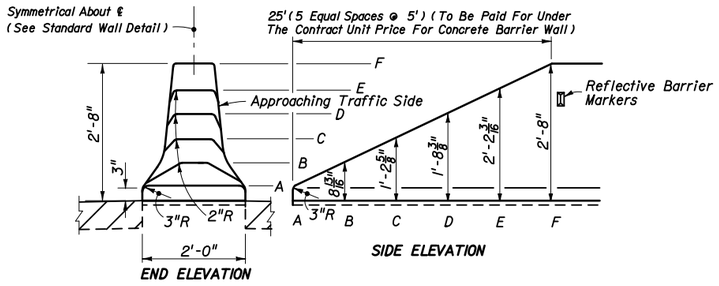
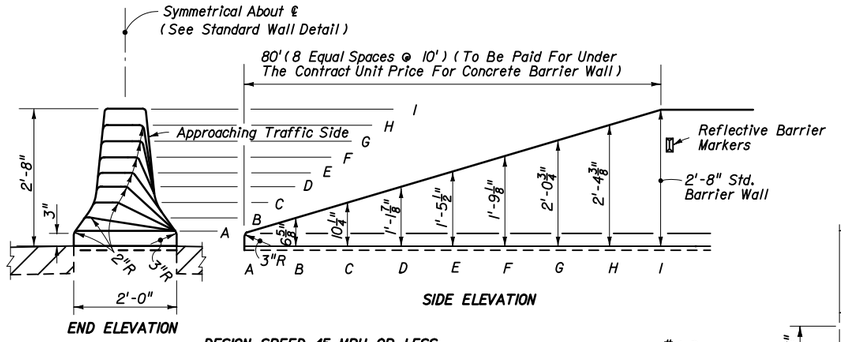


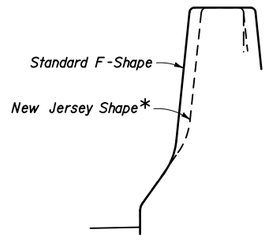
TO BE USED ONLY WHERE TERMINAL LOCATED CLEAR ZONE WIDTH FROM EDGE OF THE NEAR APPROACH TRAFFIC LANE.

CONCRETE BARRIER WALL TERMINAL
DETAIL II



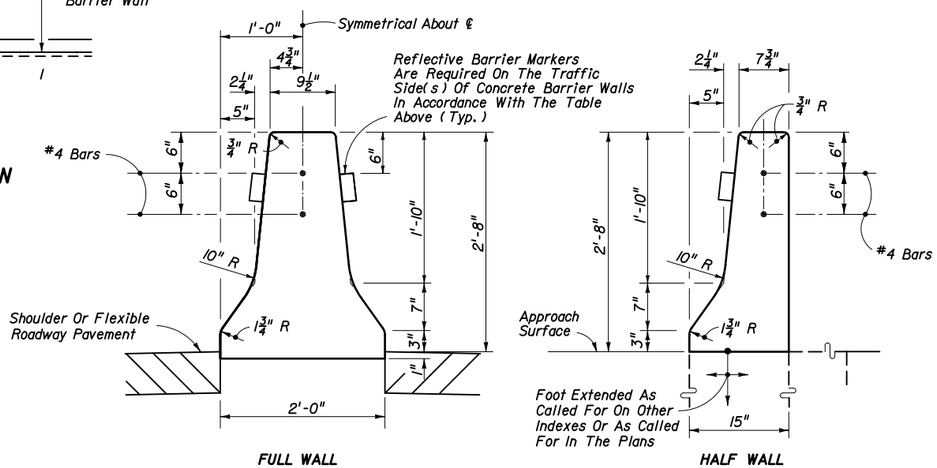
DESIGN SPEED 45 MPH OR LESS

CONCRETE BARRIER WALL TERMINAL FOR NARROW MEDIAN
DETAIL III



* Where standard F-Shape walls abut existing NJ Shape walls, face transitions of not less than 5' in length shall be constructed at the adjoining end of the F-Shape wall.

REFLECTIVE BARRIER MARKER SPACING ON WALL		
Distance - Edge of Travel Lane to Barrier Wall. (Ft.)	Spacing (Ft.)	REMARKS
< 4'	40'	1. Reflectors shall conform to Section 993-5 of the Standard Specifications.
4' to 8'	80'	2. Reflector color (white or yellow) shall conform to the color of the near edgeline.
> than 8'	none required	



For concrete barrier wall details at piers, highway lighting and guardrail connections, see other sheets of this Index.

Standard barrier to be paid for under the contract unit price for Median Concrete Barrier Wall, LF.

STANDARD BARRIER WALL SECTIONS

GENERAL NOTES

1. Class II concrete shall be used for all reinforced and plain (nonreinforced) concrete barrier walls; except, in moderately and extremely aggressive environments, Class IV concrete shall be used. All reinforcing steel with undesignated size shall be #4 bars. Exposed concrete surfaces shall have a Class 3 surface finish in accordance with Section 521 of the Standard Specifications, unless other finish called for in plans. The surfaces shall have a Class 5 Applied Finished Coating in accordance with Section 400 only when called for in the plans.

2. Concrete barrier wall terminal notes for design speeds ≥50 mph.
   a. Terminated outside clear zone of the approach traffic with 'Detail II' end treatment.
   b. Terminated within a shielded location.
   c. Terminal protection by the use of a crash cushion system.
   d. Terminated in conjunction with a suitably designed transition to another barrier.

3. Expansion joints in wall required only at bridge ends and/or at locations where wall is an integral part of existing or proposed concrete slab; wall joints are to match an existing or proposed expansion joint.

4. When the barrier is installed adjacent to the pavement the top 12" of the subgrade shall be compacted to at least 100% of the density as defined in the AASHTO T-99 specifications.

5. Cast-in place barrier wall normally will be a continuous pour without transverse contraction joints. Cast-in-place segments with a length <40' shall be joined to adjacent sections by doweling. See Detail B.

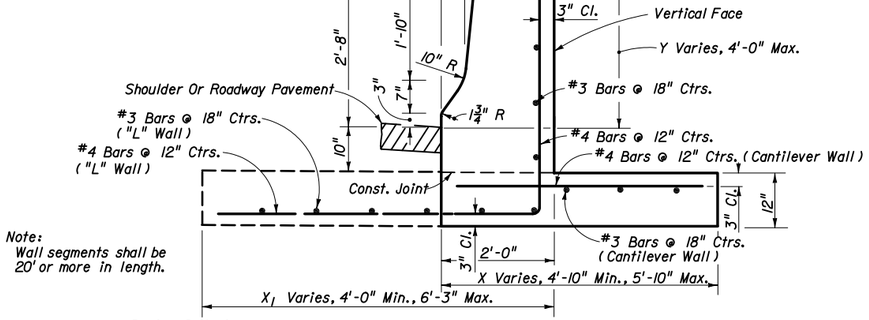
6. Precast construction is allowed as an alternate to cast-in-place construction.
   a. Wall segments 40' in length shall be joined by a transverse joint in accordance with Details C & D. The minimum segment length is 20'.
   b. Bedding of the precast sections shall be facilitated by the use of sand-cement grout or equal method to assure uniform bearing.
   c. Reinforcement may be required for handling stresses.

7 On roadways designated for reverse laning all downstream, ends that are not shielded or outside the clear zone shall be marked by Type 3 Object Markers.

8. Cost of reinforcing steel and reflective barrier markers shall be included in the contract unit price for concrete barrier wall. See individual details for pay item information.

9. For barrier wall inlet details see Indexes Nos. 217, 218 and 219.

10. Concrete barrier wall with New Jersey Safety Shape may not be substituted for the Standard F Shape Barrier.



Note:
Wall segments shall be 20' or more in length.

Design Criteria:

Vehicle: 4000 lbs., 60 mph, 25°, Avg. Lat. Impact Deceleration Force- 7G's (28 kips)
Vehicle Force Applications: 1000 lbs. Vert. At Top of Toe; 28 kips Horiz. At 5½" Above Pavt.

Unless the plans stipulate a specific wall type, either the cantilever wall or the "L" wall may be constructed at the Contractor's option.

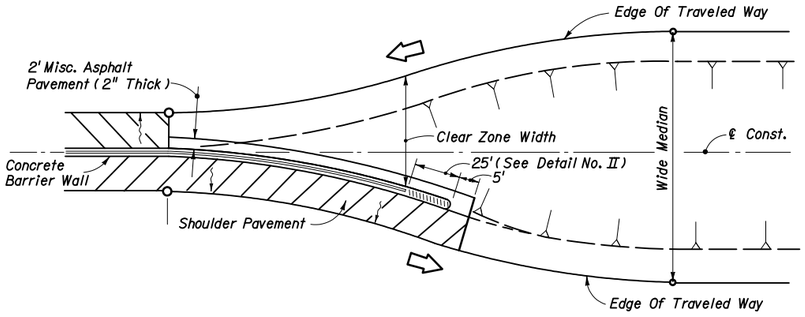
Steel not required in walls of heights Y=0' To 0'-6" when footing and stem cast as one unit. When footing and stem cast separately by construction joint, the footing joint surface shall be roughened and #4 dowels 24" long installed at the centerline of the stem on 24" centers with 9" embedment in the footing.

Cost of the steel and concrete footing to be included in the contract unit price for Median Concrete Barrier Wall, LF.

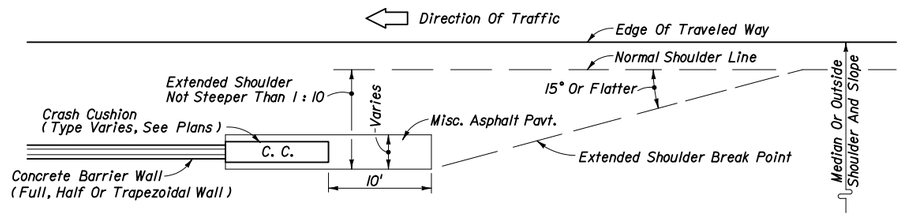
	Height Y	0'-0"	0'-6"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"
Cantilever Wall	Width X	4'-10"	5'-0"	5'-2"	5'-3"	5'-5"	5'-6"	5'-7"	5'-9"	5'-10"
"L" Wall	Width X_1	4'-0"	4'-4"	4'-8"	5'-0"	5'-3"	5'-6"	5'-9"	6'-0"	6'-3"

MEDIAN BARRIER WALL FOR SUPERELEVATED SECTIONS OR FOR VARIABLE ROADWAY PROFILE GRADES

WALL FACE SAFETY SHAPES

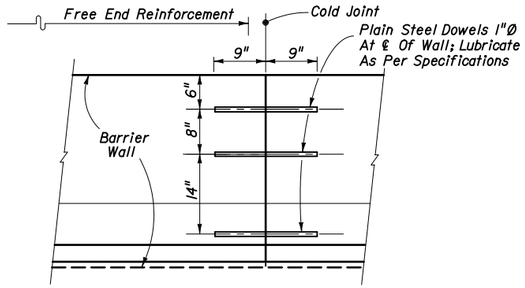


CONCRETE BARRIER WALL TRANSITION BETWEEN WIDE AND NARROW MEDIANS WHEN BARRIER WALL END LOCATED OUTSIDE APPROACH CLEAR ZONE OR HORIZONTAL CLEARANCE



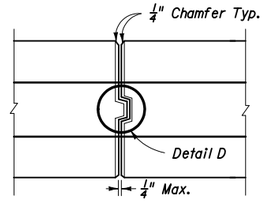
SHOULDER TREATMENT WHEN CRASH CUSHIONS SHIELDING CONCRETE BARRIER WALL END LOCATED INSIDE APPROACH CLEAR ZONE OR HORIZONTAL CLEARANCE

DETAIL A



DOWELED TRANSVERSE CONSTRUCTION JOINT WHEN ABUTTING SEGMENT(S) LESS THAN 40' IN LENGTH

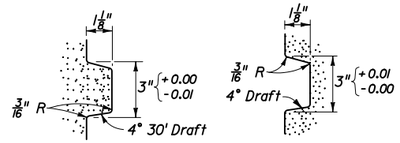
DETAIL B



TOP VIEW

PRECAST BARRIER TRANSVERSE JOINTS

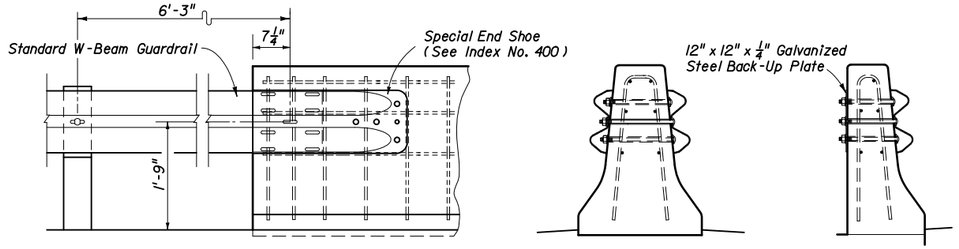
DETAIL C



TOP VIEW

STRAIGHT TONGUE AND GROOVE

DETAIL D

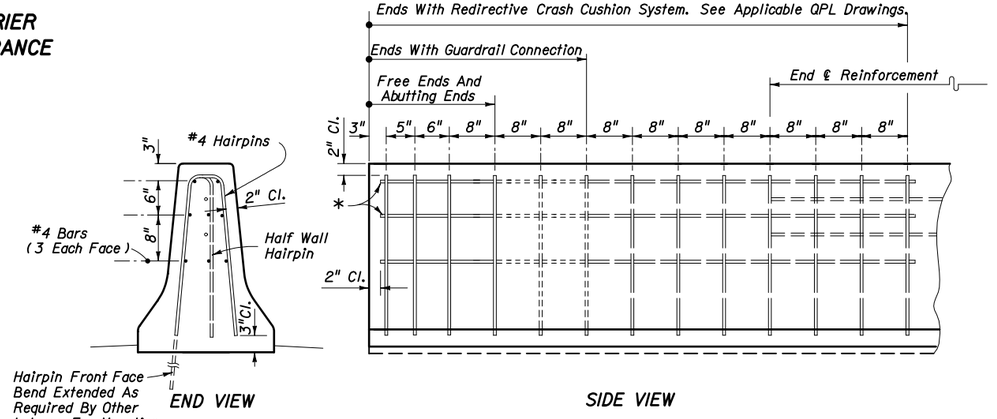


FRONT VIEW — END VIEW — END VIEW

NOTES

1. End of wall flush mounted connections are not applicable to two-lane two-way facilities. See Sheets 18 and 20 for trailing end connections on two-lane two-way facilities and for approach guardrail connections.
2. Trailing guardrail connections to double face safety shaped walls will be under one of the following traffic conditions and mounting methods:
   (a) One-way traffic trailing condition one side only - flush mount with flat steel back-up plate on back side.
   (b) One-way traffic trailing condition both sides - flush mount both sides.
   (c) For trailing condition one side and approach traffic condition opposite side - see "Median Barrier Wall" mounting, Sheet 20.

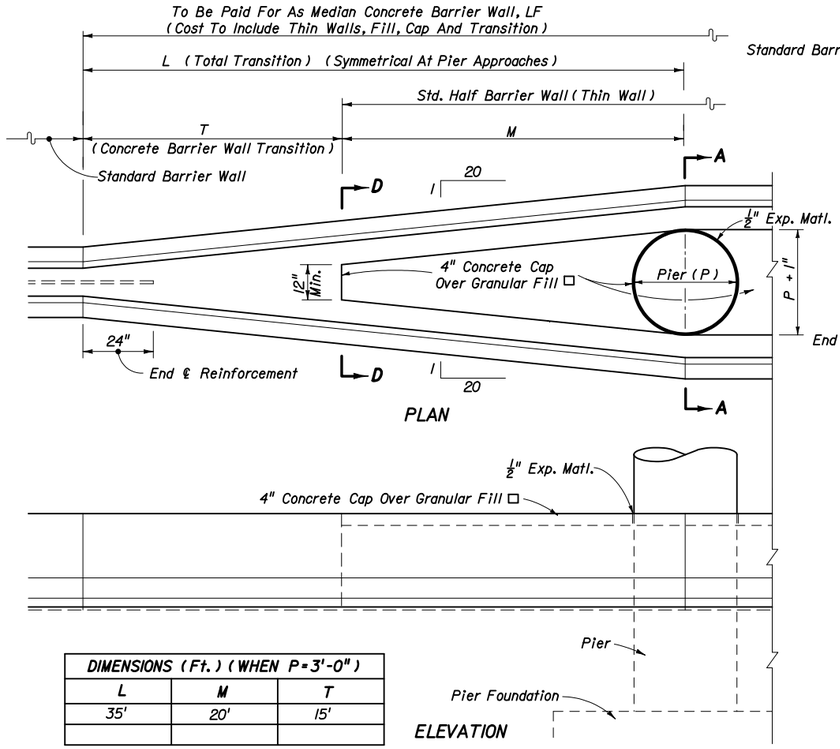
W-BEAM GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL TRAILING ENDS



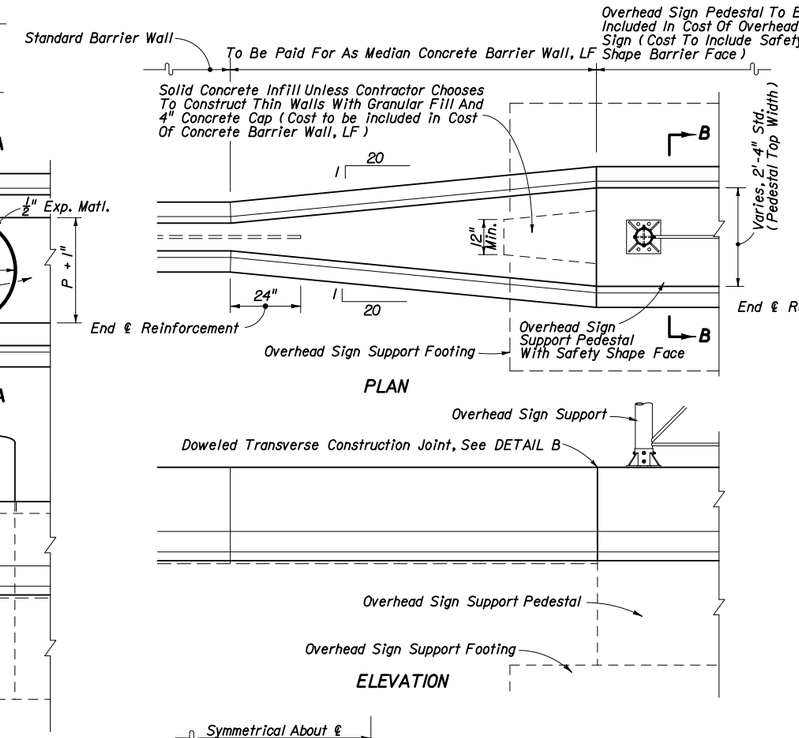
END VIEW — SIDE VIEW

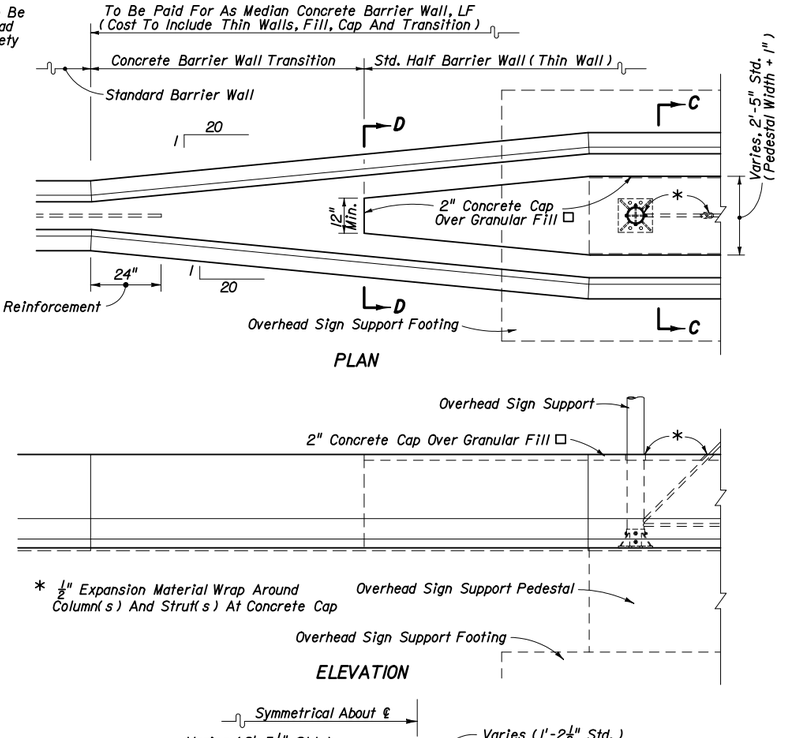
Note: Free end reinforcement required for nonreinforced walls at the following locations: All exposed ends; abutting ends of true joints; ends with guardrail connections; ends with redirective crash cushion connections; and, ends connecting to bridge traffic rails or other rigid barrier walls.

