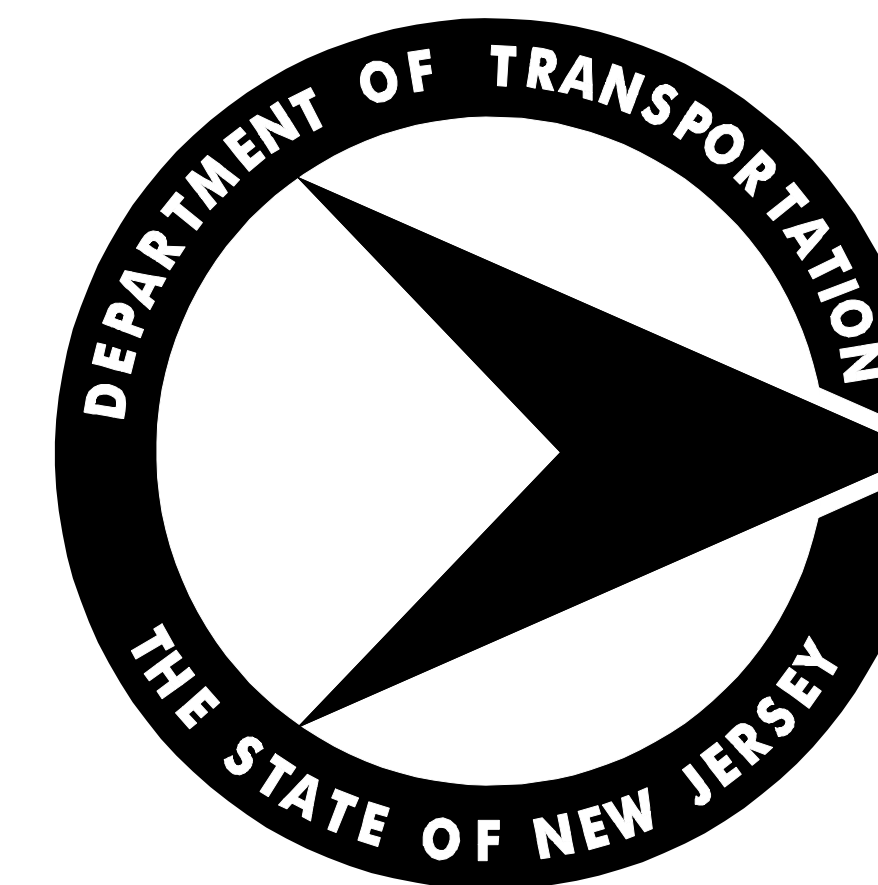


State of New Jersey
Department of Transportation



**STANDARD ROADWAY CONSTRUCTION –
TRAFFIC CONTROL – BRIDGE CONSTRUCTION
DETAILS
2007**

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8	CD-157-1 MONUMENT AND MONUMENT BOX	50	CD-605-2 CHAIN-LINK FENCE	92	OBSOLETE BY BDC09D-02
9	CD-158-1 SOIL EROSION AND SEDIMENT CONTROL MEASURES	51	CD-606-1 PUBLIC SIDEWALK CURB RAMP DETECTABLE WARNING SURFACE	93	OBSOLETE BY BDC09D-02
10	CD-158-2 SOIL EROSION AND SEDIMENT CONTROL MEASURES	52	CD-606-2 CONCRETE AND HMA DRIVEWAY AND SIDEWALK	94	OBSOLETE BY BDC09D-02
11	CD-158-3 SOIL EROSION AND SEDIMENT CONTROL MEASURES	53	CD-606-3 CONCRETE AND HMA ISLAND	95	OBSOLETE BY BDC09D-02
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18	CD-159-6 CONSTRUCTION SIGNS	60	CD-609-3 RUB RAIL	100	TCD-1 LEGEND & GENERAL NOTES
19	CD-159-7 CONSTRUCTION SIGNS	61	CD-609-4 BEAM GUIDE RAIL ANCHORAGE	101	TCD-2 SIGHT DIST., TAPER LENGTH, ESCAPE RAMP, CONST. BARRIER DETAIL
20	CD-159-8 INTERSTATE CONSTRUCTION IDENTIFICATION SIGN	62	CD-609-5 FLARED GUIDE RAIL TERMINAL AND TANGENT TERMINAL	102	TCD-3 2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING
21	CD-159-9 CONSTRUCTION IDENTIFICATION SIGNS	63	CD-609-6 CONTROLLED RELEASE TERMINALS	103	TCD-4 2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING
22	CD-202-1 SOIL REUSE	64	CD-609-7 MEDIAN GUIDE RAIL TREATMENT	104	TCD-5 2 LANES, UNDIVIDED, INTERSECTION
23	CD-203-1 POROUS FILL AND EMBANKMENT	65	CD-609-8 BEAM GUIDE RAIL END TREATMENT	105	TCD-6 2 LANES, UNDIVIDED, INTERSECTION
24	CD-401-1 MILLING	66	CD-609-9 GRADING AND ROADSIDE RECOVERY AREA AT TERMINALS	106	TCD-7 2 LANES, UNDIVIDED, INTERSECTION
25	CD-401-2 LONGITUDINAL JOINTS IN HMA	67	CD-609-10 BEAM GUIDE RAIL ATTACHMENTS	107	TCD-8 4 LANES, UNDIVIDED, RIGHT LANE & SHOULDER CLOSING
26	CD-405-1 CONCRETE PAVEMENT TRANSVERSE JOINTS	68	CD-609-11 BEAM GUIDE RAIL ATTACHMENTS	108	TCD-9 4 LANES, UNDIVIDED, LEFT LANE & SHOULDER CLOSING
27	CD-405-2 CONCRETE PAVEMENT LONGITUDINAL JOINTS	69	CD-609-12 THRIE BEAM AND W BEAM TERMINAL CONNECTOR	109	TCD-10 4 LANES, UNDIVIDED, 2 LANES & SHLD. ONE DIRECTION CLOSING
28	CD-405-3 CONC. PAVEMENT JNTS. NON-SKEWED LOAD TRANSFER ASSEMBLIES	70	CD-609-13 BEAM GUIDE RAIL ATTACHMENTS	110	TCD-11 4 LANES, UNDIVIDED, INTERSECTION
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30	CD-452-1 PARTIAL DEPTH CONCRETE PAVEMENT REPAIR	72	CD-609-15 BEAM GUIDE RAIL ATTACHMENTS	112	TCD-13 4 LANES, UNDIVIDED, INTERSECTION
31	CD-453-1 FULL DEPTH CONCRETE PAVEMENT REPAIR	73	CD-609-16 BEAM GUIDE RAIL ATTACHMENTS	113	TCD-14 4 & 6 LANES, DIVIDED, RIGHT LANE & SHOULDER CLOSING
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33	CD-454-1 RETROFIT DOWEL BARS	75	CD-609-18 MODIFIED THRIE BEAM GUIDE RAIL, DUAL-FACED	115	TCD-16 6 LANES, DIVIDED, (LEFT & RIGHT) TWO LANE CLOSING
34	CD-601-1 UNDERDRAINS	76	CD-610-1 RAISED PAVEMENT MARKER, (RPM) LOCATION	116	TCD-17 6 LANES, DIVIDED, CENTER LANE CLOSURE
35	CD-601-2 PIPE END SECTIONS	77	CD-610-2 RAISED PAVEMENT MARKER, (RPM) LOCATION	117	TCD-18 DIVIDED, EXIT RAMP CONSTRUCTION (LEFT & RIGHT)
36	CD-601-3 CROSS DRAIN TRENCH CONSTRUCTION	78	CD-610-3 RAISED PAVEMENT MARKER, (RPM) LOCATION	118	TCD-19 DIVIDED, EXIT RAMP CONSTRUCTION (LEFT & RIGHT) W/DECEL LANE
37	CD-602-1 INLET GENERAL DETAILS	79	CD-610-4 GROUND MOUNTED FLEXIBLE DELINEATORS	119	TCD-20 DIVIDED, ENTRANCE RAMP CONSTRUCTION (LEFT & RIGHT)
38	CD-602-2 INLETS, TYPE A, B & C	80	CD-610-5 RUMBLE STRIPS	120	TCD-21 DIVIDED, ENTRANCE RAMP CONSTRUCTION (LEFT & RIGHT) W/ACCEL
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ABBREVIATIONS
 CD = ROADWAY
 TCD = TRAFFIC CONTROL DETAILS
 BCD = BRIDGE CONSTRUCTION DETAILS

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BDC09D-02-BREAKAWAY SIGN SUPPORTS
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124	BCD-504-2 MISCELLANEOUS BRIDGE ITEMS				
125	BCD-504-3 TYPICAL DETAILS NO. 1				
126	BCD-504-4 TYPICAL DETAILS NO. 2				
127	BCD-504-5 TYPICAL DETAILS NO. 3				
128	BCD-507-1 STRIP SEAL DECK JOINTS				
129	BCD-507-2 2'-8", 2'-10", AND 6'-6" PARAPETS				
130	BCD-507-3 SAWCUT GROOVING FOR BRIDGE DECKS				
131	BCD-507-4 STAY-IN-PLACE FORMS				
132	BCD-507-5 CONCRETE BRIDGE APPROACH				
133	BCD-507-6 OBSOLETE BY BDC10D-01				
134	BCD-507-7 4'-2" HIGH HEAVY TRUCK PARAPET				
135	BCD-507-8 3'6" HIGH F-SHAPE PARAPET DETAILS				
136	BCD-507-9 BRIDGE MEDIAN BARRIER				
137	BCD-507-10 4-BAR OPEN STEEL PARAPET TYP. SECTIONS AND ELEVATIONS				
138	BCD-507-11 4-BAR OPEN STEEL PARAPET DETAILS AND NOTES				
139	BCD-509-1 BRIDGE CHAIN-LINK FENCE (CURVED TOP)				
140	BCD-509-2 BRIDGE CHAIN-LINK FENCE (6'-3" HIGH)				
141	BCD-509-3 1-RAIL ALUMINUM RAILING				
142	BCD-509-4 2-RAIL ALUMINUM RAILING				
143	BCD-551-1 BRIDGE DECK REHABILITATION WITH CONCRETE OVERLAY				
144	BCD-551-2 BRIDGE DECK REHABILITATION WITHOUT CONCRETE OVERLAY				
145	BCD-551-3 BRIDGE DECK REHABILITATION DECK JOINT REPAIR				
146	BCD-551-4 BRIDGE DECK REHABILITATION DECK JOINT REPAIR				

ABBREVIATIONS

CD = ROADWAY
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 BCD = BRIDGE CONSTRUCTION DETAILS

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INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

INDEX SHEET 1

DESCRIPTION	CD	DESCRIPTION	CD	DESCRIPTION	CD
BEAM GUIDE RAIL (BGR)		BGR GRADING AND ROADSIDE RECOVERY AREA AT FLARED AND TANGENT TERMINALS		CURBS	
BEAM GUIDE RAIL	CD-609-1.1			CONCRETE AND GRANITE CURB	CD-607-1
GUIDE RAIL POST INSTALLATION IN ROCK	CD-609-1.2	GRADING TREATMENT AT FLARED AND TANGENT TERMINALS	CD-609-9.1	GENERAL NOTES APPLYING TO ALL TYPES OF DOWELLED CURBS	CD-607-1.1
BEAM GUIDE RAIL, DUAL-FACED	CD-609-2	RECOVERY AREA AT FLARED AND TANGENT TERMINALS	CD-609-9.2	9" x ___" CONCRETE VERTICAL CURB, DOWELLED	CD-607-1.2
RUB RAIL	CD-609-3			12" x 3" CONCRETE SLOPING CURB, DOWELLED	CD-607-1.3
C6 x 8.2	CD-609-3.1			CONCRETE VERTICAL CURB MONOLITHIC WITH CONCRETE BASE COURSE	CD-607-1.4
RUB RAIL SECTION	CD-609-3.2			12" x 13" CONCRETE SLOPING CURB	CD-607-1.5
BENT PLATE	CD-609-3.3	BEAM GUIDE RAIL ATTACHMENTS		CONCRETE VERTICAL CURB	CD-607-1.6
CARRIAGE BOLT DETAIL	CD-609-3.4	GUIDE RAIL ATTACHMENTS TO BALUSTRADE	CD-609-10.1	CONCRETE VERTICAL CURB MONOLITHIC WITH CONCRETE PAVEMENT	CD-607-1.7
RUB RAIL ANGLE ATTACHMENT	CD-609-3.5	GUIDE RAIL ATTACHMENTS TO SIDEWALK	CD-609-10.2	NEW OR RESET GRANITE CURB	CD-607-1.8
BEAM GUIDE RAIL END ANCHORAGE	CD-609-4	GUIDE RAIL ATTACHMENTS TO FOOTING	CD-609-11.1	LIP CURB	CD-607-1.9
FLARED GUIDE RAIL TERMINAL	CD-609-5.1	GENERAL NOTES	CD-609-11.2	BARRIER CURB AND CONCRETE CURB	CD-607-2
TANGENT GUIDE RAIL TERMINAL	CD-609-5.2	THRIE BEAM	CD-609-12.1	15" x VARIABLE HEIGHT CONCRETE BARRIER CURB, DOWELLED 15" x 41" CONCRETE BARRIER CURB	CD-607-2.1
CONTROLLED RELEASE TERMINAL	CD-609-6	W BEAM TERMINAL CONNECTOR	CD-609-12.2	CURB TREATMENT AT BERM SECTION AND ALL CURB ENDS	CD-607-2.2
CONTROLLED RELEASE TERMINAL	CD-609-6.1	GUIDE RAIL ATTACHMENTS - NEW CONSTRUCTION NEW JERSEY BARRIER SHAPE PARAPET (NO ROADWAY CURBING ON APPROACH)	CD-609-13.1	CURB TRANSITION	CD-607-2.3
CONTROLLED RELEASE TERMINAL ANCHORAGE	CD-609-6.2	GUIDE RAIL ATTACHMENTS - NEW CONSTRUCTION NEW JERSEY BARRIER SHAPE PARAPET (WITH ROADWAY CURBING ON APPROACH)	CD-609-14.1	METHOD OF DEPRESSING CURB AT DRIVEWAYS	CD-607-2.4
GENERAL NOTES	CD-609-6.3	BEAM GUIDE RAIL ATTACHMENTS - NEW CONSTRUCTION (SIDEWALK WITH PARAPET)	CD-609-15.1	LINEAR CURB TRANSITION	CD-607-2.5
MODIFIED THRIE BEAM GUIDE RAIL	CD-609-17	GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION (SIDEWALK WITH STEEL RAILING)	CD-609-16.1	BARRIER CURB	CD-607-3
MODIFIED THRIE BEAM GUIDE RAIL, DUAL FACED	CD-609-18			24" x ___" CONCRETE BARRIER CURB, DOWELLED	CD-607-3.1
				GENERAL NOTES	CD-607-3.2
				OPENINGS TO BE CONSTRUCTED IN BARRIER CURB	CD-607-3.3
				24" x 41" CONCRETE BARRIER CURB	CD-607-3.4
				BARRIER CURB AT LIGHTING POLE BASE INSTALLATION	CD-607-3.5
BEAM GUIDE RAIL TREATMENT		CONCRETE PAVEMENT REHABILITATION			
MEDIAN GUIDE RAIL TREATMENT	CD-609-7	SLAB STABILIZATION	CD-451-1		
MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS 4' OR GREATER	CD-609-7.1	PARTIAL DEPTH CONCRETE PAVEMENT REPAIR	CD-452-1		
MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS MORE THAN 2' BUT LESS THAN 4'	CD-609-7.2	FULL DEPTH CONCRETE PAVEMENT REPAIR	CD-453-1		
TELESCOPING GUIDE RAIL END TERMINALS	CD-609-7.3	FULL DEPTH CONCRETE PAVEMENT REPAIR	CD-453-2	DELINEATORS	
MEDIAN GUIDE RAIL TREATMENT AT ADJACENT BRIDGES	CD-609-7.4	REINF. STEEL FOR FULL DEPTH CONC. PAVEMENT. REPAIR, CLASS ___	CD-453-2.1	GROUND MOUNTED FLEXIBLE DELINEATORS	CD-610-4
BEAM GUIDE RAIL END TREATMENT	CD-609-8	FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA	CD-453-2.2		
WHERE CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS LESS THAN 2'	CD-609-8.1	RETROFIT DOWEL BARS	CD-454-1		
WHERE CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS MORE THAN 2' BUT LESS THAN 4'	CD-609-8.2	RETROFIT DOWEL BARS AT EXISTING JOINT	CD-454-1.1	DRIVEWAYS	
WHERE CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS 4' OR GREATER	CD-609-8.3	RETROFIT DOWEL BARS AT PAVEMENT CRACK	CD-454-1.2	CONCRETE AND HMA DRIVEWAY AND SIDEWALK	CD-606-2
GUIDE RAIL FOR CUTS (END BURIED IN SLOPE)	CD-609-8.4			TYPE A	CD-606-2.1
ADDITIONAL LENGTH BEAM GUIDE RAIL POSTS	CD-609-8.5			TYPE B	CD-606-2.2
WHERE RAIL ELEMENT WITH SPACER IS ATTACHED TO OBSTRUCTION	CD-609-8.6	CULVERTS		TYPE C	CD-606-2.3
GENERAL NOTES	CD-609-8.7	CONCRETE CULVERT	CD-602-11.1	TYPE D	CD-606-2.4
		CONSTRUCTION JOINT OF CULVERT	CD-602-11.2	TYPE E	CD-606-2.5

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INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

INDEX SHEET 2

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DRIVEWAYS (CONTINUED)		INLETS AND MANHOLES (CONTINUED)			
TYPE F	CD-606-2.6	FRAME FOR INLET, TYPE A	CD-602-2.4		
GENERAL NOTES	CD-606-2.7	ALTERNATE BACK PLATE	CD-602-2.5	JOINTS	
TYPICAL DRIVEWAY TREATMENT	CD-606-2.8	INLET, TYPE B WITH C.I. CURB PIECE-BACK-FRAME AND GRATE	CD-602-2.6	LONGITUDINAL JOINTS IN HMA	CD-401-2
		INLETS, TYPE B1, B2, & B, B1, & B2 MODIFIED	CD-602-3	WEDGE JOINT	CD-401-2.1
EMBANKMENT		INLET, TYPE B MODIFIED	CD-602-3.1	OFFSET OF JOINTS	CD-401-2.2
SOIL REUSE	CD-202-1.1	INLET, TYPE B1 MODIFIED AND TYPE B2 MODIFIED	CD-602-3.2	HMA PAVEMENT	CD-401-2.3
BENCHING DETAIL	CD-203-1.1	METHOD OF DEPRESSING INLET AT SHOULDERS	CD-602-3.3	COMPACTION OF UNCONFINED VERTICAL EDGE	CD-401-2.4
LIMITS AND METHODS OF PLACING EMBANKMENT AND POROUS BACKFILL AND LIMITS OF ROADWAY EXCAVATION ADJACENT TO BRIDGE ABUTMENTS	CD-203-1.2	FRAME TO BE USED FOR INLETS, TYPE B MODIFIED	CD-602-3.4	ROLLER PLACEMENT FOR COMPACTING ALONG THE UNCONFINED VERTICAL EDGE	CD-401-2.5
		INLETS, TYPE B1 AND TYPE B2	CD-602-3.5		
		INLETS, TYPE E, E1, E2, & ES	CD-602-4	TYPICAL LAYOUT	CD-405-1.1
FENCES		INLETS, TYPE E1 AND TYPE E2	CD-602-4.1	EXPANSION JOINTS AT BRIDGES	CD-405-1.2
CHAIN-LINK FENCE	CD-605-1	INLET, TYPE E	CD-602-4.2	GENERAL NOTES	CD-405-1.3
CHAIN-LINK FENCE, ___' HIGH	CD-605-1.1	FRAMES FOR INLET, TYPE E	CD-602-4.3	TRANSVERSE EXPANSION JOINT	CD-405-1.4
DRIVE ANCHOR SHOE ASSEMBLY	CD-605-1.2	INLET, TYPE ES	CD-602-4.4	TRANSVERSE CONTRACTION JOINT	CD-405-1.5
CHAIN-LINK FENCE ASSEMBLIES	CD-605-1.3	INLET CASTING, TYPE ES	CD-602-4.5	HOT-POURED JOINT SEALER	CD-405-1.6
GENERAL NOTES	CD-605-1.4	INLETS, TYPE D1 & D2	CD-602-5	COLD-POURED JOINT SEALER WITH BACKER ROD	CD-405-1.7
GATES, CHAIN-LINK FENCE, ___' WIDE	CD-605-1.5	INLET TYPE D1	CD-602-5.1	COLD-POURED JOINT SEALER WITHOUT BACKER ROD	CD-405-1.8
CHAIN-LINK FARM-TYPE FENCE	CD-605-2.1	INLET TYPE D2	CD-602-5.2	CONCRETE PAVEMENT LONGITUDINAL JOINTS	CD-405-2
		CAST IRON CURB PIECE FOR INLETS, TYPE D1 AND D2	CD-602-5.3	TIE BOLT DETAIL	CD-405-2.1
HEADWALLS		CAST IRON EXTENSION FRAMES FOR EXISTING INLET	CD-602-6.1	CONSTRUCTION JOINT TIE BOLT	CD-405-2.2
CONCRETE HEADWALLS	CD-602-10.1	CAST IRON EXTENSION RINGS FOR EXISTING MANHOLES	CD-602-7.1	CONSTRUCTION JOINT TIE BAR	CD-405-2.3
CONCRETE HEADWALLS AND APRONS	CD-602-10.2	MANHOLES	CD-602-8	STATIONING FORMING	CD-405-2.4
		STANDARD MANHOLE FRAME AND COVER	CD-602-8.1	SLIP FORMING	CD-405-2.5
		MANHOLES, MANHOLES 5 FOOT DIAMETER, MANHOLES 6 FOOT DIAMETER	CD-602-8.2	CONTRACTION JOINT	CD-405-2.6
INLETS AND MANHOLES		GENERAL NOTES	CD-602-8.3	NOTES	CD-405-2.7
INLET GENERAL DETAILS	CD-602-1	PRECAST MANHOLES	CD-602-9	LONGITUDINAL JOINT WHEN TYING INTO EXISTING CONCRETE PAVEMENT/SHOULDER	CD-405-2.8
CONNECTION OF PIPE AND INLET FOR PRECAST INLET	CD-602-1.1	MANHOLES PRECAST CONCRETE MANHOLES 5' DIAMETER, MANHOLES 6' DIAMETER PRECAST CONCRETE	CD-602-9.1	CONCRETE PAVEMENT JOINTS NON-SKEWED LOAD TRANSFER ASSEMBLIES	CD-405-3
RISER JOINT DETAIL FOR PRECAST INLETS	CD-602-1.2	48" PRECAST REINFORCED CONCRETE MANHOLE FLAT TOP	CD-602-9.2	TYPICAL EXPANSION JOINT ASSEMBLY	CD-405-3.1
LADDER RUNG DETAIL	CD-602-1.3	PRECAST MANHOLE RISER JOINT	CD-602-9.3	TYPICAL CONTRACTION JOINT ASSEMBLY	CD-405-3.2
DETAIL OF INVERT FOR INLET WITHOUT CONTINUOUS PIPE	CD-602-1.4			EXPANSION JOINT ASSEMBLY	CD-405-3.3
COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNG	CD-602-1.5			CONTRACTION JOINT ASSEMBLY	CD-405-3.4
GENERAL NOTES	CD-602-1.6			CENTER FRAME WIRE DETAIL	CD-405-3.5
NEW MANHOLE CASTING, SQUARE FRAME, CIRCULAR COVER	CD-602-1.7	ISLANDS		EXPANSION JOINT ASSEMBLY	CD-405-3.6
BICYCLE SAFE GRATE (CAST IRON)	CD-602-1.8	CONCRETE & HMA ISLAND	CD-606-3	CONTRACTION JOINT ASSEMBLY	CD-405-3.7
INLETS, TYPE A, B & C	CD-602-2	CONCRETE ISLAND ON EXISTING PAVEMENT	CD-606-3.1	TYPICAL SIDE FRAME DETAIL	CD-405-3.8
FRAME-BACK-CURB PIECE FOR INLET TYPE B AND TYPE C	CD-602-2.1	LONGITUDINAL & TRANSVERSE JOINT TREATMENT FOR CONCRETE ISLAND	CD-606-3.2	NOTES	CD-405-3.9
INLET, TYPE C WITH C.I. CURB PIECE-BACK-FRAME AND GRATE	CD-602-2.2	HMA ISLAND, 10" THICK	CD-606-3.3		
METHOD OF SETTING CASTING FOR B TYPE INLET WHERE CURB PIECE HEIGHT IS 2" GREATER THAN CURB FACE	CD-602-2.3	CONCRETE ISLAND, 4" THICK	CD-606-3.4		

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INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

INDEX SHEET 3

DESCRIPTION	CD	DESCRIPTION	CD	DESCRIPTION	CD
LANDSCAPING				RUMBLE STRIPS	
TOPSOIL STABILIZATION	CD-807-1	PIPES		RUMBLE STRIPS	CD-610-5.1
TOPSOIL STABILIZATION MATTING	CD-807-1.1	PIPE END SECTIONS	CD-601-2		
PLANTING	CD-811-1	END SECTIONS FOR METAL PIPE	CD-601-2.1		
TREE PLANTING - 2H:1V SLOPE	CD-811-1.1	END SECTIONS FOR CONCRETE PIPE	CD-601-2.2	SIDEWALK	
TREE & SHRUB PLANTING DETAIL	CD-811-1.2	CONCRETE COLLAR	CD-601-2.3	DETECTABLE WARNING SURFACE	CD-606-1.1
CONTAINERIZED PLANTING DETAIL	CD-811-1.3	STORMWATER OUTFALL PROTECTION	CD-601-2.4	CURB RAMPS	CD-606-1.2
WIRE BASKET REMOVAL	CD-811-1.4	CROSS DRAIN TRENCH CONSTRUCTION	CD-601-3	CONCRETE SIDEWALK, 4" THICK	CD-606-2.9
STAKING DETAIL	CD-811-1.5	CONCRETE SURFACE COURSE REPLACEMENT AT CROSS DRAIN TRENCH	CD-601-3.1	HMA SIDEWALK, 5½" THICK	CD-606-2.10
GUYING DETAIL	CD-811-1.6	HMA REPLACEMENT WHERE CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH	CD-601-3.2		
FASTENING DETAIL	CD-811-1.7	HMA REPLACEMENT WHERE EXISTING OVERLAY AND CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING	CD-601-3.3	SIGNS	
PRUNING AT TIME OF PLANTING	CD-811-1.8	HMA REPLACEMENT WHERE EXISTING CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING	CD-601-3.4	SIGNS	CD-612-1.1
TREE PROTECTION DETAIL	CD-811-1.9	TRANSVERSE JOINT TIE IN CONCRETE SURFACE COURSE FOR CONDUIT OR CROSS DRAIN TRENCHES	CD-601-3.5	SIGNS	CD-612-2.1
PLANTING	CD-811-2	MINIMUM DEPTH OF ADDITIONAL EXCAVATION OR PIPE BEDDING	CD-601-3.6	SIGNS	CD-612-3.1
SHRUB PLANTING BEHIND GUIDE RAIL	CD-811-2.1			SIGN SUPPORTS	
HEMEROCALLIS AND NARCISSUS BED PLANTING DETAIL	CD-811-2.2	RAISED PAVEMENT MARKER, (RPM)		STEEL U-POST SIGN SUPPORTS	CD-612-4.1
SHRUB BED PLANTING DETAIL	CD-811-2.3	RAISED PAVEMENT MARKER, (RPM) LOCATION	CD-610-1	SPACER BAR	CD-612-5.1
NARCISSUS IN TURF DETAIL	CD-811-2.4	RAISED PAVEMENT MARKER, (RPM) LOCATION	CD-610-1	TYPE 1 & TYPE 2 ANCHOR POST ASSEMBLY	CD-612-5.2
HEDGE PLANTING DETAIL	CD-811-2.5	TYPICAL DECELERATION LANE TREATMENT	CD-610-1.1	STEEL U-POST SIGN SUPPORTS	CD-612-6.1
		LEGEND	CD-610-1.2	BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS	CD-612-7.1
MILLING		TYPICAL ACCELERATION LANE TREATMENT	CD-610-1.3	BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS	CD-612-8.1
MILLING TRANSITIONS	CD-401-1.1	TYPICAL PAVED MEDIAN TREATMENT	CD-610-1.4	BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS	CD-612-9.1
END TREATMENT FOR MILLING OPERATIONS	CD-401-1.2	RAISED PAVEMENT MARKER, (RPM) LOCATION	CD-610-2	BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS	CD-612-10.1
		TYPICAL DIVISIONAL ISLAND TREATMENT	CD-610-2.1		
		NARROW BRIDGE OR CULVERT TREATMENT	CD-610-2.2		
MONUMENTS		LEGEND	CD-610-2.3		
MONUMENTS	CD-157-1.1	TYPICAL TWO LANE SECTION	CD-610-2.4		
MONUMENT BOXES FOR NEW MONUMENTS	CD-157-1.2	TYPICAL LEFT TURN LANE SECTION	CD-610-2.5		
		RAISED PAVEMENT MARKER, (RPM) LOCATION	CD-610-3		
		TYPICAL MULTI-LANE DIVIDED SECTION	CD-610-3.1	SOIL EROSION AND SEDIMENT CONTROL	
NONVEGETATIVE SURFACE		TYPICAL MULTI-LANE UNDIVIDED SECTION	CD-610-3.2	SOIL EROSION AND SEDIMENT CONTROL MEASURES	CD-158-1
NONVEGETATIVE SURFACE	CD-608-1.1	METHOD FOR DETERMINING RPM SPACING ON HORIZONTAL CURVES	CD-610-3.3	SILT FENCE	CD-158-1.1
		LEGEND	CD-610-3.4	ATTACHING TWO SILT FENCES	CD-158-1.2
				HEAVY DUTY SILT FENCE	CD-158-1.3

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 BD000-01-ORIGINAL SHEET

INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

INDEX SHEET 4

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SOIL EROSION AND SEDIMENT CONTROL		UNDERDRAINS			
SILT FENCE FASTENER REQUIREMENTS	CD-158-1.4	UNDERDRAIN TYPE F	CD-601-1.1		
SILT FENCE ON A STEEP OR LONG GRADE	CD-158-1.5	UNDERDRAIN TYPE X	CD-601-1.2		
HAYBALES	CD-158-1.6	SUBBASE OUTLET DRAIN WITH 6" HDPE PIPE	CD-601-1.3		
EMBEDDING DETAIL	CD-158-1.7	COMBINED STORM DRAIN AND OUTLET TRENCH IN ROCK AREAS	CD-601-1.4		
STABILIZED CONSTRUCTION DRIVEWAY	CD-158-1.8				
SOIL EROSION AND SEDIMENT CONTROL MEASURES	CD-158-2				
HAYBALE CHECK DAM WITH TEMPORARY STONE OUTLET	CD-158-2.1				
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INLET FILTERS, TYPE 1	CD-158-2.4				
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SOIL EROSION AND SEDIMENT CONTROL MEASURES	CD-158-3				
INLET SEDIMENT TRAP	CD-158-3.1				
FLOATING TURBIDITY BARRIER	CD-158-3.2				
SONTE OUTLET SEDIMENT TRAPS, __'X__'	CD-158-3.3				
SEDIMENT CONTROL TANK OR BAG	CD-158-3.4				
SOIL EROSION AND SEDIMENT CONTROL MEASURES	CD-158-4				
USE OF AN OIL/WATER SEPARATOR DURING DEWATERING	CD-158-4.1				
ROADWAY GRADING	CD-158-4.2				
TEMPORARY RUNOFF DIVERSION	CD-158-4.3				
STREAM DIVERSION	CD-158-4.4				
TRAFFIC CONTROL					
DRUMS	CD-159-1.1				
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TEMPORARY PAVEMENT MARKERS	CD-159-2.5				
PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 1	CD-159-3.1				
ANCHORAGE FOR TYPE 4 BARRIER USED AS TYPE 1	CD-159-3.2				
CONSTRUCTION BARRIER CURB, TYPE 4 (ALTERNATE A)	CD-159-4.1				
CONSTRUCTION BARRIER CURB, TYPE 4 (ALTERNATE B)	CD-159-5.1				

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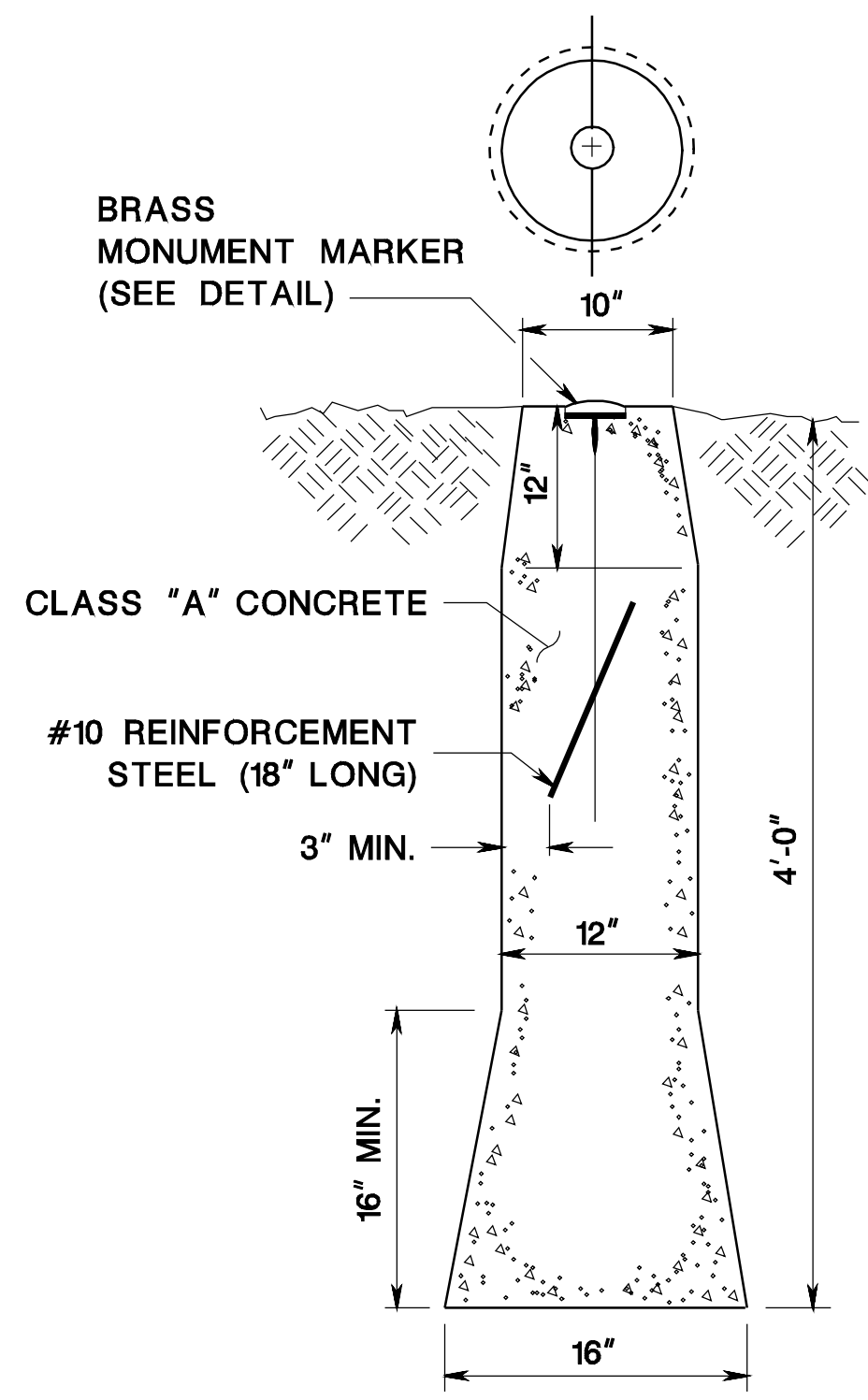
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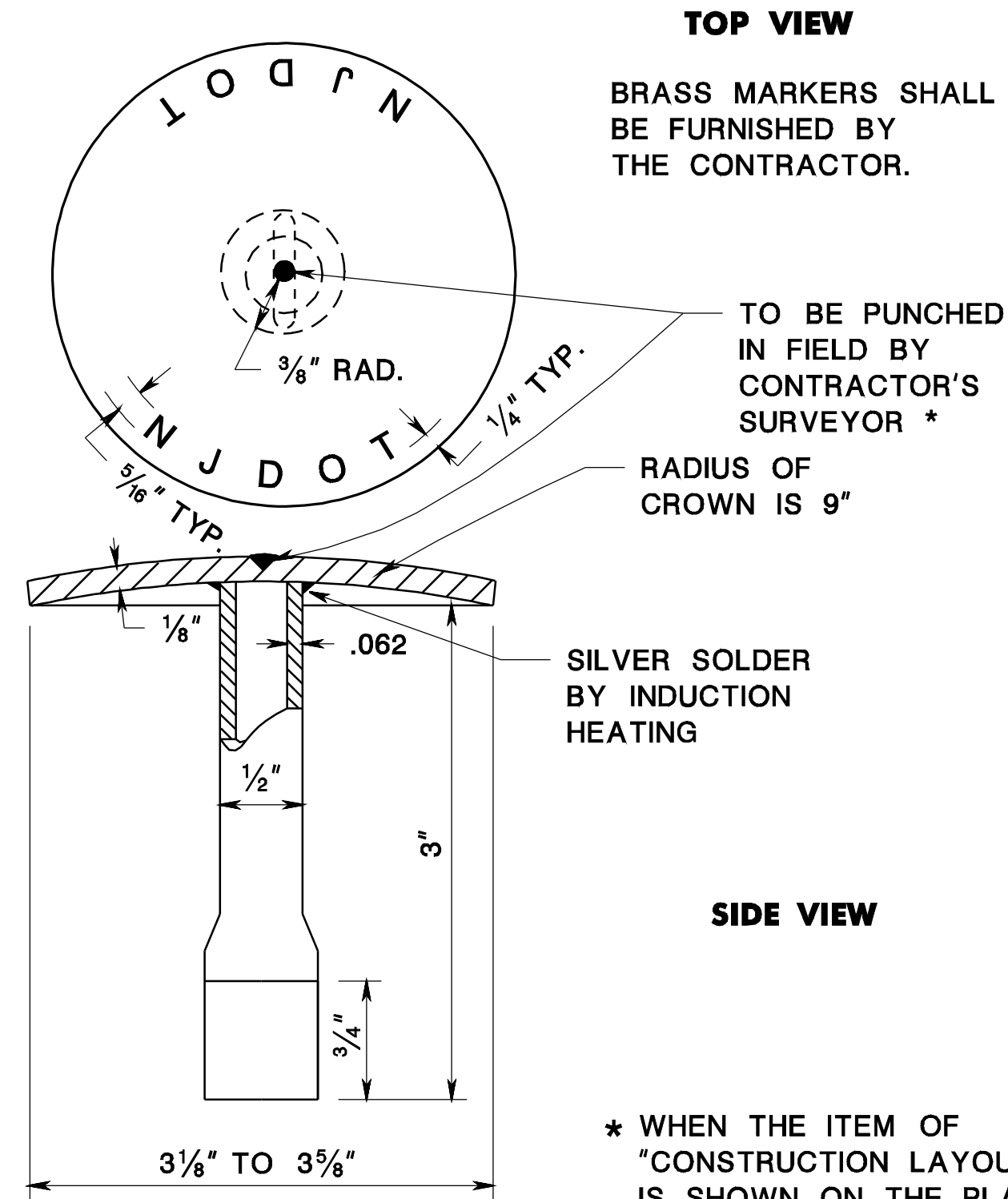
MONUMENT TO BE SET FLUSH WITH GROUND

GENERAL NOTES:

- THE MONUMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NJDOT SPECIFICATIONS.
- THE MONUMENT IS TO BE POURED IN PLACE AND THE MARKER PLUMBED INTO POSITION AND SET IN THE CONCRETE IN SUCH A MANNER THAT NO AIR WILL BE TRAPPED ON THE UNDERSIDE OF THE MARKER.
- #10 REINFORCEMENT STEEL, 18" LONG, TO BE PLACED AT THE TIME OF CONCRETE POUR.
- THE MONUMENT MARKER SHALL BE MADE OF BRASS, CONFORMING TO ASTM B-19.

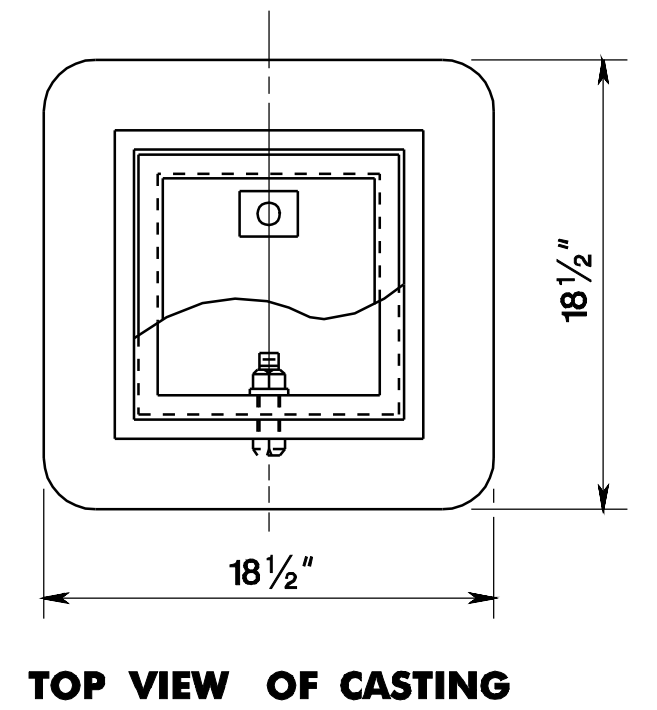
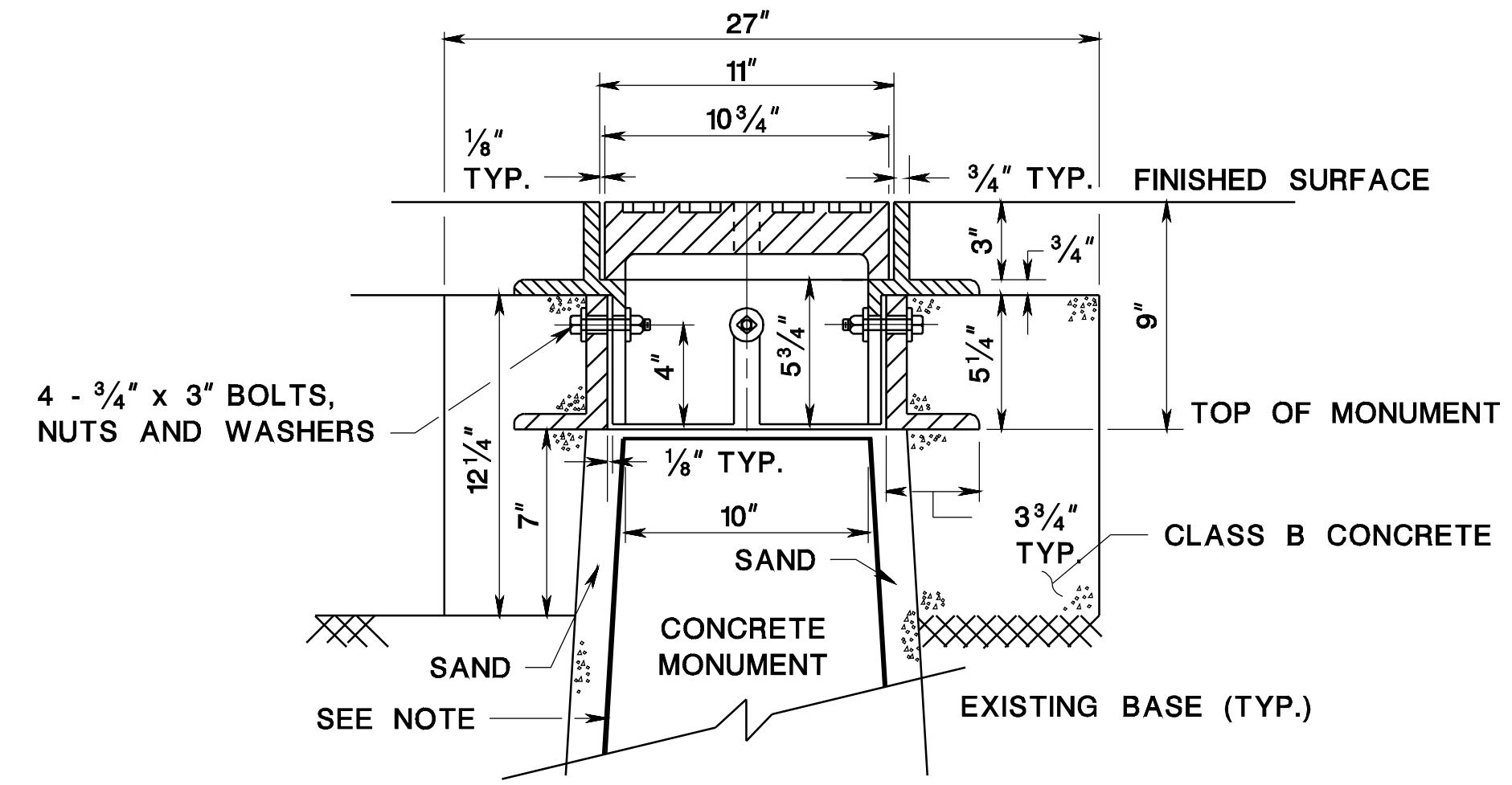
MONUMENT

CD-157-1.1



MONUMENT BOX FOR NEW MONUMENT

CD-157-1.2



NOTE:

A LAYER OF FELT OR NYLON OR TAR PAPER NEEDED BETWEEN SAND AND CONCRETE MONUMENT.

REINFORCEMENT STEEL IS IN METRIC UNITS.

MONUMENT AND MONUMENT BOX

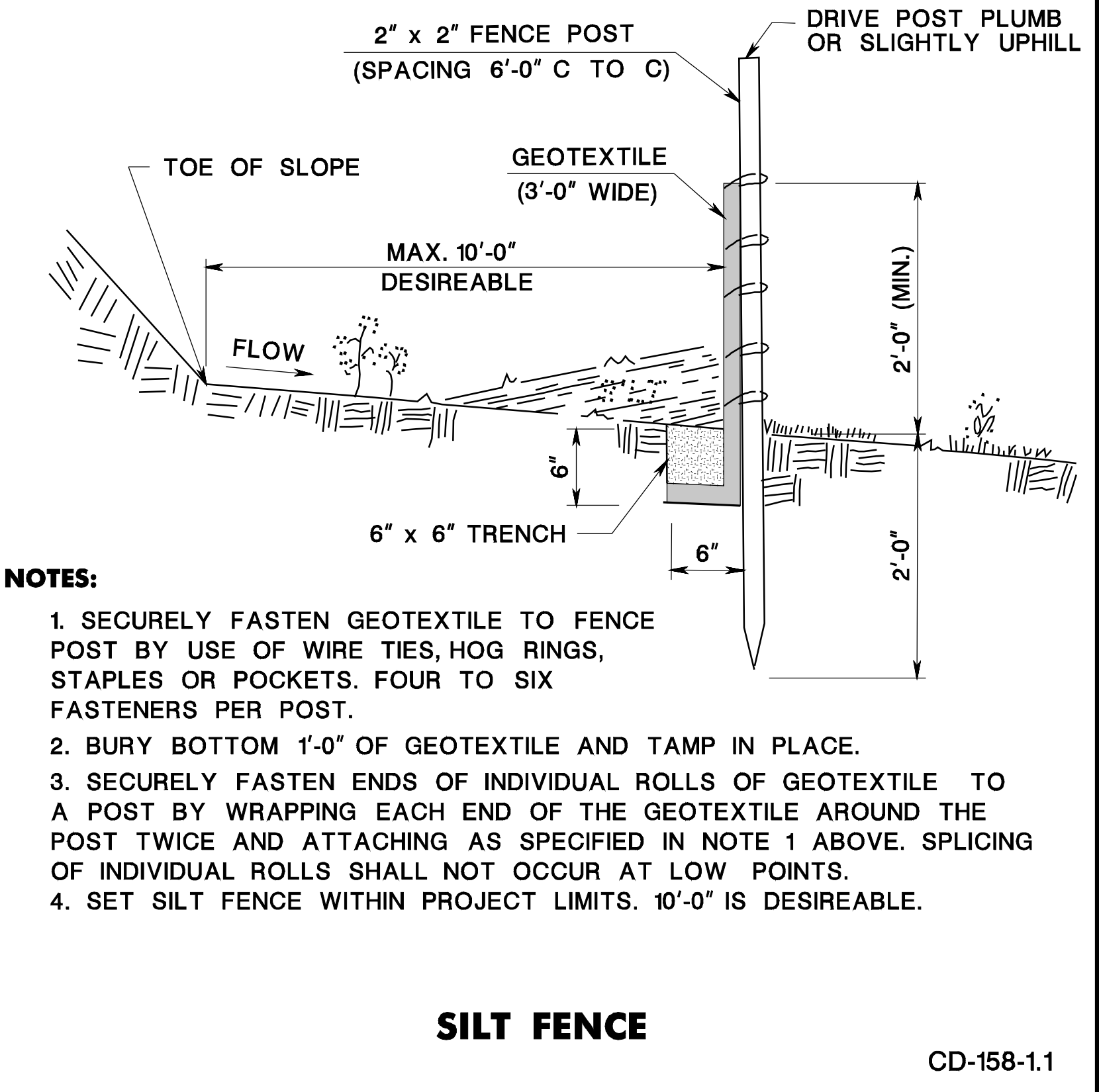
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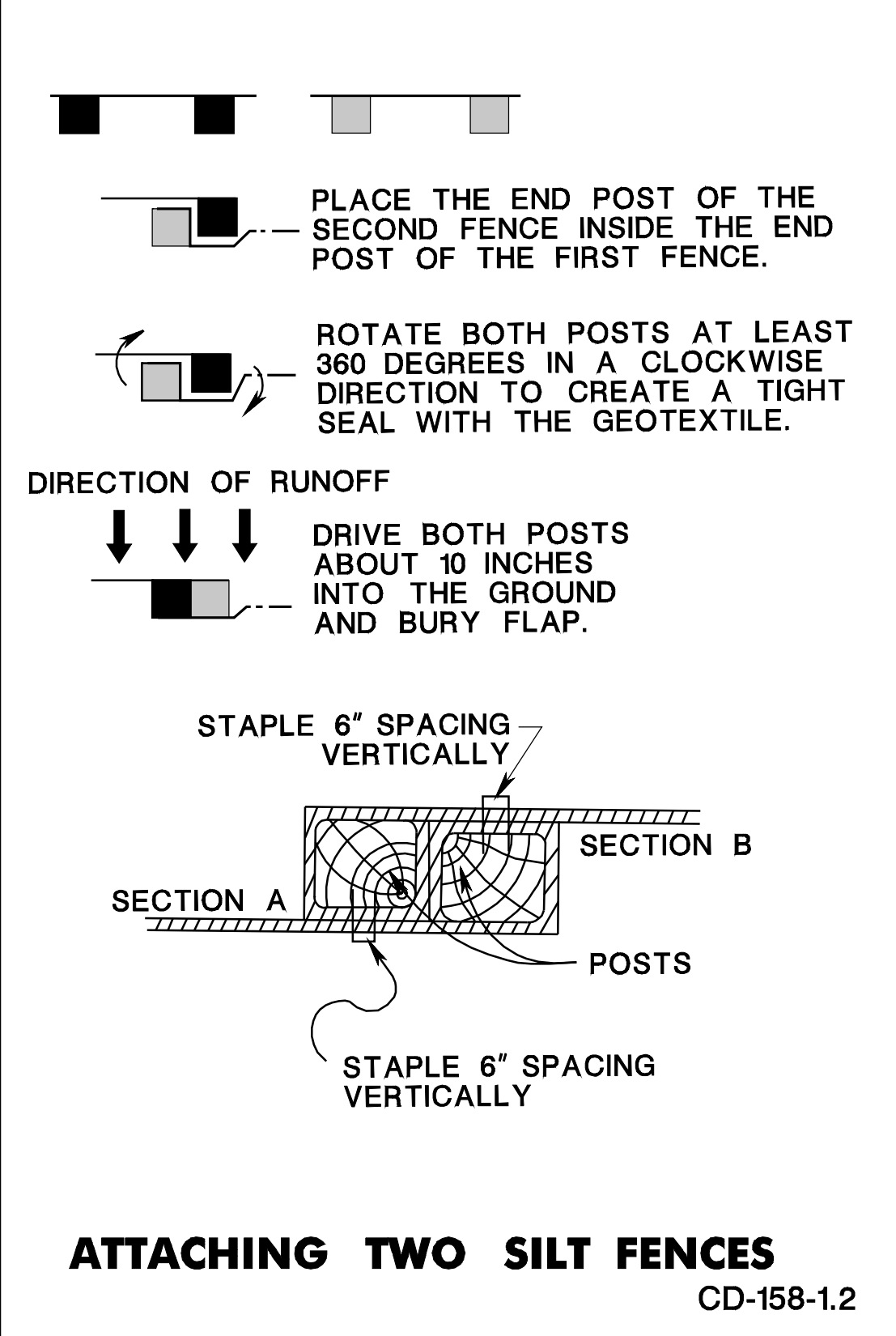
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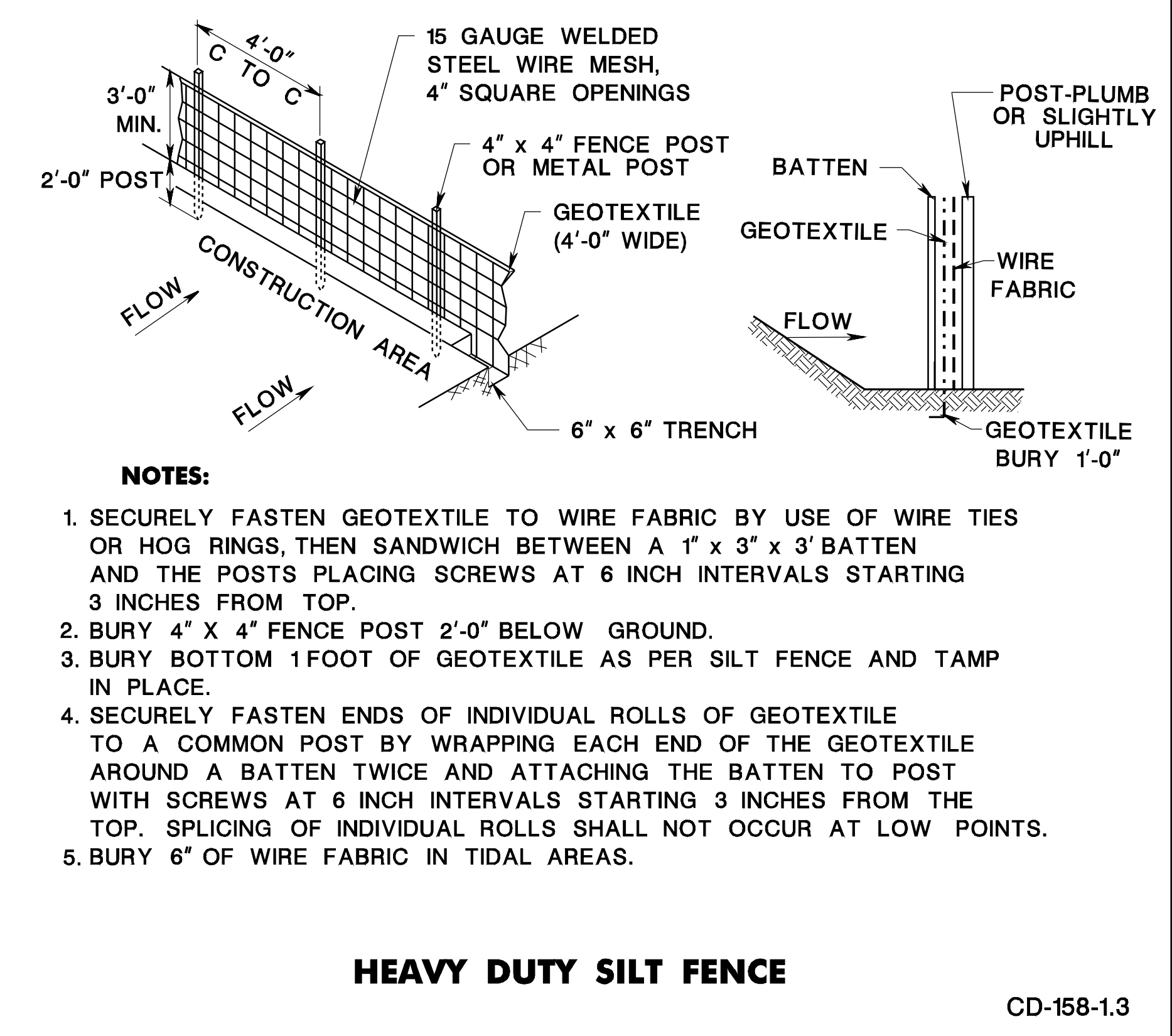
SILT FENCE

CD-158-1.1



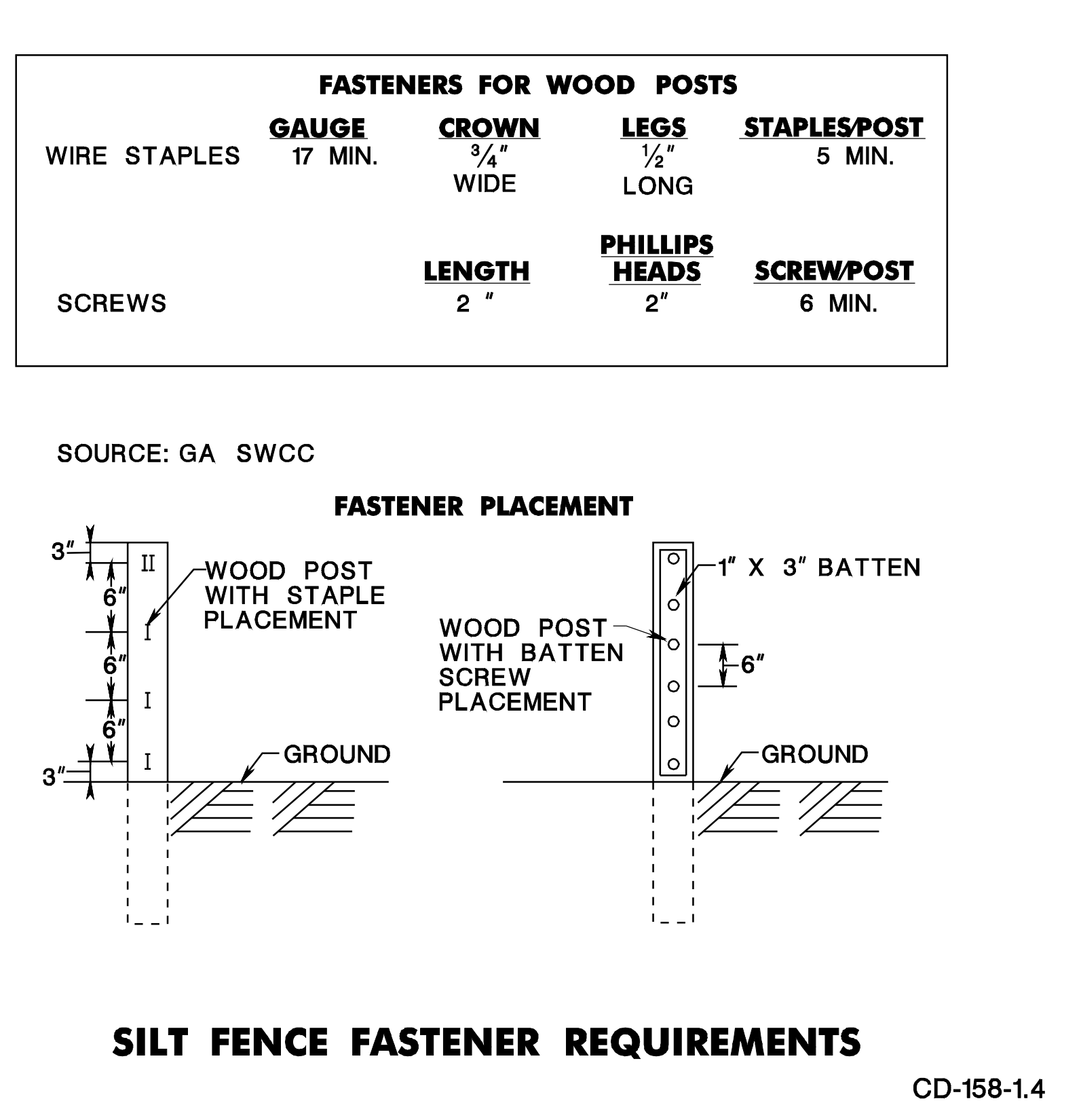
ATTACHING TWO SILT FENCES

CD-158-1.2



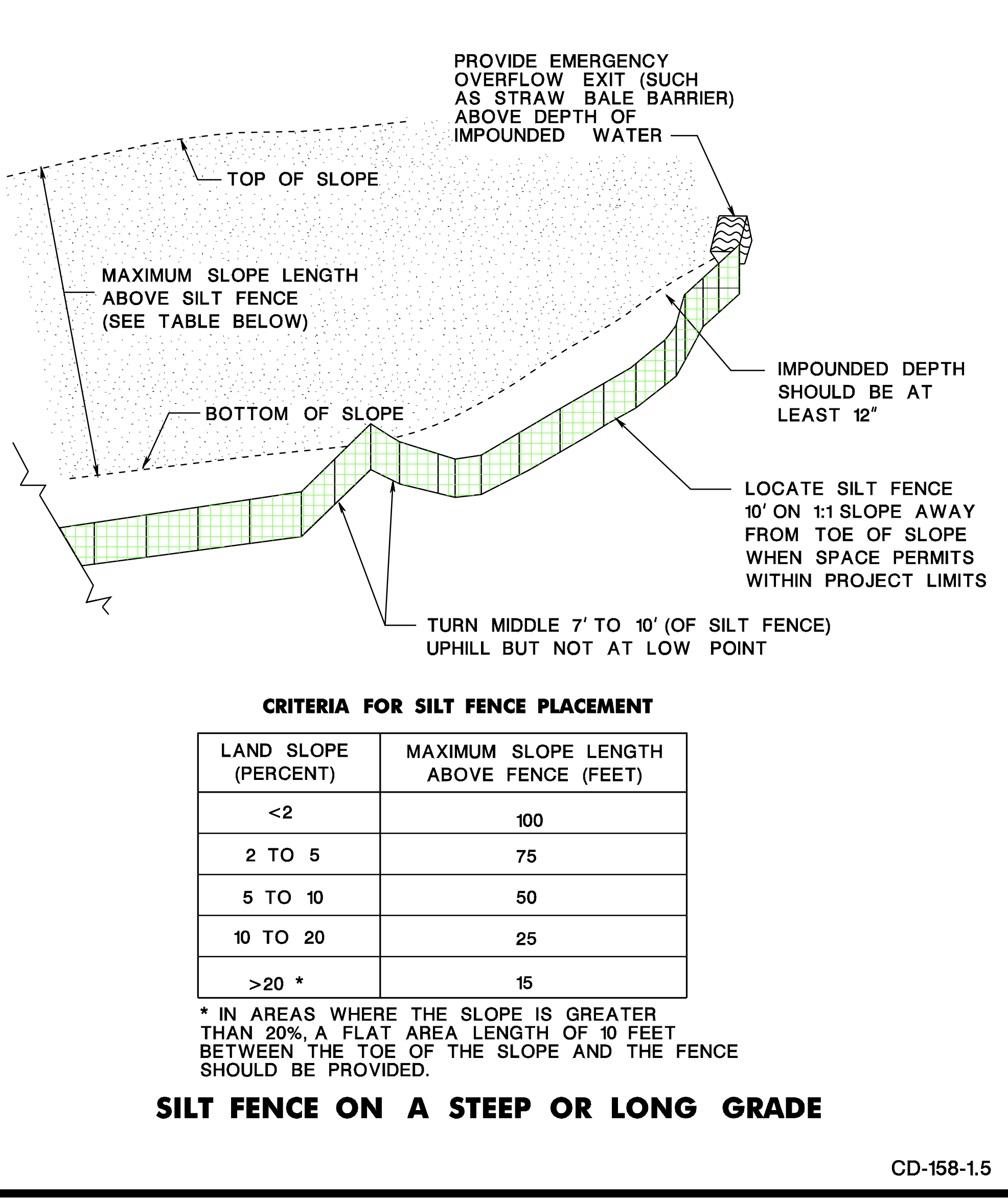
HEAVY DUTY SILT FENCE

CD-158-1.3



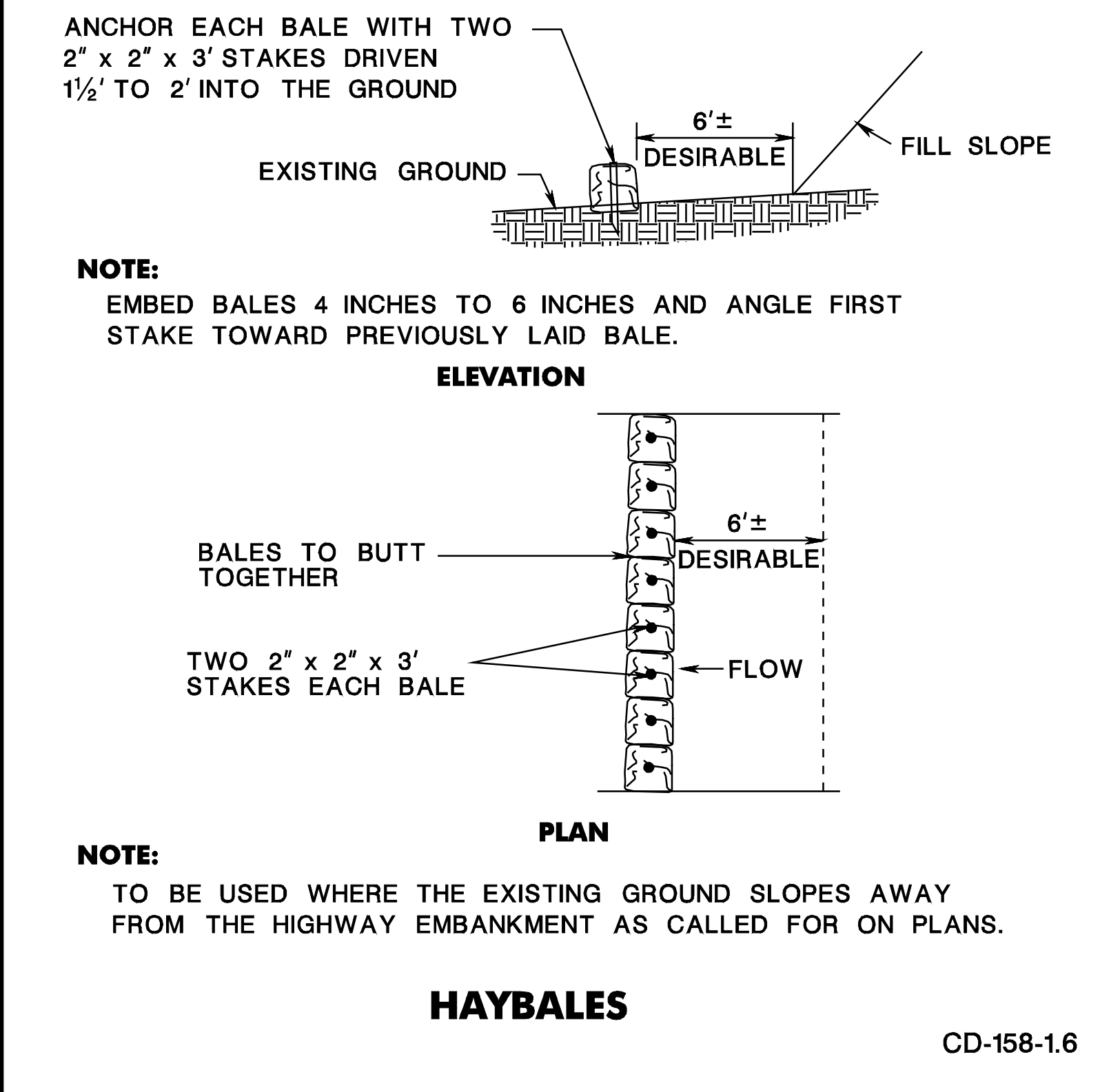
SILT FENCE FASTENER REQUIREMENTS

CD-158-1.4



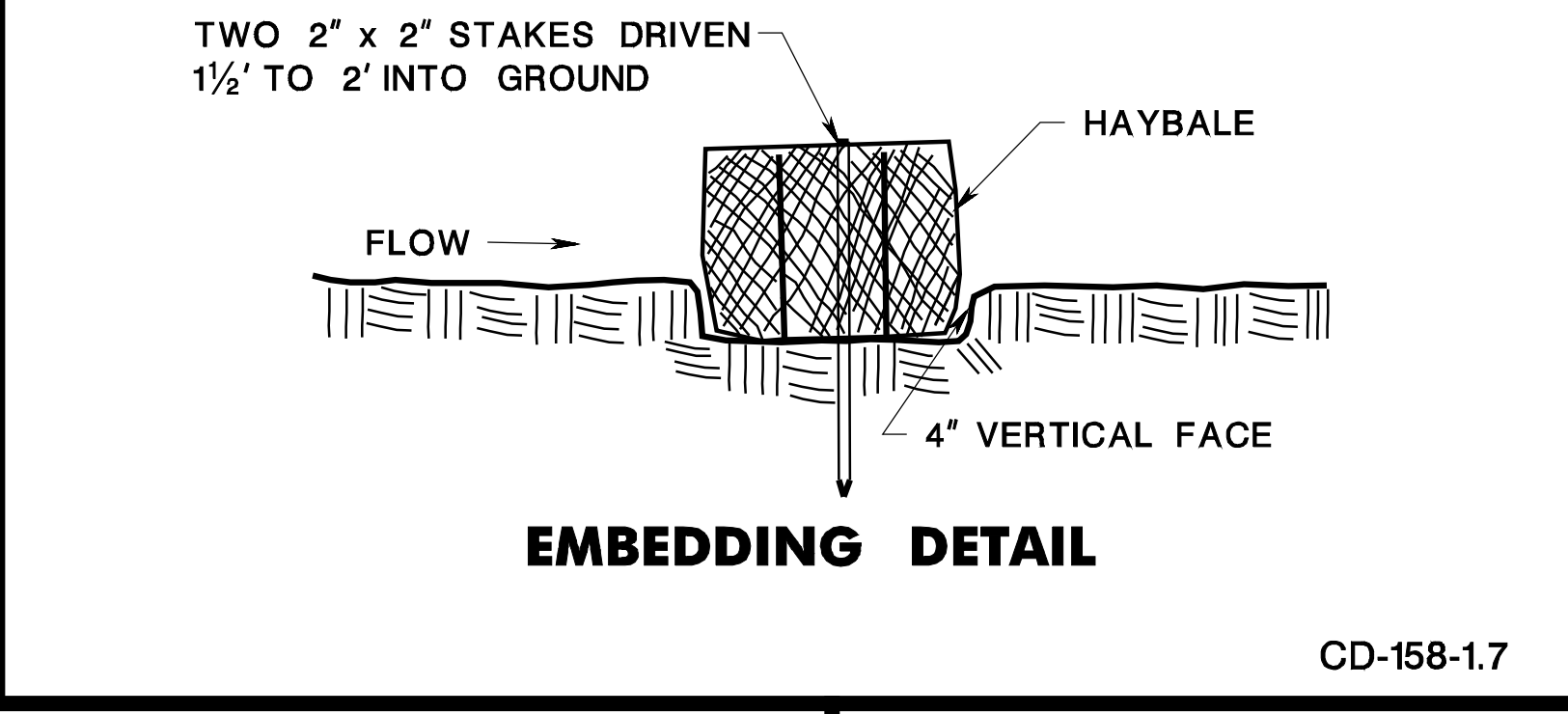
SILT FENCE ON A STEEP OR LONG GRADE

CD-158-1.5



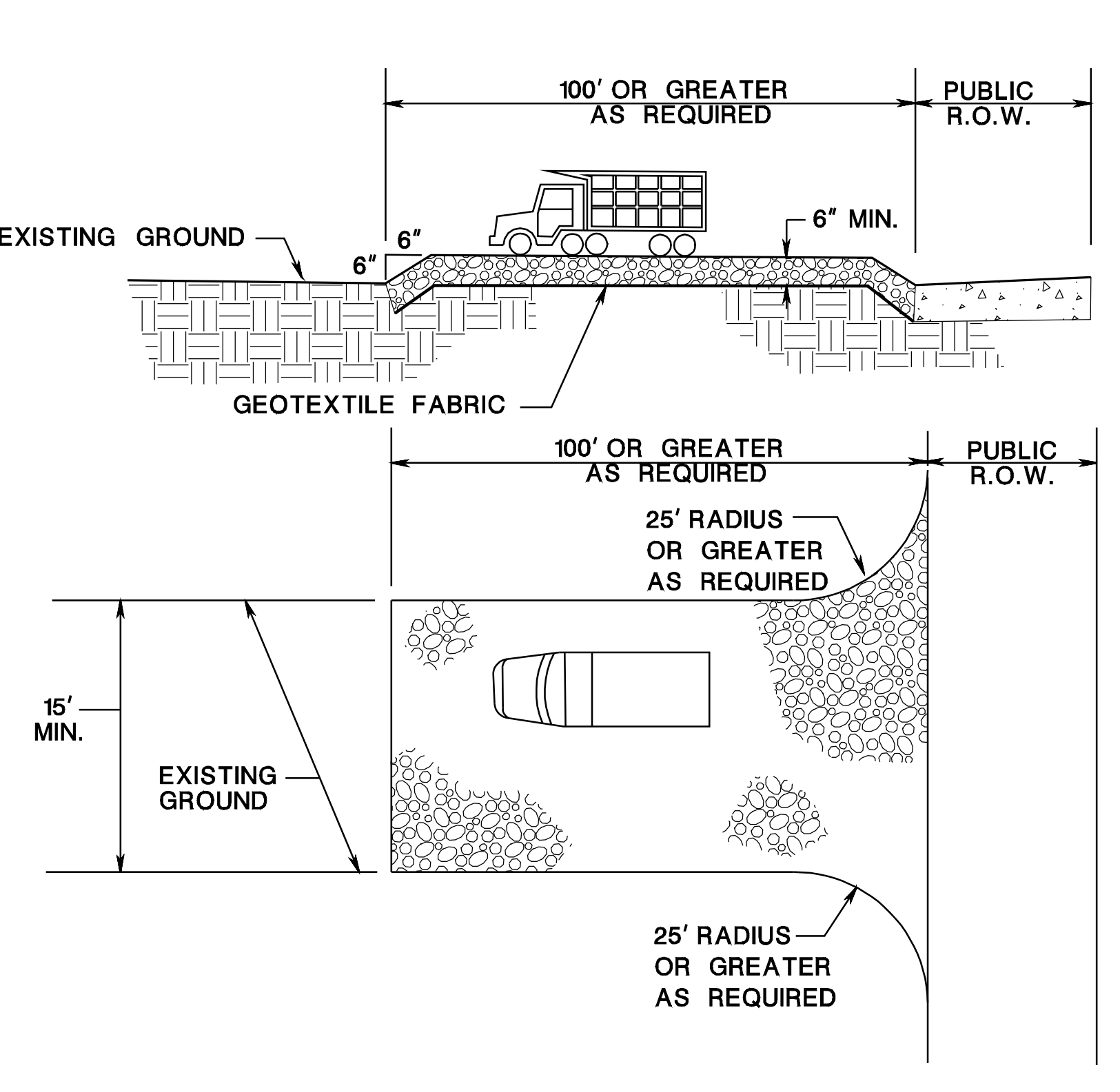
HAYBALES

CD-158-1.6



EMBEDDING DETAIL

CD-158-1.7



PROFILE AND PLAN VIEW

STABILIZED CONSTRUCTION DRIVEWAY

CD-158-1.8

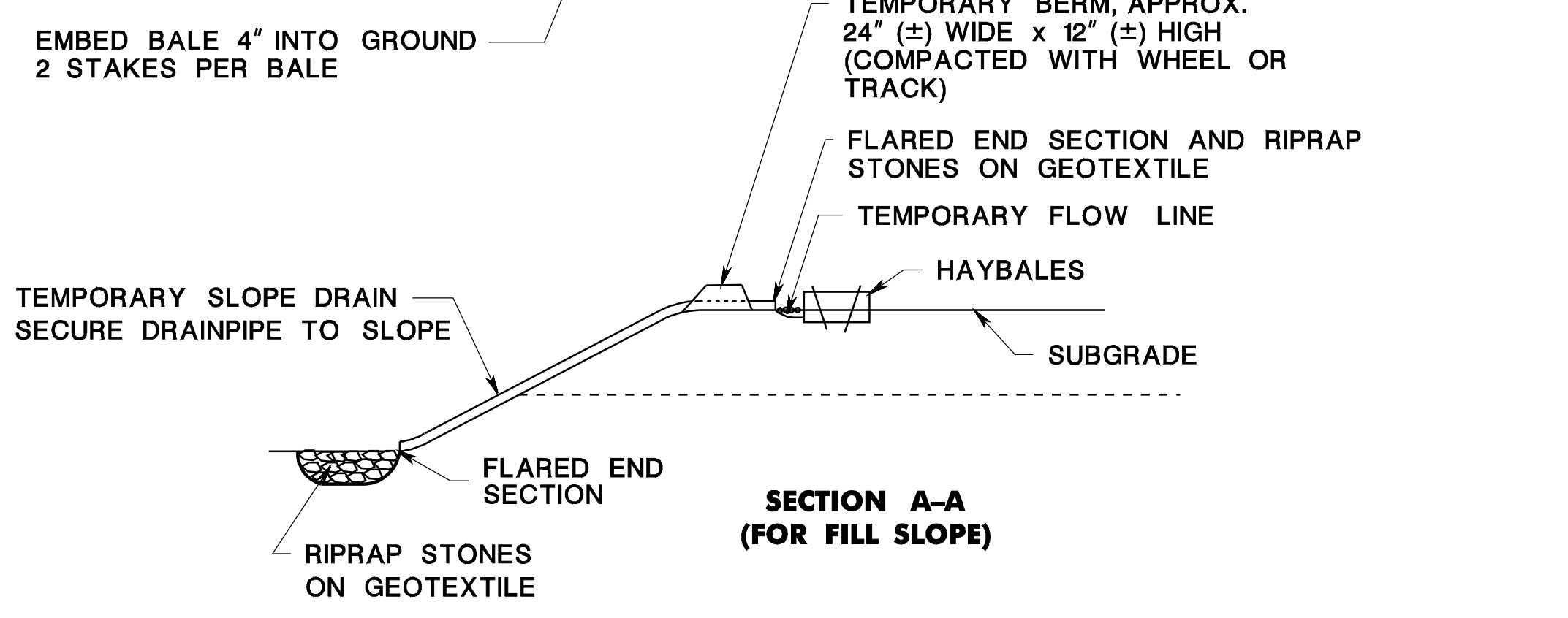
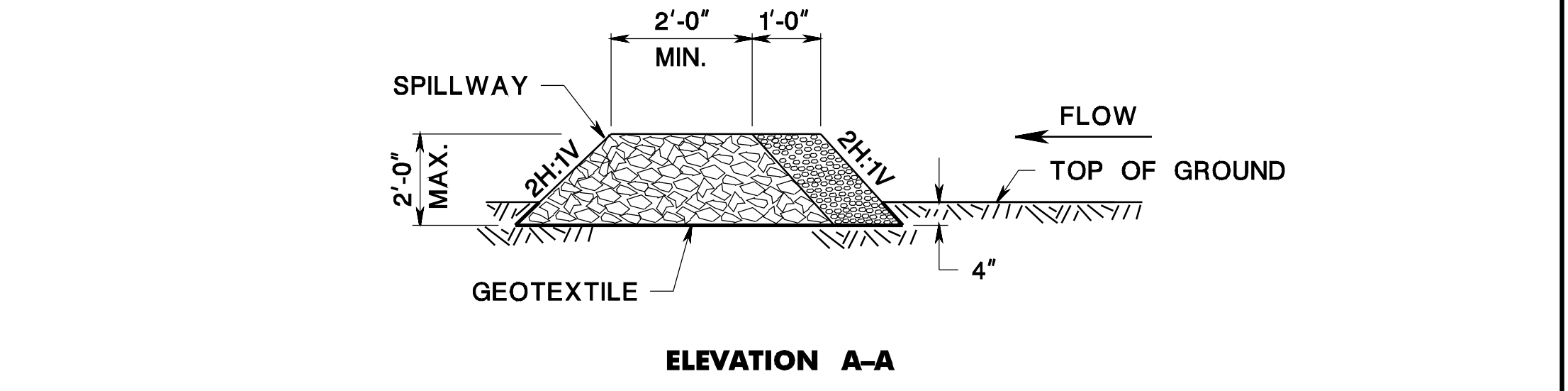
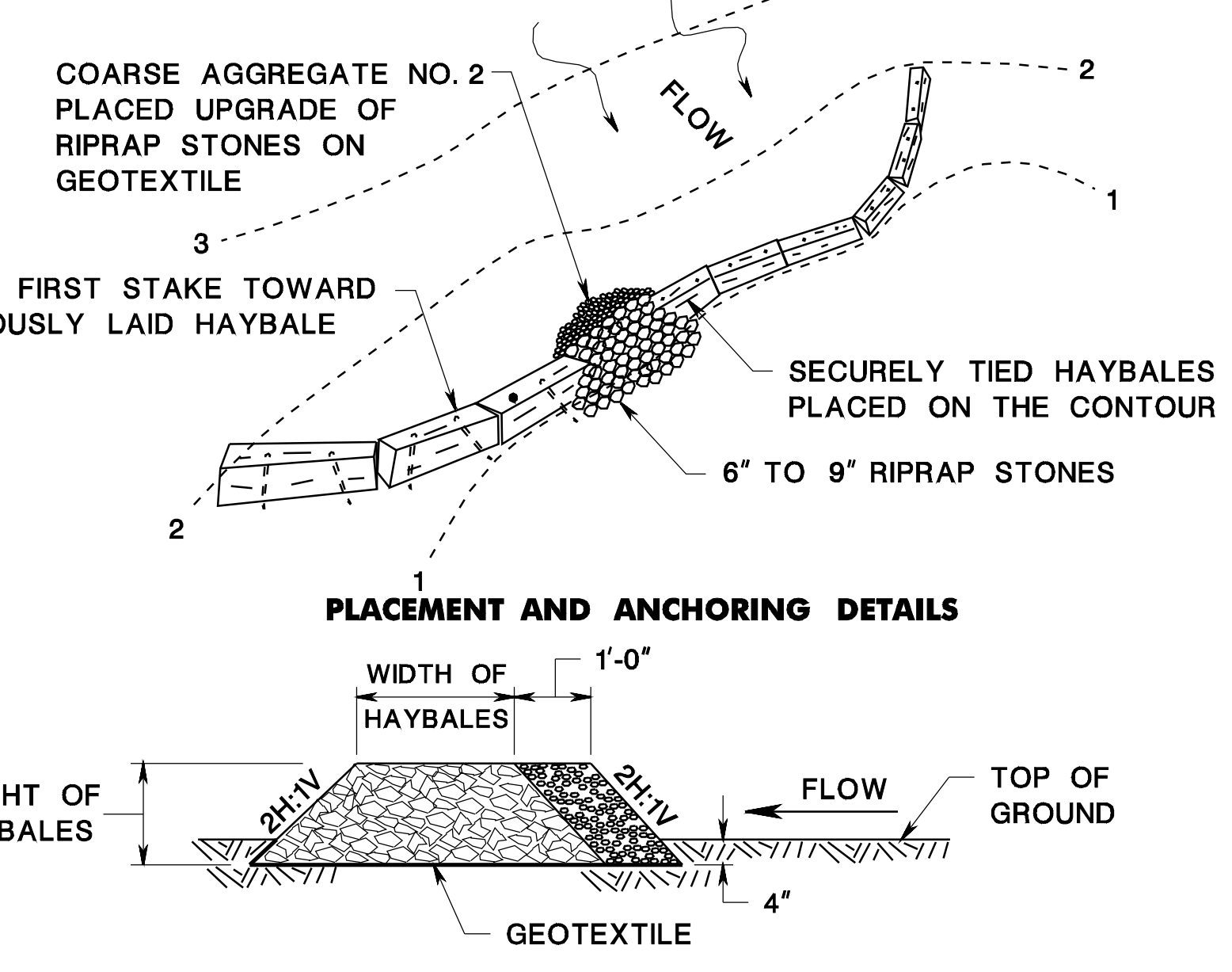
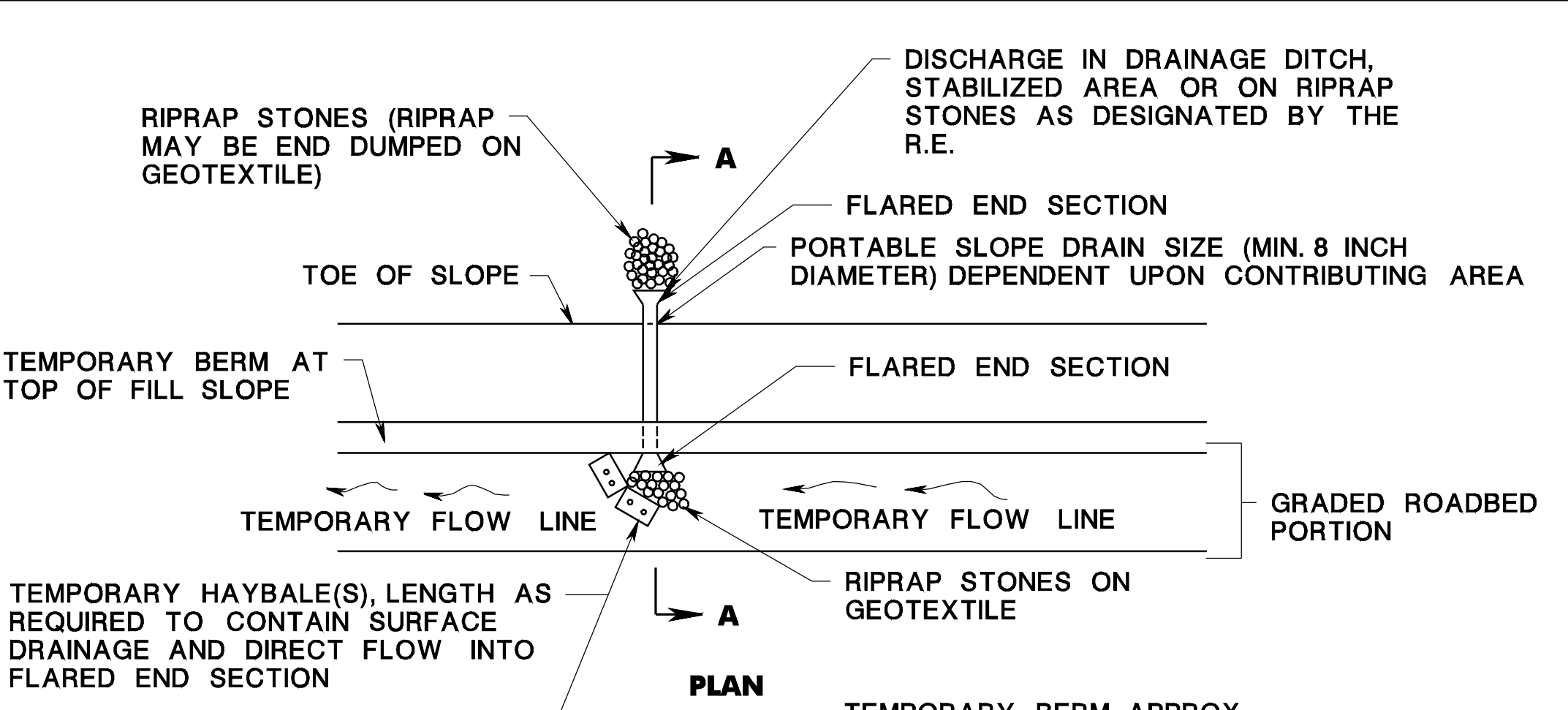
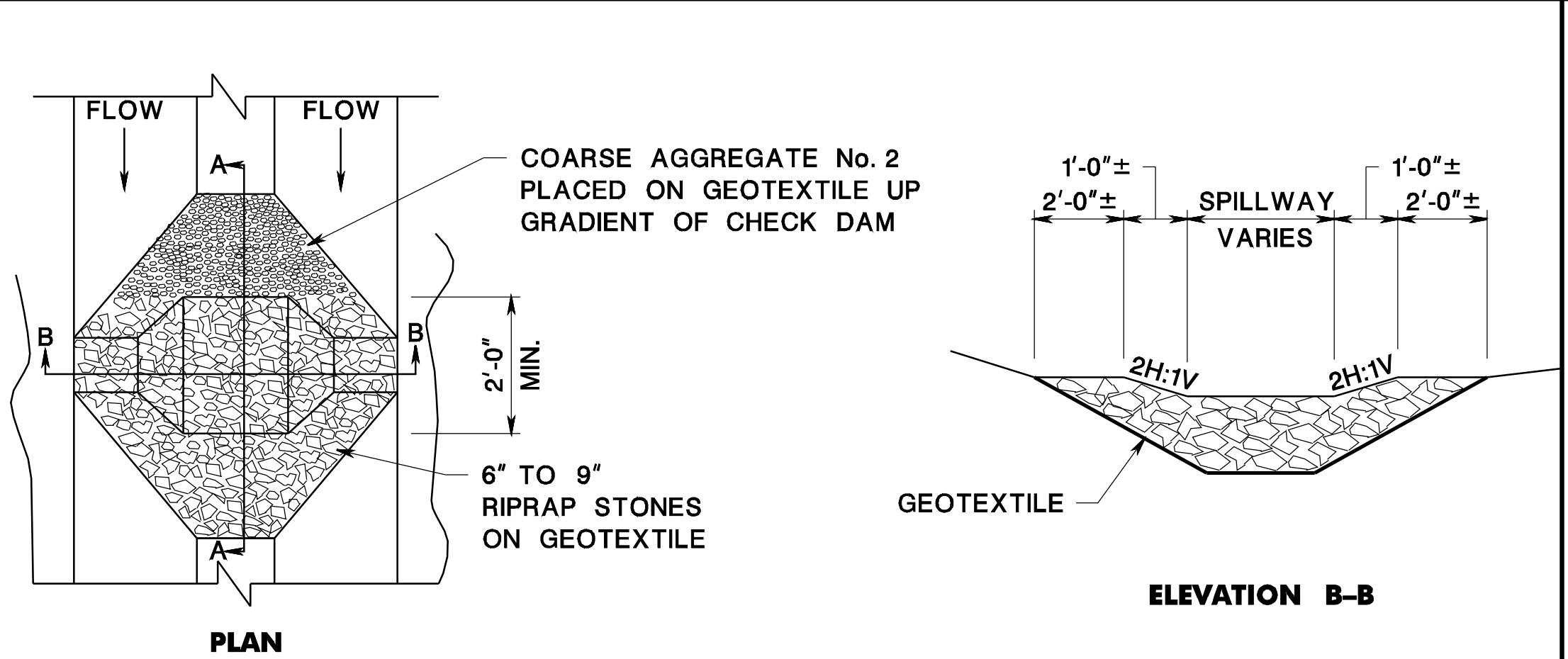
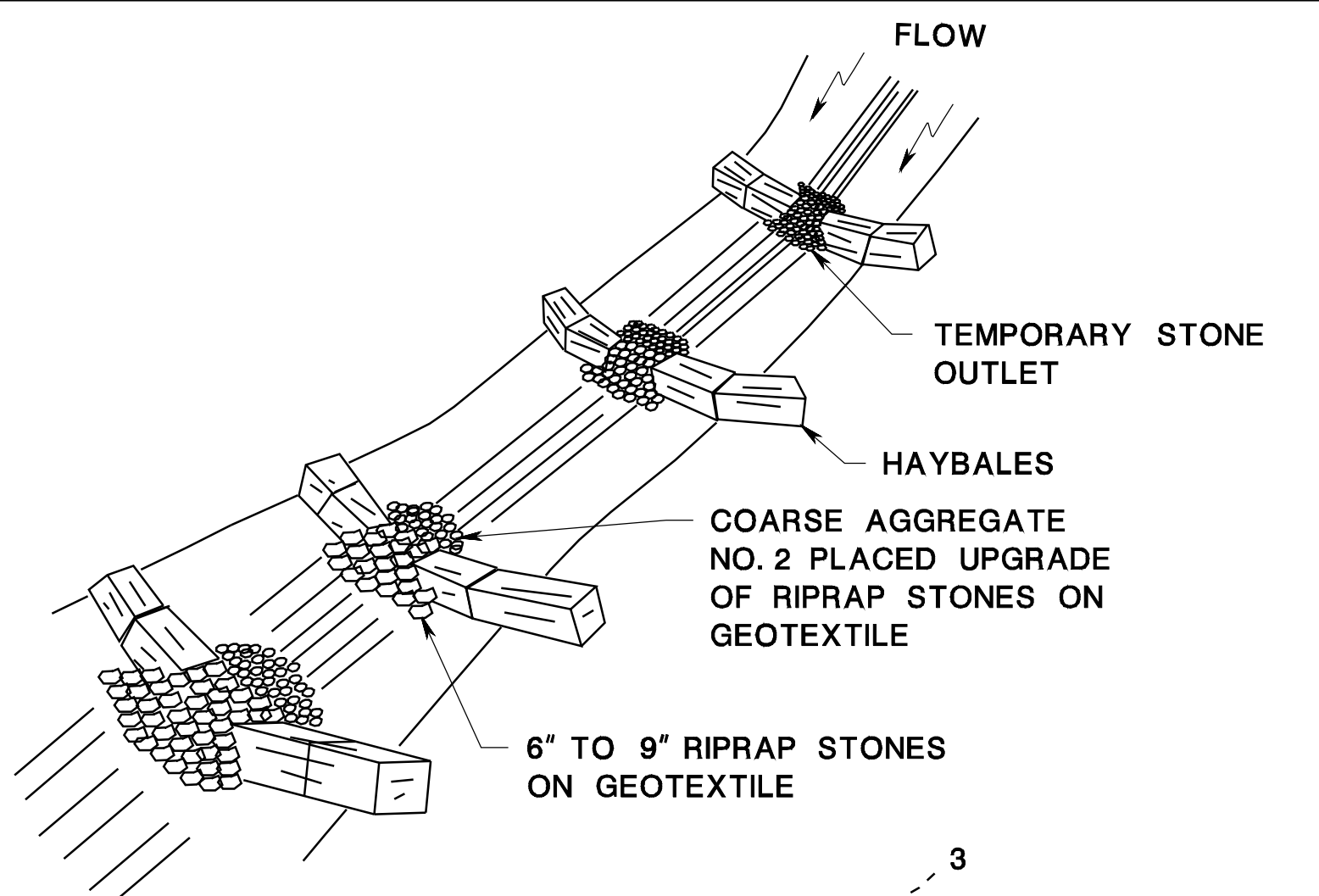
SOIL EROSION AND SEDIMENT CONTROL MEASURES

N.T.S.

CD-158-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



HAYBALE CHECK DAM WITH TEMPORARY STONE OUTLET

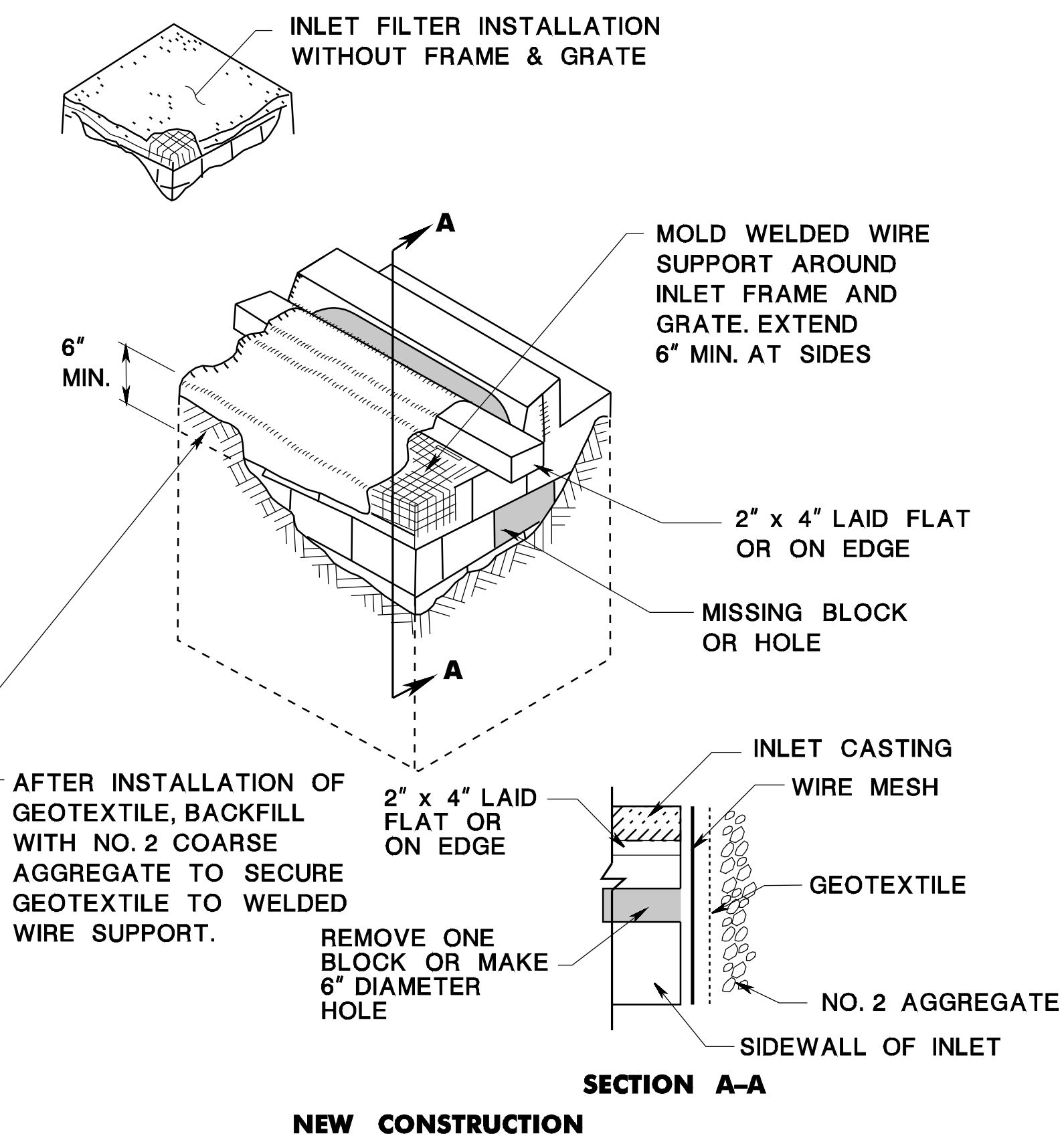
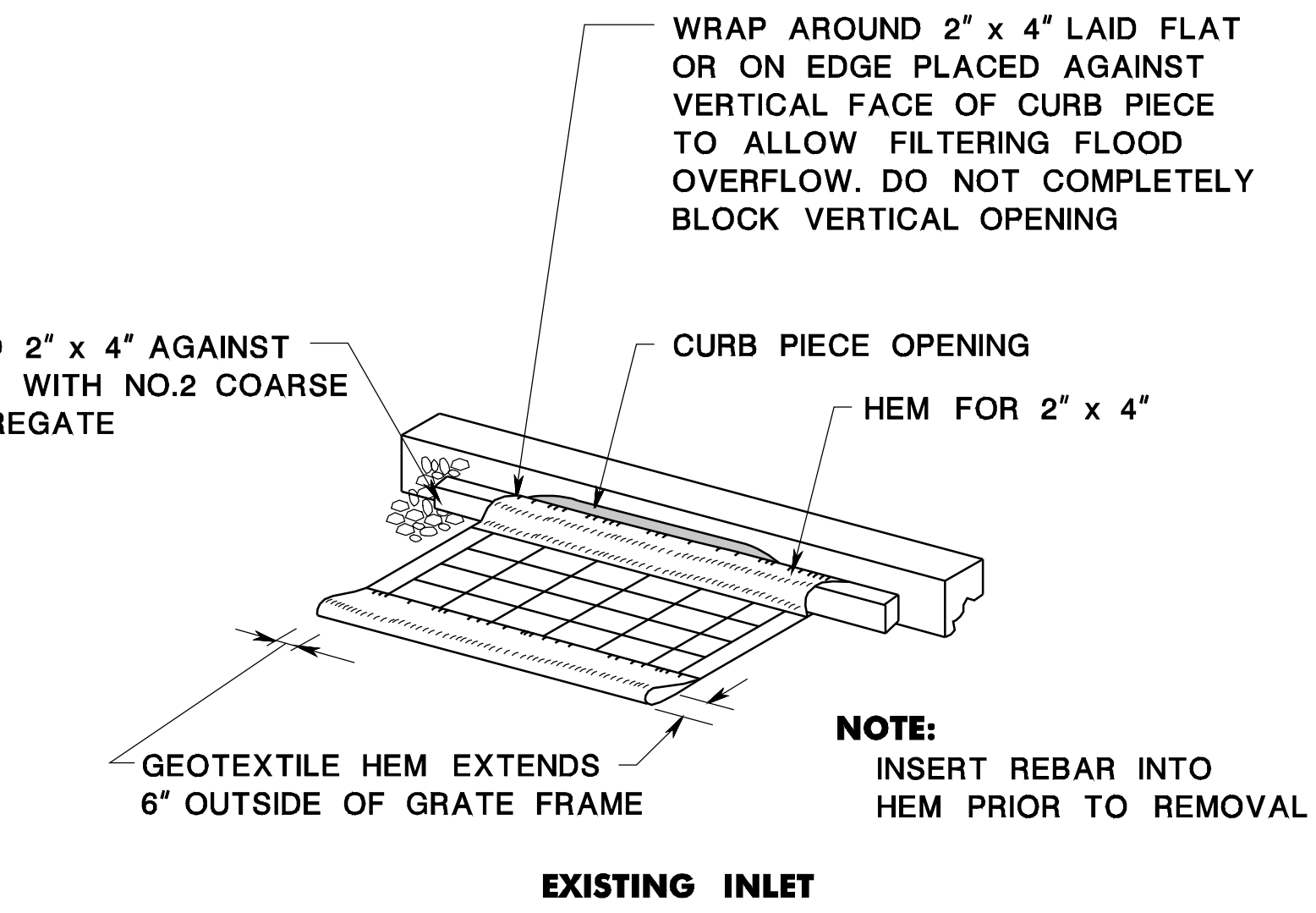
CD-158-2.1

STONE CHECK DAM

CD-158-2.2

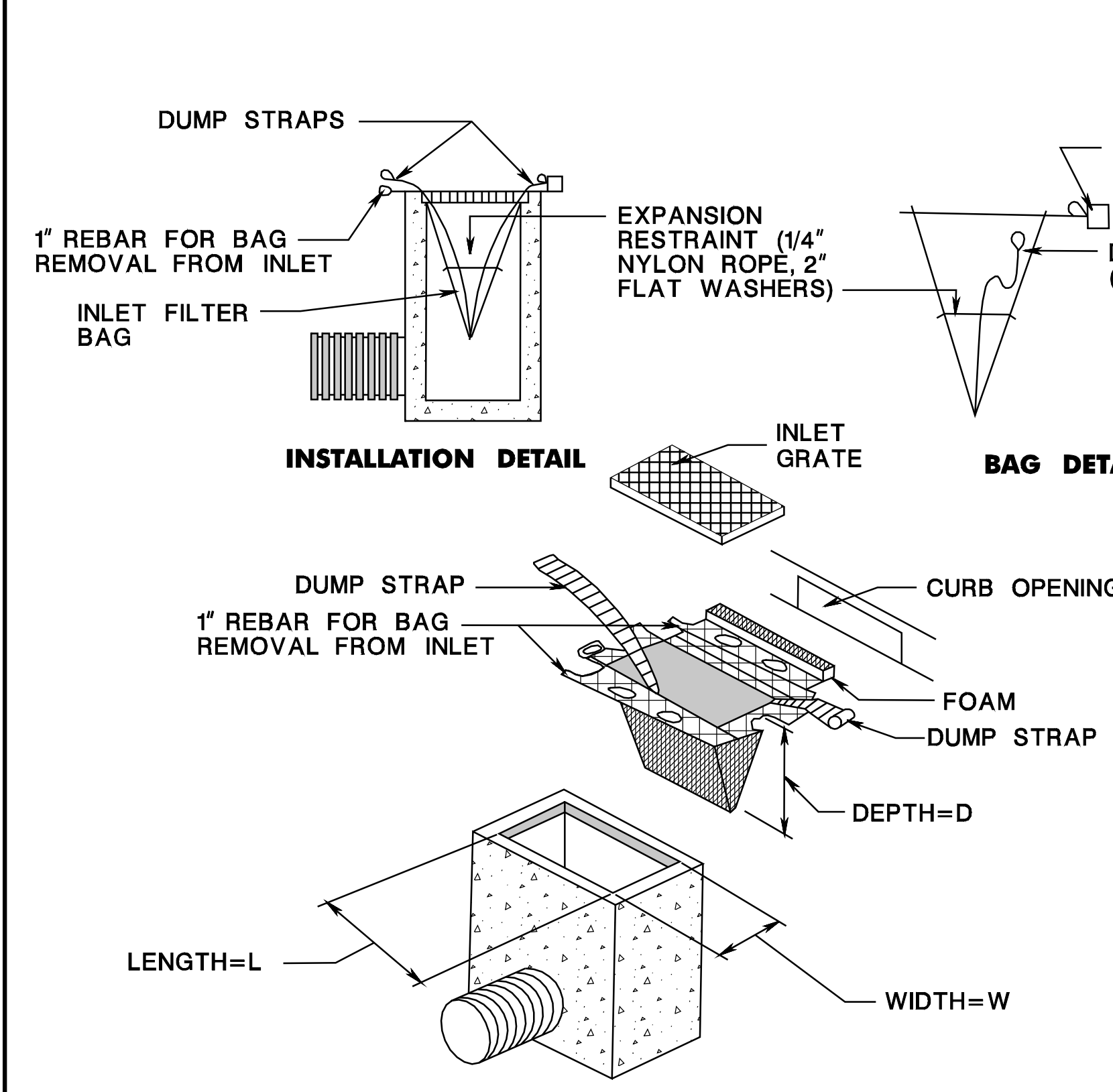
SLOPE DRAIN

CD-158-2.3



INLET FILTERS, TYPE 1

CD-158-2.4



INLET FILTERS, TYPE 2

CD-158-2.5

SOIL EROSION AND SEDIMENT CONTROL MEASURES

N.T.S.

CD-158-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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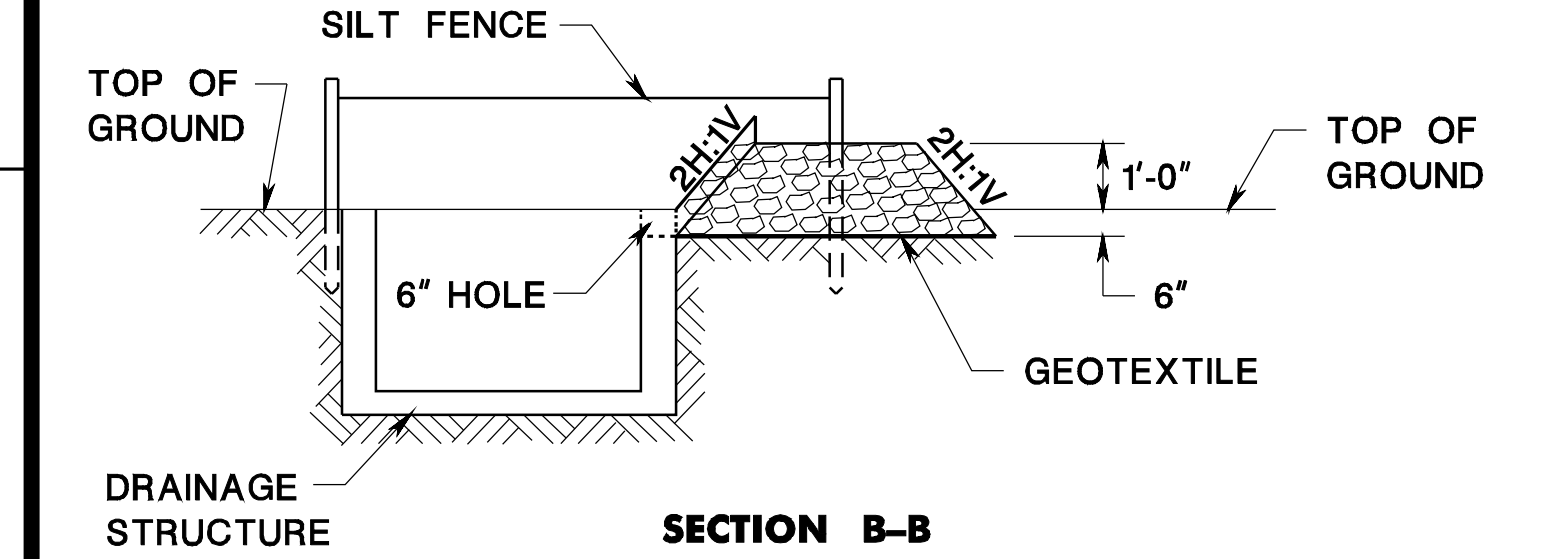
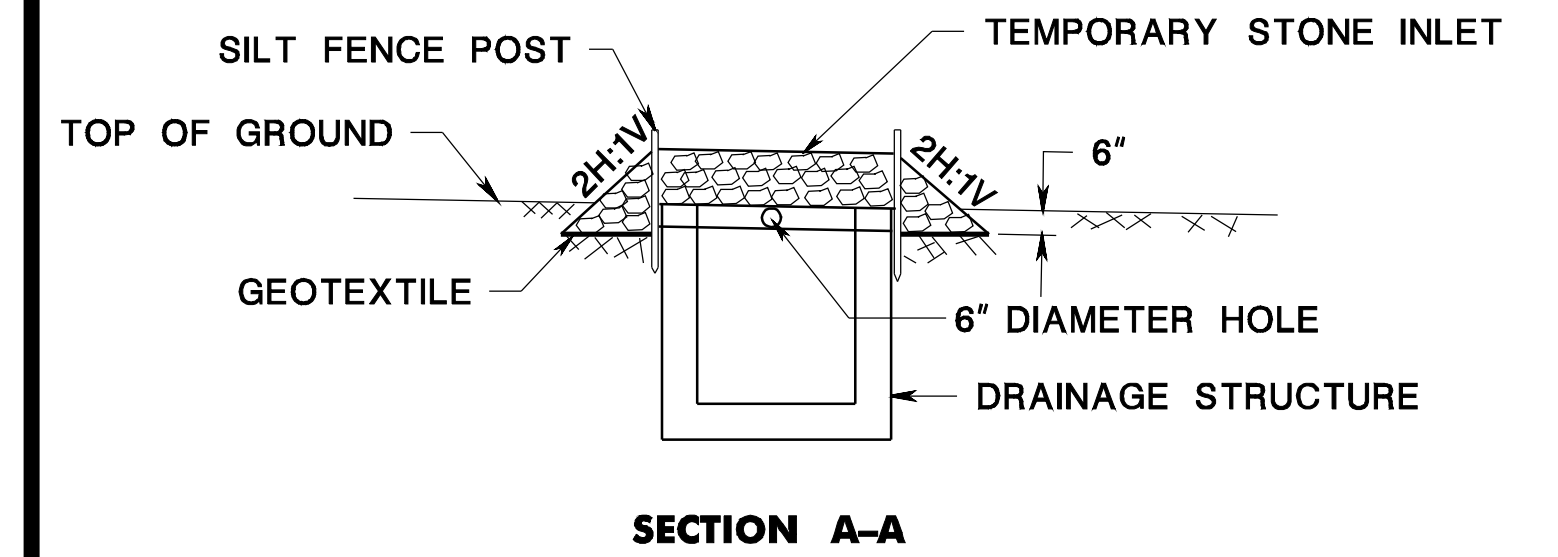
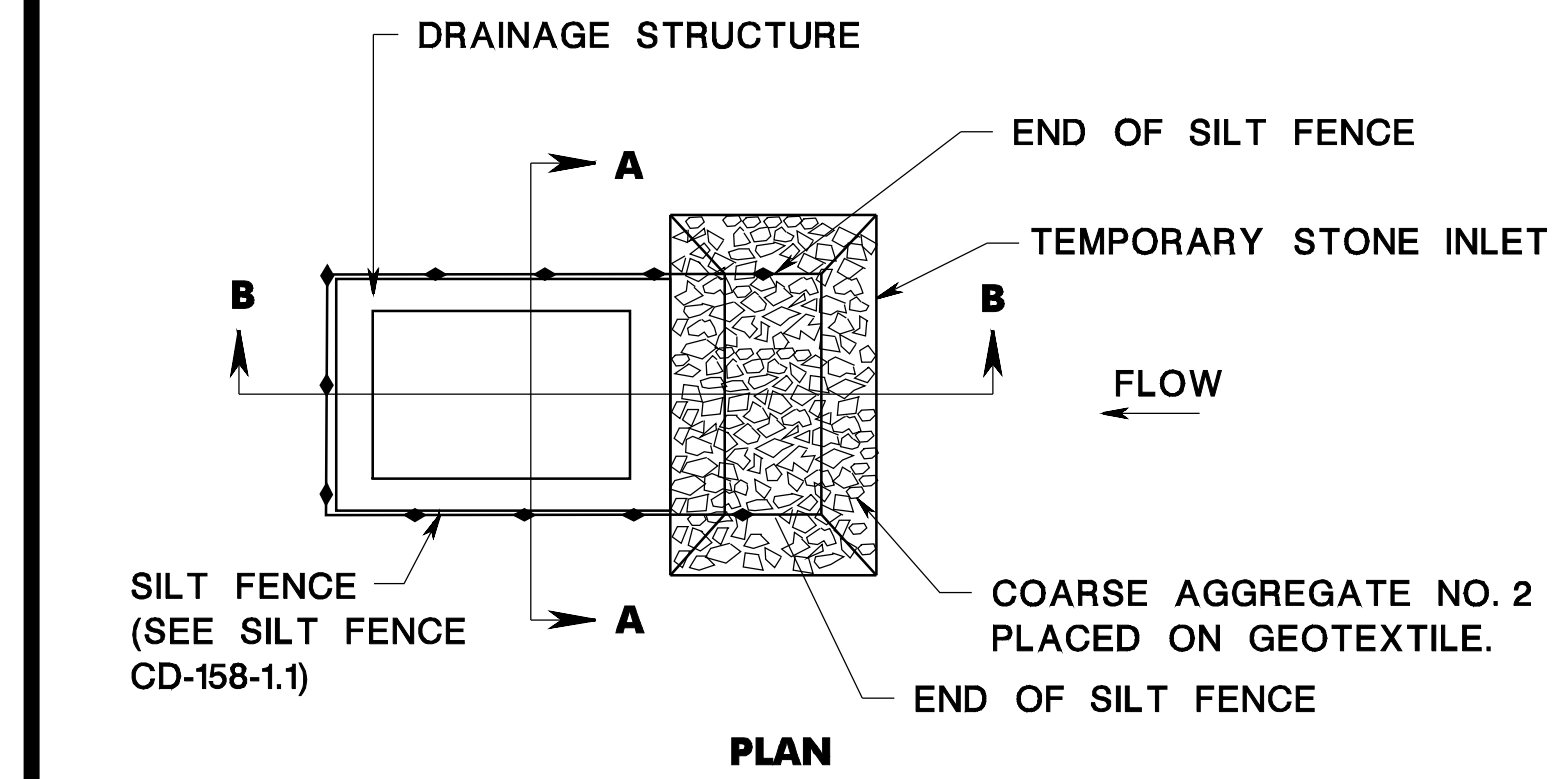
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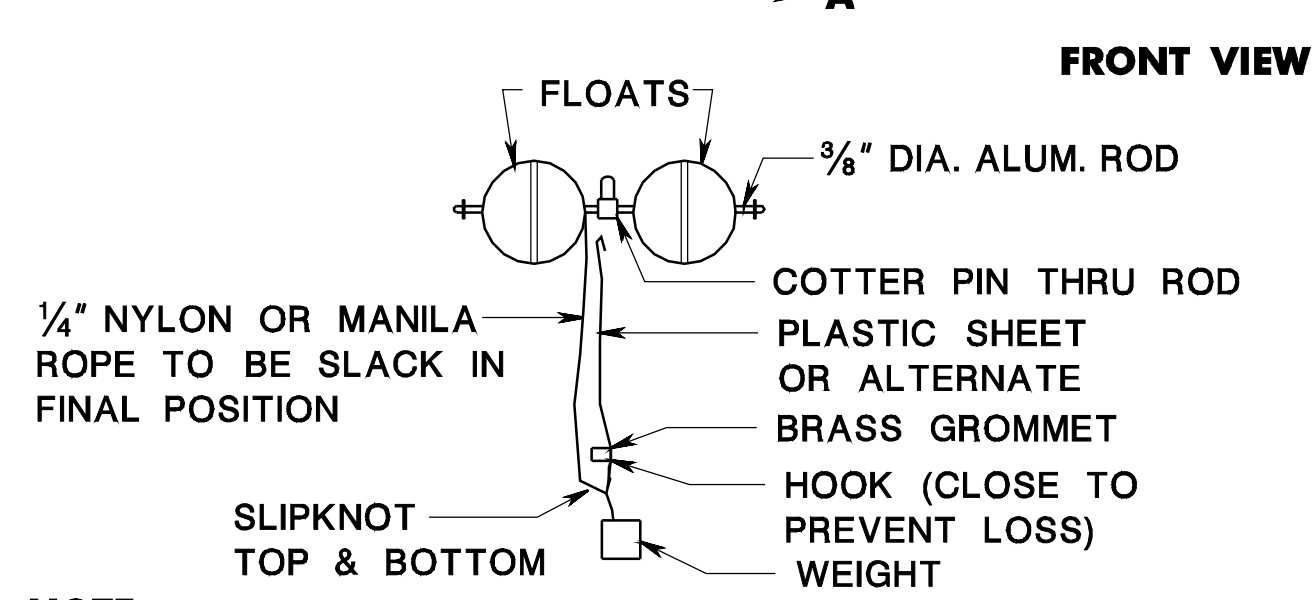
NOTE: REFER TO CD-158-2.4 SECTION A-A FOR TREATMENT OF 6" HOLE.

INLET SEDIMENT TRAP

CD-158-3.1

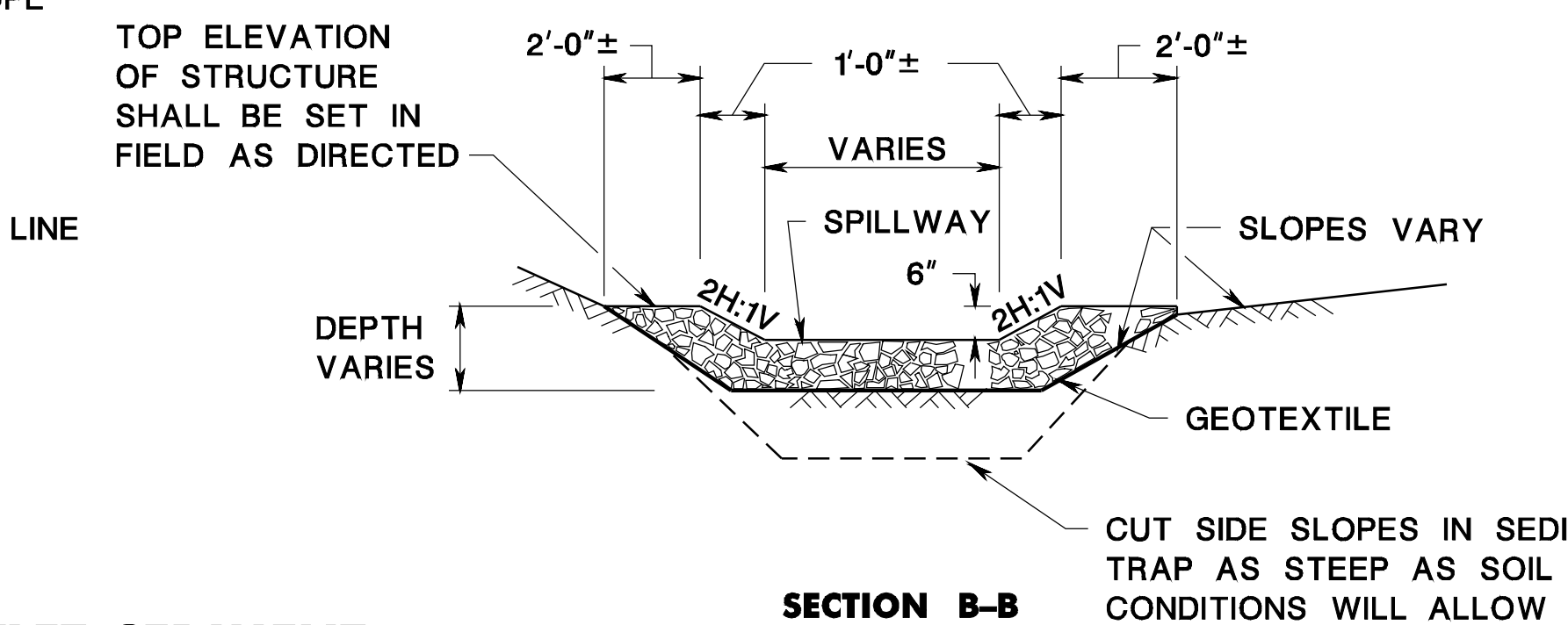
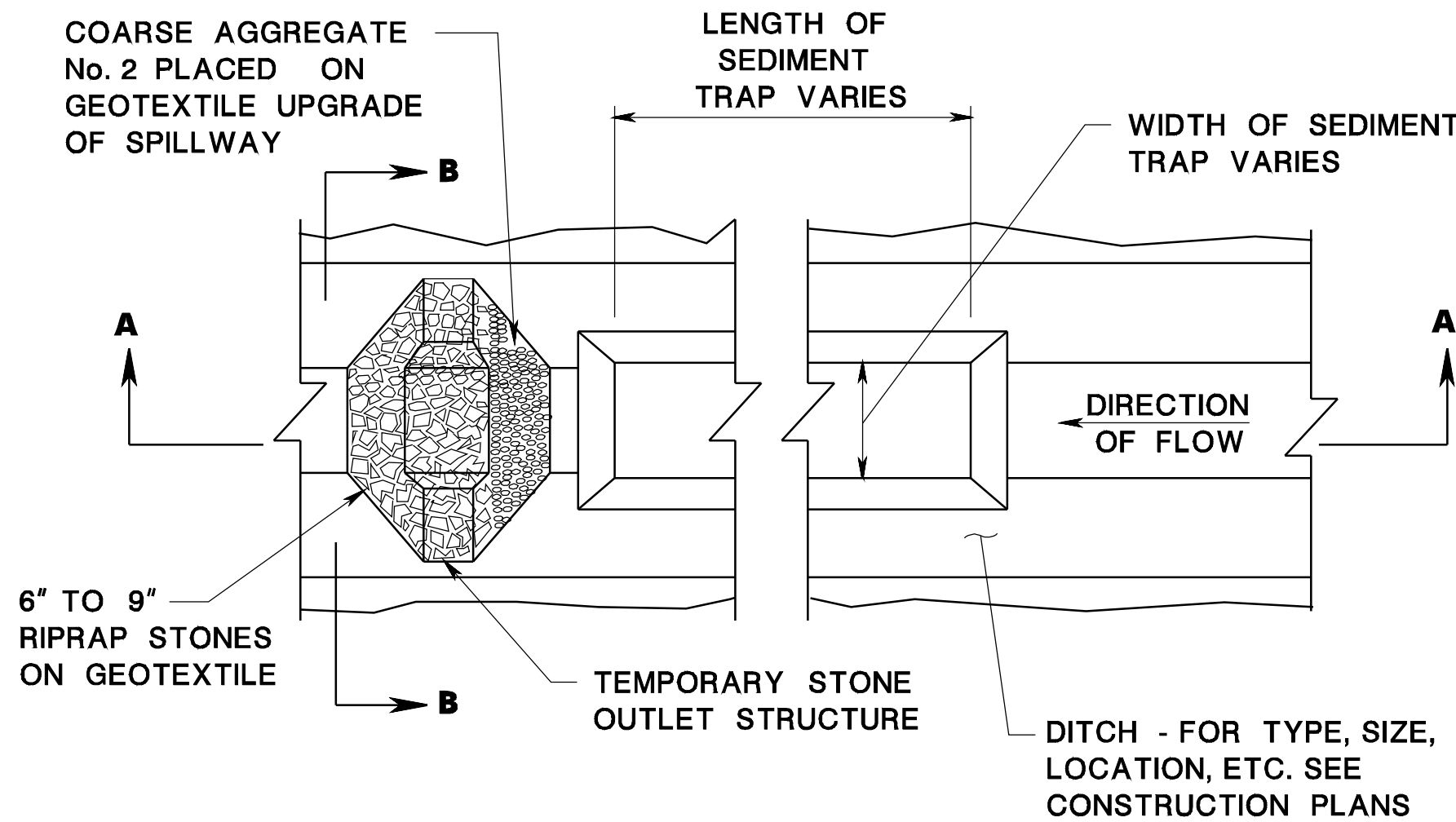
NOTE:

1/4" NYLON OR MANILA ROPE FORMS REINFORCEMENT; AIDS IN REMOVAL OR RELOCATION OF BARRIER BY SERVING AS A PICK-UP LINE FOR WEIGHTS. ROPES AND WEIGHTS ARE TO BE ATTACHED TO END FLOATS AND EVERY SECOND FLOAT BETWEEN END FLOATS.



