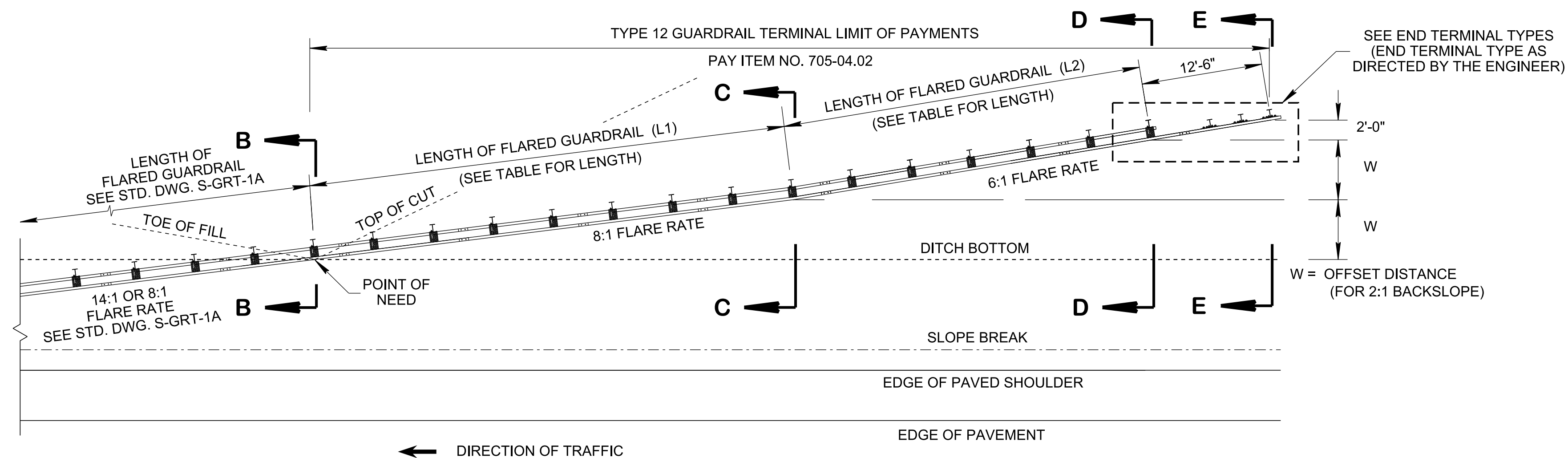
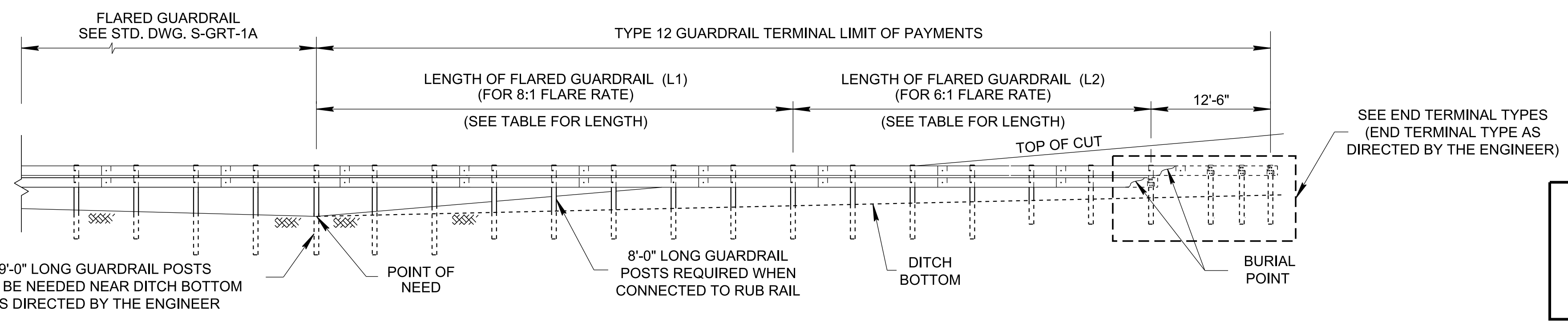