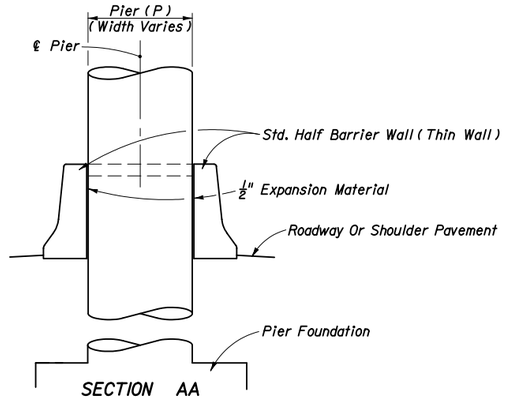
FREE END REINFORCEMENT



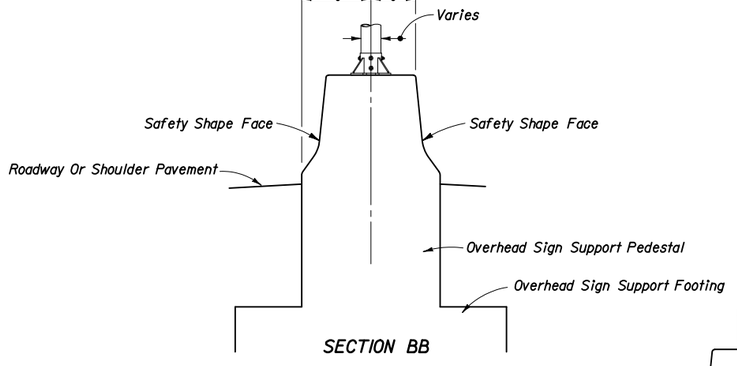
DIMENSIONS (Ft.) (WHEN P = 3'-0")		
L	M	T
35'	20'	15'



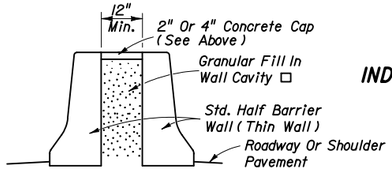




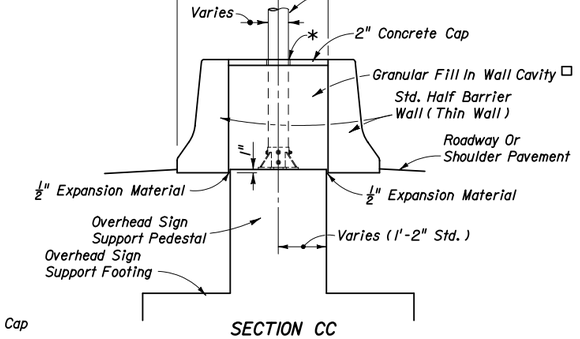
BRIDGE PIERS



COMBINATION BARRIER AND SIGN PEDESTAL

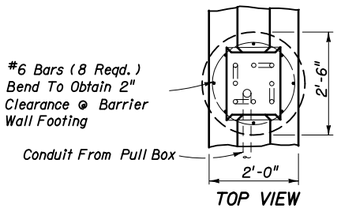


□ Free Of Deleterious And Cementations Materials

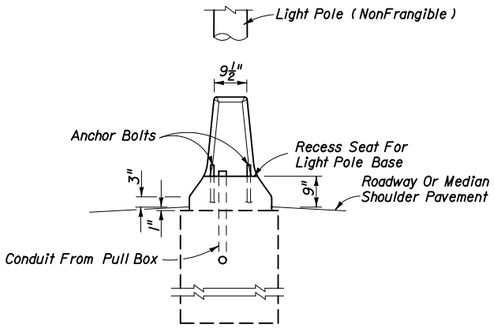


INDEPENDENT BARRIER AND SIGN PEDESTAL

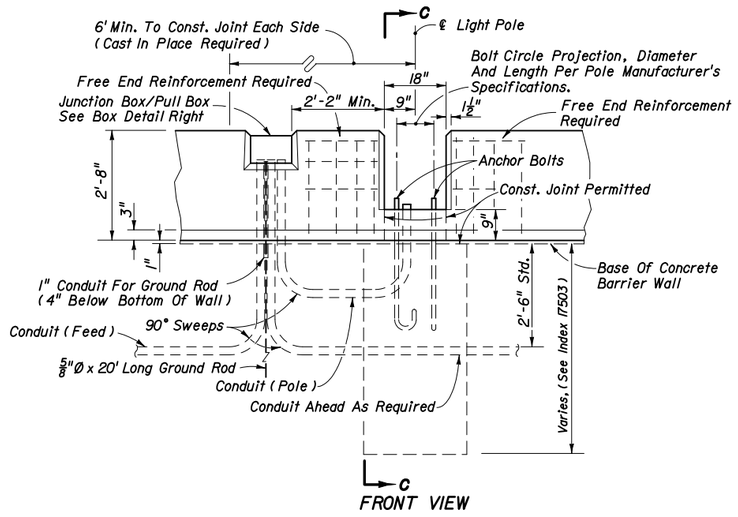
CONCRETE MEDIAN BARRIER WALL TRANSITIONS AT BRIDGE PIERS AND OVERHEAD SIGN SUPPORTS



TOP VIEW



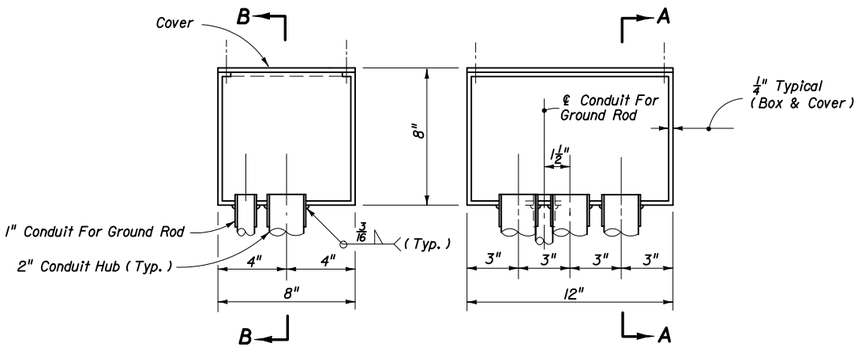
SECTION CC



FRONT VIEW

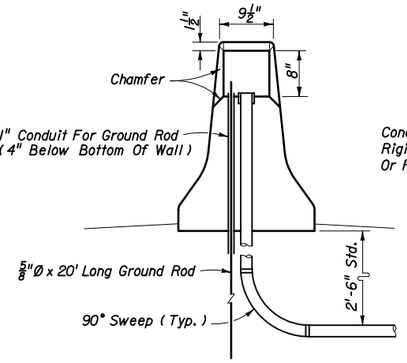
Note: For foundation design and details see Index No. 17503.
Refer to Lighting Plans for size of conduit.
Payment for the 2'-6" concrete shaft including reinforcing steel, anchor bolts and accessories shall be included in the contract unit price for Light Pole Complete, EA.

LIGHT POLE MOUNTING IN MEDIAN BARRIER WALL

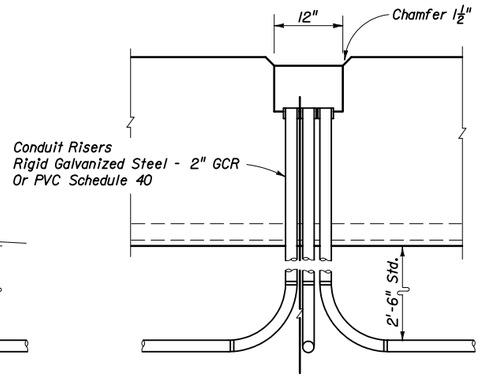


SECTION AA SECTION BB

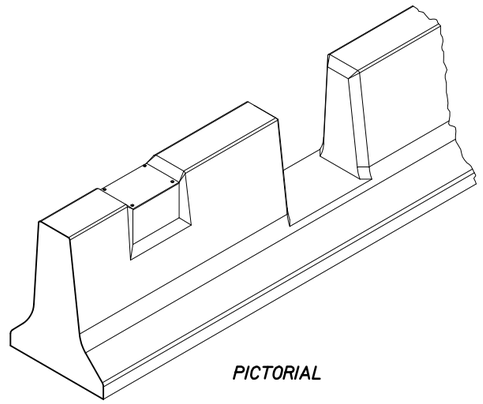
JUNCTION BOX



TRANSVERSE SECTION



LONGITUDINAL SECTION



PICTURAL

INSTALLATION

JUNCTION BOX NOTES

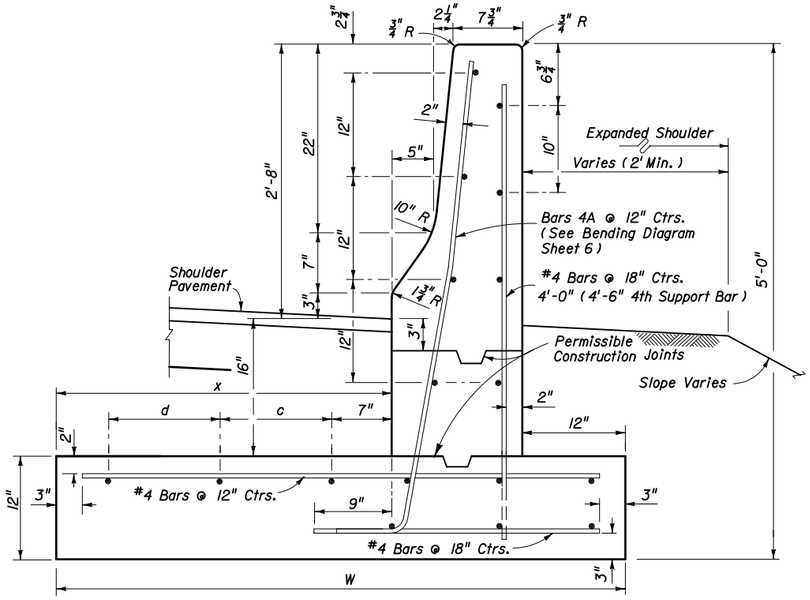
1. Junction boxes are to be fabricated from steel conforming to ASTM A36 and be hot-dip galvanized after fabrication. All seams shall be continuously welded and ground smooth. A neoprene gasket shall be attached to the box to provide a watertight cover. The cover screws shall be fully galvanized.

2. Remove excess concrete while green and hand form chamfers.

3. Junction box complete and conduit risers are incidental to the construction and cost of the barrier wall; there is to be no separate compensation for the box, risers or installation unless specifically called for in the plans.

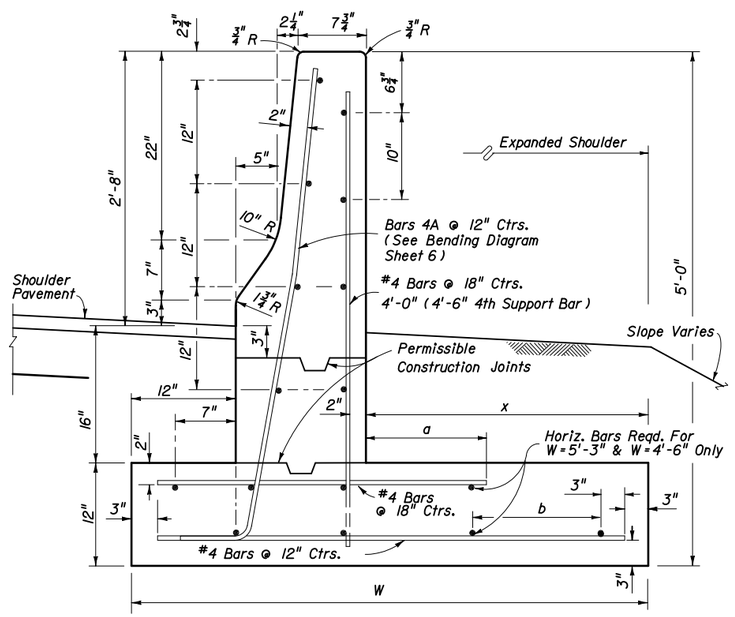
4. Junction boxes for use on barrier walls with opaque visual barrier shall have a side access cover. All side access junction boxes shall be orientated

JUNCTION BOX - ELECTRICAL

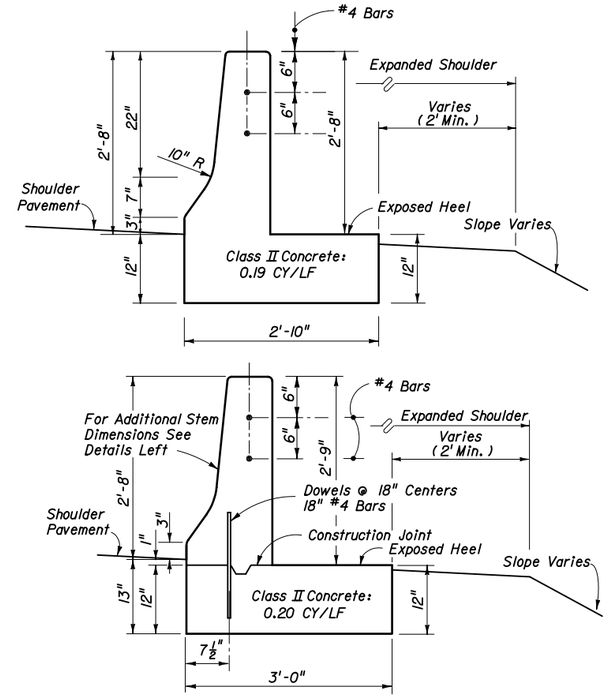


CANTILEVER WALL

NOTE: All longitudinal reinforcement #4 bars.



L-WALL

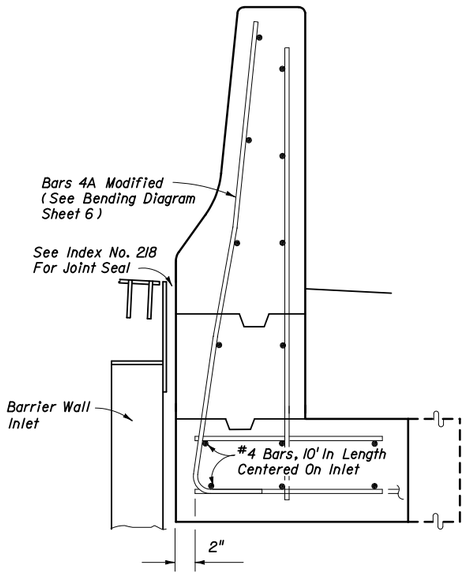


WALL OPTIONS

NOTE:
Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Plain-Shoulder), LF.

DESIGN NOTE:
Wall shall have a length of 40' or greater. Wall of 40' or more in length may be made up of segments of 20' or more in length provided the segments are joined by a transverse joint in accordance with Detail B, Sheet 2; segments shall have dimensions same as wall shown above.

PLAIN CONCRETE BARRIER WALL (SHOULDER)



REINFORCING STEEL MODIFICATIONS AT BARRIER WALL INLETS (INDEX NO. 218)

DIMENSIONS AND QUANTITIES

CANTILEVER WALL							L-WALL						
Length* Of Barrier Wall	W	x	c	d	Class II Concrete CY Per Lin. Ft.	Reinforcing Steel LBS. Per Lin. Ft.	Length* Of Barrier Wall	W	x	a	b	Class II Concrete CY Per Lin. Ft.	Reinforcing Steel LBS. Per Lin. Ft.
≥ 40'	3'-3"	1'-0"	NA	NA	0.27	18	≥ 40'	3'-3"	1'-0"	6"	NA	0.27	18
35' to 39'	3'-6"	1'-3"	NA	NA	0.28	18	35' to 39'	3'-6"	1'-3"	6"	NA	0.28	18
30' to 34'	4'-0"	1'-9"	NA	NA	0.29	19	30' to 34'	3'-9"	1'-6"	6"	NA	0.29	18
25' to 29'	4'-6"	2'-3"	14"	NA	0.31	20	25' to 29'	4'-0"	1'-9"	9"	NA	0.30	19
21' to 24'	5'-0"	2'-9"	18"	NA	0.33	20	20' to 24'	4'-6"	2'-3"	12"	12"	0.31	20
19' & 20'	5'-6"	3'-3"	13"	13"	0.35	21	15' to 19'	5'-3"	3'-0"	16"	17"	0.34	21
17' & 18'	6'-0"	3'-9"	16"	16"	0.37	21							
15' & 16'	6'-6"	4'-3"	18"	18"	0.39	22							

Quantities shown are for information only. For method of payment see payment note below.

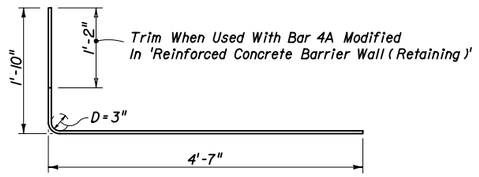
Barrier wall inlets (Index 218) shall be isolated from the barrier wall stem and footing by 1" expansion material.

