Abbreviated Structure Geotechnical Report

F.A.I. Rte. 39 (I-39)
Section (4-1, 5)R
Winnebago County
Job No. P-92-111-06
Contract No. 64C24
PTB No. 141-004
I-39/US 20 over Canadian National Railroad.
Structure Nos. 101-0208 (EB) & 101-0209 (WB)
Ex. Structure Nos. 101-0067 (EB) & 101-0068 (WB)

Submitted February 2017
Revised March 2017

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

Structure Designer:
Infrastructure Engineering, Inc.
33 West Monroe , Suite 1540
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Exp 11/30/2017

03/28/2017

Illinois Department of Transportation

Abbreviated Structure Geotechnical Report

Original Report Date: 2/16/2017 **Proposed SN:** 101-0208/0209 **Route:** FAI 39 (I-39)
Revised Date: 3/28/2017 **Existing SN:** 101-0067/0068 **Section:** (4-1,5)R
Geotechnical Engineer: Kipkoech Chepkoit **County:** Winnebago
Structural Engineer: Infrastructure Engineering, Inc. **Contract:** 64C24

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

The new structures will be three-span steel wide-flange bridges. The substructures will consist of pile-supported integral abutments and multiple column piers with crash walls and pile-supported footings. S.N. 101-0208 will replace existing S.N. 101-0067, which is the bridge carrying the eastbound traffic, and S.N. 101-0209 will replace existing S.N. 101-0068, which is the bridge carrying the westbound traffic. According to information provided by the structure designer, the estimated vertical factored substructure loads are 1,470 to 1,610 kips at the abutments and 3,810 to 3,750 kips at the piers. The general plan and elevation drawing for the new structures is attached.

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):

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

Existing structure plans show the current structures are three span bridges. The substructures are pile-supported stub abutments and hammerhead piers with pile-supported footings. The existing structures were constructed in 1962 and rehabbed in the early 1990's, including deck replacement and substructure widening. The abutments are supported by metal shell and H-piles, and the piers are supported by treated timber piles and H-piles. Pile driving records from the original construction confirm that the existing piles are tipped either on bedrock or within glacial soils a few feet above bedrock. The existing piles were driven to consistent lengths at each substructure unit, except for the south abutment of the westbound bridge. The piles on the west side of the bridge drove up to 11 feet shorter than the piles on the east side of the bridge.

Topographic survey and aerial photographs indicate minor to moderate sloughing of the embankment side slopes at the north abutment. There is a small distressed area above the headwall to the twin 84-inch pipe culverts on the west side, and a much larger distressed area covering the entire height of the embankment of the east side. The area on the east side is above the culvert junction chambers. These areas do not appear to be deep-seated global geotechnical failures.

Four boring logs were provided to Hanson Professional Services Inc. (Hanson) by IDOT for Borings B-1h through B-4h, which were drilled in June 2008 according to the dates on the logs. The surficial soils in the borings generally consisted of silty clay loam with occasional loam, clay loam, sandy loam, and sand layers overlying approximately 5 feet of glacial till. In Borings B-4h and B-3h, which were located at the South Abutment, these soils extended to approximately El. 760 and were underlain by weathered rock and dolomite bedrock to the end of the boring. In Borings B-1h and B-2h, which were located at the North Abutment, these soils extended to approximately El. 747/746 and were underlain by weathered rock and dolomite bedrock to the end of the boring. The bedrock in Borings B-4h, B-1h, and B-3h was cored for observation and testing.

Locations of the borings are shown on the attached Boring Location Plan. Stations and offsets on the boring logs are relative to the existing US 20 alignment. Boring locations along the current I-39 alignment are shown on the attached Subsurface Data Profile.

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:

Both structures will require fill to accommodate widening beyond their current footprint. The height of the new embankment fill at the North Abutment is generally 2 to 4 feet above the existing pavement. Maximum fill is 16 feet at the right edge of new eastbound pavement. The maximum estimated magnitude of settlement that will occur due to this fill is approximately 0.25 inch.

The height of the new embankment fill at the South Abutment is generally 4 to 6 feet above the existing pavement. Maximum fill is 15 feet at the right edge of new eastbound pavement. The magnitude of settlement at the South Abutment is estimated to be less than at the North Abutment.

The estimated magnitude of settlement is acceptable for the proposed structures.

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 proposed construction will raise the existing embankment by 2 to 6 feet and widen the existing embankment footprint by approximately 25 feet on each side. The maximum heights of the new embankment are 46 feet along the right side of the south approach and 41 feet along the left side of the north approach. All slopes will be 1V:2H, which is the existing condition. Most of the new fill will be placed on the side slopes of the existing embankment. The proposed end slopes will require minimal regrading.

The worst-case global stability condition is located at the left side of the north approach and the right side of south approach due to the significantly weaker soils encountered in Boring B-2h. A slope stability analysis was completed of the left side slope at Sta. 2649+32 for north abutment and right side slope at Sta 2647+25 for south abutment. The global factor of safety of north and south abutments is 1.59 and 1.56, respectively. The global stability factor of safety meets IDOT and AASHTO requirements, and ground improvement/treatment is not necessary. A plot of the global stability analysis results is attached. Note soil profile from boring B-2h (located at the north abutment) was used in global stability analysis for south abutment because boring B-4h exhibited much better/stronger soil profile.

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

Determine 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, S_{DS} = 0.101g, and S_{D1} = 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 data for several pile sizes at each substructure is attached. Steel H-piles that extend to bedrock are recommended based upon the relatively shallow bedrock encountered at the boring locations. Pile lengths were estimated for Pier 1 based on the pile driving records for the adjacent existing pier. Calculations based on Boring B-3h indicate that the pile length would be significantly shorter. It is assumed that there is significant rise in the bedrock towards the southwest corner of the site. Piles on the west side of the South Abutment and Pier 1 may reach refusal 10 feet or more above the estimated tip elevations.

Metal shell (MS) piles do not appear feasible based on the close proximity to top of rock and the risk of damaging the piles.

Shoes are required for all piles. A total of two test piles should be specified for these bridges. These test piles should be located at the South Abutment and Pier 2, both within the first phase of construction.

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:

The proposed structures will be staged to maintain traffic on I-39 during construction. Temporary excavations with up to 10 feet retained height will be required to construct the abutments near active traffic lanes. There is not enough room to lay back temporary slopes perpendicular to traffic. Temporary sheet piling, designed in accordance with IDOT Design Guide 3.13.1 – Temporary Sheet Piling Design, is feasible within the existing embankments at the abutments.

Temporary excavations for the proposed piers will be located within the existing end slopes and will be up to 17 feet below existing ground. The proposed pier footings are located far enough from the existing and proposed abutments that temporary slopes flatter than 1V:1H may be excavated without undercutting the abutments. It should be possible for the contractor to configure temporary excavations that meet OSHA requirements. If it is desired to limit the footprint of temporary excavations within the end slope, a temporary soil retention system would be required. Temporary sheet piling is not feasible at the piers due to shallow bedrock.

Structure Nos. 101-0208 (EB) & 101-0209 (WB)
Pile Design Parameters

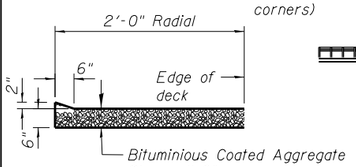
Location	Cutoff Elevation (ft)	Pile Type	Factored Resistance Available, R_F (kips)	Geotechnical Losses, R_{Sdd} (kips)	Nominal Required Bearing, R_N (kips)	Estimated Pile Length (ft)
South Abutment B-4h	794.1	HP 10x42	184	0	335	41
		HP 12x53	230	0	418	41
		HP 12x63	273	0	497	42
		HP 12x74	324	0	589	42
		HP 14x73	318	0	578	42
		HP 14x89	388	0	705	42
Pier 1 B-3h *	765.7	HP 10x42	184	0	335	19
		HP 12x53	230	0	418	19
		HP 12x63	273	0	497	19
		HP 12x74	324	0	589	20
		HP 14x73	318	0	578	20
		HP 14x89	388	0	705	20
Pier 2 B-1h	765.3	HP 10x42	184	0	335	23
		HP 12x53	230	0	418	24
		HP 12x63	273	0	497	24
		HP 12x74	324	0	589	25
		HP 14x73	318	0	578	24
		HP 14x89	388	0	705	25
North Abutment B-2h	794.5	HP 10x42	184	0	335	52
		HP 12x53	230	0	418	53
		HP 12x63	273	0	497	53
		HP 12x74	324	0	589	54
		HP 14x73	318	0	578	53
		HP 14x89	388	0	705	54

* Note: Pile driving records from existing structure were also considered at Pier 1. Existing timber piles have tips at Elev. 747 to 751±.

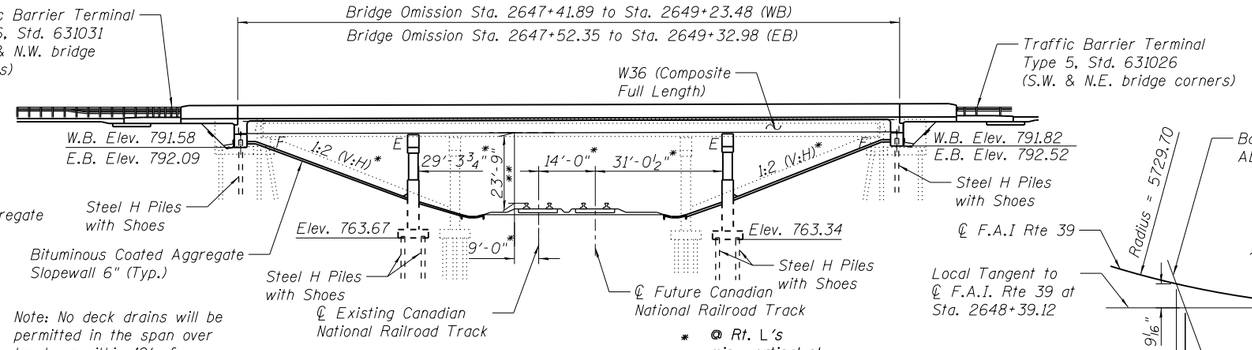
Bench Mark: B.M. 400-Cut "□" on southeast corner of S.N. 101-0067. Elevation = 800.52

Exisiting Structure: S.N. 101-0067 (E.B.) and S.N. 101-0068 (W.B.) built as F.A. Route 194, Section 4 VB at Station 796 +28.52 in 1963. Bridges widened and deck replaced in 1991 as F.A.I. Route 39, Section 4 VBY. Each superstructure consists of 3 spans of continous composite rolled steel beams. Each substructure consists of concrete stub abutments and concrete hammerhead piers supported on piles. Length = 169'-8" (back-to-back of abutments). Width of Eastbound Bridge = 42'-3" (out-to-out deck). Width of Westbound Bridge = 43'-2" (out to out deck). Traffic is to be maintained utilizing stage construction.

No Salvage

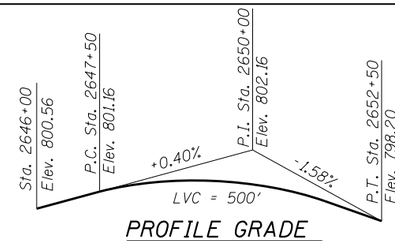


SECTION B-B



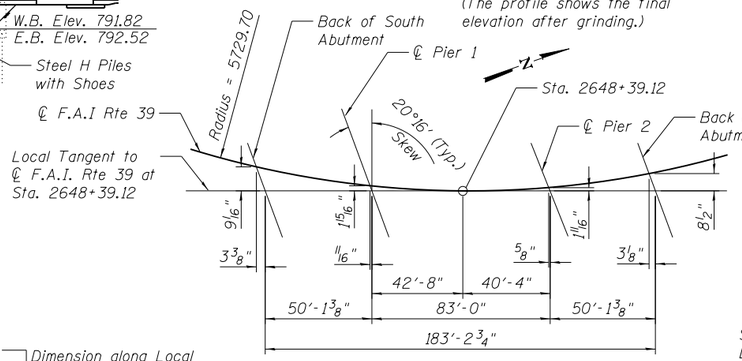
Note: No deck drains will be permitted in the span over track or within 10' of crossarms of a railraod pole line.

