



**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**ROADWAY DESIGN DIVISION**  
SUITE 1300 JAMES K. POLK BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-3848  
(615) 741-2221

**JOHN C. SCHROER**  
COMMISSIONER

**BILL HASLAM**  
GOVERNOR

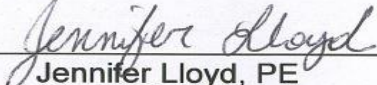
**INSTRUCTIONAL BULLETIN NO. 15-04**

**Regarding Revised Standard Drawings**

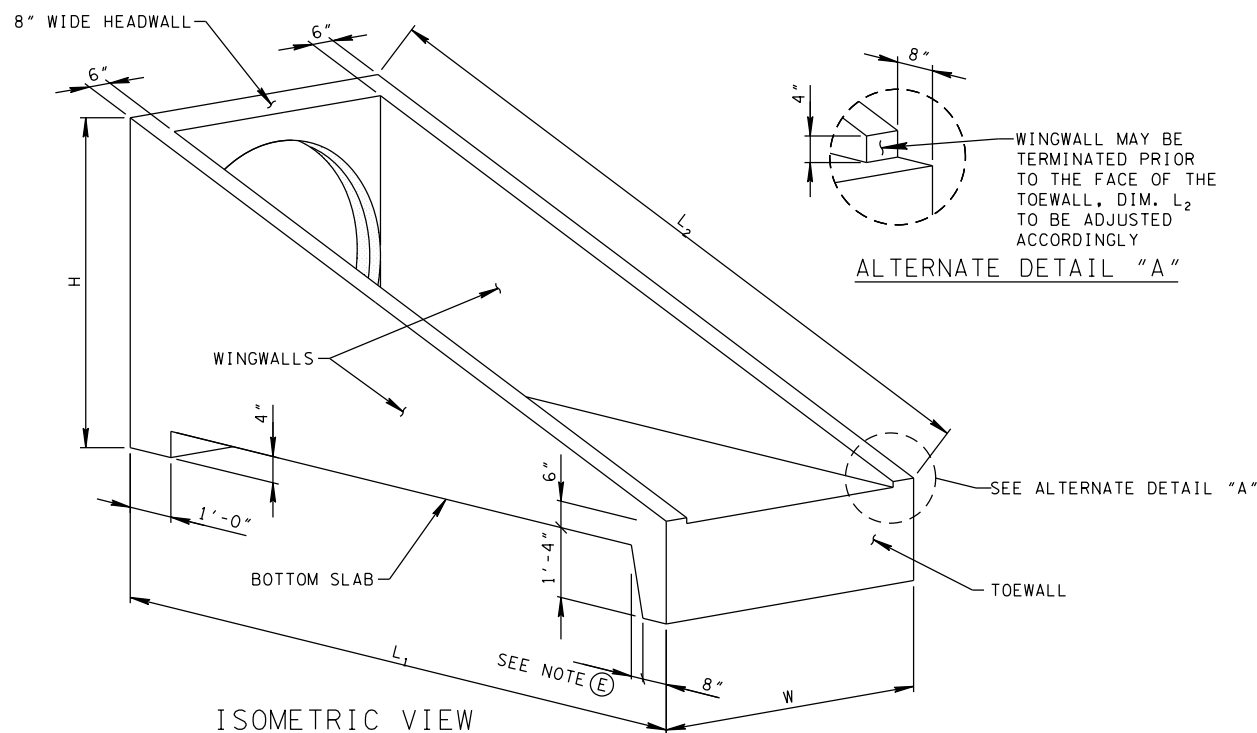
**Effective May 15, 2015 letting (March 4, 2015 Turn-in), the following Standard Drawings are revised and Section V of the Design Guidelines is revised for this update**

<b>DRAWING NUMBER</b>	<b>CURRENT REVISION DATE</b>	<b>DESCRIPTION</b>
D-PE-18A	01-06-15	18" CONCRETE ENDWALL CROSS DRAIN
D-PE-24A	01-06-15	24" CONCRETE ENDWALL CROSS DRAIN
D-PE-30A	01-06-15	30" CONCRETE ENDWALL CROSS DRAIN
RP-H-3	01-30-15	CURB RAMP AND TRUNCATED DOME SURFACE DETAIL
RP-H-4	01-30-15	PERPENDICULAR CURB RAMP
RP-H-5	01-30-15	PARALLEL CURB RAMP
RP-H-6	01-30-15	PEDESTRIAN REFUGE
RP-H-7	01-30-15	PERPENDICULAR CURB RAMP IN CURVE
RP-H-9	01-30-15	PARALEL CURB RAMP IN CURVE

A copy of the revised standard drawings is attached.

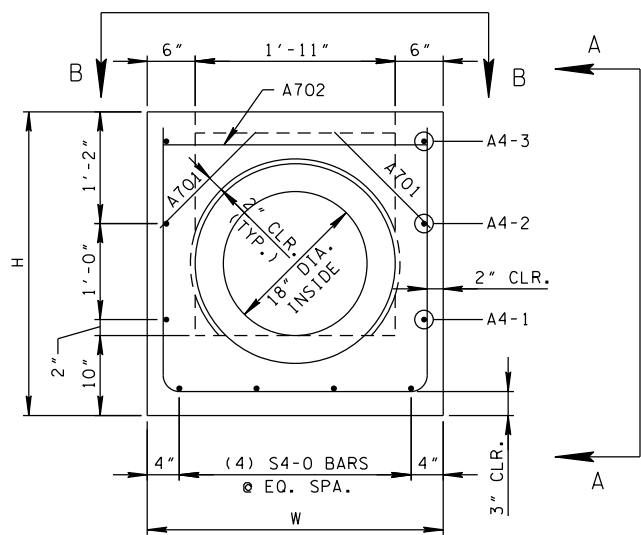
  
Jennifer Lloyd, PE  
Civil Engineering Director  
Roadway Design Division

JCL:ARH  
2/9/2015

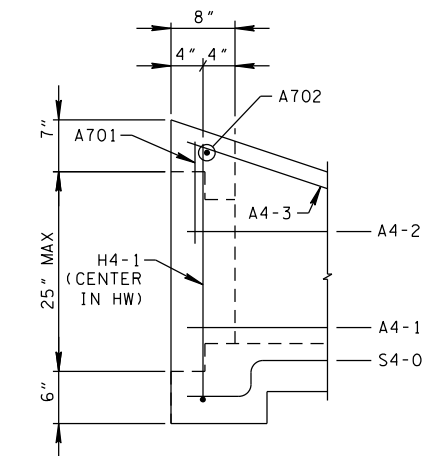


ISOMETRIC VIEW

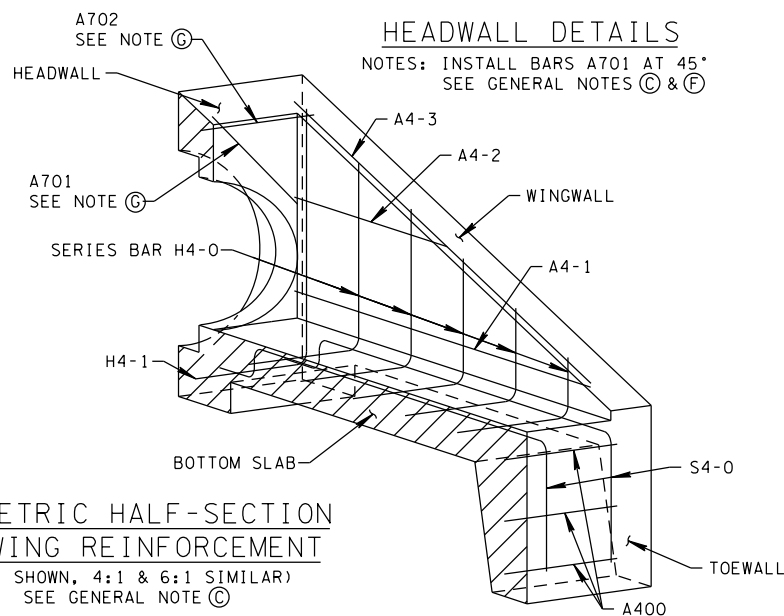
NOTE: 3/4\"/>



ELEVATION

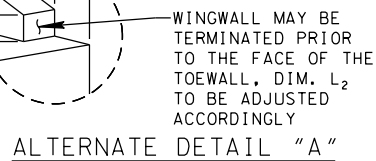


PARTIAL VIEW A-A

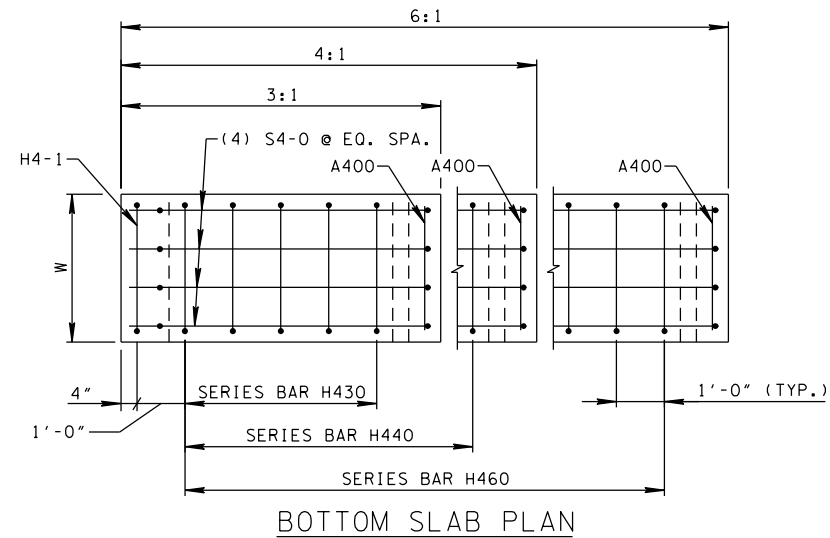


ISOMETRIC HALF-SECTION SHOWING REINFORCEMENT

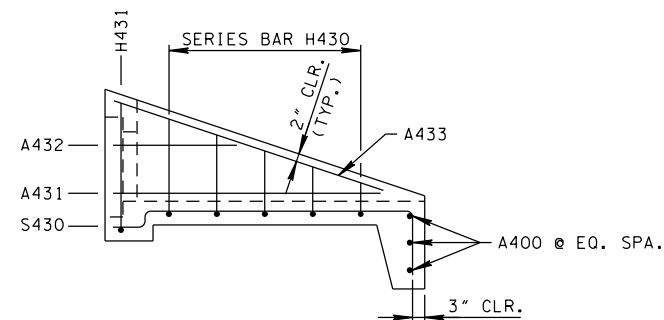
(3:1 SHOWN, 4:1 & 6:1 SIMILAR) SEE GENERAL NOTE (C)



ALTERNATE DETAIL "A"

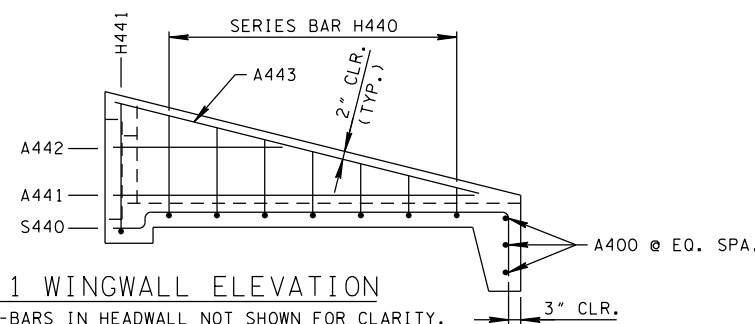


BOTTOM SLAB PLAN



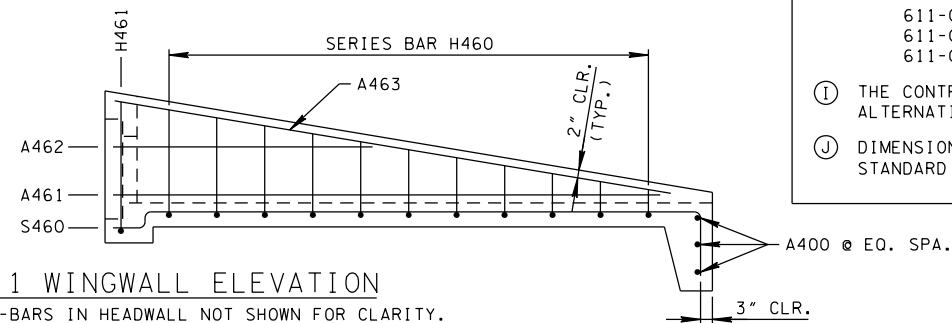
3:1 WINGWALL ELEVATION

NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.



4:1 WINGWALL ELEVATION

NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.

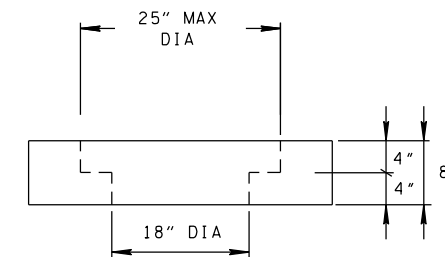


6:1 WINGWALL ELEVATION

NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.

