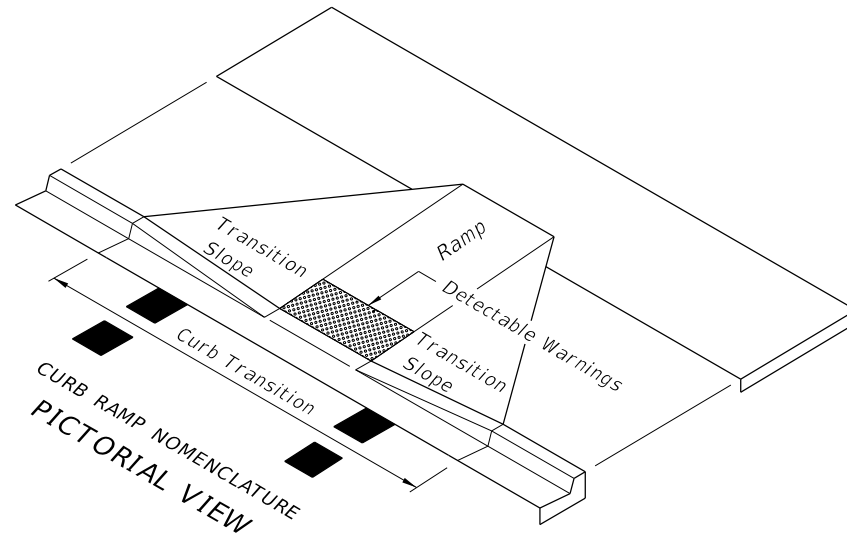


GENERAL NOTES



LEGEND

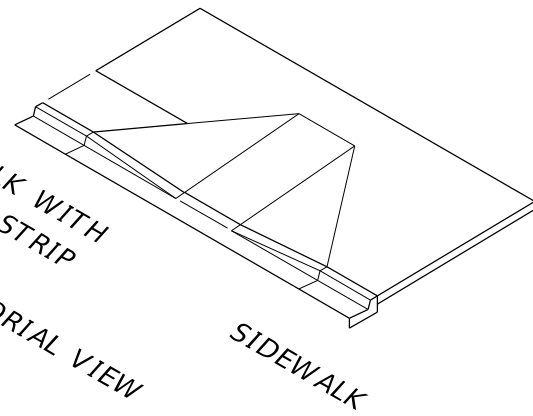
 Detectable Warnings

1. Sidewalk curb ramps shall be constructed at locations that will provide continuous unobstructed pedestrian circulation path to pedestrian areas, elements and facilities within the right of way and to accessible pedestrian routes on adjacent sites. Curbed facilities with sidewalks and those without sidewalks are to have curb ramps constructed for all intersections and turnouts with curbed returns. To accommodate curb ramps, partial curb returns are to extend to the limits prescribed in Index No. 515. Ramps constructed at locations without sidewalks are to have a landing constructed at the top of each ramp, see LANDINGS FOR CURB RAMPS WITHOUT SIDEWALKS.
2. When altering existing pedestrian facilities, where existing restricted conditions preclude the accommodation of a ramp slope of 1:12, a ramp slope between 1:12 and 1:10 is permitted for a rise of 6" maximum. Where compliance with the requirements for cross slope cannot be fully met, the minimum feasible cross slope shall be provided. Ramp slopes are not required to exceed 15' in length.
3. If sidewalk curb ramps are located where pedestrians must walk across the ramp, then provide transition slopes to the ramp; otherwise a sidewalk curb may be required.
4. All sidewalks, ramps, and landings with a cross slope of 0.02 shown in this Index are 0.02 maximum. All ramp slopes shown in this Index as 1:12 are 1:12 maximum. Landings shall have slopes less than or equal to 0.02 in any direction.
5. Grade breaks at the top and bottom of ramps shall be parallel to each other and perpendicular to the direction of the ramp slope.
6. Where a sidewalk curb ramp is constructed within existing curb, curb and gutter and/or sidewalk, the existing curb or curb and gutter shall be removed to the nearest joint beyond the curb transition or to the extent that no remaining section of curb or curb and gutter is less than 5' long. Existing sidewalks shall be removed to the nearest joint beyond the transition slope or to the extent that no remaining section of sidewalk is less than 5' long. For CONCRETE SIDEWALK details refer to Index 310.
7. Sidewalk curb ramp alpha-identifications are for reference purposes (plans, permits, etc.). Alpha-identifications CR-I and CR-J were intentionally omitted.
8. Detectable warnings shall extend the full width of the ramp and to a depth of 2'. Detectable warnings shall be constructed in accordance with Specification Section 527. For the layout of detectable warnings, refer to the TYPICAL PLACEMENT OF DETECTABLE WARNINGS details. Detectable warnings shall not be provided on transition slopes.
9. When detectable warnings are placed on a slope greater than 5%, domes shall be aligned with the centerline of the ramp; otherwise domes are not required to be aligned.
10. Detectable warnings shall be required on sidewalks and shared use paths at:
 - a. Intersecting roads,
 - b. Median Crossings greater than or equal to 6' in width,
 - c. Railroad Crossings,
 - d. Signalized driveways.
11. Detectable Warnings - Acceptance Criteria:
 - a. Color and texture shall be complete and uniform.
 - b. 90% of individual truncated domes shall be in accordance with the Americans with Disabilities Act Standards for Transportation Facilities, Section 705.
 - c. There shall be no more than 4 non-compliant domes in any one square foot.
 - d. Non-compliant domes shall not be adjacent to other non-compliant domes.
 - e. Surfaces shall not deviate more than 0.10" from a true plane.
12. Detectable warnings shall be installed no greater than 5' from the back of curb or edge of pavement.
13. Detectable warnings shall not be installed over grade breaks.

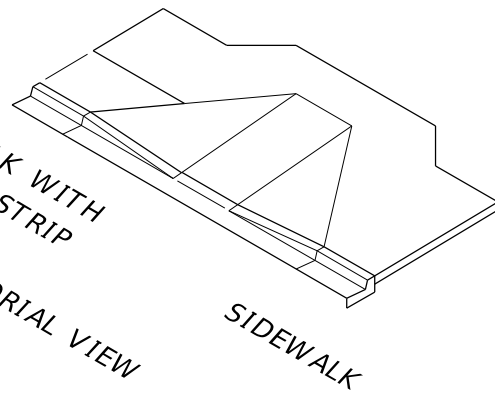
6/30/2015 9:34:56 AM

LAST REVISION 07/01/15	REVISION	DESCRIPTION:	 2016 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 1 of 7
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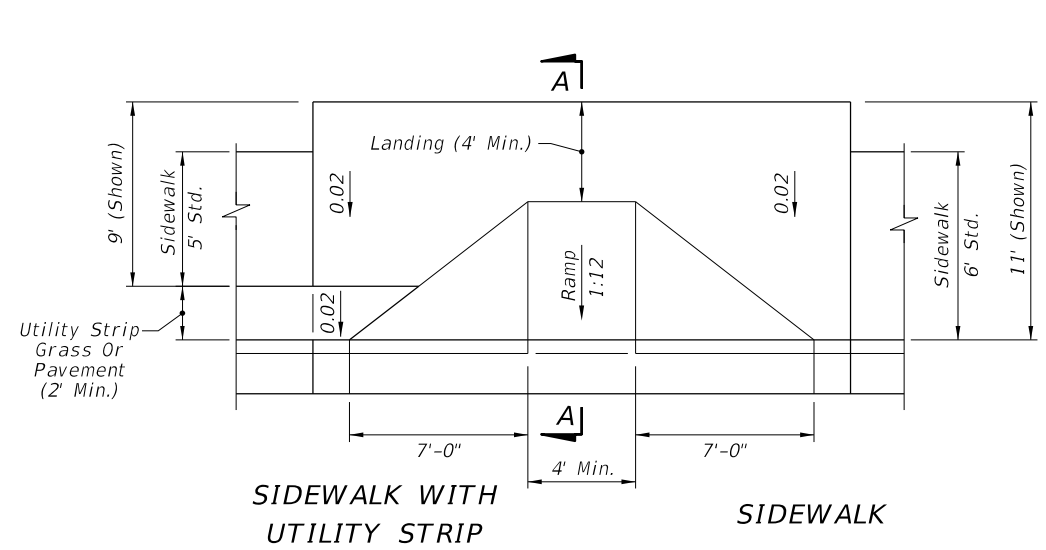
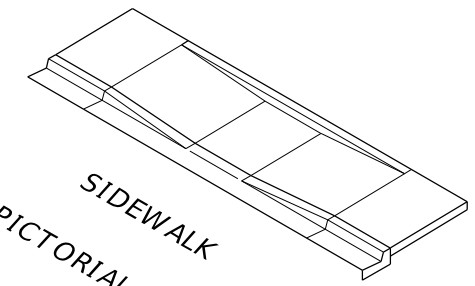
SIDEWALK WITH
UTILITY STRIP
PICTORIAL VIEW



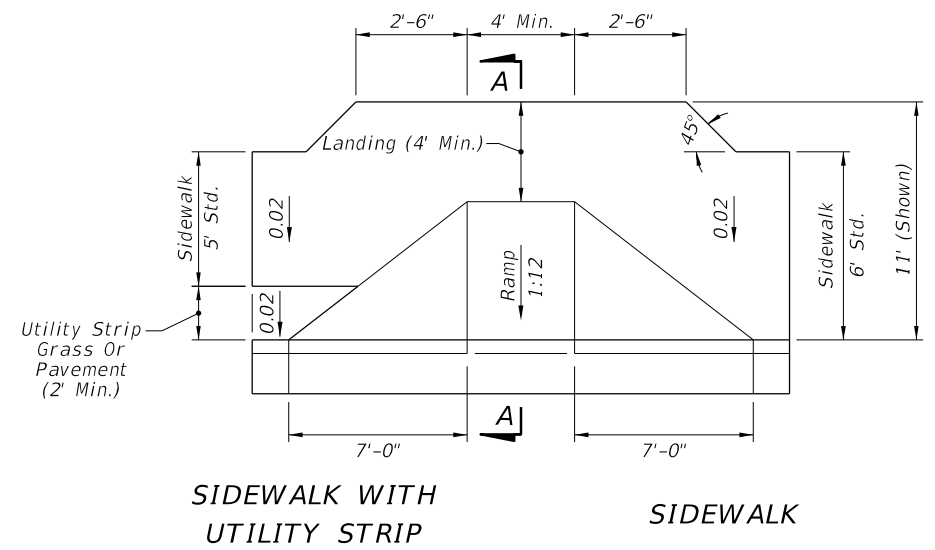
SIDEWALK WITH
UTILITY STRIP
PICTORIAL VIEW



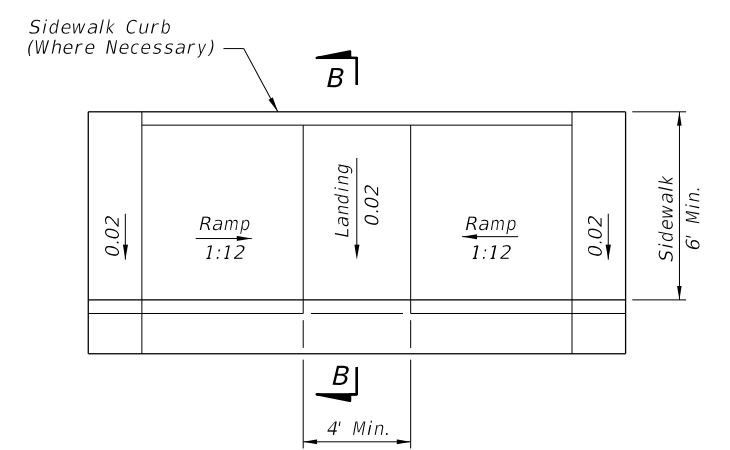
SIDEWALK
PICTORIAL VIEW



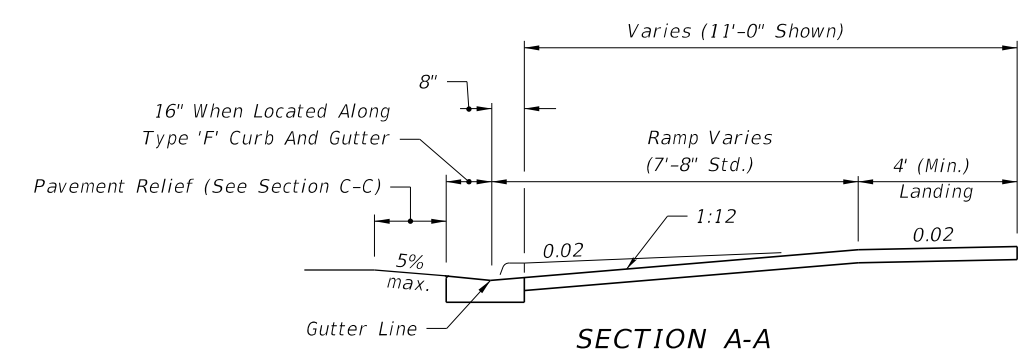
PLAN VIEW
CR-A



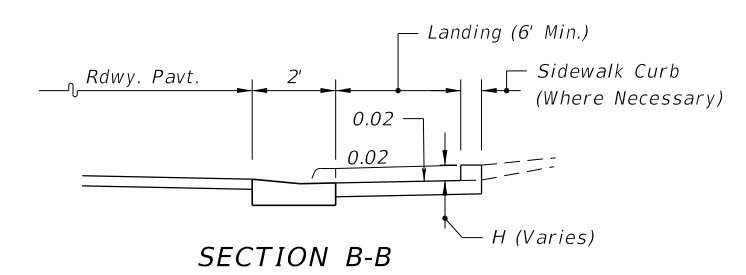
PLAN VIEW
CR-B



PLAN VIEW
CR-C



SECTION A-A
SECTION THROUGH RAMP AND LANDING
(UNRESTRICTED CONDITIONS)



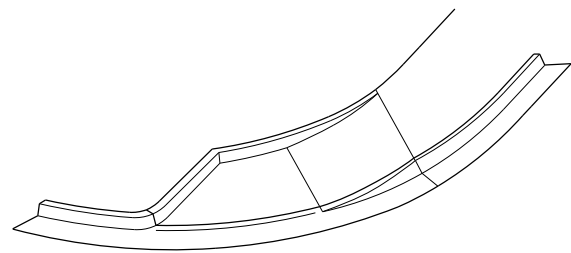
SECTION B-B
SECTION THROUGH LANDING
(UNRESTRICTED CONDITIONS)

Note: For Additional Information On Sidewalk Curb Construction, See SIDEWALK CURB and SIDEWALK CURB OPTIONS details.

SIDEWALK CURB RAMPS WHERE RAMP AND LANDING DEPTHS ARE NOT RESTRICTED

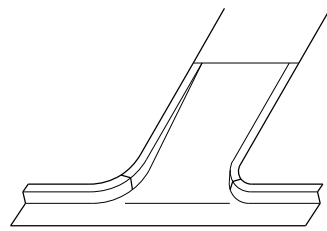
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LAST REVISION 07/01/13	REVISION	DESCRIPTION:	 2016 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 2 of 7
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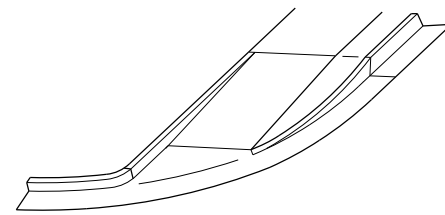
PICTORIAL VIEW

CR-D



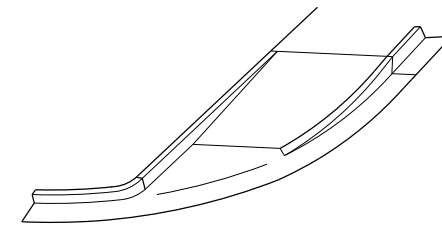
PICTORIAL VIEW

CR-E



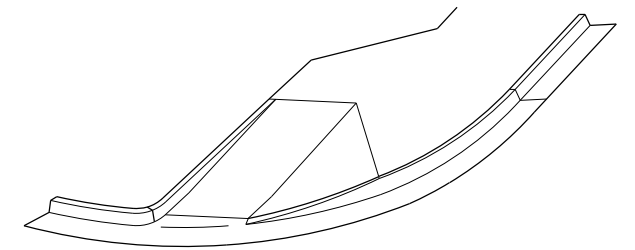
PICTORIAL VIEW

CR-F



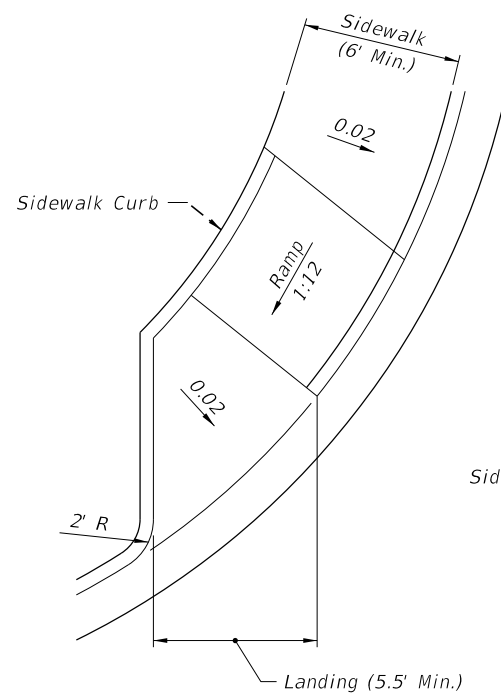
PICTORIAL VIEW

CR-G



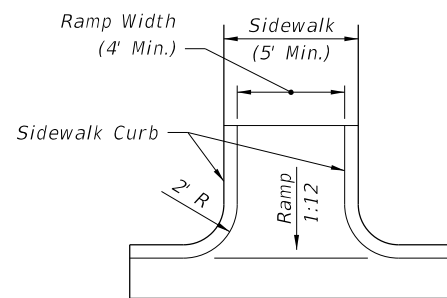
PICTORIAL VIEW

CR-H



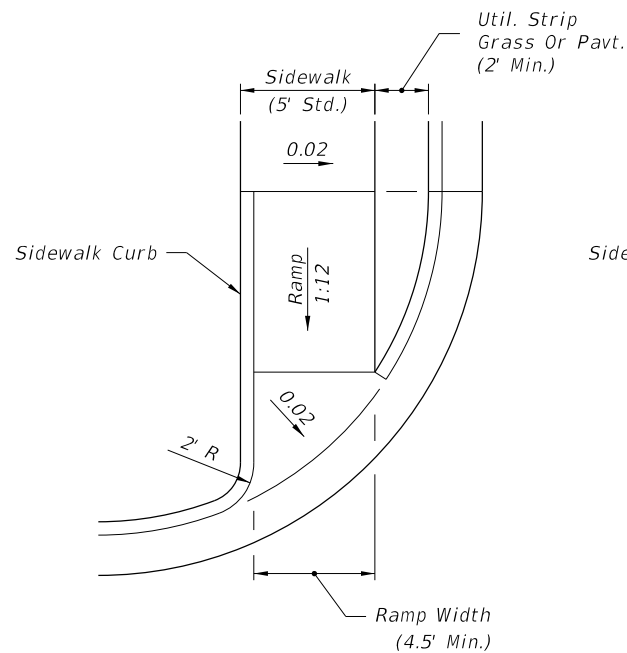
PLAN VIEW

CR-D



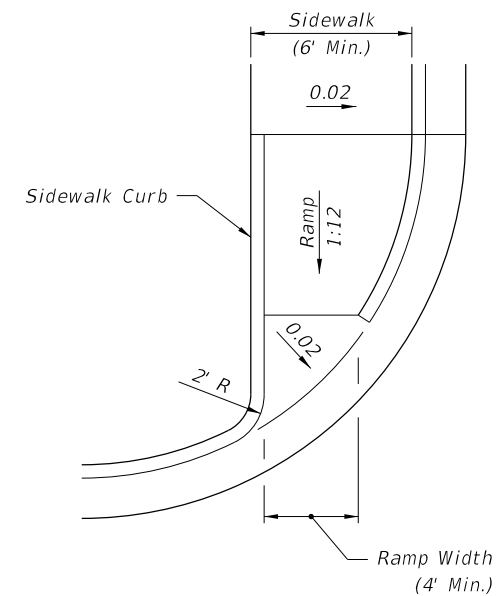
PLAN VIEW

CR-E



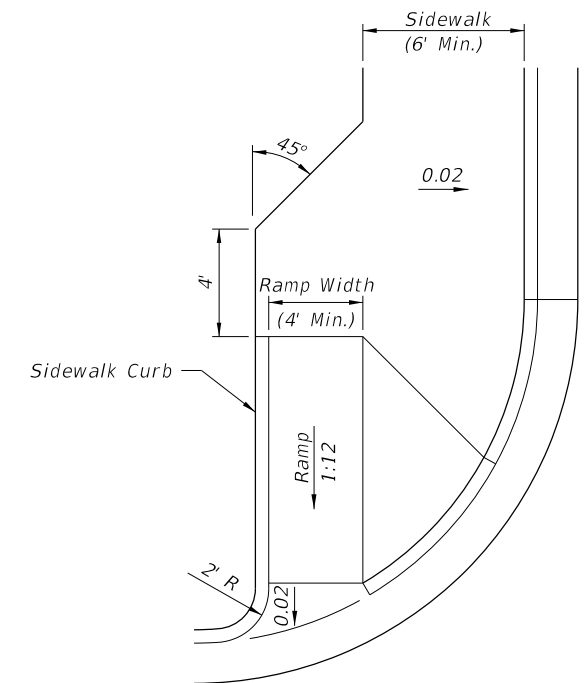
PLAN VIEW

CR-F



PLAN VIEW

CR-G



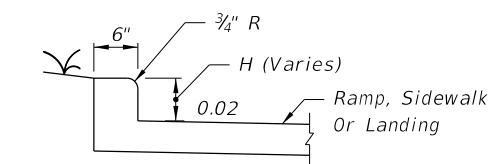
PLAN VIEW

CR-H

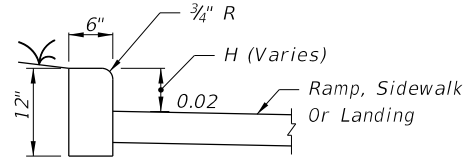
DIMENSIONAL FEATURES OF SIDEWALK CURB RAMPS FOR LINEAR PEDESTRIAN TRAFFIC

6/30/2015 9:34:57 AM

LAST REVISION 07/01/13	DESCRIPTION:
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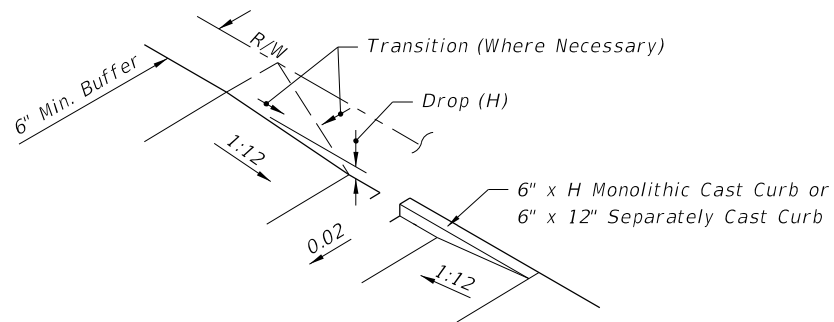


MONOLITHIC CAST CURB



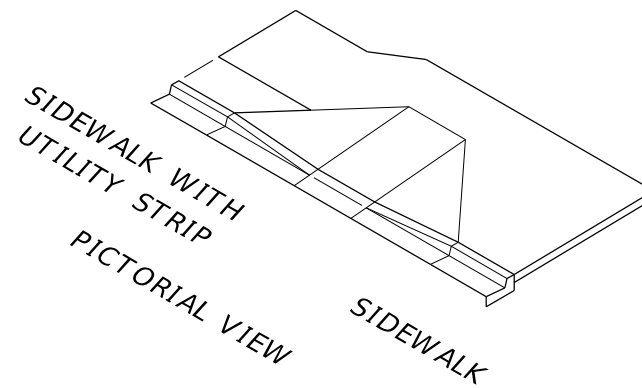
SEPARATELY CAST CURB

SIDEWALK CURB OPTIONS



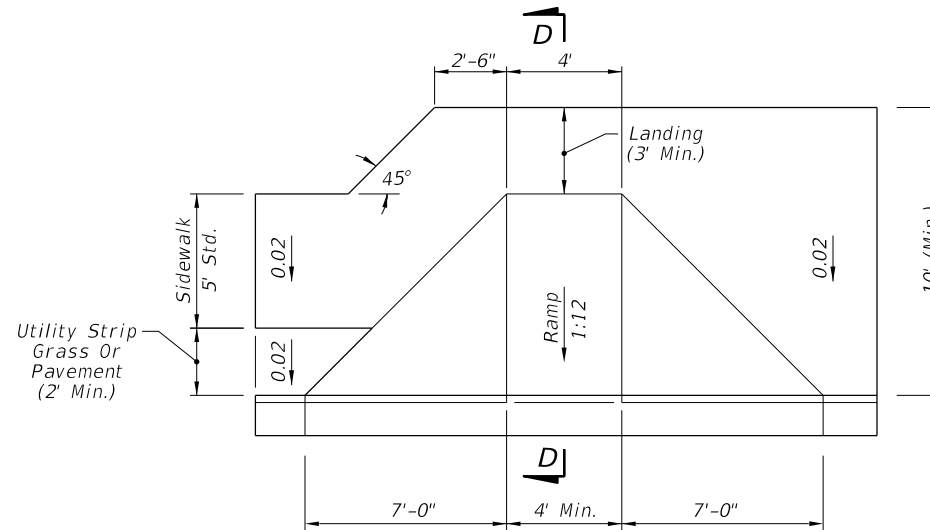
Construct Sidewalk Curb In Cut Sections.

SIDEWALK CURB



SIDEWALK WITH UTILITY STRIP

PICTORIAL VIEW

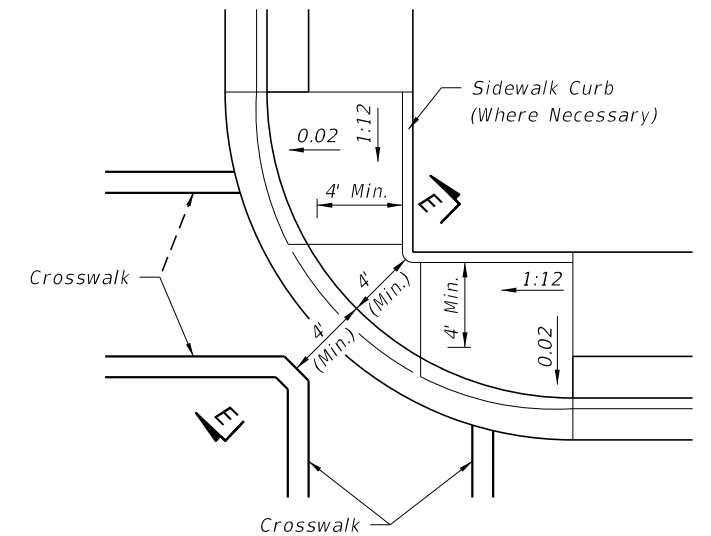


SIDEWALK WITH UTILITY STRIP

SIDEWALK

PLAN VIEW

CR-K

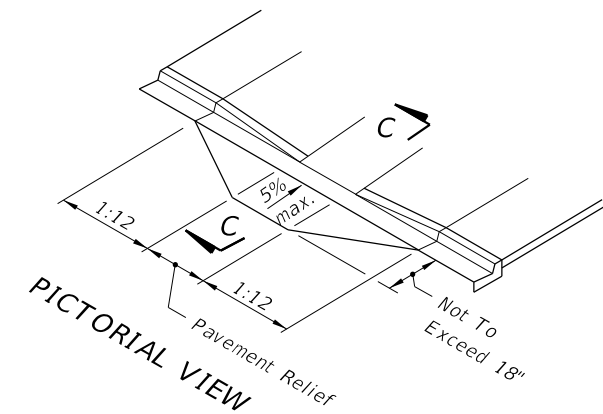


PLAN VIEW

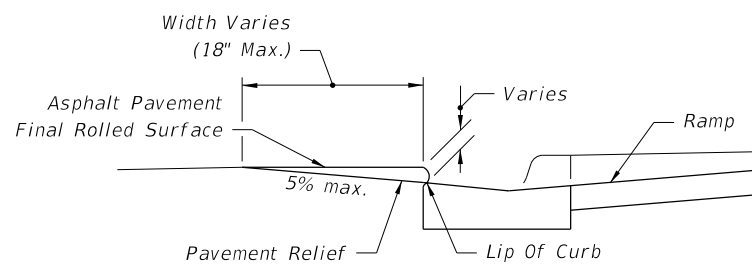
CR-L

Note: Crosswalk Width and Configuration Vary; Must Conform to Index No. 17344 and 17346.

15' Radius Curve Shown for CR-L.



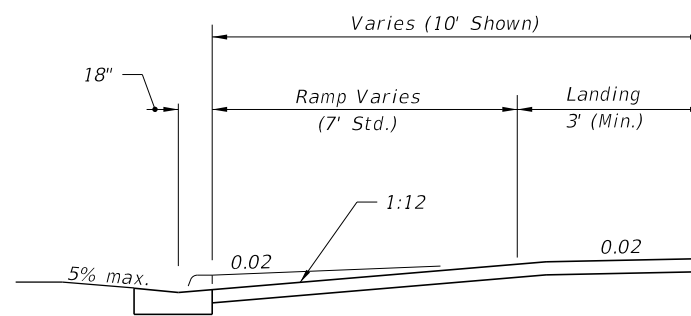
PICTORIAL VIEW



Note: Remove Elevated Pavement By Spading And Rolling; Smooth Milling; or Grinding

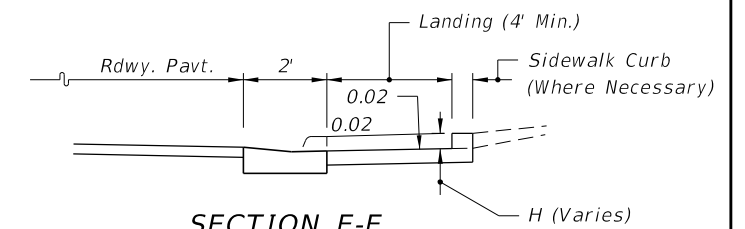
SECTION C-C

PAVEMENT RELIEF AT LIP OF CURB



SECTION D-D

SECTION THROUGH RAMP AND LANDING (RESTRICTED CONDITIONS)



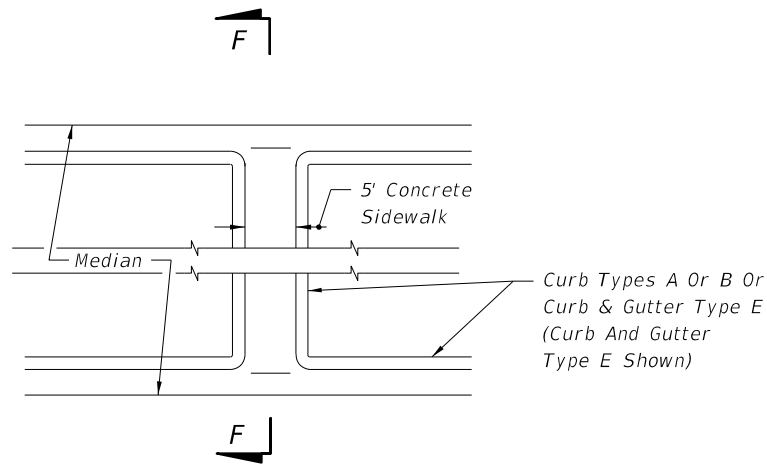
SECTION E-E

SECTION THROUGH LANDING (RESTRICTED CONDITIONS)

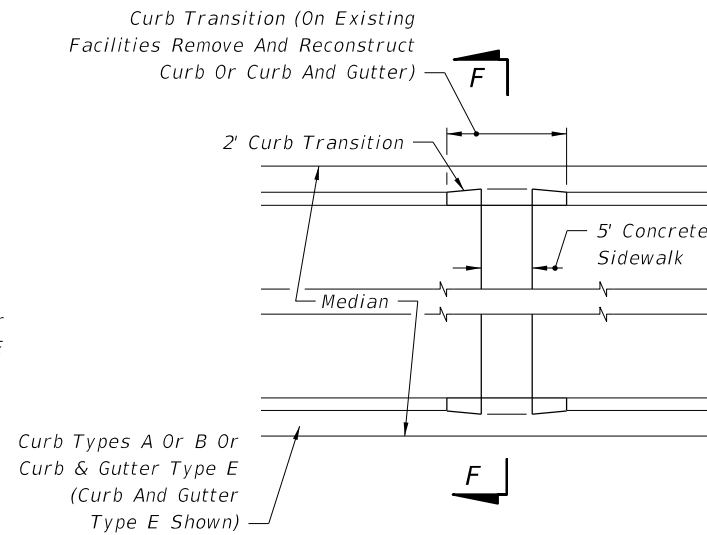
SIDEWALK CURB RAMPS WHERE RAMP AND LANDING DEPTHS ARE RESTRICTED

6/30/2015 9:34:58 AM

LAST REVISION 07/01/13	DESCRIPTION:
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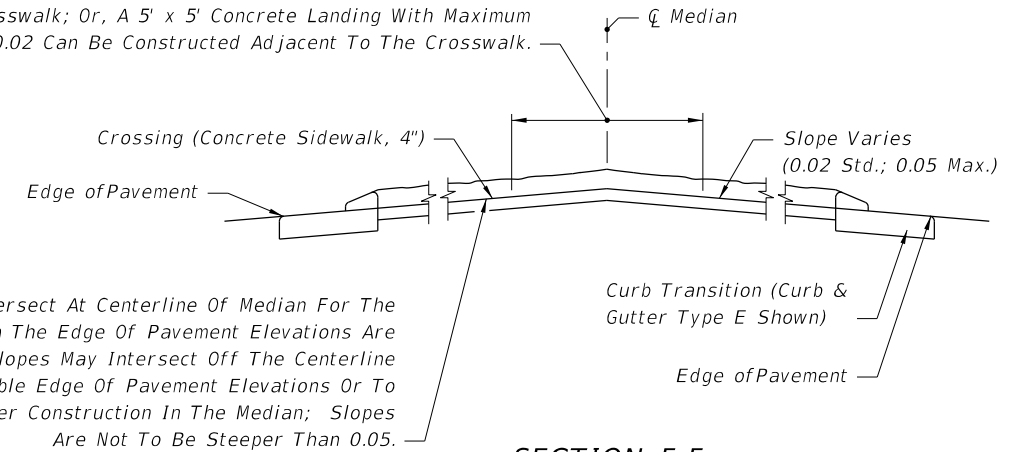


PLAN VIEW



PLAN VIEW - (ALTERNATE DETAIL)

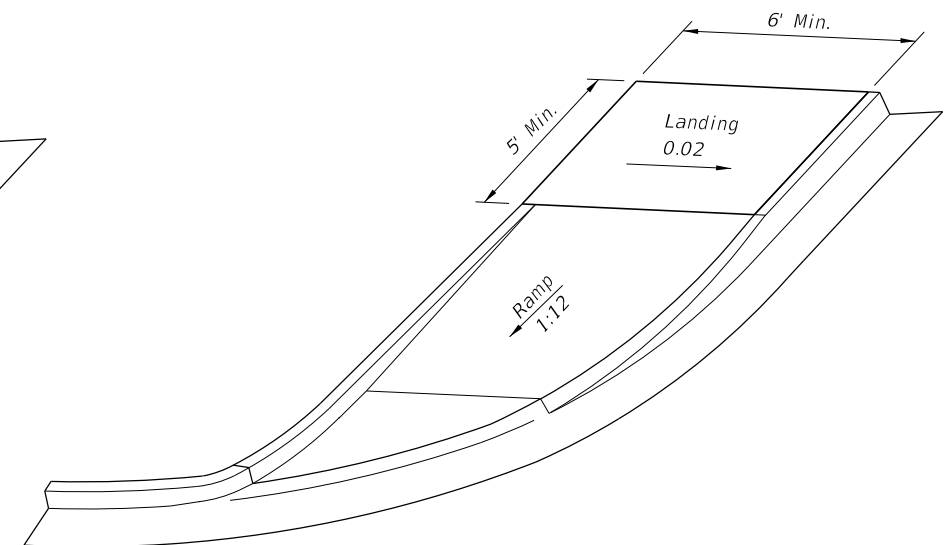
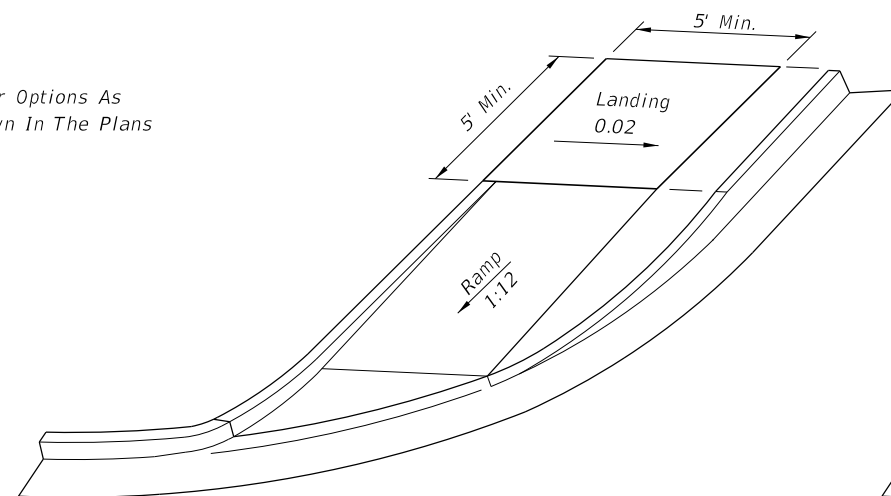
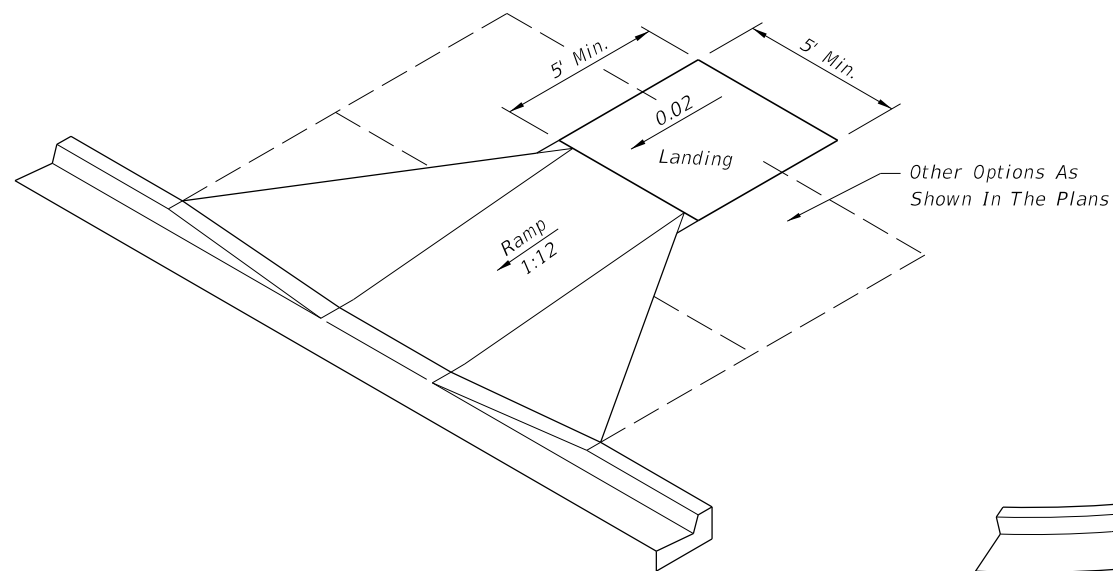
5' Refuge With Maximum Slope Of 0.02 Must Be Provided When Slopes Of 0.05 Or Flatter And 5' In Length Are Not Available Along The Crosswalk; The Refuge Can Be Constructed At Any Location Within The Crosswalk; Or, A 5' x 5' Concrete Landing With Maximum Slope Of 0.02 Can Be Constructed Adjacent To The Crosswalk.



SECTION F-F
MEDIAN REFUGE

Slopes To Intersect At Centerline Of Median For The 0.02 Rate When The Edge Of Pavement Elevations Are Equal. The Slopes May Intersect Off The Centerline For Variable Edge Of Pavement Elevations Or To Accommodate Other Construction In The Median; Slopes Are Not To Be Steeper Than 0.05.

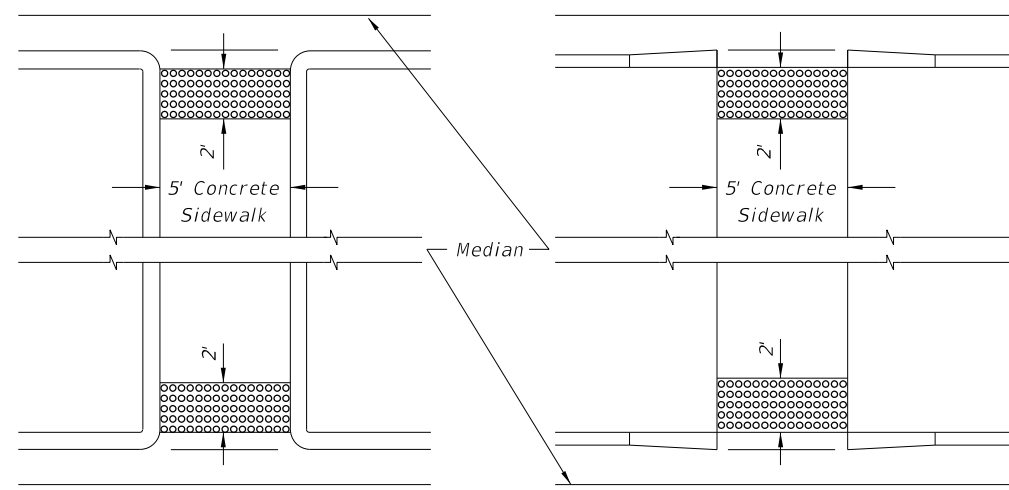
MEDIAN CROSSING



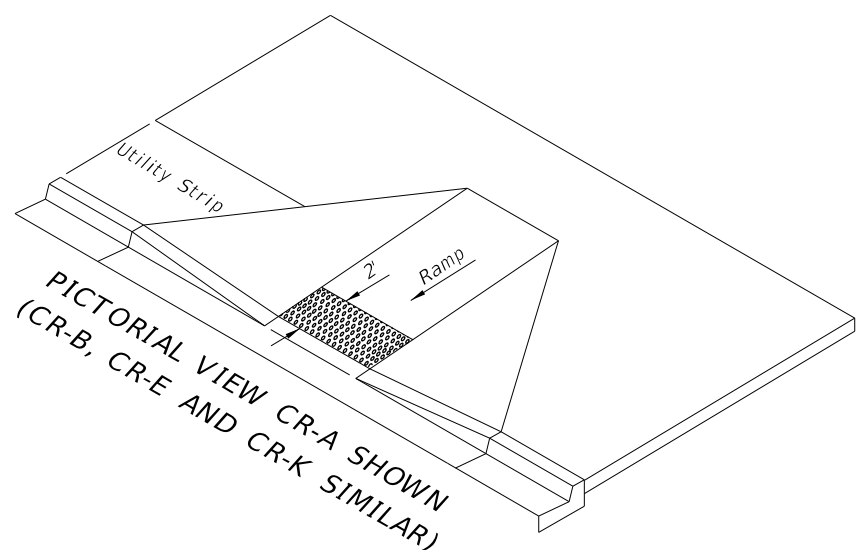
LANDINGS FOR CURB RAMPS WITHOUT SIDEWALKS

6/30/2015 9:34:58 AM

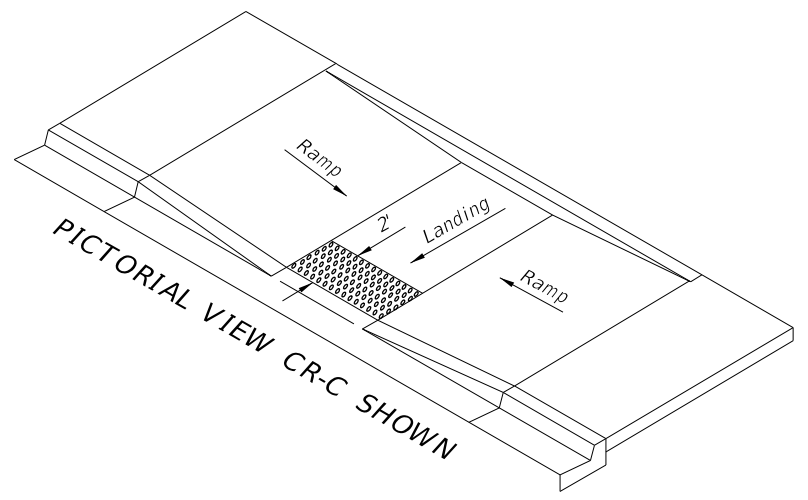
LAST REVISION 07/01/13	DESCRIPTION:	2016 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 5 of 7
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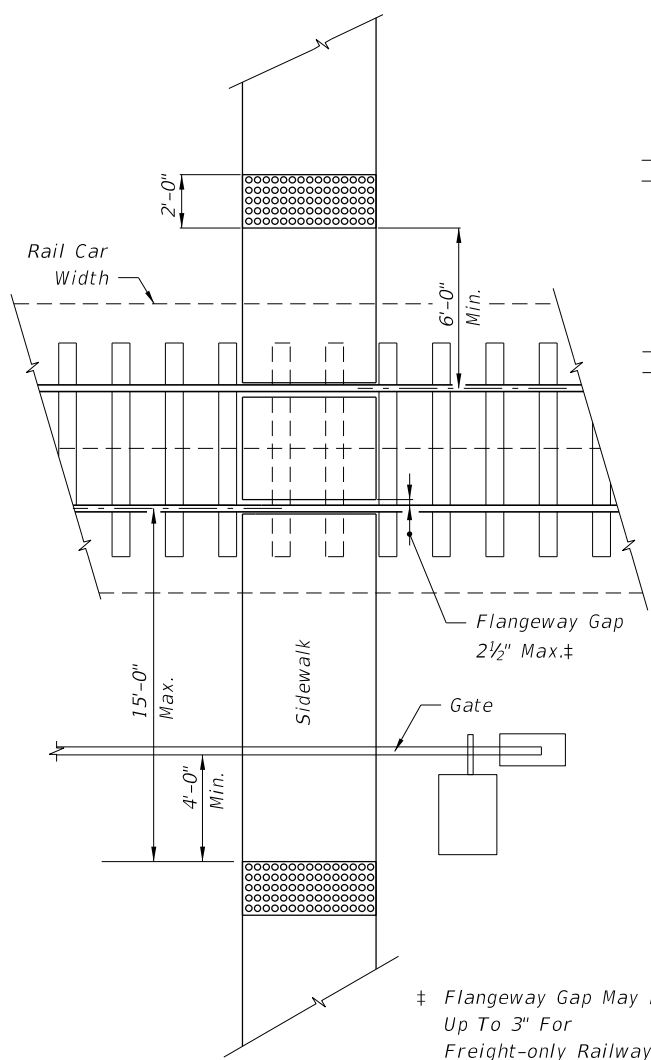
PLAN VIEW
 PLAN VIEW - (ALTERNATE DETAIL)
 MEDIAN CROSSING



PICTORIAL VIEW CR-A SHOWN
 (CR-B, CR-E AND CR-K SIMILAR)

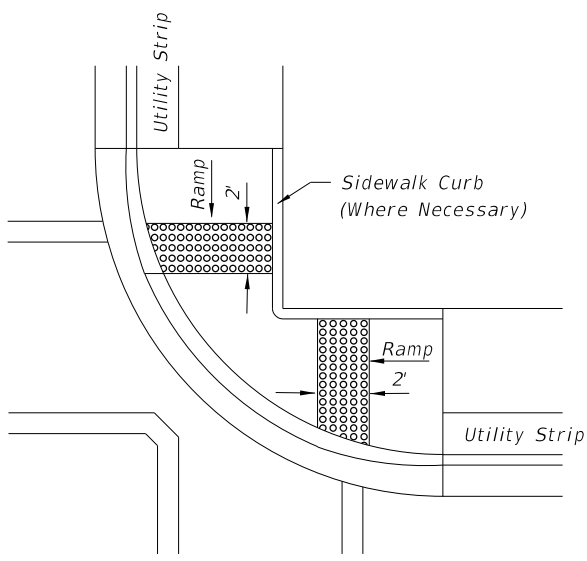


PICTORIAL VIEW CR-C SHOWN

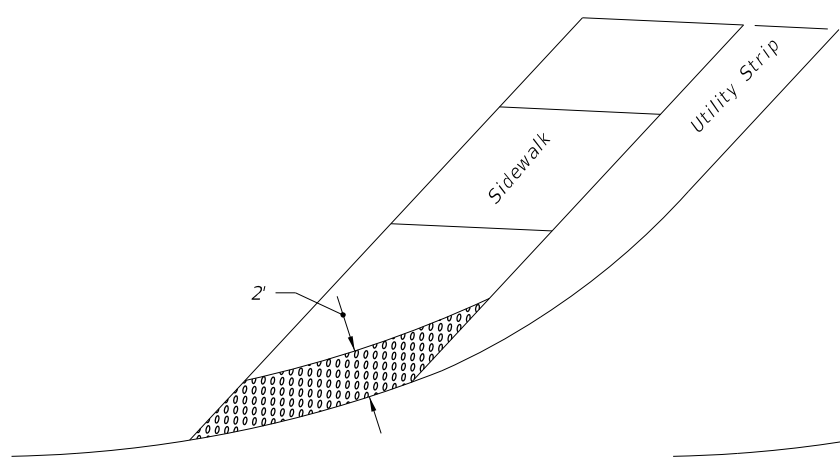


PLAN VIEW
 RAILROAD CROSSING

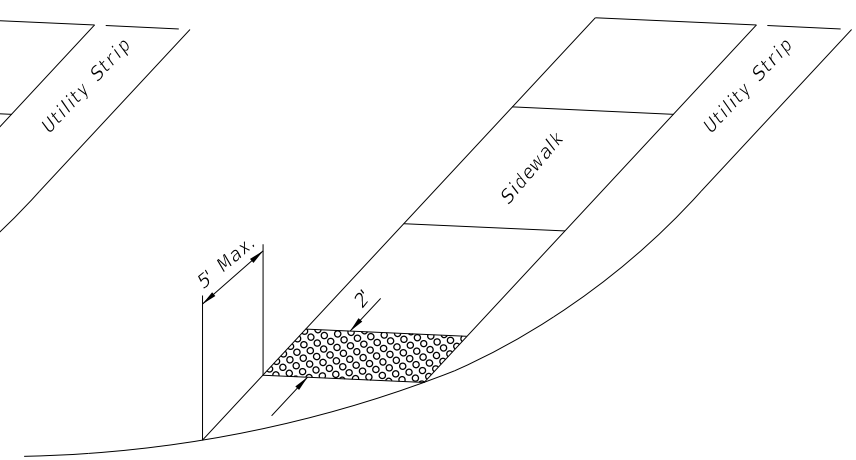
† Flangeway Gap May Be Up To 3" For Freight-only Railways



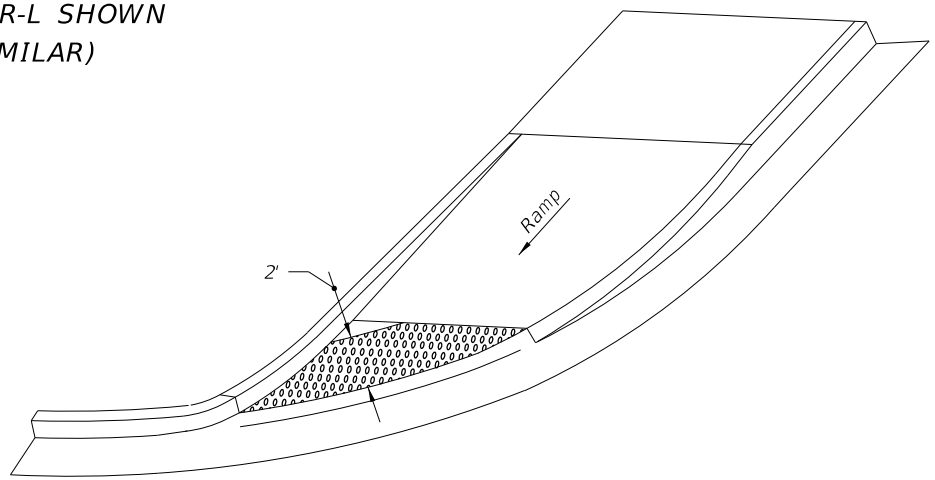
PLAN VIEW CR-L SHOWN
 (CR-D SIMILAR)



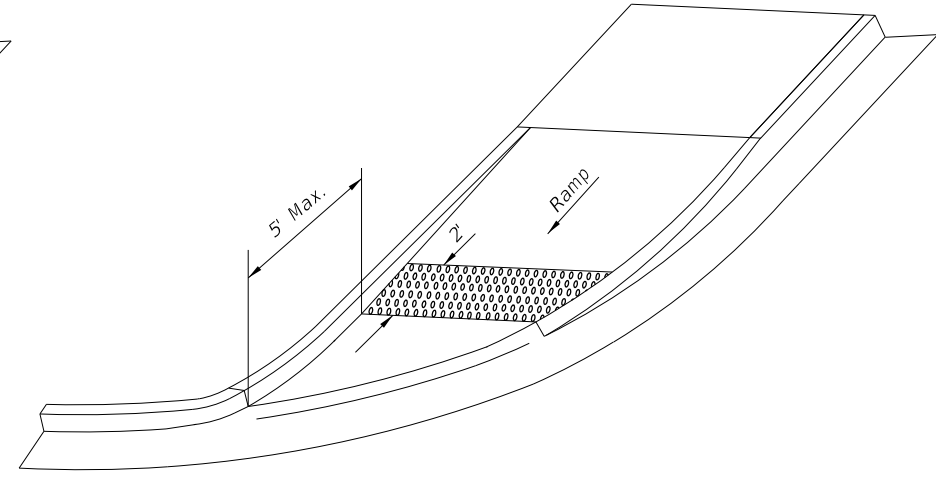
PICTORIAL VIEW
 FLUSH SHOULDER
 (OPTION A)



PICTORIAL VIEW
 FLUSH SHOULDER
 (OPTION B)



PICTORIAL VIEW CR-G SHOWN
 (OPTION A) (CR-F AND CR-H SIMILAR)



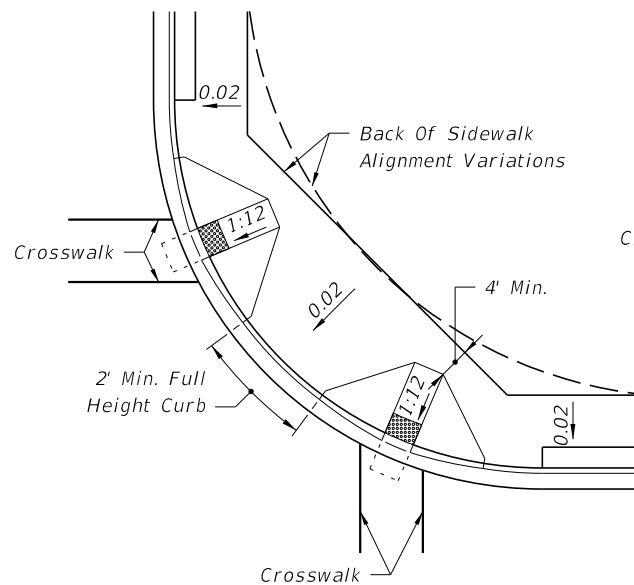
PICTORIAL VIEW CR-G SHOWN
 (OPTION B) (CR-F AND CR-H SIMILAR)

TYPICAL PLACEMENT OF DETECTABLE WARNINGS

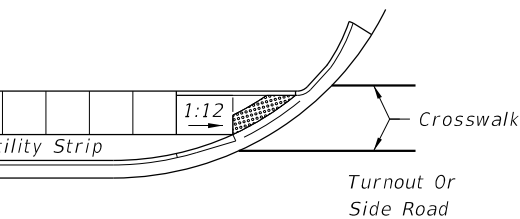
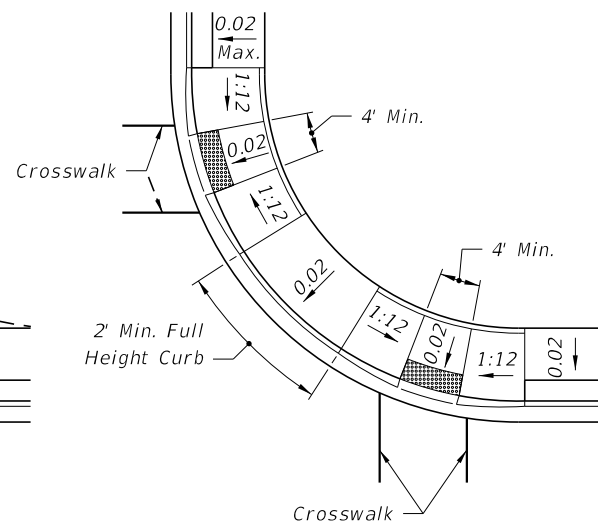
6/30/2015 9:34:59 AM

LAST REVISION 07/01/13	DESCRIPTION:	2016 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 6 of 7
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6/30/2015 9:34:59 AM



RADIAL SIDEWALK RAMPS



LINEAR SIDEWALK RAMPS

NOTES:

- Where crosswalk markings are used, ramps shall fall within the crosswalk limits. A clear space of 48" minimum is required at the bottom of the ramp within a marked crosswalk. If crosswalk markings are not present, a clear space of 48" minimum is required at the bottom of the ramp outside of active travel lanes.
- Crosswalk widths and configurations vary; must conform to Index No. 17344 and 17346.

TYPICAL PLACEMENT OF SIDEWALK CURB RAMPS AT CURBED RETURNS

TABLE OF DETECTABLE WARNINGS		
CURB RAMP TYPE	CURB RADIUS (FT)	TOTAL AREA (SF)
CR-A	N/A	8
CR-B	N/A	8
CR-C	N/A	8
CR-D	25	11
CR-E	N/A	8
CR-F	10	9
	20	11
	25	13
	30	14
CR-G	10	10
	20	11
	25	12
	30	14
CR-H	20	8
	25	8
	30	8
CR-K	N/A	8
CR-L	10	18
	15	13
FLUSH SHOULDER		
OPTION A	10	11
	20	14
	25	15
	30	17
	40	19
	50	21
OPTION B	10	10
	20	10
	25	10

Note:
Due to construction applications, CR-L is the only curb ramp for which a detectable warning quantity was calculated using a curb radius of 15'.

For flush shoulder options with 5' sidewalks, the back of sidewalk is measured at 10' from the edge of traveled way.

AREAS OF DETECTABLE WARNINGS FOR SIDEWALK CURB RAMP AND FLUSH SHOULDER APPLICATIONS

LAST REVISION 07/01/13	DESCRIPTION:
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