

Origination Form
Proposed Revisions to a Standard Plans Index

Originator:	Stepp, Richard	Index Number:	536-001
Date:	2/24/2026	Sheet Number(s):	1, 6, 19, 20, 23
E-mail:	richard.stepp@dot.state.fl.us	Index Title:	Guardrail

Summary of the changes:

Sheet 1: In General Note 3, updated Task Force 13 publication reference. In General Note 7, added the new Post Cap option and clarified usage of all three options for adjacent sidewalk and shared use paths.
Sheet 6: In the typical sidewalk detail, added the new Post Cap option. Changed reference to General Note 7 for complete usage information. In the Note 2, clarified optional miscellaneous asphalt usage with deep posts.
Sheets 19-20: Removed "Low-Speed" language to reflect recent removal of TL-2 guardrail option.
Sheet 23: Revised Note 1 to reference the plans and General Note 7 for complete pipe rail usage information.

Commentary/Background:

The Department has historically required safety considerations for steel guardrail posts when placed within 4 feet of sidewalks or shared use paths. This has included the use of steel "pipe rail" to shield the sharp corners of steel posts. Alternatively, timber posts may be used instead. This revision now adds a third option, where proprietary "post caps" may be placed over steel post tops to shield the sharp corners. For this, updates have been made throughout the Index to allow the contractor the option of using "post caps" as listed on the APL. Corresponding updates have been made to the Standard Specifications to explain the payment and APL approval process.

Other Affected Documents/Offices	Person Contacted	Affected (Yes/No)
Other Standard Plans		No
FDOT Design Manual		No
Standard Specifications	Daniel Strickland	Yes
Basis of Estimates Manual		No
Approved Product List		No
Construction Office		No
Maintenance Office		No

Implementation

FY 2027-28

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23	Pedestrian Safety Treatment - Pipe Rail
24	Modified Mount - Special Steel Post for Concrete Structure Mount;
	Modified Mount - Encased Post for Shallow Mount;
	Modified Mount - Frangible Leave-Out for Concrete Surface Mount
25	Barrier Delineators - Post Mounted;
	Clear Space - Reduced Post Spacing for Hazards; 5/8" Button-Head Bolt System

GENERAL NOTES:

1. INSTALLATION: Construct guardrail in accordance with Specification 536.

This Index, along with the plans and the manufacturers' drawings on the Approved Products List (APL), is sufficiently detailed for installation of General Guardrail, Low-Speed Guardrail, End Treatment assemblies, and their connecting options shown herein. This precludes requirements for shop drawing submittals unless otherwise specified in the plans.

2. COMPATIBILITY: The General Guardrail in this Index is based on the Midwest Guardrail System (MGS) design, with an approximate height of 31" at the top of the Panel (2'-1" mounting height at vertical C of Panel) and a midspan panel splice as shown on Sheet 2. Guardrail components included on the APL, which are compatible with this Index, may also be identified as 31" or MGS Guardrail.

3. STANDARD COMPONENTS: Standard guardrail components, including posts, panels, and bolt systems, are based on the Task Force 13 Publication: Guide to Roadside Hardware Components (<http://tf13.org/Guides/componentGuide/>). **Standardized Roadside Hardware.**

4. BUTTON-HEAD BOLTS: Install Button-Head Bolts where indicated using bolts, nuts, and washers as defined on Sheet 25. Place washers under nuts against timber posts. Washers are not required at steel post flanges and panel lap splices. Do not place washers between bolt heads and panels, except where otherwise shown in this Index.

5. HEX-HEAD BOLTS: Install Hex-Head Bolts where indicated using bolts, nuts, and washers in accordance with material properties of Specification 967. Place washers under nuts.

6. MISCELLANEOUS ASPHALT PAVEMENT: Install Miscellaneous Asphalt Pavement where indicated with a tolerance of ± 1/2" depth and in accordance with Specification 339.

BEHIND GUARDRAIL:
7. ~~ADJACENT~~ SIDEWALKS & SHARED USE PATHS: When guardrail posts are placed within 4'-0" of a sidewalk or shared use path, use timber posts, ~~or use steel posts only if treated with Pipe Rail as shown on Sheet 23.~~ **Alternatively, steel posts may be used if treated with Pipe Rail per Sheets 23 or Post Caps per the APL drawings.**
When timber posts are used, one of the following safety treatments is required for the bolt(s) protruding from the back face of the posts:
a. After tightening the nut, trim the protruding post bolt flush with the nut and galvanize per Specification 562.
b. Use post bolts 15" in length and countersink the washer and nut between 1" and 1 1/2" deep into the back face of the post.
c. Use 15" post bolts with sleeve nuts and washers.

When End Treatment posts are within 4'-0" of a sidewalk or shared use path, steel posts are not permitted within the End Treatment segment. Terminate ~~the~~ Pipe Rail outside of End Treatment segments, as noted per Sheet 23. **Where Pipe Rail is shown or quantified in the plans, Post Caps or Timber Posts may substituted unless directly prohibited by the plans.**

8. NESTED W-BEAM: Where called for in the plans, install two W-Beam Panels mounted flush per location, securing all panels with Button-Head Bolts threaded through aligned slots and holes. 2" Button-Head Bolts are permitted for panel splice locations.

9. CONNECTION TO RIGID BARRIER: The connections to Rigid Barrier in this Index only apply to newly constructed bridge Traffic Railing and Concrete Barrier or where the complete Approach Transition Connection to Rigid Barrier shown herein can be installed without conflicting with existing Traffic Railings, structures, or approach slabs. See Sheets 13 thru 21.

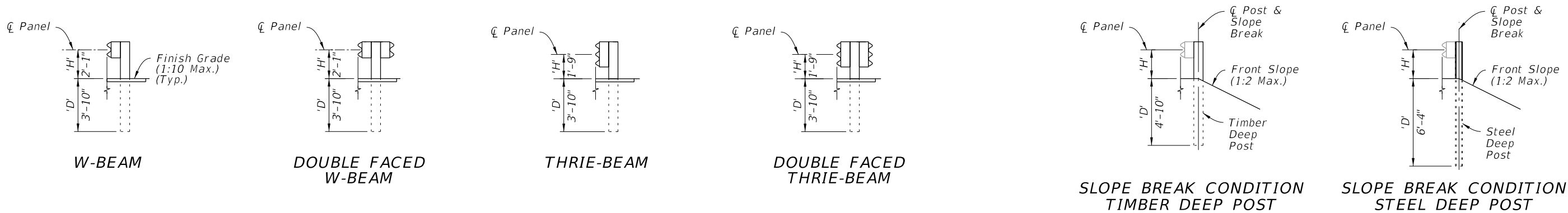
For connecting guardrail to existing bridge Traffic Railings, see Indexes 536-002, 521-404, and 521-405.

10. CONNECTION TO EXISTING 27" HEIGHT GUARDRAIL: See the connection options on Sheet 3.

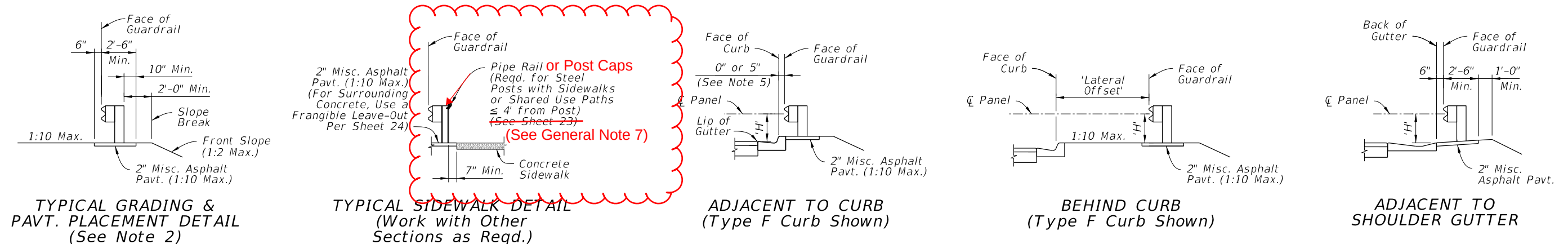
11. PLANS CALLOUTS: Begin/End Station labels are shown throughout this Index as they correspond to the station and offset callouts specified in the plans.

In the plans, Begin/End Guardrail Station refers to the General TL-3 Guardrail Pay Item, and it may be abbreviated as Begin/End GR. Station. Where the Low-Speed TL-2 Guardrail Pay Item is specifically required, the callout in the plans will then specify Begin/End TL-2 GR. Station.

