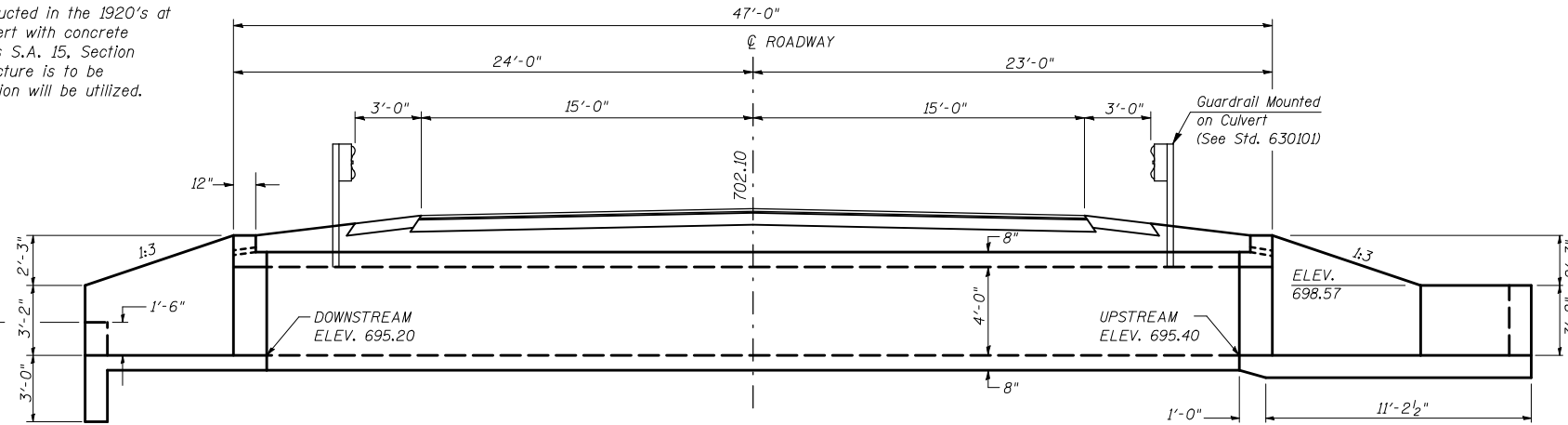
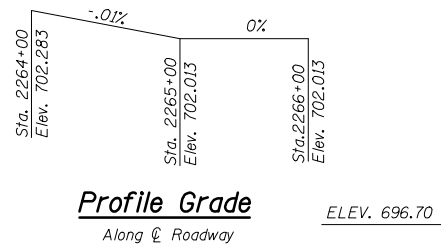


F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	281

BENCHMARK ELEV. = 701.350 Chiseled square on the N. end of the E. headwall of S.N. 010-8095.

EXISTING STRUCTURE: S.N. 010-8095 was constructed in the 1920's at station 264+90 as a 7'x4' cast-in-place box culvert with concrete headwalls. In 1953 the structure was extended as S.A. 15, Section 94A-MFT in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



**ELEVATION**  
(DIMENSIONS AT RIGHT ANGLES TO CL OF ROADWAY)

STATION 2264+91.00  
BUILT 20\_\_ BY  
STATE OF ILLINOIS  
F.A.P. RT. 808 SEC. (205,57,105)RS-2  
LOADING HS 20  
STRUCTURE NO. 010-8137

**NAME PLATE**  
See Std. 515001

**INDEX OF SHEETS**

1. General Plan and Elevation
- 2, 3. Box Culvert End Section Details
4. Staging Details
5. Porous Granular Detail
6. Existing Structure Information

