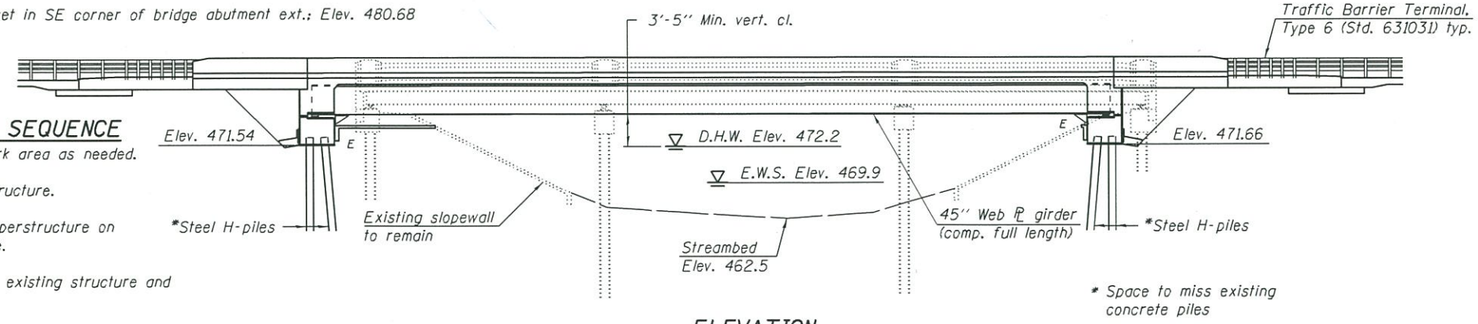
Existing Structure: S.N. 003-0020 built 1938 as F.A. 12. Section 35-1-B-1 at Sta. 1574+34.46 as a 3-span steel wide flange bridge. 105'-9¼" back-to-back spill thru abutments supported on concrete piles. Existing bridge to be removed and replaced. New bridge built temporarily next to existing bridge with traffic maintained on existing bridge. New bridge to be moved into final location using slide-in-bridge-construction (SIBC) techniques with traffic detoured. Accelerated Bridge Construction (ABC) contract to reduce traffic detour days.

