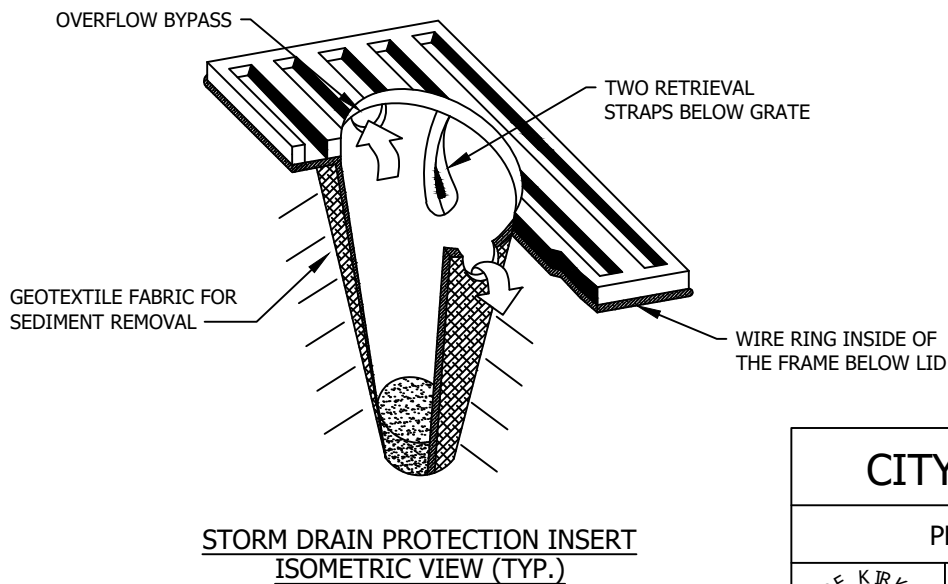
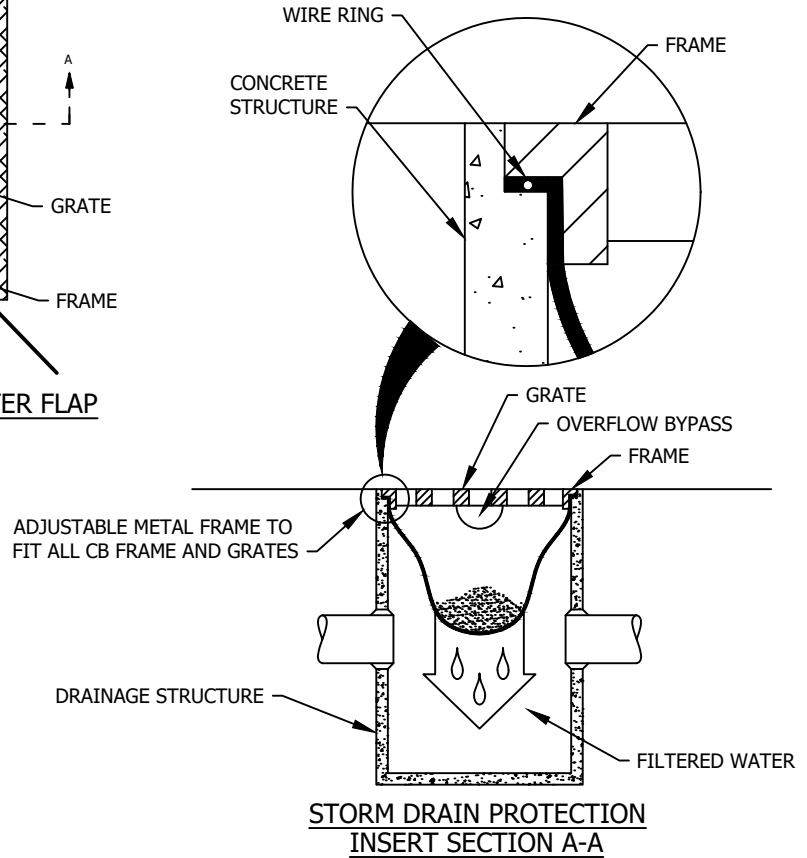
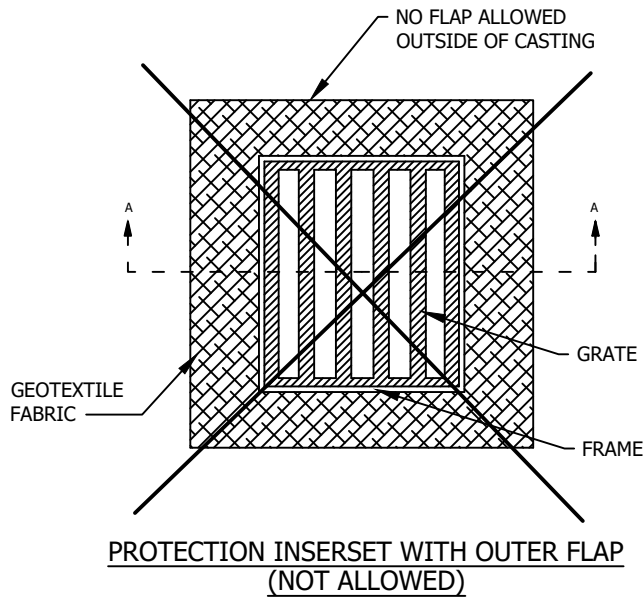


APPENDIX B

CITY OF KIKLAND PRE-APPROVED PLANS / WSDOT STANDARD PLANS



City of Kirkland

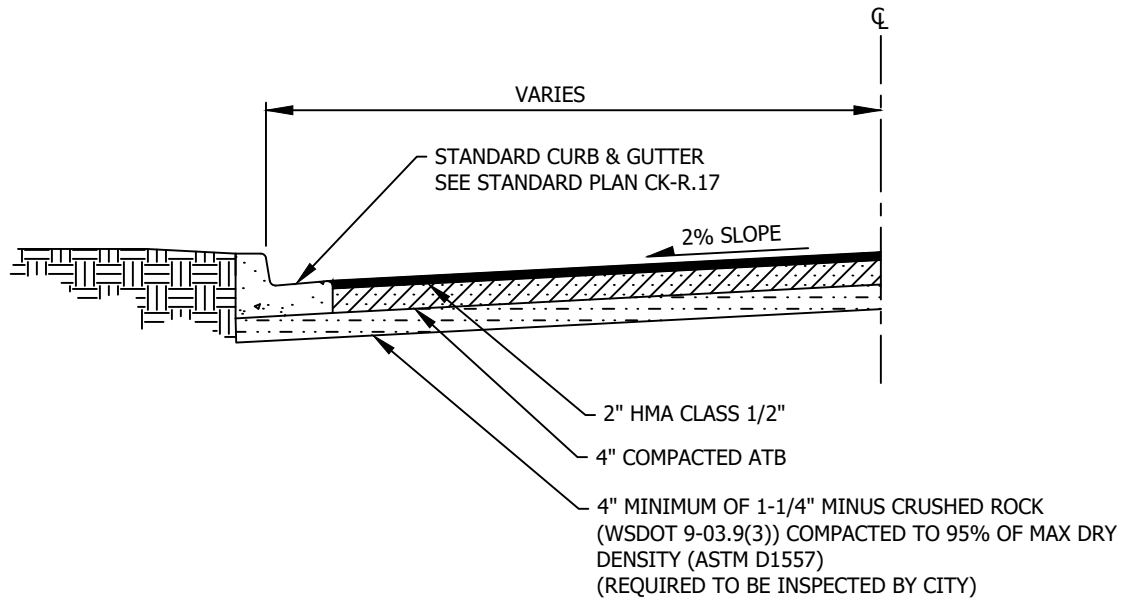


CITY OF KIRKLAND

PLAN NO. CK- E.11



STORM DRAIN PROTECTION INSERT



NOTES:

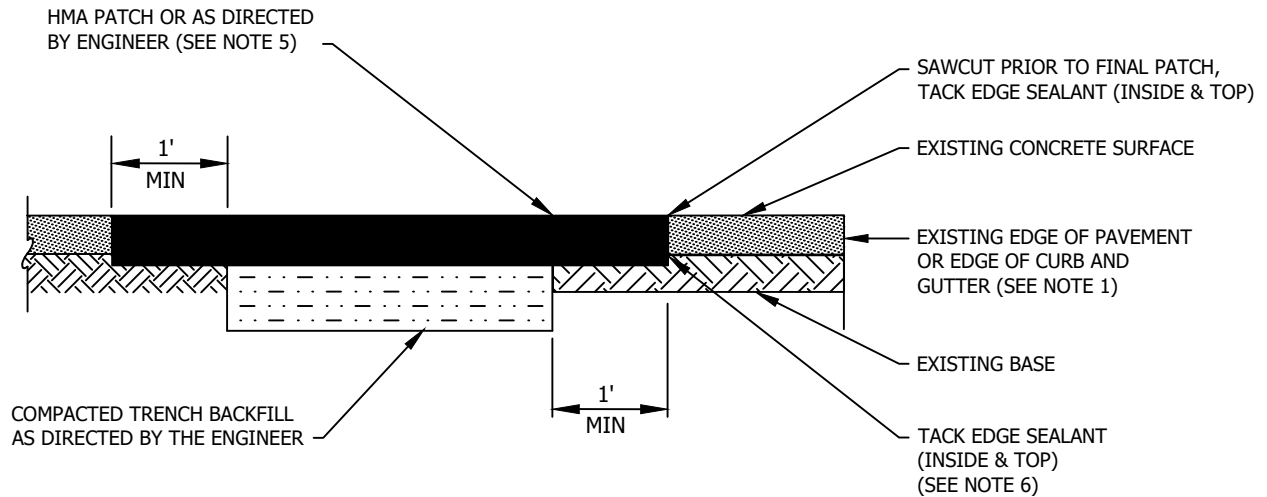
1. HOT MIX ASPHALT CLASS 1/2" MAY BE USED IN LIEU OF ATB.
2. MAXIMUM ALLOWABLE GRADE OF A STREET IS 15% UNLESS DIRECTED BY ENGINEER.
3. SIDE SLOPES SHALL BE 2:1 MAXIMUM.
4. WHEN PLACING NEW CURB AND GUTTER ALONG AN EXISTING ROADWAY, THE ASPHALT SHOULD BE SAWCUT AT A WIDTH TO ALLOW FOR A 20" TO 24" ASPHALT PATCH AS MEASURED FROM THE OUTER EDGE OF THE GUTTER.

CITY OF KIRKLAND

PLAN NO. CK-R.09



STANDARD ROAD
CROSS SECTION



TYPICAL PATCH FOR PAVEMENT

NOTES:

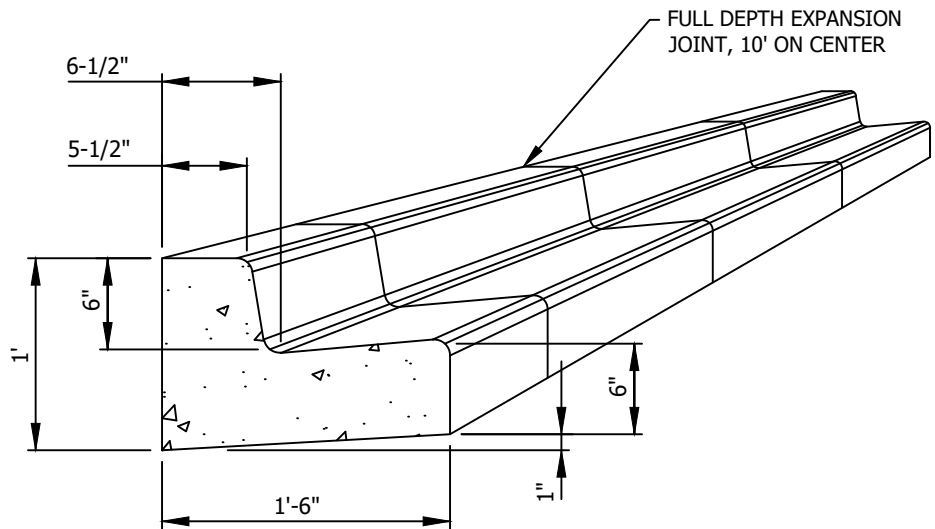
1. IF THE DISTANCE FROM THE EDGE OF PATCH TO THE EDGE OF PAVEMENT OR CURB AND GUTTER IS LESS THAN 3', THE PATCH MUST CONTINUE TO THE EXISTING EDGE; UNLESS ROADWAY IS OVERLAID WITHIN 60 DAYS.
2. HOT MIX ASPHALT SHALL BE CLASS 1/2".
3. ALL TRENCH BACKFILL SHALL BE CRUSHED SURFACING TOP COURSE MATERIAL FOR PERPENDICULAR TRENCHES, OR AS DIRECTED BY ENGINEER.
4. HMA CLASS 1/2" MAY BE USED IN LIEU OF ATB.
5. PATCH MUST ALWAYS BE 1" DEEPER THAN EXISTING ASPHALT; MAX 6" DEEP, OR AS DIRECTED BY ENGINEER.
6. TOP SEAL-USE PG 64-22 AND PROVIDE A SAND BLANKET TO ALLEVIATE TRAILING.
7. REFER TO COK STD. PLAN NO. CK-R.13C FOR REQUIREMENTS FOR GEOTECH BORING ASPHALT PATCHES.

CITY OF KIRKLAND

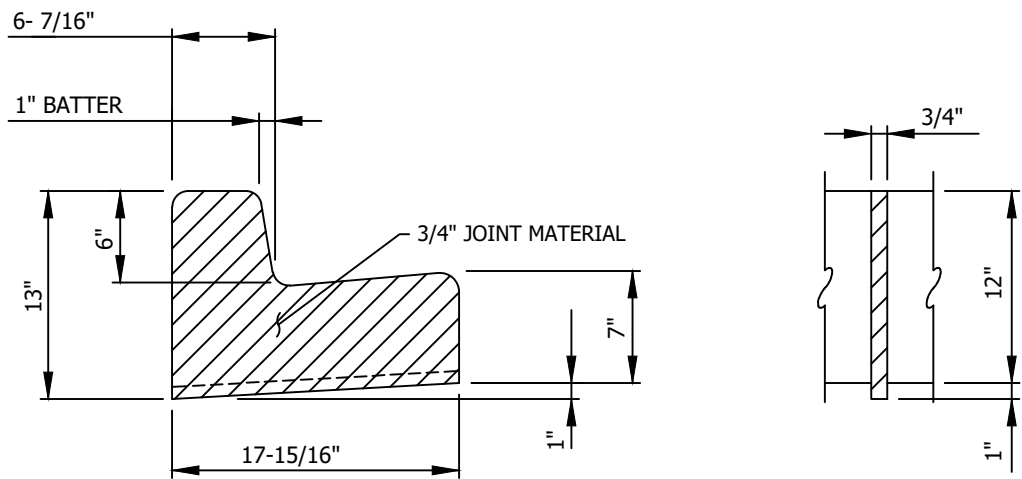
PLAN NO. CK- R.12



**RESTORATION DETAIL
AND
PAVEMENT PATCHING**




TYPICAL SECTION FOR CURB & GUTTER, TYPE A

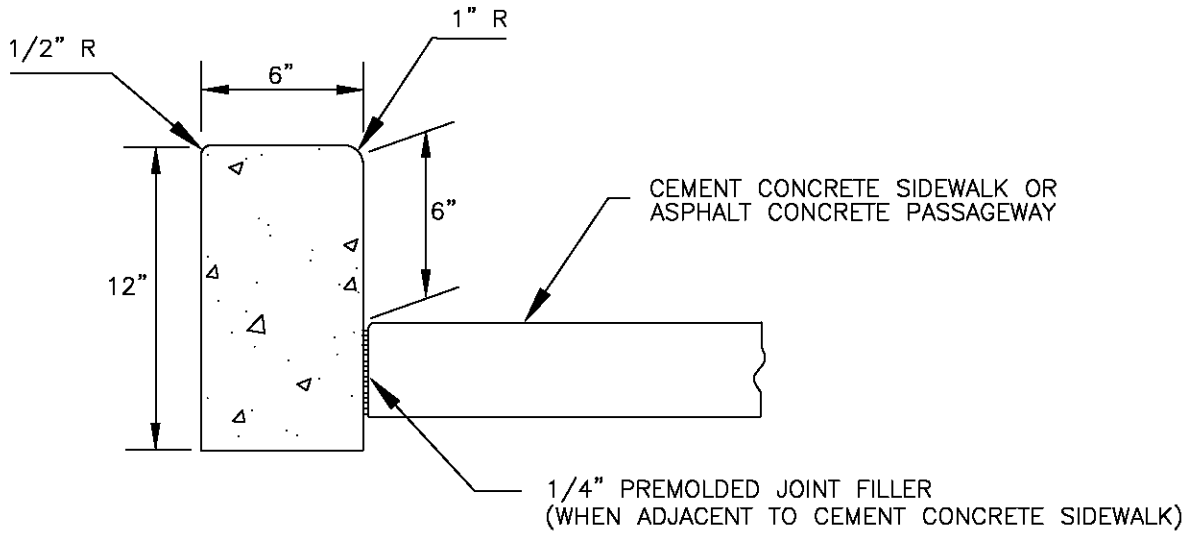


JOINT DETAIL

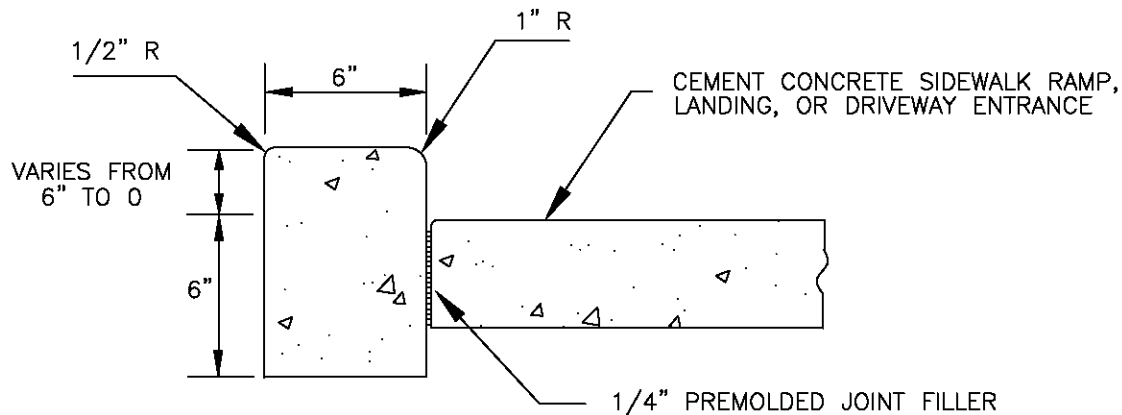
NOTES:

1. FORMS SHALL BE STEEL AND SET TRUE TO LINE AND GRADE (INSPECTION IS REQUIRED PRIOR TO PLACEMENT OF CONCRETE) UNLESS SPECIFIED DIFFERENTLY BY CITY PROJECT ENGINEER.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000.
3. BASE COURSE SHALL BE 4" OF 5/8" MINUS CRUSHED ROCK.
4. SURVEY REQUIRED FOR CURB ALIGNMENT.

CITY OF KIRKLAND	
PLAN NO. CK-R.17	
	CONCRETE CURB AND GUTTER, TYPE "A"



CEMENT CONCRETE PEDESTRIAN CURB



CEMENT CONCRETE PEDESTRIAN CURB

AT SIDEWALK RAMPS & LANDINGS, AND DRIVEWAY ENTRANCES

NOTES

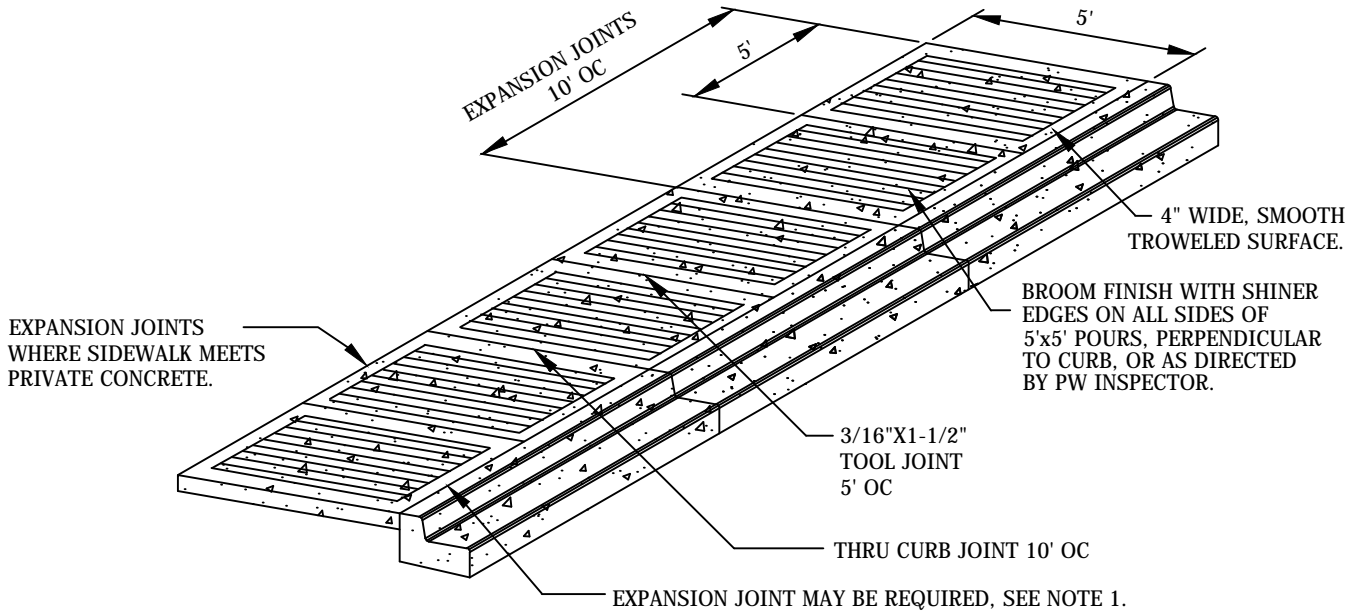
1. FORMS SHALL BE STEEL AND SET TRUE TO LINE AND GRADE (INSPECTION REQUIRED PRIOR TO PLACEMENT OF CONCRETE).
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000.
3. BASE COURSE SHALL BE 4" OF 5/8" MINUS CRUSHED ROCK.
4. SEE CK-R.17 FOR CURB EXPANSION AND CONTRACTION JOINT SPACING.

CITY OF KIRKLAND

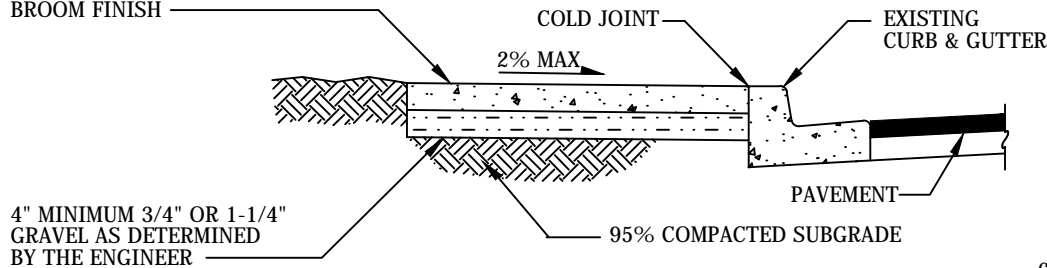
PLAN NO. CK-R.17A



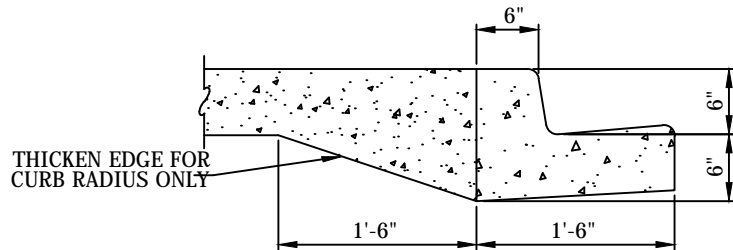
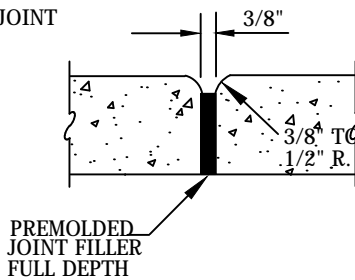
CEMENT CONCRETE
PEDESTRIAN CURB



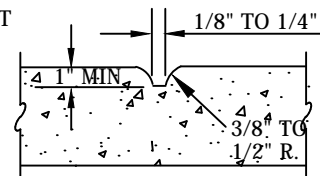
5' WIDE CONCRETE SIDEWALK
4" MIN THICKNESS (6" AT DRIVEWAYS)
BROOM FINISH



EXPANSION JOINT



CONTRACTION JOINT



NOTES:

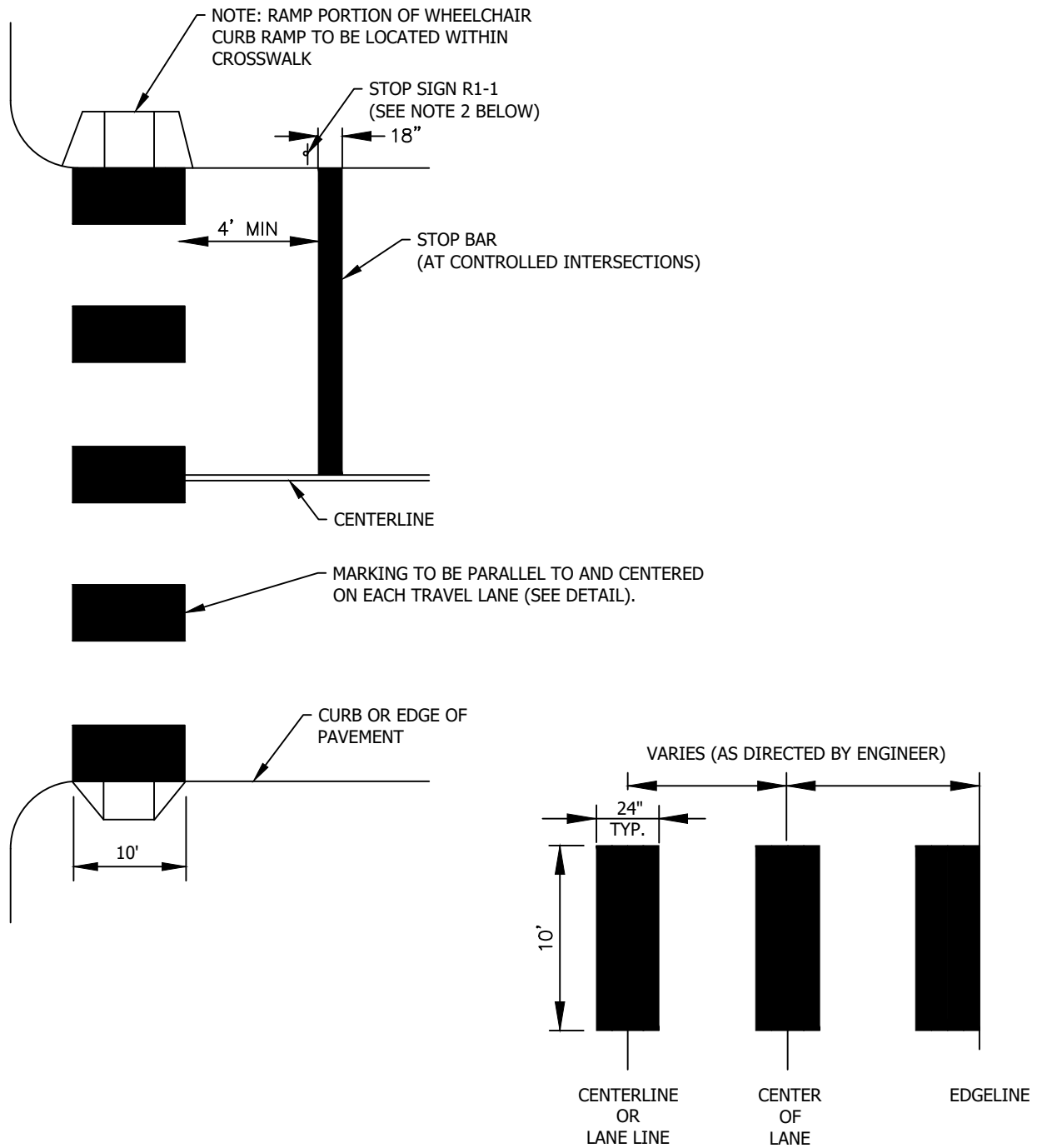
1. SIDEWALK AND CURB & GUTTER CANNOT BE POURED MONOLITHICALLY. EXPANSION JOINT WILL BE REQUIRED WHEN CONCRETE SIDEWALK IS SURROUNDED BY OTHER HARD SURFACES (E.G., DRIVEWAY); OR AS DIRECTED BY PW INSPECTOR.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000 PSI MINIMUM, WITH AIR ENTRAINMENT. NO COLOR OR TINT SHALL BE ADDED.
3. FORMS SHALL BE SET TRUE TO LINE AND GRADE AND SHALL BE STEEL UNLESS OTHERWISE APPROVED BY INSPECTOR.
4. SIDEWALK SHALL NOT BE POURED IN THE RAIN. SEE POLICY R-8, PLACING CONCRETE OR ASPHALT IN ADVERSE WEATHER CONDITIONS.

CITY OF KIRKLAND

PLAN NO. CK- R.23



SIDEWALK
SECTION



DETAIL

NOTES:

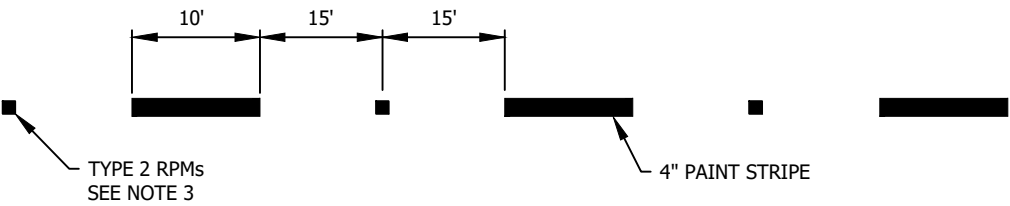
1. MARKINGS SHALL BE THERMOPLASTIC.
2. STOP SIGN LOCATION ADJACENT TO STOP BAR, OR AS DIRECTED BY ENGINEER

CITY OF KIRKLAND

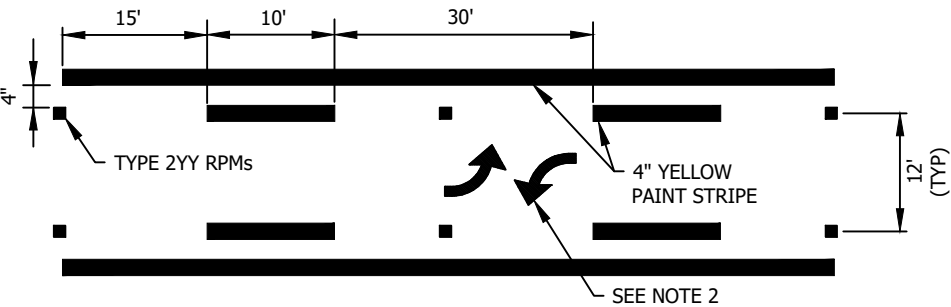
PLAN NO. CK-R.28



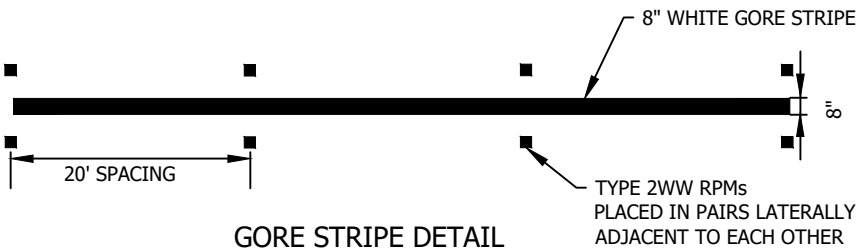
CROSSWALK AND
STOP BAR DETAIL



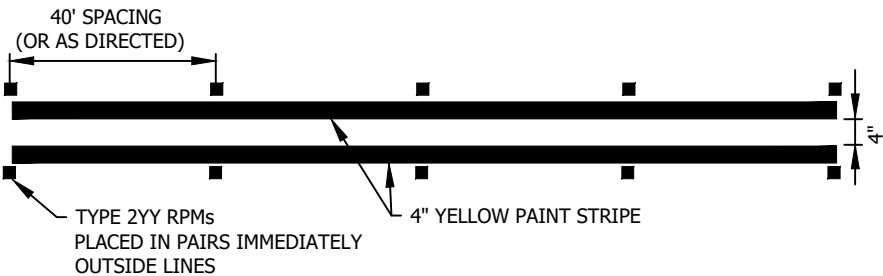
SKIP CENTER & LANE STRIPE DETAIL



TWO-WAY LEFT TURN DETAIL




GORE STRIPE DETAIL

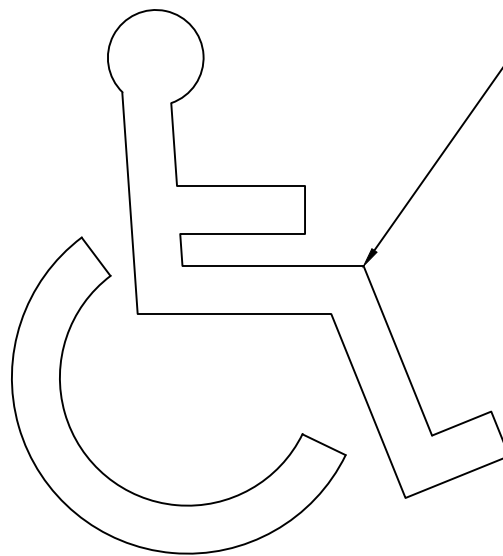
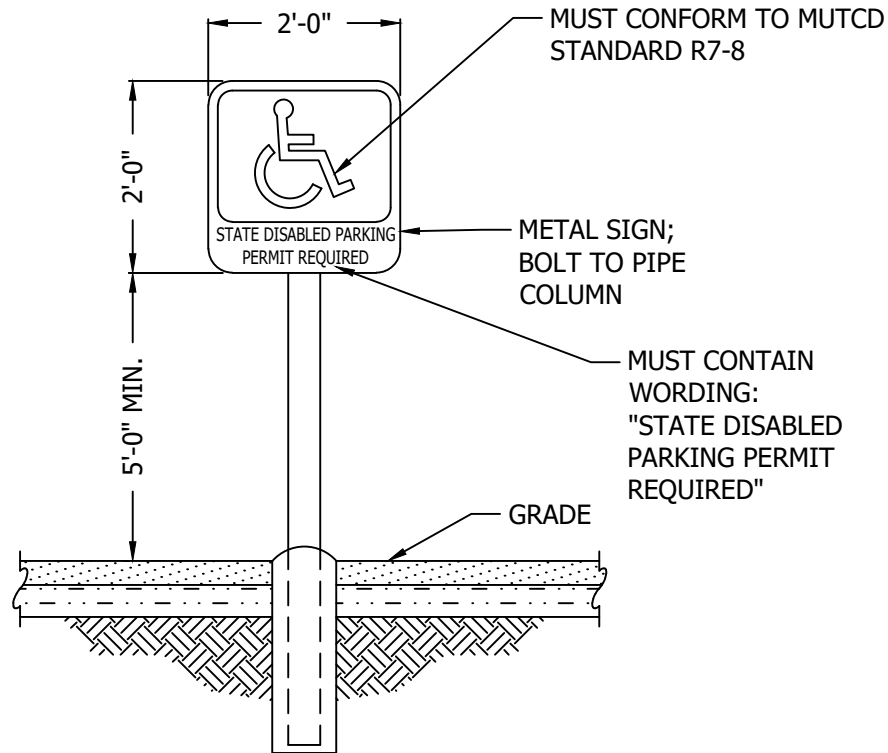


DOUBLE YELLOW CENTER DETAIL

NOTES:

- 1. MATCH EXISTING PAVEMENT MARKING DIMENSIONS.
- 2. SEE CK-R.30 FOR TWO-WAY LEFT TURN ARROW PLACEMENT.
- 3. RAISED PAVEMENT MARKER BODY AND LENS COLOR SHALL CONFORM TO THE COLOR OF THE MARKING FOR WHICH THEY SUPPLEMENT, SUBSTITUTE FOR, OR SERVE AS A POSITIONING GUIDE FOR.

CITY OF KIRKLAND	
PLAN NO. CK-R.31	
	PAVEMENT MARKING DETAIL

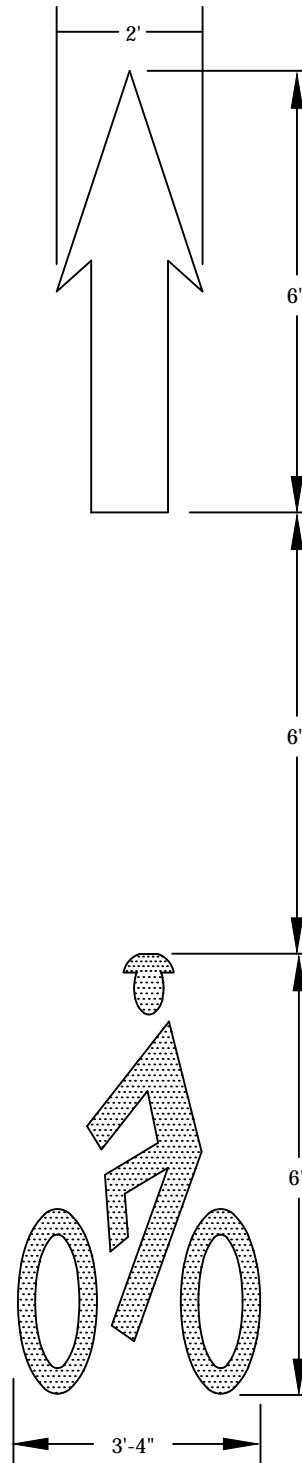


REFER TO WSDOT STANDARD PLAN M-24.60-04 FOR REQUIRED DIMENSIONS. ACCESS PARKING SPACE SYMBOL SHALL BE "STANDARD" SIZE WITH BLUE BACKGROUND AND WHITE BORDER. NOTE THAT THE "MINIMUM" SIZE CANNOT BE USED UNLESS EXPRESSLY REQUIRED OR APPROVED BY THE CITY.

NOTES:

1. PROVIDE SYMBOL IN ALL HANDICAPPED PARKING STALLS INDICATED ON SITE PLAN.
2. PROVIDE SIGN AT ALL HANDICAPPED PARKING STALL INDICATED ON SITE PLAN.
3. SEE STANDARD DETAIL CK-R.43 FOR SIGN INSTALLATION.
4. MATERIAL SHALL BE EITHER 90 MIL. PREFORMED THERMOPLASTIC OR METHYL METHACRYLATE (MMA).

CITY OF KIRKLAND	
PLAN NO. CK - R.33	
	HANDICAP SIGN & MARKING



NOTES:

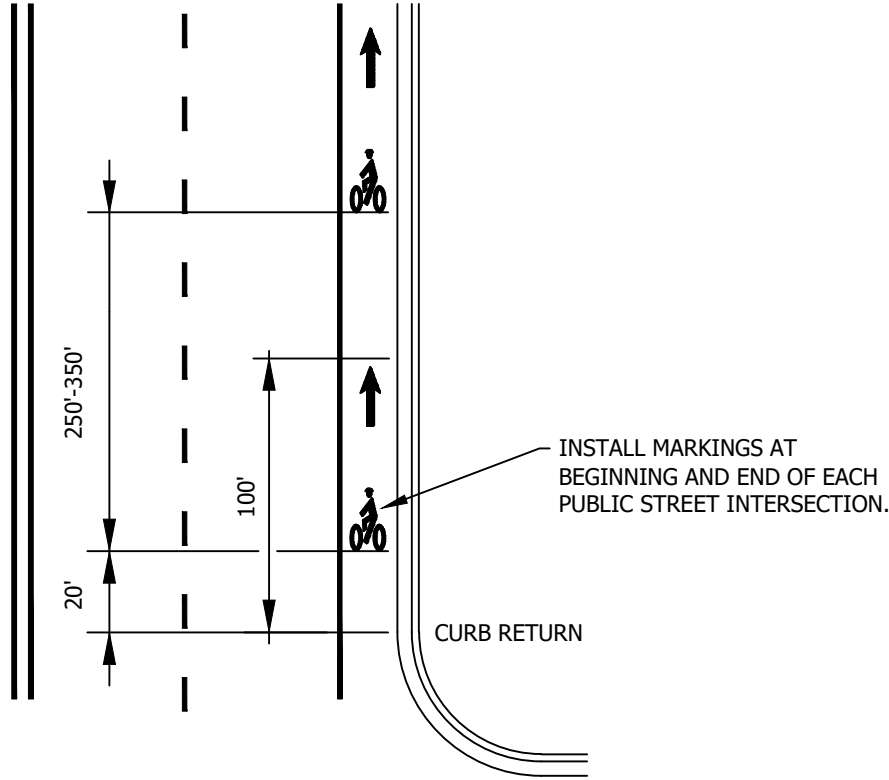
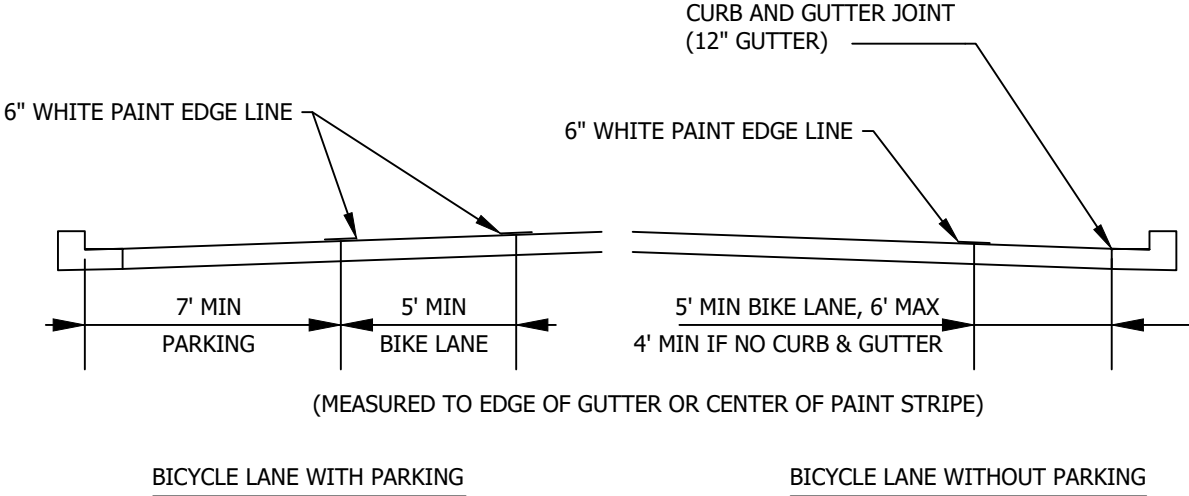
1. BIKE LANE SYMBOLS AND ARROW MATERIAL SHALL BE 90 MILL, PREFORMED, SKID RESISTANT THERMOPLASTIC.
2. BICYCLE SYMBOL FACES ROADWAY CENTERLINE.

CITY OF KIRKLAND

PLAN NO. CK-R.34




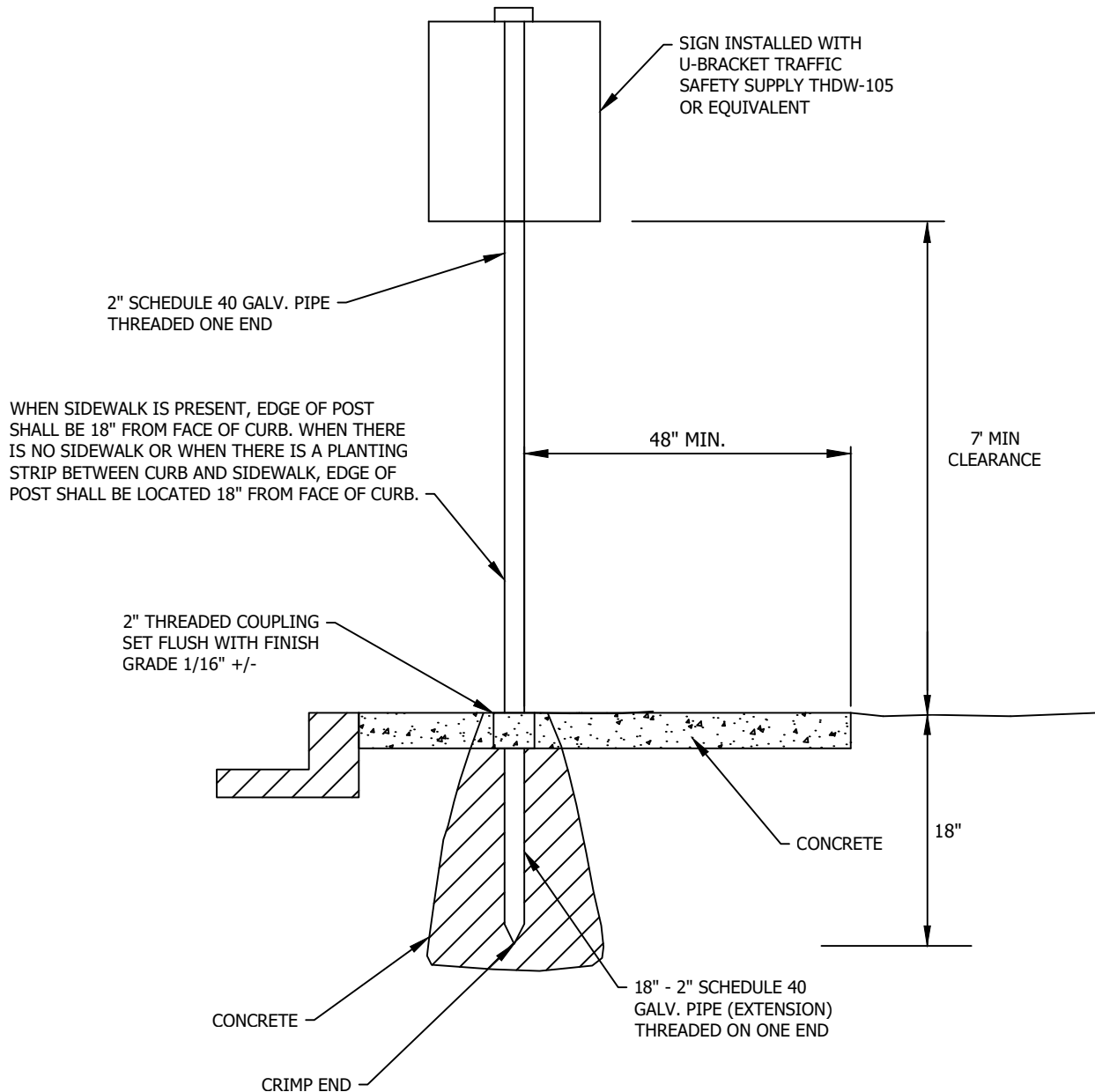
BICYCLE LANE
MARKINGS



NOTES:

1. SEE MUTCD FOR MORE INFORMATION AND SPECIFICATIONS.
2. PER SEC. 9B.04 2009 MUTCD, DO NOT USE R3-17 SIGNS.
3. BICYCLIST AND PEDESTRIAN SYMBOLS PER CK-R.34B
4. 4' BIKE LANE WIDTH MAY BE CONSIDERED IN CONSTRAINED LOCATIONS.

CITY OF KIRKLAND	
PLAN NO. CK- R.35	
	TYPICAL BICYCLE LANE - WIDTH, SIGNING & MARKING



NOTES:

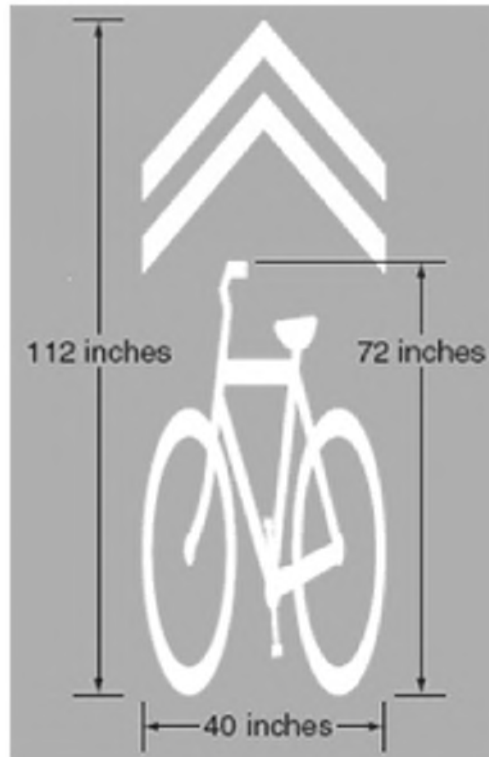
1. IF SIGN MUST BE PLACED IN EXISTING CONCRETE, CORE HOLE SHALL BE 8" DIAMETER.
2. S1-1 SIGNS SHALL BE BLACK ON FLUORESCENT GREEN.
3. W11-2 SIGNS SHALL BE BLACK ON YELLOW.

CITY OF KIRKLAND

PLAN NO. CK-R.43



STANDARD SIGN
INSTALLATION



SHARED LANE MARKING DETAIL

NOT TO SCALE

NOTES:

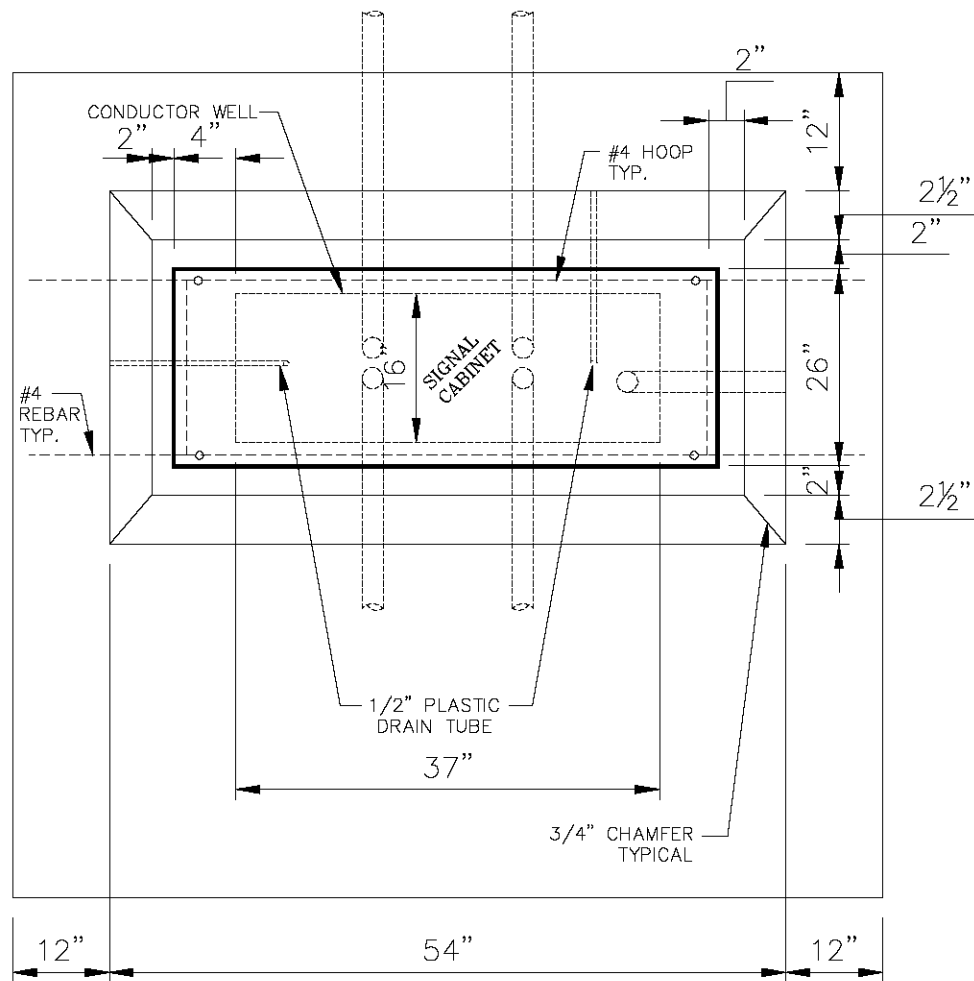
1. PLACE MARKING IN CENTER OF TRAVELED WAY, EVERY 250'-350'.
2. SEE SECTION 9C.07, 2009 MUTCD FOR MORE GUIDANCE.
3. SHARED LANE MARKING MATERIAL SHALL BE 90 MILL, PREFORMED, SKID RESISTANT THERMOPLASTIC.

