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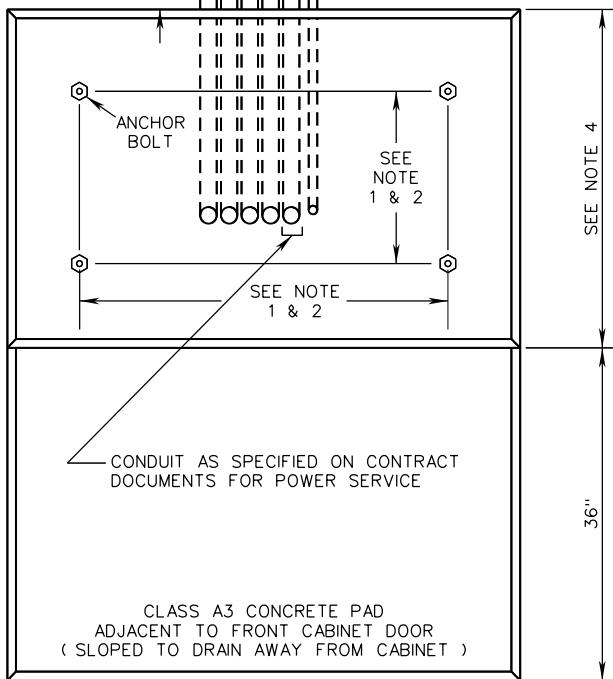
VIRGINIA DEPARTMENT OF TRANSPORTATION

SIZE AND NUMBER AS REQUIRED BY CONTRACT DOCUMENTS

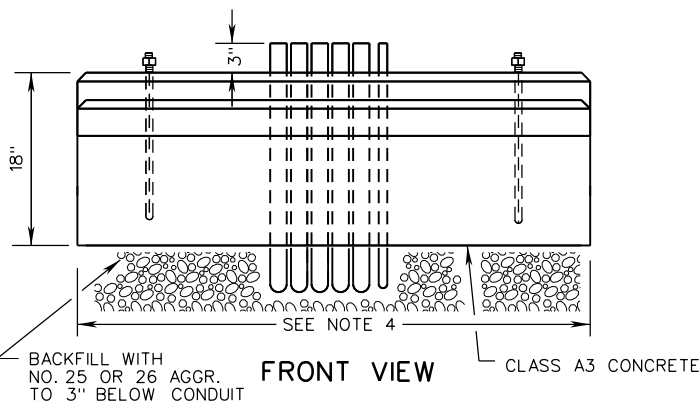
3-2" MINIMUM SPARE CONDUITS REQUIRED FOR FUTURE USE SHALL BE STUBBED OUT AND CAPPED. NOTE THAT ADDITIONAL SPARE CONDUITS MAY BE REQUIRED BY THE CONTRACT DOCUMENTS.

1-1" MIN. CONDUIT REQUIRED FOR GROUNDING ELECTRODE CONDUCTOR

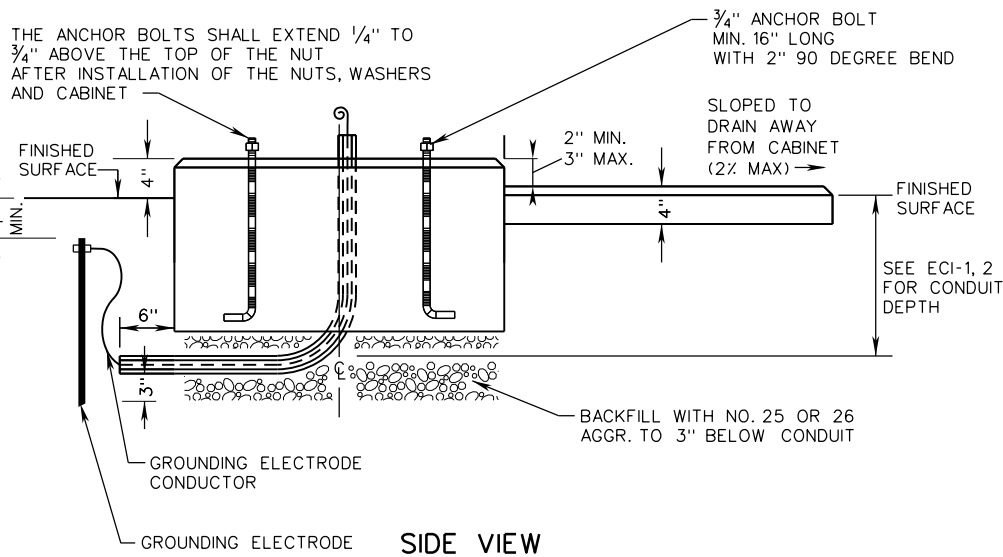
GROUNDING ELECTRODE CONDUCTOR
GROUNDING ELECTRODE



TOP VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. ANCHOR BOLTS AND BOLT TEMPLATE SHALL BE FURNISHED WITH CABINET.
2. CABINET SHALL BE CENTERED ON FOUNDATION.
3. THE CONTROLLER CABINET AT THE INSIDE AND OUTSIDE FOUNDATION JOINTS SHALL BE SEALED WITH AN APPROVED WATERPROOF SILICONE SEALANT.
4. FOUNDATION LENGTH AND WIDTH SHALL PROJECT A MINIMUM 4" BEYOND ALL SIDES OF THE CABINET.
5. EXCAVATED AREAS SHALL BE BACKFILLED WITH AGGREGATE.
6. CF-1 FOUNDATION IS INTENDED FOR USE WITH TYPE "A" (NEMA TS-2) TRAFFIC SIGNAL EQUIPMENT CABINET.

SPECIFICATION REFERENCE

700
703

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

CABINET FOUNDATION DETAILS

TYPE A TRAFFIC SIGNAL EQUIPMENT

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

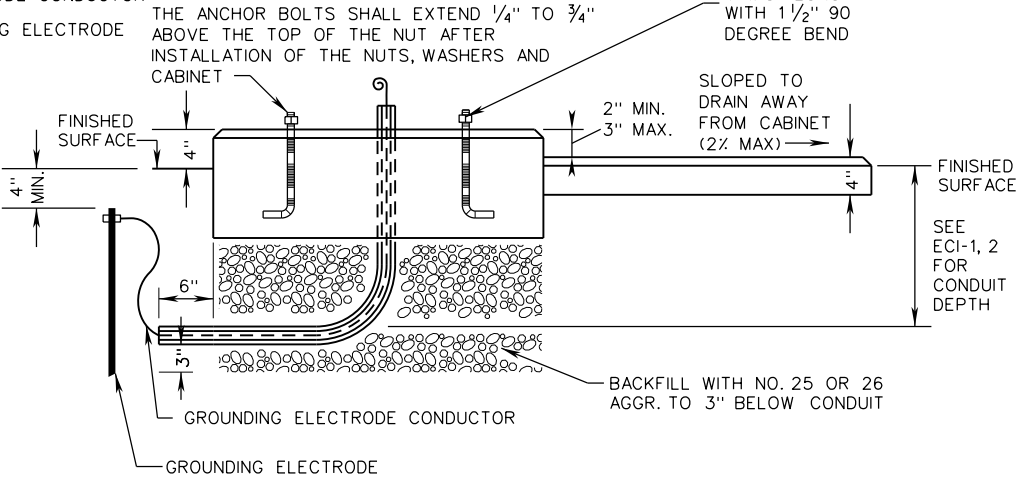
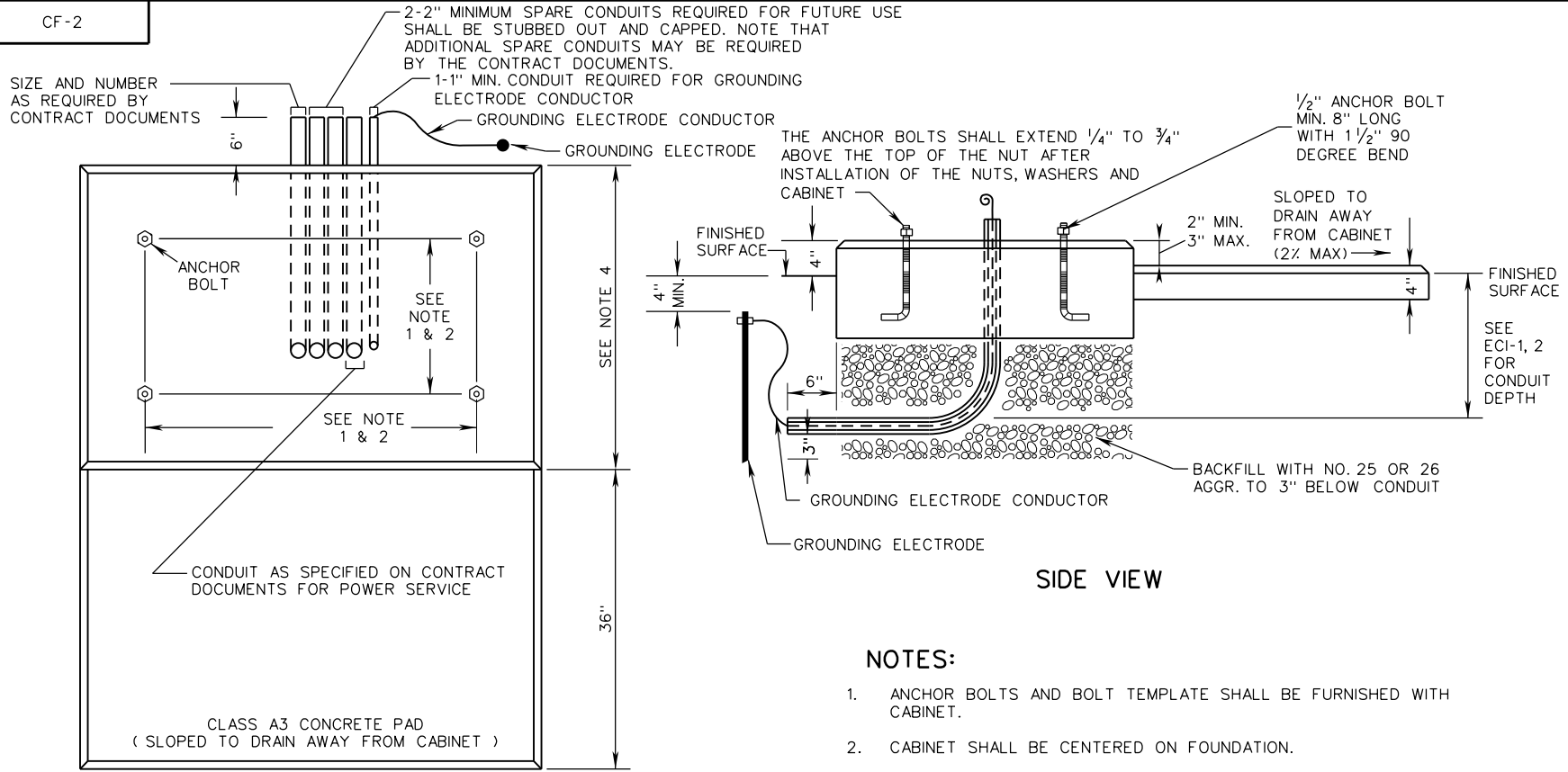
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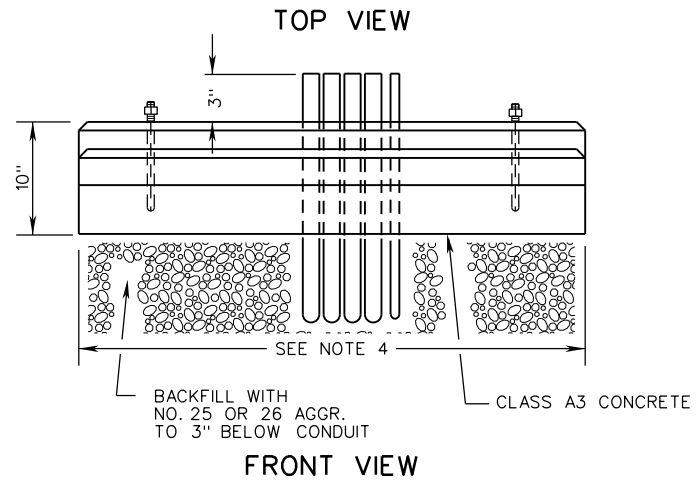
CF-2



SIDE VIEW

NOTES:

1. ANCHOR BOLTS AND BOLT TEMPLATE SHALL BE FURNISHED WITH CABINET.
2. CABINET SHALL BE CENTERED ON FOUNDATION.
3. THE CONTROL CENTER CABINET AT THE INSIDE AND OUTSIDE FOUNDATION JOINTS SHALL BE SEALED WITH AN APPROVED WATERPROOF SILICONE SEALANT.
4. FOUNDATION LENGTH AND WIDTH SHALL PROJECT A MINIMUM 4" BEYOND ALL SIDES OF THE CABINET.
5. EXCAVATED AREAS SHALL BE BACKFILLED WITH AGGREGATE.
6. TYPE A AND TYPE B TRAFFIC SIGNAL CABINETS SHALL NOT BE INSTALLED ON CF-2 FOUNDATIONS.



FRONT VIEW

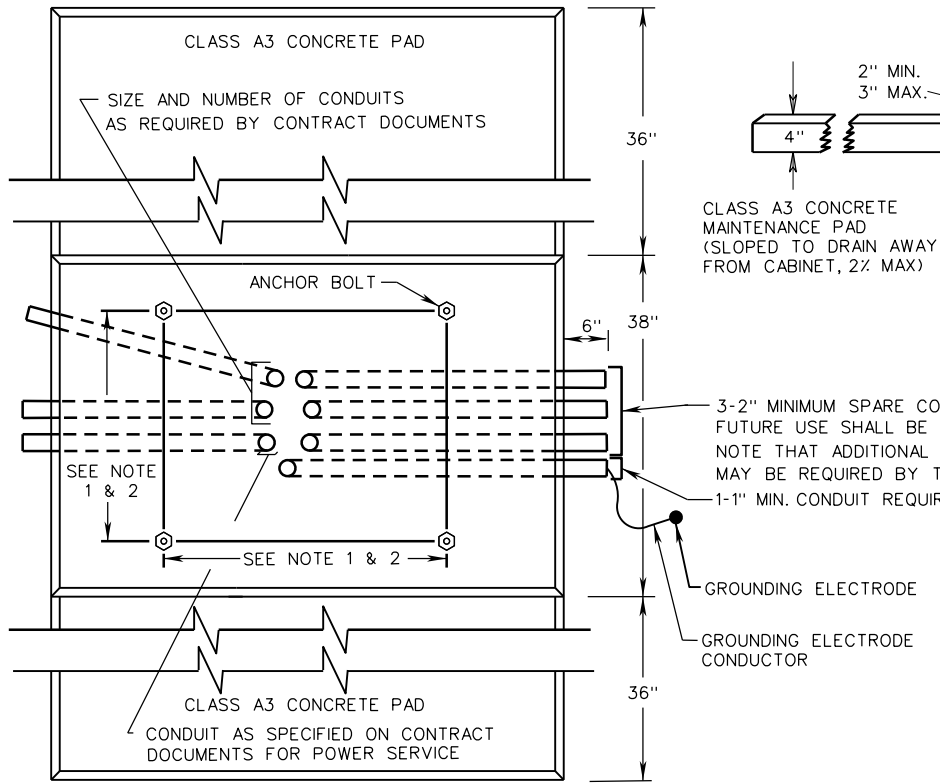
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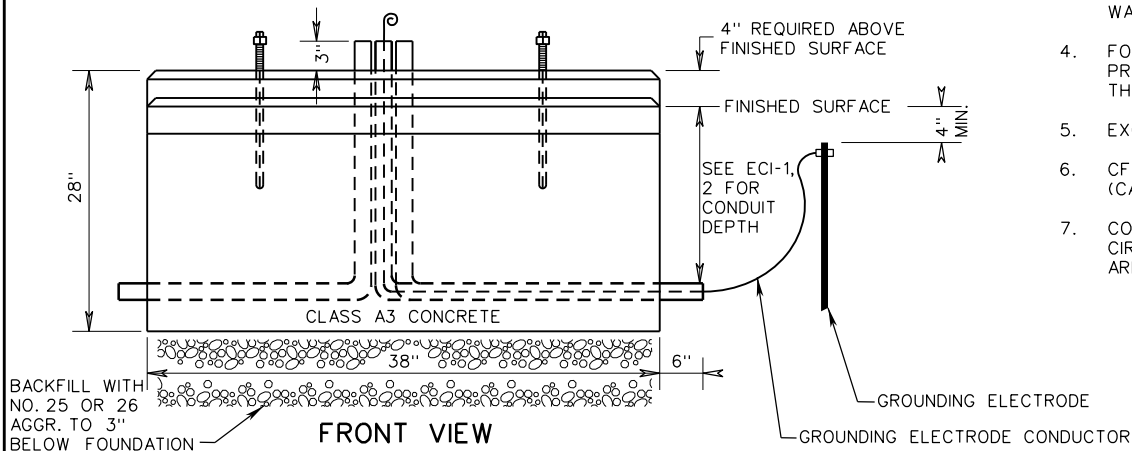
CABINET FOUNDATION DETAILS

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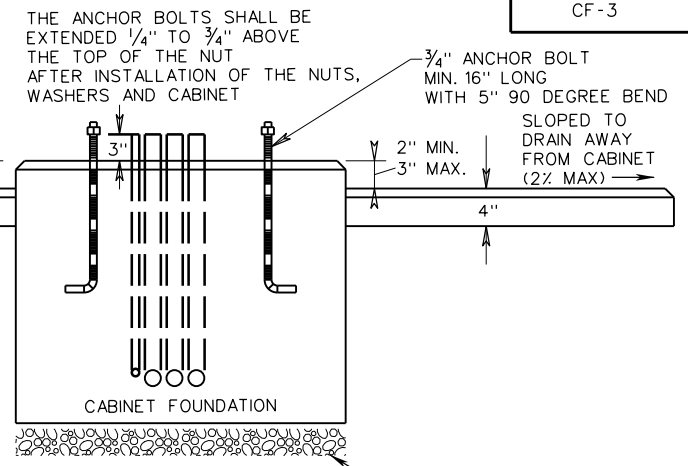
SPECIFICATION REFERENCE
700



TOP VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. ANCHOR BOLTS, BOLT TEMPLATE, AND BASE ADAPTER (METAL RISER) SHALL BE FURNISHED WITH CABINET.
2. CABINET ON BASE ADAPTER (METAL RISER) SHALL BE CENTERED ON FOUNDATION.
3. THE CONTROLLER CABINET AT THE INSIDE AND OUTSIDE FOUNDATION JOINTS SHALL BE SEALED WITH AN APPROVED WATERPROOF SILICONE SEALANT.
4. FOUNDATION LENGTH AND WIDTH SHALL BE AS REQUIRED TO PROJECT NO LESS THAN A MINIMUM 4" BEYOND ALL SIDES OF THE CABINET.
5. EXCAVATED AREAS SHALL BE BACKFILLED WITH AGGREGATE.
6. CF-3 FOUNDATION IS INTENDED FOR USE WITH TYPE "B" (CALTRANS MODEL 332) TRAFFIC SIGNAL EQUIPMENT CABINET.
7. CONDUITS ENTERING THE FOUNDATION SHALL BE ARRANGED IN A CIRCULAR PATTERN. THE CONTRACTOR SHALL SUBMIT A CONDUIT ARRANGEMENT PLAN FOR APPROVAL PRIOR TO PLACEMENT.

SPECIFICATION REFERENCE
700 703

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CABINET FOUNDATION DETAILS

TYPE B TRAFFIC SIGNAL EQUIPMENT

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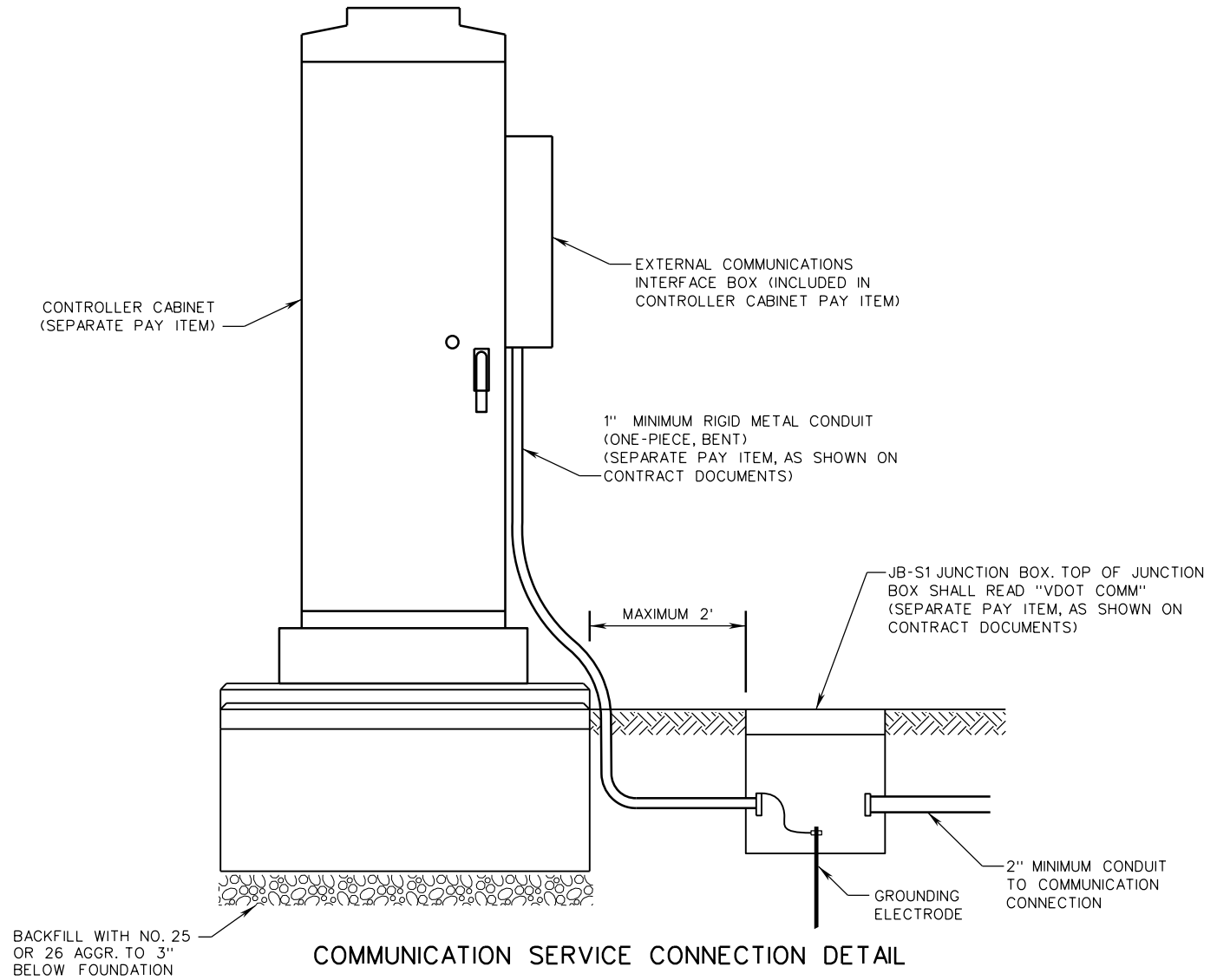
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703

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CABINET FOUNDATION DETAILS
TYPE B TRAFFIC SIGNAL EQUIPMENT

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

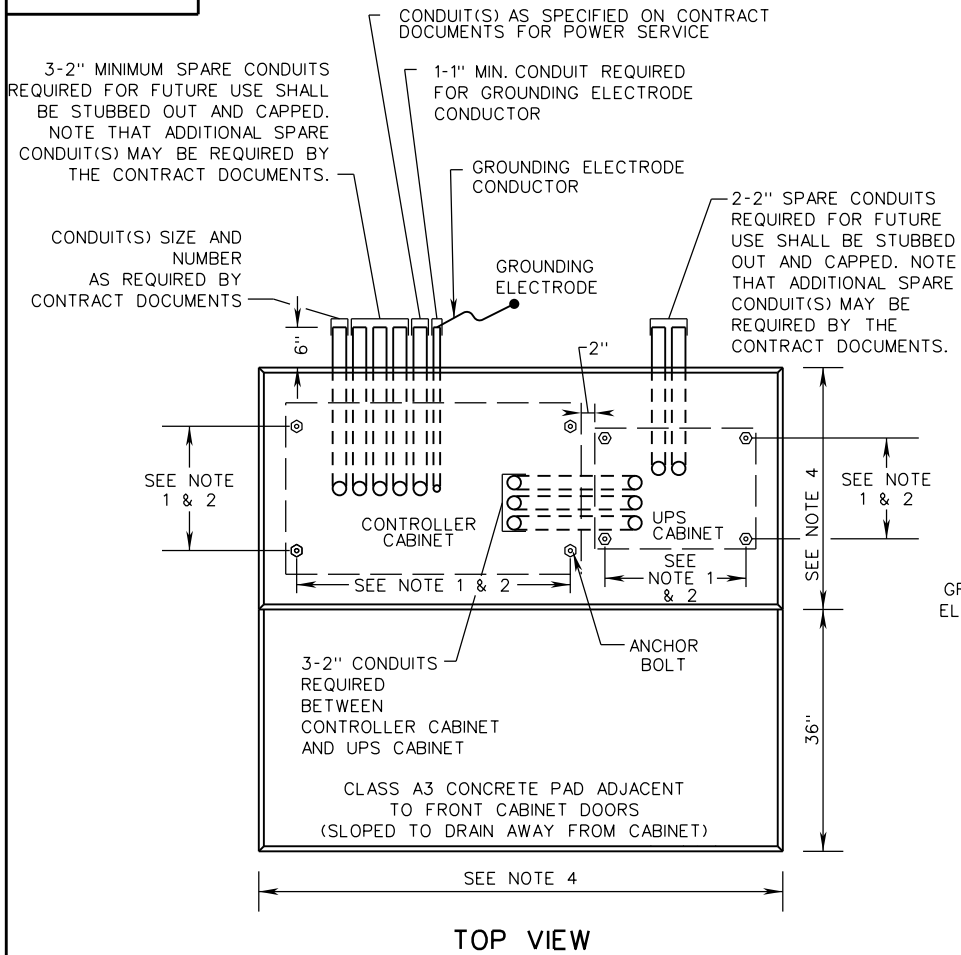
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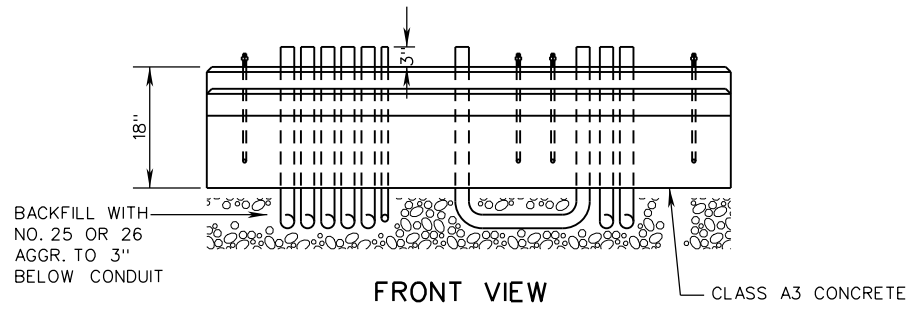
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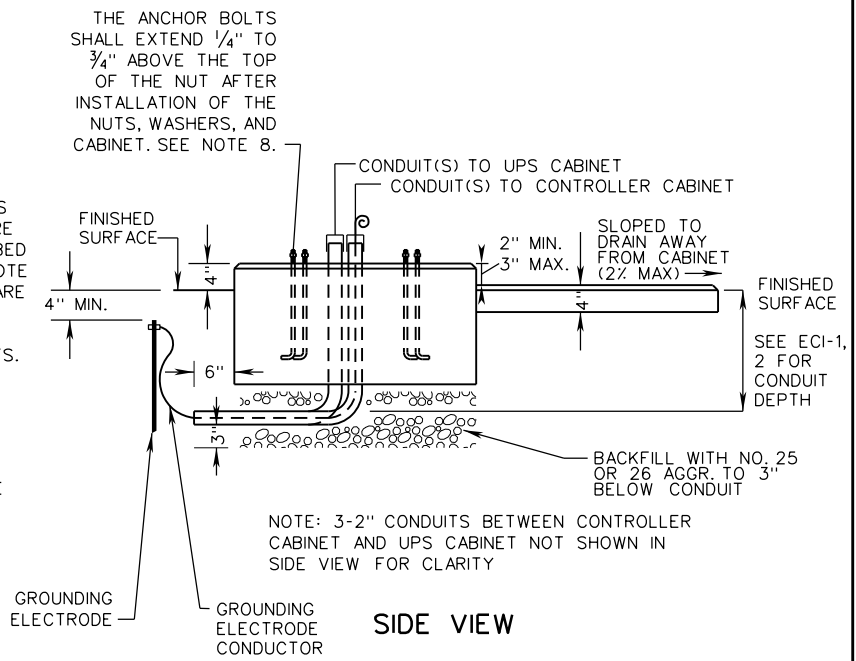
1301.31



TOP VIEW



FRONT VIEW



NOTES:

1. ANCHOR BOLTS AND BOLT TEMPLATES SHALL BE FURNISHED WITH BOTH CABINETS.
2. THE CONTROLLER CABINET AND UPS CABINET SHALL BE CENTERED FROM FRONT TO BACK ON THE FOUNDATION. THE TOTAL WIDTH OF THE CONTROLLER CABINET AND UPS CABINET SHALL BE CENTERED FROM SIDE TO SIDE ON THE FOUNDATION.
3. THE CONTROLLER CABINET AND UPS CABINET AT THE INSIDE AND OUTSIDE FOUNDATION JOINTS SHALL BE SEALED WITH AN APPROVED WATERPROOF SILICONE SEALANT.
4. THE FOUNDATION WIDTH AND LENGTH SHALL PROJECT A MINIMUM 4" BEYOND ALL SIDES OF THE CABINETS.
5. EXCAVATED AREAS SHALL BE BACKFILLED WITH AGGREGATE.
6. CF-4 FOUNDATION IS INTENDED FOR USE WITH TYPE "A" (NEMA TS-2) TRAFFIC SIGNAL EQUIPMENT CABINET WITH SEPARATE UPS CABINET.
7. DOOR HINGE LOCATIONS SHALL BE IN ACCORDANCE WITH SECTION 703 OF THE SPECIFICATIONS.
8. EACH CABINET SHALL HAVE FOUR 3/4" DIA. X 16" LONG WITH 2" 90 DEGREE BEND ANCHOR BOLTS.

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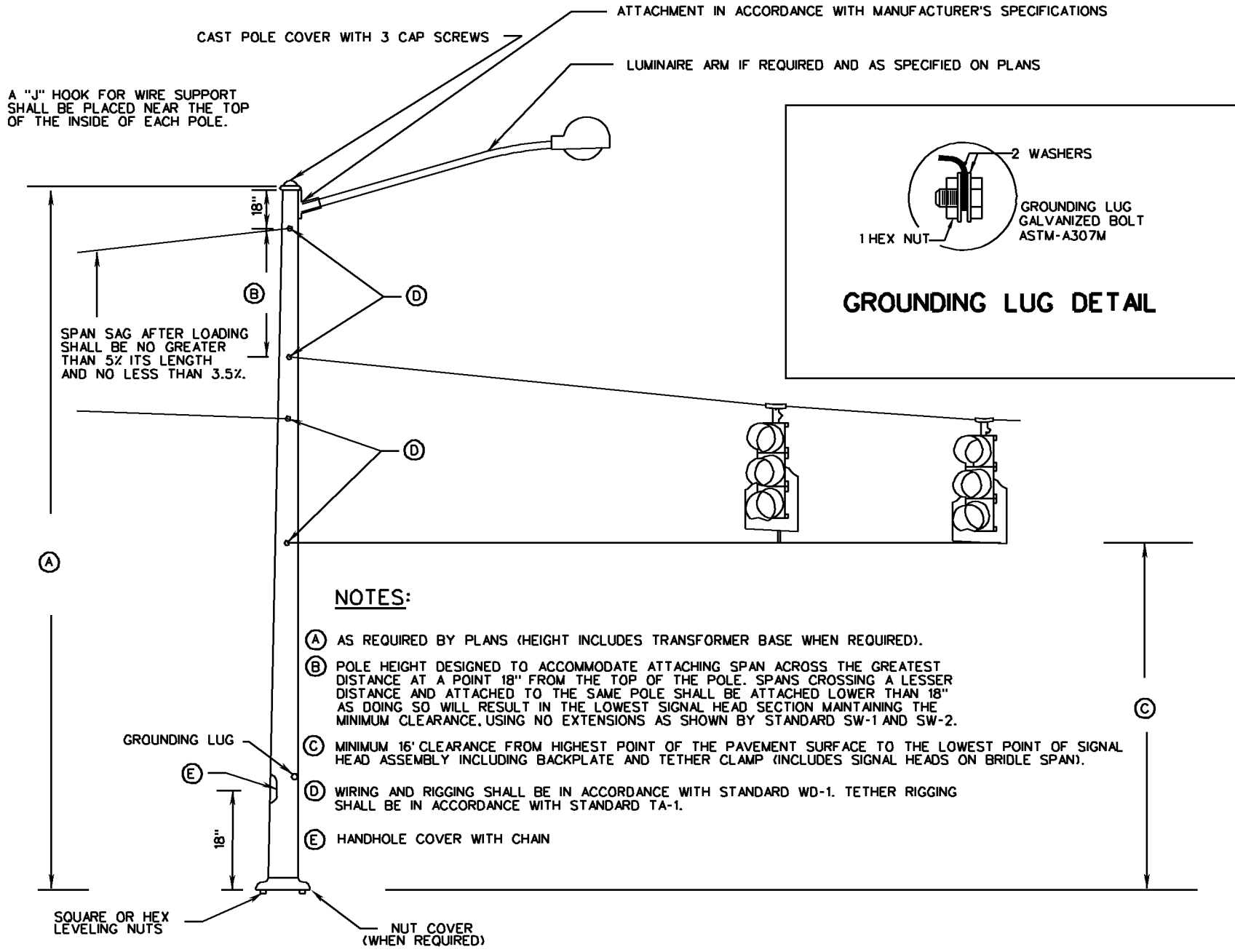
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CABINET FOUNDATION DETAILS

TYPE A TRAFFIC SIGNAL EQUIPMENT CABINET AND UPS

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SPECIFICATION REFERENCE
700 703



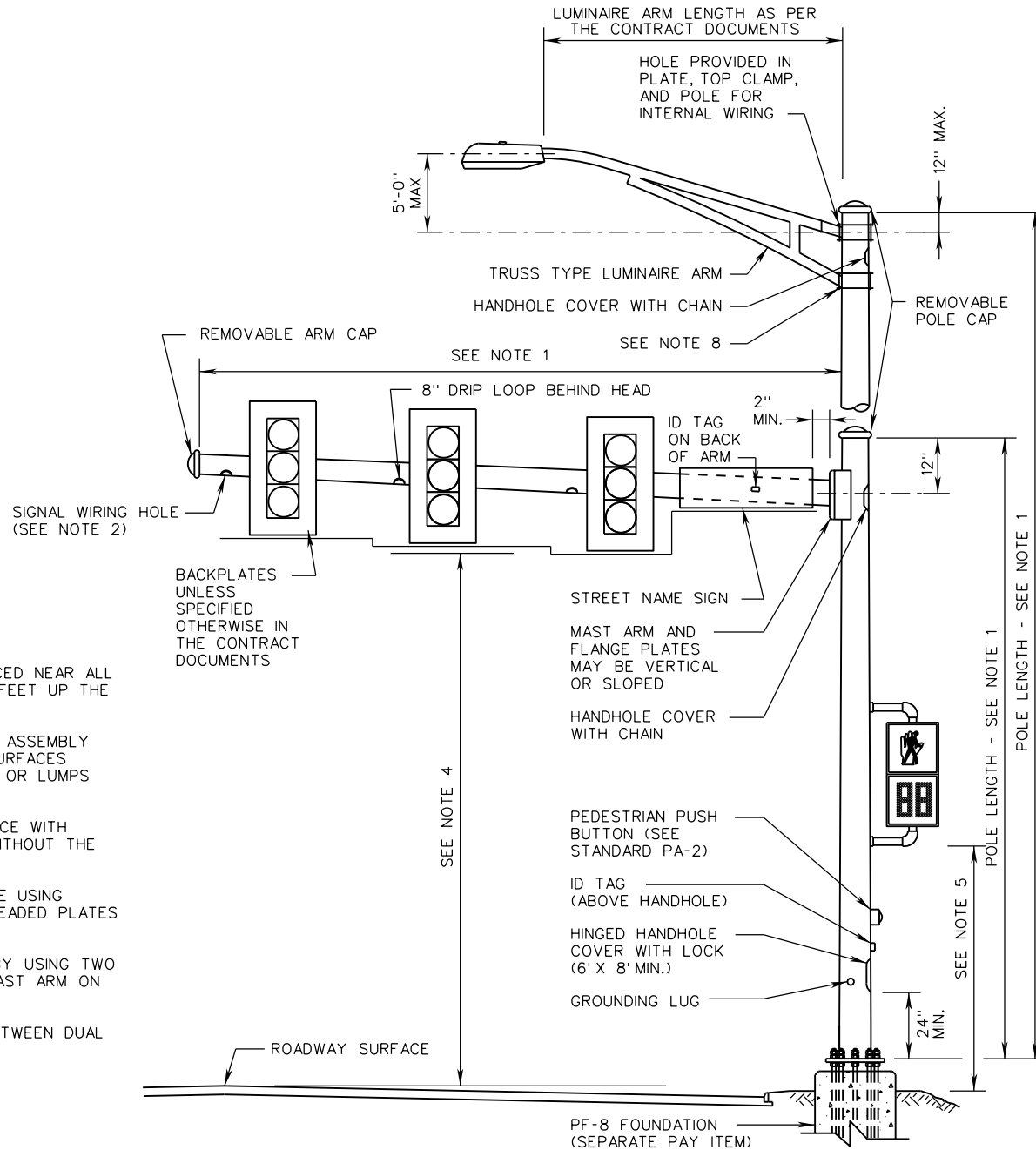
SPECIFICATION REFERENCE
700

SIGNAL POLE DETAILS
STRAIN AND COMBINATION LUMINAIRE STRAIN POLE
 VIRGINIA DEPARTMENT OF TRANSPORTATION

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NOTES:

1. AS REQUIRED BY THE SPECIFICATIONS.
2. SIGNAL WIRING HOLE SHALL BE LOCATED ON THE BOTTOM OF THE ARM DIRECTLY BEHIND THE HANGER ASSEMBLY WHEN STANDARD SM-3 HANGER ASSEMBLIES ARE REQUIRED. SIGNAL WIRING SHALL BE CONCEALED IN THE STANDARD SM-3 HANGER ASSEMBLIES.
3. THE ALIGNMENT OF THE LUMINAIRE ARM SHALL BE AS SHOWN IN THE CONTRACT DOCUMENTS.
4. AFTER THE LOADS ARE APPLIED, THE VERTICAL CLEARANCE FROM THE HIGHEST POINT OF THE PAVEMENT SURFACE SHALL BE:
 - A. 16' MINIMUM (15' MINIMUM FOR MAINTENANCE ACTIVITIES) TO THE LOWEST POINT OF THE SIGNAL HEAD ASSEMBLIES (INCLUDING BACKPLATES) AND SIGNS.
 - B. 25' MAXIMUM TO THE TOPS OF THE SIGNAL HOUSINGS.
5. THE MOUNTING HEIGHT FROM THE PEDESTRIAN PATH (OR THE HIGHEST POINT OF THE PAVEMENT SURFACE IF THERE IS NO PEDESTRIAN PATH) TO THE LOWEST POINT OF THE SIGNAL HOUSING (INCLUDING BRACKETS AND BACKPLATE) SHALL BE AS PER THE CONTRACT DOCUMENTS.
6. A "J" HOOK FOR WIRE SUPPORT SHALL BE PLACED NEAR ALL HANDHOLES THAT ARE LOCATED MORE THAN 4 FEET UP THE STRUCTURE.
7. MAST ARMS MAY BE SPLICED. IF SPLICED, FIELD ASSEMBLY SHALL ACHIEVE A SNUG TIGHT JOINT. MATING SURFACES SHALL BE SMOOTH AND FREE OF BURRS, DENTS, OR LUMPS OF ZINC.
8. POLE CLAMP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS WITHOUT THE USE OF SPACERS OR SHIMS.
9. MAST ARMS SHALL BE CONNECTED TO THE POLE USING THRU-BOLTS. NEITHER WELDED STUDS NOR THREADED PLATES WILL BE ALLOWED.
10. DUAL MAST ARM CONNECTIONS MAY BE MADE BY USING TWO SINGLE ARM CONNECTIONS WITH THE LONGER MAST ARM ON THE BOTTOM.
11. SEE THE CONTRACT DOCUMENTS FOR ANGLE BETWEEN DUAL MAST ARMS.



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SIGNAL POLE DETAILS











MAST ARM AND COMBINATION LUMINAIRE MAST ARM POLE


VIRGINIA DEPARTMENT OF TRANSPORTATION

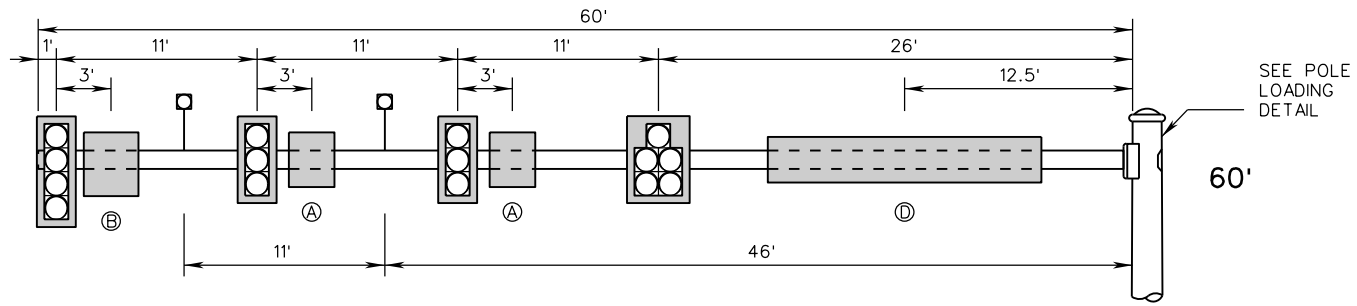
SPECIFICATION REFERENCE
700

NOTES:

1. THESE LOADING REQUIREMENTS SHALL BE USED FOR THE DESIGN OF ALL NEW MAST ARM STRUCTURES, EXCEPT IN THE FOLLOWING SITUATIONS WHERE THE STRUCTURE SHALL REQUIRE A PROJECT-SPECIFIC DESIGN:
 - THE WIND LOADS OR DEAD LOADS ON THE MAST ARM STRUCTURE SPECIFIED ON THE PLANS WILL EXCEED WHAT IS SHOWN ON THIS STANDARD FOR THE PROPOSED ARM LENGTH.
 - THE STRUCTURE IS A DUAL ARM STRUCTURE WHERE THE ARMS ARE NOT AT 90 DEGREES TO EACH OTHER.
2. EMERGENCY VEHICLE PREEMPTION DEVICES, PEDESTRIAN PUSH BUTTONS, AND ANTENNAE SHALL BE CONSIDERED TO HAVE NEGLIGIBLE WEIGHT AND SURFACE AREA FOR THE PURPOSES OF STRUCTURAL DESIGN OF THE MAST ARM POLES AND FOUNDATIONS.
3. FOR DUAL MAST ARM STRUCTURES WITH TWO ARMS AT 90 DEGREES TO EACH OTHER, THE POLE AND FOUNDATION SHALL BE DESIGNED FOR THE WORST-CASE DEAD LOAD AND WIND LOAD CONDITIONS FROM EITHER ARM.
4. FOR THE PURPOSES OF WIND LOAD ANALYSIS, ALL LOADS SHALL BE TREATED AS IF THEY ARE POINTED IN THE SAME DIRECTION (FACING WIND). THERE SHALL BE NO DEDUCTIONS FOR DEVICES MOUNTED AT ANGLES.
5. THE AREAS PROVIDED DO NOT TAKE INTO ACCOUNT THE WIND DRAG COEFFICIENT.
6. UNLESS SPECIFIED OTHERWISE IN THE CONTRACT DOCUMENTS, EQUIPMENT LOADS AND SIZES SHOWN IN THIS STANDARD SHALL BE USED FOR THE STRUCTURE AND FOUNDATION DESIGN, EVEN IF LIGHTER LOADS OR SMALLER EQUIPMENT SIZES ARE PROPOSED.

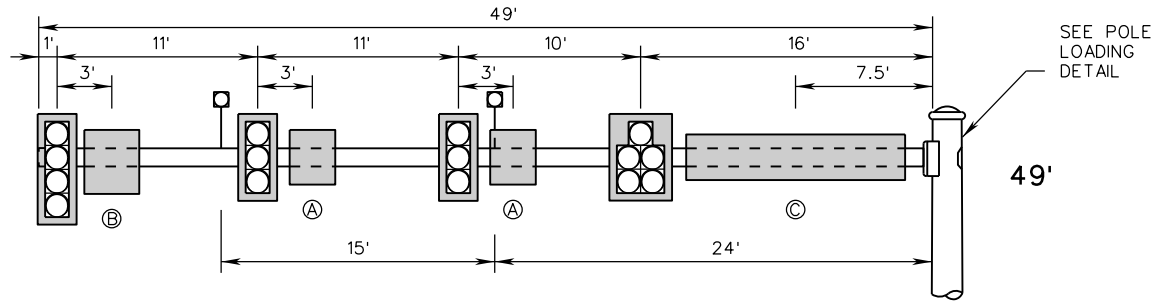
DEVICE		SURFACE AREA (SEE NOTES 5 & 6)	DEAD LOAD (SEE NOTE 6)
	3-SECTION SIGNAL HEAD W/ BACKPLATE	8.7 SF	65 LBS
	4-SECTION SIGNAL HEAD W/ BACKPLATE	11.0 SF	80 LBS
	5-SECTION SIGNAL HEAD W/ BACKPLATE (IN-LINE)	13.4 SF	95 LBS
	5-SECTION SIGNAL HEAD W/ BACKPLATE (DOGHOUSE/CLUSTER)	13.75 SF	105 LBS
	SP-9 PEDESTRIAN SIGNAL HEAD	2.4 SF	30 LBS
Ⓐ 	30" x 36" SIGN	7.5 SF	22.5 LBS
Ⓑ 	36" x 42" SIGN	10.5 SF	26.7 LBS
Ⓒ 	12' x 2.5' STREET NAME SIGN	30 SF	66 LBS
Ⓓ 	15' x 2.5' STREET NAME SIGN	37.5 SF	88.5 LBS
	VIDEO CAMERA	1.00 SF	22 LBS

SPECIFICATION REFERENCE 700	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE. <h2 style="margin: 0;">SIGNAL POLE DETAILS</h2> <h3 style="margin: 0;">MAST ARM SIGNAL POLE MAXIMUM LOADING STANDARDS</h3> VIRGINIA DEPARTMENT OF TRANSPORTATION	 ROAD AND BRIDGE STANDARDS REVISION DATE: NEW 02/16 SHEET 2 OF 4 1302.25
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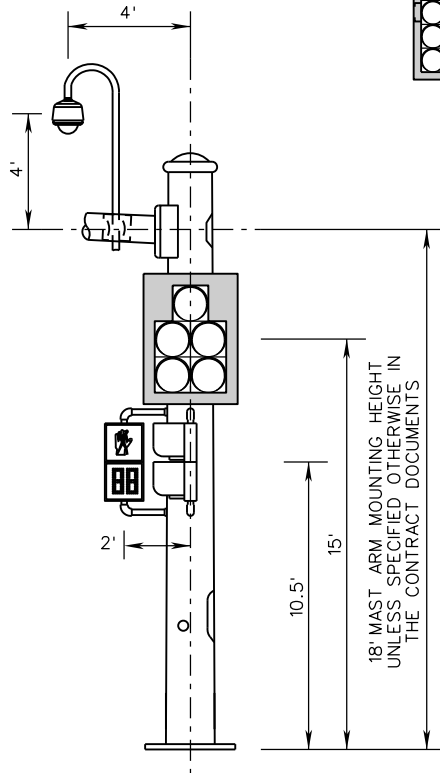
SEE POLE
LOADING
DETAIL

60'



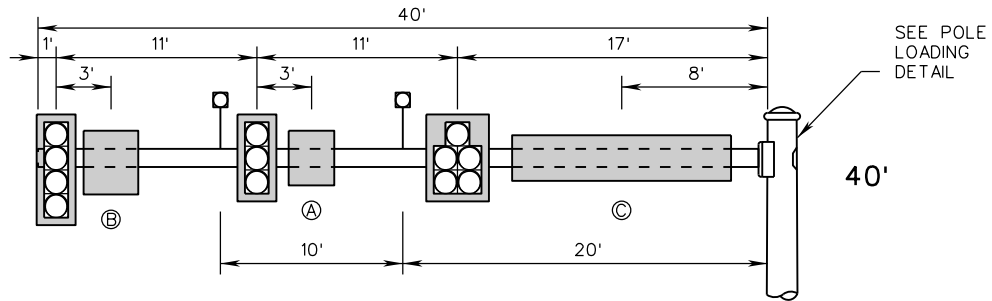
SEE POLE
LOADING
DETAIL

49'



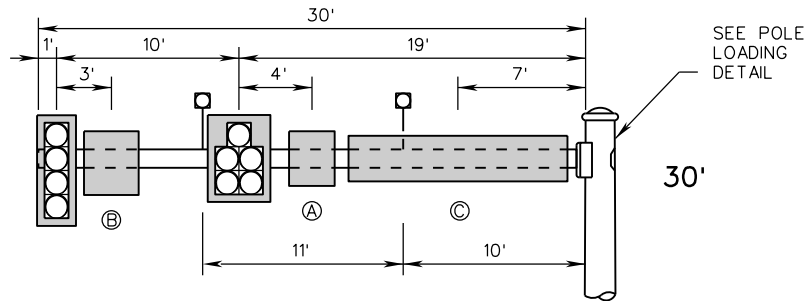
POLE LOADING DETAIL

18' MAST ARM MOUNTING HEIGHT
UNLESS SPECIFIED OTHERWISE IN
THE CONTRACT DOCUMENTS



SEE POLE
LOADING
DETAIL

40'



SEE POLE
LOADING
DETAIL

30'

NOTES:

SEE SHEET 2 FOR NOTES.



ROAD AND BRIDGE STANDARDS

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

SIGNAL POLE DETAILS

MAST ARM SIGNAL POLE MAXIMUM LOADING STANDARDS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

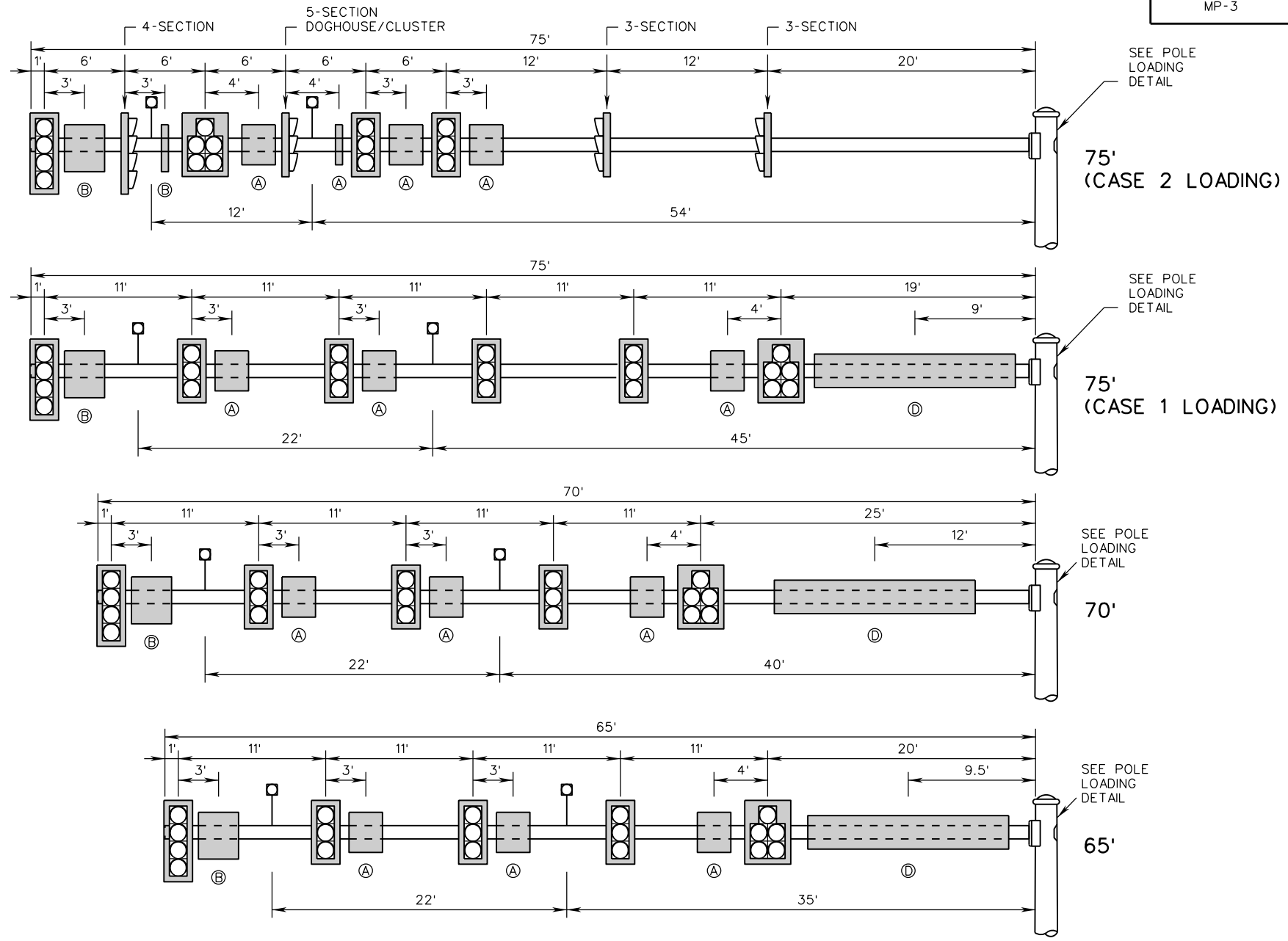
700

SHEET 3 OF 4

REVISION DATE

1302.26

NEW 02/16



NOTES:
SEE SHEET 2 FOR NOTES.

SPECIFICATION REFERENCE
700

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SIGNAL POLE DETAILS

MAST ARM SIGNAL POLE MAXIMUM LOADING STANDARDS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 4 OF 4
NEW 02/16	1302.27

NOTES:

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 $\frac{1}{4}$ " DEEP AND 4" TO 6" LONG.

WHEN FOUNDATION EXTENDS 2" ABOVE FINISHED GRADE, ALL EDGES SHALL BE CHAMFERED $\frac{3}{4}$ ".

GROUNDING BUSHINGS SHALL BE INSTALLED ON EACH END OF METAL CONDUITS.

EMPTY CONDUITS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.

BELL ENDS SHALL BE INSTALLED ON EACH END OF PVC CONDUITS.

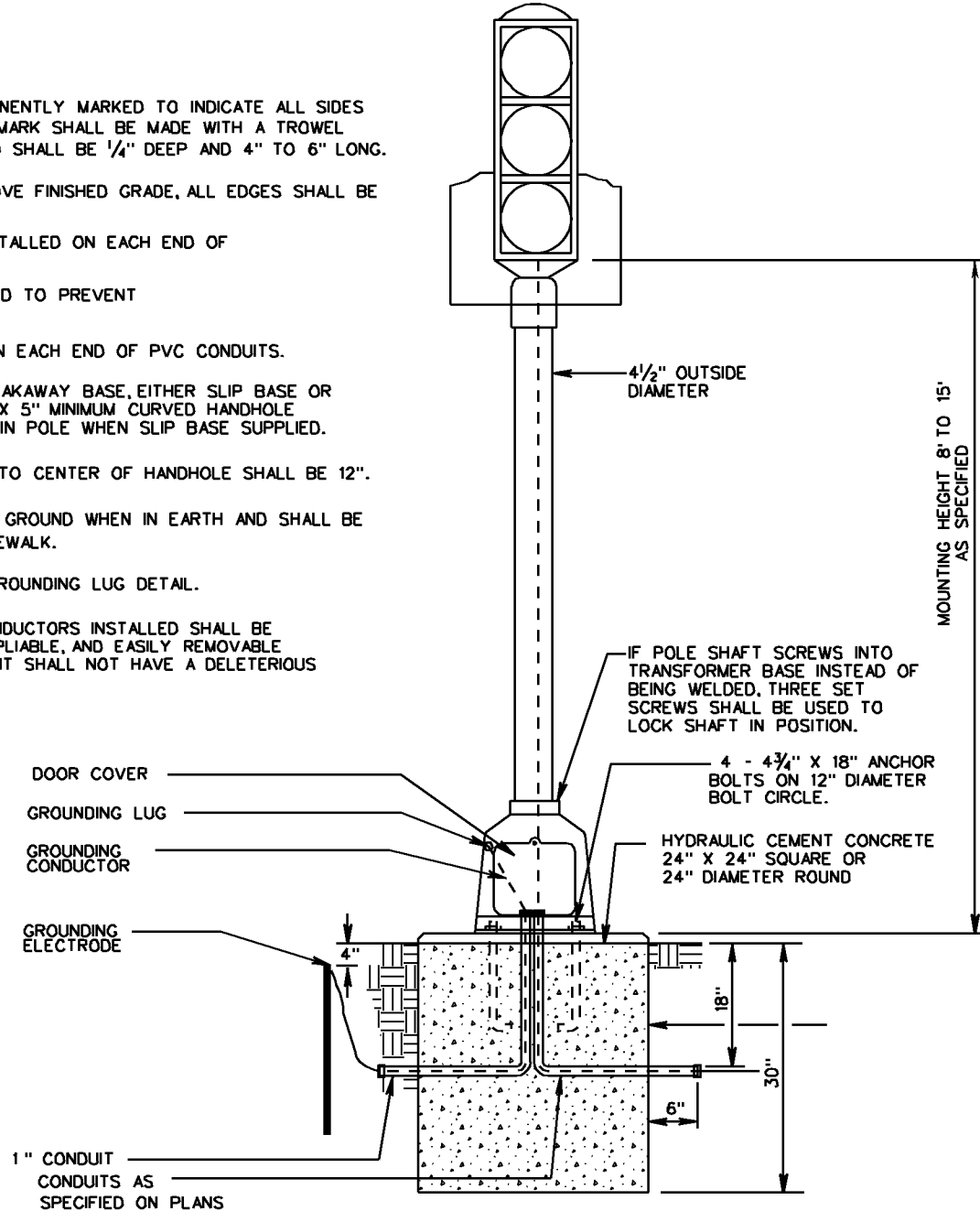
PEDESTAL POLE SHALL HAVE A BREAKAWAY BASE, EITHER SLIP BASE OR FRANGIBLE TRANSFORMER TYPE, 3" X 5" MINIMUM CURVED HANDHOLE WITH FRAME AND COVER REQUIRED IN POLE WHEN SLIP BASE SUPPLIED.

DISTANCE FROM BOTTOM OF POLE TO CENTER OF HANDHOLE SHALL BE 12".

FOUNDATION TO EXTEND 2" ABOVE GROUND WHEN IN EARTH AND SHALL BE FLUSH WITH SURFACE WHEN IN SIDEWALK.

REFER TO STANDARD MP-2 FOR GROUNDING LUG DETAIL.

OPEN ENDS OF CONDUITS WITH CONDUCTORS INSTALLED SHALL BE SEALED WITH AN APPROVED SOFT, PLIABLE, AND EASILY REMOVABLE WATERPROOF SEALANT. THE SEALANT SHALL NOT HAVE A DELETERIOUS EFFECT ON CABLE COVERINGS.

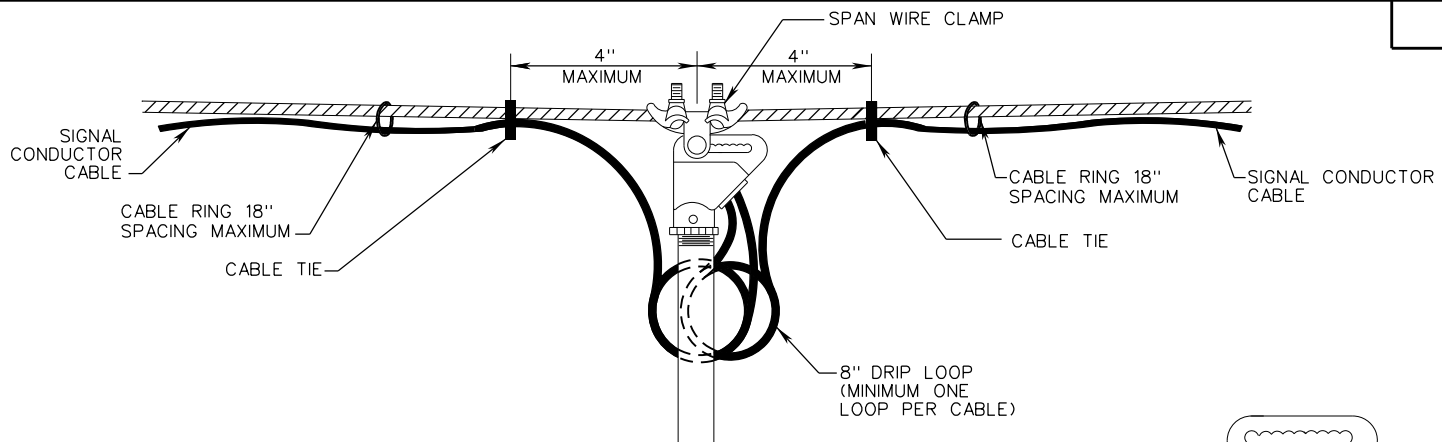


VDOT	
ROAD AND BRIDGE STANDARDS	
SHEET 1 OF 1	REVISION DATE
1302.30	06-15-2009

PEDESTAL POLE AND FOUNDATION DETAILS

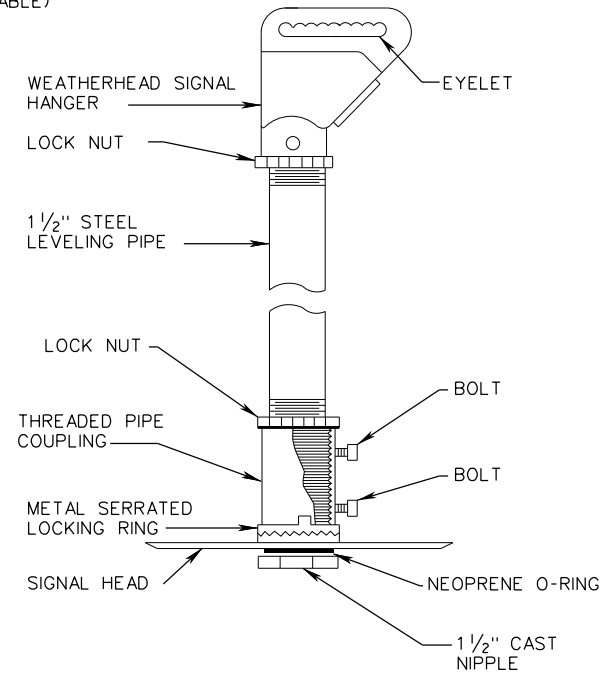
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
700



AN APPROVED WATERPROOF SILICONE SEALANT SHALL BE APPLIED TO THE THREAD AREA ABOVE THE PIPE COUPLING BEFORE THE LOCK NUT IS TIGHTENED

AN APPROVED WATERPROOF SILICONE SEALANT SHALL BE APPLIED ON THE CONNECTION BETWEEN THE HANGER ASSEMBLY AND SIGNAL HEAD ASSEMBLY



HANGER ASSEMBLY DETAIL

NOTES:

1. SIGNAL HEADS AND SIGNS MOUNTED ON THE SAME SPAN WIRE SHALL BE INSTALLED ON A LEVEL PLANE WITHIN THE HEIGHT CLEARANCE REQUIREMENT IN TA-1.
2. CONDUCTOR CABLES SHALL BE CONTINUOUS FROM THE CABINET TO THE NEAREST SIGNAL HEAD TO WHICH IT APPLIES EXCEPT CABLE TERMINATIONS MAY BE ALLOWED ON THE POLE TERMINAL STRIP WHEN REQUIRED BY THE CONTRACT DOCUMENTS. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL SIGNAL HEADS WITH TERMINATION ON THE TERMINALS WITHIN THE SIGNAL HEAD HOUSING.
3. SPACERS SHALL BE INSTALLED BETWEEN THE EYELET OF THE HANGER ASSEMBLY AND THE INSIDE OF THE SPAN WIRE CLAMP TO ELIMINATE ANY GAP.
4. BACKPLATES INTENTIONALLY NOT SHOWN SO EQUIPMENT DETAIL COULD BE SHOWN MORE CLEARLY.
5. SEE TA-1 FOR TETHER WIRE AND CLAMP DETAILS.

SPECIFICATION REFERENCE
703

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SIGNAL HEAD MOUNTING DETAILS

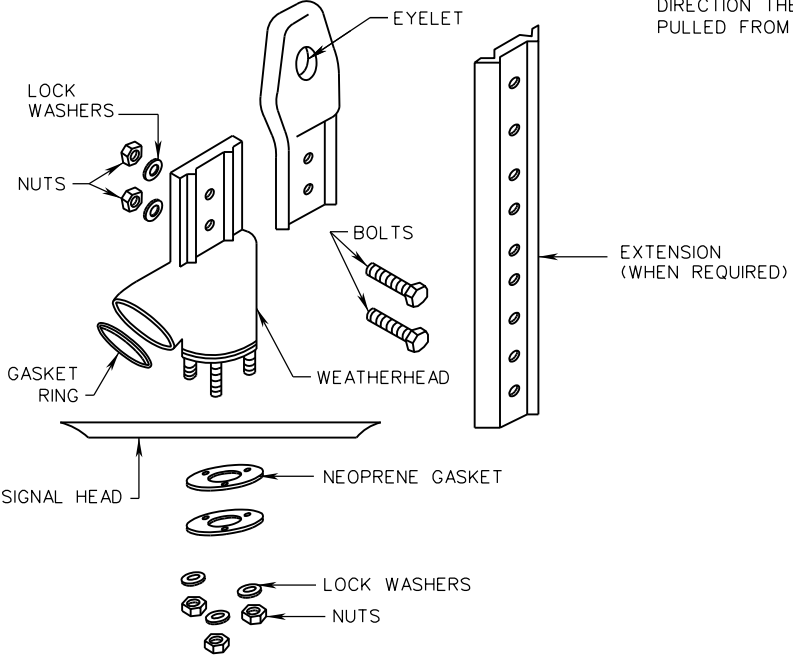
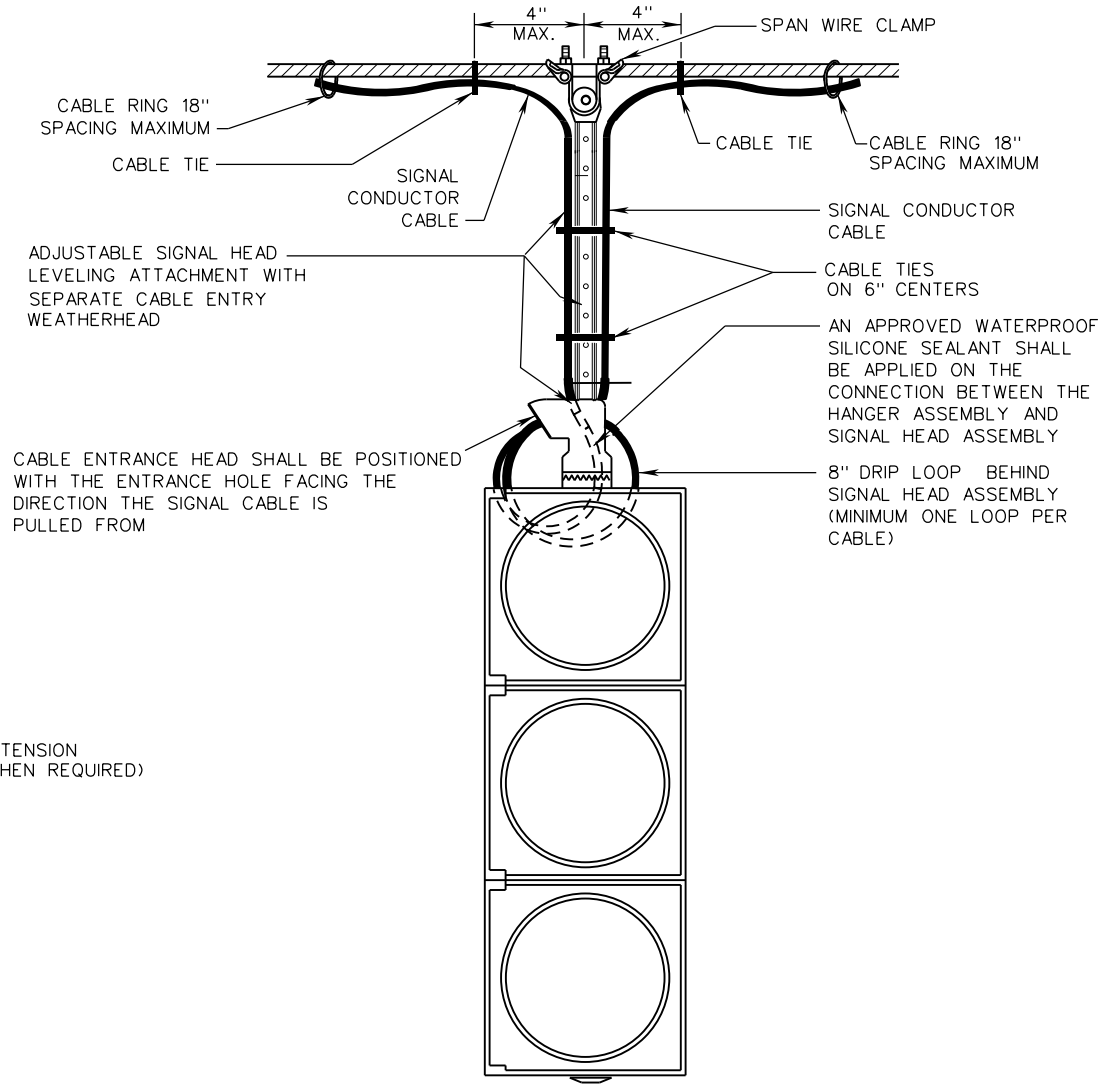
SPAN WIRE

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 1
02/16	1303.10

NOTES:

1. SIGNAL HEADS AND SIGNS MOUNTED ON THE SAME SPAN WIRE SHALL BE INSTALLED ON A LEVEL PLANE WITHIN THE HEIGHT CLEARANCE REQUIREMENT IN TA-1.
2. CONDUCTOR CABLES SHALL BE CONTINUOUS FROM THE CABINET TO THE NEAREST SIGNAL HEAD TO WHICH IT APPLIES EXCEPT CABLE TERMINATIONS MAY BE ALLOWED ON THE POLE TERMINAL STRIP WHEN REQUIRED BY THE CONTRACT DOCUMENTS. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL SIGNAL HEADS WITH TERMINATION ON THE TERMINALS WITHIN THE SIGNAL HEAD HOUSING.
3. SPACERS SHALL BE INSTALLED BETWEEN THE EYELET OF THE HANGER ASSEMBLY AND THE INSIDE OF THE SPAN WIRE CLAMP TO ELIMINATE ANY GAP.
4. BACKPLATES INTENTIONALLY NOT SHOWN SO EQUIPMENT DETAIL COULD BE SHOWN MORE CLEARLY.
5. SEE TA-1 FOR TETHER WIRE AND CLAMP DETAILS.



HANGER ASSEMBLY DETAILS

VDOT	
ROAD AND BRIDGE STANDARDS	
SHEET 1 OF 1	REVISION DATE
1303.20	02/16

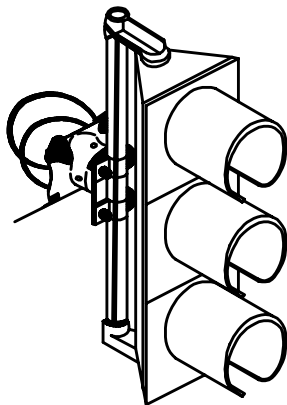
A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

SIGNAL HEAD MOUNTING DETAILS

SPAN WIRE

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
703

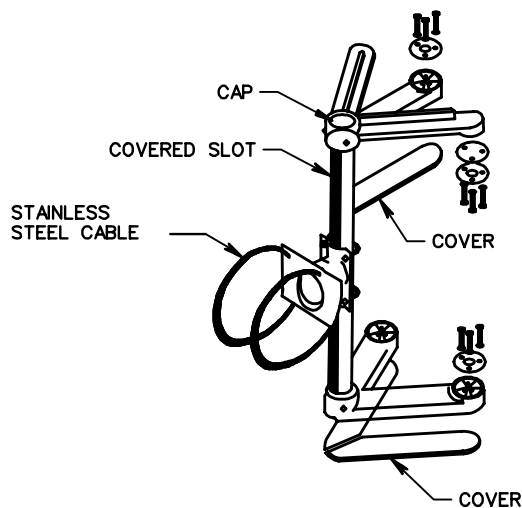


NOTES:

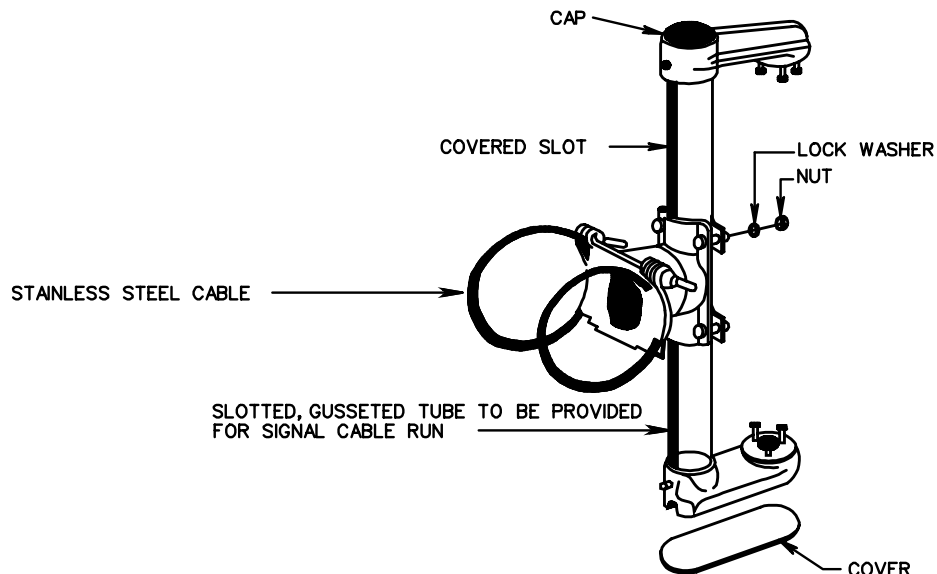
SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH IT APPLIES EXCEPT CABLE TERMINATIONS MAY BE ALLOWED ON THE POLE TERMINAL STRIP WHEN REQUIRED BY THE PLANS. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION ON THE TERMINALS WITHIN THE SIGNAL HEAD HOUSING.

**POLE AND HANGER ASSEMBLY
HARDWARE REQUIREMENTS**

POLE TYPE	HARDWARE TYPE
GALVANIZED STEEL	ALUMINUM OR GALVANIZED IRON
STEEL PAINTED ALUMINUM	ALUMINUM, GALVANIZED IRON OR IRON PAINTED ALUMINUM
STEEL PAINTED OTHER THAN ALUMINUM	ALUMINUM OR IRON PAINTED TO MATCH POLE



**5 SECTION CLUSTER
MOUNTING DETAIL**



RIGID MAST ARM MOUNTING DETAILS

SPECIFICATION
REFERENCE

703

SIGNAL HEAD MOUNTING DETAILS

MAST ARM

VIRGINIA DEPARTMENT OF TRANSPORTATION

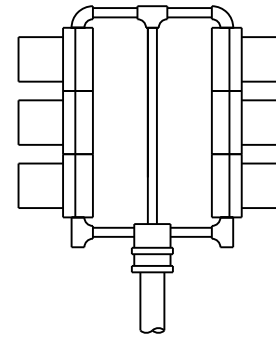
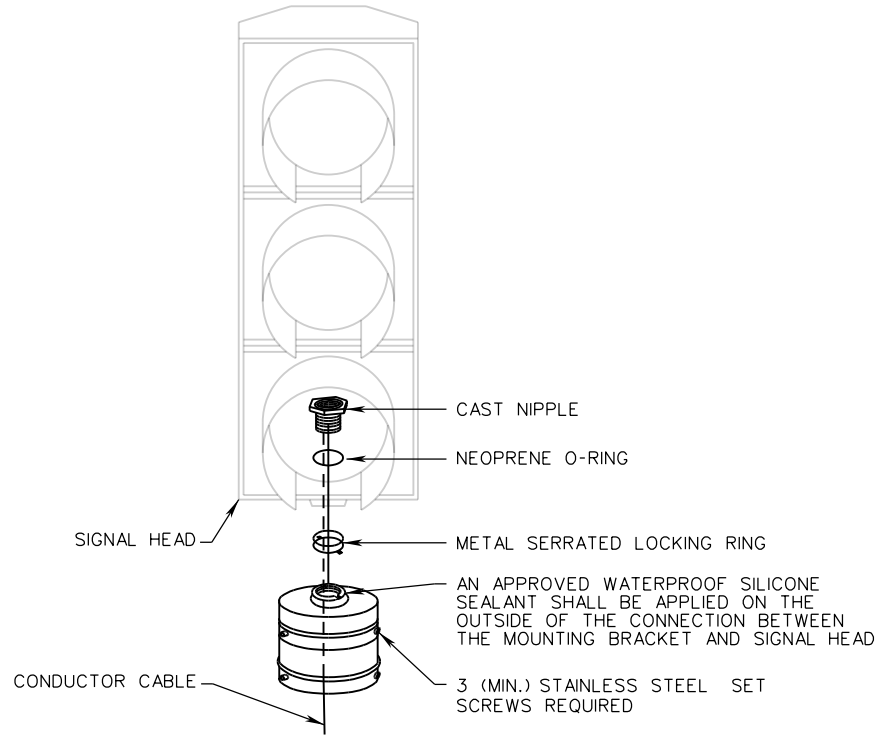
VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

1303.30



MULTI-WAY MOUNTING
DETAIL

4 1/2" POLE ADAPTOR FOR PF-2 PEDESTAL

**POLE TOP MOUNTING CAST ALUMINUM
SIGNAL HEADS ONLY**

NOTES:

1. IF PEDESTRIAN SIGNAL HEADS ARE BEING INSTALLED, THE MOUNTING ATTACHMENTS SHALL BE A TYPE SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
2. MOUNTING BRACKETS SHOWN ARE TYPICAL AND FOR ONE-WAY AND MULTI-WAY SIGNAL DISPLAYS.
3. BACKPLATES INTENTIONALLY NOT SHOWN SO EQUIPMENT DETAIL COULD BE SHOWN MORE CLEARLY.
4. SIGNAL HEADS MAY BE MOUNTED USING TRI-STUD ASSEMBLIES INSTEAD OF THE CAST NIPPLE ASSEMBLIES.

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SIGNAL HEAD MOUNTING DETAILS

POLE TOP

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

703



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

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VIRGINIA DEPARTMENT OF TRANSPORTATION

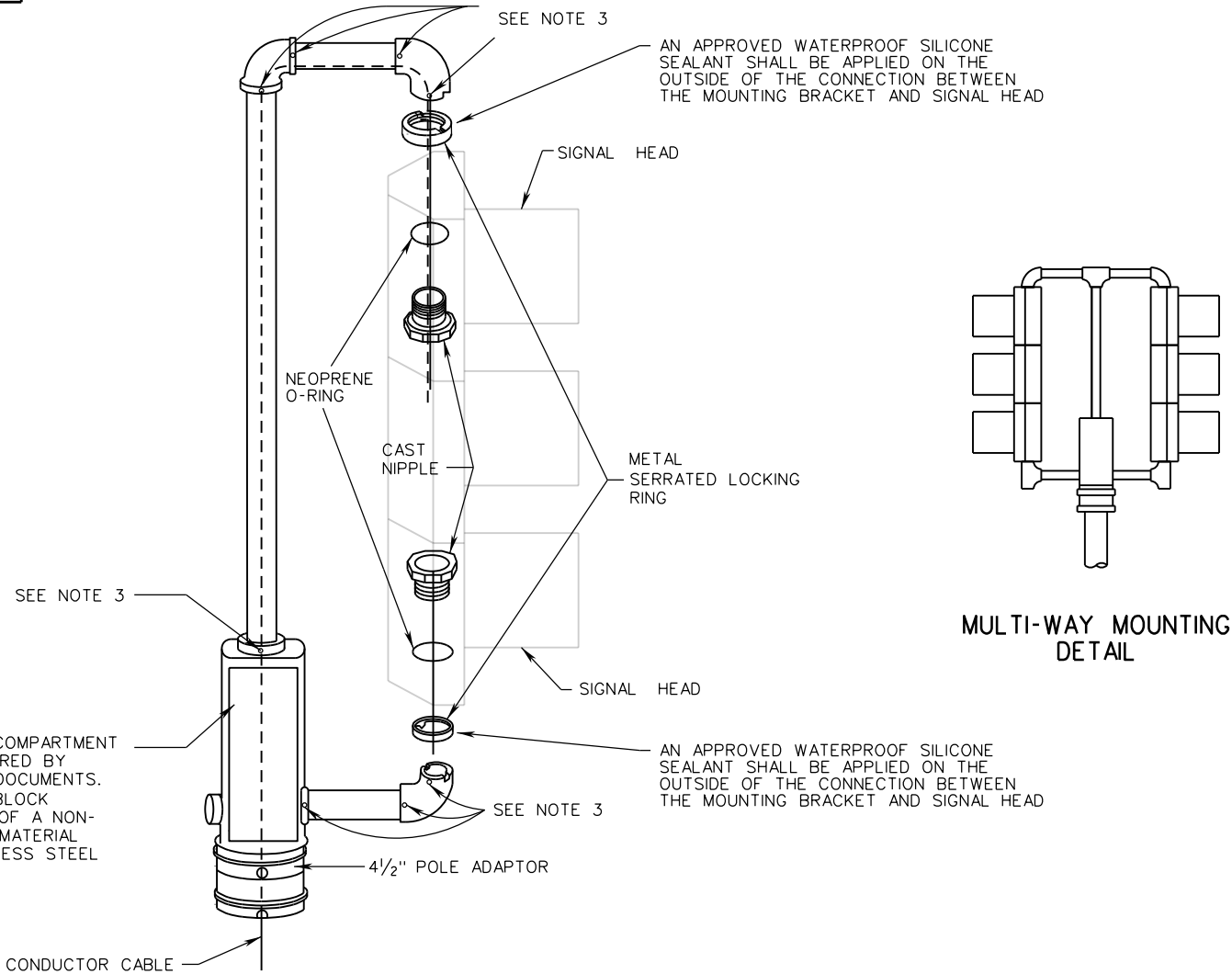


ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

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**POLE TOP MOUNTING CAST ALUMINUM
OR POLYCARBONATE SIGNAL HEADS**

NOTES:

1. IF PEDESTRIAN SIGNAL HEADS ARE BEING INSTALLED, THE MOUNTING ATTACHMENTS SHALL BE A TYPE SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
2. MOUNTING BRACKETS SHOWN ARE TYPICAL AND FOR ONE-WAY AND MULTI-WAY SIGNAL DISPLAYS.
3. SET SCREWS SHALL BE STAINLESS STEEL.
4. SIGNAL HEADS MAY BE MOUNTED USING TRI-STUD ASSEMBLIES INSTEAD OF THE CAST NIPPLE ASSEMBLIES.

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

SIGNAL HEAD MOUNTING DETAILS
POLE TOP WITH TERMINAL COMPARTMENT AND BRACKET

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

703



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

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NEW 02/16

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VIRGINIA DEPARTMENT OF TRANSPORTATION

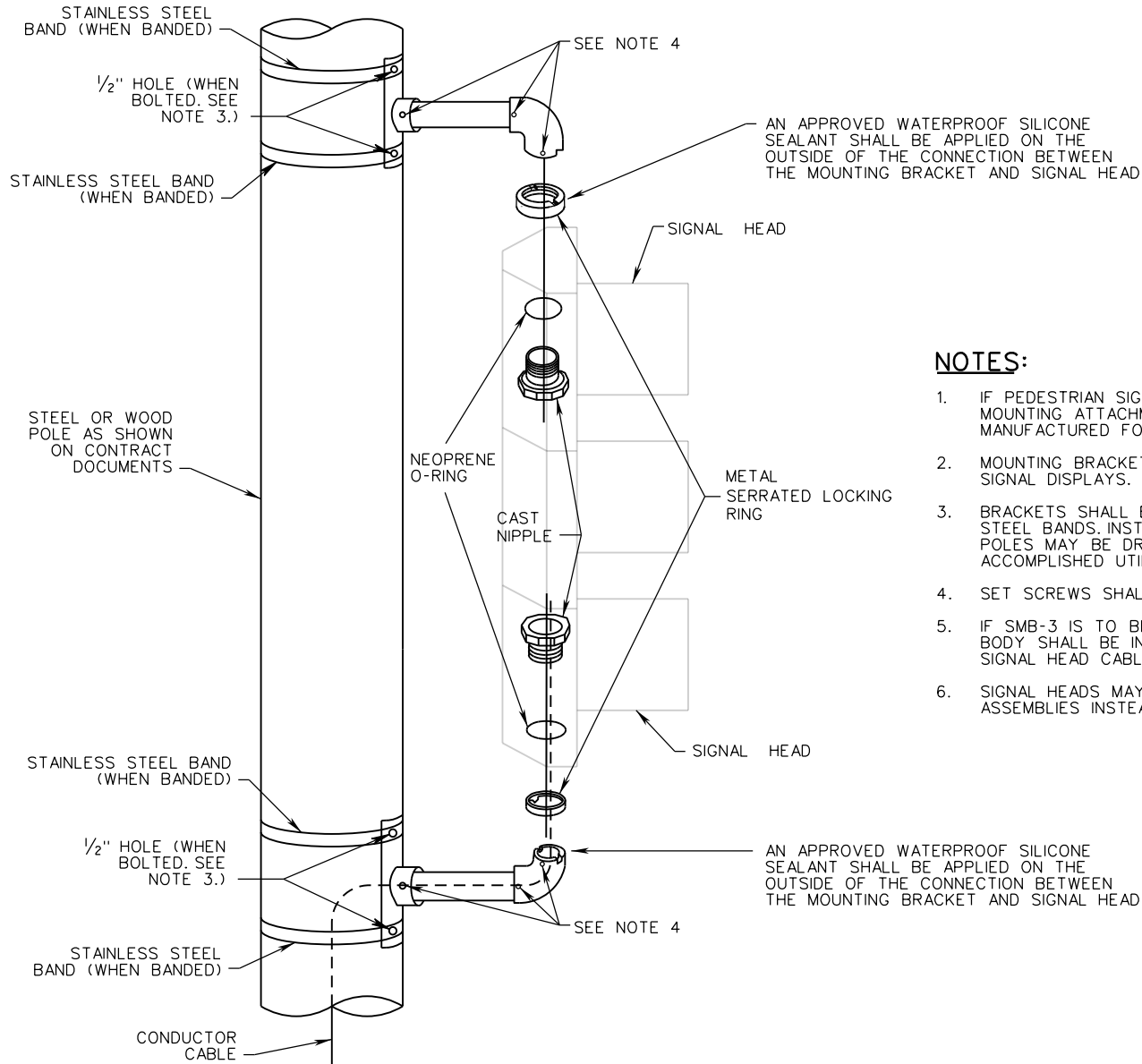


ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

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NOTES:

1. IF PEDESTRIAN SIGNAL HEADS ARE BEING INSTALLED, THE MOUNTING ATTACHMENTS SHALL BE A TYPE SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
2. MOUNTING BRACKET SHOWN IS TYPICAL AND FOR ONE-WAY SIGNAL DISPLAYS.
3. BRACKETS SHALL BE MOUNTED TO POLE WITH STAINLESS STEEL BANDS. INSTEAD OF STAINLESS STEEL BANDS, STEEL POLES MAY BE DRILLED AND TAPPED AND MOUNTING ACCOMPLISHED UTILIZING 1/2" STAINLESS STEEL BOLTS.
4. SET SCREWS SHALL BE STAINLESS STEEL.
5. IF SMB-3 IS TO BE MOUNTED ON WOOD POLE A CONDUIT BODY SHALL BE INSTALLED IN BRACKET ARM TO CONNECT SIGNAL HEAD CABLE CONDUIT.
6. SIGNAL HEADS MAY BE MOUNTED USING TRI-STUD ASSEMBLIES INSTEAD OF THE CAST NIPPLE ASSEMBLIES.