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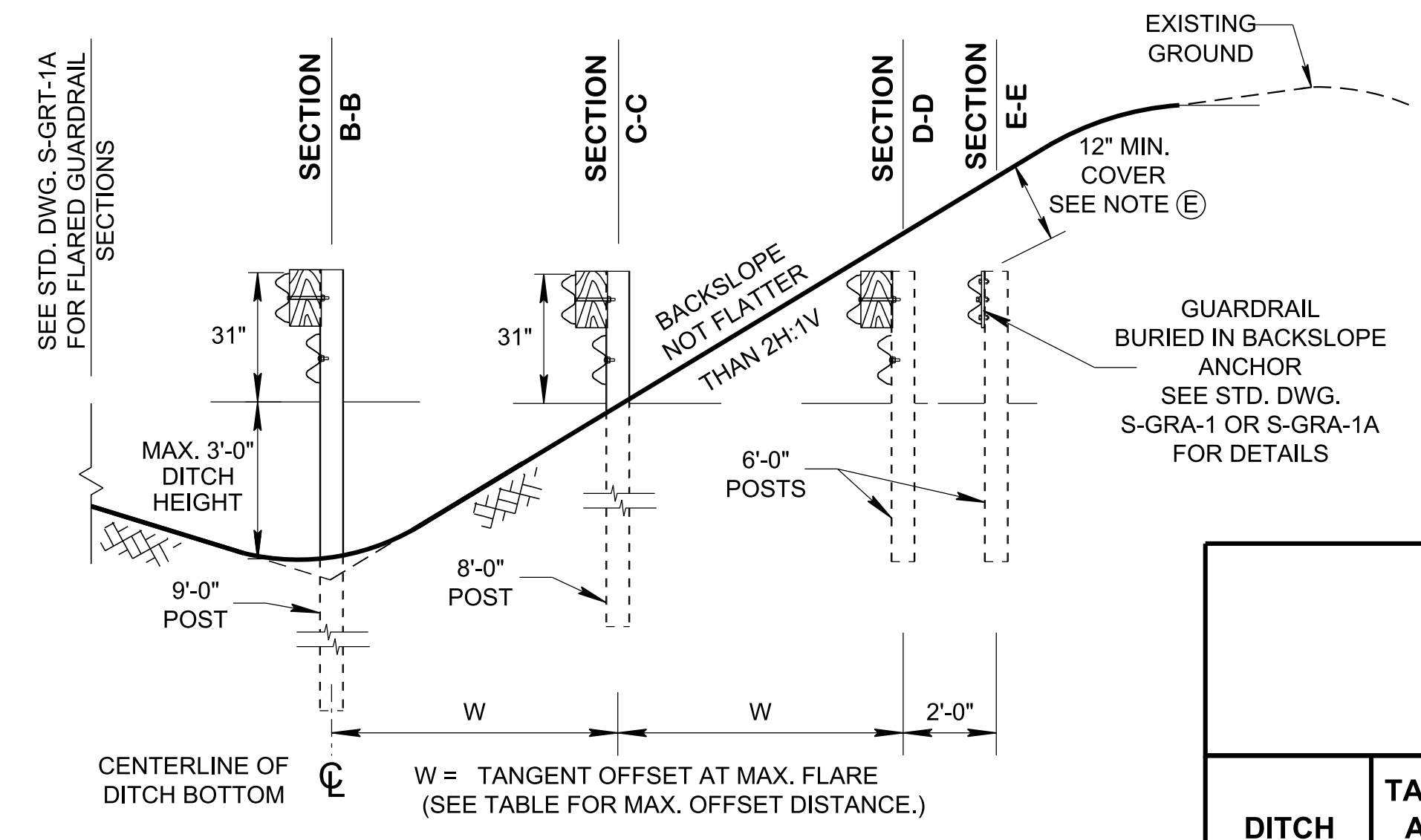


PLAN VIEW

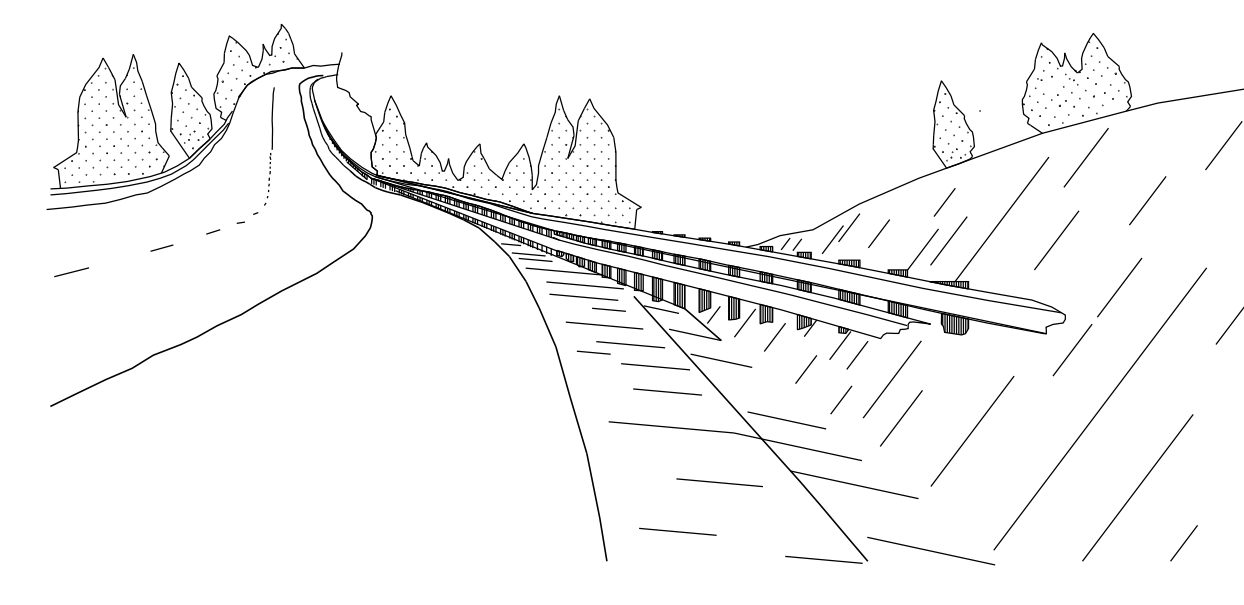


ELEVATION VIEW

MINIMUM INSTALLATION LENGTH OF TYPE 12 GUARDRAIL TERMINAL BURIED-IN-BACK SLOPE



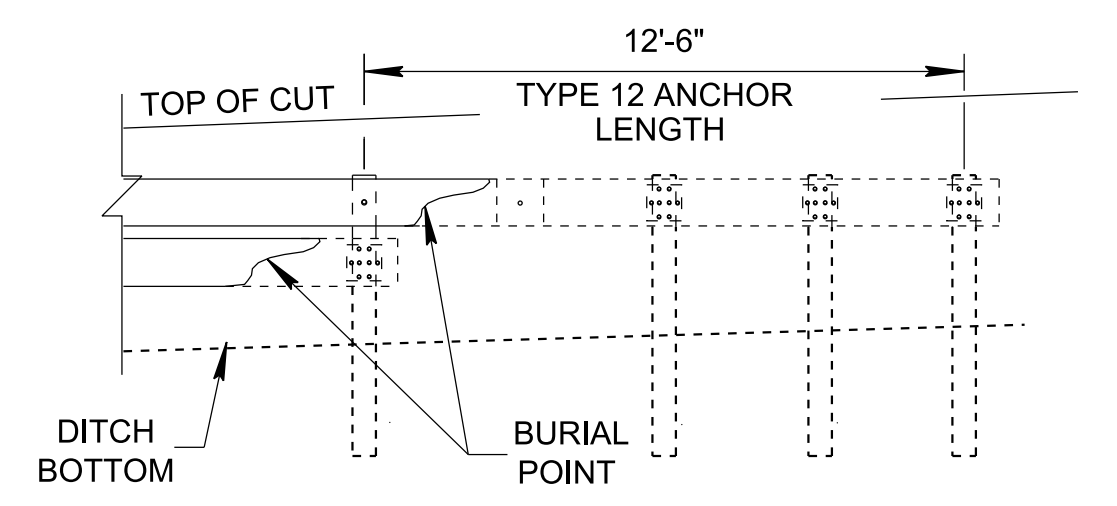
SECTION VIEWS FOR BACKSLOPE



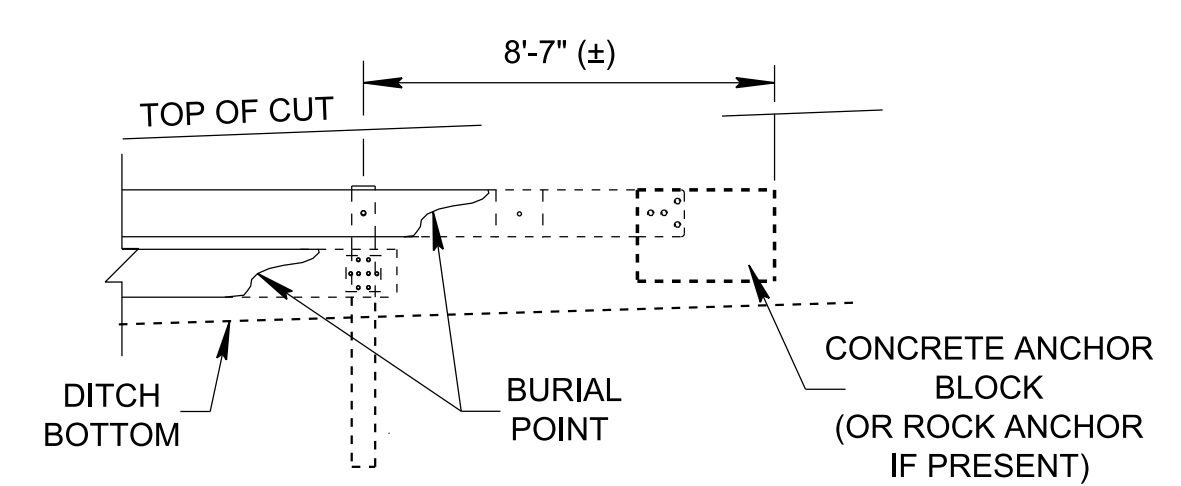
PERSPECTIVE VIEW

TABLE LENGTH OF TYPE 12 GUARDRAIL TERMINAL BURIED-IN-BACKSLOPE					
DITCH HEIGHT	TANGENT OFFSET AT MAX. FLARE (W) (FOR 2:1 BACKSLOPE)	LENGTH OF FLARED GR		TYPE 12 * ANCHOR LENGTH	TOTAL LENGTH OF TYPE 12 TERMINAL
		8:1 FLARE RATE	6:1 FLARE RATE		
3'-0"	6'-0"	50'-0"	37'-6"	12'-6"	100'-0"
2'-0"	4'-0"	37'-6"	25'-0"	12'-6"	75'-0"
1'-0"	2'-0"	25'-0"	12'-6"	12'-6"	50'-0"

* TABLE ABOVE REFERS TYPE 12 ANCHOR LENGTH (STANDARD DRAWING S-GRA-1A). FOR CONCRETE ANCHOR BLOCK (TYPE 12 GUARDRAIL ANCHOR) REFER TO STANDARD DRAWING S-GRA-1.



GUARDRAIL ANCHOR FOR TYPE 12 TERMINAL
(SEE STD. DWG. S-GRA-1A FOR DETAILS)



TYPE 12 GUARDRAIL ANCHOR (ALTERNATIVE ANCHOR)
(SEE STD. DWG. S-GRA-1 FOR DETAILS)

END TERMINAL TYPES
(END TERMINAL TYPE AS DIRECTED BY THE ENGINEER)

NOTE TO DESIGNER

THIS STANDARD DRAWING SHOWS TYPE 12 GUARDRAIL TERMINAL BURIED-IN-BACKSLOPE INSTALLATION IN BACKSLOPE. USE THIS DRAWING WITH REFERENCING STANDARD DRAWINGS S-GRT-1A AND S-GRT-1B

GENERAL NOTES

(A) THE NON-TRAVERSABLE (TL-2) TYPE 12 GUARDRAIL TERMINAL SHOULD BE USED ONLY WITH 2:1 OR STEEPER BACKSLOPE. IF BACKSLOPE IS FLATTER, THE FULL DESIGN LENGTH OF NEED OF THE BARRIER MUST BE PROVIDED.

(B) THE TYPE 12 GUARDRAIL BURIED IN BACKSLOPE TERMINAL HAS BEEN EVALUATED BY TEXAS A & M TRANSPORTATION INSTITUTE AND MEET MASH TL-3 STANDARDS, AND THE EVALUATION HAS BEEN DOCUMENTED IN THE ROADSIDE SAFETY RESEARCH PROGRAM POOLED FUND TEST REPORT NO. 608431-01-1 & 2.

