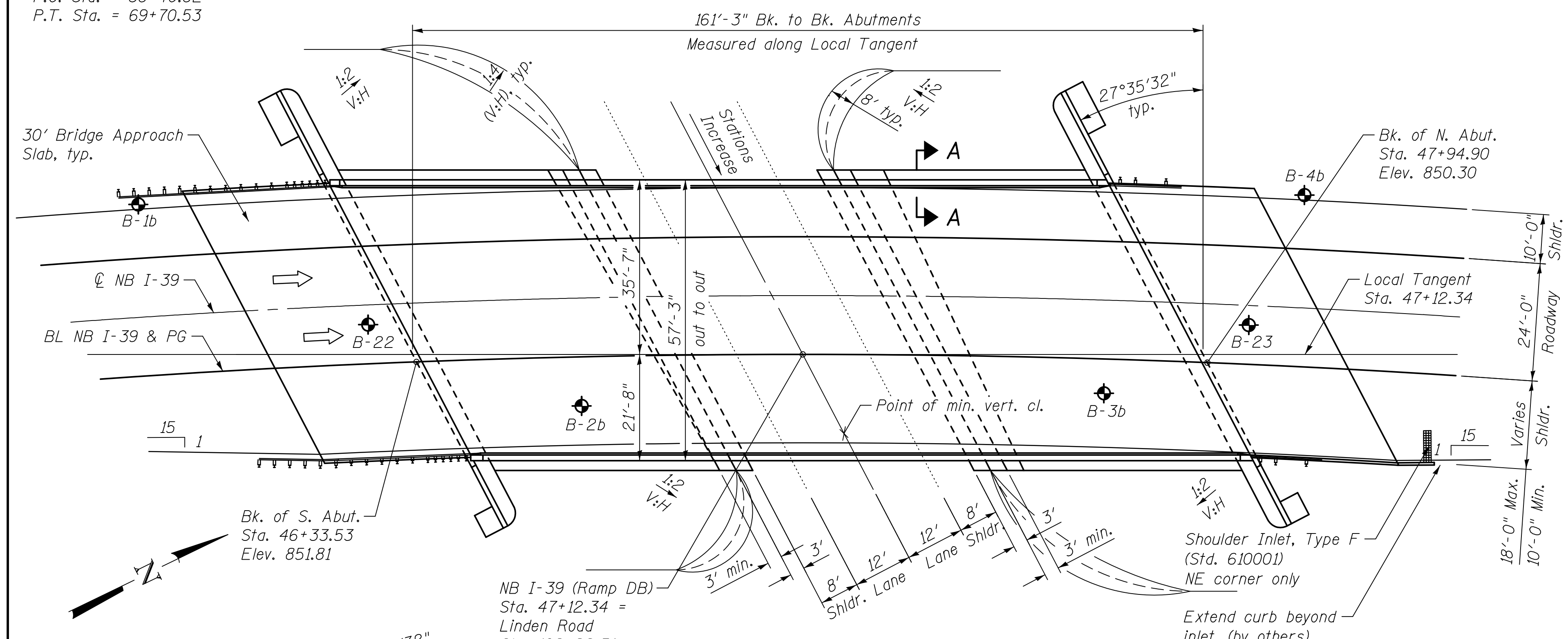
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS

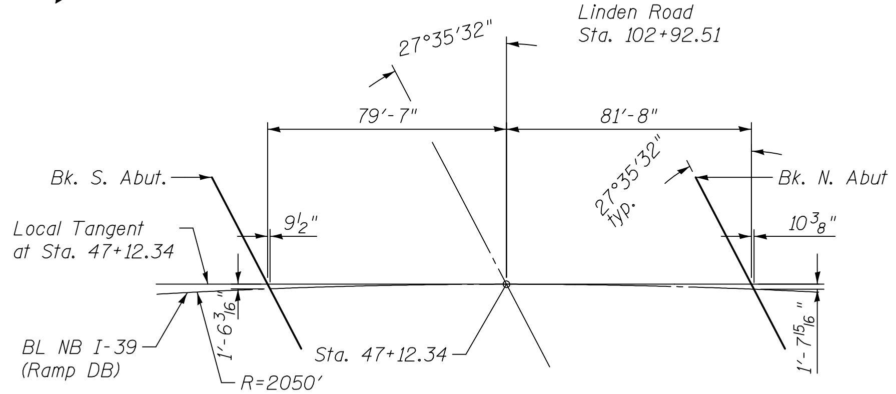
f'c = 8,500 psi
f'ci = 7,000 psi
fpu = 270,000 psi (0.6" ϕ low lax. strands)
fpbt = 202,300 psi (0.6" ϕ low lax. strands)

SEISMIC DATA

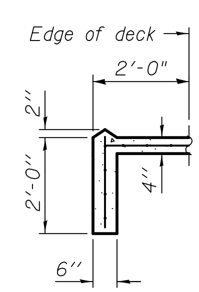
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.102 g
Soil Site Class = C



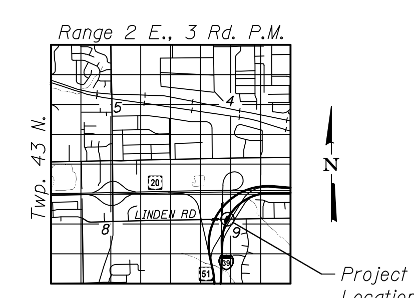
PLAN



OFFSET SKETCH



SECTION A-A



LOCATION SKETCH

GENERAL PLAN
NB I-39 (RAMP DB) OVER LINDEN ROAD
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)K
WINNEBAGO COUNTY
STATION 47+12.34
STRUCTURE NO. 101-0212

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = cconnor	DESIGNED - CME	REVISED -
		CHECKED - MCB	REVISED -
	PLOT SCALE = 32.000000 ' / in.	DRAWN - CFC	REVISED -
	PLOT DATE = 2/13/2017	CHECKED - MCB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

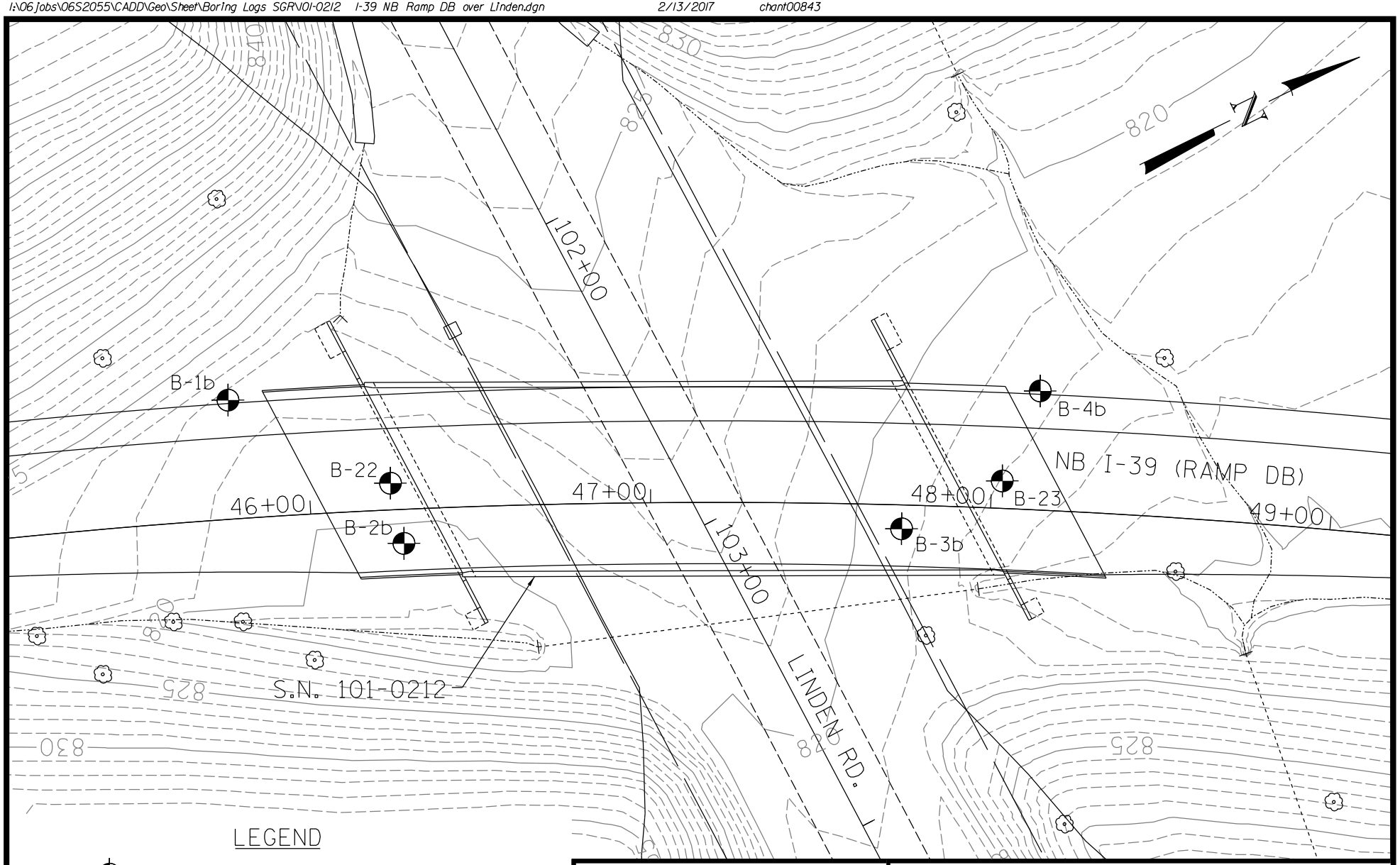
SHEET NO. 1 OF 2 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO		
		CONTRACT NO. 64C62		
		ILLINOIS FED. AID PROJECT		

FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

FILE NAME = ...\sn101-0212\101-0212-001-ts1.dgn

I:\06jobs\06S2055\CADD\Geo\Sheet\Boring Logs SGR\101-0212 I-39 NB Ramp DB over Linden.dgn 2/13/2017 chant00843



LEGEND

B-1b BORING LOCATION

0 40 80 120

SCALE IN FEET

HANSON

BORING LOCATION PLAN

NB I-39 (RAMP DB) OVER LINDEN RD.
S.N. 101-0212
WINNEBAGO COUNTY, ILLINOIS

06S2055 2/09/17

851.8

840.3

LEGEND

N	Standard Penetration Test N (blows/ft)
Qu	Unconfined Strength (tsf)
w%	Natural Moisture Content (%)
DD ▽ 507.20	Water Surface Elevation Encountered in Boring DD = during drilling 0h = at completion 24h = 24 hours after completion
	Approximate Finish Grade
	Bottom of Footing

B-1b
Sta. 45+79, 35' LT
3/30/2016

	N	Qu	w%	
821.7				VERY DENSE tan weathered LIMESTONE Auger Refusal @ 3.5'
	100/8"			
818.2				VERY POOR buff-white LIMESTONE
				Rec. = 100% RQD = 0%
813.2				POOR buff-white LIMESTONE
				Rec. = 100% RQD = 50%
808.2				

Bottom of Hole = 13.5 feet

B-22
Sta. 46+24, 8' LT
3/15/2006

	N	Qu	w%	
820.4				
	0.3P		16	SOFT brown LOAM 1st Encounter weathered LIMESTONE @ 1.5'
	100/1"			VERY DENSE tan weathered LIMESTONE
816.9				FAIR/POOR tan LIMESTONE 100% Recovery
811.9				FAIR tan LIMESTONE 100% Recovery
806.9				FAIR tan LIMESTONE 100% Recovery
801.9				

