



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, VIRGINIA 23219 2000

Charles A. Kilpatrick, P.E.
Commissioner

August 3, 2015

MEMORANDUM

To: All Holders of the Virginia Department of Transportation's 2008 Road and Bridge Standards

The following is a list of sheets contained in the 2008 Road and Bridge Standards that have been revised. Please add these pages to your copy of the standards. An interim standard sheet will not be required in plan assemblies for the following sheets only. Changes to these sheets will not affect the basis of payment or estimates.

<u>PAGE</u>	<u>REVISION</u>
203.02	CG-9B added detail depicting pedestrian access route without an unpaved space.
203.03	CG-9D added detail depicting pedestrian access route without an unpaved space.
203.04	CG-11 revised text in section A-A from "8% slope change" to "8% grade change". Added note for pedestrian access route width & cross slope.

The following is a list of revised standards to the 2008 Road and Bridge Standards that *require* an interim standard sheet to be included in your plan assembly until the next edition of the standards is published. Please add these pages to your copy of the standards. The respective interim standard sheet number has been placed with the revised standard. The interim standard sheets are available on VDOT's web site, on the FTP server, and in Falcon DMS for VDOT personnel. Note that the revised Interim Standard Sheets dated 07/15 will be applicable to Tier 1 projects going to Advertisement on November 24, 2015 (Non Federally Eligible), December 8, 2015 (Federally Eligible) and Tier 2 projects going to Advertisement on March 8, 2016.

<u>PAGE</u>	<u>INTERIM</u>	<u>STANDARD</u>	<u>REVISION</u>
203.05	IIS02_01	CG-12	REVISED NOTE 2 TO STATE THAT DETECTABLE WARNING SURFACE IS TO BE SELECTED FROM THE MATERIALS APPROVED LIST. ADDED A NOTE LISTING THE PAY ITEM COMPONENTS OF THE STANDARD CG-12 CURB RAMP.

<u>PAGE</u>	<u>INTERIM</u>	<u>STANDARD</u>	<u>REVISION</u>
203.06	IIS02_02	CG-12	REMOVED "6 FEET FOR ALTERATIONS" FROM NOTES.
203.07	IIS02_03	CG-12	ADDED LABEL ON DETAILS AT BOTTOM OF PAGE TO CLARIFY THAT THE LANDING IS A 48:1 SLOPE.
203.08	IIS02_04	CG-12	ADJUSTED SECTION A-A TO SHOW THE ELEVATION DIFFERENCE BETWEEN THE RAMP AND LANDING.
501.39	IIS05_08	GR-INS	REVISED TABLE I TO INCLUDE 7' AND 5' TOTAL SHOULDER WIDTH. ADJUSTED NOTES SPECIFYING GR-2A WHEN DESIGN SPEEDS ARE GREATER THAN 45 MPH.
1310.12	IIS13_02	PF-8	REVISED ELEVATION FOR FOUNDATION ABOVE GRADE AND UPDATED NOTES
1310.13	IIS13_46	PF-8	REVISED ELEVATION FOR FOUNDATION ABOVE GRADE AND UPDATED NOTES
1324.10	IIS13_04	OSS-1	ADDED SECOND NUT TO DETAIL TO BE CONSISTENT WITH THE CURRENT SPECIFICATION REQUIREMENT TO PROVIDE TWO NUTS ON ANCILLARY STRUCTURES ABOVE THE BASE PLATE.

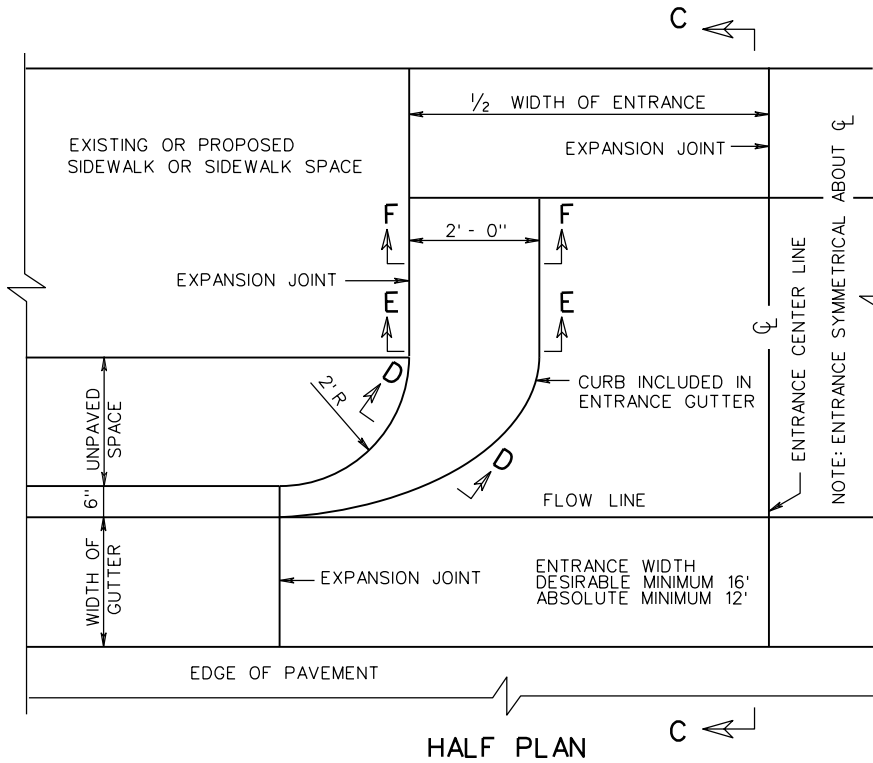
If you have any questions or comments regarding this revision, please contact Charles Patterson P.E., at (804) 786-1805, of the Standards and Special Design Section.

Sincerely,

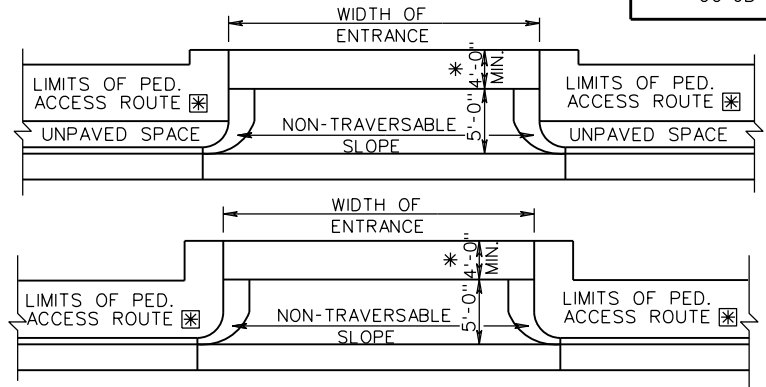
Signature on file

Date: August 4, 2015

B. A. Thrasher, P.E.
State Location & Design Engineer



HALF PLAN

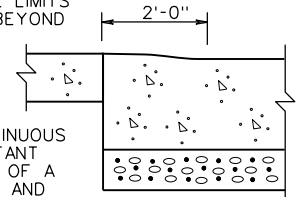


PEDESTRIAN ACCESS ROUTE DETAIL WITH & WITHOUT UNPAVED SPACE

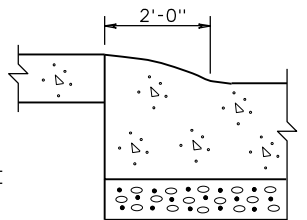
ADDITIONAL RIGHT-OF-WAY IS REQUIRED IF THE LIMITS OF PEDESTRIAN ACCESS ROUTE ☒ EXTEND BEYOND EXISTING OR PROPOSED VDOT RIGHT-OF WAY.

☒ PEDESTRIAN ACCESS ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS. IF ACCESS ROUTE IS ADJACENT TO BACK OF CURB, MINIMUM WIDTH SHOULD BE 6'.

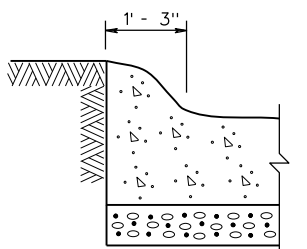
* IF PEDESTRIAN ACCESS ROUTES ☒ ARE BEING PROVIDED, A MINIMUM 4' TRAVERSABLE WIDTH IS REQUIRED WITH A MAX. 2% CROSS SLOPE.



