TRAFFIC RAILING NOTES

This Traffic Railing Retrofit has been structurally evaluated to be equivalent or greater in strength to a design which has been successfully crash tested in accordance with NCHRP Report 350 TL-4 criteria.

CONCRETE: Concrete for Transition Blocks and Curbs shall be Class II (Bridge Deck).

REINFORCING STEEL: Reinforcing steel shall be ASTM A615, Grade 60.

THRIE-BEAM GUARDRAIL: Steel Thrie Beam Elements shall meet the requirements for Class B (10 Gauge) Guardrail of AASHTO M 180, Type II (Zinc coated). The minimum panel length for Thrie-Beam Elements shall be 12'-6". Field drilled holes for Post connections shall be ¾" by 2½" slotted holes.

GUARDRAIL BOLTS: Guardrail bolts, nuts and washers shall be in accordance with AASHTO M180.

GUARDRAIL POSTS AND BASE PLATES: Posts and Base Plates shall be in accordance with ASTM A36 or ASTM A709 Grade 36.

ANCHOR BOLTS, NUTS AND WASHERS: Adhesive-Bonded Anchors and Anchor Bolts shall be fully threaded rods in accordance with ASTM F1554 Grade 105 or ASTM A193 Grade B7. At the Contractor's option, Anchor Bolts for through bolting may be in accordance with ASTM 449. All Nuts shall be single self-locking hex nuts and in accordance with ASTM A563 or ASTM A194. Flat Washers shall be in accordance with ASTM F436 and Plate Washers (for long slotted holes only) shall be in accordance with ASTM A36 or ASTM A709 Grade 36. After the nuts have been snug tightened, the anchor bolt threads shall be distorted to prevent removal of the nuts. Distorted threads and the exposed trimmed ends of anchors shall be coated with a galvanizing compound in accordance with the Specifications.

COATINGS: All Nuts, Bolts, Anchors, Washers, Guardrail Posts, Anchor Plates and Base Plates shall be hot-dip galvanized in accordance with the Specifications. Guardrail Post Assemblies shall be hot-dip galvanized after fabrication.

ADHESIVE-BONDED ANCHORS AND DOWELS: Adhesive Bonding Material Systems for Anchors and Dowels shall comply with Specification Section 937 and be installed in accordance with Specification Section 416.

BRIDGES ON CURVED ALIGNMENTS: The details presented in these Standards are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

POST SPACING: Posts shall be located along the length of the bridge at typical 6'-3" or 3'-1 ½" spaces. Utilize the Modified Post Spacing at Intermediate Deck Joints Details as required to clear deck joints. Establish post spacing along the bridgeand Roadway Guardrail Transition beginning with the Key Post. The variable post spacings located near begin and end bridge may be utilized to optimize the typical post spacing. Variable lengths of guardrail overlap are also permitted to optimize the typical post spacing. Symmetry of post spacing is not necessary.

THRIE-BEAM EXPANSION SECTION: Thrie-Beam Expansion Sections shall be installed at locations shown in the Plans. Install nuts for splice bolts finger-tight at 2½" slots in thrie beam expansion sections. Nuts shall fully engage bolts with a minimum of one bolt thread extending beyond the nuts. Distort the first thread on the outside of the nut to prevent loosening. Tighten guardrail bolts in 3¾" slots at guardrail post(s) that lie between the slotted expansion splice and bridge deck joint so that the bolt heads are in full contact with thrie-beam elements, but not so tight as to impede movement due to expansion.

ELEVATION MARKERS: Elevation Markers shall be placed on the top surface of the end bents as directed by the Engineer when portions of the existing traffic railing carrying existing elevation markers are removed. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor.

REFLECTIVE RAILING MARKERS: Reflective Railing Markers shall conform to Section 993 of the Specifications. Install markers in the upper groove of the Thrie Beam Guardrail at the spacings shown in the table below. Reflector color (white or yellow) shall conform to the color of the near edgeline.

