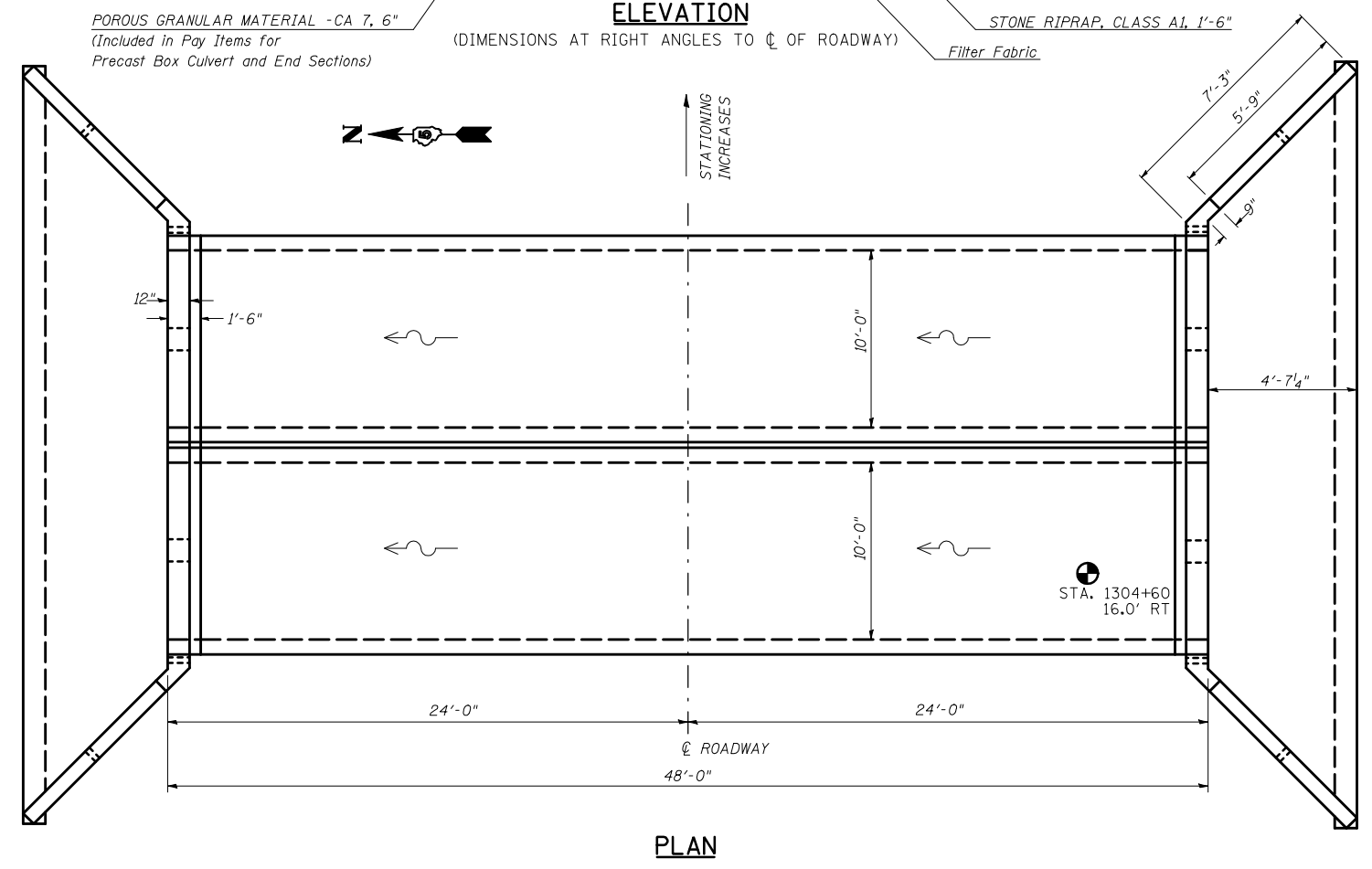
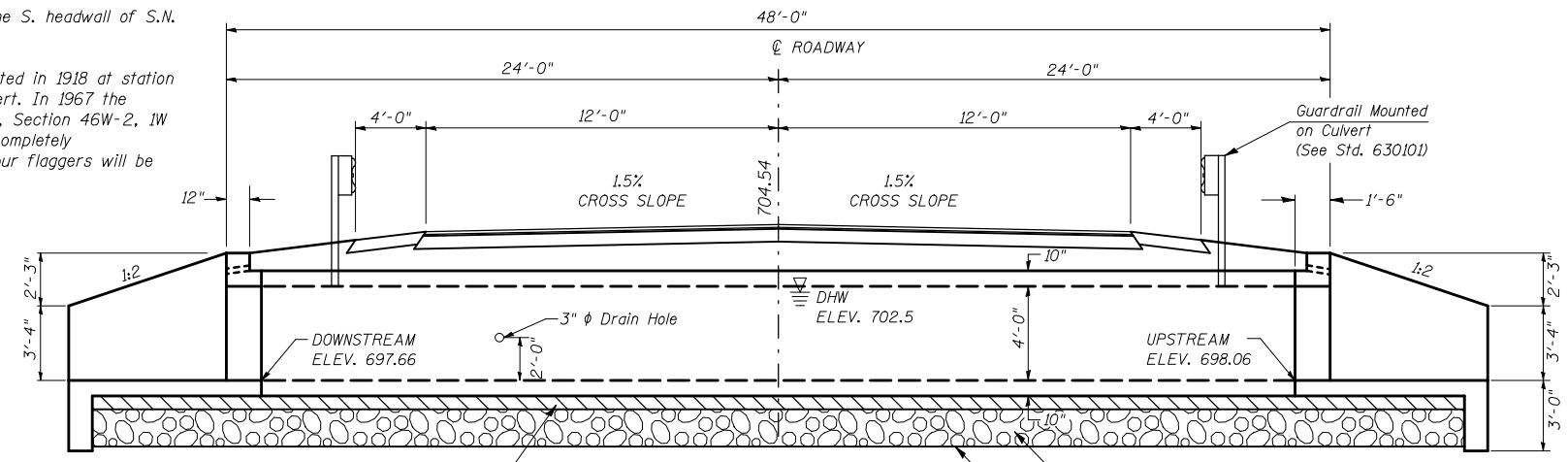
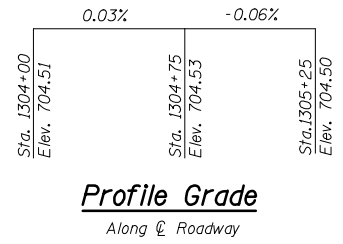