ELEVATION

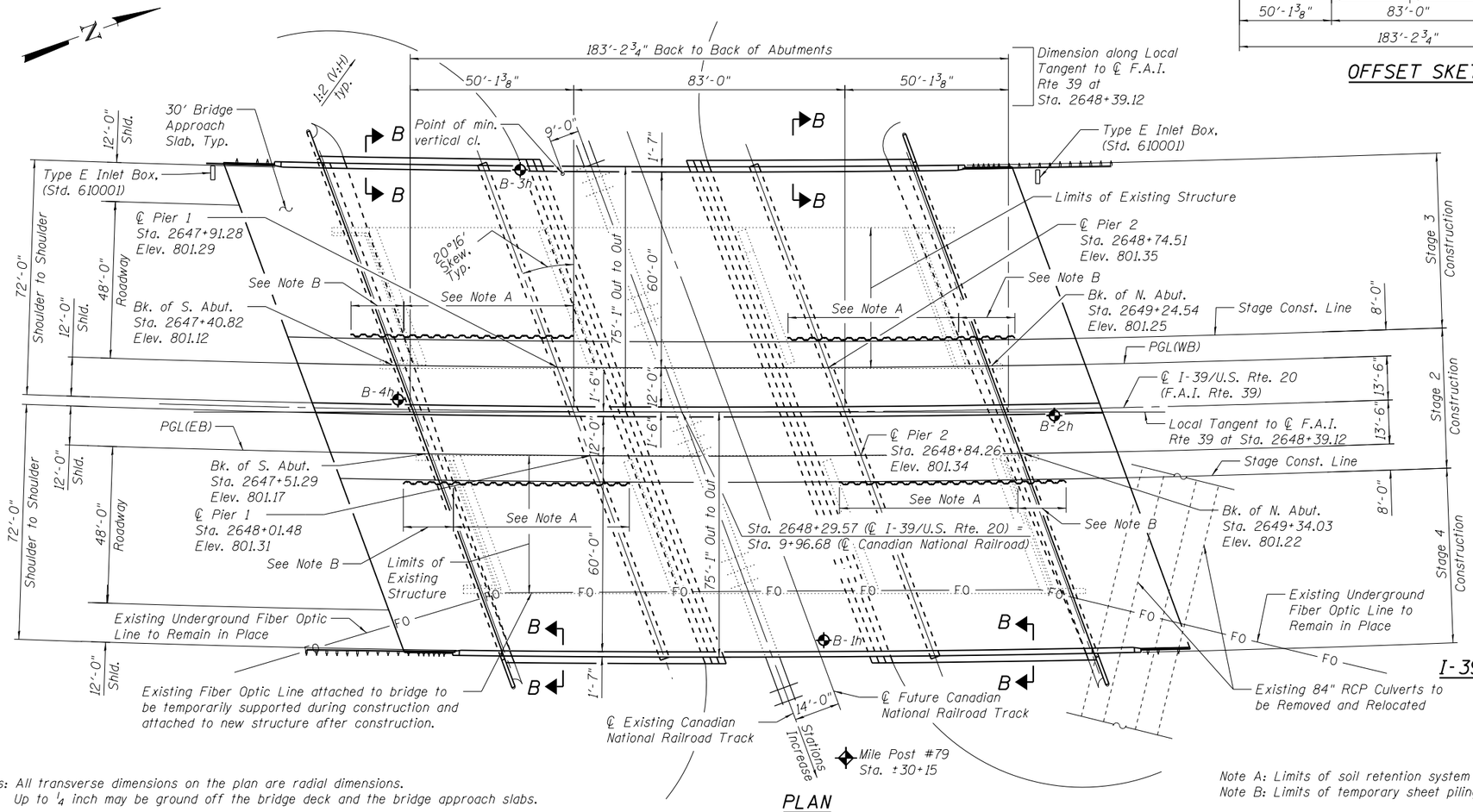


PROFILE GRADE

(Along Inside Edge of Roadways)
(The profile shows the final elevation after grinding.)



OFFSET SKETCH



Notes: All transverse dimensions on the plan are radial dimensions.
Up to ¼ inch may be ground off the bridge deck and the bridge approach slabs.

Note A: Limits of soil retention system
Note B: Limits of temporary sheet piling

PLAN

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39/U.S. Rte. 20
Functional Class: Interstate
ADT: 44,600 (2013); 106,610 (2040)
ADTT: 12,950 (2013); 32,000 (2040)
DHV: 10,600 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.

DESIGN SPECIFICATIONS

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

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)***

*** Structural steel to be metalized.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.101g
Soil Site Class = C

Sta. 7+37.75	Sta. 8+37.75	Sta. 9+37.75	Sta. 9+97.63	Sta. 10+57.35	Sta. 11+57.35	Sta. 12+57.35
Elev. 772.45	Elev. 771.95	Elev. 771.49	Elev. 771.14	Elev. 770.93	Elev. 770.49	Elev. 770.12

TOP OF RAIL ELEVATIONS

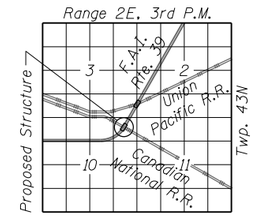
(Canadian National Railroad)

◆ Indicates Soil Boring

HORIZ. CURVE DATA

℄ I-39/US Rte 20 (Exist.)

Δ = 50° 41' 00" (Lt)
D = 1° 00' 00"
R = 5,729.70'
T = 2713.52'
L = 5,068.45'
E. = 610.07'
S.E. = 3.5%
P.C. Sta. = 2611+31.39
P.I. Sta. = 2638+44.91
P.T. Sta. = 2661+99.84



LOCATION SKETCH

GENERAL PLAN & ELEVATION
I-39/U.S. ROUTE 20 OVER CANADIAN NATIONAL RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2648+29.57
STRUCTURE NUMBER 101-0208 (EB)
STRUCTURE NUMBER 101-0209 (WB)

INFRASTRUCTURE ENGINEERING | INCORPORATED
33 West Monroe | Suite 1540 | Chicago, IL 60603
P 312.425.1999 | F 312.425.1994 | www.infrastructure-eng.com

USER NAME = ___	DESIGNED - SPK	REVISED - ___
	CHECKED - PK	REVISED - ___
PLOT SCALE = ___	DRAWN - RD/PK	REVISED - ___
PLOT DATE = ___	CHECKED - SPK	REVISED - ___

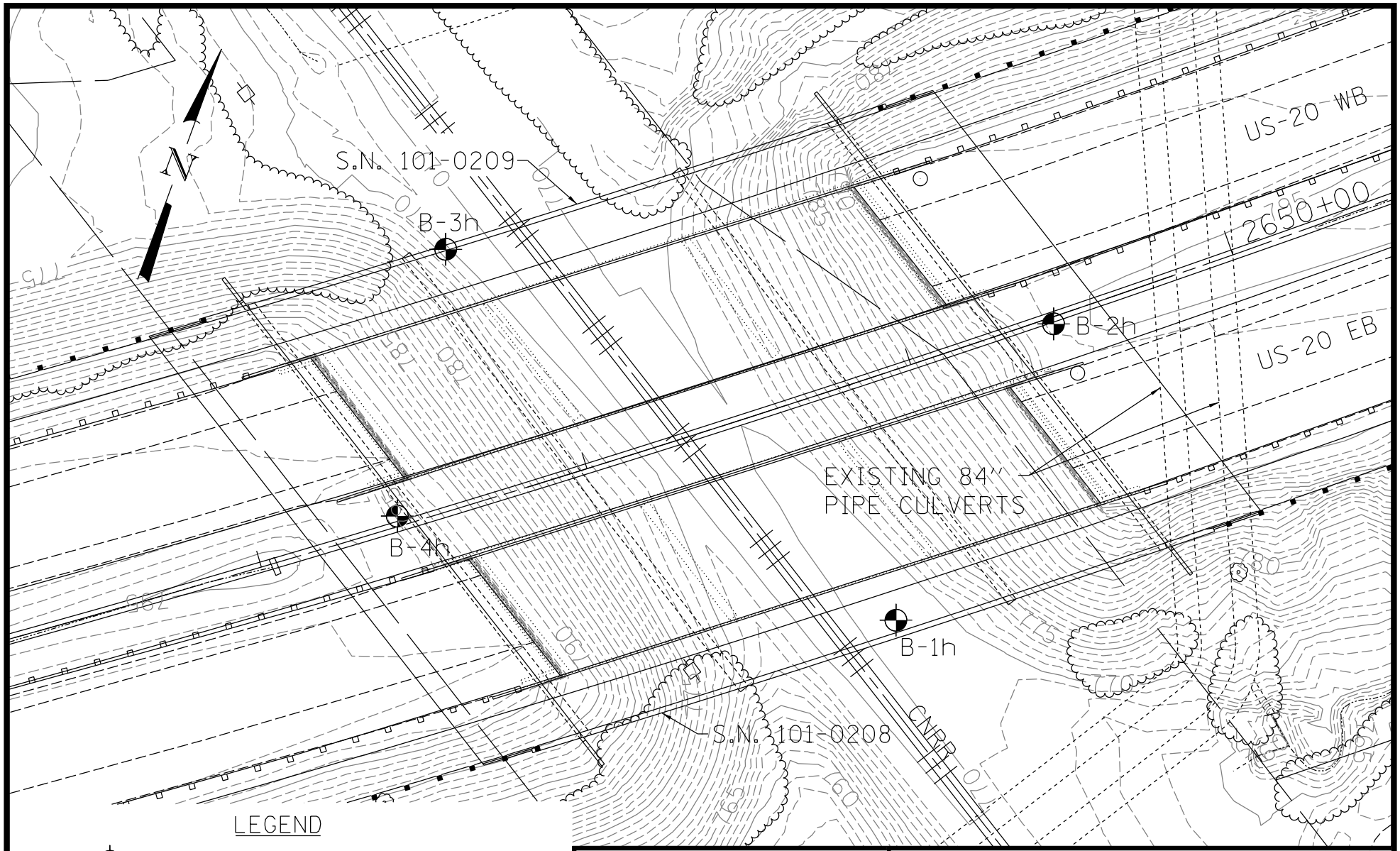
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 3 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(4-1,5)R	WINNEBAGO	___	___
		CONTRACT NO. 64C24		
	ILLINOIS FED. AID PROJECT			

3/24/2017 11:49:33 AM P:\P-06\1878\DGN\CADD Sheets\1810208-64C24-TSL-001.dgn

I:\06jobs\06S2055\CADD\Geo\Sheet\Boring Logs SGR\101-0208_101-0209 US20 over CNRR.dgn 2/16/2017 chant00843



HANSON

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BORING LOCATION PLAN

US-20 OVER CNRR
S.N. 101-0208 & 101-0209
WINNEBAGO COUNTY, ILLINOIS

06S2055 2/13/17

B-4h
Sta. 2647+43, 3' LT

	N	Qu	w%	
797.0				
	7	0.5P	13.0	MEDIUM brown LOAM
	7	1.2B	19.0	STIFF brown SILTY CLAY LOAM
	2		18.0	VERY LOOSE gray very moist dirty SAND
	9	1.9S	15.0	STIFF gray LOAM
	10	1.8B	20.0	STIFF gray SILTY CLAY LOAM
	12	2.5B	21.0	VERY STIFF light brown CLAY LOAM
	12	2.3B	20.0	VERY STIFF gray SILTY CLAY LOAM
	13	1.4P	14.0	STIFF gray SILTY CLAY LOAM
	24		7.0	MEDIUM tan SANDY LOAM
	13	2.9B	21.0	VERY STIFF gray/brown SILTY CLAY LOAM
	15	1.8B	16.0	STIFF brown LOAM
	20	3.7B	17.0	VERY STIFF gray CLAY LOAM with SANDY LOAM lens
	17	2.5P	18.0	VERY STIFF gray CLAY LOAM TILL
	12	3.5	13.0	VERY STIFF brown LOAM TILL
760.0				
	27			MEDIUM tan weathered LIMESTONE
DD 757.0				
	24			MEDIUM tan weathered LIMESTONE
				VERY DENSE tan weathered LIMESTONE
753.5	100/4"			Auger Refusal at 43.5'
				Dolomite: yellow tan-buff, vuggy and pitted, very finely crystalline, chalky with washed out sand size particles and fractured throughout.
				Rec. = 90%
748.5				RQD = 0%
	193			Dolomite: as above
				t.s.f.: 745.1 to 744.6
				Rec. = 100%
				RQD = 42%
743.5				Abandoned run - problems with water
738.5				

Bottom of Hole = 58.5 feet

B-3h
Sta. 2647+79, 74' LT

	N	Qu	w%	
769.8				
		0.5P	24.0	MEDIUM dark brown SILTY CLAY LOAM
	7	1.5P	18.0	STIFF brown CLAY LOAM
	19	1.1P	12.0	STIFF tan SANDY LOAM
	20	1.8P	11.0	STIFF tan SANDY LOAM TILL
760.3				
	100/5"			VERY DENSE tan weathered LIMESTONE
				VERY DENSE tan weathered LIMESTONE
755.8	100/2"			Auger Refusal at 14'
	97			Dolomite: yellow tan-buff, vuggy and pitted, very finely crystalline, with chert inclusions, top foot contains one-inch segments.
				t.s.f.: 751.8 to 751.2
750.8				Rec. = 100%
	87			RQD = 32%
				Dolomite: as above, though medium to massively bedded, with sandy inclusions.
				t.s.f.: 747.1 to 746.5
745.8				Rec. = 100%
	184			RQD = 62%
				Dolomite: as above, less pitted.
				t.s.f.: 744.2 to 743.5
740.8				Rec. = 100%
				RQD = 83%

