Benchmark: Chiseled " □ " on S.E. corner of a Combination Wingwall for 48" and 30" RCCP, 6.5' West of Existing Structure No. 044-0004. Elev. 366.30

Existing Structure (No. 044-0004):

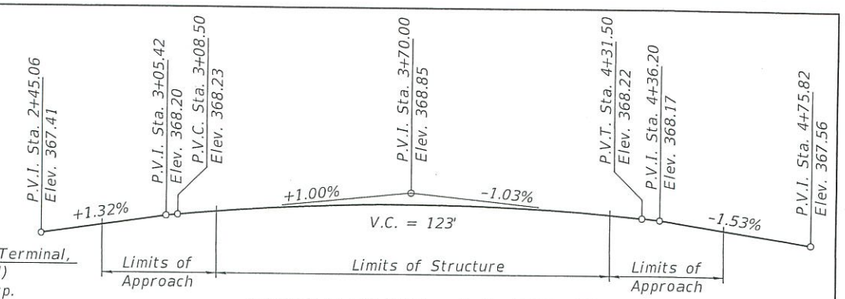
Originally constructed in 1924 and reconstructed in 1981. The original 1924 superstructure was removed, the existing closed reinforced concrete abutments were modified, and 2 new solid wall enclosed pile bent piers were added to accomodate the new 11" PPC Deck Beam Superstructure. The present structure is 3 spans, Span 1 measures 30'-5¾" from back of abutment to ℄ of Pier. Span 2 measures 28'-4½" from ℄ of pier to ℄ of pier. Span 3 measures 30'-5¾" ℄ of Pier to back of abutment, for a total structure length of 89'-4" back to back of abutments, with an out to out width of 34'-8". The existing ℄ of Structure is at Sta. 3+70.82.

The Structure is to be removed and replaced using stage construction.

No Salvage.

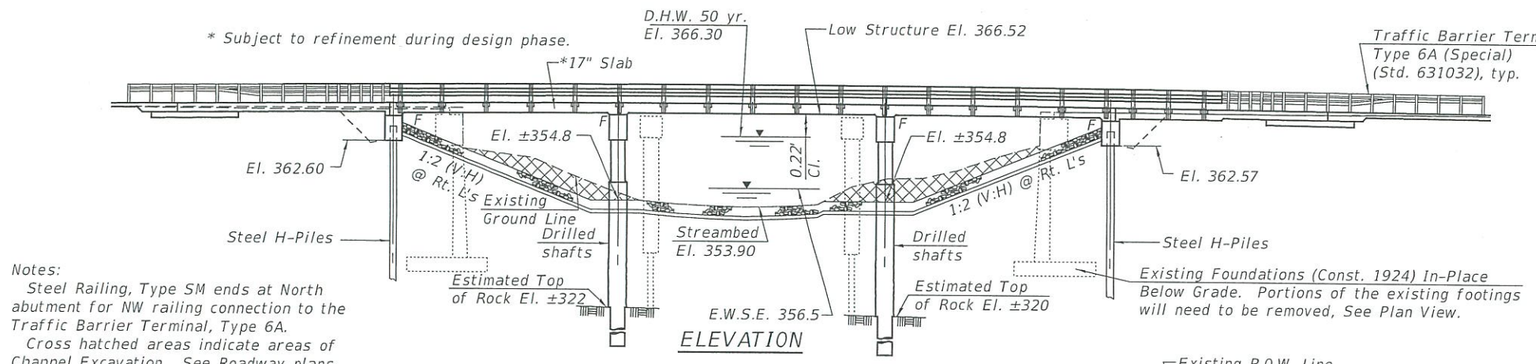
DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)				
	N. Abut.	Pier 1	Pier 2	S. Abut.	Item 113
Q50	362.6	325.29	325.29	362.57	5
Q500	362.6	325.72	325.72	362.57	
Design	362.6	325.29	325.29	362.57	
Check	362.6	325.72	325.72	362.57	



