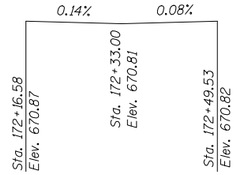
EXISTING STRUCTURE: S.N. 092-8031 was constructed in 1934 at STA. 172+31 as a 6.5' X 5.5' cast-in-place box culvert with concrete headwalls as S.B.I. 119, Sec. 115 in Vermilion County. In 1972 the box was extended under Section 115(W,RS). The existing structure is to be completely removed and replaced. There will be no salvage of any materials. Stage Construction will be utilized. BENCHMARK ELEV. = 667.14 Chiseled square on top of Headwall on sideroad ARBC at STA.179+29.20, 53.7' LT.



PROFILE GRADE

Along ℄ Roadway

STATION 172+33.00
BUILT 201_ BY
STATE OF ILLINOIS
F.A.P. RT. 711 SEC. 115CR
LOADING HS 20
STRUCTURE NO. 092-8086

NAME PLATE

See Std. 515001

INDEX OF SHEETS

DESIGN SPECIFICATIONS

2002 AASHTO

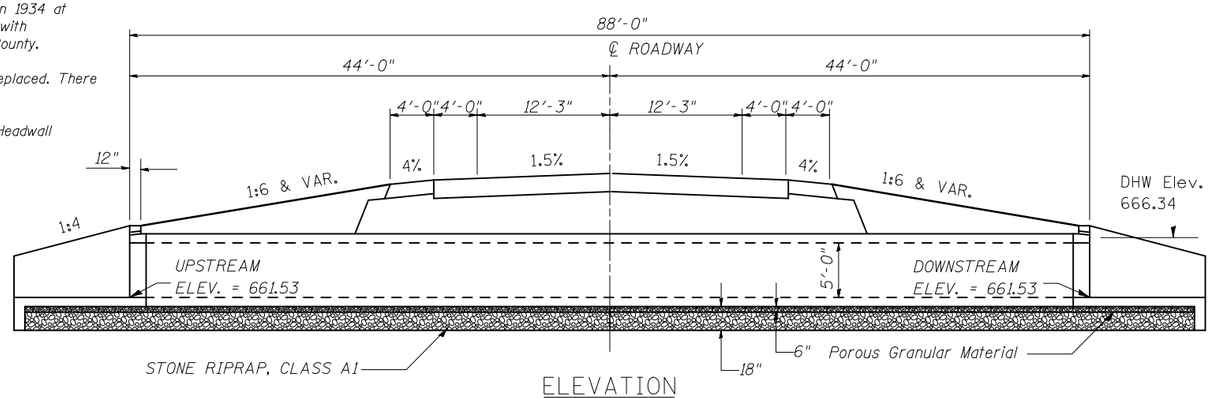
LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (reinforcement)
fy = 65,000 psi (welded wire fabric)

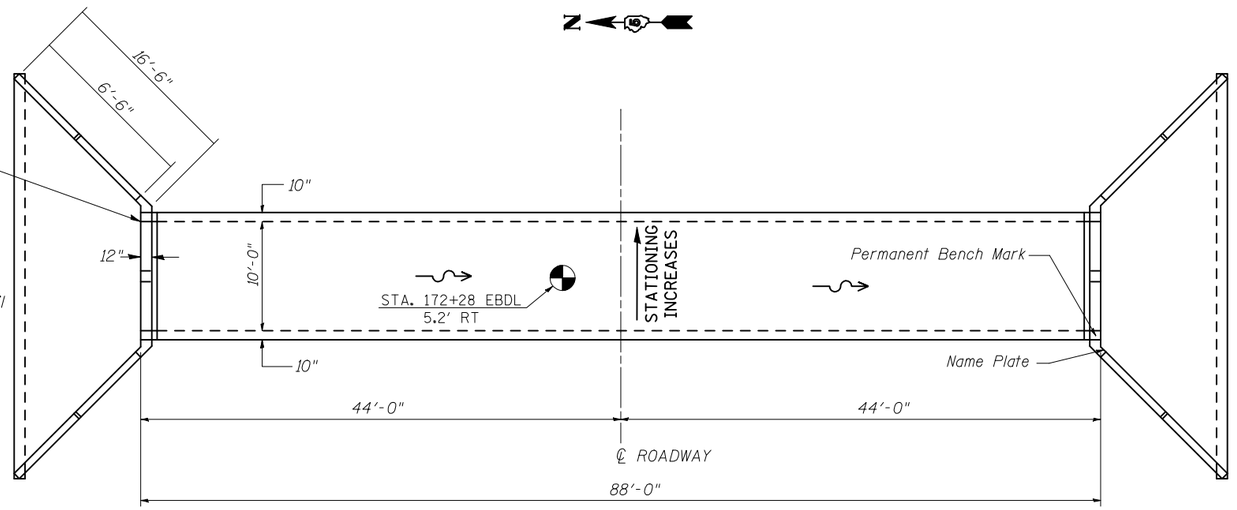
PRECAST UNITS
f'c = 5,000 psi
fy = 65,000 psi (welded wire fabric)



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ℄ OF ROADWAY)

LOOKING EAST/ UP STATION

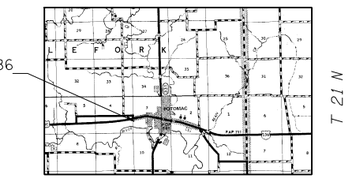


PLAN

Pavement Borings

1. Plan & Profile
2. As Built Plan
3. General Plan and Elevation
4. Porous Granular Embankment Detail
5. Box Culvert End Section Details
6. Soil Borings

R 13 W



WATERWAY INFORMATION

Drainage Area = 0.34 sq. mi. Low Grade Elev. 670.81 @ Sta. 172+33

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	181	33	41				667.1	665.2
Design	50	306	36	50				669.4	666.3
Base	100	363	36	50				670.7	667.0
Overtopping									
Max. Calc.	500	505	36	50				674.6	669.0

Note: Information provided using the Regression Method.

Design Scour Elevation Table

Design Scour Elevation (ft.)	Upstream	Downstream
	661.53	661.12

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specification.

The 6" Porous Granular Material required per Art. 540.06 of the Standard Specifications shall also extend beneath the Box Culvert End Sections and shall be considered included in the cost of Precast Concrete Box Culverts and Box Culvert End Sections.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in/lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section may be built in the field or using precast construction methods . If the contractor elects to use precast construction methods , shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.See Special Provisions.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M259. See Sections B-B, D-D, E-E, and F-F on Sheet 2.

The design fill height for this box is greater than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 259.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures No. 1	Each	1.0
Precast Concrete Box Culvert 10'x5'(M259)	Foot	85.0
Box Culvert End Section, Culvert No. 1	Each	2.0
Name Plates	Each	1.0
Permanent Bench Marks	Each	1.0
Porous Granular Embankment	Cu.Yd.	165.0
Stone Riprap, Class A1	Sq.Yd.	252.0

GENERAL PLAN AND ELEVATION
SINGLE 10'x5' PRECAST BOX CULVERT
F.A.P. ROUTE 711 - SECTION 115CR
VERMILION COUNTY
STATION 172+31.00 S.N. 092-8086
CULVERT NO. 1

FILE NAME = c:\pw_work\pwidot\shererjm\d0189027\D570617-sht-Details.dgn	USER NAME = shererjm	DESIGNED - JMS	REVISED -
		DRAWN - JMS	REVISED -
	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 11/16/2010	DATE - 062910	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
PROPOSED CULVERT NO. 1, S.N. 092-8086

SCALE: N/A | SHEET NO. 3 OF 8 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
711	115CR	VERMILION	39	13
		CONTRACT NO. 70617		
		ILLINOIS	FED. AID PROJECT	