Bottom of Hole = 29.0 feet

B-1h
Sta. 2648+73, 70' RT

	N	Qu	w%	
769.2				
		0.5P	14.0	MEDIUM dark brown LOAM
	5	1.0P	13.0	MEDIUM/STIFF brown LOAM
	2	0.8P	23.0	MEDIUM brown SILTY CLAY LOAM with SAND lens
	4	1.1B	18.0	STIFF brown LOAM with SAND lens
	4	0.2P	21.0	VERY SOFT brown SILTY CLAY LOAM
	2			VERY LOOSE tan dirty moist SAND
754.7 DD 754.2				
	7		17.0	LOOSE tan dirty SAND
	7	0.7B	11.0	MEDIUM gray SANDY LOAM TILL
	15	0.6B	13.0	MEDIUM tan LOAM TILL with SAND lens
747.2				
	85			VERY DENSE tan weathered LIMESTONE
743.2	100/2"			VERY DENSE tan weathered LIMESTONE
	287			Dolomite: yellow tan-buff, vuggy and pitted, very finely crystalline with chert inclusions.
				t.s.f.: 739.2 to 738.8
				Rec. = 100%
738.2				RQD = 7%
				Dolomite: as above with fractured zone at 736.2. No testable segments.
				Rec. = 100%
				RQD = 10%
733.2				
	200			Dolomite: as above, though medium to massively bedded.
				t.s.f.: 732.3 to 731.8
				Rec. = 100%
728.2				RQD = 58%

Bottom of Hole = 41.0 feet

B-2h
Sta. 2649+44, 2' RT

	N	Qu	w%	
795.1				
		1.8P	11.0	STIFF dark brown LOAM
	6	0.8P	16.0	MEDIUM brown SANDY LOAM
	6	0.6P	22.0	MEDIUM gray SILTY LOAM with brown SAND lens
	9	0.9B	17.0	MEDIUM gray SANDY LOAM
	11	1.1S	10.0	STIFF gray SANDY LOAM
	5	0.4B	23.0	SOFT gray LOAM with SAND lens
	11	2.7B	20.0	VERY STIFF gray/tan SILTY CLAY LOAM
	12	0.9B	24.0	MEDIUM gray/brown SILTY CLAY LOAM
	10	2.5B	19.0	VERY STIFF gray SILTY CLAY LOAM
	7	0.5B	26.0	MEDIUM gray SILTY CLAY LOAM
	10	1.2B	25.0	STIFF gray SILTY CLAY LOAM
	7	1.2B	22.0	STIFF gray SILTY CLAY LOAM with SANDY LOAM lens
	7	0.4P	20.0	SOFT gray SILTY LOAM
	18	1.7B	13.0	MEDIUM gray SANDY LOAM
	19	1.1P	15.0	STIFF gray LOAM with SAND lens
	13	0.9B	19.0	MEDIUM dark gray LOAM
	15	2.3B	31.0	VERY STIFF gray LOAM TILL
753.1				
	25			MEDIUM tan dirty moist SAND
750.6 DD 750.1				
	52	4.2S	9.0	HARD gray SANDY LOAM TILL
	50	3.1P	12.0	VERY STIFF olive-green SANDY LOAM TILL
745.6	100/6"			VERY DENSE tan weathered LIMESTONE
742.6	100/1"			VERY DENSE tan weathered LIMESTONE
				Auguer Refusal at 52.5'

Bottom of Hole = 52.5 feet

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 Oh = at completion 24h = 24 hours after completion
	Approximate Finish Grade
	Bottom of Footing

FILE NAME =	USER NAME =	DESIGNED - RGC	REVISED
HANSON		CHECKED - JLD	REVISED
	PLOT SCALE =	DRAWN - EJM	REVISED
	PLOT DATE = 02/16/17	CHECKED - JLD	REVISED

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBSURFACE DATA PROFILE
STRUCTURE NO. 101-0208 & 101-0209
SHEET NO. 1 OF 1 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(4-1.5)R	WINNEBAGO		
		CONTRACT NO. 64C24		
	ILLINOIS FED. AID PROJECT			

Illinois Department of Transportation

Division of Highways
Illinois Department of Transportation/D-2

SOIL BORING LOG

Date 6/16/08

ROUTE FAP 301 DESCRIPTION P92--111-06 Bridge over the CC&P RR, .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC. , TWP. 43N, RNG. 2E

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

STRUCT. NO. _____
Station _____

BORING NO. B-1h
Station 796+62
Offset 70.00ft Rt CL
Ground Surface Elev. 769.20 ft

Surface Water Elev. _____ ft
Stream Bed Elev. 72.50 ft

Groundwater Elev.:
First Encounter 754.2 ft ▼
Upon Completion _____ ft
After _____ Hrs. _____ ft

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	MEDIUM dark brown LOAM			
			0.5 P	14.0
766.70				
	MEDIUM/STIFF brown LOAM	3		
		2	1.0 P	13.0
765.20		3		
-5				
	MEDIUM brown SILTY CLAY LOAM with SAND lens	1		
		1	0.8 P	23.0
762.70		1		
	STIFF brown LOAM with SAND lens	1		
		1	1.1 B	18.0
760.20		3		
-10				
	VERY SOFT brown SILTY CLAY LOAM	1		
		1	0.2 P	21.0
757.20		3		
	VERY LOOSE tan dirty moist SAND	0		
		1		
754.70		1		
▼-15	LOOSE tan dirty SAND	2		
		3		17.0
752.70		4		
	MEDIUM gray SANDY LOAM TILL	2		
		3	0.7 B	11.0
750.20		4		
-20				

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	MEDIUM tan LOAM TILL with SAND lens	2		
		3	0.6 B	13.0
		12		
747.20				
	VERY DENSE tan weathered LIMESTONE	13		
		20		
745.20		65		
-25				
	VERY DENSE tan weathered LIMESTONE	100/2"		
743.20				
	Borehole continued with rock coring.			
-30				
-35				
-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)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation/D-2

ROCK CORE LOG

Date 6/16/08

ROUTE FAP 301 DESCRIPTION P92--111-06 Bridge over the CC&P RR, .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

COUNTY Winnebago CORING METHOD

STRUCT. NO.
Station

CORING BARREL TYPE & SIZE

Core Diameter 2 in
Top of Rock Elev. 747.20 ft
Begin Core Elev. 743.20 ft

BORING NO. B-1h
Station 796+62
Offset 70.00ft Rt CL
Ground Surface Elev. 769.20 ft

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: yellow tan-buff, vuggy and pitted, very finely crystalline with chert inclusions. t.s.f.: 739.2 to 738.8	743.20	1	100	7		287.0
	-30					
Dolomite: as above with fractured zone at 736.2. No testable segments.	738.20	2	100	10	3.2	
	-35					
Dolomite: as above, though medium to massively bedded. t.s.f.: 732.3 to 731.8	733.20	3	100	58	2	200.0
	-40					
End of Boring	728.20					
	-45					

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)

BBS, form 138 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation/D-2

SOIL BORING LOG

Date 6/17/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR, .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

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

STRUCT. NO. _____
Station _____

BORING NO. B-2h
Station 797+33
Offset 2.00ft Rt CL
Ground Surface Elev. 795.10 ft

Surface Water Elev. _____ ft
Stream Bed Elev. 72.50 ft

Groundwater Elev.:
First Encounter 750.1 ft ▼
Upon Completion _____ ft
After _____ Hrs. _____ ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
				STIFF dark brown LOAM
		1.8 P	11.0	
792.60				
	2			MEDIUM brown SANDY LOAM
	3	0.8	16.0	
791.10	3	P		
-5				
	2			MEDIUM gray SILTY LOAM with brown SAND lens
	3	0.6	22.0	
788.60	3	P		
	2			MEDIUM gray SANDY LOAM
	3	0.9	17.0	
786.10	6	B		
-10				
	5			STIFF gray SANDY LOAM
	5	1.1	10.0	
783.60	6	S		
	2			SOFT gray LOAM with SAND lens
	2	0.4	23.0	
781.10	3	B		
-15				
	3			VERY STIFF gray/tan SILTY CLAY LOAM
	5	2.7	20.0	
778.60	6	B		
	4			MEDIUM gray/brown SILTY CLAY LOAM
	4	0.9	24.0	
776.10	8	B		
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
	4			VERY STIFF gray SILTY CLAY LOAM
	4	2.5	19.0	
773.60	6	B		
	2			MEDIUM gray SILTY CLAY LOAM
	2	0.5	26.0	
771.10	5	B		
-25				
	3			STIFF gray SILTY CLAY LOAM
	5	1.2	25.0	
768.60	5	B		
	2			STIFF gray SILTY CLAY LOAM with SANDY LOAM lens
	2	1.2	22.0	
766.10	5	B		
-30				
	2			SOFT gray SILTY LOAM
	1	0.4	20.0	
763.60	6	P		
	6			MEDIUM gray SANDY LOAM
	8	0.7	13.0	
761.10	10	B		
-35				
	3			STIFF gray LOAM with SAND lens
	9	1.1	15.0	
758.60	10	P		
	4			MEDIUM dark gray LOAM
	6	0.9	19.0	
756.10	7	B		
-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)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation/D-2

SOIL BORING LOG

Date 6/17/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR, .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

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

STRUCT. NO. _____
Station _____

BORING NO. B-2h
Station 797+33
Offset 2.00ft Rt CL
Ground Surface Elev. 795.10 ft

Surface Water Elev. _____ ft
Stream Bed Elev. 72.50 ft

Groundwater Elev.:
First Encounter 750.1 ft ▼
Upon Completion _____ ft
After _____ Hrs. _____ ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
VERY STIFF gray LOAM TILL		3		
		6	2.3	31.0
		9	B	
	753.10			
MEDIUM tan dirty moist SAND		10		
		11		
		14		
	750.60			
	-45 ▼			
HARD gray SANDY LOAM TILL		11		
		23	4.2	9.0
	748.60	29	S	
VERY STIFF olive-green SANDY LOAM TILL		5		
		22	3.1	12.0
		28	P	
	745.60			
	-50			
VERY DENSE tan weathered LIMESTONE		100/6"		
	743.60			
	742.60			
VERY DENSE tan weathered LIMESTONE		100/1"		
Auger Refusal at 52.5'				
End of Boring				
	-55			
	-60			

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

BBS, [illegible] 8-99)

Illinois Department of Transportation
Division of Highways
Illinios Department of Transportation/D-2

SOIL BORING LOG

Date 6/20/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR., .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

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

STRUCT. NO. _____
Station _____

BORING NO. B-3h
Station 795+55
Offset 24.00ft Lt Pier
Ground Surface Elev. 769.80 ft

Surface Water Elev. _____ ft
Stream Bed Elev. 72.50 ft

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

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
MEDIUM dark brown SILTY CLAY LOAM				
			0.5 P	24.0
	767.30			
STIFF brown CLAY LOAM		2		
		3 4	1.5 P	18.0
	765.80			
	-5			
STIFF tan SANDY LOAM		8		
		9 10	1.1 P	12.0
	763.30			
STIFF tan SANDY LOAM TILL		7		
		9 11	1.8 P	11.0
	760.30			
	-10			
VERY DENSE tan weathered LIMESTONE		37		
		100/5"		
	758.30			
VERY DENSE tan weathered LIMESTONE		100/2"		
Auger Refusal at 14'	755.80			
Borehole continued with rock coring.				
	-15			
	-20			

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

BBS. Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation/D-2

ROCK CORE LOG

Date 6/20/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR., .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

COUNTY Winnebago CORING METHOD

STRUCT. NO.
Station

CORING BARREL TYPE & SIZE

Core Diameter 2 in
Top of Rock Elev. 760.30 ft
Begin Core Elev. 755.80 ft

BORING NO. B-3h
Station 795+55
Offset 24.00ft Lt Pier
Ground Surface Elev. 769.80 ft

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: yellow tan-buff, vuggy and pitted, very finely crystalline, with chert inclusions, top foot contains one-inch segments. t.s.f.: 751.8 to 751.2	755.80	1	100	32	1.8	97.0
Dolomite: as above, though medium to massively bedded, with sandy inclusions. t.s.f.: 747.1 to 746.5	750.80	2	100	62	1.4	87.0
Dolomite: as above, less pitted t.s.f.: 744.2 to 743.5	745.80	3	100	83	2	184.0
End of Boring	740.80					

-15
-20
-25
-30

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
Illinois Department of Transportation/D-2

SOIL BORING LOG

Date 6/24/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR., .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

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

STRUCT. NO. _____
Station _____

BORING NO. B-4h
Station 795+32
Offset 3.00ft Lt CL
Ground Surface Elev. 797.00 ft

Surface Water Elev. _____ ft
Stream Bed Elev. 72.50 ft

Groundwater Elev.:
First Encounter 757.0 ft ▼
Upon Completion _____ ft
After _____ Hrs. _____ ft