*Any length less than 40' must be a continuous (nonjointed) segment. Walls of 40' or more in length may be made up of segments of 20' or more in length provided the segments are joined by a transverse joint in accordance with Detail B, Sheet 2; segments shall have dimensions same as wall ≥ 40' above.

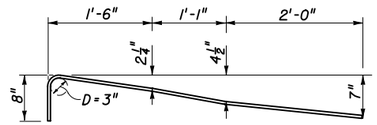
PAYMENT:
Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Shoulder), LF.

DESIGN NOTES:
Use of this barrier wall should be limited to special applications such as hazard encroachment into the clear zone where barrier wall deflection, rotation or translation cannot be tolerated; example hazards to consider are as follows:
(a) Structure supporting piers, bents and pylons (b) Pumping, metering, control or other similar critical stations (c) Quarries (d) Intolerable vertical drops (e) Historic structures or monuments (f) Rail transit travel way or passenger station (g) Other similar occupancies

REINFORCED CONCRETE BARRIER WALL (SHOULDER)

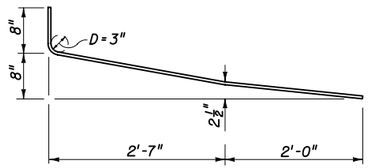


BAR 4B



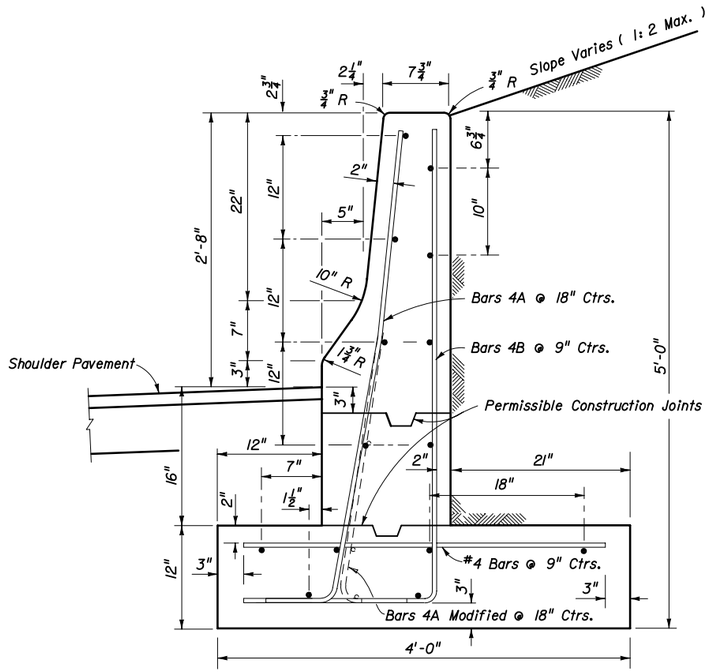
For Use In Areas Where Obstructions
Require Localized Omission Of Toe

BAR 4A MODIFIED



BAR 4A

BENDING DIAGRAMS

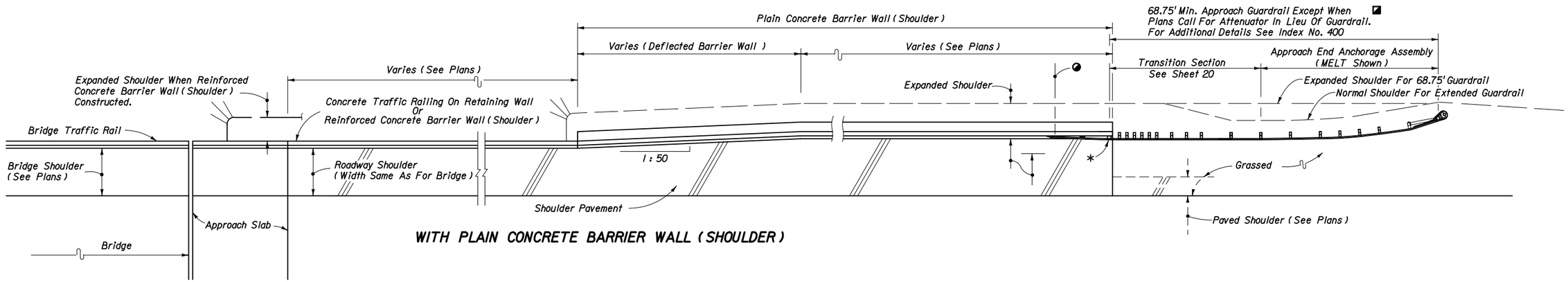


NOTE: All longitudinal reinforcement #4 bars.
Minimum segment length for this wall is 20 feet.
Wall to be paid for under the contract unit price
for Shoulder Concrete Barrier Wall (Rigid-Retaining), LF.

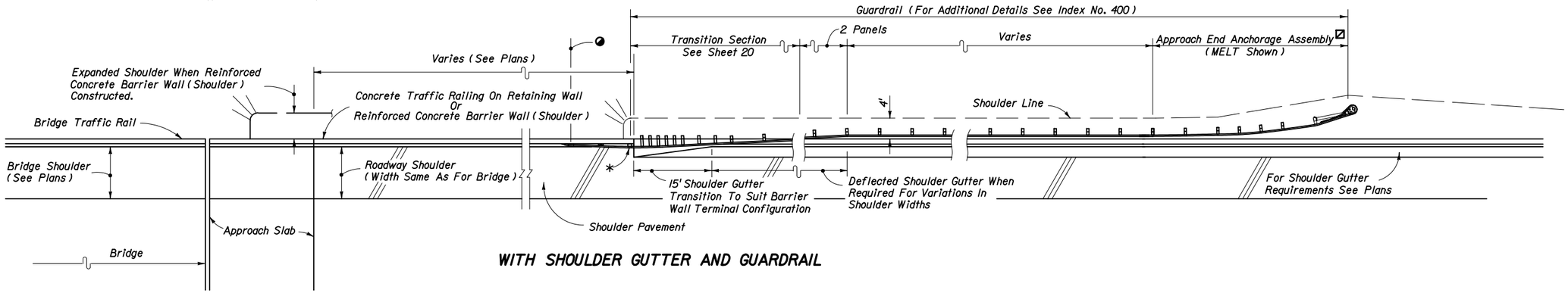
QUANTITIES: Class II Concrete 0.29 CY/LF
Reinforcing Steel 21 LBS/LF

REINFORCED CONCRETE BARRIER WALL (RETAINING)

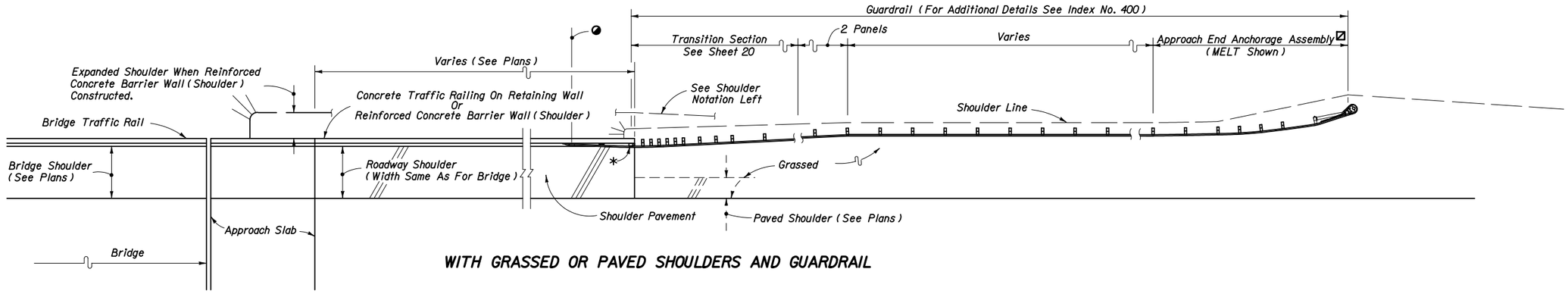
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	2008 FDOT Design Standards	Last Revision 07/01/07	Sheet No. 6 of 22
	CONCRETE BARRIER WALL	Index No. 410	



WITH PLAIN CONCRETE BARRIER WALL (SHOULDER)



WITH SHOULDER GUTTER AND GUARDRAIL



WITH GRASSED OR PAVED SHOULDERS AND GUARDRAIL

△ *Views show approach roadside barriers when length of need exceeds the length of either retaining walls with concrete traffic railings* or Reinforced Concrete Barrier Wall (Shoulder) on shoulders. When either of these rigid barriers alone satisfies the approach length of need, the wall ends shall be shielded by crash cushions, or, by guardrail the same as for bridge traffic rails, as detailed in Index No. 400.*

See other flagged notes for trailing end treatments.

Miscellaneous asphalt paving under guardrail not shown.

* *Guardrail connection to concrete traffic railings on retaining walls shall be in accordance with the Structures Design Office Standard Drawings and the plans. Approach guardrail connections to shoulder concrete barrier walls shall be in accordance with the details shown on Sheets 2 and 20 of this Index and Index No. 400, Detail J.*

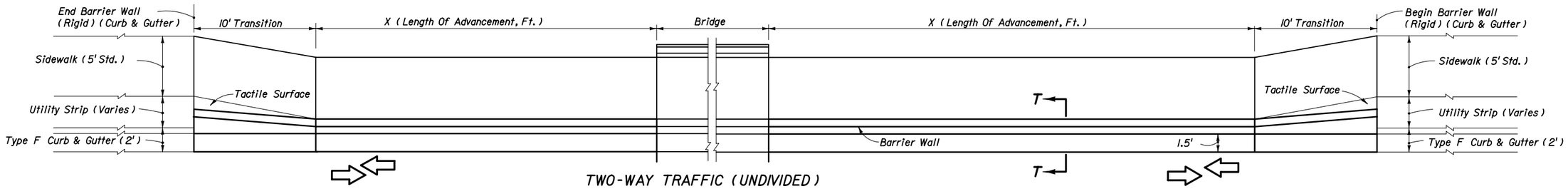
◕ *End measurement for guardrail payment when guardrail connected to shoulder barrier walls. See Index No. 400, Detail J for end measurement when guardrail connected to concrete traffic rails constructed with approach slab or on retaining walls.*

◪ *To be deleted on trailing ends except for 2-lane 2-way facilities. The tangent guardrail shall be anchored by End Anchorage Type II, Index No. 400.*

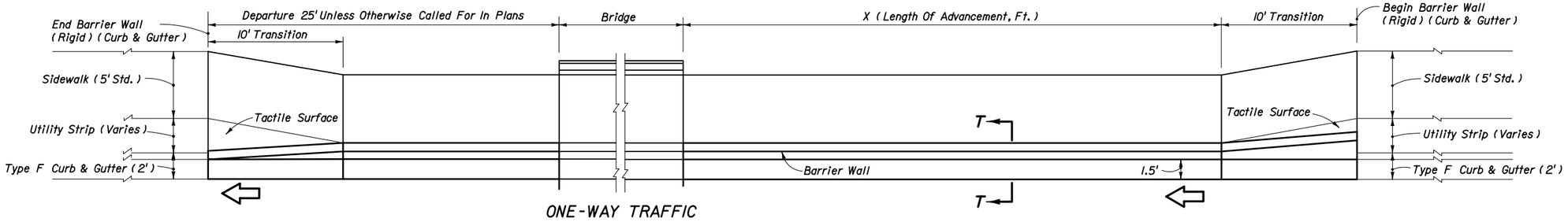
◩ *To be deleted on trailing ends except for 2-lane 2-way facilities.*

EITHER REINFORCED CONCRETE BARRIER WALL (SHOULDER) OR RETAINING WALL WITH CONCRETE TRAFFIC RAILING △

CONCRETE BARRIER WALLS ON APPROACHES TO BRIDGES

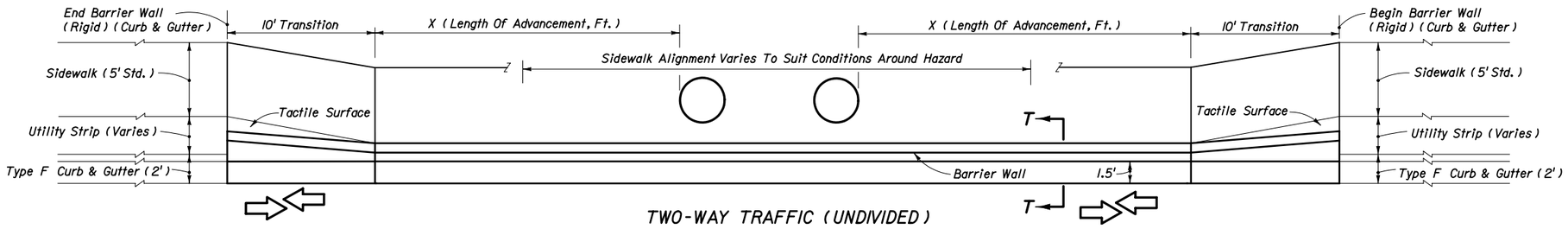


TWO-WAY TRAFFIC (UNDIVIDED)

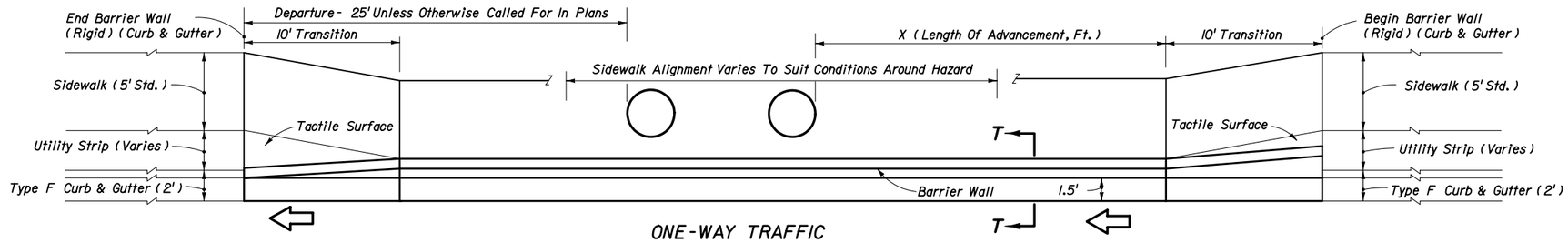


ONE-WAY TRAFFIC

BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC

HAZARD 4' OR LESS FROM FACE OF CURB

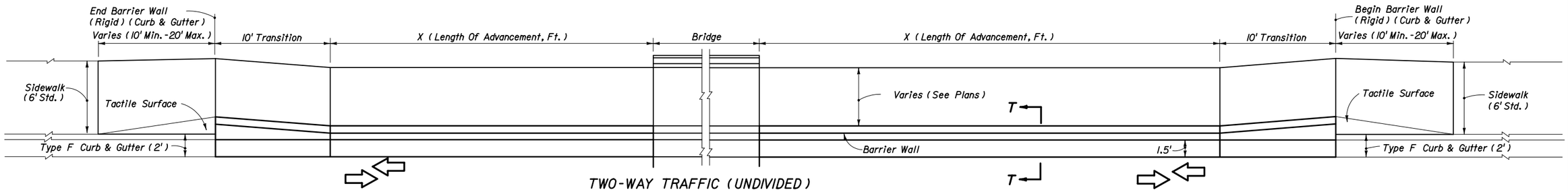
NOTE:

X = Length of advancement in feet for near and opposing approach lanes. See Sheet 12.

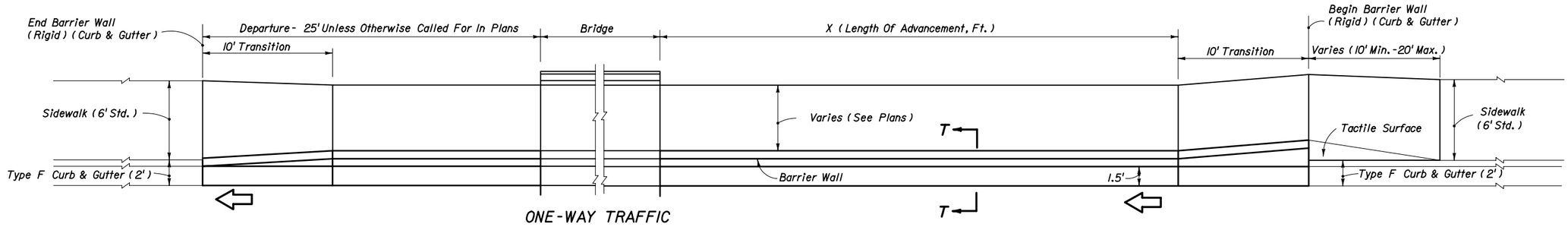
For locations without utility strips see Sheet 9. For transition, sidewalk and sectional details see Sheets 10 & 11.

The 1.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the detail on Sheet 19.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)
CURB AND GUTTER WITH UTILITY STRIP AND WITH ADJACENT BICYCLE LANE

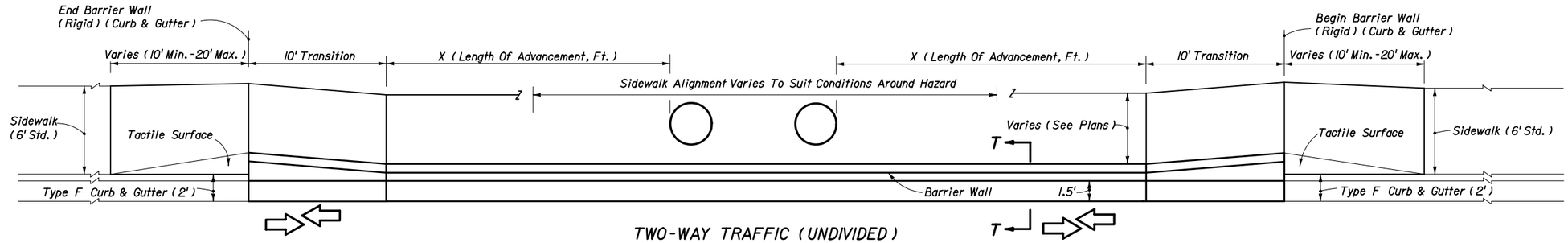


TWO-WAY TRAFFIC (UNDIVIDED)

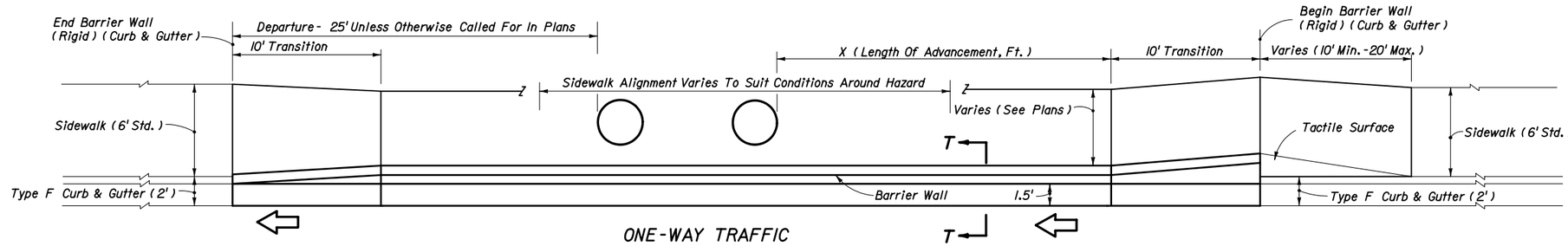


ONE-WAY TRAFFIC

BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC

HAZARD 4' OR LESS FROM FACE OF CURB

NOTE:

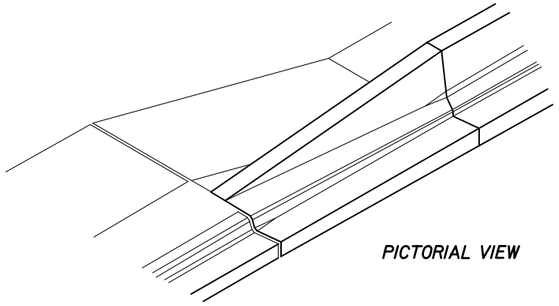
X = Length of advancement in feet for near and opposing approach lanes. See Sheet 12.

