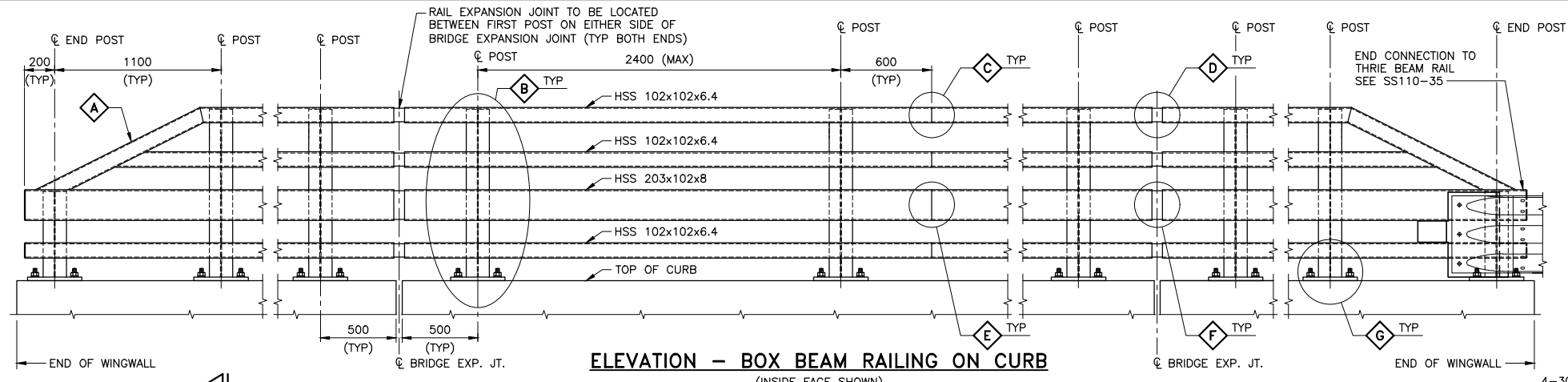
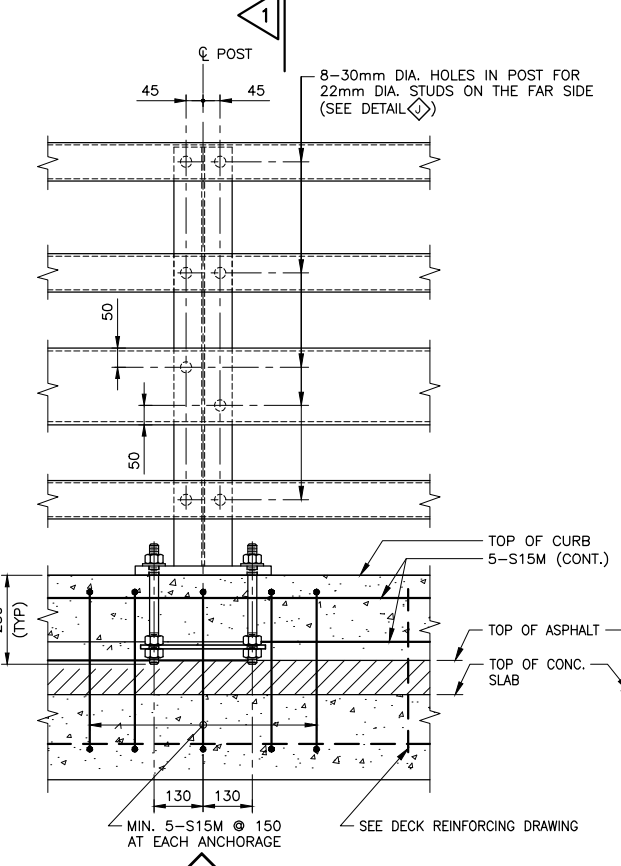


NOTES TO DESIGNER:

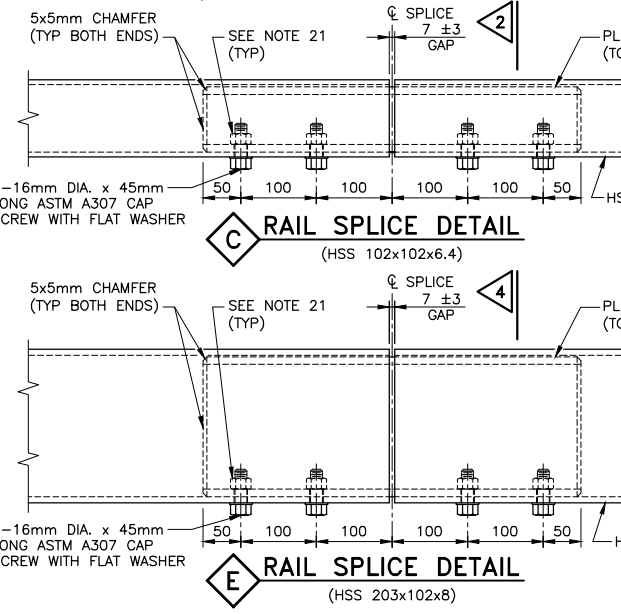
- THE IMPACT TEST TEMPERATURE REQUIRED IN NOTE 3 SHALL BE DETERMINED BY REFERRING TO CSA S6-19, TABLE 10.14 BASED ON THE MINIMUM SERVICE TEMPERATURE OF THE STRUCTURE GIVEN IN FIGURE A3.1.2.
- FOR RETROFITTING SITUATIONS, THE BASE PLATE SHOWN CAN BE MODIFIED TO SUIT EXISTING ANCHORAGE ASSEMBLY CONFIGURATION PROVIDED THAT ITS STRUCTURAL ADEQUACY IS VERIFIED.
- TRANSVERSE TOP DECK REINFORCEMENT AT CURB SHALL NOT BE LESS THAN 20M @ 150 ANCHORED WITH 180° HOOK AT THE FASCIA.
- THE 'NOTES TO DESIGNER' SHALL BE DELETED FROM THIS DRAWING PRIOR TO ISSUING.



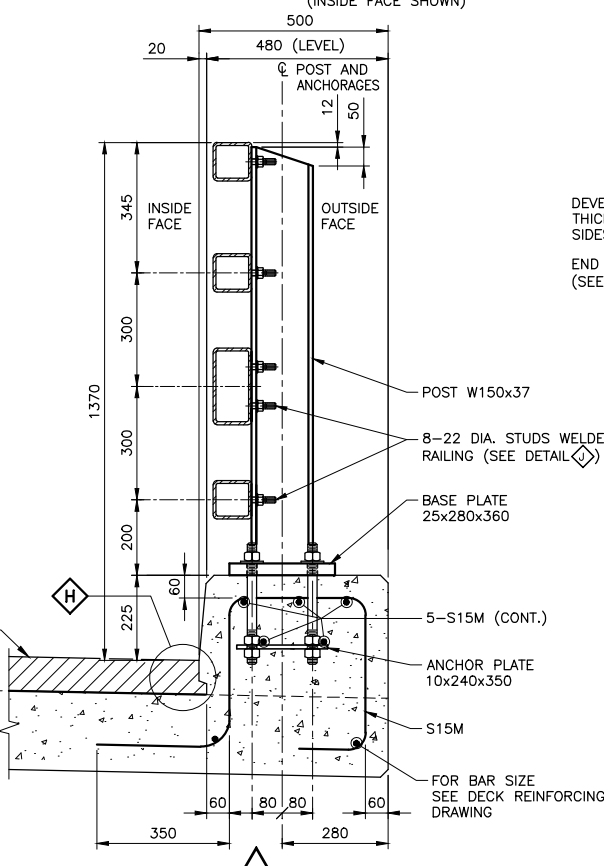
ELEVATION - BOX BEAM RAILING ON CURB
(INSIDE FACE SHOWN)



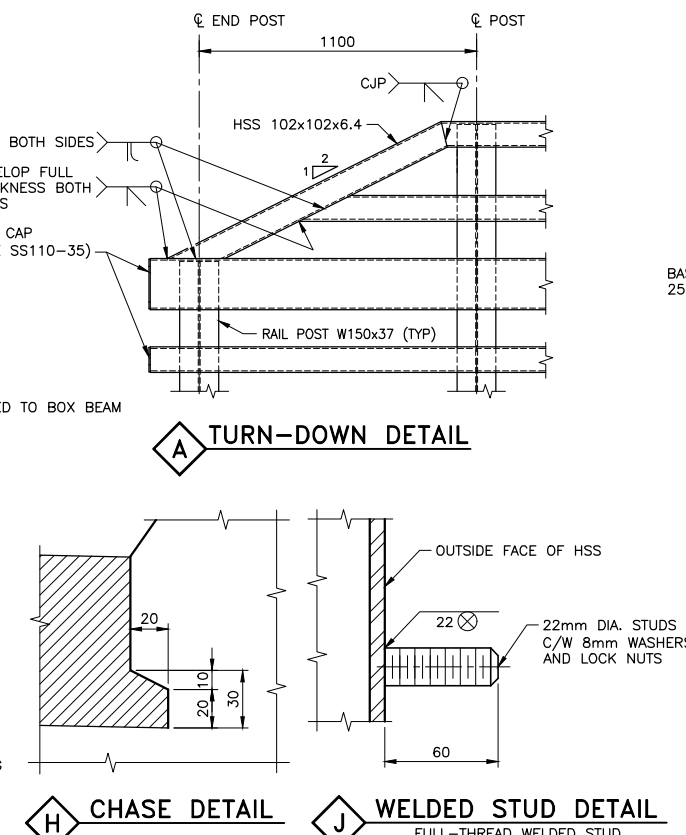
C RAIL SPlice DETAIL
(HSS 102x102x6.4)



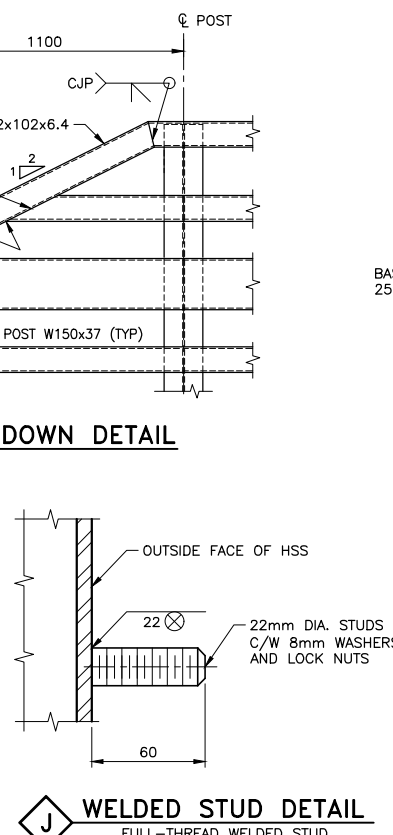
E RAIL SPlice DETAIL
(HSS 203x102x8)



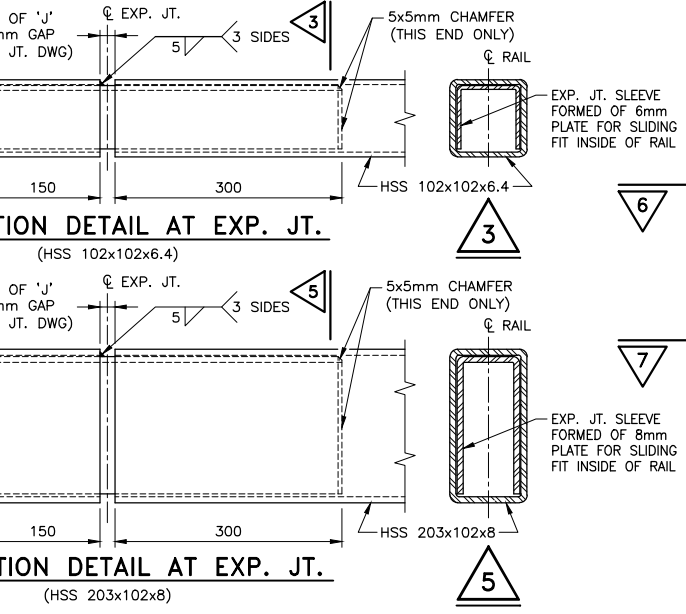
A TURN-DOWN DETAIL



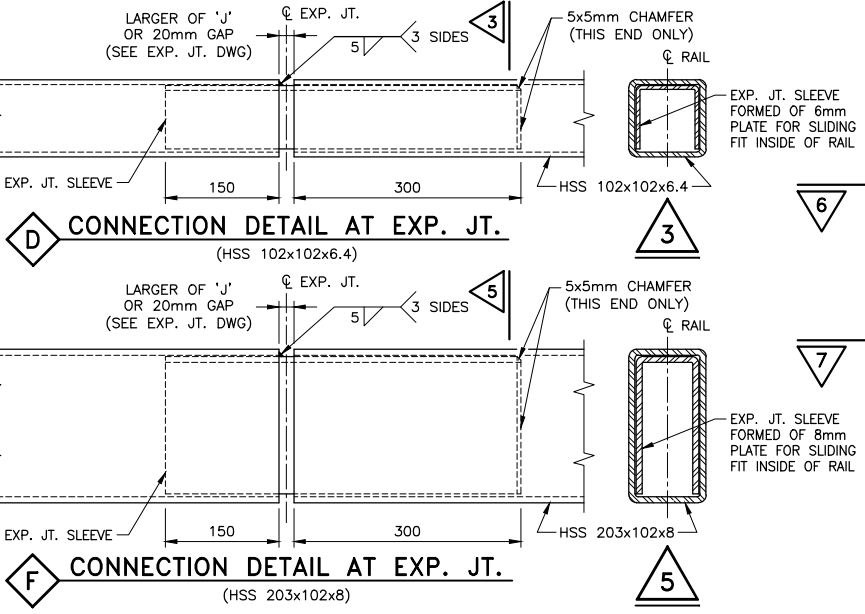
H CHASE DETAIL



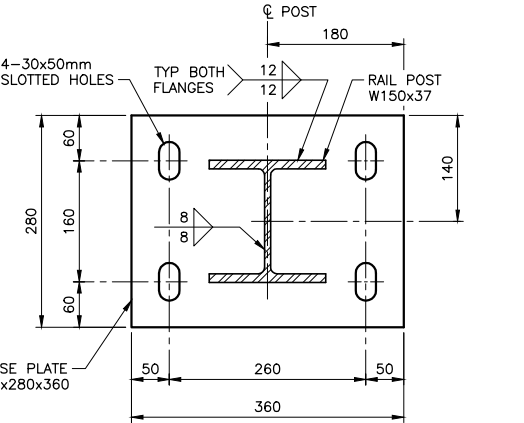
J WELDED STUD DETAIL
FULL-THREAD WELDED STUD



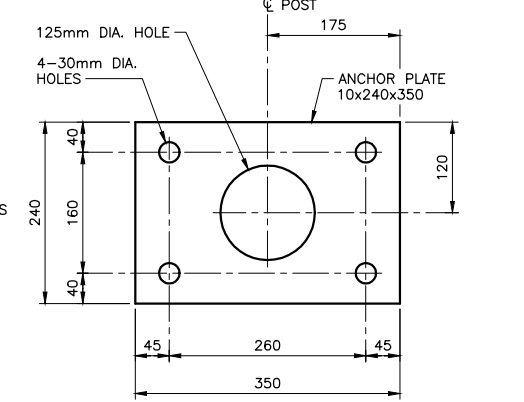
D CONNECTION DETAIL AT EXP. JT.
(HSS 102x102x6.4)



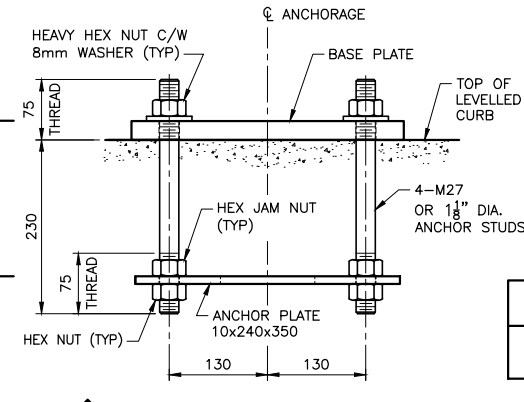
F CONNECTION DETAIL AT EXP. JT.
(HSS 203x102x8)



6 BASE PLATE



7 ANCHOR PLATE



G ANCHORAGE ASSEMBLY

- NOTES:**
- SYSTEM CONFIGURATION MEETS THE REQUIREMENTS OF NCHRP 350.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH SS110-35.
 - RAIL ELEMENTS SHALL BE HOLLOW STRUCTURAL SECTIONS GRADE 350WT, CLASS C. RAIL ELEMENT SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH IMPACT TEST REQUIREMENTS OF 27 JOULES AT TEST TEMPERATURE OF ____ °C. (ASTM A500 GRADE B OR C STEEL MAY BE SUBSTITUTED FOR GRADE 350WT PROVIDED THAT THE CHARPY V-NOTCH IMPACT TEST REQUIREMENTS ARE VERIFIED BY THE SUBMISSION OF TEST DOCUMENTATION).
 - POSTS AND PLATES SHALL BE GRADE 350WT.
 - THE NOTCH TOUGHNESS REQUIREMENTS FOR POSTS AND PLATES SHALL BE THE SAME AS THOSE SPECIFIED IN NOTE 3.
 - ANCHOR STUDS, WASHERS, AND NUTS SHALL CONFORM TO ASTM A449.
 - FULL THREAD STUDS FOR FASTENING GUIDE RAILS TO POST SHALL CONFORM TO ASTM A108. LOCK NUTS SHALL BE ACCORDING TO ASTM A563. WASHERS SHALL BE ACCORDING TO ASTM F436.
 - RAILS SHALL BE SUPPLIED IN LENGTHS TO BE ATTACHED TO A MINIMUM OF THREE (3) POSTS EXCEPT WHEN THE WINGWALL LENGTH OF A BRIDGE WITH EXPANSION JOINTS DOES NOT PERMIT. IN THIS CASE, THE RAIL LENGTH SHALL BE ATTACHED TO TWO (2) POSTS ON THE WINGWALL.
 - GALVANIZING ON MATING SURFACES OF RAILS TO HAVE UNIFORM THICKNESS NOT EXCEEDING 0.15mm TO ENSURE SLIDING FIT.
 - RAILS, POSTS, RAIL SPLICES, AND END CAPS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION AS PER OPSS 911.
 - BOLTS, ANCHOR STUDS, PLATES, WASHERS, AND NUTS SHALL BE HOT-DIP GALVANIZED. LOCK NUTS SHALL BE ZINC PLATED ACCORDING TO ASTM-B695.
 - RAILS SHALL BE PREBENT TO FOLLOW ROAD CURVATURE WHERE RADIUS IS LESS THAN 150 METRES.
 - RAIL POSTS SHALL BE SET PERPENDICULAR TO GRADE.
 - RAILS MAY BE CUT AS REQUIRED IN THE FIELD, CUT TO BE SURFACE TREATED WITH A ZINC TOUCH-UP SOLDER, GALVAGUARD OR AN APPROVED EQUIVALENT.
 - WHEN CONNECTING TO EXISTING RAILING, RAILS MUST BE MADE CONTINUOUS AND POST SPACINGS TO BE DETERMINED WITH REFERENCE TO EXISTING POSTS.
 - GROUT SHALL NOT BE USED UNDER BASE PLATES. THIN PAD OF EPOXY GROUT MAY BE USED WHEN REQUIRED FOR FILLING THE VOIDS UNDER THE BASE PLATE.
 - POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT CONDITION AND GIVEN AN ADDITIONAL 1/3 OF A TURN.
 - BOLTS IN RAIL SPLICES SHALL BE TIGHTENED TO A CONDITION THAT WILL ALLOW RAIL MOVEMENT.
 - STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPA.
 - CHASES ARE REQUIRED ON HIGH AND LOW SIDE OF CROSS FAL.
 - PRIOR TO ASSEMBLY, APPLY LOCTITE 242, OR APPROVED EQUIVALENT THREAD-LOCKING FLUID, TO THE BOLT THREADS AT THE NUT ENGAGEMENT AREA, PER MANUFACTURER'S SPECIFICATION.

REFER TO THE STRUCTURAL MANUAL FOR PROFESSIONAL ENGINEER STAMPING REQUIREMENTS.

STANDARD DRAWING
MAY 30, 2024
SS110-34
FOUR TUBE COMBINATION TRAFFIC/BICYCLE RAILING, TL-4

DATE	BY	DESCRIPTION
DESIGN	-CHK	-CODE CSA-S6-19/LOAD
DRAWN	-CHK	-SITE

FILE NAME: C:\USERS\WZAKY\ONEDRIVE - GOVERNMENT OF ONTARIO\DESKTOP\ADAM JAN RAILING 2023\SS110-34 MAY 30 2024 DRAFT.DWG
MODIFIED: 2024-05-30 15:47