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	STIFF gray SILTY CLAY LOAM	4		
		4	1.4	14.0
		9	P	
794.50				
	MEDIUM brown LOAM	3		
		3	0.5	13.0
793.00		4	P	
-5				
	STIFF brown SILTY CLAY LOAM	1		
		2	1.2	19.0
790.50		5	B	
	VERY LOOSE gray very moist dirty SAND	3		
		1		18.0
788.00		1		
-10				
	STIFF gray LOAM	2		
		3	1.9	15.0
785.50		6	S	
	STIFF gray SILTY CLAY LOAM	3		
		4	1.8	20.0
783.00		6	B	
-15				
	VERY STIFF light brown CLAY LOAM	2		
		5	2.5	21.0
780.50		7	B	
	VERY STIFF gray SILTY CLAY LOAM	2		
		5	2.3	20.0
778.00		7	B	
-20				

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	STIFF gray SILTY CLAY LOAM	4		
		4	1.4	14.0
775.50		9	P	
	MEDIUM tan SANDY LOAM	5		
		13		7.0
773.00		11		
-25				
	VERY STIFF gray/brown SILTY CLAY LOAM	3		
		5	2.9	21.0
770.50		8	B	
	STIFF brown LOAM	2		
		6	1.8	16.0
768.00		9	B	
-30				
	VERY STIFF gray CLAY LOAM with SANDY LOAM lens	8		
		11	3.7	17.0
765.50		9	B	
	VERY STIFF gray CLAY LOAM TILL	4		
		8	2.5	18.0
763.00		9	P	
-35				
	VERY STIFF brown LOAM TILL	2		
		5	3.5	13.0
760.00		7		
	MEDIUM tan weathered LIMESTONE	9		
		10		
758.00		17		
▼-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)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation/D-2

SOIL BORING LOG

Date 6/24/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR., .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

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

STRUCT. NO. _____
Station _____

BORING NO. B-4h
Station 795+32
Offset 3.00ft Lt CL
Ground Surface Elev. 797.00 ft

Surface Water Elev. _____ ft
Stream Bed Elev. 72.50 ft

Groundwater Elev.:
First Encounter 757.0 ft ▼
Upon Completion _____ ft
After _____ Hrs. _____ ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
MEDIUM tan weathered LIMESTONE		12		
		15		
755.50		9		
VERY DENSE tan weathered LIMESTONE		100/4"		
753.50				
Auger Refusal at 43.5'				
Borehole continued with rock coring.	-45			
	-50			
	-55			
	-60			

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

BBS [illegible] 3-99)

Illinois Department of Transportation

Division of Highways
Illinois Department of Transportation/D-2

ROCK CORE LOG

Date 6/24/08

ROUTE FAP 301 DESCRIPTION P92-111-06 Bridge over the CC&P RR., .3 m. W. of Perryville Road LOGGED BY W. Garza

SECTION (201-3), K (4-1, 5) K LOCATION Cherry Valley Twp. - 10 NE, SEC., TWP. 43N, RNG. 2E

COUNTY Winnebago CORING METHOD

STRUCT. NO.
Station

CORING BARREL TYPE & SIZE

Core Diameter 2 in
Top of Rock Elev. 760.00 ft
Begin Core Elev. 753.50 ft

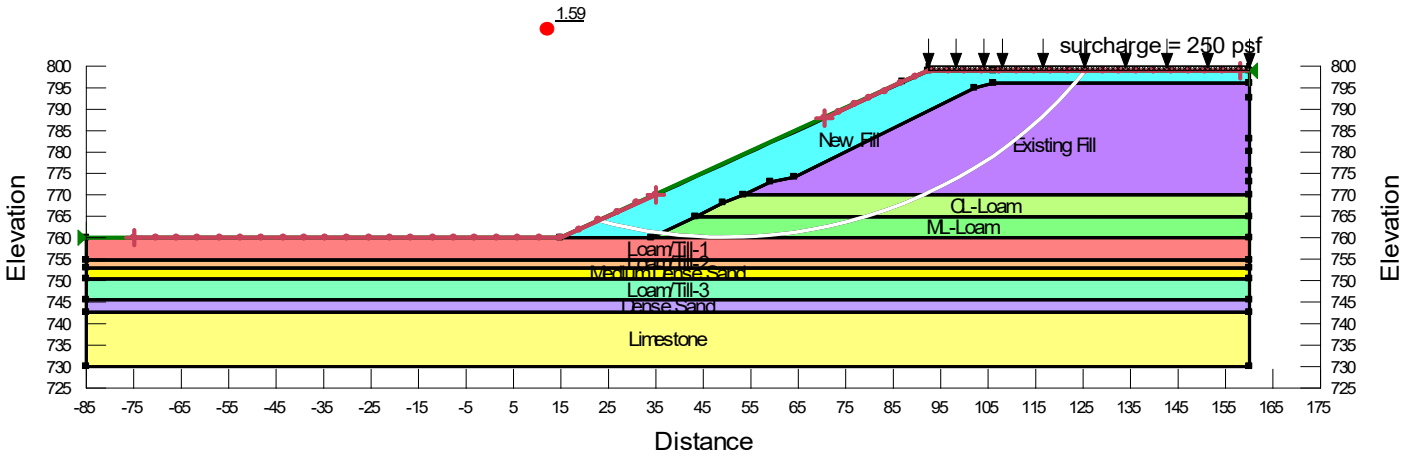
BORING NO. B-4h
Station 795+32
Offset 3.00ft Lt CL
Ground Surface Elev. 797.00 ft

	DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
Dolomite: yellow tan-buff, vuggy and pitted, very finely crystalline, chalky with washed out sand size particles and fractured throughout. 753.50	-45	1	90	0	1	
748.50						
Dolomite: as above t.s.f.: 745.1 to 744.6	-50	2	100	42	1.4	193.0
743.50						
Abandoned run - problems with water	-55	3				
738.50						
End of Boring	-60					

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)

BBS, form 138 (Rev. 8-99)

NORTH ABUTMENT STA 2649+32 [SOIL BORING B-2h]

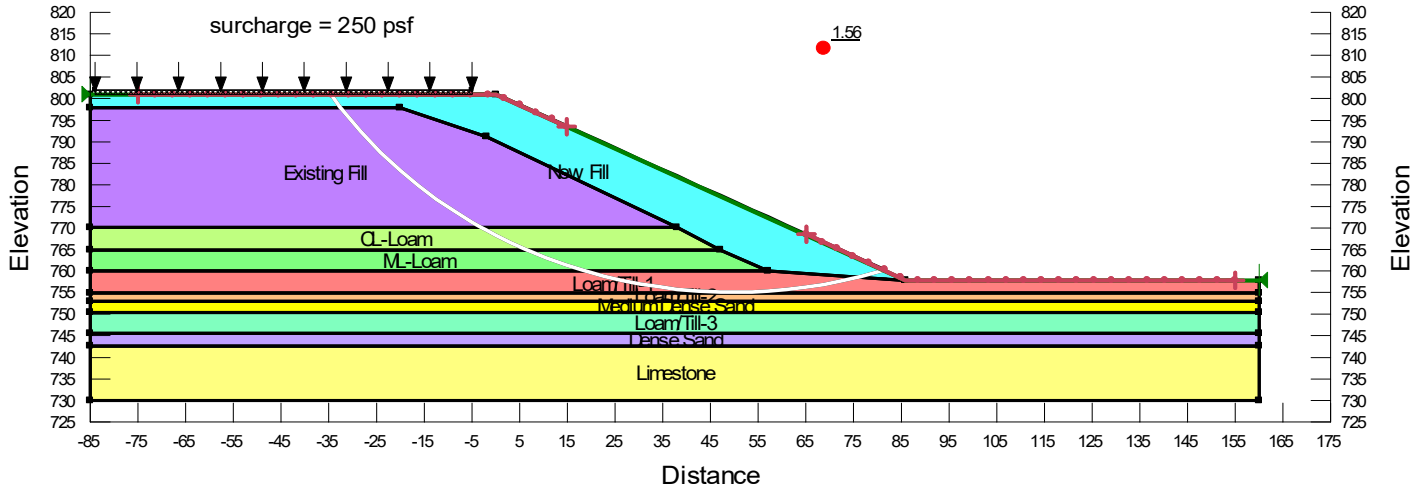


Name: Dense Sand Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 °
Name: New Fill Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,000 psf
Name: Medium Dense Sand Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion': 0 psf Phi': 30 °
Name: Existing Fill Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,000 psf
Name: Loam/Till-1 Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,200 psf
Name: Loam/Till-2 Model: Undrained (Phi=0) Unit Weight: 125 pcf Cohesion': 2,300 psf
Name: Limestone Model: High Strength Unit Weight: 165 pcf
Name: CL-Loam Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,200 psf
Name: ML-Loam Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion': 400 psf Phi': 12 °
Name: Loam/Till-3 Model: Undrained (Phi=0) Unit Weight: 128 pcf Cohesion': 3,650 psf

Title: U.S. 20 over CNRR
Created By: Jennifer Damery
Last Edited By: Kipkoech Chepkoit
Date: 3/28/2017
File Name: N. Abutment Side Slope.gsz

HANSON

SOUTH ABUTMENT STA 2647+25 [SOIL BORING B-2h]



Name: Dense Sand Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 °
Name: New Fill Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,000 psf
Name: Medium Dense Sand Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion': 0 psf Phi': 30 °
Name: Existing Fill Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,000 psf
Name: Loam/Till-1 Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,200 psf
Name: Loam/Till-2 Model: Undrained (Phi=0) Unit Weight: 125 pcf Cohesion': 2,300 psf
Name: Limestone Model: High Strength Unit Weight: 165 pcf
Name: CL-Loam Model: Undrained (Phi=0) Unit Weight: 120 pcf Cohesion': 1,200 psf
Name: ML-Loam Model: Mohr-Coulomb Unit Weight: 115 pcf Cohesion': 400 psf Phi': 12 °
Name: Loam/Till-3 Model: Undrained (Phi=0) Unit Weight: 128 pcf Cohesion': 3,650 psf

Title: U.S. 20 over CNRR
Created By: Jennifer Damery
Last Edited By: Kipkoech Chepkoit
Date: 3/28/2017
File Name: S. Abutment Side Slope.gsz

HANSON

0520 EB 101-0067

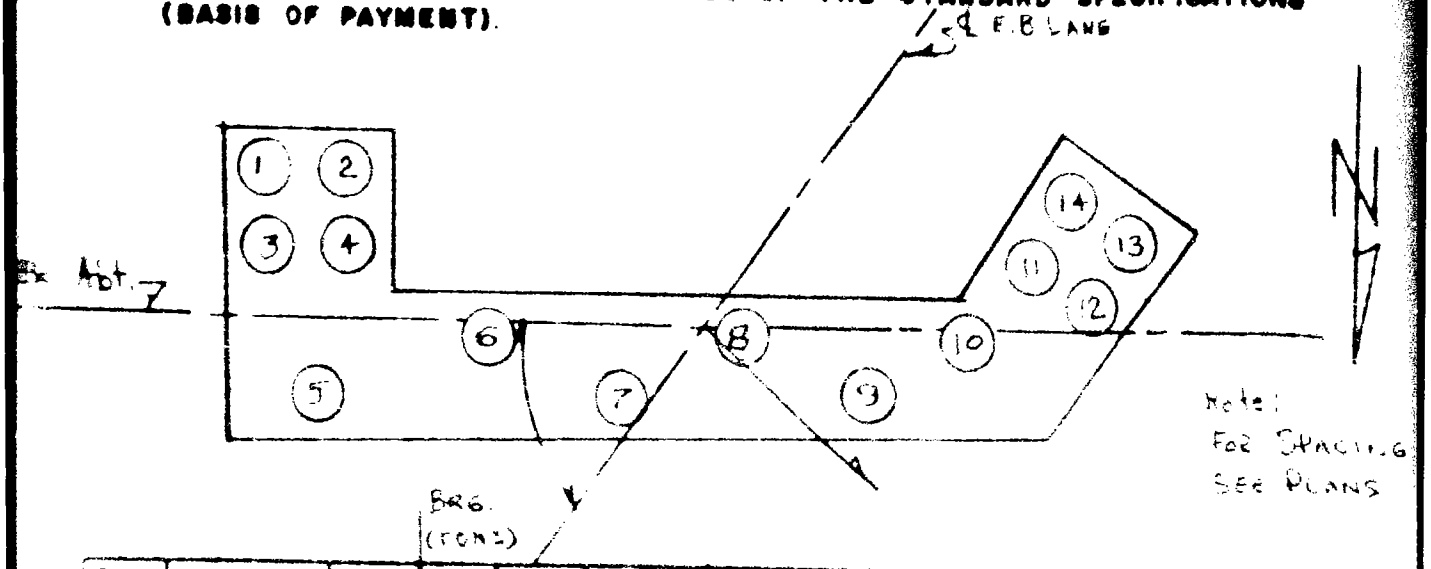
PILING DIAGRAM

LOCATION Abut #1 E.B. **STATION** _____

ROUTE F.A.194
SECTION 4VB
COUNTY WINNEBAGO
PROJECT _____
CONTR BELVIDERE CONST.
RES. ENG. F.E. BERG

TYPE OF PILING METAL SHELL
PLAN LENGTH 40'
ORDERED LENGTH 40' & 45'
DATE DRIVEN 29 Aug. 1968
HAMMER MAKE&MODEL VULCAN 30C
TEST PILE LENGTH _____ **NO.** _____