CITY OF KIRKLAND

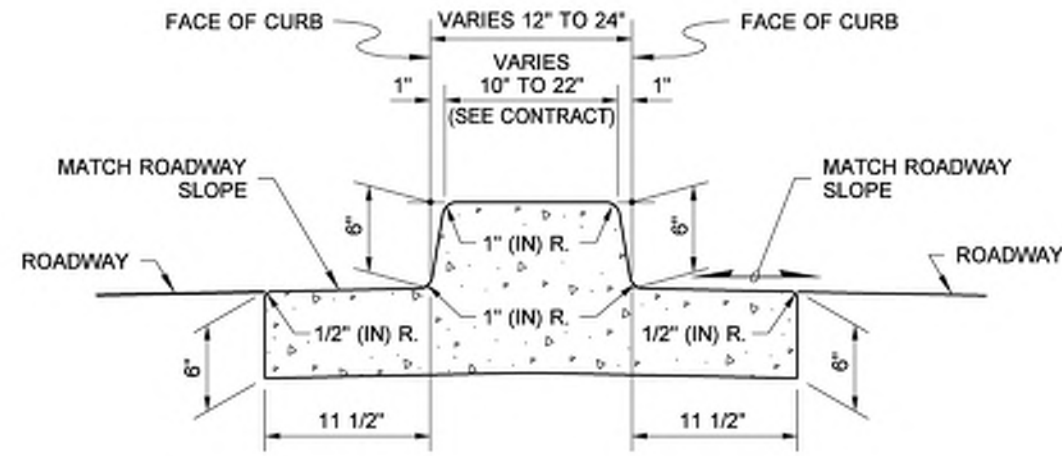
PLAN NO. CK- R.46



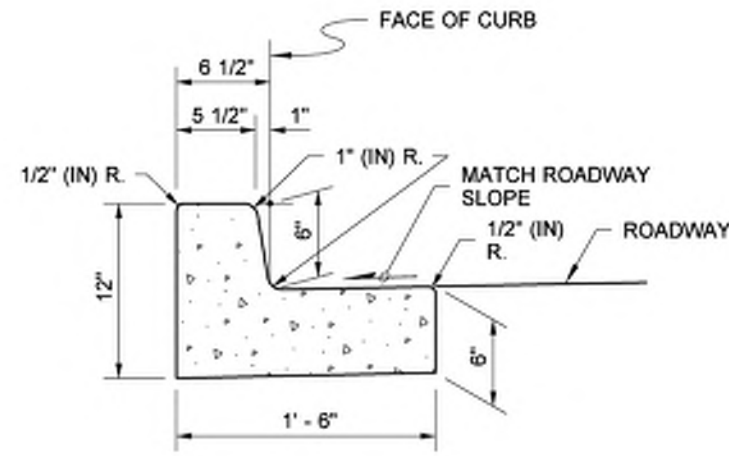
**SHARED LANE
MARKING**



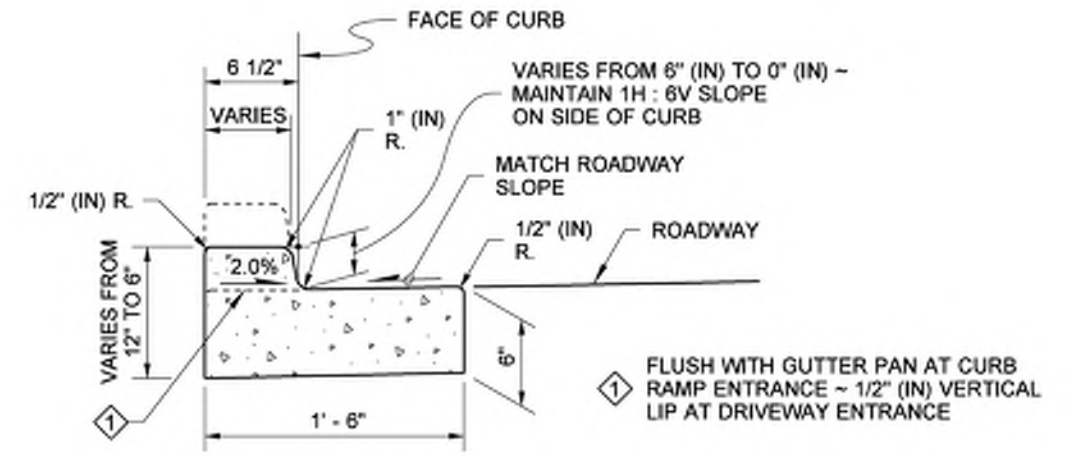
NEMA CONTROLLER
CABINET FOUNDATION
DETAIL



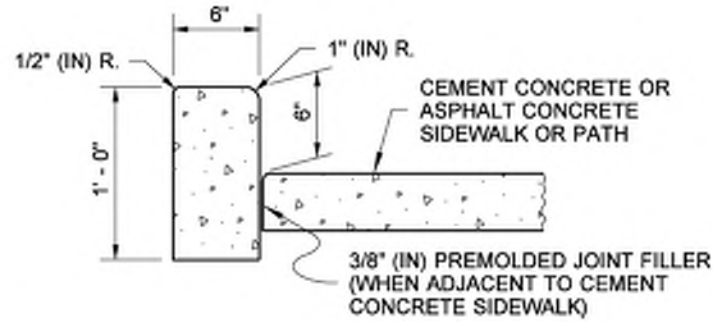
**DUAL-FACED CEMENT CONCRETE
TRAFFIC CURB AND GUTTER**



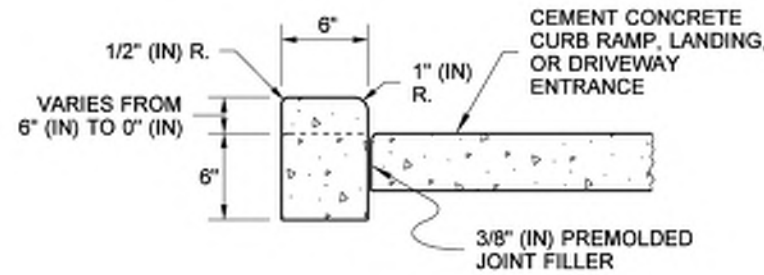
**CEMENT CONCRETE
TRAFFIC CURB AND GUTTER**



**DEPRESSED CURB AND GUTTER SECTION
AT CURB RAMPS AND
DRIVEWAY ENTRANCES**



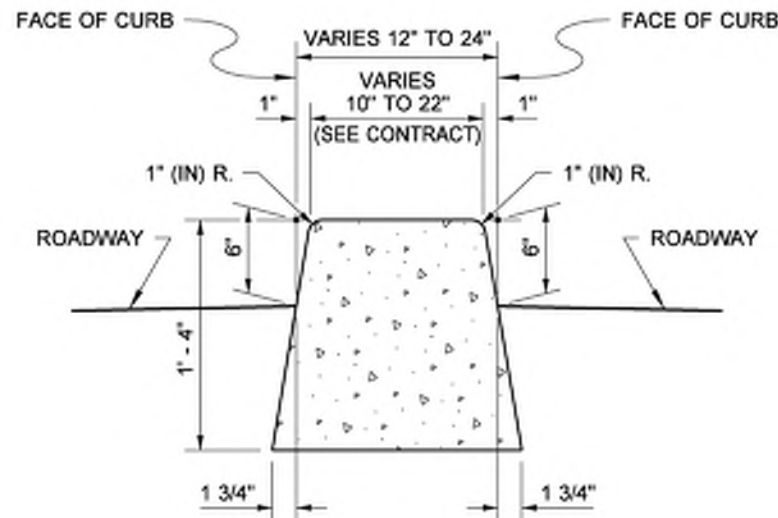
CEMENT CONCRETE PEDESTRIAN CURB



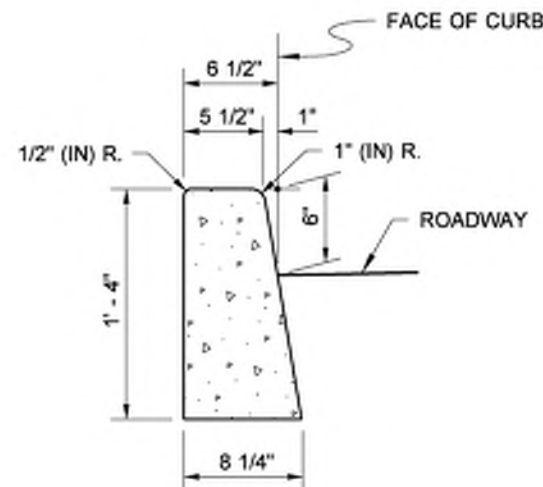
**CEMENT CONCRETE PEDESTRIAN CURB
AT CURB RAMPS, LANDINGS,
AND DRIVEWAY ENTRANCES**

NOTE

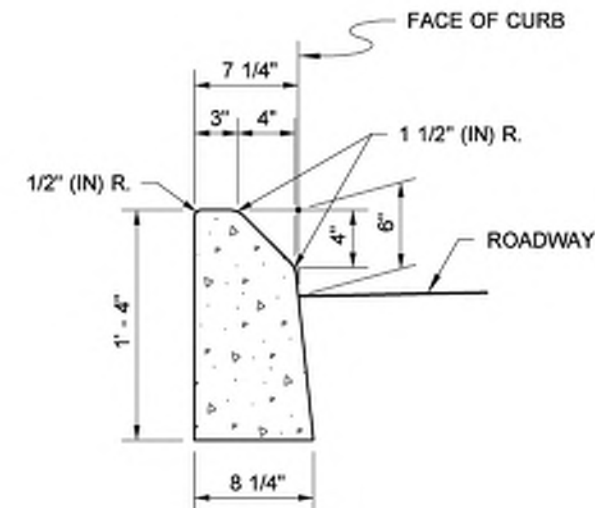
1. See **Standard Plan F-30.10** for Curb Expansion and Contraction Joint spacing. See **Standard Specification, Sections 8-04 and 9-04** for additional requirements.



**DUAL-FACED CEMENT
CONCRETE TRAFFIC CURB**



**CEMENT CONCRETE
TRAFFIC CURB**



**MOUNTABLE CEMENT
CONCRETE TRAFFIC CURB**



Michael S
Fleming
CEMENT CONCRETE CURBS

Digitally signed by Michael S
Fleming
Date: 2020.09.24 07:39:38 -07'00'

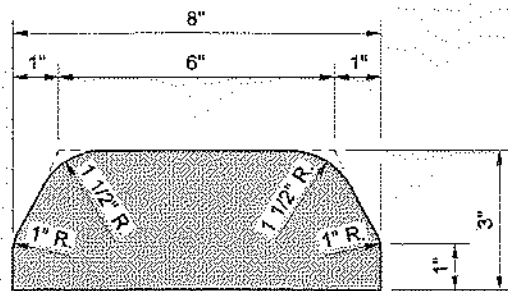
STANDARD PLAN F-10.12-04

SHEET 1 OF 1 SHEET

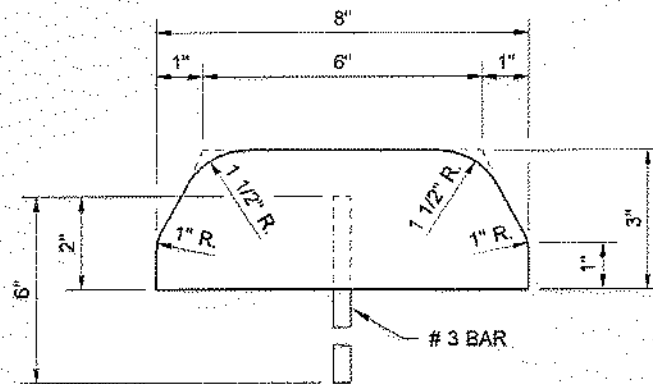
APPROVED FOR PUBLICATION

Date: 2020.09.24
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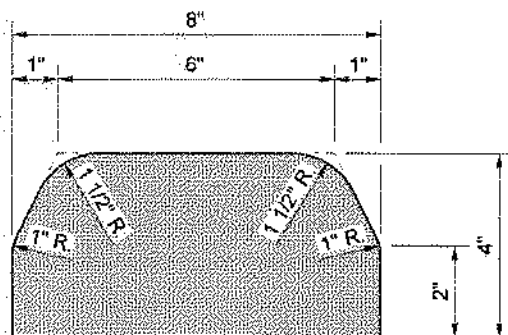
STATE DESIGN ENGINEER
Washington State Department of Transportation



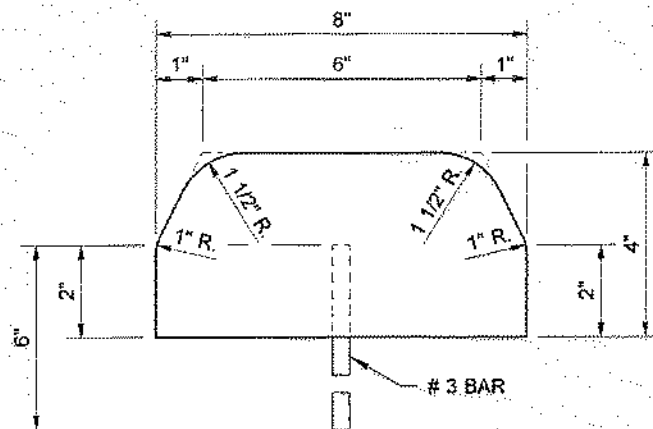
TYPE 1
(HOT MIX ASPHALT)



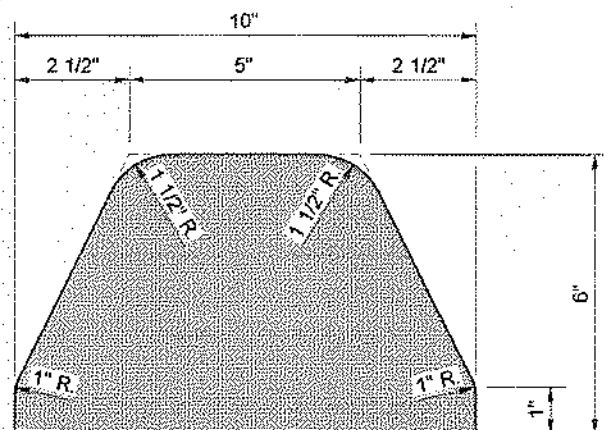
TYPE 4
(CEMENT CONCRETE)



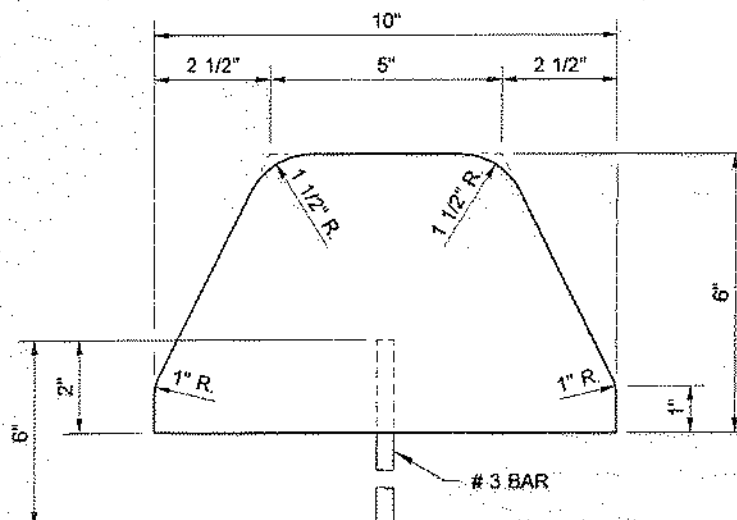
TYPE 2
(HOT MIX ASPHALT)



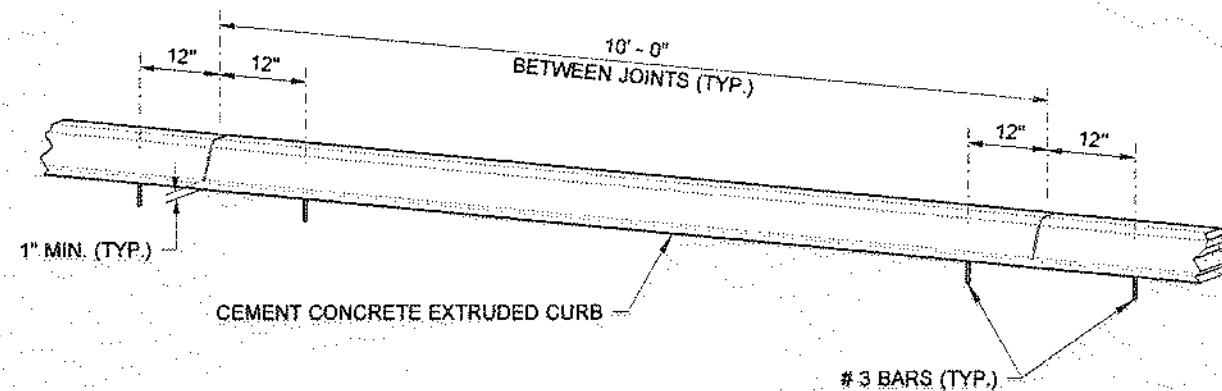
TYPE 5
(CEMENT CONCRETE)



TYPE 3
(HOT MIX ASPHALT)



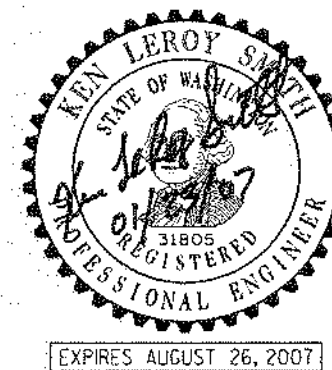
TYPE 6
(CEMENT CONCRETE)



SPACING OF ANCHOR BARS
(FOR TYPES 4, 5, AND 6)

NOTE

JOINTS MAY BE FORMED DURING INSTALLATION USING A RIGID DIVIDER OR SAWCUT AFTER CONCRETE CURES TO MINIMUM STRENGTH.

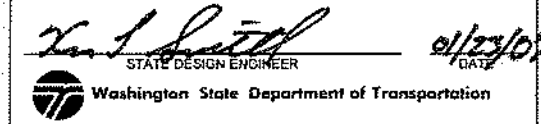


EXTRUDED CURB

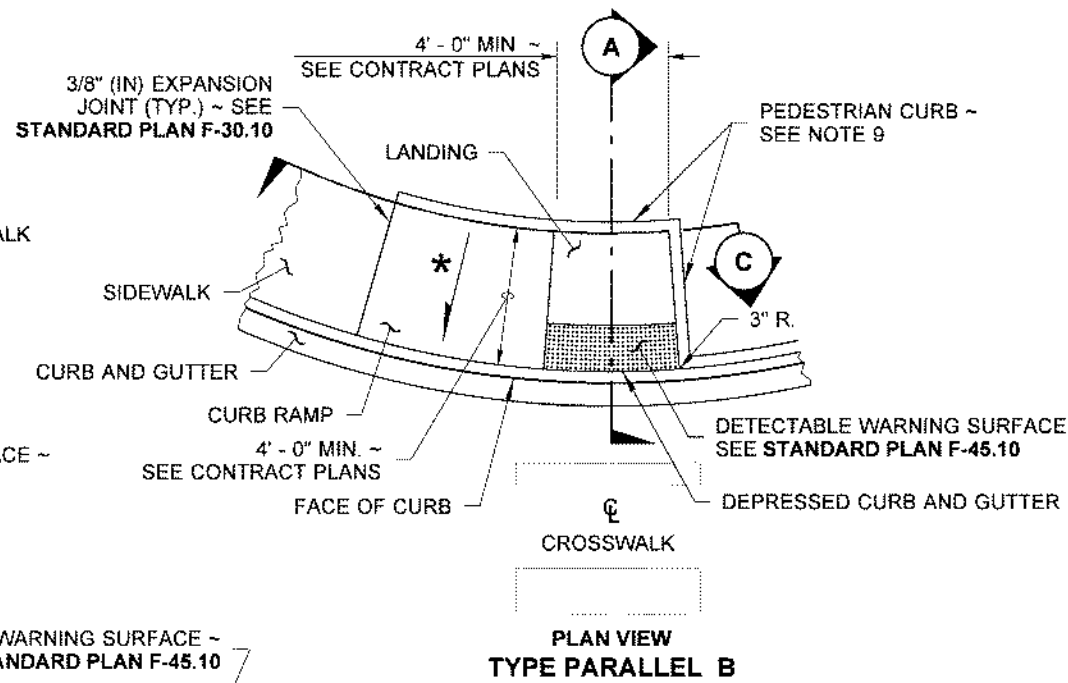
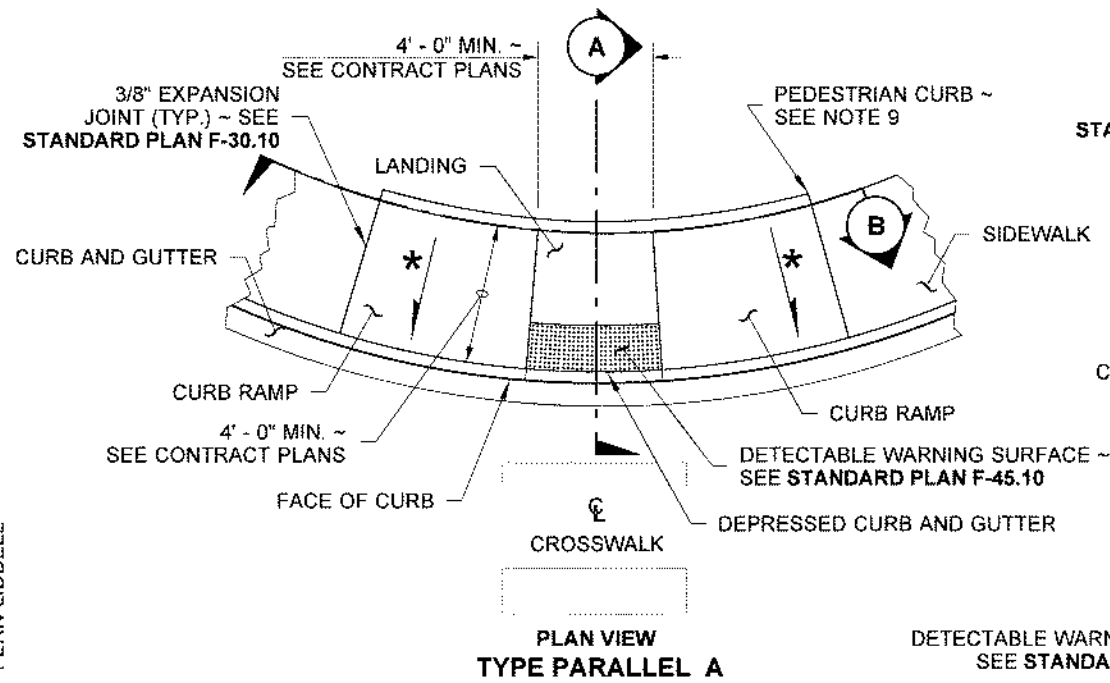
STANDARD PLAN F-10.42-00

SHEET 1 OF 1 SHEET

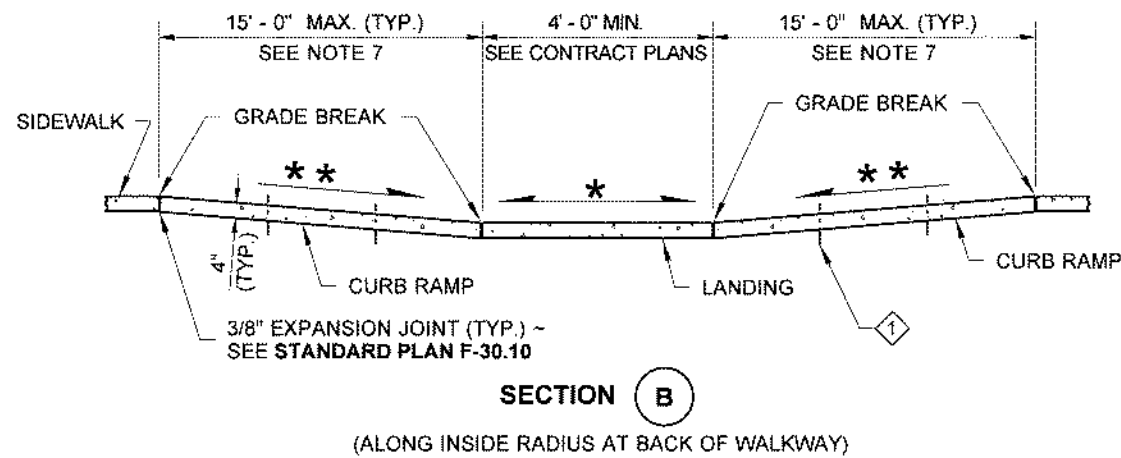
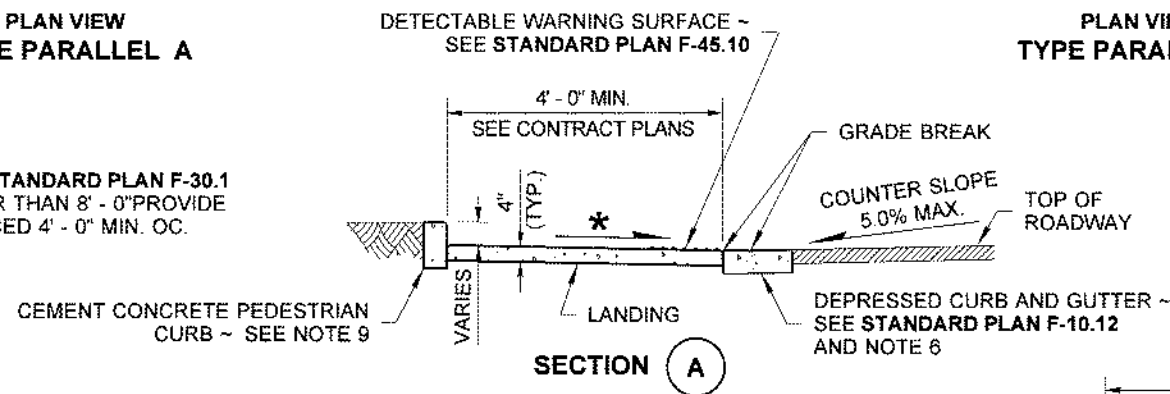
APPROVED FOR PUBLICATION



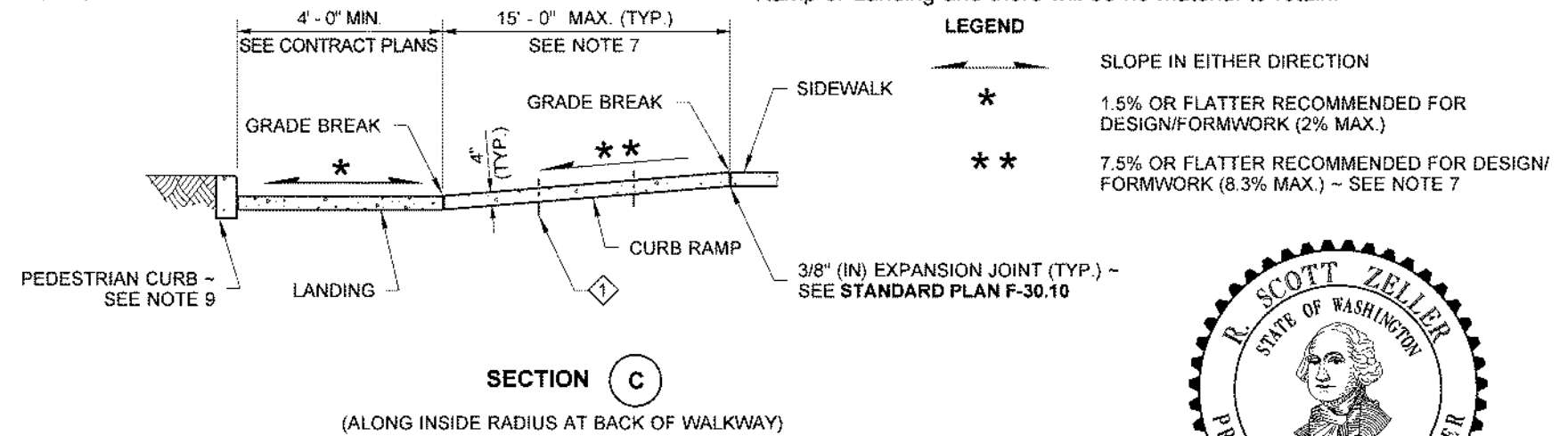
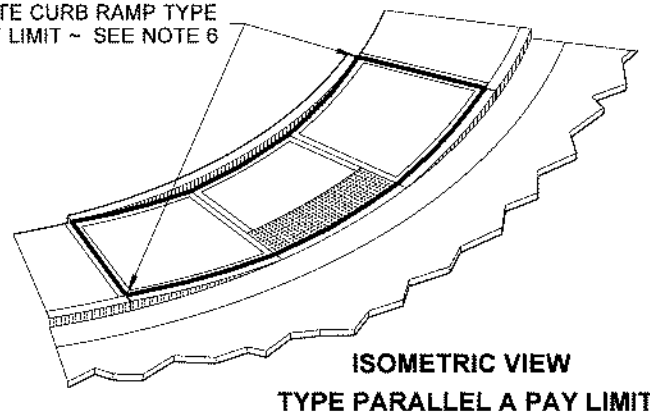
DRAWN BY: FERN LIDDELL



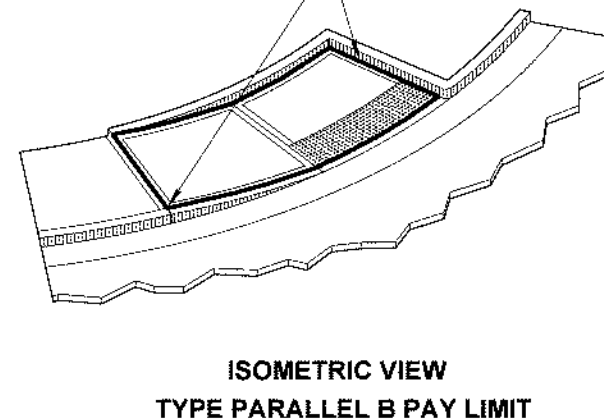
1 CONTRACTION JOINT (TYP.) ~ SEE STANDARD PLAN F-30.1 FOR CURB RAMP LENGTHS GREATER THAN 8' - 0" PROVIDE CONTRACTION JOINT EQUALLY SPACED 4' - 0" MIN. OC.



"CEMENT CONCRETE CURB RAMP TYPE PARALLEL A" PAY LIMIT ~ SEE NOTE 6



"CEMENT CONCRETE CURB RAMP TYPE PARALLEL B" PAY LIMIT ~ SEE NOTE 6



NOTES

- At marked crosswalks, the connection between the landing and the roadway must be contained within the width of the crosswalk markings.
- Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
- Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances on any part of the Curb Ramp or Landing, or in the Depressed Curb and Gutter where the Landing connects to the roadway.
- See Contract Plans for the curb design specified. See **Standard Plan F-10.12** for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
- See **Standard Plan F-30.10** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
- The Bid Item "Cement Concrete Curb Ramp Type ___" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
- The Curb Ramp length is not required to exceed 15 feet (unless otherwise shown in the Contract Plans). When applying the 15-foot max. length, the running slope of the curb ramp is allowed to exceed 8.3%. Use a single constant slope from bottom of ramp to top of ramp to match into the sidewalk over a horizontal distance of 15 feet. Do not include abutting landing(s) in the 15-foot max. measurement. When a ramp is constructed on a radius, the 15-foot max. length is measured on the inside radius along the back of the walkway.
- Curb Ramps and Landings shall receive a broom finish. See **Standard Specifications 8-14**.
- Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will be no material to retain.



Zeller, Scott
Jun 24 2016 7:19 AM

PARALLEL CURB RAMP

STANDARD PLAN F-40.12-03

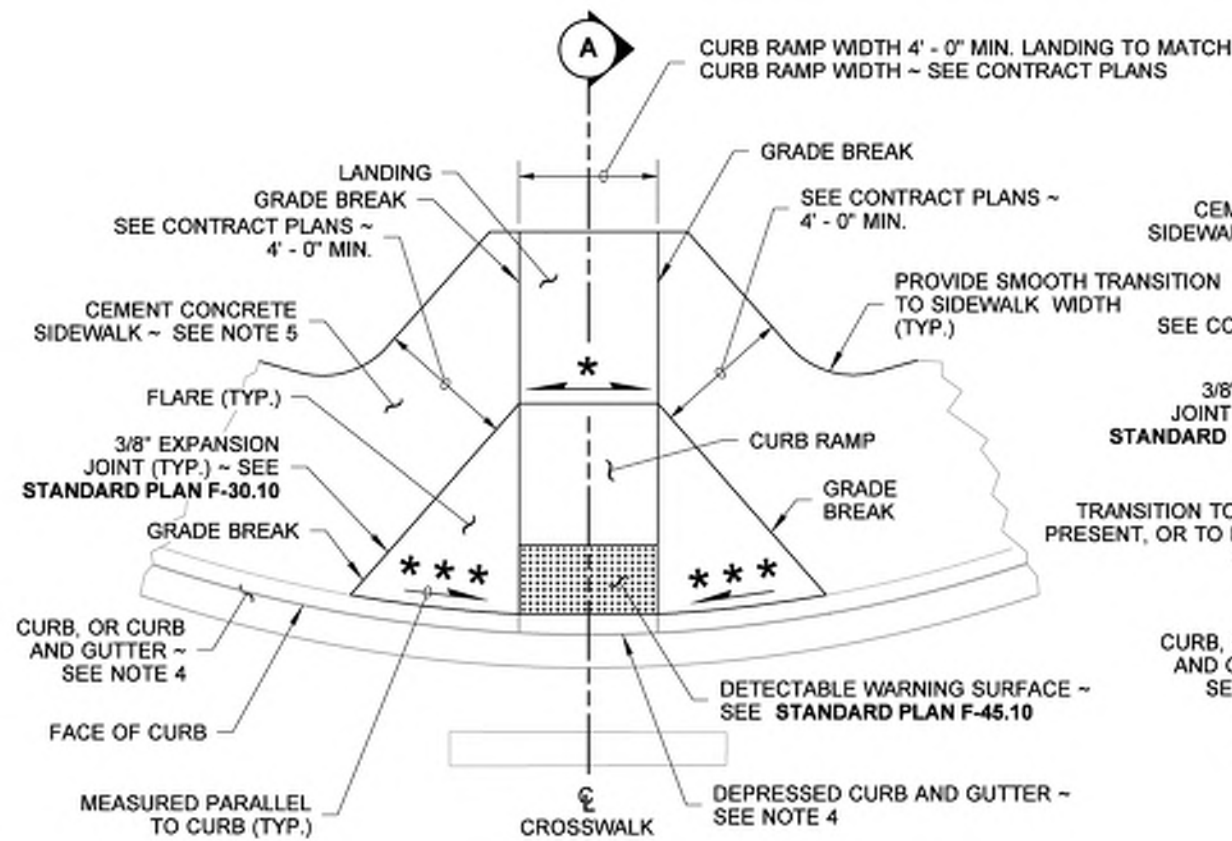
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

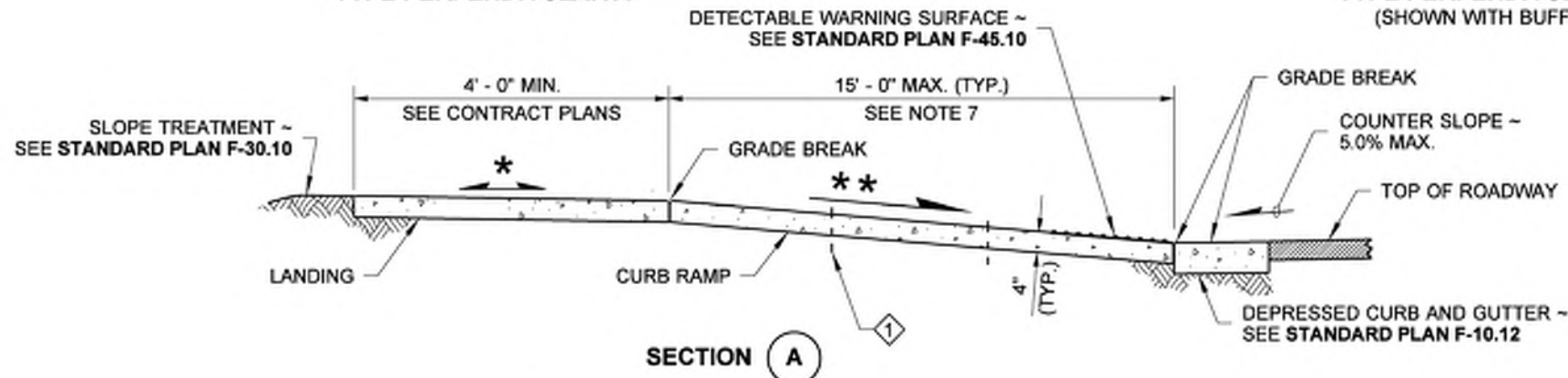
Carpenter, Jeff
Jun 29 2016 2:27 PM

STATE DESIGN ENGINEER

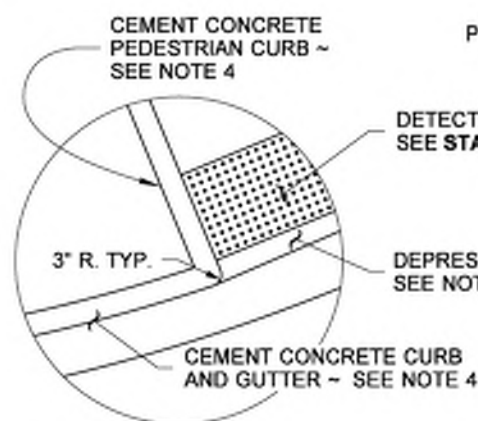
Washington State Department of Transportation



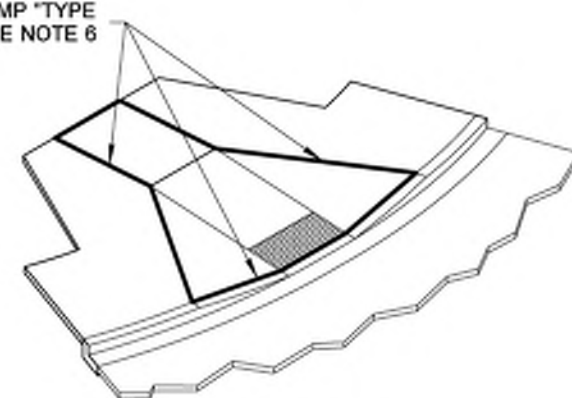
PLAN VIEW
TYPE PERPENDICULAR A



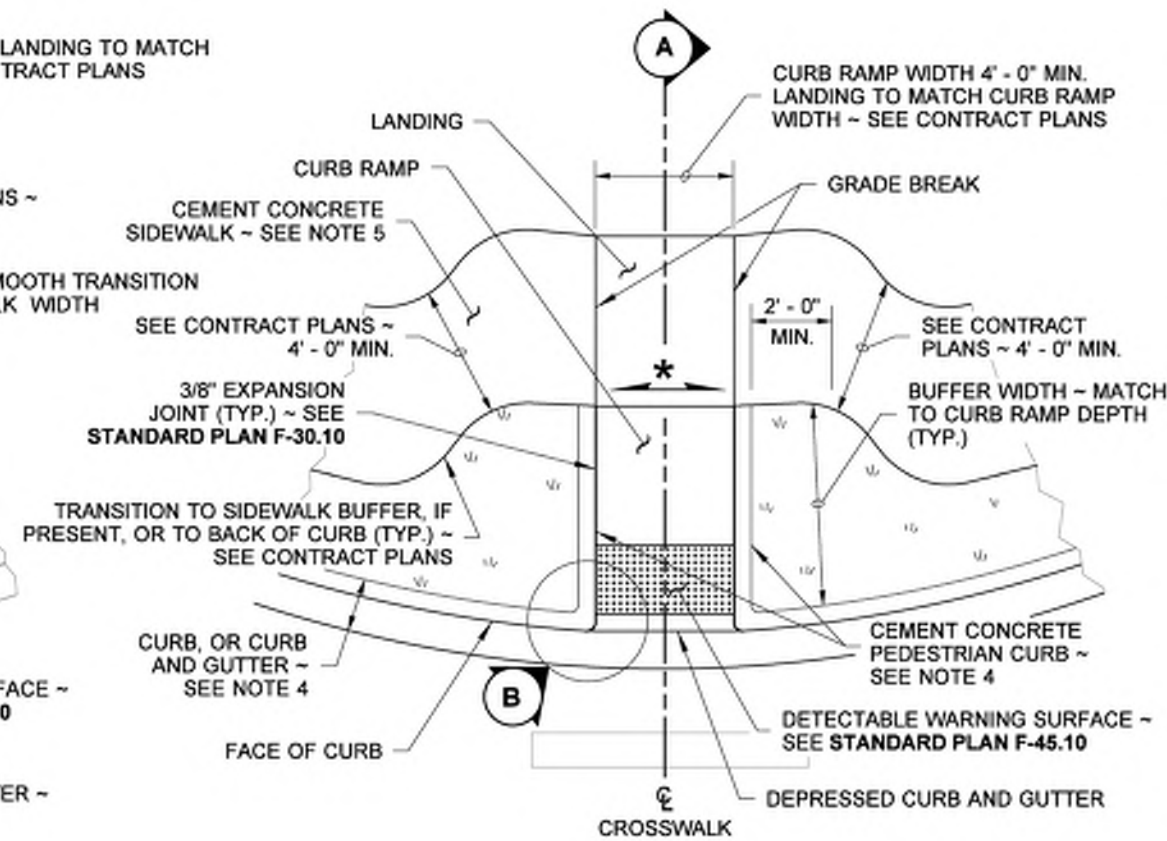
SECTION A



CURB RADIUS DETAIL (B)

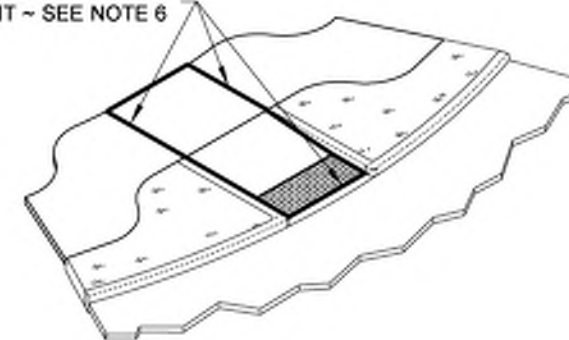


ISOMETRIC VIEW
TYPE PERPENDICULAR A PAY LIMIT



PLAN VIEW
TYPE PERPENDICULAR B
(SHOWN WITH BUFFER)

CEMENT CONCRETE CURB RAMP "TYPE PERPENDICULAR "B" PAY LIMIT - SEE NOTE 6



ISOMETRIC VIEW
TYPE PERPENDICULAR B PAY LIMIT

NOTES

- At marked crosswalks, the connection between the curb ramp and the roadway must be contained within the width of the crosswalk markings.
- Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
- Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances on any part of the Curb Ramp or Landing, or in front of the Curb Ramp where it connects to the roadway.
- See Contract Plans for the curb design specified. See **Standard Plan F-10.12** for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
- See **Standard Plan F-30.10** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
- The Bid Item "Cement Concrete Curb Ramp Type __" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
- The Curb Ramp length is not required to exceed 15 feet (unless shown otherwise in the Contract Plans). When applying the 15-foot max. length, the running slope of the Curb Ramp is allowed to exceed 8.3%. Use a single constant slope from bottom of ramp to top of ramp to match into the landing over a horizontal distance of 15 feet. Do not include the abutting landing in the 15-foot max. measurement.
- Curb Ramps and Landings shall receive a broom finish. See **Standard Specifications 8-14**.
- Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will not be material to retain.

LEGEND

- SLOPE IN EITHER DIRECTION
- * 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX.)
- ** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX.)
- *** 9.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (10% MAX.)



Digitally signed by R. Scott Zeller
Date: 2020.09.22 13:23:53 -07'00'

PERPENDICULAR CURB RAMP

STANDARD PLAN F-40.15-04

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Date: 2020.09.25

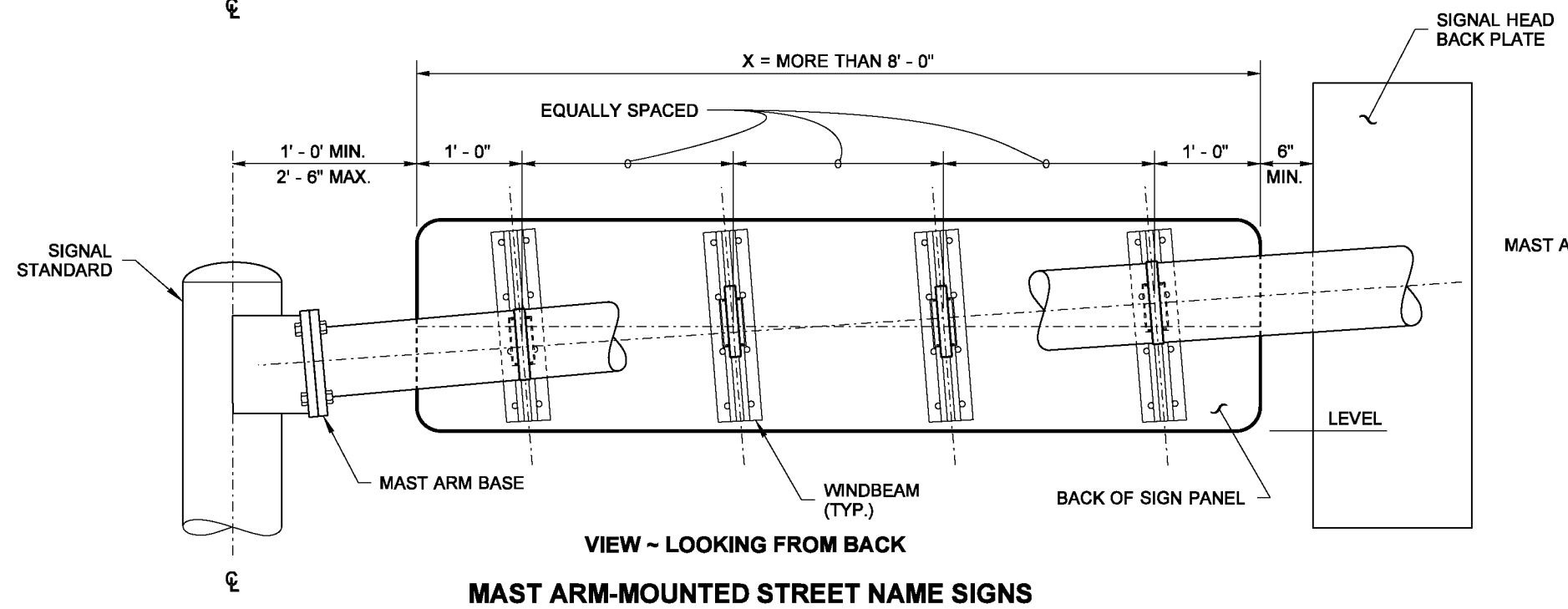
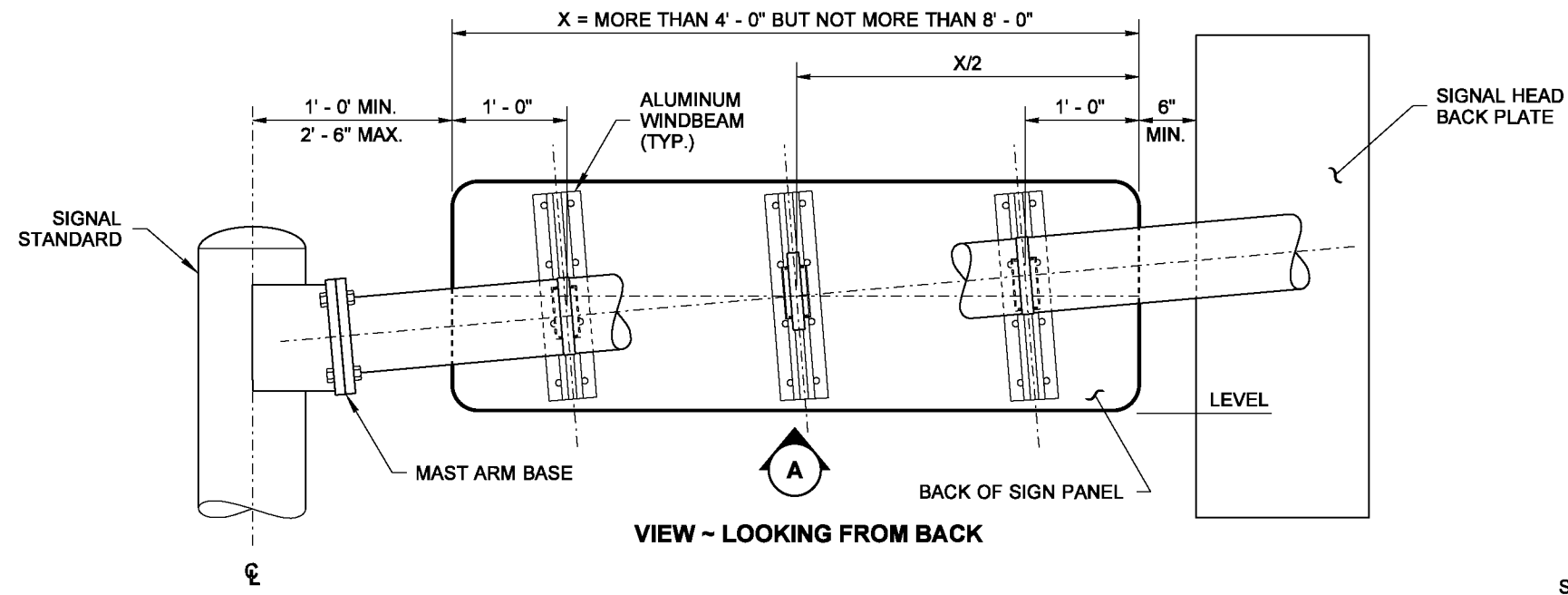
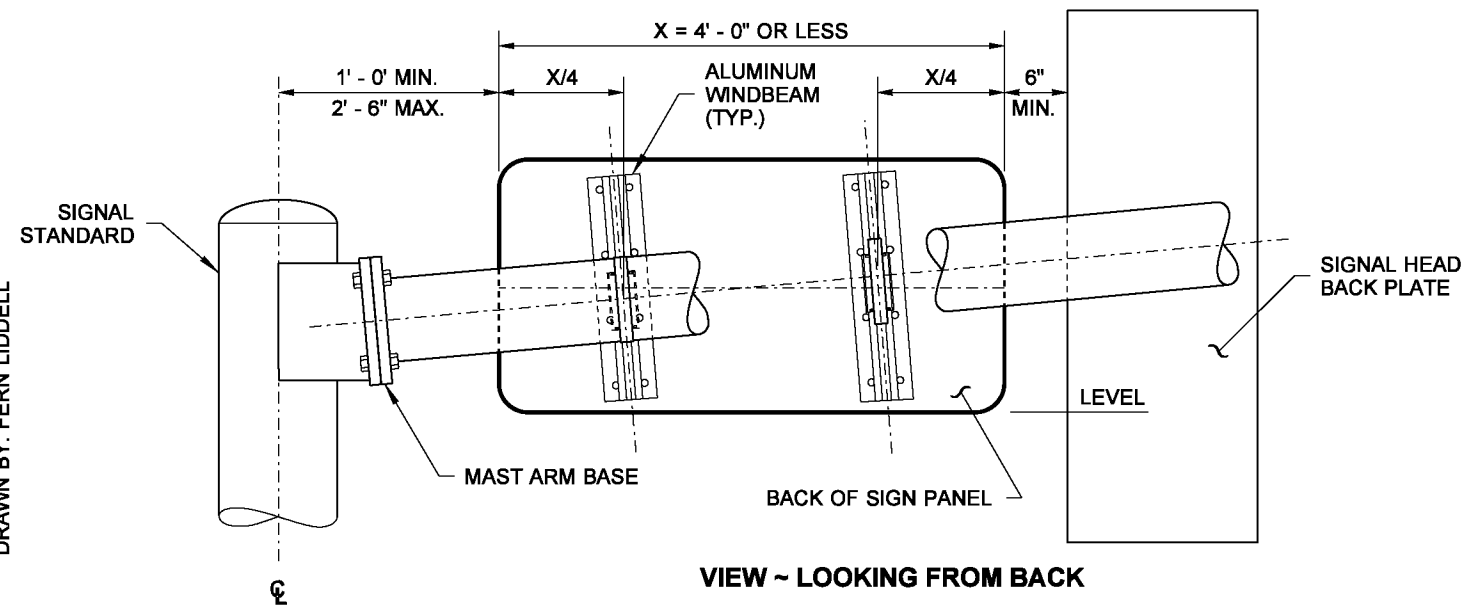
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STATE DESIGN ENGINEER



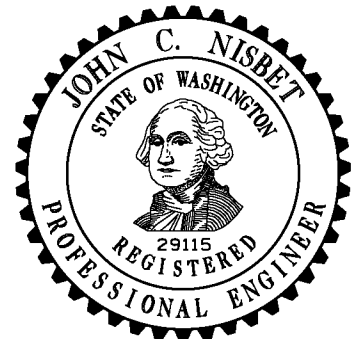
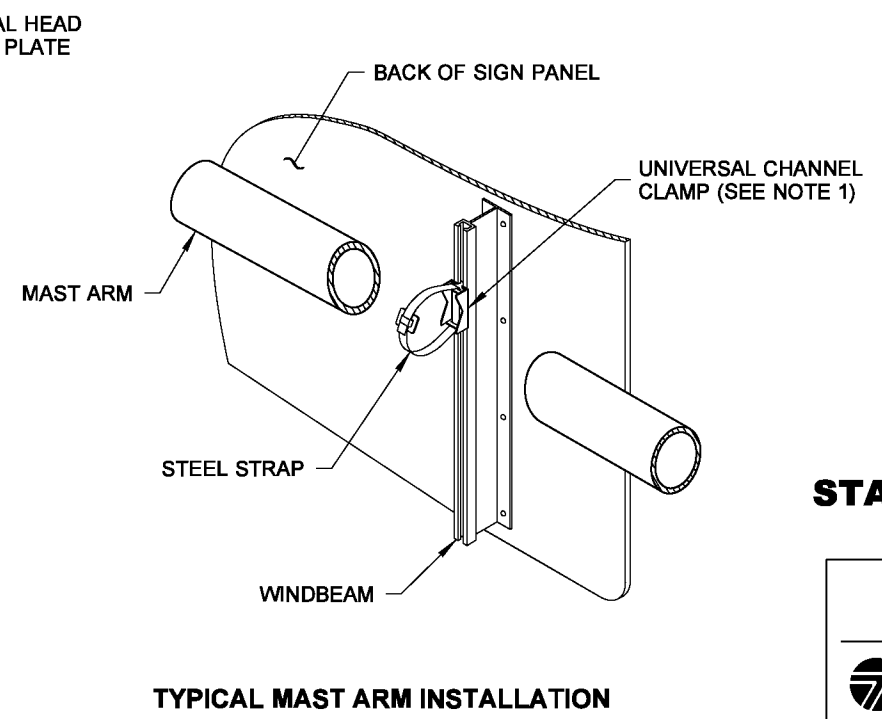
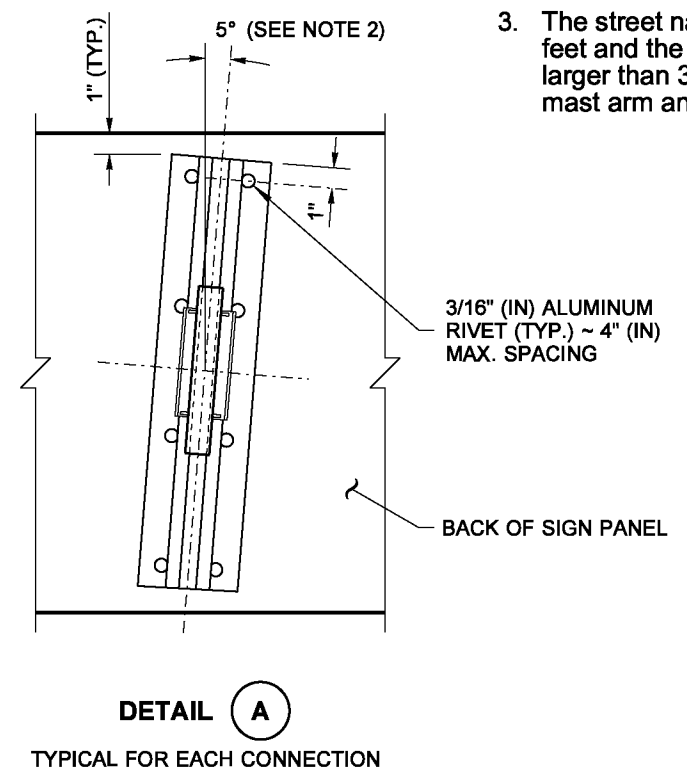
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



NOTES

1. Mounting brackets with steel straps shall be a stainless steel band and buckle system product or an approved equal. Mounting brackets shall be universal channel clamps; steel straps shall be 3/4" (in) wide and 0.030" (in) thick.
2. All signs installed on mast arms or standards (poles) require windbeams. All signs shall be installed with horizontal edges level. A skewed windbeam is required only when the sign is mounted within 12" (in) of the mast arm base (see Detail "A").
3. The street name sign shall be a maximum of 36 square feet and the sign height is a maximum of 3' (ft); signs larger than 36 square feet require a special design mast arm and signal pole.