**POLE BRACKET MOUNTING CAST ALUMINUM
OR POLYCARBONATE SIGNAL HEADS**

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SIGNAL HEAD MOUNTING DETAILS

POLE SIDE MOUNTING BRACKET

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

703



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

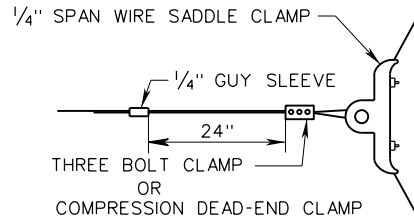
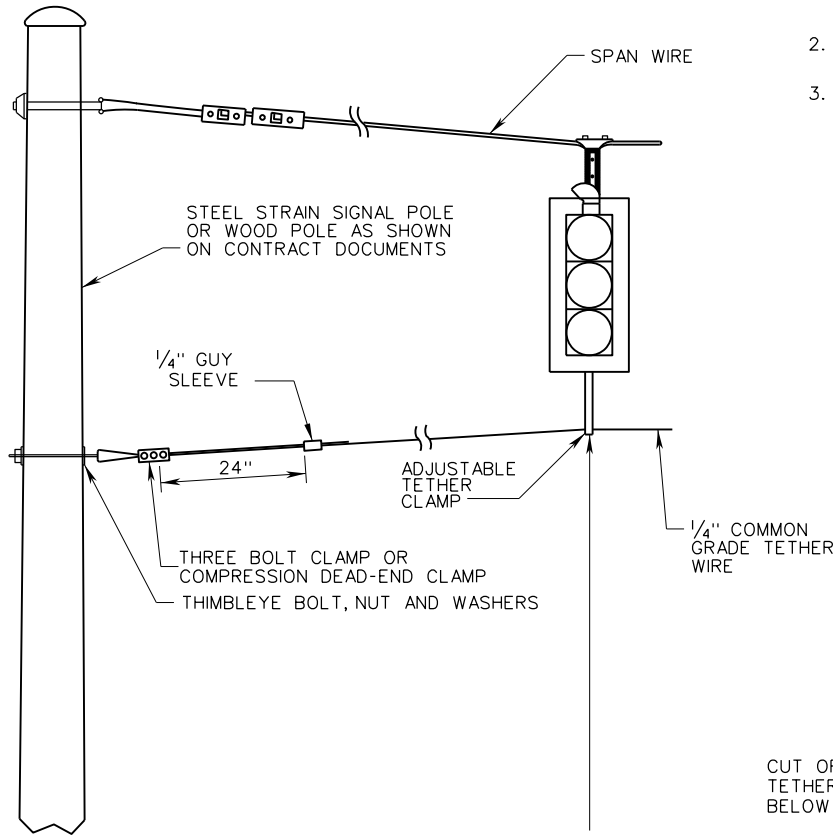
REVISION DATE

1303.42

NEW 02/16

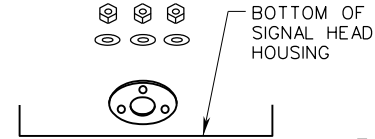
NOTES:

1. WIRING AND RIGGING SHALL BE IN ACCORDANCE WITH STANDARD WD-1 AND WD-2.
2. REFER TO STANDARD SMD-1 FOR SIGN PANEL ATTACHMENT DETAIL.
3. AFTER THE LOADS ARE APPLIED, THE VERTICAL CLEARANCE FROM THE HIGHEST POINT OF THE PAVEMENT SURFACE SHALL BE:
 - A. 16' MINIMUM (15' MINIMUM FOR MAINTENANCE ACTIVITIES) TO THE LOWEST POINT OF THE SIGNAL HEAD ASSEMBLY (INCLUDING BACKPLATE) AND SIGNS.
 - B. 25' MAXIMUM TO THE TOP OF THE SIGNAL HOUSING.

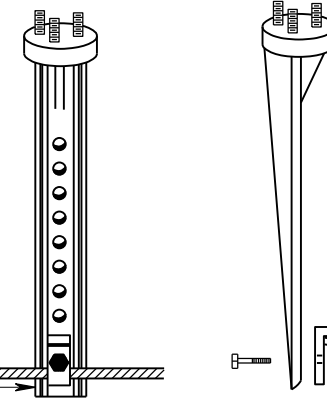


BRIDLE SPAN ATTACHMENT

SEE NOTE 3



BOTTOM OF SIGNAL HEAD HOUSING

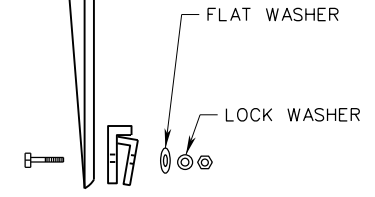


FRONT VIEW

SIDE VIEW

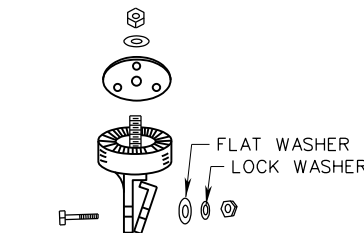
ADJUSTABLE TETHER CLAMP

CUT OFF EXCESS TETHER STEM 3/4" BELOW CLAMP.



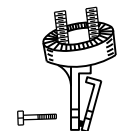
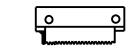
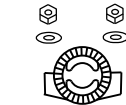
FLAT WASHER

LOCK WASHER



FLAT WASHER
LOCK WASHER

TETHER CLAMP



FLAT WASHER
LOCK WASHER

FIVE-SECTION HEAD CLUSTER TETHER CLAMP

SPECIFICATION REFERENCE

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TETHER WIRE DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

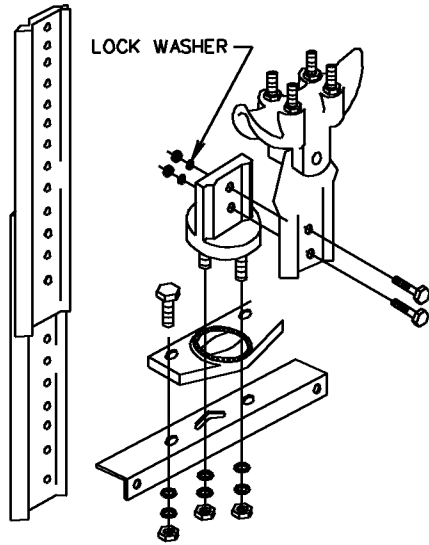
02/16

SHEET 1 OF 1

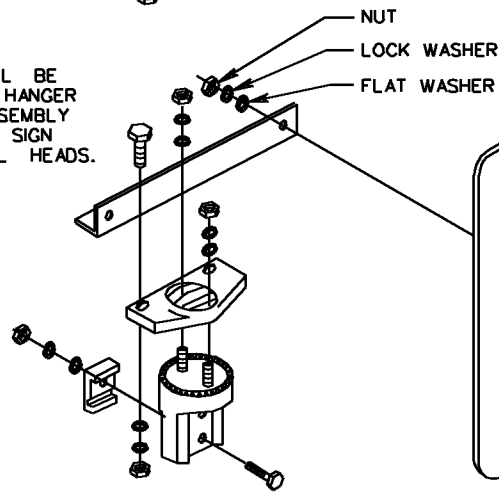
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SPAN WIRE INSTALLATION

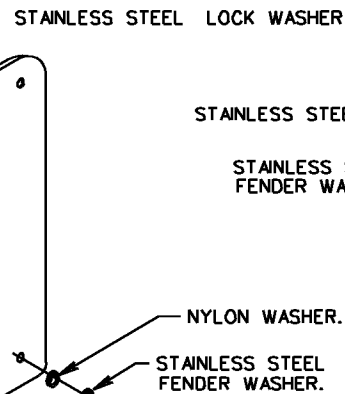
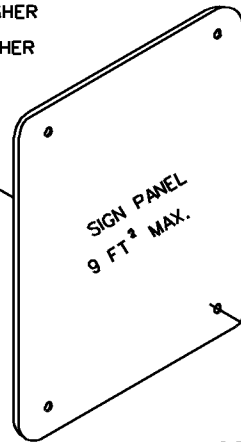
MAST ARM INSTALLATION



EXTENSION SHALL BE USED WITH THE HANGER AND TETHER ASSEMBLY TO CENTER THE SIGN WITH THE SIGNAL HEADS.



SMD-1



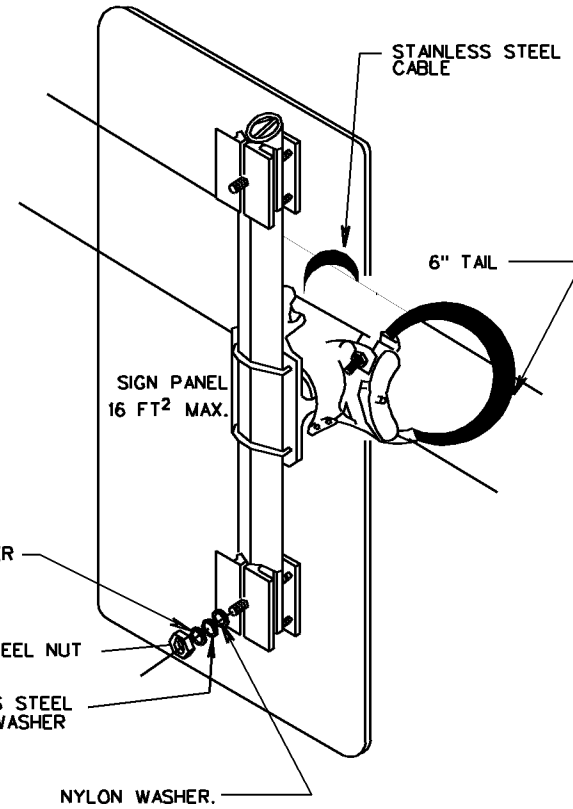
NOTES:

NUTS AND BOLTS USED FOR ATTACHMENT OF SIGN PANEL SHALL BE STAINLESS STEEL AND 3/4" IN DIAMETER.

A 1 1/4" NYLON AND STAINLESS STEEL FENDER WASHER SHALL BE USED ON THE FRONT OF SIGN PANEL WHERE BOLT PASSES THROUGH SIGN PANEL.

ALL NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL OR GALVANIZED STEEL UNLESS OTHERWISE INDICATED

SPACERS SHALL BE INSTALLED BETWEEN THE EYELET OF THE SIGN HANGAR AND THE SPAN WIRE CLAMP TO ELIMINATE ANY GAP.



SMD-2



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

1305.10

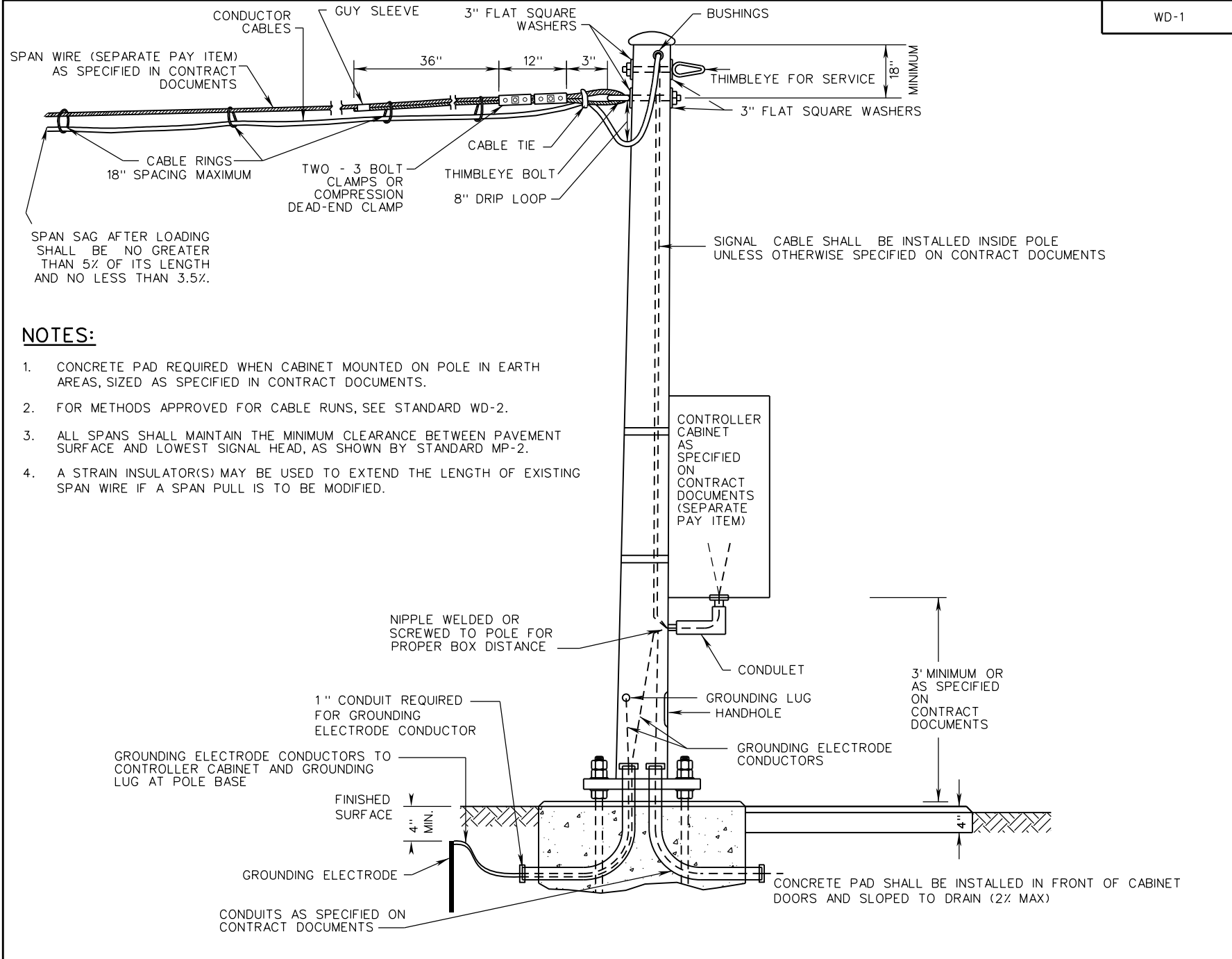
06-15-2009

SIGN MOUNTING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

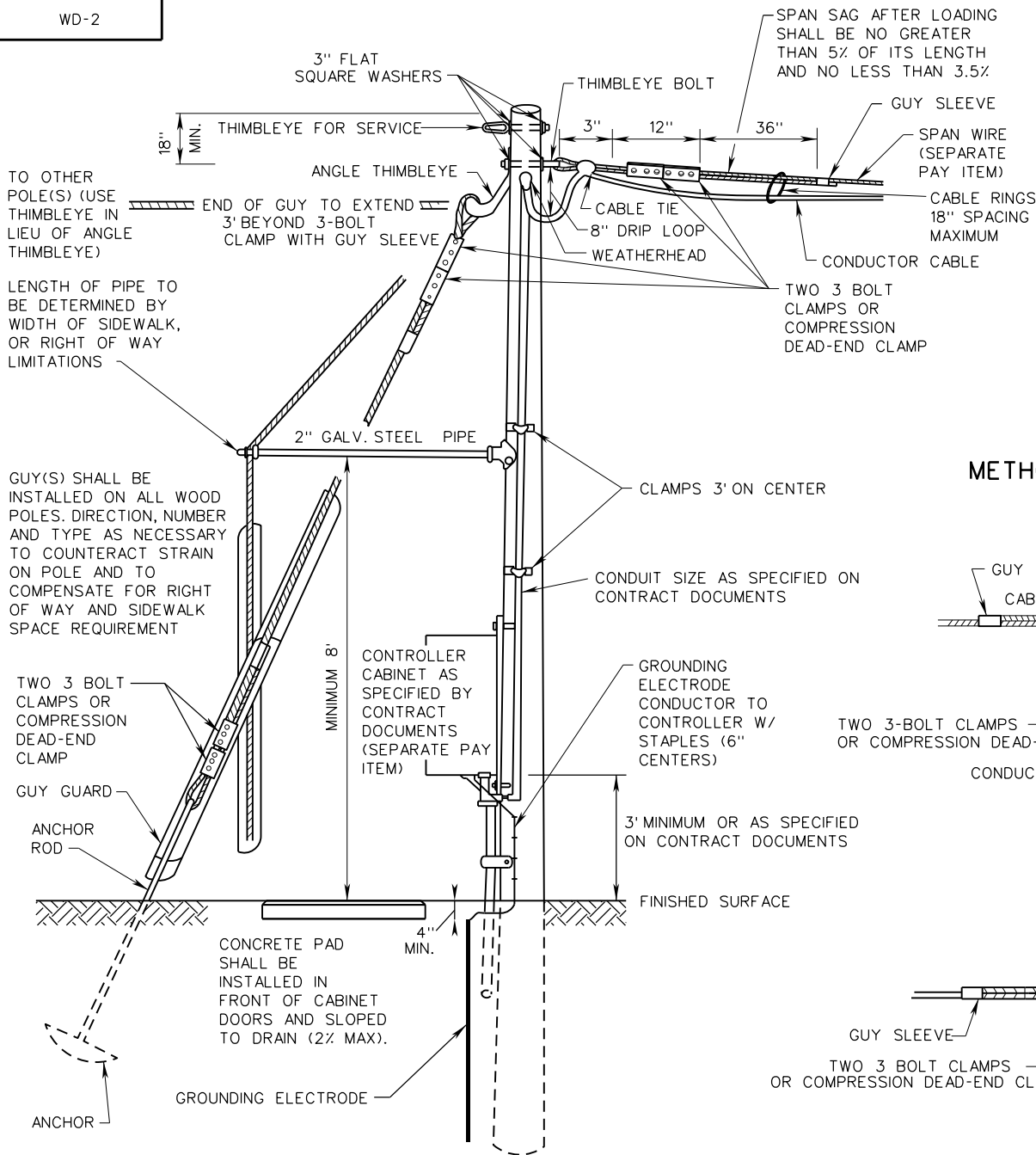
703



NOTES:

1. CONCRETE PAD REQUIRED WHEN CABINET MOUNTED ON POLE IN EARTH AREAS, SIZED AS SPECIFIED IN CONTRACT DOCUMENTS.
2. FOR METHODS APPROVED FOR CABLE RUNS, SEE STANDARD WD-2.
3. ALL SPANS SHALL MAINTAIN THE MINIMUM CLEARANCE BETWEEN PAVEMENT SURFACE AND LOWEST SIGNAL HEAD, AS SHOWN BY STANDARD MP-2.
4. A STRAIN INSULATOR(S) MAY BE USED TO EXTEND THE LENGTH OF EXISTING SPAN WIRE IF A SPAN PULL IS TO BE MODIFIED.

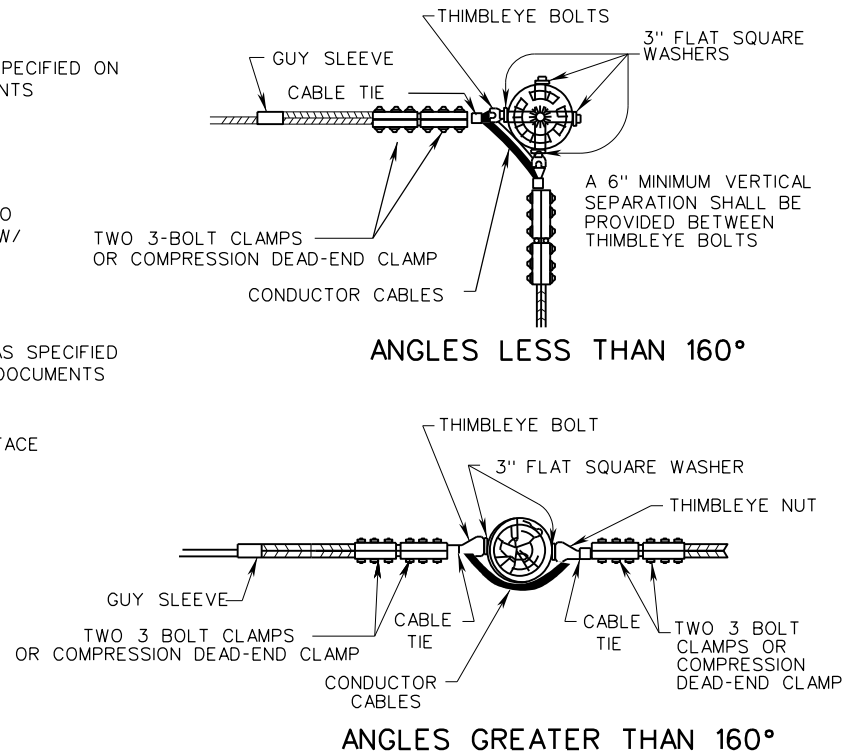
SPECIFICATION REFERENCE	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.		VDOT ROAD AND BRIDGE STANDARDS
	STEEL STRAIN SIGNAL POLE WIRING AND RIGGING		
700	DETAILS		REVISION DATE
	VIRGINIA DEPARTMENT OF TRANSPORTATION		SHEET 1 OF 1
		02/16	1306.10



NOTES:

1. CONCRETE PAD REQUIRED WHEN CABINET MOUNTED ON POLE IN EARTH AREAS, SIZED AS SPECIFIED ON CONTRACT DOCUMENTS.
2. ALL SPANS SHALL MAINTAIN THE MINIMUM CLEARANCE BETWEEN PAVEMENT SURFACE AND LOWEST SIGNAL HEAD, AS SHOWN BY STANDARD MP-2.
3. A STRAIN INSULATOR(S) MAY BE USED TO EXTEND THE LENGTH OF EXISTING SPAN WIRE IF A SPAN PULL IS TO BE MODIFIED.
4. CABINET SHALL BE MOUNTED TO ALLOW ADEQUATE CLEARANCE BETWEEN OPEN CABINET DOOR, GUY WIRES, AND ASSOCIATED HARDWARE.
5. CONTRACTOR SHALL FURNISH THE DESIGN OF WOOD POLE TO INCLUDE CLASS, TYPE, DEPTH, AND GUY WIRE SIZE AND PLACEMENT UNLESS OTHERWISE SPECIFIED BY CONTRACT DOCUMENTS.

METHODS APPROVED FOR CABLE RUNS (TOP VIEW)



ROAD AND BRIDGE STANDARDS

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WOOD POLE WIRING AND RIGGING DETAILS

SPECIFICATION REFERENCE

SHEET 1 OF 1

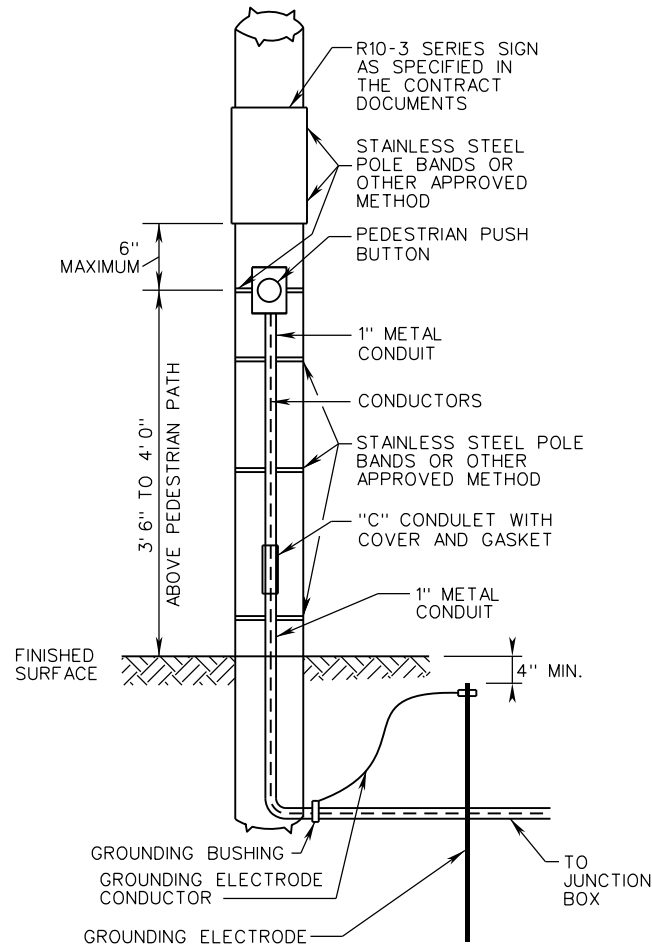
REVISION DATE

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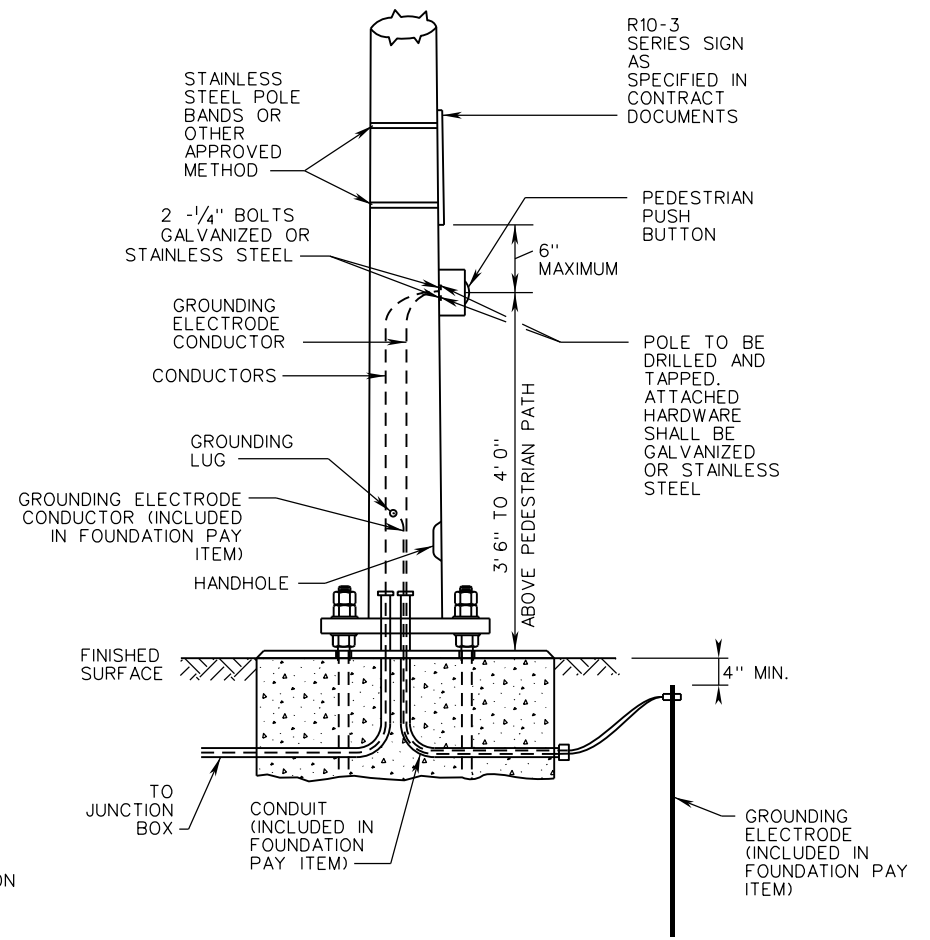
02/16

VIRGINIA DEPARTMENT OF TRANSPORTATION

700
703



PA-1
WOOD/CONCRETE POLE



PA-2
SIGNAL/PEDESTAL POLE

SPECIFICATION REFERENCE

700
703

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**PEDESTRIAN ACTUATION
DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

02/16

SHEET 1 OF 2

1307.10

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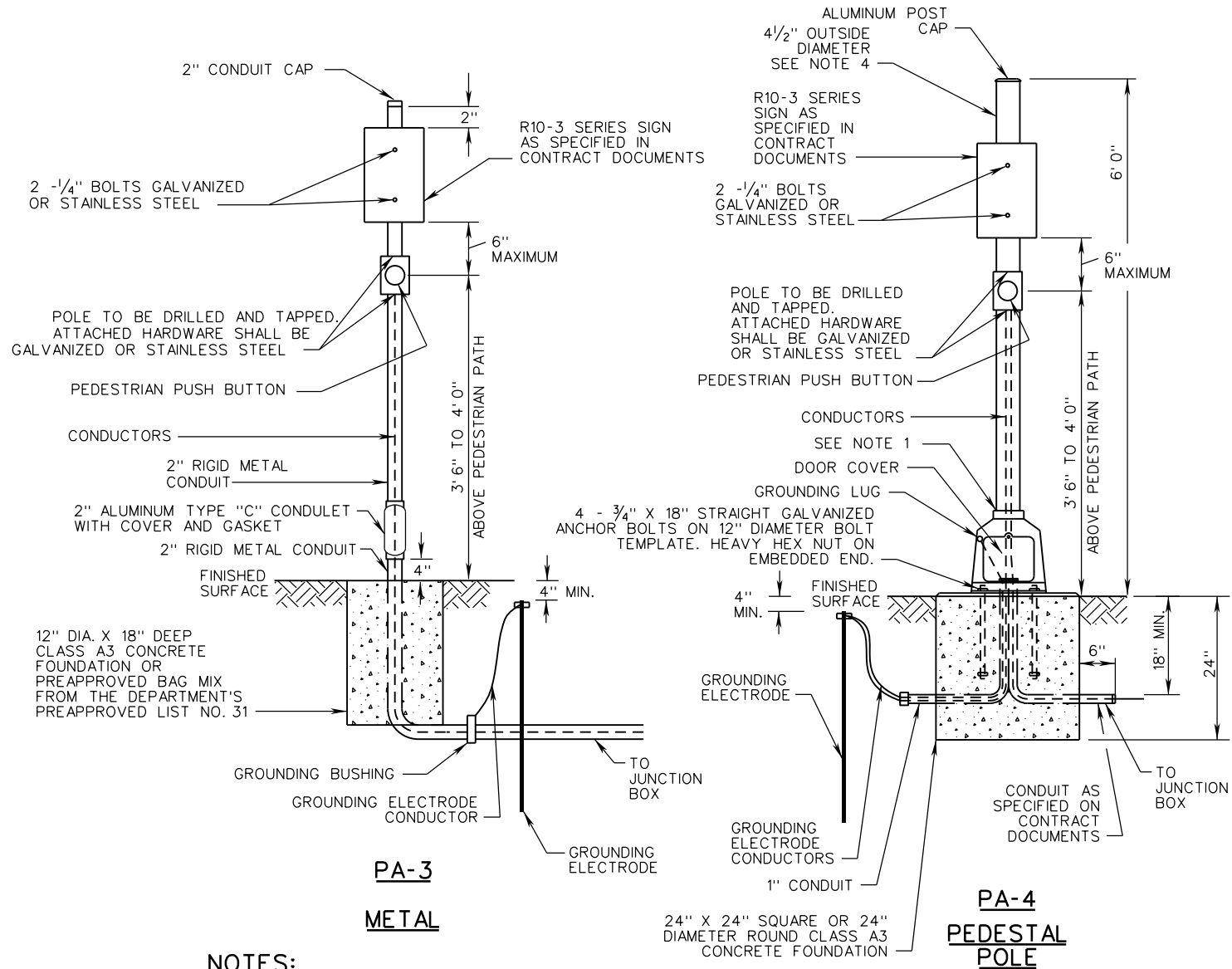
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

SPECIFICATION
REFERENCE

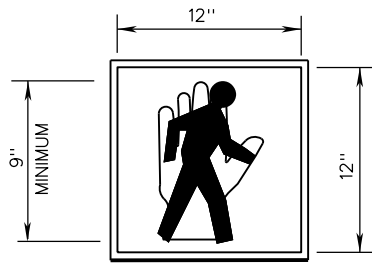
VIRGINIA DEPARTMENT OF TRANSPORTATION



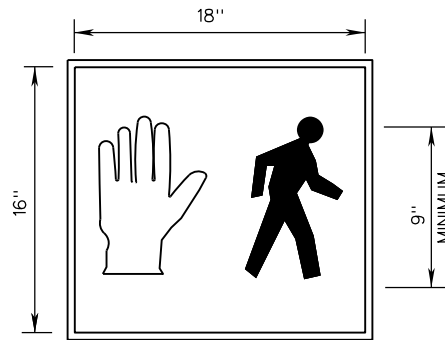
NOTES:

1. IF POLE SHAFT SCREWS INTO TRANSFORMER BASE INSTEAD OF BEING WELDED, THREE SET SCREWS OR OTHER APPROVED METHOD SHALL BE USED TO LOCK SHAFT IN POSITION.
2. PEDESTAL POLE SHALL HAVE A BREAKAWAY TRANSFORMER TYPE BASE. THE TRANSFORMER BASE SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
3. SEE PEDESTAL POLE STANDARDS (PF-2) FOR INSTALLATION DETAILS.
4. STRUCTURAL TUBE MATERIAL SHALL BE ALUMINUM 6061-T6 WITH MINIMUM 0.337" WALL THICKNESS.

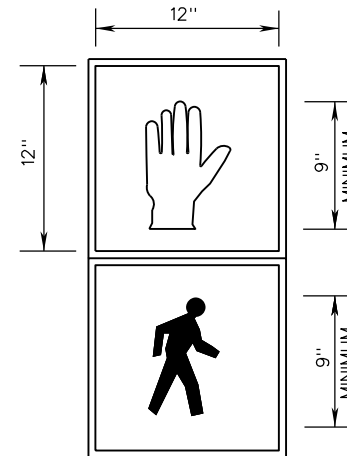
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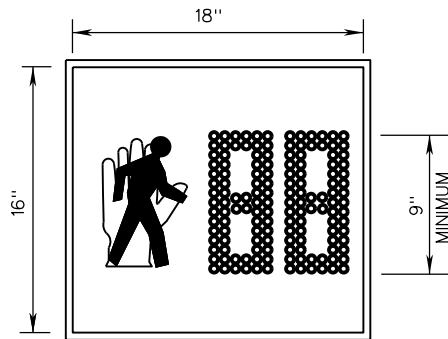
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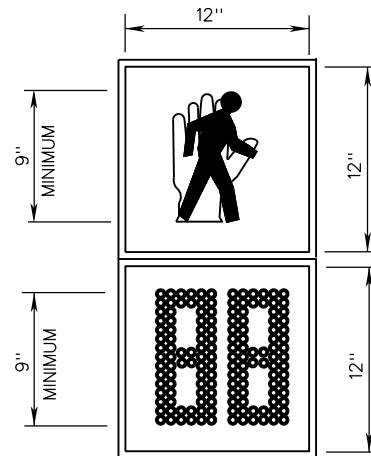
SP-6



SP-7



SP-8



SP-9

NOTES:

1. COUNTDOWN DISPLAYS (SP-8, SP-9) SHALL BE PROVIDED WHERE THE PEDESTRIAN CHANGE INTERVAL IS GREATER THAN 7 SECONDS.



ROAD AND BRIDGE STANDARDS

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PEDESTRIAN SIGNAL INDICATION
DETAILS

SPECIFICATION
REFERENCE

SHEET 1 OF 1

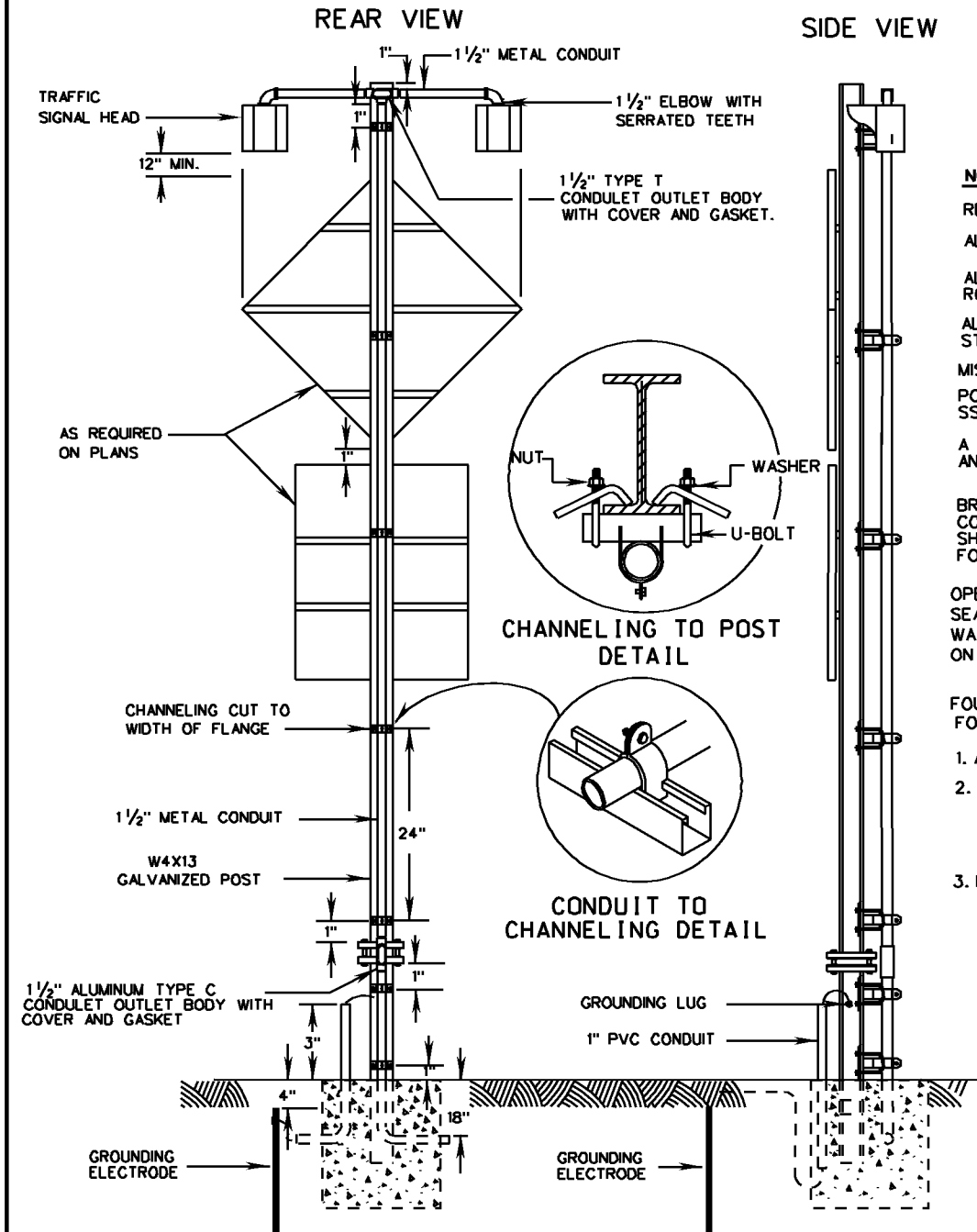
REVISION DATE

1308.10

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NOTES:

- REFER TO STANDARD MP-2 FOR GROUNDING LUG DETAIL.
- ALL SIGNAL LENSES SHALL BE YELLOW AND SHALL BE 12" DIAMETER.
- ALL ELBOWS AND CONDULETS SHALL HAVE SET SCREWS TO PREVENT ROTATION.
- ALL CHANNELING AND CLAMPS SHALL BE GALVANIZED OR STAINLESS STEEL.
- MISCELLANEOUS HARDWARE SHALL BE STAINLESS STEEL.
- POST AND SIGN PANELS SHALL BE INSTALLED IN ACCORDANCE WITH SSP-VA
- A WATERPROOF SEALANT SHALL BE UTILIZED BETWEEN ELBOWS AND SIGNAL HEADS.
- BREAKAWAY CONNECTORS SHALL BE INSTALLED ON THE SIGNAL CONDUCTORS WITH THE TYPE C CONDULET. BREAKAWAY CONNECTORS SHALL BE FUSED FOR THE HOT CONDUCTOR AND NONFUSED FOR THE GROUND CONDUCTOR.
- OPEN ENDS OF CONDUITS WITH CONDUCTORS INSTALLED SHALL BE SEALED WITH AN APPROVED SOFT, PLIABLE, AND EASILY REMOVABLE, WATERPROOF SEALANT. THE SEALANT SHALL NOT HAVE A DELETERIOUS ON CABLE COVERINGS
- FOUNDATION SHALL BE IN ACCORDANCE WITH SSP-VA FOR A 4' 6" X 1' 9" FOUNDATION EXCEPT FOR THE FOLLOWING:
 1. A 1 1/2" METAL CONDUIT SHALL BE INSTALLED FOR ELECTRICAL POWER.
 2. A 1" PVC CONDUIT, NO. 6 GROUNDING CONDUCTOR AND GROUNDING ELECTRODE SHALL BE INSTALLED FOR GROUNDING PURPOSES. STUB POST SHALL BE SUPPLIED WITH A GROUNDING LUG WELDED TO POST WEB.
 3. FLASHING BEACON INSTALLED ON UNDIVIDED HIGHWAYS SHALL BE OF THE MEDIAN TYPE INSTALLED IN ACCORDANCE WITH STANDARD SSP-VA.

SPECIFICATION REFERENCE
700 703

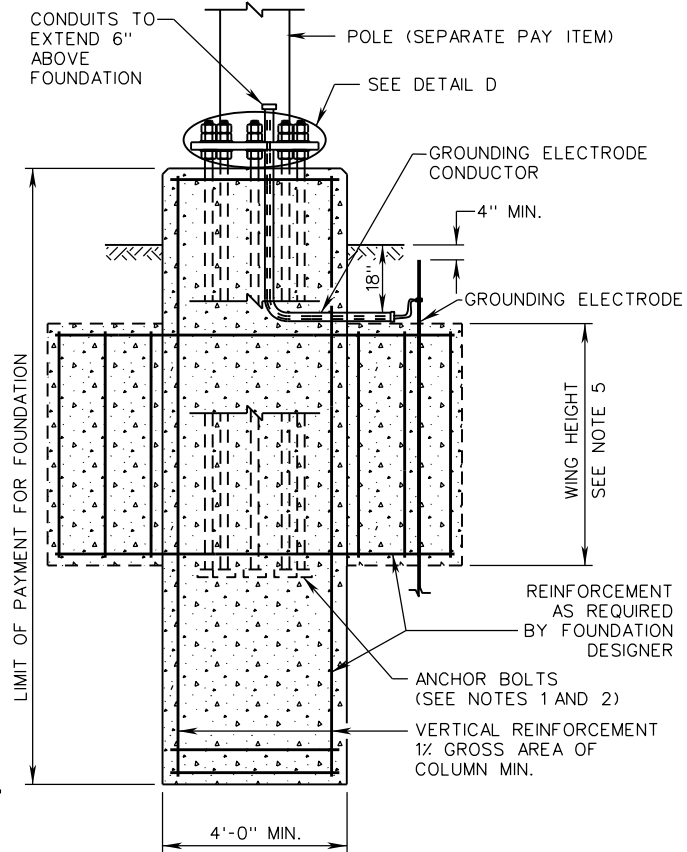
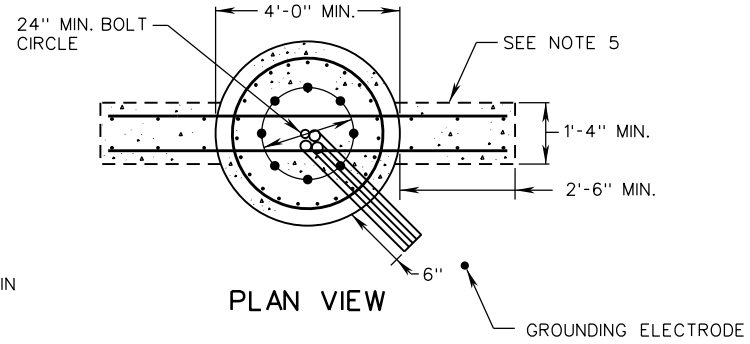
**FLASHING BEACON
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 1
06-15-2009	1309.10

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.



SIDE VIEW

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**SIGNAL POLE FOUNDATION
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

700



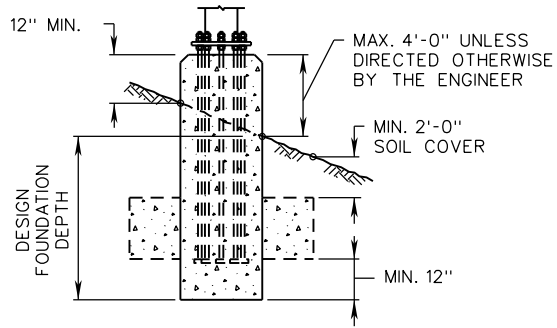
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

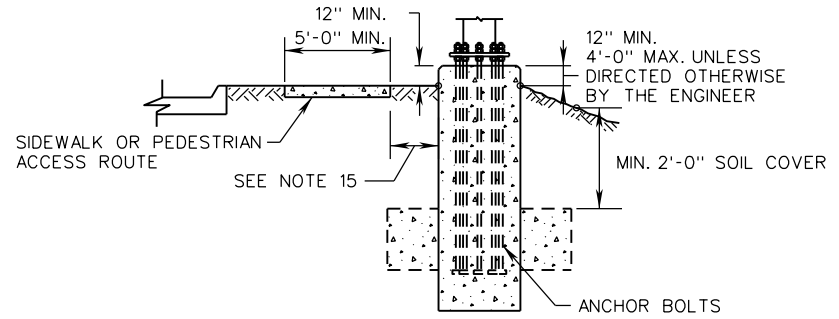
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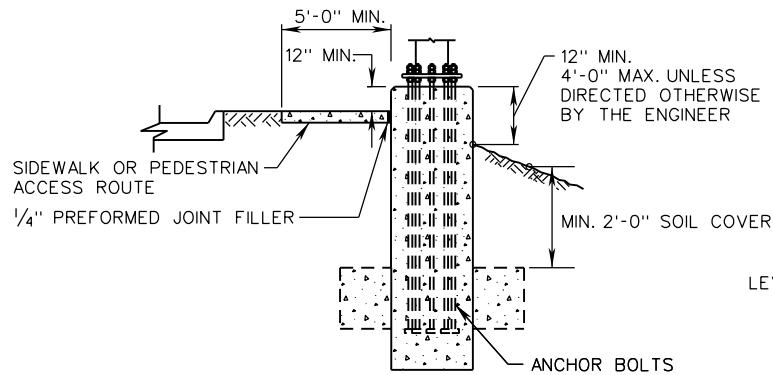
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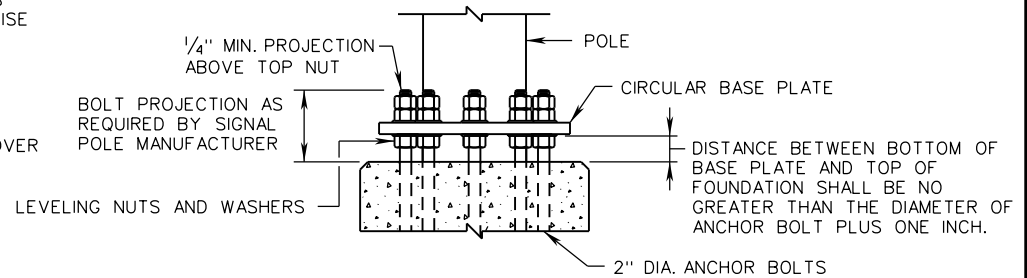
DETAIL A
FOUNDATION NOT IN
SIDEWALK DETAIL



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

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**SIGNAL POLE FOUNDATION
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

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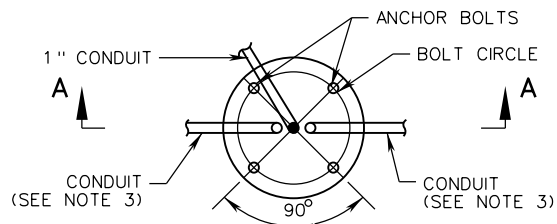
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

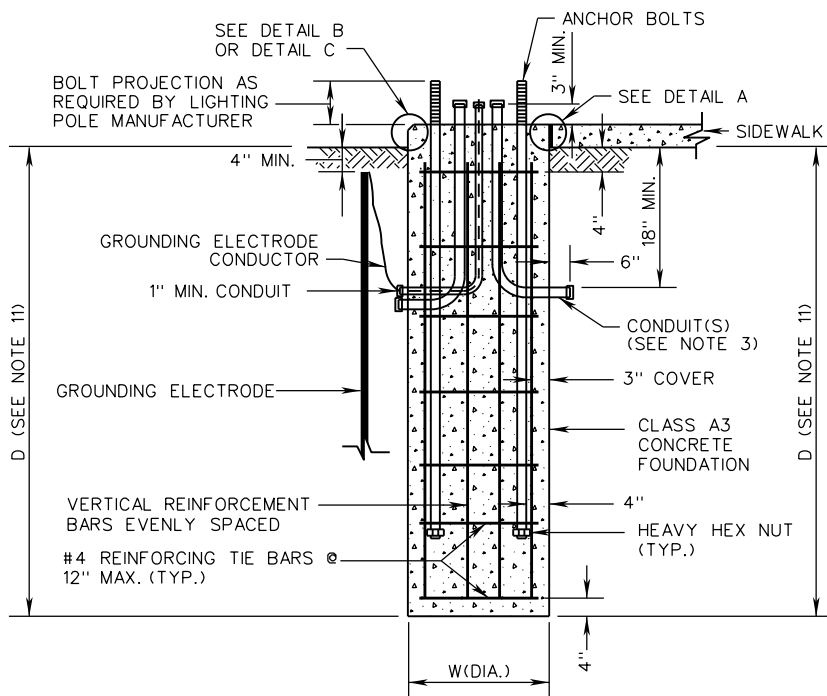
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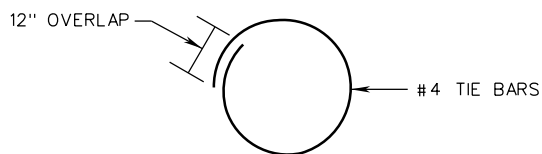
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PLAN VIEW



SECTION A-A



PLAN VIEW OF TIE BAR

TYPE	W	D	VERTICAL BARS
A	2' 6"	8'	8 - # 8

NOTES:

1. CONDUIT ELBOWS SHALL HAVE A 90° BEND. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE N.E.C.
2. THE BOLT TEMPLATE SHALL BE FURNISHED BY THE LIGHTING POLE MANUFACTURER. POLE SHALL BE CENTERED ON FOUNDATION.
3. THE NUMBER, ORIENTATION AND SIZE OF CONDUITS ENTERING AND EXITING FOUNDATIONS SHALL BE AS SHOWN IN THE CONTRACT DOCUMENTS. 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.
4. NO MORTAR, GROUT, OR CONCRETE SHALL BE PLACED BETWEEN BOTTOM OF BASE PLATE AND TOP OF FOUNDATION.
5. GROUNDING BUSHINGS SHALL BE INSTALLED ON EACH END OF METAL CONDUITS.
6. EMPTY CONDUITS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.
7. BELL ENDS SHALL BE INSTALLED ON EACH END OF PVC CONDUITS.
8. OPEN ENDS OF CONDUITS WITH CONDUCTORS INSTALLED SHALL BE SEALED WITH AN APPROVED SOFT, PLIABLE, AND EASILY REMOVABLE WATERPROOF SEALANT. THE SEALANT SHALL NOT HAVE A DELETERIOUS EFFECT ON CABLE COVERINGS.
9. ANCHOR BOLTS SHALL BE STRAIGHT. THREADED REINFORCING STEEL IS NOT ALLOWED.
10. FOUNDATIONS SHALL NOT BE INSTALLED IN THE CENTER OF A DRAINAGE DITCH. FOUNDATIONS MAY BE INSTALLED IN THE FRONT OR BACK SLOPE OF A DRAINAGE DITCH, BUT SHALL NOT IMPEDE THE DRAINAGE FLOWS. TOPS OF FOUNDATIONS ADJACENT TO ANY DITCH SHALL BE ABOVE GRADE AND ABOVE THE ANTICIPATED WATER LEVELS.
11. D IS THE MINIMUM DISTANCE FROM THE BOTTOM OF THE POLE FOUNDATION TO THE BOTTOM OF THE SIDEWALK OR THE POINT OF LOWEST GRADED ELEVATION ADJACENT TO THE FOUNDATION.

SPECIFICATION REFERENCE

700

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LIGHTING POLE FOUNDATION

INSTALLATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

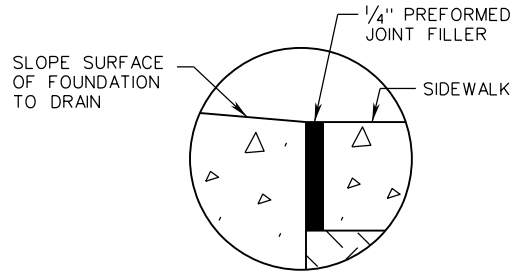
ROAD AND BRIDGE STANDARDS

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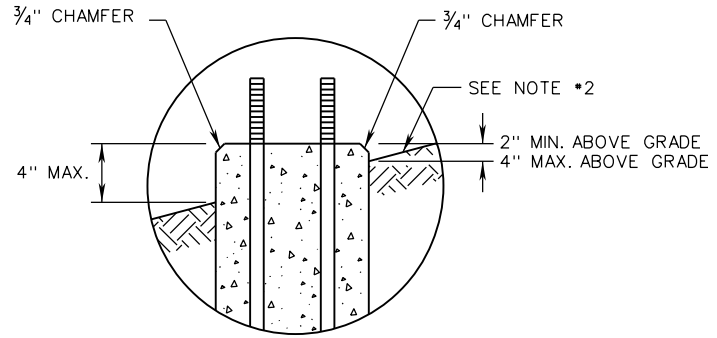
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SHEET 1 OF 2

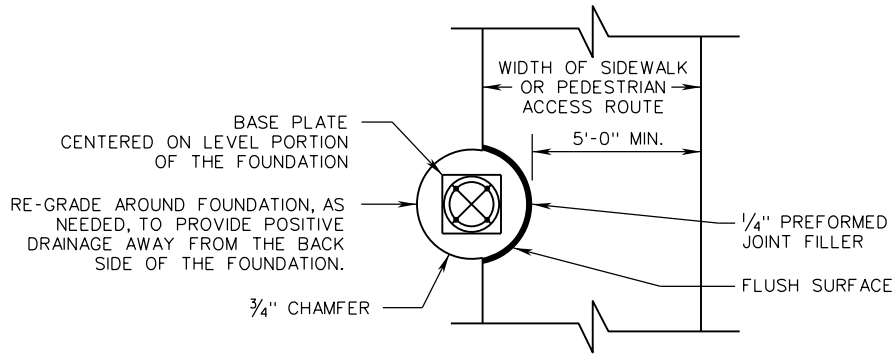
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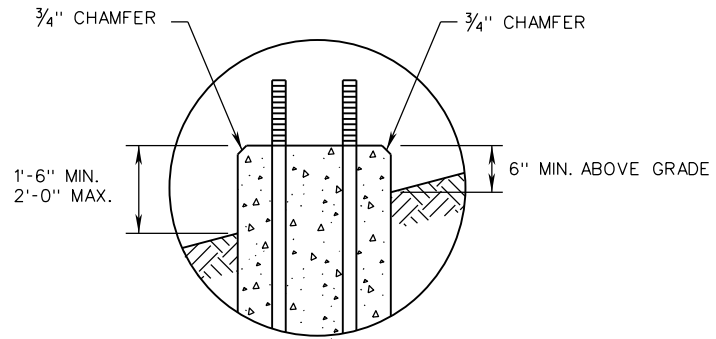
**DETAIL A
SIDEWALK**



**DETAIL B
BREAKAWAY BASE**



**PARTIAL PLAN
OF DETAIL A**



**DETAIL C
NON-BREAKAWAY BASE**

NOTES:

1. WHERE THE FOUNDATION EXTENDS INTO THE SIDEWALK, THE EDGES OF THE FOUNDATION SHALL BE FLUSH WITH THE SIDEWALK (DETAIL A). WHERE THE FOUNDATION IS OUTSIDE OF THE SIDEWALK, THE EDGES OF THE FOUNDATION SHALL HAVE A 3/4" CHAMFER (DETAIL B AND C). UNDER ALL CIRCUMSTANCES THE CONCRETE SHALL BE SLOPED TO ENSURE THE FOUNDATION SURFACE IS NOT AN AREA OF PONDING WATER.
2. IF NEEDED IN SLOPED CONDITIONS TO MAINTAIN POSITIVE DRAINAGE AROUND THE FOUNDATION AND TO PROVIDE THE CLEARANCES SHOWN IN DETAIL B, THE CONTRACTOR SHALL RE-GRADE AND ADD RETAINING CURB OR MATERIAL ON THE UP SLOPE WHEN APPROVED BY THE ENGINEER. RE-GRAIDING AND RETAINING CURB SHALL BE INCLUDED IN THE PRICE BID FOR FOUNDATION.
3. WHEN FOUNDATION IS ADJACENT TO THE BACK EDGE OF SIDEWALK BUT NOT WITHIN THE SIDEWALK, AND A BREAKAWAY BASE IS REQUIRED, THE TOP OF THE FOUNDATION SHALL BE ELEVATED 2 INCHES MINIMUM ABOVE THE SIDEWALK GRADE.



ROAD AND BRIDGE STANDARDS

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LIGHTING POLE FOUNDATION

SPECIFICATION
REFERENCE

SHEET 2 OF 2

REVISION DATE

INSTALLATION DETAILS

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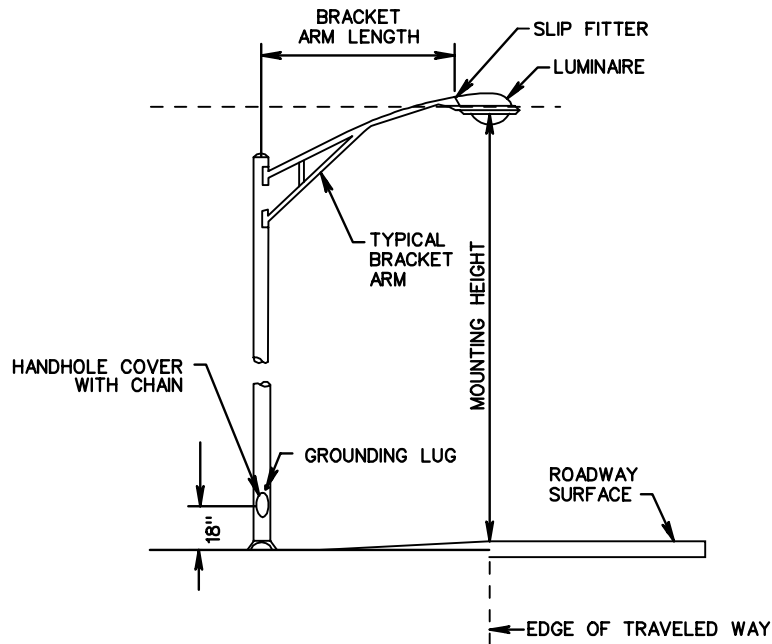
ROAD AND BRIDGE STANDARDS

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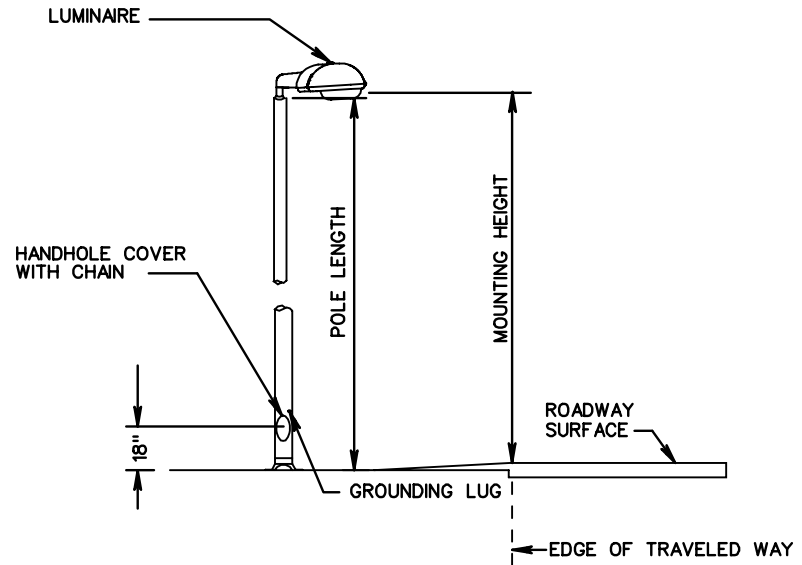
SHEET 1 OF 1

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LP-1



LP-2



POLE LENGTH (FEET)	BOLT CIRCLE DIAMETER	ANCHOR BOLT DIAMETER
A (5-17)	12"	1"
B (18-22)	12"	1"
C (23-27)	12"	1"
D (28-32)	12"	1"
E (33-37)	15"	1"
F (38-42)	15"	1"
G (43-47)	15"	1"
H (48-52)	16"	1"
I (53-57)	16"	1 1/4"
J (58-62)	16"	1 1/4"

NOTES:

THE MOUNTING HEIGHT SHOWN ON THE PLANS SHALL BE ADHERED TO WITHIN A TOLERANCE OF 12" AND IN NO CASE LESS THAN THE MOUNTING HEIGHT SHOWN.

GROUNDING ELECTRODE SHALL BE COVERED 4-18" FROM FINISHED GRADE.

REFER TO STANDARD MP-2 FOR GROUNDING LUG DETAIL.

NOTES:

GROUNDING ELECTRODE SHALL BE COVERED 4-18" FROM FINISHED GRADE.

REFER TO STANDARD MP-2 FOR GROUNDING LUG DETAIL.



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

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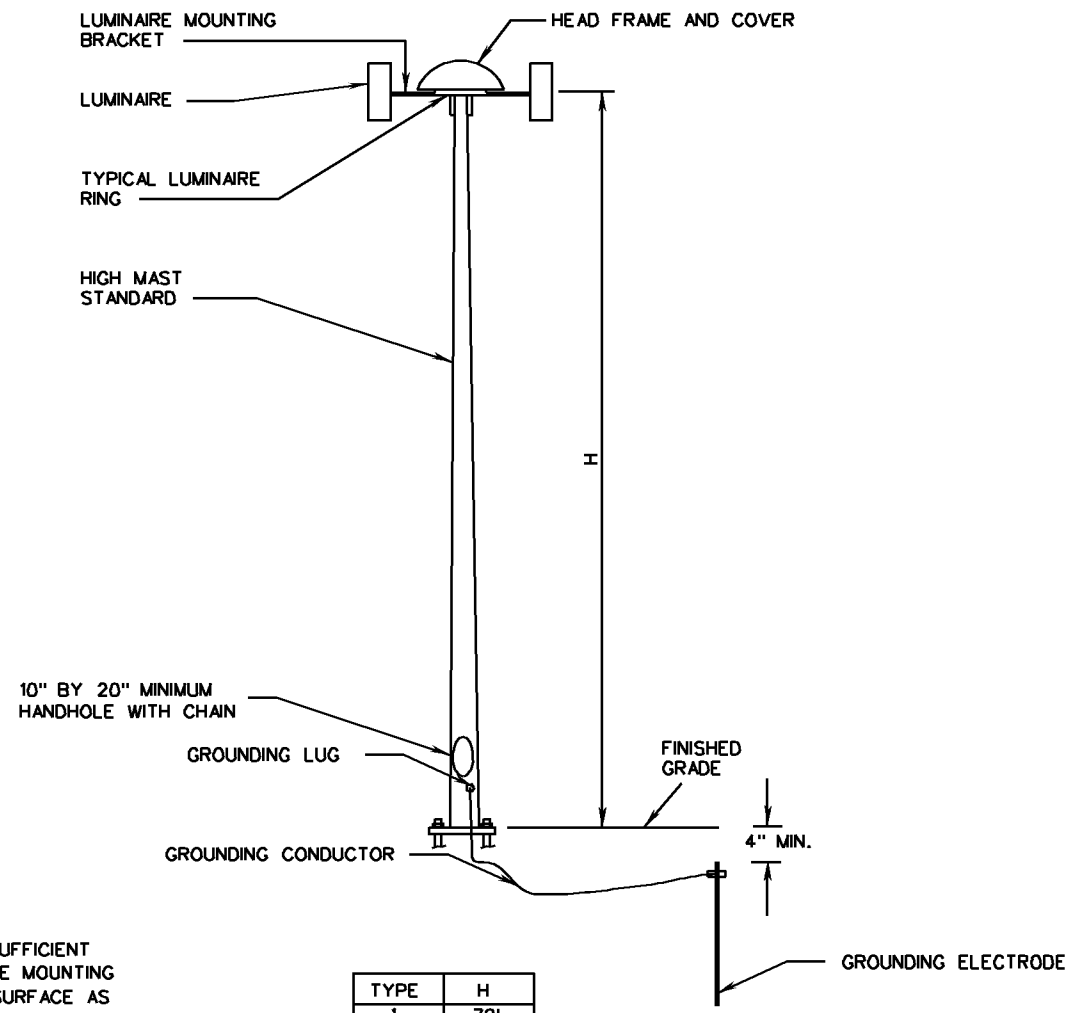
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LIGHTING POLE
INSTALLATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

700



NOTES:

WINCH ASSEMBLY AND CIRCUIT BREAKER TO BE ACCESSIBLE FROM HAND HOLE

TYPE 9 POLES SHALL BE OF SUFFICIENT HEIGHT TO PROVIDE A LUMINAIRE MOUNTING HEIGHT ABOVE THE ROADWAY SURFACE AS INDICATED ON THE PLANS.

THE MOUNTING HEIGHTS SHOWN ON THE PLANS FOR A TYPE 9 POLE SHALL BE ADHERED TO WITHIN A TOLERANCE OF 3 FEET AND IN NO CASE BE LESS THAN THE MOUNTING HEIGHT SHOWN.

REFER TO STANDARD MP-2 FOR GROUNDING LUG DETAIL.

TYPE	H
1	70'
2	80'
3	90'
4	100'
5	110'
6	120'
7	130'
8	140'
9	VARIABLE

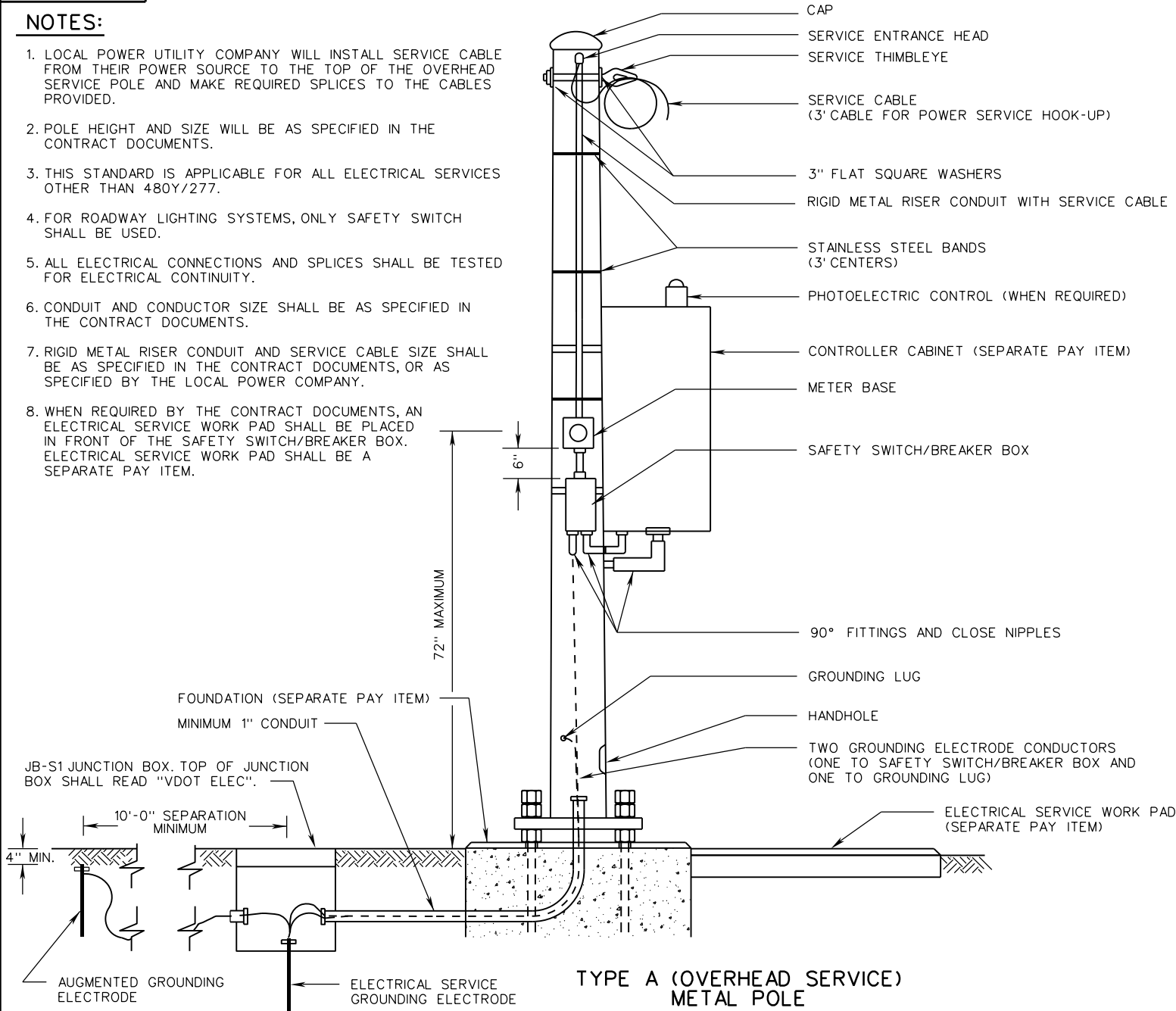
SPECIFICATION REFERENCE
700 705

**HIGH MAST LIGHT POLE
DETAILS**
VIRGINIA DEPARTMENT OF TRANSPORTATION

 ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 1
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NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE TOP OF THE OVERHEAD SERVICE POLE AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.



**TYPE A (OVERHEAD SERVICE)
METAL POLE**

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**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

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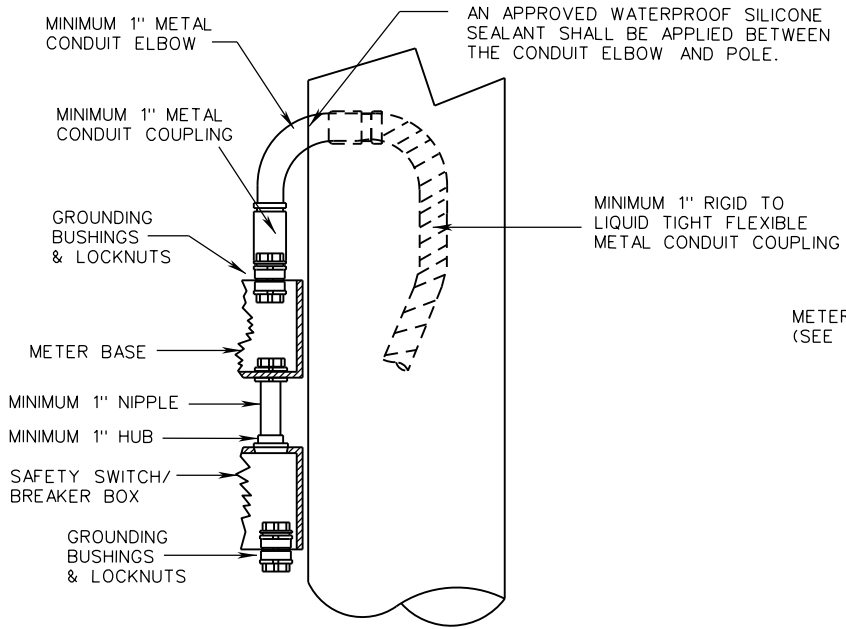
ROAD AND BRIDGE STANDARDS

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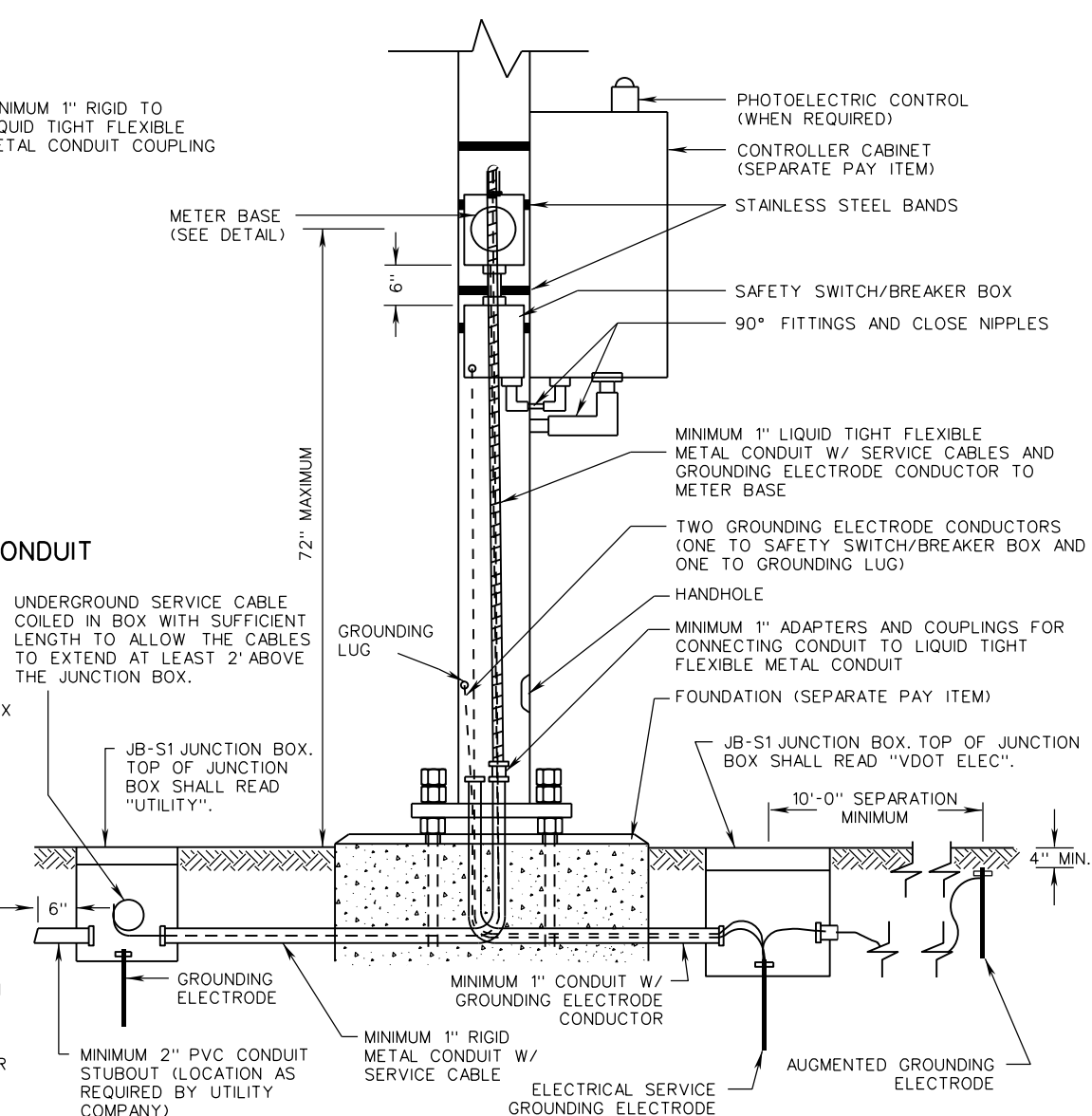
02/16



DETAIL FOR CONNECTION OF CONDUIT TO METER BASE

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.



TYPE B (UNDERGROUND SERVICE) METAL POLE

SPECIFICATION REFERENCE

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**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

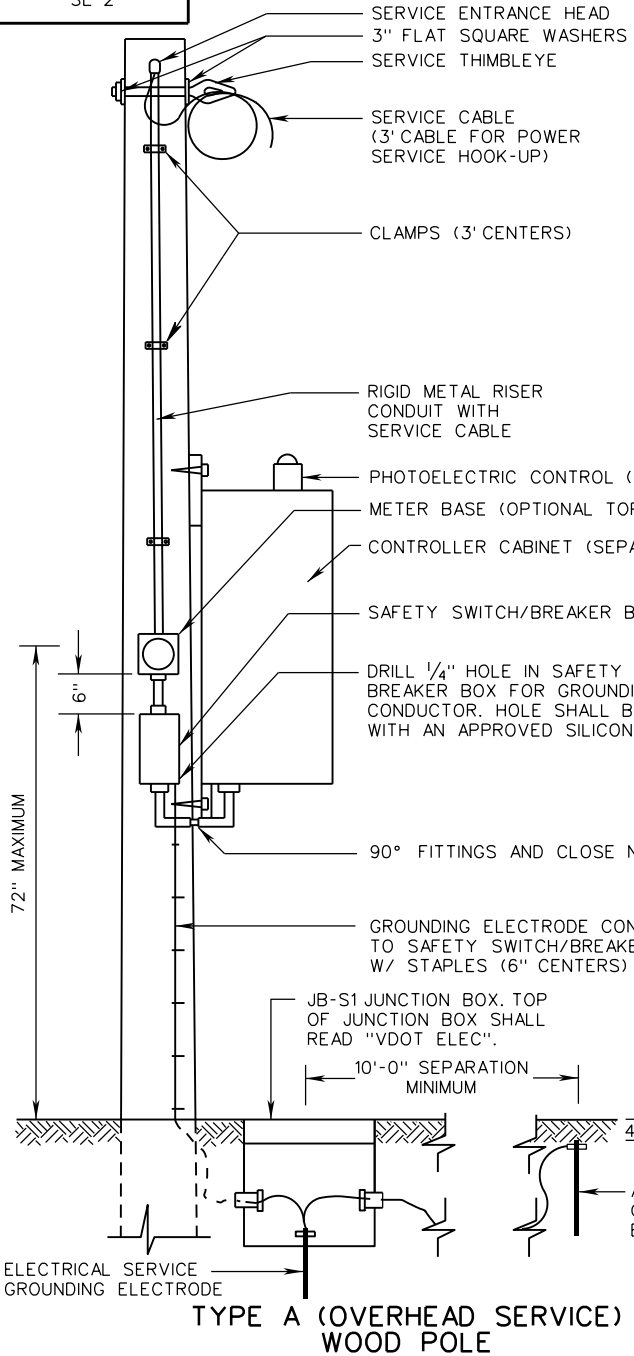
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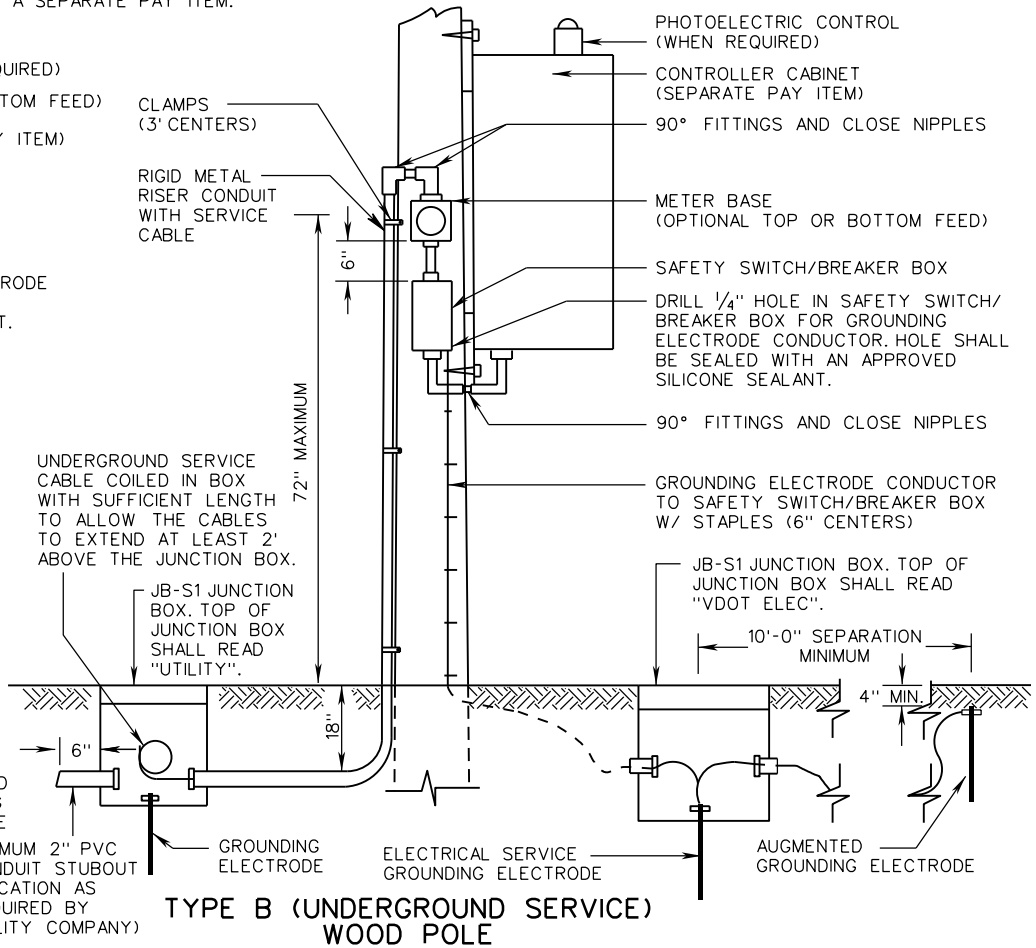
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TYPE A (OVERHEAD SERVICE) WOOD POLE

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE TOP OF THE OVERHEAD SERVICE POLE (FOR TYPE A OVERHEAD SERVICE) OR THE JUNCTION BOX (FOR TYPE B UNDERGROUND SERVICE) AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.



TYPE B (UNDERGROUND SERVICE) WOOD POLE

VDOT	
ROAD AND BRIDGE STANDARDS	
SHEET 1 OF 1	REVISION DATE
1312.20	02/16

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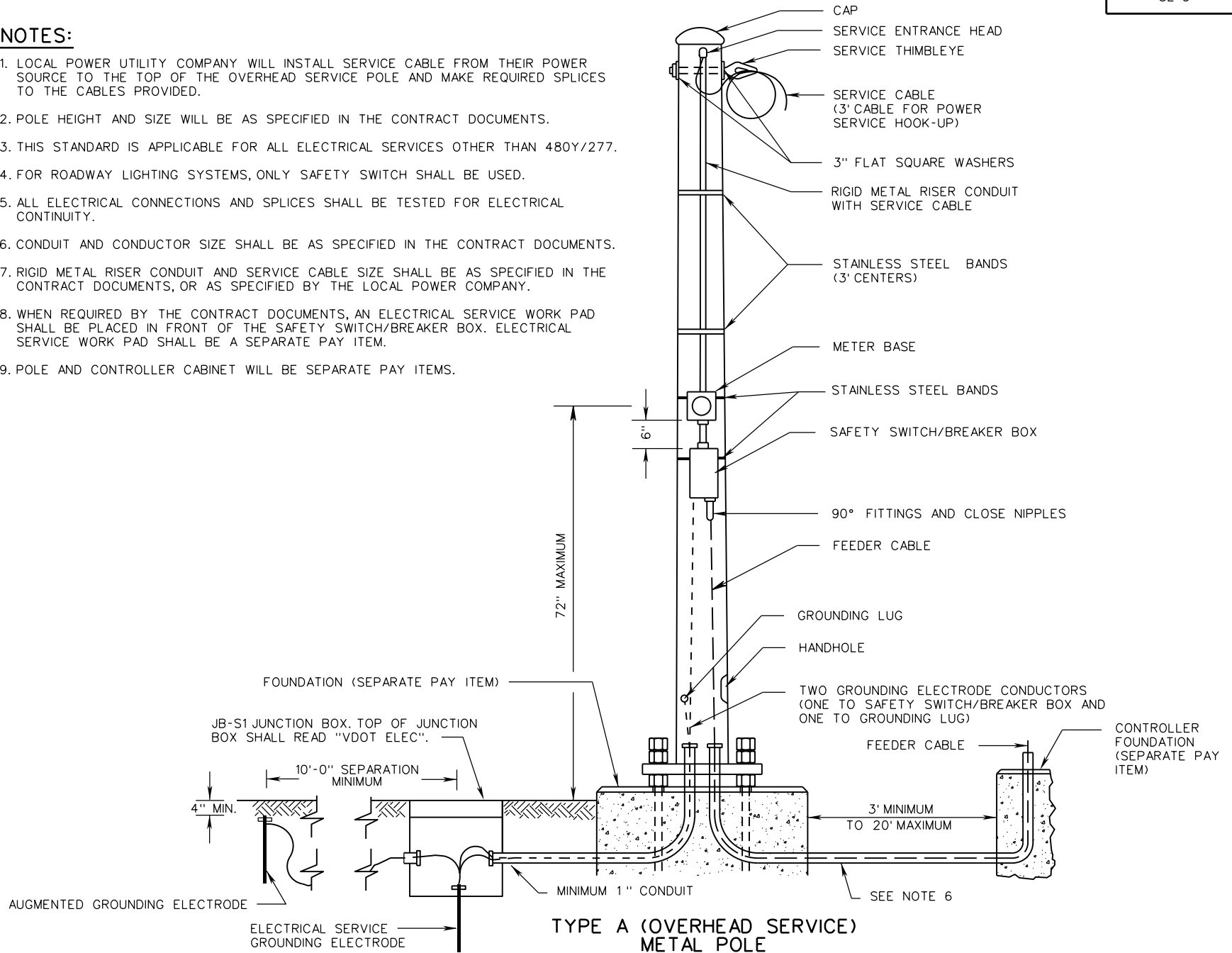
ELECTRICAL SERVICE
INSTALLATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
700

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE TOP OF THE OVERHEAD SERVICE POLE AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.
9. POLE AND CONTROLLER CABINET WILL BE SEPARATE PAY ITEMS.