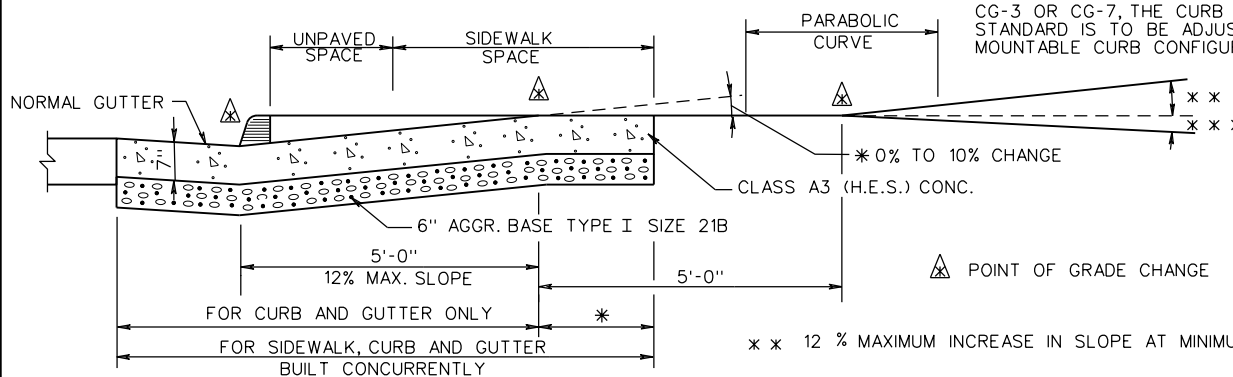
SECTION F-F



SECTION E-E



SECTION D-D



SECTION C-C

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.

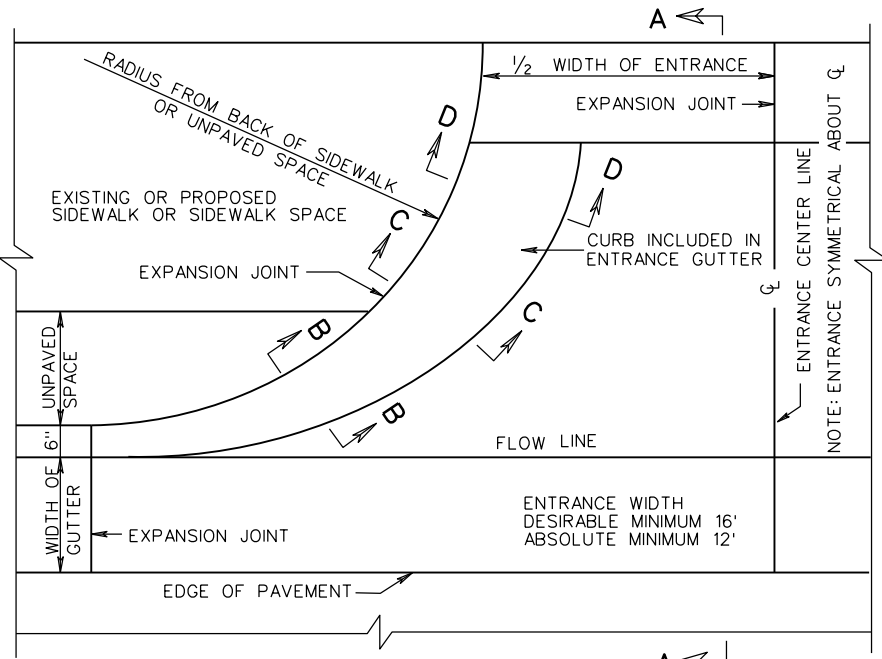
- * 0% TO 10% CHANGE
- CLASS A3 (H.E.S.) CONC.
- ▲ POINT OF GRADE CHANGE
- * * 12 % MAXIMUM INCREASE IN SLOPE AT MINIMUM 10' INTERVALS
- * * * 3 % MAXIMUM DECREASE IN SLOPE FOR FIRST 10' INTERVAL AND 8 % MAXIMUM DECREASE FOR SUCCEEDING MINIMUM 10' INTERVALS

SPECIFICATION REFERENCE
502

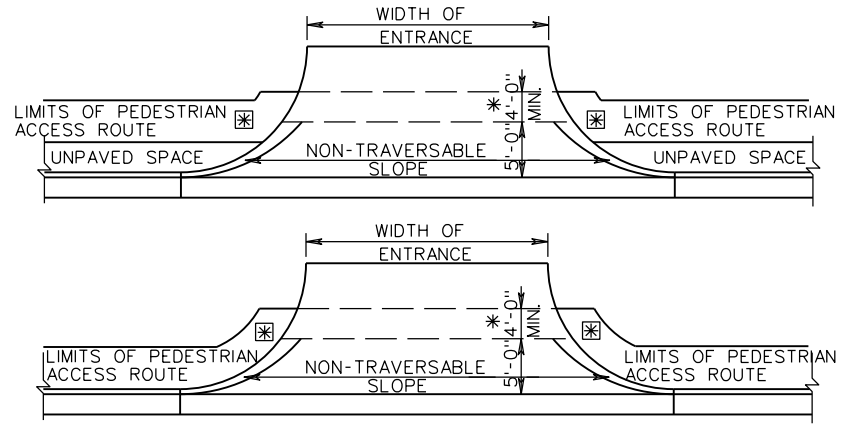
STANDARD ENTRANCE GUTTER

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 1
07/15	203.02



HALF PLAN



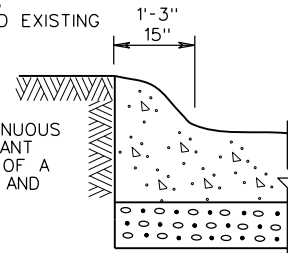
PEDESTRIAN ACCESS ROUTE DETAILS WITH & WITHOUT UNPAVED SPACE

ADDITIONAL RIGHT-OF-WAY IS REQUIRED IF THE LIMITS OF PEDESTRIAN ACCESS ROUTE \boxtimes EXTEND BEYOND EXISTING OR PROPOSED VDOT RIGHT-OF-WAY.

\boxtimes PEDESTRIAN ACCESS ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.

* IF PEDESTRIAN ACCESS ROUTES \boxtimes ARE BEING PROVIDED, A MINIMUM 4' TRAVERSABLE WIDTH IS REQUIRED WITH A MAX. 2% CROSS SLOPE.

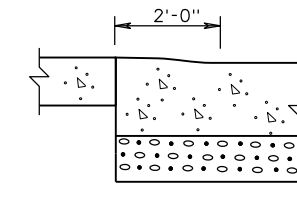
WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.



