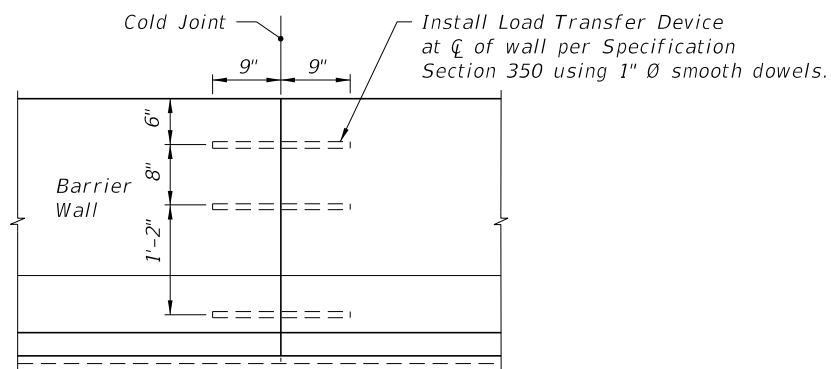


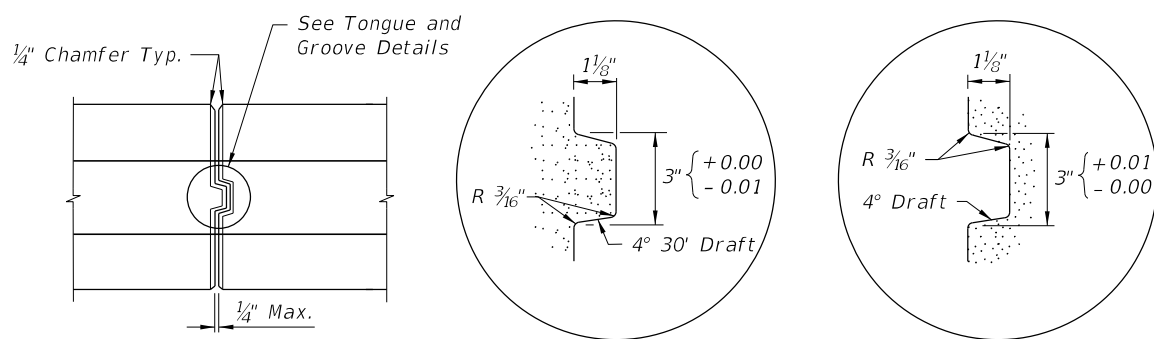
**SHOULDER TREATMENT WHEN CRASH CUSHIONS SHIELD CONCRETE BARRIER WALL ENDS LOCATED INSIDE APPROACH CLEAR ZONE OR LATERAL OFFSET**

**DETAIL A**



**DOWELED TRANSVERSE CONSTRUCTION JOINT WHERE ABUTTING SEGMENT(S) LESS THAN 40' IN LENGTH (Required on abutting ends of Segments < 40' long)**

**DETAIL B**



**TOP VIEW**

**TONGUE DETAIL**

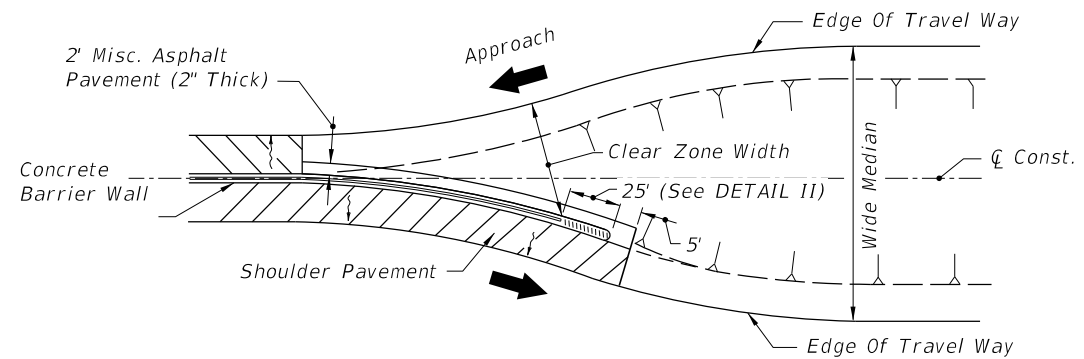
**GROOVE DETAIL**

**PRECAST TONGUE AND GROOVE TRANSVERSE JOINT**

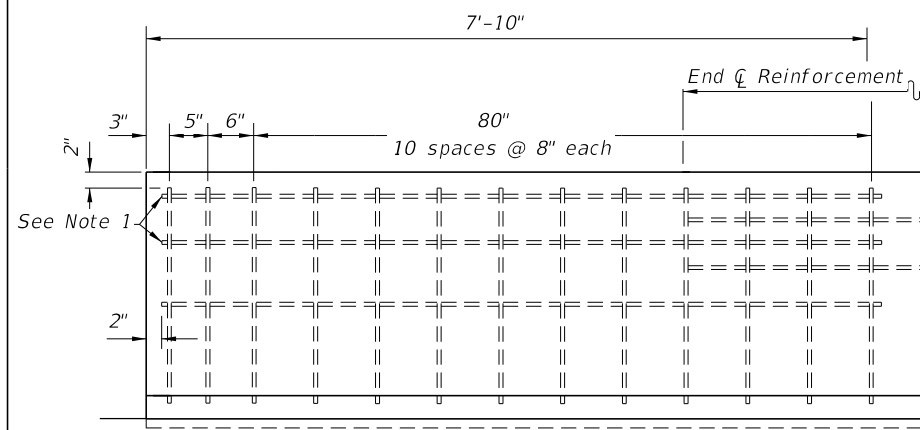
**(Required on abutting ends of Precast Segments ≥ 40' long)**

**DETAIL C**

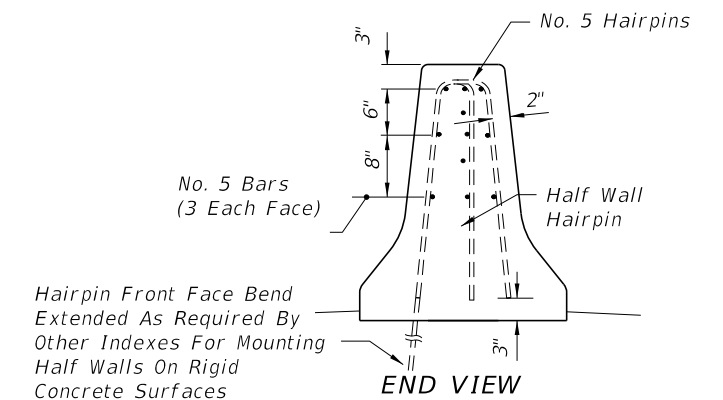
**CONCRETE BARRIER WALL SPECIAL DETAILS**



**TRANSITION BETWEEN NARROW AND WIDE MEDIANS WHERE END OF BARRIER WALL IS LOCATED OUTSIDE THE APPROACH CLEAR ZONE OR LATERAL OFFSET**



**ELEVATION**



**END VIEW**

**NOTE:**

- Free end reinforcement required for nonreinforced walls at the following locations: All exposed ends; abutting ends of precast segments ≥ 40'; ends with guardrail connections; ends with redirective crash cushion connections; and, ends connecting to bridge traffic rails or other rigid barriers.


**FREE END REINFORCEMENT**

10:03:17 AM  
2/1/2016

LAST REVISION 02/01/16	DESCRIPTION: Deleted W-Beam Guardrail Connection detail that is now Shown in Index 400
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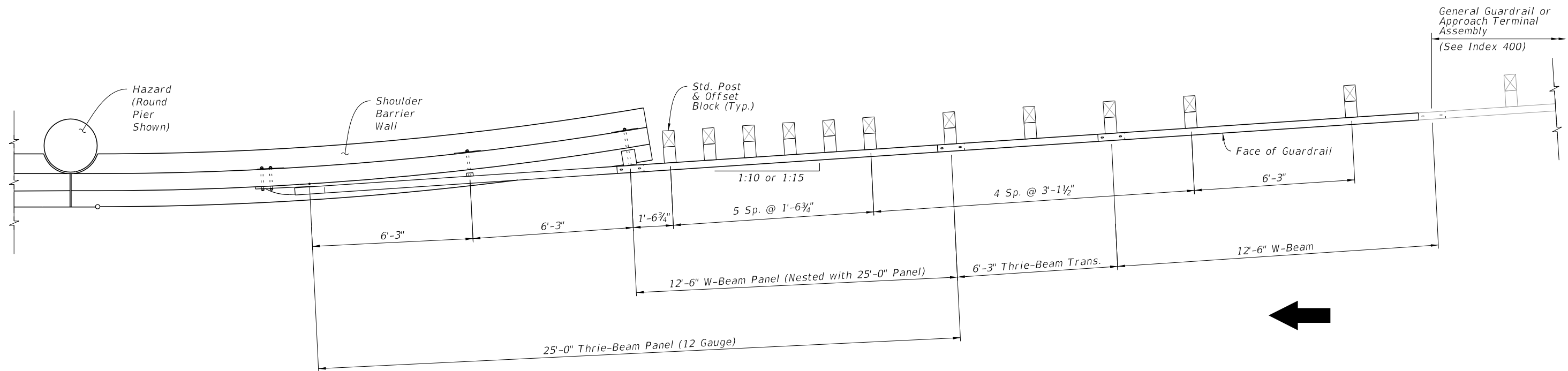
2/1/2016 10:03:18 AM

