



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Structures Engineer

DATE: October 15, 2012

SUBJECT: F-SHAPE CONCRETE BARRIER RAIL

A new F-shape concrete barrier rail, which satisfies the AASHTO LRFD requirements for a TL-4 bridge rail, has been approved for use on bridges. The minimum height of the F-shape rail shall be 42" (1067 mm) above the riding surface and should be used on Statewide and Regional tier bridges, in lieu of the 32" (813 mm) New Jersey shape concrete barrier rail. Subregional tier bridges shall use the 42" (1067mm) Vertical Concrete Barrier Rail.

The attached Design Manual Figures 6-22 and 6-23 have been developed to show the details of the F-shape rail. The design weight for the F-shape rail shall be 550 lbs./ft. (8.03 kN/m).

The following Design Manual figure, Standard Drawings and/or models within the Standard Drawings have been revised to accommodate the F-shape rail:

- Fig. 6-25 – Location of Adhesively Anchored Dowels for Barrier Rails.
- BAS4 – Bridge Approach Slab Details.
- CBR1 – Concrete Barrier Rail.
- GRA2 – Guardrail Anchorage for Barrier Rail.
- EJS2 – Expansion Joint Seal Details for Barrier Rail.
- MEJS1 – Modular Expansion Joint Seal Details for Barrier Rail.
- PCBB8 – Prestressed Concrete Beam Unit Details.
- PCS3 – Prestressed Concrete Cored Slab Unit (Barrier Rail Details, BOM & Notes).
- SSSJ2 – Strip Seal Expansion Joint Details for Barrier Rail.

Payment for the F-shape rail shall be made under the "Concrete Barrier Rail" pay item.

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Project Engineers
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This policy is effective immediately on all new projects. Make every effort to use the F-shape rail on projects currently in development.

