ROADWAY DESIGN STANDARDS

BOSTON PUBLIC WORKS DEPARTMENT

ROADWAY DESIGN STANDARDS
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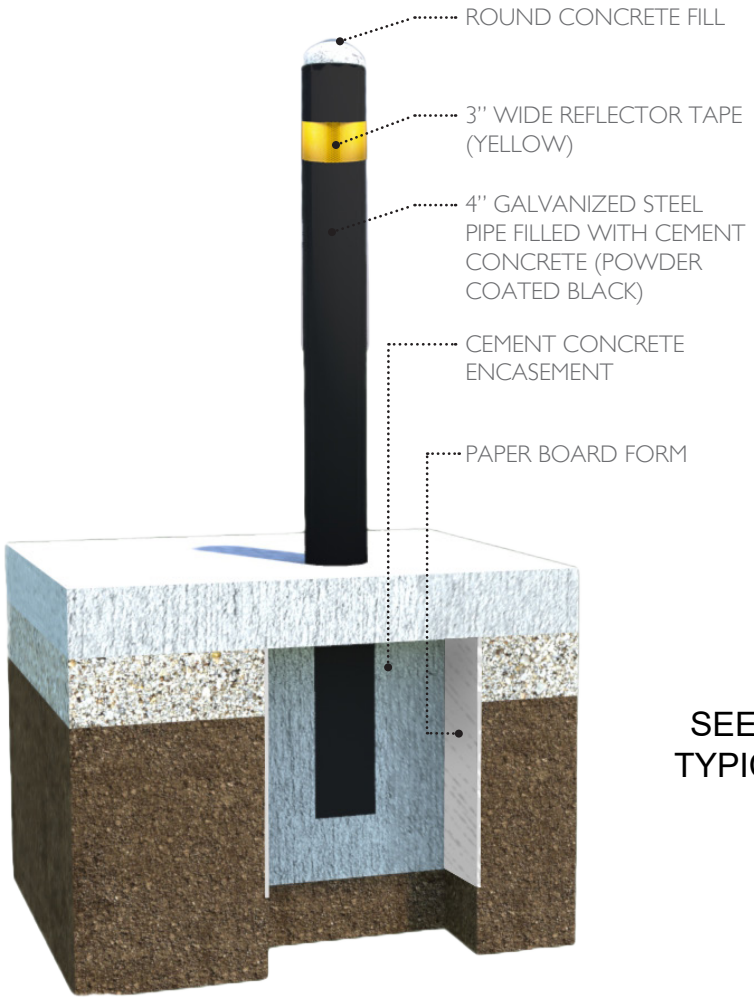
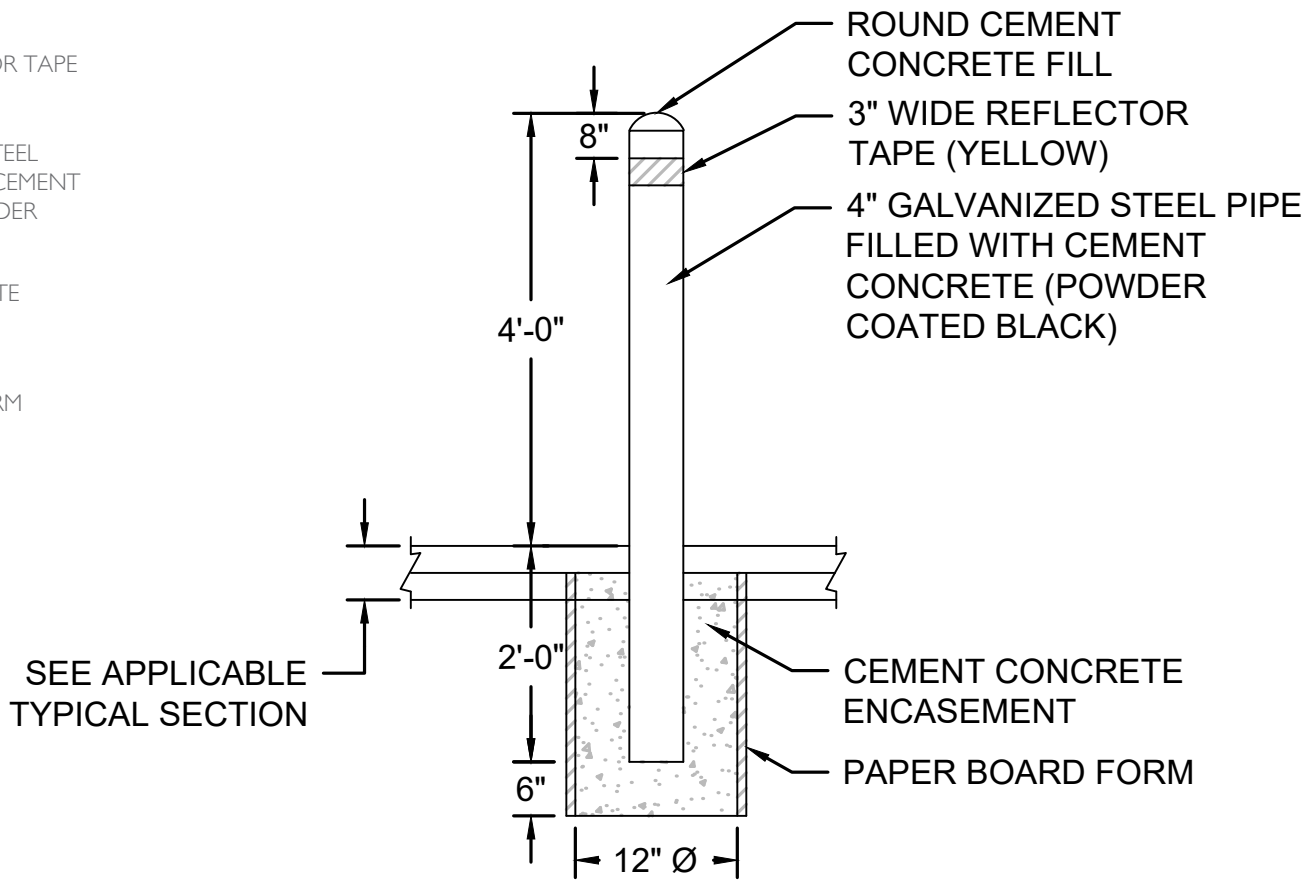
A.1 BOLLARD - STEEL





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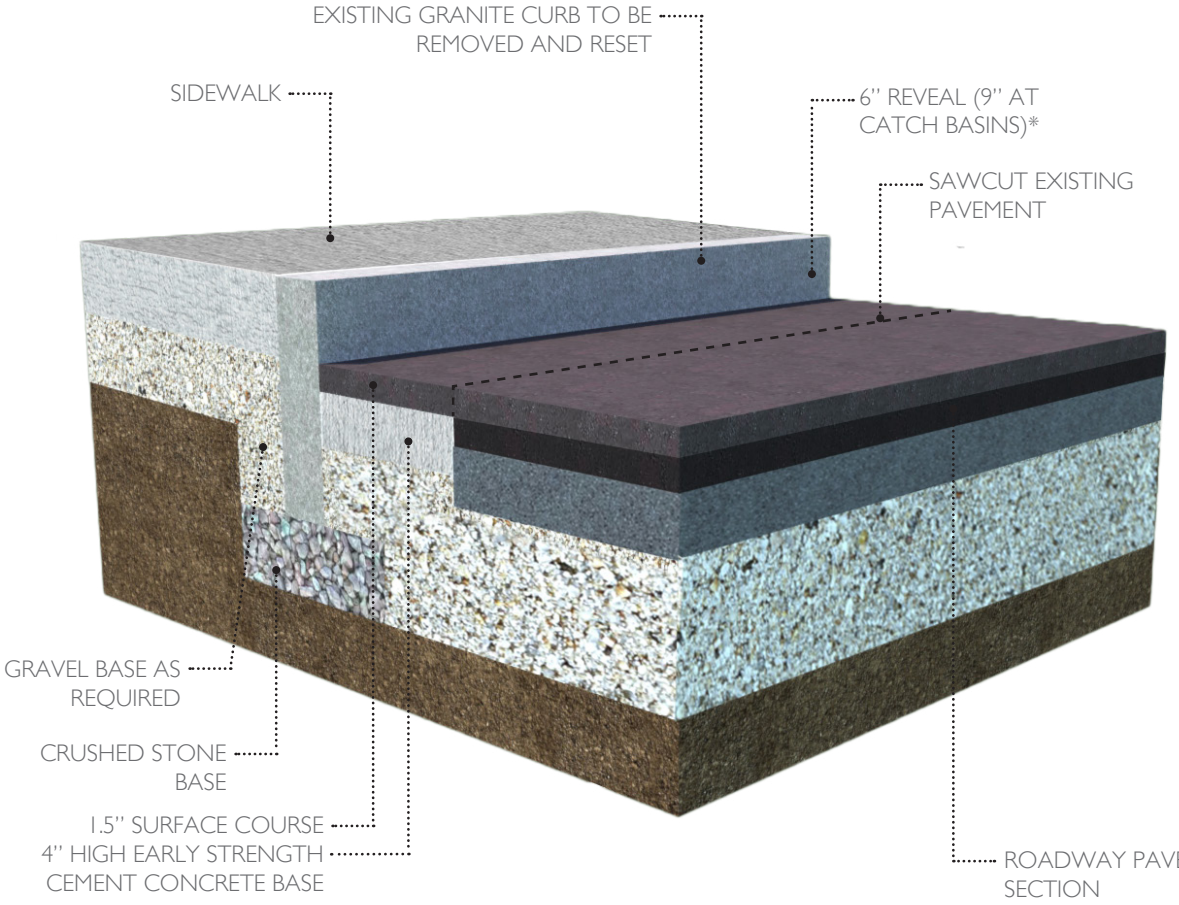
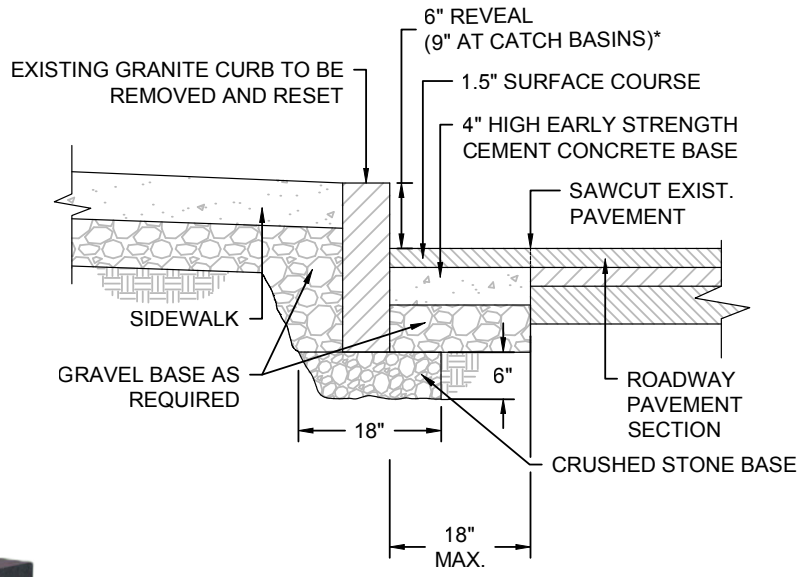
ROADWAY DESIGN STANDARDS
C.1 CURB - GRANITE RESET

NOTE: 6" REVEAL TYPICAL. REVEAL MAY VARY FROM 3" - 9" WITH PWD APPROVAL.





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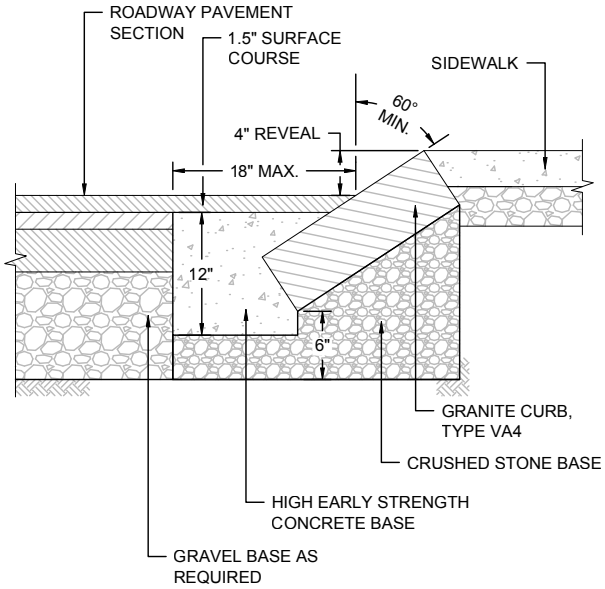
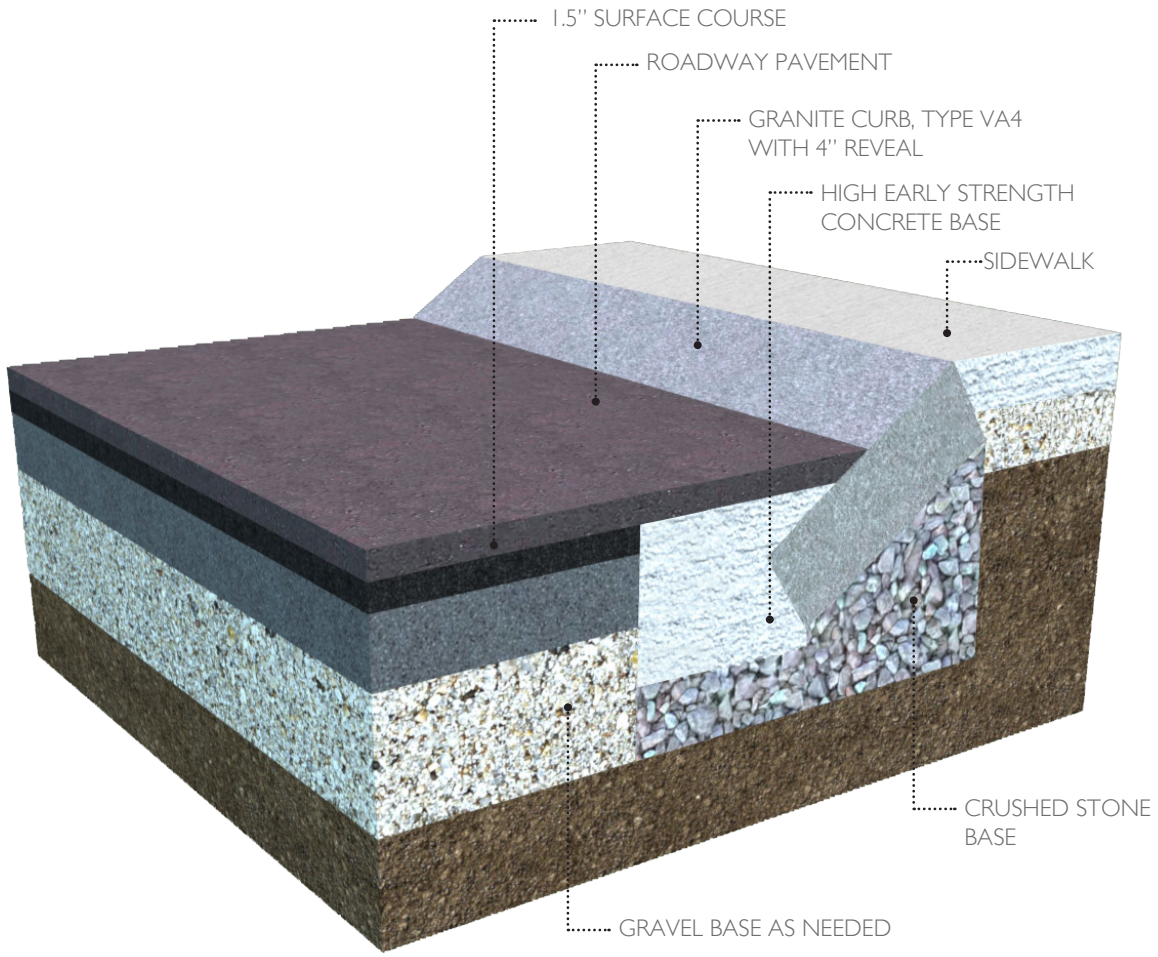
ROADWAY DESIGN STANDARDS
C.2 CURB - GRANITE SLOPED





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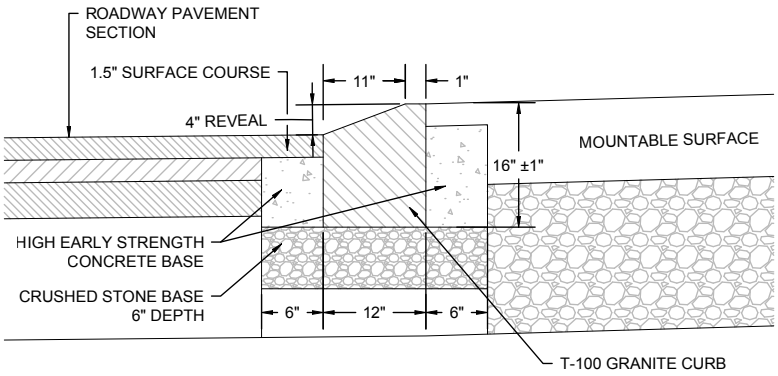
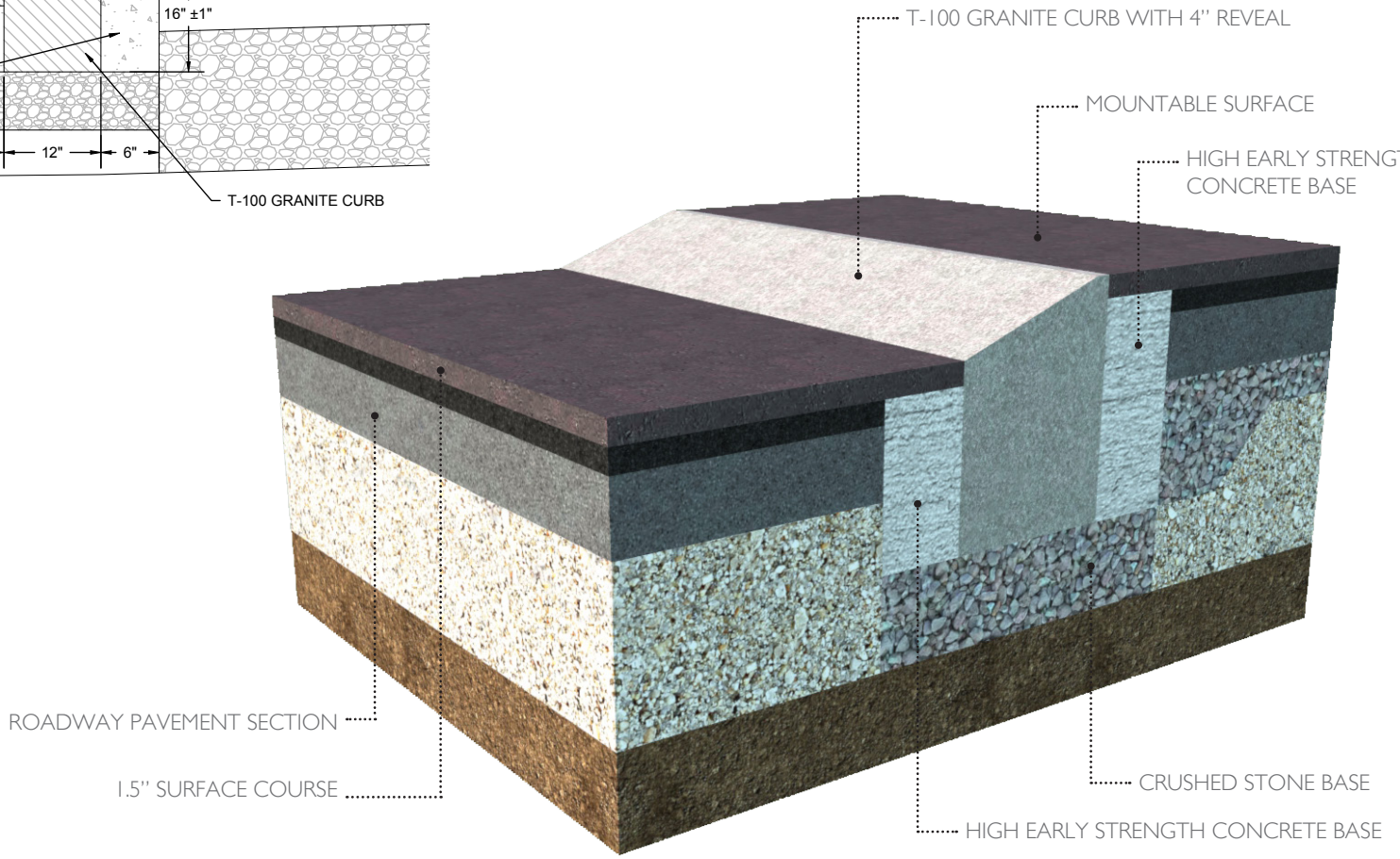
ROADWAY DESIGN STANDARDS
C.3 CURB - MOUNTABLE