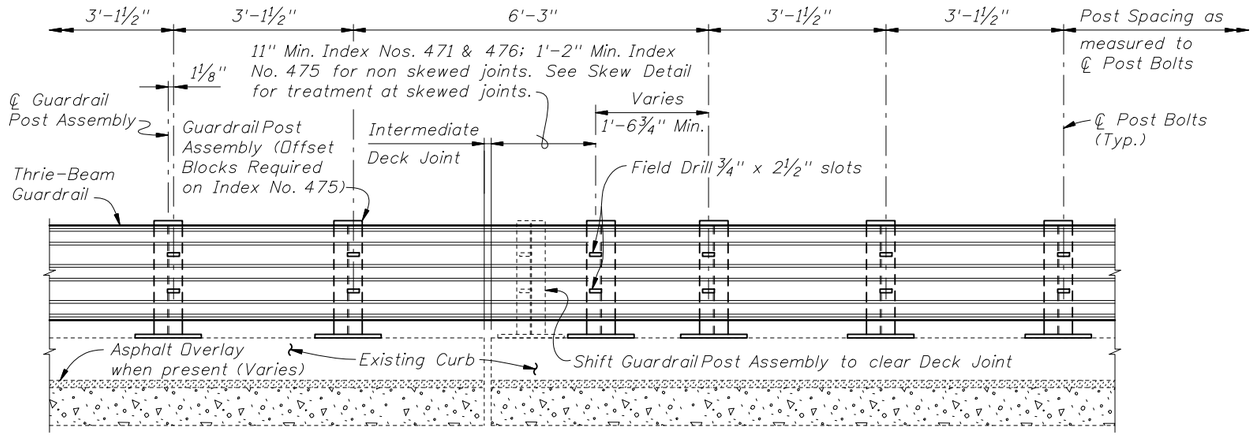
PEDESTRIAN SAFETY PIPE RAIL: Pedestrian Safety Pipe Rail is required when called for in the Plans. See Index No. 400 for details.

BRIDGE NAME PLATE: If a portion of the existing Traffic Railing is to be removed that carries the bridge name, number and or date, or if the installation of the Traffic Railing (Thrie-Beam Retrofit) will obscure the bridge name, number and or date, then a Bridge Name Plate shall be furnished and installed on an adjacent, separate ground mounted post as directed by the Engineer. The Bridge Name Plate shall include the information on the existing Traffic Railing that has been removed or obscured, e.g., Bridge Number, Bridge Name or Date. The Bridge Name Plate shall be approximately 1/16" thick aluminum plate in accordance with Specification Section 700. The Bridge Name Plate shall be white background, with 3" tall black letters, ¾" black border and sized appropriately to contain the information required.

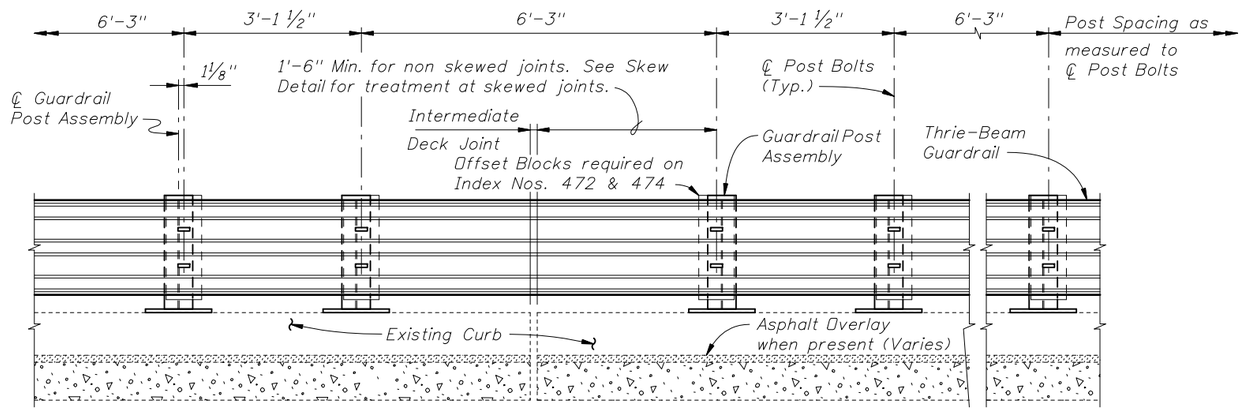
PAYMENT: Payment will be made under Metal Traffic Railing (Thrie-Beam Retrofit) which shall include all materials and labor required to fabricate and install the barrier and lapped guardrail where necessary to maintain post spacing. The Pedestrian Safety Pipe Rail, Transition Blocks and Curbs, Bridge Name Plate, Reflective Railing Markers and installation of Elevation Markers, where required, will not be paid for directly but shall be considered as incidental work.