12. QUANTITY MEASUREMENT: Measure guardrail and corresponding components as defined in Specification 536. The Guardrail length is measured along the centerline of installed Panels, between the points labeled Begin/End Guardrail Station shown on the following Index Sheets and defined in the plans (typically measured from the C of the panel's post bolt slots at the approach/trailing ends).

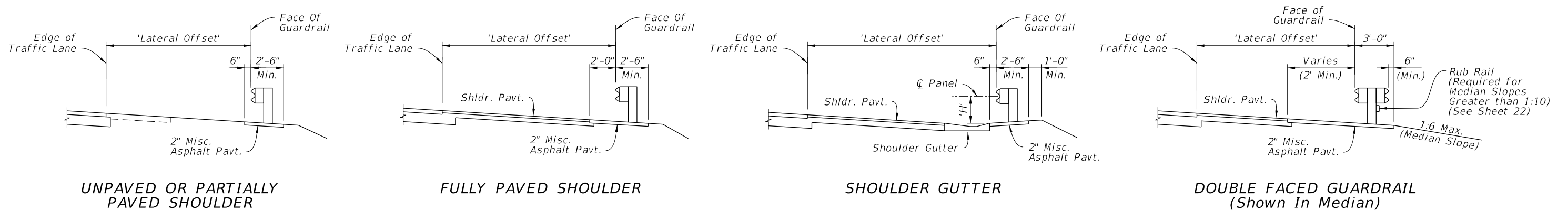


GUARDRAIL TYPES - MOUNTING HEIGHTS & POST DEPTHS



GUARDRAIL SECTIONS - TYPICAL

GUARDRAIL SECTIONS - CURB & GUTTER



GUARDRAIL SECTIONS - SHOULDERS

GUARDRAIL HEIGHT SUMMARY TABLE:			
Type:	Min. Depth 'D':	Mounting Height 'H':	Post Length 'L':
W-Beam (Single and Double Faced)	3'-10"	2'-1"	6'-6"
Thrie-Beam (Single and Double Faced)	3'-10"	1'-9"	6'-6"
Timber Deep Post	4'-10"	See Above	7'-6"
Steel Deep Post	6'-4"	See Above	9'-0"

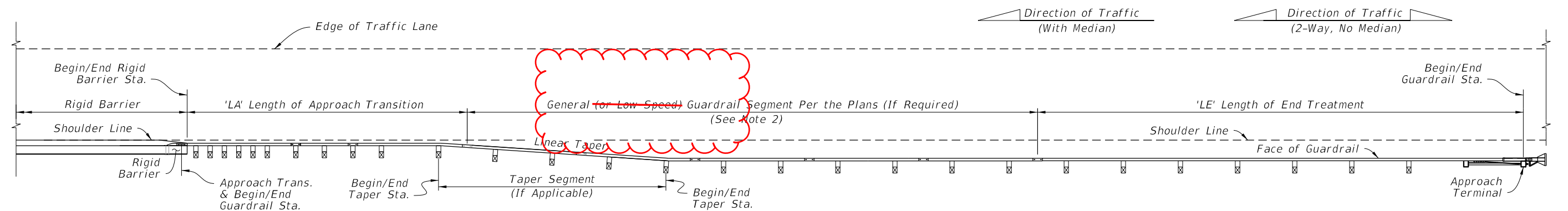
NOTES:

- GUARDRAIL SECTIONS:** Construct Sections as indicated in the plans. The details shown herein depict W-Beam Guardrail, but are applicable to the other defined Guardrail Types placed at the corresponding height, 'H'. Use components per Sheets 4 & 5. Steel and timber post types are interchangeable unless otherwise defined. The 1:10 Max. cross slope shown is the maximum slope permitted for proper guardrail function, but project-specific cross slope requirements are governed by additional design criteria, per the plans.
- TYPICAL GRADING & PAVEMENT PLACEMENT DETAIL:** Construct features as depicted except where superseded by specific Guardrail Sections or the plans. Place the Slope Break a Minimum of 2' behind the post. For Deep Posts, the slope break may be placed at the ϕ Post with the 2" Miscellaneous Asphalt Pavement omitted, **unless shown in the plans.**
- SLOPE BREAK CONDITION:** Install Deep Posts only where called for in the plans. Deep Posts are only permitted where post spacing is 6'-3" or less.
- LATERAL OFFSETS:** The Lateral Offsets shown are governed by the station and offset call outs for Face of Guardrail, as shown in the plans.
- ADJACENT TO CURB:** Place the Face of Guardrail consistently offset either flush with the Face of Curb or 5" behind the Face of Curb, as indicated by the plans station and offset callout. For offset changes, transition the Face of Guardrail as shown in the plans.

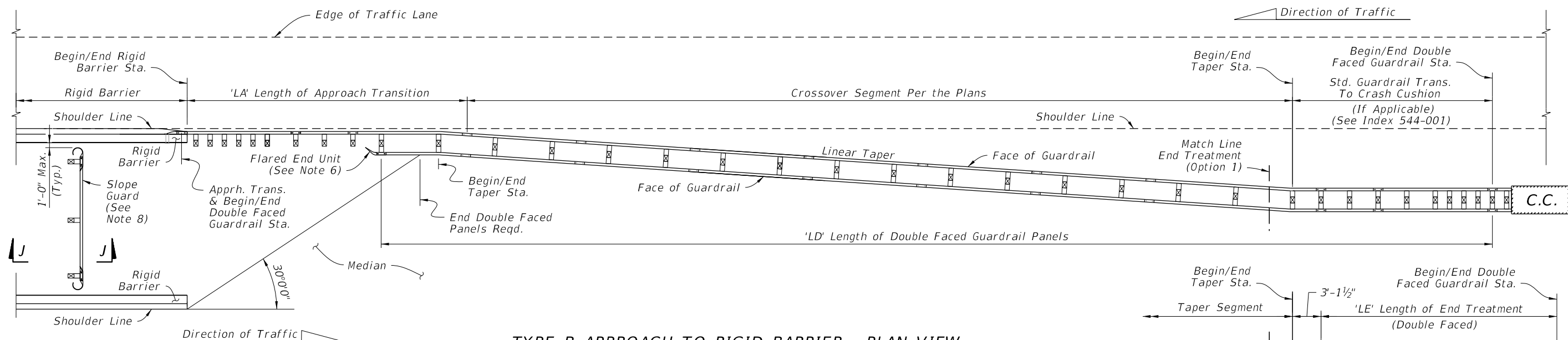
GUARDRAIL SECTIONS

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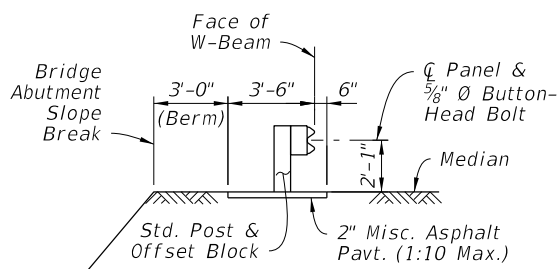
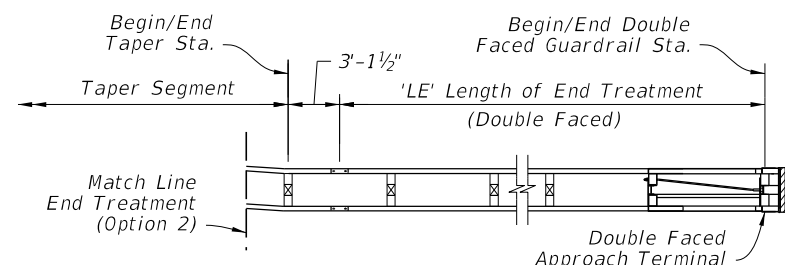
LAST REVISION	DESCRIPTION:	FY	STANDARD PLANS	GUARDRAIL	INDEX	SHEET
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TYPE A APPROACH TO RIGID BARRIER - PLAN VIEW
MEDIAN OR OUTSIDE SHOULDERS
 (Mirror Horiz. and/or Vert. for Opposite
 Direction and/or Side of Road)



TYPE B APPROACH TO RIGID BARRIER - PLAN VIEW
CROSSOVER GUARDRAIL FOR MEDIAN SHOULDERS ONLY
DUAL BRIDGE APPROACH CONFIGURATION
 (Mirror Horiz. and Vert. for Opposite Direction)



