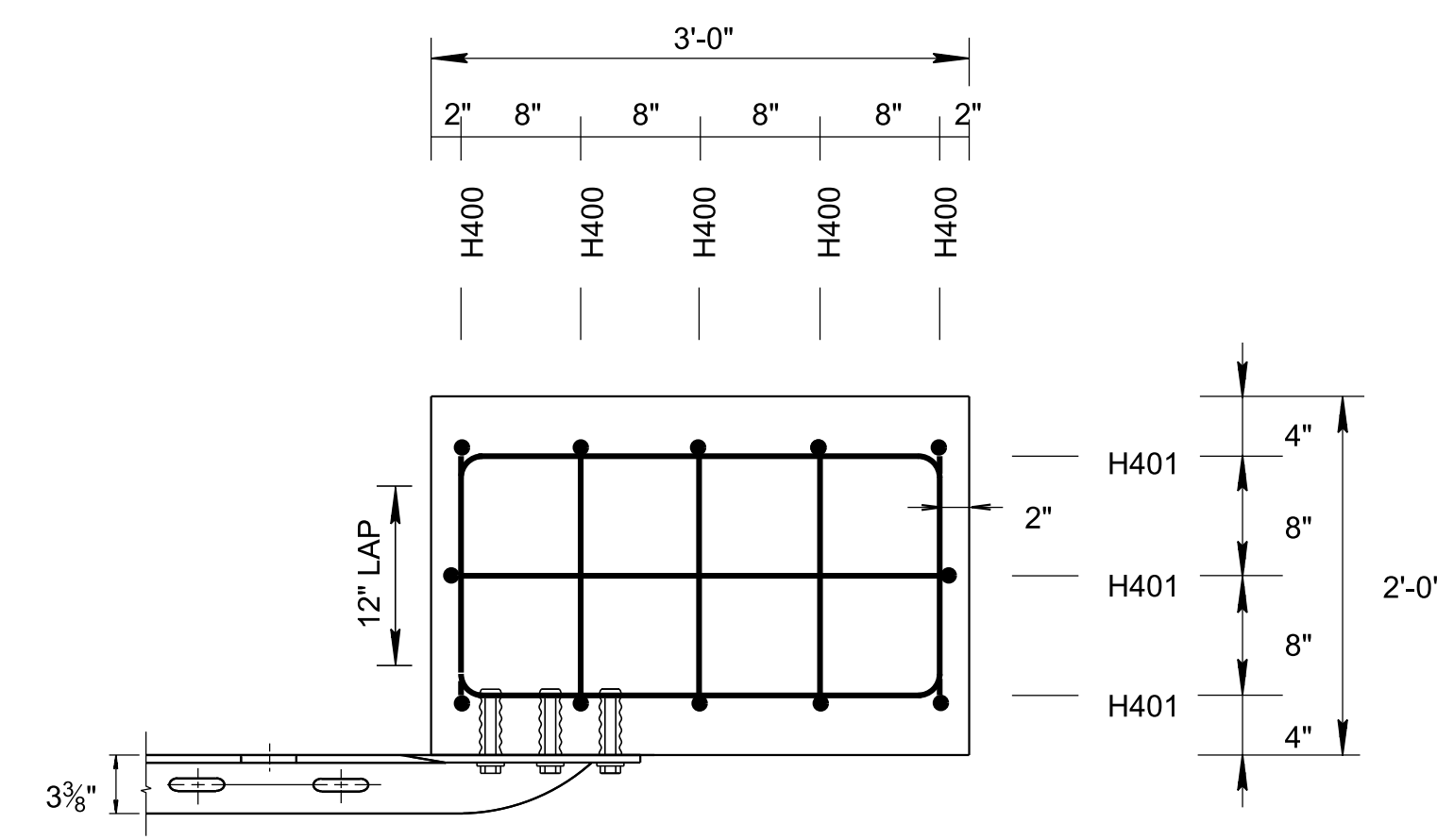
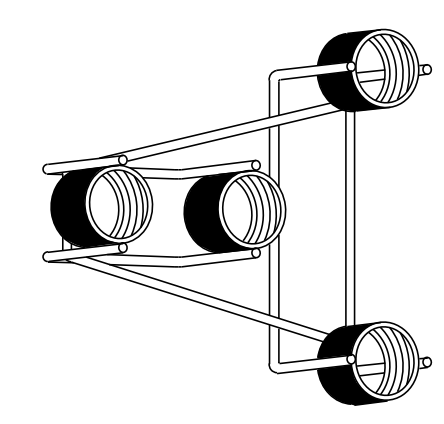


