

BM - RR Spike in Corner Post  
Sta. 152+32, 46' Lt.  
Elev. 620.89

BM - RR Spike in Hedge Post  
Sta. 164+11, 47' Lt.  
Elev. 663.39

**HENRY CREEK  
BUILT 201. BY  
MORGAN COUNTY  
SEC. 07-00099-00-BR  
C.H. 28 STATION 156+37.09  
F.A. PROJ. BRS-0609(109)  
STR. NO. 069-3267 LOADING HL-93**

**Existing Structure:**

Three span reinforced concrete deck on steel stringers superstructure supported on concrete pile bent piers with exposed timber piles and pile bent abutments.  
The structure is ±67' back to back abutments has an ±26' width and is not skewed.  
Str. No. 069-3003

Salvage: None

Road to be closed to traffic during construction.

**NAME PLATE**

Locate Name Plate on Face of Wingwall  
S.W. Corner of Bridge (See Std. 515001)

Traffic Barrier Terminal  
Type 6A, Std. 631032  
(Typ. Each Corner)

**GENERAL NOTES**

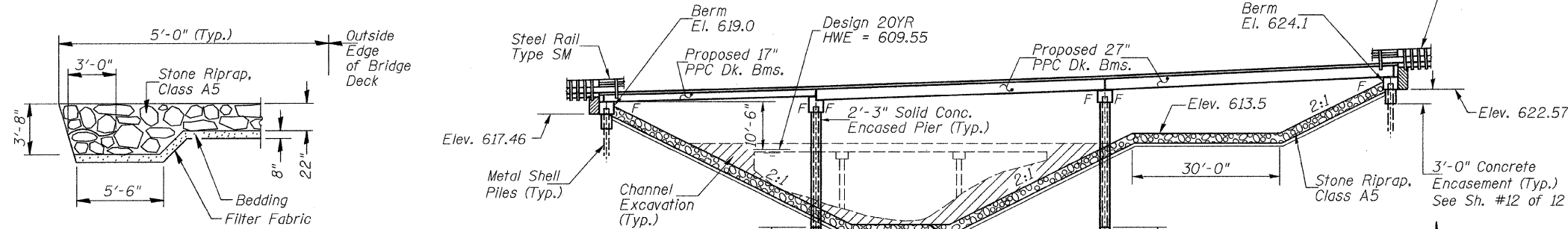
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of the piles.  
For Soil Boring Logs, See Special Provisions.

A Corrosion Inhibitor shall be used in the concrete for Precast Prestressed Concrete Deck Beams according to Article 1020.05(b)(12) of the Standard Specifications.

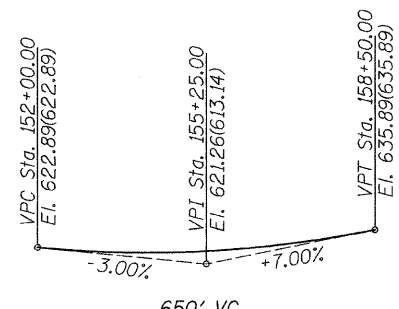
Reinforcement Bars shall conform to the requirements of ASTM A706 Grade 60. Reinforcement Bars designated (E) shall be epoxy coated.  
Layout of the slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

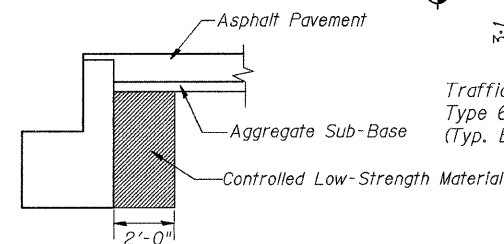
The existing structural steel coating may contain lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.



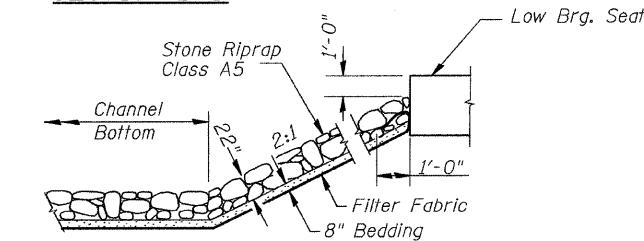
**SECTION A-A**



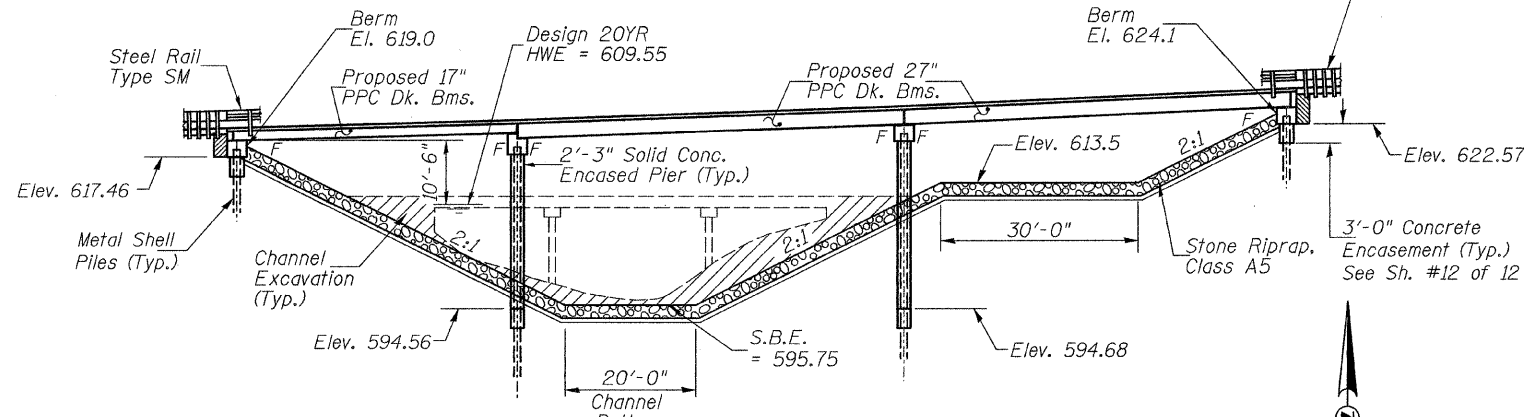
**PROFILE GRADE**



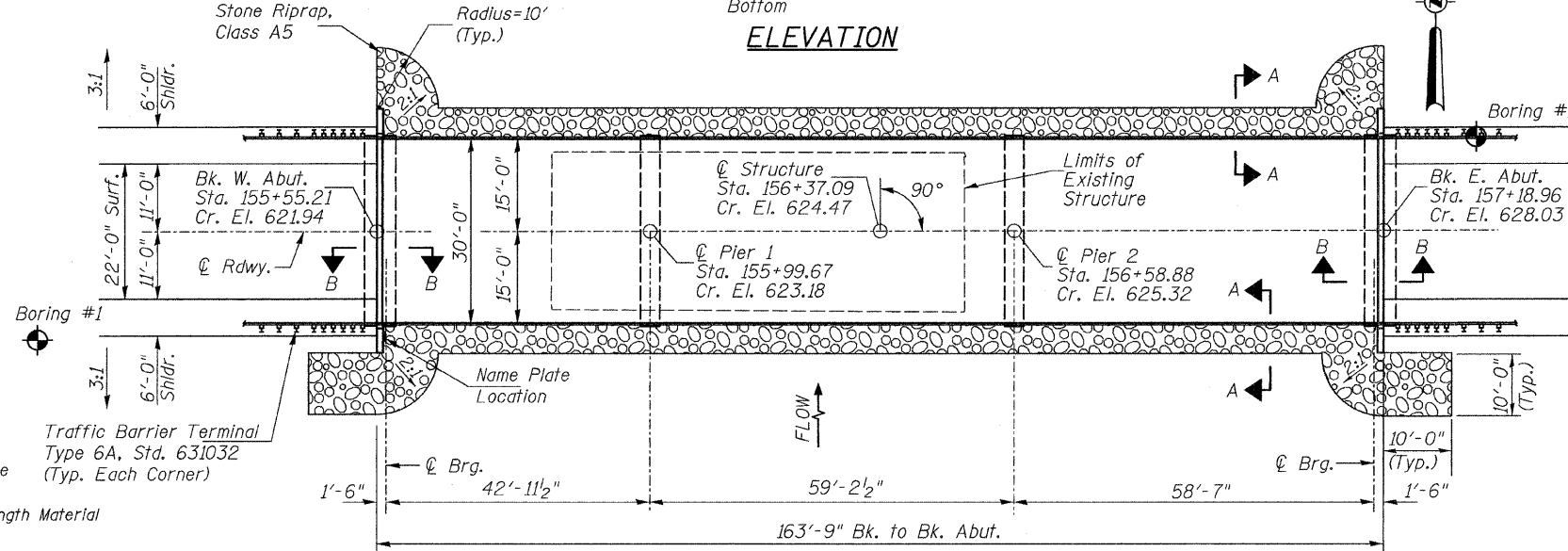
**SECTION B-B**



**STONE RIPRAP DETAIL**



**ELEVATION**



**PLAN**

**DESIGN SCOUR TABLE**

Location	W. Abut	Pier 1	Pier 2	E. Abut
Design Scour Elevation	617.46	591.56	591.68	622.57

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.156g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.288g  
Soil Site Class = D

**WATERWAY INFORMATION**

Drainage Area = 4.84 Sq. Mi.		Low Grade Elev. = 619.96 @ Sta. 153+95.00						
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	20	1,687	514	652	609.55	0.00	609.55	609.55
Base	100	2,520	576	785	611.23	0.08	611.31	611.23

**DESIGN STRESSES**

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

**PRECAST PRESTRESSED UNITS**

$f'_c$  = 6,000 p.s.i.  
 $f'_{ci}$  = 5,000 p.s.i.  
 $f'_s$  = 270,000 p.s.i. ( $\frac{1}{2}$ "  $\phi$  low relaxation strands)  
 $f'_{si}$  = 201,960 p.s.i. ( $\frac{1}{2}$ "  $\phi$  low relaxation strands)

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications with Interims

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	CU YD	—	520	520
Stone Riprap, Class A5	TON	—	975	975
Filter Fabric	SQ YD	—	820	820
① Removal of Existing Structures	EACH	—	—	1
Structure Excavation	CU YD	—	235	235
Concrete Structures	CU YD	—	152.5	152.5
① Precast Prestressed Concrete Deck Beams (17" Depth)	SQ FT	1,305	—	1,305
① Precast Prestressed Concrete Deck Beams (27" Depth)	SQ FT	3,548	—	3,548
Reinforcement Bars	POUND	—	14,420	14,420
① Steel Railing, Type SM	FOOT	328	—	328
Furnishing Metal Shell Piles 12"x0.250"	FOOT	—	384	384
Furnishing Metal Shell Piles 14"x0.312"	FOOT	—	947	947
① Driving Piles	FOOT	—	1,331	1,331
① Test Pile Metal Shells	EACH	—	4	4
Concrete Encasement	CU YD	—	8.2	8.2
① Mechanical Splicers	EACH	—	88	88
Name Plates	EACH	—	1	1
Waterproofing Membrane System	SQ YD	546	—	546
Portland Cement Mortar Fairing Course	FOOT	400	—	400
① Controlled Low-Strength Material	CU YD	—	16.8	16.8
① Underwater Structure Excavation Protection - Location 1 (Pier #1)	EACH	—	1	1
① Underwater Structure Excavation Protection - Location 2 (Pier #2)	EACH	—	1	1
Hot-Mix Asphalt Surface Course, Mix "C", N50	TON	78	—	78

① See Special Provisions

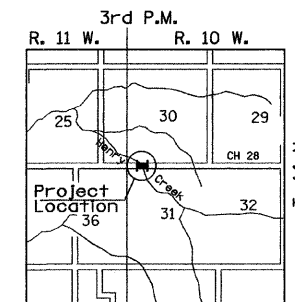
I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO LRFD Bridge Design Specifications.

This design complies with all requirements of the current AASHTO Guide Specifications for Seismic Design of highway bridges.

*Benjamin A. New* 1/7/2012  
Illinois Structural No. 6527  
Expires 11/30/2012



Lic. # 081-08651



**LOCATION SKETCH**

**GENERAL PLAN & ELEVATION  
MORGAN COUNTY  
SECTION 07-00099-00-BR  
C.H. 28 OVER HENRY CREEK**

DESIGNED	C.T.M.
CHECKED	B.A.N.
DRAWN	C.T.M.
CHECKED	B.A.N.

SHEET NO. 1	ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
12 SHEETS	CH 28	07-00099-00-BR	MORGAN	48	9
		SN 069-3267		CONTRACT NO. 93545	
	FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT BRS-0609(109)		