REFER TO ARTICLE 601B ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE		PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	40'	37.5	36.2						
2	40'	37.0	36.2						
3	40'	37.3	40.2						
4	40	37.0	33.0						
5	45'	38.2	42.6						
6	TEST PILE	—	—						
7	45'	35.6	45.0						
8	45'	37.6	40.2						
9	45'	38.1	41.4						
10	45'	36.7	45.0						
11	40'	37.6	31.4						
12	40'	37.2	33.0						
13	40'	35.8	40.2						
14	40'	35.9	45.2						

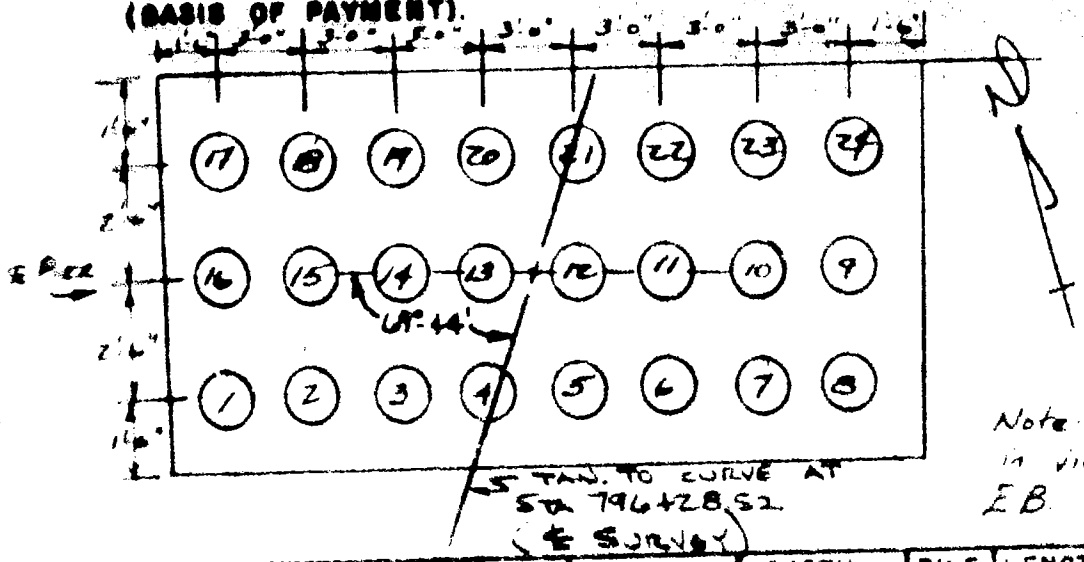
101-0067

LOCATION [illegible] STATION [illegible]

ROUTE EA 084
SECTION 4 VB
COUNTY Winnebago
PROJECT EG 284(17)
CONTR Belvidere Const.
RES. ENG. L. Larkin

TYPE OF PILING Concrete filled
PLAN LENGTH 45'
ORDERED LENGTH 50'
DATE DRIVEN June 9, 1962
HAMMER MAKE & MODEL 20 C Vulcan
TEST PILE LENGTH _____ NO. _____

REFER TO ARTICLE 501.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



Note: Test pile driven in vicinity Pier #2 EB

PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	20' (24.4')	13.9	17	20' (28.0')	14.8			
2	20' (27.4')	15.0	18	20' (27.4')	14.5			
3	20' (28.6')	15.3	19	20' (27.8')	14.5			
4	20' (27.8')	15.6	20	20' (29.6')	14.2			
5	20' (27.6')	15.6	21	20' (26.2')	15.7			
6	20' (28.1')	16.0	22	20' (27.1')	16.1			
7	20' (27.5')	16.3	23	20' (27.3')	16.4			
8	20' (28.8')	17.2	24	20' (28.9')	16.0			
9	20' (28.6')	16.8						
10	20' (26.5')	16.1						
11	20' (27.5')	15.4						
12	20' (28.6')	14.9						
13	20' (28.1')	14.9						
14	20' (27.5')	15.2						
15	20' (29.2')	14.7						
16	20' (29.6')	14.2						
					TOTALS	24	480 L.F.	349.2 L.F.

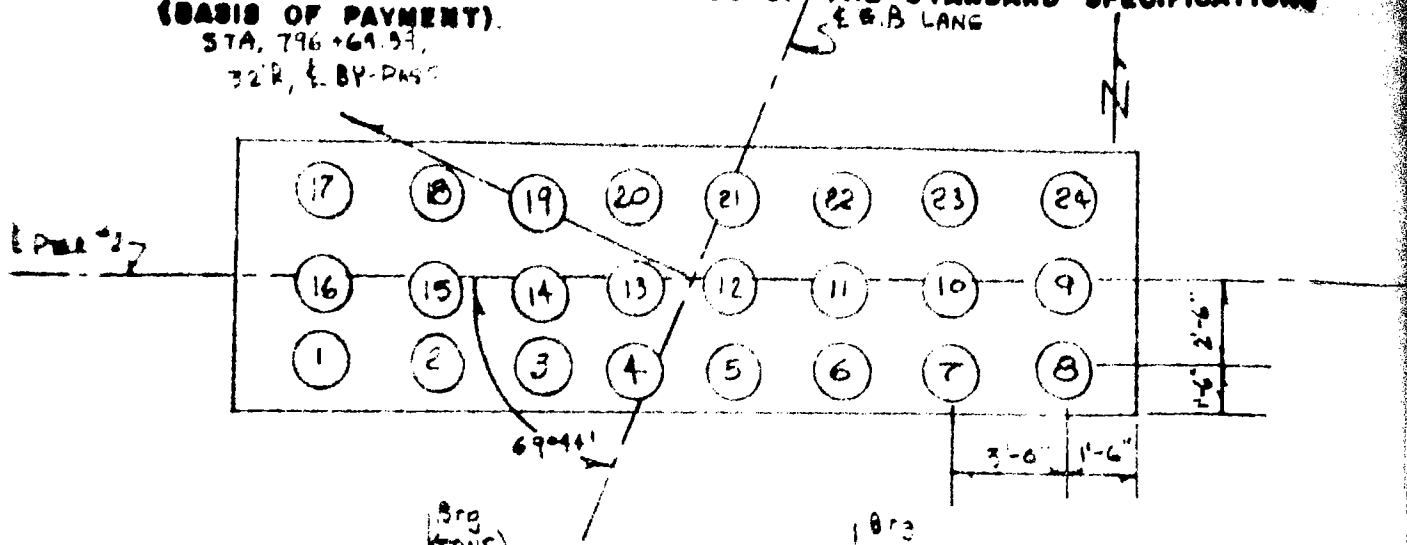
101-0067

LOCATION [illegible] **STATION** STA. 796+69.37, 32'R, [illegible]

ROUTE FA-194
SECTION 4 VB
COUNTY WINNEBAGO
PROJECT FG-284(17)
CONTR BELVIDERE CONST. CO
RES. ENG. F.E. BERG

TYPE OF PILING CREOSOTED TIMBER 20 TON
PLAN LENGTH 15'
ORDERED LENGTH 20'
DATE DRIVEN 10 Aug. 196[illegible]
HAMMER MAKE&MODEL VULCAN 30C
TEST PILE LENGTH _____ **NO.** _____

REFER TO ARTICLE 60.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	Brg (TONS)	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	Brg (TONS)	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	20'	15.5'	36.4	18	20'	16.6'	38.0			
2	20'	15.9'	34.7	19	20'	16.0'	35.3			
3	20'	15.3'	34.8	20	20'	16.7'	34.7			
4	20'	15.8'	34.7	21	20'	16.8'	37.1			
5	20'	16.3'	34.7	22	20'	16.9'	38.0			
6	20'	15.6'	34.8	23	20'	15.6'	37.1			
7	20'	16.4'	37.4	24	20'	15.9'	35.8			
8	20'	16.6'	34.7							
9	20'	16.6'	38.2							
10	20'	16.3'	32.1							
11	20'	17.0'	36.4							
12	TEST PILE									
13	20'	16.5'	26.8							
14	20'	15.9'	32.7							
15	20'	16.4'	33.6							
16	20'	15.3'	34.7							
17	20'	16.1'	36.5							
						TOTALS		23	4600	[illegible]

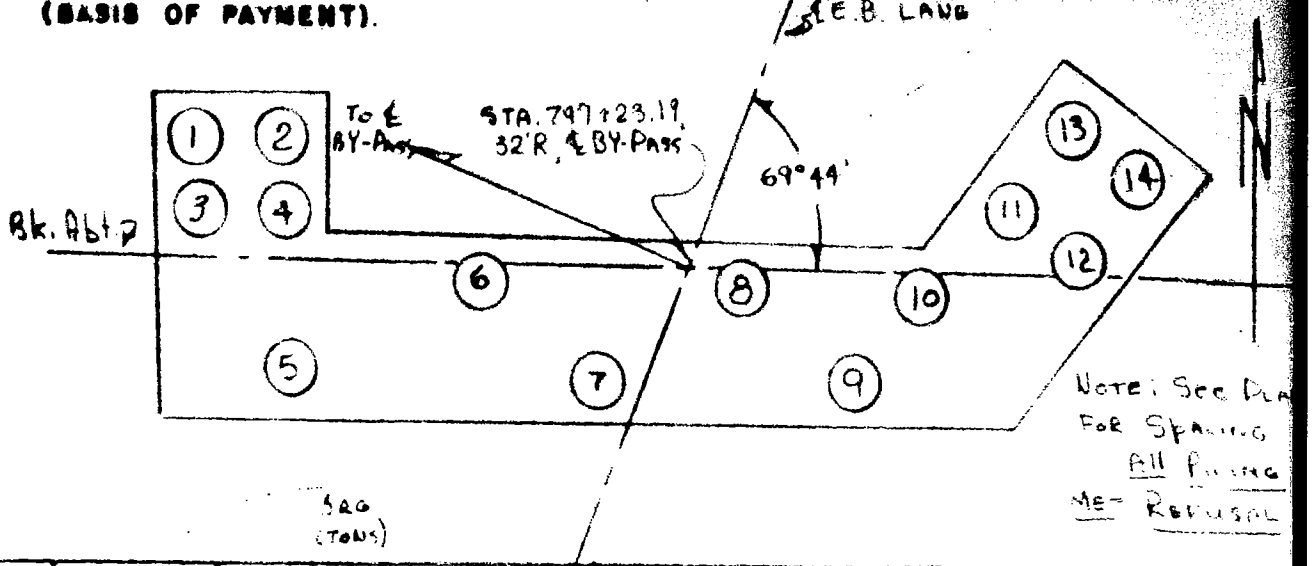
101-0067

LOCATION Br. # 6-8 STATION 797+23.19, 32' Rt. of ℄

ROUTE F.A. 194
SECTION 4VB
COUNTY Winnebago
PROJECT F6-284(17)
CONTR Belvidere Constr. Co.
RES. ENG. F.E. Berg

TYPE OF PILING Metal Shell
PLAN LENGTH 30 & 35'
ORDERED LENGTH 45'
DATE DRIVEN 10 & 11 Sept. 1962
HAMMER MAKE & MODEL Vulcan 30C
TEST PILE LENGTH ___ NO. ___

REFER TO ARTICLE 60.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



Note: See Plan For Spacing
All Piling Mc-Refusal

SRG (TONS)

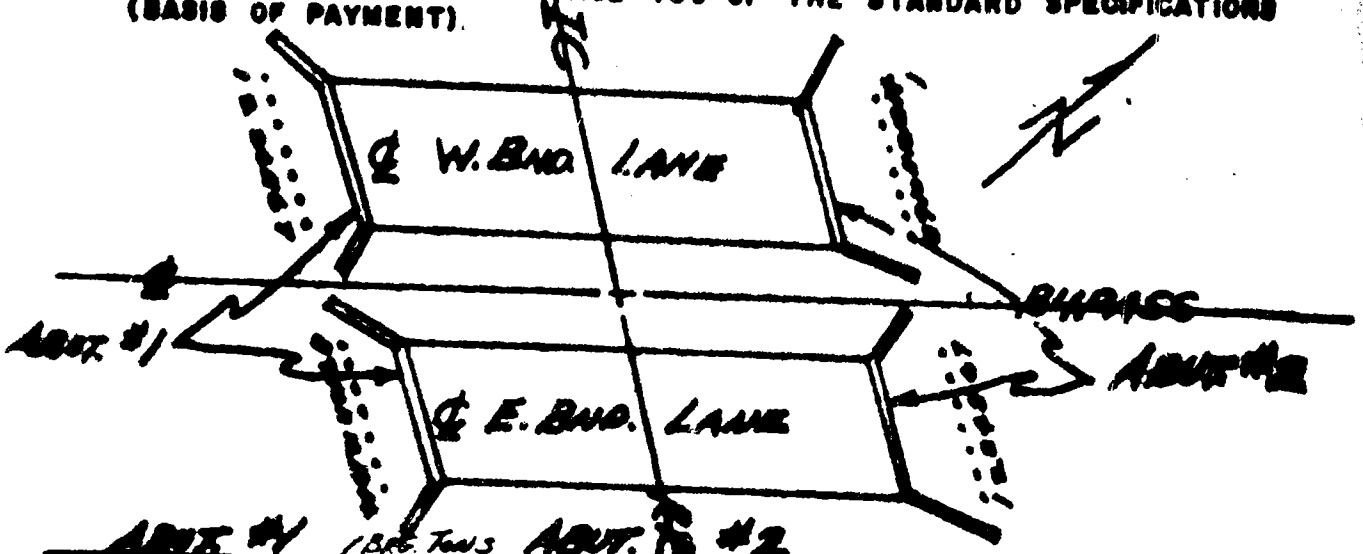
PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
	45'	39.1' 60+						
2	45'	39.0' 60+						
3	45'	39.2' 60+						
4	45'	39.3' 60+						
5	45'	27.0' 60+						
6	45'	40.5' 60+						
7	45'	41.3' 60+						
8	Test Pile							
9	45'	42.0' 60+						
10	45'	41.4' 60+						
11	45'	41.8' 60+						
12	45'	42.2' 60+						
13	45'	41.1' 60+						
14	45'	42.4' 60+						

LOCATION Across Calif. STATION
S.C.R.R. Bridge

ROUTE F.A. 124
SECTION 4 V.C.
COUNTY Washington
PROJECT RS-2511(17)
CONTR Belvidere Const.
RES. ENG. Frank Berge

TYPE OF PILING Creosoted Timber
PLAN LENGTH Abut #1 - 15' Abut #2 -
ORDERED LENGTH Abut #1 -
DATE DRIVEN Abut #1 - 10/29/62 Abut #2 -
HAMMER MAKE & MODEL Vulcan 30C
TEST PILE LENGTH _____ NO. _____

REFER TO ARTICLE 60.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



Abut. #1 (Brg. Type 3) Abut. #2

PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	30'(32.4')	25.4	1	40'(30.4')	29.7			
2	30'(30.8)	22.9	2	40'(27.7)	30.4			
3	30'(30.0)	23.2	3	40'(30.0)	36.2			
4	30'(32.6)	23.1	4	40'(30.8)	22.0			
5	30'(30.0)	25.7	5	40'(30.0)	27.1			
6	30'(34.6)	22.5	6	40'(27.7)	26.0			
7	30'(37.0)	23.4	7	40'(29.0)	26.6			
8	40'(32.6)	25.2	8	40'(30.0)	28.0			
9	40'(34.6)	28.5	9	40'(27.7)	27.1			
10	40'(30.0)	31.4	10	40'(30.0)	25.5			
11	40'(32.0)	29.2	11	40'(30.8)	26.0			
12	40'(32.6)	26.5	12	40'(29.0)	23.0			
13	40'(30.0)	28.8	13	40'(27.7)	24.2			
14	40'(34.0)	29.2	14	40'(32.6)	29.2			
				Bal. Creo.	Piles 1 15% CUP			210
				Bal. Creo.	Piles 1 25% CUP			840

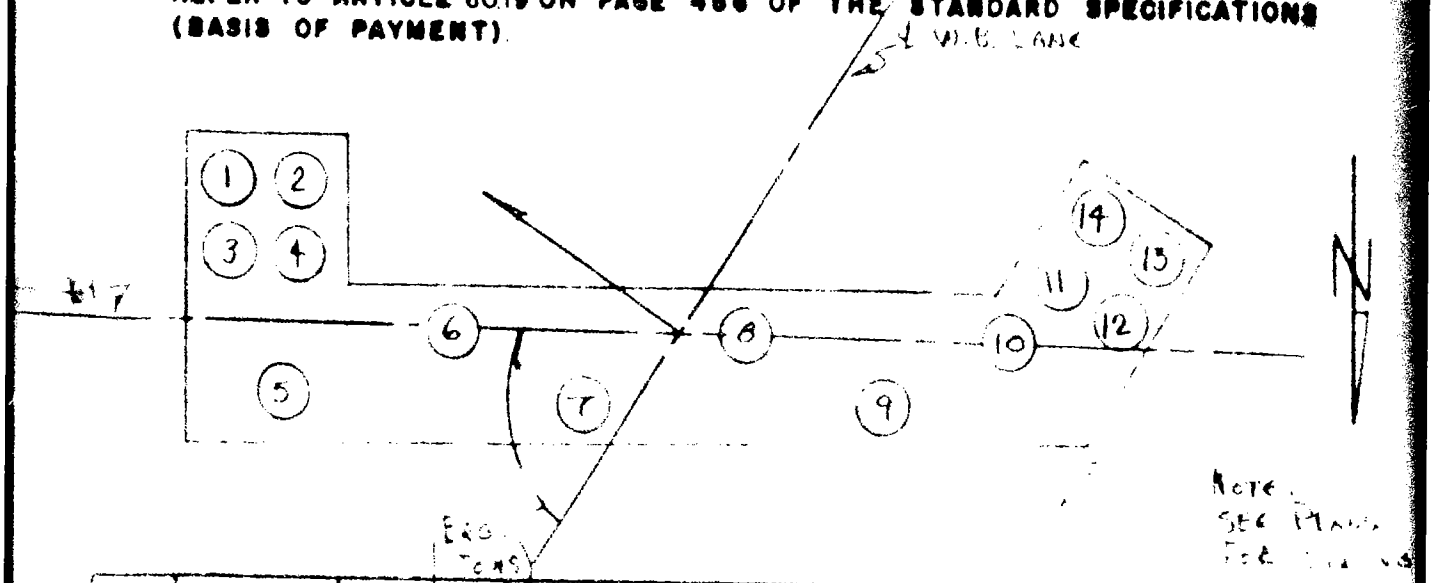
101-0068

LOCATION Ab. No. 1 W.B. **STATION**

ROUTE F.A. 194
SECTION 4 VB
COUNTY WINNEBAGO
PROJECT
CONTR LEHNDERG CONST
RES. ENG. F.E. BERG

TYPE OF PILING META- SHELL
PLAN LENGTH 40
ORDERED LENGTH 40 & 45
DATE DRIVEN 29 AUG. 1968
HAMMER MAKE&MODEL VULCAN 3 C
TEST PILE LENGTH _____ **NO.** _____

REFER TO ARTICLE 60.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT)



Note. See Plans for ...

PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE		PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
	40	32.2	32.2						
2	40'	32.9	57.6						
3	40'	36.3	42.6						
4	40'	35.1	34.2						
5	45'	36.6	42.6						
6	45'	33.7	55.7						
7	45'	34.0	49.3						
8	45'	29.2	55.7						
9	45'	30.3	51.6						
10	45'	27.3	51.8						
11	40'	26.4	45.2						
12	40'	25.6	40.2						
13	40'	25.4	48.3						
14	40'	26.4	42.6						
							TOTALS	14	590'	430.5'

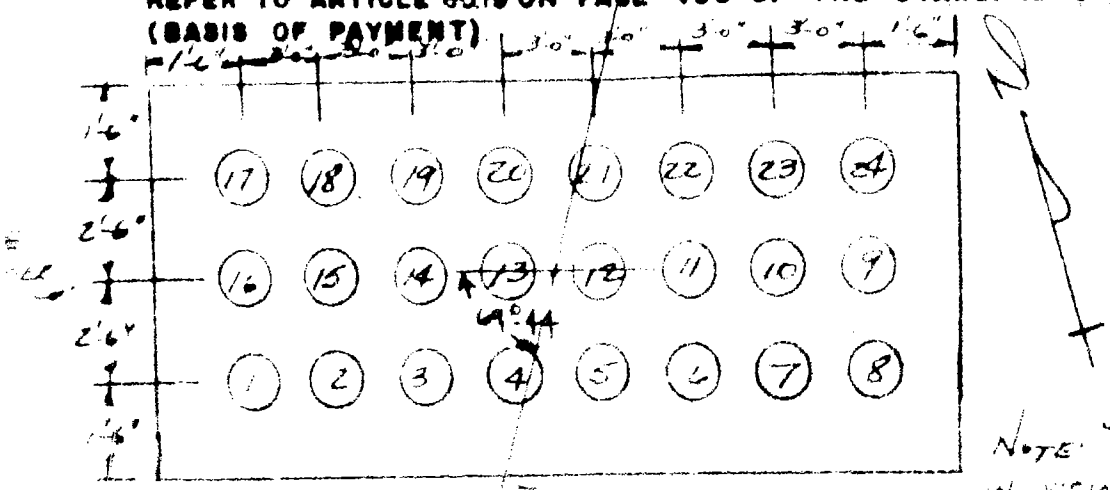
101-0068

LOCATION Pier #1 WB in 4VB STATION 795+84.74 WB [illegible]

ROUTE FA 194
SECTION 4VB
COUNTY Winnebago
PROJECT FG 284 (17)
CONTR. Belvidere Const
RES. ENG. L. Larkin

TYPE OF PILING Creosoted Wood
PLAN LENGTH 15'
ORDERED LENGTH 20'
DATE DRIVEN 9 July 1962
HAMMER MAKE & MODEL 30 C Vulcan
TEST PILE LENGTH _____ NO. _____

REFER TO ARTICLE 60.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT)



Note: Test pile driven in vicinity Pier #2 E.B.

Tangent to curve at Sta. 796+28.52 (℄ Survey)

PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	20' (27.7 T	13.6	17	20' (30.9 T	14.3			
2	20' (29.0 T	13.4	18	20' (31.0 T	15.0			
3	20' (29.4 T	14.3	19	20' (31.8 T	14.8			
4	20' (30.3 T	14.7	20	20' (27.7 T	15.7			
5	20' (29.2 T	15.2	21	20' (29.0 T	16.9			
6	20' (26.4 T	15.3	22	20' (30.3 T	16.2			
7	20' (31.3 T	14.9	23	20' (31.8 T	16.0			
8	20' (30.3 T	14.8	24	20' (31.8 T	15.2			
9	20' (31.0 T	14.2						
10	20' (31.2 T	15.1						
11	20' (29.9 T	16.3						
12	20' (27.7 T	15.6						
13	20' (31.2 T	15.4						
14	20' (30.9 T	14.3						
15	20' (29.4 T	14.0						
16	20' (29.4 T	15.2						
					TOTALS	[illegible]	[illegible]	[illegible]

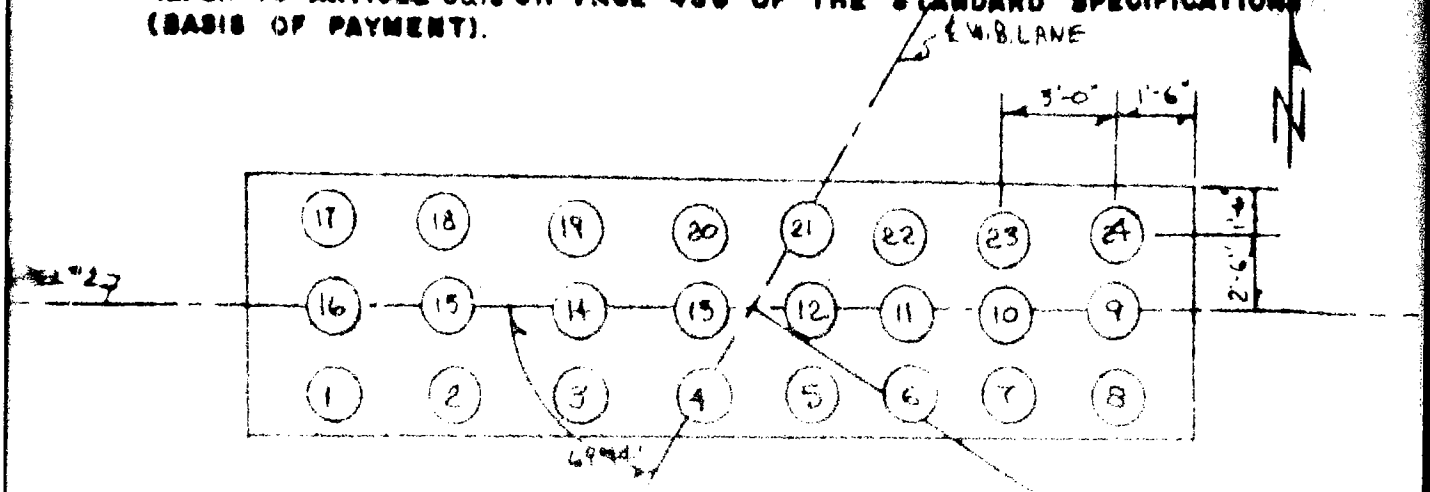
101-0068

LOCATION Bridge No. 8 STATION 336+79.46 L.S. 20 Ton

ROUTE E.A.194
SECTION 4 VB
COUNTY WINNEBAGO
PROJECT FG-284(17)
CONTR Beloit Const. Co.
RES. ENG. F.E. Berg

TYPE OF PILING CREOSOTED TIMBER
PLAN LENGTH 15
ORDERED LENGTH 20' & 15'
DATE DRIVEN 6 August 1962
HAMMER MAKE & MODEL Yulcan 30C
TEST PILE LENGTH _____ NO. _____

