

NOTICE

Issued by:

Department of Public Works

Notice #:

DPW-22-08

Release Date:

8/31/2022

Contact:

Matt Diehl
Customer Relations
Manager

Phone #:

410-222-4557

Notice of Revisions to Standard Details for Construction (ADA Compliance)

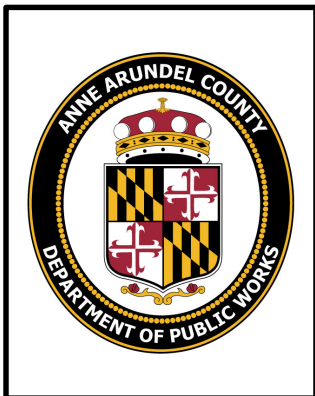
The Department of Public Works (DPW) has updated Standard Details, Section VII, Roadway and Site Improvements, as follows:

- Replaced I-5 with I-5A, I-5B, and I-5C
- Removed I-14 through I-23

DPW has added new Standard Details, Section XII, Pedestrian Facilities, as follows:

- Added PF-1 through PF-29

DPW will also be advising Contractors during Procurement of this change to the Standard Details. All new solicitations for construction starting July 1, 2022 will include and be subject to the revised General Provisions. Attached are the replacement and new details.



Christopher Phipps


Director



Christopher J. Phipps, P.E., Director

MEMORANDUM

TO: Raghavenderrao Badami, Assistant Director, Department of Inspections and Permits

FROM: Beth E. O'Connell, P.E., Deputy Director, Department of Public Works 

SUBJECT: Standard Details, Section VII, Roadway and Site Improvements; and Section XII, Pedestrian Facilities

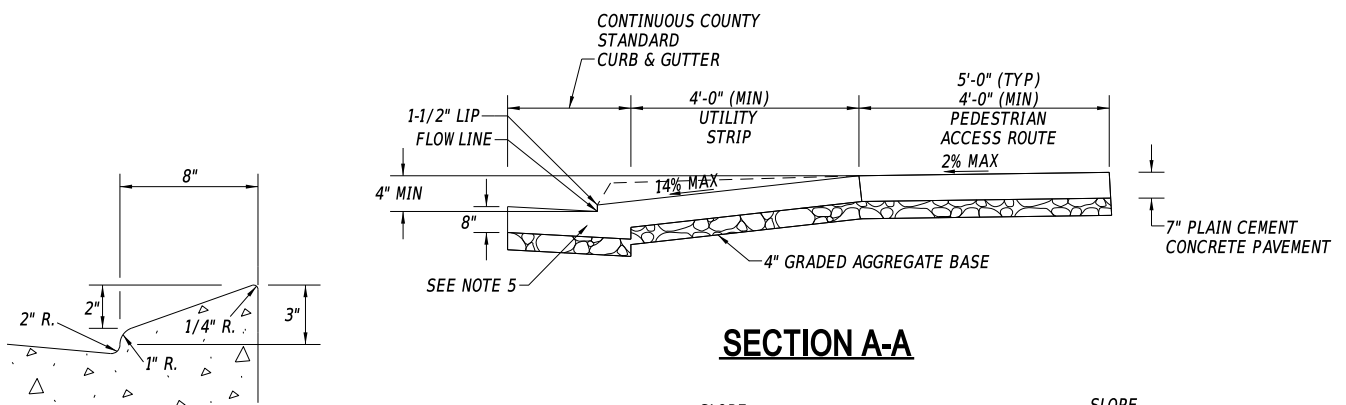
DATE: October 12, 2022

The Department of Public Works is committed to providing accessible roadways and sidewalks for all network users. As part of this commitment, DPW has updated the following Standard Details:

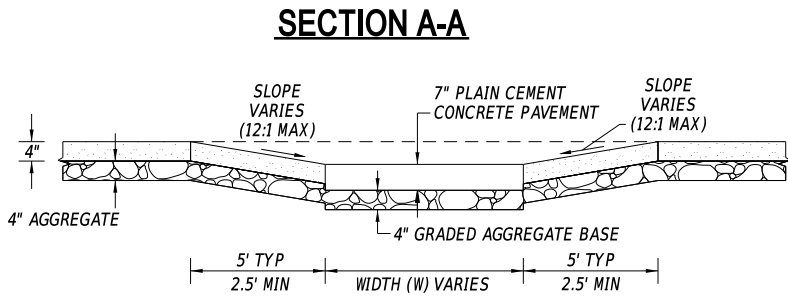
- Replaced I-5 with I-5A, I-5B, and I-5C
- Removed I-14 through I-23
- Added PF-1 through PF-29

These changes provide for enhanced accessibility by replacing outdated standard details with new standard details that meet the adopted 2010 ADA minimum requirements as well as look to the future by incorporating elements proposed in the Public Rights-of-Way Accessibility Guidelines (PROWAG) published by the U.S. Access Board in 2011. This update seeks to introduce widely accepted concepts, elements, and geometric requirements for curb ramp, sidewalk, and driveway apron construction including detectable warning surfaces, level landing areas, sidewalk passing zones, and running and cross slope requirements as well as provide guidance for both new and retrofit construction activities.

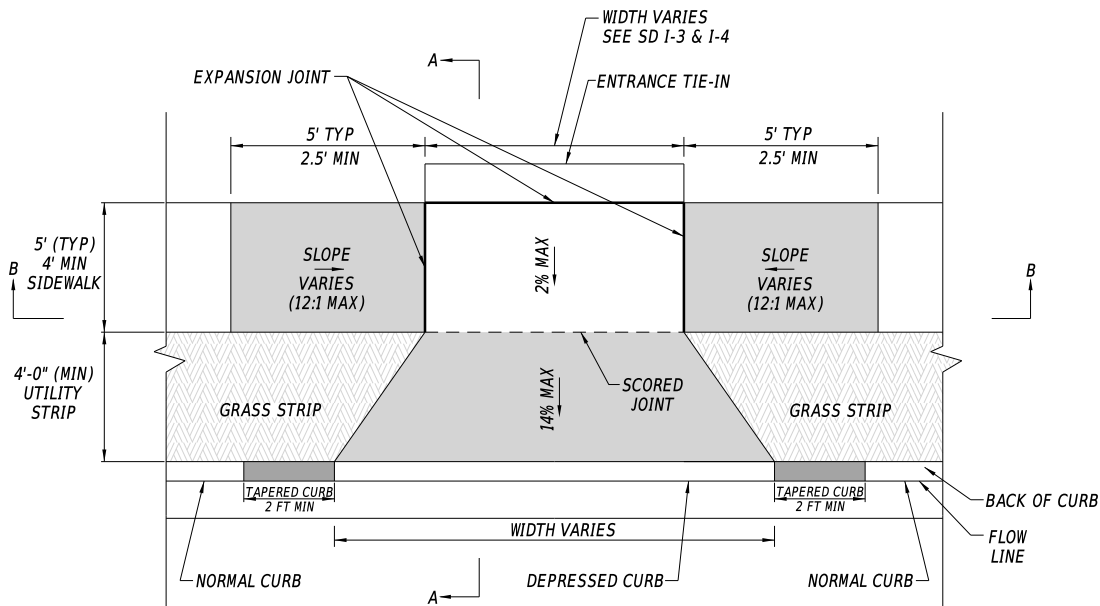
DPW has added this to the forthcoming design manual update. This memo serves as a notice to expedite the implementation of these new standard details. DPW will also be advising contractors of this change in requirements during contract procurement. **All existing and approved Public Works Agreements for which construction of these facilities had not occurred prior to the above date shall be required to adhere to these new standard details.**



DEPRESSED CURB FOR DRIVEWAY/ENTRANCE



SECTION B-B



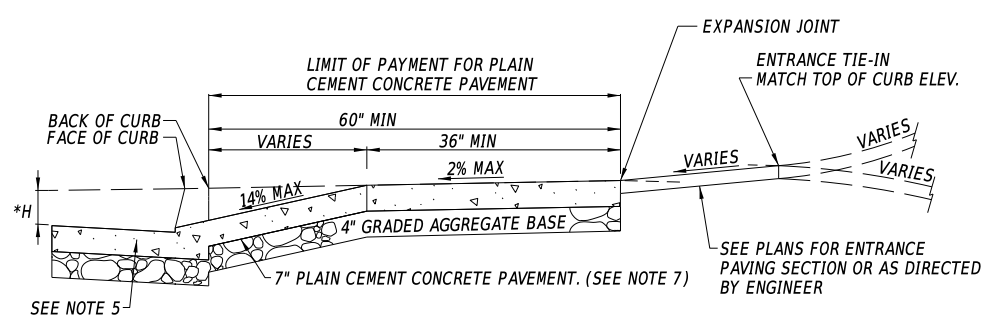
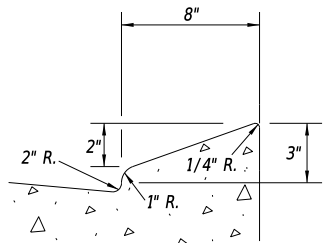
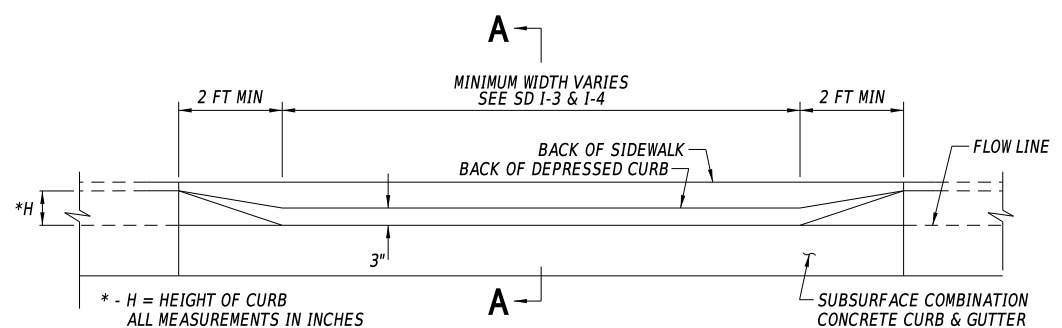
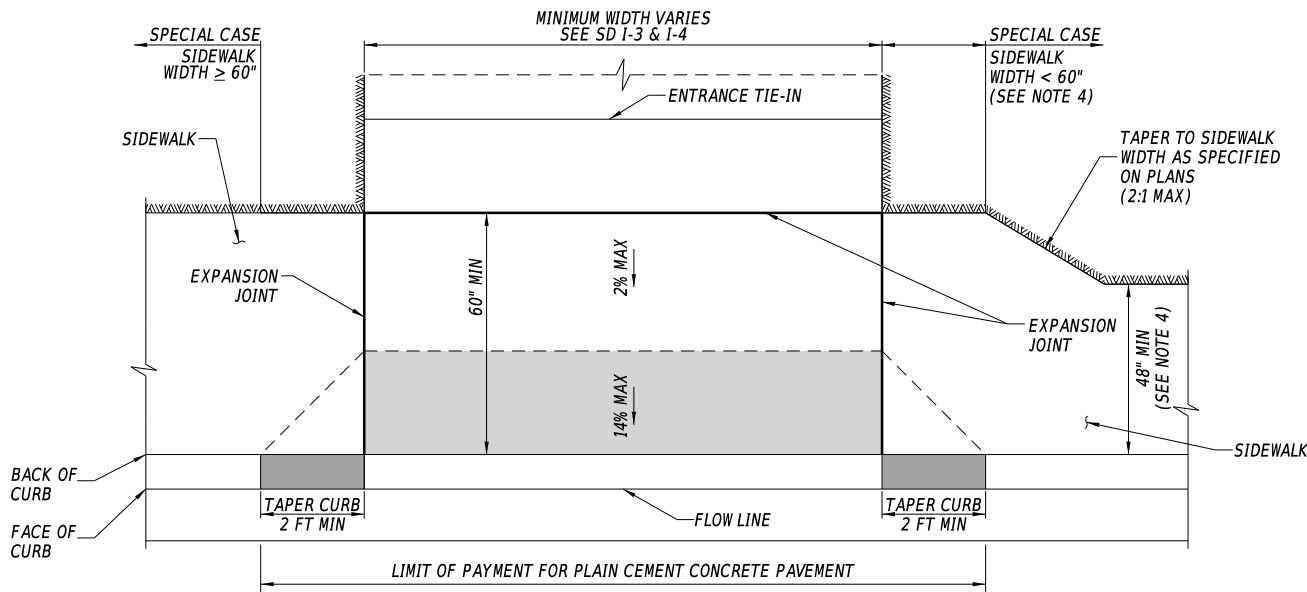
PLAN

NOTES:

- FOR USE IN AREAS WHERE THERE IS SIDEWALK SEPARATED FROM THE CURB BY A BUFFER (UTILITY STRIP) OR WHERE IT IS EXPECTED THAT SIDEWALK WILL BE ADDED IN THE FUTURE.
- WHEN AN EXISTING ENTRANCE IS LESS THAN THE MINIMUM WIDTH, A UNIFORM TAPER SHALL BE CONSTRUCTED TO TIE INTO THE EXISTING ENTRANCE AS DIRECTED BY THE ENGINEER.
- EXPANSION JOINT MATERIAL TO BE INSTALLED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-27 - SIDEWALK JOINTS.
- WHERE 60" SIDEWALK CAN NOT BE PROVIDED, 48" MIN. MAY BE USED WHERE PASSING ZONES ARE PROVIDED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-26 - SIDEWALK PASSING ZONES.
- CURB AND COMBINATION CURB AND GUTTER SHALL BE DEPRESSED AS SHOWN ABOVE. PAYMENT FOR DEPRESSING THE CURB SHALL BE INCIDENTAL TO THE PRICE OF THE SPECIFIED CURB.
- TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK SHALL BE INSTALLED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-28 - SIDEWALK TRANSITION PANEL.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD ROADWAY AND SITE IMPROVEMENT DETAILS ADA DRIVEWAY/ENTRANCE RAMPED - WITH BUFFER	REVISED
	_____ CHIEF ENGINEER		
	_____ DESIGN ENGINEER		
DATE:			1 5A



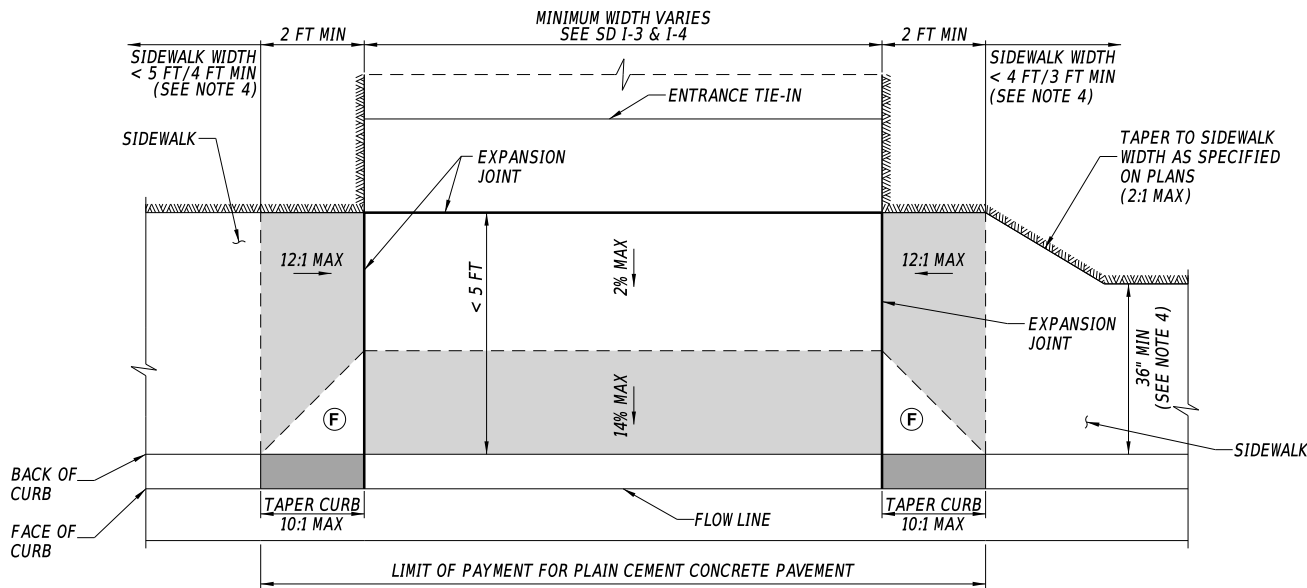
DEPRESSED CURB FOR DRIVEWAY/ENTRANCE

NOTES:

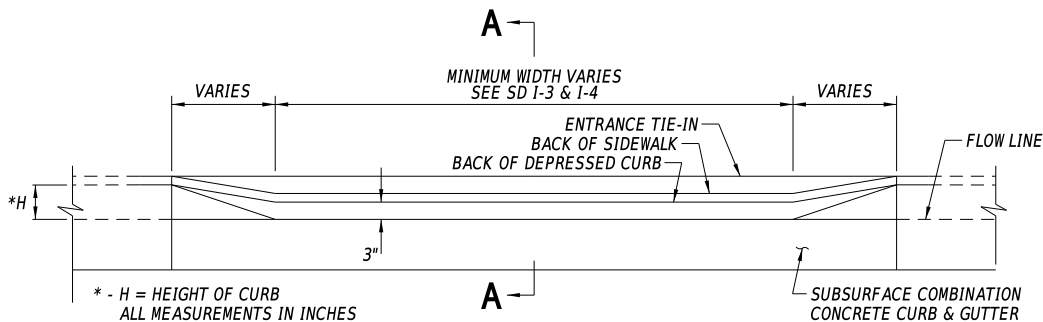
- FOR USE IN AREAS WHERE THERE IS SIDEWALK ADJACENT TO THE BACK OF CURB OR WHERE IT IS EXPECTED THAT SIDEWALK WILL BE ADDED IN THE FUTURE.
- WHEN AN EXISTING ENTRANCE IS LESS THAN THE MINIMUM WIDTH, A UNIFORM TAPER SHALL BE CONSTRUCTED TO TIE INTO THE EXISTING ENTRANCE AS DIRECTED BY THE ENGINEER.
- EXPANSION JOINT MATERIAL TO BE INSTALLED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-27 - SIDEWALK JOINTS.
- WHERE 60" SIDEWALK CAN NOT BE PROVIDED, 48" MIN. MAY BE USED WHERE PASSING ZONES ARE PROVIDED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-26 - SIDEWALK PASSING ZONES.
- CURB AND COMBINATION CURB AND GUTTER SHALL BE DEPRESSED AS SHOWN ABOVE. PAYMENT FOR DEPRESSING THE CURB SHALL BE INCIDENTAL TO THE PRICE OF THE SPECIFIED CURB.
- TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK SHALL BE INSTALLED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-28 - SIDEWALK TRANSITION PANEL

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

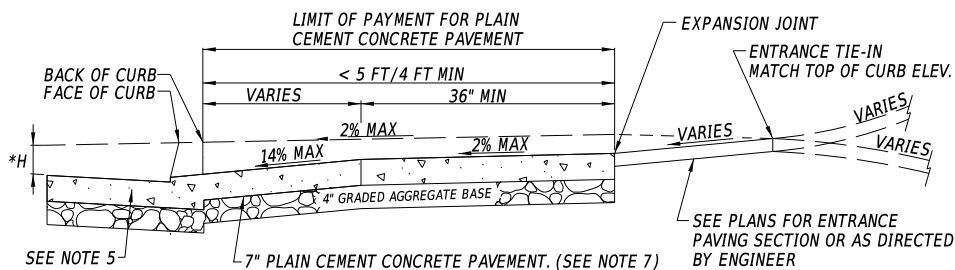
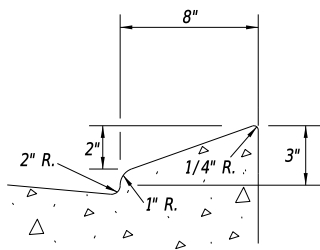
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD ROADWAY AND SITE IMPROVEMENT DETAILS	REVISED	1 5B
	DATE:			
	CHIEF ENGINEER	ADA DRIVEWAY/ENTRANCE 5 FT MIN APRON - NO BUFFER		
	DESIGN ENGINEER			



PLAN



ELEVATION



DEPRESSED CURB FOR DRIVEWAY/ENTRANCE

SECTION A-A

NOTES:

1. FOR USE IN AREAS WHERE THERE IS SIDEWALK ADJACENT TO THE BACK OF CURB OR WHERE IT IS EXPECTED THAT SIDEWALK WILL BE ADDED IN THE FUTURE.
2. WHEN AN EXISTING ENTRANCE IS LESS THAN THE MINIMUM WIDTH, A UNIFORM TAPER SHALL BE CONSTRUCTED TO TIE INTO THE EXISTING ENTRANCE AS DIRECTED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL TO BE INSTALLED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-27 - SIDEWALK JOINTS.
4. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, 48" MIN. MAY BE USED WHERE PASSING ZONES ARE PROVIDED IN ACCORDANCE WITH STD. DETAIL PF-26 - SIDEWALK PASSING ZONES. 36" MIN SIDEWALK WITH PASSING ZONES ONLY ON ALTERATIONS WITH COUNTY APPROVAL.
5. CURB AND COMBINATION CURB AND GUTTER SHALL BE DEPRESSED AS SHOWN ABOVE. PAYMENT FOR DEPRESSING THE CURB SHALL BE INCIDENTAL TO THE PRICE OF THE SPECIFIED CURB.
6. TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK SHALL BE INSTALLED IN ACCORDANCE WITH PED. FAC. STD. DETAIL PF-28 - SIDEWALK TRANSITION PANEL

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1
	RAMP FLARE SEE ADA NOTES C-3

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD ROADWAY AND SITE IMPROVEMENT DETAILS	REVISED	1 5C
	DATE:		ADA DRIVEWAY/ENTRANCE <5 FT APRON - NO BUFFER	

SECTION XII

PEDESTRIAN FACILITIES

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PEDESTRIAN FACILITIES

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PF-28	Sidewalk Transition Panel
PF-29	Slope Transition from Road to Landing

PEDESTRIAN FACILITY NOTES

GENERAL NOTES

- G-1. Anne Arundel county is recognized as a Title II public entity under the Americans with Disabilities Act (ADA) of 1990 (public law 101-336). A Title II entity is defined as any state or local government entity and prohibits discrimination on the basis of disability. The ADA extends the principles of Section 504 of the Rehabilitation Act of 1973, as amended, to protect persons with disabilities in all public facilities and programs irrespective of the funding source.