LAST REVISION 02/01/16	REVISION DESCRIPTION: Deleted Sheet; required information is now shown in Index 400	 <b>FY 2016-17</b> DESIGN STANDARDS	CONCRETE BARRIER WALL	INDEX NO. 410	SHEET NO. 10 of 25
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LAST REVISION 02/01/16	REVISION DESCRIPTION: Deleted Sheet; required information is now shown in Index 400	 <b>FY 2016-17</b> DESIGN STANDARDS	CONCRETE BARRIER WALL	INDEX NO. 410	SHEET NO. 16 of 25
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GUARDRAIL CONNECTING PANELS AND POST SPACING

NOTES:

1. For additional connection details for guardrail to barrier wall, work with Sheet 18 and Index 411.
2. For component details including Standard Posts and Panels, see Index 400.
3. For connecting General Guardrail and Approach Terminal details, see Index 400.

GUARDRAIL APPROACH TRANSITION  
TO CURVED SHOULDER BARRIER WALL

2/1/2016 10:03:19 AM

LAST REVISION	02/01/16	REVISION	DESCRIPTION: Updated plan view layout and relocated other items to Index 400
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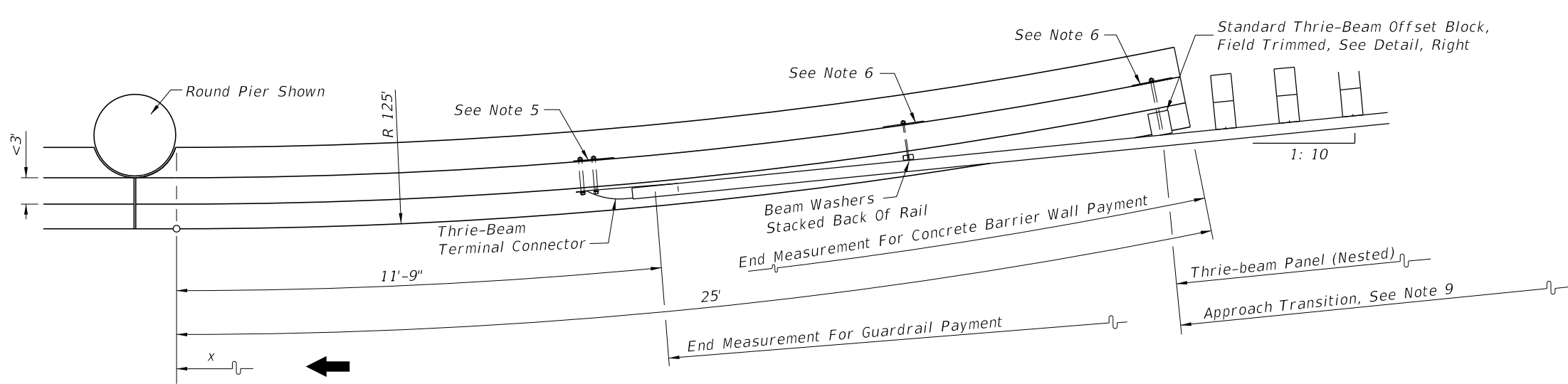


