



Chandler • Arizona
Where Values Make The Difference

MEMORANDUM

Case # 16-05

DATE: August 3, 2016

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed New Dual Curb Ramp Details and Revisions to Section 340

Purpose: Incorporate new standard details for dual curb ramps (radial and directional) meeting latest ADA requirements and revisions to Section 340 for maximum grade allowances and measurement. The intention is for construction details to have the “build to” slopes/grades that will allow for tolerance while the specification provides the maximum limits for acceptance.

Revisions:

- Revised all details removing table with ramp and wing lengths since lengths will vary depending on curb height and other factors. More flexibility and in-line with many current jurisdiction details.
- Revised both 20’ radius details (236-3 and 237-3), moving expansion joint beyond PC/PT and options for curb transition requirements.
- Removed the “ROUGH” from the broom finish callout on all details.
- Added note on 236-1 and 236-2 for the minimum 4’x 4’ turning space to keep within crosswalk.
- No changes to Section 340.3.9 Tolerances from previous package.
- Minor change to Section 340.5 Measurement from previous package.

Case 16-05 DRAFT 5-27-16

340.3.9 Tolerances: The face, top, back, and flow line of the curb and gutter shall not deviate in excess of 1/4-inch over 10 feet, as tested with a 10-foot straightedge or curve template, longitudinally along the surface.

The surface of concrete sidewalk or curb ramp shall not deviate in excess of 1/8-inch over 5 feet as tested with a 5-foot straightedge except for the 1/4-inch recess of the preformed material in expansion joints.

All finished concrete elevations shall not deviate from the elevations shown on the plans, or indicated by typical sections or standard details referenced within the construction documents, by more than ~~1/2~~1/4 inch.

When required by the Engineer, gutters shall be water tested. The Contractor shall establish flow in the length of gutter to be tested by supplying and distributing water from a hydrant, tank truck or other source. After the supply of water is shut off and water has stopped flowing, the gutter shall be inspected for evidence of ponding ~~or improper~~ shape. The work shall be deemed deficient if water is found ponded in the gutter to a depth greater than 1/2 inch or ponding extends onto the adjacent asphalt pavement.

Areas between elevations shown on the plans shall be straight graded or smoothly transitioned through a vertical curve in a manner approved by the Engineer or as otherwise indicated on the construction documents.

Slopes of pedestrian facilities shall not exceed the maximum grades indicated in ADA guidelines: sidewalk cross slope of 2%, ramp slope of 8.33%, ramp and landing cross slope of 2% and flared side (wing) slope of 10%.

Section 340 Concrete Curb, Gutter, Sidewalk, Curb Ramps, Driveway and Alley Entrance

340.5 MEASUREMENT:

340.5.1 Concrete Curbs and Gutters: ~~of~~ The various types of curb and gutter shown on the plans and in the proposal will be measured along gutter flow line through inlets, catch basins, driveways, curb ramps, etc., by the lineal foot to the nearest foot for each type, complete in place. Measurement for curb terminations and transitions shall be included with the linear measurement of the various types of curb or curb and gutter as shown on the plans and in the proposal.

Curb and gutter type shall be based on the configuration of the final exposed surfaces. The increased curb and gutter depth required at valley gutter aprons or driveways shall not be measured as a separate pay item; any additional Contractor cost shall be included in the unit cost associated with the valley gutter, driveway or other associated item.

340.5.2 Concrete Flat Work: Sidewalks, driveways, alley intersections, valley gutters and aprons will be measured to the nearest square foot complete in place.

~~Detectable warnings shall not be measured for payment. Detectable warnings are considered integral to the walking surface that they form a part of and the cost is included in the related pay item.~~

340.5.3 Curb Ramp Installations: Curb ramp installations shall be measured as complete installed units. Curbing (single curb or curb and gutter) located at the edge of roadway shall be measured and paid for separately. The surface area of curb ramps shall not be included in the measured quantity for sidewalk. Detectable warnings are an integral part of curb ramp installations and shall not be measured for payment. Detectable warnings are considered integral. Ramp curbs are an integral part of parallel curb ramp and combination curb ramp installations and shall not be measured. to the walking surface that they form a part of and the cost is included in the related pay item.

~~and shall include the ramp curb and the walking surfaces between the ramp curb and back of curb and gutter or single curb. Single curb or curb and gutter located at the edge of roadway shall be measured and paid for separately. The surface area of curb ramps shall not be included in the measured quantity for sidewalk. Curb ramps located within a curb return shall include the entire curb return area excluding the edge of roadway curbing. Curb ramp installations shall be categorized and measured by curb return radius, the number of curb ramps (one or two) contained within the return, and the type of curb ramps (perpendicular, parallel, or combination).~~

Each curb ramp not located within a curb return shall be categorized by type and measured as a complete unit. Perpendicular curb ramps shall include the area from the back of curb between the outer edges of the ramp wings to the top of the curb ramp, ending prior to and excluding the top landing. The landing area at the top of the perpendicular curb ramp is to be included in the measured sidewalk area. Parallel and combination curb ramps shall include the ramp curb and all surfaces between the ramp curb and the back edge of the roadway curbing.