- REV. 6-14-13: REVISED NOTEG. ADDED NOTE H AND I.
- REV. 1-6-15: ADDED STEPPED HOLE DETAIL

STEPPED HOLE DETAIL



PARTIAL VIEW B-B

SEE NOTE (F)

GENERAL NOTES

- (A) DRAWING TO BE USED FOR ALL CAST-IN-PLACE AND ALL PRECAST 18" CONCRETE ENDWALLS (TYPE "U") FOR CROSS DRAINS ONLY. "U" ENDWALL TO BE PLACED AT 90° SKEW TO CENTERLINE. SEE STD. DWG. D-PE-99 FOR SKEWED CONNECTION DETAIL WHEN CROSS DRAIN IS NOT PERPENDICULAR TO CENTERLINE. CAST-IN-PLACE CONCRETE ENDWALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS, SECTION 611 AND/OR SPECIAL PROVISIONS.
- (B) SEE STD. DWG. D-PE-18B FOR BILL OF STEEL & PRECAST NOTES.
- (C) "-" IN BAR DESIGNATION REPRESENTS 3, 4 OR 6 FOR 3:1, 4:1 OR 6:1 SLOPES, RESPECTIVELY.
- (D) SPLICING OF REINFORCEMENT IS ACCEPTABLE PROVIDED THAT A MINIMUM 21" SPLICE LENGTH IS USED.
- (E) TOEWALL BACK SLOPE MAY BE CONSTRUCTED VARIABLE FROM VERTICAL UP TO 15°.
- (F) 90° STEPS ARE SHOWN ON THE STEPPED HOLE DETAIL, HOWEVER MINOR VARIATIONS OF THE TAPER ARE ACCEPTABLE.
- (G) OPTIONAL STEPPED HOLE OR HOLE FORMERS ARE ALLOWED PROVIDED THE AMOUNT OF COVER BETWEEN THE PIPE OPENING AND BARS A701 AND A702 IS THE SAME OR GREATER THAN SHOWN ON THIS DRAWING.
- (H) PAYMENT WILL BE MADE UNDER:
  - 611-07.54, 18" ENDWALL (CROSS DRAIN) 3:1 EACH
  - 611-07.55, 18" ENDWALL (CROSS DRAIN) 4:1 EACH
  - 611-07.56, 18" ENDWALL (CROSS DRAIN) 6:1 EACH
- (I) THE CONTRACTOR MAY BE ELECT TO SUBSTITUTE AN APPROVED ALTERNATIVE DESIGN.
- (J) DIMENSIONAL AND REINFORCING TOLERANCES WILL BE AS SHOWN IN STANDARD OPERATING PROCEDURE 9SOP) 5-3.

DIMENSIONS AND QUANTITIES FOR ONE ENDWALL 18" PIPE						
SLOPE	CONCRETE ENDWALL DIMENSIONS				ESTIMATED QUANTITIES	
	H	L <sub>1</sub>	L <sub>2</sub>	W	CLASS "A" CONC. CU. YD.	STEEL BAR REINF. LB.
3:1	3' - 2"	6' - 8"	7' - 0 3/8"	2' - 11"	0.87	79
4:1		8' - 8"	8' - 11 1/4"		1.08	98
6:1		12' - 8"	12' - 10 1/4"		1.49	137

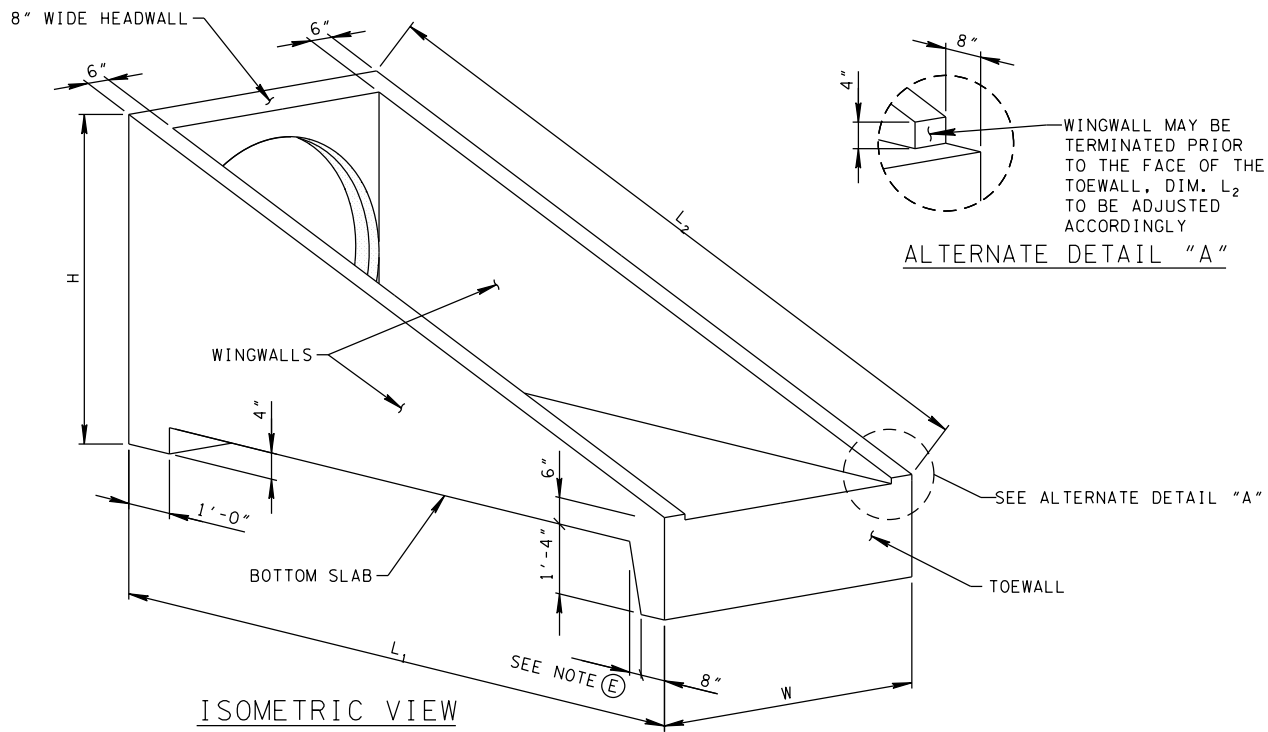
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

18"  
CONCRETE ENDWALL  
CROSS DRAIN  
(FOR 3:1, 4:1 & 6:1 SLOPES)

NOT TO SCALE

3-Q1-12

D-PE-18A

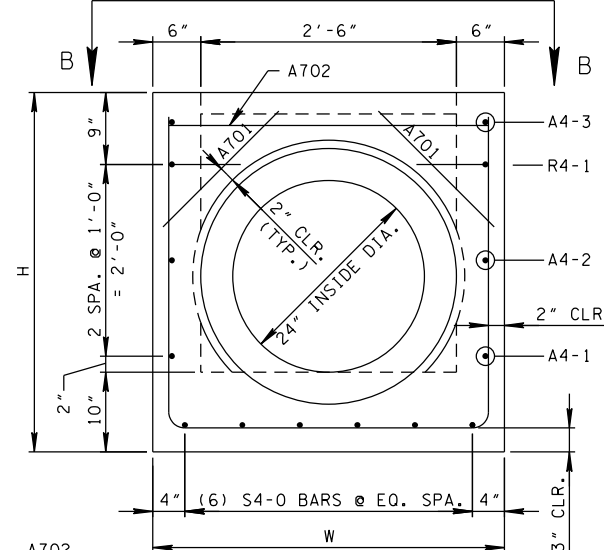


ALTERNATE DETAIL "A"

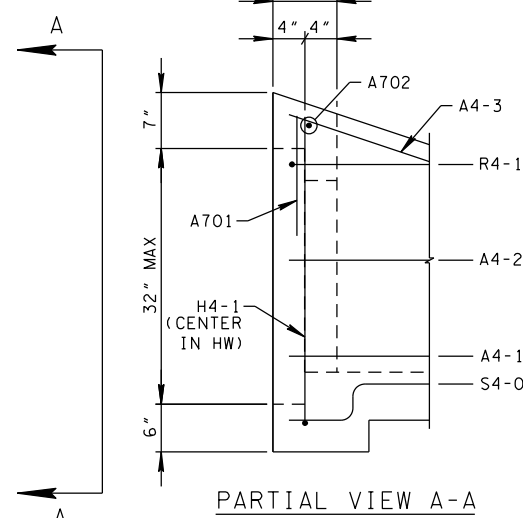
WINGWALL MAY BE TERMINATED PRIOR TO THE FACE OF THE TOEWALL, DIM. L<sub>2</sub> TO BE ADJUSTED ACCORDINGLY

ISOMETRIC VIEW

NOTE: 3/4" CHAMFER REQUIRED ON ALL EXPOSED EDGES



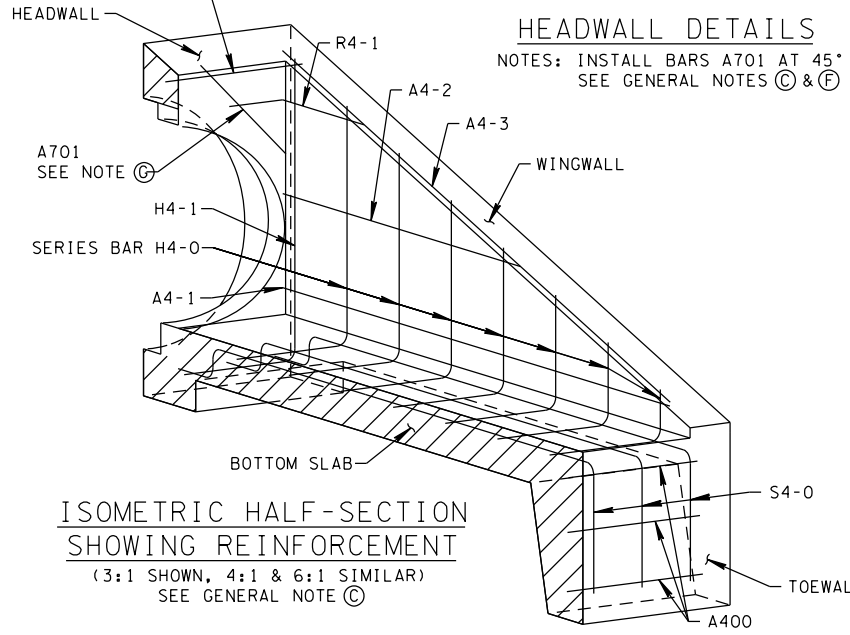
ELEVATION



PARTIAL VIEW A-A

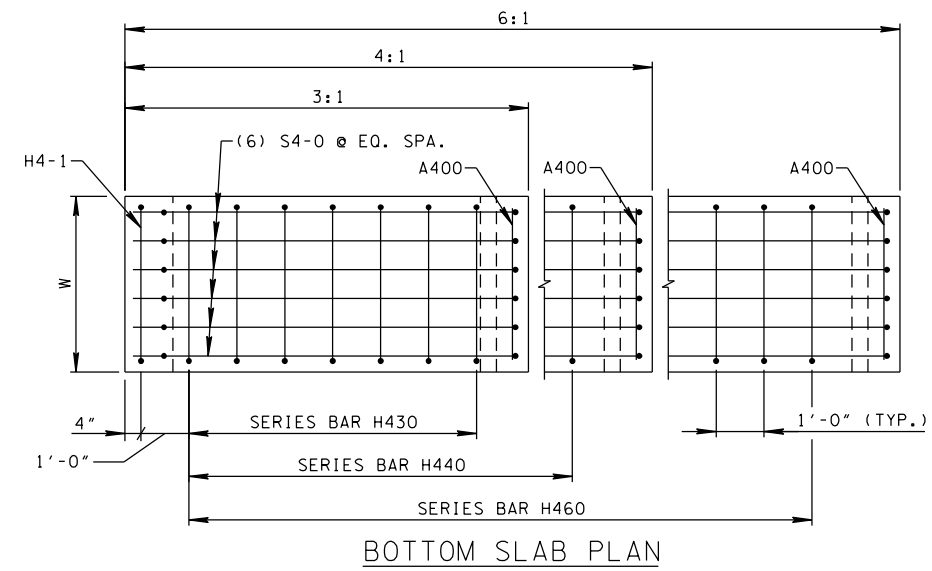
HEADWALL DETAILS

NOTES: INSTALL BARS A701 AT 45°  
SEE GENERAL NOTES (C) & (F)

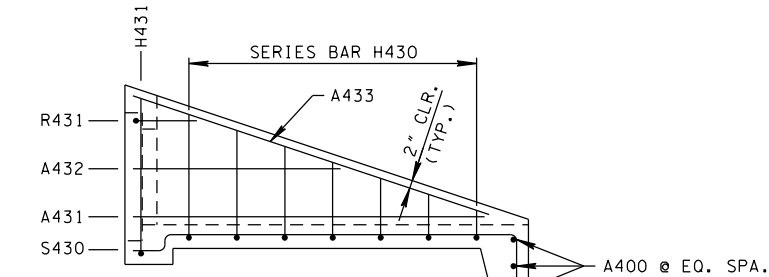


ISOMETRIC HALF-SECTION SHOWING REINFORCEMENT

(3:1 SHOWN, 4:1 & 6:1 SIMILAR)  
SEE GENERAL NOTE (C)

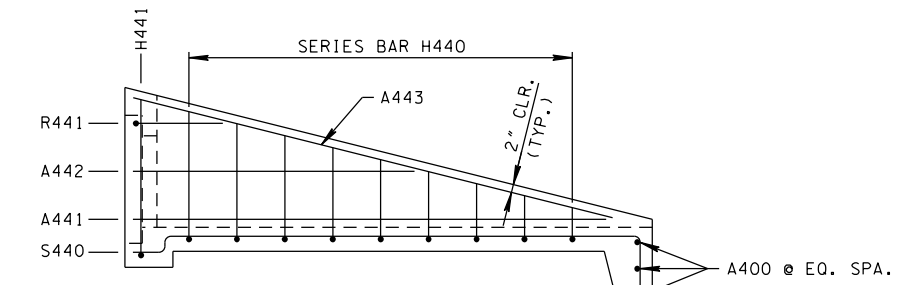


BOTTOM SLAB PLAN



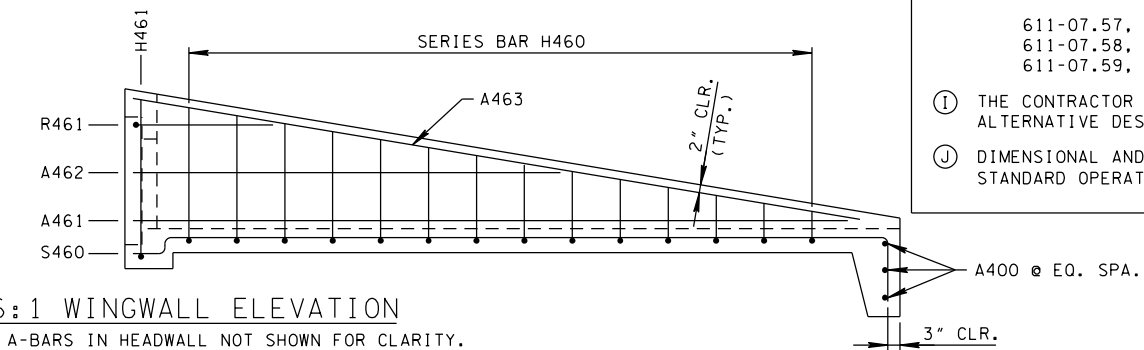
3:1 WINGWALL ELEVATION

NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.