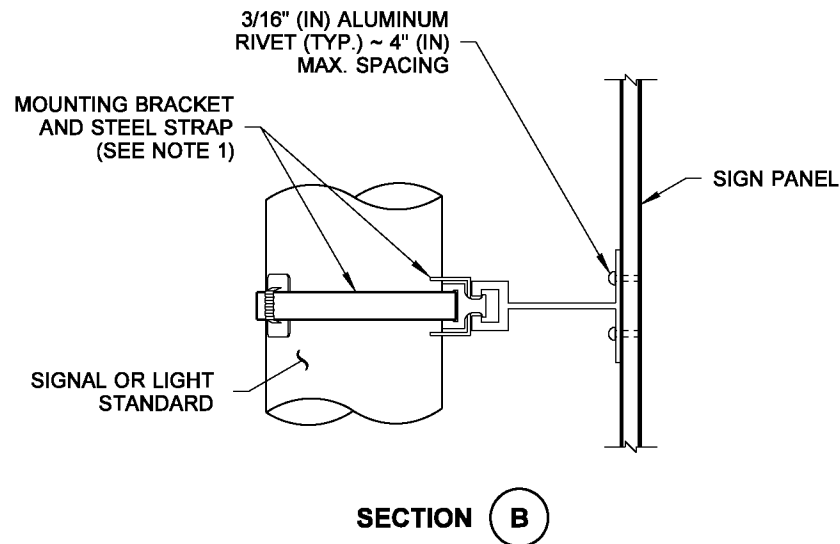
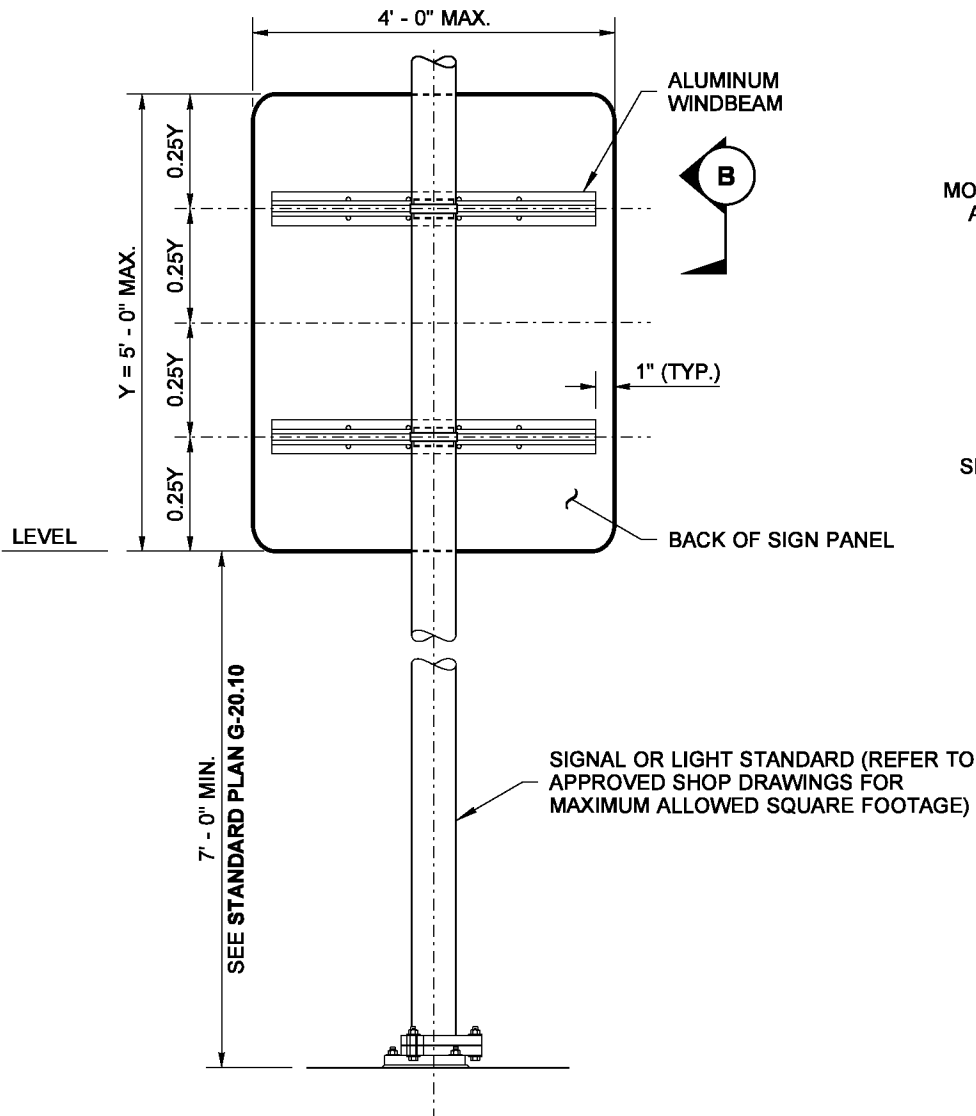
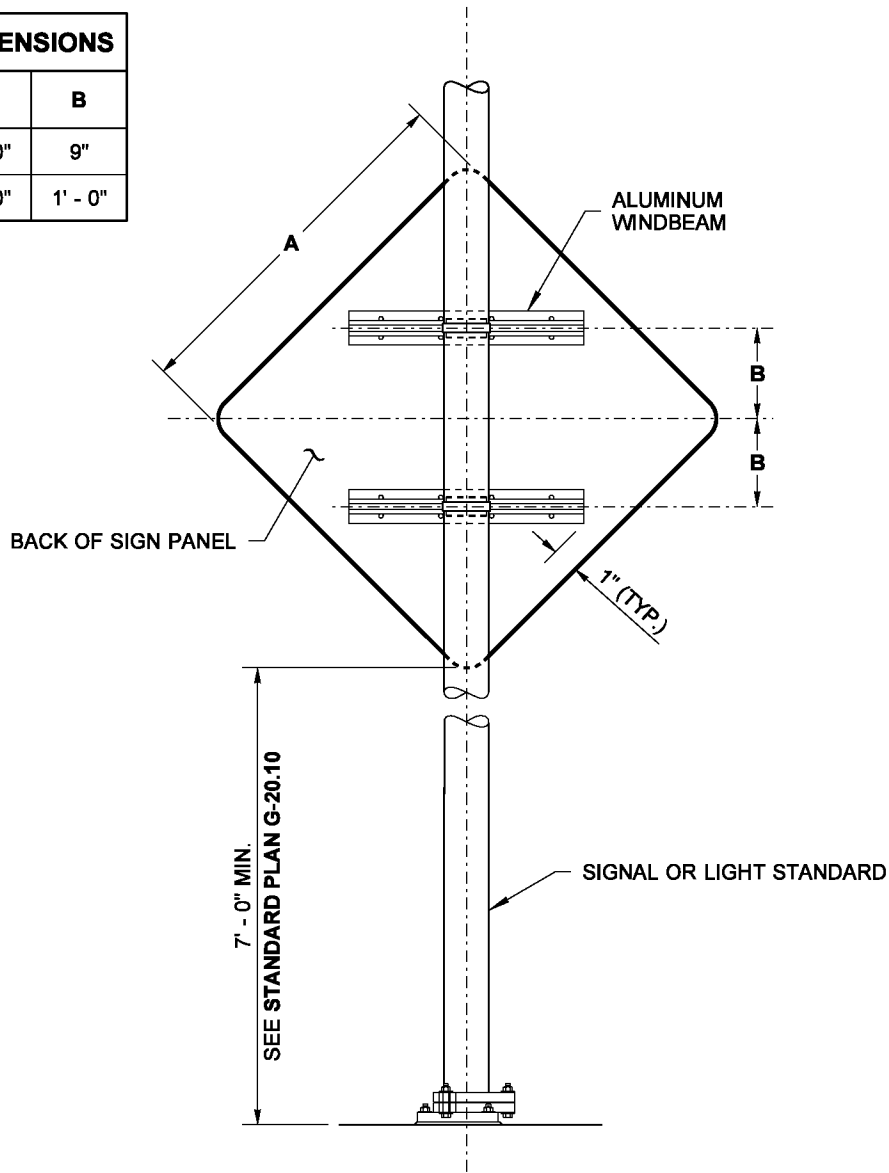


**SIGN INSTALLATION
ON SIGNAL AND
LIGHT STANDARDS
STANDARD PLAN G-30.10-04**

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

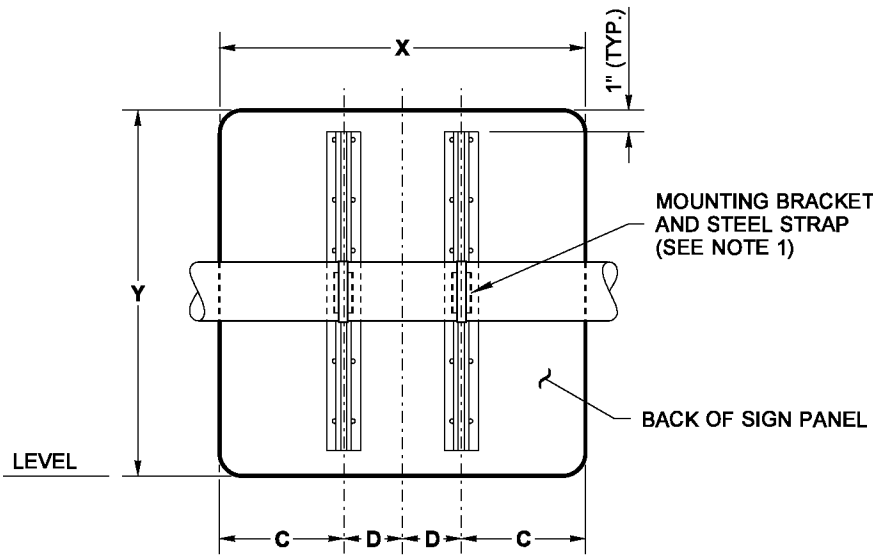
DIMENSIONS	
A	B
3' - 0"	9"
4' - 0"	1' - 0"



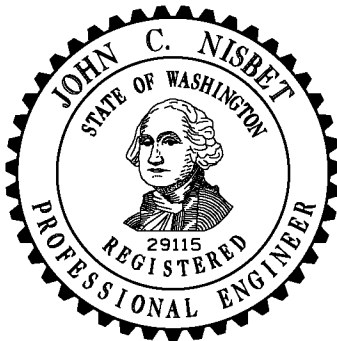
SIGN INSTALLATION ON SIGNAL OR LIGHT STANDARD

DIMENSIONS			
X	Y	C	D
3' - 0"	2' - 6"	1' - 0"	6"
3' - 0"	3' - 0"	1' - 0"	6"
3' - 0"	4' - 0"	1' - 3"	9"
4' - 0"	2' - 6"	1' - 3"	9"

NOTE:
Any Lane Use Sign greater than 7.5 sq ft. requires a Special Design Mast Arm and Signal Pole.



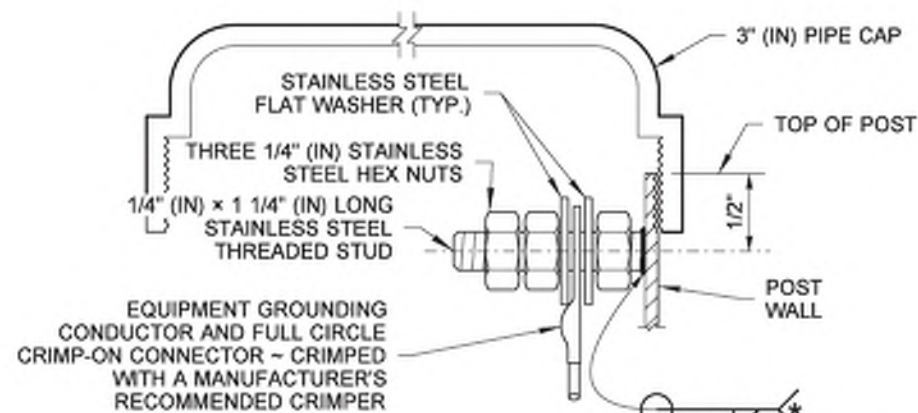
MAST ARM-MOUNTED LANE USE SIGNS



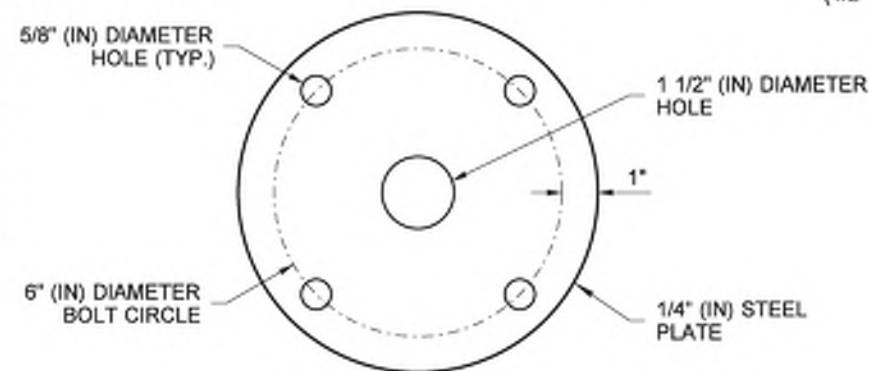
**SIGN INSTALLATION
ON SIGNAL AND
LIGHT STANDARDS
STANDARD PLAN G-30.10-04**

SHEET 2 OF 2 SHEETS

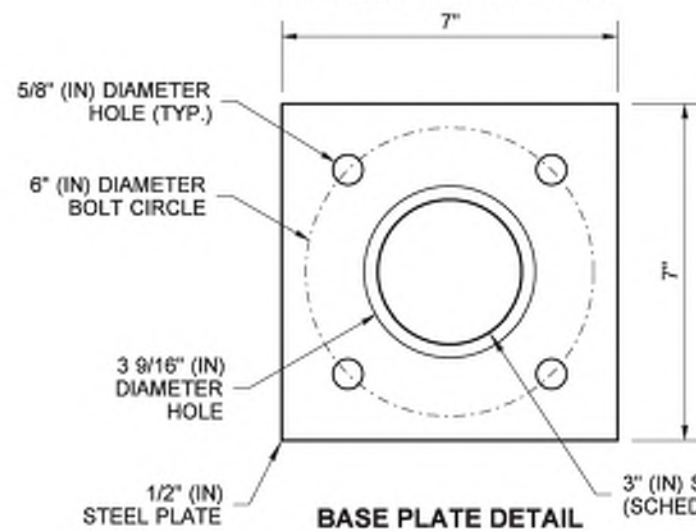
APPROVED FOR PUBLICATION

GROUNDING CONNECTION
DETAIL

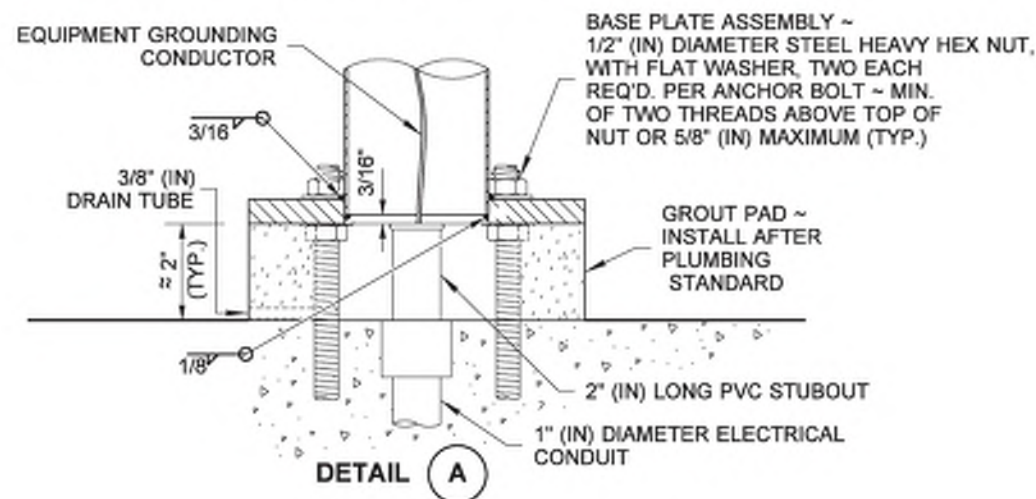
* WELD STUD TO POLE WALL TO
MAXIMUM EXTENT POSSIBLE
(1/2" (IN) MINIMUM WELD)



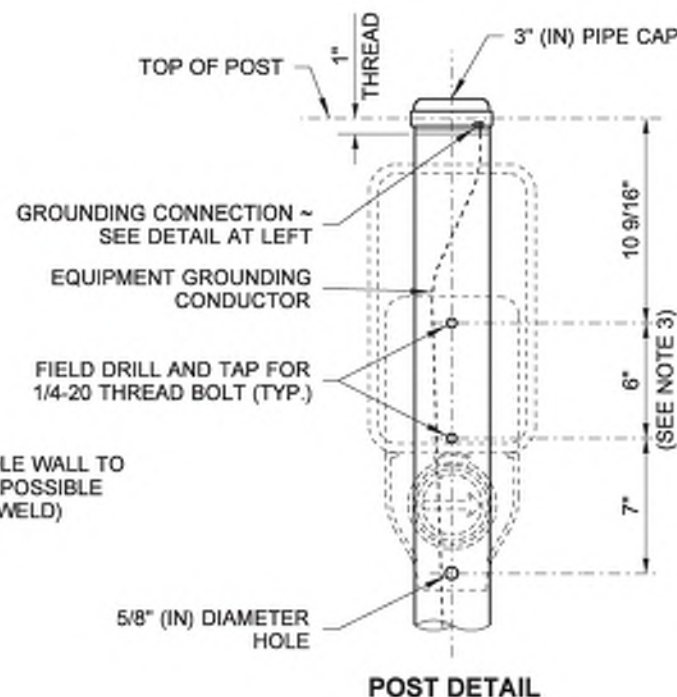
ANCHOR BOLT TEMPLATE



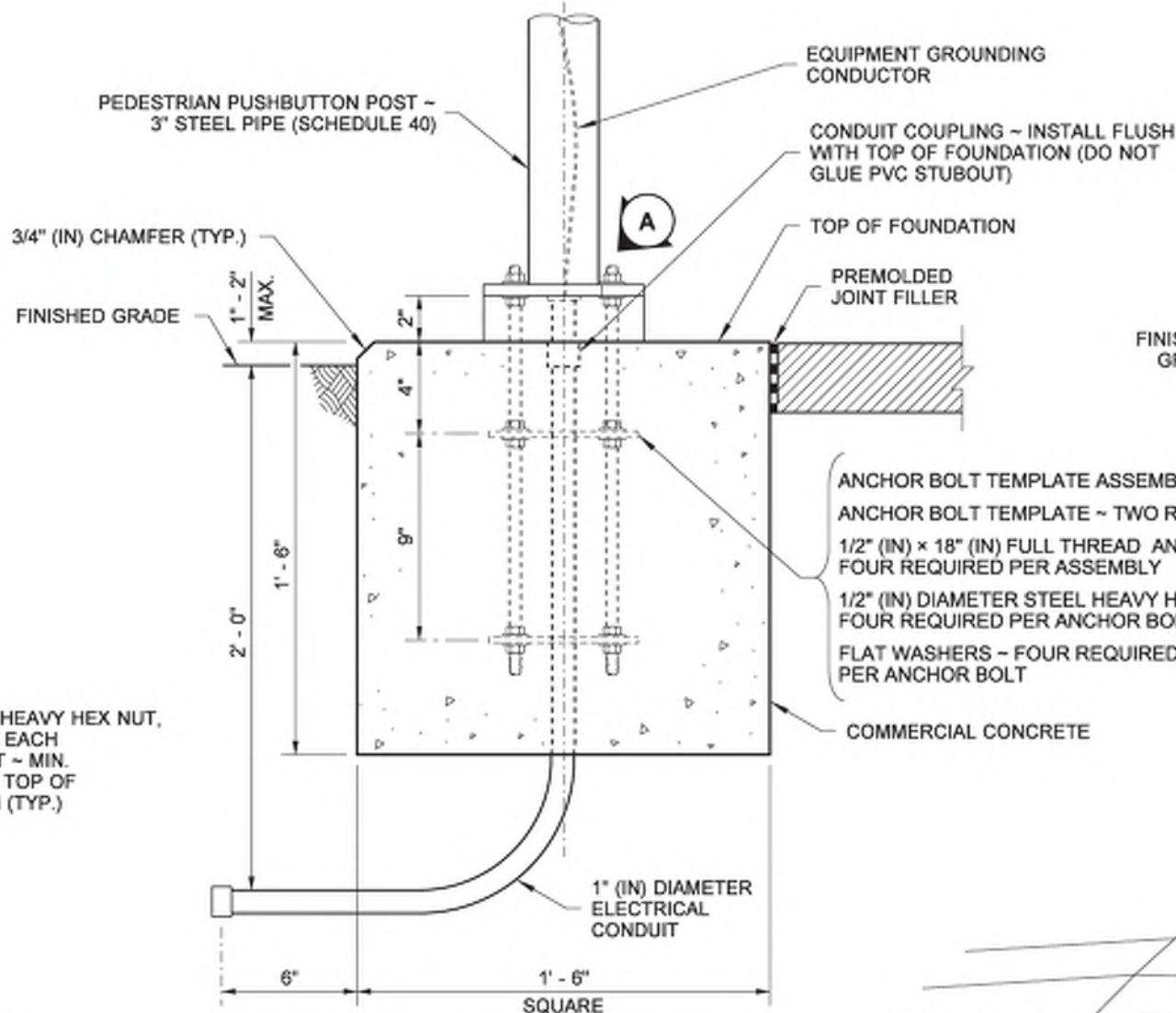
BASE PLATE DETAIL



DETAIL A



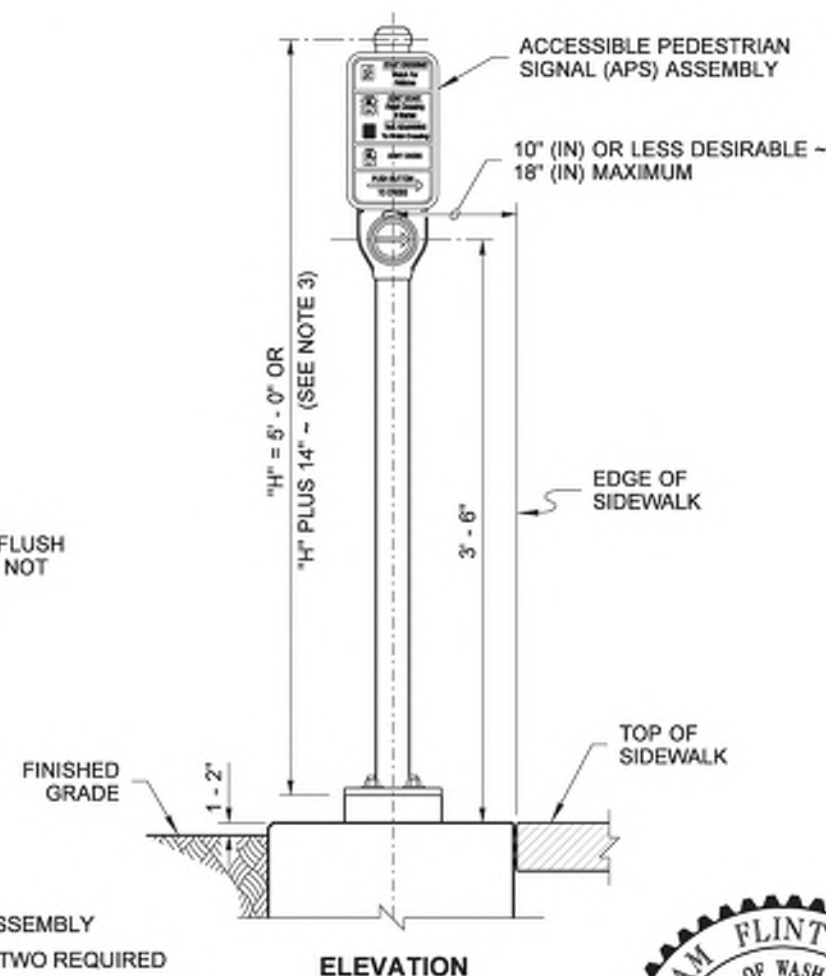
POST DETAIL



FOUNDATION DETAIL

NOTES

1. See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton details.
2. Where shown in the plans, install plaque (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" above the Accessible Pedestrian Signal (APS) assembly. Add 14" (in) to post height to accommodate plaque and leave a 2" (in) space between signs.
3. Mounting distances vary between manufacturers. See manufacturers recommendations for mounting information.
4. Junction Box serving the Standard shall preferably be located 5' - 0" (10' - 0" Max.) from the Standard.
5. Two button installation may require adaptor(s).



ELEVATION

ANCHOR BOLT TEMPLATE ASSEMBLY
ANCHOR BOLT TEMPLATE ~ TWO REQUIRED
1/2" (IN) x 18" (IN) FULL THREAD ANCHOR BOLT ~
FOUR REQUIRED PER ASSEMBLY
1/2" (IN) DIAMETER STEEL HEAVY HEX NUTS ~
FOUR REQUIRED PER ANCHOR BOLT
FLAT WASHERS ~ FOUR REQUIRED
PER ANCHOR BOLT

COMMERCIAL CONCRETE

1" (IN) DIAMETER
ELECTRICAL
CONDUIT

6" 1' - 6" SQUARE

1" (IN) DIAMETER
ELECTRICAL
CONDUIT

PERSPECTIVE VIEW



Jackson, Flint
Jul 29 2019 2:53 PM

ACCESSIBLE PEDESTRIAN PUSHBUTTON POST (PPB) AND FOUNDATION STANDARD PLAN J-20.10-04

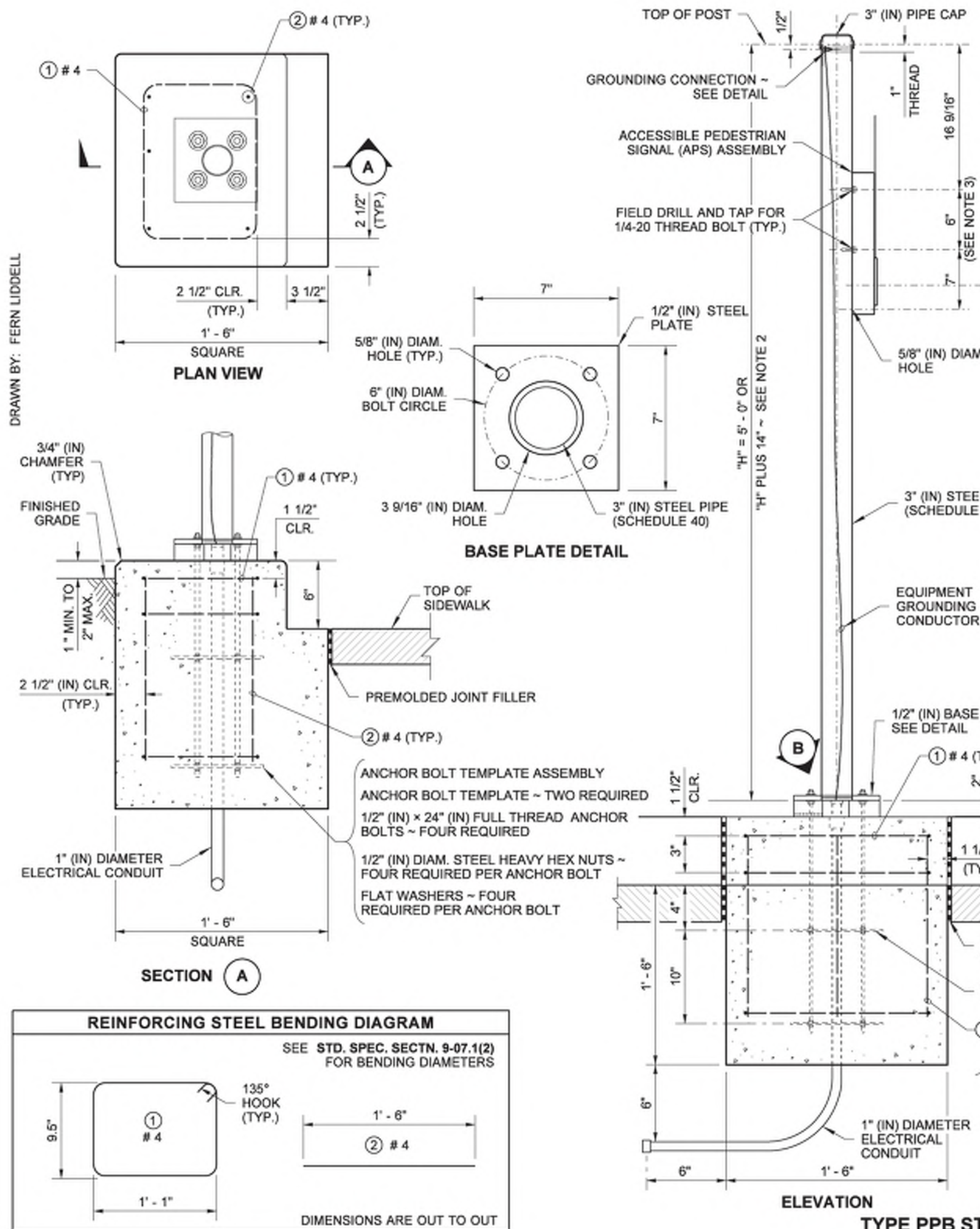
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

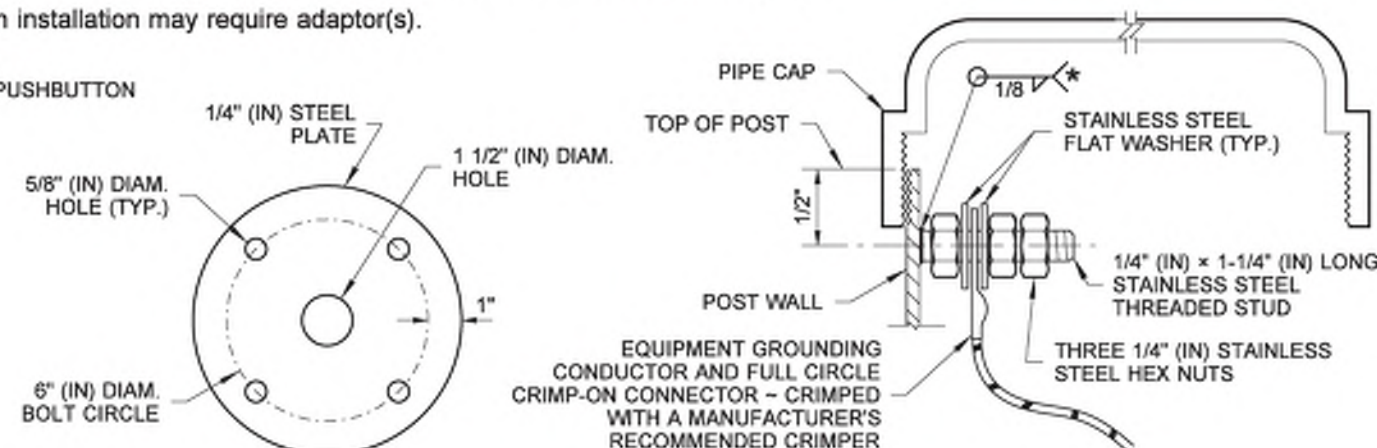
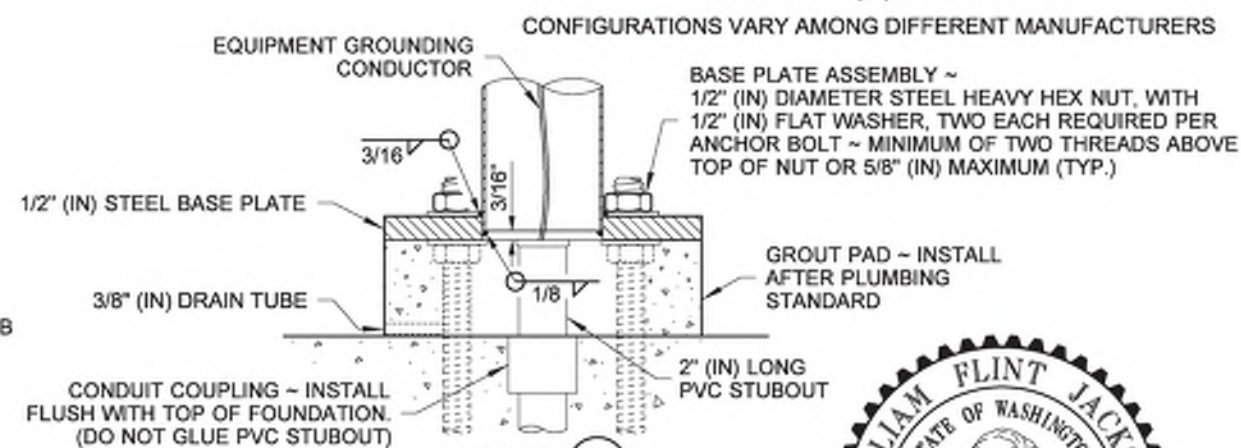
Roark, Steve
Jul 31 2019 12:13 PM

STATE DESIGN ENGINEER

Washington State Department of Transportation

**NOTES**

- See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton details.
- Where shown in the plans, install plaque (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" above the Accessible Pedestrian Signal (APS) assembly. Add 14" (in) to the PPB post height to accommodate plaque and leave a 2" (in) space between signs.
- Mounting distances vary between manufacturers. See manufacturers recommendations for mounting information.
- Junction Box serving the Standard shall preferably be located 5' - 0" (10' - 0" Max.) from the Standard.
- Supplemental Grounding Conductor shall be non-insulated #4 AWG stranded copper and shall be clamped to vertical rebar with a connector suitable for use embedded in concrete. Provide 3' - 0" min. slack. Attach to pole grounding stud with a full circle crimp-on connector (crimped with a manufacturer recommended crimper).
- Two button installation may require adaptor(s).

**ANCHOR BOLT TEMPLATE****SECTION B**Jackson, Flint
Jul 29 2019 2:54 PM

**ACCESSIBLE PEDESTRIAN
PUSHBUTTON WITH
CURB BASE**

STANDARD PLAN J-20.11-03

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

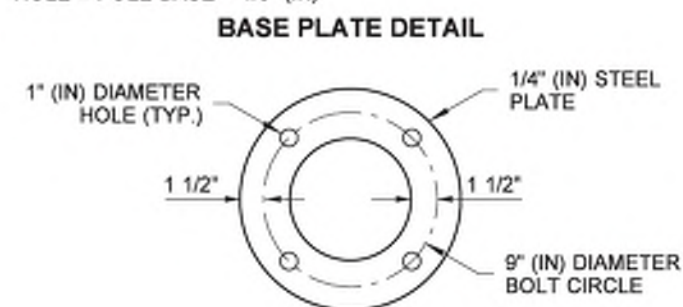
Roark, Steve
Jul 31 2019 12:14 PM

STATE DESIGN ENGINEER



Washington State Department of Transportation

PERSPECTIVE VIEW



REINFORCING STEEL BENDING DIAGRAM

SEE STD. SPEC. 9-07.1(2) FOR BENDING DIAMETER

1' - 7"

1' - 7"

135°
HOOK
(TYP.)

③ #4

1' - 10"

1' - 7"

④ #4

2' - 7"

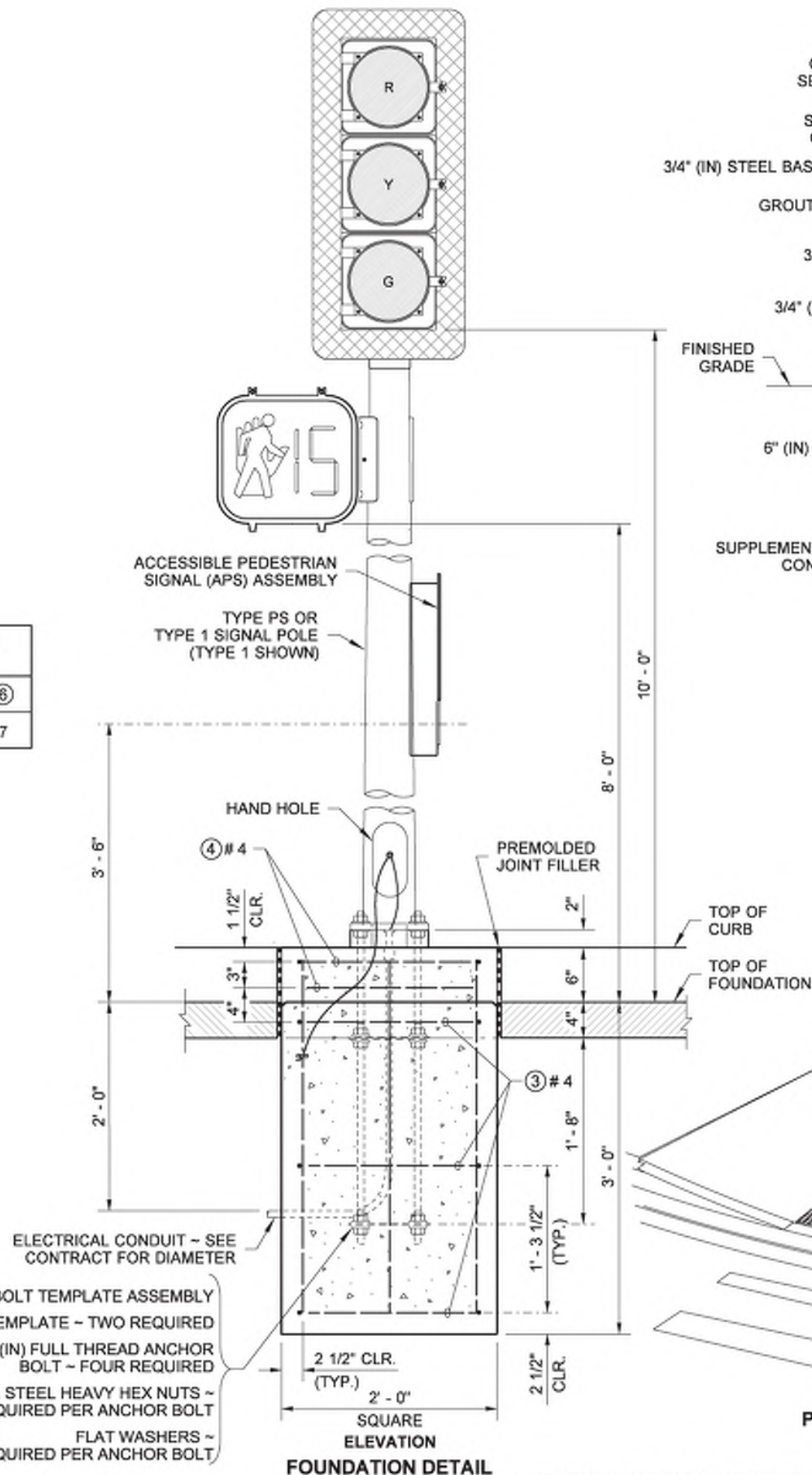
3' - 2"

⑤ #4

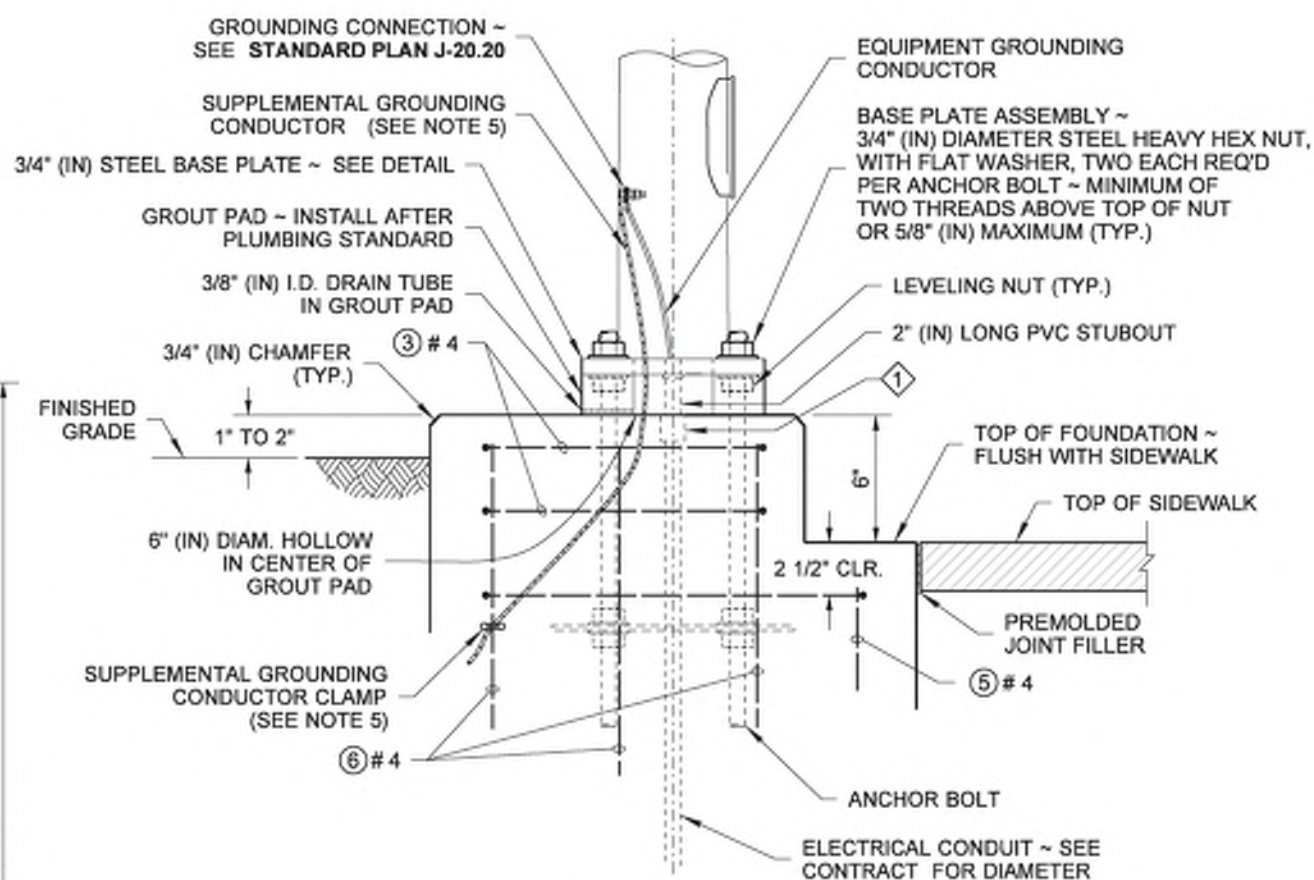
⑥ #4

DIMENSIONS ARE OUT TO OUT

REINFORCING STEEL QUANTITIES LIST				
MARK	③	④	⑤	⑥
QTY.	3	2	3	7



TYPE 1 SIGNAL STANDARD DETAILS



SECTION D

1 CONDUIT COUPLING ~ INSTALL FLUSH WITH TOP OF FOUNDATION. (DO NOT GLUE PVC STUBOUT)




**ACCESSIBLE PEDESTRIAN
PUSHBUTTON WITH
CURB BASE
STANDARD PLAN J-20.11-03**

SHEET 2 OF 2 SHEETS

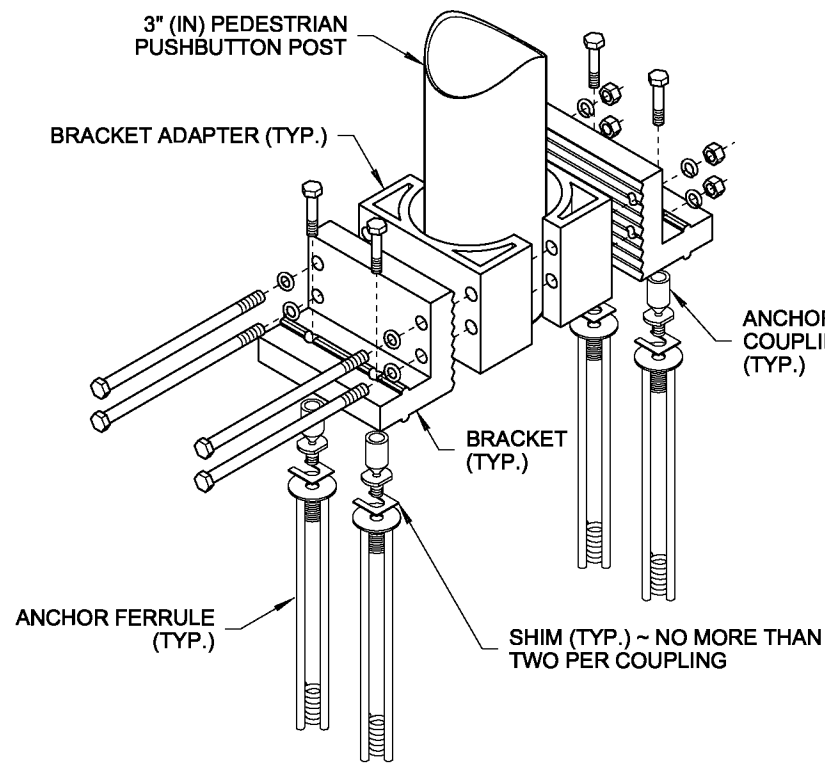
APPROVED FOR PUBLICATION

Reark, Sieve

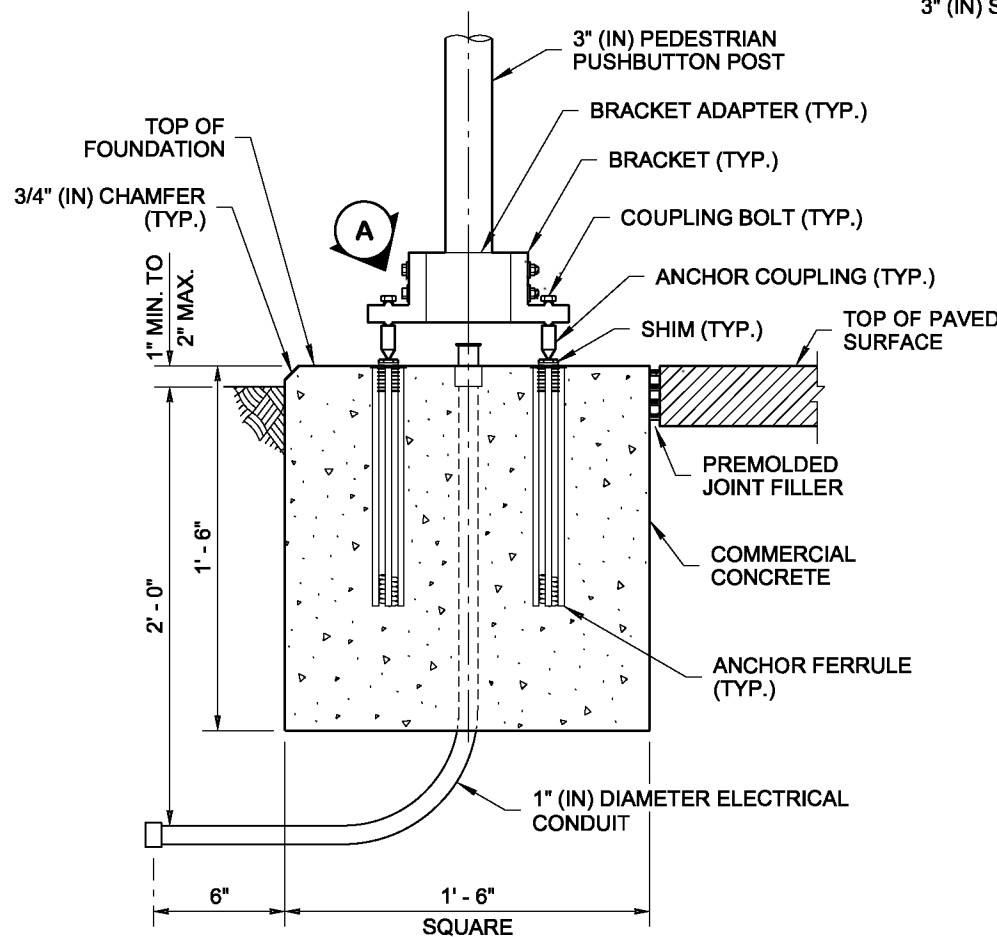
STATE DESIGN ENGINEER

 Washington State Department of Transportation

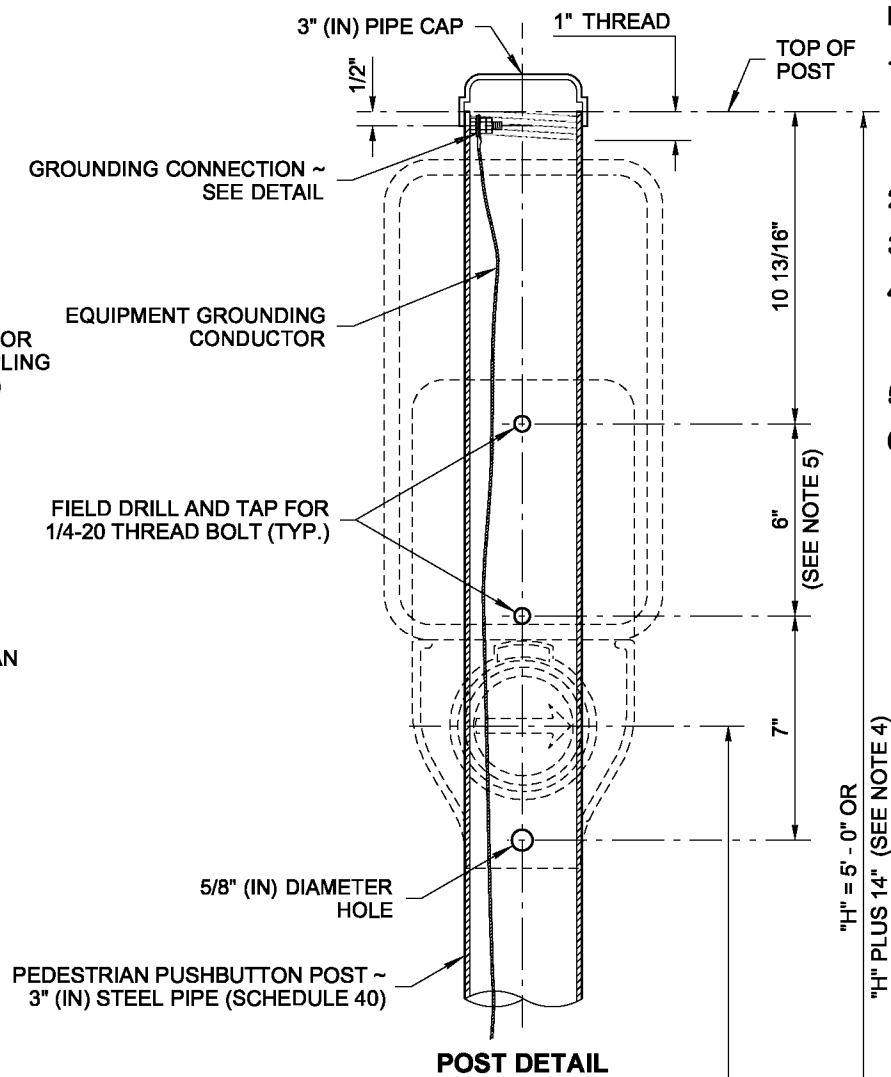
DRAWN BY: FERN LIDDELL



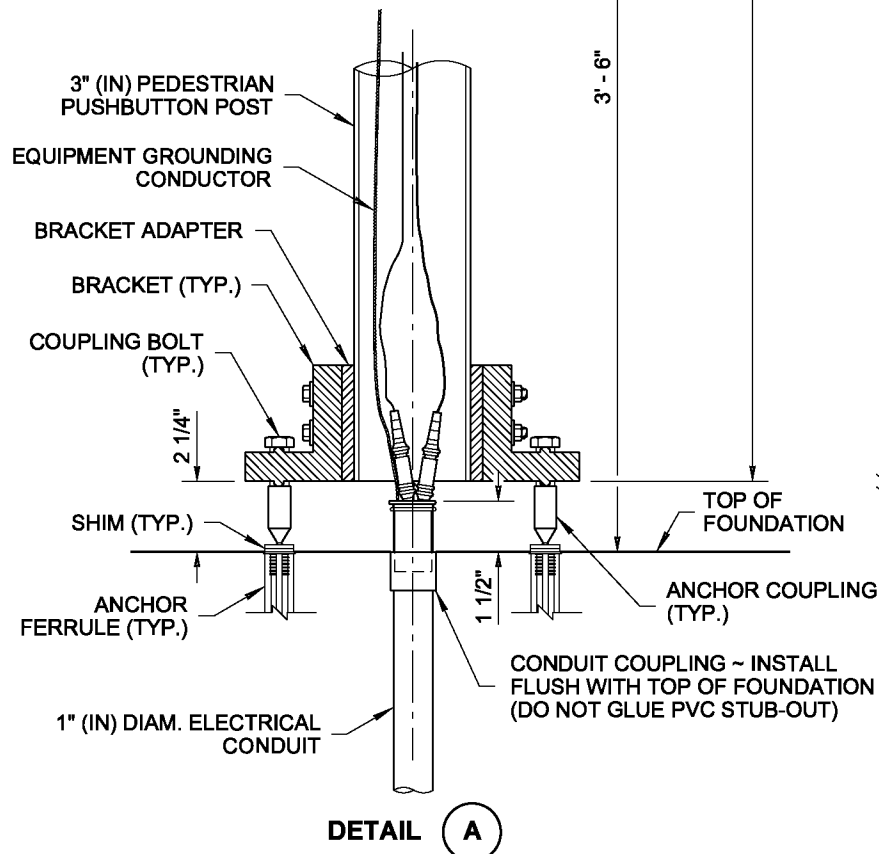
**EXPLODED VIEW
BREAKAWAY BASE CONNECTOR**
(SEE NOTE 1)



FOUNDATION DETAIL



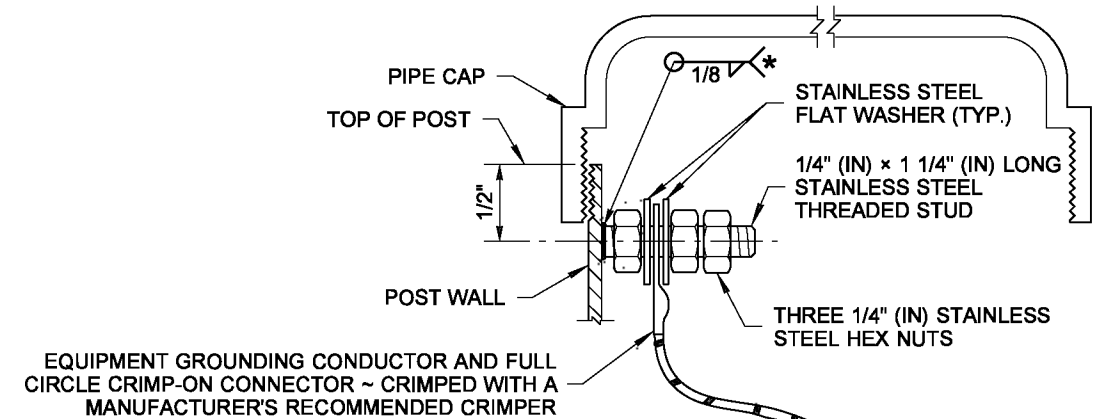
POST DETAIL



DETAIL A

NOTES

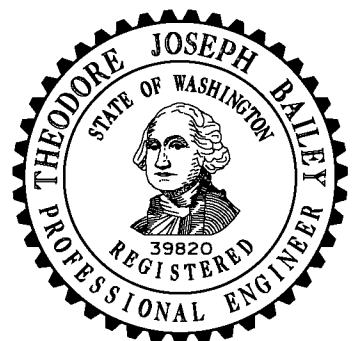
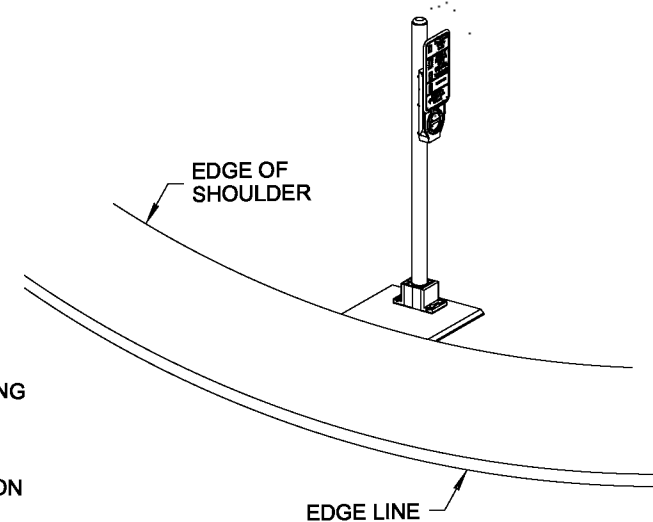
1. See **Standard Specification 9-06.16** for Breakaway Base Connection details. Dimensions for the parts used to assemble the base connections are intentionally not shown. Base connections are patented manufactured products that are in compliance with NCHRP 350 crash test criteria. The Breakaway Base Connection details are only shown on this plan to illustrate how parts are assembled.
2. See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton details.
3. Secure conductor in adjacent Junction Box per detail in **Standard Plan J-28.70**.
4. Where shown in the plans, install plaque (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" above the Accessible Pedestrian Signal (APS) assembly. Add 14" (in) to post height to accommodate plaque and leave a 2" (in) space between signs.
5. Mounting distances vary between manufacturers. See manufacturer's recommendations for mounting information.
6. Junction Box serving the Standard shall preferably be located 5' - 0" (10' - 0" Max.) from the Standard.



GROUNDING CONNECTION DETAIL

* WELD STUD TO POLE WALL TO MAXIMUM EXTENT POSSIBLE ~ 1/2" (IN) MINIMUM WELD

CONFIGURATIONS VARY AMONG DIFFERENT MANUFACTURERS
(SHOWN EXPLODED FOR CLARITY)



**ACCESSIBLE BREAKAWAY
PEDESTRIAN PUSHBUTTON
(PPB) POST**
STANDARD PLAN J-20.15-03

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

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TYPE C MOUNT PLACEMENT

TOP OF POLE

1/4" (IN) WEEP HOLE

8'-0"

MATCHLINE

BELOW MATCHLINE ~ SEE DETAILS ON PEDESTRIAN SIGNAL HEAD WITH TYPE D MOUNT

BASE PLATE DETAIL

1" (IN) DIAMETER HOLE (TYP.)

9"

TAPERED STEEL SHAFT

9" (IN) DIAMETER BOLT CIRCLE

3/4" (IN) STEEL PLATE

1/8

3/16

VIEW A

TYPE D MOUNTING DETAIL

INSTALL ROSETTE IF KNOCKOUT IS OPEN

1/4" (IN) WEEP HOLE

LOCK NIPPLE

OFFSET SLIPFITTER ~ OFFSET TO FRONT OF POLE

TYPE D MOUNT PEDESTRIAN SIGNAL STANDARD (FIXED BASE SHOWN)

TOP OF POLE

PEDESTRIAN SIGNAL HEAD WITH TYPE D MOUNT

1/4" (IN) WEEP HOLE

OFFSET SLIPFITTER

MATCHLINE

ABOVE MATCHLINE ~ USE DETAILS FOR PEDESTRIAN SIGNAL HEAD WITH TYPE C MOUNT

TAPERED STEEL SHAFT (SEE NOTE 2)

ACCESSIBLE PEDESTRIAN SIGNAL (APS) (SEE NOTE 5)

3'-6"

HAND HOLE (SEE NOTE 6)

8" MAX.

GROUNDING CONNECTION ~ SEE DETAIL

EQUIPMENT GROUNDING COND

SUPPLEMENTAL GROUNDING (SEE NOTE 8)

TOP OF FOUNDATION

PREMOLDED JOINT FILLER

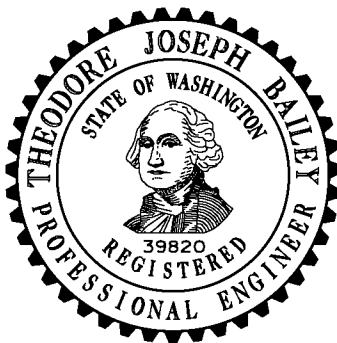
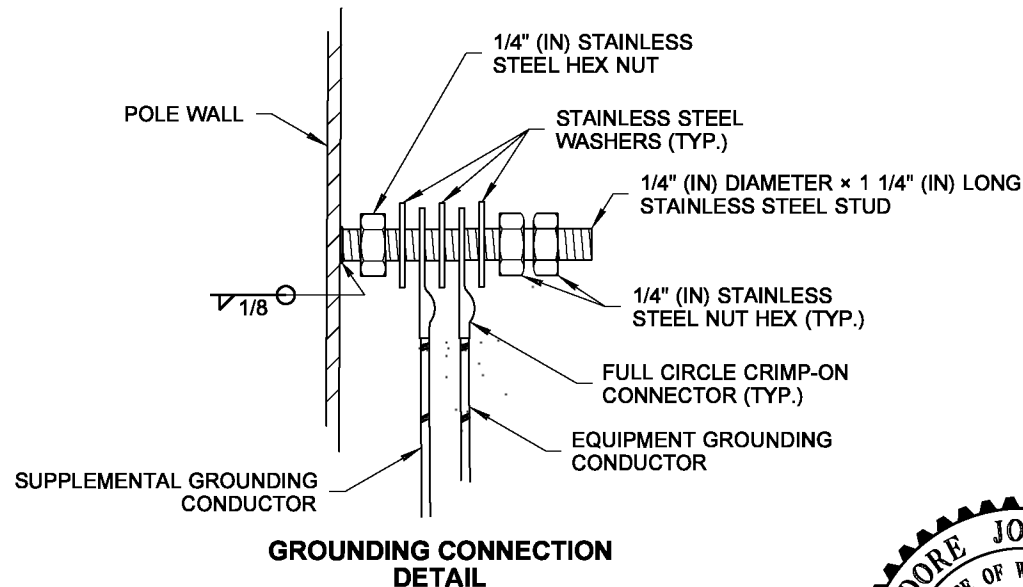
CONCRETE FOUNDATION (SEE NOTE 1)

SUPPLEMENTAL GR CONDUCTOR (SEE NOTE 8)

TYPE D MOUNT PEDESTRIAN SIGNAL STANDARD (FIXED BASE SHOWN)

NOTES

1. See **Standard Plan J-21.10** for Signal Standard Foundation with Fixed Base and Slip Base details.
2. Steel shaft shall be tapered either round or dodecagon (12-sided), 11 gage, 4 1/2" (in) O.D. at slipfitter weld. Taper shall be 0.14" (in) per foot.
3. Welding of structures shall be in accordance with the latest edition of the AWS D1.1 Structural Welding Code - Steel. All butt welds shall be ground flush with base metal.
4. See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton details.
5. See **Standard Plan J-20.20** for Accessible Pedestrian Signal Standard Electrical details.
6. Hand holes shall include a removable, rain-tight cover and gasket, fastened with two stainless steel screws (ASTM 593).
7. Supplemental grounding conductor shall be non-insulated #4 AWG stranded copper and shall be clamped to vertical rebar with a connector suitable for use embedded in concrete. Provide 3' - 0" min. slack. Attach to pole grounding stud with a full circle crimp-on connector (crimped with a manufacturer recommended crimper).
8. The junction box serving the standard shall preferably be located 5' - 0" (10' - 0" max.) from the standard.
9. Where shown in the plans, install plaque (R10 - 32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" two inches above the Accessible Pedestrian Signal (APS) Assembly.

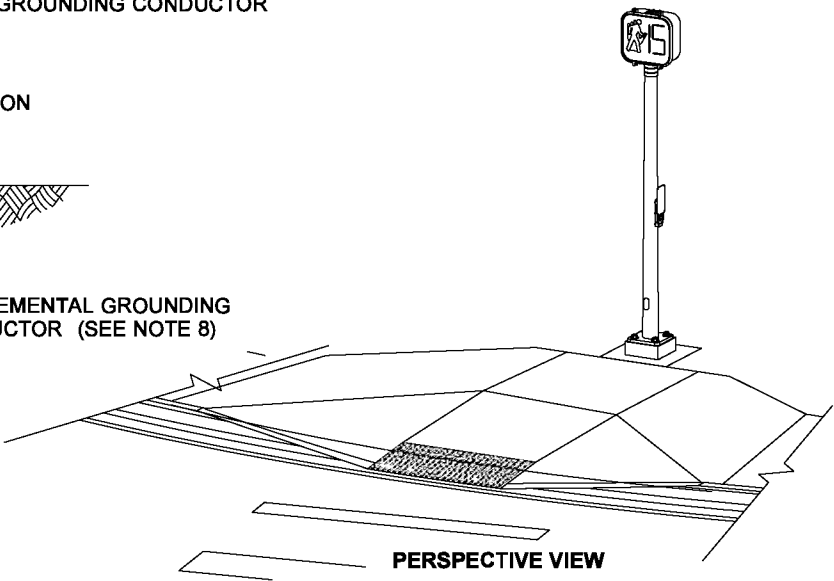


**PEDESTRIAN SIGNAL
STANDARD (TYPE PS)
DETAILS
STANDARD PLAN J-20.16-02**

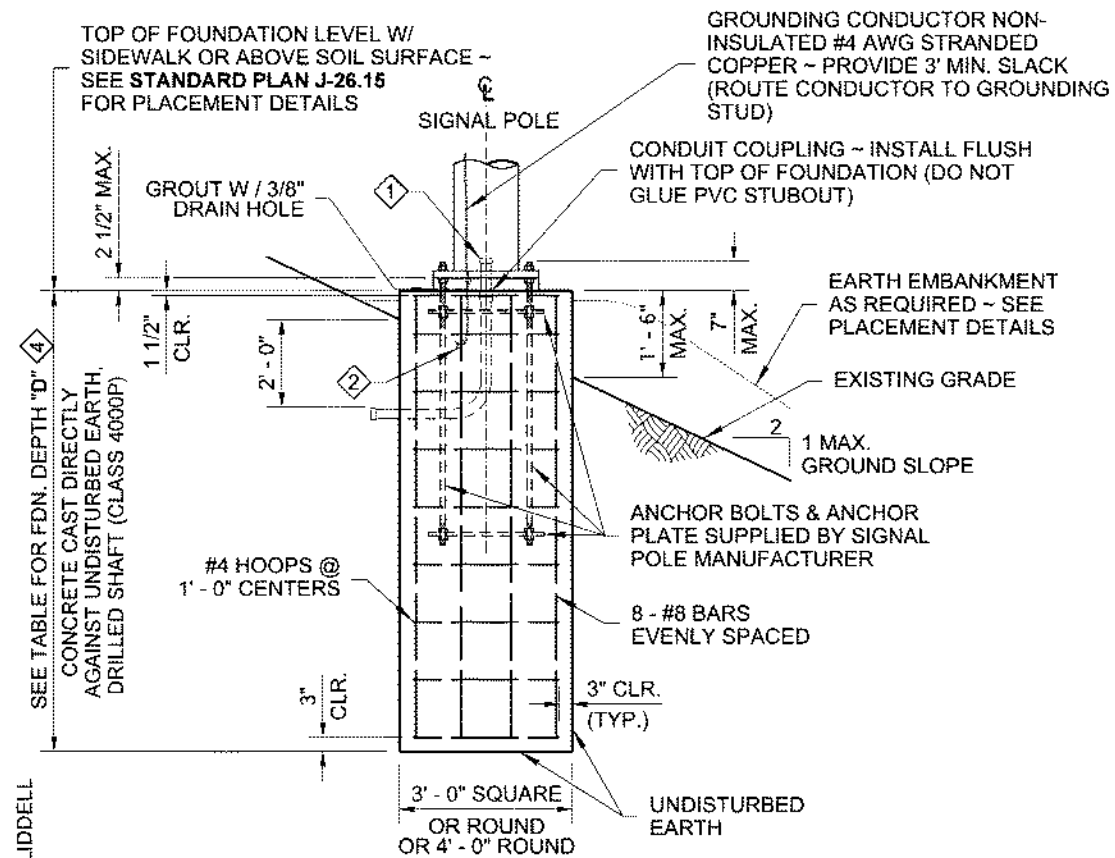
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

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 Washington State Department of Transportation

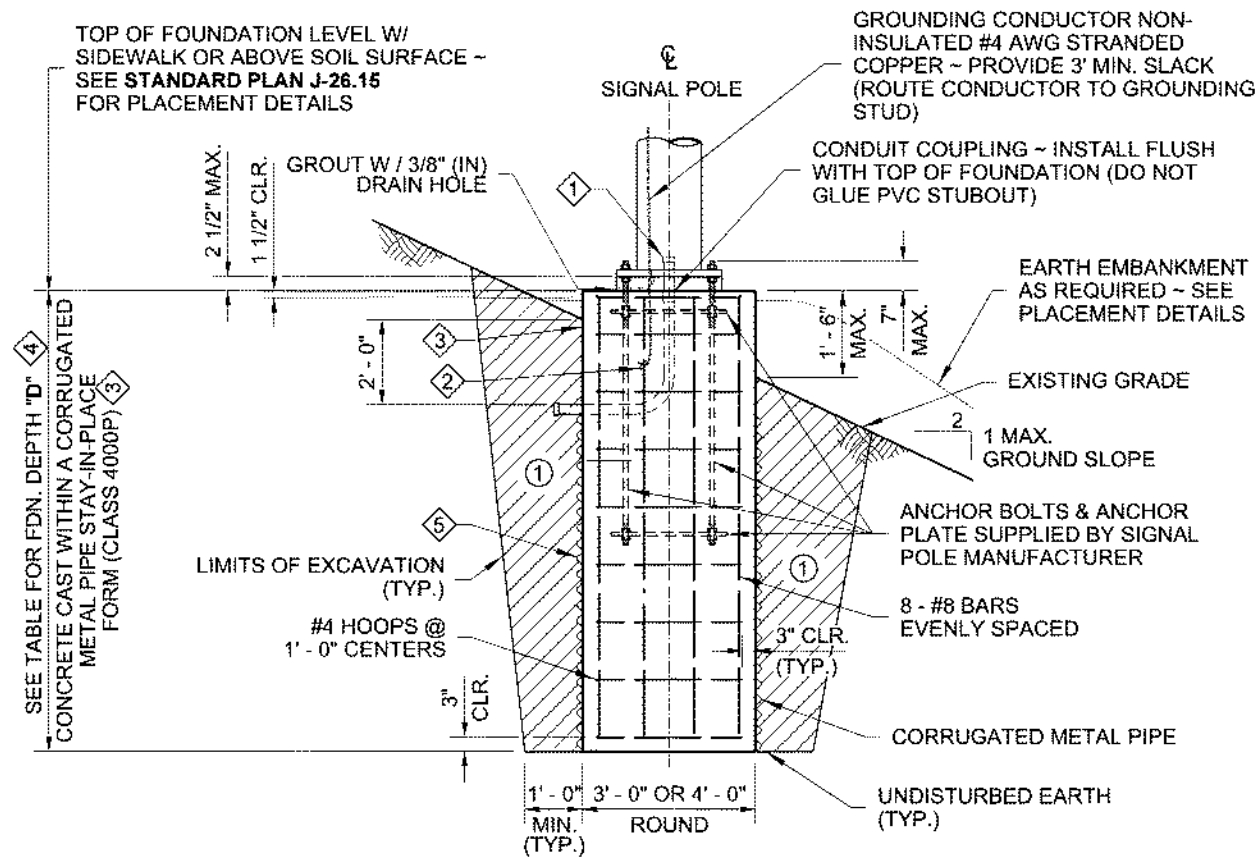
DRAWN BY: FERN LIDDELL



FOUNDATION REINFORCEMENT DETAIL
CONCRETE CAST DIRECTLY AGAINST UNDISTURBED EARTH, DRILLED SHAFT

ALTERNATE # 1

- ① CONDUIT SIZE AND QUANTITY AS SHOWN IN THE CONTRACT; CAP BOTH ENDS.
- ② CLAMP CONDUCTOR TO STEEL REINFORCING WITH LISTED CONNECTOR SUITABLE FOR USE EMBEDDED IN CONCRETE



FOUNDATION REINFORCEMENT AND BACKFILL DETAIL
⑤ CONCRETE CAST WITHIN A CORRUGATED METAL PIPE STAY-IN-PLACE FORM

ALTERNATE # 2

- ③ PAPER OR CARDBOARD FORM SHALL NOT STAY-IN-PLACE
- ④ SEE NOTE 5

NOTES

1. This structure has been designed according to the Fifth Edition 2009 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Basic wind velocity is 90 mph, Design Life/Recurrence Interval 50 years, and Fatigue Category III.
2. Foundations are designed for Type II, III, and SD Signal Standards with a maximum mast arm length of 65'.
3. Foundations are designed for Single Mast Arm Standards and Double Mast Arm Standards with 90° between arms. Special foundation design is required for Double Arm Standards where the angle between mast arms is other than 90°. For Double Mast Arm Standards with 90° between arms, use larger XYZ value for foundation depth selection.
4. Foundations not within the parameters of this standard require Special Design. Contact the **WSDOT Bridge and Structures Office** through the Engineer for Special Foundation Designs.
5. Where a foundation is constructed within a Media Filter Drain, the foundation depth shown in the Contract Plans shall be increased by the depth of the Media Filter Drain.
6. The top 2 feet of the foundation shall use a smooth form (such as paper or cardboard). After the concrete has cured, this entire form shall be removed.
7. For design parameters between the values listed in Table, depth requirements may be interpolated between the values provided.
8. Install Signal Foundation Identification Tag. See **Standard Plan J-26.15** for details.

ALTERNATE #2 - CONSTRUCTION METHOD
METAL (SUBSURFACE) FORM REQUIRED

FOUNDATION DEPTH "D" TABLE																			
ALTERNATE # 1 DRILLED SHAFT-TYPE CONSTRUCTION																			
FOR LATERAL BEARING PRESSURE = 2500 PSF & Ø = 34°, 1500 PSF & Ø = 28°, 1000 PSF & Ø = 26°																			
GROUND SLOPE = 3H : 1V OR FLATTER										GROUND SLOPE = GREATER THAN 3H : 1V TO 2H : 1V									
ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³)								ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³)							
		700	900	1350	1500	1900	2300	2600	3000			700	900	1350	1500	1900	2300	2600	3000
1000 PSF	3' - 0" ROUND	10' - 0"	10' - 0"	11' - 0"	11' - 0"	15' - 0"	18' - 0"	20' - 0"	20' - 0"	1000 PSF	3' - 0" ROUND	SPECIAL FOUNDATION TYPE							
	3' - 0" SQUARE	8' - 0"	8' - 0"	9' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	12' - 0"		3' - 0" SQUARE	SPECIAL FOUNDATION TYPE							
	4' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	12' - 0"		4' - 0" ROUND	SPECIAL FOUNDATION TYPE							
1500 PSF	3' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	11' - 0"	13' - 0"	15' - 0"	18' - 0"	18' - 0"	1500 PSF	3' - 0" ROUND	11' - 0"	11' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	21' - 0"	21' - 0"
	3' - 0" SQUARE	7' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"	9' - 0"	10' - 0"	10' - 0"		3' - 0" SQUARE	10' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"	12' - 0"	13' - 0"	13' - 0"
	4' - 0" ROUND	7' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"	9' - 0"	10' - 0"	10' - 0"		4' - 0" ROUND	10' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"	12' - 0"	13' - 0"	13' - 0"
2500 PSF OR GREATER	3' - 0" ROUND	6' - 0"	6' - 0"	7' - 0"	8' - 0"	9' - 0"	11' - 0"	15' - 0"	15' - 0"	2500 PSF OR GREATER	3' - 0" ROUND	9' - 0"	9' - 0"	10' - 0"	12' - 0"	12' - 0"	14' - 0"	18' - 0"	18' - 0"
	3' - 0" SQUARE	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"		3' - 0" SQUARE	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"
	4' - 0" ROUND	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	7' - 0"	8' - 0"	8' - 0"		4' - 0" ROUND	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	10' - 0"	11' - 0"	11' - 0"
ALTERNATE # 2 CORRUGATED METAL PIPE TYPE CONSTRUCTION																			
FOR LATERAL BEARING PRESSURE = 2500 PSF & Ø = 23°, 1500 PSF & Ø = 18°, 1000 PSF & Ø = 17°																			
GROUND SLOPE = 3H : 1V OR FLATTER										GROUND SLOPE = GREATER THAN 3H : 1V TO 2H : 1V									
ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³)								ALLOWABLE LATERAL BEARING PRESSURE	FOUNDATION TYPE	XYZ (FT³)							
		700	900	1350	1500	1900	2300	2600	3000			700	900	1350	1500	1900	2300	2600	3000
1000 PSF	3' - 0" ROUND	10' - 0"	10' - 0"	11' - 0"	15' - 0"	20' - 0"	25' - 0"	28' - 0"	28' - 0"	1000 PSF	3' - 0" ROUND	SPECIAL FOUNDATION TYPE							
	4' - 0" ROUND	8' - 0"	8' - 0"	9' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	15' - 0"		4' - 0" ROUND	SPECIAL FOUNDATION TYPE							
1500 PSF	3' - 0" ROUND	8' - 0"	8' - 0"	11' - 0"	15' - 0"	18' - 0"	21' - 0"	25' - 0"	25' - 0"	1500 PSF	3' - 0" ROUND	11' - 0"	11' - 0"	14' - 0"	18' - 0"	21' - 0"	24' - 0"	28' - 0"	23' - 0"
	4' - 0" ROUND	7' - 0"	7' - 0"	7' - 0"	8' - 0"	10' - 0"	13' - 0"	15' - 0"	15' - 0"		4' - 0" ROUND	10' - 0"	10' - 0"	10' - 0"	11' - 0"	13' - 0"	16' - 0"	18' - 0"	18' - 0"
2500 PSF OR GREATER	3' - 0" ROUND	6' - 0"	6' - 0"	7' - 0"	11' - 0"	13' - 0"	18' - 0"	20' - 0"	20' - 0"	2500 PSF OR GREATER	3' - 0" ROUND	9' - 0"	9' - 0"	10' - 0"	14' - 0"	16' - 0"	21' - 0"	23' - 0"	23' - 0"
	4' - 0" ROUND	6' - 0"	6' - 0"	6' - 0"	6' - 0"	7' - 0"	9' - 0"	9' - 0"	9' - 0"		4' - 0" ROUND	9' - 0"	9' - 0"	9' - 0"	9' - 0"	10' - 0"	12' - 0"	12' - 0"	12' - 0"

When the existing soil will not retain a vertical face, over-excavate the foundation area and install a 36" or 48" diameter corrugated metal (pipe) form. The top of the corrugated metal form shall terminate 1 foot below final grade. Continue forming to full height using paper or cardboard form to achieve a smooth finish on final exposed cement concrete. Support the form as necessary to remain plumb.

Place the concrete foundation.

After concrete has cured, remove the entire paper or cardboard form portion.

- ① Shoring or Extra Excavation as required. Excavated area shall be backfilled with Controlled-Density Fill (CDF), or with soil in accordance with **Standard Specification Section 8-20.3(2)** and Compaction Method 1 of **Standard Specification Section 2-09.3(1)E**.



Zeldenrust, Richard
Jul 20 2016 8:25 AM

TRAFFIC SIGNAL STANDARD FOUNDATION

STANDARD PLAN J-26.10-03

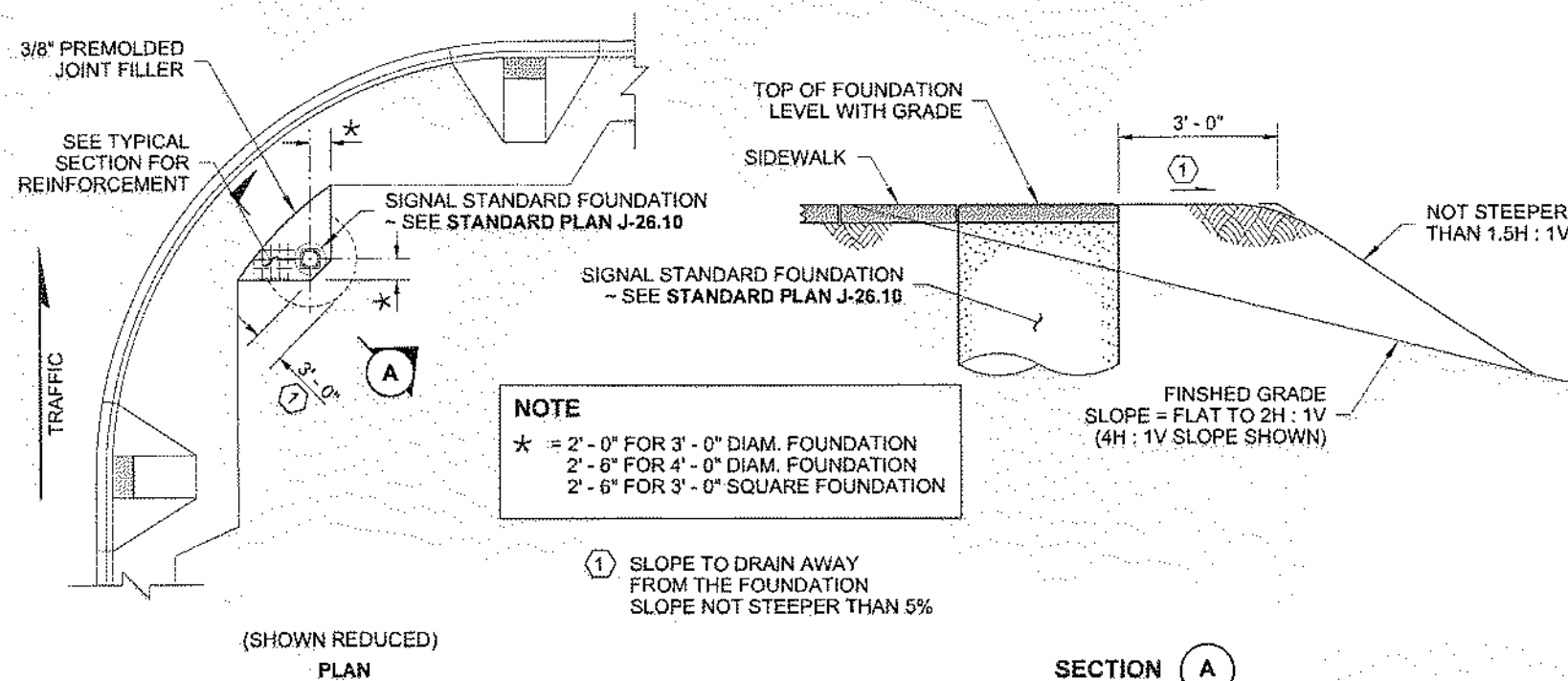
SHEET 1 OF 1 SHEET

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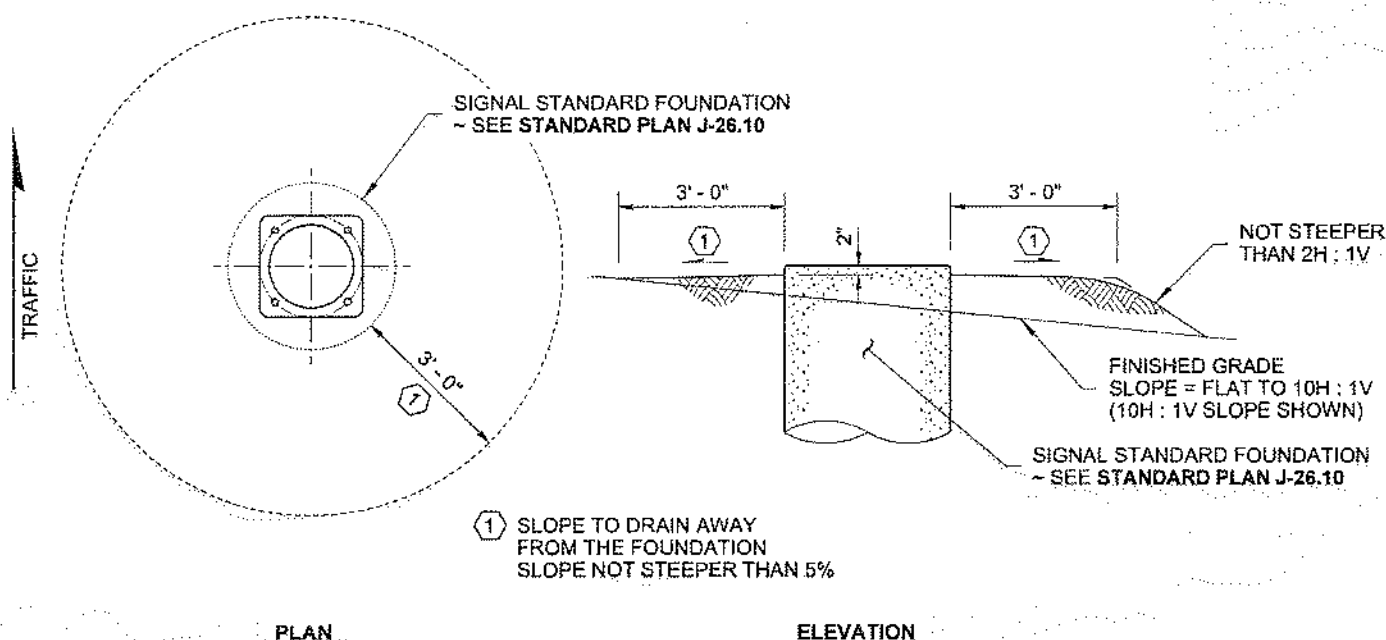
Carpenter, Jeff
Jul 21 2016 8:27 AM

STATE DESIGN ENGINEER

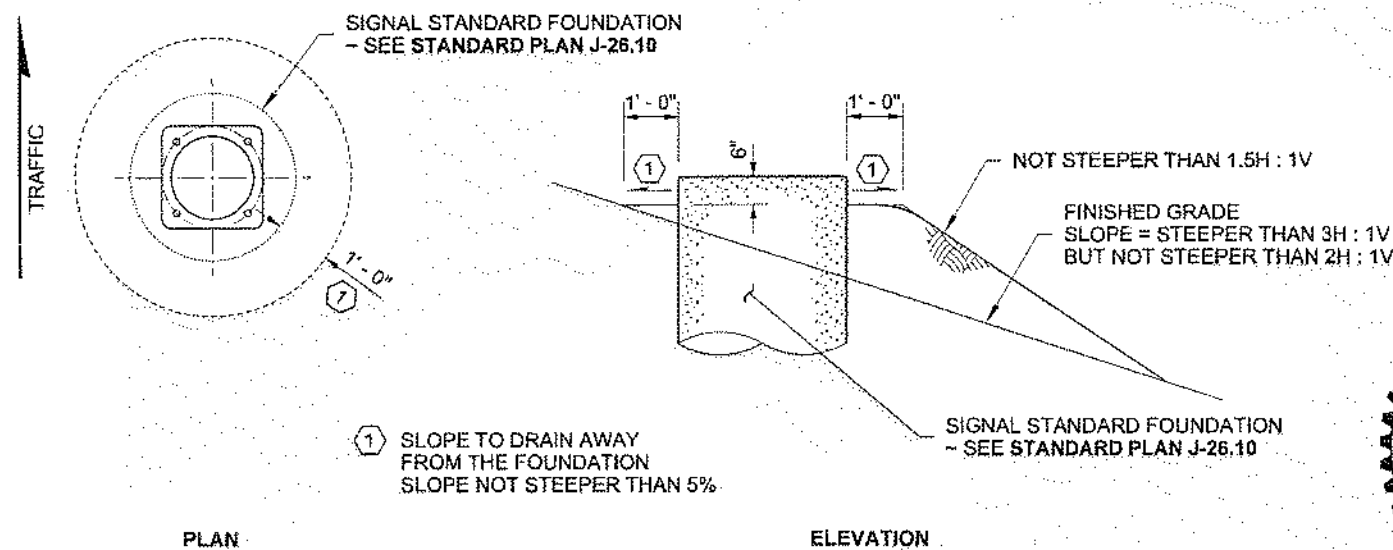
Washington State Department of Transportation



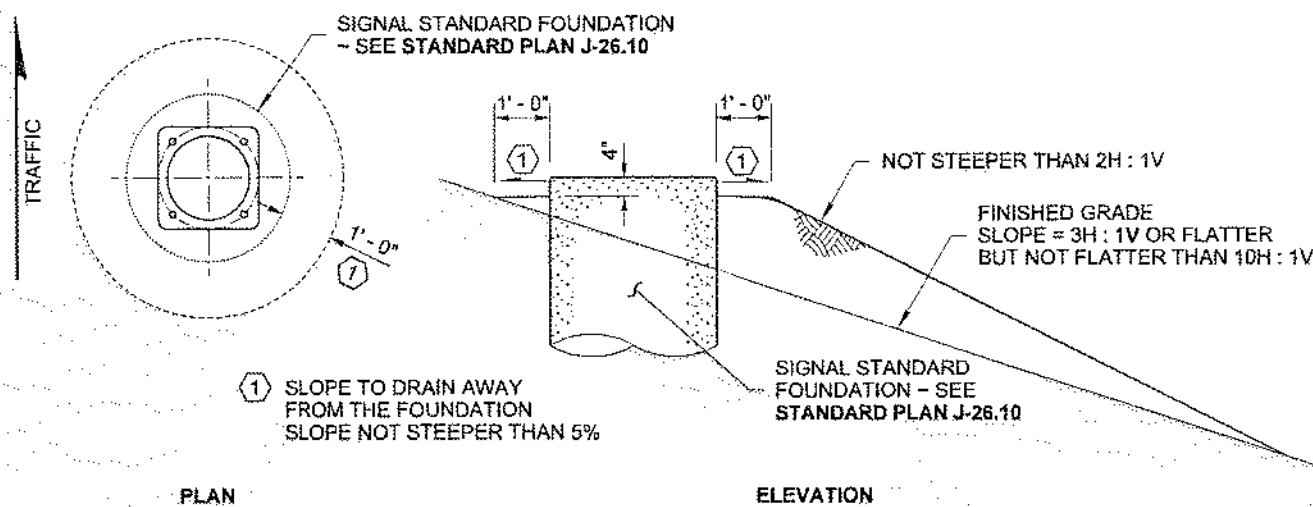
FOUNDATION IN OR NEAR SIDEWALK
CASE A



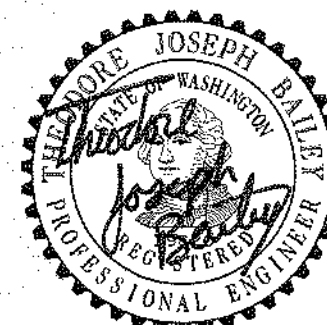
EXISTING GRADE OR FILL SLOPE = FLAT TO 10H : 1V
CASE B



EXISTING GRADE OR FILL SLOPE = 3H : 1V TO 2H : 1V
CASE D



EXISTING GRADE OR FILL SLOPE = 10H : 1V TO 3H : 1V
CASE C



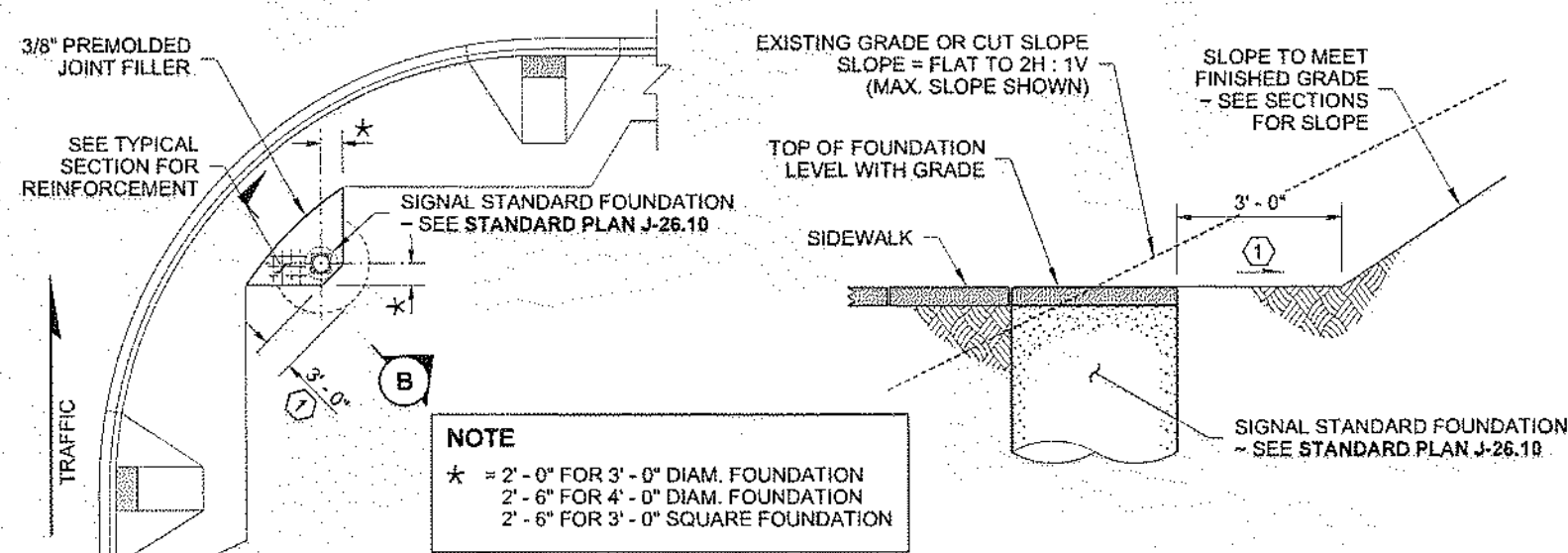
5/15/2012

**SIGNAL STANDARD
FOUNDATION PLACEMENTS**
STANDARD PLAN J-26.15-01

SHEET 1 OF 3 SHEETS

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STATE DESIGN ENGINEER DATE
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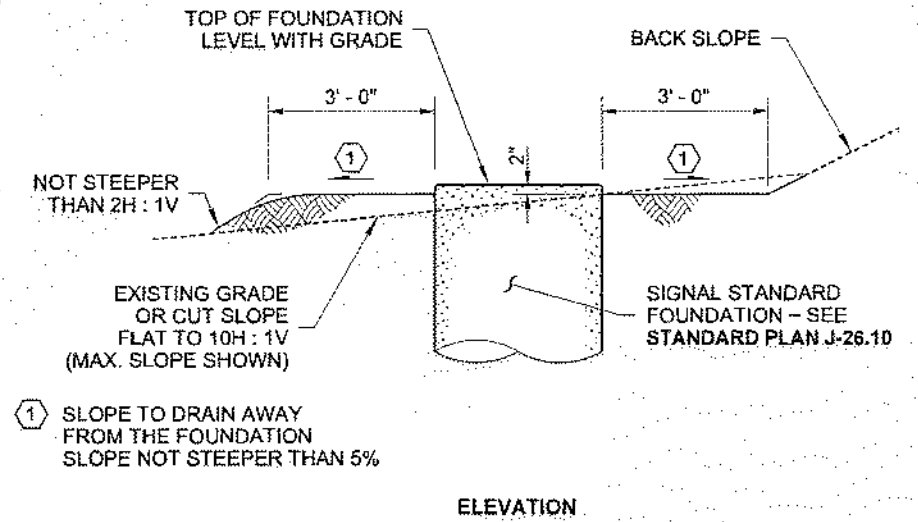
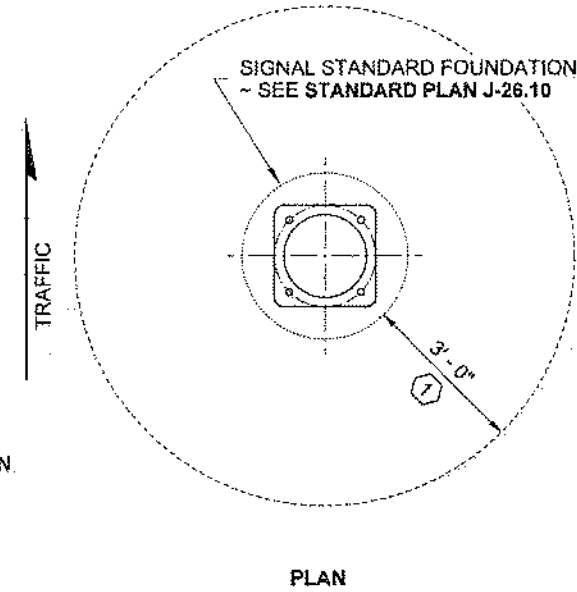


① SLOPE TO DRAIN AWAY FROM THE FOUNDATION SLOPE NOT STEEPER THAN 5%

(SHOWN REDUCED)
PLAN

SECTION B

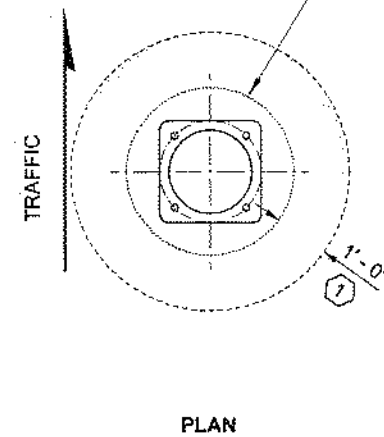
FOUNDATION IN OR NEAR SIDEWALK
CASE E



EXISTING GRADE OR CUT SLOPE FLAT TO 10H : 1V
CASE F

SIGNAL STANDARD FOUNDATION - SEE STANDARD PLAN J-26.10

EXISTING GRADE OR CUT SLOPE SLOPE STEEPER THAN 3H : 1V (2H : 1V MAX.) (MAX. SLOPE SHOWN)



NOT STEEPER THAN 1.5H : 1V

① SLOPE TO DRAIN AWAY FROM THE FOUNDATION SLOPE NOT STEEPER THAN 5%

TOP OF FOUNDATION LEVEL WITH GRADE

ELEVATION

SLOPE TO MEET FINISHED GRADE - SEE SECTIONS FOR SLOPE

SIGNAL STANDARD FOUNDATION - SEE STANDARD PLAN J-26.10



5/15/2012

SIGNAL STANDARD
FOUNDATION PLACEMENTS

STANDARD PLAN J-26.15-01

SHEET 2 OF 3 SHEETS

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 STATE DESIGN ENGINEER DATE
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NOTE

★ = 2' - 0" FOR 3' - 0" DIAM. FOUNDATION
2' - 6" FOR 4' - 0" DIAM. FOUNDATION
2' - 6" FOR 3' - 0" SQUARE FOUNDATION

VARIES
6" MIN.
(TYP.)

3/8" PREMOLED
JOINT FILLER

SIGNAL STANDARD
FOUNDATION - SEE
STANDARD PLAN J-26.10

CEMENT CONC
- SEE STANDARD
OR ASPHALT

FOUNDATION OUTSIDE THE SIDEWALK SECTION

SIGNAL STANDARD
AND HOLE

FOUNDATION

REINFORCING AND ANCHOR BOLTS
NOT SHOWN FOR CLARITY
(GROUT PAD OPTION SHOWN)

3 1/4"

3/8" MIN.
(TYP.)

0.05" MIN.
(TYP.)

2 1/4"

1/4" MIN.
(TYP.)

FOUNDATION

DEPTH	11'
SHAPE	RD.
DIMENSION	36"
ALT. #	1

**SIGNAL FOUNDATION
IDENTIFICATION TAG DETAIL**
TEXT SHALL BE ENGRAVED 0.014" DEEP

4' - 6" MIN. FROM THE FACE
OF THE POLE TO THE BACK OF
THE CURB OR EDGE OF SHOULDER

CEMENT CONCRETE SIDEWALK
- SEE STANDARD PLAN F-30.10
ASPHALT CONCRETE PAVEMENT

* * = APPLIES TO THE SIDE OF THE FOUNDATION WHEN PEDESTRIAN PUSH BUTTON IS TO BE INSTALLED.

FOUNDATION PARTIALLY WITHIN
SIDEWALK SECTION

SIGNAL STANDARD
FOUNDATION ~ SEE
STANDARD PLAN J-26.10

REFER TO CONTRACT DOCUMENTS FOR PROJECT SPECIFIC
INTERSECTION LAYOUTS & TRAFFIC ISLAND MATERIAL TYPE

FOUNDATION PARTIALLY
WITHIN SIDEWALK SECTION

APPLY GROUT EVEN WITH THE
BOTTOM OF THE ANCHOR PLATE
AFTER PLUMBING THE STANDARD

PROVIDE 3/8" DIAMETER DRAIN TUBE
IN THE GROUT PAD

WWF 4 x 4 - W 2.9 x 2.9 AT CENTER
OF EXTENDED SIDE WALK AT
SIGNAL STANDARD FOUNDATION

12 - 28 (NF) x 2" LONG STAINLESS STEEL
SCREW ~ DRILL AND TAP FROM BOTTOM,
LEAVE SCREW FLUSH WITH TOP. APPLY
LOCKTITE TO SCREW THREADS TO BIND
SCREWS AND I.D. TAG TOGETHER

CLAMP CONDUCTOR TO STEEL REINFORCING
WITH LISTED CONNECTOR SUITABLE FOR USE
EMBEDDED IN CONCRETE

SIGNAL STANDARD FOUNDATION
~ SEE STANDARD PLAN J-26.10

FOUNDATION REINFORCING ONLY PARTIALLY SHOWN FOR CLARITY.
~ SEE STANDARD PLAN J-26.10 FOR DETAILS NOT SHOWN.

TYPICAL SECTION

CEMENT CONCRETE SIDEWALK
~ SEE STANDARD PLAN F-30.10
TRAFFIC ISLAND - SEE
CONTRACT PLAN SHEETS
FOR DETAILS

SEE TYPICAL SECTION
FOR REINFORCEMENT

3/8" PREMOLDED
JOINT FILLER

SIGNAL STANDARD
FOUNDATION - SEE
STANDARD PLAN J-26.10

**FOUNDATION WITHIN SIDEWALK
OR TRAFFIC ISLAND SECTION**

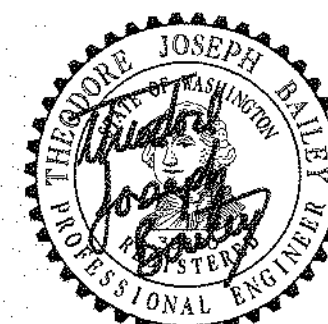
GROUNDING CONDUCTOR NON-INSULATED
#4 AWG STRANDED COPPER ~ PROVIDE 3' MIN.
SLACK (ROUTE CONDUCTOR TO GROUNDING STUD)

FORM TO FINISH GRADE WHEN INSTALLING
SIDEWALK OR TRAFFIC ISLAND

REMOLDED JOINT FILLER

SIDEWALK OR
TRAFFIC ISLAND

ROUGHENED
CONCRETE SURFACE




5/15/2012

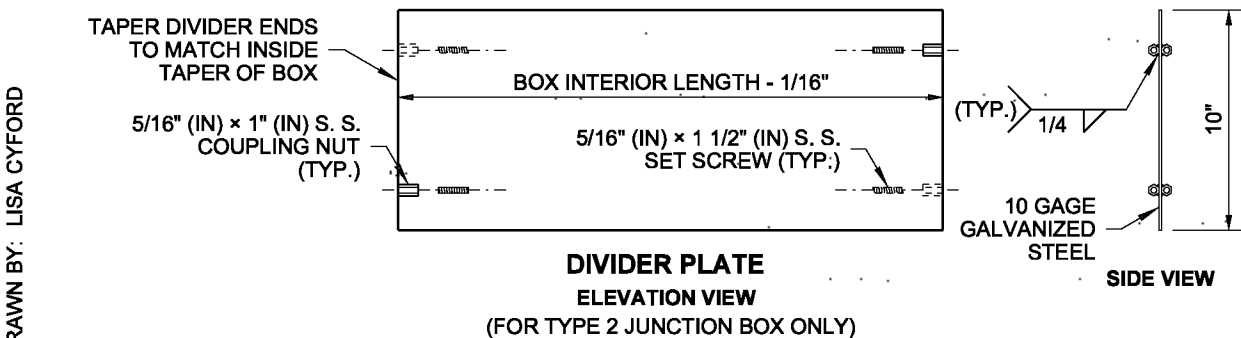
**SIGNAL STANDARD
FOUNDATION PLACEMENTS
STANDARD PLAN J-26.15-01**

SHEET 3 OF 3 SHEETS

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 STATE DESIGN ENGINEER DATE 5/17/12
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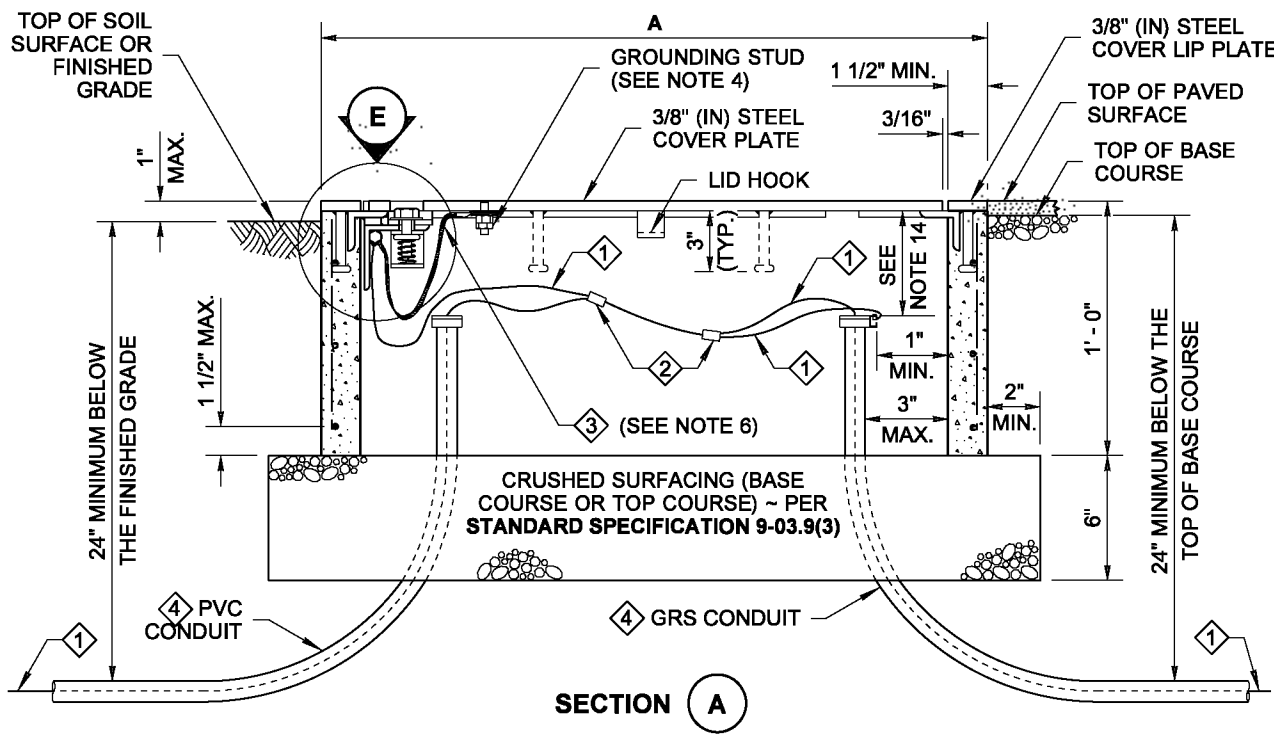
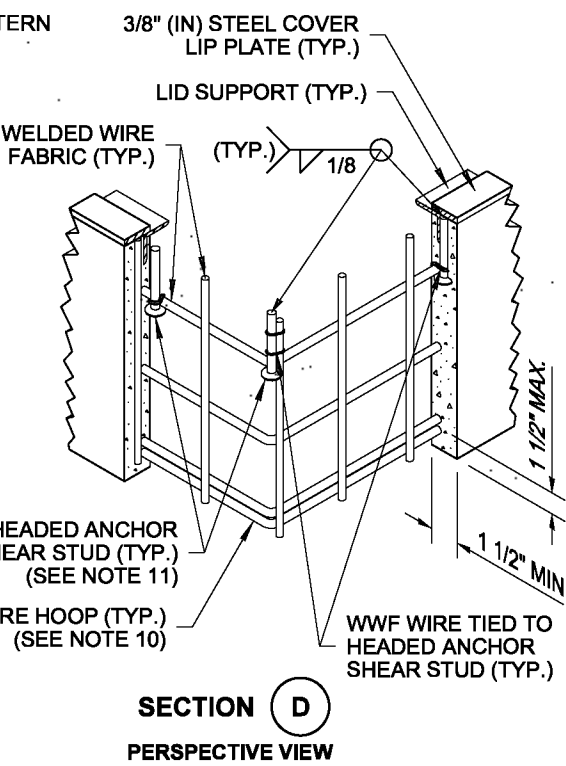
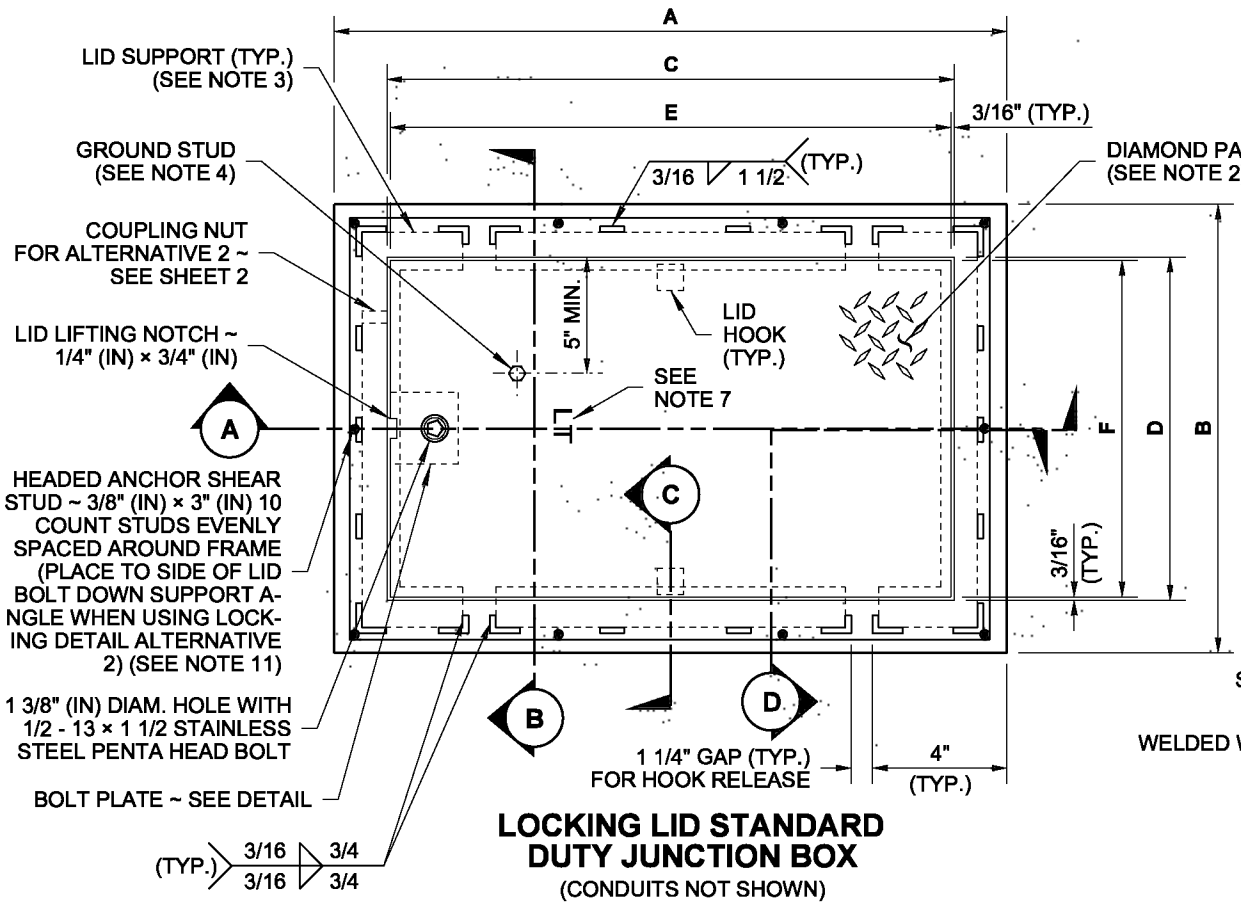
DRAWN BY: LISA CYFORD



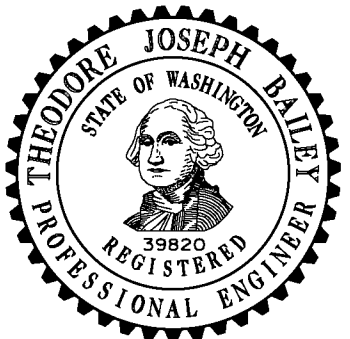
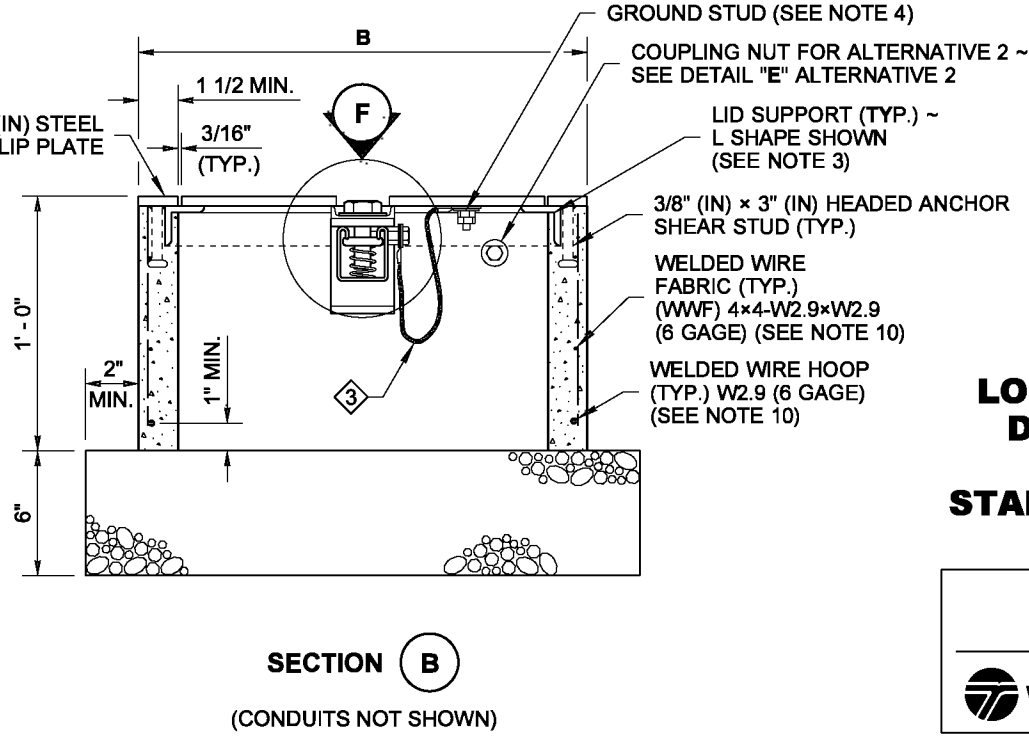
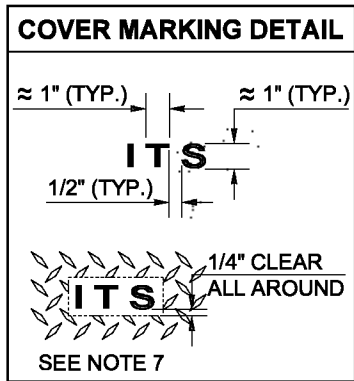
JUNCTION BOX DIMENSION TABLE			
MARK	ITEM	BOX TYPE	
		TYPE 1	TYPE 2
A	OUTSIDE LENGTH OF JUNCTION BOX	22"	33"
B	OUTSIDE WIDTH OF JUNCTION BOX	17"	22 1/2"
C	INSIDE LENGTH OF JUNCTION BOX	18" ~ 19"	28" ~ 29"
D	INSIDE WIDTH OF JUNCTION BOX	13" ~ 14"	17" ~ 18"
E	LID LENGTH	17 5/8"	28 5/8"
F	LID WIDTH	12 5/8"	18 1/8"
CAPACITY ~ CONDUIT DIAMETER		6"	12"

NOTES

1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. Minimum lid thickness shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate, and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
3. Lid support members shall be 3/16" (in) minimum thick steel C, L, or T shape, welded to the frame.
4. A 1/4-20 NC x 3/4" (in) stainless steel ground stud shall be welded to the bottom of the lid; include (2) stainless steel nuts and (2) stainless steel flat washers.
5. Bolts and nuts shall be liberally coated with anti-seize compound.
6. Equipment Bonding Jumper shall be # 8 AWG min. x 4' (ft) of tinned braided copper.
7. The System Identification letters shall be 1/8" (in) line thickness formed with a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. For System Identification details, see **Standard Specification 9-29.2(4)**.
8. When required in the Contract, provide a 10" (in) x 27 1/2" (in), 10 gage divider plate, complete, with fasteners, in each Type 2 Junction Box where specified.
9. When required in Contract, provide a 12" (in) deep extension for each Type 2 Junction Box where specified.
10. See the **Standard Specifications** for alternative reinforcement and class of concrete.
11. Headed Anchor Shear Studs must be welded to the Steel Cover Lip Plate and wire tied in two places to the vertical Welded Wire Fabric when in contact with each other. Wire tie all other Headed Anchor Shear Studs to the horizontal Welded Wire Fabric.
12. Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawings for specifics.
13. Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults, and Pull Boxes shall not be placed within the sidewalks, walkways, shared use paths, traveled ways or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be Heavy-Duty.
14. Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(5)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.