For locations with utility strips see Sheet 8.

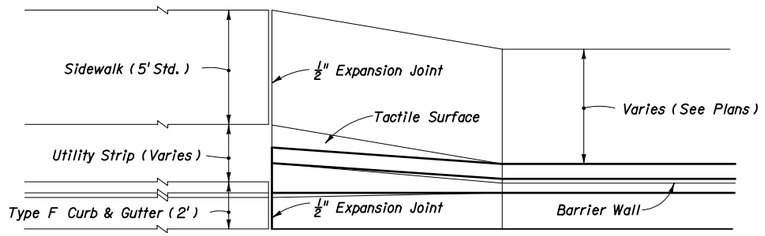
For transition, sidewalk and sectional details see Sheet 10 & 11.

The 1.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the detail on Sheet 19.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)
CURB AND GUTTER WITHOUT UTILITY STRIP AND WITH ADJACENT BICYCLE LANE

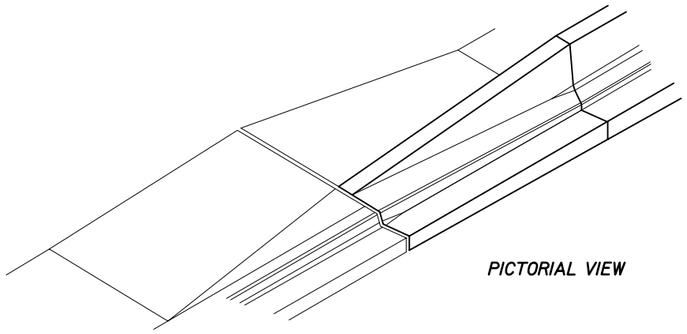


PICTORIAL VIEW

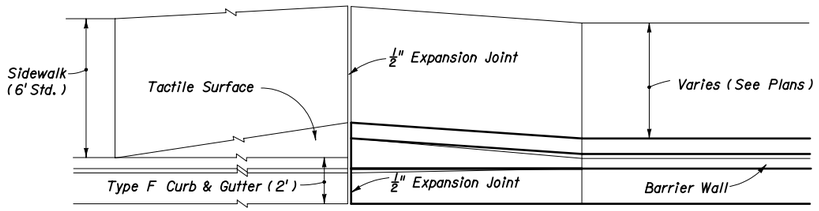


PLAN

WITH UTILITY STRIP

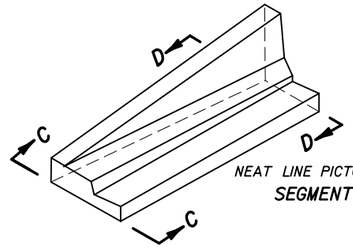


PICTORIAL VIEW



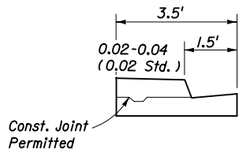
PLAN

WITHOUT UTILITY STRIP

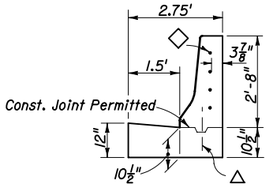


NEAT LINE PICTORIAL VIEW

SEGMENT



SECTION CC

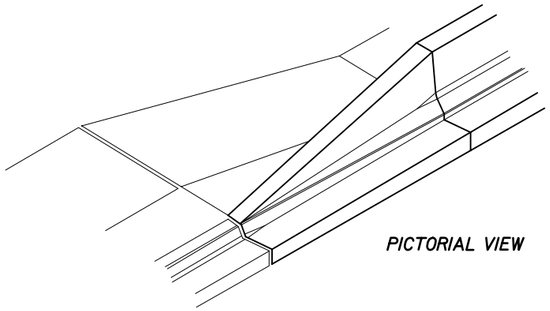


SECTION DD

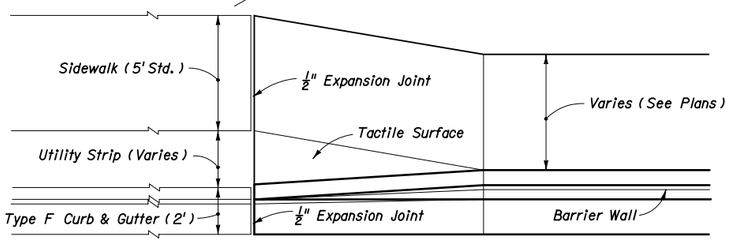
◇ See Sheet 11

△ See Sheet 11

TWO-WAY TRAFFIC (OPPOSING LANE APPROACH)

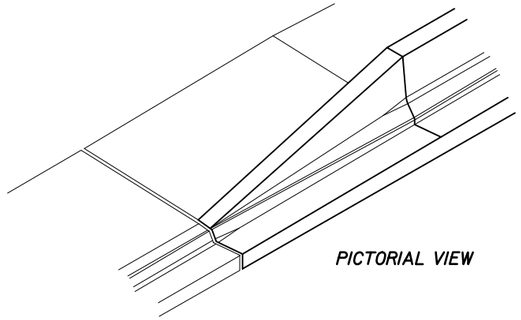


PICTORIAL VIEW

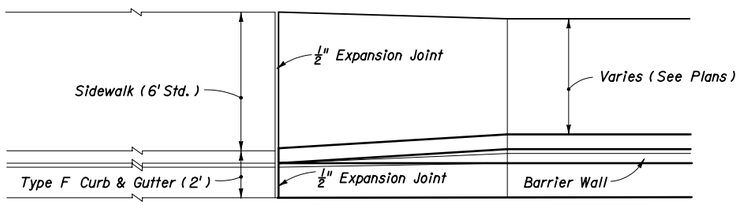


PLAN

WITH UTILITY STRIP

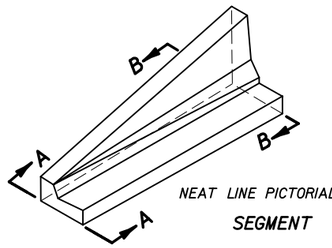


PICTORIAL VIEW



PLAN

WITHOUT UTILITY STRIP

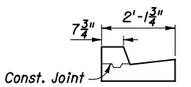


NEAT LINE PICTORIAL VIEW

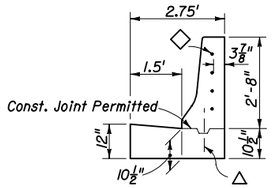
SEGMENT

◇ See Sheet 11

△ See Sheet 11



SECTION AA

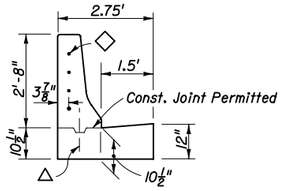


SECTION BB

ONE-WAY TRAFFIC (TRAILING END)

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENTS • WITH ADJACENT BICYCLE LANE

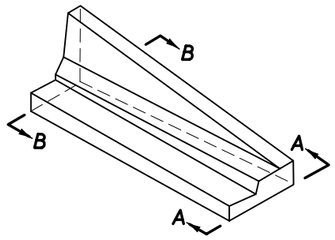
	2008 FDOT Design Standards	Last Revision	Sheet No.
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	CONCRETE BARRIER WALL	00	10 of 22
		Index No.	410



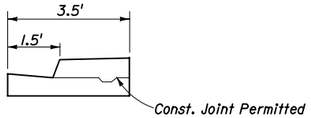
SECTION BB

◇ See Notes This Sheet

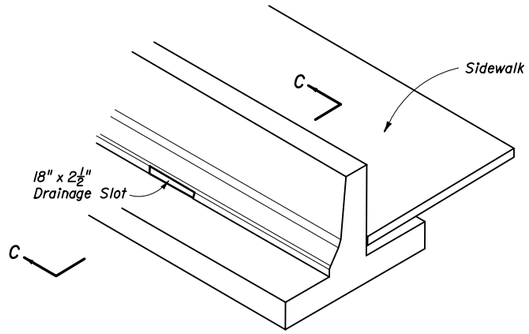
△ See Notes This Sheet



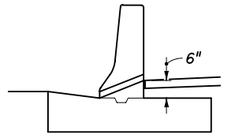
WITH OR WITHOUT UTILITY STRIP
NEAT LINE PICTORIAL VIEW



SECTION AA



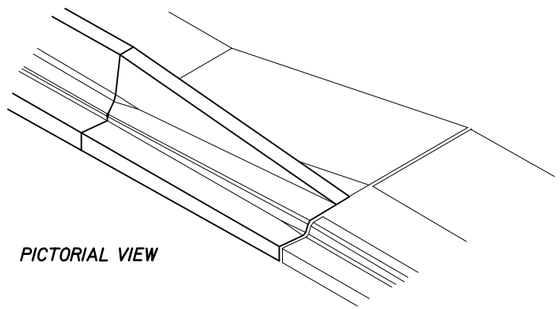
NEAT LINE PICTORIAL VIEW



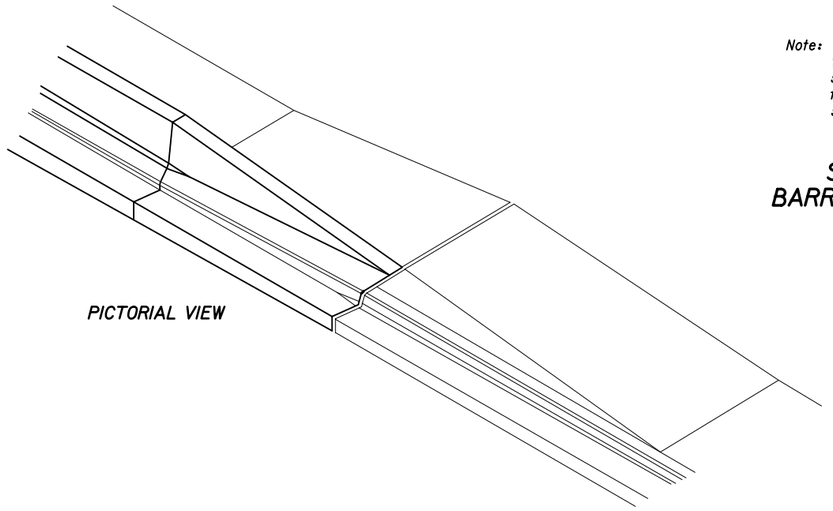
SECTION CC

Note: Drainage slots shall be located at all low points along the sidewalk, and, unless otherwise shown in the plans, slots shall be spaced at intervals not exceeding 50' in fill sections and 20' in cut sections. Slots shall be located such that only one bar is cut away or deleted in front and back lines of vertical reinforcement.

SIDEWALK DRAINAGE SLOT FOR BARRIER WALL (RIGID) (CURB & GUTTER)



PICTORIAL VIEW

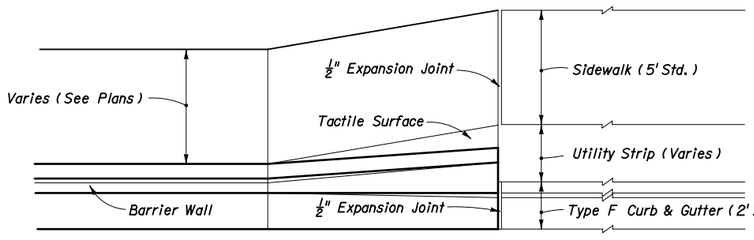


PICTORIAL VIEW

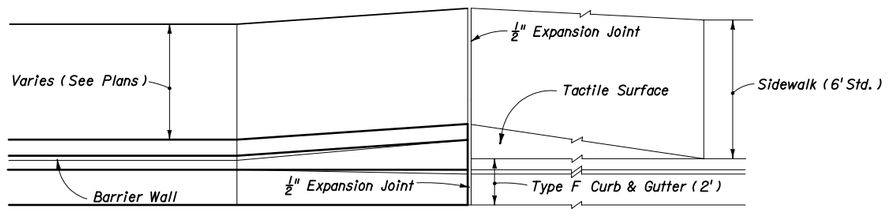
NOTE:

◇ Transition Segments Shall Be Doweled Into The End Of The Barrier Wall In The Following Manner:
Four 1" diameter holes 6" deep on 6" centers shall be drilled in the end of the barrier and #6 bars 15" long set in an Adhesive Bonded Material System. The ends of the dowels extending into the transition segment shall be wrapped with one layer of 15 lb. Type I asphalt-saturated roofing felt with the ends crimped.

△ When Construction Joints Are Utilized For Transition Segment Construction The Stem Shall Be Doweled To The Footing In The Following Manner:
Five #5 bars 15" long shall be embedded 7" into the footing. The dowels shall be spaced 15" on centers with the first dowel located 12" from the barrier wall. Dowels may be placed within or adjacent to the keyway.



PLAN
WITH UTILITY STRIP

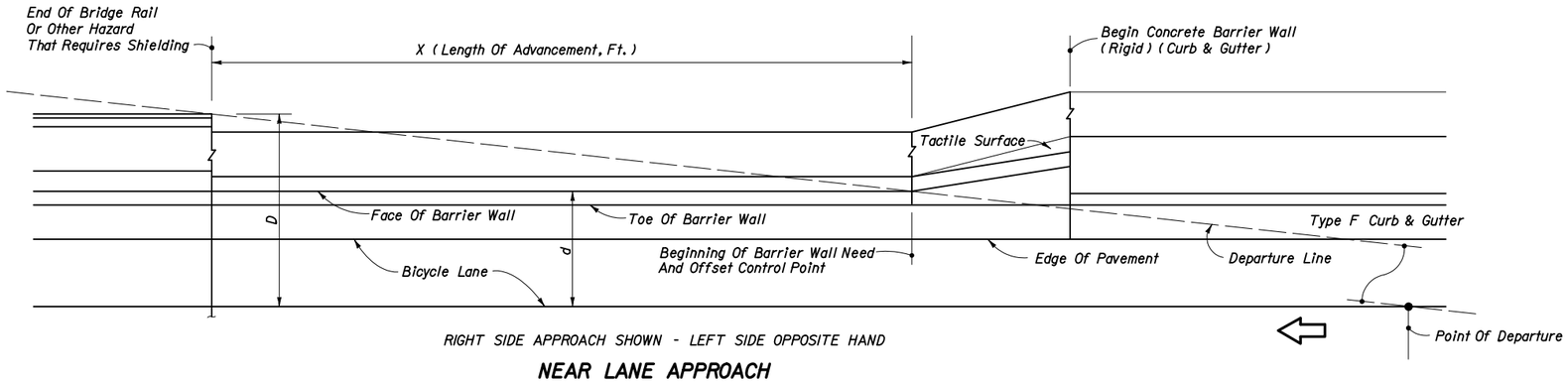


PLAN
WITHOUT UTILITY STRIP

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE HAND

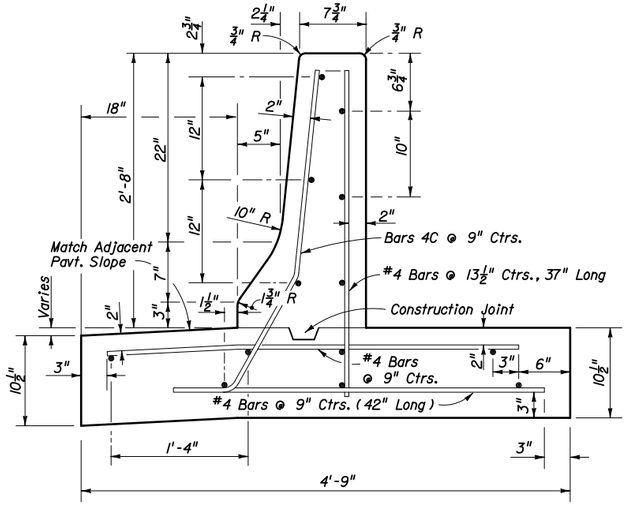
ONE-WAY AND TWO-WAY TRAFFIC (NEAR LANE APPROACH)

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENT • WITH ADJACENT BICYCLE LANE

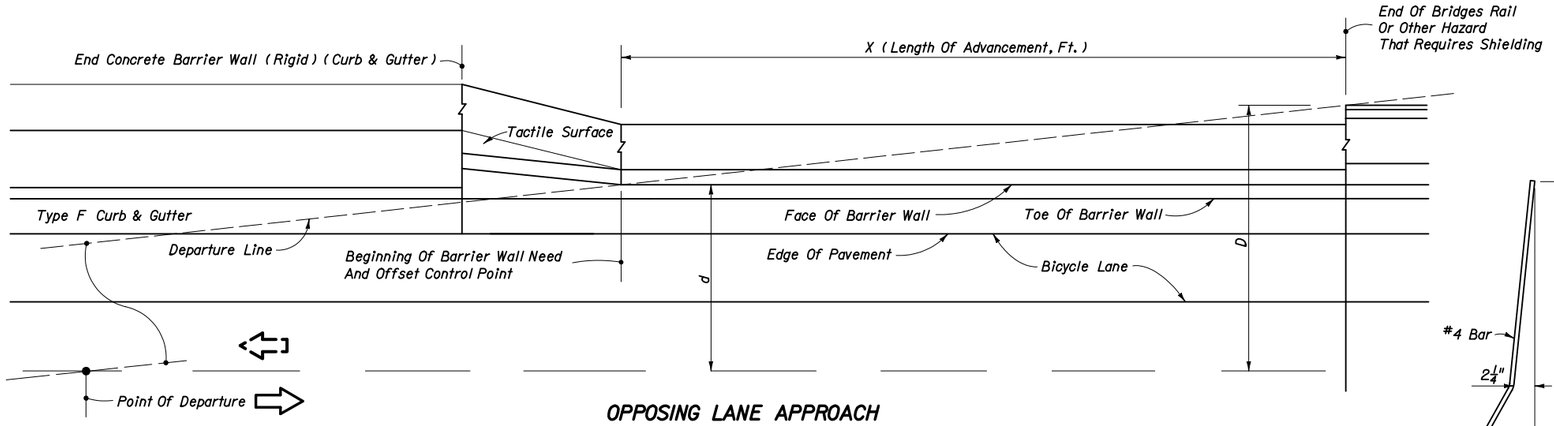


RIGHT SIDE APPROACH SHOWN - LEFT SIDE OPPOSITE HAND

NEAR LANE APPROACH



FOR HIGH SIDE



OPPOSING LANE APPROACH

WITH OR WITHOUT UTILITY STRIP - UTILITY STRIP SHOWN - SEE SHEET 8 & 9 FOR APPLICATIONS

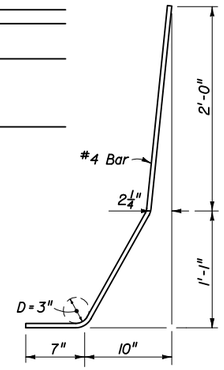
Design Speed mph	Length Of Advancement, Ft. (X)
≤45	= 16 (D-d)
Note: The minimum length of advancement for both near and opposing lane approaches is 40'.	