340.6 PAYMENT:

Payment will be made in accordance with the unit prices ~~or lump sums~~ as set forth in the proposal. Such payment shall include full compensation for furnishing all labor, material, tools and equipment and accomplishing all work in conformance with the contract documents.

Over-excavation of soft, expansive or unsuitable materials and installation of granular materials will be paid separately and as a separate pay item, not included with in the above measured pay items.

Section 340 Concrete Curb, Gutter, Sidewalk, Curb Ramps, Driveway and Alley Entrance

340.5 MEASUREMENT:

340.5.1 Concrete Curbs and Gutters: The various types of curb and gutter shown on the plans and in the proposal will be measured along gutter flow line through inlets, catch basins, driveways, curb ramps, etc., by the lineal foot to the nearest foot for each type, complete in place. Measurement for curb terminations and transitions shall be included with the linear measurement of the various types of curb or curb and gutter as shown on the plans and in the proposal.

Curb and gutter type shall be based on the configuration of the final exposed surfaces. The increased curb and gutter depth required at valley gutter aprons or driveways shall not be measured as a separate pay item; any additional Contractor cost shall be included in the unit cost associated with the valley gutter, driveway or other associated item.

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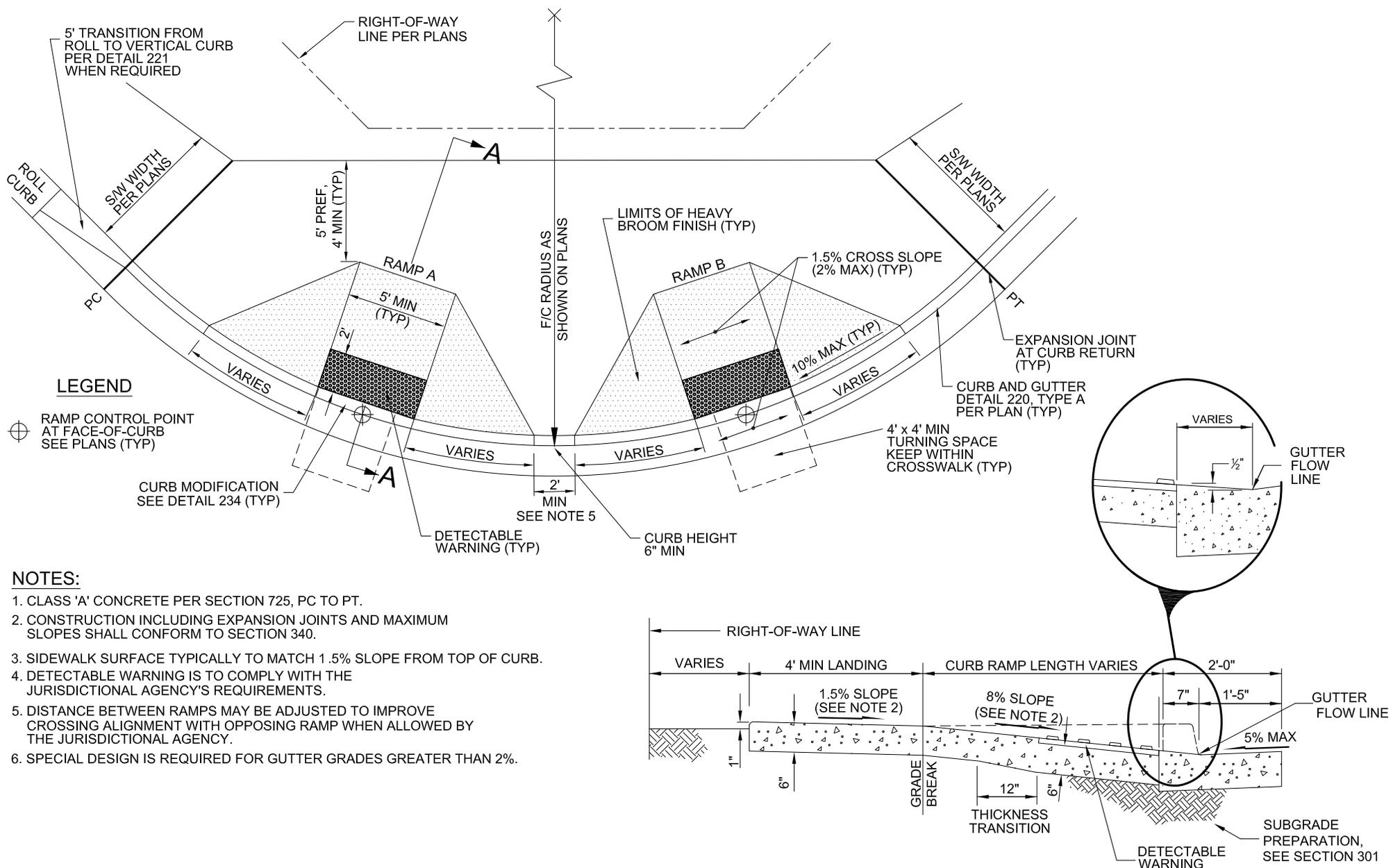
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LEGEND

⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)

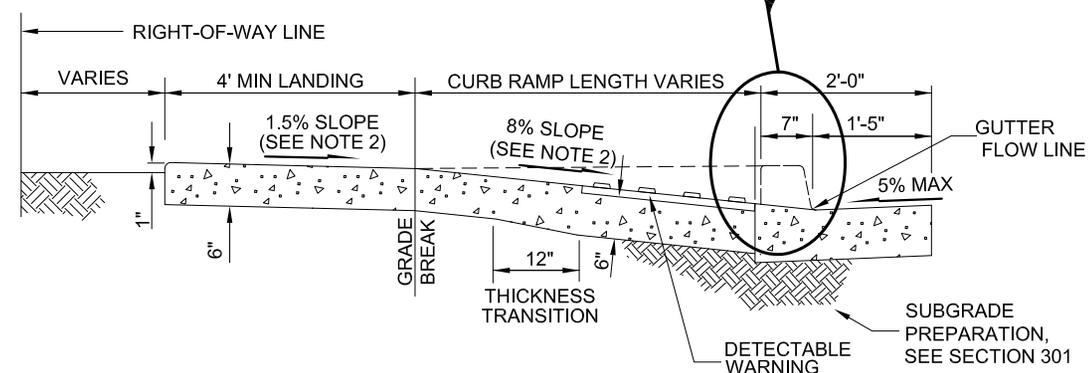
CURB MODIFICATION SEE DETAIL 234 (TYP)

DETECTABLE WARNING (TYP)

CURB HEIGHT 6" MIN

NOTES:

1. CLASS 'A' CONCRETE PER SECTION 725, PC TO PT.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. SIDEWALK SURFACE TYPICALLY TO MATCH 1.5% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE CROSSING ALIGNMENT WITH OPPOSING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. SPECIAL DESIGN IS REQUIRED FOR GUTTER GRADES GREATER THAN 2%.



SECTION A-A

DETAIL NO.
236-1

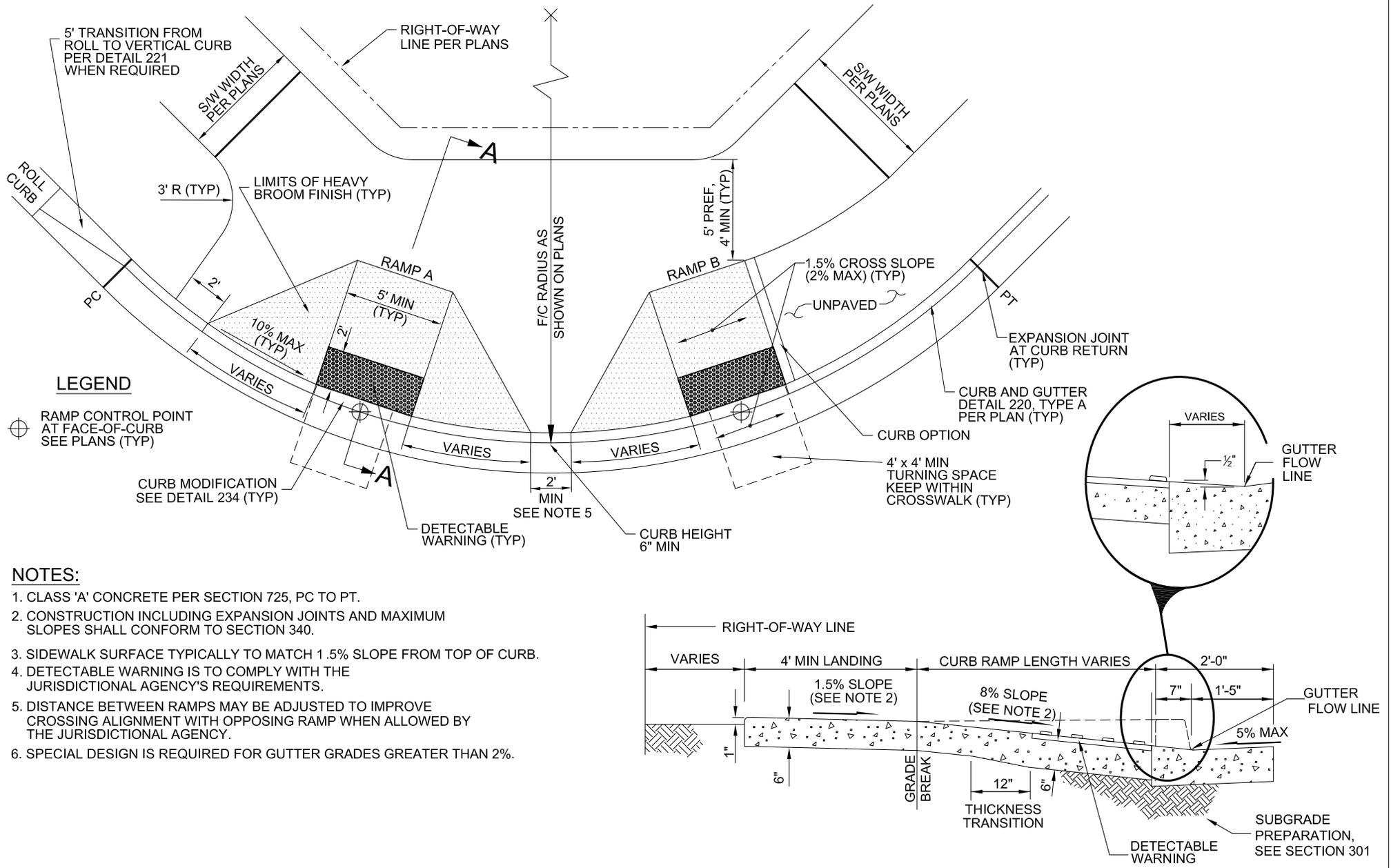


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (RADIAL, 25' - 35' R)
ATTACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
236-1



LEGEND

⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)

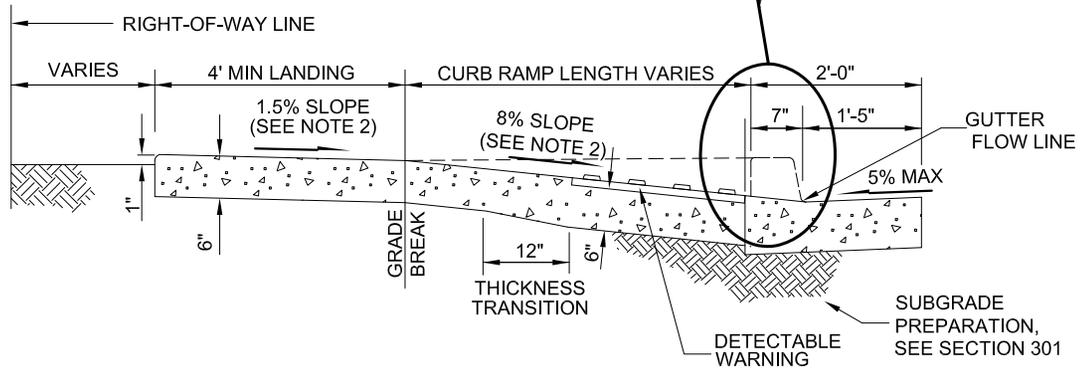
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SECTION A-A

DETAIL NO.
236-2

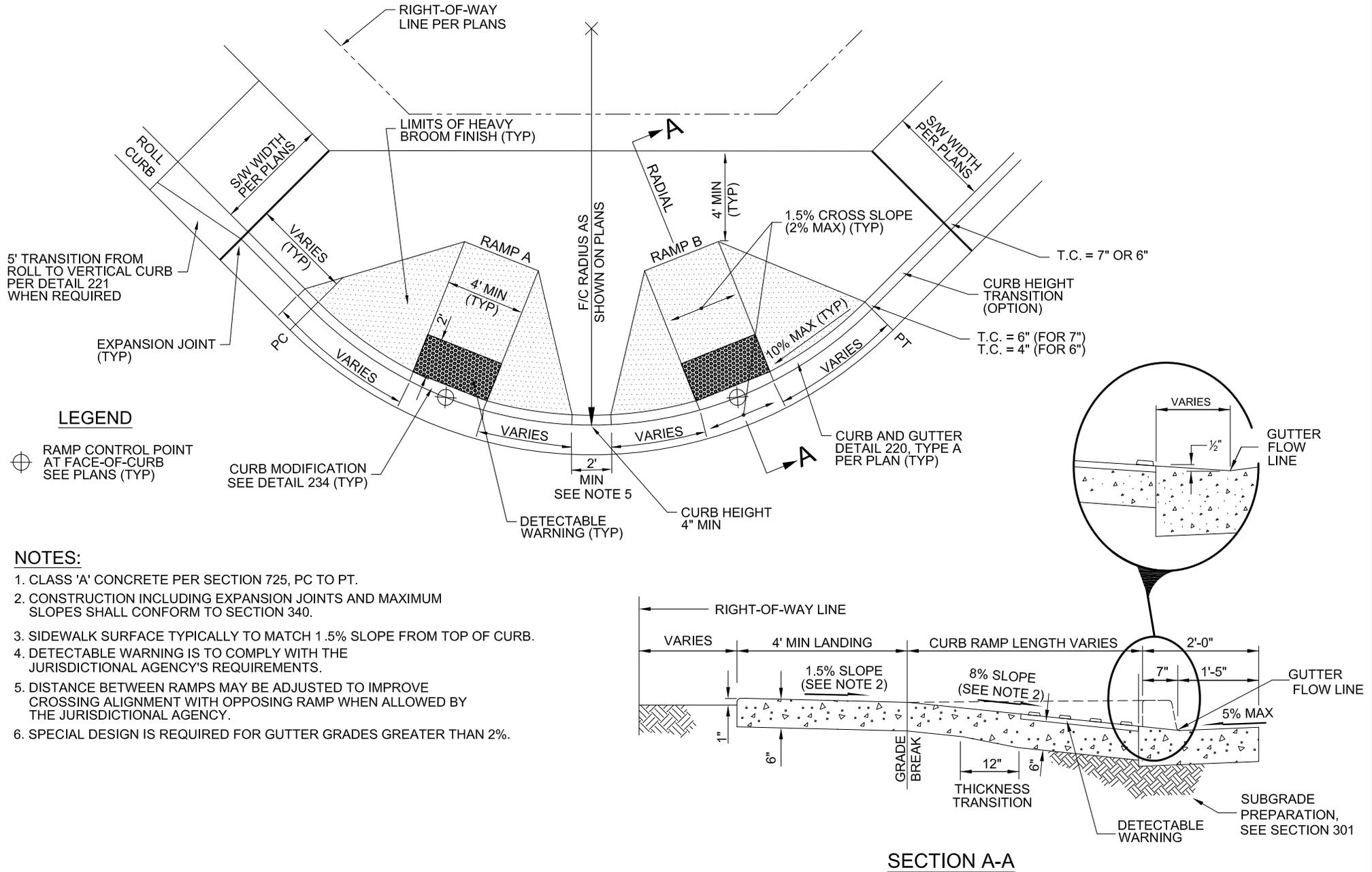


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (RADIAL, 25' - 35' R)
DETACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
236-2



DETAIL NO.
236-3

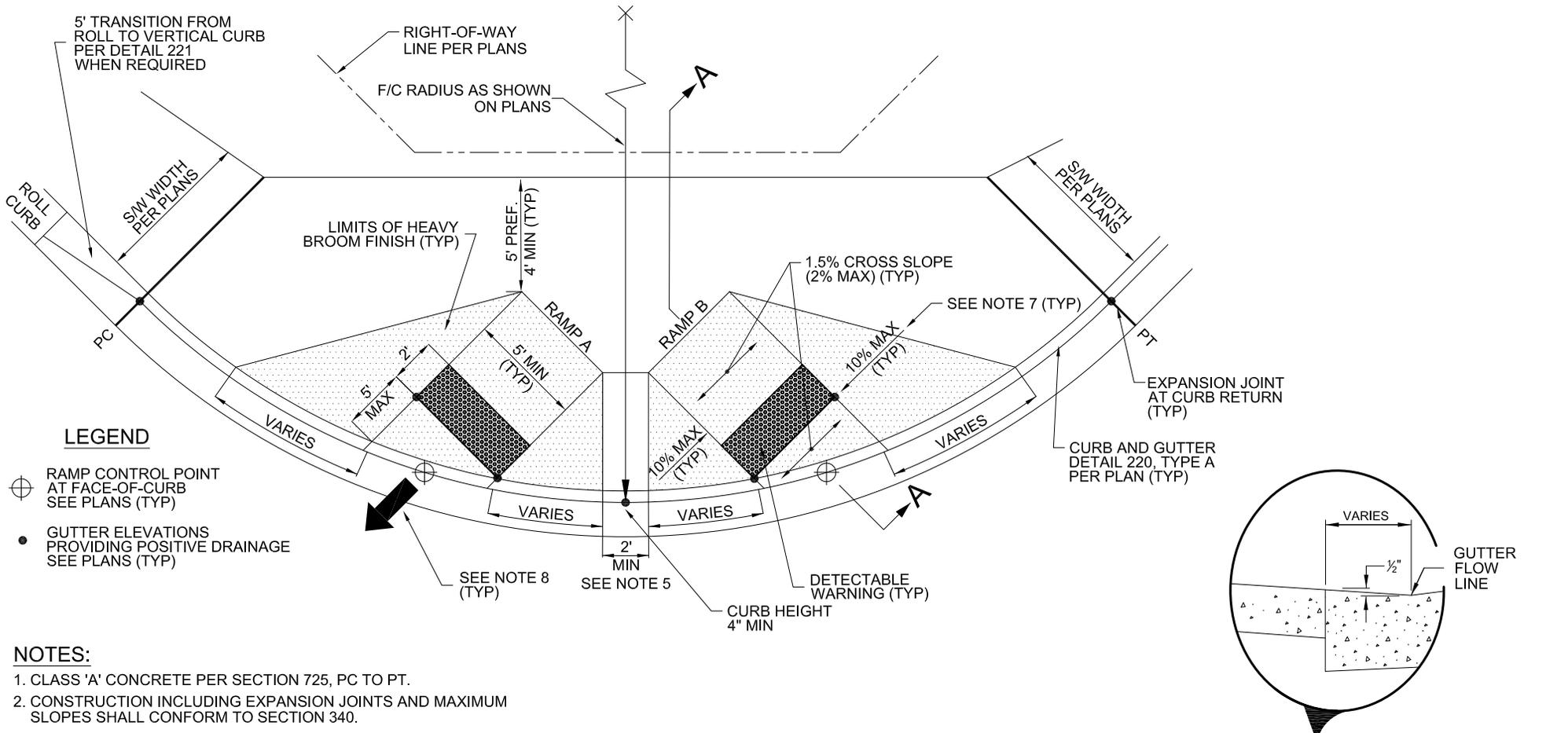


STANDARD DETAIL
ENGLISH

DUAL CURB RAMP (RADIAL, 20' R)
ATTACHED SIDEWALK

PROPOSED
01-01-2017

DETAIL NO.
236-3

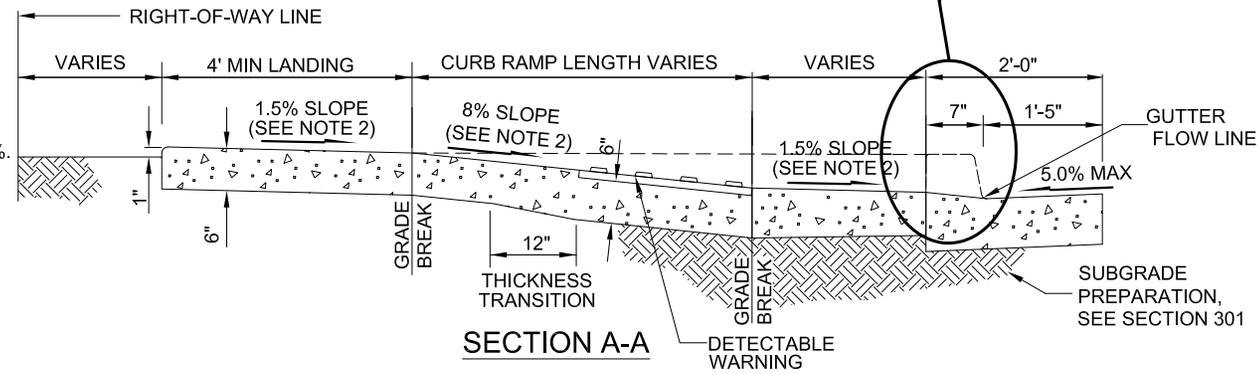
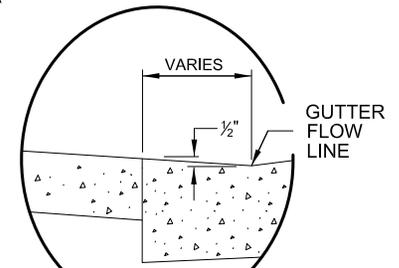


LEGEND

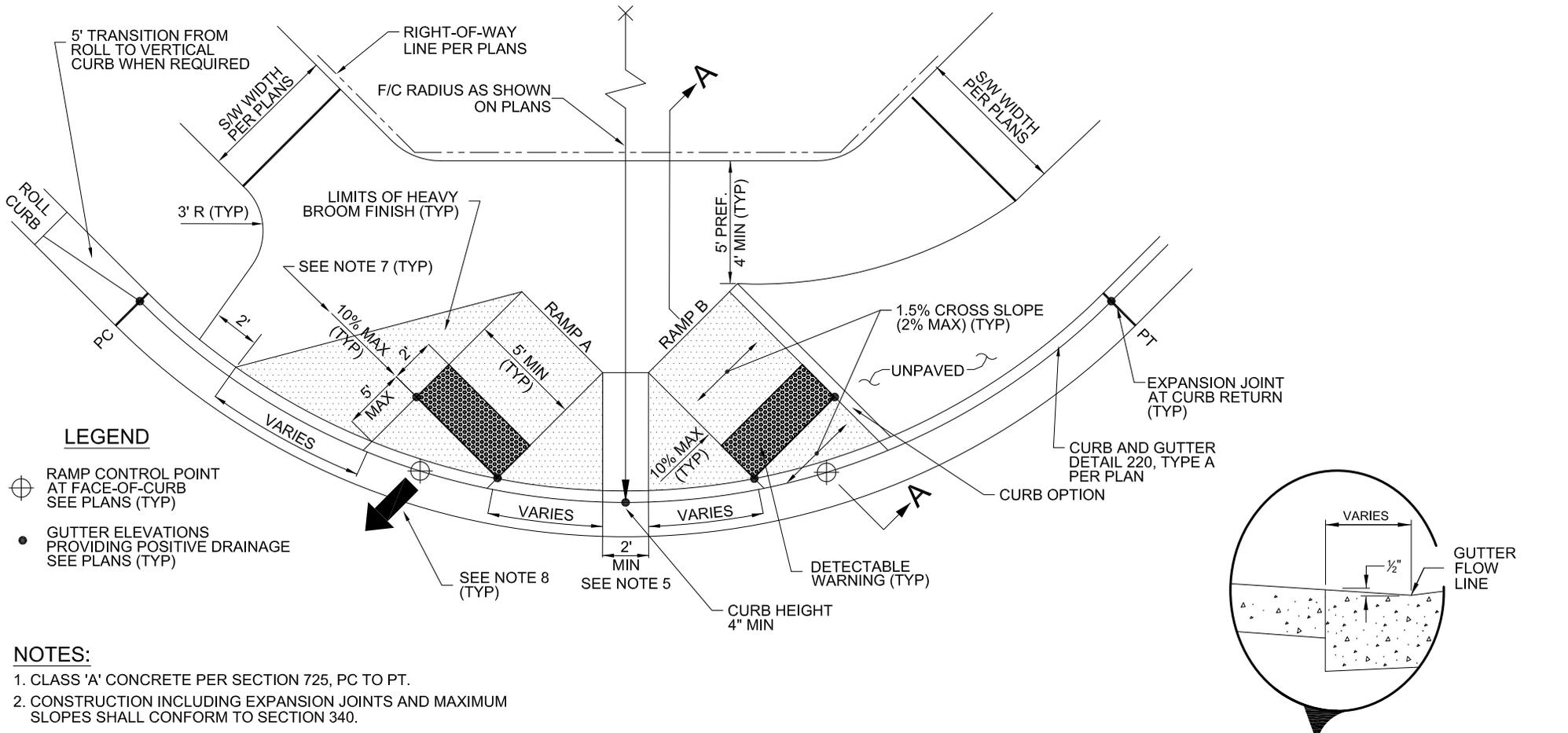
- ⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)
- GUTTER ELEVATIONS PROVIDING POSITIVE DRAINAGE SEE PLANS (TYP)

NOTES:

1. CLASS 'A' CONCRETE PER SECTION 725, PC TO PT.
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4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE CROSSING ALIGNMENT WITH OPPOSING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. SPECIAL DESIGN IS REQUIRED FOR GUTTER GRADES GREATER THAN 2%.
7. WING SLOPE SHALL NOT EXCEED 10% MEASURED PERPENDICULAR TO RAMP.
8. RAMP ALIGNMENT SHOULD CONNECT CONTROL POINT TO CONTROL POINT OF RECEIVING RAMP WITHIN 5 FEET.



DETAIL NO. 237-1		STANDARD DETAIL ENGLISH	DUAL CURB RAMP (DIRECTIONAL, 25' - 35'R) ATTACHED SIDEWALK	PROPOSED 01-01-2017	DETAIL NO. 237-1
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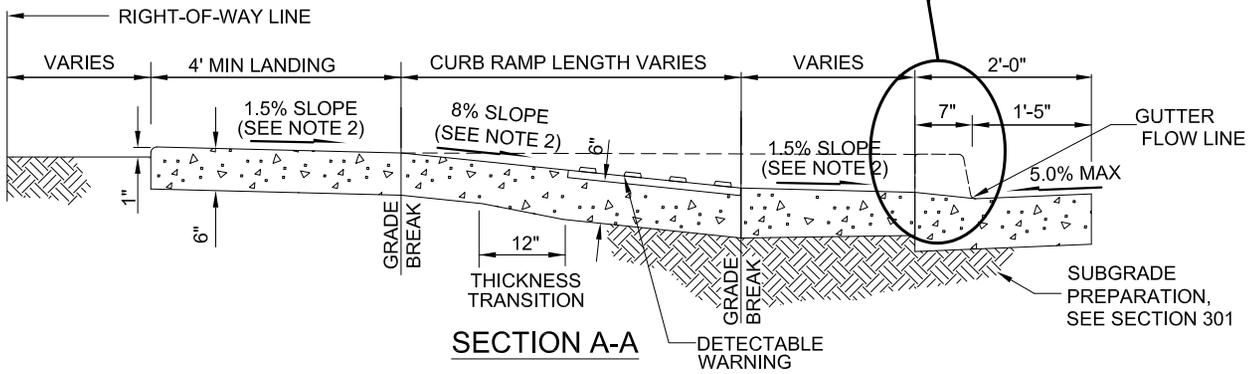


LEGEND

- ⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)
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DETAIL NO.
237-2

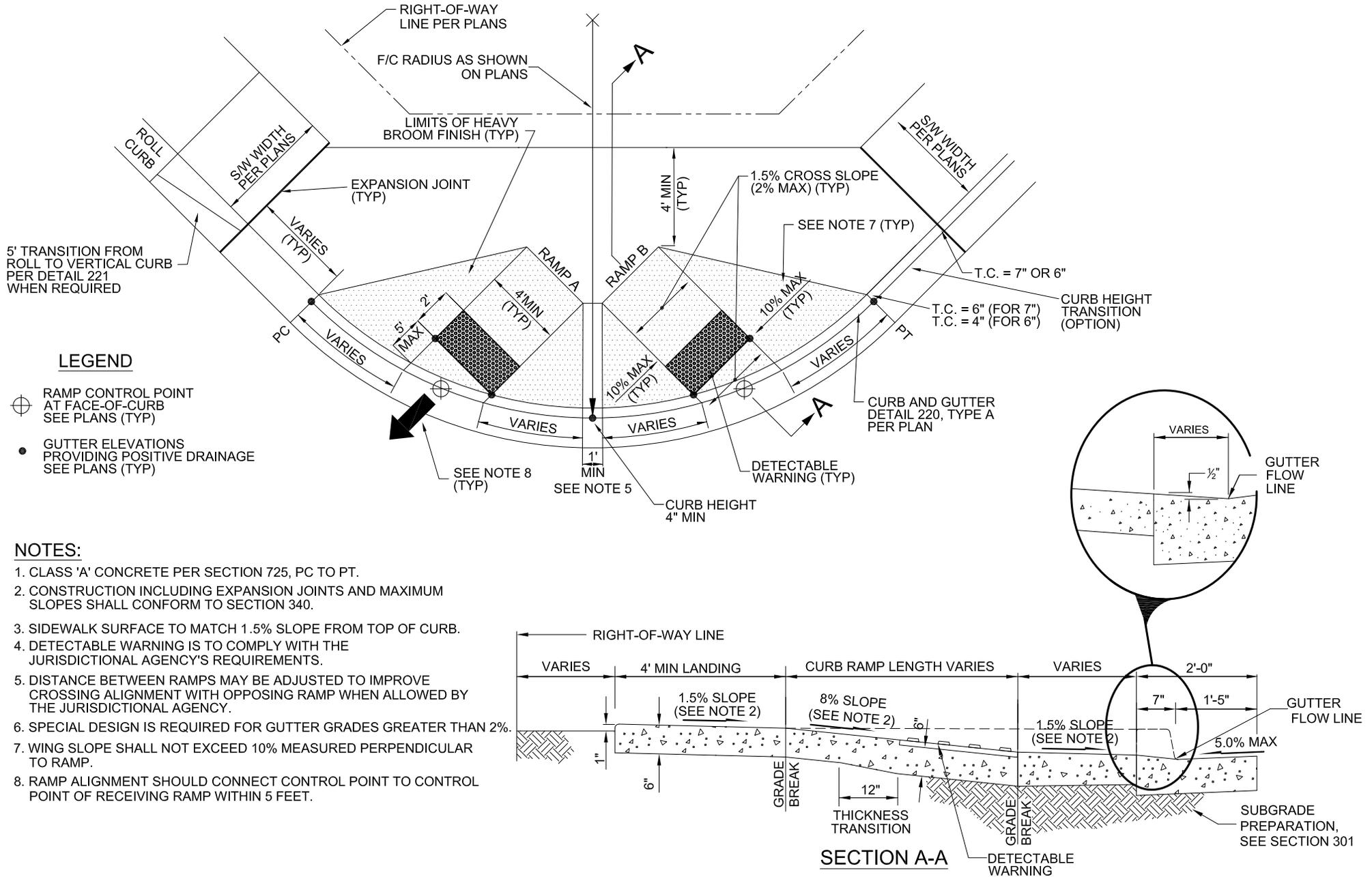


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (DIRECTIONAL, 25' - 35'R)
DETACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
237-2

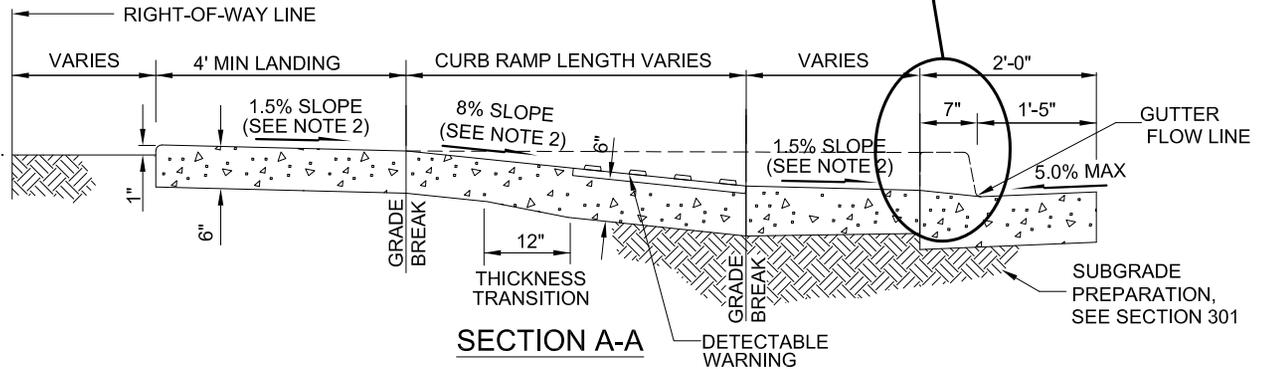


LEGEND

- ⊕ RAMP CONTROL POINT AT FACE-OF-CURB SEE PLANS (TYP)
- GUTTER ELEVATIONS PROVIDING POSITIVE DRAINAGE SEE PLANS (TYP)

NOTES:

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DETAIL NO.
237-3



STANDARD DETAIL
ENGLISH

**DUAL CURB RAMP (DIRECTIONAL, 20 'R)
ATTACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
237-3