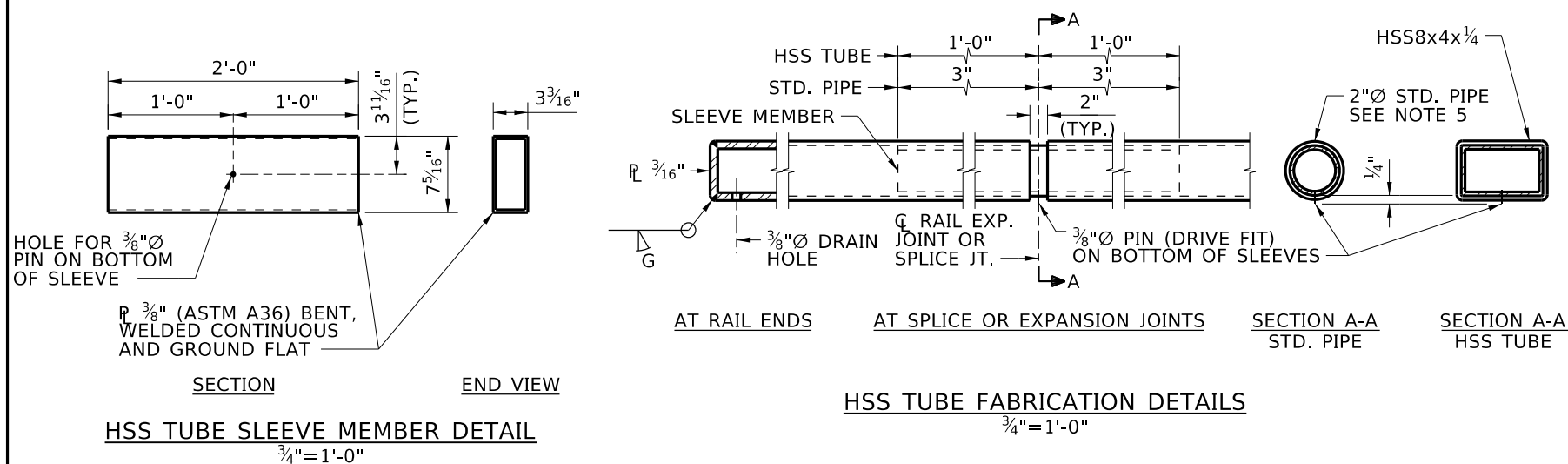
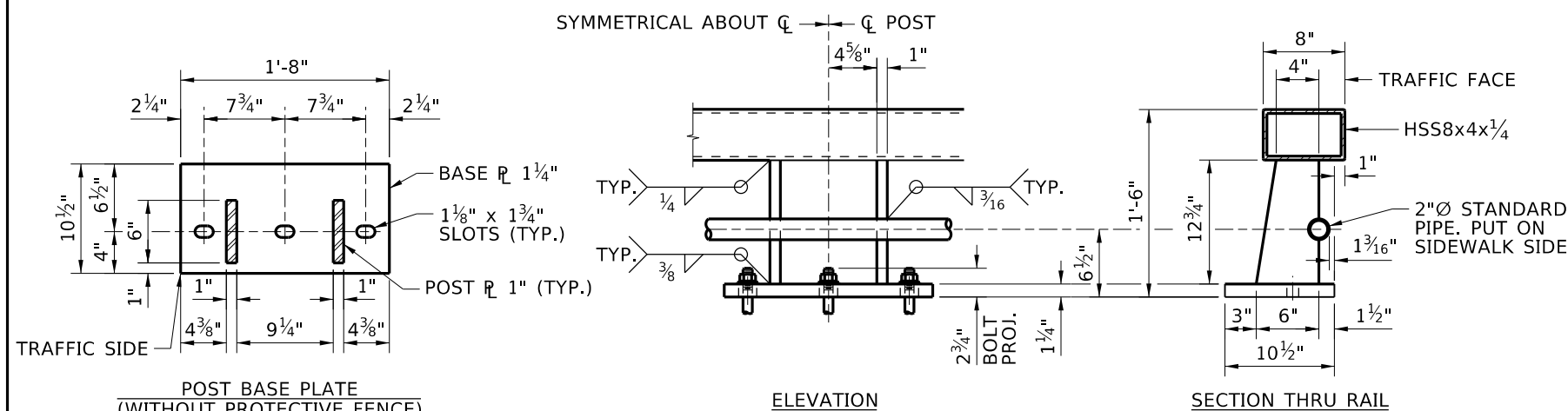