Equation Variables:

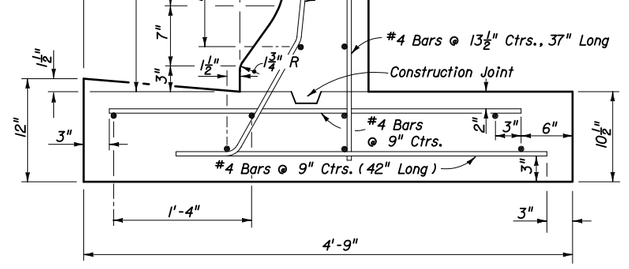
D = Distance in feet from near edge of the near approach traffic lane to back of hazard or clear zone width whichever is lesser. For left side hazards and clear zones on two-way undivided facilities D is measured from the inside edge of the near approach traffic lane.

d = Distance in feet from near edge of the near approach traffic lane to the face of barrier (at offset control point). For left side hazards on two-way undivided facilities d is measured from the inside edge of the nearest opposing traffic lane.

LENGTH OF ADVANCEMENT



BAR 4C
BENDING DIAGRAM



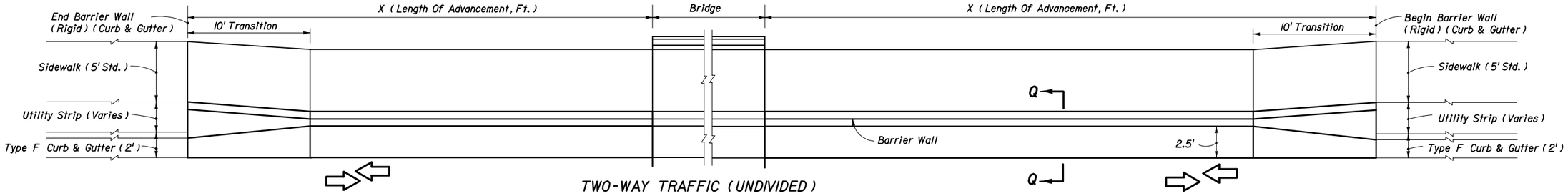
FOR LOW SIDE

Note: All longitudinal reinforcement #4 bars. Minimum segment length for this wall is 40'. Shorter segments due to construction or expansion joint shall be dowled in the manner described for 'Transition Segments' on Sheet 11. Transverse expansion joints are to be constructed at the juncture of wall transitions and curb and gutter, and at intervals so that spacing will not exceed 100'.
For barrier wall inlet details see Index No. 219. Inlet extends into bicycle lane 12".
Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Curb & Gutter), LF.

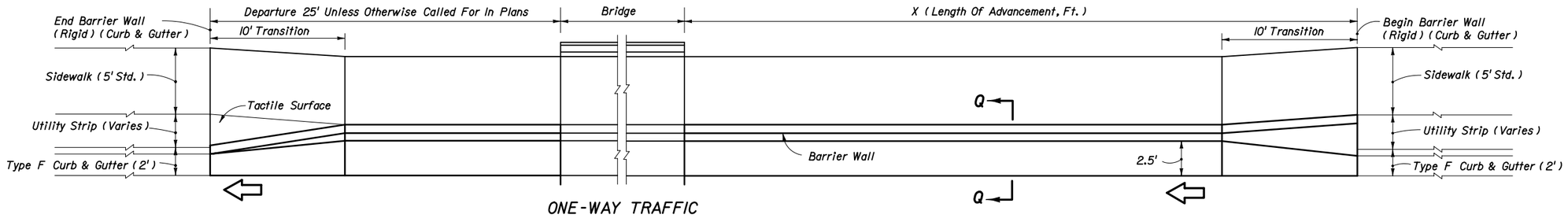
Estimated Quantities Per Linear Foot Of Wall:
Class II Concrete: 0.23 C.Y.
Reinforcing Steel: 20.7 Lbs.

SECTION TT

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • WITH ADJACENT BICYCLE LANE

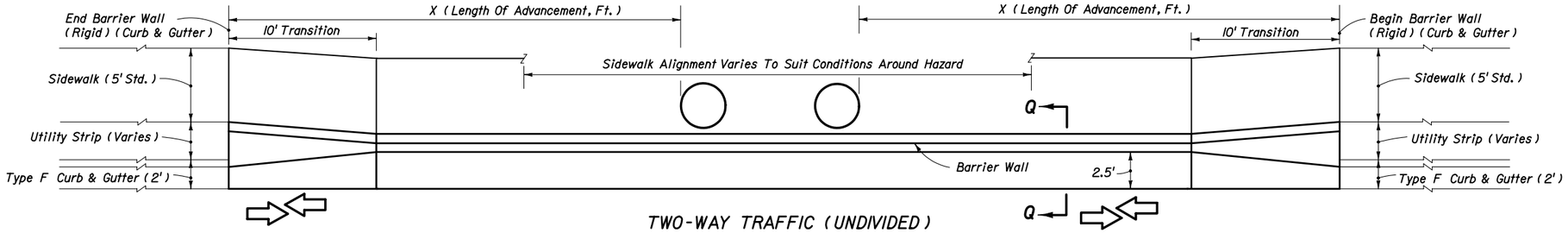


TWO-WAY TRAFFIC (UNDIVIDED)

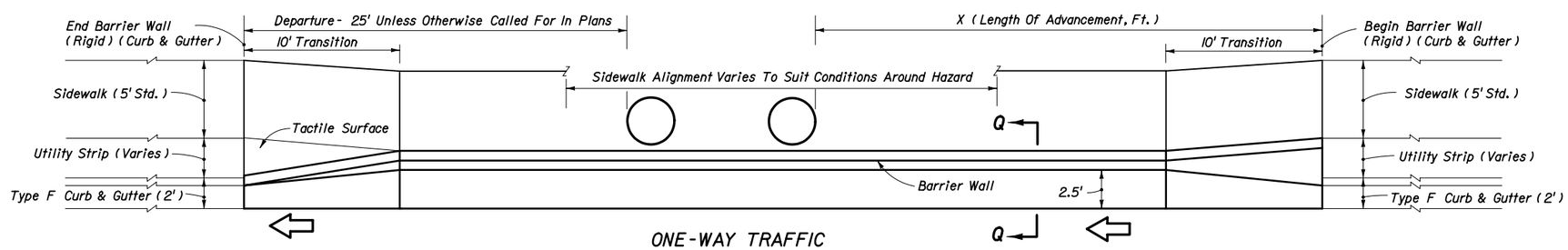


ONE-WAY TRAFFIC

BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC

HAZARD 4' OR LESS FROM FACE OF CURB

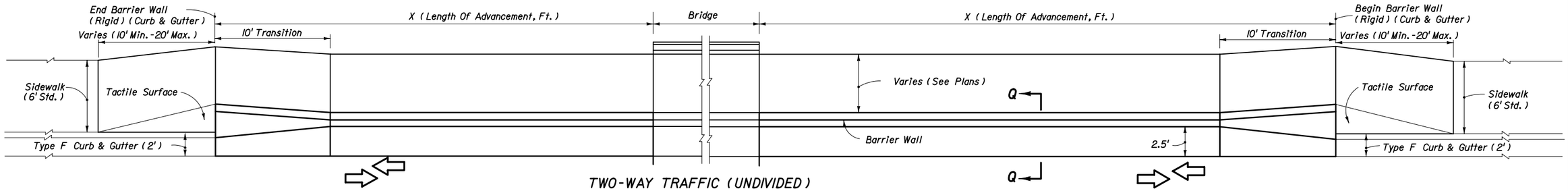
NOTE:

X = Length of advancement in feet for near and opposing approach lanes. See Sheet 17.

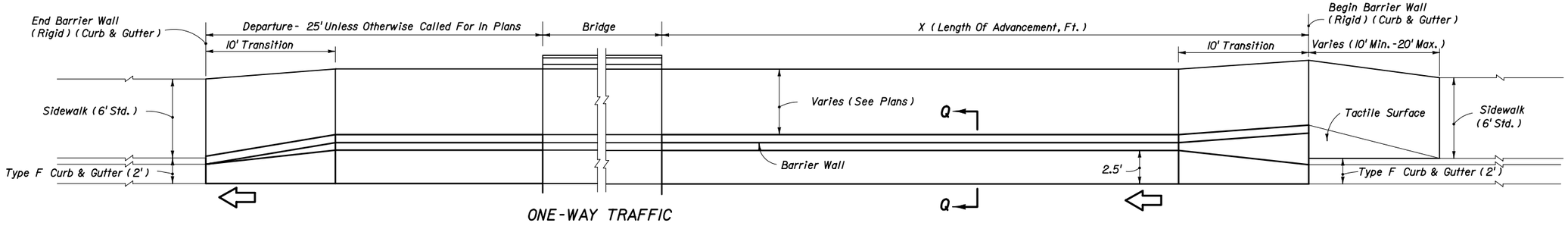
For locations without utility strips see Sheet 14. For transition, sidewalk and sectional details see Sheets 15 & 16.

The 2.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the detail on Sheet 19.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)
CURB AND GUTTER WITH UTILITY STRIP AND WITHOUT ADJACENT BICYCLE LANE

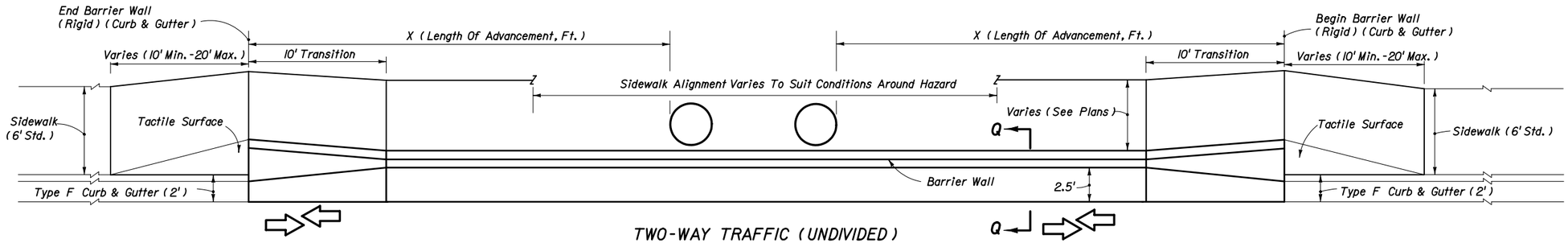


TWO-WAY TRAFFIC (UNDIVIDED)

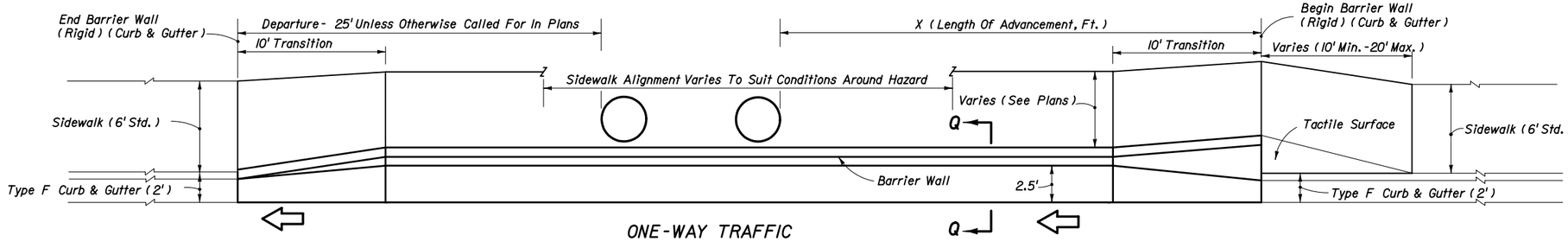


ONE-WAY TRAFFIC

BRIDGE END HAZARD



TWO-WAY TRAFFIC (UNDIVIDED)



ONE-WAY TRAFFIC

HAZARD 4' OR LESS FROM FACE OF CURB

NOTE:

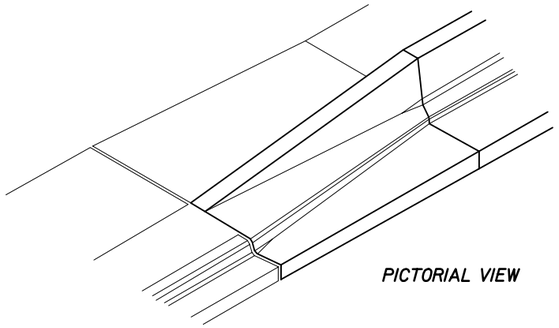
X = Length of advancement in feet for near and opposing approach lanes. See Sheet 17.

For locations with utility strips see Sheet 13.

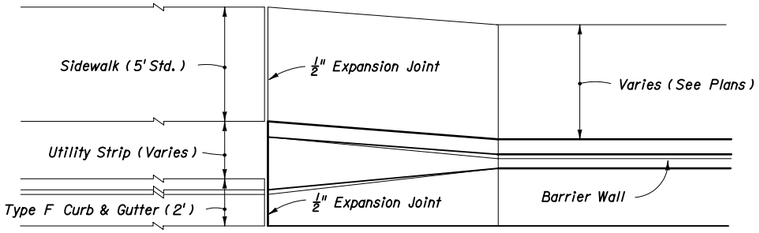
For transition, sidewalk and sectional details see Sheet 15 & 16.

The 2.5' offsets to toe of barrier wall cannot be reduced to accommodate hazards; however, hazards located in the stem of the wall may be accommodated by the detail on Sheet 19.

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER)
CURB AND GUTTER WITHOUT UTILITY STRIP AND WITHOUT ADJACENT BICYCLE LANE

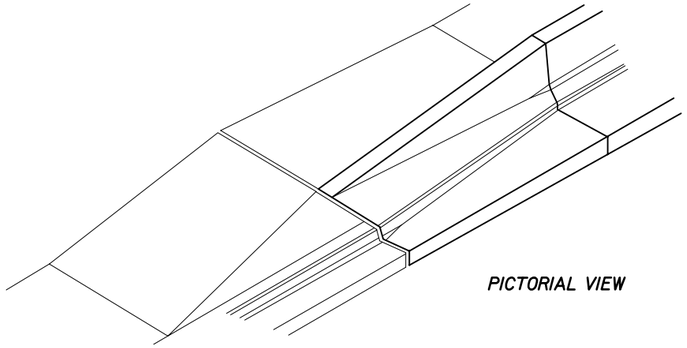


PICTORIAL VIEW

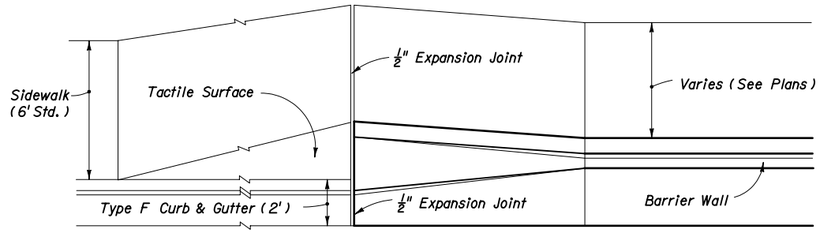


PLAN

WITH UTILITY STRIP

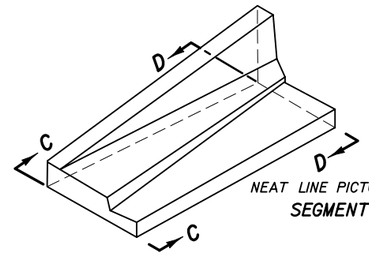


PICTORIAL VIEW



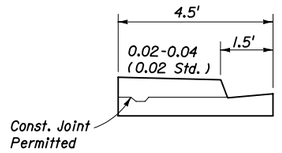
PLAN

WITHOUT UTILITY STRIP

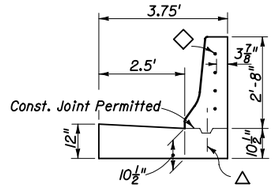


NEAT LINE PICTORIAL VIEW

SEGMENT



SECTION CC

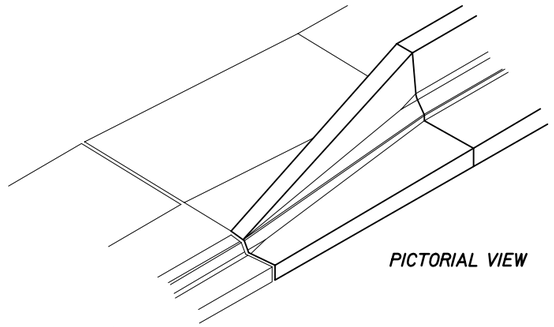


SECTION DD

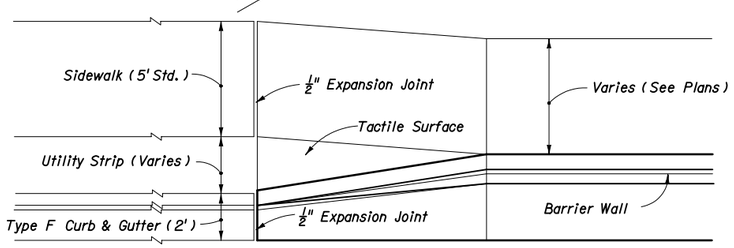
◇ See Sheet 16

△ See Sheet 16

TWO-WAY TRAFFIC (OPPOSING LANE APPROACH)