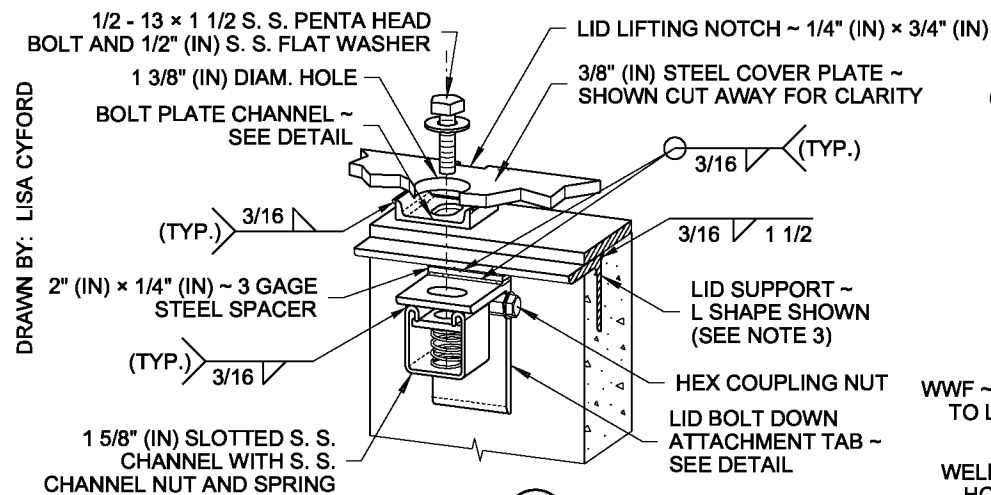
- 1 Equipment Grounding Conductor
- 2 Copper Solderless Crimp Connector
- 3 Equipment Bonding Jumper (See Note 6)
- 4 See Contract for conduit size and number



LOCKING LID STANDARD DUTY JUNCTION BOX TYPES 1 & 2
STANDARD PLAN J-40.10-04

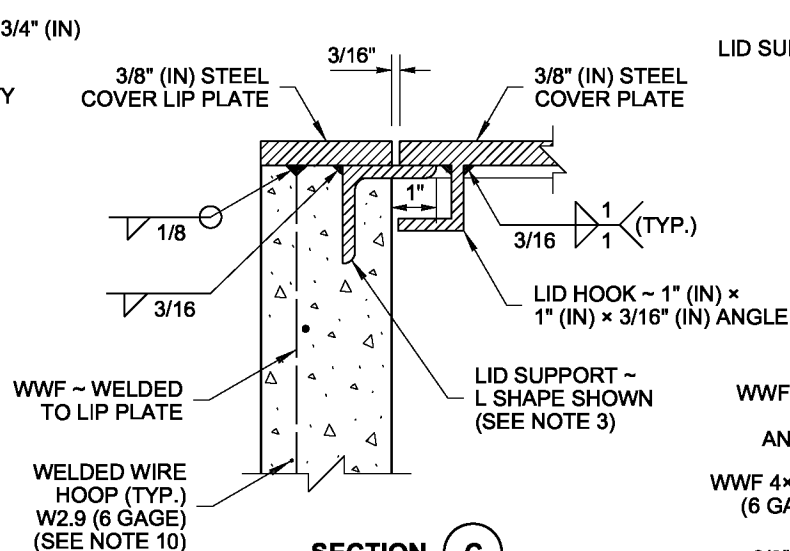
SHEET 1 OF 2 SHEETS

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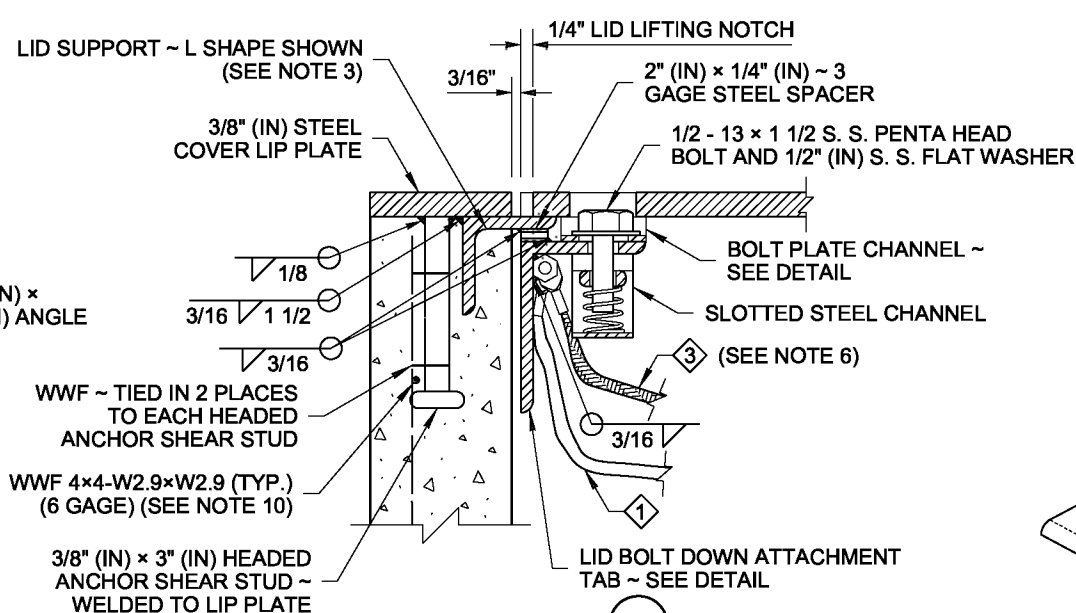


DETAIL F

ALTERNATIVE 1 SHOWN PERSPECTIVE VIEW

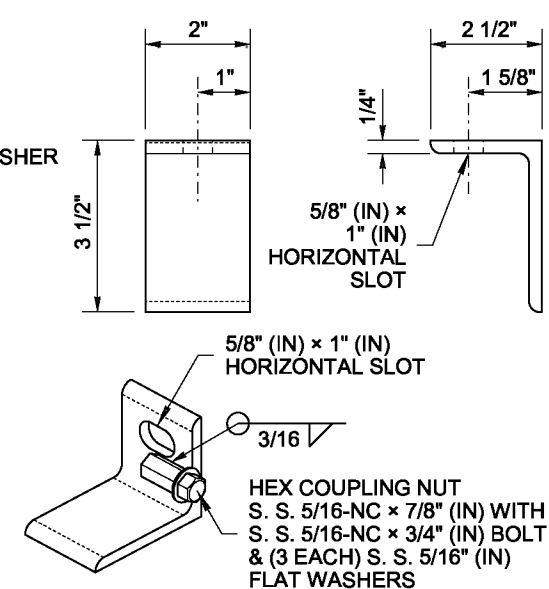


SECTION C

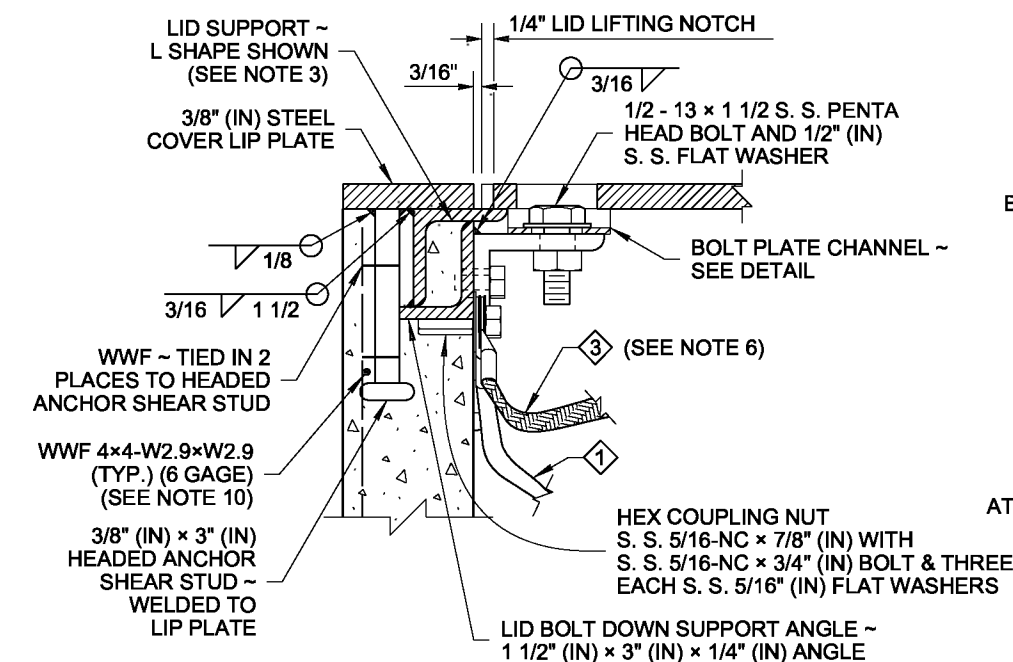


DETAIL E

ALTERNATIVE 1 SHOWN

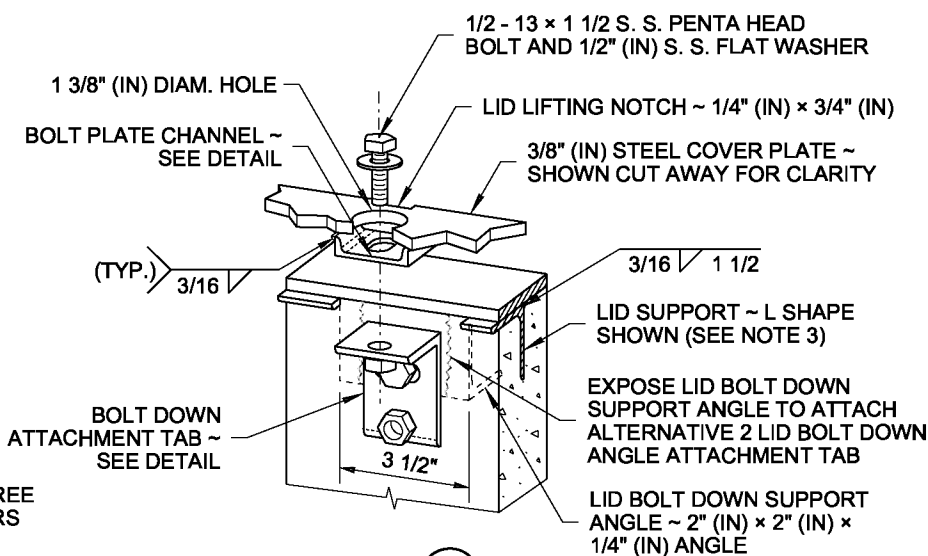


ALTERNATIVE 1 LID BOLT DOWN ATTACHMENT TAB (SEE NOTE 12)



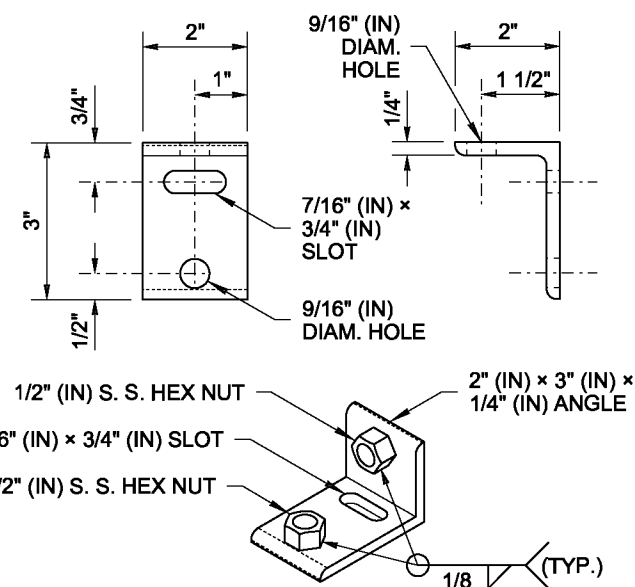
DETAIL E

ALTERNATIVE 2 SHOWN

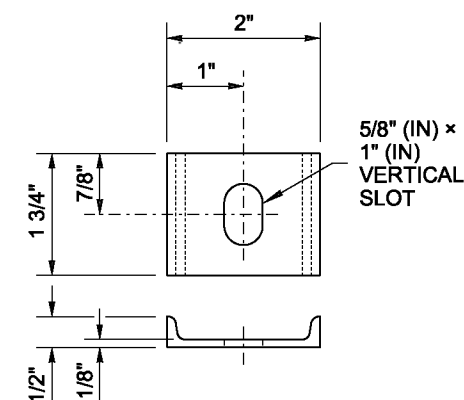


DETAIL F

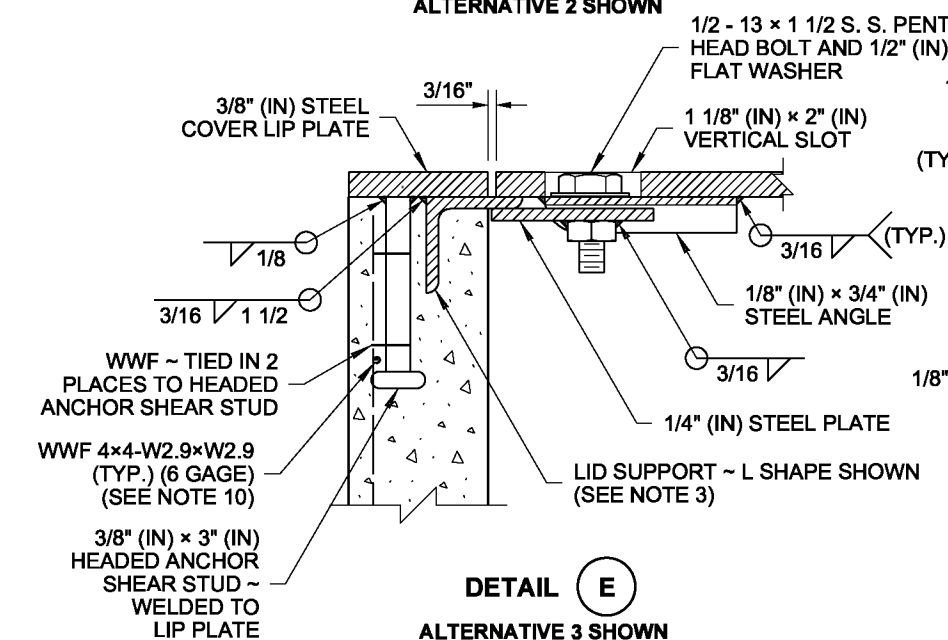
ALTERNATIVE 2 SHOWN PERSPECTIVE VIEW



ALTERNATIVE 2 LID BOLT DOWN ATTACHMENT TAB (SEE NOTE 12)

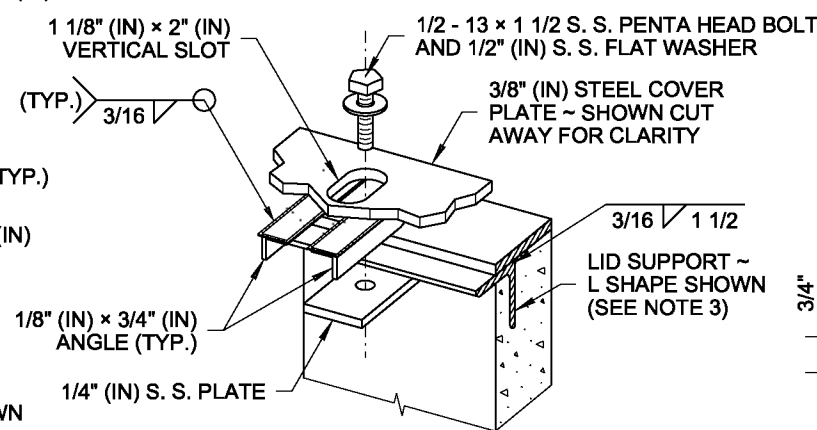


BOLT PLATE CHANNEL



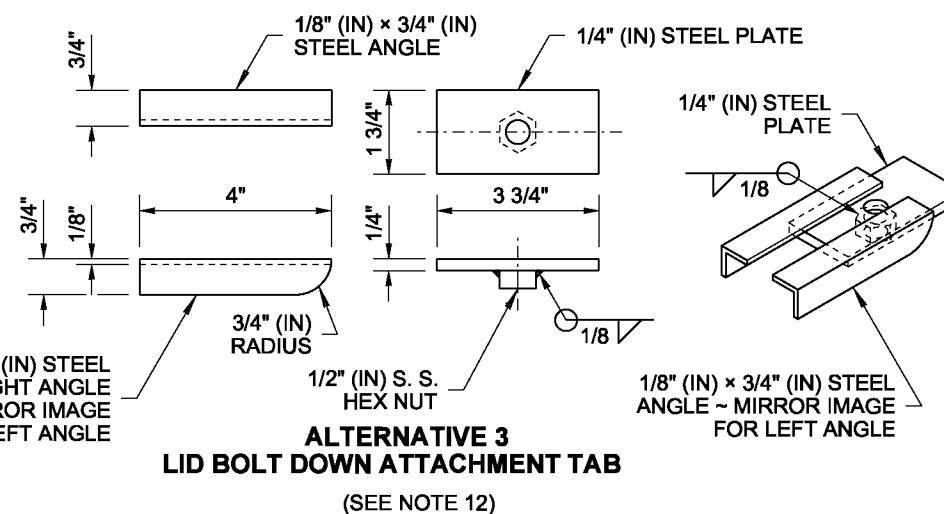
DETAIL E

ALTERNATIVE 3 SHOWN



DETAIL F

ALTERNATIVE 3 SHOWN PERSPECTIVE VIEW



ALTERNATIVE 3 LID BOLT DOWN ATTACHMENT TAB (SEE NOTE 12)

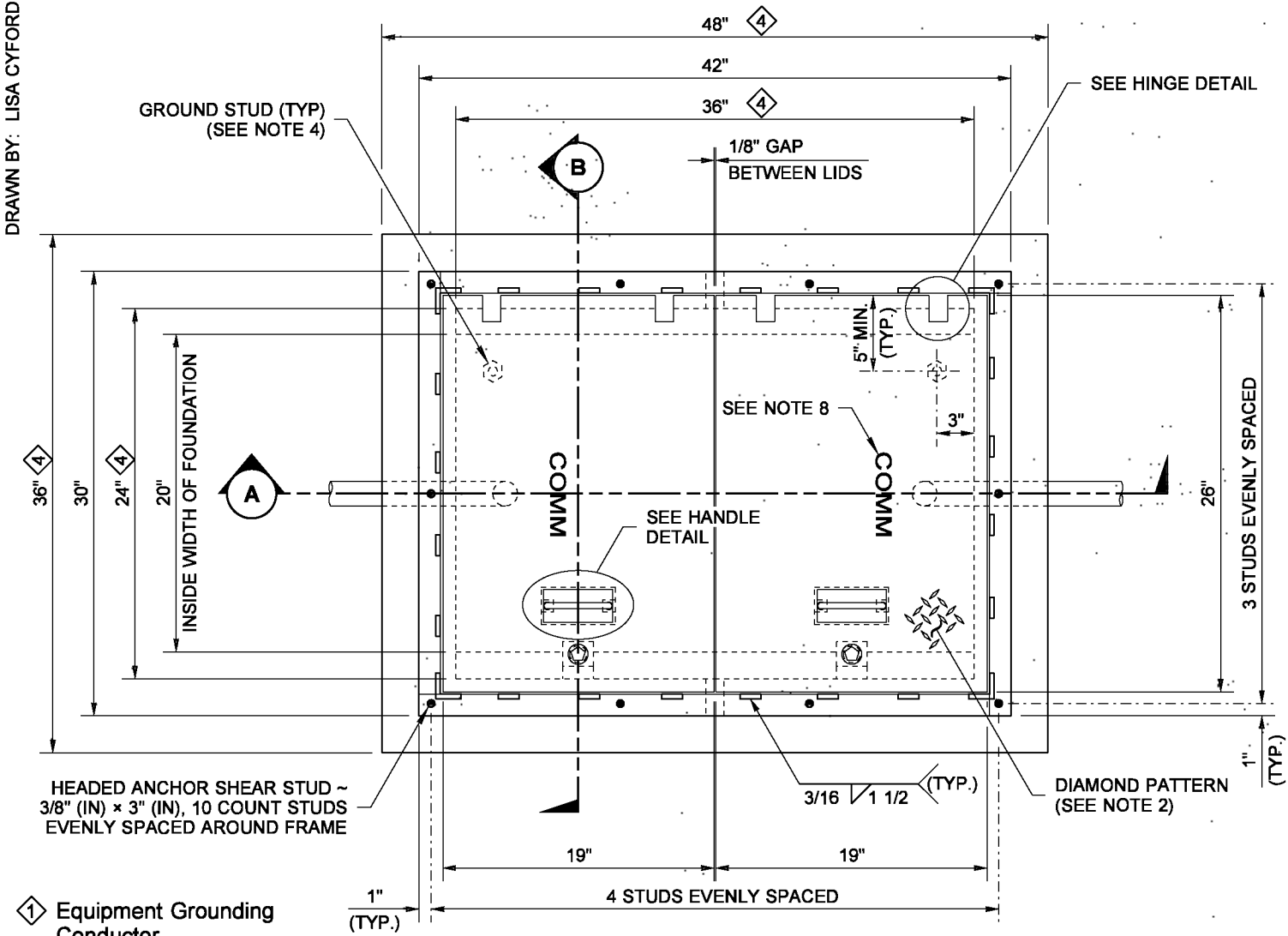


**LOCKING LID STANDARD DUTY JUNCTION BOX TYPES 1 & 2
STANDARD PLAN J-40.10-04**

SHEET 2 OF 2 SHEETS

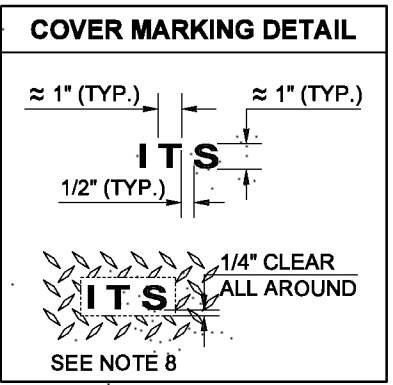
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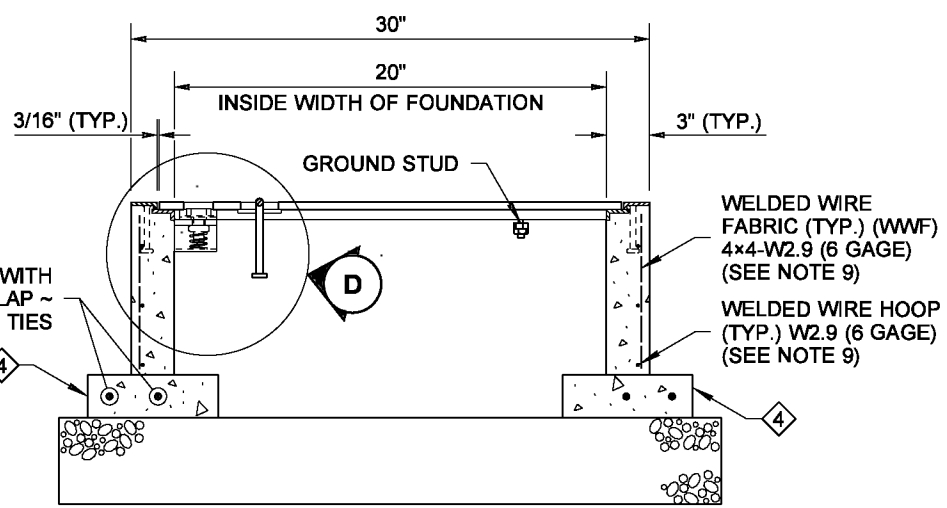
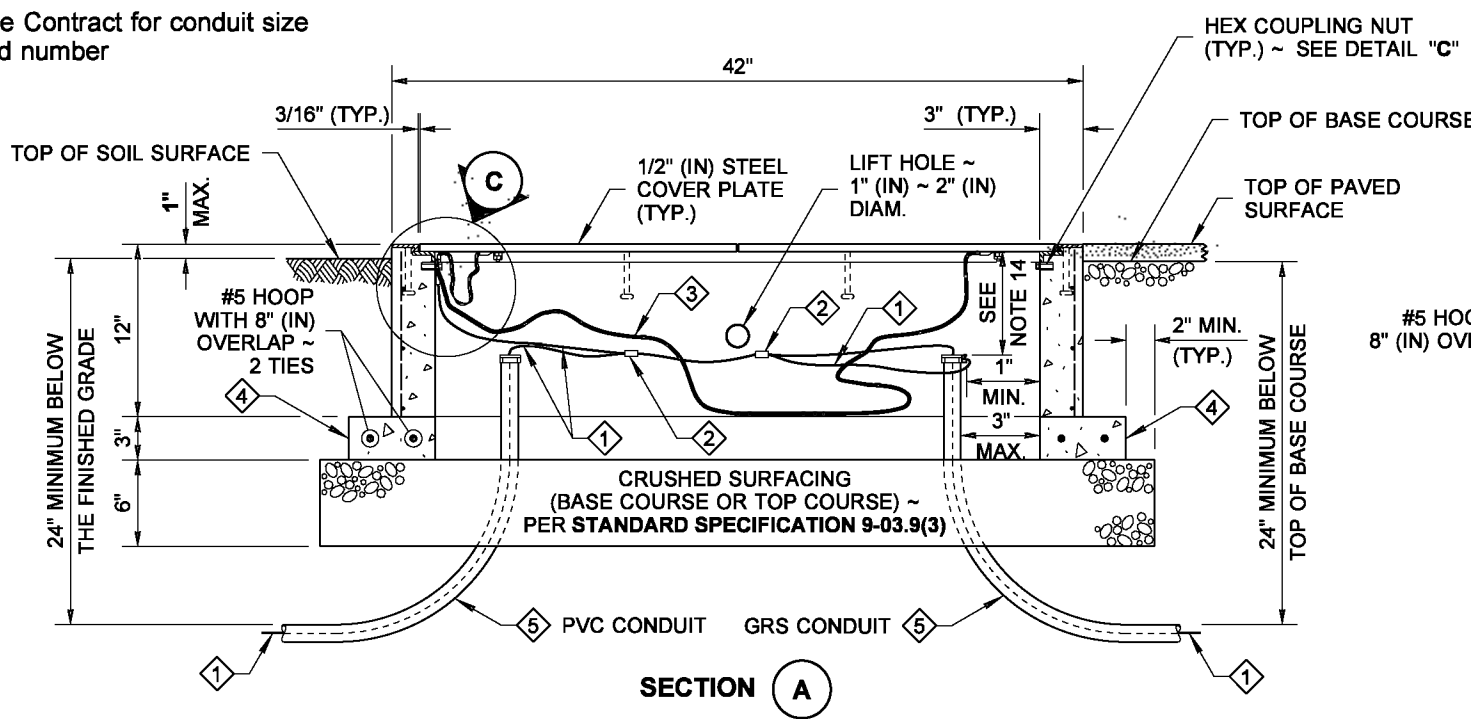
- ① Equipment Grounding Conductor
- ② Copper Solderless Crimp Connector
- ③ Equipment Bonding Jumper
- ④ Foundation
- ⑤ See Contract for conduit size and number

PLAN VIEW
LOCKING LID STANDARD DUTY JUNCTION BOX

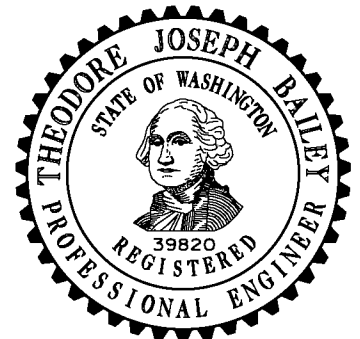


NOTES

1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. Minimum lid thicknesses are shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
3. Lid support members shall be 3/16" (in) min. thick steel C, L, or T shape, welded to the frame. Exact configurations vary among manufacturers.
4. A 1/4-20 NC x 3/4" (in) S. S. ground stud shall be welded to the bottom of each lid; include (2) S. S. nuts and (2) S. S. flat washers.
5. The hinges shall allow the lids to open 180°.
6. Bolts and nuts shall be liberally coated with anti-seize compound.
7. Connect Equipment Bonding Jumper to ground stud on lid. As an alternative to the ground stud connection, the Equipment Bonding Jumper shall be attached to the front face of the hinge pocket with a 5/16-20 NC x 3/4" (in) S. S. bolt, (2) each S. S. nuts, and (2) each S. S. flat washers. Equipment Bonding Jumper shall be #8 AWG min. x 4' (ft) of tinned braided copper.
8. The System Identification letters shall be 1/8" (in) line thickness formed by a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. See **Standard Specification 9-29.2(4)** for details.
9. See the **Standard Specifications** for alternative reinforcement and class of concrete.
10. See **Standard Plan J-40.10** for Welded Wire Fabric and Headed Anchor Shear Stud attachment details.
11. Capacity ~ conduit diameter = 24" (in)
12. Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawing for specifics.
13. Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults and Pull Boxes shall not be placed within the sidewalk, walkway, shared use path, traveled way or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be Heavy-Duty.
14. Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(5)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.



SECTION B
CONDUITS NOT SHOWN

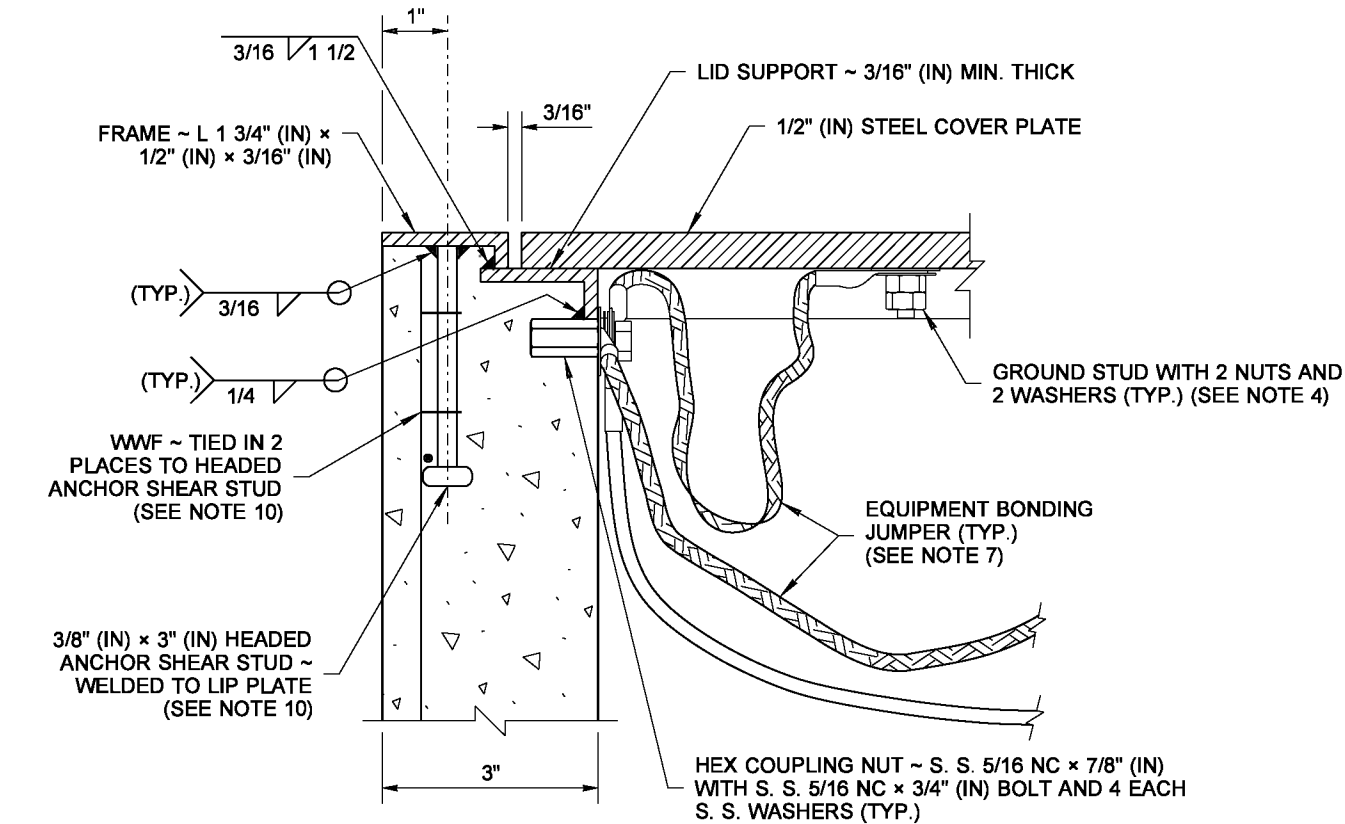


LOCKING LID STANDARD DUTY JUNCTION BOX TYPE 8
STANDARD PLAN J-40.30-04

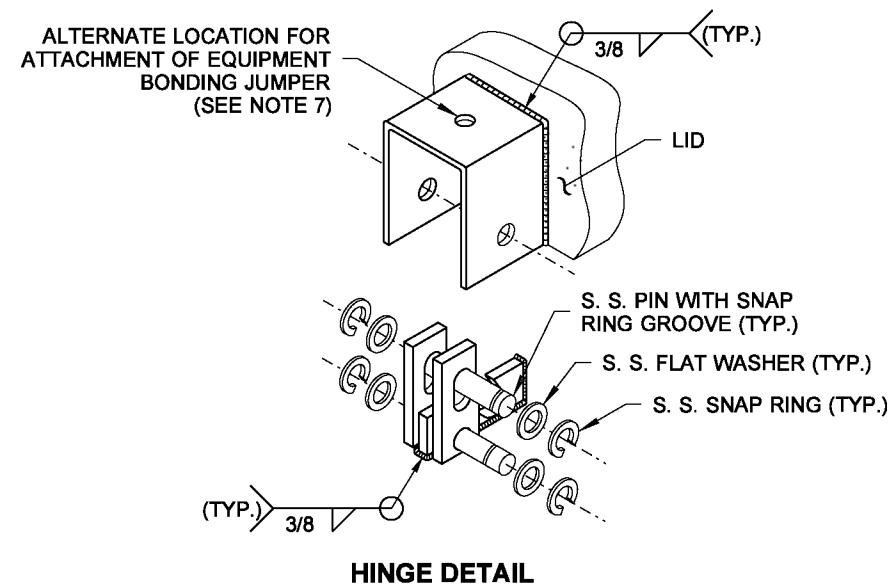
SHEET 1 OF 2 SHEETS

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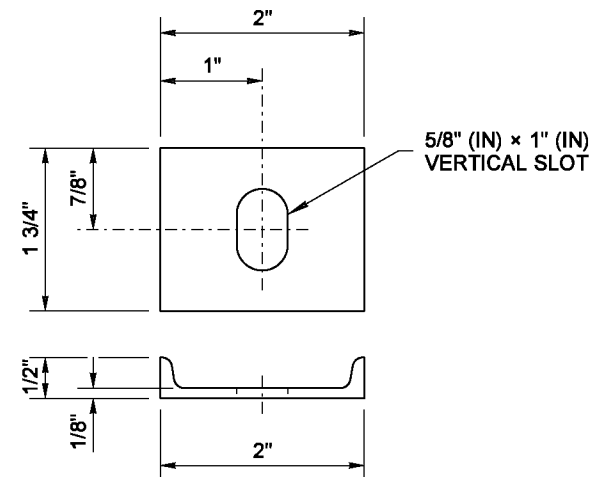
STATE DESIGN ENGINEER
Washington State Department of Transportation



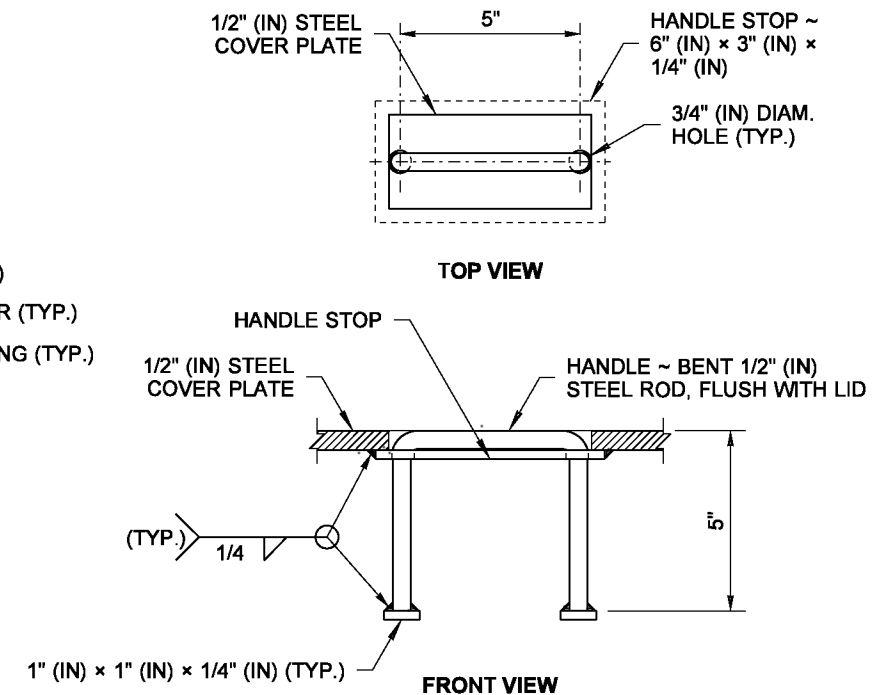
DETAIL C



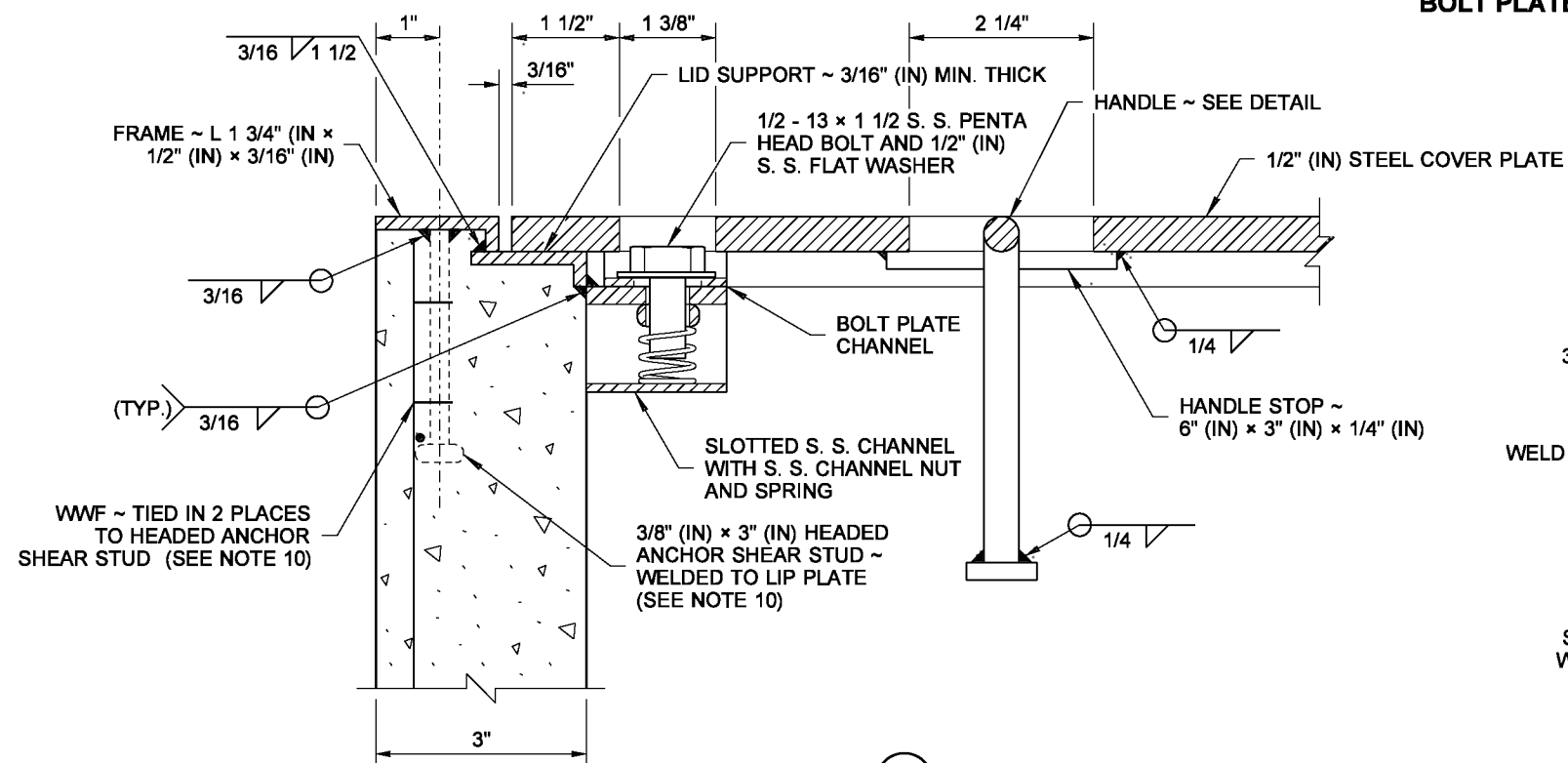
HINGE DETAIL



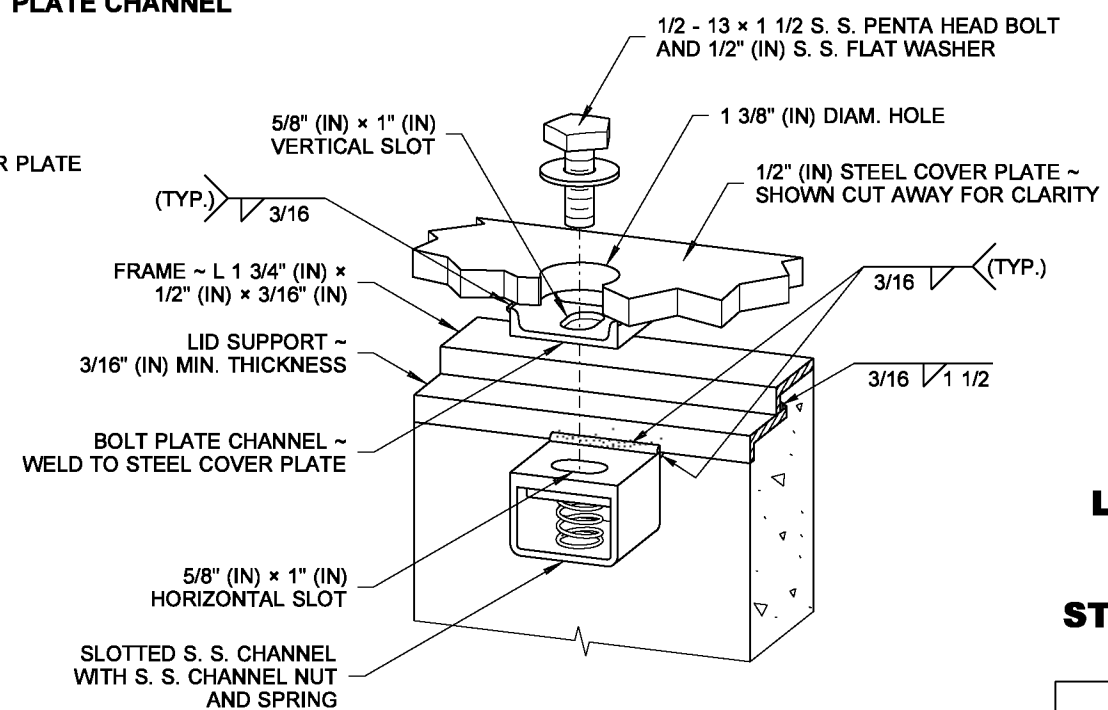
BOLT PLATE CHANNEL



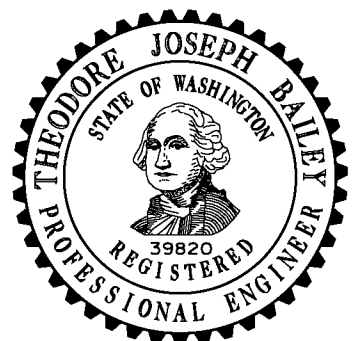
HANDLE DETAIL



DETAIL **(D)**



DETAIL (D)
ISOMETRIC VIEW



**LOCKING LID STANDARD
DUTY JUNCTION BOX
TYPE 8
STANDARD PLAN J-40.30-04**

SHEET 2 OF 2 SHEETS

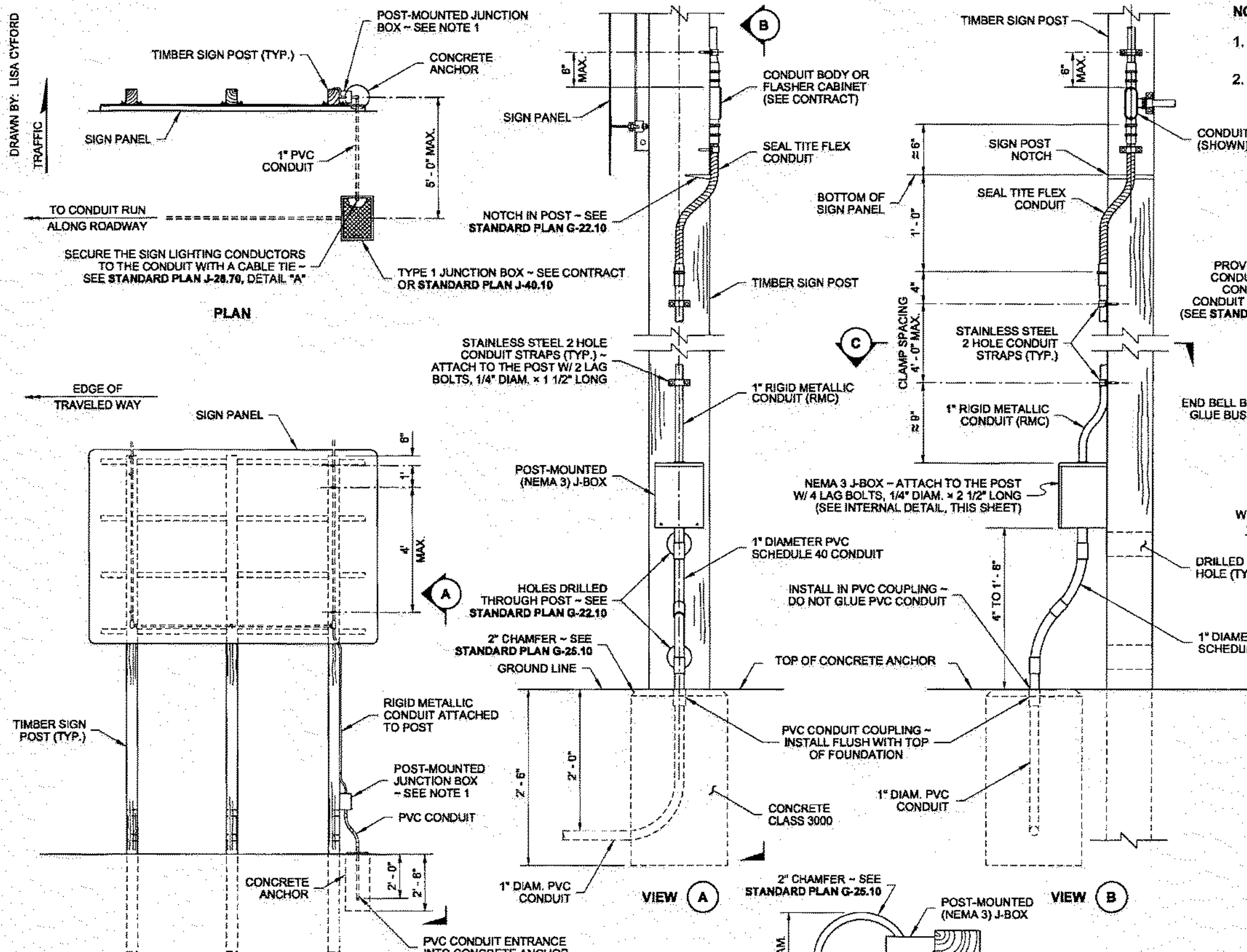
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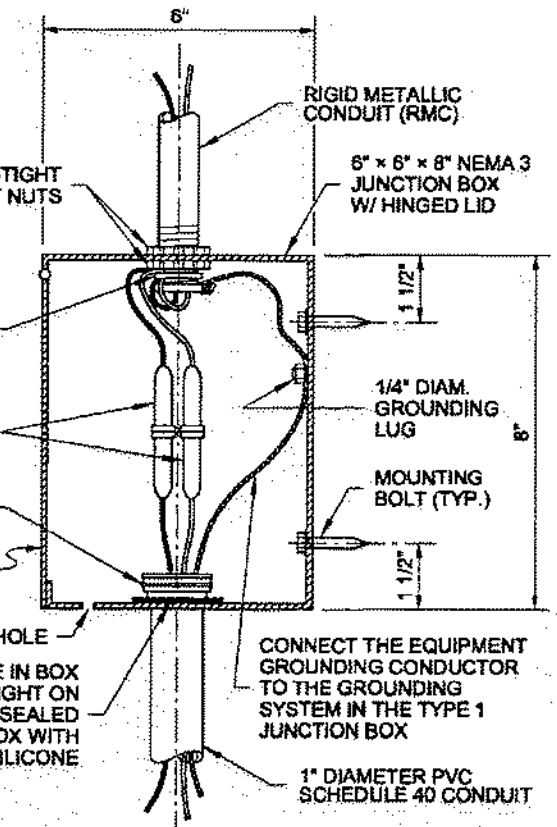
Washington State Department of Transportation

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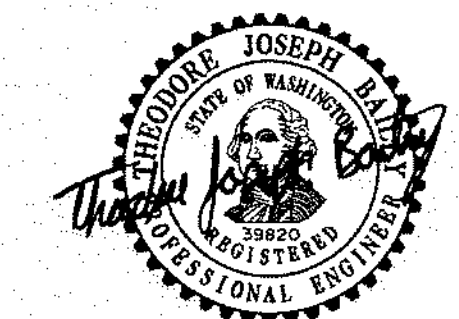


NOTE

1. Install the Junction Box on the Timber Sign Post or the Steel Sign Support that is farthest from the roadway.
2. See **Standard Plan J-21.16** for Flashing Beacon Installation details. See **Standard Plan J-21.17** for Electrical Wiring details.



**JUNCTION BOX
INTERNAL DETAIL**



5-29-13

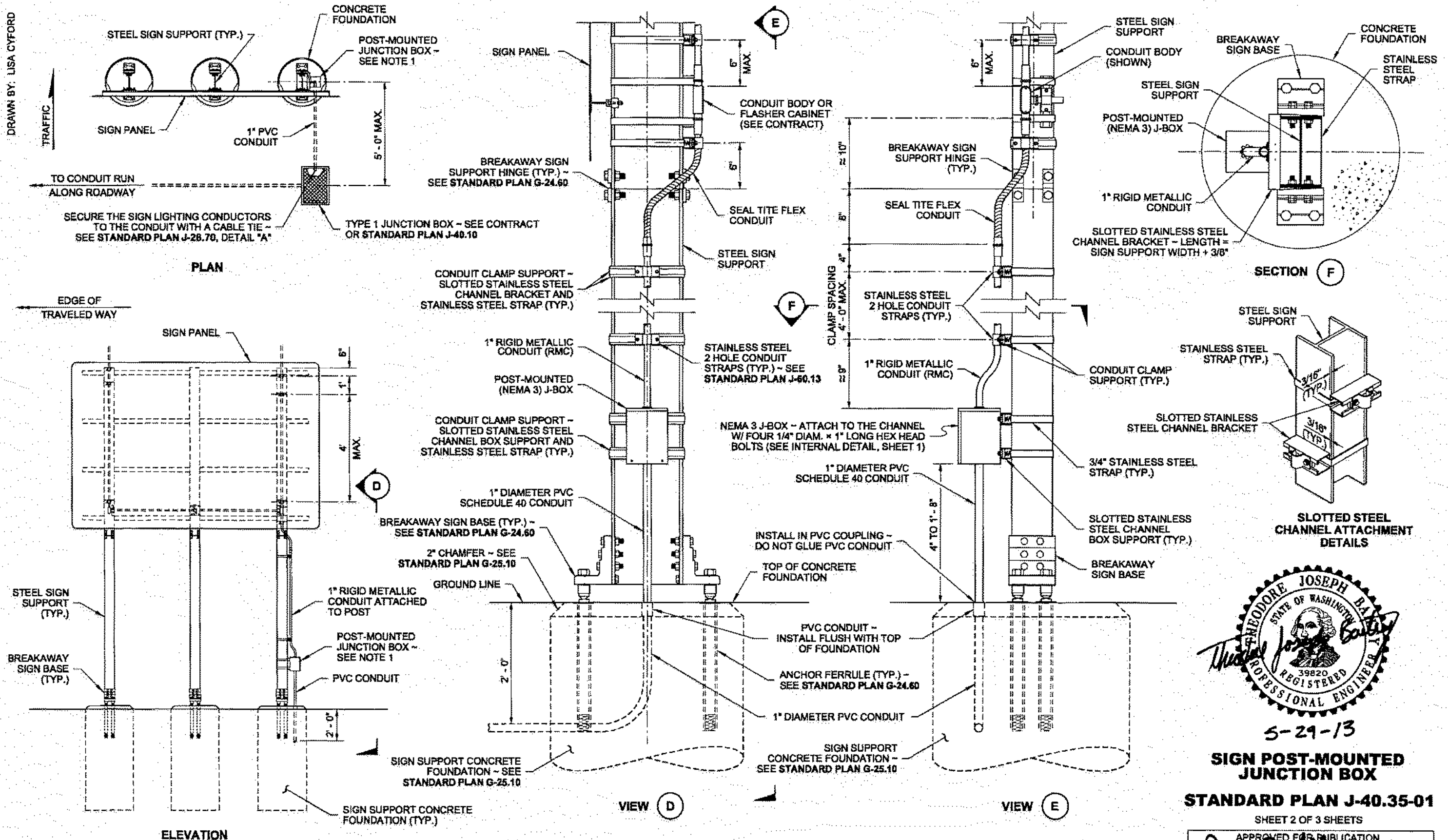
**SIGN POST-MOUNTED
JUNCTION BOX
STANDARD PLAN J-40.35-01**

SHEET 1 OF 3 SHEETS

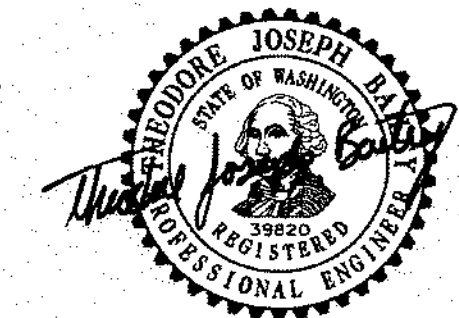
APPROVED FOR PUBLICATION
Pamela Smith 5/29/13
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

**JUNCTION BOX ATTACHMENT
TO TIMBER SIGN SUPPORT**

DRAWN BY: LISA CYFORD



JUNCTION BOX ATTACHMENT TO STEEL SIGN SUPPORT



5-29-13

SIGN POST-MOUNTED JUNCTION BOX

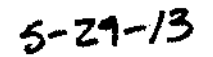
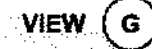
STANDARD PLAN J-40.35-01

SHEET 2 OF 3 SHEETS

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STEEL SIGN
SUPPORT (TYP.)

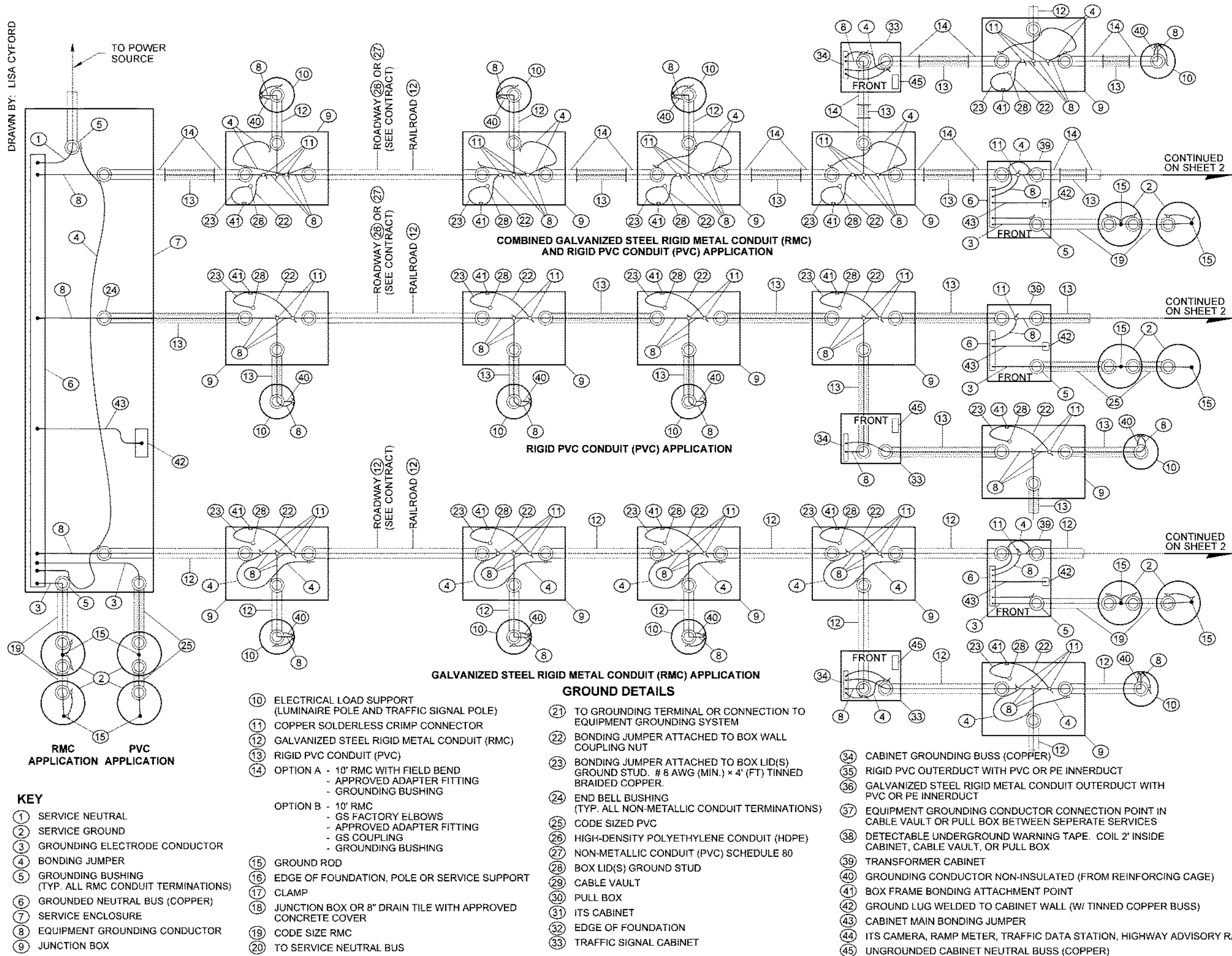
**STANDARD PLAN J-40.35-01**

SHEET 3 OF 3 SHEETS

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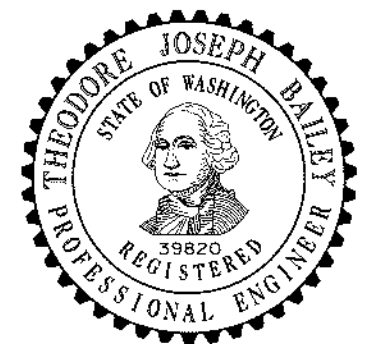
APPROVED FOR PUBLICATION
Pano Byrth Jr. 5/29/13
 STATE DESIGN ENGINEER DATE

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NOTES

1. If parallel circuits of different sizes are contained in one conduit, the size of the grounding conductor shall be determined on the basis of the largest conductor. Only one grounding conductor is required for each conduit, regardless of the number of circuits contained.
2. Service ground per serving utility requirement. If the utility uses aluminum service conductors, an approved Al-Cu pressure-type ground connector shall be used to secure the service neutral to the copper neutral bar in the service enclosure. Except for the above, all grounding conductors shall be copper.
3. Equipment grounding conductors and grounding electrode conductors shall be sized in accordance with the National Electrical Code (No. 8 minimum).



Bailey, Ted

Bailey, Ted
Jul 19 2016 1:29 PM

**TYPICAL
GROUNDING DETAILS
STANDARD PLAN J-60.05-01**

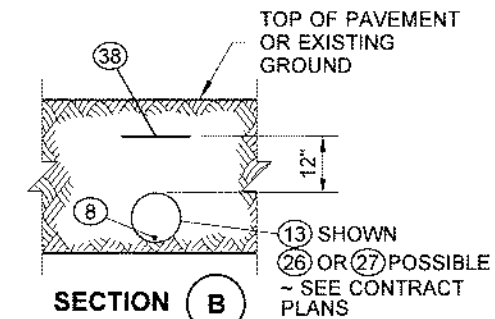
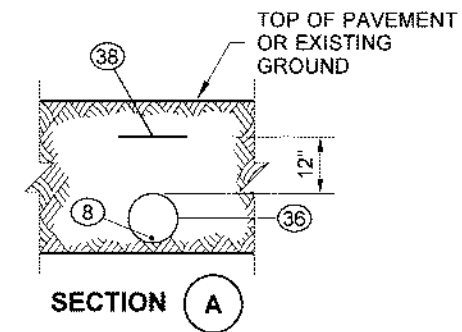
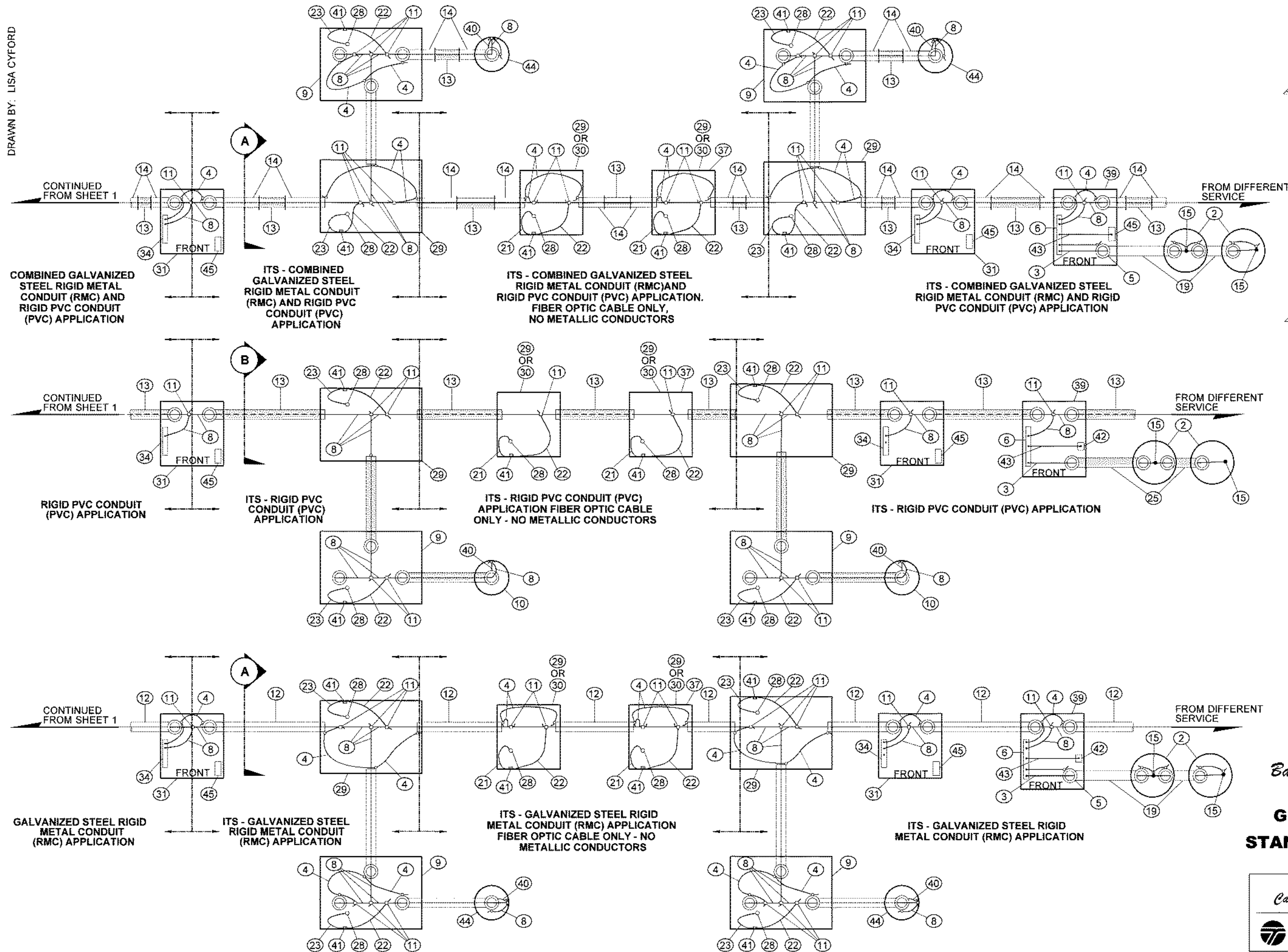
SHEET 1 OF 3 SHEETS

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Bailey, Ted
Jul 19 2016 1:29 PM

TYPICAL GROUNDING DETAILS **STANDARD PLAN J-60.05-01**

SHEET 2 OF 3 SHEETS

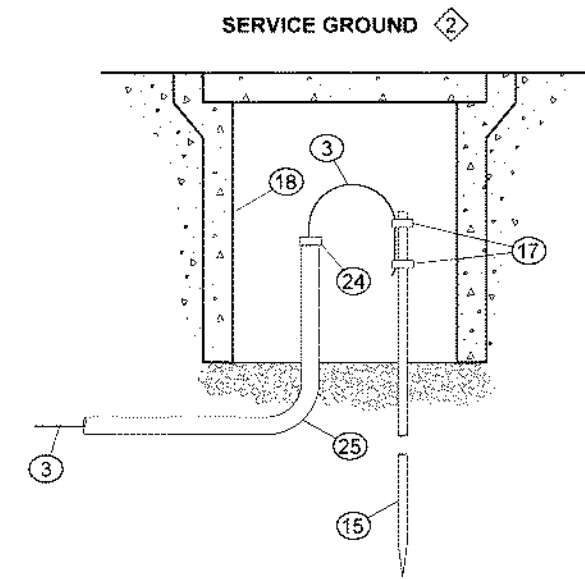
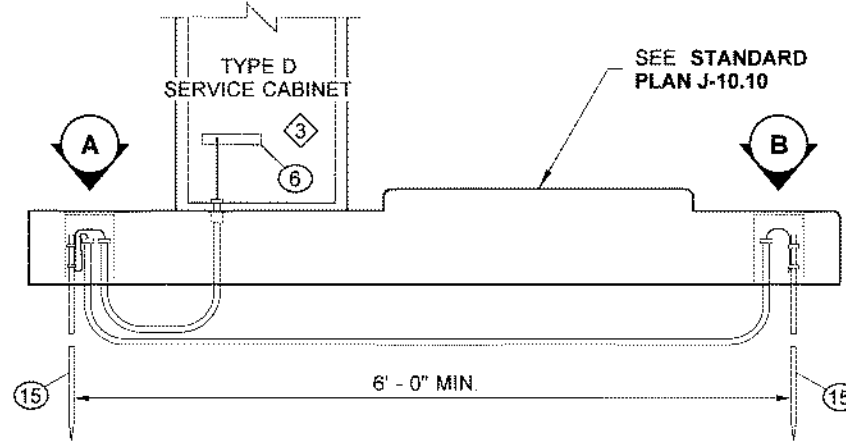
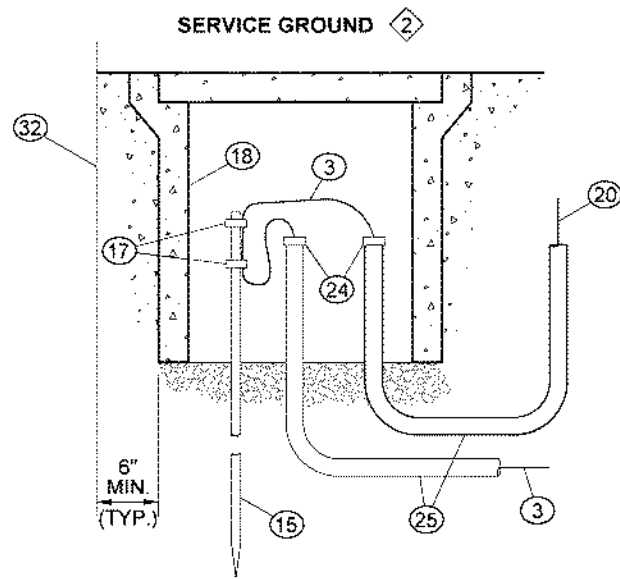
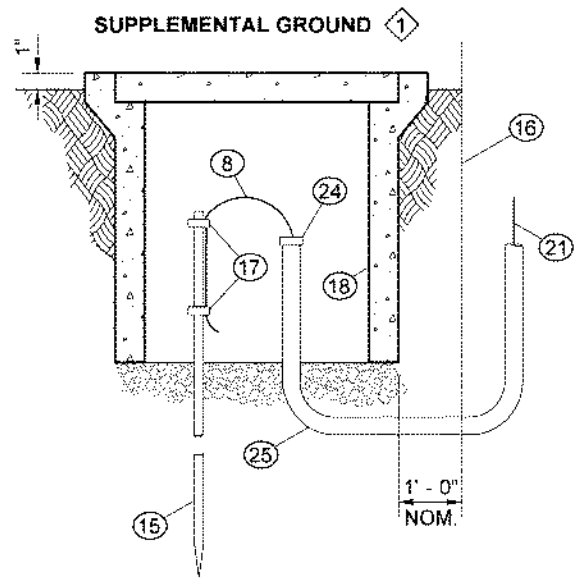
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Washington State Department of Transportation

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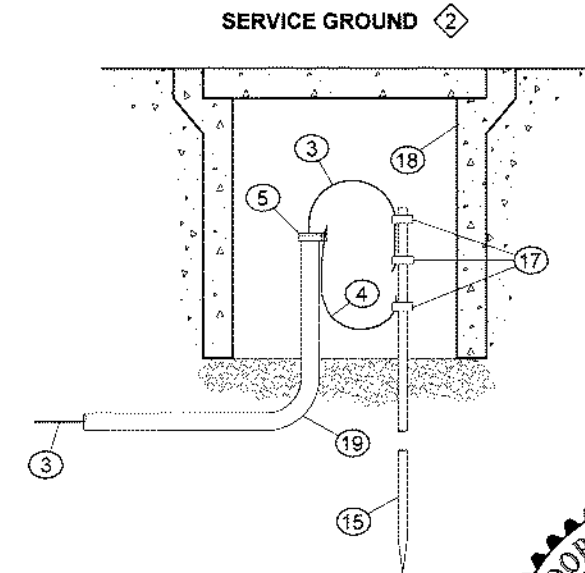
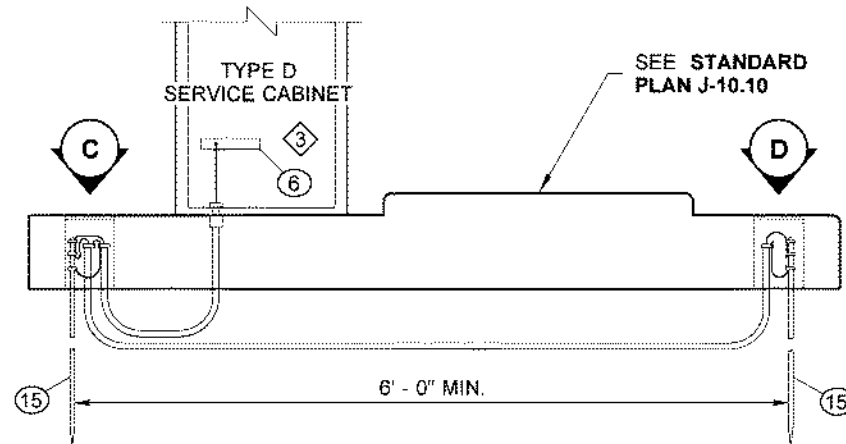
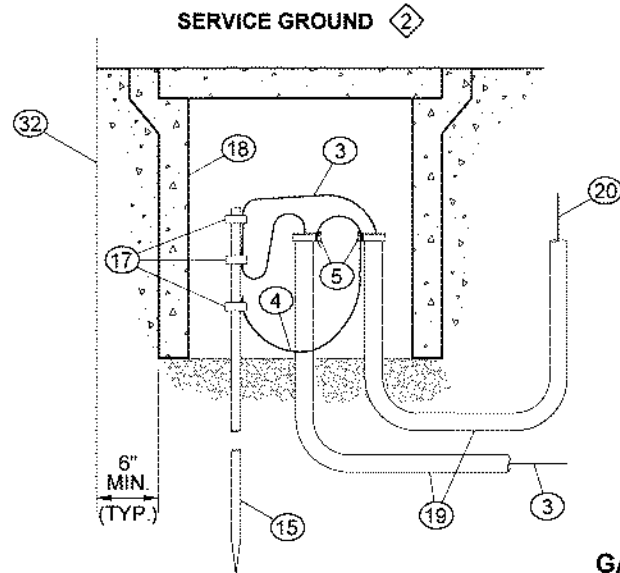
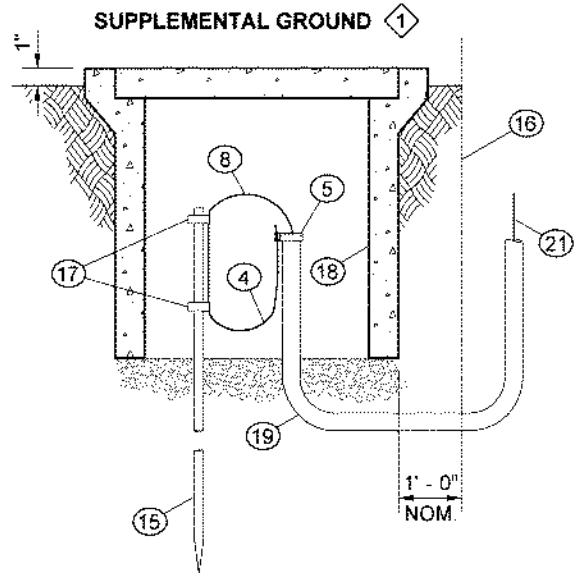


DETAIL A

RIGID PVC CONDUIT (PVC) APPLICATION

DETAIL B

SEE KEY ON SHEET 1 FOR PARTS

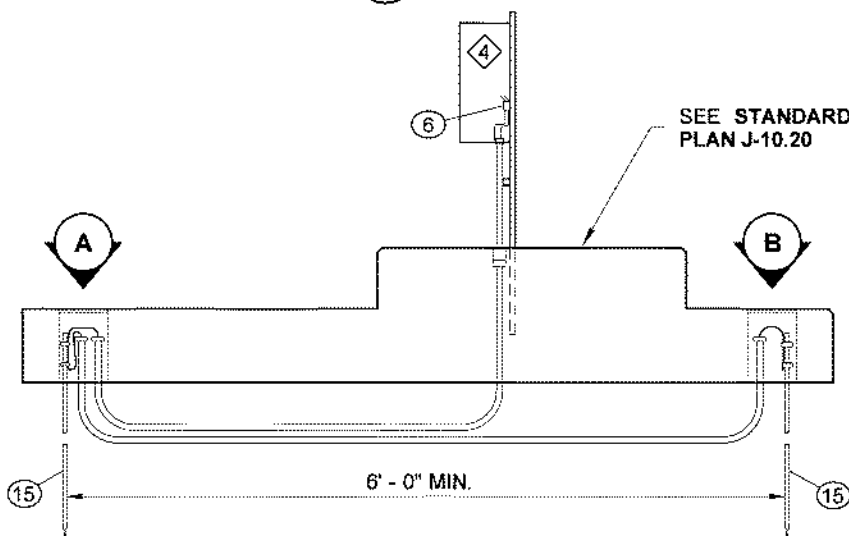


DETAIL C

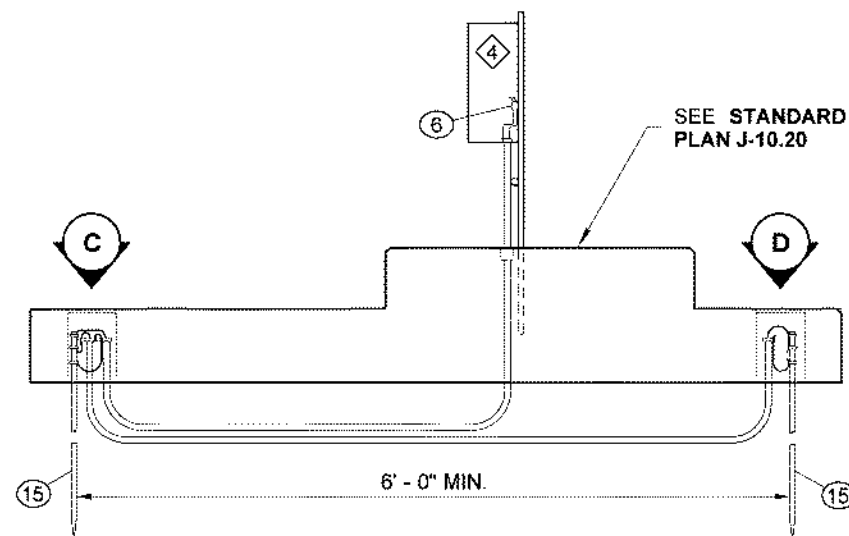
GALVANIZED STEEL RIGID METAL CONDUIT (RMC) APPLICATION

DETAIL D

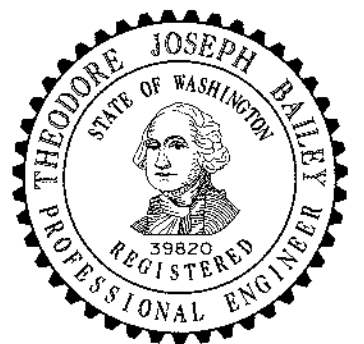
- 1 Required to supplement equipment grounding for luminaire standards with direct burial aerial feeds, or where required in the plans
- 2 Required at all service and separately derived systems
- 3 Type D service cabinet shown. Use this concept for Type E cabinet or transformer. Type D service cabinet shall be installed on lower surface of foundation only. Type B service cabinet and transformer cabinet shall be installed on raised surface of foundation only.
- 4 Type B modified service cabinet
- 5 Grounding electrode conductor and equipment grounding conductor shall not be routed through lug on grounding bushing.



RIGID PVC CONDUIT (PVC) APPLICATION



GALVANIZED STEEL RIGID METAL CONDUIT (RMC) APPLICATION



Bailey, Ted
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TYPICAL GROUNDING DETAILS STANDARD PLAN J-60.05-01

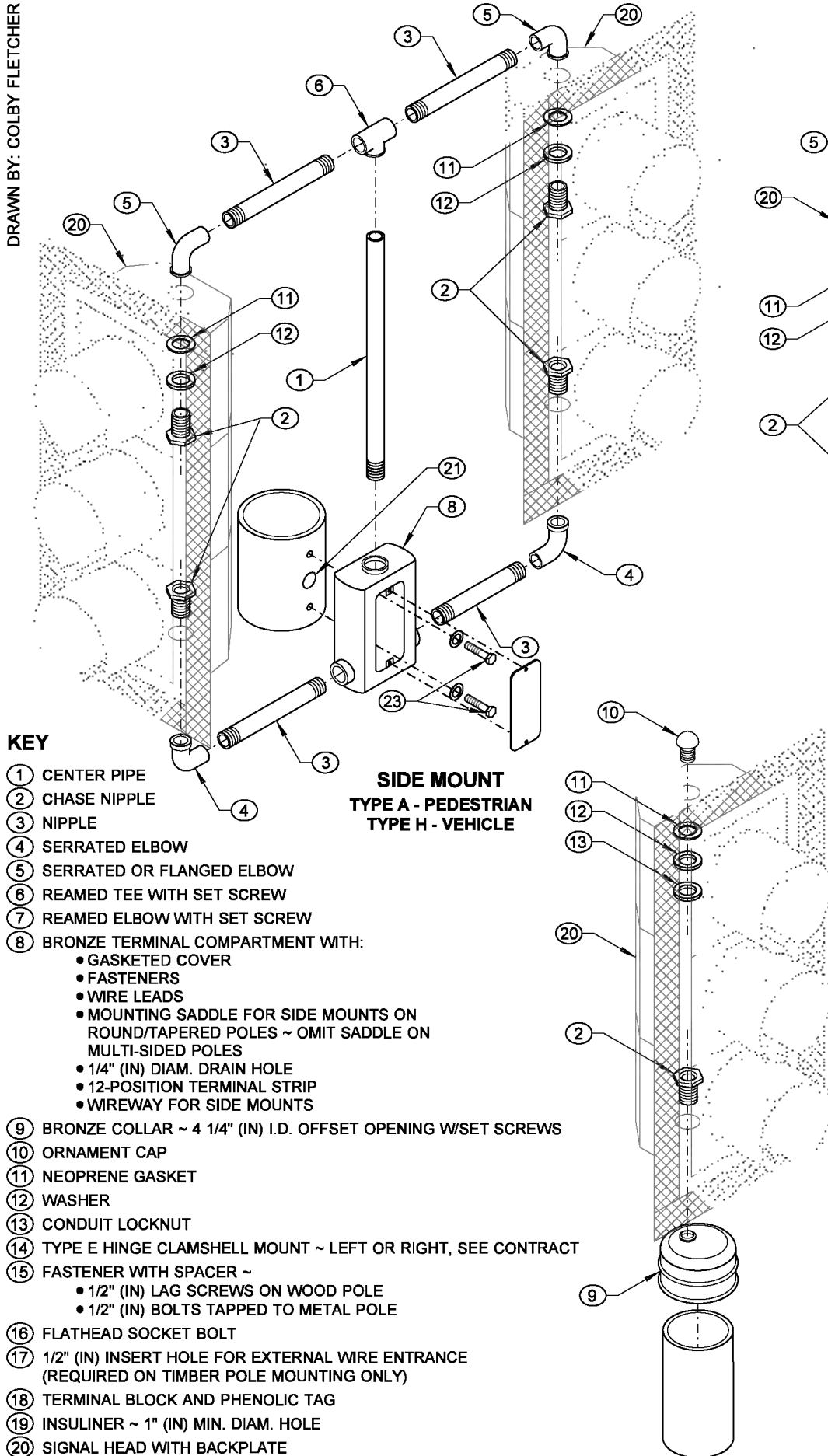
SHEET 3 OF 3 SHEETS

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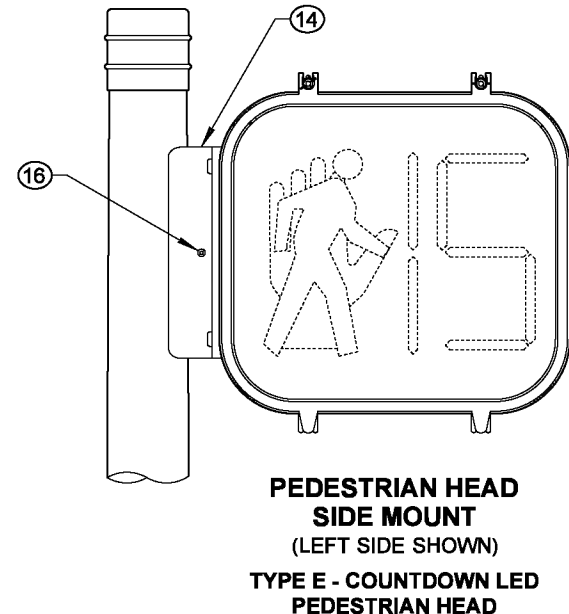
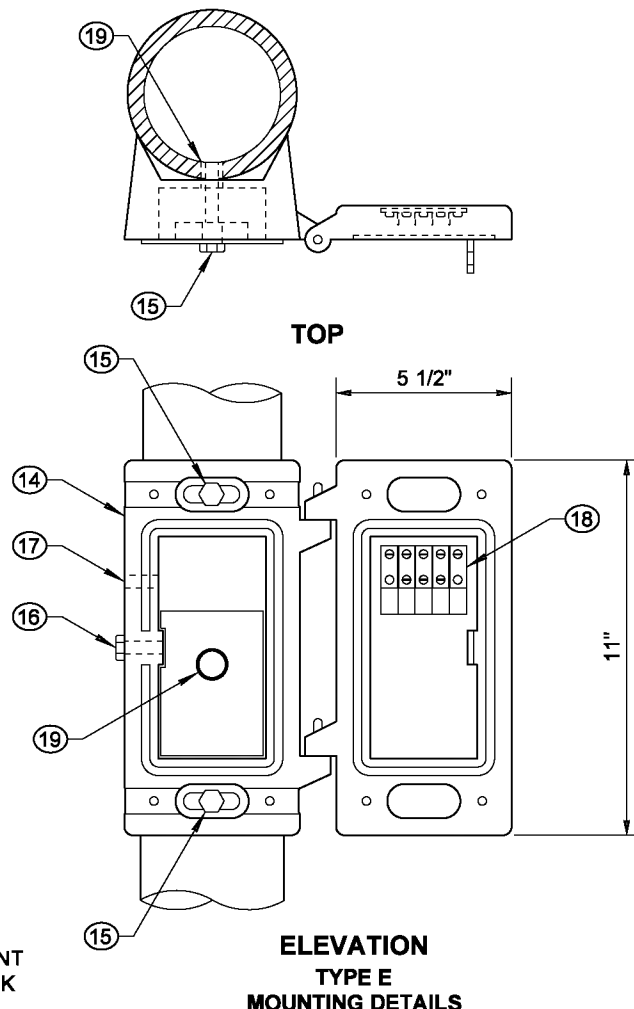
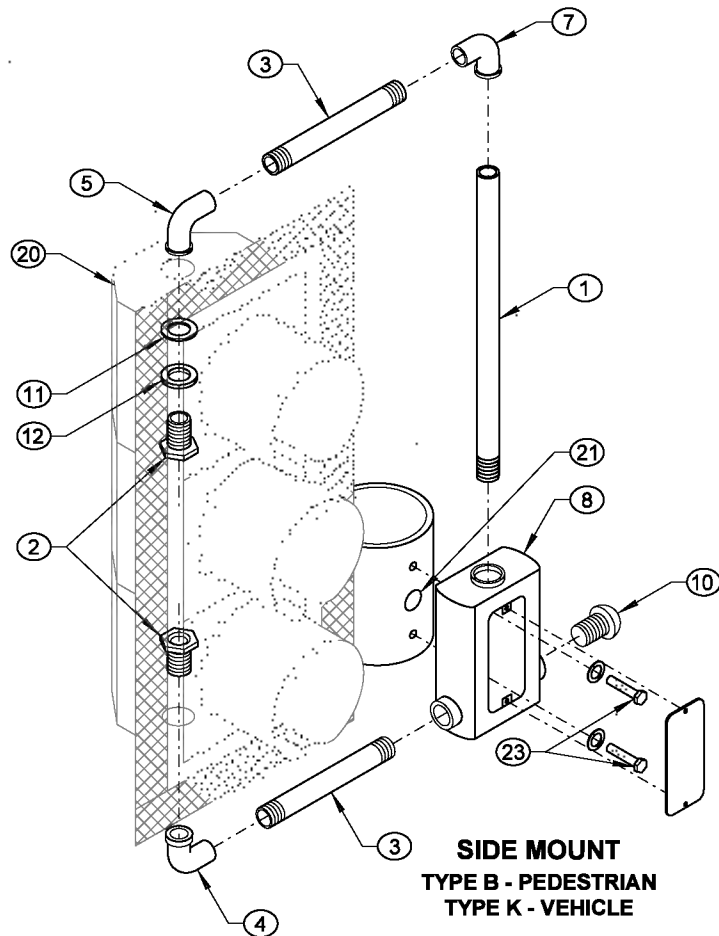
Washington State Department of Transportation



KEY

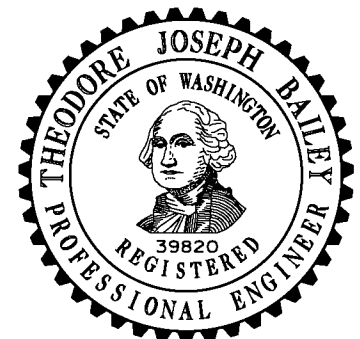
- ① CENTER PIPE
- ② CHASE NIPPLE
- ③ NIPPLE
- ④ SERRATED ELBOW
- ⑤ SERRATED OR FLANGED ELBOW
- ⑥ REAMED TEE WITH SET SCREW
- ⑦ REAMED ELBOW WITH SET SCREW
- ⑧ BRONZE TERMINAL COMPARTMENT WITH:
 - GASKETED COVER
 - FASTENERS
 - WIRE LEADS
 - MOUNTING SADDLE FOR SIDE MOUNTS ON ROUND/TAPERED POLES ~ OMIT SADDLE ON MULTI-SIDED POLES
 - 1/4" (IN) DIAM. DRAIN HOLE
 - 12-POSITION TERMINAL STRIP
 - WIREWAY FOR SIDE MOUNTS
- ⑨ BRONZE COLLAR ~ 4 1/4" (IN) I.D. OFFSET OPENING W/SET SCREWS
- ⑩ ORNAMENT CAP
- ⑪ NEOPRENE GASKET
- ⑫ WASHER
- ⑬ CONDUIT LOCKNUT
- ⑭ TYPE E HINGE CLAMSHELL MOUNT ~ LEFT OR RIGHT, SEE CONTRACT
- ⑮ FASTENER WITH SPACER ~
 - 1/2" (IN) LAG SCREWS ON WOOD POLE
 - 1/2" (IN) BOLTS TAPPED TO METAL POLE
- ⑯ FLATHEAD SOCKET BOLT
- ⑰ 1/2" (IN) INSERT HOLE FOR EXTERNAL WIRE ENTRANCE (REQUIRED ON TIMBER POLE MOUNTING ONLY)
- ⑱ TERMINAL BLOCK AND PHENOLIC TAG
- ⑲ INSULINER ~ 1" (IN) MIN. DIAM. HOLE
- ⑳ SIGNAL HEAD WITH BACKPLATE
- ㉑ FIELD DRILL POLE AND INSERT AN INSULINER OR SIMILAR DEVICE TO PROTECT CONDUCTORS
- ㉒ SIMILAR TO ⑧ WITH BRONZE INTEGRAL COLLAR
- ㉓ 1/2" (IN) DIAM. x 3" (IN) LONG BOLT WITH WASHER

**SIDE MOUNT
TYPE A - PEDESTRIAN
TYPE H - VEHICLE**



NOTES

1. See Contract for head type, mounting height, and orientation.
2. All nipples, fittings, and center pipes shall be 1 1/2" (in) diameter.
3. Install neoprene gasket inside head when flanged elbows are supplied.
4. Extend wire sheath a minimum of 1" (in) inside all signal and sign housings and terminal compartments.
5. Apply bead of silicone to the serrated ring and around the perimeter of all top openings prior to installation of fittings.
6. See **Standard Specification 9-29.16** for backplate requirements. Where required, prismatic sheeting shall be applied in accordance with the manufacturer's recommendations. The application surface of the backplate shall be cleaned, degreased with isopropyl alcohol, and dried prior to application of the sheeting.
7. Drill a 1/4" (in) drain hole in the bottom of each signal display assembly, and one in the bottom of each pedestrian head. When signal display assembly is mounted horizontally, drill a 1/4" (in) drain hole at the lowest point of each section of the signal assembly.



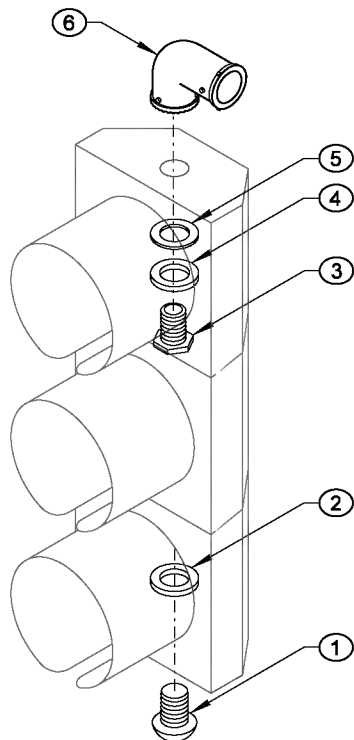
**SIGNAL HEAD MOUNTING
DETAILS ~ POLE AND POST
TOP MOUNTINGS
STANDARD PLAN J-75.10-02**

SHEET 1 OF 1 SHEET

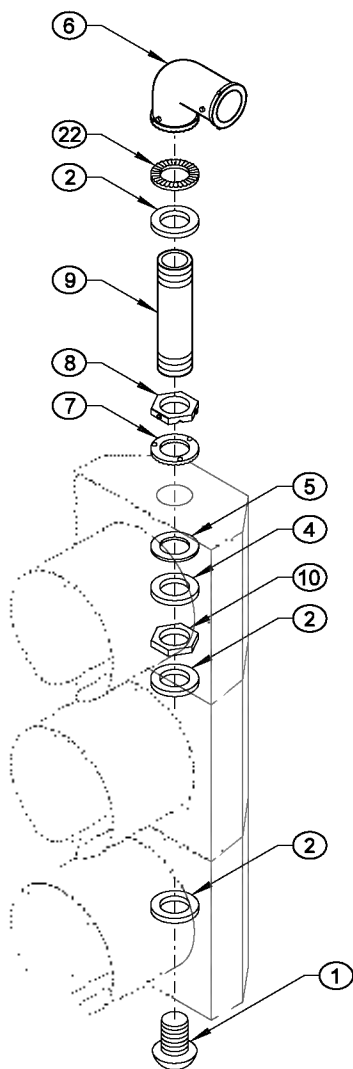
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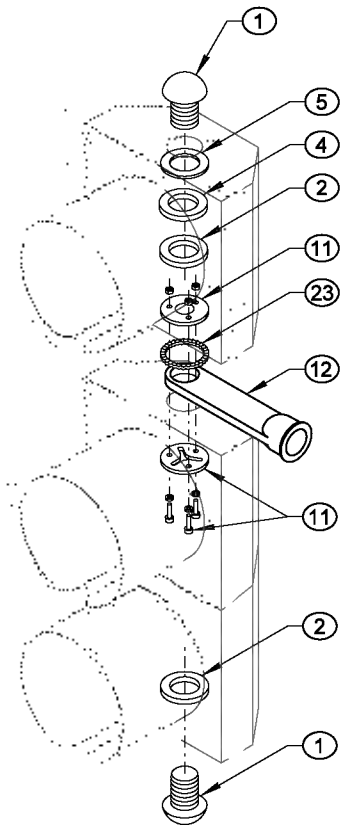
- ① END CAP
- ② 1 1/2" (IN) DIAM. CONDUIT LOCKNUT
- ③ 1 1/2" (IN) DIAM. CHASE NIPPLE
- ④ STEEL WASHER
- ⑤ NEOPRENE GASKET
- ⑥ BRONZE SERRATED ELL FITTING WITH:
 - 3/8" (IN) STAINLESS STEEL THROUGH BOLT AND NUTS
 - THREE STAINLESS STEEL SET SCREWS AT SLIPFITTER CONNECTION
 - THREE ALLEN HEAD STAINLESS STEEL SET SCREWS AT CONDUIT NIPPLE CONNECTION
- ⑦ SERRATED RING WITH PINS
- ⑧ HEX LOCKNUT WITH:
 - TWO ALLEN HEAD STAINLESS STEEL SET SCREWS
 - PIN RECEPTACLES
- ⑨ 1 1/2" (IN) DIAM. CONDUIT NIPPLE
- ⑩ 1 1/2" (IN) DIAM. HEX LOCKNUT
- ⑪ MOUNTING ASSEMBLY
- ⑫ BRONZE ELEVATOR PLUMBIZER WITH 3/8" (IN) STAINLESS STEEL THROUGH BOLT, WASHERS, AND TWO NUTS
- ⑬ ALUMINUM ARM WITH SET SCREW
- ⑭ SLOTTED TUBE WITH CLOSURE STRIP
- ⑮ 2 1/2" (IN) I.D. MIN. TUBE CLAMP
- ⑯ INTERNALLY THREADED CLAMP ASSEMBLY WITH:
 - TWO SET SCREWS
 - 1/2" (IN) × 0.045" (IN) STAINLESS STEEL BANDS
 - 7/16" (IN) SCREW BUCKLES WITH SWIVELS, NUTS, AND WASHERS
 - BAND CLIPS WITH ALLEN HEAD STAINLESS STEEL SET SCREWS
- ⑰ BRONZE MESSENGER HANGER WITH:
 - 1/2" (IN) DIAM. J-BOLTS
 - CABLE LOCK BAR
 - RIVET
 - COTTER KEY
- ⑱ BRONZE INTERNALLY THREADED WIRE ENTRANCE WITH:
 - BUSHING INSERT OR RUBBER GROMMET
 - ALLEN HEAD STAINLESS STEEL SET SCREW
- ⑲ BRONZE BALANCE ADJUSTER (WHERE REQUIRED)
- ⑳ MULTI-HEAD MOUNTING ASSEMBLY
- ㉑ LOWER ARM ASSEMBLY
- ㉒ SERRATED RING WITH NO PINS
- ㉓ SERRATED WASHER
- ㉔ 1 1/2" (IN) DIAM. SERRATED OR FLANGED ELBOW
- ㉕ CENTER SUPPORT WITH 1 1/2" (IN) DIAM. HUBS WITH COVER AND GASKET
- ㉖ 1 1/2" (IN) DIAM. SERRATED COUPLING
- ㉗ 1 1/2" (IN) BREAKAWAY TETHER ASSEMBLY WITH OPTIONAL EXTENDER BAR
- ㉘ SERRATED CROSS



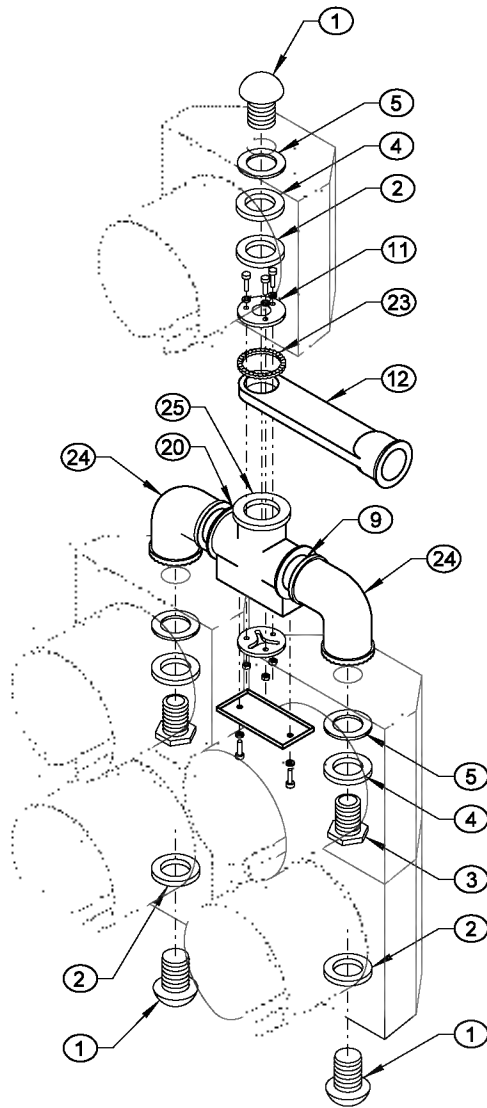
ARM MOUNT
TYPE L



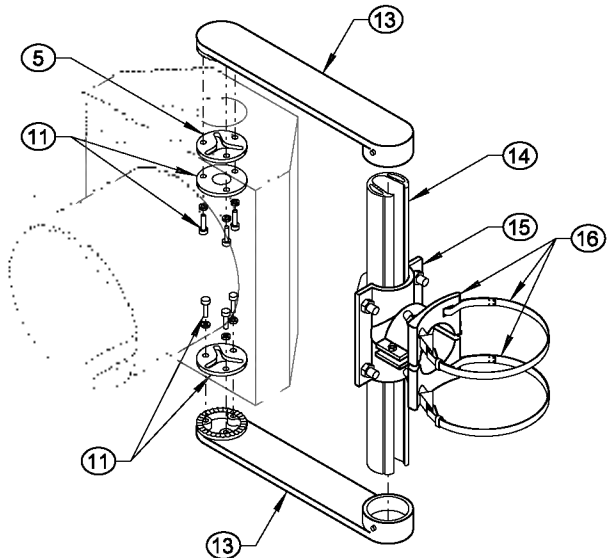
ARM MOUNT
TYPE LE



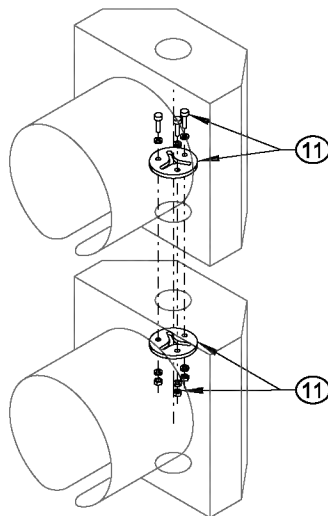
ARM MOUNT
TYPE M



ARM MOUNT
TYPE M-5S
(TYPE M WITH
5-SECTION HEAD)



ARM MOUNT
TYPE N

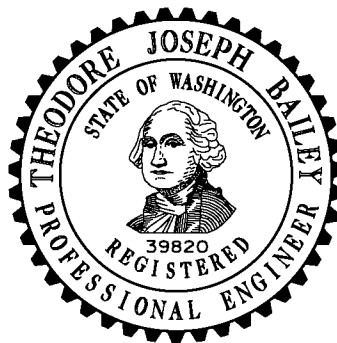


HOUSING FIXTURE
CONNECTION DETAIL

NOTES

1. Type M mounting shall have "O" ring groove and seal on top and bottom of signal attachment.
2. Type M mounting for conventional heads shall have a 2" (in) diameter opening at the signal attachment.
3. Type M mounting for optically programmed heads shall have a 3 1/2" (in) diameter opening at the signal attachment.
4. Type N mounting with optically programmed heads shall be installed with 14" (in) nominal arms.
5. See **Standard Plan J-75.30** for tether wire and backplate requirements.
6. Apply bead of silicone around the perimeter of all top end cap openings prior to installation of the end cap assembly.
7. See **Standard Specification 9-29.16** for backplate requirements. Where required, prismatic sheeting shall be applied in accordance with the manufacturer's recommendations. The application surface of the backplate shall be cleaned, degreased with isopropyl alcohol, and dried prior to application of the sheeting.
8. Drill a 1/4" (in) drain hole in the bottom of each signal assembly. When signal display assembly is mounted horizontally, drill a 1/4" (in) drain hole at the lowest point of each section of the signal assembly.

NOTE: BACKPLATES NOT SHOWN
FOR CLARITY



**SIGNAL HEAD MOUNTING
DETAILS ~ MAST ARM AND
SPAN WIRE MOUNTINGS
STANDARD PLAN J-75.20-01**

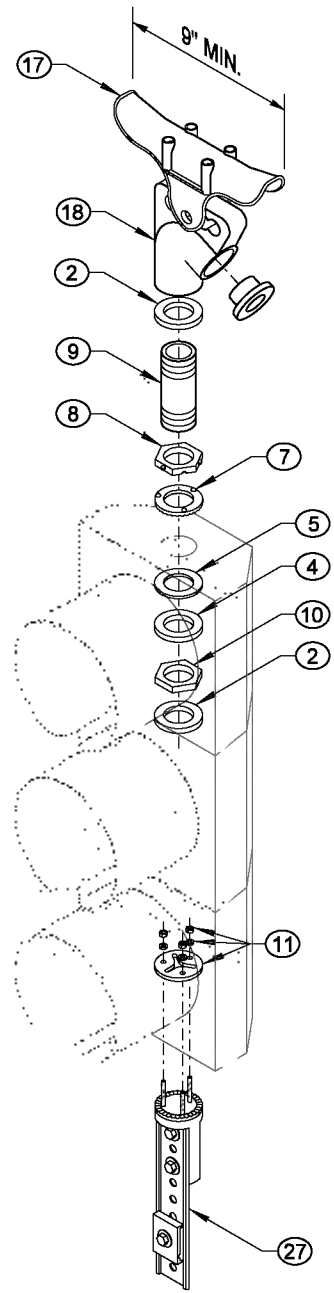
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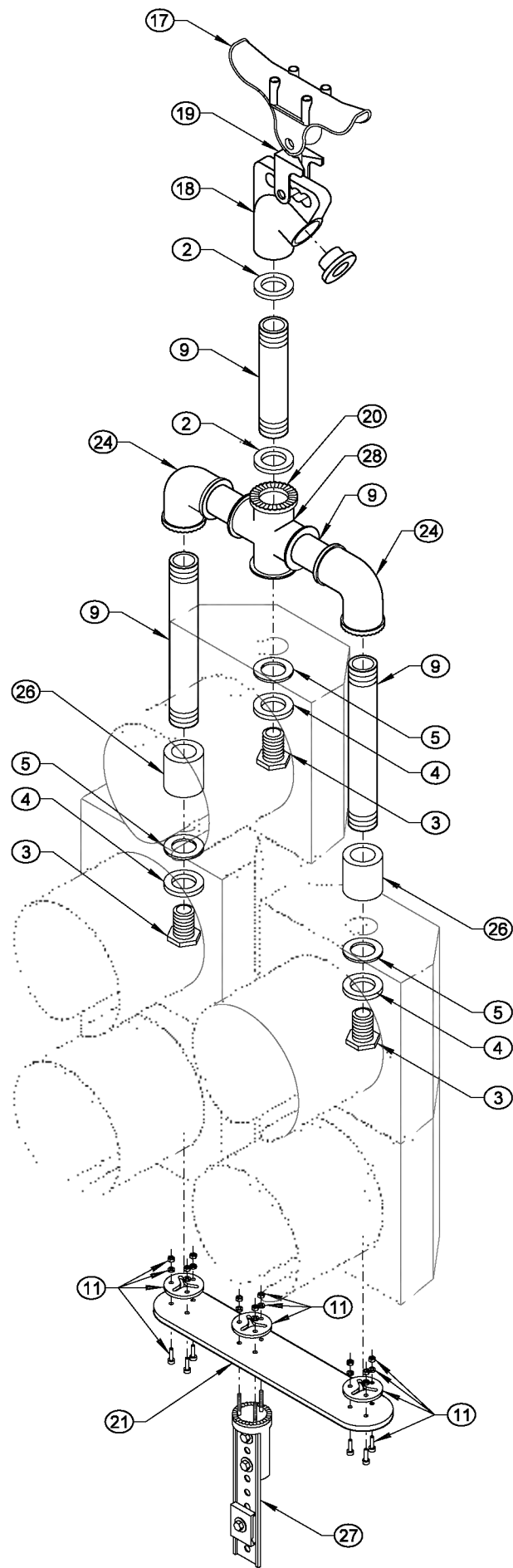


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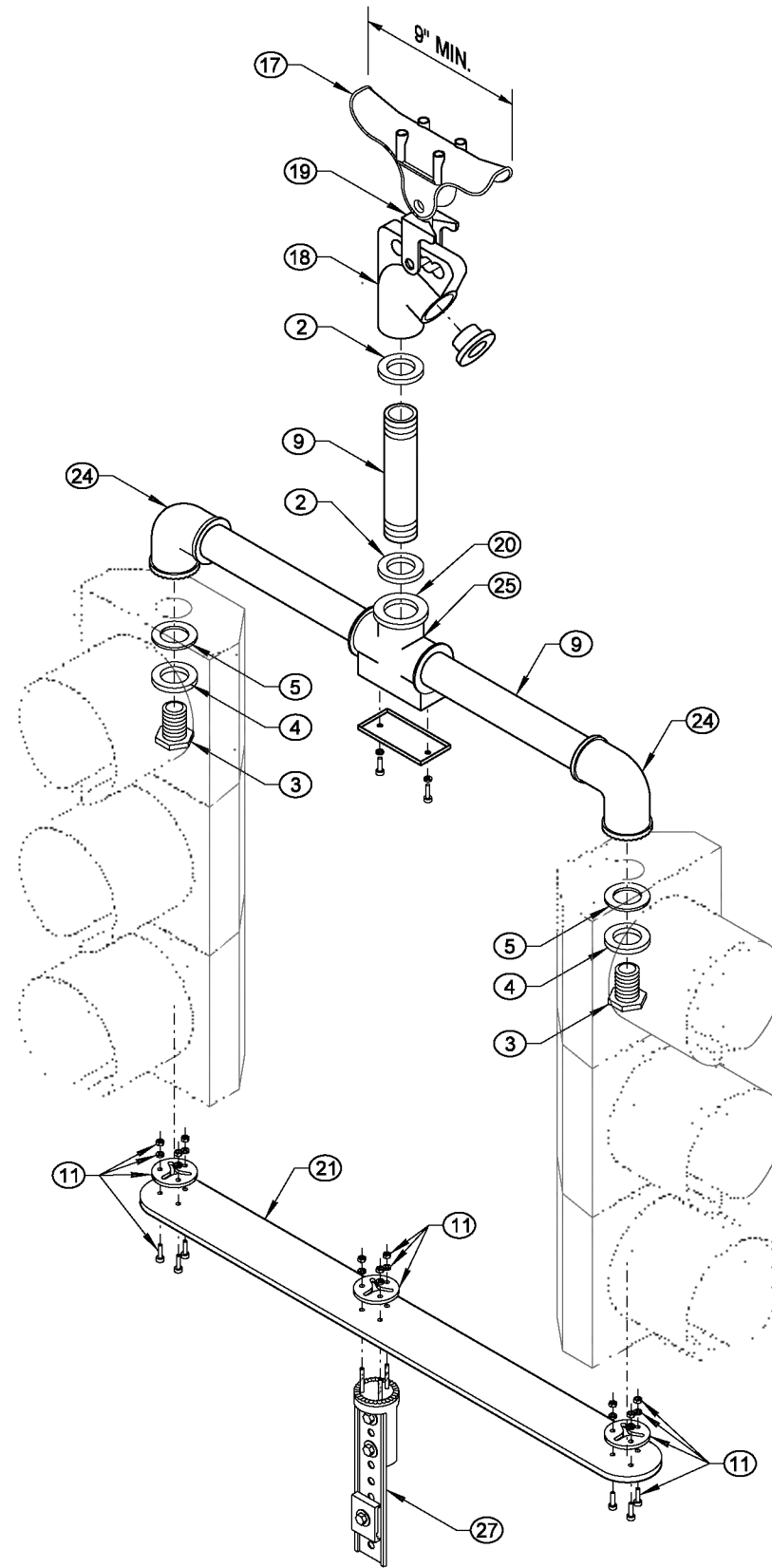
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**SPAN WIRE
TYPE P (1 HEAD)**

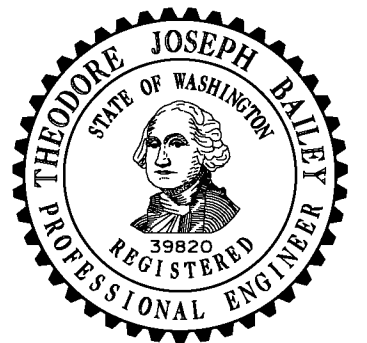


**SPAN WIRE
TYPE P-5S
(TYPE P WITH 5-SECTION HEAD)**



**SPAN WIRE
TYPE Q (2 HEADS)
TYPE R (3 HEADS)
TYPE S (4 HEADS)**

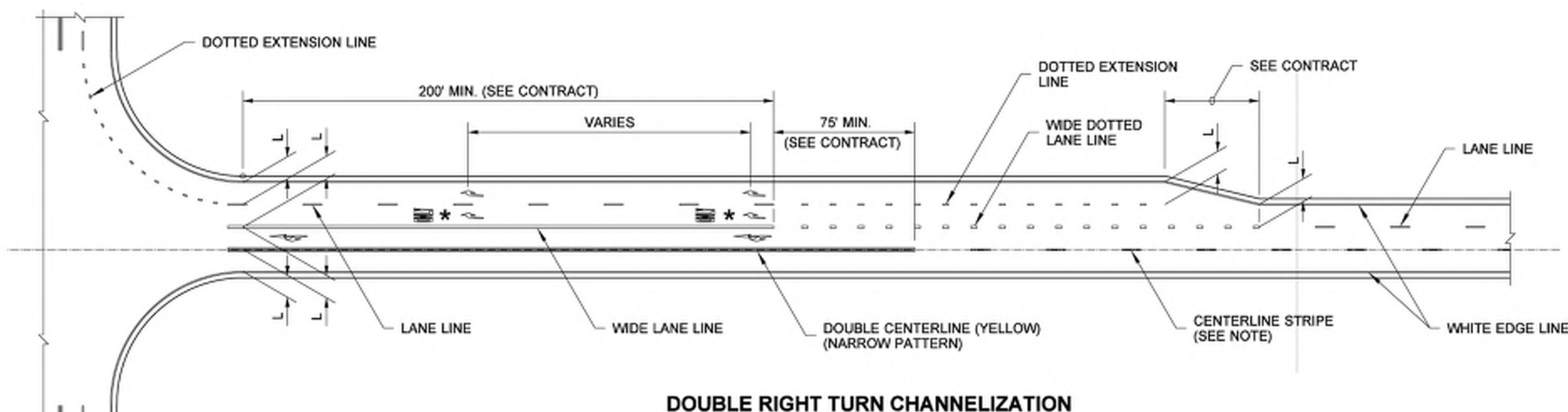
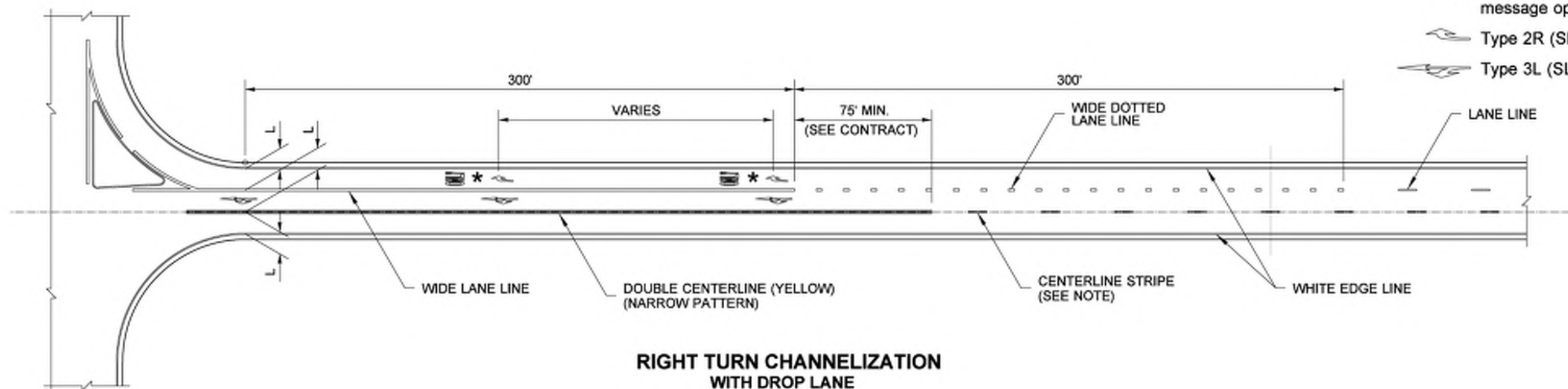
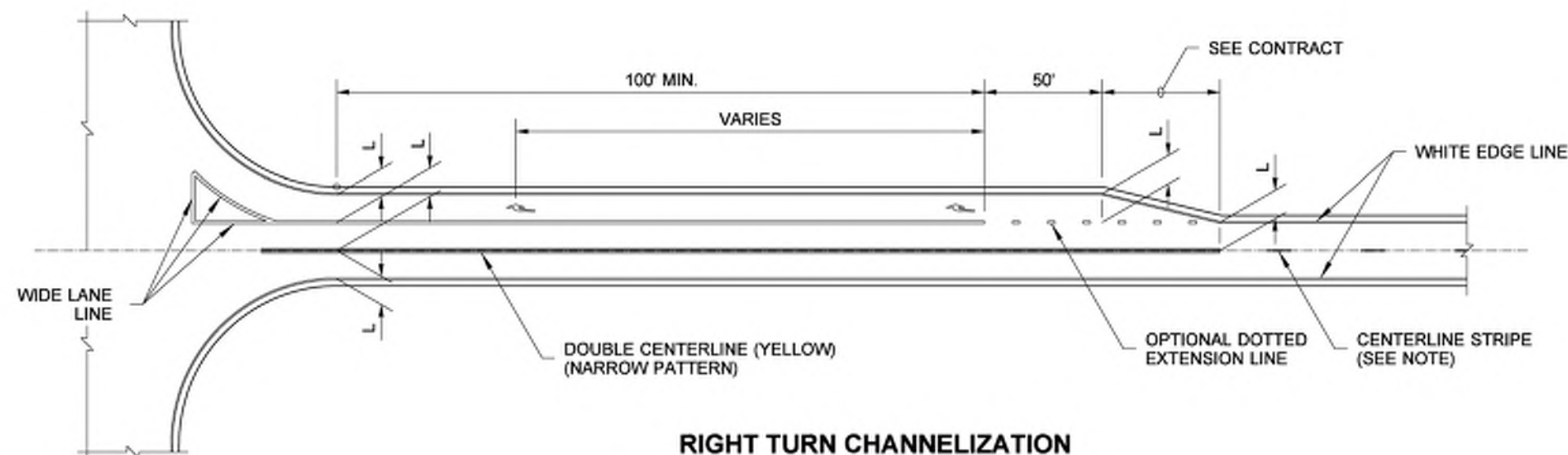
**NOTE: BACKPLATES NOT SHOWN
FOR CLARITY**



**SIGNAL HEAD MOUNTING
DETAILS ~ MAST ARM AND
SPAN WIRE MOUNTINGS
STANDARD PLAN J-75.20-01**

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

**NOTES**

1. The channelization shown on this plan assumes optimal roadway geometric design. The dimensions may vary to fit existing conditions. See Contract.
2. The channelization shown on this plan is for a two-lane highway. The channelization plan may be used on four-lane undivided highways with the appropriate considerations.
3. Centerline striping on the approach to raised channelization shall be No Pass in accordance with MUTCD figure 3B-15. Centerline striping on the departure from raised channelization shall be determined by an engineering study.
4. Centerline striping on the approach to and departure from painted channelization shall be determined by an engineering study.
5. Centerline striping on four-lane undivided highways shall be a double center line.
6. All Traffic Arrows not required are optional, but recommended. Arrows may be added for longer storage lanes, or deleted for shorter storage lanes. See Contract Plans.

LEGEND

L = Lane Width. See Contract for specified lane widths.

* = Denotes required traffic arrow. Accompanying ONLY word message optional. See **Standard Plan M-80.10** for spacing.

Type 2R (SR) Traffic Arrow

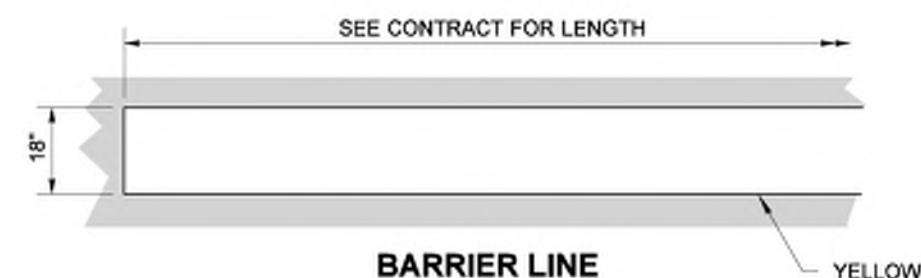
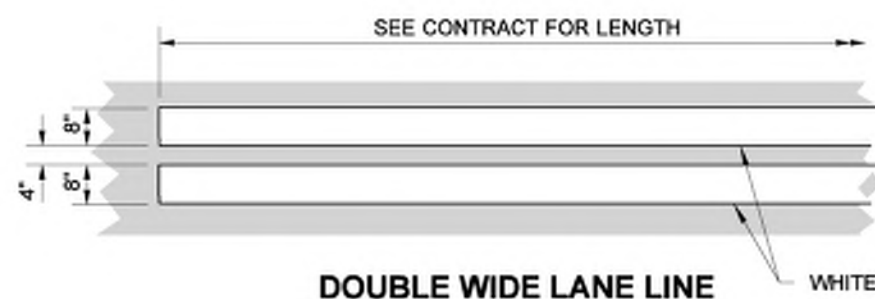
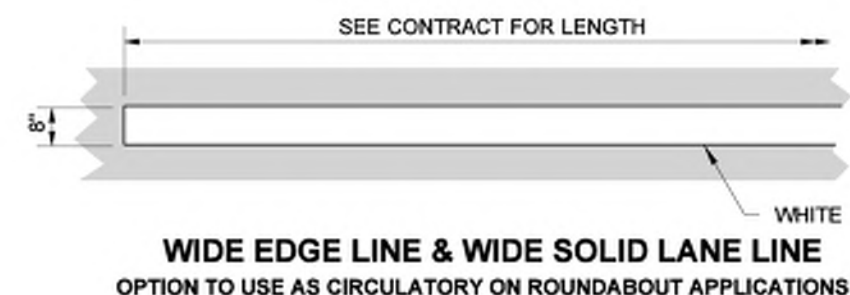
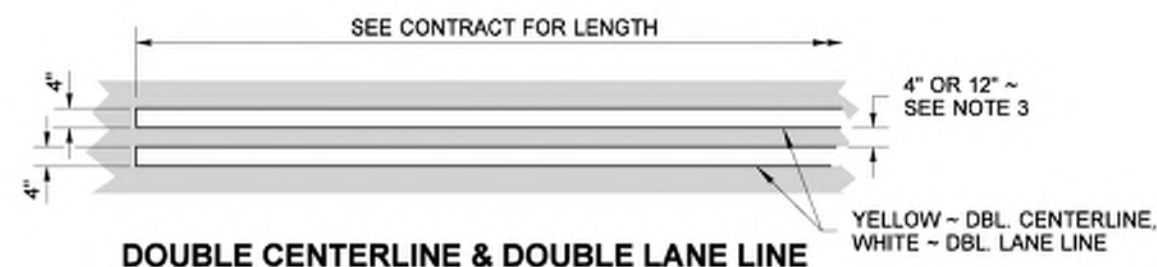
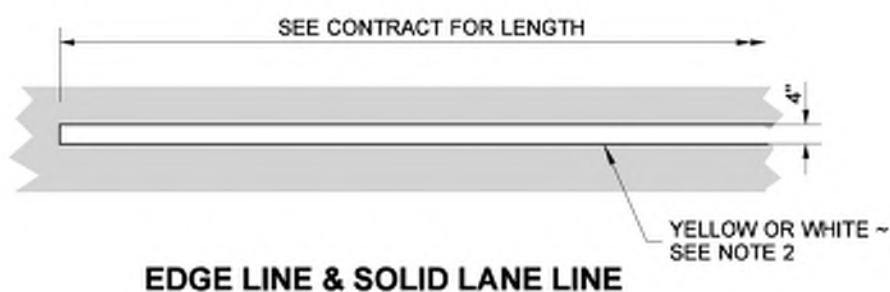
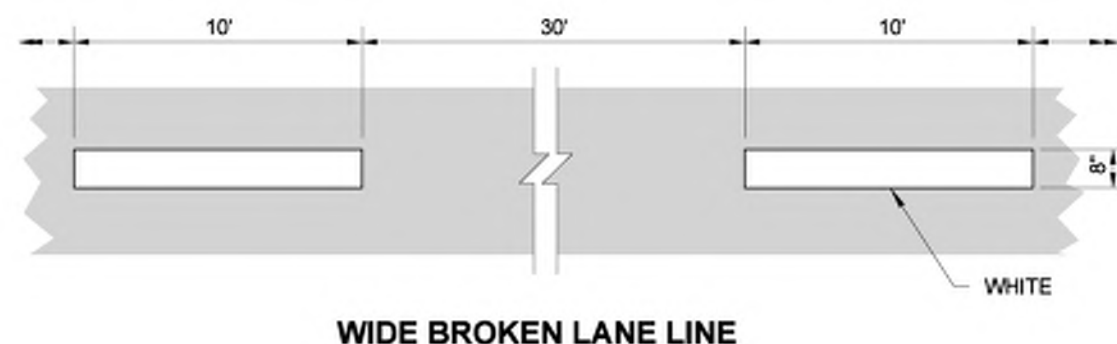
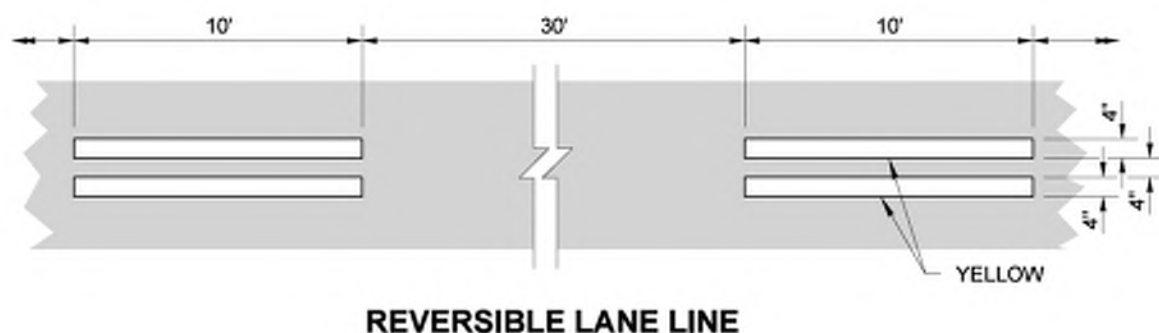
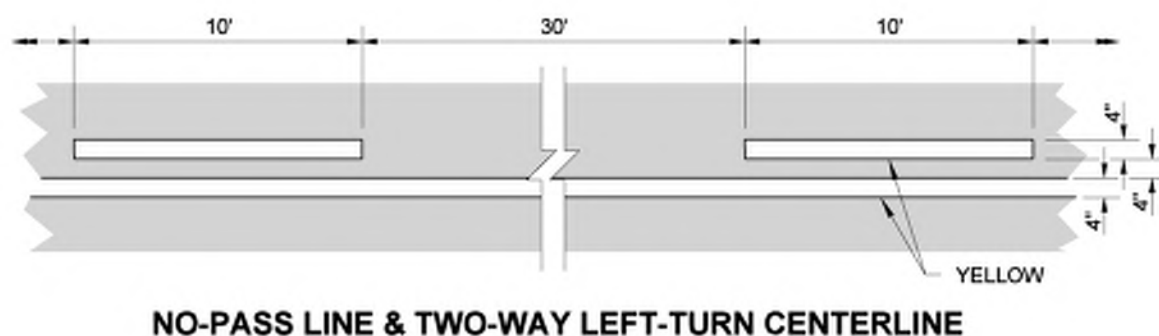
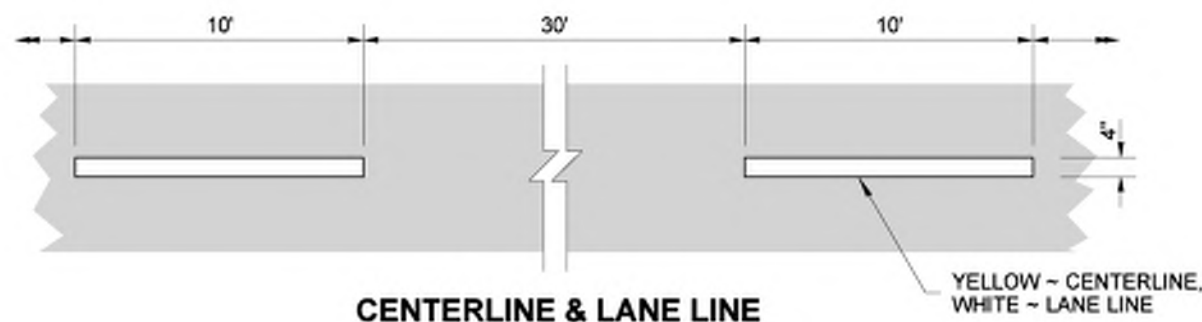
Type 3L (SL) Traffic Arrow



Brian J. Walsh Walsh, Brian
Sep 23 2020 3:45 PM

**RIGHT TURN
CHANNELIZATION**
STANDARD PLAN M-5.10-03
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Date: 2020.09.25
14:57:04 -07'00'
STATE DESIGN ENGINEER
 Washington State Department of Transportation



NOTES

1. Dotted Extension Line shall be the same color as the line it is extending.
2. Edge Line shall be white on the right edge of traveled way, and yellow on the left edge of traveled way (on one-way roadways). Solid Lane Line shall be white.
3. The distance between the lines of the Double Centerline shall be 12" everywhere, except 4" for left-turn channelization and narrow roadways with lane widths of 10 feet or less. Local Agencies (on non-state routes) may specify a 4" distance for all locations.
The distance between the lines of the Double Lane Line shall be 4".



Aug 1, 2022

**LONGITUDINAL
MARKING PATTERNS**

STANDARD PLAN M-20.10-04

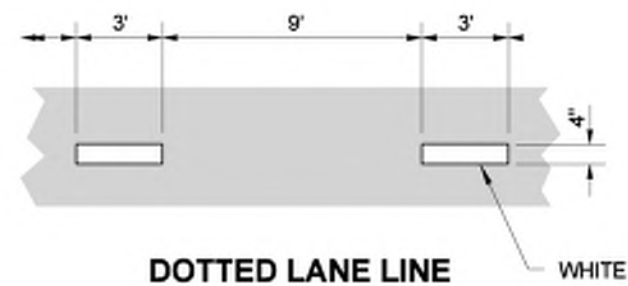
SHEET 1 OF 4 SHEETS

APPROVED FOR PUBLICATION

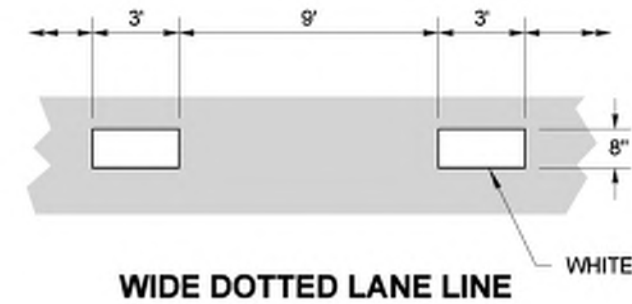
Mark Gainer
Mark Gainer (Aug 2, 2022 10:17 PM)

Aug 2, 2022

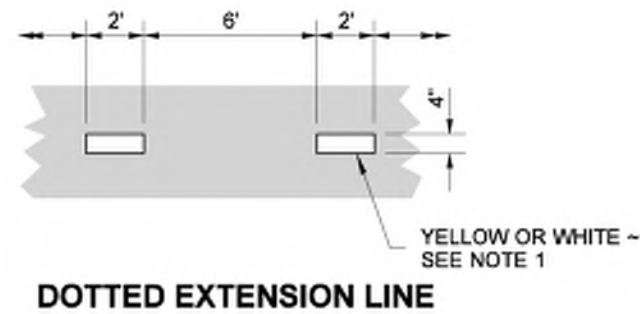
STATE DESIGN ENGINEER
Washington State Department of Transportation



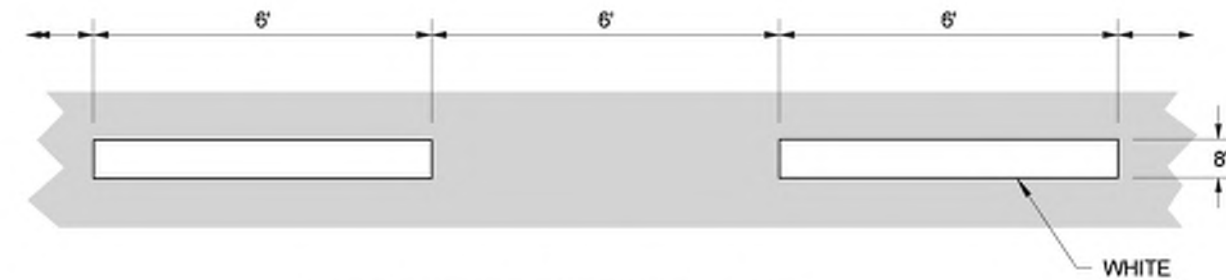
DOTTED LANE LINE



WIDE DOTTED LANE LINE

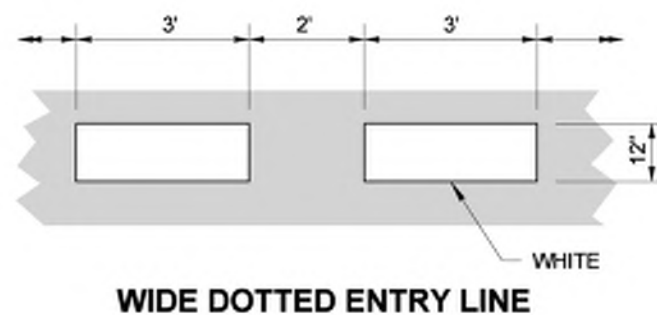


DOTTED EXTENSION LINE

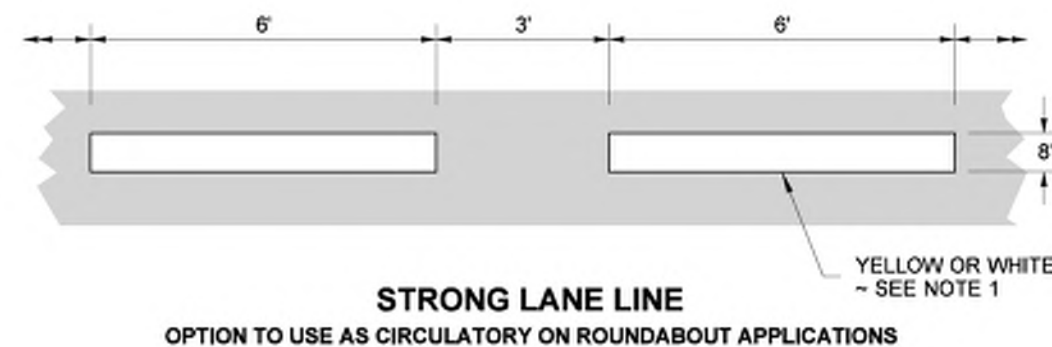


WIDE DOTTED EXTENSION LINE

ROUNDBABOUT SPECIFIC LINES

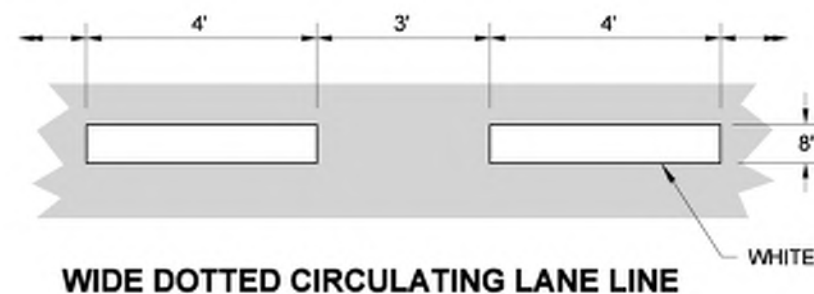


WIDE DOTTED ENTRY LINE



STRONG LANE LINE

OPTION TO USE AS CIRCULATORY ON ROUNDBABOUT APPLICATIONS



WIDE DOTTED CIRCULATING LANE LINE



Aug 1, 2022

LONGITUDINAL MARKING PATTERNS STANDARD PLAN M-20.10-04

SHEET 2 OF 4 SHEETS

APPROVED FOR PUBLICATION

Mark Gainer
Mark Gainer (Aug 2, 2022 10:17 PDT)

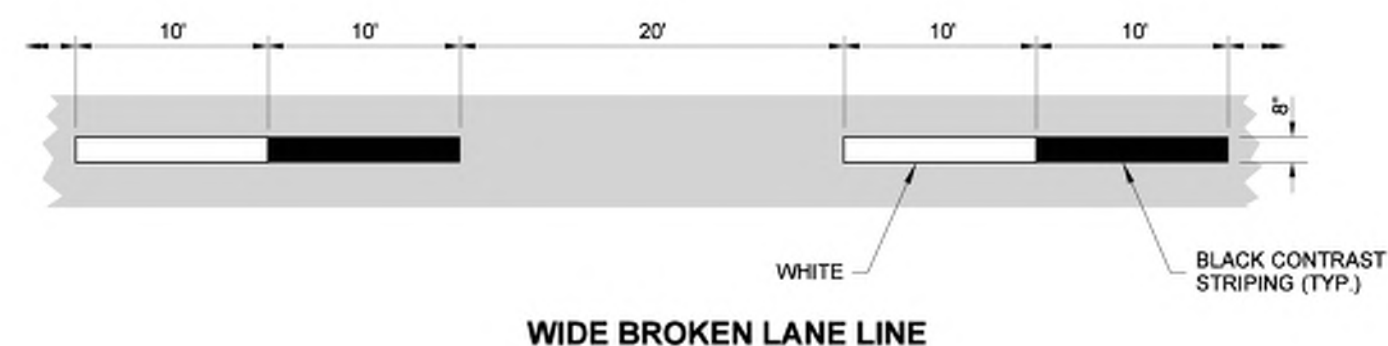
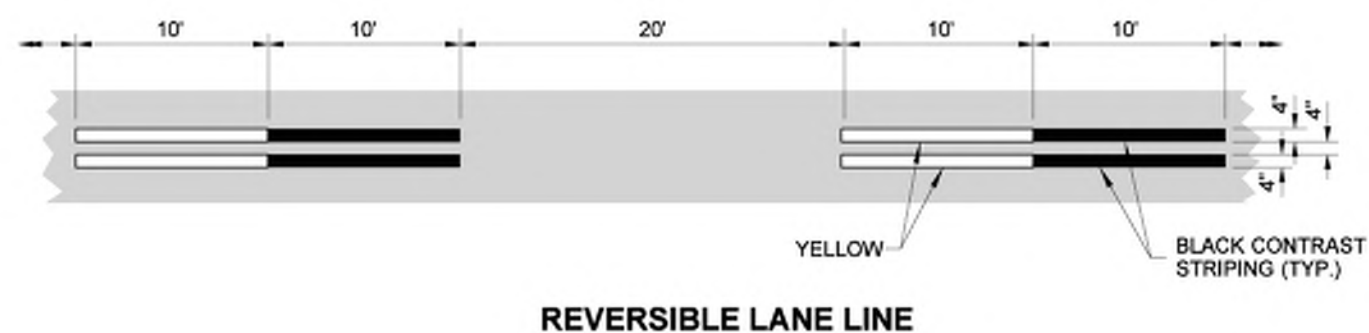
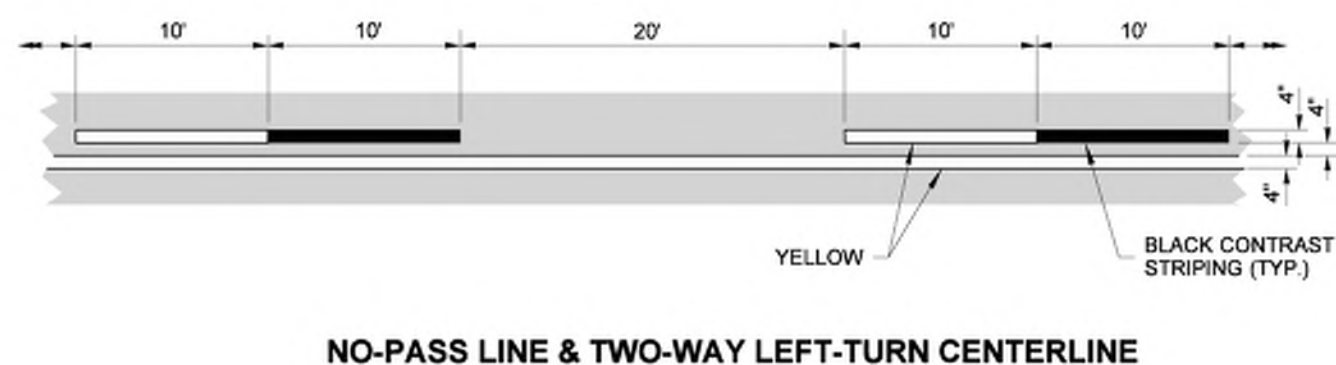
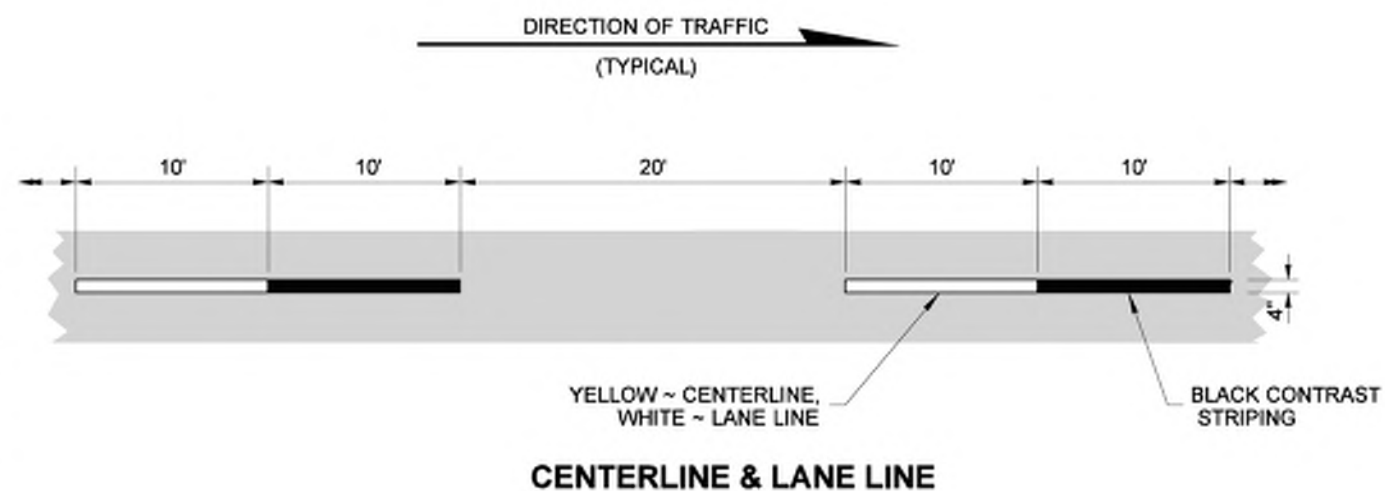
Aug 2, 2022

STATE DESIGN ENGINEER



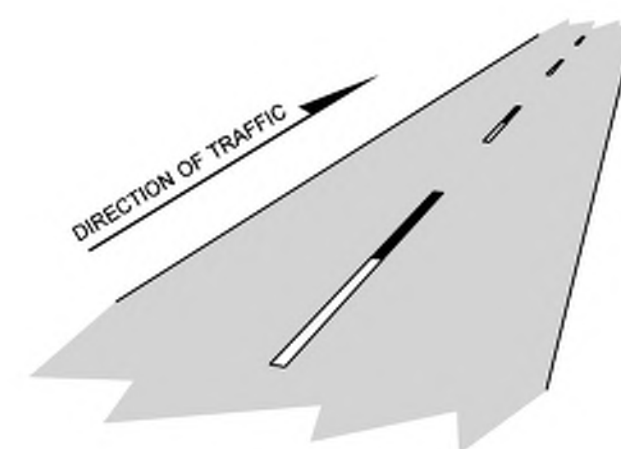
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



NOTE

1. Dotted Extension Line shall be the same color as the line it is extending.



ISOMETRIC VIEW



Aug 1, 2022

LONGITUDINAL MARKING PATTERNS STANDARD PLAN M-20.10-04

SHEET 3 OF 4 SHEETS

APPROVED FOR PUBLICATION

Mark Gainer
Mark Gainer (Aug 2, 2022 10:17 PDT)

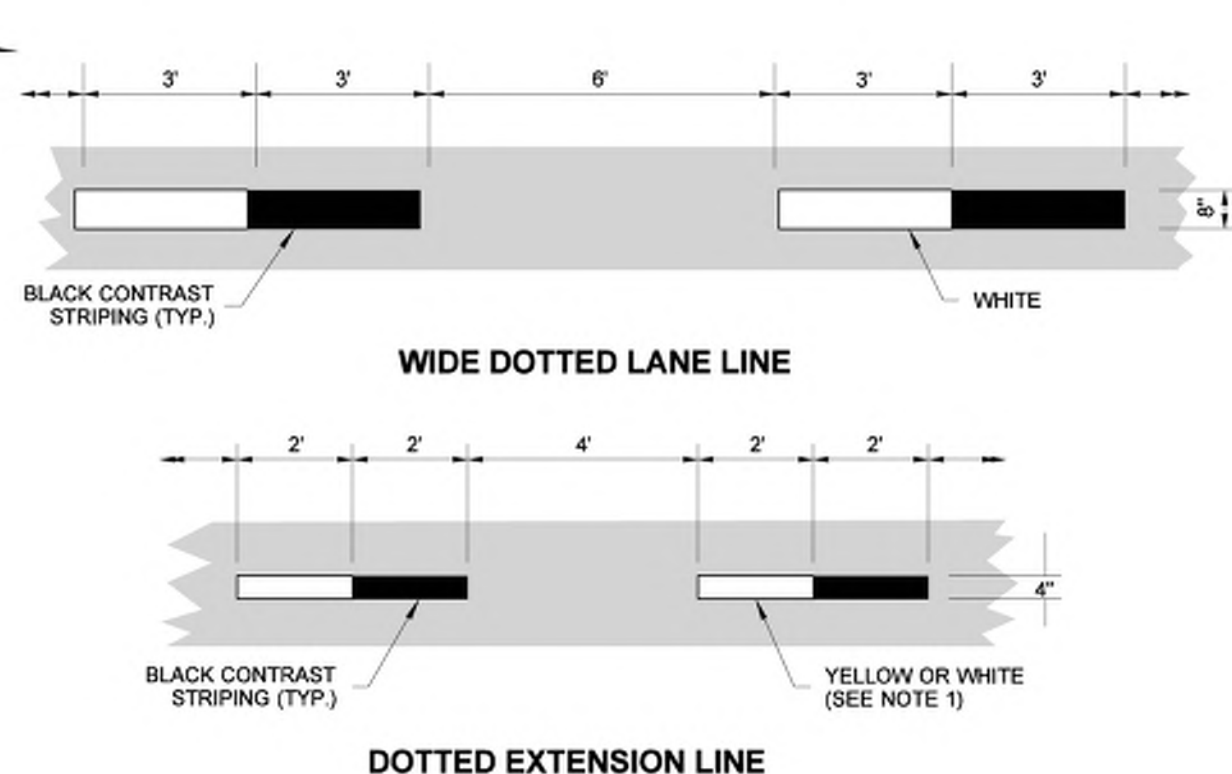
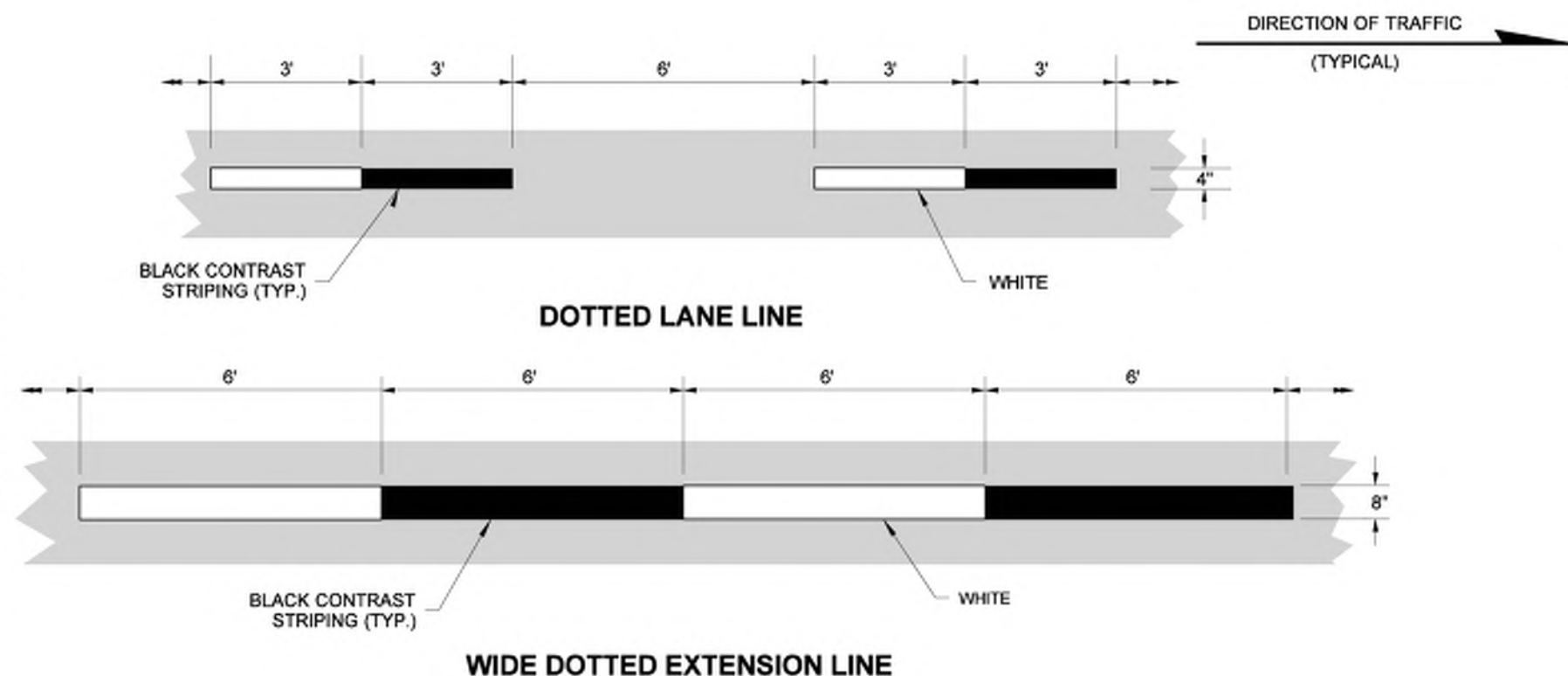
Aug 2, 2022

STATE DESIGN ENGINEER

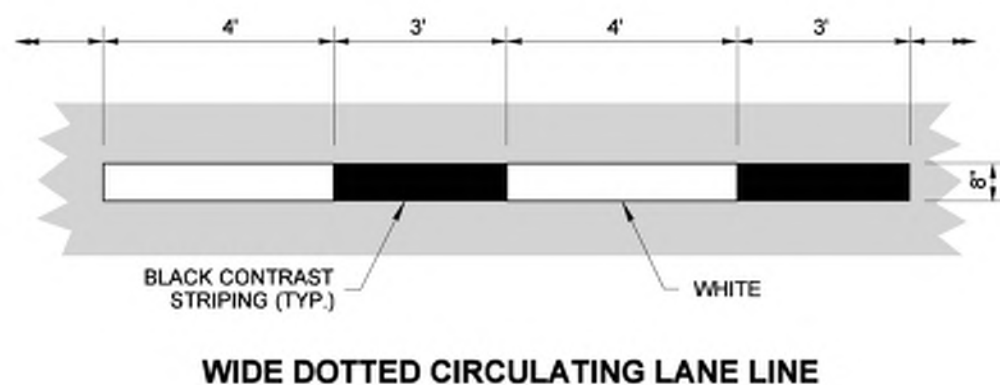
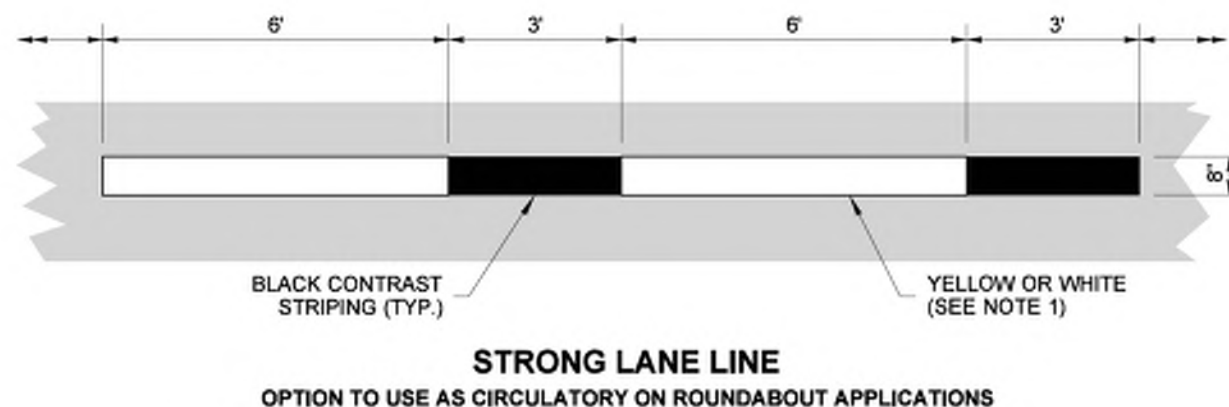
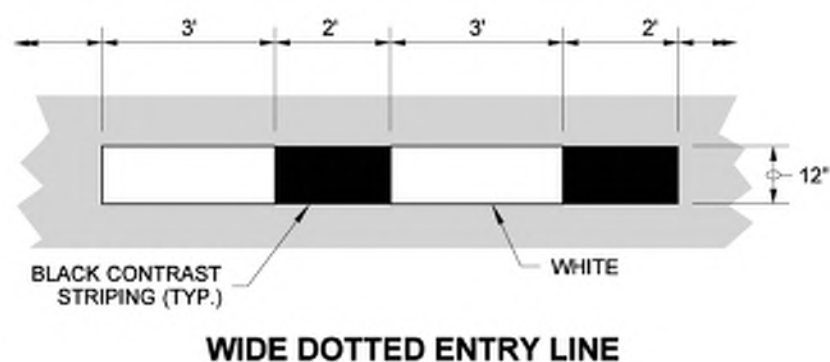


Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



ROUNDABOUT SPECIFIC LINES



Aug 1, 2022

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-04

SHEET 4 OF 4 SHEETS

APPROVED FOR PUBLICATION

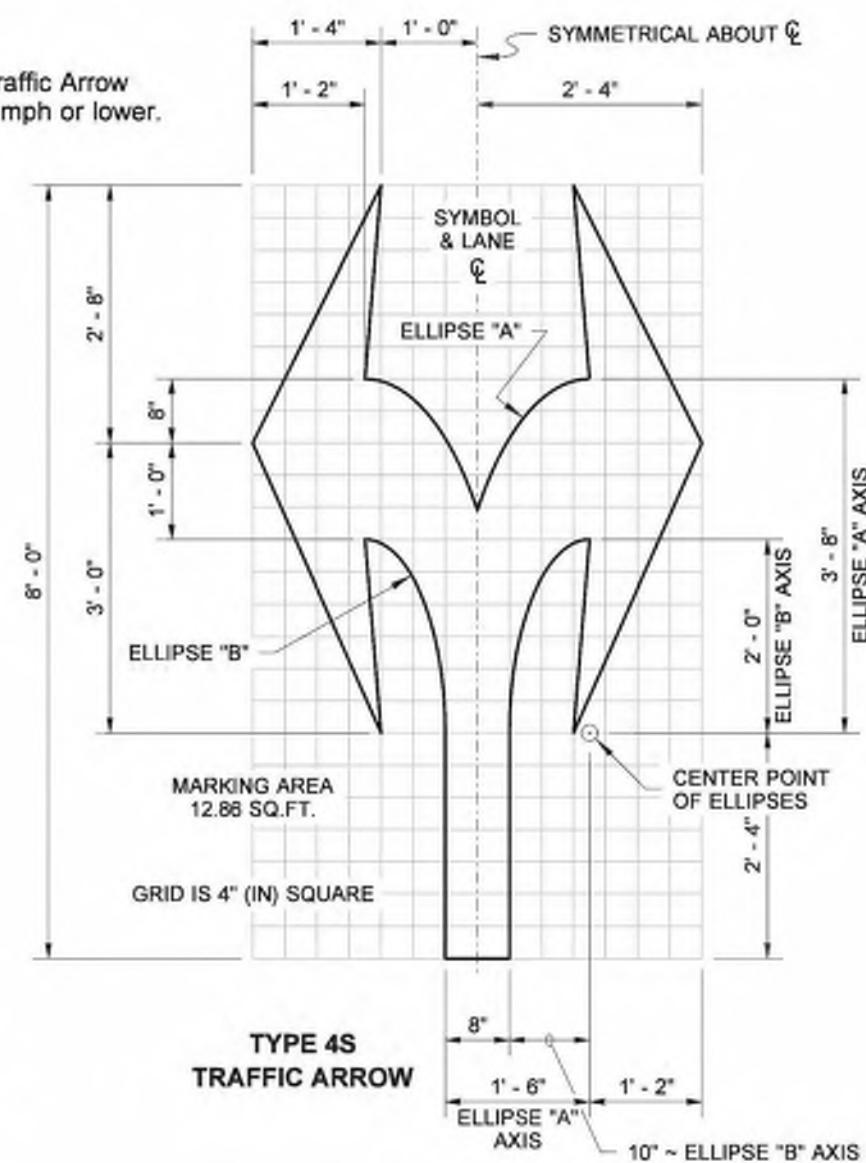
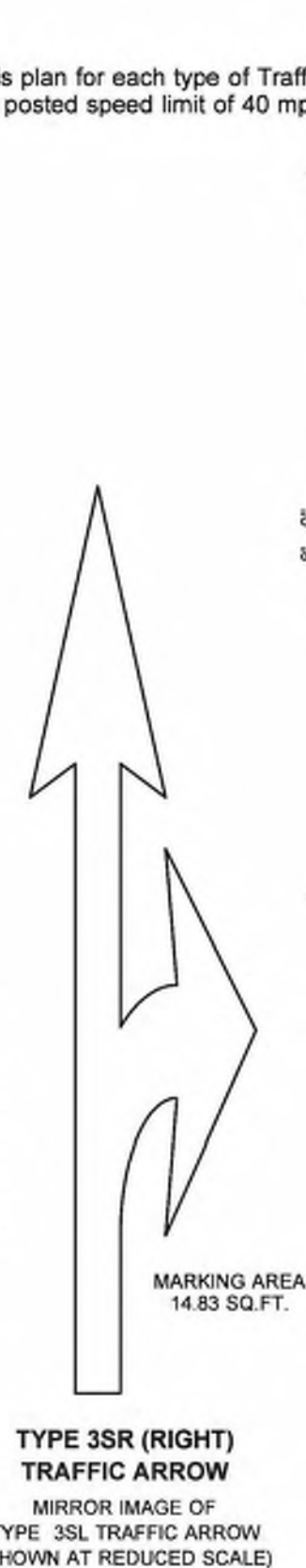
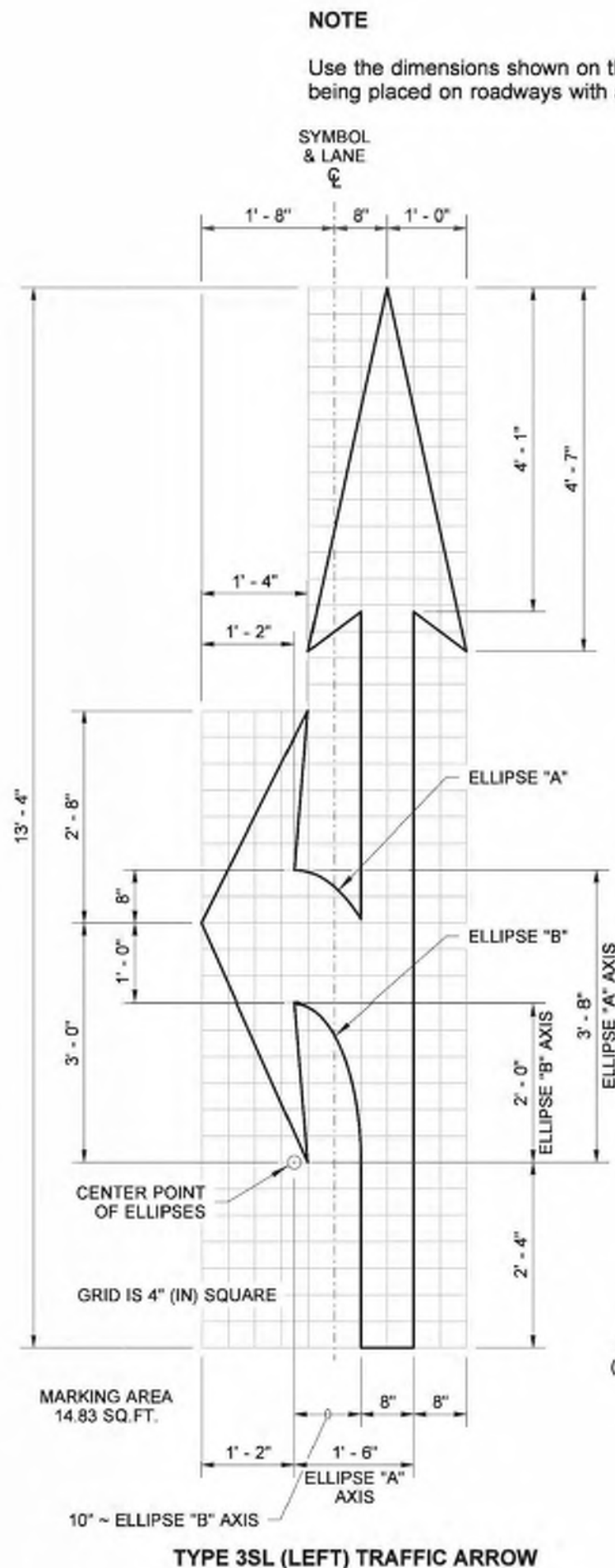
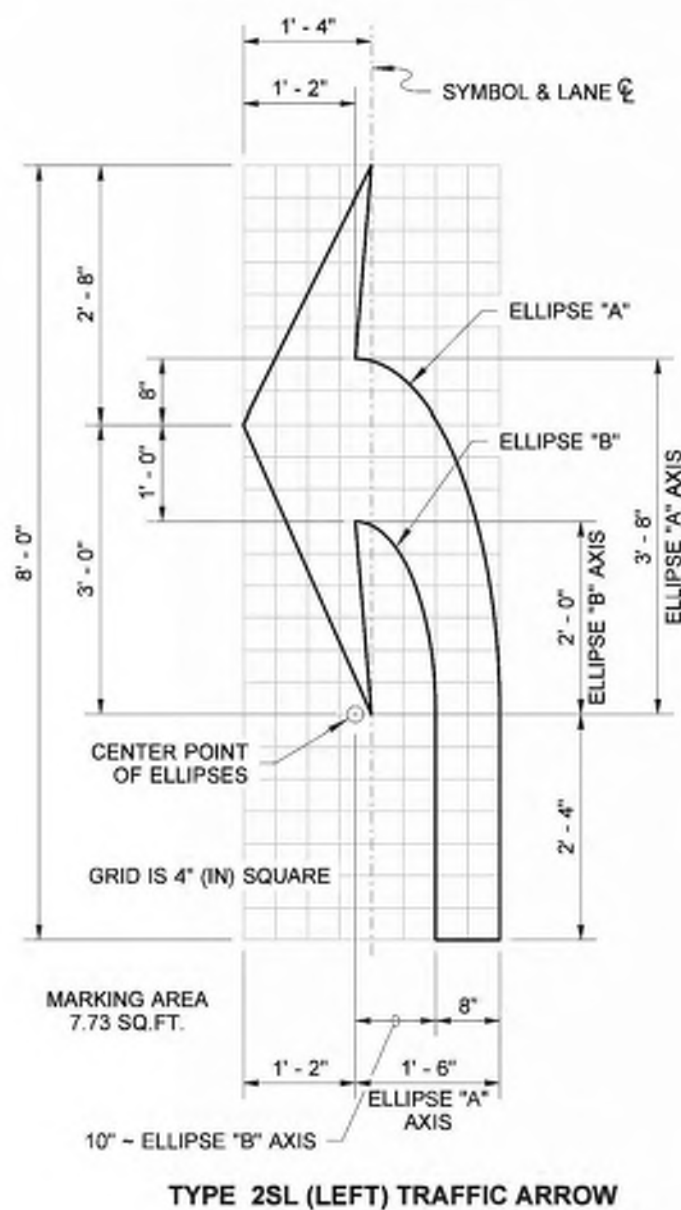
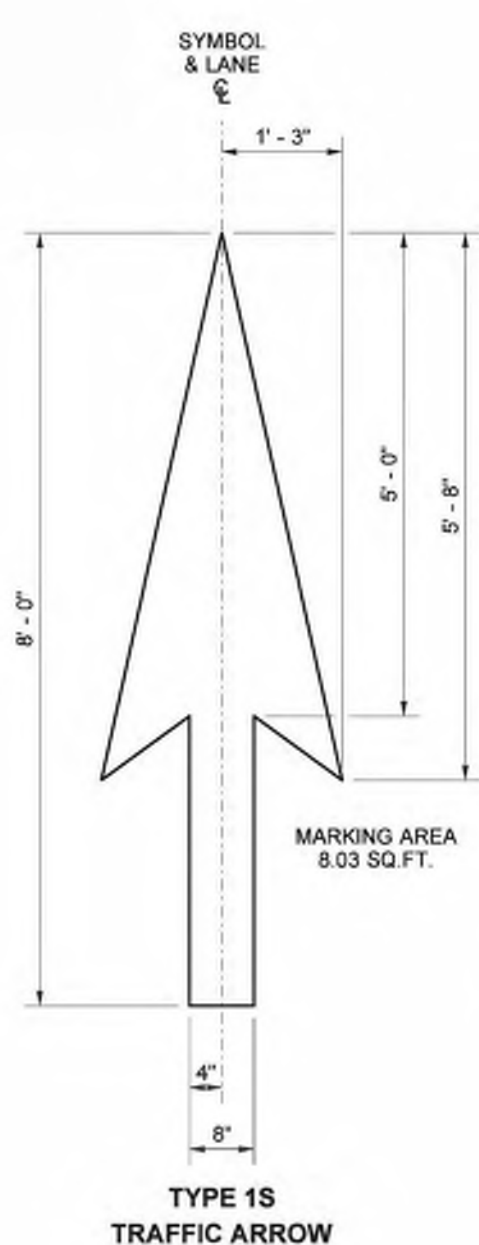
Mark Gaines
Mark Gaines [Aug 2, 2022 30:17 PDT]