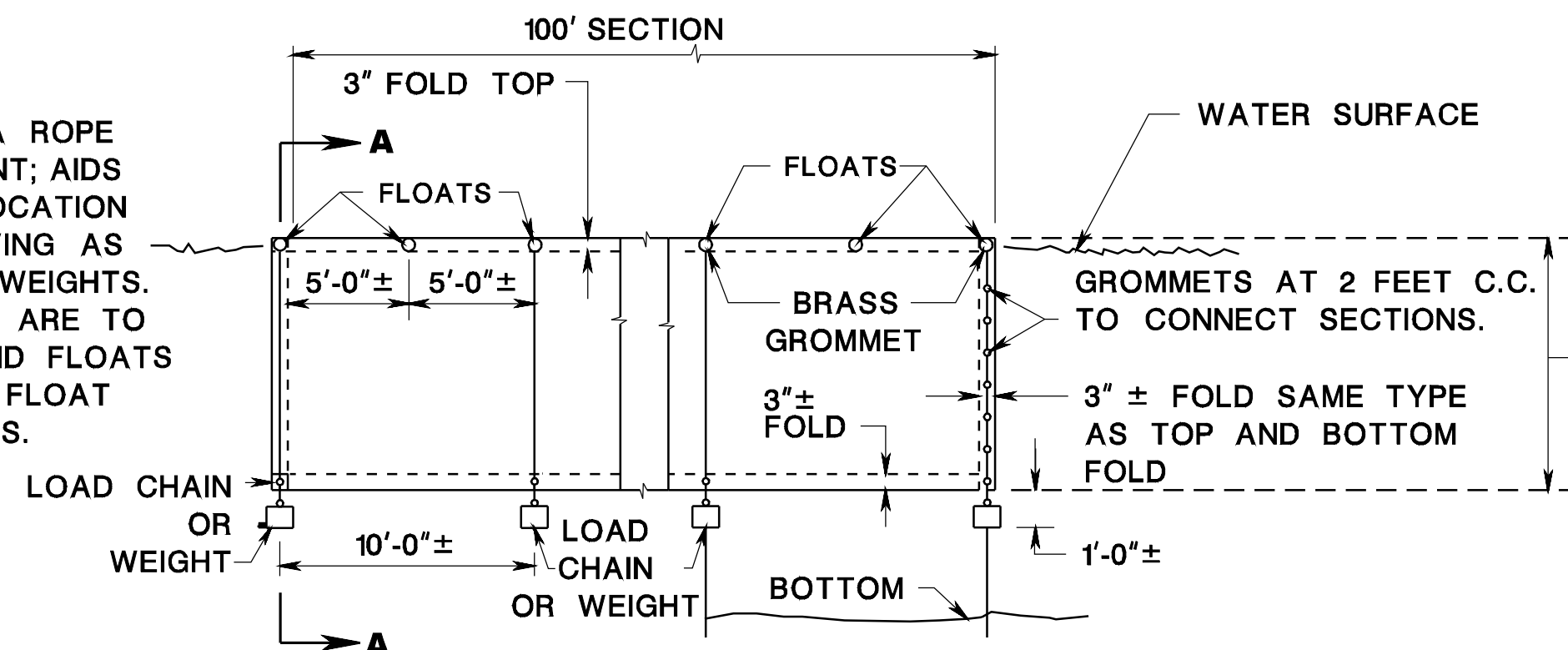
NOTE: SUITABLE ALTERNATE MAY BE FASTENED TO STAKES DRIVEN INTO THE BOTTOM IN LIEU OF FLOATS AND WEIGHTS

SECTION A-A

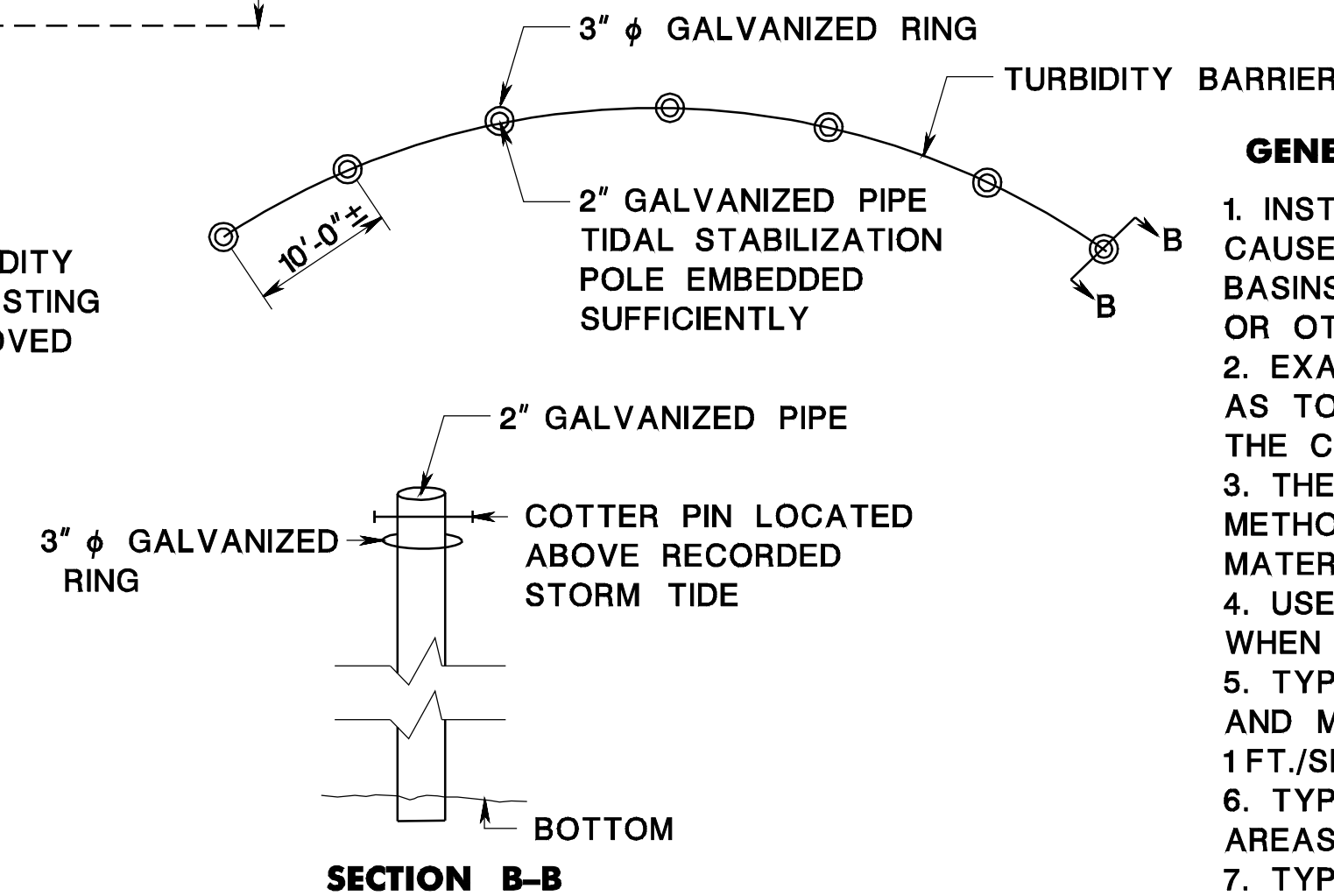
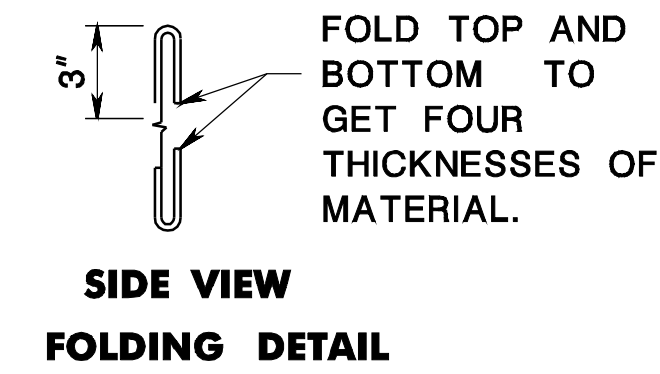


STONE OUTLET SEDIMENT TRAPS, ___' x ___'

CD-158-3.3



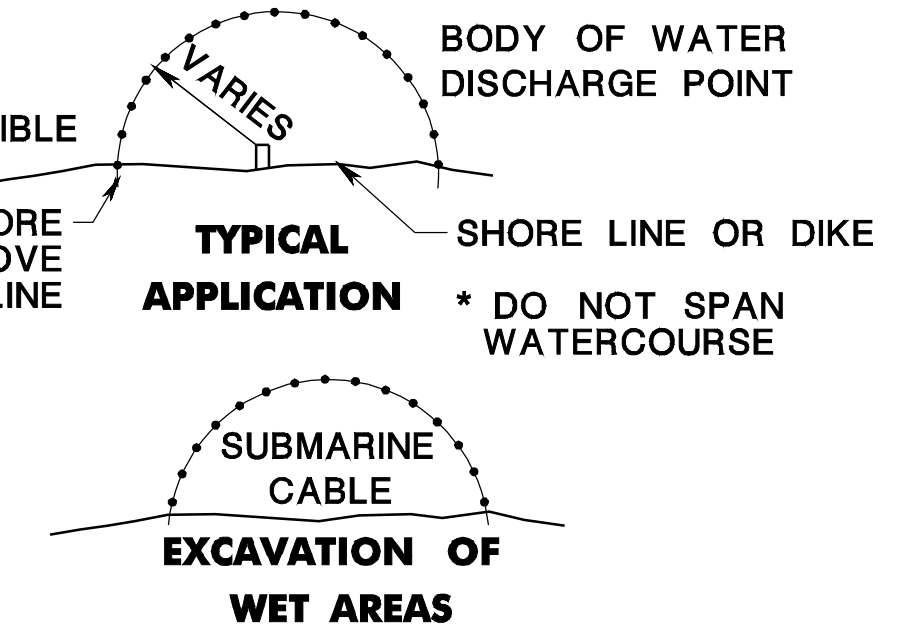
NOTE: TYPE 1, 2, OR 3 TURBIDITY BARRIER TO FIT EXISTING CONDITION AS APPROVED BY THE R.E..



FLOATING TURBIDITY BARRIER

NOTE:

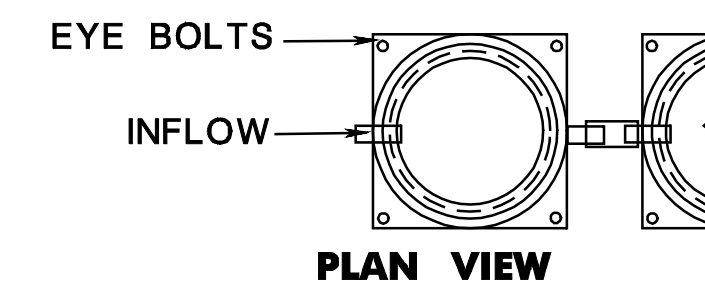
KEEP AS CLOSE TO SHORE AS POSSIBLE



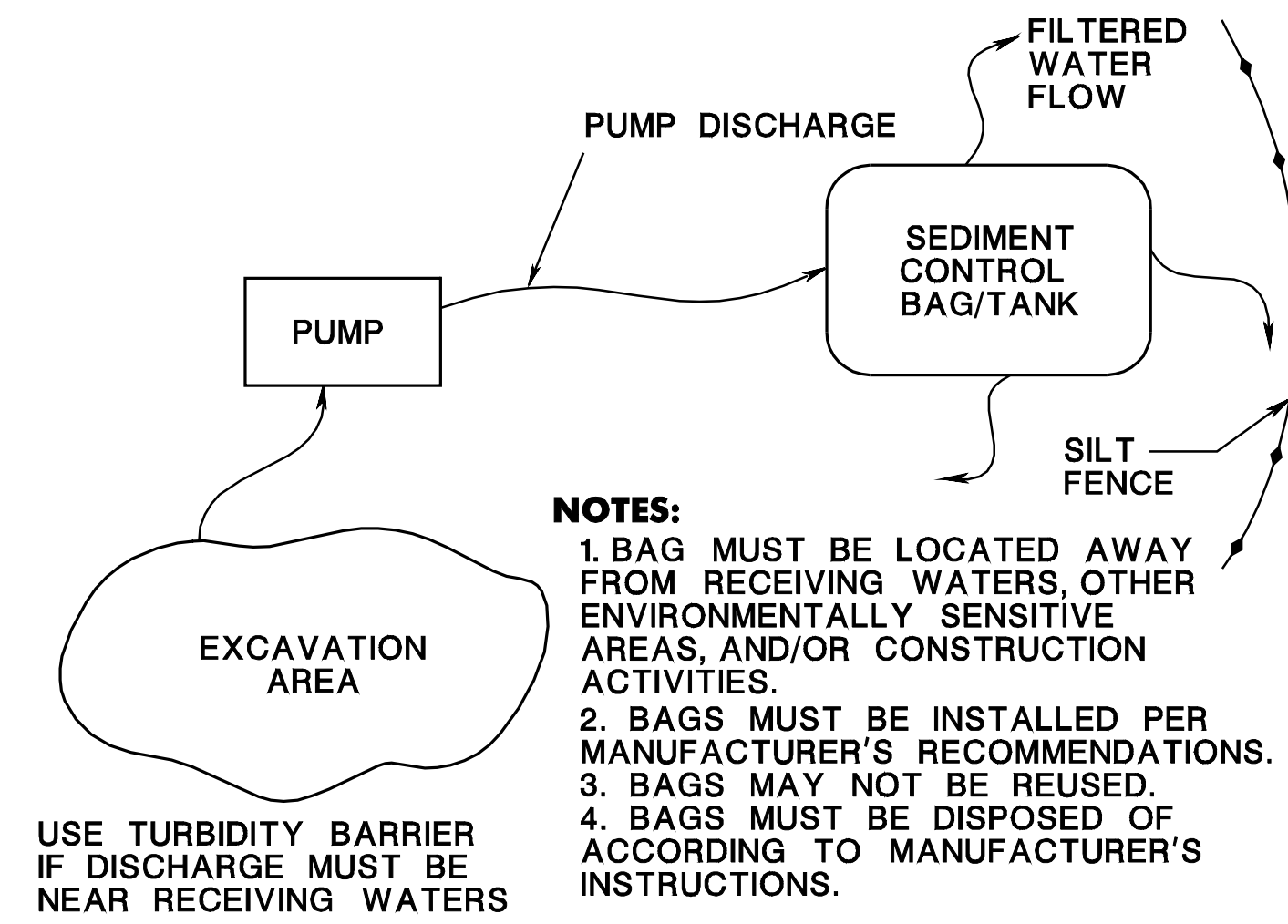
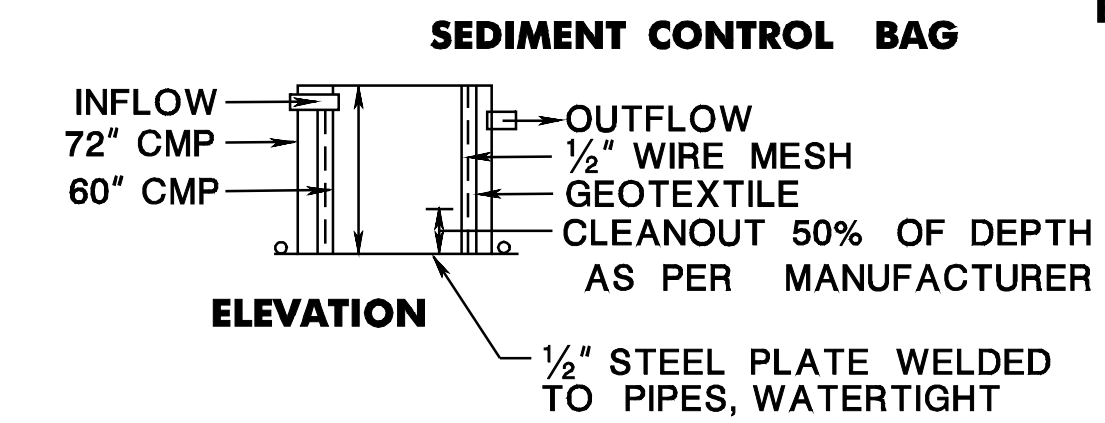
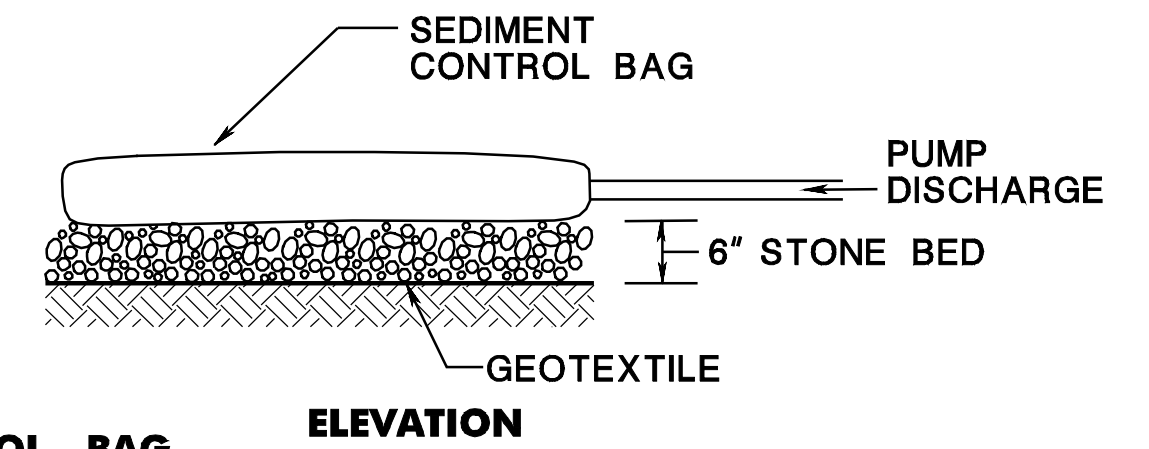
GENERAL NOTES:

1. INSTALL TURBIDITY BARRIER TO PREVENT DRIFTING OF SILT CAUSED BY DISCHARGE OF STORM SEWERS, DEWATERING BASINS, CONSTRUCTION, DREDGING OR FILLING OPERATIONS, OR OTHER ACTIVITIES THAT COULD CAUSE TURBIDITY.
2. EXACT PLACEMENT OF TURBIDITY BARRIER SHALL BE SO AS TO EFFECTIVELY CONTROL SILT DISPERSION UNDER THE CONDITIONS PRESENT ON A PARTICULAR PROJECT.
3. THE DETAILS SHOWN ON THIS SHEET ARE SUGGESTED METHODS ONLY. ALTERNATE SOLUTION AND USAGE OF MATERIALS MAY BE USED AS APPROVED.
4. USE APPROPRIATE NAVIGATIONAL WARNING LIGHTS WHEN USED NEXT TO NAVIGATIONAL CHANNEL.
5. TYPE 1 IS FOR PONDS, SHALLOW LAKES, SMALL STREAMS AND MARSHES WITH CURRENT VELOCITIES LESS THAN 1 FT./SEC AND SHELTERED FROM WINDS.
6. TYPE 2 IS FOR LAKES, STREAMS, INTERCOASTAL & TIDAL AREAS WITH CURRENT VELOCITIES UP TO 5 FT./SEC.
7. TYPE 3 IS FOR LAKES, STREAMS, INTERCOASTAL AND TIDAL AREAS WITH CONSIDERABLE CURRENT VELOCITIES UP TO 5 FT./SEC., TIDAL ACTION AND SUBJECT TO WIND AND WAVES.

CD-158-3.2



EXAMPLE OF PORTABLE SEDIMENT TANK



- NOTES:**
1. BAG MUST BE LOCATED AWAY FROM RECEIVING WATERS, OTHER ENVIRONMENTALLY SENSITIVE AREAS, AND/OR CONSTRUCTION ACTIVITIES.
 2. BAGS MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
 3. BAGS MAY NOT BE REUSED.
 4. BAGS MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

SEDIMENT CONTROL TANK OR BAG

CD-158-3.4

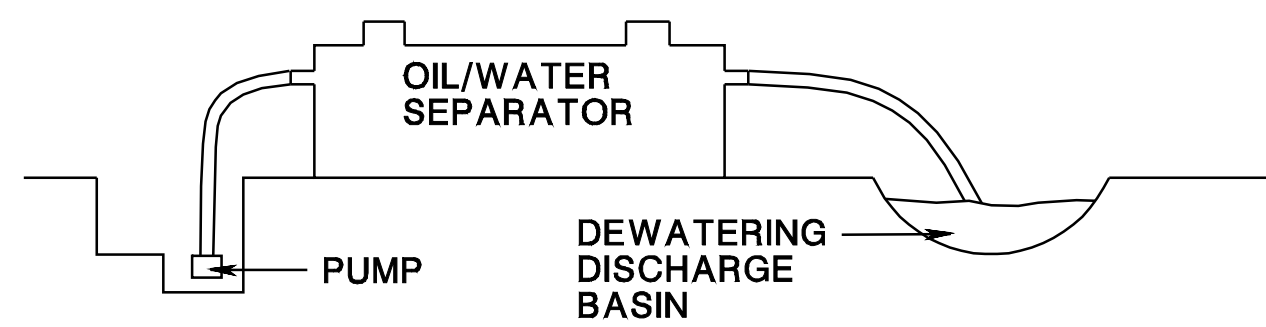
SOIL EROSION AND SEDIMENT CONTROL MEASURES

N.T.S.

CD-158-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

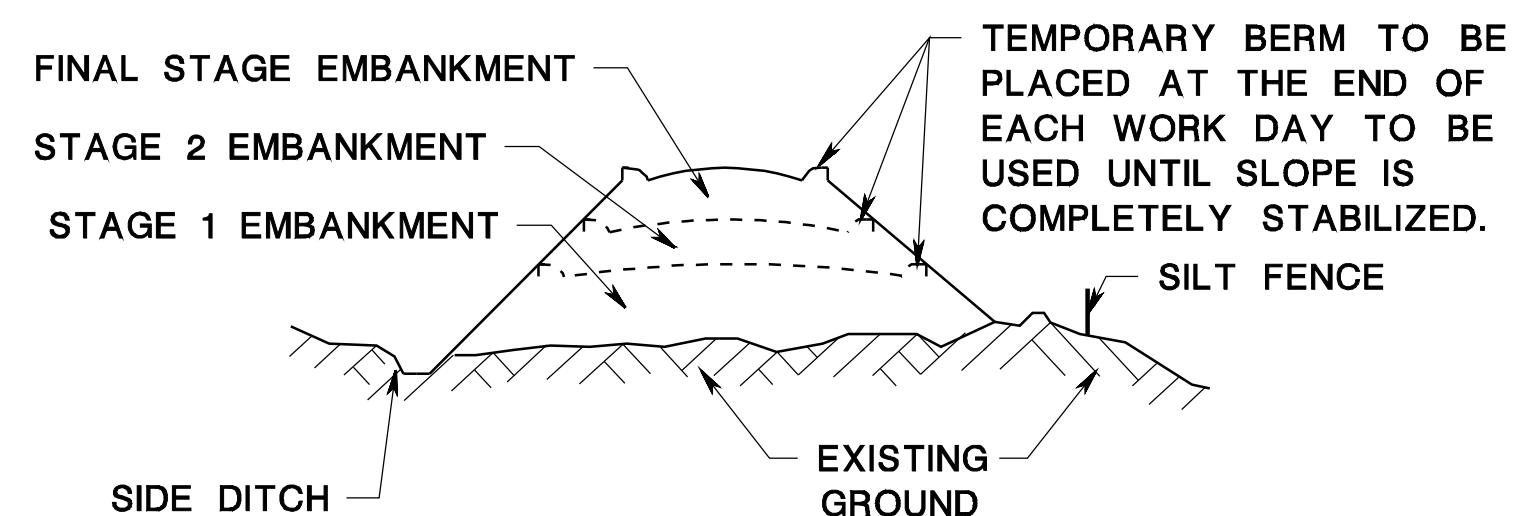


NOTES:

1. THE OIL/WATER SEPARATOR SHALL MEET THE UNDERWRITERS LABORATORY UL-58 STANDARD FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS.
2. THE OIL/WATER SEPARATOR SHALL BE CAPABLE OF ACHIEVING A DISCHARGE QUALITY OF 30 PARTS PER MILLION OF PETROLEUM HYDROCARBONS OR LESS.

USE OF AN OIL/WATER SEPARATOR DURING DEWATERING

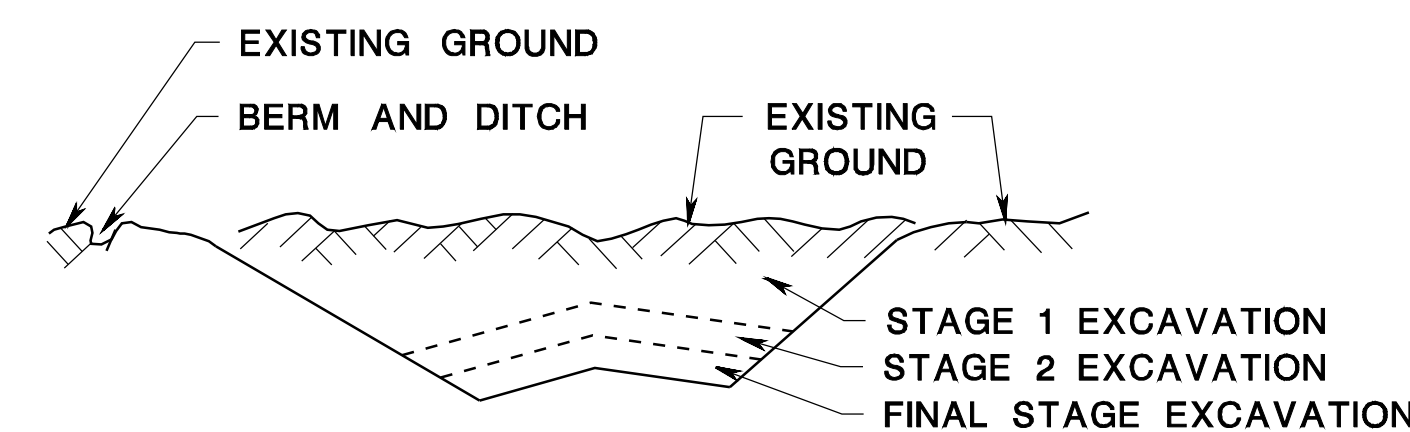
CD-158-4.1



PHASING PLAN-FILL SECTION

CONSTRUCTION SEQUENCE:

1. EXCAVATE AND STABILIZE SIDE DITCHES AND/OR INSTALL PROPOSED CONTROLS AT THE TOE OF SLOPE.
2. PLACE STAGE 1 EMBANKMENT. PLACE TEMPORARY SEEDING AND MULCH, OR TOPSOIL AND PERMANENTLY SEED AND MULCH SLOPE AT THIS STAGE.
3. PLACE STAGE 2 EMBANKMENT. PLACE TEMPORARY SEEDING AND MULCH OR TOPSOIL AND PERMANENTLY SEED AND MULCH SLOPE AT THIS STAGE.
4. PLACE FINAL STAGE EMBANKMENT. PLACE TOPSOIL, PERMANENT SEED AND MULCH ON THE SLOPE AT THIS STAGE AND ON THE ENTIRE SLOPE IF NOT PREVIOUSLY DONE.



PHASING PLAN-CUT SECTION

CONSTRUCTION SEQUENCE:

1. EXCAVATE AND STABILIZE BERM, SIDE AND OUTLET DITCHES.
2. PERFORM STAGE 1 EXCAVATION. TOPSOIL, PERMANENTLY SEED, AND MULCH SLOPE AT THIS STAGE.
3. PERFORM STAGE 2 EXCAVATION. TOPSOIL, PERMANENTLY SEED, AND MULCH SLOPE AT THIS STAGE.
4. PERFORM FINAL STAGE EXCAVATION. TOPSOIL, PERMANENTLY SEED, AND MULCH SLOPE AT THIS STAGE. REPAIR ANY DAMAGE DONE TO PREVIOUS STAGES.

EMBANKMENT

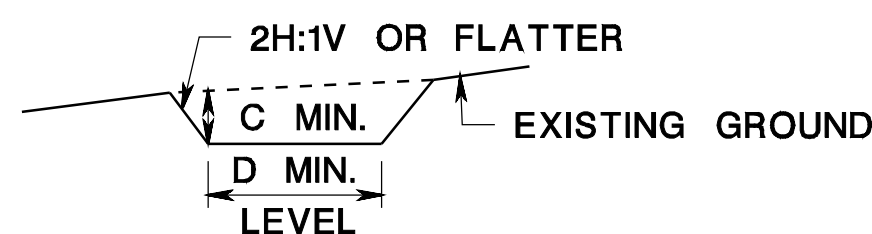
BEFORE BEGINNING ANY EARTHWORK, EXCAVATE AND STABILIZE SIDE DITCHES AND INSTALL PERIMETER CONTROLS (SILT FENCE, ETC.). SLOPES GREATER THAN 25 FEET IN HEIGHT SHALL BE EXCAVATED AND STABILIZED IN STAGES OF EQUAL INCREMENTS NOT TO EXCEED 15 FEET.

AT THE END OF EACH WORK DAY TEMPORARY BERMS (EARTH) AND SLOPE DRAINS SHALL BE CONSTRUCTED ALONG THE TOP EDGE(S) OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF.

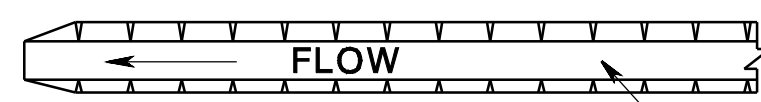
ROADWAY GRADING

CD-158-4.2

	DITCH A (5 AC OR LESS)	DITCH B (5 - 10 AC)
DITCH DEPTH (C)	1'-0"	1'-0"
DITCH WIDTH (D)	4'-0"	6'-0"

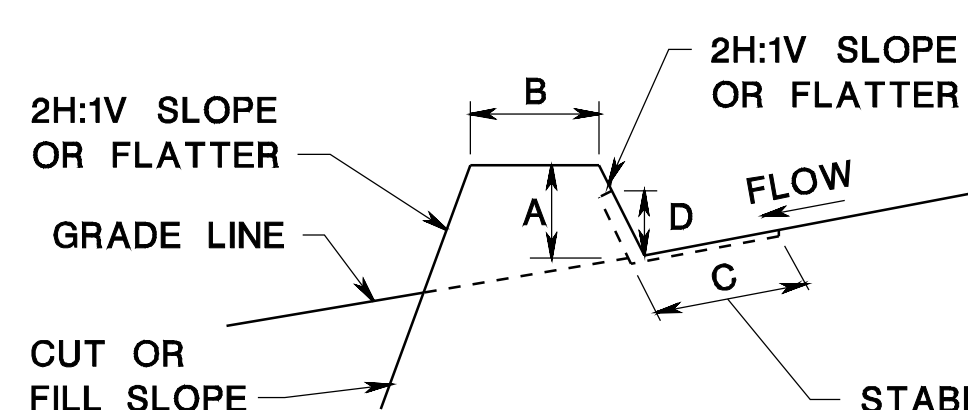


DITCH CROSS SECTION



DITCH PLAN VIEW

0.5% OR STEEPER (DEPENDENT ON TOPOGRAPHY)



BERM CROSS SECTION

STABILIZATION AS REQUIRED ON STEEP SLOPES EXCAVATE TO PROVIDE REQUIRED FLOW WIDTH AT FLOW DEPTH.

NOTE:

FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED OUTLET.

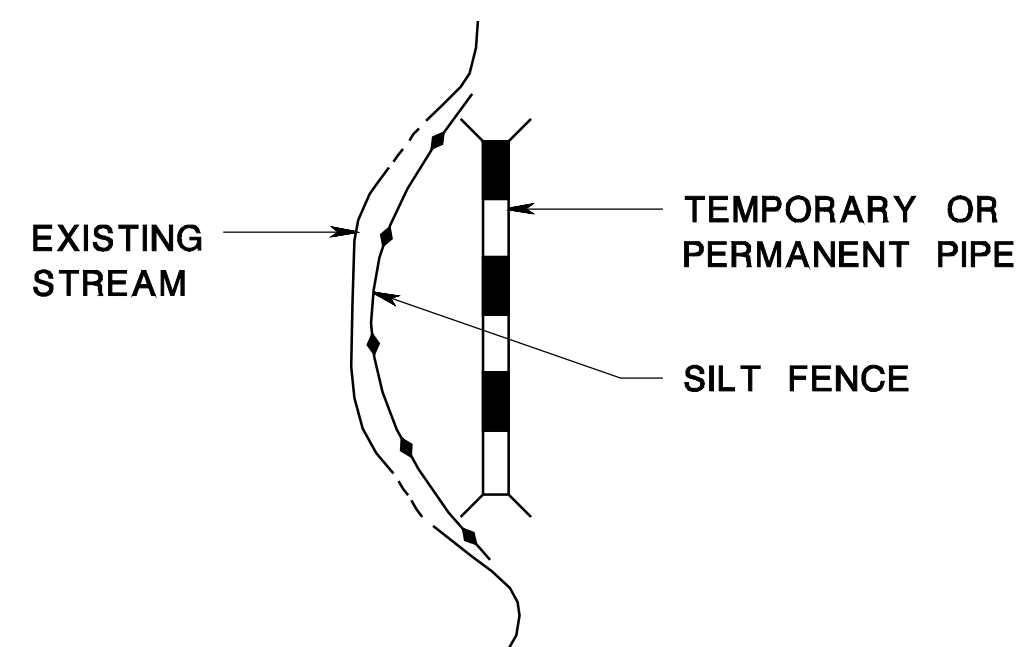
	BERM A (5 AC OR LESS)	BERM B (5 - 10 AC)
BERM HEIGHT (A)	18"	36"
BERM WIDTH (B)	24"	36"
FLOW WIDTH (C)	48"	72"
FLOW HEIGHT (D)	8"	15"

STABILIZATION FOR DITCH OR BERM

TYPE OF TREATMENT	GRADE	A - (5 AC OR LESS)	B - (5 - 10 AC)
1	0.5 - 5.0%	SEED USED WITH TOPSOIL STABILIZATION MATTING	SEED USED WITH TOPSOIL STABILIZATION MATTING
2	5.1 - 8.0%	SEED USED WITH TOPSOIL STABILIZATION MATTING	LINED 6" - 9" RIPRAP
3	8.1 - 20.0%	LINED 6" - 9" RIPRAP	ENGINEERED DESIGN

TEMPORARY RUNOFF DIVERSION

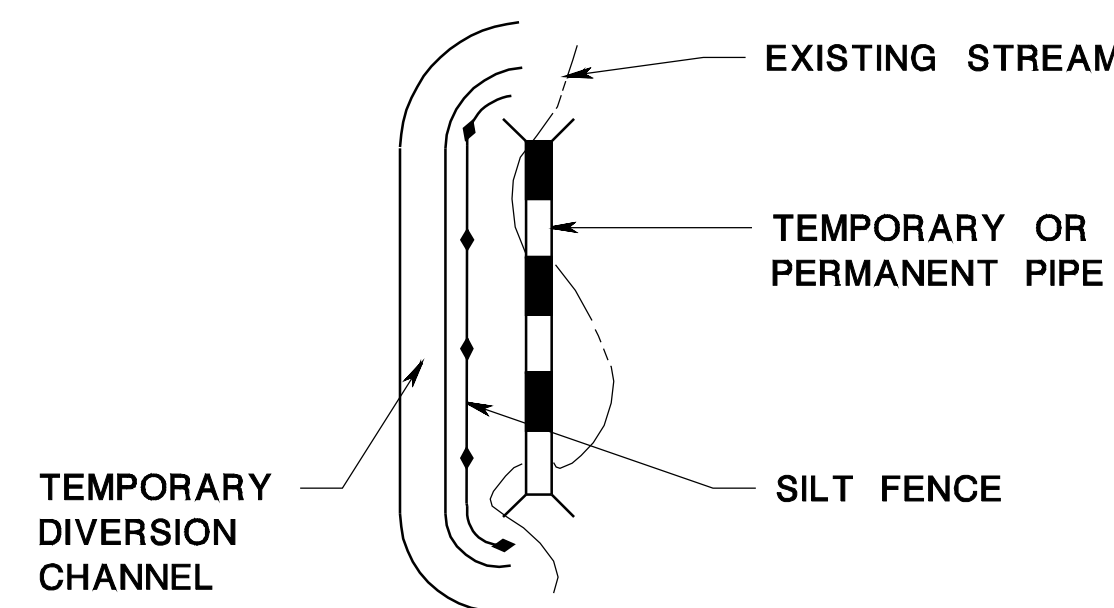
CD-158-4.3



METHOD A

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE ALONG EXISTING STREAM IN AREA OF PROPOSED PIPE CONSTRUCTION.
2. CONSTRUCT PIPE SYSTEM.
3. DIVERT STREAM FLOW INTO PIPE.
4. FOR TEMPORARY DIVERSIONS, RETURN FLOW TO EXISTING STREAM.
5. RESTORE TEMPORARY DIVERSION AREA TO ORIGINAL CONDITION.



METHOD B

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE ALONG EXISTING STREAM IN AREA OF TEMPORARY DIVERSION CHANNEL.
2. CONSTRUCT TEMPORARY DIVERSION CHANNEL AND LINE WITH GEOTEXTILE AND TEMPORARY RIPRAP.
3. DIVERT STREAM FLOW INTO TEMPORARY CHANNEL.
4. CONTINUE SEQUENCE FROM STEP 2, METHOD A.

STREAM DIVERSION

SOIL EROSION AND SEDIMENT CONTROL MEASURES

N.T.S.

CD-158-4

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

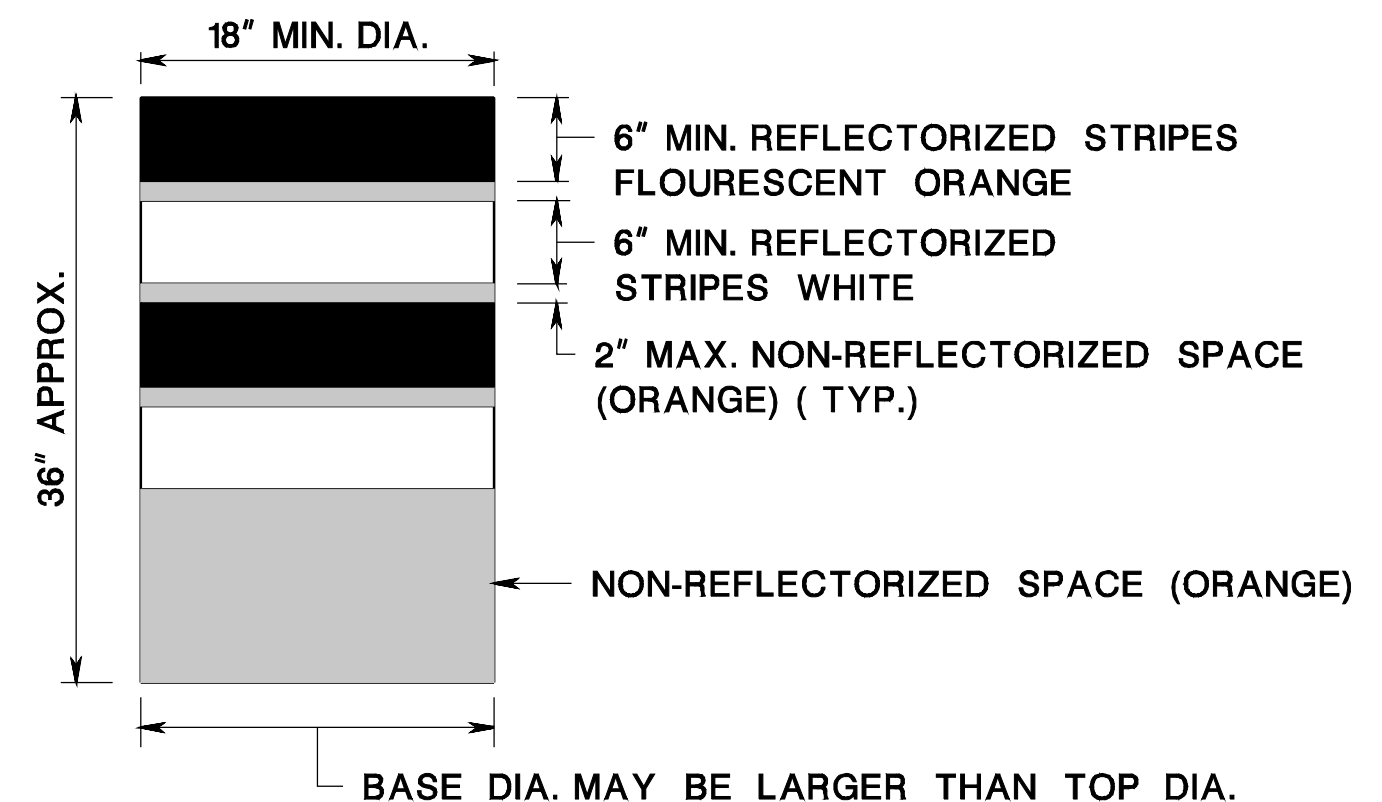
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BDC0703 ORIGINAL SHEET

DRUMS SHALL BE MADE OF ORANGE PLASTIC WITH A MINIMUM OF FOUR ALTERNATE FLUORESCENT ORANGE AND WHITE RETROREFLECTIVE STRIPES. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE STRIPES, THEY SHALL BE NO MORE THAN 2" WIDE. RETROREFLECTIVE SHEETING FOR STRIPES SHALL CONFORM WITH ASTM D 4956 TYPE VII OR VIII WITH S2 REQUIREMENTS.

THE TOP OF THE DRUM SHALL NOT BE OPEN. DRUMS SHALL BE CONSTRUCTED TO INHIBIT ROLLING IF KNOCKED OVER.

THE REFLECTORIZED AREA OF DRUMS SHALL BE ROUND EXCEPT THAT OTHER SHAPES, WHICH PROVIDE THE SAME VISIBILITY AS AN 18 INCH DIAMETER ROUND DRUM REGARDLESS OF ORIENTATION, MAY BE USED.



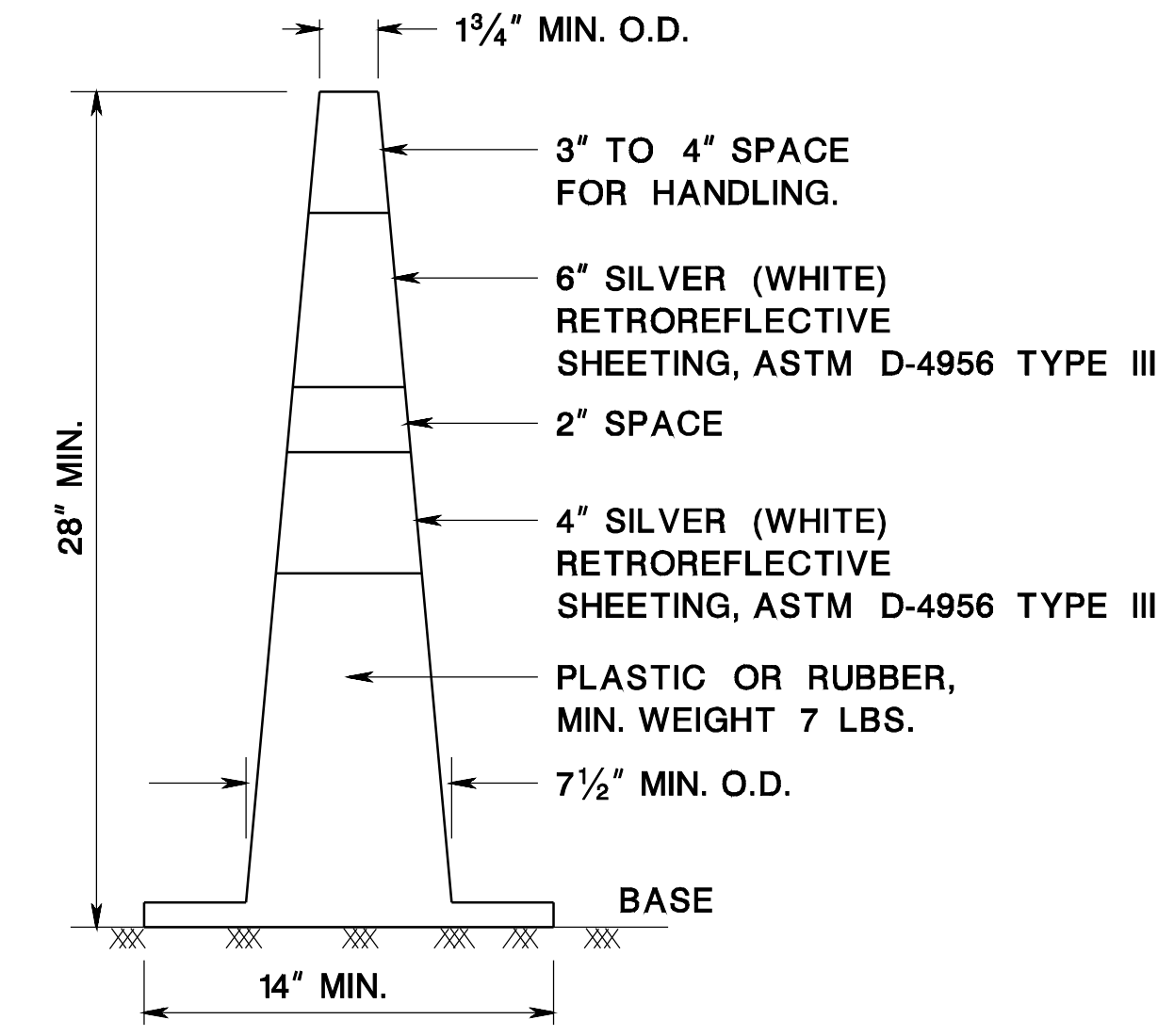
WHEN BALLAST IS REQUIRED BY THE R.E., SAND SHALL BE USED. THE MAXIMUM WEIGHT OF THE BALLAST SHALL BE 50 LBS. AND BE LOCATED APPROXIMATELY AT GROUND LEVEL. ALTERNATE TYPES OF BALLAST SHALL BE APPROVED BY THE R.E..

DRUMS

CD-159-1.1

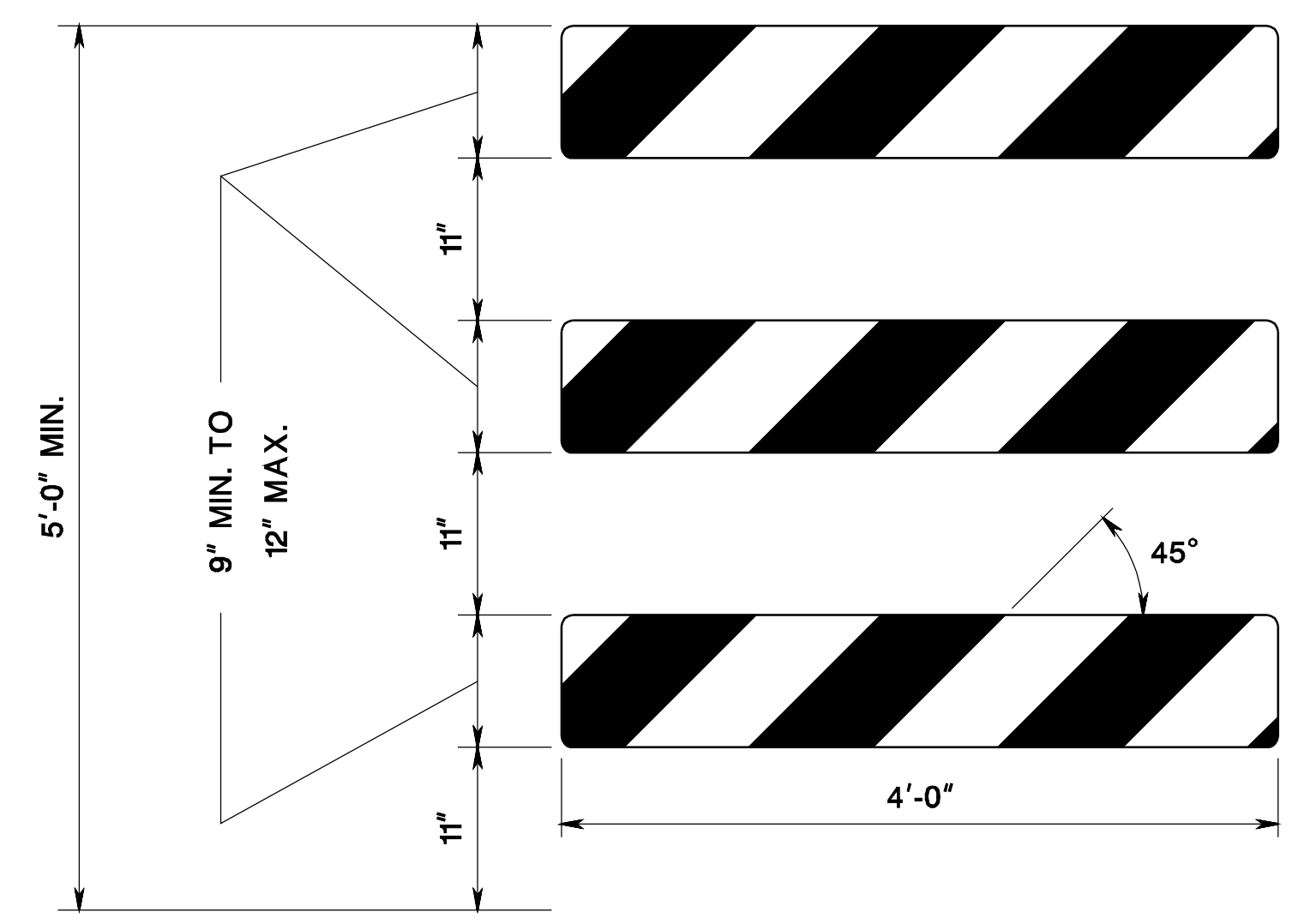
NOTES:

TRAFFIC CONES SHALL BE PREDOMINATELY ORANGE IN COLOR.
 BASES MAY BE OF BREAKAWAY BALLASTED TYPE.
 MINOR MANUFACTURER'S VARIATIONS MAY BE ACCEPTABLE UPON APPROVAL OF THE ENGINEER.



TRAFFIC CONES

CD-159-1.2



TYPE III BARRICADE - FRONT VIEW

NOTES:

1. THE 9" MIN. x 48", OR 12" MAX. x 48" BARRICADE RAILS SHALL BE FABRICATED FROM 0.125" MAX. PLASTIC SHEETING AND SHALL BE ATTACHED, 4 PER RAIL, WITH 1 INCH NO. 14 PAN HEAD METAL SCREWS OR PLASTIC RIVETS. ALL CORNERS SHALL BE ROUNDED.
2. ORANGE AND SILVER (WHITE) STRIPES SHALL BE RETROREFLECTIVE SHEETING, ASTM D 4956 TYPE III, AS SHOWN FOR CONSTRUCTION SIGNS. ALTERNATE ORANGE AND SILVER (WHITE) STRIPES 6" WIDE SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS.
3. THE FRAMING AND BALLAST FOR BARRICADE PANELS SHALL BE NCHRP-350 CRASHED TESTED AND FHWA APPROVED.
4. IF NECESSARY, THE BALLAST SHALL BE FABRICATED AND PLACED ACCORDING TO THE MANUFACTURE'S RECOMMENDATION.

BREAKAWAY BARRICADES

CD-159-1.3

TRAFFIC CONTROL DEVICES
 N.T.S.

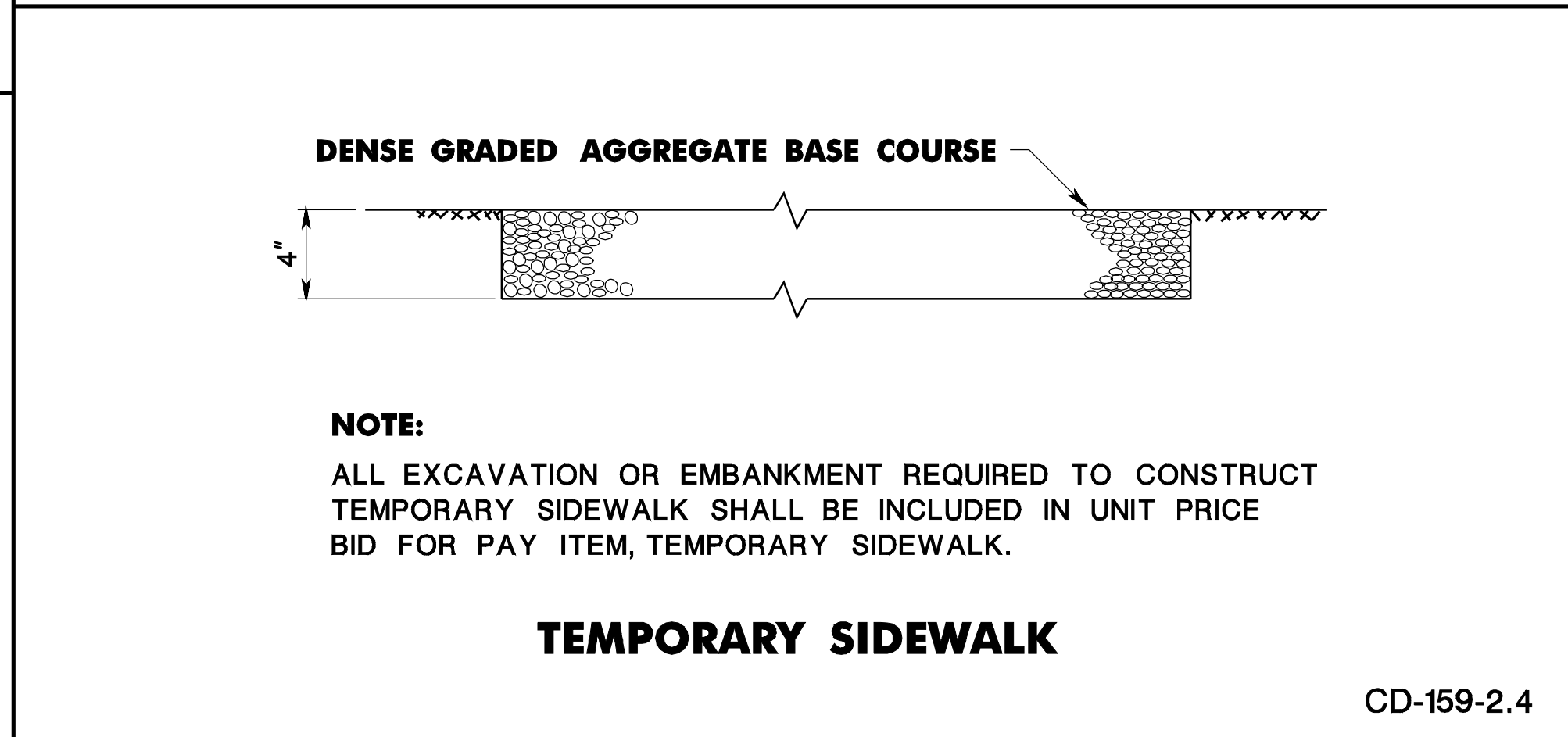
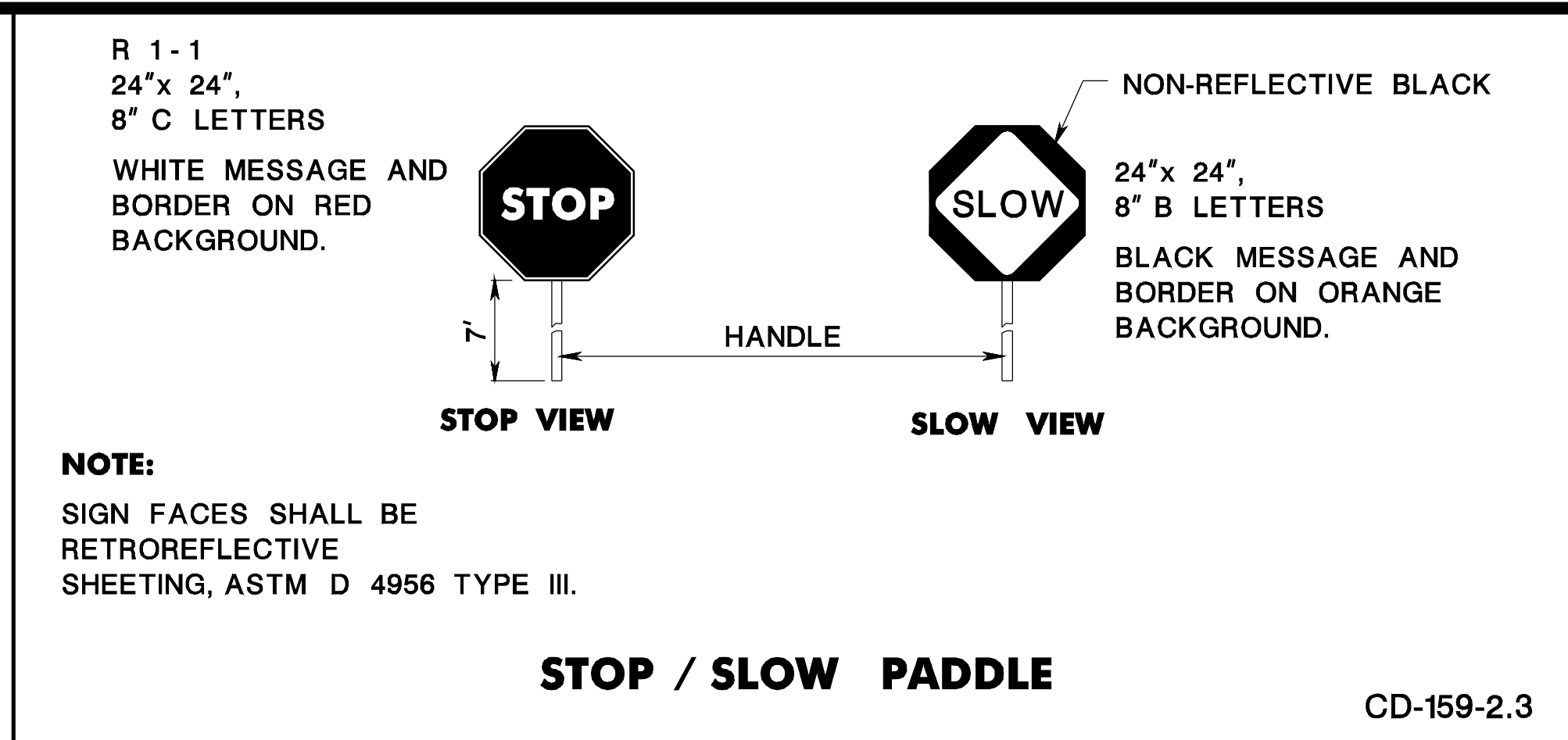
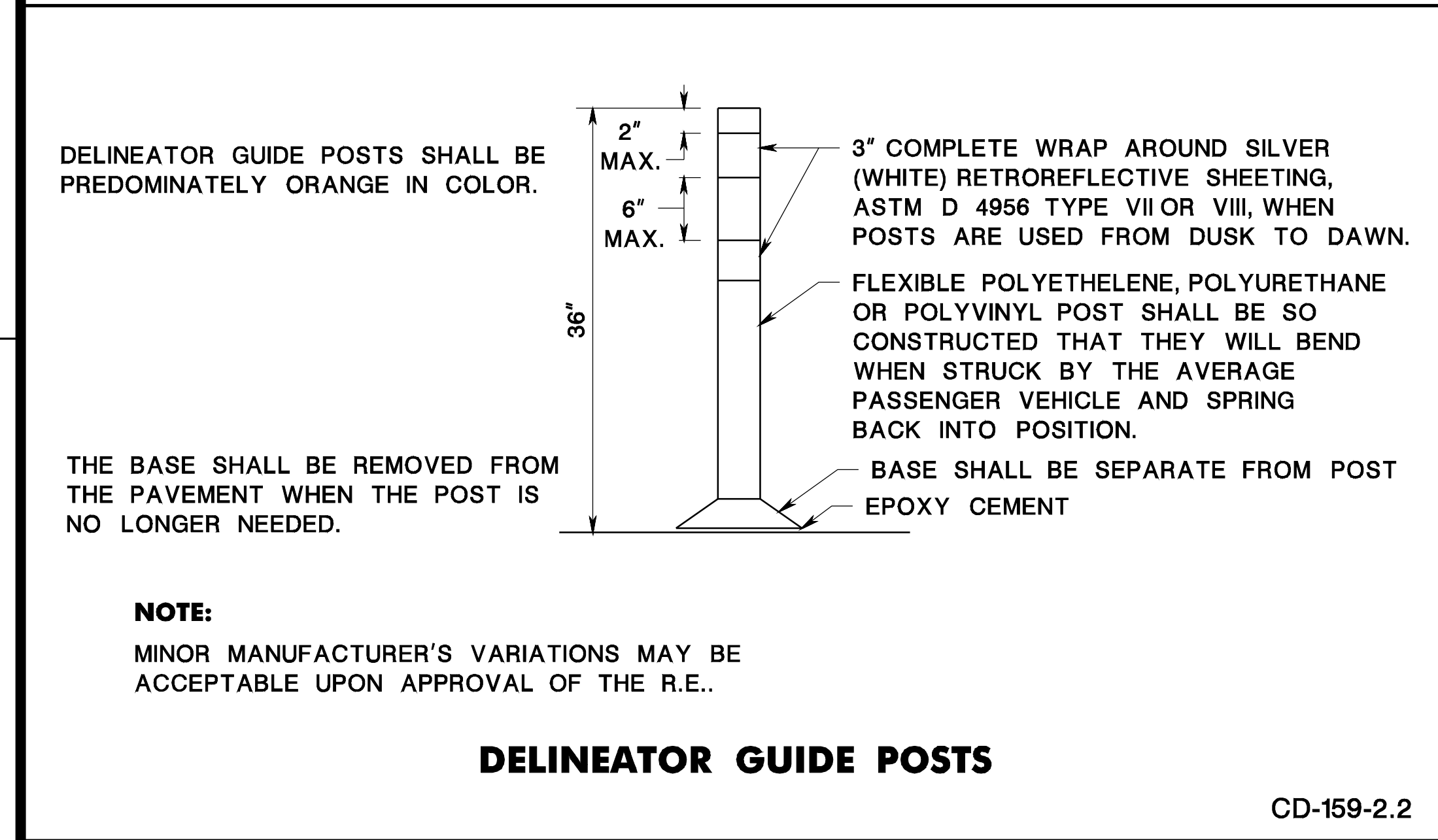
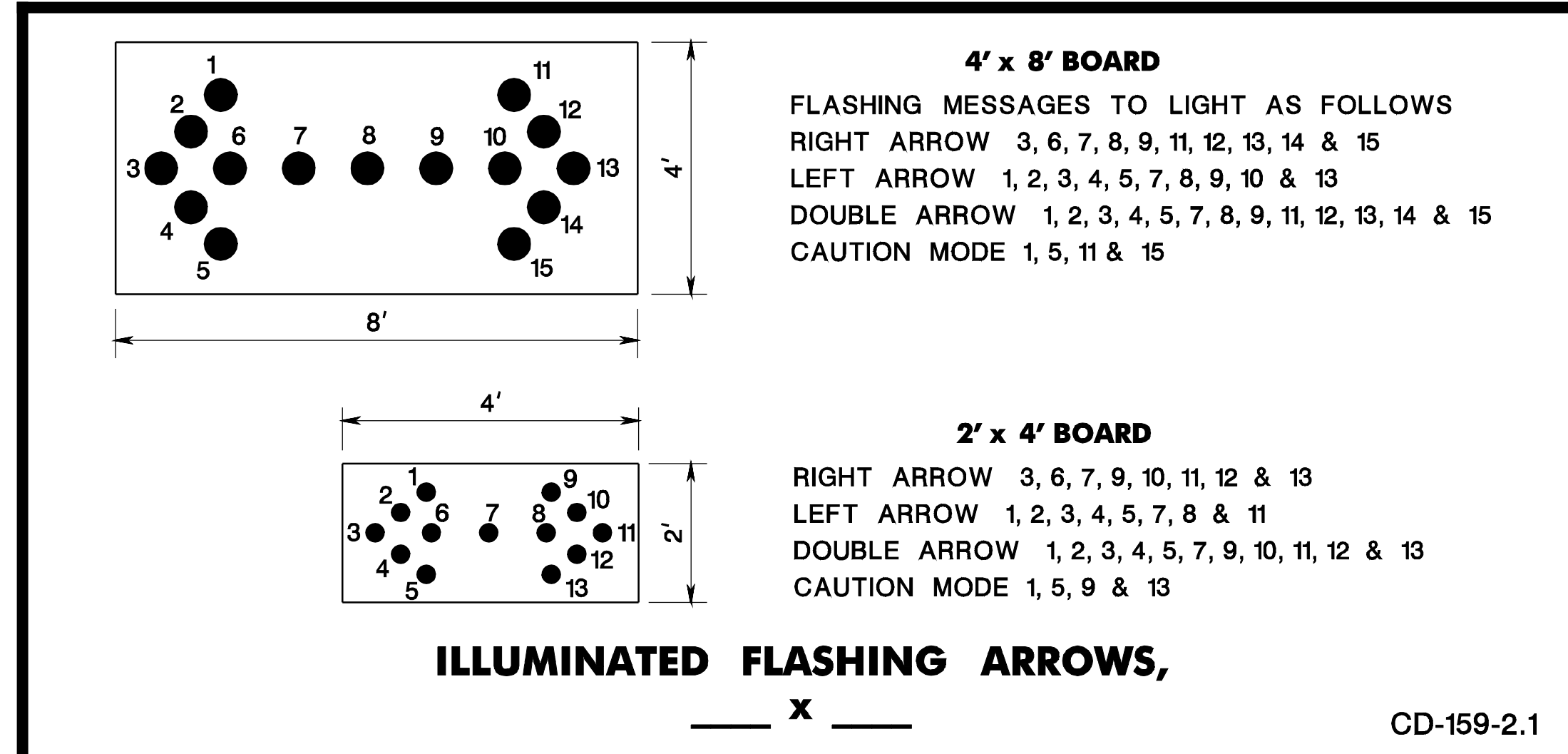
CD-159-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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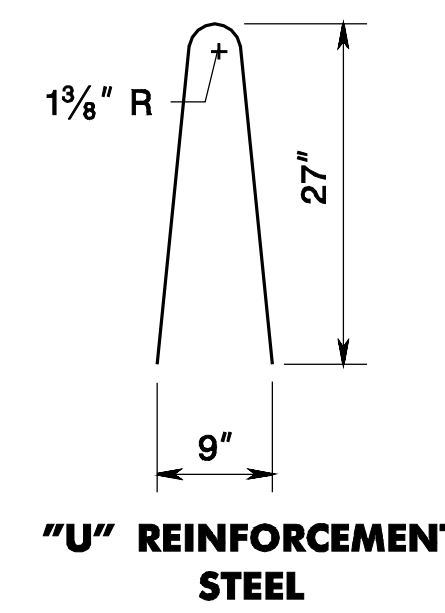
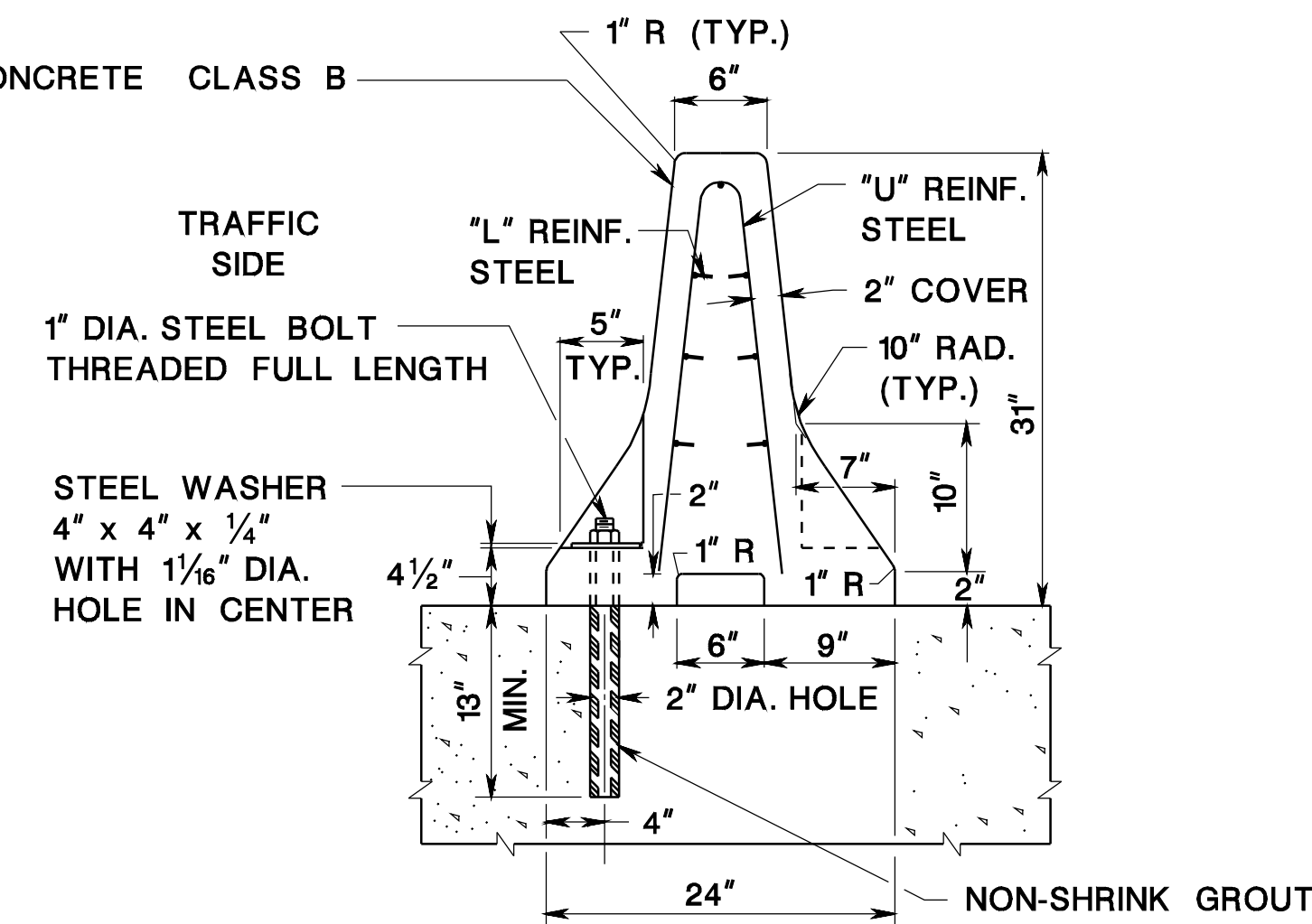
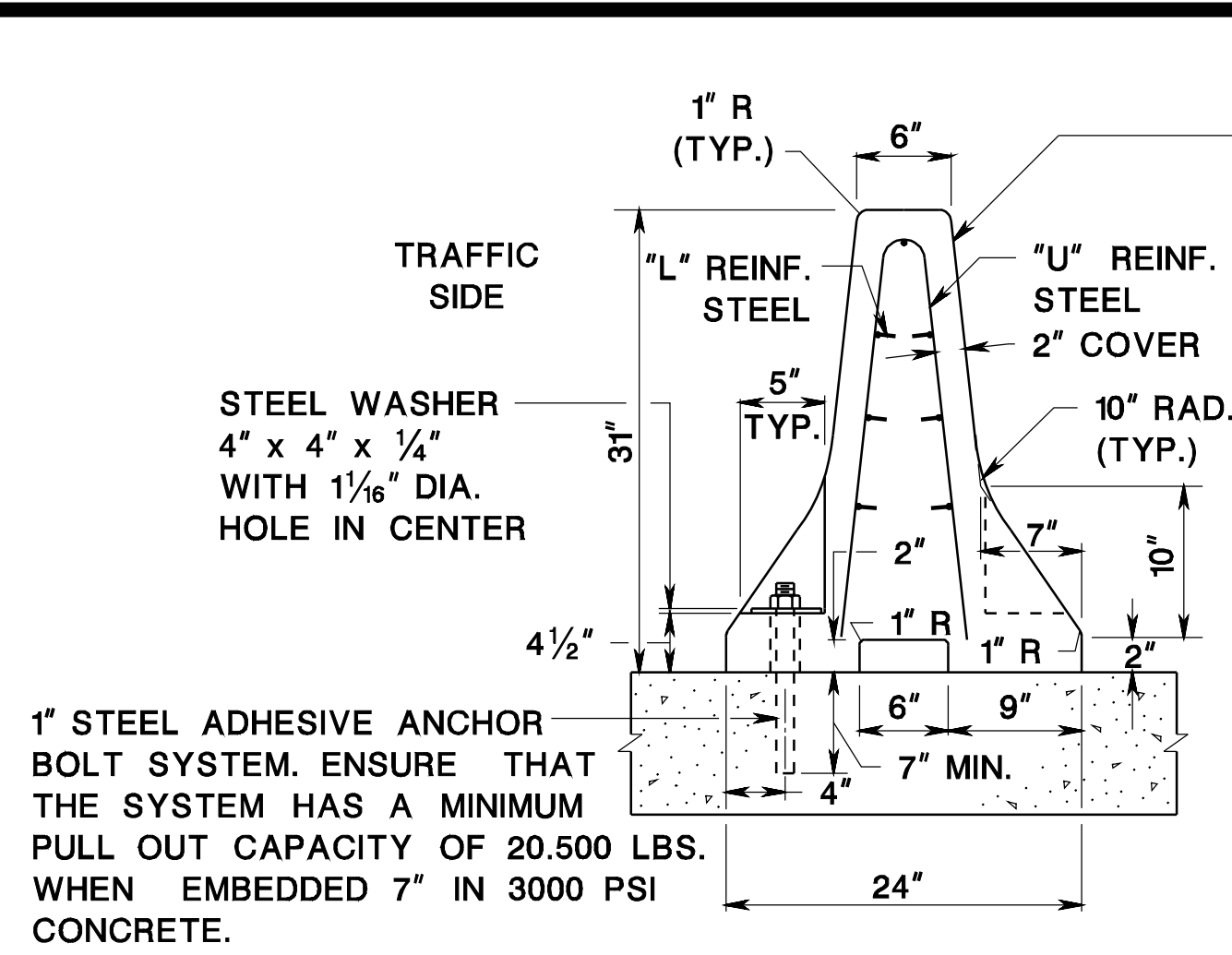
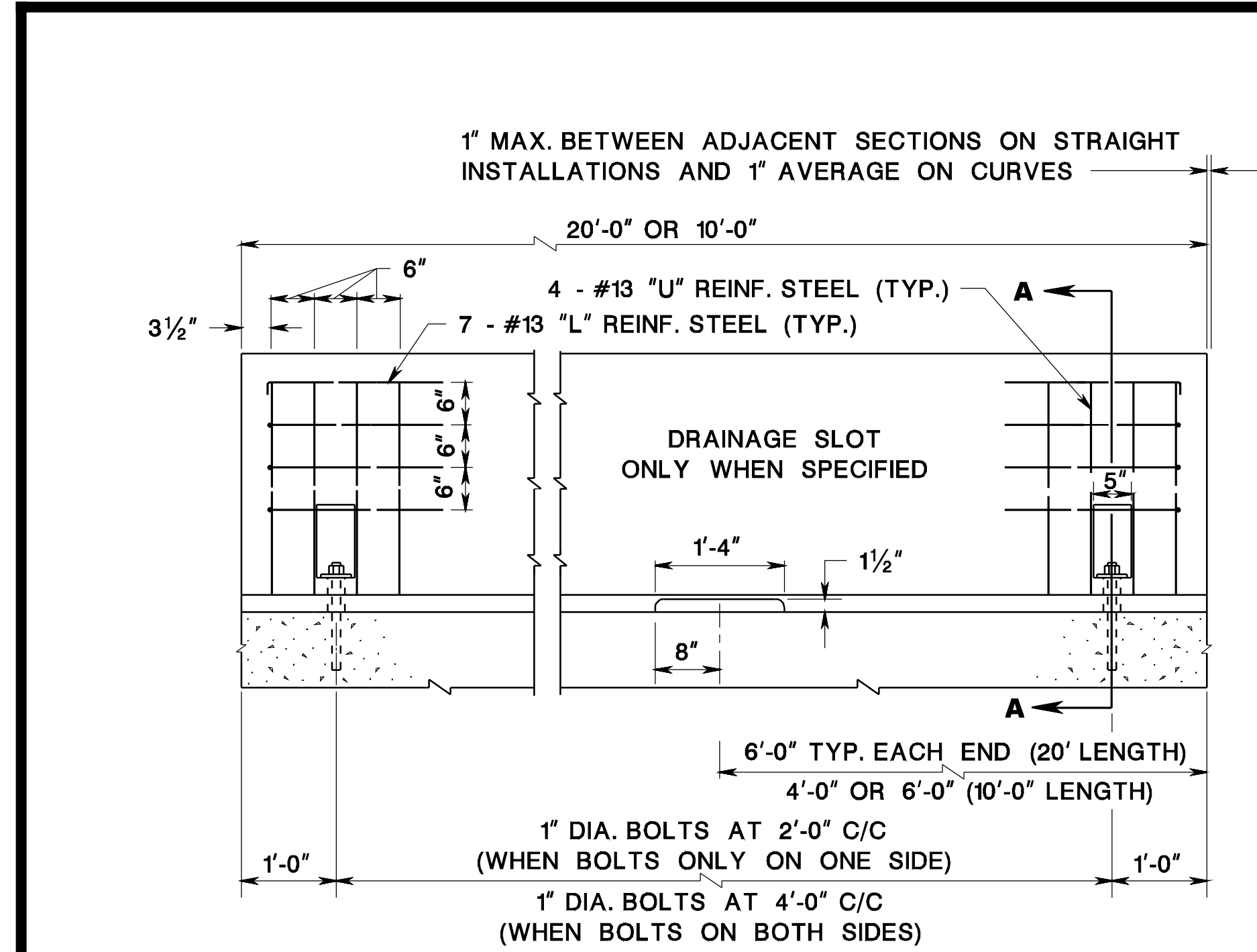
TRAFFIC CONTROL DEVICES

N.T.S.

CD-159-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 1

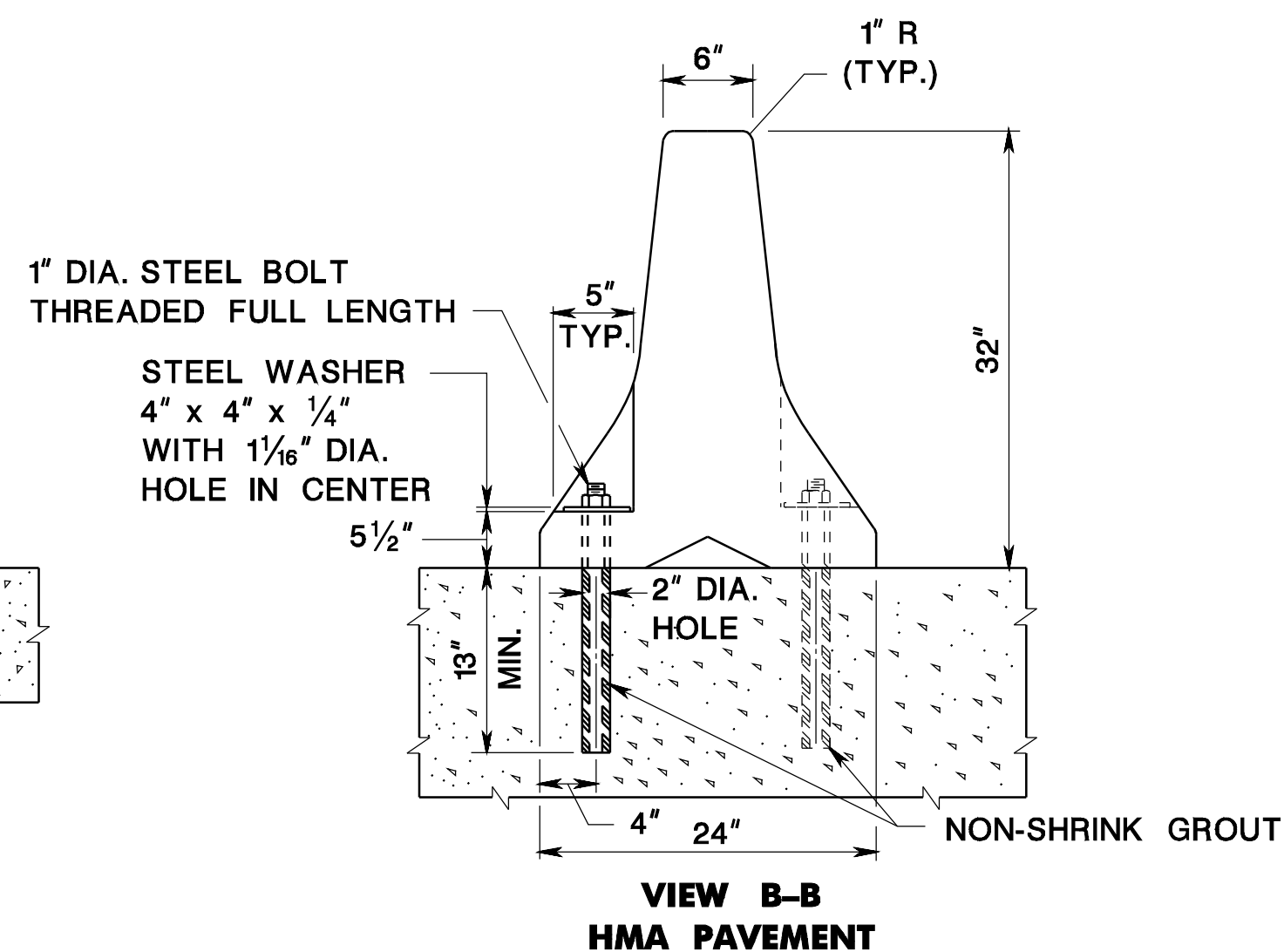
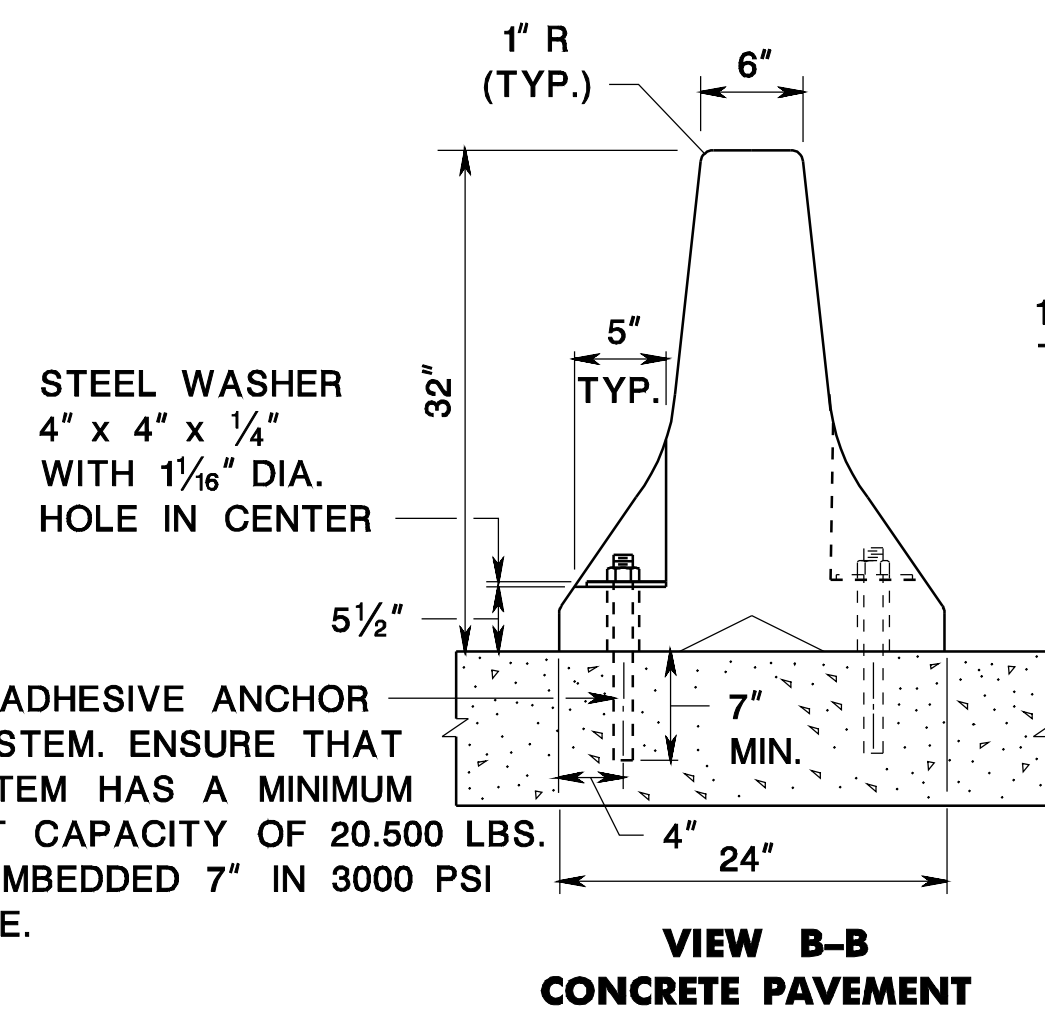
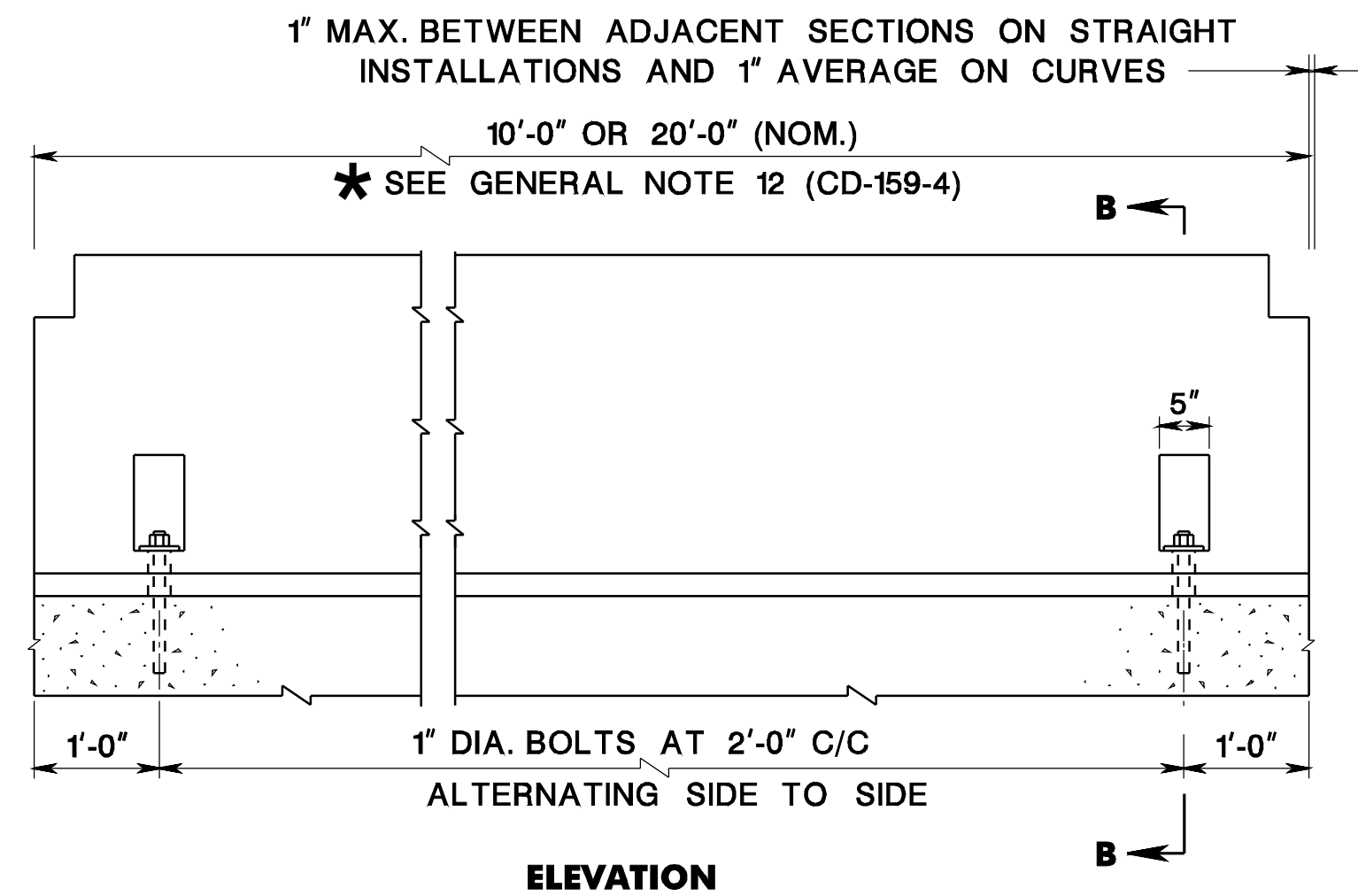
CD-159-3.1

NOTES:

1. THE APPROACH END OF THE PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHOULD BE FLARED AWAY FROM TRAFFIC AT A RATE OF 20:1. WHERE POSTED SPEEDS ARE LESS THAN 50 M.P.H., A FLARE RATE OF 15:1 MAY BE USED. ON CURVED ROADWAYS, KINKS IN THE BARRIER ALIGNMENT SHOULD BE AVOIDED.
2. REINFORCING SHOWN IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING NECESSARY FOR HANDLING SHALL BE THE OPTION AND RESPONSIBILITY OF THE CONTRACTOR.
3. IF TRAFFIC WILL BE ON BOTH SIDES OF THE BARRIER, THE CONTRACTOR SHALL PROVIDE BOLT RECESSES SO THE BOLTS CAN BE INSTALLED AT 4 FEET C. TO C. ON EACH SIDE. AT THE OPTION OF THE CONTRACTOR, BOLT RECESSES AND BOLTS MAY BE PROVIDED AT 4 FEET C. TO C. ON EACH SIDE WHEN TRAFFIC IS ONLY ON ONE SIDE OF THE BARRIER.
4. WHEN THE BARRIER HAS BEEN REMOVED, THE BOLTS SHALL BE REMOVED OR CUT OFF TO A LEVEL OF 1/2" MINIMUM BELOW THE PAVEMENT SURFACE AND THE HOLES SHALL BE FILLED TO THE SATISFACTION OF THE R.E..
5. VARIATIONS TO THE DETAILS SHALL BE SUBJECT TO APPROVAL.
6. FOR INSTALLATION ON BRIDGE DECKS, REFER TO BRIDGE PLANS FOR NECESSARY MODIFICATIONS, AS REQUIRED.

NOTES:

1. BOLTS SHALL BE REQUIRED IN EVERY ANCHOR POCKET HOLE.
2. CONNECTION KEY SHALL BE USED WITH TYPE 1 APPLICATION.
3. WHEN BARRIER HAS BEEN REMOVED, THE BOLTS SHALL BE REMOVED OR CUT OFF TO A LEVEL OF 1/2" MINIMUM BELOW THE SURFACE AND THE HOLE FILLED TO THE SATISFACTION OF THE R.E..



**ANCHORAGE FOR TYPE 4 BARRIER USED AS TYPE 1
AND
ANCHORAGE FOR TYPE 4 BARRIER WITH JOINT CLASS D**

CD-159-3.2

REINFORCEMENT STEEL IS IN METRIC UNITS.
HMA = HOT MIX ASPHALT

CONSTRUCTION BARRIER CURB, TYPE 1

N.T.S.

CD-159-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

PRECAST CONCRETE CURB, CONSTRUCTION BARRIER JOINT CONNECTION DETAILS

GENERAL NOTES:

- STEEL PLATE SHALL BE ASTM A36, A588, A441 OR A572 GRADE 50.
- REINFORCEMENT STEEL SHALL BE ASTM A615, GRADE 60.
- CONCRETE SHALL BE CONCRETE CLASS B.
- CONCRETE CLEAR COVER FOR REINFORCEMENT STEEL SHALL BE 1/2" (MIN.).
- TUBE STEEL SHALL BE ASTM A500, GRADE B OR C.
- ANCHOR PINS SHALL BE 1 INCH DIA. ASTM A36.
- ANCHOR PINS ARE NOT REQUIRED IN EVERY UNIT. SEE TABLE OF JOINT TREATMENTS.
- ALL END SECTIONS SHALL BE PINNED UNLESS OTHERWISE NOTED.
- 2 5/8" X 5 1/2" DRAINAGE POCKETS - TWO REQUIRED IN SECTIONS 12 FEET AND GREATER. ONE REQUIRED IN 8 FOOT AND 10 FOOT SECTIONS.
- AFTER A BARRIER UNIT HAS BEEN PLACED AND THE CONNECTION KEY INSERTED, REMOVE ANY SLACK IN THE JOINT BY PULLING THE UNIT IN A DIRECTION PARALLEL TO IT'S LONGITUDINAL AXIS.
- THE PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHALL BE CAST IN STEEL FORMS.
- THE PRECAST CONCRETE CURB SHALL BE UNITS OF 20 FEET, HOWEVER, OTHER LENGTHS MAY BE USED TO MEET FIELD CONDITIONS, THE NUMBER AND PLACEMENT OF THE 4B4 AND 4B5 REINFORCEMENT STEEL WILL VARY WITH THE LENGTH OF THE BARRIER UNIT AS SHOWN ON THE TABLE OF VARIABLE REINFORCEMENT STEEL. THE 6B2 AND 6B3 REINFORCEMENT STEEL SHALL BE 10 INCHES SHORTER THAN THE NOMINAL LENGTH OF THE BARRIER UNITS.
- REINFORCING SHOWN IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING NECESSARY FOR HANDLING SHALL BE THE OPTION AND RESPONSIBILITY OF THE CONTRACTOR.
- WELDING AND FABRICATION OF STEEL STRUCTURES SHALL BE IN ACCORDANCE WITH SECTIONS 1 THRU 6 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND SECTION 10 OF THE ANSI/AWS D.1 STRUCTURAL WELDING CODE. SURFACES TO BE WELDED SHALL BE FREE OF SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER MATERIAL THAT WILL PREVENT PROPER WELDING OR PRODUCE OBJECTIONAL FUMES. WELDING SHALL BE SHIELDED METAL ARC WELDING USING PROPERLY DRIED 5/32" DIA. E7018 ELECTRODES.
- AFTER REMOVAL OF THE BARRIER, THE HOLES IN THE SURFACE ON WHICH THE BARRIER SAT WHICH WERE USED TO ANCHOR THE SYSTEM, SHALL BE FILLED. THE ONLY EXCEPTION IS WHEN THE HOLES ARE IN AN AREA WHICH IS TO BE REMOVED. HOLES IN FLEXIBLE PAVEMENT, OR UNPAVED AREAS SHALL BE FILLED AS DIRECTED. HOLES IN PORTLAND CEMENT CONCRETE PAVEMENTS OR STRUCTURAL DECKS, SHALL BE FILLED WITH NON-SHRINK GROUT MATERIAL MEETING THE REQUIREMENTS OF SECTION 903.07, EXCEPT THAT IN LATEX MODIFIED CONCRETE BRIDGE DECK, A COMPATIBLE NON-SHRINK GROUT MATERIAL SHALL BE USED.

NOTE A

THE LENGTH OF THE ANCHOR PINS SHALL BE SUCH THAT THE FOLLOWING MINIMUM EMBEDMENT LENGTHS ARE OBTAINED:

- (a) INTO CONCRETE PAVEMENT 0'-5"
- (b) INTO FLEXIBLE PAVEMENT 1'-6"
- (c) INTO UNPAVED AREA 2'-6"

WHEN ANCHOR PINS ARE IN PLACE, THEY SHALL NOT PROJECT ABOVE THE PLANE OF THE CONCRETE SURFACE OF THE BARRIER.

HOLES IN BRIDGE DECKS SHALL BE 1/4" DIAMETER MAXIMUM AND MADE WITH A CORE DRILL OR ANY OTHER APPROVED ROTARY DRILLING DEVICE THAT DOES NOT IMPART AN IMPACT FORCE.

NOTE B

IN UNITS THAT ARE TO BE ANCHORED, PINS SHALL BE REQUIRED IN EVERY ANCHOR RECESS.

NOTE C

FOR INSTALLATION ON BRIDGE DECKS REFER TO BRIDGE PLANS FOR NECESSARY MODIFICATIONS AS REQUIRED AND GENERAL NOTE 15.

NOTES:

REINFORCEMENT STEEL IS IN METRIC UNITS.

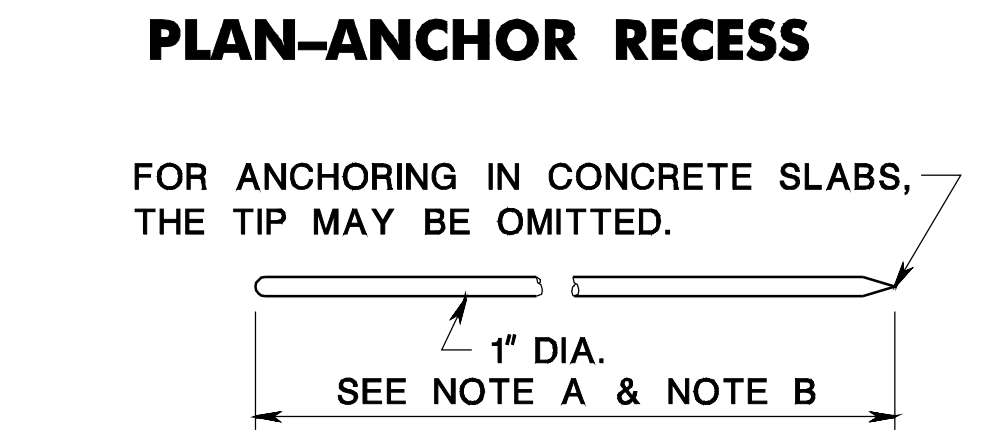
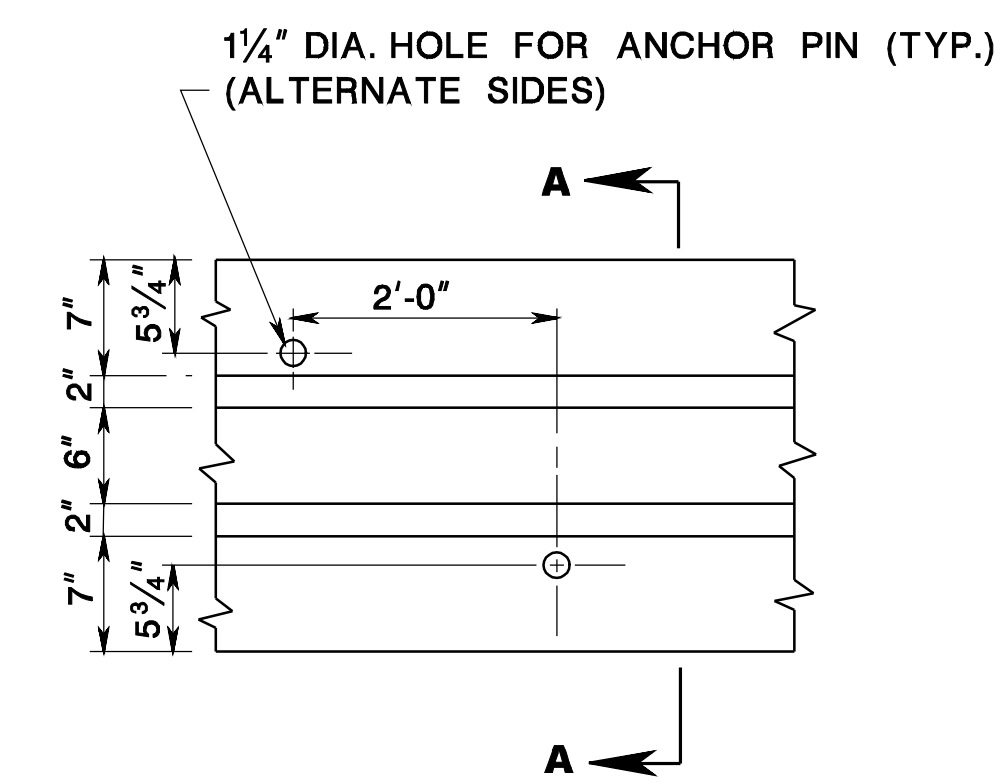
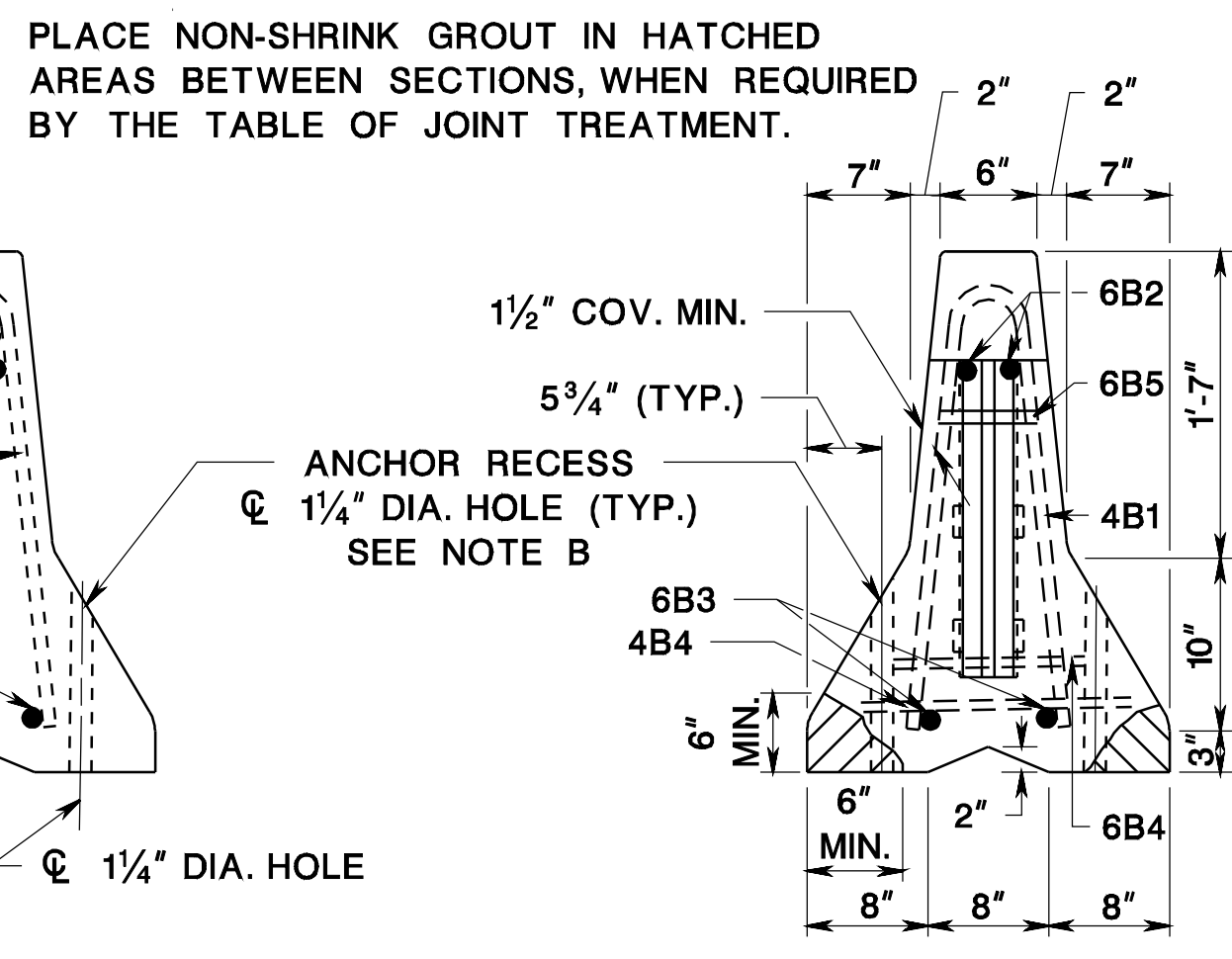
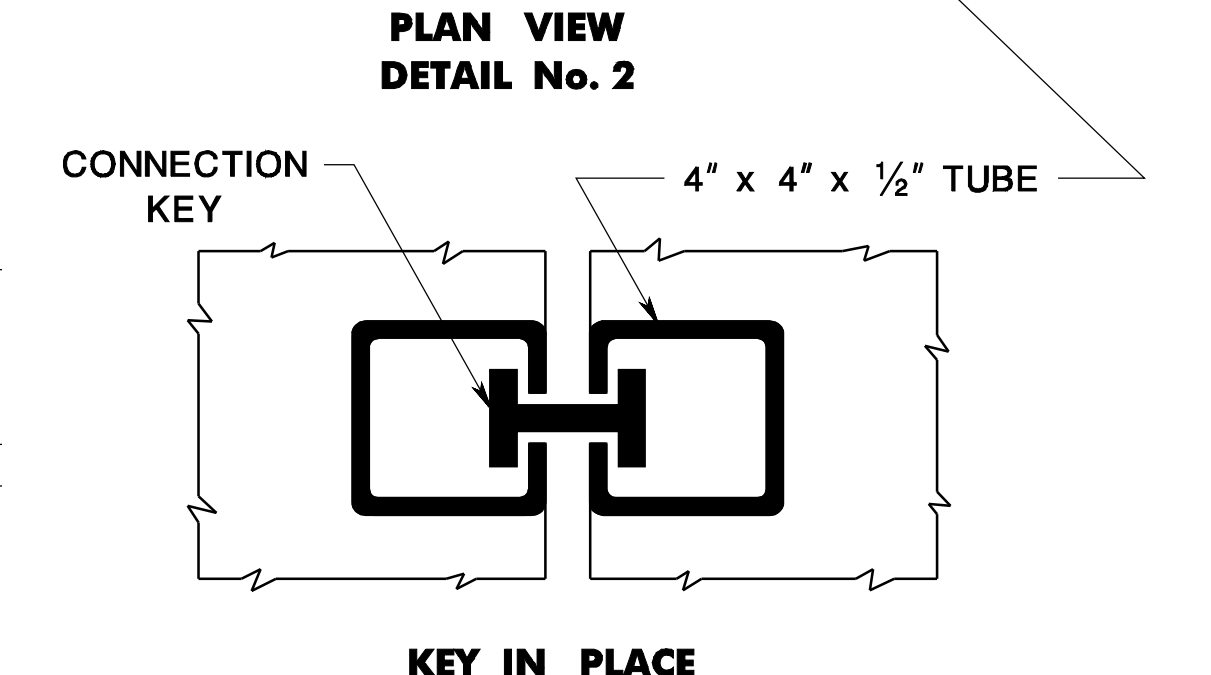
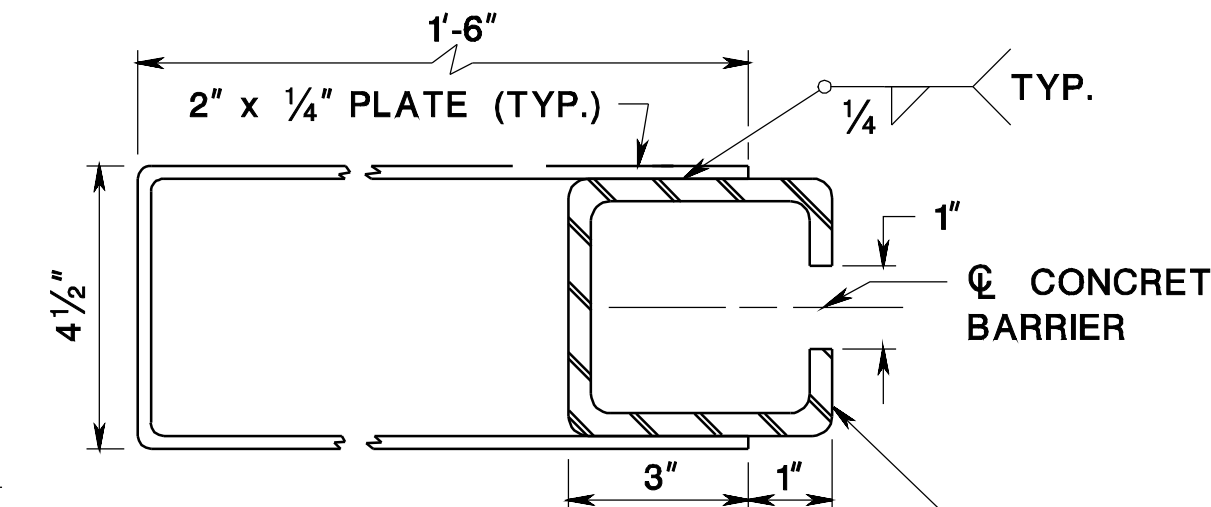
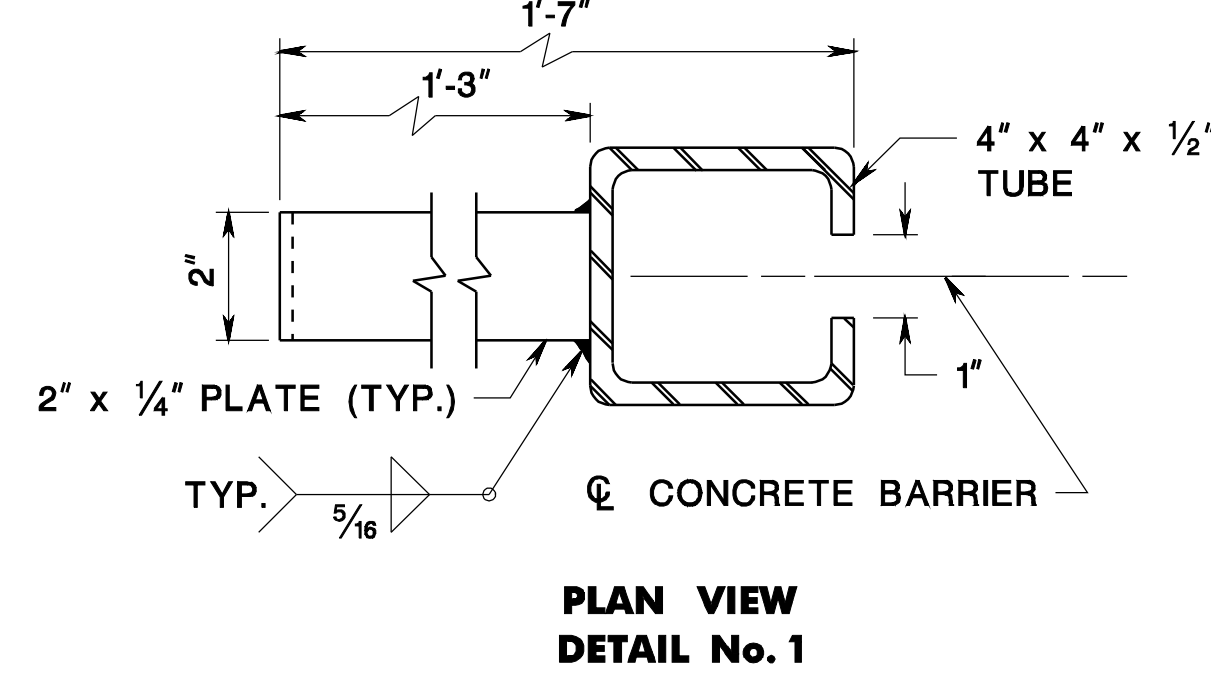
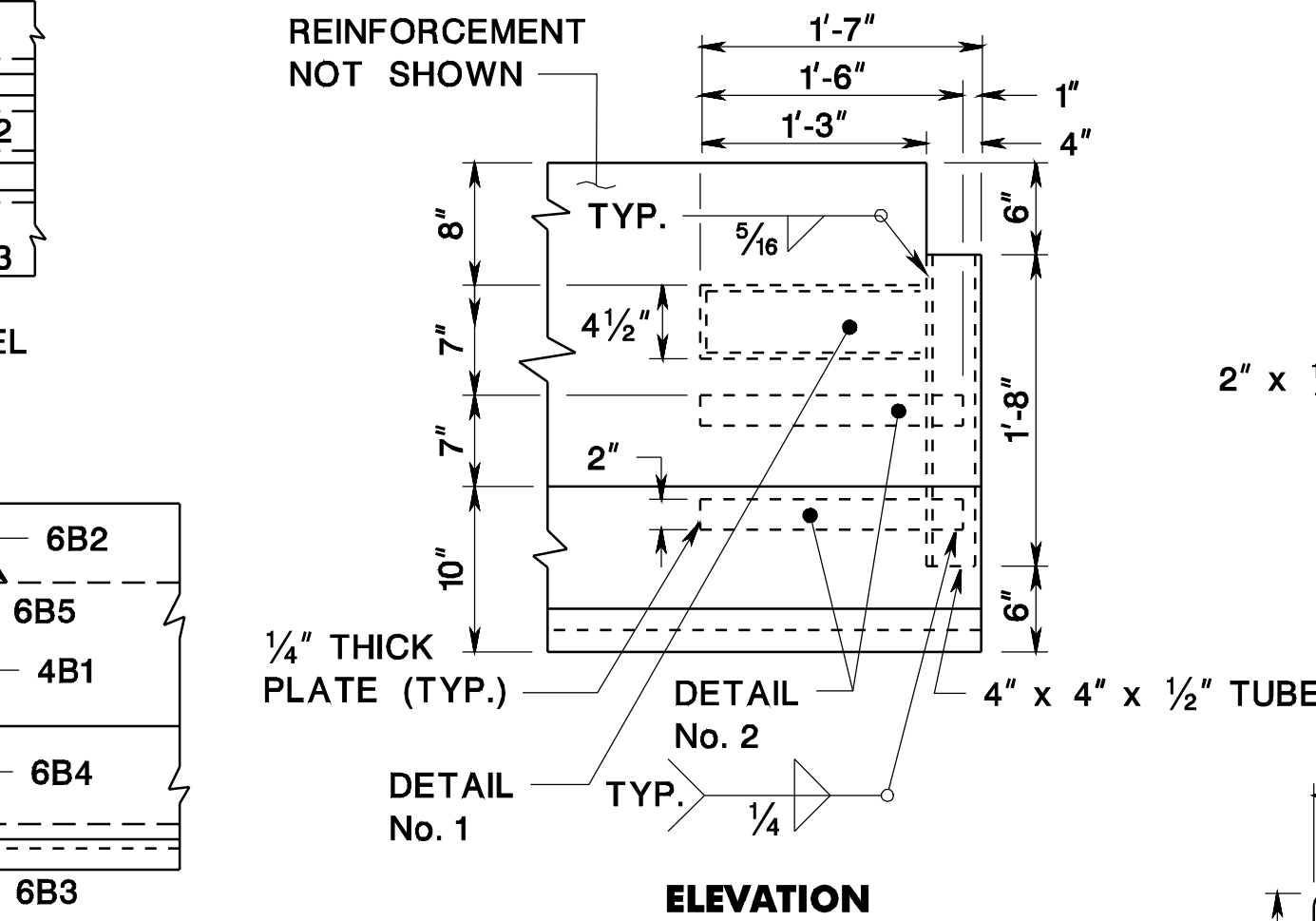
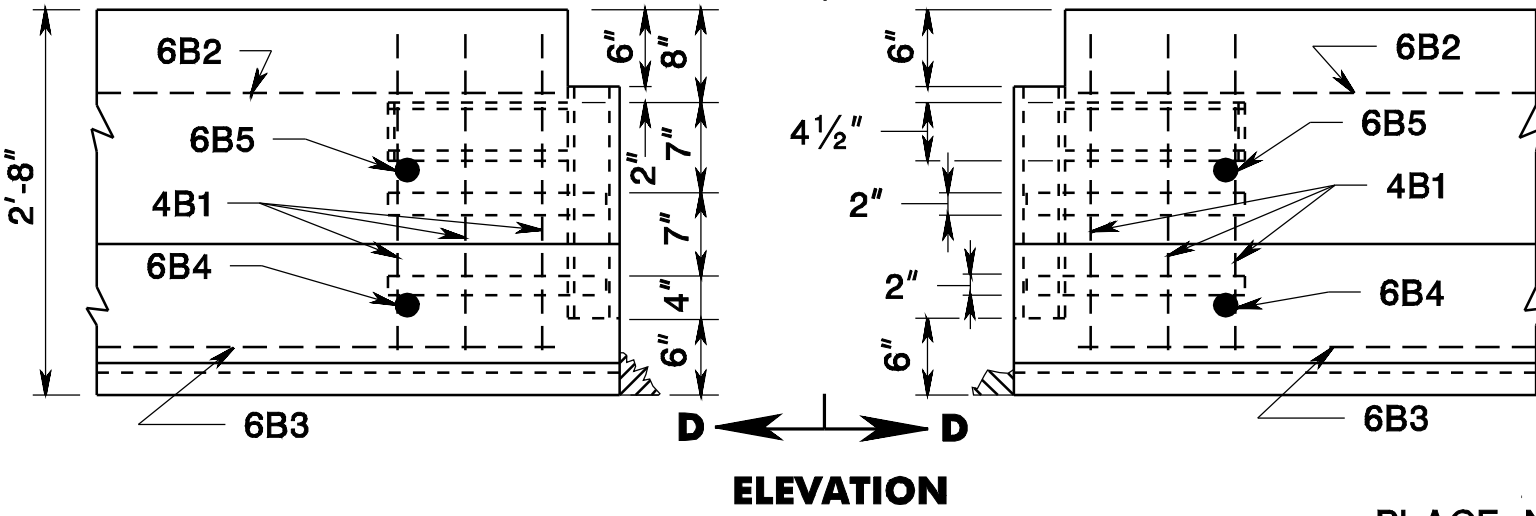
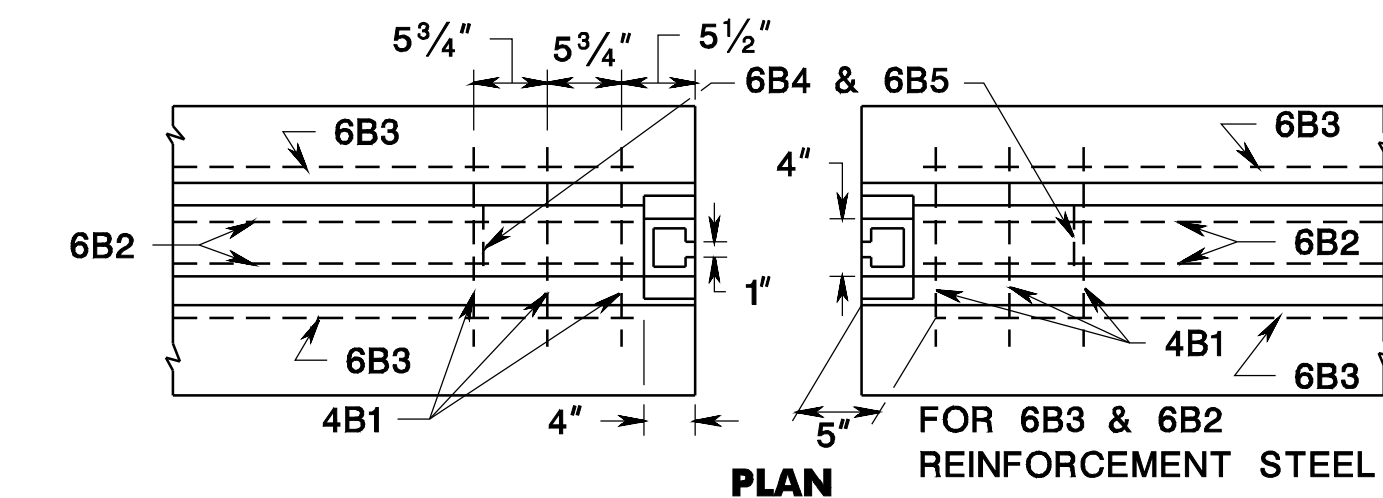
CONSTRUCTION BARRIER CURB, TYPE 4 (ALTERNATE A)

N.T.S.

CD-159-4

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

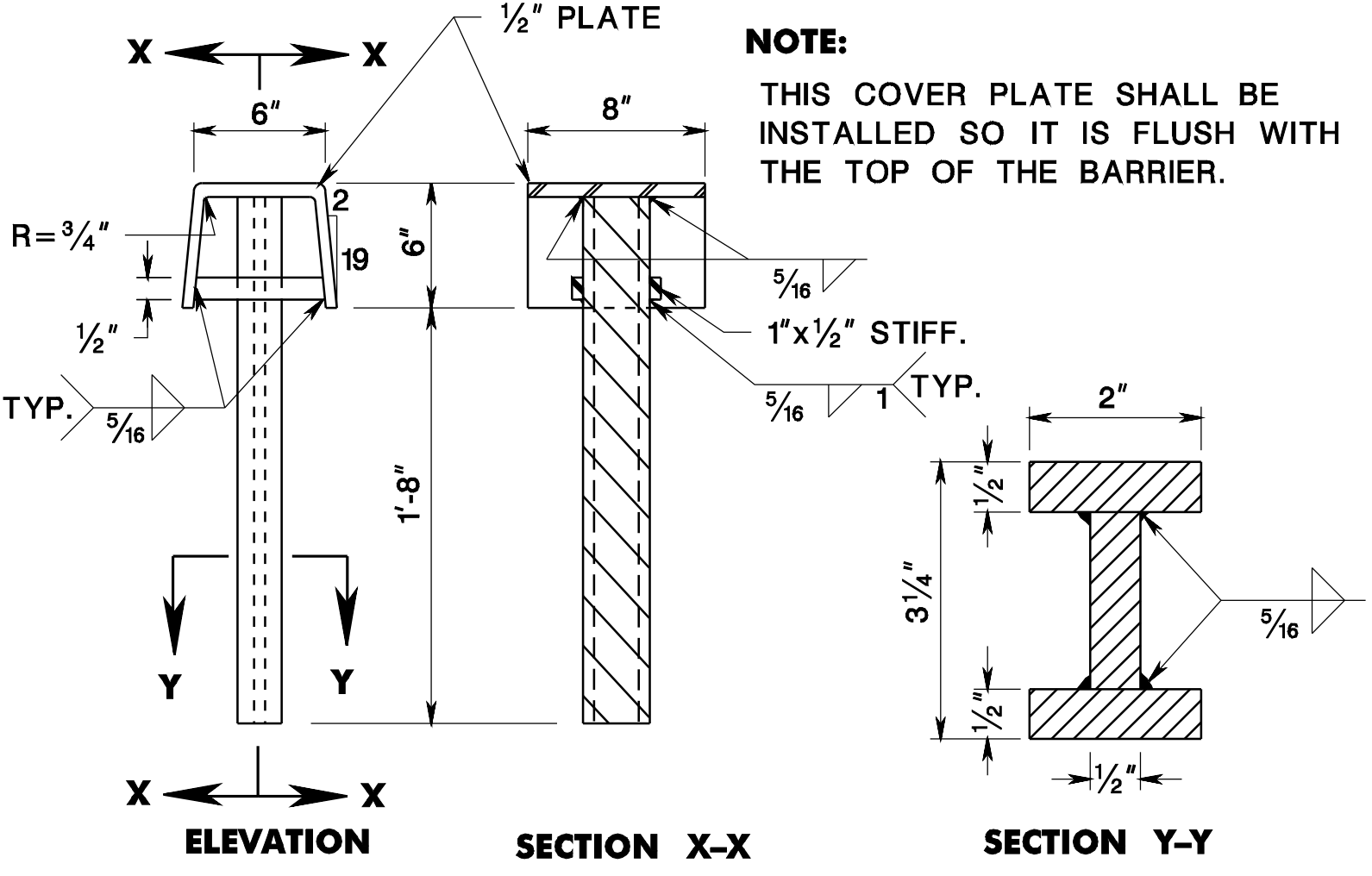
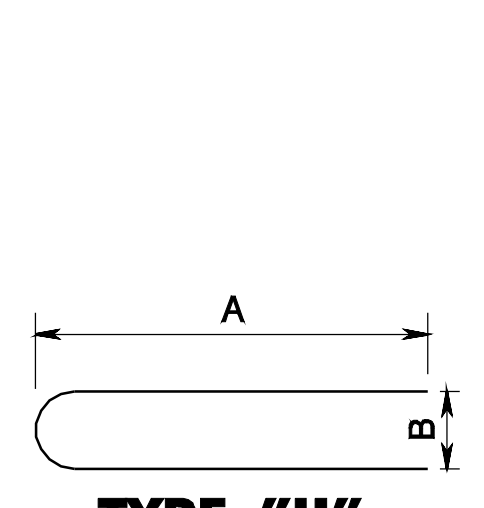


JOINT CLASS	JOINT TREATMENT
A	CONNECTION KEY ONLY
B	CONNECTION KEY AND GROUT IN EVERY JOINT
C	CONNECTION KEY AND GROUT IN EVERY JOINT AND PIN EVERY OTHER UNIT. IN UNITS THAT ARE TO BE ANCHORED, PINS SHALL BE REQUIRED IN EVERY ANCHOR PIN RECESS

NOMINAL LENGTH OF BARRIER UNIT	MARK	"X"	NO. EACH SECTION
20'	4B4	N.A.	9
20'	4B5	6'-11"	2
18'	4B4	N.A.	8
18'	4B5	6'-5"	2
16'	4B4	N.A.	7
16'	4B5	5'-11"	2
14'	4B4	N.A.	6
14'	4B5	7'-0"	1
12'	4B4	N.A.	5
12'	4B5	6'-0"	1
10'	4B4	N.A.	4
10'	4B5	5'-0"	1
8'	4B4	N.A.	3
8'	4B5	-	0

"X" DISTANCE FROM END OF BARRIER TO 4B5 REINFORCEMENT STEEL

MARK	SIZE	NUMBER IN EACH SECTION	LENGTH	TYPE	A	B	C	LOCATION
4B1	#13	6	4'-11"	I	5"	26"	2"	STIRRUPS
4B4	#13	SEE NOTE 12	3'-1"	II	15 1/2"	4"		STIRRUPS
4B5	#13	SEE NOTE 12	4'-11"	I	5"	26"	2"	STIRRUPS
6B2	#19	2	SEE NOTE 12	STR.				LONGITUDINAL (TOP) NORMAL SECTION
6B3	#19	2	SEE NOTE 12	STR.				LONGITUDINAL (BOTTOM) NORMAL SECTION
6B4	#19	2	1'-2"	STR.				TRANSVERSE (BOTTOM) NORMAL SECTION
6B5	#19	2	0'-6"	STR.				TRANSVERSE (TOP) NORMAL SECTION



BDC07D-03-ORIGINAL SHEET

PRECAST CONCRETE CURB, CONSTRUCTION BARRIER JOINT CONNECTION DETAILS

GENERAL NOTES:

1. STEEL PLATE SHALL BE ASTM A36, A588, A441 OR A572 GRADE 50.
2. REINFORCEMENT STEEL SHALL BE ASTM A615, GRADE 60.
3. CONCRETE SHALL BE CONCRETE CLASS B.
4. CONCRETE CLEAR COVER FOR REINFORCEMENT STEEL SHALL BE 1/2" (MIN).
5. TUBE STEEL SHALL BE ASTM A500, GRADE B OR C.
6. ANCHOR PINS SHALL BE 1 INCH DIA. ASTM A36.
7. ANCHOR PINS ARE NOT REQUIRED IN EVERY UNIT. SEE TABLE OF JOINT TREATMENTS.
8. ALL END SECTIONS SHALL BE PINNED UNLESS OTHERWISE NOTED.
9. 2 5/8" X 5 1/2" DRAINAGE POCKETS - TWO REQUIRED IN SECTIONS 12 FEET AND GREATER. ONE REQUIRED IN 8 FOOT AND 10 FOOT SECTIONS.
10. AFTER A BARRIER UNIT HAS BEEN PLACED AND THE CONNECTION KEY INSERTED, REMOVE ANY SLACK IN THE JOINT BY PULLING THE UNIT IN A DIRECTION PARALLEL TO IT'S LONGITUDINAL AXIS.
11. THE PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHALL BE CAST IN STEEL FORMS.
12. THE PRECAST CONCRETE CURB SHALL BE UNITS OF 20 FEET, HOWEVER, OTHER LENGTHS MAY BE USED TO MEET FIELD CONDITIONS. THE NUMBER AND PLACEMENT OF THE 4B4 AND 4B5 REINFORCEMENT STEEL WILL VARY WITH THE LENGTH OF THE BARRIER UNIT AS SHOWN ON THE TABLE OF VARIABLE REINFORCEMENT STEEL. THE 6B2 AND 6B3 REINFORCEMENT STEEL SHALL BE 10 INCHES SHORTER THAN THE NOMINAL LENGTH OF THE BARRIER UNITS.
13. REINFORCING SHOWN IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING NECESSARY FOR HANDLING SHALL BE THE OPTION AND RESPONSIBILITY OF THE CONTRACTOR.
14. WELDING AND FABRICATION OF STEEL STRUCTURES SHALL BE IN ACCORDANCE WITH SECTIONS 1 THRU 6 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND SECTION 10 OF THE ANSI/AWS D.1 STRUCTURAL WELDING CODE. SURFACES TO BE WELDED SHALL BE FREE OF SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER MATERIAL THAT WILL PREVENT PROPER WELDING OR PRODUCE OBJECTIONAL FUMES. WELDING SHALL BE SHIELDED METAL ARC WELDING USING PROPERLY DRIED 5/32" DIA. E7018 ELECTRODES.
15. AFTER REMOVAL OF THE BARRIER, THE HOLES IN THE SURFACE ON WHICH THE BARRIER SAT WHICH WERE USED TO ANCHOR THE SYSTEM, SHALL BE FILLED. THE ONLY EXCEPTION IS WHEN THE HOLES ARE IN AN AREA WHICH IS TO BE REMOVED. HOLES IN FLEXIBLE PAVEMENT, OR UNPAVED AREAS SHALL BE FILLED AS DIRECTED. HOLES IN PORTLAND CEMENT CONCRETE PAVEMENTS OR STRUCTURAL DECKS, SHALL BE FILLED WITH NON-SHRINK GROUT MATERIAL MEETING THE REQUIREMENTS OF SECTION 903.07, EXCEPT THAT IN LATEX MODIFIED CONCRETE BRIDGE DECK, A COMPATIBLE NON-SHRINK GROUT MATERIAL SHALL BE USED.
16. ONLY THE TYPE 4, JOINT CLASS D, SHALL BE USED AS BRIDGE PARAPETS.