SPECIFICATION REFERENCE
700

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

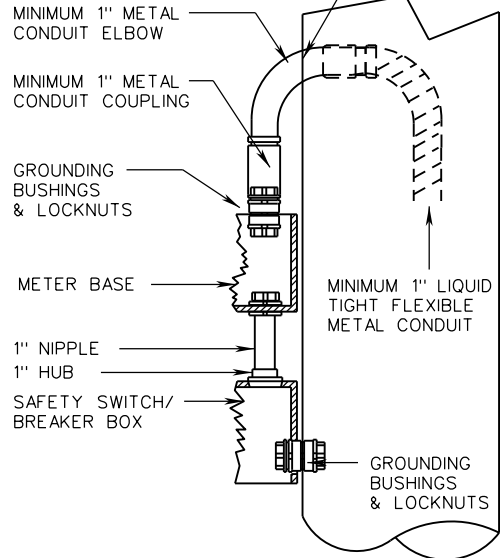
ELECTRICAL SERVICE
INSTALLATION DETAILS
 VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 2
02/16	1312.30

NOTES:

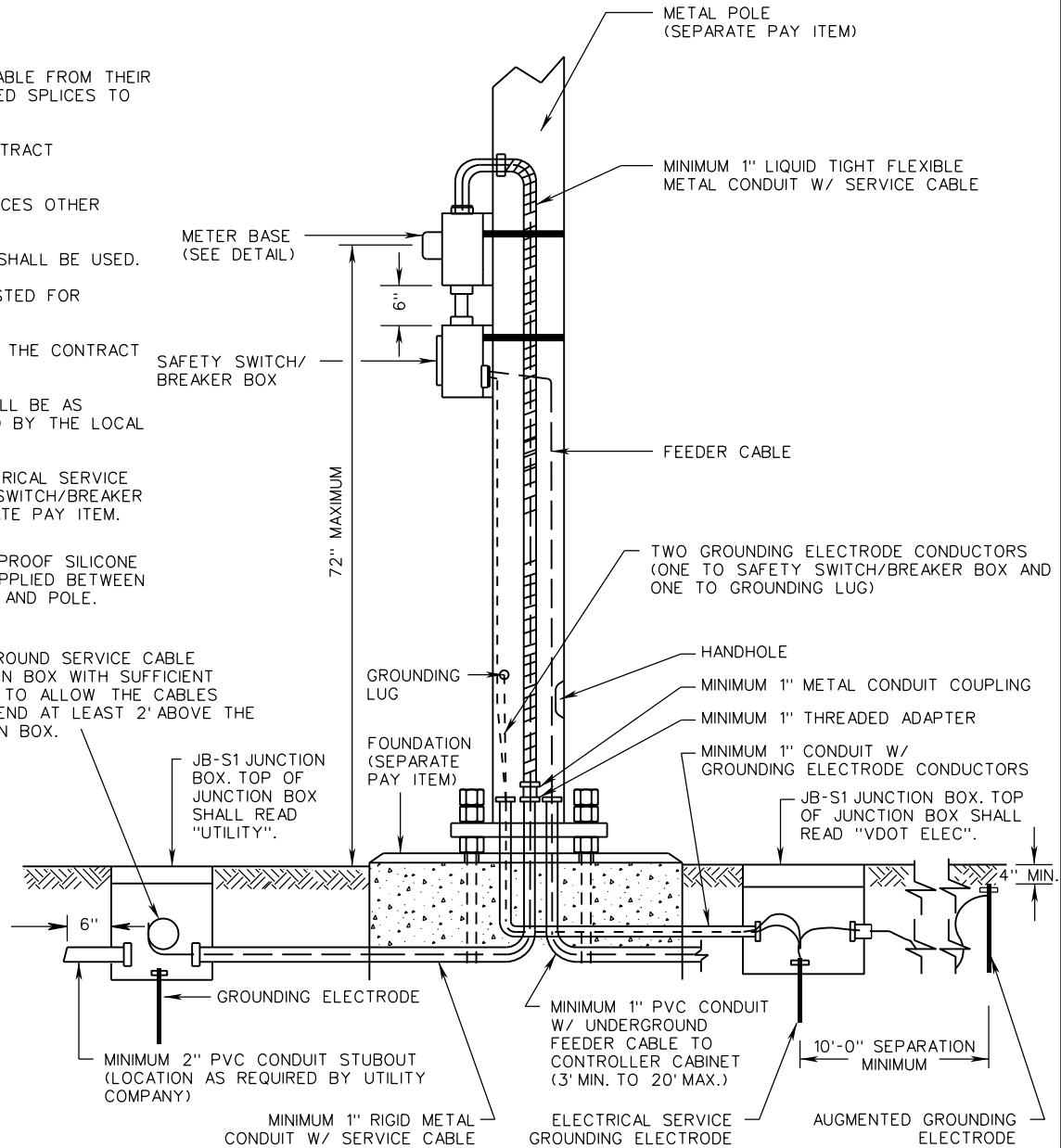
1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.

AN APPROVED WATERPROOF SILICONE SEALANT SHALL BE APPLIED BETWEEN THE CONDUIT ELBOW AND POLE.



DETAIL FOR CONNECTION OF CONDUIT TO METER BASE

UNDERGROUND SERVICE CABLE COILED IN BOX WITH SUFFICIENT LENGTH TO ALLOW THE CABLES TO EXTEND AT LEAST 2' ABOVE THE JUNCTION BOX.



TYPE B (UNDERGROUND SERVICE) METAL POLE

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**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

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ROAD AND BRIDGE STANDARDS

SHEET 2 OF 2

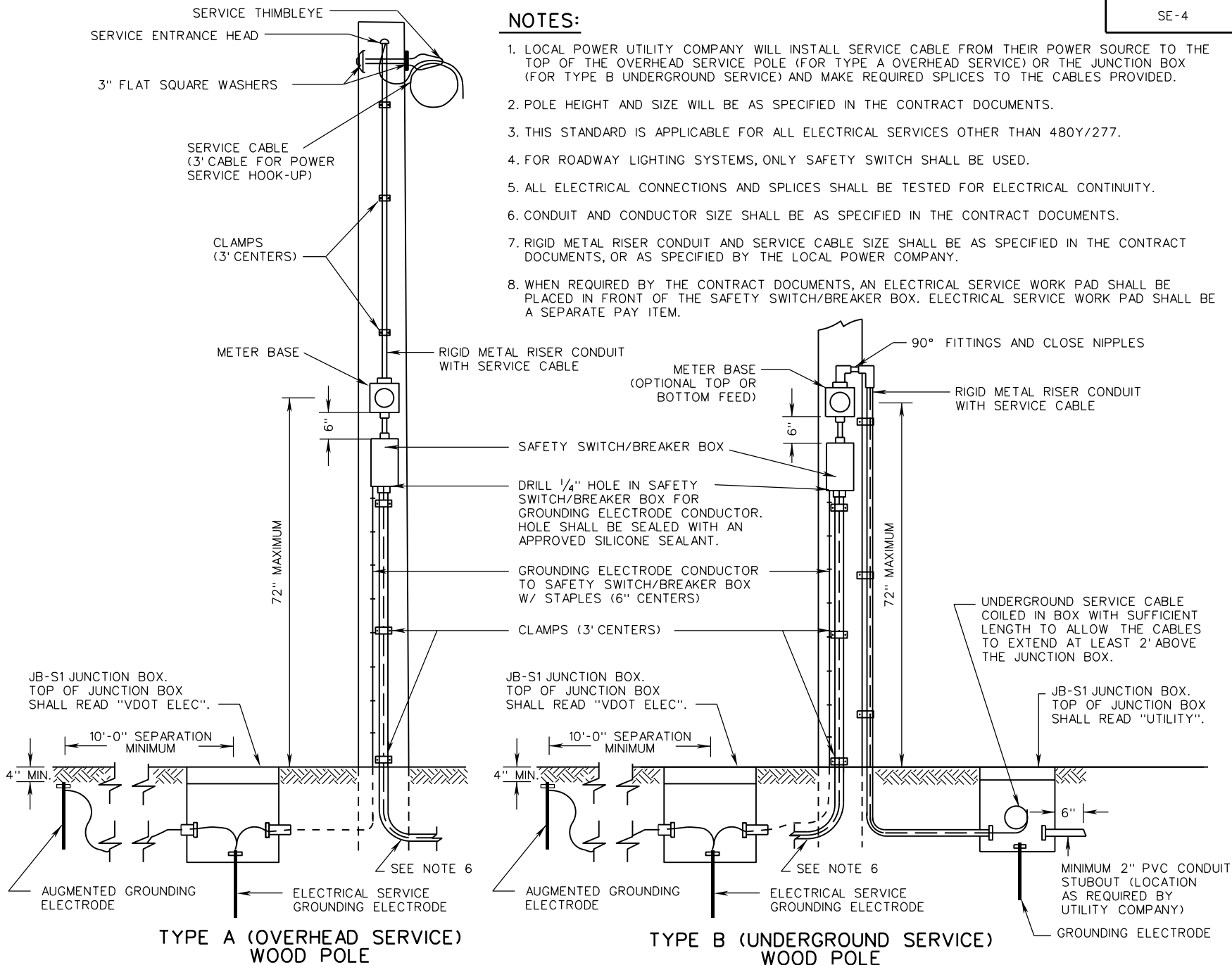
REVISION DATE

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02/16

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE TOP OF THE OVERHEAD SERVICE POLE (FOR TYPE A OVERHEAD SERVICE) OR THE JUNCTION BOX (FOR TYPE B UNDERGROUND SERVICE) AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.



SPECIFICATION REFERENCE

700

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

**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

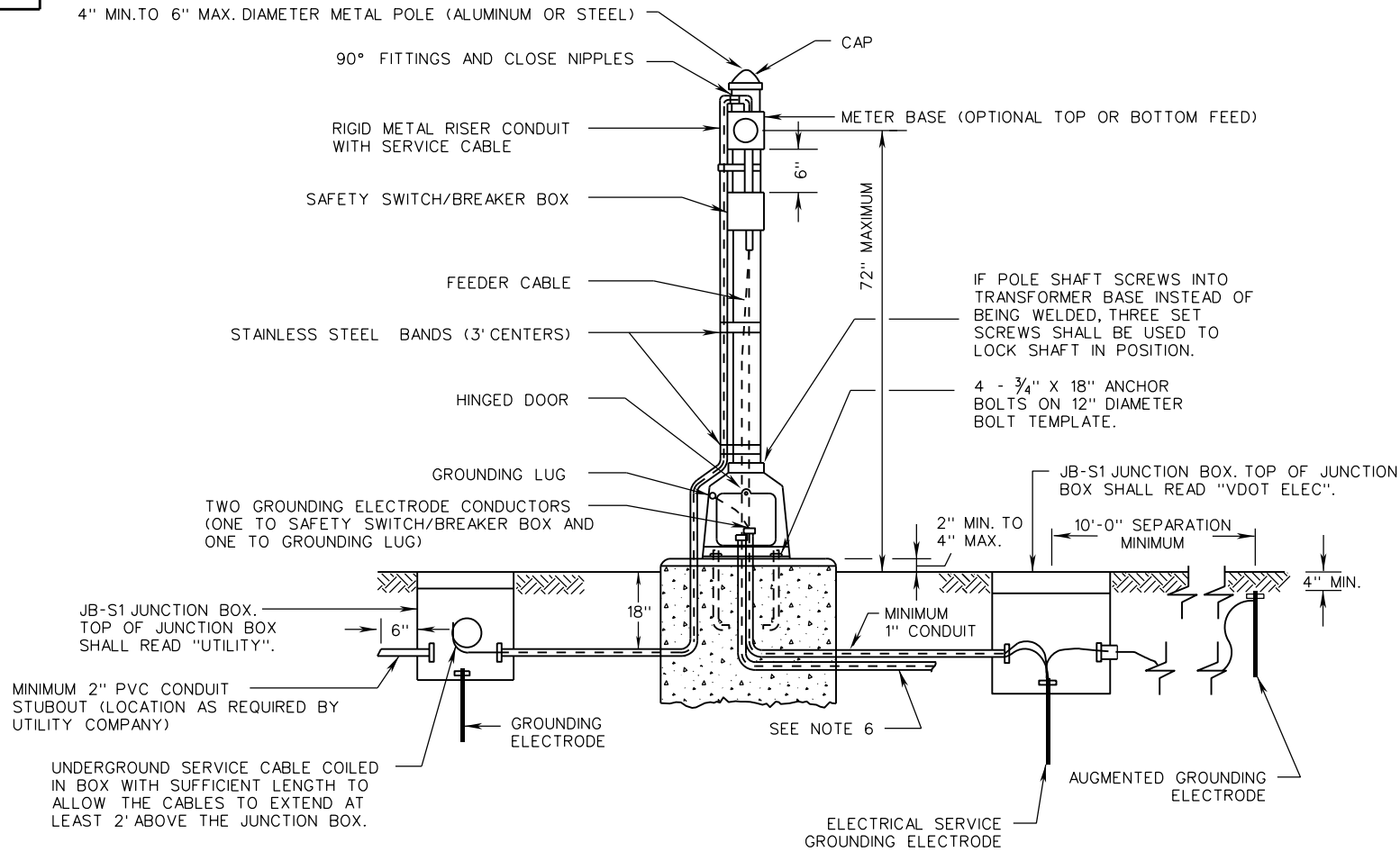
VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE
02/16

SHEET 1 OF 1

1312.40

**NOTES:**

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
3. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
4. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
5. FOUNDATION SHALL BE CLASS A3 CONCRETE, 24X24 SQUARE OR 24" DIAMETER AND 24" DEEP, AND COST OF FOUNDATION SHALL BE INCLUDED WITH THE PAY ITEM FOR ELECTRICAL SERVICE.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.
9. STAINLESS STEEL BANDS REQUIRED FOR METER BASE AND SAFETY SWITCH/BREAKER BOX.
10. ANCHOR BOLTS AND BOLT TEMPLATE SHALL BE FURNISHED BY POLE MANUFACTURER, AND POLE SHALL BE CENTERED ON FOUNDATION.

VDOT

ROAD AND BRIDGE STANDARDS

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**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

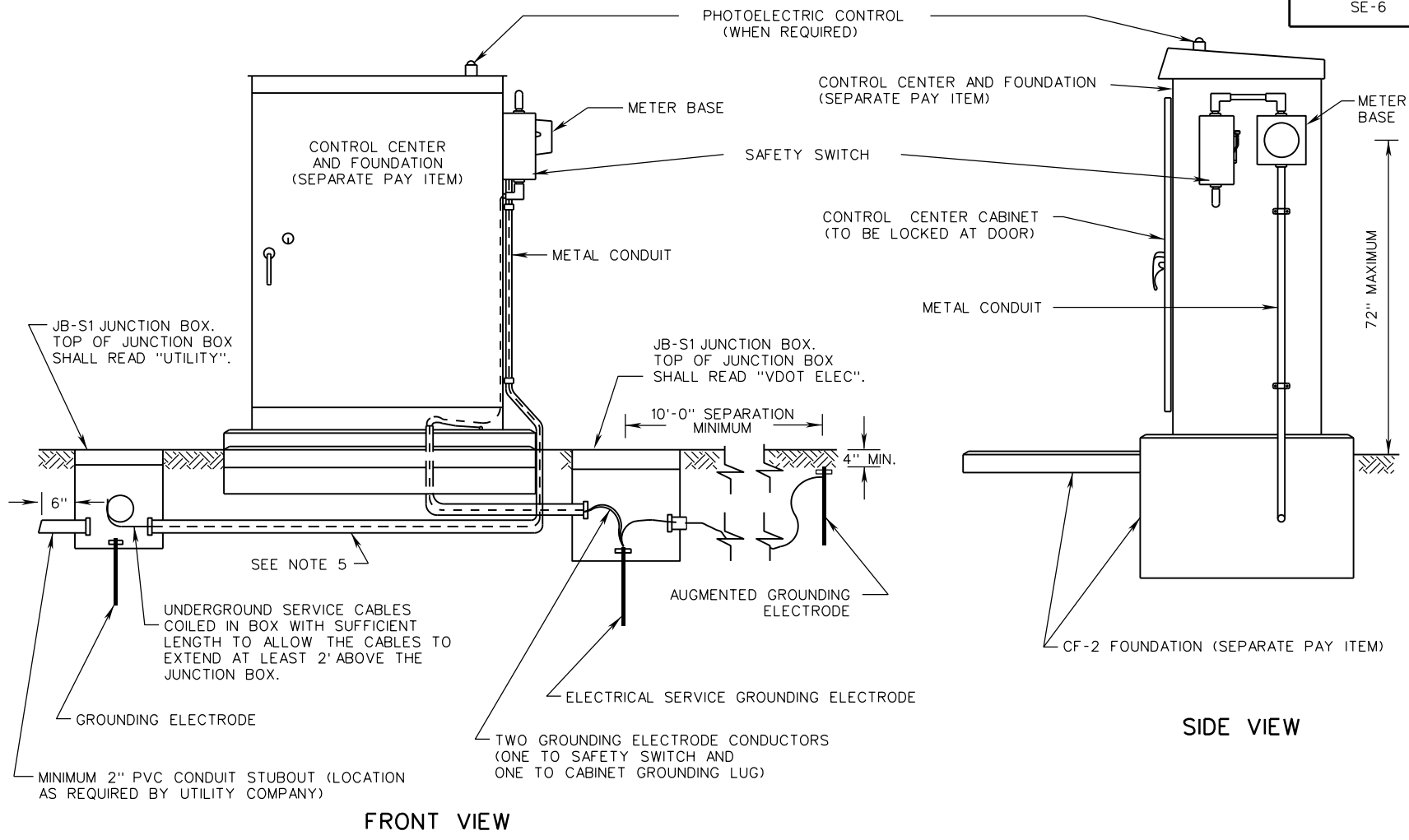
SHEET 1 OF 1

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02/16

700



FRONT VIEW

SIDE VIEW

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
3. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
4. THE CONDUIT AND SERVICE CABLE SHALL EXTEND FROM THE CABINET TO THE UTILITY JUNCTION BOX.
5. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
6. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
7. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.

SPECIFICATION REFERENCE

700

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**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION



ROAD AND BRIDGE STANDARDS

REVISION DATE

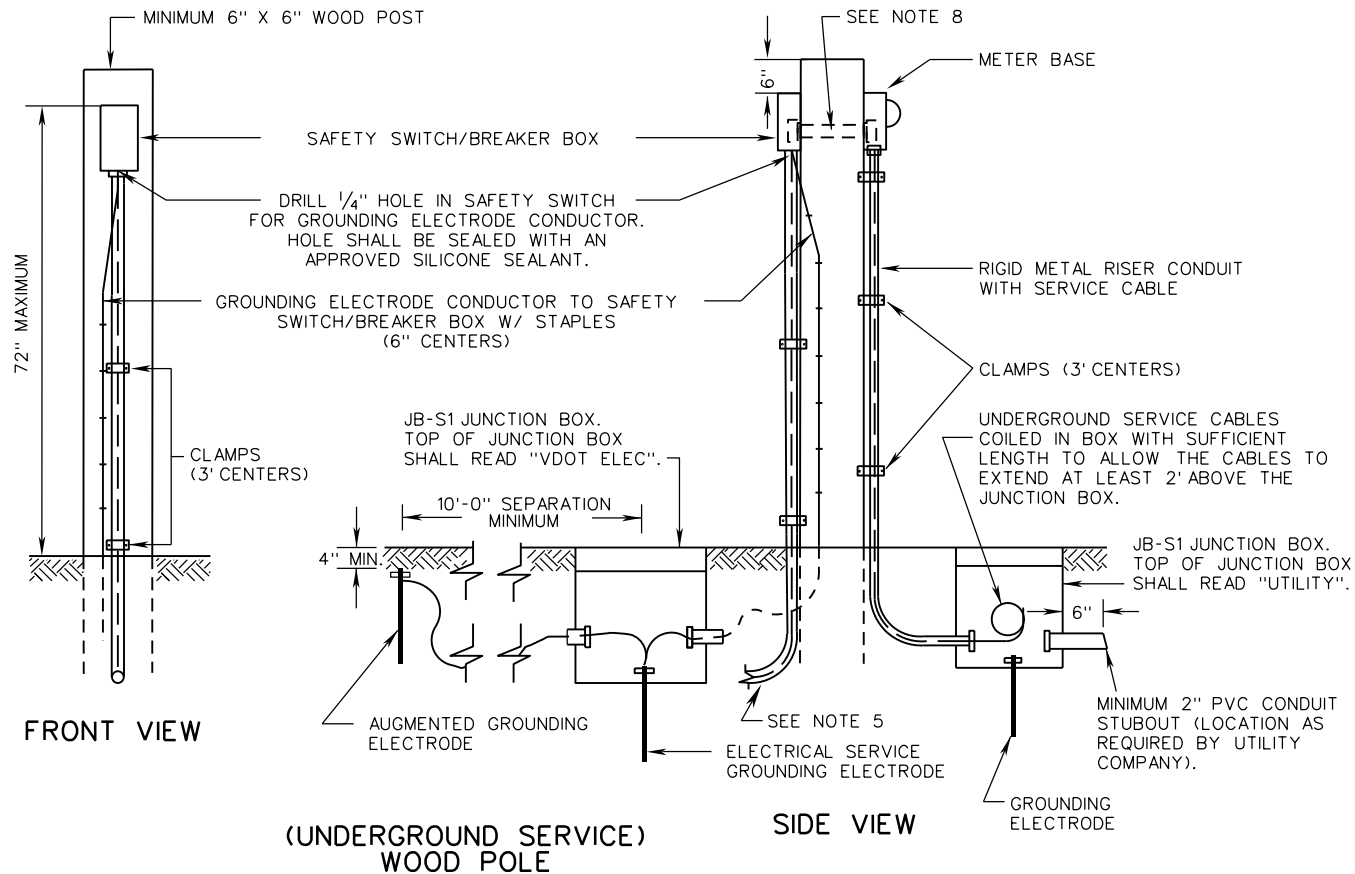
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SHEET 1 OF 1

1312.60

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE POWER UTILITY CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
3. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
4. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
5. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
6. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
7. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.
8. RIGID MINIMUM 1" NIPPLE, THREADED AT BOTH ENDS, HELD IN PLACE WITH BONDING BUSHING AND LOCK NUT. ADDITIONAL 2" LAG SCREWS TO BE USED TO SECURE SAFETY SWITCH/BREAKER BOX AND METER BASE TO WOOD POST. FOUR SCREWS TO BE USED WITH EACH.



VDOT

ROAD AND BRIDGE STANDARDS

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ELECTRICAL SERVICE**INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

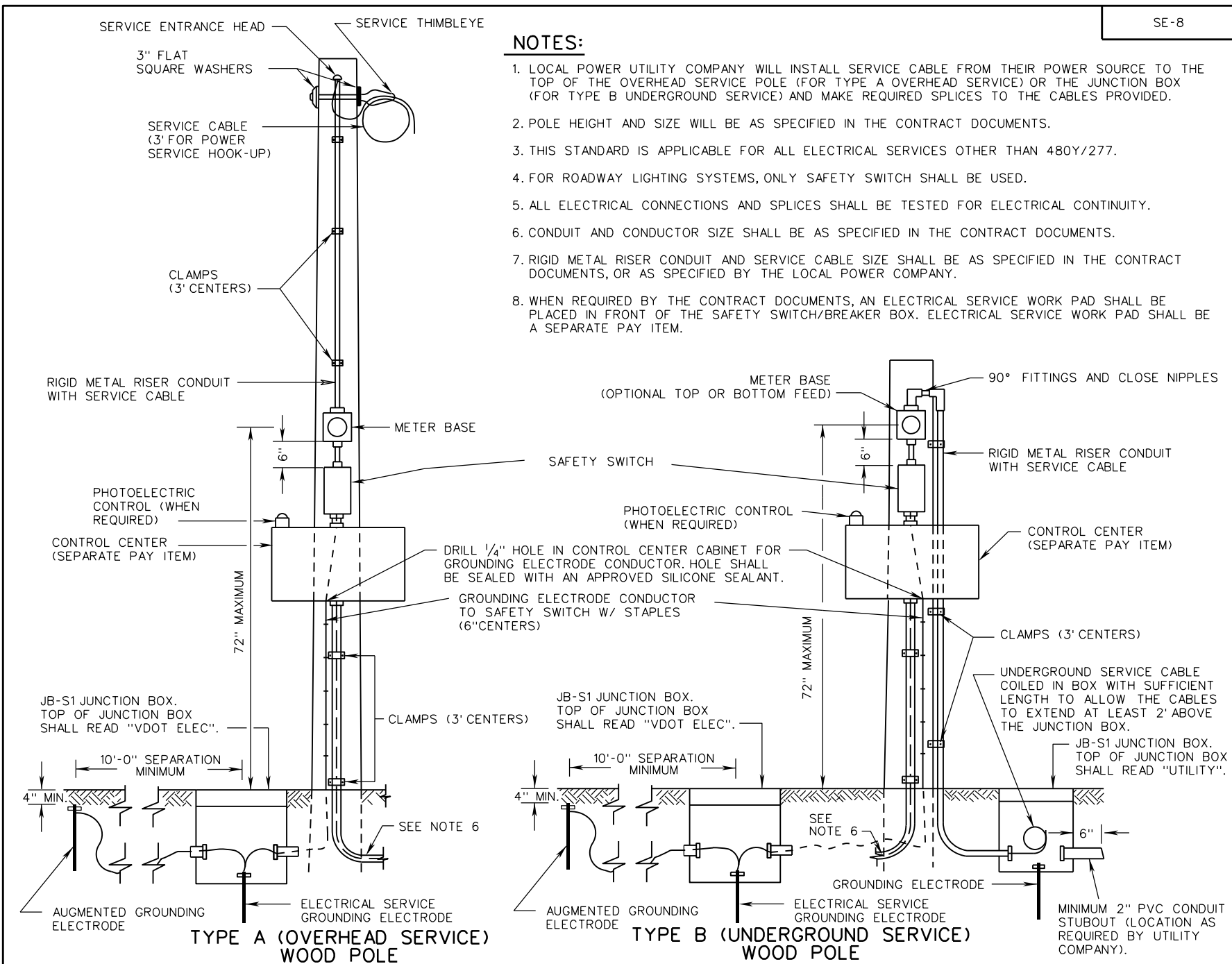
SPECIFICATION
REFERENCE

SHEET 1 OF 1 REVISION DATE

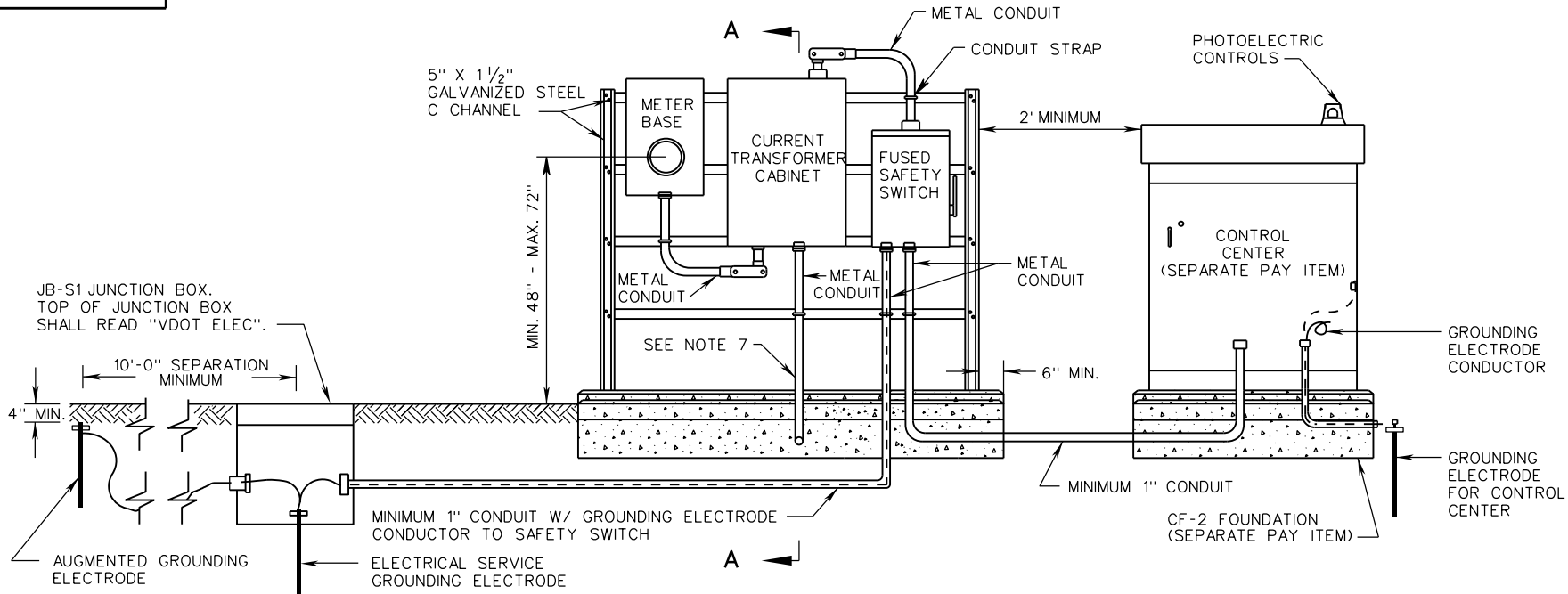
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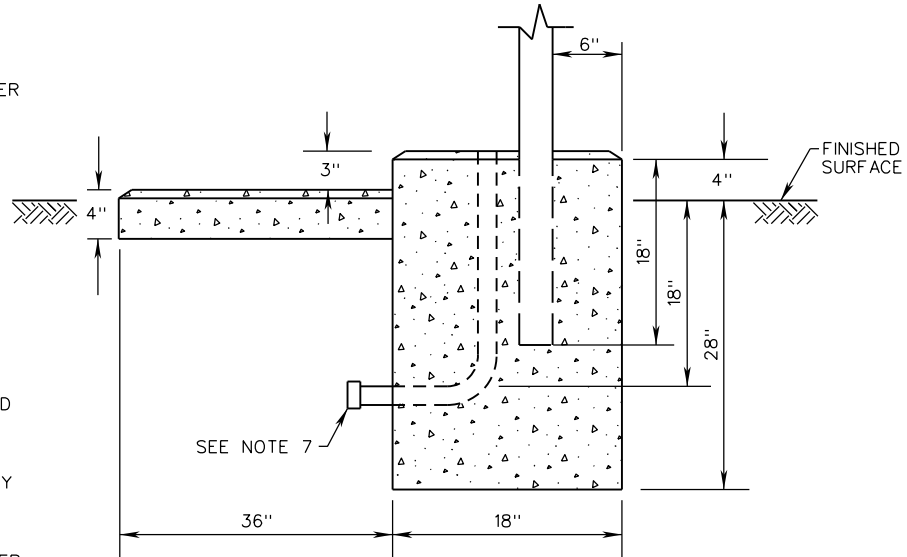
SPECIFICATION REFERENCE	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.		 ROAD AND BRIDGE STANDARDS
	ELECTRICAL SERVICE INSTALLATION DETAILS VIRGINIA DEPARTMENT OF TRANSPORTATION		
700			SHEET 1 OF 1 1312.80



TYPE A

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE CURRENT TRANSFORMER CABINET AND METER BASE THEN MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. THIS STANDARD IS APPLICABLE FOR 480Y/277 ELECTRICAL SERVICE ONLY.
3. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
4. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
5. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
6. SAFETY SWITCH, METER BASE, WIREWAY, CURRENT TRANSFORMER CABINET AND CONTROL CENTER SHALL BE ATTACHED TO THE CHANNELING WITH $\frac{3}{8}$ " GALVANIZED BOLTS, LOCK WASHERS AND NUTS. FOUR CROSS CHANNELS SHALL BE UTILIZED.
7. MINIMUM 2" METAL CONDUIT SHALL BE STUBBED OUT 6" PAST CONCRETE FOUNDATION PAD. LOCATION OF THE STUBBED CONDUIT SHALL BE AS REQUIRED BY THE LOCAL POWER COMPANY.
8. THE CONTRACTOR SHALL LEAVE A SUFFICIENT AMOUNT OF CONDUCTOR CABLE COILED INSIDE THE CURRENT TRANSFORMER CABINET TO PERMIT THE LOCAL POWER COMPANY TO MAKE THEIR CONNECTION.
9. SERVICE ENTRANCE FOUNDATION, INCLUDING THE CONCRETE PAD, IS INCLUDED IN THE SE-9 PAY ITEM.



SECTION A-A
SERVICE ENTRANCE FOUNDATION DETAIL

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

**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

700



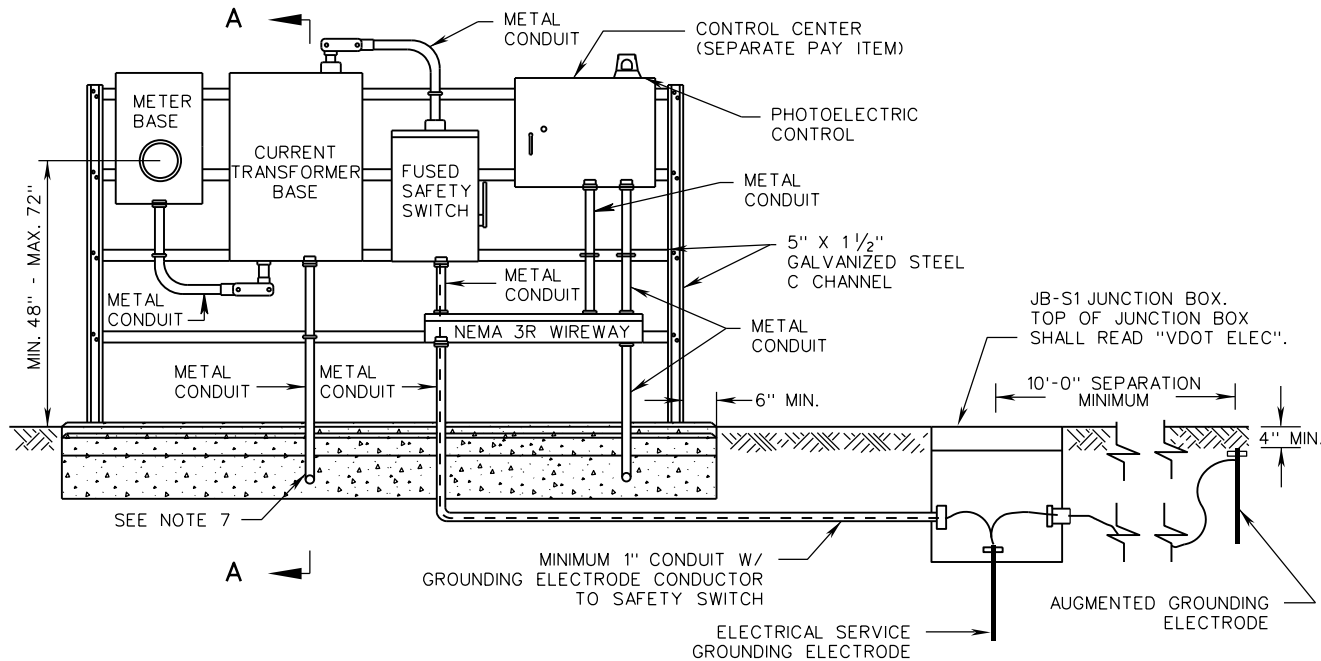
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

REVISION DATE

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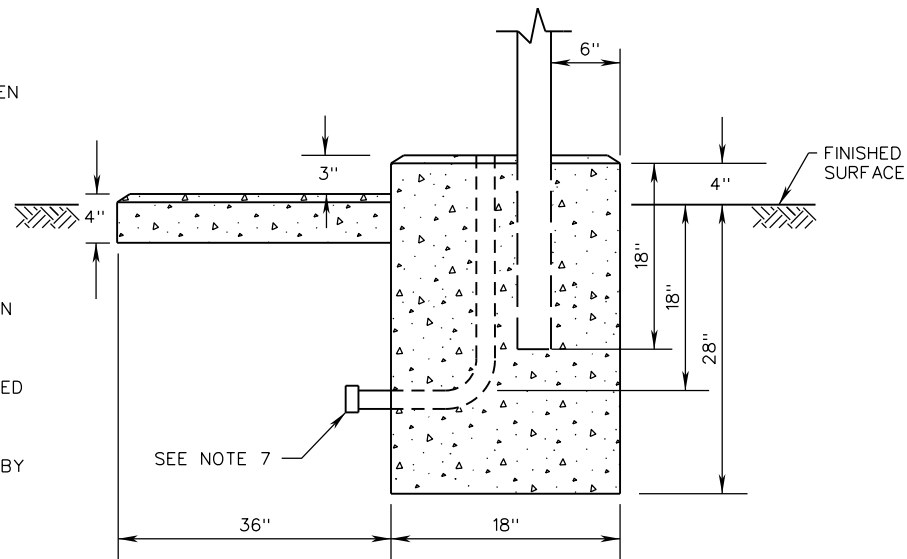
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TYPE B

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE CURRENT TRANSFORMER CABINET AND METER BASE THEN MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. THIS STANDARD IS APPLICABLE FOR 480Y/277 ELECTRICAL SERVICE ONLY.
3. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
4. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
5. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
6. SAFETY SWITCH, METER BASE, WIREWAY, CURRENT TRANSFORMER CABINET AND CONTROL CENTER SHALL BE ATTACHED TO THE CHANNELING WITH 3/8" GALVANIZED BOLTS, LOCK WASHERS AND NUTS. FOUR CROSS CHANNELS SHALL BE UTILIZED.
7. MINIMUM 2" METAL CONDUIT SHALL BE STUBBED OUT 6" PAST CONCRETE FOUNDATION PAD. LOCATION OF THE STUBBED CONDUIT SHALL BE AS REQUIRED BY THE LOCAL POWER COMPANY.
8. THE CONTRACTOR SHALL LEAVE A SUFFICIENT AMOUNT OF CONDUCTOR CABLE COILED INSIDE THE CURRENT TRANSFORMER CABINET TO PERMIT THE LOCAL POWER COMPANY TO MAKE THEIR CONNECTION.
9. SERVICE ENTRANCE FOUNDATION, INCLUDING THE CONCRETE PAD, IS INCLUDED IN THE SE-9 PAY ITEM.



SECTION A-A
SERVICE ENTRANCE FOUNDATION DETAIL

SPECIFICATION REFERENCE

700

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

**ELECTRICAL SERVICE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

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ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

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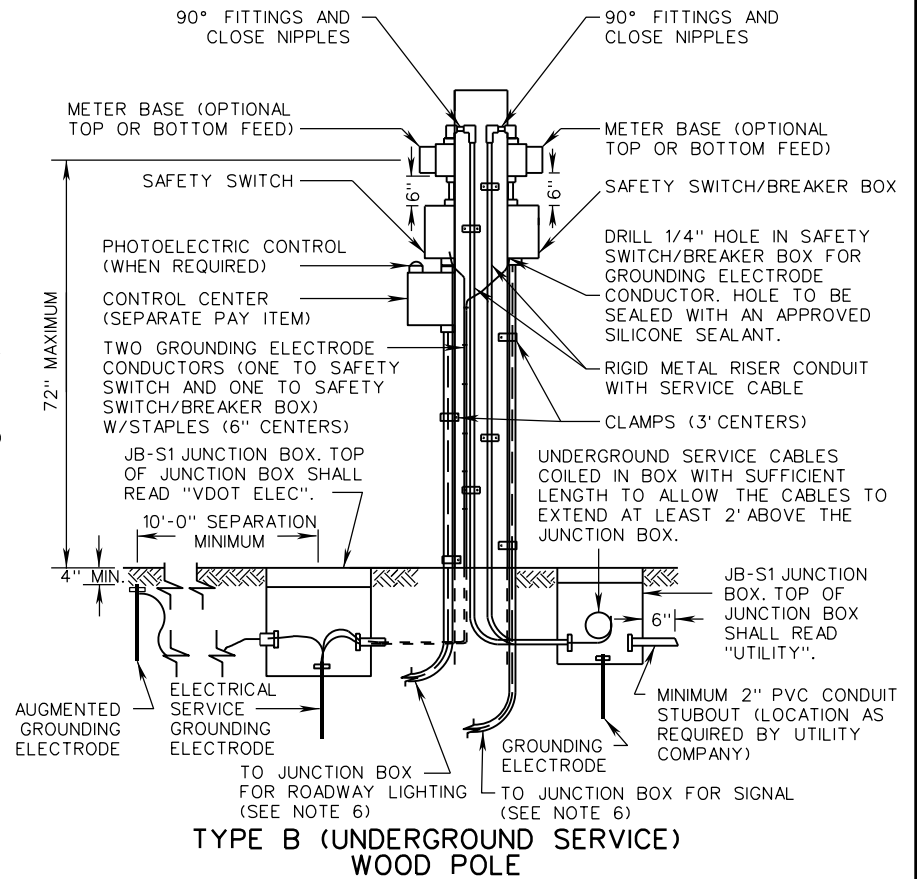
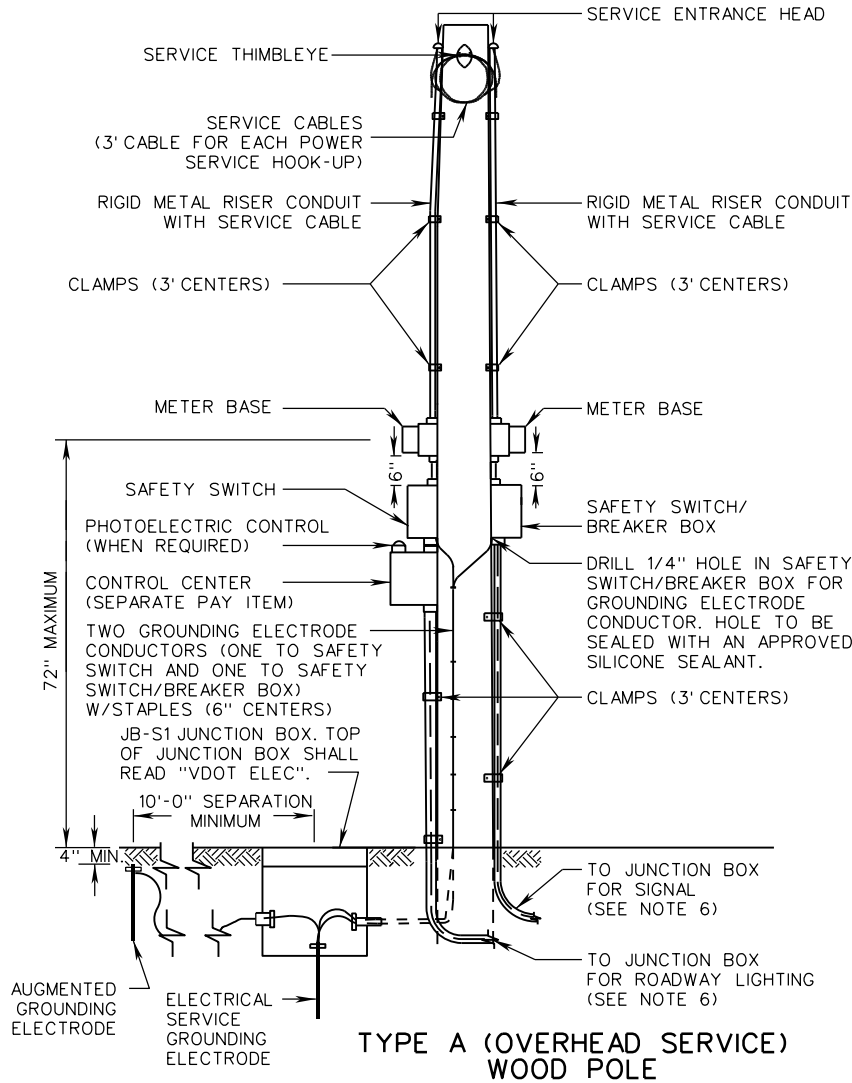
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE TOP OF THE OVERHEAD SERVICE POLE (FOR TYPE A OVERHEAD SERVICE) OR THE JUNCTION BOX (FOR TYPE B UNDERGROUND SERVICE) AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.

5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
8. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.



SPECIFICATION REFERENCE
700

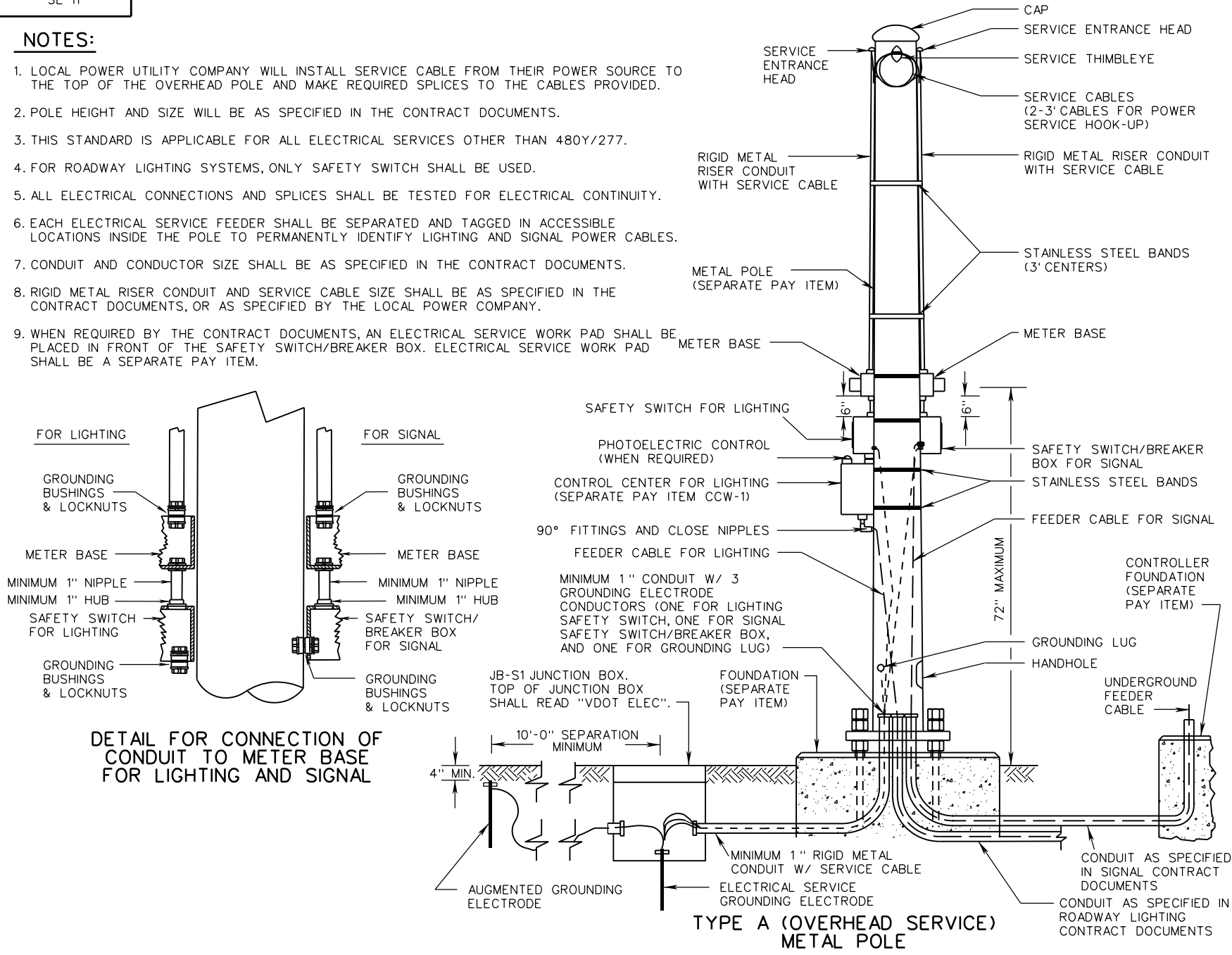
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**ELECTRICAL SERVICE
INSTALLATION DETAILS**
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 1
02/16	1313.10

NOTES:

1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE TOP OF THE OVERHEAD POLE AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. EACH ELECTRICAL SERVICE FEEDER SHALL BE SEPARATED AND TAGGED IN ACCESSIBLE LOCATIONS INSIDE THE POLE TO PERMANENTLY IDENTIFY LIGHTING AND SIGNAL POWER CABLES.
7. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
8. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
9. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.



TYPE A (OVERHEAD SERVICE) METAL POLE

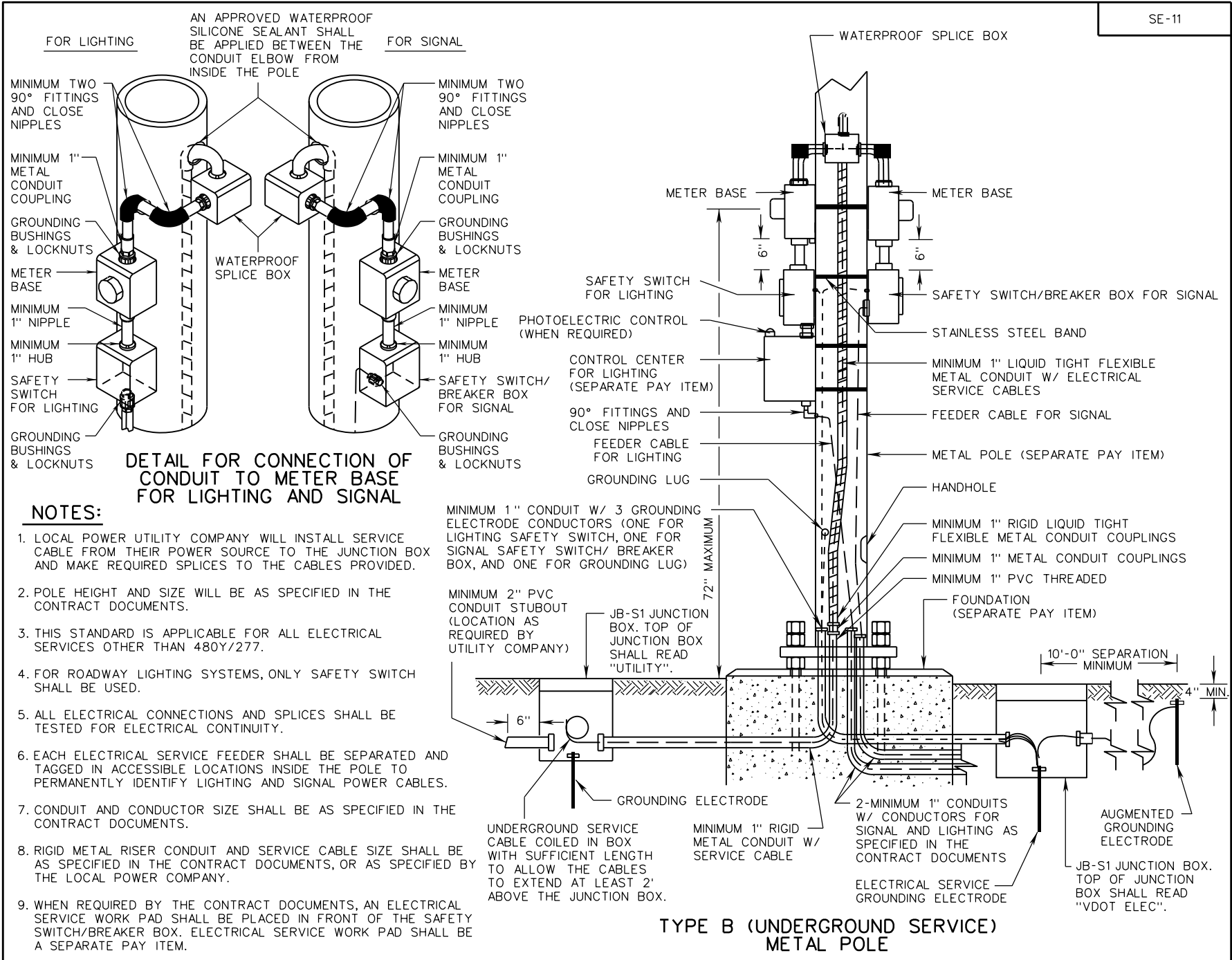
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ROAD AND BRIDGE STANDARDS	
SHEET 1 OF 2	REVISION DATE
1313.20	02/16

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ELECTRICAL SERVICE INSTALLATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
700



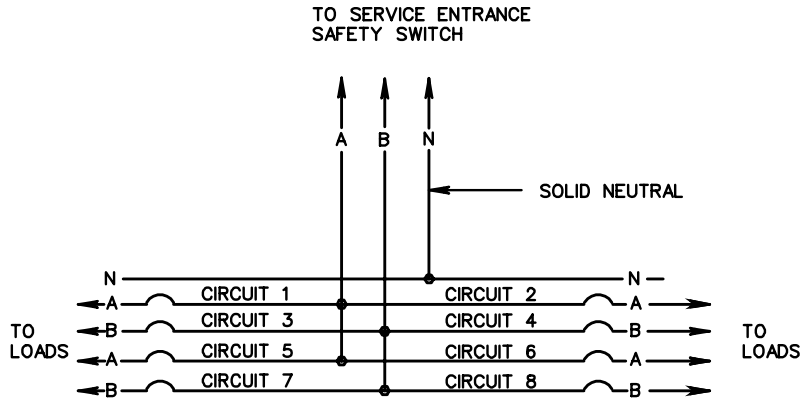
DETAIL FOR CONNECTION OF CONDUIT TO METER BASE FOR LIGHTING AND SIGNAL

NOTES:

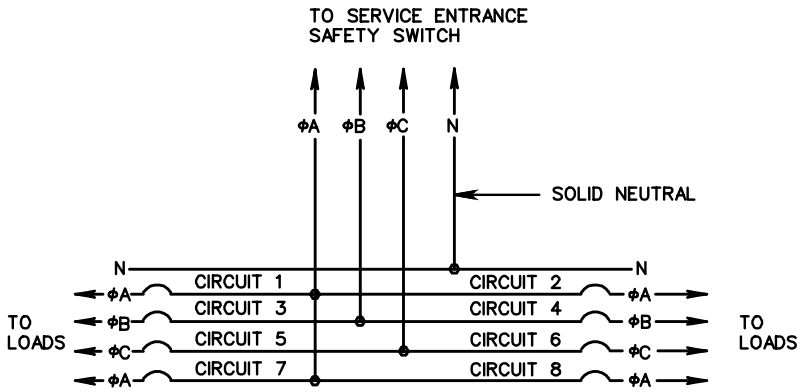
1. LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE CABLES PROVIDED.
2. POLE HEIGHT AND SIZE WILL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.
4. FOR ROADWAY LIGHTING SYSTEMS, ONLY SAFETY SWITCH SHALL BE USED.
5. ALL ELECTRICAL CONNECTIONS AND SPLICES SHALL BE TESTED FOR ELECTRICAL CONTINUITY.
6. EACH ELECTRICAL SERVICE FEEDER SHALL BE SEPARATED AND TAGGED IN ACCESSIBLE LOCATIONS INSIDE THE POLE TO PERMANENTLY IDENTIFY LIGHTING AND SIGNAL POWER CABLES.
7. CONDUIT AND CONDUCTOR SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
8. RIGID METAL RISER CONDUIT AND SERVICE CABLE SIZE SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS SPECIFIED BY THE LOCAL POWER COMPANY.
9. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, AN ELECTRICAL SERVICE WORK PAD SHALL BE PLACED IN FRONT OF THE SAFETY SWITCH/BREAKER BOX. ELECTRICAL SERVICE WORK PAD SHALL BE A SEPARATE PAY ITEM.

TYPE B (UNDERGROUND SERVICE) METAL POLE

<p>SPECIFICATION REFERENCE</p> <p style="text-align: center;">700</p>	<p>A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.</p> <p>ELECTRICAL SERVICE</p> <p>INSTALLATION DETAILS</p> <p>VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	<p>VDOT</p> <p>ROAD AND BRIDGE STANDARDS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">REVISION DATE</td> <td style="width: 50%;">SHEET 2 OF 2</td> </tr> <tr> <td style="text-align: center;">02/16</td> <td style="text-align: center;">1313.21</td> </tr> </table>	REVISION DATE	SHEET 2 OF 2	02/16	1313.21
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**TYPE A
(SINGLE PHASE)**



**TYPE B
(THREE PHASE)**

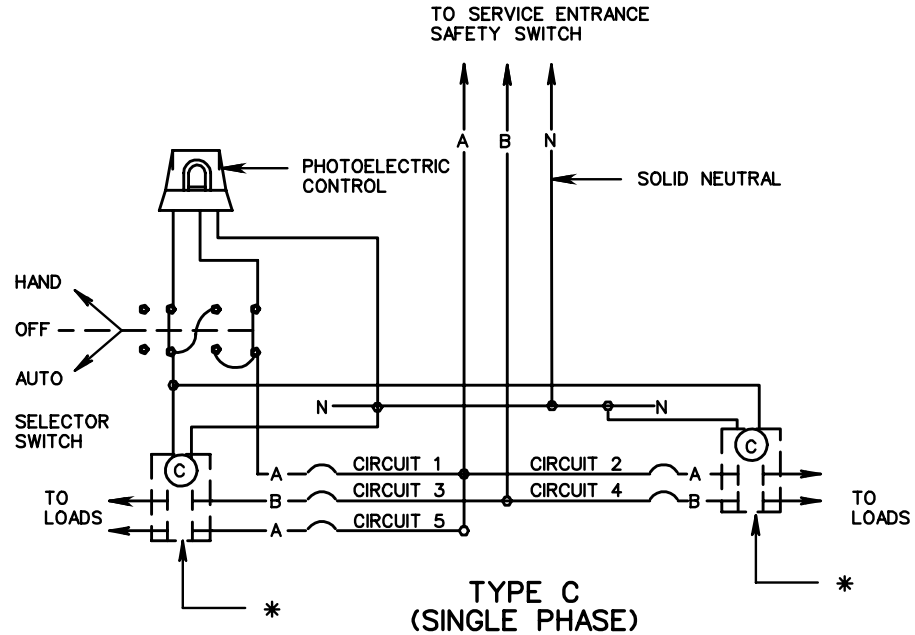
NOTES:

ALL CIRCUIT BREAKERS SHALL BE SINGLE POLE.

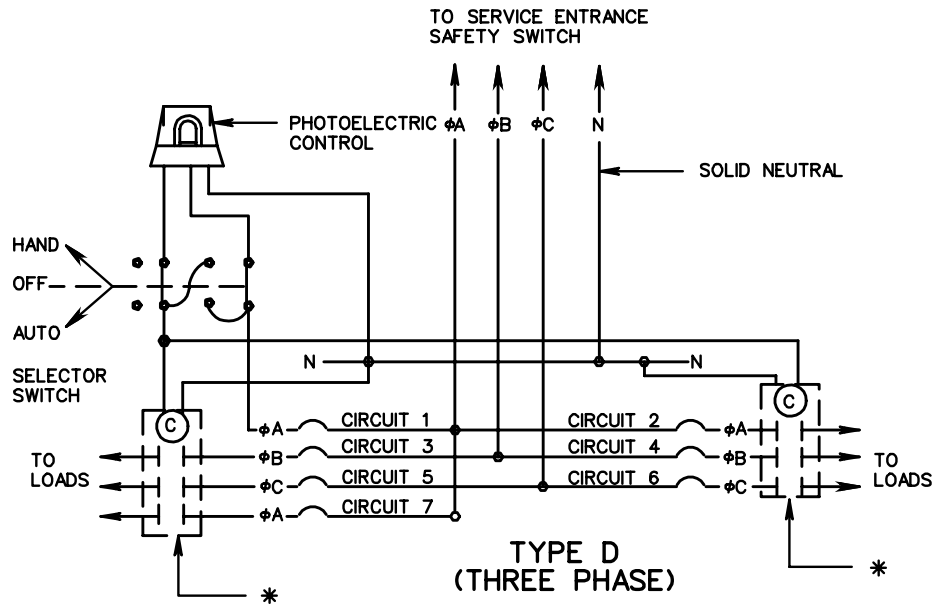
VOLTAGE AND AMPERAGE RATINGS OF CONTACTORS AND BREAKERS SHALL BE AS INDICATED ON THE PLANS.

NUMBER OF CIRCUITS SHOWN ARE TYPICAL. EXACT NUMBER REQUIRED SHALL BE AS INDICATED ON THE PLANS.

* CONTACTORS SHALL BE 2 POLES FOR SINGLE PHASE AND 3 POLES FOR THREE PHASE SERVICES. NUMBER OF CONTACTORS SHALL BE AS REQUIRED TO HANDLE THE NUMBER OF CIRCUITS ACTUALLY BEING UTILIZED.



**TYPE C
(SINGLE PHASE)**



**TYPE D
(THREE PHASE)**



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 4

REVISION DATE

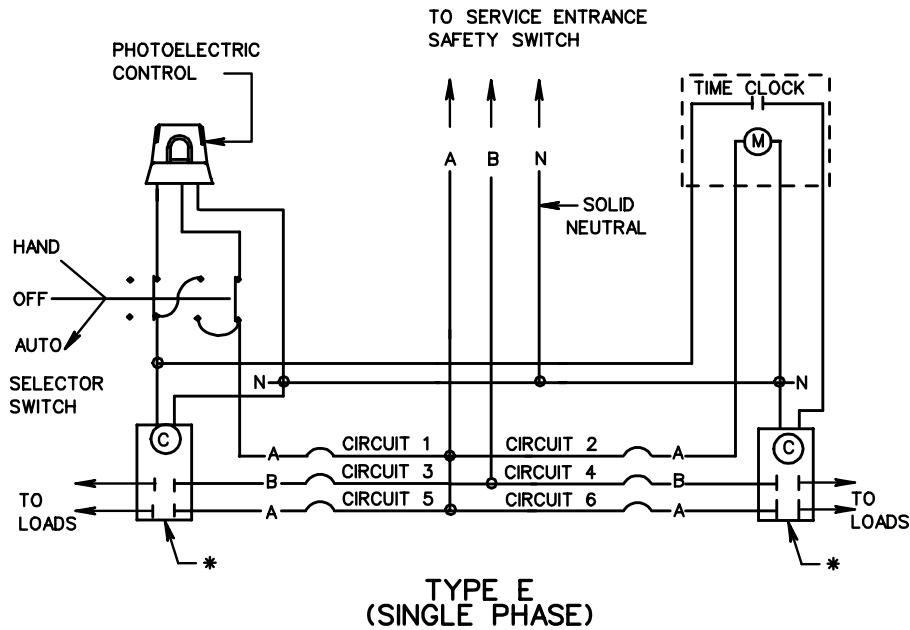
1314.10

**CONTROL CENTER WIRING
DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

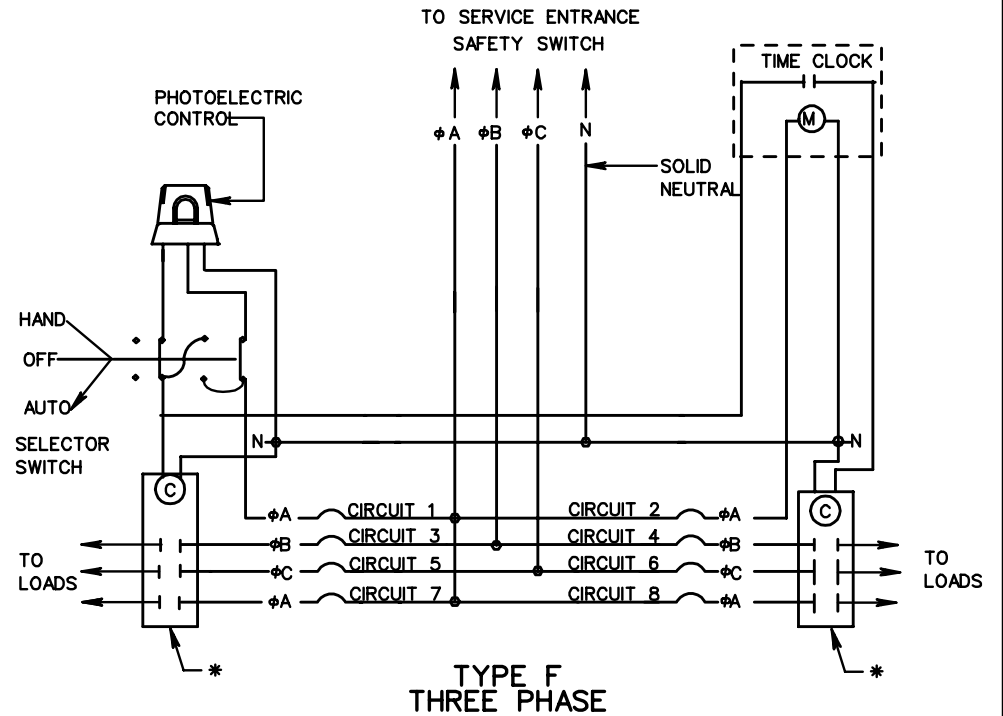
SPECIFICATION
REFERENCE

700
705



NOTES:

- ALL CIRCUIT BREAKERS SHALL BE SINGLE POLE.
- VOLTAGE AND AMPERAGE RATINGS OF CONTACTORS AND BREAKERS SHALL BE AS INDICATED ON THE PLANS.
- NUMBER OF CIRCUITS SHOWN ARE TYPICAL. EXACT NUMBER REQUIRED SHALL BE AS INDICATED ON THE PLANS.
- * CONTACTORS SHALL BE 2 POLES FOR SINGLE PHASE AND 3 POLES FOR THREE PHASE SERVICES. NUMBER OF CONTACTORS SHALL BE AS REQUIRED TO HANDLE THE NUMBER OF CIRCUITS ACTUALLY BEING UTILIZED.



SPECIFICATION REFERENCE

700
705

**CONTROL CENTER WIRING
DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

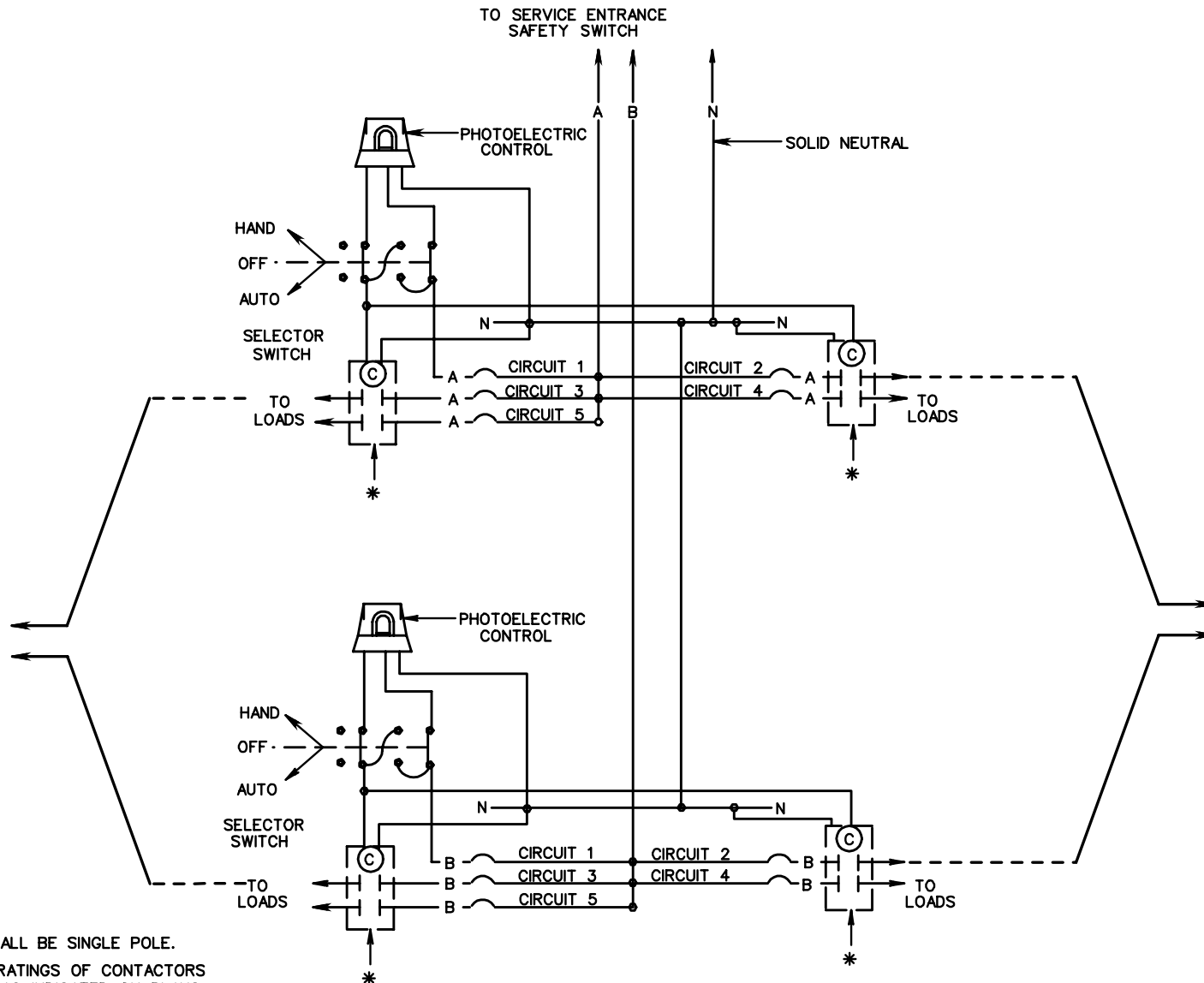
VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 2 OF 4

1314.11



NOTES:
 ALL CIRCUIT BREAKERS SHALL BE SINGLE POLE.
 VOLTAGE AND AMPERAGE RATINGS OF CONTACTORS AND BREAKERS SHALL BE AS INDICATED ON PLANS.
 NUMBER OF CIRCUITS SHOWN ARE TYPICAL. EXACT NUMBER REQUIRED SHALL BE AS INDICATED ON THE PLANS.
 * CONTACTOR SHALL BE 2 POLES FOR SINGLE PHASE AND 3 POLES FOR THREE PHASE SERVICES.
 NUMBER OF CONTACTORS SHALL BE AS REQUIRED TO HANDLE THE NUMBER OF CIRCUITS ACTUALLY BEING UTILIZED.

**TYPE G
(SINGLE PHASE)**

VDOT	
ROAD AND BRIDGE STANDARDS	
SHEET 3 OF 4	REVISION DATE
1314.12	

CONTROL CENTER WIRING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

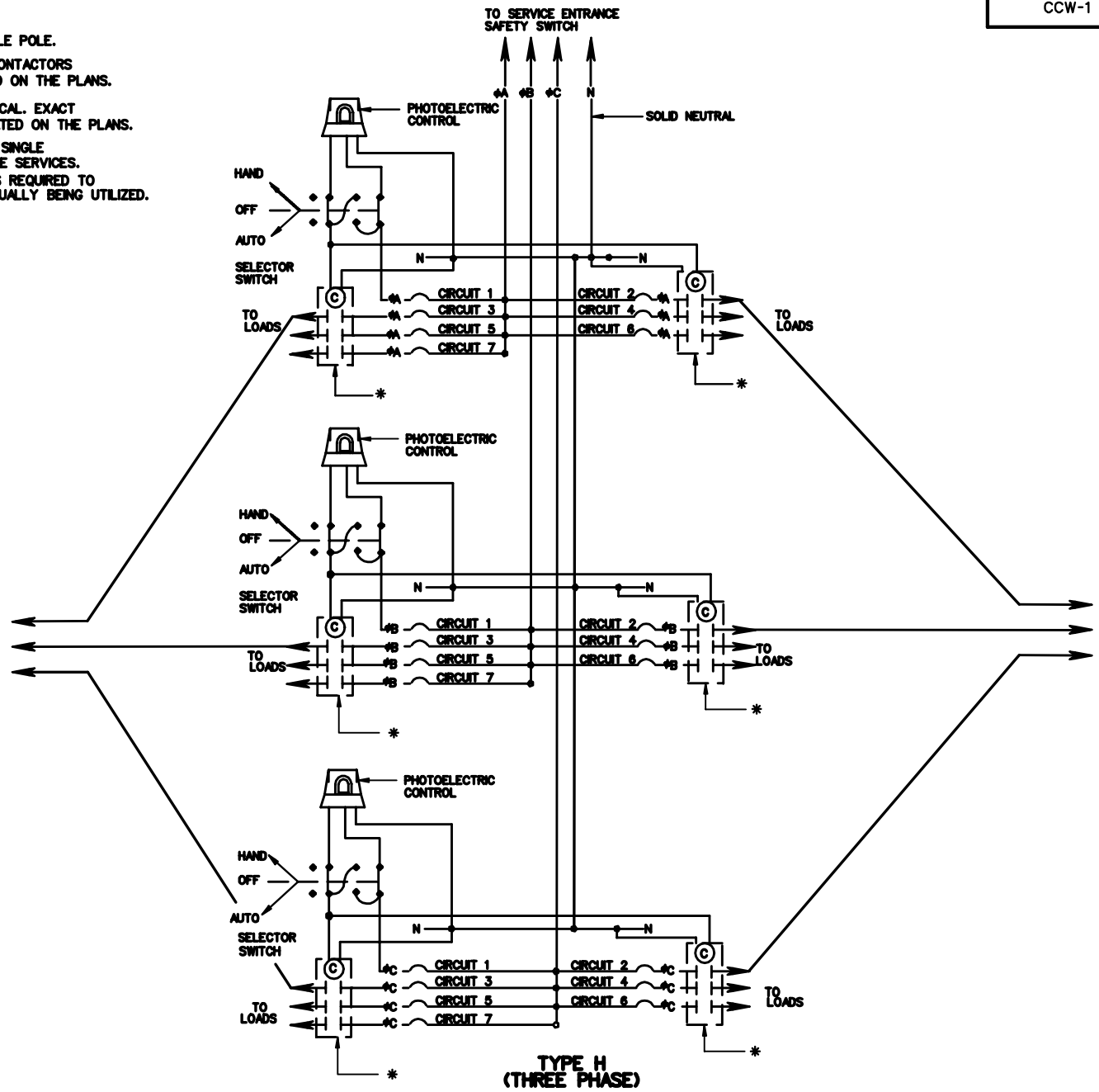
SPECIFICATION REFERENCE
700 705

NOTES:

ALL CIRCUIT BREAKERS SHALL BE SINGLE POLE.
 VOLTAGE AND AMPERAGE RATING OF CONTACTORS
 AND BREAKERS SHALL BE AS INDICATED ON THE PLANS.

NUMBER OF CIRCUITS SHOWN ARE TYPICAL. EXACT
 NUMBER REQUIRED SHALL BE AS INDICATED ON THE PLANS.

* CONTACTORS SHALL BE 2 POLES FOR SINGLE
 PHASE AND 3 POLES FOR THREE PHASE SERVICES.
 NUMBER OF CONTACTORS SHALL BE AS REQUIRED TO
 HANDLE THE NUMBER OF CIRCUITS ACTUALLY BEING UTILIZED.



SPECIFICATION
 REFERENCE

700
 705

CONTROL CENTER WIRING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

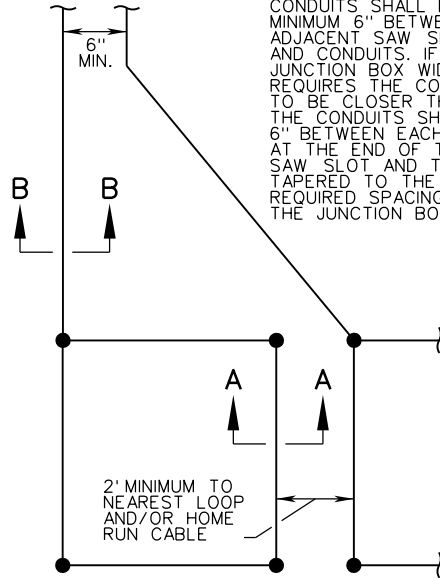
REVISION DATE

SHEET 4 OF 4

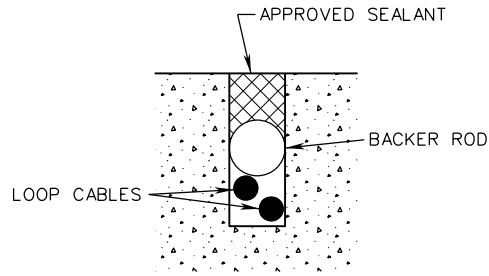
1314.13

TO JUNCTION BOX

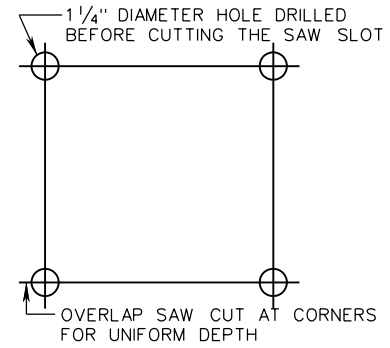
SECTION B-B SAW SLOTS AND PVC CONDUITS SHALL BE A MINIMUM 6" BETWEEN ADJACENT SAW SLOTS AND CONDUITS. IF THE JUNCTION BOX WIDTH REQUIRES THE CONDUITS TO BE CLOSER THAN 6", THE CONDUITS SHALL BE 6" BETWEEN EACH OTHER AT THE END OF THE SAW SLOT AND THEN TAPERED TO THE REQUIRED SPACING AT THE JUNCTION BOX.



TYPICAL LOOP WIRE PLAN



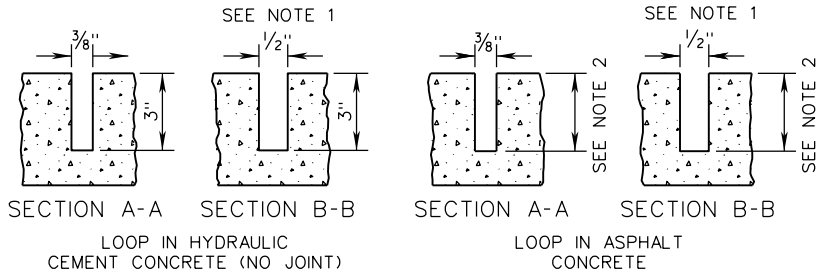
CROSS SECTION TYPICAL SEALED SLOT



TYPICAL SAW CUT DIAGRAM

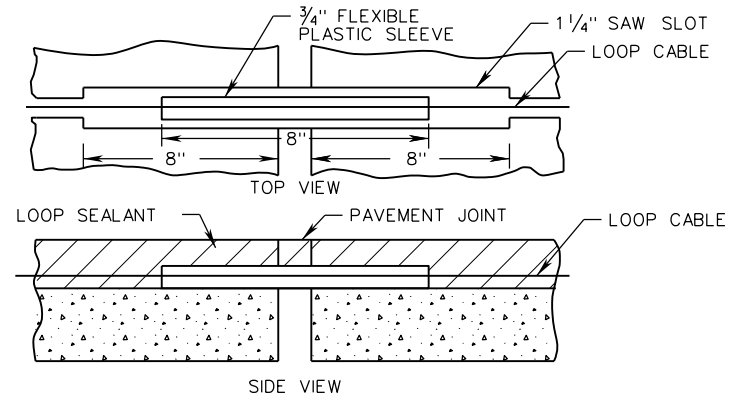
NOTES:

- SAW SLOT SHALL BE 5/8" WHEN LOOP DETECTOR CABLE ENCLOSED IN TUBING IS INSTALLED.
- IN NEW ASPHALT CONCRETE ROADWAYS, SAW SLOTS SHALL BE CUT INTO THE BASE COURSE TO A DEPTH OF 3".
IN EXISTING ASPHALT CONCRETE ROADWAYS WHICH ARE TO BE RESURFACED AS PART OF THE PROJECT, SAW SLOTS SHALL BE CUT INTO THE PLANED SURFACE TO A DEPTH OF 3" PRIOR TO THE OVERLAY. LOOP DETECTORS MAY BE INSTALLED THROUGH FINISHED RIDING SURFACE AS SPECIFIED IN CONTRACT DOCUMENTS. SAW SLOTS IN FINAL RIDING SURFACE SHALL HAVE A 4" MINIMUM AND 4.5" MAXIMUM DEPTH.
- IN EXISTING ASPHALT CONCRETE ROADWAYS WHICH ARE NOT TO BE RESURFACED AS PART OF THE PROJECT, SAW SLOTS SHALL BE CUT INTO THE EXISTING SURFACE TO A DEPTH OF 4".



DEPTH OF SAW SLOT SHALL BE MEASURED FROM PAVEMENT SURFACE AT TIME OF INSTALLATION. NOT NECESSARILY FINISHED GRADE.

TYPICAL SAW SLOT DETAIL



INSTALLATION OF LOOP CABLE ACROSS HYDRAULIC CEMENT CONCRETE PAVEMENT JOINTS



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 3

REVISION DATE

1315.10

02/16

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

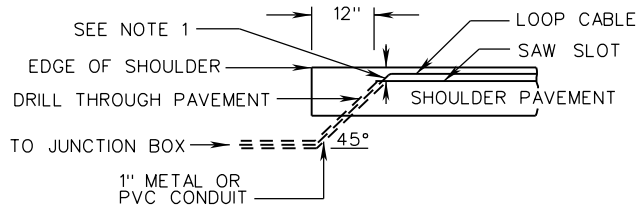
LOOP DETECTOR

INSTALLATION DETAIL

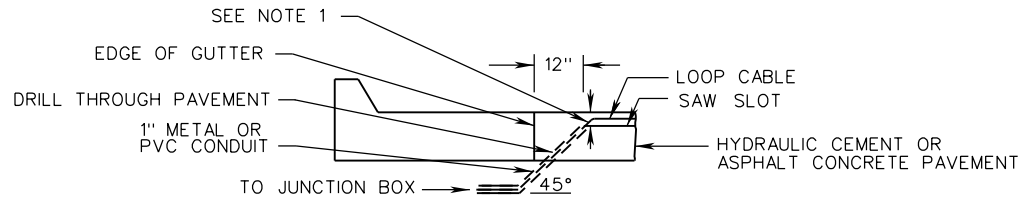
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

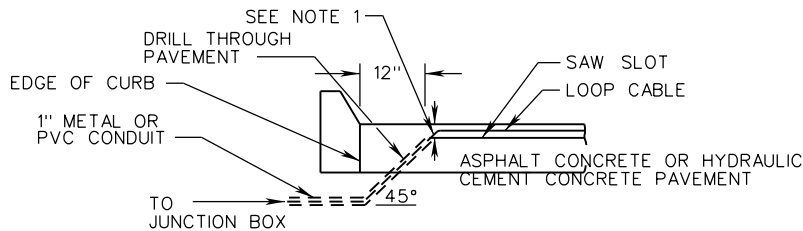
703



SHOULDER SECTION



CURB AND GUTTER SECTION



CURB SECTION (NO GUTTER)

NOTES:

1. THE TOP OF 1" CONDUITS SHALL BE INSTALLED 1" BELOW THE BOTTOM OF THE SAW SLOT.
2. PLASTIC BUSHINGS SHALL BE INSTALLED ON THE ENDS OF THE CONDUITS IN THE PAVEMENT. DUCT SEAL SHALL BE APPLIED TO THE OPEN END OF THE BUSHING.
3. SAW SLOTS SHALL INTERSECT WITH THE HOLES DRILLED FOR INSTALLATION OF THE CONDUITS AND LOOP CABLES.
4. DRILLED HOLES SHALL BE NO LARGER THAN REQUIRED FOR INSTALLATION OF THE CONDUIT AND PLASTIC BUSHING.
5. REMOVAL OF LARGE SECTIONS OF PAVEMENT TO PERFORM THIS WORK WILL NOT BE ALLOWED.
6. ONE CONDUIT SHALL BE PROVIDED FOR EACH SAW SLOT.
7. ALL DIMENSIONS NOT SHOWN SHALL BE AS SPECIFIED ON THE CONTRACT DOCUMENTS.

SPECIFICATION REFERENCE

703

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

**LOOP DETECTOR
INSTALLATION DETAIL**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

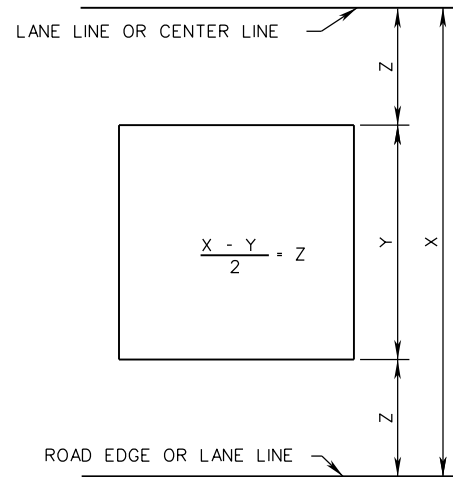
02/16

SHEET 2 OF 3

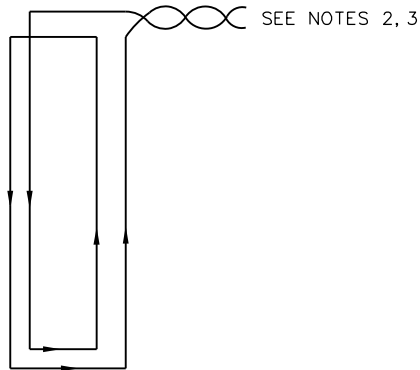
1315.11

NOTES:

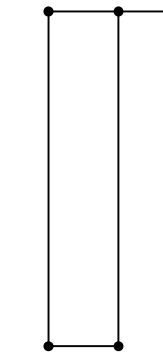
1. ALL DIMENSIONS NOT SHOWN SHALL BE AS SPECIFIED ON THE CONTRACT DOCUMENTS.
2. LOOP WIRE TWISTED TOGETHER WITH A MINIMUM OF THREE TURNS PER RUNNING FOOT.
3. BASED ON THE LENGTH OF LEAD-IN CABLE, ADDITIONAL WIRE TURNS PER LOOP MAY BE REQUIRED AS SPECIFIED BY THE CONTRACT DOCUMENTS.