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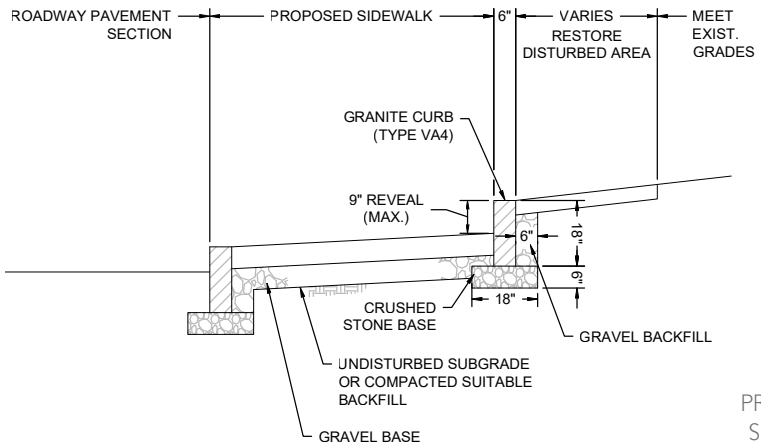
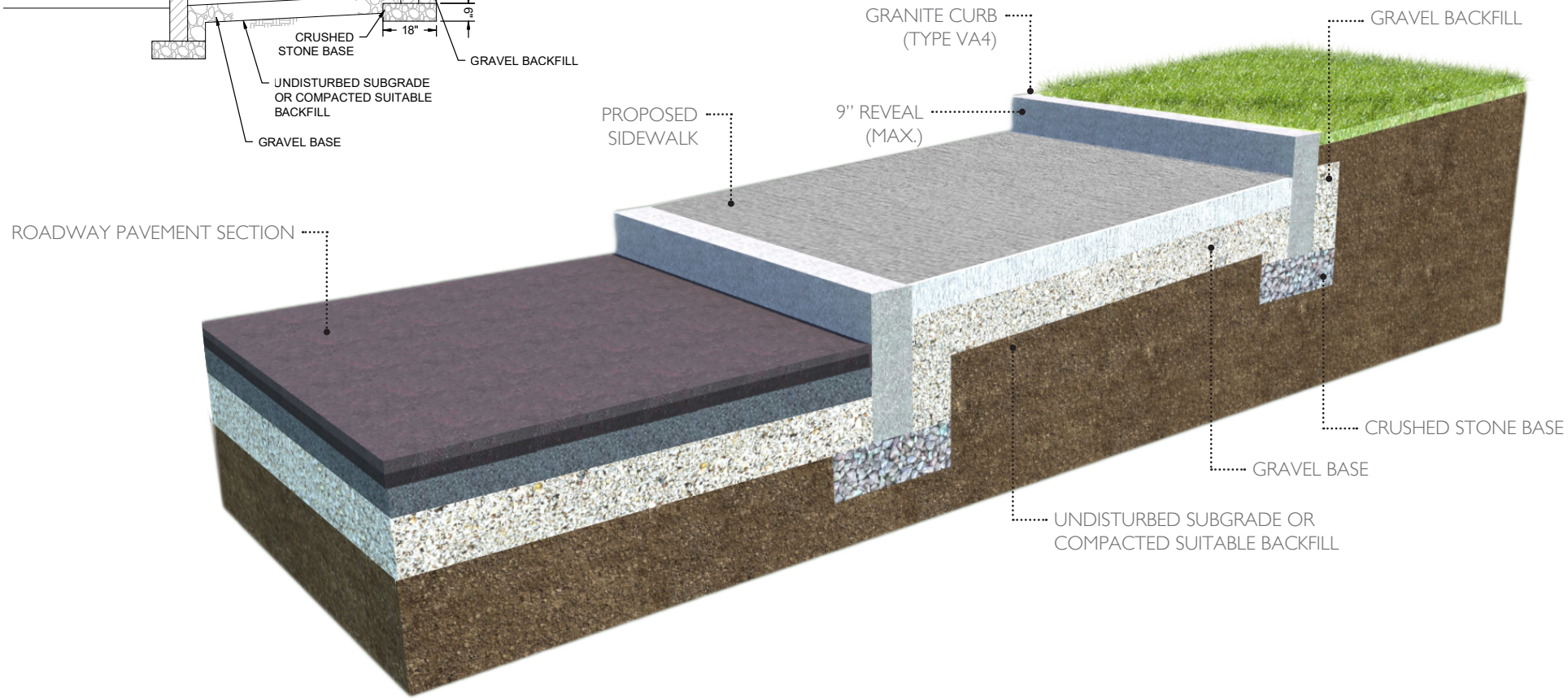
ROADWAY DESIGN STANDARDS

C.4 CURB - GRANITE CURB AT BACK OF SIDEWALK





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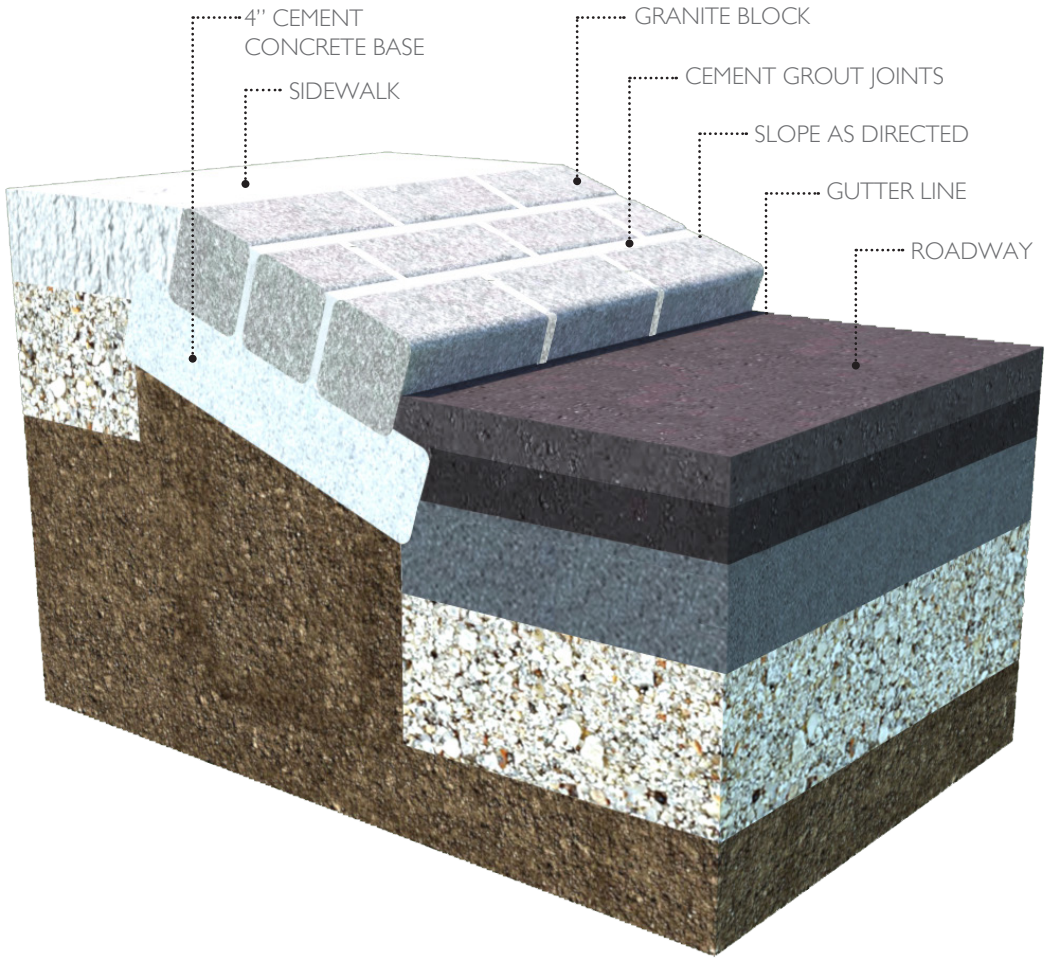
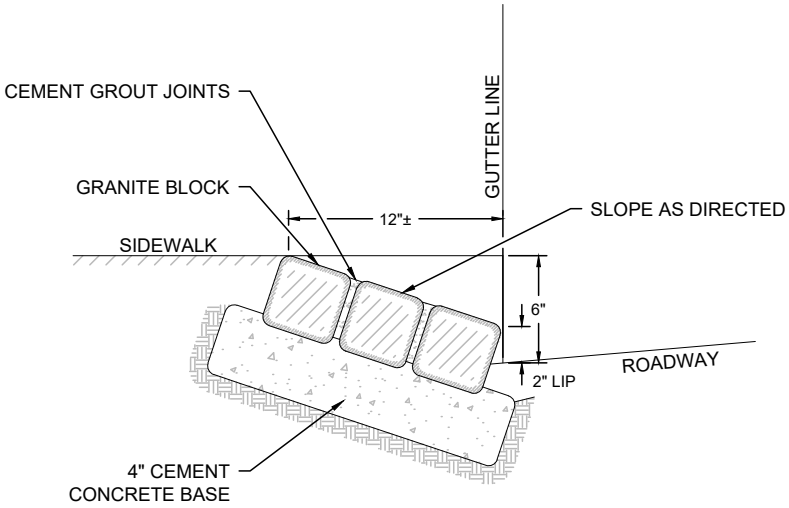
ROADWAY DESIGN STANDARDS
C.5 CURB - GRANITE BLOCK HIP GUTTER





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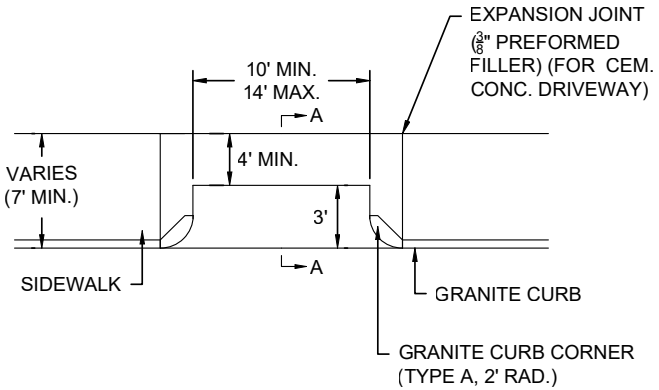
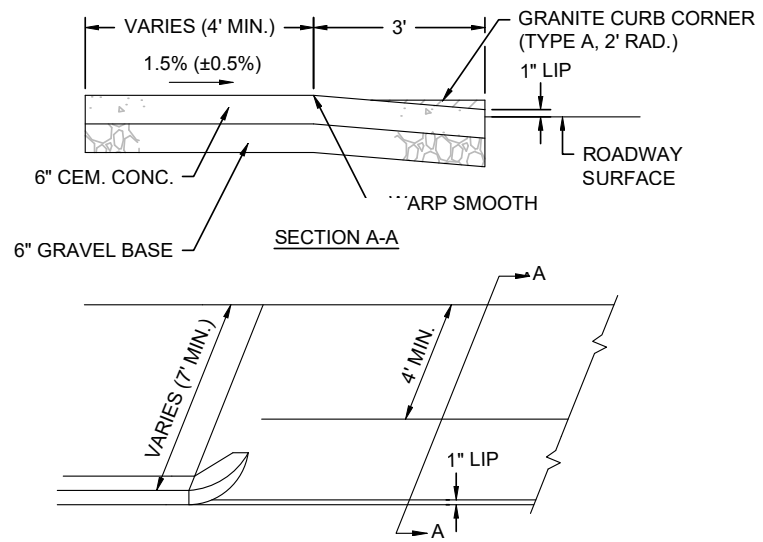
ROADWAY DESIGN STANDARDS
D.1 DRIVEWAY - RESIDENTIAL

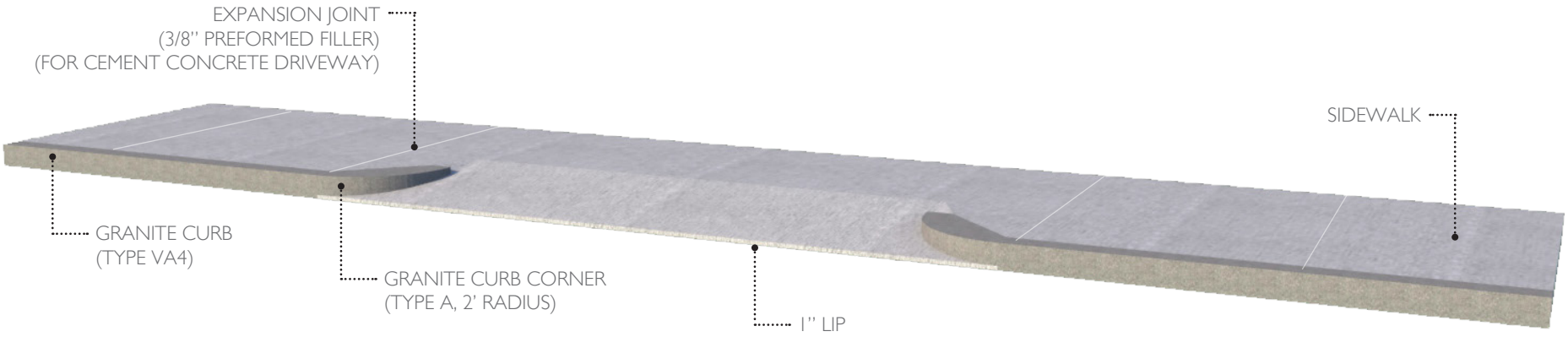
NOTE: FOR USE ON SIDEWALK WIDTHS OF 7' OR GREATER. FOR SIDEWALK WIDTHS LESS THAN 7' USE DETAIL D.3.

PLAN



SECTION A-A





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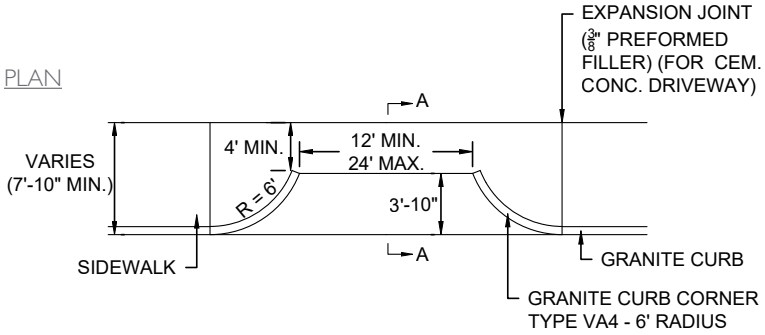
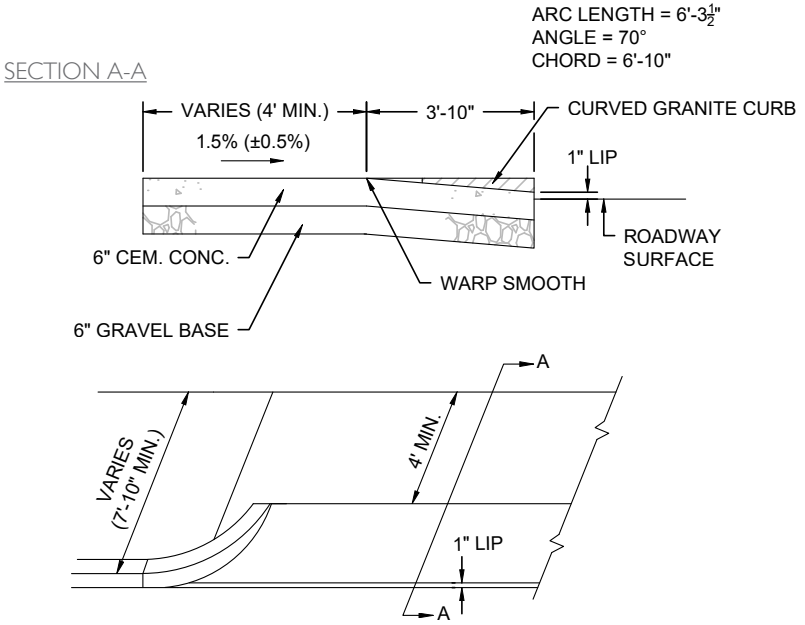
ROADWAY DESIGN STANDARDS
D.2 DRIVEWAY - COMMERCIAL

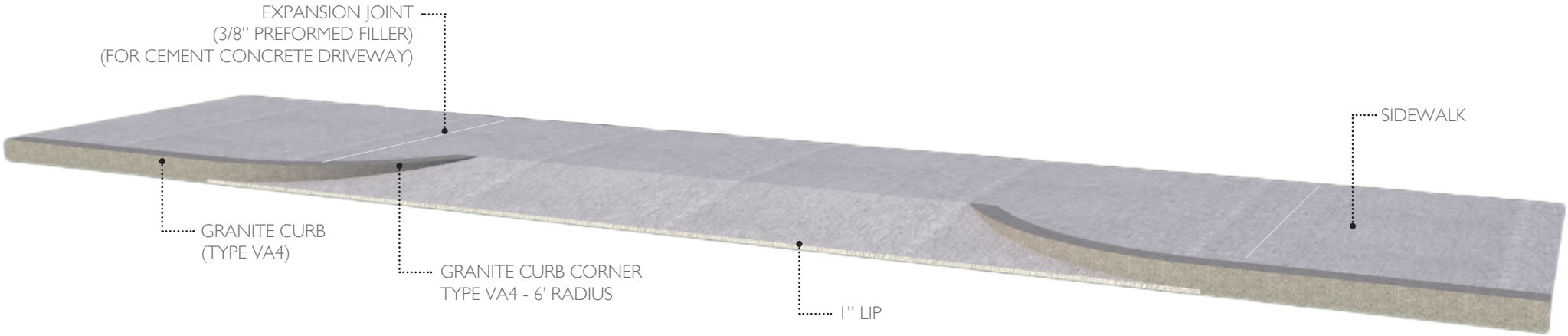
NOTE: THE COMMERCIAL DRIVEWAY DETAIL WITH 6' RADIUS CURB IS ONLY FOR SIDEWALK WIDTHS GREATER THAN OR EQUAL TO 7'-10", OTHERWISE 2' CORNERS ARE TO BE USED. FOR SIDEWALK WIDTHS LESS THAN 7', USE DETAIL D.3.

PLAN



SECTION A-A





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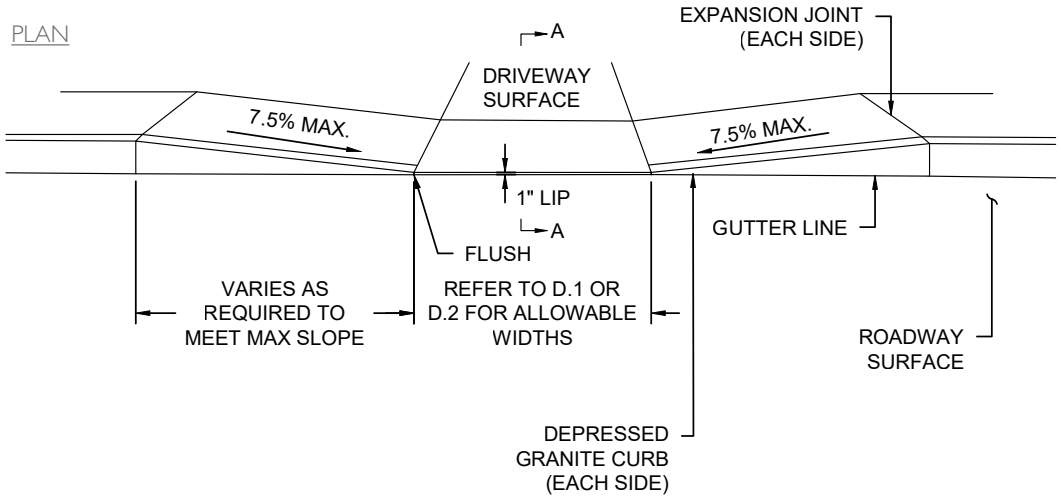
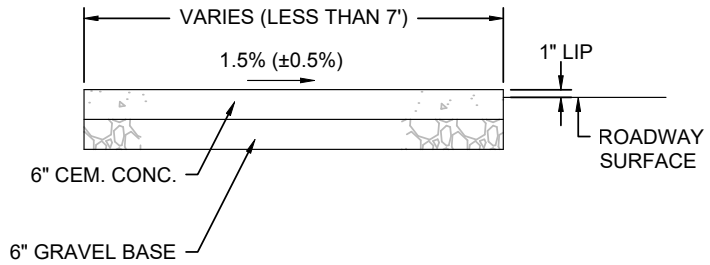
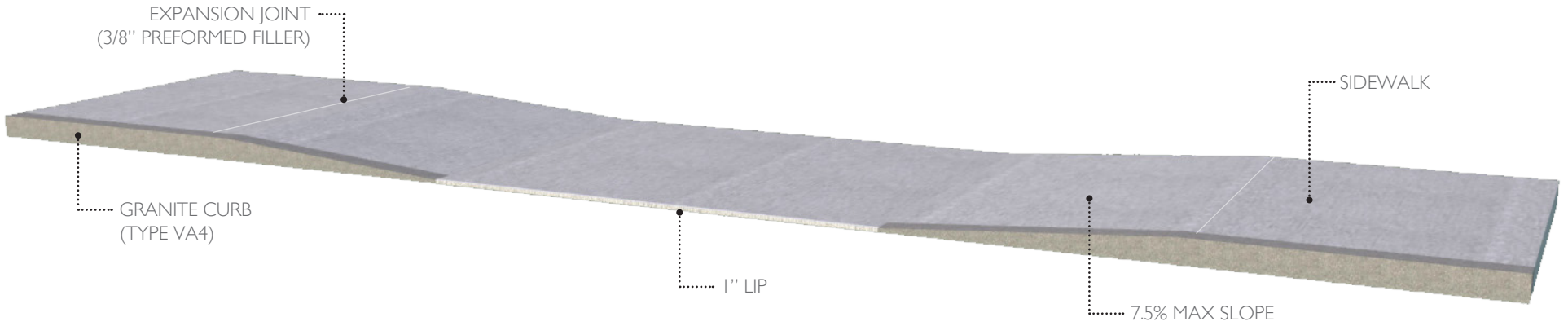
ROADWAY DESIGN STANDARDS
D.3 DRIVEWAY - SIDEWALK WIDTHS LESS THAN 7’