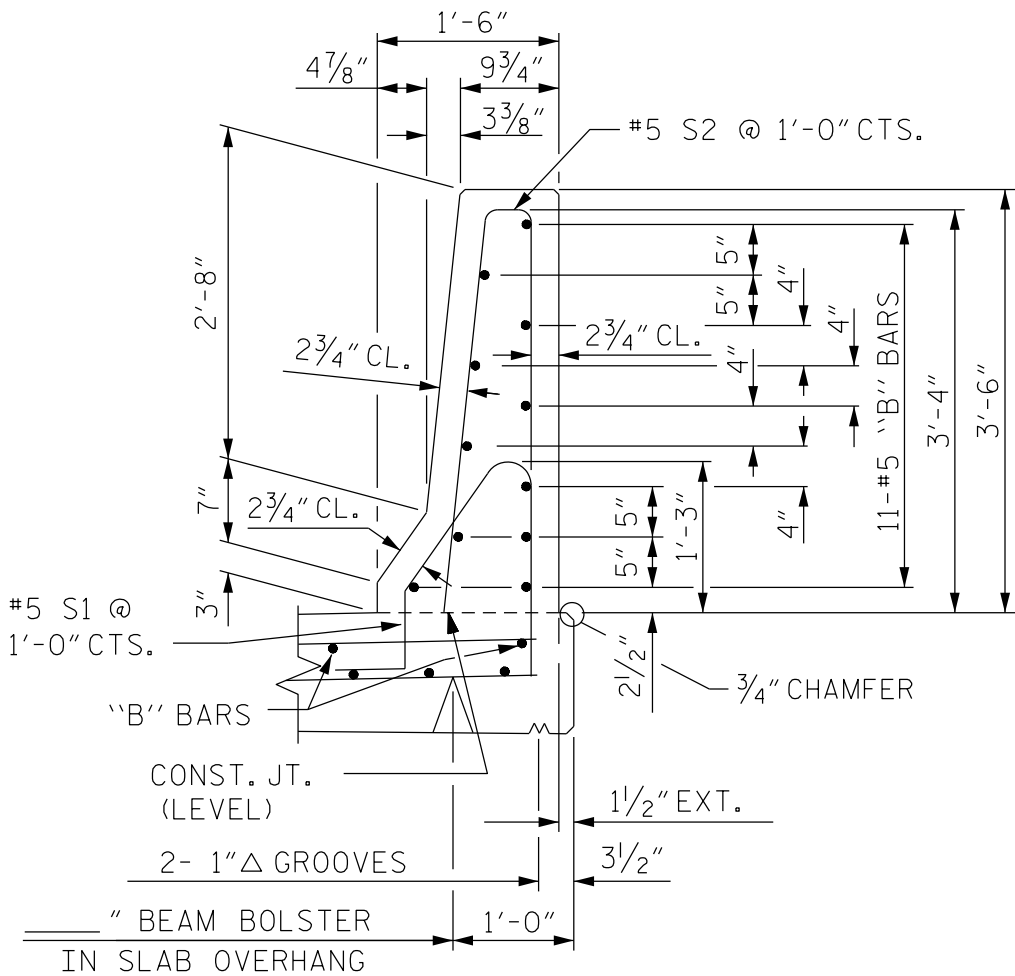
GRP/BCH/GM

Attachments:

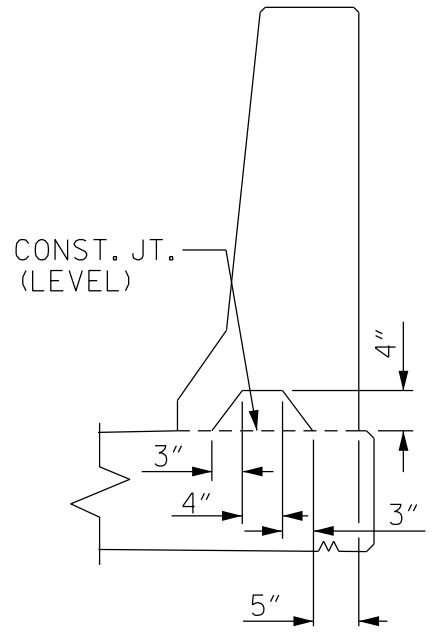
Figure 6-22

Figure 6-23

cc: T. K. Koch, P. E.
R. A. Raynor, Jr., P. E.
E. B. Nelson, P. E.
H. Black, P. E.
J. A. Bennett, P. E.
D. S. Chang, P. E.
R. A. Hancock, P. E., Attn.: M. S. Robinson, P. E.
R. D. Rochelle, P. E.
E. Dubin, P. E., FHWA
Randy Garris, P. E., Attn.: Andy Gay, P. E.
Division Bridge Program Managers