4:1 WINGWALL ELEVATION

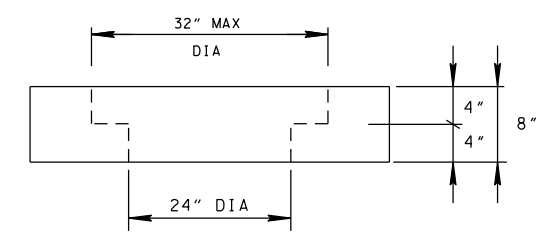
NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.



6:1 WINGWALL ELEVATION

NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.

STEPPED HOLE DETAIL



PARTIAL VIEW B-B

SEE NOTE (F)

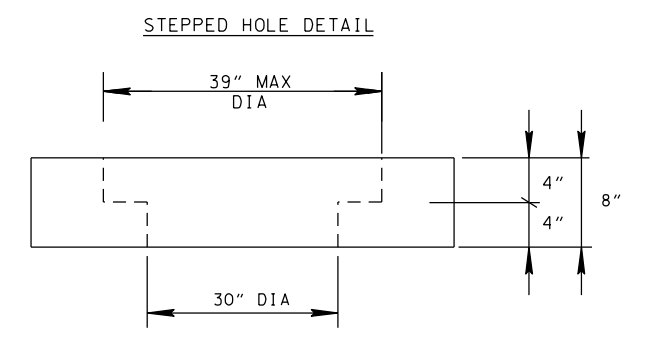
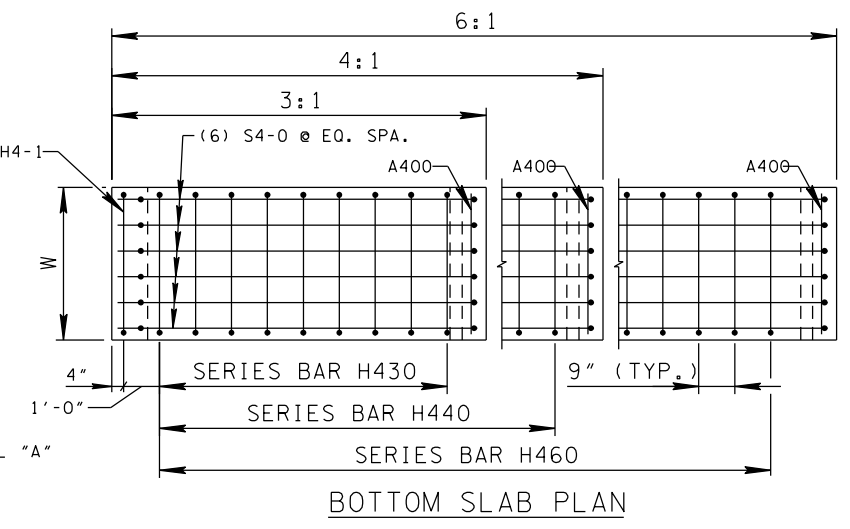
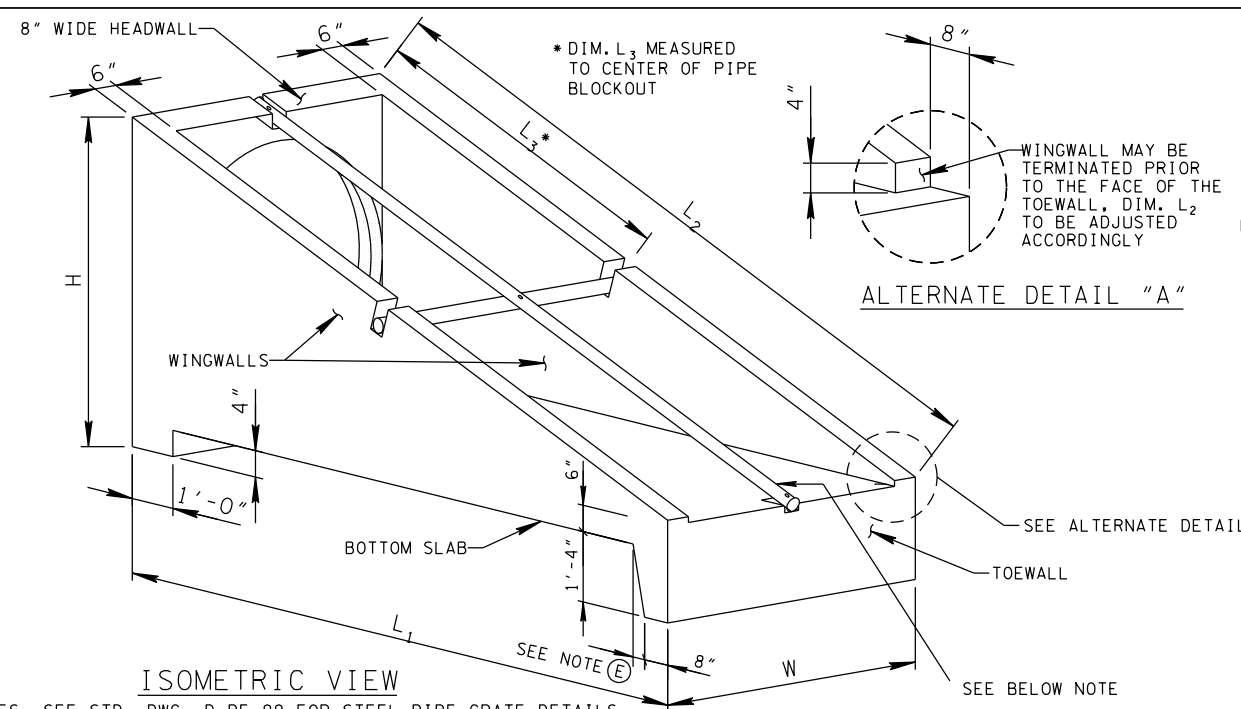
GENERAL NOTES

- (A) DRAWING TO BE USED FOR ALL CAST-IN-PLACE AND ALL PRECAST 18" CONCRETE ENDWALLS (TYPE "U") FOR CROSS DRAINS ONLY. "U" ENDWALL TO BE PLACED AT 90° SKEW TO CENTERLINE. SEE STD. DWG. D-PE-99 FOR SKEWED CONNECTION DETAIL WHEN CROSS DRAIN IS NOT PERPENDICULAR TO CENTERLINE. CAST-IN-PLACE CONCRETE ENDWALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS, SECTION 611 AND/OR SPECIAL PROVISIONS.
- (B) SEE STD. DWG. D-PE-18B FOR BILL OF STEEL & PRECAST NOTES.
- (C) "-" IN BAR DESIGNATION REPRESENTS 3, 4 OR 6 FOR 3:1, 4:1 OR 6:1 SLOPES, RESPECTIVELY.
- (D) SPLICING OF REINFORCEMENT IS ACCEPTABLE PROVIDED THAT A MINIMUM 21" SPLICE LENGTH IS USED.
- (E) TOEWALL BACK SLOPE MAY BE CONSTRUCTED VARIABLE FROM VERTICAL UP TO 15°.
- (F) 90° STEPS ARE SHOWN ON THE STEPPED HOLE DETAIL, HOWEVER MINOR VARIATIONS OF THE TAPER ARE ACCEPTABLE.
- (G) OPTIONAL STEPPED HOLE OR HOLE FORMERS ARE ALLOWED PROVIDED THE AMOUNT OF COVER BETWEEN THE PIPE OPENING AND BARS A701 AND A702 IS THE SAME OR GREATER THAN SHOWN ON THIS DRAWING.
- (H) PAYMENT WILL BE MADE UNDER:
  - 611-07.57, 24" ENDWALL (CROSS DRAIN) 3:1 EACH
  - 611-07.58, 24" ENDWALL (CROSS DRAIN) 4:1 EACH
  - 611-07.59, 24" ENDWALL (CROSS DRAIN) 6:1 EACH
- (I) THE CONTRACTOR MAY BE ELECT TO SUBSTITUTE AN APPROVED ALTERNATIVE DESIGN.
- (J) DIMENSIONAL AND REINFORCING TOLERANCES WILL BE AS SHOWN IN STANDARD OPERATING PROCEDURE 9SOP) 5-3.

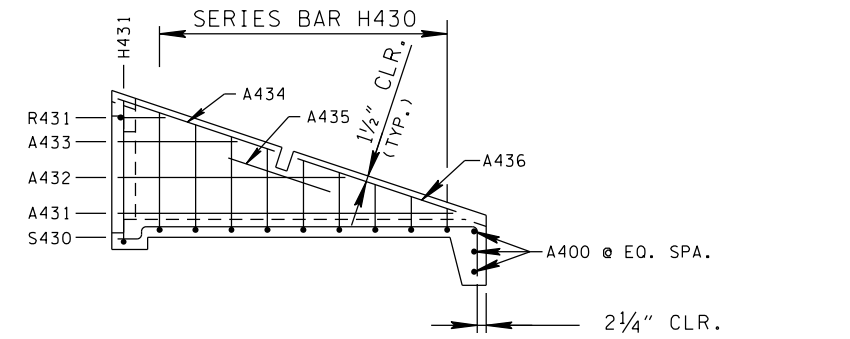
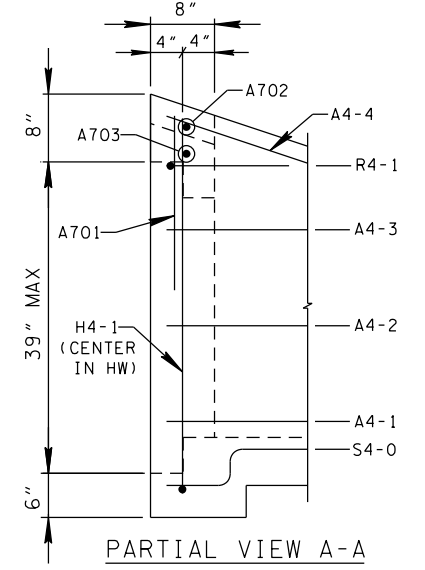
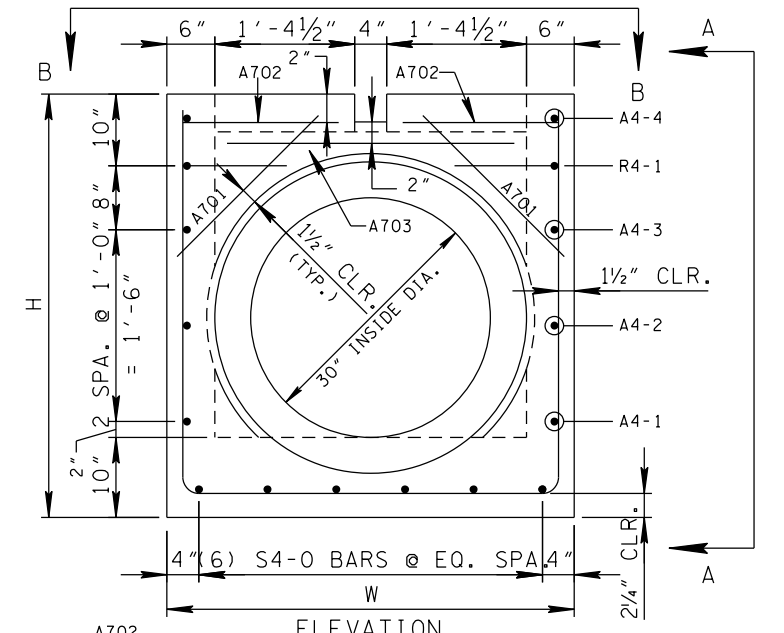
DIMENSIONS AND QUANTITIES FOR ONE ENDWALL 24" PIPE						
SLOPE	CONCRETE ENDWALL DIMENSIONS				ESTIMATED QUANTITIES	
	H	L <sub>1</sub>	L <sub>2</sub>	W	CLASS "A" CONC. CU. YD.	STEEL BAR REINF. LB.
3:1	3' - 9"	8' - 5"	8' - 10 1/2"	3' - 6"	1.28	124
4:1		11' - 0"	11' - 4"		1.61	153
6:1		16' - 2"	16' - 4 3/8"		2.26	215

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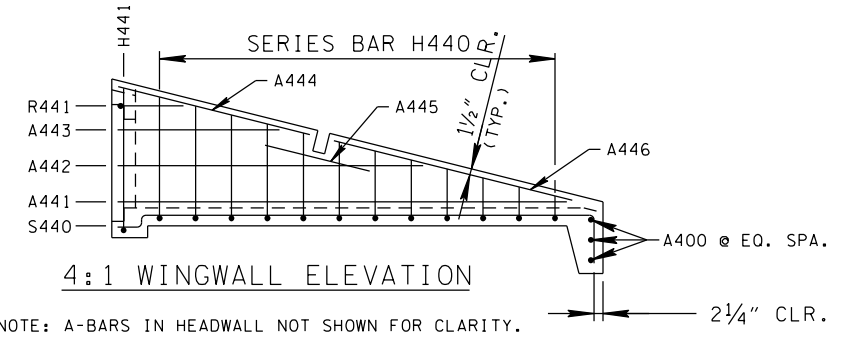
□ REV. 6-14-13: REVISED NOTEG. ADDED NOTE (H) AND (I).  
 □ REV. 1-6-15: REVISED HOLE OPENING SIZE. ADDED STEPPED HOLE DETAIL



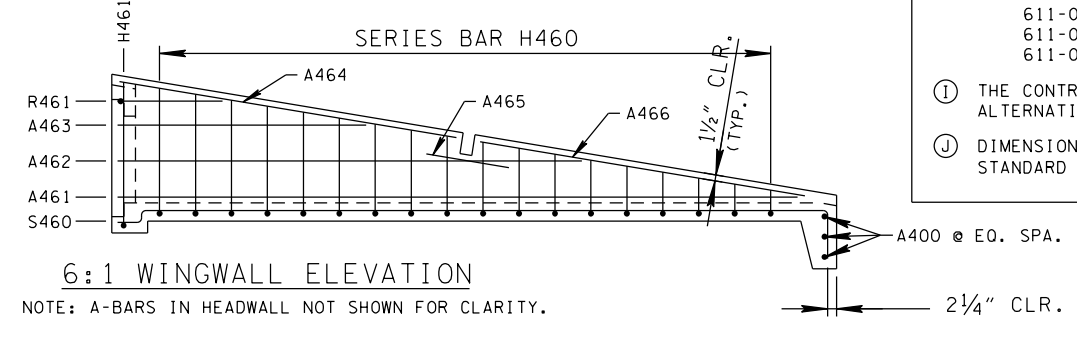
NOTES: SEE STD. DWG. D-PE-99 FOR STEEL PIPE GRATE DETAILS  
 3/4\"/>



NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.



NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.



NOTE: A-BARS IN HEADWALL NOT SHOWN FOR CLARITY.

**GENERAL NOTES**

(A) DRAWING TO BE USED FOR ALL CAST-IN-PLACE AND ALL PRECAST 18\"/>

(B) SEE STD. DWG. D-PE-18B FOR BILL OF STEEL & PRECAST NOTES.

(C) "-" IN BAR DESIGNATION REPRESENTS 3, 4 OR 6 FOR 3:1, 4:1 OR 6:1 SLOPES, RESPECTIVELY.

(D) SPLICING OF REINFORCEMENT IS ACCEPTABLE PROVIDED THAT A MINIMUM 21\"/>

(E) TOEWALL BACK SLOPE MAY BE CONSTRUCTED VARIABLE FROM VERTICAL UP TO 15\"/>

(F) 90° STEPS ARE SHOWN ON THE STEPPED HOLE DETAIL, HOWEVER MINOR VARIATIONS OF THE TAPER ARE ACCEPTABLE.

(G) OPTIONAL STEPPED HOLE OR HOLE FORMERS ARE ALLOWED PROVIDED THE AMOUNT OF COVER BETWEEN THE PIPE OPENING AND BARS A701 AND A702 IS THE SAME OR GREATER THAN SHOWN ON THIS DRAWING.

(H) PAYMENT WILL BE MADE UNDER:

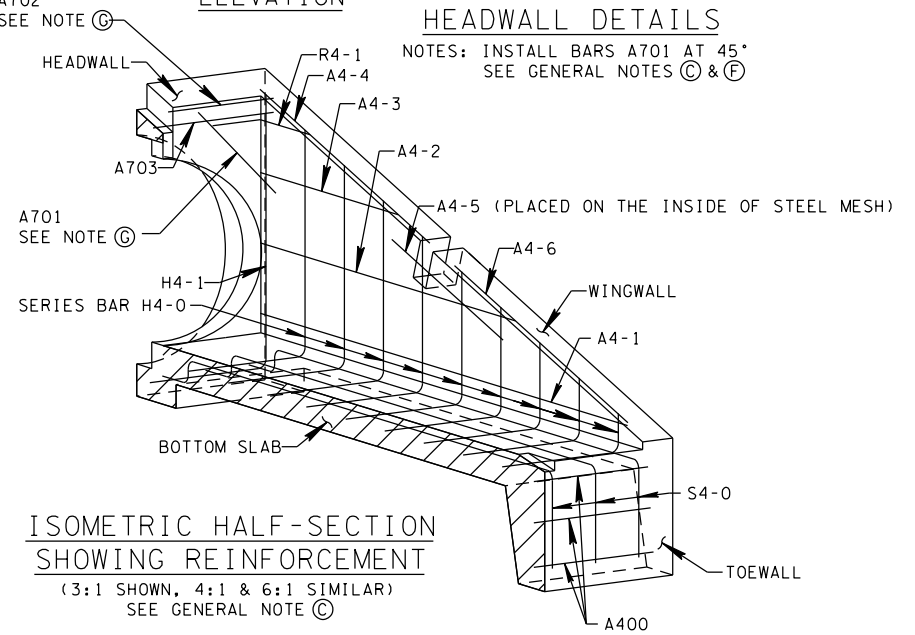
611-07.60, 30\"/>

611-07.61, 30\"/>

611-07.62, 30\"/>

(I) THE CONTRACTOR MAY BE ELECT TO SUBSTITUTE AN APPROVED ALTERNATIVE DESIGN.

(J) DIMENSIONAL AND REINFORCING TOLERANCES WILL BE AS SHOWN IN STANDARD OPERATING PROCEDURE 9SOP) 5-3.



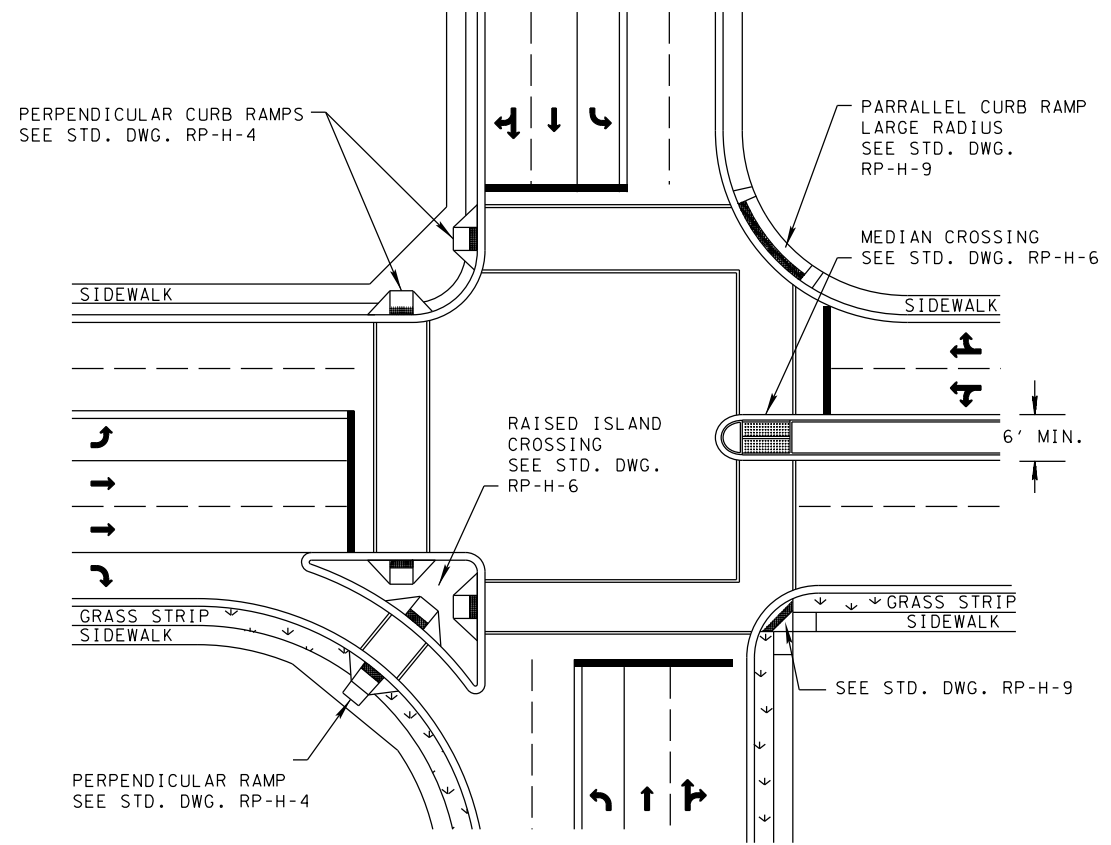
DIMENSIONS AND QUANTITIES FOR ONE ENDWALL 30" PIPE										
SLOPE	CONCRETE ENDWALL DIMENSIONS					STRUCTURAL STEEL PIPE DIMENSIONS		ESTIMATED QUANTITIES		
	H	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	W	LG	WG	CLASS "A" CONC. CU. YD.	STEEL BAR REINF. LB.	STRUCTURAL STEEL LB.
3:1		10' - 5"	10' - 11 3/4"	5' - 2"		10' - 10 3/8"		1.84	174	114
4:1	4' - 5"	13' - 8"	14' - 1"	6' - 1"	4' - 1"	14' - 0 3/8"	4' - 1"	2.32	216	137
6:1		20' - 2"	20' - 5 3/8"	10' - 1"		20' - 4 3/8"		3.29	303	186

NOTE: SEE STD. DWG. D-PE-99 FOR STRUCTURAL STEEL PIPE DIMENSIONS LG & WG.

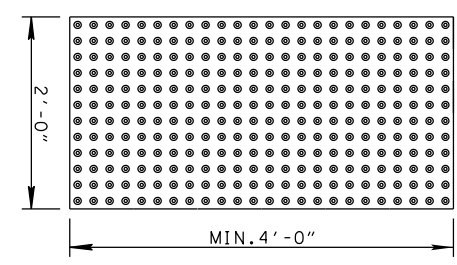
NOT TO SCALE 3-01-12 D-PE-30A

STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
 30" CONCRETE ENDWALL  
 CROSS DRAIN WITH  
 STEEL PIPE GRATE  
 (FOR 3:1, 4:1 & 6:1 SLOPES)

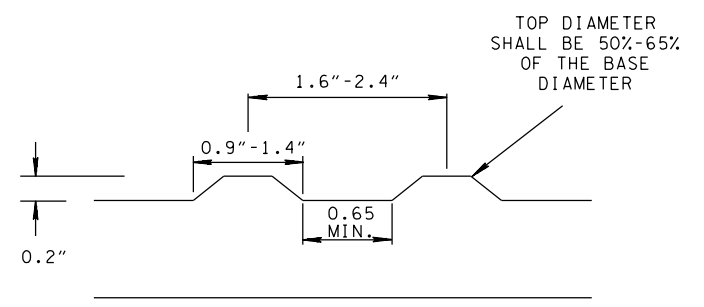
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PLAN VIEW  
(EXAMPLE LAYOUT SHOWING EACH RAMP TYPE; SEE REFERENCED STANDARD DRAWINGS FOR SPECIFIC ALIGNMENT INFORMATION) (R)



TRUNCATED DOME SURFACE DETAIL



TRUNCATED DOME SURFACE ELEVATION VIEW (TYP.)

TRUNCATED DOME SURFACE NOTES

- ① THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARED SIDES) AND SHOULD EXTEND ONLY 2 FEET IN THE DIRECTION OF TRAVEL.
- ② THE DETECTABLE WARNING SURFACES SHALL BE A CONTRASTING COLOR (YELLOW PREFERRED) FROM THE ADJACENT SIDEWALK OR ROAD SURFACE. OTHER COLORS ARE ALLOWABLE IF THEY PROVIDE A 70 PERCENT CONTRAST IN LIGHT REFLECTANCE WITH THE ADJOINING SURFACE. PAVERS MAY BE USED FOR DETECTABLE WARNING SURFACE. TRUNCATED DOME SURFACES SHALL BE CONSTRUCTED USING PRODUCTS APPROVED ON THE TDOT QUALIFIED PRODUCT LIST 37.

- REV. 7-17-07: REVISED SIZE AND SPACING OF TRUNCATED DOMES. ADDED NOTE (E). MODIFIED SPECIAL PAVER NOTES.
- REV. 4-13-11: ADDED LOWERED CURB FOOTNOTE (I) TO TRUNCATED DOME DETAIL. MISC. EDITS TO DRAWING.
- REV. 5-8-13: ADDED GUTTER SLOPE DETAIL AND REVISED NOTE (I), UPDATED TERMINOLOGY.
- REV. 6-4-13: ADDED SECTION A-A. CLARIFIED NOTE (I). ADDED NOTE (C). CHANGED ITEM DESCRIPTION.
- REV. 11-25-13: REVISED NOTES (C), (E), (M), (N), AND ADDED NOTE (B).
- REV. 1-30-15: VARIOUS DRAFTING EDITS. REVISED GENERAL NOTES.

GENERAL NOTES

- (A) DETAILS SHOWN ON THIS PLAN APPLY TO THE CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS, OR SIDEWALKS.
- (B) CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS.
- (C) CURB RAMPS SHALL BE PROVIDED AT ALL CORNERS OF STREET INTERSECTIONS WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT WALK LOCATIONS IN MID-BLOCK AND ACROSS FROM CORNER RAMPS AT T-INTERSECTIONS. DIAGONAL RAMPS SHOULD ONLY BE USED IF PHYSICAL CONSTRAINTS PREVENT THE USE OF TWO INDIVIDUAL RAMPS AT STREET CORNER.
- (D) THE FIRST TWO FEET OF RAMP MUST CONSIST OF A TRUNCATED DOMED SURFACE. RAMPS SHALL INCLUDE THE TRUNCATED DOME SURFACE TO PROVIDE A DETECTABLE WARNING FOR VISUALLY IMPAIRED PEDESTRIANS.
- (E) CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. THE GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.
- (F) DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH RAMPS. INSTALL CATCH BASIN ON UPSTREAM SIDE OF RAMP FOR ROADS WITH GRADES LESS THAN 2%.
- (G) CROSSWALK MARKINGS, IF USED, SHALL BE LOCATED AS SHOWN ON THE APPLICABLE CURB RAMP STD. DWG. SEE STD. DWG. T-M-4 FOR TYPICAL STOP LINE PLACEMENT AND STANDARD CROSS WALK RETROREFLECTIVE MARKING.
- (H) SEE RP-H-4 FOR PERPENDICULAR CURB RAMP DESIGN DETAILS. SEE RP-H-5 FOR PARALLEL CURB RAMP DESIGN DETAILS.
- (I) PAYMENT:  
COST OF THE LOWERED CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER.  
  
ALL COST OF INSTALLING CURB RAMPS INCLUDING TRUNCATED DOME IN EXISTING SIDEWALK AREAS INCLUDING REMOVAL OF THE EXISTING SIDEWALK SHALL BE BID FOR UNDER THE FOLLOWING PAY ITEM:  
  
701-02.01, CONCRETE CURB RAMP (RETROFIT) PER SQUARE FOOT.  
  
PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S). INCLUDING INSTALLATION OF TRUNCATED DOMES.  
  
ALL COST OF INSTALLING CURB RAMPS INCLUDING TRUNCATED DOME IN NEWLY CONSTRUCTED SIDEWALK AREAS SHALL BE BID FOR UNDER THE FOLLOWING PAY ITEM:  
  
701-02.03, CONCRETE CURB RAMP PER SQUARE FOOT.  
  
PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S). INCLUDING INSTALLATION OF TRUNCATED DOMES.
- (J) FOR SIGNALIZED INTERSECTIONS THAT REQUIRE PEDESTRIAN SIGNAL PUSH BUTTONS, SEE TDOT TRAFFIC DESIGN MANUAL FOR DETAILS.