TYPICAL LANE COVERAGE DIAGRAM

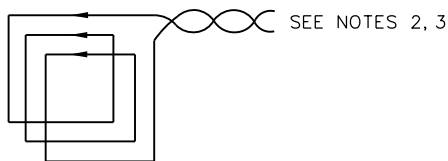


LOOP CABLE INSTALLATION

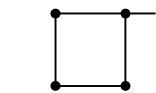


PLAN VIEW

TD-1A

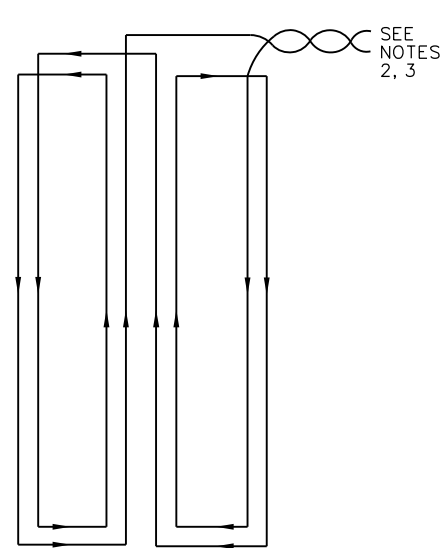


LOOP CABLE INSTALLATION

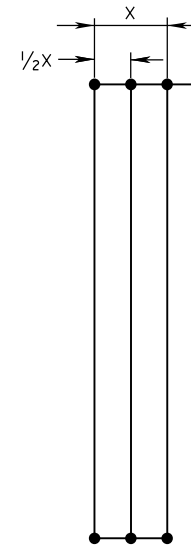


PLAN VIEW

TD-1B

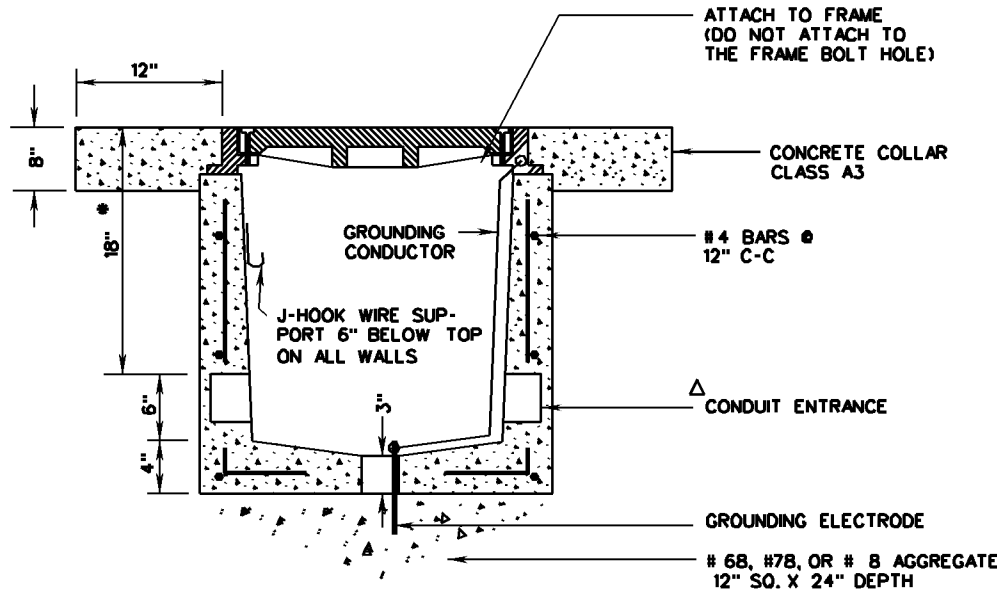


LOOP CABLE INSTALLATION

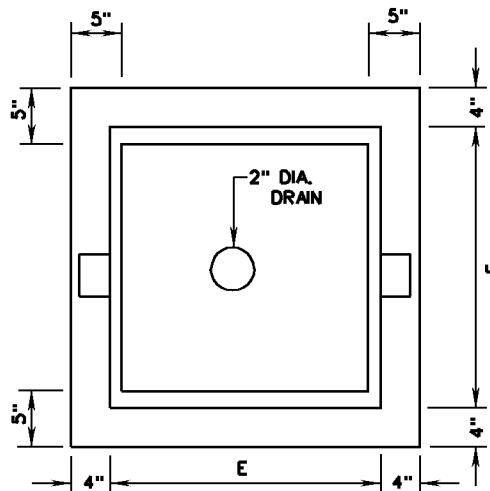


PLAN VIEW

TD-1C



STANDARD	DIMENSIONS	
	E	F
JB-R1	20"	20"
JB-R2	27"	27"



PLAN VIEW
(FRAME AND COVER REMOVED)

NOTES:

J-HOOK WIRE SUPPORTS SHALL BE SECURELY ATTACHED TO THE JUNCTION BOX WITH A BOLT AND NUT WITH A NEOPRENE WASHER OR AN EXPANSION FITTING.

CONDUIT ENTRANCES SHALL BE LOCATED AS SHOWN ON THE PLANS. CONDUITS SHALL EXTEND 2" MIN. TO 3" MAX. INTO THE INSIDE WALL OF THE JUNCTION BOX.

BELL ENDS SHALL BE INSTALLED ON THE ENDS OF PVC CONDUITS. GROUNDING BUSHINGS SHALL BE INSTALLED ON THE ENDS OF METAL CONDUITS.

CONDUITS AND BUSHINGS SHALL BE PLUGGED TO PREVENT MOISTURE & RODENT ENTRY.

* DEPTH OF CONDUIT ENTRANCES FOR MAGNETIC DETECTORS SHALL BE IN ACCORDANCE WITH THE PLANS.

ALL REINFORCING STEEL SHALL HAVE A MINIMUM 1/2" CONCRETE COVER. ANY REINFORCING STEEL IN CONFLICT WITH CONDUIT SHALL BE CUT A MINIMUM OF 1/2" FROM CONDUIT.

THE JUNCTION BOX MAY BE PRECAST OR CAST IN PLACE CONCRETE.

△ A MINIMUM 2" DIAMETER CONDUIT ENTRANCE IS REQUIRED UNLESS OTHERWISE SPECIFIED ON PLANS.

A CONCRETE COLLAR IS REQUIRED ONLY WHEN JUNCTION BOX IS INSTALLED IN EARTH AREAS.

HIGH STRENGTH GROUT CONFORMING TO THE ROAD & BRIDGE SPECIFICATIONS SHALL BE USED TO SECURE THE FRAME TO THE JUNCTION BOX.

ALL JUNCTION BOXES SHALL BE INSTALLED WITH A GROUNDING ELECTRODE

VOIDS RESULTING FROM ENTRANCE OF CONDUITS INTO JUNCTION BOX SHALL BE COMPLETELY FILLED WITH HYDRAULIC CEMENT GROUT CONFORMING TO THE ROAD & BRIDGE SPECIFICATIONS.

SPECIFICATION
REFERENCE

700

JUNCTION BOX
FOR TRAFFIC USE

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

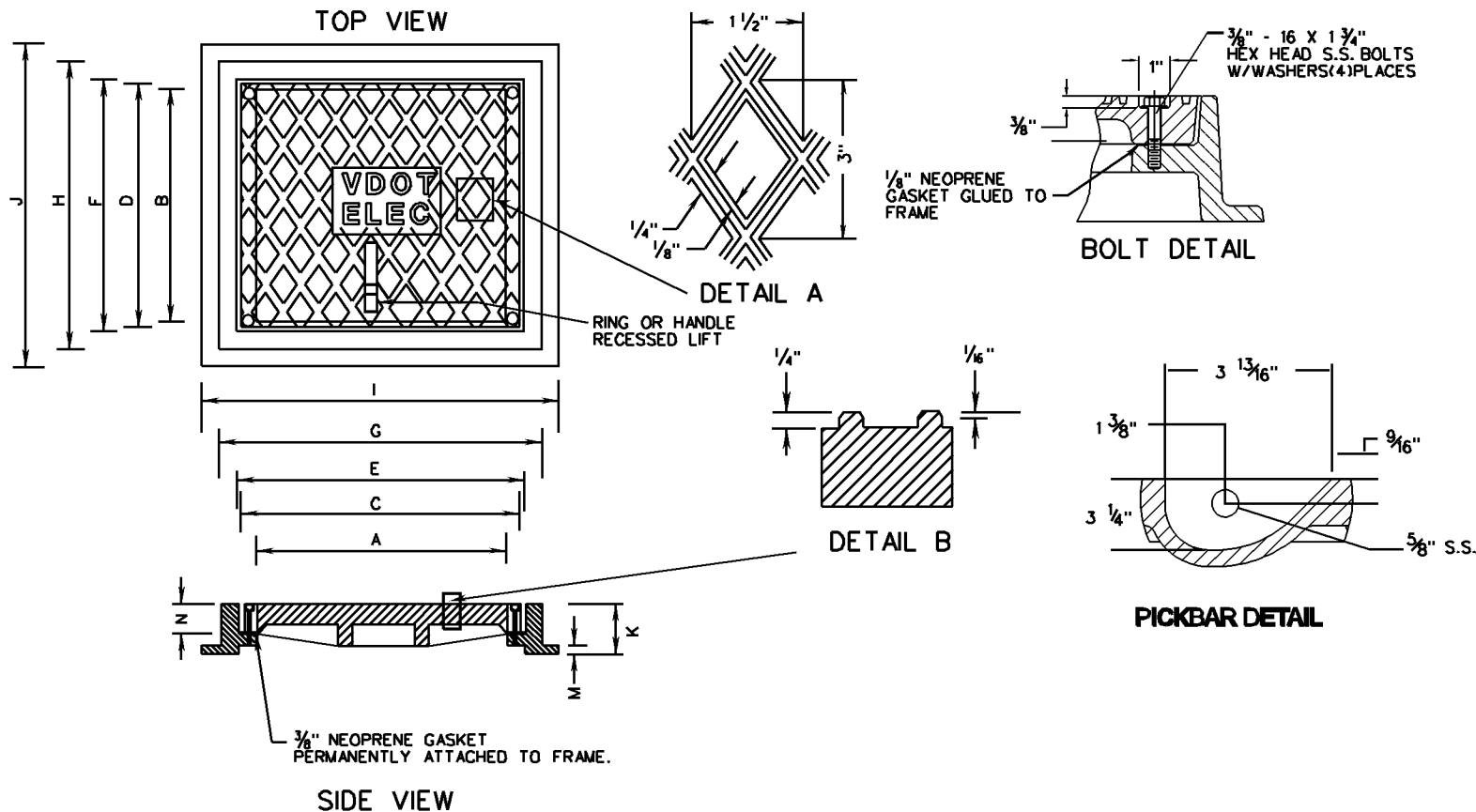
ROAD AND BRIDGE STANDARDS

REVISION DATE

06-15-2009

SHEET 1 OF 2

1317.10



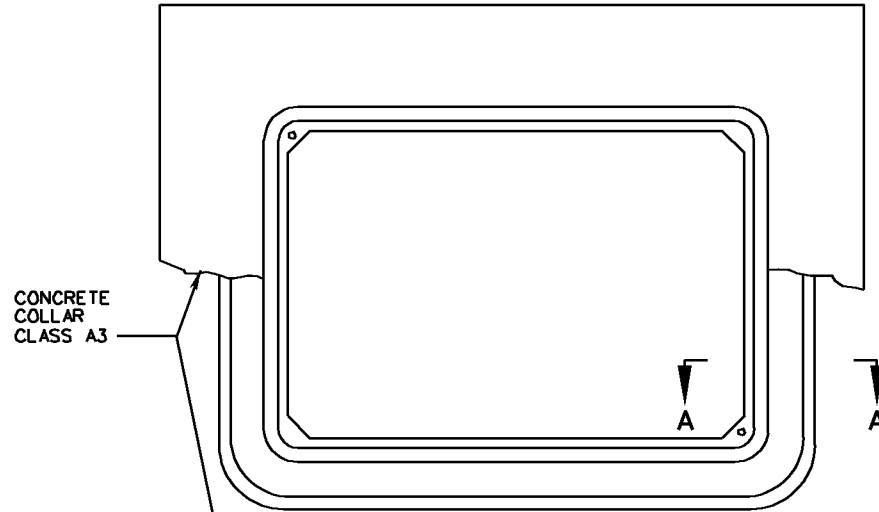
STANDARD	DIMENSIONS												
	A	B	C	D	E	F	G	H	I	J	K	M	N
JB-R1	18"	18"	19"	19"	20"	20"	21"	21"	24"	24"	4"	5/8"	1"
JB-R2	24"	24"	26"	26"	27"	27"	28"	28"	33"	33"	4"	5/8"	1"

NOTES:

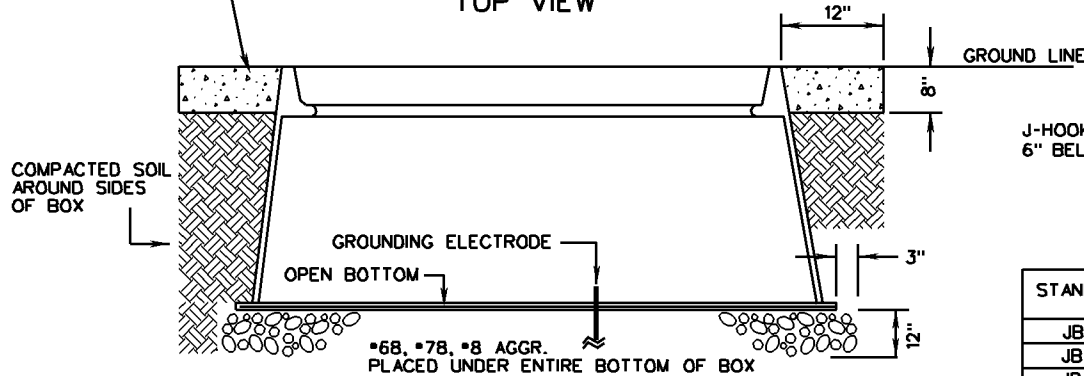
THE COVER SHALL HAVE A NON-SKID SURFACE WITH LETTERS CAST IN THE DEPRESSION ON TOP. THE LETTERS "VDOT ELEC", "VDOT TRAFF", "VDOT COMM" OR "UTILITY" AS APPLICABLE ARE TO BE ONE (1) INCH WIDE AND RAISED 1/4" HIGH. COVERS USED FOR JUNCTION BOXES INSTALLED WITHIN MUNICIPALITIES AND NOT MAINTAINED BY VDOT SHALL NOT REQUIRE THE VDOT REFERENCE.

FOUR RECESSED 3/8" HEX BOLTS ARE REQUIRED FOR EACH COVER.

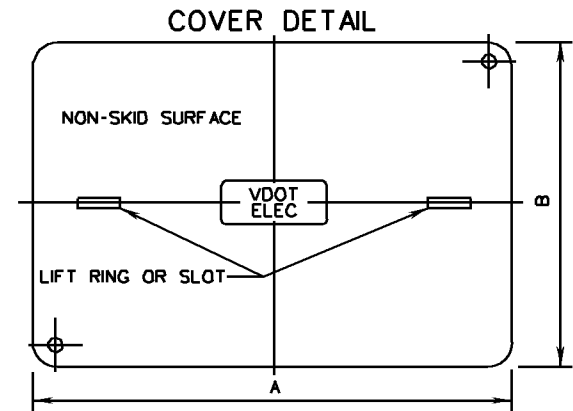
CASTINGS SHALL MEET ALL REQUIREMENTS OF AASHTO M306 AND AASHTO M105



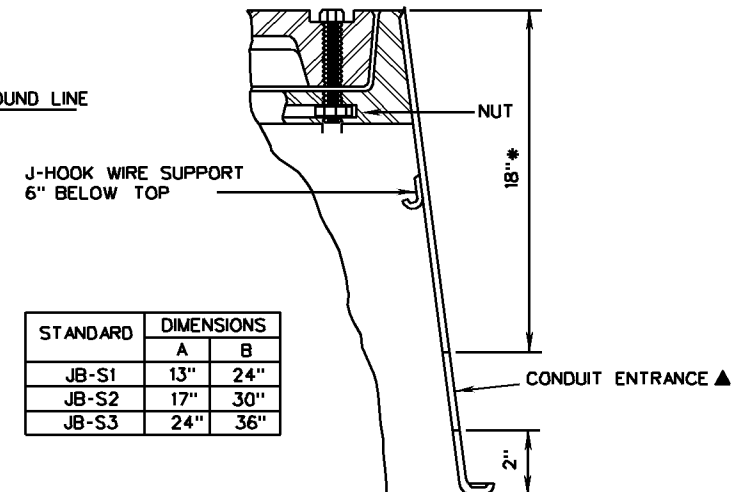
TOP VIEW



SECTION VIEW



SECTION A-A



STANDARD	DIMENSIONS	
	A	B
JB-S1	13"	24"
JB-S2	17"	30"
JB-S3	24"	36"

NOTES:

- JUNCTION BOXES MAY BE STRAIGHT OR FLARED WALL IN DESIGN. MATERIALS SHALL CONFORM TO SECTION 238 OF THE ROAD & BRIDGE SPECIFICATIONS.
- BELL ENDS SHALL BE INSTALLED ON THE ENDS OF PVC CONDUITS.
- GROUNDING BUSHINGS SHALL BE INSTALLED ON THE ENDS OF METAL CONDUITS.
- BELL ENDS AND BUSHINGS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.
- *DEPTH OF CONDUIT ENTRANCE FOR USE OF MAGNETIC DETECTORS SHALL BE IN ACCORDANCE WITH STANDARD TD-2.
- CONDUIT ENTRANCES SHALL BE LOCATED AS SHOWN ON THE PLANS.
- THE COVER SHALL HAVE A NON-SKID SURFACE WITH LETTERS CAST IN THE DEPRESSION ON TOP. THE LETTERS "VDOT ELEC", "VDOT TRAF", "VDOT COMM" OR UTILITY AS APPLICABLE ARE TO BE 1" WIDE. COVERS USED FOR JUNCTION BOXES INSTALLED WITHIN MUNICIPALITIES AND NOT MAINTAINED BY VDOT SHALL NOT REQUIRE THE VDOT REFERENCE.
- ALL JUNCTION BOXES SHALL BE INSTALLED WITH A GROUNDING ELECTRODE

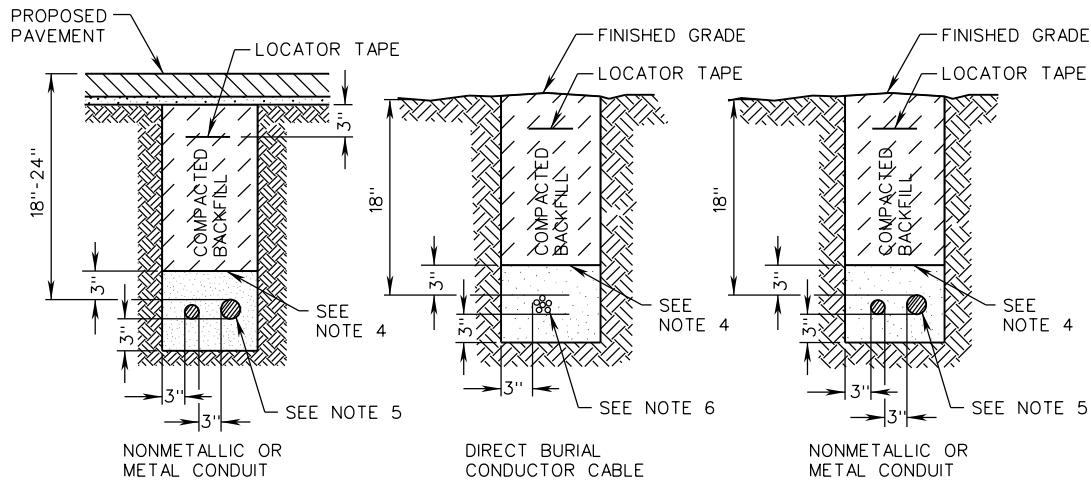
- TWO RECESSED 3/8" S.S. HEX HEAD BOLTS ARE REQUIRED FOR EACH COVER.
- ▲ A MINIMUM 2" DIAMETER CONDUIT ENTRANCE IS REQUIRED, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- J-HOOK WIRE SUPPORTS SHALL BE SECURELY ATTACHED TO THE JUNCTION BOX WITH A BOLT AND NUT WITH A NEOPRENE WASHER OR AN EXPANSION FITTING.
- CONDUITS SHALL EXTEND 2" TO 3" MAX. INTO THE INSIDE WALL OF THE JUNCTION BOX.
- THE JUNCTION BOX MAY BE A TWO PIECE DESIGN WITH THE TOP SECTION NO LESS THAN 17" IN DEPTH.
- VOIDS RESULTING FROM ENTRANCE OF CONDUITS INTO JUNCTION BOXES SHALL BE COMPLETELY FILLED WITH AN APPROVED MATERIAL.

SPECIFICATION REFERENCE
700 238

JUNCTION BOX
FOR NON-DELIBERATE TRAFFIC USE
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE 6-15-09	SHEET 1 OF 1
1317.20	

ECI-1

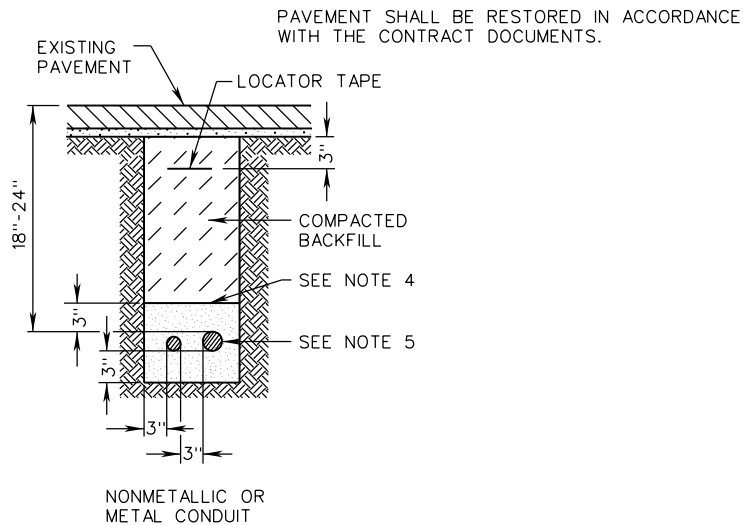


NON - PAVEMENT AND PROPOSED PAVEMENT AREA INSTALLATION

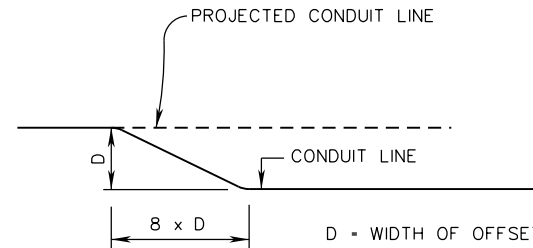
NOTES:

1. CONTRACTOR SHALL INSTALL A 4" MINIMUM TO 6" MAXIMUM WIDE RED PLASTIC LOCATOR TAPE 6" TO 8" BELOW FINISHED GRADE AND DIRECTLY ABOVE BURIED CONDUIT OR CONDUCTOR CABLES.
2. CONDUIT INSTALLED UNDER EXISTING OR PROPOSED ROADWAYS OR SIDEWALK FOR DIRECT BURIED CABLES SHALL EXTEND 24" BEYOND THE PAVED SURFACE AND/OR SIDEWALK.
3. WHERE CONDUIT FOR POWER AND CONDUIT FOR COMMUNICATION ARE TO BE INSTALLED IN CLOSE PROXIMITY TO EACH OTHER, CONDUITS SHALL BE PLACED PARALLEL IN A COMMON TRENCH WITH NO LESS THAN 6" OF SEPARATION BETWEEN CONDUIT SYSTEMS.
4. BACKFILL MATERIAL BELOW THIS LEVEL SHALL BE SANDY FILL (FREE OF ANY STONES, CINDERS, WOOD, ROOTS, DEBRIS, ETC.).
5. ONE OR MORE CONDUITS AS REQUIRED.
6. ONE OR MORE CONDUCTOR CABLES AS REQUIRED.
7. OFFSETTING OF CONDUIT MAY BE USED FOR TYING INTO EXISTING CONDUIT SYSTEMS OR BYPASSING OBSTRUCTIONS AS DIRECTED BY THE ENGINEER.
8. WHEN OFFSETTING CONDUIT TO BYPASS AN OBSTRUCTION, THE CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 12" FROM THE CLOSEST POINT OF THE OBSTRUCTION.

ECI-2



EXISTING PAVEMENT AREA INSTALLATION



METHOD OF OFFSETTING CONDUIT



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

1318.10

02/16

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

UNDERGROUND INSTALLATION

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

700
302

PROCEDURE FOR USING TABLES FOR STANDARDS WSP-1 AND STP-1:

1. SELECT MINIMUM MOUNTING HEIGHT TO BE USED (5'-0" OR 7'-0").
2. DECIDE ON NUMBER OF POSTS TO BE USED (SINGLE, TWO OR THREE).
3. CALCULATE THE AREA OF EACH SIGN PANEL ($A_1, A_2, A_3, \dots A_n$).
4. CALCULATE THE CENTROIDAL DISTANCE FOR EACH SIGN PANEL ($H_1, H_2, H_3, \dots H_n$).

- A_1 = AREA OF SIGN PANEL 1
- A_2 = AREA OF SIGN PANEL 2
- A_3 = AREA OF SIGN PANEL 3
- H_1 = CENTROIDAL DISTANCE FROM SIGN PANEL 1 TO GROUND LINE THROUGH REFERENCE POINT
- H_2 = CENTROIDAL DISTANCE FROM SIGN PANEL 2 TO GROUND LINE THROUGH REFERENCE POINT
- H_3 = CENTROIDAL DISTANCE FROM SIGN PANEL 3 TO GROUND LINE THROUGH REFERENCE POINT

THE CENTROIDAL DISTANCE IS THE VERTICAL DISTANCE FROM THE REFERENCE POINT ON THE GROUND LINE TO THE CENTER OF EACH SIGN PANEL.

5. CALCULATE THE CENTROIDAL DISTANCE (H) FOR THE ENTIRE SIGN PANEL GROUP:

$$H = \frac{(A_1 \times H_1 + A_2 \times H_2 + A_3 \times H_3 + \dots A_n \times H_n)}{(A_1 + A_2 + A_3 + \dots A_n)}$$

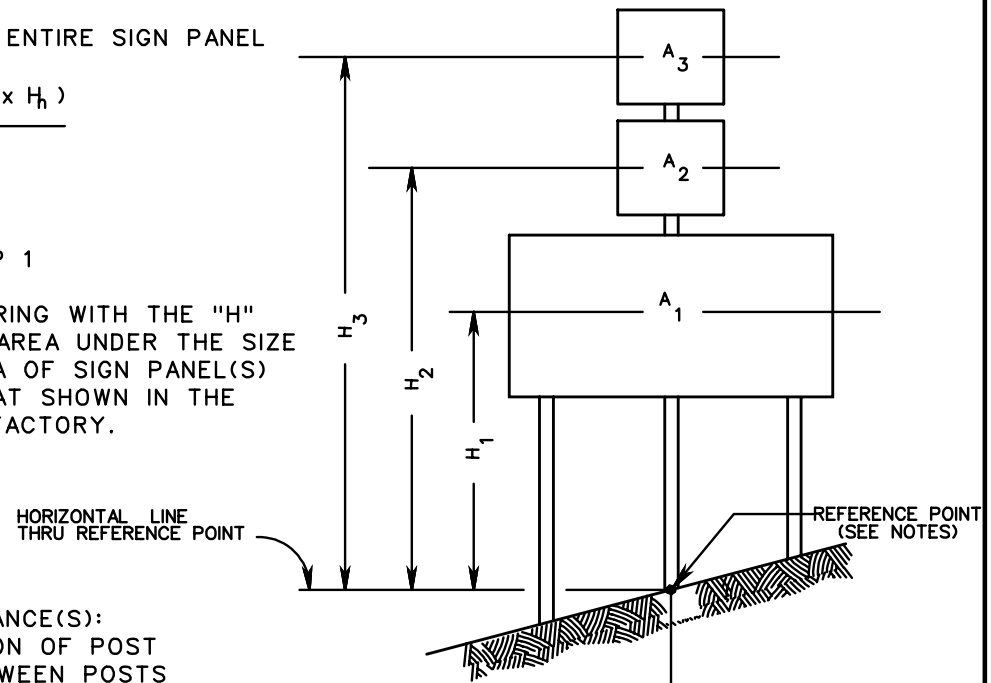
6. ENTER THE APPROPRIATE TABLE BASED ON:

THE MINIMUM MOUNTING HEIGHT SELECTED IN STEP 1

PICK THE POST SIZE(S) TO BE REVIEWED, AND ENTERING WITH THE "H" VALUE CALCULATED IN STEP 5, READ THE MAXIMUM AREA UNDER THE SIZE OF POSTS SELECTED IN STEP 3. IF THE TOTAL AREA OF SIGN PANEL(S) TO BE SUPPORTED IS LESS THAN OR EQUAL TO THAT SHOWN IN THE TABLE(S), THE SIZE OF THE POST(S) WILL BE SATISFACTORY.

NOTES:

- REFERENCE POINT FOR CALCULATING CENTROIDAL DISTANCE(S):
- FOR SINGLE POST: ON GROUND LINE AT INTERSECTION OF POST
 - FOR TWO-POSTS: ON GROUND LINE, HALF-WAY BETWEEN POSTS
 - FOR THREE POSTS: ON GROUND LINE AT INTERSECTION OF CENTER POST

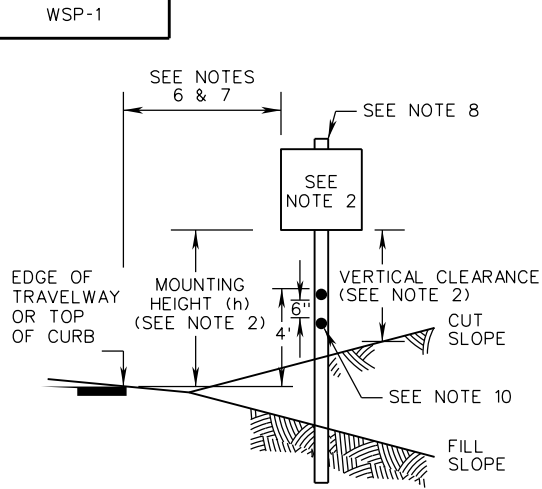


SPECIFICATION REFERENCE
701

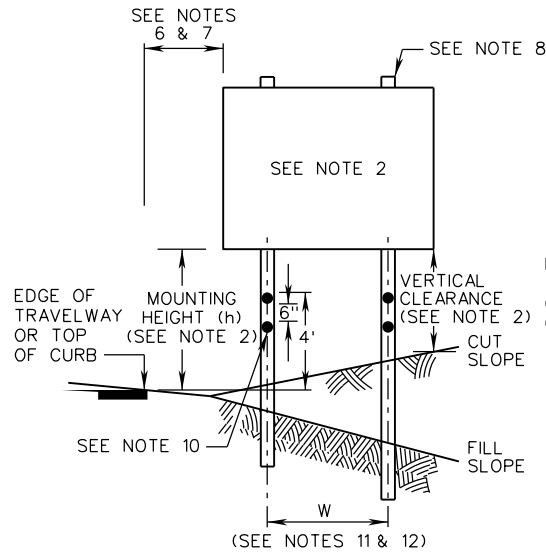
**PROCEDURES FOR CALCULATING CENTROID
AND TOTAL SQUARE FOOTAGE OF SIGN PANEL**

VIRGINIA DEPARTMENT OF TRANSPORTATION

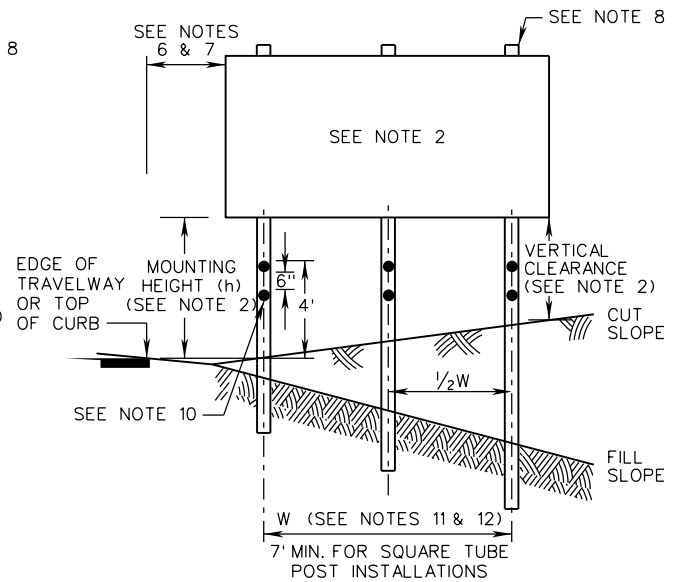
VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 1
1319.10	



SINGLE POST INSTALLATIONS



TWO POST INSTALLATIONS



THREE POST INSTALLATIONS

GENERAL NOTES:

1. WSP STANDARDS SHALL ONLY BE USED FOR TEMPORARY SIGN INSTALLATIONS THAT WILL BE IN PLACE FOR A MAXIMUM OF 36 MONTHS.
2. FOR ALL SIGNS EXCEPT STREET NAME SIGNS:
 - A. MINIMUM MOUNTING HEIGHT (h) SHALL BE 7 FEET FOR TEMPORARY SIGNS AND 6 FEET FOR SECONDARY SIGNS (SEE NOTE 4).
 - B. MAXIMUM MOUNTING HEIGHT (h) FOR THE BOTTOM-MOST SIGN(S) SHALL BE 8 FEET, EXCEPT WHEN NECESSARY TO ACHIEVE MINIMUM VERTICAL CLEARANCE BENEATH SIGN AS PER NOTE 2C.
 - C. MINIMUM VERTICAL CLEARANCE (DISTANCE BETWEEN BOTTOM OF SIGN AND FINISHED GRADE BENEATH THE SIGN) SHALL BE 7 FEET FOR ANY PORTION OF THE SIGN WITHIN THE CLEAR ZONE. THIS MINIMUM VERTICAL CLEARANCE MAY BE REDUCED TO 5 FEET FOR EITHER OF THE FOLLOWING CONDITIONS:
 - WHEN SIGNS OR PORTIONS OF SIGNS ARE LOCATED MORE THAN 10 FEET UP A CUT SLOPE GREATER THAN 3:1, OR
 - WHEN THE SIGN IS LOCATED AT LEAST THE MINIMUM DISTANCE BEHIND CURB, BARRIER, OR GUARDRAIL AS PER NOTES 6 AND 7.
3. MOUNTING HEIGHT (h) FOR STREET NAME SIGNS SHALL BE BETWEEN 8'-6" AND 9'-0".
4. A SECONDARY SIGN IS CONSIDERED TO BE A SIGN MOUNTED BELOW ANOTHER SIGN, EXCEPT A ROUTE MARKING ASSEMBLY (CONSISTING OF A ROUTE MARKER WITH AN AUXILIARY PLATE) IS CONSIDERED TO BE A SINGLE SIGN. A SECONDARY SIGN SHALL NOT BE MOUNTED LOWER THAN 7 FEET ABOVE A PEDESTRIAN SIDEWALK OR PATHWAY IF IT WILL PROJECT MORE THAN 4" INTO THE PEDESTRIAN FACILITY.
5. FOR SIGNS LOCATED IN AREAS WHERE PEDESTRIAN MOVEMENTS ARE LIKELY TO OCCUR OR ON-STREET PARKING IS PERMITTED, THE HEIGHT (h) FROM THE LOWEST PORTION OF THE SIGN TO THE FINISHED SURFACE SHALL HAVE A CLEARANCE OF 7 FEET.
6. THE LATERAL CLEARANCE TO THE SIGN EDGE SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR 4 FEET FROM FACE OF PERMANENT CONCRETE BARRIER, IF PRESENT. THE EDGE OF SIGN SHALL BE OUTSIDE THE DEFLECTION ZONE FOR TRAFFIC BARRIER SERVICE.

7. UNLESS OTHERWISE APPROVED BY THE ENGINEER, SIGNS PLACED BEHIND GUARDRAIL SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE SIGN PANEL IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.
8. THE TOP OF THE SIGN POST MAY EXTEND NO MORE THAN 2 FEET ABOVE THE TOP OF THE SIGN.
9. THE SIGN POST SHALL BE PLUMB AT INSTALLATION AND SHALL NOT LEAN OR TWIST DURING USE. IN THE EVENT THE POST LEANS OR TWISTS OUT OF POSITION THE CONTRACTOR SHALL TAKE IMMEDIATE CORRECTIVE ACTION.
10. ED-3 TYPE 2 DELINEATORS SHALL BE PLACED ON ALL POSTS DURING ALL TIMES THAT THE SIGN IS COVERED. THE COLOR OF THE ED-3 DELINEATORS SHALL MATCH THE COLOR OF THE ADJACENT EDGE LINE MARKING.

WOOD POST NOTES:

11. MINIMUM SPACING (CENTER TO CENTER) BETWEEN TWO 4" x 4" WOOD POSTS SHALL BE 3 FEET. MINIMUM SPACING (CENTER TO CENTER) BETWEEN TWO WOOD POSTS OF ANY OTHER SIZE SHALL BE 8 FEET.

SQUARE TUBE POST NOTES:

12. $W = (0.60) X$ (SIGN WIDTH)

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TEMPORARY SIGNS
 (FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)
WOOD POST AND SQUARE TUBE POST SIGN STRUCTURES
 VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

512
700



ROAD AND BRIDGE STANDARDS

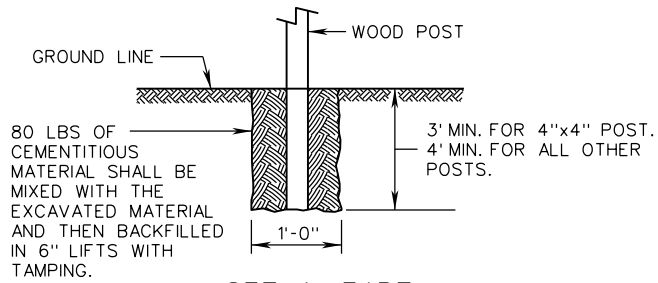
SHEET 1 OF 6

REVISION DATE

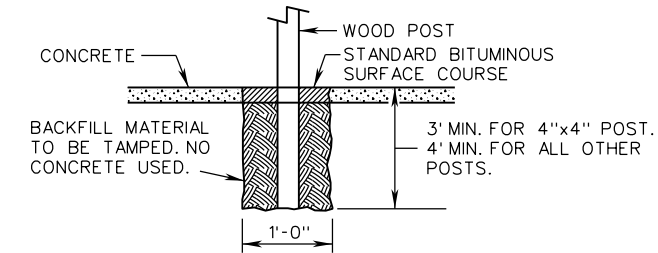
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02/16

INSTALLATION DETAILS

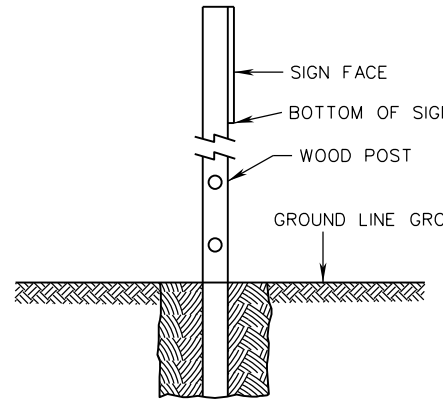


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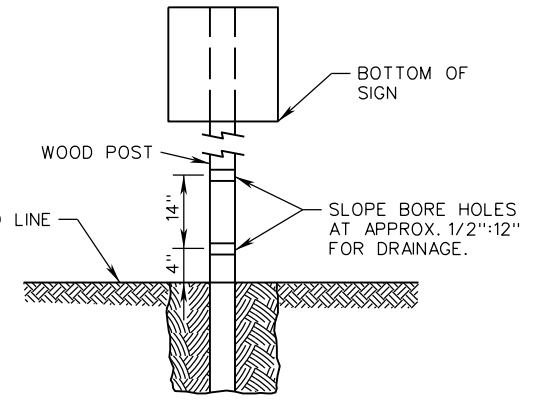


SET IN CONCRETE

METHOD OF POST DRILLING



SIDE VIEW

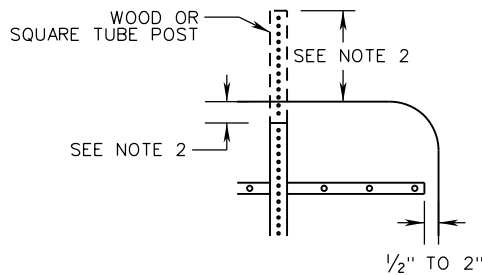


FRONT VIEW

NOTES:

1. 6" X 6" WOOD POST REQUIRES TWO 2" BORE HOLES.
2. 6" X 8" WOOD POST REQUIRES TWO 3" BORE HOLES.
3. POSTS LESS THAN 6" X 6" DO NOT REQUIRE BORE HOLES.

BRACING AND POST TOLERANCE DETAIL



NOTES:

1. SIGN WIDTHS GREATER THAN 48" SHALL REQUIRE SIGN BRACING CONFORMING TO STANDARD STP-1.
2. THE TOP OF POST SHALL BE NO MORE THAN 2" BELOW AND NO MORE THAN 2 FEET ABOVE THE TOP OF THE SIGN.

SPECIFICATION REFERENCE

512
700

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TEMPORARY SIGNS
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)
WOOD OR SQUARE TUBE STEEL POST SIGN STRUCTURES
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE
02/16

SHEET 2 OF 6

1320.11

DESIGN TABLE FOR WOOD POST

SIZE OF POST	CENTROID (FT)	MAXIMUM AREA (TOTAL OF SIGNS) (FT ²)			COMMENTS
		SINGLE-POST	TWO-POST	THREE-POST	
4" X 4"	8	7	13	20	SEE NOTE 1
	9	6	12	18	
	10	5	11	16	
	11	5	10	15	
	12	4	9	13	
4" X 6" (SEE NOTE 2)	8	18	37	55	
	9	16	33	49	
	10	15	29	44	
	11	13	27	40	
5" X 5"	8	15	31	46	
	9	14	27	41	
	10	12	24	37	
	11	11	22	33	
6" X 6"	8	29	58	87	
	9	26	51	77	
	10	23	46	69	
	11	21	42	63	
	12	19	39	58	
6" X 8" (SEE NOTE 2)	8	52	103	155	
	9	46	92	138	
	10	41	83	124	
	11	38	75	113	
	12	34	69	103	
	13	32	64	95	
14	22	44	66		

NOTES:

1. FOR A SINGLE 4" X 4" POST THE MAXIMUM TOTAL SIGN CAN BE INCREASED TO 16 SQUARE FEET PROVIDED:

A. THE MAXIMUM VERTICAL CLEARANCE BETWEEN THE GROUND LEVEL AND BOTTOM OF THE SIGN DOES NOT EXCEED 7'-6" WHILE MAINTAINING A 7'-0" MINIMUM MOUNTING HEIGHT (h) BETWEEN BOTTOM OF SIGN AND TOP OF ROADWAY SURFACE AT THE EDGE OF TRAVEL LANE.

B. CONTRACTOR SUPPLIES DEPARTMENT WITH MATERIALS CERTIFICATION FOR WOOD POSTS TO ENSURE CONFORMANCE WITH SECTION 236 OF THE SPECIFICATIONS.

2. LARGER DIMENSION OF WOOD POST SHALL BE IN DIRECTION OF (PARALLEL TO) TRAFFIC.

3. CENTROID SHALL BE DETERMINED IN ACCORDANCE WITH STANDARD PCS-1.



ROAD AND BRIDGE STANDARDS

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TEMPORARY SIGNS
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)
WOOD POST SIGN STRUCTURES
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

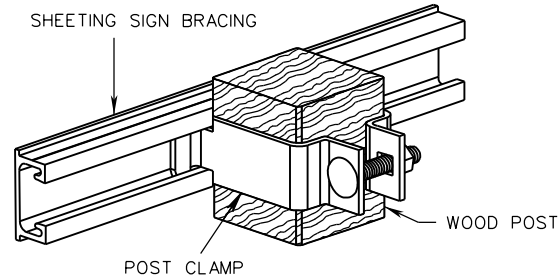
SHEET 3 OF 6

REVISION DATE

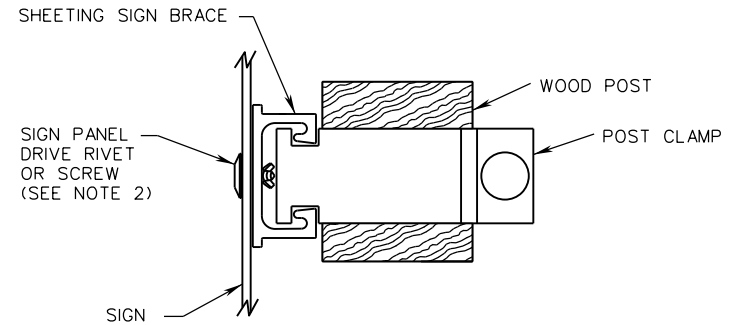
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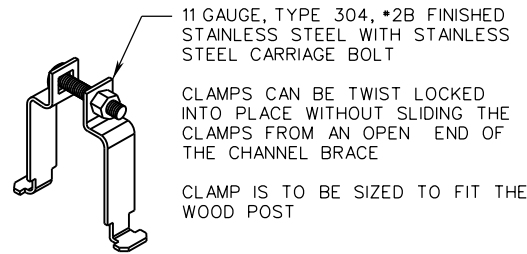
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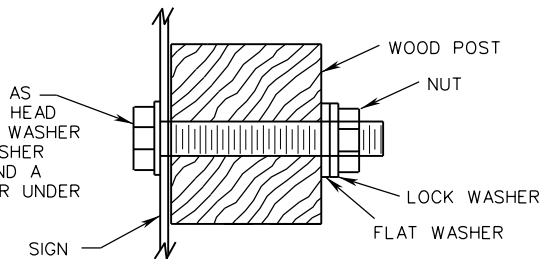
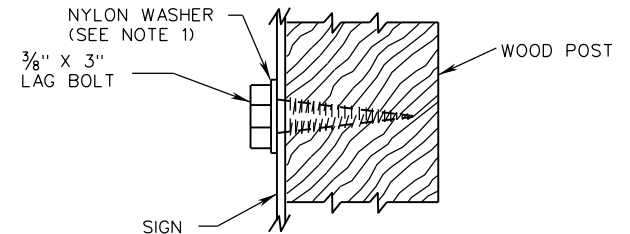
**WOOD POST & BRACE
(CONNECTING JUNCTION)**



**SIGN PANEL ATTACHMENT DETAILS
FOR WOOD POST REQUIRING BRACING**



CLAMP DETAIL



**SIGN ATTACHMENT DETAILS
WOOD POST WITHOUT BRACING**

NOTES:

1. NYLON WASHER SHALL BE 1/16" THICK MINIMUM WITH AN OUTSIDE DIAMETER OF 1" AND AN INSIDE DIAMETER OF 3/8".
2. DRIVE RIVET SHALL BE 3/16" OR 3/8" ALUMINUM FLAT HEAD RIVET WITH NYLON OR RUBBER WASHER.
3. SIGN PANEL ATTACHMENTS TO SQUARE TUBE POSTS SHALL BE AS PER STANDARD STP-1.
4. THE HEADS OF ALL DRIVE RIVETS AND BOLTS PROTRUDING FROM TEMPORARY SIGNS MAY BE UNCOATED. IF POWDER COATED, THE HEADS SHALL MATCH THE COLOR OF THE SIGN SHEETING.
5. BOLTS, NUTS, AND LOCK WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL.

SPECIFICATION
REFERENCE

512
700

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TEMPORARY SIGNS
 (FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)
WOOD POST SIGN STRUCTURES - ATTACHMENT DETAILS
 VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE
NEW 02/16

SHEET 4 OF 6

1320.13

DESIGN TABLE FOR SQUARE TUBE POST

SIZE OF POST	CENTROID (FT)	MAXIMUM AREA (TOTAL OF SIGNS) (FT ²)			COMMENTS
		SINGLE-POST	TWO-POST	THREE-POST	
2 INCH 14 GA.	8	10.7	21.4		TYPE A, TYPE D, OR TYPE F FOUNDATION (SEE NOTE 4)
	9	9.5	19.0		
	10	8.5	17.0		
	11	7.7	15.4		
	12	7.1	14.2		
	13	6.5	13.0		
	14	6.1	12.2		
2½ INCH 12 GA.	8	21.5			TYPE A OR TYPE E FOUNDATION (SEE NOTE 4)
	9	19.1			
	10	17.2			
	11	15.6			
	12	14.3			
	13	13.2			
	14	12.3			
2½ INCH 10 GA.	8	24.8	49.6	74.4	TYPE B OR TYPE C FOUNDATION (SEE NOTE 4)
	9	22.0	44.0	66.0	
	10	19.8	39.6	59.4	
	11	18.0	36.0	54.0	
	12	16.5	33.0	49.5	
	13	15.2	30.4	45.6	
	14	14.1	28.2	42.3	
2½ INCH 10 GA. WITH 2⅜ INCH 10 GA. INNER POST (SEE NOTE 1)	8	43.4	86.8	130.2	TYPE B OR TYPE C FOUNDATION (SEE NOTE 4)
	9	38.6	77.2	115.8	
	10	34.7	69.4	104.1	
	11	31.6	63.2	94.8	
	12	28.9	57.8	86.7	
	13	26.7	53.4	80.1	
	14	24.8	49.6	74.4	

NOTES:

1. THE INNER POST SHALL BE 6 FEET IN LENGTH.
2. CENTROID SHALL BE DETERMINED IN ACCORDANCE WITH PCS-1.
3. MINIMUM COLD FORMED YIELD STRENGTH SHALL BE:
14 GA. AND 12 GA. = 60 KSI
10 GA. = 55 KSI
4. TYPE A, B, C, D, E, AND F FOUNDATIONS SHALL BE IN ACCORDANCE WITH STANDARD STP-1.



ROAD AND BRIDGE STANDARDS

SHEET 5 OF 6

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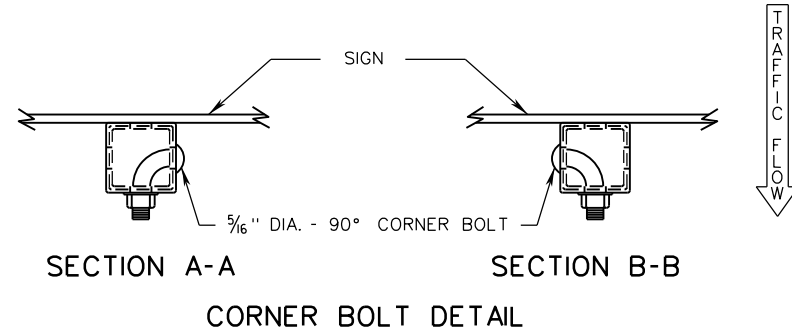
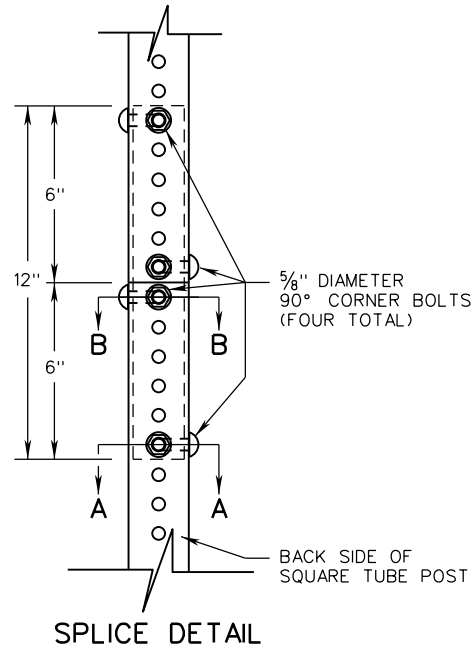
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TEMPORARY SIGNS
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)
SQUARE TUBE POST SIGN STRUCTURES
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE512
700



SPLICE SIZE TABLE	
POST SIZE	SPLICE POST SIZE
2 INCH, 14 GAUGE	1 3/4 INCH, 14 GAUGE
2 1/2 INCH, 12 GAUGE	2 1/4 INCH, 12 GAUGE
2 1/2 INCH, 10 GAUGE	2 3/16 INCH, 10 GAUGE

NOTES:

1. ONLY ONE SPLICE PER POST WILL BE ALLOWED.
2. SPLICES SHALL BE A MINIMUM OF 24" ABOVE GROUND LINE.
3. SPLICES SHALL ONLY BE PERMITTED FOR TEMPORARY INSTALLATIONS.
4. CORNER BOLTS SHALL BE INSTALLED SO THE BOLT HEADS ALTERNATE SIDES PER EACH CORNER BOLT. THE BOLT HEAD SHALL BE ON THE LEFT OR RIGHT SIDE OF THE POST. THE NUT SHALL BE ON THE BACK OF THE POST. SEE SPLICE DETAIL.

SPECIFICATION REFERENCE
512 700

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TEMPORARY SIGNS
(FOR CONSTRUCTION, MAINTENANCE, PERMIT AND UTILITY ACTIVITIES)
SQUARE TUBE POST SIGN STRUCTURES
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS	
REVISION DATE NEW 02/16	SHEET 6 OF 6 1320.15

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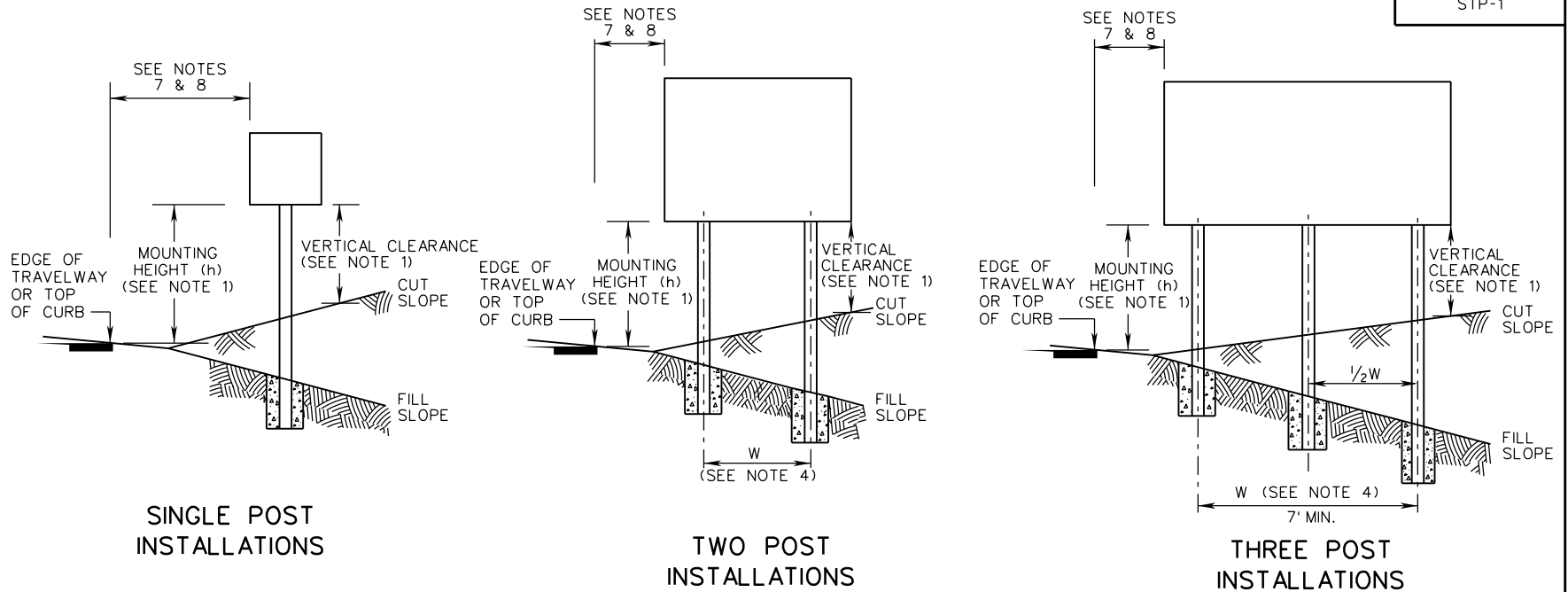
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

SPECIFICATION
REFERENCE

VIRGINIA DEPARTMENT OF TRANSPORTATION



NOTES:

1. FOR ALL SIGNS EXCEPT STREET NAME SIGNS:
 - A. MINIMUM MOUNTING HEIGHT (h) SHALL BE IN ACCORDANCE WITH THE "MINIMUM MOUNTING HEIGHT" TABLE ON THIS SHEET.
 - B. MAXIMUM MOUNTING HEIGHT (h) FOR THE BOTTOM-MOST SIGN PANEL(S) SHALL BE 8 FEET, EXCEPT WHEN NECESSARY TO ACHIEVE MINIMUM VERTICAL CLEARANCE BENEATH SIGN PANEL AS PER NOTE 1C.
 - C. MINIMUM VERTICAL CLEARANCE (DISTANCE BETWEEN BOTTOM OF SIGN PANEL AND FINISHED GRADE BENEATH THE PANEL) SHALL BE 7 FEET FOR ANY PORTION OF THE SIGN WITHIN THE CLEAR ZONE. THIS MINIMUM VERTICAL CLEARANCE MAY BE REDUCED TO 5 FEET FOR EITHER OF THE FOLLOWING CONDITIONS:
 - WHEN SIGNS OR PORTIONS OF SIGNS ARE LOCATED MORE THAN 10 FEET UP A CUT SLOPE GREATER THAN 3:1, OR
 - WHEN THE SIGN IS LOCATED AT LEAST THE MINIMUM DISTANCE BEHIND CURB, BARRIER, OR GUARDRAIL AS PER NOTES 7 AND 8.
2. MOUNTING HEIGHT (h) FOR STREET NAME SIGNS SHALL BE BETWEEN 8'-6" AND 9'-0".
3. A SECONDARY SIGN IS CONSIDERED TO BE A SIGN MOUNTED BELOW ANOTHER SIGN, EXCEPT A ROUTE MARKER WITH AN AUXILIARY PLATE IS CONSIDERED TO BE A SINGLE SIGN. A SECONDARY SIGN SHALL NOT BE MOUNTED LOWER THAN 7 FEET ABOVE A PEDESTRIAN SIDEWALK OR PATHWAY IF IT WILL PROJECT INTO THE PEDESTRIAN FACILITY.
4. $W = (0.60) \times (\text{SIGN PANEL WIDTH})$
5. SQUARE TUBE SIGN POSTS REQUIRING A BREAKAWAY SUPPORT SYSTEM SHALL BE AN FHWA APPROVED BREAKAWAY SUPPORT SYSTEM CONFORMING TO AASHTO'S STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS.

MINIMUM MOUNTING HEIGHT (h)			
(SEE NOTE 1)			
SIGN TYPES	FREEWAYS, EXPRESSWAYS, AND FULL CONTROL ACCESS HIGHWAYS	OTHER HIGHWAYS	
		RURAL AREAS	NON-RURAL AREAS
DIRECTIONAL SIGNS	7'	5'	7'
ROUTE MARKERS, WARNING AND REGULATORY SIGNS	7'	5'	7'
SECONDARY SIGNS (SEE NOTE 3)	5'	4'	7'

6. FOR SIGNS LOCATED IN AREAS WHERE PEDESTRIAN MOVEMENTS ARE LIKELY TO OCCUR OR ON-STREET PARKING IS PERMITTED, THE HEIGHT FROM THE LOWEST PORTION OF THE SIGN PANEL TO THE FINISHED SURFACE SHALL HAVE A MINIMUM CLEARANCE OF 7 FEET.
7. THE LATERAL CLEARANCE TO THE SIGN PANEL SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR 4 FEET FROM FACE OF BARRIER, IF PRESENT.
8. UNLESS OTHERWISE APPROVED BY THE ENGINEER, SIGNS PLACED BEHIND GUARDRAIL SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE SIGN PANEL IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.

SPECIFICATION REFERENCE 700	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE. <h2 style="margin: 0;">SQUARE TUBE SIGN POST</h2> VIRGINIA DEPARTMENT OF TRANSPORTATION	ROAD AND BRIDGE STANDARDS REVISION DATE 01/15 SHEET 1 OF 12 1321.10
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**TABLE 1
FOR HAMPTON ROADS DISTRICT (SEE NOTE 5)**

SIZE OF POST	CENTROID (F.T)	MAXIMUM AREA (TOTAL OF SIGN PANELS) (FT ²)			COMMENTS
		SINGLE-POST	TWO-POST	THREE-POST	
2 INCH 14 GA.	8	5.8			TYPE A, TYPE D, OR TYPE F FOUNDATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	5.1			
	10	4.6			
	11	4.2			
	12	3.8			
	13	3.5			
	14	3.3			
2½ INCH 12 GA.	8	11.8	23.6		SINGLE POST: TYPE A OR TYPE E FOUNDATION. MULTI-POST: TYPE B OR TYPE C FOUNDATION. AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	10.5	21.0		
	10	9.4	18.8		
	11	8.6	17.2		
	12	7.8	15.6		
	13	7.2	14.5		
	14	6.7	13.5		
2½ INCH 10 GA.	8	13.6	27.2	40.8	TYPE B OR TYPE C FOUNDATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	12.1	24.2	36.3	
	10	10.9	21.8	32.7	
	11	9.9	19.8	29.7	
	12	9.1	18.2	27.3	
	13	8.4	16.8	25.2	
	14	7.8	15.6	23.4	
2½ INCH 10 GA. WITH 2⅜ INCH 10 GA. INNER POST (SEE NOTE 1)	8	23.9	47.8	71.7	TYPE B OR TYPE C FOUNDATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	21.2	42.4	63.6	
	10	19.1	38.2	57.3	
	11	17.4	34.8	52.2	
	12	15.9	31.8	47.7	
	13	14.7	29.4	44.1	
	14	13.6	27.2	40.8	

NOTES:

1. THE INNER POST SHALL BE 6 FEET IN LENGTH.
2. CENTROID SHALL BE DETERMINED IN ACCORDANCE WITH PCS-1.
3. MINIMUM COLD FORMED YIELD STRENGTH SHALL BE:
14 GA. AND 12 GA. = 60 KSI
10 GA. = 55 KSI
4. FOLLOW SIGN BRACING DETAILS (SEE SHEET 11 OF 12) FOR MAXIMUM SIGN PANEL WIDTHS AND SIGN BRACING SPACING.
5. TABLE 1 SHALL BE USED FOR THE HAMPTON ROADS DISTRICT, EXCEPT THE CITY OF EMPORIA AND COUNTIES OF GREENSVILLE, SUSSEX, AND SOUTHAMPTON SHALL USE TABLE 2.



ROAD AND BRIDGE STANDARDS

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SQUARE TUBE SIGN POST

SPECIFICATION REFERENCE

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**TABLE 2
FOR BRISTOL, SALEM, LYNCHBURG, RICHMOND,
FREDERICKSBURG, CULPEPER, STAUNTON, AND NORTHERN
VIRGINIA DISTRICTS (SEE NOTE 5)**

SIZE OF POST	CENTROID (FT)	MAXIMUM AREA (TOTAL OF SIGN PANELS) (FT ²)			COMMENTS
		SINGLE-POST	TWO-POST	THREE-POST	
2 INCH 14 GA.	8	10.7	21.4		TYPE A, TYPE D, OR TYPE F FOUNDATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	9.5	19.0		
	10	8.5	17.0		
	11	7.7	15.4		
	12	7.1	14.2		
	13	6.5	13.0		
	14	6.1	12.2		
2½ INCH 12 GA.	8	21.5			TYPE A OR TYPE E FOUNDATION.
	9	19.1			
	10	17.2			
	11	15.6			
	12	14.3			
	13	13.2			
	14	12.3			
2½ INCH 10 GA.	8	24.8	49.6	74.4	TYPE B OR TYPE C FOUNDATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	22.0	44.0	66.0	
	10	19.8	39.6	59.4	
	11	18.0	36.0	54.0	
	12	16.5	33.0	49.5	
	13	15.2	30.4	45.6	
	14	14.1	28.2	42.3	
2½ INCH 10 GA. WITH 2⅜ INCH 10 GA. INNER POST (SEE NOTE 1)	8	43.4	86.8	130.2	TYPE B OR TYPE C FOUNDATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
	9	38.6	77.2	115.8	
	10	34.7	69.4	104.1	
	11	31.6	63.2	94.8	
	12	28.9	57.8	86.7	
	13	26.7	53.4	80.1	
	14	24.8	49.6	74.4	

NOTES:

1. THE INNER POST SHALL BE 6 FEET IN LENGTH.
2. CENTROID SHALL BE DETERMINED IN ACCORDANCE WITH PCS-1.
3. MINIMUM COLD FORMED YIELD STRENGTH SHALL BE:
14 GA. AND 12 GA. = 60 KSI
10 GA. = 55 KSI
4. FOLLOW SIGN BRACING DETAILS (SEE SHEET 11 OF 12) FOR MAXIMUM SIGN PANEL WIDTHS AND SIGN BRACING SPACING.
5. TABLE 2 SHALL ALSO BE USED FOR THE CITY OF EMPORIA AND COUNTIES OF GREENSVILLE, SUSSEX, AND SOUTHAMPTON IN HAMPTON ROADS DISTRICT.

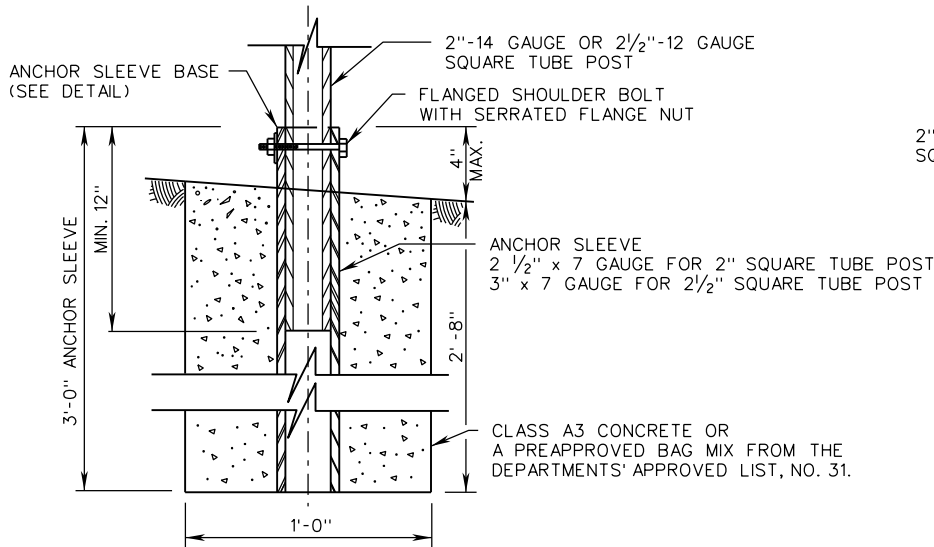
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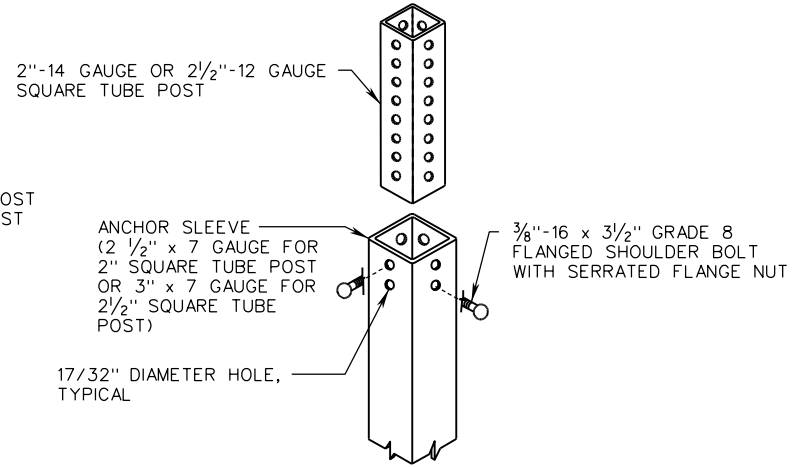
SQUARE TUBE SIGN POST

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
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FOUNDATION TYPE A



ANCHOR SLEEVE BASE DETAIL

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SQUARE TUBE SIGN POST

FOUNDATION TYPE A DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

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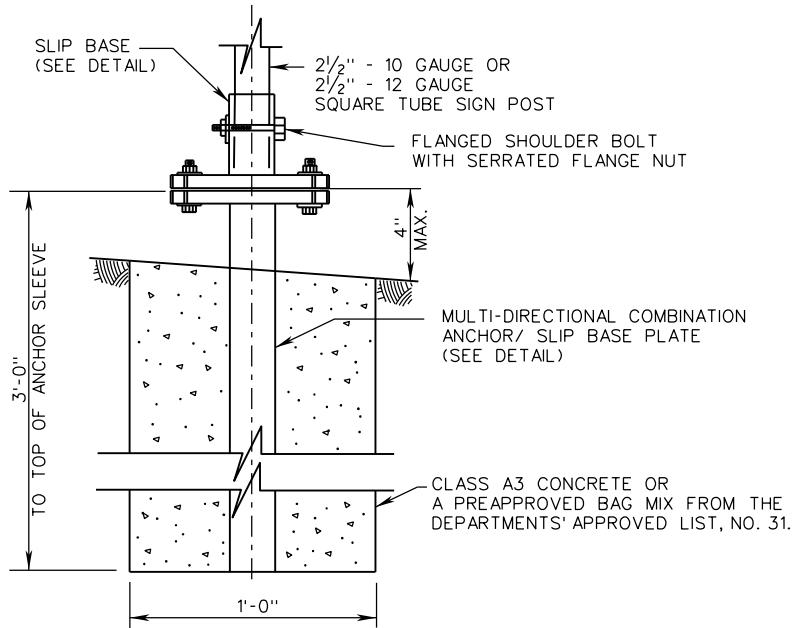
ROAD AND BRIDGE STANDARDS

SHEET 4 OF 12

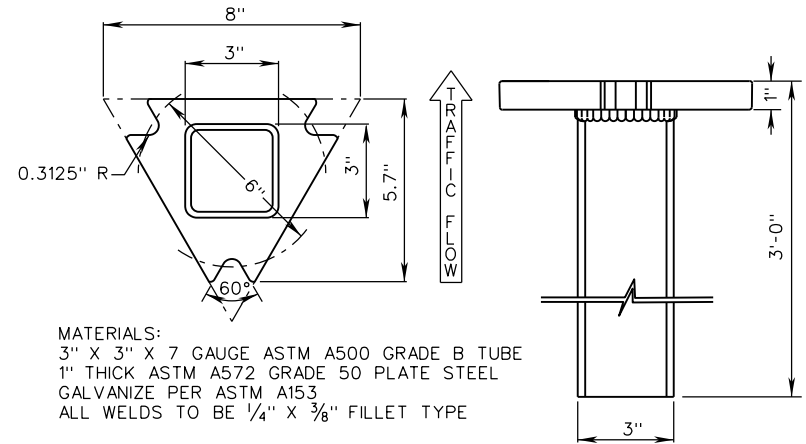
REVISION DATE

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NEW 01/15



FOUNDATION TYPE B



MATERIALS:
 3" X 3" X 7 GAUGE ASTM A500 GRADE B TUBE
 1" THICK ASTM A572 GRADE 50 PLATE STEEL
 GALVANIZE PER ASTM A153
 ALL WELDS TO BE 1/4" X 3/8" FILLET TYPE

MULTI-DIRECTIONAL COMBINATION ANCHOR/SLIP BASE PLATE

SPECIFICATION REFERENCE

700

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

SQUARE TUBE SIGN POST

FOUNDATION TYPE B DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

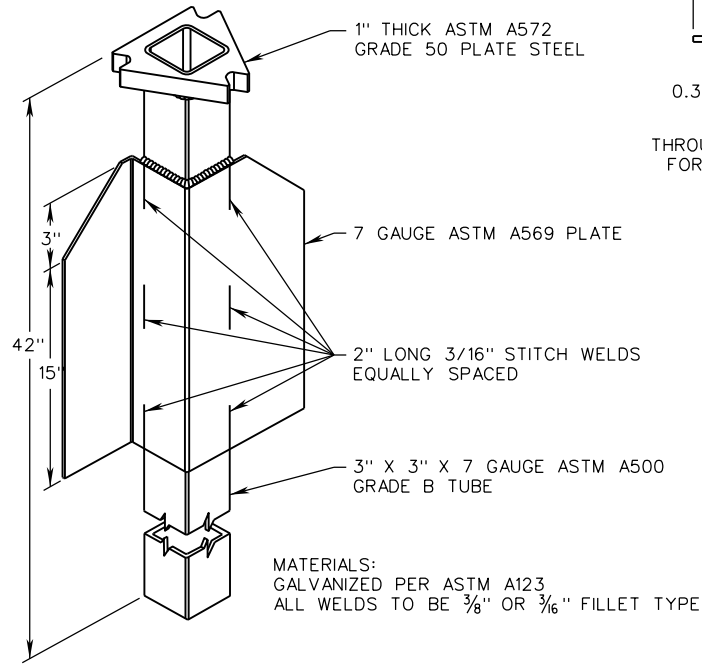
ROAD AND BRIDGE STANDARDS

REVISION DATE

NEW 01/15

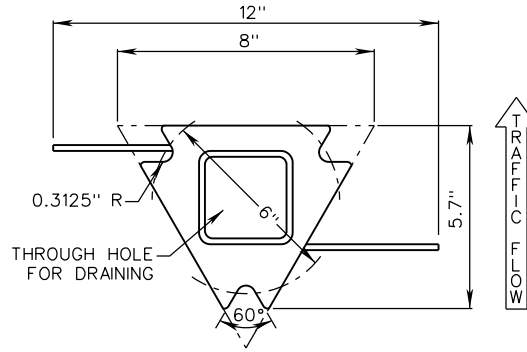
SHEET 5 OF 12

1321.14

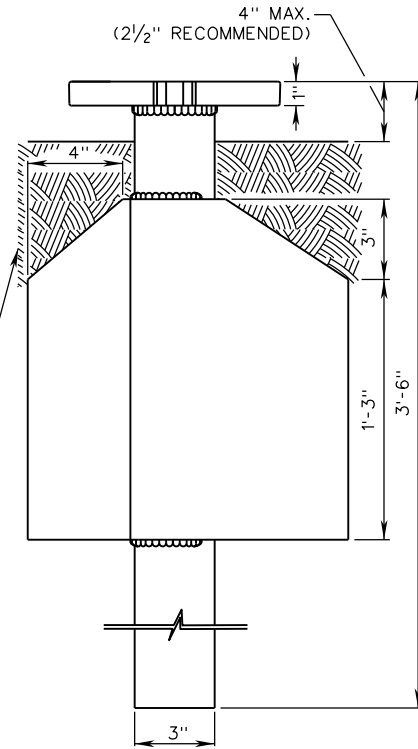


MATERIALS:
 GALVANIZED PER ASTM A123
 ALL WELDS TO BE 3/8" OR 3/16" FILLET TYPE

FOUNDATION TYPE C



DIRECT DRIVEN SOIL INSTALLATION.
 INSTALL WITH THE WIDEST BEARING
 SURFACE OF THE STABILIZING WING
 PARALLEL WITH THE FACE OF THE SIGN.



8" TRIANGULAR MULTI-DIRECTIONAL
 COMBINATION ANCHOR/SLIP BASE PLATE - SOIL



ROAD AND BRIDGE STANDARDS

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SQUARE TUBE SIGN POST

SPECIFICATION
 REFERENCE

SHEET 6 OF 12

REVISION DATE

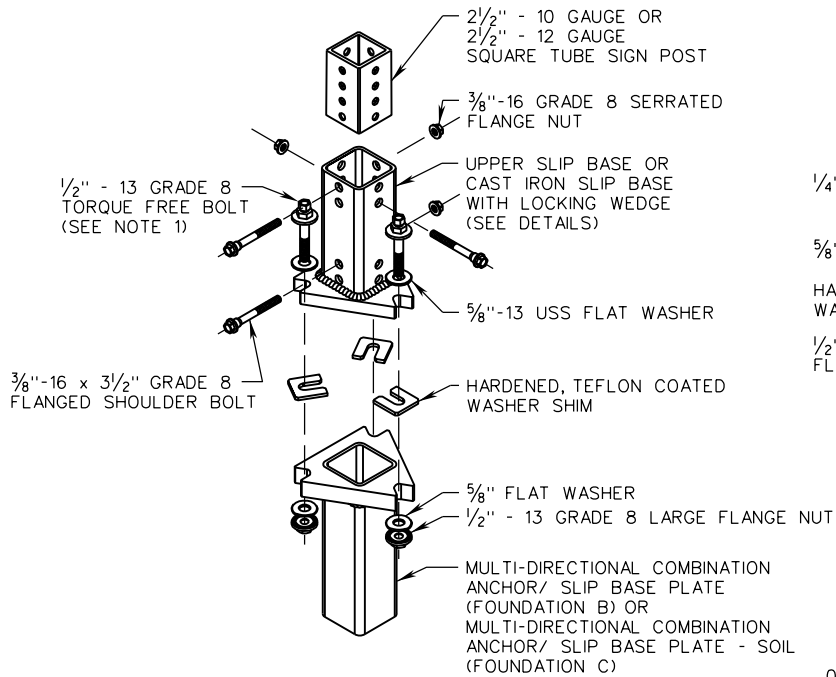
FOUNDATION TYPE C DETAILS

700

1321.15

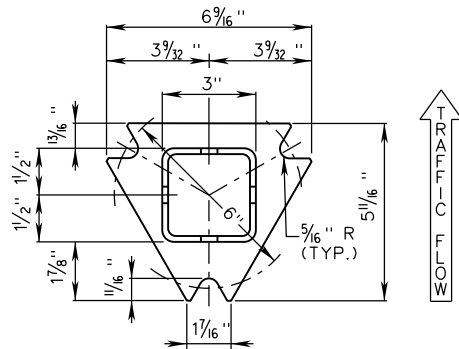
NEW 01/15

VIRGINIA DEPARTMENT OF TRANSPORTATION



SLIP BASE BREAKAWAY DETAIL

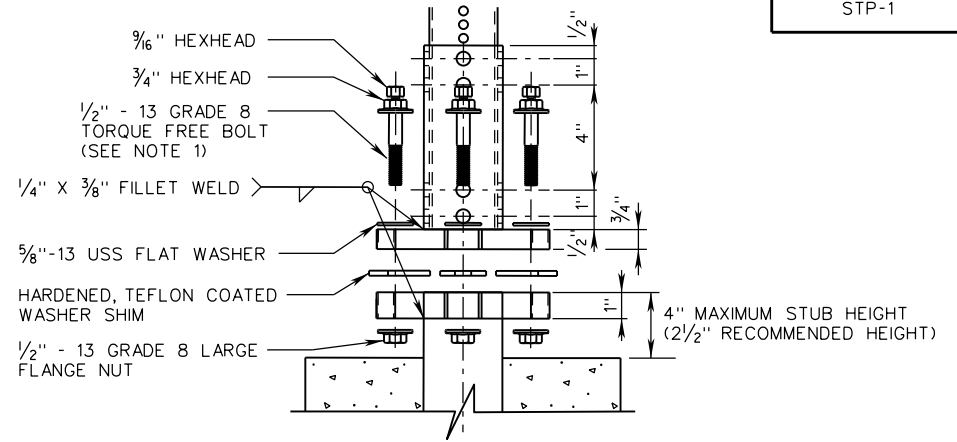
MATERIALS:
 TUBE RECEIVER -
 3" x 3" x 7 GAUGE
 ASTM A500
 GRADE B TUBE
 PLATE - ASTM
 A572 GRADE 50



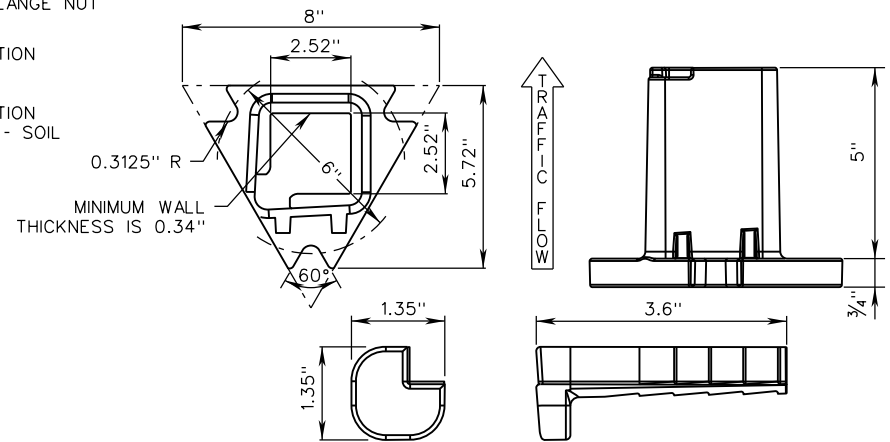
TOP POST RECEIVER/
 FOR 2 1/2" SQUARE POST

NOTES:

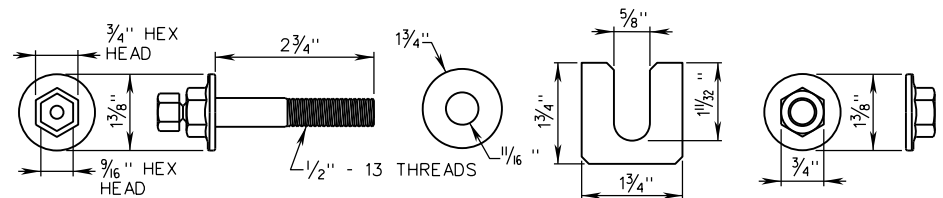
1. TIGHTEN THE TORQUE FREE BOLT USING THE LARGER 3/4" HEX HEAD, THEN LOOSEN THE BOLTS BY THREE COMPLETE TURNS USING THE 3/4" HEX HEAD. RETIGHTEN EACH TORQUE BOLT USING THE SMALLER 5/16" HEX HEAD UNTIL THE 5/16" HEX HEAD TWISTS OFF.



SLIP BASE BREAKAWAY PROFILE DETAIL



REDI-TORQUE MULTI-DIRECTIONAL BOLT ON SAE1035 STEEL FORGING SLIP BASE TOP FOR 2 1/2" SQUARE POST WITH CAST IRON LOCKING WEDGE



TORQUE FREE MATCH PLATE HARDWARE

SPECIFICATION REFERENCE

700

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SQUARE TUBE SIGN POST
 FOUNDATION TYPE B AND C DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

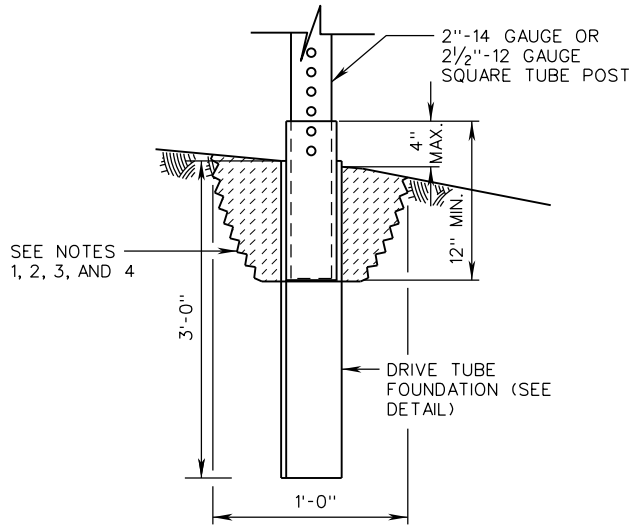
ROAD AND BRIDGE STANDARDS

REVISION DATE

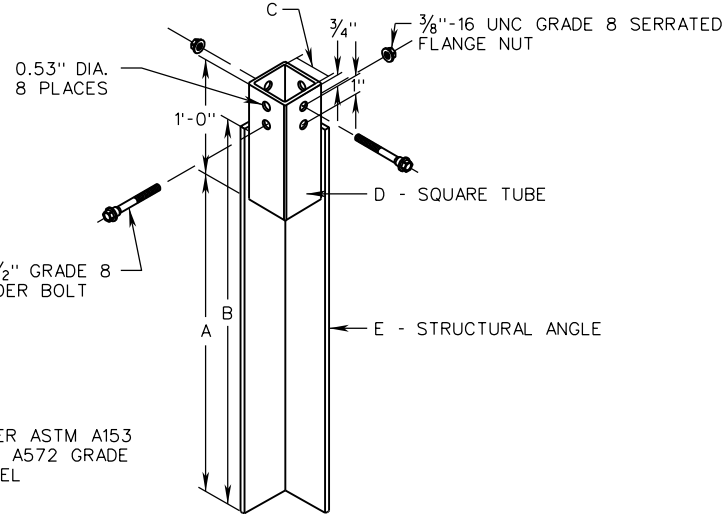
NEW 01/15

SHEET 7 OF 12

1321.16



FOUNDATION TYPE D AND E



DRIVE TUBE FOUNDATION DETAIL

3/8"-16 UNC x 3/2" GRADE 8
FLANGED SHOULDER BOLT

MATERIALS:
GALVANIZED PER ASTM A153
1" THICK ASTM A572 GRADE
50 PLATE STEEL

NOTES:

1. EXCAVATE TO A DEPTH OF NO LESS THAN 8" AND NO GREATER THAN 12" PRIOR TO INSTALLATION OF DRIVE TUBE FOUNDATION.
2. THE EXCAVATED AREA SHALL BE BACKFILLED WITH A CEMENTITIOUS MATERIAL AND SHALL BE TAPPED WITH EACH 6" LIFT.
3. THE SQUARE TUBE POST SHALL BE INSERTED INTO THE SLEEVE OF THE DRIVE TUBE FOUNDATION A MINIMUM OF 12".
4. DRIVE CAP SHALL BE UTILIZED FOR INSTALLATION OF DRIVE TUBE FOUNDATION. WHEN USING A POWER DRIVER, A SHANK SHALL ALSO BE REQUIRED.