NOTE A

THE LENGTH OF THE ANCHOR PINS SHALL BE SUCH THAT THE FOLLOWING MINIMUM EMBEDMENT LENGTHS ARE OBTAINED:
 (a) INTO CONCRETE PAVEMENT 0'-5"
 (b) INTO FLEXIBLE PAVEMENT 1'-6"
 (c) INTO UNPAVED AREA 2'-6"

WHEN ANCHOR PINS ARE IN PLACE, THEY SHALL NOT PROJECT ABOVE THE PLANE OF THE CONCRETE SURFACE OF THE BARRIER.

HOLES IN BRIDGE DECKS SHALL BE 1/4" DIAMETER MAXIMUM AND MADE WITH A CORE DRILL OR ANY OTHER APPROVED ROTARY DRILLING DEVICE THAT DOES NOT IMPART AN IMPACT FORCE.

NOTE B

IN UNITS THAT ARE TO BE ANCHORED, PINS SHALL BE REQUIRED IN EVERY ANCHOR RECESS.

NOTE C

FOR INSTALLATION ON BRIDGE DECKS REFER TO BRIDGE PLANS FOR NECESSARY MODIFICATIONS AS REQUIRED AND GENERAL NOTES 15 & 16.

NOTES:

REINFORCEMENT STEEL IS IN METRIC UNITS.

CONSTRUCTION BARRIER CURB, TYPE 4 (ALTERNATE B)

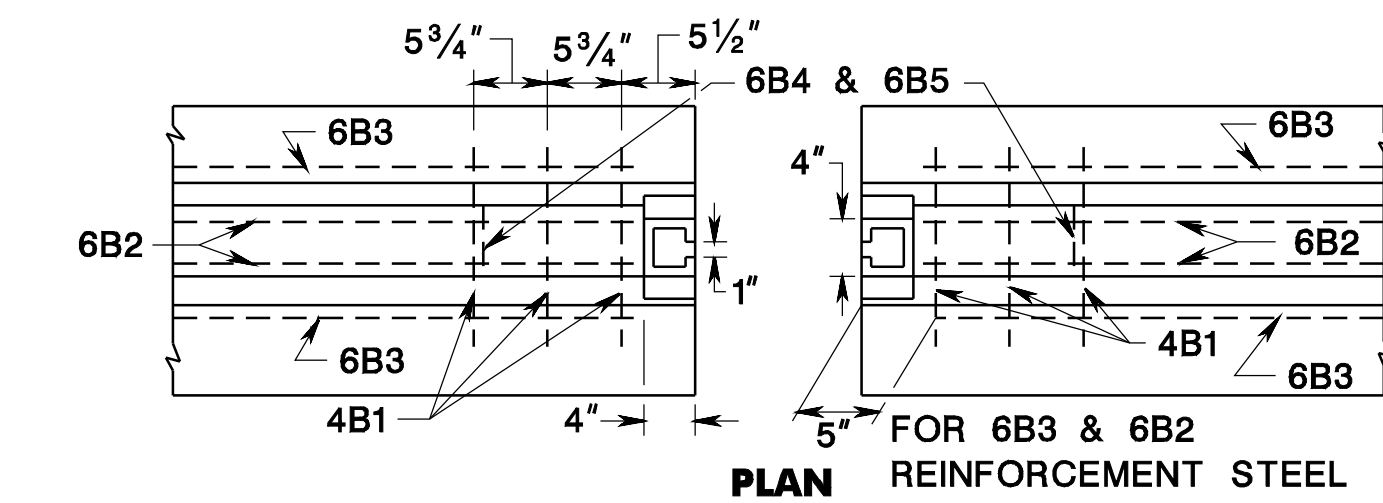
N.T.S.

CD-159-5

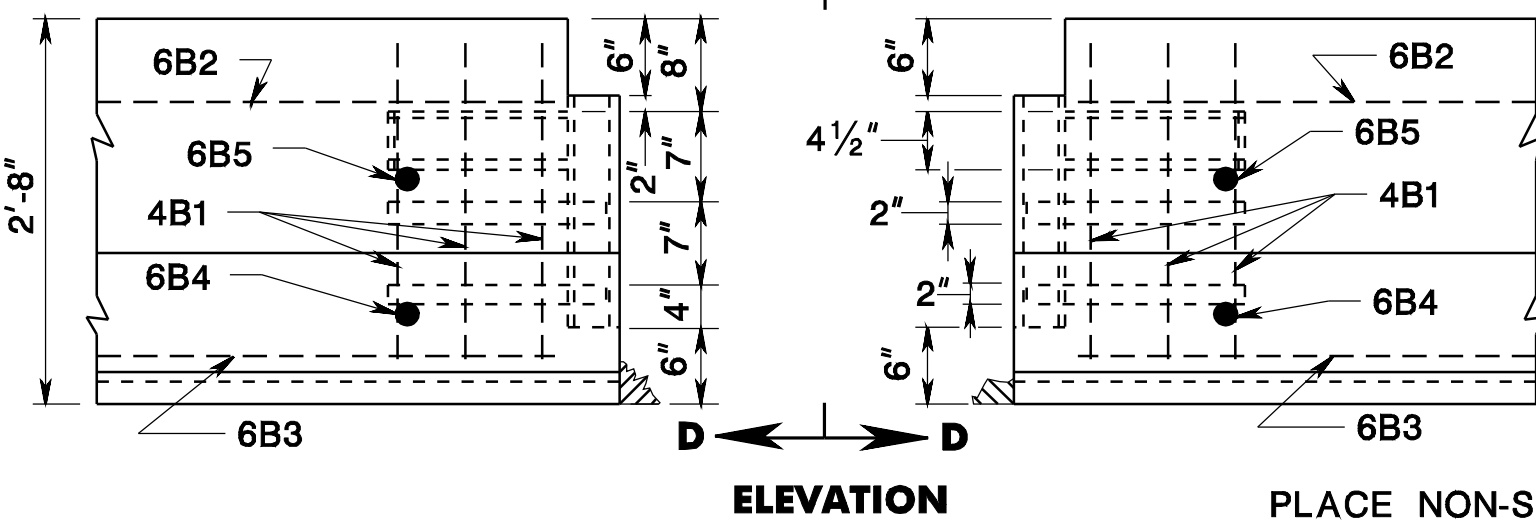
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-159-5.1

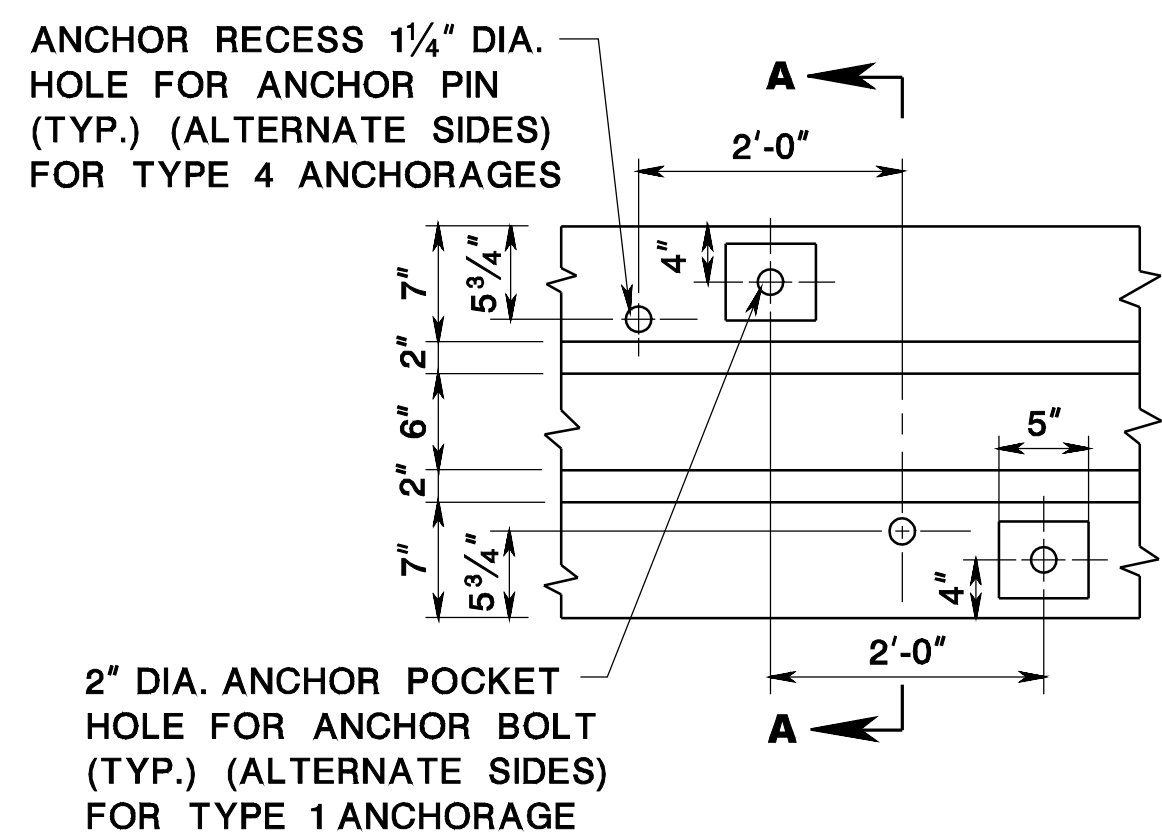


FOR 6B3 & 6B2 REINFORCEMENT STEEL



ELEVATION

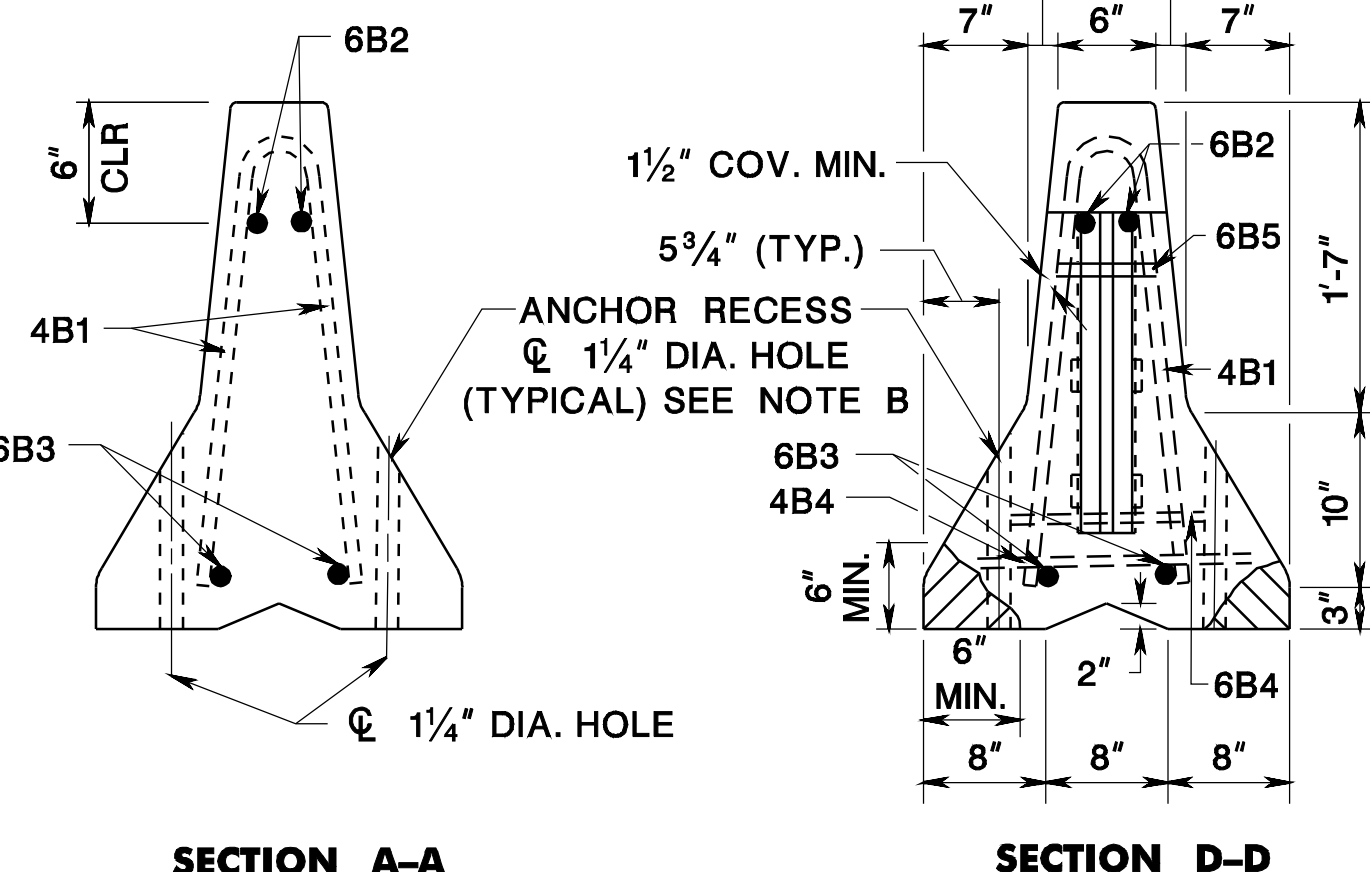
PLACE NON-SHRINK GROUT IN HATCHED AREAS BETWEEN SECTIONS, WHEN REQUIRED BY THE TABLE OF JOINT TREATMENT.



PLAN-ANCHOR RECESS/POCKET

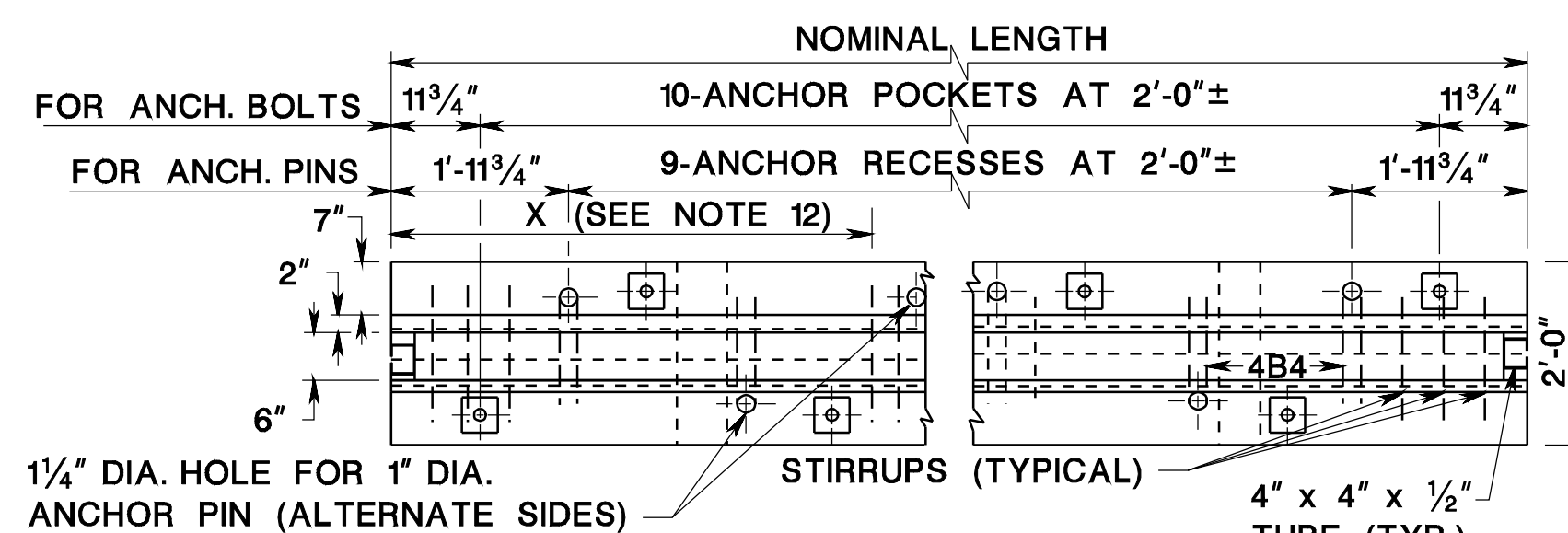
ANCHOR PIN

JOINT CLASS	TABLE OF JOINT AND ANCHORAGE TREATMENTS FOR TYPE 4 APPLICATIONS ONLY
	JOINT TREATMENT
A	CONNECTION KEY ONLY
B	CONNECTION KEY AND GROUT IN EVERY JOINT
C	CONNECTION KEY AND GROUT IN EVERY JOINT AND PIN EVERY OTHER UNIT. IN UNITS THAT ARE TO BE ANCHORED, PINS SHALL BE REQUIRED IN EVERY ANCHOR PIN RECESS
D	CONNECTION KEY AND GROUT EVERY JOINT, BOLT EVERY ANCHOR POCKET HOLE IN EVERY UNIT.



SECTION A-A

SECTION D-D



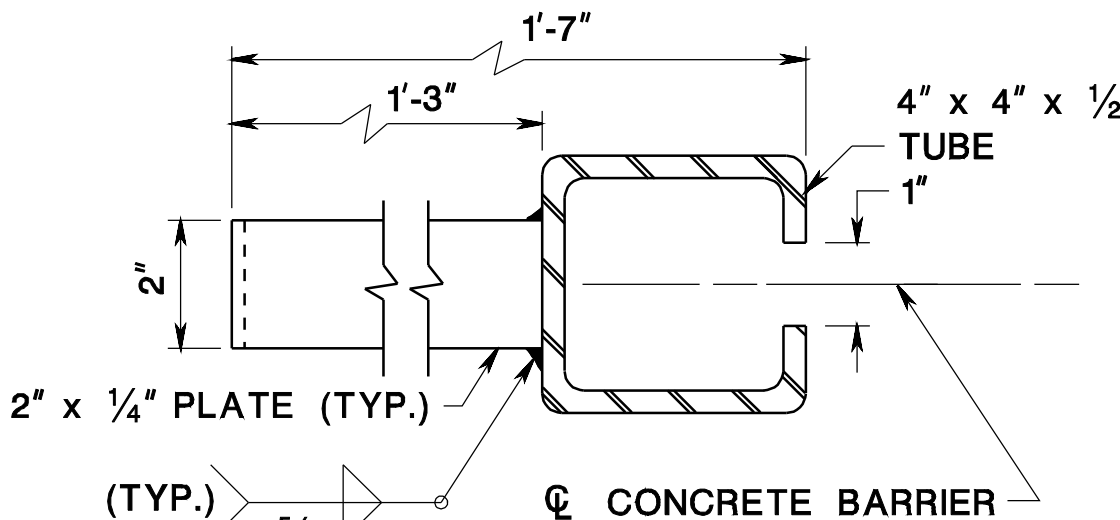
PLAN

ANCHOR POCKETS (TYP.) TO BE USED FOR TYPE 1 APPLICATION ONLY.

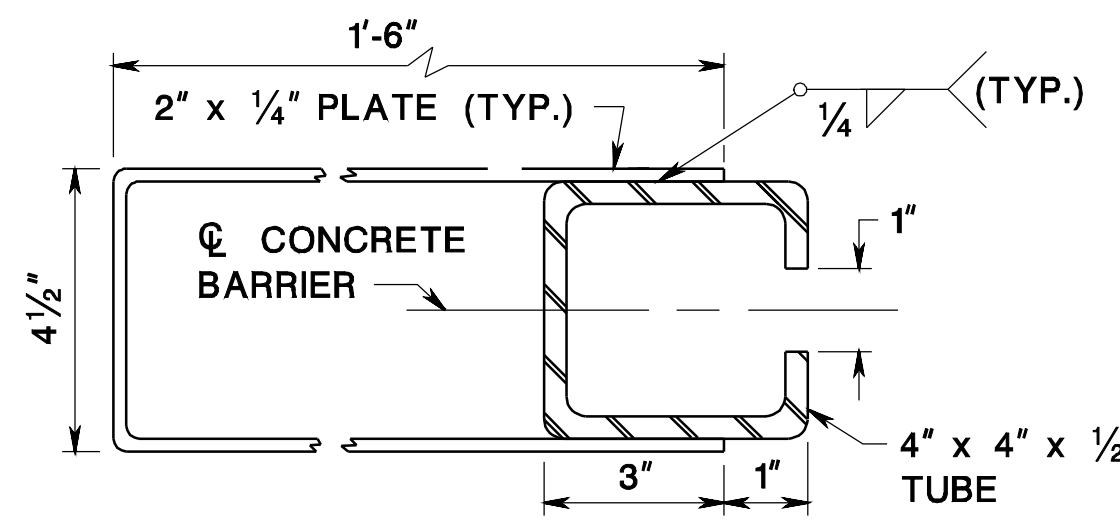
CONCRETE BARRIER

REINFORCEMENT STEEL LIST (EACH BARRIER SECTION)

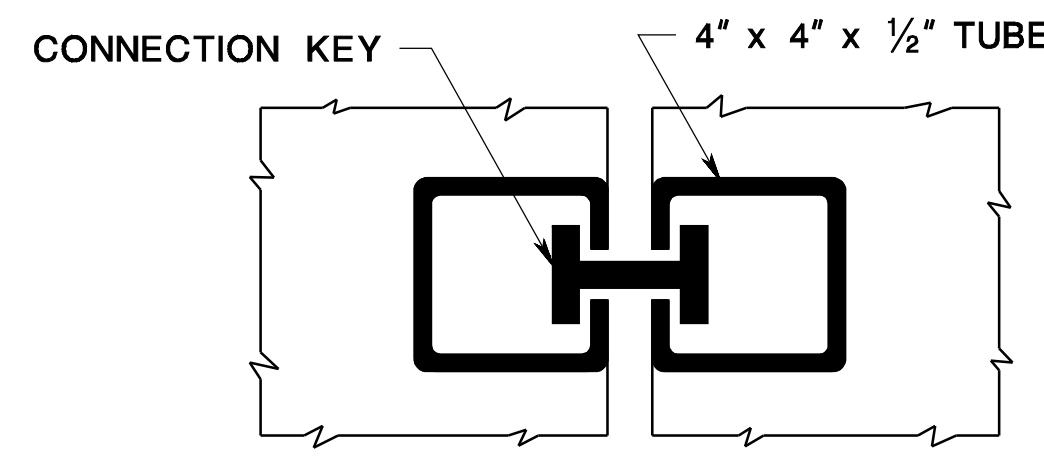
MARK	SIZE	NUMBER IN EACH SECTION	LENGTH	TYPE	A	B	C	LOCATION
4B1	#13	6	4'-11"	I	5"	26"	2"	STIRRUPS
4B4	#13	SEE NOTE 12	3'-1"	II	15 1/2"	4"		STIRRUPS
4B5	#13	SEE NOTE 12	4'-11"	I	5"	26"	2"	STIRRUPS
6B2	#19	2	SEE NOTE 12	STR.				LONGITUDINAL (TOP) NORMAL SECTION
6B3	#19	2	SEE NOTE 12	STR.				LONGITUDINAL (BOTTOM) NORMAL SECTION
6B4	#19	2	1'-2"	STR.				TRANSVERSE (BOTTOM) NORMAL SECTION
6B5	#19	2	0'-6"	STR.				TRANSVERSE (TOP) NORMAL SECTION



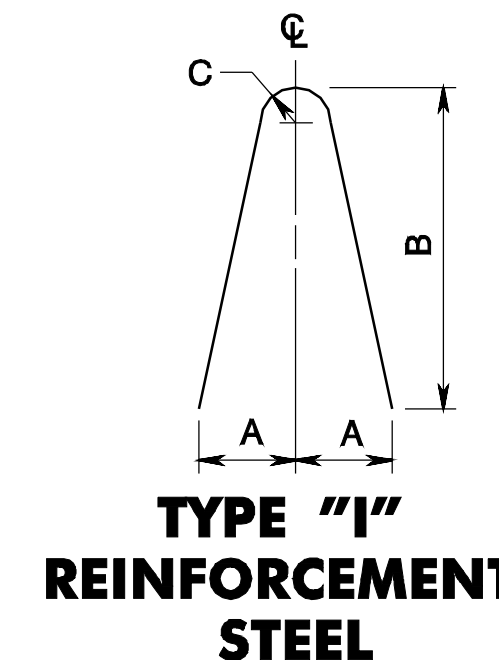
PLAN VIEW DETAIL No. 1



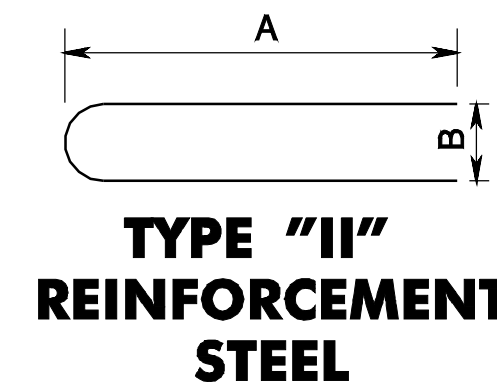
PLAN VIEW DETAIL No. 2



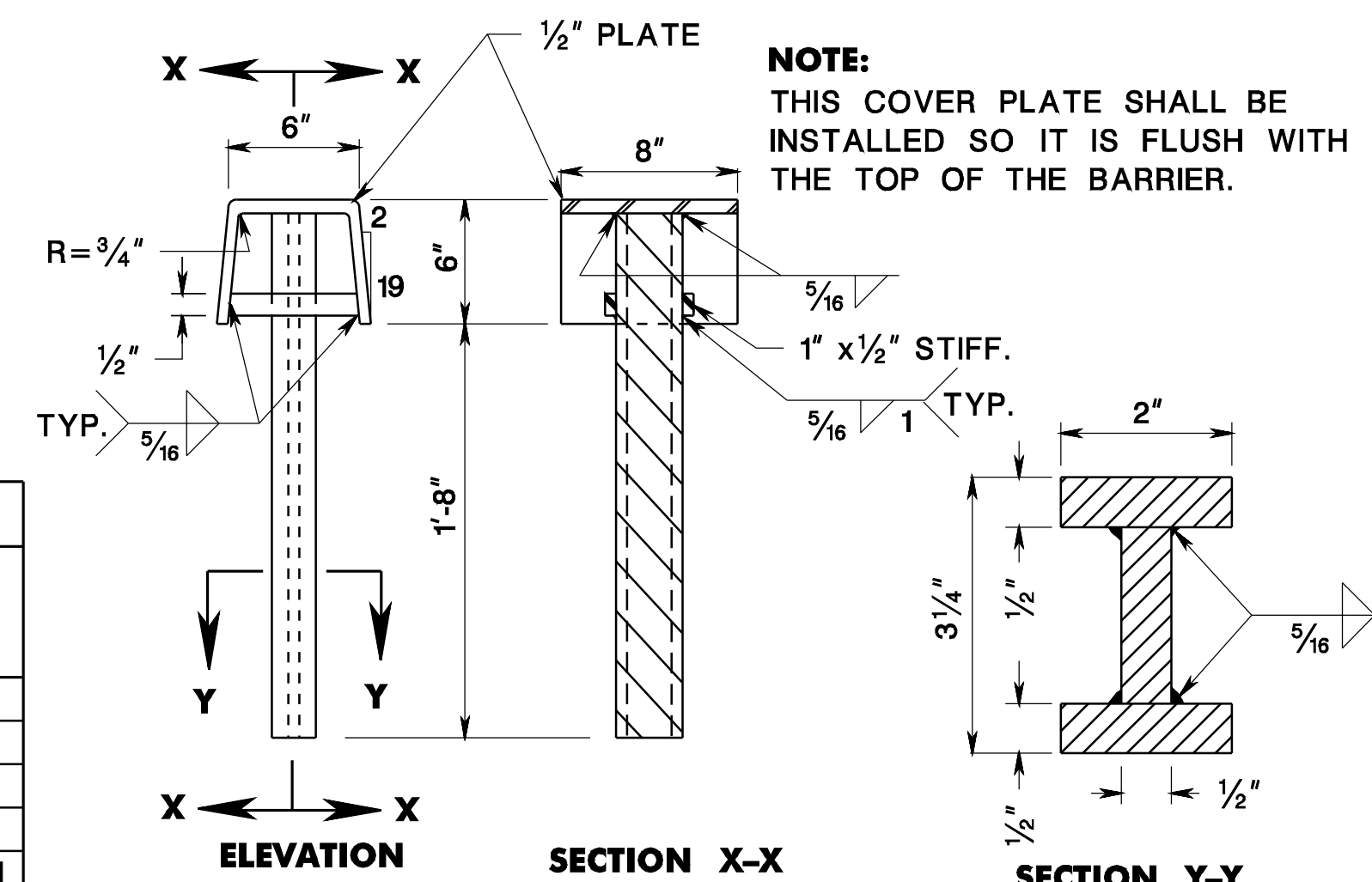
KEY IN PLACE



TYPE 'I' REINFORCEMENT STEEL



TYPE 'II' REINFORCEMENT STEEL



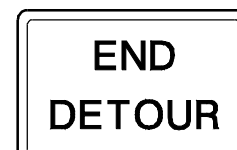
SECTION X-X

CONNECTION KEY

SECTION Y-Y

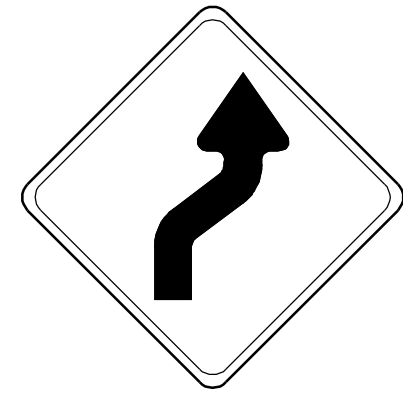


G20 - 1 [60" x 24"]
(10 S.F.)



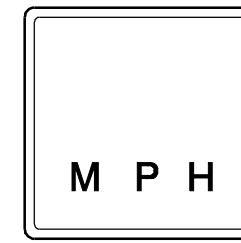
M4 - 8a [24" x 18"]
(3 S.F.)

M4 - 11 (S) [48" x 36"]
(12 S.F.)



(L OR R)

W1 - 4a [48" x 48"]
(16 S.F.)

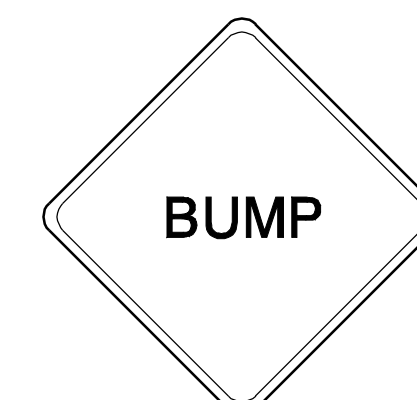


W13 - 1 [18" x 18"]
(2.3 S.F.)

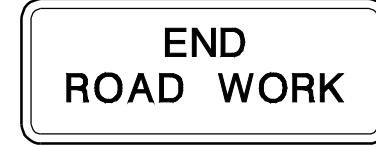
W13 - 1 (S) [24" x 24"]
(4 S.F.)



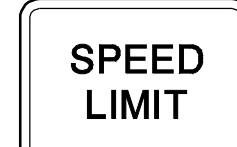
W20 - 7a [48" x 48"]
(16 S.F.)



W8 - 1 (S) [48" x 48"]
(16 S.F.)

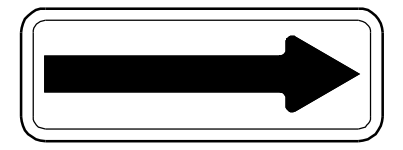


G20 - 2A [48" x 24"]
(8 S.F.)



R2 - 1 [36" x 48"]
(12 S.F.)

R2 - 1 (S) [48" x 60"]
(20 S.F.)



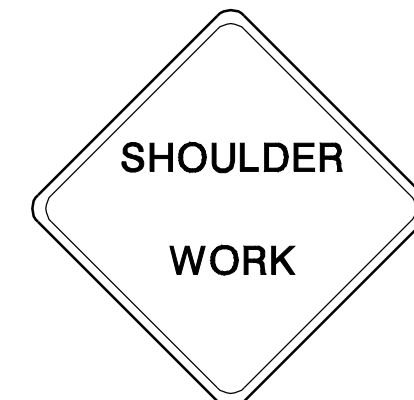
(L OR R)

W1 - 6 [48" x 24"]
(8 S.F.)

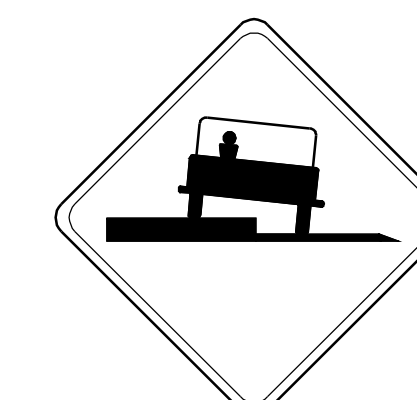
W1 - 6 (S) [60" x 30"]
(12.5 S.F.)



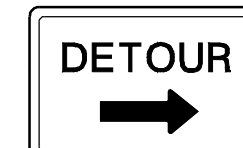
W20 - 1A [48" x 48"]
(16 S.F.)



W21 - 5 (S) [48" x 48"]
(16 S.F.)

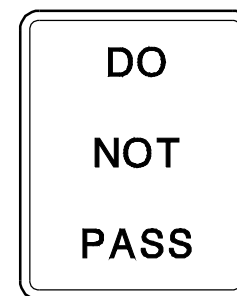


W8 - 9a [48" x 48"]
(16 S.F.)

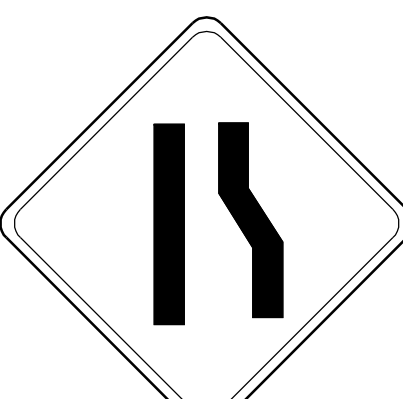


M4 - 9L (LEFT) [30" x 24"]
M4 - 9R (RIGHT) [30" x 24"]
(5 S.F.)

M4 - 9 (L or R) (S) [48" x 36"]
(12 S.F.)

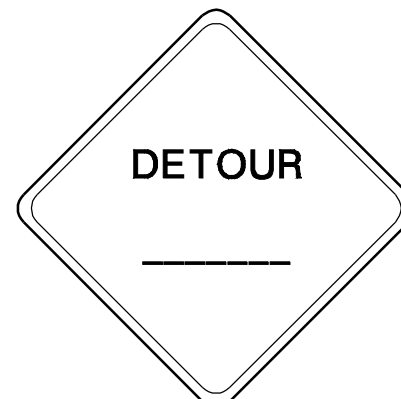


R4 - 1 [24" x 30"]
(5 S.F.)

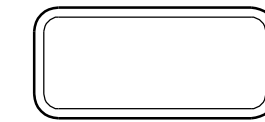


(L OR R)

W4 - 2 (S) [48" x 48"]
(16 S.F.)



W20 - 2 [48" x 48"]
(16 S.F.)



M4 - 9N [30" x 12" MIN.]
(2.5 S.F.)

(SIZE WILL VARY WITH LENGTH OF STREET NAME)

STREET NAME SIGN TO BE USED IN CONJUNCTION WITH M4 - 9 SIGNS BLACK ON ORANGE



W8 - 14 [48" x 48"]
(16 S.F.)



M4 - 9LX (LEFT) [30" x 24"]
M4 - 9RX (RIGHT) [30" x 24"]
(5 S.F.)

M4 - 9 (L or R) XS [48" x 36"]
(12 S.F.)



R11 - 2 [48" x 30"]
(10 S.F.)



W5 - 1 (S) [48" x 48"]
(16 S.F.)

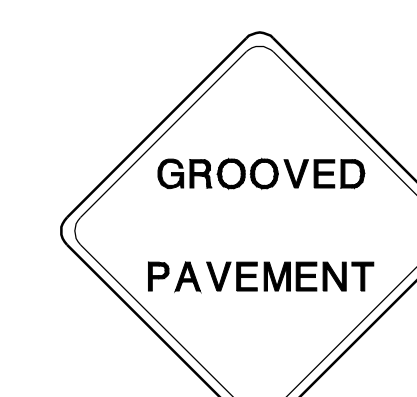


W20 - 3 [48" x 48"]
(16 S.F.)

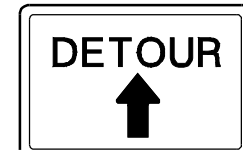


[24" x 24"]
(4 S.F.)

[30" x 30"] (S)
(6.3 S.F.)



W8 - 14A [48" x 48"]
(16 S.F.)

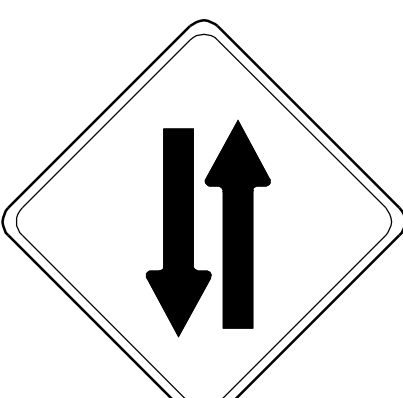


M4 - 9X [30" x 24"]
(5 S.F.)

M4 - 9X (S) [48" x 36"]
(12 S.F.)



R11 - 3 [60" x 30"]
(12.5 S.F.)



W6 - 3 [48" x 48"]
(16 S.F.)



W20 - 4 [48" x 48"]
(16 S.F.)

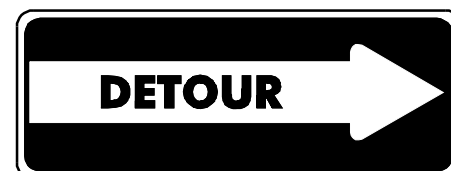


[24" x 24"]
(4 S.F.)

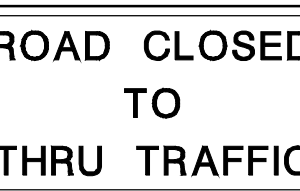
[30" x 30"] (S)
(6.3 S.F.)



W99 - 2 [48" x 48"]
(16 S.F.)



M4 - 10L (LEFT) [48" x 18"]
M4 - 10R (RIGHT) [48" x 18"]
(6 S.F.)



R11 - 4 [60" x 30"]
(12.5 S.F.)



W20 - 7b [48" x 48"]
(16 S.F.)



(L OR R) (CENTER)
W20 - 5 [48" x 48"]
(16 S.F.)

NOTE:

THE BORDER, THE WORDS "GIVE US A", "SLOW DOWN!", AND THE BRAKE PEDAL ARE BLACK; LEAVING THE WORD "BRAKE" ORANGE.

GENERAL NOTES:

- DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS, AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGN PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
- (S) REPRESENTS A SPECIAL SIZE SIGN.
- LETTERS AND NUMERALS SHALL CONFORM TO THE CURRENT MANUAL, "STANDARD ALPHABETS FOR HIGHWAY SIGNS" U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
- THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE ENGINEER FOR THE DISTANCE TO BE USED ON THE ADVANCE WARNING SIGNS, AND FOR THE SPEED LIMIT TO BE USED ON THE R2-1 SIGN.
- DISTANCE LEGEND: SIGN NUMBER FOLLOWED BY LETTER & DISTANCE

LETTER	DISTANCE
A	1500'
B	1000'
C	500'
D	MILE
E	___ MILES AHEAD
F	AHEAD

BACKING MATERIAL

- ALUMINUM SHALL BE FLAT SHEET OF ALLOY AND TEMPER 5052-H38 OR 6061-T6 :
 - 0.10" THICK FOR ALL CONSTRUCTION SIGNS EXCEPT SIGNS SHOWN MOUNTED ON BREAKAWAY BARRICADES.
 - 0.024" THICK FOR ALL CONSTRUCTION SIGNS SHOWN MOUNTED ON BREAKAWAY BARRICADES.

TEMPORARY SIGN SUPPORTS

- SIGN SUPPORTS SHALL BE OF WELL SEASONED LUMBER, S4S, FREE OF SPLITS, KNOTS AND WARPS, OR OF STEEL COMPONENTS.
- WOOD POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL NOT EXCEED THE FOLLOWING DIMENSIONS FOR:
 - SINGLE POST = 4" x 6"
 - TWO POSTS = 3" x 6" OR 4" x 5"
 - THREE POSTS = 3" x 5" OR 4" x 4"

4" X 6" WOOD POSTS SHALL BE MODIFIED BY DRILLING 1/2 INCH DIAMETER HOLES 4 INCHES AND 18 INCHES ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.
- NO BRACING IS PERMITTED. VERTICAL CLEARANCES FOR SIGNS MOUNTED ON WOOD SUPPORTS SHALL BE 7 FOOT MINIMUM. EMBEDMENT DEPTH FOR THE WOOD POST SHALL NOT EXCEED 3.5 FEET.
- STEEL POSTS SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR U-POST SIGN SUPPORT.
- TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHIONS.

SIGN FACES

- SIGN FACES SHALL BE ASTM D 4956 TYPE VII OR VIII FLUORESCENT ORANGE SHEETING.

FASTENING

- ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH THE SPECIFICATIONS.

**CONSTRUCTION SIGNS
N.T.S.**

CD-159-6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

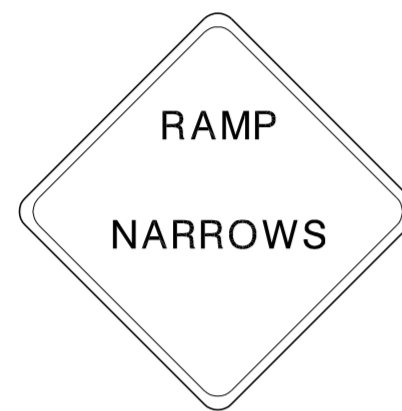
CD-159-6.1



E5 - 1 [60" x 48"]
(20 S.F.)



W50 - 1C [60" x 48"]
(20 S.F.)



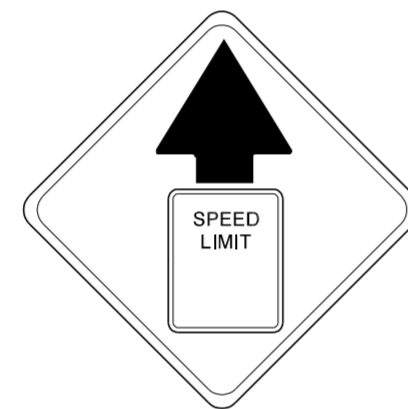
W5 - 4 [48" x 48"]
(16 S.F.)



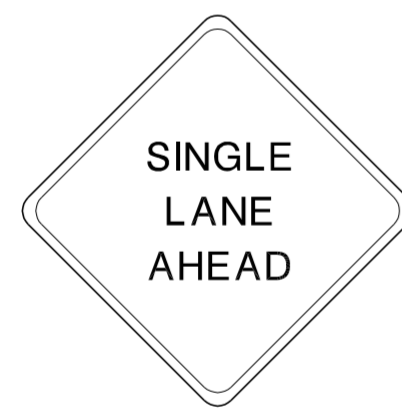
W(NJ)100 - 1(L OR R)
48" x 48"
(16 S.F.)



W9 - 3 a [48" X 48"]
(16 S.F.)



W3-5
48" x 48"
(16 S.F.)



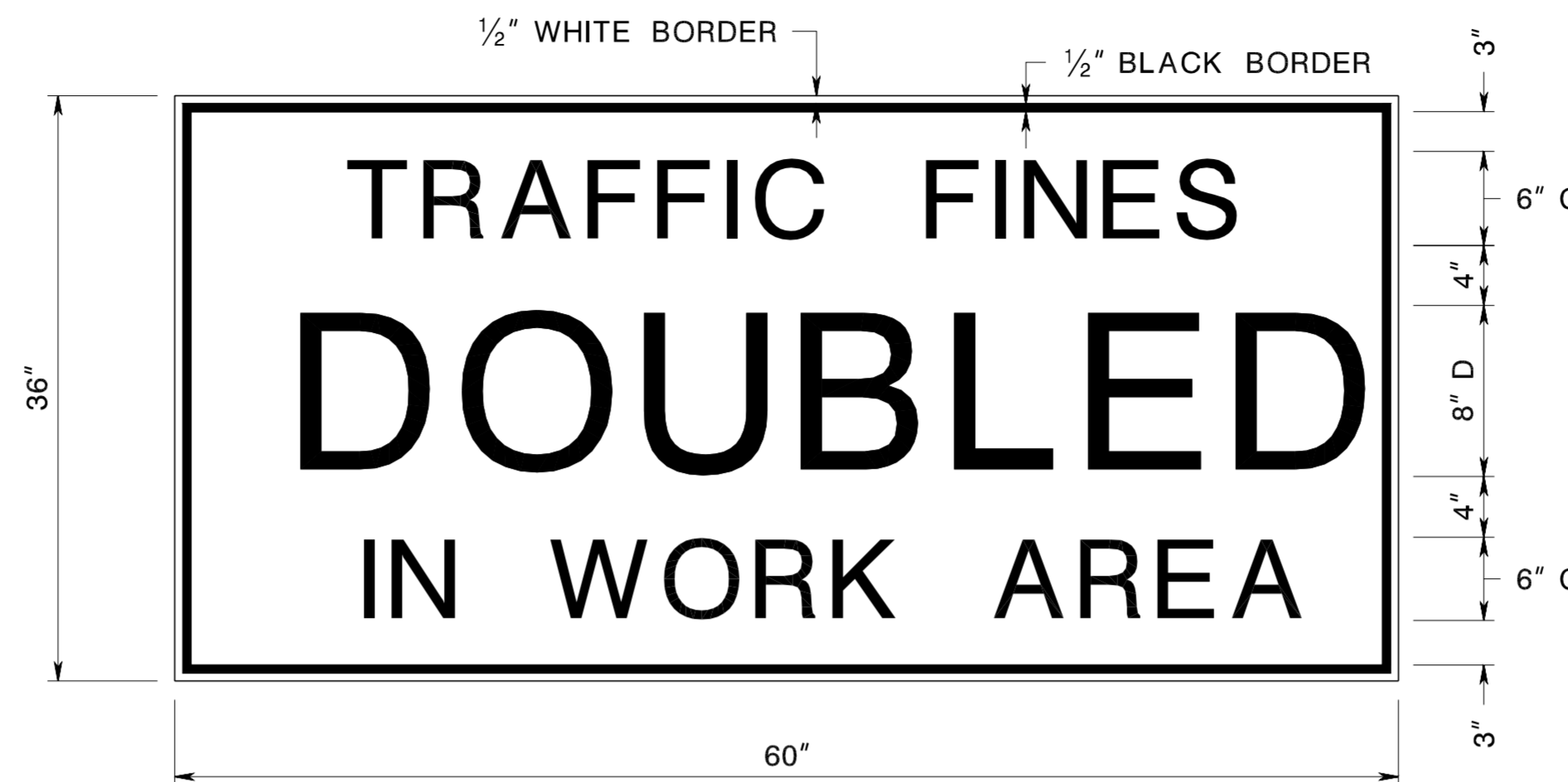
W20 - 4F(M) [48" x 48"]
(16 S.F.)



36" x 12"
(3 S.F.)

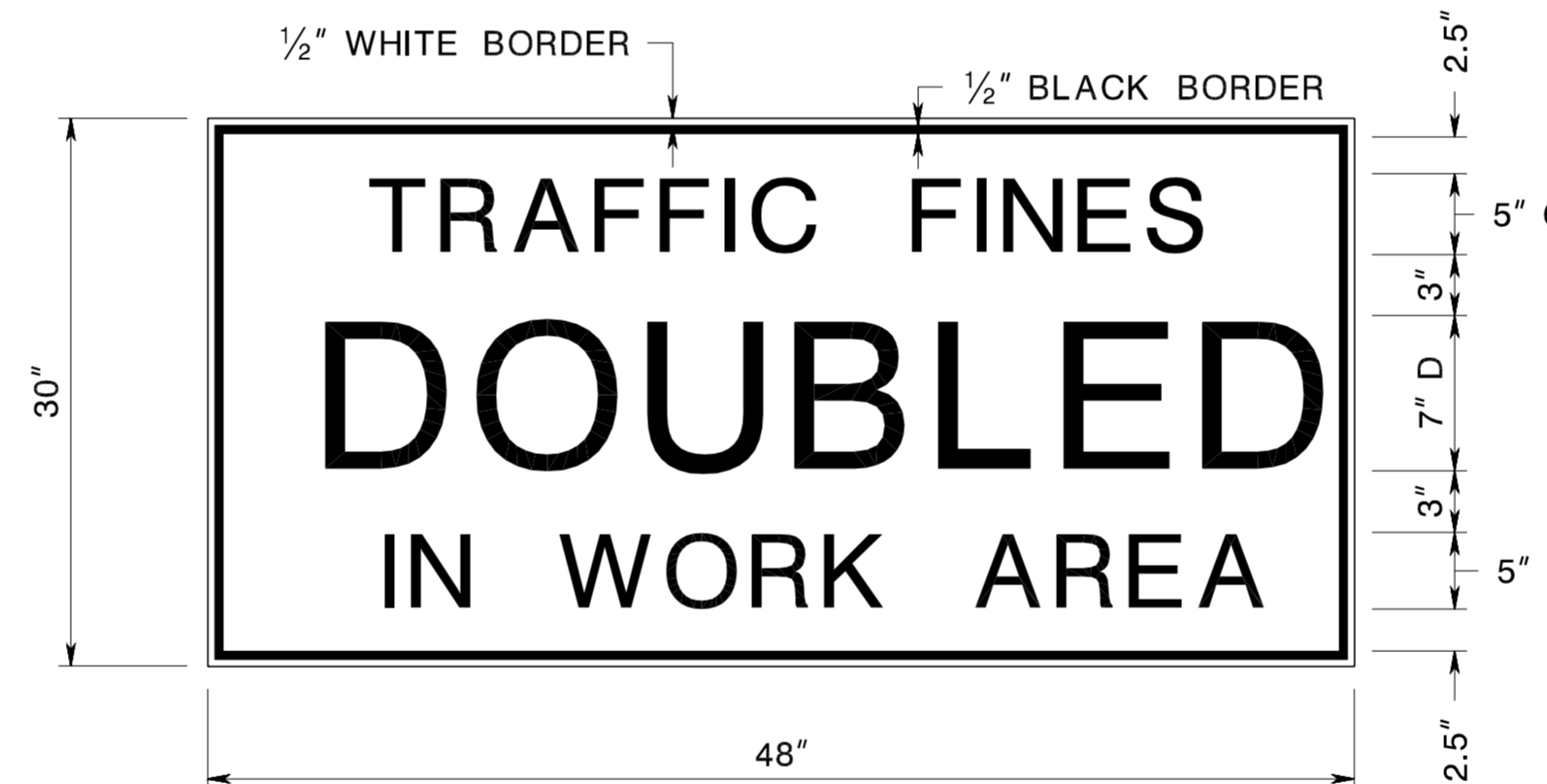


W20 - 10(G) [48" x 48"]
(16 S.F.)



NOTE:
MESSAGE TO BE BLACK LETTERS
ON WHITE REFLECTIVE BACKGROUND.

R(NJ)5-17 60" x 36"
(15 S.F.)



NOTE:
MESSAGE TO BE BLACK LETTERS
ON WHITE REFLECTIVE BACKGROUND.

R(NJ)5-17 48" x 30"
(10 S.F.)

GENERAL NOTES:

- DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS, AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGN PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
- LETTERS AND NUMERALS SHALL CONFORM TO THE CURRENT MANUAL, "STANDARD ALPHABETS FOR HIGHWAY SIGNS" U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
- THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE ENGINEER FOR THE DISTANCE TO BE USED ON THE ADVANCE WARNING SIGNS, AND FOR THE SPEED LIMIT TO BE USED ON THE R2-1 SIGN.
- DISTANCE LEGEND: SIGN NUMBER FOLLOWED BY LETTER & DISTANCE

LETTER	DISTANCE
A	1500'
B	1000'
C	500'
D	___ MILE
E	___ MILES AHEAD
F	AHEAD

BACKING MATERIAL

- ALUMINUM SHALL BE FLAT SHEET OF ALLOY AND TEMPER 5052-H38 OR 6061-T6 :
 - 0.10" THICK FOR ALL CONSTRUCTION SIGNS EXCEPT SIGNS SHOWN MOUNTED ON BREAKAWAY BARRICADES.
 - 0.024" THICK FOR ALL CONSTRUCTION SIGNS SHOWN MOUNTED ON BREAKAWAY BARRICADES.

TEMPORARY SIGN SUPPORTS

- SIGN SUPPORTS SHALL BE OF WELL SEASONED LUMBER, S4S, FREE OF SPLITS, KNOTS AND WARPS, OR OF STEEL COMPONENTS.
- WOOD POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL NOT EXCEED THE FOLLOWING DIMENSIONS FOR:
 - SINGLE POST = 4" x 6"
 - TWO POSTS = 3" x 6" OR 4" x 5"
 - THREE POSTS = 3" x 5" OR 4" x 4"

4" X 6" WOOD POSTS SHALL BE MODIFIED BY DRILLING 1/2 INCH DIAMETER HOLES 4 INCHES AND 18 INCHES ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.
- NO BRACING IS PERMITTED. VERTICAL CLEARANCES FOR SIGNS MOUNTED ON WOOD SUPPORTS SHALL BE 7 FOOT MINIMUM. EMBEDMENT DEPTH FOR THE WOOD POST SHALL NOT EXCEED 3.5 FEET.
- STEEL POSTS SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR U-POST SIGN SUPPORT.
- TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHIONS.
- WOOD POST TO BE USED ONLY ON TEMPORARY SIGN SUPPORT.

SIGN FACES

- SIGN FACES SHALL BE ASTM D 4956 TYPE VII OR VIII FLUORESCENT ORANGE SHEETING.

FASTENING

- ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH THE SPECIFICATIONS.

CONSTRUCTION SIGNS

N.T.S.

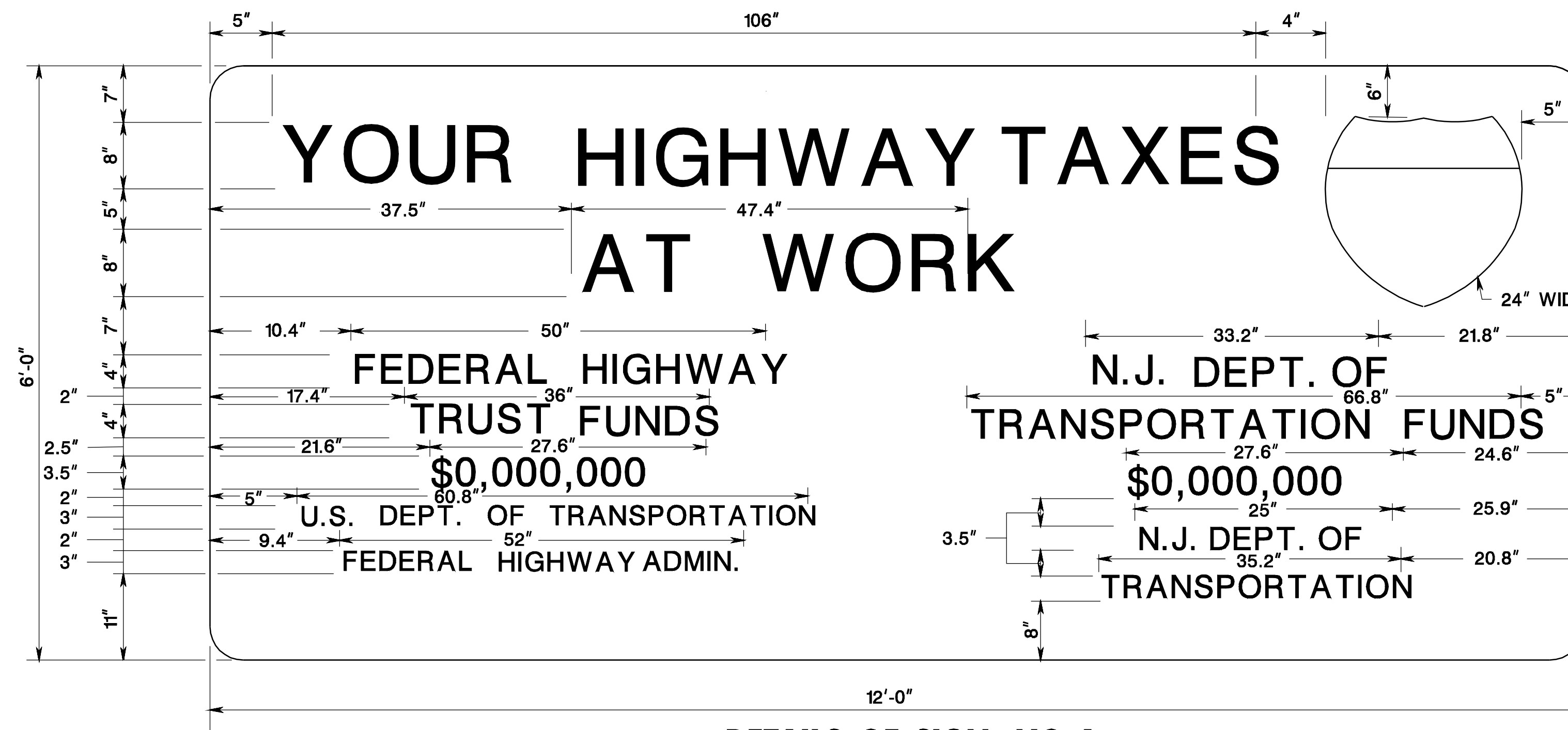
CD-159-7

NEW JERSEY DEPARTMENT OF TRANSPORTATION

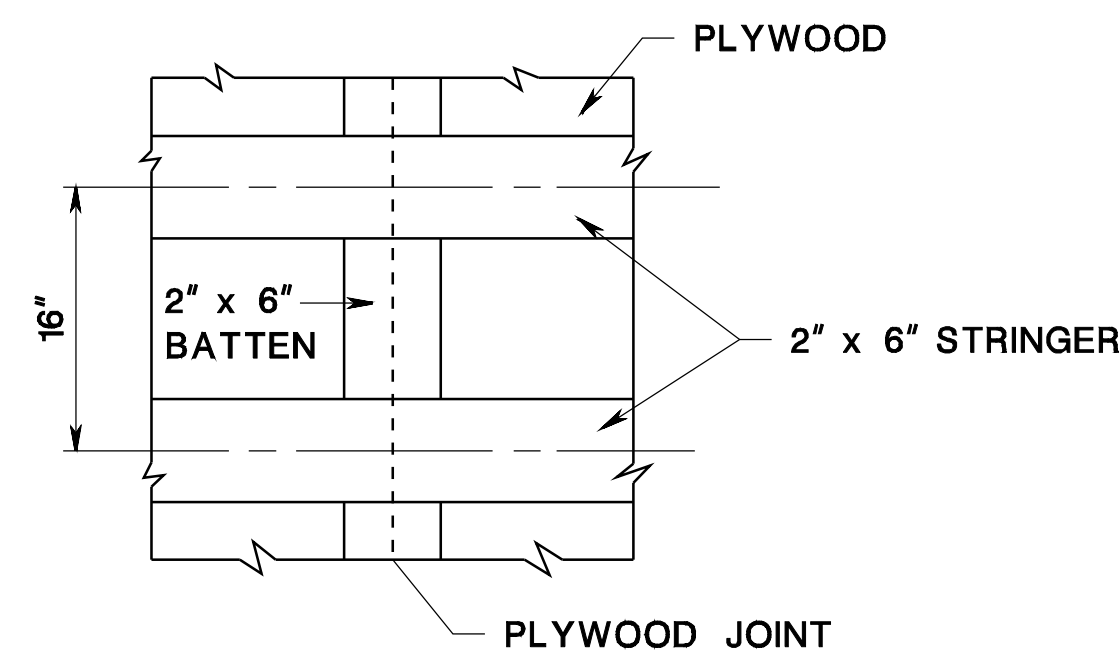
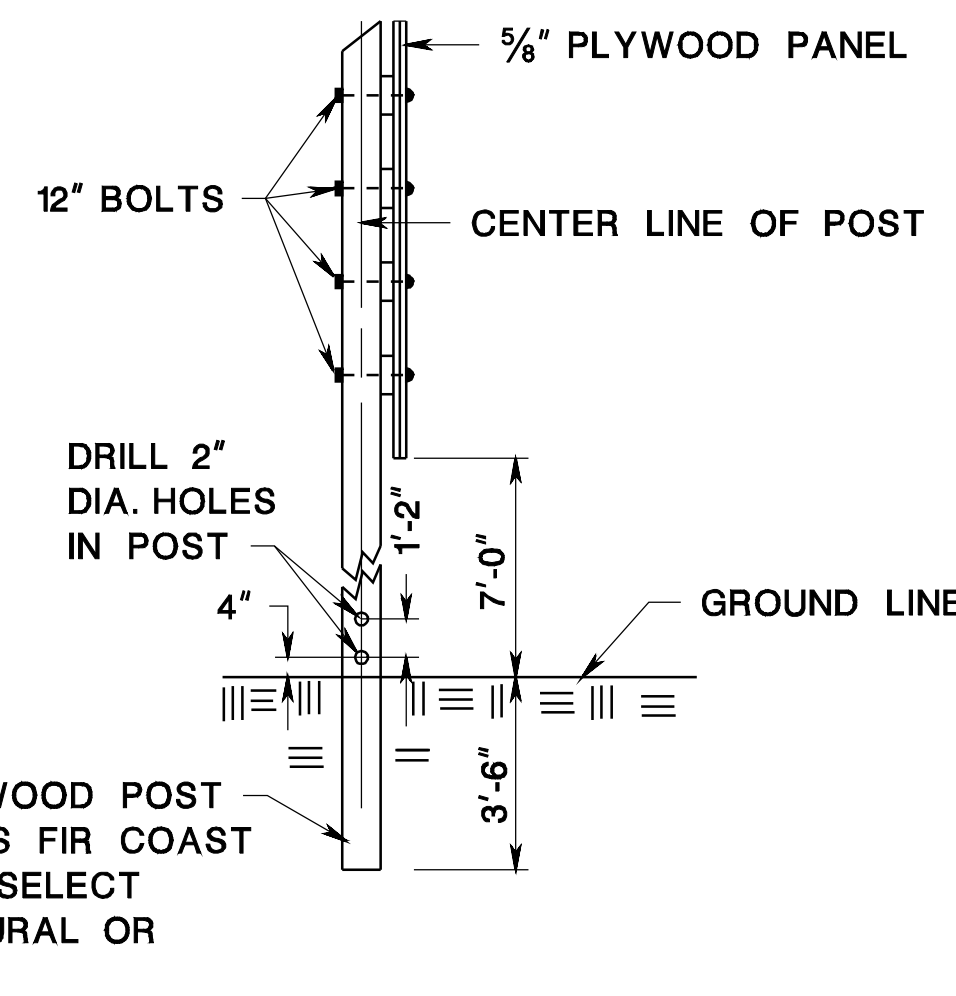
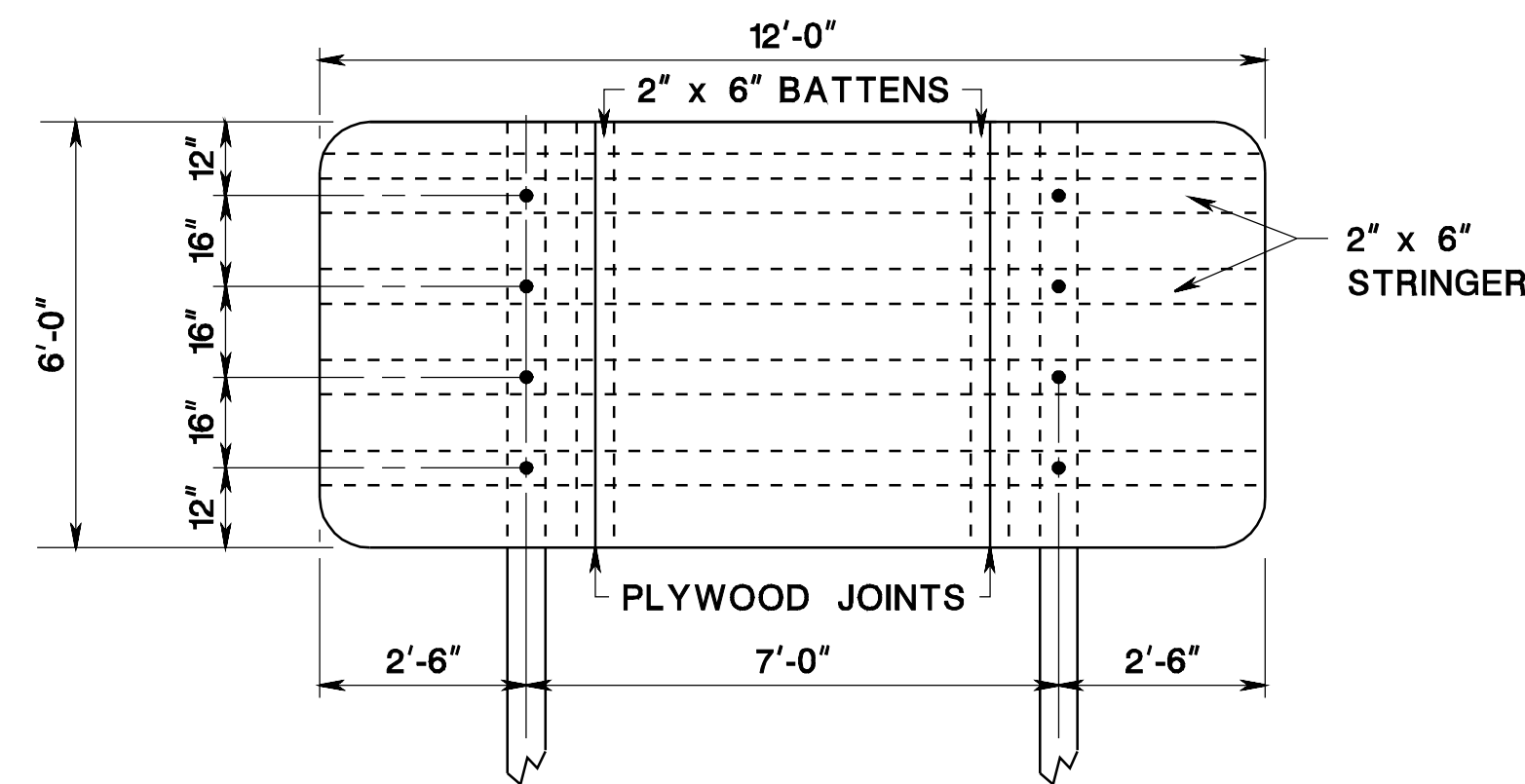
CONSTRUCTION DETAILS

CD-159-7.1

SIGN NO. 1 (INTERSTATE)



DETAILS OF SIGN NO. 1



DETAIL OF BATTEN AT PLYWOOD JOINTS SIGN NO. 1

NOTES:

PLYWOOD PANELS SHALL CONFORM TO REQUIREMENTS FOR HIGH DENSITY OVERLAY AS SET FORTH IN COMMERCIAL STANDARD CS 45-60 FOR DOUGLAS FIR PLYWOOD AND ALL AMENDMENTS THERETO.

COSTS LISTED ON SIGNS TO BE FURNISHED BY THE DEPARTMENT AFTER AWARD OF CONTRACT.

SIGNS TO BE LOCATED AS SHOWN ON PLANS OR AS DIRECTED BY THE R.E..

SHIELD TO COMFORM TO DETAILS SHOWN IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

COLOR: GREEN BACKGROUND WITH WHITE MESSAGE AND BORDER NOT REFLECTORIZED.

LEGEND: SERIES "C" LETTERS - "YOUR HIGHWAY TAXES AT WORK"
SERIES "D" LETTERS (BALANCE OF LETTERING).

CORNER RADIUS: 3"

INTERSTATE SHIELD: RED, WHITE, AND BLUE

NOTE:

ON PROJECTS WITH NO FEDERAL FUNDING THE REFERENCE

FEDERAL HIGHWAY TRUST FUNDS
\$0,000,000
U.S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMIN.

SHALL NOT BE INCLUDED ON THE SIGN.

INTERSTATE CONSTRUCTION IDENTification SIGN

N.T.S.

CD-159-8

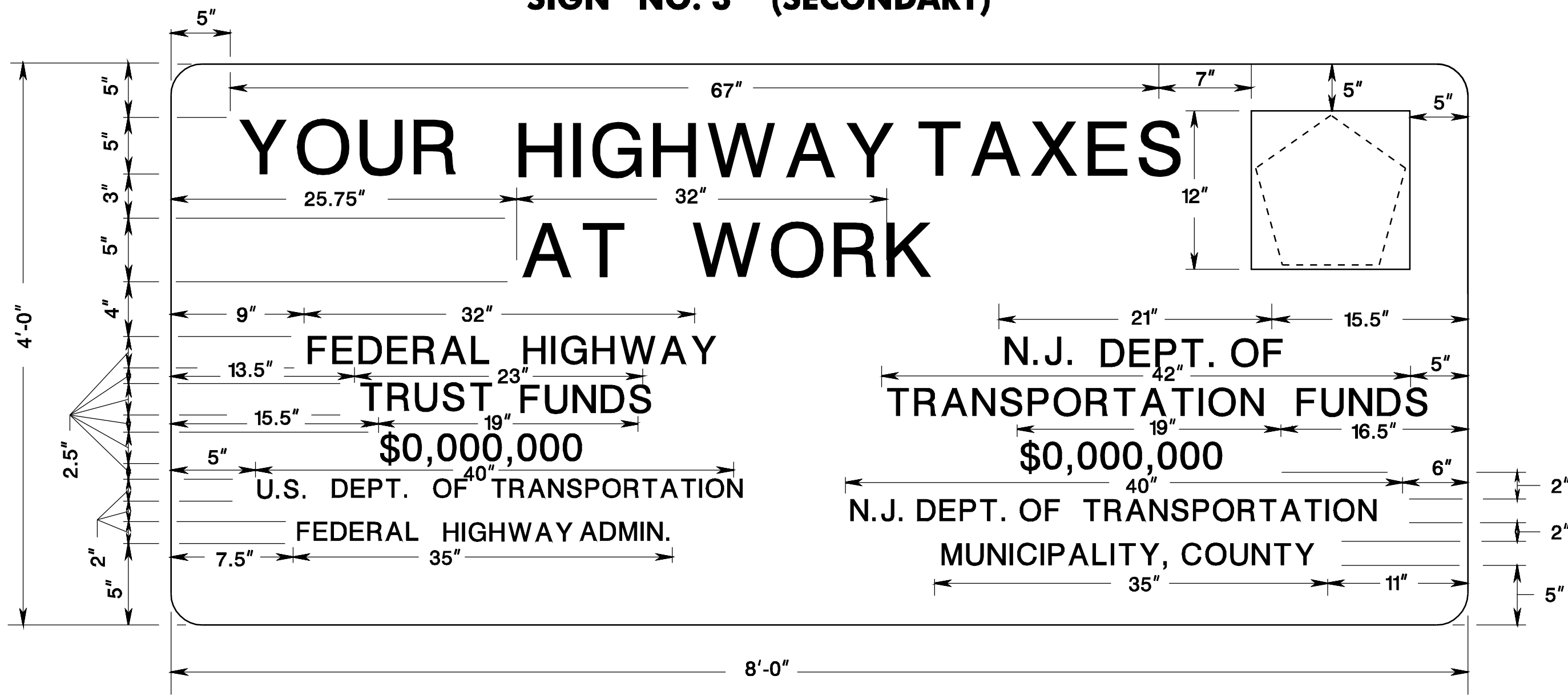
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-159-8.1

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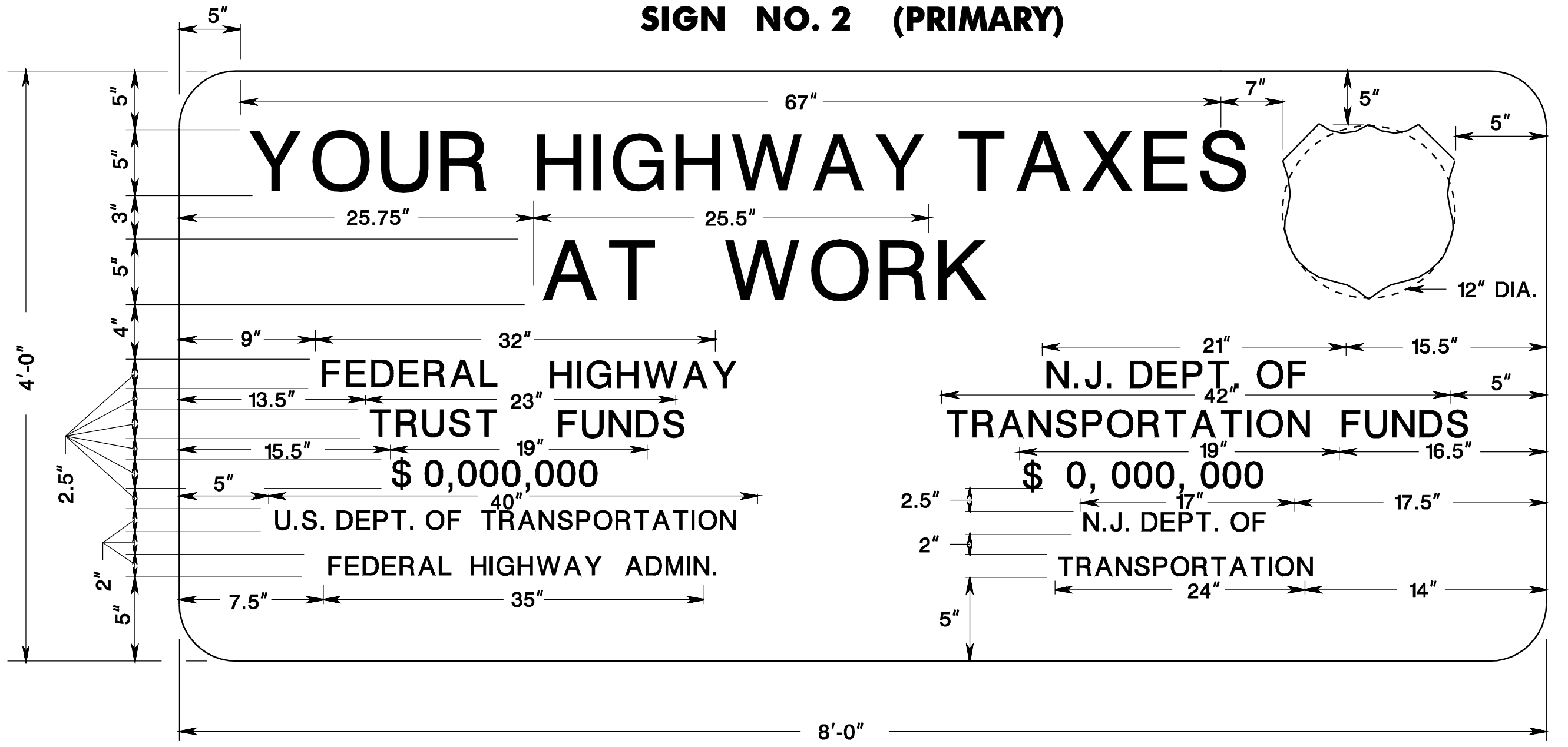
SIGN NO. 3 (SECONDARY)



NOTE:
 PENTAGON INSIGNIA TO BE USED WHEN POSTING COUNTY ROUTES.

NOTES:
 PLYWOOD PANELS SHALL COMFORM TO REQUIREMENTS FOR HIGH DENSITY OVERLAY AS SET FORTH IN COMMERCIAL STANDARD CS 45-60 FOR DOUGLAS FIR PLYWOOD AND ALL AMENDMENTS THERETO.
 COSTS LISTED ON SIGNS TO BE FURNISHED BY DEPARTMENT AFTER AWARD OF CONTRACT.
 SIGNS TO BE LOCATED AS SHOWN ON PLANS OR AS DIRECTED BY THE R.E..
 SHIELD TO COMFORM TO DETAILS SHOWN IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
 COLOR: GREEN BACKGROUND WITH WHITE MESSAGE AND BORDER NOT REFLECTORIZED.
 LEGEND: SERIES "C" LETTERS - "YOUR HIGHWAY TAXES AT WORK"
 SERIES "D" LETTERS (BALANCE OF LETTERING).
 CORNER RADIUS: 3"
 INTERSTATE SHIELD: RED, WHITE, AND BLUE
 U.S. AND STATE SHIELDS: BLACK ON WHITE
 COUNTY SHIELDS: GOLD ON BLUE

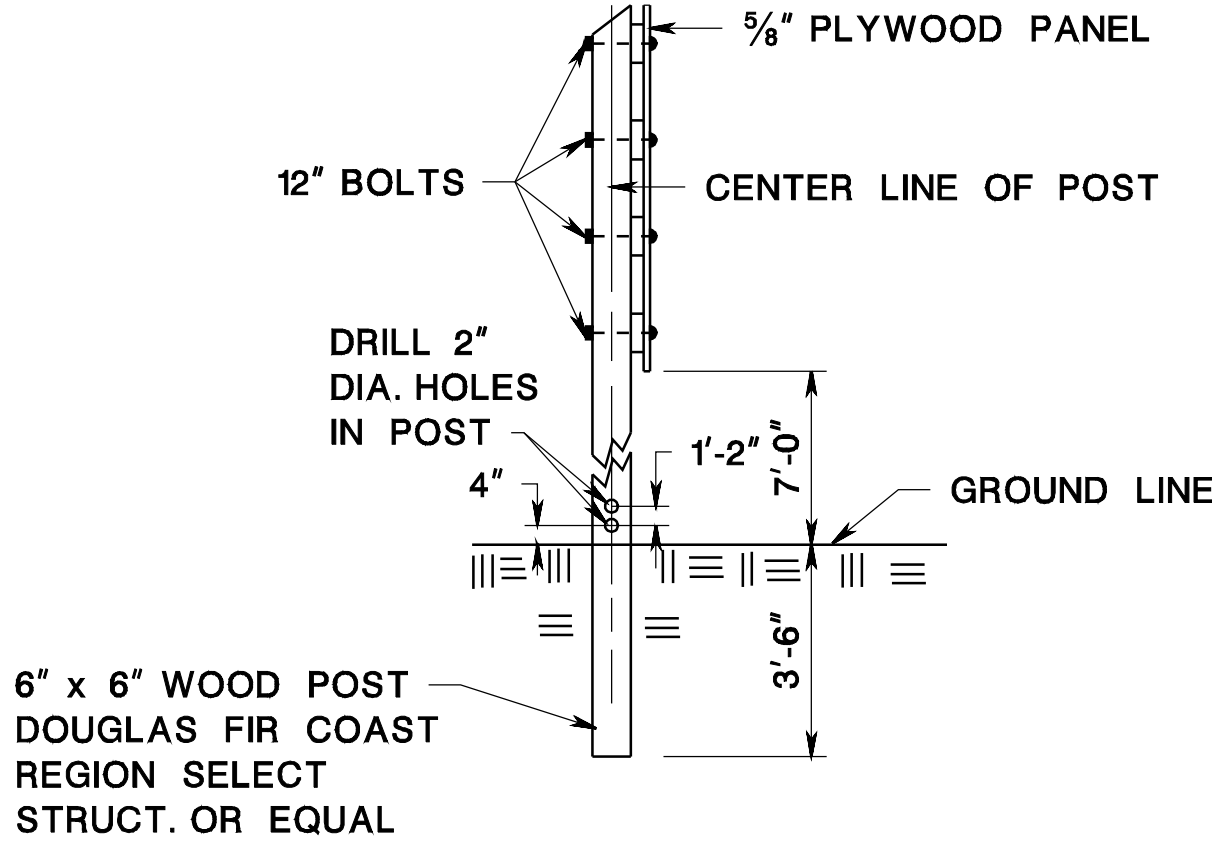
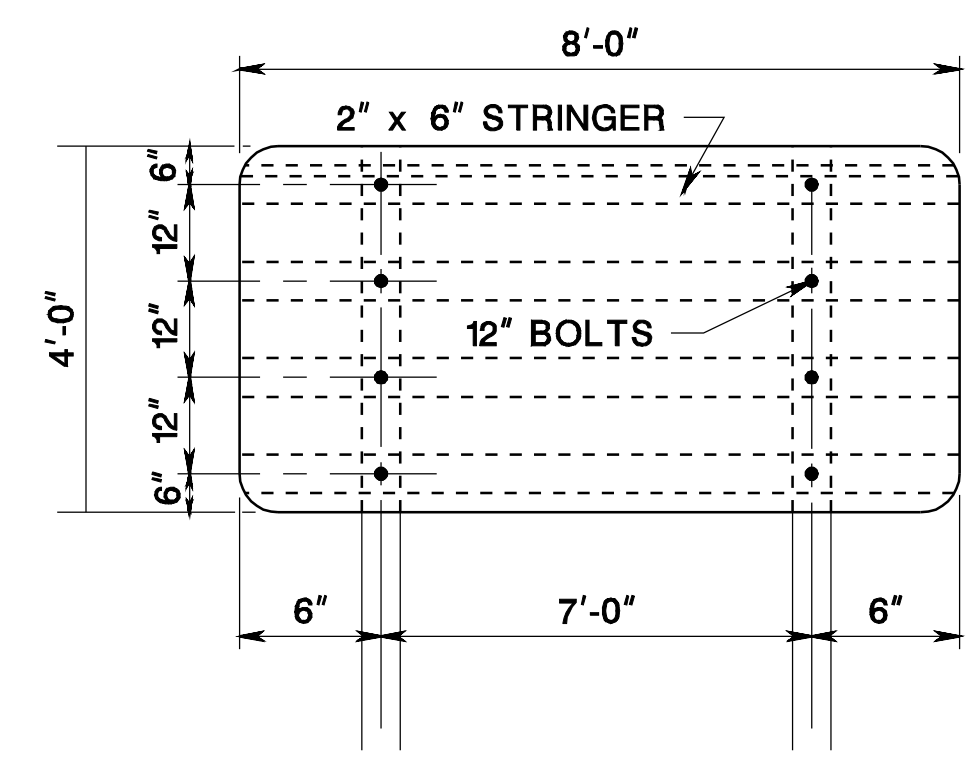
SIGN NO. 2 (PRIMARY)



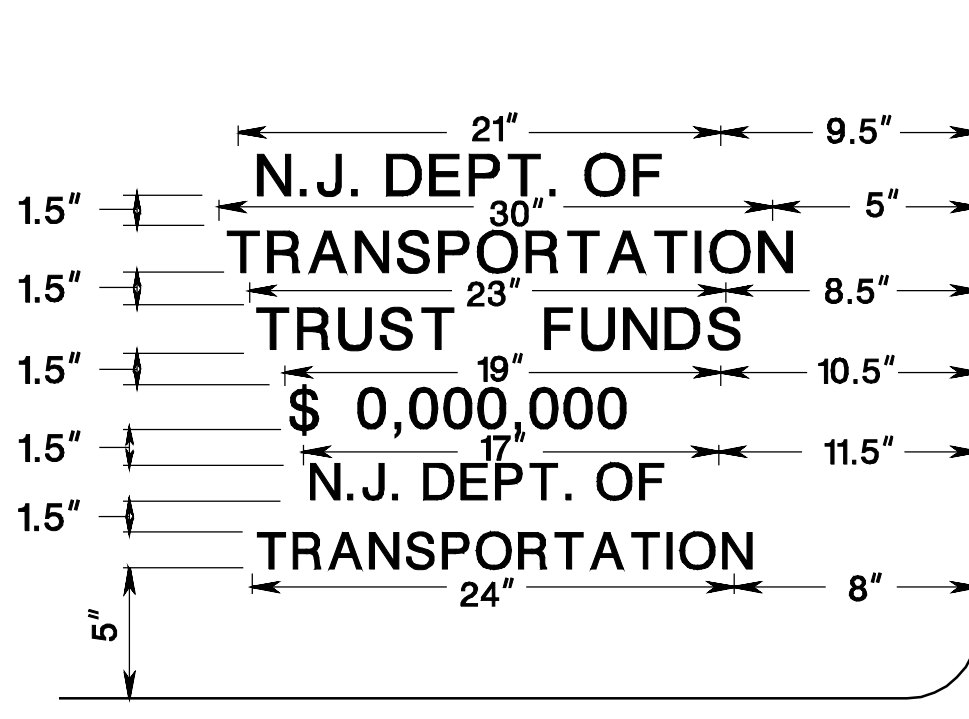
NOTE:
 SHIELD INSIGNIA TO BE USED WHEN POSTING U. S. ROUTES.
 CIRCLE INSIGNIA TO BE USED WHEN POSTING STATE ROUTES.

NOTE:
 ON PROJECTS WITH NO FEDERAL FUNDING THE REFERENCE FEDERAL HIGHWAY TRUST FUNDS \$0,000,000 U.S. DEPT. OF TRANSPORTATION FEDERAL HIGHWAY ADMIN. SHALL NOT BE INCLUDED ON THE SIGN.

DETAILS OF SIGNS NO. 2 & 3



NOTE:
 USE MODIFIED DETAIL BELOW WHEN NJDOT TRUST FUNDS ARE APPLICABLE FOR SIGNS #2 AND #3 (LOWER RIGHT HAND CORNER OF SIGNS).



CONSTRUCTION IDENTIFICATION SIGNS

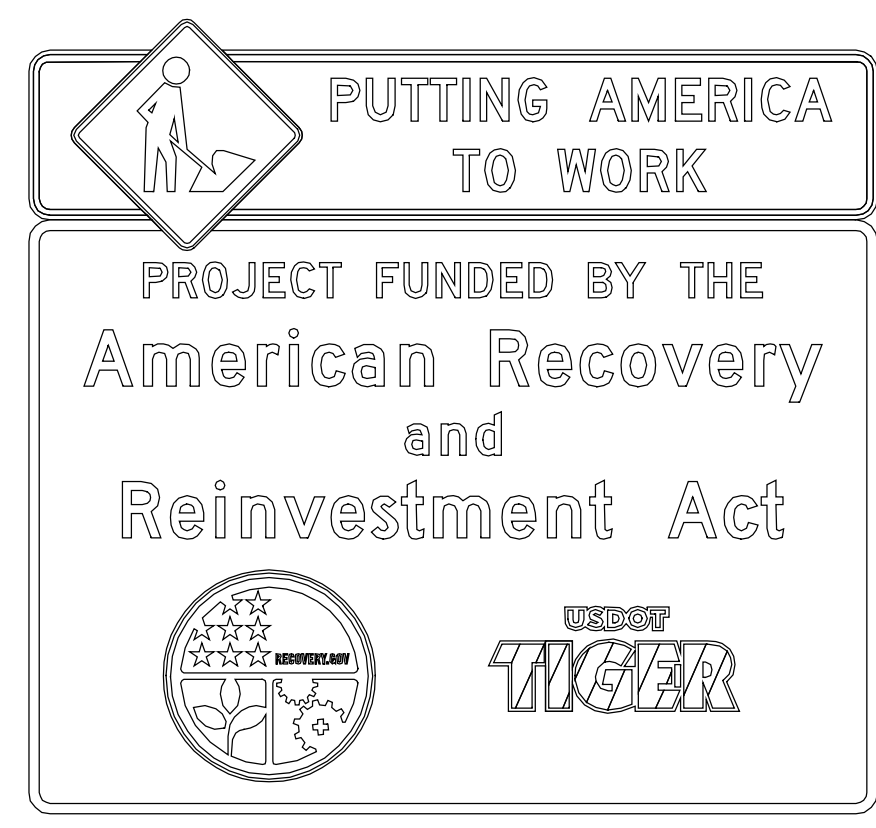
N.T.S.

CD-159-9
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-159-9.1

SIGN NO. 4 (INTERSTATE, PRIMARY AND SECONDARY)

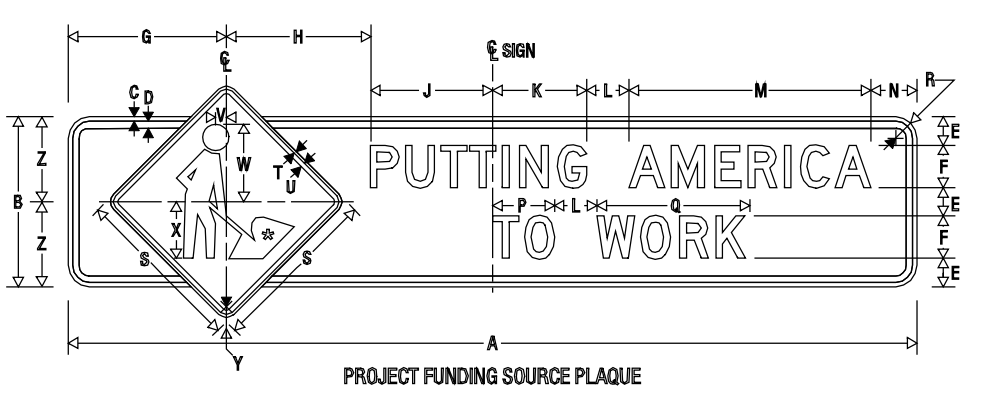


PROJECT FUNDING SOURCE SIGN ASSEMBLY



RECOVERY Vector-Based, Vinyl-Ready Pictograph

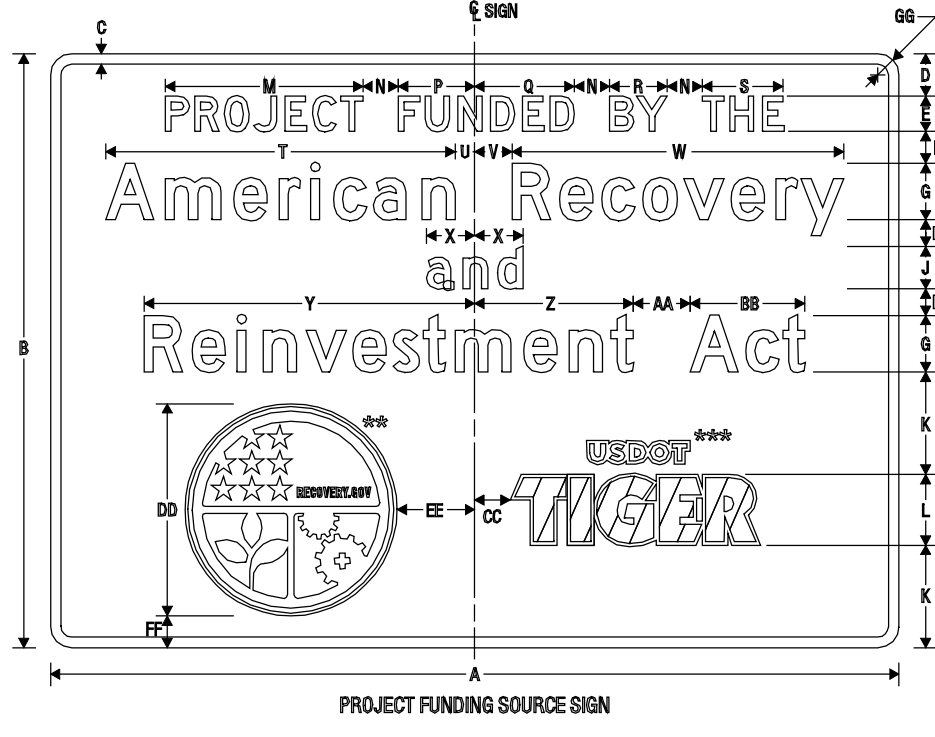
COLORS: LEGEND, OUTLINE - WHITE (RETROREFLECTIVE)
 BORDER - BLUE (RETROREFLECTIVE)
 BACKGROUND (UPPER) - BLUE (RETROREFLECTIVE)
 BACKGROUND (LOWER RIGHT) - RED (RETROREFLECTIVE)
 BACKGROUND (LOWER LEFT) - GREEN (RETROREFLECTIVE)



PROJECT FUNDING SOURCE PLAQUE

NOTE: PLAQUE SHALL NOT BE INSTALLED WITHOUT SIGN (SEE SHEET 2).

* See Standard Highway Signs Page 659 for symbol design.



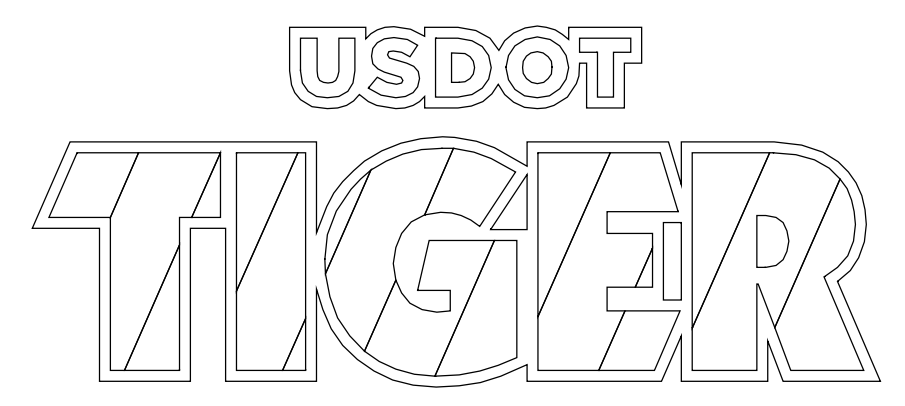
PROJECT FUNDING SOURCE SIGN

SIGN NO. 4	Dimensions in Inches														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
	84	60	1	5	4 C*	3.5	6 C*	3	4 1/2 (BL)	9.25	7	19.047	4	7.3 x 2	
	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	
SIGN NO. 4	9.484	5.162	7.763	31.722	2.415	3.585	30.552	4.542	30.911	14.737	6	10.175	4	21	
	EE	FF	GG												
SIGN NO. 4	7.5	2.25	2.25												

* Increase character spacing 50%
 ** See Pictograph page 4
 *** See Pictograph page 5

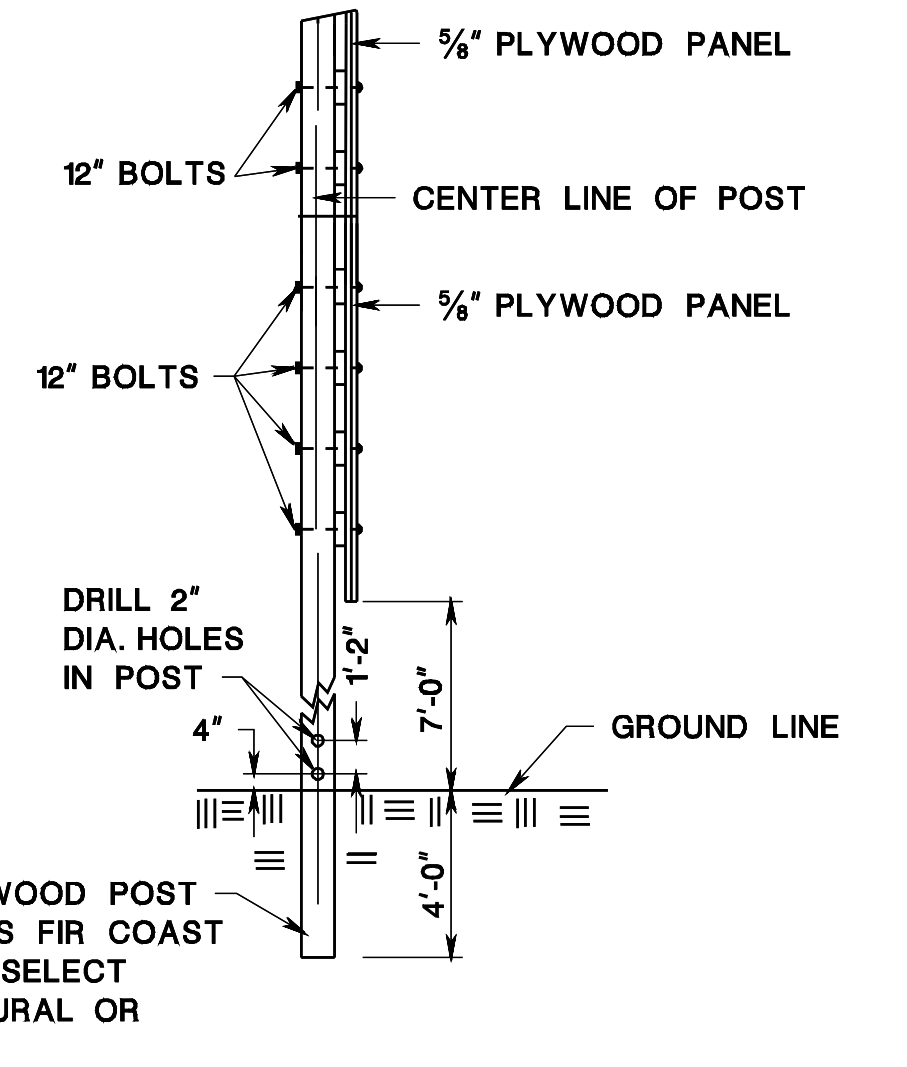
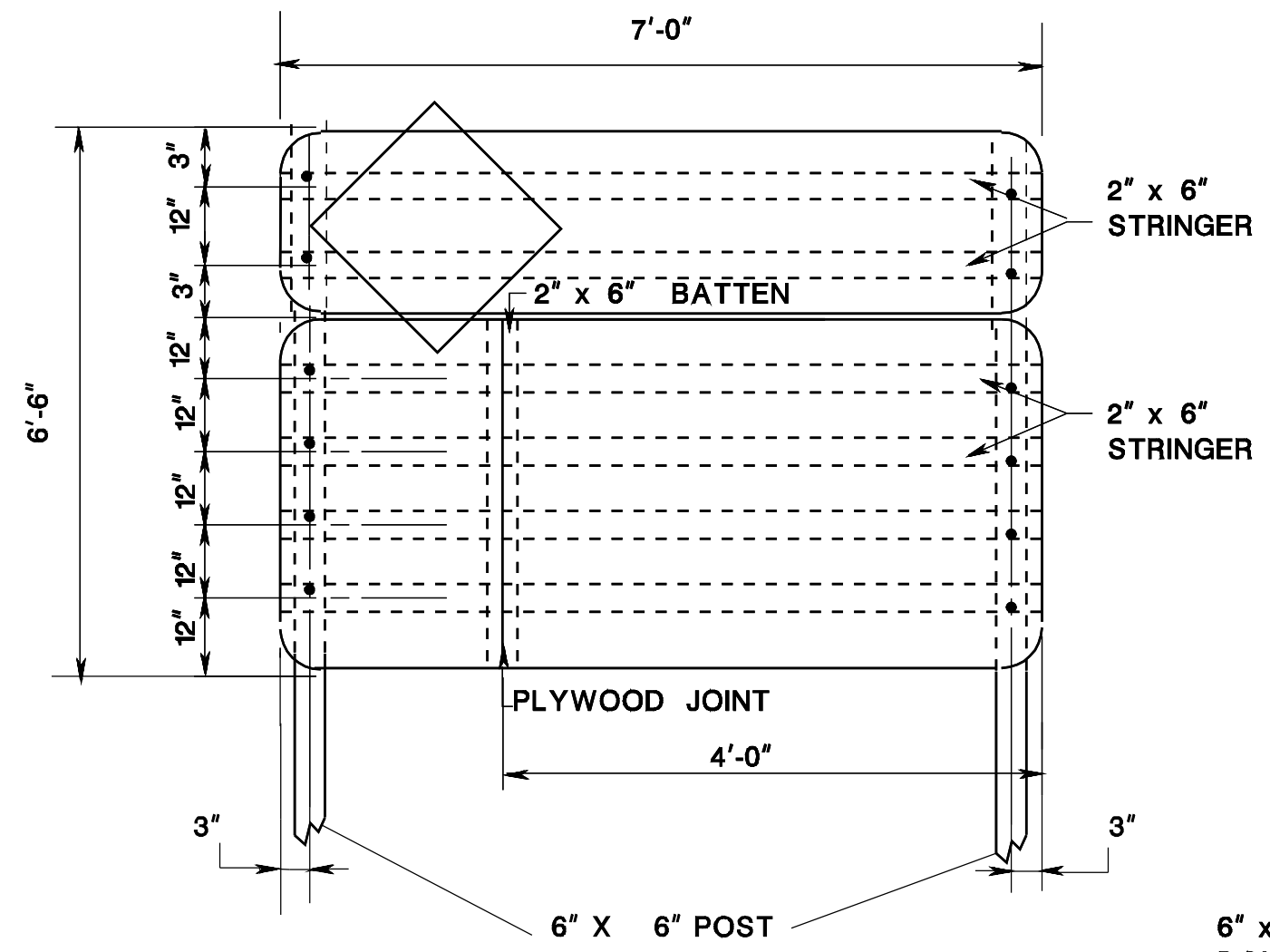
COLORS: LEGEND, BORDER - WHITE (RETROREFLECTIVE)
 BACKGROUND - GREEN (RETROREFLECTIVE)

COLORS: LEGEND, BORDER - BLACK
 BACKGROUND - ORANGE (RETROREFLECTIVE)

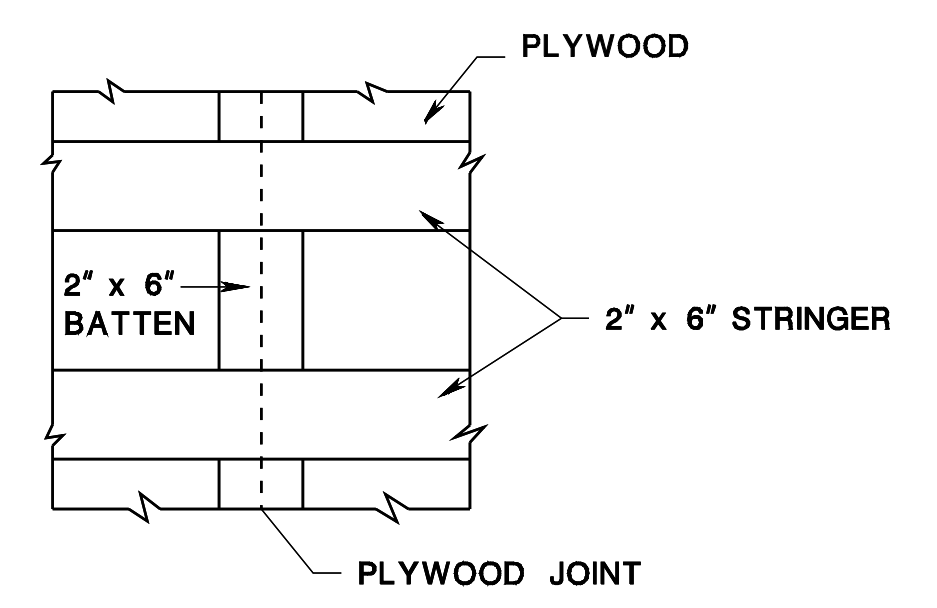


USDOT TIGER Vector-Based, Vinyl-Ready Pictograph

COLORS: OUTLINE - WHITE (RETROREFLECTIVE)
 USDOT LEGEND - BLACK
 TIGER DIAGONALS - BLACK
 ORANGE (RETROREFLECTIVE)



6" x 6" WOOD POST DOUGLAS FIR COAST REGION SELECT STRUCTURAL OR EQUAL



DETAIL OF BATTEN AT PLYWOOD JOINTS

NOTES:

PLYWOOD PANELS SHALL CONFORM TO REQUIREMENTS FOR HIGH DENSITY OVERLAY AS SET FORTH IN COMMERCIAL STANDARD CS 45-60 FOR DOUGLAS FIR PLYWOOD AND ALL AMENDMENTS THERETO.

SIGNS TO BE LOCATED AS SHOWN ON PLANS OR AS DIRECTED BY THE R.E.

CONTRACTOR SHALL INTERPOLATE FOR THE DIMENSIONS OF THE TEXT FOR THE RECOVERY EMBLEM AND THE LOGOGRAM "USDOT".

CONTRACTOR SHALL VISIT THE FHWA WEBSITE <http://www.fhwa.dot.gov/economicrecovery/arrasigndetail.pdf> AND ASSOCIATED LINK "SIGN LAYOUT DETAILS" TO VIEW THE ILLUSTRATED COLOR PICTOGRAPHS.

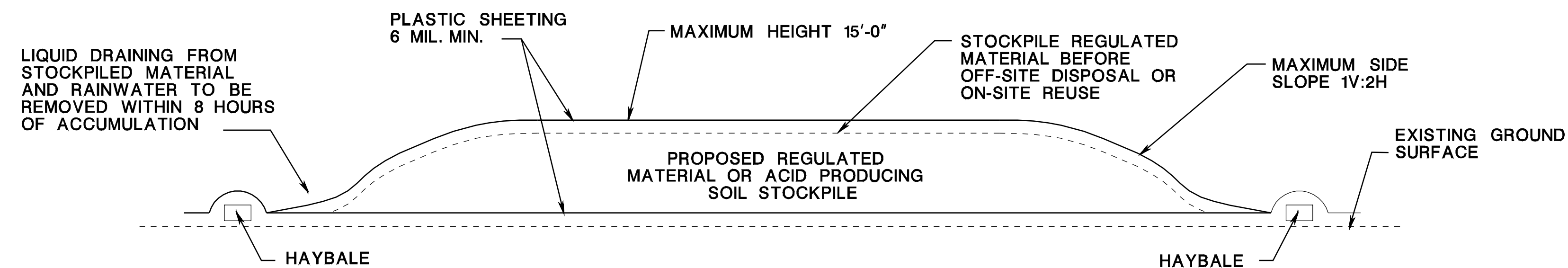
CONSTRUCTION IDENTIFICATION SIGN

N.T.S.

CD-159-10

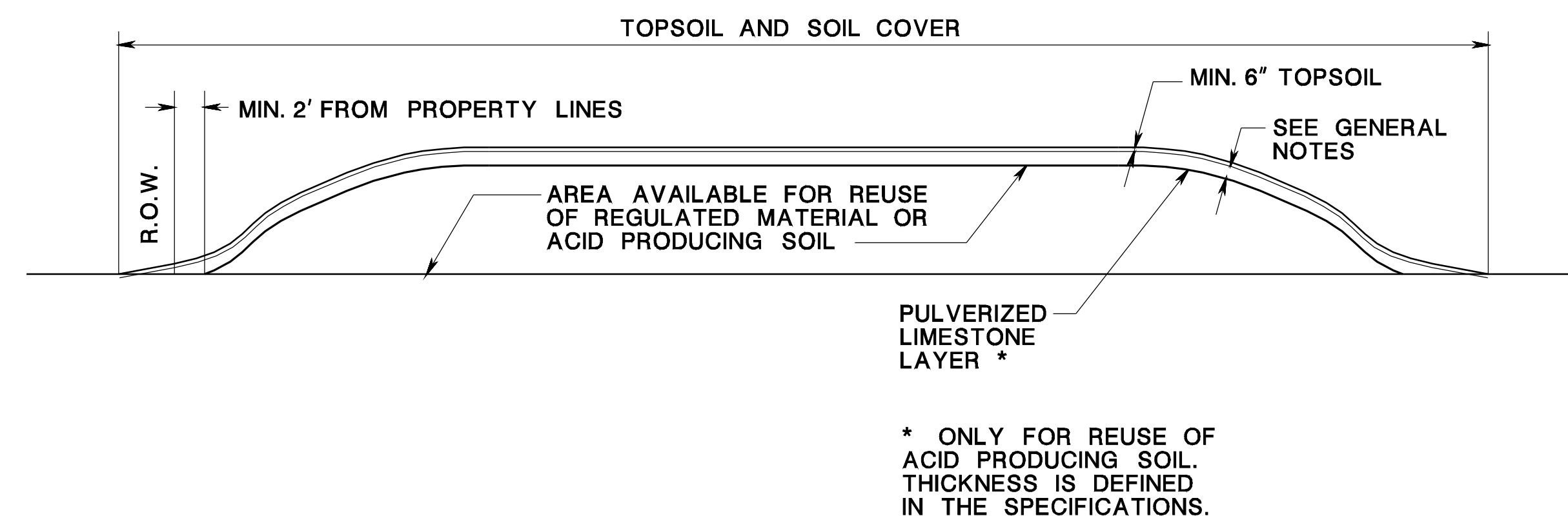
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



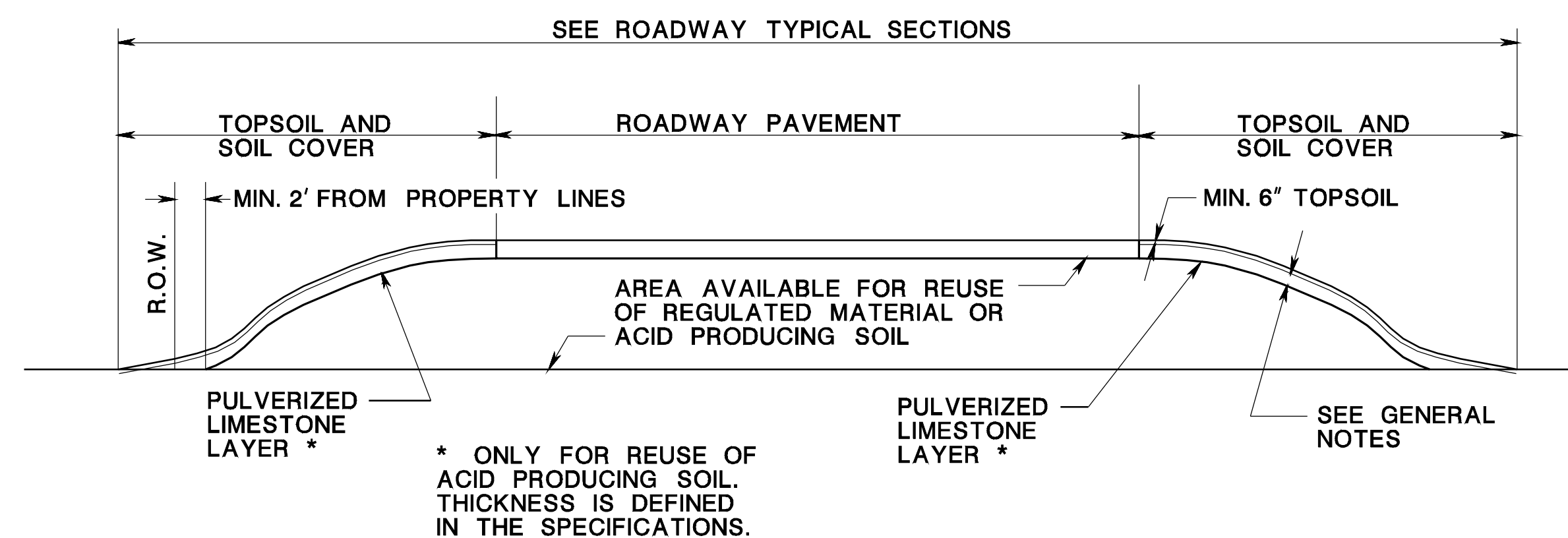
TEMPORARY STOCKPILING OF REGULATED MATERIAL OR ACID PRODUCING SOIL

CD-202-1.1



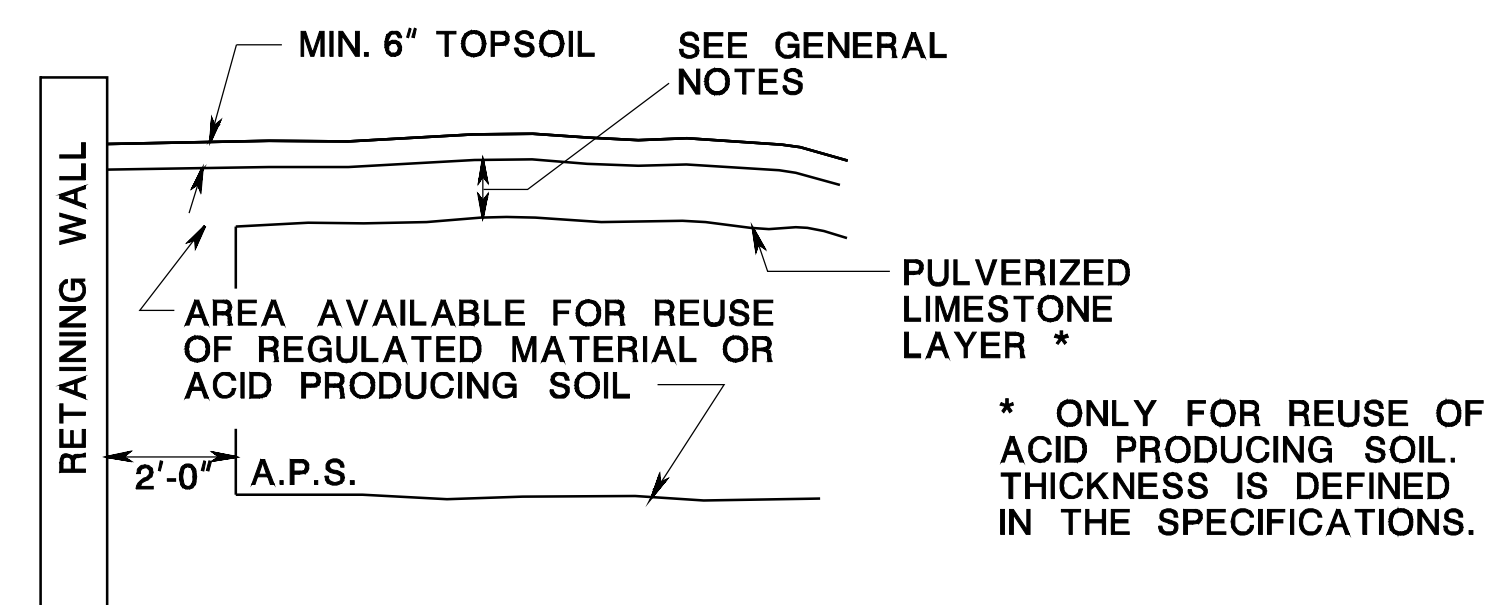
**REUSE OF REGULATED MATERIAL OR ACID PRODUCING SOIL IN UNPAVED AREAS
TYPICAL CROSS-SECTION**

CD-202-1.2



**REUSE OF REGULATED MATERIAL OR ACID PRODUCING SOIL IN ROADWAY OR RAMP EMBANKMENT
TYPICAL CROSS-SECTION**

CD-202-1.3



REUSE OF REGULATED MATERIAL OR ACID PRODUCING SOIL FOR A RETAINING WALL

CD-202-1.4

GENERAL NOTES:

REGULATED MATERIAL SHALL NOT BE PLACED WITHIN 2 FEET OF PROPERTY LINES NOR WITHIN 2 FEET OF LOCAL GROUNDWATER.

ACID PRODUCING SOIL (APS) SHALL NOT BE PLACED WITHIN 2 FEET OF THE SURFACE ALONG A STREAMBANK, STRUCTURE, PIPE OR SLOPE.

BUFFER APS WITH PULVERIZED LIMESTONE LAYER AT A RATE OF 6 TONS PER ACRE (275 LB/1000 SF).

PLACE A MINIMUM OF 12" COMPACTED SOIL OF PH 5 OR HIGHER FOR AREAS OF TURF.

PLACE A MINIMUM OF 24" COMPACTED SOIL OF PH 5 OR HIGHER FOR TREES AND SHRUB AREAS.

PLACE A MINIMUM OF 24" COMPACTED SOIL BETWEEN APS AND SURFACES OF SLOPES, STREAMBANKS, STRUCTURES AND PIPES.

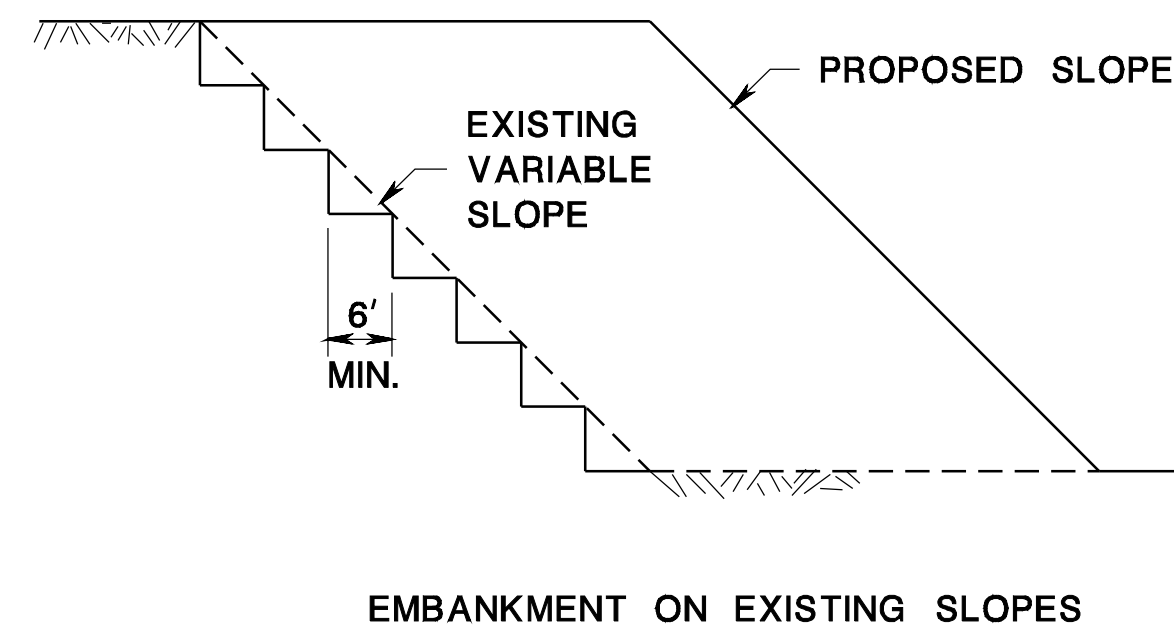
SOIL REUSE

N.T.S.