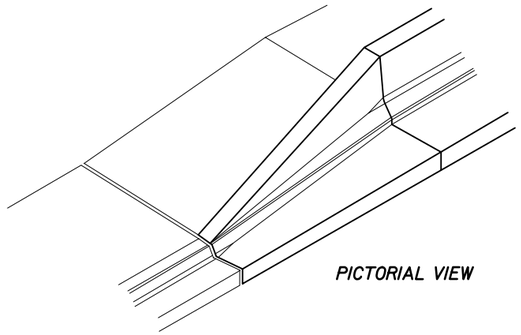


PICTORIAL VIEW

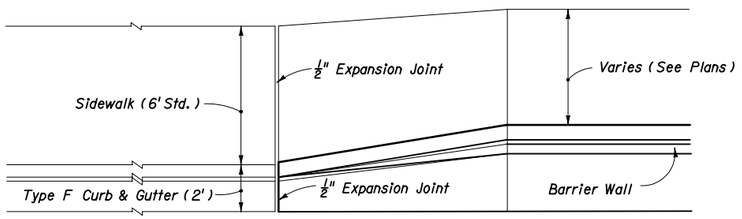


PLAN

WITH UTILITY STRIP

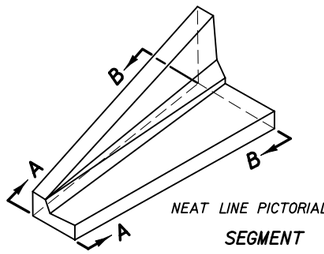


PICTORIAL VIEW



PLAN

WITHOUT UTILITY STRIP

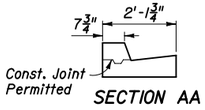


◇ See Sheet 16

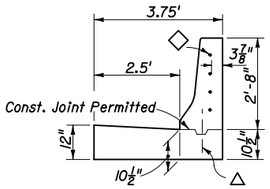
△ See Sheet 16

NEAT LINE PICTORIAL VIEW

SEGMENT



SECTION AA

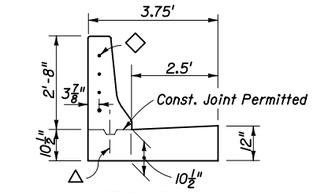


SECTION BB

ONE-WAY TRAFFIC (TRAILING END)

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENTS • WITHOUT ADJACENT BICYCLE LANE

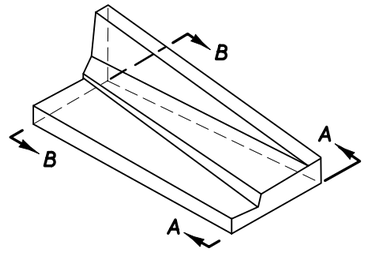
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	2008 FDOT Design Standards	Last Revision 00	Sheet No. 15 of 22
	CONCRETE BARRIER WALL		Index No. 410



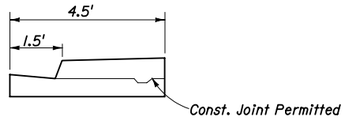
SECTION BB

◇ See Notes This Sheet

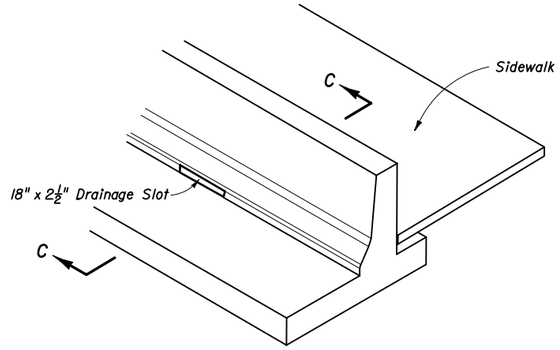
△ See Notes This Sheet



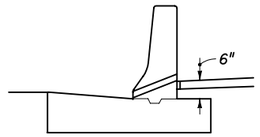
WITH OR WITHOUT UTILITY STRIP
NEAT LINE PICTORIAL VIEW



SECTION AA



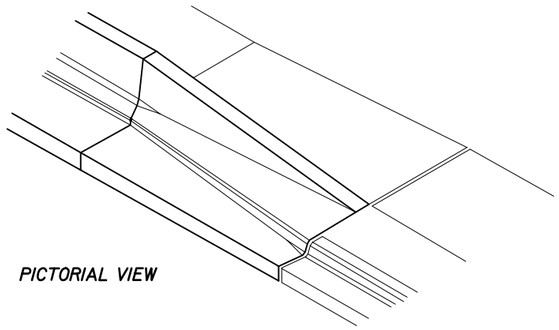
NEAT LINE PICTORIAL VIEW



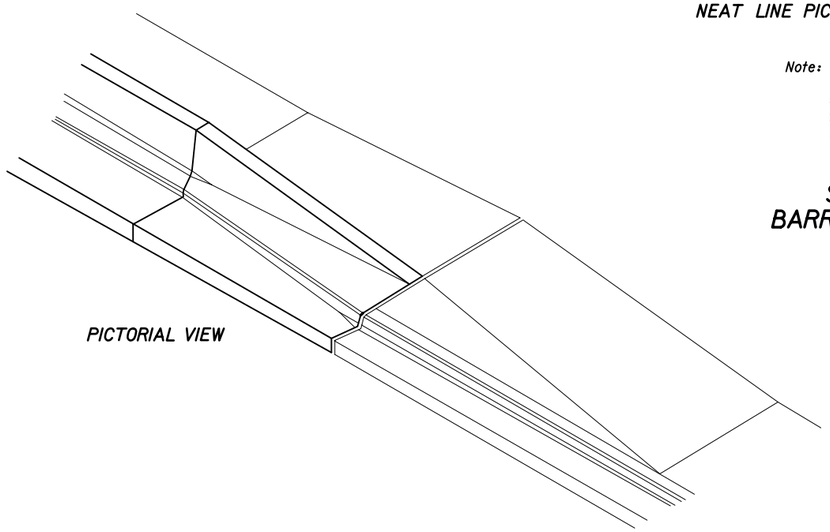
SECTION CC

Note: Drainage slots shall be located at all low points along the sidewalk, and, unless otherwise shown in the plans, slots shall be spaced at intervals not exceeding 50' in fill sections and 20' in cut sections. Slots shall be located such that only one bar is cut away or deleted in front and back lines of vertical reinforcement.

SIDEWALK DRAINAGE SLOT FOR BARRIER WALL (RIGID) (CURB & GUTTER)



PICTORIAL VIEW

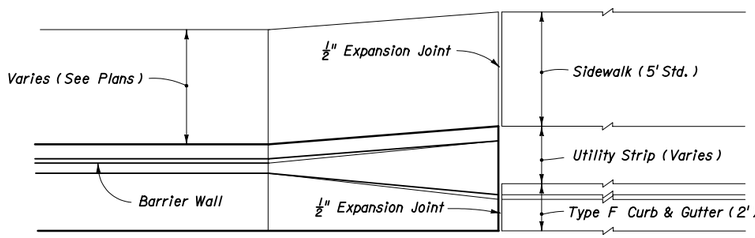


PICTORIAL VIEW

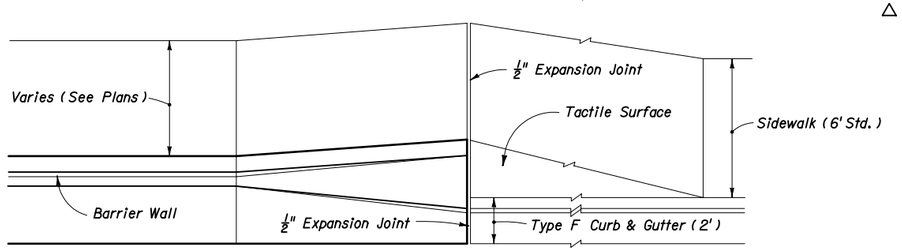
NOTE:

◇ Transition Segments Shall Be Doweled Into The End Of The Barrier Wall In The Following Manner:
Four 1" diameter holes 6" deep on 6" centers shall be drilled in the end of the barrier and #6 bars 15" long set in an Adhesive Bonded Material Systems. The ends of the dowels extending into the transition segment shall be wrapped with one layer of 15 lb. Type I asphalt-saturated roofing felt with the ends crimped.

△ When Construction Joints Are Utilized For Transition Segment Construction The Stem Shall Be Doweled To The Footing In The Following Manner:
Five #5 bars 15" long shall be embedded 7" into the footing. The dowels shall be spaced 15" on centers with the first dowel located 12" from the barrier wall. Dowels may be placed within or adjacent to the keyway.



PLAN
WITH UTILITY STRIP

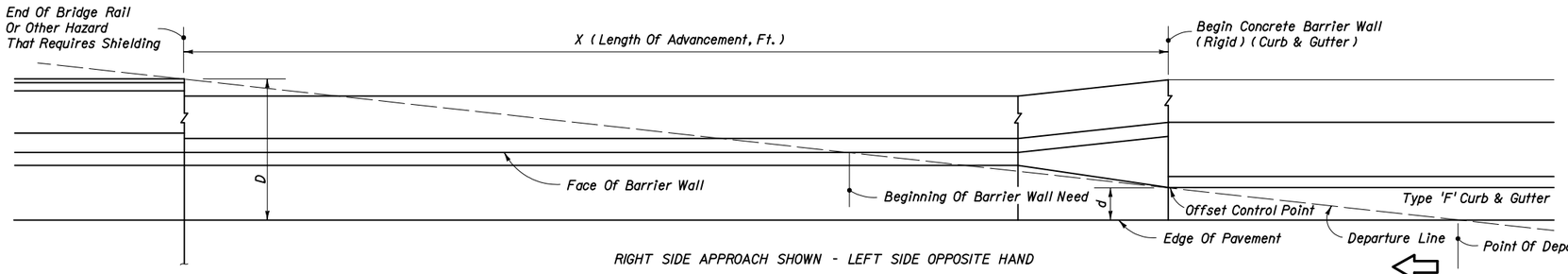


PLAN
WITHOUT UTILITY STRIP

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE HAND

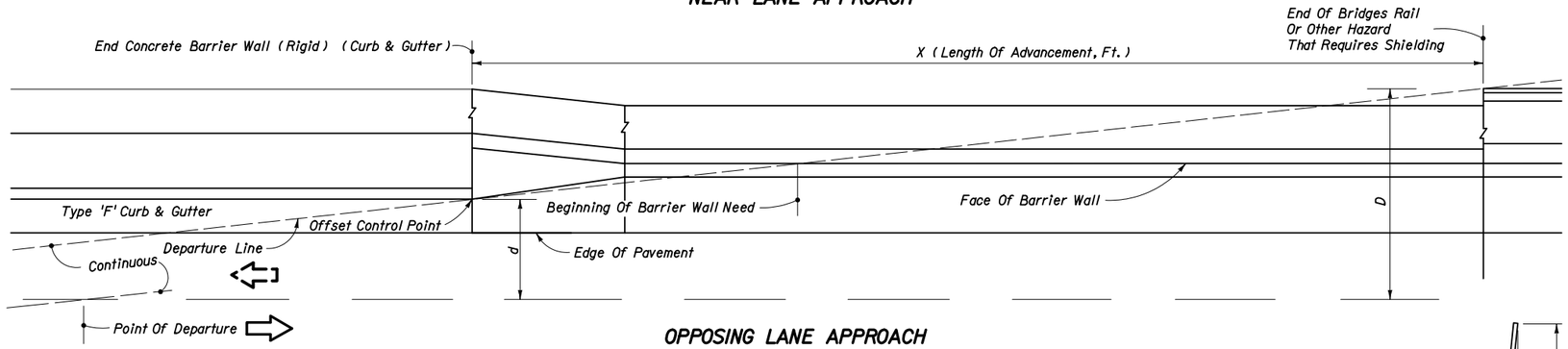
ONE-WAY AND TWO-WAY TRAFFIC (NEAR LANE APPROACH)

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • TRANSITION SEGMENT • WITHOUT ADJACENT BICYCLE LANE



RIGHT SIDE APPROACH SHOWN - LEFT SIDE OPPOSITE HAND

NEAR LANE APPROACH



OPPOSING LANE APPROACH

WITH OR WITHOUT UTILITY STRIP - UTILITY STRIP SHOWN - SEE SHEET 13 & 14 FOR APPLICATIONS

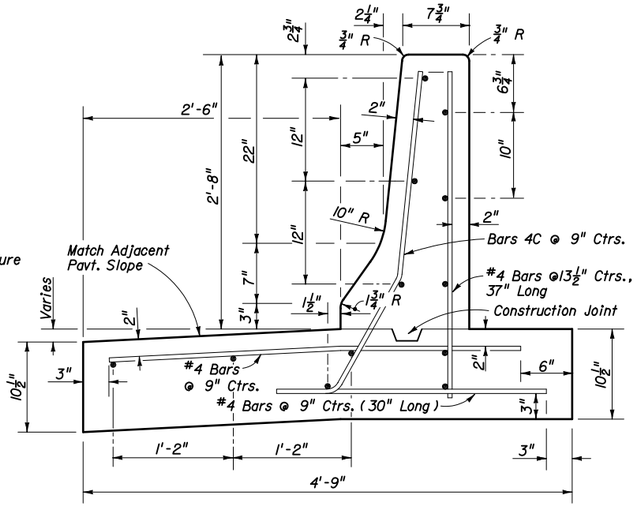
Design Speed mph	Length Of Advancement, Ft. (X)
≤45	16 (D-d)
Note: The minimum length of advancement for both near and opposing lane approaches is 40'.	

Equation Variables:

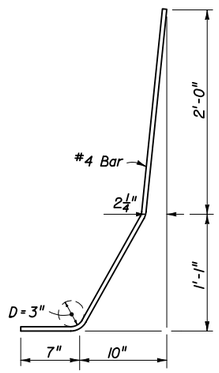
D = Distance in feet from near edge of the near approach traffic lane to back of hazard or clear zone width whichever is lesser. For left side hazards and clear zones on two-way undivided facilities D is measured from the inside edge of the near approach traffic lane.

d = Distance in feet from near edge of the near approach traffic lane to the face of curb (at offset control point). For left side hazards on two-way undivided facilities d is measured from the inside edge of the nearest opposing traffic lane.

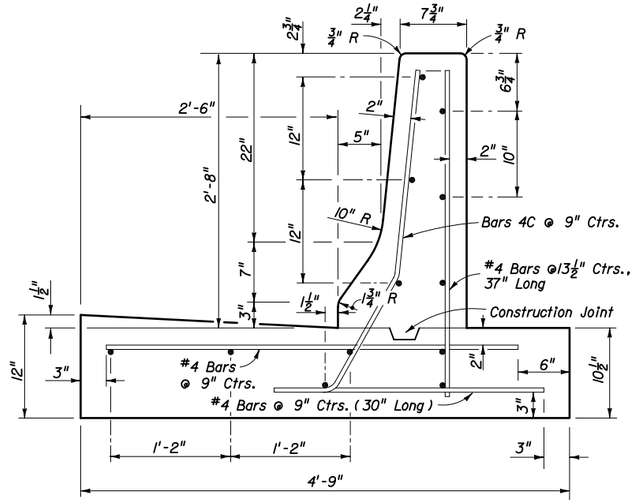
LENGTH OF ADVANCEMENT



FOR HIGH SIDE



BAR 4C
BENDING DIAGRAM



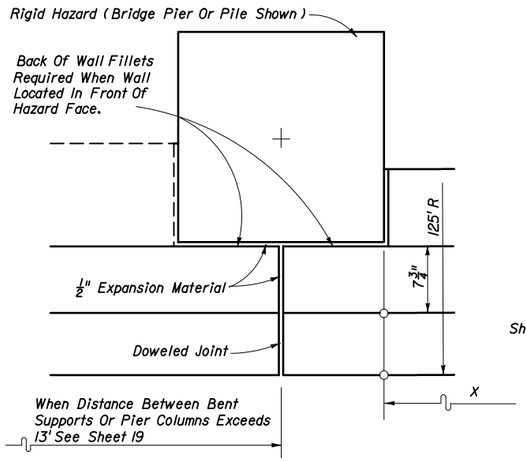
FOR LOW SIDE

Note: All longitudinal reinforcement #4 bars. Minimum segment length for this wall is 40'. Shorter segments due to construction or expansion joint shall be dowled in the manner described for 'Transition Segments' on Sheet 16. Transverse expansion joints are to be constructed at the juncture of wall transitions and curb and gutter, and at intervals so that spacing will not exceed 100'.
For barrier wall inlet details see Index No. 219.
Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Curb & Gutter), LF.

Estimated Quantities Per Linear Foot Of Wall:
Class II Concrete: 0.23 C.Y.
Reinforcing Steel: 19.7 Lbs.

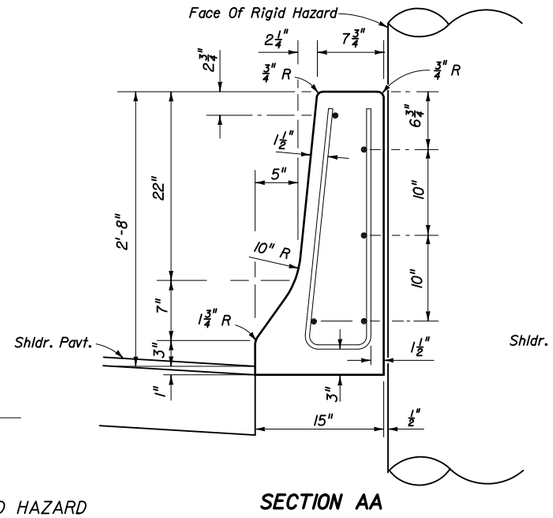
SECTION QQ

CONCRETE BARRIER WALL (RIGID) (CURB & GUTTER) • WITHOUT ADJACENT BICYCLE LANE

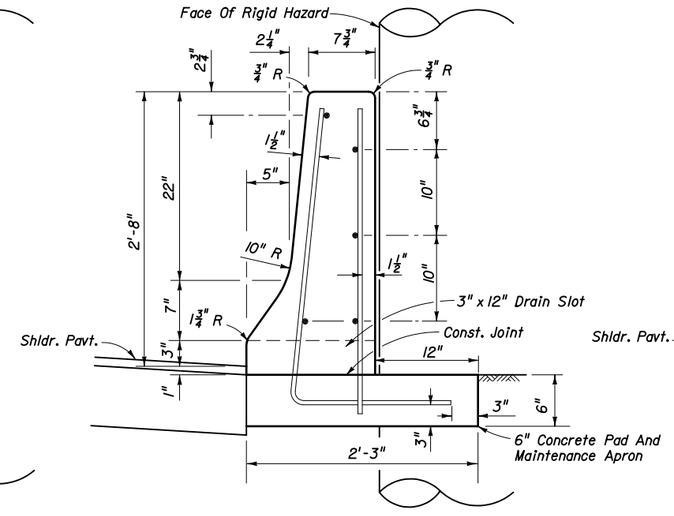


BARRIER WALL AT SQUARE OR RECTANGULAR SHAPED HAZARD

PARTIAL PLAN

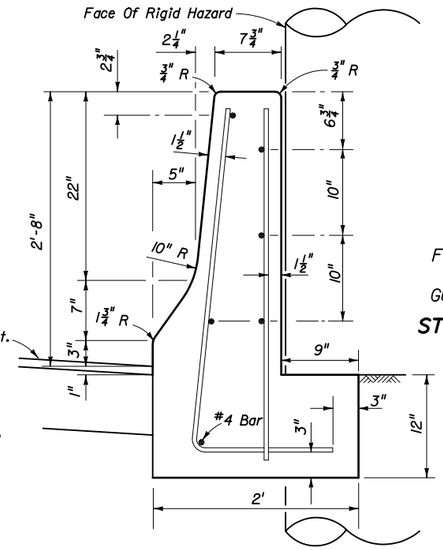


SECTION AA

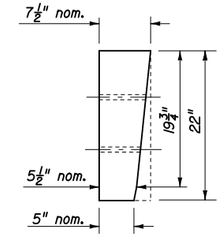


TO BE CONST. IN LIEU OF SECTION AA WHEN THRU DRAINAGE REQUIRED

SECTION BB

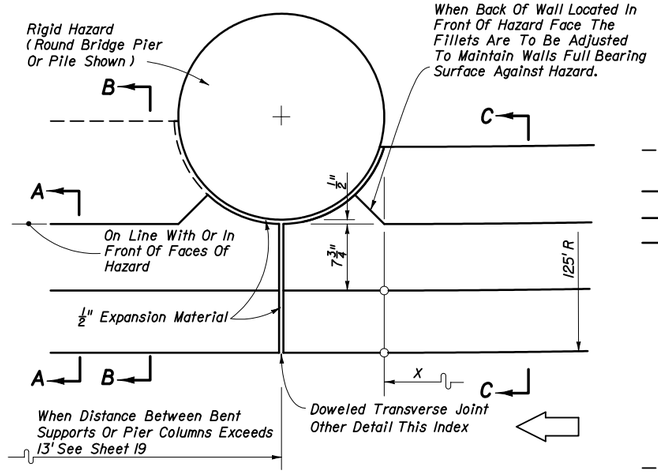


SECTION CC



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

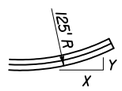
STANDARD THRIE-BEAM OFFSET BLOCK (FIELD TRIMMED)