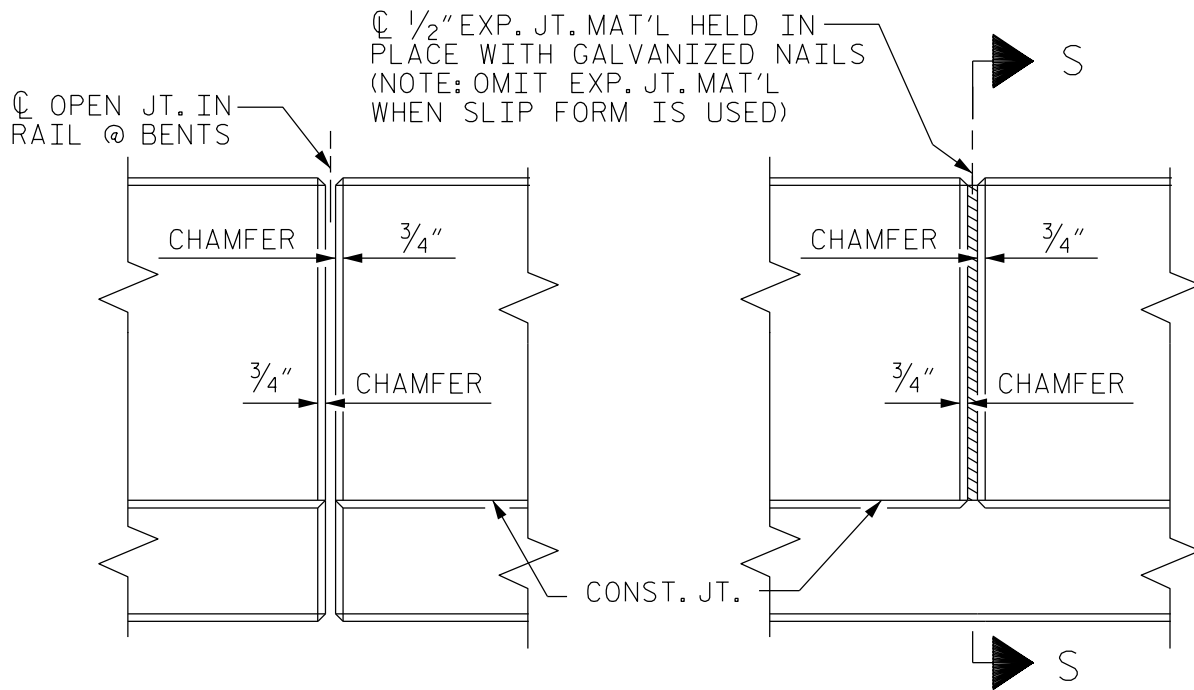


SECTION THRU RAIL



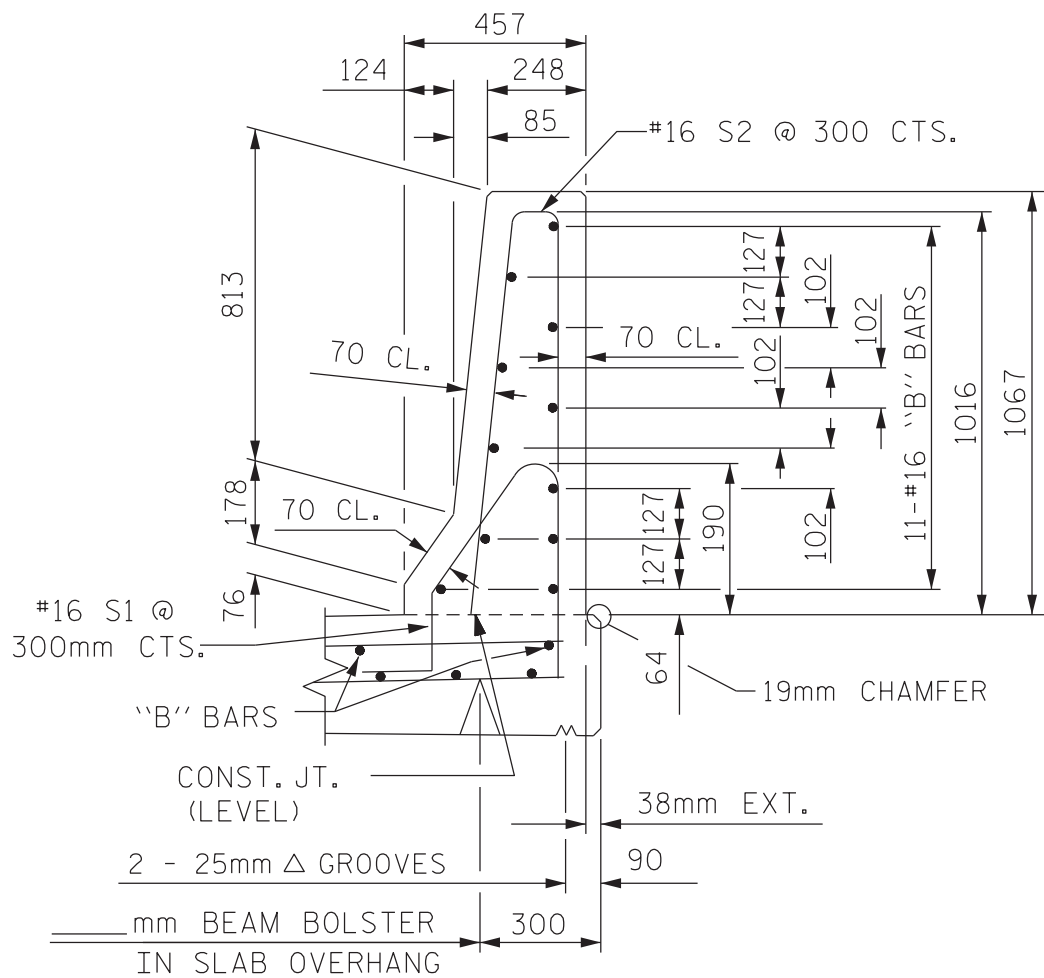
SECTION S-S

AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

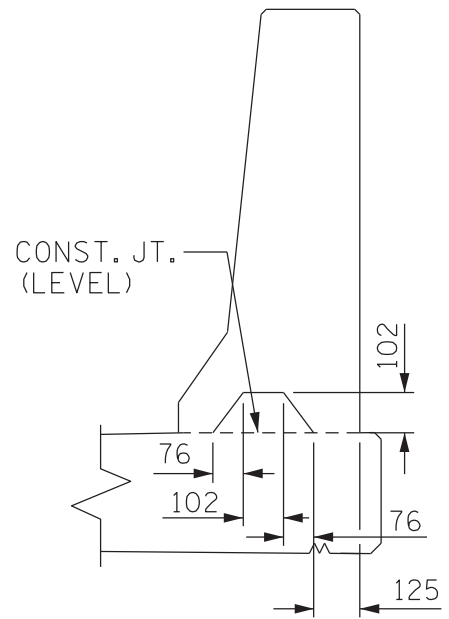


ELEVATION AT EXPANSION JOINTS

42" BARRIER RAIL DETAILS

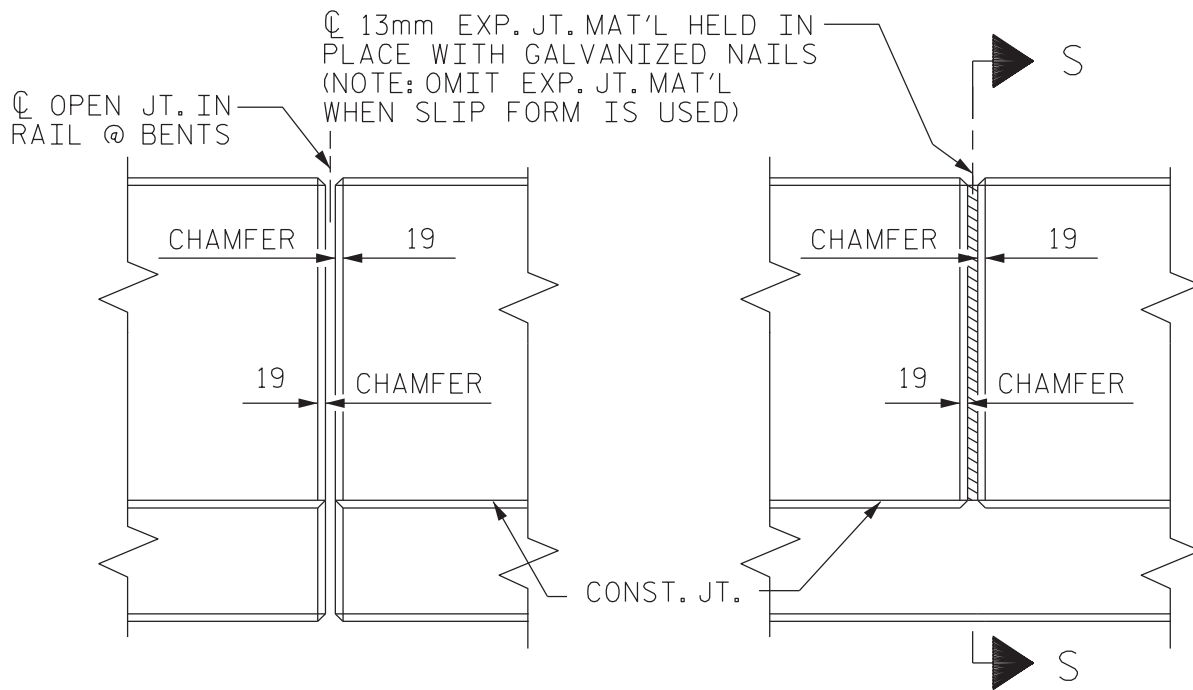


SECTION THRU RAIL



SECTION S-S

AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

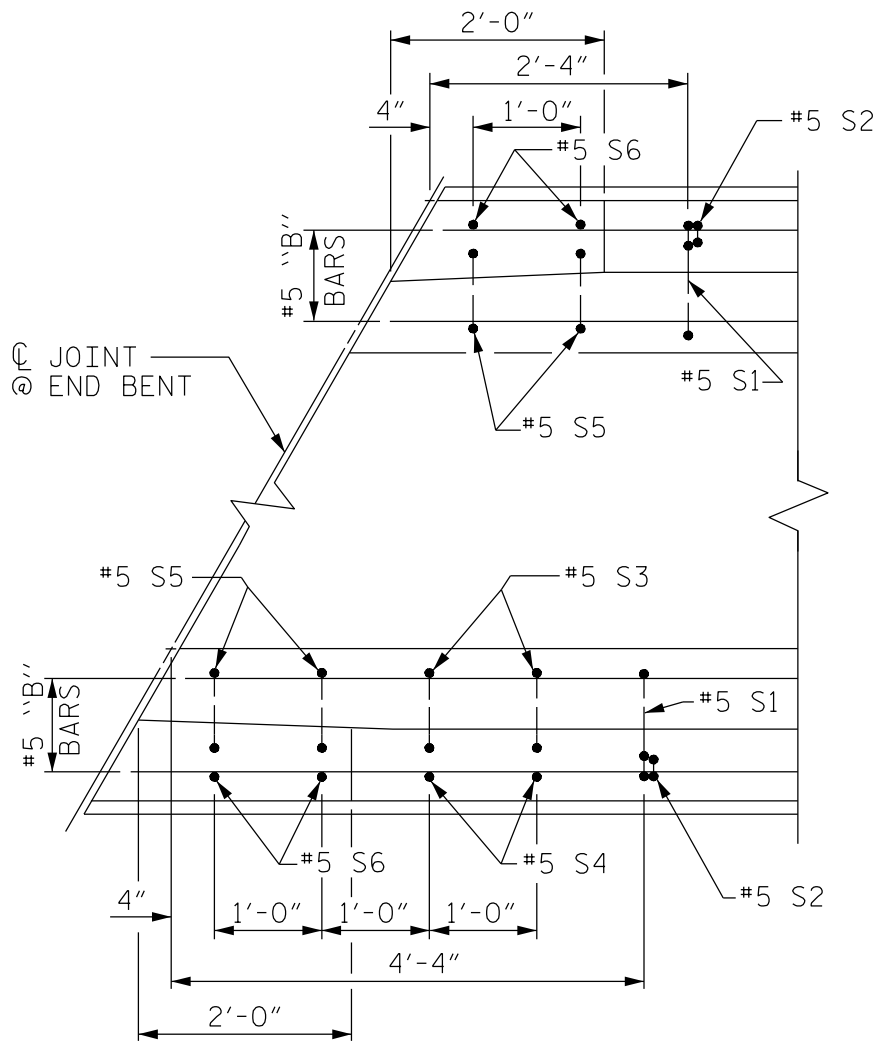


ELEVATION AT EXPANSION JOINTS