PROFILE GRADE - U.S. RTE. 45

(Along ℄ of Roadway)

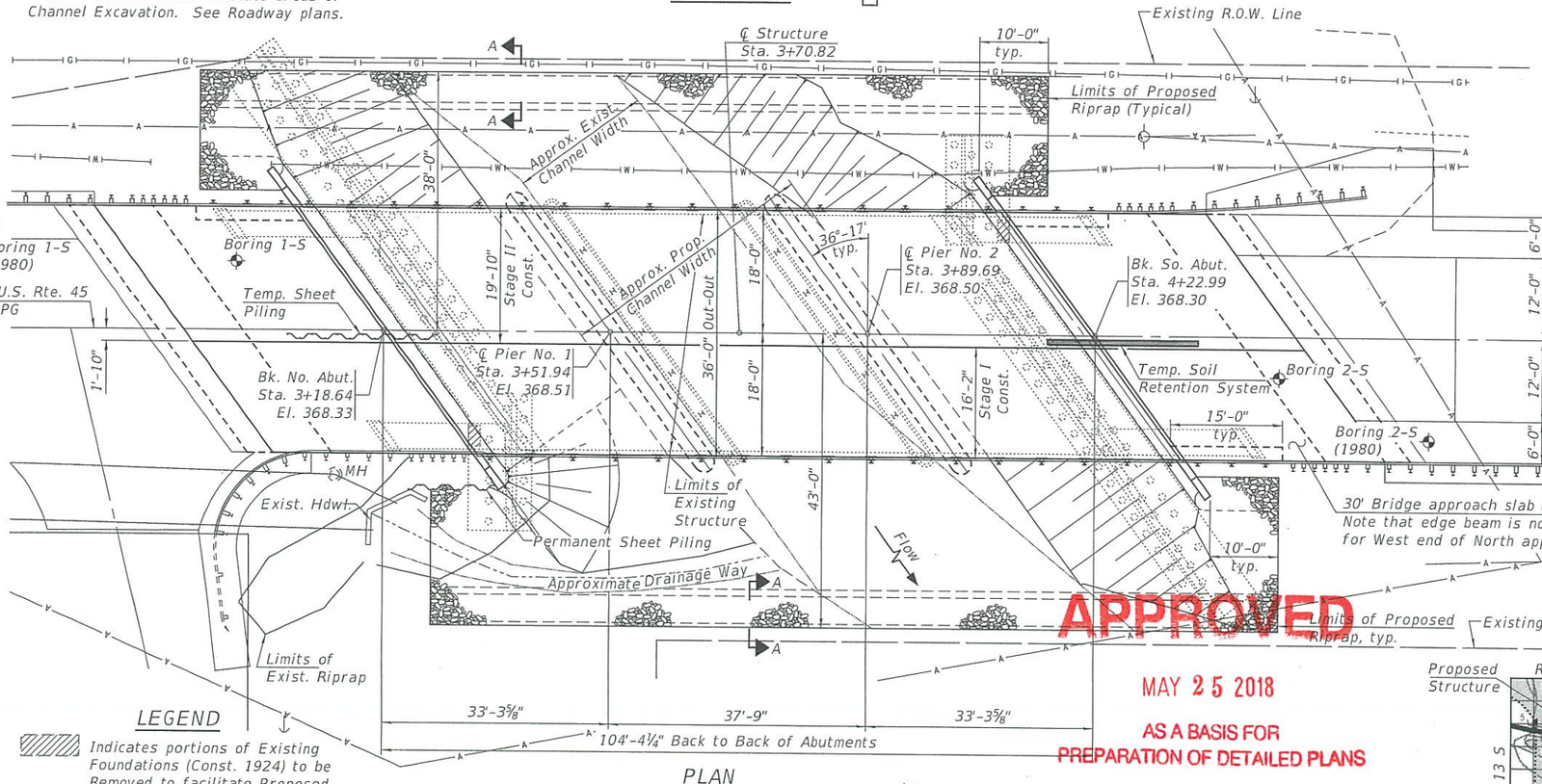


Notes:

Steel Railing, Type SM ends at North abutment for NW railing connection to the Traffic Barrier Terminal, Type 6A.