BENCHMARK ELEV. = 703.07' Chiseled square on the S. headwall of S.N. 092-8027.

EXISTING STRUCTURE: S.N. 092-8027 was constructed in 1918 at station 1304+66.00 as a 6'x4' reinforced concrete box culvert. In 1967 the structure was extended on each end as SBI Route 9, Section 46W-2, 1W in Vermillion County. The existing structure is to be completely removed and replaced. Stage Construction with 24-hour flaggers will be utilized.



**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.
- 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. One drain hole on exterior culvert walls shall be provided for each precast box culvert 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 Sections B-B, D-D, E-E, and F-F on Sheet 2.
- 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 design reinforcement areas shall conform to those found in Table 1 of the AASHTO M273 specification for a 10'x5' box section.
- 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.

STATION 1304+66.00  
BUILT 2010 BY  
STATE OF ILLINOIS  
F.A.P. RT. 697 SEC. 46BR  
LOADING HS 20  
STRUCTURE NO. 092-2042

**NAME PLATE**  
See Std. 515001

**INDEX OF SHEETS**

- General Plan and Elevation
- Box Culvert End Section Details
- Staging Details
- Porous Granular Detail
- Existing Structure Information
- Soil Boring Log

**DESIGN SPECIFICATIONS**  
2002 AASHTO

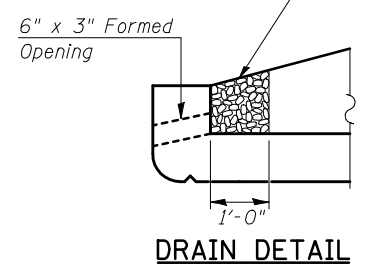
**LOADING HS20-44**  
Allow 50#/sq.ft. for future wearing surface

**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 Box Culvert End Sections.



**WATERWAY INFORMATION**

Proposed Low Grade Elev. = 704.38 @ Sta. 1307+50

Existing Low Grade Elev. = 704.38 @ Sta. 1307+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head - Ft.		Headwater Elevation	
			Existing	Proposed		Existing	Proposed	Existing	Proposed
	10	257	24	57				Overtopped	701.9
Design	50	396	24	80				Overtopped	702.5
Base	100	454	24	80				Overtopped	Overtopped
Max. Calc.	500	590	24	80				Overtopped	Overtopped

10 YEAR VELOCITY THROUGH EXISTING BRIDGE = 15'/s      10 YEAR VELOCITY THROUGH PROPOSED BRIDGE = 3'/s

\* Information provided using the USGS method

**TOTAL BILL OF MATERIAL**

Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 10'x4'	Foot	90
Box Culvert End Sections	Each	2
Name Plates	Each	1
Stone Riprap, Class A1	Ton	158
Filter Fabric	Sq Yd	175

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	N. Cut-Off Wall	S. Cut-Off Wall
	694.66	695.06

**GENERAL PLAN AND ELEVATION  
DOUBLE 10'x4' PRECAST BOX CULVERT  
F.A.P. ROUTE 697 - SECTION 46BR  
VERMILION COUNTY  
STATION 1304+66.00, S.N. 092-2042**