

**EXISTING STRUCTURE NO. 006-4214**

The existing structure was originally built in 1970. The existing structure is a three span (15'-2", 16'-0", 15'-2") precast concrete channel beam bridge on closed timber abutments and timber pile piers. 49'-6" back to back of abutments and 27'-0" out to out of deck. Structure to be removed and replaced. Road shall be closed to traffic during construction. No salvage.

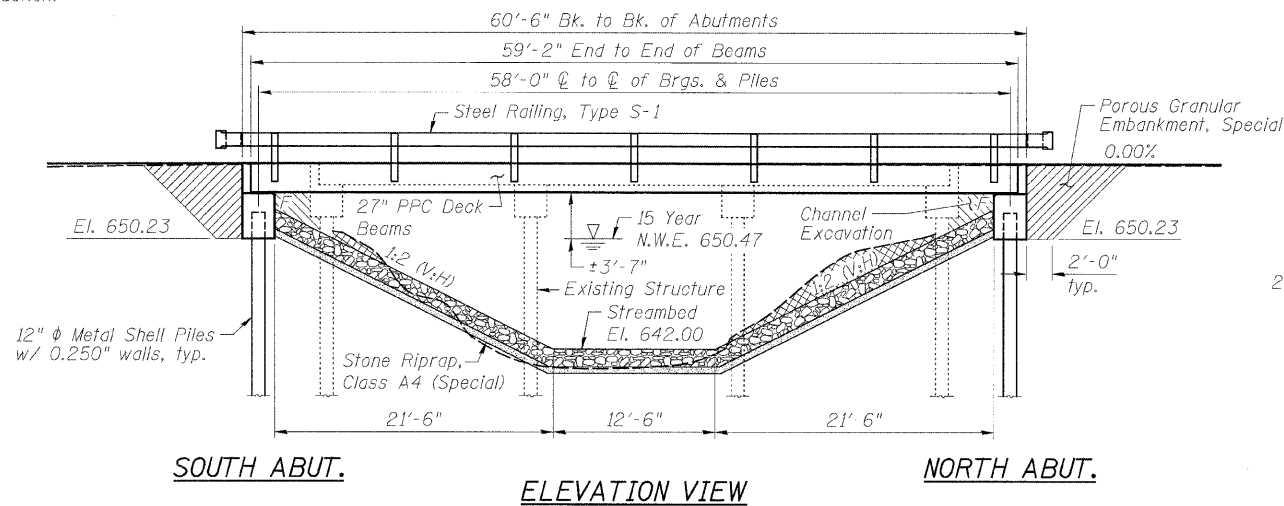
**BENCH MARK:** Chiseled "□" on the center of west hub guard of exist. bridge, El. 657.07

**INDEX OF SHEETS**

- 1.) General Plan and Elevation
- 2.) Riprap and Pile Layout
- 3.) 27" x 36" PPC Deck Beam
- 4.) 27" x 36" PPC Deck Beam Details
- 5.) South Abutment Details
- 6.) North Abutment Details
- 7.) Steel Railing, Type S-1 Details
- 8.) Metal Shell Pile Details
- 9.) Boring Logs

**BILL OF MATERIAL - BRIDGE**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.	---	57	57
Removal of Existing Structures	Each	---	---	1
Concrete Structures	Cu. Yd.	---	27.4	27.4
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,420	---	1,420
Reinforcement Bars	Pound	---	3,540	3,540
Steel Railing, Type S-1	Foot	121	---	121
Furnishing Metal Shell Piles 12" x 0.250"	Foot	---	268	268
Driving Piles	Foot	---	268	268
Test Pile Metal Shells	Each	---	2	2
Name Plates	Each	---	1	1
Porous Granular Embankment, Special	Ton	---	112	112
Stone Riprap, Class A4 (Special)	Ton	---	398	398



**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2010 AASHTO LRFD Bridge Design Specifications, 5th. Edition & 2011 Interims