Bottom of Hole = 18.5 feet

B-2b
Sta. 46+27, 10' RT
3/30/2016

	N	Qu	w%	
820.7				VERY DENSE tan weathered LIMESTONE Auger Refusal @ 4.5'
	100/5"			
816.2				VERY POOR buff-white LIMESTONE
				Rec. = 100% RQD = 0%
811.2				POOR buff-white LIMESTONE
				Rec. = 100% RQD = 33%
806.2				FAIR buff-white LIMESTONE
				Rec. = 100% RQD = 63%
801.2				

Bottom of Hole = 19.5 feet

850.3

838.8

B-3b
Sta. 47+74, 7' RT
3/29/2016

	N	Qu	w%	
819.6				VERY DENSE tan weathered LIMESTONE Auger Refusal @ 3.5'
	100/3"			
816.1				VERY POOR buff-white LIMESTONE
				Rec. = 100% RQD = 16%
811.1				GOOD buff-white LIMESTONE
				Rec. = 100% RQD = 80%
806.1				GOOD buff-white LIMESTONE
				Rec. = 100% RQD = 85%
801.1				

Bottom of Hole = 18.5 feet

B-23
Sta. 48+03, 8' LT
3/16/2006

	N	Qu	w%	
818.6				
	0.5P			MEDIUM brown SILTY LOAM 1st Encounter weathered LIMESTONE @ 1.0'
817.1	100/2"		27	VERY DENSE tan weathered LIMESTONE
	100/1"			VERY DENSE tan weathered LIMESTONE Auger Refusal @ 6.5'
812.1				

Bottom of Hole = 6.5 feet

B-4b
Sta. 48+13, 35' LT
3/29/2016

	N	Qu	w%	
818.3				VERY DENSE tan weathered LIMESTONE Auger Refusal @ 2.5'
	100/2"			
815.8				FAIR buff-white LIMESTONE
				Rec. = 100% RQD = 62%
810.8				GOOD buff-white LIMESTONE
				Rec. = 100% RQD = 80%
805.8				

Bottom of Hole = 12.5 feet

FILE NAME =	USER NAME =	DESIGNED - RGC	REVISED
HANSON		CHECKED - KKC	REVISED
	PLOT SCALE =	DRAWN - EJM	REVISED
	PLOT DATE = 02/09/17	CHECKED - KKC	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBSURFACE DATA PROFILE
STRUCTURE NO. 101-0212
SHEET NO. 1 OF 1 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO		
		CONTRACT NO. 64C62		
	ILLINOIS FED. AID PROJECT			

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/15/06

ROUTE FAI 39 DESCRIPTION P92-075-05 I-39 @ Bypass 20, Soil Survey, I-39 NB at Linden Road LOGGED BY W. Garza

SECTION (201-3) K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO.
Station S. Abut.

BORING NO. B-22
Station 22559+70
Offset ft CL
Ground Surface Elev. 820.4 ft

Surface Water Elev. ft
Stream Bed Elev. ft

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

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SOFT brown LOAM 1st Encounter weathered LIMESTONE @ 1.5'			0.3 P	16
817.90 VERY DENSE tan weathered LIMESTONE		100/1"		
816.90 Time: 8 minutes FAIR/POOR tan LIMESTONE 100% Recovery	-5			
811.90 Time: 7 minutes FAIR tan LIMESTONE 100% Recovery	-10			
806.90 Time: 7 minutes FAIR tan LIMESTONE 100% Recovery	-15			
801.90 End of Boring	-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)

FIGURE 2

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/16/06

ROUTE FAI 39 DESCRIPTION P92-075-05 I-39 @ Bypass 20, Soil Survey LOGGED BY M. Jacoby

SECTION (201-3) K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME-45 Automatic