REFLECTIVE RAILING MARKER SPACING

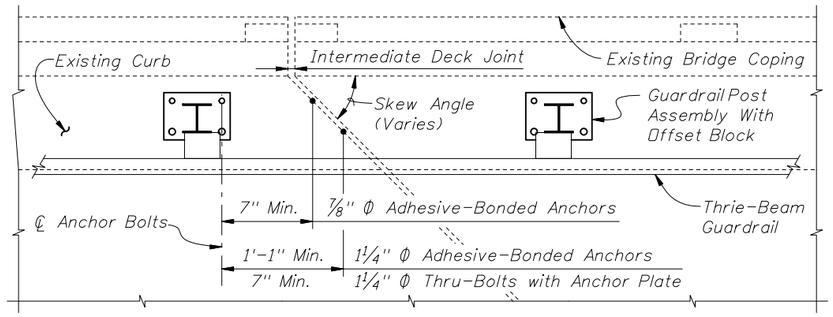
Distance - Edge of Travel Lane to Face of Railing	Spacing (Ft.)
< 4'	40'
4' to 8'	80'
> than 8'	None Required



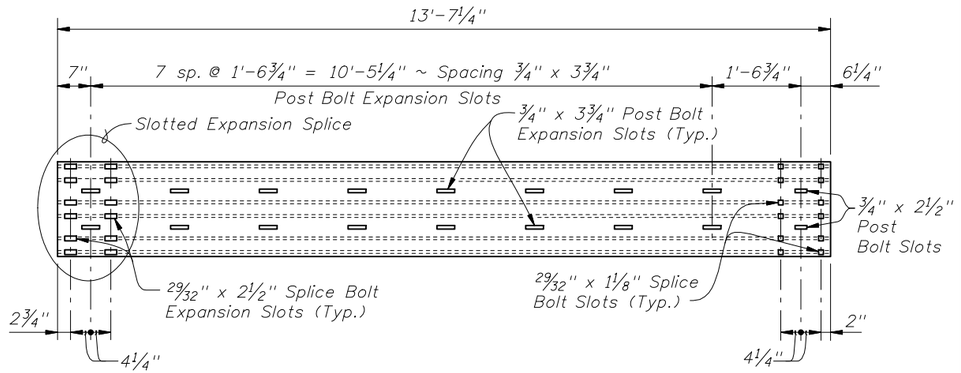
PARTIAL ELEVATION OF INSIDE FACE OF RAILING
MODIFIED POST SPACING AT INTERMEDIATE DECK JOINTS DETAIL FOR INDEX NOS. 471, 475 & 476



PARTIAL ELEVATION OF INSIDE FACE OF RAILING
MODIFIED POST SPACING AT INTERMEDIATE DECK JOINTS DETAIL FOR INDEX NOS. 472, 473 & 474



PARTIAL PLAN
INTERMEDIATE JOINT SKEW DETAIL



THRIE-BEAM EXPANSION SECTION

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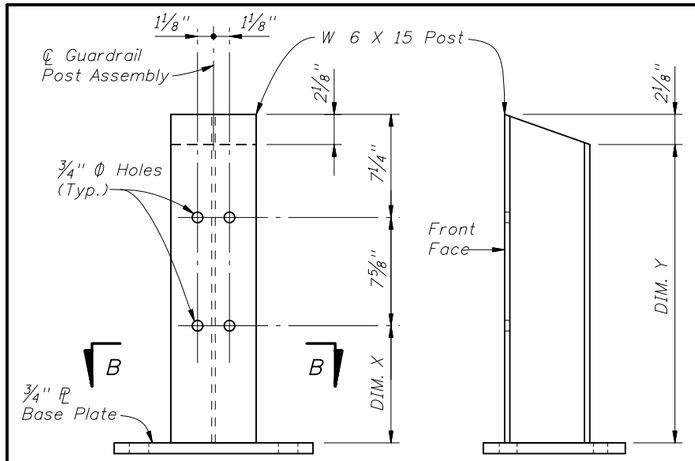
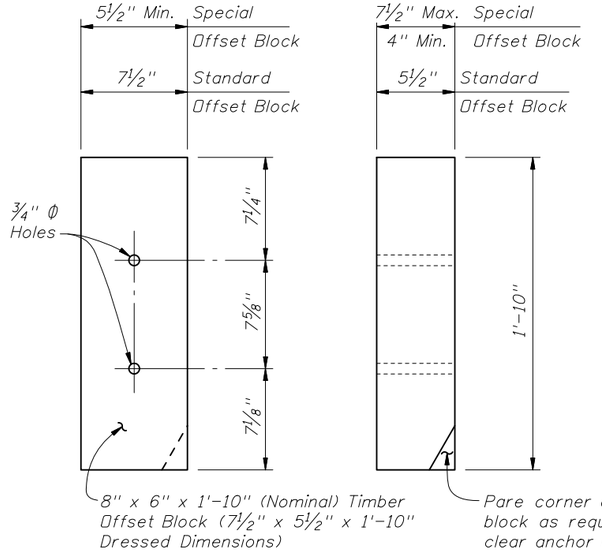


FRONT VIEW SIDE VIEW

POST DIMENSION TABLE			
POST	CURB HEIGHT (DIM. A)	DIM. X	DIM. Y
Post "A"	5" to 7"	11¼"	2'-0"
Post "B"	> 7" to 10"	9¼"	1'-10"
Post "C"	> 10" to 1'-0"	7¼"	1'-8"

Note: DIM. A is equal to the exposed curb height. For location of DIM. A see Index Nos. 471 thru 476, Sheet 1.

GUARDRAIL POST ASSEMBLY DETAIL

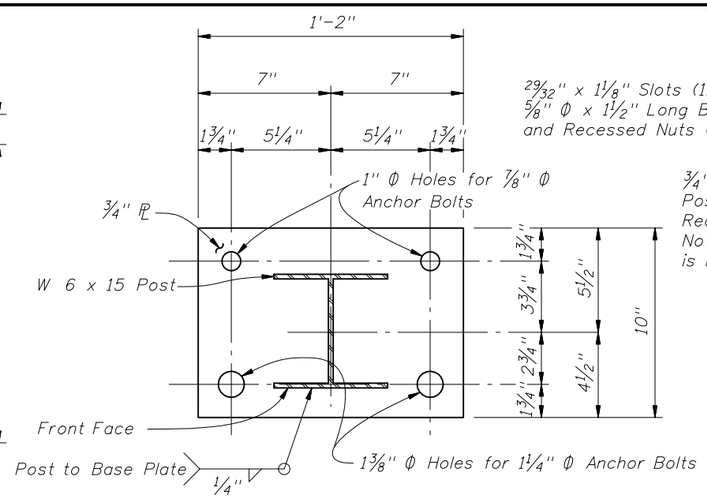


FRONT VIEW SIDE VIEW

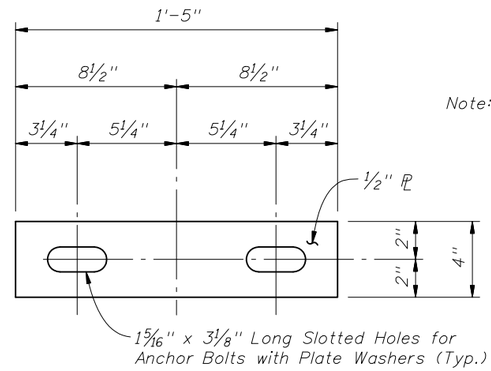
OFFSET BLOCK DETAIL

OFFSET BLOCK NOTES:

1. Offset blocks shall be timber or Approved Alternate. Uniformity of block size and alignment of guardrail shall be maintained along length of retrofit.
2. Post bolt holes in offset blocks to be centered (± ¼").
3. Timber offset blocks shall be dressed on all four sides (S4S).
4. Block assemblies for Special Offset Blocks can be made up of 2 or 3 Special or Standard Offset Blocks, field dressed as required.



SECTION B-B



ANCHOR PLATE DETAIL

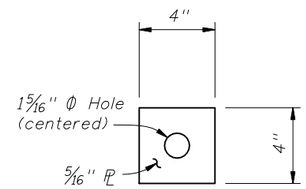
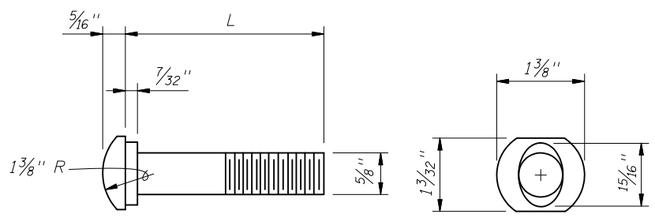


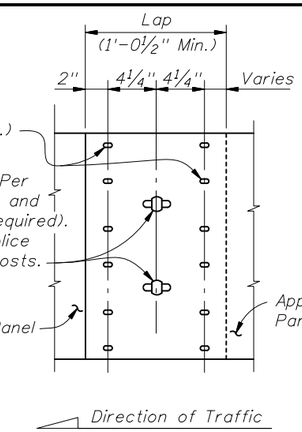
PLATE WASHER DETAIL



⅝" OVAL SHOULDER BUTTON HEAD BOLT

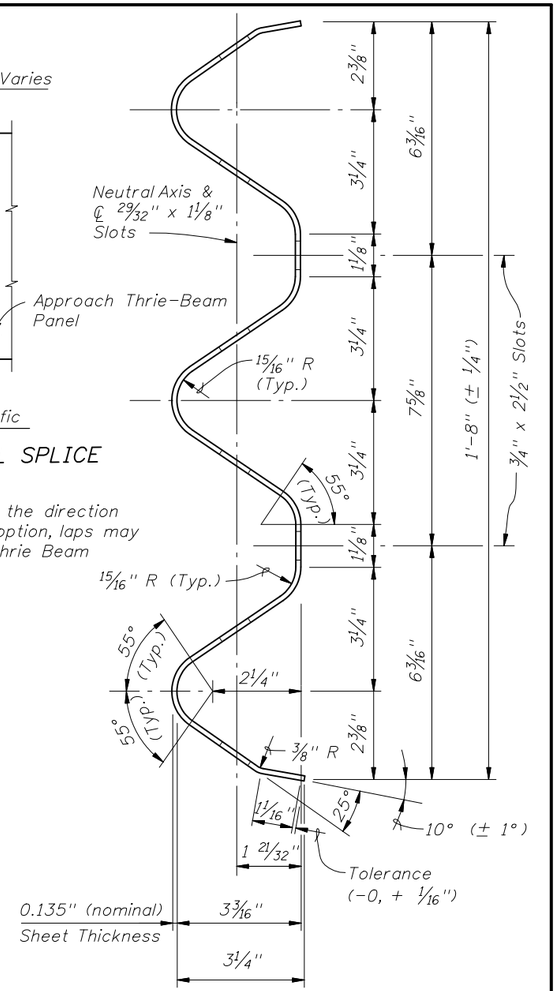
L	THREAD LENGTH	APPLICATION
1½"	Full Length	Rail Splice Bolt, Post Bolt for Index Nos. 471, 473 & 476
Varies (8" Min.)	4" Min.	Post Bolt for Index Nos. 472, 473, 474, 475 & 476

Note: The Anchor Plate and Plate Washer are applicable only to 1¼" Ø Anchor Bolts that are to be thru-bolted for Index Nos. 471 & 476.

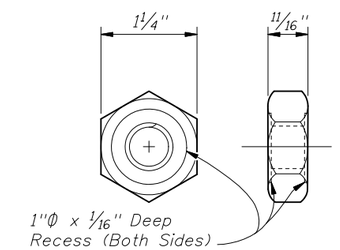


THRIE-BEAM GUARDRAIL SPLICE

Note: All Thrie Beam Panels shall be lapped in the direction of adjacent traffic. At the Contractor's option, laps may be extended. Field drill holes in Trailing Thrie Beam Guardrail Panel as required.



TYPICAL SECTION THRU THRIE-BEAM GUARDRAIL (EXPANSION SECTION SIMILAR)



⅝" MODIFIED HEAVY HEX NUT (RECESSED NUT)

2008 FDOT Design Standards

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