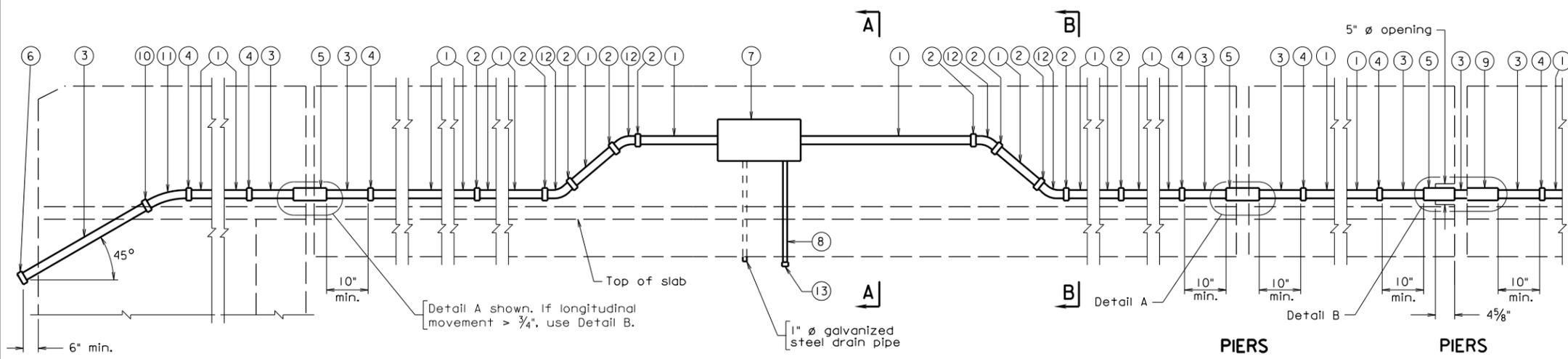


STATE	FEDERAL AID		STATE	SHEET
ROUTE	PROJECT	ROUTE	PROJECT	NO.
VA.				



Notes:

Close adherence to the manufacturer's requirements in regard to clearances for the installation of deflection fittings shall be observed.

Junction chamber frame and cover to be galvanized, after fabrication, in accordance with ASTM A123.

Cost of Bridge Conduit System and anchorages shall be included in price bid for parapet.

Longitudinal movement is the maximum amount of movement of the expansion and deflection fitting calculated for placement at 60°F and shall be adjusted in accordance with manufacturer's requirements. The amount of movement shall be increased or decreased for every 10°F temperature drop or rise respectively by t.

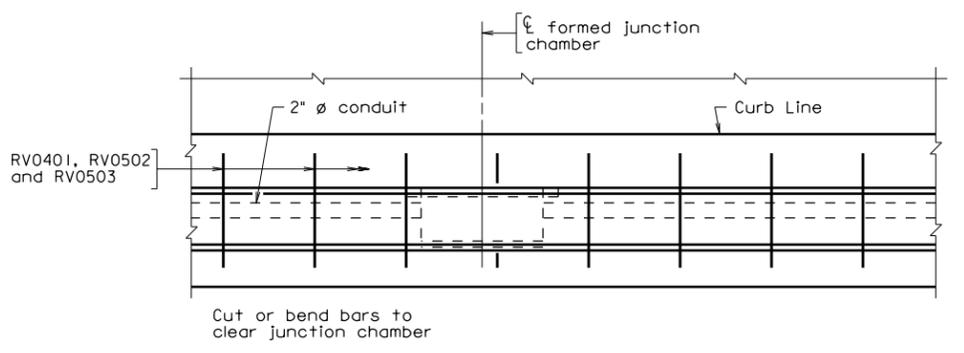
The Contractor shall determine all dimensions and details necessary for installation.

Conduit shall be grounded in conformance with Section 700 with grounding materials that conform to Section 238.

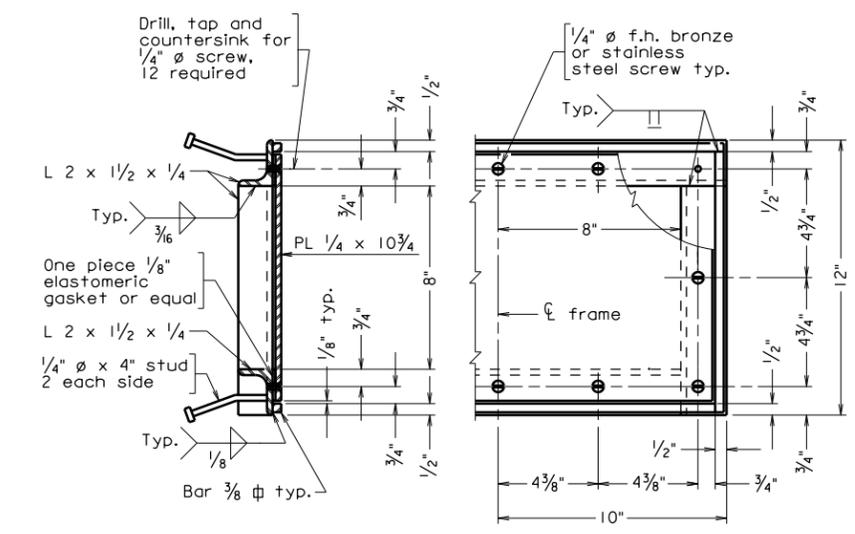
ABUTMENTS

CONDUIT LAYOUT
Scale: 3/4" = 1'-0"