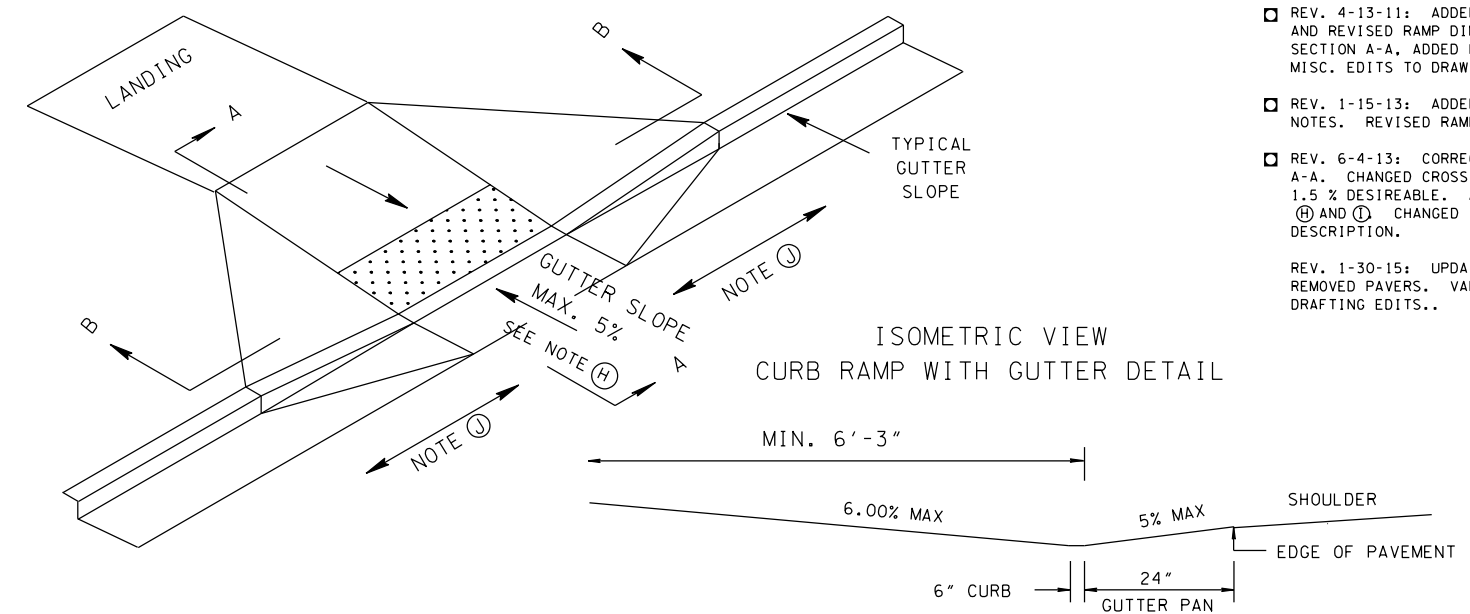
□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

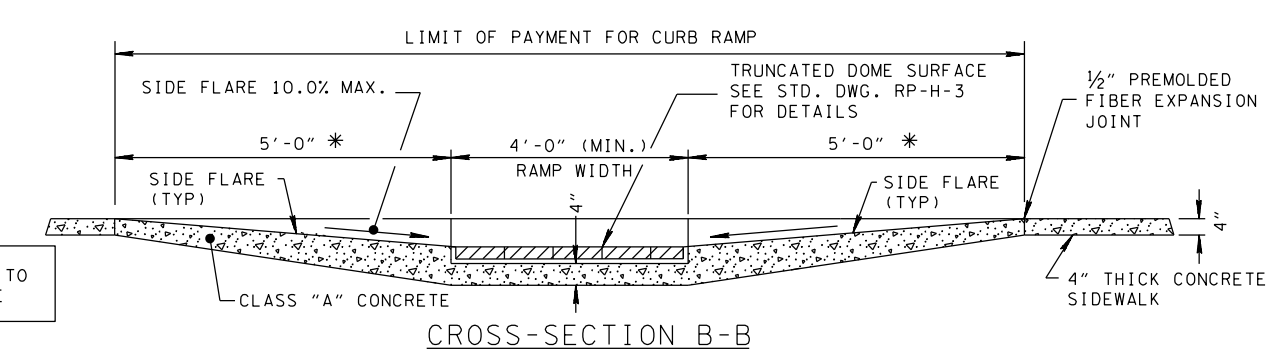
CURB RAMP AND TRUNCATED DOME SURFACE DETAIL

1:15=02 RP-H-3

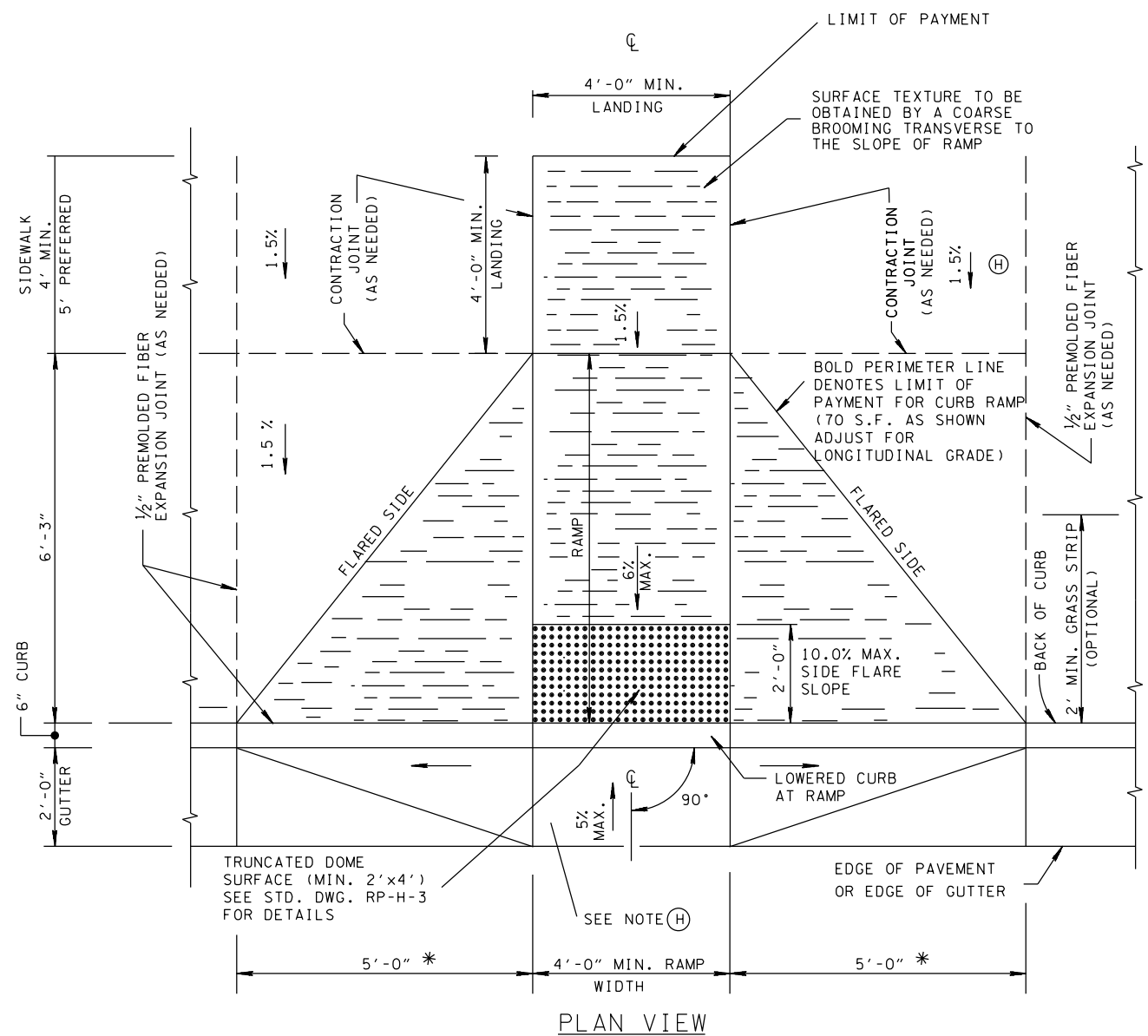
- REV. 4-13-11: ADDED CURB NOTE AND REVISED RAMP DIMENSION IN SECTION A-A. ADDED FOOTNOTE ①. MISC. EDITS TO DRAWING.
- REV. 1-15-13: ADDED GENERAL NOTES. REVISED RAMP LENGTH.
- REV. 6-4-13: CORRECTED SECTION A-A. CHANGED CROSS SLOPE TO 1.5% DESIRABLE. ADDED NOTES ④ AND ⑤ CHANGED ITEM DESCRIPTION.
- REV. 1-30-15: UPDATED NOTES. REMOVED PAVERS. VARIOUS DRAFTING EDITS..



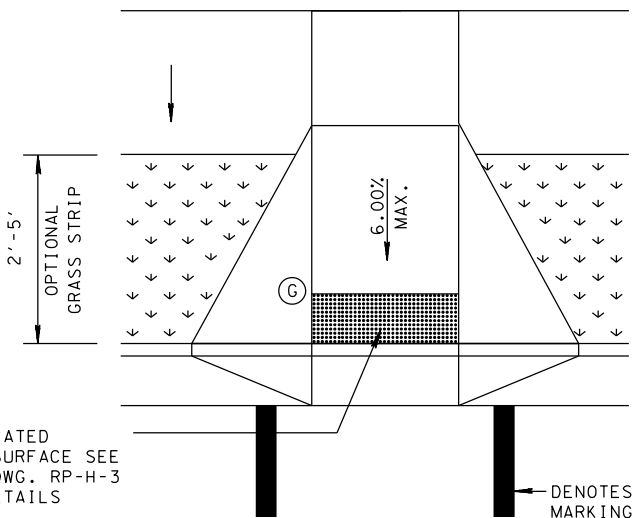
ISOMETRIC VIEW  
CURB RAMP WITH GUTTER DETAIL



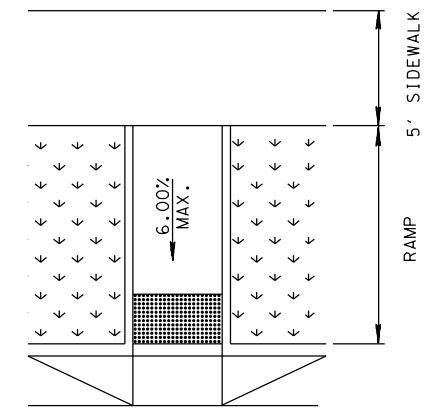
CROSS-SECTION B-B



PLAN VIEW



CURB RAMP WITH SIDE FLARES



CURB RAMP WITH RETURNED CURB

\* DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE

GENERAL NOTES

- PERPENDICULAR CURB RAMPS TO BE USED WHEN TOTAL SIDEWALK OR SIDEWALK AND GRASS STRIP WIDTH IS 10'-3" OR GREATER, SEE RP-H-7 FOR PERPENDICULAR CURB RAMP IN CURVE. PERPENDICULAR RAMP WITH 6" VERTICAL CURB SHOWN OTHERS SIMILAR.
- (A) CURB SHALL BE LOWERED ACROSS ENTIRE WIDTH OF RAMP THE FIRST TWO FEET OF RAMP MUST CONSIST OF A TRUNCATED DOME SURFACE. RAMPS SHALL INCLUDE THE TRUNCATED DOME SURFACE TO PROVIDE A DETECTABLE WARNING FOR VISUALLY IMPAIRED PEDESTRIANS. (YELLOW PREFERRED)
  - (B) DESIGN/CONSTRUCTION MODIFICATIONS MAY BE REQUIRED FOR CURB RAMPS TO BE INSTALLED ALONG A ROADWAY WITH LONGITUDINAL GRADES EXCEEDING FIVE PERCENT. ENGINEER SHOULD BE NOTIFIED FOR ASSESSMENT IF THE CURB RAMP SIDE FLARES EXCEED 10' IN LENGTH DUE TO THE LONGITUDINAL GRADE.
  - (C) ALL COST OF INSTALLING CURB RAMPS IN NEWLY CONSTRUCTED SIDEWALK AREAS SHALL BE BID FOR UNDER THE FOLLOWING PAY ITEM:  
 701-02.03 CONCRETE CURB RAMP PER SQUARE FOOT.  
 701-02.01 CONCRETE CURB RAMP (RETROFITS) PER SF  
 PAYMENT SHALL INCLUDE ALL MATERIALS (INCLUDING TRUNCATED DOME SURFACE), INTEGRAL BACK CURB, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S).  
 THE COST OF THE LOWERED CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER.
  - (D) IF PEDESTRIAN SIGNAL IS PROPOSED SEE TDOT TRAFFIC DESIGN MANUAL FOR PLACEMENT.
  - (E) IF MAILBOXES ARE REMOVED DURING INSTALLATION OF THE RAMP PROVIDE A 12" X 12" OPENING BEHIND THE CURB (SEE RP-S-7).
  - (F) IF GRASS STRIP IS LARGER THAN 6'. THE SIDE FLARES MAY BE OMITTED AND A RETURNED CURB OPTION MAY BE USED.
  - (G) DESIRABLE SIDEWALK CROSS SLOPE IS 1.5% ABSOLUTE MAXIMUM IS 2%.
  - (H) THE GUTTER LONGITUDINAL SLOPE SHALL MATCH THE ROADWAY AT THE RAMP AND THE GUTTER CROSS SLOPE AT THE RAMP SHALL NOT EXCEED 5%.
  - (I) DESIGN THE RAMP AND GUTTER WITH A CROSS SLOPE OF MAX. 2.0 PERCENT.
  - (J) TRANSITION GUTTER CROSS SLOPE FROM NORMAL SLOPE TO 5% SIMILAR TO SUPERELEVATION TRANSITION AREAS: MATCH GUTTER TRANSITION TO RAMP FLARES FOR PERPENDICULAR (TYPICAL 5') OR RAMP AREA FOR PARALLEL (TYPICAL 6')
  - (K) SURFACE TEXTURE TO BE OBTAINED BY A COURSE BROOMING TRANSVERSE TO THE SLOPE OF RAMP.