DRIVE TUBE FOUNDATION TABLE

FOUNDATION TYPE	SIZE OF POST	DRIVE TUBE FOUNDATION DIMENSION	
TYPE D	2 INCH 14 GA.	A	27"
		B	36"
		C	2 1/8"
		D	2 1/2" X 2 1/2" X 3/16" ASTM A500 GRADE B
		E	2 1/2" X 2 1/2" X 3/16" ASTM A36
TYPE E	2 1/2 INCH 12 GA.	A	27"
		B	36"
		C	2 5/8"
		D	3" X 3" X 3/16" ASTM A500 GRADE B
		E	3" X 3" X 3/16" ASTM A36



ROAD AND BRIDGE STANDARDS

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

**SQUARE TUBE SIGN POST
FOUNDATION TYPE D AND E DETAILS**

SPECIFICATION
REFERENCE

SHEET 8 OF 12

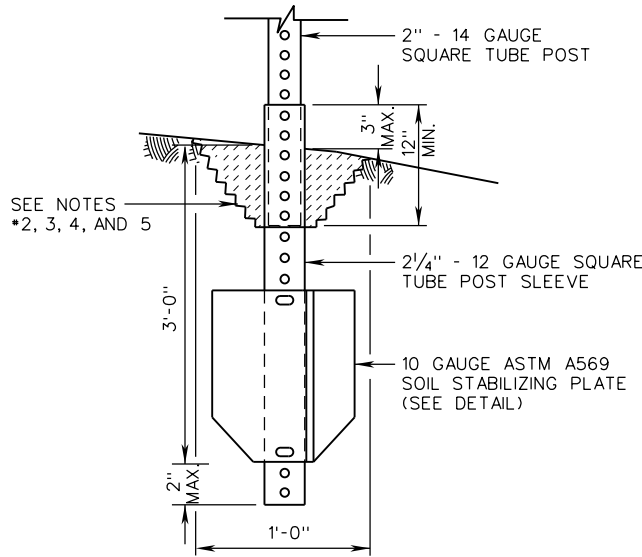
REVISION DATE

VIRGINIA DEPARTMENT OF TRANSPORTATION

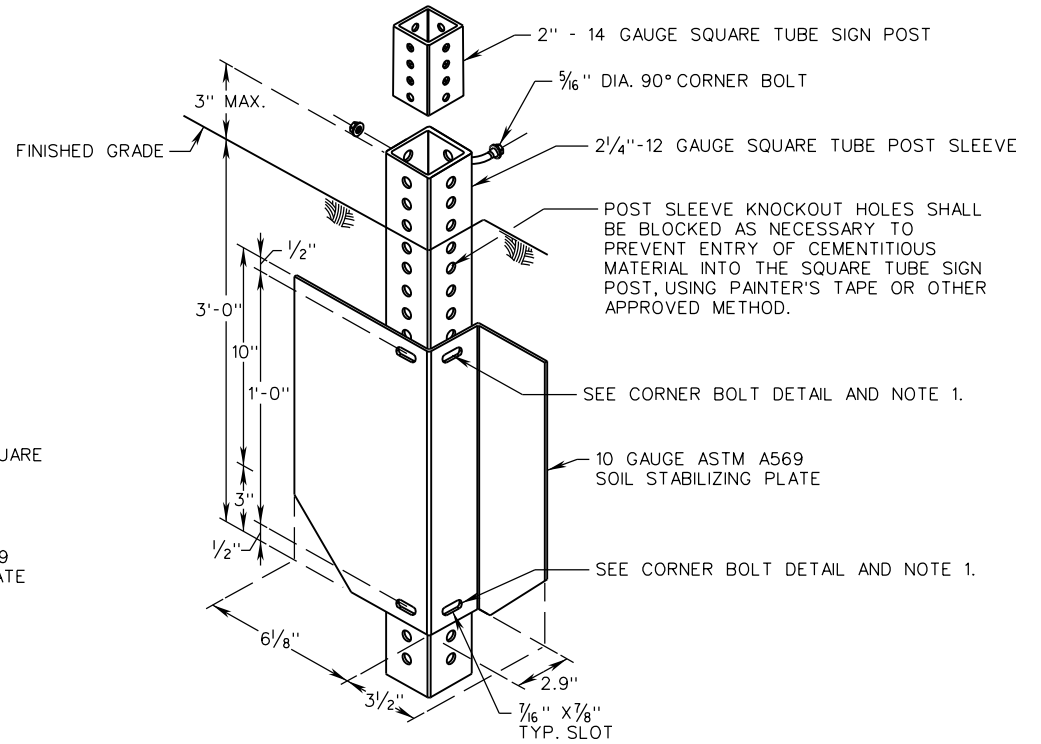
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1321.17

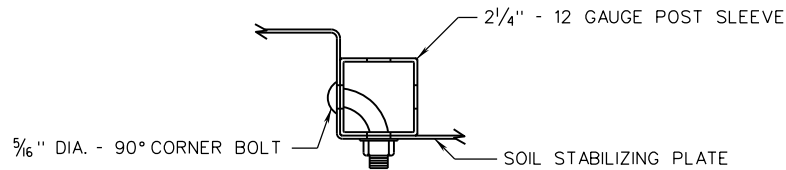
NEW 01/15



FOUNDATION TYPE F



SOIL STABILIZING PLATE FOUNDATION DETAIL



CORNER BOLT DETAIL

NOTES:

1. CORNER BOLTS SHALL BE 5/16" DIA. TRUSS HEAD BOLT WITH SERRATED FLANGE NUT. TWO CORNER BOLTS WILL BE REQUIRED TO CONNECT THE 2 1/4" POST SLEEVE TO THE SOIL STABILIZING PLATE.
2. EXCAVATE TO A DEPTH OF NO LESS THAN 8" AND NO GREATER THAN 12" PRIOR TO INSTALLATION OF SOIL STABILIZING PLATE FOUNDATION.
3. THE EXCAVATED AREA SHALL BE BACKFILLED WITH A CEMENTITIOUS MATERIAL AND SHALL BE TAPPED WITH EACH 6" LIFT.
4. THE 2" SQUARE TUBE POST SHALL BE INSERTED INTO THE 2 1/4" POST SLEEVE A MINIMUM OF 12".
5. DRIVE CAP SHALL BE UTILIZED FOR INSTALLATION OF DRIVE TUBE FOUNDATION. WHEN USING A POWER DRIVER, A SHANK SHALL ALSO BE REQUIRED.

SPECIFICATION REFERENCE

700

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SQUARE TUBE SIGN POST

FOUNDATION TYPE F DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

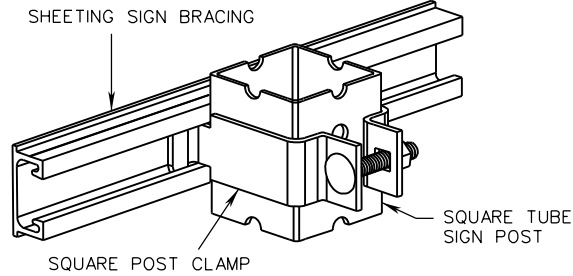
ROAD AND BRIDGE STANDARDS

REVISION DATE

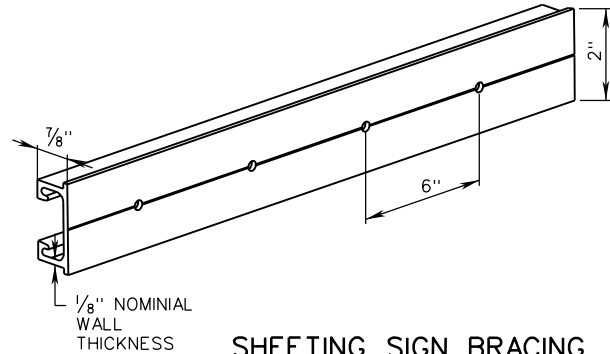
NEW 01/15

SHEET 9 OF 12

1321.18



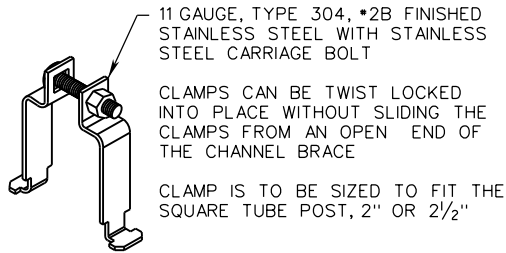
**SQUARE POST CLAMP & BRACE
(CONNECTING JUNCTION)**



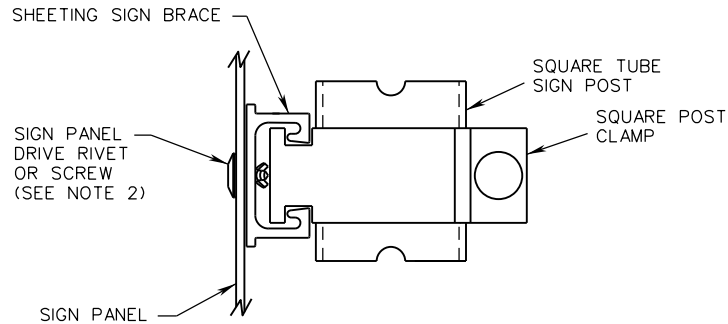
SHEETING SIGN BRACING

ALUMINUM SIGN BRACING 2" MOUNTING SURFACE x 7/8" DEPTH x 1/8" NOMINAL WALL THICKNESS

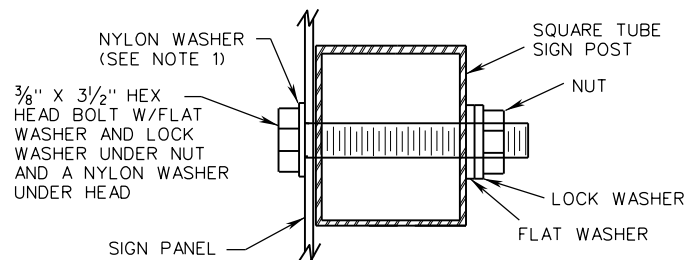
6061-T6 ALUMINUM ALLOY, PUNCHED WITH 3/16" DIAMETER HOLES ON 6" CENTERS FOR ATTACHMENT OF SIGN SUBSTRATE USING SIGN PANEL 3/16" DRIVE RIVETS, OR 3/8" DIAMETER HOLES ON 12" CENTERS WHEN USING 3/8" DRIVE RIVETS.



SQUARE POST CLAMP DETAIL



**SIGN PANEL ATTACHMENT DETAILS
FOR SIGN POSTS REQUIRING BRACING**



**SIGN PANEL ATTACHMENT DETAILS
FOR SIGN POSTS NOT REQUIRING BRACING**

NOTES:

1. NYLON WASHER SHALL BE 1/16" THICK MINIMUM WITH AN OUTSIDE DIAMETER OF 1" AND AN INSIDE DIAMETER OF 7/16".
2. DRIVE RIVET SHALL BE 3/16" OR 3/8" ALUMINUM FLAT HEAD RIVET WITH NYLON OR RUBBER WASHER.
3. THE HEAD OF ALL DRIVE RIVETS AND HEX HEAD BOLTS SHALL BE POWDER COATED TO MATCH THE COLOR OF THE SIGN SHEETING.
4. DRIVE RIVET SHALL NOT BE USED FOR SIGNS WITHOUT BRACING.

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SQUARE TUBE SIGN POST

SIGN BRACING AND SIGN PANEL ATTACHMENT DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

700

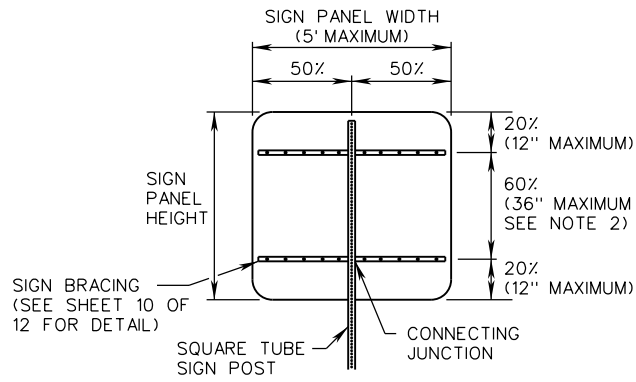


ROAD AND BRIDGE STANDARDS

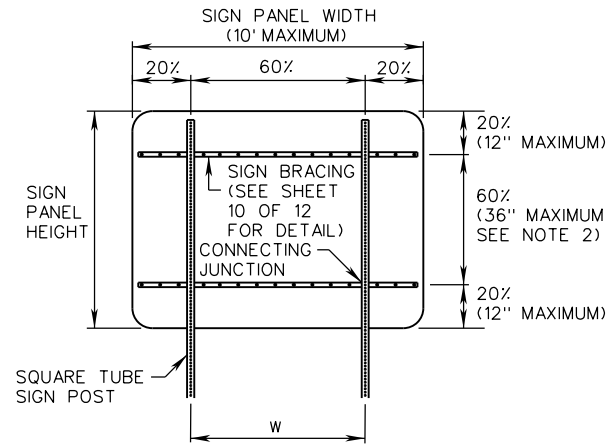
SHEET 10 OF 12 REVISION DATE

1321.19

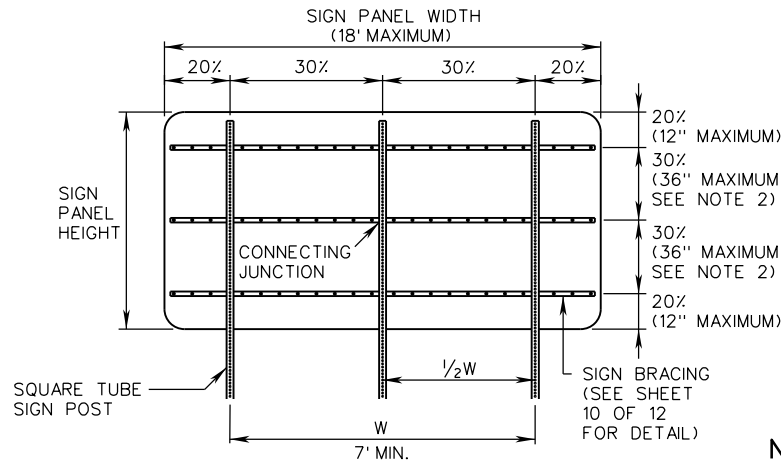
NEW 01/15



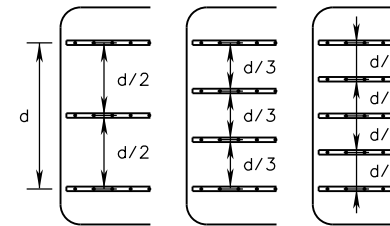
**SINGLE POST - BRACING DIAGRAM
TYPICAL - TWO BRACE**



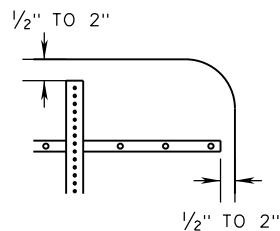
**TWO POST - BRACING DIAGRAM
TYPICAL - TWO BRACE**



**THREE POST - BRACING DIAGRAM
TYPICAL - THREE BRACE**



DETAIL A - SPACING OF MULTIPLE BRACING



DETAIL B - INSTALLATION TOLERANCES

NOTES:

1. SIGN PANEL WIDTHS 36" OR GREATER SHALL REQUIRE SIGN BRACING.
2. VERTICAL SPACING OF SIGN BRACING SHALL NOT EXCEED 12" FROM THE TOP OR BOTTOM EDGE OF SIGN PANEL TO FIRST BRACE AND 36" BETWEEN BRACES. IF THE SPACING BETWEEN BRACES EXCEEDS 36" THEN ADDITIONAL SIGN BRACING SHALL BE ADDED. ALL SIGN BRACING SHALL BE EQUALLY SPACED BETWEEN THE TOP AND BOTTOM BRACE. SEE DETAIL A.
3. MAXIMUM SIGN PANEL AREA PER POST TO BRACE JUNCTION SHALL BE 10 SQ. FT. ADDITIONAL SIGN BRACING SHALL BE INSTALLED IF 10 SQ. FT PER POST TO BRACE JUNCTION IS EXCEEDED.
4. ONE SPLICE PER BRACE WILL BE PERMITTED. BRACE SPLICE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BRACING SHALL NOT BE SPLICED WITHIN 6" OF A BRACE TO POST JUNCTION. SPLICES SHALL NOT BE IN VERTICAL ALIGNMENT BUT SHALL BE OFFSET NO LESS THAN 12" FROM EACH OTHER.
5. TOP OF SIGN PANEL SHALL BE MOUNTED 1/2" TO 2" WITH THE TOP OF THE POST AND 1/2" TO 2" WITH THE SIDE OF THE SIGN BRACING. SEE DETAIL B.
6. SIGN PANEL WIDTHS SHALL NOT EXCEED MAXIMUM SPECIFIED.

SPECIFICATION REFERENCE

700

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SQUARE TUBE SIGN POST

SIGN BRACING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

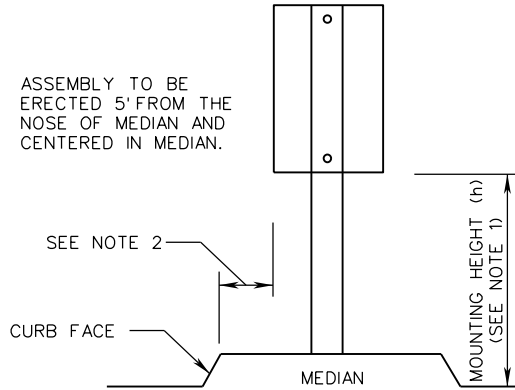
REVISION DATE

NEW 01/15

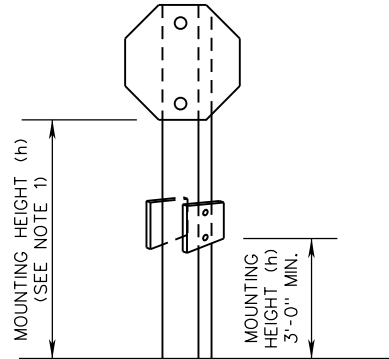
SHEET 11 OF 12

1321.20

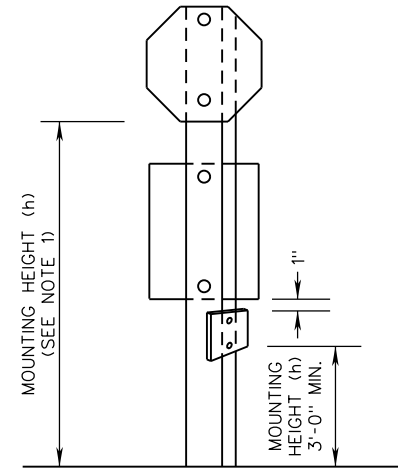
ASSEMBLY TO BE
ERECTED 5' FROM THE
NOSE OF MEDIAN AND
CENTERED IN MEDIAN.



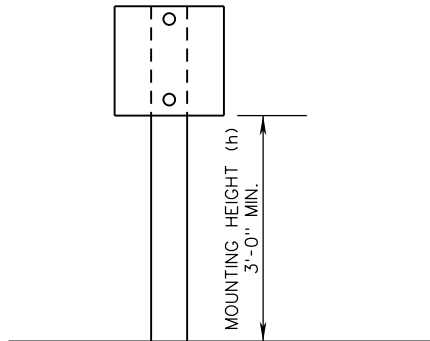
**SINGLE POST
MEDIAN INSTALLATIONS**



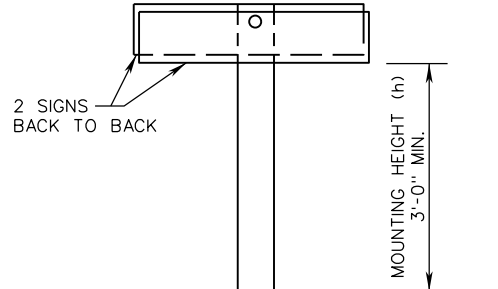
**ONE WAY SIGNS
ON EXIT RAMP
WITH STOP SIGN**



**STOP OR YIELD SIGNS AND
DO NOT ENTER SIGN
(AT EXIT RAMP ONLY)**



**WRONG WAY SIGNS/
DO NOT ENTER SIGNS
(AT EXIT RAMP ONLY)**



**ONE WAY SIGNS
ON EXIT RAMP**

NOTES:

1. MOUNTING HEIGHT (h) SHALL BE IN ACCORDANCE WITH STP-1 SHEET 1 OF 12 EXCEPT AS NOTED ON THIS SHEET.
2. 2' MINIMUM FOR MEDIANS OVER 10' IN WIDTH. 12" MINIMUM FOR MEDIANS 10' OR LESS IN WIDTH UNLESS SHOWN OTHERWISE IN THE CONTRACT DOCUMENTS.
3. MOUNTING HEIGHTS (h) ARE MEASURED FROM BOTTOM OF SIGN PANEL TO ROADWAY ELEVATION AT EDGE OF TRAVELWAY OR TOP OF CURB.



ROAD AND BRIDGE STANDARDS

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SIGN POST

SPECIFICATION
REFERENCE

SHEET 12 OF 12 REVISION DATE

MOUNTING HEIGHTS OF SIGN INSTALLATIONS

1321.21

NEW 01/15

VIRGINIA DEPARTMENT OF TRANSPORTATION

700

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SPECIFICATION
REFERENCE

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VIRGINIA DEPARTMENT OF TRANSPORTATION

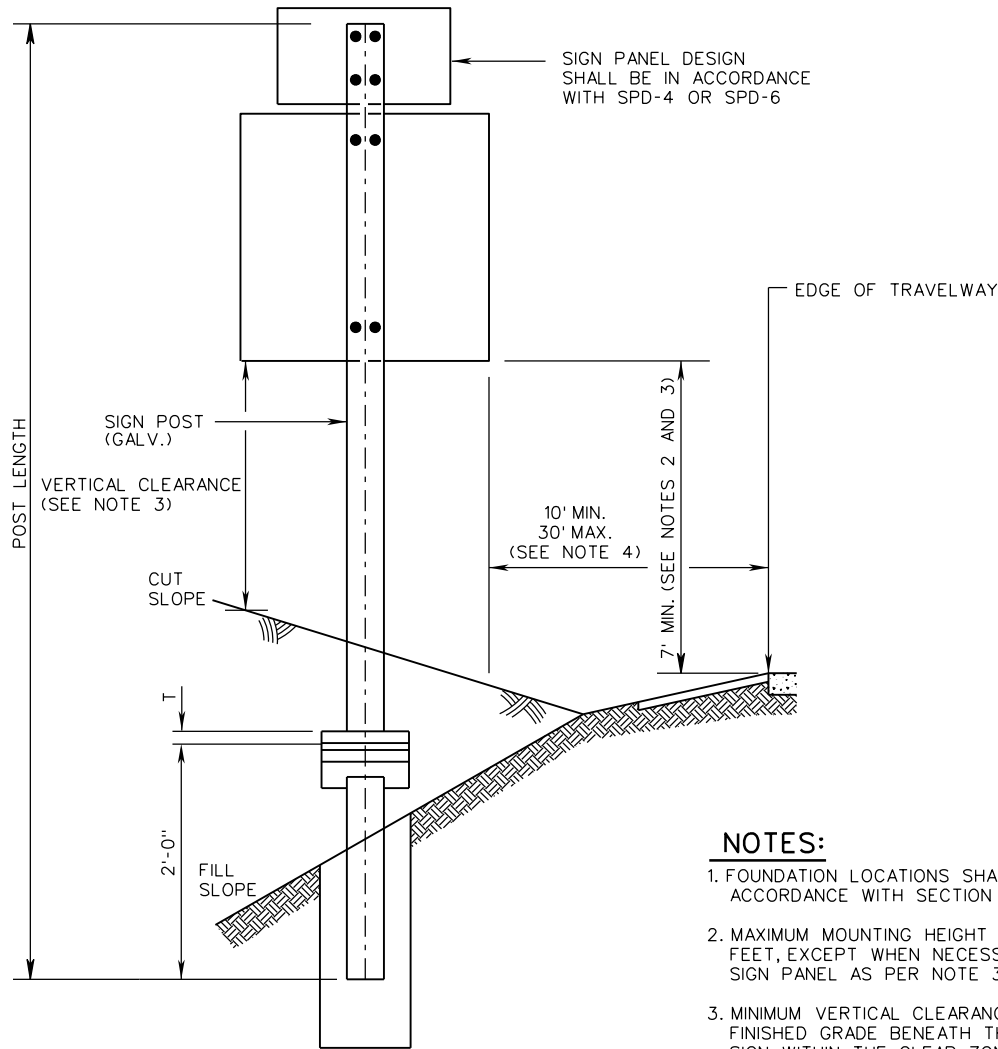


ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

--



NOTES:

1. FOUNDATION LOCATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION IN ACCORDANCE WITH SECTION 700.
2. MAXIMUM MOUNTING HEIGHT (h) FOR THE BOTTOM-MOST SIGN PANEL(S) SHALL BE 8 FEET, EXCEPT WHEN NECESSARY TO ACHIEVE MINIMUM VERTICAL CLEARANCE BENEATH SIGN PANEL AS PER NOTE 3.
3. MINIMUM VERTICAL CLEARANCE (DISTANCE BETWEEN BOTTOM OF SIGN PANEL AND FINISHED GRADE BENEATH THE PANEL) SHALL BE 7 FEET FOR ANY PORTION OF THE SIGN WITHIN THE CLEAR ZONE. THIS MINIMUM VERTICAL CLEARANCE MAY BE REDUCED TO 5 FEET FOR EITHER OF THE FOLLOWING CONDITIONS:
 - WHEN SIGNS OR PORTIONS OF SIGNS ARE LOCATED MORE THAN 10 FEET UP A CUT SLOPE GREATER THAN 3:1, OR
 - WHEN THE SIGN IS LOCATED AT LEAST THE MINIMUM DISTANCE BEHIND CURB, BARRIER, OR GUARDRAIL AS PER NOTE 4.
4. THE LATERAL CLEARANCE TO THE SIGN PANEL SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR 4 FEET FROM FACE OF BARRIER, IF PRESENT. UNLESS OTHERWISE APPROVED BY THE ENGINEER, SIGNS PLACED BEHIND GUARDRAIL SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE SIGN PANEL IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.



ROAD AND BRIDGE STANDARDS

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VA SIGN STRUCTURE

INSTALLATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

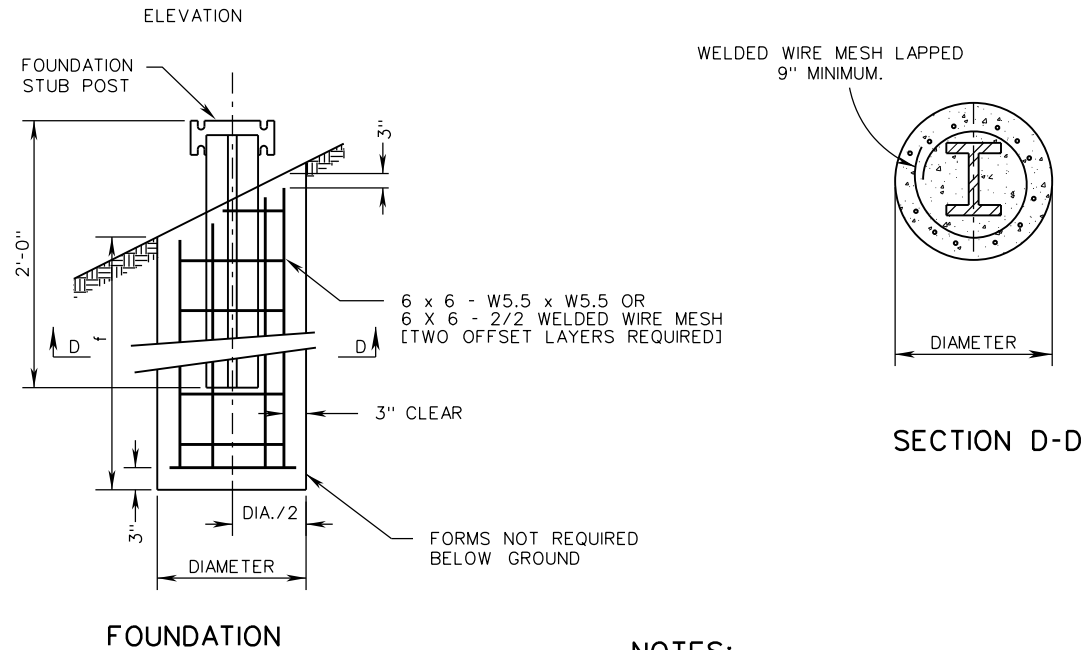
700

SHEET 1 OF 4

REVISION DATE

1322.10

01/15



NOTES:

1. POST LENGTH IS FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL POST LENGTH AT THE FIELD LOCATION OF THE SIGN STRUCTURE BASED ON FINISHED GRADE ELEVATION.
2. TOTAL POST LENGTH QUANTITY = LENGTH OF POST ABOVE THE BOLT KEEPER PLATE + THE FOUNDATION STUB POST LENGTH (2'-0").

SIGN POST AND FOUNDATION DETAILS

STRUCTURE TYPE	SIGN PANEL DIMENSIONS		SIGN POST	POST LENGTH DIMENSIONS (SEE NOTES 1 & 2)	FOUNDATION DIMENSIONS		WELDED WIRE MESH		STEEL BASE PLATE						
	W	H		SLOPE 3:1 TO 2:1	f	DIAMETER	LENGTH	SQ. FT.	T (THICKNESS)						
VA-A	3'	3'	S3 x 5.7	12'-3"	3'-0"	1'-0"	2'-6"	5	1/2"						
VA-B	4'	4'		12'-3"											
VA-C	4'	5'		13'-3"											
VA-D	5'	3'		12'-9"											
VA-E	6'	5'		13'-9"											
VA-F	4'	-		W4 x 13						13'-9"	4'-6"	1'-9"	4'-4"	20	1"
VA-G	5'	-								13'-0"					
VA-K	4'	5'								17'-3"					
VA-K	4'	4'								-					
VA-L	6'	6'								14'-6"					
VA-M	5'	5'	13'-9"												
VA-A2	6'	3'	W6 x 12		13'-9"	6'-0"	2'-6"	5'-6"	40	1"					
VA-N	7'	7'	W6 x 12		15'-9"										
VA-O	13'	5'	W6 x 12		15'-9"										

SPECIFICATION REFERENCE

700

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**VA SIGN STRUCTURE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

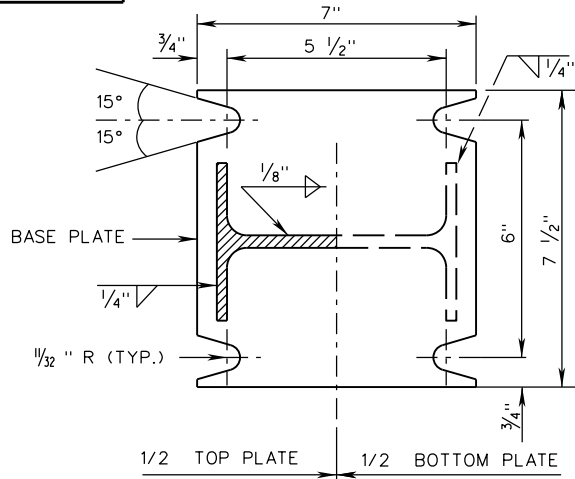
REVISION DATE

01/15

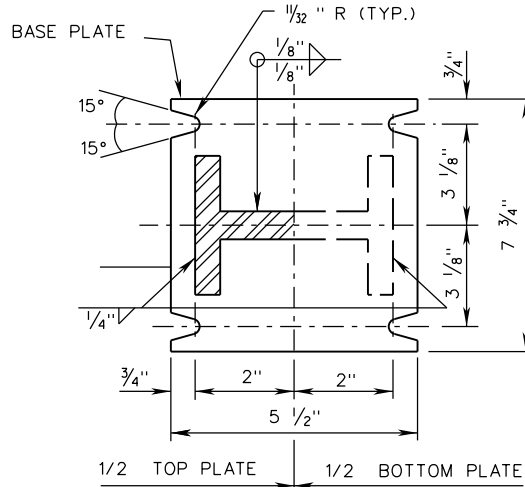
SHEET 2 OF 4

1322.11

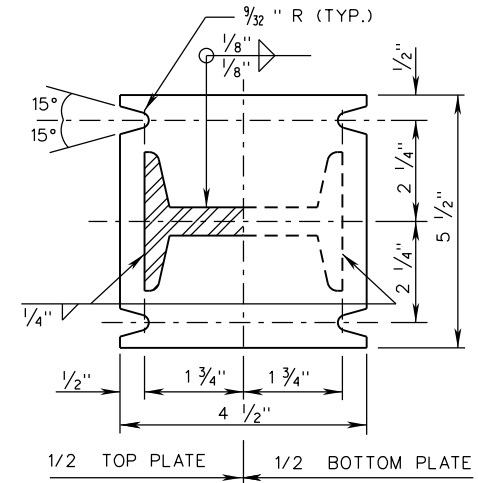
SSP-VA



SECTION A-A
FOR W6 x 12 POST



SECTION A-A
FOR W4 x 13 POST



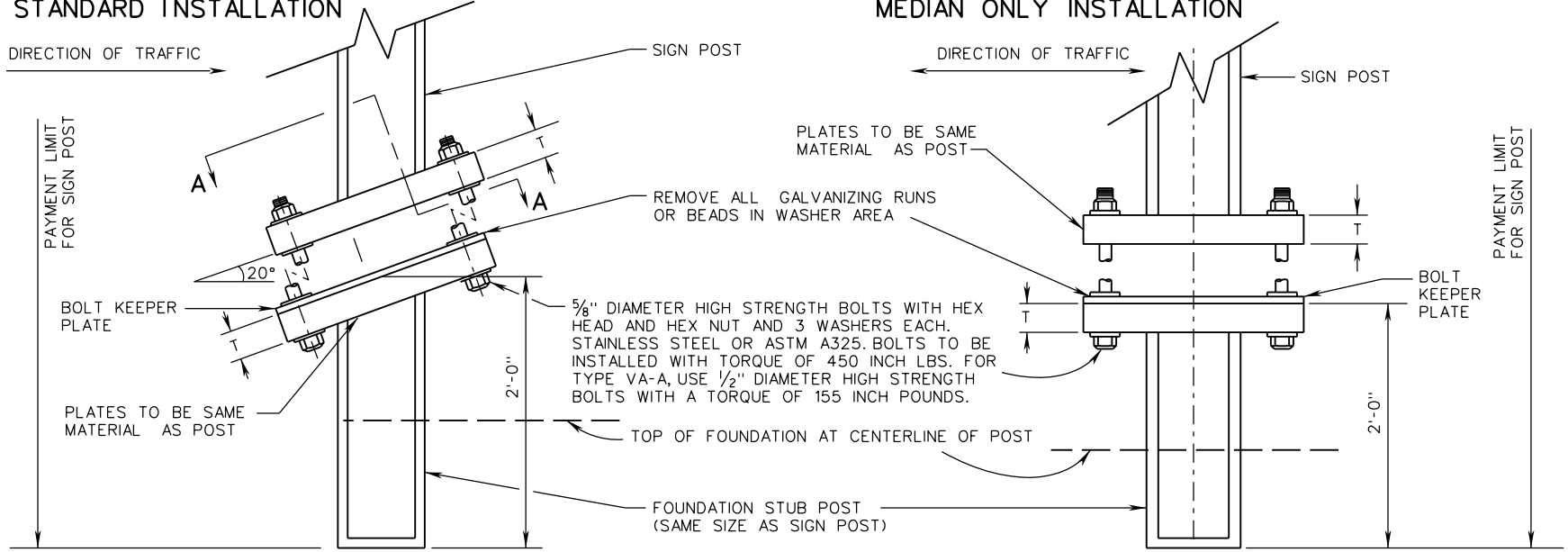
SECTION A-A
FOR S3 x 5.7 POST

STANDARD INSTALLATION

DIRECTION OF TRAFFIC

MEDIAN ONLY INSTALLATION

DIRECTION OF TRAFFIC



ROAD AND BRIDGE STANDARDS

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VA SIGN STRUCTURE

SPECIFICATION REFERENCE

SHEET 3 OF 4

REVISION DATE

INSTALLATION DETAILS

1322.12

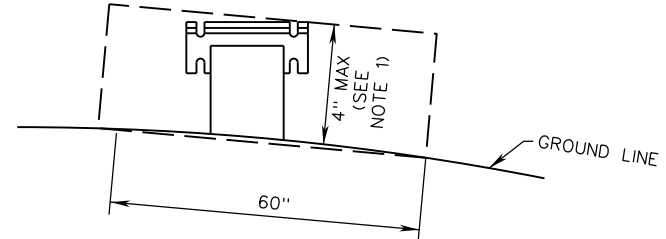
01/15

VIRGINIA DEPARTMENT OF TRANSPORTATION

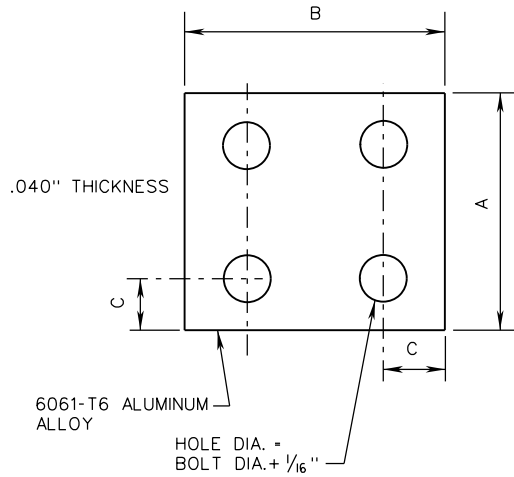
700

NOTES:

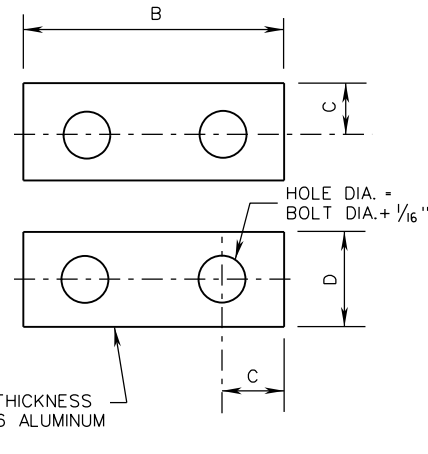
1. 4" MAXIMUM PROJECTION WHEN MEASURED ABOVE A 60" CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON THE OTHER SIDE.
2. SEE STANDARD SSP-VIA FOR SHIM DETAIL.



**METHOD TO DETERMINE
MAXIMUM PROJECTION OF FOUNDATION STUB POST**



BOLT KEEPER PLATE



ALTERNATE BOLT KEEPER PLATE

BOLT KEEPER PLATE DATA

POST SHAPE	A	B	C	D
S3 x 5.7	5 1/2"	4 1/2"	1/2"	1"
W4 x 13	7 3/4"	5 1/2"	3/4"	1 1/2"
W6 x 12	7 1/2"	7"	3/4"	1 1/2"

SPECIFICATION REFERENCE

700

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

**VA SIGN STRUCTURE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

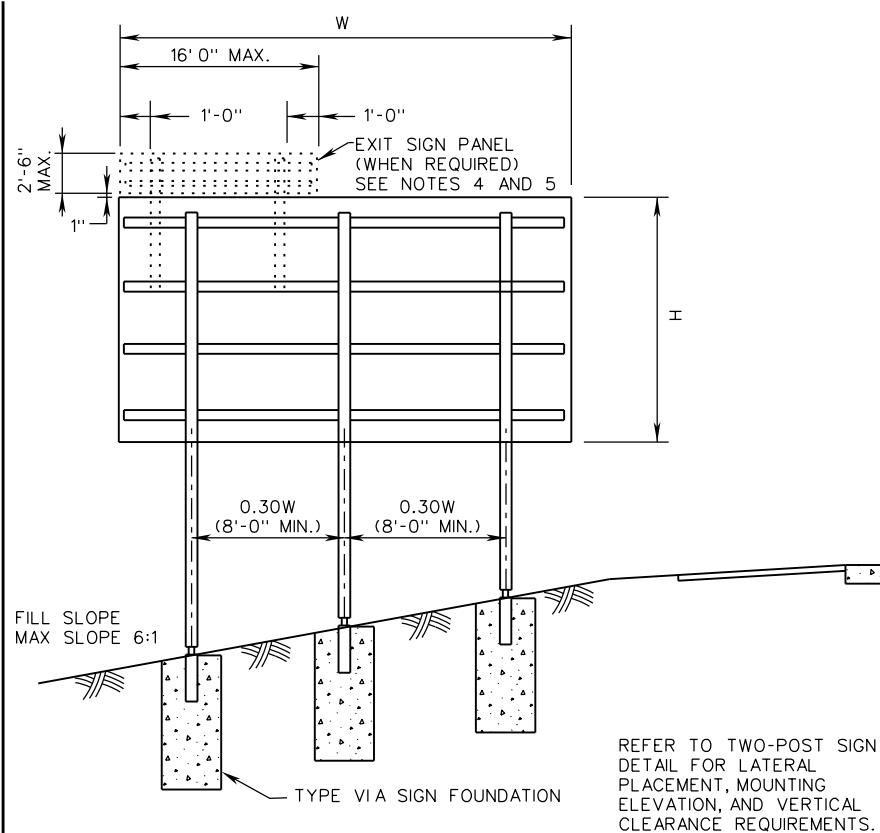
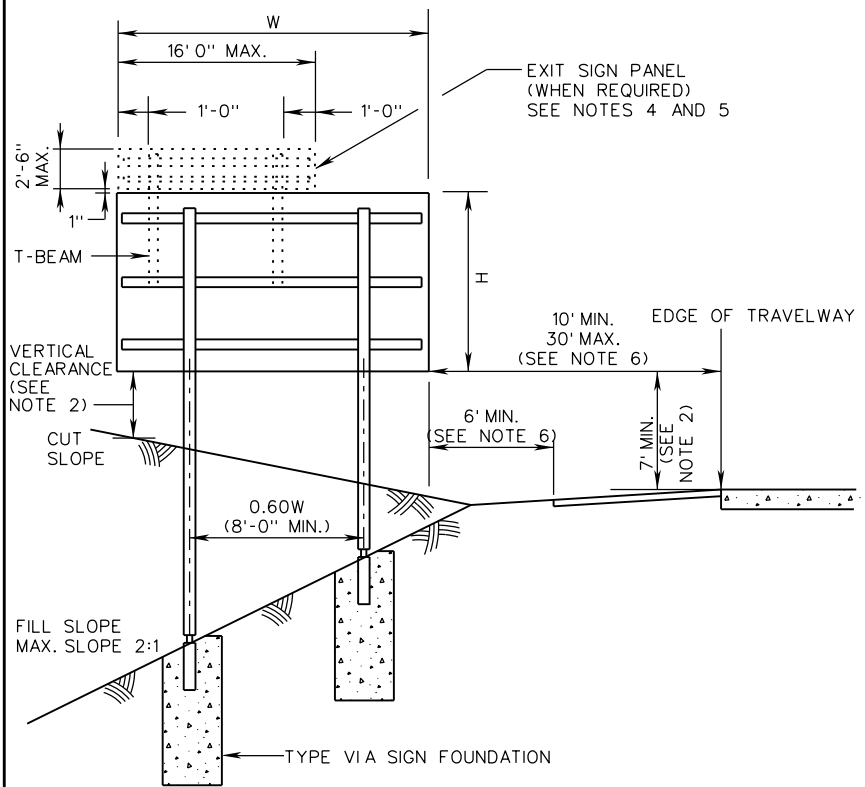
01/15

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1322.13

NOTES:

1. FOUNDATION LOCATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION IN ACCORDANCE WITH SECTION 700.
2. MINIMUM VERTICAL CLEARANCE (DISTANCE BETWEEN BOTTOM OF SIGN PANEL AND FINISHED GRADE BENEATH THE PANEL) SHALL BE 7 FEET FOR ANY PORTION OF THE SIGN WITHIN THE CLEAR ZONE. THIS MINIMUM VERTICAL CLEARANCE MAY BE REDUCED TO 5 FEET FOR EITHER OF THE FOLLOWING CONDITIONS:
 - WHEN SIGNS OR PORTIONS OF SIGNS ARE LOCATED MORE THAN 10 FEET UP A CUT SLOPE GREATER THAN 3:1, OR
 - WHEN THE SIGN IS LOCATED AT LEAST THE MINIMUM DISTANCE BEHIND CURB, BARRIER, OR GUARDRAIL AS PER NOTE 6.
3. SIGN PANEL SHALL BE DESIGNED IN ACCORDANCE WITH SPD-2, SPD-3 OR SPD-7.
4. THE VERTICAL T-BEAM SHALL BE 2"W X 2"D X 1/4" THICK STRUCTURAL ALUMINUM ALLOY 6061-T6 AT A MINIMUM LENGTH OF 6'-0" AND EXTENDED TO THE NEXT HORIZONTAL SUPPORT BAR ON THE SSP-VIA STRUCTURE.
5. THE T-BEAM SHALL BE ATTACHED TO THE SSP-VIA STRUCTURE BY THE FOLLOWING METHODS:
 - T-BEAM FOR THE SPD-2 SIGN PANEL SHALL BE ATTACHED BY USING A MINIMUM OF TWO POST CLIP BOLTS AT EACH CROSS MEMBER.
 - T-BEAM FOR THE SPD-3 SIGN PANEL SHALL BE ATTACHED BY USING TWO ASTM F593, ALLOY 304 STAINLESS STEEL 3/8" DIAMETER-16 UNC BOLT WITH STAINLESS STEEL NUT AND FLAT WASHER AT ZEE BAR CONNECTIONS AND TWO POST CLAMP AND BOLT AT EACH TEE-BAR CONNECTION.
 - T-BEAM FOR THE SPD-7 SIGN PANEL SHALL BE ATTACHED BY USING A MINIMUM OF TWO POST CLAMP AND POST CLAMP BOLTS AT EACH STIFFENER.
6. THE LATERAL CLEARANCE TO THE SIGN PANEL SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB OR 4 FEET FROM FACE OF BARRIER, IF PRESENT. UNLESS OTHERWISE APPROVED BY THE ENGINEER, SIGNS PLACED BEHIND GUARDRAIL SHALL BE LOCATED SUCH THAT THE NEAR SIDE EDGE OF THE SIGN PANEL IS OUTSIDE OF THE GUARDRAIL DEFLECTION DISTANCE.



ROAD AND BRIDGE STANDARDS

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INTERSTATE SIGN STRUCTURE

SPECIFICATION REFERENCE

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REVISION DATE

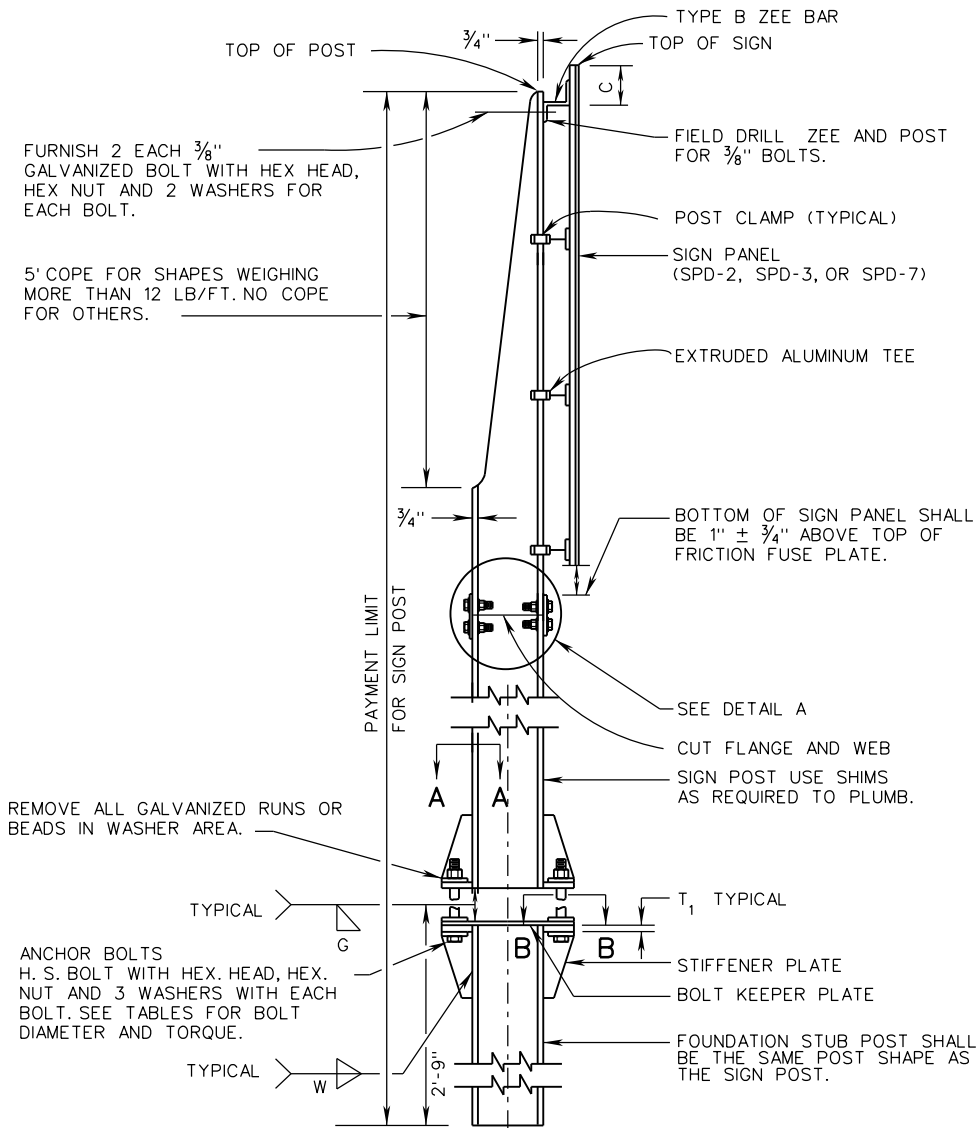
INSTALLATION DETAILS

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VIRGINIA DEPARTMENT OF TRANSPORTATION

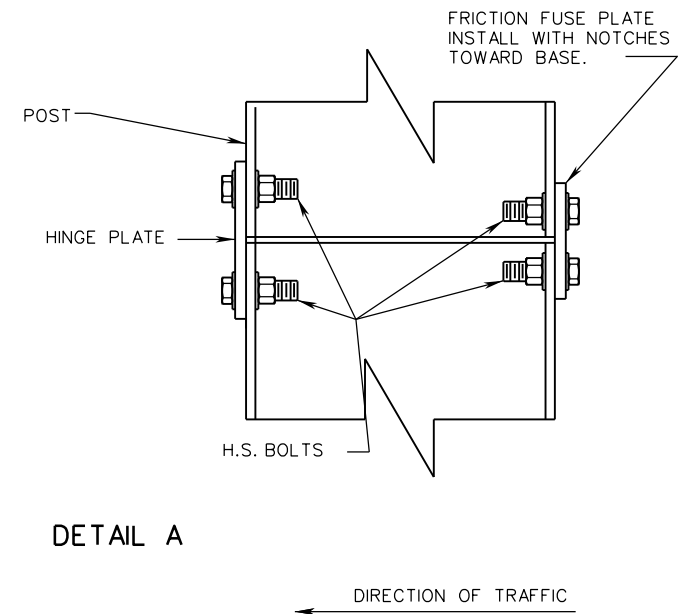
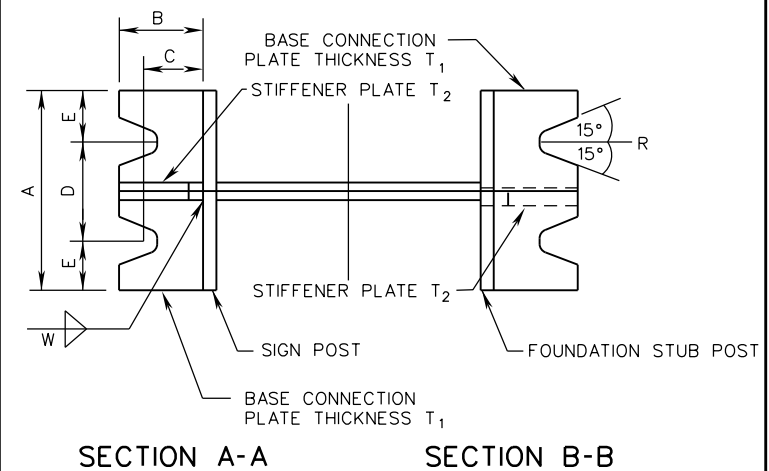
700



SIGN POST AND FOUNDATION STUB POST ELEVATION

NOTES:

1. ALL POST LENGTHS SHALL BE FIELD CHECKED BY CONTRACTOR PRIOR TO FABRICATION.



SPECIFICATION REFERENCE
700

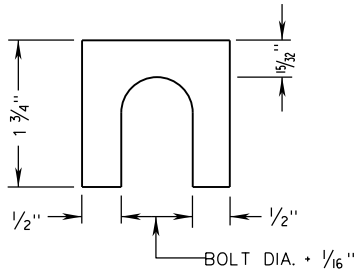
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INTERSTATE SIGN STRUCTURE

INSTALLATION DETAILS

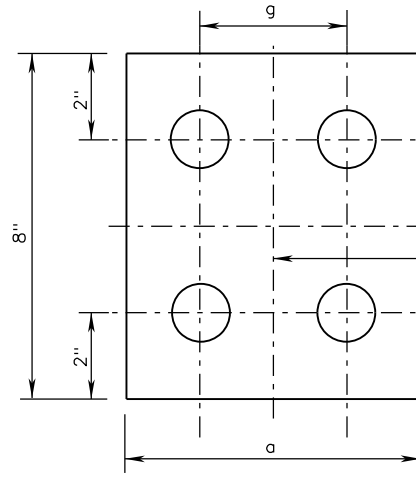
VIRGINIA DEPARTMENT OF TRANSPORTATION

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ROAD AND BRIDGE STANDARDS	
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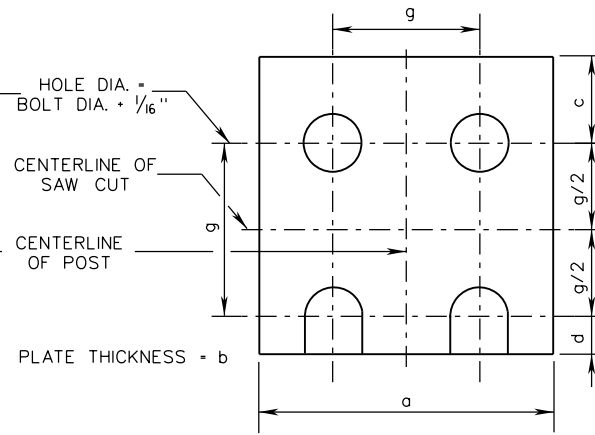


FURNISH 2 EACH .063"± AND 2 EACH .032"± THICK SHIMS PER POLE. SHIMS SHALL BE FABRICATED FROM BRASS CONFORMING TO ASTM B36 OR FROM STAINLESS STEEL WITH A MINIMUM CHROMIUM CONTENT OF 11.50% . NO MORE THAN 2 SHIMS SHALL BE USED PER BOLT WITH A MAXIMUM OF 4 SHIMS PER POST.

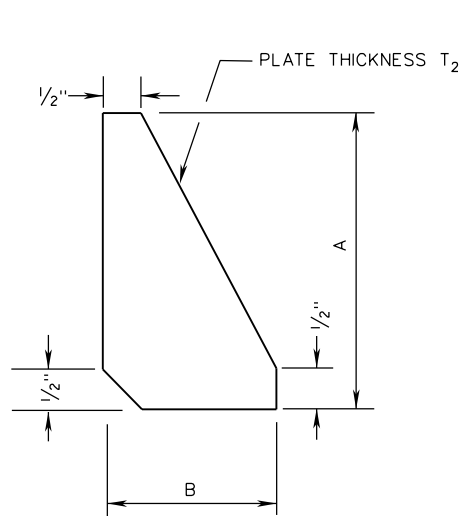
SHIM DETAIL



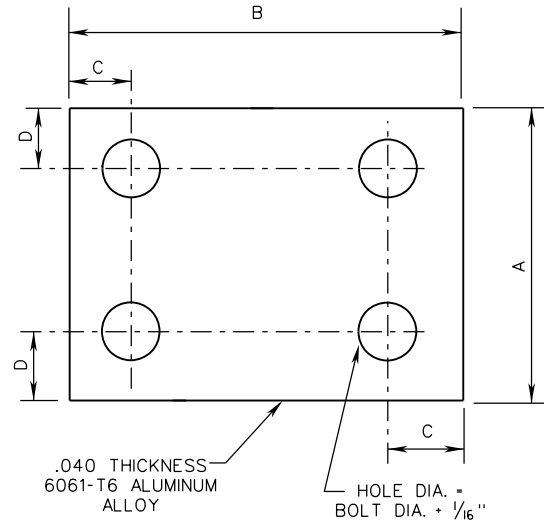
HINGE PLATE DETAIL



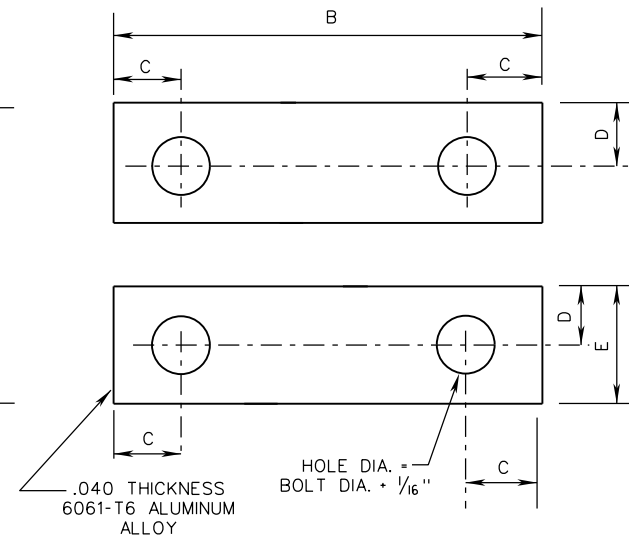
FUSE PLATE DETAIL



STIFFENER PLATE



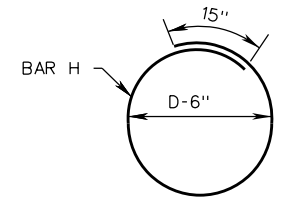
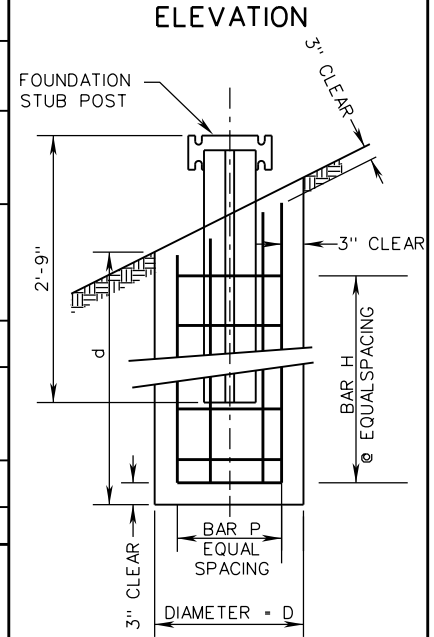
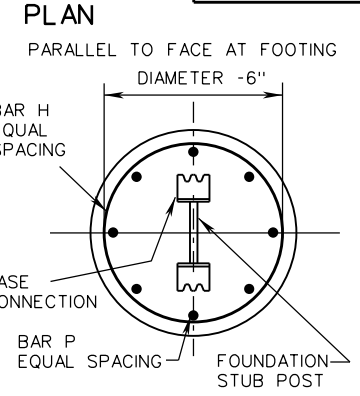
BOLT KEEPER PLATE



ALTERNATE BOLT KEEPER PLATE

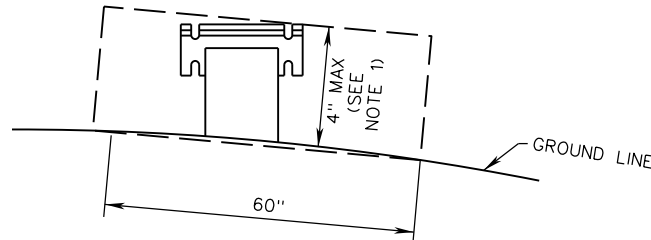
TYPE VIA	FOOTING DIMENSIONS		BAR P			BAR H		
	D	d	LENGTH	BAR SIZE	NO.	BAR SIZE	NO.	LENGTH
A								
B								
C	2'-3"	4'-6"	4'-1"	# 4	8	# 4	5	6'-7"
D								
E								
F								
G								
H								
J	3'-0"	7'-0"	6'-7"	# 6	8	# 4	8	9'-0"
K								
L								
M								
N								
O	3'-6"	9'-0"	8'-7"	# 7	8	# 4	10	10'-7"
P								
Q								
R								
S								
T	3'-0"	7'-0"	6'-7"	# 6	8	# 4	8	9'-0"
U								
V								
W								
X	3'-0"	8'-0"	7'-7"	# 6	8	# 4	9	9'-0"
Y								
Z								
AA	3'-6"	9'-0"	8'-7"	# 7	8	# 4	10	10'-7"
BB								
CC								
DD	3'-0"	7'-0"	6'-7"	# 6	8	# 4	8	9'-0"
EE								
FF								
GG								
HH	3'-6"	9'-0"	8'-7"	# 7	8	# 4	10	10'-7"
JJ								
KK								
LL								
MM	3'-6"	10'-0"	9'-7"	# 8	8	# 4	11	10'-7"
NN								

TYPE VIA	FOOTING DIMENSIONS		BAR P			BAR H		
	D	d	LENGTH	BAR SIZE	NO.	BAR SIZE	NO.	LENGTH
OO								
PP								
QQ	3'-0"	7'-0"	6'-7"	# 6	8	# 4	8	9'-0"
RR								
SS								
TT	3'-0"	8'-0"	7'-7"	# 6	8	# 4	9	9'-0"
UU								
VV	3'-6"	9'-0"	8'-7"	# 7	8	# 4	10	10'-7"
WW								
XX								
YY	3'-6"	10'-0"	9'-7"	# 8	8	# 4	11	10'-7"
ZZ	3'-0"	7'-0"	6'-7"	# 6	8	# 4	8	9'-0"
AB	3'-0"	8'-0"	7'-7"	# 6	8	# 4	9	9'-0"
AC								
AD	3'-6"	9'-0"	8'-7"	# 7	8	# 4	10	10'-7"
AE								
AF	3'-6"	10'-0"	9'-7"	# 8	8	# 4	11	10'-7"
AG								
AH								
AJ	4'-0"	12'-0"	11'-7"	# 9	8	# 4	13	12'-1"
AK								
AL								
AM	4'-0"	9'-6"	9'-1"	# 7	8	# 4	10	12'-1"
AN								
AO								
AP								
AQ								
AR	4'-0"	12'-0"	11'-7"	# 9	8	# 4	13	12'-1"
AS								
AT								
AU	4'-0"	9'-6"	9'-1"	# 7	8	# 4	10	12'-1"
AV								
AW	4'-0"	12'-0"	11'-7"	# 9	8	# 4	13	12'-1"
AX								
AY	4'-0"	12'-0"	11'-7"	# 9	8	# 4	13	12'-1"
AZ								
BC	4'-0"	13'-6"	13'-1"	# 10	8	# 4	14	12'-1"
BD								



NOTES:

- 1. 4" MAXIMUM PROJECTION WHEN MEASURED ABOVE A 60" CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON THE OTHER SIDE.



**METHOD TO DETERMINE
MAXIMUM PROJECTION OF FOUNDATION STUB POST**

SPECIFICATION REFERENCE

700

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

**INTERSTATE SIGN STRUCTURE
INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION



ROAD AND BRIDGE STANDARDS

REVISION DATE

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SIGN STRUCTURE TYPE VIA	SIGN PANEL DIMENSIONS		POST SHAPE	POST LENGTH (SEE NOTE 1)			ANCHOR BOLTS	
				NO. 1	NO. 2	NO. 3	DIA.	TORQUE IN.-LBS.
	W	H						
A	---	---	---	---	---	---	---	---
B	12'	4'	W10X12	13'-1"	16'-5"	---	1/2"	200
C	11'	5'	W10X12	14'-1"	16'-7"	---	1/2"	200
D	---	---	---	---	---	---	---	---
E	10'	6'	W10X12	15'-0"	17'-9"	---	1/2"	200
F	12'	6'	W12X14	15'-5"	18'-5"	---	5/8"	600
G	14'	6'	W12X16	15'-9"	19'-1"	---	5/8"	600
H	16'	6'	W12X19	15'-8"	20'-2"	---	5/8"	600
J	18'	6'	W12X19	15'-11"	20'-11"	---	3/4"	900
K	20'	6'	W12X22	16'-2"	21'-8"	---	3/4"	900
L	22'	6'	W14X26	16'-4"	22'-6"	---	3/4"	900
M	24'	6'	W14X26	16'-7"	23'-3"	---	7/8"	1000
N	26'	6'	W14X26	16'-9"	24'-0"	---	7/8"	1000
O	28'	6'	W16X31	17'-1"	24'-10"	---	7/8"	1000
P	30'	6'	W16X31	17'-3"	25'-7"	---	7/8"	1000
Q	---	---	---	---	---	---	---	---
R	10'	8'	W12X14	16'-8"	19'-4"	---	5/8"	600
S	12'	8'	W12X16	16'-9"	20'-1"	---	5/8"	600
T	14'	8'	W12X19	17'-0"	20'-10"	---	3/4"	900
U	16'	8'	W12X22	17'-2"	21'-8"	---	3/4"	900
V	18'	8'	W14X22	17'-5"	22'-5"	---	3/4"	900
W	20'	8'	W14X26	17'-8"	23'-2"	---	7/8"	1000
X	22'	8'	W16X26	17'-10"	24'-0"	---	7/8"	1000
Y	24'	8'	W16X31	18'-1"	24'-9"	---	7/8"	1000
Z	26'	8'	W14X34	18'-4"	25'-6"	---	1"	1500

NOTES:

- POST LENGTH IS FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL POST LENGTH AT THE FIELD LOCATION OF THE SIGN STRUCTURE BASED ON FINISHED GRADE ELEVATION.
- TOTAL POST LENGTH QUANTITY = LENGTH OF POST ABOVE THE BOLT KEEPER PLATE + THE FOUNDATION STUB POST LENGTH (2'-9").



ROAD AND BRIDGE STANDARDS

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INTERSTATE SIGN STRUCTURE**INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

SHEET 5 OF 10

REVISION DATE

1323.14

01/15

700

NOTES:

1. POST LENGTH IS FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL POST LENGTH AT THE FIELD LOCATION OF THE SIGN STRUCTURE BASED ON FINISHED GRADE ELEVATION.
2. TOTAL POST LENGTH QUANTITY = LENGTH OF POST ABOVE THE BOLT KEEPER PLATE + THE FOUNDATION STUB POST LENGTH (2'-9").

SIGN STRUCTURE TYPE VIA	SIGN PANEL DIMENSIONS		POST SHAPE	POST LENGTH (SEE NOTE 1)			ANCHOR BOLTS	
				NO. 1	NO. 2	NO. 3	DIA.	TORQUE IN.-LBS.
	W	H						
AA	28'	8'	W18X35	18'-6"	26'-3"	---	1"	1500
BB	30'	8'	W18X40	18'-9"	27'-1"	---	1"	1500
CC	10'	10'	W12X19	18'-6"	21'-3"	---	5/8"	600
DD	12'	10'	W14X22	18'-9"	22'-1"	---	3/4"	900
EE	14'	10'	W14X22	19'-0"	22'-10"	---	3/4"	900
FF	16'	10'	W14X26	19'-2"	23'-8"	---	7/8"	1000
GG	18'	10'	W16X31	19'-5"	24'-5"	---	7/8"	1000
HH	20'	10'	W16X31	19'-8"	25'-2"	---	1"	1500
JJ	22'	10'	W18X35	19'-10"	26'-0"	---	1"	1500
KK	24'	10'	W18X40	20'-1"	26'-9"	---	1"	1500
LL	26'	10'	W21X44	20'-4"	27'-6"	---	1"	1500
MM	28'	10'	W21X44	20'-6"	28'-3"	---	1"	1500
NN	30'	10'	W21X44	21'-0"	28'-9"	---	1 1/8"	2540
OO	10'	9'	W12X16	17'-6"	20'-3"	---	5/8"	600
PP	12'	9'	W12X19	17'-9"	21'-1"	---	3/4"	900
QQ	14'	9'	W12X22	18'-0"	21'-10"	---	3/4"	900
RR	16'	9'	W14X26	18'-2"	22'-8"	---	3/4"	900
SS	18'	9'	W14X26	18'-5"	23'-5"	---	7/8"	1000
TT	20'	9'	W16X31	18'-8"	24'-2"	---	7/8"	1000
UU	22'	9'	W16X31	18'-10"	25'-0"	---	7/8"	1000
VV	24'	9'	W18X35	19'-1"	25'-9"	---	1"	1500
WW	26'	9'	W18X35	19'-4"	26'-6"	---	1"	1500
XX	28'	9'	W18X40	19'-10"	27'-0"	---	1"	1500
YY	30'	9'	W21X44	20'-4"	27'-6"	---	1"	1500
ZZ	12'	12'	W14X26	20'-9"	24'-1"	---	7/8"	1000

SPECIFICATION REFERENCE

700

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INTERSTATE SIGN STRUCTURE

INSTALLATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION



ROAD AND BRIDGE STANDARDS

REVISION DATE

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SIGN STRUCTURE TYPE VIA	SIGN PANEL DIMENSIONS		POST SHAPE	POST LENGTH (SEE NOTE 1)			ANCHOR BOLTS	
				NO. 1	NO. 2	NO. 3	DIA.	TORQUE IN.-LBS.
	W	H						
AB	14'	12'	W16X26	21'-0"	24'-10"	---	7/8"	1000
AC	16'	12'	W16X31	21'-2"	25'-8"	---	7/8"	1000
AD	18'	12'	W14X34	21'-5"	26'-5"	---	1"	1500
AE	20'	12'	W16X40	21'-5"	26'-11"	---	1"	1500
AF	22'	12'	W18X40	21'-7"	27'-9"	---	1 1/8"	2540
AG	24'	12'	W21X44	21'-10"	28'-6"	---	1 1/8"	2540
AH	26'	12'	W18X35	19'-5"	20'-11"	22'-5"	1"	1500
AJ	28'	12'	W18X35	19'-6"	21'-2"	22'-9"	1"	1500
AK	30'	12'	W18X40	19'-6"	21'-3"	23'-0"	1"	1500
AL	14'	14'	W16X31	23'-0"	26'-10"	---	1"	1500
AM	16'	14'	W18X35	23'-2"	27'-8"	---	1"	1500
AN	18'	14'	W18X40	23'-5"	28'-5"	---	1"	1500
AO	20'	14'	W21X44	23'-8"	29'-2"	---	1 1/8"	2540
AP	22'	14'	W16X40	21'-4"	22'-8"	23'-11"	1"	1500
AQ	24'	14'	W18X35	21'-4"	22'-9"	24'-2"	1"	1500
AR	26'	14'	W18X40	21'-5"	22'-11"	24'-5"	1"	1500
AS	28'	14'	W21X44	21'-6"	23'-2"	24'-9"	1"	1500
AT	30'	14'	W21X44	21'-6"	23'-3"	25'-0"	1"	1500
AU	16'	16'	W18X40	25'-2"	29'-8"	---	1 1/8"	2540
AV	18'	16'	W21X44	25'-5"	30'-5"	---	1 1/8"	2540
AW	20'	16'	W18X35	23'-1"	24'-4"	25'-7"	1"	1500
AX	22'	16'	W18X40	23'-4"	24'-8"	25'-11"	1"	1500
AY	24'	16'	W21X44	23'-6"	24'-10"	26'-2"	1"	1500
AZ	26'	16'	W21X44	23'-6"	25'-0"	26'-6"	1"	1500
BC	28'	16'	W21X44	23'-6"	25'-2"	26'-9"	1"	1500
BD	30'	16'	W21X44	23'-6"	25'-3"	27'-0"	1 1/8"	2540

NOTES:

1. POST LENGTH IS FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL POST LENGTH AT THE FIELD LOCATION OF THE SIGN STRUCTURE BASED ON FINISHED GRADE ELEVATION.
2. TOTAL POST LENGTH QUANTITY = LENGTH OF POST ABOVE THE BOLT KEEPER PLATE + THE FOUNDATION STUB POST LENGTH (2'-9").



ROAD AND BRIDGE STANDARDS

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INTERSTATE SIGN STRUCTURE**INSTALLATION DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
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SIGN STRUCTURE TYPE VIA	SUPPORT																					
	BASE CONNECTION DATA TABLE									FUSE AND HINGE PLATE DATA TABLE							BOLT KEEPER PLATE DATA TABLE					
	A	B	C	D	E	T ₁	T ₂	W	R	BOLT DIA.	a	b	c	d	g	g/2	BOLT DIA.	A	B	C	D	E
A	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
B	5"	2"	1/4"	2 3/4"	1/8"	5/8"	1/2"	1/4"	5/32"	1/2"	4"	3/16"	1/16"	5/8"	2/4"	1/8"	1/2"	5"	13 7/8"	3/4"	1/8"	2/4"
C	5"	2"	1/4"	2 3/4"	1/8"	5/8"	1/2"	1/4"	5/32"	1/2"	4"	3/16"	1/16"	5/8"	2/4"	1/8"	1/2"	5"	13 7/8"	3/4"	1/8"	2/4"
D	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
E	5"	2"	1/4"	2 3/4"	1/8"	5/8"	1/2"	1/4"	5/32"	1/2"	4"	3/16"	1/16"	5/8"	2/4"	1/8"	1/2"	5"	13 7/8"	3/4"	1/8"	2/4"
F	5"	2"	1/4"	2 3/4"	1/8"	3/4"	1/2"	1/4"	1/32"	1/2"	4"	1/4"	1/16"	5/8"	2/4"	1/8"	5/8"	5"	15 7/8"	3/4"	1/8"	2/4"
G	5"	2"	1/4"	2 3/4"	1/8"	3/4"	1/2"	1/4"	1/32"	1/2"	4"	1/4"	1/16"	5/8"	2/4"	1/8"	5/8"	5"	16"	3/4"	1/8"	2/4"
H	6"	2 1/4"	1 3/8"	3 1/2"	1/4"	7/8"	5/8"	1/4"	1/32"	1/2"	4"	3/8"	1/16"	5/8"	2/4"	1/8"	5/8"	6"	16 5/8"	7/8"	1/4"	2 1/2"
J	6"	2 1/4"	1 3/8"	3 1/2"	1/4"	7/8"	5/8"	1/4"	5/32"	1/2"	4"	3/8"	1/16"	5/8"	2/4"	1/8"	3/4"	6"	16 5/8"	7/8"	1/4"	2 1/2"
K	6"	2 1/4"	1 3/8"	3 1/2"	1/4"	7/8"	5/8"	1/4"	5/32"	5/8"	4"	7/16"	7/8"	3/4"	2 1/4"	1/8"	3/4"	6"	16 3/4"	7/8"	1/4"	2 1/2"
L	7"	2 3/4"	2"	4"	1/2"	1"	3/4"	5/16"	5/32"	5/8"	5"	7/16"	7/8"	3/4"	2 3/4"	1 3/8"	3/4"	7"	19 3/8"	3/4"	1/2"	3"
M	7"	2 3/4"	2"	4"	1/2"	1"	3/4"	5/16"	5/32"	5/8"	5"	7/16"	7/8"	3/4"	2 3/4"	1 3/8"	7/8"	7"	19 3/8"	3/4"	1/2"	3"
N	7"	2 3/4"	2"	4"	1/2"	1"	3/4"	5/16"	5/32"	5/8"	5"	7/16"	7/8"	3/4"	2 3/4"	1 3/8"	7/8"	7"	19 3/8"	3/4"	1/2"	3"
O	7"	2 3/4"	2"	4"	1/2"	1 1/8"	3/4"	5/16"	5/32"	5/8"	5 1/2"	7/16"	7/8"	3/4"	2 3/4"	1 3/8"	7/8"	7"	21 3/8"	3/4"	1/2"	3"
P	7"	2 3/4"	2"	4"	1/2"	1 1/8"	3/4"	5/16"	5/32"	5/8"	5 1/2"	7/16"	7/8"	3/4"	2 3/4"	1 3/8"	7/8"	7"	21 3/8"	3/4"	1/2"	3"
Q	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
R	5"	2"	1/4"	2 3/4"	1/8"	3/4"	1/2"	1/4"	1/32"	1/2"	4"	1/4"	1/16"	5/8"	2/4"	1/8"	5/8"	5"	15 7/8"	3/4"	1/8"	2 1/4"
S	5"	2"	1/4"	2 3/4"	1/8"	3/4"	1/2"	1/4"	1/32"	1/2"	4"	1/4"	1/16"	5/8"	2/4"	1/8"	5/8"	5"	16"	7/8"	1/8"	2 1/4"
T	6"	2 1/4"	1 3/8"	3 1/2"	1/4"	7/8"	5/8"	1/4"	5/32"	5/8"	4"	3/8"	7/8"	3/4"	2 1/4"	1/8"	3/4"	6"	16 5/8"	7/8"	1/4"	2 1/2"
U	6"	2 1/4"	1 3/8"	3 1/2"	1/4"	7/8"	5/8"	1/4"	5/32"	3/4"	4"	7/16"	1/16"	7/8"	2 1/4"	1/8"	3/4"	6"	16 3/4"	7/8"	1/4"	2 1/2"
V	6"	2 1/4"	1 3/8"	3 1/2"	1/4"	7/8"	5/8"	1/4"	5/32"	3/4"	5"	5/16"	1/16"	7/8"	2 3/4"	1 3/8"	3/4"	6"	18 1/4"	3/4"	1/4"	2 1/2"
W	7"	2 3/4"	2"	4"	1/2"	1"	3/4"	5/16"	5/32"	3/4"	5"	7/16"	1/16"	7/8"	2 3/4"	1 3/8"	7/8"	7"	19 3/8"	3/4"	1/2"	3"
X	7"	2 3/4"	2"	4"	1/2"	1"	3/4"	5/16"	5/32"	3/4"	5 1/2"	3/8"	1/16"	7/8"	2 3/4"	1 3/8"	7/8"	7"	21 1/4"	3/4"	1/2"	3"
Y	7"	2 3/4"	2"	4"	1/2"	1 1/8"	3/4"	5/16"	5/32"	3/4"	5 1/2"	7/16"	1/16"	7/8"	2 3/4"	1 3/8"	7/8"	7"	21 3/8"	3/4"	1/2"	3"
Z	7"	2 3/4"	2"	4"	1/2"	1 1/8"	3/4"	5/16"	1/32"	3/4"	6 3/4"	7/16"	1/16"	7/8"	3 1/2"	1 3/4"	1"	7"	19 1/2"	3/4"	1/2"	3"

SPECIFICATION REFERENCE
700

**INTERSTATE SIGN STRUCTURE
INSTALLATION DETAILS**
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 8 OF 10
	1323.17

SIGN STRUCTURE TYPE VIA	SUPPORT																							
	BASE CONNECTION DATA TABLE									FUSE AND HINGE PLATE DATA TABLE							BOLT KEEPER PLATE DATA TABLE							
	A	B	C	D	E	T ₁	T ₂	W	R	BOLT DIA.	a	b	c	d	g	g/2	BOLT DIA.	A	B	C	D	E		
AB	7"	2¾"	2"	4"	1½"	1"	¾"	5/16"	7/32"	7/8"	5½"	3/8"	1/4"	1"	2¾"	1¾"	7/8"	7"	21¼"	¾"	1½"	3"		
AC	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	7/8"	5½"	7/16"	1/4"	1"	2¾"	1¾"	7/8"	7"	21¾"	¾"	1½"	3"		
AD	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	1"	6¾"	7/16"	1/16"	1/8"	3½"	1¾"	1"	7"	19½"	¾"	1½"	3"		
AE	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	1"	6¾"	1/2"	1/16"	1/8"	3½"	1¾"	1"	7"	21½"	¾"	1½"	3"		
AF	7"	2¾"	2"	4"	1½"	1/4"	¾"	5/16"	7/32"	1"	7"	1/2"	1/16"	1/8"	3½"	1¾"	1/8"	7"	23¾"	¾"	1½"	3"		
AG	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1"	6½"	7/16"	1/16"	1/8"	3½"	1¾"	1/8"	8"	26½"	¾"	1¾"	3½"		
AH	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	7/8"	6"	7/16"	1/4"	1"	3½"	1¾"	1"	7"	23¼"	¾"	1½"	3"		
AJ	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	7/8"	6"	7/16"	1/4"	1"	3½"	1¾"	1"	7"	23¼"	¾"	1½"	3"		
AK	7"	2¾"	2"	4"	1½"	1/4"	¾"	5/16"	7/32"	7/8"	6"	1/2"	1/4"	1"	3½"	1¾"	1"	7"	23¾"	¾"	1½"	3"		
AL	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	7/8"	5½"	7/16"	1/4"	1"	2¾"	1¾"	1"	7"	21¾"	¾"	1½"	3"		
AM	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	7/8"	6"	7/16"	1/4"	1"	3½"	1¾"	1"	7"	23¼"	¾"	1½"	3"		
AN	7"	2¾"	2"	4"	1½"	1/4"	¾"	5/16"	7/32"	7/8"	6"	1/2"	1/4"	1"	3½"	1¾"	1"	7"	23¾"	¾"	1½"	3"		
AO	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1/8"	6½"	7/16"	1/8"	1/4"	3½"	1¾"	1/8"	8"	26¾"	¾"	1¾"	3½"		
AP	7"	2¾"	2"	4"	1¾"	1/8"	¾"	5/16"	7/32"	7/8"	7"	1/2"	1/4"	1"	3½"	1¾"	1"	7"	21½"	¾"	1½"	3"		
AQ	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	7/8"	6"	7/16"	1/4"	1"	3½"	1¾"	1"	7"	23¼"	¾"	1½"	3"		
AR	7"	2¾"	2"	4"	1½"	1/4"	¾"	5/16"	7/32"	1"	6"	1/2"	1/16"	1/8"	3½"	1¾"	1"	7"	23¾"	¾"	1½"	3"		
AS	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1"	6½"	7/16"	1/16"	1/8"	3½"	1¾"	1"	8"	26½"	¾"	1¾"	3½"		
AT	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1"	6½"	7/16"	1/16"	1/8"	3½"	1¾"	1"	8"	26¾"	¾"	1¾"	3½"		
AU	7"	2¾"	2"	4"	1½"	1/4"	¾"	5/16"	7/32"	1/8"	6"	1/2"	1/8"	1/4"	3½"	1¾"	1/8"	7"	23¾"	¾"	1½"	3"		
AV	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1/8"	6½"	7/16"	1/8"	1/4"	3½"	1¾"	1/8"	8"	26½"	¾"	1¾"	3½"		
AW	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	1"	6"	7/16"	1/16"	1/8"	3½"	1¾"	1"	7"	23¼"	¾"	1½"	3"		
AX	7"	2¾"	2"	4"	1½"	1/8"	¾"	5/16"	7/32"	1"	6"	1/2"	1/16"	1/8"	3½"	1¾"	1"	7"	23¾"	¾"	1½"	3"		
AY	7"	2¾"	2"	4"	1½"	1/8"	¾"	3/8"	7/32"	1"	6½"	7/16"	1/16"	1/8"	3½"	1¾"	1"	7"	26½"	¾"	1½"	3"		
AZ	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1"	6½"	7/16"	1/16"	1/8"	3½"	1¾"	1"	8"	26¾"	¾"	1¾"	3½"		
BC	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1"	6½"	7/16"	1/16"	1/8"	3½"	1¾"	1"	8"	26½"	¾"	1¾"	3½"		
BD	8"	3"	2¼"	4½"	1¾"	1/4"	¾"	3/8"	7/32"	1/8"	6½"	7/16"	1/8"	1/4"	3½"	1¾"	1/8"	8"	26¾"	¾"	1¾"	3½"		

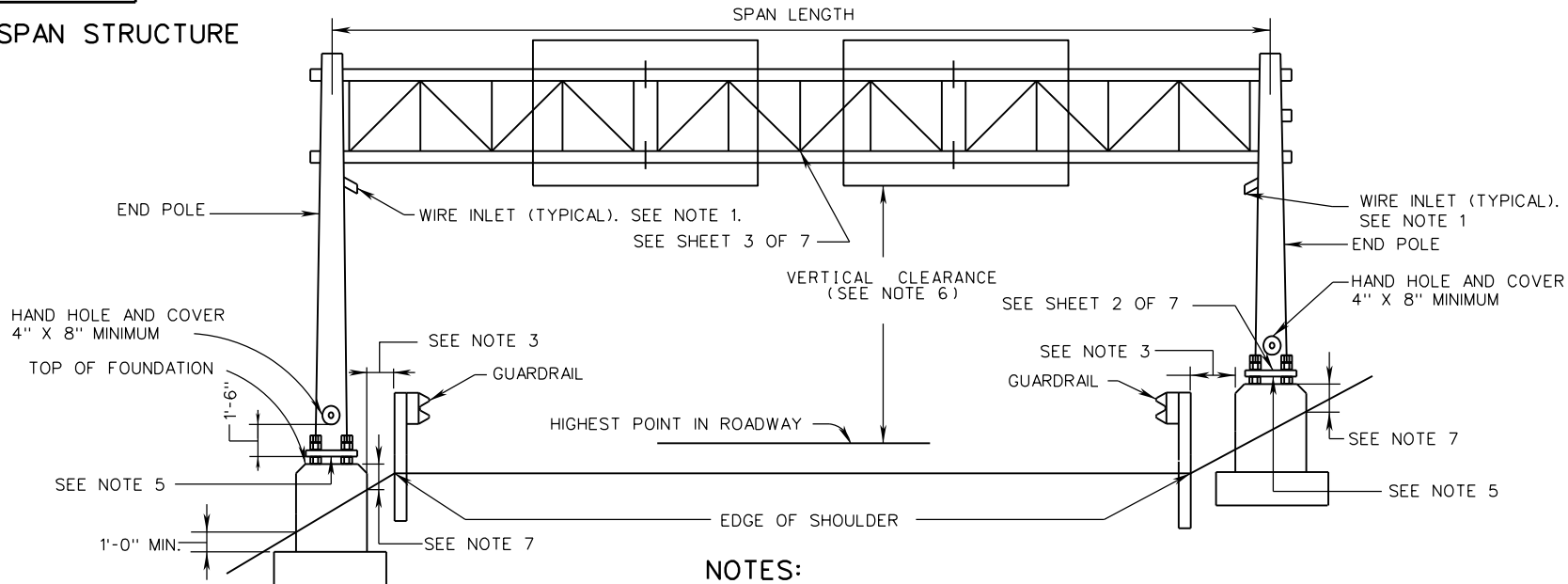
SPECIFICATION
REFERENCE

700

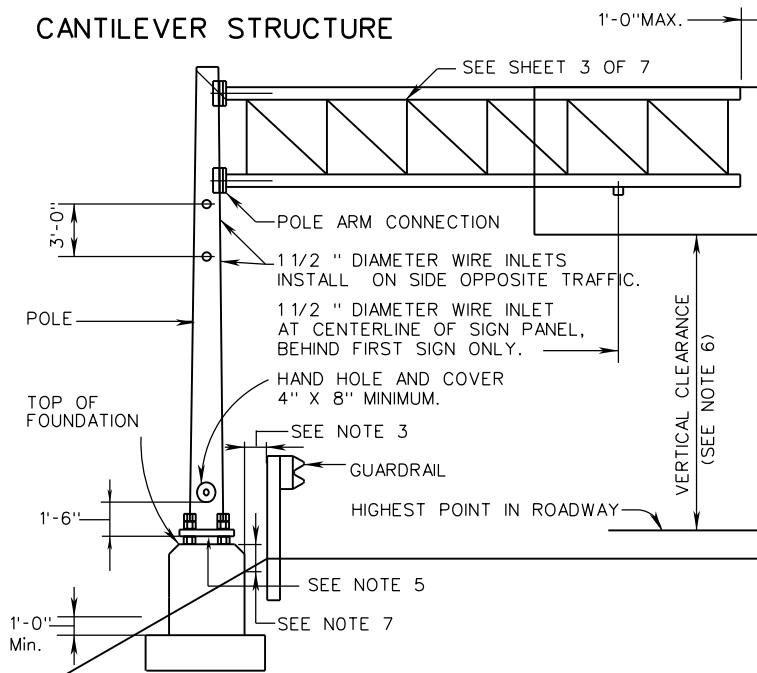
INTERSTATE SIGN STRUCTURE
INSTALLATION DETAILS
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT
ROAD AND BRIDGE STANDARDS
REVISION DATE SHEET 10 OF 10
1323.19

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

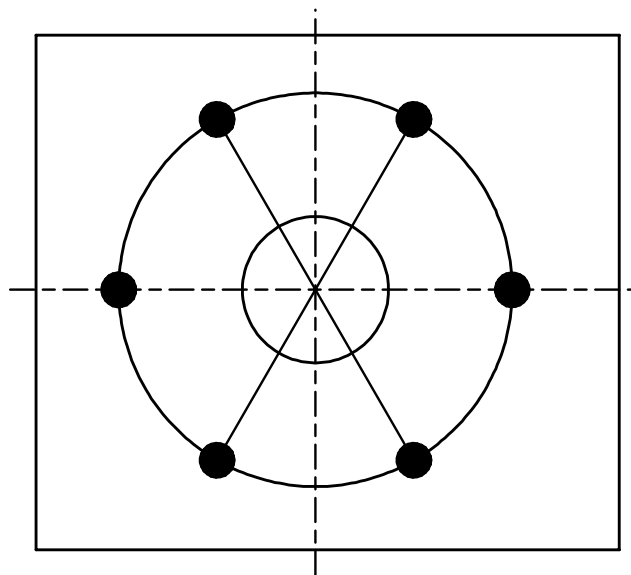
REVISION DATE

1324.10

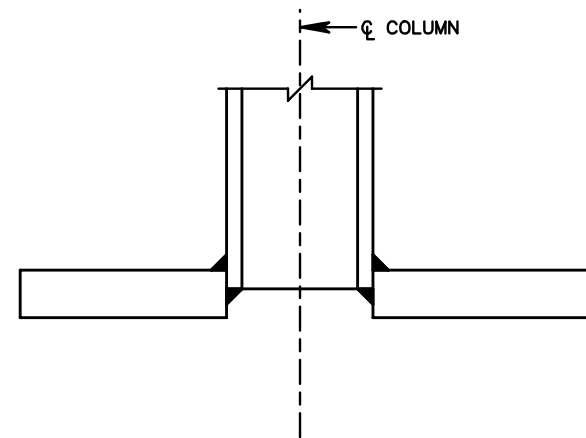
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VIRGINIA DEPARTMENT OF TRANSPORTATION

700



PLAN



ELEVATION

TYPICAL SOCKETED BASE PLATE CONNECTION

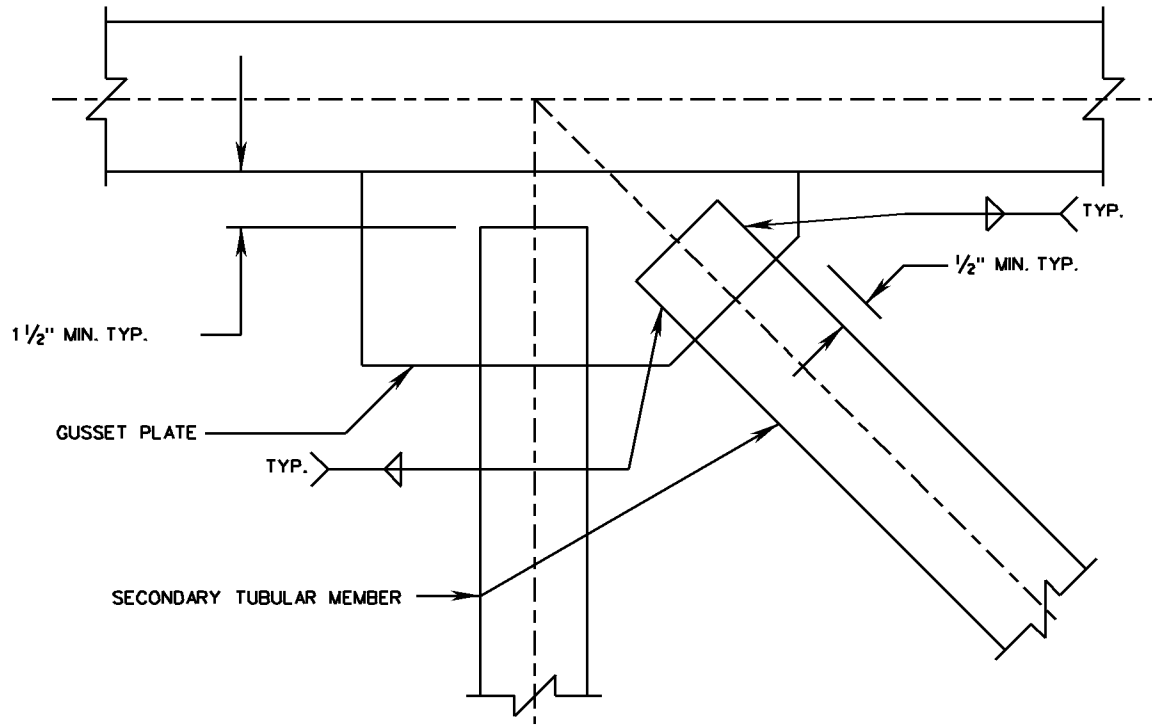
NOTES:

1. ALL POLES/UPRIGHTS OF OVERHEAD SIGN STRUCTURES INCLUDING "BUTTERFLY" STRUCTURES SHALL HAVE A MINIMUM OF SIX ANCHOR BOLTS, EACH HAVING A MINIMUM DIAMETER OF 1½".
2. THE MINIMUM BASE PLATE THICKNESS FOR ALL TYPES OF SIGN STRUCTURES SHALL BE 2".
3. ALL END POLE COLUMNS SHALL BE JOINED TO THE BASE PLATE USING A SOCKETED CONNECTION.