Cross hatched areas indicate areas of Channel Excavation. See Roadway plans.

ELEVATION



PLAN

LEGEND

Indicates portions of Existing Foundations (Const. 1924) to be Removed to facilitate Proposed Abutment Pile Installation.

WATERWAY INFORMATION

Drainage Area = 32 Sq. Miles — Low Grade Elev. 366.3 @ Sta. 15+50.00

Flood Distribution	Freq. Yr.	Discharge cfs		Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
		Exist.	Prop.	Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Main Channel	10 Year	3499	3599	585	582	365.3	0.8	0.7	366.1	366.0
Relief Struct.		1487	1398	243	243					
Culvert		194	183	50	50					
Total		5180	5180	877	874					
Main Channel	Design 50 Year	4704*	5067*	645	661	366.3	0.8	0.7	367.1	367.0
Relief Struct.		1749*	1603*	258	258					
Culvert		1207*	990*	50	50					
Total		7660	7660	953	968					
Main Channel	Base 100 Year	4924*	5345*	645	668	366.7	0.8	0.7	367.5	367.4
Relief Struct.		1921*	1810*	258	258					
Culvert		1875*	1565*	50	50					
Total		8720	8720	953	975					
Main Channel	Existing Overtopping 12 Year	3614	-	592	-	365.4	0.9	-	366.3	-
Relief Struct.		1540	-	245	-					
Culvert		246*	-	50	-					
Total		5400	-	887	-					
Main Channel	Proposed Overtopping 14 Year	-	3879	-	597	365.5	-	0.8	-	366.3
Relief Struct.		-	1463	-	247					
Culvert		-	258*	-	50					
Total		-	5600	-	894					
Main Channel	Max. Calc. 500 Year	4119*	4587*	645	668	367.6	0.7	0.6	368.3	368.2
Relief Struct.		4122*	3755*	258	258					
Culvert		3259*	3158*	50	50					
Total		11500	11500	953	975					

*Roadway overtopping occurs at structure.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.50
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 1.14
Soil Site Class = D

HIGHWAY CLASSIFICATION

F.A.S. Rte. 960 - U.S. Rte. 45
Functional Class: Minor Arterial
ADT: 3250 (2015); 4130 (2039)
ADTT: 160 (2015); 205 (2039)
DHV: 370 (2039)
Design Speed: 35 m.p.h.
Posted Speed: 35 m.p.h.
2-Way Traffic
Directional Distribution: 50:50

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition

LOADING HL-93

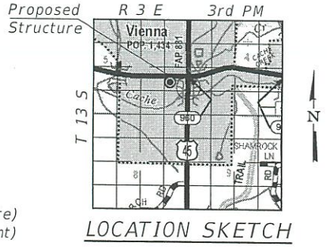
Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 5,000 psi (Superstructure)
fy = 60,000 psi (Reinforcement)

APPROVED
MAY 25 2018
AS A BASIS FOR PREPARATION OF DETAILED PLANS



LOCATION SKETCH

GENERAL PLAN

U.S. ROUTE 45 OVER LITTLE CACHE CREEK
F.A.S. ROUTE 960 - SECTION 38B-1
JOHNSON COUNTY
STATION 3+70.82
STRUCTURE NO. 044-0060

DESIGNED -	V.M.V.
CHECKED -	N.R.B.
DRAWN -	-
CHECKED -	V.M.V. / N.R.B.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
960	38B-1	JOHNSON	---	---
		CONTRACT NO. 78029		
	ILLINOIS FED. AID PROJECT			