PLAN



SECTION A-A





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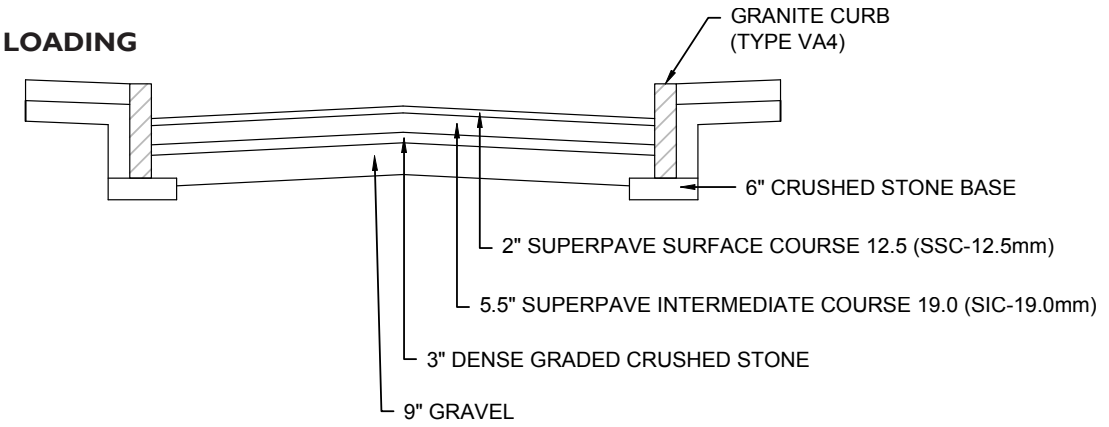
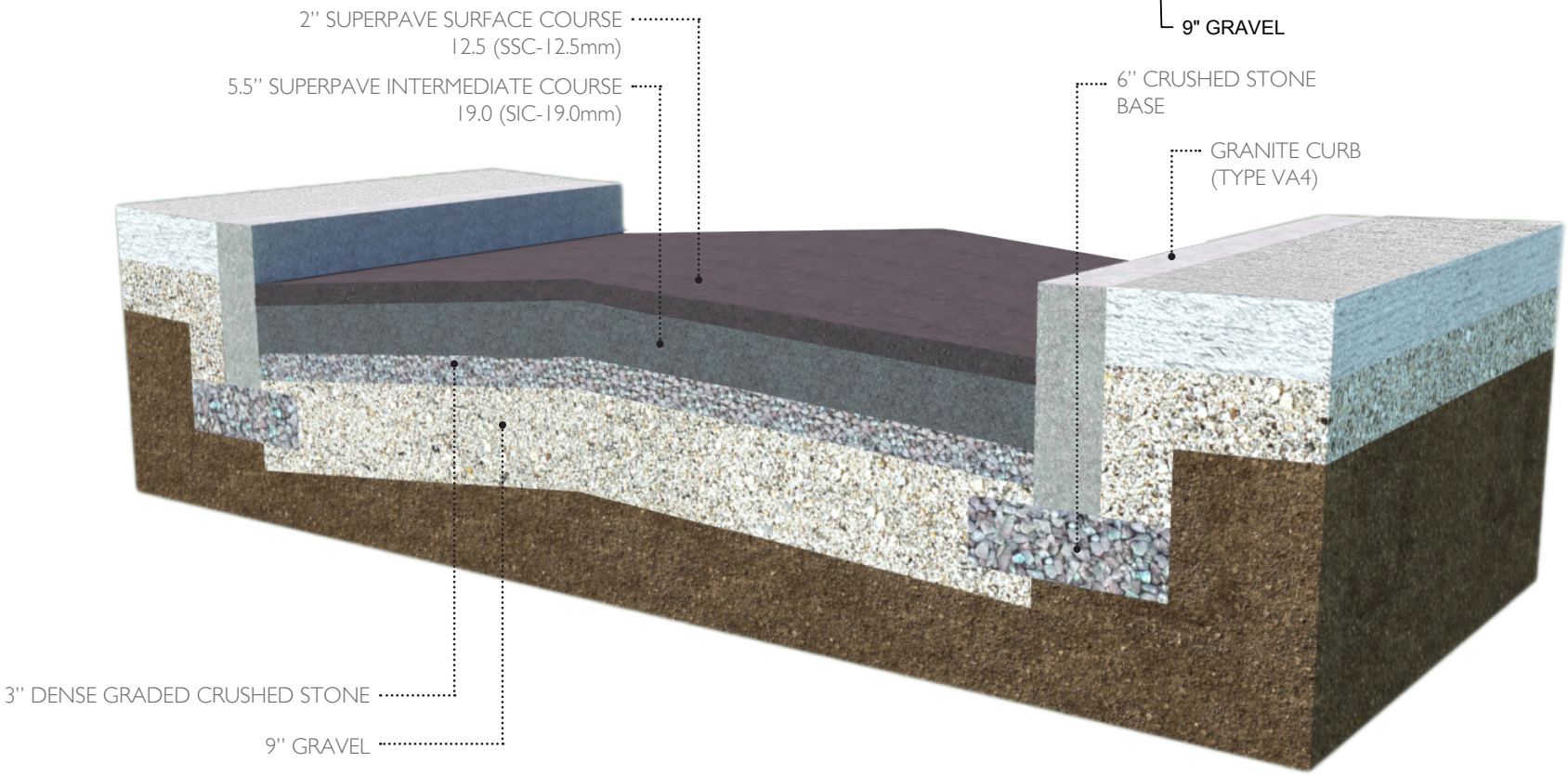
ROADWAY DESIGN STANDARDS
P.1 PAVEMENT SECTION - ARTERIAL ROADWAY

NOTE: DEPTHS MAY VARY BASED ON PROJECT SPECIFIC LOADING CONDITIONS (ADT, % HEAVY VEHICLES, ETC.)





P.1

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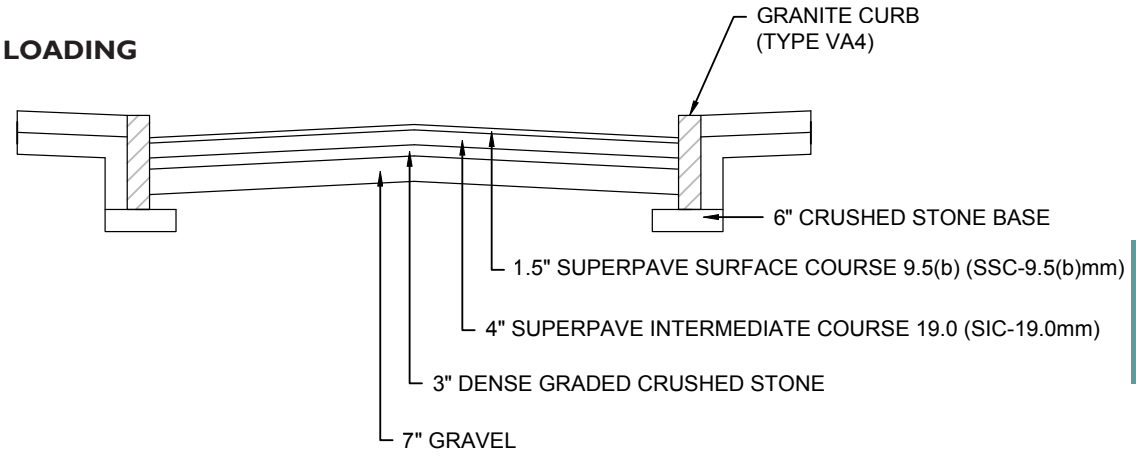
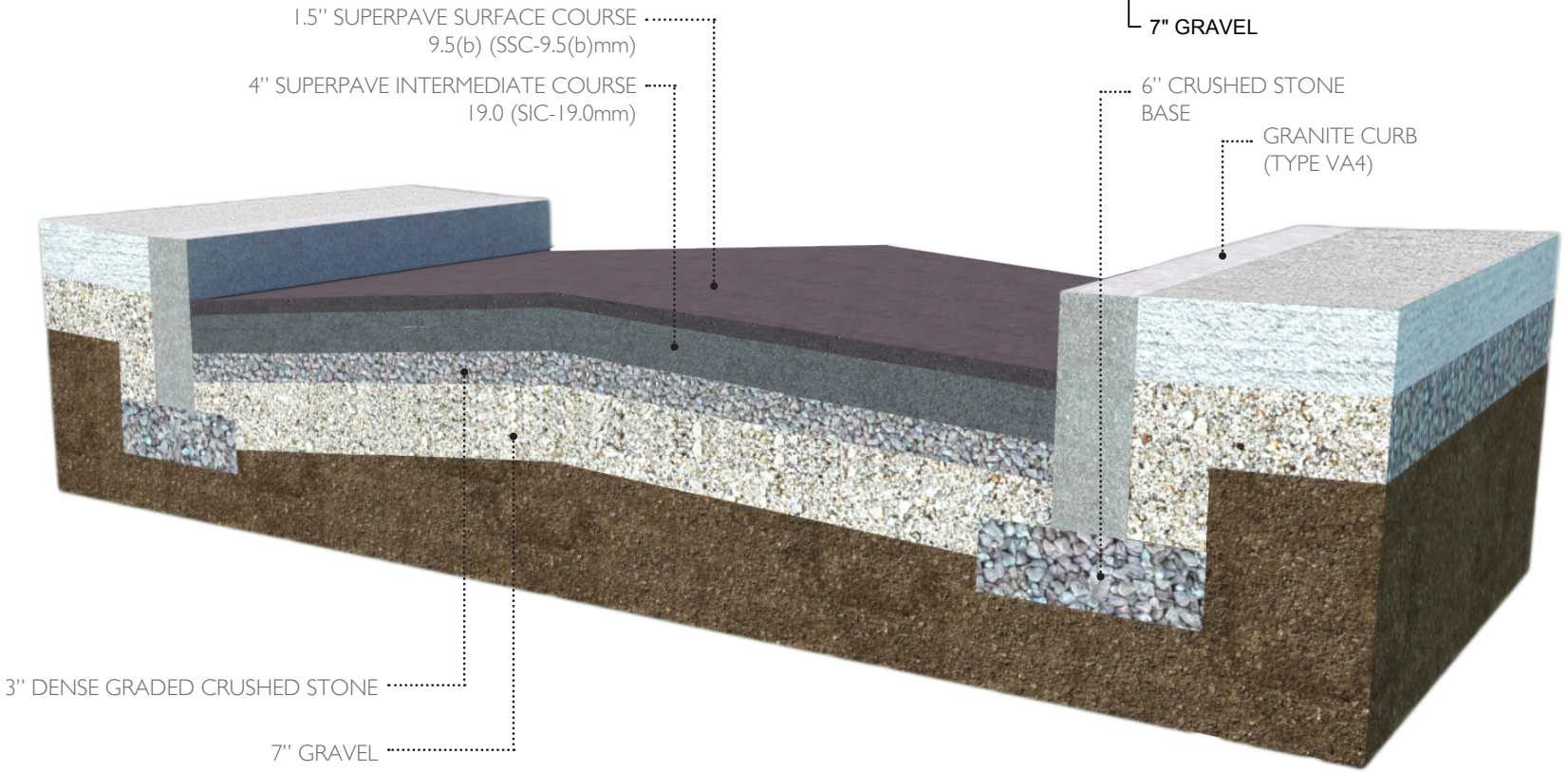
ROADWAY DESIGN STANDARDS

P.2 PAVEMENT SECTION - RESIDENTIAL ROADWAY

NOTE: DEPTHS MAY VARY BASED ON PROJECT SPECIFIC LOADING CONDITIONS (ADT, % HEAVY VEHICLES, ETC.)





P.2

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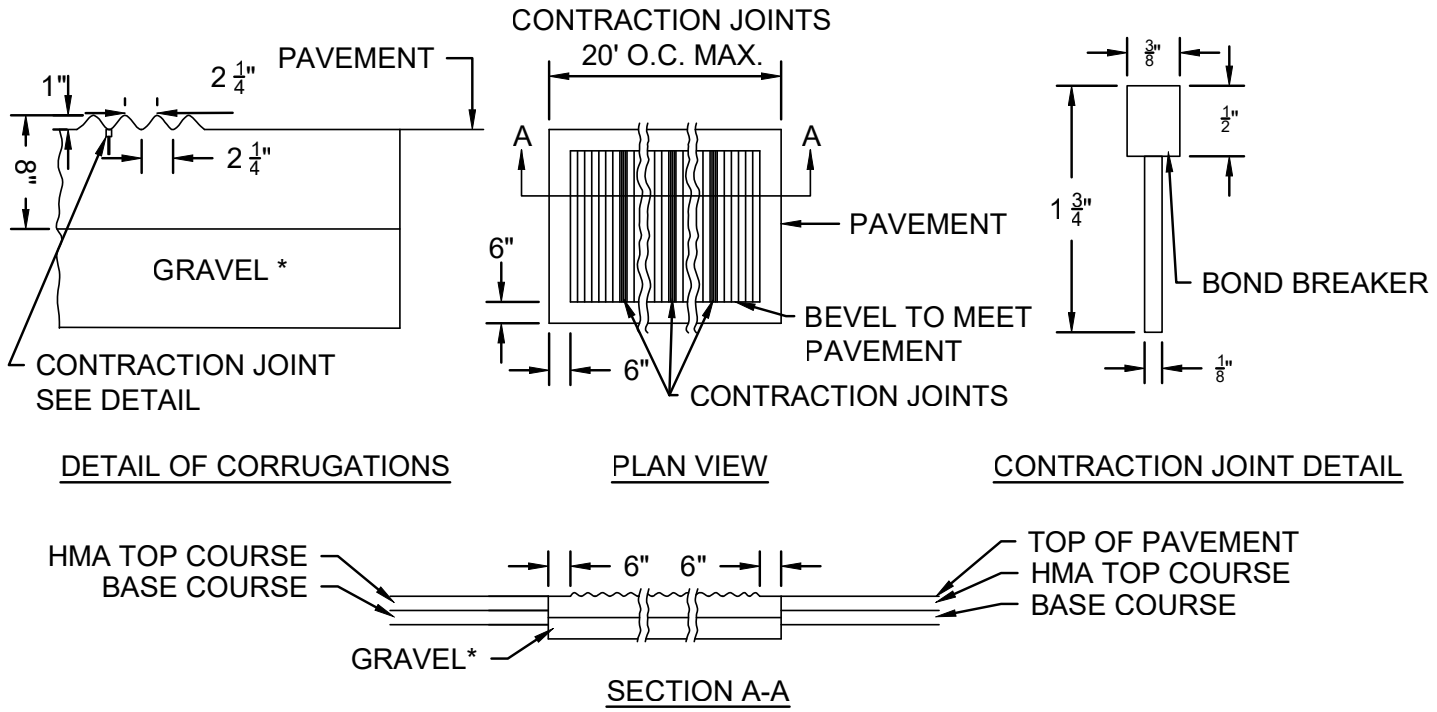
ROADWAY DESIGN STANDARDS
P.3 PAVEMENT SECTION - SCORED CEMENT CONCRETE



*THE DEPTH OF THE GRAVEL IS TO BE SUCH THAT ITS BOTTOM LINE MEETS THE BOTTOM OF THE GRAVEL LINE OF CONTIGUOUS PAVEMENT.

NOTES:
1. CONTRACTION JOINTS ARE TO BE SPACED AT A MAXIMUM OF 20' APART.
2. THE JOINTS ARE TO BE SAWED AND LOCATED IN THE DEPRESSIONS OF THE CORRUGATIONS. SEE CORRUGATION DETAIL.
3. END OF CORRUGATED RIDGES TO BE BEVELED.
4. SCORED CEMENT CONCRETE TO BE: 5000 PSI - 3/4" - 705 LB/CY.
6. TROUGH FLUSH WITH OR ABOVE ADJACENT PAVEMENT FOR DRAINAGE.

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ROADWAY DESIGN STANDARDS
R.1 PEDESTRIAN RAMP - GENERAL INFORMATION

PERPENDICULAR PEDESTRIAN RAMP DESIGN IS THE SAFEST AND THE PREFERRED TREATMENT.
Perpendicular pedestrian ramp designs focus on pedestrian safety, especially considering Boston's long winters, and high traffic volumes, both pedestrian and vehicular. Additionally, below are a list of reasons to design perpendicular ramps and a list of reasons for regulations that prohibit use of apex ramps.

PERPENDICULAR PEDESTRIAN RAMPS
- Are aligned perpendicular to vehicular traffic;
- Provide a straight path of travel on tight radius corners;
- Are aligned with the crossing direction on tight radius corners;
- Are usually positioned within crosswalk; and
- Are at the expected crossing location for all pedestrians.

DIAGONAL (APEX) PEDESTRIAN RAMPS
- Put pedestrians into a potential area of conflict with motorists who are traveling straight and turning;
- Require turning at the top and bottom of the ramp;
- Provide no alignment with the proper crossing direction, which is difficult for most people with disabilities;
- Make the essential level maneuvering area difficult to achieve at the bottom of the curb ramp; and
- Can cause a person with vision impairment to mistake a diagonal curb ramp for a perpendicular curb ramp and unintentionally travel into the middle of the intersection due to the lack of, or ambiguous, audible cues from the surge of traffic.

Sources:
1. The State regulations (521CMR 21.2.21) prohibit the installation of "apex" ramps except when there is a significant site constraint (521CMR 21.2.1.1).
2. (https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/sidewalks207.cfm)

FREQUENTLY USED BUILDING CODE LINKS:
521 CMR 4.00: APPEAL AND VARIANCE
521 CMR 20.00: ACCESSIBLE ROUTE
521 CMR 21.00: CURB CUTS (PEDESTRIAN RAMPS)
521 CMR 22.00: WALKWAYS
521 CMR 24.00: RAMPS
521 CMR 35.00: TABLES AND SEATING

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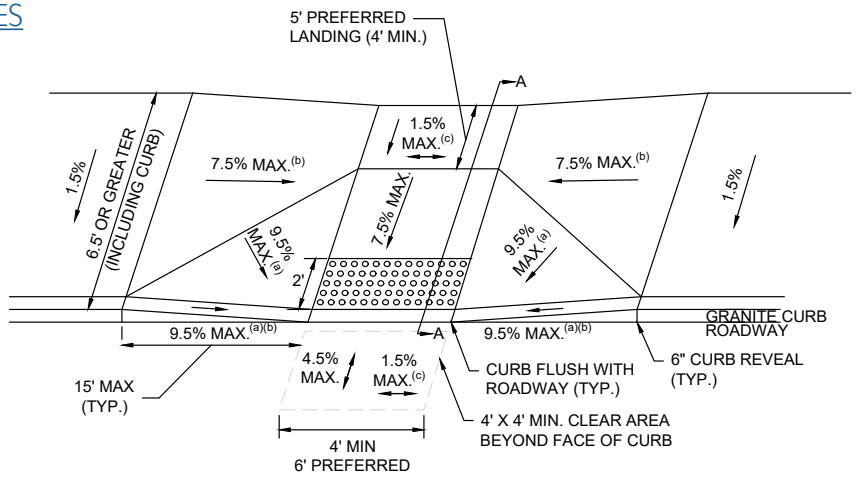
ROADWAY DESIGN STANDARDS
R.2 PEDESTRIAN RAMP - SIDEWALK WIDTH 6.5’ AND GREATER

REFERENCES LINKS:

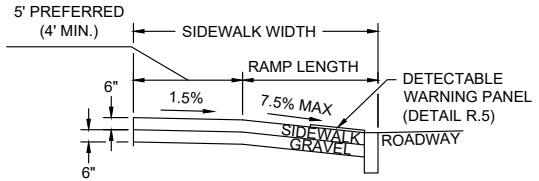
ADA GUIDELINES
AAB GUIDELINES
521 CMR 21

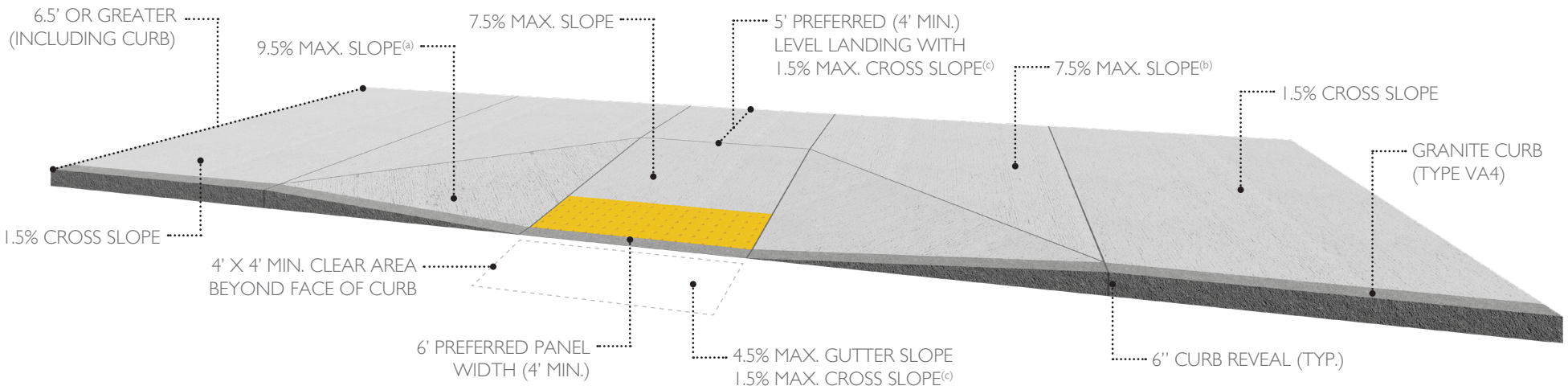


NOTES:

1. [a] 7.5% PREFERRED SLOPE.
2. [b] MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. [c] THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
4. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.

SECTION A-A





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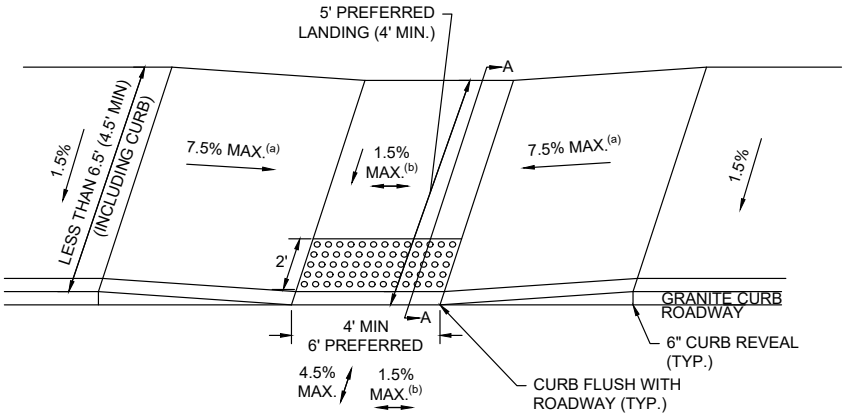
R.2

ROADWAY DESIGN STANDARDS
R.3 PEDESTRIAN RAMP - SIDEWALK WIDTH LESS THAN 6.5’

REFERENCES LINKS:

ADA GUIDELINES
AAB GUIDELINES
521 CMR 21



NOTES:

1. (a) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 7.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
2. (c) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
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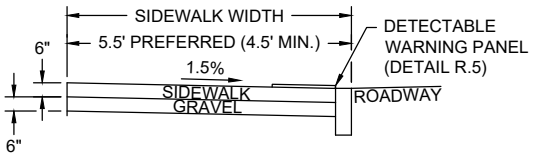
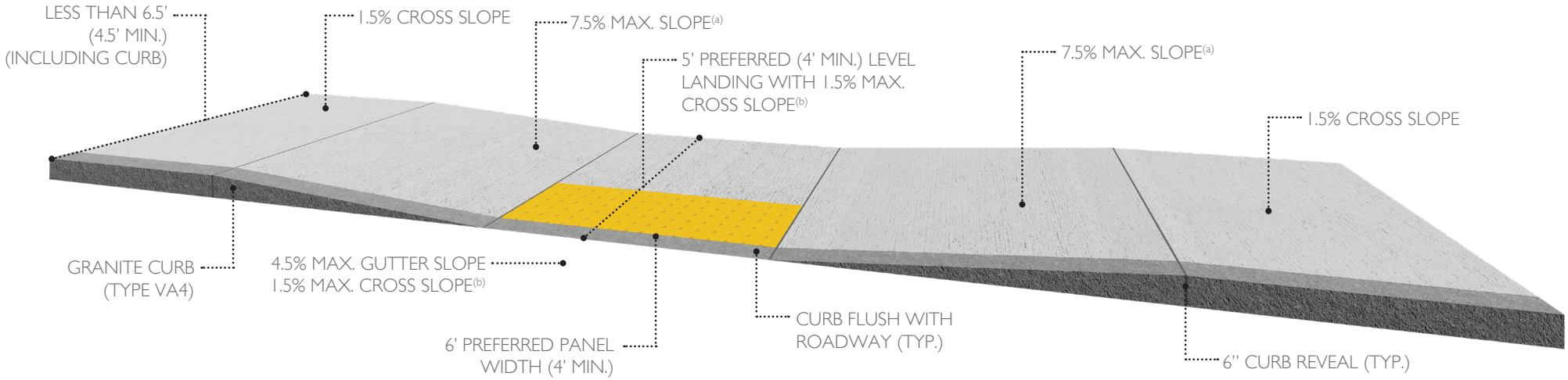
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
3. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.

SECTION A-A





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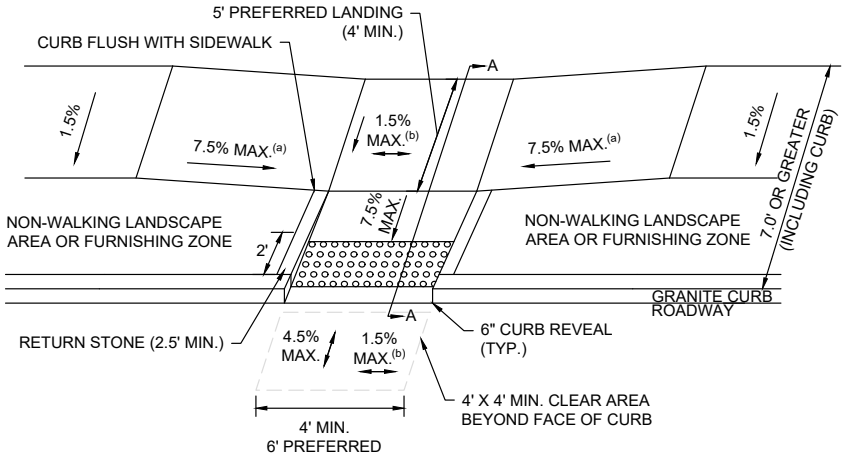
R.3

ROADWAY DESIGN STANDARDS
R.4 PEDESTRIAN RAMP - SIDEWALK WITH NON-WALKING AREA

REFERENCES LINKS:

ADA GUIDELINES
AAB GUIDELINES
521 CMR 21



NOTES:

1. (a) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 7.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION REACHES A MAXIMUM LENGTH OF 15 FEET.
2. (b) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
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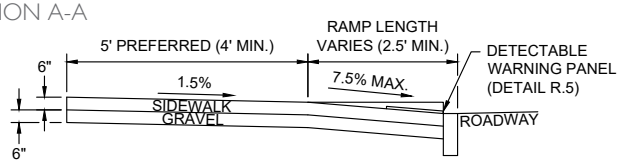
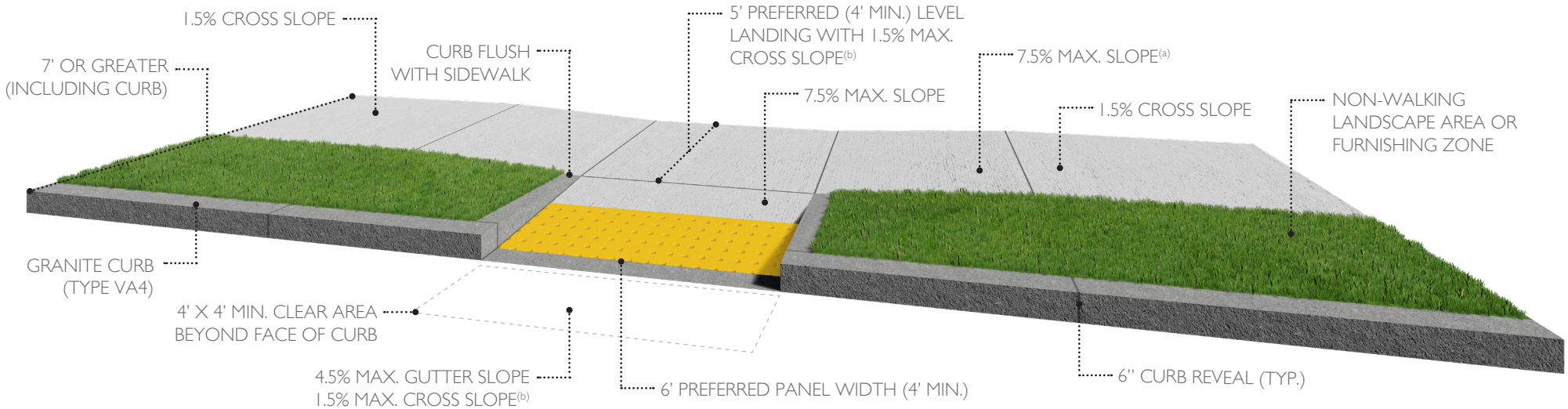
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
3. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.

SECTION A-A



R.4



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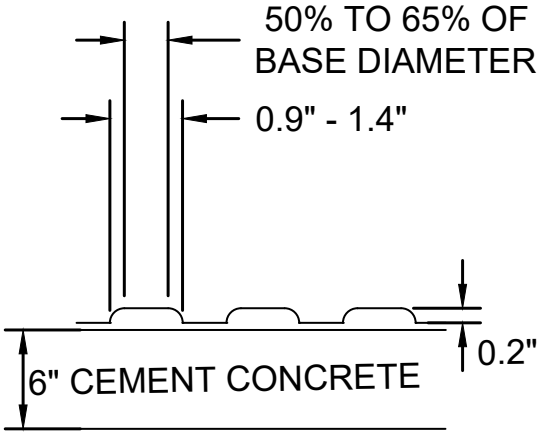
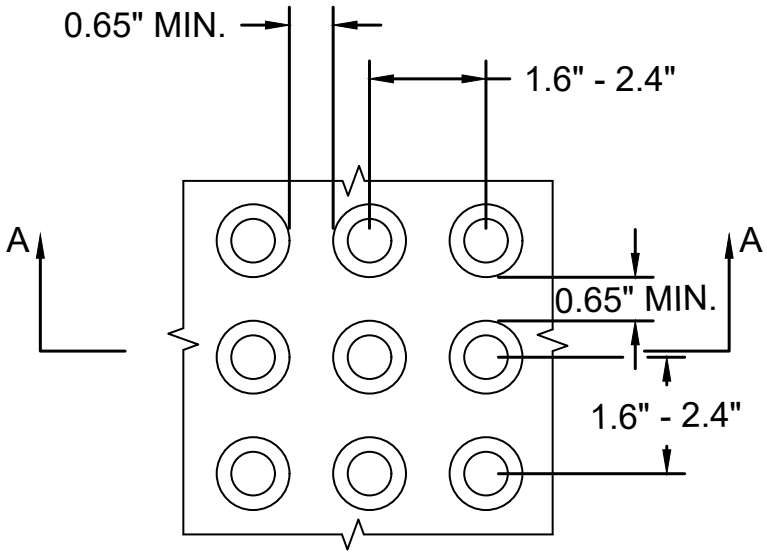
R.5 PEDESTRIAN RAMP - DETECTABLE WARNING PANEL



SECTION A-A



DETAIL OF DETECTABLE WARNING PANEL

NOTES:

1. DETECTABLE WARNING PANELS SHALL BE PERMANENTLY APPLIED TO THE PEDESTRIAN RAMP.
2. DETECTABLE WARNING PANELS SHALL MATCH THE WIDTH OF THE PEDESTRIAN RAMP.
3. DETECTABLE WARNING PANELS SHALL BE CAST IRON UNLESS OTHERWISE SPECIFIED BY PWD.
4. DETECTABLE WARNING PANELS SHALL BE FEDERAL YELLOW, CONFORMING TO THE REQUIREMENTS OF FEDERAL NO. 33538, UNLESS OTHERWISE SPECIFIED BY PWD. IF BRICK RED COLOR IS REQUESTED BY PWD, IT SHALL CONFORM WITH RAL 2001.
5. DETECTABLE WARNING PANELS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

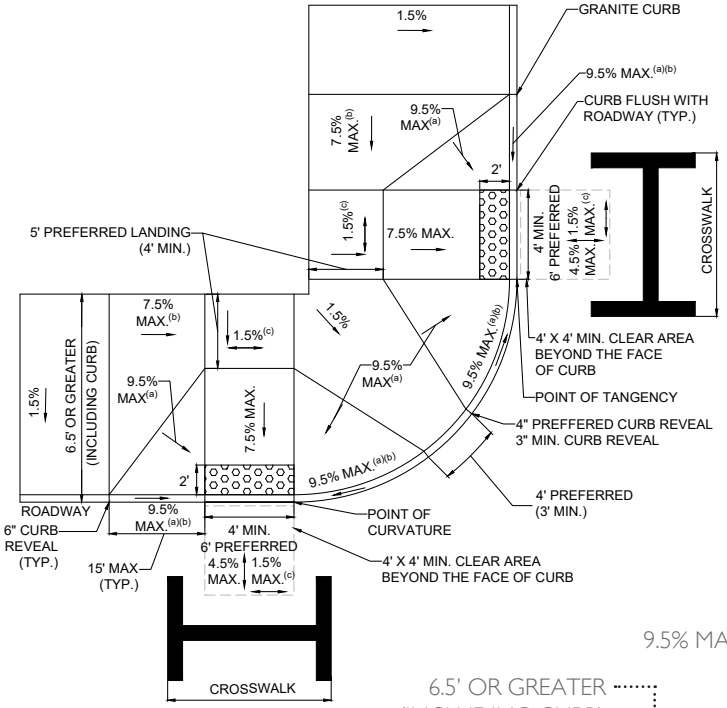
DATE OF ISSUE: DECEMBER 2025

1 CITY HALL SQUARE
ROOM 710
BOSTON, MA 02201-2024

PUBLIC WORKS DEPARTMENT
(T): 617 635 4968
(E): PWDEngineering@boston.gov

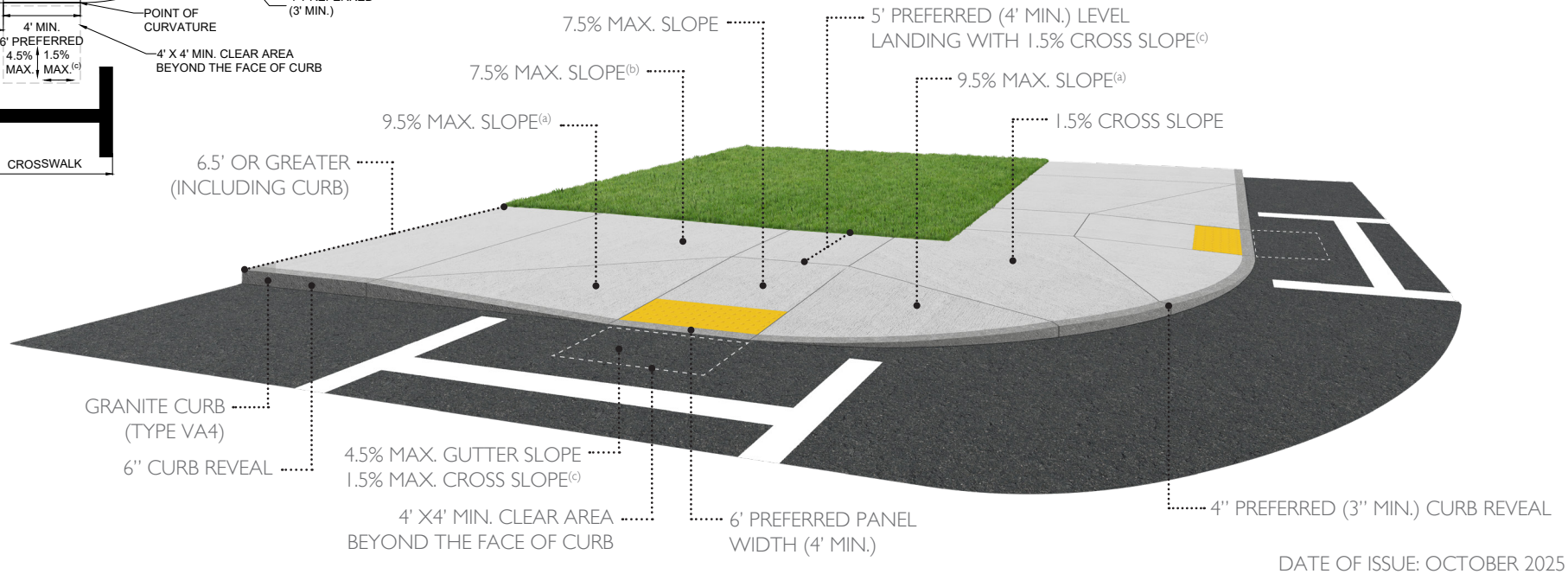
ROADWAY DESIGN STANDARDS

R.6 PERPENDICULAR PEDESTRIAN CURB RAMP - DUAL UNI-DIRECTIONAL WITH SIDEWALK WIDTH OF 6.5' OR GREATER (CASE 1)



NOTES:

1. [a] 7.5% PREFERRED SLOPE.
2. [b] MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. [c] THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
4. CASE 1 PEDESTRIAN CURB RAMP SHOULD BE ALIGNED PARALLEL TO THE CROSSWALK DIRECTION AS FEASIBLE.
5. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
6. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



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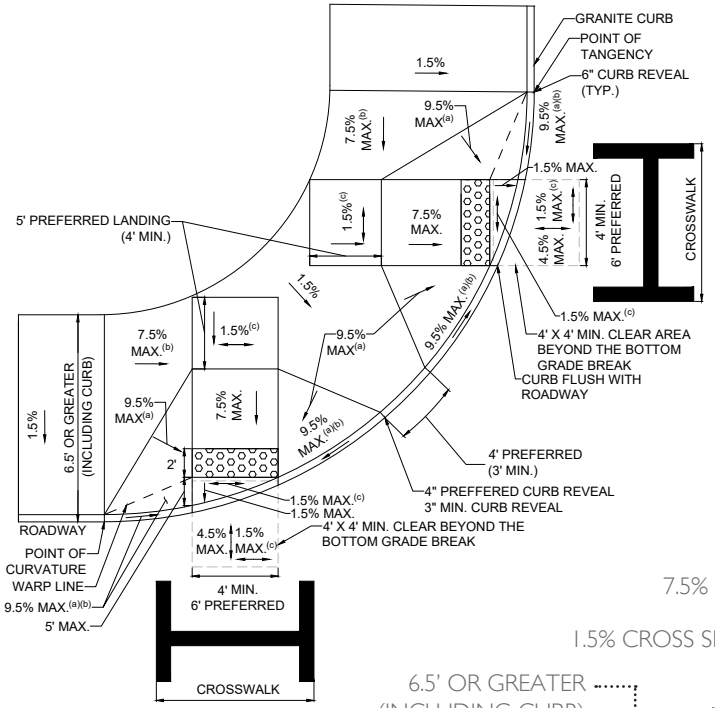
R.6

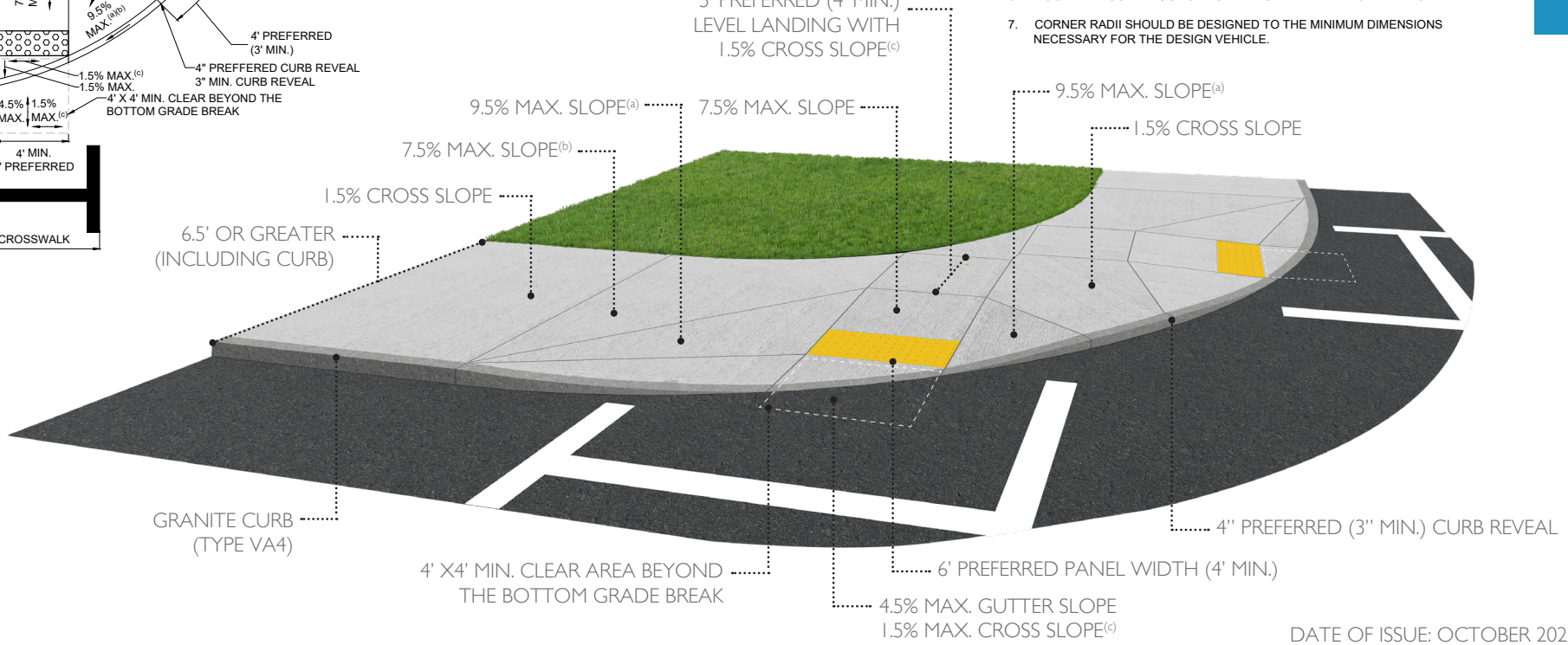
ROADWAY DESIGN STANDARDS

R.7 PERPENDICULAR PEDESTRIAN CURB RAMP - DUAL UNI-DIRECTIONAL WIDTH OF 6.5' OR GREATER (CASE 2)



NOTES:

1. (a) 7.5% PREFERRED SLOPE.
2. (b) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. (c) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
4. CASE 2 PEDESTRIAN CURB RAMP MAY BE USED WHERE THE ADJACENT SIDEWALK IS 6.5' OR GREATER AND A CONTINUOUS 4' ACCESSIBLE PATH IS PROVIDED BEHIND THE RAMP.
5. CASE 2 PEDESTRIAN CURB RAMP SHOULD BE ALIGNED PARALLEL TO THE CROSSWALK DIRECTION TO THE EXTEND POSSIBLE.
6. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
7. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



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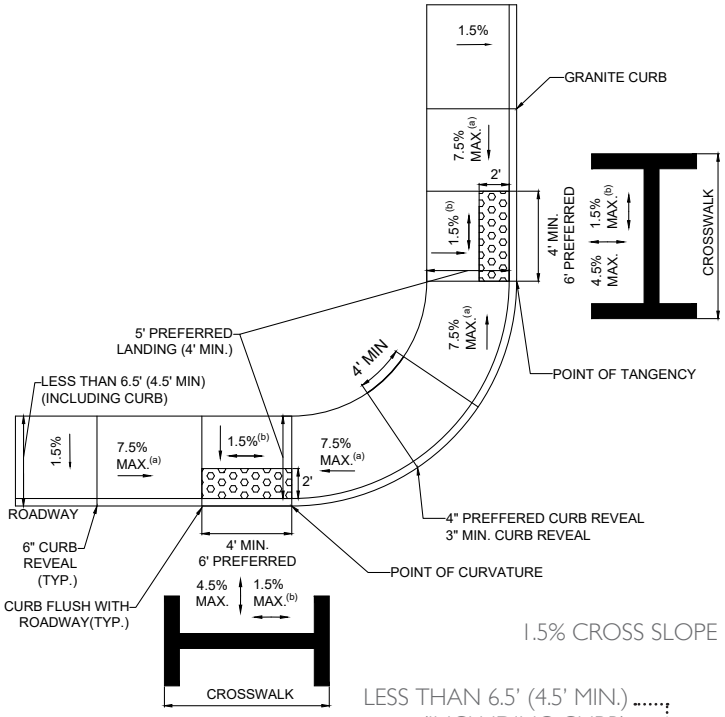
R.7

ROADWAY DESIGN STANDARDS

R.8 PARALLEL PEDESTRIAN CURB RAMP - DUAL UNI-DIRECTIONAL WITH SIDEWALK WIDTH LESS THAN 6.5’



NOTES:

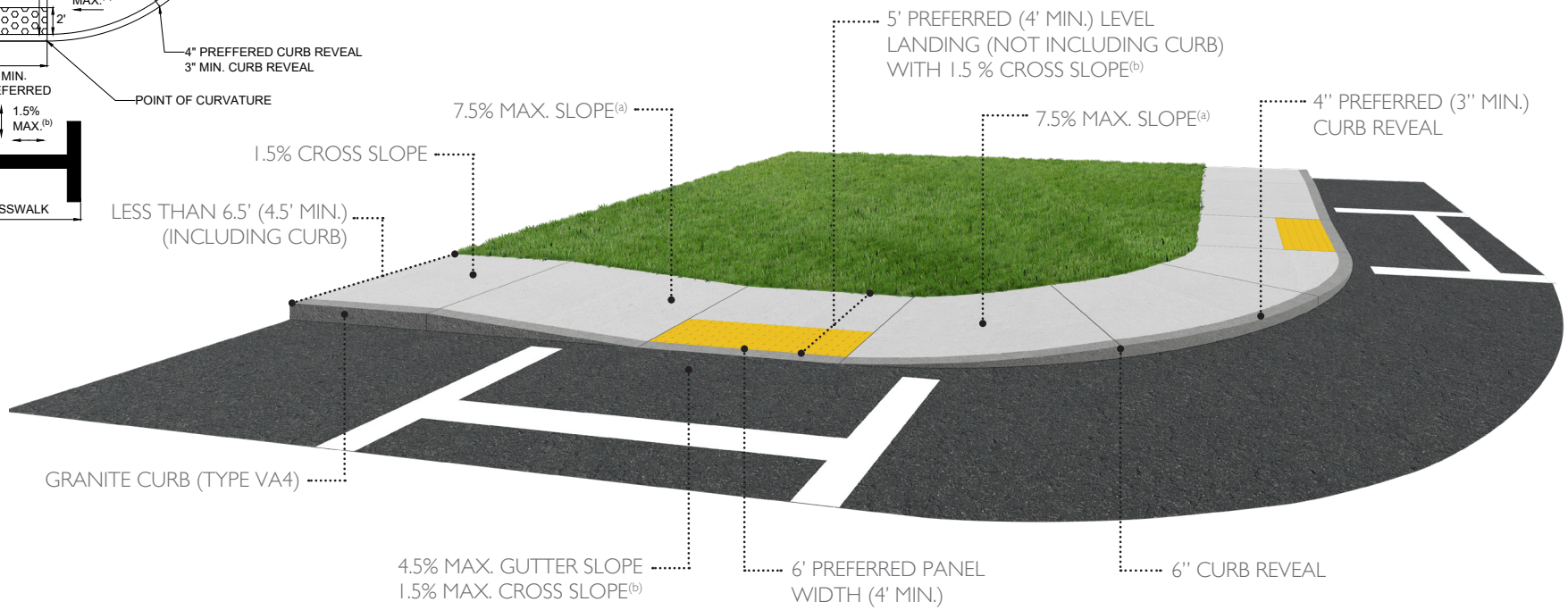
2. (a) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 7.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.

3. (b) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:

   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE

3. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.

4. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



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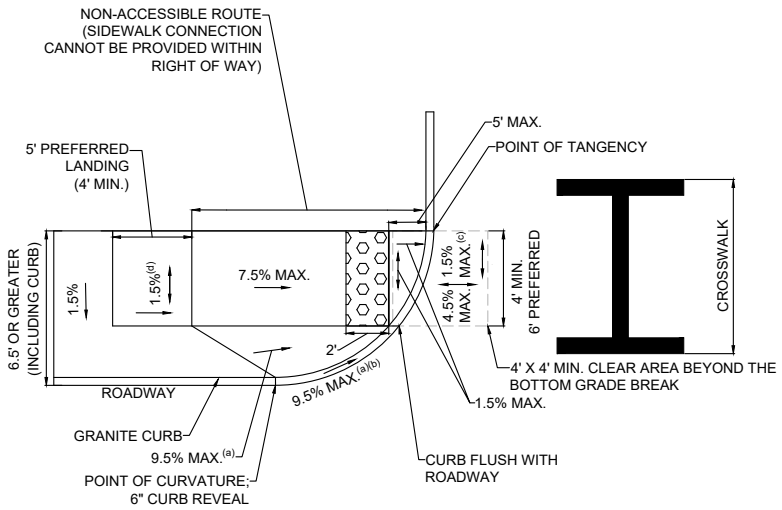
R.8

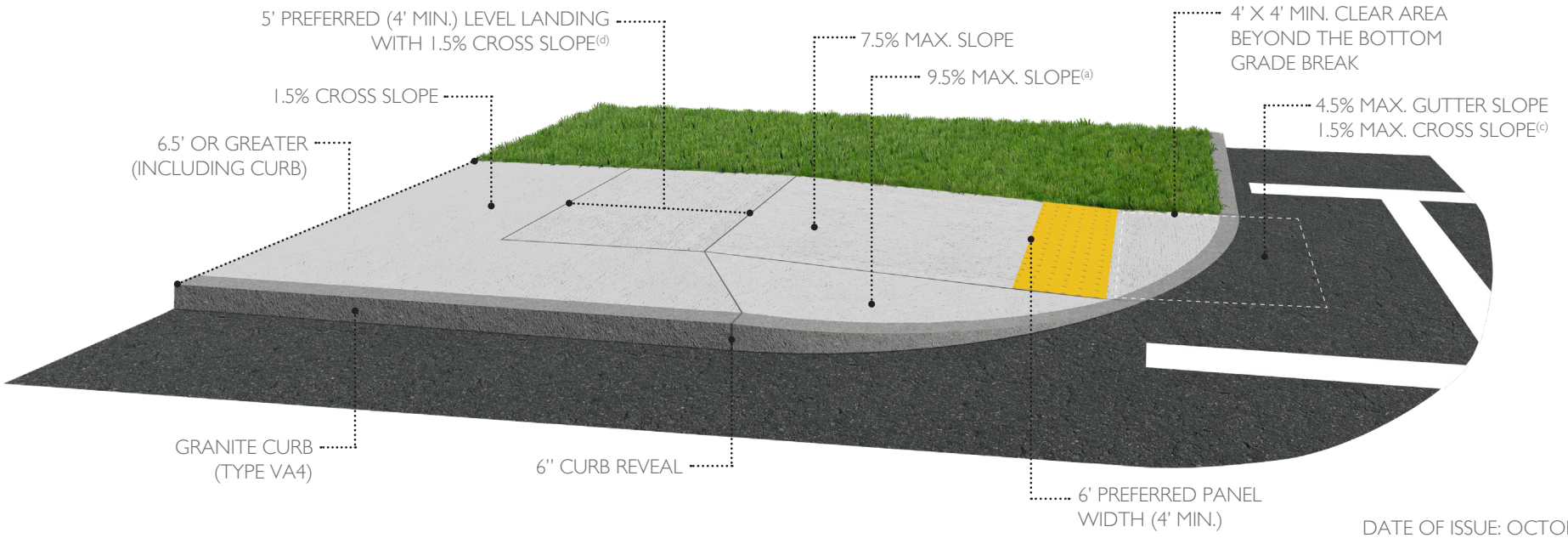
ROADWAY DESIGN STANDARDS

R.9 PEDESTRIAN CURB RAMP FOR ONE CONTINUOUS DIRECTION TRAVEL WITH SIDEALK WIDTH OF 6.5' OR GREATER



NOTES:

1. [a] 7.5% PREFERRED SLOPE.
2. [b] MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. [c] THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
4. [d] THE LANDING RUNNING SLOPE (PARALLEL TO THE CURB LINE) CAN EXCEED 1.5% TO MATCH THE EXISTING SIDEWALK RUNNING SLOPE. THE LANDING CROSS SLOPE (PERPENDICULAR TO THE CURB LINE) SHALL BE A MAXIMUM OF 1.5%.
5. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
6. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



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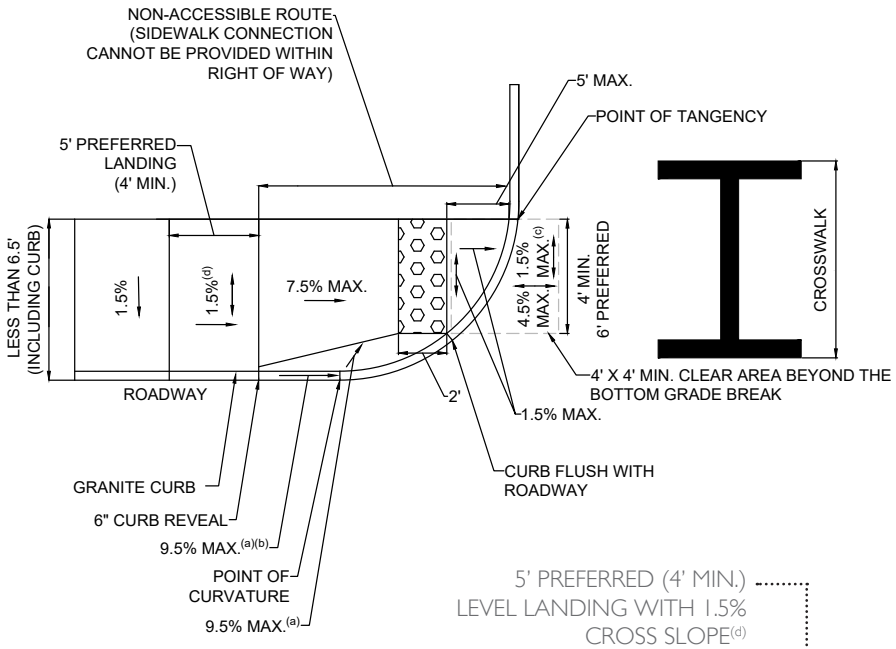
R.9

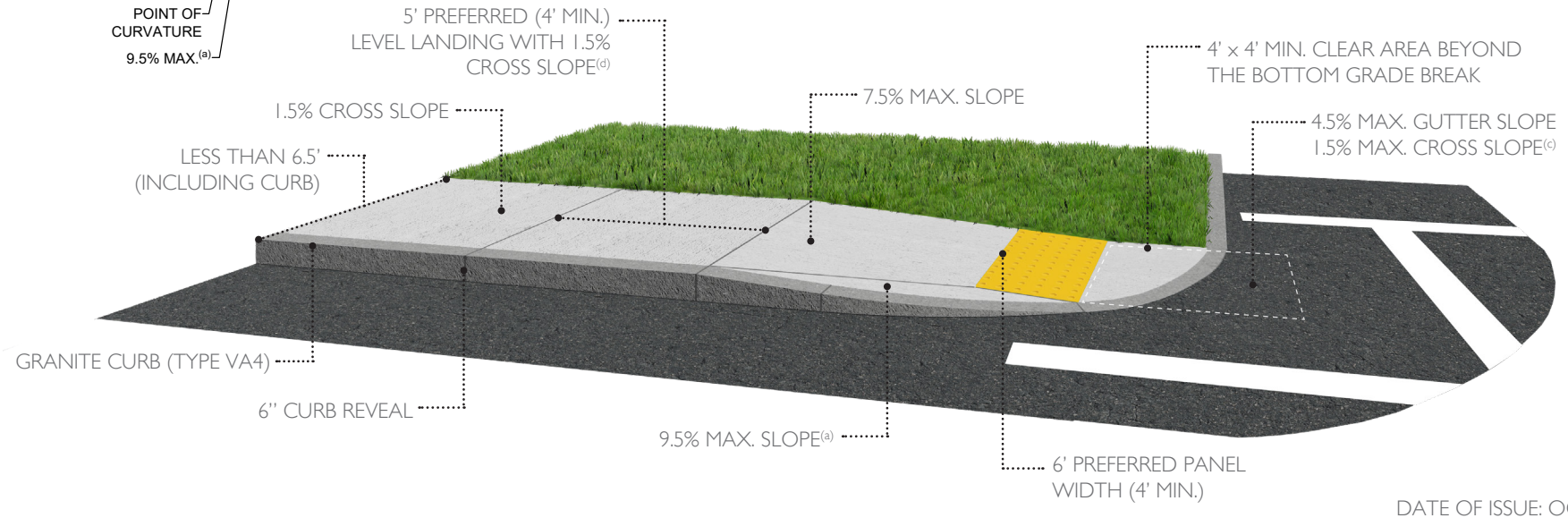
ROADWAY DESIGN STANDARDS

R.10 PEDESTRIAN CURB RAMP FOR ONE CONTINUOUS DIRECTION TRAVEL WITH SIDEWALK LESS THAN 6.5'



NOTES:

1. (a) 7.5% PREFERRED SLOPE.
2. (b) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
2. (c) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
3. (d) THE LANDING RUNNING SLOPE (PARALLEL TO THE CURB LINE) CAN EXCEED 1.5% TO MATCH THE EXISTING SIDEWALK RUNNING SLOPE. THE LANDING CROSS SLOPE (PERPENDICULAR TO THE CURB LINE) SHALL BE A MAXIMUM OF 1.5%.
4. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
5. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



R.10

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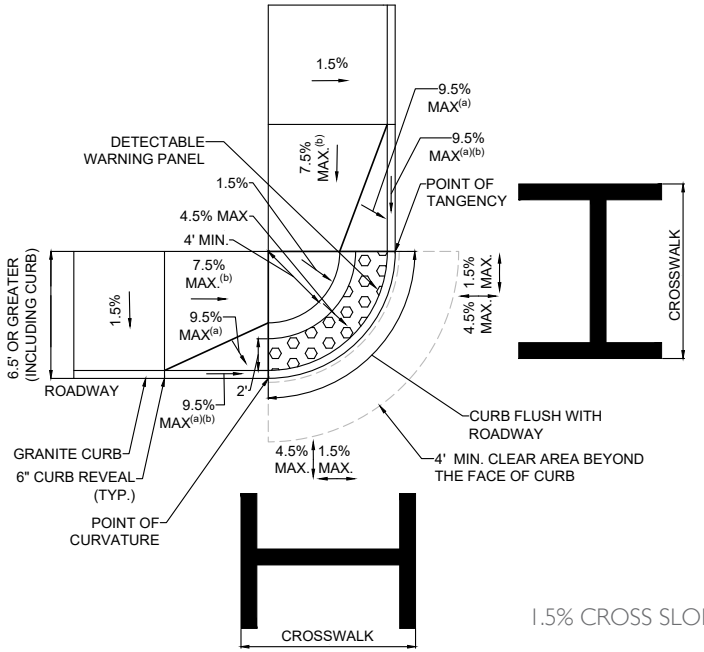
1 CITY HALL SQUARE
ROOM 710
BOSTON, MA 02201-2024

PUBLIC WORKS DEPARTMENT
(T): 617 635 4968
(E): PWDEngineering@boston.gov

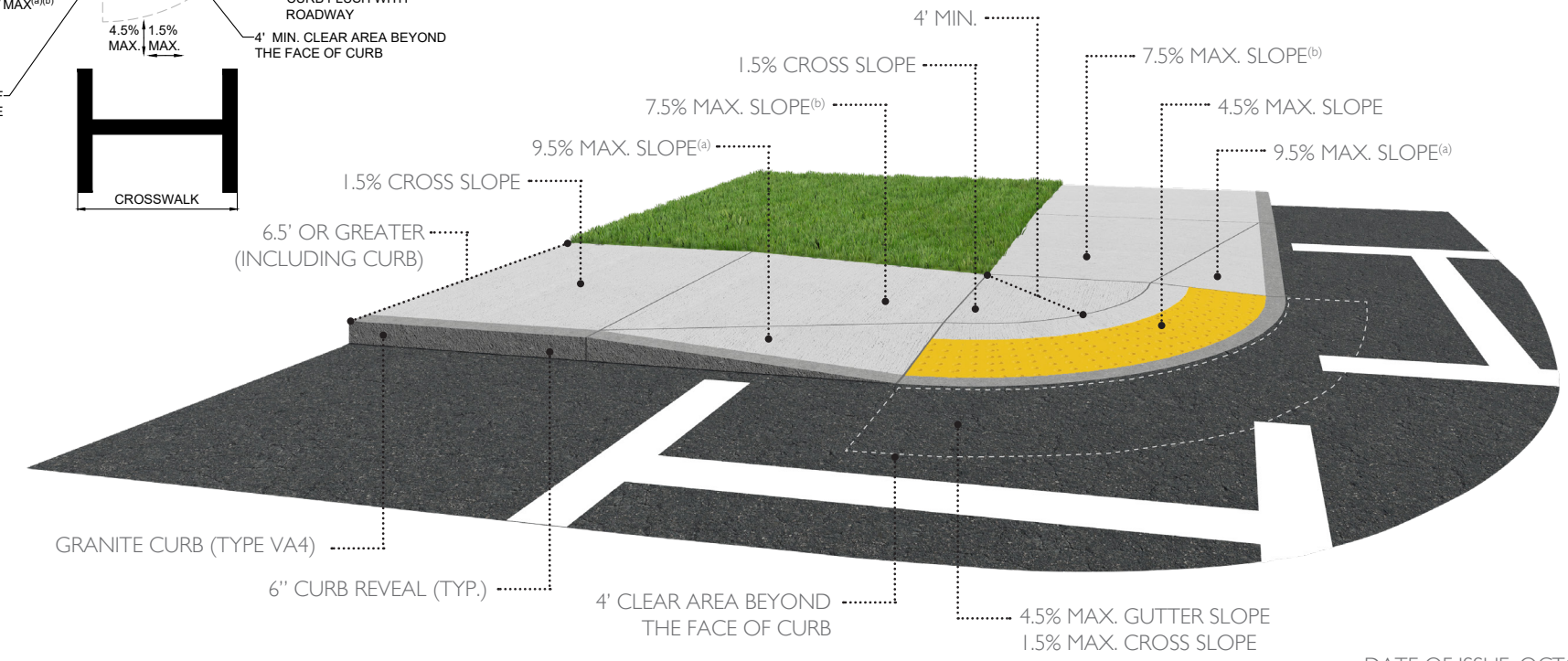
ROADWAY DESIGN STANDARDS

R.11 BLENDED TRANSITION FOR TWO CONTINUOUS DIRECTIONS OF TRAVEL WITH SIDEWALK WIDTH OF 6.5’ OR GREATER (CASE 1)



NOTES:

1. CASE 1 - BLENDED TRANSITIONS SHALL ONLY BE PERMITTED FOR RETROFITTING PROJECTS WHERE EXISTING ROADWAY CONSTRAINTS MAKE UNI-DIRECTIONAL COMPLIANT RAMPS INFEASIBLE.
2. (a) 7.5% PREFERRED SLOPE.
2. (b) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
4. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
5. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