□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

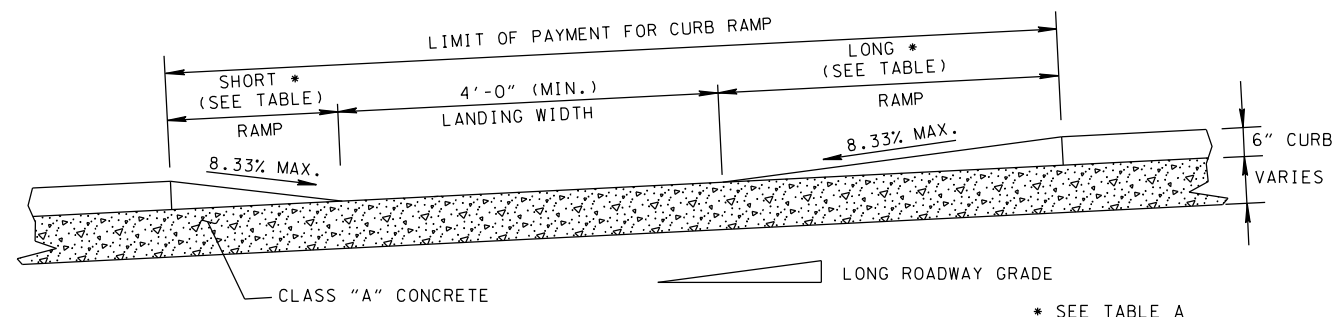
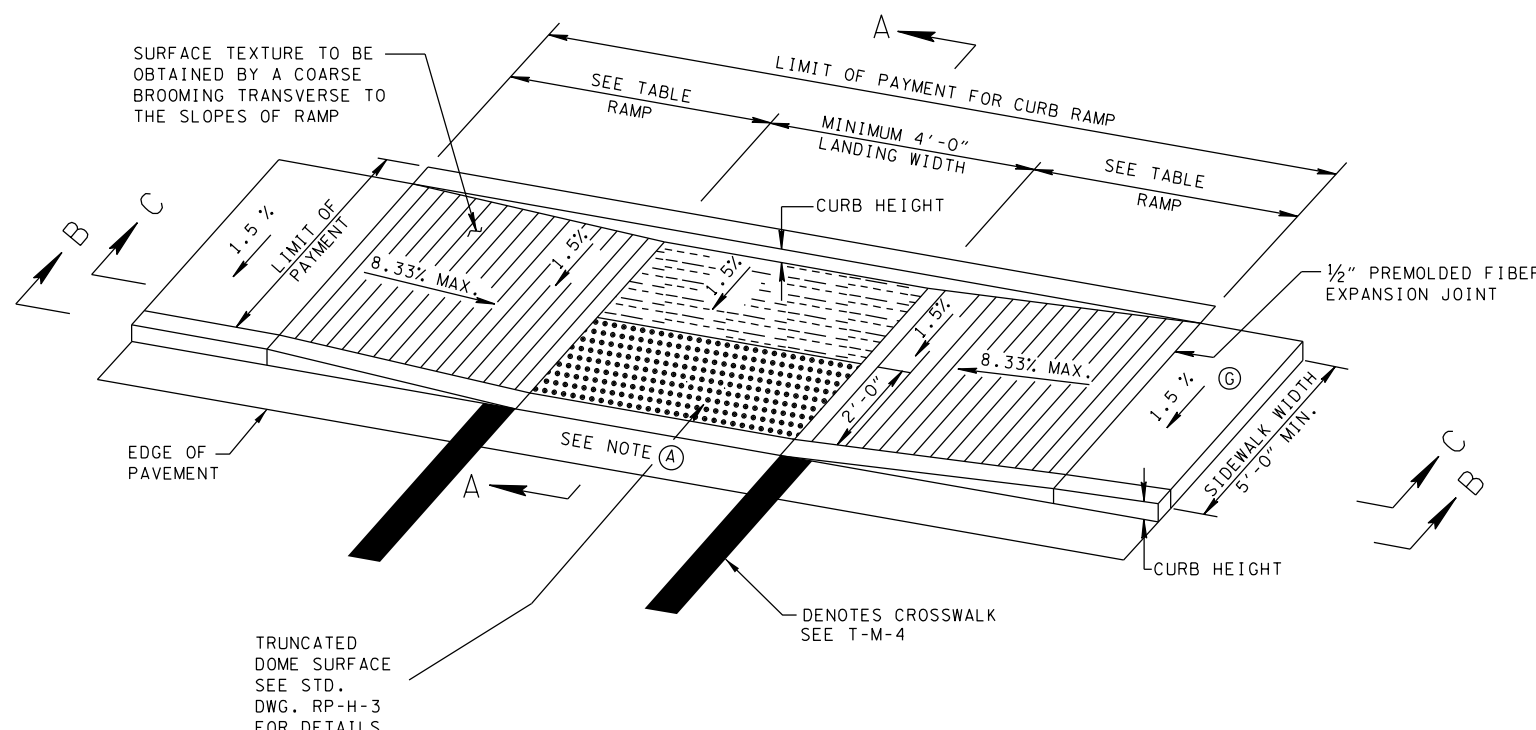
**STATE OF TENNESSEE**  
DEPARTMENT OF TRANSPORTATION

PERPENDICULAR  
CURB RAMP

1-15-07 RP-H-4

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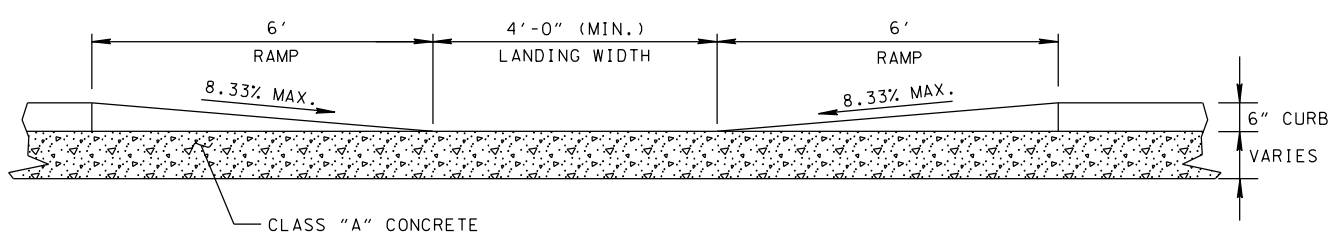
- REV. 4-13-11: ADDED FOOTNOTE ①, ADJUSTED DIMENSIONS IN RAMP DETAIL, MISC. EDITS TO DRAWING.
- REV 1-15-13: MODIFIED LANDING WIDTH, REVISED NOTES.
- REV. 6-4-13: CHANGED CROSS SLOPE TO 1.5% DESIRABLE. ADDED NOTES ③ AND ④. CHANGED ITEM DESCRIPTION.
- REV. 1-30-15: UPDATE NOTES, REMOVED PAVERS. UPDATED TABLE A.



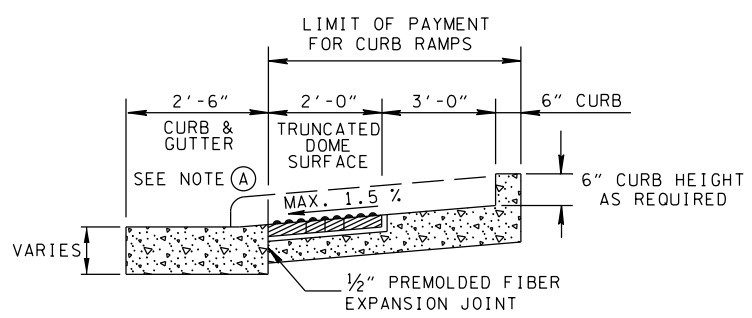
ALTERNATE SECTION B-B  
PARALLEL CURB RAMP DETAIL SHOWN WITH LONGITUDINAL ROADWAY GRADE

NOTE: MODIFICATIONS MAY BE REQUIRED FOR LONGITUDINAL ROADWAY GRADES STEEPER THAN 5%. ENGINEER SHOULD BE NOTIFIED FOR ASSESMENT IF THE CURB RAMP SIDE FLARES EXCEED 15' IN LENGTH DUE TO THE LONGITUDINAL ROADWAY GRADE.

PARALLEL CURB RAMP DETAIL  
DIMENSIONS SHOWN ABOVE FOR 0% LONGITUDINAL ROADWAY GRADE



SECTION B-B  
DIMENSIONS SHOWN ABOVE FOR 0% LONGITUDINAL ROADWAY GRADE



SECTION A-A

TABLE A

LONGITUDINAL ROADWAY GRADE	LONG	SHORT	PAY AREA S.F.
5 %	15'	3'9"	114
4 %	11'6"	4'1"	98
3 %	9'5"	4'5"	90
2 %	7'11"	4'10"	84
1 %	6'10"	5'5"	82
0 %	6'0"	6'0"	

① BASED ON 5' SIDEWALK WIDTH

GENERAL NOTES

- IT IS RECOMMEND TO USE WHEN SIDEWALK WIDTH IS LESS THAN 10 FEET AND CURB RAMP IS LOCATED ALONG TANGENT SIDEWALK SECTION OF ROADWAY.
- (A) CURB SHALL BE LOWERED ACROSS ENTIRE WIDTH OF RAMP THE FIRST TWO FEET OF RAMP MUST CONSIST OF A TRUNCATED DOMED SURFACE. RAMPS SHALL INCLUDE THE TRUNCATED DOME SURFACE TO PROVIDE A DETECTABLE WARNING FOR VISUALLY IMPAIRED PEDESTRIANS PARALLEL RAMPS DO NOT NEED GUTTER SLOPE CORRECTION.
- (B) THE COST OF THE LOWERED CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER.
- (C) DESIGN/CONSTRUCTION MODIFICATIONS MAY BE REQUIRED FOR CURB RAMPS TO BE INSTALLED ALONG A ROADWAY WITH LONGITUDINAL GRADES EXCEEDING FIVE PERCENT.
- (D) ALL COST OF INSTALLING CURB RAMPS IN NEWLY CONSTRUCTED SIDEWALK AREAS SHALL BE BID FOR UNDER THE FOLLOWING PAY ITEM:  
701-02.03 CONCRETE CURB RAMP PER SQUARE FOOT.
- PAYMENT SHALL INCLUDE ALL MATERIALS (INCLUDING TRUNCATED DOME SURFACE), INTEGRAL BACK CURB, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S).
- (E) IF PEDESTRIAN SIGNAL IS PROPOSED SEE TDOT TRAFFIC DESIGN MANUAL FOR PLACEMENT.
- (F) IF MAILBOXES ARE REMOVED DURING INSTALLATION OF THE RAMP PROVIDE A 12" X 12" OPENING BEHIND THE CURB (SEE RP-S-7).
- (G) DESIRABLE CROSS SLOPE IS 1.5%, ABSOLUTE MAXIMUM IS 2%.
- (H) SEE NOTES ① AND ② ON RP-H-3.

□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

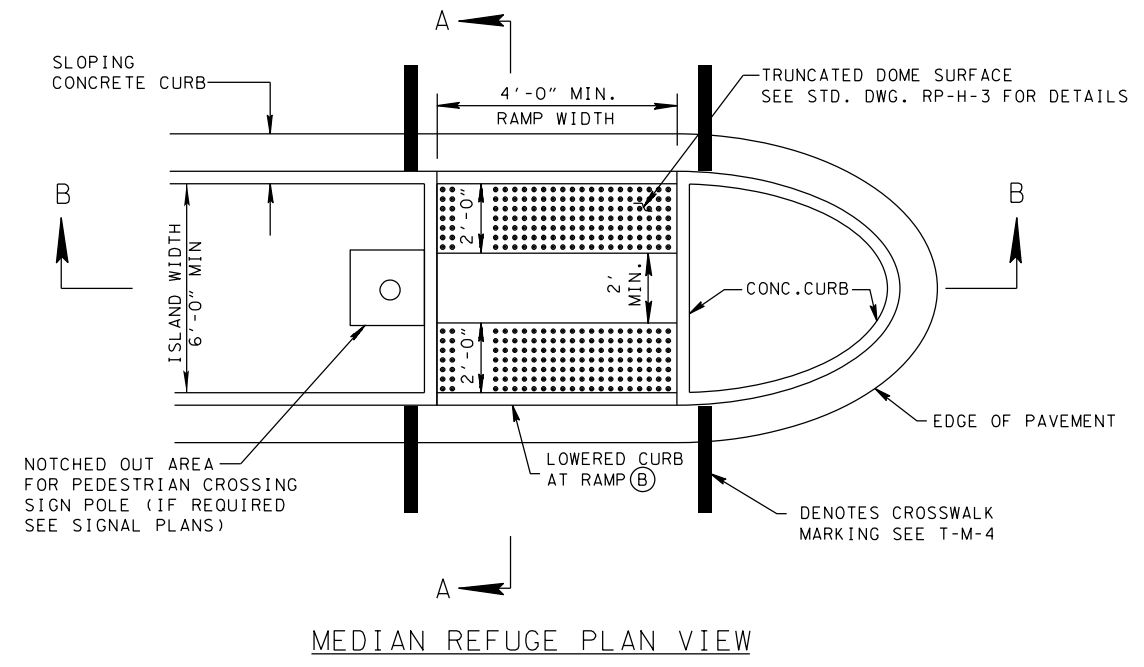
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