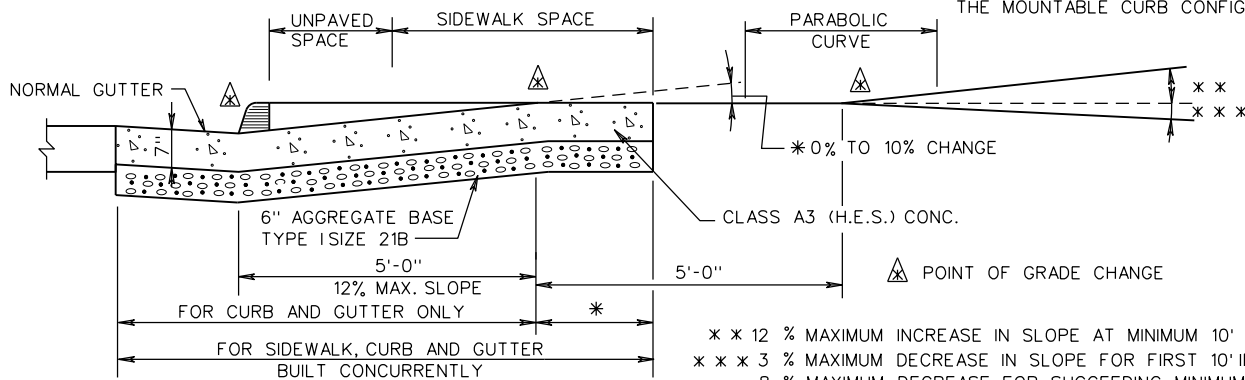
SECTION B-B



SECTION C-C



SECTION D-D



SECTION A-A



ROAD AND BRIDGE STANDARDS

STANDARD ENTRANCE GUTTER

SPECIFICATION REFERENCE

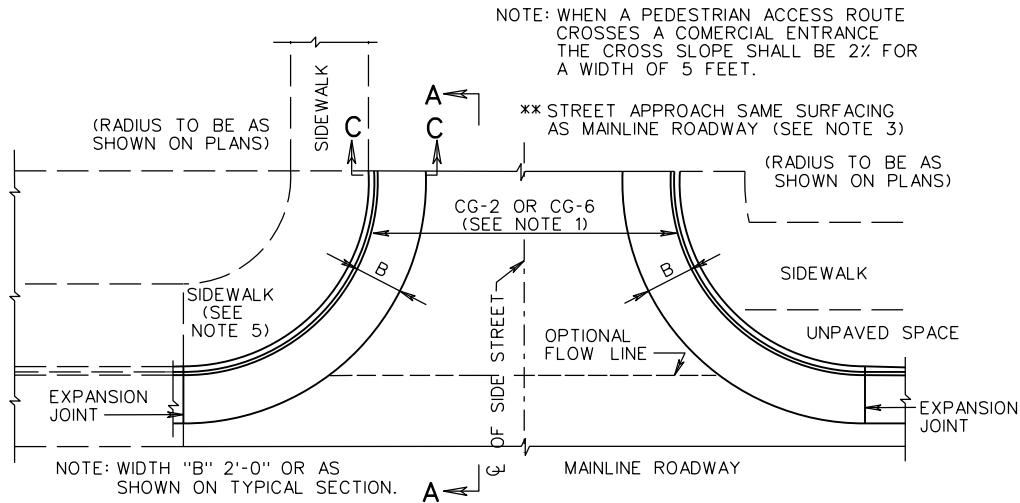
SHEET 1 OF 1

REVISION DATE

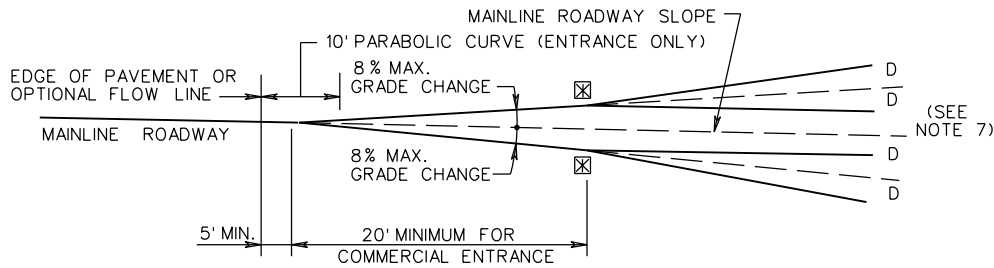
502

203.03

07/15

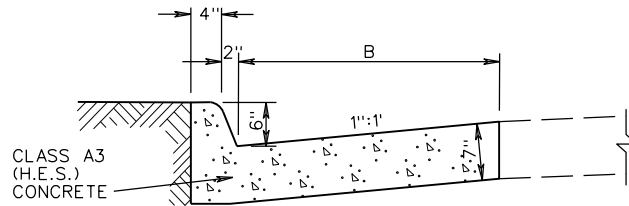


PLAN VIEW



☒ CONSTRUCT GRADE CHANGES WITH A PARABOLIC CURVE.

SECTION A - A



SECTION C-C

GENERAL NOTES

1. WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.
2. SEE STANDARD CG-12 FOR CURB RAMP DESIGN TO BE USED WITH THIS STANDARD.
3. MAINLINE PAVEMENT SHALL BE CONSTRUCTED TO THE R/W LINE (EXCEPT ANY SUBGRADE STABILIZATION REQUIRED FOR MAINLINE PAVEMENT WHICH CAN BE OMITTED IN THE ENTRANCE.)
4. RADIAL CURB OR COMBINATION CURB AND GUTTER SHALL NOT BE CONSTRUCTED BEYOND THE R/W LINE EXCEPT FOR REPLACEMENT PURPOSES.

ENTRANCE NOTES

5. WHEN THE ENTRANCE RADII CANNOT ACCOMMODATE THE TURNING REQUIREMENTS OF ANTICIPATED HEAVY TRUCK TRAFFIC, THE DEPTH FOR SIDEWALK & CURB RAMPS WITHIN THE LIMITS OF THE RADII SHOULD BE INCREASED TO 7". (SEE CG-13)
6. PLANS ARE TO INDICATE WHEN CONSTRUCTION OF A FLOW LINE IS REQUIRED TO PROVIDE POSITIVE DRAINAGE ACROSS THE ENTRANCE.
7. THE DESIRABLE AND MAXIMUM ENTRANCE GRADE CHANGES "D" ARE LISTED IN THE ALLOWABLE ENTRANCE GRADE TABLE. THESE VALUES ARE NOT APPLICABLE TO STREET CONNECTIONS.

INTERSECTION NOTES

8. WHEN CG-11 IS USED FOR STREET CONNECTIONS, THE CONNECTION MUST BE DESIGNED IN ACCORDANCE WITH AASHTO POLICY AND THE APPLICABLE REQUIREMENTS OF THE VDOT ROAD DESIGN MANUAL, INCLUDING STOPPING SIGHT DISTANCE AND K VALUE REQUIREMENTS.
9. OPTIONAL FLOWLINE MAY REQUIRE WARPING OF A PORTION OF GUTTER TO PROVIDE POSITIVE DRAINAGE ACROSS THE INTERSECTION.

ALLOWABLE ENTRANCE GRADE CHANGES

ENTRANCE VOLUME		GRADE CHANGE "D"	
		DESIRABLE	MAXIMUM
HIGH	MORE THAN 1500 VPD	0 %	3 %
MEDIUM	500-1500 VPD	≤ 3 %	6 %
LOW	LESS THAN 500 VPD	≤ 6 %	8 %

NOTE: ALLOWABLE ENTRANCE GRADE TABLE IS NOT APPLICABLE TO STREET CONNECTIONS

SPECIFICATION REFERENCE

502

METHOD OF TREATMENT
(CONNECTION FOR STREET INTERSECTIONS AND COMMERCIAL ENTRANCES)

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

07/15

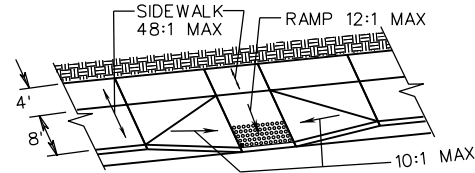
SHEET 1 OF 1

203.04

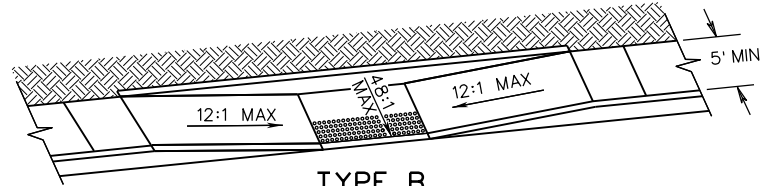
GENERAL NOTES:

1. THE DETECTABLE WARNING SHALL BE PROVIDED BY TRUNCATED DOMES.
2. DETECTABLE WARNING SHALL BE FROM THE MATERIALS APPROVED LIST FOR DETECTABLE WARNING SURFACES. PRODUCTS NOT LISTED SHALL MEET THE REQUIREMENTS OF THE SPECIAL PROVISION FOR CG-12 DETECTABLE WARNING SURFACE AND SHALL BE SUBMITTED TO THE STANDARDS AND SPECIAL DESIGN SECTION FOR APPROVAL.
3. SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
4. IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4.
5. REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1/2".
6. CURB / CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB / CURB AND GUTTER.
7. CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. ACCESSIBLE ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.
8. RAMPS MAY BE PLACED ON RADIAL OR TANGENTIAL SECTIONS PROVIDED THAT THE CURB OPENING IS PLACED WITHIN THE LIMITS OF THE CROSSWALK AND THAT THE SLOPE AT THE CONNECTION OF THE CURB OPENING IS PERPENDICULAR TO THE CURB.
9. TYPICAL CONCRETE SIDEWALK IS 4" THICK. WHEN THE ENTRANCE RADIICANNOT ACCOMMODATE THE TURNING REQUIREMENTS OF ANTICIPATED HEAVY TRUCK TRAFFIC, REFER TO STANDARD CG-13, COMMERCIAL ENTRANCE (HEAVY TRUCK TRAFFIC) FOR CONCRETE DEPTH.
10. WHEN CURB RAMPS ARE USED IN CONJUNCTION WITH A SHARED USE PATH, THE MINIMUM WIDTH SHALL BE THE WIDTH OF THE SHARED USE PATH.
11. WHEN ONLY ONE CURB RAMP IS PROVIDED FOR TWO CROSSINGS (DIAGONAL), A 4' x 4' LANDING AREA SHALL BE PROVIDED TO MANEUVER A WHEELCHAIR INTO THE CROSSWALK WITHOUT GOING INTO THE TRAVELWAY. THIS 4' x 4' LANDING AREA MAY INCLUDE THE GUTTER PAN.
12. ALL CASES WHERE CURB RAMPS INTERSECT A RADIAL SECTION OF CURB AT ENTRANCES OR STREET CONNECTIONS THE DETECTABLE WARNING SURFACE SHALL HAVE A FACTORY RADIUS OR BE FIELD -MODIFIED AS RECOMMENDED BY THE MANUFACTURER TO MATCH THE BACK OF CURB.

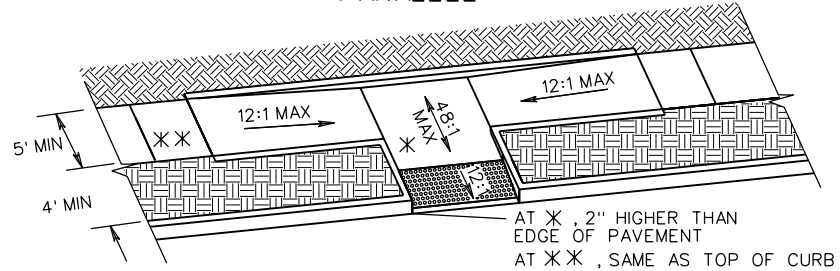
NOTE: COMPONENTS OF CURB RAMPS CONSIST OF THE FOLLOWING:
 HYDRAULIC CEMENT SIDEWALK (DEPTH IN INCHES, AREA IN SQUARE YARDS)
 CURB WHEN REQUIRED (CG-2 OR CG-3 IN LINEAR FEET)
 DETECTABLE WARNING SURFACE (AREA IN SQUARE YARDS)
 EACH OF THE ABOVE ITEMS IS A SEPARATE PAY ITEM AND SHOULD BE SUMMARIZED FOR EACH CURB CUT RAMP.



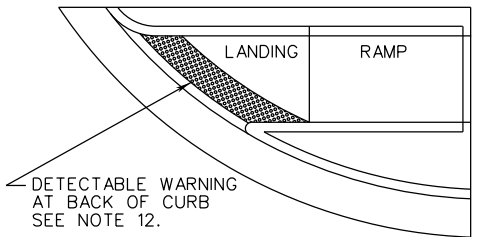
**TYPE A
PERPENDICULAR**



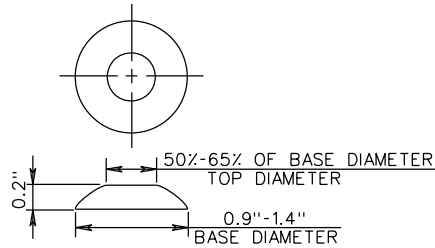
**TYPE B
PARALLEL**



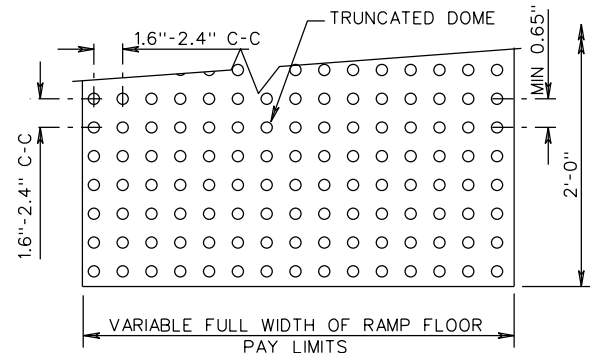
**TYPE C
PARALLEL & PERPENDICULAR**



**DETECTABLE WARNING
INSTALLED ON A RADIUS**



**TRUNCATED DOME
DETAIL**



**DETECTABLE WARNING
DETAIL**



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 5

REVISION DATE

203.05

07/15

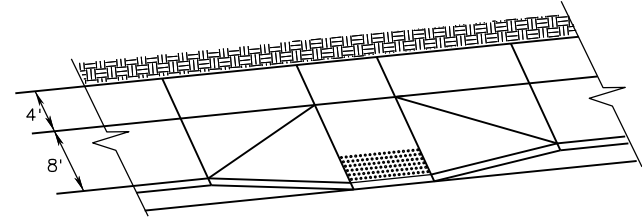
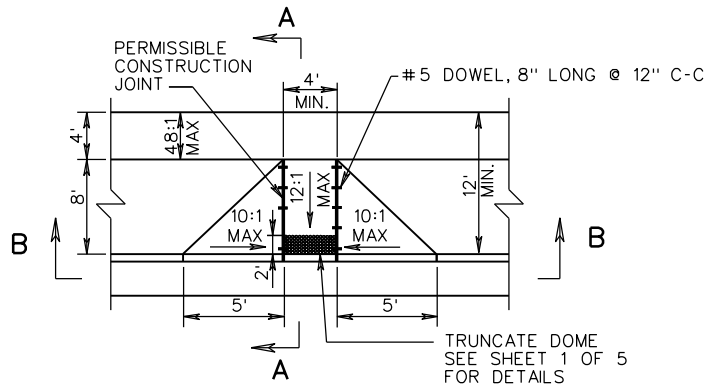
CG-12 DETECTABLE WARNING SURFACE

(GENERAL NOTES)

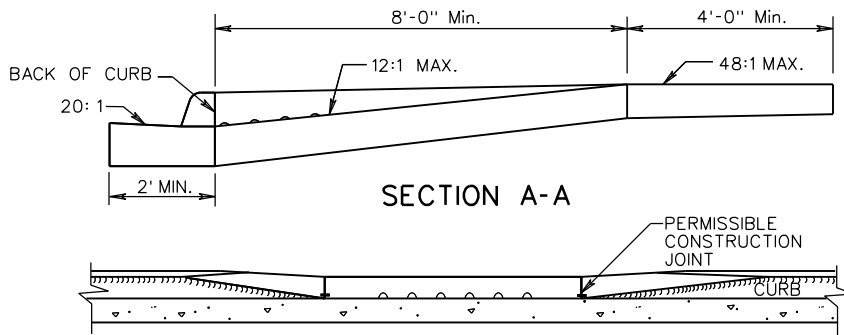
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

105
502

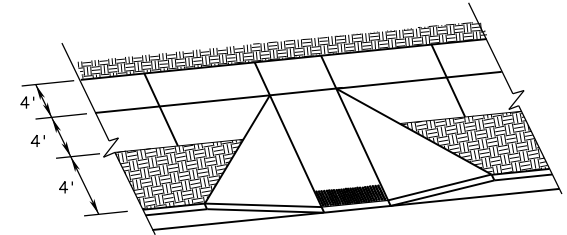


TYPICAL DESIGN



SECTION A-A

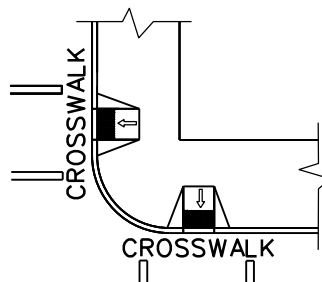
SECTION B-B



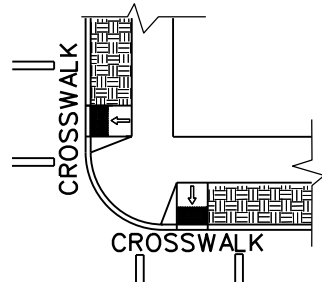
TYPE A WITH BUFFER STRIP

NOTES:
FOR GENERAL NOTES ON THE DETECTABLE WARNING SURFACE, SEE SHEET 1 OF 5.

THIS DESIGN TO BE USED FOR CONSTRUCTION THAT INCORPORATES WIDER SIDEWALK. LANDING (4' WIDE) REQUIRED AT TOP OF CURB RAMP. MINIMUM CURB RAMP LENGTH 8 FEET FOR NEW CONSTRUCTION.

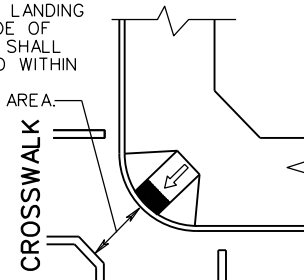


TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK



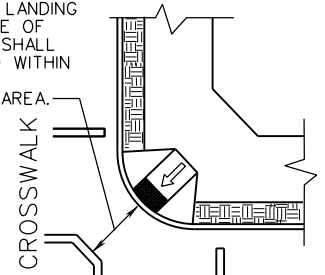
TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK (WITH BUFFER STRIP)

A 4' SQUARE LANDING AREA OUTSIDE OF TRAVELWAY SHALL BE PROVIDED WITHIN THE MARKED CROSSWALK AREA.



DIAGONAL PLACEMENT

A 4' SQUARE LANDING AREA OUTSIDE OF TRAVELWAY SHALL BE PROVIDED WITHIN THE MARKED CROSSWALK AREA.