Benchmark: Chiseled "□" set in SE corner of bridge abutment ext.; Elev. 480.68

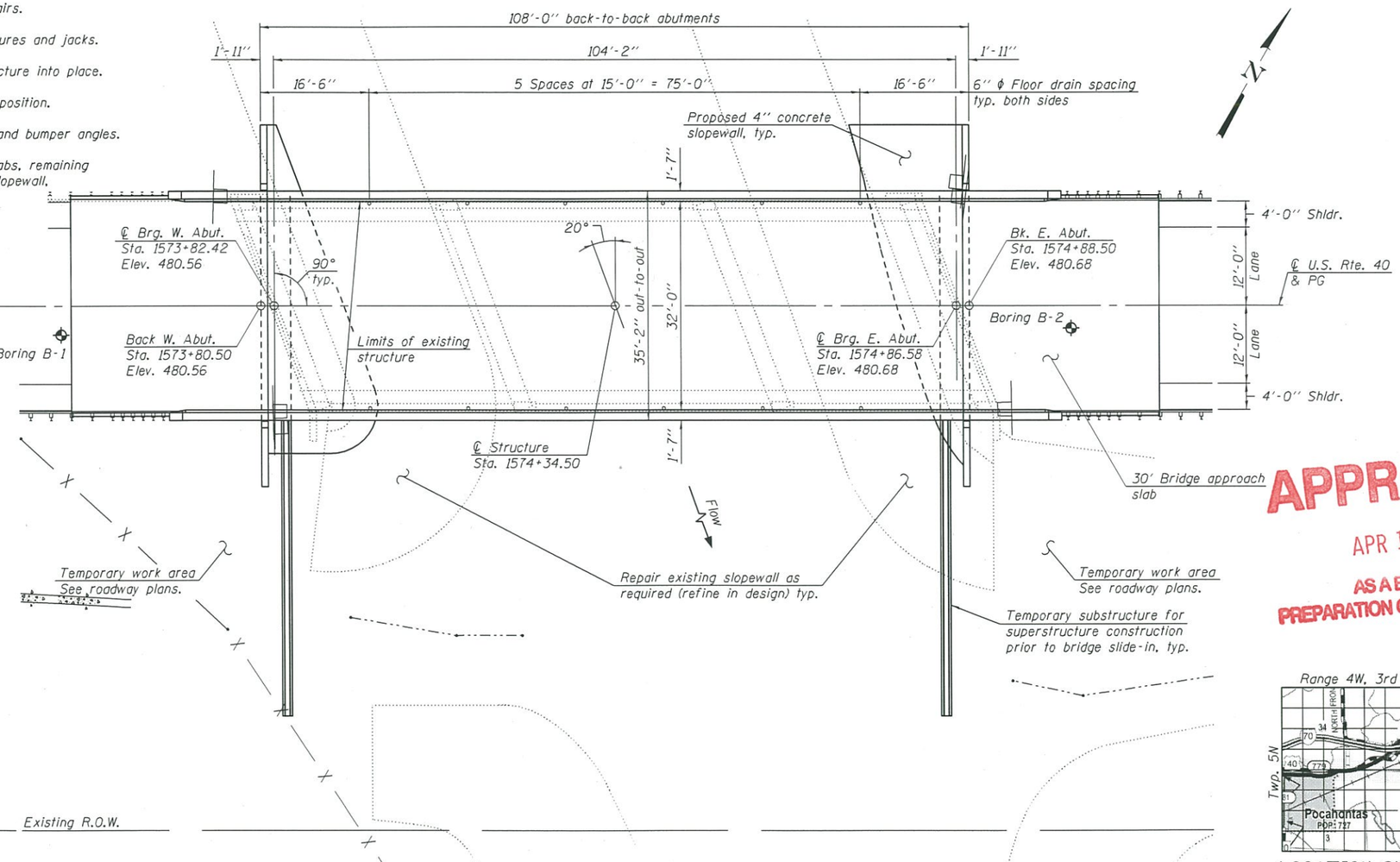
No salvage.

CONSTRUCTION SEQUENCE

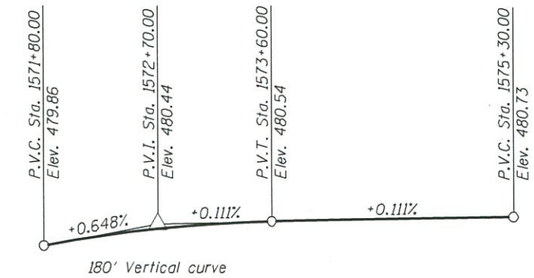
1. Prepare temporary work area as needed.
2. Erect temporary substructure.
3. Construct proposed superstructure on temporary substructure.
4. Detour traffic, remove existing structure and portion of slopewall.
5. Drive proposed abutment piles and construct abutment.
6. Perform slopewall repairs.
7. Install sliding appenditures and jacks.
8. Slide bridge superstructure into place.
9. Lower bridge to final position.
10. Install side retainers and bumper angles.
11. Construct approach slabs, remaining wingwalls, remaining slopewall, and guardrail.



ELEVATION



PLAN



PROFILE GRADE

(Along ℄ U.S. Rte. 40)

DESIGN SPECIFICATIONS

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

DESIGN STRESSES

FIELD UNITS

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

HIGHWAY CLASSIFICATION

F.A.S. Rte. 779 - U.S. Rte. 40
Functional Class: Major Collector (Non-Urban)
ADT: 1,200 (2013); 1,550 (2038)
ADTT: 81 (2038)
DHV: 140
Design Speed: 55 m.p.h.
Posted Speed: 55 m.p.h.
Two-Way Traffic
Directional Distribution: 50:50