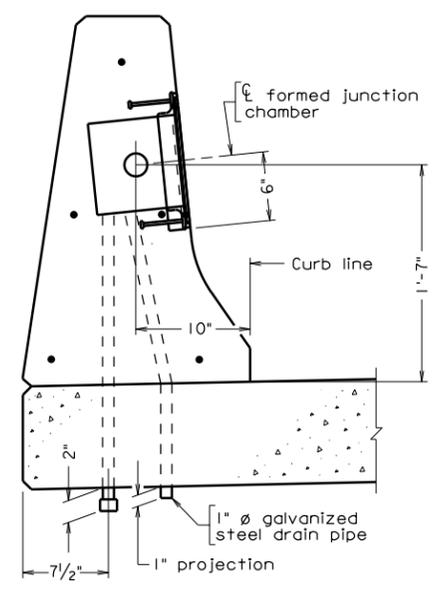
- ① 2" \varnothing nonmetallic conduit
- ② Nonmetallic coupling
- ③ 2" \varnothing metal conduit
- ④ Adapter to connect nonmetallic conduit to metal conduit
- ⑤ Metal expansion and deflection fitting
- ⑥ 2" \varnothing pipe cap
- ⑦ 8" x 8" x 1'-4" formed junction chamber
- ⑧ 1" \varnothing metal conduit
- ⑨ Metal expansion fitting
- ⑩ Pipe coupling
- ⑪ 2" \varnothing 45° 13" R steel elbow
- ⑫ 2" \varnothing 45° 9 1/2" R nonmetallic elbow
- ⑬ 1" \varnothing pipe cap



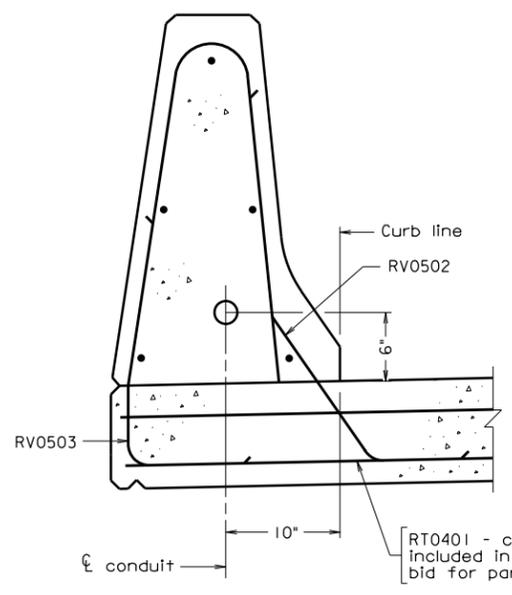
PLAN
Scale: 1" = 1'-0"



JUNCTION CHAMBER FRAME
Scale: 3" = 1'-0"



SECTION A-A
Scale: 1 1/2" = 1'-0"



SECTION B-B
Scale: 1 1/2" = 1'-0"

Abutment	Pier	Longitudinal Movement	+	Detail Type

When deck is continuous over pier, expansion and deflection fitting detail is not required.

bcs29a.dgn

06-14-2010

BCS-29A

Sealed and Signed by:
Julius F.J. Volgyi Jr.,
Lic. No. 010487
On the date of
June 14, 2010

A copy of the original sealed and signed standard drawing is on file in the Central Office.

VDOT S&B DIVISION
RICHMOND, VA
STRUCTURAL ENGINEER

Scale as noted

© 2010, Commonwealth of Virginia

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION				
STRUCTURE AND BRIDGE DIVISION				
BRIDGE CONDUIT SYSTEM				
No.	Description	Date	Designed: S&B DIV	Date
Revisions			Checked: S&B DIV	
			Plan No.	Sheet No.
			BCS-29A	

**BRIDGE CONDUIT SYSTEM
OTHER THAN LIGHTING WITH F-SHAPE PARAPET**

NOTES TO DESIGNER:

Standard is to be used for miscellaneous bridge conduit system other than bridge lighting, e.g., for lighting signs/sign structures attached to bridge. Details are for use with F-shape parapet. Terminal wall for parapet is located on abutment or U-back wing.

Access to junction box is from the inside of the parapet face on the traffic side. If access is required from the outside of the parapet, use standard BCS-22A.

Size of junction chamber: 8" x 6" x 1'-4". Show location of junction chamber(s) on appropriate plan sheet, normally plan of deck slab. Conduit size: 2" diameter. Show location and size of conduit(s) on transverse section sheet.

For larger conduits the bend radius in the conduit (steel elbow and nonmetallic elbow) and the run of the junction chamber need to be changed in the CONDUIT LAYOUT. The minimum run for the junction chamber is 8 x nominal diameter of conduit. For example, the minimum run for a 2" dia. conduit is 1'-4" (8 x 2" = 16" = 1'-4"). For large diameters, the JUNCTION CHAMBER FRAME needs to be adjusted, i.e., if the run is adjusted, the spacing of the screws also needs to be adjusted.

Longitudinal movement (for filling table):

Coefficient of linear expansion of:

concrete: 0.000006 in./in./°F (AASHTO *Standard Specification for Highway Bridges*, 1996; 1997 and 1998 Interim Specifications; and VDOT modifications, Article 8.5.3)

steel: 0.0000065 in./in./°F (AASHTO *Standard Specification for Highway Bridges*, 1996; 1997 and 1998 Interim Specifications; and VDOT modifications, Article 10.2.2)

Temperature ranges (AASHTO *Standard Specification for Highway Bridges*, 1996; 1997 and 1998 Interim Specifications; and VDOT modifications, Article 3.16):

concrete structures: 40°F

steel structures: 60°F

Example: Steel structure, 250 feet of expansion

Longitudinal movement = 250 x 0.0000065 x 60 = 0.0975 ft = 1 1/8 in.

t (movement/10°F) = 250 x 0.0000065 x 10 = 0.01625 ft = 3/16 in.

ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD:

TABLE:

Complete table. Use 1/8" multiples for longitudinal movement. Use 1/16" multiples for t (movement/10°F).