STRUCT. NO. _____
Station _____

BORING NO. B-23
Station 22561+50
Offset ft CL
Ground Surface Elev. 818.6 ft

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

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

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
MEDIUM brown SILTY LOAM 1st Encounter weathered LIMESTONE @ 1.0' 817.10		0.5 P		
VERY DENSE tan weathered LIMESTONE	100/2"		27	
-5 VERY DENSE tan weathered LIMESTONE Auger Refusal @ 6.5' 812.10	100/1"			
End of Boring				
-10				
-15				
-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)

FIGURE 2

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/30/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME-45

STRUCT. NO.
Station

Latitude 42° 12' 59.85" Northing 2,023,585.4262
Longitude -89° 00' 38.44" Easting 2,609,719.3428

BORING NO. B-1b.
Station 45+79
Offset 35.00ft Lt
Ground Surface Elev. 821.70 ft

Surface Water Elev. ft
Stream Bed Elev. ft

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

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
weathered LIMESTONE				
819.70				
VERY DENSE tan weathered LIMESTONE Auger Refusal @ 3.5'	100/8"			
818.20				
Borehole continued with rock coring.				
-5				
-10				
-15				
-20				

Northing and Easting were calculated using the ILHP-WF coordinate system

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

ROCK CORE LOG

Date 3/30/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago CORING METHOD

CORING BARREL TYPE & SIZE

STRUCT. NO.
Station

Core Diameter 2 in
Top of Rock Elev. 821.70 ft
Begin Core Elev. 818.20 ft

BORING NO. B-1b.
Station 45+79
Offset 35.00ft Lt
Ground Surface Elev. 821.70 ft

Latitude 42° 12' 59.85"
Longitude -89° 00' 38.44"
Northing 2,023,585.4262
Easting 2,609,719.3428

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: buff-white, micritic, vuggy, oxidized on fractured surfaces, fractured in 1/2" to 3" segments.	818.20	1	100	0	1.6	
	-5					
	813.20					
Dolomite: as above, though medium bedded. t.s.f.: 810.7 to 810.0 and 809.2 to 808.8		2	100	50	1.4	369.0
	-10					
	808.20					
End of Boring						
	-15					
	-20					

Northing and Easting were calculated using the ILHP-WF coordinate system

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/30/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME-45

STRUCT. NO.
Station

Latitude 42° 13' 00.46" Northing 2,023,648.1437
Longitude -89° 00' 37.34" Easting 2,609,801.9401

BORING NO. B-2b.
Station 46+27
Offset 10.00ft Rt
Ground Surface Elev. 820.70 ft

Surface Water Elev. ft
Stream Bed Elev. ft

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

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
weathered LIMESTONE				
818.70				
VERY DENSE tan weathered LIMESTONE		100/5"		
Auger Refusal @ 4.5'				
816.20				
Borehole continued with rock coring.	-5			
	-10			
	-15			
	-20			

Northing and Easting were calculated using the ILHP-WF coordinate system

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

ROCK CORE LOG

Date 3/30/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago CORING METHOD

CORING BARREL TYPE & SIZE

STRUCT. NO.
Station

Core Diameter 2 in
Top of Rock Elev. 820.70 ft
Begin Core Elev. 816.20 ft

BORING NO. B-2b.
Station 46+27
Offset 10.00ft Rt
Ground Surface Elev. 820.70 ft

Latitude 42° 13' 00.46"
Longitude -89° 00' 37.34"
Northing 2,023,648.1437
Easting 2,609,801.9401

		DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: buff-white, 50 to 60 percent disintegrated, micritic and vuggy where intact.	816.20	-5	1	100	0	1.2	0.0
	811.20						
Dolomite: as above, though laminated and thin bedded. t.s.f.: 809.4 to 808.9 and 807.5 to 807.0		-10	2	100	33	1.4	230.0
	806.20						
Dolomite: as above, with improved integrity, medium to thickly bedded. t.s.f.: 804.6 to 803.4 and 801.4 to 802.8		-15	3	100	63	1	652.0
	801.20						
End of Boring		-20					