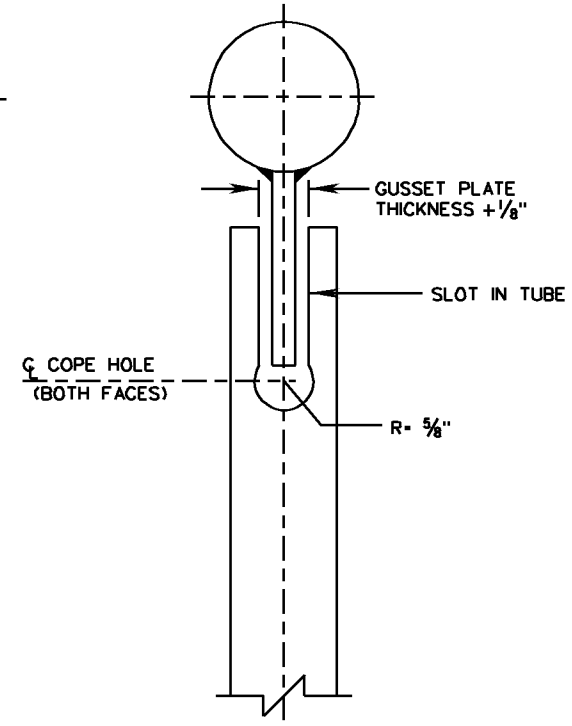
SPECIFICATION REFERENCE
700

OVERHEAD SIGN STRUCTURE
SOCKETED BASE PLATE CONNECTION
 VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 2 OF 7
1324.11	



TYPICAL GUSSET PLATE CONNECTION



SECTION VIEW

NOTES:

1. ALL SECONDARY MEMBERS IN BOTH TUBULAR AND NON-TUBULAR STRUCTURES IN THE OVERHEAD TRUSS AND THE END POLE SUPPORTS SHALL BE JOINED TO PRIMARY MEMBERS USING A GUSSET CONNECTION PLATE.
2. CONTRACTOR SHALL SPECIFY THE WIDTH, LENGTH, AND THICKNESS OF GUSSET PLATE.
3. CONTRACTOR SHALL SPECIFY THE MINIMUM WELD SIZE AND LENGTH OF WELD.
4. COPE HOLES TO BE PROVIDED AT BOTH ENDS AND BOTH FACES OF ALL SECONDARY MEMBER CONNECTIONS.



ROAD AND BRIDGE STANDARDS

SHEET 3 OF 7

REVISION DATE

1324.12

4/09

OVERHEAD SIGN STRUCTURE

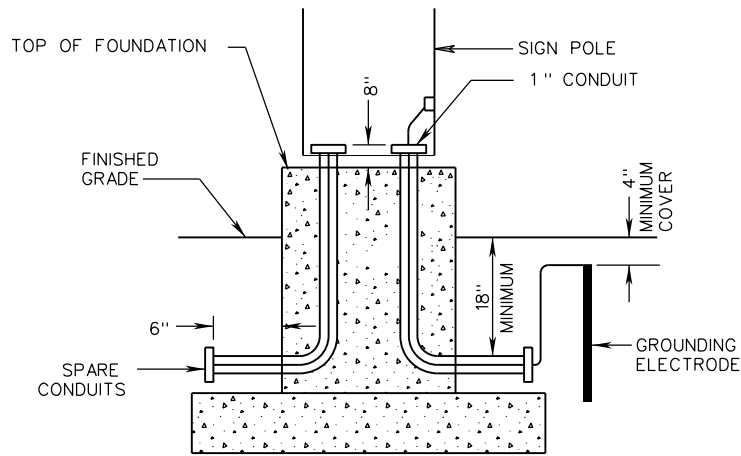
GUSSET PLATE CONNECTION

VIRGINIA DEPARTMENT OF TRANSPORTATION

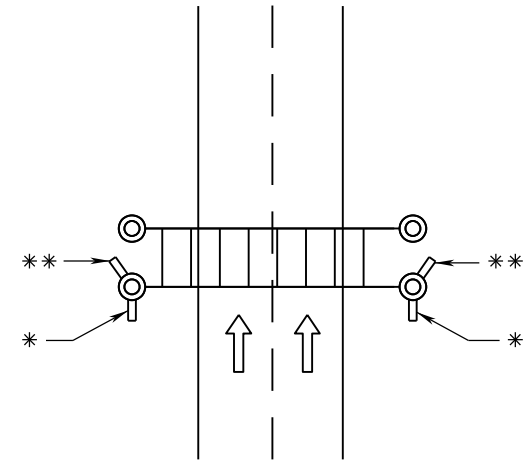
SPECIFICATION REFERENCE

700

TYPICAL SIGN FOOTING DETAIL WITH CONDUIT



LOCATION OF FUTURE USE CONDUITS FOR DOUBLE END POLE STRUCTURES



NOTES:

THE TYPE, SIZE, NUMBER AND ORIENTATION OF CONDUITS ENTERING AND EXITING FOOTINGS MAY VARY PER SIGN LOCATION.

IN ADDITION TO THE CONDUITS SPECIFIED ON THE PLANS, ONE - 1" CONDUIT REQUIRED FOR GROUND WIRE AND TWO - 2" PVC HEAVY WALL CONDUITS REQUIRED FOR FUTURE USE. FUTURE USE CONDUITS SHALL BE STUBBED OUT AND CAPPED. FUTURE USE CONDUITS SHALL BE ORIENTED TO RUN PARALLEL TO THE ROADWAY. FOR LOCATION OF FUTURE USE CONDUITS IN FOUNDATIONS FOR DOUBLE END POLE STRUCTURES, SEE DRAWING AT RIGHT.

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 MARK.

FOUNDATIONS ABOVE FINISHED GRADE SHALL BE CHAMFERED 3/4" ON ALL EDGES.

GROUNDING BUSHINGS SHALL BE INSTALLED ON EACH END OF METAL CONDUITS.

BELL ENDS SHALL BE INSTALLED ON EACH END OF PVC CONDUITS.

BELL ENDS & BUSHINGS OF EMPTY CONDUITS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.

VOIDS REMAINING AFTER CONDUCTORS EXIT OR ENTER BELL ENDS OR BUSHINGS OF CONDUITS SHALL BE SEALED WITH SILICONE TO PREVENT MOISTURE AND RODENT ENTRY.

NO MORTAR, GROUT, OR CONCRETE SHALL BE PLACED BETWEEN BOTTOM OF BASE PLATE AND TOP OF FOUNDATION.

* FUTURE USE CONDUITS PLACED PARALLEL TO THE ROADWAY

** FUTURE USE CONDUITS PLACED AT AN ANGLE TO MISS THE BACK FOUNDATION OR ANCHOR BOLTS IN A SPREAD FOOTING FOUNDATION.

SPECIFICATION REFERENCE

700

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

OVERHEAD SIGN STRUCTURE

FOUNDATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

7/13

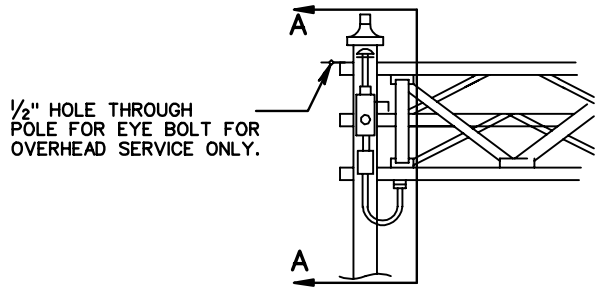
SHEET 4 OF 7

1324.13

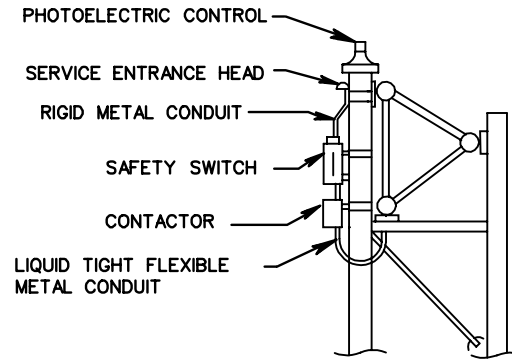
ELECTRIC DETAILS FOR SIGN LIGHTING

SPAN SIGN STRUCTURE

FRONT VIEW

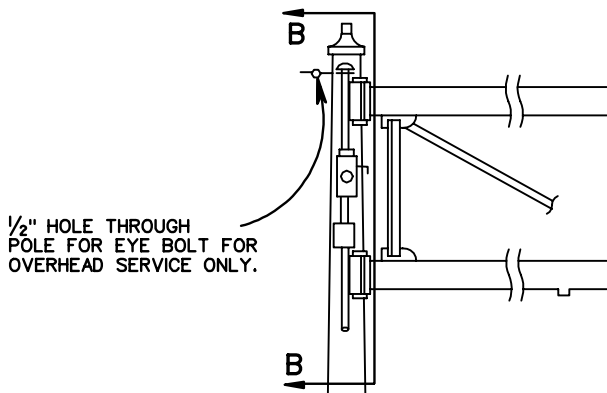


SECTION A-A

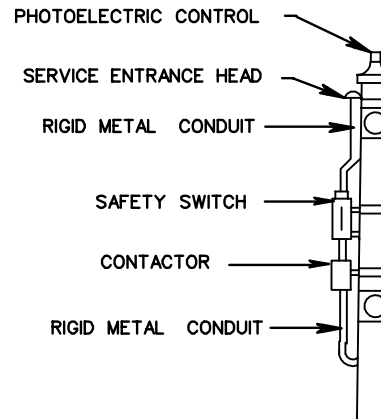


CANTILEVER SIGN STRUCTURE

FRONT VIEW



SECTION B-B



NOTE:

A SAFETY SWITCH SHALL BE INSTALLED ON ALL SIGN STRUCTURES REQUIRING ELECTRICAL POWER. ELECTRICAL SERVICE FOR SIGN STRUCTURES NOT CONTROLLED BY A CONTROL CENTER SHALL HAVE A PHOTOCELL AND A PHOTOCELL CONTROLLED CONTACTOR TO CONTROL THE ELECTRICAL POWER TO LUMINAIRES. THE CONTACTOR SHALL BE IN A NEMA 3R ENCLOSURE LOCATED WITHIN 24 INCHES OF THE SAFETY SWITCH.

ALL CONDUIT LOCATED IN OR ON OVERHEAD SIGN STRUCTURE SHALL BE 3/4" MINIMUM.



ROAD AND BRIDGE STANDARDS

SHEET 5 OF 7

REVISION DATE

1324.14

OVERHEAD SIGN STRUCTURE

ELECTRICAL DETAILS FOR SIGN LIGHTING

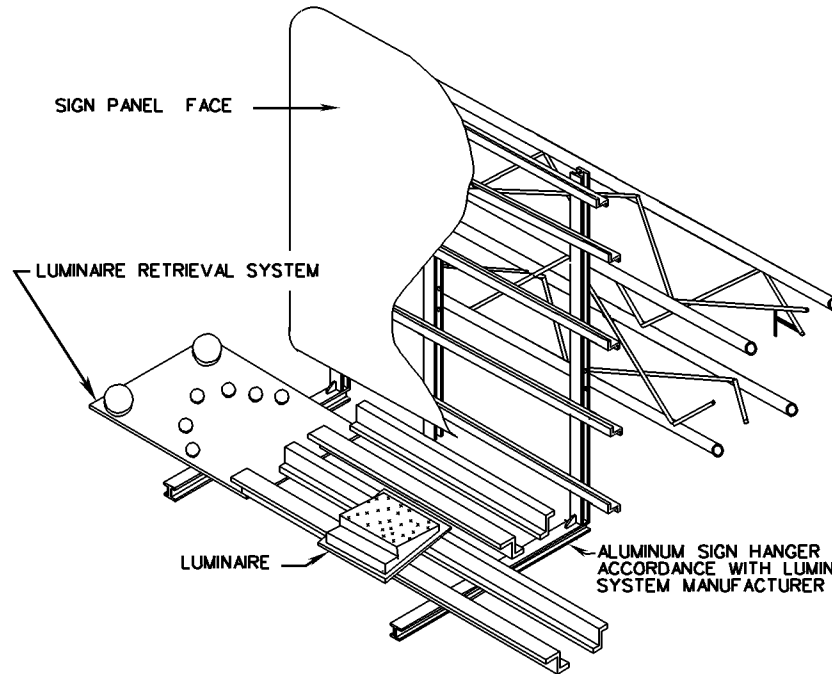
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

700

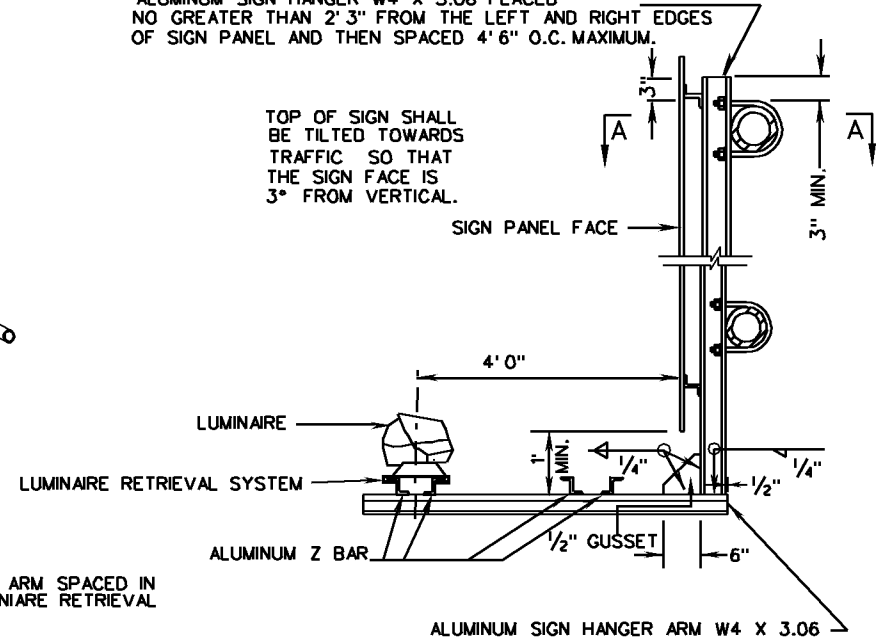
SIGN HANGER ERECTION DETAIL WITH LUMINAIRE RETRIEVAL SYSTEM

OSS-1



ALUMINUM SIGN HANGER W4 X 3.06 PLACED NO GREATER THAN 2' 3" FROM THE LEFT AND RIGHT EDGES OF SIGN PANEL AND THEN SPACED 4' 6" O.C. MAXIMUM.

TOP OF SIGN SHALL BE TILTED TOWARDS TRAFFIC SO THAT THE SIGN FACE IS 3° FROM VERTICAL.

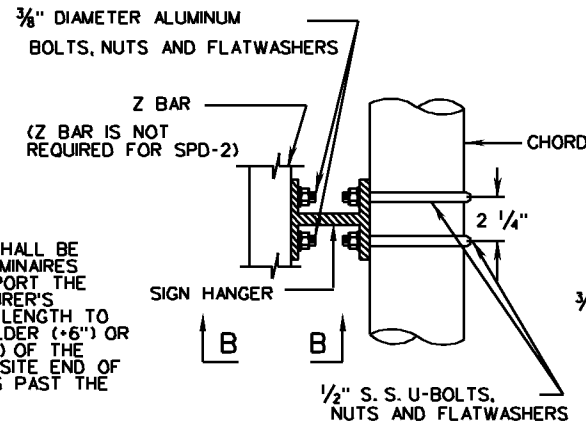


NOTE:

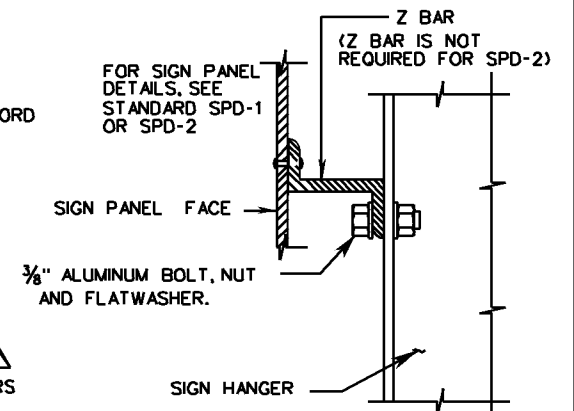
LUMINAIRE RETRIEVAL SYSTEM INCLUDING ELECTRICAL SYSTEM SHALL BE EQUAL TO "LUMI-TRAK" AND DESIGNED FOR THE NUMBER OF LUMINAIRES INDICATED ON THE PLANS. SPACING OF HANGERS USED TO SUPPORT THE RETRIEVAL SYSTEM SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. TURNABLE END SHALL BE OF SUFFICIENT LENGTH TO ALIGN WITH THE VERTICAL EDGE OF THE OUTSIDE PAVED SHOULDER (+6") OR SHALL BE EXTENDED 5 FEET BEYOND THE VERTICAL EDGE (+6") OF THE OUTERMOST SIGN LUMINAIRE, WHICHEVER IS GREATER. THE OPPOSITE END OF THE RETRIEVAL SYSTEM SHALL EXTEND A MINIMUM OF 6 INCHES PAST THE OUTERMOST VERTICAL EDGE OF THE SIGN HANGER ARM.

LUMINAIRES AND LUMINAIRE RETRIEVAL SYSTEM REQUIRED ONLY WHERE INDICATED ON THE PLANS.

SECTION A-A



SECTION B-B



SPECIFICATION REFERENCE

700

OVERHEAD SIGN STRUCTURE SIGN HANGER AND LUMINAIRE RETRIEVAL DETAIL

VIRGINIA DEPARTMENT OF TRANSPORTATION

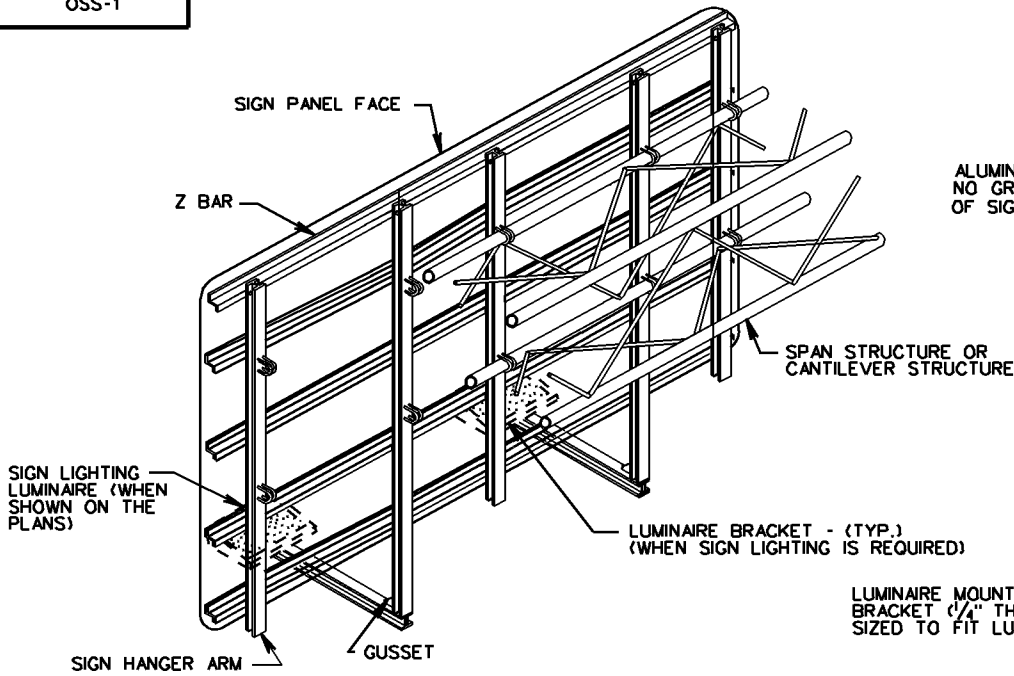
VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE
6-15-09

SHEET 6 OF 7

1324.15



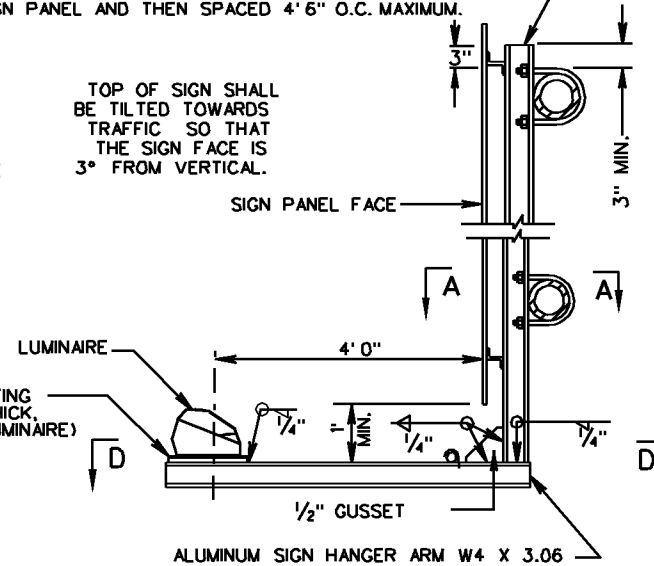
SIGN ATTACHMENT TO TRUSS-TYPE STRUCTURES

SIGN HANGER ERECTION DETAIL WITH LUMINAIRE

(WHEN NO LUMINAIRE RETRIEVAL SYSTEM IS REQUIRED)

ALUMINUM SIGN HANGER W4 X 3.06 PLACED NO GREATER THAN 2' 3" FROM THE LEFT AND RIGHT EDGES OF SIGN PANEL AND THEN SPACED 4' 6" O.C. MAXIMUM.

TOP OF SIGN SHALL BE TILTED TOWARDS TRAFFIC SO THAT THE SIGN FACE IS 3° FROM VERTICAL.

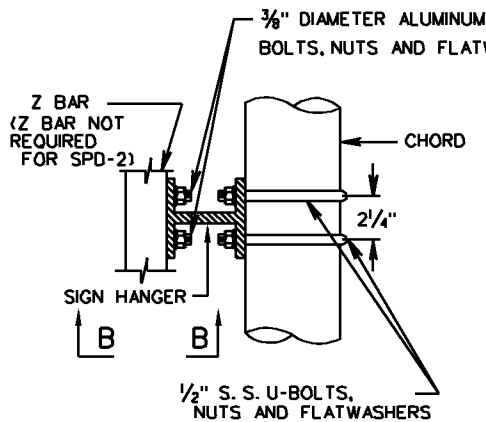


NOTE

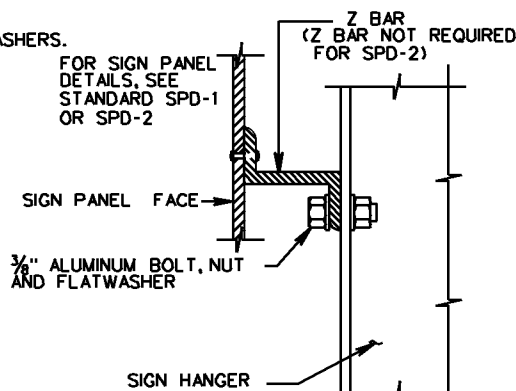
LUMINAIRES REQUIRED WHERE INDICATED ON THE PLANS.

LUMINAIRE TO BE ATTACHED TO MOUNTING BRACKET WITH FOUR, 3/8" DIA. GALVANIZED CAP SCREWS, LOCKWASHERS AND NUTS.

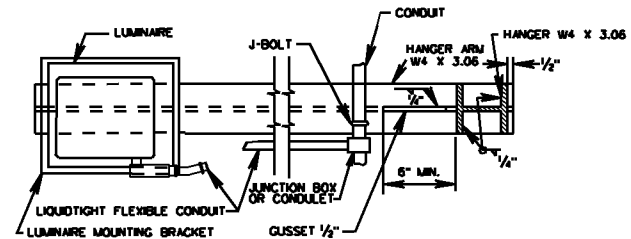
SECTION A-A



SECTION B-B



SECTION D-D



ROAD AND BRIDGE STANDARDS

SHEET 7 OF 7

REVISION DATE
6-15-09

1324.16

OVERHEAD SIGN STRUCTURE

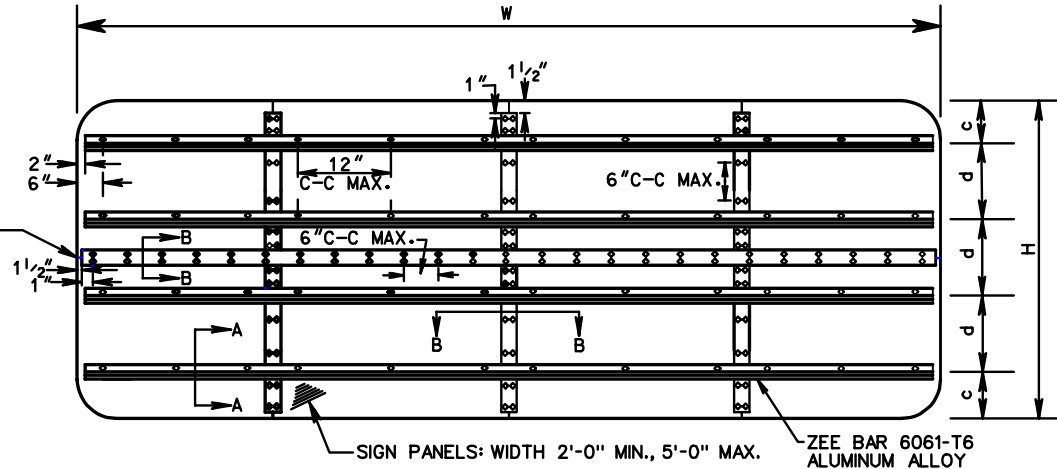
HANGER AND LUMINAIRE DETAIL

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

700

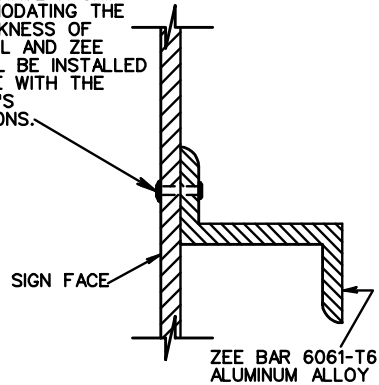
SIGNS HAVING A HEIGHT GREATER THAN 10' MAY HAVE ONE HORIZONTAL JOINT. HORIZONTAL JOINT SHALL BE BETWEEN LINES OF MESSAGE.



SECTION A-A

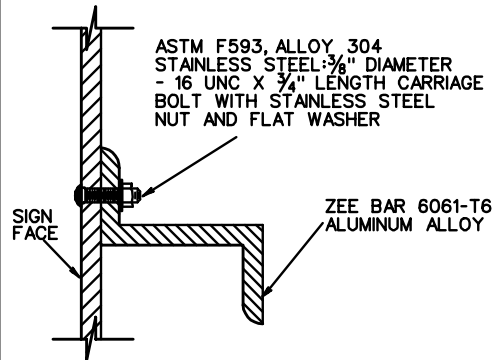
ALL INSTALLATIONS EXCEPT TOP AND BOTTOM ZEE BARS ON OVERHEAD SIGNS

3/16" DIAMETER RIVET - RIVETS SHALL BE DOME HEAD, BREAK MANDREL, BLIND RIVETS CONFORMING TO INDUSTRIAL FASTENERS INSTITUTE STANDARD IFI-114, STYLE 1, GRADES 10 OR 11 EXCEPT THAT THE MINIMUM ULTIMATE TENSILE STRENGTH SHALL BE 360 POUNDS. RIVETS SHALL HAVE A GRIP RANGE ACCOMMODATING THE COMBINED THICKNESS OF THE SIGN PANEL AND ZEE BAR AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

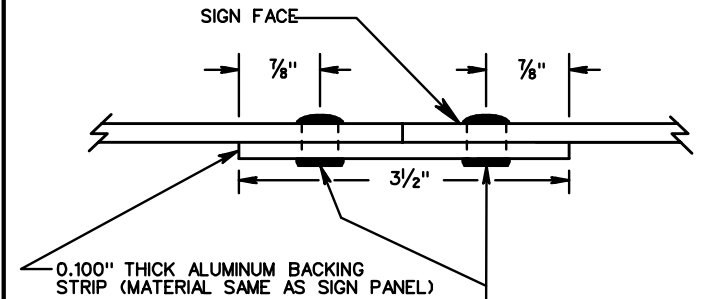


TOP AND BOTTOM ZEE BAR INSTALLATION ON OVERHEAD SIGNS

ASTM F593, ALLOY 304 STAINLESS STEEL: 3/8" DIAMETER - 16 UNC X 3/4" LENGTH CARRIAGE BOLT WITH STAINLESS STEEL NUT AND FLAT WASHER



SECTION B-B



RIVET (SAME AS USED FOR CONNECTING SIGN TO ZEE BAR). IN LIEU OF USING RIVETS, TAPE EQUAL TO 3M'S VHB DOUBLE COATED ACRYLIC FOAM TAPE MAY BE USED EXCEPT ON HORIZONTAL BACKING STRIP. TAPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SPECIFICATION REFERENCE

701

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

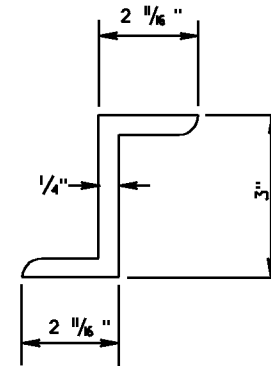
ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 2

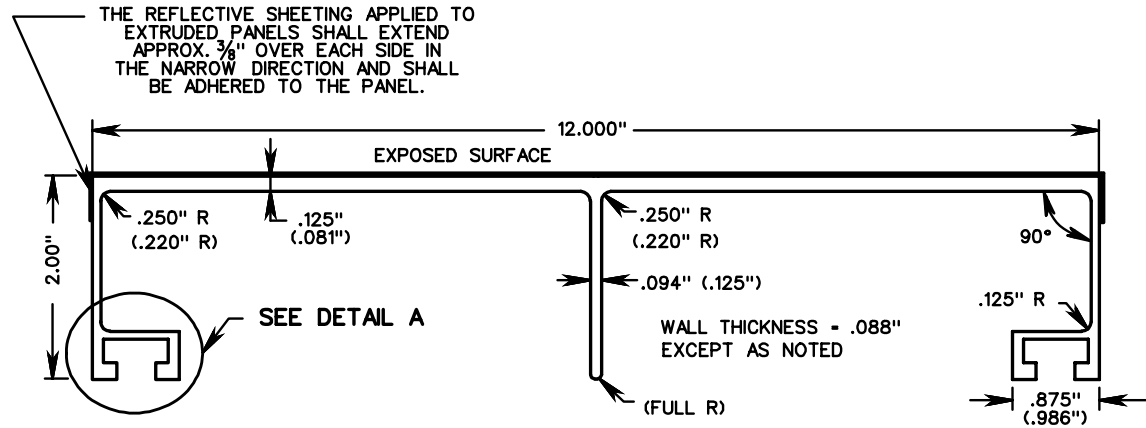
1325.10

SIGN PANEL DIMENSIONS					ZEE BAR	SIGN PANEL DIMENSIONS					ZEE BAR	SIGN PANEL DIMENSIONS					ZEE BAR
W	H	c	d	NO.		W	H	c	d	NO.		W	H	c	d	NO.	
12'	4'	14"	20"	2		26'	10'	18"	3'-6"	3		30'	14'	18"	3'-8"	4	
11'	5'	16"	28"	2		28'	10'	18"	3'-6"	3		16'	16'	18"	3'-3"	5	
10'	6'	12"	4'-0"	2		30'	10'	18"	3'-6"	3		18'	16'	18"	3'-3"	5	
12'	6'	12"	4'-0"	2		10'	9'	18"	3'-0"	3		20'	16'	18"	3'-3"	5	
14'	6'	12"	4'-0"	2		12'	9'	18"	3'-0"	3		22'	16'	18"	3'-3"	5	
16'	6'	12"	4'-0"	2		14'	9'	18"	3'-0"	3		24'	16'	18"	3'-3"	5	
18'	6'	12"	4'-0"	2		16'	9'	18"	3'-0"	3		26'	16'	18"	3'-3"	5	
20'	6'	12"	4'-0"	2		18'	9'	18"	3'-0"	3		28'	16'	18"	3'-3"	5	
22'	6'	12"	4'-0"	2		20'	9'	18"	3'-0"	3		30'	16'	18"	3'-3"	5	
24'	6'	12"	4'-0"	2		22'	9'	18"	3'-0"	3		VARIES	2'-6'	9"	12"	2	
26'	6'	12"	4'-0"	2		24'	9'	18"	3'-0"	3							
28'	6'	12"	4'-0"	2		26'	9'	18"	3'-0"	3							
30'	6'	12"	4'-0"	2		28'	9'	18"	3'-0"	3							
10'	8'	12"	3'-0"	3		30'	9'	18"	3'-0"	3							
12'	8'	12"	3'-0"	3		12'	12'	18"	3'-0"	4							
14'	8'	12"	3'-0"	3		14'	12'	18"	3'-0"	4							
16'	8'	12"	3'-0"	3		16'	12'	18"	3'-0"	4							
18'	8'	12"	3'-0"	3		18'	12'	18"	3'-0"	4							
20'	8'	12"	3'-0"	3		20'	12'	21"	4'-3"	3							
22'	8'	12"	3'-0"	3		22'	12'	21"	4'-3"	3							
24'	8'	12"	3'-0"	3		24'	12'	21"	4'-3"	3							
26'	8'	12"	3'-0"	3		26'	12'	21"	4'-3"	3							
28'	8'	12"	3'-0"	3		28'	12'	21"	4'-3"	3							
30'	8'	12"	3'-0"	3		30'	12'	21"	4'-3"	3							
10'	10'	18"	3'-6"	3		14'	14'	18"	3'-8"	4							
12'	10'	18"	3'-6"	3		16'	14'	18"	3'-8"	4							
14'	10'	18"	3'-6"	3		18'	14'	18"	3'-8"	4							
16'	10'	18"	3'-6"	3		20'	14'	18"	3'-8"	4							
18'	10'	18"	3'-6"	3		22'	14'	18"	3'-8"	4							
20'	10'	18"	3'-6"	3		24'	14'	18"	3'-8"	4							
22'	10'	18"	3'-6"	3		26'	14'	18"	3'-8"	4							
24'	10'	18"	3'-6"	3		28'	14'	18"	3'-8"	4							

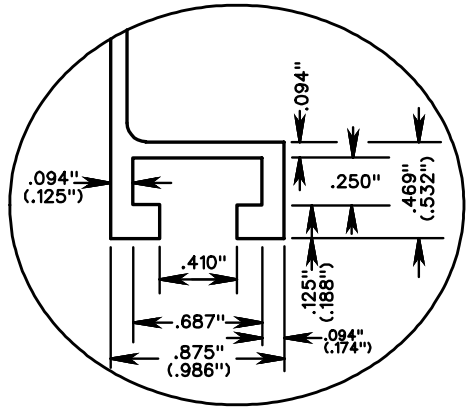


ZEE BAR

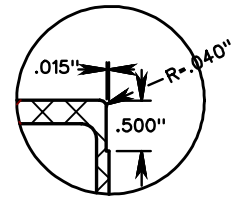
SIGN PANEL DESIGN



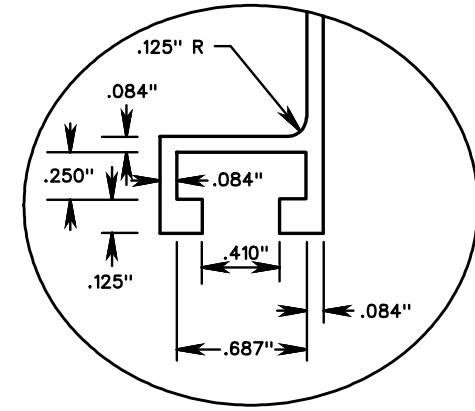
FULL PANEL



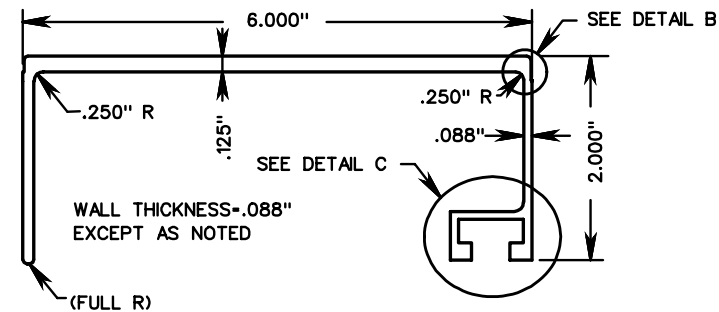
DETAIL A



DETAIL B



DETAIL C



HALF PANEL

NOTES:

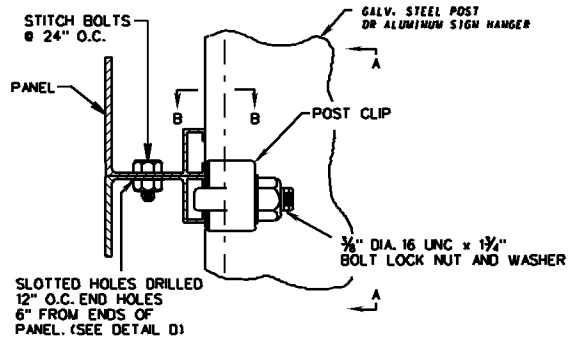
1. ALUMINUM PANELS MAY HAVE SQUARE CORNERS OR NOTCHED CORNERS AS SHOWN. NO OTHER TYPE CORNERS ARE ACCEPTABLE.
2. ALTERNATE DIMENSIONS INDICATED IN PARENTHESES ARE ACCEPTABLE.

SPECIFICATION REFERENCE
701

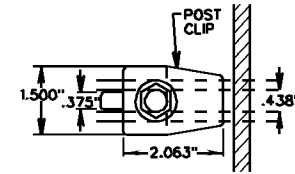
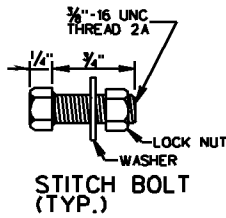
EXTRUDED SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE	SHEET 1 OF 2
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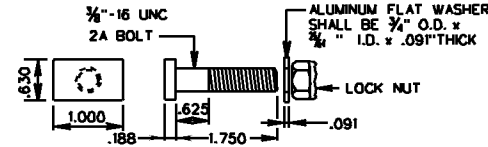


SIGN PANEL ASSEMBLY

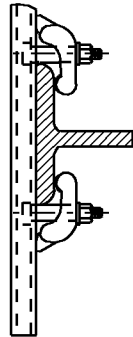


SECTION A-A

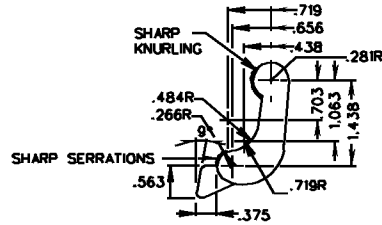
SLOTTED HOLES DRILLED
12" O.C. END HOLES
6" FROM ENDS OF
PANEL. (SEE DETAIL D)



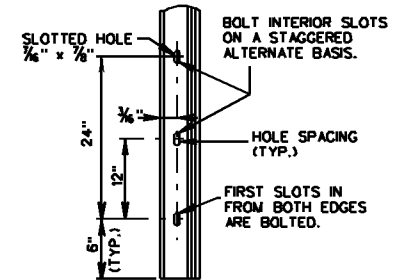
POST CLIP BOLT
(TYP.)



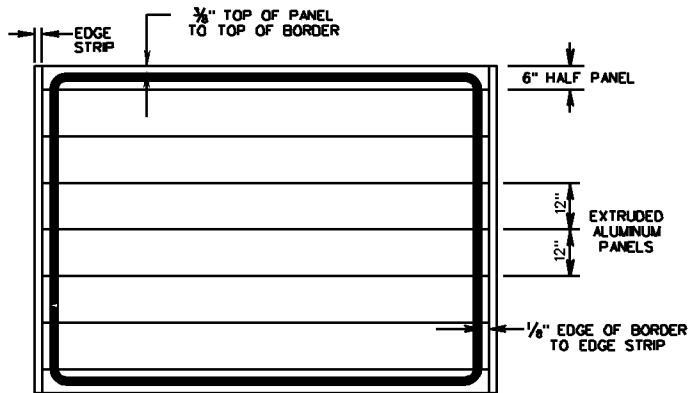
SECTION B-B



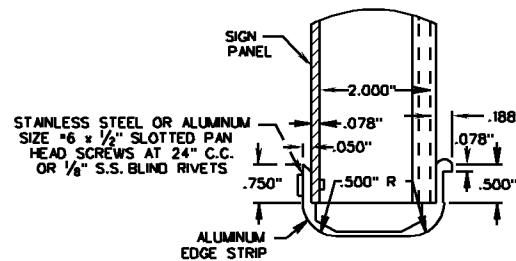
POST CLIP
(TYP.)



DETAIL D



BORDER DETAIL



DETAIL OF EDGE STRIP

NOTE:

EDGE STRIP SHALL BE PLACED ON BOTH SIDES OF ALL EXTRUDED PANEL SIGNS.

DOUBLE POST CLIPS SHALL BE INSTALLED ON ALL SIGN HANGERS.

ALL SIGN PANELS INSTALLED ON OVERHEAD SIGN STRUCTURES SHALL BE BOLTED DIRECTLY TO THE SIGN HANGER MEMBERS AT THE BOTTOM AND TOP ROW AND POST CLIPS SHALL BE USED AT ALL OTHER MOUNTING POINTS.



ROAD AND BRIDGE STANDARDS

SHEET 2 OF 2

REVISION DATE

1325.21

4/09

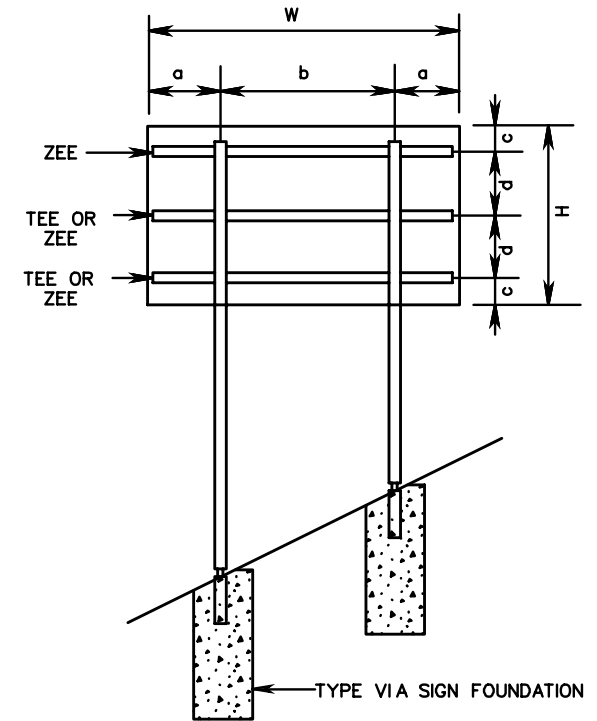
EXTRUDED SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

701

SIGN PANEL DIMENSIONS		SIGN PANEL ATTACHMENT DETAILS							
		a	b	c	d	ZEE BAR		TEE	CLAMPS
W	H					NO.	SIZE	NO.	NO.
12'	4'	2'-0"	8'-0"	14"	20"	2	B	0	0
11'	5'	1'-6"	8'-0"	16"	28"	2	B	0	0
10'	6'	1'-0"	8'-0"	12"	4'-0"	1	B	1	4
12'	6'	2'-0"	8'-0"	12"	4'-0"	1	B	1	4
14'	6'	3'-0"	8'-0"	12"	4'-0"	2	B	0	0
16'	6'	3'-6"	9'-0"	12"	4'-0"	2	C	0	0
18'	6'	4'-0"	10'-0"	12"	4'-0"	2	C	0	0
20'	6'	4'-6"	11'-0"	12"	4'-0"	2	D	0	0
22'	6'	4'-10"	12'-4"	12"	4'-0"	2	E	0	0
24'	6'	5'-4"	13'-4"	12"	4'-0"	2	E	0	0
26'	6'	5'-10"	14'-4"	12"	4'-0"	2	E	0	0
28'	6'	6'-3"	15'-6"	12"	4'-0"	2	E	0	0
30'	6'	6'-8"	16'-8"	12"	4'-0"	2	E	0	0
10'	8'	1'-0"	8'-0"	12"	3'-0"	1	B	2	8
12'	8'	2'-0"	8'-0"	12"	3'-0"	1	B	2	8
14'	8'	3'-0"	8'-0"	12"	3'-0"	1	B	2	8
16'	8'	3'-6"	9'-0"	12"	3'-0"	3	B	0	0
18'	8'	4'-0"	10'-0"	12"	3'-0"	3	C	0	0
20'	8'	4'-6"	11'-0"	12"	3'-0"	3	C	0	0
22'	8'	4'-10"	12'-4"	12"	3'-0"	3	D	0	0
24'	8'	5'-4"	13'-4"	12"	3'-0"	3	D	0	0
26'	8'	5'-10"	14'-4"	12"	3'-0"	3	D	0	0
28'	8'	6'-3"	15'-6"	12"	3'-0"	3	E	0	0
30'	8'	6'-8"	16'-8"	12"	3'-0"	3	E	0	0
10'	10'	1'-0"	8'-0"	18"	3'-6"	1	B	2	8
12'	10'	2'-0"	8'-0"	18"	3'-6"	1	B	2	8
14'	10'	3'-0"	8'-0"	18"	3'-6"	1	B	2	8
16'	10'	3'-6"	9'-0"	18"	3'-6"	1	B	2	8
18'	10'	4'-0"	10'-0"	18"	3'-6"	3	C	0	0
20'	10'	4'-6"	11'-0"	18"	3'-6"	3	C	0	0
22'	10'	4'-10"	12'-4"	18"	3'-6"	3	C	0	0



SPECIFICATION REFERENCE

701

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

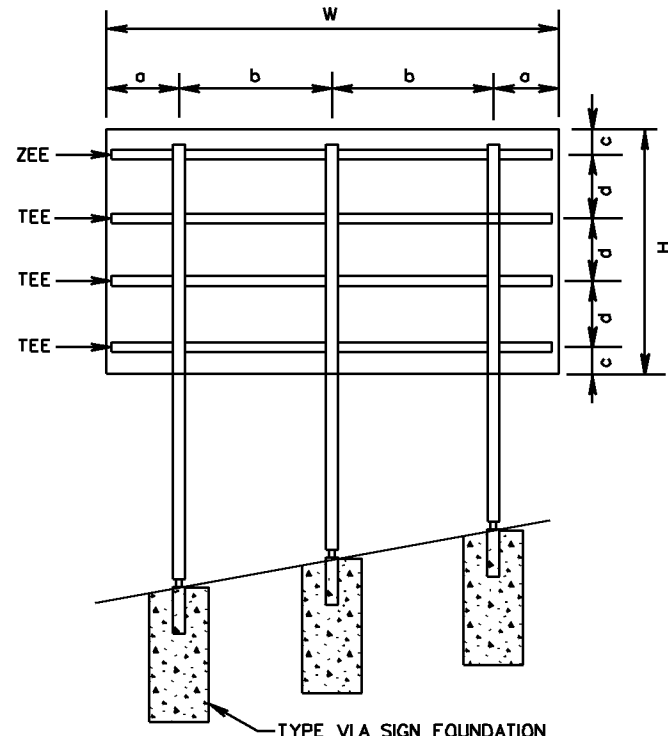
ROAD AND BRIDGE STANDARDS

REVISION DATE

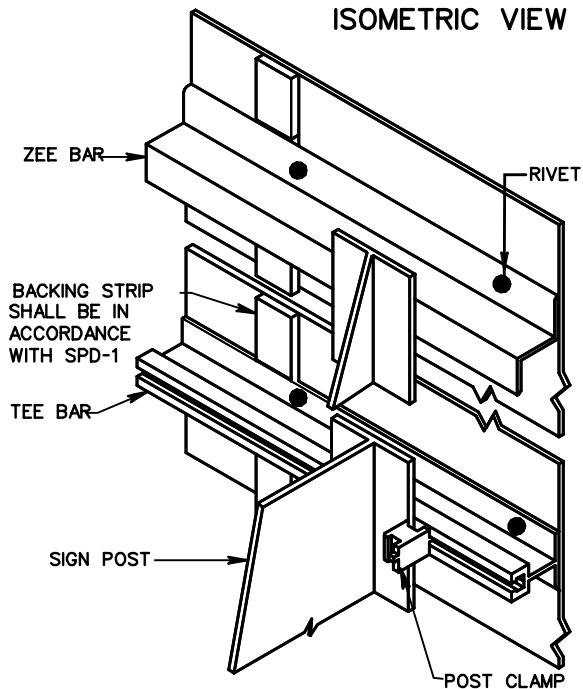
SHEET 1 OF 3

1325.30

SIGN PANEL DIMENSIONS		SIGN PANEL ATTACHMENT DETAILS								SIGN PANEL DIMENSIONS		SIGN PANEL ATTACHMENT DETAILS											
		a	b	c	d	ZEE BAR		TEE				CLAMPS		a	b	c	d	ZEE BAR		TEE		CLAMPS	
						NO.	SIZE	NO.	NO.			NO.	NO.					NO.	NO.	NO.	NO.	NO.	NO.
24'	10'	5'-4"	13'-4"	18"	3'-6"	3	D	0	0	28'	14'	4'-2"	9'-10"	18"	3'-8"	1	B	3	18				
26'	10'	5'-10"	14'-4"	18"	3'-6"	3	D	0	0	30'	14'	4'-6"	10'-6"	18"	3'-8"	1	B	3	18				
28'	10'	6'-3"	15'-6"	18"	3'-6"	3	D	0	0	16'	16'	3'-6"	9'-0"	18"	3'-3"	1	B	4	16				
30'	10'	7'-3"	15'-6"	18"	3'-6"	3	D	0	0	18'	16'	4'-0"	10'-0"	18"	3'-3"	1	B	4	16				
10'	9'	1'-0"	8'-0"	18"	3'-0"	1	B	2	8	20'	16'	2'-0"	8'-0"	18"	3'-3"	1	B	4	24				
12'	9'	2'-0"	8'-0"	18"	3'-0"	1	B	2	8	22'	16'	3'-0"	8'-0"	18"	3'-3"	1	B	4	24				
14'	9'	3'-0"	8'-0"	18"	3'-0"	1	B	2	8	24'	16'	3'-7"	8'-5"	18"	3'-3"	1	B	4	24				
16'	9'	3'-6"	9'-0"	18"	3'-0"	3	C	0	0	26'	16'	3'-10"	9'-2"	18"	3'-3"	1	B	4	24				
18'	9'	4'-0"	10'-0"	18"	3'-0"	3	C	0	0	28'	16'	4'-2"	9'-10"	18"	3'-3"	1	B	4	24				
20'	9'	4'-6"	11'-0"	18"	3'-0"	3	C	0	0	30'	16'	4'-6"	10'-6"	18"	3'-3"	1	B	4	24				
22'	9'	4'-10"	12'-4"	18"	3'-0"	3	D	0	0	VARIES	2'-6"	-	-	9"	12"	2	B	-	-				
24'	9'	5'-4"	13'-4"	18"	3'-0"	3	D	0	0														
26'	9'	5'-10"	14'-4"	18"	3'-0"	3	D	0	0														
28'	9'	6'-10"	14'-4"	18"	3'-0"	3	D	0	0														
30'	9'	7'-10"	14'-4"	18"	3'-0"	3	D	0	0														
12'	12'	2'-0"	8'-0"	18"	3'-0"	1	B	3	12														
14'	12'	3'-0"	8'-0"	18"	3'-0"	1	B	3	12														
16'	12'	3'-6"	9'-0"	18"	3'-0"	1	B	3	12														
18'	12'	4'-0"	10'-0"	18"	3'-0"	1	B	3	12														
20'	12'	4'-6"	11'-0"	21"	4'-3"	3	B	0	0														
22'	12'	4'-10"	12'-4"	21"	4'-3"	3	C	0	0														
24'	12'	5'-4"	13'-4"	21"	4'-3"	3	C	0	0														
26'	12'	3'-10"	9'-2"	21"	4'-3"	1	B	2	12														
28'	12'	4'-2"	9'-10"	21"	4'-3"	1	B	2	12														
30'	12'	4'-6"	10'-6"	21"	4'-3"	1	B	2	12														
14'	14'	3'-0"	8'-0"	18"	3'-8"	1	B	3	12														
16'	14'	3'-6"	9'-0"	18"	3'-8"	1	B	3	12														
18'	14'	4'-0"	10'-0"	18"	3'-8"	1	B	3	12														
20'	14'	4'-6"	11'-0"	18"	3'-8"	1	B	3	12														
22'	14'	3'-0"	8'-0"	18"	3'-8"	1	B	3	18														
24'	14'	3'-7"	8'-5"	18"	3'-8"	1	B	3	18														
26'	14'	3'-10"	9'-2"	18"	3'-8"	1	B	3	18														



ISOMETRIC VIEW

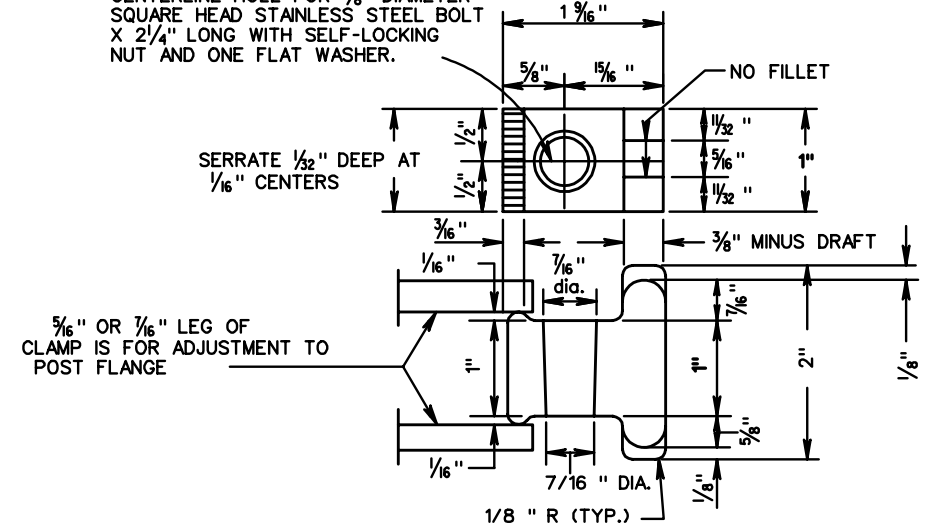


UNLESS OTHERWISE NOTED THE TOP OF THE SIGN PANEL SHALL NOT EXTEND ABOVE THE SIGN POST NO GREATER THAN THE DISTANCE OF 1/2 C.

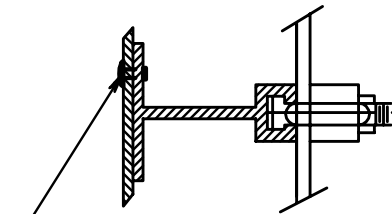
POST CLAMP DETAIL

GALVANIZED GRAY - IRON OR ALUMINUM CASTING

CENTERLINE HOLE FOR 3/8" DIAMETER SQUARE HEAD STAINLESS STEEL BOLT X 2 1/4" LONG WITH SELF-LOCKING NUT AND ONE FLAT WASHER.

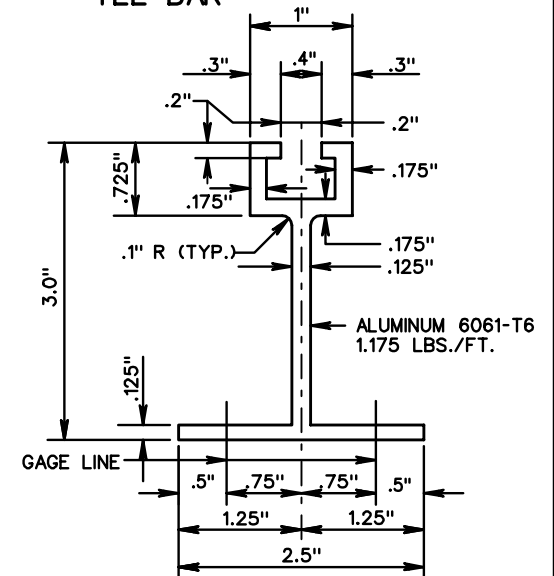


FASTENING



3/16" DIAMETER RIVET. -RIVETS SHALL BE DOME HEAD, BREAK MANDREL, BLIND RIVETS CONFORMING TO INDUSTRIAL FASTENERS INSTITUTE STANDARD IFI-114, STYLE 1, GRADES 10 OR 11 EXCEPT THAT THE MINIMUM ULTIMATE TENSILE STRENGTH SHALL BE 360 POUNDS. RIVETS SHALL HAVE A GRIP RANGE ACCOMMODATING THE COMBINED THICKNESS OF THE SIGN PANEL AND ZEE BAR AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TEE BAR



ZEE BARS		
TYPE	SIZE	WEIGHT
A	2 3/8" x 1/4" x 3/16"	1.00LBS./FT.
B	3" x 2 1/16" x 1/4"	2.40LBS./FT.
C	4" x 3/16" x 1/4"	2.93LBS./FT.
D	5" x 3/4" x 5/16"	4.13LBS./FT.
E	6" x 3/2" x 3/8"	5.58LBS./FT.

SPECIFICATION REFERENCE

700
701

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

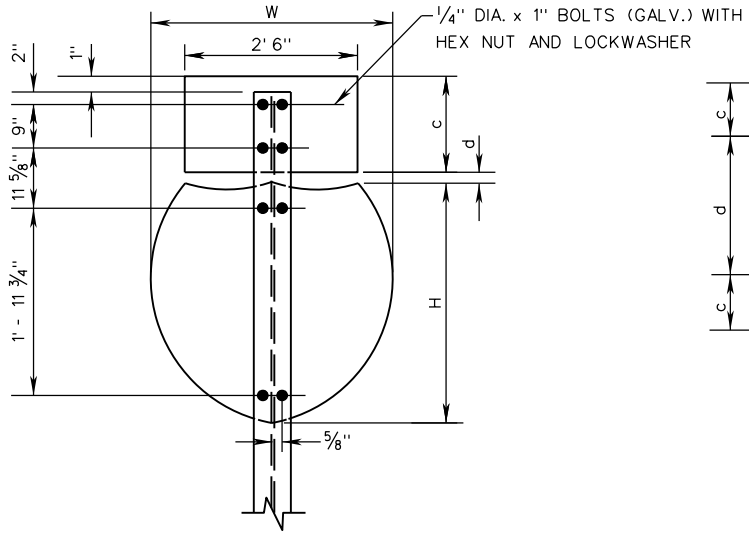


ROAD AND BRIDGE STANDARDS

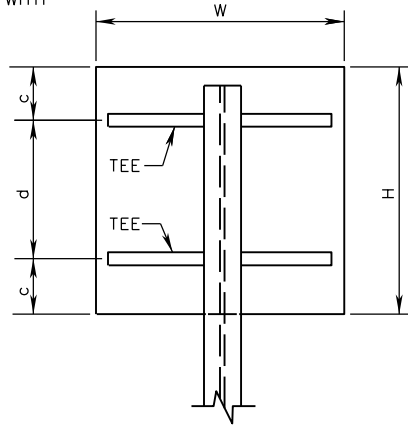
REVISION DATE SHEET 3 OF 3

1325.32

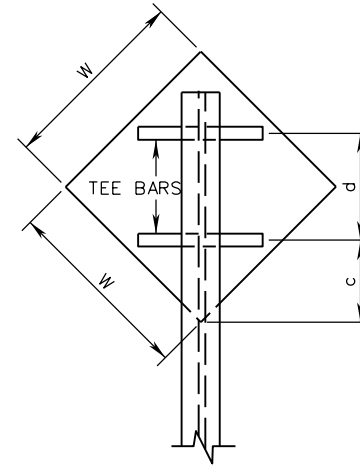
TYPE VA-A



TYPES VA-B, VA-C, VA-D, VA-E, VA-L, VA-M, VA-N AND VA-O

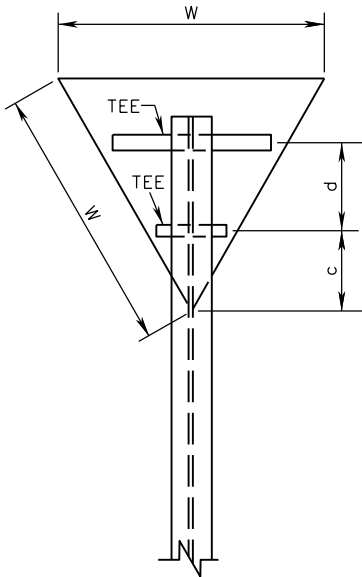


TYPE VA-F

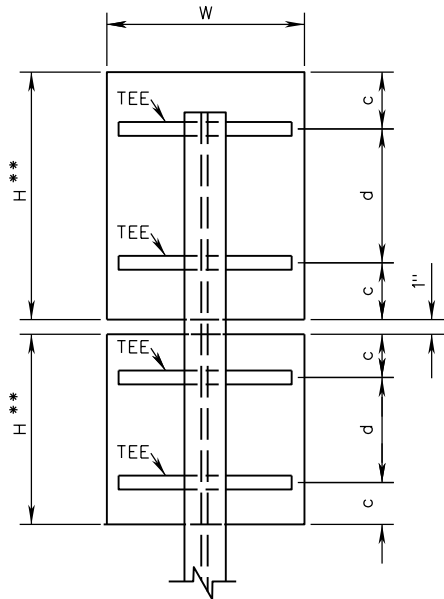


UNLESS OTHERWISE NOTED THE TOP OF THE SIGN PANEL SHALL NOT EXTEND ABOVE THE SIGN POST NO GREATER THAN THE DISTANCE OF 1/2 c.

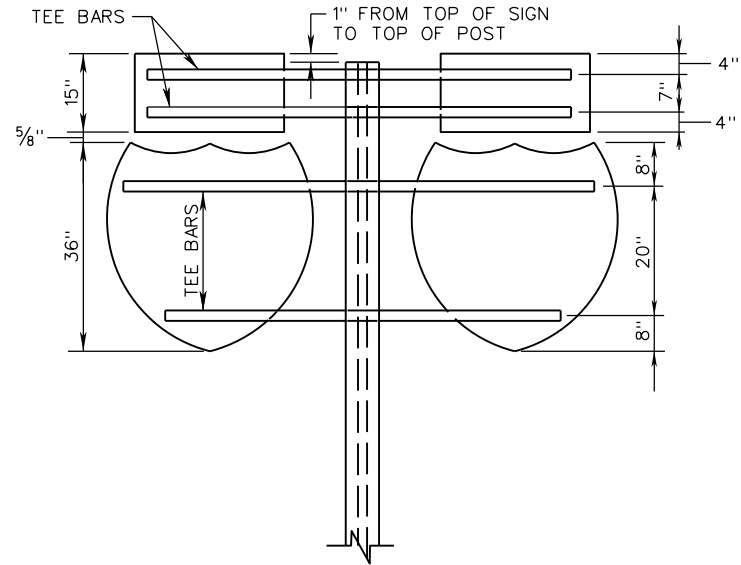
TYPE VA-G



TYPE VA-K



TYPE VA-A2



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

REVISION DATE

1325.40

01/15

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

SIGN PANEL DESIGN

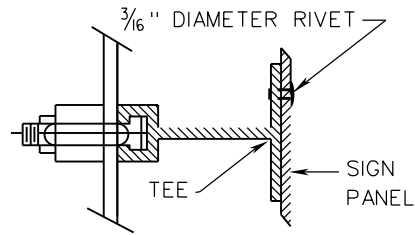
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

701

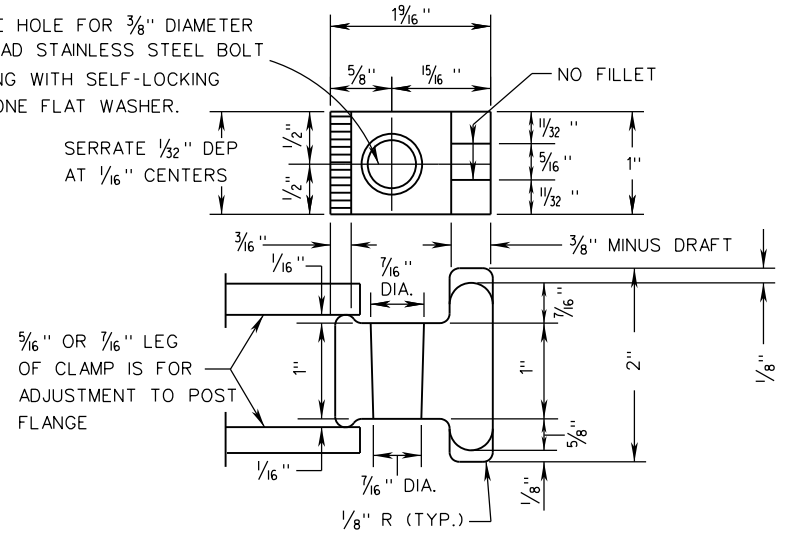
POST CLAMP DETAIL

FASTENING



RIVETS SHALL BE DOME HEAD, BREAK MANDREL, BLIND RIVETS CONFORMING TO INDUSTRIAL FASTENERS INSTITUTE STANDARD IFI-114, STYLE 1, GRADES 10 OR 11 EXCEPT THAT THE MINIMUM ULTIMATE TENSILE STRENGTH SHALL BE 360 POUNDS. RIVETS SHALL HAVE A GRIP RANGE ACCOMMODATING THE COMBINED THICKNESS OF THE SIGN PANEL AND ZEE BAR AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

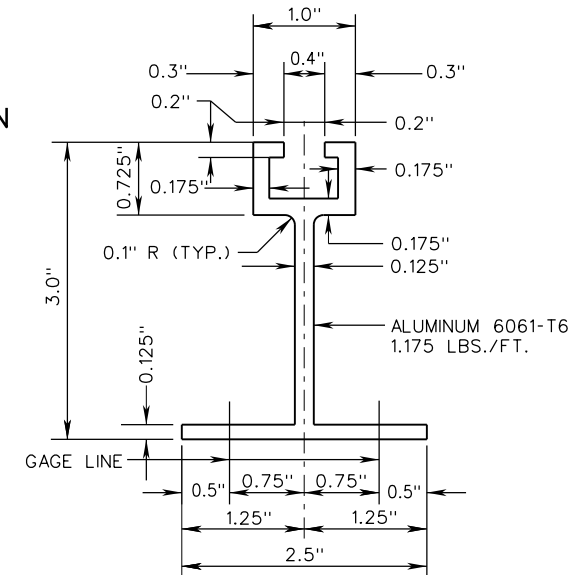
CENTERLINE HOLE FOR 3/8" DIAMETER SQUARE HEAD STAINLESS STEEL BOLT x 2 1/4" LONG WITH SELF-LOCKING NUT AND ONE FLAT WASHER.



TEE BAR SPACING CHART

STRUCTURE TYPE	SIGN PANEL DIMENSIONS				TEE 6061-T6 2.5 x 3.0 @ 1.175 LB/FT.		
	W	H	c	d	NUMBER	LENGTH	CLAMP
VA-A	3'	3'	1'-3"	5/8"	-	-	-
VA-B	4'	4'	1'-2"	1'-8"	2	3'-0"	4
VA-C	4'	5'	1'-3"	2'-6"	2	3'-0"	4
VA-D	5'	3'	0'-8"	1'-8"	2	4'-0"	4
VA-E	6'	5'	1'-3"	2'-6"	2	5'-0"	4
VA-F	4'	-	1'-8"	2'-4"	2	2'-10"	4
VA-G	5'	-	1'-8"	-	1 EACH	2'-10" & 1'-4"	4
VA-K	4'	5'	1'-3"	2'-6"	2	3'-0"	4
VA-K	4'	4'	1'-2"	1'-8"	2	3'-0"	4
VA-L	6'	6'	1'-6"	3'-0"	2	5'-0"	4
VA-M	5'	5'	1'-3"	2'-6"	2	4'-0"	4
VA-A2	6'	3'	-	-	4	5'-0"	-
VA-N	7'	7'	1'-0"	2'-6"	3	6'-0"	6
VA-O	13'	5'	1'-3"	2'-6"	2	4'-0"	4

TEE CROSS SECTION



SPECIFICATION REFERENCE

701

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

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

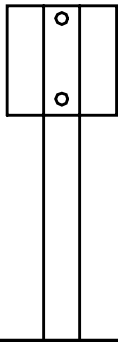
REVISION DATE

01/15

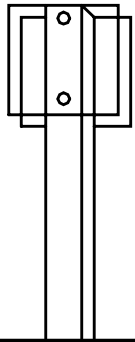
SHEET 2 OF 2

1325.41

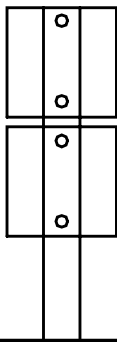
TYPE A



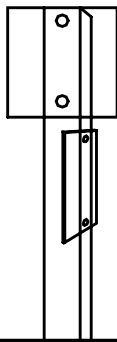
TYPE B



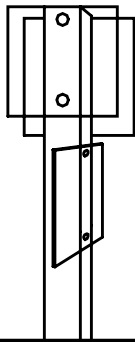
TYPE C



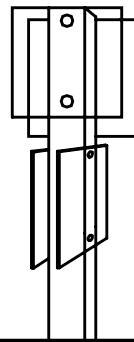
TYPE D



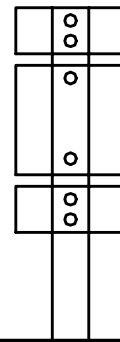
TYPE E



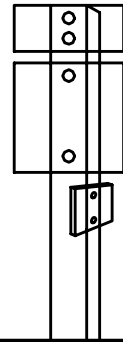
TYPE F



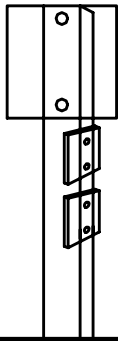
TYPE G



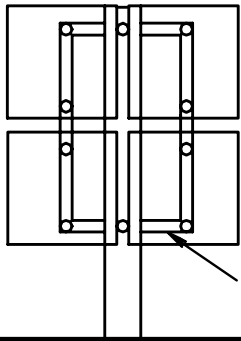
TYPE H



TYPE I

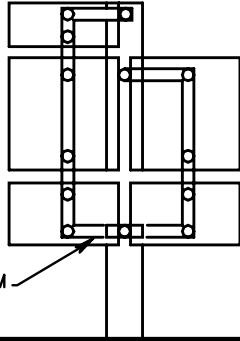


TYPE J

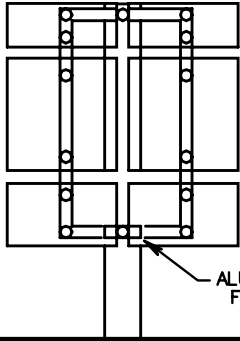


ALUMINUM FRAME

TYPE K

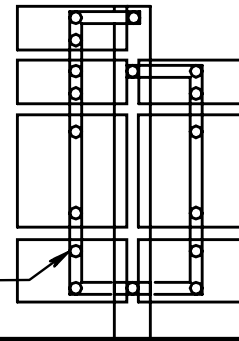


TYPE L

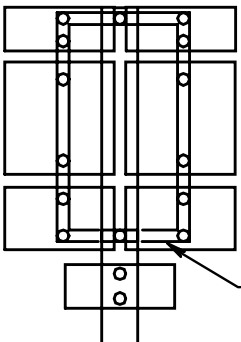


ALUMINUM FRAME

TYPE M

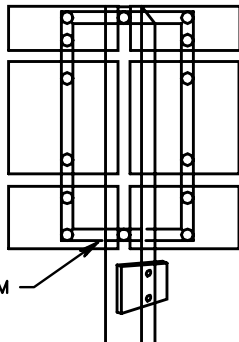


TYPE N

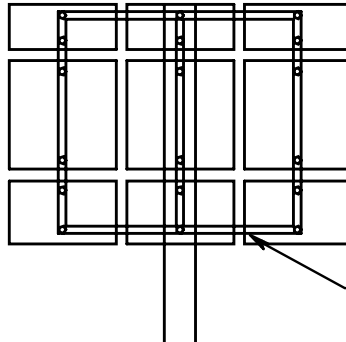


ALUMINUM FRAME

TYPE O

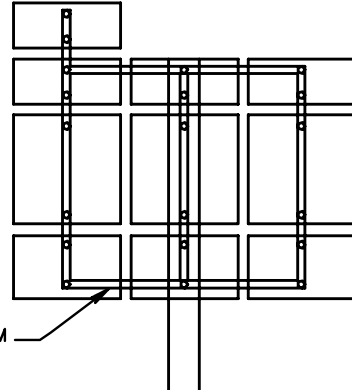


TYPE P



ALUMINUM FRAME

TYPE Q



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

REVISION DATE

1325.50

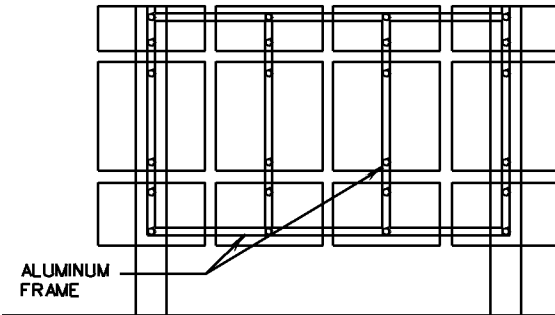
SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

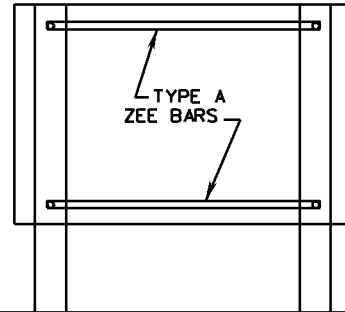
SPECIFICATION REFERENCE

701

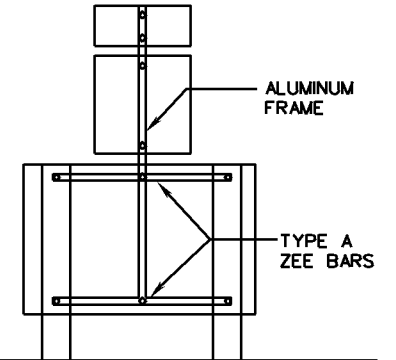
TYPE R



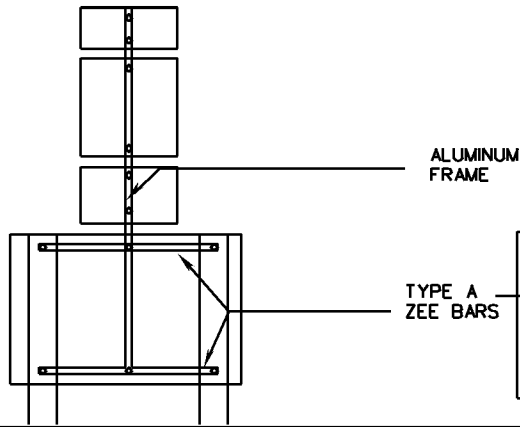
TYPE S



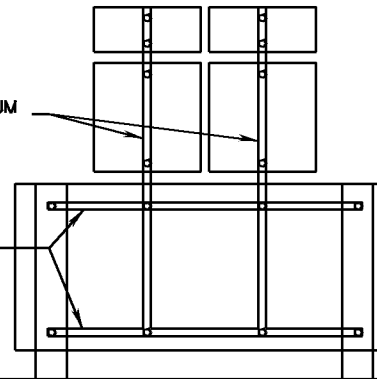
TYPE T



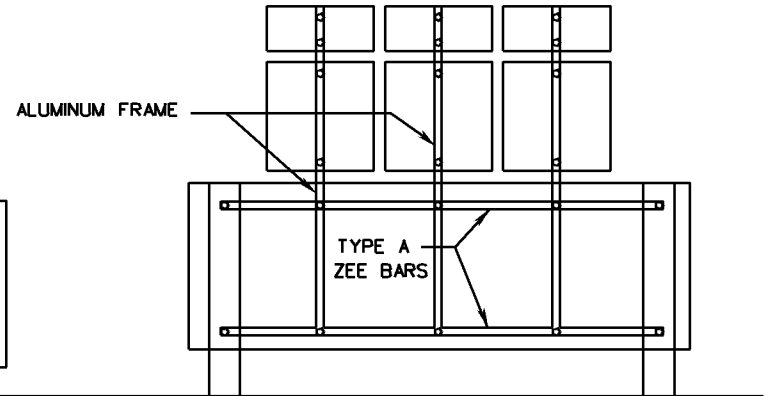
TYPE U



TYPE V



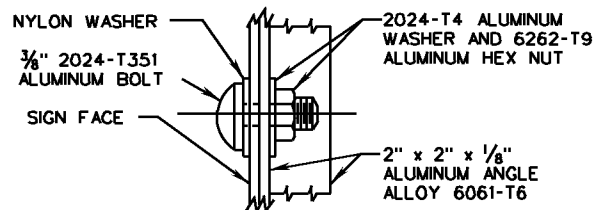
TYPE W



ALUMINUM FRAMING

SIGN PANEL ATTACHMENT DETAILS

(FOR SIGN PANEL ATTACHMENT TO Z BARS, SEE STANDARD SPD-1)



NOTES

NYLON WASHER SHALL BE $\frac{1}{8}$ " THICK MINIMUM WITH AN OUTSIDE DIAMETER OF 1" AND AN INSIDE DIAMETER OF $\frac{7}{16}$ ".

TO OBTAIN A FLUSH MOUNTING SURFACE FOR SIGNS, ALL WOOD POST SHALL BE MORTISED WHERE NECESSARY TO RECESS THE FLANGE OF ALUMINUM ANGLE.

THE TYPE A ZEE BARS SHALL BE $2\frac{3}{8}$ " x $1\frac{1}{4}$ " x $\frac{3}{16}$ ".

ALL VERTICAL AND HORIZONTAL SPACING BETWEEN SIGNS IN AN ASSEMBLY SHALL BE ONE INCH UNLESS SPECIFIED.

THESE ARE TYPICAL SIGN PANEL ASSEMBLIES; ALL ASSEMBLIES SHALL BE IN ACCORDANCE WITH PLAN DETAILS.