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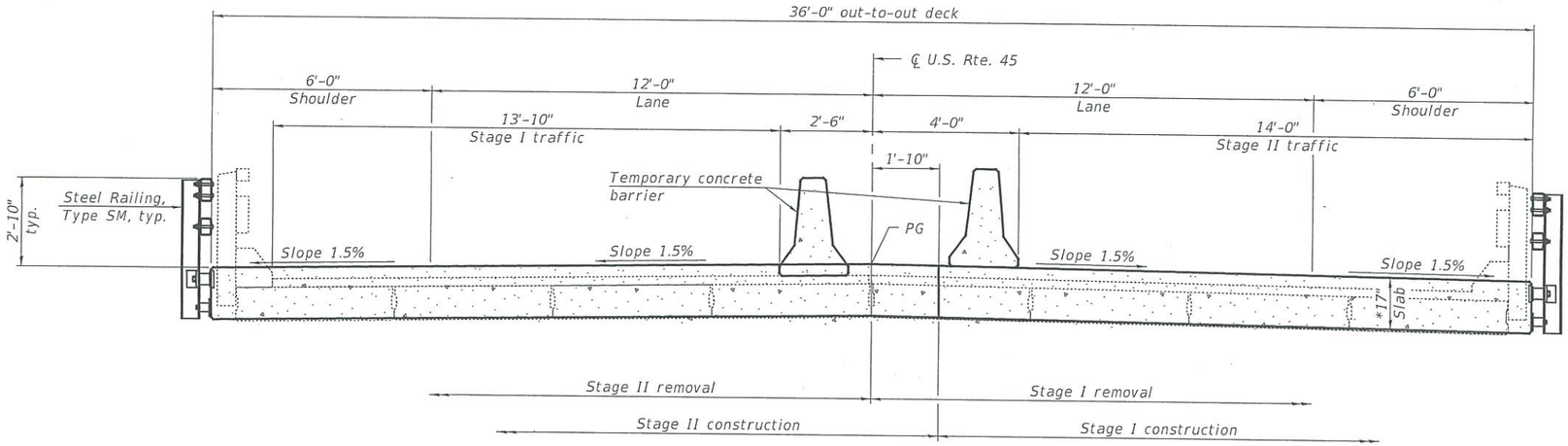
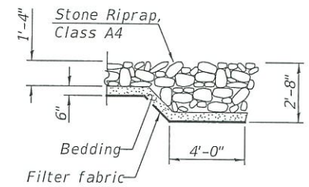
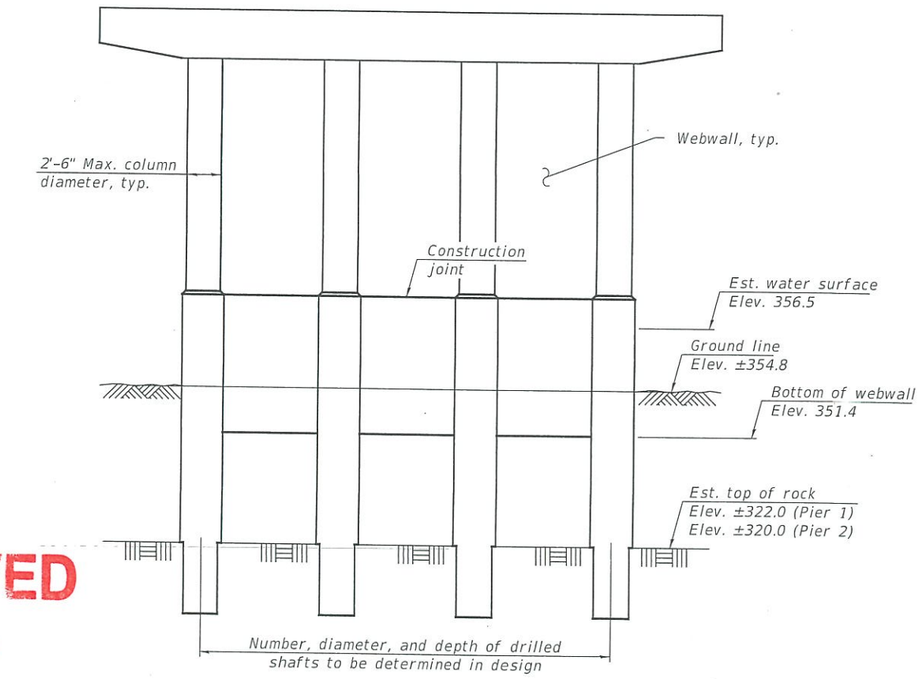


