**VIEW C-C**

- On each side of the bridge, one post spacing per span may be required to account for any required construction clearances. No post spacing shall exceed 6'-3".

- Symmetrical about E Railing.

**SECTION F-E**

- In lieu of providing the masonry construction joint, the contractor may field drill holes in the tubing for post-to-tube rail connections at all flush mounted post locations. Repair handrail according to Cams 71.02.

**RAILING ELEVATION ON CONCRETE SLAB**

Bridge terminal assembly not shown. Refer to standard construction drawing MD5-3.1 for details.

**BASE PLATE**

- 1/4" x 1/2" hole

**SPACER PLATE**

- 1/8" x 1/4" hole

**GUARDRAIL CONNECTION PLATE DETAILS**

- 3/8" plate
- 1/4" hole
- 1/4" plate hole (tip)
RAILING CONNECTION DETAIL

SLEEVE NOT WITH MACHINED THREAD. MADE FROM 110 STEEL, 3/8" MIN. CLEARANCE ACROSS 12" THICK.

STUDS

SLEEVE NUTS

ELEVATION END VIEW

POST ANCHOR DEVICE

VIEW 0-0

VIEW F-F

E POST

STEEL TUBE RAIL

STUDS

SLEEVE NUTS

ELEVATION END VIEW

POST ANCHOR DEVICE

VIEW 0-0

DETAIL OF 3/8" DIA. ROUND HEAD BOLT

STEEL TUBE SPlice DETAILS

SLOTTED HOLES IN OUTER TUBING ONLY (TYP)
GENERAL: THIS DRAWING PROVIDES DESIGN AND CONSTRUCTION DETAILS. THE PROJECT PLANS FOR EACH STRUCTURE SHALL PROVIDE NECESSARY ADDITIONAL RAILING DIMENSIONS INCLUDING RAILING LENGTHS, POST SPACINGS, POST LENGTHS AND ANY OTHER PARTICULAR INFORMATION INCLUDING SPECIAL NOTES AND DETAILS. FOR ADDITIONAL GUARDRAIL DETAILS, SEE STD. CONST., DBRS, MGS-1-1, MGS-2-1 AND OTHER DRAWINGS PERTAINING TO DESIGN OF SPECIFIC GUARDRAIL TYPES.

APPLICATION: THIS RAILING SYSTEM WAS ACCEPTED TO THE AASHTO AND IRC STANDARDS. THE STEEL TUBES SHALL BE USED IN STRUCTURES DESIGNED TO CARRY SURFACE WATER OVER THE SIDES OF THE STRUCTURE. THIS RAILING IS NOT APPLICABLE TO COMPOSITE BOX BEAM BRIDGES WITH DESIGNS SIMILAR TO THOSE USED FOR HIGHWAY OVERPASSES.


DESIGN DATA:
STEEL RAIL: MINIMUM YIELD STRENGTH = 50,000 PSI
STEEL TUBING: MINIMUM YIELD STRENGTH = 40,000 PSI
ALL OTHER STEEL: MINIMUM YIELD STRENGTH = 40,000 PSI

MATERIALS: SUPPLIED BY MANUFACTURER.
ALUMINUM ALLOY TUBES: ACCORDING TO ASTM B519, GRADE 6061.
STEEL TUBES: ACCORDING TO ASTM A500, GRADE B.

FASTENERS: FASTENERS SHALL BE CORROSION-RESISTANT, STAINLESS STEEL FOR THE TOP AND BOTTOM TUBES TO AVOID CORROSION IN THE SAME PANEL.

HORIZONTAL CURVATURE: THIS STANDARD IS APPLICABLE TO STRUCTURES HAVING A RAILING CURVATURE RADIUS OF 20 FEET OR MORE. FOR A RADIUS OF LESS THAN 20 FEET, THE DESIGN SHALL BE SPECIAL. FOR ALL CURVED STRUCTURES, THE CURVE TUBE TERMINAL ASSEMBLY CONNECTION HARDWARE ACCORDING TO THE AASHTO LBR BRIDGE CONSTRUCTION SPECIFICATIONS.

TUBE SPACER: LOCATE SPACERS SO THAT EACH TUBE SEGMENT IS CONNECTED TO NOT LESS THAN TWO POSTS. STAYARSIN STEEL IN THE TOP AND BOTTOM TUBES TO AVOID CORROSION IN THE SAME PANEL.

FASTENERS: FASTENERS SHALL BE CORROSION-RESISTANT, STAINLESS STEEL FOR THE TOP AND BOTTOM TUBES TO AVOID CORROSION IN THE SAME PANEL.

ANCHOR BOLTS, SCREW NUTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

ALL MOUNTED STUDS SHALL CONFORM TO ASTM A 418.

THE TUBE RAIL TO POST CONNECTION BOLTS AND NUTS SHALL CONFORM TO ASTM A 450. REFER TO STANDARD CONSTRUCTION DRAWING MGS-3-1 FOR THE BRIDGE TERMINAL ASSEMBLY CONNECTION HARDWARE.

THE WOBY CAP SCREWS 1/01-7/-. WHEY NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

BOX BEAMS: THE DISTANCE FROM THE CENTERLINE OF A GUARDRAIL POST TO THE ADJACENT END OF THE BEAM OR TO THE CENTERLINE OF A TIE HOOK SHALL NOT BE LESS THAN 1'-0". THE DISTANCE FROM THE CENTERLINE OF A GUARDRAIL POST TO THE END OF THE BEAM SHALL NOT BE LESS THAN 3'-0".

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE LENGTH OF RAILING AT THE APPROACH AND TRAILING ENDS PLUS 4'-0".


THE DEPARTMENT WILL PAY FOR BRIDGE TERMINAL ASSEMBLY HARDWARE SEPARATELY.