SPECIFICATION REFERENCE

701

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

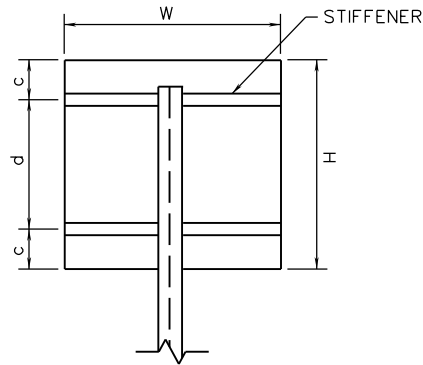
ROAD AND BRIDGE STANDARDS

REVISION DATE
6-15-09

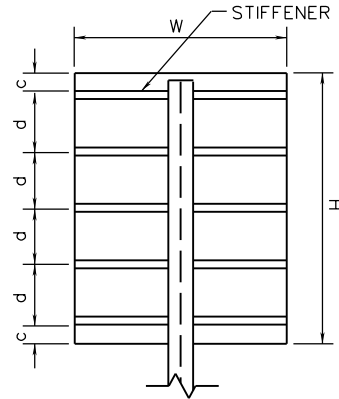
SHEET 2 OF 2

1325.51

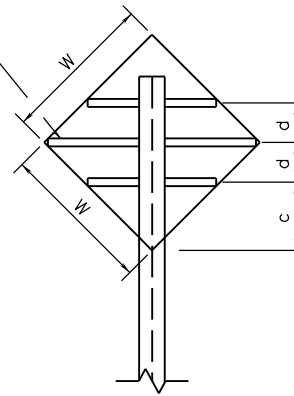
TYPES VA-B, VA-C, VA-D, VA-L AND VA-M



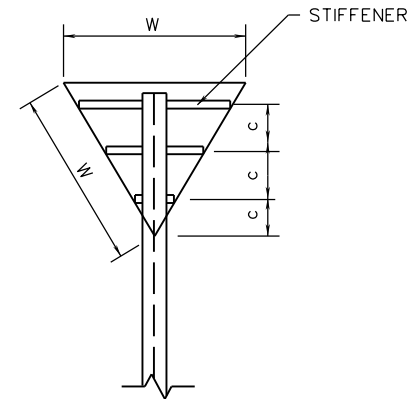
TYPES VA-E, VA-N AND VA-O



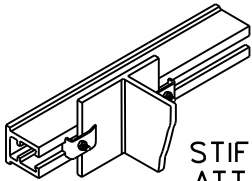
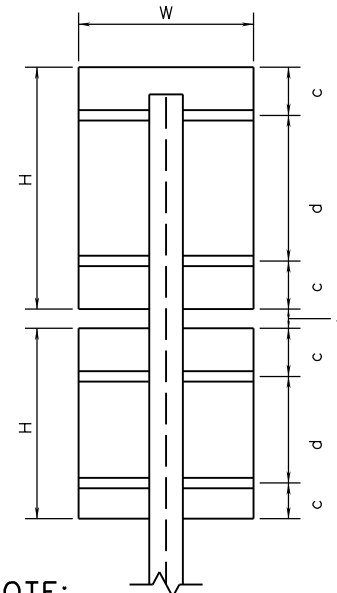
TYPES VA-F



TYPES VA-G

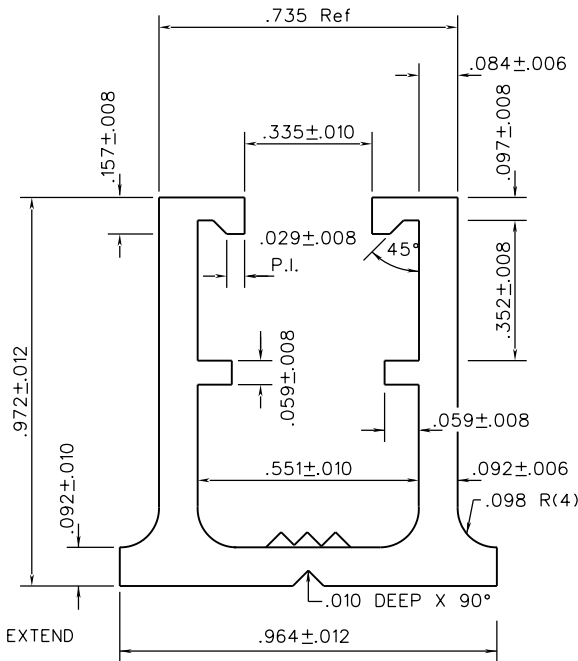


TYPES VA-K



STIFFENER TO POST ATTACHMENT DETAIL

MEDIUM STIFFENER DETAIL



NOTE:

RIVETS SHALL BE USED FOR SECURING THE STIFFENERS TO THE SIGN UNLESS OTHERWISE SPECIFIED OR APPROVED, AND SHALL BE 3/16" MINIMUM DIAMETER BY 1/2" LONG ALUMINUM AND CAPABLE OF WITHSTANDING A MINIMUM SHEAR FORCE OF 460LBS. RIVET SPACING FOR ATTACHING THE STIFFENERS TO THE SIGN PANEL SHALL BE 6" MAXIMUM BEGINNING 1 1/2" FROM THE ENDS OF THE SIGN PANEL.

STRUCTURE TYPE	W	H	c	d	STIFFENERS	
					NO.	SIZE
VA-B	4'	4'	6 1/2"	2'-11"	2	MEDIUM
VA-C	4'	5'	12 1/2"	2'-11"	2	MEDIUM
VA-D	5'	3'	7"	1'-10"	2	MEDIUM
VA-E	6'	5'	0"	1'-3"	5	MEDIUM
VA-F	4'	—	8"	2'-2"	3	MEDIUM
VA-G	5'	—	1'-4"	—	3	MEDIUM
VA-K	4'	5'	12 1/2"	2'-11"	2	MEDIUM
	4'	4'	6 1/2"	2'-11"	2	MEDIUM
VA-L	6'	6'	6"	1'-3"	5	MEDIUM
VA-M	5'	5'	8"	1'-10"	3	MEDIUM
VA-N	7'	7'	5 1/4"	10 1/2"	8	MEDIUM
VA-O	13'	5'	1 1/2"	3"	20	MEDIUM

SEE STANDARD SPD-4 FOR POST CLAMP AND BOLT DETAILS.

UNLESS OTHERWISE NOTED THE TOP OF THE SIGN PANEL SHALL NOT EXTEND ABOVE THE SIGN POST NO GREATER THAN THE DISTANCE OF 1/2 c.

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

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

701



ROAD AND BRIDGE STANDARDS

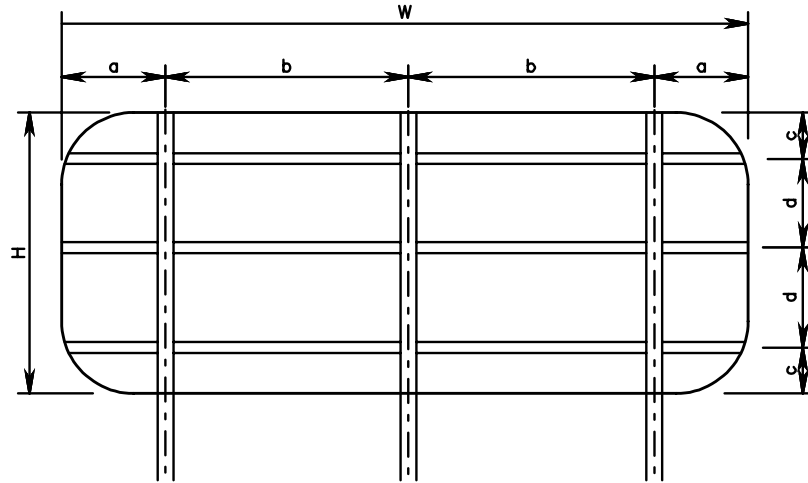
SHEET 1 OF 1

REVISION DATE

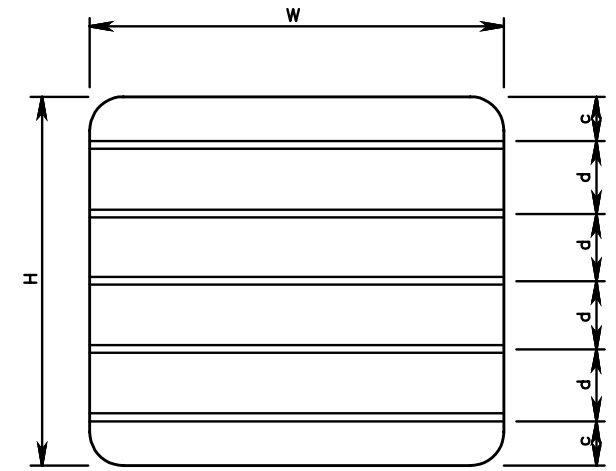
1325.60

01/15

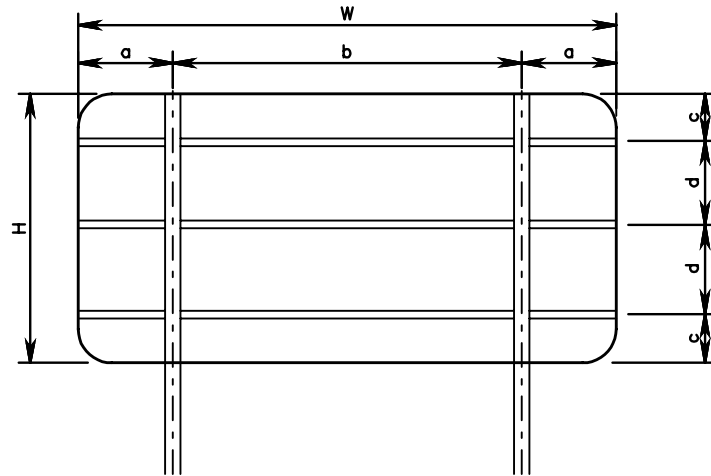
SIGN PANEL
DETAIL



SIGN PANEL
DETAIL



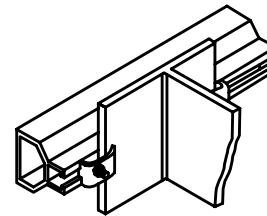
SIGN PANEL
DETAIL



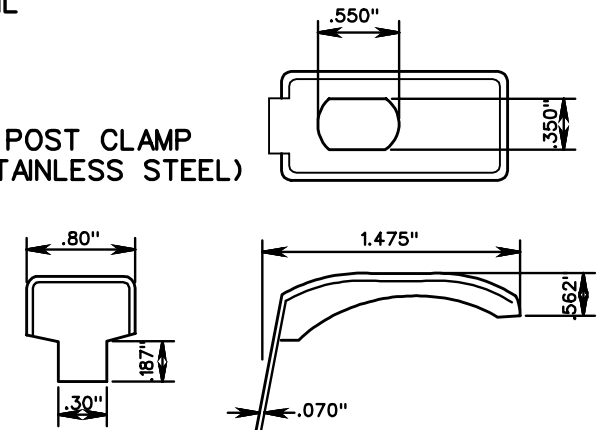
POST CLAMP BOLT
(STAINLESS STEEL)



STIFFENER TO POST
ATTACHMENT DETAIL



POST CLAMP
(STAINLESS STEEL)



SPECIFICATION
REFERENCE

701

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

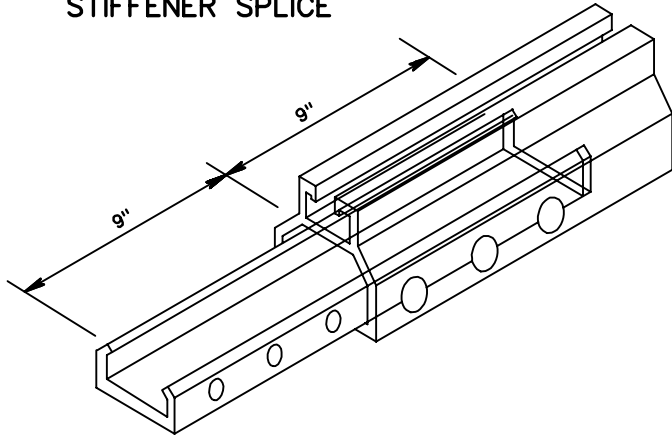
ROAD AND BRIDGE STANDARDS

REVISION DATE

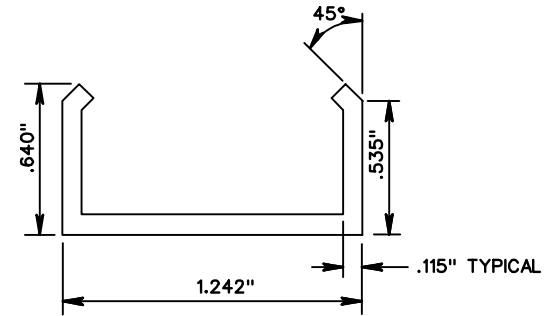
SHEET 1 OF 3

1325.70

LARGE STIFFENER SPLICE



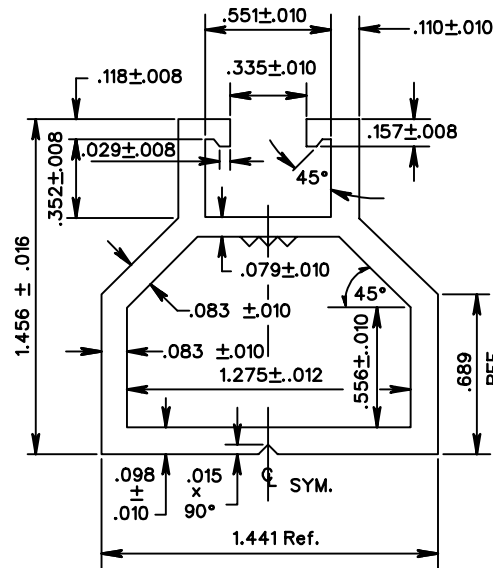
LARGE STIFFENER SPLICE BAR



THE MAXIMUM NUMBER OF SPLICES IN A STIFFENER SHALL BE ONE PER STIFFENER LOCATION.

SPLICES SHALL NOT BE IN A VERTICAL ALIGNMENT BUT SHALL BE OFFSET 12" FROM EACH OTHER.

LARGE STIFFENER DETAIL



ROAD AND BRIDGE STANDARDS

SHEET 2 OF 3

REVISION DATE

1325.71

SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

701

SIGN PANEL DIMENSIONS		SIGN PANEL ATTACHMENT DETAILS					
		a	b	c	d	STIFFENER	
W	H					NO.	SIZE
12'	4'	2'-0"	8'-0"	11 1/2"	2'-1"	2	LARGE
11'	5'	1'-6"	8'-0"	1 1/2"	2'-0"	3	LARGE
10'	6'	1'-0"	8'-0"	4"	1'-8"	4	LARGE
12'	6'	2'-0"	8'-0"	11"	1'-8"	4	LARGE
14'	6'	2'-10"	8'-5"	0	3'-0"	3	LARGE
16'	6'	3'-2"	9'-7"	0"	3'-0"	3	LARGE
18'	6'	3'-7"	10'-10"	6"	1'-8"	4	LARGE
20'	6'	4'-0"	12'-0"	4"	1'-4"	5	LARGE
22'	6'	4'-5"	13'-2"	1"	1'-2"	6	LARGE
24'	6'	4'-10"	14'-5"	3"	11"	7	LARGE
26'	6'	5'-2"	15'-7"	0"	8"	10	LARGE
10'	8'	1'-0"	8'-0"	8"	1'-8"	5	LARGE
12'	8'	2'-0"	8'-0"	6"	2'-4"	4	LARGE
14'	8'	2'-10"	8'-5"	1'-0"	3'-0"	3	LARGE
16'	8'	3'-2"	9'-7"	6"	2'-4"	4	LARGE
18'	8'	3'-7"	10'-10"	3"	1'-6"	6	LARGE
20'	8'	4'-0"	12'-0"	3"	1'-6"	6	LARGE
22'	8'	4'-5"	13'-2"	6"	12"	8	LARGE
24'	8'	4'-10"	14'-5"	3"	9"	11	LARGE
26'	8'	5'-2"	15'-7"	0"	8"	13	LARGE
10'	8'	1'-0"	8'-0"	8"	1'-8"	5	LARGE
12'	8'	2'-0"	8'-0"	6"	2'-4"	4	LARGE
14'	8'	2'-10"	8'-5"	1'-0"	3'-0"	3	LARGE
16'	8'	3'-2"	9'-7"	6"	2'-4"	4	LARGE
18'	8'	3'-7"	10'-10"	3"	1'-6"	6	LARGE
18'	8'	3'-7"	10'-10"	3"	1'-6"	6	LARGE
20'	8'	4'-0"	12'-0"	3"	1'-6"	6	LARGE
22'	8'	4'-5"	13'-2"	6"	12"	8	LARGE
24'	8'	4'-10"	14'-5"	3"	9"	11	LARGE
26'	8'	5'-2"	15'-7"	0	8"	13	LARGE
10'	10'	1'-0"	8'-0"	0	2'-0"	6	LARGE

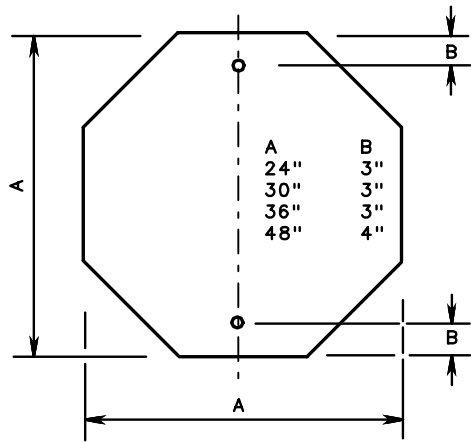
SIGN PANEL DIMENSIONS		SIGN PANEL ATTACHMENT DETAILS						SPD-7
		a	b	c	d	STIFFENER		
W	H					NO.	SIZE	
12'	10'	2'-0"	8'-0"	4"	2'-4"	5	LARGE	
14'	10'	2'-10"	8'-5"	6"	3'-0"	4	LARGE	
16'	10'	3'-2"	9'-7"	4"	2'-4"	5	LARGE	
18'	10'	3'-7"	10'-10"	0	1'-8"	7	LARGE	
20'	10'	4'-0"	12'-0"	4"	1'-4"	8	LARGE	
22'	10'	4'-5"	13'-2"	4"	1'-2"	9	LARGE	
24'	10'	4'-10"	14'-5"	5"	10"	12	LARGE	
26'	10'	5'-2"	15'-7"	0	8"	16	LARGE	
10'	9'	1'-0"	8'-0"	4"	1'-8"	6	LARGE	
12'	9'	2'-0"	8'-0"	4"	2'-1"	5	LARGE	
14'	9'	2'-10"	8'-5"	0	3'-0"	4	LARGE	
16'	9'	3'-2"	9'-7"	1'-0"	2'-4"	4	LARGE	
18'	9'	3'-7"	10'-10"	4"	1'-8"	6	LARGE	
20'	9'	4'-0"	12'-0"	0	1'-6"	7	LARGE	
22'	9'	4'-5"	13'-2"	5"	1'-2"	8	LARGE	
22'	9'	4'-5"	13'-2"	5"	1'-2"	8	LARGE	
24'	9'	4'-10"	14'-5"	4"	10"	11	LARGE	
26'	9'	5'-2"	15'-7"	2"	8"	14	LARGE	
12'	12'	2'-0"	8'-0"	2"	2'-1"	6	LARGE	
14'	12'	2'-10"	8'-5"	0	3'-0"	5	LARGE	
16'	12'	3'-2"	9'-7"	2"	2'-4"	6	LARGE	
18'	12'	3'-7"	10'-10"	2"	1'-8"	8	LARGE	
20'	12'	4'-0"	12'-0"	8"	1'-4"	9	LARGE	
22'	12'	4'-5"	13'-2"	2"	1'-2"	11	LARGE	
24'	12'	4'-10"	14'-5"	1 1/2"	11"	14	LARGE	
14'	14'	2'-10"	8'-5"	1'-0"	3'-0"	5	LARGE	
16'	14'	3'-2"	9'-7"	0	2'-4"	7	LARGE	
18'	14'	3'-7"	10'-10"	4"	1'-8"	9	LARGE	
20'	14'	4'-0"	12'-0"	4"	1'-4"	11	LARGE	
16'	16'	3'-2"	9'-7"	1'-0"	2'-4"	7	LARGE	
18'	16'	3'-7"	10'-10"	6"	1'-8"	10	LARGE	
VARIES	2'-6"	-	-	9"	12"	2	LARGE	

SPECIFICATION REFERENCE
701

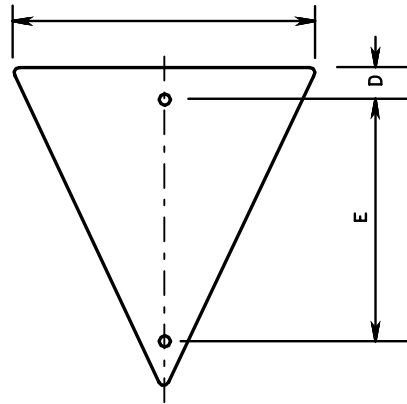
SIGN PANEL DESIGN

VIRGINIA DEPARTMENT OF TRANSPORTATION

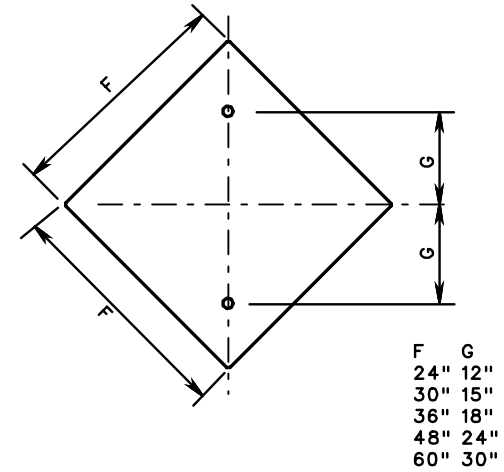
VDOT ROAD AND BRIDGE STANDARDS	
REVISION DATE 4/09	SHEET 3 OF 3 1325.72



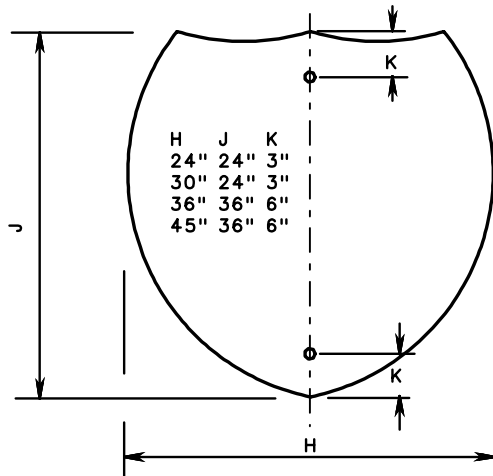
OCTAGON



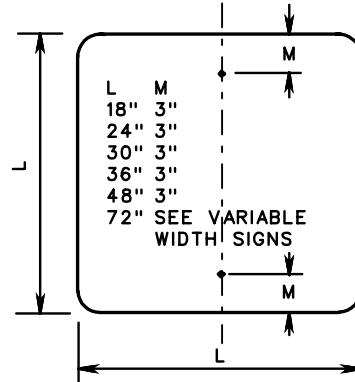
EQUILATERAL TRIANGLE



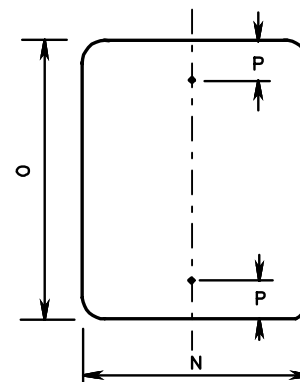
DIAMOND



INTERSTATE SHIELD



SQUARE



VERTICAL RECTANGLE

NOTE:

ALL HOLES SHALL BE 7/16" IN DIAMETER.



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

REVISION DATE

1326.10

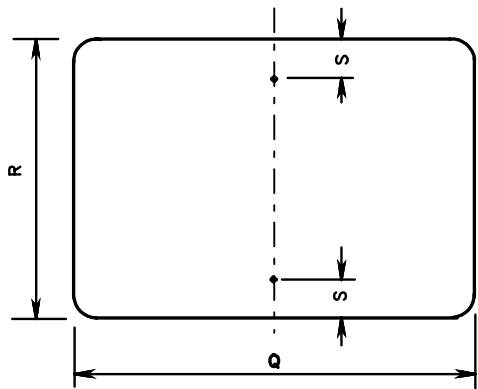
PUNCHING REQUIREMENTS FOR SIGN PANELS

SINGLE POST INSTALLATIONS

VIRGINIA DEPARTMENT OF TRANSPORTATION

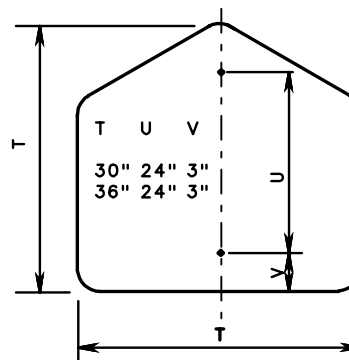
SPECIFICATION REFERENCE

701

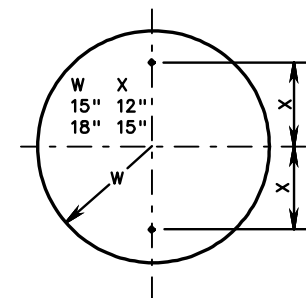


HORIZONTAL RECTANGLE

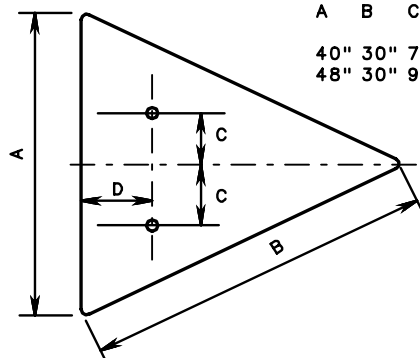
Q	R	S
18"	6"	1 1/2"
18"	12"	1 1/2"
20"	6"	1 1/2"
21"	15"	1 1/2"
24"	9"	1 1/2"
24"	12"	1 1/2"
24"	18"	3"
30"	15"	1 1/2"
30"	24"	3"
36"	12"	1 1/2"
36"	18"	2"
36"	24"	3"
42"	24"	3"
45"	36"	3"
48"	24"	3"
48"	36"	3"
48"	42"	4"
54"	24"	3"
54"	30"	3"



PENTAGON



CIRCLE



ISOSCELES TRIANGLE

A	B	C	D
40"	30"	7 1/2"	12"
48"	30"	9"	15"

SPECIFICATION REFERENCE

701

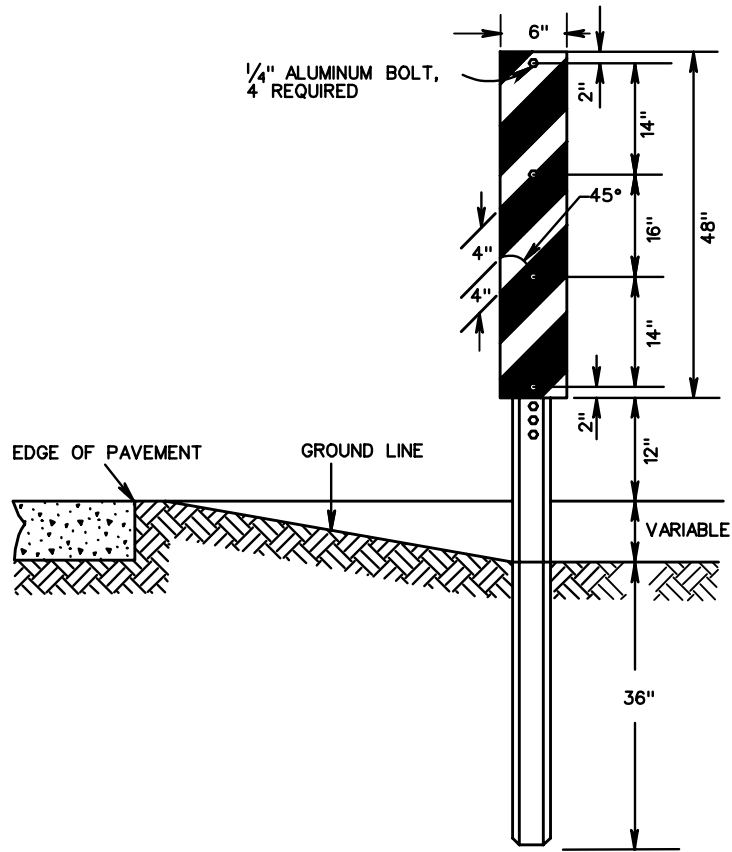
PUNCHING REQUIREMENTS FOR SIGN PANELS
SINGLE POST INSTALLATIONS
 VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE SHEET 2 OF 2

1326.11



NOTES:

SPECIAL DELINEATORS ARE MADE FROM ALUMINUM ALLOY, NOT LESS THAN 0.080 THICK CONFORMING TO ASTM B209, ALLOY 6061-T6 OR 5052-H38.

DELINEATORS EXTEND 1" ABOVE THE TOP OF THE POST.

DELINEATORS ARE REFLECTORIZED, AND IN ALL CASES, THE COLOR SHALL CONFORM TO THE COLOR OF THE EDGELINES, ALTERNATING WITH A BLACK STRIPE.

THE STRIPES SHALL SLOPE DOWN TOWARD THE CENTER OF ROADWAY.

DELINEATORS SHALL BE MOUNTED ON U-TYPE POSTS FABRICATED FROM ROLLED-RAIL STEEL 1.33 LB./FT. MINIMUM.

THE BOTTOM OF THE DELINEATOR PANEL SHALL BE 12" ABOVE THE PAVEMENT EDGE ELEVATION.



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1 REVISION DATE

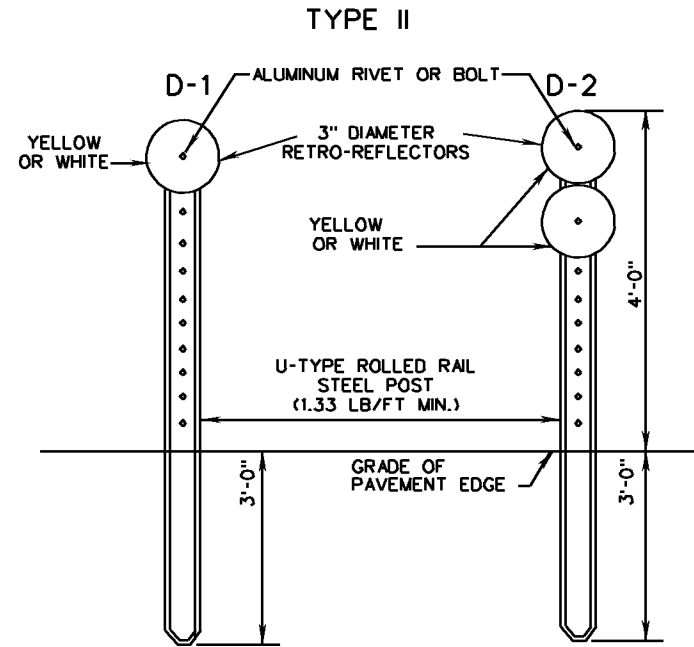
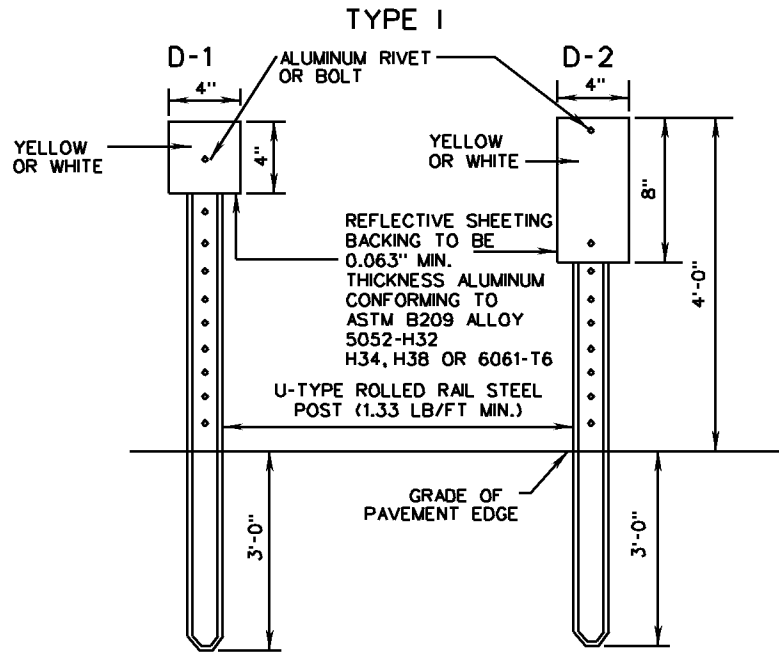
1327.10

**ROAD EDGE DELINEATOR
TYPICAL DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

702



NOTES:

ROAD EDGE DELINEATORS ARE TO BE ERECTED TWO FEET BEYOND THE OUTER EDGE OF THE SHOULDER OR THE FACE OF UNMOUNTABLE CURB.

D-1 DELINEATORS SHALL BE PLACED ON THE RIGHT OF THROUGH ROADWAYS AT 528 FOOT SPACING WITH THE FOLLOWING EXCEPTIONS:

TANGENT ROADWAYS WHERE PAVEMENT MARKERS ARE INSTALLED WILL NOT REQUIRE THE INSTALLATION OF DELINEATORS.

LOCATIONS WHERE DELINEATORS ARE INSTALLED ON GUARDRAILS, PARAPETS OR BARRIERS ON THE RIGHT OF THE ROADWAY WILL NOT REQUIRE THE INSTALLATION OF ROAD EDGE DELINEATORS.

D-1 DELINEATORS SHALL BE PLACED ON AT LEAST ONE SIDE AND ON THE OUTSIDE CURVE OF INTERCHANGE RAMP EXCEPT WHERE DELINEATORS ARE INSTALLED ON GUARDRAILS, PARAPETS OR BARRIERS. THE SPACING ALONG THE RAMP SHALL BE AT 100' INTERVALS EXCEPT IN HORIZONTAL CURVES WHERE THE SPACING SHALL CONFORM TO THE CHART ON SPACING FOR HIGHWAY DELINEATORS.

D-2 DELINEATORS SHALL BE PLACED ON ACCELERATION LANES AND DECELERATION LANES AT 100' SPACING.

THE COLOR OF DELINEATORS SHALL CONFORM TO THE COLOR OF THE ADJACENT EDGELINES.

SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES

DISTANCE IN FEET ROUNDED TO THE NEAREST 5'.

RADIUS OF CURVE IN FEET	SPACING ON CURVE IN FEET
50	20
150	30
200	35
250	40
300	50
400	55
500	65
600	70
700	75
800	80
900	85
1000	90

SPACING FOR SPECIFIC RADIUS NOT SHOWN MAY BE INTERPOLATED FROM TABLE. THE MINIMUM SPACING SHOULD BE 20'. THE SPACING ON CURVES SHOULD NOT EXCEED 300'. IN ADVANCE OF OR BEYOND A CURVE, AND PROCEEDING AWAY FROM THE END OF THE CURVE, THE SPACING OF THE FIRST DELINEATOR IS 25, THE SECOND IS 35 AND THE THIRD IS 65 BUT NOT TO EXCEED 300'. S REFERS TO THE DELINEATOR SPACING, IN FEET, FOR SPECIFIC RADIUS COMPUTED FROM THE FORMULA $S = 3 \sqrt{R-50}$

SPECIFICATION REFERENCE
702

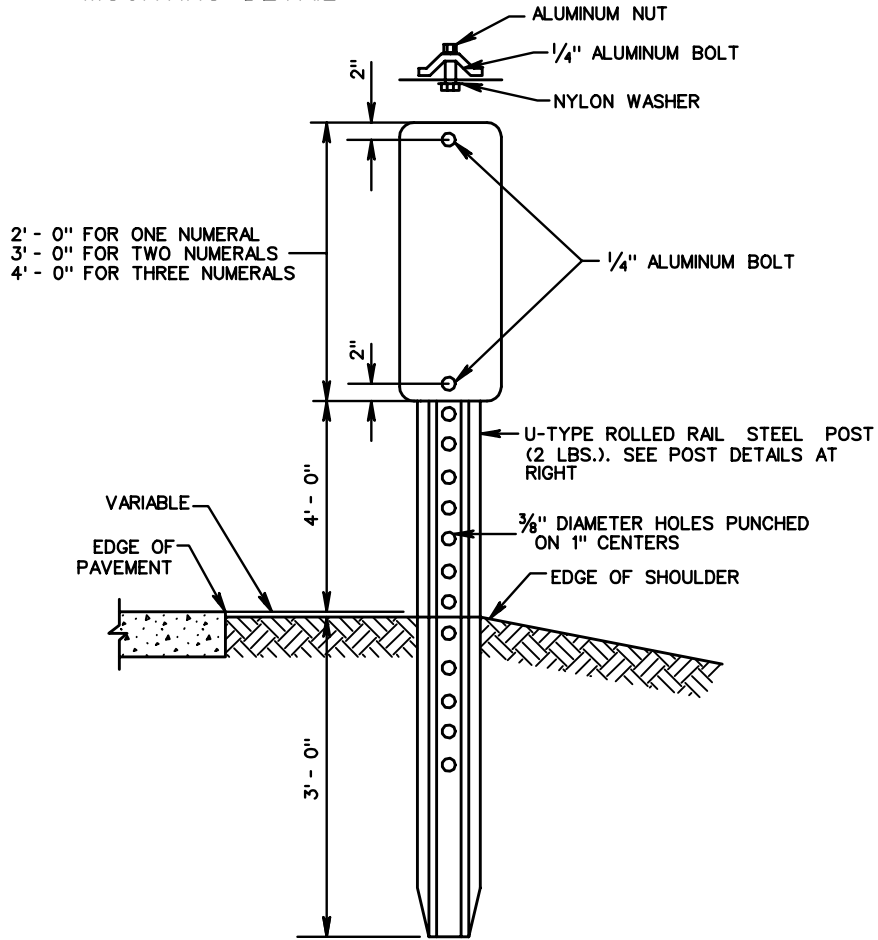
**INTERSTATE ROAD EDGE DELINEATORS
TYPICAL DETAILS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT	
ROAD AND BRIDGE STANDARDS	
REVISION DATE 6-15-09	SHEET 1 OF 1
1327.20	

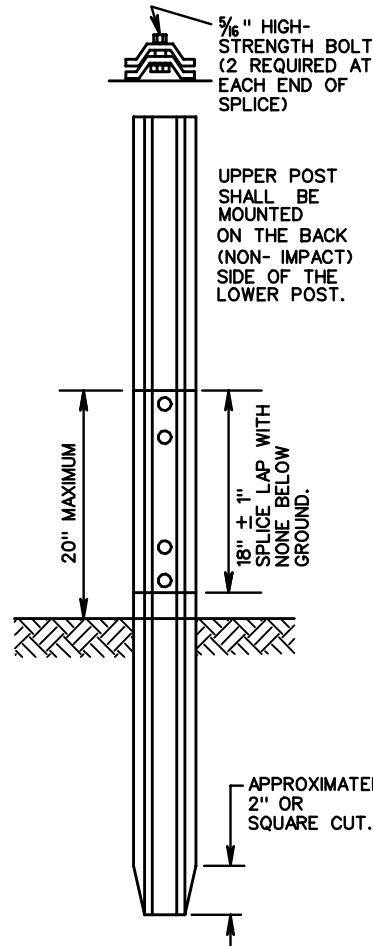
MM-1

MOUNTING DETAIL

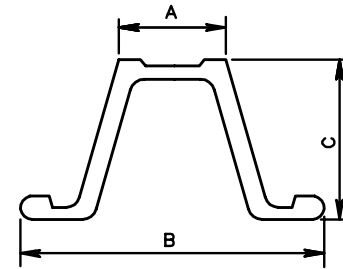


USP-1

SPLICING DETAIL



POST SECTION DIMENSIONS



1.33 LB./LF

MINIMUM	MAXIMUM
A. 1/2"	1"
B. 2"	2 1/4"
C. 3/4"	1 1/4"

2.00 LB./LF

MINIMUM	MAXIMUM
A. 1 3/4"	1 3/2"
B. 3 1/16"	3 1/8"
C. 1 7/4"	1 3/4"

NOTES:

DRIVING CAP TO BE USED WHEN DRIVING POST.

PANEL TO BE FABRICATED OF ASTM B209 ALLOY 6061-T6 OR 5052-H38, 0.080 THICK.

TOP OF PANEL TO BE FLUSH WITH TOP OF POST.

ERECTION

ERECTION

MILEPOST MARKERS TO BE LOCATED IN LINE WITH DELINEATOR POSTS, EDGE OF SHOULDER OR BACK OF GUARDRAIL, IF PRESENT.



ROAD AND BRIDGE STANDARDS

MILEPOST MARKERS & U-TYPE STEEL POST

SPECIFICATION REFERENCE

SHEET 1 OF 1

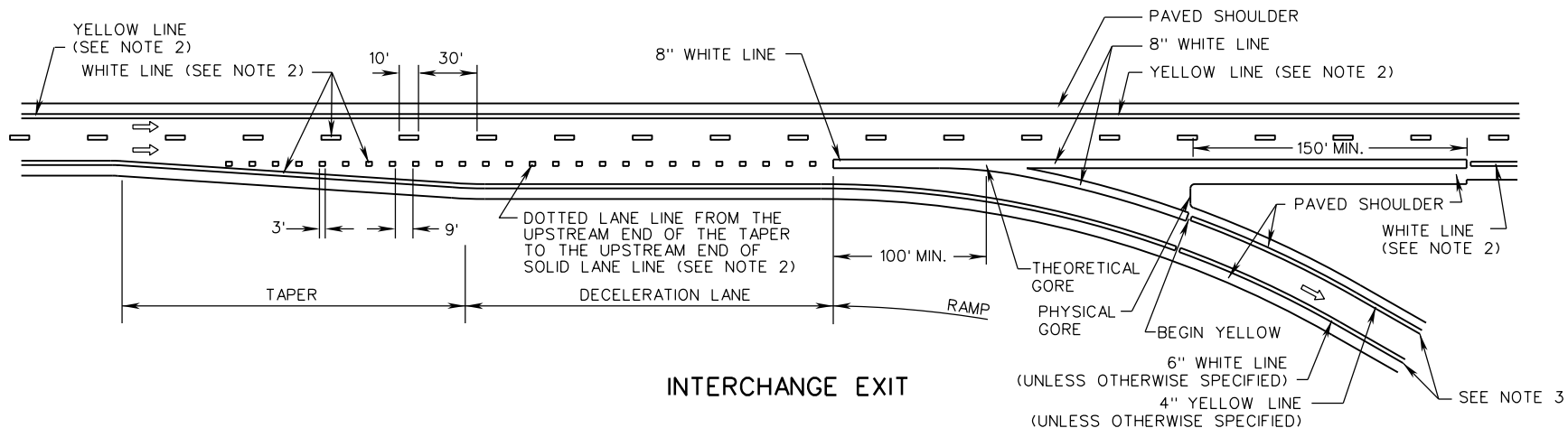
REVISION DATE

TYPICAL STRUCTURE DETAILS

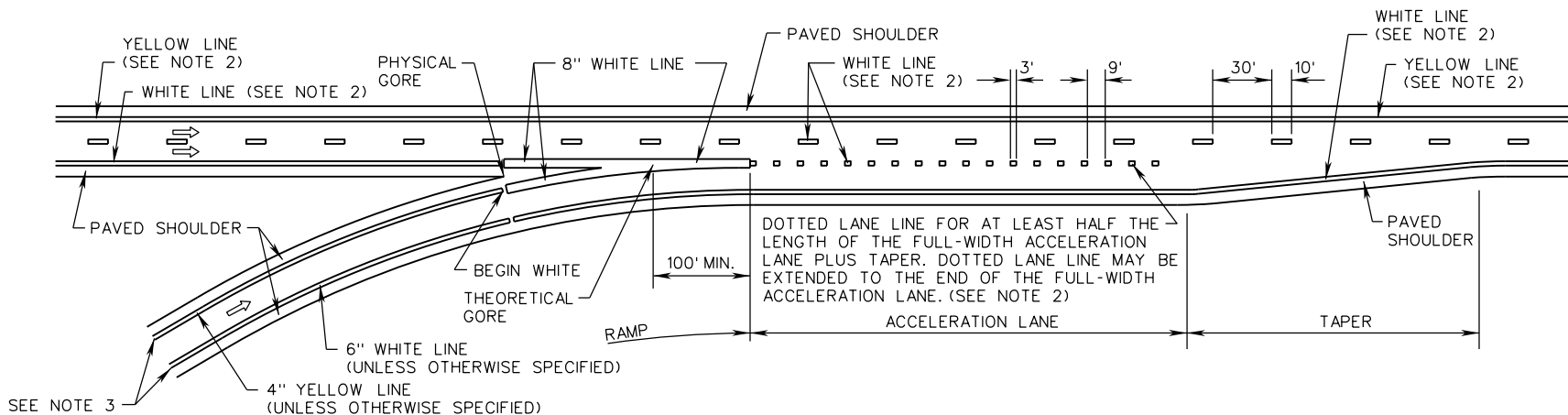
701
702

1328.10

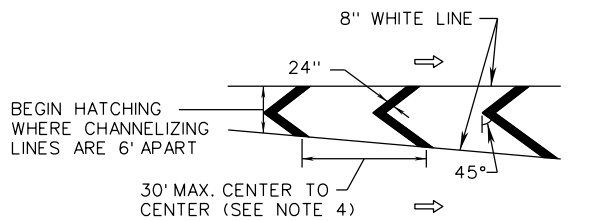
VIRGINIA DEPARTMENT OF TRANSPORTATION



INTERCHANGE EXIT



INTERCHANGE ENTRANCE



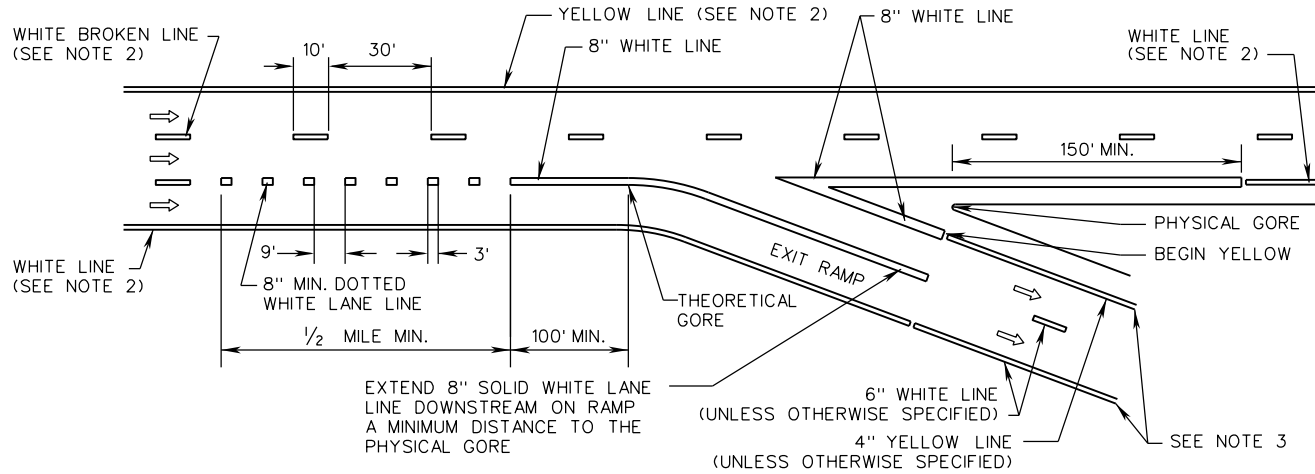
GORE AREA HATCHING (OPTIONAL)

⇨ INDICATES DIRECTION OF TRAVEL

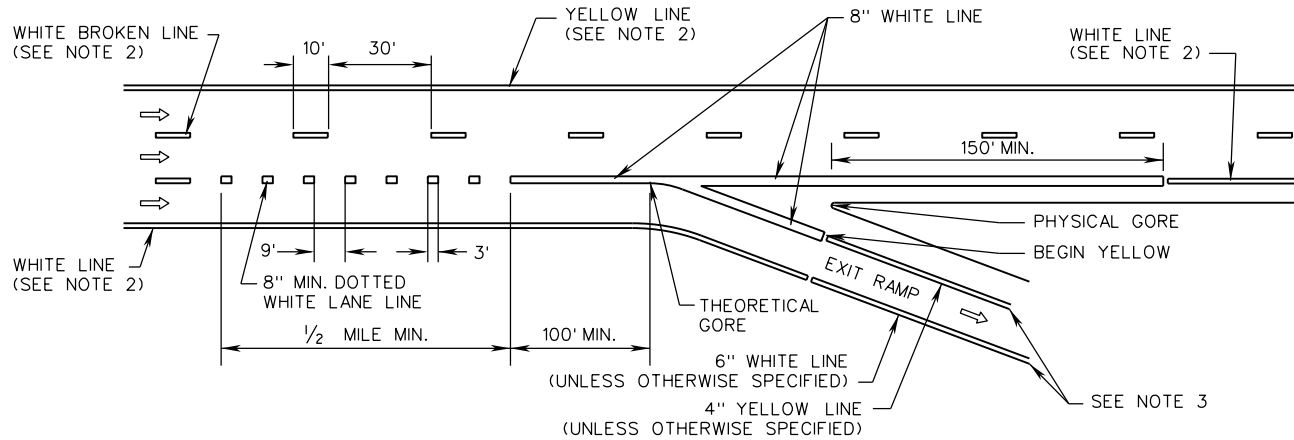
NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE PAVEMENT MARKING FOR THE LANE LINE AND EDGE LINE MARKINGS OF INTERSTATE HIGHWAYS AND FREEWAYS SHALL BE 6" WIDE; ALL OTHER HIGHWAYS THE PAVEMENT MARKING SHALL BE 4" WIDE UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.
3. CONTINUE EDGELINE WIDTH TO THE TERMINATION POINT SPECIFIED IN THE CONTRACT DOCUMENTS.
4. IF GORE AREA HATCHING IS PROVIDED, THERE SHALL BE A MINIMUM OF THREE CHEVRONS. SPACING MAY BE REDUCED IN ORDER TO FIT THIS MINIMUM.

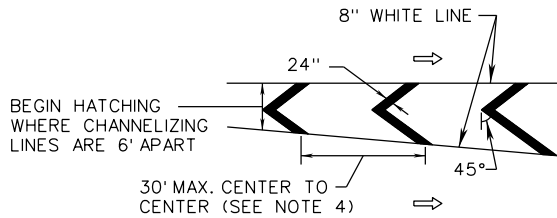
SPECIFICATION REFERENCE	704	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.	TYPICAL PAVEMENT MARKING	
			INTERCHANGE	
		VIRGINIA DEPARTMENT OF TRANSPORTATION		VDOT ROAD AND BRIDGE STANDARDS
		REVISION DATE 01/15	SHEET 1 OF 1 1330.10	



**LANE DROP EXIT RAMP
BESIDE OPTIONAL EXIT LANE**



LANE DROP EXIT RAMP



GORE AREA HATCHING (OPTIONAL)

⇨ INDICATES DIRECTION OF TRAVEL

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE PAVEMENT MARKING FOR THE LANE LINE AND EDGE LINE MARKINGS OF INTERSTATE HIGHWAYS AND FREEWAYS SHALL BE 6" WIDE; ALL OTHER HIGHWAYS THE PAVEMENT MARKING SHALL BE 4" WIDE UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.
3. CONTINUE EDGELINE WIDTH TO THE TERMINATION POINT SPECIFIED IN THE CONTRACT DOCUMENTS.
4. IF GORE AREA HATCHING IS PROVIDED, THERE SHALL BE A MINIMUM OF THREE CHEVRONS. SPACING MAY BE REDUCED IN ORDER TO FIT THIS MINIMUM.

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

TYPICAL PAVEMENT MARKING

INTERCHANGE LANE DROPS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

704



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1

REVISION DATE

1330.20

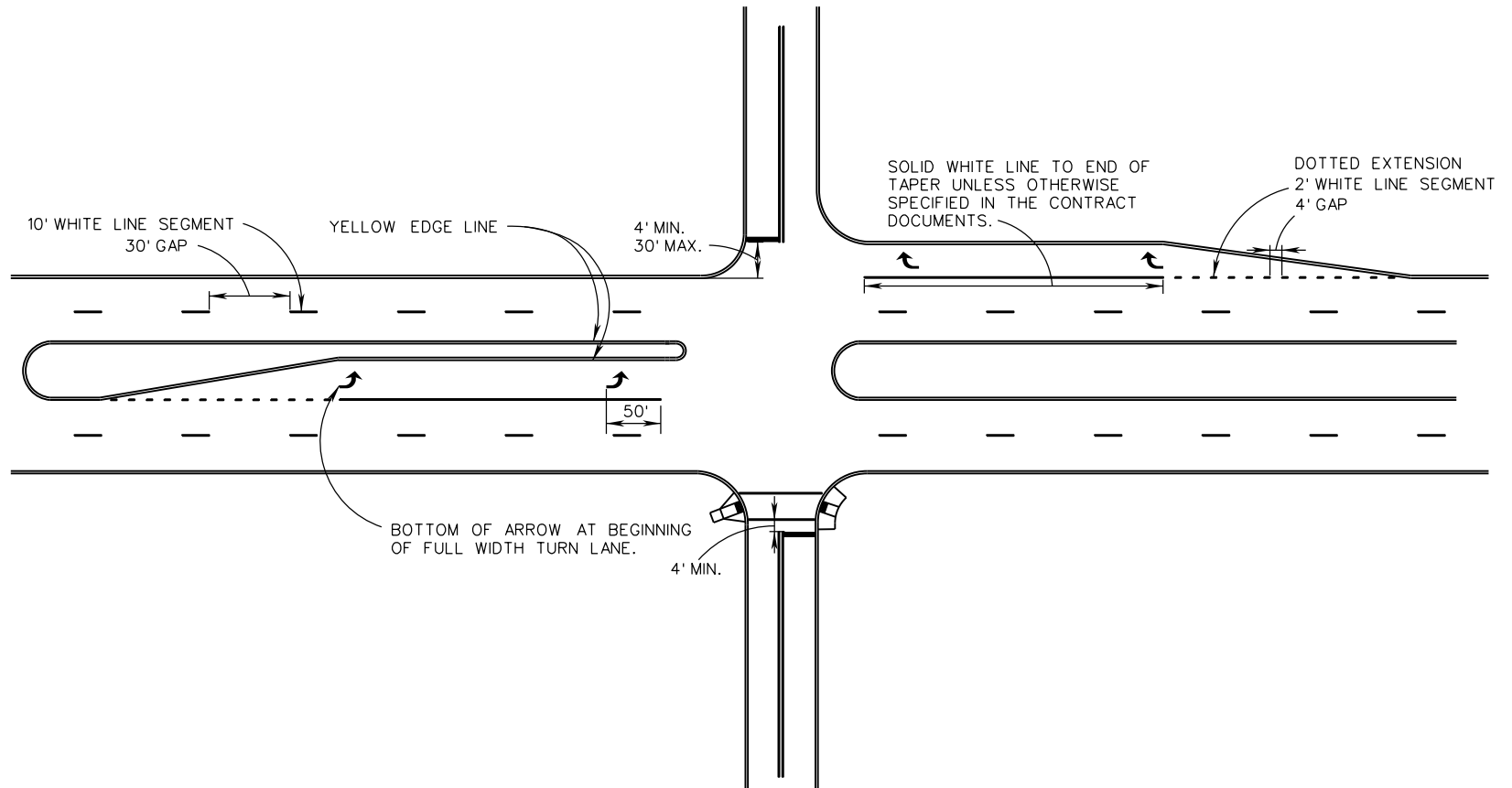
01/15

PATTERNS OF LONGITUDINAL LINES

THRU LANES: USE BROKEN LINE (10' LINE SEGMENTS / 30' GAPS).
 TAPERS MORE THAN 100': USE DOTTED EXTENSION (2' LINE SEGMENTS / 4' GAPS).
 TAPERS 100' OR LESS: DO NOT USE DOTTED EXTENSION UNLESS SPECIFIED IN THE CONTRACT DOCUMENTS.

NOTES:

1. STOP LINES SHALL BE 24 INCHES IN WIDTH.
2. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THE LOCATION, WIDTH, AND TYPE OF THE PAVEMENT MARKINGS SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
4. TURN ARROWS SHALL BE IN ACCORDANCE WITH SHEET 3.
5. CROSSWALK MARKINGS, IF PROVIDED, SHALL BE IN ACCORDANCE WITH SHEET 4.



SPECIFICATION REFERENCE

704

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TYPICAL PAVEMENT MARKING

UNSIGNALIZED INTERSECTIONS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

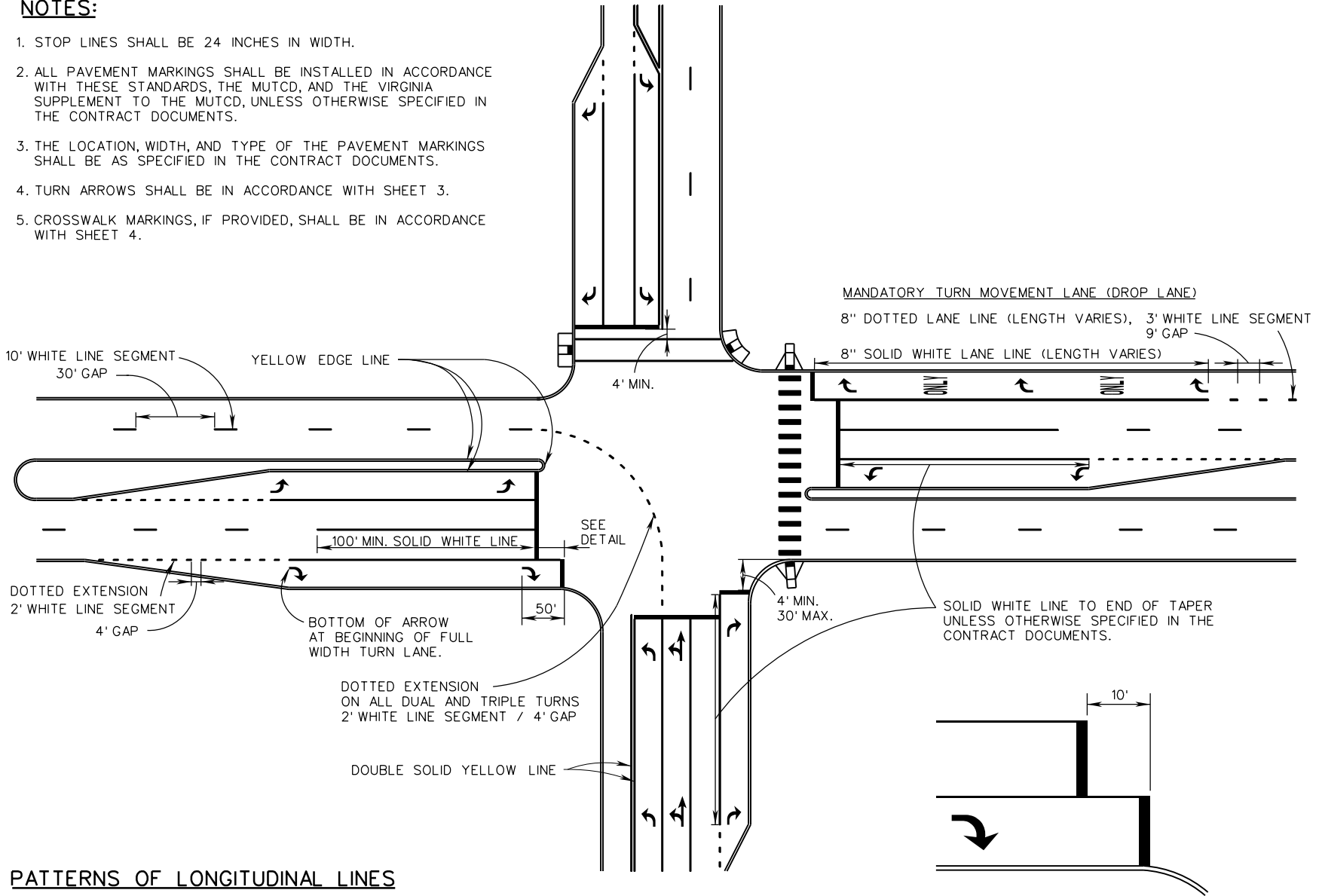
01/15

SHEET 1 OF 4

1330.30

NOTES:

1. STOP LINES SHALL BE 24 INCHES IN WIDTH.
2. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. THE LOCATION, WIDTH, AND TYPE OF THE PAVEMENT MARKINGS SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
4. TURN ARROWS SHALL BE IN ACCORDANCE WITH SHEET 3.
5. CROSSWALK MARKINGS, IF PROVIDED, SHALL BE IN ACCORDANCE WITH SHEET 4.



PATTERNS OF LONGITUDINAL LINES

THRU LANES: USE BROKEN LINE (10' LINE SEGMENTS / 30' GAPS).
 TAPERS MORE THAN 100': USE DOTTED EXTENSION (2' LINE SEGMENTS / 4' GAPS).
 TAPERS 100' OR LESS: DO NOT USE DOTTED EXTENSION UNLESS SPECIFIED IN THE CONTRACT DOCUMENTS.

DETAIL FOR OPTIONAL STAGGERED STOP LINES (ON A LANE-BY-LANE BASIS)

VDOT	
ROAD AND BRIDGE STANDARDS	
SHEET 2 OF 4	REVISION DATE
1330.31	NEW 01/15

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TYPICAL PAVEMENT MARKING

SIGNALIZED INTERSECTIONS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

704

TURN ARROWS

TURN ARROWS REQUIRED IN ACCORDANCE WITH THE FOLLOWING, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

TURN LANE LENGTH	NUMBER AND POSITION OF ARROWS
LESS THAN 100' (EXCLUSIVE OF TAPER): 1 ARROW	1 ARROW LOCATED AT THE BEGINNING OF THE SOLID LANE LINE.
100' TO 300' (EXCLUSIVE OF TAPER): 2 ARROWS	1 ARROW LOCATED AT BEGINNING OF FULL WIDTH TURN LANE. 1 ARROW LOCATED 50' BACK FROM STOP LINE OR END OF LANE LINE.
GREATER THAN 300' (EXCLUSIVE OF TAPER): 3 ARROWS	1 ARROW LOCATED AT BEGINNING OF FULL WIDTH TURN LANE. 1 ARROW LOCATED 50' BACK FROM STOP LINE OR END LANE LINE. 1 ARROW LOCATED AT MIDPOINT BETWEEN THE OTHER TWO ARROWS.

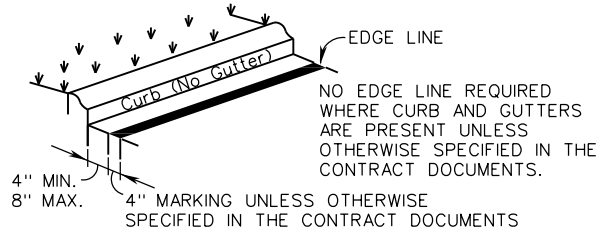
NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE LOCATION, WIDTH, AND TYPE OF THE PAVEMENT MARKINGS SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. WHEN "ONLY" WORD MARKINGS ARE USED, THESE MARKINGS SHALL BE SPACED MIDWAY BETWEEN THE TURN ARROWS.
4. CROSSWALK MARKINGS, IF PROVIDED, SHALL BE IN ACCORDANCE WITH SHEET 4.

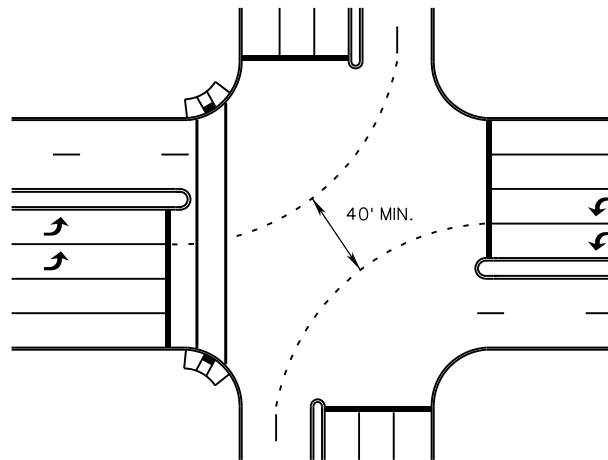
MANDATORY TURN MOVEMENT LANES (DROP LANE)

MARKINGS REQUIRED IN ACCORDANCE WITH THE FOLLOWING, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

TURN ARROWS	1 ARROW LOCATED AT BEGINNING WIDE WHITE SOLID LANE LINE. 1 ARROW LOCATED 50' BACK FROM STOP LINE. 1 ARROW LOCATED AT MIDPOINT OF 8" WHITE SOLID LANE LINE.
ONLY WORD MARKINGS	SPACED MIDWAY BETWEEN ARROWS.

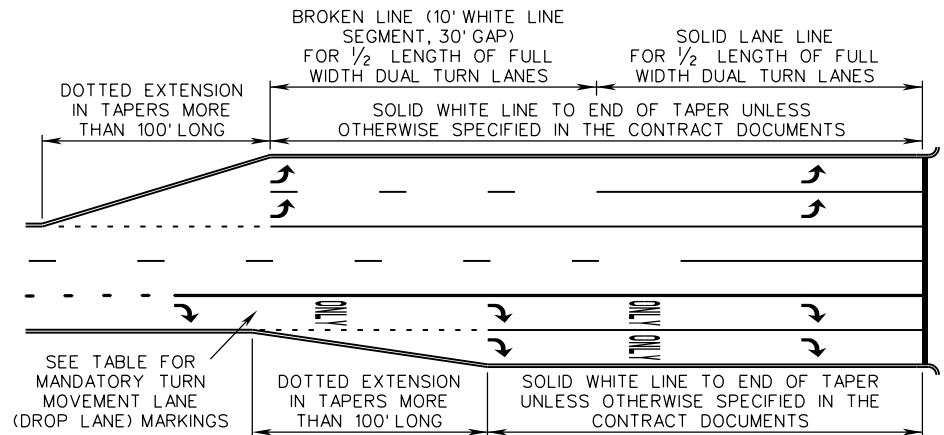


DETAIL FOR LOCATION OF EDGE LINES ON CURB SECTIONS OF ROADWAY (NO GUTTER)



DETAIL FOR DOTTED EXTENSION THROUGH INTERSECTION AT DUAL TURN LANES

DUAL TURN LANES ADDED AT THE SAME TAPER LOCATION



DUAL TURN LANE ADDED ADJACENT TO A MANDATORY TURN MOVEMENT LANE (DROP LANE)

DETAIL FOR LANE LINE MARKINGS AT DUAL TURN LANES

SPECIFICATION REFERENCE

704

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TYPICAL PAVEMENT MARKING

INTERSECTION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

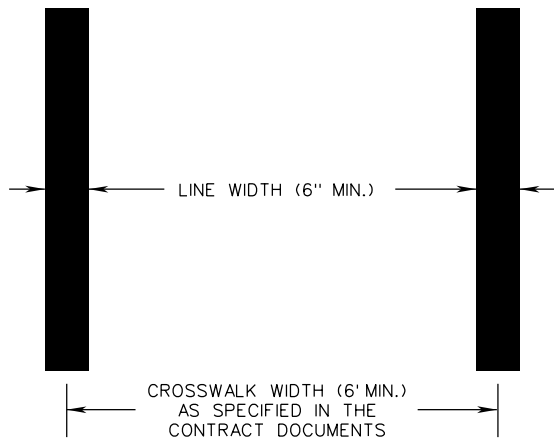
ROAD AND BRIDGE STANDARDS

REVISION DATE

NEW 01/15

SHEET 3 OF 4

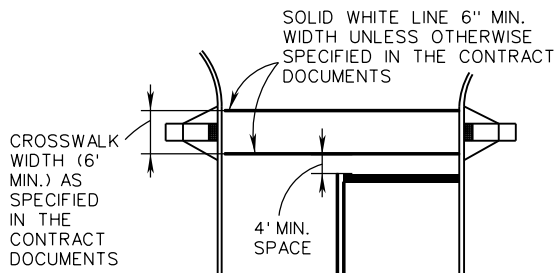
1330.32



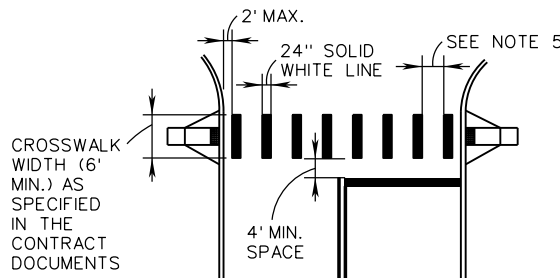
**CROSSWALK WIDTH
(TRANSVERSE LINES)**

NOTES:

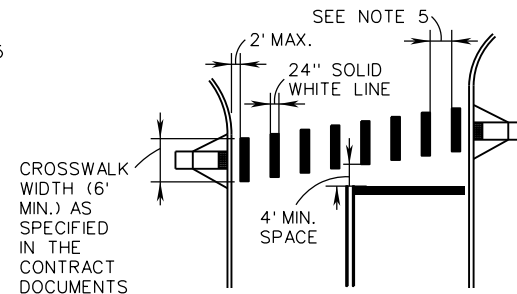
1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE LOCATION, WIDTH, AND TYPE OF THE PAVEMENT MARKINGS SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. CROSSWALKS SHALL ALIGN WITH CURB RAMPS IN ACCORDANCE WITH STANDARD CG-12. THE CROSSWALK SHALL BE AT LEAST AS WIDE AS THE LEVEL LANDING AREA OF THE CURB RAMP.
4. WHEN LONGITUDINAL LINES ARE SPECIFIED FOR THE CROSSWALK, THE LONGITUDINAL LINES SHALL BE PARALLEL TO THE PATH OF THRU TRAFFIC.
5. GAPS BETWEEN LONGITUDINAL LINES SHALL BE BETWEEN 2 - 5 FEET. GAP SPACING MAY VARY IN ORDER TO ALIGN LINES SUCH THAT THEY ARE OUTSIDE THE WHEEL PATHS OF THRU TRAFFIC. THE FIRST AND LAST LINES SHALL BE 2' MAXIMUM FROM EDGE OF SHOULDER OR EDGE OF GUTTER PAN.



TRANSVERSE LINES



LONGITUDINAL LINES



**LONGITUDINAL LINES
AT SKEWED INTERSECTIONS
(SEE NOTE 4)**



ROAD AND BRIDGE STANDARDS

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

TYPICAL PAVEMENT MARKING

SPECIFICATION
REFERENCE

SHEET 4 OF 4

REVISION DATE

CROSSWALK MARKINGS

704

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SPECIFICATION
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ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

--

TURN LANE ARROWS

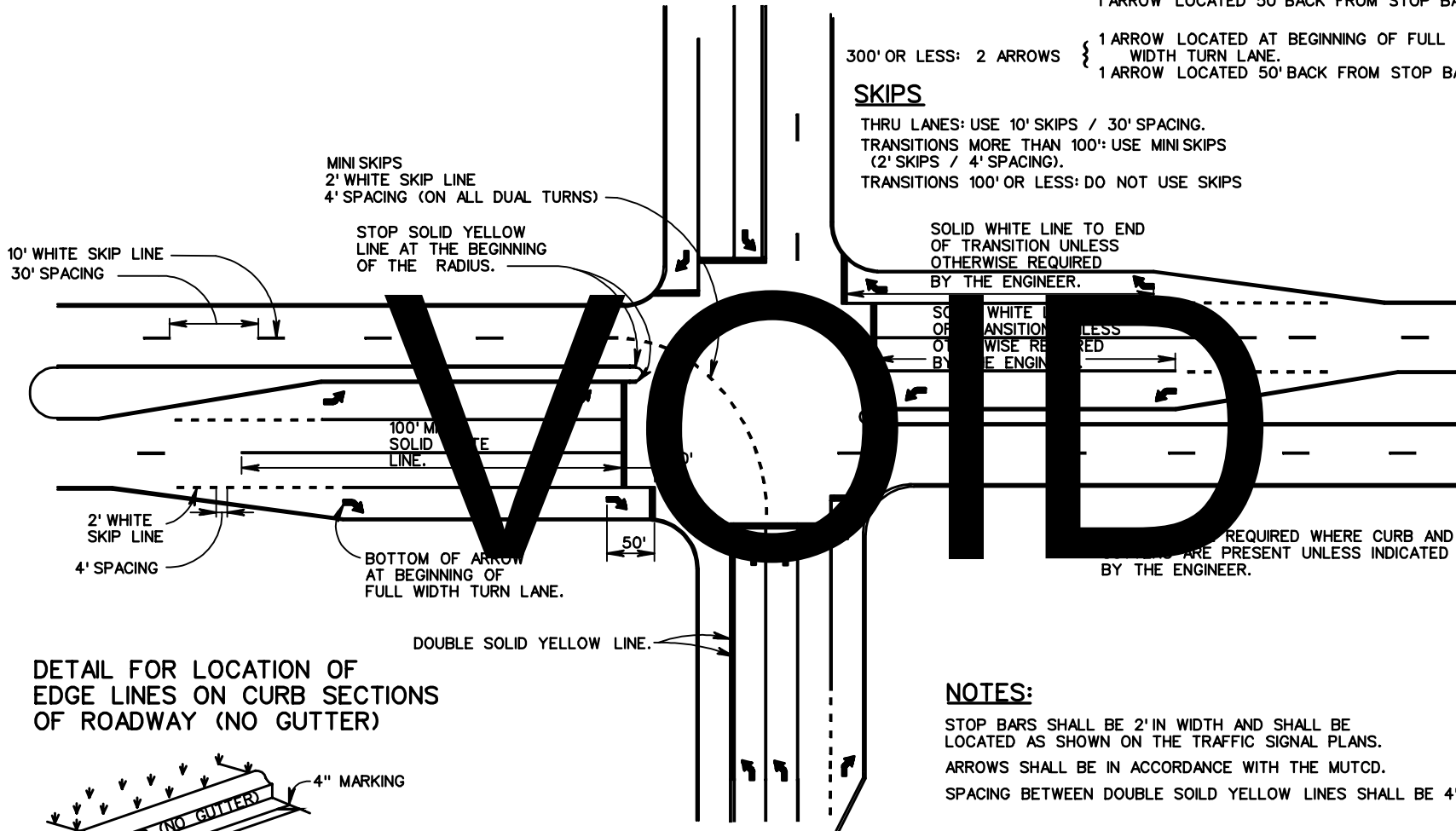
TURN ARROWS REQUIRED IN ACCORDANCE WITH THE FOLLOWING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TURN LANE LENGTH

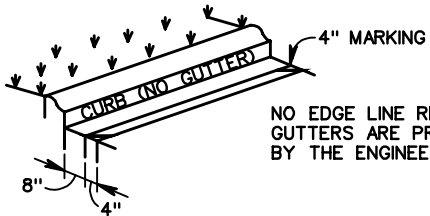
- 301' OR LONGER: 3 ARROWS { 1 ARROW LOCATED AT BEGINNING OF FULL WIDTH TURN LANE.
1 ARROW LOCATED AT MIDPOINT OF FULL WIDTH TURN LANE.
1 ARROW LOCATED 50' BACK FROM STOP BAR.
- 300' OR LESS: 2 ARROWS { 1 ARROW LOCATED AT BEGINNING OF FULL WIDTH TURN LANE.
1 ARROW LOCATED 50' BACK FROM STOP BAR.

SKIPS

THRU LANES: USE 10' SKIPS / 30' SPACING.
TRANSITIONS MORE THAN 100': USE MINI SKIPS (2' SKIPS / 4' SPACING).
TRANSITIONS 100' OR LESS: DO NOT USE SKIPS



DETAIL FOR LOCATION OF EDGE LINES ON CURB SECTIONS OF ROADWAY (NO GUTTER)



SOLID WHITE LINE TO END OF TRANSITION UNLESS OTHERWISE REQUIRED BY THE ENGINEER.

SO... WHITE... OF... ANSITION... LESS... OTHERWISE RE... BY... E ENGIN...

REQUIRED WHERE CURB AND... ARE PRESENT UNLESS INDICATED BY THE ENGINEER.

NOTES:

- STOP BARS SHALL BE 2' IN WIDTH AND SHALL BE LOCATED AS SHOWN ON THE TRAFFIC SIGNAL PLANS.
- ARROWS SHALL BE IN ACCORDANCE WITH THE MUTCD.
- SPACING BETWEEN DOUBLE SOLID YELLOW LINES SHALL BE 4".

VDOT	
ROAD AND BRIDGE STANDARDS	
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**TYPICAL PAVEMENT MARKING
SIGNALIZED INTERSECTIONS**

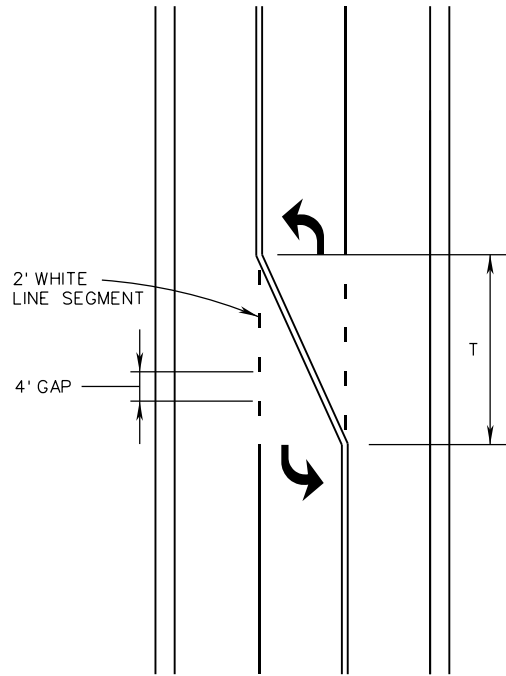
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

704

NOTES:

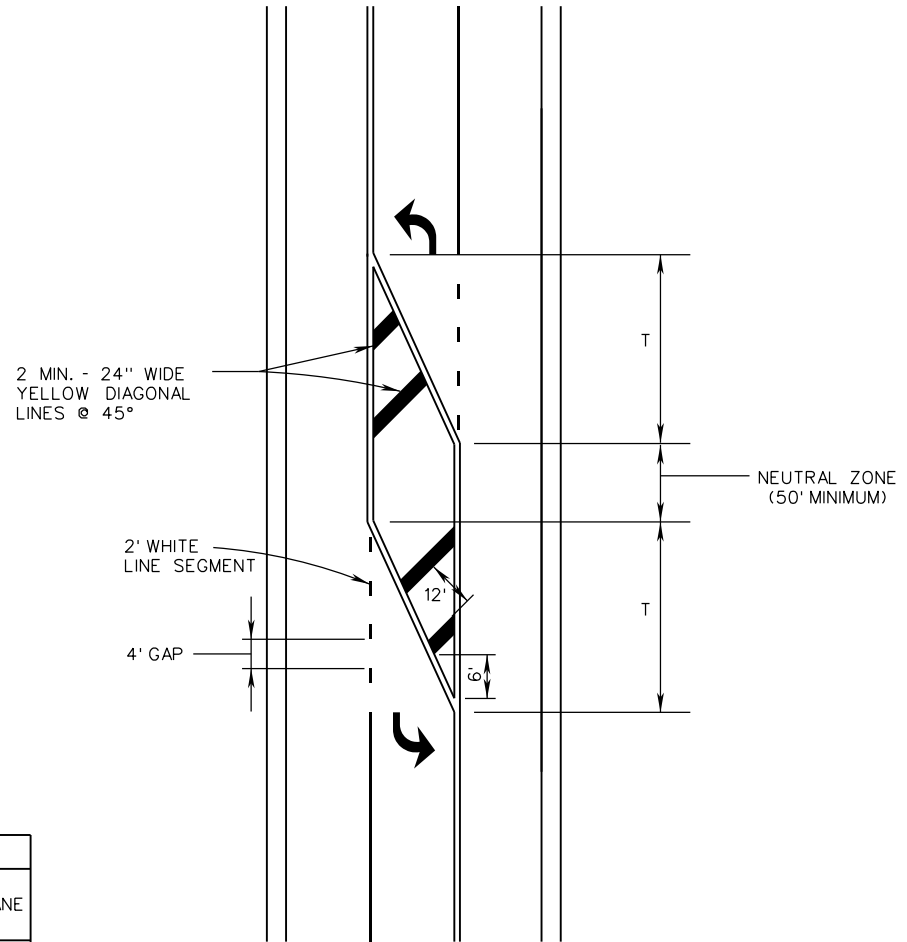
1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. TAPER LENGTH SHALL BE PER THESE STANDARDS UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. TAPERS MORE THAN 100': USE DOTTED EXTENSION (2' LINE SEGMENTS / 4' GAPS).
TAPERS 100' OR LESS: DO NOT USE DOTTED EXTENSION UNLESS SPECIFIED IN THE CONTRACT DOCUMENTS.
4. TURN ARROWS SHALL BE IN ACCORDANCE WITH PM-3.
5. THE PAVEMENT MARKINGS SHALL BE 4" WIDE UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.



WITHOUT NEUTRAL ZONE

TAPER LENGTH (T) TABLE

SPEED	TAPER RATIO	T		
		10 FT TURN LANE WIDTH	11 FT TURN LANE WIDTH	12 FT TURN LANE WIDTH
≤ 30 MPH	8:1	80'	90'	100'
> 30 MPH	15:1	150'	175'	200'



WITH NEUTRAL ZONE

SPECIFICATION REFERENCE

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TYPICAL PAVEMENT MARKING
LEFT TURN PAVEMENT MARKED MEDIAN

VIRGINIA DEPARTMENT OF TRANSPORTATION

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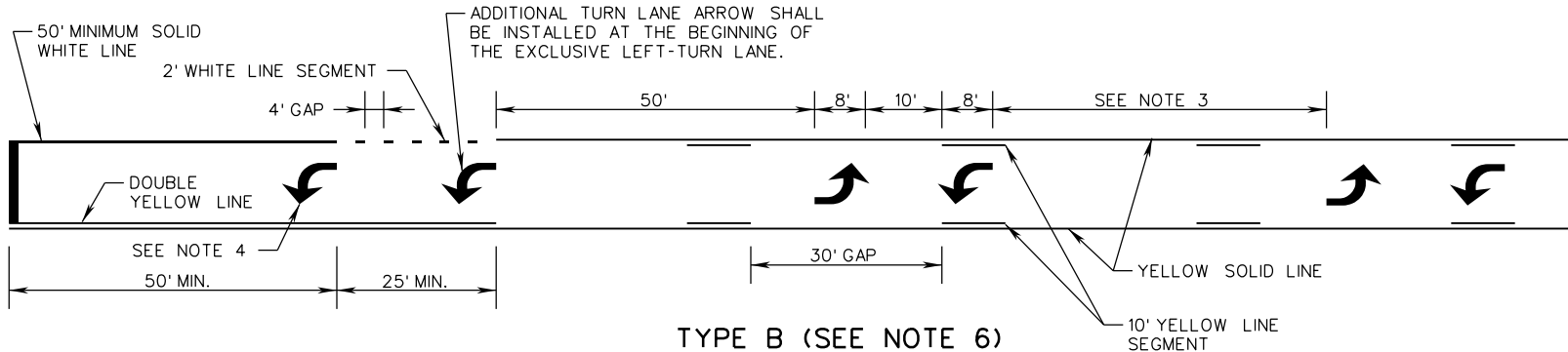
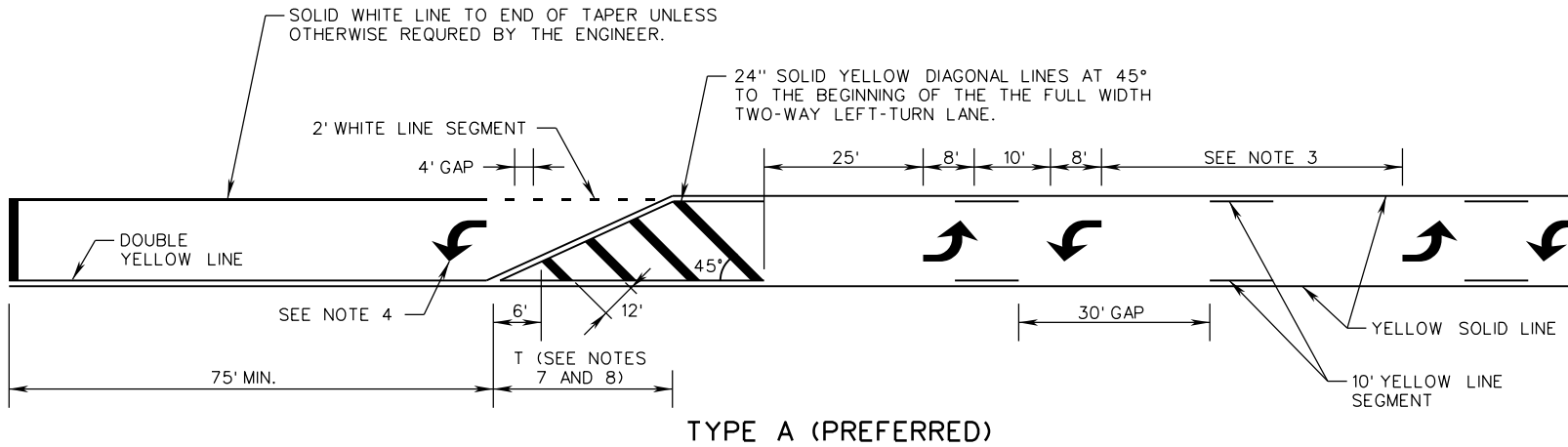
ROAD AND BRIDGE STANDARDS

REVISION DATE

01/15

SHEET 1 OF 2

1330.50



NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THE PAVEMENT MARKINGS SHALL BE 4" WIDE UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.
3. TYPICAL SPACING BETWEEN OPPOSING TURN ARROWS SHALL BE 300 FEET. SPACING CAN BE INCREASED OR DECREASED AS DETERMINED BY THE ENGINEER.
4. TURN ARROWS SHALL BE IN ACCORDANCE WITH PM-3.
5. STOP LINES SHALL BE 24 INCHES IN WIDTH. STOP LINES SHALL ONLY BE USED AT SIGNALIZED INTERSECTIONS OR ON STOP-CONTROLLED APPROACHES.
6. THE DETAIL FOR TYPE B MAY BE USED IN AREAS WHERE THE AVAILABLE STORAGE LENGTH IS LIMITED.
7. REFER TO THE TAPER LENGTH TABLE ON SHEET 1 FOR "T". TAPER LENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
8. TAPERS MORE THAN 100': USE DOTTED EXTENSION (2' LINE SEGMENTS / 4' GAPS). TAPERS 100' OR LESS: DO NOT USE DOTTED EXTENSION UNLESS SPECIFIED IN THE CONTRACT DOCUMENTS.