R.11

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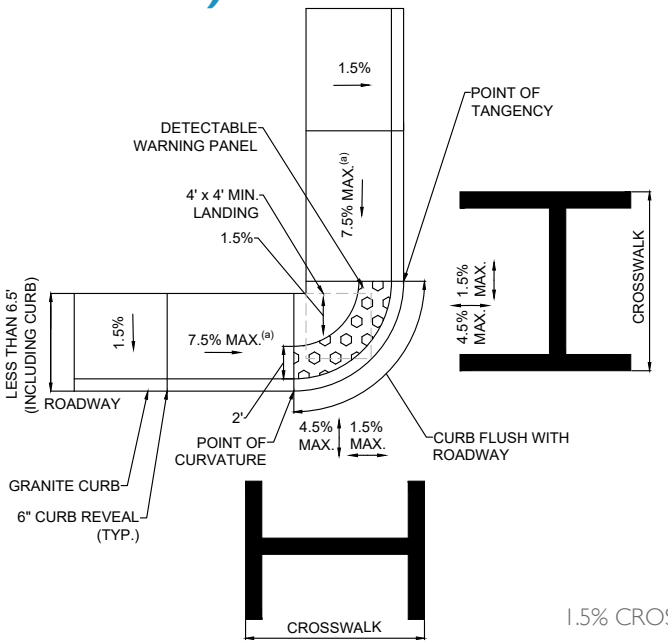
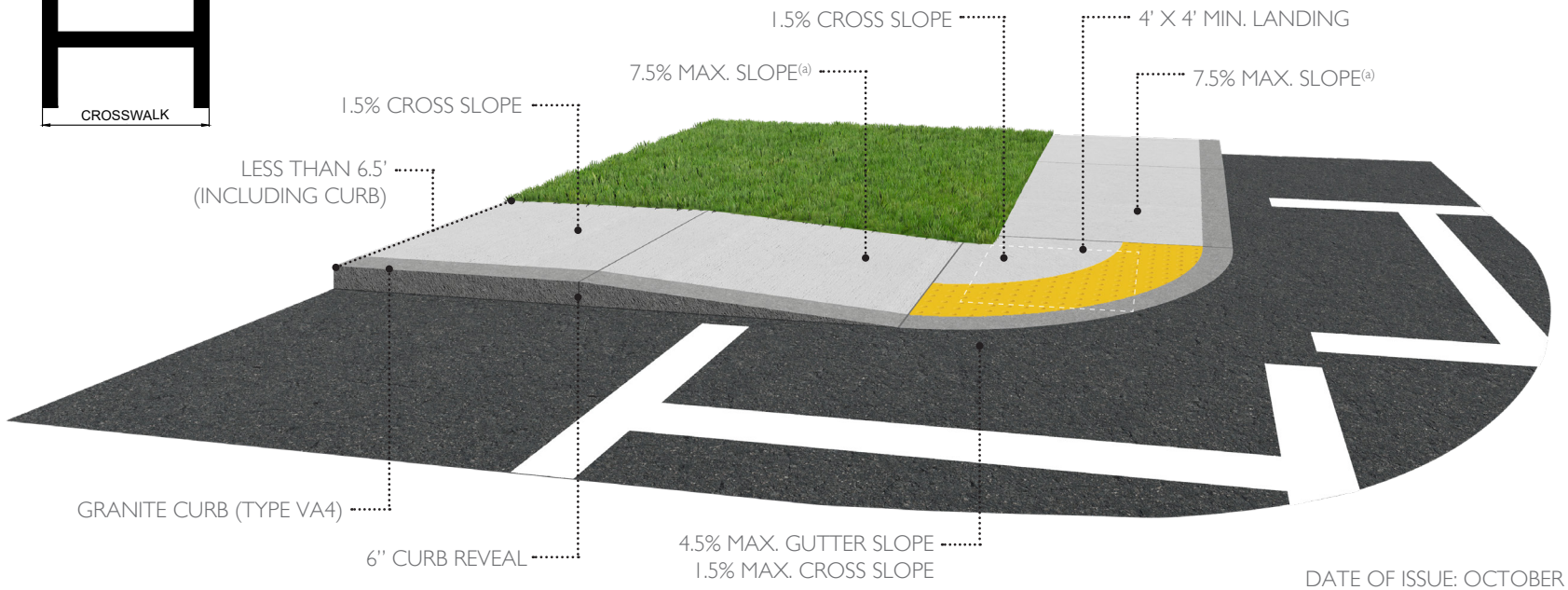
ROADWAY DESIGN STANDARDS

R.12 BLENDED TRANSITION FOR TWO CONTINUOUS DIRECTIONS OF TRAVEL WITH SIDEWALK WIDTH LESS THAN 6.5' (CASE 2 - DEPRESSED CORNERS)



NOTES:

1. CASE 2 - DEPRESSED CORNERS SHALL ONLY BE PERMITTED FOR RETROFITTING PROJECTS WHERE EXISTING ROADWAY CONSTRAINTS MAKE UNI-DIRECTIONAL COMPLIANT RAMPS INFEASIBLE.
2. (a) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 7.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
4. CORNER RADII SHOULD BE DESIGNED TO THE MINIMUM DIMENSIONS NECESSARY FOR THE DESIGN VEHICLE.



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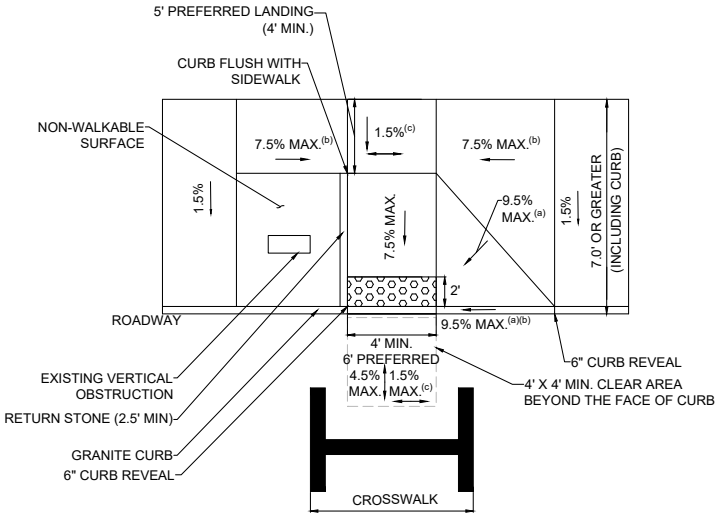
R.12

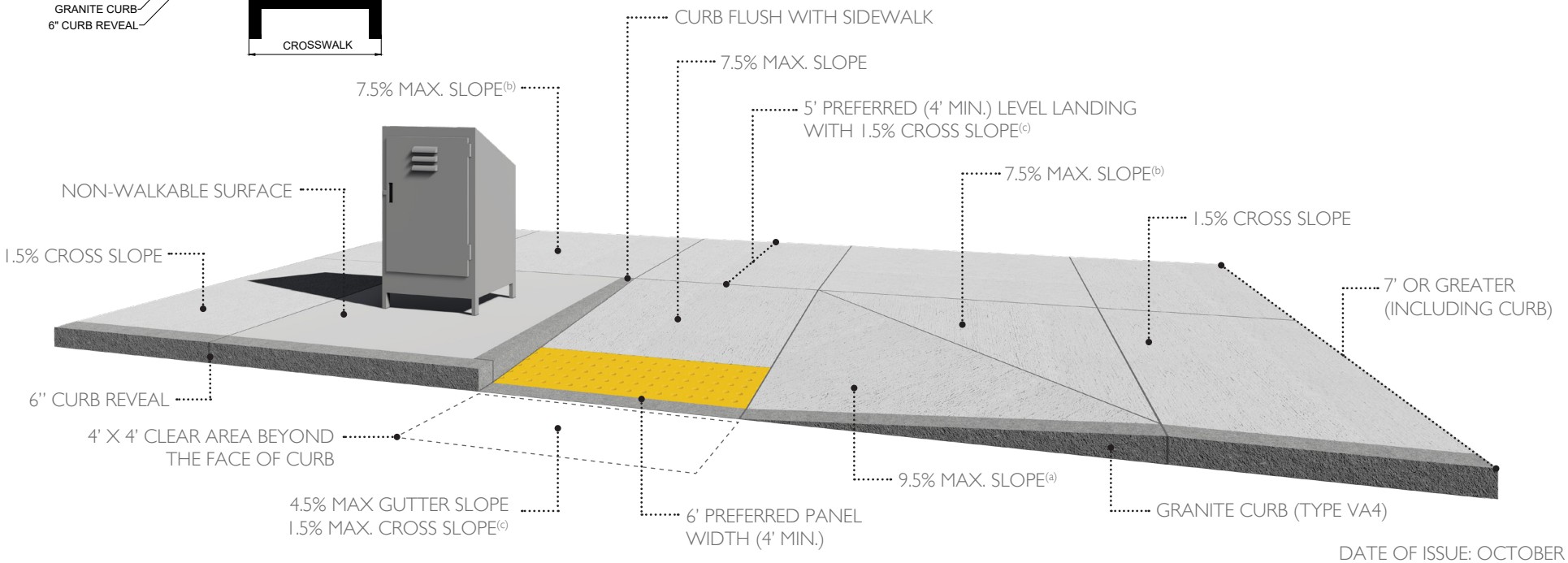
ROADWAY DESIGN STANDARDS

R.13 PERPENDICULAR PEDESTRIAN CURB RAMP WITH EXISTING VERTICAL OBSTRUCTION FOR SIDEWALK WIDTH OF 6.5' OR GREATER



1. THE DESIGNER SHALL EVALUATE RELOCATING OR ELIMINATING THE OBSTRUCTION PRIOR TO IMPLEMENTING THE DESIGN DETAIL.
2. (a) 7.5% PREFERRED SLOPE.
3. (b) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
4. (c) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
5. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.

R.13



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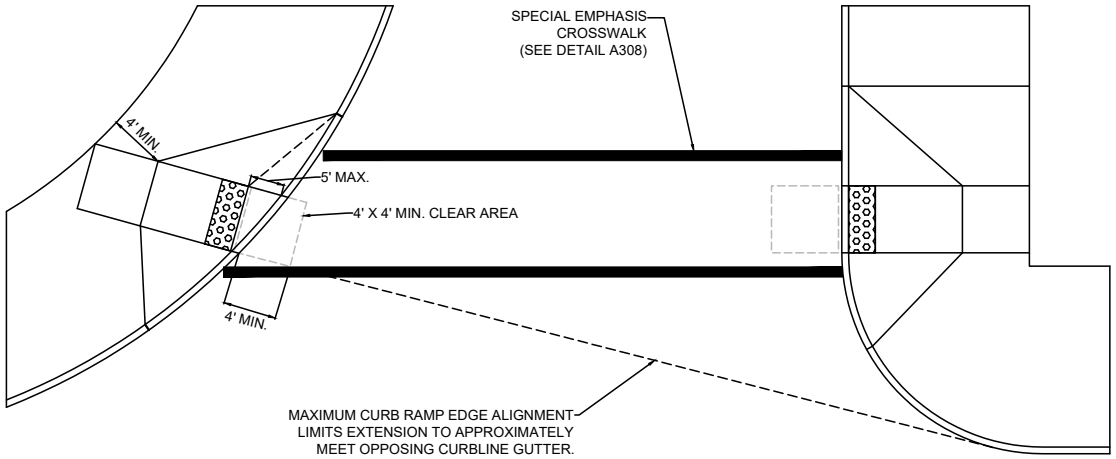
ROADWAY DESIGN STANDARDS
R.14 MAXIMUM PEDESTRIAN CURB RAMP ALIGNMENT LIMITS



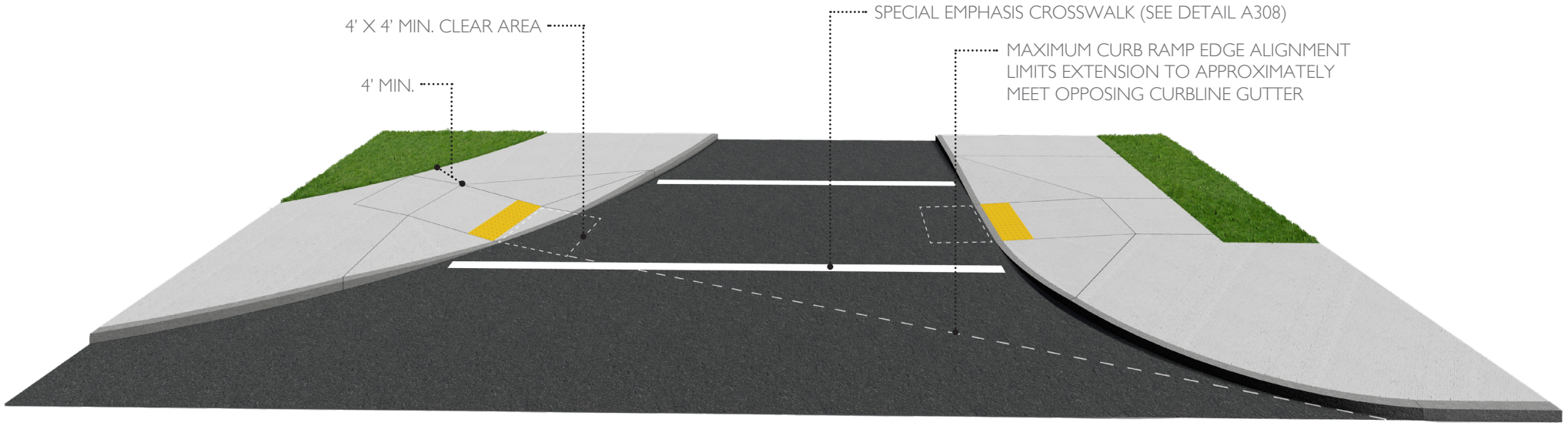
NOTES:

1) TO THE MAXIMUM EXTENT POSSIBLE WHILE PROVIDING A COMPLIANT DESIGN, PEDESTRIAN CURB RAMPS SHALL RUN PARALLEL TO CROSSWALK MARKINGS, CENTERED WITHIN THE CROSSWALK, AND ALIGNED WITH PEDESTRIAN CURB RAMPS AT OPPOSITE SIDES.

2) THE DESIGNER SHOULD TAKE CARE TO BALANCE RAMP ALIGNMENT, DIRECTIONALITY, AND PEDESTRIAN DESIRE PATHS WHILE PROPOSING A COMPLIANT RAMP.

3) ANY ALTERATIONS TO OR DEVIATIONS FROM THIS GUIDANCE SHOULD BE DISCUSSED WITH AND APPROVED BY THE CITY

R.14



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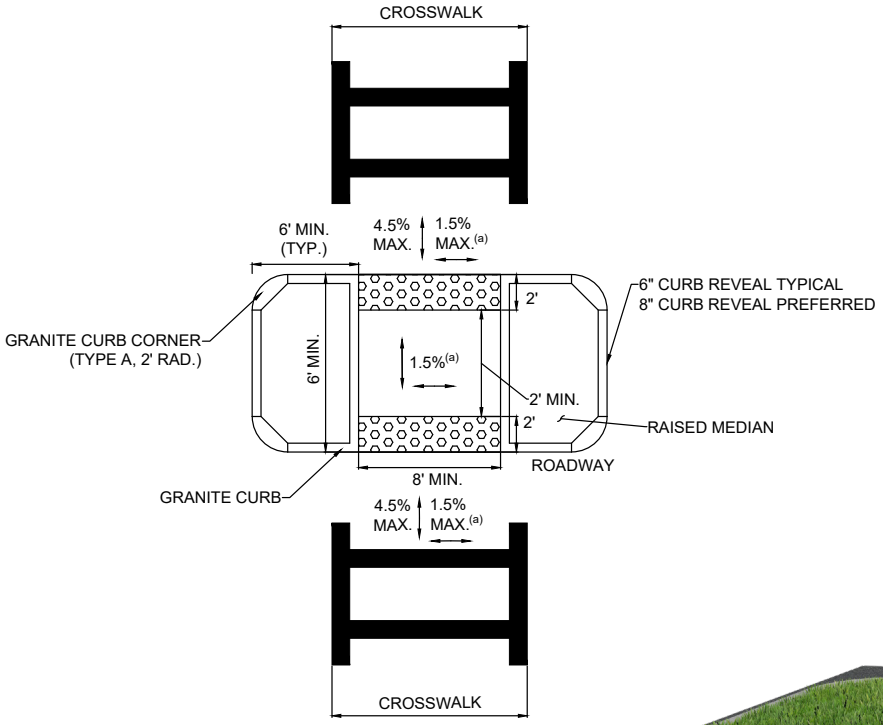
ROADWAY DESIGN STANDARDS
R.15 **PEDESTRIAN REFUGE ISLAND**

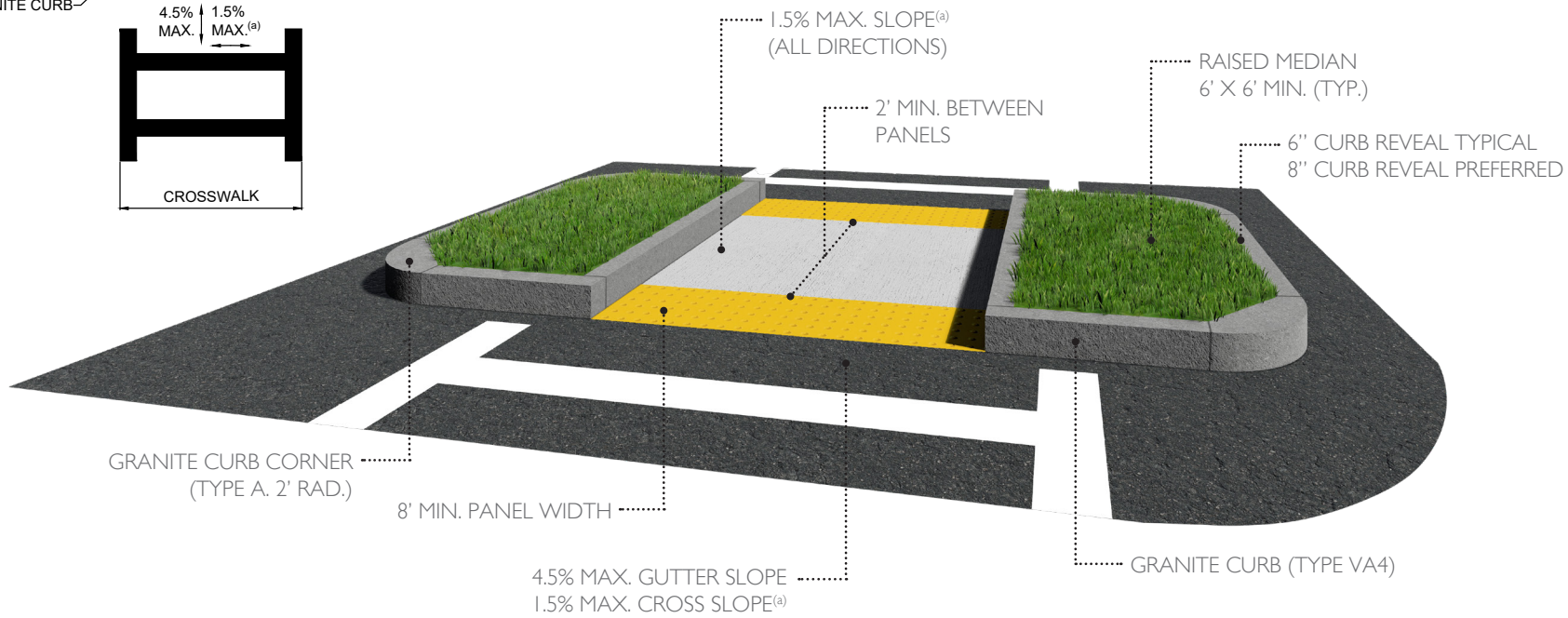


NOTES:

1. (a) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:

   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE

3. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.



R.15

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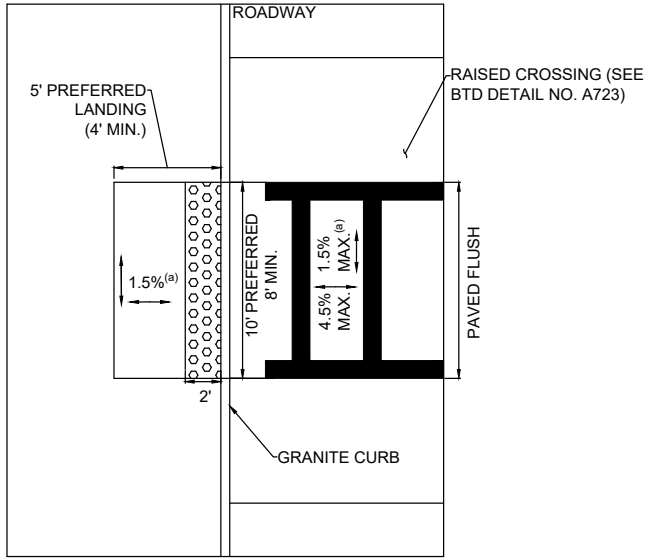
1 CITY HALL SQUARE
ROOM 710
BOSTON, MA 02201-2024

PUBLIC WORKS DEPARTMENT
(T): 617 635 4968
(E): PWDEngineering@boston.gov

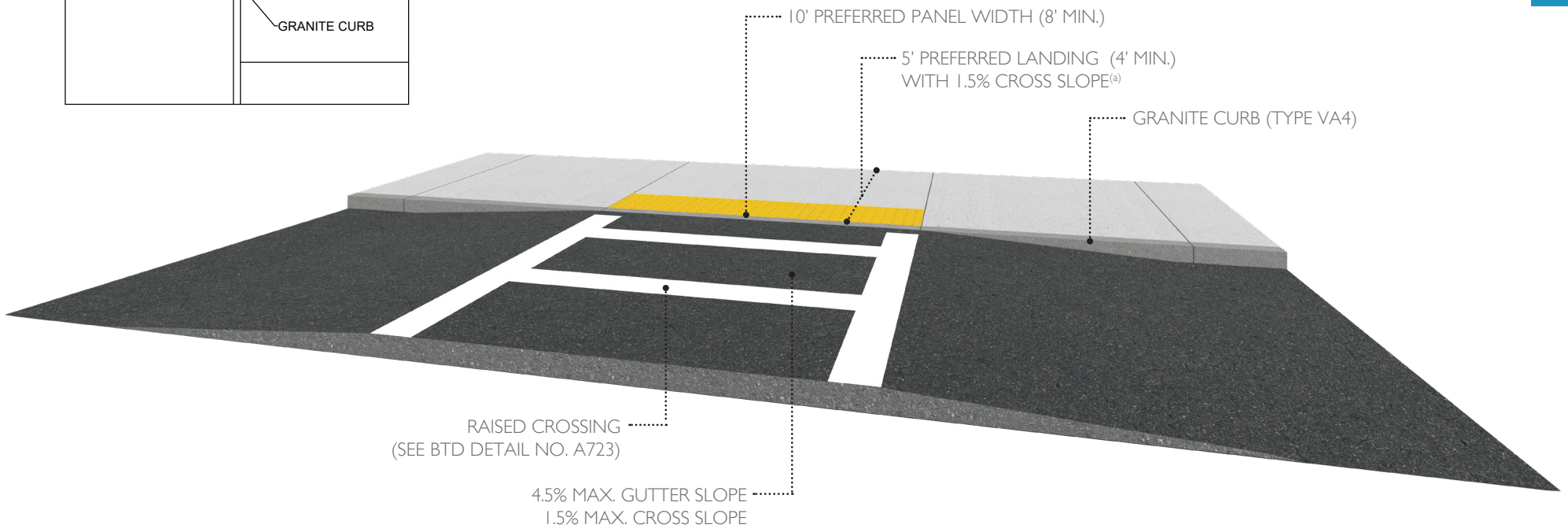
ROADWAY DESIGN STANDARDS
R.16 **RAISED CROSSING RAMP**



NOTES:

1. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.
2. (a) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE

R.16



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ROOM 710
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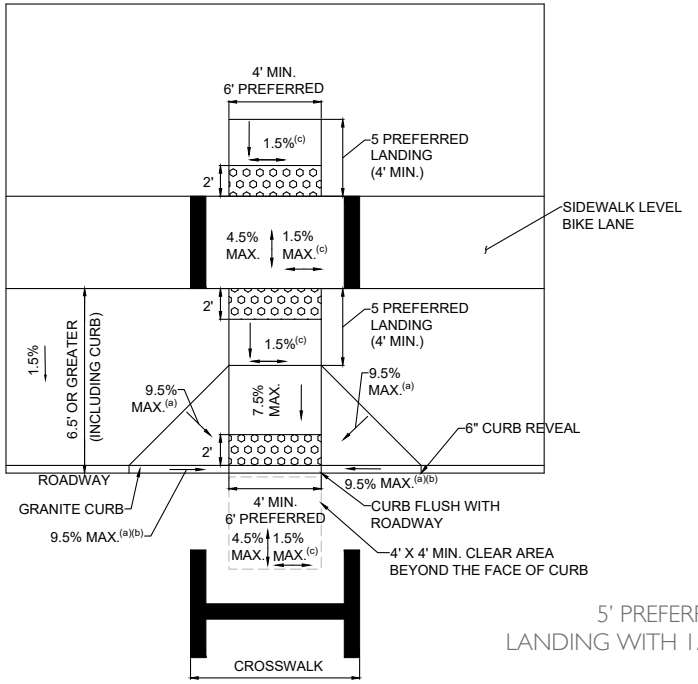
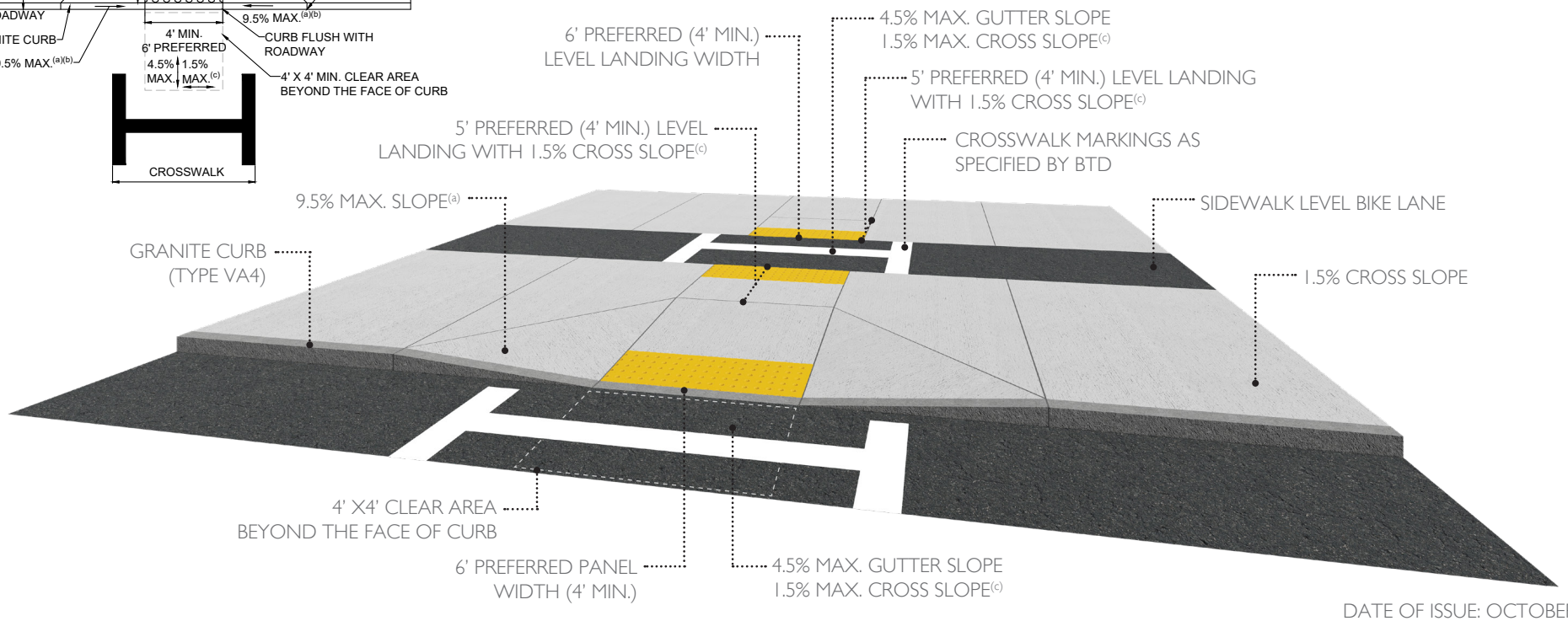
PUBLIC WORKS DEPARTMENT
(T): 617 635 4968
(E): PWDEngineering@boston.gov

ROADWAY DESIGN STANDARDS
R.17 PEDESTRIAN CURB RAMP ADJACENT TO RAISED BIKE LANE



NOTES:

1. (a) 7.5% PREFERRED SLOPE.
2. (b) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. (c) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
4. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.



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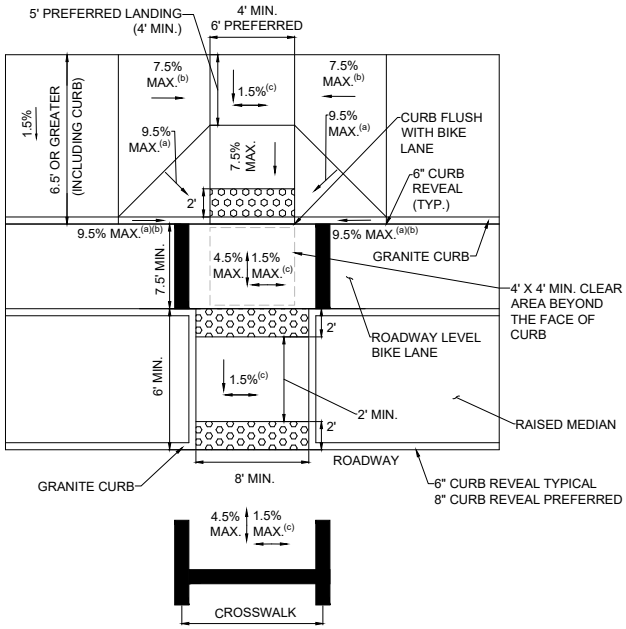
R.17

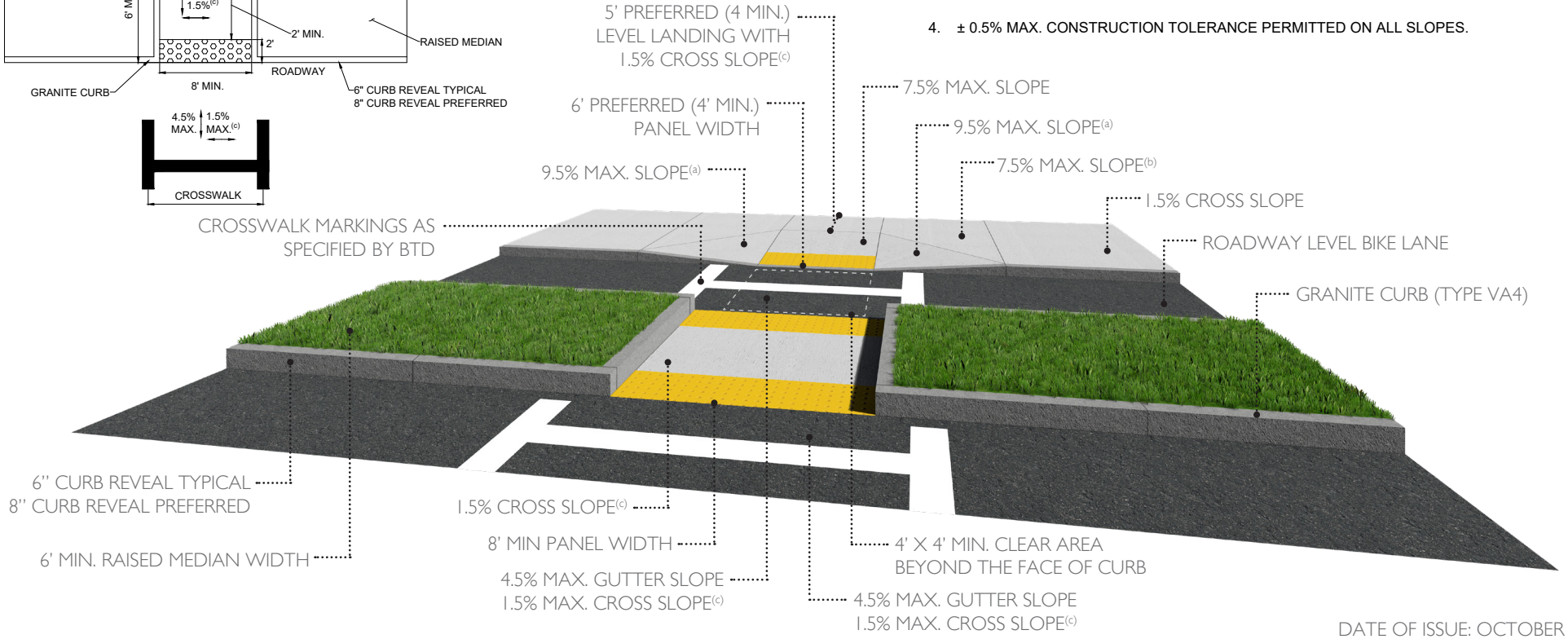
ROADWAY DESIGN STANDARDS

R.18 PEDESTRIAN CURB RAMP ADJACENT TO MEDIAN SEPARATED ROAD LEVEL BIKE LANE



NOTES:

1. (a) 7.5% PREFERRED SLOPE.
2. (b) MAXIMUM SLOPE TRANSITION LENGTH MEASURED ALONG THE FACE OF CURB SHALL BE 15 FEET. A TRANSITION SLOPE GREATER THAN 9.5% IS ONLY ACCEPTABLE WHEN THE TRANSITION STONE REACHES A MAXIMUM LENGTH OF 15 FEET.
3. (c) THE LANDING CROSS SLOPE (PARALLEL TO THE CURB LINE) AND THE GUTTER RUNNING SLOPE SHALL SHALL BE A MAXIMUM OF 1.5% AT APPROACHES UNDER STOP OR YIELD CONTROL. THE RUNNING SLOPE MAY EXCEED 1.5% MAXIMUM UNDER THE FOLLOWING CONDITIONS:
   - SIGNAL OR PEDESTRIAN HYBRID BEACON= 4.5% MAX.
   - UNCONTROLLED = 4.5% MAX.
   - MIDBLOCK = NO GREATER THAN STREET GRADE
   - ROUNDABOUT = NO GREATER THAN STREET GRADE
4. ± 0.5% MAX. CONSTRUCTION TOLERANCE PERMITTED ON ALL SLOPES.



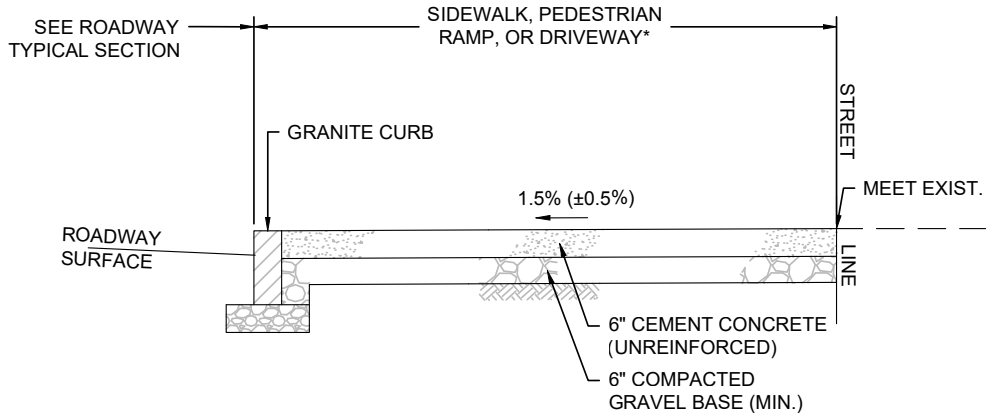
R.18

DATE OF ISSUE: OCTOBER 2025

ROADWAY DESIGN STANDARDS

S.1 **SIDEWALK - CONCRETE**

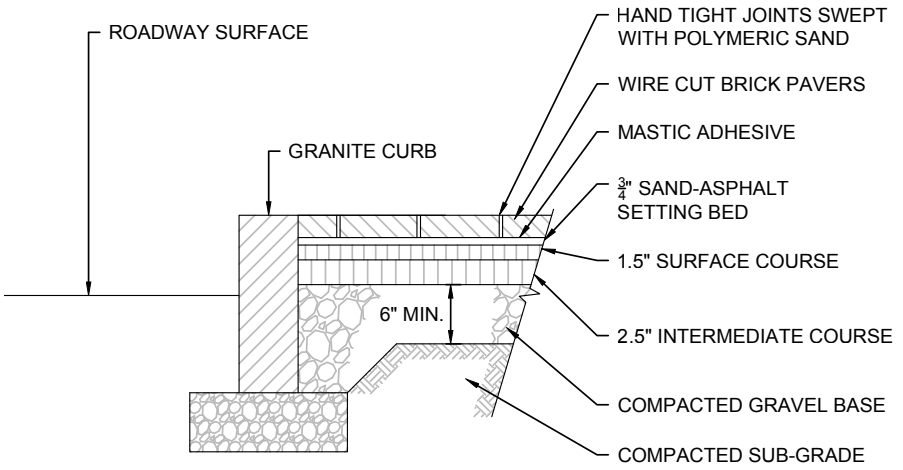
***NOTE: DETAIL DEPICTS SIDEWALK CONDITION ALTHOUGH THE SAME CROSS SECTION SHALL BE USED FOR CURB RAMPS OR DRIVEWAYS.**

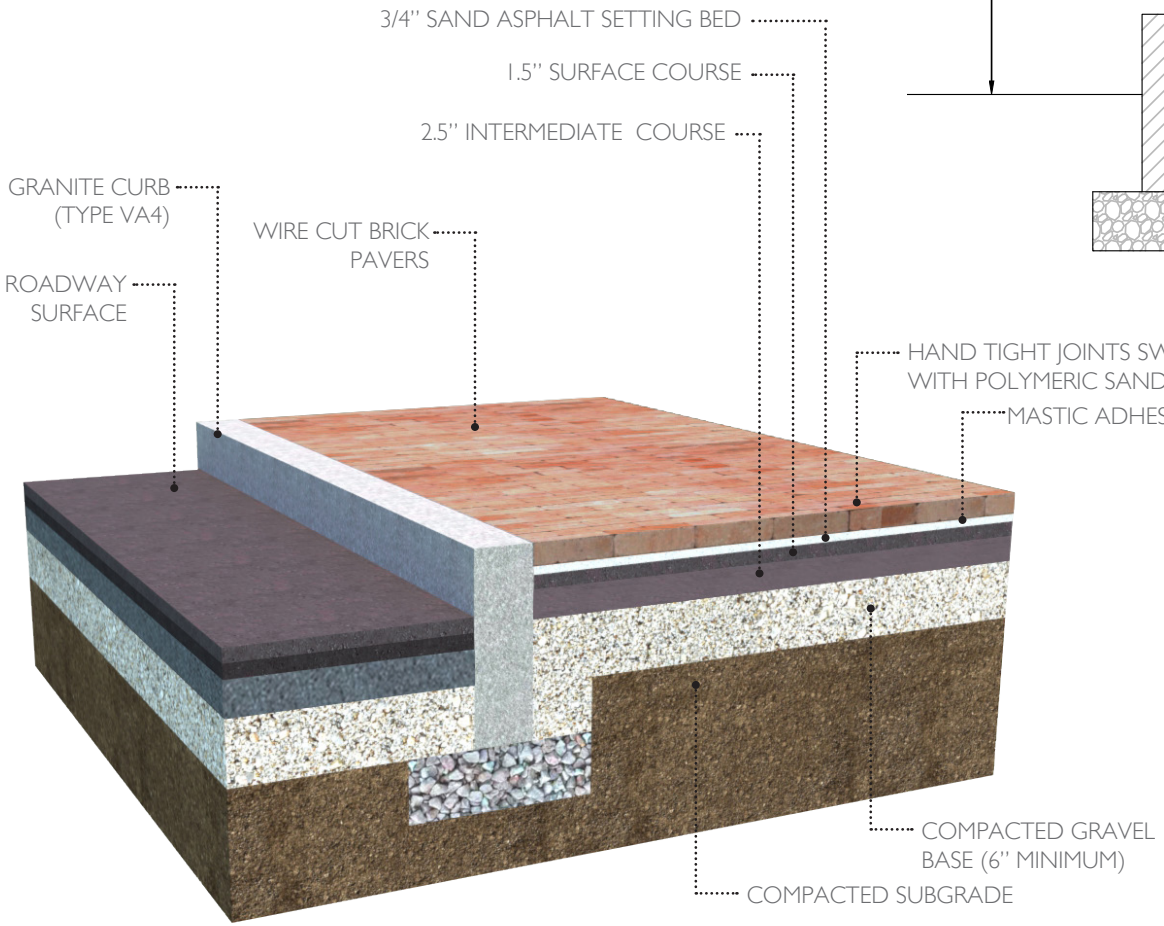


S.1

DATE OF ISSUE: MAY 2019

ROADWAY DESIGN STANDARDS
S.2 **SIDEWALK - BRICK**





S.2

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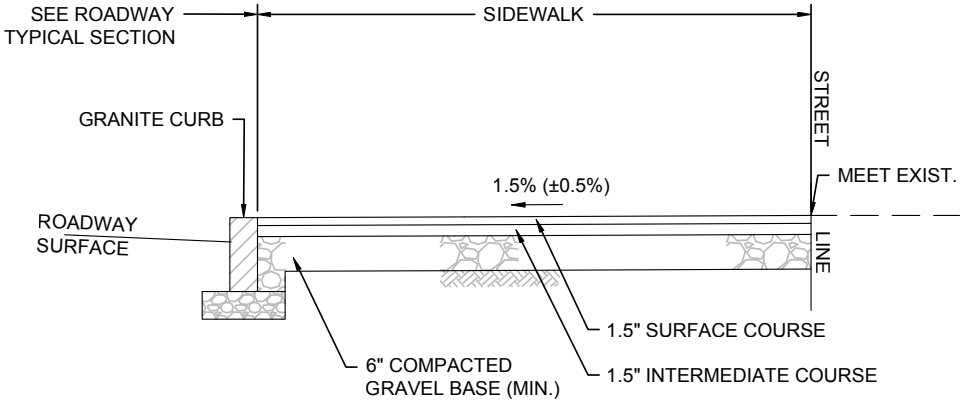
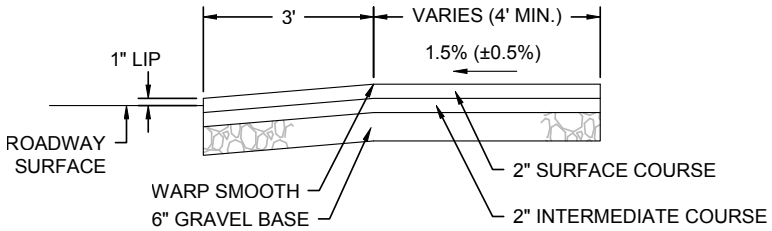
(T): 617 635 4968
(E): PWDEngineering@boston.gov

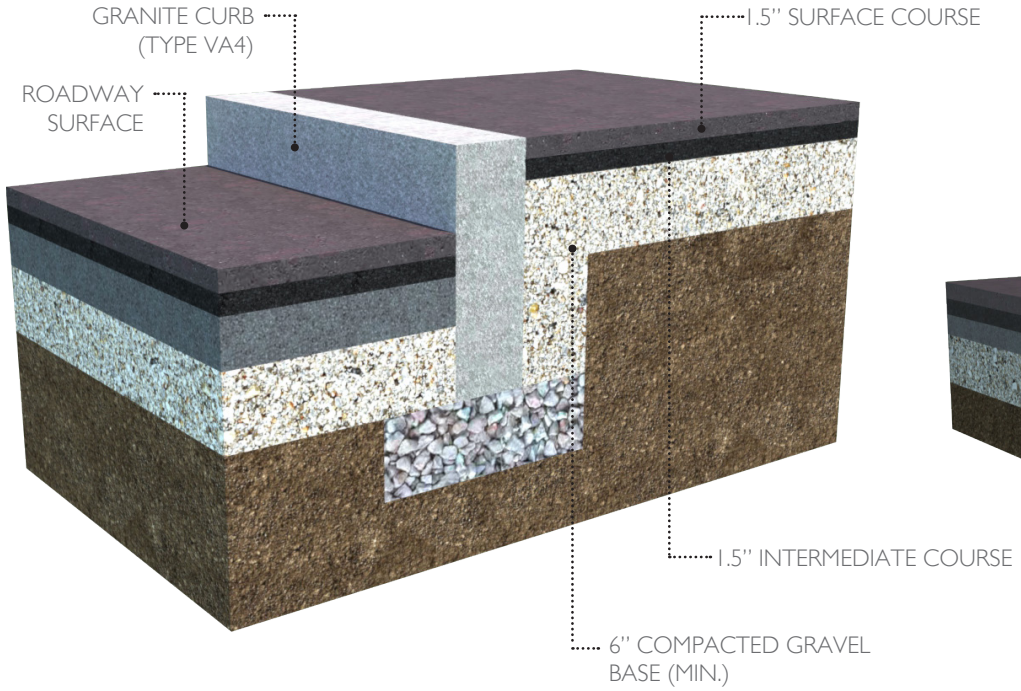
ROADWAY DESIGN STANDARDS
S.3 SIDEWALK + DRIVEWAY - HMA

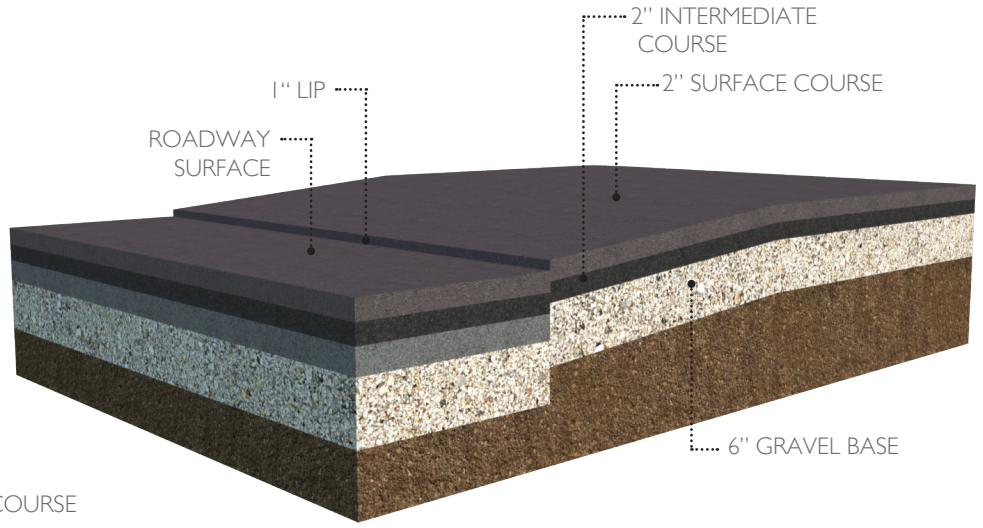


TYPICAL SIDEWALK SECTION



TYPICAL DRIVEWAY SECTION





S.3

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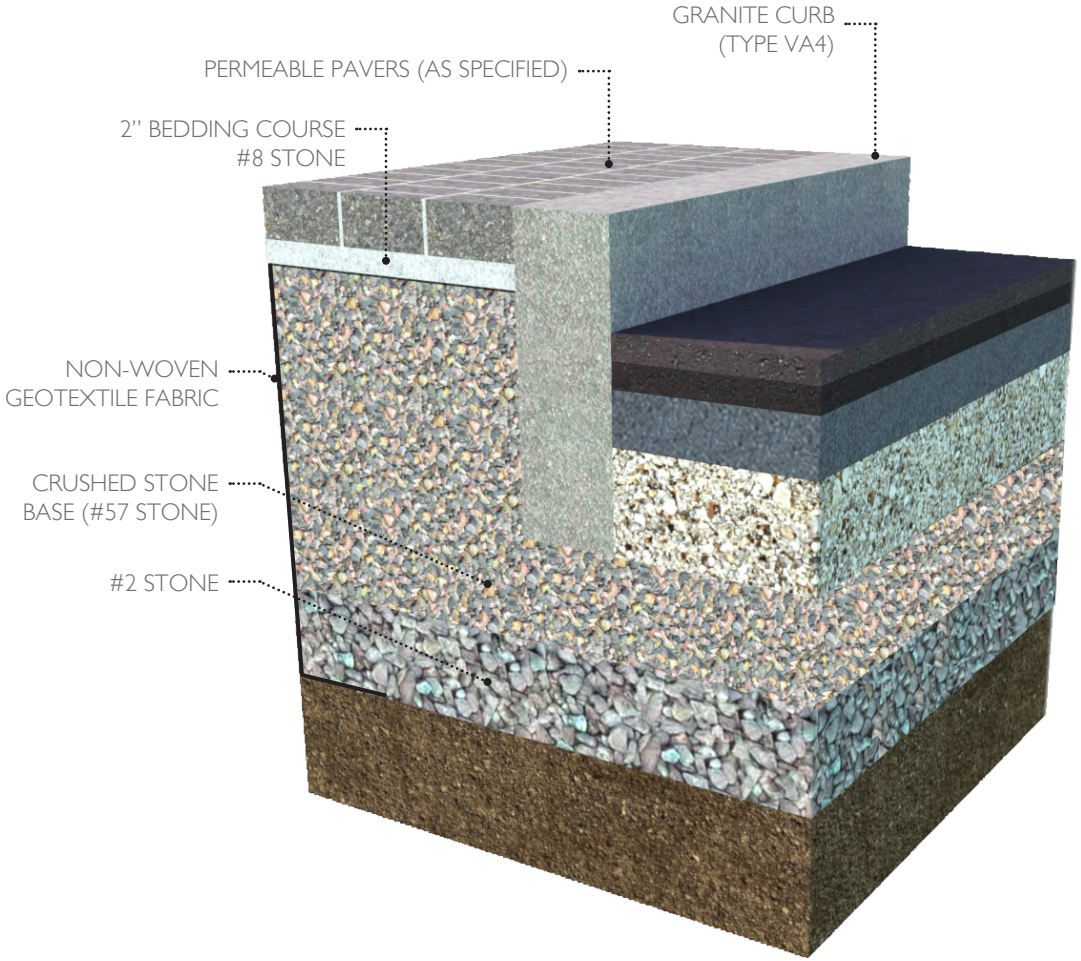
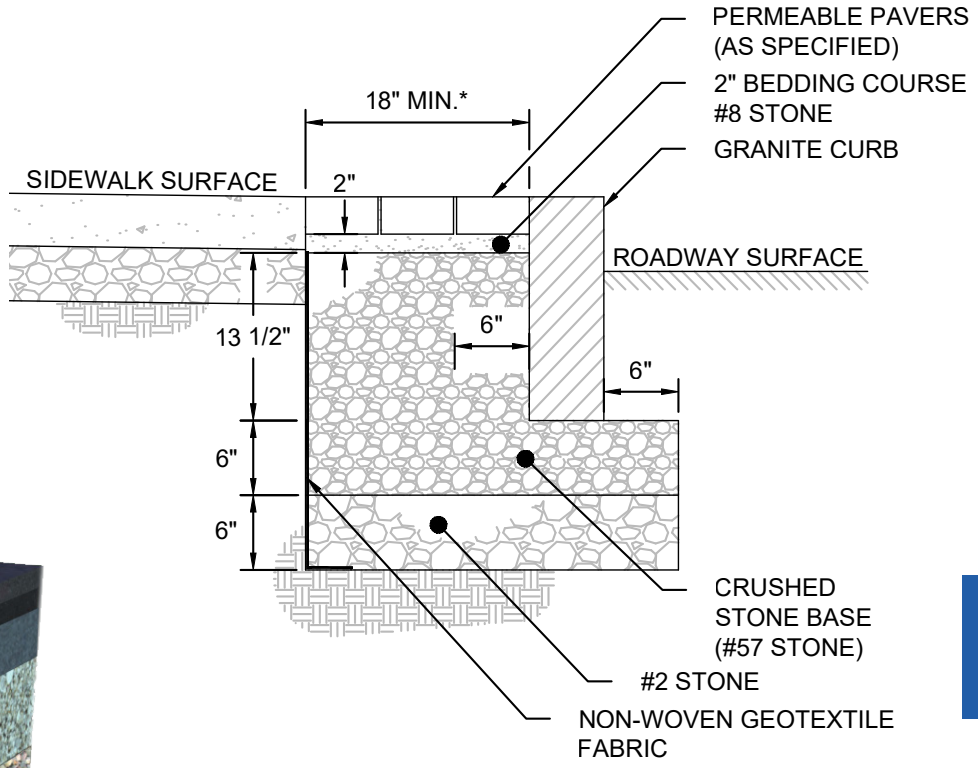
ROADWAY DESIGN STANDARDS
S.4 **SIDEWALK - PERMEABLE PAVER**





*PERMEABLE PAVERS SHALL BE INSTALLED WITH A MINIMUM WIDTH OF 18" FOR SIDEWALKS UP TO 7'. FOR SIDEWALKS OVER 7', PERMEABLE PAVER WIDTH SHALL BE 1' PER 5' OF SIDEWALK.

NOTE:

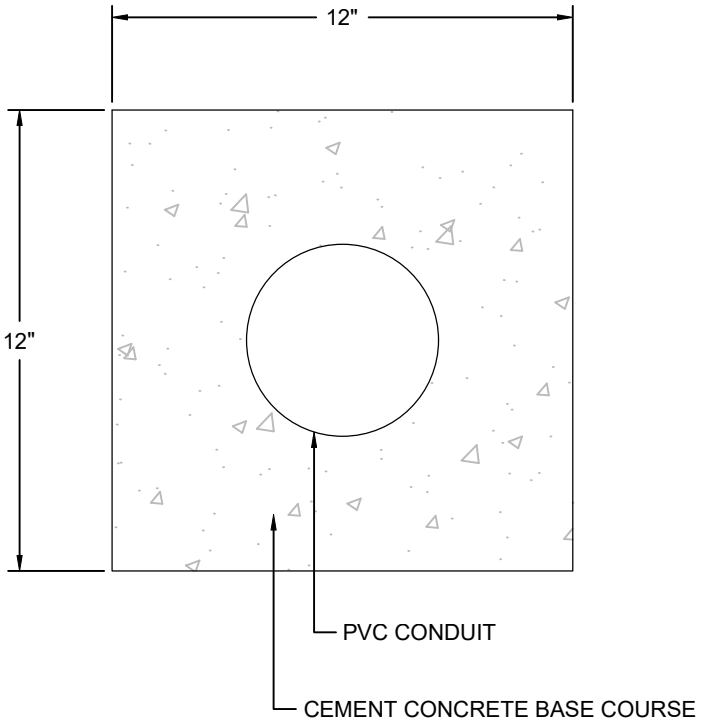
DEPENDING ON SOIL CONDITIONS AND GROUNDWATER, IT MAY BE APPROPRIATE TO PROVIDE AN UNDERDRAIN BEHIND THE CURB AND WITHIN THE CRUSHED STONE BASE. UNDERDRAIN MAY BE REQUIRED IN SOILS WITH LOW INFILTRATION RATES. IF USED, THEY MUST BE INSTALLED ABOVE THE GROUNDWATER ELEVATION.

ALL PERMEABLE SYSTEMS SHALL BE MAINTAINED AS PER MANUFACTURER RECOMMENDATIONS.

DATE OF ISSUE: MAY 2019

S.4

ROADWAY DESIGN STANDARDS
U.1 **UTILITY - CONCRETE ENCASED CONDUIT**



NOTE: PVC CONDUIT SHALL BE ENCASED IN 12 INCHES OF CEMENT CONCRETE BASE COURSE. SAND WILL NOT BE REQUIRED AT THESE LOCATIONS. CONCRETE WILL BE PAID FOR UNDER ITEM 431.1, HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE.

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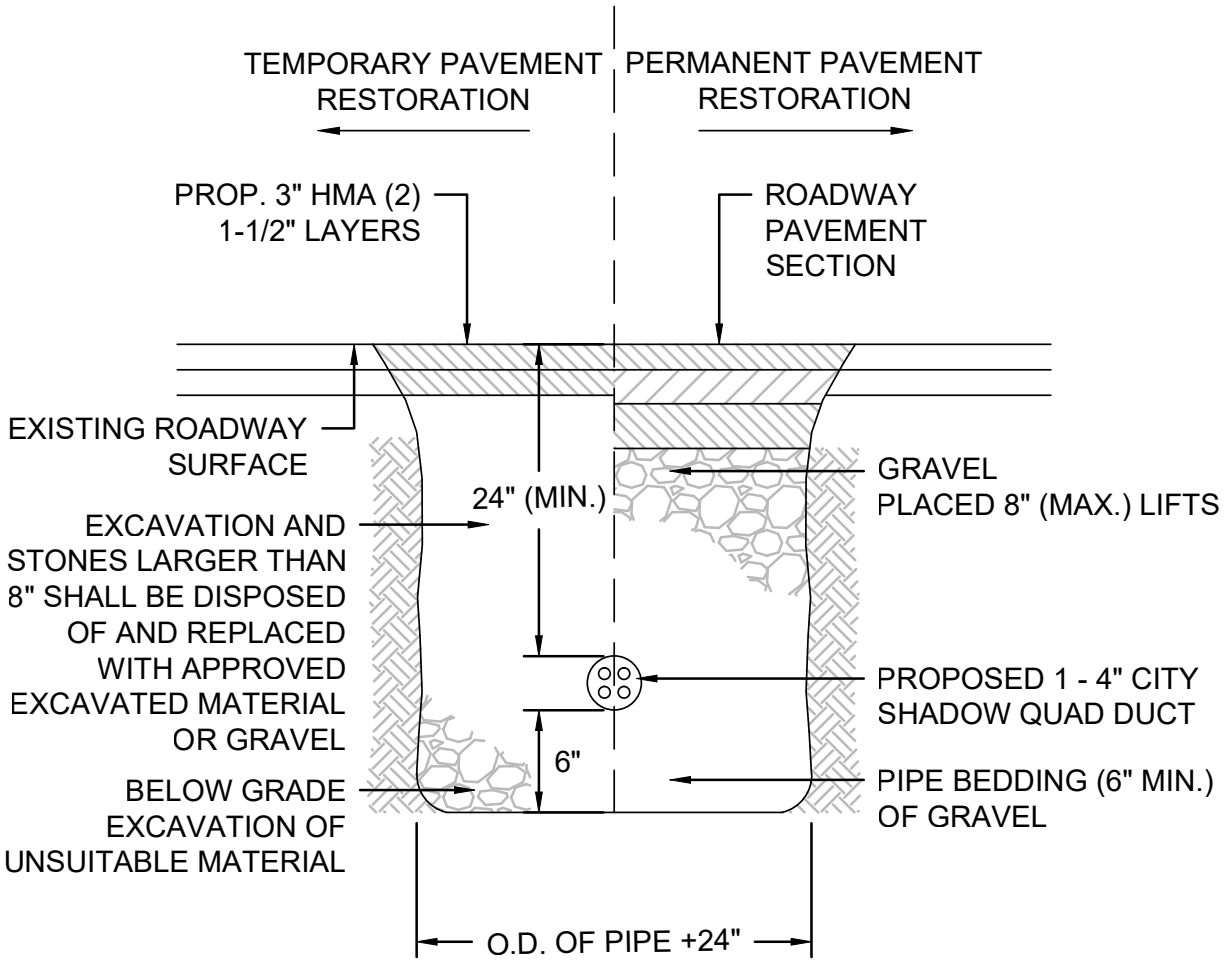
ROADWAY DESIGN STANDARDS
U.2 **UTILITY - SHADOW CONDUIT**

SECTION



NOTE: CITY SHADOW CONDUIT TO BE ROPED AND TAGGED.

U.2

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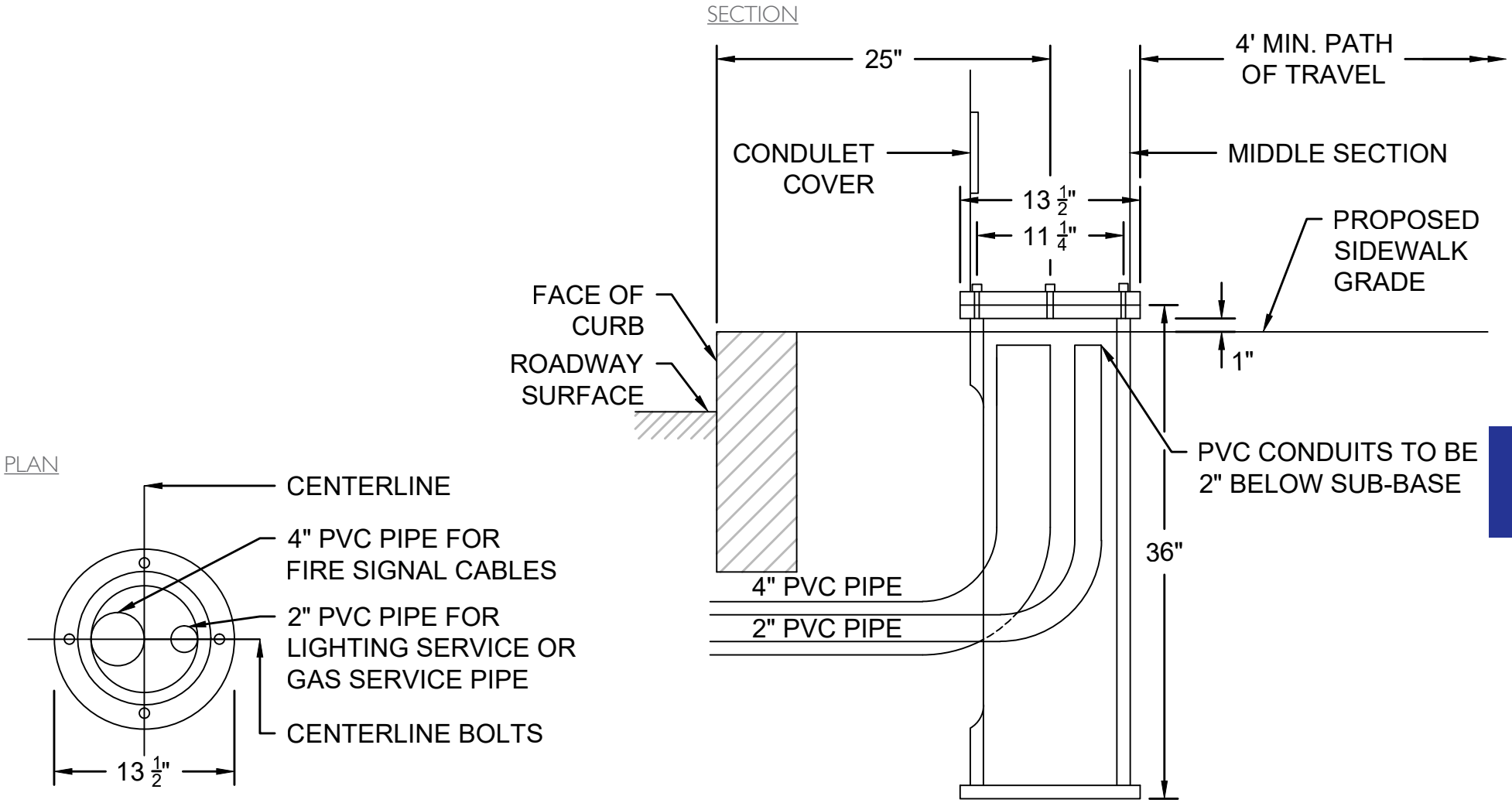
ROADWAY DESIGN STANDARDS
U.3 **UTILITY - FIRE ALARM BASE**



U.3

DATE OF ISSUE: MAY 2019