FY 2016-17  
DESIGN STANDARDS

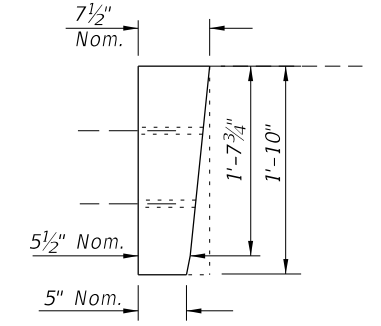
CONCRETE BARRIER WALL

INDEX NO.  
410

SHEET NO.  
17 of 25

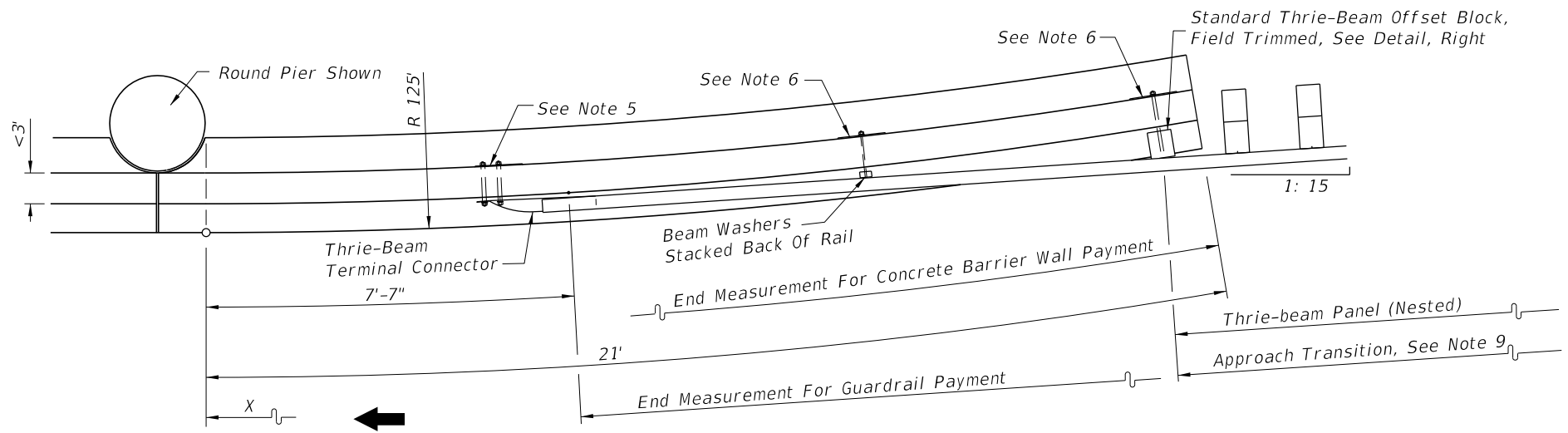


PLAN FOR DESIGN SPEED ≤ 45 MPH



FOR USE WITH EITHER  
1: 10 OR 1: 15  
GUARDRAIL TRANSITIONS

STANDARD THRIE-BEAM OFFSET BLOCK  
(FIELD TRIMMED)

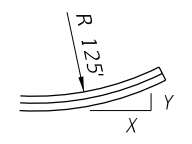


PLAN FOR DESIGN SPEED ≥ 50 MPH

NOTES:

- The affected segments between bent supports or pier columns shall be constructed in accordance with the detail for REINFORCED CONCRETE SHOULDER WALL, Section QQ, or Section TT. In cases where the barrier wall and slope pavement or other structure would occupy the same location, the wall and structure are to be modified as detailed in the plans.
- The barrier wall radial segments are intended for use on approach and trailing ends of both one-way and two-way facilities. The guardrail connections shown on this sheet apply to one-way approaches and to the approaching and trailing ends of two-lane two-way facilities. For Details on trailing ends of two-way multilane and one-way facilities, the trailing connection in Index 400 may be used.  
  
For walls with normal offsets from hazards and their guardrail connections, see GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL APPROACH ENDS.
- Refer to Index No. 400 for additional guardrail information.
- Attach thrie-beam terminal connector to shoulder barrier wall with a 21"x12"x5/8" thrie beam terminal connector plate and 5-7/8"x12" long HS hex bolts and nuts with 7/8" plain round washers under heads and nuts.
- 12"x12"x1/4" galvanized steel back-up plate with 5/8" post bolts (either 14" or 18" long) and nuts with 5/8" plain round washers under nuts.
- For details at Rigid Hazard, see HAZARD PENETRATION INTO STEM OF RIGID CONCRETE BARRIER WALLS.
- For additional information on PLAN FOR DESIGN SPEED ≤ 45 MPH, see SHOULDER BARRIER WHEN OFFSET FROM ABOVE GROUND HAZARD < 1'-6" AND THE DESIGN SPEED ≤ 45 MPH.
- For additional information on PLAN FOR DESIGN SPEED ≥ 50 MPH, see SHOULDER BARRIER WALL WHEN OFFSET FROM ABOVE GROUND HAZARD < 1'-6" AND THE DESIGN SPEED ≥ 50 MPH.
- See APPROACH TRANSITION TO CURVED SHOULDER BARRIER WALL on Sheet 17 for Guardrail Panel and Post Spacing information.

ARC LENGTH (FT)	DISTANCE "X" (FT)	OFFSETS "Y" (FT)
4	4.00	0.06
8	7.99	0.26
12	11.98	0.58
16	15.96	1.02
20	19.91	1.60
21	20.91	1.76
24	23.85	2.30
25	24.83	2.49



Note:  
Wall may be constructed in chords having lengths ≤ 4 feet.

SHOULDER BARRIER WALL AT ABOVE GROUND RIGID HAZARDS WHEN OFFSET FROM HAZARD < 3'

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