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REV. 10-10-16: CHANGED TITLE, REFORMATTED GENERAL NOTES TO BE CONSISTENT WITH OTHER STANDARD DRAWINGS. SEPARATED ELEVATION (SIDE) DETAIL INTO (2) DETAILS.  
 REV. 06-28-2019: REDREW SHEET.

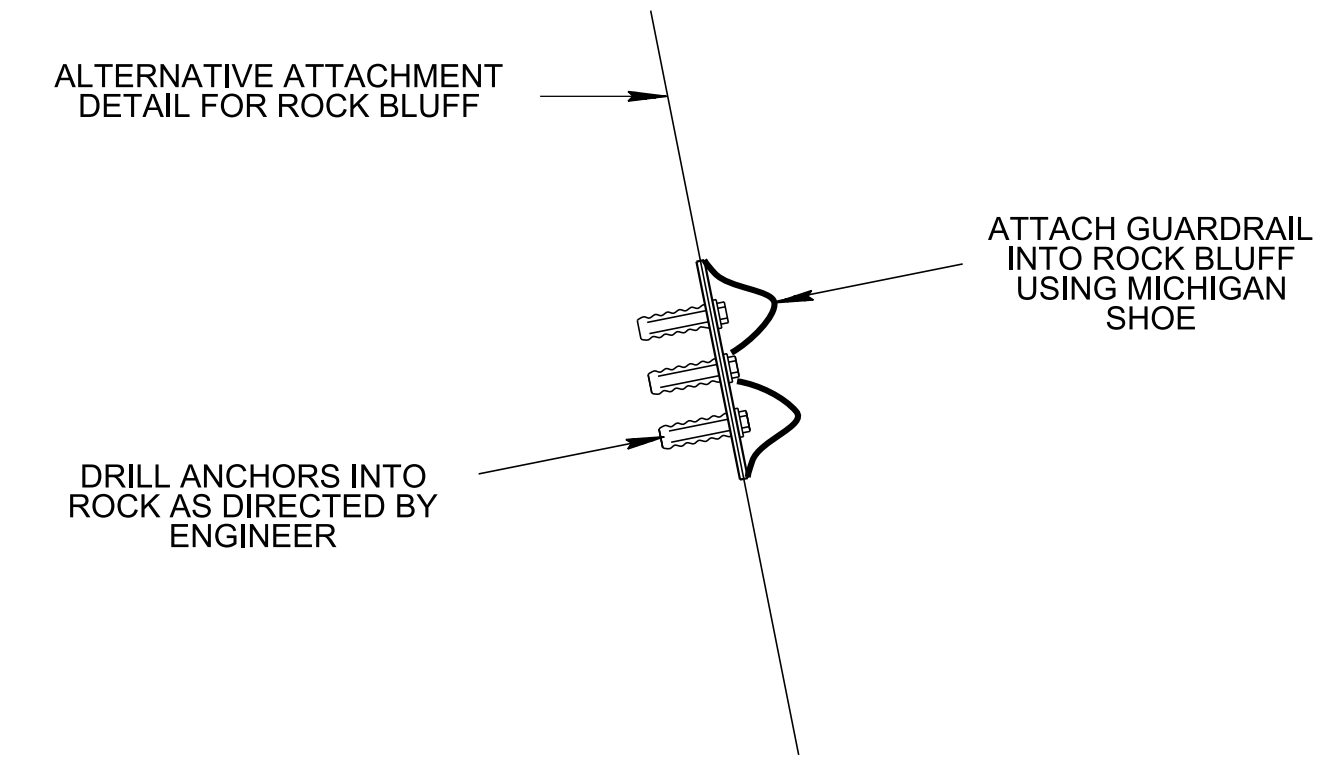


PLAN

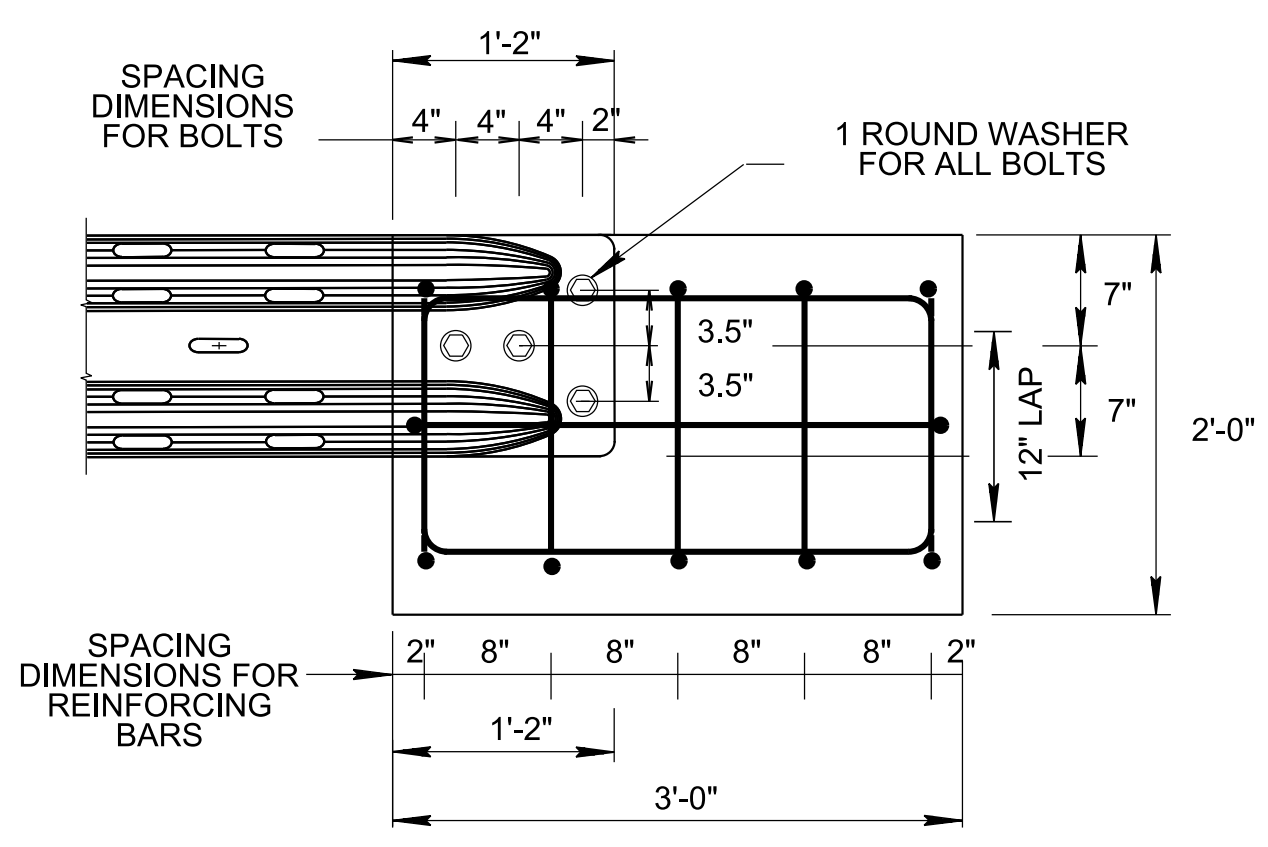


**ANCHOR BLOCK INSERT ASSEMBLY**

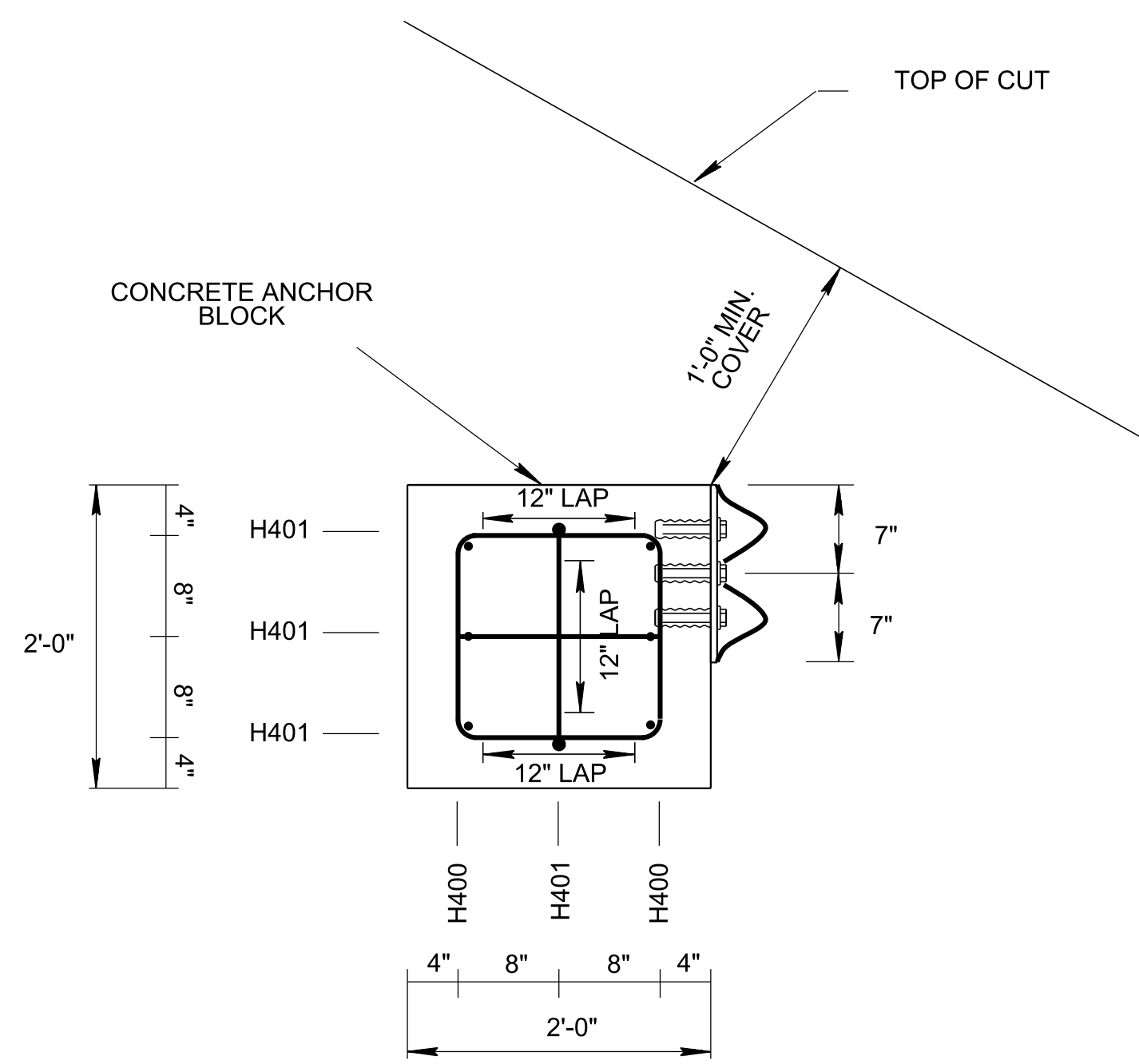
CAST IN PLACE THREADED STEEL INSERT WITH  
 7/8" DIA. X 2" HEX HEAD GALVANIZED BOLTS (ASTM A307)  
 HOT DIP ZINC COATING ASTM A153



**ALTERNATE ELEVATION (SIDE)**



**ELEVATION (FRONT)**



**ELEVATION (SIDE)**

**NOTE TO DESIGNER**  
 TO BE USED WITH S-GRT-1 ONLY

**SPECIAL INSTALLATION NOTE**  
 FOR THIS GUARDRAIL ANCHOR TO FUNCTION AS IT WAS CRASH TESTED UNDER NCHRP 350 TL-3 IT MUST BE CONSTRUCTED PER S-GRT-1.

**GENERAL NOTES**

- (A) REQUIREMENTS FOR ANCHOR INSERT BOLTS SHALL BE 7/8" HEX HEAD INSTALLED IN 7/8" MASONRY ANCHOR. THE INSERTS ARE TO BE THREADED A MINIMUM OF 1 3/4". THE CONTRACTOR SHALL FURNISH ANCHOR PULL-OUT DATA FROM AN INDEPENDENT TESTING LABORATORY USING CLASS "A" CONCRETE IN ACCORDANCE WITH STATE OF TENNESSEE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION". THE ULTIMATE LOAD FOR 7/8" ANCHOR SHALL BE 19,000 POUNDS. BOLTS SHALL CONFORM TO ASTM A307.
- (B) THE MASONRY ANCHORS SHALL BE SUB-SET IN THE CONCRETE AT A DEPTH OF BETWEEN 3/32" TO 1/4" AND TORQUED WITH THE END TERMINAL IN THE PLACE TO AN EQUIVALENT DIRECT PULL-OUT LOAD OF 12,000 POUNDS. SLIPPAGE SHALL NOT EXCEED 1/4".
- (C) THE CONTRACTOR WILL PERFORM ON-SITE TESTING OF EACH BOLT IN THE PRESENCE TDOT PERSONNEL TO ENSURE THESE REQUIREMENTS ARE MET. ANY INSTALLATION NOT MEETING THESE REQUIREMENTS SHALL BE CORRECTED AT THE CONTRACTOR EXPENSE.
- (D) THE CONTRACTOR MAY ELECT TO USE 7/8" DIAMETER DRILLED IN ANCHORS WITH 50 KIPS PER SQUARE INCH OR GREATER YIELD STRENGTH WHEN ATTACHING THE TERMINAL END ELEMENTS INTO ROCK. SEE ABOVE GENERAL NOTE B FOR PULL-OUT REQUIREMENTS.
- (E) IF THE CONTRACTOR DRILLS THESE ANCHOR BOLTS IN ROCK, THE SAME FLARE RATE MUST BE USED THAT WOULD BE USED WITH THE CRASH TESTED CONCRETE ANCHOR BLOCK.
- (F) COST OF CONCRETE ANCHOR BLOCK TO BE INCLUDED IN THE COST OF ITEM NO. 705-04.02.
- (G) ESTIMATED QUANTITIES OF CONCRETE AND STEEL ARE:  
 CLASS "A" CONCRETE= 0.44 CUBIC YARD  
 NO. 4 STEEL REINFORCING BARS= 52 POUNDS
- (H) SEE S-GRA-1A FOR ALTERNATE BURIED-IN-BACKSLOPE ANCHOR.

REINFORCING STEEL LEGEND			
14"	16"	H400	14"
14"	32"	H401	14"

NOT TO SCALE

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE  
 STANDARD DRAWING  
 DEPARTMENT OF TRANSPORTATION

TYPE 12  
 GUARDRAIL ANCHOR