CROSS SECTION
(Looking South)

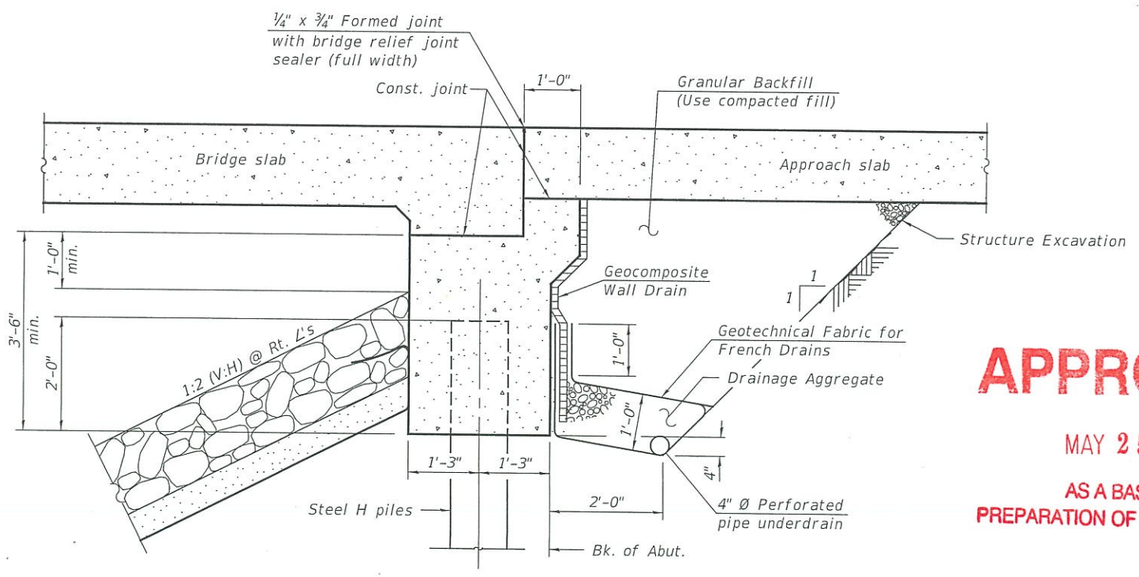
* Subject to refinement during design phase.



SECTION A-A



PIER SKETCH



SECTION THRU ABUTMENT
(Horizontal dimensions are at Rt. L's)

APPROVED
MAY 25 2018
AS A BASIS FOR PREPARATION OF DETAILED PLANS

Note:
The condition of the existing deck beams for the duration of Stage I Traffic should be verified during final design. If the condition changes, the proposed staging sequence shall be re-evaluated. If a beam replacement, or beam support contract is required, the designer shall provide the necessary plans.

DETAILS
U.S. ROUTE 45 OVER LITTLE CACHE CREEK
F.A.S. ROUTE 960 - SECTION 38B-1
JOHNSON COUNTY
STATION 3+70.82
STRUCTURE NO. 044-0060

DESIGNED -	V.M.V.
CHECKED -	N.R.B.
DRAWN -	-
CHECKED -	V.M.V. / N.R.B.

5/25/2018 - 2:45:14 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
960	38B-1	JOHNSON	---	---
		CONTRACT NO. 78029		
	ILLINOIS	FED. AID PROJECT		

MODEL: 0440060-78029-TSL-002
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