REFER TO ARTICLE 501.3 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE		PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE		PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	20'	19.4'	32.2	18	20'	16.0'	32.8			
2	20'	14.6'	32.7	19	15'	13.7'	22.2			
3	15'	14.1'	22.2	20	20'	15.5'	30.3			
4	20'	16.1'	32.1	21	20'	16.9'	31.7			
5	20	15.0'	34.9	22	20'	17.0'	33.2			
6	20'	16.0'	34.7	23	20'	17.2'	36.9			
7	20'	16.4'	34.9	24	20'	17.6'	37.6			
8	20	17.1'	35.7							
9	20'	17.1'	37.2							
10	20	17.0'	35.8							
11	20'	15.6'	35.8							
12	20'	16.2'	34.7							
13	15'	13.7'	29.3							
14	15'	14.2'	30.3							
15	20'	15.8'	32.1							
16	20'	16.2'	33.7							
17	20	15.4'	32.1							

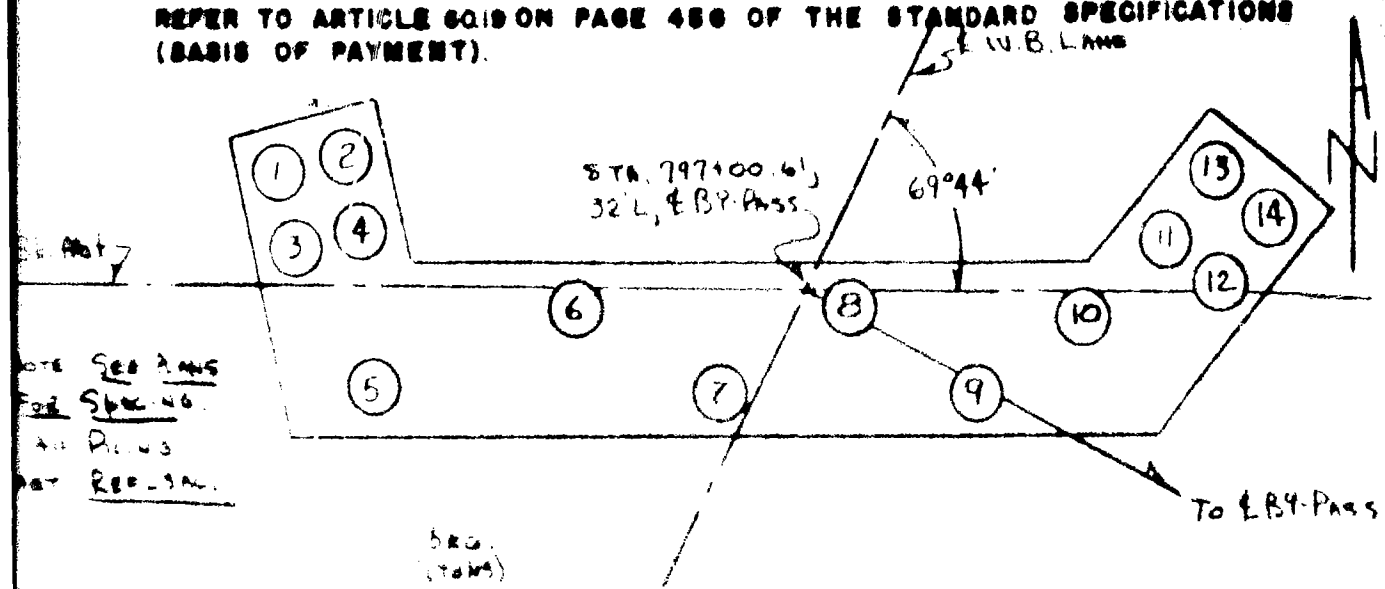
101-0068

LOCATION Abutment #2 W.B. STATION 797+00.61, [illegible]

ROUTE F.A.194
SECTION 4VB
COUNTY WINNEBAGO
PROJECT FG-284(17)
CONTR BELVIDERE CONST. CO.
RES. ENG. F.E. BERG

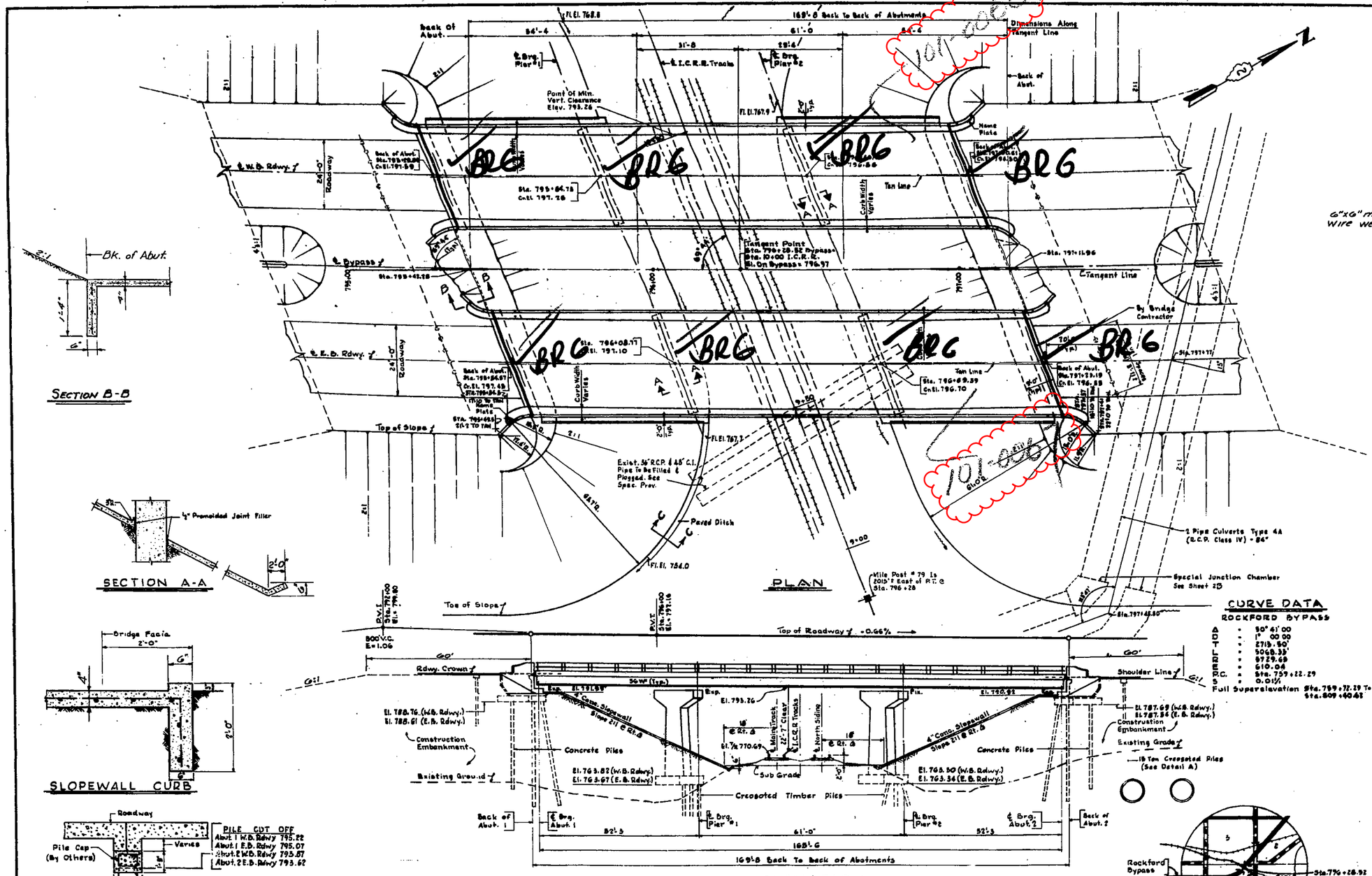
TYPE OF PILING METAL SHELL
PLAN LENGTH 30 & 35'
ORDERED LENGTH 45'
DATE DRIVEN 7 & 10 Sept. 1968
HAMMER MAKE&MODEL VULCAN 30 C
TEST PILE LENGTH _____ NO. _____

REFER TO ARTICLE 60.19 ON PAGE 456 OF THE STANDARD SPECIFICATIONS (BASIS OF PAYMENT).



PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE		PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE	PILE NO.	LENGTH FURNISHED	LENGTH REMAINING IN PLACE
1	45	36.0'	60+						
2	45	37.0'	60+						
3	45	35.8'	60+						
4	45	36.4'	60+						
5	45	37.1'	60+						
6	45	36.5'	60+						
7	45	36.4'	60+						
8	45'	38.3'	60+						
9	45'	39.2'	60+						
10	45'	36.9'	60+						
11	45'	35.8'	60+						
12	45'	38.6'	60+						
13	45'	35.6'	60+						
14	45'	35.4'	60+						
						TOTALS	14	630.0'	515.0'

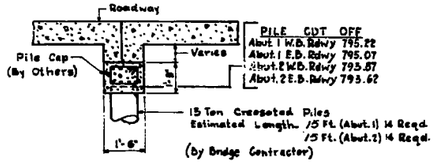
ROUTE NO.	SEC.	COUNTY	TOT. SHEETS	SHEET NO.
F.A.194	4VB (4VF)	WINNEBAGO	27 (5)	4
STA.	TO STA.			
FED. ROAD DIST. NO. 7 ILLINOIS		PROJ.		



SECTION B-B

SECTION A-A

SLOPEWALL CURB



PILE CUT OFF
Abut. 1 W.B. Rdwy 795.22
Abut. 1 E.B. Rdwy 795.07
Abut. 2 W.B. Rdwy 795.57
Abut. 2 E.B. Rdwy 795.62

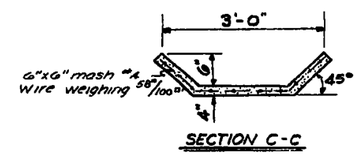
15 Ton Creosoted Piles
Estimated Length: 75 Ft. (Abut. 1) 14 Reqd.
75 Ft. (Abut. 2) 14 Reqd.
(By Bridge Contractor)

DETAIL A

PLAN

ELEVATION

Note:
½" Premolded Joint Filler shall be used between slopewall and abutments.



SECTION C-C

STATION 796+28.52
BUILT 19 BY
STATE OF ILLINOIS
F.A. RT. 194 SEC. 4VB
F.A. PROJ. F-28 4
LOADING H20-S16
See State of Illinois Std. 2113

NAME PLATE
(2 Req'd.)

CURVE DATA
ROCKFORD BYPASS

Δ	=	90° 41' 00"
DD	=	1° 00 00
T	=	571.50'
L	=	906.33'
RR	=	5729.65
E	=	110.06
P.C.	=	Sta. 789+22.29
S	=	0.01%

Full Superelevation Sta. 789+72.29 To Sta. 809+40.61

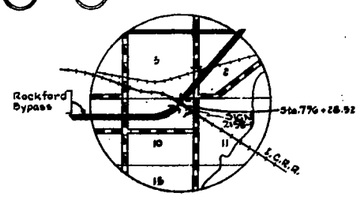
DESIGN DATA

SPECIFICATIONS:
A.A.S.H.O. Dated 1957. Standard Specifications For Road And Bridge Construction Dated January 2, 1958.

LOADING:
L.L. H 20 - S 16 - 44
D.L. 20 P.S.F. Future Wearing Surface

STRESSES:
CONCRETE
fc = 1400 P.S.I. Superstructure n = 10
fc 1080 P.S.I. Substructure (With Earth Pressure)
fc 1400 P.S.I. Substructure (Without Earth Pressure)
75 P.S.I. Max. Allowable 'V' In Pier Footings

STEEL
Structural = 18000 P.S.I.
Reinforcing = 20000 P.S.I.