- G-2. These sheets are in accordance with the 2010 revision of the Americans with Disabilities Act (ADA), with select modifications made in accordance with the 2011 Proposed Accessibility Guidelines for Pedestrian Facilities in The Public Right of Way (PROWAG) and published federal guidance memos.

- G-3. The dimensions shown in the details as minimums and maximums are the limits for design and field layout. The contractor shall be responsible for field verifying all elevations and dimensions to ensure that the final layout of pedestrian facilities meets ADA requirements.

- G-4. Pedestrian access routes (PAR) shall be firm, stable, and slip resistant. Provide slip resistant texture on sidewalks and curb ramps by brooming with a fine bristle broom transverse to the slope of the ramp and/or perpendicular to pedestrian travel. Extend texture the full width and length of the curb ramp including side flares. Do not score or make grooves in sloped surfaces.

- G-5. Vertical surface discontinuities shall be 0.5 inches maximum. Vertical discontinuities between 0.25 inches and 0.5 inches shall be beveled with a slope not steeper than 50 percent (1:1). The bevel shall be applied across the entire vertical surface discontinuity.

- G-6. Horizontal openings in gratings and joints shall not permit passage of a sphere more than 0.5 inches in diameter. Elongated openings in grates shall be placed so that the long dimension is perpendicular to the dominant direction of travel.

- G-7. Provide expansion joint material 0.5 inches thick where curb ramp adjoins any rigid pavement, sidewalk, or structure with the top of joint material flush with adjacent concrete surface.

- G-8. Install ¼" tooled joints where curb ramps, turning spaces, flares, and sidewalks abut. All joints and transitions shall be flush. Grade breaks shall be straight, flush, and perpendicular to the direction of travel.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED <hr style="width: 80%; margin: 0 auto;"/> CHIEF ENGINEER <hr style="width: 80%; margin: 0 auto;"/> DESIGN ENGINEER DATE:	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (1 OF 9)	REVISED <hr style="width: 80%; margin: 0 auto;"/> <hr style="width: 80%; margin: 0 auto;"/> <hr style="width: 80%; margin: 0 auto;"/> <hr style="width: 80%; margin: 0 auto;"/> PF 1
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PEDESTRIAN FACILITIES NOTES

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GENERAL NOTES – CONT.

- G-9. Construct top / bottom of curb to be flush with adjacent surfaces (curb ramps, sidewalks, and flares). Vertical lips are not permitted at the bottom of curb ramps where the ramp meets street level.
- G-10. The counter slope of the gutter adjacent to curb ramps or landing/turning spaces, should not exceed 5.0%. However, in no case shall the algebraic difference between the depressed curb slope and gutter/road counter slope exceed 13.3%.
 - a. Where the slope difference exceeds limits due to existing roadway profile, a minimum 2-foot level transition space shall be constructed at the detectable warning system to allow transition of differing slopes. See PED. FAC. STD. DETAIL PF-24.
- G-11. Protruding and Post-Mounted Objects within the pedestrian circulation path shall comply with PROWAG Section R402.
 - a. Objects with leading edges more than 27" and not more than 80" above the finish surface shall protrude 4" maximum horizontally into pedestrian circulation paths.
 - b. Where objects are mounted on free-standing posts or pylons and the objects are 27" minimum and 80" maximum above the finish surface, the objects shall overhang pedestrian circulation paths 4" maximum measured horizontally from the post or pylon base. The base dimension shall be 2.5" thick (height) minimum.
 - c. Where objects are mounted between posts or pylons and the clear distance between the posts or pylons is greater than 1.0 ft, the lowest edge of the object shall be 27" maximum or 80" minimum above the finish surface.

SIDEWALKS

- S-1. Sidewalk, and curb and gutter construction shall be in accordance with AACo standards except as revised herein.
- S-2. Sidewalk shall have a minimum width of 5.0 ft, exclusive of the width of curb.
 - a. On alterations, minimum sidewalk width shall be 5.0 feet preferred, but may be reconstructed at 4.0 feet minimum where existing sidewalk width was 4.0 ft or less. Sidewalk widths may be constructed less than 4.0 feet only with county approval, but in no case shall widths of less than 3.0 feet be allowed.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (2 OF 9)	REVISED	PF 1
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:				

PEDESTRIAN FACILITIES NOTES

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SIDEWALKS – CONT.

- b. On alterations, where sidewalk width must be reduced to less than 5.0 feet, passing zones shall be provided at intervals of 200 ft maximum. Passing zones shall be 5.0 ft minimum by 5.0 ft minimum. See PED. FAC. STD. DETAIL PF-26.
- S-3. Any signs posts, utility poles, fire hydrants, traffic signals, street furniture, and other objects shall not reduce the clear width to less than 4.0 ft.
 - a. On alterations, the minimum clear width shall not be reduced to less than 3.0 ft.
- S-4. The clear width of pedestrian access routes (PAR) within medians and pedestrian refuge islands shall be 5.0 ft minimum.
 - a. On alterations, the minimum clear width may be reduced where physical constraints are present, but in no case shall clear width be reduced to less than 3.0 ft.
- S-5. Sidewalk cross slope design of 1.5% is recommended but shall not exceed 2.0%.
 - a. A construction tolerance of +1% is allowed on the pedestrian access route (2% design +1% construction tolerance).
- S-6. Transition panels are required at the limits of a pedestrian improvement where a proposed pedestrian element is connecting to existing facilities which are not being altered and do not meet current standards. Transition panels allow for variations in width and/or cross slope to be blended across a brief distance.
 - a. Transition panels are not appropriate if proposed for use between required features that are being constructed within the localized limits of an isolated pedestrian improvement or proposed facility.
 - b. Transition panels are required to connect sidewalks to turning spaces/landing areas with cross slopes that exceed 2.0% as allowed when connecting to pedestrian street level connections.
 - c. The running slope of a transition slab shall be 5.0% or flatter unless matching the parallel roadway or existing sidewalk running slope.
 - d. The recommended length of PAR transition panels connecting a new section of PAR to an existing PAR should be equal to the width of the newly constructed sidewalk to allow for changes in width or cross slope (see below) but shall be no less than 3'.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (3 OF 9)	REVISED	PF 1
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	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:	_____		_____	

PEDESTRIAN FACILITIES NOTES

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SIDEWALKS – CONT.

- e. For cross slope transitions, the recommended transition rate is 1.0% per foot (not to exceed 3.0% per foot) to address the absolute algebraic grade difference between the cross slopes of the PAR surfaces. For example, if the existing PAR cross slope is 8.0% away from the street, then the recommended transition length is 10 feet to change to a cross slope of 2.0% toward the street at the connection to the new PAR ($\Delta 10\%/1\%$) but shall be no less than 3.33 feet (3'-4") ($\Delta 10\%/3\%$).

CURB RAMPS

C-1. Ramp (runs)

- a. The clear width of curb ramp runs (excluding any flared sides) on New Construction shall be 5.0 ft min.
- b. On Alterations, the minimum ramp clear width shall be 5.0 feet preferred but may be constructed at 4.0 feet minimum where the existing sidewalk width was 4.0 ft or less. Ramp widths may be constructed less than 4.0 feet only with County approval, but in no case shall widths of less than 3.0 feet be allowed.
- c. Curb Ramps constructed along the continuing route of Shared Use Paths (SUP) shall be full width of the path.
- d. For new construction and alterations, construct curb ramp and flare slopes with the flattest slope feasible. The maximum slope allowable is indicated herein along with the PED. FAC. STD. DETAILS. Slopes that exceed those indicated in the curb ramp Standard Details or construction plans will not be accepted and shall be removed and reconstructed.
- e. Running slopes of curb ramps shall be 1:12 max, 8.3% preferred. Therefore, running slopes that exceed 8.3% as measured with a smart level will then be evaluated independent of the surrounding terrain and checked for minimum ramp length solely dependent on 1:12 of curb height. For Example, running slope is initially checked with a smart level, and if measured 8.3% or less, running slope passes. If measured greater than 8.3%, ramp length will then be compared at 1:12 to height of curb. Therefore, a 6-inch curb shall have a minimum 6-foot Ramp length (6 inches x12=72 inches).
- f. Ramp running lengths shall be 24 inches min.
- g. Where no curb is present, ramp slopes shall be 8.3% max. but shall not require the ramp length to exceed 15.0 ft to avoid chasing the slope indefinitely when connecting to steep grades.
- h. Compound slopes in the path of travel should be avoided.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (4 OF 9)	REVISED	PF 1
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	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:	_____			

PEDESTRIAN FACILITIES NOTES

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CURB RAMPS – CONT.

- i. Grade breaks at the top and bottom of curb ramps should be perpendicular to the direction of the curb ramp run.
- j. Cross slope on ramps is generally identified as the slope perpendicular to the direction of travel. The cross slope on ramps is recommended to be designed at 1.5% typical but shall not exceed 2.0%.
 - i. A construction tolerance of +1% is allowed (2.0% max design +1% construction tolerance).
- k. Grade edge of road elevations at the flow line to ensure positive drainage and prevent ponding.
- l. Curb ramps, excluding flared sides, shall be placed within the width of marked crosswalks.
- m. Blunt curb ends that pose a hazard to snowplows shall be avoided. Leading ends of blunt curb, median and island noses, and the downstream side of curb ramp openings shall be tapered at 2 ft minimum. See PED. FAC. STD. DETAIL PF-17 – Tapered Nose detail for use with retaining curbs.

C-2. Landings/Turning Spaces

- a. A level landing (design slope 2% or less in any direction) shall be provided at the top of perpendicular ramps or where a change in travel direction is required. The landing length/width should be \geq the width of the connecting PAR and shall be \geq the width of the ramp.
- b. On New Construction, Landings/Turning Spaces shall be 5.0 FT x 5.0 FT minimum.
- c. On Alterations, Landings/Turning Spaces shall be 5.0 FT x 5.0 FT preferred, but not less than 3.0 FT x 3.0 FT where severe physical constraints are present.
- d. Cross slope on landings is generally identified as the slope perpendicular to the direction of travel from the perspective of the connecting sidewalk. The cross slope on landings/turning spaces is recommended to be designed at 1.5% typical but shall not exceed 2.0%.
 - i. A construction tolerance of +1% is allowed on the pedestrian access route (2.0% max design +1% construction tolerance).
- e. Where Landings/Turning Spaces are 4 feet or less from a roadway that exceeds 2%, the Landing/Turning Space slope measured parallel to the roadway may be \leq to the roadway profile slope measured at the ramp transition to the roadway.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (5 OF 9)	REVISED	PF 1

	CHIEF ENGINEER			

	DESIGN ENGINEER			
DATE:				

PEDESTRIAN FACILITIES NOTES

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CURB RAMPS – CONT.

- f. The slope of the depressed curb adjacent to Landings/Turning Spaces shall not exceed 12.5%.
- g. For level turning spaces behind curb, ensure a minimum 1.5% grade toward road to provide positive drainage. Grade edge of road elevations at the flow line to ensure positive drainage and prevent ponding.

C-3. Side Flares and Tapered Curbs

- a. Side flare/taper lengths are variable and based on curb height and the sidewalk slope.
- b. Where flares are bordered by sidewalk, but the required landing is present at the top of the ramp, Flares are required to be **1:10 Max.** based on curb height/10% Preferred measured along the tapered curb.
- c. Where the flares are bordered by sidewalk and the required landing is not present due to space limitations on alterations, or where travel across the flare is necessitated by the location of public facilities (mailboxes, pedestrian signal buttons, etc.), Flares are required to be **1:12 Max.** based on curb height/8.3% Preferred measured along the tapered curb.
- d. Flares/Tapers will initially be checked with a smart level, and if measured percent of slope meets the preferred slope for the situation, the flare/taper passes. If the flare/taper measures higher than the preferred slope percent, flare/taper length will then be compared at the required ratio of either 1:10 or 1:12 relative to height of curb. For example, a 6-inch curb height with flares bordered by sidewalk will have either a slope of 10% or less, or a taper length of at least 5 feet (6 in. X 10 = 60 in.) when the required landing is present, OR a slope of 8.3% or less, or a taper length of at least 6 feet (6 in. X 12 = 72 in.) when the required landing is not present.
- e. Where flares are bordered by non-walkable surfaces or furniture zones, the minimum flare/tapered curb length shall be 2 feet min.
- f. Vertical walls or return/retaining curbs are permitted when adjacent to non-walkable areas or elevation differences cannot be accommodated by curb ramp flares or grading.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (6 OF 9)	REVISED	PF 1
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	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:				

PEDESTRIAN FACILITIES NOTES

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DETECTABLE WARNING SURFACES

D-1. Detectable warning surfaces (DWS)

- a. Detectable warning surfaces (DWS) complying with PED. FAC. STD. DETAIL 18 shall be provided on pedestrian access routes where curb ramps, blended transitions, or turning spaces provide a flush pedestrian connection to the street and the pedestrian access route (PAR) crosses a named street, named alley, traffic island, median, railroad, or any marked crossing. Detectable warning surface must be provided at the junction between the PAR and commercial driveways that are stop or yield controlled or are controlled by a signal. Detectable warning surfaces (DWS) will not be installed at residential driveways or unnamed streets/alleys.
- b. Detectable warning surfaces are not required at pedestrian refuge islands that are cut through at street level and are less than 6.0 ft in length in the direction of pedestrian travel.
- c. Not needed where PAR ends mid-block and access is given to road/shoulder if there is no crossing.
- d. Detectable warning surfaces shall contrast visually with adjacent gutter, street or highway, or pedestrian access route surface, either light-on-dark or dark-on-light.
- e. On Perpendicular curb ramps, detectable warning surfaces shall be placed as follows:
 - i. Where the ends of the bottom grade break are in front of the back of curb, detectable warning surfaces shall be placed at the back of curb.
 - ii. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade brake to the back of curb is 5.0 ft or less, detectable warning surfaces shall be placed on the ramp run within one dome spacing of the bottom grade break.
 - iii. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade brake to the back of curb is more than 5.0 ft, detectable warning surfaces shall be placed at the back of curb.
- f. On Parallel curb ramps, detectable warning surfaces shall be placed on the landing/turning space at the back of curb.
- g. On Blended Transitions, raised pedestrian street crossings, depressed corners, or other level pedestrian street crossings, detectable warning surfaces shall be placed at the back of curb.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (7 OF 9)	REVISED	PF 1

	CHIEF ENGINEER			

	DESIGN ENGINEER			
	DATE:			

PEDESTRIAN FACILITIES NOTES

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DETECTABLE WARNING SURFACES – CONT.

- h. At cut-through pedestrian refuge islands, detectable warning surfaces shall be placed at the edges of the pedestrian island and shall be separated by a 2.0 ft minimum length of surface without detectable warnings.
- i. At pedestrian at-grade rail crossings not located within a street or highway, detectable warning surfaces shall be placed on each side of the rail crossing. The edge of the detectable warning surface nearest the rail crossing shall be 6.0 ft minimum and 15.0 ft maximum from the centerline of the nearest rail. Where pedestrian gates are provided, detectable warning surfaces shall be placed on the side of the gates opposite the rail.
- j. At boarding platforms for buses and rail vehicles, detectable warning surfaces shall be placed at the boarding edge of the platform.
- k. At boarding and alighting areas at sidewalk or street level transit stops for rail vehicles, detectable warning surfaces shall be placed at the side of the boarding and alighting area facing the rail vehicles.

ACCESSIBLE PEDESTRIAN SIGNALS (APS) AND PEDESTRIAN PUSHBUTTONS

APS-1. For New and Alteration projects, pedestrian signal push buttons shall be installed or upgraded in compliance with the current edition of the manual on uniform traffic control devices (MUTCD) and located within a horizontal reach of 0" to 10" from a level landing/turning space and shall be within 18" to 48" above the sidewalk surface (42" preferred).

APS-2. When the pedestrian signal pushbutton is located such that it requires a separate level clear space, requirements for installation shall meet PROWAG R404 Clear Spaces.

- a. Surfaces of clear spaces shall comply with R302.7 and shall have a running slope consistent with the grade of the adjacent pedestrian access route and cross slope of 2 percent maximum.
- b. Clear spaces shall be 30 in. (2.5 ft) minimum by 48 in. (4.0 ft) minimum.
- c. Unless otherwise specified, clear spaces shall be permitted to include knee and toe clearance complying with R405.
- d. Unless otherwise specified, clear spaces shall be positioned for either forward or parallel approach to an element.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (8 OF 9)	REVISED	PF 1
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:				

PEDESTRIAN FACILITIES NOTES

Page 9 of 9

ACCESSIBLE PEDESTRIAN SIGNALS (APS) AND PEDESTRIAN PUSHBUTTONS – CONT.

- e. One full unobstructed side of a clear space shall adjoin a pedestrian access route or adjoin another clear space.
 - f. Where a clear space is confined on all or part of three sides, additional maneuvering space shall be provided as follows:
 - g. Forward Approach. The clear space and additional maneuvering space shall be 36 in. (3.0 ft) wide minimum where the depth exceeds 24 in. (2.0 ft).
 - h. Parallel Approach. The clear space and additional maneuvering space shall be 60 in. (5.0 ft) wide minimum where the depth exceeds 15 in. (1.25 ft).
- APS-3. Provide access to existing pedestrian pushbuttons to the maximum extent practicable. Install pedestrian stub poles, where applicable, so as not to create pedestrian obstructions. Refer to the MUTCD for further guidance.