(C) THE FILL SLOPE MUST NOT BE ALLOWED TO SPILL UNDER THE RAIL THROUGHOUT THE LENGTH OF NEED BECAUSE THIS EFFECTIVELY DECREASES THE RAIL HEIGHT AND ALLOWS VEHICLE OVERRIDE RATHER THAN CONTAINMENT AND REDIRECTION.

(D) THE FLARE RATE OF THE GUARDRAIL IS STEEPENED TO 8:1 AFTER CROSSING THE BOTTOM OF DITCH.

(E) IF MINIMUM 12" COVER OVER THE END TERMINAL POST CANNOT BE ACHIEVED, THE ELEVATION OF GUARDRAIL MAY BE LOWERED AT A 10:1 SLOPE RATE AFTER CROSSING THE DITCH BOTTOM.

(F) THE CONTRACTOR SHALL CONSTRUCT FORESLOPES AS PART OF THE INITIAL GRADING OPERATIONS AS SHOWN ON THIS STANDARD DRAWING AFTER FIELD VERIFICATION OF HAZARD LOCATION AND ENGINEER'S APPROVAL.

(G) ONLY USE TYPE 38 OR TYPE 21 (WHERE APPROPRIATE) IF SUITABLE BACKSLOPE IS NOT AVAILABLE.

(H) ADD W-BEAM RUB RAIL WHENEVER THE CLEARANCE FROM THE BOTTOM OF THE W-BEAM TO THE GROUND LINE EXCEEDS 18 INCHES.

(I) FOR THE RUB RAIL SECTION USE 8 FEET LONG POST UNLESS OTHERWISE NOTED. AND 9 FEET LONG POST MAY BE NEEDED NEAR DITCH BOTTOM AS DIRECTED BY THE ENGINEER.

(J) THE DESIGNER SHALL INCORPORATE THE DETAILS SHOWN ON THIS DRAWING IN THE RIGHT-OF-WAY AND CONSTRUCTION PLANS AS WELL AS THE ROADWAY CROSS-SECTION SHEETS.

(K) SEE STANDARD DRAWINGS S-GRA-1 AND S-GRA-1A FOR BURIED-IN-BACKSLOPE END TERMINAL ANCHOR INSTALLATION, S-GR SERIES FOR ADDITIONAL GUARDRAIL DETAILS, RD11-S-11 FOR ROADSIDE SLOPE DEVELOPMENT AND RD11-S-11A FOR ROADSIDE DITCH DETAILS.

(L) PAYMENT FOR FURNISHING AND INSTALLING GUARDRAIL TERMINAL (TYPE 12) INCLUDING ALL COMPONENTS WILL BE MADE UNDER PAY ITEM NUMBER:

705-04.02, GUARDRAIL TERMINAL (TYPE 12) MASH TL-2 PER EACH

REV. 03-16-17: UPDATED REFERENCE TO STD. DWG. FROM "S-GRP-1" TO "S-PL-1". CORRECTED REF. TO STD. DWG. FROM "RD-S-11" TO "RD01-S-11" AND "RD-S-11A" TO "RD01-S-11A".

REV. 06-28-19: REVISED FLARE RATES, NOTE (C) AND RUB RAIL LIMITS. MOVED NOTE TO DESIGNER TO GENERAL NOTE NO. (L). REDREW SHEET.

REV. 10-29-2021: THE PLAN AND THE ELEVATION VIEWS WERE REDRAWN. THE PERSPECTIVE VIEW AND THE FLARE RATE TABLE WERE REMOVED. SECTIONS WERE MERGED AND REDRAWN. THE NEW TABLE AND THE END TERMINAL TYPES DETAIL WERE ADDED. ADDED NEW NOTE TO DESIGNER NOTE AND REMOVED FROM GENERAL NOTE. REARRANGED GENERAL NOTE NO'S AND ADDED GENERAL NOTE (L) REVISED GENERAL NOTES (I) AND (K)

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
 STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION
TYPE 12 GUARDRAIL TERMINAL BURIED-IN-BACKSLOPE