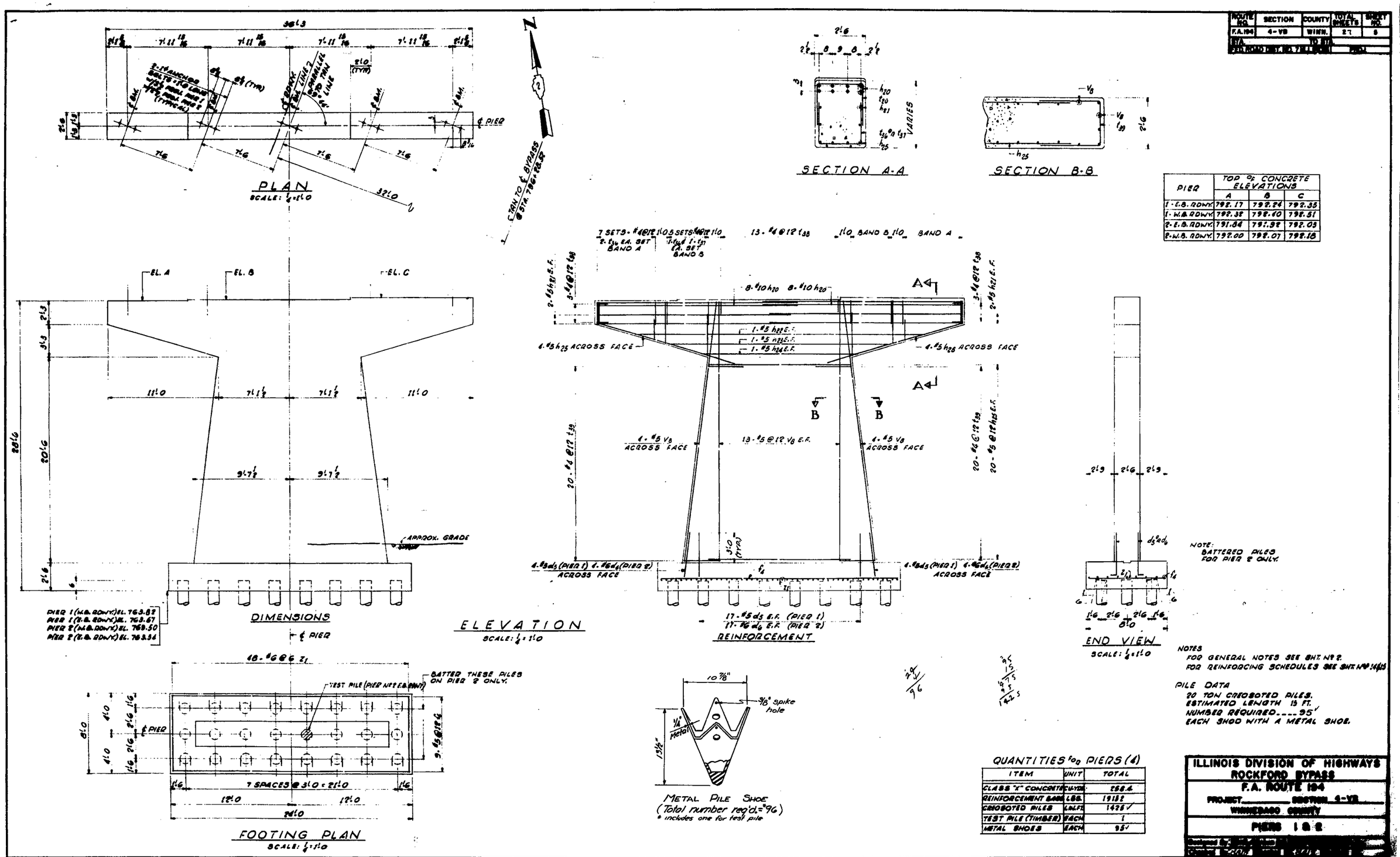


VICINITY MAP
T 45 N., R. 2 E., 3rd P.M.

ILLINOIS DIVISION OF HIGHWAYS
ROCKFORD BYPASS
F. A. ROUTE 194
PROJECT _____ SECTION 4-VB
WINNEBAGO COUNTY
GENERAL PLAN

Designed By: E.S. | Drawn By: G.W.C. | Checked By: CAB

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 194	4-VB	WINN.	27	5
STA.		TO STA.		
FED. ROAD DIST. NO. 7 ILLINOIS			PROJ.	



PIER	TOP OF CONCRETE ELEVATIONS		
	A	B	C
1-E.B. RDWY.	792.17	792.24	792.35
1-W.B. RDWY.	792.32	792.40	792.51
2-E.B. RDWY.	791.84	791.92	792.03
2-W.B. RDWY.	792.00	792.07	792.18

NOTE:
BATTERED PILES FOR PIER 2 ONLY.

NOTES
FOR GENERAL NOTES SEE SHT. No 2.
FOR REINFORCING SCHEDULES SEE SHT. No 14 & 15

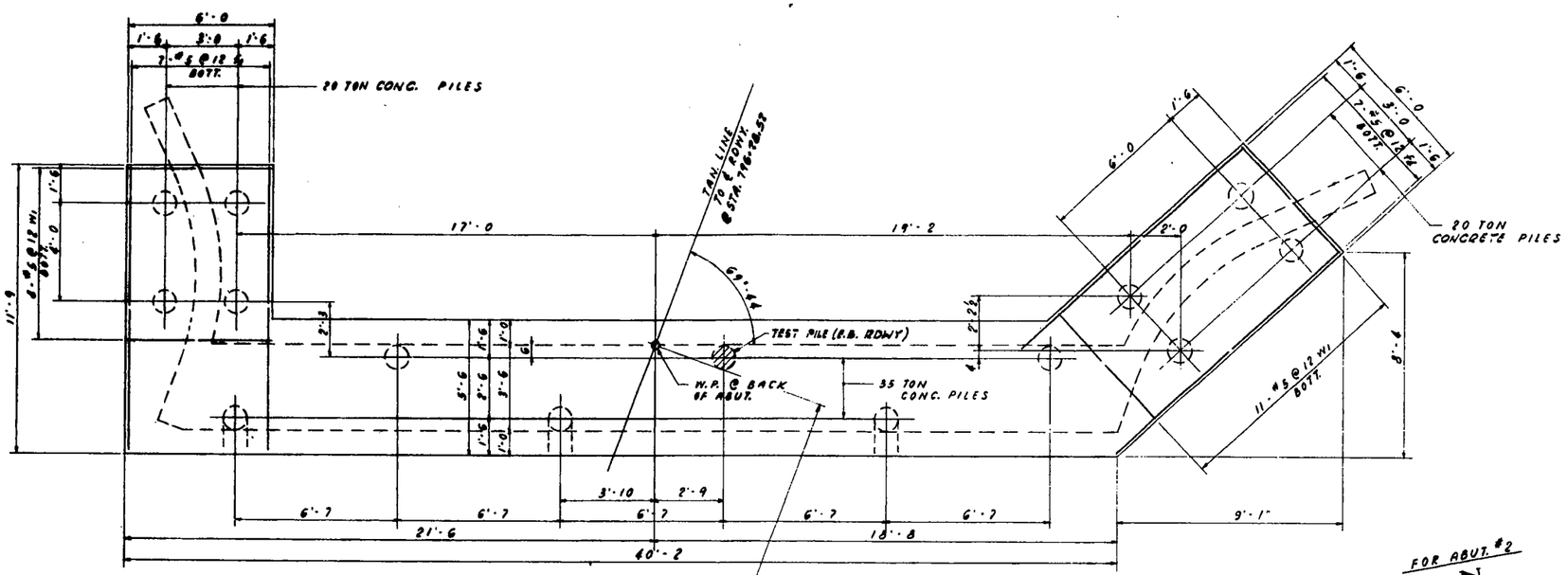
PILE DATA
20 TON CREOSOTED PILES.
ESTIMATED LENGTH 15 FT.
NUMBER REQUIRED.....95
EACH SHOD WITH A METAL SHOE.

QUANTITIES FOR PIERS (4)

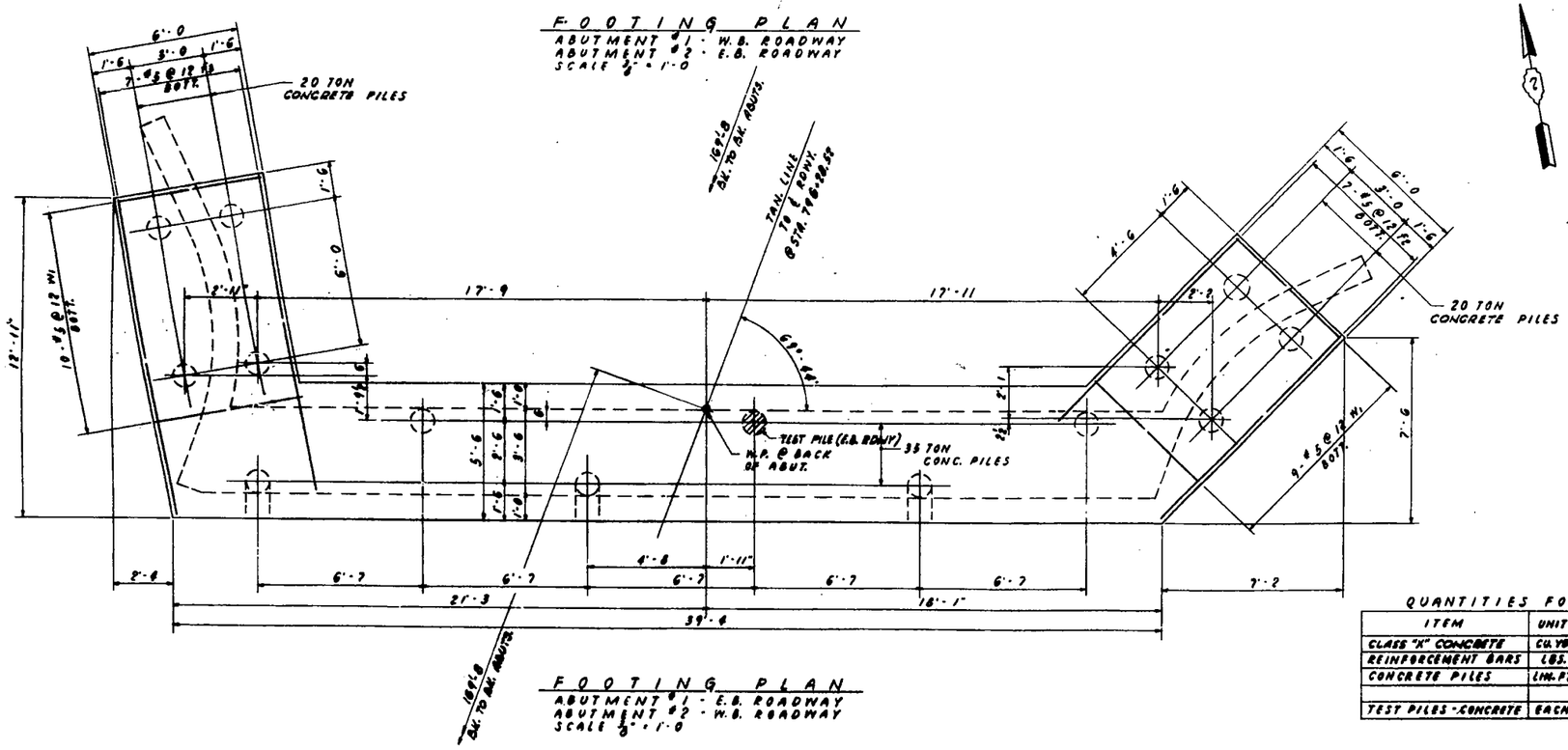
ITEM	UNIT	TOTAL
CLASS "X" CONCRETE	CU.YDS.	258.4
REINFORCEMENT BARS	LBS.	19132
CREOSOTED PILES	LIN.FT.	1425
TEST PILE (TIMBER)	EACH	1
METAL SHOES	EACH	95

ILLINOIS DIVISION OF HIGHWAYS
ROCKFORD BYPASS
F.A. ROUTE 194
PROJECT _____ SECTION 4-VB
WINNEBAGO COUNTY
PIERS 1 & 2

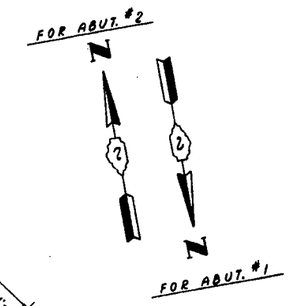
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.194	4-VB	WINN.	27	8
STA.		TO STA.		
FED. ROAD DIST. NO. 7			PROJ.	



FOOTING PLAN
ABUTMENT #1 - W.B. ROADWAY
ABUTMENT #2 - E.B. ROADWAY
SCALE 3/8" = 1'-0



FOOTING PLAN
ABUTMENT #1 - E.B. ROADWAY
ABUTMENT #2 - W.B. ROADWAY
SCALE 3/8" = 1'-0



PILE DATA
ABUTMENTS
35 TON CONCRETE PILES
ESTIMATED LENGTH ____ 35 FT.
NUMBER REQ'D. ____ 24 *
WING WALLS * Including 2 test piles
20 TON CONCRETE PILES
ESTIMATED LENGTH ____ 30 FT.
NUMBER REQ'D. ____ 32

QUANTITIES FOR ABUTMENTS

ITEM	UNIT	TOTAL E.B. RDWY.	TOTAL W.B. RDWY.
CLASS "X" CONCRETE	CU. YDS.	100.8	100.8
REINFORCEMENT BARS	LBS.	6,965	6,946
CONCRETE PILES	LIN. FT.	865	865
TEST PILES - CONCRETE	EACH	1	1

WORK THIS DWG. WITH SHEETS 6 & 7

ILLINOIS DIVISION OF HIGHWAYS
ROCKFORD BYPASS
F.A. ROUTE 194
PROJECT ____ SECTION 4-VB
WINNEBAGO COUNTY
ABUTMENTS - FOOTINGS

Designed By: L.W. | Drawn By: L.W. | Approved By:
Checked By: [illegible] | Checked By: [illegible] | Checked By: