

Benchmark: Chiseled square in southwest wingwall of existing Hodges Creek bridge Sta. 698+38.22, Elev. 515.254

Existing Structure: Structure No. 059-0034, originally built in 1931 as SBI Route 108 Section 107-B-1 at Station 695+00, consisting of 11 steel beam spans and 1 thru truss span on R.C. Pile Bents and solid concrete piers. The abutments were spill thru pile bents. In 1981 the superstructure and two piers in the main channel and the west abutment were removed. Reconstruction consisted of 11 PPC Deck Beam spans and 1 PPC I Beam span in main channel. Two new piers and the west abutment were constructed. The existing structure is 561'-3 3/8" back to back of abutments and 34'-0" o. to o.. In 2000 the deck was overlaid with 2 1/2" Micro Silica overlay along with expansion joint and keyway repairs. The existing structure is to be removed and replaced using Staged Construction allowing one lane of traffic at all times.

No salvage.

Traffic Barrier Terminal Std. 631031 Type 6, typ.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

\*\*Quantity included with Roadway Plans

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications with 2008 and 2009 Interims

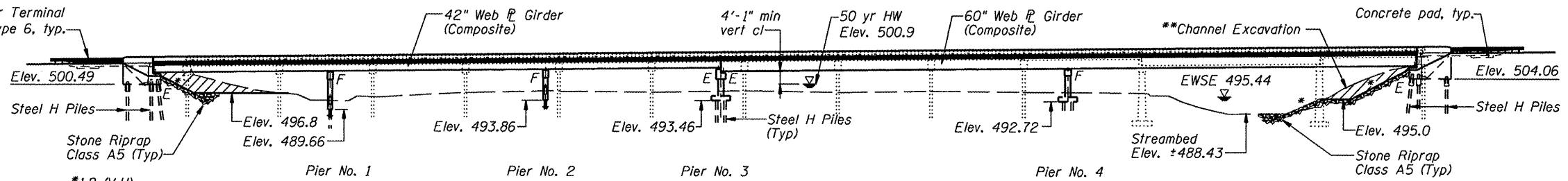
**DESIGN STRESSES**

**FIELD UNITS**

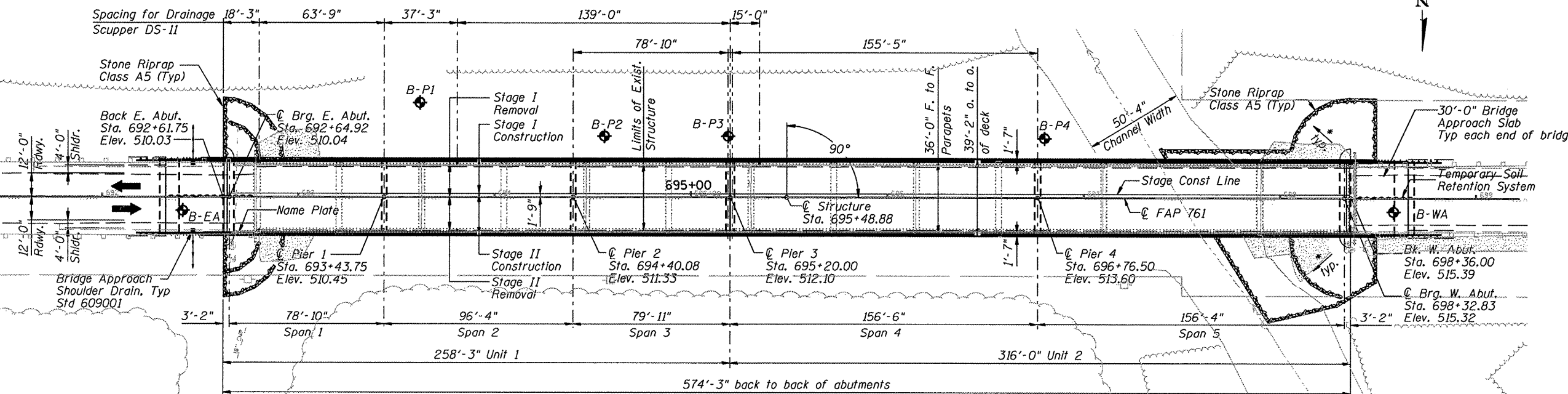
f'c = 3,500 psi  
fy = 60,000 psi (Reinforcement)  
fy = 50,000 psi (Structural Steel M270 Grade 50W)

**SEISMIC DATA**

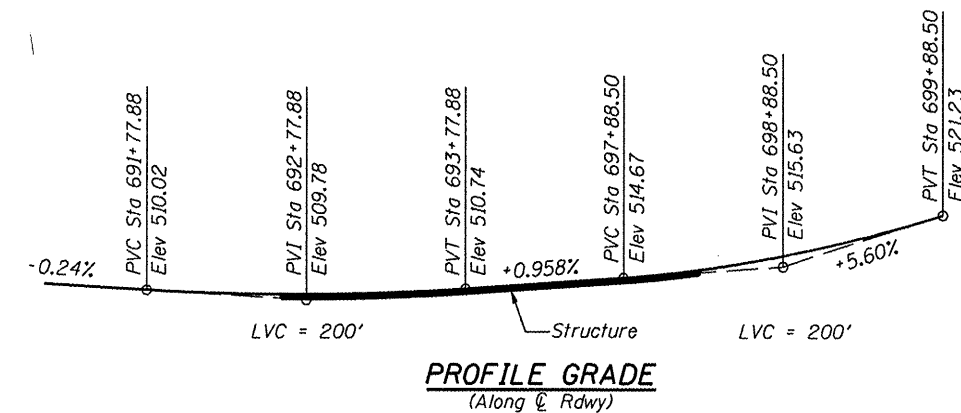
Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 Sec. (SD1) = 0.257 g  
Design Spectral Acceleration at 0.2 Sec. (SDS) = 0.548 g  
Soil Site Class = E



**ELEVATION**



**PLAN**



**PROFILE GRADE**  
(Along & Rdwy)

**WATERWAY INFORMATION**

Drainage Area = 155 mi<sup>2</sup> Low Grade Elev. 508.66 @ Sta. 692+65.26

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	8,761	1193	1274	500.0	1.7	1.5	501.7	501.6
Base	50	13,667	1588	1690	500.9	2.2	2.1	503.1	502.9
Overtopping	100	15,828	1738	1848	501.2	2.4	2.2	503.6	503.4
Max. Calc.	500	21,108	2077	2202	501.9	2.8	2.6	504.7	504.5

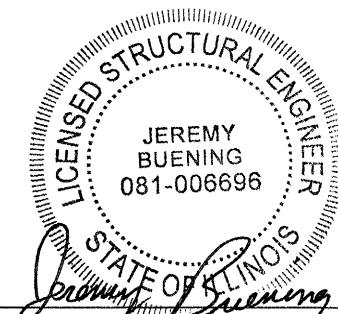
10 year velocity through existing bridge = 3.70 fps  
10 year velocity through proposed bridge = 3.48 fps

**DESIGN SCOUR ELEVATION TABLE**

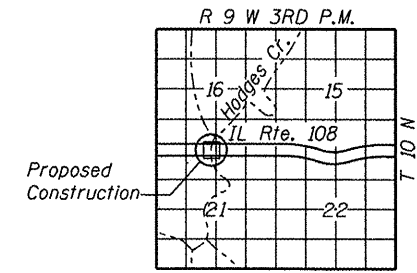
Design Scour Elevation (ft.)	E. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	W. Abut.
	500.5	489.4	494.1	492.6	494.0	504.1

**APPROVED**  
For Structural Adequacy Only

Robert E. Anderson (TS)   
Engineer of Bridges & Structures



JEREMY BUENING, P.E., S.E.  
DATE: 8/5/10  
EXP 11/30/10



**LOCATION SKETCH**

**GENERAL PLAN**  
IL ROUTE 108 OVER  
HODGES CREEK  
F.A.P. ROUTE 761  
SECTION 107B-2  
MACOUPIN COUNTY  
STATION 695+48.88  
STRUCTURE NUMBER 059-0510

DESIGNED	J.M.B.
CHECKED	T.E.S.
DRAWN	R KING
CHECKED	J.M.B.

**HOMER L. CHASTAIN & ASSOCIATES, LLP**  
CONSULTING ENGINEERS  
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CHICAGO (773) 714-0050  
ROCKFORD (815) 489-0050  
184-001397

SHEET NO.	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	761	107B-2	MACOUPIN	98	31
OF 51 SHEETS		FAP ROUTE 761 (IL RT 108)		CONTRACT NO. 72A94	
		FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT		