

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.26
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.61
 Soil Site Class = D

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS
 f'_c = 3,500 psi
 f_y = 60,000 psi (Reinforcement)
 f_y = 50,000 psi (M270 Grade 50)(Piling)

HIGHWAY CLASSIFICATION

Functional Class: Local Road (Non-Urban)
 ADT: 275 (2010); 500 (2027)
 ADTT: 6 (2010); 10 (2027)
 DHV: 30 (2010)
 Design Speed: 40 m.p.h.
 Posted Speed: None
 Two-Way Traffic
 Directional Distribution: 50/50

Benchmark A (FEMA NAVD 29)
 Chiseled "a" on Top of Concrete Wing Wall @ NE Corner of Press Road Bridge over Richland Creek (RM-340-3) Elev. 430.36

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Abut. 1	Piers 2 & 3	Abut. 4
	432.92	418.50	432.36

TOTAL BILL OF MATERIAL

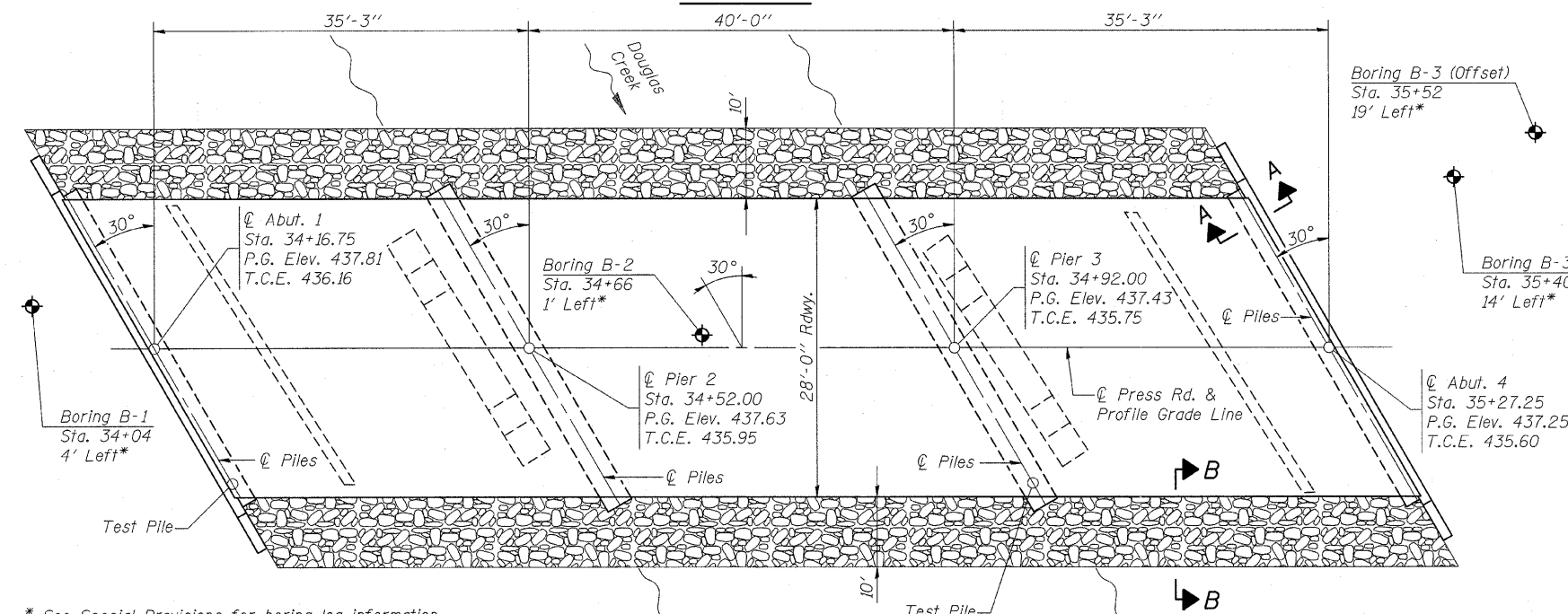
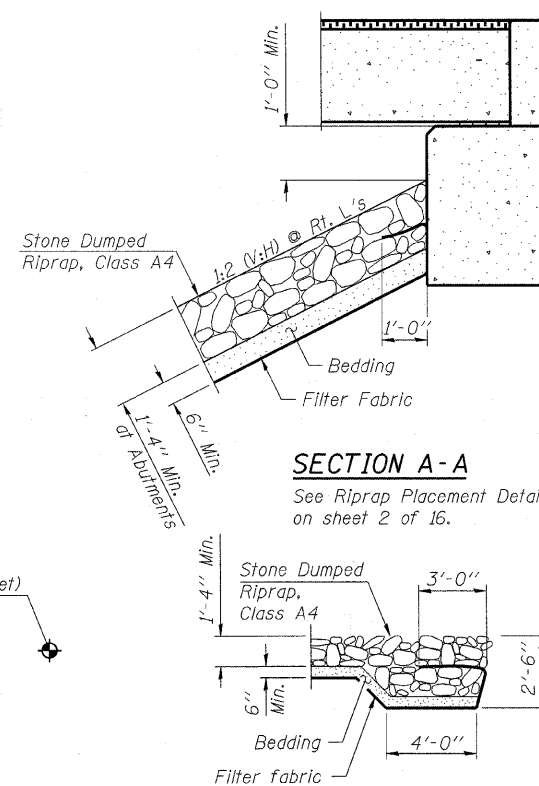
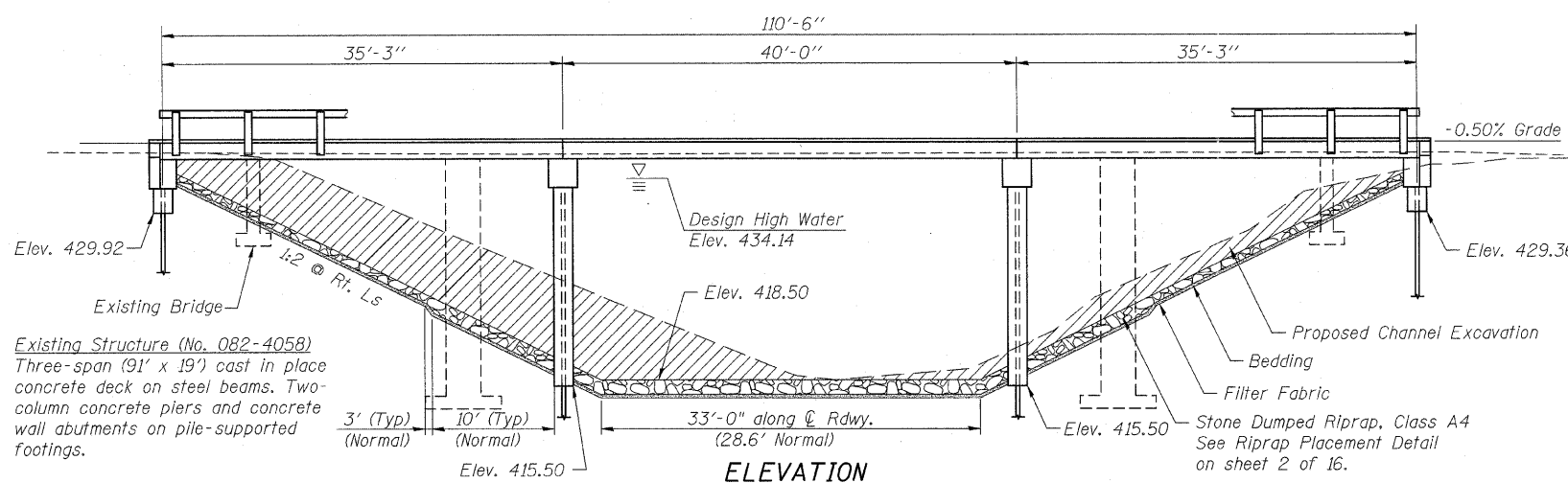
ITEM	UNIT	SUPER	SUB	TOTAL
Stone Dumped Riprap, Class A4	Sq. Yd.			626
Filter Fabric	Sq. Yd.			626
Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	30.7		30.7
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		48.2	48.2
Concrete Encasement	Cu. Yd.		24.1	24.1
Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	3122		3122
Reinforcement Bars, Epoxy Coated	Pound		5300	5300
Steel Railing, Type S-1	Foot	224		224
Furnishing Steel Piles, HP12x53	Foot		648	648
Driving Piles	Foot		648	648
Test Pile, Steel HP12x53	Each		2	2
Pile Shoes	Each		20	20
Name Plates	Each			1
Waterproofing Membrane System	Sq. Yd.	346.6		346.6
Portland Cement Mortar Fairing Course	Foot	670		670
Controlled Low-Strength Material	Cu. Yd.		29.0	29.0
Underwater Structure Excavation Protection-Location 1	Each		1	1
Underwater Structure Excavation Protection-Location 2	Each		1	1

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



Kevin P. Heffern
 Kevin P. Heffern, S.E.
 4/12/11
 Date

License No: 081-006834
 Expiration: 11/30/2012



GENERAL NOTES

All materials required to be removed which are considered salvageable by the Engineer shall remain the property of the Road District. All others shall be disposed of by the Contractor at his own expense.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Cost of excavation within the limits of Std Specification 502.12(6) shall be considered as included in the contract unit price for Concrete Structures or Concrete Encasement as applicable.

Excavation behind abutments and wingwalls shall be backfilled with Controlled Low-Strength Material according to Standard Specification 593.

INDEX OF SHEETS

- General Plan and Elevation
- PPC Deck Beam Superstructure (End Spans)
- PPC Deck Beam Superstructure (Interior Span)
- 17"x48" PPC Deck Beam (End Spans)
- 17"x48" PPC Deck Beam Details (End Spans)
- 17"x48" PPC Deck Beam (Interior Span)
- 17"x48" PPC Deck Beam Details (Interior Span)
- Abutments 1 & 4
- Piers 2 & 3
- Steel Railing, Type S-1
- HP Pile Details

WATERWAY INFORMATION

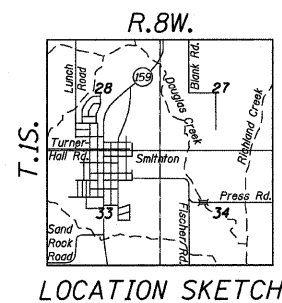
Drainage Area = 20.4 Sq. Mi. Low Grade Elev. 434.38 @ Sta. 37+65

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Nat. H.W.E.	Head - Ft. Exist.	Prop.	Headwater El. Exist.	Prop.
Design	20	3770	655	946	434.14	0.75	0.59	434.89	434.73
Base	100	5560	655	998	435.72	1.58	1.09	437.20	436.81
Overtop (Ex.)	15	3432	632	842	433.75	0.63	0.54	434.38	434.29
Overtop (Pr.)	16	3495	637	849	433.83	0.64	0.55	434.47	434.38
Max. Calc.	500	7580	655	998	437.15	0.65	1.21	437.80	438.36

DOUGLAS CREEK
 BUILT 20L BY
 SMITHTON ROAD DISTRICT
 ST. CLAIR COUNTY
 SEC. 08-18101-04-BR
 STATION 34+72
 STR. NO. 082-4158
 LOADING HL-93

LETTERING FOR NAME PLATE

Locate Name Plate at S.W. Wingwall
 (See Std. 515001)



FILE NAME = 53173-bridge sheets.dgn	DESIGNED - K. HEFFERN	REVISED -
	DRAWN - K. HEFFERN	REVISED -
	CHECKED - C. EPPERLY	REVISED -
	DATE - NOVEMBER 2010	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
 STRUCTURE NO. 082-4158

SCALE: N/A SHEET NO. 4 OF 16 SHEETS STA. 34+16.75 TO STA. 35+27.25

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	08-18101-04-BR	ST. CLAIR	16	4
PROJECT BROS-163(32)			CONTRACT NO. 97466	

ILLINOIS FED. AID PROJECT