Aug 2, 2022

STATE DESIGN ENGINEER



Washington State Department of Transportation



Walsh, Brian
Apr 16 2015 2:21 PM

**SYMBOL MARKINGS ~
TRAFFIC ARROWS FOR
LOW-SPEED ROADWAYS
STANDARD PLAN M-24.40-02**

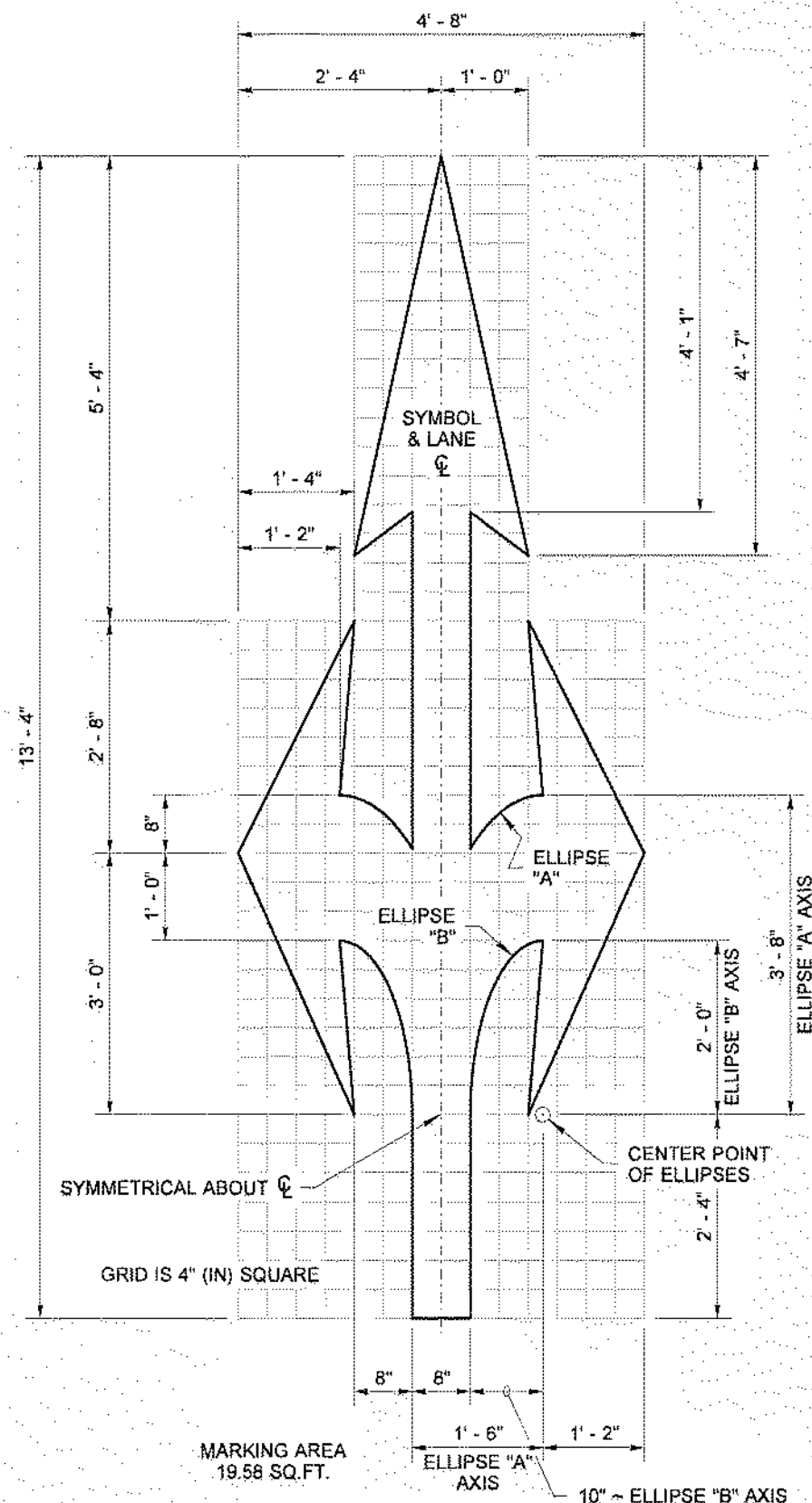
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION
Bakovich, Pasco
Apr 20 2015 10:11 AM

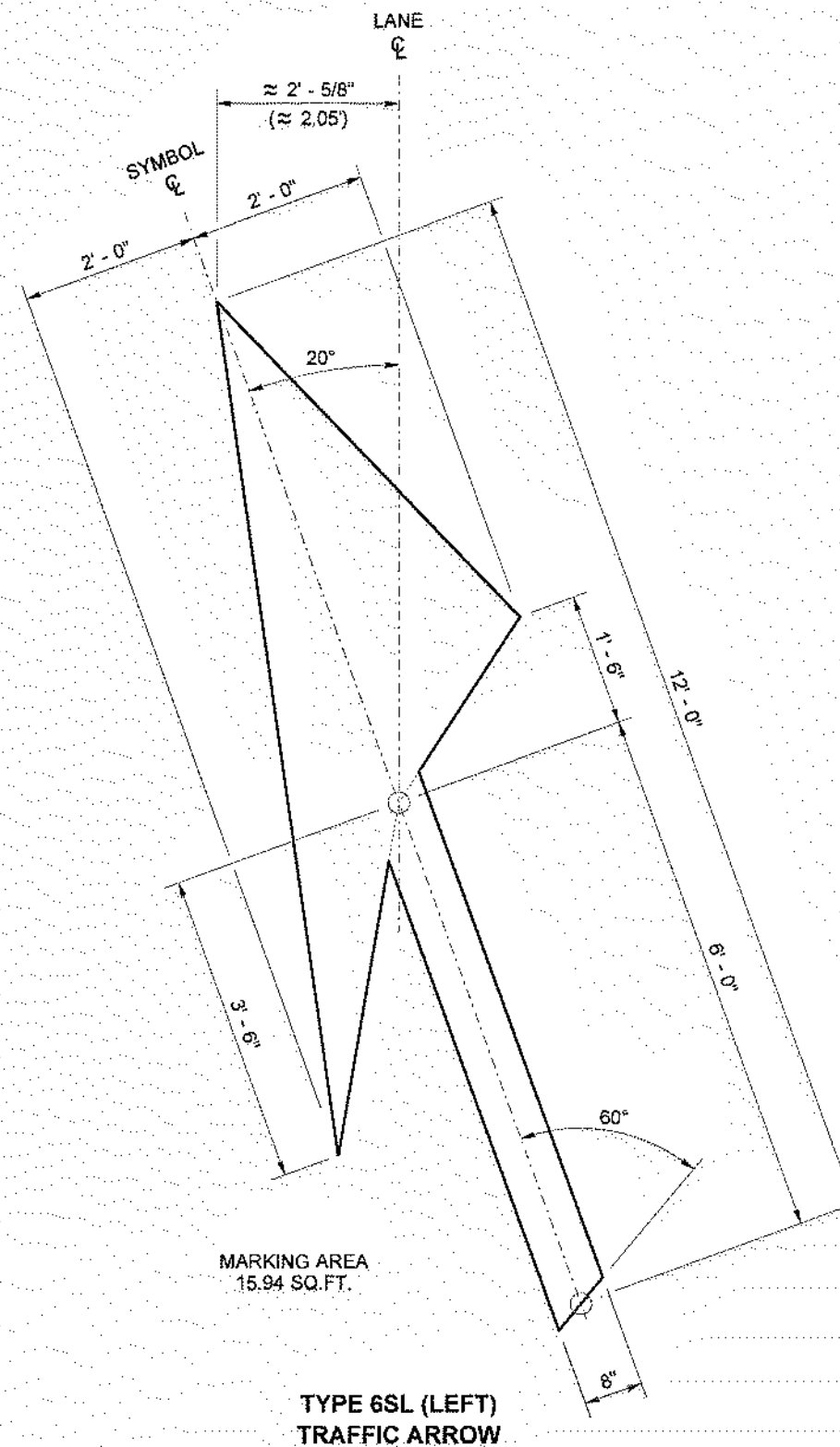
STATE DESIGN ENGINEER

Washington State Department of Transportation

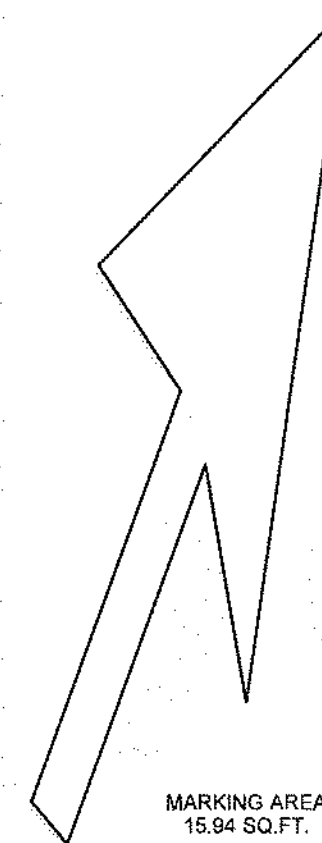
DRAWN BY: COLBY FLETCHER



TYPE 7S TRAFFIC ARROW



TYPE 6SL (LEFT)
TRAFFIC ARROW



TYPE 6SR (RIGHT)
TRAFFIC ARROW

MIRROR IMAGE OF TYPE 6SL
(MIRRORED ABOUT LANE CENTERLINE)
(SHOWN AT REDUCED SCALE)



Brian Walsh
Walsh, Brian
Apr 16 2015 2:21 PM

**SYMBOL MARKINGS ~
TRAFFIC ARROWS FOR
LOW-SPEED ROADWAYS
STANDARD PLAN M-24.40-02**

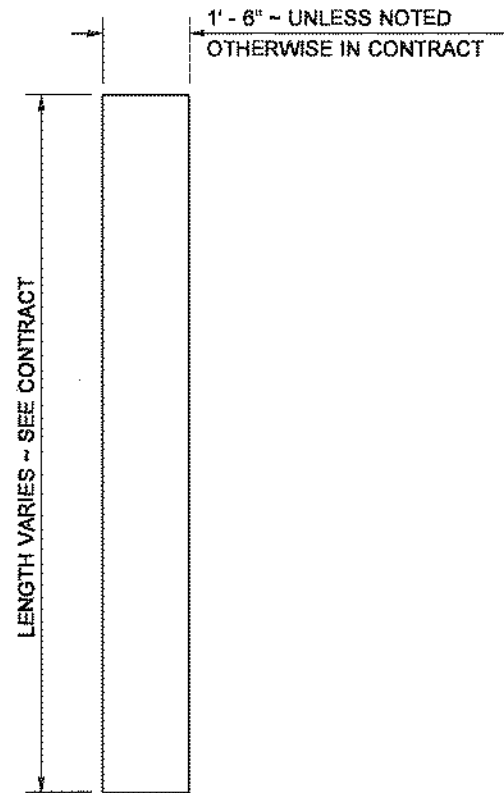
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

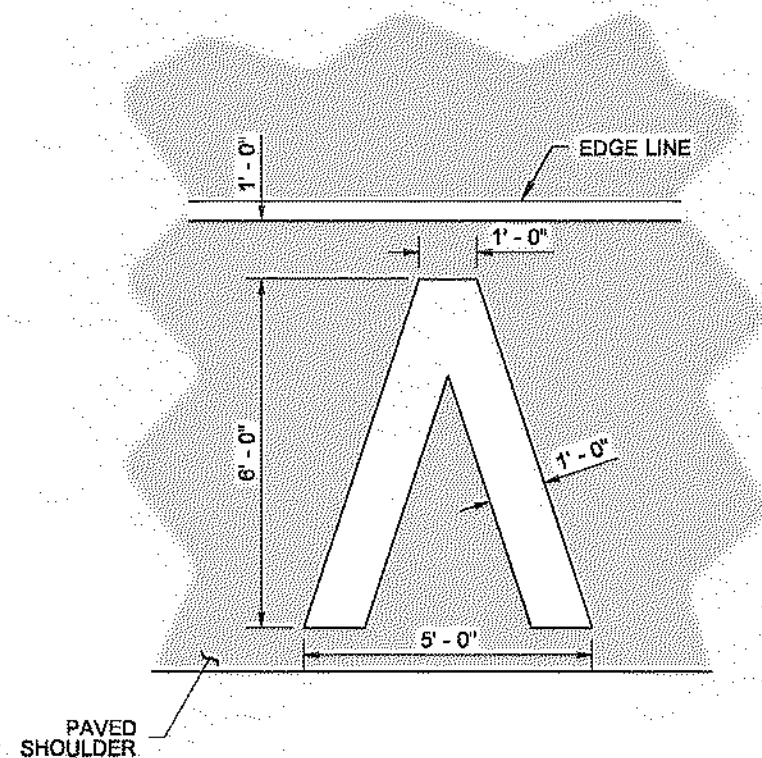
Paula Byrd
Bakewell, Pasco
Apr 20 2015 10:11 AM

STATE DESIGN ENGINEER

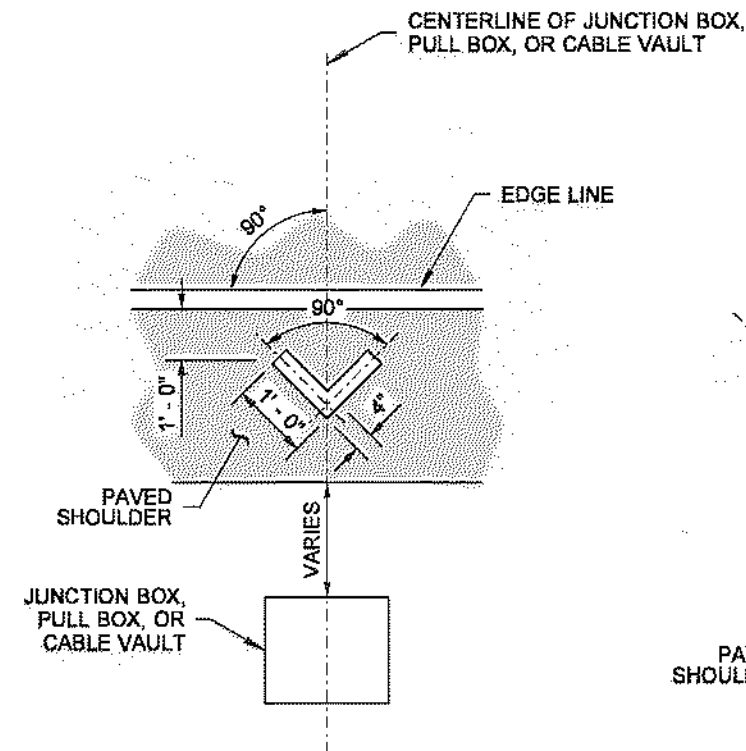
Washington State Department of Transportation



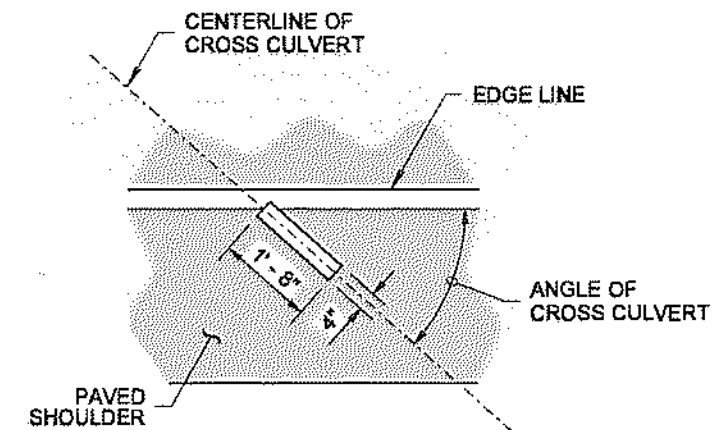
STOP LINE



MARKING AREA = 11.73 SQ.FT.
HALF-MILE MARKER

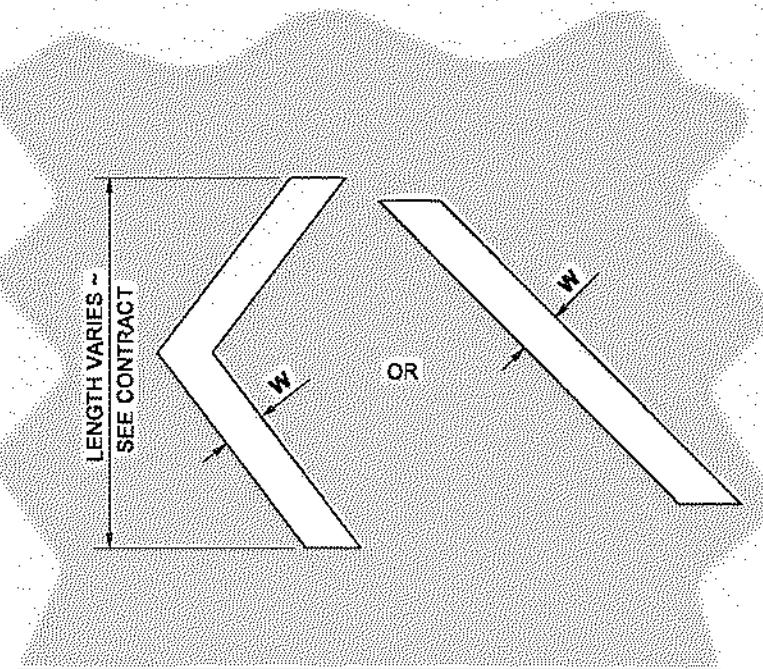


MARKING AREA = 0.56 SQ. FT.
JUNCTION BOX, PULL BOX, OR CABLE VAULT MARKINGS



MARKING AREA = 0.56 SQ.FT.
CROSS CULVERT

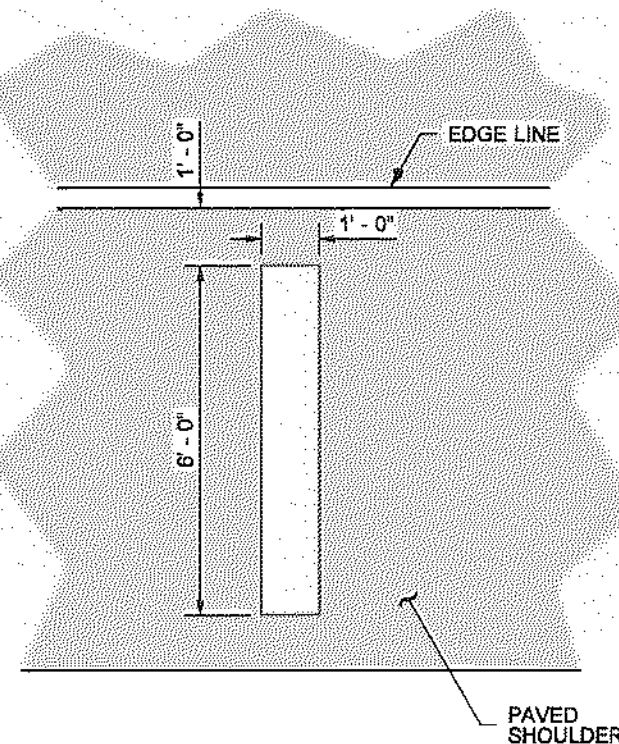
DRAINAGE MARKING



WHITE OR YELLOW ~ SEE CONTRACT
CHEVRON OR DIAGONAL

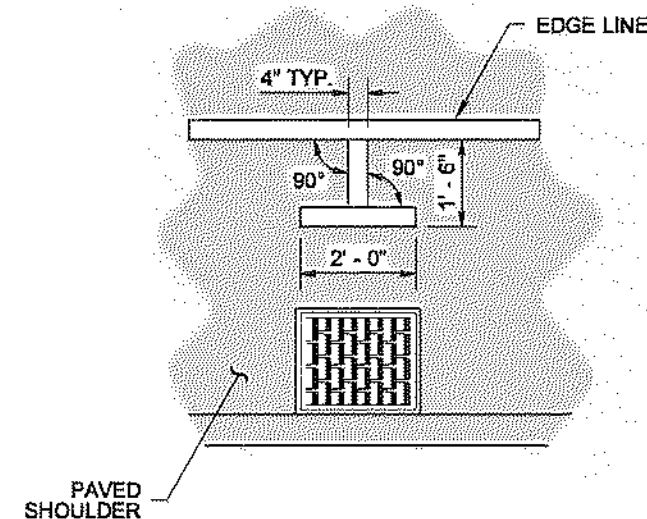
CROSSHATCH MARKING

W = 8" (IN) FOR POSTED SPEED LIMIT OF 40 MPH OR LOWER
W = 12" (IN) FOR POSTED SPEED LIMIT OF 45 MPH OR HIGHER



MARKING AREA = 6.00 SQ.FT.
FULL MILE MARKER

AERIAL SURVEILLANCE MARKERS

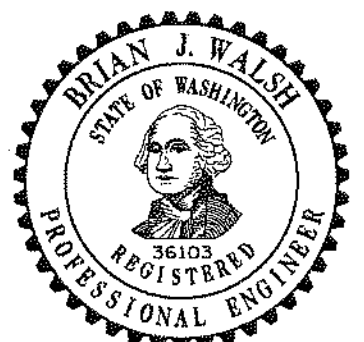


MARKING AREA = 1.06 SQ.FT.
DRAINAGE STRUCTURE INLET

DRAINAGE MARKING

NOTE

1. If Rumble Strips are present, install marking outside of the Rumble Strip.



Walsh, Brian
Jun 24 2014 2:35 PM

**SYMBOL MARKINGS
MISCELLANEOUS**

STANDARD PLAN M-24.60-04

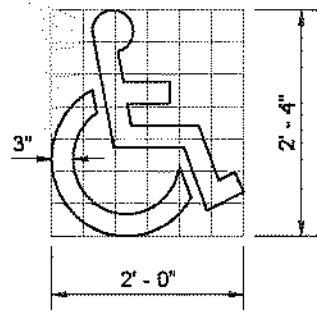
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

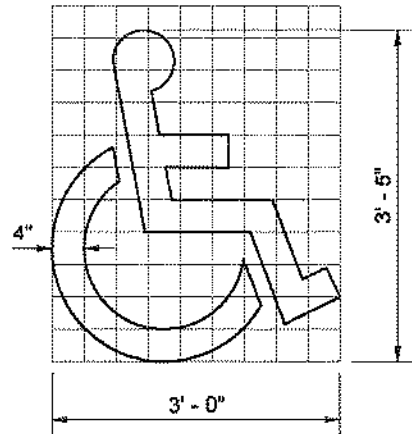
Dan B. Blythe
Bakotich, Pasco
Jun 24 2014 4:43 PM

STATE DESIGN ENGINEER

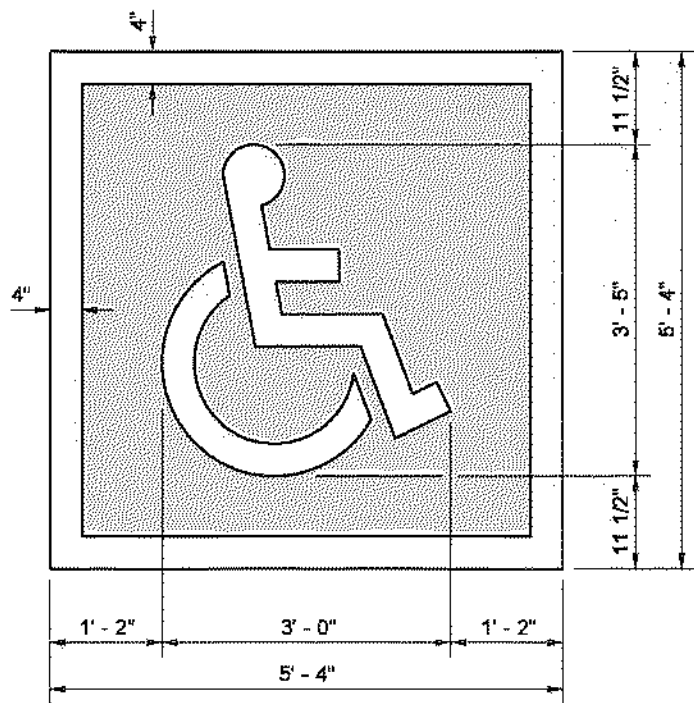
Washington State Department of Transportation



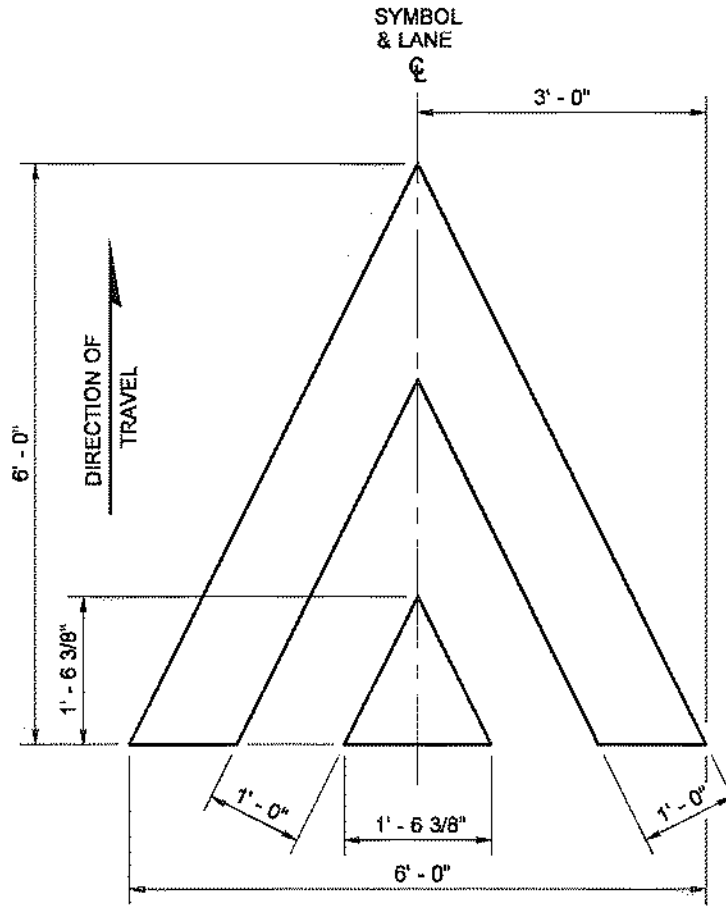
GRID IS 4" (IN) SQUARE MARKING AREA = 1.41 SQ.FT.
ACCESS PARKING SPACE SYMBOL (MINIMUM)



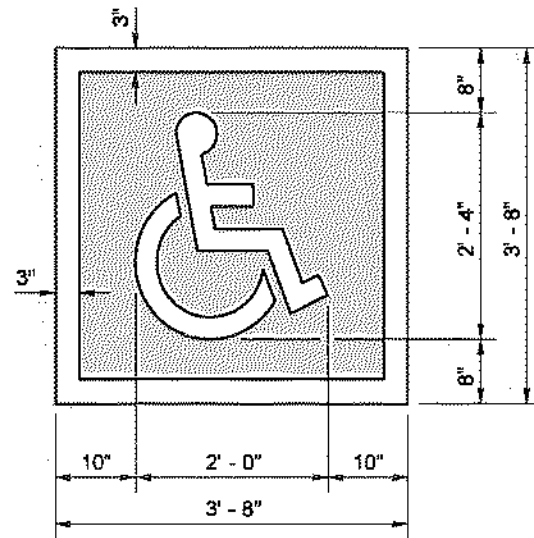
GRID IS 4" (IN) SQUARE MARKING AREA = 3.09 SQ.FT.
ACCESS PARKING SPACE SYMBOL (STANDARD)



TOTAL MARKING AREA = 28.44 SQ.FT.
WHITE = 9.76 SQ.FT. BLUE = 18.69 SQ.FT.
ACCESS PARKING SPACE SYMBOL (STANDARD)
WITH BLUE BACKGROUND AND WHITE BORDER
(REQUIRED FOR CEMENT CONCRETE SURFACES)



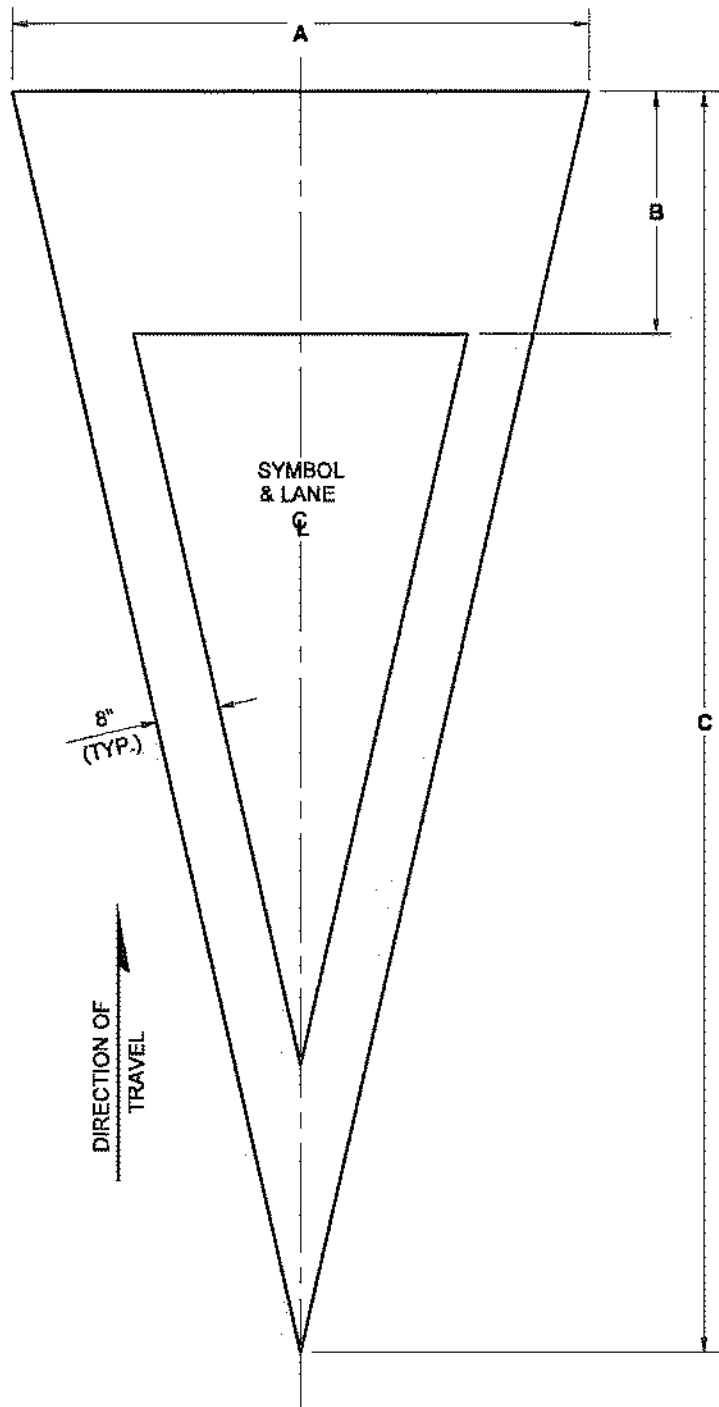
MARKING AREA = 12.08 SQ.FT.
SPEED BUMP SYMBOL



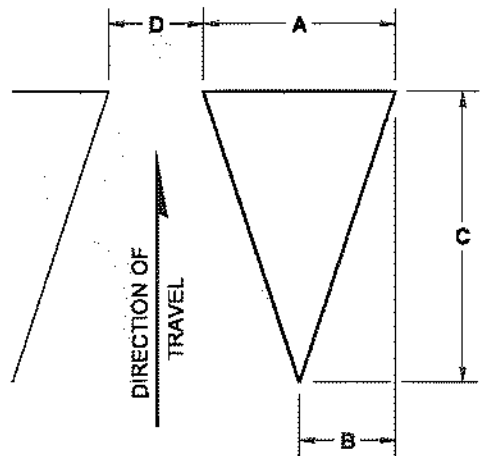
TOTAL MARKING AREA = 13.44 SQ.FT.
WHITE = 4.82 SQ.FT. BLUE = 8.62 SQ.FT.
ACCESS PARKING SPACE SYMBOL (MINIMUM)
WITH BLUE BACKGROUND AND WHITE BORDER
(REQUIRED FOR CEMENT CONCRETE SURFACES)

SYMBOL MARKING		A	B	C	D	USE	MARKING AREA
YIELD AHEAD SYMBOL	TYPE 1	6' - 0"	2' - 6"	13' - 0"	N/A	LESS THAN 45 MPH	25.90 SQ.FT.
	TYPE 2	6' - 0"	3' - 0"	20' - 0"	N/A	45 MPH OR GREATER	36.54 SQ.FT.
YIELD LINE SYMBOL	TYPE 1	1' - 0"	6"	1' - 6"	6"	LESS THAN 45 MPH	0.75 SQ.FT.
	TYPE 2	2' - 0"	1' - 0"	3' - 0"	1' - 0"	45 MPH OR GREATER	3.00 SQ.FT.
	TYPE 2	2' - 0"	1' - 0"	3' - 0"	1' - 0"	ROUNDABOUT ENTRY *	3.00 SQ.FT.

* MINIMUM OF 4 IN LANE



YIELD AHEAD SYMBOL



YIELD LINE SYMBOL
(MULTIPLE SYMBOLS REQUIRED
FOR TRANSVERSE YIELD LINE -
SEE CONTRACT)



Walsh, Brian
Jun 24 2014 2:37 PM

**SYMBOL MARKINGS
MISCELLANEOUS
STANDARD PLAN M-24.60-04**

SHEET 2 OF 2 SHEETS

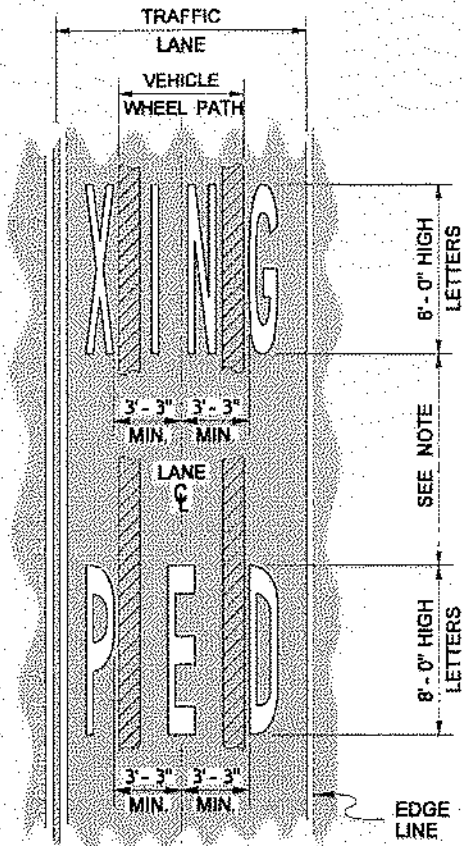
APPROVED FOR PUBLICATION

Dan B. B. B.
Bakotich, Pasco
Jun 24 2014 4:43 PM

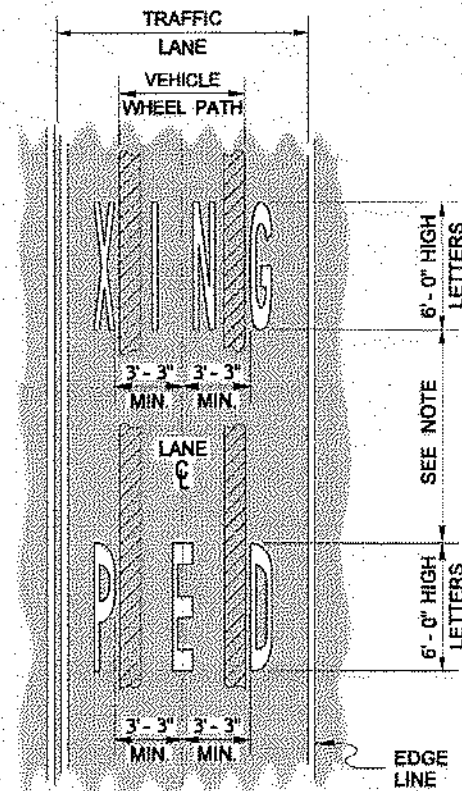
STATE DESIGN ENGINEER

Washington State Department of Transportation

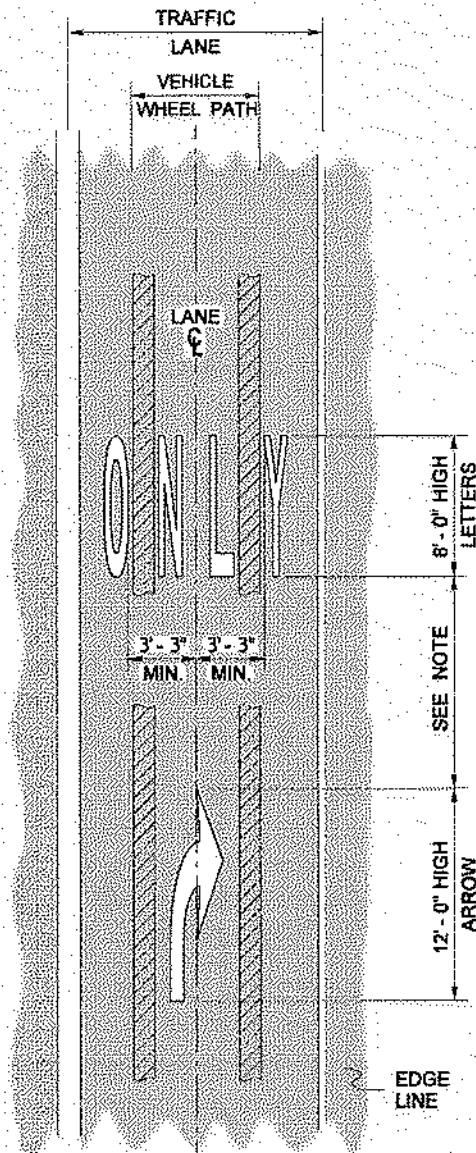
DRAWN BY: LISA CYFORD



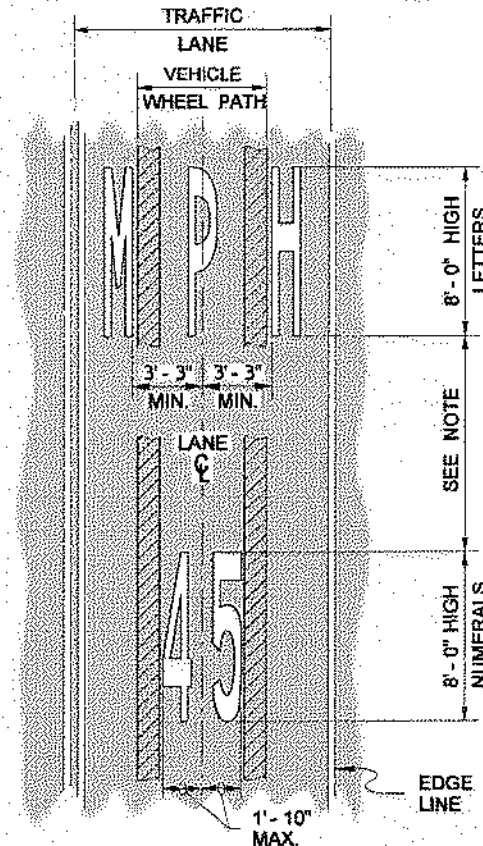
HIGH-SPEED APPLICATION



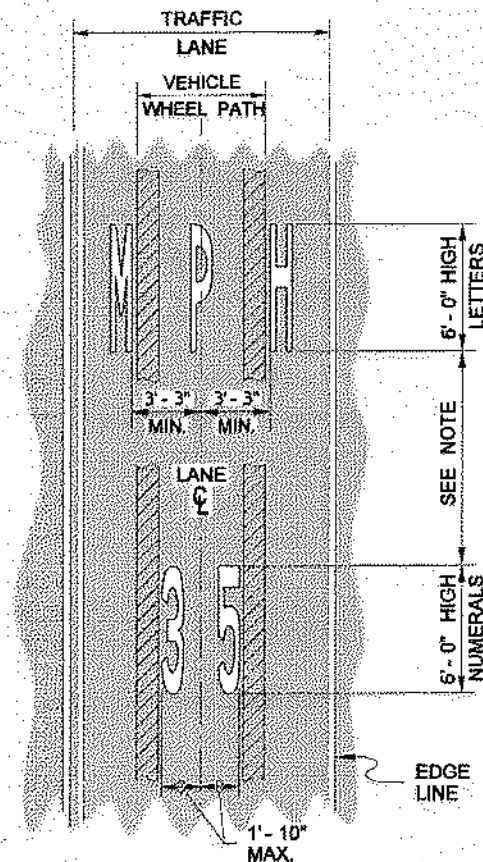
LOW-SPEED APPLICATION



HIGH-SPEED APPLICATION



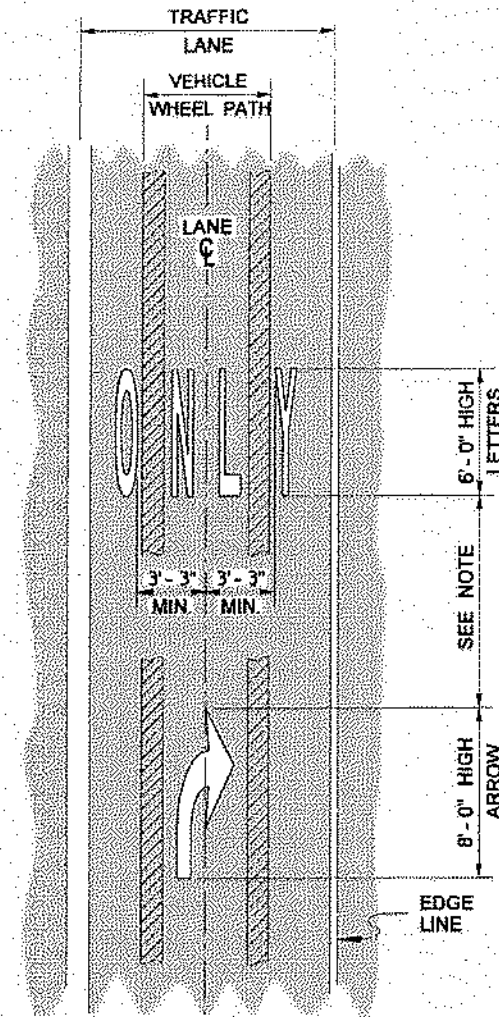
HIGH-SPEED APPLICATION



LOW-SPEED APPLICATION

NOTE

1. Typically, four times the letter or numeral height ~ minimum, up to ten times ~ maximum, or according to Plans.

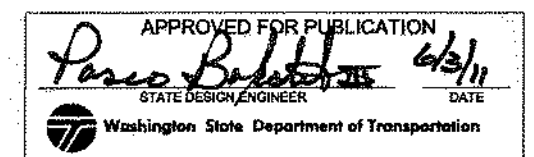


LOW-SPEED APPLICATION



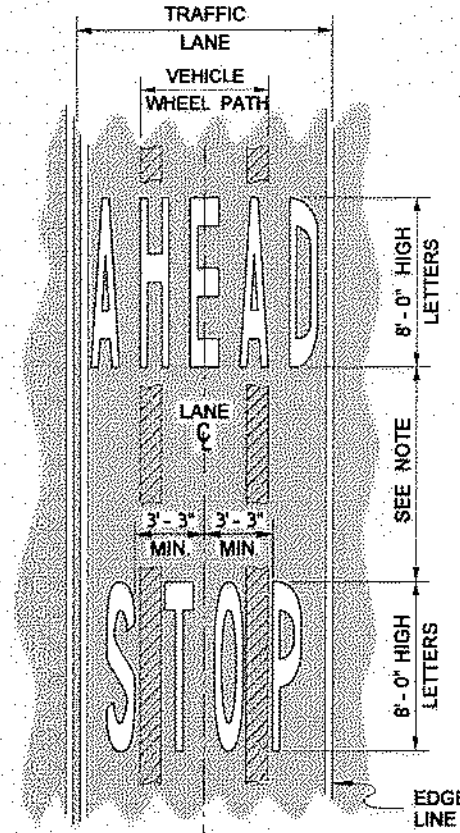
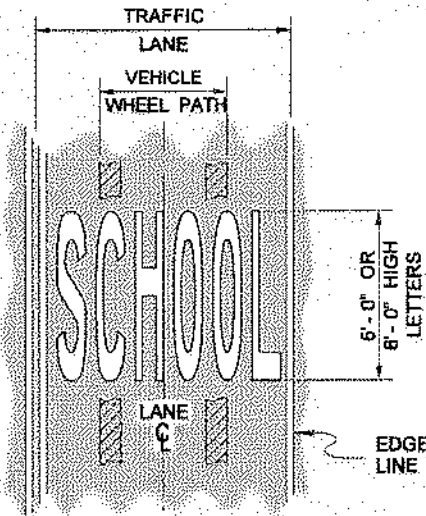
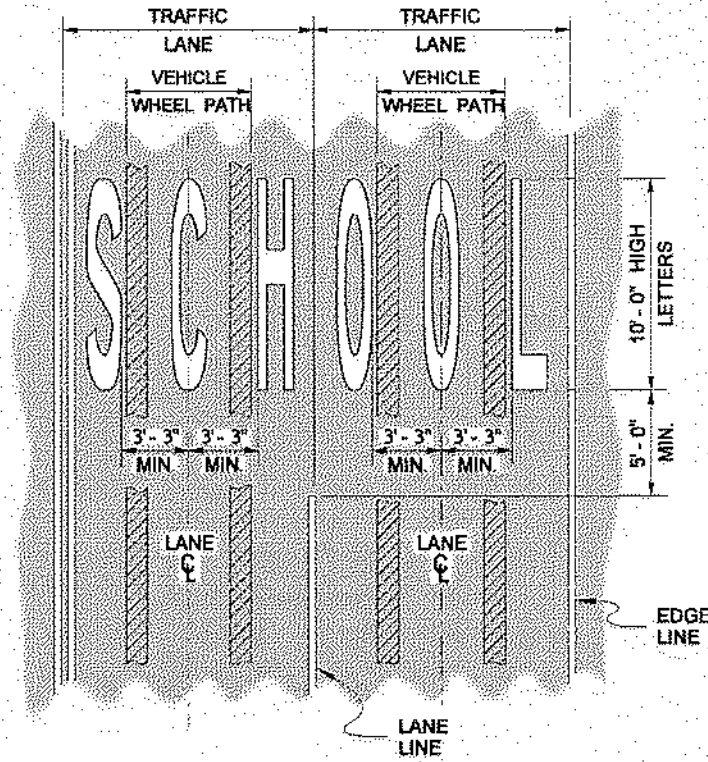
TRAFFIC LETTER AND
NUMERAL APPLICATIONS
STANDARD PLAN M-80.10-01

SHEET 1 OF 2 SHEETS

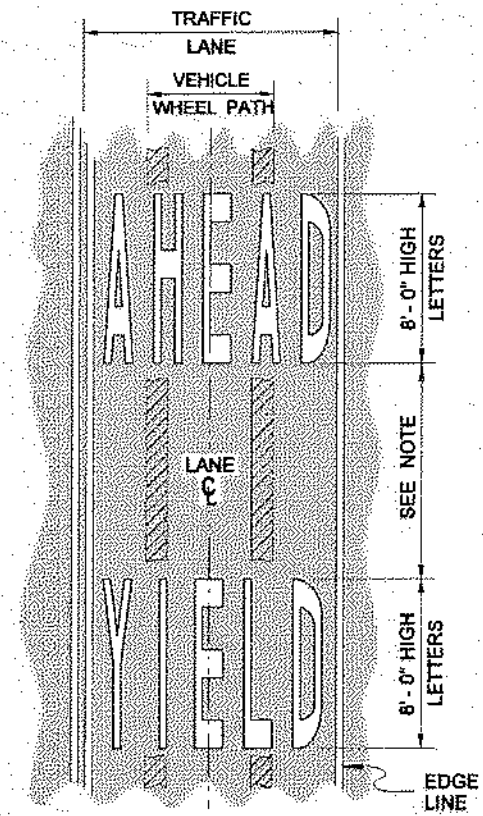


Washington State Department of Transportation

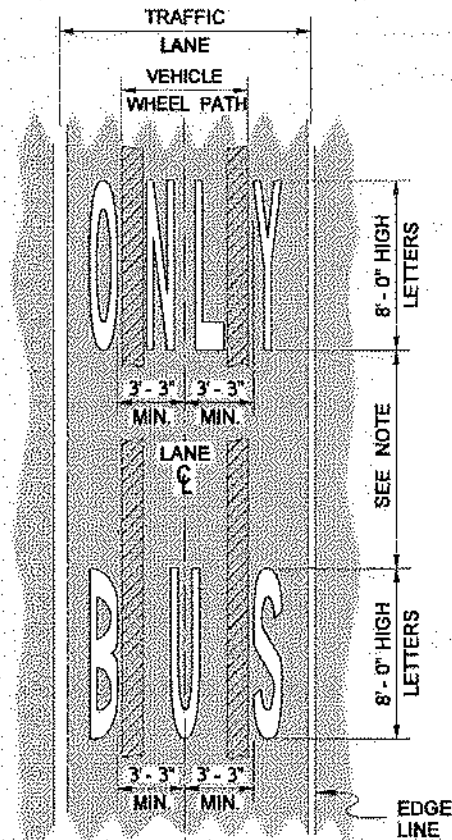
DRAWN BY: LISA CYFORD



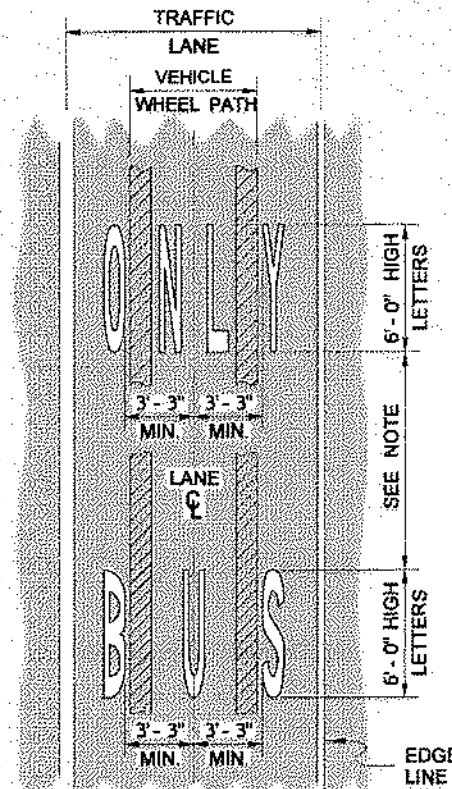
HIGH-SPEED APPLICATION



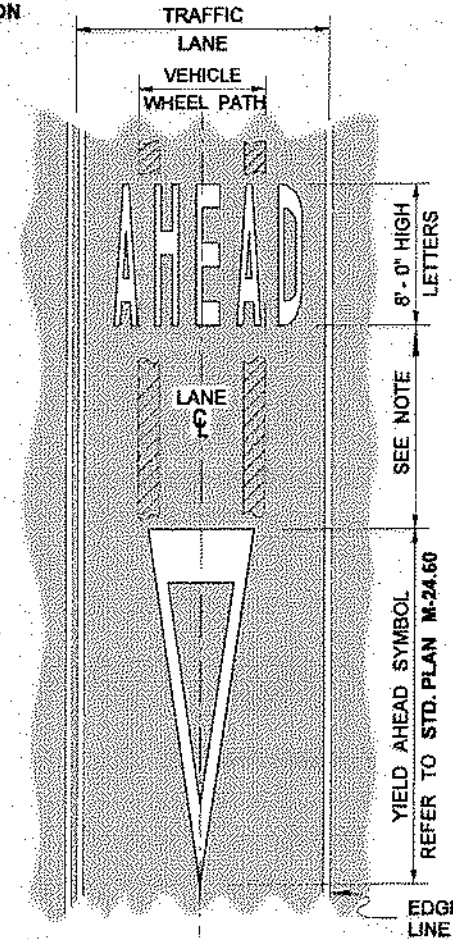
HIGH-SPEED APPLICATION



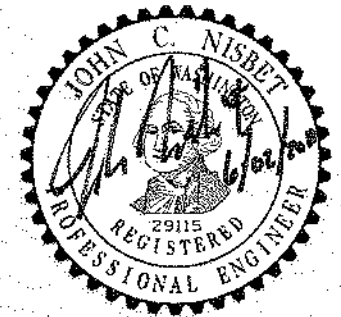
HIGH-SPEED APPLICATION



LOW-SPEED APPLICATION



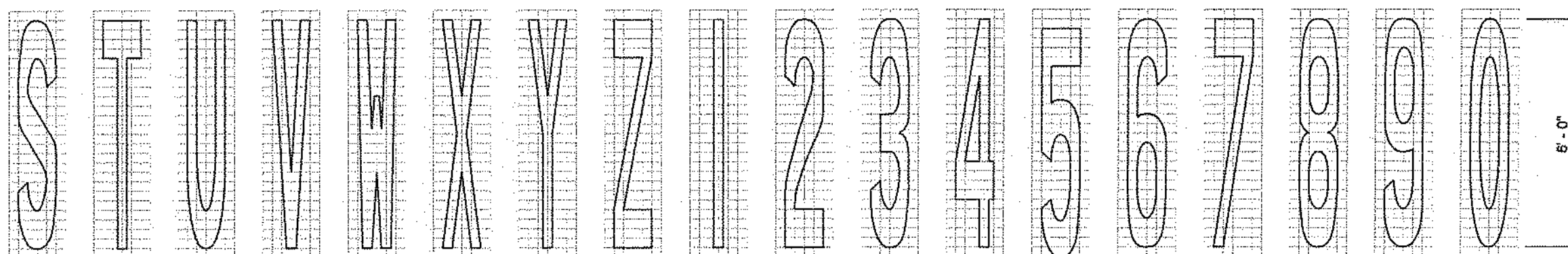
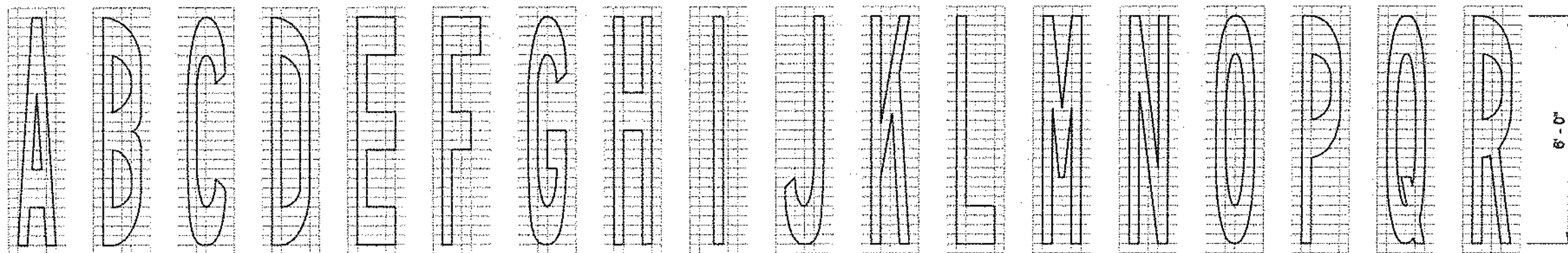
HIGH-SPEED APPLICATION



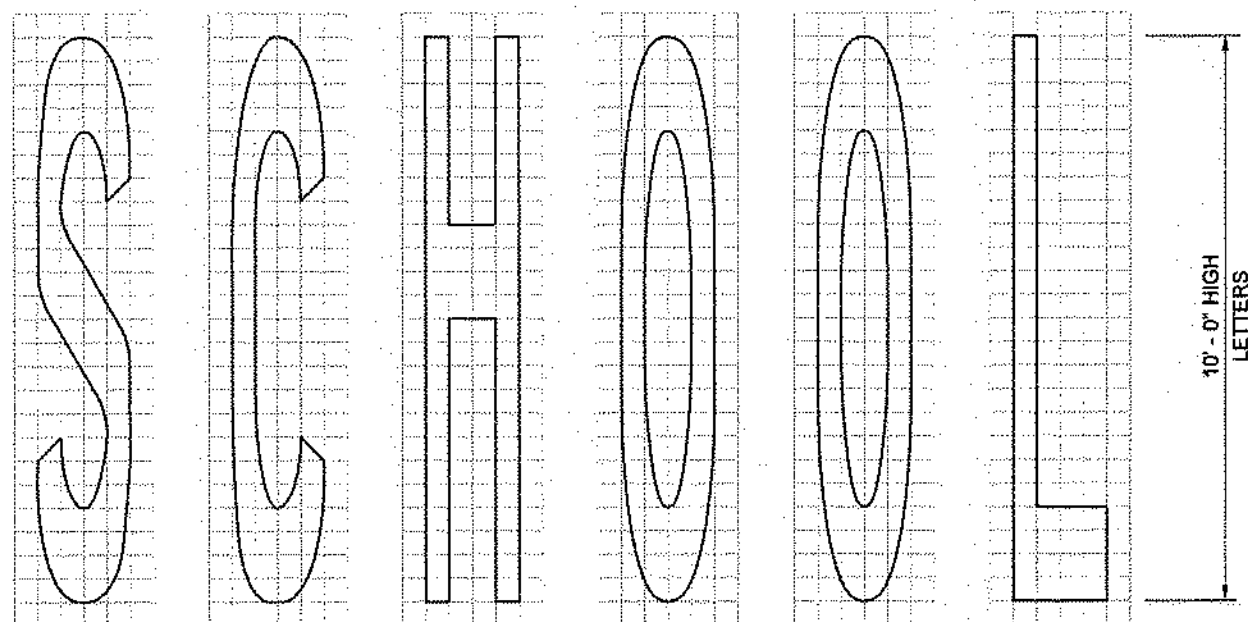
**TRAFFIC LETTER AND
NUMERAL APPLICATIONS**
STANDARD PLAN M-80.10-01

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION
Paula Bakst 4/3/11
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation



SIX FOOT HIGH LETTERS AND NUMERALS SHOWN ON A THREE -INCH SQUARE GRID



TEN FOOT HIGH LETTERS SHOWN ON A FIVE- INCH SQUARE GRID

FOR USE ON ROADWAYS WITH A POSTED SPEED OF 40 MPH OR LESS



EXPIRES AUGUST 9, 2009

**TRAFFIC LETTERS AND
NUMERALS
(LOW SPEED ROADWAYS)
STANDARD PLAN M-80.30-00**

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Paula B. [Signature] 6/10/08
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation