1. For fill to cut guardrail terminals (trailing end), two lane highways, and all approach ends where included ends are specified, the details and requirement notes shall be applicable.

2. Prior to placing guardrail, a final check of existing conditions will be made by the engineer and any adjustment necessary to ensure the proper location and functioning of the guardrail for the purpose for which it is intended will be made accordingly.

3. Posts, blocks and rail elements shall be the same types used in the normal guardrail installation, unless otherwise noted. Guardrail blocks shall not be used on any posts completely underground.

4. The final decision as to the type of cut slope terminal installation type or size at each location will be based on the actual materials encountered by the project constructor.

5. Cut slope terminal installation can interfere with normal drainage through a cut section. When this occurs, details for maintaining positive drainage will be shown on the project plans.

6. When installing CST flexing into 31" top of rail length guardrail, the CST shall be installed at 28-1/2" height. Paper 31" guardrail down vertically prior to CST installation.

7. The CST guardrail terminal should be used only with 2:1 or steeper back slope.

8. The flare rate of the guardrail may be steepened to 8:1 after crossing the ditch bottom to shorten the length of the terminal.

9. Rubrail to extend from post 2, through entirety of ditch, to post 22 at a minimum.

10. For the rub rail section use 8' long posts.

11. See Gr-4A and Gr-4B for details of type A and type B terminals.

12. Maximum clearance from bottom of W-beam to ground line by any part of W-beam RUBRAIL is 18".
NOTES:
1. USE CLASS B CONCRETE.
2. USE EPOXY COATED REINFORCING STEEL, PER SECTION 602 OF THE SPECIFICATIONS.
3. USE GALVANIZED THREADED ROD.
4. THREADED RODS CAN BE CAST INTO CONCRETE BLOCK OR HOLES CAN BE DRILLED INTO BLOCK AND RODS ANCHORED WITH EPOXY.
5. DRILL HOLES A MINIMUM 2 INCH DEEP. CLEAN DRILLED HOLES PRIOR TO INSERTING THREADED ROD.

GENERAL NOTES:
1. USE 1/2 INCH STEEL PLATE MEETING REQUIREMENTS OF ASTM A 36.
2. GALVANIZING REQUIRED FOR PLATE AND HARDWARE.
3. USE ZINC RICH PAINT TO COAT FIELD DRILLED HOLES

TYPE A (SOFT SHALE OR SOIL) CUT SLOPE TERMINAL GUARDRAIL SHALL BE THAT GUARDRAIL WHICH IS TO EXTEND A MINIMUM OF TWO 6'-3" SPANS INTO THE CUT SLOPE, FROM THE FIRST POST BEYOND THE TOE OF THE CUT SLOPE AND IS TO TERMINATE A MINIMUM OF 1'-0" BELOW THE GROUND ELEVATION OF THE BACK SLOPE, EXCEPT IN AREAS OF HEAVY ROCK OUTCROPPING WHERE THE MINIMUM DEPTH MAY BE 6 INCHES.

A TRENCH NO GREATER THAN 18" IN WIDTH SHALL BE EXCAVATED INTO THE CUT SLOPE TO ACCOMMODATE THE TYPE A TERMINAL INSTALLATION. THE CONTRACTOR SHALL ARRANGE HIS WORK SEQUENCE SUCH THAT EACH TYPE A CUT SLOPE TERMINAL INSTALLATION BE EXCAVATED, POSTS DRIVEN, RAIL ELEMENTS AND GUARDRAIL COMPONENTS ASSEMBLED, TRENCH BACKFILLED, AND DISTURBED SLOPE SHAPED SEEDED AND MULCHED ALL IN A CONTINUOUS OPERATION.
Type B (Shale or Rock) Cut Slope Terminal installation shall consist of anchoring the guardrail against the face of the cut slope utilizing guardrail end shoes and rock bolts, as detailed herein.

**Guardsrail End Shoe Detail**

- **Base Metal Nominal Thickness, 0.135"**
- **Standard Terminal Hole (Optional)**
- **3/4" x 2 1/2" Post Bolt Slot (Optional)**
- **1/4" x 3 1/2" Bolts and Washers**

**Type B (Shale or Rock) Cut Slope Terminal Installation**

- **Bolts Conforming to ASTM F432 Specifications**
- **Max Slope 10:1 (50' Gradient)**
- **Edge of Shoulder Standard Rock Guardrail**
- **Shale or Rock Cut Bolts for Ditch Anchor (Rock)**
- **5/8" x 5'L Galvanized Steel Bolt**

**Type B (Shale or Rock) Installation**

- **Standard Sheet GMB**
- **PREPARED 4/22/15**
- **CUT SLOPE TERMINAL**
- **SHALE OR ROCK**
- **TYPE B INSTALLATION**