CD-202-1

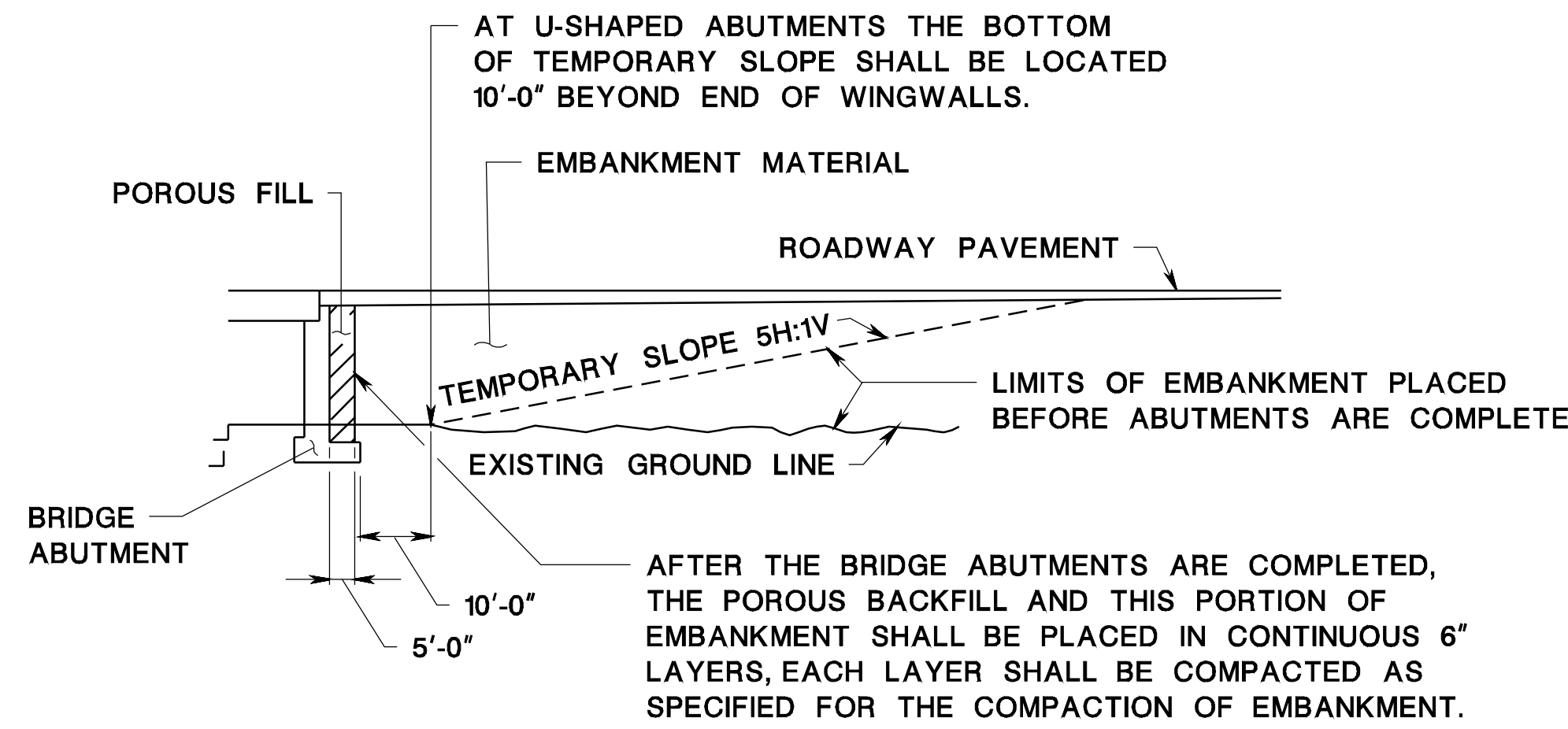
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

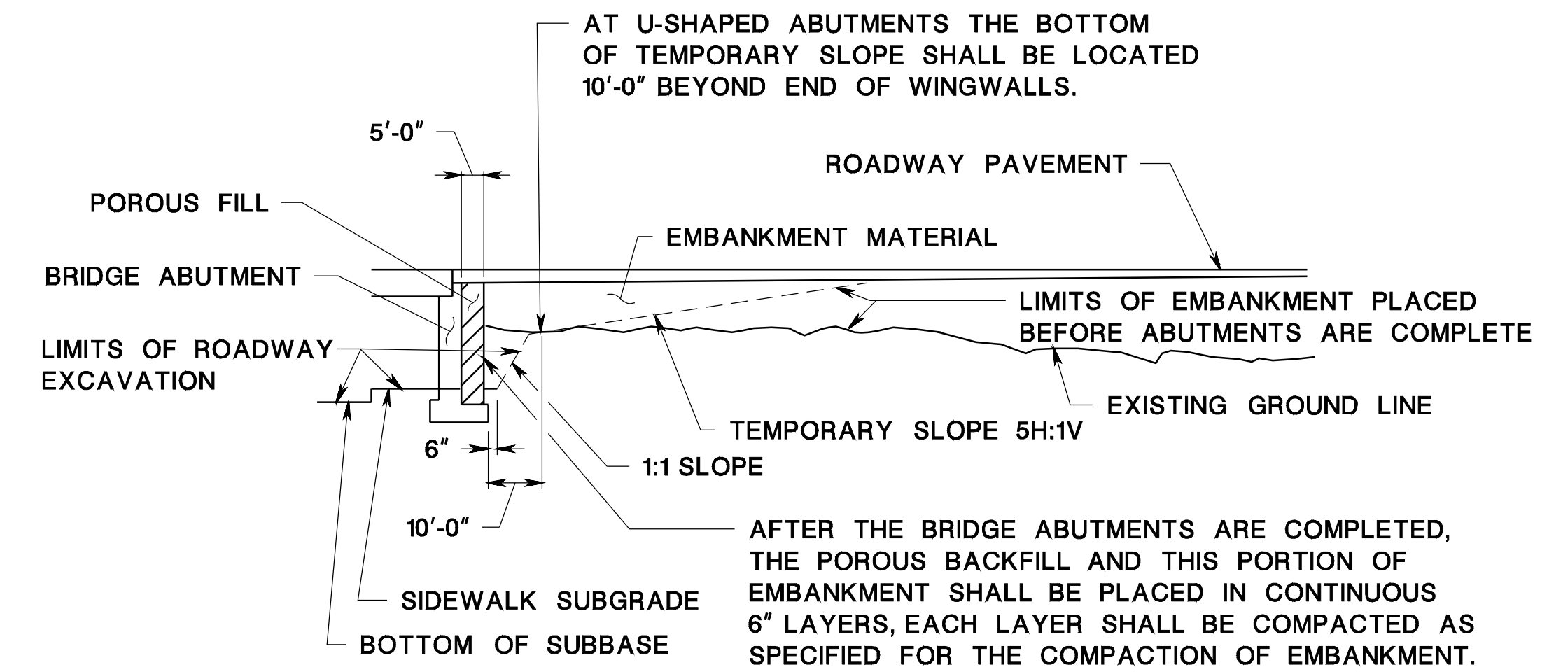


BENCHING DETAIL

CD-203-1.1



**METHOD A
OVERPASS ROADWAY COMPLETELY IN FILL**



**METHOD B
OVERPASS ROADWAY PARTLY IN FILL**

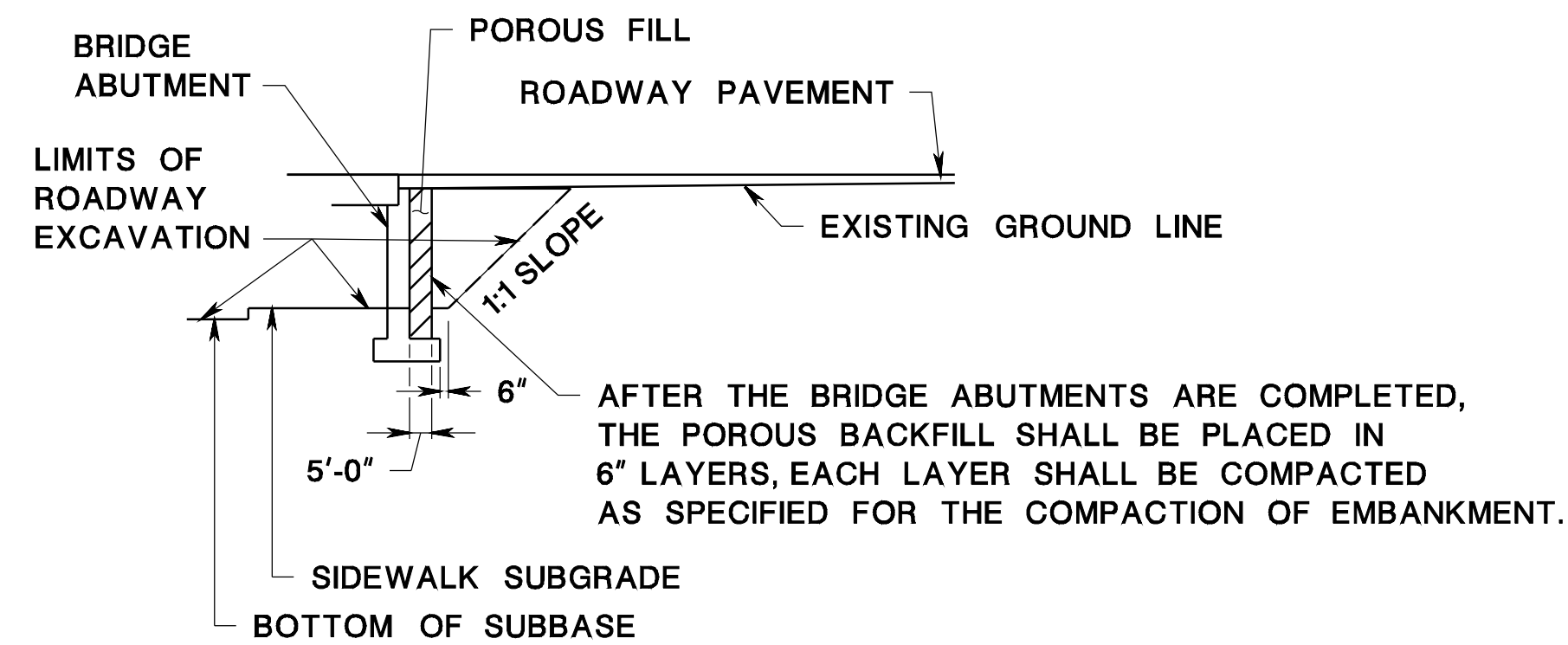
NOTES:

AT U-SHAPED WINGWALLS THE METHODS OF PLACING AND COMPACTING EMBANKMENT AND POROUS BACKFILL AS SHOWN SHALL APPLY. FOR U-SHAPED WINGWALLS EXCAVATION BELOW THE BOTTOM LIMITS OF ROADWAY EXCAVATION SHOWN ON THESE SECTIONS SHALL BE PAID FOR AS BRIDGE FOUNDATION EXCAVATION. POROUS BACKFILL SHALL BE PLACED BETWEEN THE BACKFACES OF U-SHAPED WINGWALLS AND VERTICAL PLANES AS SHOWN FOR ABUTMENTS.

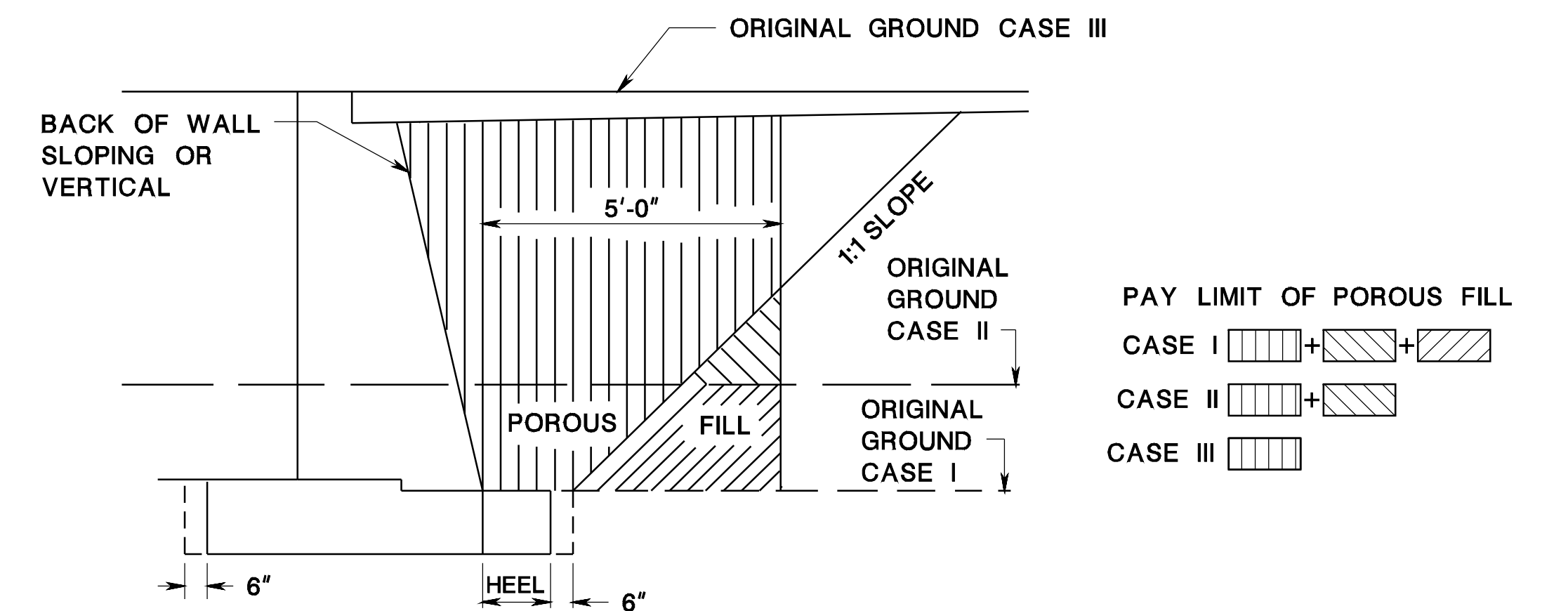
BRIDGE FOUNDATION EXCAVATION. POROUS BACKFILL SHALL BE PLACED BETWEEN THE BACKFACES OF U-SHAPED WINGWALLS AND VERTICAL PLANES AS SHOWN FOR ABUTMENTS.

AT HIGHWAY BRIDGES OVERPASSING RAILROADS AND STREAMS, THE LIMITS AND METHODS OF PLACING AND COMPACTING EMBANKMENTS AS SHOWN SHALL APPLY. WHERE POROUS BACKFILL IS CALLED FOR THE LIMITS AND METHODS OF PLACING AND COMPACTING IT AS SHOWN SHALL ALSO APPLY.

THE LIMITS SHOWN FOR ROADWAY EXCAVATION DO NOT APPLY TO RAILROAD AND STREAM BRIDGES UNLESS SPECIFICALLY PROVIDED ELSEWHERE IN THE CONTRACT. THESE SECTIONS AND REQUIREMENTS DO NOT APPLY TO ARCH BRIDGES.



**METHOD C
OVERPASS ROADWAY AT EXISTING GRADE**

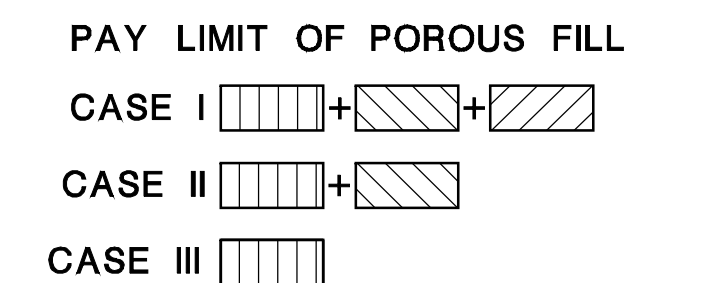


**METHOD D
WHEN HEEL IS LESS THAN 4' - 6"**

NOTE:
LIMITS OF ROADWAY EXCAVATION AND METHODS OF PLACING EMBANKMENT, OTHER THAN POROUS FILL, SHALL BE AS SHOWN IN METHODS A, B, OR C, WHICHEVER IS APPLICABLE.

**POROUS FILL
AND EMBANKMENT**

N.T.S.



**LIMITS AND METHODS OF PLACING EMBANKMENT AND POROUS BACKFILL
AND LIMITS OF ROADWAY EXCAVATION ADJACENT TO BRIDGE ABUTMENTS**

CD-203-1.2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

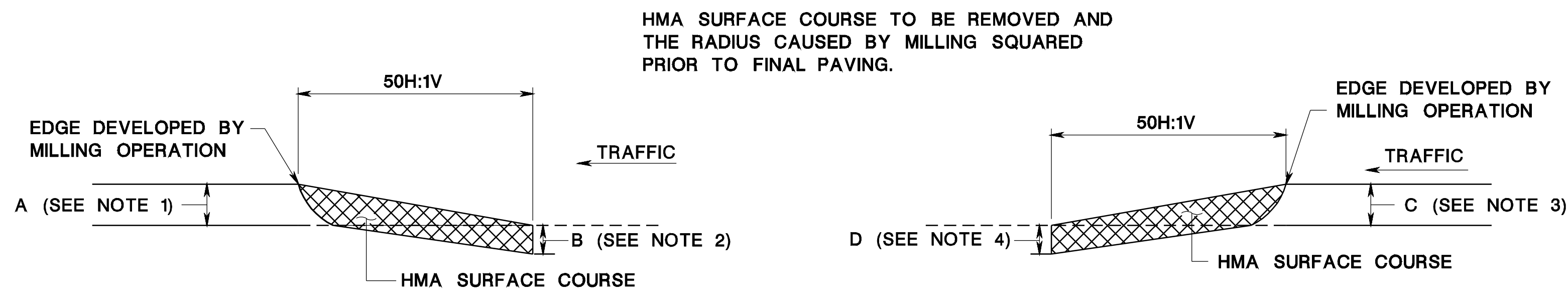
CONSTRUCTION DETAILS

CD-203-1

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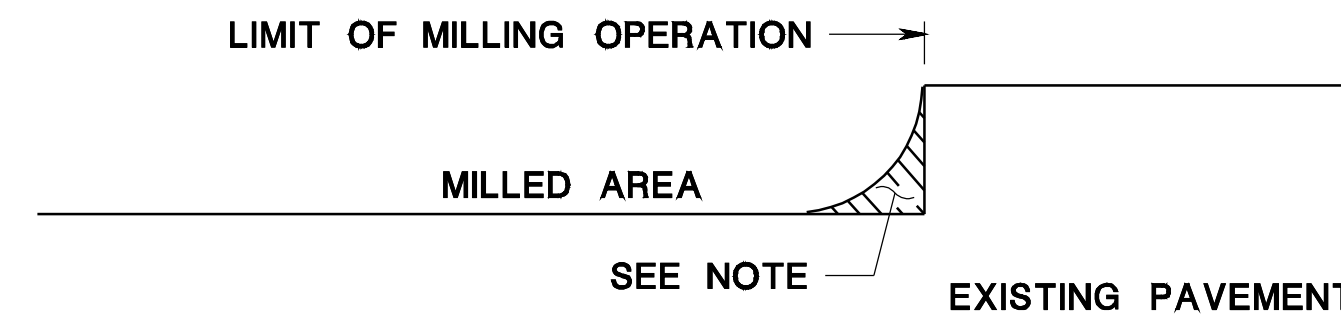
HMA SURFACE COURSE TO BE REMOVED AND THE RADIUS CAUSED BY MILLING SQUARED PRIOR TO FINAL PAVING.

NOTES:

1. USE HMA SURFACE COURSE IN THE MILLING TRANSITION WHEN LEADING EDGE DEVELOPED BY MILLING OPERATION IS EQUAL TO OR GREATER THAN 1 INCH. NONE REQUIRED FOR EDGE LESS THAN 1 INCH.
2. ENSURE THAT THE THICKNESS OF THE HMA SURFACE COURSE IN THE MILLING TRANSITION IS NOT LESS THAN B. B IS EQUAL TO 2 INCHES OR A, WHICHEVER IS LESS.
3. USE HMA SURFACE COURSE IN THE MILLING TRANSITION WHEN TRAILING EDGE DEVELOPED BY MILLING OPERATION IS EQUAL TO OR GREATER THAN 1½ INCHES. NONE REQUIRED FOR EDGE LESS THAN 1½ INCHES.
4. ENSURE THAT THE THICKNESS OF THE HMA SURFACE COURSE IN THE MILLING TRANSITION IS NOT LESS THAN D. D IS EQUAL TO 2 INCHES OR C, WHICHEVER IS LESS

MILLING TRANSITIONS

CD-401-1.1



NOTE:

REMOVE THE HMA MATERIAL LEFT BY THE DRUM RADIUS AT THE LIMITS OF THE MILLING OPERATION. ENSURE THAT THE FACE IS CLEAN AND VERTICAL BY SAWCUTTING OR TRANSVERSE MILLING. THIS END TREATMENT IS NOT APPLICABLE TO TEMPORARY LIMITS OF MILLING (i.e. END OF WORKDAY). IT IS APPLICABLE TO ALL AREAS WHERE THE COMPLETED MILLING OPERATION MATCHES ANY EXISTING PAVEMENT INCLUDING BRIDGES.

END TREATMENT FOR MILLING OPERATIONS

CD-401-1.2

NOTE:

HMA = HOT MIX ASPHALT

MILLING

N.T.S.

CD-401-1

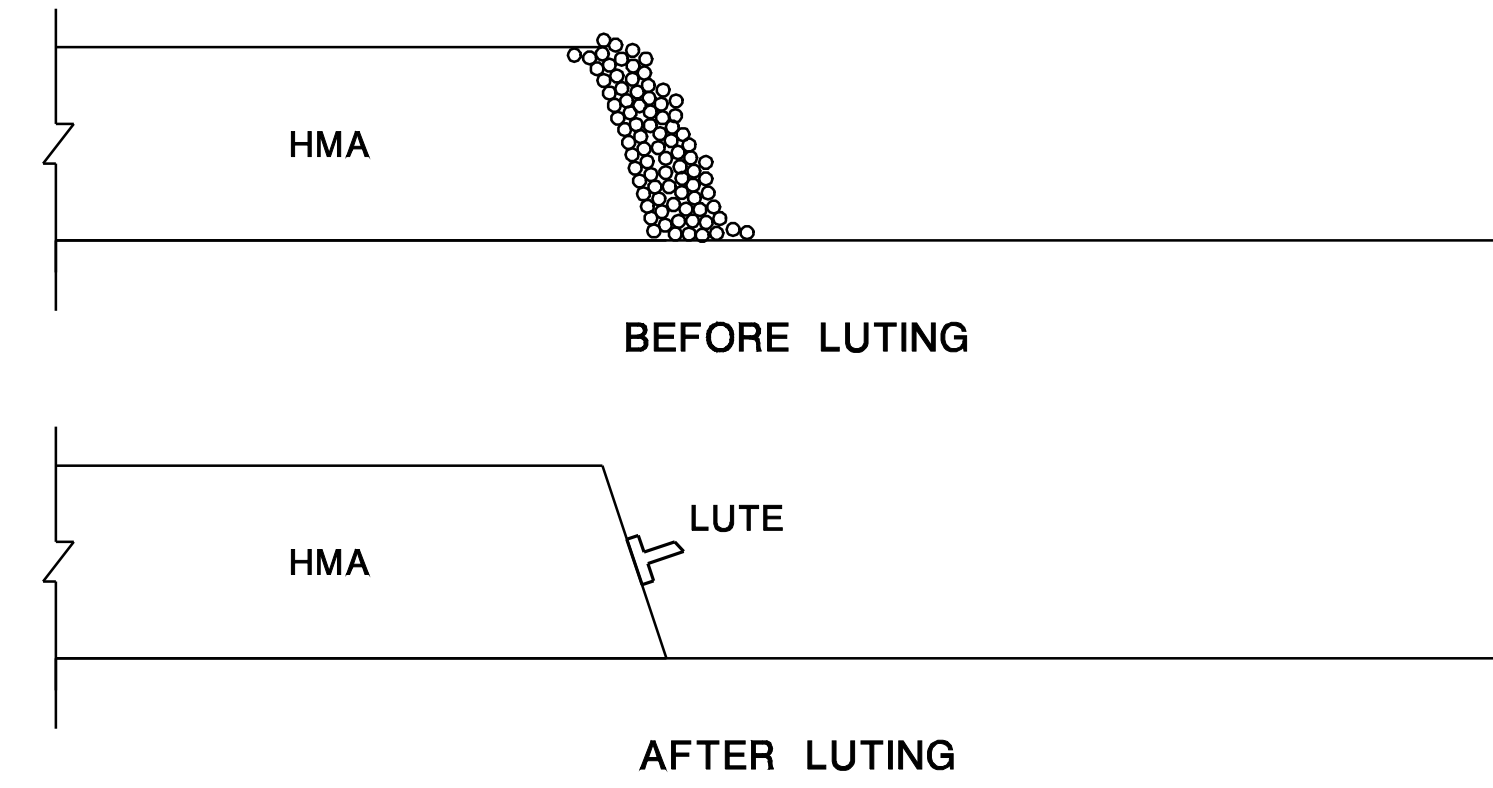
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



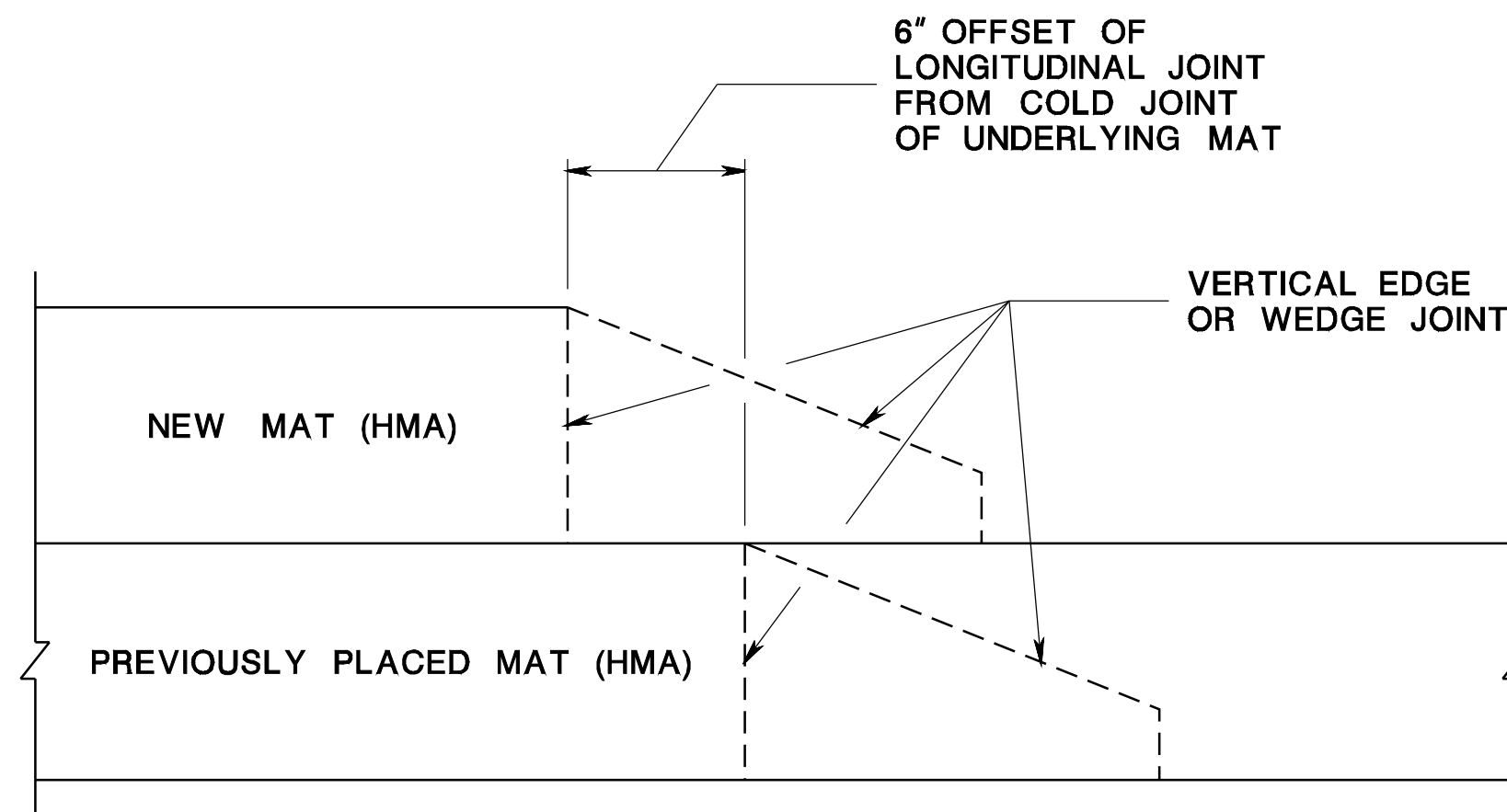
WEDGE JOINT
(NOTE 1)

CD-401-2.1



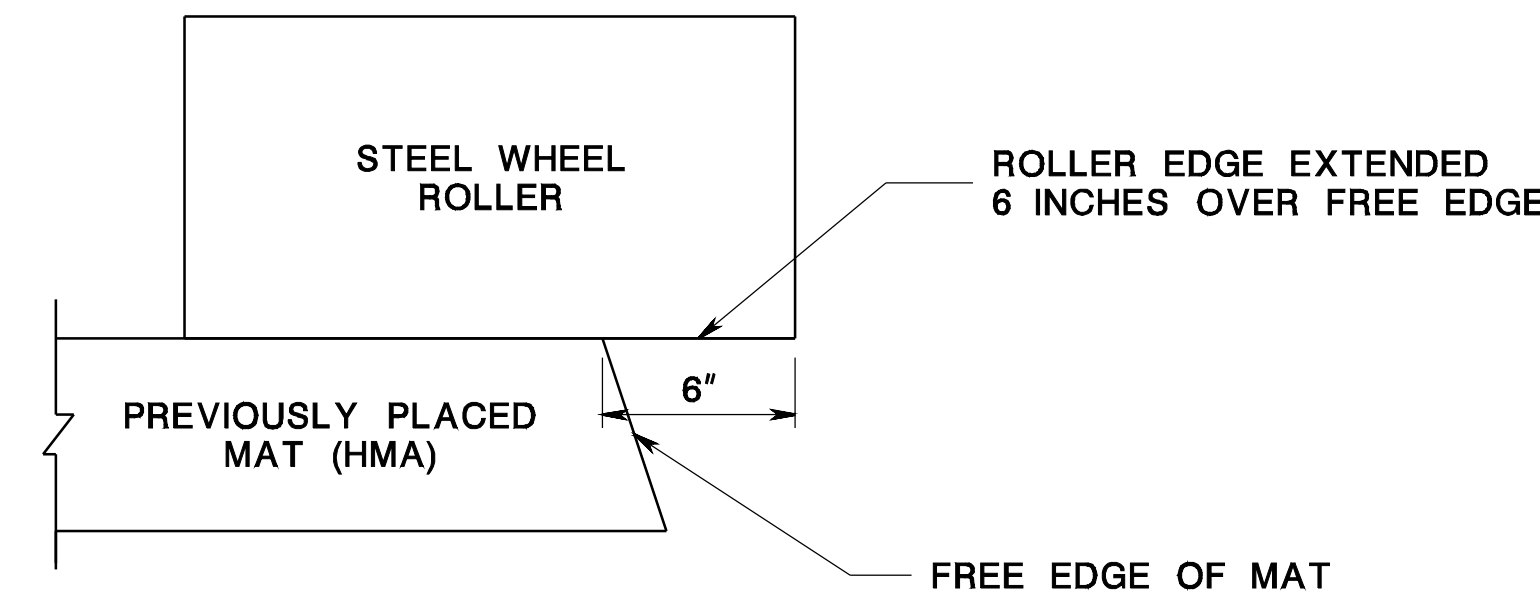
COMPACTION OF UNCONFINED VERTICAL EDGE
(NOTE 3)

CD-401-2.4



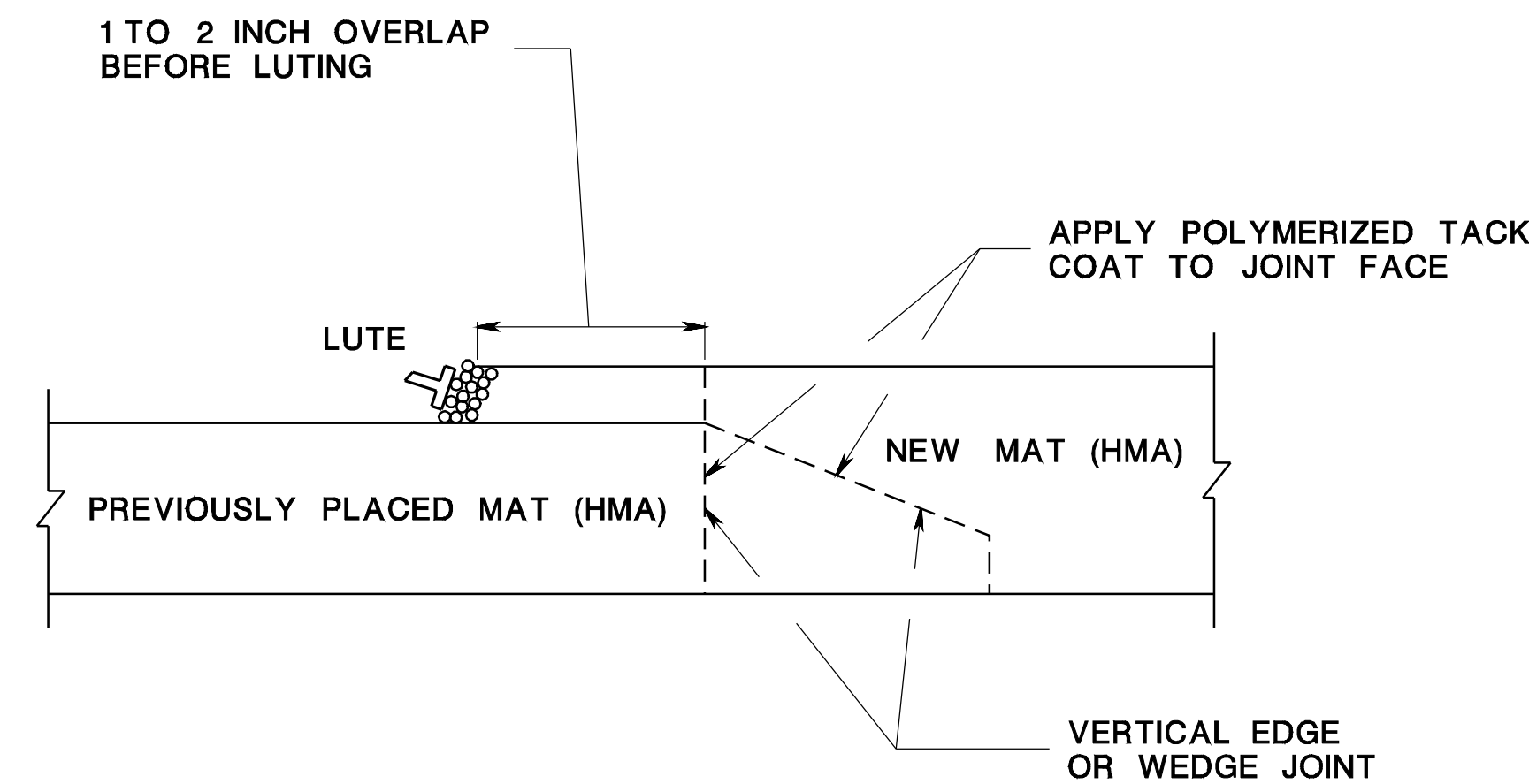
OFFSET OF JOINTS
(NOTE 2)

CD-401-2.2



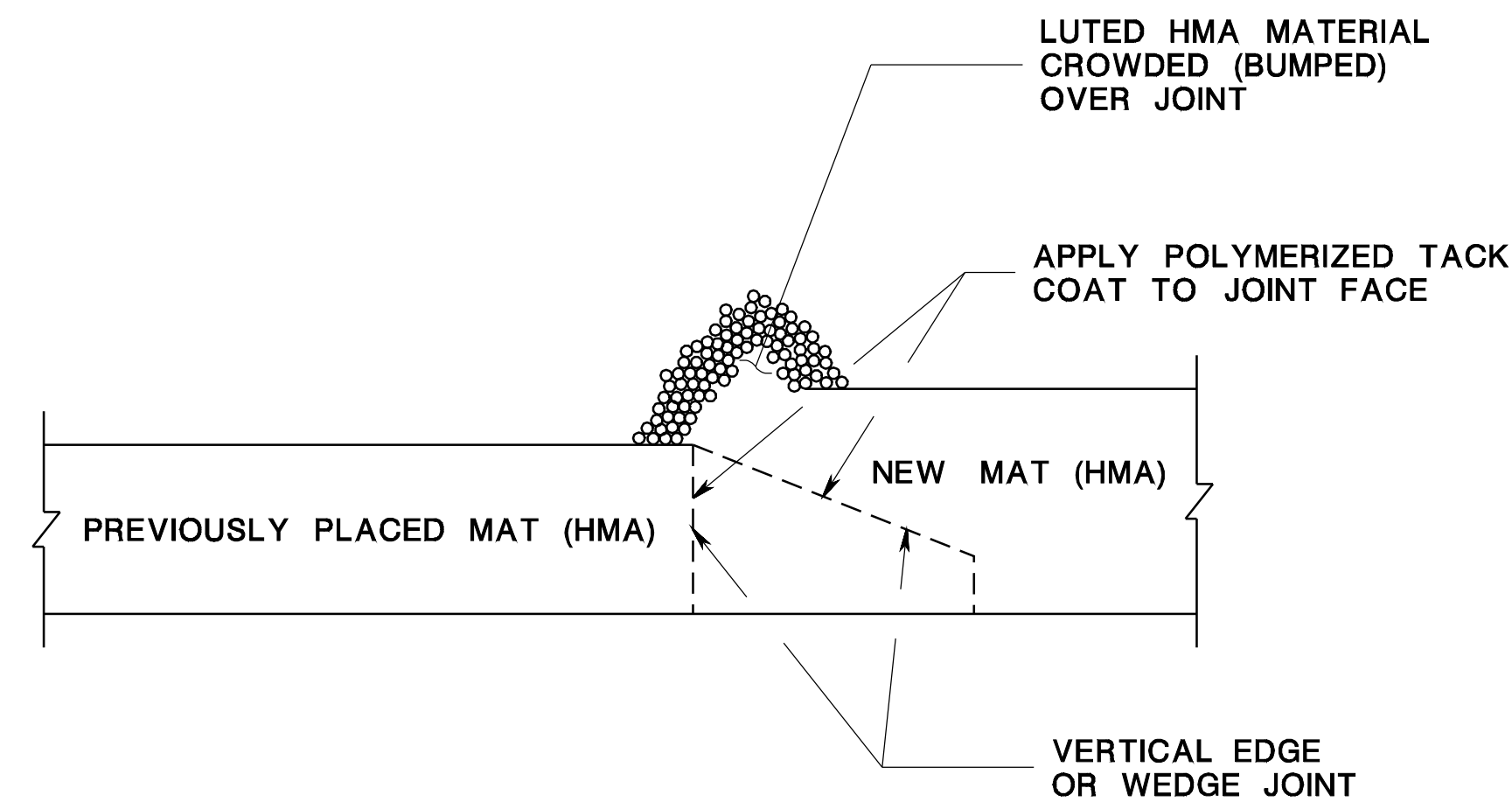
ROLLER PLACEMENT FOR COMPACTING ALONG THE UNCONFINED VERTICAL EDGE
(NOTE 6)

CD-401-2.5



OVERLAPPED HMA BEFORE LUTING
(NOTES 4 & 5)

HMA PAVEMENT



HMA AFTER LUTING
(NOTE 4)

CD-401-2.3

NOTES:

1. WHEN HMA LIFT THICKNESS IS GREATER THEN 2 1/4 INCHES AND WHEN TRAFFIC IS TO BE MAINTAINED, CONSTRUCT A WEDGE JOINT.
2. ENSURE THAT THE JOINT IN THE HMA SURFACE COURSE IS OFFSET FROM THE LANE LINES BY 6 INCHES. IN THE CENTERLINE OF A ROADWAY, ENSURE THAT THE JOINT FALLS BETWEEN THE DOUBLE YELLOW TRAFFIC STRIPE.
3. ENSURE THE LUTE OPERATOR MANUALLY BUMPS THE EDGE TO OBTAIN A TRUE VERTICAL AND DENSE UNCONFINED EDGE.
4. ENSURE THAT THE OVERLAPPED HMA MATERIAL AT THE JOINT IS TIGHTLY CROWDED (BUMPED) OVER THE JOINT ONTO THE NEWLY PLACED LANE LEAVING A SMALL MOUND OF MIX HUMPED UP FOR THE ROLLERS TO COMPACT.
5. FOR THE WEDGE JOINT, ENSURE THAT COARSE AGGREGATE PARTICLES ARE KEPT AWAY FROM THE POINT WHERE THE WEDGE MEETS THE SURFACE OF THE PREVIOUSLY PLACED LANE.
6. TO PREVENT LATERAL DISPLACEMENT OF THE UNCONFINED EDGE, ENSURE THAT THE EDGE OF THE ROLLER WHEEL EXTENDS OVER THE FREE EDGE OF THE HMA MAT BY AT LEAST 6 INCHES.

LONGITUDINAL JOINTS IN HMA

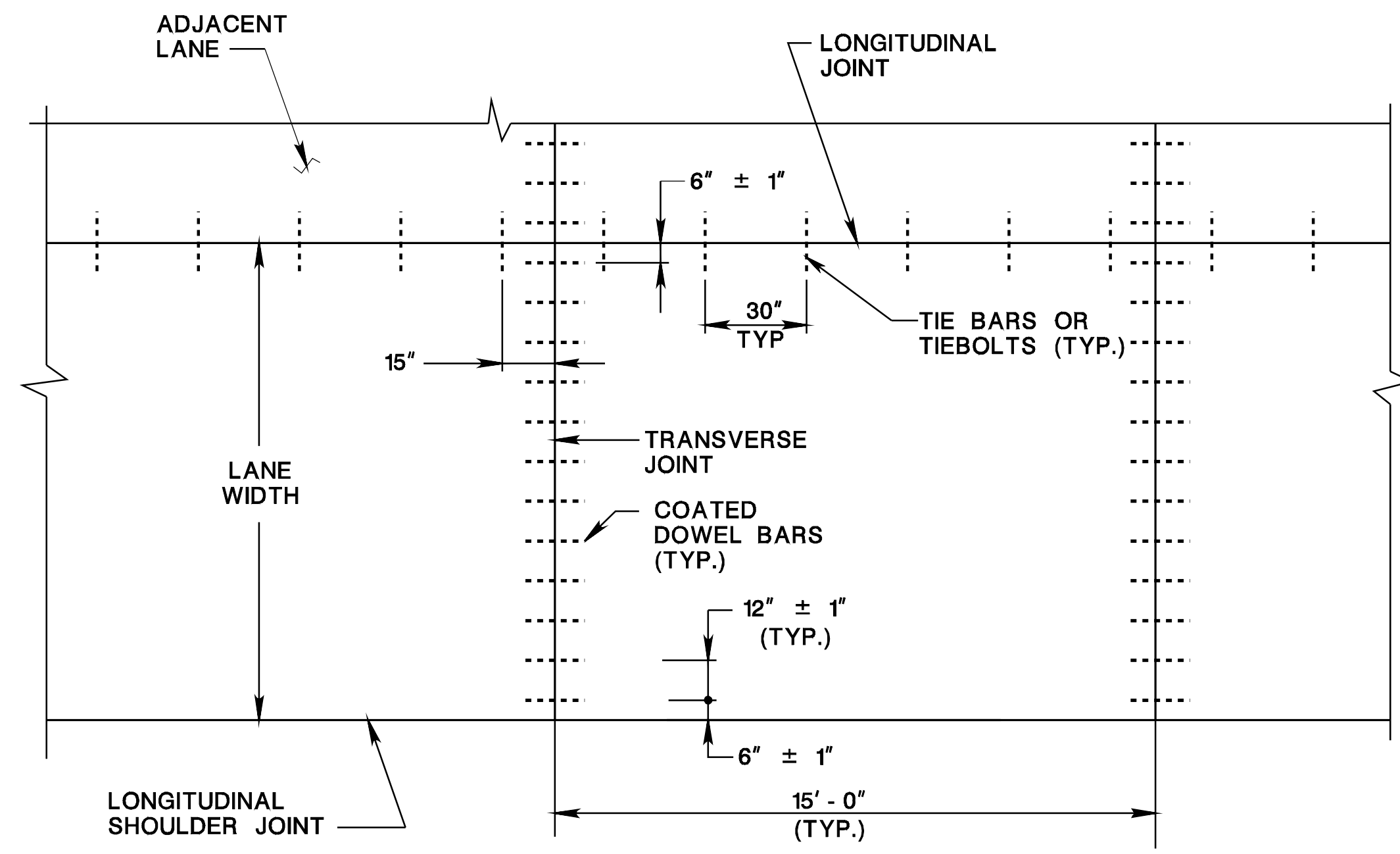
N.T.S.

HMA = HOT MIX ASPHALT

CD-401-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



TYPICAL LAYOUT

CD-405-1.1

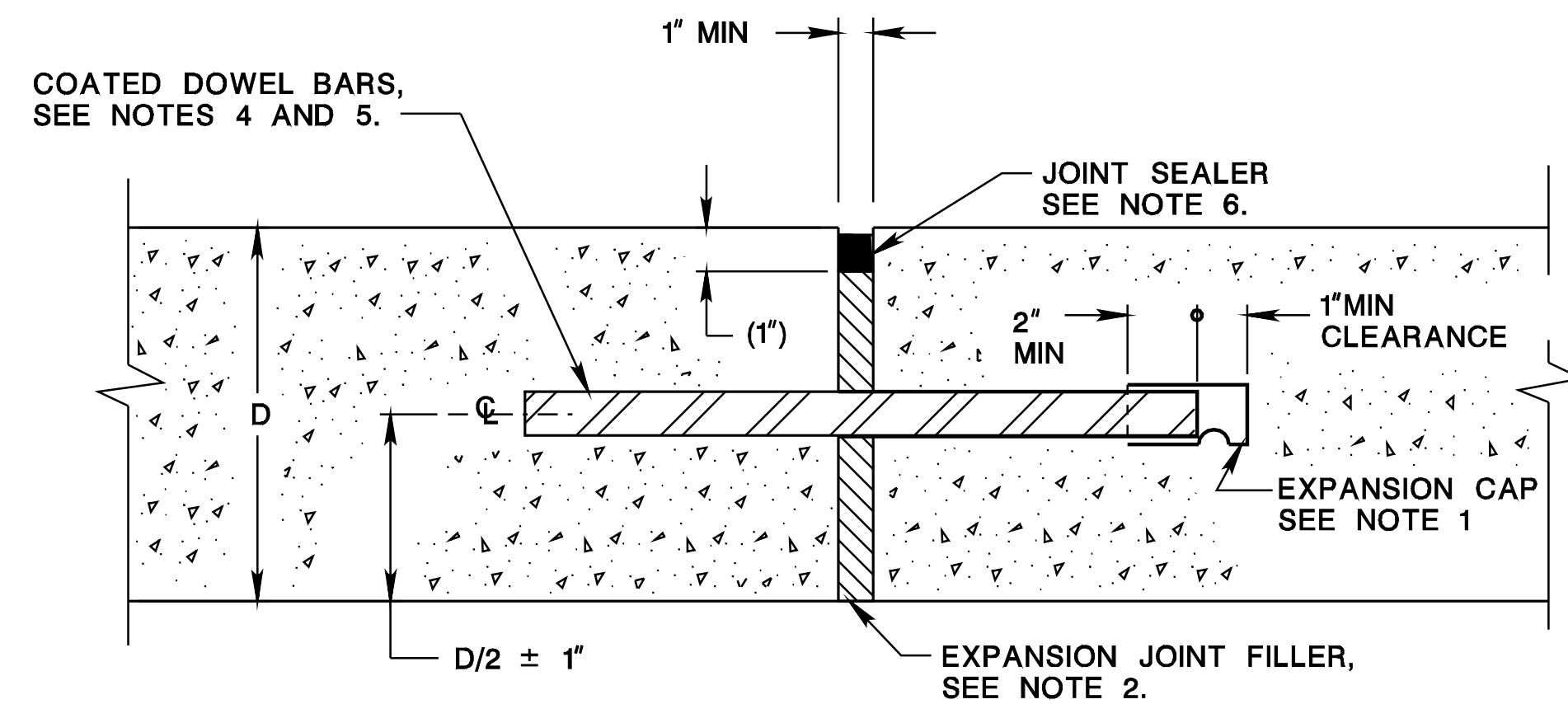
EXPANSION JOINTS AT BRIDGES	
DISTANCE BETWEEN BRIDGES *	NUMBER OF EXPANSION JOINTS
TO 500'	1
500' - 704'	2
704' - 908'	3
908' - 1111'	4
1111' - 1315'	5
OVER 1315'	6

* LENGTH OF PAVEMENT BETWEEN BRIDGES

CD-405-1.2

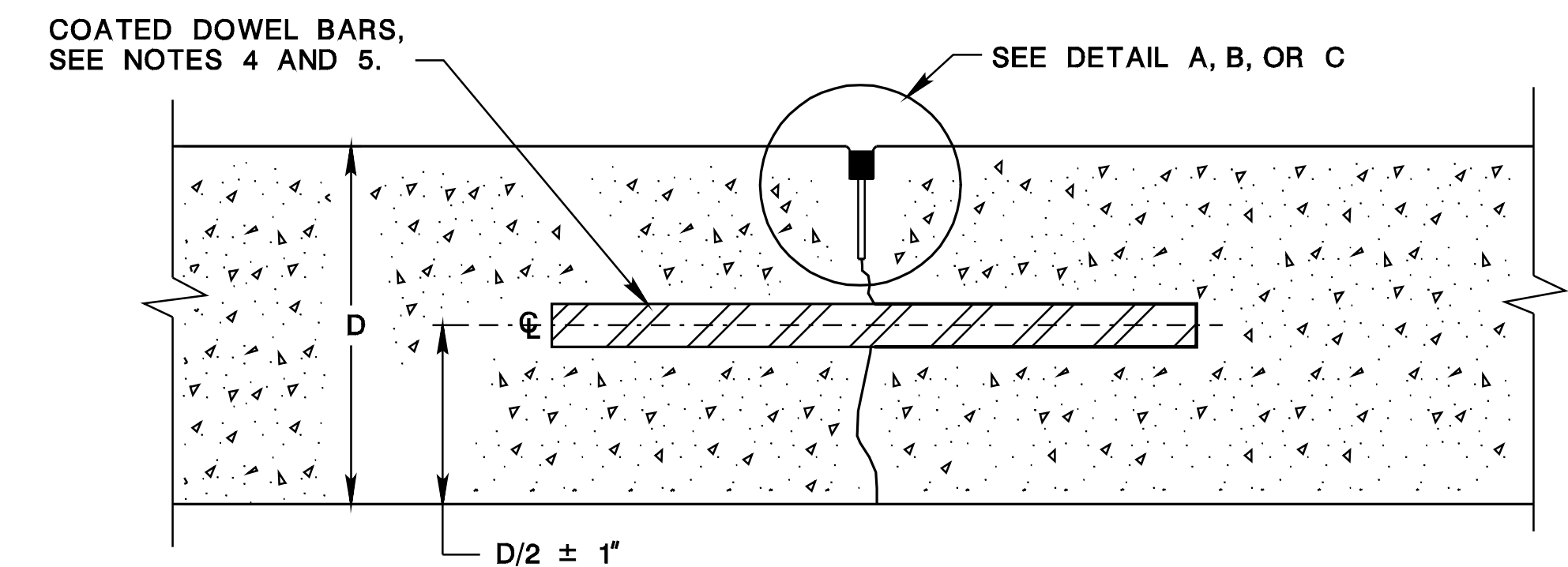
- NOTES**
1. PLACE A CLOSED-END EXPANSION CAP OVER THE LUBRICATED END OF ALL DOWEL BARS USED IN TRANSVERSE EXPANSION JOINTS AND PROVIDE A MINIMUM 1" CLEARANCE POCKET ASSURED BY MEANS OF A POSITIVE SPACING DEVICE.
 2. CUT EXPANSION JOINT FILLER MATERIAL TO CONFORM TO THE CROSS SECTION OF THE PAVEMENT AND FURNISH IN STRIPS EQUAL TO THE WIDTH OF THE PAVEMENT SLAB. MAKE THE TOP SURFACE SMOOTH AND HAVE HOLES PUNCHED FOR THE DOWEL BARS PROVIDE A SNUG FIT WITHOUT LOSS IN THICKNESS OF THE MATERIAL.
 3. CONSTRUCT ALL TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE.
 4. USE MINIMUM 1/4" φ X 18" LONG DOWEL BARS FOR PAVEMENT DEPTHS 10" OR LESS, AND MINIMUM 1/2" φ X 18" LONG DOWEL BARS FOR PAVEMENT DEPTHS GREATER THAN 10". APPROVED ALTERNATE DOWEL BARS HAVING EQUIVALENT PROPERTIES TO CONVENTIONAL ROUND DOWEL REINFORCEMENT STEEL MAY BE PROPOSED FOR USE.
 5. PLACE DOWEL BARS PARALLEL TO THE CENTERLINE AND SURFACE OF THE SLAB.
 6. MAKE THE TOP OF THE JOINT SEALING MATERIAL 1/4" ± 1/8" BELOW THE SURFACE OF THE PAVEMENT.
 7. THE INITIAL SAW CUT RELIEF JOINT IS NOT REQUIRED FOR CONSTRUCTION JOINTS.
 8. WHEN COLD-POURED JOINT SEALER IS SELECTED FOR USE IN TRANSVERSE JOINTS, USE THE SAME JOINT SEALER IN THE LONGITUDINAL JOINTS.

CD-405-1.3



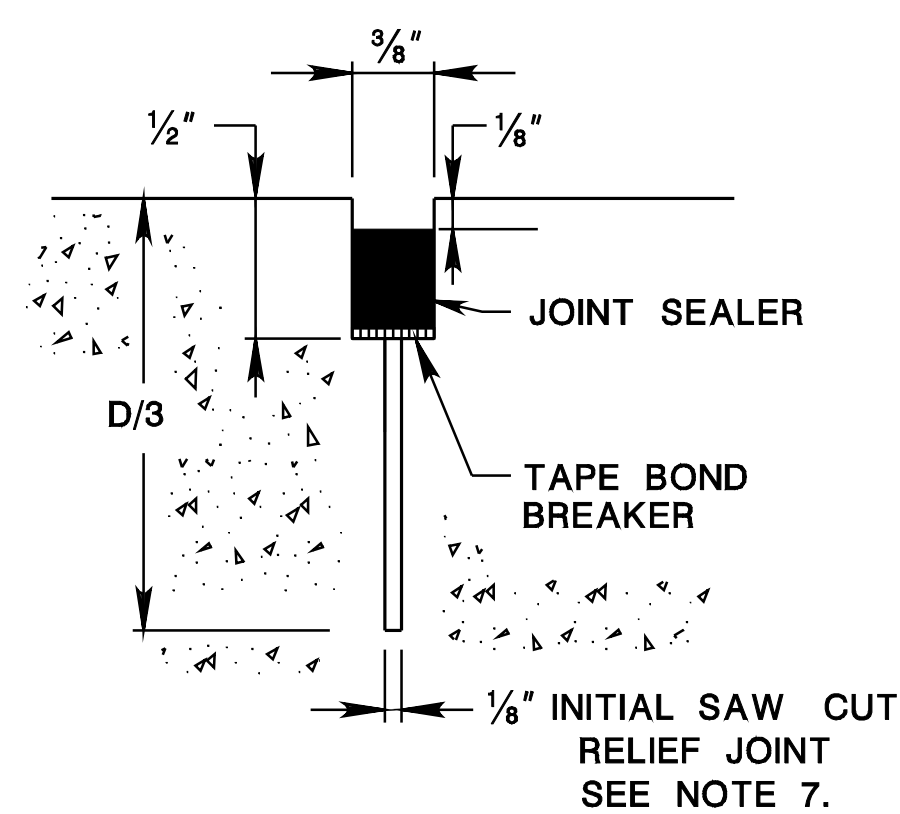
TRANSVERSE EXPANSION JOINT

CD-405-1.4



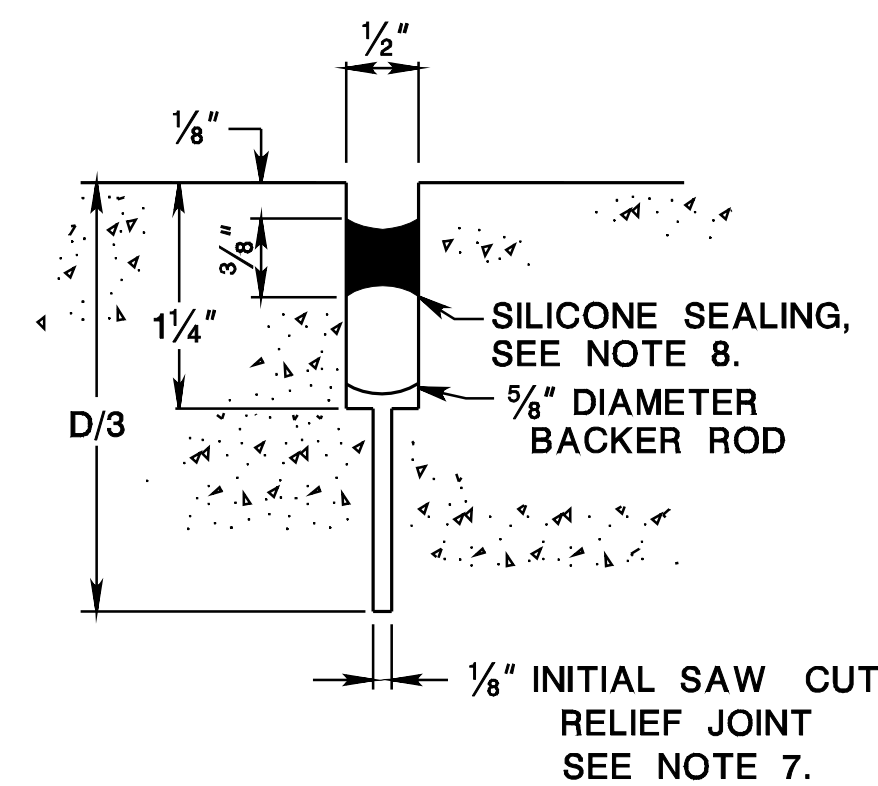
TRANSVERSE CONTRACTION JOINT

CD-405-1.5



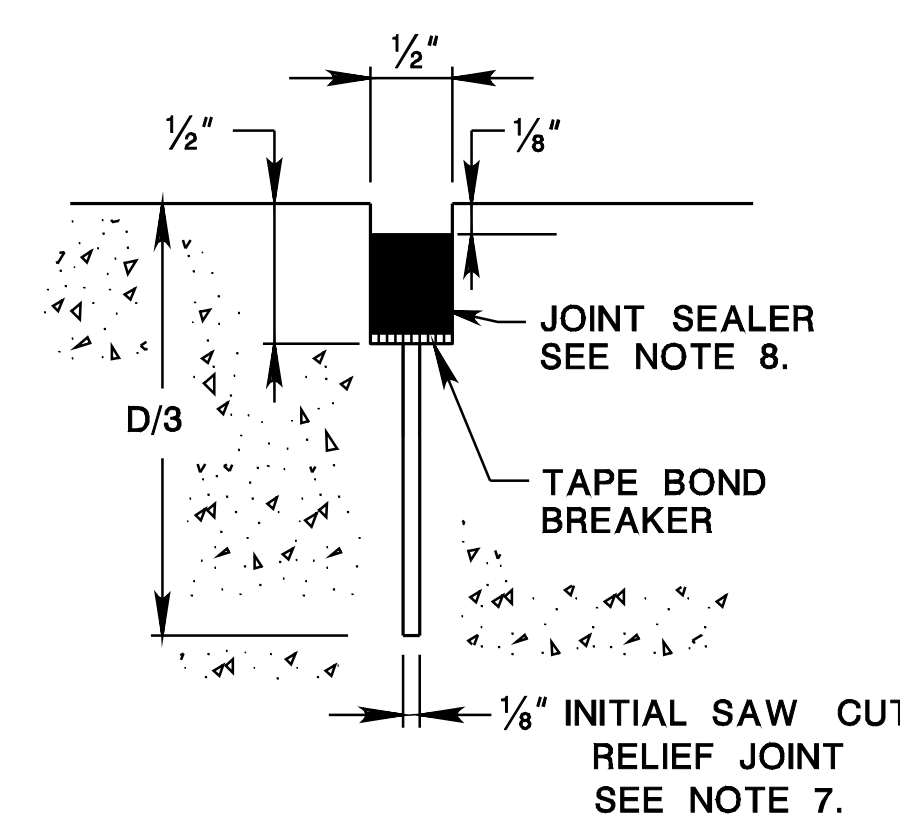
**DETAIL A
HOT-POURED JOINT SEALER**

CD-405-1.6



**DETAIL B
COLD-POURED JOINT SEALER
WITH BACKER ROD**

CD-405-1.7



**DETAIL C
COLD-POURED JOINT SEALER
WITHOUT BACKER ROD**

CD-405-1.8

**CONCRETE PAVEMENT
TRANSVERSE JOINTS**

N.T.S.

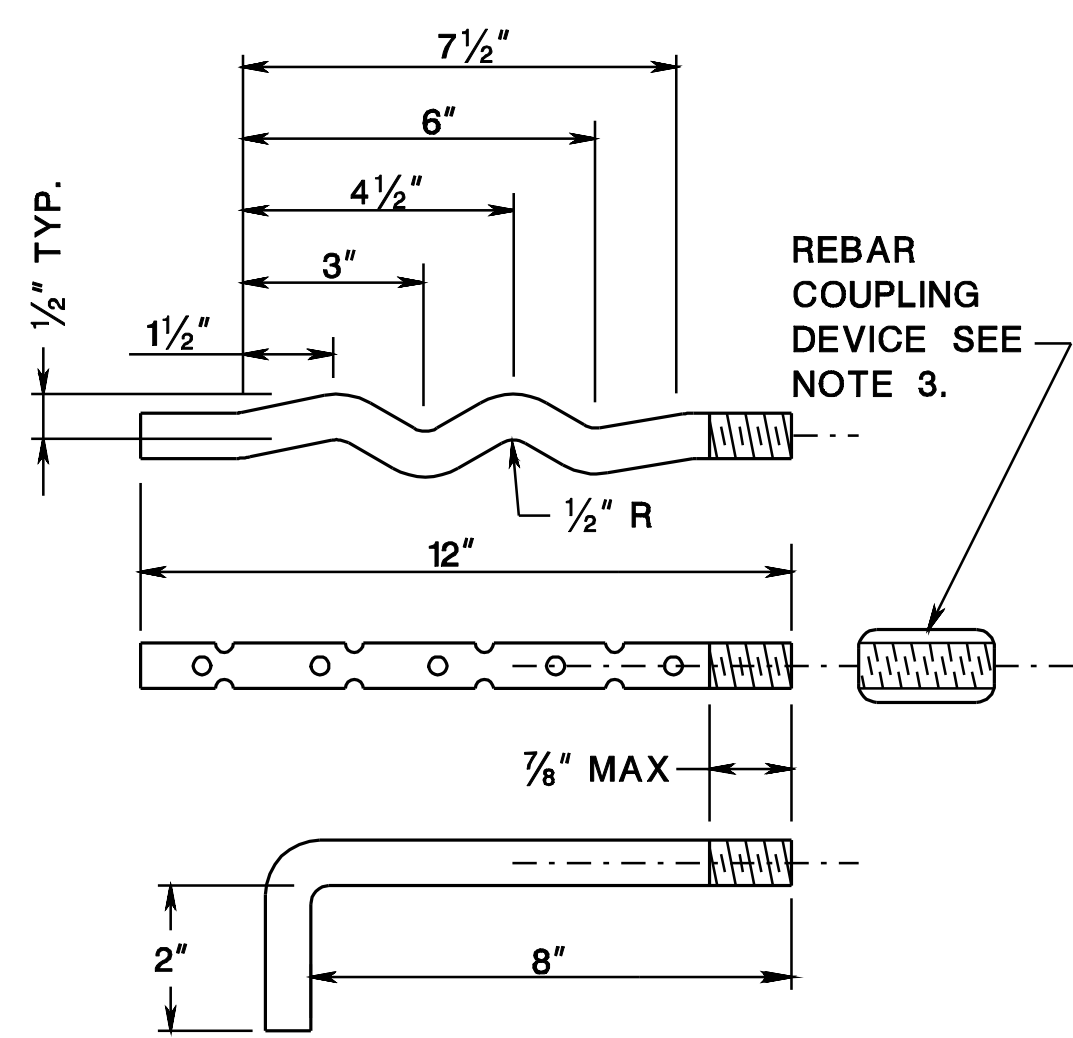
CD-405-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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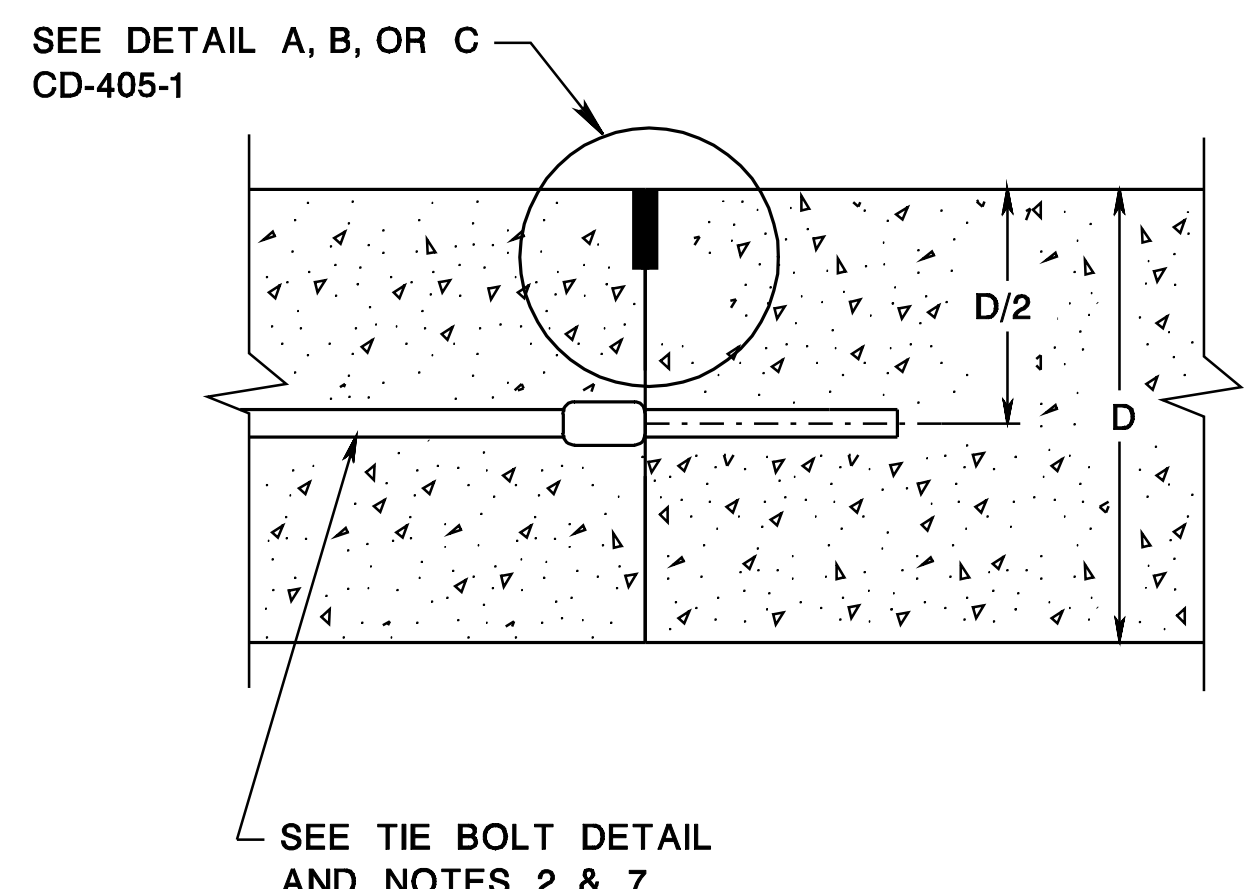
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MAKE TIE BOLTS 3/16" φ BAR WITH ROLLED THREADS OR 5/16" φ BAR WITH CUT THREADS.

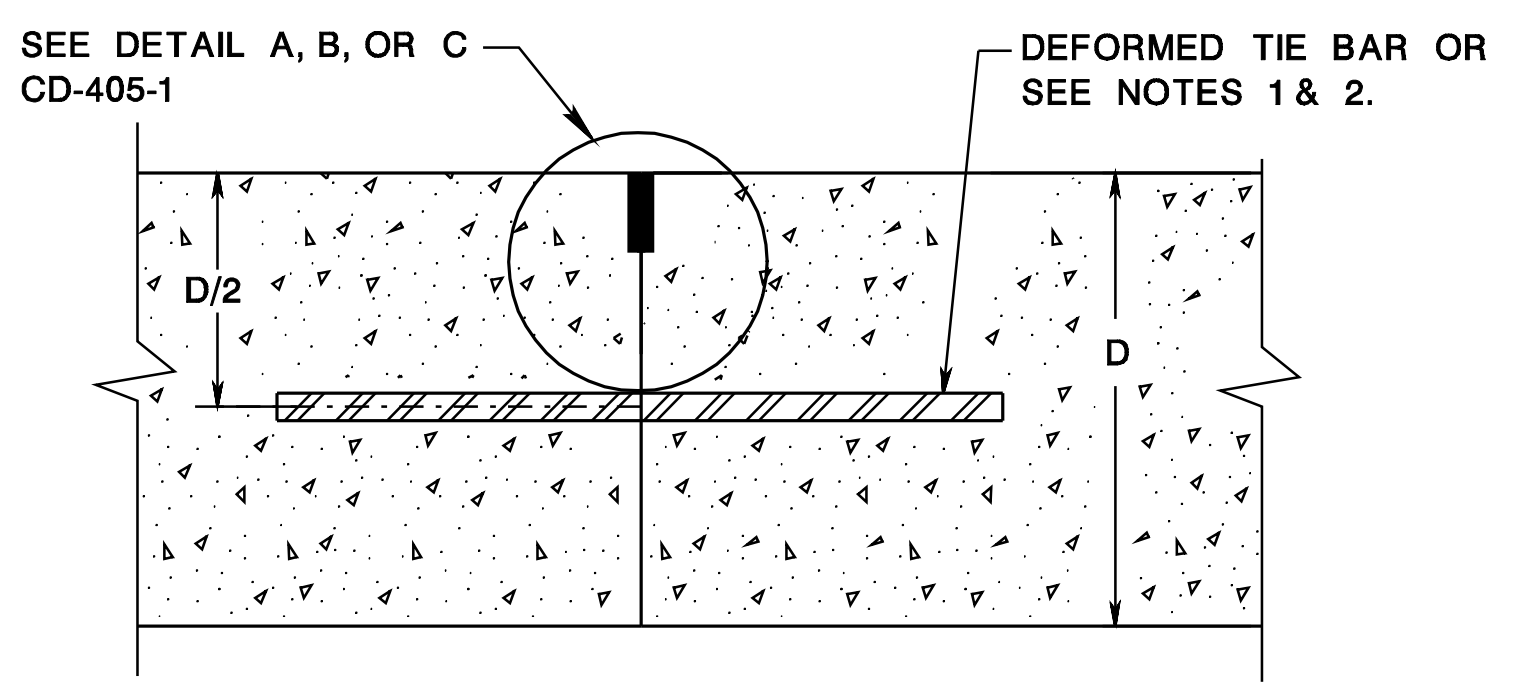
TIE BOLT DETAIL

CD-405-2.1



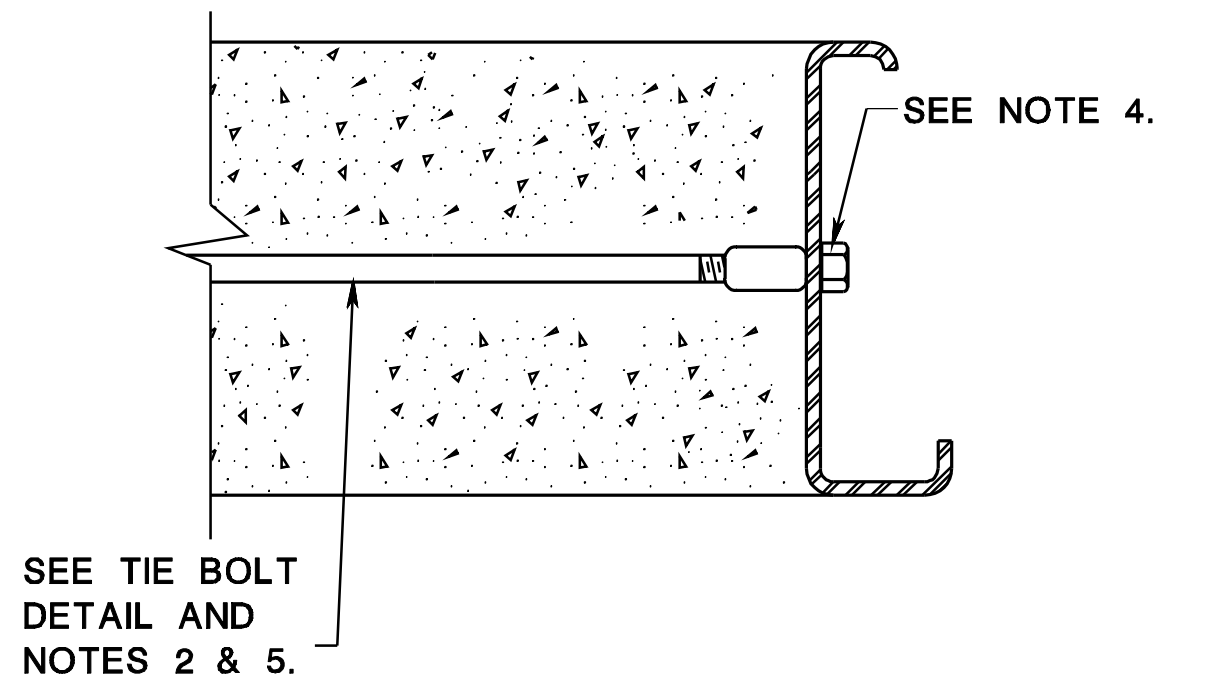
CONSTRUCTION JOINT TIE BOLT

CD-405-2.2



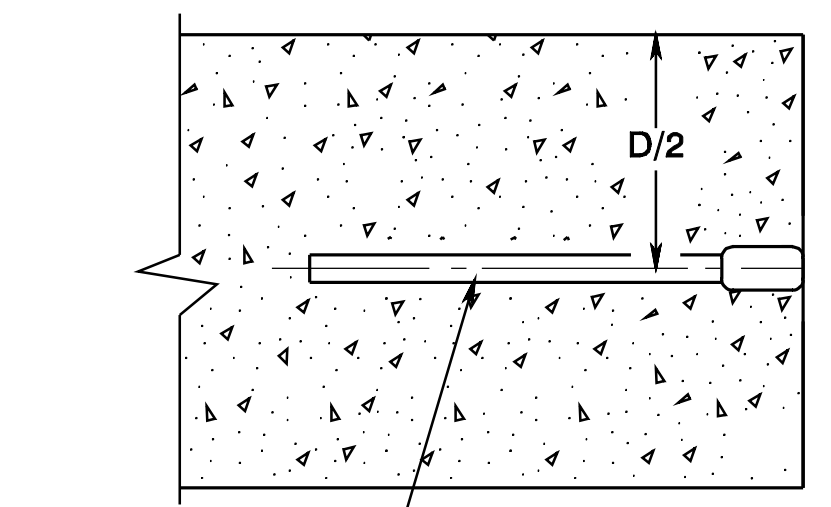
CONSTRUCTION JOINT TIE BAR

CD-405-2.3



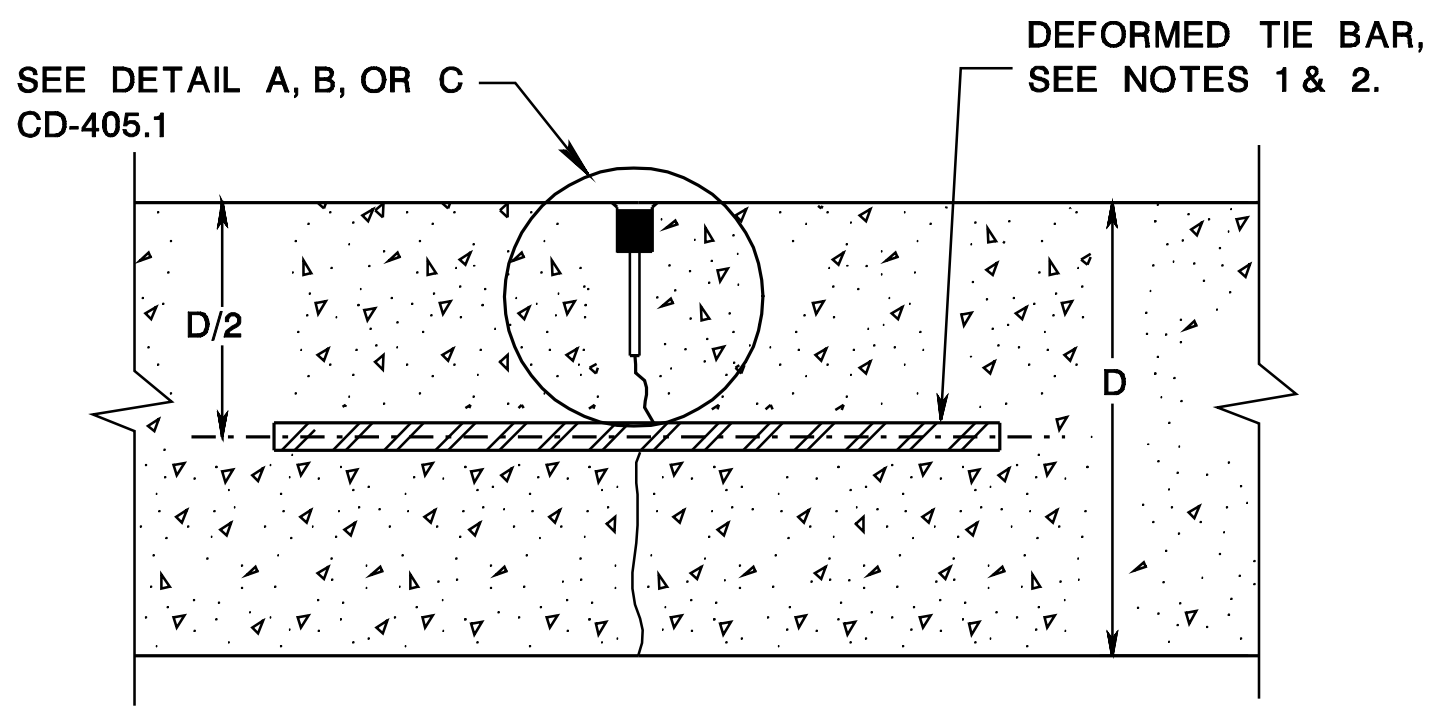
STATIONARY FORMING

CD-405-2.4



SLIP FORMING

CD-405-2.5



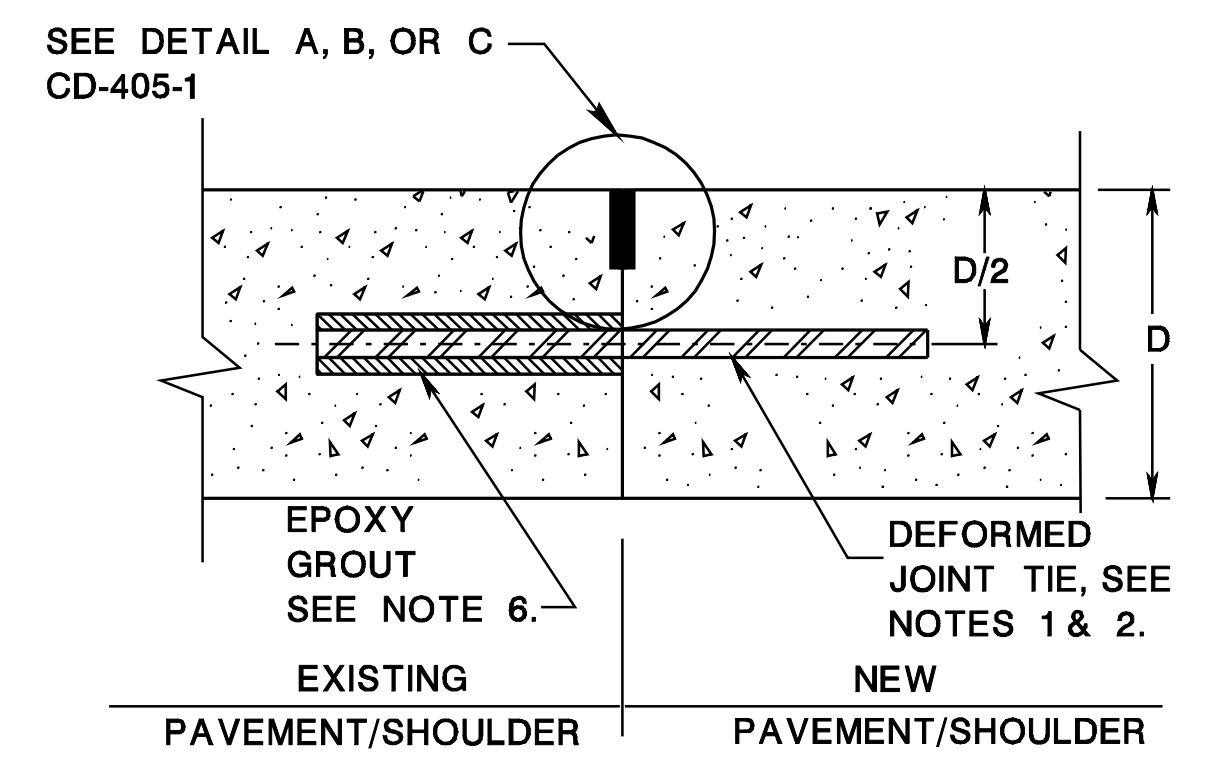
CONTRACTION JOINT

CD-405-2.6

NOTES

1. SPECIFY #6 TIE BARS 30" ± 1/4" LONG, SPACED 30" CENTER TO CENTER MAXIMUM. FOR JOINT TIES SPECIFY #6 BARS 18" ± 1/4" LONG, SPACED 30" CENTER TO CENTER MAXIMUM. PLACE PERPENDICULAR TO AND CENTERED OVER THE LONGITUDINAL JOINT ± 1". WHEN ADJOINING TO AN UNEQUAL PAVEMENT OR SHOULDER DEPTH, D IS THE DEPTH OF THE THINNER SECTION.
2. DO NOT FIELD BEND TIE BARS, TIE BOLTS, AND JOINT TIES.
3. USE REBAR COUPLING DEVICE THAT IS LISTED ON THE QPL.
4. TEMPORARILY SECURE THE TIE BOLT TO THE FORM DURING PLACEMENT OF THE CONCRETE USING A METHOD ACCPETABLE TO THE R.E..
5. PLACE TIE BOLTS AT 30" CENTER TO CENTER MAXIMUM SPACING. WHEN ADJOINING TO AN UNEQUAL PAVEMENT OR SHOULDER DEPTH, D IS THE DEPTH OF THE THINNER SECTION. SCREW TIE BOLTS UNTIL SNUG.
6. USE AN APPROVED EPOXY GROUT MATERIAL TO WITHSTAND THE NECESSARY MINIMUM PULL-OUT RESISTANCE. TIE BAR HOLE DIAMETER IN EXISTING PAVEMENT SHOULD BE AS PER MANUFACTURER'S RECOMMENDATION. USE ROTARY IMPACT DRILL TO AVOID IMPACTING FINES INTO HOLE.
7. DO NOT USE THE HOOK COMPONENT OF THE TIE BOLT ASSEMBLY WHEN SLIP FORMING.
8. WHEN COLD-POURED JOINT SEALER IS SELECTED FOR USE IN TRANSVERSE JOINTS, USE THE SAME JOINT SEALING MATERIAL IN THE LONGITUDINAL JOINTS.

CD-405-2.7



LONGITUDINAL JOINT WHEN TYING INTO EXISTING CONCRETE PAVEMENT/SHOULDER

CD-405-2.8

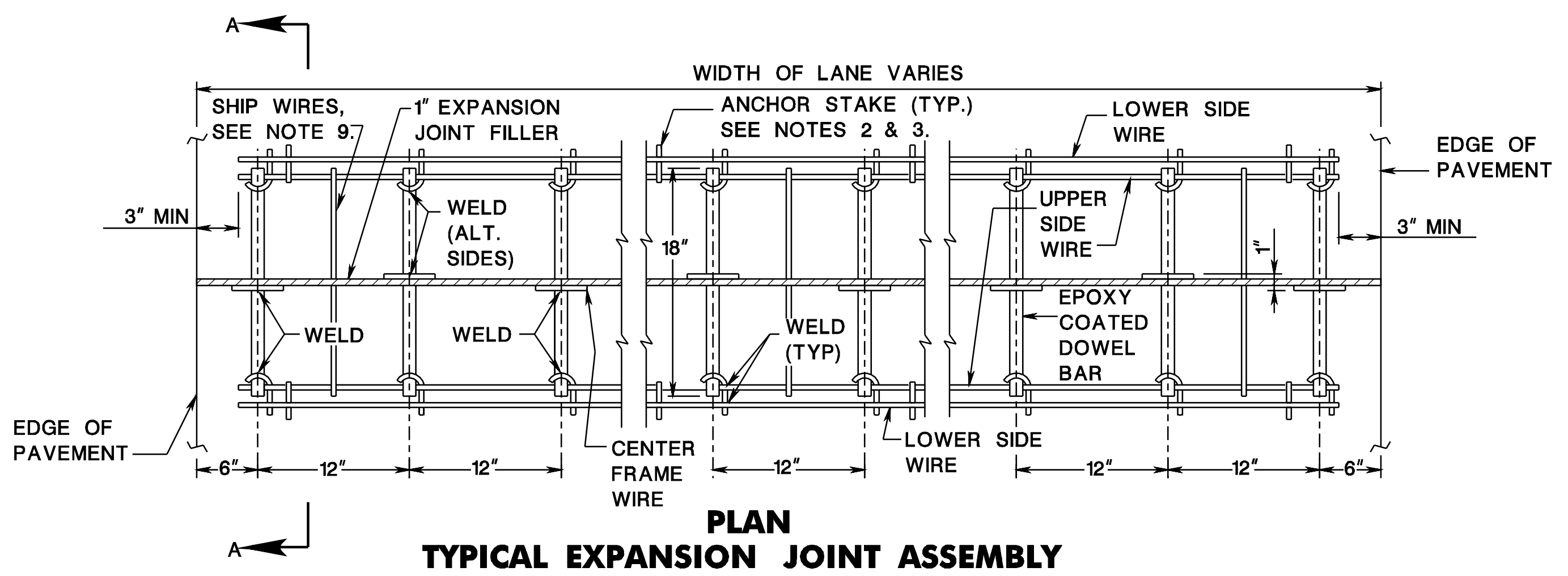
CONCRETE PAVEMENT LONGITUDINAL JOINTS
 N.T.S.

CD-405-2

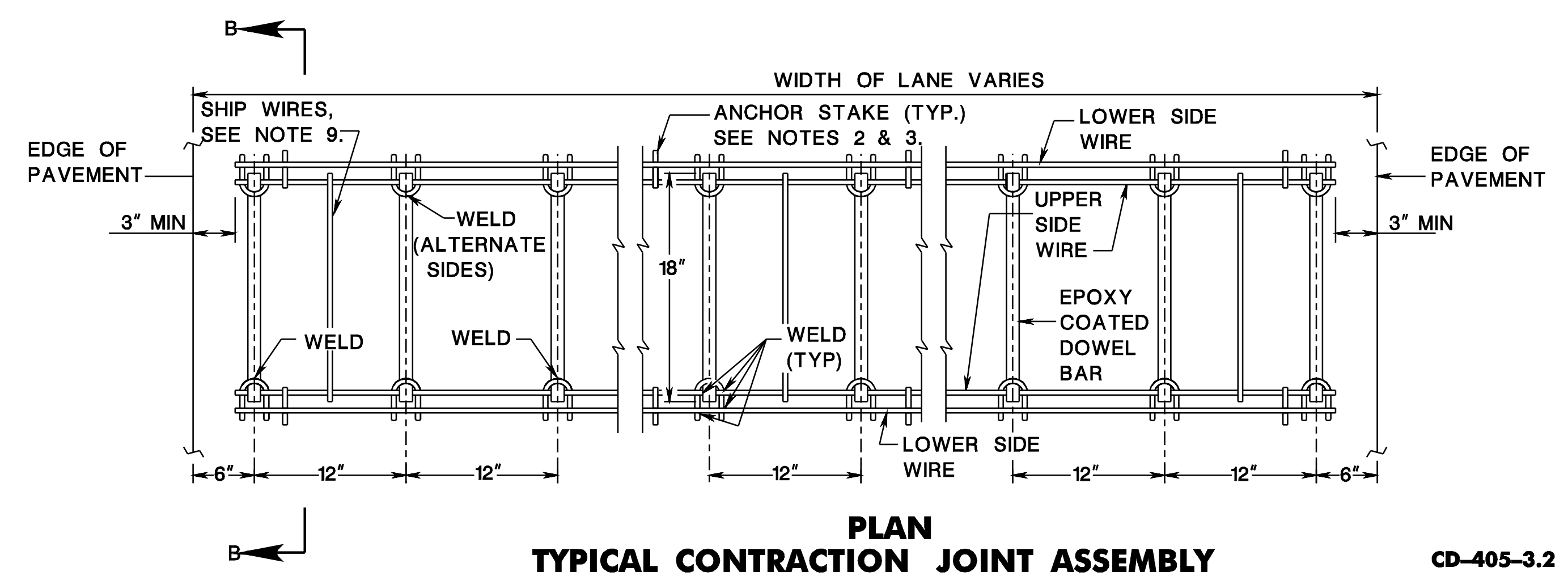
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

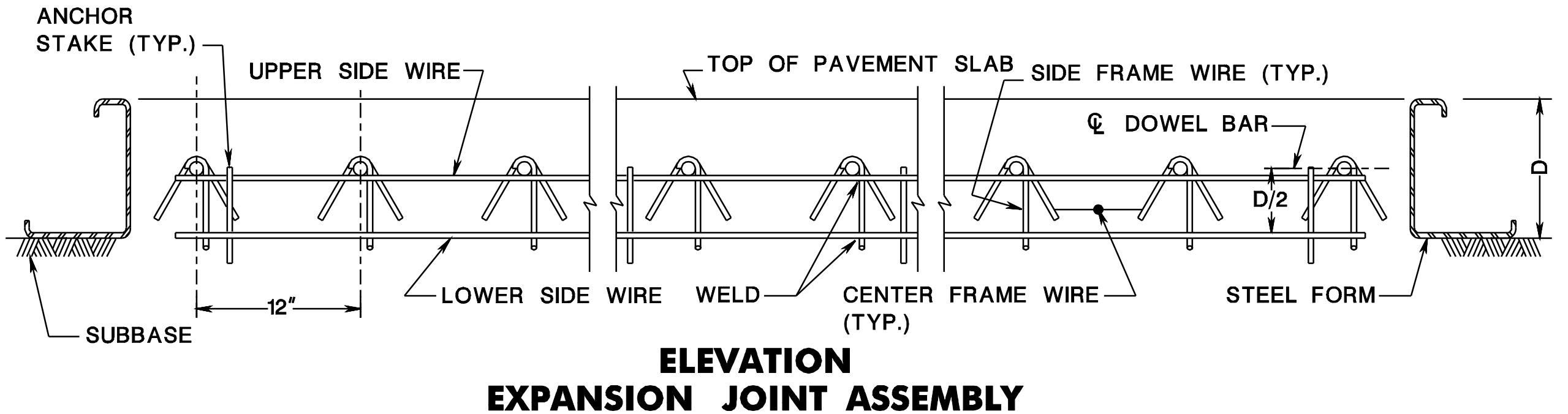
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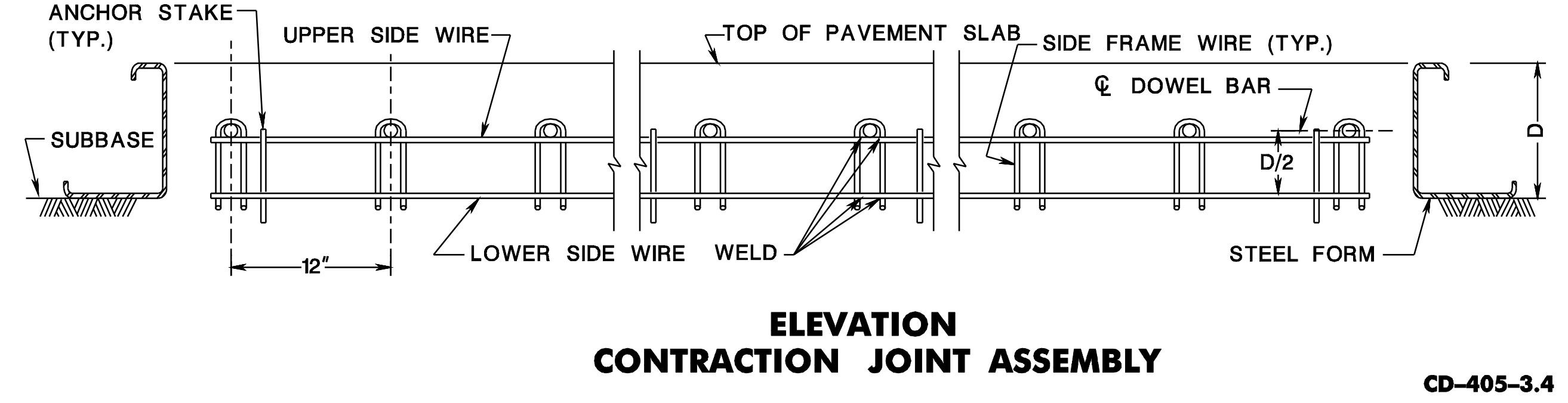
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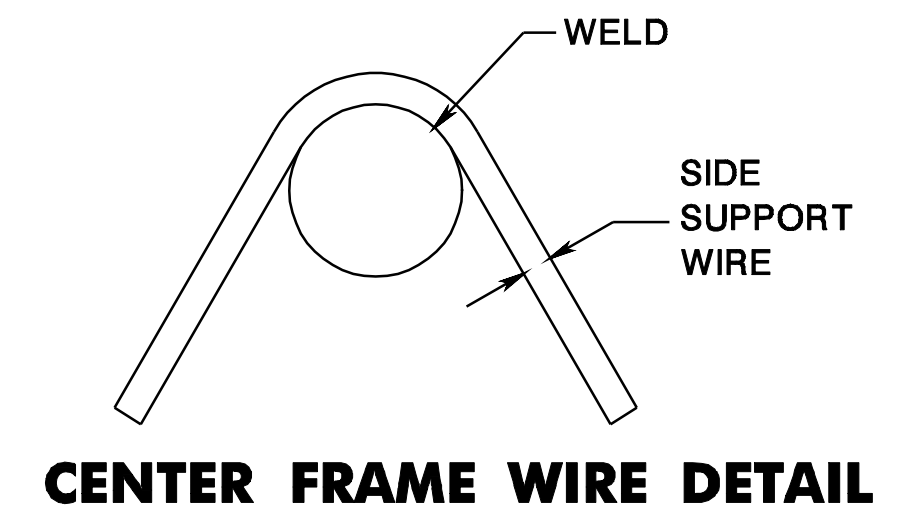
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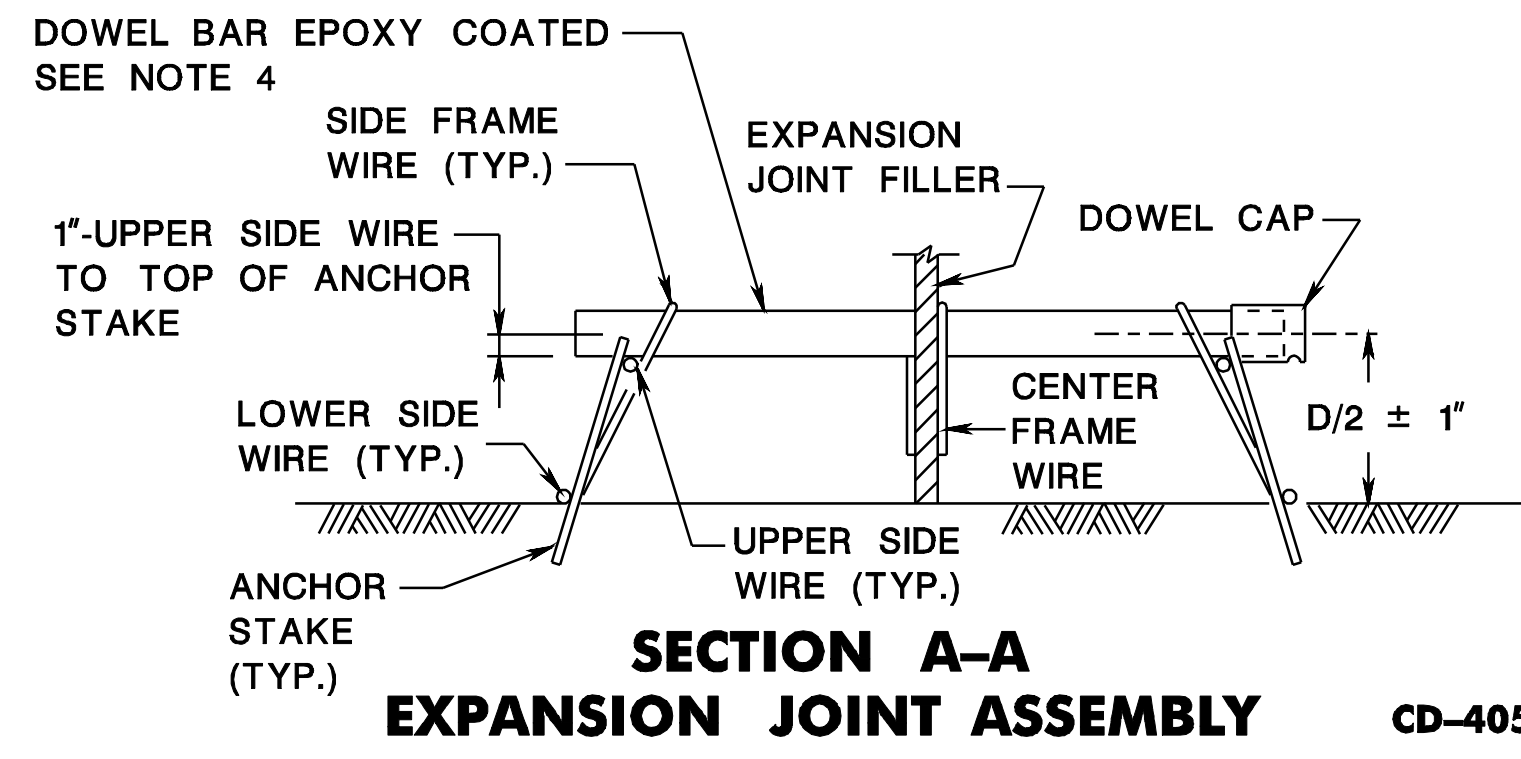
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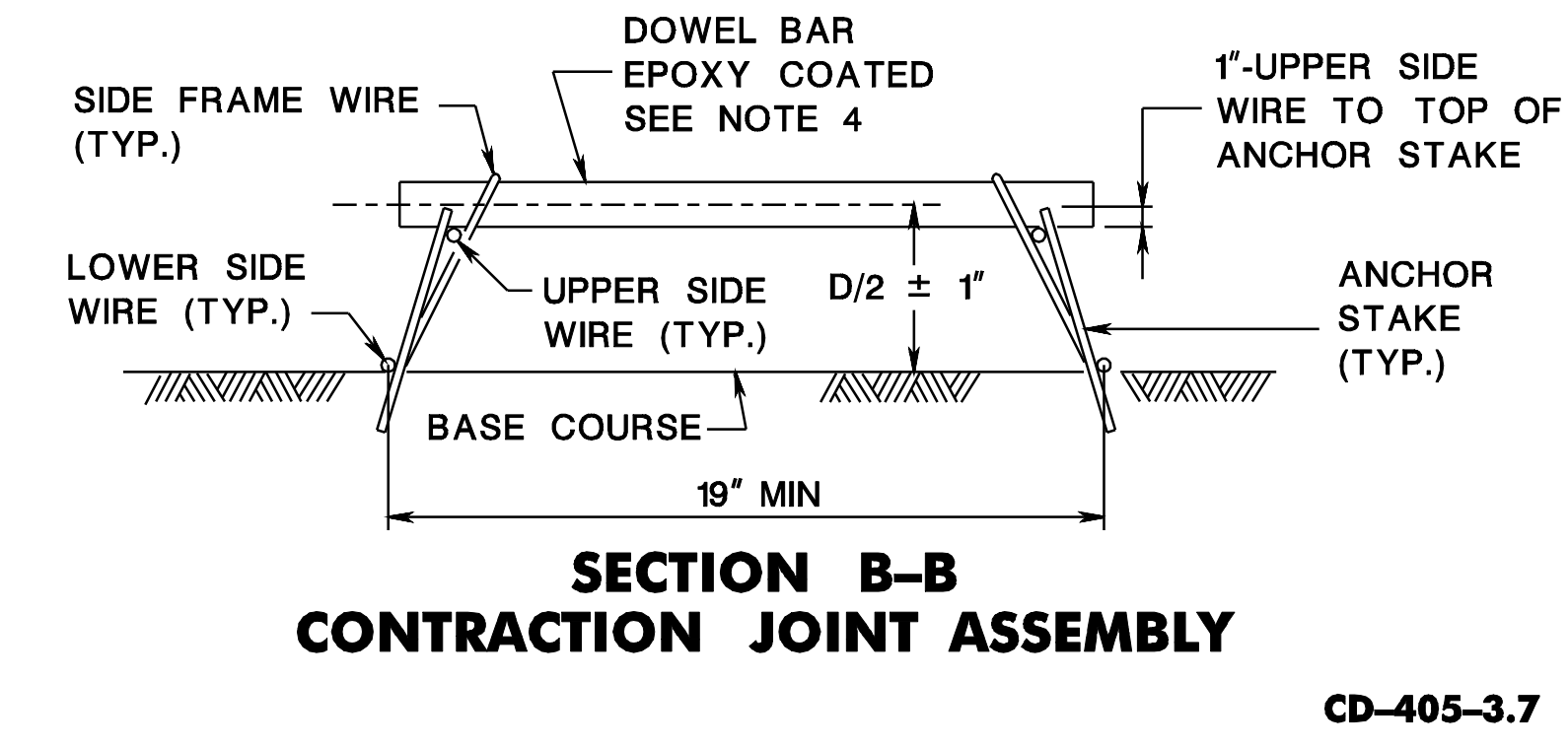
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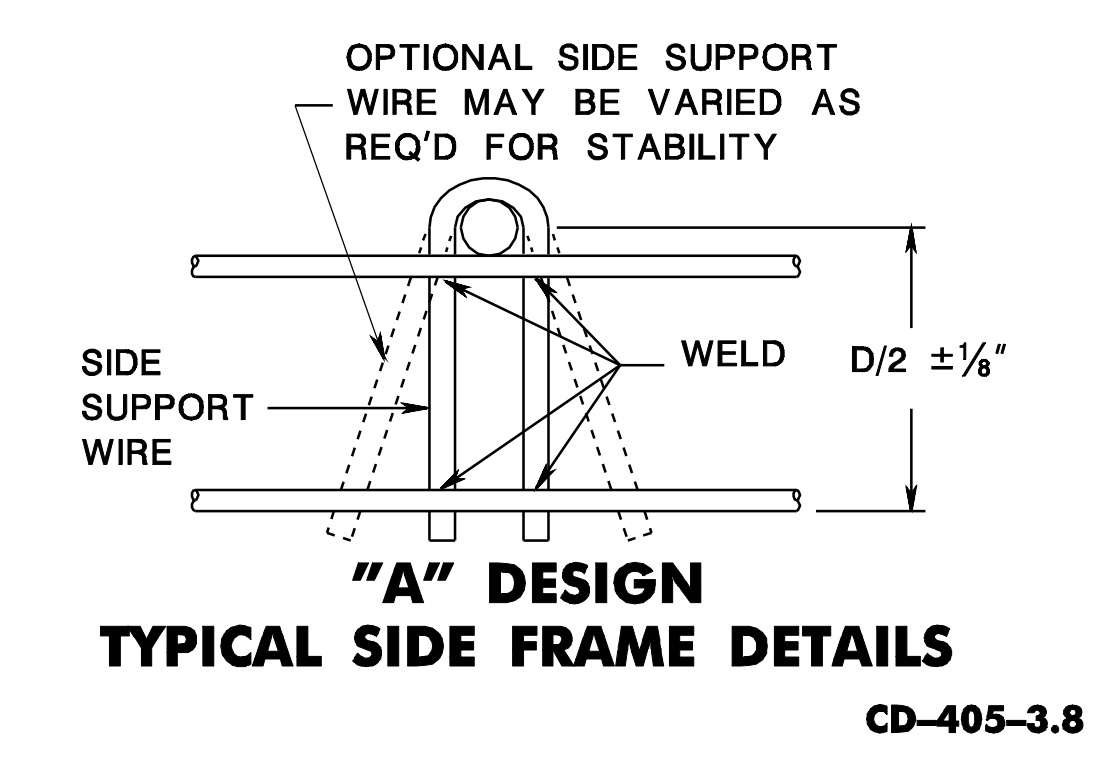
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CD-405-3.6



CD-405-3.7



CD-405-3.8

NOTES

- THIS STANDARD DEPICTS THE DIMENSIONS REQUIRED FOR UNIFORMITY AND COMPATIBILITY. IT DOES NOT INCLUDE ALL THE DETAILS REQUIRED FOR FABRICATION. ANCHOR STAKES SHOULD NOT TOUCH ANY DOWEL BAR AND MAY BE SPACED AS NEEDED TO PROVIDE STABILITY.
- PROVIDE A MINIMUM OF EIGHT ANCHOR STAKES (FOUR PER SIDE). ANCHOR STAKES SHALL ENGAGE LOWER SIDE FRAME WIRES. USE ADDITIONAL STAKES AS NECESSARY, TO SECURE ASSEMBLIES, AS DIRECTED BY THE R.E..
- PROVIDE 12 INCH MINIMUM ANCHOR STAKES TO SECURE ASSEMBLIES WHEN SUBBASE IS USED AND 18 INCH MINIMUM ANCHOR STAKES WHEN AN OPEN GRADED DRAINAGE LAYER IS USED.
- PROVIDE DOWEL BARS PARALLEL TO THE CENTERLINE AND TO THE PAVEMENT SURFACE. TOLERANCE OF THIS PLACEMENT SHALL BE WITHIN 1/4 INCH PER DOWEL BAR.
- PROVIDE FRAME SUPPORT ASSEMBLY WIRES CONFORMING TO THE CURRENT ASTM DESIGNATION A-510 SPECIFICATIONS FOR WIRE RODS AND COURSE ROUND WIRE, CARBON STEEL AND OF A MINIMUM ALLOWABLE SIZE AS FOLLOWS:

PAVEMENT THICKNESS	UPPER AND LOWER SIDE FRAME WIRES	SIDE SUPPORT WIRES
10" OR LESS	0.331" φ MIN 2/0 GAUGE	0.331" φ MIN 2/0 GAUGE
GREATER THAN 10"	0.362" φ MIN 3/0 GAUGE	0.362" φ MIN 3/0 GAUGE

- PROVIDE DOWEL BARS PARALLEL TO THE CENTERLINE AND TO THE PAVEMENT SURFACE. MAKE TOLERANCE OF THIS PLACEMENT WITHIN ± 1/4" PER DOWEL BAR.

- WELD REQUIREMENTS AS LISTED BELOW AND TESTED PER MANUFACTURER'S QUALITY CONTROL PLANS FOR WELD SHEAR.

PAVEMENT THICKNESS	UPPER AND LOWER WIRE TO SIDE SUPPORT	DOWEL TO SUPPORT ASSEMBLY
10" OR LESS	794 LBS.	1190 LBS.
> 10"	1190 LBS.	1984 LBS.

- WIRE TOLERANCES PER ASTM 510M IS 0.003in.
- AFTER EACH LOAD TRANSFER ASSEMBLY IS SECURED IN PLACE, REMOVE AND PROPERLY DISPOSE OF ALL TIE WIRES OR SHIPPING WIRES.

TYPICAL LOAD TRANSFER ASSEMBLY		
LANE WIDTH	OVERALL UNIT LENGTH	NO. OF DOWELS
9'-0"	8'-6"	9
10'-0"	9'-6"	10
11'-0"	10'-6"	11
12'-0"	11'-6"	12

CD-405-3.9

**CONCRETE PAVEMENT JOINTS
NON-SKEWED LOAD
TRANSFER ASSEMBLIES**

N.T.S.

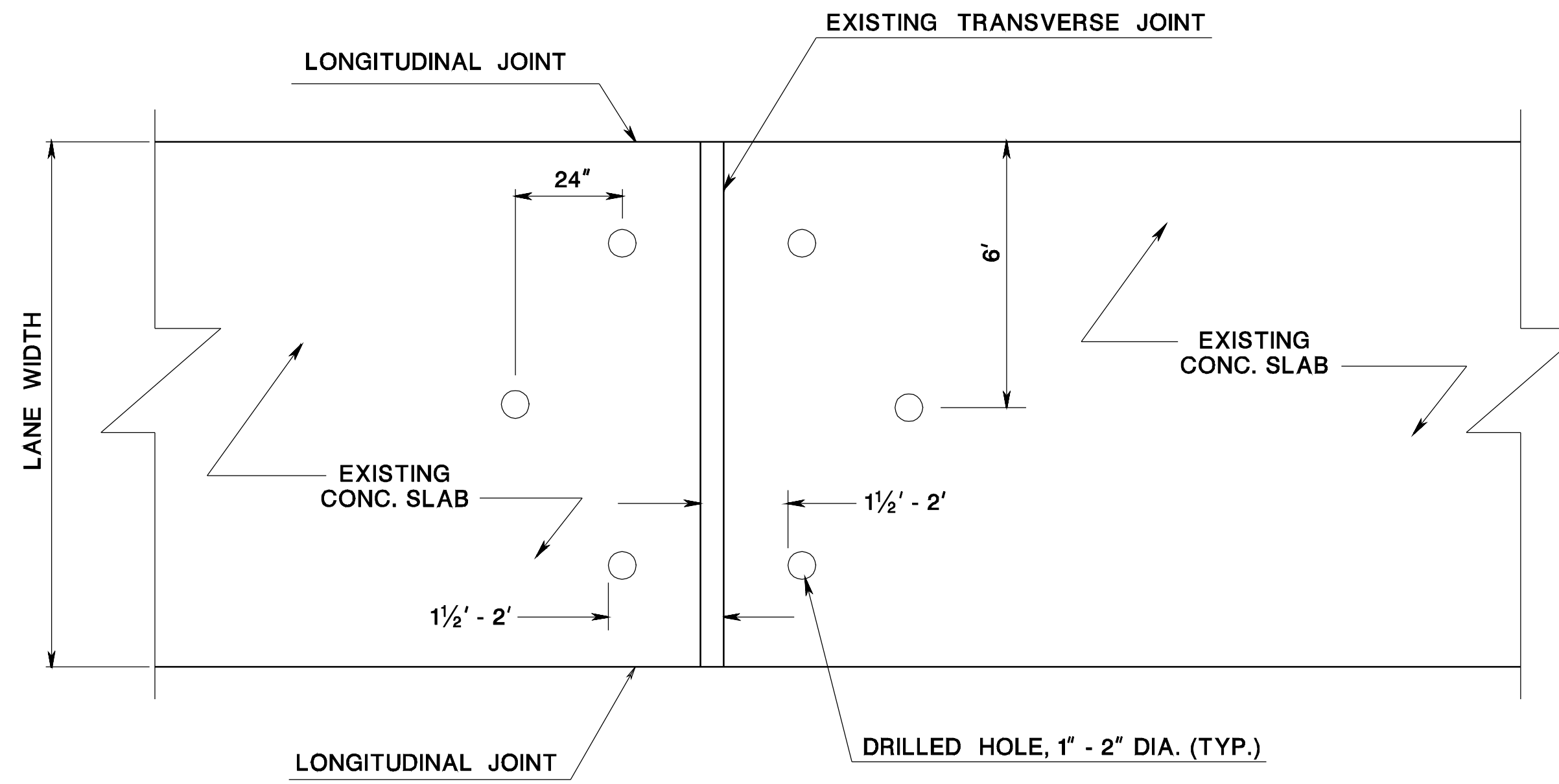
CD-405-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

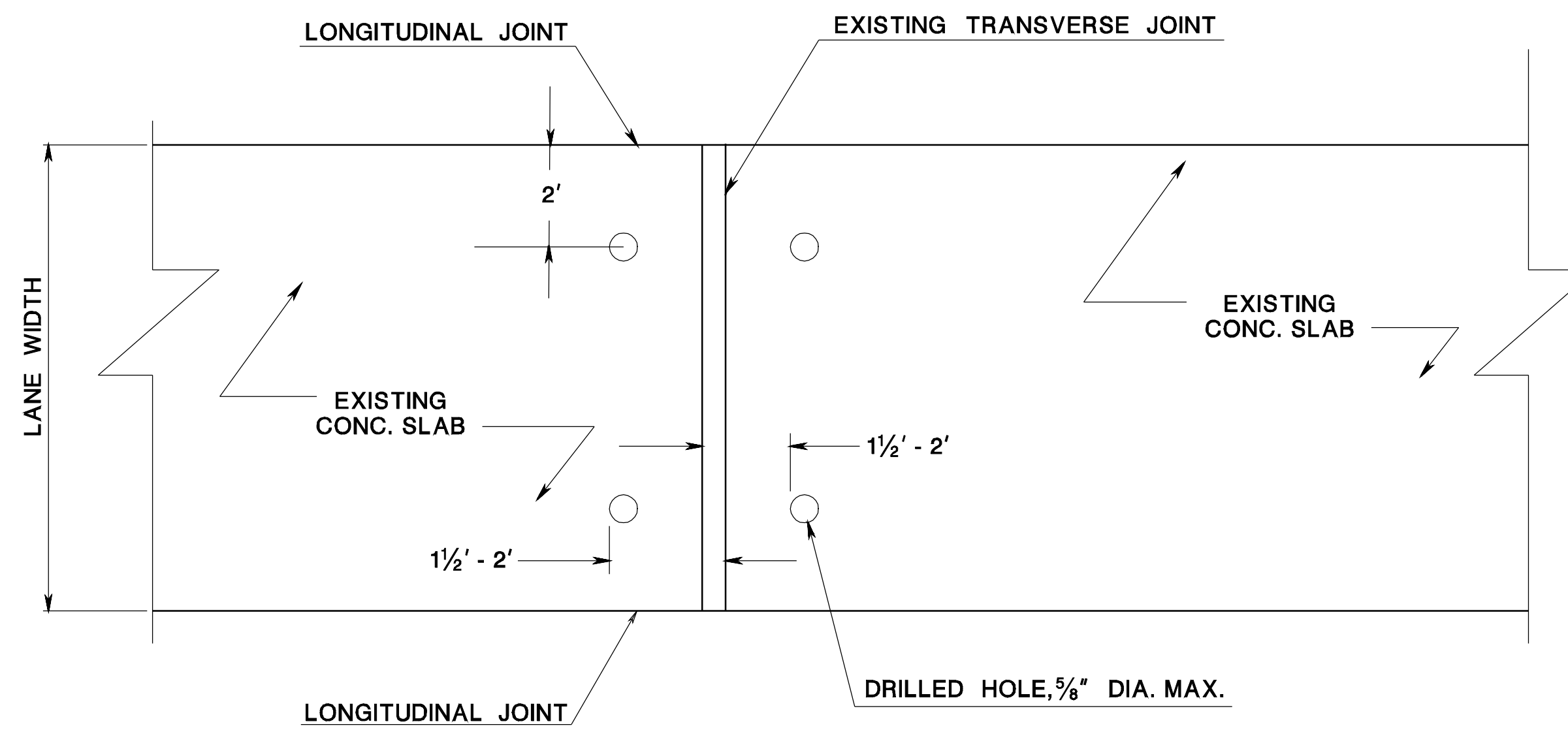
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BDC07D5-ORIGINAL SHEET



**TYPICAL HOLE PATTERN
USED FOR SLAB STABILIZATION, POZZOLAN GROUT**



SLAB STABILIZATION, POLYURETHANE GROUT

SLAB STABILIZATION

N.T.S.

CD-451-1

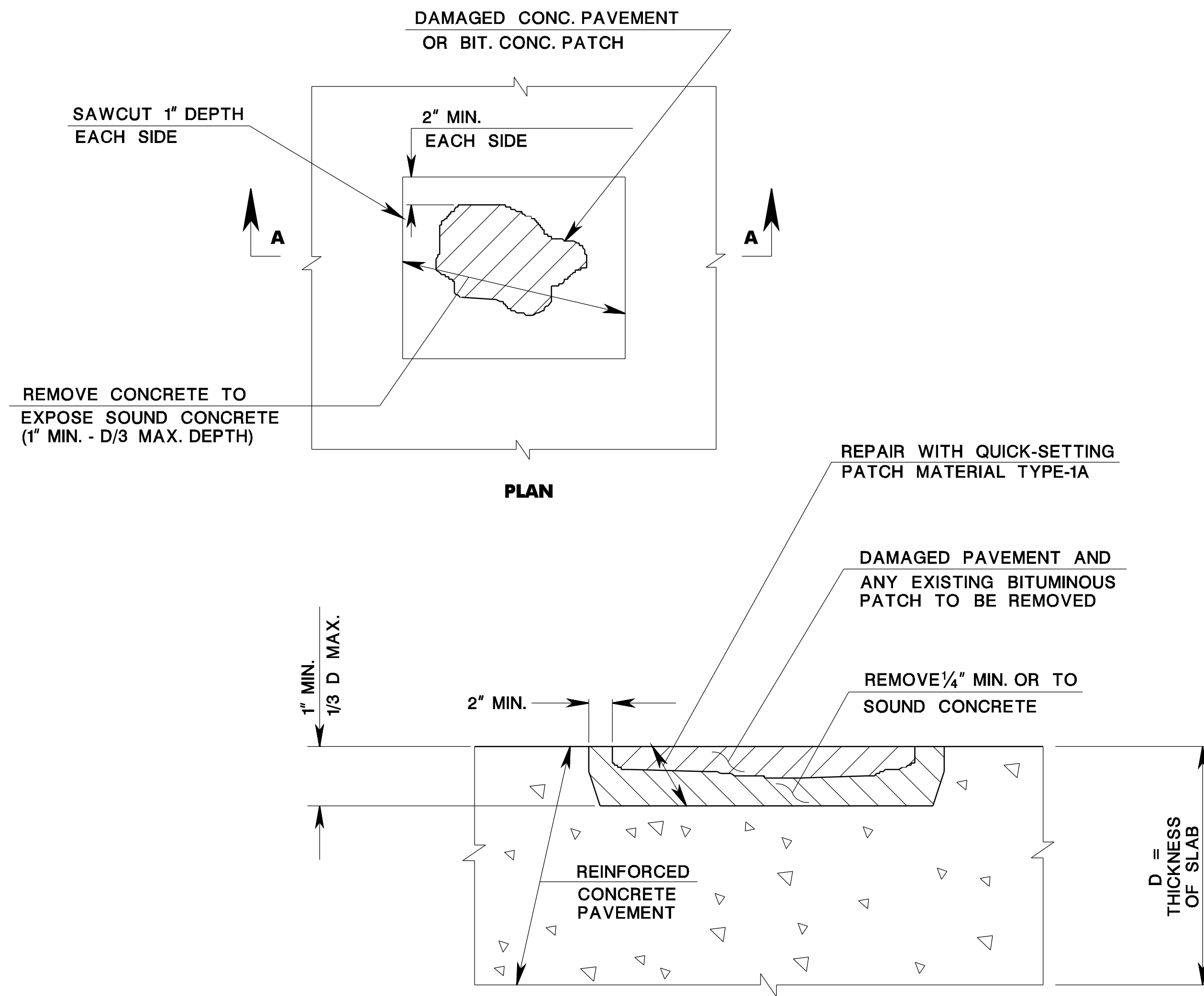
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BDC07D3-ORIGINAL SHEET



NOTES:

1. DEPTH OF REPAIR SHALL NOT EXCEED 1/3 SLAB THICKNESS. IF DETERIORATION EXTENDS BELOW 1/3 SLAB THICKNESS, THE ENGINEER SHALL BE NOTIFIED.
2. AT TRANSVERSE EXPANSION JOINTS, MATCH WIDTH OF EXISTING JOINT FILLER WITH PREFORMED JOINT FILLER.

**PARTIAL DEPTH
CONCRETE PAVEMENT REPAIR**

**PARTIAL DEPTH CONCRETE
PAVEMENT REPAIR**

N.T.S.

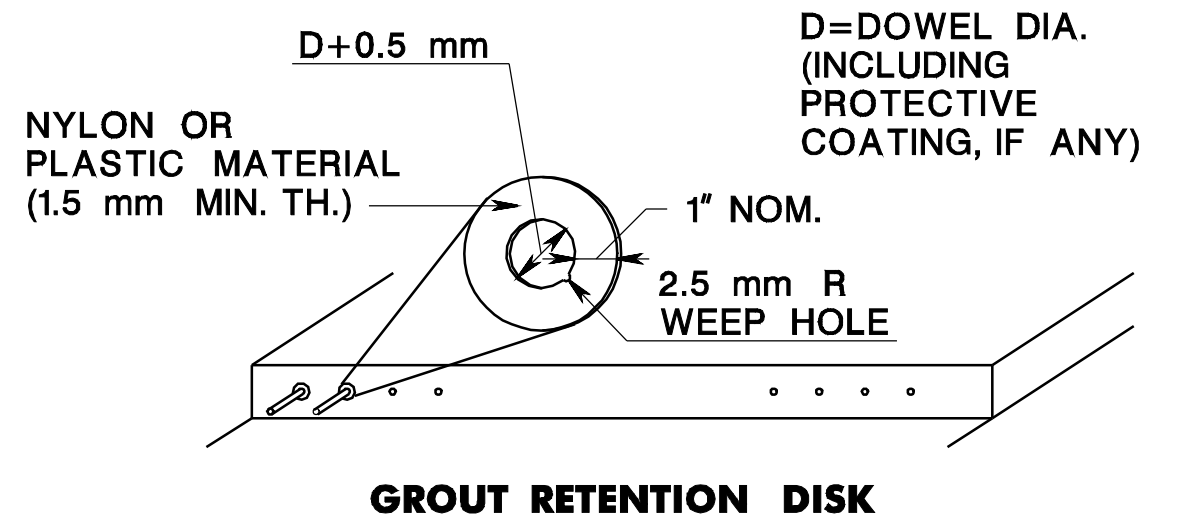
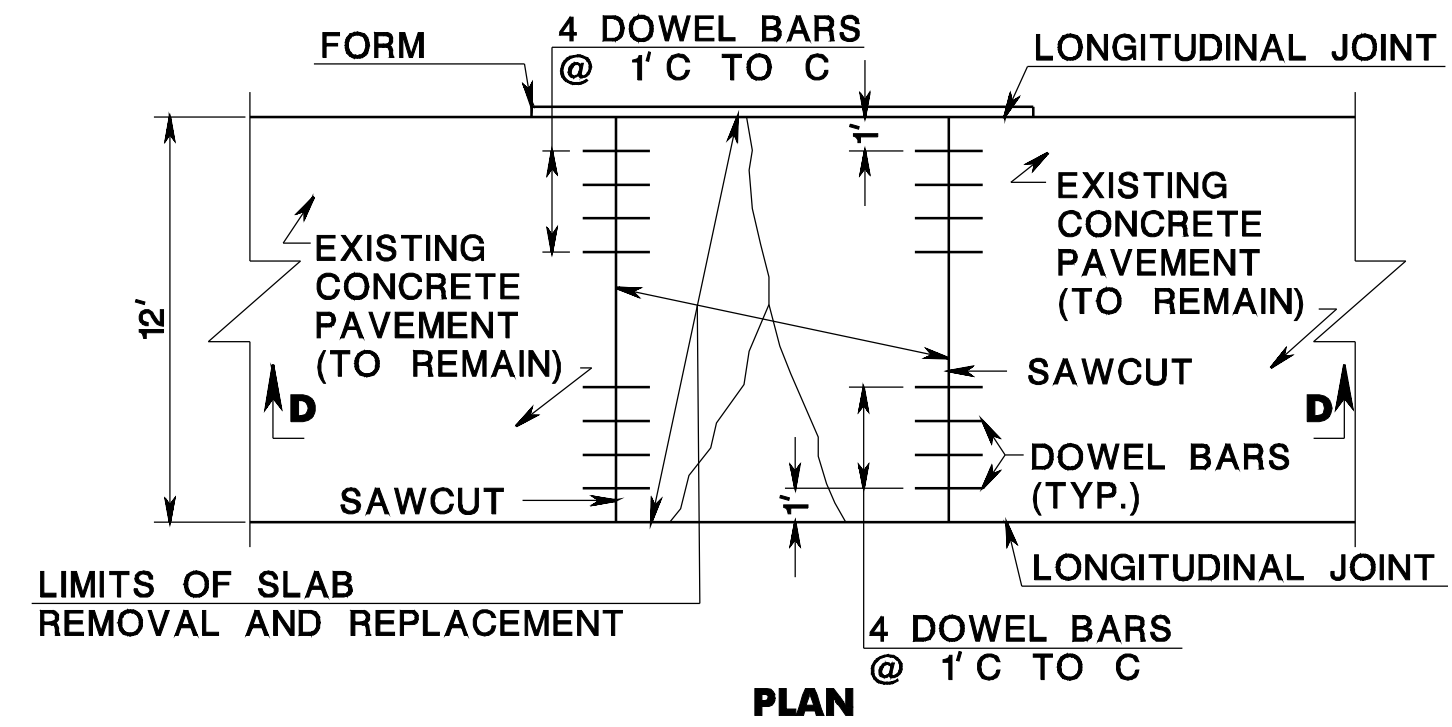
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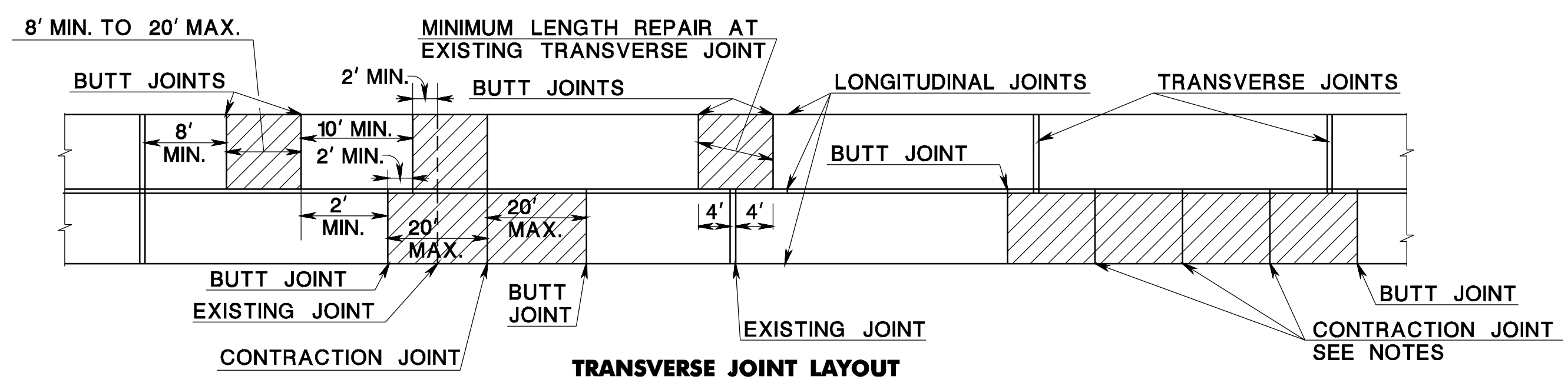
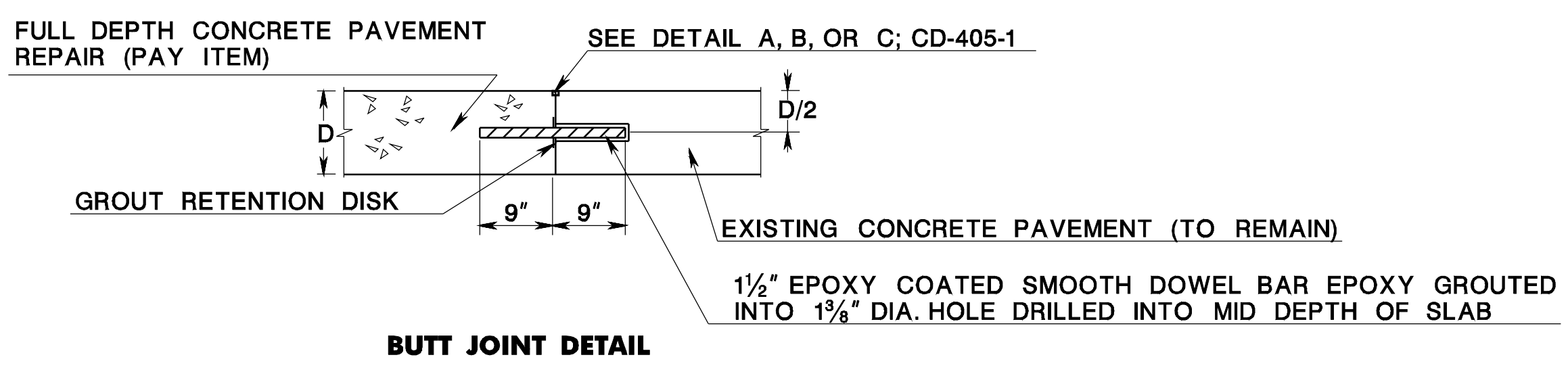
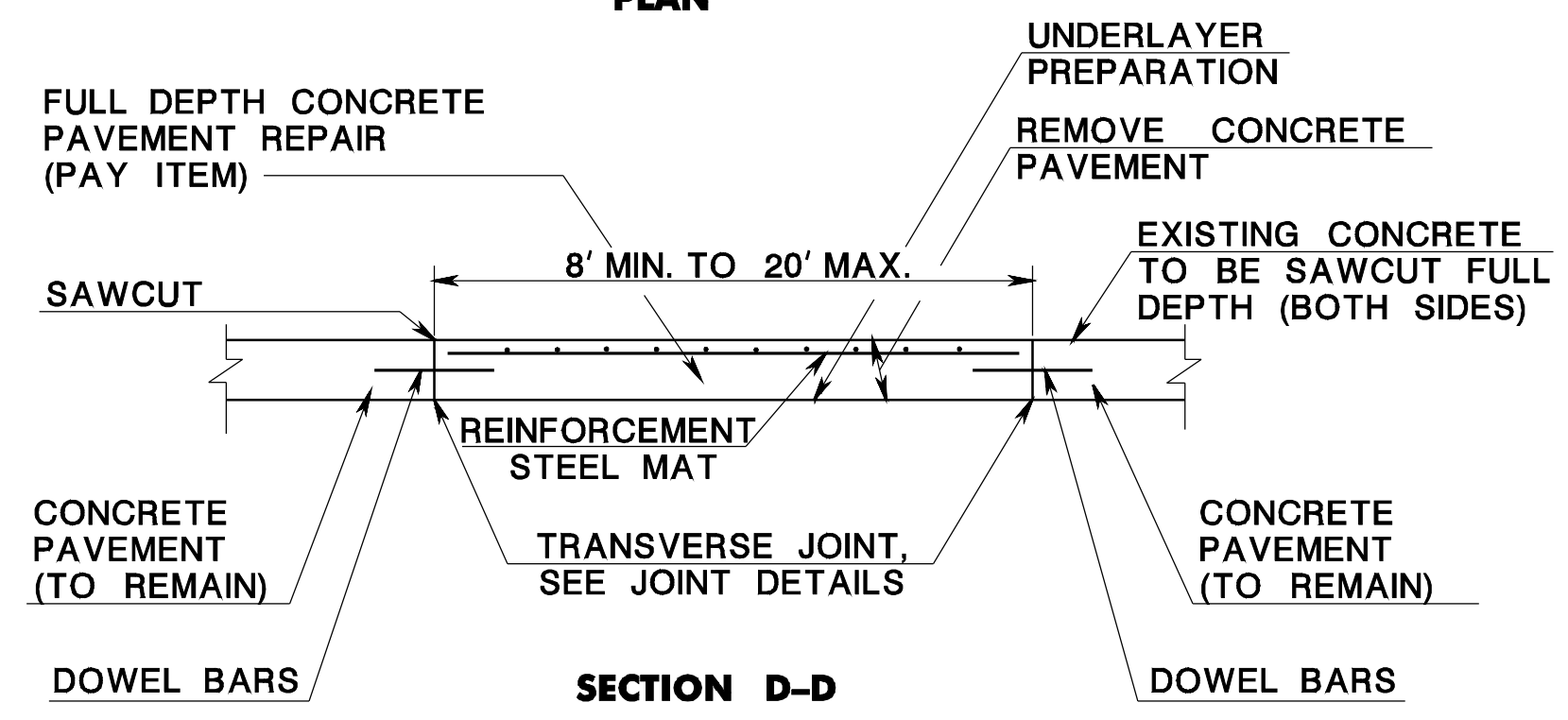
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NOTES:

1. SAWCUTS SHALL BE MADE PERPENDICULAR TO BASELINE.
2. INITIAL SAWCUT IS NOT REQUIRED FOR BUTT JOINTS.
3. A MINIMUM OF 3" CONCRETE COVER IS REQUIRED OVER REINFORCEMENT STEEL MAT.
4. SPACE CONTRACTION JOINTS AND CONTRACTION/BUTT JOINTS EQUIDISTANT AND NOT MORE THAN 20' APART.



FULL DEPTH CONCRETE PAVEMENT REPAIR

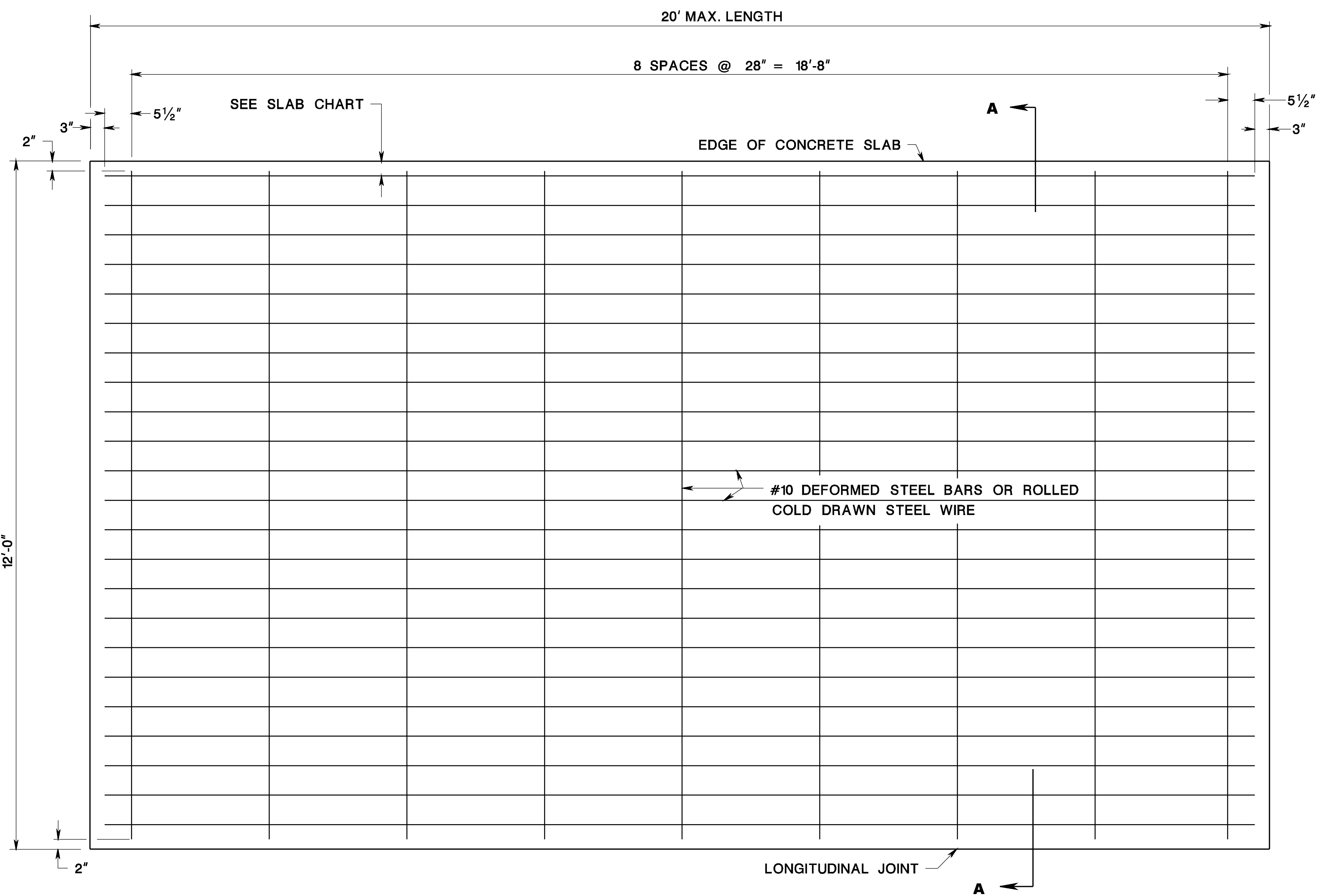
FULL DEPTH CONCRETE PAVEMENT REPAIR

N.T.S.

CD-453-1
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-453-1.1



REINFORCEMENT STEEL FOR 12'-0" WIDTH SLAB

NOTES:

- REINFORCEMENT STEEL MATS DIFFERING WITH RESPECT TO THEIR LENGTH, SPACING OF TRANSVERSE REINFORCEMENT STEEL AND TYPE OF FABRICATION FROM THE MAT SHOWN IN THESE DRAWINGS MAY BE USED, PROVIDED THAT (a) THE MATS HAVE THE SAME SIZE AND SPACING OF LONGITUDINAL REINFORCEMENT STEEL, AND PROVIDE AT LEAST THE SAME NUMBER OF TRANSVERSE REINFORCEMENT STEEL PER SLAB, AS CALLED FOR IN THESE DRAWINGS, AND (b) APPROVAL FOR USE HAS BEEN OBTAINED FROM THE DEPARTMENT.
* SEE SLAB CHART
- AN EDGE CLEARANCE OF 3" IS REQUIRED OF OUTSIDE LONGITUDINAL REINFORCEMENT STEEL. SPACE REINFORCEMENT STEEL EVENLY ACROSS WIDTH OF SLAB WITH A MAXIMUM SPACING OF 7 1/2" FOR SLABS WITH A THICKNESS OF LESS THAN 10" AND 6" FOR SLABS WITH A THICKNESS OF 10" OR GREATER.

REINFORCEMENT REQUIREMENTS WHEN USING WELDED STEEL WIRE FABRIC

SLABS LESS THAN 10 INCHES THICK:

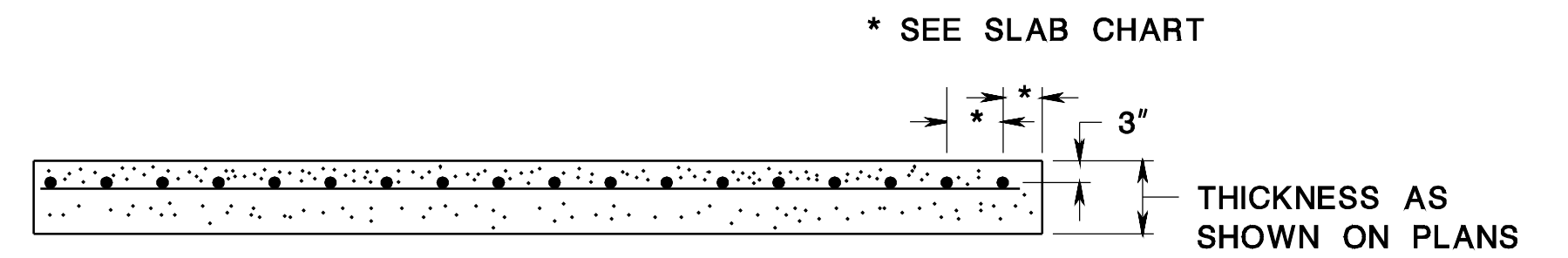
- USE SIZE NO. W8.6 LONGITUDINAL WIRE SPACED 6 INCHES ON CENTER.
- USE SIZE NO. W4.7 TRANSVERSE WIRE SPACED 12 INCHES ON CENTER.
- ENSURE THAT THE EDGE CLEARANCE IS 3 INCHES FOR OUTSIDE LONGITUDINAL WIRE.
- ENSURE THAT THE MAXIMUM EDGE CLEARANCE IS 11 INCHES FOR THE LAST TRANSVERSE WIRE.
- ENSURE THAT THE END CLEARANCE IS BETWEEN 1 INCH AND 3 INCHES FOR THE LONGITUDINAL WIRE.
- ENSURE THE LONGITUDINAL WIRES ARE LAPPED A MINIMUM OF 12 INCHES.

SLABS 10 INCHES THICK OR GREATER:

- USE SIZE NO. W10.5 LONGITUDINAL WIRE SPACED 6 INCHES ON CENTER.
- USE SIZE NO. W5.5 TRANSVERSE WIRE SPACED 12 INCHES ON CENTER.
- ENSURE THAT THE EDGE CLEARANCE IS 3 INCHES FOR OUTSIDE LONGITUDINAL WIRE.
- ENSURE THAT THE MAXIMUM EDGE CLEARANCE IS 11 INCHES FOR THE LAST TRANSVERSE WIRE.
- ENSURE THAT THE END CLEARANCE IS BETWEEN 1 INCH AND 3 INCHES FOR THE LONGITUDINAL WIRE.
- ENSURE THE LONGITUDINAL WIRES ARE LAPPED A MINIMUM OF 12 INCHES.

SLAB CHART FOR THICKNESS LESS THAN 10"														
* WIDTH OF SLAB	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
NUMBER OF LONGITUDINAL REINF. STEEL	5	6	8	9	11	13	14	16	17	19	21	22	24	25

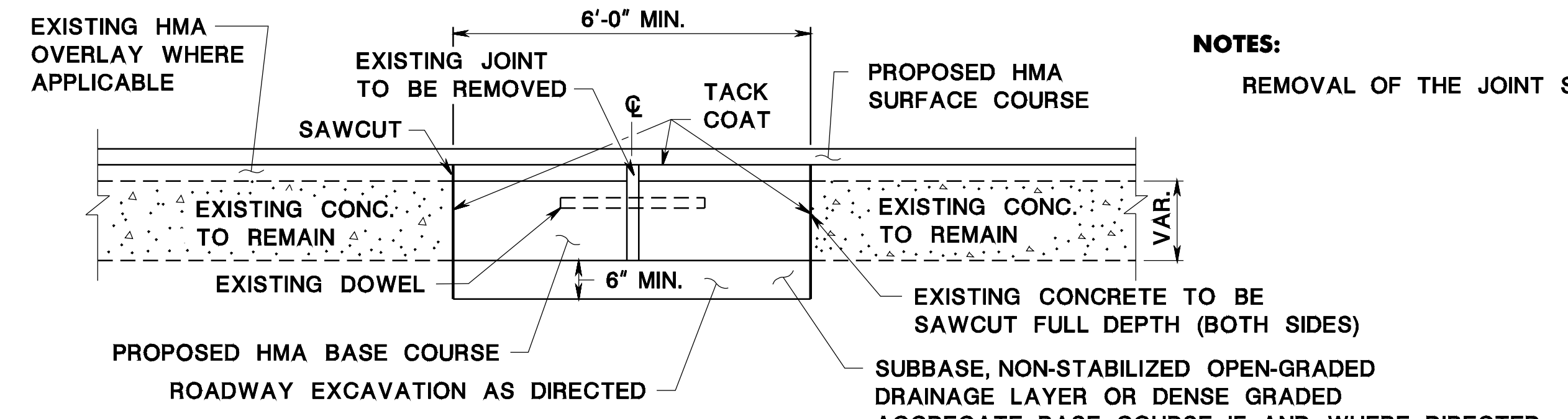
SLAB CHART FOR 10" THICKNESS OR GREATER														
* WIDTH OF SLAB	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
NUMBER OF LONGITUDINAL REINF. STEEL	6	8	10	12	14	16	18	20	22	24	26	28	30	32



SECTION A-A

REINFORCEMENT STEEL FOR FULL DEPTH CONCRETE PAVEMENT REPAIR, CLASS

FULL DEPTH CONCRETE PAVEMENT REPAIR
N.T.S.



NOTES:

REMOVAL OF THE JOINT SHALL BE AS DIRECTED.

FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA

NOTE:

REINFORCEMENT STEEL ARE IN METRIC UNITS.

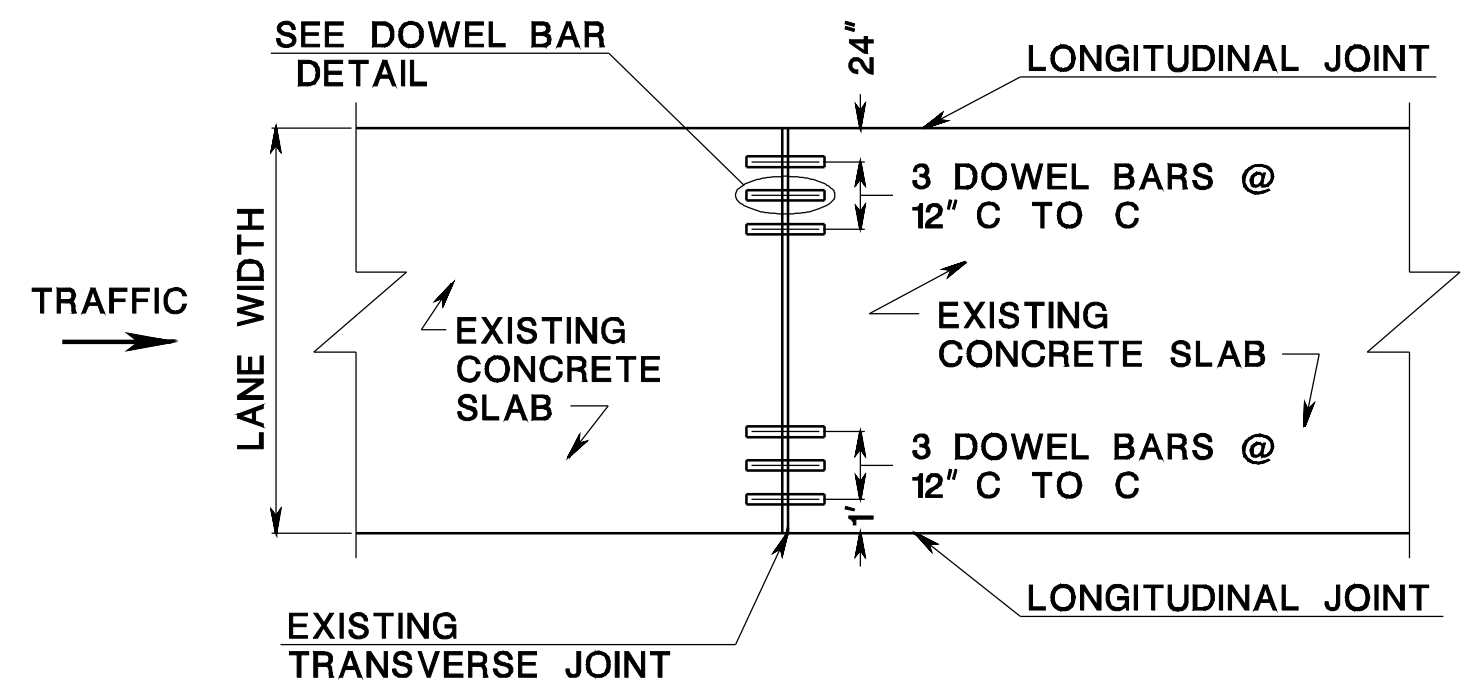
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NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

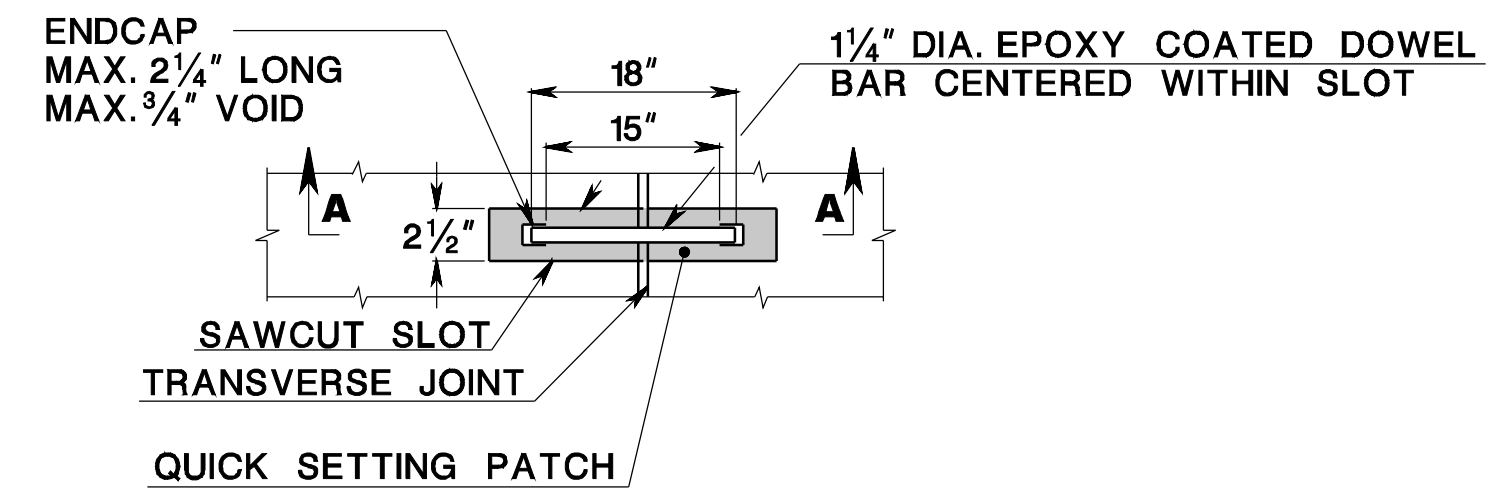
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CD-453-2.1

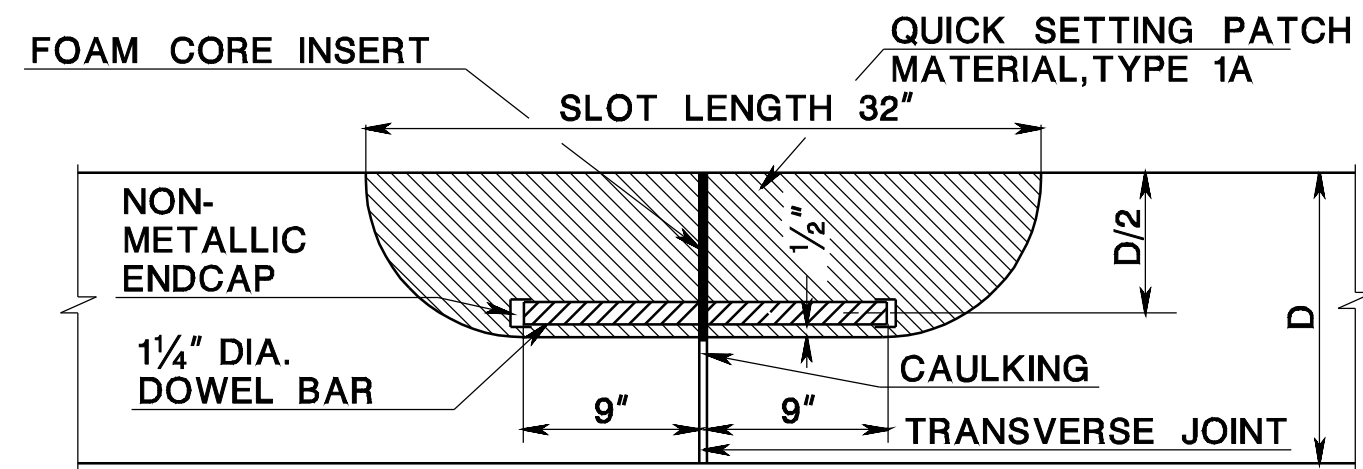
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PLAN



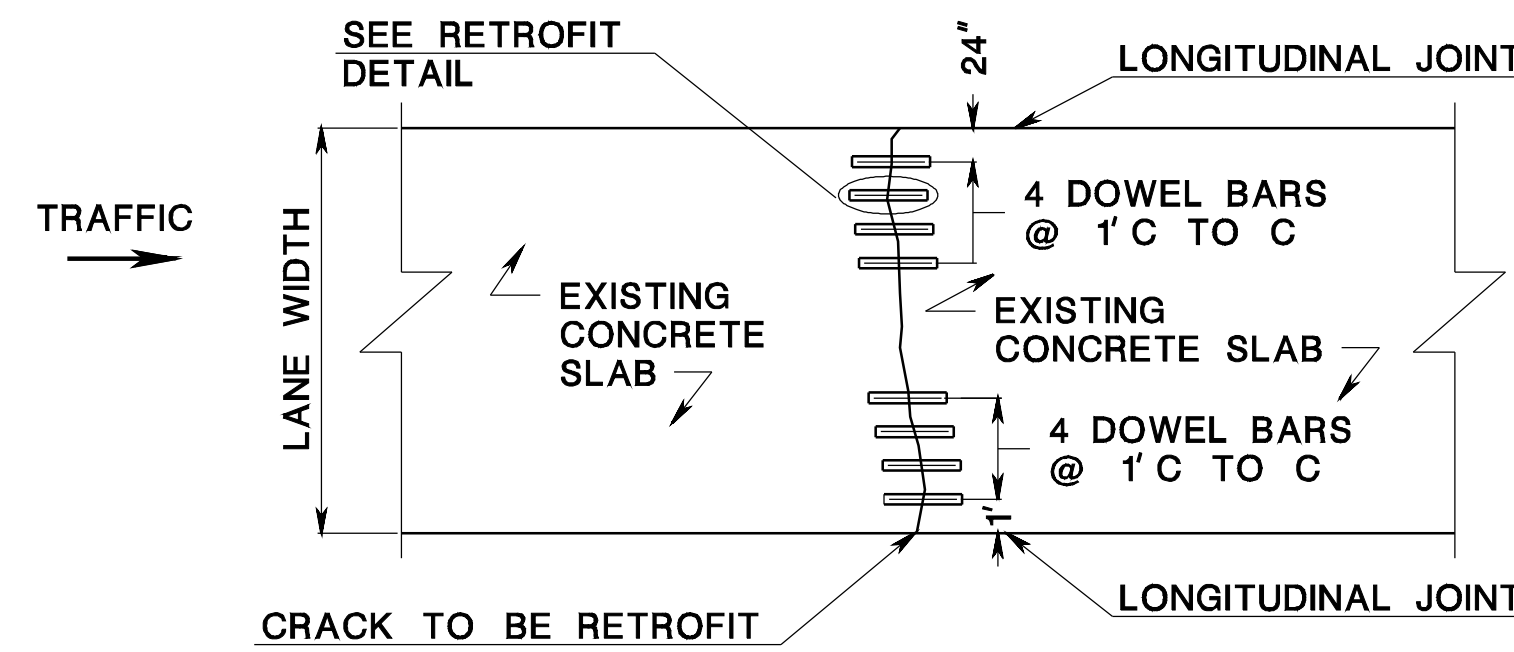
DOWEL BAR DETAIL



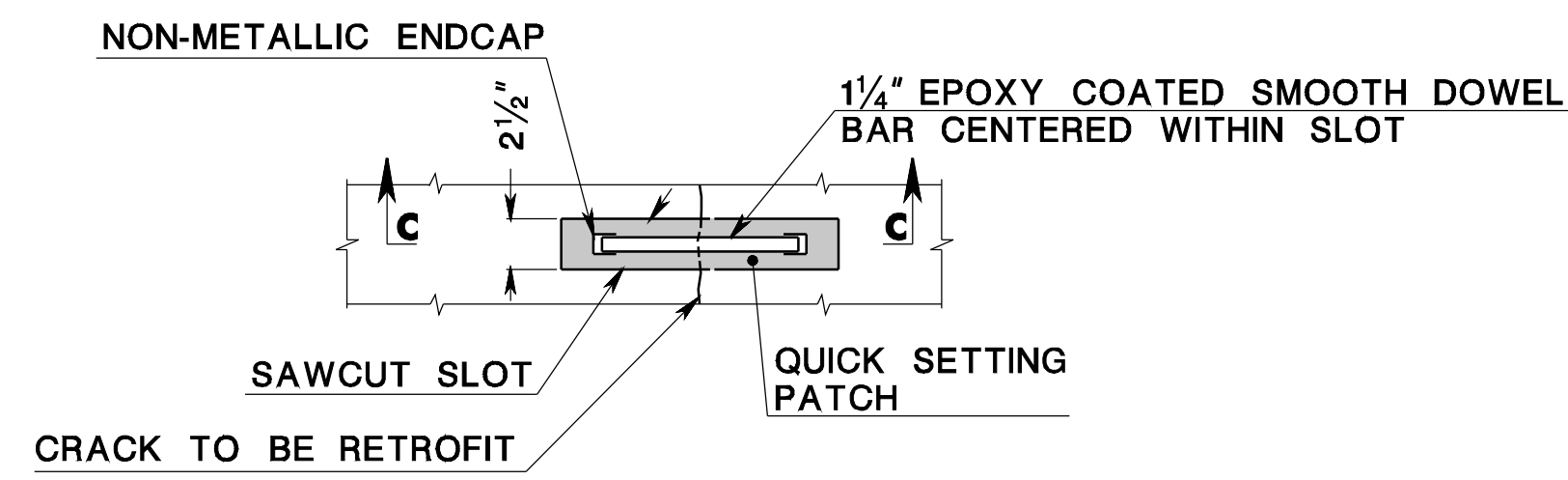
SECTION B-B

RETROFIT DOWEL BARS AT EXISTING JOINT

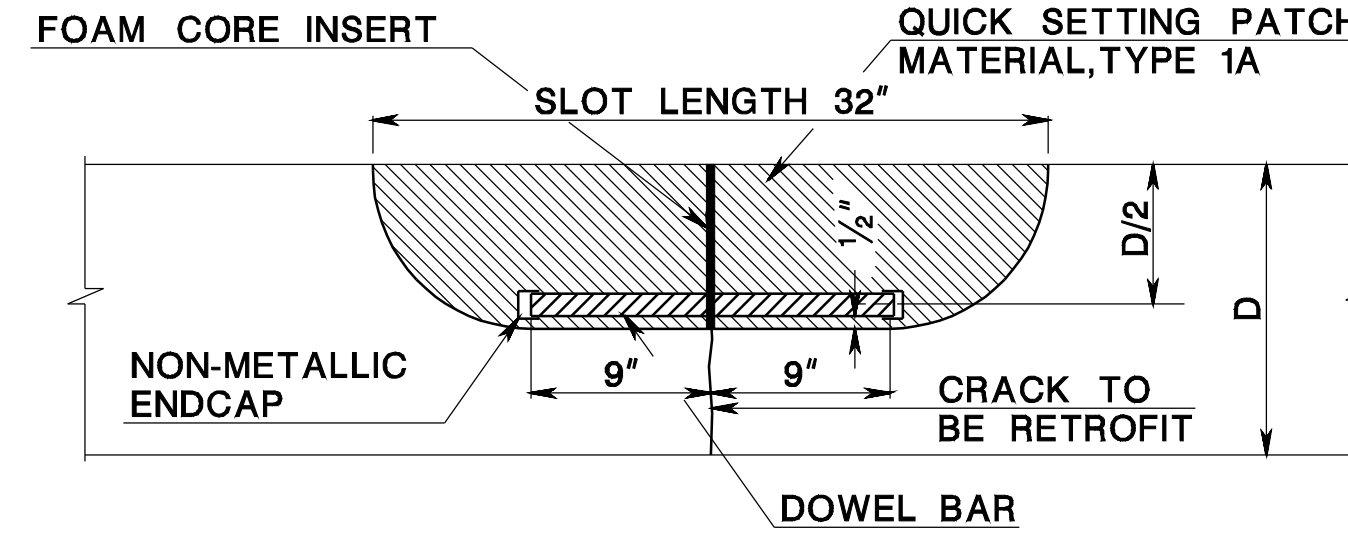
CD-454-1.1



PLAN



DOWEL BAR DETAIL



SECTION C-C

RETROFIT DOWEL BARS AT PAVEMENT CRACK

CD-454-1.2

RETROFIT DOWEL BARS

N.T.S.

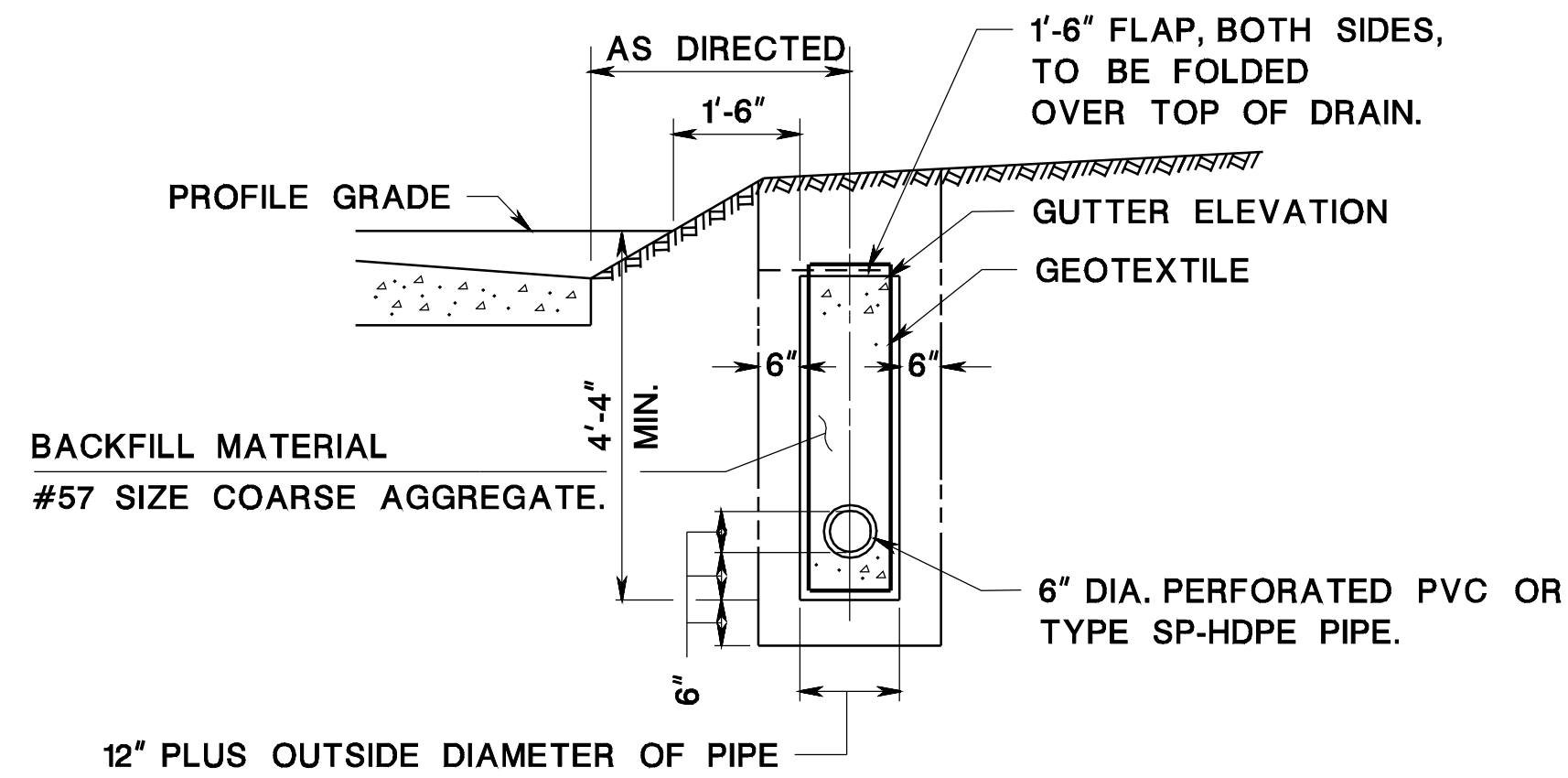
CD-454-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

NOTES:

UNDERDRAIN IS SHOWN PARALLEL TO THE EDGE OF PAVEMENT, BUT MAY BE USED IN OTHER LOCATIONS IF SO DIRECTED BY THE R.E..



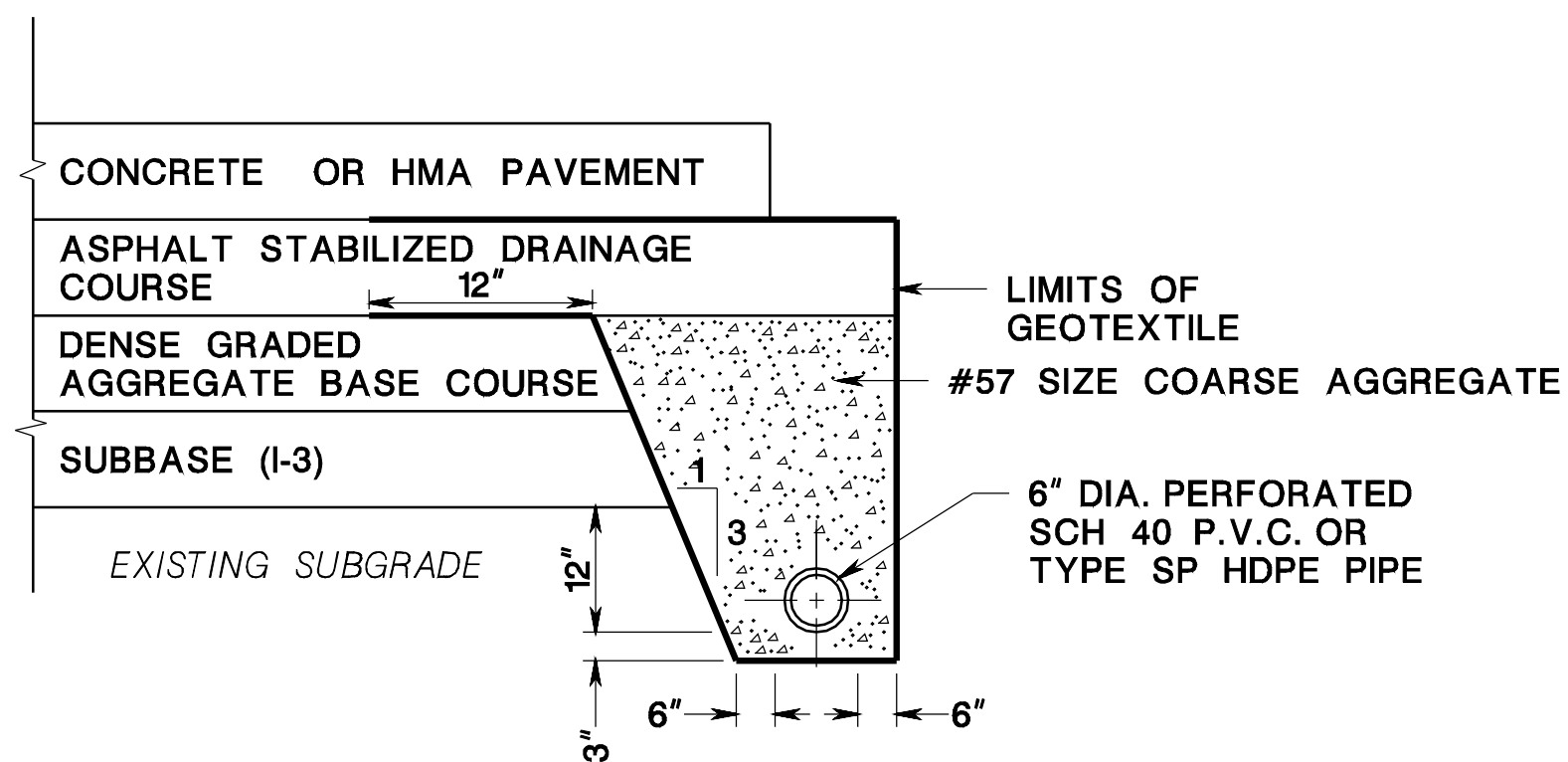
UNDERDRAIN TYPE F

CD-601-1.1

NOTES:

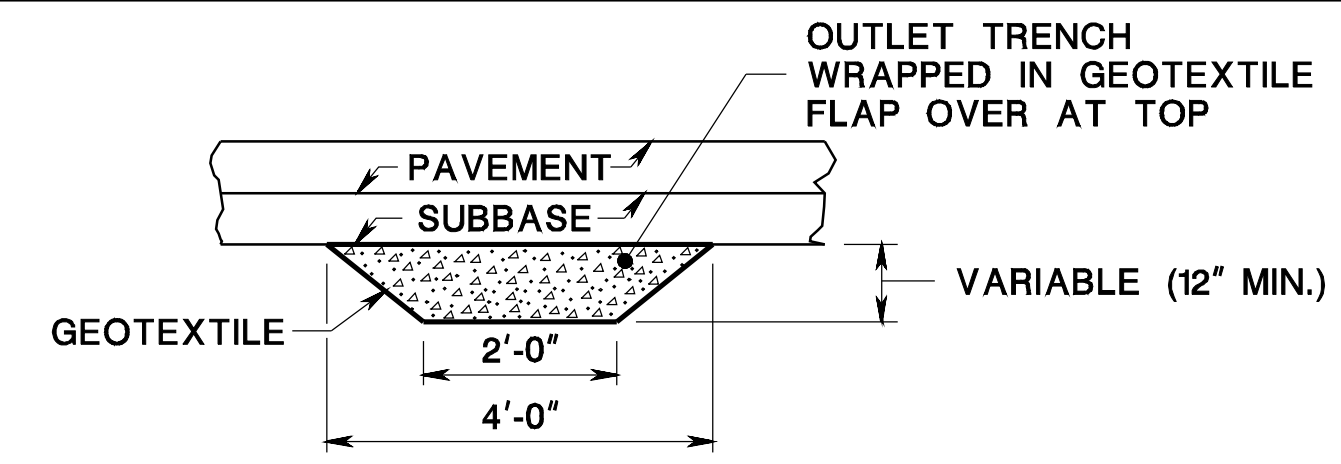
AFTER PLACING ASPHALT STABILIZED DRAINAGE COURSE, OVERLAP WITH GEOTEXTILE TO PROTECT THE EXPOSED SURFACE.

THE 6" DIA. PERFORATED PIPE SHOULD BE AT LEAST 12" BELOW THE LOWEST COURSE EITHER DENSE GRADED AGGREGATE BASE COURSE OR SUBBASE, DESIGNATION 1-3.

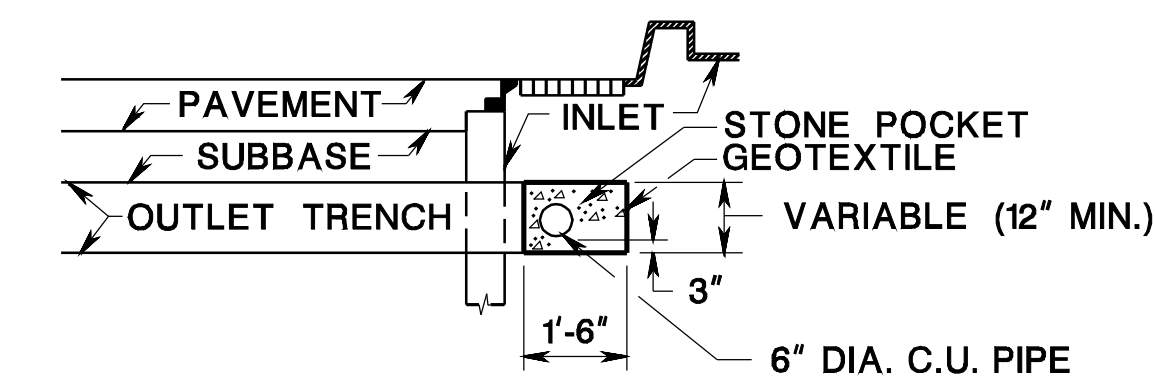


UNDERDRAIN TYPE X

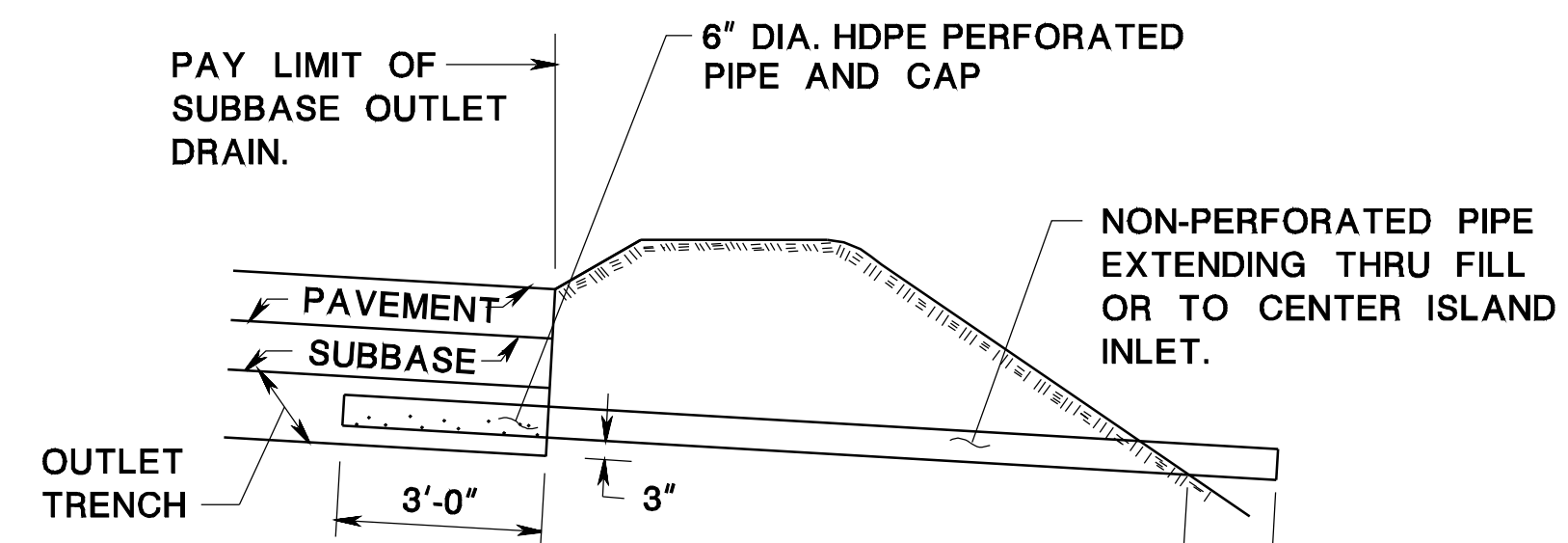
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SECTION A-A



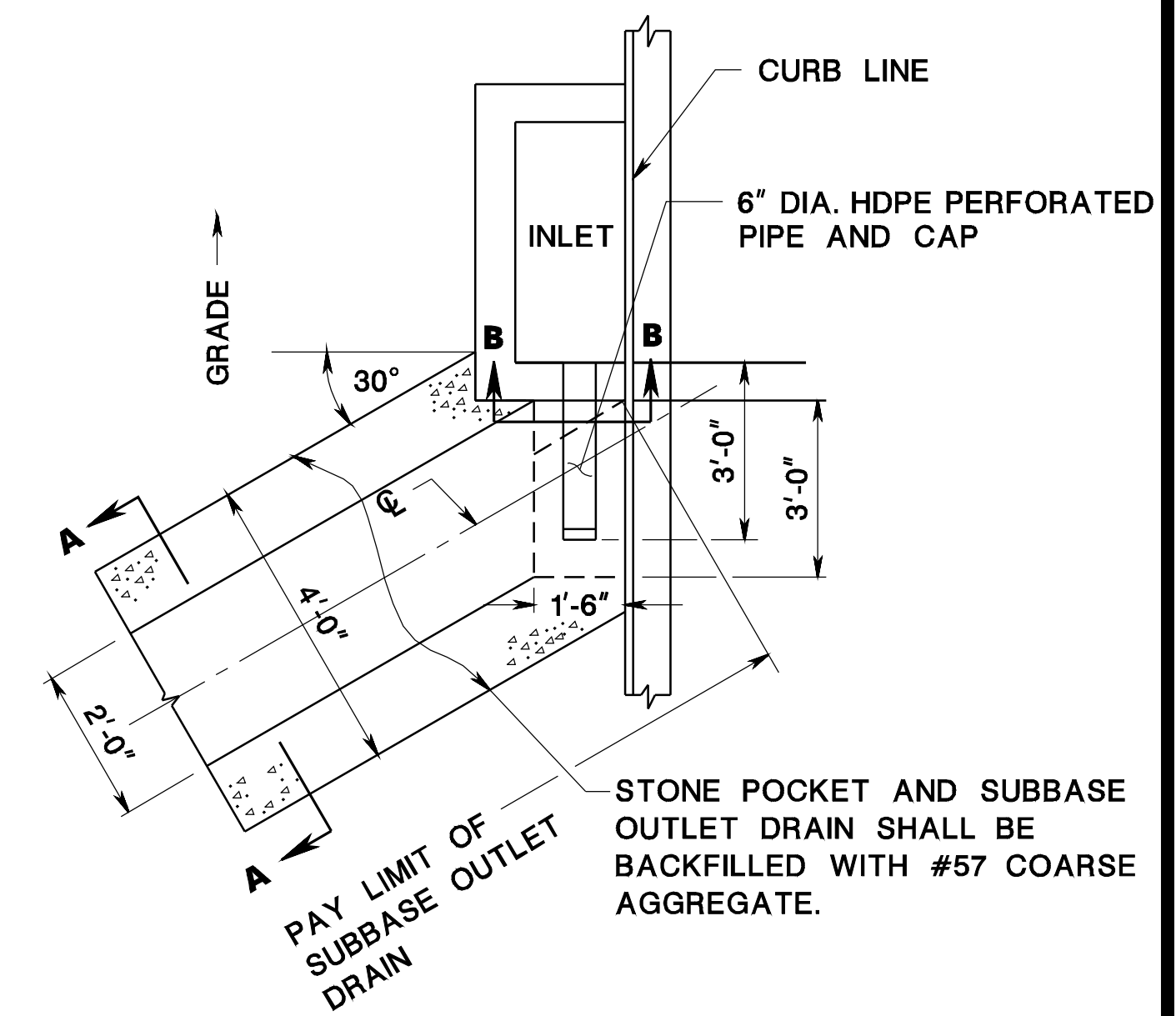
SECTION B-B



SCHEME FOR WATER DISPOSAL WHERE INLETS ARE IN CENTER ISLAND OR ARE NOT AVAILABLE

SUBBASE OUTLET DRAIN WITH 6" HDPE UNDERDRAIN PIPE

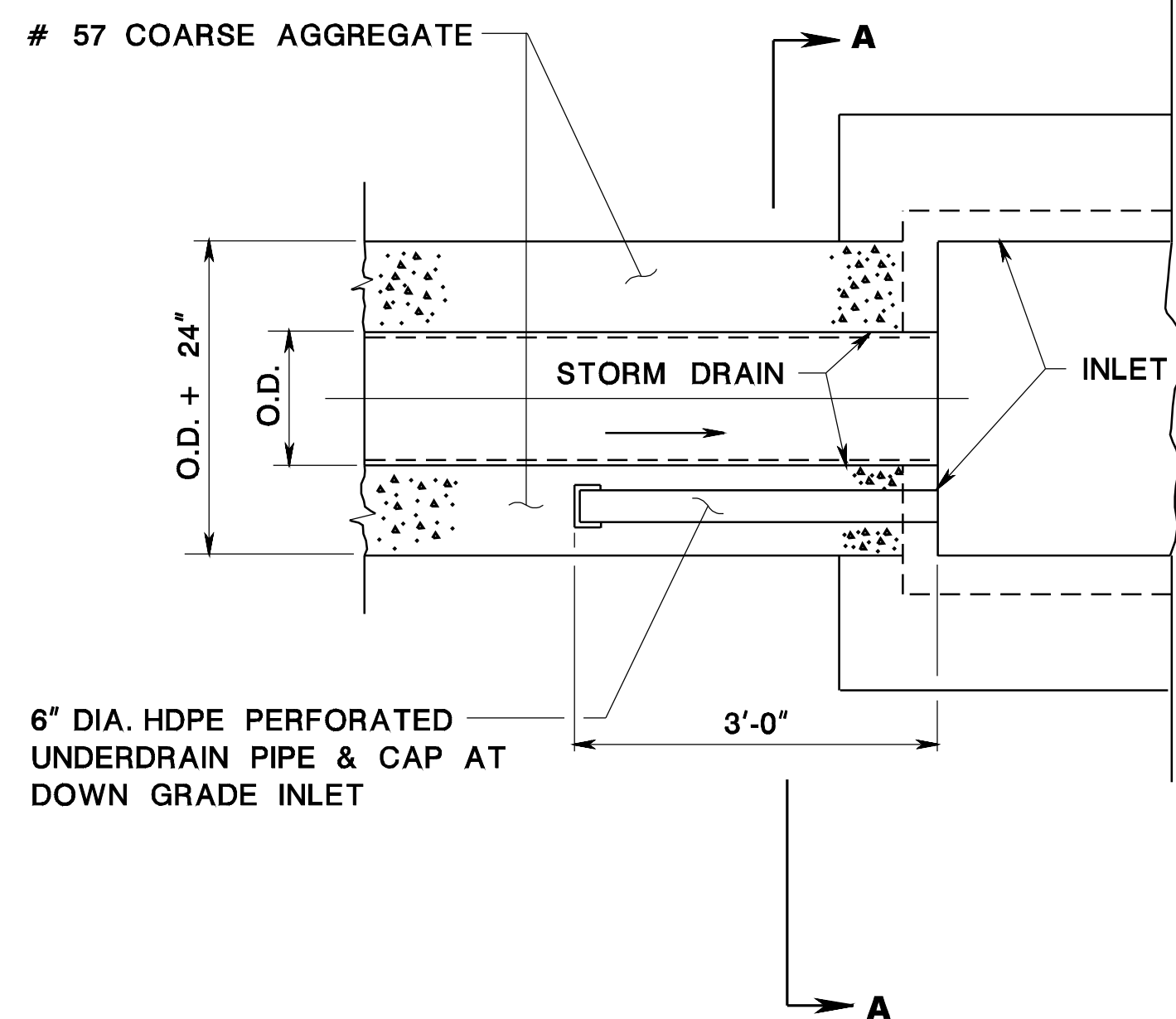
CD-601-1.3



PLAN

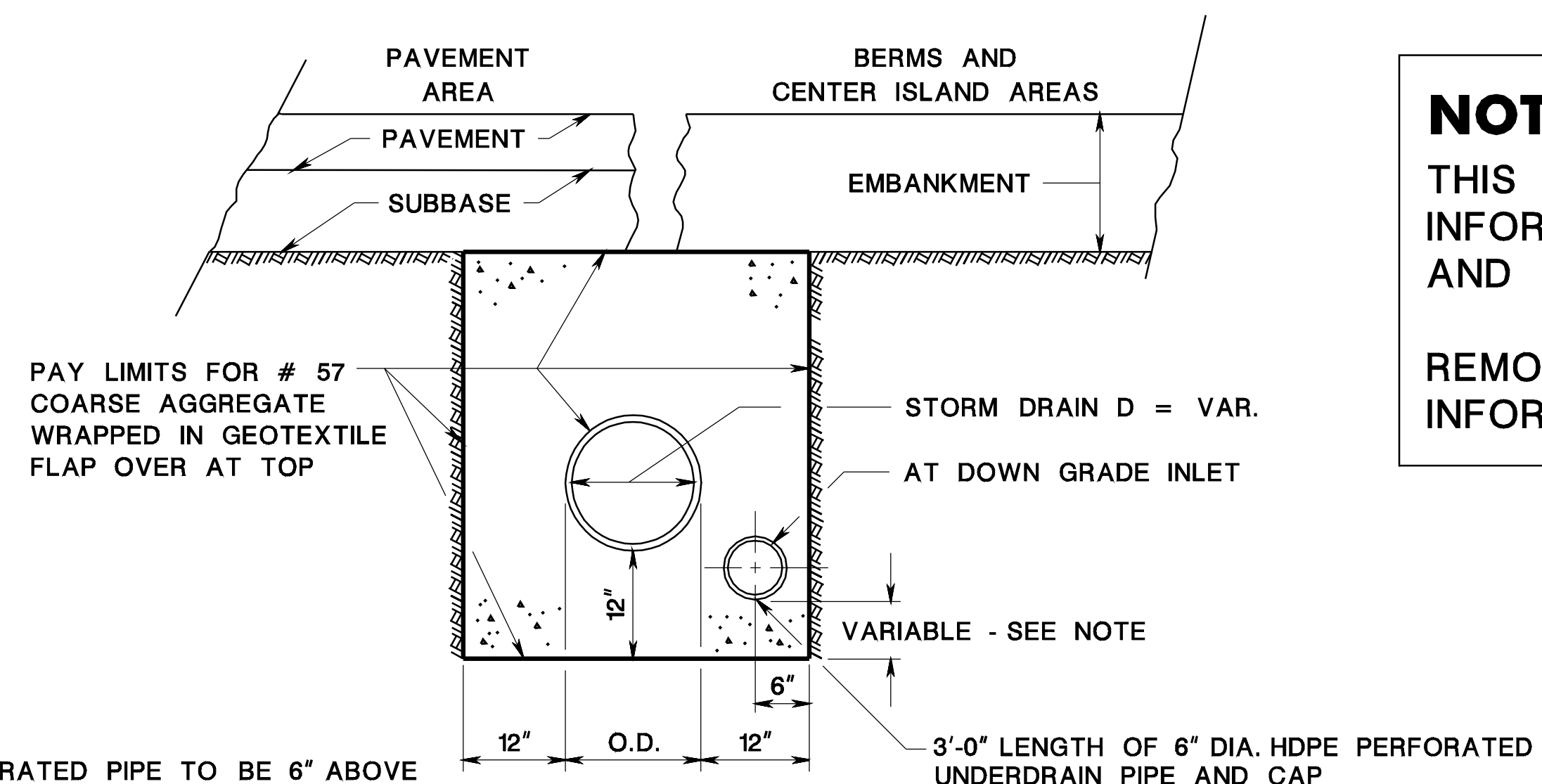
NOTES:

- 1.) DISCHARGED WATER SHALL IN NO CASE VIOLATE DRAINAGE RIGHTS.
- 2.) SEE NOTE 2, CD-601-1.3



6" DIA. HDPE PERFORATED UNDERDRAIN PIPE & CAP AT DOWN GRADE INLET

COMBINED STORM DRAIN AND OUTLET TRENCH IN ROCK AREAS



SECTION A-A

NOTES:

- 1.) INVERT OF 6" DIA. HDPE PERFORATED PIPE TO BE 6" ABOVE BOTTOM OF INLET OR 6" ABOVE BOTTOM OF TRENCH WHICHEVER IS HIGHER.
- 2.) THE SIZE OF PERFORATIONS SHOULD BE SMALLER THAN SIZE OF STONE SPECIFIED OTHERWISE WRAP FILTER FABRIC AROUND PIPE.

NOTE TO DESIGNER:
THIS SHEET REQUIRES DESIGN SPECIFIC INFORMATION IN CD-601.1.2 TO BE MODIFIED AND INCLUDED IN THE CONTRACT PLANS.
REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

UNDERDRAINS

N.T.S.

CD-601-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-601-1.4

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PIPE DIAMETER (INCHES)	STEEL GA.	ALUM. GA.	DIMENSIONS (INCHES)	
			L	C
12	16	16	21	36
15	16	16	26	44
18	16	16	31	52
21	16	16	36	60
24	16	16	41	68
30	14	14	51	84
36	14	12	60	100
42	12	12	69	116
48	12	12	78	126
54	12	12	84	138
60	12	12	87	150
66	12	12	87	156
72	12	12	87	162
78	12	12	87	168
84	12	12	87	174

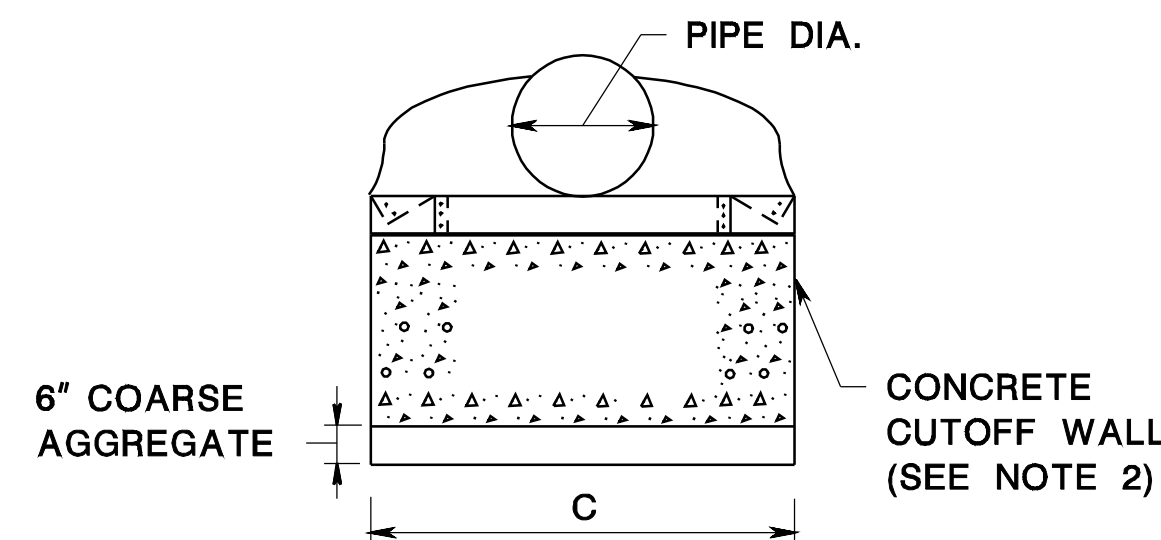
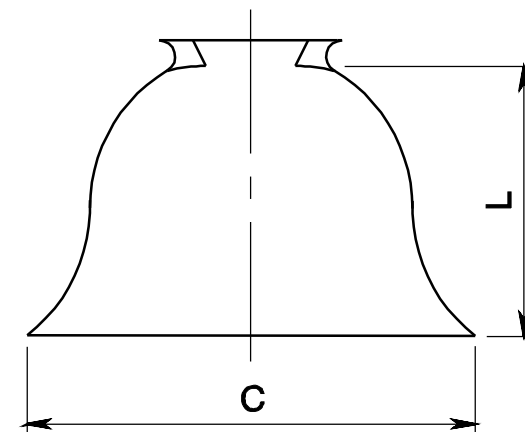
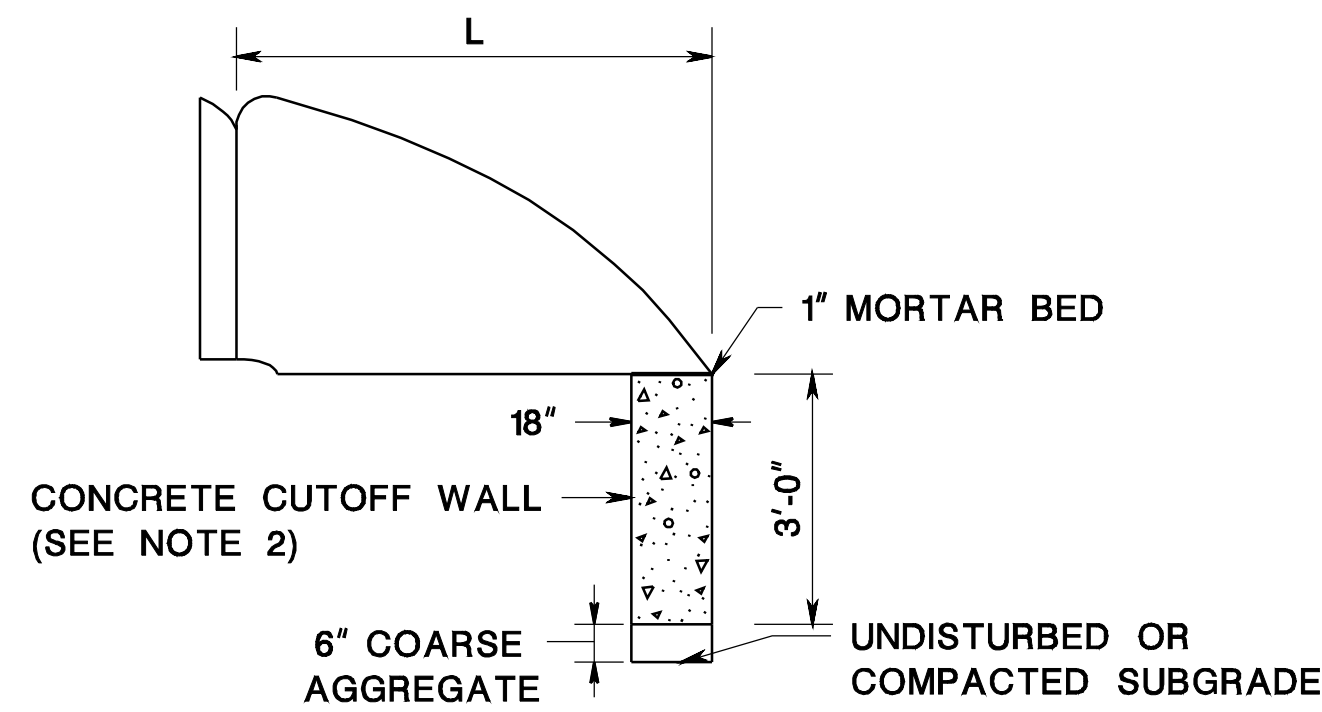
ROUND PIPE

ARCH PIPE DIMENSION (INCHES)		STEEL GA.	ALUM. GA.	DIMENSIONS (INCHES)	
SPAN	RISE			L	C
17	13	16	16	19	44
21	15	16	16	23	50
24	18	16	16	28	58
28	20	16	16	32	66
35	24	14	14	39	80
42	29	14	14	46	99
49	33	12	12	53	111
57	38	12	12	63	126
64	43	12	12	70	138
71	47	12	12	77	150
77	52	12	12	77	162
83	57	12	12	77	174

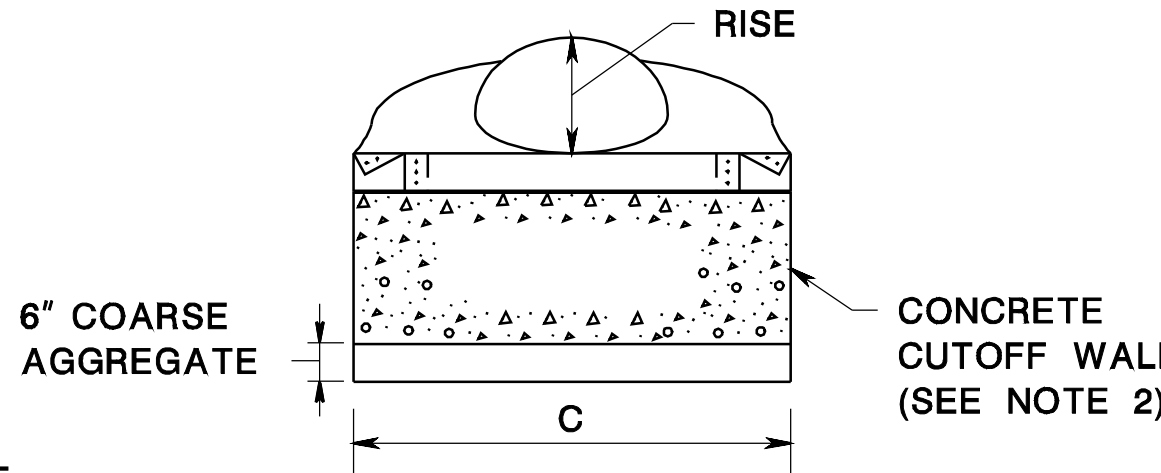
ARCH PIPE

NOTES:

- MINOR VARIATIONS TO THE ABOVE DIMENSIONS ARE ACCEPTABLE WITH THE EXCEPTION OF THE INSIDE DIAMETER DIMENSION.
- A 1 INCH THICK MORTAR BED AND A 6 INCH DEEP LAYER OF COURSE AGGREGATE ARE REQUIRED WHEN A PRECAST CONCRETE CUTOFF WALL IS USED.
- NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE CUTOFF WALL. THE COST OF THE CONCRETE CUTOFF WALL SHALL BE INCLUDED IN THE COST OF THE END SECTION.
- REFER TO NOTE 4, CD-601-2.2 FOR SIZE OF CONCRETE CUTOFF WALL.



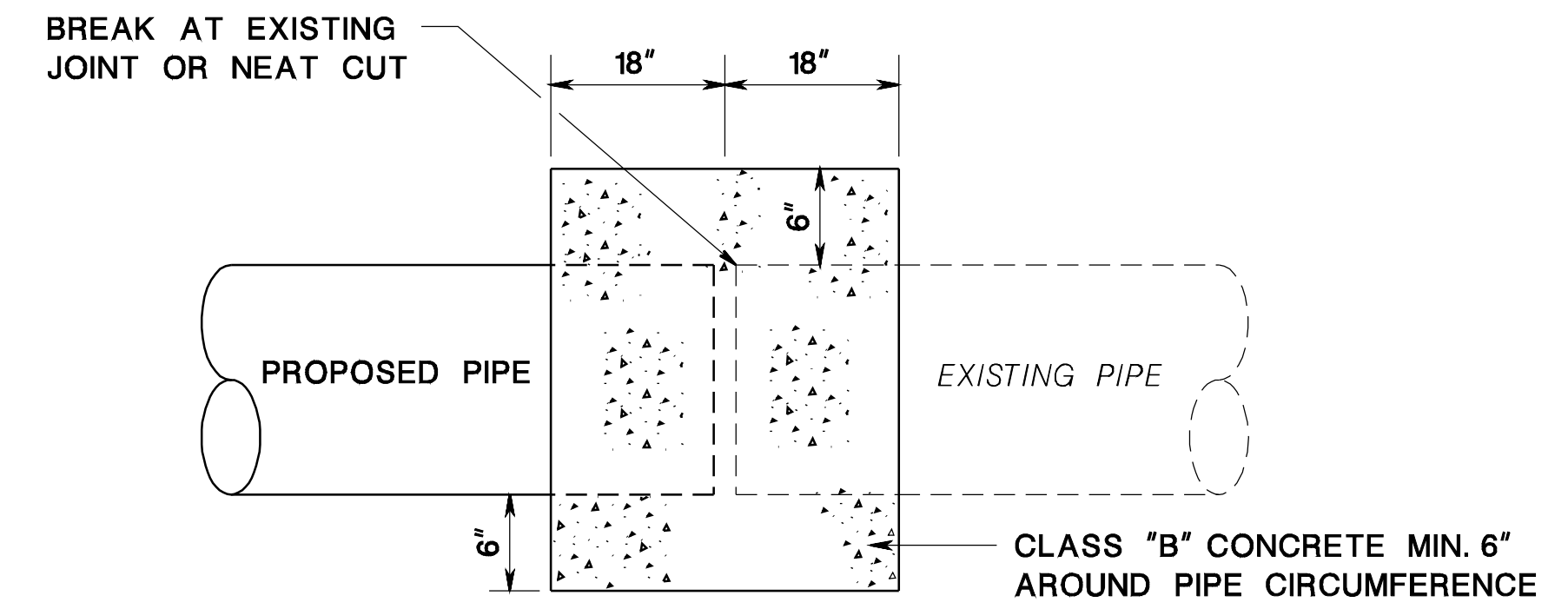
ELEVATION



ELEVATION

END SECTIONS FOR METAL PIPE

CD-601-2.1

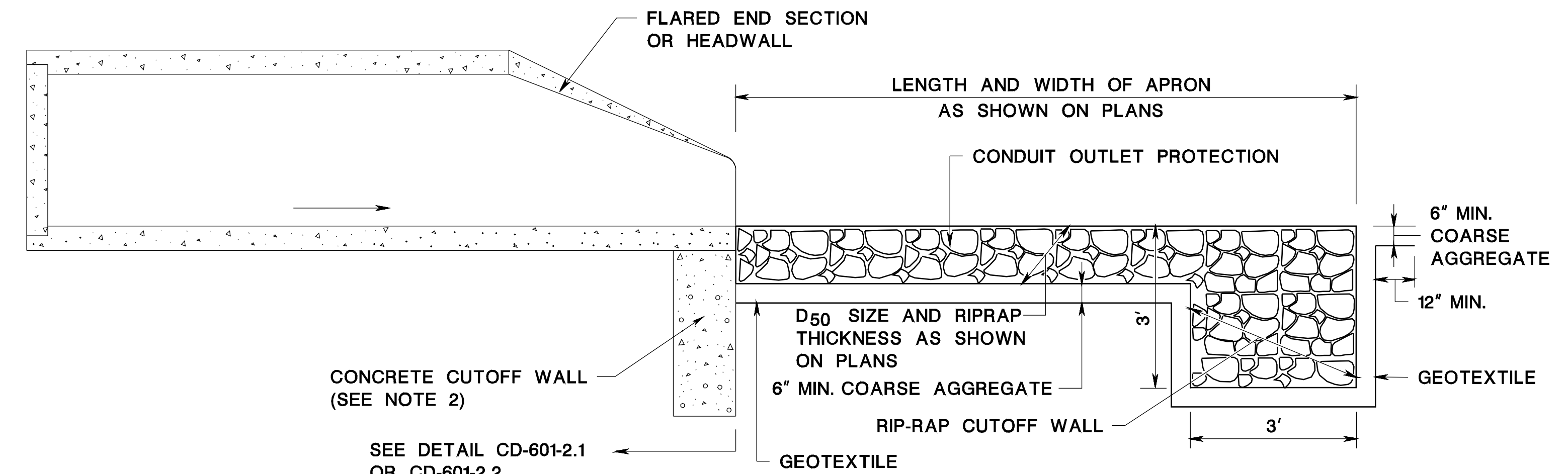


NOTE:

COAT ALL SURFACES TO BE ENCASED IN CONCRETE COLLAR WITH APPROVED EPOXY BONDING COMPOUND. NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE COLLAR. THE COST OF THE CONCRETE COLLAR SHALL BE INCLUDED IN THE COST OF THE VARIOUS PIPE ITEMS ON THE PROJECT.

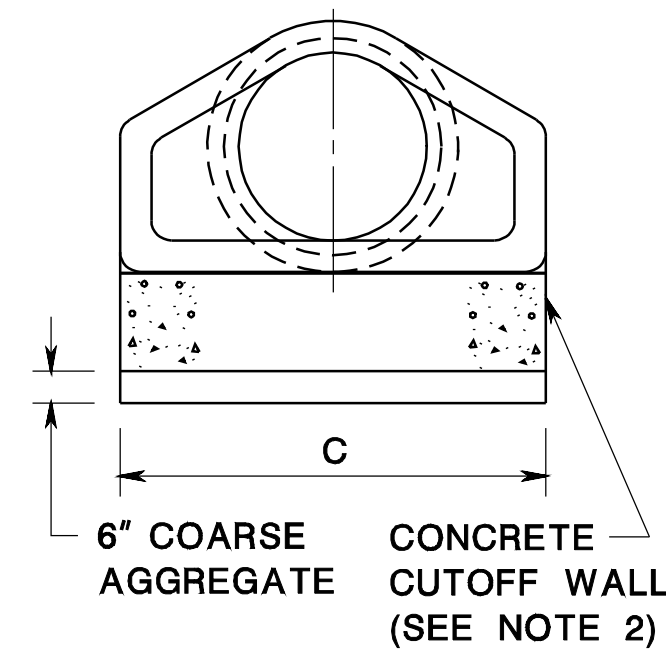
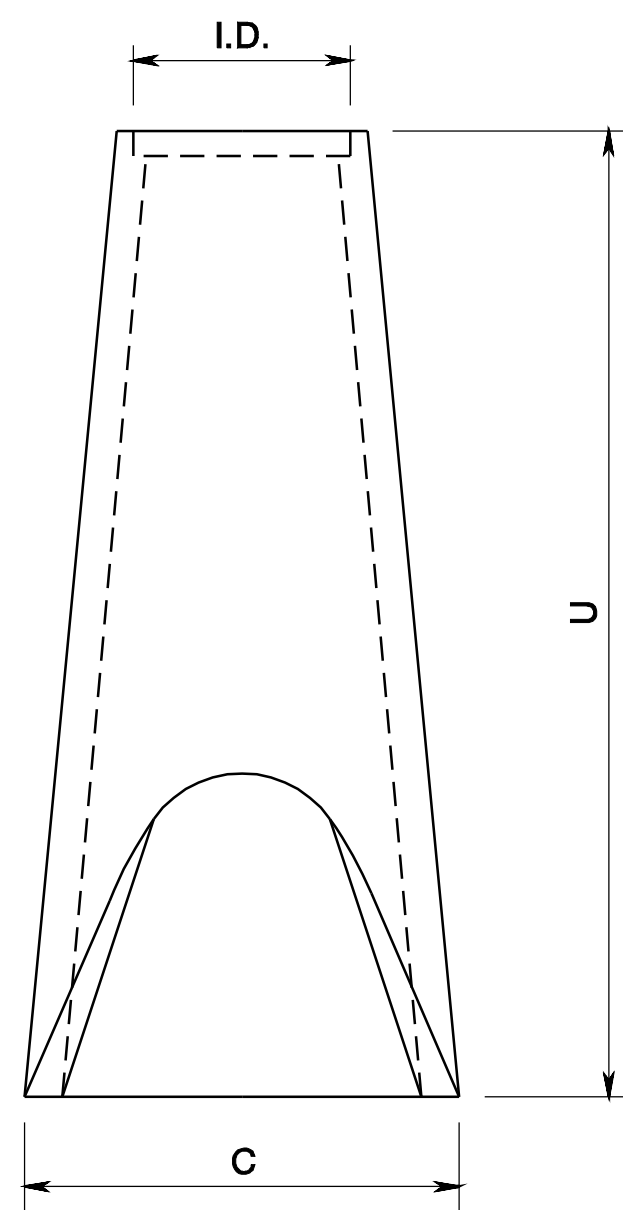
CONCRETE COLLAR
(FOR JOINING PROPOSED PIPE TO EXISTING PIPE)

CD-601-2.3

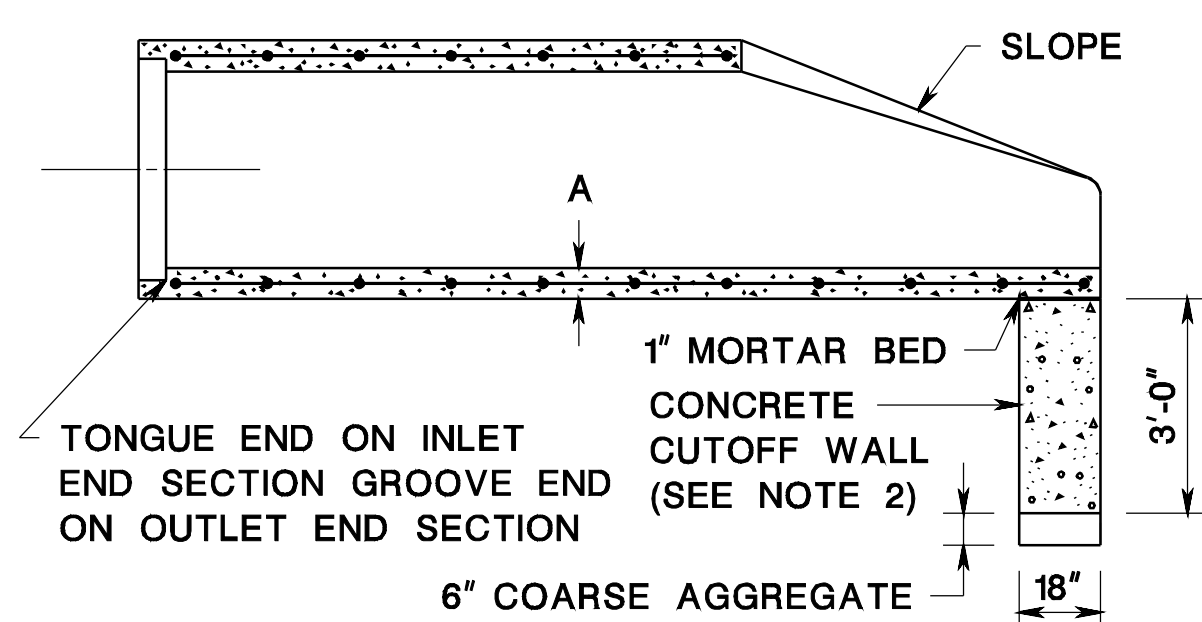


STORMWATER OUTFALL PROTECTION

CD-601-2.4



END SECTIONS FOR CONCRETE PIPE



		DIMENSIONS (INCHES)											
I.D.		12	15	18	21	24	27	30	36	42	48	54	60
A		2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	4	4 1/2	5	5 1/2	6
U		72	72	72	72	72	72	72	96	96	96	96	96
C		28	34.5	41	47.5	54	60.5	67	80	87	94	101	108

NOTES:

- MINOR VARIATIONS TO THE ABOVE DIMENSIONS ARE ACCEPTABLE WITH THE EXCEPTION OF THE INSIDE DIAMETER DIMENSION.
- A 1 INCH THICK MORTAR BED AND A 6 INCH DEEP LAYER OF COURSE AGGREGATE ARE REQUIRED WHEN A PRECAST CONCRETE CUTOFF WALL IS USED.
- NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE CUTOFF WALL. THE COST OF THE CONCRETE CUTOFF WALL SHALL BE INCLUDED IN THE COST OF THE END SECTION.
- THE WIDTH OF THE CONCRETE CUTOFF WALL SHALL BE EQUAL TO THE MAXIMUM WIDTH OF THE END SECTION AS INDICATED ON THE DETAIL BY DIMENSION "C". HOWEVER, IF THE ACTUAL MAXIMUM WIDTH EXCEEDS THE CHART VALUE OF "C", THE WIDTH OF THE CONCRETE CUTOFF WALL SHALL EQUAL THE ACTUAL MAXIMUM WIDTH OF THE END SECTION.

CD-601-2.2

PIPE END SECTIONS

N.T.S.

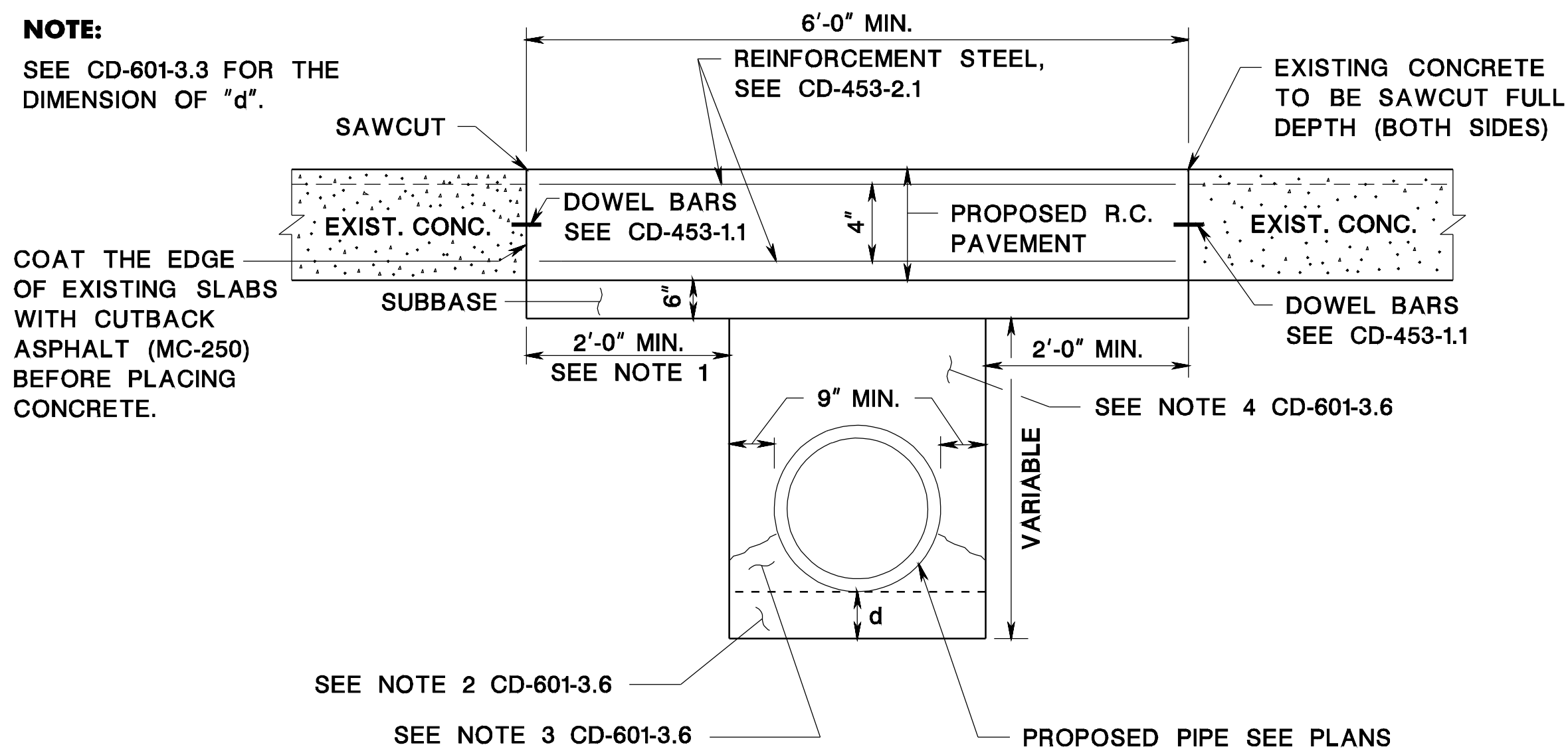
CD-601-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

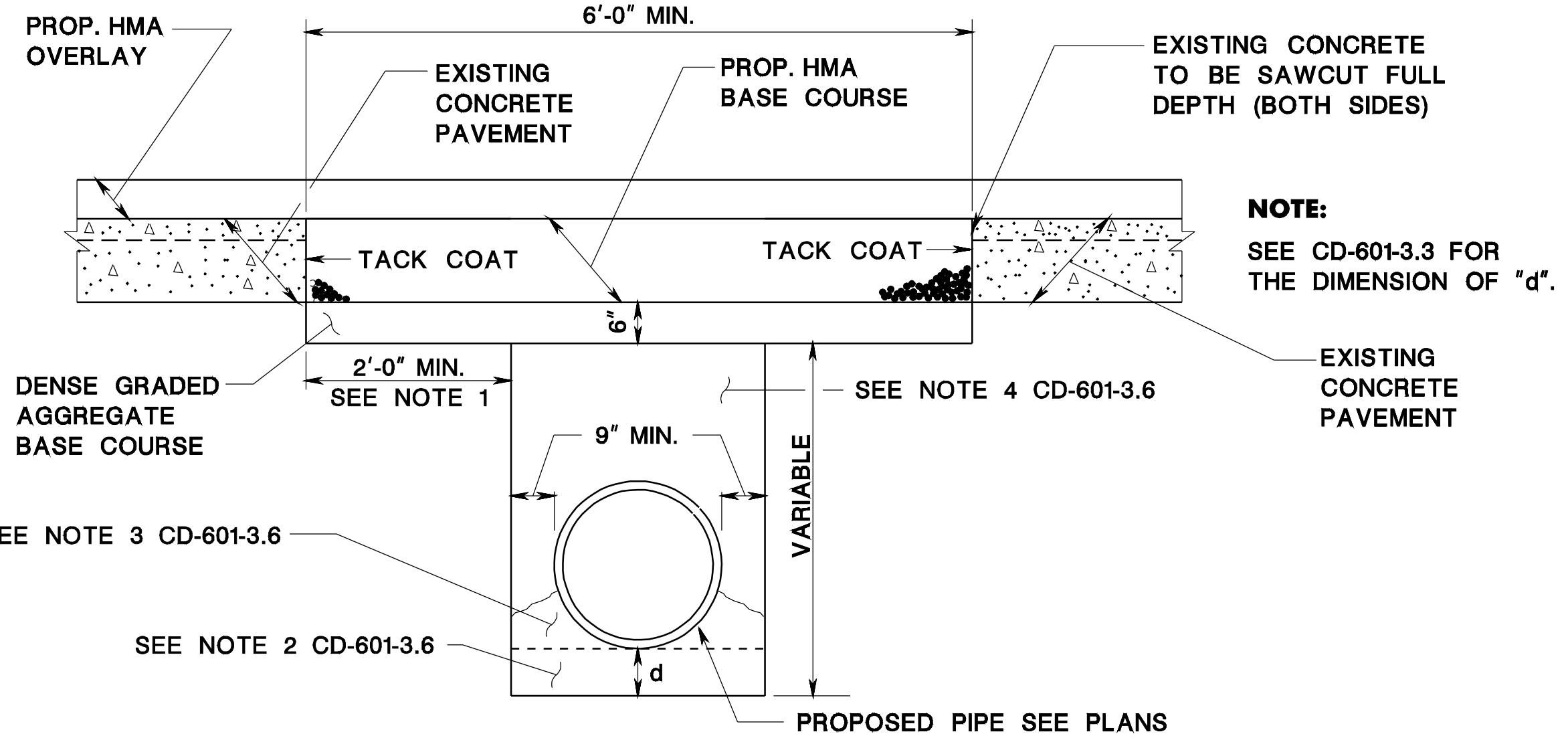
NOTE:

SEE CD-601-3.3 FOR THE DIMENSION OF "d".



CONCRETE SURFACE COURSE REPLACEMENT AT CROSS DRAIN TRENCH

CD-601-3.1



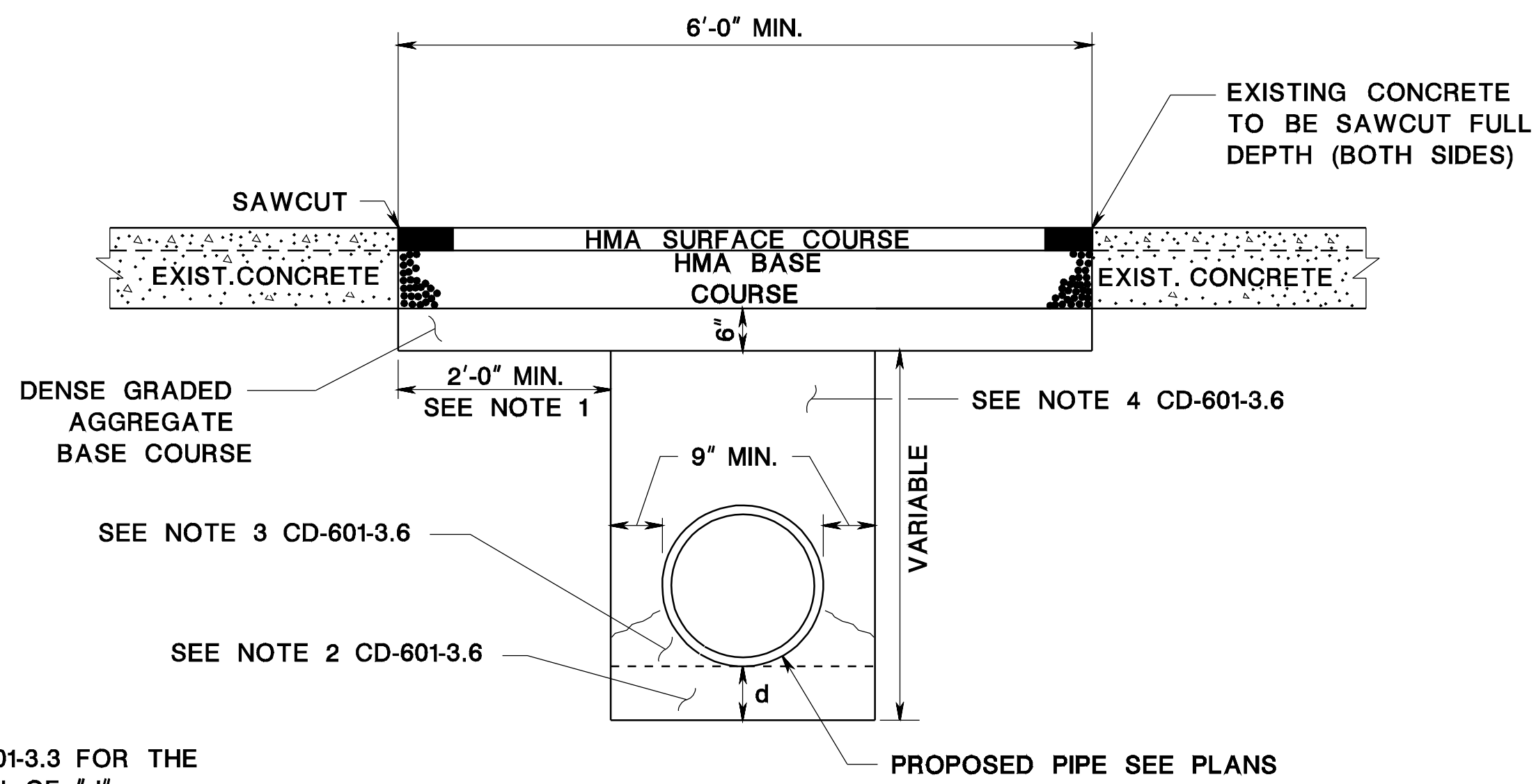
HMA REPLACEMENT WHERE EXISTING CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING

CD-601-3.2

UNDERLYING SOIL	d	
	CONC. PIPE	METAL PIPE OR HDPE PIPE
ROCK OR HARD MATERIAL	6"	12"
OTHER MATERIAL	6"	6"

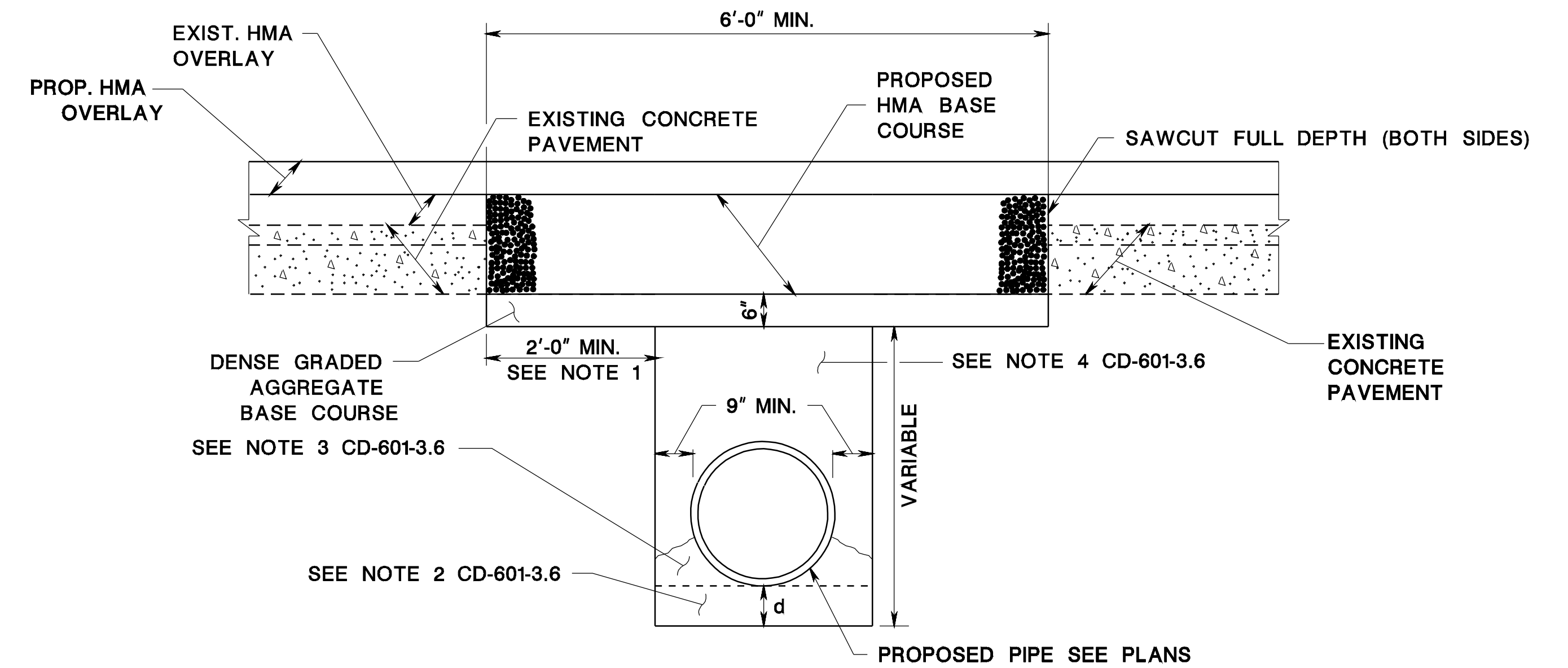
MINIMUM DEPTH OF ADDITIONAL EXCAVATION OR PIPE BEDDING

CD-601-3.3



HMA REPLACEMENT WHERE CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH

CD-601-3.4



HMA REPLACEMENT WHERE EXISTING OVERLAY AND CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING

CD-601-3.5

NOTES:

1. SAWCUT THE EXISTING PAVEMENT A MINIMUM OF 2'-0" FROM THE SIDES OF THE PROPOSED CROSS DRAIN TRENCH EXCAVATION ON BOTH SIDES.
2. ADDITIONAL EXCAVATION REQUIRED WHEN PIPE BEDDING IS DESIGNATED OR WHEN ROCK OR OTHER HARD MATERIAL IS ENCOUNTERED.
3. BACKFILL SHALL BE PLACED SO AS TO ENSURE SUFFICIENT COMPACTION UNDER PIPE HAUNCHES.
4. THE PIPE TRENCH SHALL BE BACKFILLED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BACKFILLING OR WITH AGGREGATE, DESIGNATION I-1, I-2, I-3, OR I-13 IF DIRECTED, WHEN SOIL AGGREGATE IS DIRECTED, THE PAY LIMITS SHALL BE A WIDTH OF A MINIMUM OF 36" OR THE OUTSIDE DIAMETER OF THE PIPE OR CULVERT PLUS 18" AND A DEPTH FROM THE BOTTOM OF THE TRENCH OR TOP OF THE DENSE GRADED AGGREGATE BASE COURSE.

CD-601-3.6

CROSS DRAIN TRENCH CONSTRUCTION

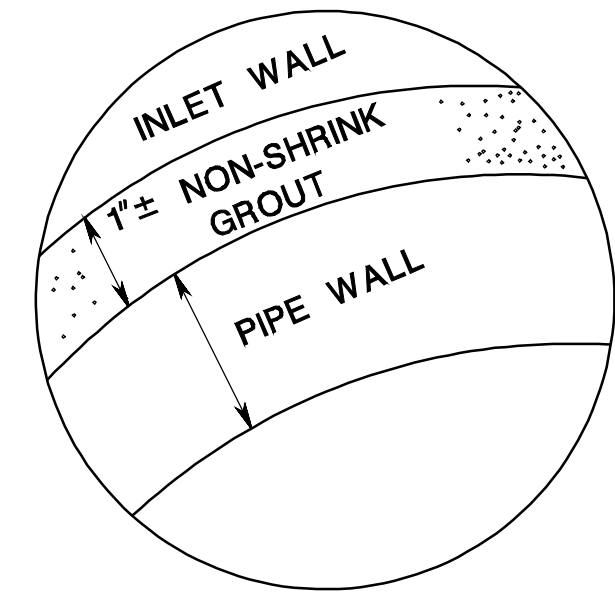
N.T.S.

CD-601-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

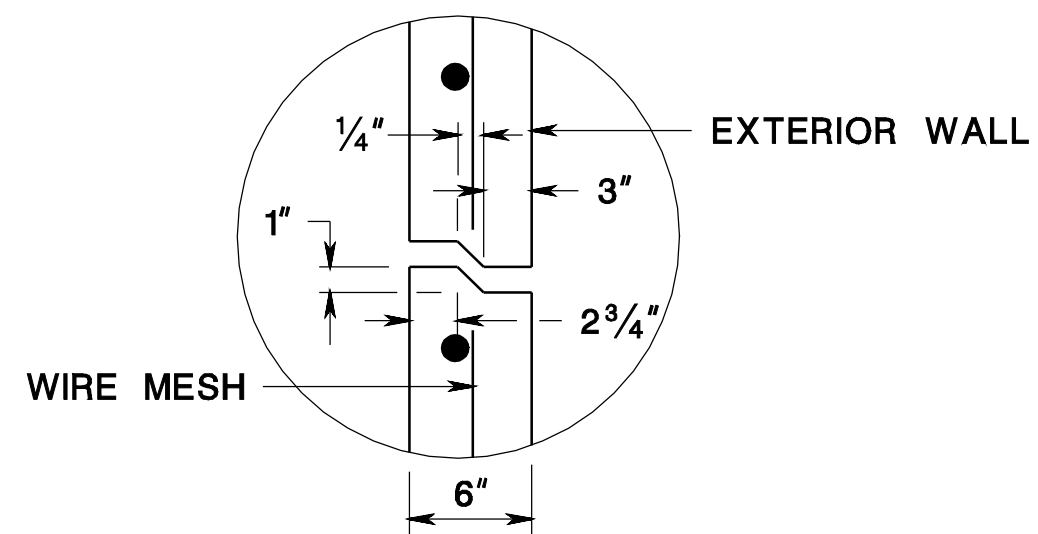
CONSTRUCTION DETAILS

REINFORCEMENT STEEL IS IN METRIC UNITS.
HMA = HOT MIX ASPHALT



CONNECTION OF PIPE AND INLET FOR PRECAST INLET

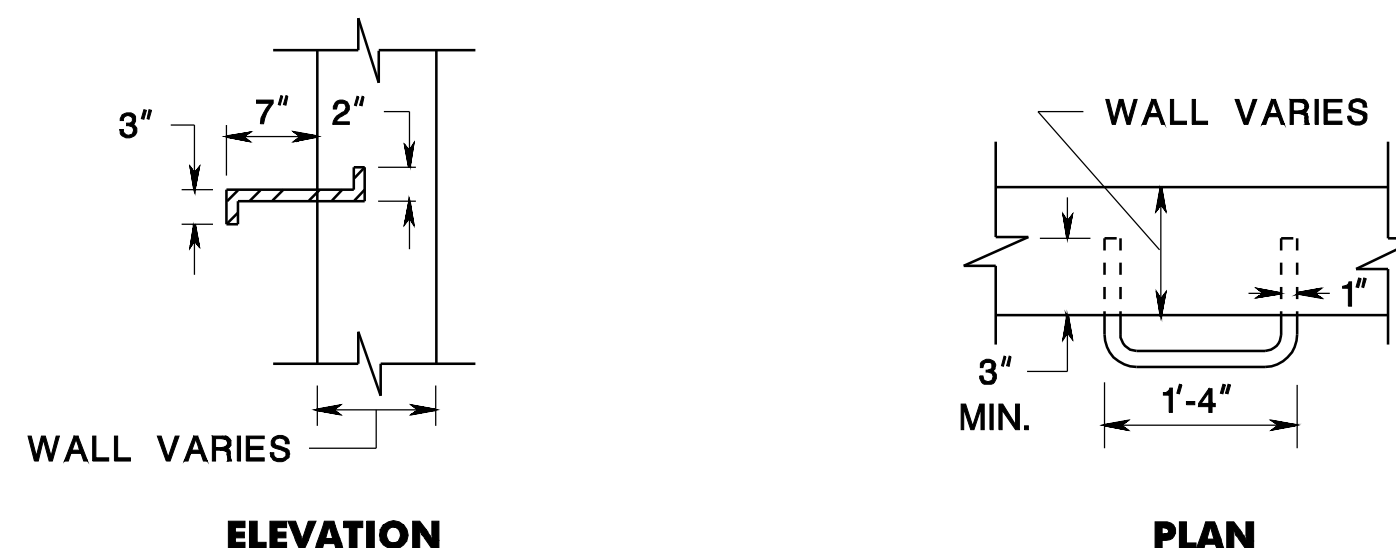
CD-602-1.1



RISER JOINT DETAIL FOR PRECAST INLETS

NOTE:
JOINT TO BE GROUTED WITH MORTAR BY CONTRACTOR

CD-602-1.2



ELEVATION

PLAN

NOTE:
LADDER RUNGS FACING TRAFFIC 12" C TO C

LADDER RUNG DETAIL

CD-602-1.3

GENERAL NOTES

- INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 8 INCHES THICK IF BRICK AND 6 INCHES THICK IF CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. INLET FOUNDATIONS AND INVERTS SHALL BE CLASS B CONCRETE.
- CORBELLING OF INLET WALLS WILL BE PERMITTED AT THE RATE OF 1/2 INCH PER 8 INCHES OF HEIGHT; MAXIMUM CORBEL 6 INCHES PER WALL.
- EXCEPT FOR INLETS TYPE A AND C, FOUNDATIONS AND INVERTS SHALL BE CONSTRUCTED IN TWO STAGES, AND THE BOTTOM OF THE FOOTINGS SHALL BE 8 INCHES BELOW THE OUTER WALL OF THE LOWEST PIPE IN THE INLET.
- WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, WALLS BELOW A DEPTH OF 8 FEET SHALL BE 12 INCHES THICK AND THE DEPTH OF FOUNDATION INCREASED TO 12 INCHES. WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
- INLET FOUNDATIONS WHICH ARE PRECAST SHALL BE PLACED ON A 6 INCH THICK BED OF COMPACTED COARSE AGGREGATE #57. THE COARSE AGGREGATE SHALL EXTEND 6 INCHES BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
- CASTINGS FOR PRECAST INLETS SHALL BE ADJUSTED TO GRADE WITH COURSES OF BRICK, AS REQUIRED, 12 INCHES MAXIMUM.
- WHEN THE DEPTH OF A PRECAST INLET EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, THE FOUNDATION SHALL BE INCREASED TO 12 INCHES. WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
- MINIMUM WALL REINFORCEMENT FOR PRECAST INLETS TYPES A, B, C, E, D-1, D-2 AND B MODIFIED:

DEPTH BELOW TOP OF GRATE	HORIZONTAL REINF.	VERTICAL REINF.	WALL THK.
0' TO 10'-0"	#13 @ 10" C.C.	#13 @ 18" C.C.	6"
10'-1" TO 15'-0"	#13 @ 8" C.C.	#13 @ 18" C.C.	6"
15'-1" TO 20'-0"	#13 @ 6" C.C.	#13 @ 18" C.C.	6"

REINFORCING SHOWN FOR PRECAST INLETS IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING FOR HANDLING IS THE RESPONSIBILITY OF THE CONTRACTOR.

ALTERNATE REINFORCEMENT

DEPTH BELOW TOP OF GRATE	ALTERNATE REINFORCEMENT
0' TO 10'-0"	WWF 3 x 6 W6 WIRES SPACED AT 3" TO RUN HORIZONTAL IN ALL CASES.
10'-1" TO 15'-0"	WWF 3 x 6 W6 ADD #10 REINFORCEMENT STEEL @ 18" HORIZONTAL.
15'-1" TO 20'-0"	WWF 3 x 6 W6 ADD #10 REINFORCEMENT STEEL @ 9" HORIZONTAL OR ADD #13 REINFORCEMENT STEEL AT 15" HORIZONTAL.

- ALL INLETS AND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ITS AMENDMENTS.
- DIMENSIONS, WEIGHTS AND OTHER CRITERIA SHOWN ON THESE DETAILS ARE FOR CLASS 30B CAST IRON ONLY.

CD-602-1.6

REINFORCEMENT STEEL IS IN METRIC UNITS.

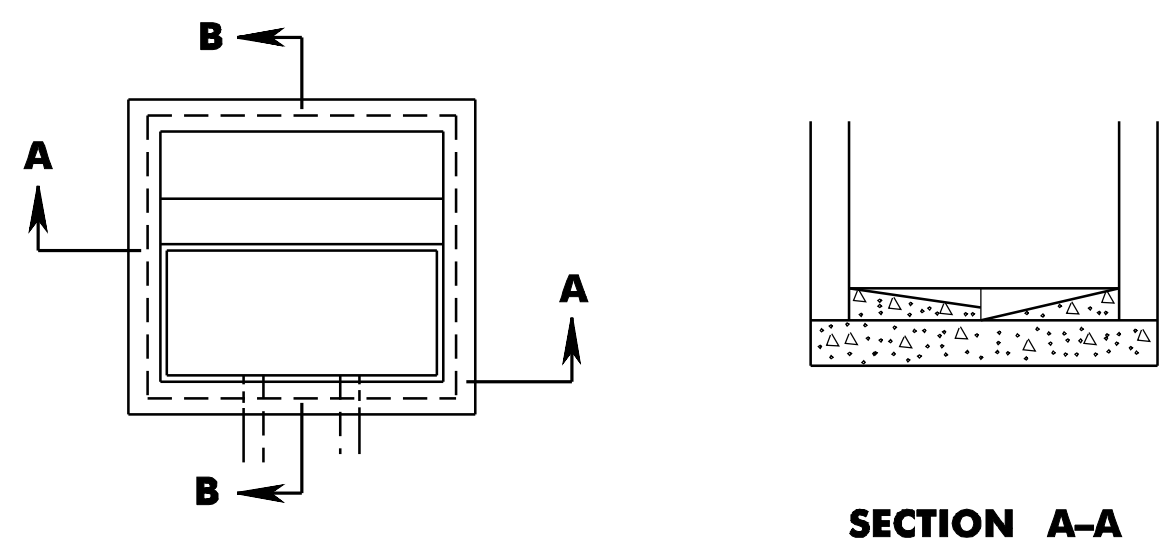
INLET GENERAL DETAILS

N.T.S.

CD-602-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



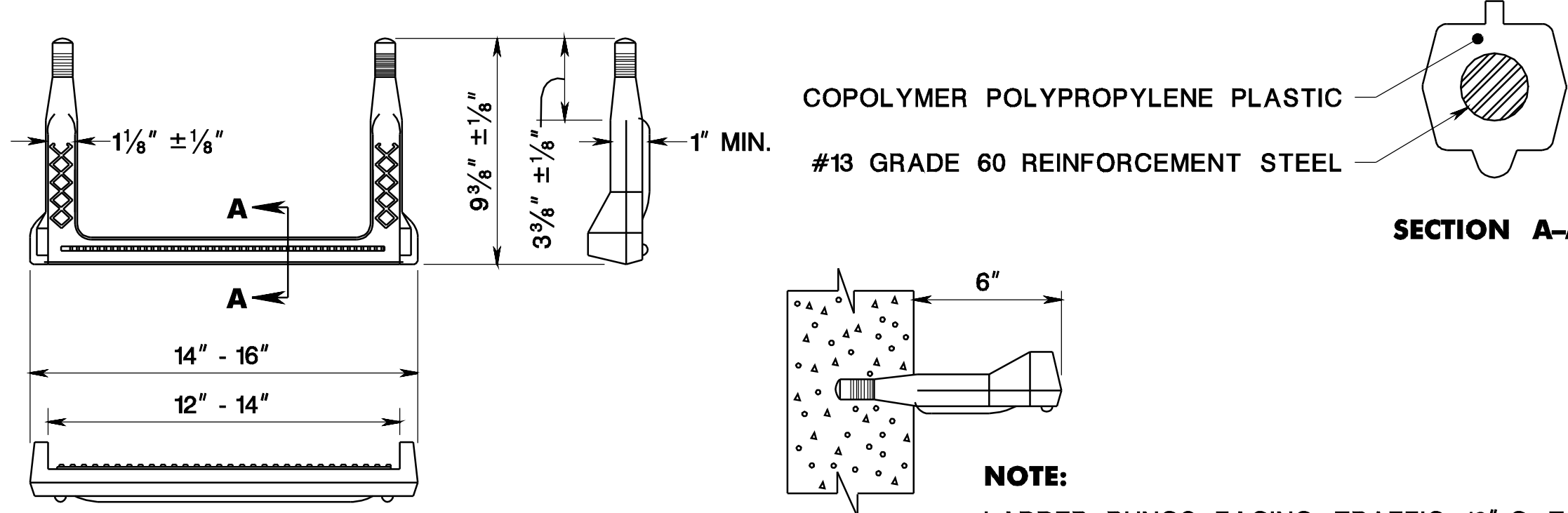
SECTION A-A

SECTION B-B

NOTE:
FOUNDATION AND INVERT TO BE CONSTRUCTED IN TWO STAGES. THE TOP SURFACE OF STAGE 1 TO BE LEFT ROUGH.

DETAIL OF INVERT FOR INLET WITHOUT CONTINUOUS PIPE

CD-602-1.4



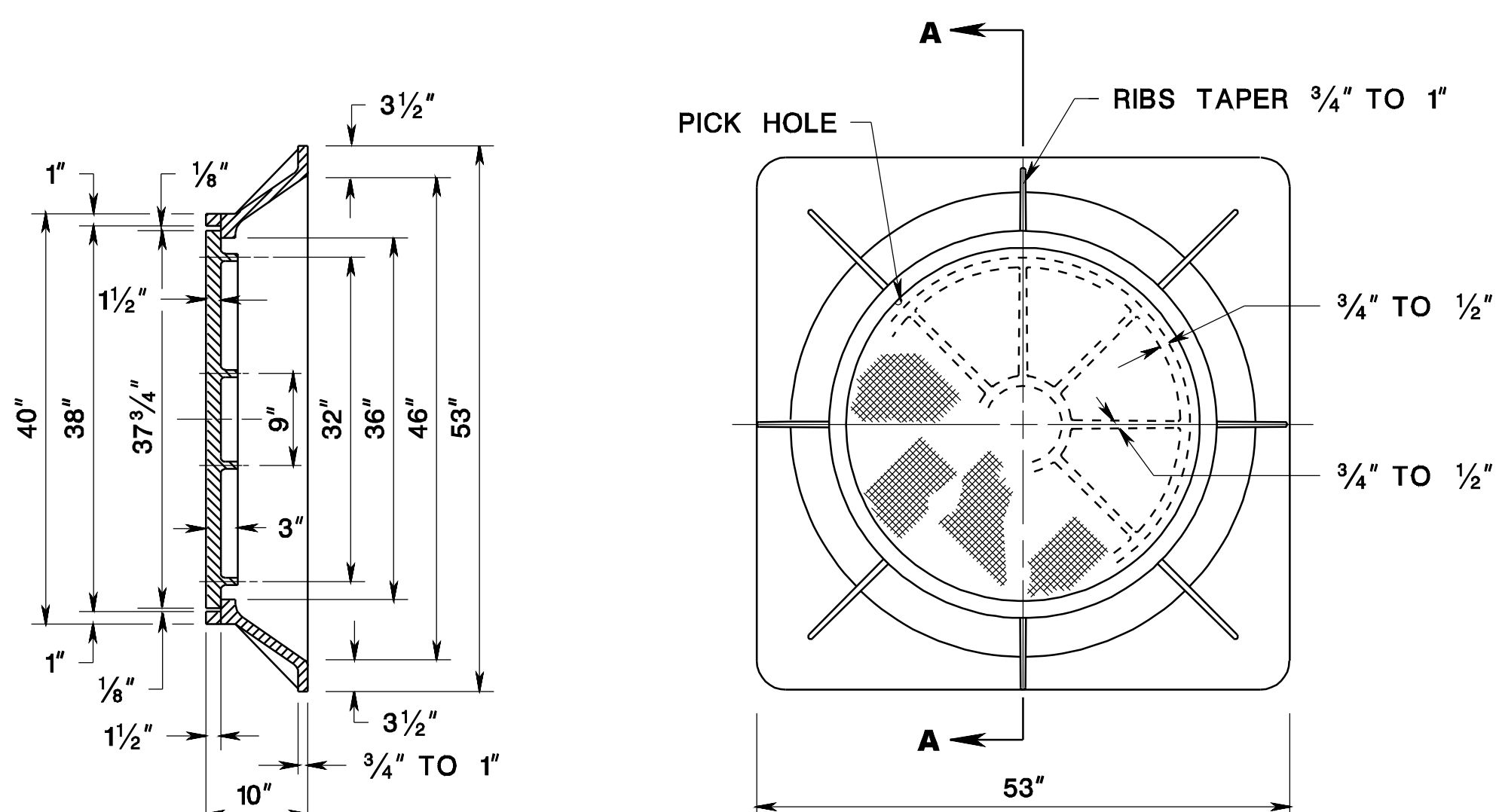
COPOLYMER POLYPROPYLENE PLASTIC
#13 GRADE 60 REINFORCEMENT STEEL

SECTION A-A

NOTE:
LADDER RUNGS FACING TRAFFIC 12" C TO C

COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNG

CD-602-1.5

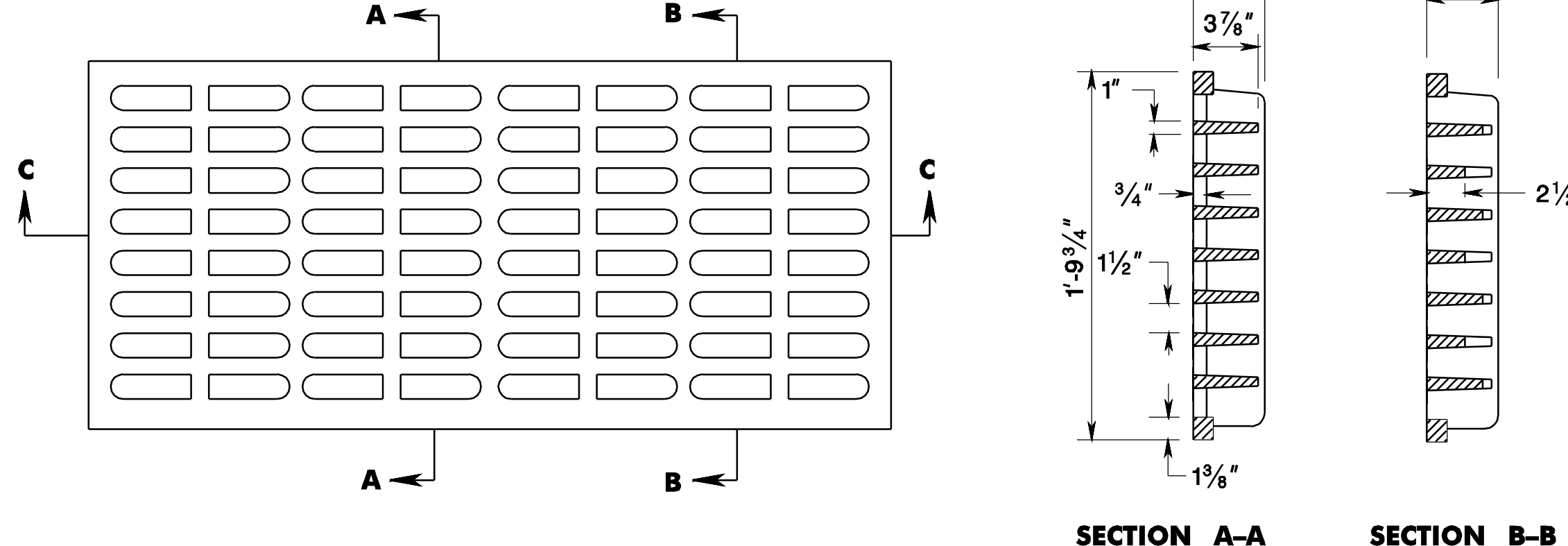


NOTE:
SEE GENERAL NOTE 10, CD-602-1.6

MINIMUM WEIGHTS
WEIGHT OF FRAME = 630#
WEIGHT OF COVER = 400#

NEW MANHOLE CASTING, SQUARE FRAME, CIRCULAR COVER

CD-602-1.7



MIN. WEIGHT 325 LBS.

SECTION A-A

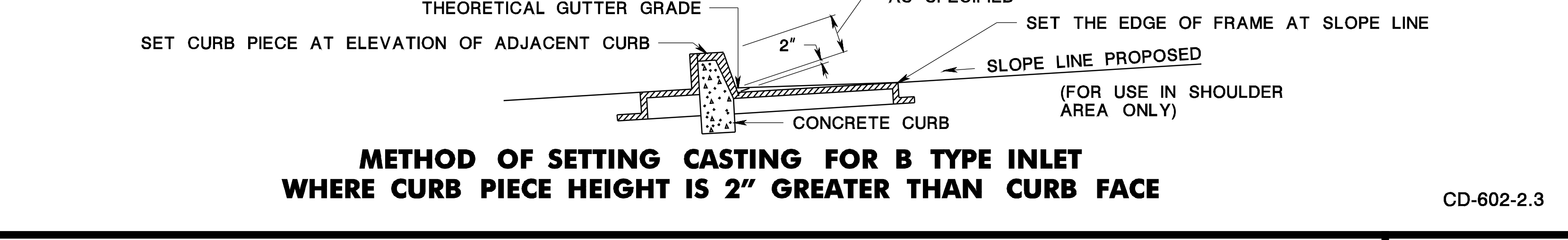
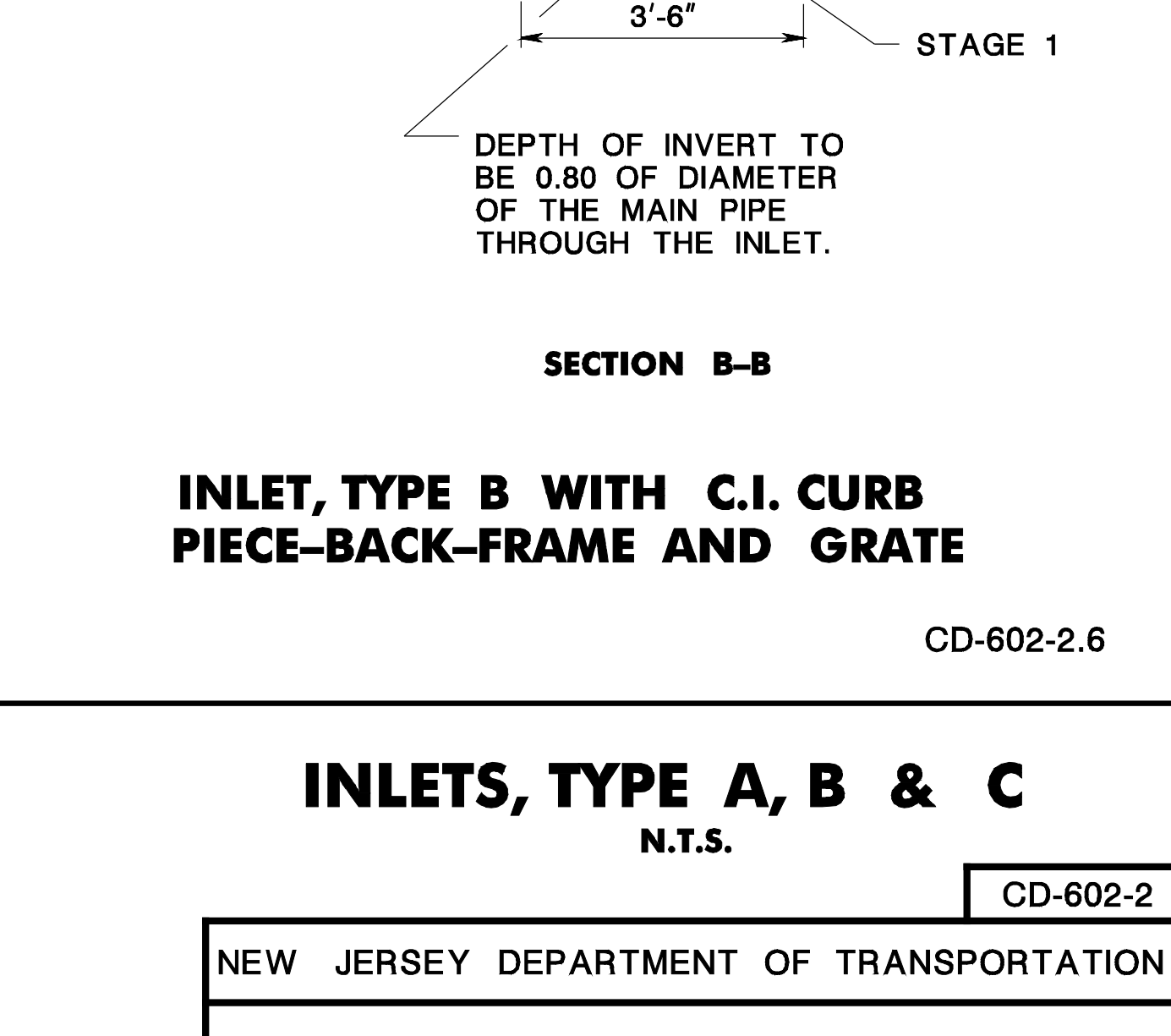
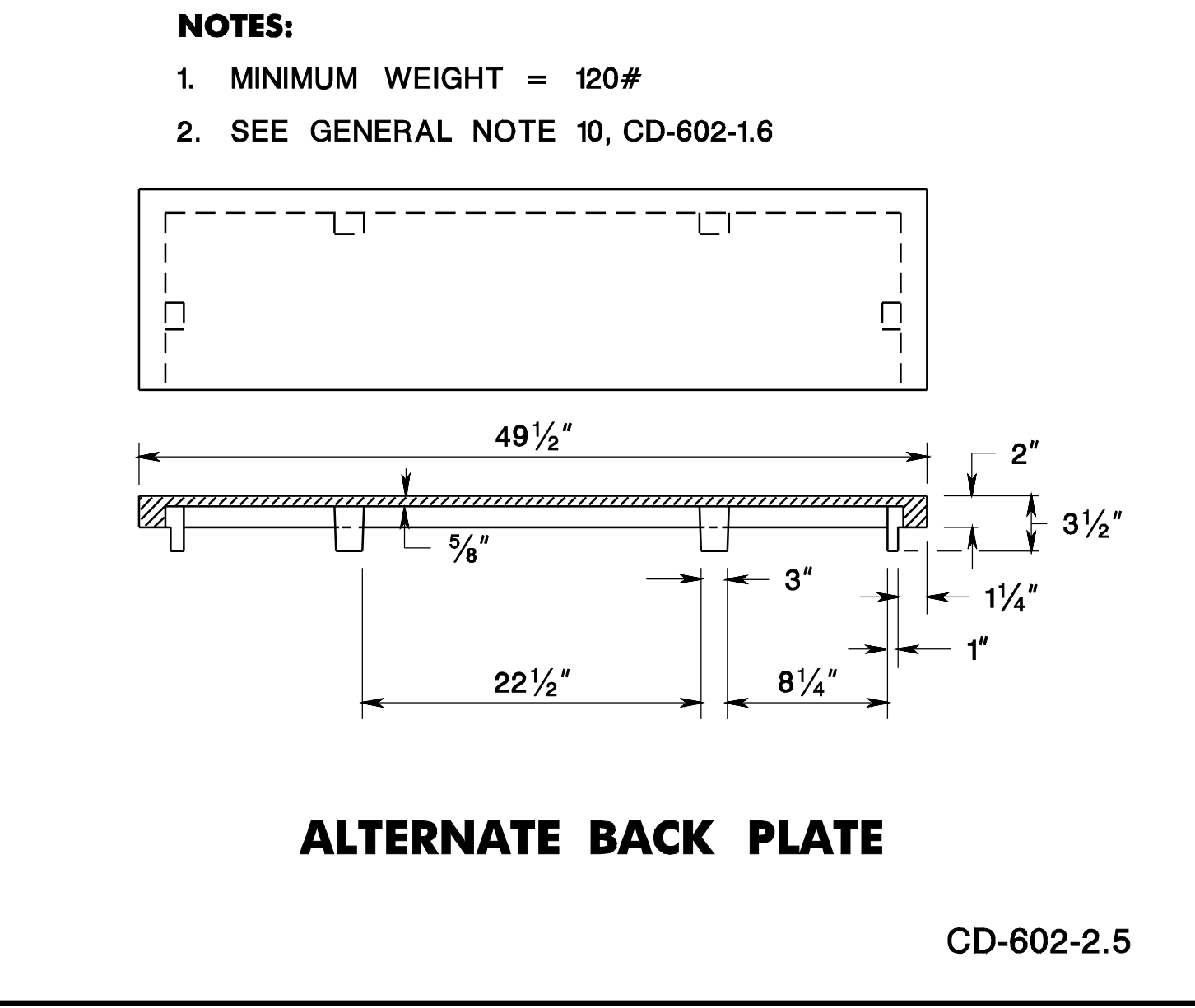
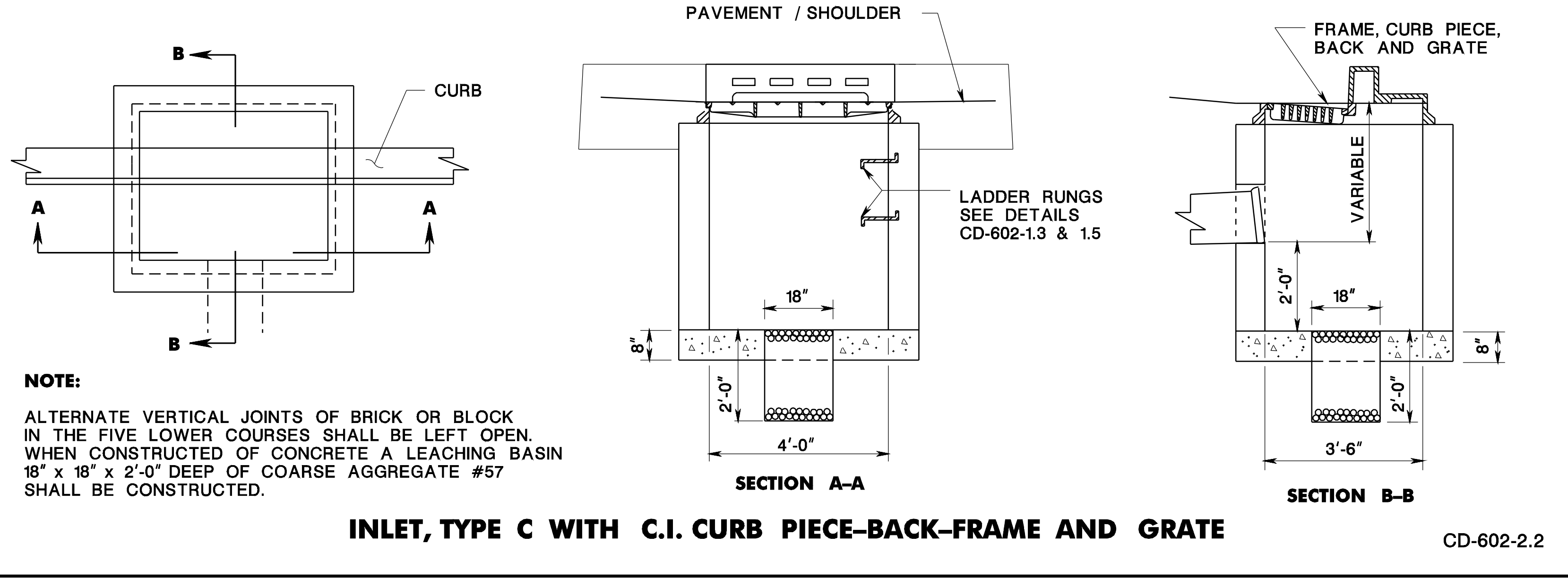
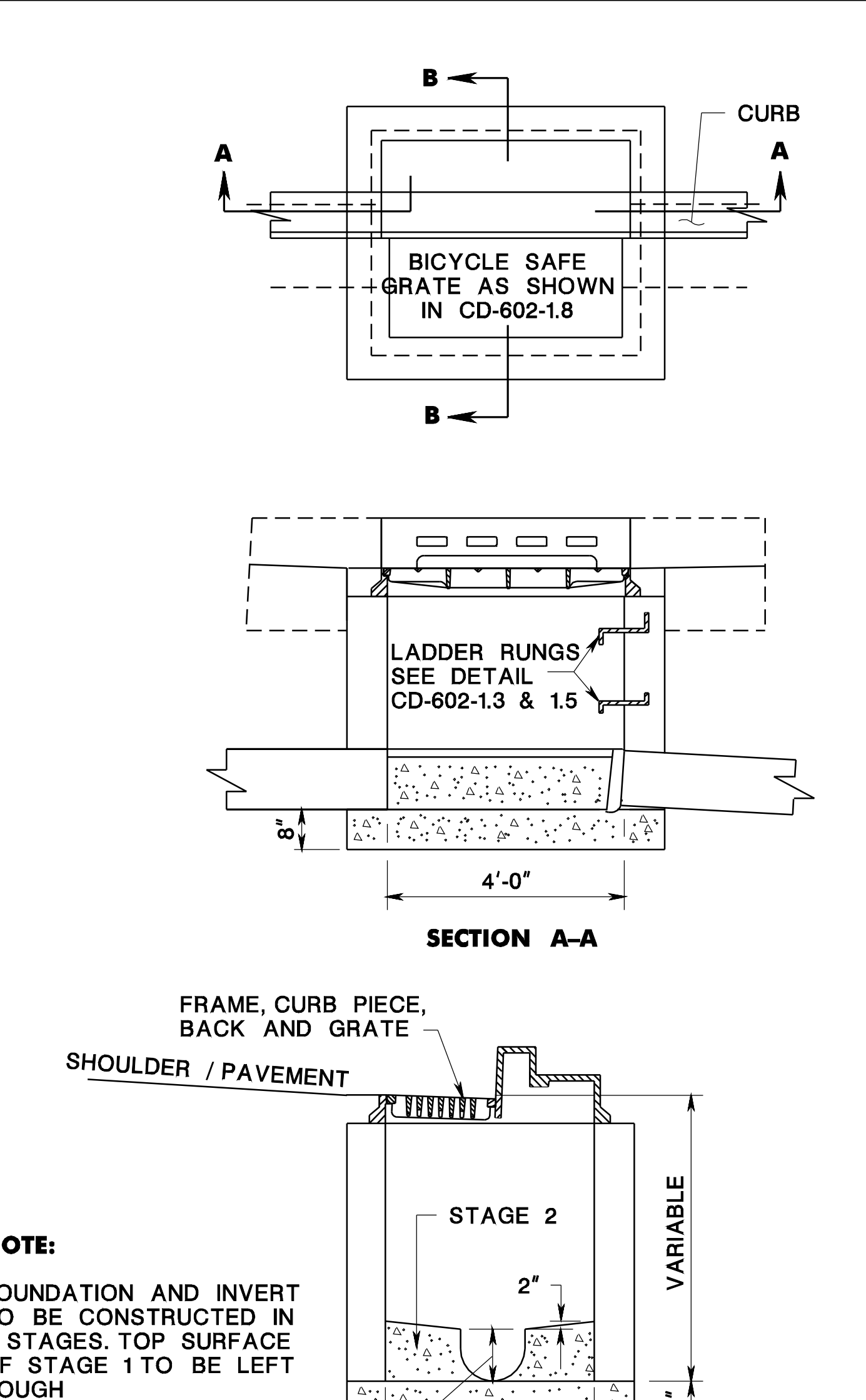
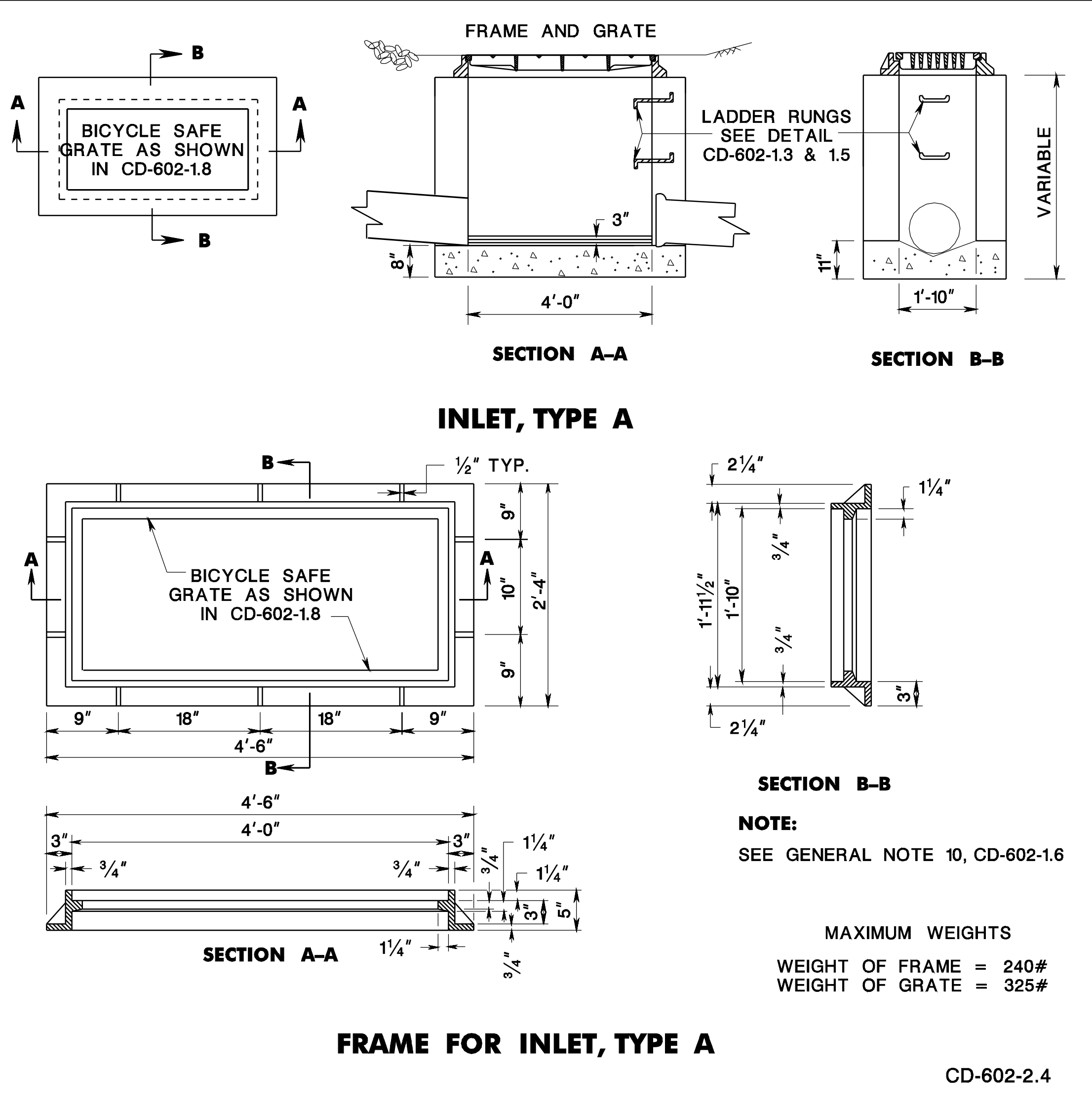
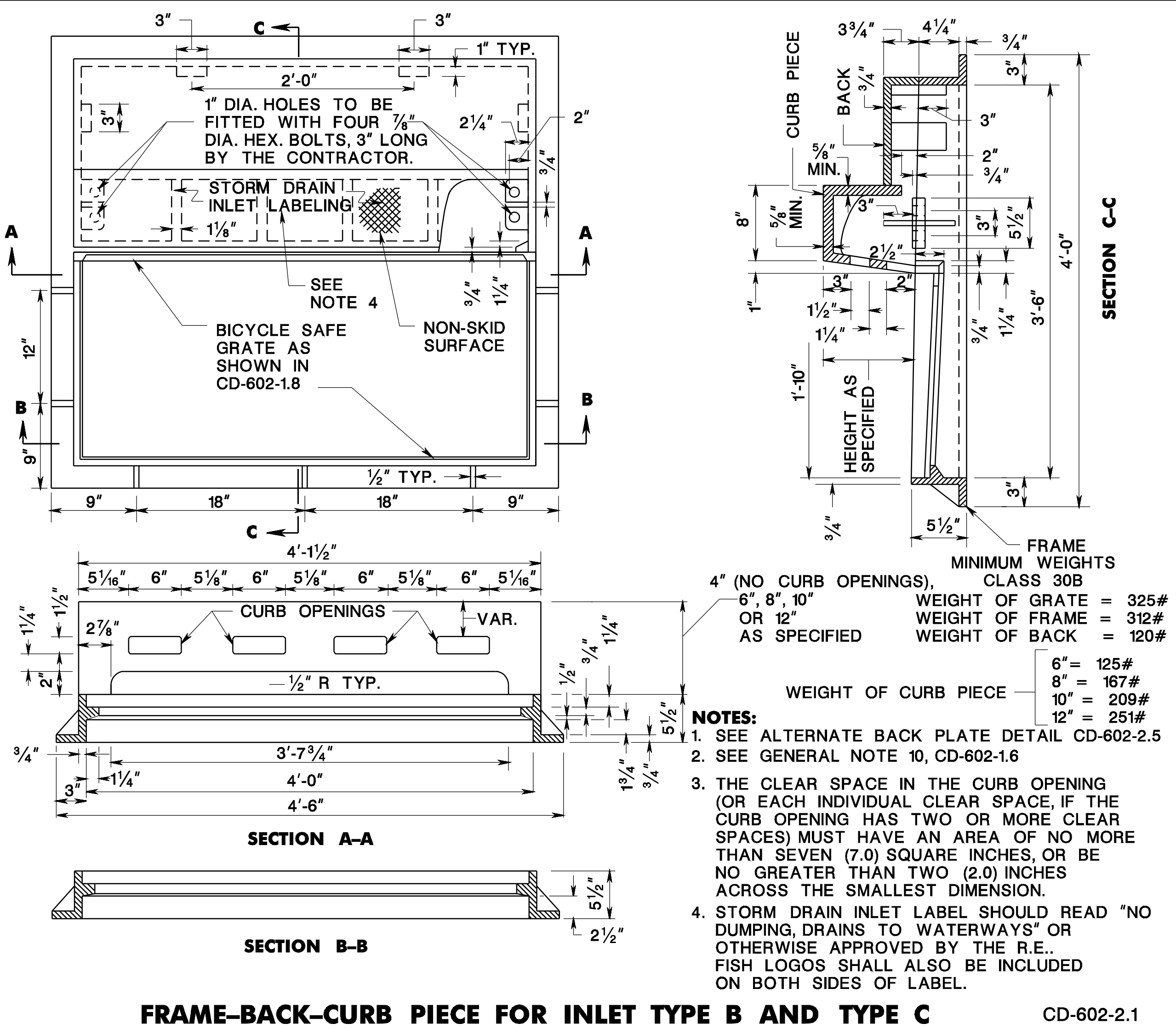
SECTION B-B

NOTE:
SEE GENERAL NOTE 10, CD-602-1.6

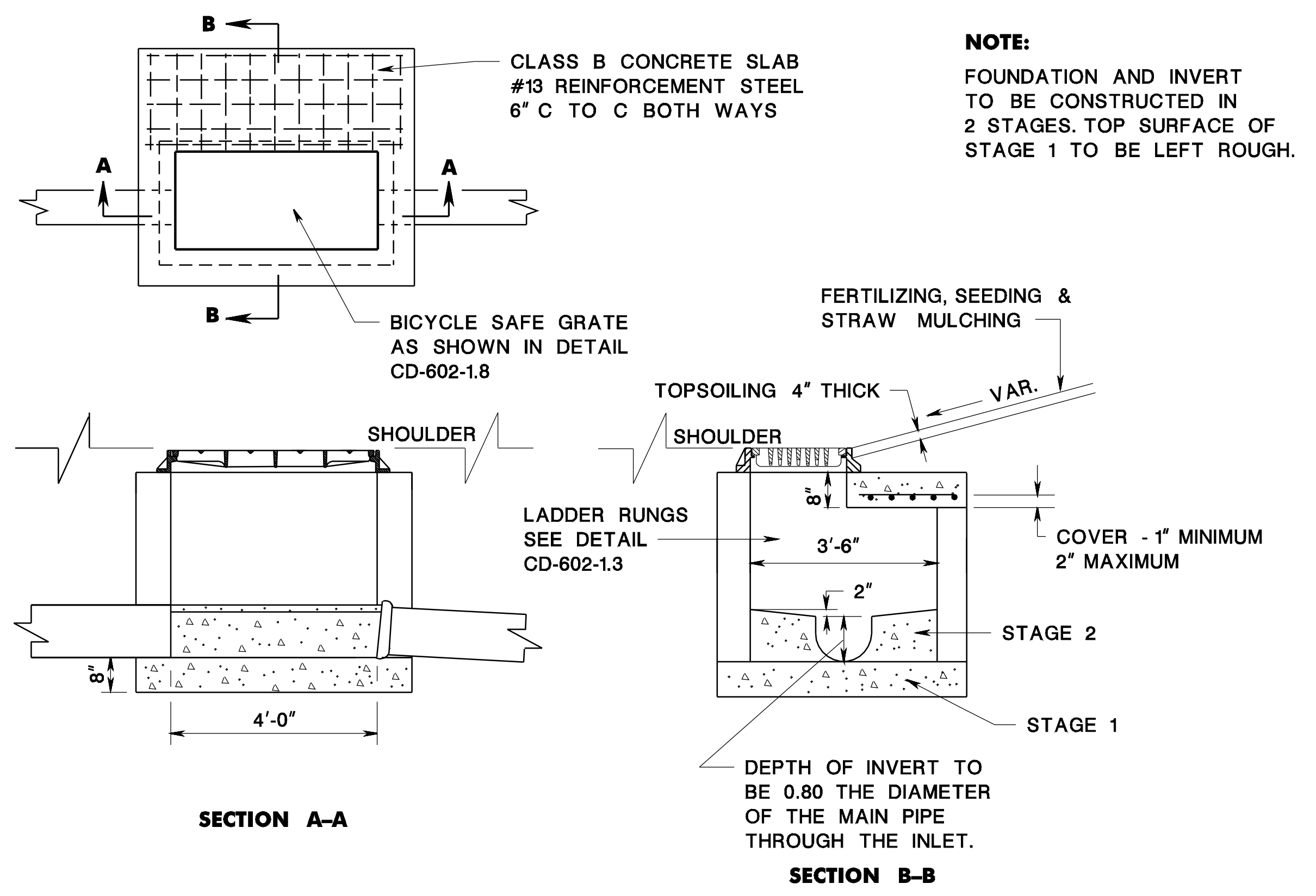
BICYCLE SAFE GRATE (CAST IRON)

CD-602-1.8

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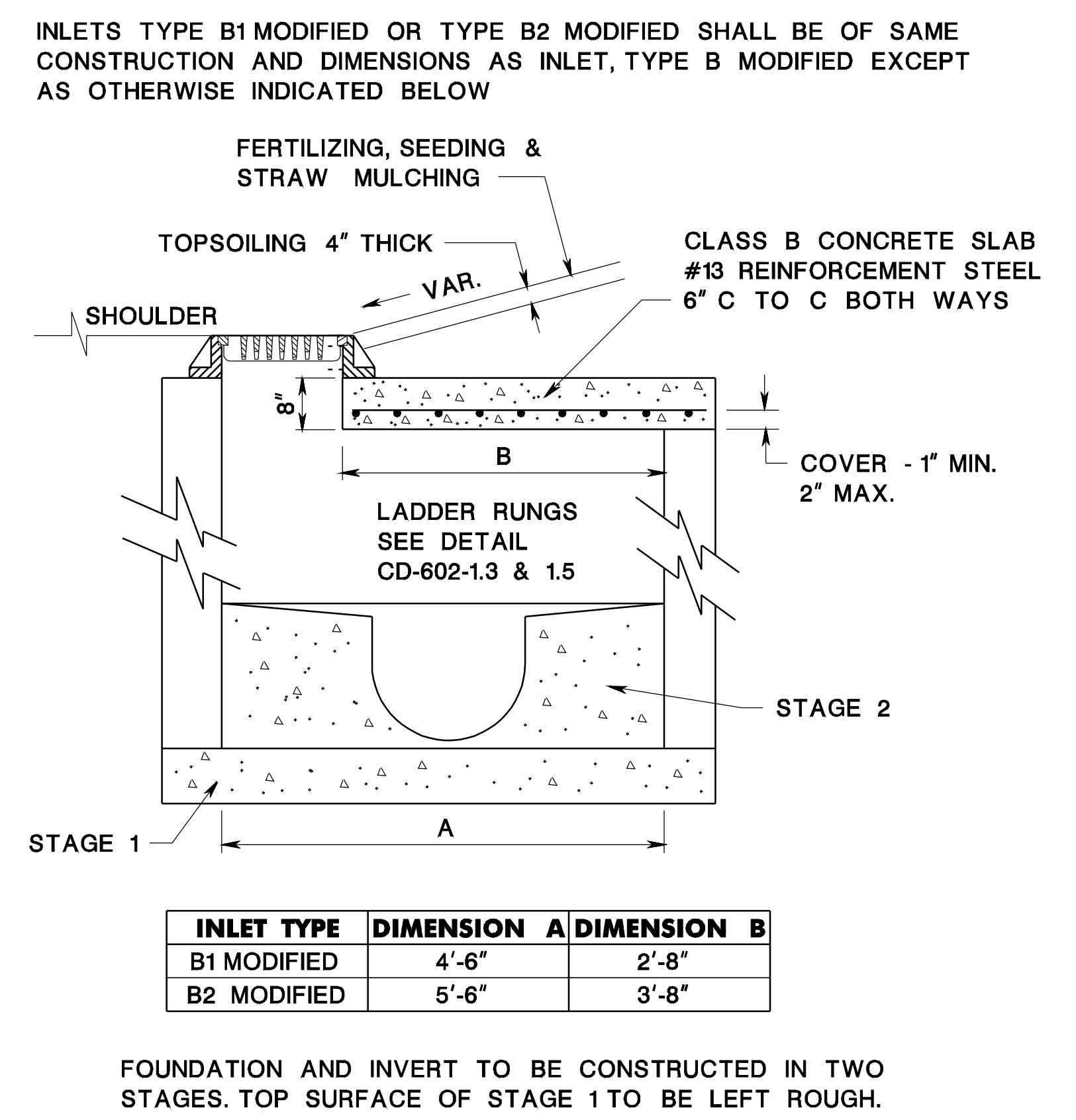


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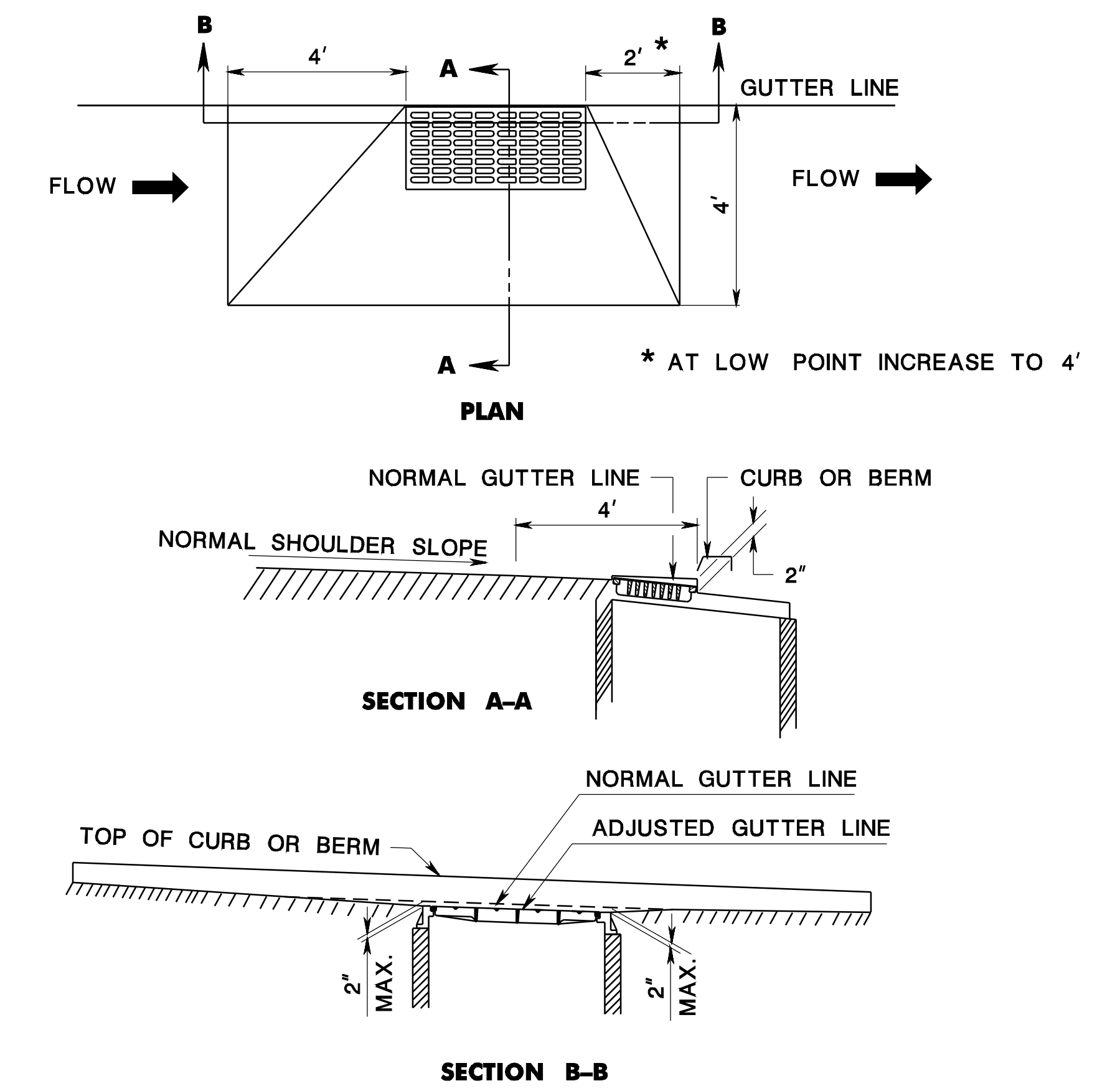
INLET, TYPE B MODIFIED

CD-602-3.1



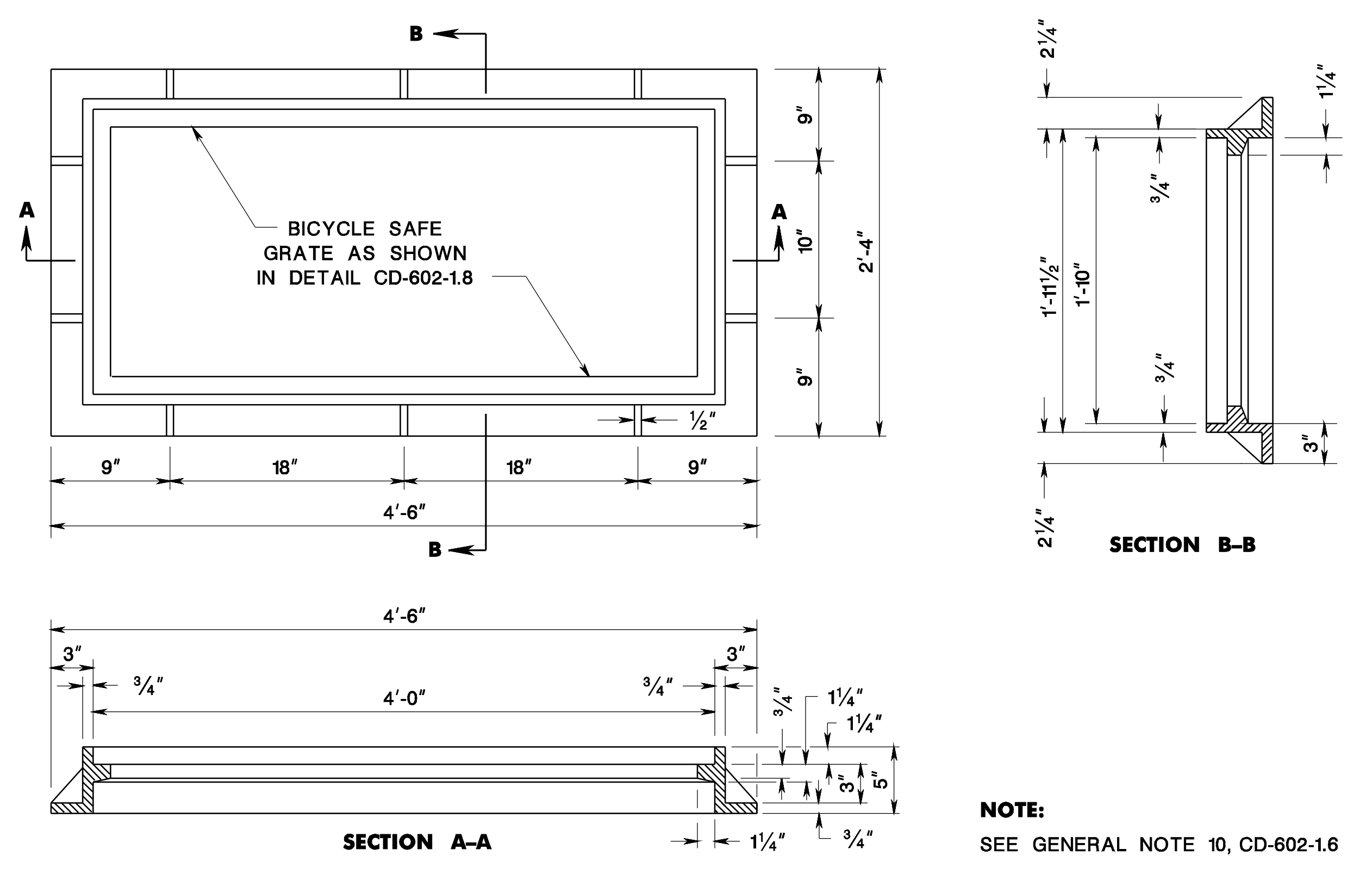
INLETS, TYPE B1 MODIFIED AND TYPE B2 MODIFIED

CD-602-3.2



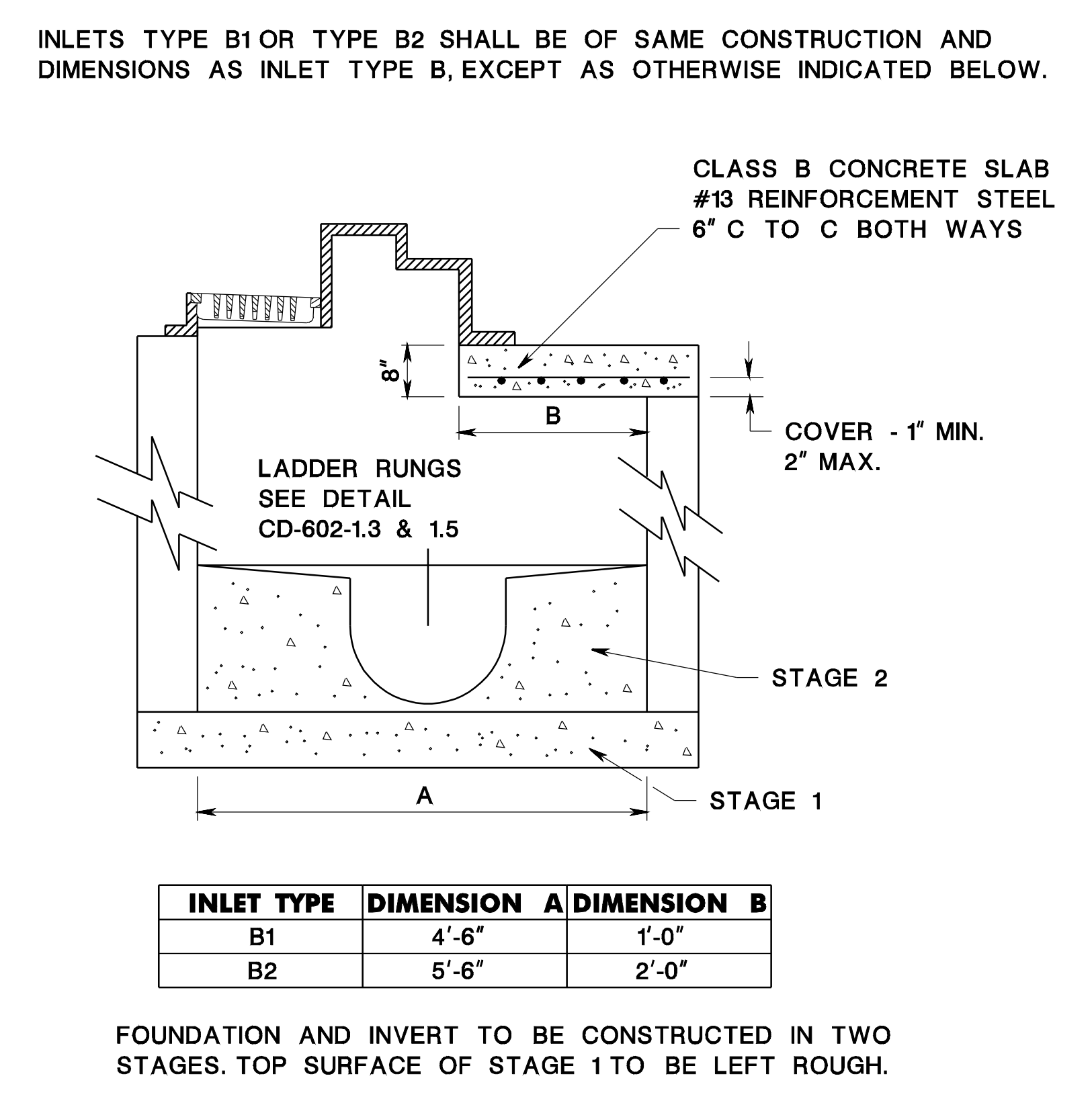
METHOD OF DEPRESSING INLETS AT SHOULDERS

CD-602-3.3



FRAME TO BE USED FOR INLET, TYPE B MODIFIED

CD-602-3.4



INLETS, TYPE B1 AND TYPE B2

CD-602-3.5

REINFORCEMENT STEEL IS IN METRIC UNITS.

INLETS, TYPE B1, B2, & B, B1, & B2 MODIFIED
 N.T.S.

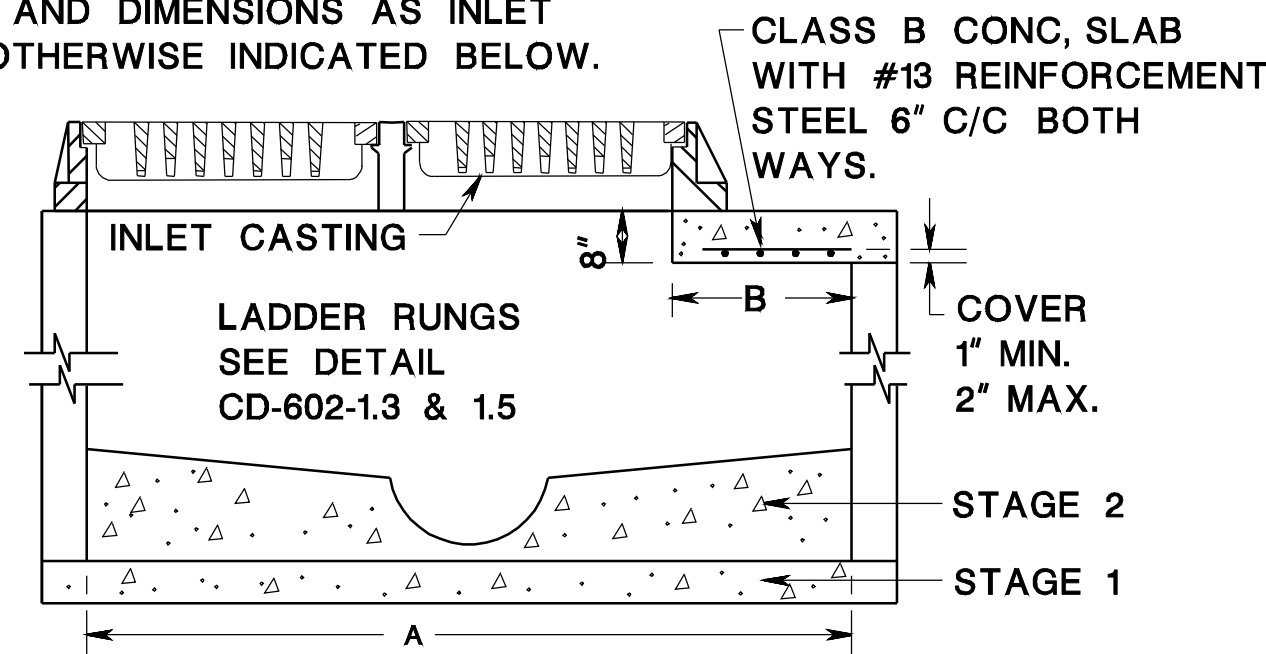
CD-602-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

INLETS TYPE E1 AND TYPE E2 SHALL BE OF THE SAME CONSTRUCTION AND DIMENSIONS AS INLET TYPE E EXCEPT AS OTHERWISE INDICATED BELOW.

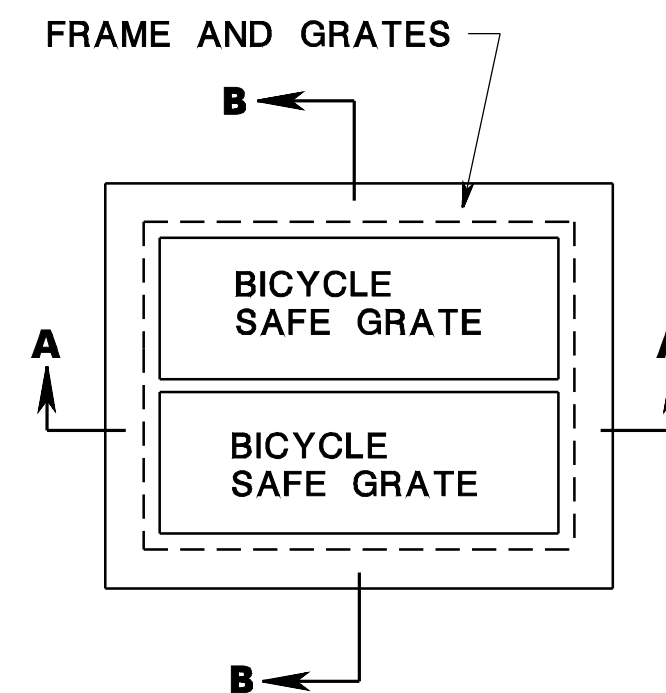
NOTE: FOUNDATION AND INVERT TO BE CONSTRUCTED IN TWO STAGES. TOP SURFACE OF STAGE 1 TO BE LEFT ROUGH.



INLET TYPE	DIMENSION A	DIMENSION B
E 1	4'-6"	1'-0"
E 2	5'-6"	2'-0"

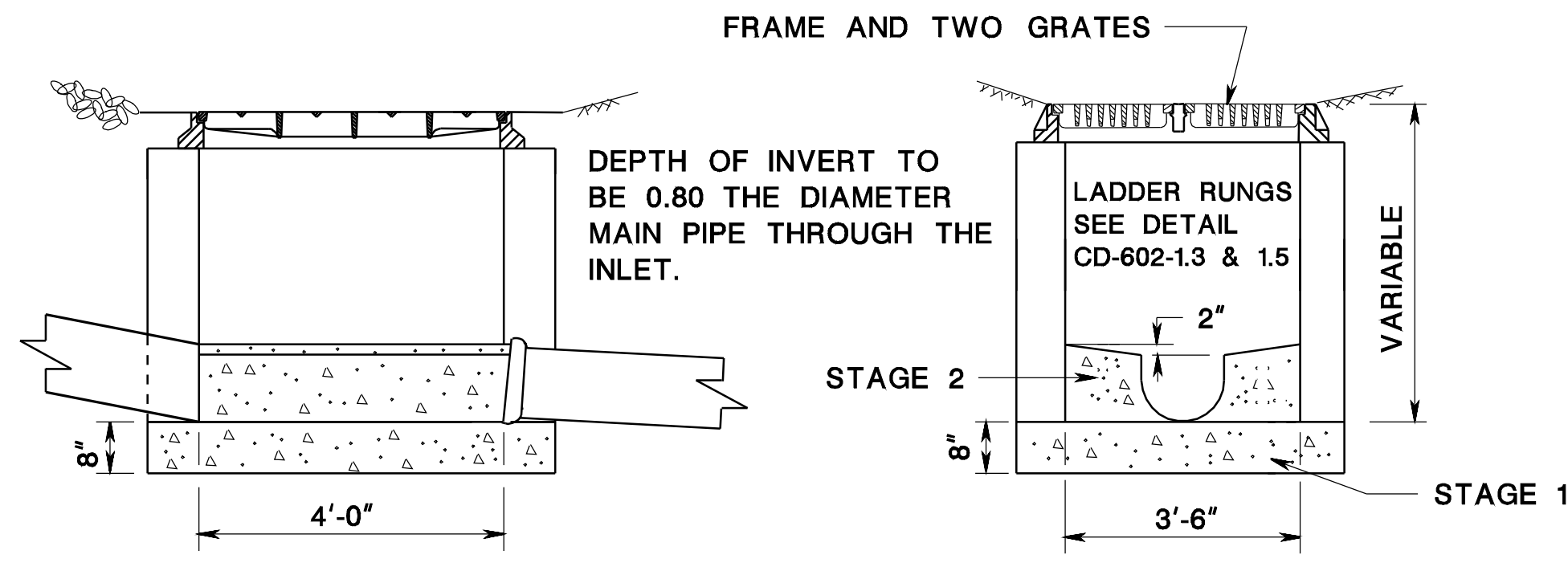
INLETS, TYPE E1 AND TYPE E2

CD-602-4.1



SECTION A-A

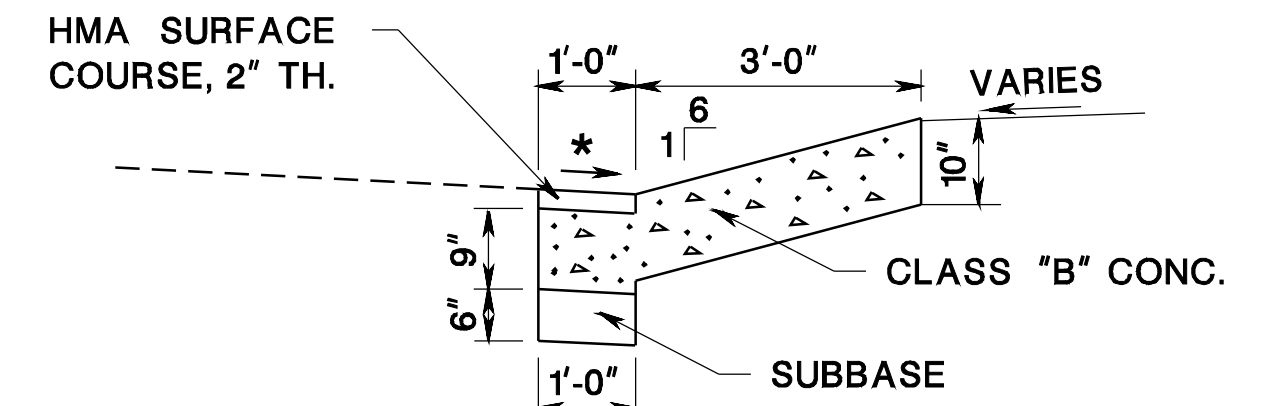
INLET, TYPE E



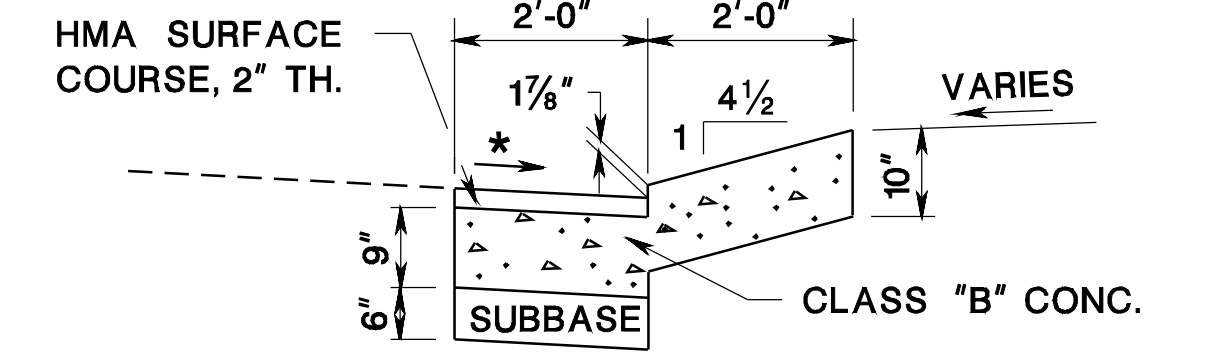
SECTION B-B

NOTE: FOUNDATION AND INVERT TO BE CONSTRUCTED IN 2 STAGES. TOP SURFACE OF STAGE 1 TO BE LEFT ROUGH.

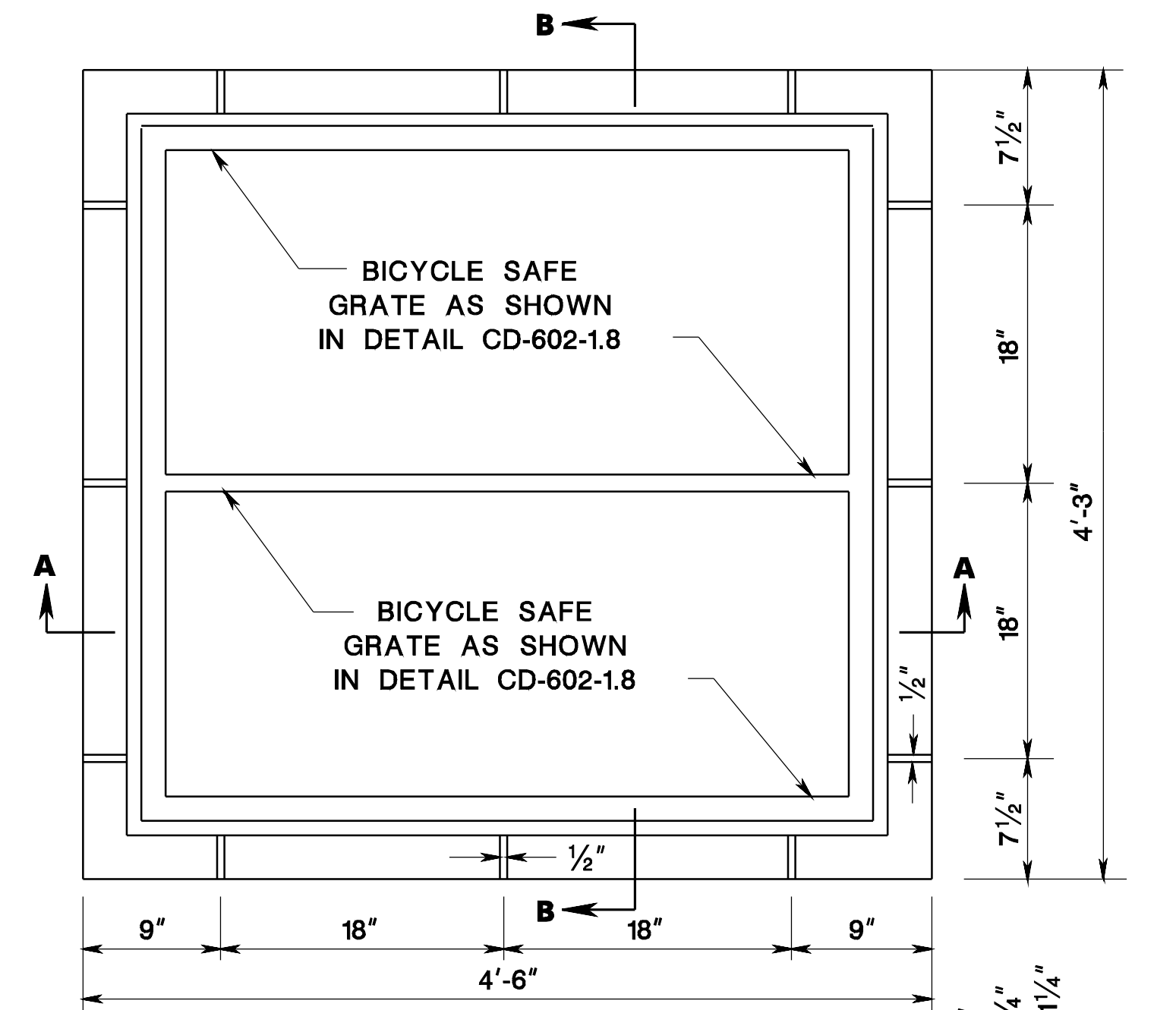
CD-602-4.2



SECTION A-A



SECTION B-B

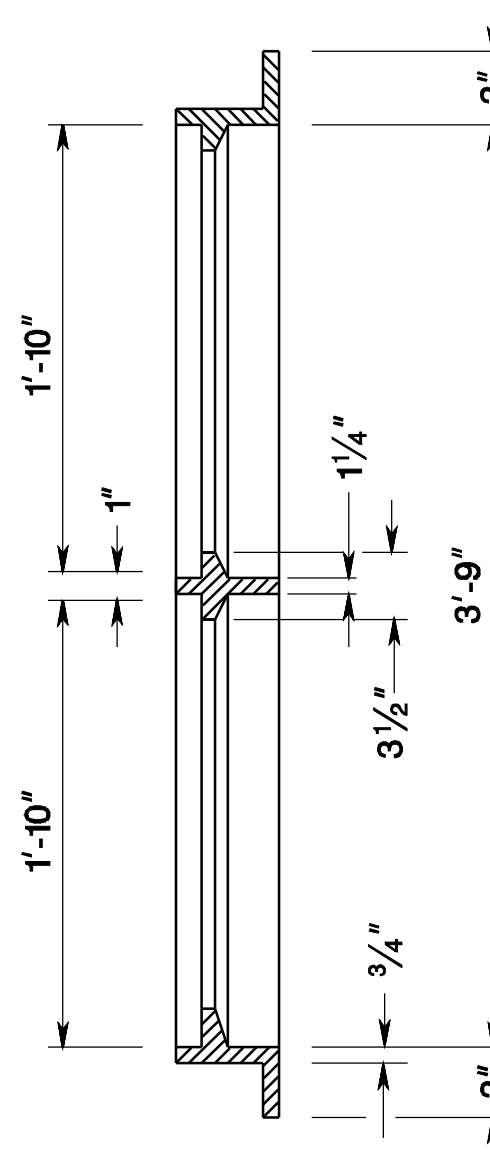


FRAME FOR INLET, TYPE E

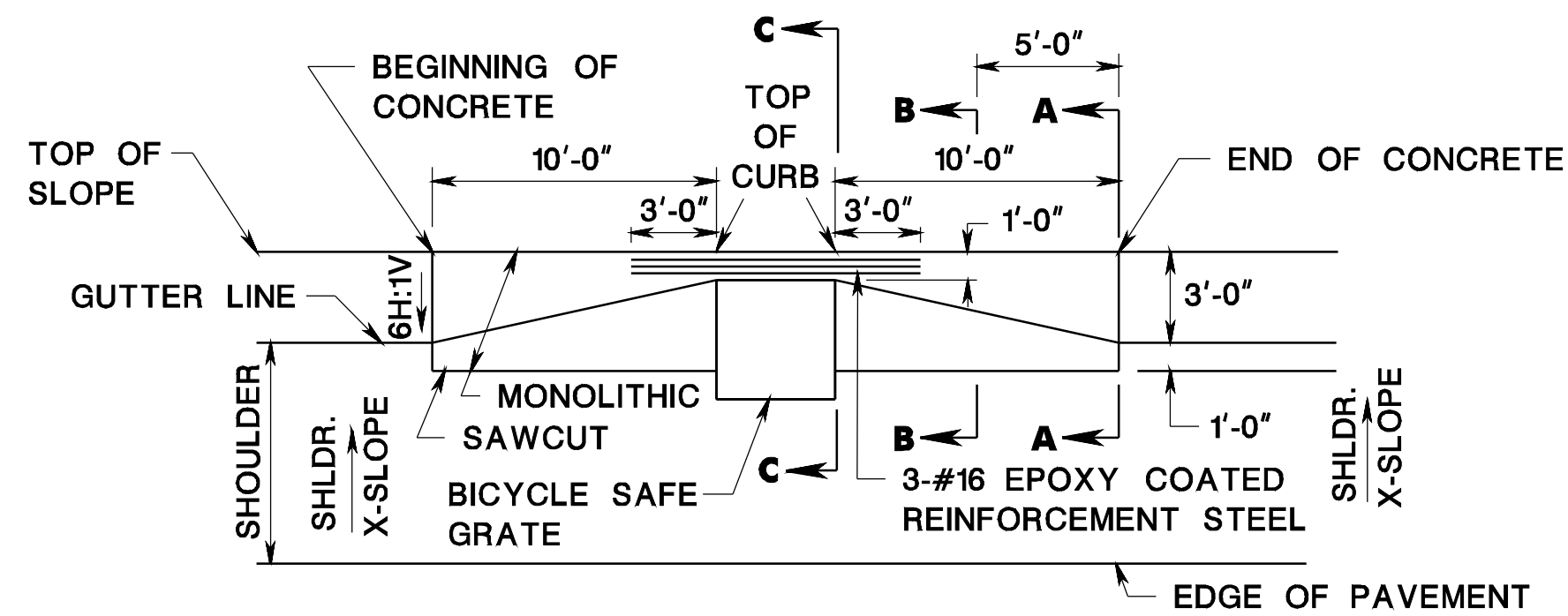
NOTE: SEE GENERAL NOTE 10, CD-602-1.6

CD-602-4.3

WEIGHT OF FRAME = 435#
WEIGHT OF EACH GRATE = 325#



SECTION B-B



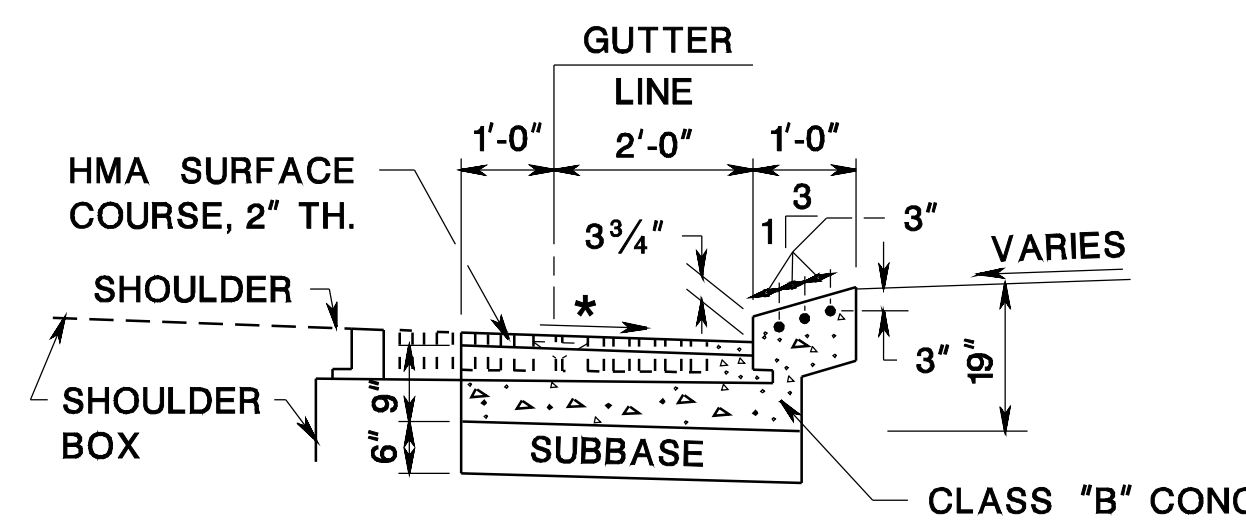
PLAN VIEW

NOTE: THE UNDERLYING MATERIAL SHALL BE SHAPED AND COMPACTED TO A FIRM, EVEN SURFACE.

NOTE: ITEM INCLUDES EXCAVATION SUBBASE SOIL AGGREGATE 1-3, 6" TH. CLASS B CONCRETE (RDWY) HMA SURFACE COURSE UNDERLAYER PREPARATION TACK COAT INLET CASTING, TYPE "E" WITH CASTING, AND REINFORCEMENT STEEL.

INLET, TYPE ES

CD-602-4.4



SECTION C-C

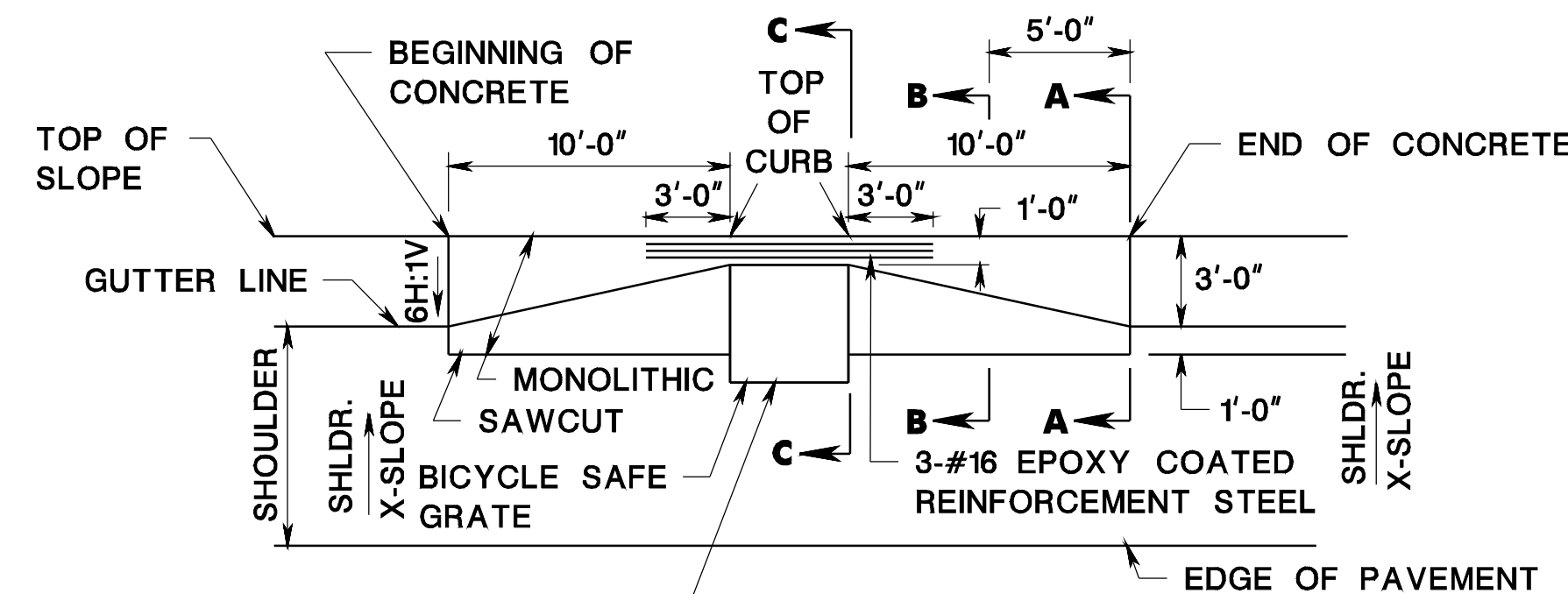
NOTE: ITEM INCLUDES EXCAVATION SUBBASE SOIL AGGREGATE 1-3, 6 INCHES THICK. CLASS B CONCRETE (RDWY) HMA SURFACE COURSE UNDERLAYER PREPARATION TACK COAT INLET CASTING, TYPE "E" REMOVAL OF EXISTING CLASS B CONCRETE IF REQUIRED.

REINFORCEMENT STEEL IS IN METRIC UNITS.
HMA = HOT MIX ASPHALT

INLETS, TYPE E, E1, E2, & ES

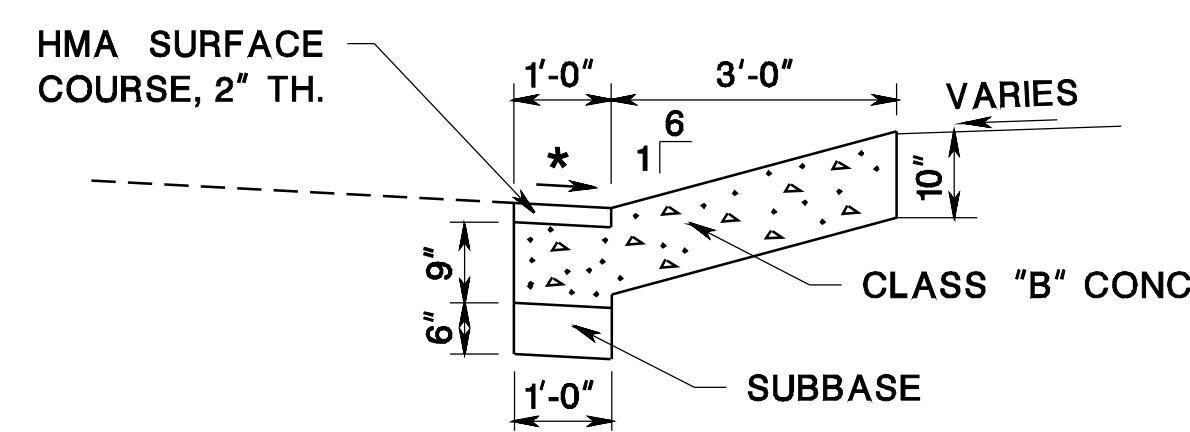
N.T.S.

CD-602-4



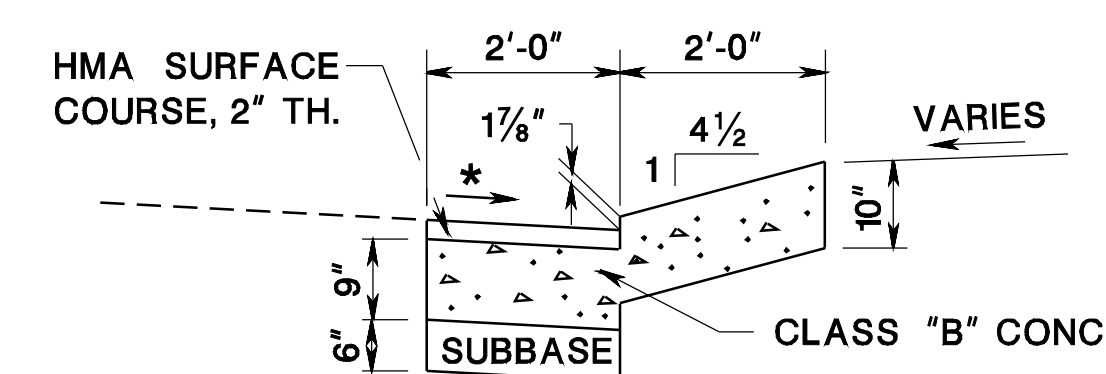
PLAN VIEW

NOTE: THE UNDERLYING MATERIAL SHALL BE SHAPED AND COMPACTED TO A FIRM, EVEN SURFACE.



SECTION A-A

INLET CASTING, TYPE ES



SECTION B-B

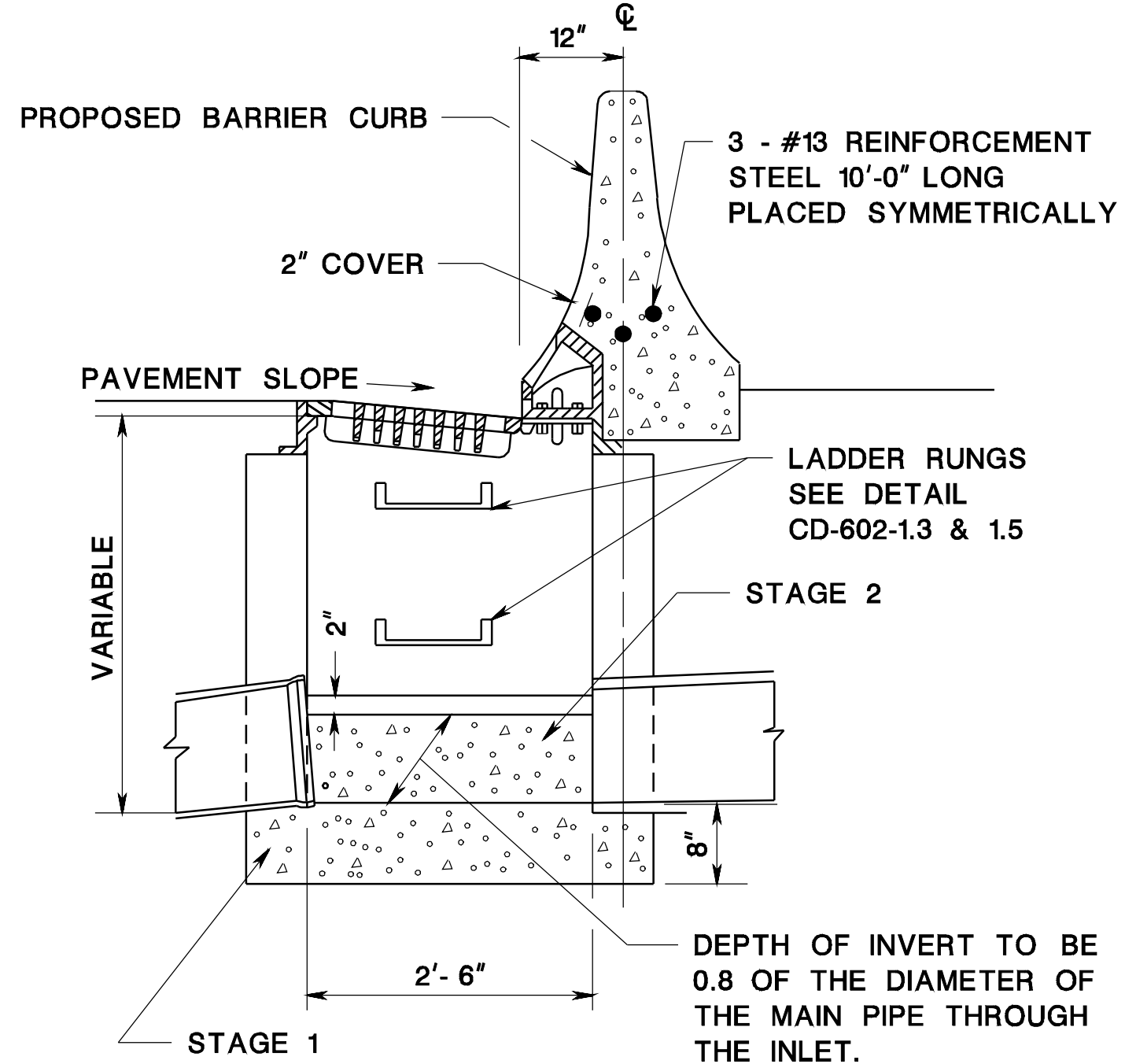
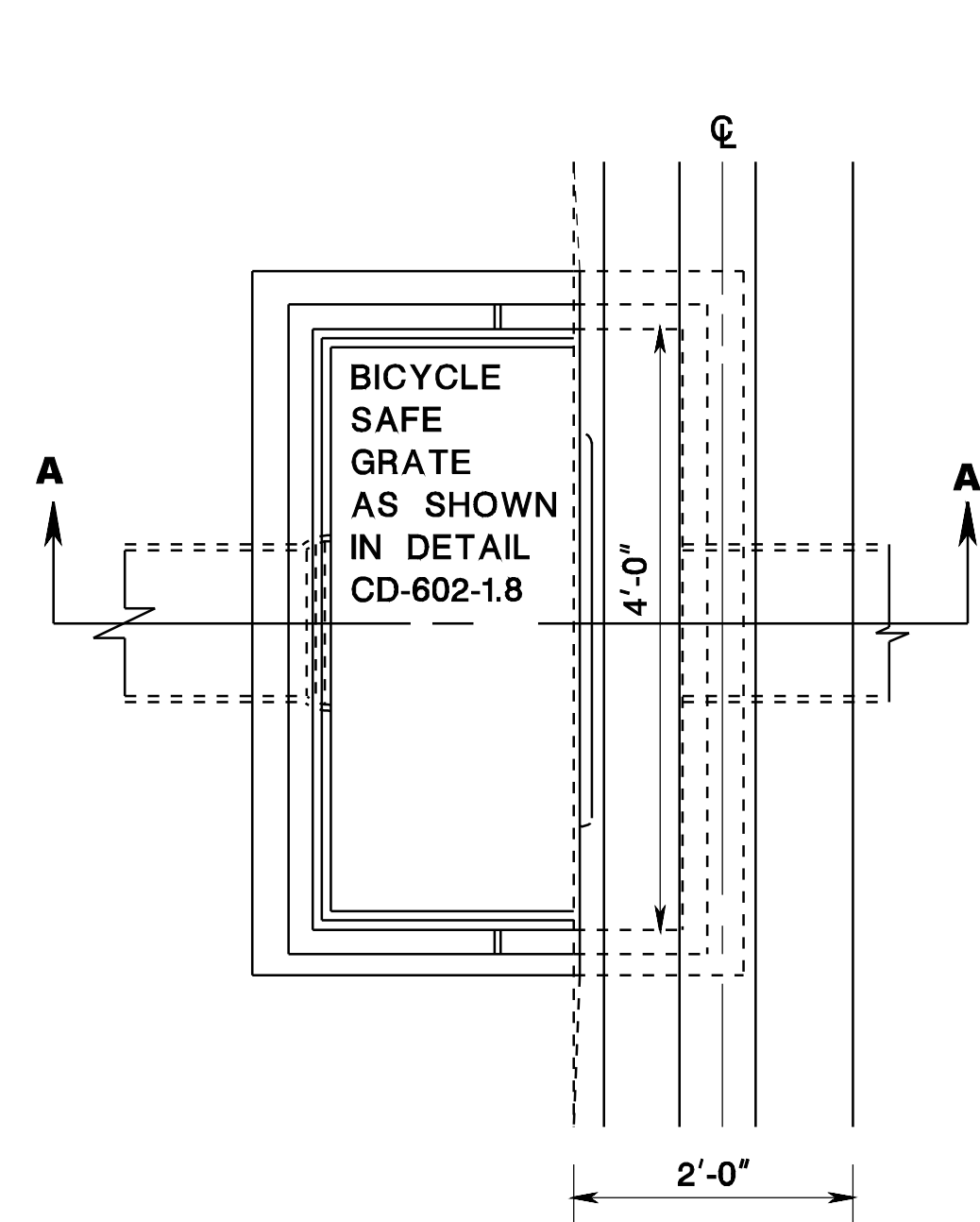
* SAME X-SLOPE AS ADJOINING SHOULDER

CD-602-4.5

CONSTRUCTION DETAILS

NEW JERSEY DEPARTMENT OF TRANSPORTATION

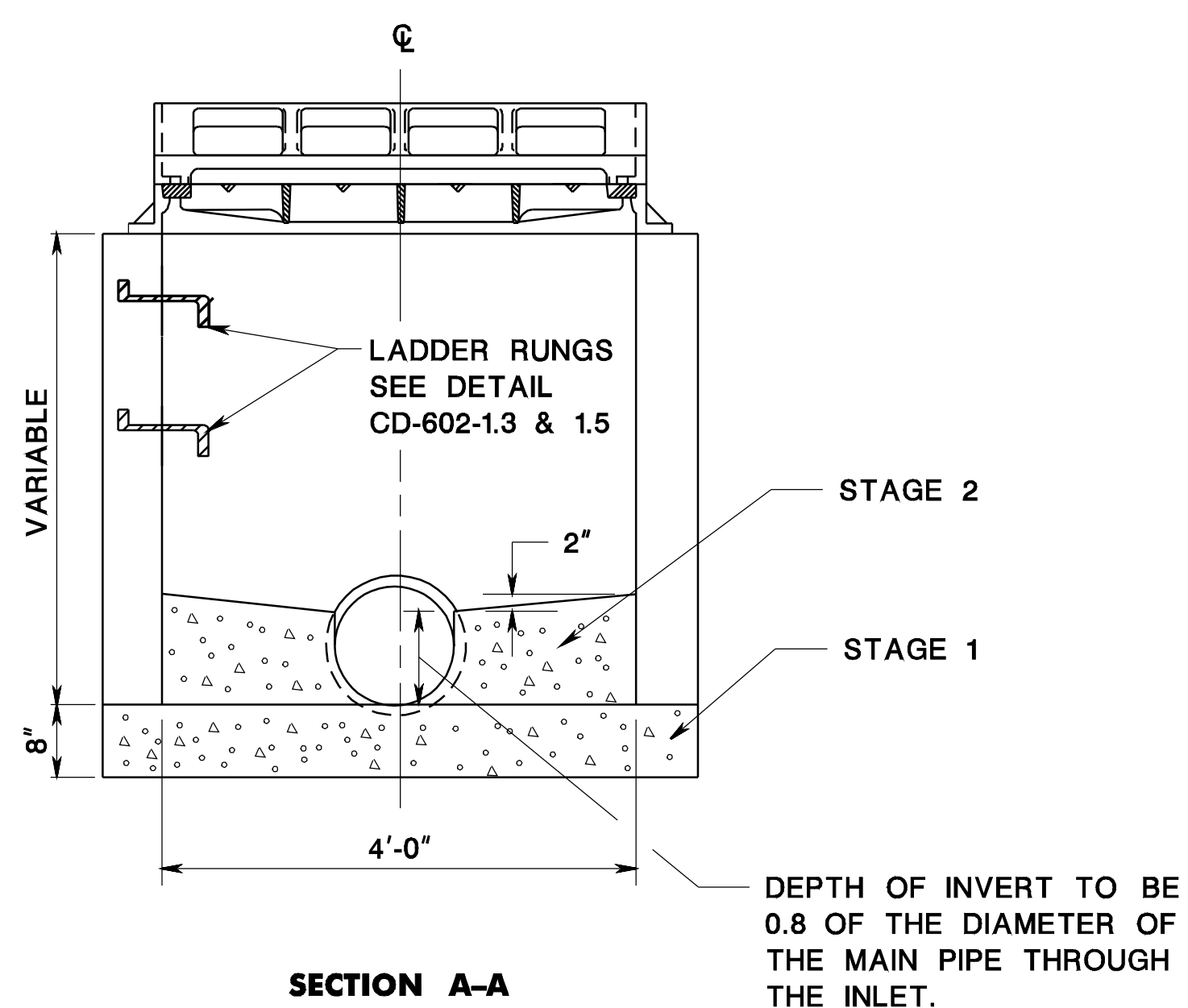
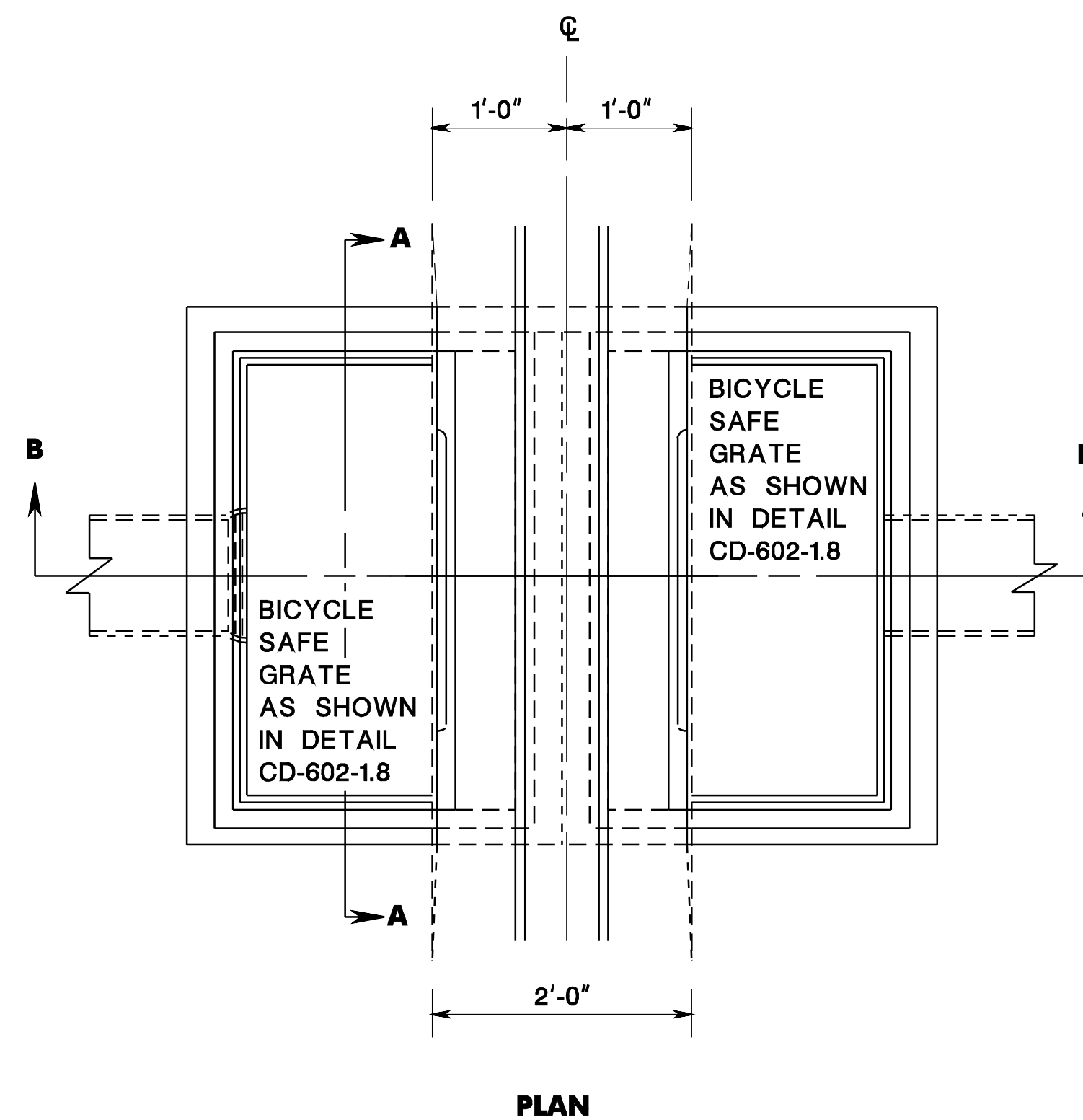
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NOTE:
 FOUNDATION AND INVERT TO BE CONSTRUCTED IN 2 STAGES
 THE TOP SURFACE OF STAGE 1 TO BE LEFT ROUGH.

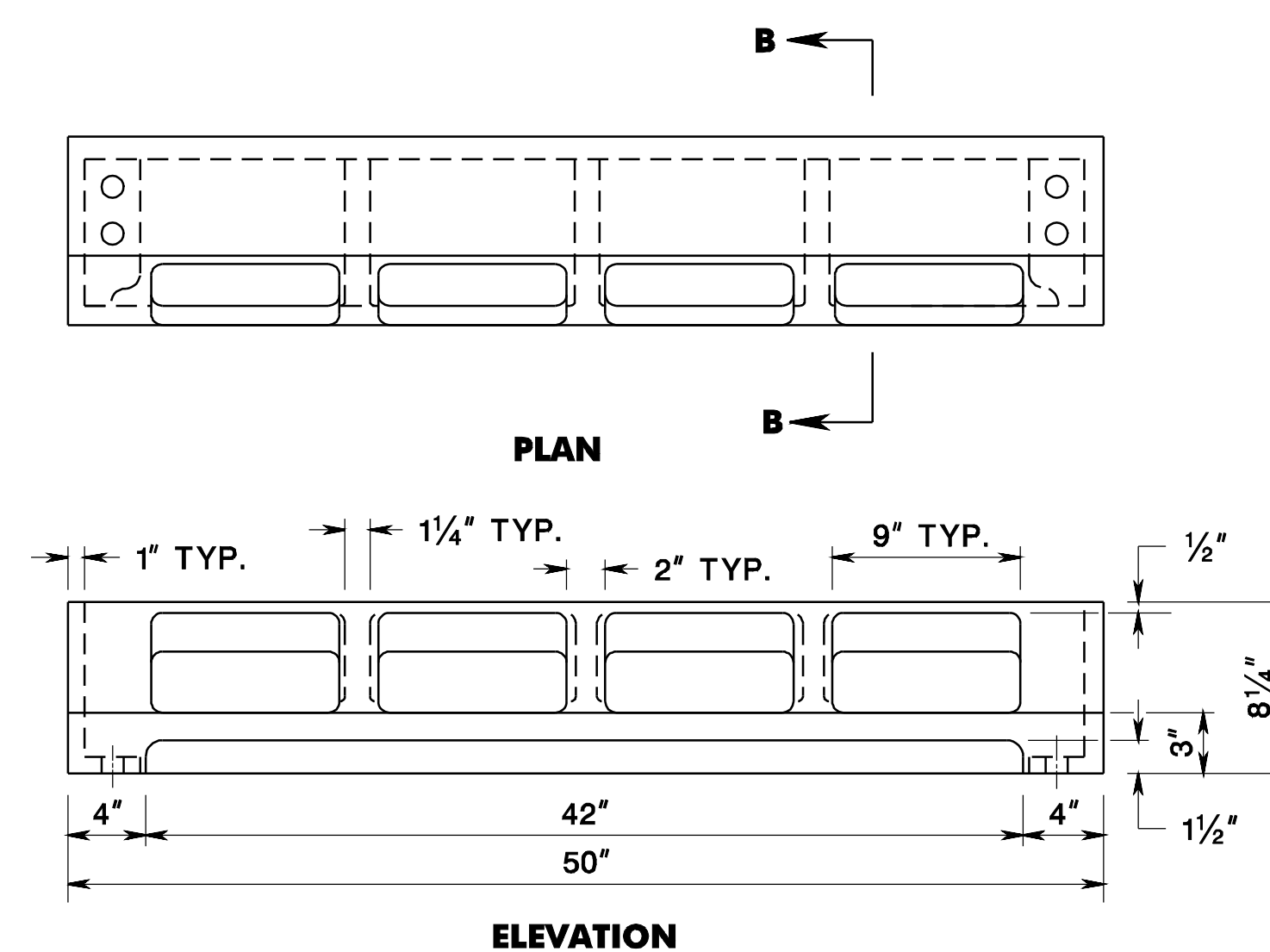
INLET, TYPE D1

CD-602-5.1



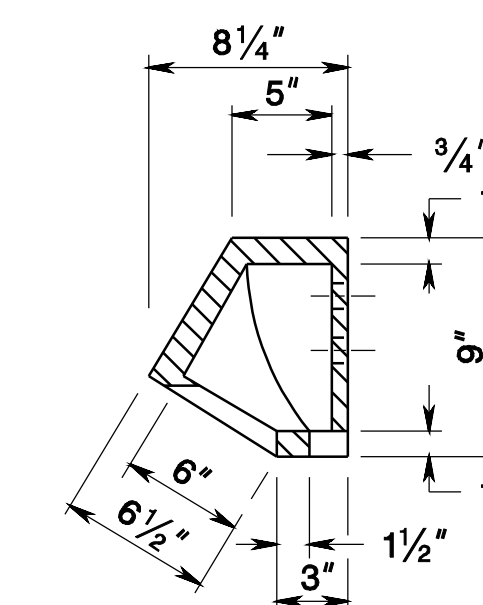
NOTE:
 FOUNDATION AND INVERT TO BE CONSTRUCTED IN 2 STAGES
 THE TOP SURFACE OF STAGE 1 TO BE LEFT ROUGH.

INLET, TYPE D2

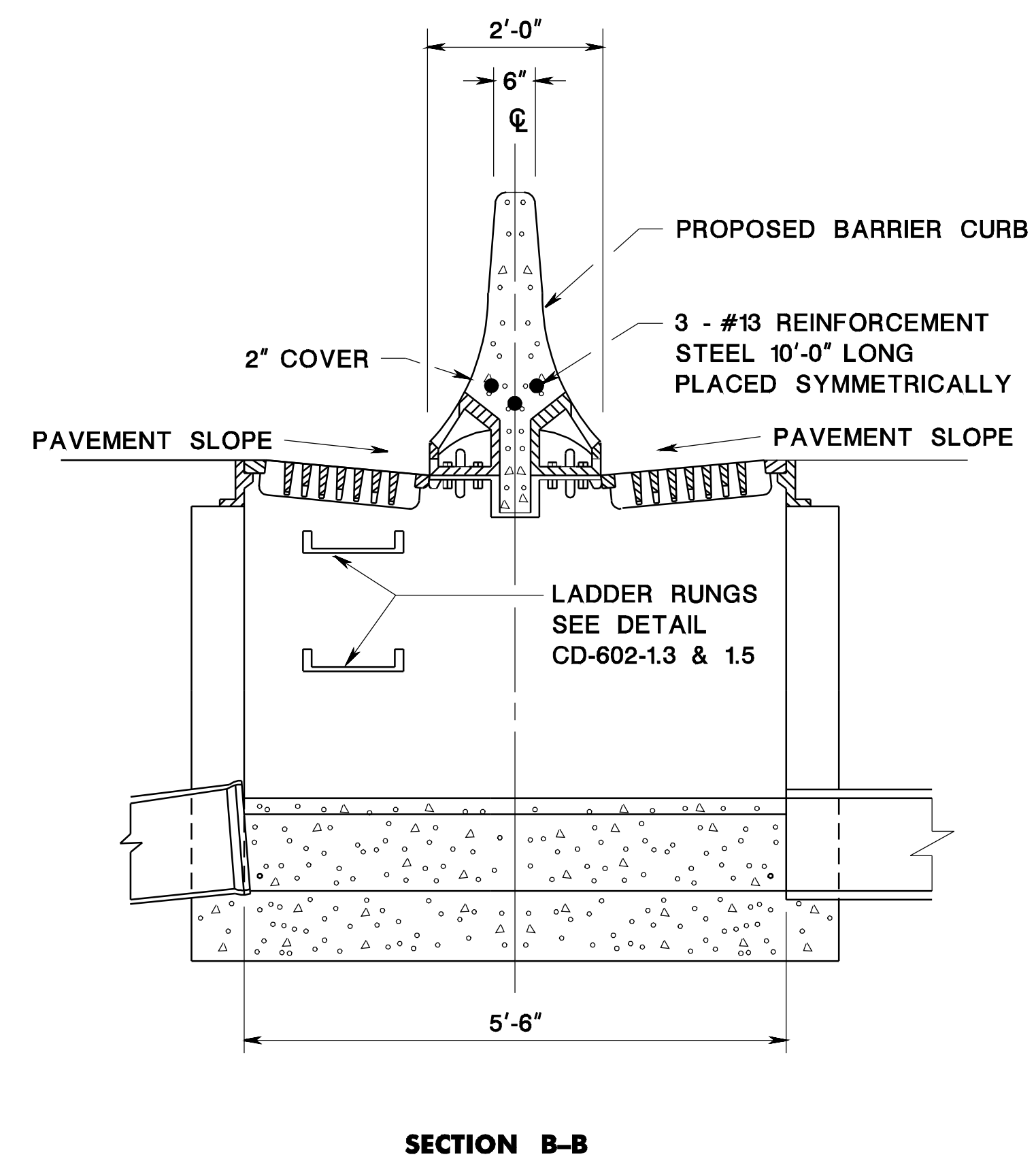


CAST IRON CURB PIECE FOR INLETS, TYPE D1 AND D2

CD-602-5.3



NOTE:
 SEE GENERAL NOTE 10, CD-602-1.6



REINFORCEMENT STEEL IS IN METRIC UNITS.

INLETS, TYPE D1 & D2
 N.T.S.

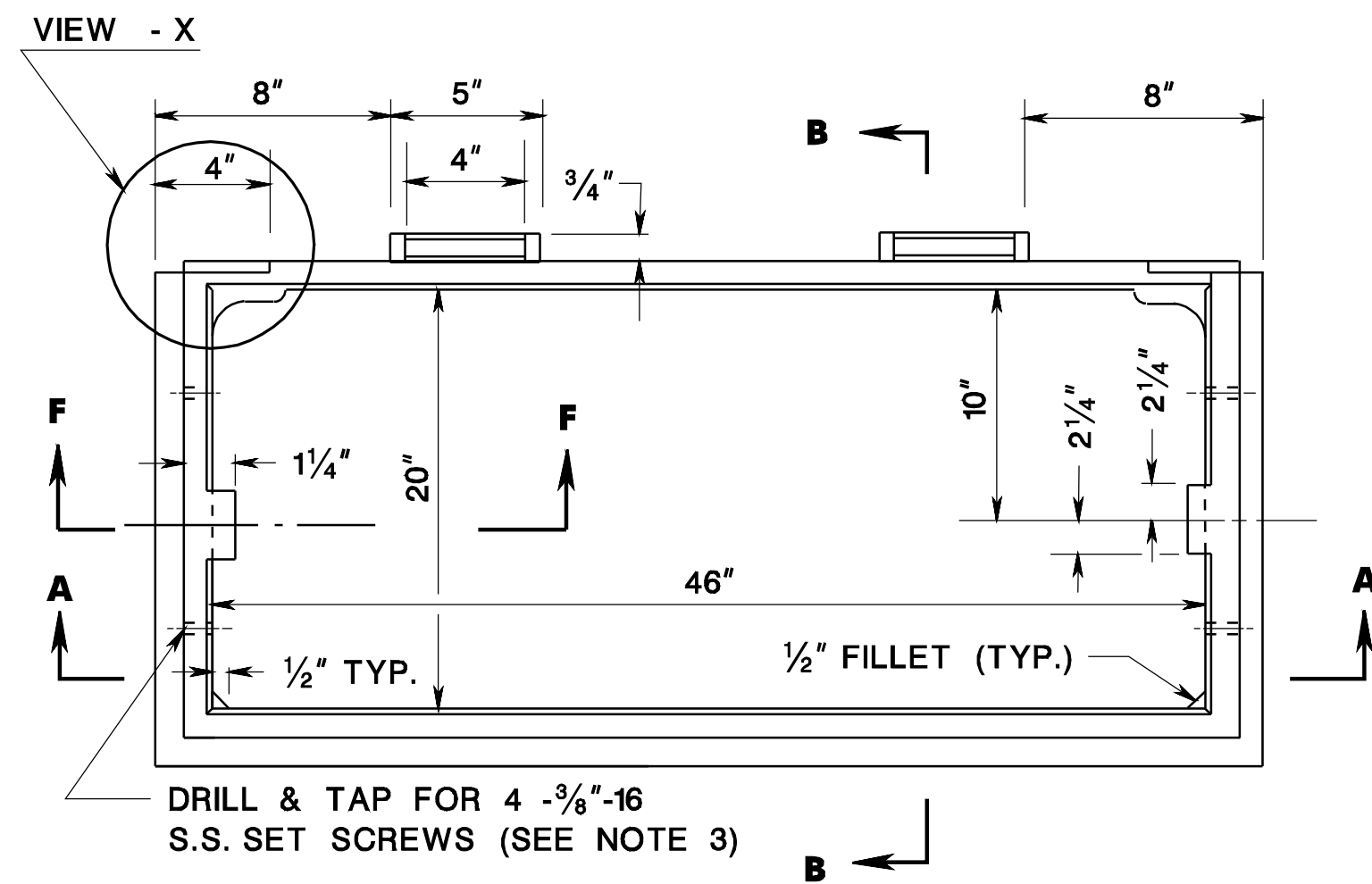
CD-602-5

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

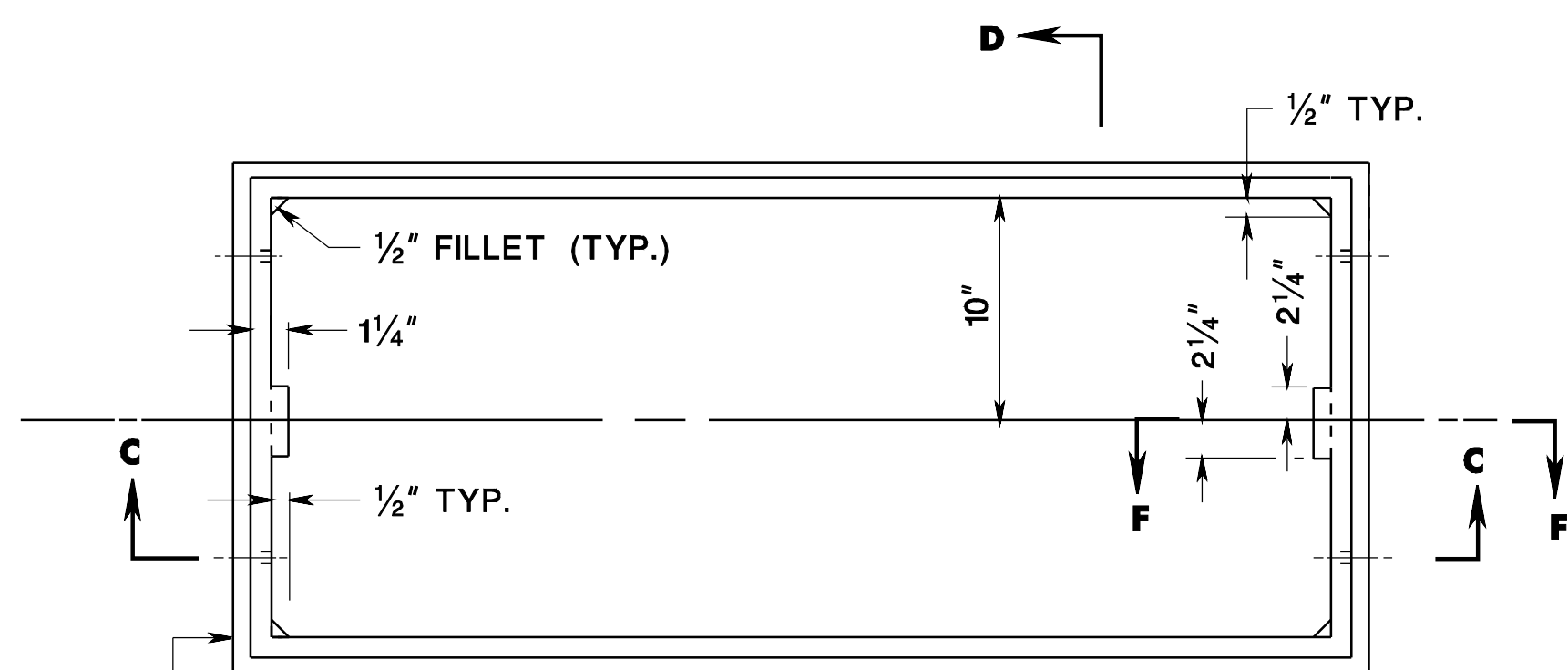
CD-602-5.2

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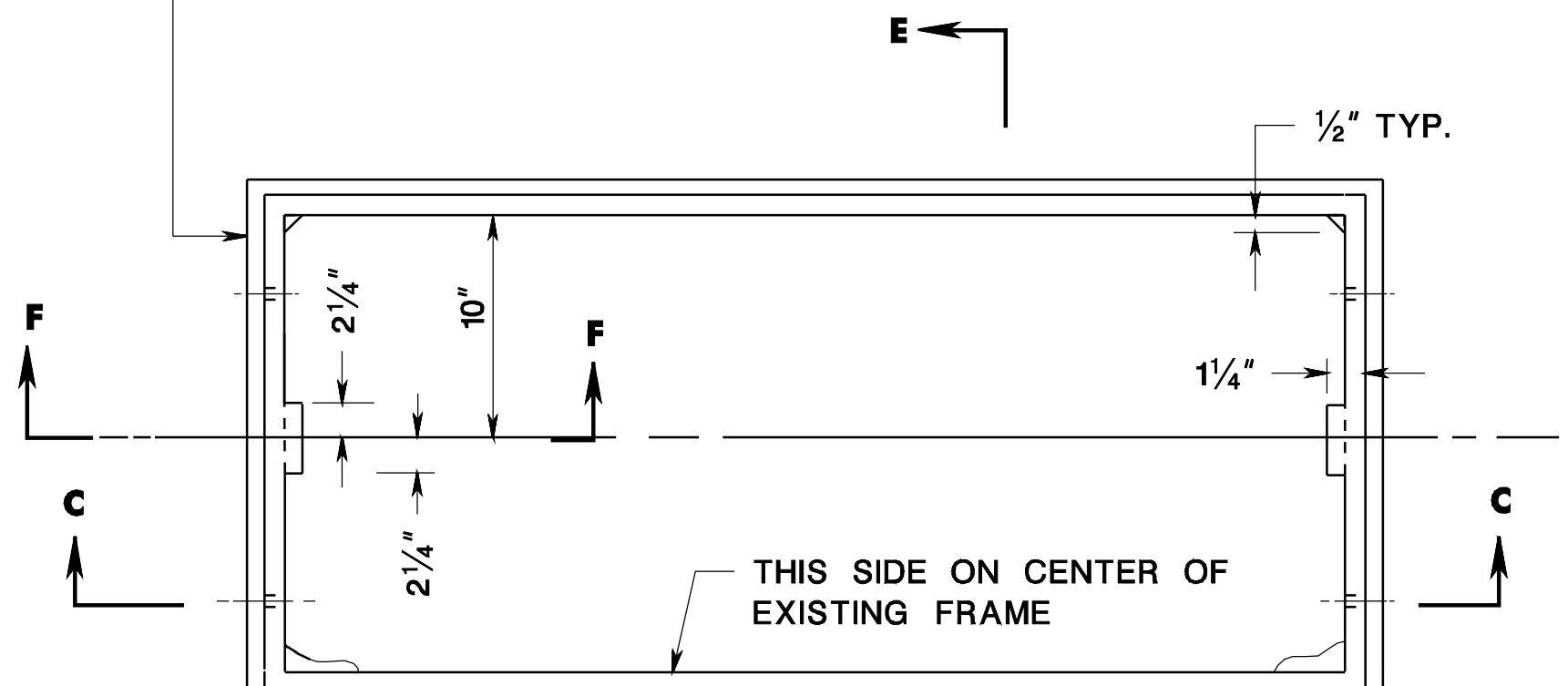
DRILL & TAP FOR 4 - 3/8"-16 S.S. SET SCREWS (SEE NOTE 3)

EXTENSION FRAMES FOR INLETS, TYPE B & C AND INLETS, TYPE D1 & D2

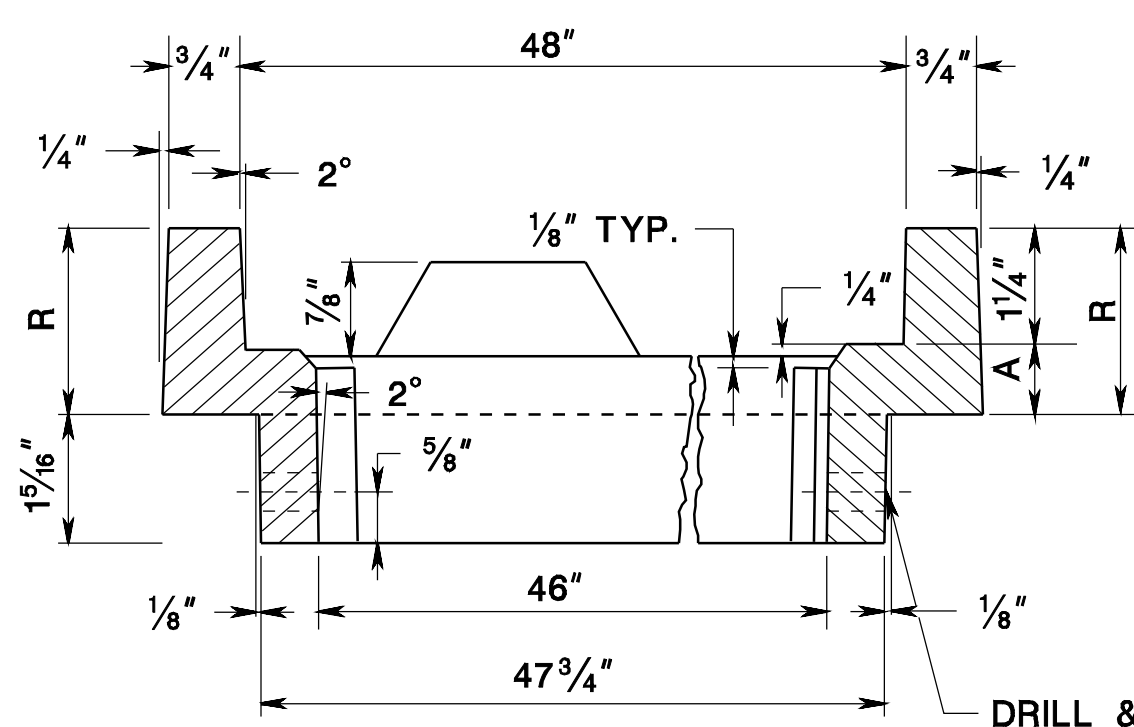


INLETS, TYPE E 1 EACH (2 UNITS)

EXTENSION FRAMES FOR INLETS, TYPE A AND B MODIFIED

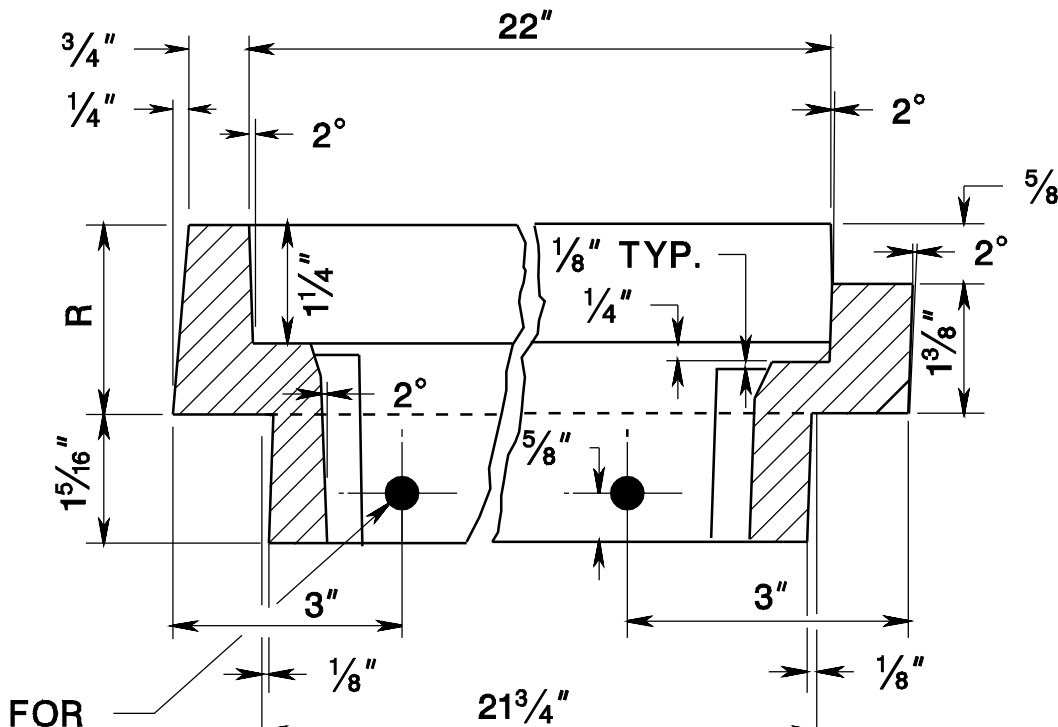


EXTENSION FRAMES FOR INLET, TYPE E (HALF ONLY)

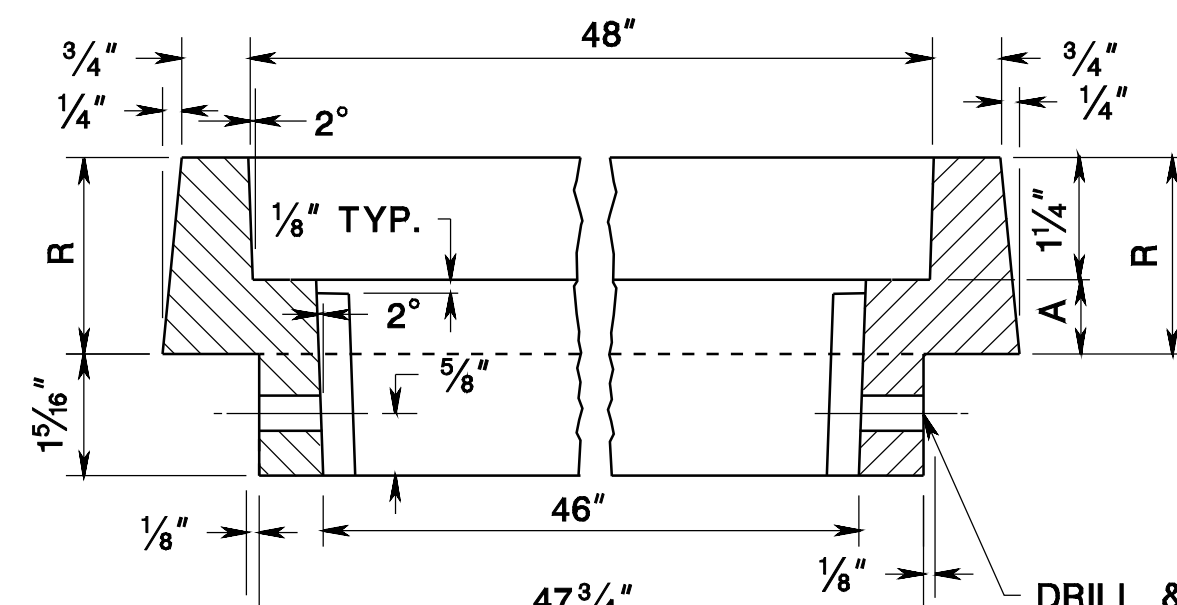


SECTION A-A

DRILL & TAP FOR THREADED HOLES, 3/8" - 16N.C. THREAD (FOR FUTURE USE) (SEE NOTE 3)

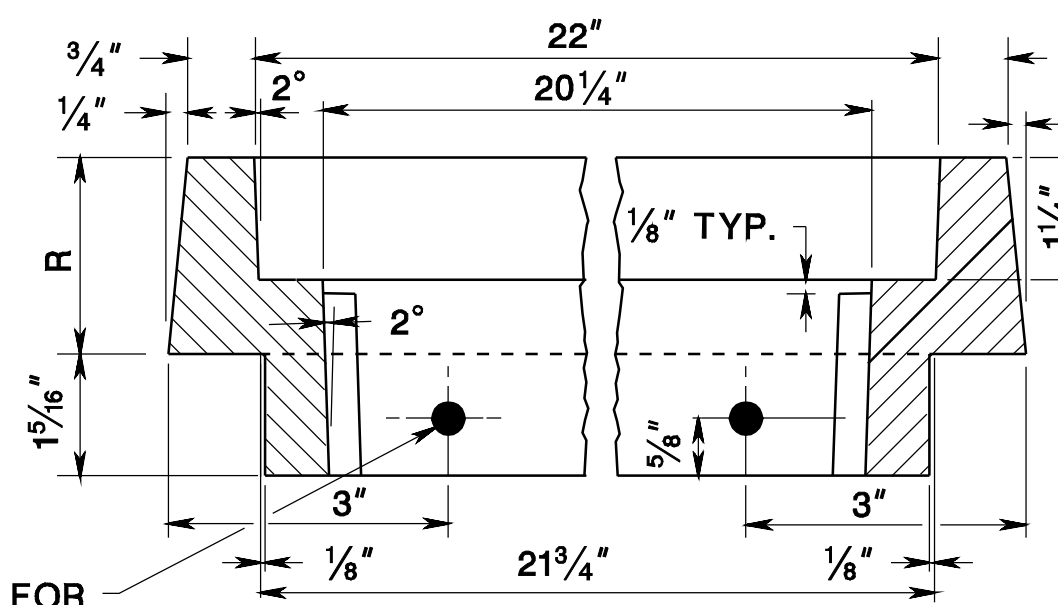


SECTION B-B

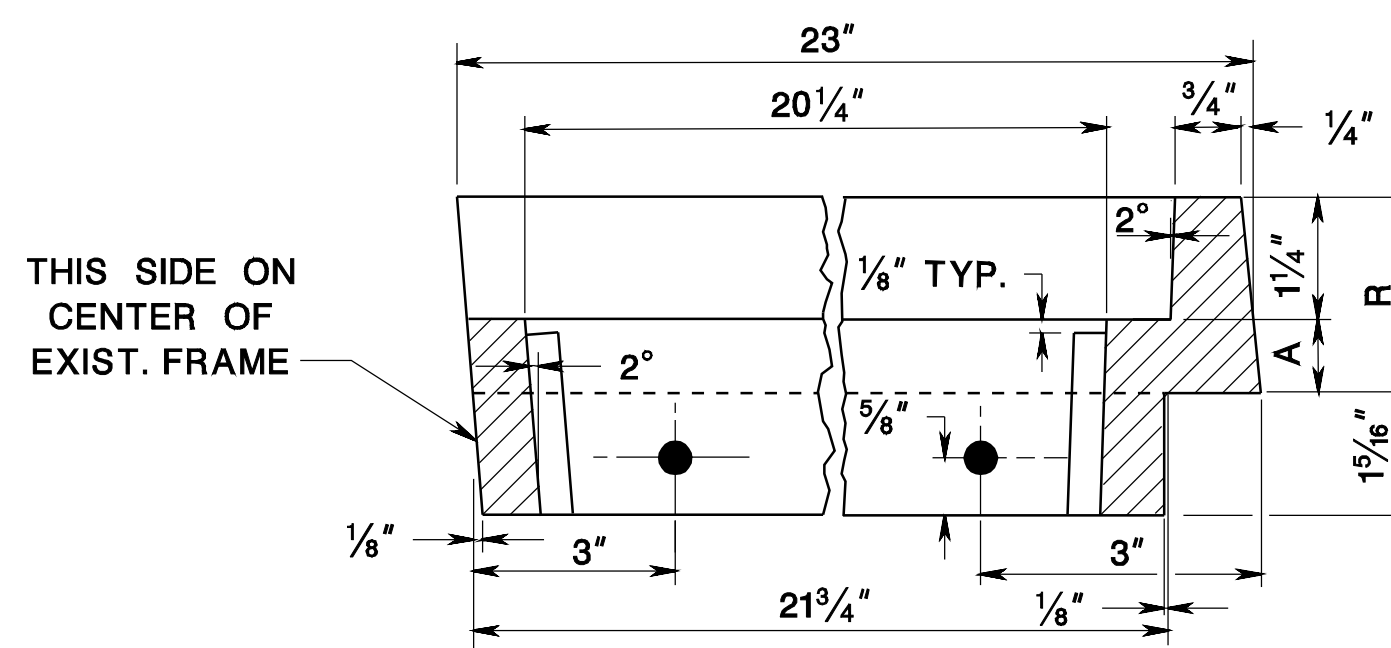


SECTION C-C

DRILL & TAP FOR THREADED HOLES, 3/8" - 16N.C. THREAD (FOR FUTURE USE) (SEE NOTE 3)

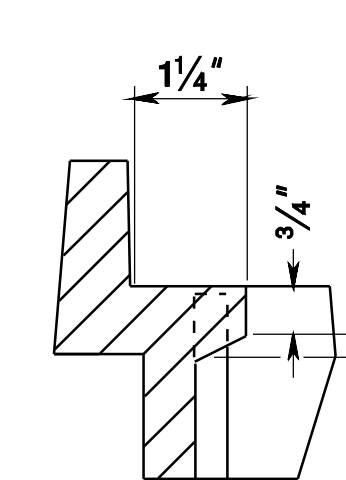


SECTION D-D



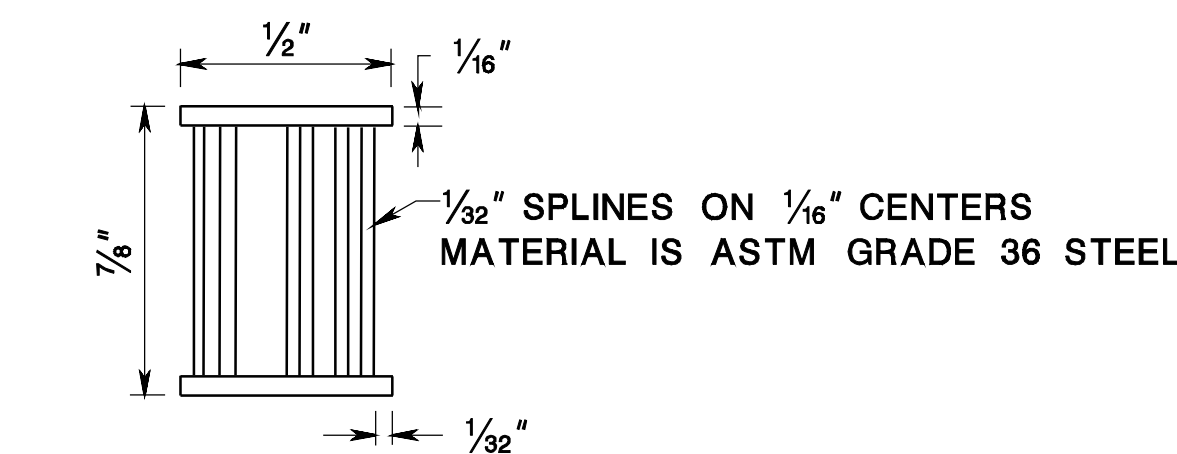
SECTION E-E

THIS SIDE ON CENTER OF EXIST. FRAME



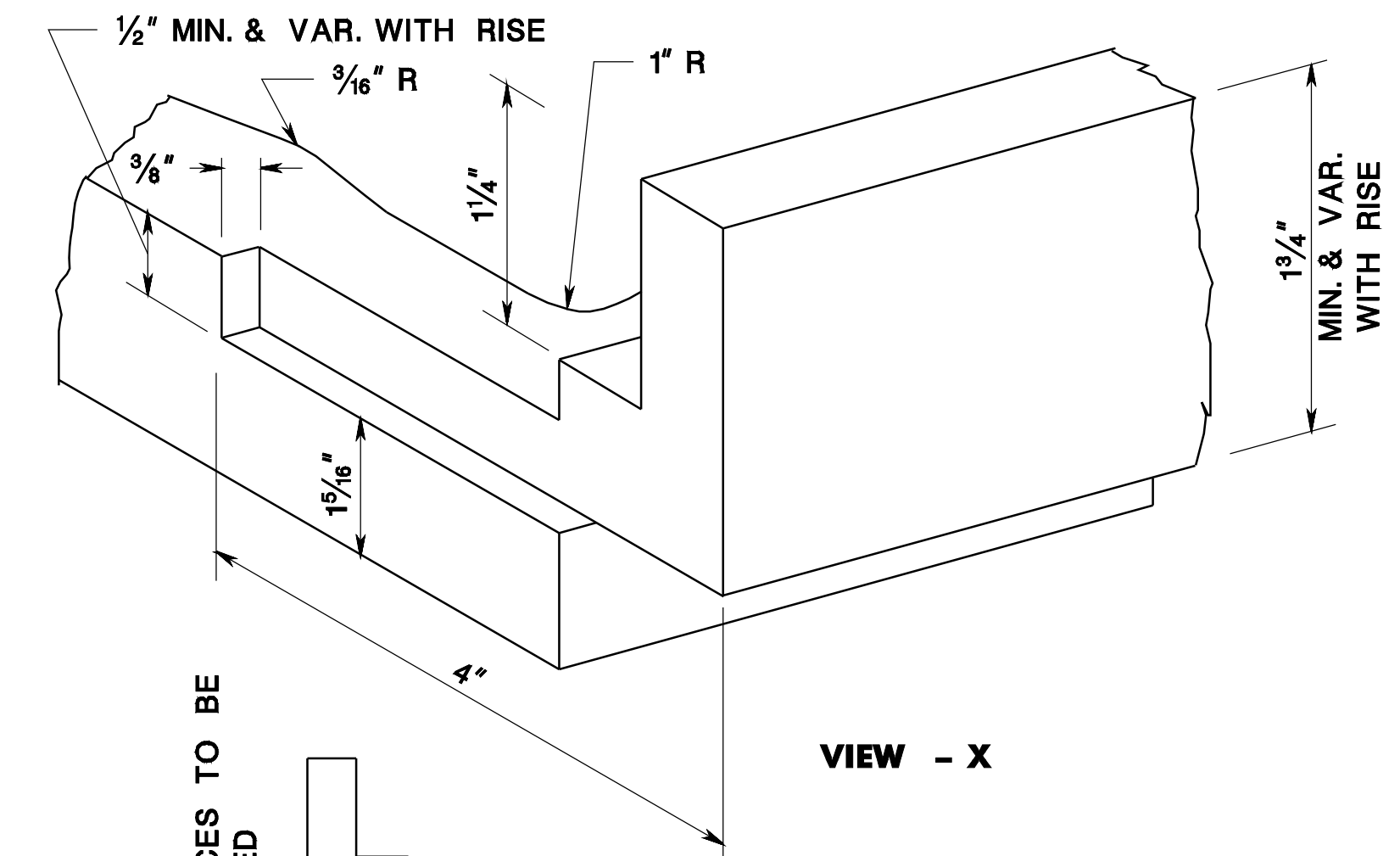
THIS LUG IS ONLY NECESSARY WHEN A BICYCLE SAFE-GRATE (CAST IRON) IS USED

SECTION F-F

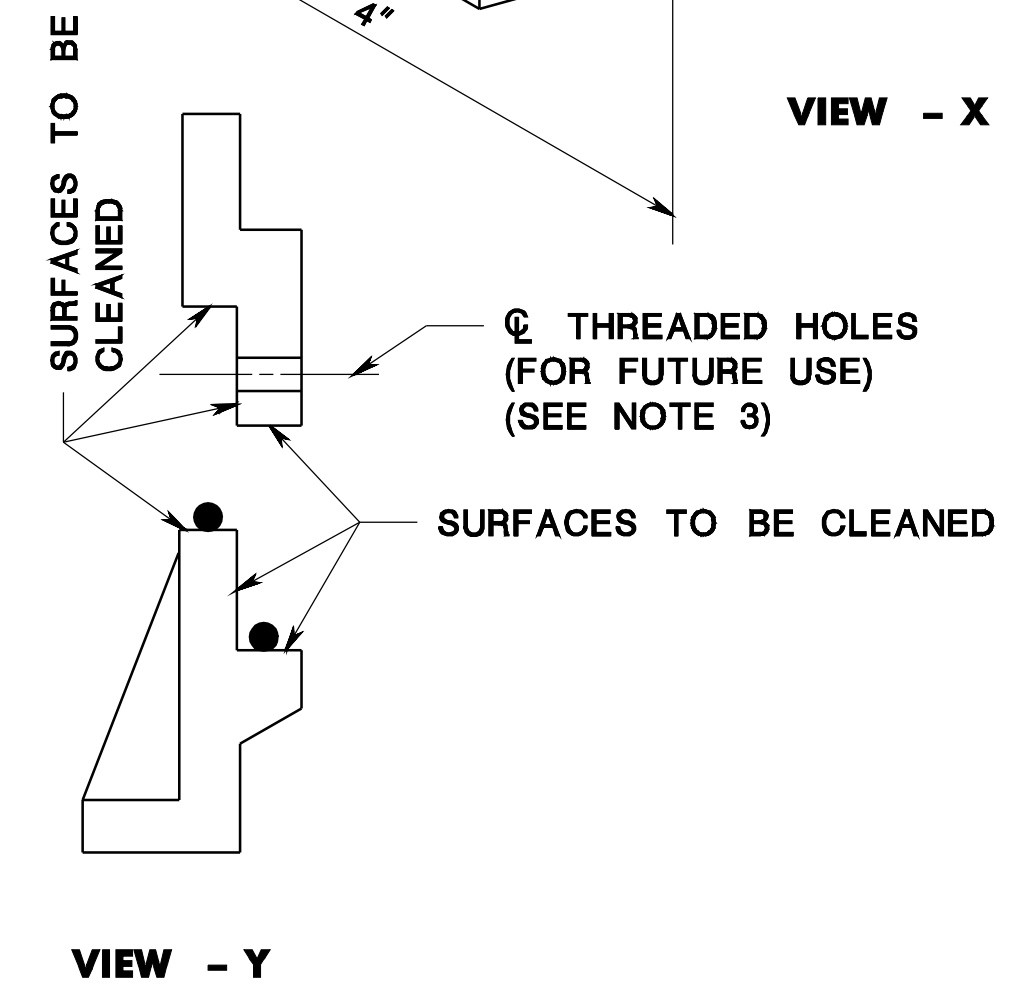


TAPPED FOR 3/8"-16 THREAD

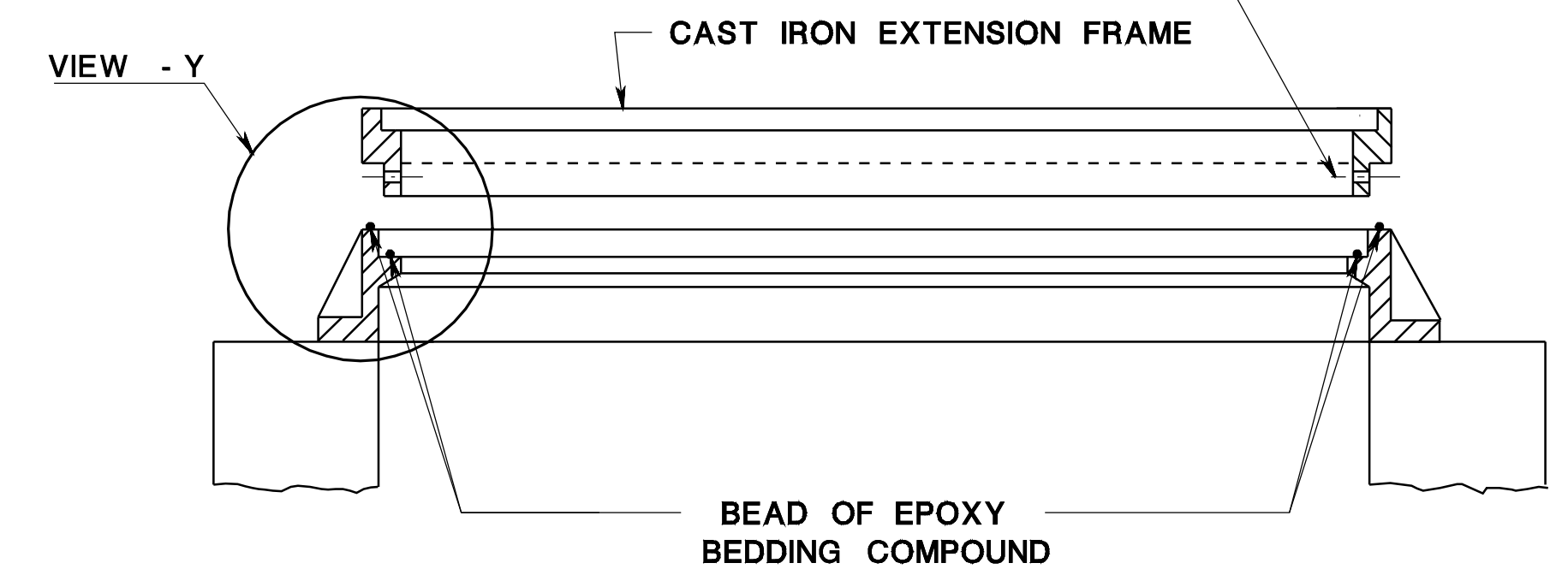
THREADED INSERT FOR EXTENSION FRAMES ALTERNATE



VIEW - X



VIEW - Y



METHOD OF ATTACHING EXTENSION FRAMES

CAST IRON EXTENSION FRAMES FOR EXISTING INLETS

N.T.S.