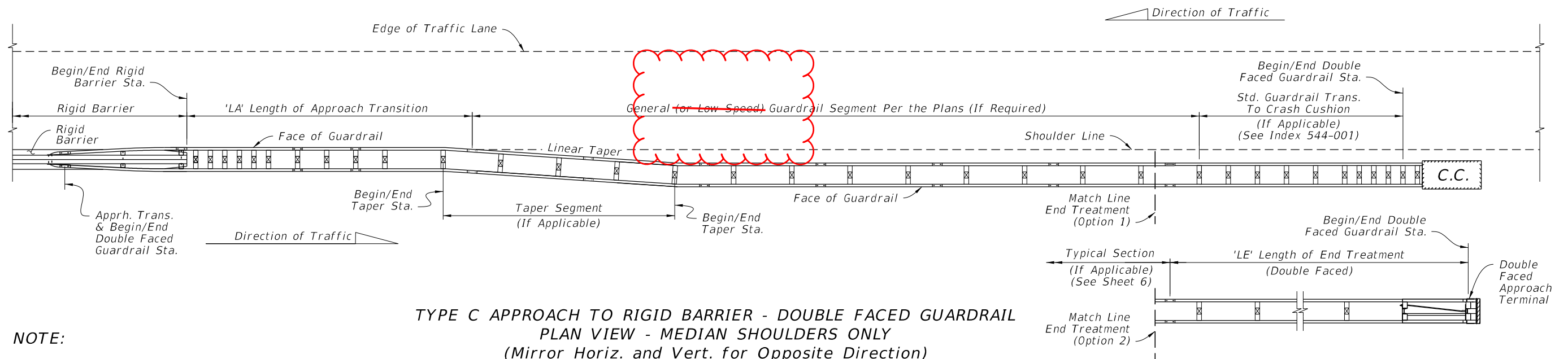
SECTION J-J
BRIDGE ABUTMENT
SLOPE GUARD
(Between Bridges)

NOTES:

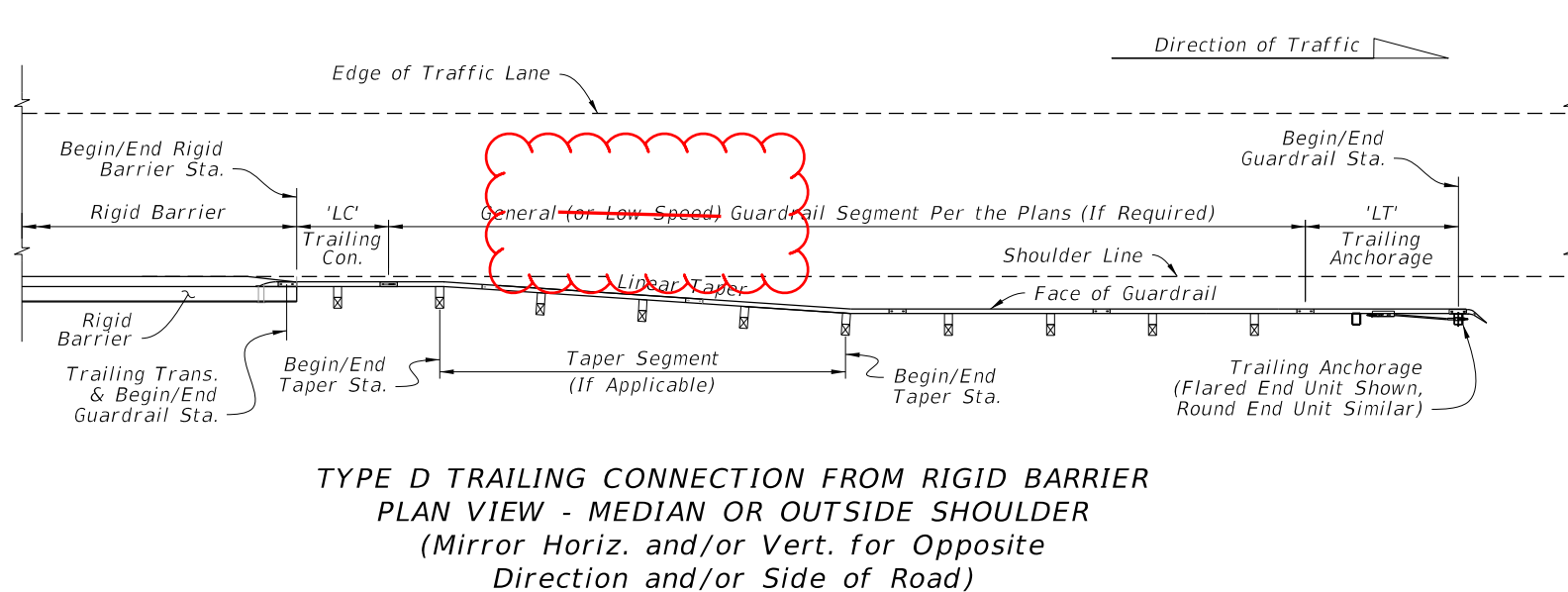
- INSTALLATION:** The Plan Views shown are schematic only, showing example geometry for connecting guardrail segments including taper locations and Double Faced Guardrail requirements as applicable. Work this Sheet with the plans, where stationing and offsets for Begin/End Guardrail, Begin/End Rigid Barrier, and Begin/End Taper are specified. For existing bridge layouts, see Index 536-002, 521-404, and 521-405.
- GENERAL (OR LOW SPEED) GUARDRAIL SEGMENT:** Construct this segment if shown in the plans. For the case where this segment's offset differs from the Approach Transition offset, linearly taper the guardrail between the Begin/End Taper Stations and offsets as specified in the plans.
 For the shortest length case of a direct connection between the End Treatment and the Approach Transition, this segment may be omitted as shown in the plans.
- LENGTH OF APPROACH TRANSITION 'LA':** Install the applicable Approach Transition as shown per Sheets 13 thru 16, where called for in the plans.
- LENGTH OF END TREATMENT 'LE':** Install the Approach Terminal End Treatment as shown per Sheet 7 or 8, where called for in the plans. Use the corresponding APL drawings for construction details.
- CROSSOVER GUARDRAIL (FOR TYPE B APPROACH):** Install the Crossover Segment tapering linearly from the Begin Taper Sta. and offset to the End Taper Sta. and offset as specified in the plans.
- LENGTH OF DOUBLE FACED GUARDRAIL PANELS, 'LD' (FOR TYPE B APPROACH):** Terminate the Double Faced Guardrail panels as shown (based upon the 30° line measured from the hazard on the opposite side of the median). Extend the panel segment longer than the dimension 'LD' as needed for the Panel's end Bolt Slot to align with a post Bolt hole.
 Install a Flared End Unit where shown, as defined on Sheet 9.
- END TREATMENT OPTIONS (FOR TYPE B & C APPROACH):** For Double Faced applications, use either a Double Faced Approach Terminal Assembly per Sheet 8 or a Crash Cushion per Index 544-001. For either Option, meet the 1:10 adjacent grading requirements for Approach Terminals as shown on Sheet 8.
- SLOPE GUARD:** Where indicated in the plans, install a Guardrail segment between bridge approaches and offset from the bridge abutment's Slope Break as shown. Install posts at the end bolt slots of the panel system. Use post spacing of either 3'-1 1/2" or 6'-3", as needed to correctly fit system between barriers. The system may also be lengthened to fit by installing two Rounded End Units as defined on Sheet 9.

LAYOUT TO RIGID BARRIER - APPROACH ENDS

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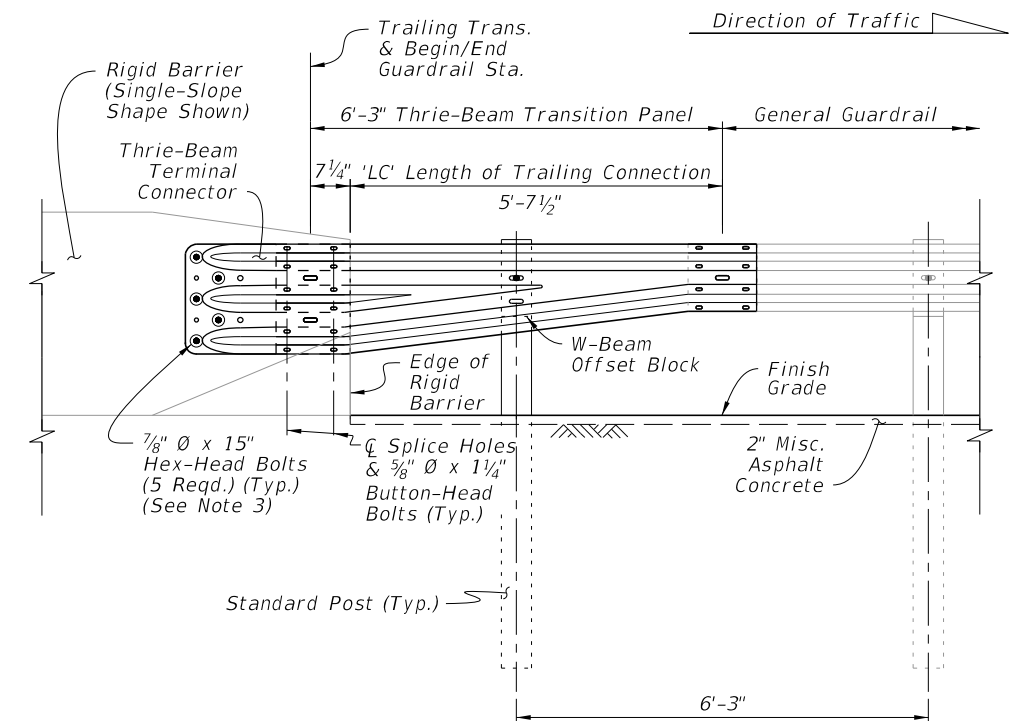