DIAGONAL PLACEMENT WITH BUFFER STRIP

SPECIFICATION REFERENCE

105
502

CG-12 DETECTABLE WARNING SURFACE
TYPE A (PERPENDICULAR) APPLICATION

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

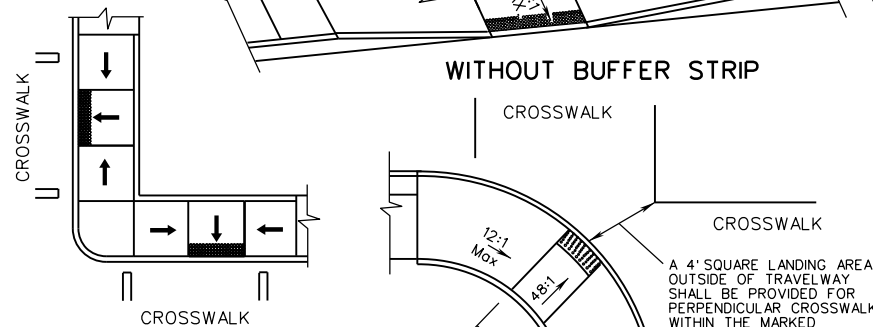
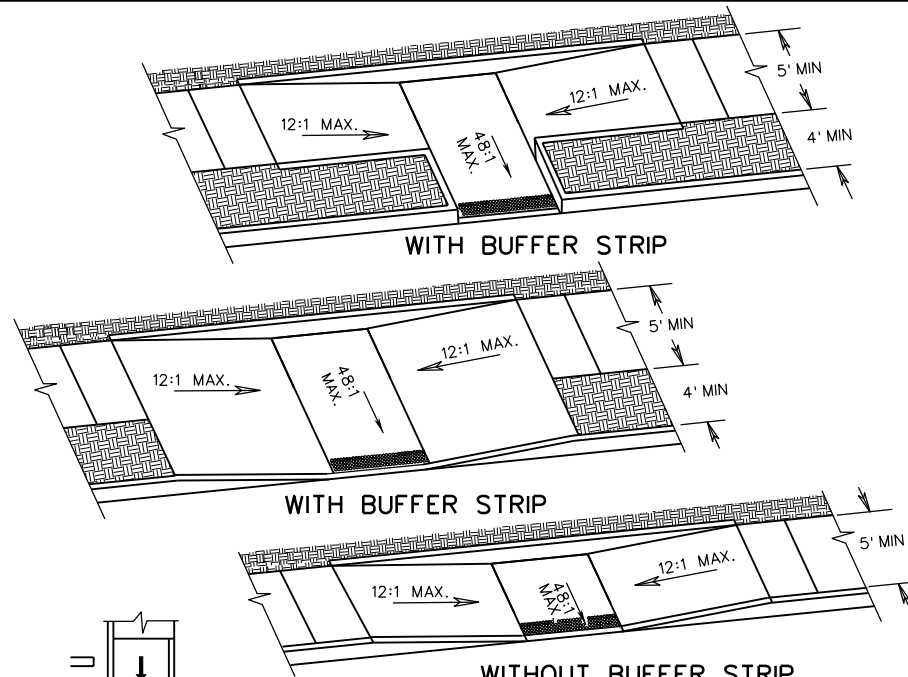
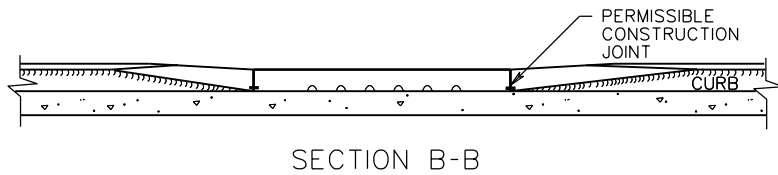
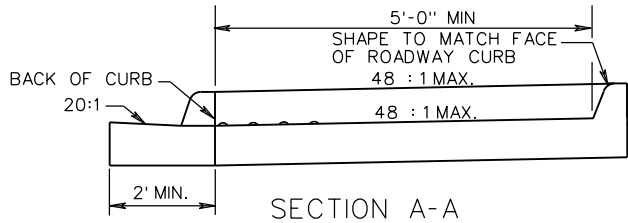
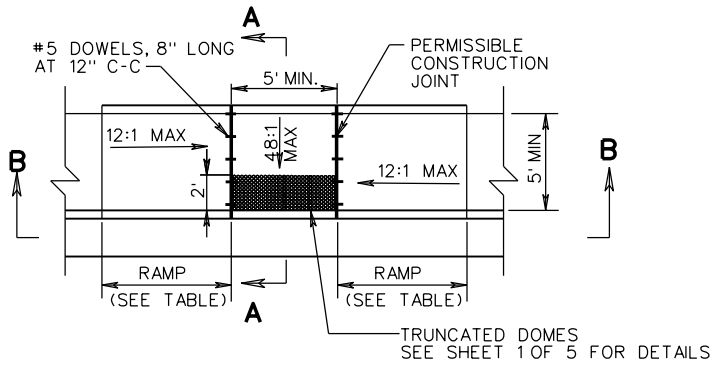
ROAD AND BRIDGE STANDARDS

REVISION DATE

07/15

SHEET 2 OF 5

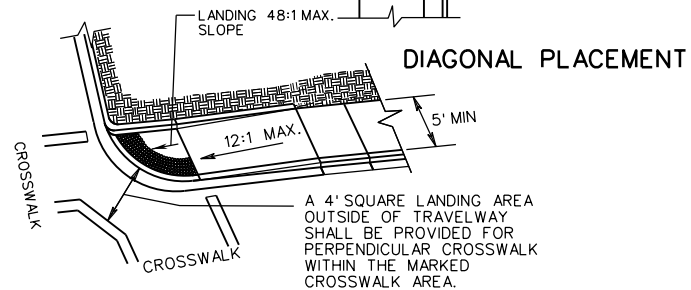
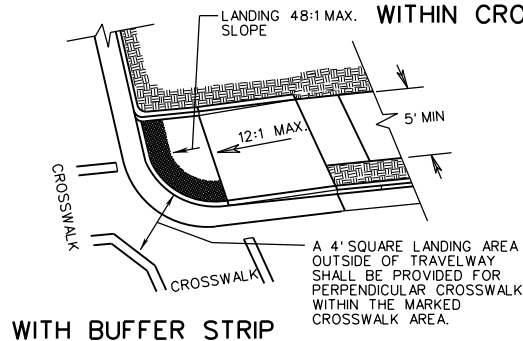
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NOTES: FOR GENERAL NOTES ON THE DETECTABLE WARNING SURFACE, SEE SHEET 1 OF 5.

THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.

TYPE B PARALLEL APPLICATION		
ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15



ROAD AND BRIDGE STANDARDS

SHEET 3 OF 5

REVISION DATE

203.07

07/15

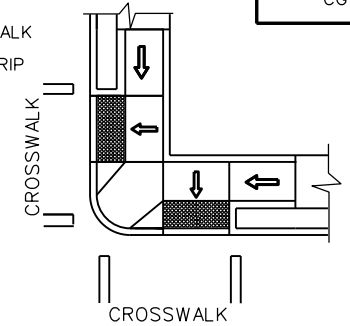
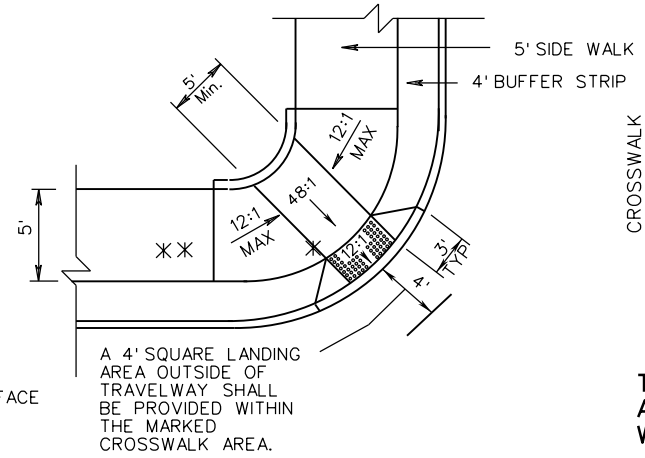
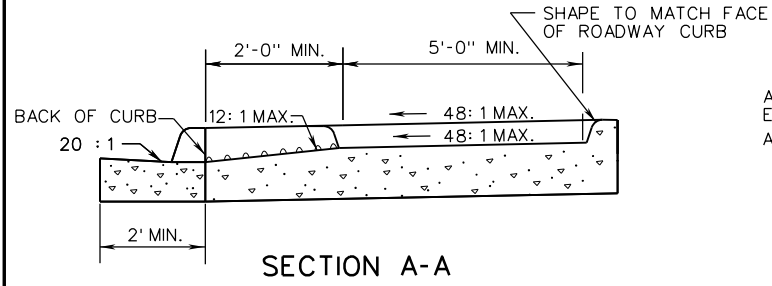
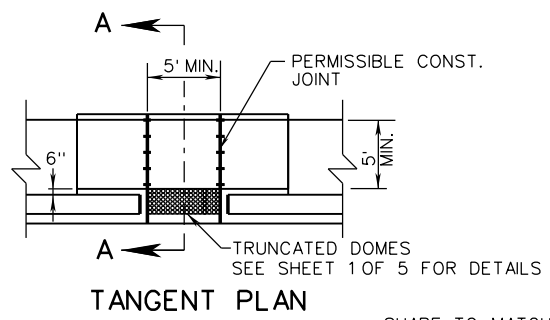
CG-12 DETECTABLE WARNING SURFACE

TYPE B (PARALLEL) APPLICATION

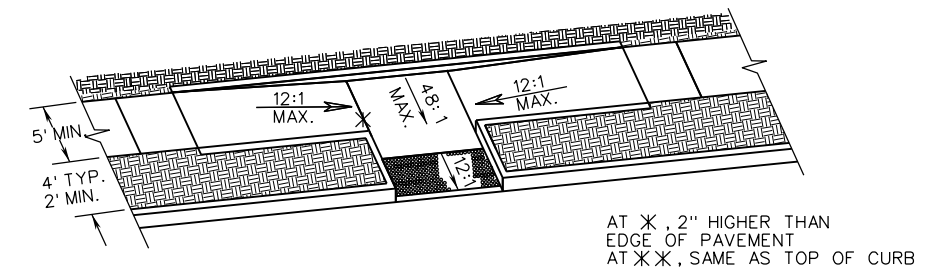
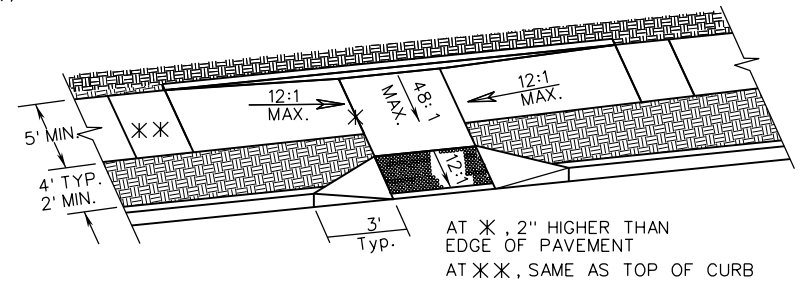
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

105
502



AT ✕, 2" HIGHER THAN EDGE OF PAVEMENT
 AT ✕✕, SAME AS TOP OF CURB



TYPE C PARALLEL & PERPENDICULAR APPLICATION		
ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	2	4
1	2	5
2	3	5
3	3	6
4	4	8
5	5	10
6	7	14
7	13	15
8	15	15

THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.

NOTES: FOR GENERAL NOTES ON THE DETECTABLE WARNING SURFACE, SEE SHEET 1 OF 5.

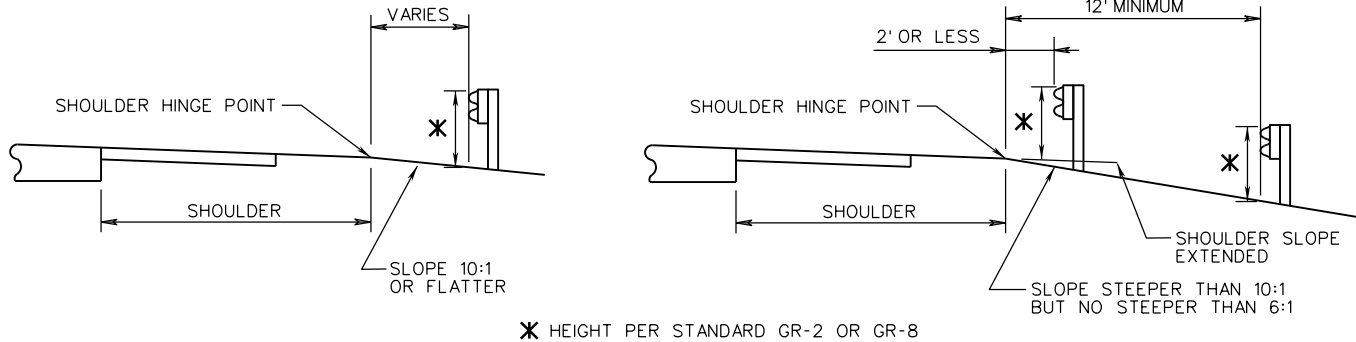
THE SELECTION OF CURB TYPE AND THE CONFIGURATION OF THE BUFFER STRIP MAY VARY TO MEET EXISTING FIELD CONDITIONS AND ROADWAY GEOMETRICS PROVIDING THE DIMENSIONS AND SLOPES ARE AS NOTED.

THIS COMBINED (PARALLEL & PERPENDICULAR) DESIGN CAN BE USED WITH ADJOINING BUFFER STRIP. LANDING AT BOTTOM OF TWO SLOPING SIDES WITH 5' X 5' MIN. DIMENSIONS. THE SHORT PERPENDICULAR RUN TO THE STREET CAN BE PROTECTED BY A LANDSCAPED SETBACK OR CONNECTED TO THE SIDEWALK WITH A WARPED SURFACE.

SPECIFICATION REFERENCE
105 502

CG-12 DETECTABLE WARNING SURFACE
 TYPE C (PARALLEL & PERPENDICULAR) APPLICATION
 VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS	
REVISION DATE 07/15	SHEET 4 OF 5 203.08



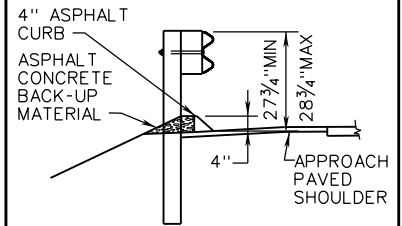
* HEIGHT PER STANDARD GR-2 OR GR-8

MEASURING GUARDRAIL HEIGHT ON FRONT SLOPE RELATIVE TO SHOULDER HINGE POINT

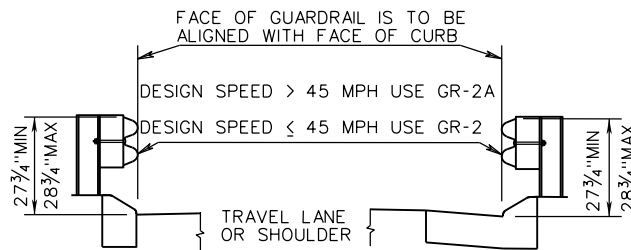
FACE OF GUARDRAIL IS TO BE ALIGNED WITH FACE OF CURB.

DESIGN SPEED > 45 MPH
USE GR-2A

DESIGN SPEED ≤ 45 MPH
USE GR-2.



ASPHALT CURB SECTION



GR-2 INSTALLATION WITH CG-3 OR CG-7 CURB

FOR GUARDRAIL DESIGN POLICIES USING CURB & GUTTER OR URBAN DESIGNS WITH SIDEWALK OR SIDEWALK SPACE SEE APPENDIX I OF THE ROAD DESIGN MANUAL

TABLE I

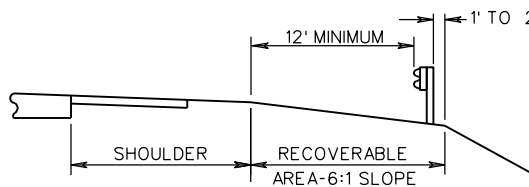
NORMAL GUARDRAIL LOCATION-THROUGH TRAFFIC LANES LEFT OF TRAFFIC

TOTAL SHOULDER WIDTH (S) (PAVED & GRADED)	PAVED SHOULDER WIDTH (P _S) (SEE NOTE)	OFFSET FROM EDGE OF TRAVELED WAY TO FACE OF GUARDRAIL (O)
17'	12'	14'
15'	3', 4', or 10'	12'
13'	3', 4', or 8'	10'
11'	3' or 4'	8'
9'	3' or 4'	6'
8'	3' or 4'	5'
7'	0 or 2'	4'
5'	0	2'

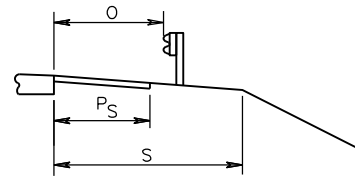
TABLE II

NORMAL GUARDRAIL LOCATION-THROUGH TRAFFIC LANES RIGHT OF TRAFFIC

TOTAL SHOULDER WIDTH (S) (PAVED & GRADED)	PAVED SHOULDER WIDTH (P _S) (SEE NOTE)	OFFSET FROM EDGE OF TRAVELED WAY TO FACE OF GUARDRAIL (O)
17'	12'	14'
15'	6' or 10'	12'
13'	8'	10'
11'	3', 4' or 6'	8'
9'	0, 3', or 4'	6'
8'	0 or 3'	5'
7'	0 or 2'	4'
5'	0	2'



GUARDRAIL LOCATION ON RECOVERABLE SLOPE



NOTE:
PAVED SHOULDER WIDTHS SHOWN ARE MINIMUM. THE PAVED SHOULDER MAY BE EXTENDED TO THE FACE OF THE RAIL THE PAVED WIDTH USED SHALL BE IN ACCORDANCE WITH THE ROADWAY CLASSIFICATION AS DEFINED IN THE ROAD DESIGN MANUAL.

SEE STANDARD MC-4 FOR PAVING UNDER GUARDRAIL.

NORMAL GUARDRAIL LOCATION

SPECIFICATION REFERENCE

221
505

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

W-BEAM GUARDRAIL INSTALLATION CRITERIA

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

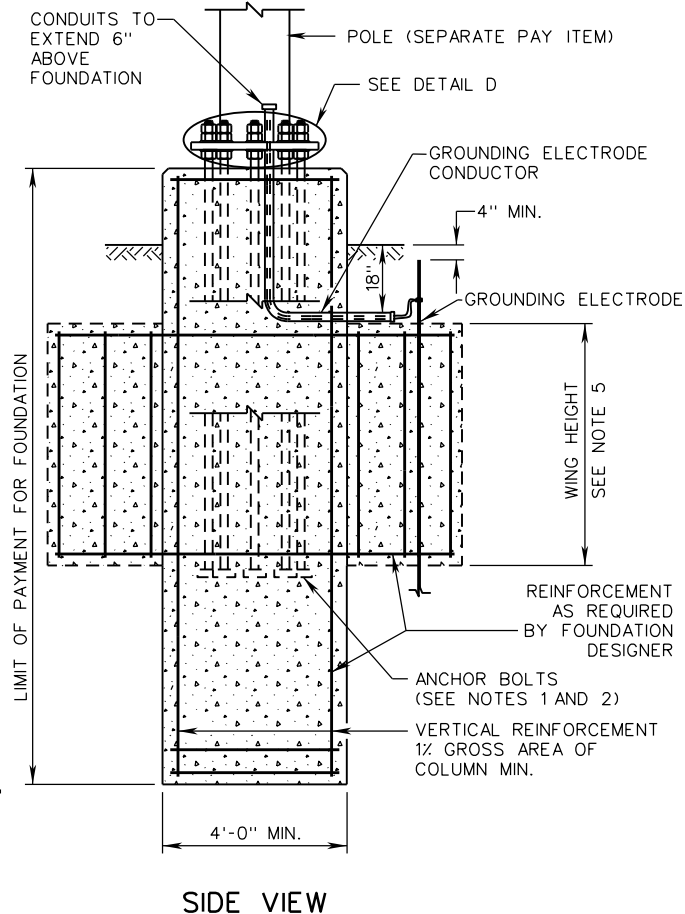
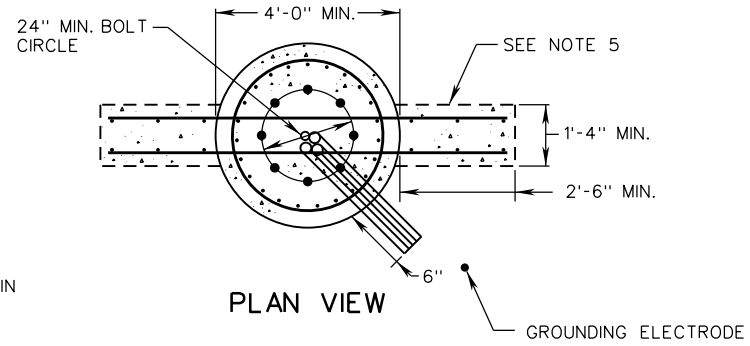
07/15

SHEET 6 OF 8

501.39

NOTES:

1. ANCHOR BOLTS SHALL HAVE A RING OR NUTS AND WASHERS ON THE ENDS OF BOLTS EMBEDDED IN FOUNDATION.
2. ANCHOR BOLT LAYOUT SHALL BE CHECKED AGAINST LATEST APPROVED STRUCTURE DRAWINGS. A MINIMUM OF EIGHT 2" DIAMETER ANCHOR BOLTS ARE REQUIRED.
3. ALL CONDUITS AS SPECIFIED IN THE CONTRACT DOCUMENTS. IN ADDITION 1 - 1" MIN. CONDUIT REQUIRED FOR GROUNDING ELECTRODE CONDUCTOR. 2 - 2" PVC CONDUITS REQUIRED FOR FUTURE USE. NOTE THAT ADDITIONAL SPARE CONDUITS MAY BE REQUIRED BY THE CONTRACT DOCUMENTS.
4. IF NEEDED IN SLOPED CONDITIONS TO MAINTAIN POSITIVE DRAINAGE AROUND THE FOUNDATION AND TO PROVIDE THE CLEARANCES SHOWN IN DETAIL A, THE CONTRACTOR SHALL RE-GRADE AND ADD RETAINING CURB OR MATERIAL ON THE UP SLOPE WHEN APPROVED BY THE ENGINEER. RE-GRADING AND RETAINING CURB SHALL BE INCLUDED IN THE PRICE BID FOR FOUNDATION.
5. FOUNDATION SHALL BE DESIGNED FOR TORSION. WINGS MAY BE USED FOR TORSIONAL RESISTANCE IF REQUIRED.
6. ANCHOR BOLTS AND BOLT TEMPLATE SHALL BE FURNISHED WITH POLE. POLE SHALL BE CENTERED ON FOUNDATION.
7. EACH FOUNDATION SHALL BE PERMANENTLY MARKED TO INDICATE ALL SIDES FROM WHICH CONDUITS PASS. THIS MARK SHALL BE MADE WITH A TROWEL WHEN FINISHING THE CONCRETE AND SHALL BE 1/4" DEEP AND 4" TO 6" LONG. LOCATIONS OF EMPTY CONDUITS SHALL HAVE AN ADDITIONAL 2" LONG MARK MADE PERPENDICULAR TO AND CENTERED ON THIS MARKING.
8. GROUNDING BUSHINGS SHALL BE INSTALLED ON EACH END OF METAL CONDUITS.
9. EMPTY CONDUITS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.
10. BELL ENDS SHALL BE INSTALLED ON EACH END OF PVC CONDUITS.
11. NO MORTAR, GROUT, OR CONCRETE SHALL BE PLACED BETWEEN BOTTOM OF BASE PLATE AND TOP OF FOUNDATION.
12. HEIGHT, WIDTH, DEPTH, AND REINFORCEMENT OF FOUNDATION SHALL BE AS REQUIRED BY FOUNDATION DESIGNER.
13. OPEN ENDS OF CONDUITS WITH CONDUCTORS INSTALLED SHALL BE SEALED WITH AN APPROVED OUTDOOR, WATERPROOF, SILICONE SEALANT. THE SEALANT SHALL NOT HAVE A DELETERIOUS EFFECT ON CABLE COVERINGS.
14. FOUNDATIONS SHALL NOT BE INSTALLED IN THE CENTER OF A DRAINAGE DITCH. IF APPROVED BY THE ENGINEER, FOUNDATIONS MAY BE INSTALLED IN THE SLOPE OF A DRAINAGE DITCH AT AN APPROVED HEIGHT ABOVE GRADE. THE FOUNDATION SHALL NOT BE PLACED IN THE FRONT SLOPE UNLESS THE ENGINEER DETERMINES THAT BACK SLOPE PLACEMENT IS NOT FEASIBLE.
15. THE EDGE OF THE FOUNDATION SHALL BE 1'-0" MIN. FROM THE EDGE OF A PEDESTRIAN PATH, OR 3'-0" MIN. FROM THE EDGE OF A SHARED USE PATH (SEE DETAIL B). IF APPROVED BY THE ENGINEER, FOUNDATIONS MAY BE PLACED IMMEDIATELY ADJACENT TO PEDESTRIAN PATH.
16. SPREAD FOOTING MAY BE USED IF APPROVED BY THE ENGINEER.



A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**SIGNAL POLE FOUNDATION
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

700



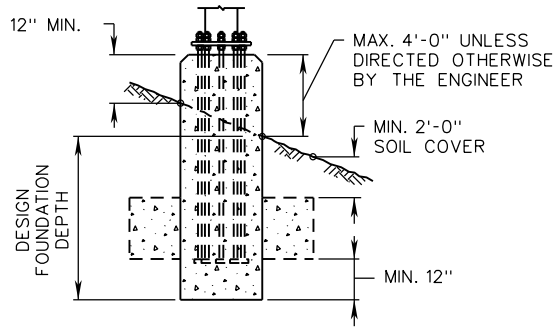
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

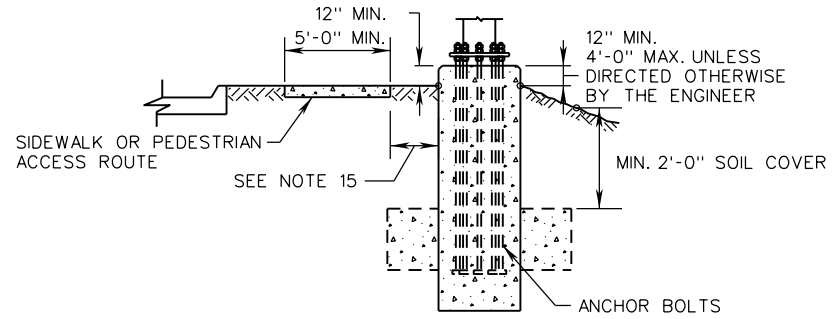
REVISION DATE

1310.12

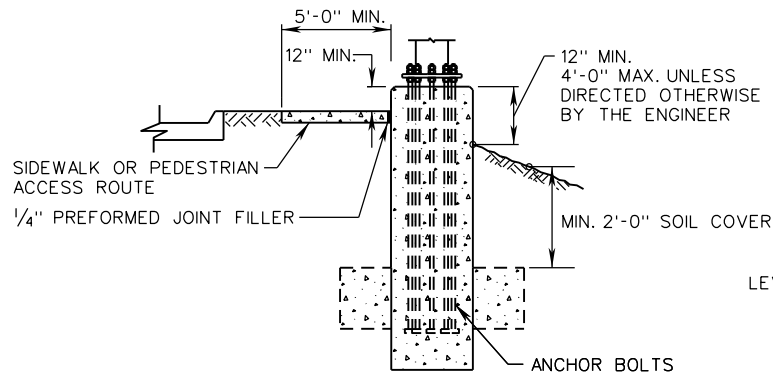
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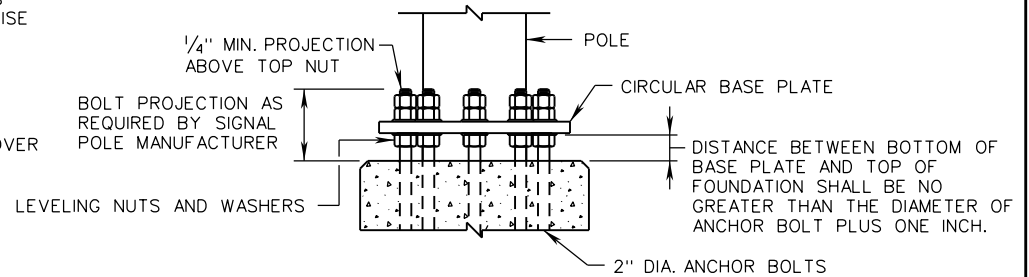
DETAIL A
FOUNDATION NOT IN
SIDEWALK DETAIL



DETAIL B
FOUNDATION ADJACENT
TO SIDEWALK DETAIL



DETAIL C
ALTERNATE FOUNDATION
ADJACENT TO SIDEWALK DETAIL
(IF APPROVED BY THE ENGINEER)



DETAIL D
ANCHOR BOLT AND BASE
PLATE CONNECTION DETAIL

SPECIFICATION
REFERENCE

700

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**SIGNAL POLE FOUNDATION
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

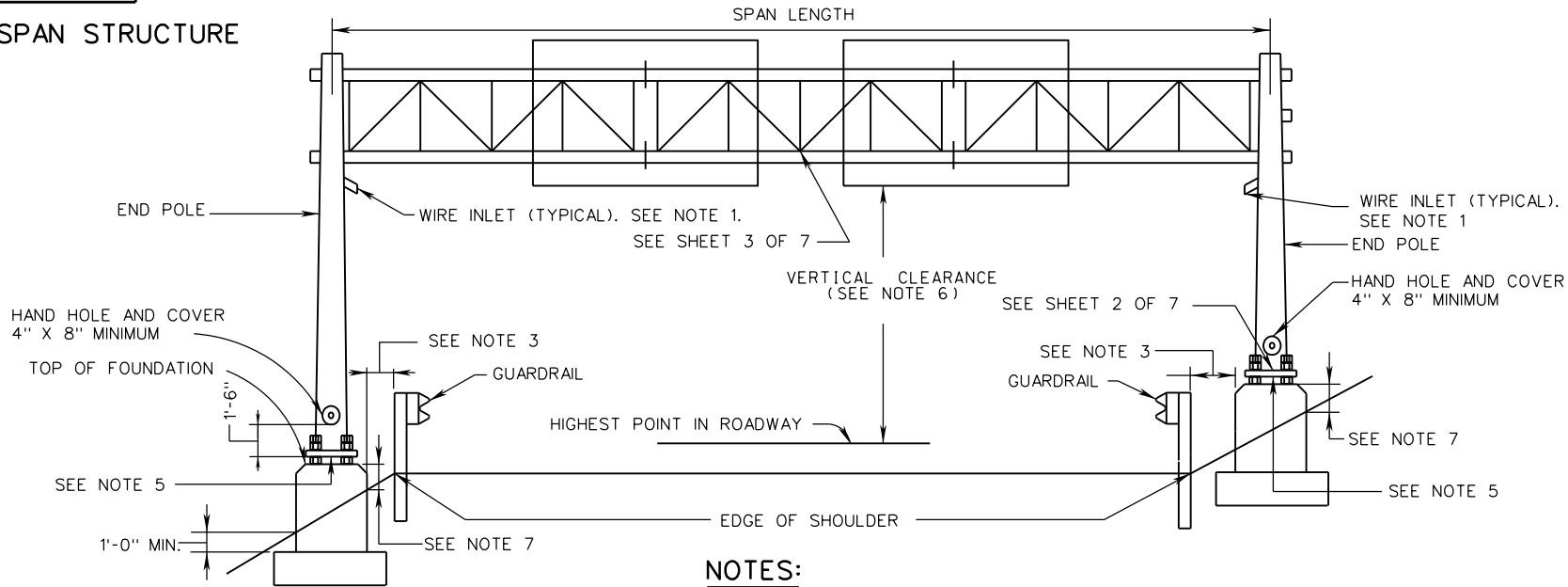
REVISION DATE

07/15

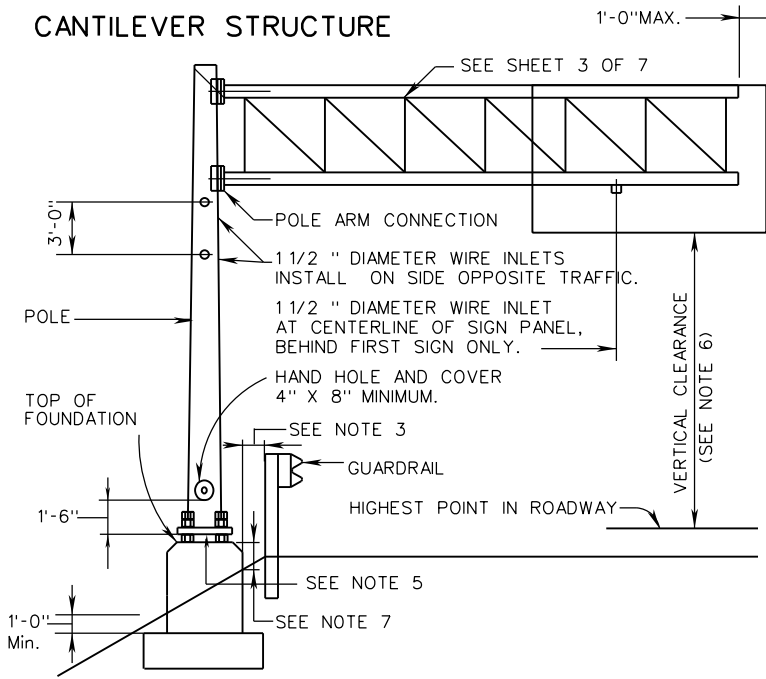
SHEET 2 OF 2

1310.13

SPAN STRUCTURE



CANTILEVER STRUCTURE



NOTES:

1. 1 1/2" DIAMETER WIRE INLETS SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS:
 - A. ON SPAN STRUCTURES ON THE FRONT LEG OF END POLE 12" BELOW BOTTOM CHORD.
 - B. ON CANTILEVER STRUCTURES ON POLE 12" BELOW BOTTOM CHORD.
 - C. ON SPAN STRUCTURES BELOW BOTTOM CHORD AT CENTERLINE BEHIND FIRST SIGN PANEL FROM EACH END POLE.
 - D. ON CANTILEVER STRUCTURES BELOW BOTTOM CHORD AT CENTERLINE BEHIND FIRST SIGN PANEL FROM POLE.
2. ALL UNUSED WIRE INLETS SHALL BE CAPPED WATER TIGHT.
3. DISTANCE SHALL BE NO LESS THAN THE MINIMUM INDICATED IN GUARDRAIL STANDARDS.
4. NO MORTAR, GROUT, OR CONCRETE SHALL BE PLACED BETWEEN BOTTOM OF BASE PLATE AND TOP OF PEDESTAL.
5. THE MAXIMUM SPACE BETWEEN THE BOTTOM OF THE BASE PLATE AND THE TOP OF THE FOUNDATION SHALL BE NO MORE THAN THE DIAMETER OF THE ANCHOR BOLT PLUS ONE INCH.
6. VERTICAL CLEARANCE FOR OVERHEAD SIGN STRUCTURES SHALL BE NO LESS THAN 19 FEET 0 INCH AND NO MORE THAN 21 FEET 0 INCH FROM THE BOTTOM OF THE LOWEST MOUNTED SIGN PANEL TO THE HIGHEST POINT OF THE ROADWAY, UNLESS OTHERWISE SPECIFIED ON THE PLANS. LUMINAIRE ASSEMBLIES SHALL HAVE A VERTICAL CLEARANCE OF NO LESS THAN 17 FEET 6 INCHES FROM THE BOTTOM OF THE ASSEMBLY TO THE HIGHEST POINT OF THE ROADWAY.
7. TOP OF FOUNDATIONS SHALL BE 2'-0" MINIMUM ABOVE FINISHED GRADE. FOR FOUNDATIONS ADJACENT OR WITHIN A SIDEWALK, TOP OF FOUNDATIONS SHALL BE A MINIMUM OF 3" ABOVE FINISHED GRADE.
8. FOUNDATIONS SHALL NOT BE LOCATED IN A DRAINAGE DITCH.



ROAD AND BRIDGE STANDARDS

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

**OVERHEAD SIGN STRUCTURE
TYPICAL DETAILS**

SPECIFICATION
REFERENCE

SHEET 1 OF 7

REVISION DATE

700

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07/15

VIRGINIA DEPARTMENT OF TRANSPORTATION