ELEVATION - METAL RAILING DETAILS
 $\frac{3}{16}'' = 1'-0''$



HSS TUBE SLEEVE MEMBER DETAIL
 $\frac{3}{4}'' = 1'-0''$

HSS TUBE FABRICATION DETAILS
 $\frac{3}{4}'' = 1'-0''$



HSS TUBE WITH RAIL POSTS & ANCHORAGE DETAILS
 $\frac{3}{4}'' = 1'-0''$

RAILING NOTES

MATERIALS

1. PROVIDE STRUCTURAL STEEL TUBING IN ACCORDANCE WITH ASTM A500 GRADE B.
2. PROVIDE STRUCTURAL STEEL PLATES IN ACCORDANCE WITH ASTM A572 GRADE 50 OR A529, UNLESS NOTED OTHERWISE IN THE DETAILS.
3. PROVIDE ANCHOR BOLTS IN ACCORDANCE WITH ASTM F3125 GRADE A325 OR ASTM A449 OR THREADED RODS IN ACCORDANCE WITH ASTM 1554 GRADE 105. PROVIDE ONE TACK WELDED HEAVY HEX NUT AND ONE 2 1/4" Ø HARDENED STEEL WASHER AT EACH BOLT. PROVIDE HARDENED STEEL WASHER IN ACCORDANCE WITH ASTM F436. PROVIDE NUTS IN ACCORDANCE WITH ASTM A563.
4. PROVIDE 2" Ø STANDARD PIPE IN ACCORDANCE WITH ASTM A53 GRADE B, ASTM A1085, OR ASTM A500 GRADE B.
5. PROVIDE 1 1/2" Ø STANDARD PIPE SLEEVE MEMBER IN ACCORDANCE WITH ASTM A53 GRADE B OR ASTM A50 GRADE B.

GALVANIZING/POWDER COATING

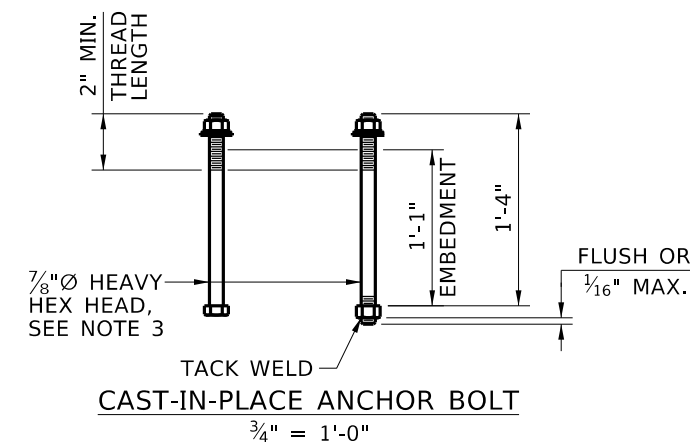
6. GALVANIZE STRUCTURAL STEEL PARTS, RAILING, AND SLEEVES AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND ASTM A153. THOROUGHLY CLEAN WELDED AREAS BEFORE GALVANIZING TO REMOVE SLAG OR OTHER MATERIAL THAT WOULD INTERFERE WITH THE ADHERENCE OF THE ZINC. PROVIDE GALVANIZED SURFACES FREE OF FINNS, ABRASIONS, ROUGH OR SHARP EDGES, OR OTHER SURFACE DEFECTS. REPAIR DAMAGED COATINGS IN ACCORDANCE WITH ASTM 780 AND ASTM A123.
7. POWDER COAT THE RAILING SYSTEM AFTER GALVANIZING WITH A MINIMUM THICKNESS OF 3 MILS. PAINT WITH COLOR RAL 9005 (JET BLACK). SUBMIT A COLOR SAMPLE FOR APPROVAL.
8. PREPARE THE GALVANIZED SURFACE FOR POWDER COATING IN ACCORDANCE WITH ASTM D7803. SUBMIT POWDER COATING SHOP PROCEDURES FOR PREPARATION OF THE GALVANIZED SURFACES AND APPLICATION PROCESS OF THE POWDER COATING FOR APPROVAL.
9. REPAIR SCRATCHES, PITS, AND OTHER DEFECTS IN ACCORDANCE WITH THE POWDER COATING MANUFACTURER'S WRITTEN INSTRUCTIONS.