NOTES:

1. THE CONTRACTOR SHALL MEASURE THE EXISTING INLET FRAMES AND GRATES TO DETERMINE PROPER DIMENSIONS OF PROPOSED EXTENSION FRAMES BEFORE PLACING ORDER.
2. NOT TO BE USED WITH DISH GRATES.
3. A THREADED INSERT MAY BE USED AS AN ALTERNATE TO DRILLING AND TAPPING.
4. SEE GENERAL NOTE 10, CD-602-1.6

RISE=R	A
1 3/4"	1/2"
2"	3/4"
2 1/2"	1 1/4"
3"	1 3/4"
3 1/2"	2 1/4"

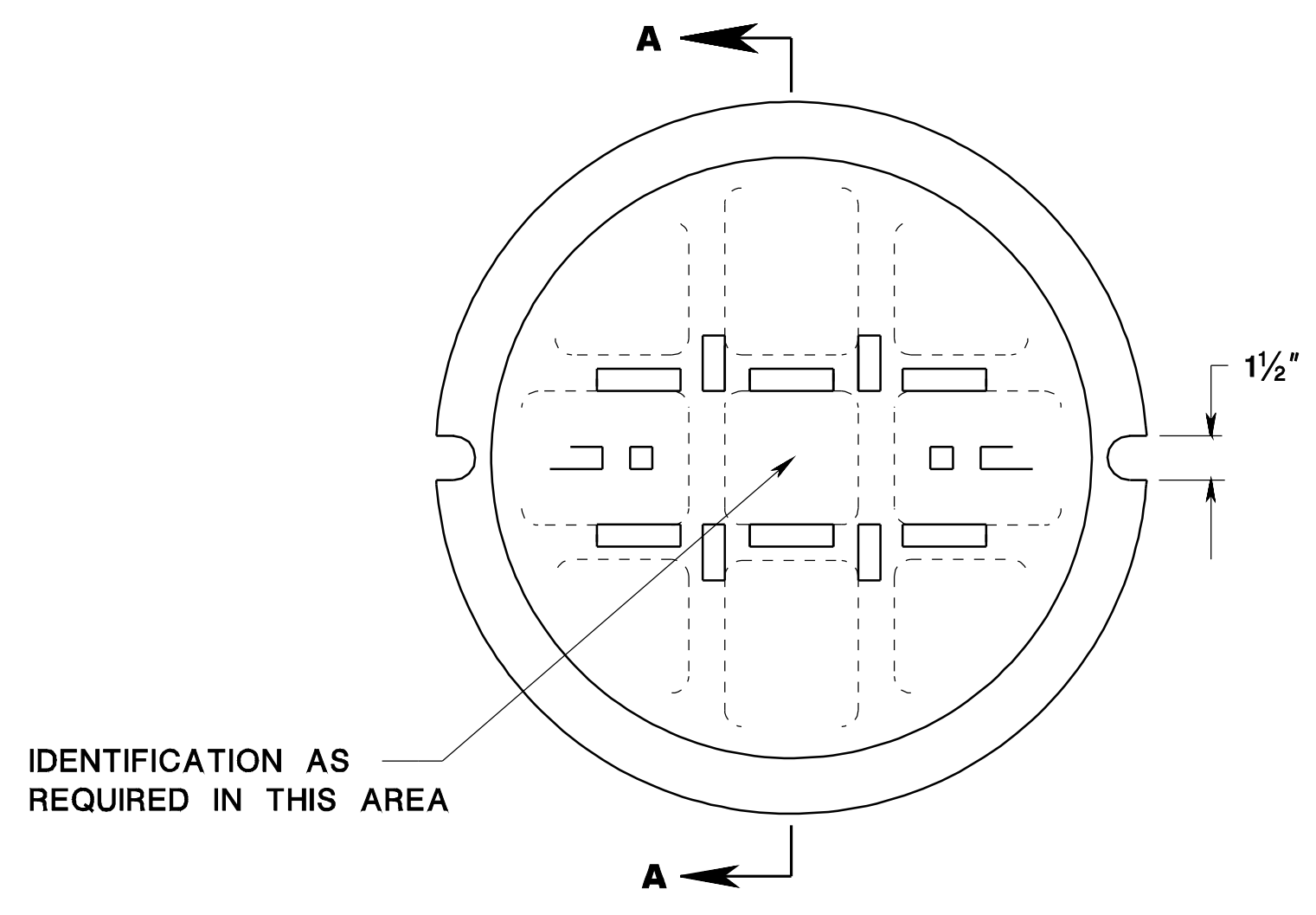
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

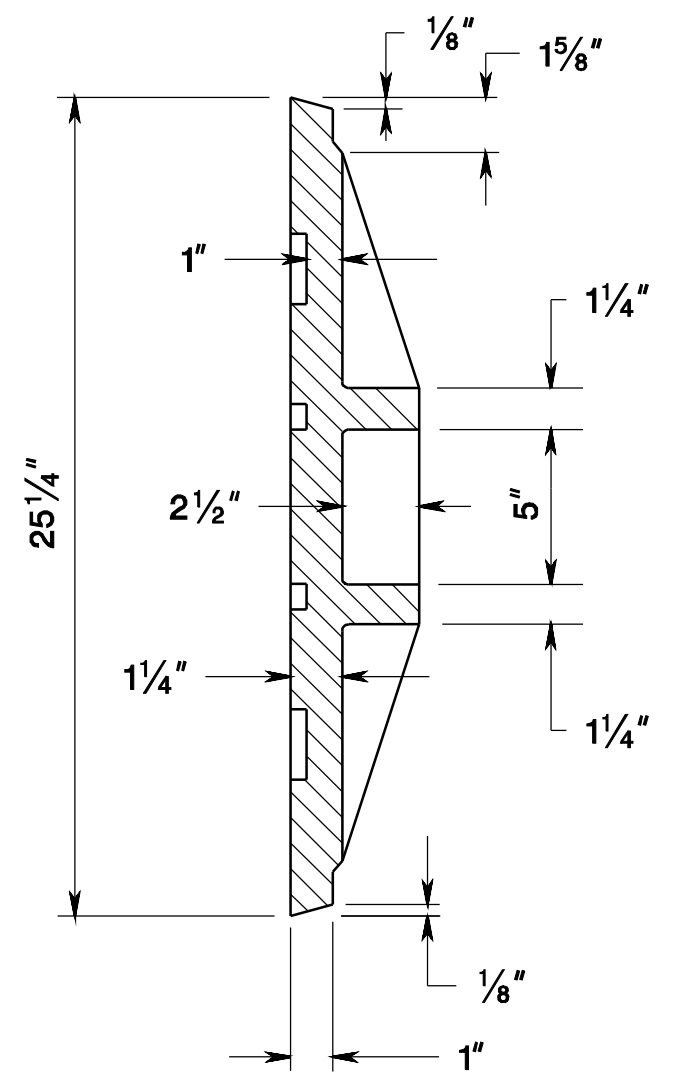
CD-602-6.1

CD-602-6

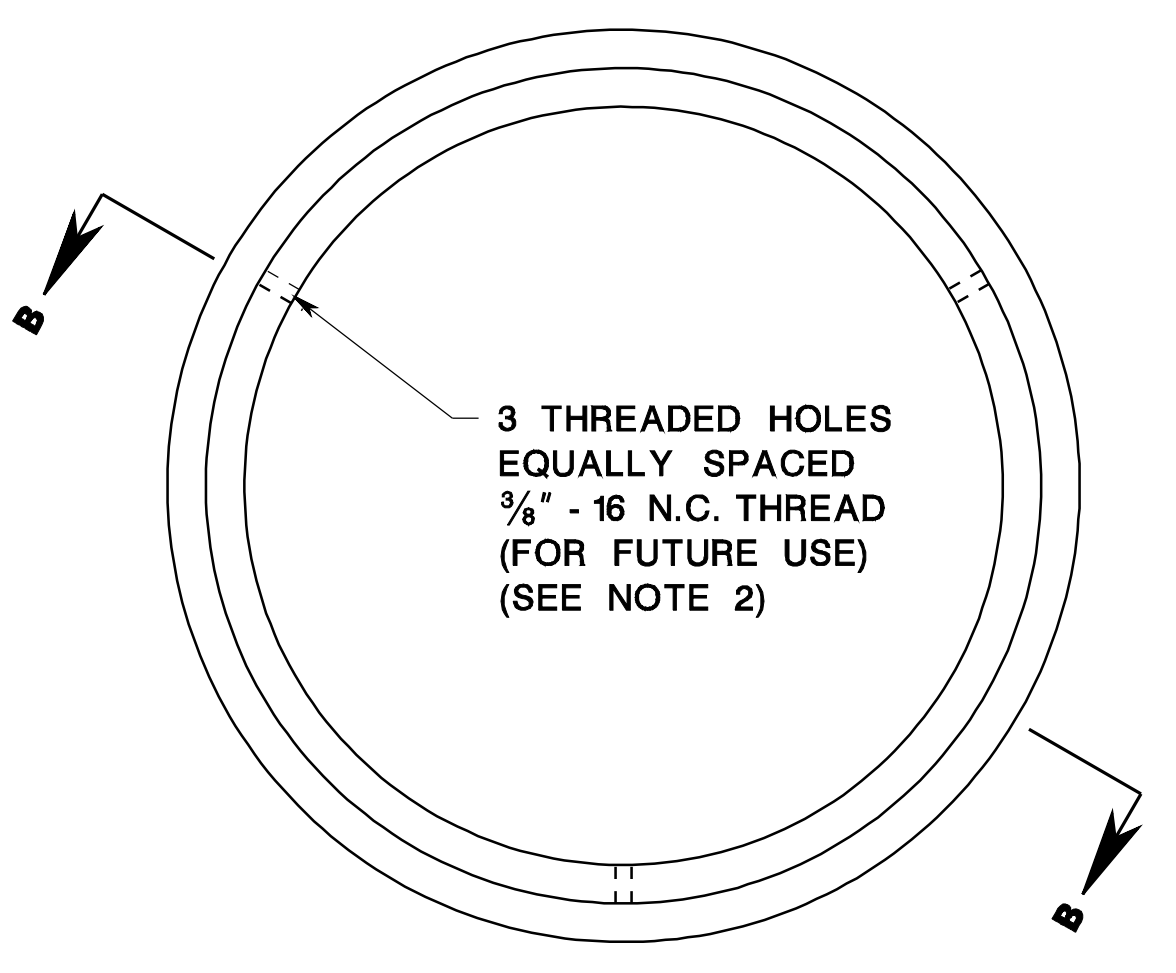
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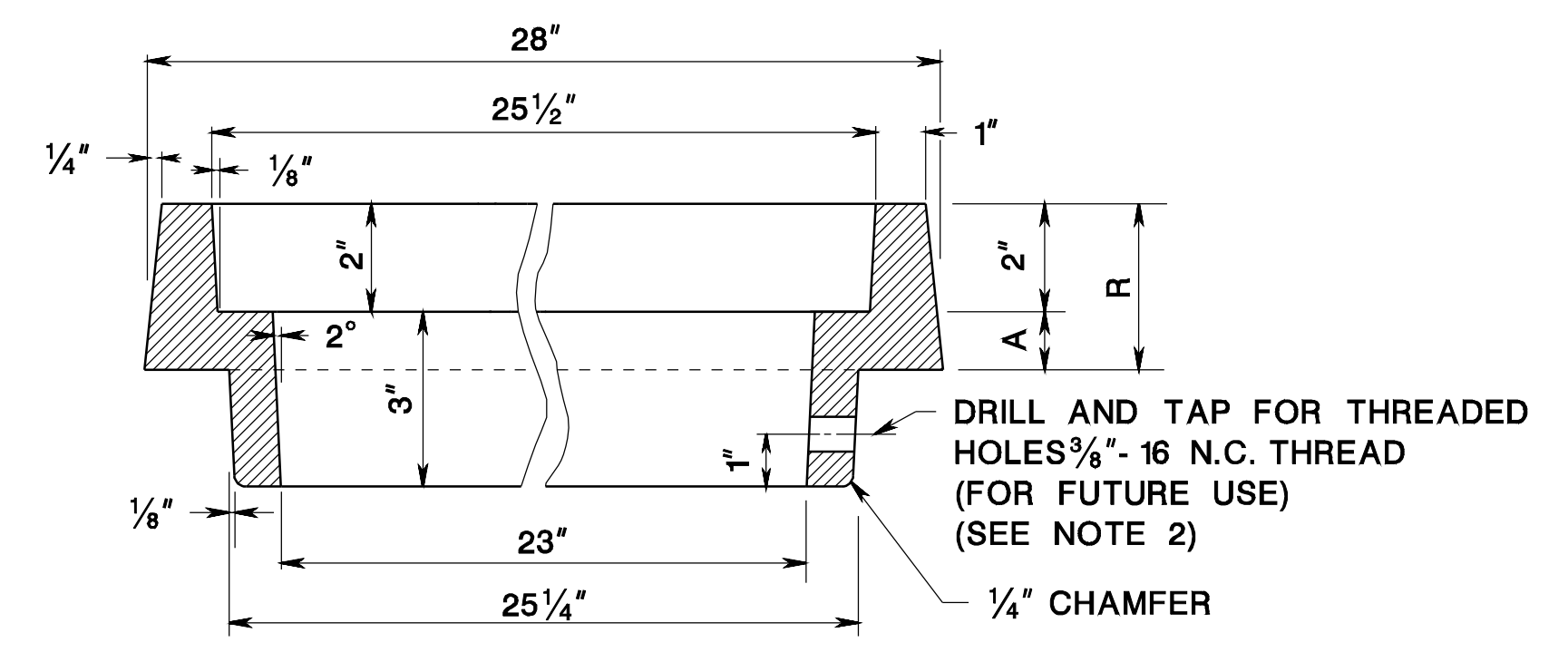
HEAVY DUTY COVER



SECTION A-A

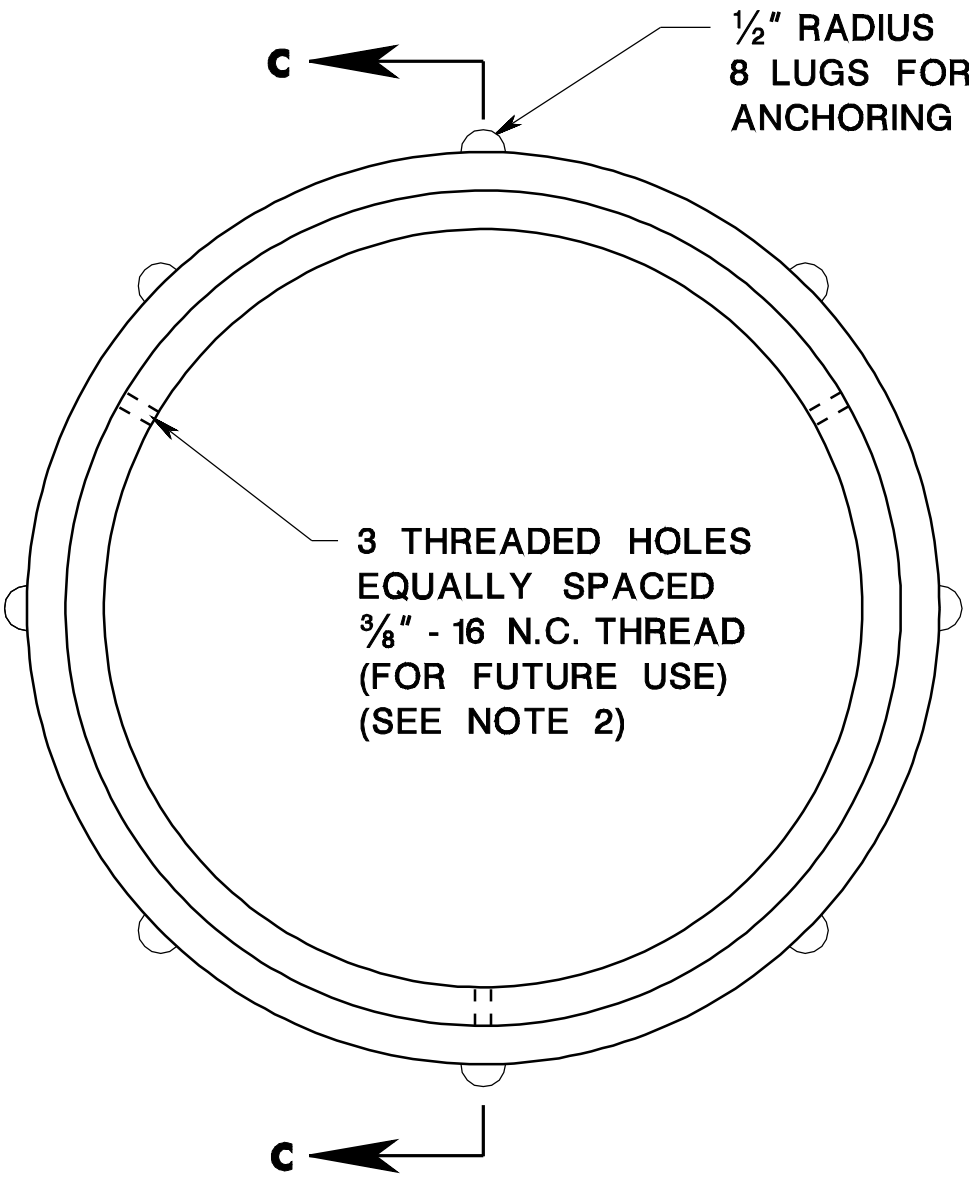


EXTENSION RING FOR STANDARD COVER

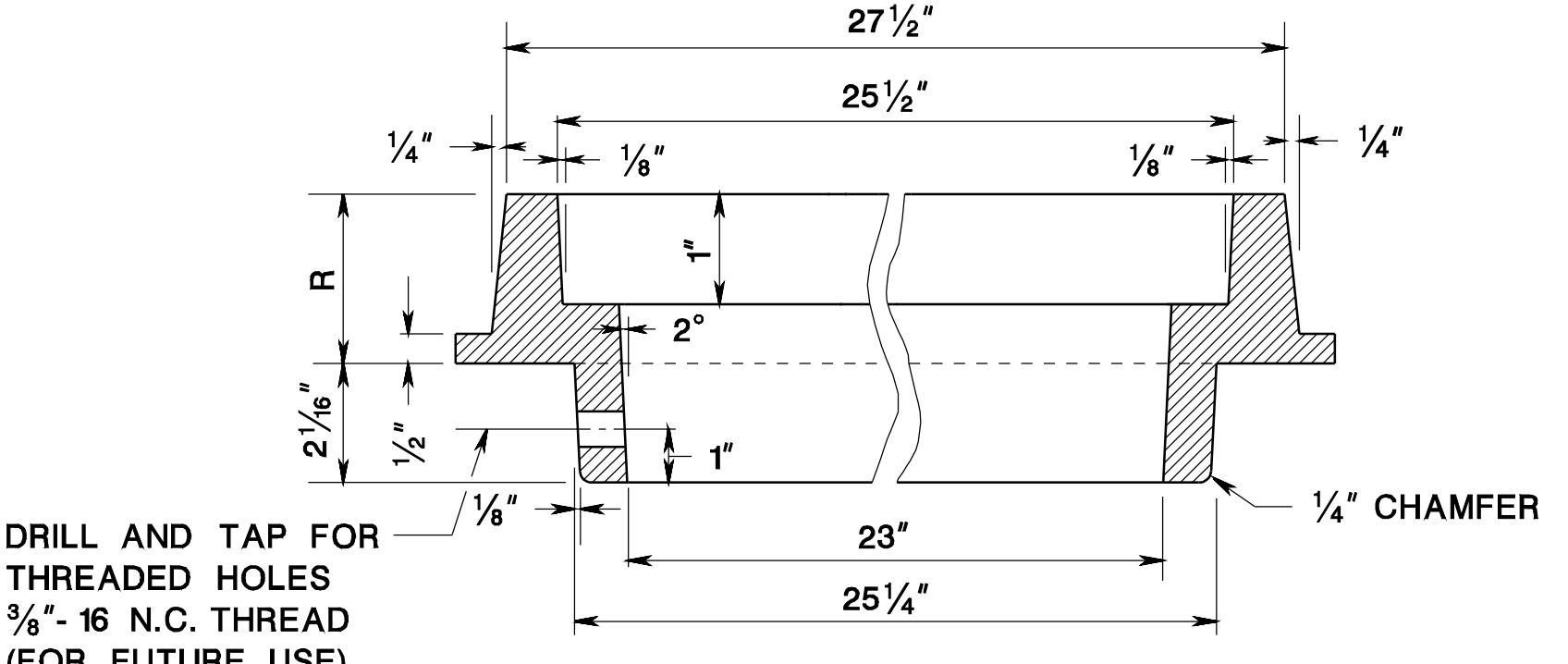


SECTION B-B

R=RISE	A
2 1/2"	1/2"
3"	1"
3 1/2"	1 1/2"

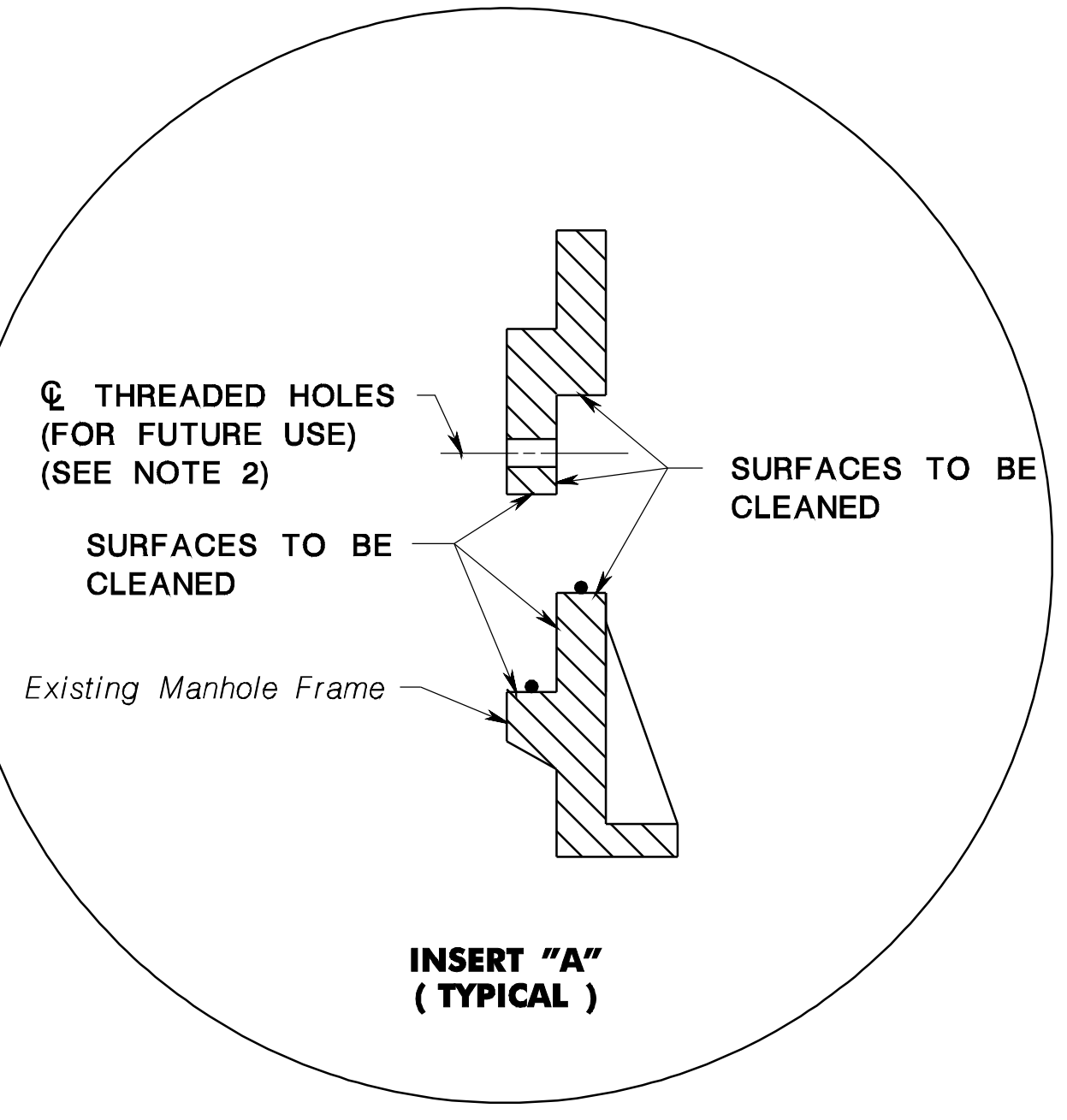


EXTENSION RING FOR HEAVY DUTY COVER (SEE NOTE 3)



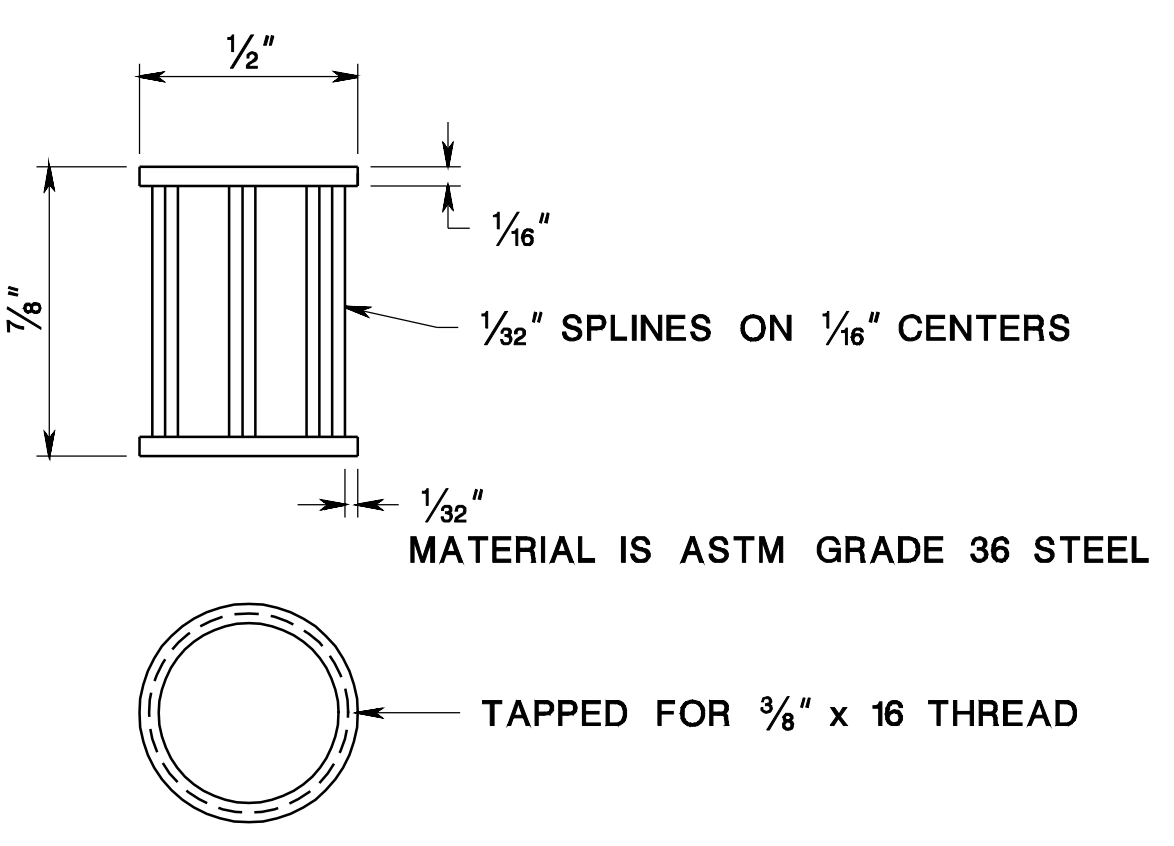
SECTION C-C

R=RISE
1 1/2"
1 3/4"
2"

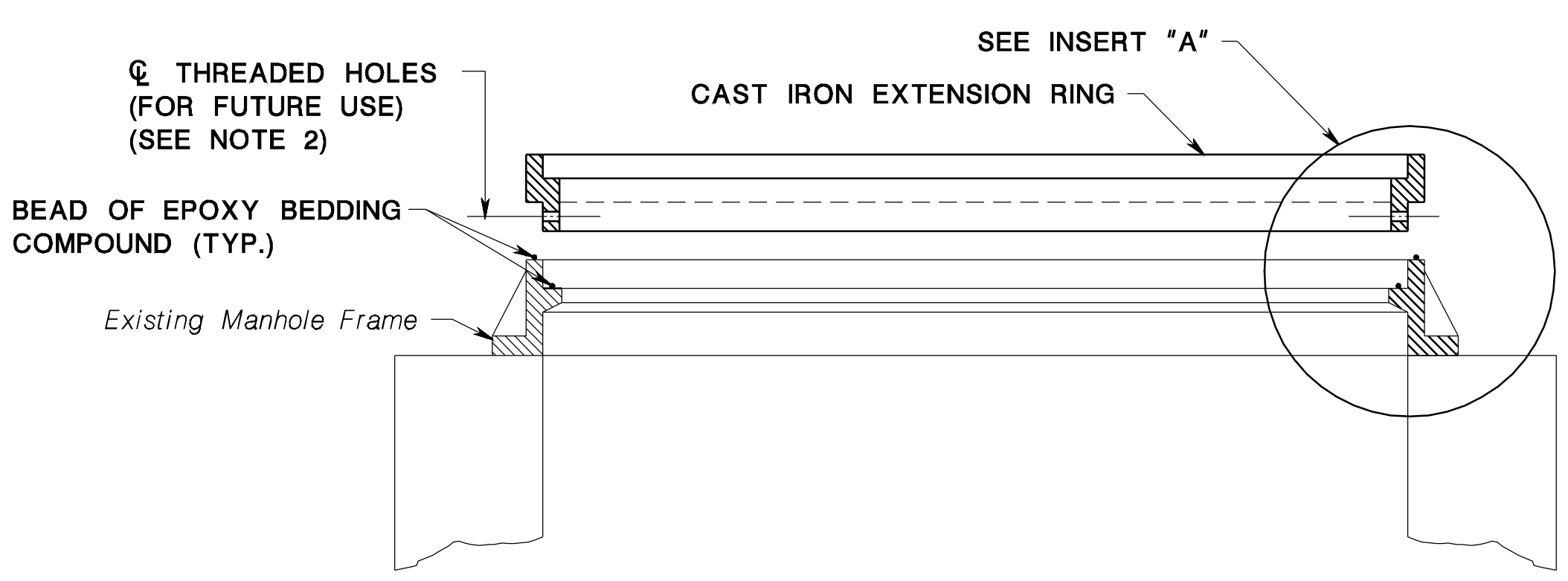


NOTES:

1. THE CONTRACTOR SHALL MEASURE THE EXISTING MANHOLE FRAMES AND COVERS TO DETERMINE PROPER DIMENSIONS OF PROPOSED EXTENSION RINGS BEFORE PLACING ORDER.
2. A THREADED INSERT MAY BE USED AS AN ALTERNATE TO DRILLING AND TAPPING.
3. A HEAVY DUTY COVER SHALL BE USED FOR A RISE OF 1 1/2" TO 2 1/4" INCLUSIVE.
4. SEE GENERAL NOTE 10, CD-602-1.6.



THREADED INSERT FOR EXTENSION RING, ALTERNATE



METHOD OF ATTACHING EXTENSION RING

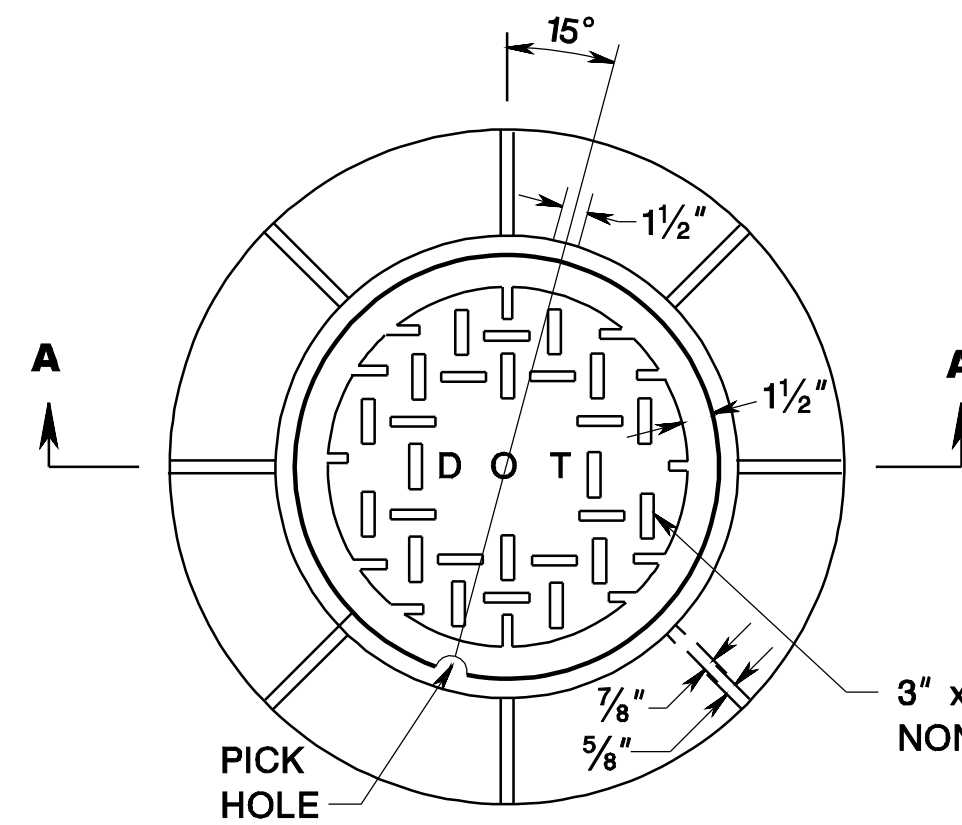
CAST IRON EXTENSION RINGS FOR EXISTING MANHOLES

N.T.S.

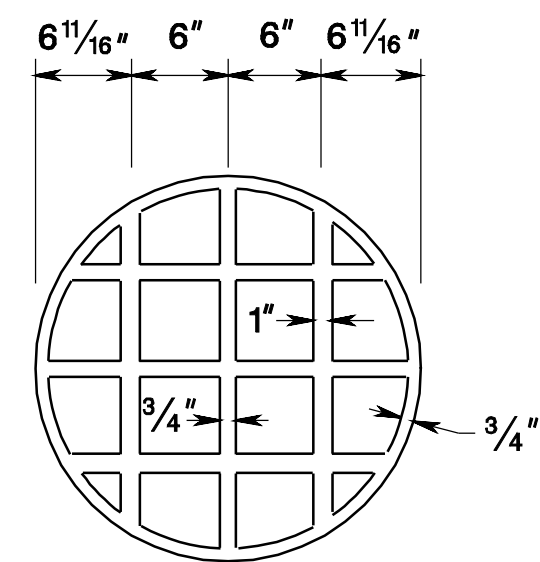
CD-602-7
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-602-7.1

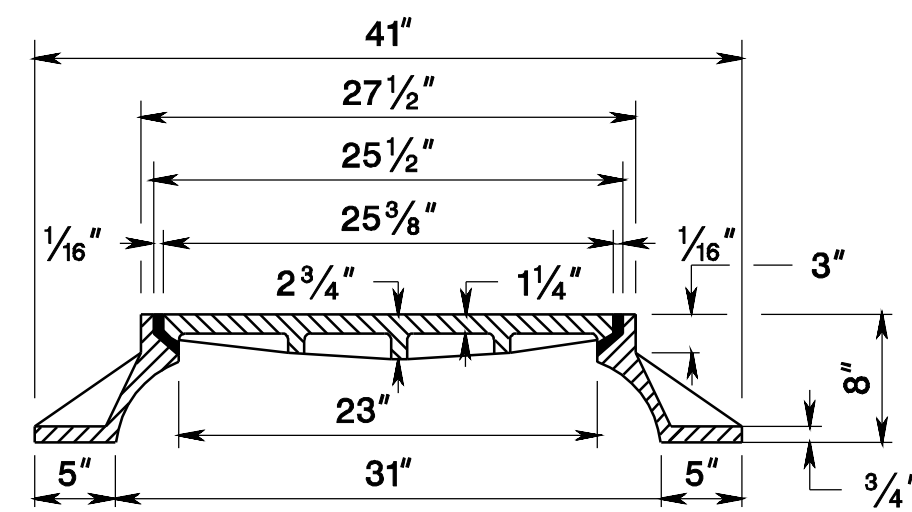


MINIMUM WEIGHTS
 WEIGHT OF FRAME = 265#
 WEIGHT OF COVER = 175#

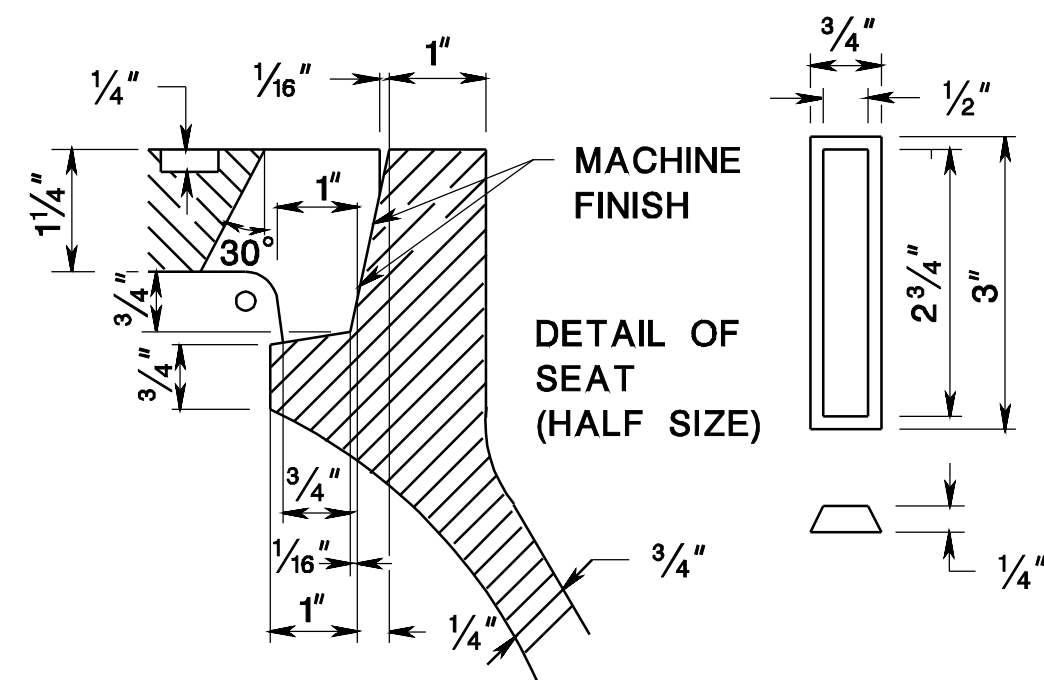


UNDERSIDE OF COVER

NOTE:
 SEE GENERAL NOTE 10, CD-602-1.6



SECTION A-A



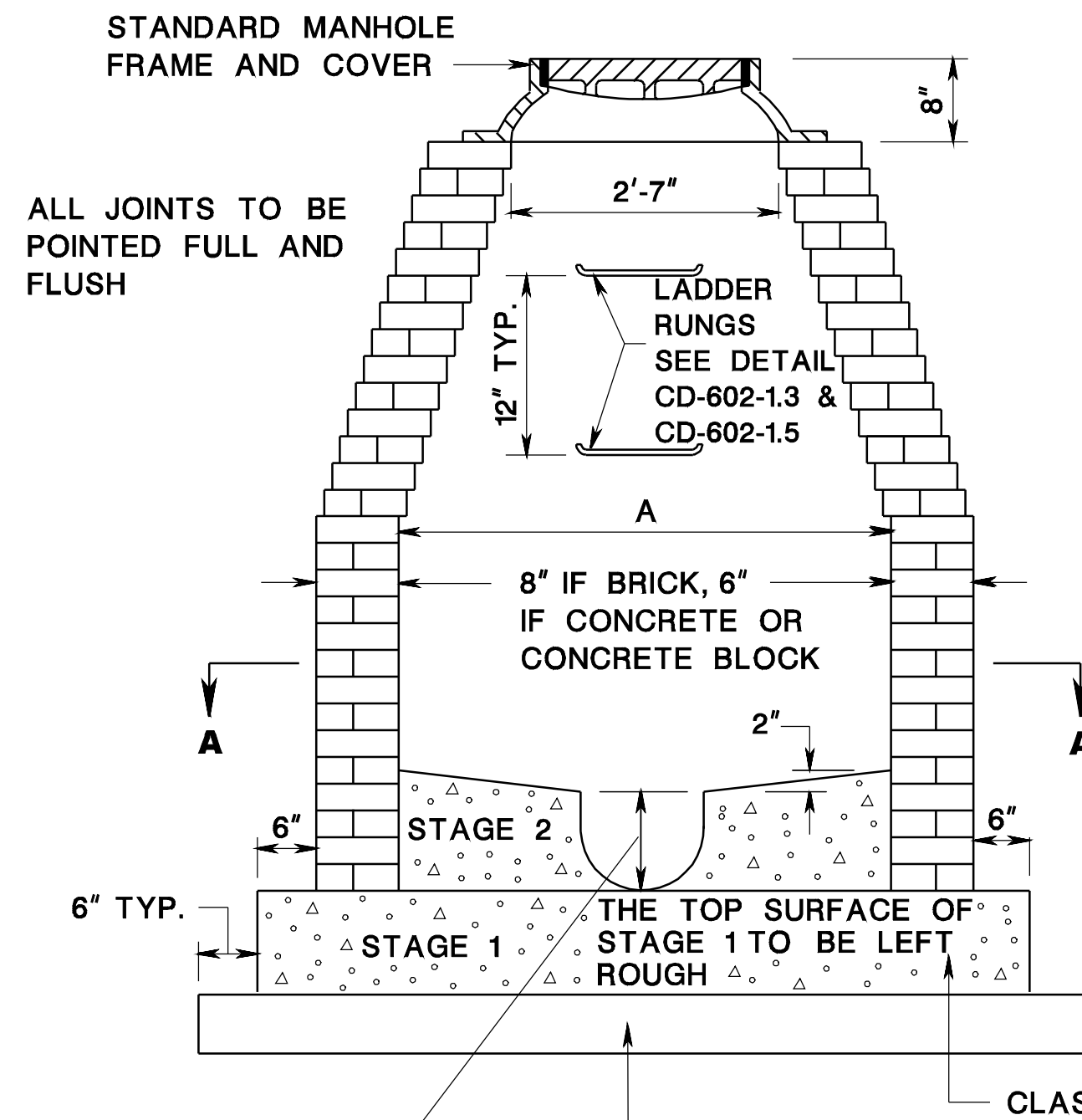
STANDARD MANHOLE FRAME AND COVER

CD-602-8.1

GENERAL NOTES

1. MANHOLES MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK, OR PRECAST CONCRETE.
2. WHEN THE DEPTH OF A MANHOLE EXCEEDS 10 FEET AS MEASURED FROM TOP OF COVER TO INVERT, THE WALLS OF BRICK, CONCRETE, OR CONCRETE BLOCK BELOW A DEPTH OF 8 FEET SHALL BE 12 INCHES THICK. THE OVERALL HORIZONTAL DIMENSIONS SHALL BE INCREASED 12 INCHES AND THE DEPTH OF THE FOUNDATION INCREASED TO 12 INCHES. WHEN ROCK IS ENCOUNTERED THE HORIZONTAL DIMENSION AND DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED. THE THICKNESS OF PRECAST CONCRETE MANHOLE WALLS DOES NOT HAVE TO BE INCREASED IF THE DEPTH OF THE MANHOLE EXCEEDS 10 FEET.
3. CASTINGS OF PRECAST MANHOLES SHALL BE ADJUSTED TO GRADE WITH COURSES OF BRICK OR CONCRETE BLOCK, AS REQUIRED, 12 INCHES MAXIMUM.
4. AS AN ALTERNATE TO THE STANDARD MANHOLE FRAME AND COVER, A 39 INCH DIAMETER FRAME WITH 4 INCH FLANGE MAY BE FURNISHED WITH ALL OTHER DIMENSIONS AND WEIGHTS REMAINING THE SAME.
5. IN A BRICK, CONCRETE, OR CONCRETE BLOCK MANHOLE, THE INVERT SHALL BE CONSTRUCTED IN TWO STAGES.
6. AS AN ALTERNATIVE, COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNGS MAY BE FURNISHED IN PRECAST MANHOLES AND INLETS.

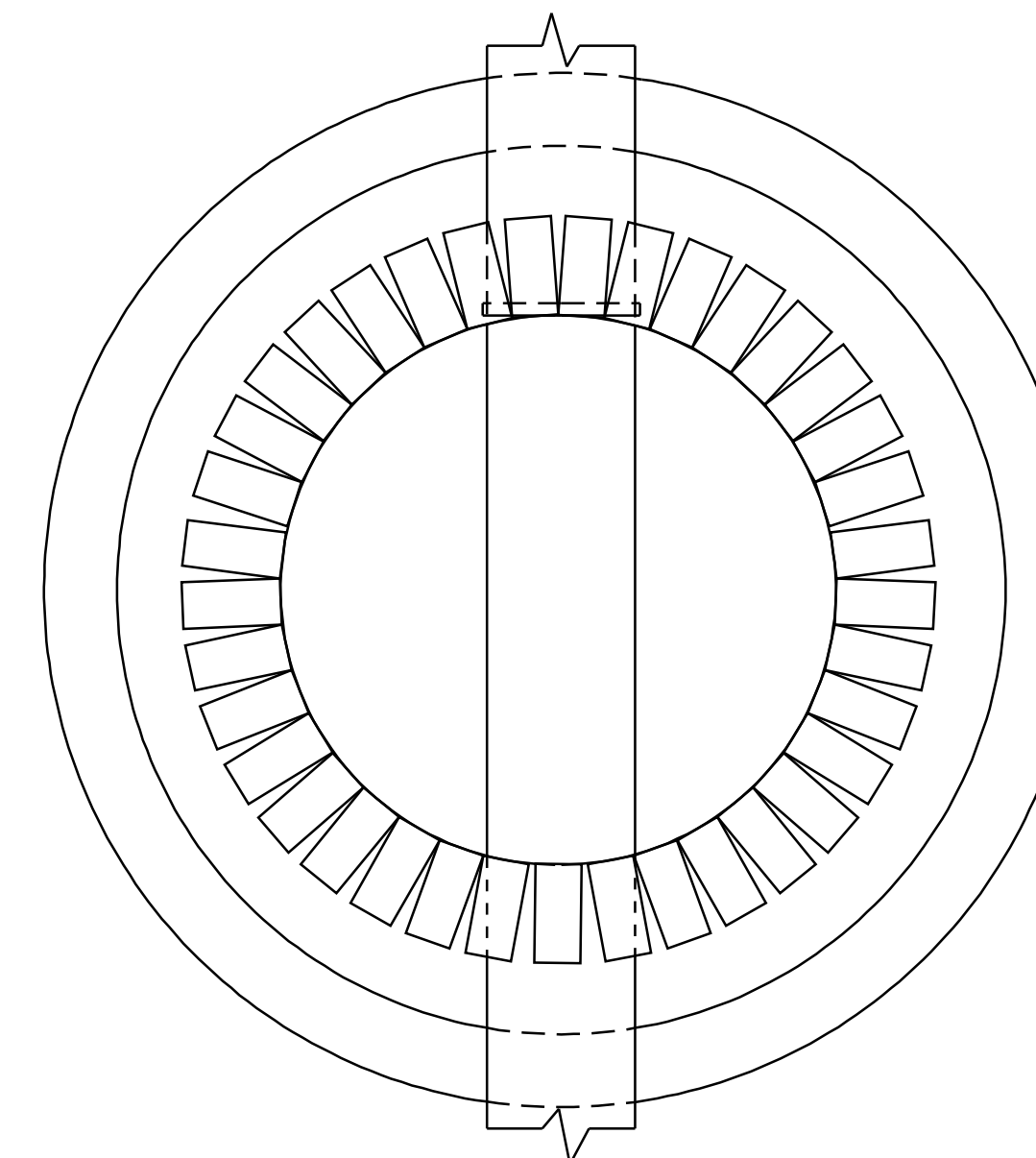
CD-602-8.3



ITEM	DIMENSION A
MANHOLES	4'-0"
MANHOLES 5'-0" DIA.	5'-0"
MANHOLES 6'-0" DIA.	6'-0"

NOTE:
 DEPTH OF INVERT TO BE 0.80 OF THE DIAMETER OF THE MAIN SEWER THROUGH THE MANHOLE (TYP)

NOTE:
 FOUNDATION AND INVERT TO BE CONSTRUCTED IN TWO STAGES.



SECTION A-A

MANHOLES, MANHOLES 5 FOOT DIAMETER,
 MANHOLES 6 FOOT DIAMETER

CD-602-8.2

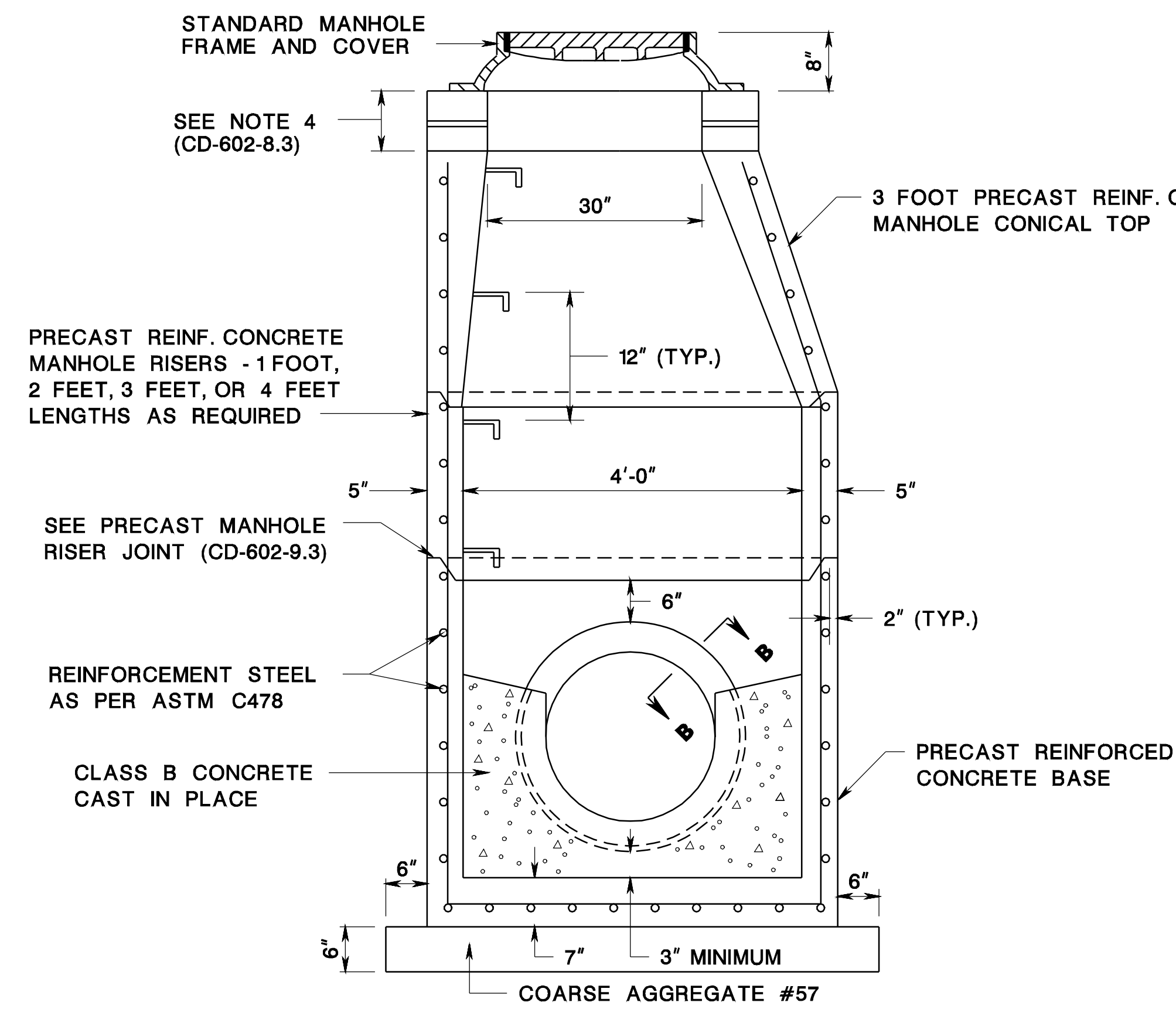
MANHOLES
 N.T.S.

CD-602-8

NEW JERSEY DEPARTMENT OF TRANSPORTATION

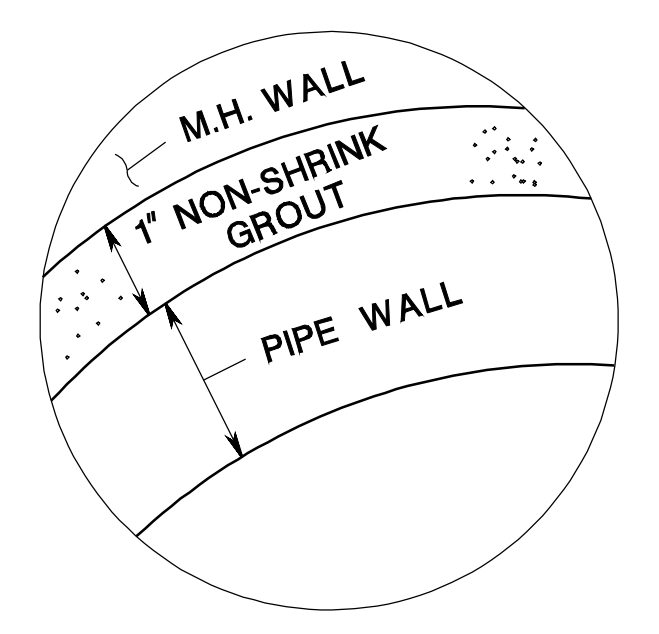
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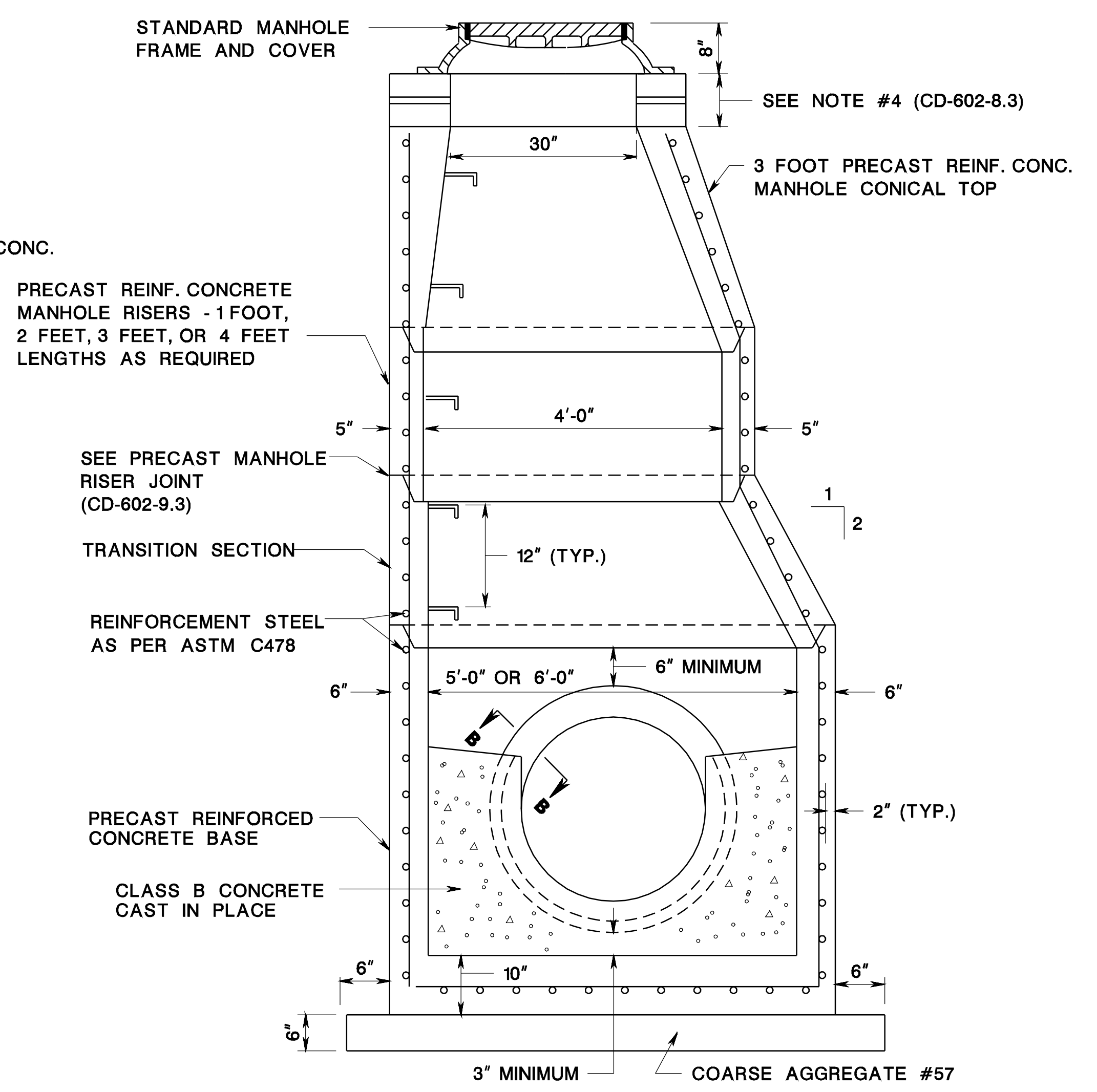


PRECAST REINFORCED CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C478

**MANHOLES
 PRECAST CONCRETE**

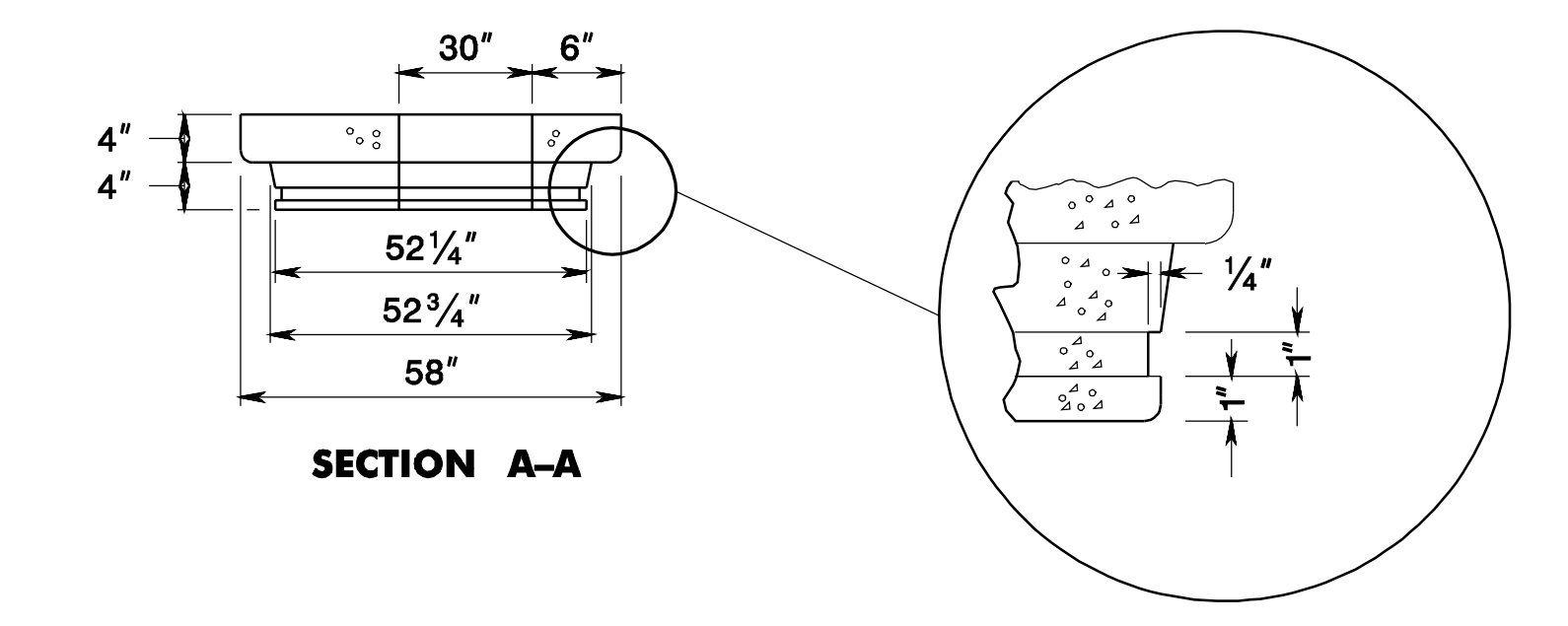


SECTION B-B



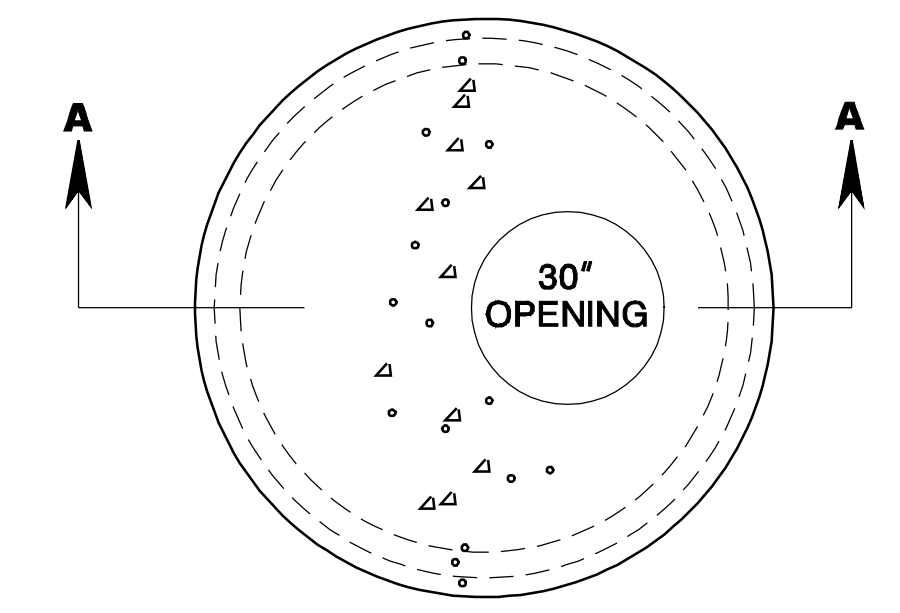
**MANHOLES 5' DIAMETER, MANHOLES 6' DIAMETER
 PRECAST CONCRETE**

CD-602-9.1



SECTION A-A

**GROOVE FOR "O" RING
 RUBBER GASKET**

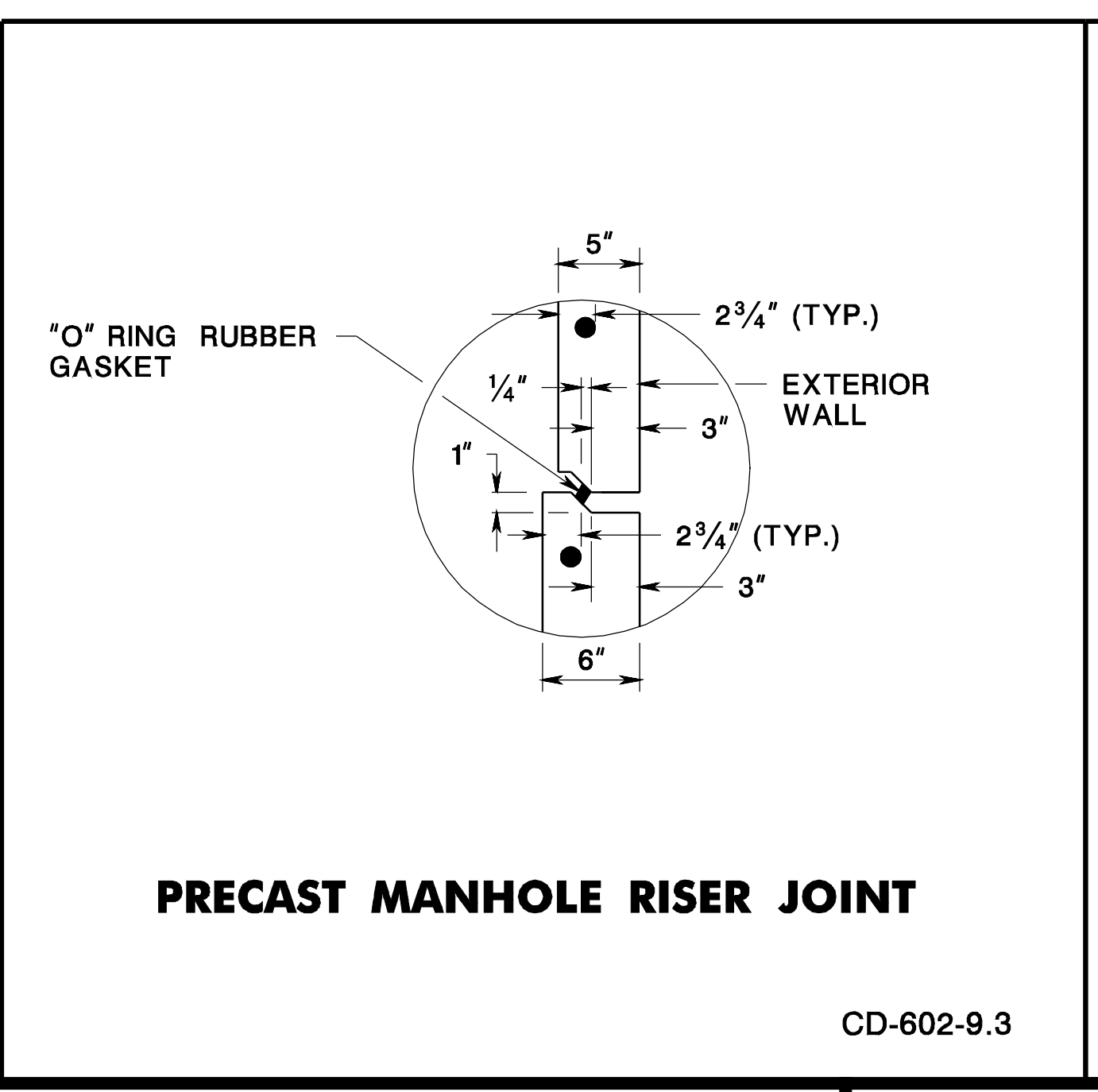


PLAN

NOTE:
 USE IN LIEU OF CONICAL SECTION WHEN
 HEIGHT OF MANHOLE IS LESS THAN 4 FEET

48" PRECAST REINFORCED CONCRETE MANHOLE FLAT TOP

CD-602-9.2



PRECAST MANHOLE RISER JOINT

CD-602-9.3

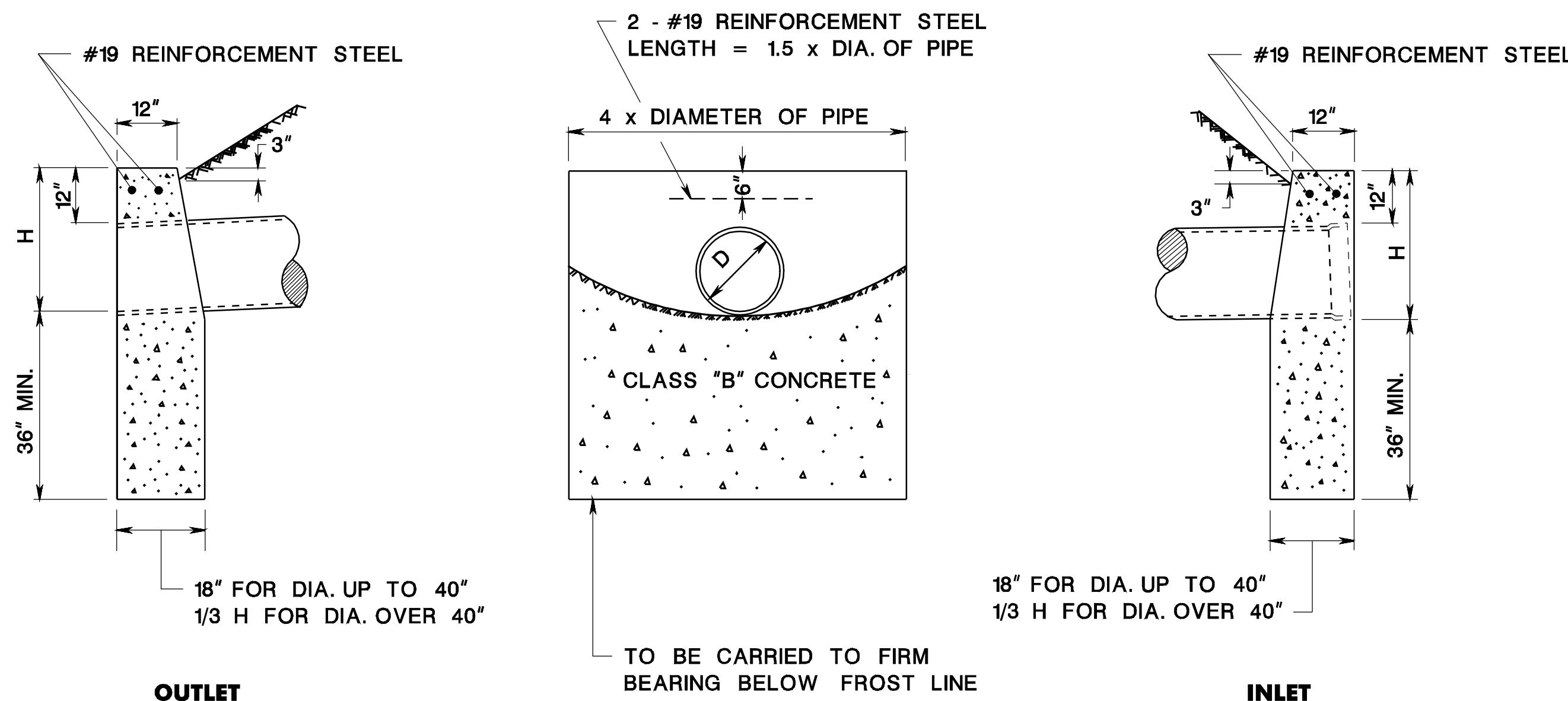
**PRECAST MANHOLES
 N.T.S.**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-602-9

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CONCRETE HEADWALL

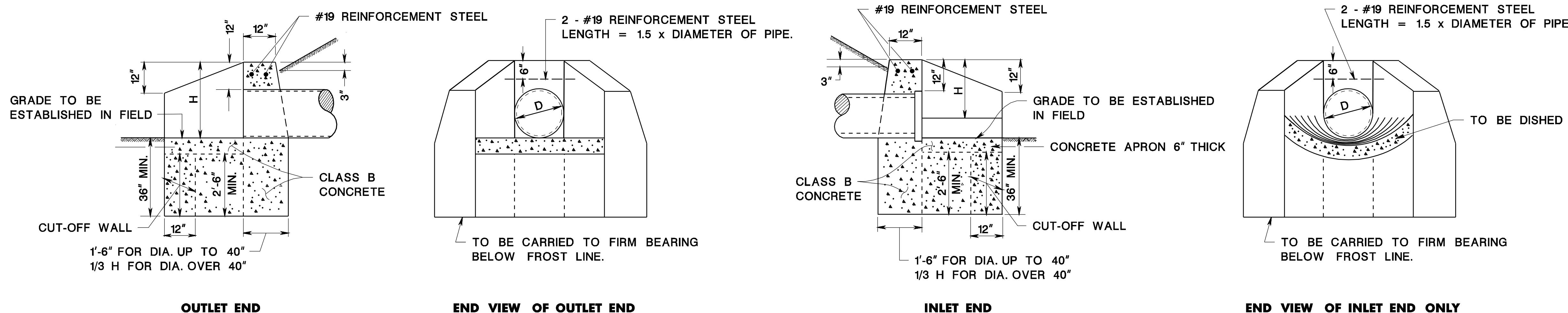
HEADWALL QUANTITY IN CUBIC YARDS

PIPE DIA.	CORR. STEEL PIPE	REINF. CONC. PIPE
12"	1.0	1.1
15"	1.3	1.4
18"	1.7	1.7
21"	2.0	2.1
24"	2.3	2.5
27"	2.7	2.8
30"	3.1	3.3
36"	3.9	4.2
42"	4.8	5.8
48"	6.3	7.6
54"	8.1	9.7
60"	10.1	12.1
66"	12.3	14.9
72"	14.5	18.0

GENERAL NOTES:

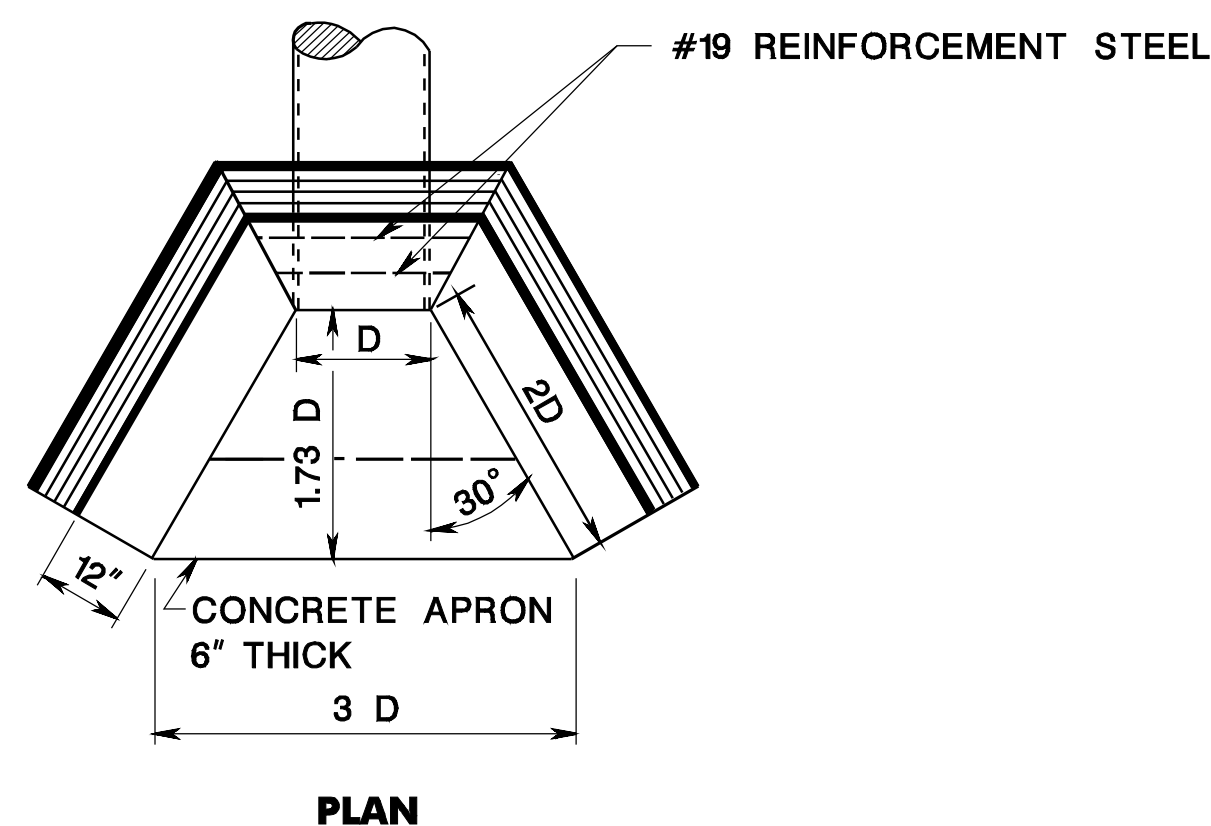
1. THE RUBBING OF HEADWALLS TO REMOVE FORM MARKS AS REQUIRED IN THE NJDOT SPECIFICATIONS FOR CONCRETE STRUCTURES, WILL NOT BE REQUIRED FOR HEADWALLS AT THE BOTTOM OF EMBANKMENT IN RURAL AREAS.
2. ALL EDGES TO BE CHAMFERED 1 INCH.
3. FOR ARCH PIPE USE LENGTH OF HEADWALL AS $3H + \text{SPAN}$.
4. FOR MORE THAN ONE PIPE, SET THE PIPE A MINIMUM OF ONE FOOT APART (OUTSIDE BARREL TO OUTSIDE BARREL); THE ENDS OF THE HEADWALL SHALL BE SET $2 \times$ DIAMETER OFF THE CENTERLINE OF THE CONTROLLING PIPE.

CD-602-10.1



VOLUME OF CONCRETE IN HEADWALLS AND APRONS IN CUBIC YARDS

PIPE DIA.	CORR. STEEL PIPE	REINF. CONC. PIPE	APRONS
12"	1.6	1.7	0.4
15"	2.0	2.1	0.5
18"	2.4	2.5	0.6
21"	2.8	3.0	0.8
24"	3.3	3.4	0.9
27"	3.7	4.0	1.1
30"	4.2	4.5	1.2
36"	5.3	5.6	1.5
42"	7.2	7.9	1.9
48"	9.4	10.4	2.3
54"	12.0	13.3	2.7
60"	15.0	16.6	3.2
66"	18.5	20.5	3.7
72"	22.4	24.8	4.2



CONCRETE HEADWALL AND APRON

GENERAL NOTES:

1. ALL EDGES TO BE CHAMFERED 1 INCH.
2. THE RUBBING OF HEADWALLS TO REMOVE FORM MARKS AS REQUIRED IN THE NJDOT SPECIFICATIONS FOR CONCRETE STRUCTURES, WILL NOT BE REQUIRED FOR HEADWALLS AT THE BOTTOM OF EMBANKMENTS IN RURAL AREAS.
3. FOR SLOPE DRAIN HEADWALLS, DIMENSIONS AND APRON GRADES SHALL BE SET BY THE DEPARTMENT.
4. FOR MORE THAN ONE PIPE, SET THE PIPES A MINIMUM OF ONE FOOT APART (OUTSIDE BARREL TO OUTSIDE BARREL); THERE SHALL BE 12 INCHES ABOVE THE TOP OF A PIPE IN A WINGWALL: THE TERMINUS OF THE WINGWALL SHALL BE $2 \times$ DIAMETER FROM THE CENTERLINE OF THE PIPE IN A WINGWALL.
5. THE TERMINUS FOR OUTLET AND INLET APRONS SHALL BE SET BY EXTENDING THE PIPE GRADE AHEAD AND BACK, RESPECTIVELY.
6. FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR D.

CD-602-10.2

REINFORCEMENT STEEL IS IN METRIC UNITS.

CONCRETE HEADWALL AND APRON

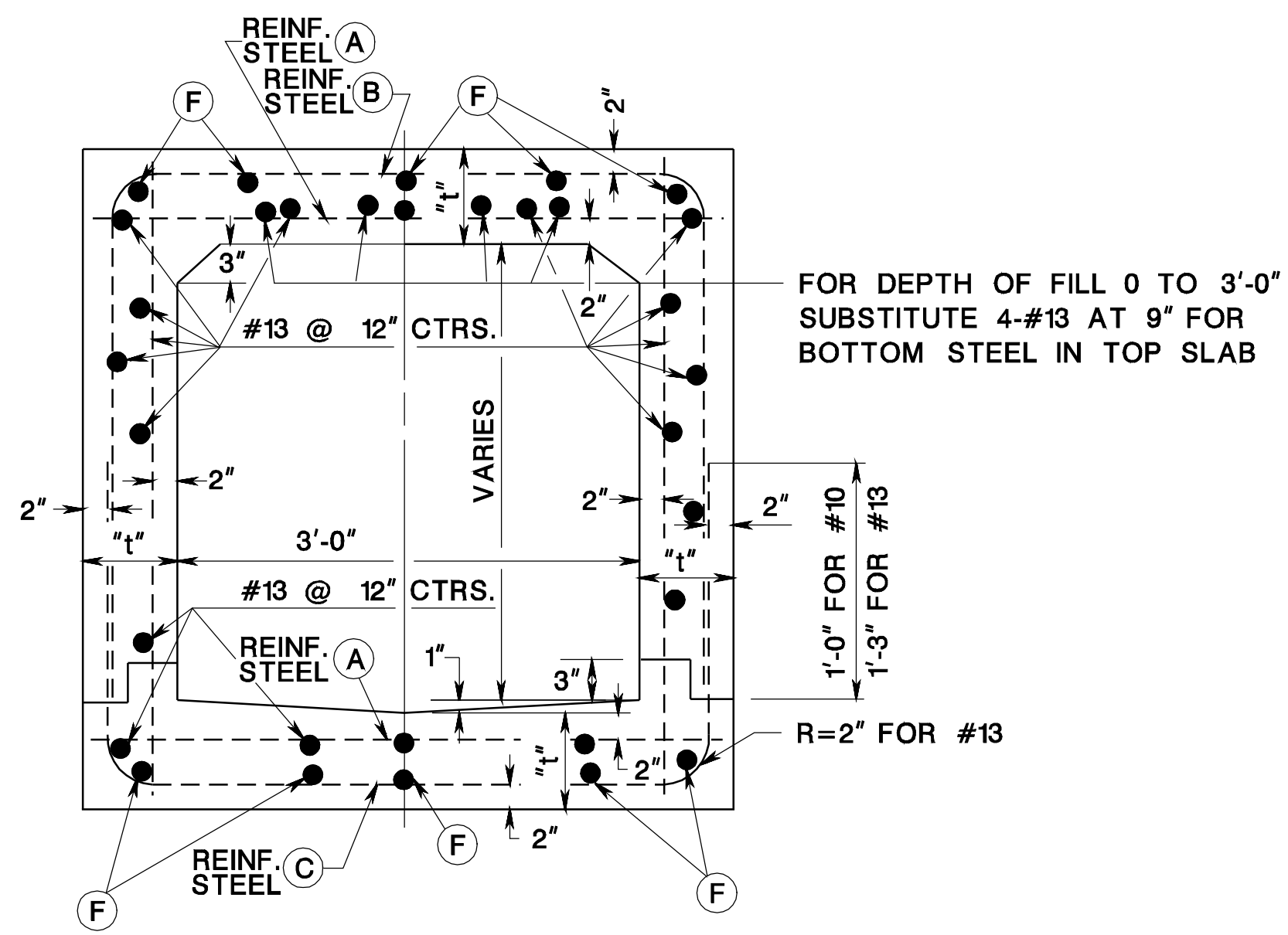
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CD-602-10

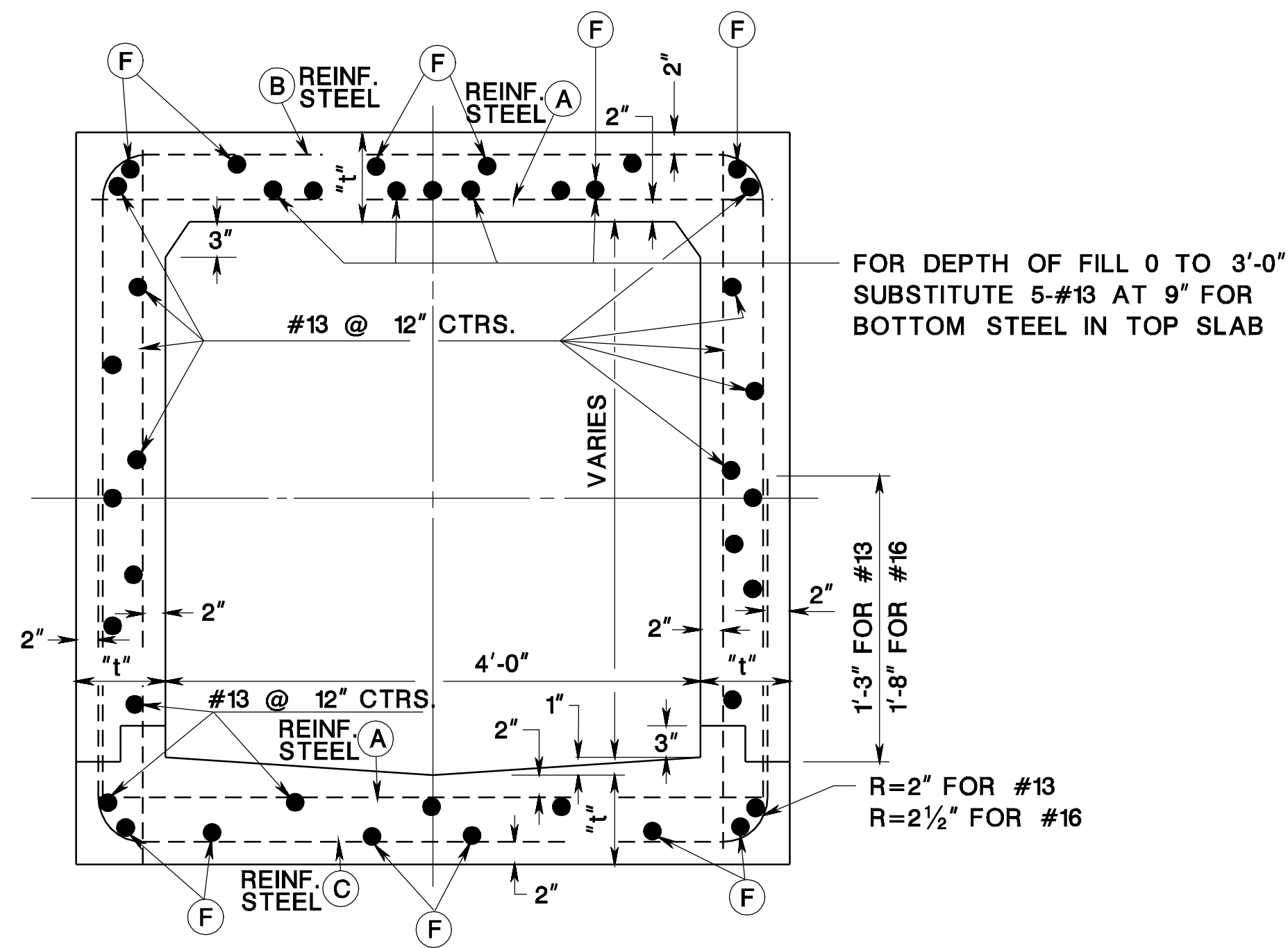
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

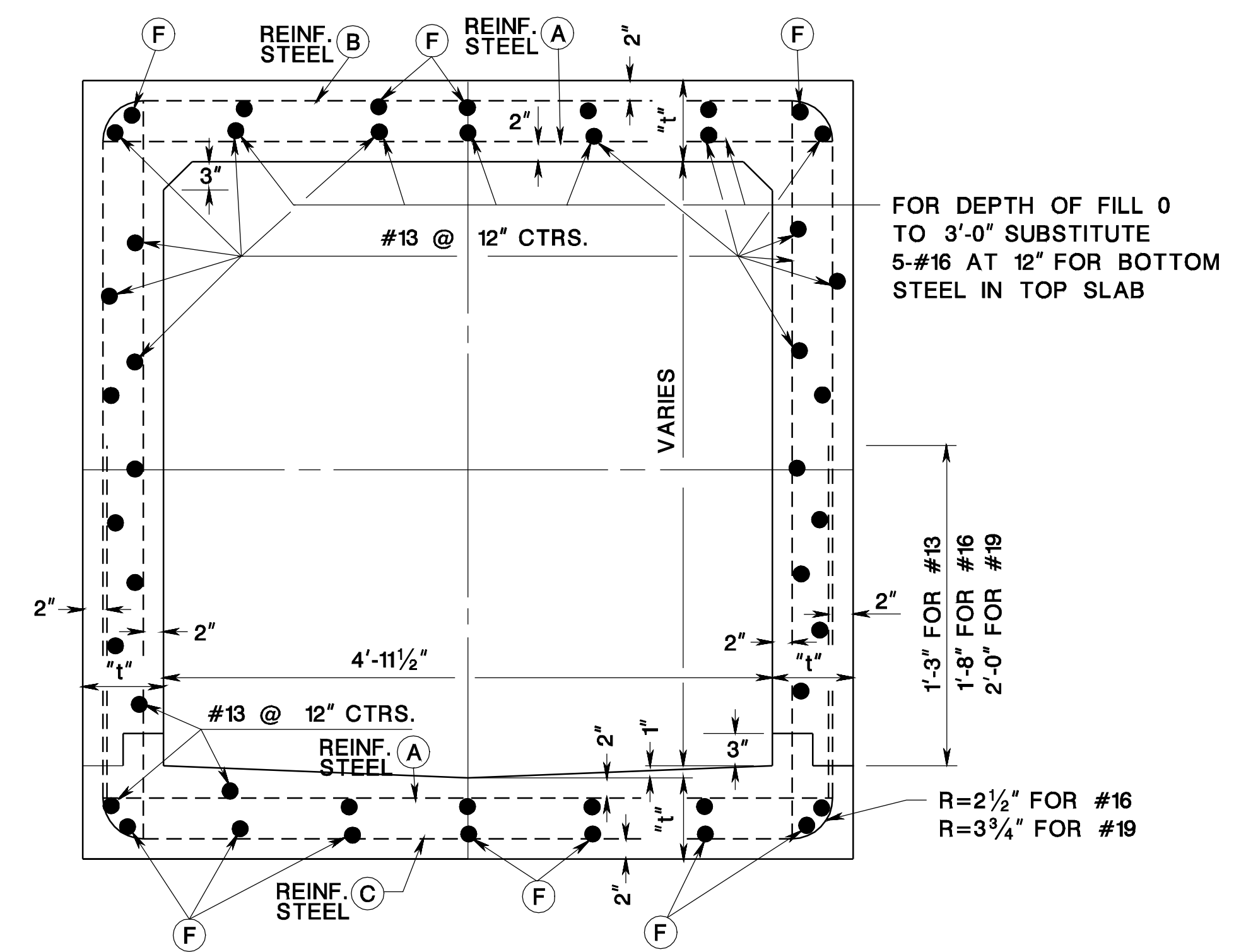
STANDARD 3'-0" CONCRETE CULVERT



STANDARD 4'-0" CONCRETE CULVERT



STANDARD 4'-11 1/2" CONCRETE CULVERT



DEPTH OF FILL	REINF. STEEL	SPAN 3 FT.		THICKNESS
		REINF. STEEL	SPACING	
0	A	#13	5"	8"
	B&C	#13	12"	
3'-1"	A	#13	12"	8"
	B&C	#13	12"	
10'-1"	A	#13	9"	8"
	B&C	#13	10"	
15'-1"	A	#13	7"	8"
	B&C	#13	9"	
20'-1"	A	#13	6"	8"
	B&C	#13	7"	

DEPTH OF FILL	REINF. STEEL	SPAN 4 FT.		THICKNESS
		REINF. STEEL	SPACING	
0	A	#13	4"	8"
	B&C	#13	10"	
3'-1"	A	#13	9"	8"
	B&C	#13	12"	
10'-1"	A	#13	6"	8"
	B&C	#13	9"	
15'-1"	A	#16	7"	8"
	B&C	#16	10"	
20'-1"	A	#16	6"	9"
	B&C	#16	10"	

DEPTH OF FILL	REINF. STEEL	SPAN 4'-11 1/2"		THICKNESS
		REINF. STEEL	SPACING	
0	A	#16	5"	8"
	B&C	#16	12"	
3'-1"	A	#13	6"	8"
	B&C	#13	9"	
10'-1"	A	#16	7"	9"
	B&C	#16	12"	
15'-1"	A	#16	7"	10"
	B&C	#16	10"	
20'-1"	A	#16	5"	10"
	B&C	#16	8"	
25'-1"	A	#19	6"	11"
	B&C	#19	9"	

NOTES:
 TOP AND BOTTOM LAYER OF LONGITUDINAL REINFORCEMENT STEEL (F) TO BE SAME SIZE AS REINFORCEMENT STEEL A, B & C AND SPACED 12" CTRS.
 FOR BACKFILLING AND EMBANKMENT SEE NJDOT STANDARD SPECIFICATIONS.
 REINFORCEMENT STEEL SHALL CONFORM TO ASTM A615, GRADE 60.

VOLUME OF CONCRETE AND WEIGHT OF REINFORCEMENT PER LINEAR FOOT OF CULVERT

SIZE OF CULVERT OPENING IN FEET	3'-0" x 3'-0"					4'-0" x 3'-0"					4'-0" x 4'-0"					4'-11 1/2" x 3'-0"					4'-11 1/2" x 4'-0"					4'-11 1/2" x 5'-0"					
MAX DEPTH OF FILL FT.	3	10	15	20	25	3	10	15	20	25	3	10	15	20	25	3	10	15	20	25	3	10	15	20	25	3	10	15	20	25	40
VOLUME OF CONCRETE CU. YD. PER FT.	0.37	0.37	0.37	0.37	0.37	0.42	0.42	0.42	0.42	0.48	0.47	0.47	0.47	0.47	0.54	0.47	0.47	0.54	0.61	0.61	0.52	0.52	0.60	0.67	0.67	0.57	0.57	0.65	0.73	0.73	0.82
REINFORCEMENT LB. PER FT.	53	43	48	53	59	66	50	60	75	79	70	54	63	84	89	88	74	84	89	105	94	81	90	96	114	99	85	95	102	122	150

NOTE:
 FIRST DIMENSION OF CULVERT SIZE INDICATES THE SPAN.
 CULVERT TO BE CONSTRUCTED OF CLASS "A" CONCRETE.

REINFORCEMENT STEEL IS IN METRIC UNITS.

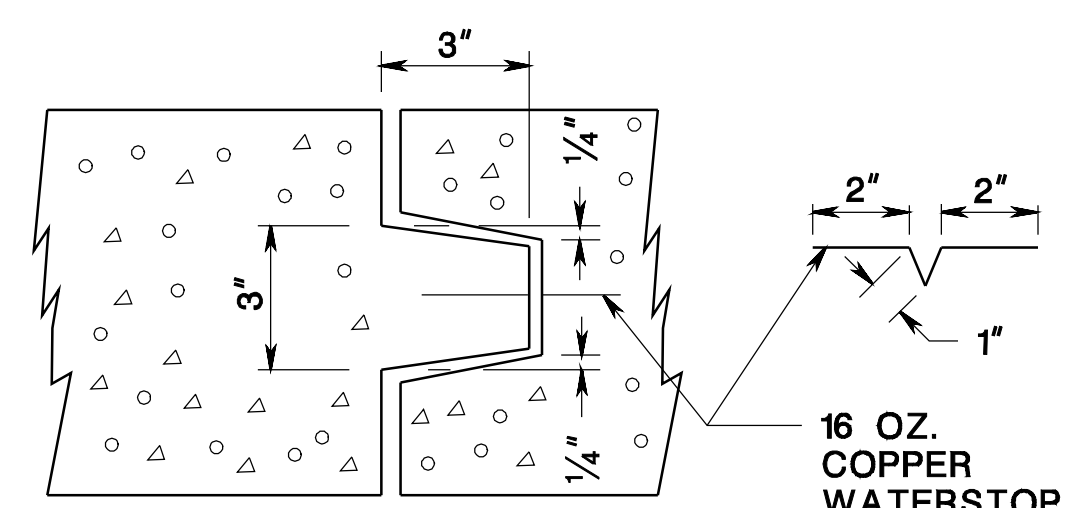
CONCRETE CULVERT
 N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

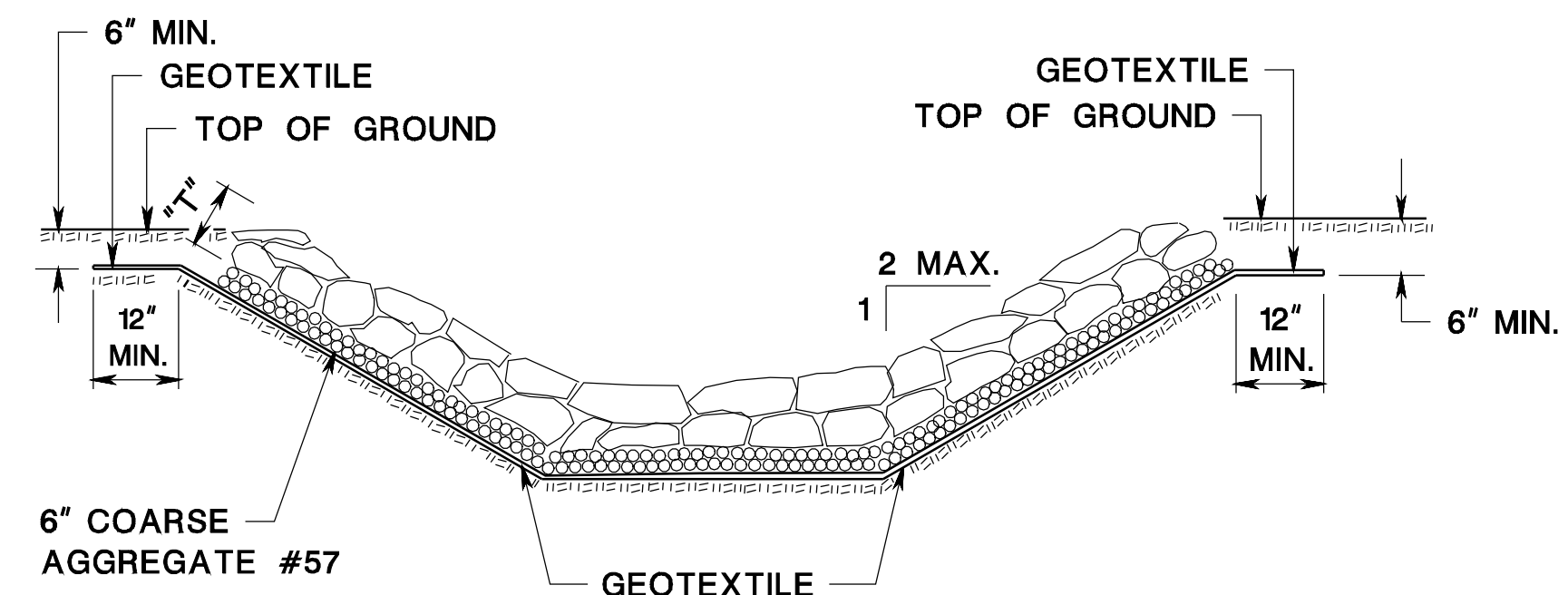
SECTION THRU KEY OF CONSTRUCTION JOINT
 TO BE CONSTRUCTED IN TOP, WALLS AND BASE OF CULVERT NOT MORE THAN 35'-0" APART

CONSTRUCTION JOINT OF CULVERT

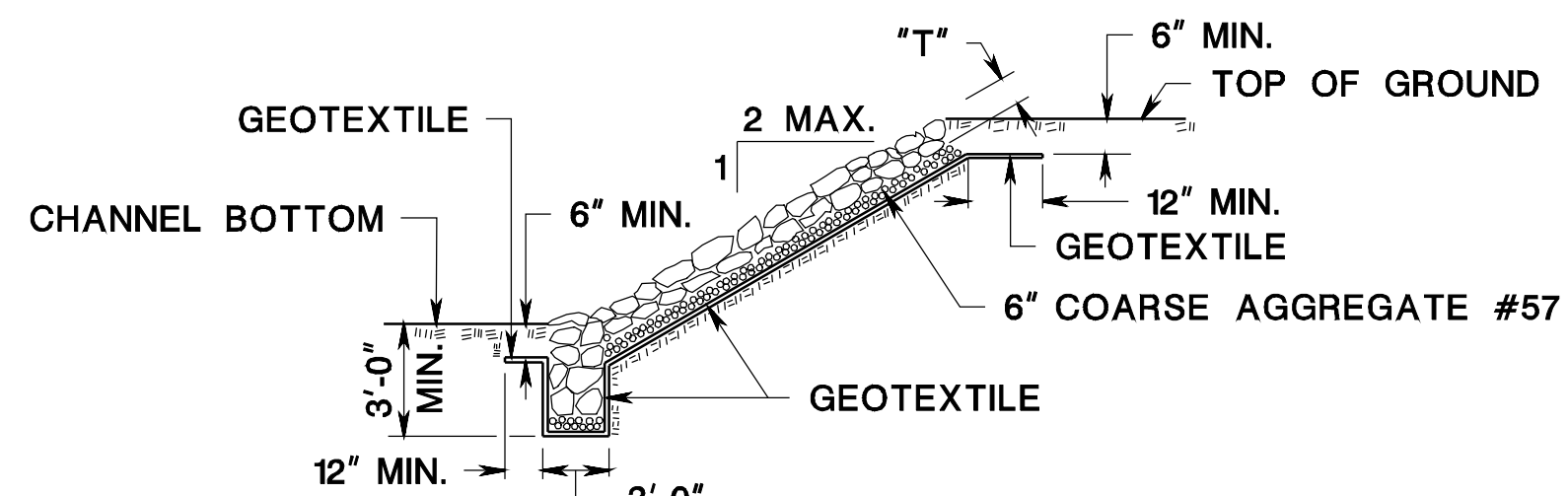


CONCRETE CULVERT

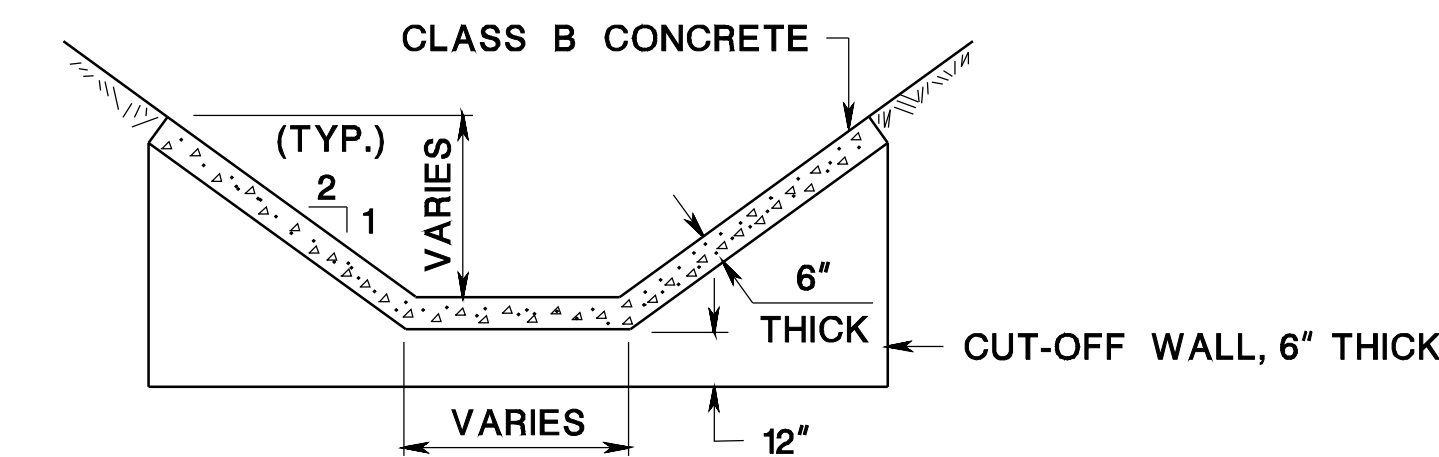
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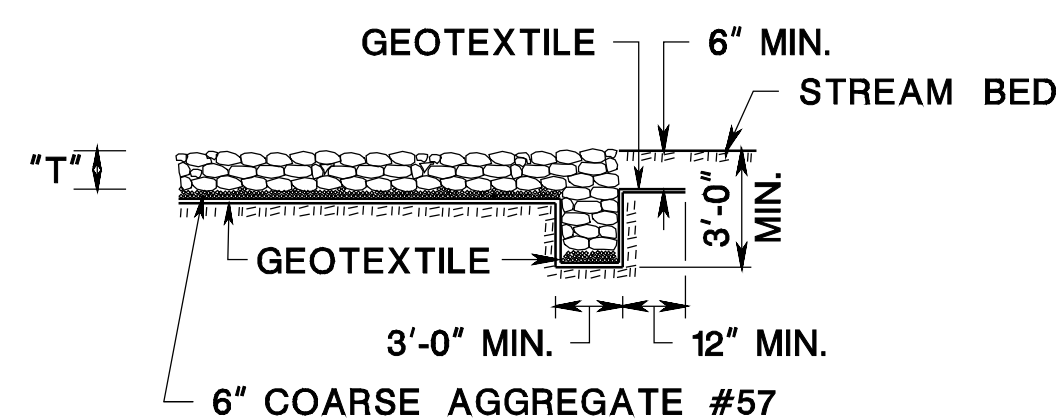
CHANNEL PROTECTION



SLOPE PROTECTION



CONCRETE SLOPE GUTTER, 6" THICK



END TREATMENT FOR CHANNEL PROTECTION

NOTE:

FOR WIDTHS AND SLOPES REFER TO CONSTRUCTION PLANS

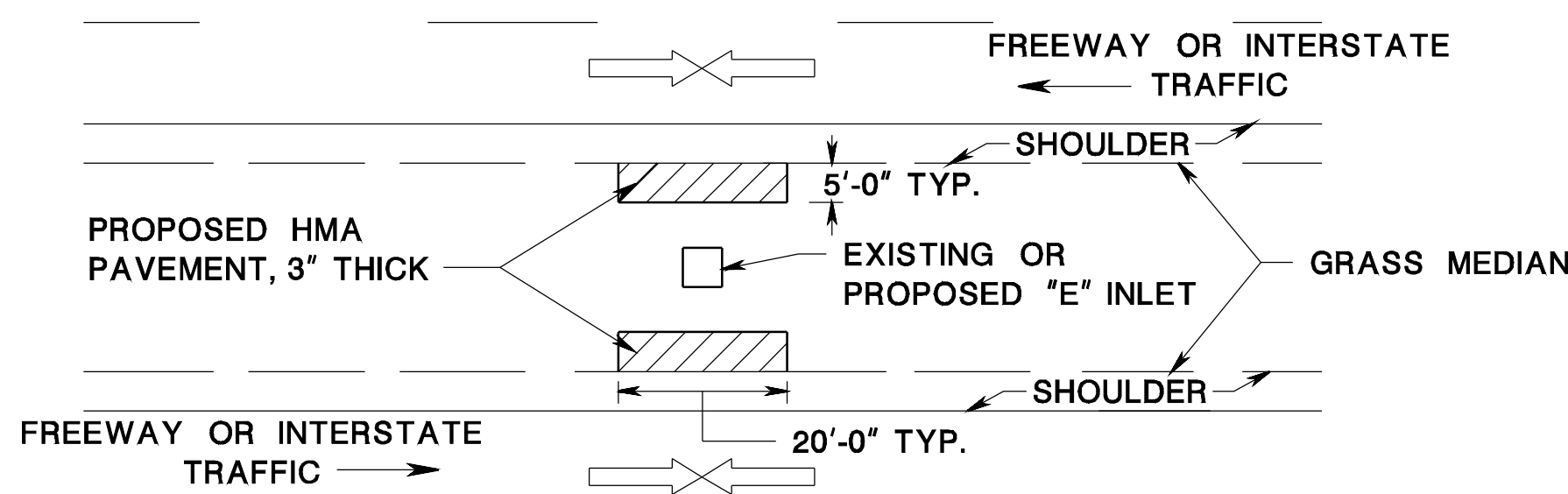
"T" = $2d_{50}$

d_{50} = DESIGNATED MEDIAN STONE SIZE, 6" MIN.

RIPRAP STONE CHANNEL /SLOPE PROTECTION

CD-603-1.1

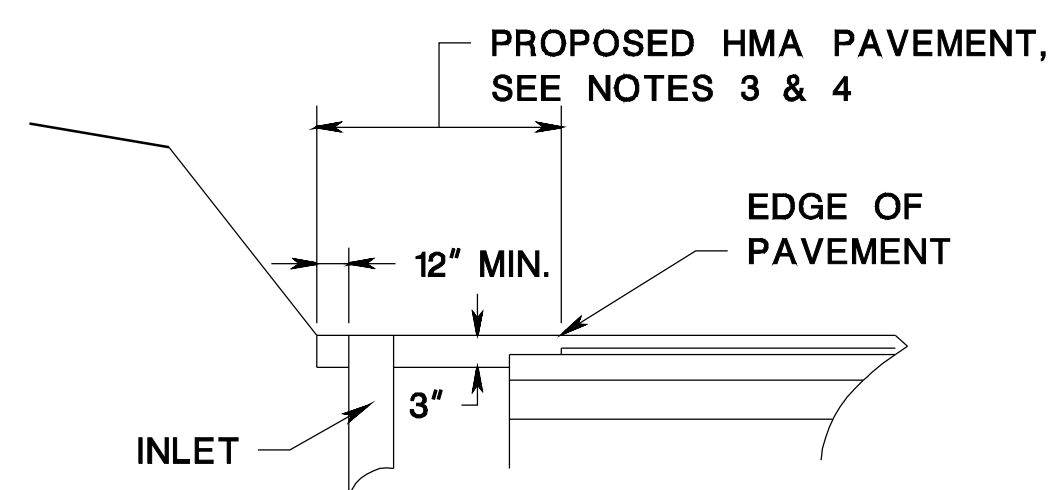
CD-603-1.3



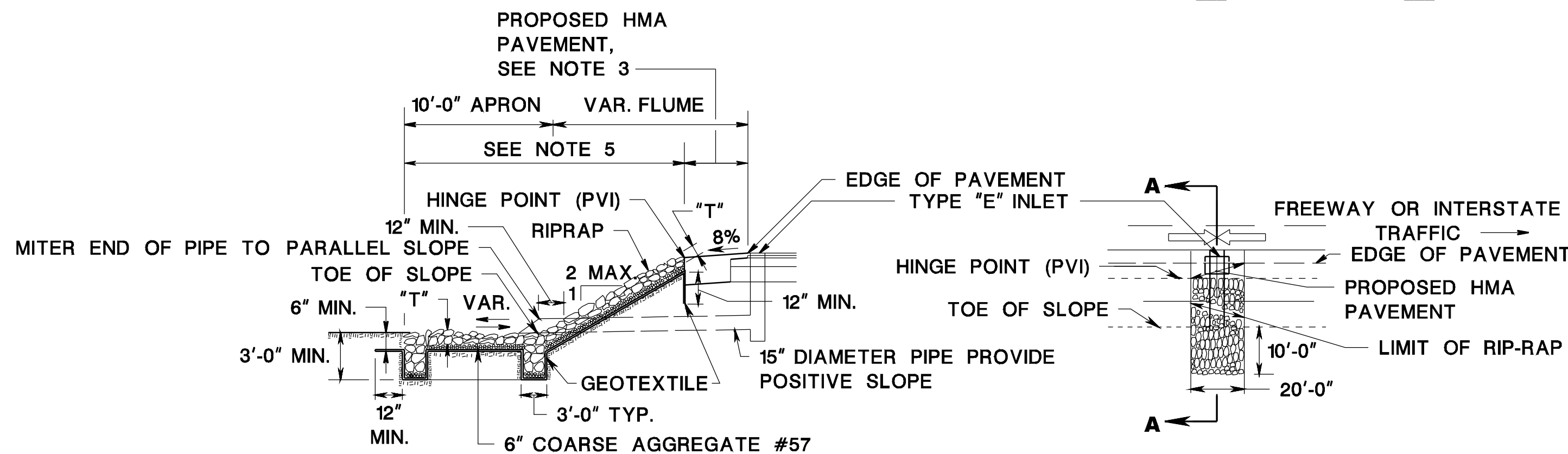
MEDIAN EDGE OF MAINLINE PAVEMENT

NOTES:

1. FOR SLOPES, REFER TO PLANS.
2. WHERE GUIDE RAIL EXISTS AT THE LOW POINT, THE PROPOSED HMA PAVEMENT HAS PREFERENCE OVER NON-VEGETATIVE SURFACE.
3. HMA PAVEMENT SHALL BE THE SAME AS THE SURFACE COURSE. IF THERE IS NO SURFACE COURSE ON THE PROJECT, USE A 9.5MM NOMINAL MAXIMUM SIZE HMA.
4. IN CUT SECTIONS THE HMA PAVEMENT SHALL BE GRADED TO DRAIN TOWARD THE INLET.
5. THE RIPRAP AND GEOTEXTILE MATERIALS SHALL BE PAID FOR UNDER THE ITEM RIPRAP STONE SLOPE PROTECTION, ___" THICK, (D50 = ___").



SECTION B-B



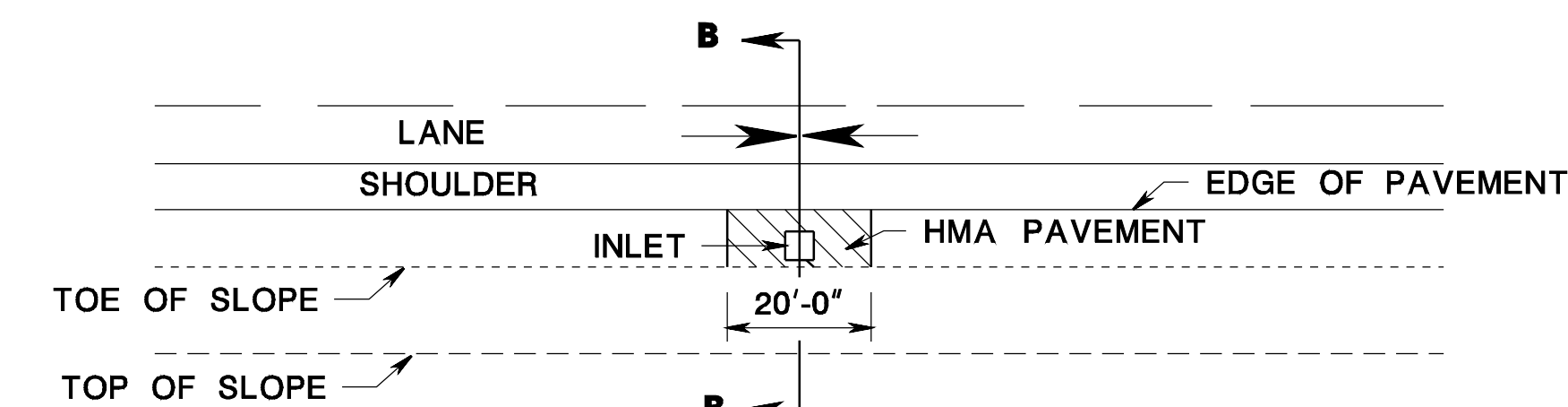
SECTION A-A

PLAN VIEW

"T" = $2d_{50}$

D_{50} = DESIGNATED MEDIAN STONE SIZE (8" MIN')

EDGE OF RAMP OR OUTSIDE EDGE OF MAINLINE PAVEMENT IN FILL



EDGE OF RAMP OR OUTSIDE EDGE OF MAINLINE PAVEMENT IN CUT

SLOPE AND CHANNEL PROTECTION

N.T.S.

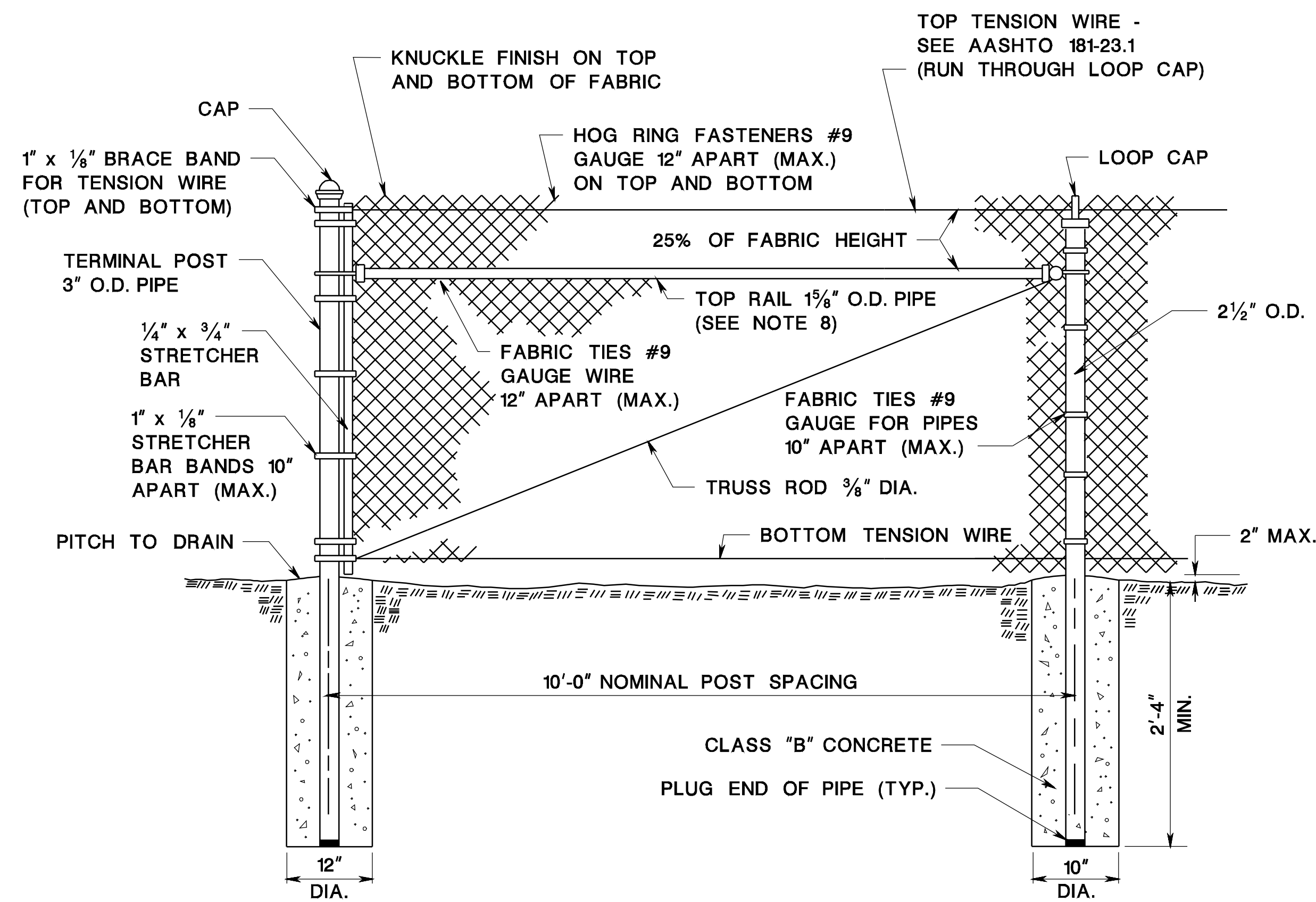
HMA = HOT MIX ASPHALT

CD-603-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

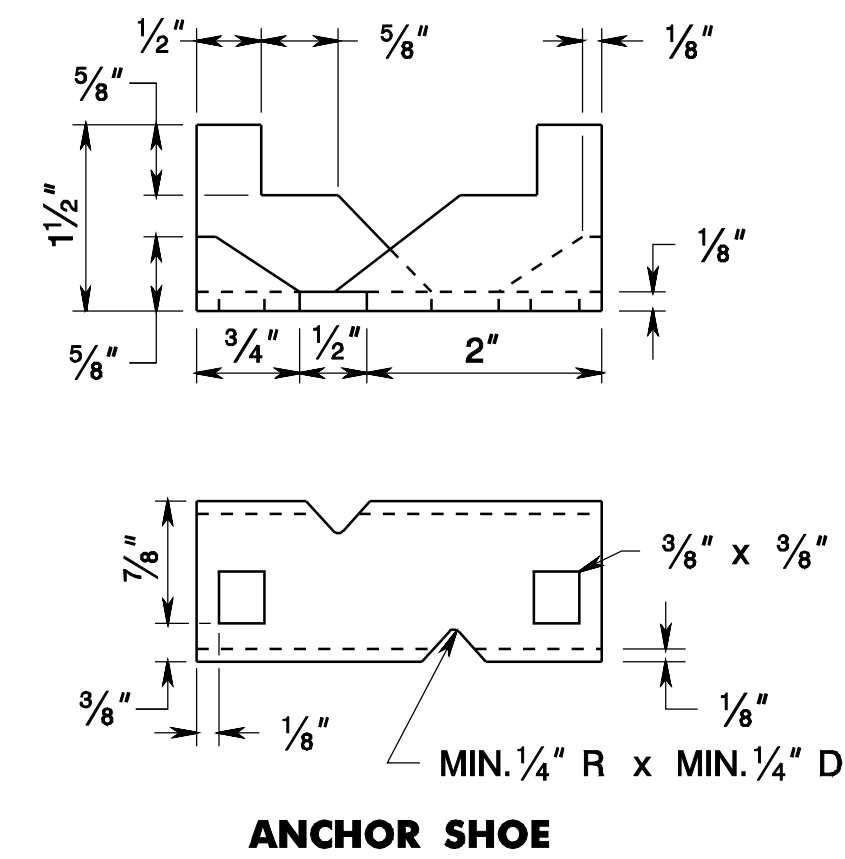
CONSTRUCTION DETAILS

CD-603-1.2

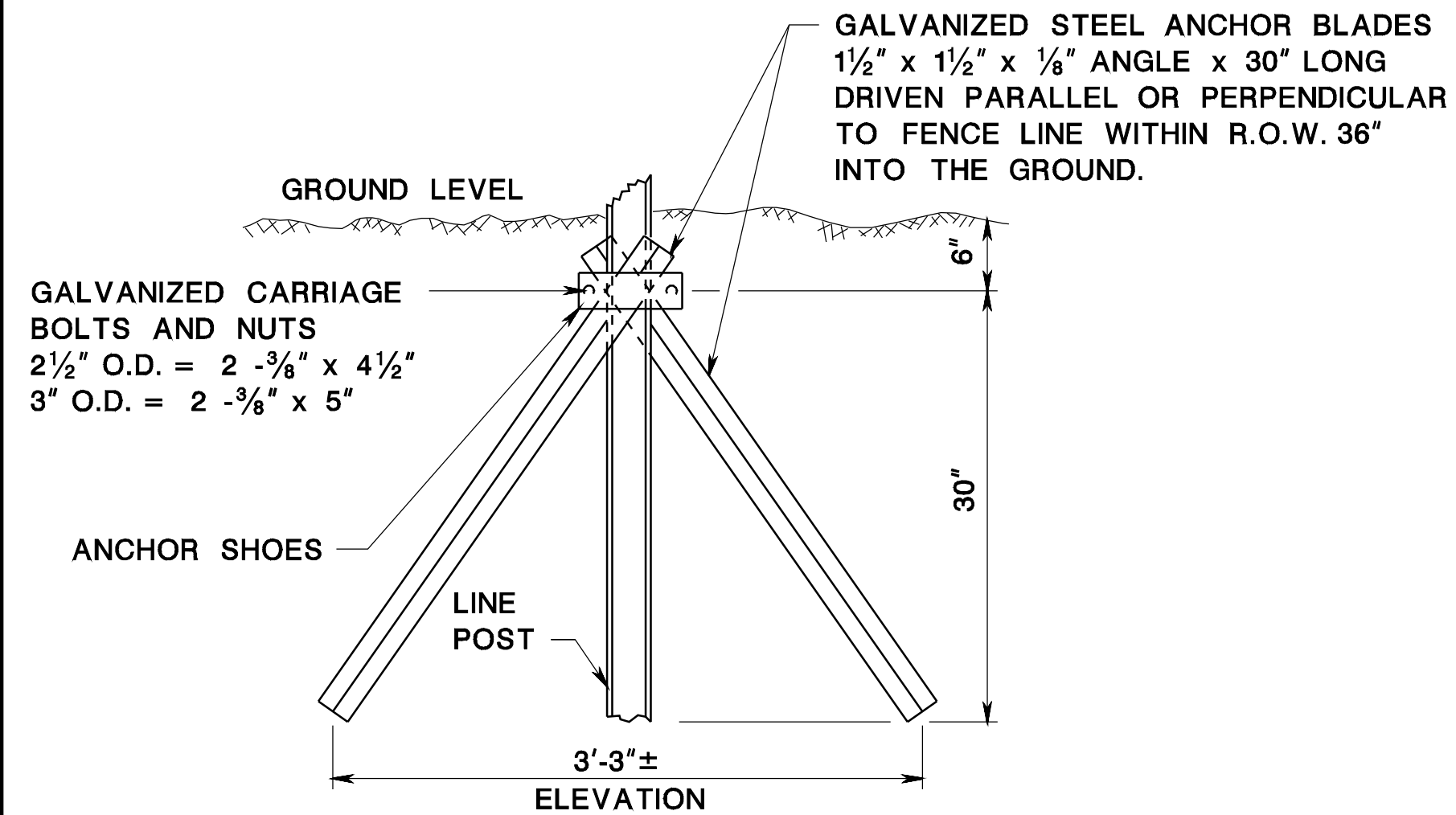


CHAIN-LINK FENCE, ___ ' HIGH

CD-605-1.1



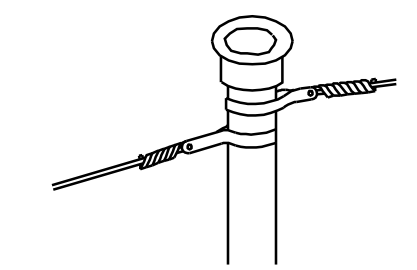
ANCHOR SHOE



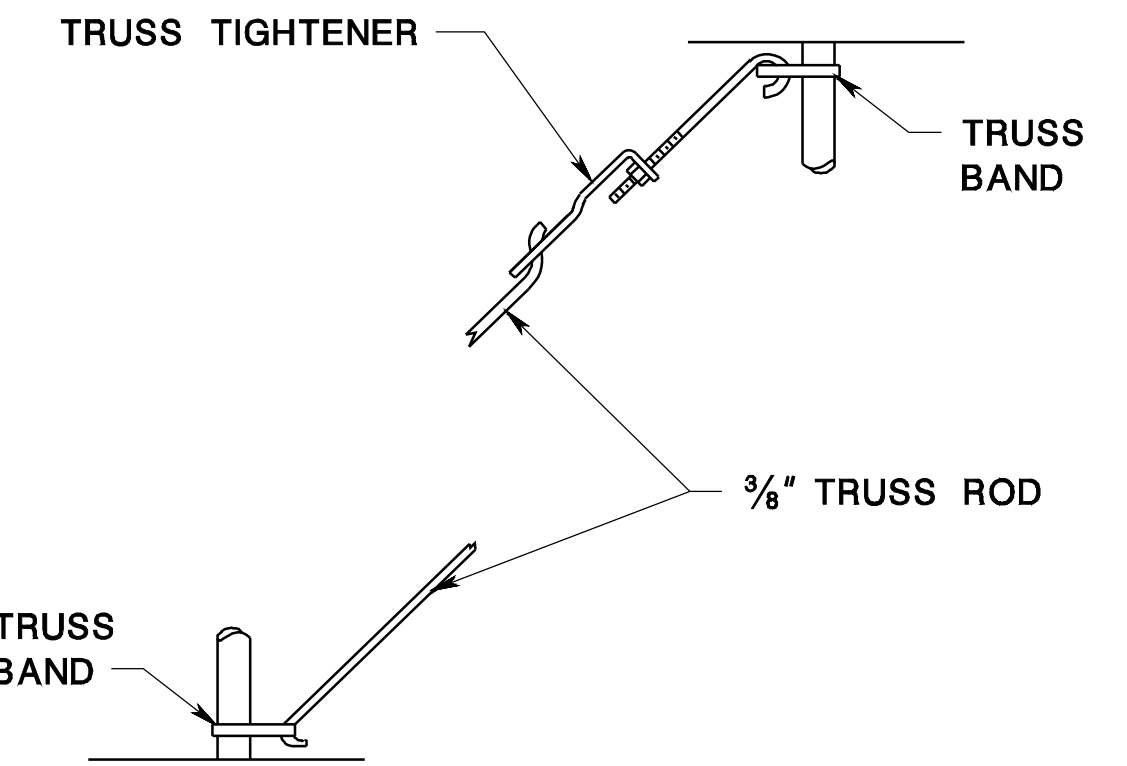
DRIVE ANCHOR SHOE ASSEMBLY

(SEE NOTE 7)

CD-605-1.2



TENSION WIRE CONNECTION AT ROUND INTERMEDIATE OR CORNER POST



3/8" TRUSS ROD ASSEMBLY

CHAIN-LINK FENCE ASSEMBLIES

CD-605-1.3

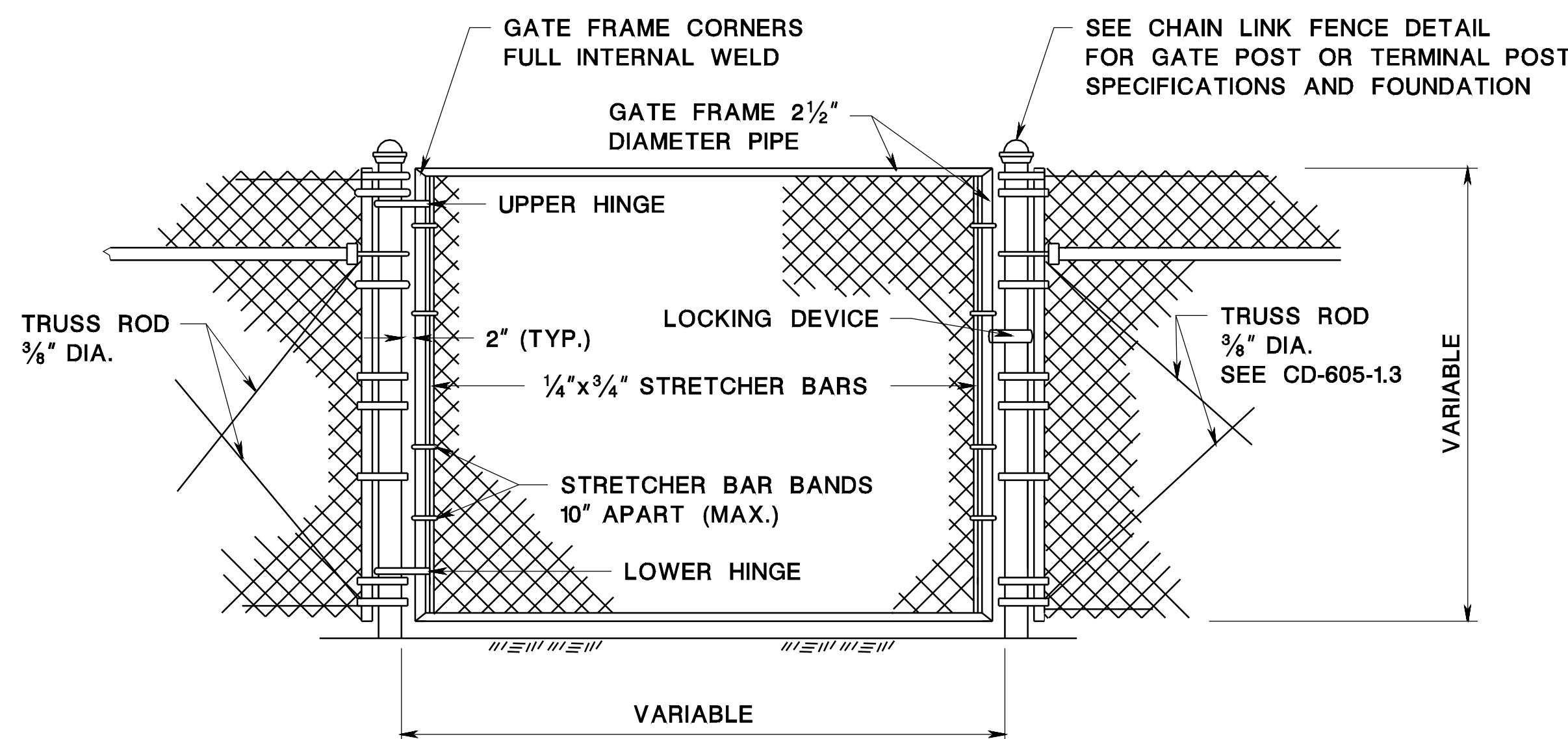
GENERAL NOTES

1. CHAIN-LINK FENCE FABRIC, POSTS, RAILS, TIES, BANDS, BARS, RODS, AND OTHER FITTINGS AND HARDWARE SHALL CONFORM TO AASHTO M 181 FOR TYPES, GRADES AND CLASSES, AND AS NOTED BELOW.