**LAYOUT TO RIGID BARRIER -
APPROACH ENDS WITH
DOUBLE FACED GUARDRAIL**



NOTES:

1. See the applicable Notes on Sheet 19. For connections with curb options, see sheet 21.
2. LENGTH OF TRAILING ANCHORAGE, 'LT': Install the Trailing Anchorage as shown on Sheet 9, where called for in the plans.
3. THRIE-BEAM TERMINAL CONNECTOR: Install connector and bolts as shown on Sheet 17.
4. RIGID BARRIER SINGLE SLOPE END FACE: See Concrete Barrier Wall, Index 521-001, and Traffic Railing, Indexes 521-422 and 521-423, for details.

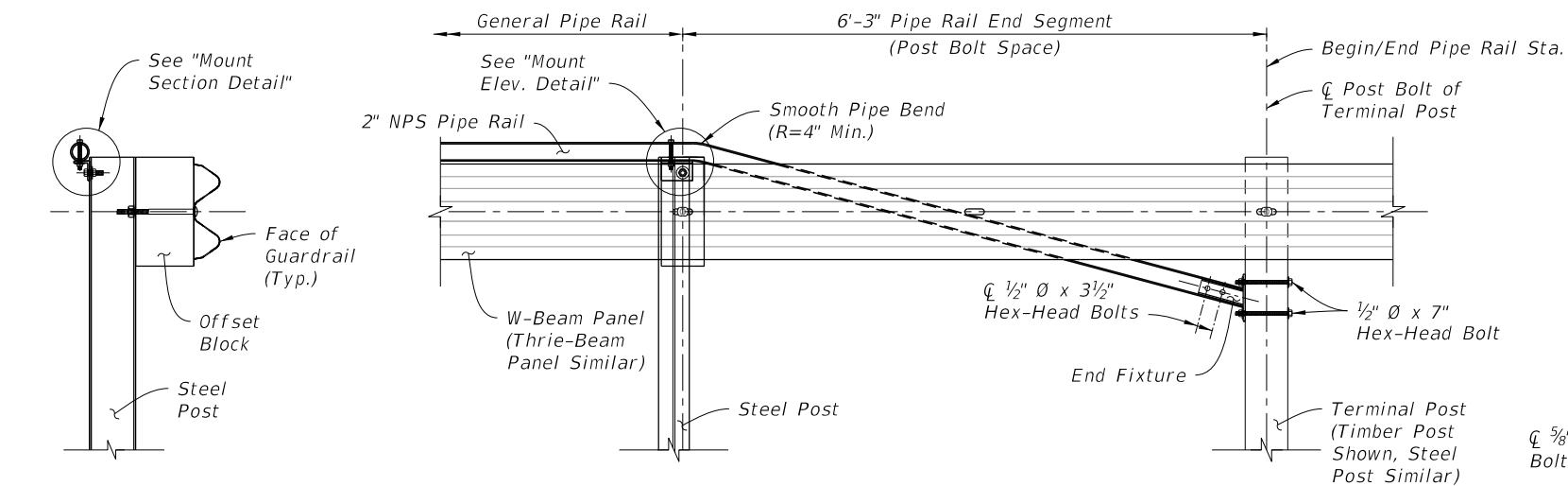


LAYOUT TO RIGID BARRIER - TRAILING ENDS

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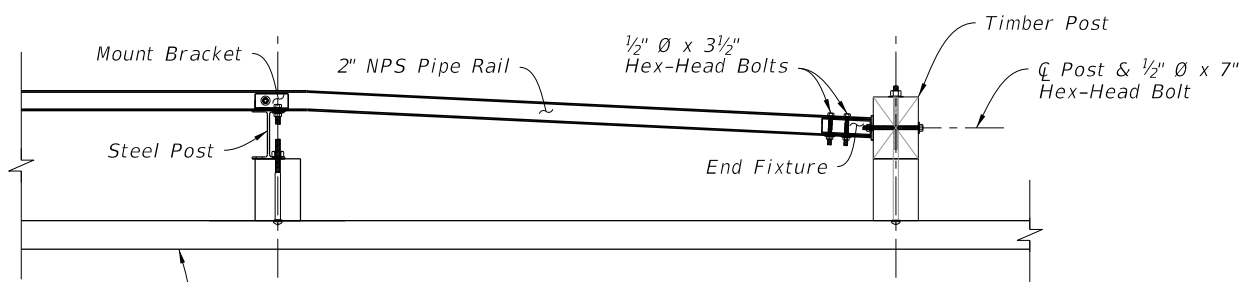
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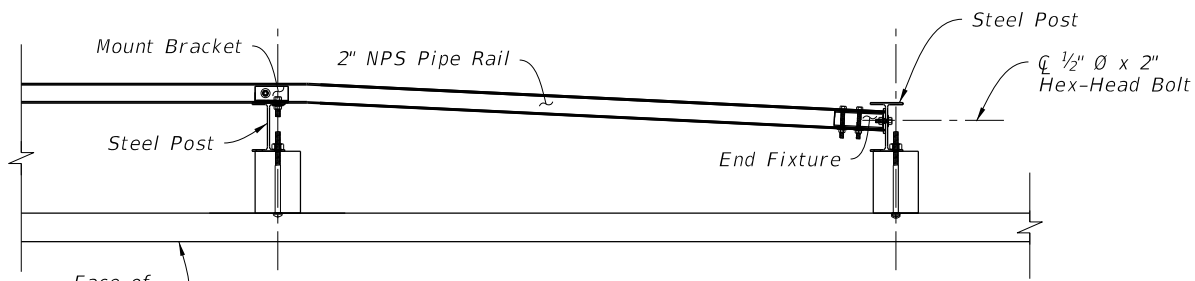


GENERAL PIPE RAIL SECTION

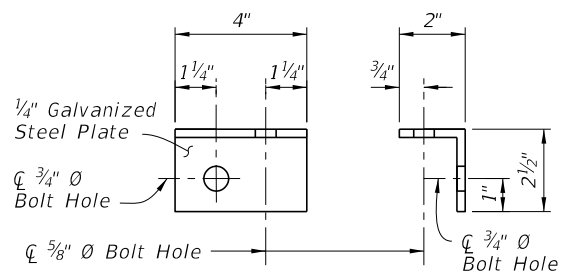
PIPE RAIL INSTALLED ELEVATION (End Segment Shown)



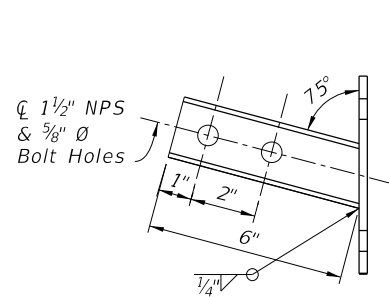
PIPE RAIL INSTALLED PLAN END AT TIMBER POST OPTION



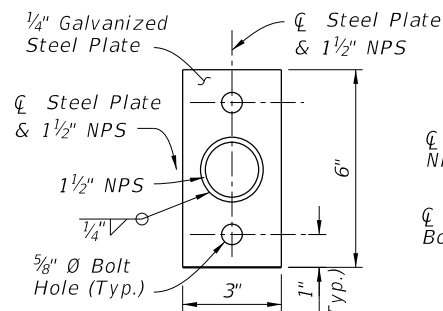
PIPE RAIL INSTALLED PLAN END AT STEEL POST OPTION



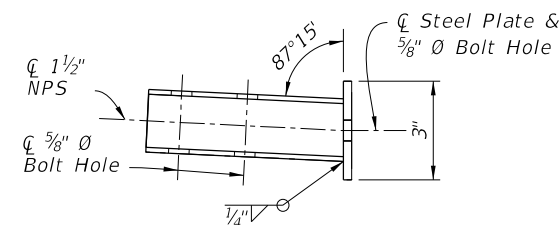
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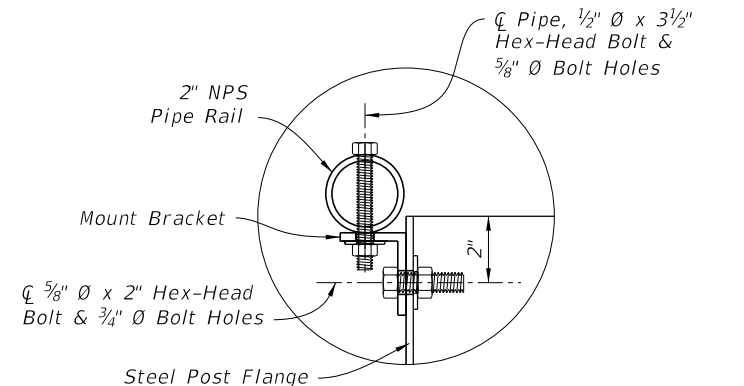
ELEVATION



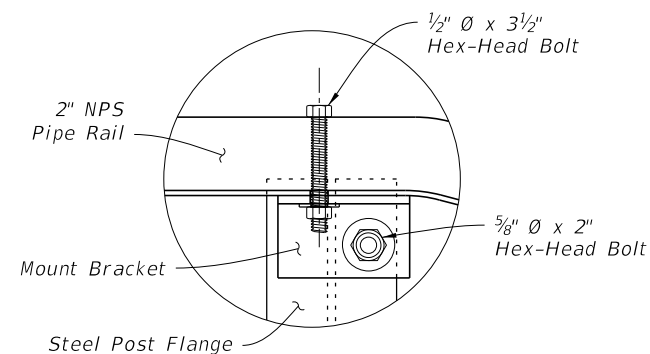
SECTION



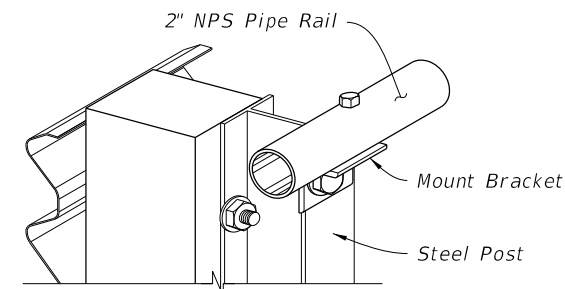
PLAN



MOUNT SECTION DETAIL



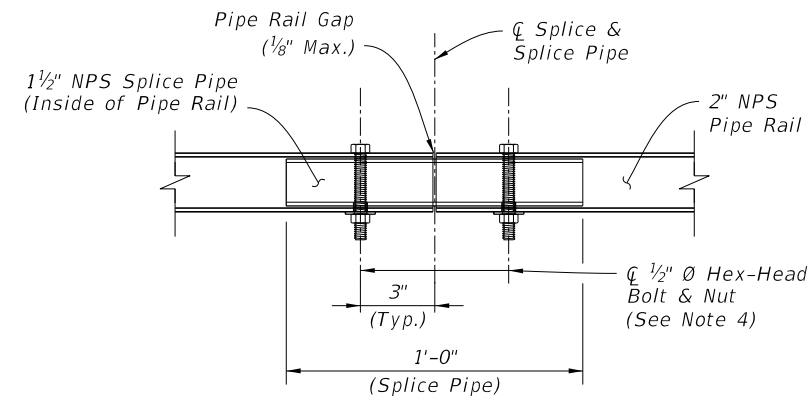
MOUNT ELEVATION DETAIL (Back View - Mirrored)



MOUNT ISOMETRIC CUT-AWAY

Install Pipe Rail as indicated per the plans and Sheet 1, General Note 7. See Sheet 6 for general placement orientation.

- NOTES:**
1. GENERAL: Install General Pipe Rail where indicated in the plans or when existing sidewalks or shared use paths are located less than 4' 0" from the back of Steel Posts as shown on Sheet 6.
 2. PIPE RAIL END SEGMENTS: Place End Segments on both ends of General Pipe Rail runs, with End Fixtures mounted to Terminal Posts located outside of Approach Terminal Assembly ('LE'), Trailing Anchorage Assembly ('LT'), and Approach Transition ('LA') segments.
 3. MATERIALS: Use steel brackets, fixtures, and pipes in accordance with Specification 967.
 4. RAIL SPLICES: Install Rail Splices to join pieces of 2" NPS Pipe Rail into a continuous system. Place splices as needed, at a spacing of 18'-0" or greater. Orient the head of bolt on the top of the pipe.



RAIL SPLICE DETAIL

2027-28

PEDESTRIAN SAFETY TREATMENT - PIPE RAIL

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7. SIDEWALKS & SHARED USE PATHS BEHIND GUARDRAIL: When guardrail posts are placed within 4'-0" of a sidewalk or shared use path, use timber posts. Alternatively, steel posts may be used if treated with Pipe Rail per Sheet 23 or Post Caps per the APL drawings.

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Where Pipe Rail is shown or quantified in the Plans, Post Caps or Timber Posts may be substituted unless directly prohibited by the plans.

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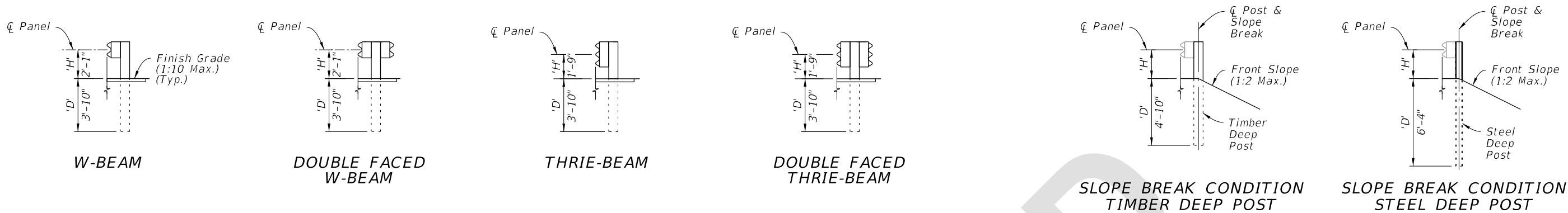
10. CONNECTION TO EXISTING 27" HEIGHT GUARDRAIL: See the connection options on Sheet 3.

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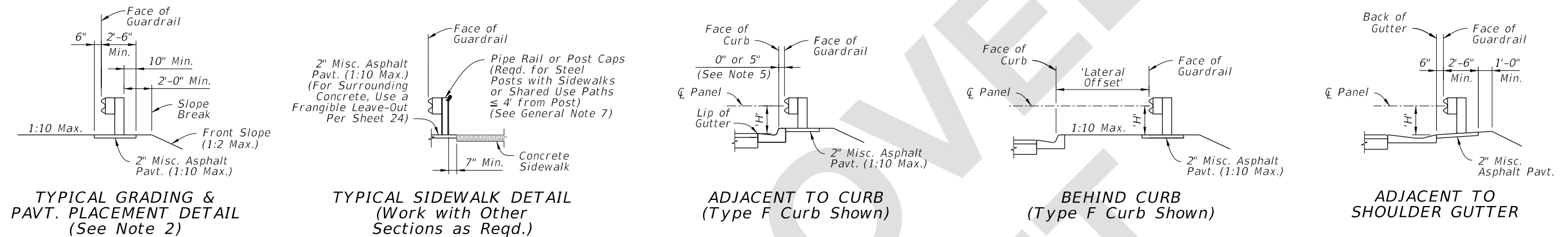
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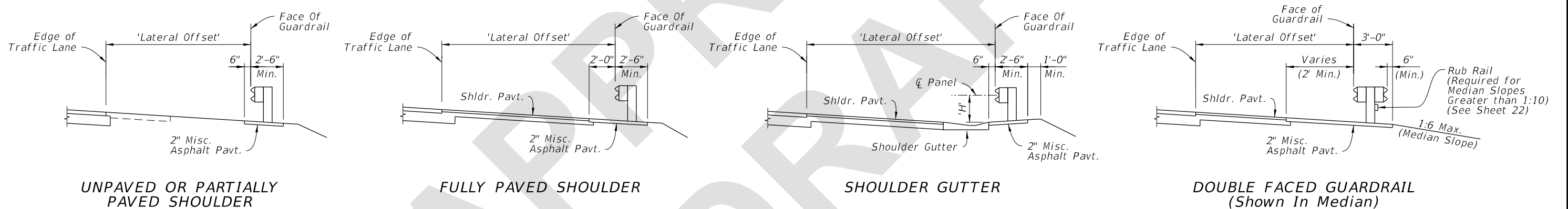


GUARDRAIL TYPES - MOUNTING HEIGHTS & POST DEPTHS



GUARDRAIL SECTIONS - TYPICAL

GUARDRAIL SECTIONS - CURB & GUTTER



GUARDRAIL SECTIONS - SHOULDERS

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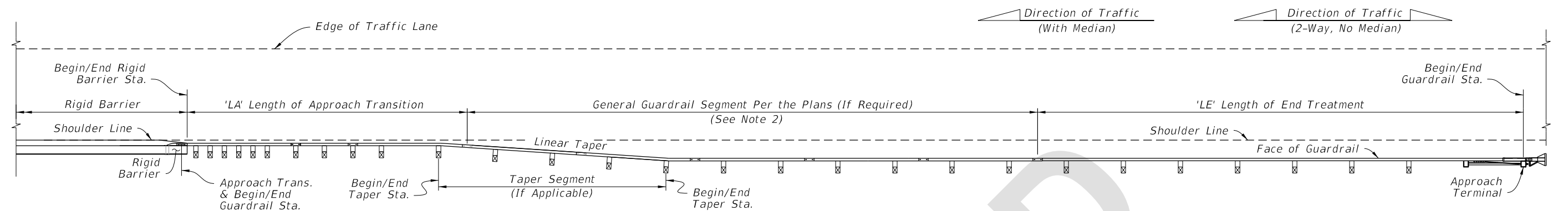
NOTES:

- GUARDRAIL SECTIONS:** Construct Sections as indicated in the plans. The details shown herein depict W-Beam Guardrail, but are applicable to the other defined Guardrail Types placed at the corresponding height, 'H'. Use components per Sheets 4 & 5. Steel and timber post types are interchangeable unless otherwise defined. The 1:10 Max. cross slope shown is the maximum slope permitted for proper guardrail function, but project-specific cross slope requirements are governed by additional design criteria, per the plans.
- TYPICAL GRADING & PAVEMENT PLACEMENT DETAIL:** Construct features as depicted except where superseded by specific Guardrail Sections or the plans. Place the Slope Break a Minimum of 2' behind the post. For Deep Posts, the slope break may be placed at the C Post with the 2" Miscellaneous Asphalt Pavement omitted unless shown in the plans.
- SLOPE BREAK CONDITION:** Install Deep Posts only where called for in the plans. Deep Posts are only permitted where post spacing is 6'-3" or less.
- LATERAL OFFSETS:** The Lateral Offsets shown are governed by the station and offset call outs for Face of Guardrail, as shown in the plans.
- ADJACENT TO CURB:** Place the Face of Guardrail consistently offset either flush with the Face of Curb or 5" behind the Face of Curb, as indicated by the plans station and offset callout. For offset changes, transition the Face of Guardrail as shown in the plans.

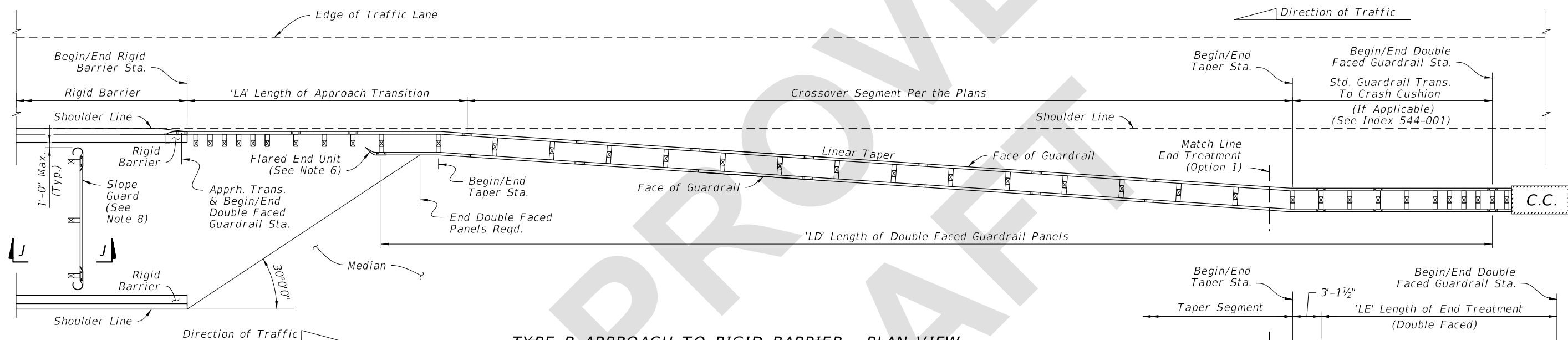
GUARDRAIL SECTIONS

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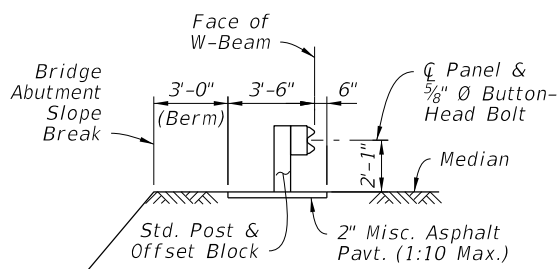
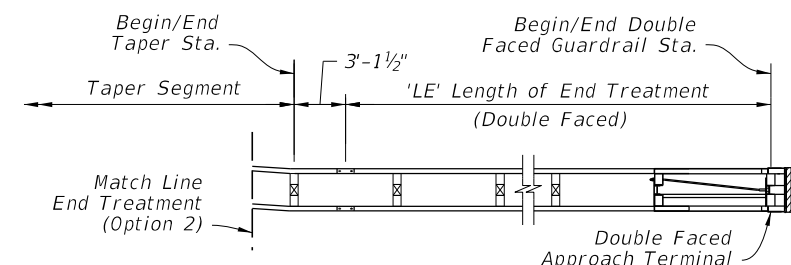
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**TYPE A APPROACH TO RIGID BARRIER - PLAN VIEW
MEDIAN OR OUTSIDE SHOULDERS**
(Mirror Horiz. and/or Vert. for Opposite
Direction and/or Side of Road)



**TYPE B APPROACH TO RIGID BARRIER - PLAN VIEW
CROSSOVER GUARDRAIL FOR MEDIAN SHOULDERS ONLY**
DUAL BRIDGE APPROACH CONFIGURATION
(Mirror Horiz. and Vert. for Opposite Direction)



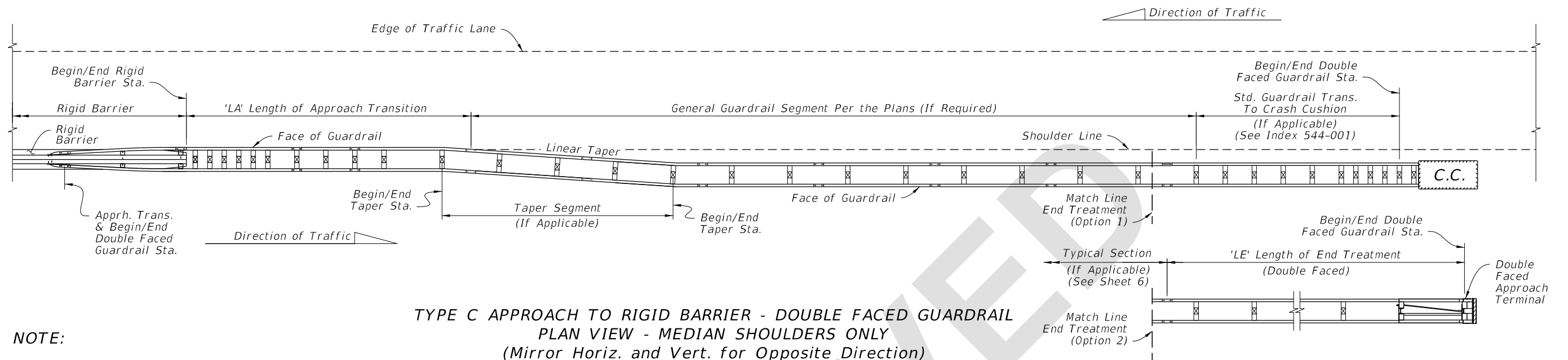
**SECTION J-J
BRIDGE ABUTMENT
SLOPE GUARD
(Between Bridges)**

NOTES:

- INSTALLATION:** The Plan Views shown are schematic only, showing example geometry for connecting guardrail segments including taper locations and Double Faced Guardrail requirements as applicable. Work this Sheet with the plans, where stationing and offsets for Begin/End Guardrail, Begin/End Rigid Barrier, and Begin/End Taper are specified. For existing bridge layouts, see Index 536-002, 521-404, and 521-405.
- GENERAL GUARDRAIL SEGMENT:** Construct this segment if shown in the plans. For the case where this segment's offset differs from the Approach Transition offset, linearly taper the guardrail between the Begin/End Taper Stations and offsets as specified in the plans.
For the shortest length case of a direct connection between the End Treatment and the Approach Transition, this segment may be omitted as shown in the plans.
- LENGTH OF APPROACH TRANSITION 'LA':** Install the applicable Approach Transition as shown per Sheets 13 thru 16, where called for in the plans.
- LENGTH OF END TREATMENT 'LE':** Install the Approach Terminal End Treatment as shown per Sheet 7 or 8, where called for in the plans. Use the corresponding APL drawings for construction details.
- CROSSOVER GUARDRAIL (FOR TYPE B APPROACH):** Install the Crossover Segment tapering linearly from the Begin Taper Sta. and offset to the End Taper Sta. and offset as specified in the plans.
- LENGTH OF DOUBLE FACED GUARDRAIL PANELS, 'LD' (FOR TYPE B APPROACH):** Terminate the Double Faced Guardrail panels as shown (based upon the 30° line measured from the hazard on the opposite side of the median). Extend the panel segment longer than the dimension 'LD' as needed for the Panel's end Bolt Slot to align with a post Bolt hole.
Install a Flared End Unit where shown, as defined on Sheet 9.
- END TREATMENT OPTIONS (FOR TYPE B & C APPROACH):** For Double Faced applications, use either a Double Faced Approach Terminal Assembly per Sheet 8 or a Crash Cushion per Index 544-001. For either Option, meet the 1:10 adjacent grading requirements for Approach Terminals as shown on Sheet 8.
- SLOPE GUARD:** Where indicated in the plans, install a Guardrail segment between bridge approaches and offset from the bridge abutment's Slope Break as shown. Install posts at the end bolt slots of the panel system. Use post spacing of either 3'-1½" or 6'-3", as needed to correctly fit system between barriers. The system may also be lengthened to fit by installing two Rounded End Units as defined on Sheet 9.

LAYOUT TO RIGID BARRIER - APPROACH ENDS

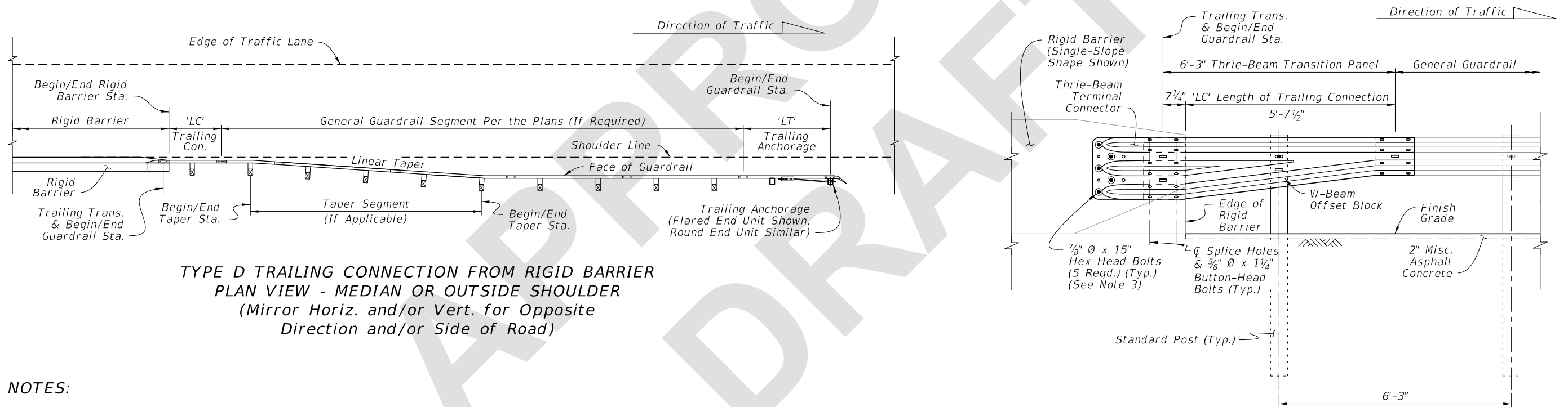
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NOTE:

See the applicable Notes on Sheet 19.

**LAYOUT TO RIGID BARRIER -
APPROACH ENDS WITH
DOUBLE FACED GUARDRAIL**



NOTES:

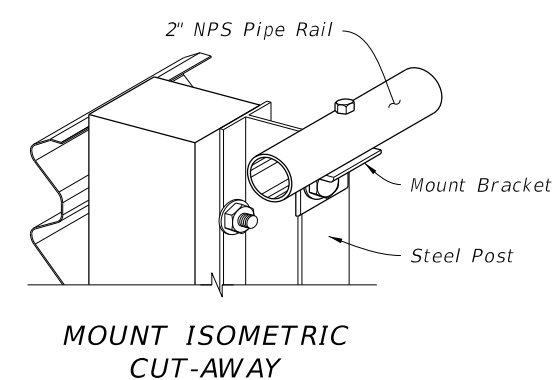
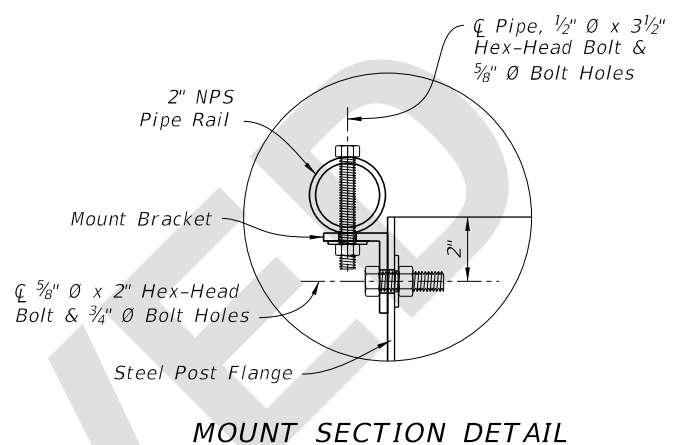
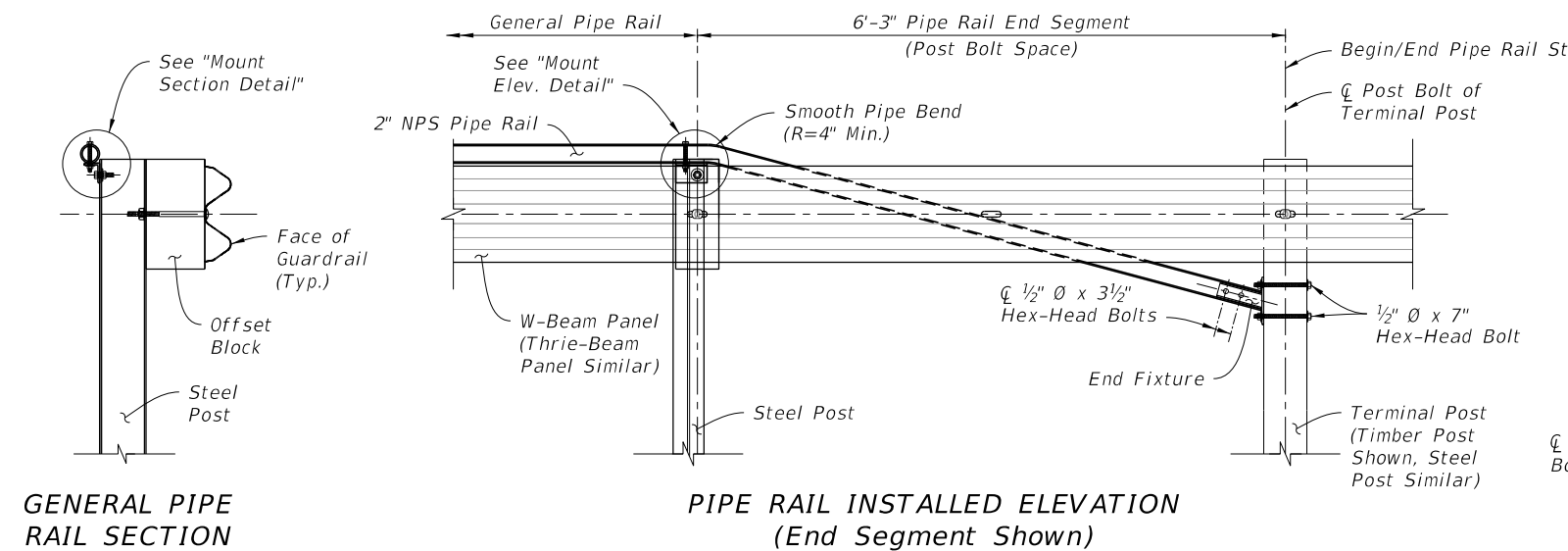
1. See the applicable Notes on Sheet 19. For connections with curb options, see sheet 21.
2. LENGTH OF TRAILING ANCHORAGE, 'LT': Install the Trailing Anchorage as shown on Sheet 9, where called for in the plans.
3. THRIE-BEAM TERMINAL CONNECTOR: Install connector and bolts as shown on Sheet 17.
4. RIGID BARRIER SINGLE SLOPE END FACE: See Concrete Barrier Wall, Index 521-001, and Traffic Railing, Indexes 521-422 and 521-423, for details.

**TRAILING END TRANSITION CONNECTION
TO RIGID BARRIER - INSTALLED ELEVATION**

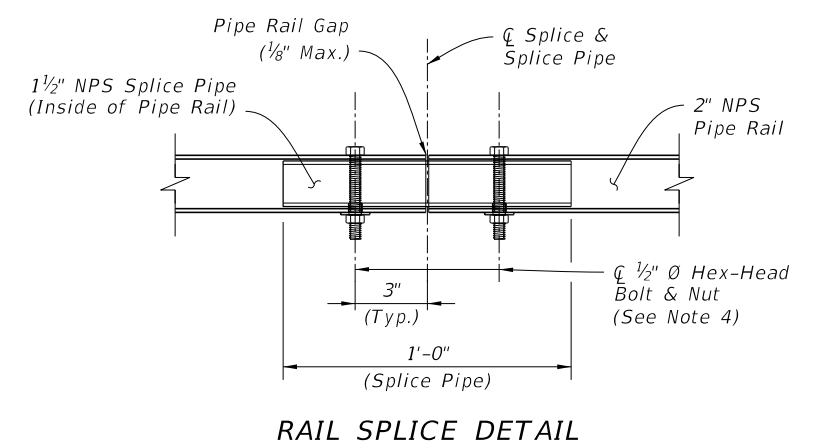
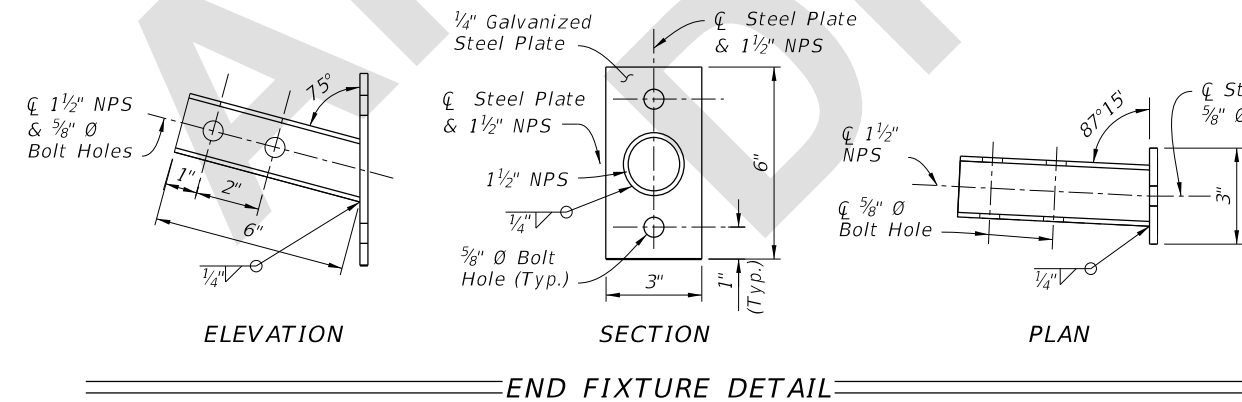
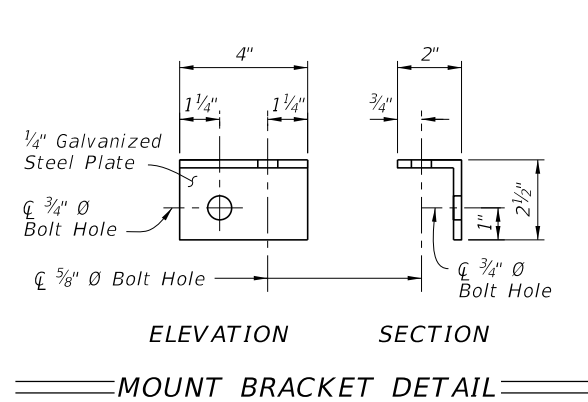
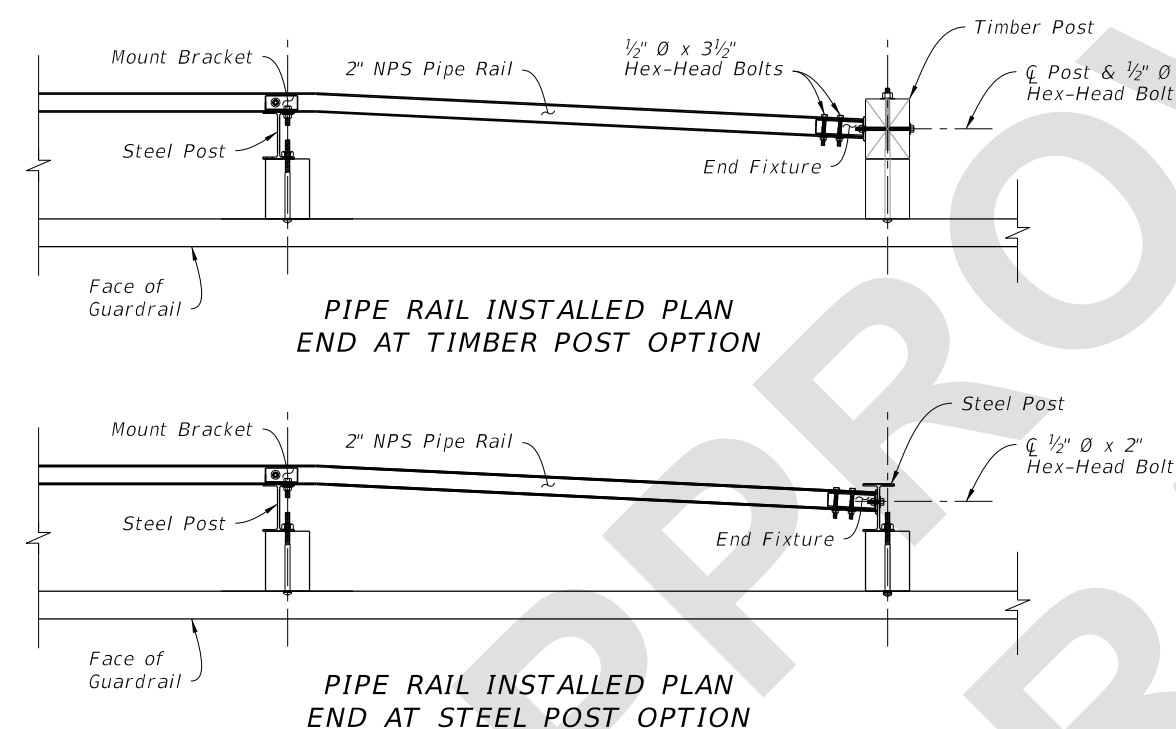
LAYOUT TO RIGID BARRIER - TRAILING ENDS

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- NOTES:**
1. **GENERAL:** Install Pipe Rail as indicated per the Plans and Sheet 1, General Note 7. See Sheet 6 for general placement orientation.
 2. **PIPE RAIL END SEGMENTS:** Place End Segments on both ends of General Pipe Rail runs, with End Fixtures mounted to Terminal Posts located outside of Approach Terminal Assembly ('LE'), Trailing Anchorage Assembly ('LT'), and Approach Transition ('LA') segments.
 3. **MATERIALS:** Use steel brackets, fixtures, and pipes in accordance with Specification 967.
 4. **RAIL SPLICES:** Install Rail Splices to join pieces of 2" NPS Pipe Rail into a continuous system. Place splices as needed, at a spacing of 18'-0" or greater. Orient the head of bolt on the top of the pipe.



PEDESTRIAN SAFETY TREATMENT - PIPE RAIL

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