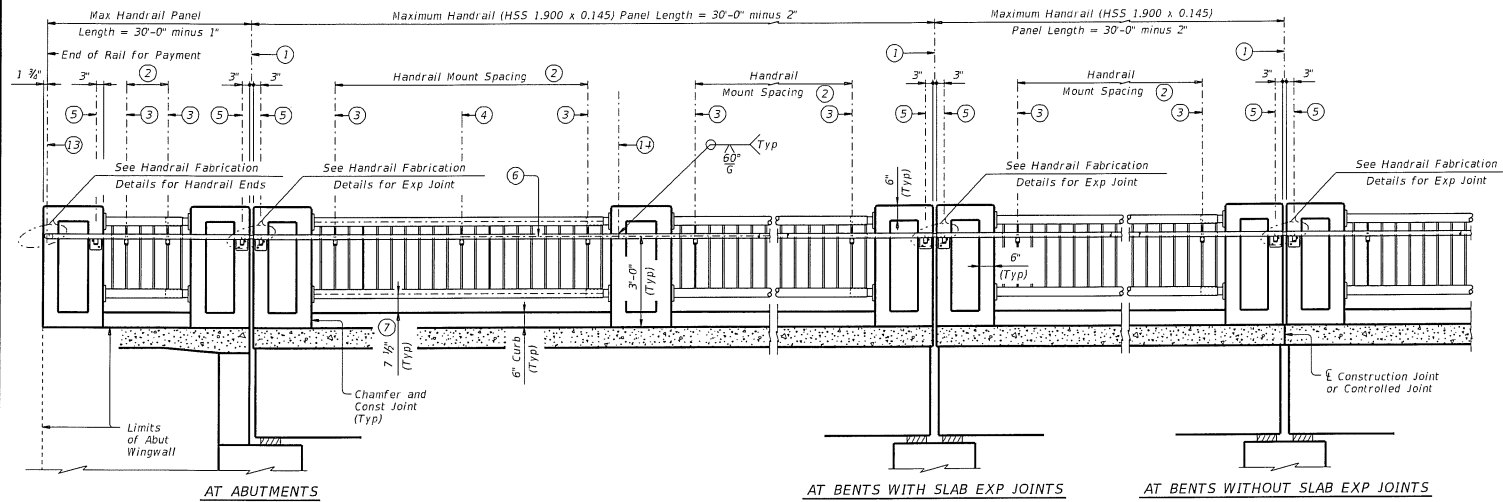


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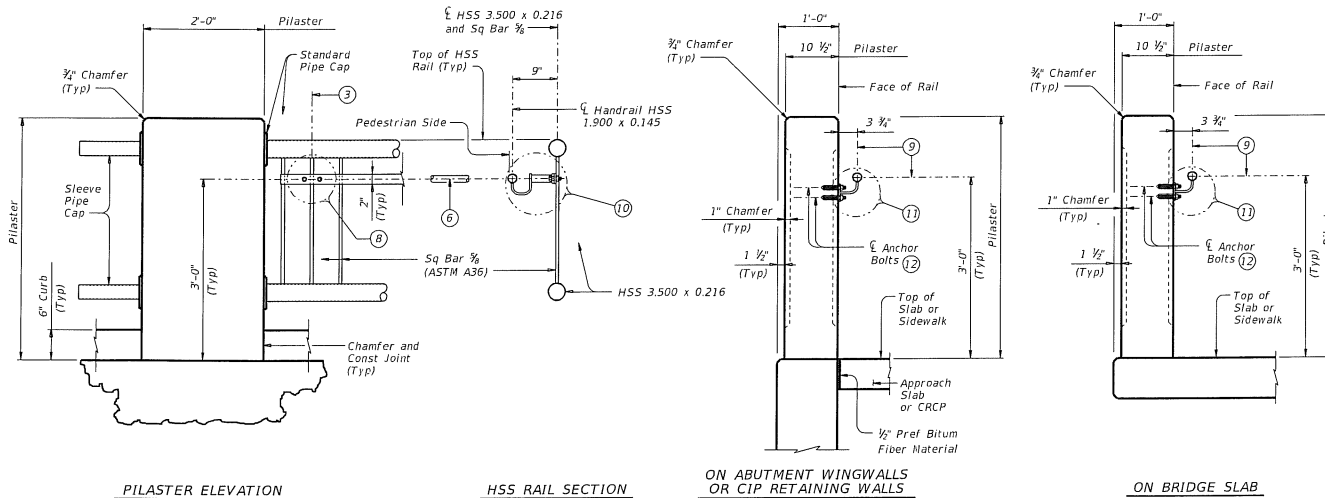
DATE:
FILE:



ELEVATION OF RAIL

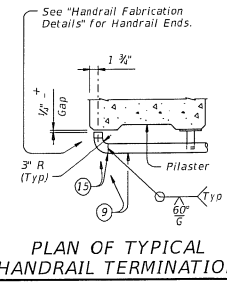
(Showing handrail length, placement and handrail mount locations.)

- 1 Rail Expansion Joint and Expansion Joint
- 2 Steel Panel Handrail Mount Spacing 4'-3" Max.
- 3 Sq Bar 3/4" and Steel Panel Handrail Mount (Handrail Mount place as shown)
- 4 Steel Panel Handrail Mount.
- 5 Pilaster Handrail Mount (Handrail Mount place as shown).
- 6 Bar 3/4" x 2 (ASTM A36) and Handrail HSS 1,900 x 0.145.
- 7 Parallel to top of curb (Typ).
- 8 Steel Panel Handrail Mount not shown for clarity. See Detail "A" for bolt holes location and spacing to accommodate Steel Panel Handrail Mount.
- 9 Handrail HSS 1,900 x 0.145.
- 10 See "Steel Panel Handrail Mount Details".
- 11 See "Pilaster Handrail Mount Details".
- 12 See "Material Notes" for anchor bolt information.
- 13 See "Plan of Typical Handrail Termination".
- 14 One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- 15 Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.



ELEVATION OF TYPICAL PILASTER WITH HSS RAIL

SECTIONS THRU PILASTER



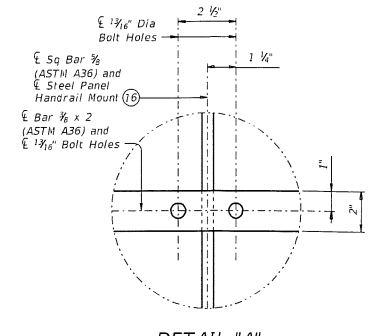
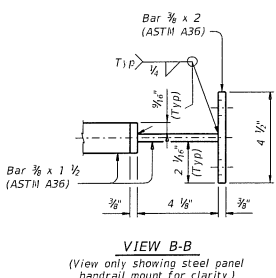
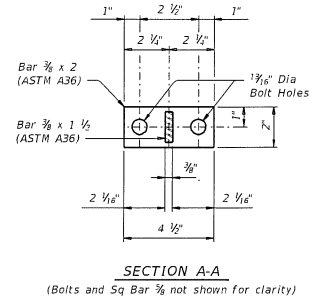
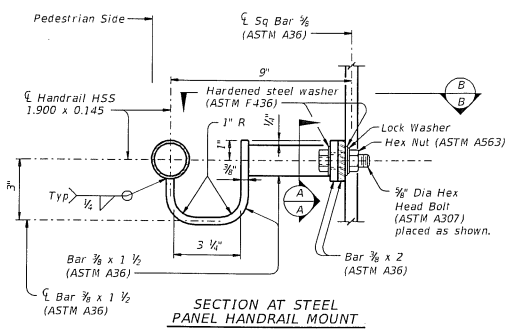
PLAN OF TYPICAL HANDRAIL TERMINATION

SHEET 1 OF 2

		Bridge Division Standard	
HANDRAIL DETAILS (FOR TYPE PR3 PEDESTRIAN RAIL)			
PR3-HD			
FILE: r18d031-16.dgn	DR: TxDOT	CR: TxDOT	EN: JTR
DATE: March 2018	COIT: SECF	JOB: 100	PROJECT: 100000000
DESIGN: []	CHECK: []	DATE: []	SHEET NO. []

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DATE: _____
 FILE: _____



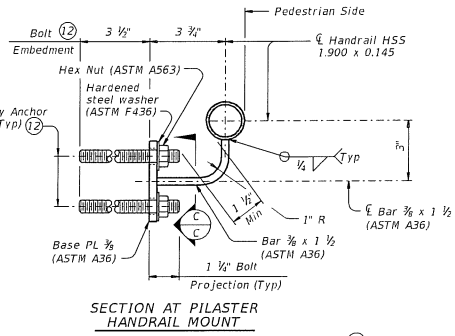
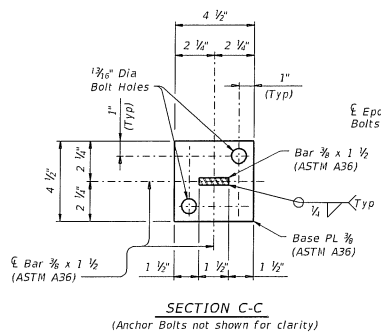
STEEL PANEL HANDRAIL MOUNT DETAILS

(Only the mid section of the Steel Panel will sometimes not have Sq Bar 3/8 centered between bolt holes)

CONSTRUCTION NOTES:
 Handrails and any wall or other surface adjacent to them must be free of any sharp or abrasive elements.
 Round or chamfer exposed edges of HSS rail and HSS caps to approximately 1/8" by grinding.
 For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

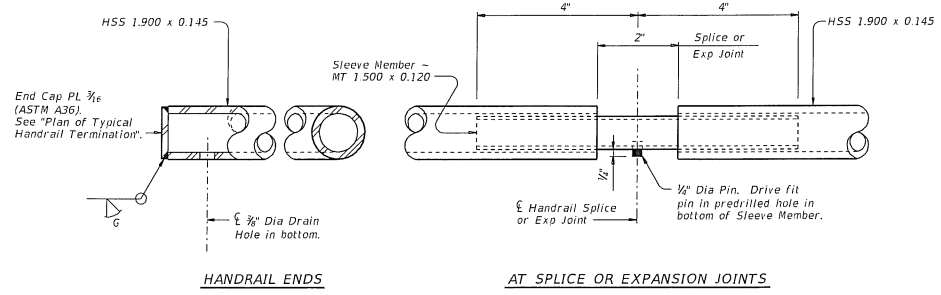
MATERIAL NOTES:
 Provide ASTM A1085, A500 Gr B or A533 Gr B for HSS 1.900 x 0.145. Provide ASTM A513 Grade 1015 or greater for MT 1.500 x 0.120. Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel". Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.
 Hex head bolts must be 3/8" Dia ASTM A307 with one hex nut and two hardened steel washers (ASTM F436) and one lock washer each. Nuts must conform to ASTM A563 requirements.
 Anchor bolts must be 3/8" Dia ASTM A307 Grade A fully threaded rods with one hex nut and one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements. Embed threaded rods into pilasters with a Type III, Class C, D, E, or F, anchor adhesive. Minimum adhesive anchor embedment depth is 3 1/2". Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

GENERAL NOTES:
 Designed according to AASHTO LRFD Specifications.
 Do not use this railing on bridges with expansion joints providing more than 5" movement.
 Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
 Shop drawings are not required unless otherwise noted.
 For all handrails, submit erection drawings to the Engineer for approval to ensure proper installation. Drawings must show handrail mount locations and/or spacing, splice or expansion joint locations, and handrail lengths with identification showing where each handrail goes on the layout. Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.
 Average weight of handrail: 4 pcf total.



PILASTER HANDRAIL MOUNT DETAILS

- (12) See "Material Notes" for anchor bolt information.
- (16) Steel Panel Handrail Mount not shown for clarity.



HANDRAIL FABRICATION DETAILS

		Bridge Division Standard	
HANDRAIL DETAILS (FOR TYPE PR3 PEDESTRIAN RAIL)			
PR3-HD			
FILE: 715x0031-18.dgn	DATE: 03/2018	BY: JTR	CHK: JSM
REV: 01	REV: 02	REV: 03	REV: 04
DATE: _____	DATE: _____	DATE: _____	DATE: _____
DATE: _____	DATE: _____	DATE: _____	DATE: _____