Northing and Easting were calculated using the ILHP-WF coordinate system

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/29/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME-45

STRUCT. NO.
Station

Latitude 42° 13' 01.38" Northing 2,023,741.9921
Longitude -89° 00' 36.79" Easting 2,609,841.8491

BORING NO. B-3b.
Station 47+74
Offset 7.00ft Rt
Ground Surface Elev. 819.60 ft

Surface Water Elev. ft
Stream Bed Elev. ft

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

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
weathered LIMESTONE				
817.60				
VERY DENSE tan weathered LIMESTONE		100/3"		
Auger Refusal @ 3.5' 816.10				
Borehole continued with rock coring.				
	-5			
	-10			
	-15			
	-20			

Northing and Easting were calculated using the ILHP-WF coordinate system

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

ROCK CORE LOG

Date 3/29/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago CORING METHOD

CORING BARREL TYPE & SIZE

STRUCT. NO.
Station

Core Diameter 2 in
Top of Rock Elev. 819.60 ft
Begin Core Elev. 816.10 ft

BORING NO. B-3b.
Station 47+74
Offset 7.00ft Rt
Ground Surface Elev. 819.60 ft

Latitude 42° 13' 01.38"
Longitude -89° 00' 36.79"
Northing 2,023,741.9921
Easting 2,609,841.8491

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: buff-white, micritic and vuggy, thin to medium bedded. t.s.f.: 813.9 to 813.4	816.10	1	100	16	1.2	380.0
	-5					
	811.10					
Dolomite: as above, not as vuggy, thickly bedded. t.s.f.: 810.3 to 809.7 and 807.9 to 807.2		2	100	80	1.1	382.0
	-10					
	806.10					
Dolomite: as above, though medium bedded. t.s.f.: 805.5 to 805.0 and 803.5 to 802.9		3	100	85	1.4	451.0
	-15					
	801.10					
End of Boring						
	-20					

Northing and Easting were calculated using the ILHP-WF coordinate system

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

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 3/29/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME-45

STRUCT. NO.
Station

Latitude 42° 13' 02.29" Northing 2,023,833.8177
Longitude -89° 00' 37.15" Easting 2,609,813.2392

BORING NO. B-4b.
Station 48+13
Offset 35.00ft Lt
Ground Surface Elev. 818.30 ft

Surface Water Elev. ft
Stream Bed Elev. ft

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

		DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
weathered LIMESTONE					
	816.30				
VERY DENSE tan weathered LIMESTONE	815.80		100/2"		
Auger Refusal @ 2.5'					
Borehole continued with rock coring.					

-5
-10
-15
-20

Northing and Easting were calculated using the ILHP-WF coordinate system

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

ROCK CORE LOG

Date 3/29/16

ROUTE FAI 39 & FAP 301 DESCRIPTION P92-111-06 Proposed NB I-39 over Linden Road LOGGED BY W. Garza

SECTION (201-3)K & 4-1,5)K LOCATION , SEC. , TWP. , RNG.

COUNTY Winnebago CORING METHOD

CORING BARREL TYPE & SIZE

STRUCT. NO.
Station

Core Diameter 2 in
Top of Rock Elev. 818.30 ft
Begin Core Elev. 815.80 ft

BORING NO. B-4b.
Station 48+13
Offset 35.00ft Lt
Ground Surface Elev. 818.30 ft

Latitude 42° 13' 02.29"
Longitude -89° 00' 37.15"
Northing 2,023,833.8177
Easting 2,609,813.2392

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: buff-white, micritic and vuggy, thin to medium bedded. t.s.f.: 814.5 to 814.1 and 812.6 to 815.4	815.80	1	100	62	1.8	370.0
	-5	2	100	80	1.4	461.0
Dolomite: as above, though thickly bedded. t.s.f.: 810.3 to 809.8 and 806.9 to 806.2	810.80					
	-10					
End of Boring	805.80					
	-15					
	-20					

Northing and Easting were calculated using the ILHP-WF coordinate system

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