

Bench Mark: Disc on NE parapet wingwall of S.N. 099-3298. Elev. 524.88.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Existing Structure: S.N. 099-3298 built in 1971 as Brandon Road Bridge over Des Plaines River, Section 82B-2-MFT at Station 16+65.00. Structure consists of five steel plate girders over six spans configured in two units, with each unit continuous over three spans. The overall length of the bridge is 656'-4" and the out-to-out width is 32'-0" with no skew. There are two 14'-3" wide lanes for a total clear width of 28'-6". Concrete deck is 7 1/2" thick, with a 1 1/2" bituminous wearing surface. The hammerhead piers and stub abutments are cast-in-place concrete. The reinforcement is not epoxy coated. Expansion joints are located at the two abutments and at Pier 3. The alignment is straight and the grade is flat across the bridge except for a slight increase in elevation near the north abutment. No utilities or lights are presently attached to the bridge.

A detour route will be utilized to maintain traffic during construction.

No Salvage.

LOADING HS20-44

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

DESIGN SPECIFICATIONS (New Const.)

AASHTO Standard Specifications for Highway Bridges, 2002

DESIGN STRESSES

FIELD UNITS (New Construction)

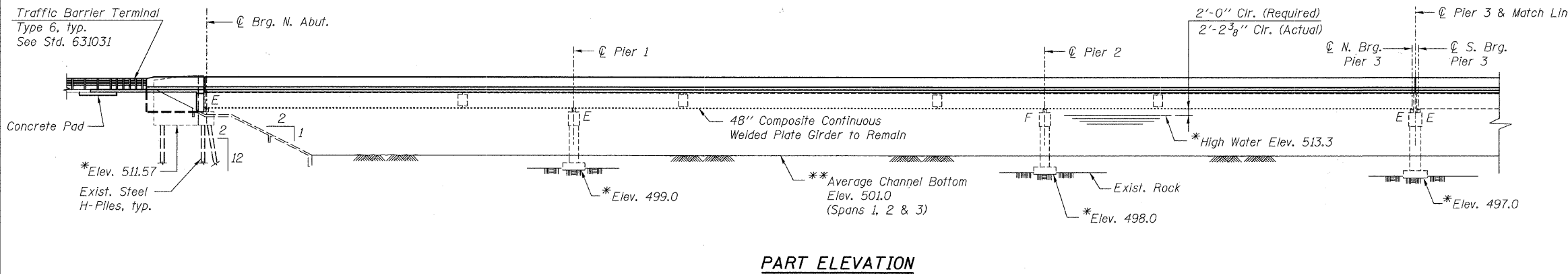
$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (reinforcement)  
 $f_y = 50,000$  psi (structural steel)

FIELD UNITS (Exist. Construction)

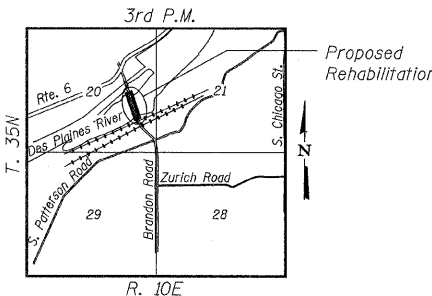
$f'_c = 3,000$  psi (superstructure)  
 $f'_c = 3,500$  psi (substructure)  
 $f_y = 40,000$  psi (reinforcement)  
 $f_y = 36,000$  psi (structural steel)

SEISMIC DATA

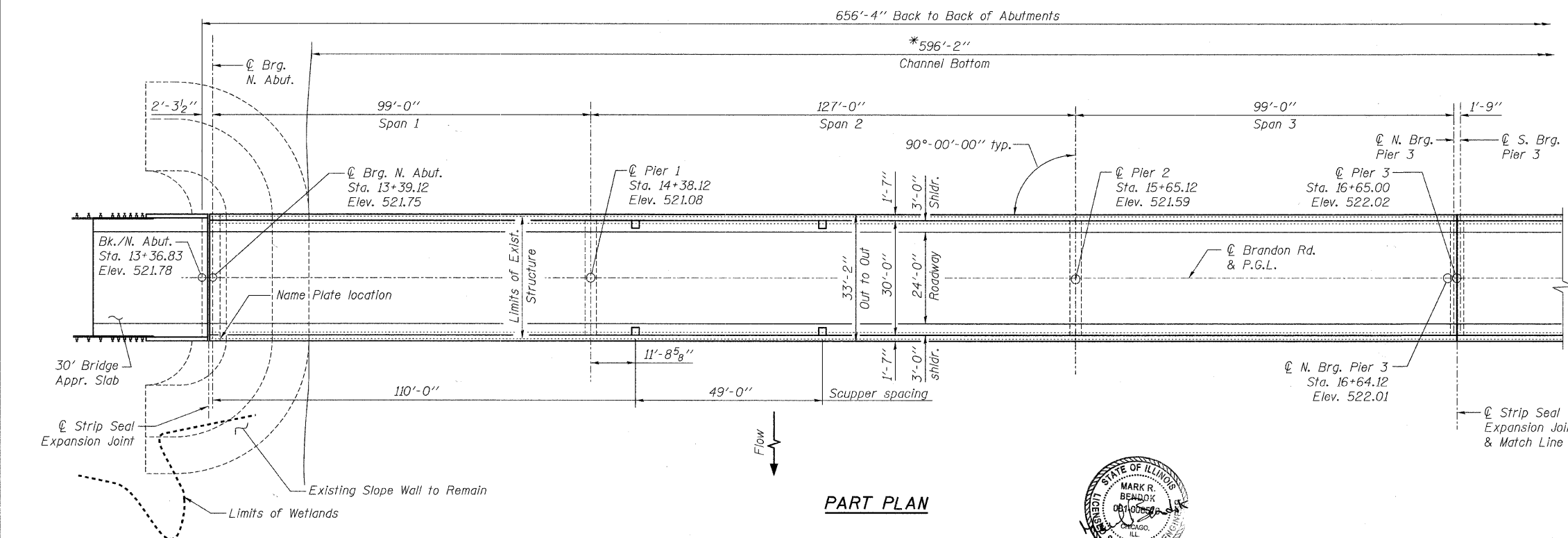
Seismic Performance Category (SPC) = A  
Horizontal Bedrock Acceleration Coefficient (A) = 0.04g  
Site Coefficient (S) = 1.0



PART ELEVATION



LOCATION SKETCH



PART PLAN

SCOPE OF WORK

- 1 Bridge will be closed and traffic will be detoured during construction.
- 2 Remove existing 7 1/2" concrete deck and 1 1/2" bituminous overlay. Replace with 8" deck composite in positive moment regions.
- 3 Remove and replace expansion joints.
- 4 Remove and replace existing approach slabs.
- 5 Remove and replace end diaphragms at the abutments and Pier 3.
- 6 Clean and paint all of the existing structural steel.
- 7 Replace expansion bearings at the abutments and Pier 3.
- 8 Replace fixed bearings at Piers 2 and 4.
- 9 Modify Pier 3 Cap width to meet seismic requirements.
- 10 Replace existing abutment backwalls and re-configure wingwalls to accommodate wider deck.
- 11 Remove south concrete slopewall and replace with stone riprap.

GENERAL PLAN AND ELEVATION 1 OF 2  
BRANDON ROAD OVER DES PLAINES RIVER  
(PUBLIC WATERS)  
COUNTY HIGHWAY 42  
WILL COUNTY  
STATION 16+65.00  
STRUCTURE NO. 099-3298

WATERWAY INFORMATION

Drainage Area = 970 Sq. Mi.		Low Grade Elev. 515.59 @ Sta. 15+01.62						
Flood Yr.	Freq.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	34,880*	5,800*	513.3*				
Base	100							
Max. Calc.	500							

\* Data taken from existing plans.  
\*\* Data taken from 2006 Underwater Investigation Report

DESIGNED	JLS
CHECKED	MRB
DRAWN	VH
CHECKED	KWS



I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

benesch

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SHEET NO. S1 S47 SHEETS	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	341	04-00090-07-BR	WILL	57	9
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT		
			CONTRACT NO. 63442		