FABRICATION AND ERECTION

10. FABRICATE AND ERECT THE RAILING IN ACCORDANCE WITH THE CURRENT EDITION OF AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITD STANDARD SPECIFICATIONS.
11. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH 504.01 F AND 105.02.
12. CONSTRUCT RAILING CONFORMING TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE, INSTALL POSTS NORMAL TO GRADE IN LONGITUDINAL DIRECTION AND VERTICAL IN TRANSVERSE DIRECTION.
13. SAW OR MILL ENDS OF TUBE SECTIONS AT SPLICES. PROVIDE CUT ENDS THAT ARE TRUE, SMOOTH, AND FREE FROM BURRS OR RAGGED EDGES.
14. PROVIDE VENT HOLES FOR GALVANIZING AS REQUIRED AND SHOWN ON THE SHOP DRAWINGS. DRILL VENT HOLES AWAY FROM TRAFFIC FACE AND NOT ON THE TOP SURFACE OF THE HORIZONTAL TUBES.
15. ATTACH RAIL SECTIONS TO AT LEAST TWO POSTS, BUT NOT MORE THAN FOUR. ONE SHOP SPlice PER RAIL SECTION IS PERMITTED WITH MAXIMUM 85% PENETRATION. PROVIDE SQUARE GROOVE OR SINGLE V-GROOVE WELD AND GRIND SMOOTH.
16. PROVIDE EXPANSION JOINTS OR SPLICE JOINTS IN RAIL AS REQUIRED.
17. CAP OPEN ENDS OF TUBULAR STEEL SECTIONS.
18. ROUND OR CHAMFER EXPOSED EDGES OF STEEL COMPONENTS 1/16" BY GRINDING BEFORE GALVANIZING.

METHOD OF MEASUREMENT

19. PAYMENT FOR "COMBINATION RAILING" IS PAY ITEM 504-040A. CONCRETE AND EPOXY-COATED REINFORCEMENT IS INCIDENTAL TO PAY ITEM 504-040A.



REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED
DESIGN CHECKED
DETAILED
DWG. CHECKED
CORRECTIONS

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME
Standards/Bridge Standard Drawings
B13_3B.DGN
DRAWING DATE:
OCT 2023

IDAHO TRANSPORTATION DEPARTMENT

YOUR Safety → YOUR Mobility → YOUR Economic Opportunity

APPROVED BY: BRIDGE ENGINEER **MICHAEL T. JOHNSON** DATE: _____

ENGLISH
PROJECT NO.

COMBINATION RAILING SHEET 2 OF 2

WITH APPROACH SLAB
BRIDGE LRFD DESIGN MANUAL, B13.3B

BRIDGE PLANS	
BRIDGE KEY NO.	
COUNTY	KEY NO.
BRIDGE DWG. NO.	SHEET OF