BARRIER WALL AT ROUND HAZARD

PARTIAL PLAN

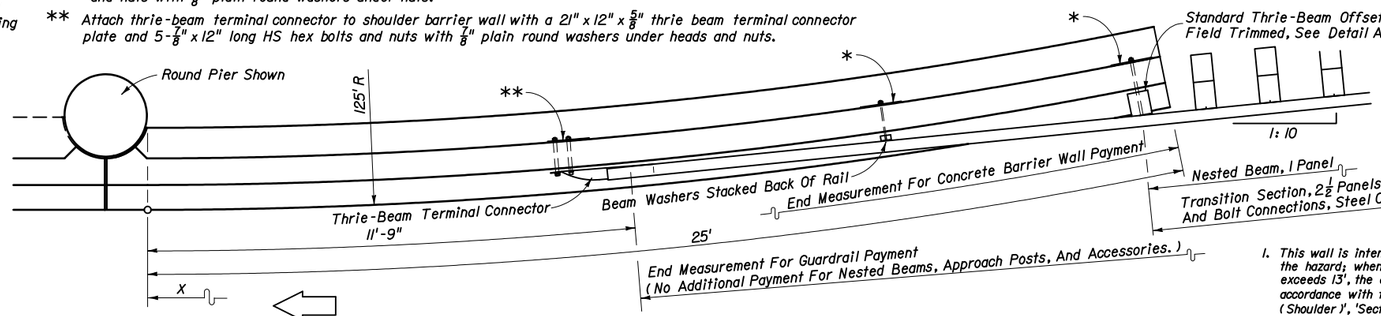
ARC LENGTH (FT)	DISTANCE "x" (FT)	OFFSETS "y" "y" (FT)
4	4.00	0.06
8	7.99	0.26
12	11.98	0.58
16	15.96	1.02
20	19.91	1.60
21	20.91	1.76
24	23.85	2.30
25	24.83	2.49



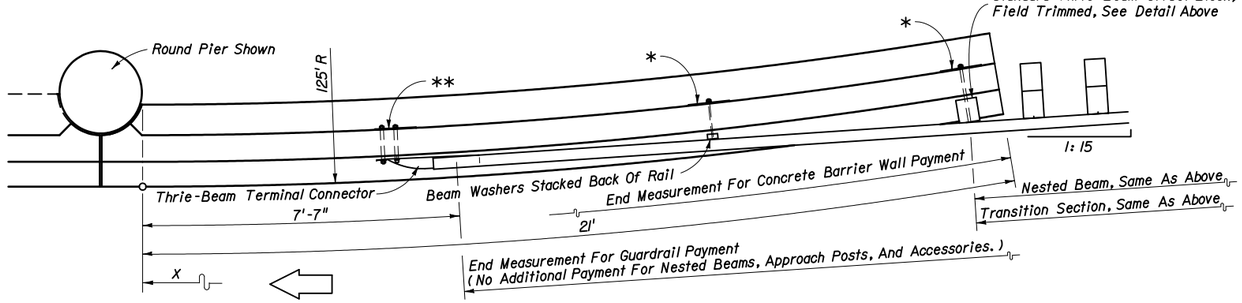
Note:
Wall may be constructed in chords having lengths ≤ 4 feet.

* 12" x 12" x ¼" galvanized steel back-up plate with ⅝" post bolts (either 14" or 18" long) and nuts with ⅝" plain round washers under nuts.

** Attach thrie-beam terminal connector to shoulder barrier wall with a 21" x 12" x ⅝" thrie beam terminal connector plate and 5-⅞" x 12" long HS hex bolts and nuts with ⅞" plain round washers under heads and nuts.



PLAN FOR DESIGN SPEED ≤45 MPH



PLAN FOR DESIGN SPEED ≥50 MPH

NOTES

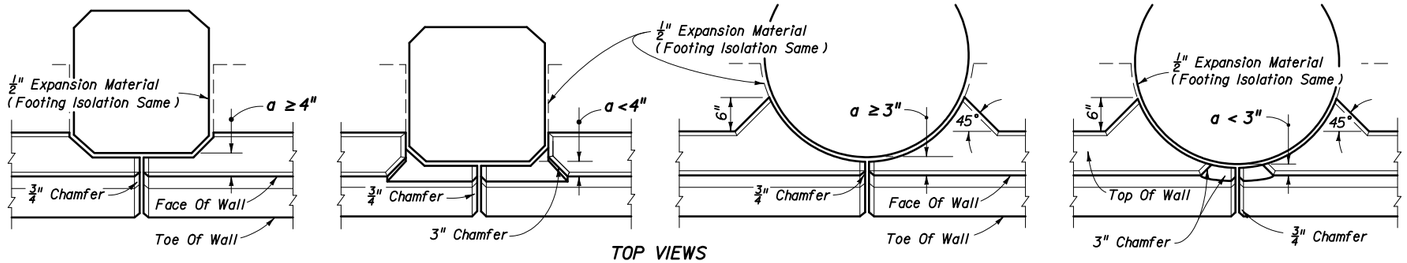
1. This wall is intended for use where the wall has bearing against the hazard; when the length between bent supports or pier columns exceeds 13', the affected segments shall be constructed in accordance with the detail for 'Reinforced Concrete Barrier Wall (Shoulder)', 'Section TT' or 'Section QQ', this index.

   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.
2. 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. On trailing ends of two-way multilane and one-way facilities the end connection on Sheet 2 may be used.

   For walls with normal offsets from hazards and their guardrail connections, see Sheet 20.
3. All vertical reinforcement #4 bars at 12" centers. All horizontal bars #5 bars.
4. Refer to Index No. 400 for additional guardrail information.
5. Wall to be paid for under the contract unit price for Shoulder Concrete Barrier Wall (Rigid-Shoulder), LF.

Note: For continuous barrier between independent bents or single pier columns see Sheet 19.

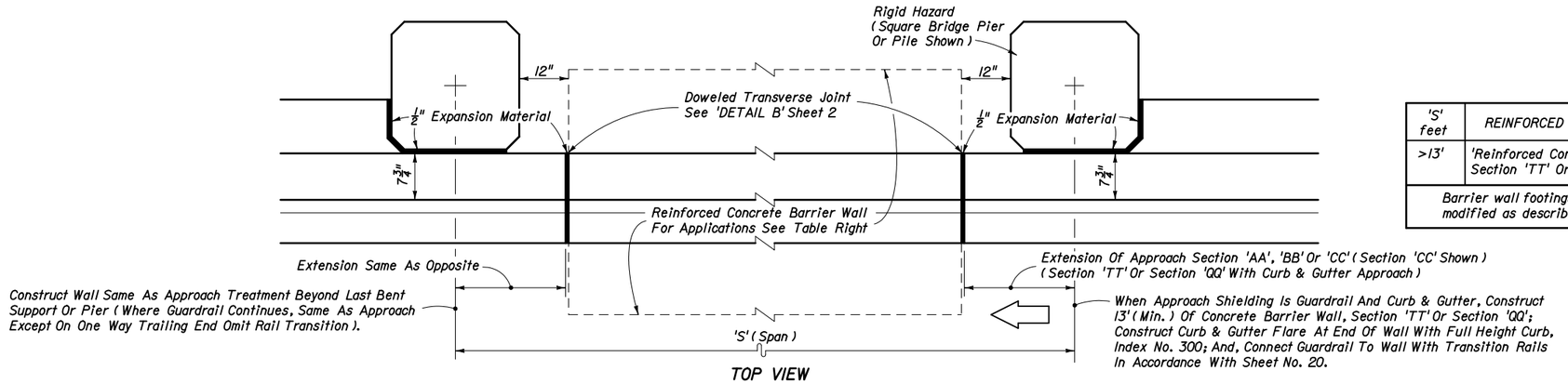
SHOULDER BARRIER WALL AT ABOVE GROUND RIGID HAZARDS WHEN GUARDRAIL OFFSET FROM HAZARD LESS THAN 3'



TOP VIEWS

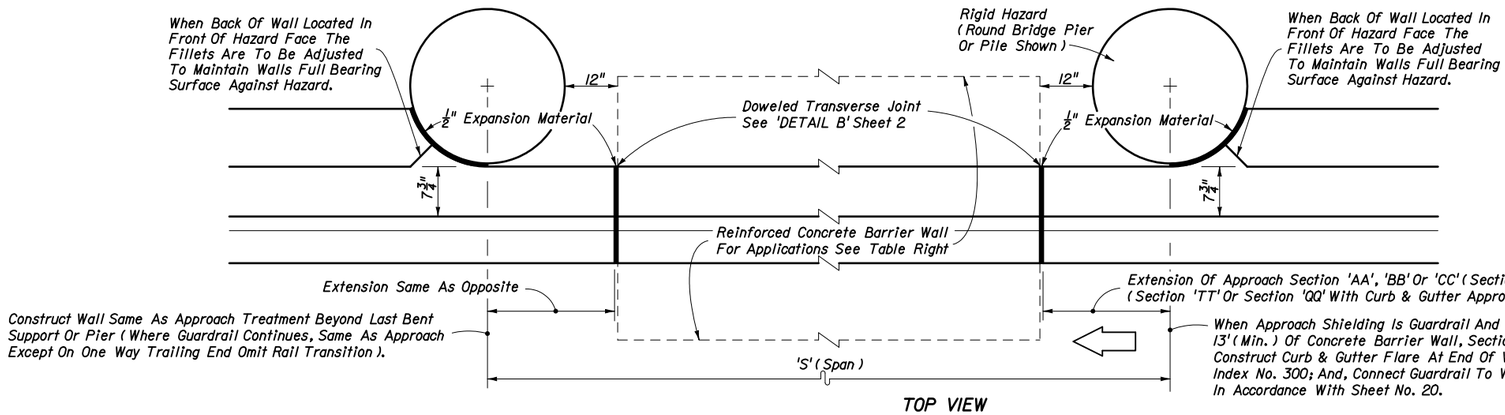
'a' Varies (Circular Or Octagonal Hazard Not More Than 2" In Front Of Face Of Wall).
Applicable To Sections 'AA' And 'BB' With Spans Of ≤13', And To Section 'CC', Sheet No. 18.
Applicable To Other Rigid Walls Of This Index For Spans >13' Unless Otherwise Shown In The Plans.

HAZARD PENETRATING STEM OF RIGID CONCRETE BARRIER WALLS



TOP VIEW
BARRIER WALL AT SQUARE PIER

'S' feet	REINFORCED CONCRETE BARRIER WALL APPLICATIONS
>13'	'Reinforced Concrete Barrier Wall (Shoulder)' With Flush Shoulders; Or, Section 'TT' Or Section 'QQ' With Curb & Gutter
Barrier wall footings that conflict with bent or pier foundations shall be modified as described in the plans.	

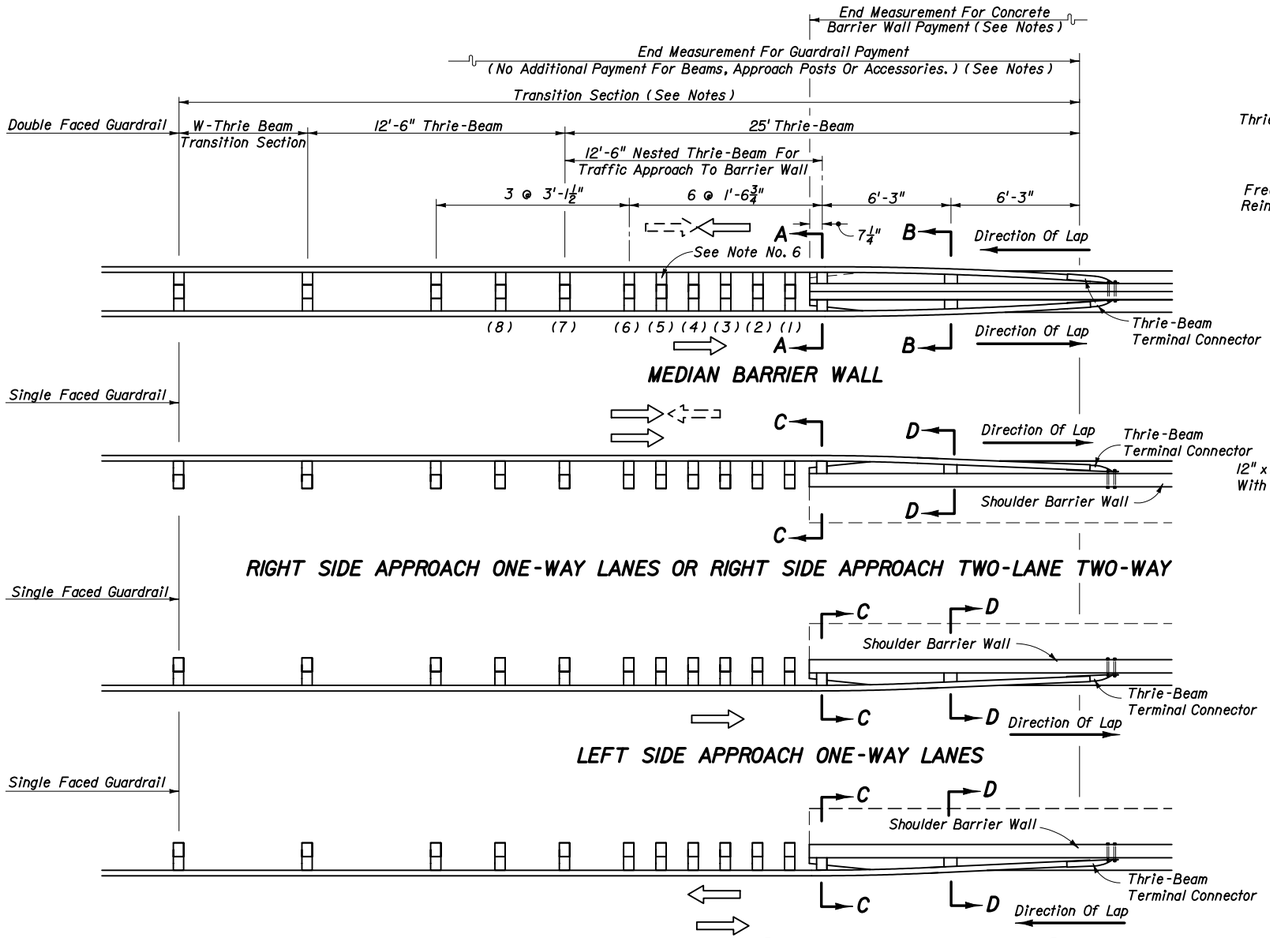


TOP VIEW
BARRIER WALL AT ROUND PIER

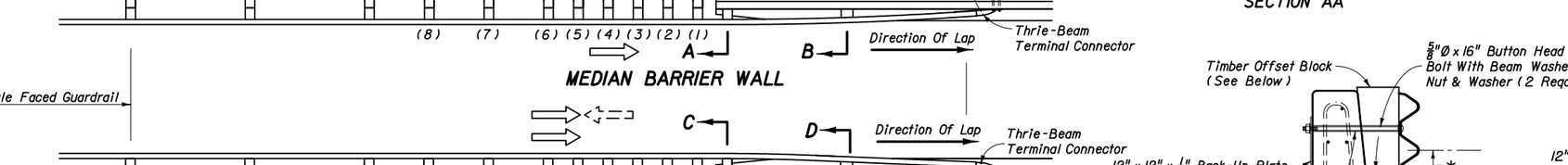
The details on this sheet are treatments to the F-shape concrete barrier walls depicted on Sheet Nos. 8 through 18, where site conditions impose reduced clearances between above ground hazards and the walls. Bridge bent supports and piers are shown. These treatments are not applicable to hazards that cannot provide lateral support for the walls. See the plans for limits of wall sections applied and other associated wall treatments.

CONCRETE BARRIER WALL WHEN SPAN BETWEEN BENT SUPPORTS OR PIER COLUMNS EXCEEDS 13'

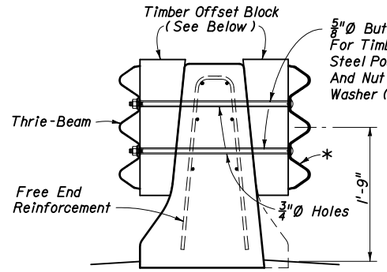
CONCRETE BARRIER WALL WHEN GUARDRAIL OFFSET FROM BENT OR PIER LESS THAN 3 FEET OR WHERE WALL STEM ABUTS SUPPORTS OR PIER COLUMN



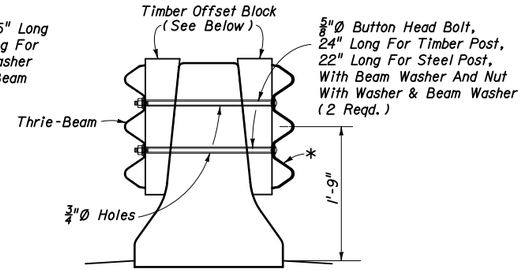
Attach thrie-beam terminal connector to median barrier wall with 5-$\frac{7}{8}$" x 15" long HS hex bolts and nuts with $\frac{7}{8}$" plain round washers under heads and nuts. Attach to shoulder barrier wall with a 21" x 12" x $\frac{5}{8}$" thrie-beam terminal connector plate and 5-$\frac{7}{8}$" x 12" long HS hex bolts and nuts with $\frac{7}{8}$" plain round washers under heads and nuts.