PARALLEL CURB RAMP

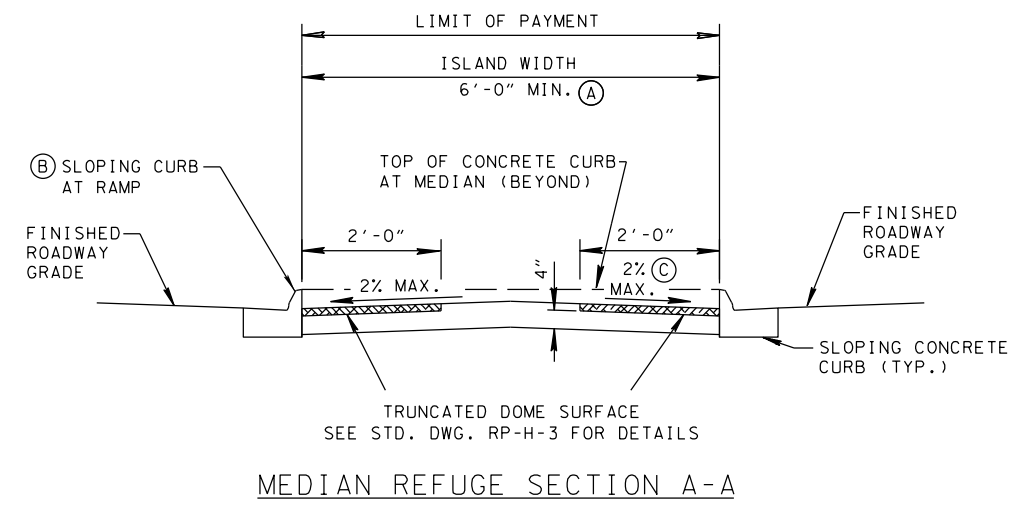
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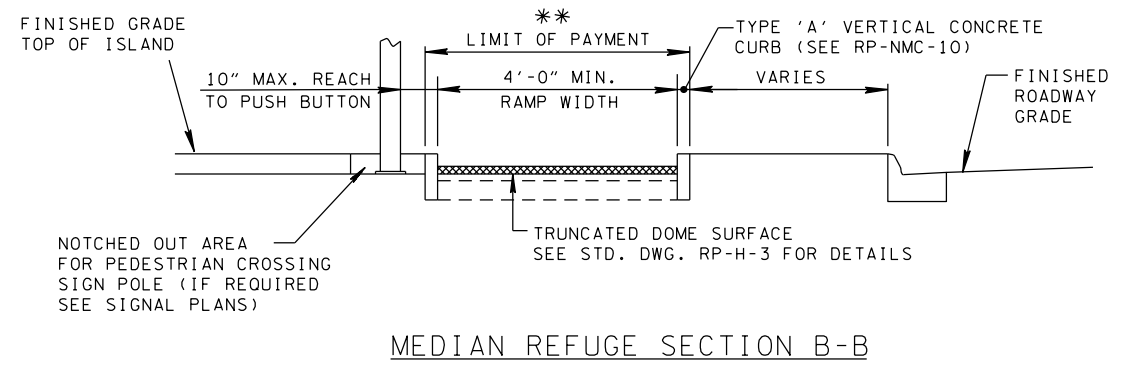
REV. 4-13-11: CHANGED CURB TYPE, ADJUSTED CROSSWALK MARKINGS, ADDED FOOTNOTE (A), MISC. EDITS TO DRAWING.  
 REV. 1-30-15: ADDED GENERAL NOTES, CHANGED ISLAND WIDTH, CHANGED SHEET TITLE.



MEDIAN REFUGE PLAN VIEW



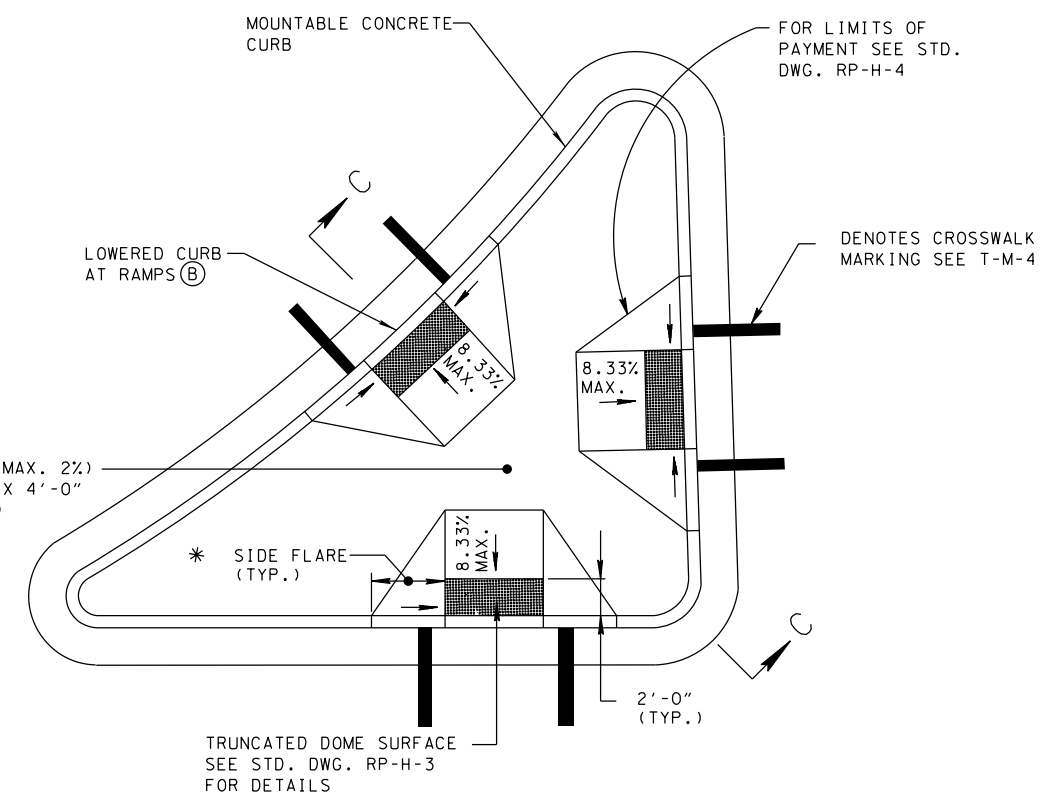
MEDIAN REFUGE SECTION A-A



MEDIAN REFUGE SECTION B-B

\*\* SEE NOTE (C) ON RP-H-5

NOTE (B): CURB SHALL BE LOWERED ACROSS ENTIRE WIDTH OF RAMP.



RAISED RIGHT TURN CHANNELIZATION ISLAND PLAN VIEW

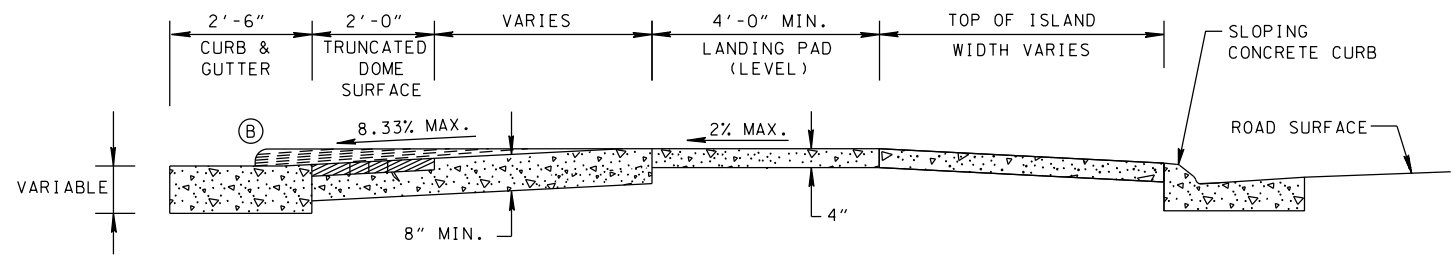
\* DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE 10.0% MAX. (8.33% DESIRABLE)

**GENERAL NOTES**

(A) IF THE MEDIAN IS LESS THAN 6' WIDE, THE AREA IS NOT A PEDESTRIAN REFUGE AND NO TRUNCATED DOMES ARE REQUIRED.

(B) CURB SHALL BE LOWERED ACROSS ENTIRE WIDTH OF RAMP.

(C) THE GRADE OF THE MEDIAN REFUGE SHOULD NOT EXCEED 2%. HOWEVER IF BECAUSE OF ROADWAY GEOMETRY THE SLOPE DOES EXCEED 2%, THAN A 5' WIDE FLAT AREA BETWEEN THE RAMPS IS REQUIRED.

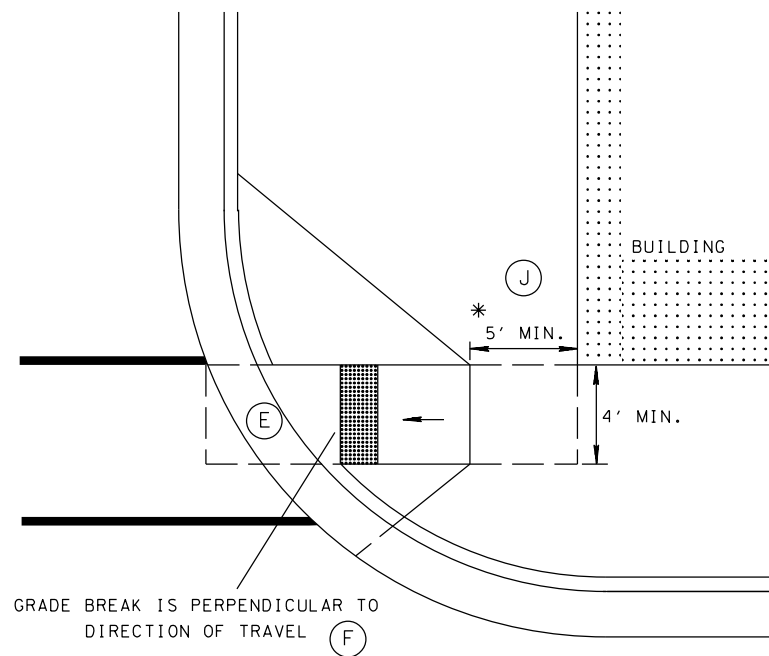
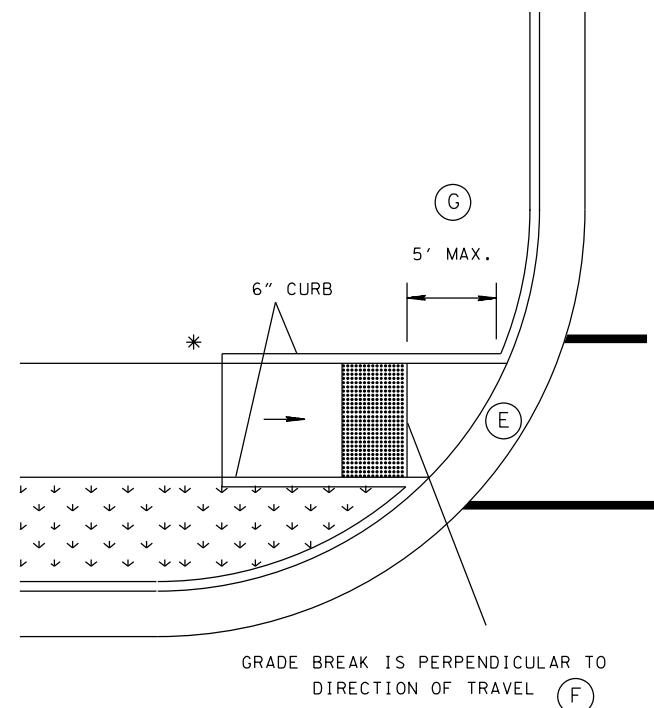


SECTION C-C

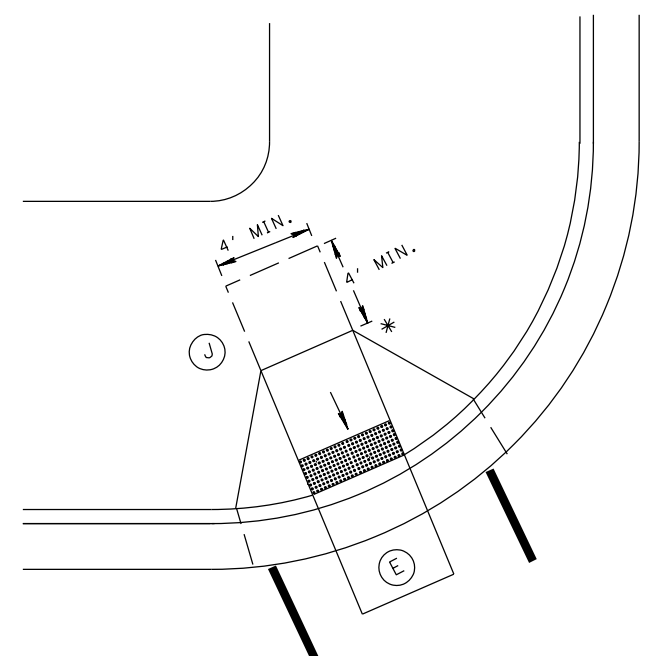
MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.



- REV. 4-13-11: REVISED TABLE DIMENSIONS, ADDED NOTE ①, AND ADDED GUTTER TO CROSSWALK INTERSECTION DIMENSION.
- REV. 5-8-13: REVISED TITLE FOR TERMINOLOGY.
- REV. 6-4-13: REVISED NOTE ②, CHANGED TITLE.
- REV. 1-30-15: REMOVED ALTERNATE, ADDED GENERAL NOTE ②, ③, ④, ⑤, AND ⑥, ADDED GRADE BREAKS DETAILS.