**DESIGN SPECIFICATIONS**  
2002 AASHTO

**LOADING HS20-44**

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

**DESIGN STRESSES**

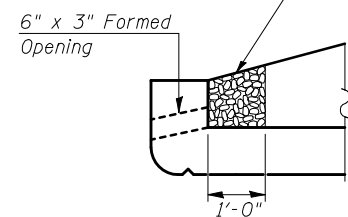
**FIELD UNITS**

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

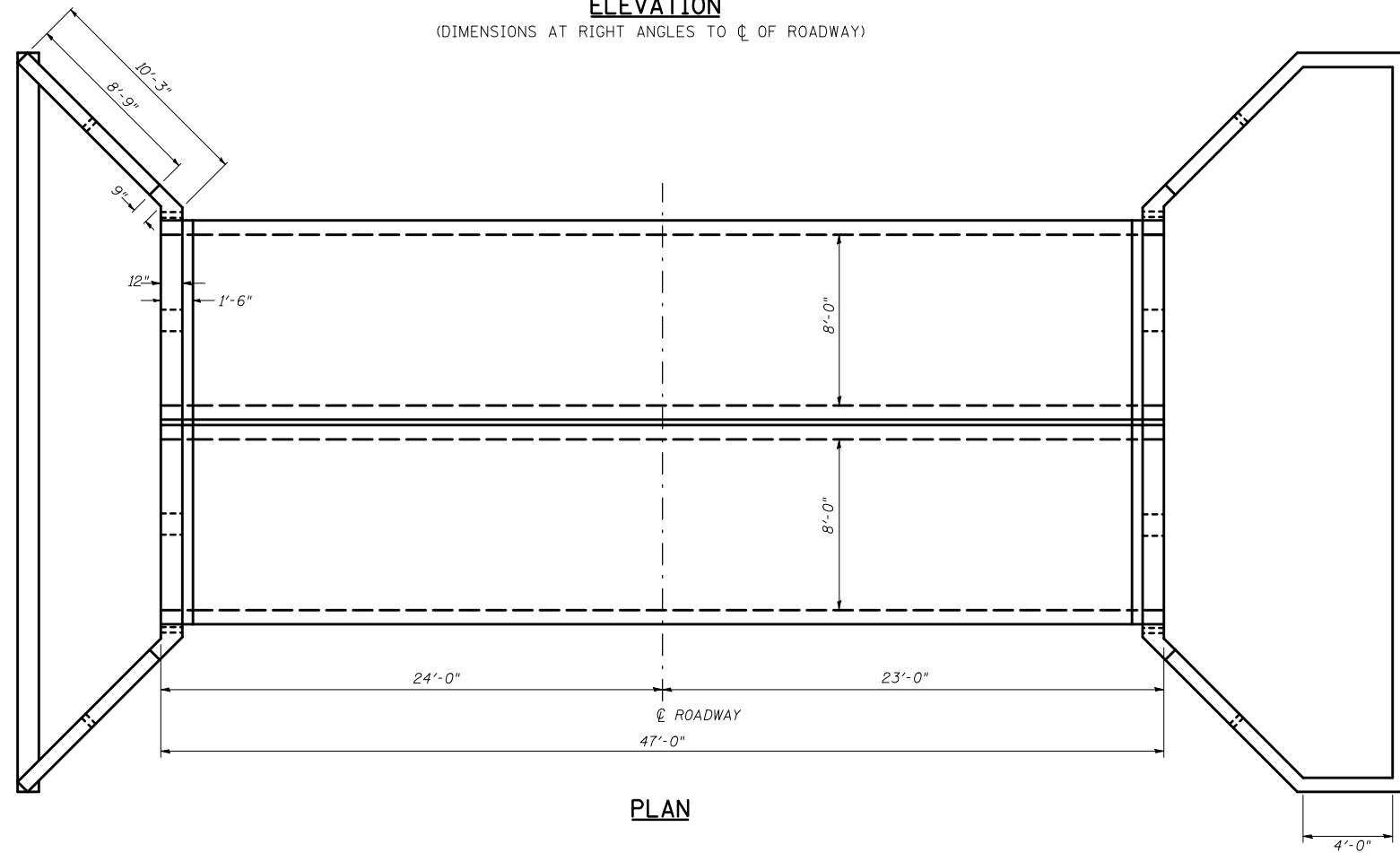
**PRECAST UNITS**

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

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.



**DRAIN DETAIL**



**PLAN**

**WATERWAY INFORMATION**

Drainage Area = 0.361 sq. mi. Low Grade Elev. 702.10 @ Sta. 2264+91

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	166	28	48			699.89	698.30	
Base	50	282	28	48			702.10	699.09	
Overtopping	100	337	28	48			Over	699.47	
Max. Calc.	500	472	28	48			Over	700.45	

Note: Information provided using the USGS 2004-5103 Method.

**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 Specifications.

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 shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

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 M273. See Section D-D on Sheet 3.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

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	Each	1
Precast Concrete Box Culverts 8'x4'	Foot	88
Box Culvert End Sections	Each	2
Name Plates	Each	1
Storm Sewer Protected, Class A 12"	Foot	28
Storm Sewer Protected, Class A 15"	Foot	4
Concrete Collar	Cu Yd	0.5

SHEET 1 OF 6

**GENERAL PLAN AND ELEVATION**  
**DOUBLE 8'x4' PRECAST BOX CULVERT**  
**F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2**  
**CHAMPAIGN COUNTY**  
**STATION 2264+91.00, S.N. 010-8137**  
**CULVERT NO. 13**