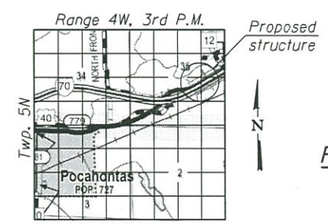
LOADING HL-93

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

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.238 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.534 g
Soil Site Class = D

APPROVED
APR 15 2016
AS A BASIS FOR PREPARATION OF DETAILED PLANS



LOCATION SKETCH

GENERAL PLAN & ELEVATION
U.S. ROUTE 40 OVER
WEST FORK SHOAL CREEK
F.A.S. RTE. 779 - SEC. 35-1-BR
BOND COUNTY
STATION 1574+34.50
STRUCTURE NO. 003-0063

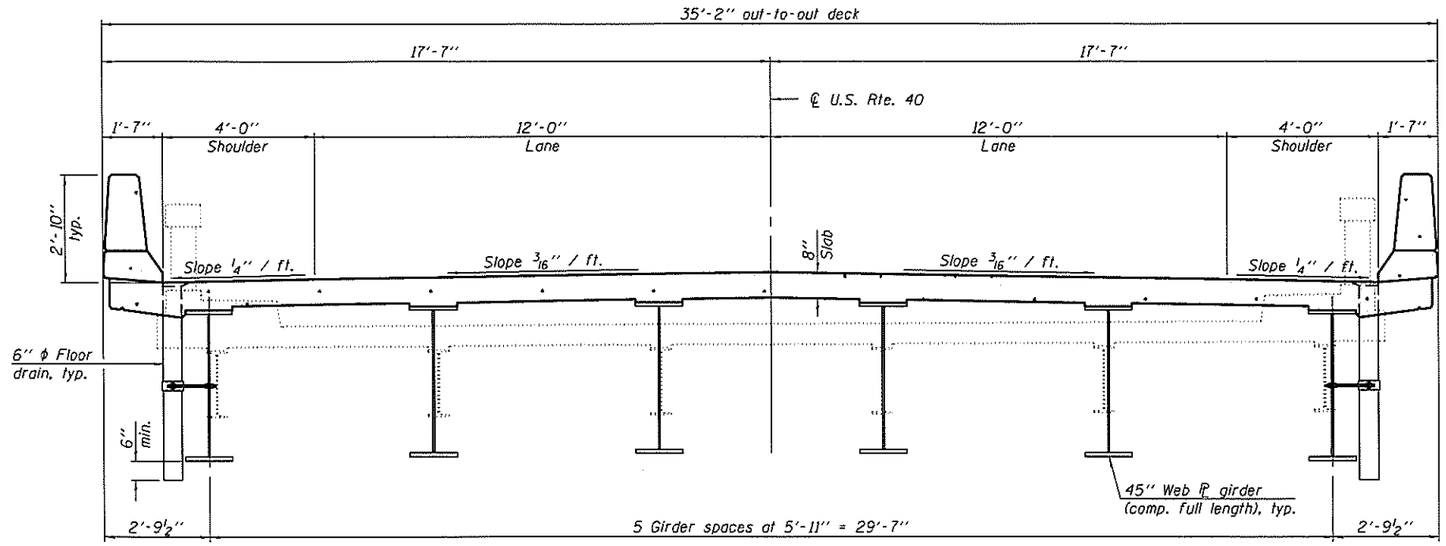
DESIGNED -	RICHARD J. CHAPUT
CHECKED -	DEREK G. VERHULST
DRAWN -	MICHAEL B. MOSSMAN
CHECKED -	R.J.C. / D.G.V.