**DESIGN STRESSES**

**FIELD UNITS**

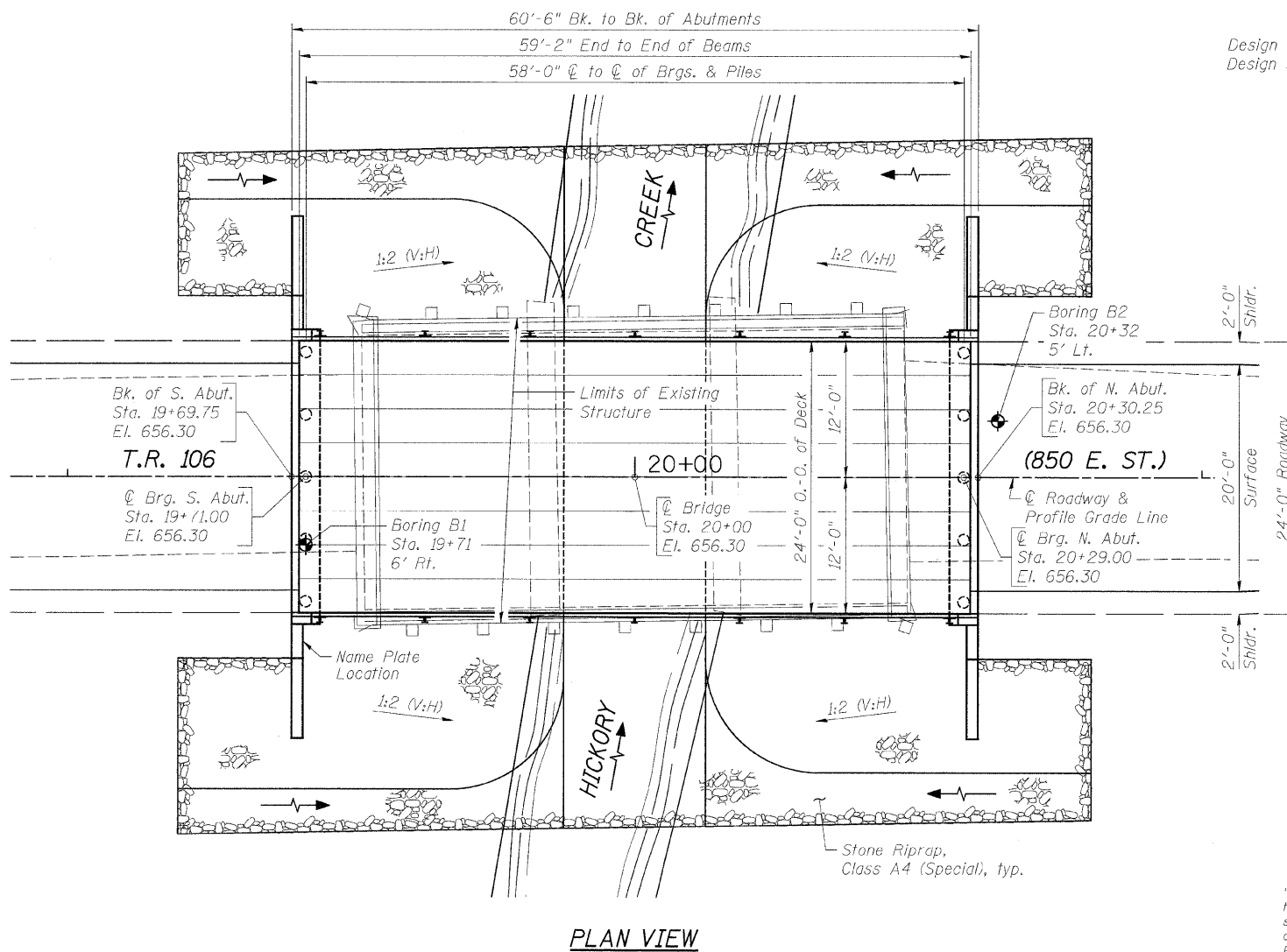
$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)

**PRECAST PRESTRESSED UNITS**

$f'_c = 6,000$  psi  
 $f'_{ci} = 5,000$  psi  
 $f_{pu} = 270,000$  psi ( $\frac{1}{2}$ " φ Low Lax Strands)  
 $f_{pbt} = 201,960$  psi ( $\frac{1}{2}$ " φ Low Lax Strands)

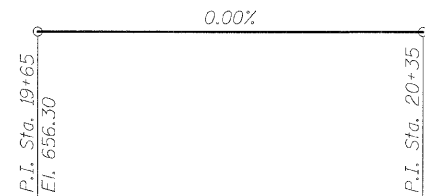
**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.093g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.150g  
Soil Site Class = D



**PROFILE GRADE**

(Along @ Roadway)



**WATERWAY INFORMATION**

Drainage Area = 19.6 sq. mi. Low Grade El. 656.09 @ Sta. 19+00

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	15	1,690	248	250	650.47	0.28	0.14	650.75	650.61
Base	100	2,550	317	327	652.03	0.72	0.56	652.75	652.59

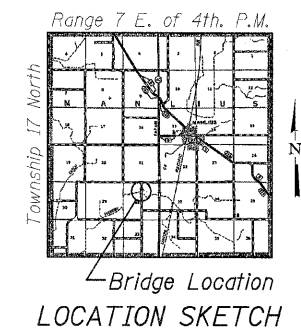
**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	S. Abut.	N. Abut.
	650.23	650.23

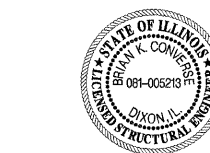
HICKORY CREEK  
BUILT 2012 BY  
BUREAU COUNTY  
SECTION 08-15119-00-BR  
TWP. RTE. 106 STATION 20+00  
STR. NO. 006-4218 LOADING HL-93

**NAME PLATE LETTERING**

Refer To Std. 515001



**GENERAL PLAN AND ELEVATION**  
**T.R. 106 (850 E. ST.) OVER HICKORY CREEK**  
**SECTION 08-15119-00-BR**  
**BUREAU COUNTY**  
**STATION 20+00**  
**STRUCTURE NO. 006-4218**



Brian K. Converse  
DATE: March 29, 2012  
EXPIRES 11/30/12

"I certify that to the best of my 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 Bridge Design Specifications."

DESIGNED - MICHAEL WAGNER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**BUREAU COUNTY**  
**T.R. 106 (850 E. ST.) OVER HICKORY CREEK**  
**STATION 20+00**

STRUCTURAL SHEET NO. 1 OF 9 SHEETS

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
106	08-15119-00-BR	BUREAU	18	7
WHA# 1287D10		CONTRACT NO.	87523	
ILLINOIS/FED. AID PROJECT BR05-0011086				

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