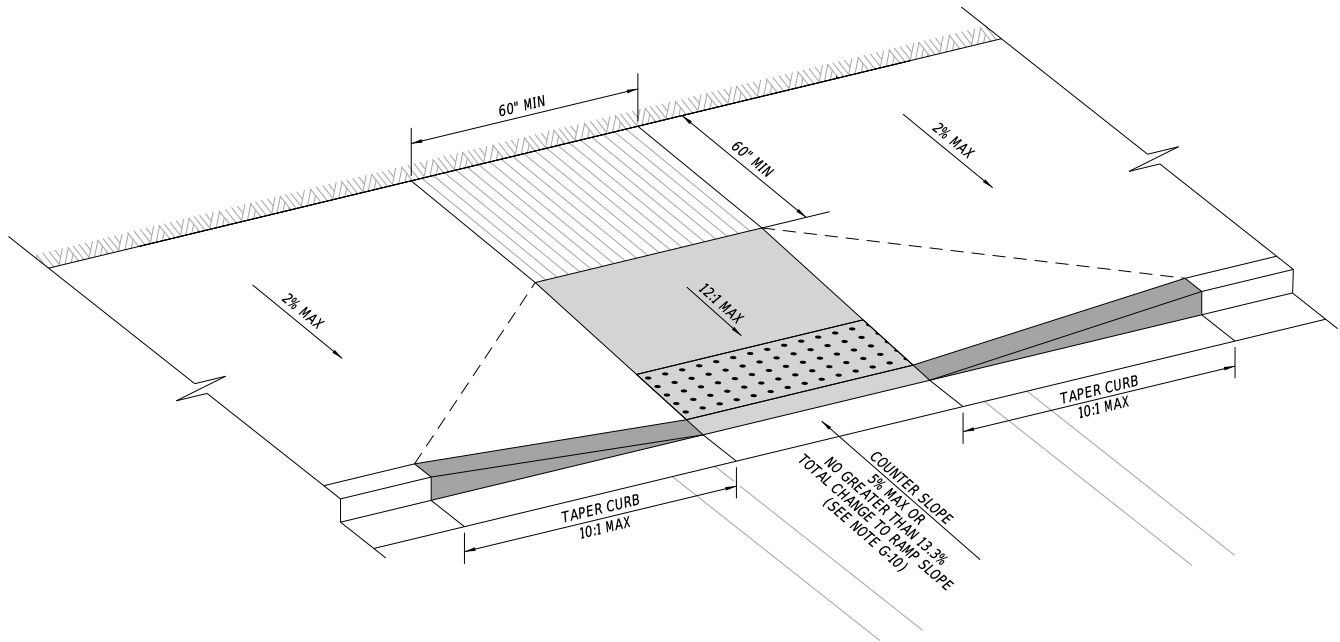
ALTERATIONS TO EXISTING FACILITIES

- ALT-1. Exception: in alteration work, if compliance is technically infeasible, the alteration shall provide accessibility to the maximum extent practicable. Any elements or features of the building or facility that is being altered and can be made accessible shall be made accessible within the scope of the alteration.
- ALT-2. Technical infeasibility: means, with respect to a building or a facility, that it has little likelihood of being accomplished because existing structural conditions would require removing or altering a load bearing member which is an essential part of the structural frame; or because other existing physical or site constraints prohibit.
- ALT-3. In alterations where existing physical constraints prevent compliance to provide a curb ramp for each (marked) pedestrian crossing, a single diagonal curb ramp shall be permitted to serve both pedestrian street crossings.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS NOTES (9 OF 9)	REVISED	PF 1

	CHIEF ENGINEER			

	DESIGN ENGINEER			
	DATE:			



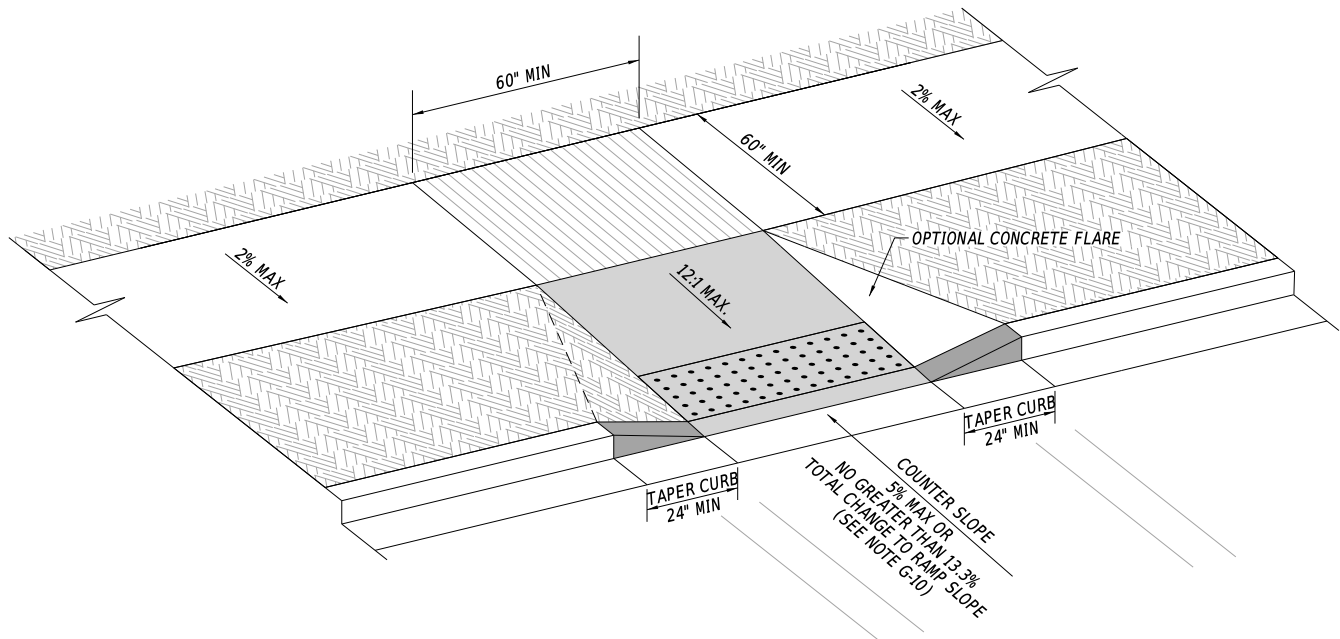
PERPENDICULAR CURB RAMP
NO BUFFER

NOTES:

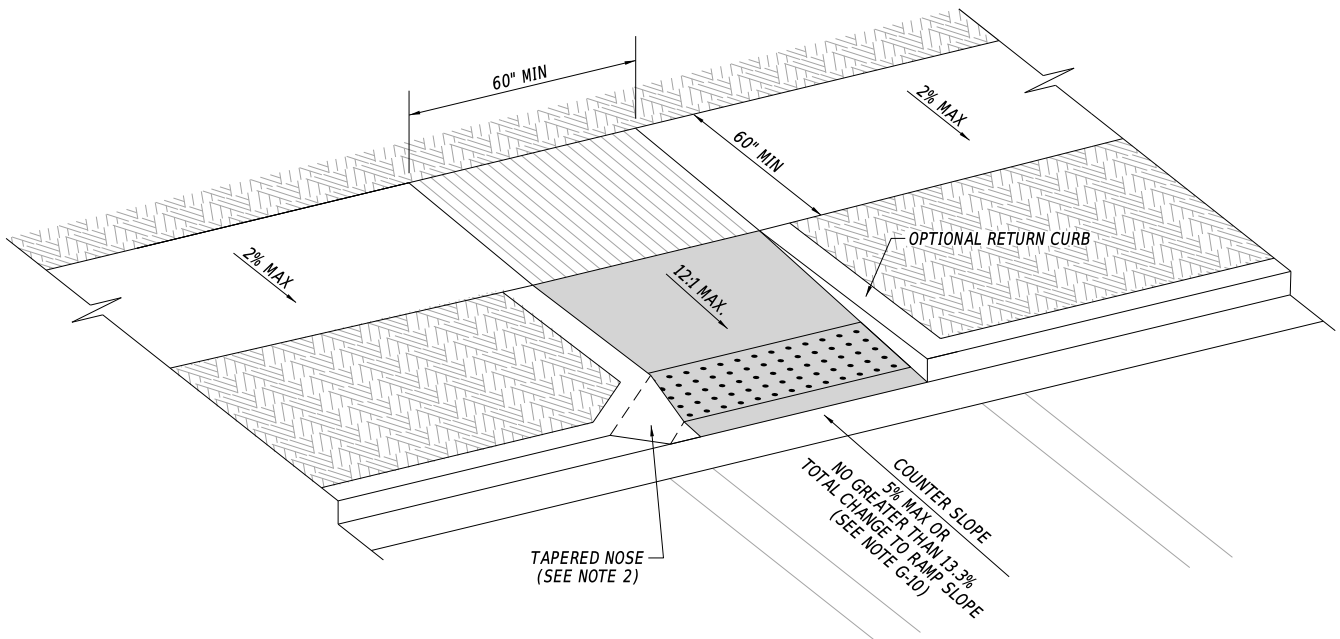
1. TO BE USED ON WIDE SIDEWALKS WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS PERPENDICULAR WIDE SIDEWALK, NO BUFFER	REVISED	PF 2
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
	DATE:			



TAPERED CURB AND OPTIONAL FLARES



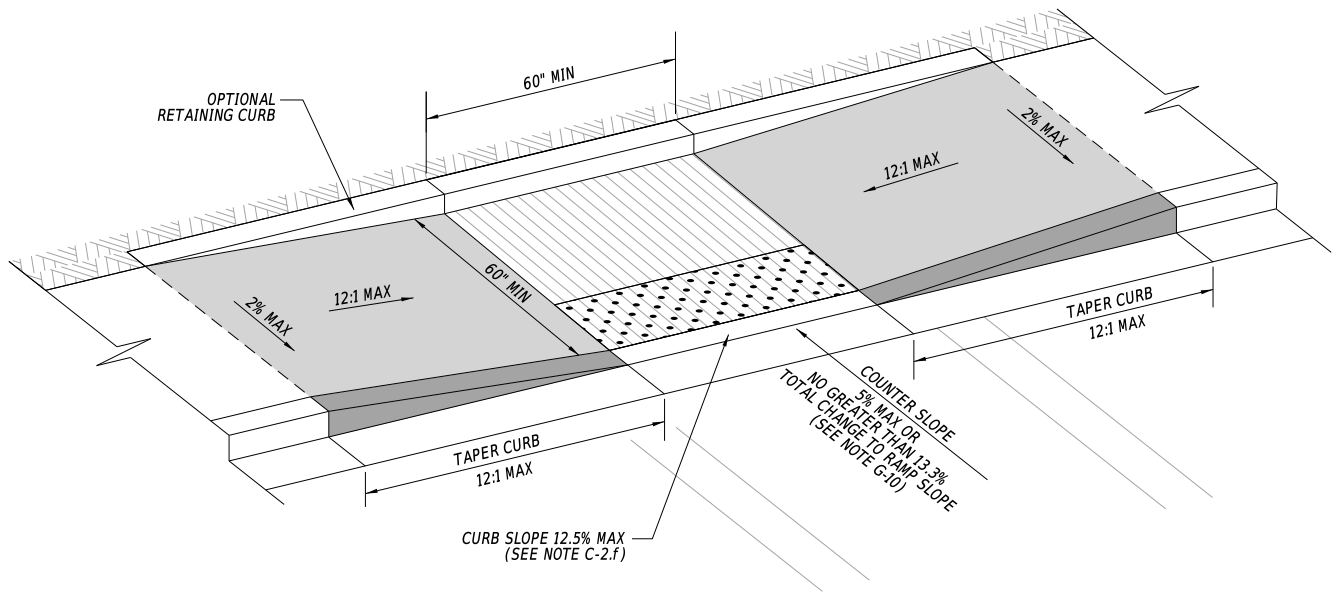
RETURNED CURBS

NOTES:

1. TO BE USED ON SIDEWALKS WITH SIGNIFICANT SEPARATION FROM THE ROADWAY WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. BLUNT CURB ENDS THAT POSE A HAZARD TO SNOW PLOWS SHALL BE AVOIDED. WHEN RETAINING CURBS ARE USED, THE DOWNSTREAM SIDE OF THE CURB RAMP OPENING SHALL BE TAPERED AT 2 FT MINIMUM. SEE PED. FAC. STD. DETAIL PF-17 - TAPERED NOSE.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS PERPENDICULAR WITH BUFFER	REVISED	PF 3
	_____		_____	
	CHIEF ENGINEER		_____	
	DESIGN ENGINEER		_____	
DATE:				



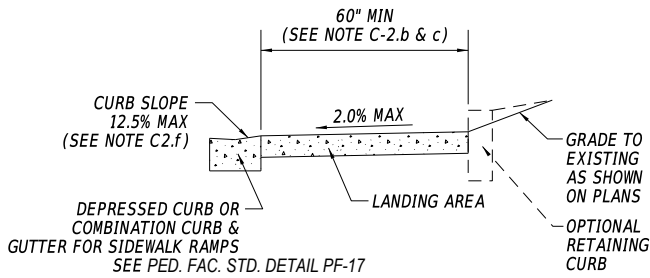
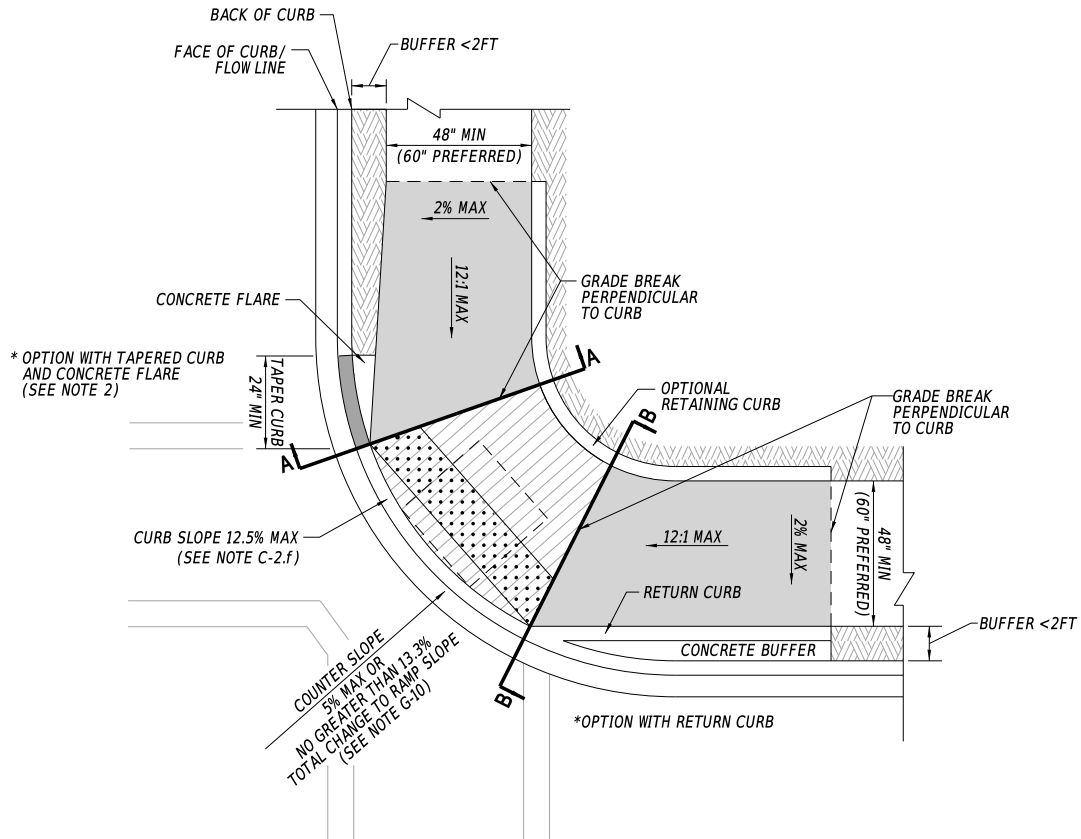
PARALLEL CURB RAMP
NO BUFFER

NOTES:

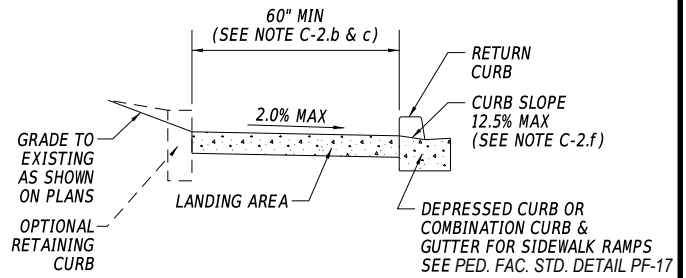
1. TO BE USED WHERE SIDEWALK IS ADJACENT TO THE CURB. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

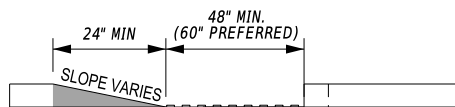
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS PARALLEL NO BUFFER	REVISED	PF 4
	_____		_____	
	CHIEF ENGINEER		_____	
	DESIGN ENGINEER		_____	
DATE:				



SECTION A-A



SECTION B-B



* OPTION WITH TAPERED CURB

* OPTION WITH RETURN CURB

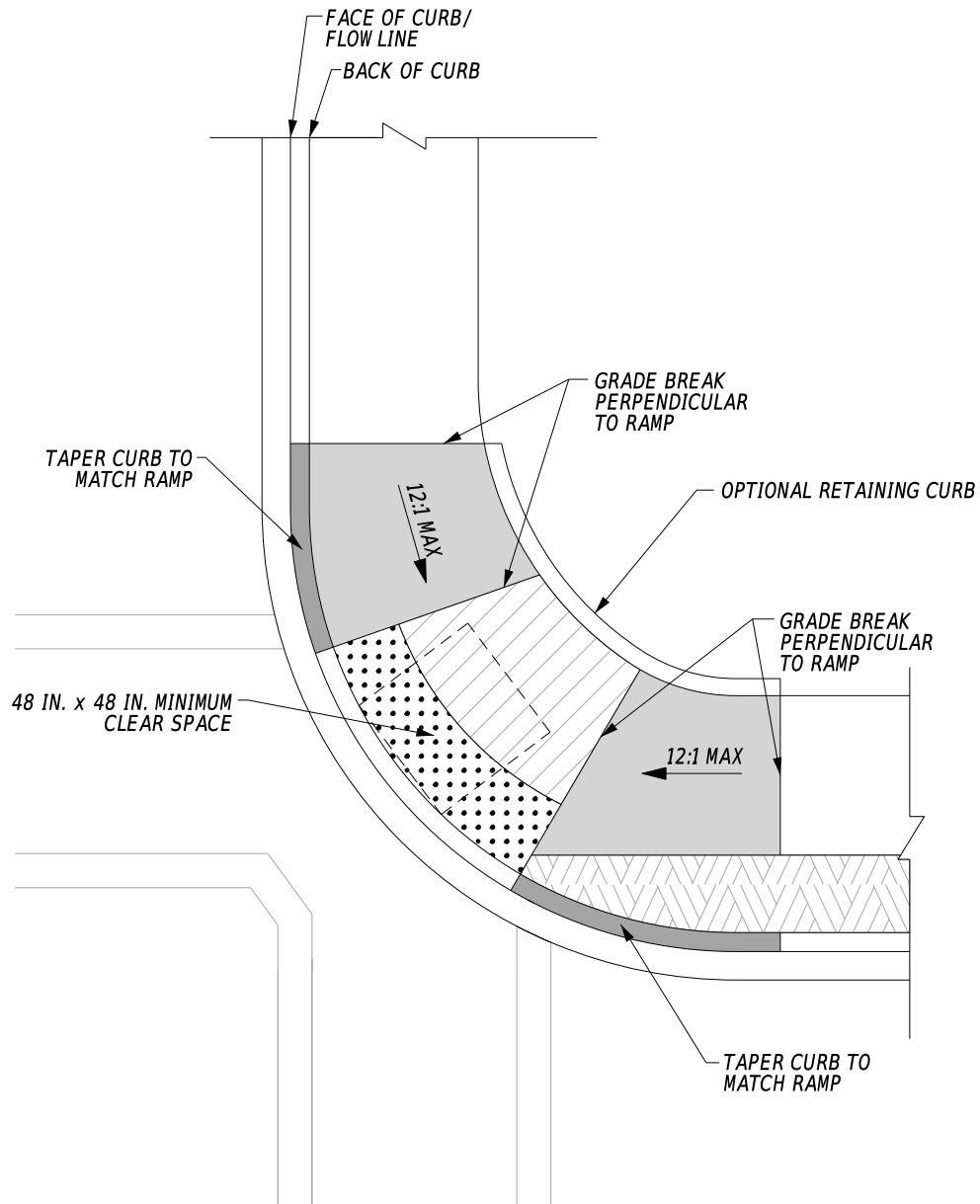
ELEVATION VIEW

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

NOTES:





1. THIS DETAIL IS INTENDED ONLY FOR ALTERATIONS ON EXISTING ROADS WHERE BUFFER WIDTH <2FT. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. BLUNT CURB ENDS THAT POSE A HAZARD TO SNOW PLOWS SHALL BE AVOIDED. THE DOWNSTREAM SIDE OF THE CURB RAMP OPENINGS SHALL BE TAPERED AT 2 FT. MINIMUM. SEE PED. FAC. STD. DETAIL PF-17 - TAPERED NOSE.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS PARALLEL DIAGONAL, LESS THAN 2' BUFFER	REVISED	PF 5
	DATE:			

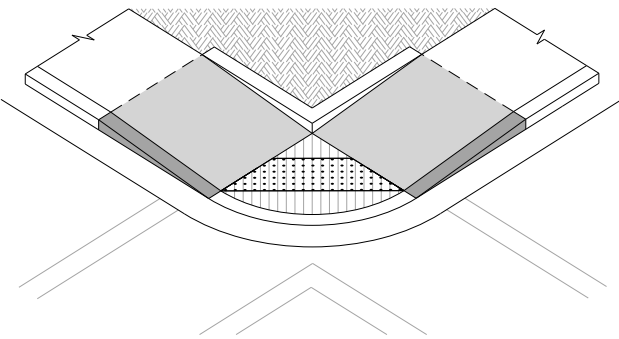
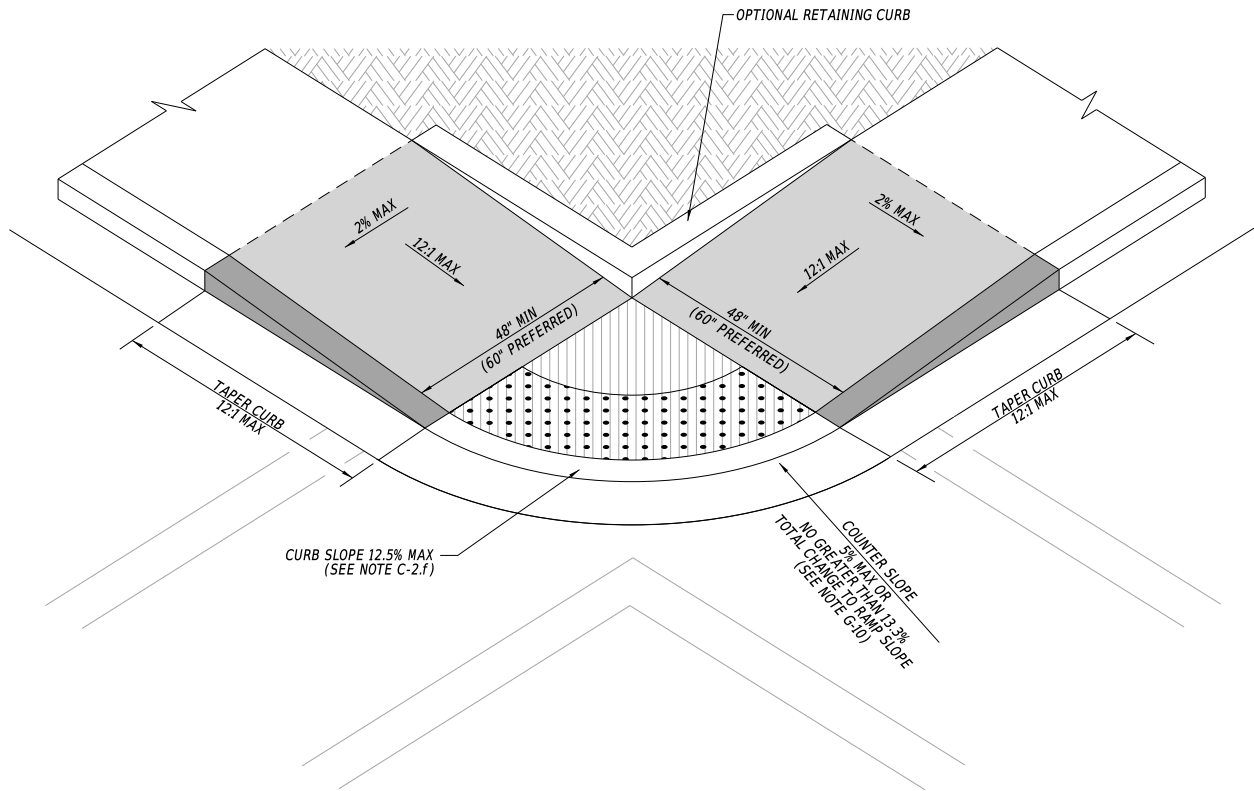


NOTES:

1. TO BE USED WHERE DIAGONAL RAMP IS INSTALLED WHERE SIDEWALK WITH NO BUFFER MEETS SIDEWALK WITH BUFFER AND THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. IF MARKED CROSSWALK EXISTS, SEPARATE RAMPS ARE PREFERRED AND THIS DETAIL SHOULD ONLY BE USED WHERE OBSTRUCTIONS NECESSITATE ITS USE.
3. BLUNT CURB ENDS THAT POSE A HAZARD TO SNOW PLOWS SHALL BE AVOIDED. WHEN RETAINING CURBS ARE USED, THE DOWNSTREAM SIDE OF THE CURB RAMP OPENING SHALL BE TAPERED AT 2 FT MINIMUM. SEE PED. FAC. STD. DETAIL PF-17 - TAPERED NOSE.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1





ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS PARALLEL DIAGONAL, BUFFER TO NO BUFFER	REVISED	PF 6
	DATE:			
	_____ CHIEF ENGINEER			
	_____ DESIGN ENGINEER			



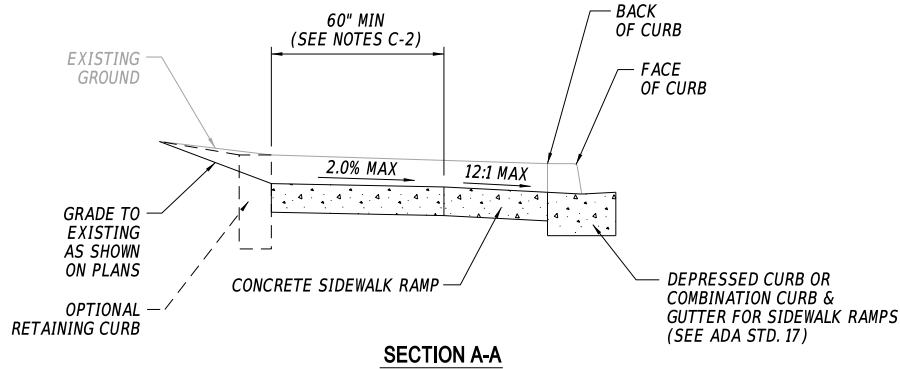
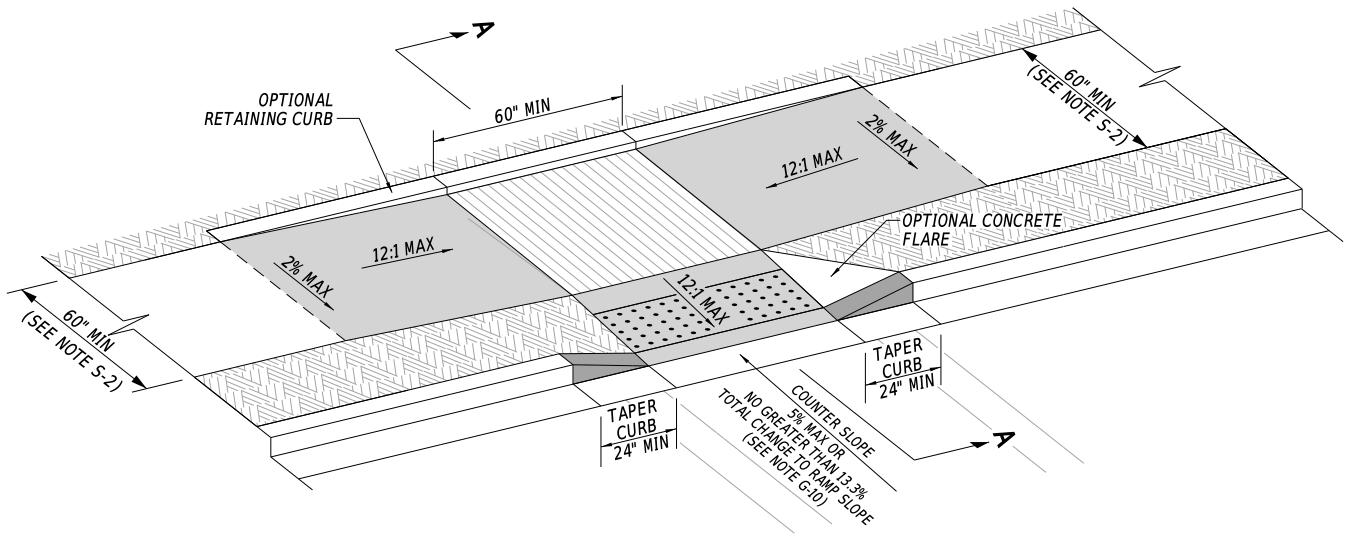
OPTIONAL DWS PLACEMENT

NOTES:

1. THIS DETAIL IS INTENDED ONLY FOR ALTERATIONS ON EXISTING ROADS. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.

LEGEND	
	= LANDING/TURNING SPACE SEE ADA NOTES C-2
	= RAMP SURFACE SEE ADA NOTES C-1
	= TAPERED CURB SEE ADA NOTES C-3
	= DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS PARALLEL DEPRESSED CORNER	REVISED	PF 7
	DATE:			
	_____ CHIEF ENGINEER			
	_____ DESIGN ENGINEER			



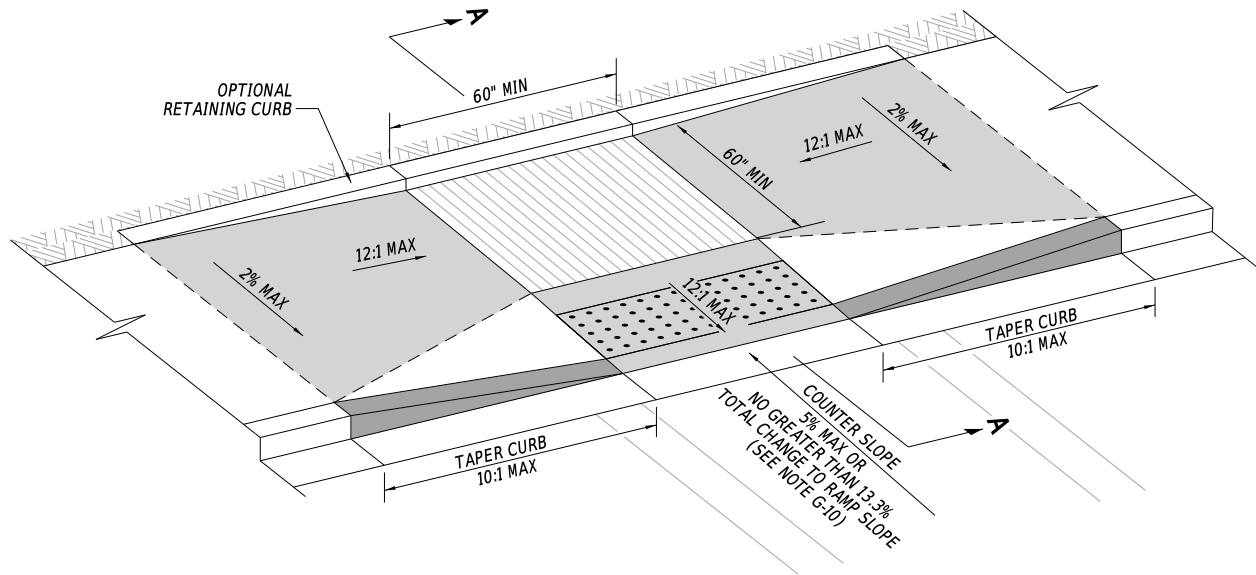
SECTION A-A

LEGEND	
	= LANDING/TURNING SPACE SEE ADA NOTES C-2
	= RAMP SURFACE SEE ADA NOTES C-1
	= TAPERED CURB SEE ADA NOTES C-3
	= DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

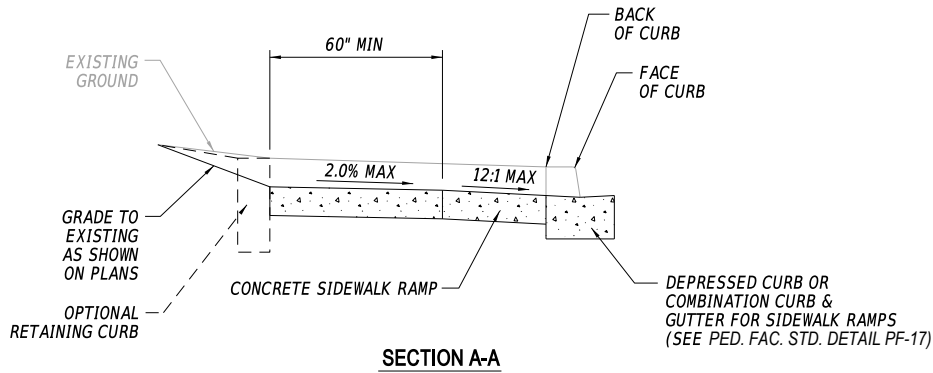
NOTES:

1. TO BE USED WHERE AT LEAST 2 FOOT BUFFER EXISTS BETWEEN THE BACK OF CURB AND SIDEWALK. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS COMBINATION WITH BUFFER	REVISED	PF 8
	DATE:			
	_____ CHIEF ENGINEER			
	_____ DESIGN ENGINEER			



**COMBINATION CURB RAMP
NO BUFFER**



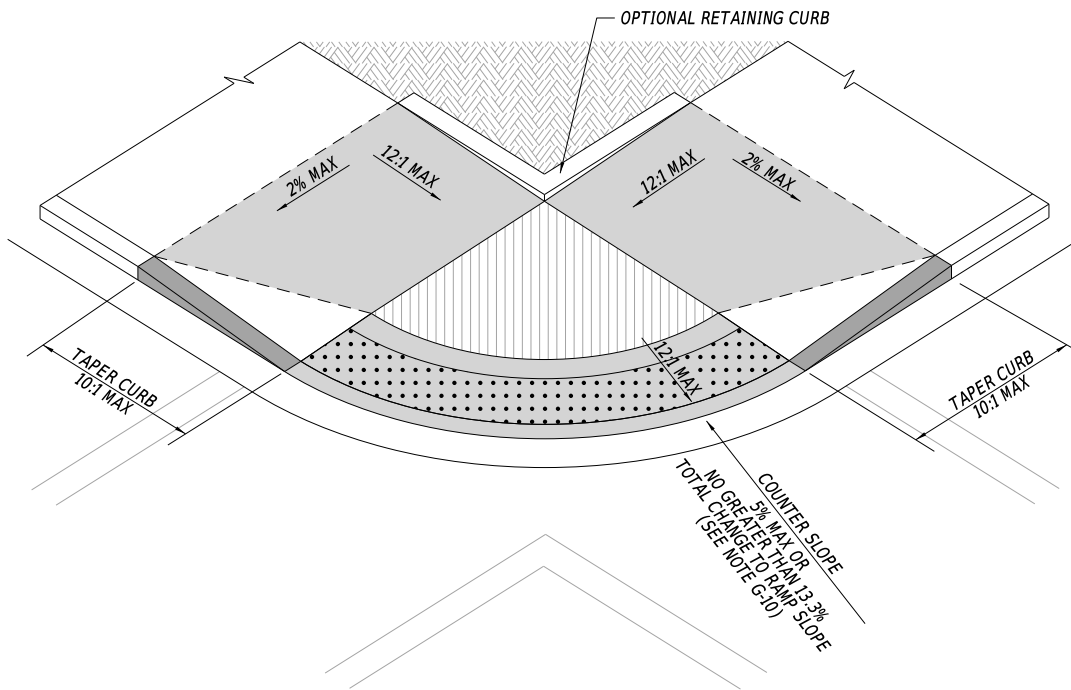
SECTION A-A

NOTES:

1. TO BE USED ON WIDE SIDEWALKS WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS COMBINATION WIDE SIDEWALK, NO BUFFER	REVISED	PF 9
	DATE:			
	_____ CHIEF ENGINEER			
	_____ DESIGN ENGINEER			

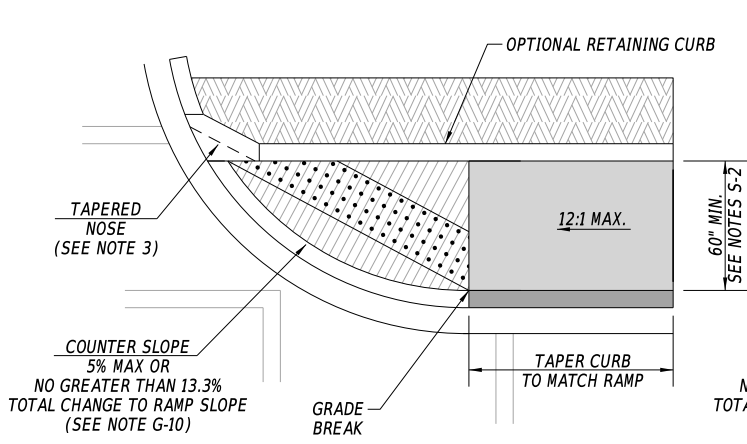


NOTES:

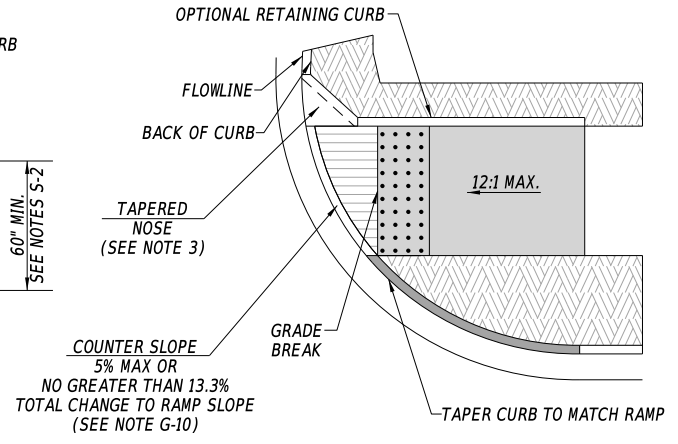
1. THIS DETAIL IS INTENDED ONLY FOR ALTERNATIVES ON EXISTING ROADS WITH WIDE SIDEWALKS WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.

LEGEND	
	= LANDING/TURNING SPACE SEE ADA NOTES C-2
	= RAMP SURFACE SEE ADA NOTES C-1
	= TAPERED CURB SEE ADA NOTES C-3
	= DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

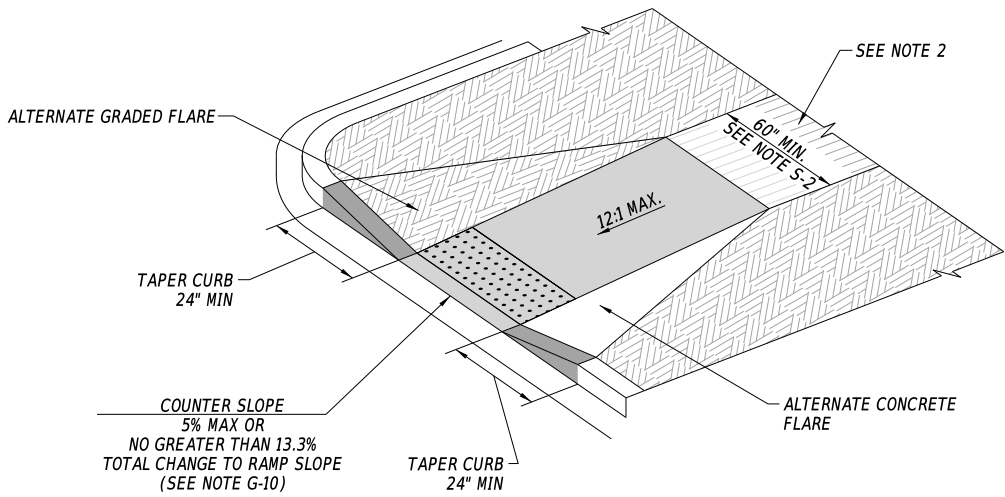
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED _____ CHIEF ENGINEER	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS COMBINATION FAN TYPE	REVISED _____	PF 10
	_____ DESIGN ENGINEER		_____	
	DATE:		_____	
	_____		_____	



ON RADIUS - NO BUFFER



ON RADIUS - WITH BUFFER



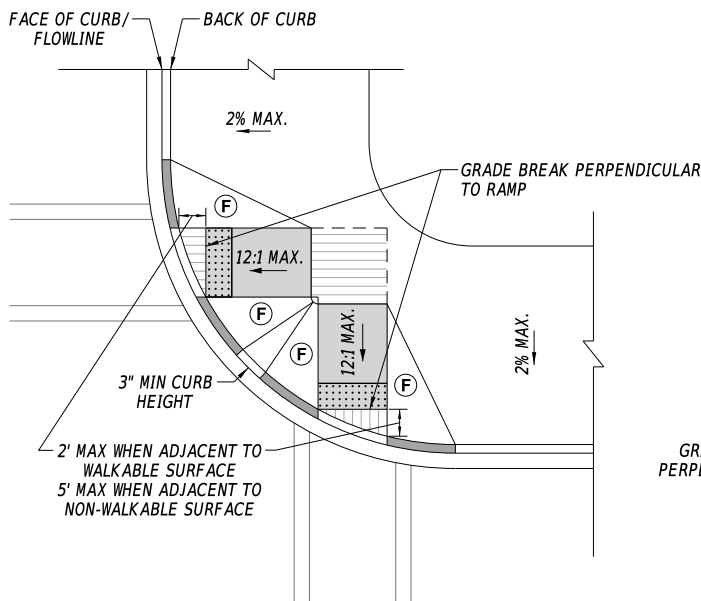
ON TANGENT

NOTES:

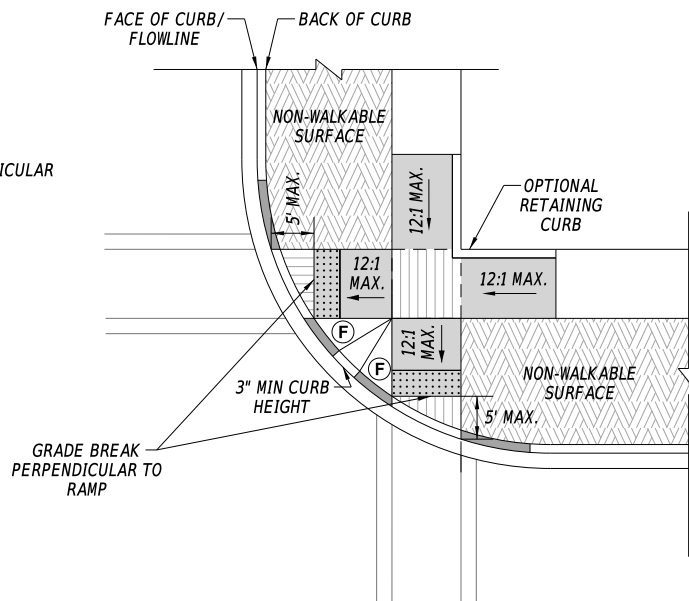
1. TO BE USED ON WIDE SIDEWALKS WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. IF RUNNING SLOPE OF CONNECTING SIDEWALK IS 5% OR LESS WITH NO REQUIRED TURNING MOVEMENTS, NO LANDING IS REQUIRED.
3. BLUNT CURB ENDS THAT POSE A HAZARD TO SNOW PLOWS SHALL BE AVOIDED. WHEN RETAINING CURBS ARE USED, THE DOWNSTREAM SIDE OF THE CURB RAMP OPENING SHALL BE TAPERED AT 2 FT MINIMUM. SEE PED. FAC. STD. DETAIL PF-17 - TAPERED NOSE.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

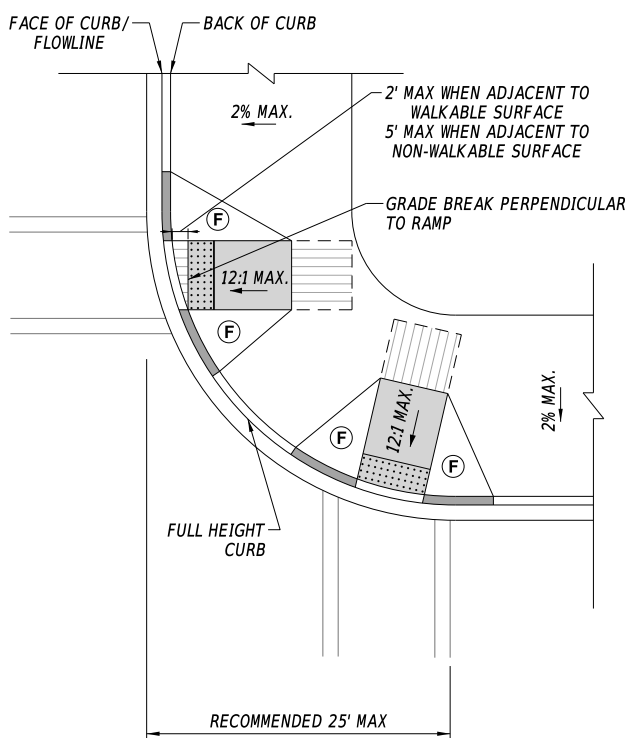
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS CURB RAMPS ONE DIRECTION	REVISED	PF 11
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:	_____			



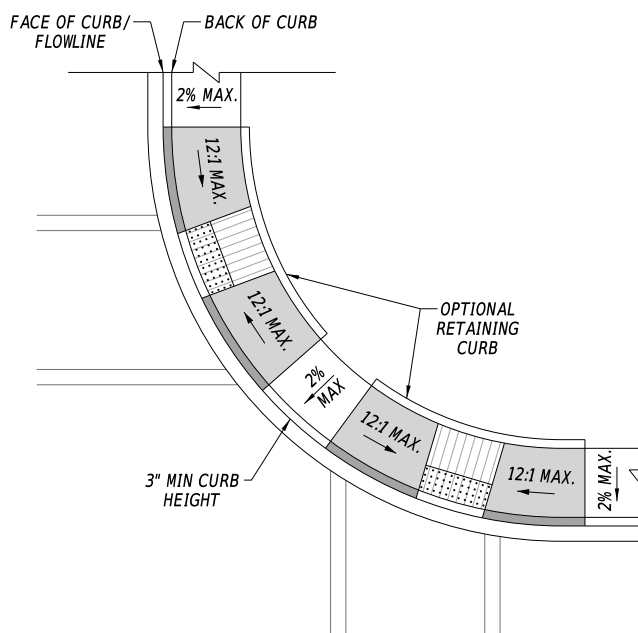
PERPENDICULAR RAMPS ON RADIUS SHARED LANDING WIDE SIDEWALK



COMBINATION RAMPS ON RADIUS SHARED LANDING WITH BUFFER



PERPENDICULAR RAMPS ON RADIUS DIRECTIONAL AND NON-DIRECTIONAL, WIDE SIDEWALK



PARALLEL RAMPS ON RADIUS NORMAL SIDEWALK

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1
	RAMP FLARE SEE ADA NOTES C-3

ANNE ARUNDEL
COUNTY
DEPARTMENT OF
PUBLIC WORKS

APPROVED

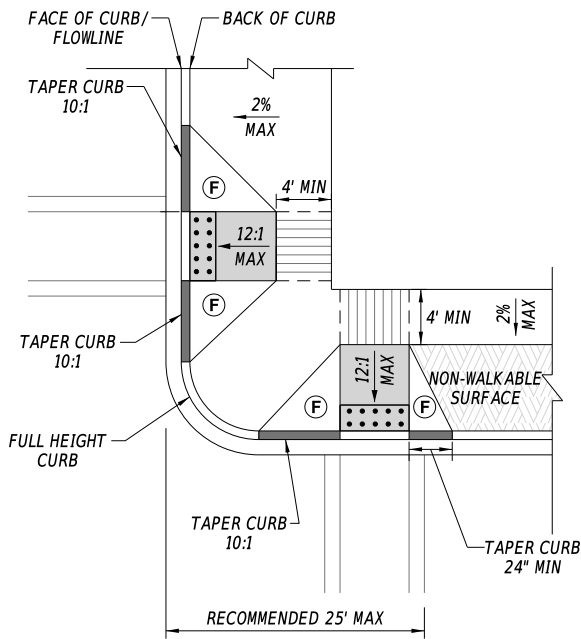
CHIEF ENGINEER

DESIGN ENGINEER
DATE:

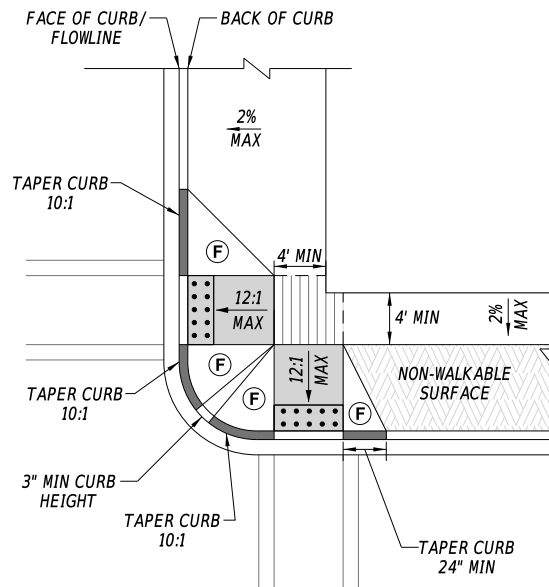
STANDARD PEDESTRIAN
FACILITY DETAILS
CURB RAMPS
TWO RAMP CORNER
NEW CONSTRUCTION
RADIUS ≥ 20 FT

REVISED

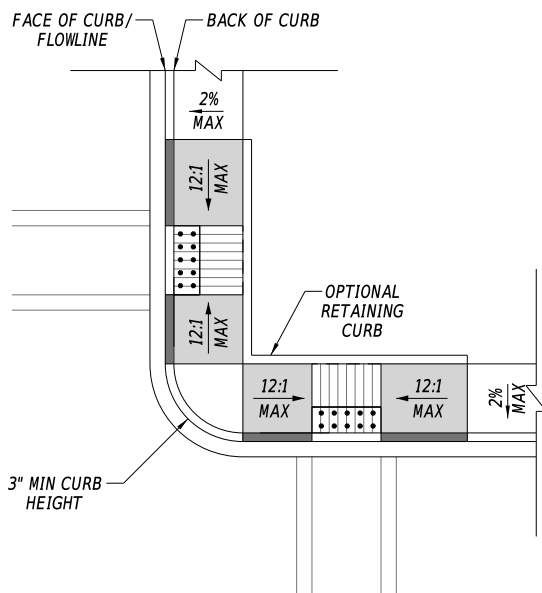
PF
12



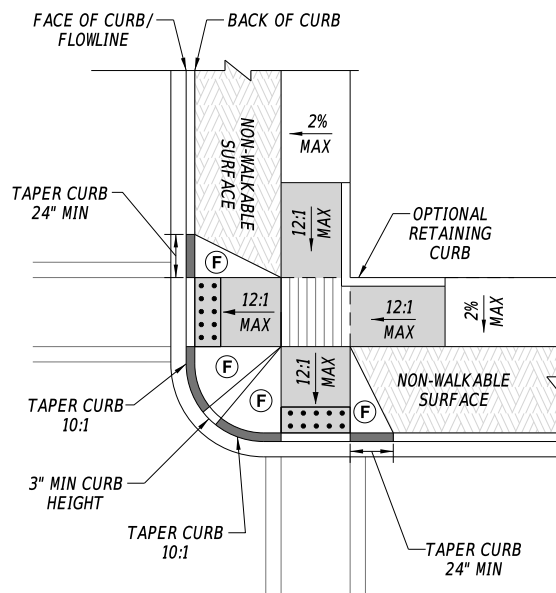
PERPENDICULAR RAMP ON TANGENT WIDE SIDEWALK OR WIDE BUFFER



PERPENDICULAR RAMP ON TANGENT WIDE SIDEWALK OR WIDE BUFFER SHARED LANDING



PARALLEL RAMP ON TANGENT



COMBINATION RAMP, DIRECTIONAL SHARED LANDING WITH BUFFER

NOTES:

1. RAMP FLARES/TAPERED CURB LENGTHS SHALL BE 2 FT MINIMUM WHEN ADJACENT TO NON-WALKABLE SURFACES, OR 10:1 WHEN ADJACENT TO WALKABLE SURFACES. SEE ADA NOTES SECTION C-3 FOR ADDITIONAL INFORMATION.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1
	RAMP FLARE SEE ADA NOTES C-3

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED

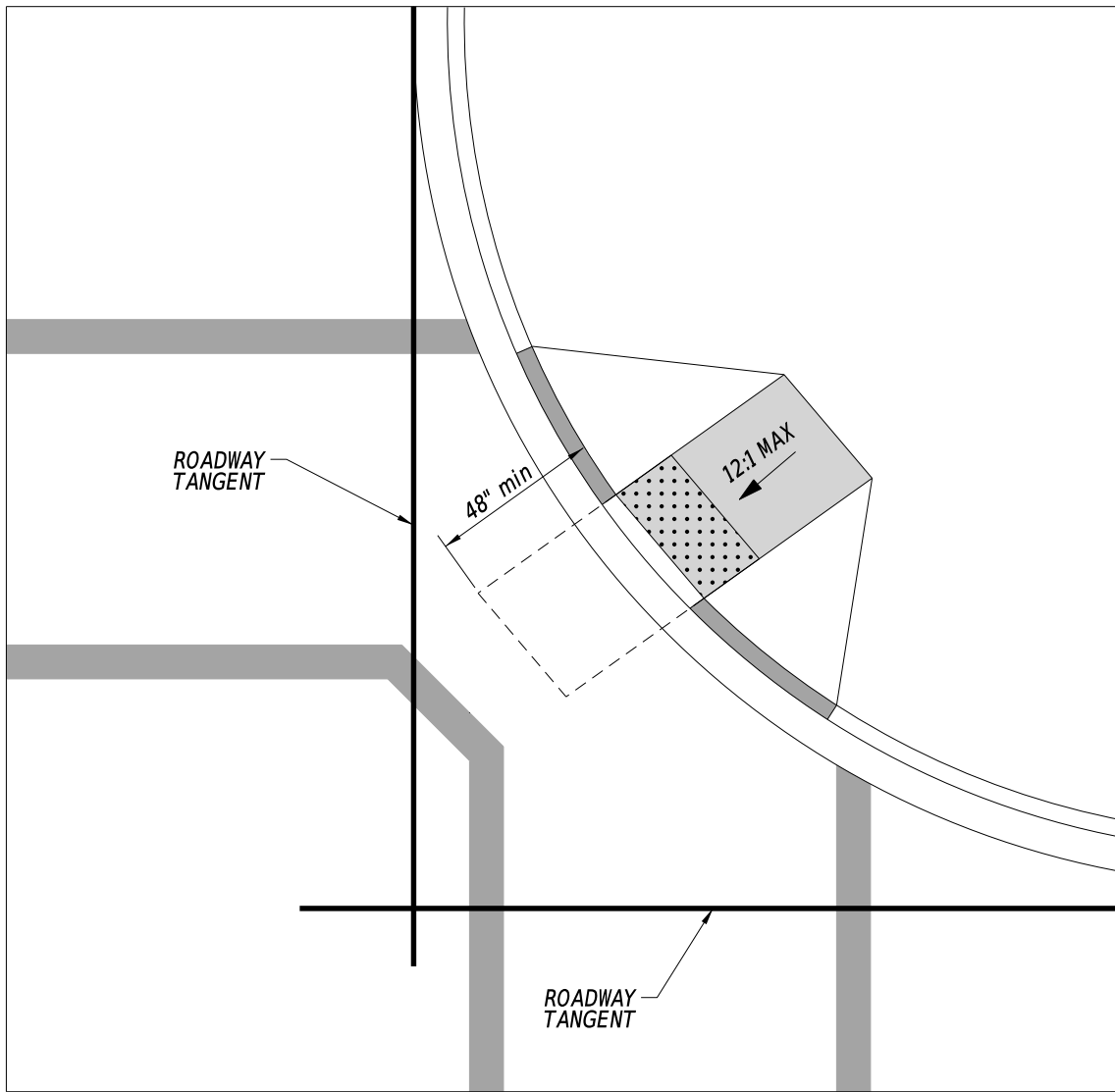
CHIEF ENGINEER

DESIGN ENGINEER
DATE:

STANDARD PEDESTRIAN FACILITY DETAILS
CURB RAMPS
TWO RAMP CORNER
ALTERATIONS
RADIUS <20 FT





REVISED

PF
13

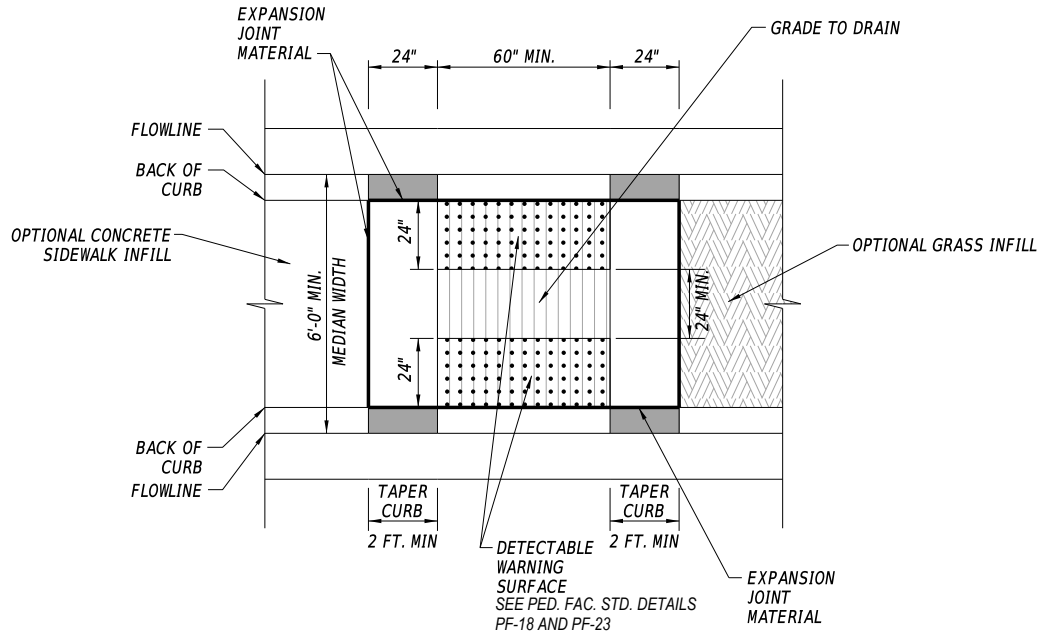


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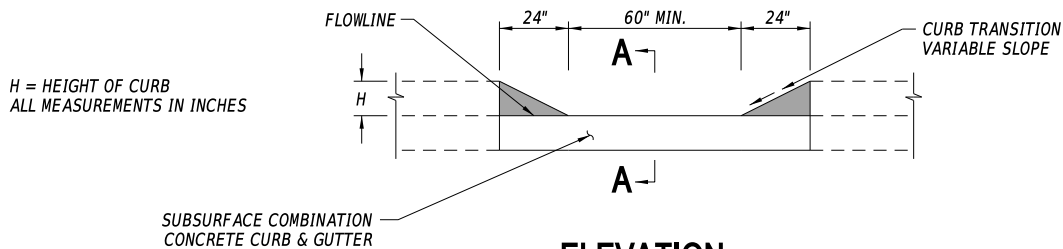
1. DIAGONAL CURB RAMPS REQUIRE A CHANGE IN DIRECTION UPON ENTERING THE STREET AND REQUIRE A 48" x 48" CLEAR SPACE/REFUGE OUTSIDE THE ACTIVE VEHICLE TRAFFIC LANES. CLEAR SPACE SHALL BE GENERALLY PLANAR, AND FREE OF OBSTRUCTIONS, STRUCTURES, AND PONDING.
2. THE REFUGE AREA IS DETERMINED BY PROJECTING THE TANGENT OF THE STRAIGHT CURB LINES OUT TO WHERE THEY INTERSECT (SEE ABOVE). THE 48 x 48 REFUGE MUST BE WHOLLY WITHIN THAT SPACE.
3. IF THERE IS A MARKED CROSSWALK, THE RAMP AND CLEAR SPACE ALSO MUST FIT INSIDE THE MARKINGS.

LEGEND	
	= LANDING/TURNING SPACE SEE ADA NOTES C-2
	= RAMP SURFACE SEE ADA NOTES C-1
	= TAPERED CURB SEE ADA NOTES C-3
	= DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

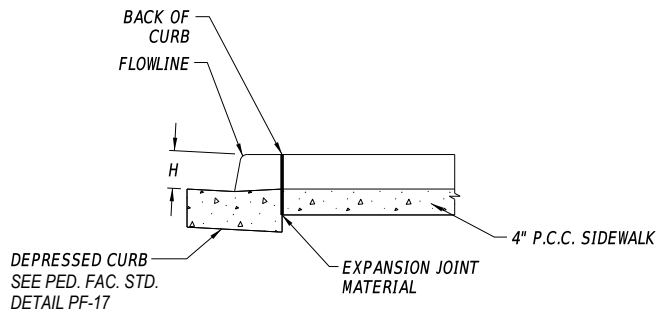
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS	REVISED	PF 14
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER	DIAGONAL RAMP		
	DATE:			



PLAN



ELEVATION



SECTION A-A

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL
COUNTY
DEPARTMENT OF
PUBLIC WORKS

APPROVED

CHIEF ENGINEER

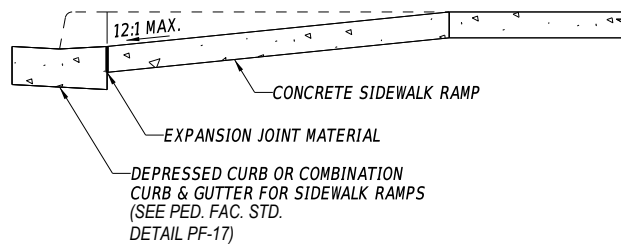
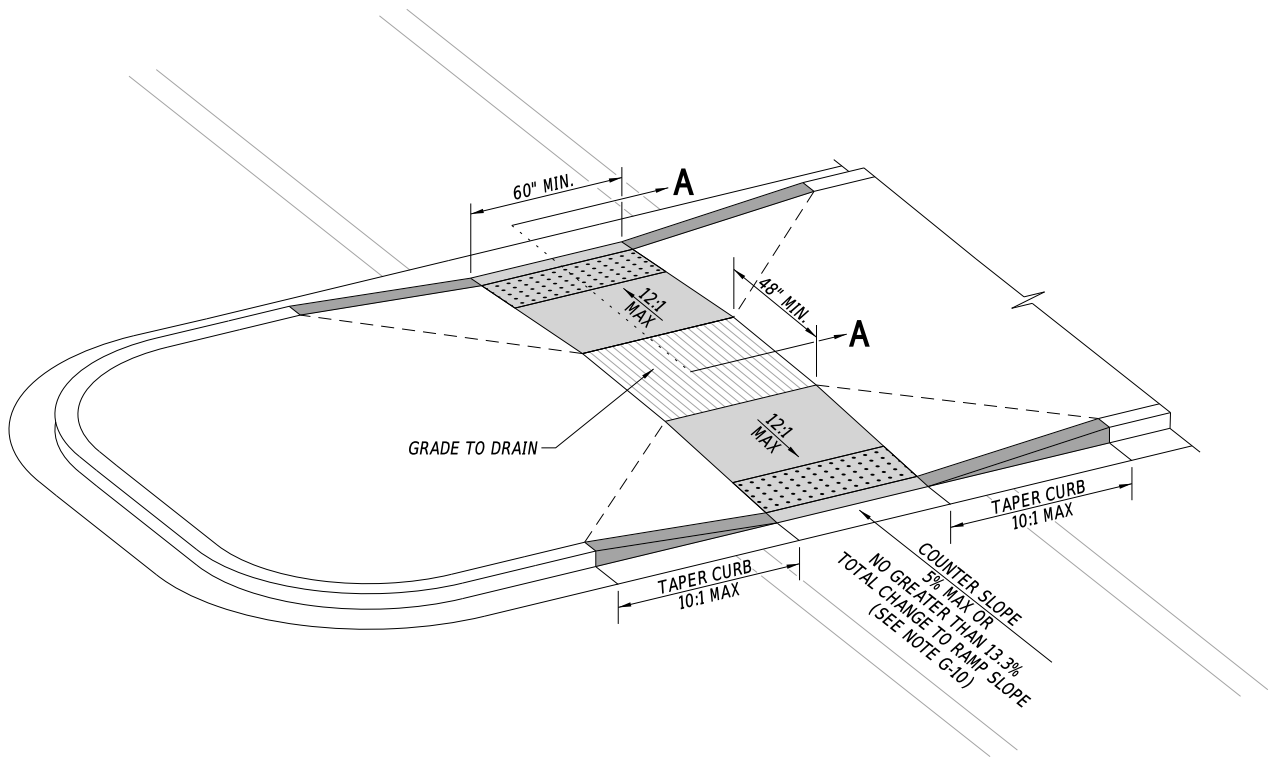
DESIGN ENGINEER
DATE:

STANDARD PEDESTRIAN
FACILITY DETAILS

CUT THROUGH
MEDIAN AND ISLAND OPENINGS

REVISED

PF
15



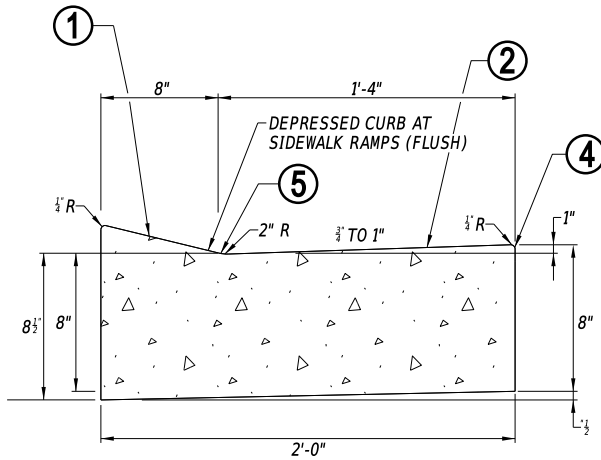
SECTION A-A

NOTES:

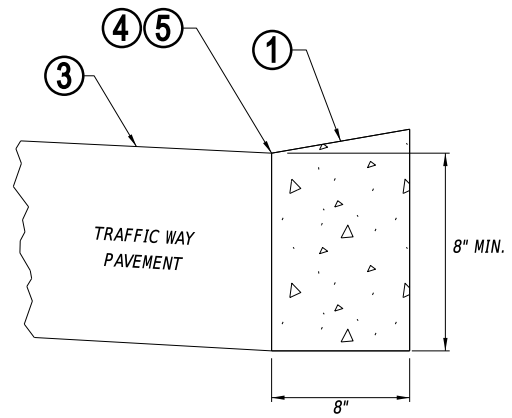
1. TO BE USED ON WIDE MEDIANS WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.

LEGEND	
	= LANDING/TURNING SPACE SEE ADA NOTES C-2
	= RAMP SURFACE SEE ADA NOTES C-1
	= TAPERED CURB SEE ADA NOTES C-3
	= DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

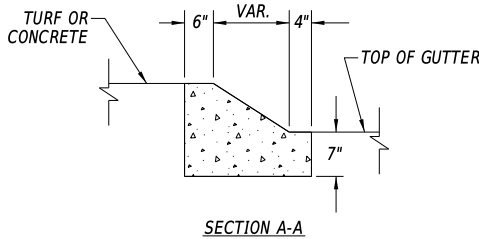
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS	REVISED	PF 16
	DATE:			
	_____ CHIEF ENGINEER	RAMPED MEDIAN AND ISLAND OPENINGS		
	_____ DESIGN ENGINEER			



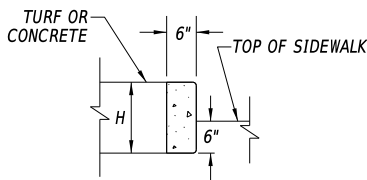
**DEPRESSED CURB FOR COMBINATION
CONCRETE CURB & GUTTER
FOR SIDEWALK RAMPS**



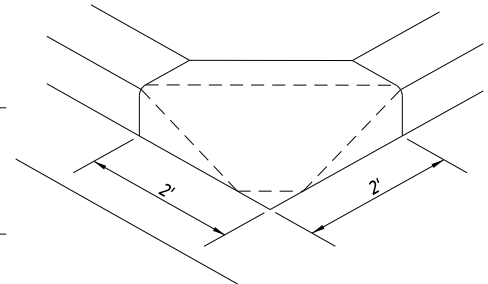
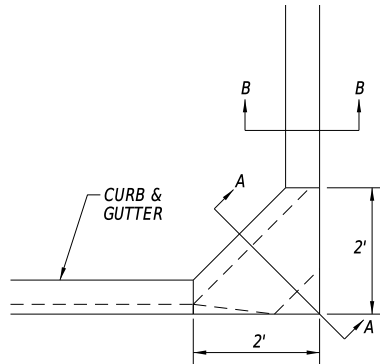
**DEPRESSED
CONCRETE CURB
FOR SIDEWALK RAMPS**



SECTION A-A



SECTION B-B

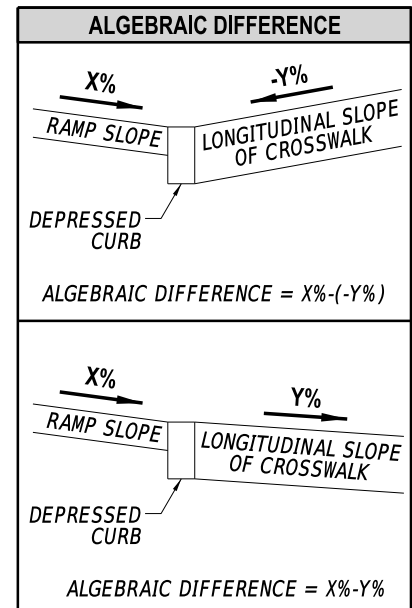


TAPERED NOSE

- ① CURB SLOPE SHOULD BE EQUAL TO THE SLOPE OF ANY 12:1 CONNECTING CURB RAMP. WHEN CURB SLOPE IS GREATER THAN THE CONNECTING CURB RAMP OR LANDING/TURNING SPACE, THE SLOPE OF THE CURB MAY BE 12.5% MAX., BUT TOTAL ALGEBRAIC DIFFERENCE TO THE GUTTER OR ROAD SURFACE SHALL BE NO GREATER THAN 13.33%.
- ② SLOPE GUTTER PAN 5% MAX. TOWARD FLOW LINE, BUT TOTAL ALGEBRAIC DIFFERENCE SHALL BE NO GREATER THAN 13.33%
- ③ ROADWAY PAVEMENT SLOPE. TOTAL ALGEBRAIC DIFFERENCE SHALL BE NO GREATER THAN 13.33%.
- ④ ROADWAY PAVEMENT JOINT.
- ⑤ FLOW LINE

NOTES:

- 1. PAYMENT FOR DEPRESSING THE CURB WILL BE INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR THE ITEM CONCRETE CURB OR COMBINATION CONCRETE CURB AND GUTTER, AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- 2. BLUNT CURB ENDS THAT POSE A HAZARD TO SNOW PLOWS SHALL BE AVOIDED. WHEN RETAINING CURBS ARE USED, THE DOWNSTREAM SIDE OF THE CURB RAMP OPENING SHALL BE TAPERED AT 2 FT MINIMUM.



ANNE ARUNDEL
COUNTY
DEPARTMENT OF
PUBLIC WORKS

APPROVED

CHIEF ENGINEER

DESIGN ENGINEER
DATE:

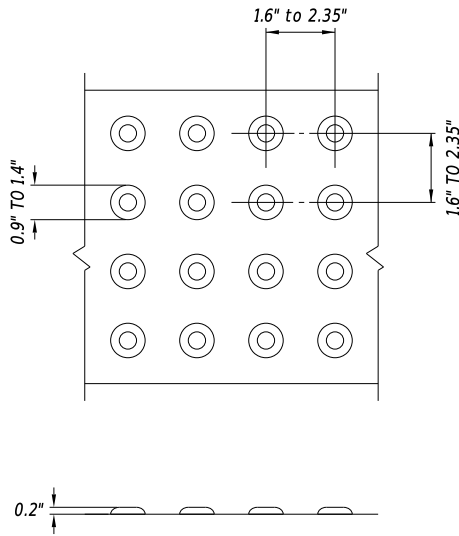
STANDARD PEDESTRIAN
FACILITY DETAILS

DEPRESSED CURB

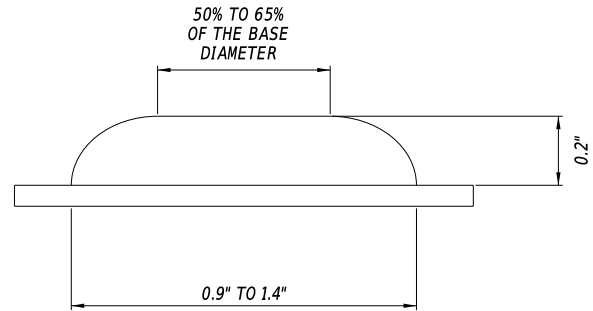
REVISED

PF
17

MAT DETAILS



DOMES SPACING



DOMES SECTION

NOTES:

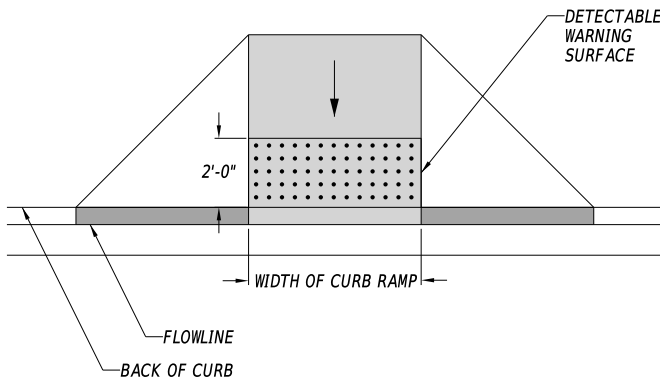
1. DETECTABLE WARNING SURFACES ARE REQUIRED AT NAMED STREET CROSSINGS, INCLUDING SIGNED ALLEYS, SIGNALIZED ENTRANCES, REFUGE ISLANDS AND MEDIANS \geq 6 FEET IN WIDTH, AND AT RAILROAD CROSSINGS.
2. DETECTABLE WARNING SURFACES SHALL EXTEND 2.0 FEET MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL. WHEN PLACED AT DEPRESSED CURB, THE LEADING EDGE OF THE DWS SHOULD NOT BE MORE THAN 2 INCHES FROM THE BACK OF CURB. WHERE THE BACK OF CURB EDGE IS TOOLED TO PROVIDE A RADIUS, THE DWS SHOULD BE WITHIN 2 INCHES MEASURED AT THE CORNER(S) OF THE DWS WHERE THE BACK OF CURB RADIUS MEETS THE EDGE OF THE RAMP, LANDING, OR BLENDED TRANSITION.
3. DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN (EXCLUDING ANY FLARED SIDES), BLENDED TRANSITION, OR TURNING SPACE. THE EDGES OF THE DWS SHOULD NOT BE MORE THAN 2 INCHES FROM THE LIMIT OF THE DEPRESSED CURB, EDGE OF FLARE OR RETURN CURB. WHEN NO FLARE OR CURB FACE IS PRESENT, THE DWS SHOULD NOT BE MORE THAN 2 INCHES FROM THE EDGE OF CONCRETE. THESE DIMENSIONS REQUIRE CAREFUL PLANNING ON THE PART OF THE CONTRACTOR TO ENSURE THE DWS CAN BE PLACED PROPERLY.
3. WHEN DETECTABLE WARNINGS ARE PLACED ON A SLOPE GREATER THAN 5%, DOMES SHALL BE ALIGNED WITH THE CENTERLINE OF THE RAMP; OTHERWISE DOMES ARE NOTE REQUIRED TO BE ALIGNED.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS DETECTABLE WARNINGS MAT DETAILS	REVISED

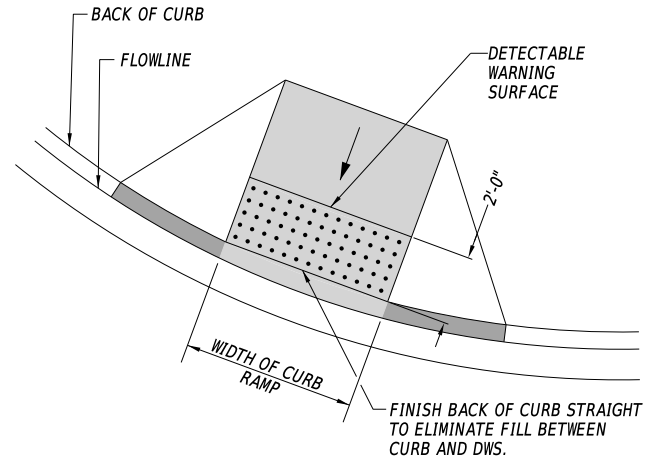
	CHIEF ENGINEER		

	DESIGN ENGINEER		
DATE:			PF 18

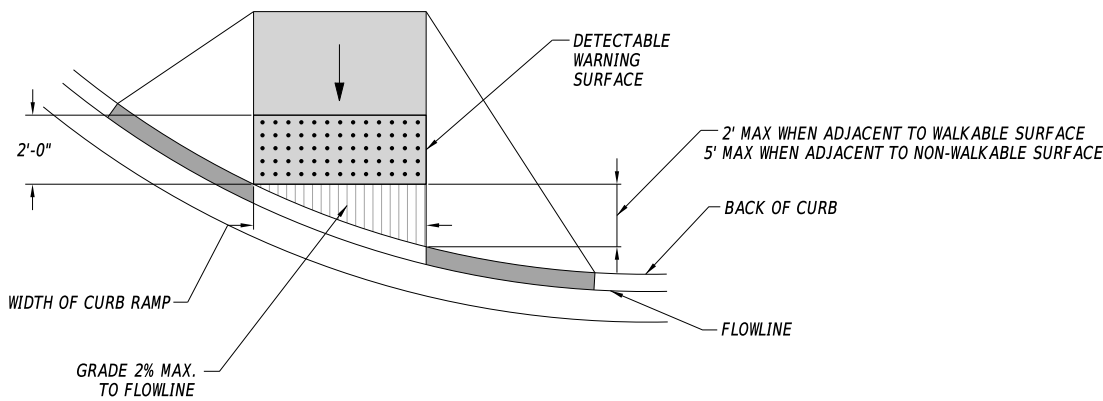
PLACEMENT GUIDELINES



PERPENDICULAR ON TANGENT



PERPENDICULAR ON RADIUS



PERPENDICULAR DIRECTIONAL ON RADIUS

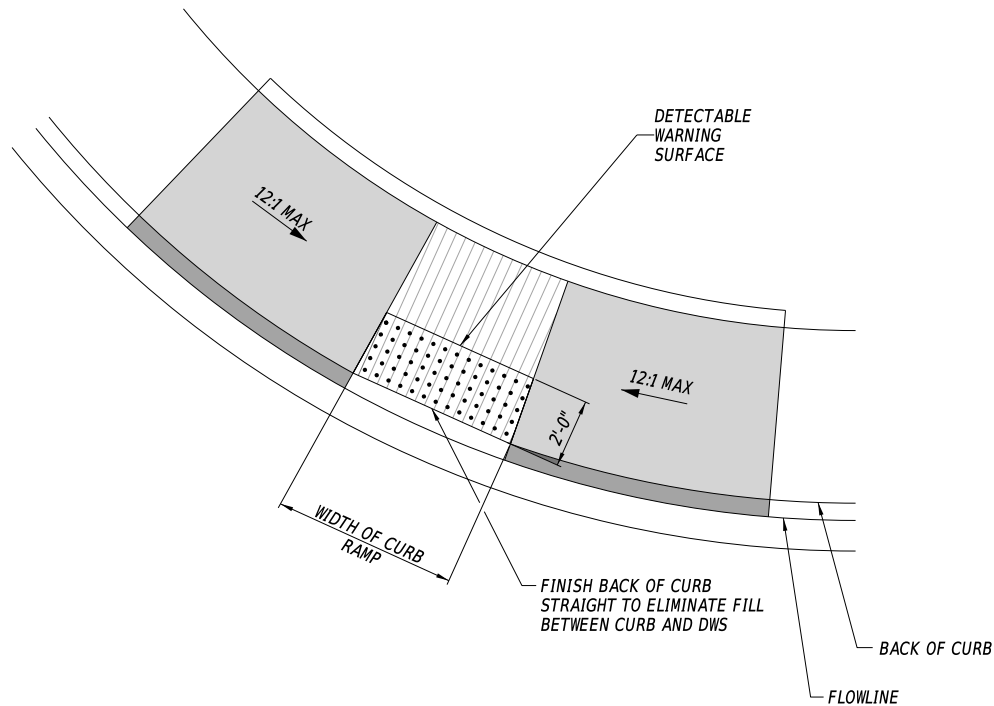
NOTES:

1. DETECTABLE WARNING SURFACES ARE REQUIRED AT NAMED STREET CROSSINGS, INCLUDING SIGNED ALLEYS, AND SIGNALIZED INTERSECTIONS
2. PERPENDICULAR RAMPS - WHERE BOTH ENDS OF THE GRADE BREAK AT THE BOTTOM OF A RAMP ARE 5 FT. OR LESS FROM THE BACK OF THE CURB, THE DWS SHALL BE LOCATED AT THE BOTTOM OF THE RAMP BEHIND THE GRADE BREAK. IF THE SPACE BETWEEN THE GRADE BREAK AT THE BOTTOM OF THE RAMP AND THE BACK OF CURB IS GREATER THAN 5 FT. ON EITHER SIDE OF THE RAMP, THE DWS SHALL BE PLACED AT THE BACK OF CURB.
3. THE DWS SHOULD SPAN THE WIDTH OF THE CURB RAMP. THE EDGE OF THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF THE FLARE OR RETURN CURB. WHEN NO FLARE OR CURB FACE IS PRESENT THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF CONCRETE. THESE DIMENSIONS REQUIRE CAREFUL PLANNING ON THE PART OF THE CONTRACTOR TO ENSURE THE DWS CAN BE PLACED WHILE FORMS ARE PRESENT, OR AFTER THEY ARE REMOVED WHILE THE CONCRETE IS STILL PLASTIC.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS	REVISED	PF 19
	_____		_____	
	CHIEF ENGINEER		_____	
	DESIGN ENGINEER		_____	
	DATE:			

PLACEMENT GUIDELINES



PARALLEL

NOTES:

1. DETECTABLE WARNING SURFACES ARE REQUIRED AT NAMED STREET CROSSINGS, INCLUDING SIGNED ALLEYS, AND SIGNALIZED INTERSECTIONS
2. PARALLEL RAMPS - THE DWS SHALL BE LOCATED ON THE LANDING AT THE BOTTOM OF THE RAMP, PARALLEL TO THE BACK OF THE CURB. THE DWS SHOULD BE WITHIN 2" OF THE BACK OF CURB AT ITS EDGES.
3. THE DWS SHOULD SPAN THE WIDTH OF THE CURB RAMP. THE EDGE OF THE DWS SHALL NOT BE MORE THAN 2 IN. FROM THE EDGE OF THE FLARE OR RETURN CURB. WHEN NO FLARE OR CURB FACE IS PRESENT THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF CONCRETE. THESE DIMENSIONS REQUIRE CAREFUL PLANNING ON THE PART OF THE CONTRACTOR TO ENSURE THE DWS CAN BE PLACED WHILE FORMS ARE PRESENT, OR AFTER THEY ARE REMOVED WHILE THE CONCRETE IS STILL PLASTIC.

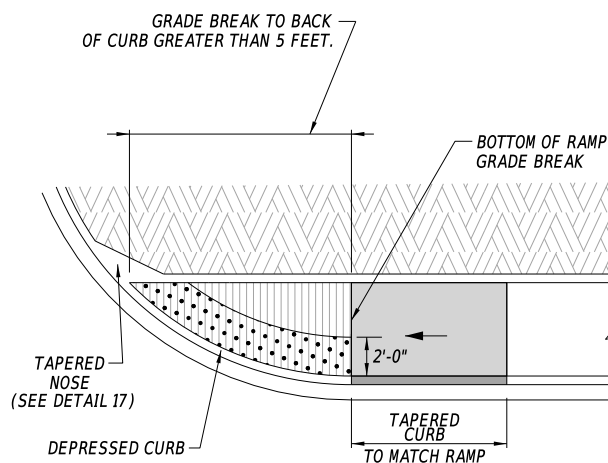
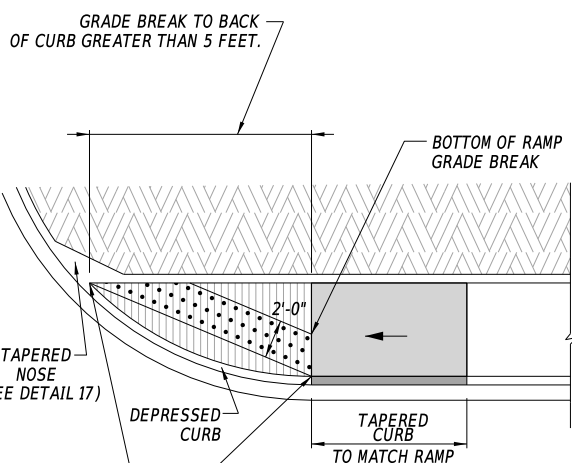
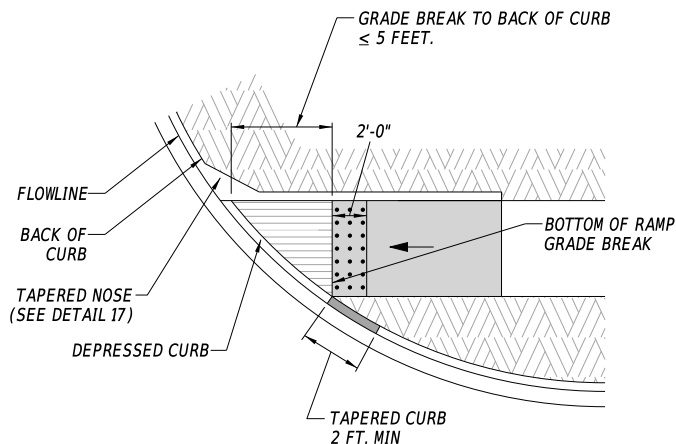
LEGEND	
	= LANDING/TURNING SPACE <small>SEE ADA NOTES C-2</small>
	= RAMP SURFACE <small>SEE ADA NOTES C-1</small>
	= TAPERED CURB <small>SEE ADA NOTES C-3</small>
	= DETECTABLE WARNING SURFACE <small>SEE ADA NOTES D-1</small>

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS DETECTABLE WARNINGS PARALLEL RAMPS	REVISED	PF 20

	CHIEF ENGINEER			

	DESIGN ENGINEER			
	DATE:			

PLACEMENT GUIDELINES



BOTH CORNERS OF DWS MUST BE WITHIN 2 IN. OF BACK OF CURB

ONE DIRECTION

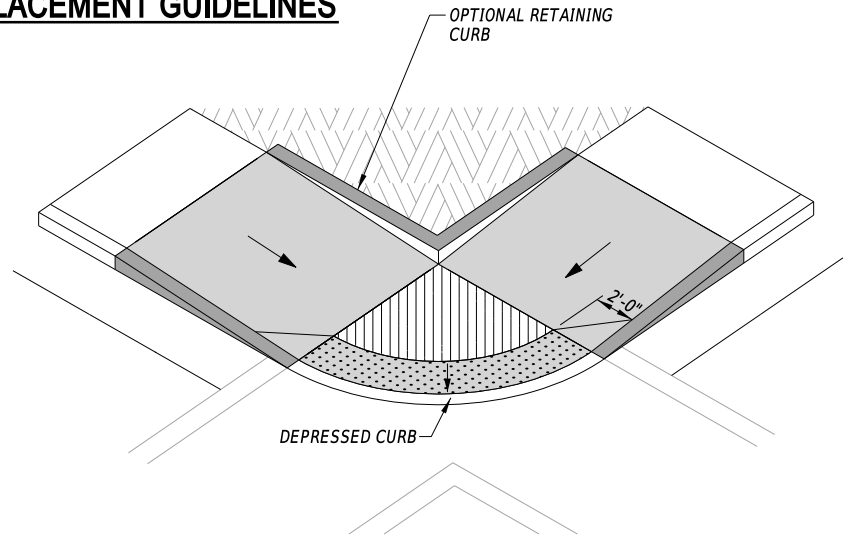
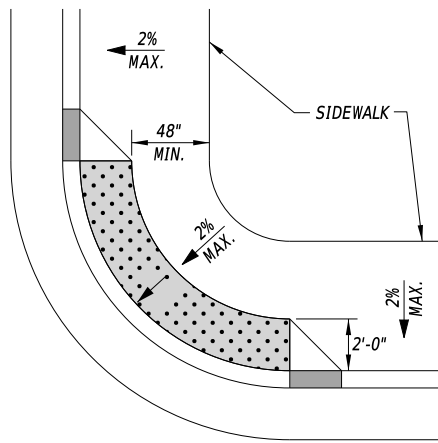
NOTES:

1. DETECTABLE WARNING SURFACES ARE REQUIRED AT NAMED STREET CROSSINGS, INCLUDING SIGNED ALLEYS, AND SIGNALIZED INTERSECTIONS.
2. WHERE BOTH ENDS OF THE GRADE BREAK AT THE BOTTOM OF A RAMP ARE 5 FT. OR LESS FROM THE BACK OF THE CURB, THE DWS SHALL BE LOCATED AT THE BOTTOM OF THE RAMP BEHIND THE GRADE BREAK. IF THE SPACE BETWEEN THE GRADE BREAK AT THE BOTTOM OF THE RAMP AND THE BACK OF THE CURB IS GREATER THAN 5 FT. ON EITHER SIDE OF THE RAMP, THE DWS SHALL BE PLACED AT THE BACK OF CURB.
3. THE DWS SHOULD SPAN THE WIDTH OF THE CURB RAMP. THE EDGE OF THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF THE RAMP. WHEN NO FLARE OR CURB FACE IS PRESENT THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF CONCRETE. THESE DIMENSIONS REQUIRE CAREFUL PLANNING ON THE PART OF THE CONTRACTOR TO ENSURE THE DWS CAN BE PLACED WHILE FORMS ARE PRESENT, OR AFTER THEY ARE REMOVED WHILE THE CONCRETE IS STILL PLASTIC.

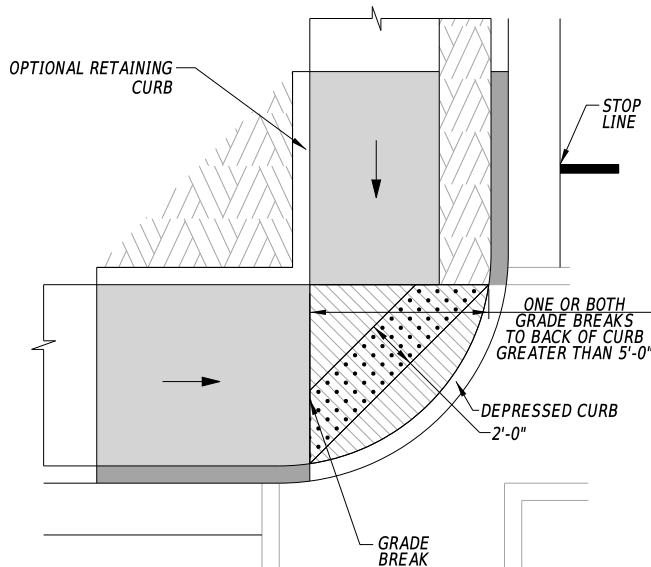
LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS	REVISED	PF 21
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DATE:			
		DETECTABLE WARNINGS ONE DIRECTION RAMPS		

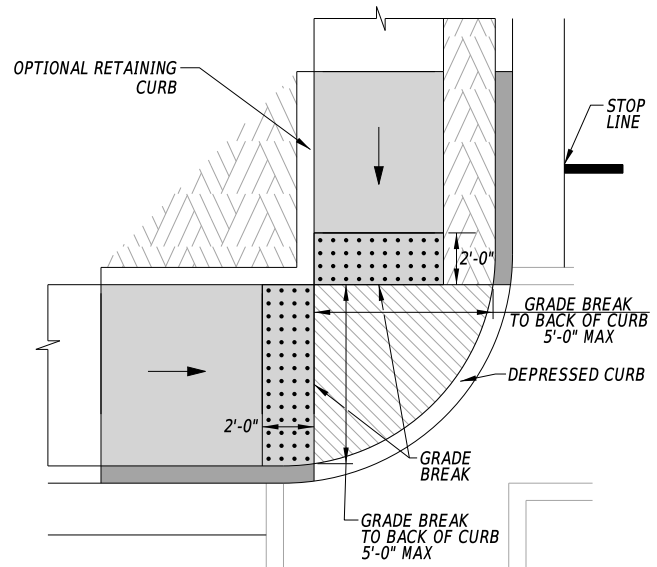
PLACEMENT GUIDELINES



PERPENDICULAR FAN



COMBINATION FAN



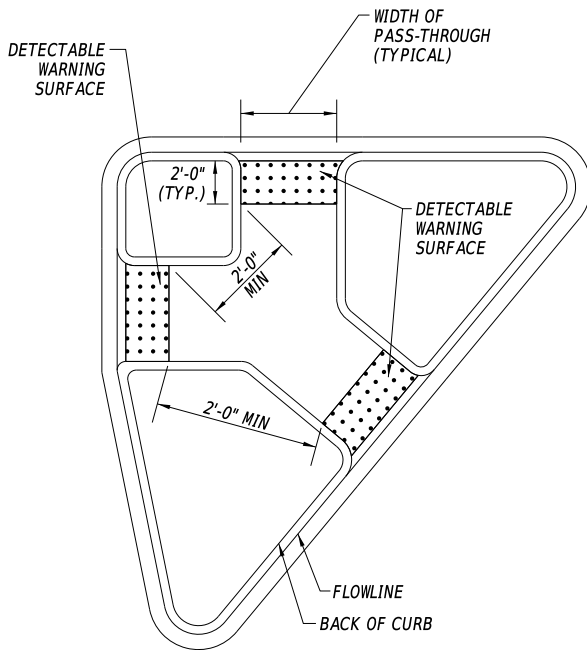
DEPRESSED CORNER

NOTES:

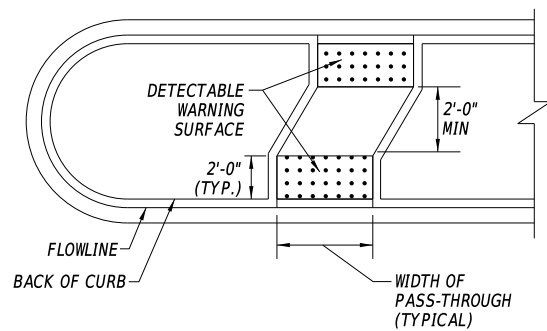
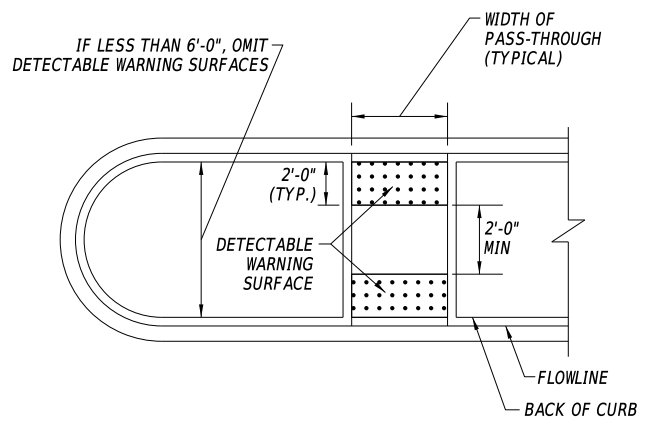
1. DETECTABLE WARNING SURFACES ARE REQUIRED AT NAMED STREET CROSSINGS, INCLUDING SIGNED ALLEYS, AND SIGNALIZED INTERSECTIONS.
2. WHERE BOTH ENDS OF THE GRADE BREAK AT THE BOTTOM OF A RAMP ARE 5 FT. OR LESS FROM THE BACK OF THE CURB, THE DWS SHALL BE LOCATED AT THE BOTTOM OF THE RAMP BEHIND THE GRADE BREAK. IF THE SPACE BETWEEN THE GRADE BREAK AT THE BOTTOM OF THE RAMP AND THE BACK OF THE CURB IS GREATER THAN 5 FT. ON EITHER SIDE OF THE RAMP, THE DWS SHALL BE PLACED AT THE BACK OF THE CURB.
3. THE DWS SHOULD SPAN THE WIDTH OF THE CURB RAMP. THE EDGE OF THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF THE RAMP. WHEN NO FLARE OR CURB FACE IS PRESENT THE DWS SHOULD NOT BE MORE THAN 2 IN. FROM THE EDGE OF CONCRETE. THESE DIMENSIONS REQUIRE CAREFUL PLANNING ON THE PART OF THE CONTRACTOR TO ENSURE THE DWS CAN BE PLACED WHILE FORMS ARE PRESENT, OR AFTER THEY ARE REMOVED WHILE THE CONCRETE IS STILL PLASTIC.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS DETECTABLE WARNINGS FAN TYPE AND DEPRESSED CORNER	REVISED	PF 22
	DATE:			
	CHIEF ENGINEER			
	DESIGN ENGINEER			



ISLAND CUT-THROUGH



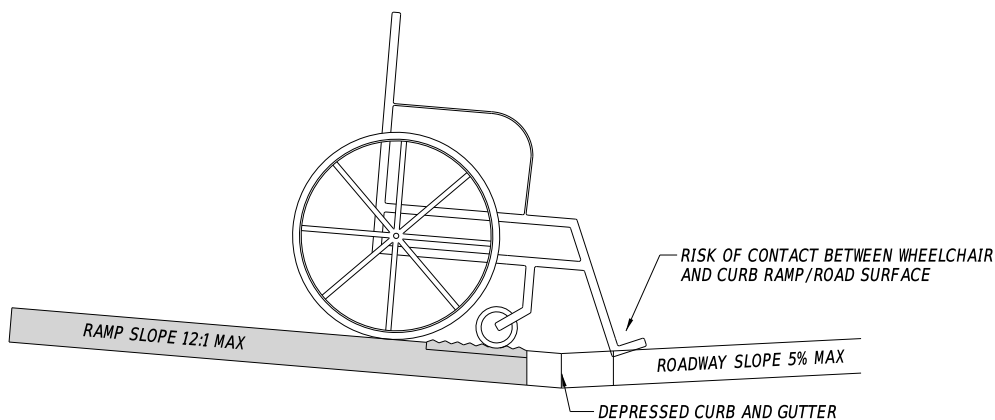
MEDIAN CUT-THROUGH

NOTES:

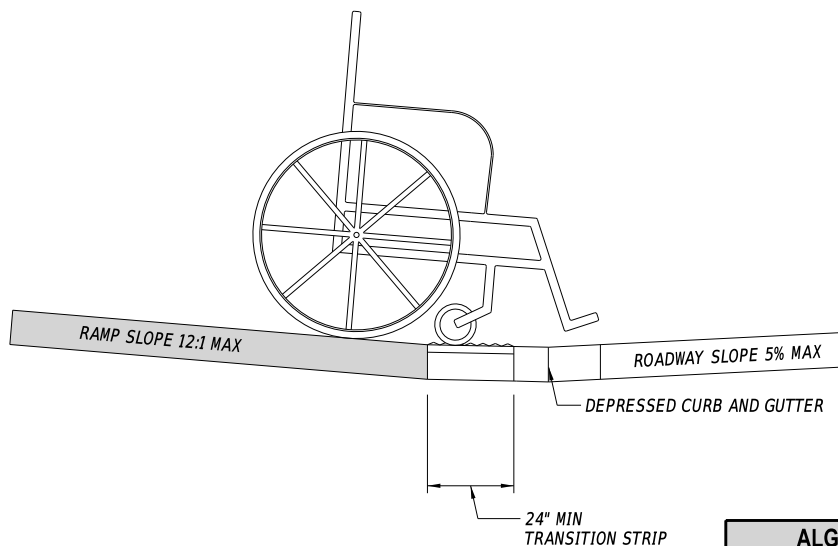
1. DETECTABLE WARNING SURFACES ARE REQUIRED AT NAMED STREET CROSSINGS, INCLUDING SIGNED ALLEYS, AND SIGNALIZED INTERSECTIONS.
2. WHERE BOTH ENDS OF THE GRADE BREAK AT THE BOTTOM OF A RAMP ARE 5 FT. OR LESS FROM THE BACK OF THE CURB, THE DWS SHALL BE LOCATED AT THE BOTTOM OF THE RAMP BEHIND THE GRADE BREAK. IF THE SPACE BETWEEN THE GRADE BREAK AT THE BOTTOM OF THE RAMP AND THE BACK OF THE CURB IS GREATER THAN 5 FT. ON EITHER SIDE OF THE RAMP, THE DWS SHALL BE PLACED AT THE BACK OF CURB.
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LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS DETECTABLE WARNINGS MEDIAN AND ISLAND CUT-THROUGHS	REVISED	PF 23
	DATE:			
	_____ CHIEF ENGINEER			
	_____ DESIGN ENGINEER			

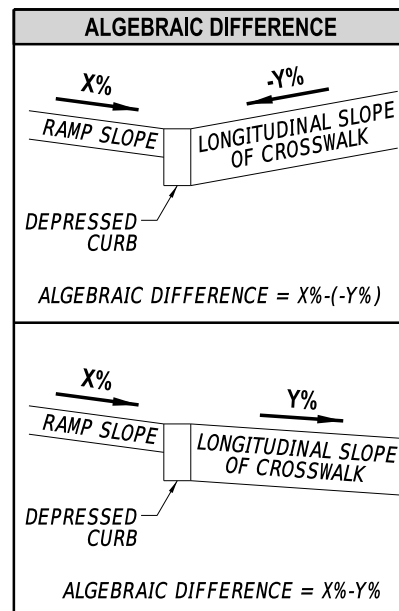


ALGEBRAIC DIFFERENCES BETWEEN ROADWAY SLOPE AND CURB RAMP SLOPE GREATER THAN 13.33% NOT PERMITTED



PROVIDE A 24" MIN TRANSITION STRIP IF ALGEBRAIC DIFFERENCES BETWEEN ROADWAY/GUTTER SLOPE AND CURB RAMP SLOPE ARE GREATER THAN 13.33%