APRIL 15, 2016

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
779	35-1-BR	BOND		
		CONTRACT NO. 76E04		
		ILLINOIS FED. AID PROJECT		



CROSS SECTION

WATERWAY INFORMATION

Drainage Area = 478 mi.^{2}

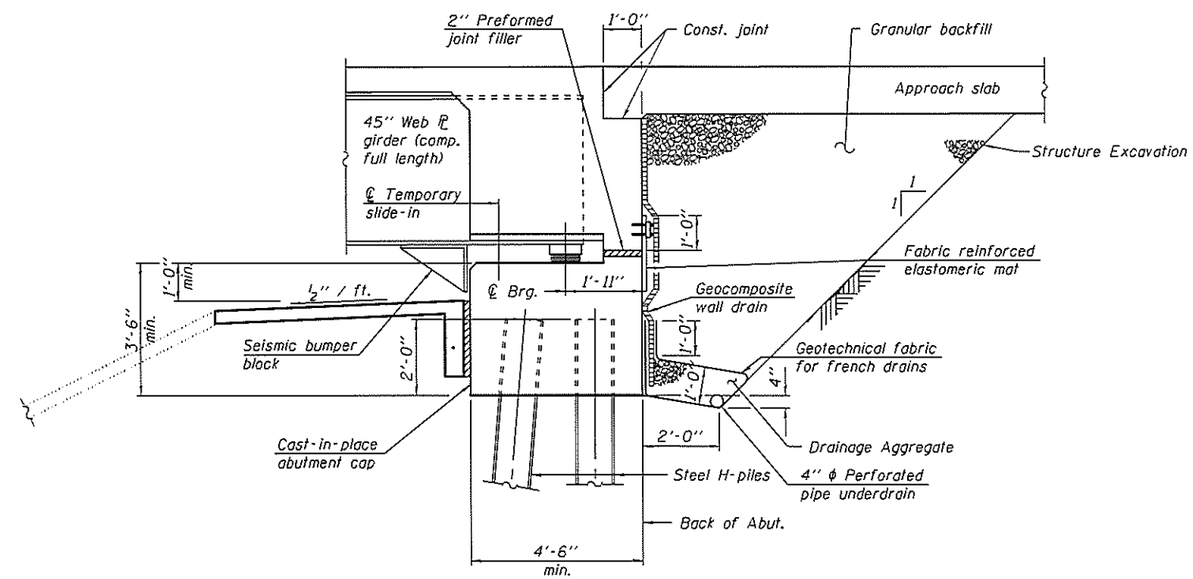
Existing overtopping Elev. 478.97 at Sta. 1570+09.18
Proposed overtopping

Flood Event		Discharge (cfs)		Opening (sq. ft.)		Natural H.W.E. (ft.)	Head (ft.)		Headwater Elev.	
		Exist.	Prop.	Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
10	Main Channel	16164	15277	3032	3032	470.7	0.6	0.5	471.3	471.2
	003-0063	1836	2723	355	527					
	Total	18000	18000	3387	3559					
50	Main Channel	24548	22996	3655	3655	472.2	0.9	0.9	473.1	473.1
	003-0063	2852	4404	458	679					
	Total	27400	27400	4113	4334					
100	Main Channel	28206	26336	3915	3915	472.9	1.1	1.0	474.0	473.9
	003-0063	3294	5164	503	744					
	Total	31500	31500	4418	4659					
200	Main Channel	31956	29761	4165	4165	473.5	1.2	1.1	474.7	474.6
	003-0063	3744	5939	547	807					
	Total	35700	35700	4712	4972					
Overtopping	Main Channel	-	-	-	-	-	-	-	-	-
	003-0063	-	-	-	-					
	Total	-	-	-	-					
500	Main Channel	36742	35575	4470	4470	474.2	1.5	1.4	475.7	475.6
	003-0063	4458	5625	603	886					
	Total	41200	41200	5073	5356					

10 Year velocity through existing bridge = 4.59 ft./sec.
10 Year velocity through proposed bridge = 4.62 ft./sec.

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)		
	W. Abut.	E. Abut.	Item 113
0100	472.34	472.46	8
0200	472.34	472.46	
Design	472.34	472.46	
Check	472.34	472.46	



SECTION THRU
SEMI-INTEGRAL ABUTMENT

DETAILS
U.S. ROUTE 40 OVER
WEST FORK SHOAL CREEK
F.A.S. RTE. 779 - SEC. 35-1-BR
BOND COUNTY
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