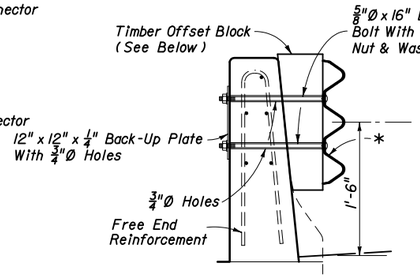
STANDARD GUARDRAIL APPROACH TO SHOULDER BARRIER



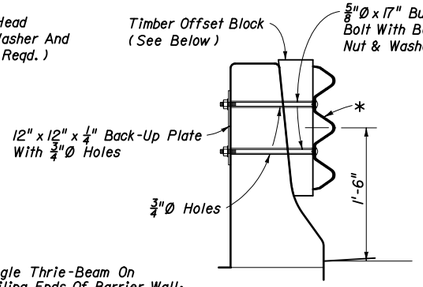
SECTION AA



SECTION BB

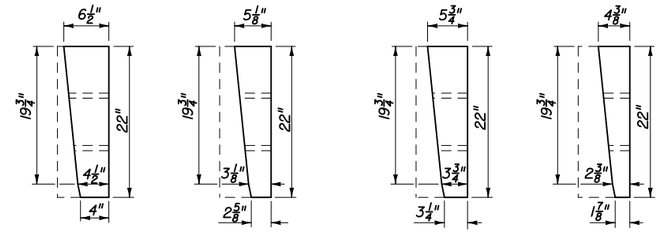


SECTION CC



SECTION DD

* Single Thrie-Beam On Trailing Ends Of Barrier Wall; Nested Thrie-Beams On Approaches To Barrier Wall.



FOR DOUBLE FACED GUARDRAIL USING TIMBER POSTS AND FOR SINGLE FACED GUARDRAIL USING EITHER TIMBER OR STEEL POSTS

FOR DOUBLE FACED GUARDRAIL USING STEEL POSTS

STANDARD TIMBER OR PLASTIC OFFSET BLOCKS • FIELD TRIMMED FOR USE AT SECTIONS AA, BB, CC & DD

NOTES

1. The longitudinal dimensions and payment limits shown for median concrete barrier wall also apply to shoulder concrete barrier walls.
2. W-beam elements do not apply to these transition schemes. For barrier wall trailing end guardrail connections for one-way lanes, see Sheet 2.
3. Where reaming is necessary to fit nested beams the reamed surfaces shall be metalized in accordance with Index No. 400.
4. Either steel or timber guardrail post may be used, timber posts shown.
5. The nested beams shall not be bolted to blocks and posts at posts numbers (1), (3) and (5).
6. On the trailing side of MEDIAN BARRIER WALL, offset blocks may be omitted at posts numbers 1, 2, 3, 5, 6 and 8.
7. For additional guardrail information refer to Index No. 400.

GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL APPROACH ENDS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2008 FDOT Design Standards

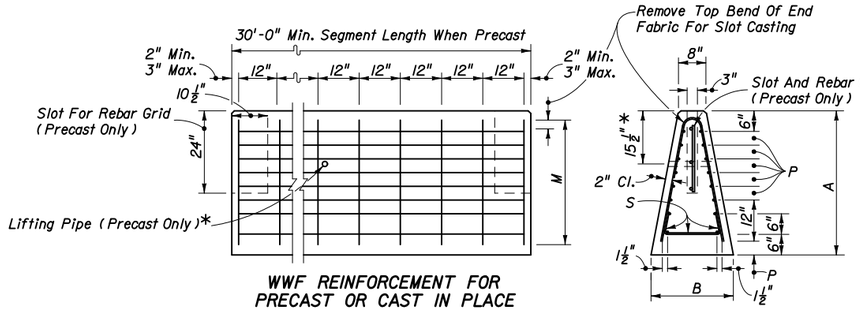
CONCRETE BARRIER WALL

Last Revision	Sheet No.
00	20 of 22

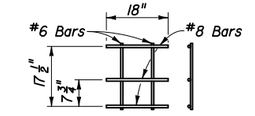
Index No. 410

GENERAL NOTES FOR TRAPEZOIDAL BARRIER WALL

1. Concrete trapezoidal barrier wall can be either precast or cast-in-place. The wall is designed for zero deflection and shall have a minimum system length of 120'.
2. Where concrete trapezoidal barrier wall height changes from 42" to 48" or from 48" to 54", height change will be uniform for each 6" of height change per 90' of wall. Steel placement shall meet the dimensional positioning requirements of 42", 48" and 54" high barriers at the respective points along the vertical transition, with the vertical steel uniformly lengthened and the horizontal steel uniformly splayed throughout.
3. Welded wire fabric (WWF) made in accordance with ASTM A497 may be used as an option to the conventional reinforcement for precast or cast in place barrier wall, with the exception that only conventional reinforcement shall be used for horizontal transition and half wall sections. These sections shall be cast in place with length, shape and reinforcement as shown in this Index.
4. To attain system length, precast segments shall be interconnected with rebar grids placed in the preformed slots and grouted into place. Segment length shall be not less than 30' unless otherwise specified in the plans.
5. The centerline axis of the barrier shall be vertical except where the roadway is superelevated in which case it shall be normal to the cross slope unless otherwise shown in the plans or directed by the Engineer.
6. For reflective barrier marker requirements, see 'STANDARD BARRIER WALL SECTIONS' and the GENERAL NOTES, Sheet 1.
7. The concrete trapezoidal barrier wall is considered by the Federal Highway Administration to be innovative and may be used as such on Federal Aid projects.
8. The concrete trapezoidal barrier wall is to be paid for under the contract unit price for Median Concrete Barrier Wall (Trapezoidal), LF. This price will include full payment for transitions, half walls, fill and concrete caps.



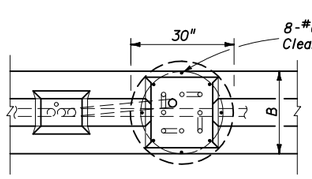
WWF REINFORCEMENT FOR PRECAST OR CAST IN PLACE



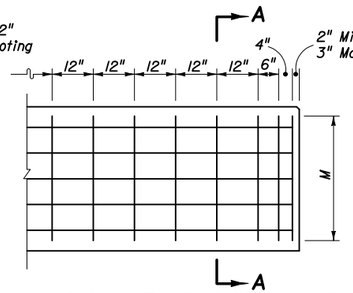
REBAR GRID FOR PRECAST INSTALLATION

All Transverse Reinforcing Wire Size D14
All Longitudinal Reinforcing Wire Size D20

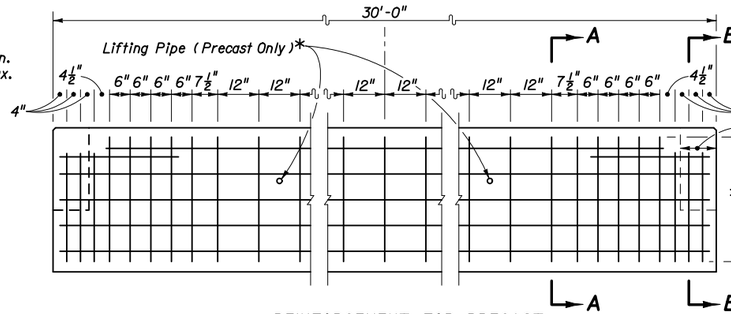
WELDED WIRE FABRIC REINFORCING



TOP VIEW

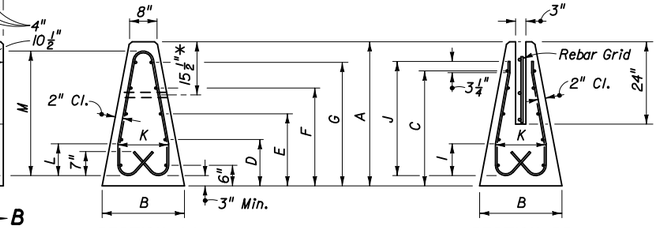


REINFORCEMENT FOR CAST-IN-PLACE



REINFORCEMENT FOR PRECAST

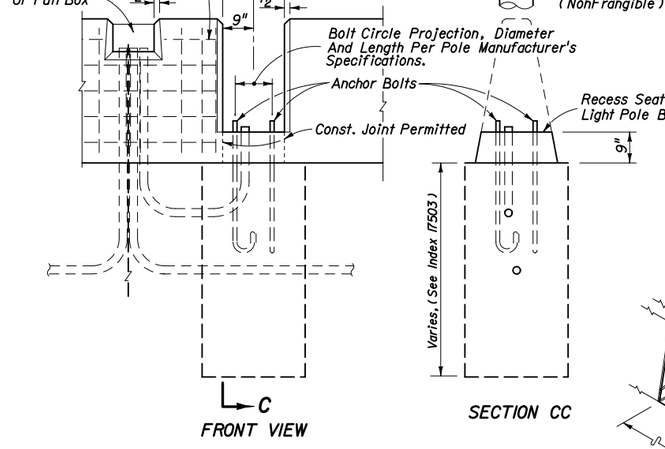
* 1½" Nominal Dia. Galvanized Steel Lifting Pipe For Precast Sections (7.5' From Either End)



SECTION AA SECTION BB

All Vertical Reinforcing #4 Bars
All Horizontal Reinforcing #5 Bars

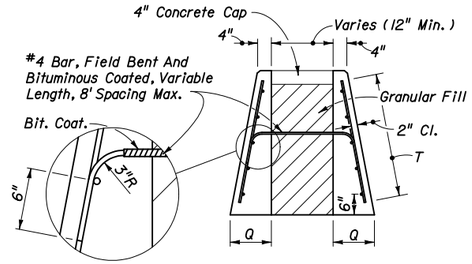
CONVENTIONAL REINFORCING



FRONT VIEW SECTION CC

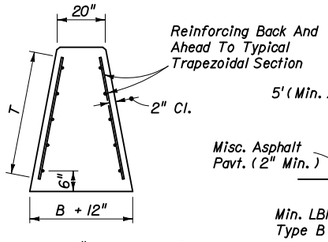
Note: For Additional Details See Sheet 4

LIGHT POLE MOUNTING IN TRAPEZOIDAL SECTIONS



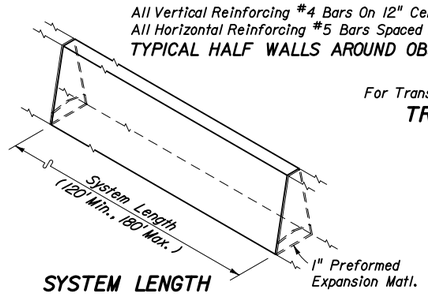
All Vertical Reinforcing #4 Bars On 12" Centers
All Horizontal Reinforcing #5 Bars Spaced As Tabulated

TYPICAL HALF WALLS AROUND OBSTRUCTION



All Vertical Reinforcing #4 Bars On 12" Centers
All Horizontal Reinforcing #5 Bars Spaced As Tabulated

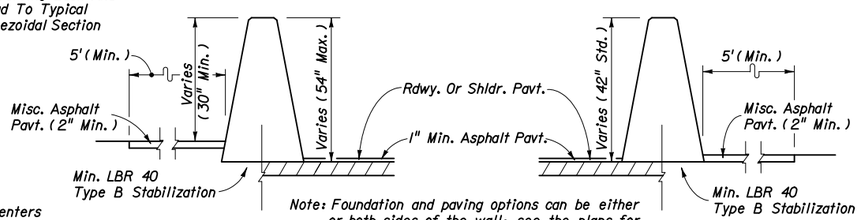
SECTION AT BEGIN AND END OF HALF WALLS



SYSTEM LENGTH

For Transition Wall Plan See DETAIL I 'PLAN'

TRANSITION SECTIONS



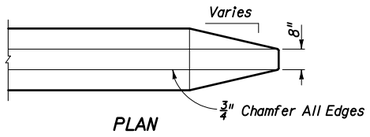
Note: Foundation and paving options can be either or both sides of the wall; see the plans for the options applied.

INDEPENDENT ROADWAY PROFILES MATCHING ROADWAY PROFILES

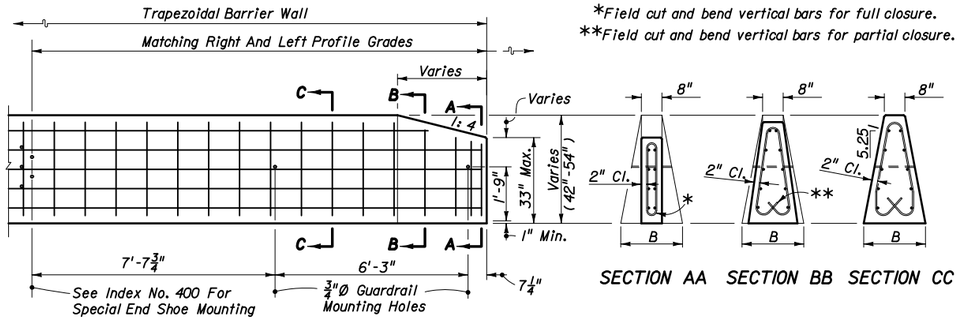
TYPICAL TRAPEZOIDAL SECTIONS

Barrier Height (in.)	DIMENSIONS (Inches)																	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	S	T
42	42	24	33½	13½	21	28½	36	15	9¼	33¼	15	9¼	36	72	4	12	28	36
48	48	26 9/32	39½	15	24	33	42	17¼	10¾	39¼	17¼	10¾	42	84	5	13 9/64	31½	42
54	54	28 9/16	45½	16½	27	37½	48	19½	12¼	45¼	19½	12¼	48	96	6	14 9/32	34¾	48

TRAPEZOIDAL BARRIER WALL



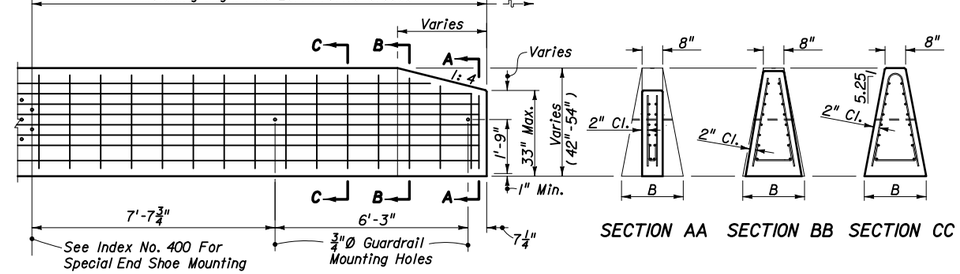
PLAN



LONGITUDINAL SECTION

SECTION AA SECTION BB SECTION CC

CONVENTIONAL REINFORCEMENT

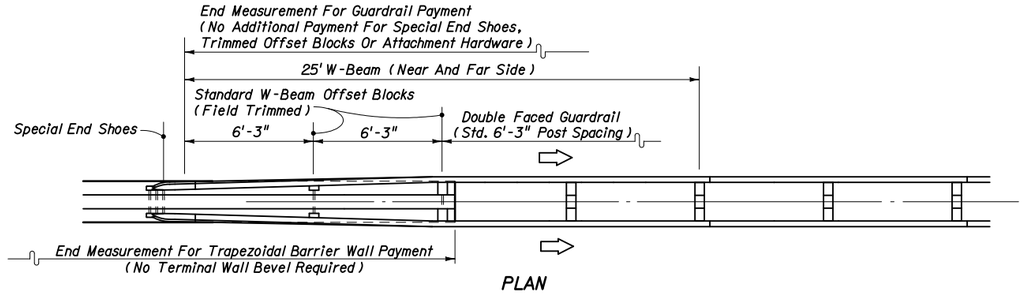


LONGITUDINAL SECTION

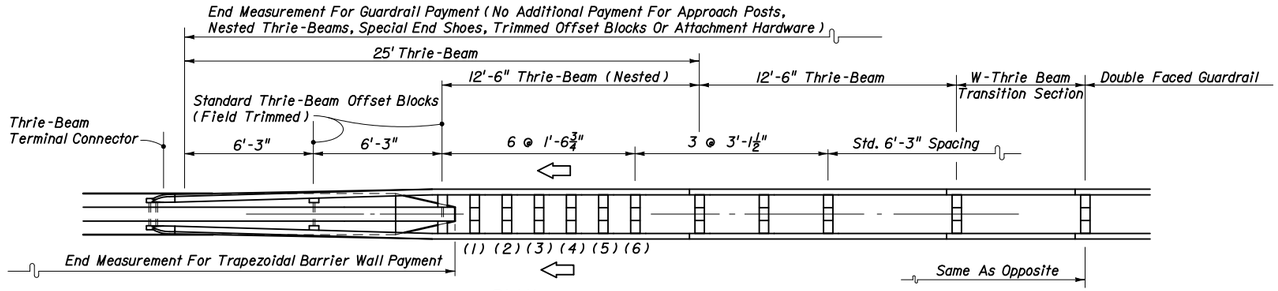
SECTION AA SECTION BB SECTION CC

WELDED WIRE FABRIC REINFORCEMENT

END TREATMENT FOR PRECAST OR CAST-IN-PLACE WALLS

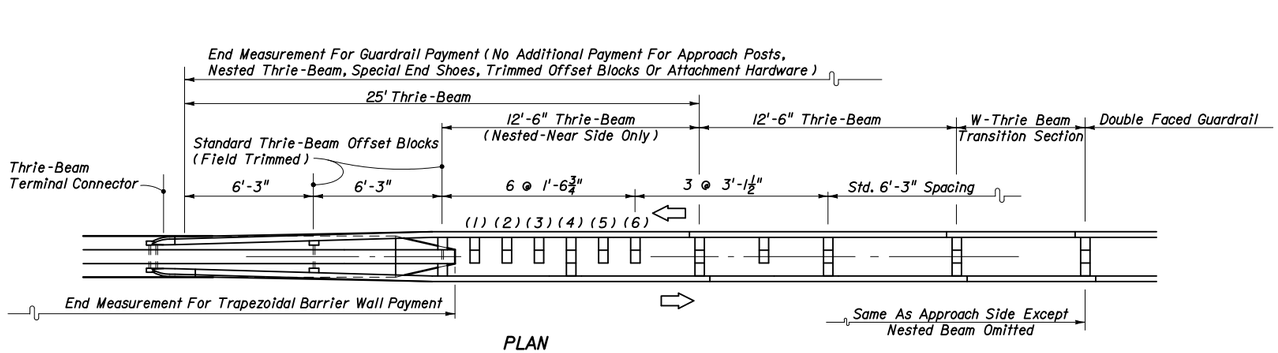


PLAN



PLAN

UNIDIRECTIONAL



PLAN

BIDIRECTIONAL

Note: Timber or steel posts may be used, timber posts shown.

GUARDRAIL TRANSITIONS AND CONNECTIONS

NOTES

1. Where reamimg is necessary to fit nested beams the reamed surface shall be metalized in accordance with Index No. 400.
2. The nested beams shall not be bolted to the posts and blocks at post numbers (1), (3) and (5).
3. For additional wall details, see Sheet 21.
4. For additional guardrail information refer to Index No. 400.

GUARDRAIL CONNECTION TO TRAPEZOIDAL BARRIER WALL