TRANSITION STRIP RUNNING SLOPE 2.0% TYP., BUT NOT TO EXCEED 5.0%



ANNE ARUNDEL
COUNTY
DEPARTMENT OF
PUBLIC WORKS

APPROVED

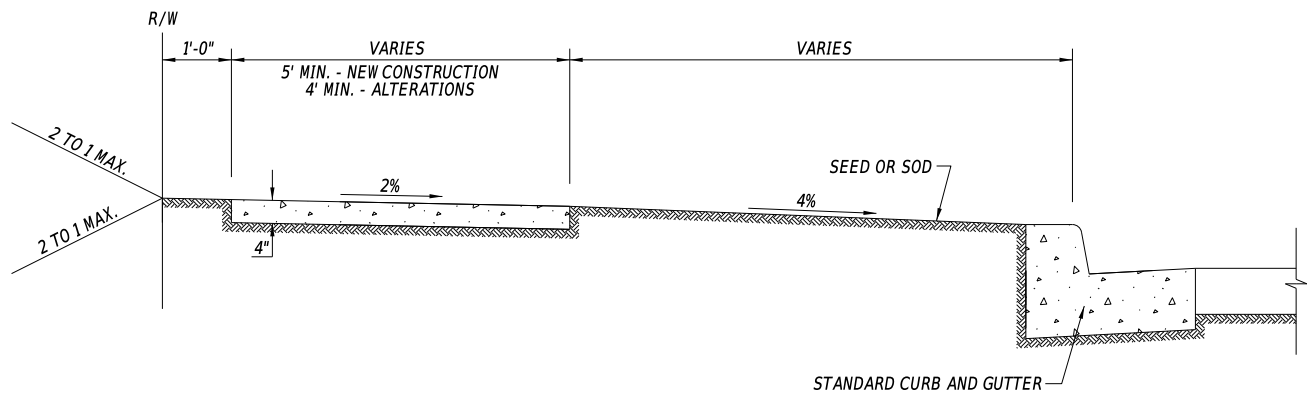
CHIEF ENGINEER

DESIGN ENGINEER
DATE:

STANDARD PEDESTRIAN
FACILITY DETAILS
COUNTER SLOPE CHANGE IN
GRADE LIMITATIONS

REVISED

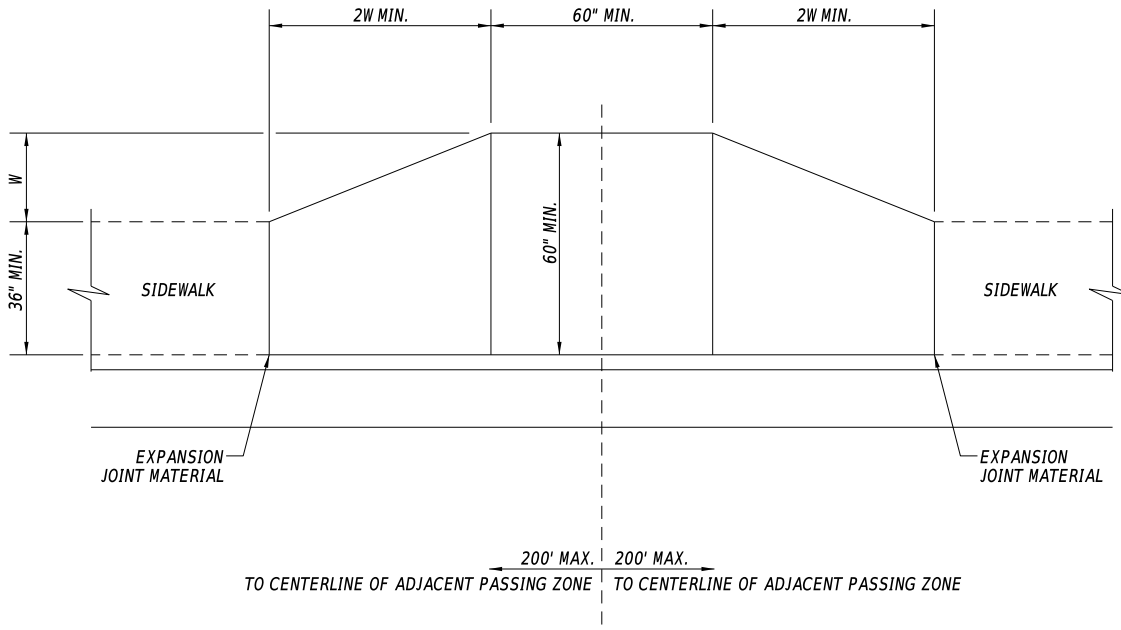
PF
24



NOTES:

1. JOINTS AND EXPANSION MATERIAL PLACED IN ACCORDANCE WITH STANDARD DETAIL PF-27 SIDEWALK JOINTS.
2. ALL UNPAVED AREAS WITHIN R/W TO BE SEEDED AND MULCHED WITH 4" OF TOP SOIL OR SODDED TO OBTAIN A THICK STAND OF GRASS.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED _____ CHIEF ENGINEER	STANDARD PEDESTRIAN FACILITY DETAILS SIDEWALK	REVISED	PF 25
	_____ DESIGN ENGINEER		_____	
	DATE:		_____	
	_____		_____	
	_____		_____	

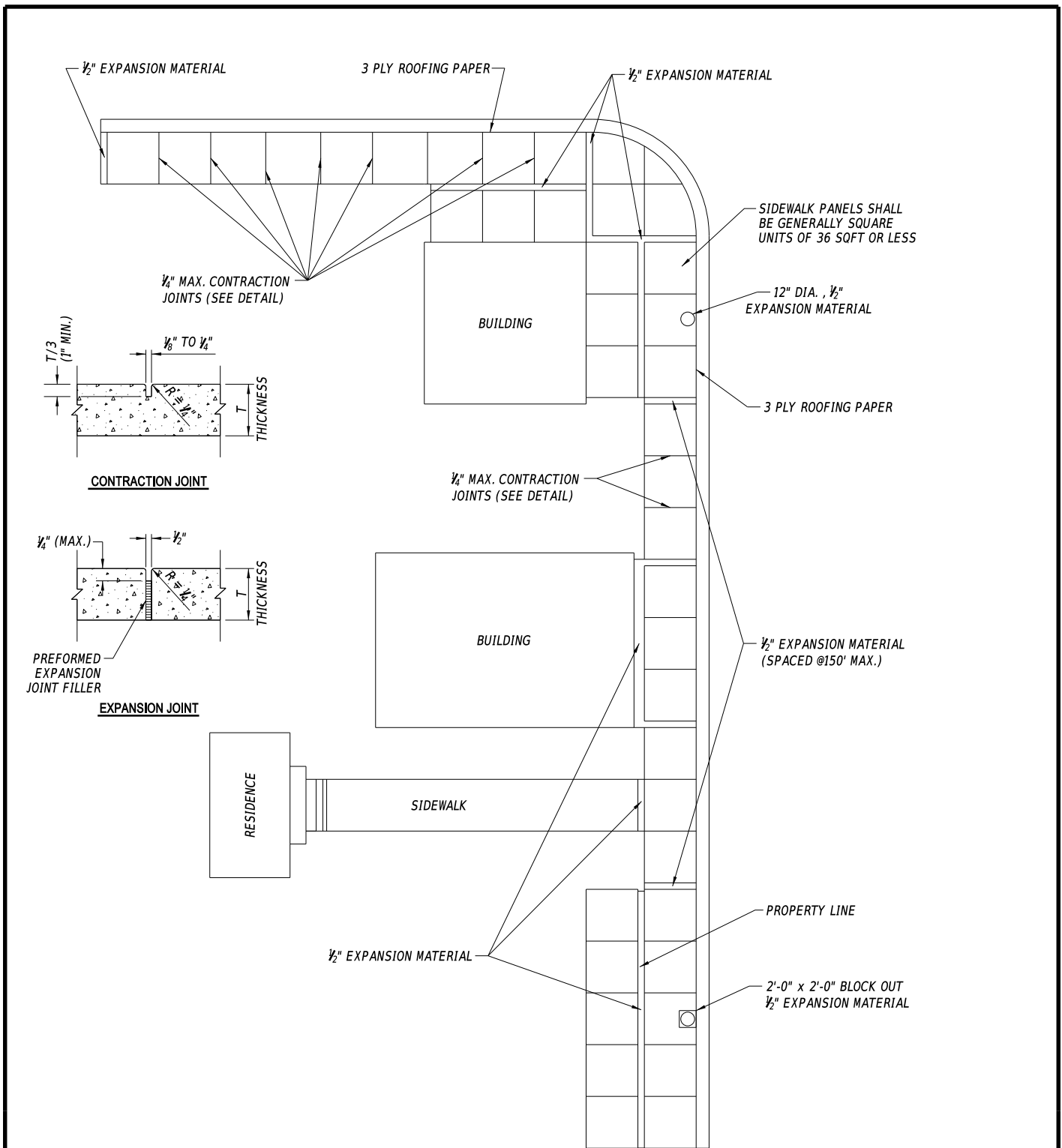


PLAN

NOTES:

1. WHERE THE CONTINUOUS WIDTH FOR TRAVEL IS LESS THAN 60", SIDEWALK PASSING ZONES SHALL BE PROVIDED AT AN INTERVAL NOT TO EXCEED 200'. USE OF ENTRANCES AND LEADER WALKS AS PASSING ZONES IS ACCEPTABLE PROVIDED THAT THE GEOMETRY MEETS THE REQUIREMENTS OF THIS STANDARD.
2. SIDEWALK PASSING ZONES SHALL BE LOCATED AS INDICATED ON DRAWINGS. HOWEVER EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
3. SIDEWALK TRANSVERSE SLOPE SHALL BE MAINTAINED ACROSS THE ENTIRE WIDTH OF THE PASSING ZONE (48:1 MAX.).

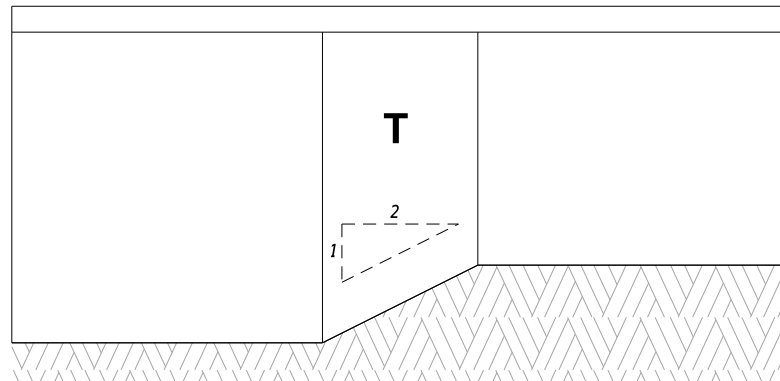
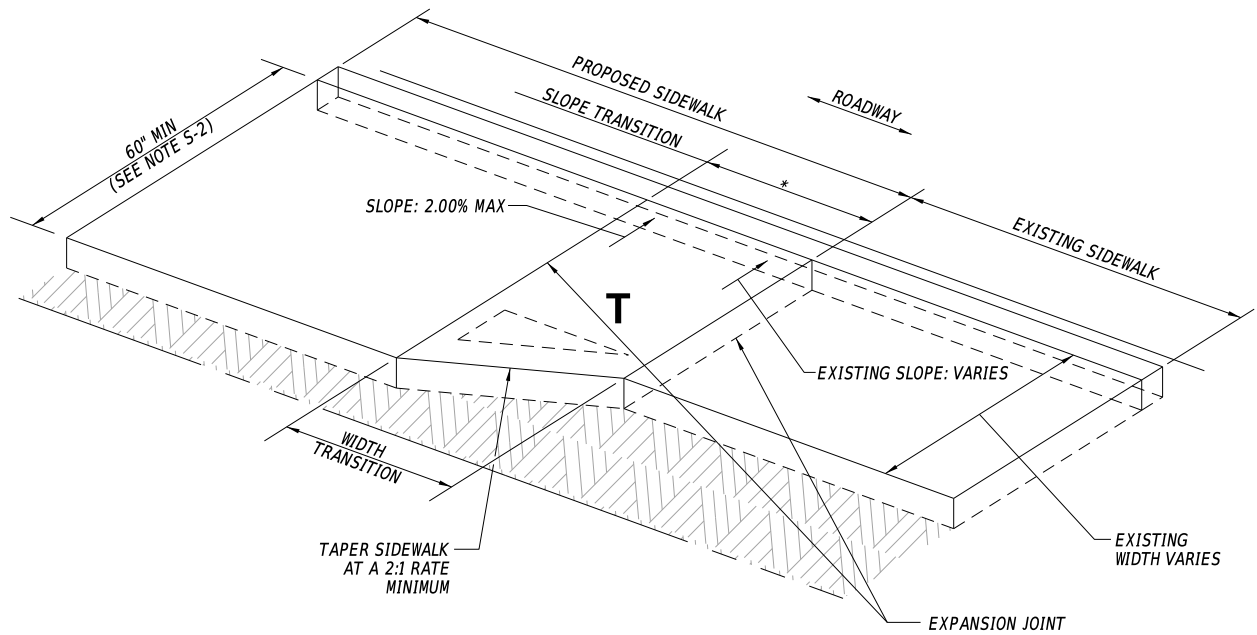
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS SIDEWALK PASSING ZONES	REVISED	PF 26
	_____		_____	
	CHIEF ENGINEER		_____	
	DESIGN ENGINEER		_____	
	DATE:			



NOTES:

1. CONSTRUCT EXPANSION JOINTS USING 1/2 IN. PERFORMED EXPANSION JOINT FILLER WHERE NEW ABUTS EXISTING SIDEWALK AND STRUCTURES, AT PROPERTY LINES, AT STATIONARY STRUCTURES SUCH AS BRIDGES, POLES, BOXES, AND INLETS, AT POINTS OF CURVES AT TANGENTS, AT LOCATIONS COINCIDING WITH ADJOINING CURB AND PAVEMENT JOINTS, SPACED AT 150' MAX., AND AS SPECIFIED OR AS DIRECTED.
2. PLACE EXPANSION JOINT MATERIAL WITHIN 1/4" OF THE SURFACE (FLUSH PREFERRED) AND TO THE FULL DEPTH OF THE UNIT CROSS SECTION.
3. DO NOT PLACE EXPANSION JOINTS WITHIN THE LIMITS OF CURB RAMPS.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED _____ CHIEF ENGINEER	STANDARD PEDESTRIAN FACILITY DETAILS SIDEWALK JOINTS	REVISED _____	PF 27
	_____ DESIGN ENGINEER		_____	
	DATE:		_____	
	_____		_____	



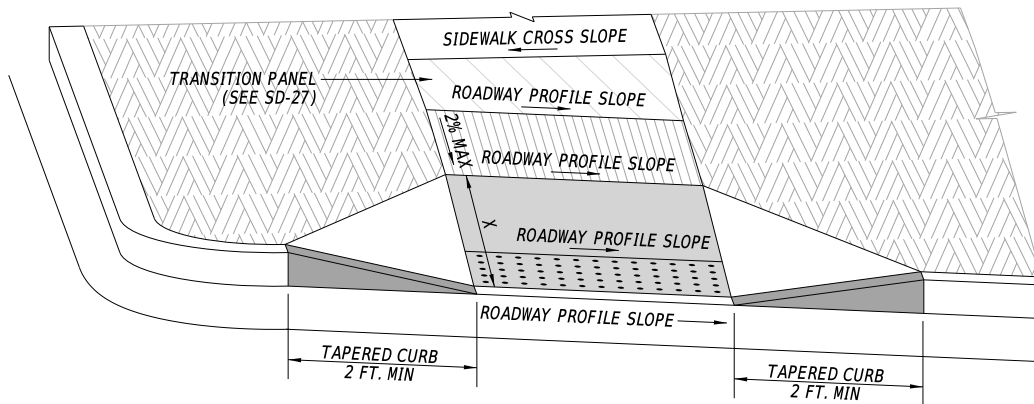
TRANSITION TO EXISTING SIDEWALK DETAIL

NOTES:

1. * PREFERRED TRANSITION LENGTH SHOULD GENERALLY BE EQUAL TO THE WIDTH OF THE EXISTING SIDEWALK, BUT IN NO CASE SHALL LENGTH BE LESS THAN 36". MINIMUM LENGTH SHALL BE 36" OR BASED ON THE RESULTS OF THE FOLLOWING SLOPE AND WIDTH CHANGE FORMULAS, WHICHEVER IS GREATEST.
 - A. MINIMUM TRANSITION LENGTH BASED ON THE DIFFERENCE OF PROPOSED SIDEWALK CROSS SLOPE AND EXISTING SIDEWALK CROSS SLOPE AT THE TIE IN SHALL BE CALCULATED USING THE FOLLOWING FORMULA:
 $\Delta \% \text{ SLOPE} \times 0.33'$
 - B. THE MINIMUM TRANSITION LENGTH BASED ON THE DIFFERENCE IN WIDTH BETWEEN PROPOSED AND EXISTING SIDEWALK CROSS SLOPE AT THE TIE IN SHALL BE CALCULATED USING THE FOLLOWING FORMULA:
 $\text{CHANGE IN WIDTH} \times 2$
2. TRANSITION PANELS SERVE AS TEMPORARY CONNECTIONS BETWEEN THE PROPOSED AND EXISTING PEDESTRIAN ACCESS ROUTE. FUTURE IMPROVEMENTS TO THE REMAINING PORTION OF EXISTING SIDEWALK SHALL INCLUDE REMOVING THE TRANSITION PANEL AND CONSTRUCTING A FULLY COMPLIANT SIDEWALK.

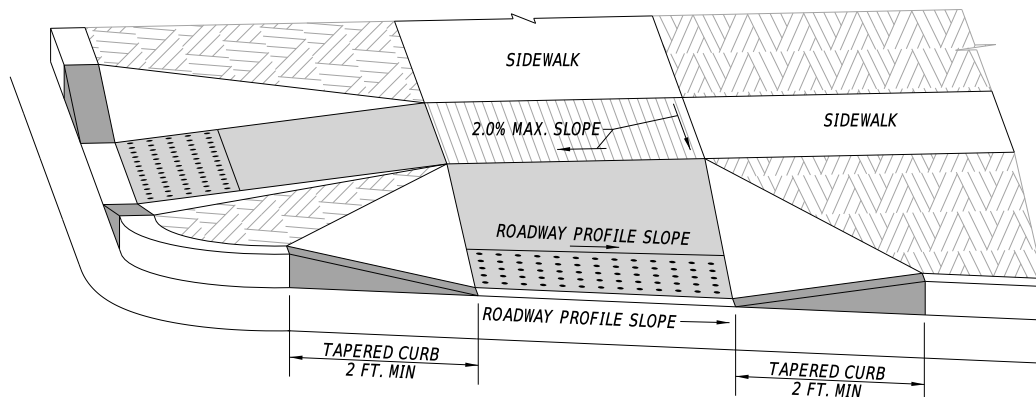
LEGEND	
	= LANDING/TURNING SPACE SEE ADA NOTES C-2
	= RAMP SURFACE SEE ADA NOTES C-1
	= TAPERED CURB SEE ADA NOTES C-3
	= DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS SIDEWALK TRANSITION PANEL	REVISED	PF 28
	_____		_____	
	CHIEF ENGINEER		_____	
	_____		_____	
	DESIGN ENGINEER		_____	
DATE:	_____			



RAMP CROSS SLOPE TO MATCH ROADWAY PROFILE SLOPE

****LANDING SLOPE MAY BE < ROADWAY PROFILE WHEN RAMP LENGTH (X) IS 4 FEET OR LESS**



RAMP CROSS SLOPE TRANSITION TO MATCH ROADWAY PROFILE SLOPE

**SLOPES SHOWN ARE FOR ILLUSTRATION ONLY.*

NOTES:

1. TRANSITION CURB RAMP CROSS SLOPE TO MATCH ROADWAY PROFILE AS GRADUALLY AS POSSIBLE. DO NOT EXCEED CROSS SLOPE TRANSITION RATE OF 3.0% PER 1 FOOT WHEN TRANSITIONING TO MATCH SLOPE OF ROADWAY PROFILE (1% PER FOOT PREFERRED).
2. COMPLETE TRANSITION TO ROADWAY PROFILE BEHIND DETECTABLE WARNING SURFACE.
3. CONSTRUCT DEPRESSED CURB SLOPE AND DWS TO MATCH ROADWAY PROFILE.

LEGEND	
	LANDING/TURNING SPACE SEE ADA NOTES C-2
	RAMP SURFACE SEE ADA NOTES C-1
	TAPERED CURB SEE ADA NOTES C-3
	DETECTABLE WARNING SURFACE SEE ADA NOTES D-1

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD PEDESTRIAN FACILITY DETAILS	REVISED	PF 29
	_____		_____	
	CHIEF ENGINEER		_____	
	DESIGN ENGINEER		_____	
DATE:		SLOPE TRANSITION FROM ROAD TO LANDING		