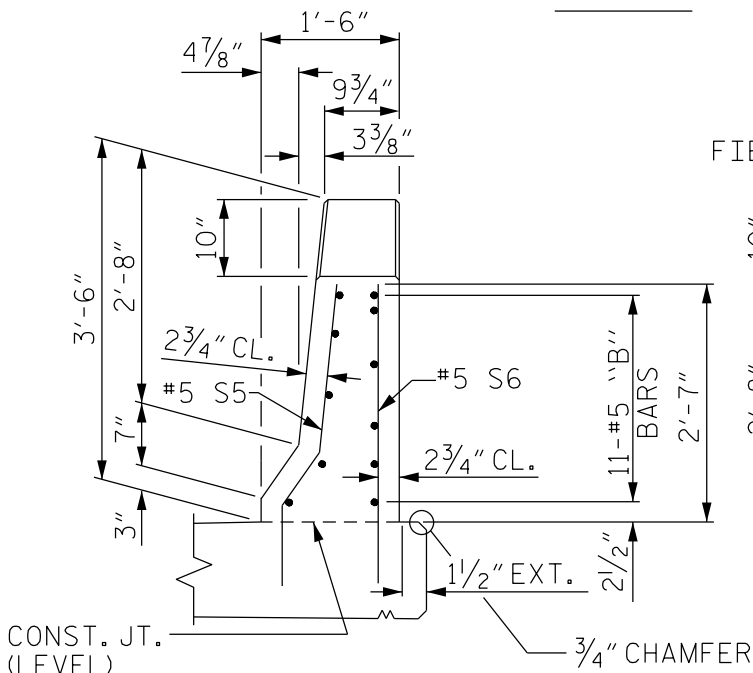
1067mm BARRIER RAIL DETAILS

FIGURE 6 - 22 M

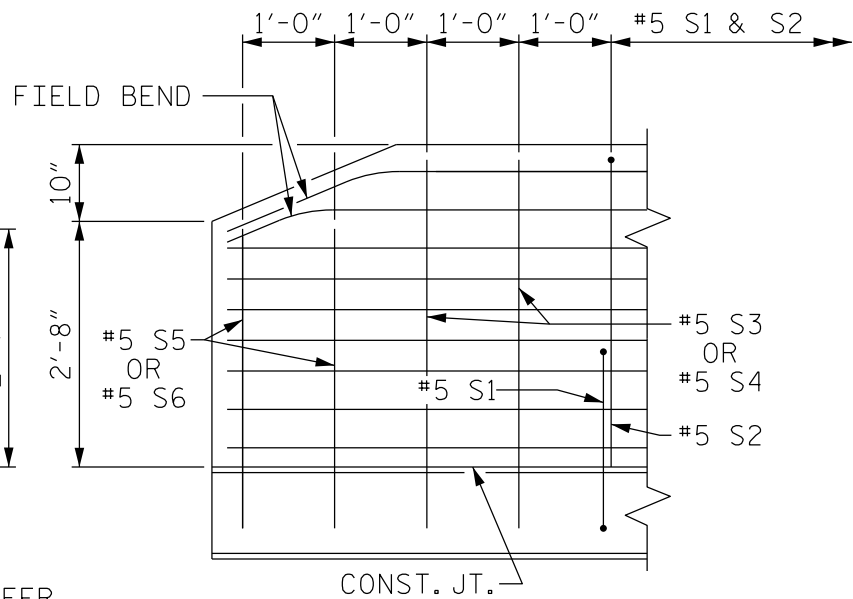
NOTE TO DETAILER:
SEE FIGURE 6-24 FOR
S1 BAR DETAILS.