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TYPICAL PAVEMENT MARKING

TWO-WAY LEFT-TURN LANE

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

704



ROAD AND BRIDGE STANDARDS

SHEET 2 OF 2

REVISION DATE

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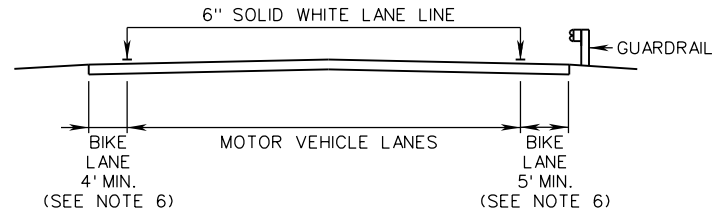
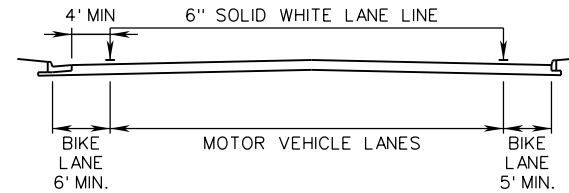
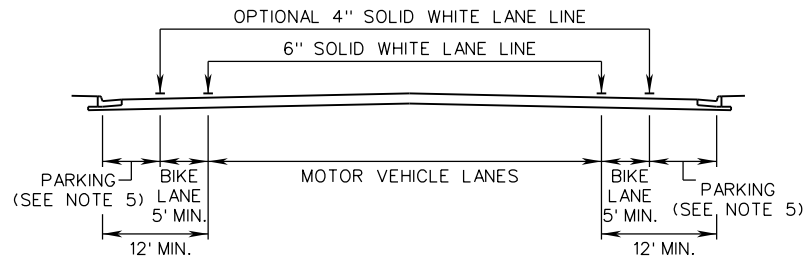
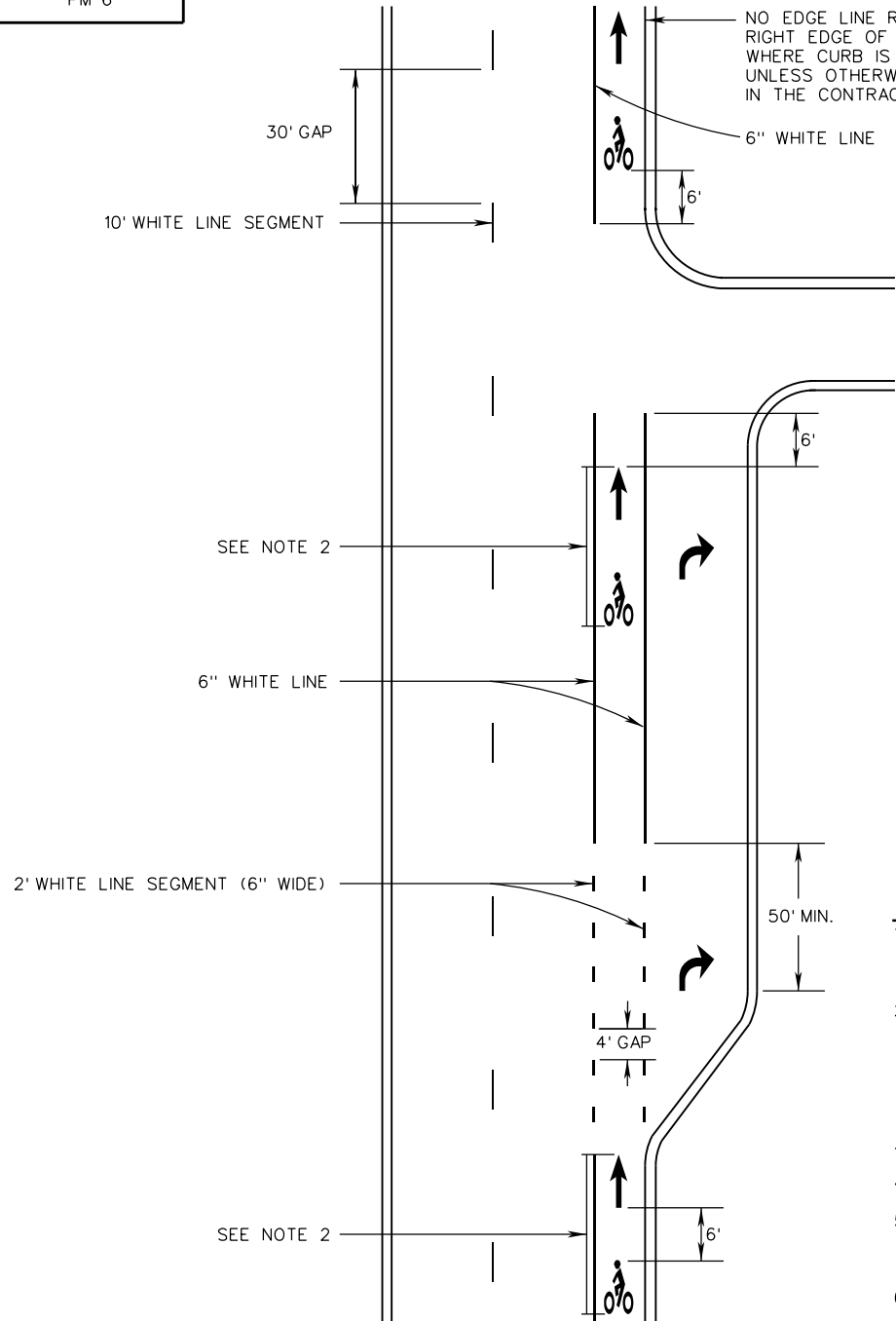


ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

--



TYPICAL BIKE LANE CROSS SECTIONS

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. PAVEMENT MARKINGS CONSISTING OF BICYCLIST THRU ARROW AND HELMETED BICYCLIST SYMBOL SHALL BE PLACED JUST PRIOR TO THE BEGINNING OF THE RIGHT TURN LANE TAPER AS SHOWN. THEY SHALL ALSO BE PLACED 6' FROM THE END OF THE SOLID WHITE LINE AT RIGHT TURN LANES IF THE SOLID WHITE LINE SEPARATING THE BICYCLE LANE FROM THE RIGHT TURN LANE IS GREATER THAN 100' IN LENGTH.
3. BICYCLE LANE SYMBOLS SHALL BE PLACED A MAXIMUM OF 500' APART.
4. SEE PM-10 FOR HELMETED BICYCLIST SYMBOL AND ARROW DETAILS.
5. PARKING LANE WIDTH SHALL BE 7' FOR RESIDENTIAL STREETS AND 8' FOR COMMERCIAL AND MIXED-USE STREETS. REFER TO THE VDOT ROAD DESIGN MANUAL FOR ADDITIONAL REQUIREMENTS.
6. DELINEATING BICYCLE LANES WITHIN THE LIMITS OF A REQUIRED PAVED SHOULDER AREA IS NOT PERMITTED.

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**TYPICAL PAVEMENT MARKING
BICYCLE LANE**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

704



ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

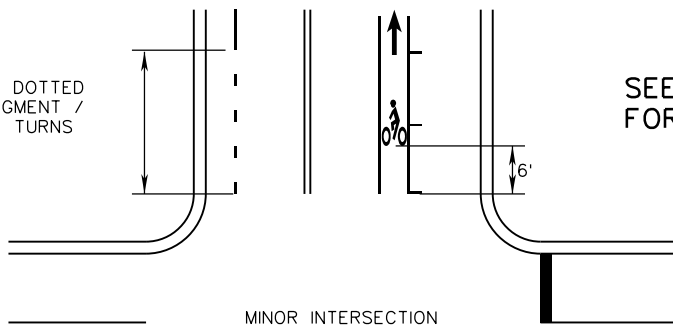
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50' TO 200' OF DOTTED LINE (2' LINE SEGMENT / 4' GAP) IF RIGHT TURNS ARE PERMITTED

SEE SHEET 1 FOR NOTES.



MINOR INTERSECTION

NO EDGE LINE REQUIRED ON RIGHT EDGE OF BICYCLE LANE WHERE CURB IS PRESENT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

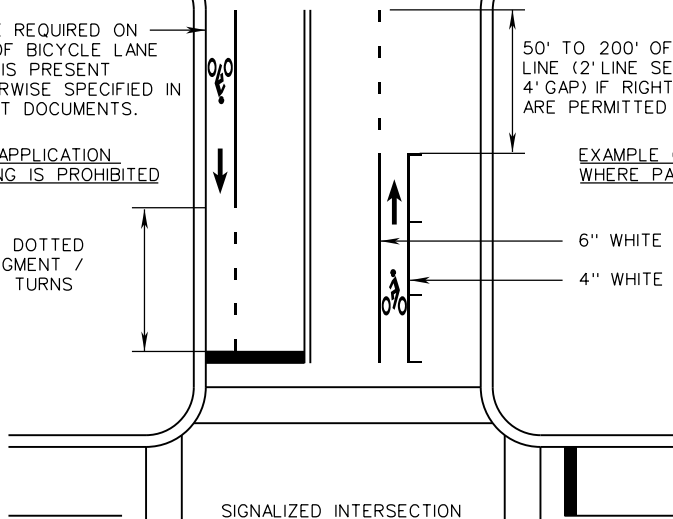
EXAMPLE OF APPLICATION WHERE PARKING IS PROHIBITED

50' TO 200' OF DOTTED LINE (2' LINE SEGMENT / 4' GAP) IF RIGHT TURNS ARE PERMITTED

50' TO 200' OF DOTTED LINE (2' LINE SEGMENT / 4' GAP) IF RIGHT TURNS ARE PERMITTED

EXAMPLE OF APPLICATION WHERE PARKING IS PERMITTED

6" WHITE LINE
4" WHITE LINE

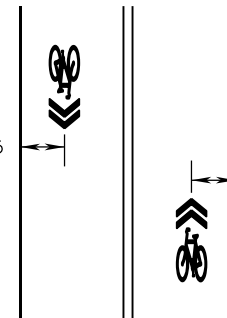


SIGNALIZED INTERSECTION

OPTIONAL DOTTED LINE FOR BUS STOPS IMMEDIATELY BEYOND THE INTERSECTION

50' TO 200' OF DOTTED LINE (2' LINE SEGMENT / 4' GAP) IF RIGHT TURNS ARE PERMITTED

SEE NOTES 4 AND 5



SEE NOTES 4 AND 5

MARKED SHARED LANE

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. SHARED LANE MARKINGS SHALL NOT BE USED IN PAVED SHOULDERS, IN BICYCLE LANES, OR ON ROADWAYS THAT HAVE A SPEED LIMIT ABOVE 35 MPH.
3. SHARED LANE MARKINGS SHALL BE PLACED IMMEDIATELY AFTER AN INTERSECTION AND SPACED AT INTERVALS NOT GREATER THAN 250 FEET.
4. IN SHARED LANES WITH ON-STREET PARALLEL PARKING, THE CENTER OF THE SHARED LANE MARKINGS SHALL BE AT LEAST 11' FROM THE FACE OF CURB, OR FROM THE EDGE OF PAVEMENT WHERE THERE IS NO CURB.
5. ON STREETS WITHOUT ON-STREET PARKING AND AN OUTSIDE TRAVEL LANE LESS THAN 14' WIDE, THE CENTER OF THE SHARED LANE MARKINGS SHALL BE AT LEAST 4' FROM THE FACE OF CURB, OR FROM THE EDGE OF PAVEMENT WHERE THERE IS NO CURB.
6. SEE PM-10 FOR SHARED LANE MARKING SYMBOL DETAILS.

SPECIFICATION REFERENCE

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**TYPICAL PAVEMENT MARKING
BICYCLE LANE AND MARKED SHARED LANE**

VIRGINIA DEPARTMENT OF TRANSPORTATION

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ROAD AND BRIDGE STANDARDS

REVISION DATE
NEW 01/15

SHEET 2 OF 2

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ROAD AND BRIDGE STANDARDS

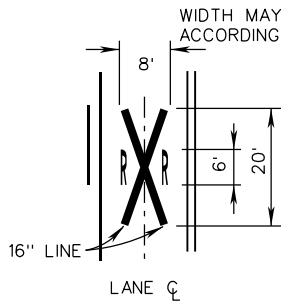
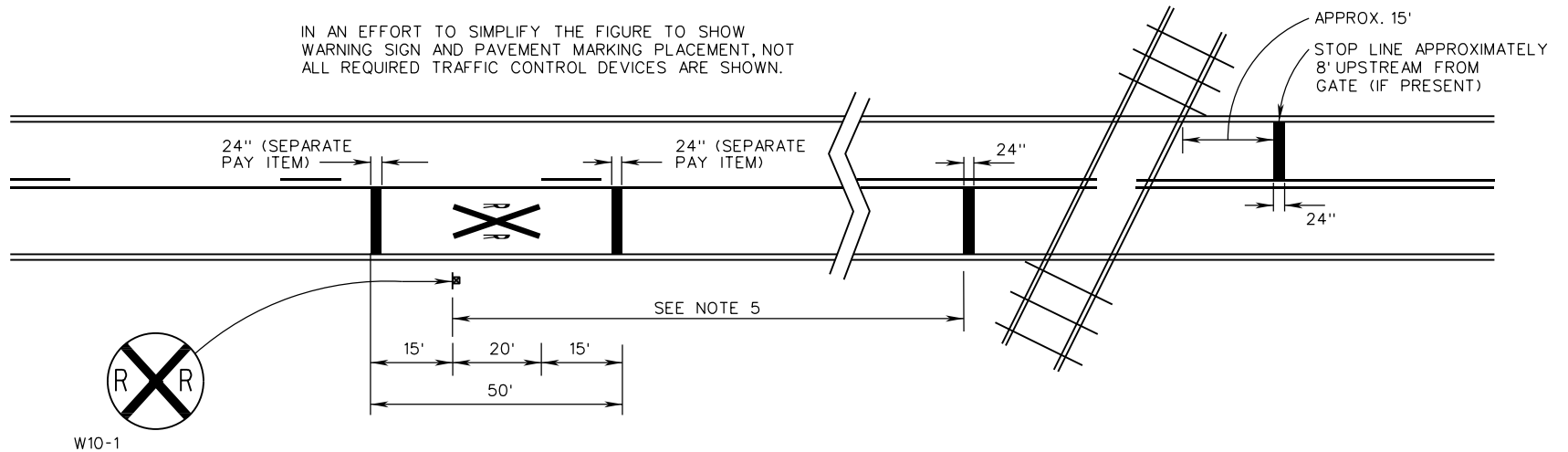
SHEET 1 OF 1

REVISION DATE

SPECIFICATION
REFERENCE

VIRGINIA DEPARTMENT OF TRANSPORTATION

IN AN EFFORT TO SIMPLIFY THE FIGURE TO SHOW WARNING SIGN AND PAVEMENT MARKING PLACEMENT, NOT ALL REQUIRED TRAFFIC CONTROL DEVICES ARE SHOWN.



A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1). IF NEEDED, SUPPLEMENTAL PAVEMENT MARKING SYMBOLS MAY BE PLACED BETWEEN THE ADVANCE WARNING SIGN AND THE CROSSING, BUT SHOULD BE AT LEAST 50' FROM THE STOP OR YIELD LINE.

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS, THE MUTCD, AND THE VIRGINIA SUPPLEMENT TO THE MUTCD, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2. ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHALL EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RAILROAD CROSSING (RXR) SYMBOLS SHALL BE USED IN EACH APPROACH LANE.
3. SEE PM-10 FOR RAILROAD CROSSING (RXR) SYMBOLS DETAILS.
4. REFER TO THE MUTCD FOR SIGNING REQUIREMENTS AT PASSIVE GRADE CROSSINGS (NO AUTOMATED TRAFFIC CONTROL DEVICES).
5. THE PLACEMENT OF THE GRADE CROSSING ADVANCE WARNING (W10-1) SIGN SHALL BE IN ACCORDANCE WITH SECTION 2C.05 AND TABLE 2C-4 (CONDITION B) OF THE MUTCD.
6. YIELD LINES MAY BE USED INSTEAD OF STOP LINES AT PASSIVE GRADE CROSSINGS WITH YIELD SIGNS INSTALLED.

SPECIFICATION REFERENCE

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**TYPICAL PAVEMENT MARKING
RAILROAD - HIGHWAY GRADE CROSSING**

VIRGINIA DEPARTMENT OF TRANSPORTATION

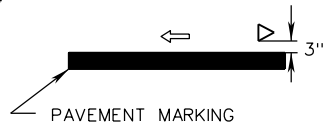
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ROAD AND BRIDGE STANDARDS

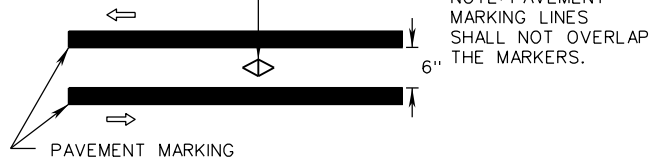
REVISION DATE
01/15

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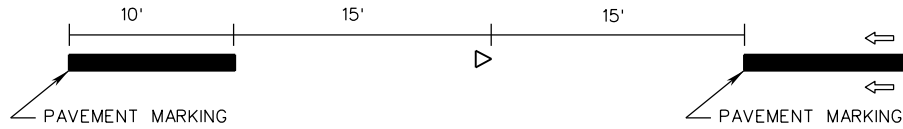


MARKERS ADJACENT TO SOLID LINE



MARKERS BETWEEN DOUBLE SOLID LINES

NOTE: PAVEMENT MARKING LINES SHALL NOT OVERLAP THE MARKERS.

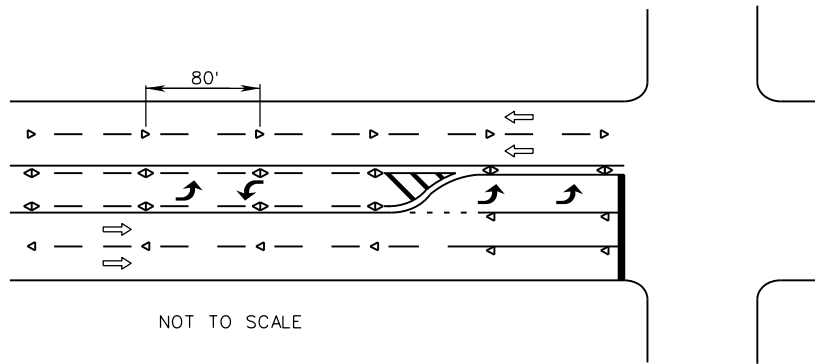


MARKERS SUPPLEMENTING BROKEN LINES

KEY:

- ◊ TWO WAY TRAFFIC MARKER, WITH POINTS INDICATING RETROREFLECTIVE FACE
- ◄ ONE WAY TRAFFIC MARKER, WITH POINT INDICATING RETROREFLECTIVE FACE
- ⇒ INDICATES DIRECTION OF TRAVEL

GENERAL PLACEMENT



NOT TO SCALE

NOTES:

1. EXACT LOCATIONS OF THE MARKERS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. TYPICAL SPACING SHALL BE 80' C-C WHEN USED ON A TANGENT SECTION OF ROADWAY OR ON HORIZONTAL CURVES LESS THAN 3°, AND SHALL BE 40' C-C WHEN USED ON HORIZONTAL CURVES OF 3° OR MORE, UNLESS OTHERWISE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER. SEE SHEET 2 FOR SPECIFIC EXAMPLES.
3. ALL RAISED PAVEMENT MARKERS SHALL BE INSTALLED AT LEAST 2 INCHES FROM ANY SEAM OR PAVEMENT JOINT.
4. RAISED PAVEMENT MARKERS SHALL BE THE SAME COLOR AS THE ADJACENT PAVEMENT MARKING. THE COLOR OF THE BACKSIDE OF RAISED PAVEMENT MARKERS SHALL BE AS SHOWN IN THE TABLE BELOW.
5. ALL RAISED PAVEMENT MARKERS SHALL BE SNOWPLOWABLE RAISED PAVEMENT MARKERS (SRPMS) UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.
6. RAISED PAVEMENT MARKERS SHALL BE OMITTED ON BRIDGE DECKS UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.

TWO-WAY LEFT TURN LANE AND CENTER LANE LEFT TURN

RAISED PAVEMENT MARKER COLOR		
MARKER TYPE		BACKSIDE COLOR
ONE WAY TRAFFIC	WHITE SNOWPLOWABLE RAISED	RED
	TEMPORARY	BLANK
	YELLOW SNOWPLOWABLE RAISED	BLANK
TWO WAY TRAFFIC	ALL TYPES	MATCH ADJACENT PAVEMENT MARKING

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TYPICAL RAISED PAVEMENT MARKER

LOCATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

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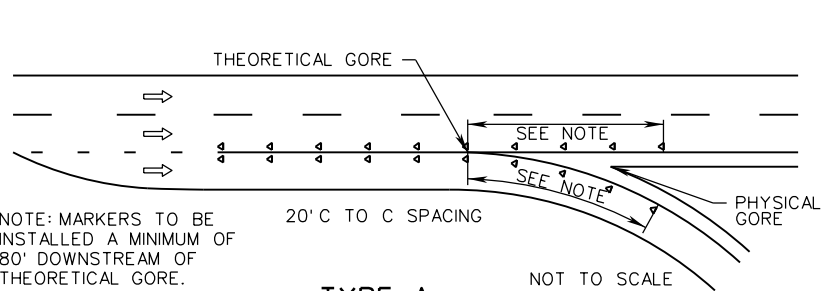
ROAD AND BRIDGE STANDARDS

SHEET 1 OF 2

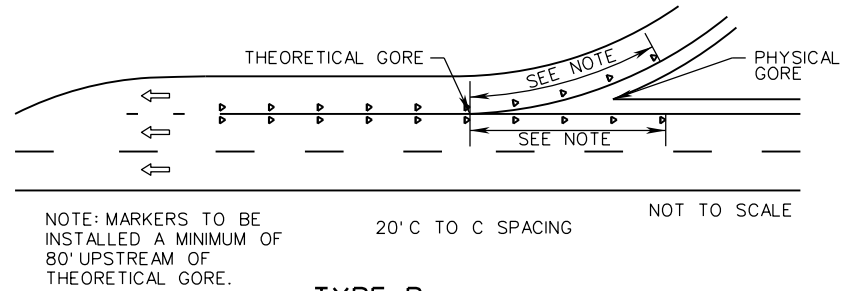
REVISION DATE

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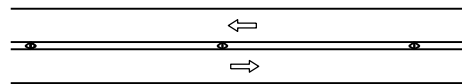
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TYPE A
EXIT RAMP



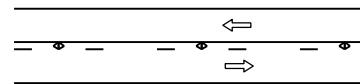
TYPE B
ENTRANCE RAMP



80' C-C ON TANGENTS
40' C-C ON HORIZONTAL CURVES OF 3° OR MORE

NOTE: SHALL BE USED WHEN SEAM IS NOT LOCATED BETWEEN DOUBLE YELLOW LINE, OR WHEN DIRECTED BY THE ENGINEER OR CONTRACT DOCUMENTS.

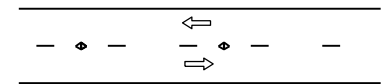
TYPE C
TWO OR MULTI-LANE UNDIVIDED HIGHWAY



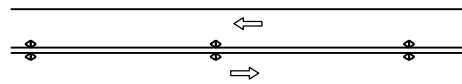
80' C-C ON TANGENTS
40' C-C ON HORIZONTAL CURVES OF 3° OR MORE

NOTE: SHALL BE USED WHEN SEAM IS NOT LOCATED BETWEEN YELLOW LINE AND BROKEN YELLOW LINE, OR WHEN DIRECTED BY THE ENGINEER OR CONTRACT DOCUMENTS.

TYPE D
ONE-WAY PASSING ZONE



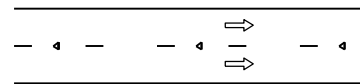
TYPE E
TWO-WAY PASSING ZONE



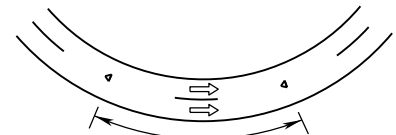
80' C-C ON TANGENTS
40' C-C ON HORIZONTAL CURVES OF 3° OR MORE

NOTE: SHALL BE USED WHEN SEAM IS LOCATED BETWEEN DOUBLE YELLOW LINE, OR WHEN DIRECTED BY THE ENGINEER OR CONTRACT DOCUMENTS.

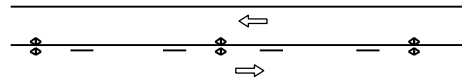
TYPE F
TWO OR MULTI-LANE UNDIVIDED HIGHWAY



TYPE G
MULTI-LANE HIGHWAY TANGENT



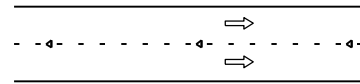
TYPE H
MULTI-LANE HIGHWAY HORIZONTAL CURVES OF 3° OR MORE



80' C-C ON TANGENTS
40' C-C ON HORIZONTAL CURVES OF 3° OR MORE

NOTE: SHALL BE USED WHEN SEAM IS LOCATED BETWEEN YELLOW LINE AND BROKEN YELLOW LINE, OR WHEN DIRECTED BY THE ENGINEER OR CONTRACT DOCUMENTS.

TYPE I
ONE-WAY PASSING ZONE



TYPE J
MULTI-LANE HIGHWAY LANE DROP OR AUXILIARY LANE

KEY:

- ◊ TWO WAY TRAFFIC MARKER, WITH POINTS INDICATING RETROREFLECTIVE FACE
- ◄ ONE WAY TRAFFIC MARKER, WITH POINT INDICATING RETROREFLECTIVE FACE
- ⇒ INDICATES DIRECTION OF TRAVEL

SPECIFICATION REFERENCE

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TYPICAL RAISED PAVEMENT MARKER LOCATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

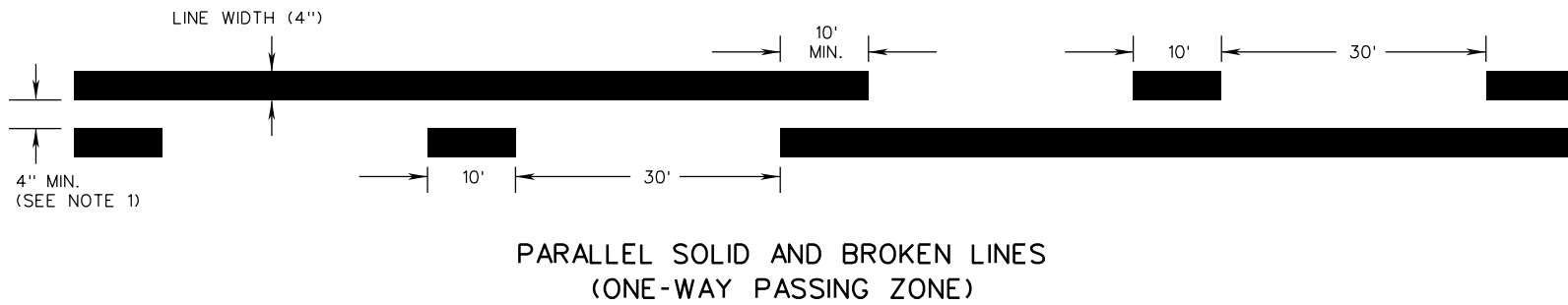
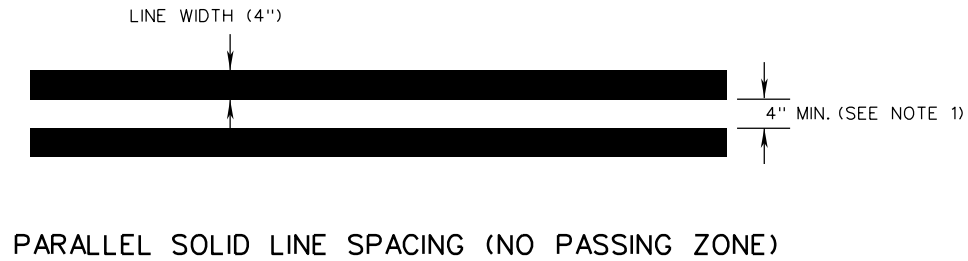
ROAD AND BRIDGE STANDARDS

REVISION DATE

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SHEET 2 OF 2

1330.81



NOTES:

1. THE SPACE BETWEEN TWO PARALLEL LINES SHALL BE 6" WIDE IF RAISED PAVEMENT MARKERS ARE PRESENT BETWEEN THE TWO PARALLEL LINES.



ROAD AND BRIDGE STANDARDS

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

PAVEMENT MARKING

SPECIFICATION REFERENCE

LOCATION DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

704

SHEET 1 OF 1

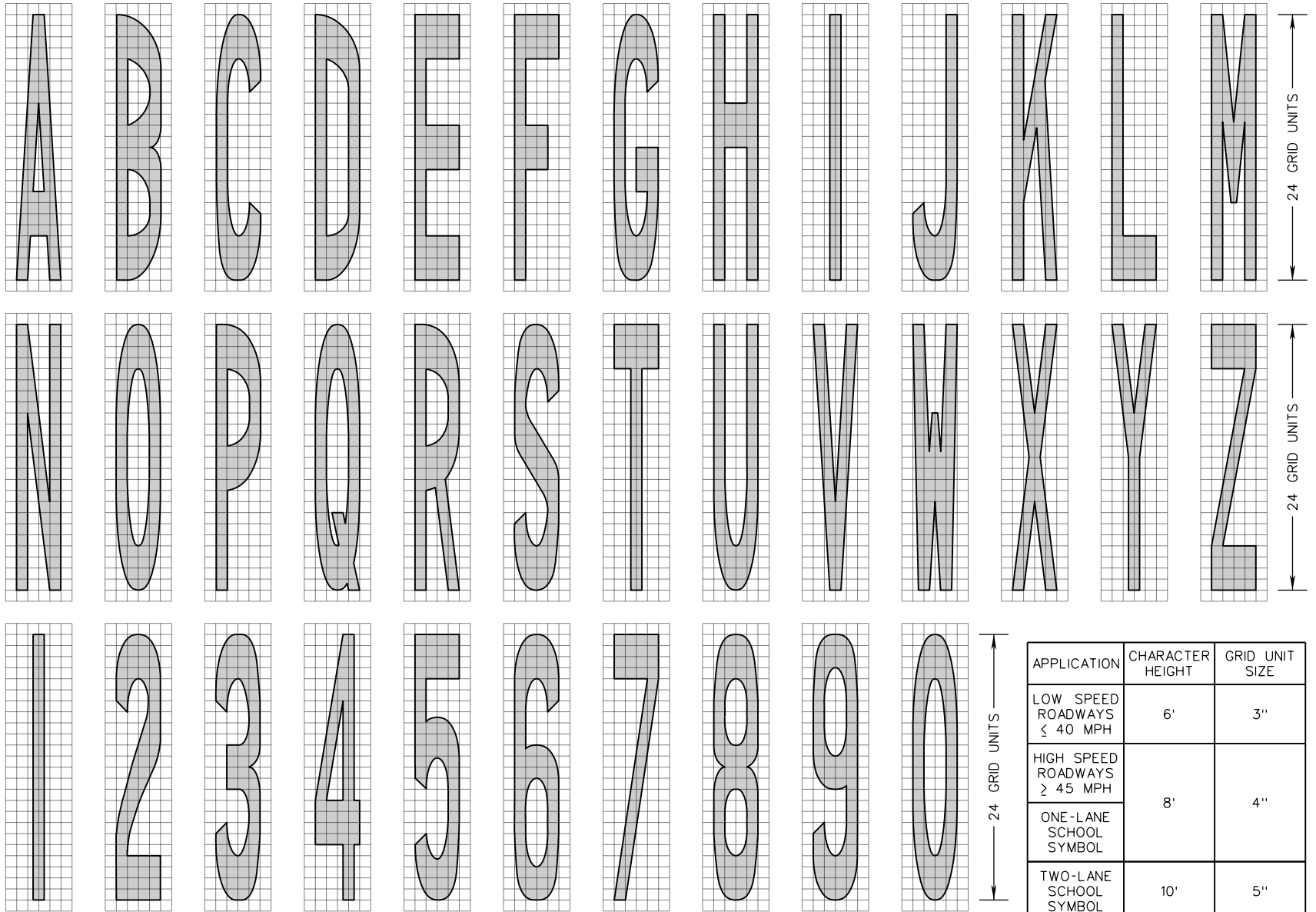
REVISION DATE

1330.90

01/15

4 GRID UNITS

1 GRID UNIT



1 GRID UNIT

NOTES:

1. STANDARD CHARACTERS ARE 24 GRID UNITS HIGH AND 4 GRID UNITS WIDE (EXCEPT LETTER "I" AND THE NUMBER "1" WHICH ARE 1 GRID UNIT WIDE).
2. VERTICAL STROKES ARE 1 UNIT WIDE, HORIZONTAL STROKES ARE 4 UNITS HIGH.
3. SPACE 1 GRID UNIT MINIMUM BETWEEN CHARACTERS OR AS OTHERWISE SHOWN (OPTICAL SPACING MAY BE USED).

APPLICATION	CHARACTER HEIGHT	GRID UNIT SIZE
LOW SPEED ROADWAYS ≤ 40 MPH	6'	3"
HIGH SPEED ROADWAYS ≥ 45 MPH	8'	4"
ONE-LANE SCHOOL SYMBOL		
TWO-LANE SCHOOL SYMBOL	10'	5"

SPECIFICATION REFERENCE

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PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
LETTERS AND NUMERALS DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

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SHEET 1 OF 15

1340.10

SQUARE FOOT AREAS OF PAVEMENT WORD MARKINGS

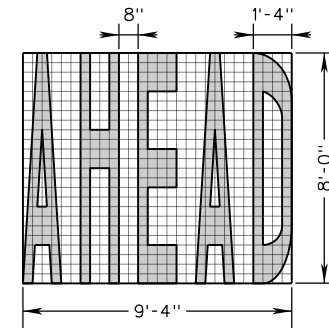
LEGEND	PAINT APPLICATION		ERADICATION	
	6' HIGH	8' HIGH	6' HIGH	8' HIGH
AHEAD	17.5	30.5	42.0	75.0
AREA	14.0	24.5	33.0	59.0
BIKE	13.0	23.0	28.5	51.0
BUMP	15.0	26.5	33.0	59.0
EAST	13.0	22.5	33.0	59.0
ENDS	15.0	27.0	33.0	59.0
FT	5.0	9.0	15.0	27.0
HUMP	14.5	25.5	33.0	59.0
LANE	13.5	23.5	33.0	59.0
LEFT	11.0	20.0	33.0	59.0
MERGE	19.0	34.0	42.0	75.0
MPH	11.0	19.5	24.0	43.0
NO	8.0	13.5	15.0	27.0
NORTH	17.5	30.5	42.0	75.0

SQUARE FOOT AREAS OF PAVEMENT WORD MARKINGS

LEGEND	PAINT APPLICATION		ERADICATION	
	6' HIGH	8' HIGH	6' HIGH	8' HIGH
ONLY	12.0	21.5	30.5	53.5
PED	11.0	19.0	24.0	43.0
RIGHT	14.5	26.0	37.5	67.0
SCHOOL	(SEE NOTES 1 AND 2)	34.5 (ONE LANE)	(SEE NOTES 1 AND 2)	91.0 (ONE LANE)
SIGNAL	15.5	28.0	46.5	83.0
SLOW	13.5	24.0	33.0	59.0
SOUTH	16.5	29.0	42.0	75.0
STOP	12.5	22.5	33.0	59.0
TO	6.0	10.5	15.0	27.0
TURN	13.5	24.0	33.0	59.0
US	7.0	12.5	15.0	27.0
WEST	14.0	24.5	33.0	59.0
XING	12.0	21.0	28.5	51.0
YIELD	13.5	24.0	37.5	67.0

NOTES:

- ONE-LANE APPLICATION OF "SCHOOL" SYMBOL IS 8' HIGH. WHEN INSTALLED IN A SINGLE LANE WITH A WIDTH LESS THAN 10.5', THE LETTERS SHALL BE SEPARATED BY THREE INCHES. WHEN INSTALLED IN A SINGLE LANE WITH A WIDTH GREATER THAN 10.5', THE LETTERS SHALL BE SEPARATED BY FOUR INCHES.
- TWO-LANE APPLICATION OF "SCHOOL" SYMBOL IS 10' HIGH WITH PAINT APPLICATION AREA OF 53.5 SQ.FT. AND ERADICATION AREA OF 193.0 SQ.FT.
- NON-LINEAR ERADICATION AREA IS BASED ON A "THEORETICAL BOX" DEFINED BY THE OUTERMOST LIMITS OF THE NON-LINEAR PAVEMENT MARKING THAT INCLUDES BOTH THE PAINTED AND NON-PAINTED AREAS THAT ENCOMPASS THE TOTAL WORD MESSAGE OR SYMBOL. SEE EXAMPLE.
- ON UNDIVIDED ROADWAYS, SYMBOL AND MESSAGE PAVEMENT MARKINGS SHALL NOT EXTEND BEYOND THE CENTERLINE INTO OPPOSING TRAVEL LANES.



ERADICATION AREA = 8'-0" x 9'-4" ≈ 74.7 SQ.FT.

**THEORETICAL BOX
ERADICATION AREA
EXAMPLE (8' LETTERS)**



ROAD AND BRIDGE STANDARDS

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PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
WORDS DETAILS

SPECIFICATION REFERENCE

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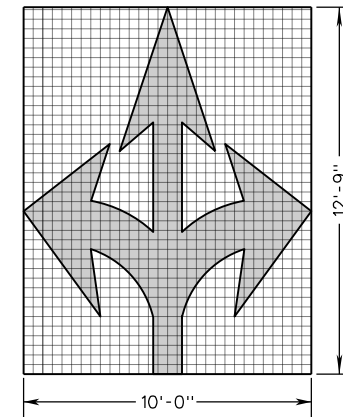
1340.11

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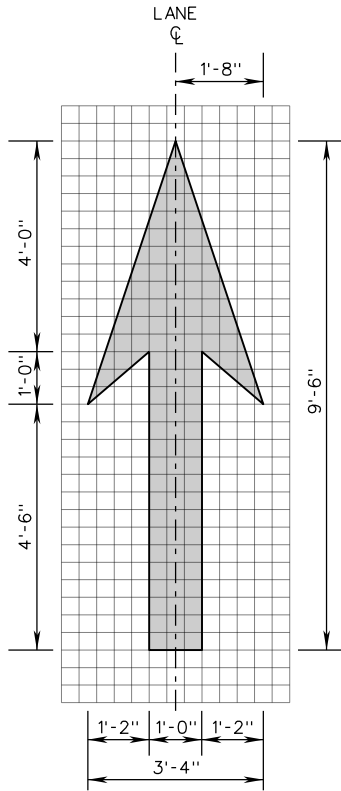
SQUARE FOOT AREAS OF SYMBOLS AND ARROWS			
SYMBOL	DESCRIPTION	PAINT APPLICATION	ERADICATION
	THRU ARROW	12.0	32.0
	SINGLE TURN ARROW (LEFT OR RIGHT)	17.5	51.0
	DOUBLE TURN ARROW (LEFT/THROUGH OR RIGHT/THROUGH)	28.5	96.0
	TRIPLE TURN ARROW (LEFT/THROUGH/RIGHT)	37.5	127.5
	DOUBLE TURN ARROW (LEFT/RIGHT)	27.0	80.0
	LANE-REDUCTION ARROW (LEFT OR RIGHT)	44.0	99.0
	WRONG-WAY ARROW	24.0	133.5
	FISH-HOOK LANE-USE ARROW FOR ROUNDABOUTS (LEFT)	20.5	81.0
	FISH-HOOK LANE-USE ARROW FOR ROUNDABOUTS (LEFT/THROUGH)	31.0	114.5
	FISH-HOOK LANE-USE ARROW FOR ROUNDABOUTS (LEFT/THROUGH/RIGHT)	39.5	195.0
	FISH-HOOK LANE-USE ARROW FOR ROUNDABOUTS (THROUGH/RIGHT)	31.5	142.0
	OPTIONAL OVAL FOR FISH-HOOK LANE-USE ARROW FOR ROUNDABOUTS	3.5	4.5
	HOV DIAMOND SYMBOL (ASPHALT SURFACE)	11.5	39.0
	HOV DIAMOND CONTRAST SYMBOL (CONCRETE SURFACE)	35.5	70.0
	YIELD LINE TRIANGLE (1' x 1.5')	0.75 (EACH)	1.5 (EACH)
	YIELD LINE TRIANGLE (2' x 3')	3.0 (EACH)	6.0 (EACH)

SQUARE FOOT AREAS OF SYMBOLS AND ARROWS			
SYMBOL	DESCRIPTION	PAINT APPLICATION	ERADICATION
	BICYCLIST THRU ARROW	5.0	12.0
	BICYCLIST TURN ARROW (LEFT OR RIGHT)	9.5	29.0
	HELMETED BICYCLIST SYMBOL	6.5	20.0
	SHARED LANE MARKING SYMBOL	10.0	31.5
	SMALL YIELD AHEAD TRIANGLE	26.0	78.0
	LARGE YIELD AHEAD TRIANGLE	37.0	120.0
	RAILROAD CROSSING SYMBOL	60.0	160.0
	INTERNATIONAL SYMBOL OF ACCESSIBILITY - SPECIAL SIZED	22.0	22.5

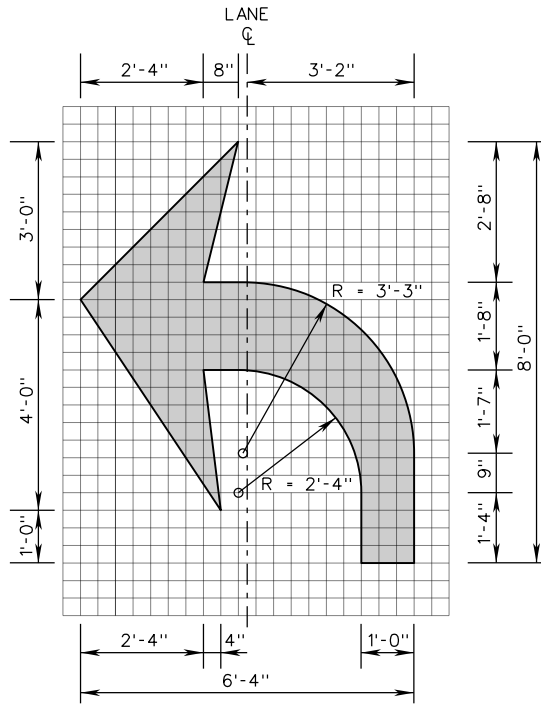


ERADICATION AREA = 12'-9" x 10'-0" ≈ 127.5 SQ.FT.

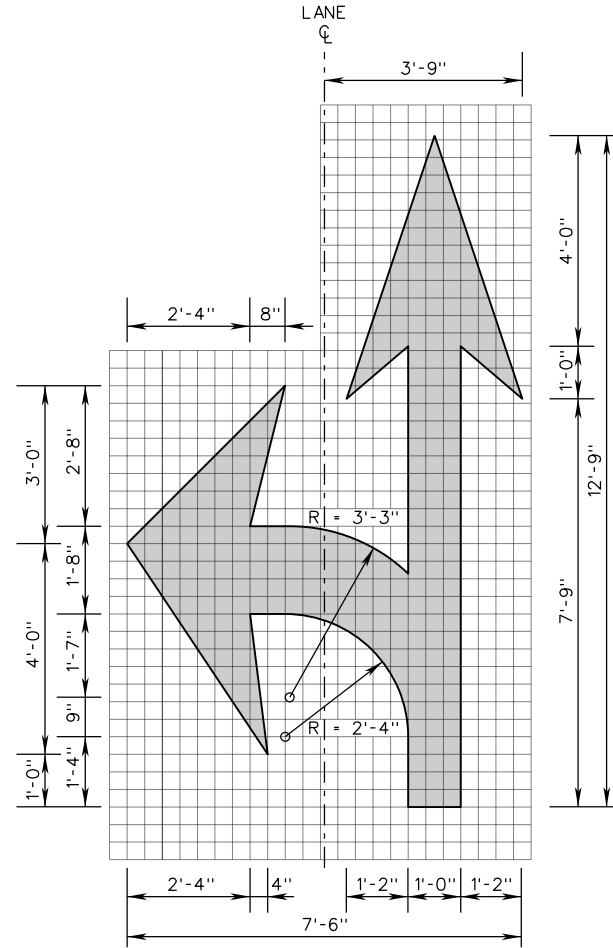
THEORETICAL BOX
ERADICATION AREA EXAMPLE (TRIPLE
TURN ARROW)



THRU ARROW



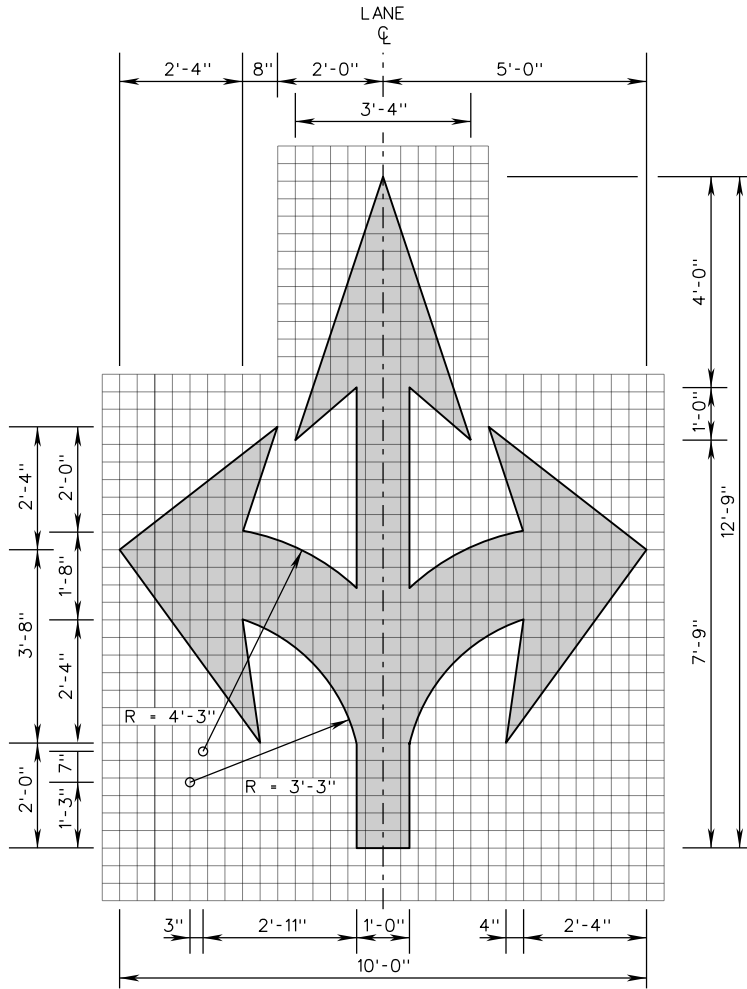
SINGLE TURN ARROW
(LEFT OR RIGHT)



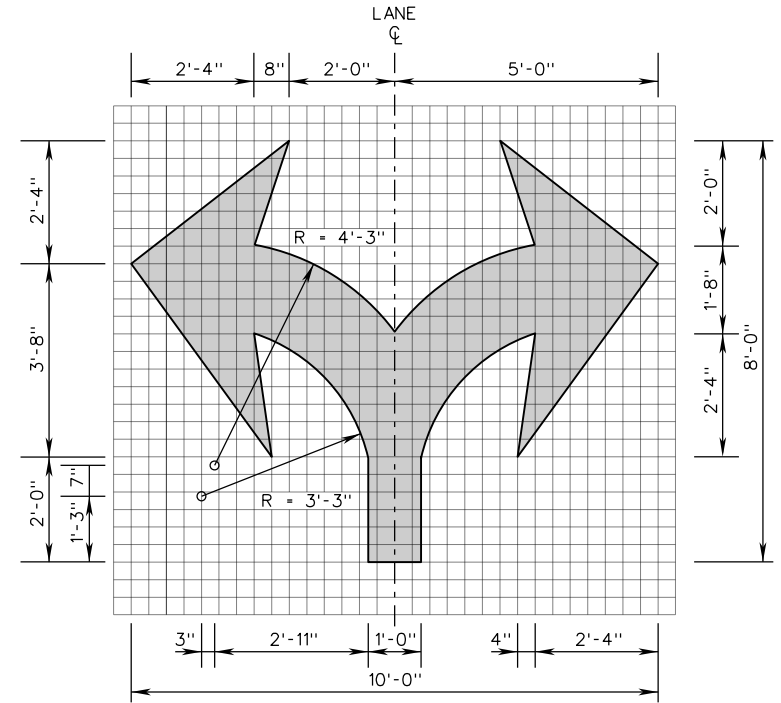
DOUBLE TURN ARROW
(LEFT/THRU OR
RIGHT/THRU)

NOTES:

1. 1 GRID UNIT = 4 INCHES
2. ALL SYMBOLS/LEGEND SHALL BE WHITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.



**TURN TURN ARROW
(LEFT/THRU/RIGHT)**



**DOUBLE TURN ARROW
(LEFT/RIGHT)**

NOTES:

1. 1 GRID UNIT = 4 INCHES
2. ALL SYMBOLS/LEGEND SHALL BE WHITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

SPECIFICATION REFERENCE

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PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
ARROW DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE

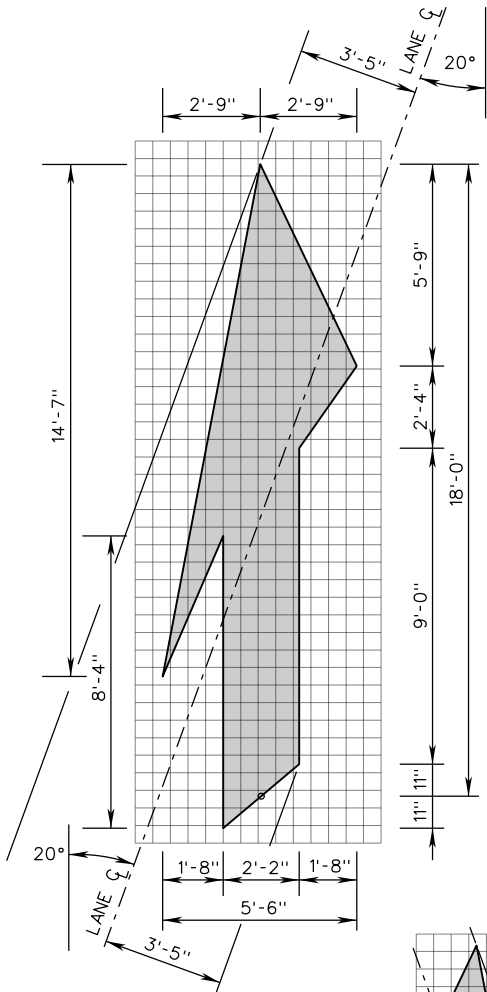
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NOTES:

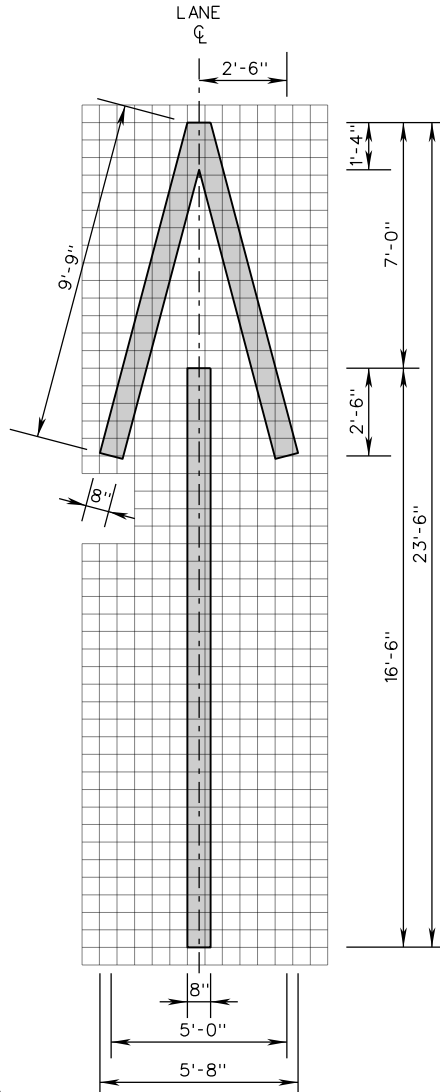
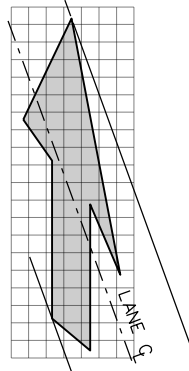
1. 1 GRID UNIT = 6 INCHES
2. ALL SYMBOLS/LEGEND SHALL BE WHITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.



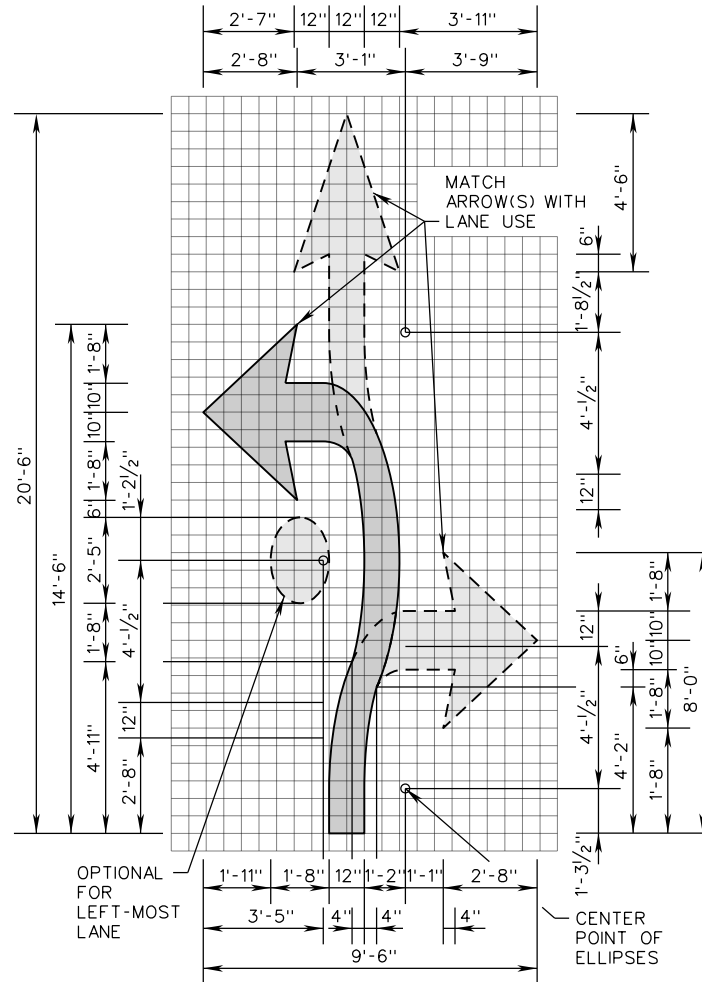
**LANE REDUCTION
ARROW (LEFT)**

**LANE REDUCTION
ARROW (RIGHT)**

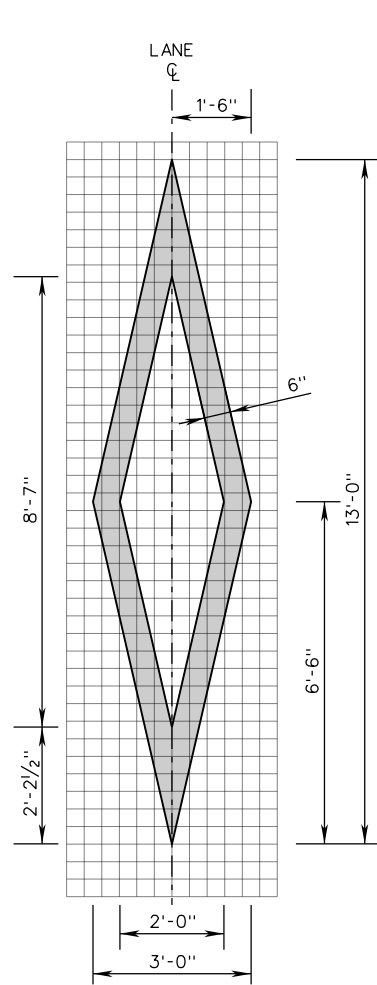
SHOWN FOR CLARITY
1 GRID UNIT = 1 FOOT



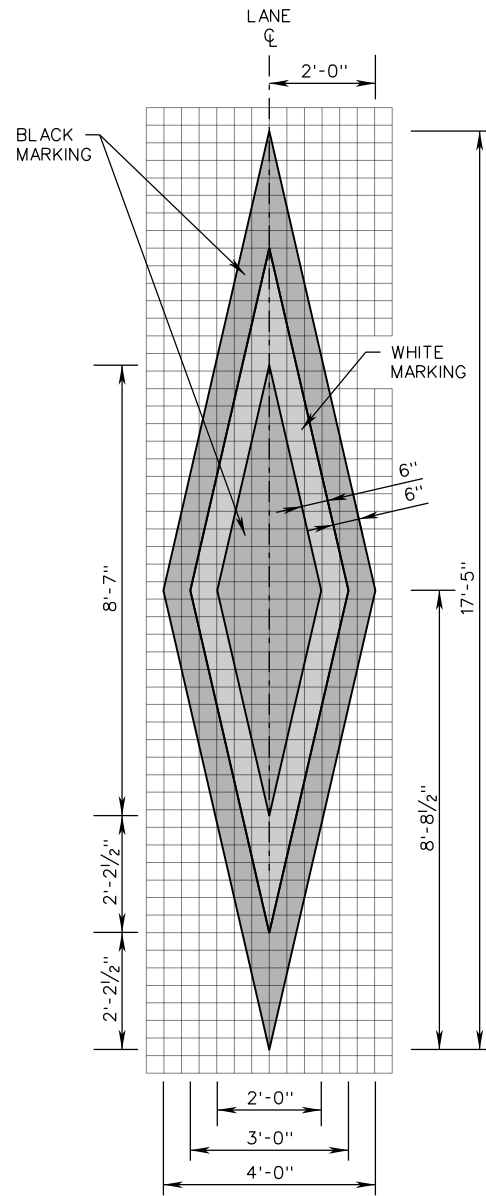
WRONG-WAY ARROW



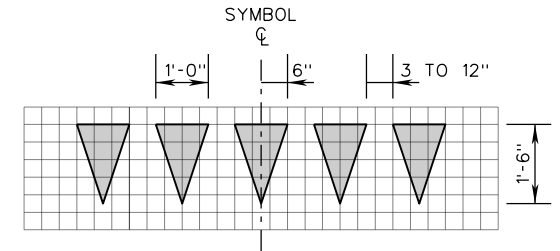
**FISH-HOOK LANE-USE
ARROW FOR
ROUNDBOUTS**



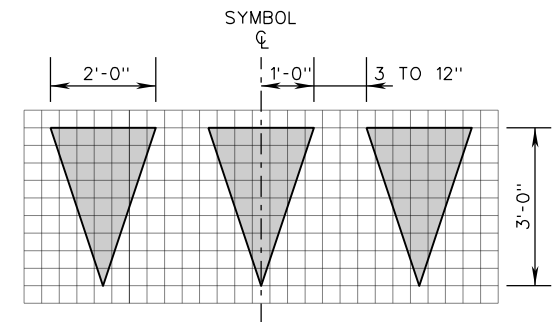
HOV DIAMOND SYMBOL
(ASPHALT SURFACE)



HOV DIAMOND
CONTRAST SYMBOL
(CONCRETE SURFACE)



YIELD LINE TRIANGLE
(1' x 1.5' TRIANGLES)



YIELD LINE TRIANGLE
(2' x 3' TRIANGLES)

NOTES:

1. 1 GRID UNIT = 4 INCHES
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SPECIFICATION
REFERENCE

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SYMBOL DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

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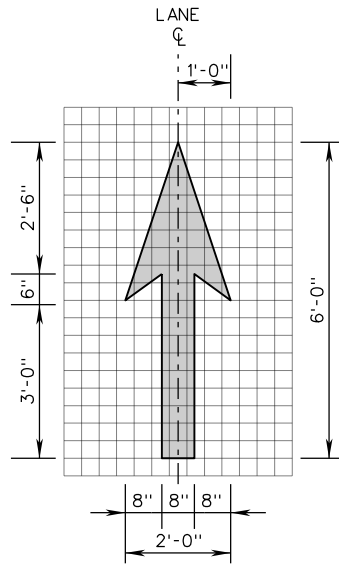
ROAD AND BRIDGE STANDARDS

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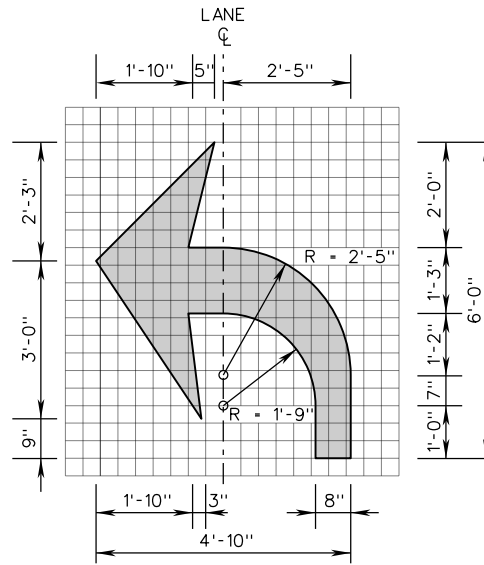
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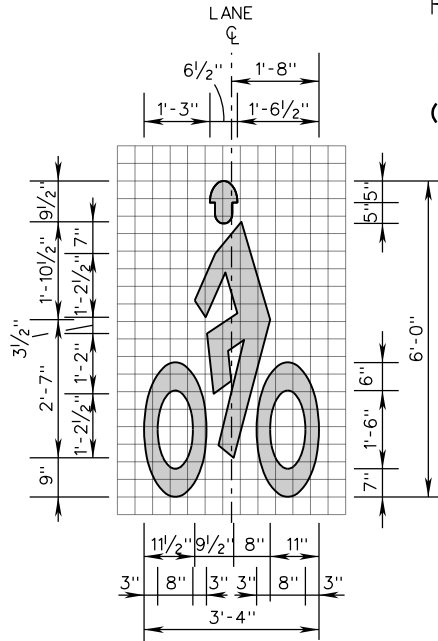
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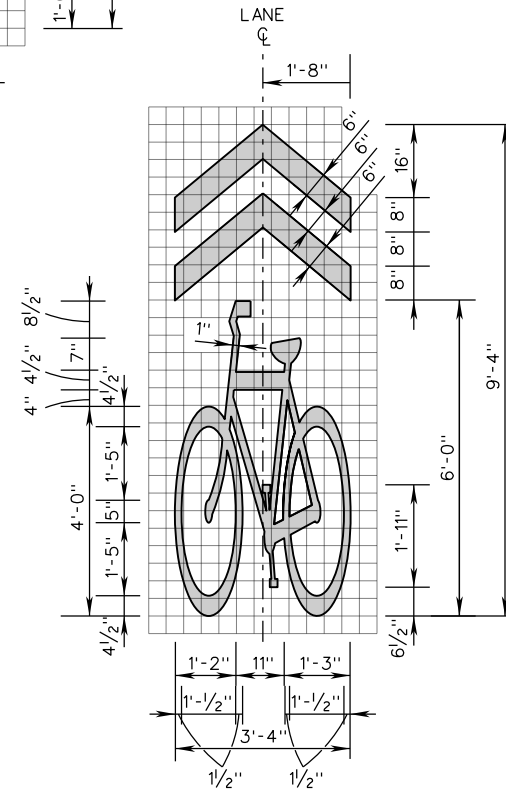
BICYCLIST THRU
ARROW



BICYCLIST THRU
ARROW
(LEFT OR RIGHT)



HELMETED BICYCLIST
SYMBOL



SHARED LANE MARKING SYMBOL

NOTES:

1. 1 GRID UNIT = 4 INCHES
2. ALL SYMBOLS/LEGEND SHALL BE WHITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.



ROAD AND BRIDGE STANDARDS

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PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
SYMBOL DETAILS

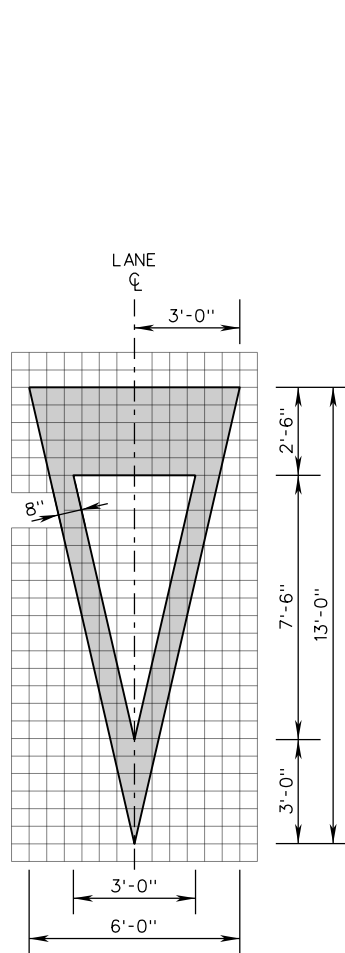
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SPECIFICATION
REFERENCE

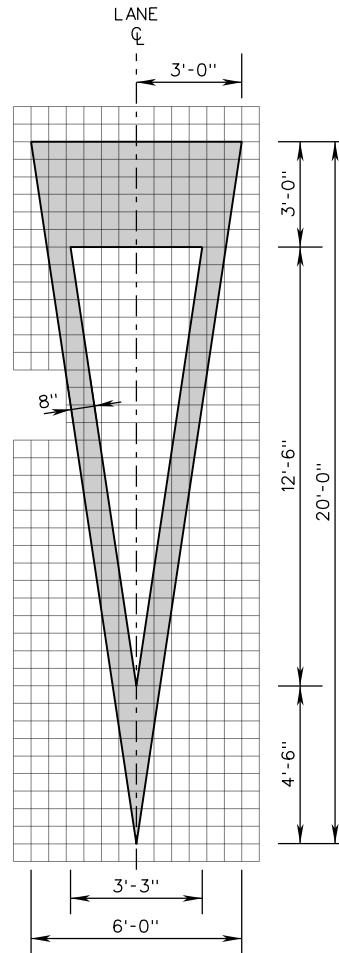
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NOTES:

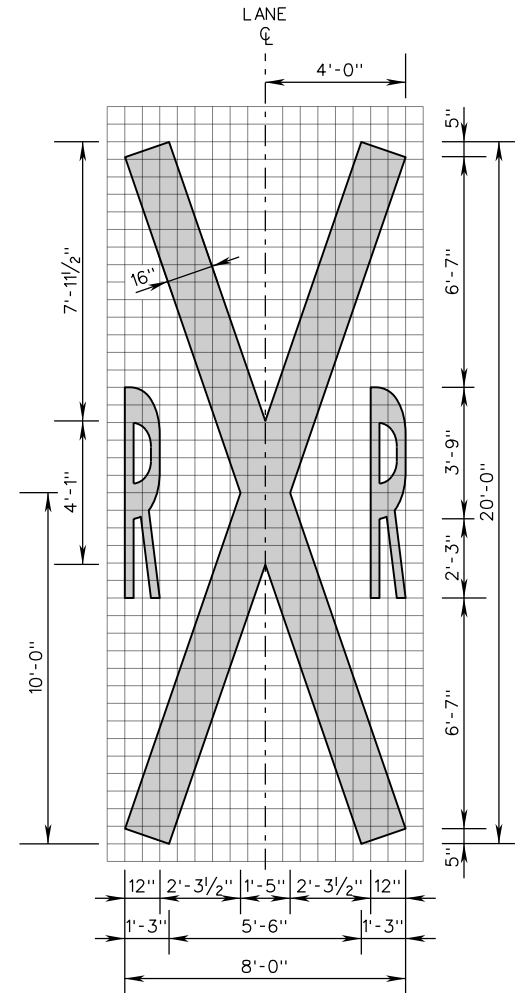
1. 1 GRID UNIT = 6 INCHES
2. ALL SYMBOLS/LEGEND SHALL BE WHITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.



YIELD AHEAD
TRIANGLE - SMALL



YIELD AHEAD
TRIANGLE - LARGE



RAILROAD CROSSING
SYMBOL

SPECIFICATION
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PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
SYMBOL DETAILS

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VDOT

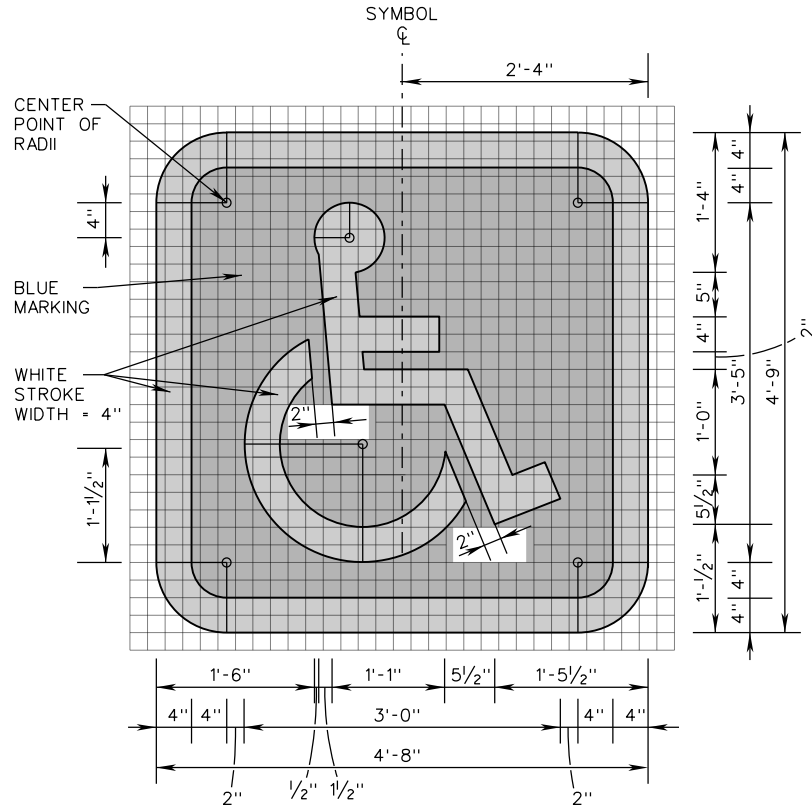
ROAD AND BRIDGE STANDARDS

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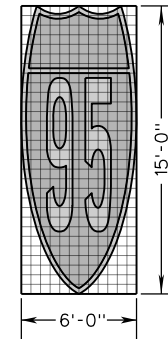
INTERNATIONAL SYMBOL
OF ACCESSIBILITY -
SPECIAL SIZED

NOTES:

1. 1 GRID UNIT = 2 INCHES
2. ALL SYMBOLS/LEGEND SHALL BE WHITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

SQUARE FOOT AREAS OF ROUTE SHIELD SYMBOLS

	DESCRIPTION	PAINT APPLICATION			ERADICATION		
		SYMBOL HEIGHT	15.0 FT	17.5 FT	20.0 FT	15.0 FT	17.5 FT
	2 DIGITS INTERSTATE SHIELD (ON LIGHT OR DARK PAVEMENT)	72.0	98.0	128.0	90.0	122.5	160.0
	3 DIGITS INTERSTATE SHIELD (ON LIGHT OR DARK PAVEMENT)	90.0	122.5	160.0	112.5	153.5	200.0
	1 OR 2 DIGITS U.S. ROUTE SHIELD ON LIGHT PAVEMENT	27.5	37.5	49.0	90.0	122.5	160.0
	ON DARK PAVEMENT	90.0	122.5	160.0			
	3 DIGITS U.S. ROUTE SHIELD ON LIGHT PAVEMENT	37.5	50.5	66.0	112.5	153.5	200.0
	ON DARK PAVEMENT	112.5	153.5	200.0			
	2 DIGITS VA PRIMARY RTE SHIELD ON LIGHT PAVEMENT	27.5	37.0	48.5	90.0	122.5	160.0
	ON DARK PAVEMENT	90.0	122.5	160.0			
	3 DIGITS VA PRIMARY RTE SHIELD ON LIGHT PAVEMENT	37.0	50.5	65.5	112.5	153.5	200.0
	ON DARK PAVEMENT	112.5	153.5	200.0			
	3 DIGITS VA SECONDARY RTE SHIELD ON LIGHT PAVEMENT	30.0	41.0	53.5	90.0	122.5	160.0
	ON DARK PAVEMENT	90.0	122.5	160.0			
	4 DIGITS VA SECONDARY RTE SHIELD ON LIGHT PAVEMENT	31.0	42.0	55.0	112.5	153.5	200.0
	ON DARK PAVEMENT	112.5	153.5	200.0			



ERADICATION AREA = 15'-0" x 6'-0" ≈ 90.0 SQ.FT.

THEORETICAL BOX
ERADICATION AREA EXAMPLE
(15' SYMBOL HEIGHT)

SPECIFICATION
REFERENCE

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PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
 SQUARE FOOT AREAS OF ROUTE SHIELD SYMBOLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

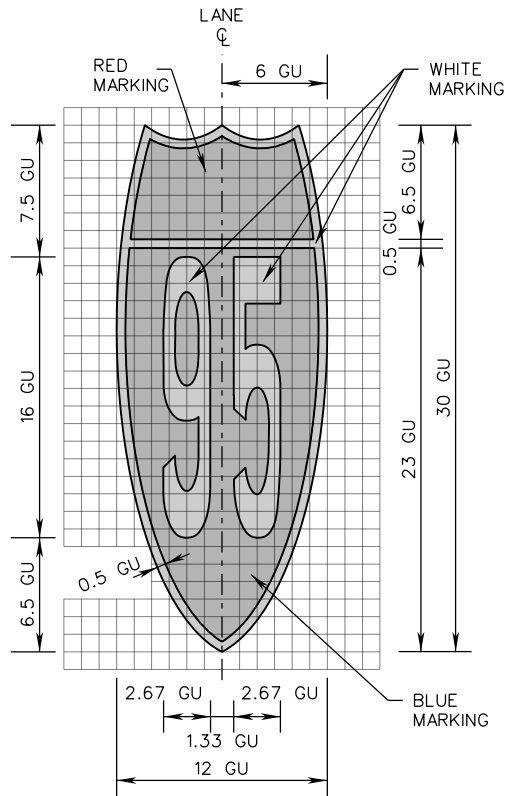
VDOT

ROAD AND BRIDGE STANDARDS

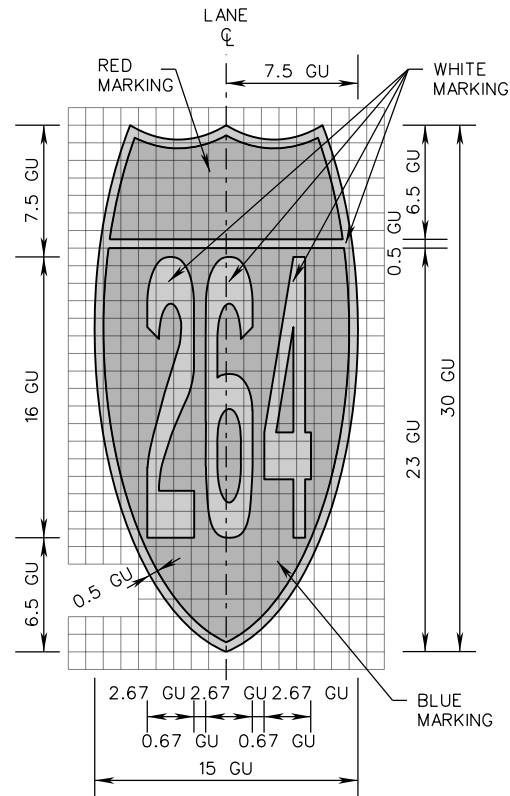
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2 DIGITS INTERSTATE SHIELD ON DARK OR LIGHT PAVEMENT

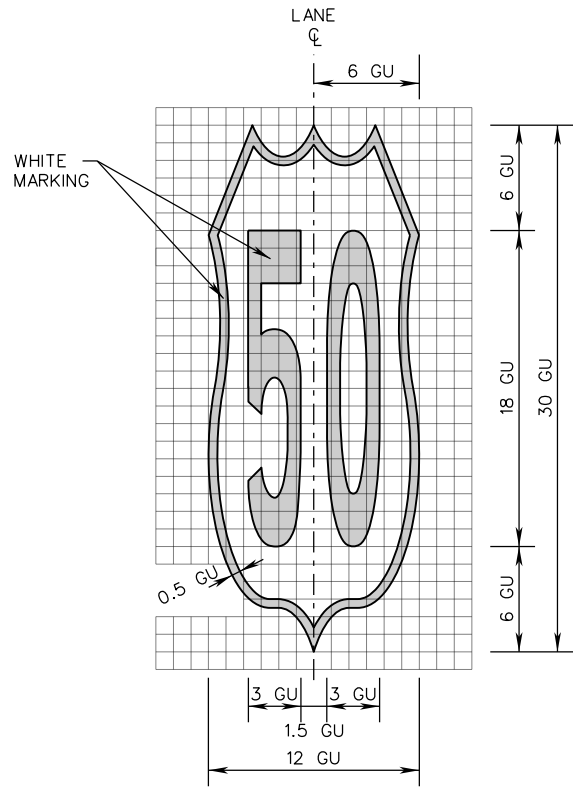


3 DIGITS INTERSTATE SHIELD ON DARK OR LIGHT PAVEMENT

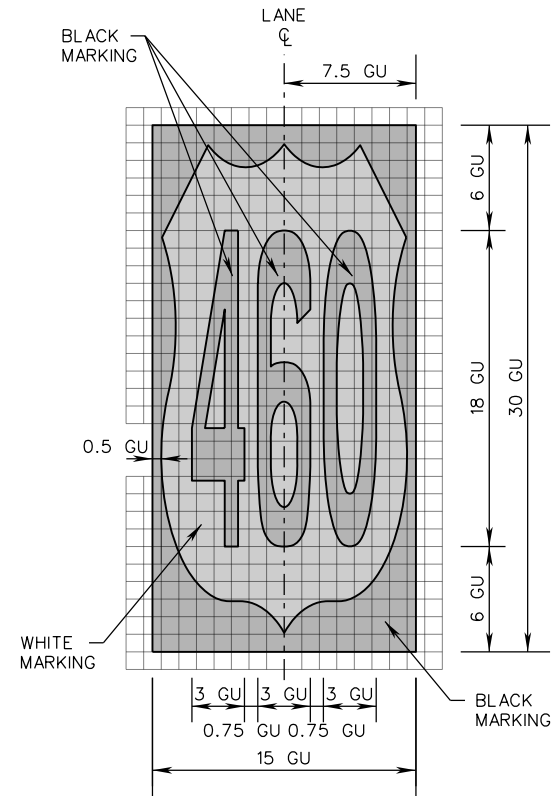
NOTES:

1. SEE TABLE FOR GRID UNIT (GU) SIZE AND SHIELD AND NUMERAL DIMENSIONS.
2. FOR THE NUMBER "1", DIVIDE NUMERAL WIDTH BY 4.

GRID UNIT (GU) SIZE	SHIELD HEIGHT	SHIELD WIDTH		NUMERAL DIMENSIONS	
		2 DIGITS	3 DIGITS	HEIGHT	WIDTH (SEE NOTE 2)
6"	15'-0"	6'-0"	7'-6"	8'-0"	1'-4"
7"	17'-6"	7'-0"	8'-9"	9'-4"	1'-6 ³ / ₄ "
8"	20'-0"	8'-0"	10'-0"	10'-8"	1'-9 ¹ / ₂ "



1 OR 2 DIGITS U.S. ROUTE SHIELD ON DARK PAVEMENT



3 DIGITS U.S. ROUTE SHIELD ON LIGHT PAVEMENT

NOTES:

1. SEE TABLE FOR GRID UNIT (GU) SIZE AND SHIELD AND NUMERAL DIMENSIONS.
2. FOR THE NUMBER "1", DIVIDE NUMERAL WIDTH BY 4.

GRID UNIT (GU) SIZE	SHIELD HEIGHT	SHIELD WIDTH		NUMERAL DIMENSIONS	
		2 DIGITS	3 DIGITS	HEIGHT	WIDTH (SEE NOTE 2)
6"	15'-0"	6'-0"	7'-6"	9'-0"	1'-6"
7"	17'-6"	7'-0"	8'-9"	10'-6"	1'-9"
8"	20'-0"	8'-0"	10'-0"	12'-0"	2'-0"

SPECIFICATION REFERENCE

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ROUTE SHIELD DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

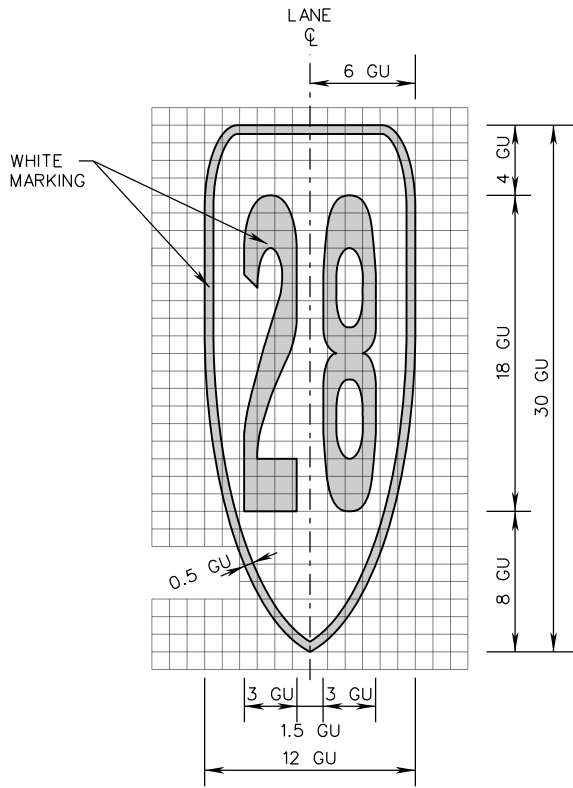
VDOT

ROAD AND BRIDGE STANDARDS

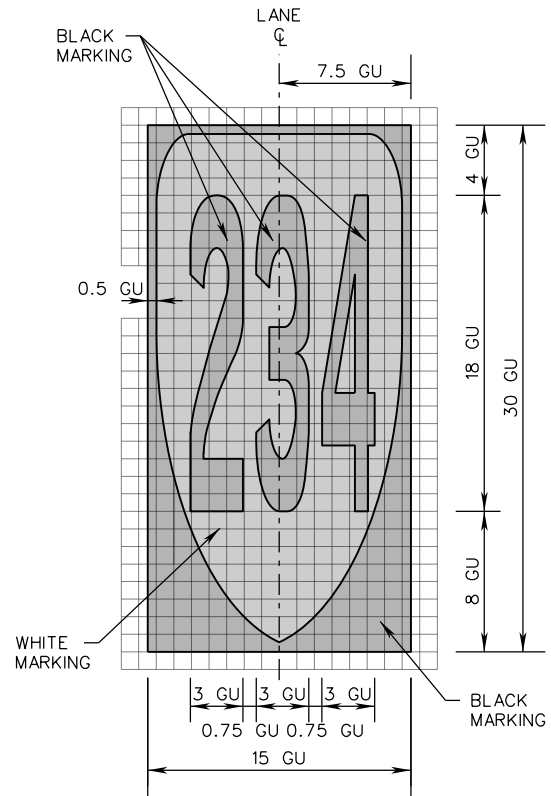
REVISION DATE
NEW 01/15

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1340.22



**2 DIGITS VIRGINIA
PRIMARY ROUTE SHIELD
ON DARK PAVEMENT**

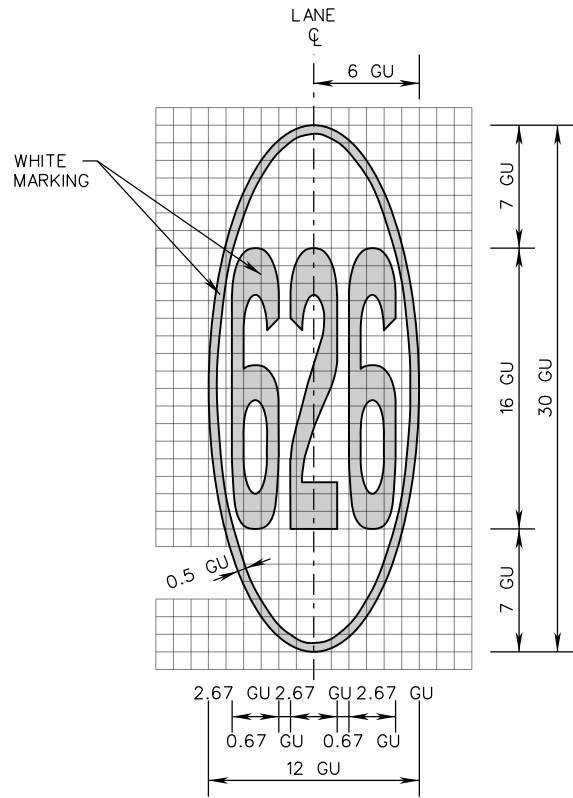


**3 DIGITS VIRGINIA
PRIMARY ROUTE SHIELD
ON LIGHT PAVEMENT**

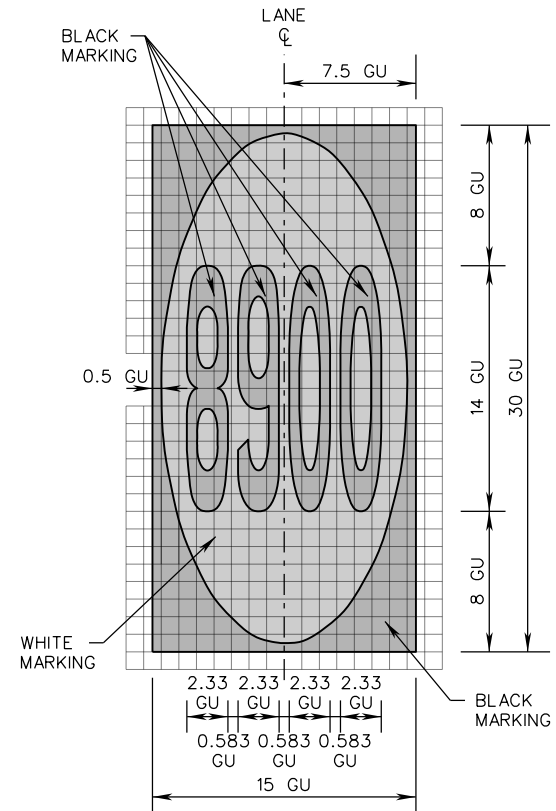
NOTES:

1. SEE TABLE FOR GRID UNIT (GU) SIZE AND SHIELD AND NUMERAL DIMENSIONS.
2. FOR THE NUMBER "1", DIVIDE NUMERAL WIDTH BY 4.

GRID UNIT (GU) SIZE	SHIELD HEIGHT	SHIELD WIDTH		NUMERAL DIMENSIONS	
		2 DIGITS	3 DIGITS	HEIGHT	WIDTH (SEE NOTE 2)
6"	15'-0"	6'-0"	7'-6"	9'-0"	1'-6"
7"	17'-6"	7'-0"	8'-9"	10'-6"	1'-9"
8"	20'-0"	8'-0"	10'-0"	12'-0"	2'-0"



**3 DIGITS VIRGINIA
SECONDARY ROUTE SHIELD
ON DARK PAVEMENT**



**4 DIGITS VIRGINIA
SECONDARY ROUTE SHIELD
ON LIGHT PAVEMENT**

NOTES:

1. SEE TABLE FOR GRID UNIT (GU) SIZE AND SHIELD AND NUMERICAL DIMENSIONS.
2. FOR THE NUMBER "1", DIVIDE NUMERICAL WIDTH BY 4.

GRID UNIT (GU) SIZE	SHIELD HEIGHT	SHIELD WIDTH		NUMERICAL DIMENSIONS			
		3 DIGITS	4 DIGITS	3 DIGITS		4 DIGITS	
				HEIGHT	WIDTH (SEE NOTE 2)	HEIGHT	WIDTH (SEE NOTE 2)
6"	15'-0"	6'-0"	7'-6"	8'-0"	1'-4"	7'-0"	1'-2"
7"	17'-6"	7'-0"	8'-9"	9'-4"	1'-6 ² / ₃ "	8'-2"	1'-4 ¹ / ₃ "
8"	20'-0"	8'-0"	10'-0"	10'-8"	1'-9 ¹ / ₃ "	9'-4"	1'-6 ² / ₃ "

SPECIFICATION REFERENCE

704

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.
PAVEMENT WORD, SYMBOL, AND ARROW MARKINGS
ROUTE SHIELD DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT

ROAD AND BRIDGE STANDARDS

REVISION DATE
NEW 01/15

SHEET 15 OF 15
1340.24