GRADE BREAKS  
OPTION TO PERPENDICULAR CURB RAMP



\* DENOTES: PEDESTRIAN PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS

PERPENDICULAR CURB RAMP  
SEE RP-H-4 FOR DETAILS

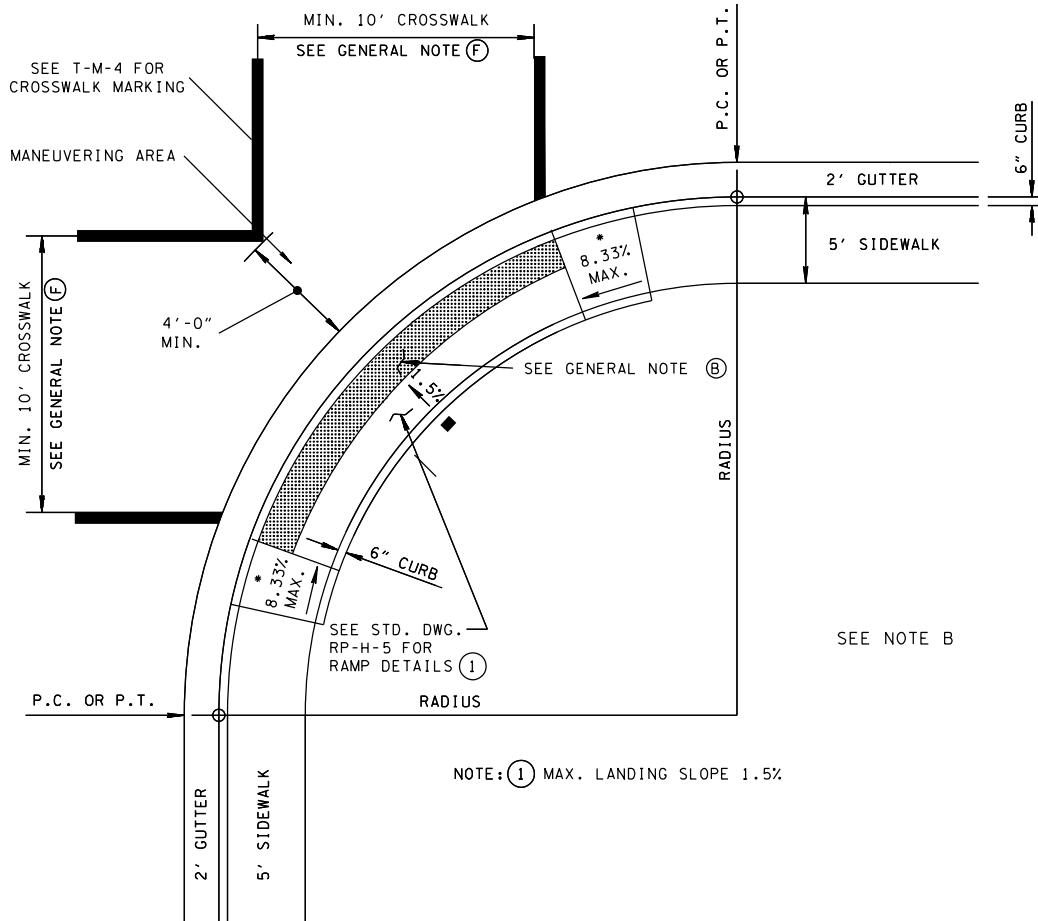
GENERAL NOTES	
①	FOR SIGNALIZED INTERSECTIONS THAT REQUIRE PEDESTRIAN SIGNAL PUSH BUTTONS, SEE TDOT TRAFFIC DESIGN MANUAL FOR PLACEMENT DETAILS.
②	SEE STANDARD DRAWING RP-H-3 FOR TRUNCATED DOMED SURFACE DETAILS AND GUTTER SLOPE AT RAMP DETAILS.
③	SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB.
④	GRATES FOR STORM DRAINS SHALL NOT BE PLACED IN THE ACCESSIBLE ROUTE.
⑤	BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' MIN. BY 4' MIN. SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.
⑥	GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
⑦	WHERE THE END OF BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5' OR LESS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK.
⑧	WHERE PEDESTRIAN SIGNALS ARE PROVIDED AT PEDESTRIAN STREET CROSSINGS, THEY SHALL INCLUDE ACCESSIBLE PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTONS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD.
⑨	WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK-OF-SIDEWALK, THE TURNING SPACE SHALL BE 4' MIN. BY 5' MIN. THE 5' DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.
⑩	SEE RP-H-4 FOR PERPENDICULAR RAMP DETAILS.
⑪	PAYMENT FOR NEW RAMPS SHALL BE UNDER ITEM NUMBER:
	701-02.03 CONCRETE CURB RAMP PER SF 701-02.01 CONCRETE CURB RAMP (RETROFITS) PER SF
	COST TO INCLUDE ALL MATERIALS AND COUNTER SLOPE CORRECTION OF THE GUTTER (INCLUDING TRUNCATED DOMES) LABOR AND EQUIPMENT.

□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

PERPENDICULAR  
CURB RAMP  
IN CURVE

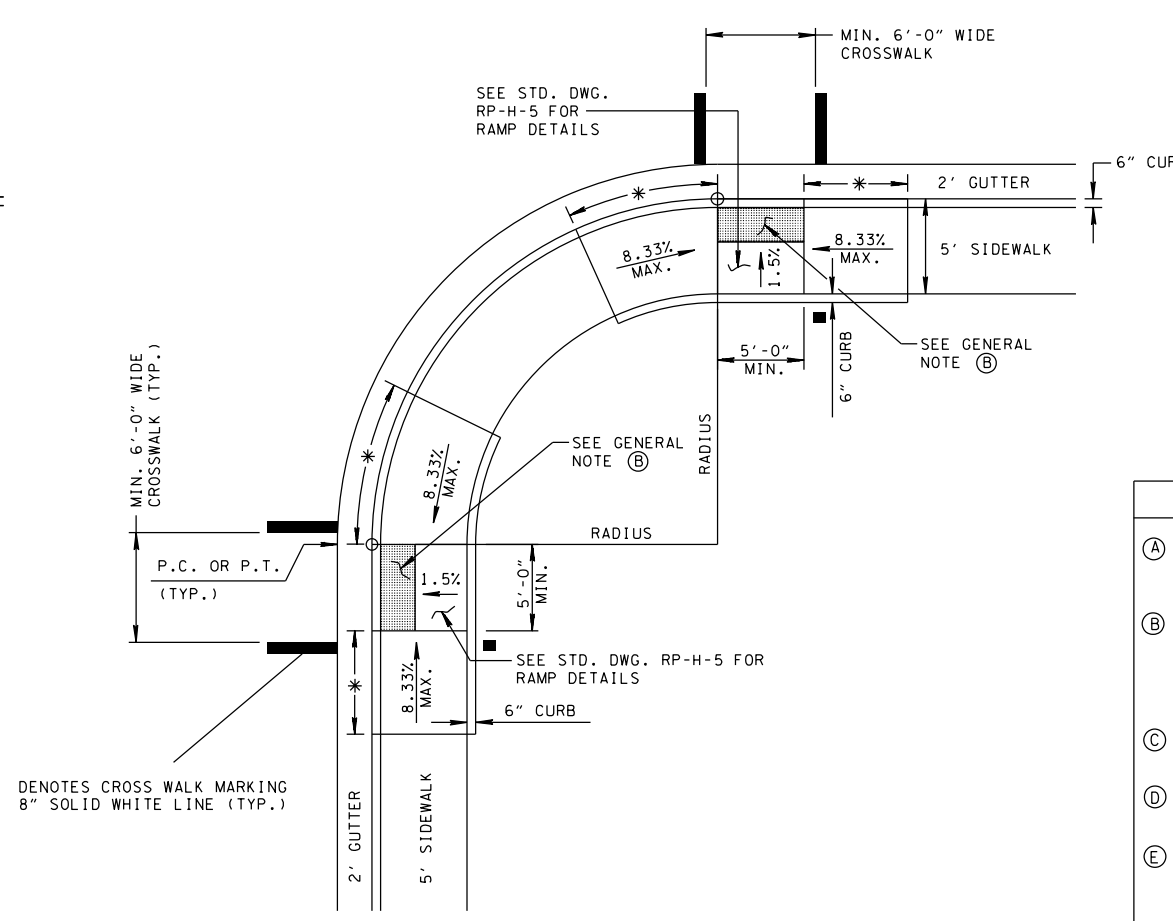
1:15=07      RP-H-1



LOWERED CORNER RAMP

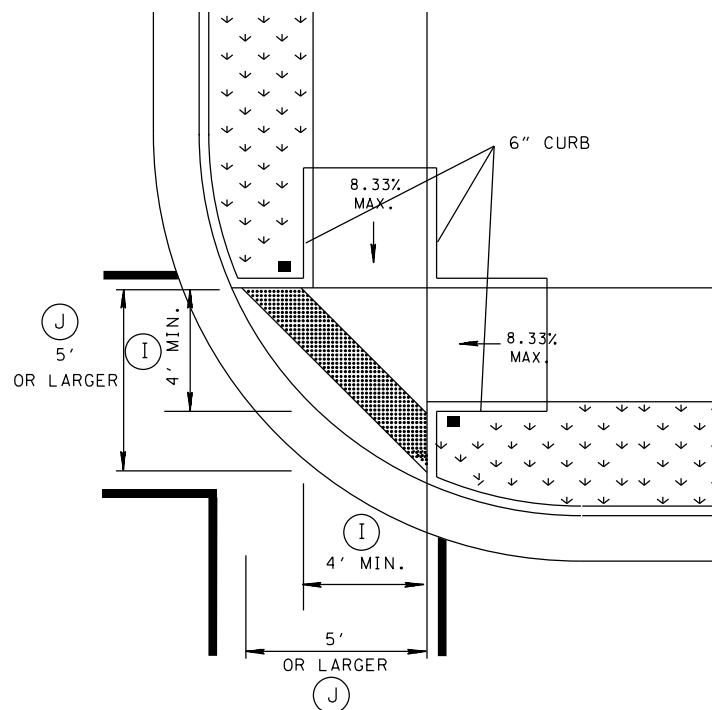
(RAMP IN RADIUS)

\* DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE



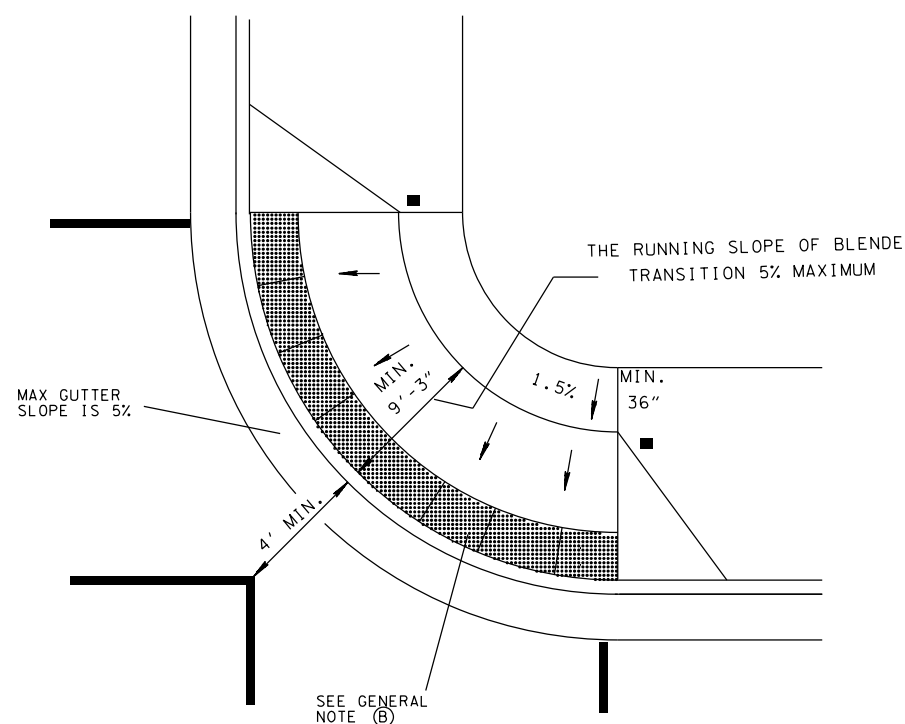
PARALLEL CURB RAMPS  
OUTSIDE RADIUS

\* DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE



PARALLEL CURB RAMP

■ DENOTES:  
PEDESTRIAN  
PUSHBUTTON  
LOCATION FOR  
SIGNALIZED  
INTERSECTIONS



BLENDED TRANSITION

BLENDED TRANSITIONS ARE RAISED PEDESTRIAN STREET CROSSINGS, DEPRESSED CORNERS, OR SIMILAR CONNECTIONS BETWEEN PEDESTRIAN ACCESS ROUTES AT THE LEVEL OF THE SIDEWALK AND THE LEVEL OF THE PEDESTRIAN STREET CROSSING THAT HAVE A GRADE OF 5% OR LESS. BLENDED TRANSITIONS ARE SUITABLE FOR A RANGE OF SIDEWALK CONDITIONS.

- REV. 4-13-11: ADJUSTED CROSSWALK MARKINGS, ADDED NOTE ① REVISED TABLE DIMENSIONS, ADDED GUTTER TO CROSSWALK INTERSECT DIMENSION, OTHER MISC. EDITS TO DRAWINGS.
- REV. 5-8-13: REVISED TITLE FOR TERMINOLOGY.
- REV. 6-4-13: ADDED NOTE ②, MODIFIED NOTE ③, CHANGED SHEET NAME.
- REV. 1-30-15: REMOVED TYPE 4 REVISED NOTE ③, ADDED NOTES ④, ⑤ AND ⑥, REMOVED TABLE A, ADDED NEW DETAILS.

GENERAL NOTES

- (A) FOR SIGNALIZED INTERSECTIONS THAT REQUIRE PEDESTRIAN SIGNAL PUSH BUTTONS, SEE TDOT TRAFFIC DESIGN MANUAL FOR PLACEMENT DETAILS.
- (B) SEE STANDARD DRAWING RP-H-3 FOR TRUNCATED DOME SURFACE AND GUTTER SLOPE AT RAMP DETAILS. DOME SPACING. WHERE THE TRUNCATED DOMES ARE ARRAYED RADIALLY, THEY MAY DIFFER IN CENTER-TO-CENTER SPACING. REFER TO RP-H-3 FOR SPECIFIED DOME SPACING RANGES.
- (C) 5'-0" SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB.
- (D) GRATES FOR STORM DRAINS SHALL NOT BE PLACED IN THE CROSSWALK OR IN FRONT OF THE CURB RAMP.
- (E) BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' MIN. BY 4' MIN. SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.
- (F) LOCATE CROSSWALK(S) SUCH THAT 4' MINIMUM MANEUVERING AREA IS LOCATED AT THE TOE OF THE RAMP IS LOCATED ENTIRELY WITHIN THE CROSSWALK.
- (G) DESIREABLE CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0%.
- (H) TO BE USED WHERE SIDEWALK WIDTHS ARE LESS THAN 10 FEET WIDE RAMP IS LOCATED ANYWHERE WITHIN A CURVED SECTION OF SIDEWALK.
- (I) BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' MIN. BY 4' MIN. SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.
- (J) WHERE THE ENDS OF BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS MORE THAN 5', DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE LOWER LANDING AT THE BACK OF CURB.
- (K) COPY OF CURB RAMPS TO INCLUDE ALL MATERIALS, LABOR AND EQUIPMENT (INCLUDING TRUNCATED DOMES) PAYMENT FOR NEW RAMPS SHALL BE UNDER ITEM NUMBER 701-02.03 CONCRETE CURB RAMP PER SF. PAYMENT FOR RECONSTRUCTED CURB RAMPS SHALL BE UNDER ITEM NUMBER 701-02.01 CONCRETE CURB RAMP (RETROFITS) PER SF.
- (L) SEE RP-H-5 FOR ALL PARALLEL RAMP DETAILS NOT SHOWN.

□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.