PLAN



END VIEW



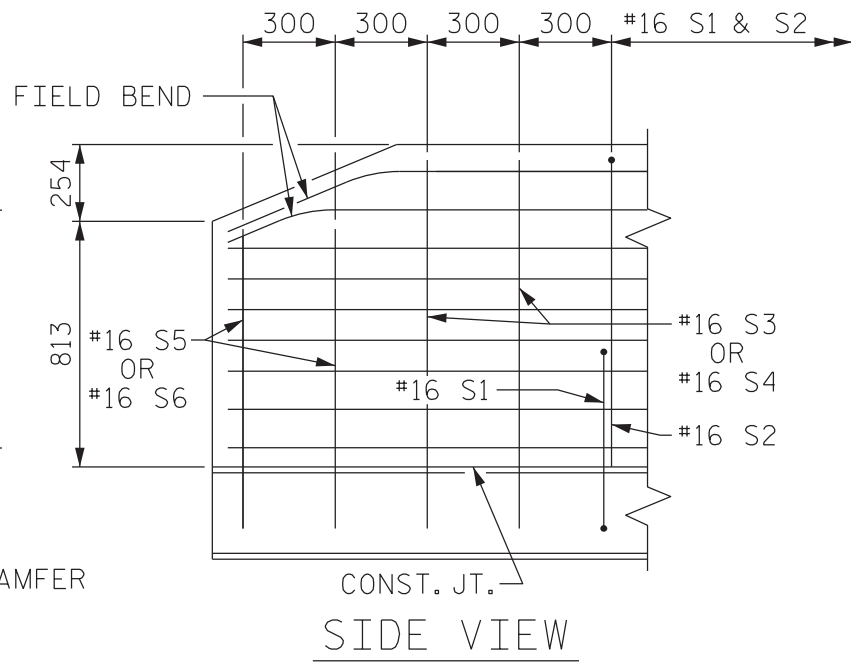
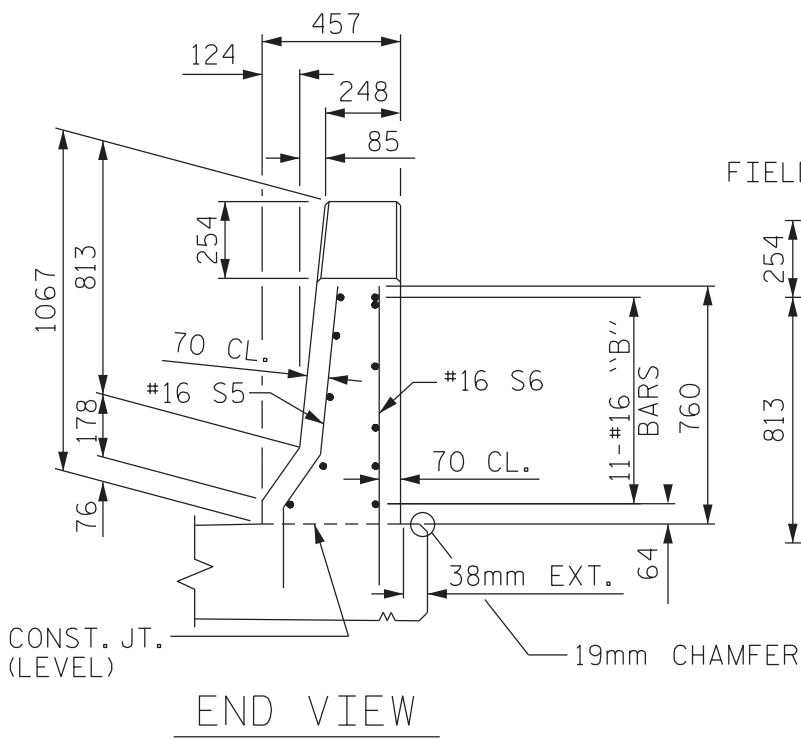
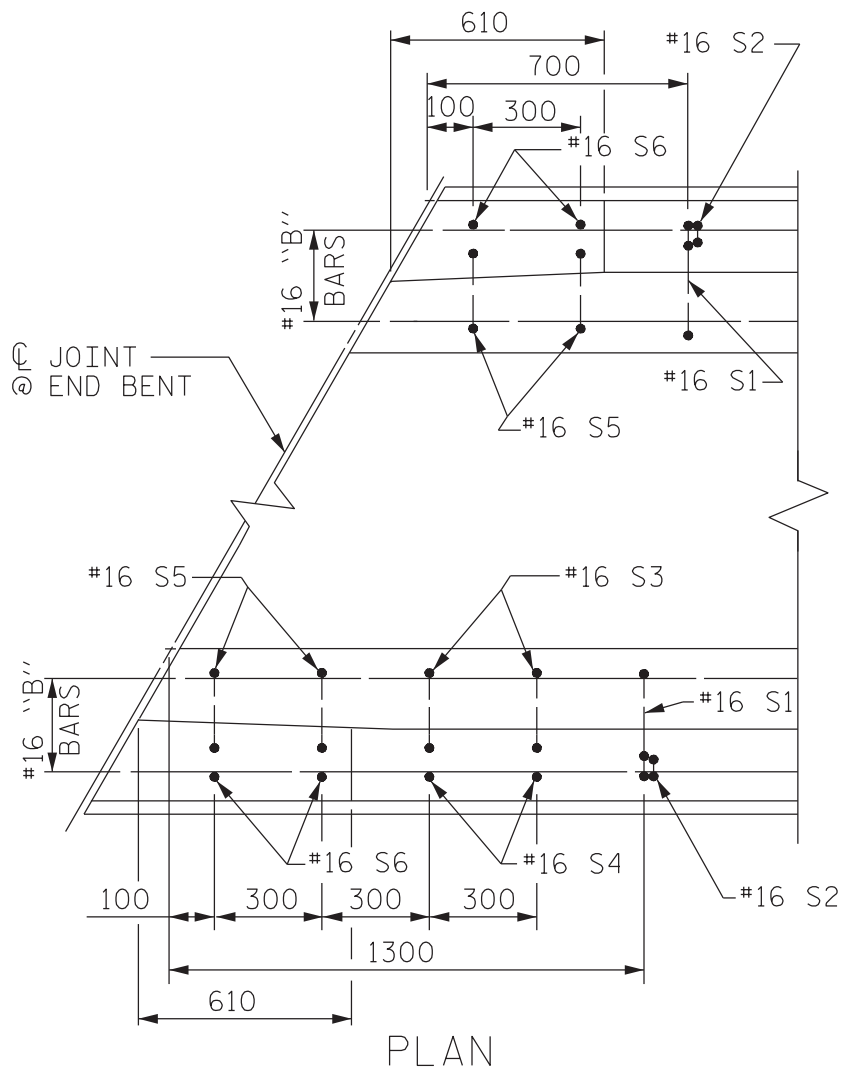
SIDE VIEW

END OF 42" RAIL DETAILS

(FOR ADHESIVE ANCHORING AT SAWED JOINTS)

FIGURE 6 - 23

NOTE TO DETAILER:
SEE FIGURE 6-24 FOR
S1 BAR DETAILS.



END OF 1067mm RAIL DETAILS

(FOR ADHESIVE ANCHORING AT SAWED JOINTS)

FIGURE 6 - 23 M