2. POSTS:	TERMINAL, CORNER AND GATE POSTS	LINE POSTS	TOP OR BRACE RAIL
	3" O.D. PIPE	2 1/2" O.D. PIPE	1 1/8" O.D. PIPE
AASHTO TYPE	I OR II	I OR II	I OR II
AASHTO GRADE	1 OR 2	1 OR 2	1 OR 2
MINIMUM LENGTH OF POST FOR			
4' FABRIC	6'-8"	6'-8"	NA
5' FABRIC	7'-8"	7'-8"	NA
6' FABRIC	8'-8"	8'-8"	NA
ACTUAL OUTSIDE DIAMETER (IN.)	2.875	2.375	1.660
WALL THICKNESS (IN.)	GRADE 1 = .203 GRADE 2 = .160	GRADE 1 = .154 GRADE 2 = .120	GRADE 1 = .140 GRADE 2 = .111

3. FABRIC:
 TYPE II AND TYPE IV SHALL BE 9 GAUGE CORE WIRE, 2 INCH MESH
 TYPE IV FABRIC SHALL BE CLASS A OR B.
 TYPE IV FABRIC SHALL BE GREY IN COLOR, AND SHALL MATCH FEDERAL STANDARD 595A, COLOR CHIP NO. 26493 (SEMI-GLOSS), UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS.
4. THE CENTERLINE OF ALL POSTS SHALL NOT BE LESS THAN 8" INSIDE R.O.W.
5. THE DEPTH OF CONCRETE FOOTINGS IN SOLID ROCK MAY BE REDUCED TO ONE FOOT BELOW THE TOP OF ROCK AND THE DIAMETER OF THE HOLE IN ROCK MAY BE REDUCED TO 3 1/2".
6. BRACE BANDS AND STRETCHER BAR BANDS SHALL BE FURNISHED WITH 5/16" DIA. CARRIAGE BOLTS AND ELASTIC STOP NUTS.
7. DRIVE ANCHOR SHOE ASSEMBLY ONLY TO BE USED IN WET AREAS AND WITH PRIOR APPROVAL OF THE R.E..
8. WHEN THE PLANS INDICATE A TERMINAL OR CORNER POST DESIGNATED TYPE "NR", THE TOP RAIL SHALL BE ELIMINATED FROM THIS SECTION OF FENCE.

CD-605-1.4



GATES, CHAIN-LINK FENCE, ___ ' WIDE

CD-605-1.5

CHAIN-LINK FENCE
N.T.S.

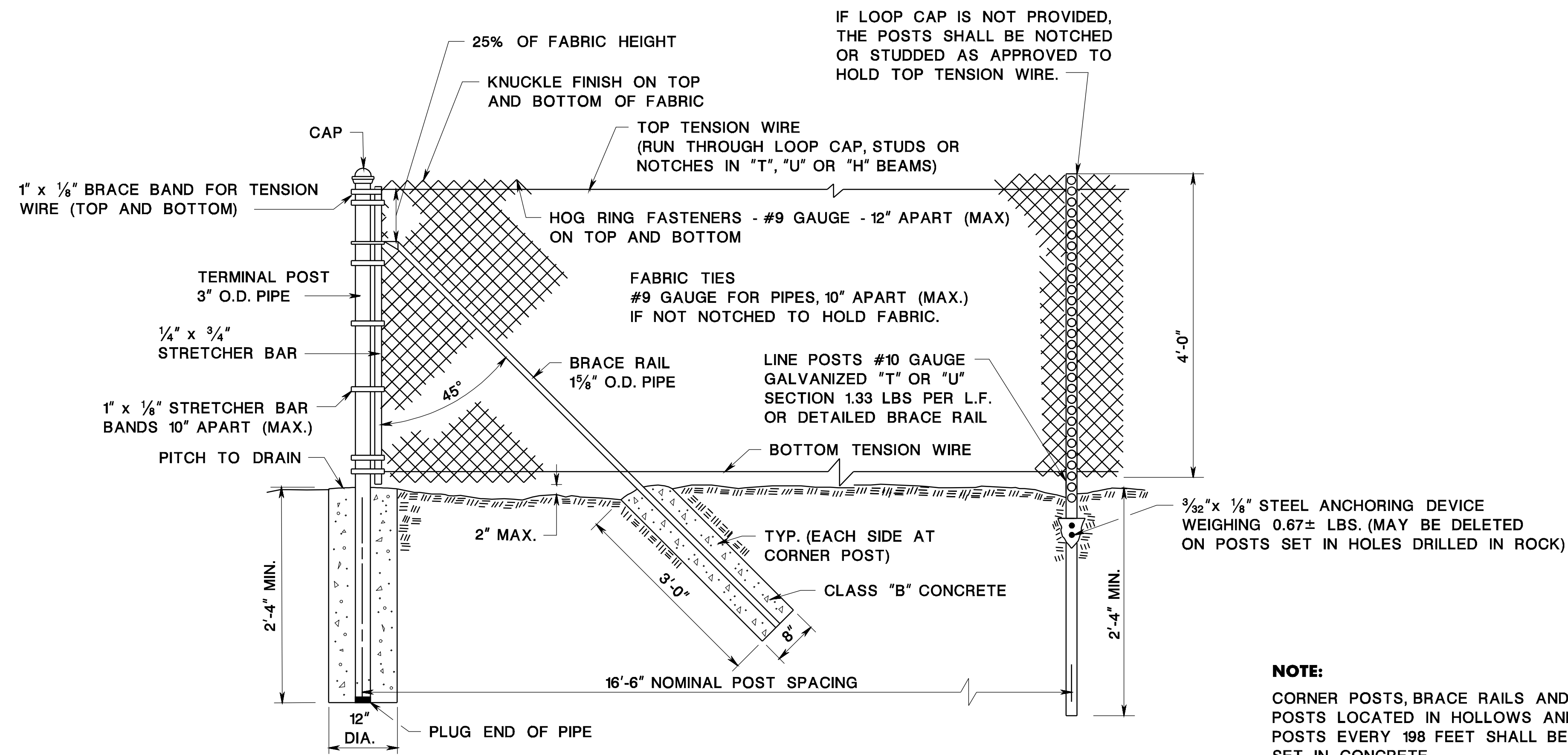
CD-605-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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BDC07D-ORIGINAL SHEET



NOTE:
 CORNER POSTS, BRACE RAILS AND LINE POSTS LOCATED IN HOLLOW AND LINE POSTS EVERY 198 FEET SHALL BE SET IN CONCRETE.

CHAIN-LINK FARM-TYPE FENCE

CHAIN-LINK FENCE

N.T.S.

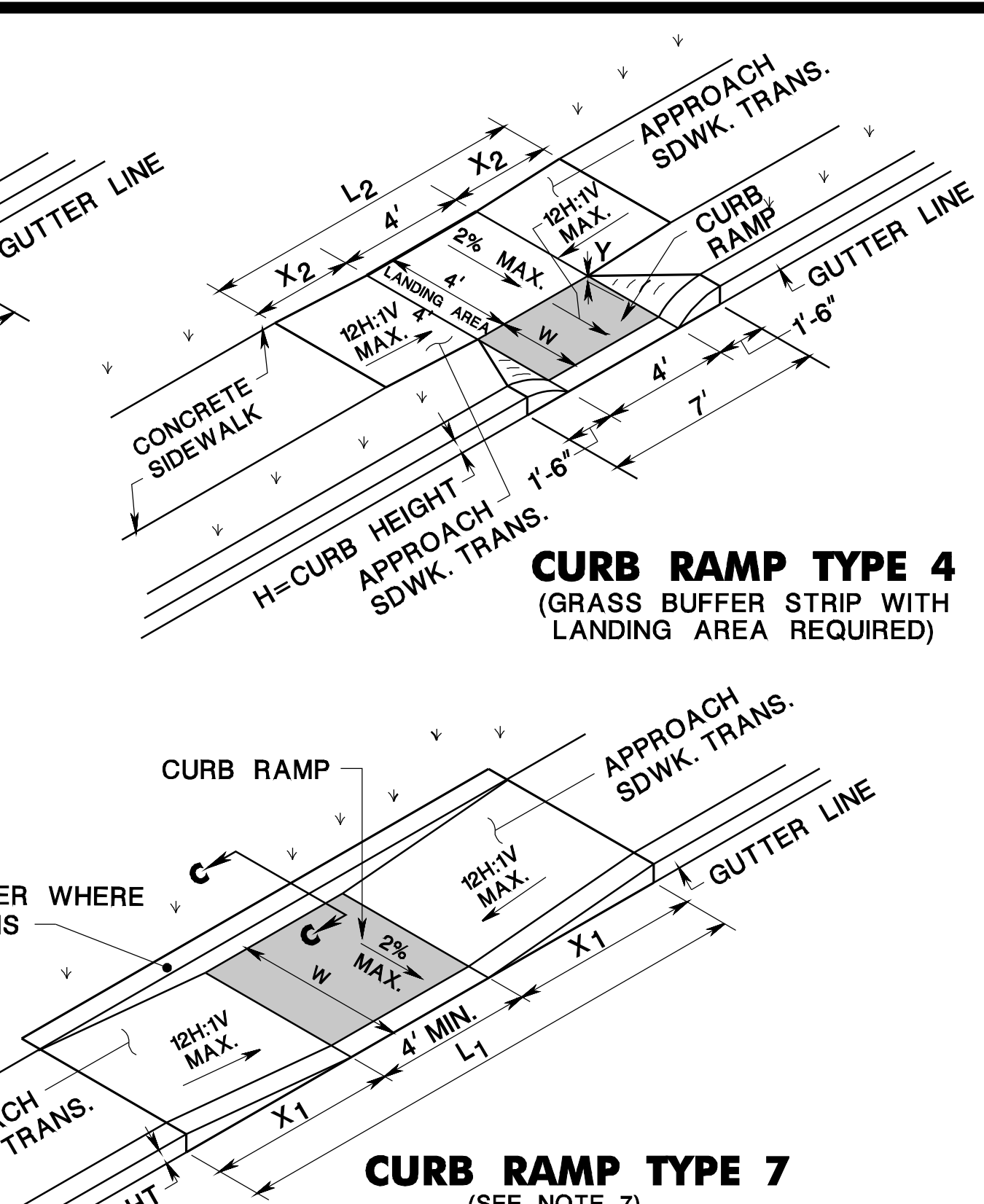
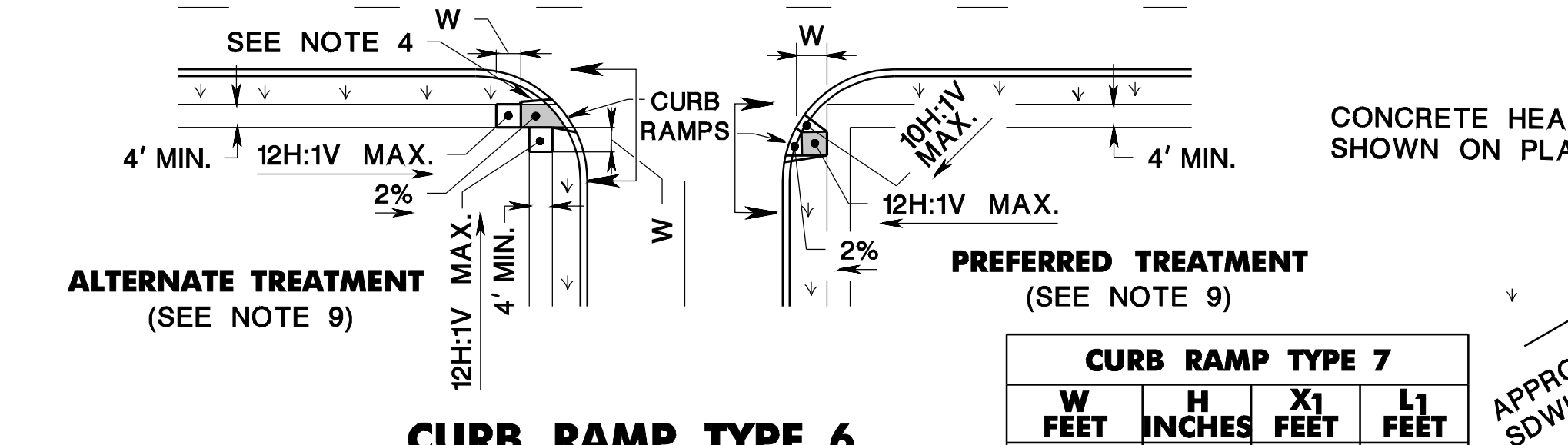
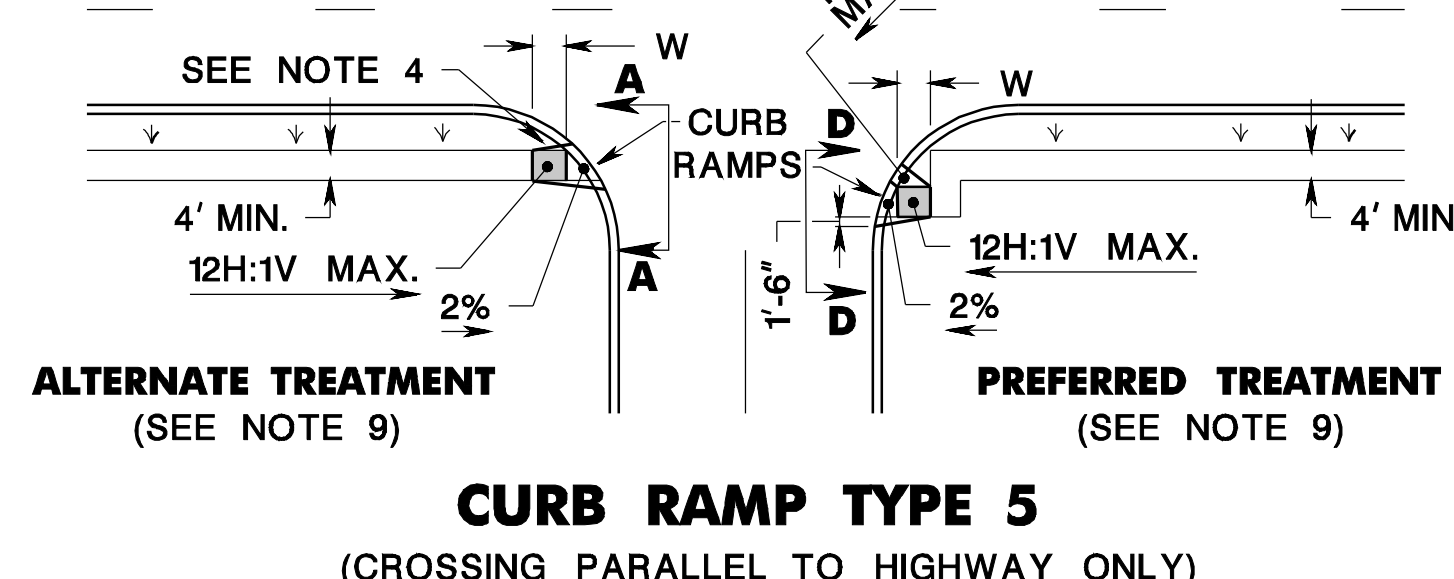
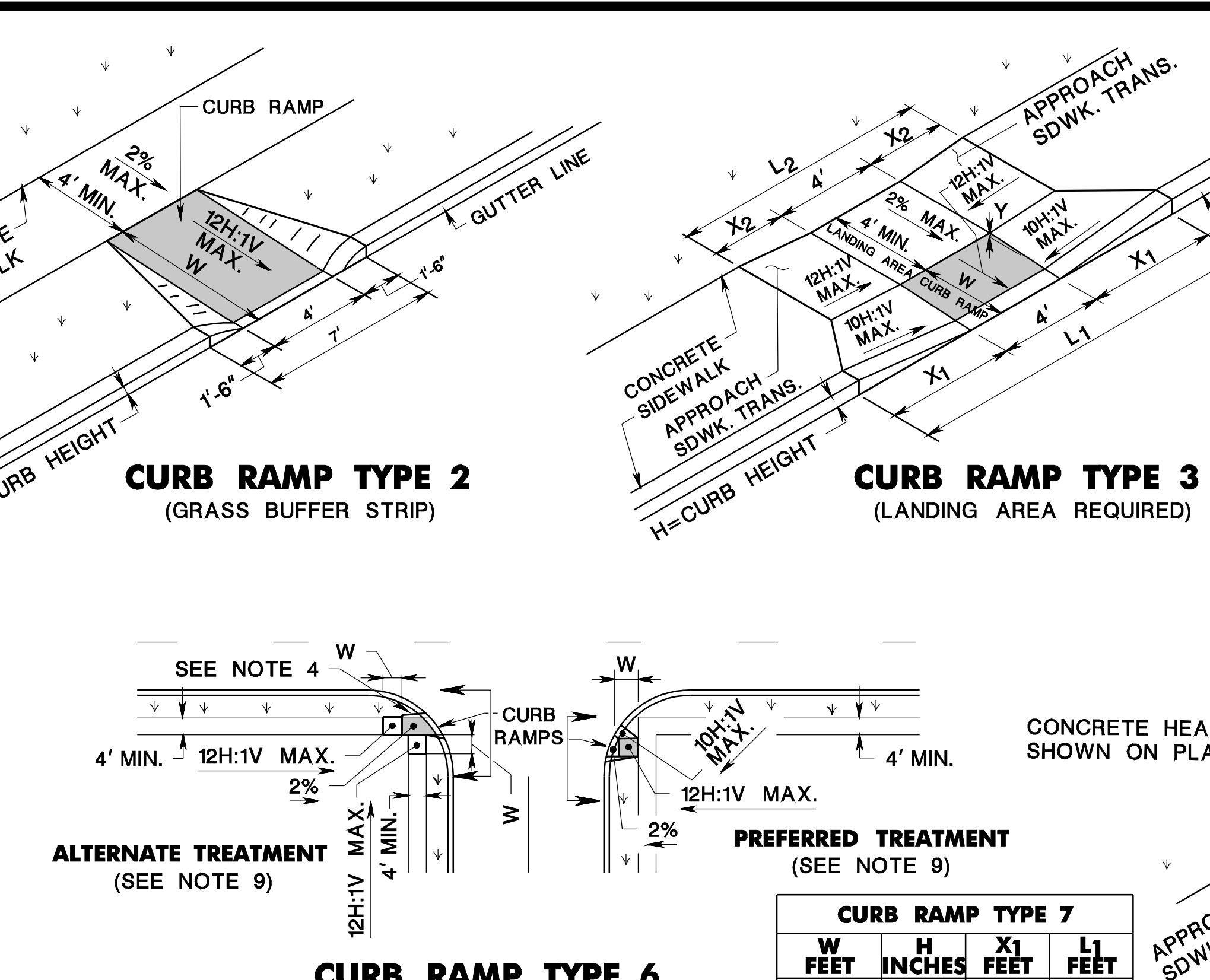
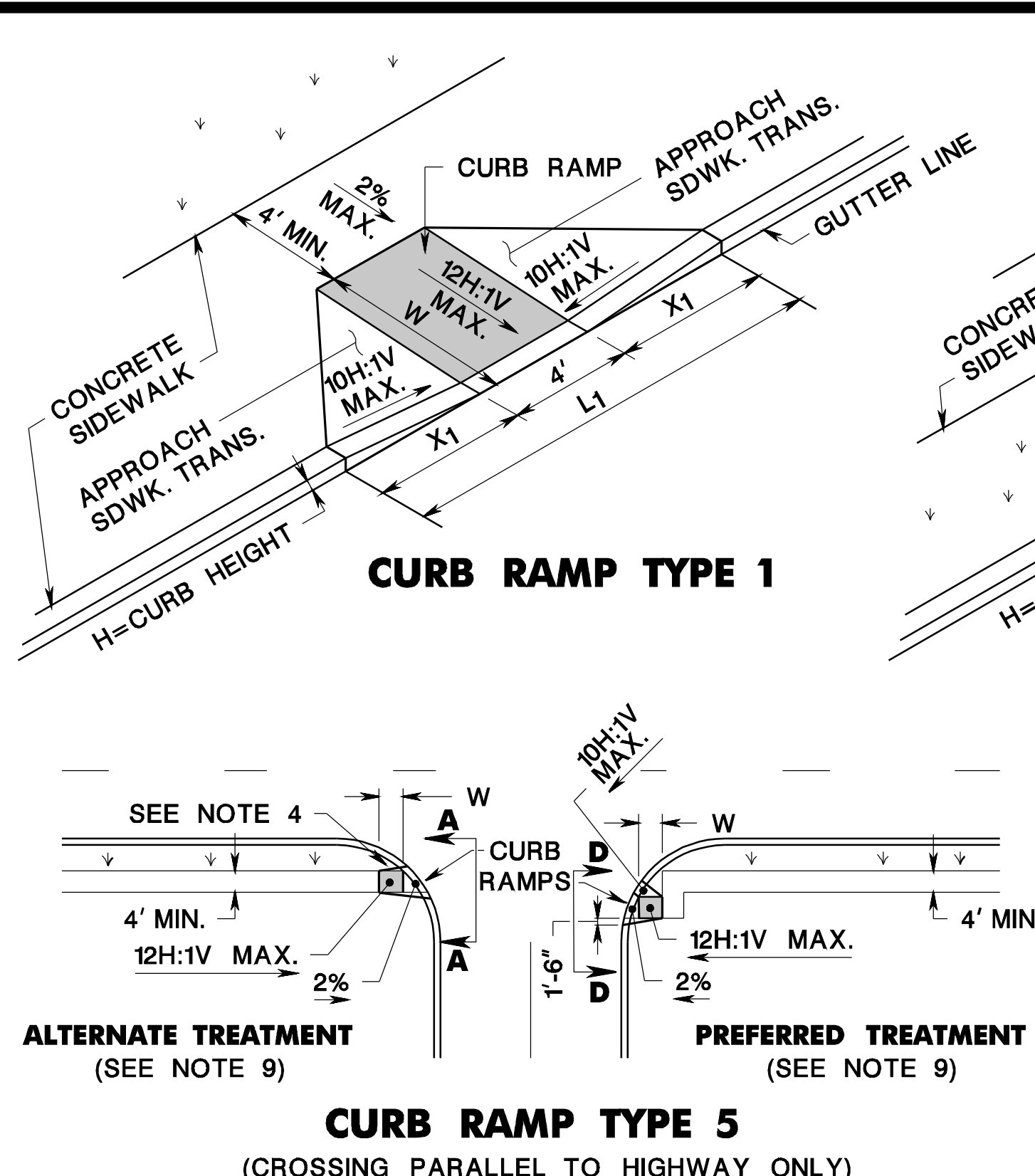
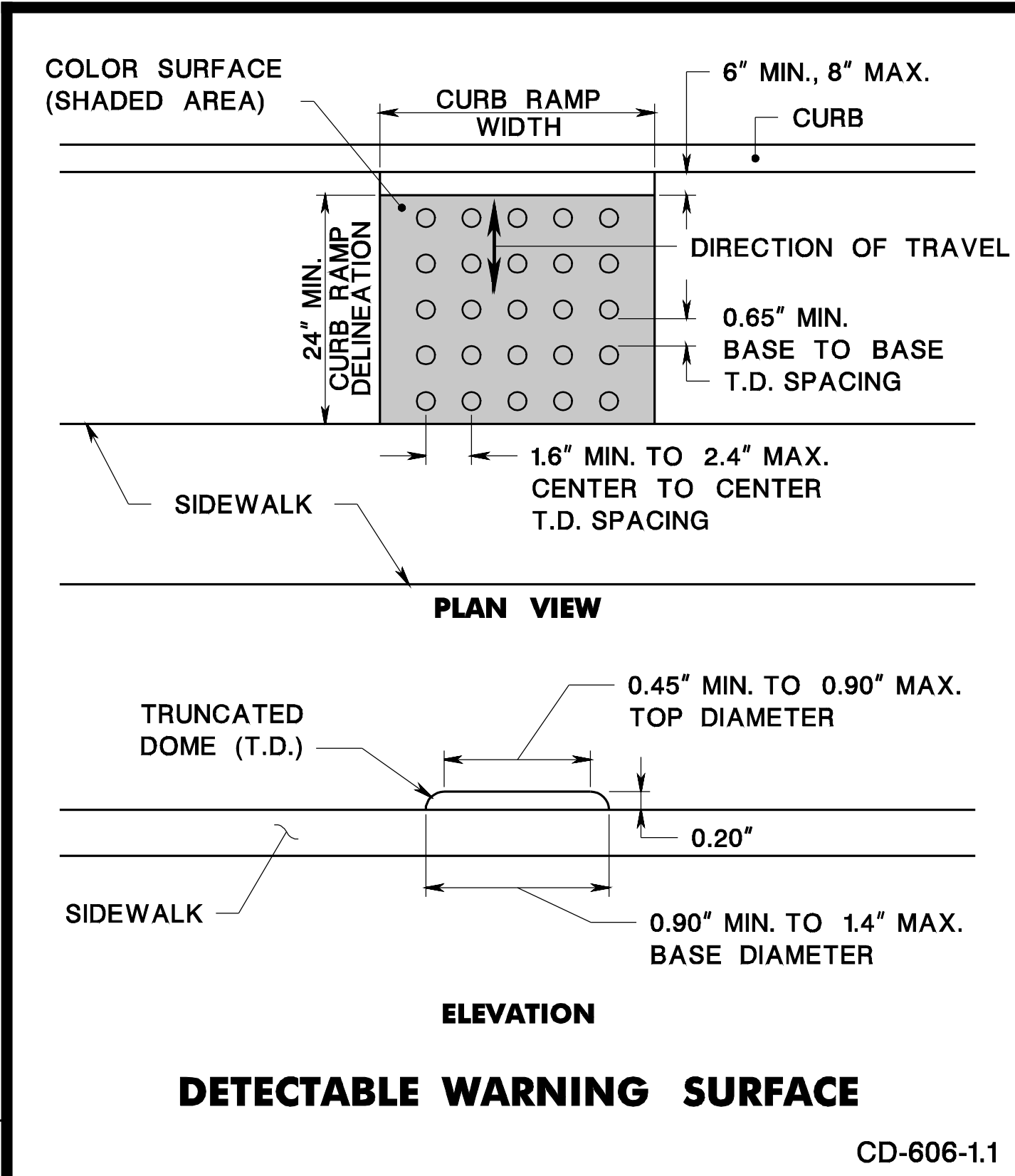
CD-605-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

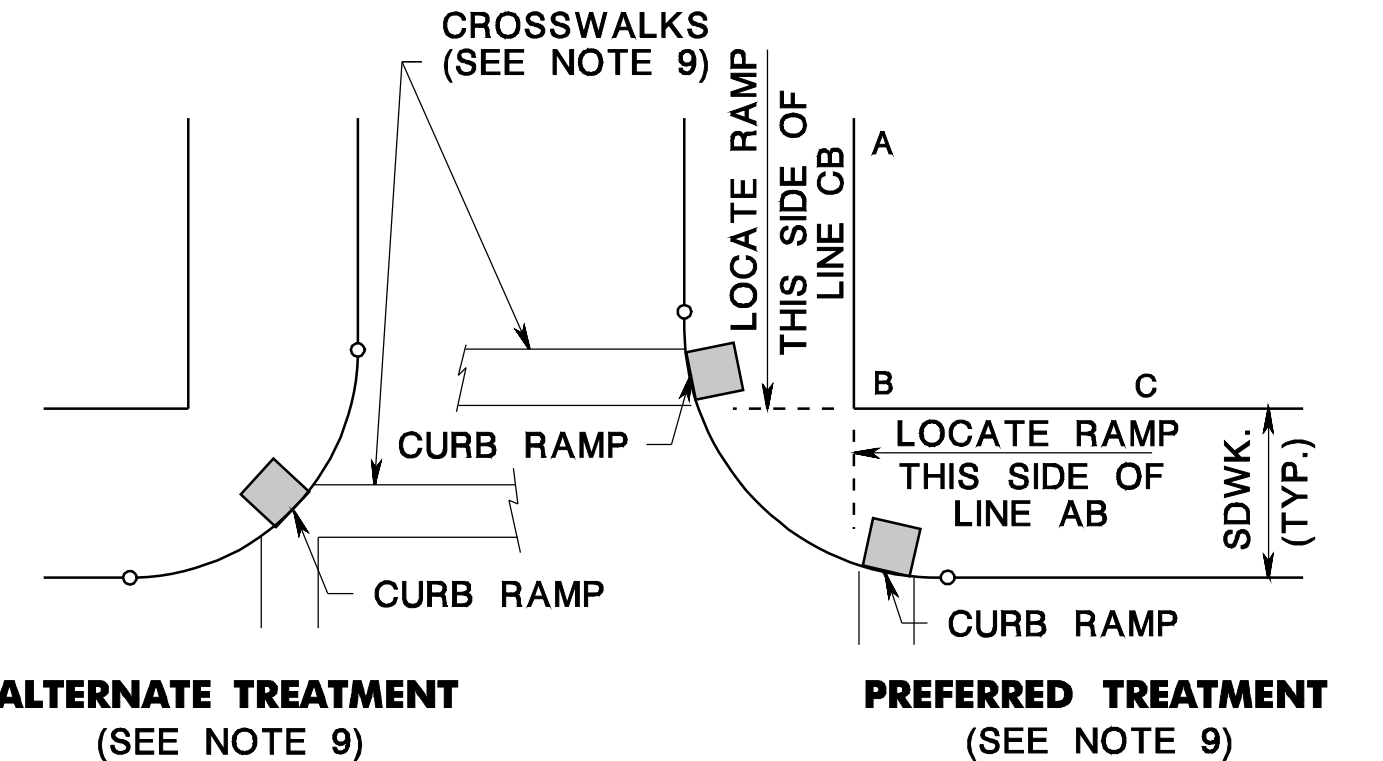
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CURB RAMP TYPE 7			
W FEET	H INCHES	X1 FEET	L1 FEET
4 MIN.	3	3	11
	4	4	13
	5	5	15
	6	6	17
	7	7	19
	8	8	21
6 MAX.	9	9	23

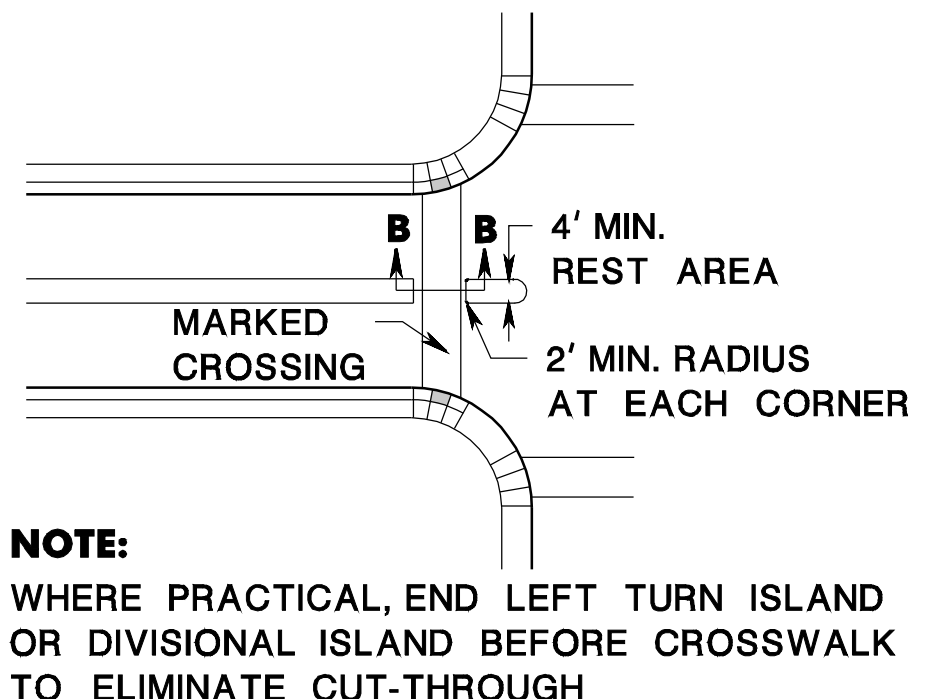


CURB RAMP TYPE 1			
H INCHES	X1 FEET	L1 FEET	W FEET
3	2.5	9.0	3
4	3.3	10.6	4
5	4.2	12.4	5
6	5.0	14.0	6
7	5.8	15.6	7
8	6.7	17.4	8
9	7.5	19.0	9

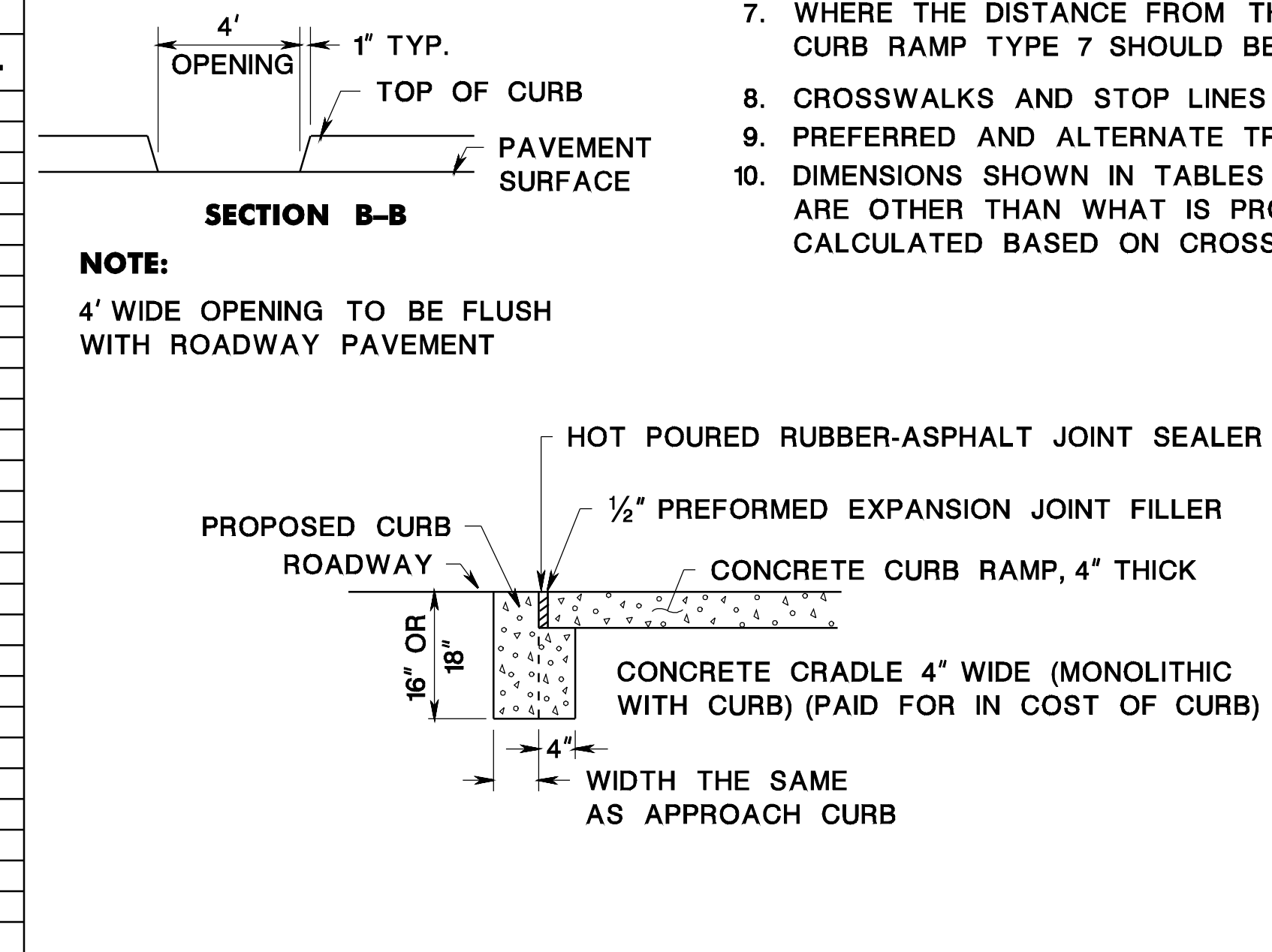
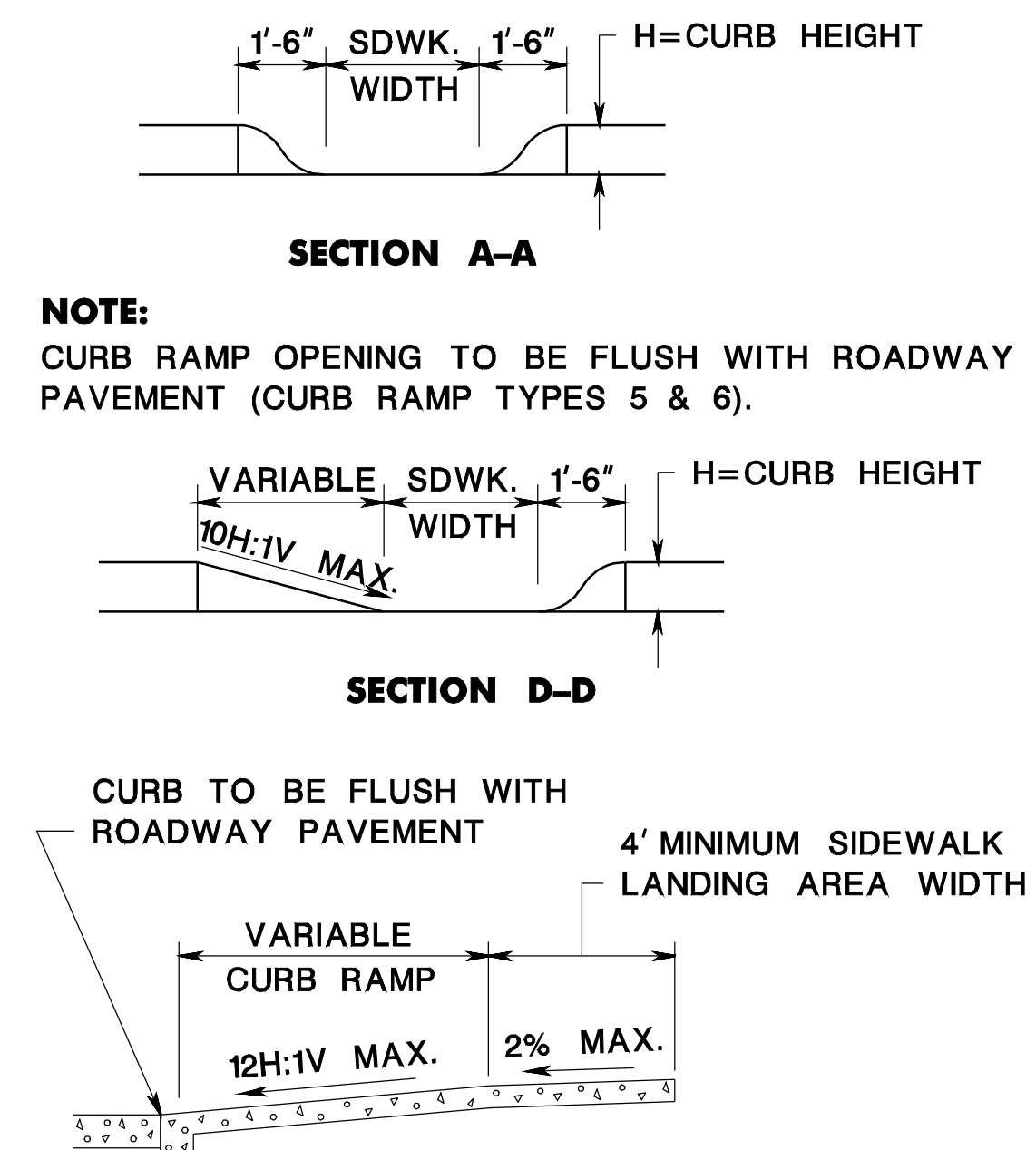
CURB RAMP TYPE 2, 5 OR 6	
H INCHES	W FEET
3	3
4	4
5	5
6	6
7	7
8	8
9	9

CURB RAMP TYPE 3						
W FEET	H INCHES	X1 FEET	L1 FEET	Y INCHES	X2 FEET	L2 FEET
2.5	3	2.5	9	2.5	0.5	5
	4	3.3	10.6	2.5	1.5	7
	5	4.2	12.4	2.5	2.5	9
	6	5.0	14.0	2.5	3.5	11
	7	5.8	15.6	2.5	4.5	13
	8	6.7	17.4	2.5	5.5	15
	9	7.5	19.0	2.5	6.5	17
3.0	3	*	*	*	*	*
	4	3.3	10.6	3.0	1	6
	5	4.2	12.4	3.0	2	8
	6	5.0	14.0	3.0	3	10
	7	5.8	15.6	3.0	4	12
	8	6.7	17.4	3.0	5	14
	9	7.5	19.0	3.0	6	16
3.5	3	*	*	*	*	*
	4	3.3	10.6	3.5	0.5	5
	5	4.2	12.4	3.5	1.5	7
	6	5.0	14.0	3.5	2.5	9
	7	5.8	15.6	3.5	3.5	11
	8	6.7	17.4	3.5	4.5	13
	9	7.5	19.0	3.5	5.5	15
4.0	3	*	*	*	*	*
	4	*	*	*	*	*
	5	4.2	12.4	4.0	1	6
	6	5.0	14.0	4.0	2	8
	7	5.8	15.6	4.0	3	10
	8	6.7	17.4	4.0	4	12
	9	7.5	19.0	4.0	5	14

CURB RAMP TYPE 4				
W FEET	H INCHES	Y INCHES	X2 FEET	L2 FEET
2.5	3	2.5	0.5	5
	4	2.5	1.5	7
	5	2.5	2.5	9
	6	2.5	3.5	11
	7	2.5	4.5	13
	8	2.5	5.5	15
	9	2.5	6.5	17
3.0	3	**	**	**
	4	3.0	1	6
	5	3.0	2	8
	6	3.0	3	10
	7	3.0	4	12
	8	3.0	5	14
	9	3.0	6	16
3.5	3	**	**	**
	4	3.5	0.5	5
	5	3.5	1.5	7
	6	3.5	2.5	9
	7	3.5	3.5	11
	8	3.5	4.5	13
	9	3.5	5.5	15
4.0	3	**	**	**
	4	**	**	**
	5	4.0	1	6
	6	4.0	2	8
	7	4.0	3	10
	8	4.0	4	12
	9	4.0	5	14



- LANDING AREA, APPROACH SIDEWALK TRANSITIONS, AND CURB RAMP SHALL BE KEPT CLEAR OF OBSTRUCTIONS.
- DIMENSIONS SHOWN IN TABLES ARE FOR RELATIVELY FLAT SIDEWALK AREAS. CARE SHOULD BE TAKEN WHEN DETERMINING CURB RAMP SIZE BASED ON CURB HEIGHT (H) WHERE ELEVATION OF CURB AND SIDEWALK VARY DRASTICALLY IN AREA OF PROPOSED CURB RAMP.
- CURB (DROPPED CURB) GUTTERLINE TO BE FLUSH WITH ROADWAY PAVEMENT A MINIMUM OF 4 FEET AT ALL CURB RAMPS.
- FOR CURB RAMP TYPES 5 AND 6, IF A GRASS BUFFER DOES NOT EXIST, SLOPE CURB TO EQUAL SLOPE OF ADJACENT CURB RAMP.
- SIDEWALK AND CURB RAMP WITHIN AREA ENCLOSED BY HEAVY LINES TO BE PAID FOR AS CONCRETE SIDEWALK OF THE APPROPRIATE ADJACENT THICKNESS.
- CURB AND HEADER WITHIN AREA ENCLOSED BY HEAVY LINES TO BE PAID FOR AS VERTICAL CURB OR SLOPING CURB OF THE APPROPRIATE ADJACENT SIZE AND KIND.
- WHERE THE DISTANCE FROM THE GUTTER LINE TO THE OUTSIDE EDGE OF SIDEWALK IS 6 FEET OR LESS, CURB RAMP TYPE 7 SHOULD BE USED, INSTEAD OF CURB RAMP TYPE 1 THROUGH 4.
- CROSSWALKS AND STOP LINES MAY BE MARKED OR UNMARKED, SEE PLANS.
- PREFERRED AND ALTERNATE TREATMENTS SHOULD NOT BE INTERMIXED WITHIN THE SAME INTERSECTION.
- DIMENSIONS SHOWN IN TABLES ARE FOR 3 INCH TO 9 INCH CURB HEIGHTS. WHERE THE CURB HEIGHTS ARE OTHER THAN WHAT IS PROVIDED IN THE TABLES, THE DIMENSIONS OF THE RAMPS WILL HAVE TO BE CALCULATED BASED ON CROSS SLOPES SHOWN.



PUBLIC SIDEWALK CURB RAMP DETECTABLE WARNING SURFACE
 N.T.S.
 HMA = HOT MIX ASPHALT
 CD-606-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

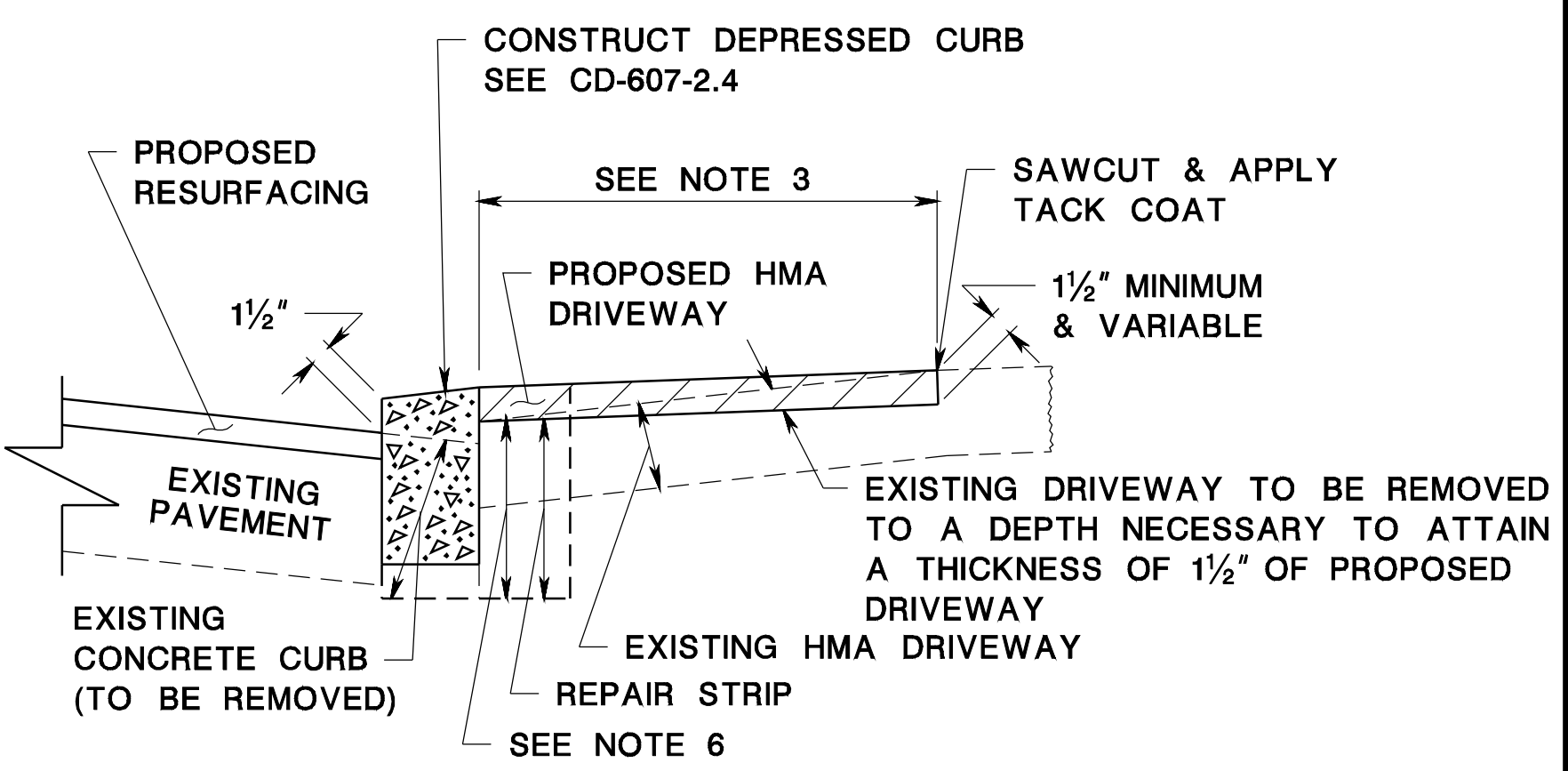
CONSTRUCTION DETAILS

16" OR 18" PROPOSED CURB ROADWAY
 HOT Poured RUBBER-ASPHALT JOINT SEALER
 1/2" PREFORMED EXPANSION JOINT FILLER
 CONCRETE CURB RAMP, 4" THICK
 CONCRETE CRADLE 4" WIDE (MONOLITHIC WITH CURB) (PAID FOR IN COST OF CURB)
 WIDTH THE SAME AS APPROACH CURB

CURB RAMPS

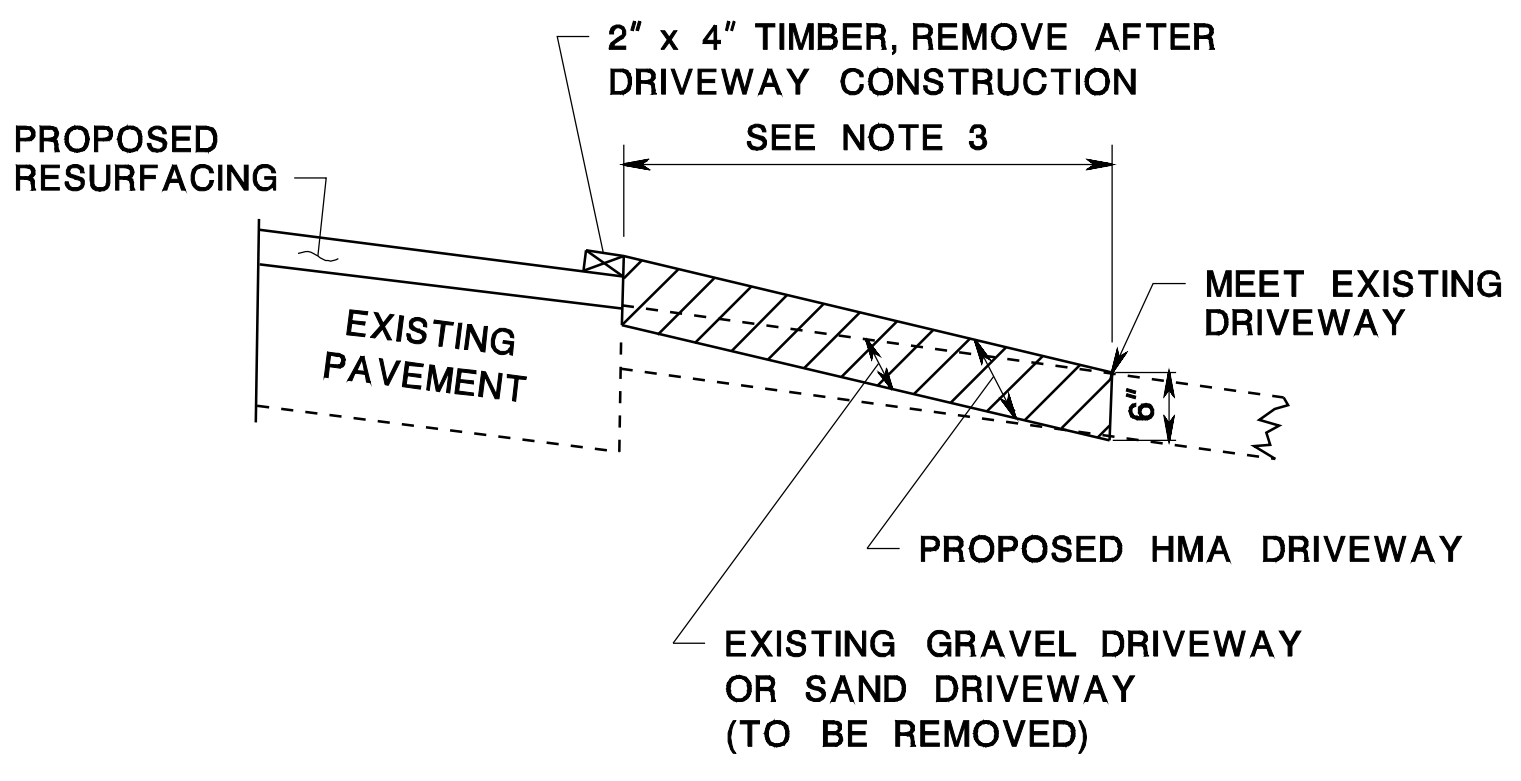
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TYPE A
RESURFACING OF EXISTING HMA DRIVEWAY (WITH DEPRESSED CURB)

CD-606-2.1

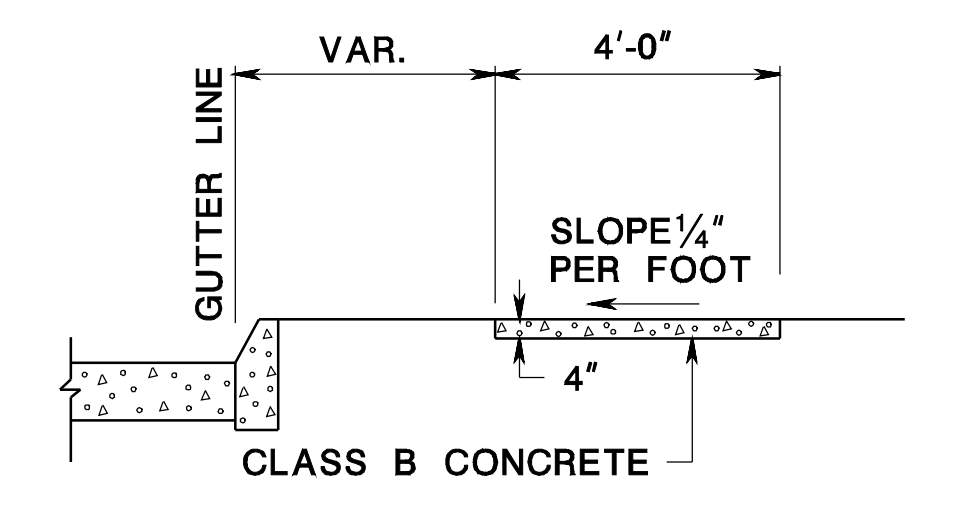


TYPE D
CONSTRUCTION OF HMA DRIVEWAY OR CONVERSION OF EXISTING GRAVEL DRIVEWAY (WITHOUT DEPRESSED CURB)

CD-606-2.4

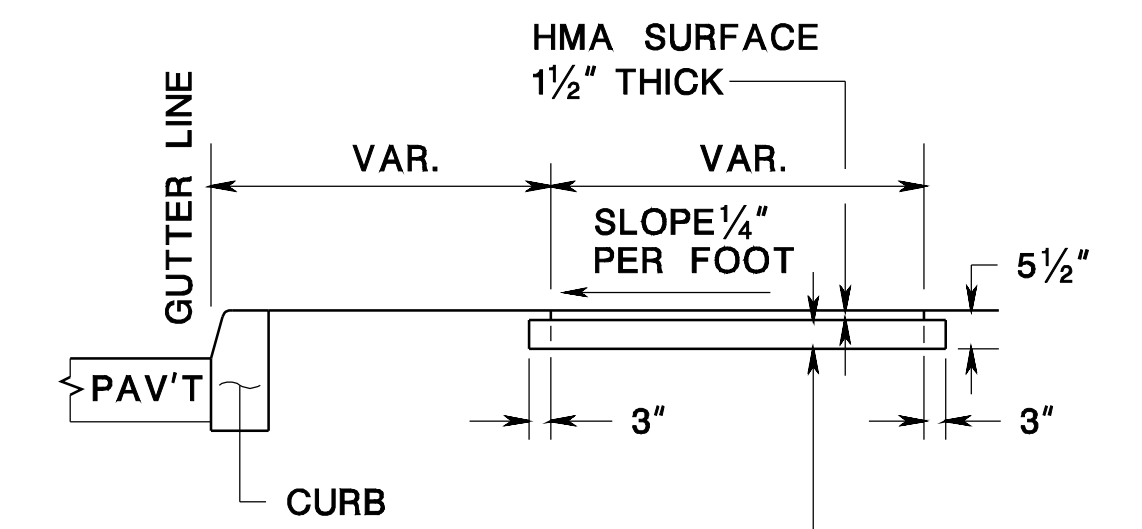
- GENERAL NOTES**
1. ALL MATERIAL, REPAIR STRIPS AND EXCAVATION FOR DRIVEWAY CONSTRUCTION TO BE INCLUDED IN THE BID PRICE FOR HMA DRIVEWAY, CONCRETE DRIVEWAY OR CONCRETE CURB.
 2. USE HMA SURFACE COURSE FOR HMA DRIVEWAY
 3. LENGTH OF DRIVEWAY WORK SHALL BE 5 FEET UNLESS OTHERWISE SHOWN ON PLANS OR AS DIRECTED.
 4. MAINTAIN EXISTING DIRECTION OF FLOW ON DRIVEWAY.
 5. DENSE GRADED AGGREGATE BASE COURSE SHALL BE USED TO PROVIDE TEMPORARY ACCESS DURING DRIVEWAY CONSTRUCTION.
 6. DENSE GRADED AGGREGATE BASE COURSE.

CD-606-2.7



CONCRETE SIDEWALK, 4" THICK

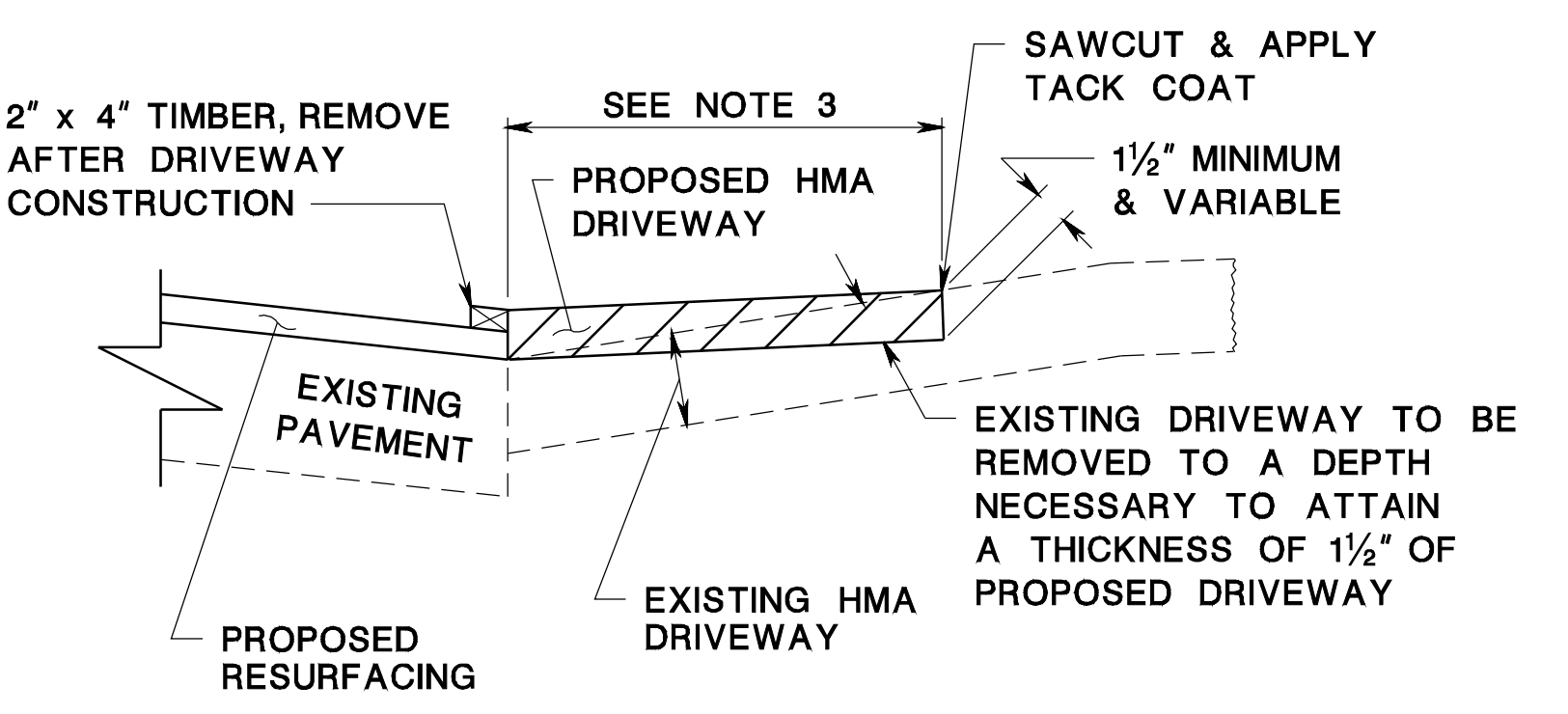
CD-606-2.9



DENSE GRADED AGGREGATE BASE COURSE, 4" THICK OR AGGREGATE BASE COURSE, 4" THICK AGGREGATE BASE COURSE IS SOIL AGGREGATE, DESIGNATION I-5

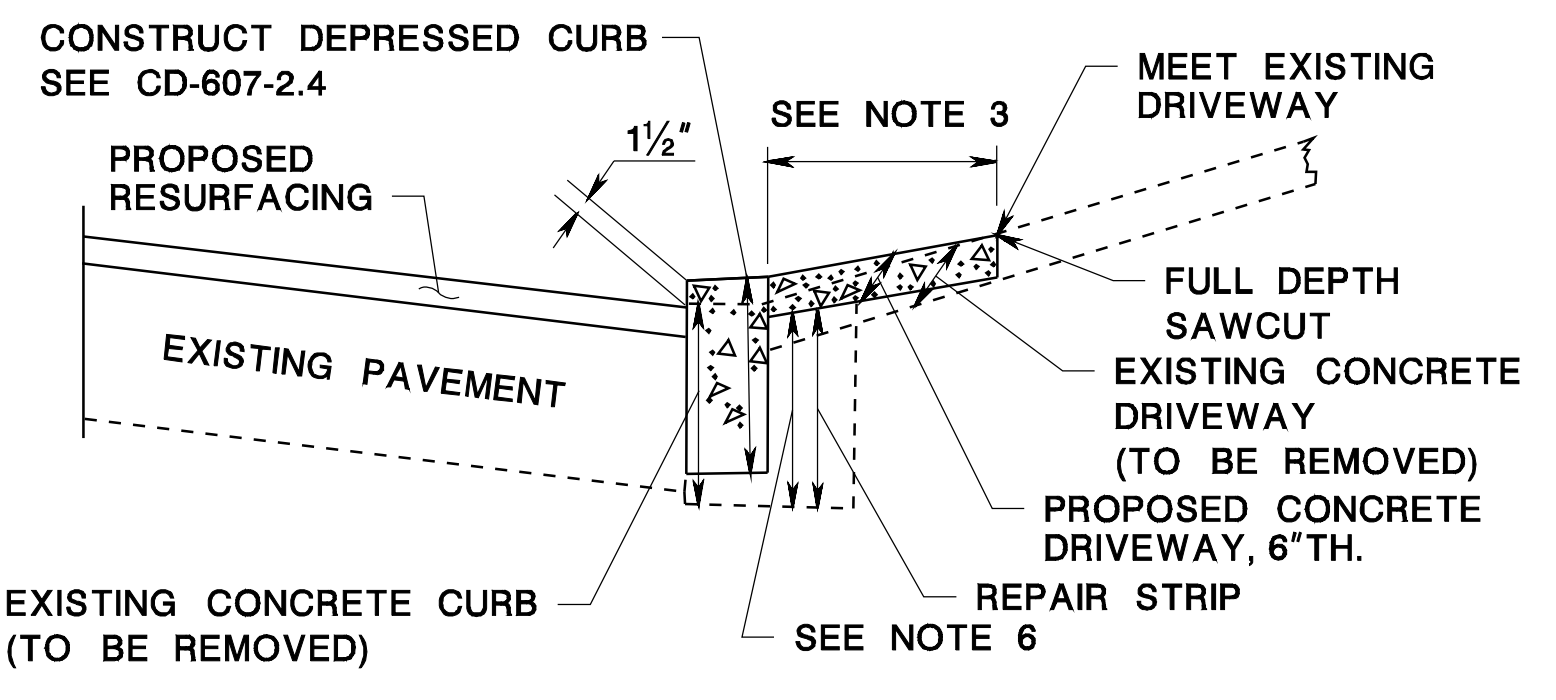
HMA SIDEWALK, 5 1/2" THICK

CD-606-2.10



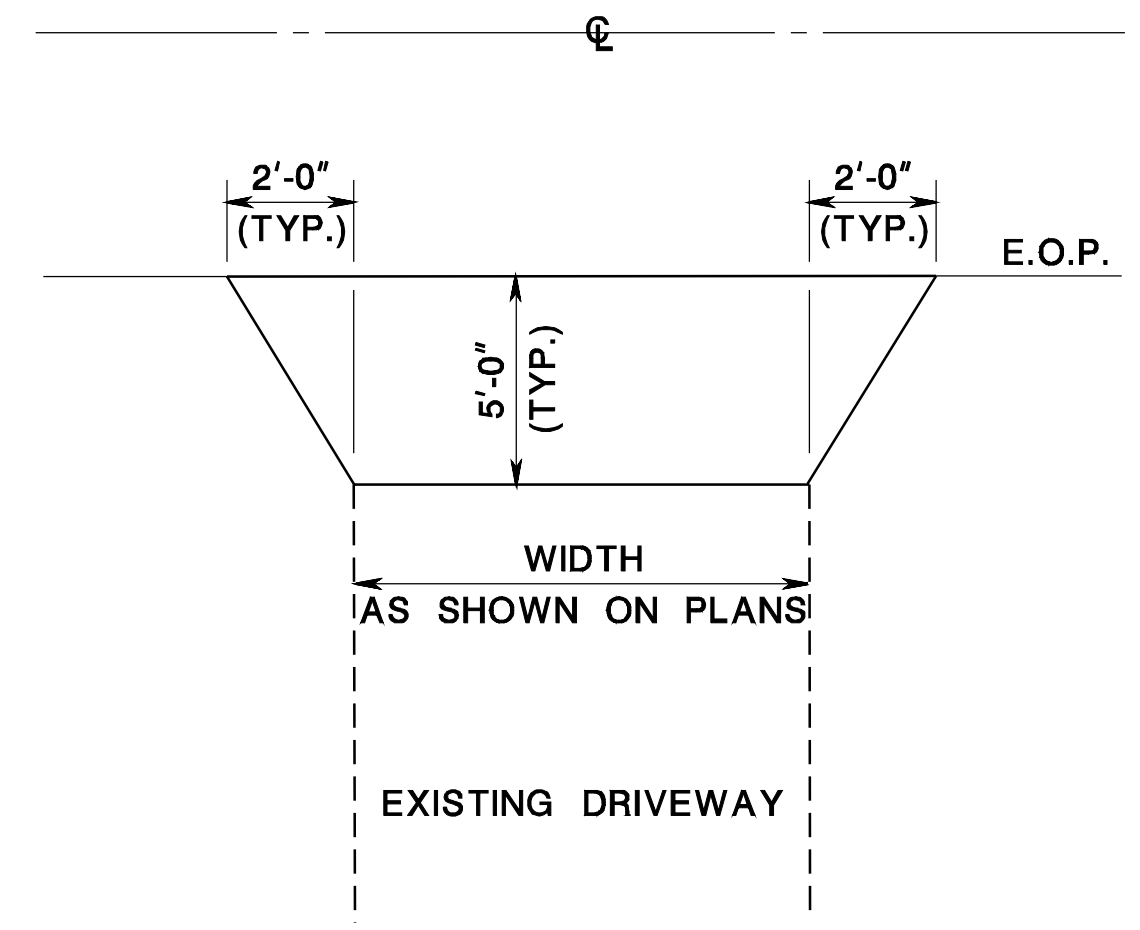
TYPE B
RESURFACING OF EXISTING HMA DRIVEWAY (WITHOUT DEPRESSED CURB)

CD-606-2.2



TYPE E
RECONSTRUCTION OF CONCRETE DRIVEWAY (WITH DEPRESSED CURB)

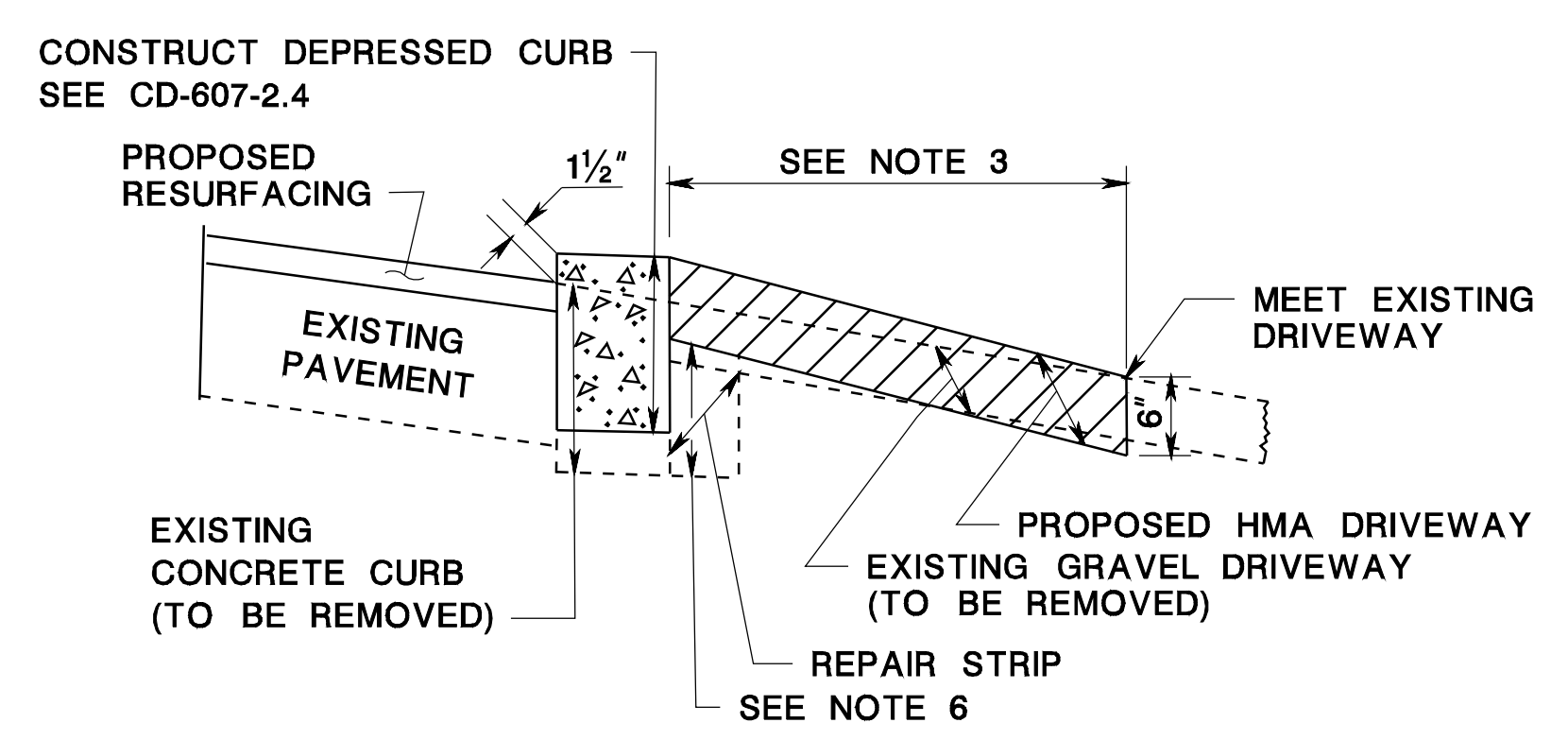
CD-606-2.5



TYPICAL DRIVEWAY TREATMENT

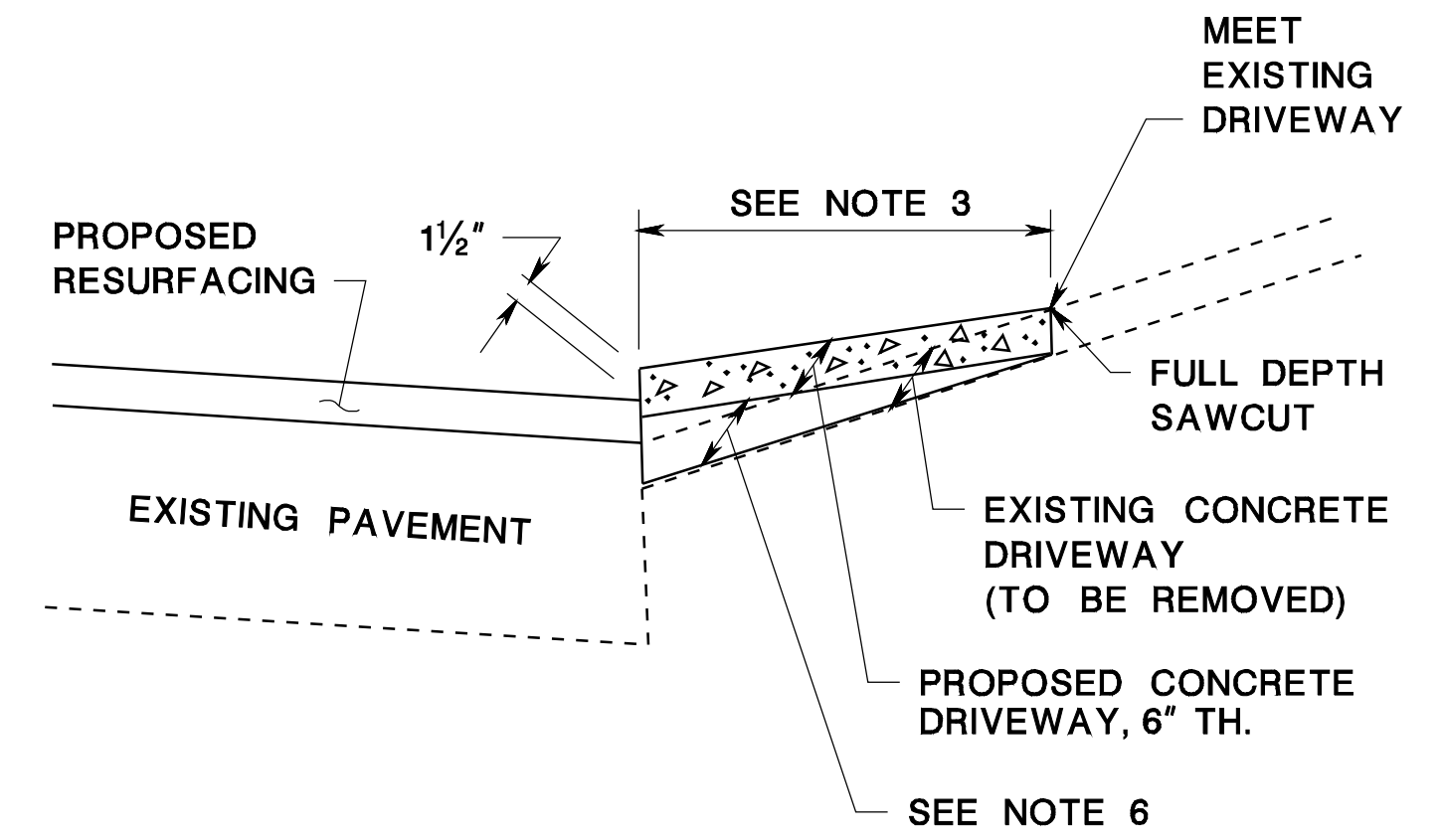
PLAN VIEW

CD-606-2.8



TYPE C
CONSTRUCTION OF HMA DRIVEWAY OR CONVERSION OF EXISTING GRAVEL DRIVEWAY (WITH DEPRESSED CURB)

CD-606-2.3



TYPE F
RECONSTRUCTION OF CONCRETE DRIVEWAY (WITHOUT DEPRESSED CURB)

CD-606-2.6

CONCRETE AND HMA DRIVEWAY AND SIDEWALK

N.T.S.
 HMA = HOT MIX ASPHALT

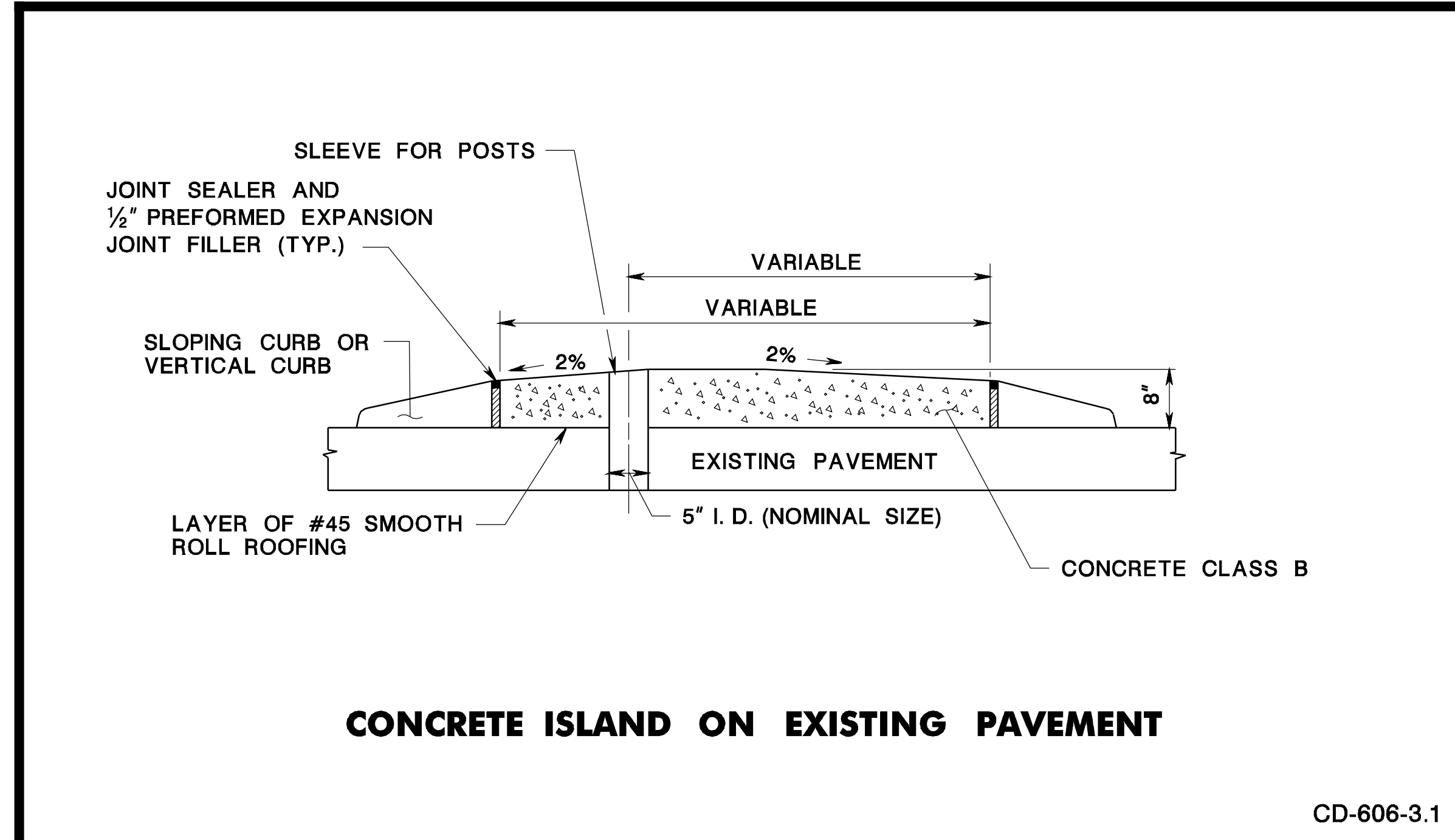
CD-606-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

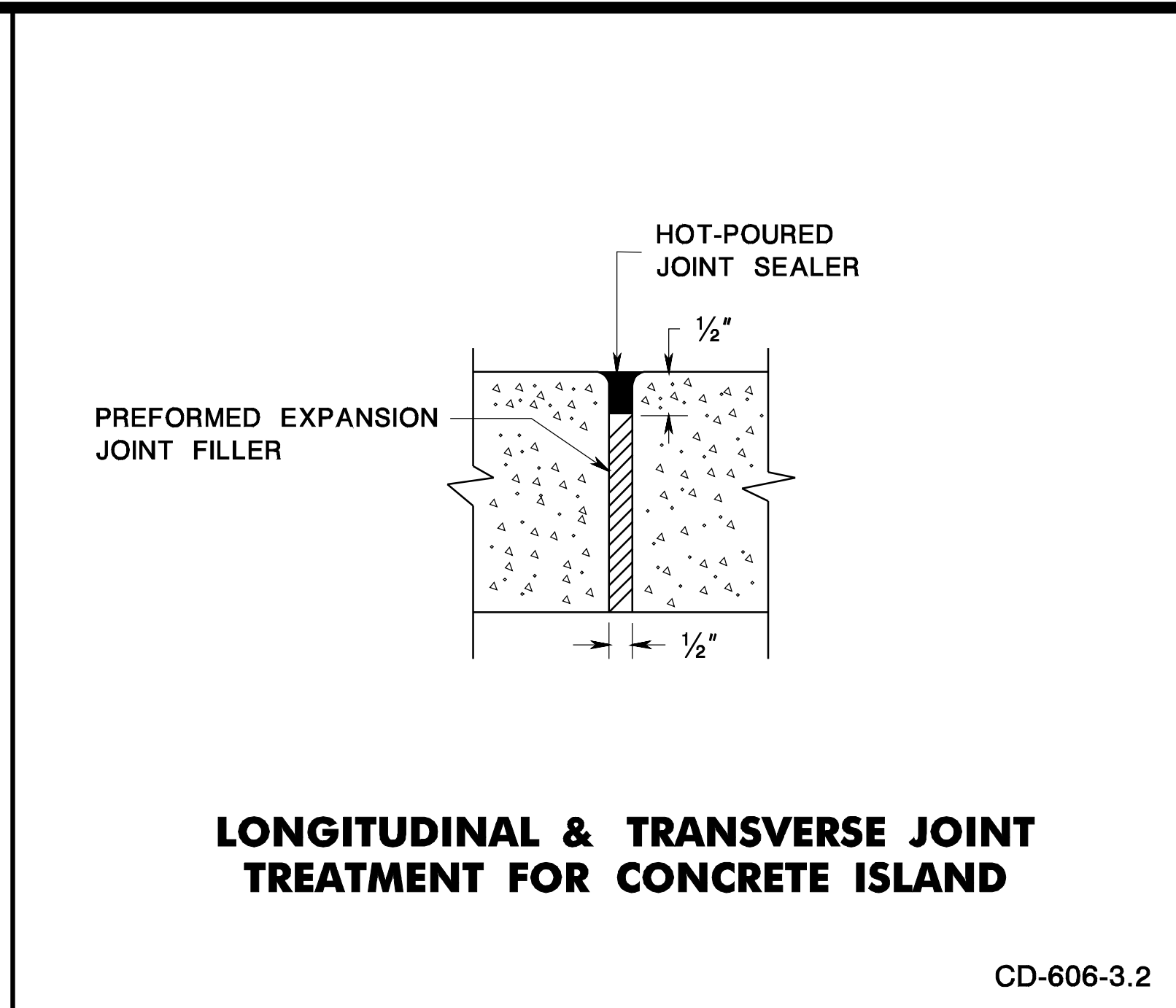
CONSTRUCTION DETAILS

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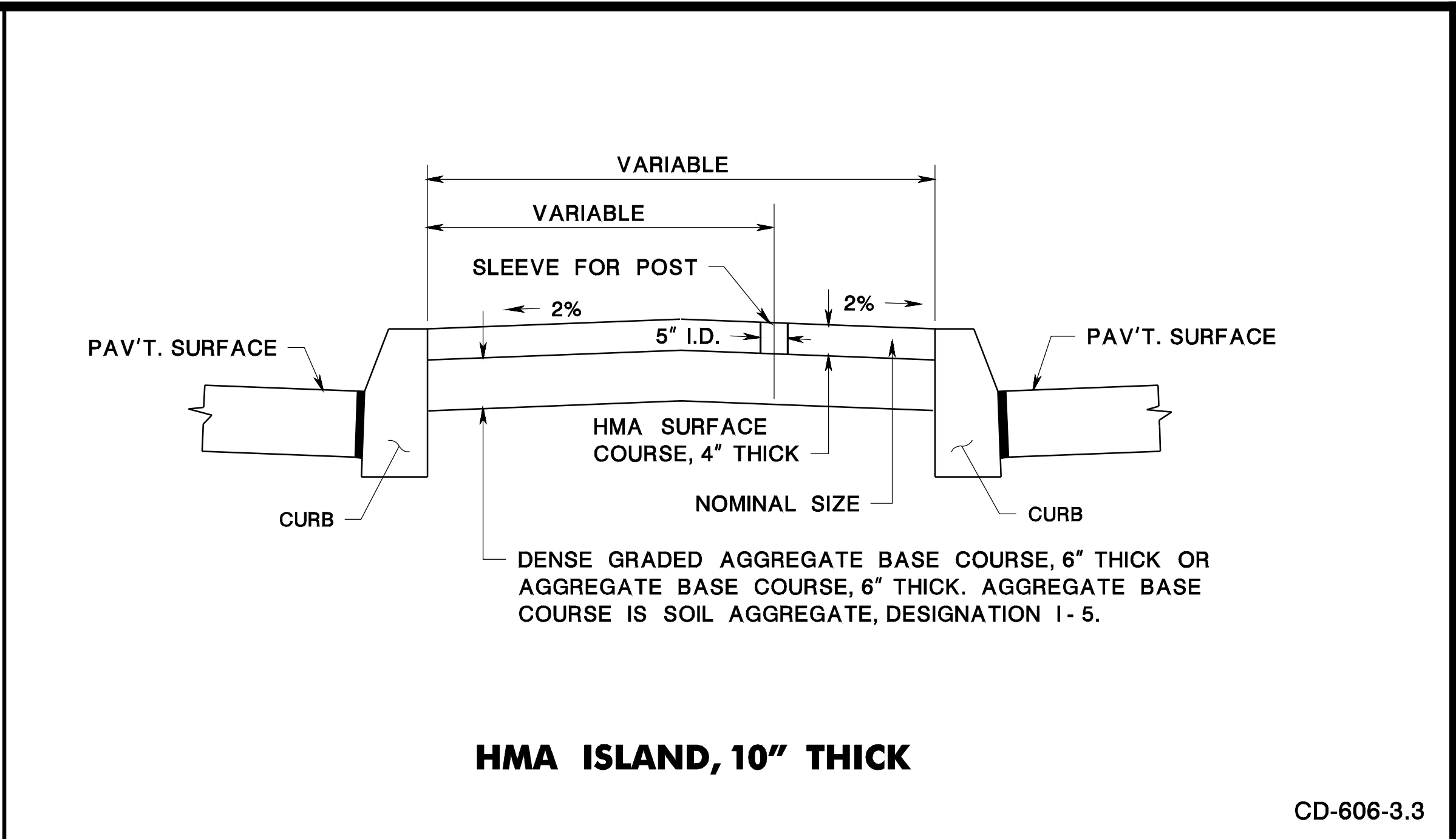
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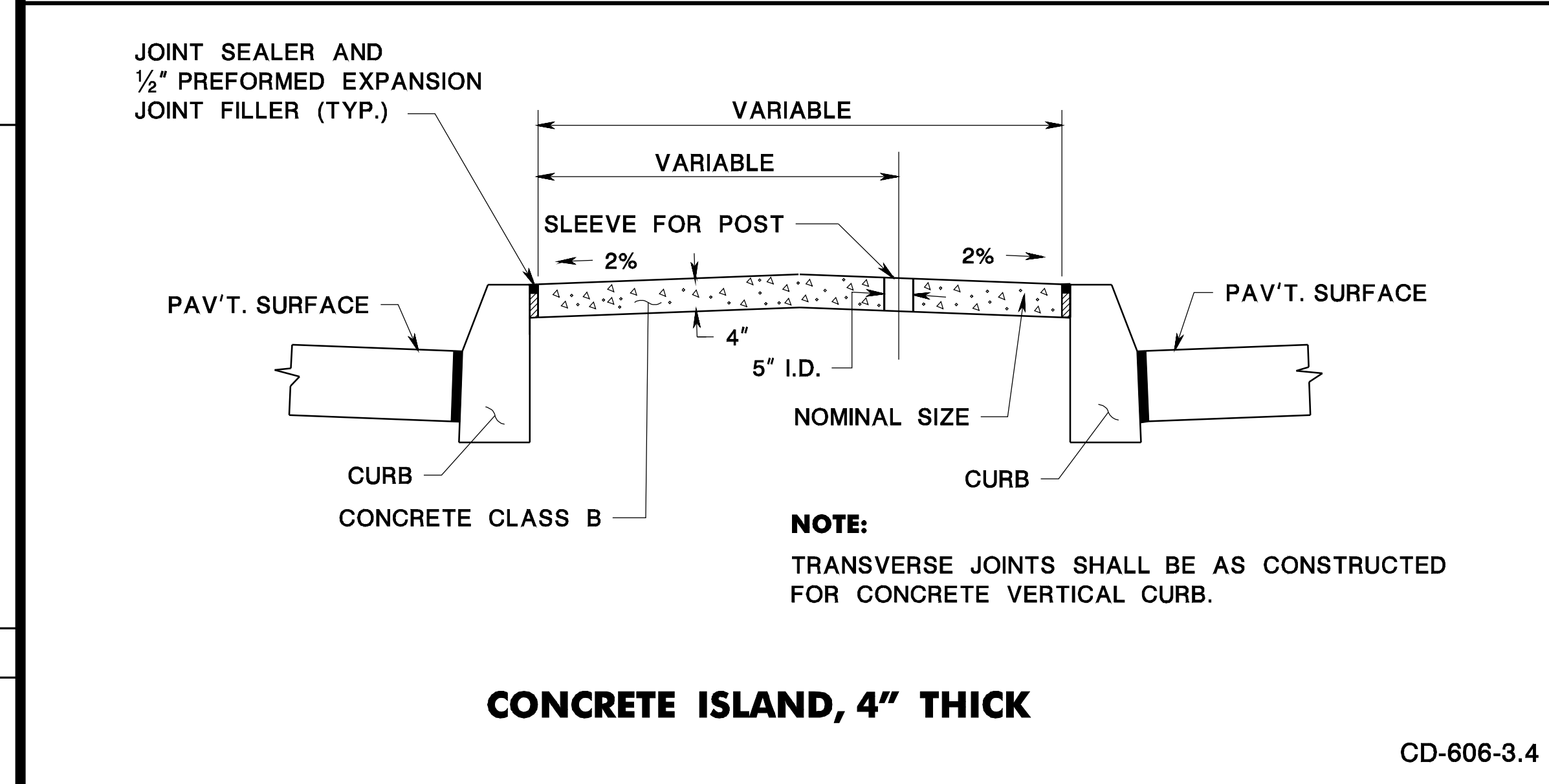
CD-606-3.1



CD-606-3.2



CD-606-3.3



CD-606-3.4

CONCRETE AND HMA ISLAND

N.T.S.

HMA = HOT MIX ASPHALT

CD-606-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

GENERAL NOTES APPLYING TO ALL TYPES OF DOWELLED CURBS

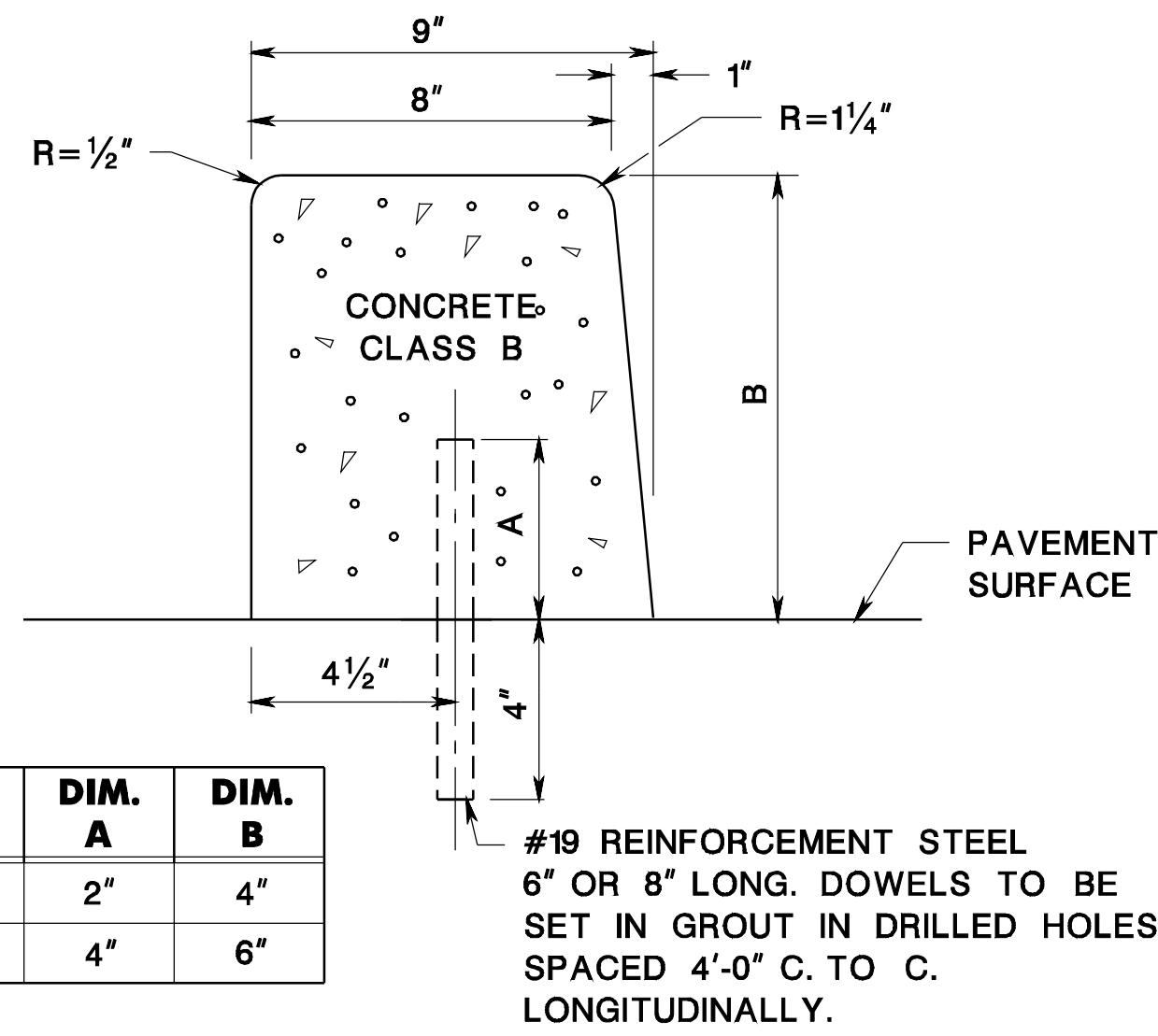
THE TRANSVERSE JOINTS SHALL BE CONSTRUCTED AS SPECIFIED FOR THE CURB, EXCEPT THAT THE THICKNESS OF THE JOINT FILLER IN THE CURB SHALL BE AS FOLLOWS:

- 1/2 INCH FOR INTERMEDIATE JOINTS AND JOINTS OVER DEFINITE CRACKS.
- 1/2 INCH OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS 50 FEET OR LESS.
- 1 INCH OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS MORE THAN 50 FEET VARIABLE IN MULTIPLES OF 1/2 INCH BUT NOT LESS THAN THE EXISTING WIDTH OF THE TRANSVERSE JOINTS IN BRIDGES AND THE JOINTS BETWEEN THE APPROACH SLABS AND BRIDGES.

FOR THICKNESS OF 1 INCH OR MORE, LAYERS OF 1/2 INCH MATERIAL MAY BE GLUED OR OTHERWISE FASTENED TOGETHER BY A MEANS SATISFACTORY TO THE R.E.. WHERE THE REQUIRED JOINT OPENING EXCEEDS 1 INCH, THE CONTRACTOR MAY CONSTRUCT OPEN JOINTS, IF DESIRED.

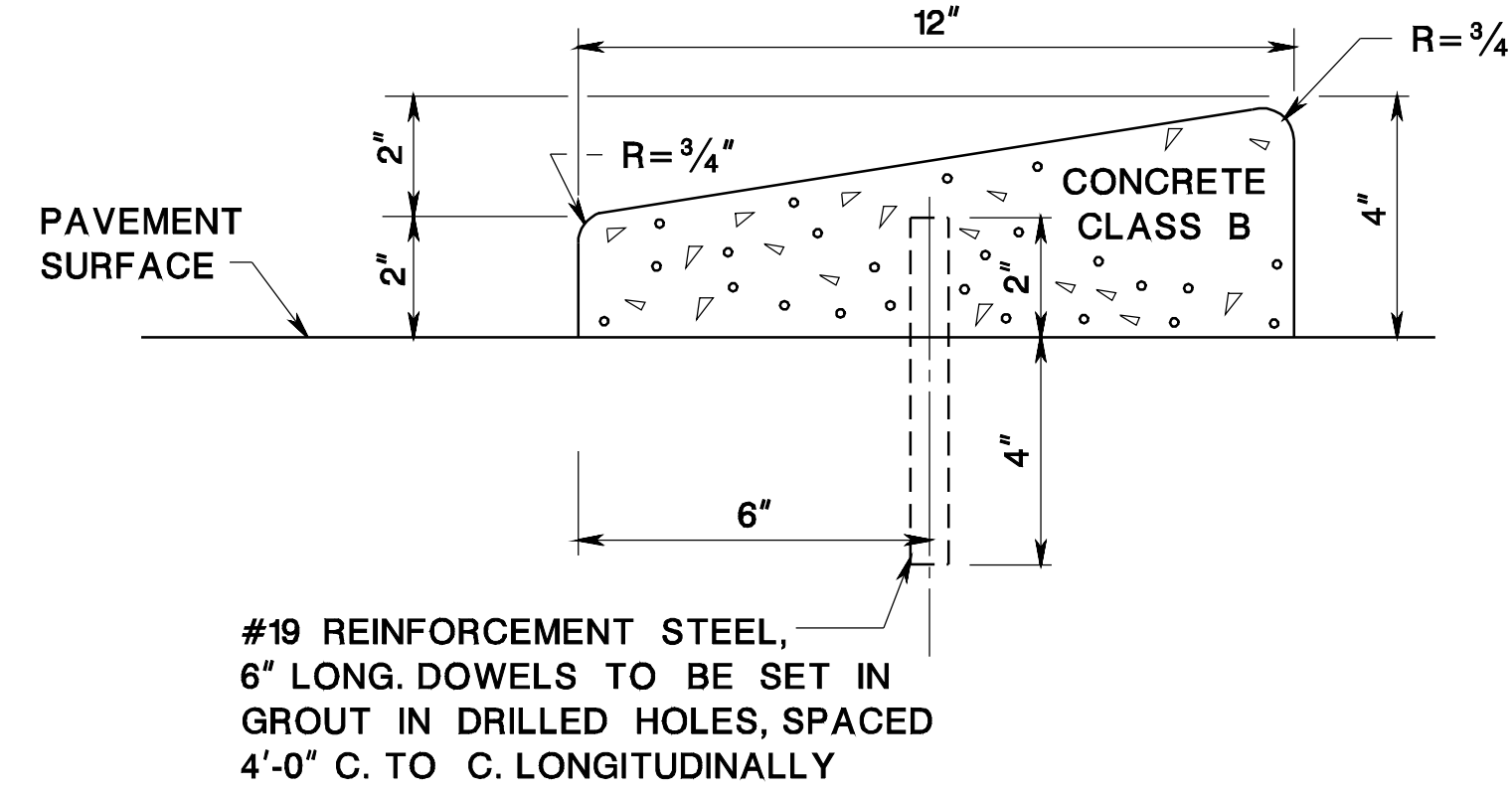
WHERE DOWELLED CURB IS TO BE CONSTRUCTED ACROSS A LONGITUDINAL JOINT IN THE EXISTING PAVEMENT, THE DOWELS IN THE SHORTER PORTION OF THE CURB PANEL SHALL BE OMITTED AND THE CURB IN THE PORTION OF THE PANEL SHALL BE CONSTRUCTED WITH 45# SMOOTH ROLL ROOFING BETWEEN IT AND THE EXISTING PAVEMENT.

CURB SIZE	DIM. A	DIM. B
9"x4"	2"	4"
9"x6"	4"	6"



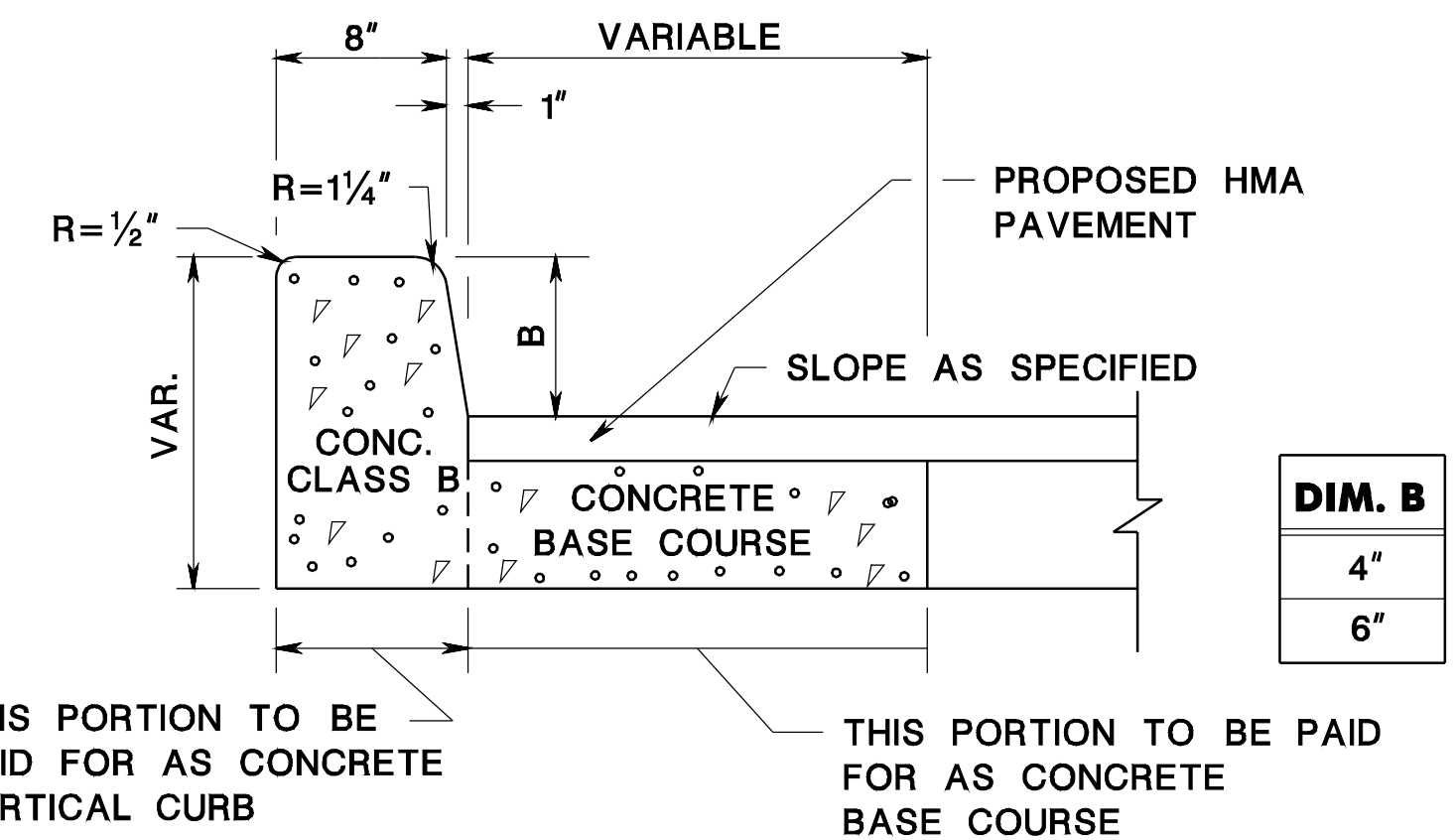
9' x 4' CONCRETE VERTICAL CURB, DOWELLED

CD-607-1.2



12' x 3' CONCRETE SLOPING CURB, DOWELLED

CD-607-1.3



THIS PORTION TO BE PAID FOR AS CONCRETE VERTICAL CURB

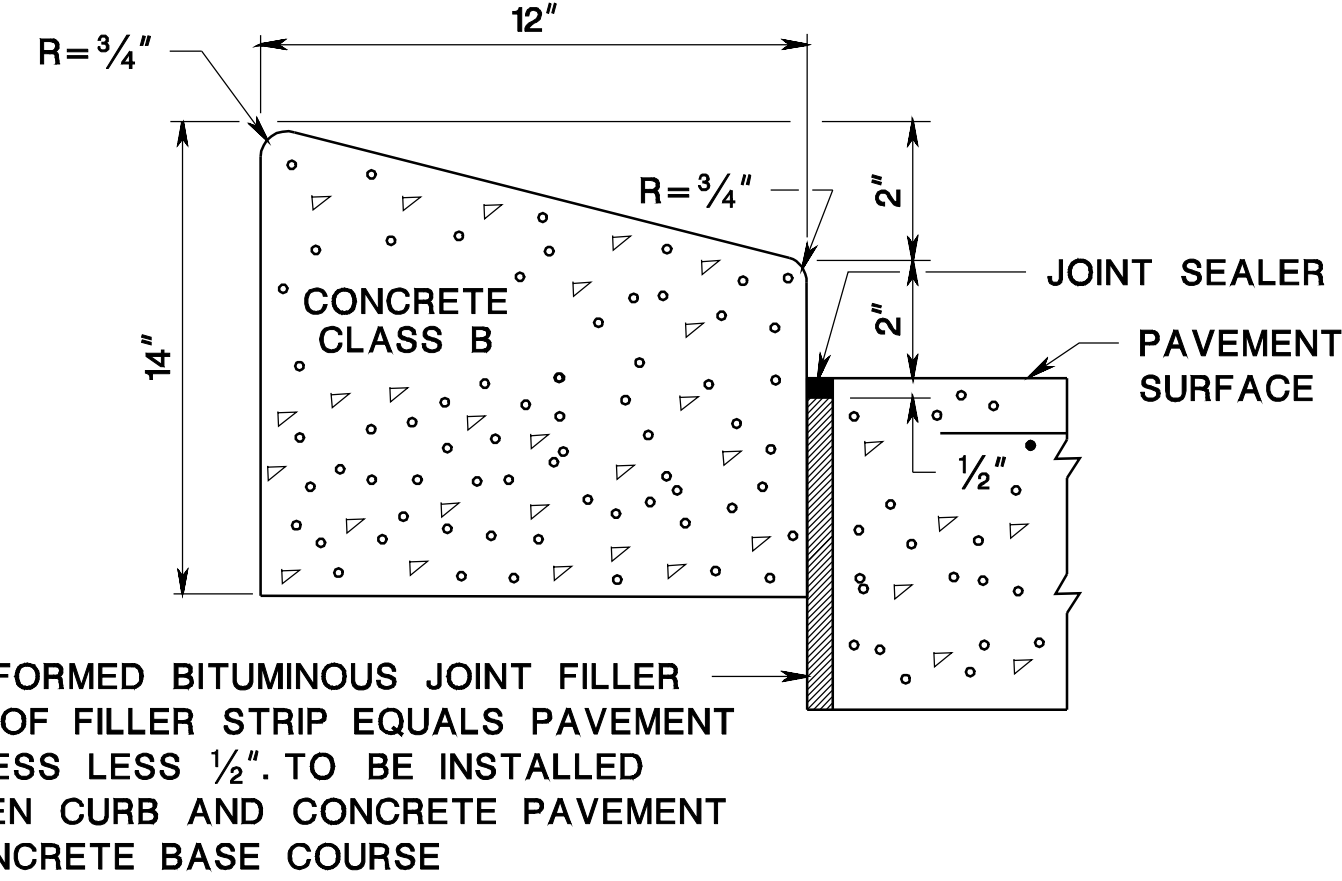
THIS PORTION TO BE PAID FOR AS CONCRETE BASE COURSE

NOTES: EXPANSION JOINTS 1/2 INCH WIDE IN THE CURB, AND EXPANSION JOINT ASSEMBLY IN THE MONOLITHIC PAVEMENT STRIP SHALL BE DIRECTLY OPPOSITE EVERY TRANSVERSE JOINT IN THE CENTRAL PAVEMENT STRIPS. JOINT MATERIAL IN THE CURB SHALL BE AS SPECIFIED FOR CONCRETE VERTICAL CURB. THE TRANSVERSE EXPANSION JOINT MATERIAL SHALL NOT EXTEND THRU THE CURB.

CONCRETE VERTICAL CURB MONOLITHIC WITH CONCRETE BASE COURSE

CD-607-1.4

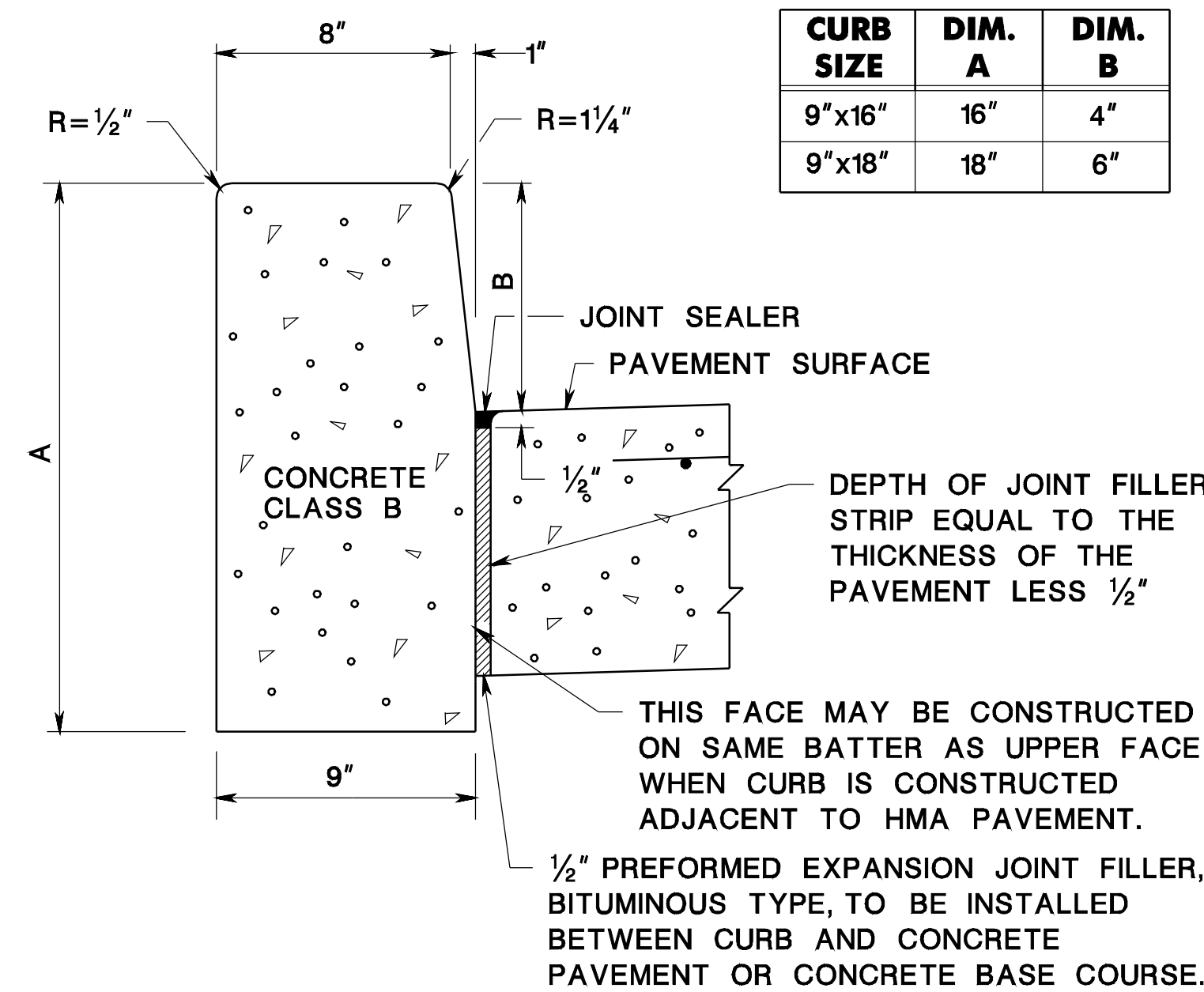
CD-607-1.1



1/2" PREFORMED BITUMINOUS JOINT FILLER DEPTH OF FILLER STRIP EQUALS PAVEMENT THICKNESS LESS 1/2". TO BE INSTALLED BETWEEN CURB AND CONCRETE PAVEMENT OR CONCRETE BASE COURSE

12' x 13' CONCRETE SLOPING CURB

CD-607-1.5



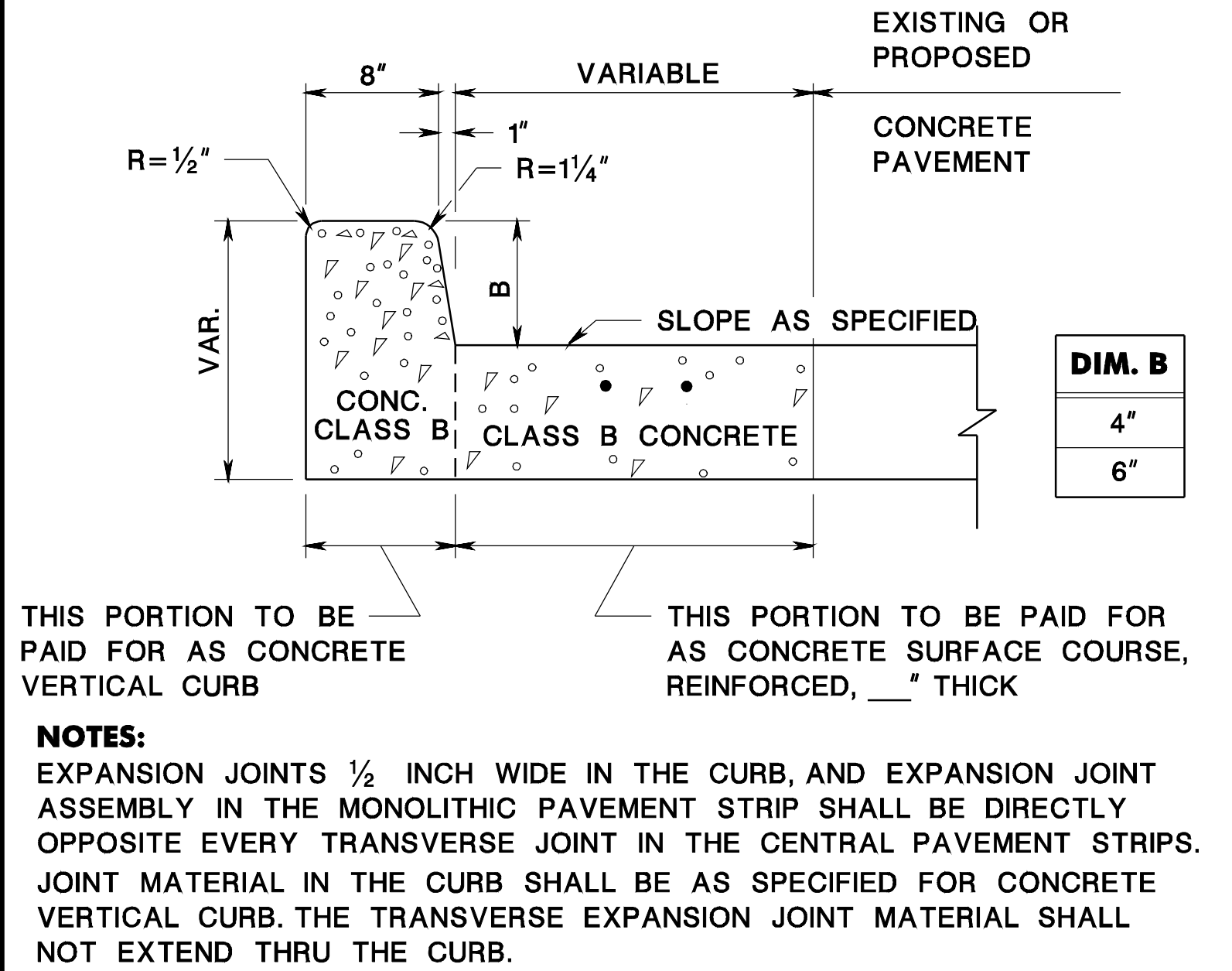
CURB SIZE	DIM. A	DIM. B
9"x16"	16"	4"
9"x18"	18"	6"

THIS FACE MAY BE CONSTRUCTED ON SAME BATTER AS UPPER FACE WHEN CURB IS CONSTRUCTED ADJACENT TO HMA PAVEMENT.

1/2" PREFORMED EXPANSION JOINT FILLER, BITUMINOUS TYPE, TO BE INSTALLED BETWEEN CURB AND CONCRETE PAVEMENT OR CONCRETE BASE COURSE.

CONCRETE VERTICAL CURB

CD-607-1.6



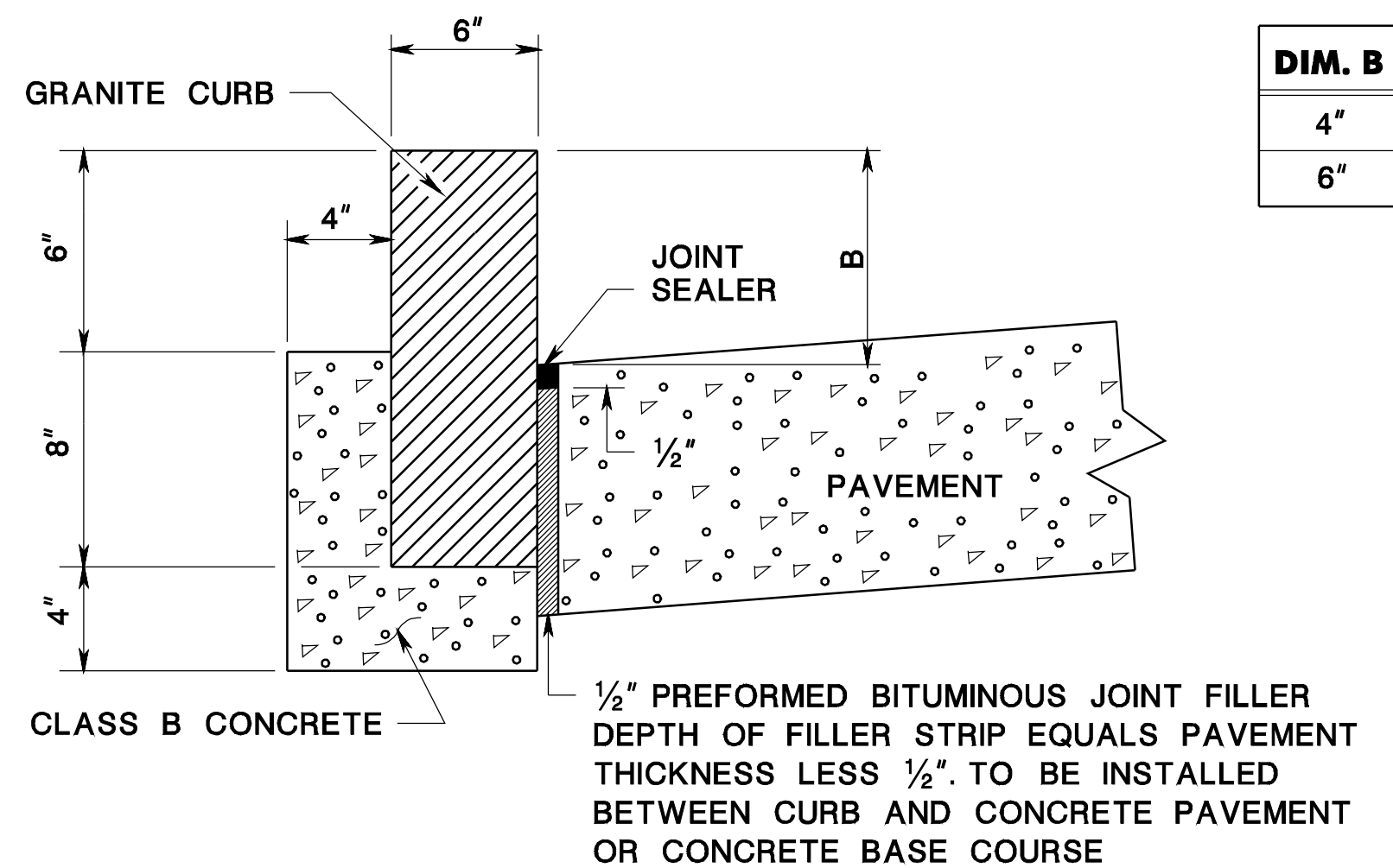
THIS PORTION TO BE PAID FOR AS CONCRETE VERTICAL CURB

THIS PORTION TO BE PAID FOR AS CONCRETE SURFACE COURSE, REINFORCED, 1/2" THICK

NOTES: EXPANSION JOINTS 1/2 INCH WIDE IN THE CURB, AND EXPANSION JOINT ASSEMBLY IN THE MONOLITHIC PAVEMENT STRIP SHALL BE DIRECTLY OPPOSITE EVERY TRANSVERSE JOINT IN THE CENTRAL PAVEMENT STRIPS. JOINT MATERIAL IN THE CURB SHALL BE AS SPECIFIED FOR CONCRETE VERTICAL CURB. THE TRANSVERSE EXPANSION JOINT MATERIAL SHALL NOT EXTEND THRU THE CURB.

CONCRETE VERTICAL CURB MONOLITHIC WITH CONCRETE PAVEMENT

CD-607-1.7



DIM. B
4"
6"

1/2" PREFORMED BITUMINOUS JOINT FILLER DEPTH OF FILLER STRIP EQUALS PAVEMENT THICKNESS LESS 1/2". TO BE INSTALLED BETWEEN CURB AND CONCRETE PAVEMENT OR CONCRETE BASE COURSE

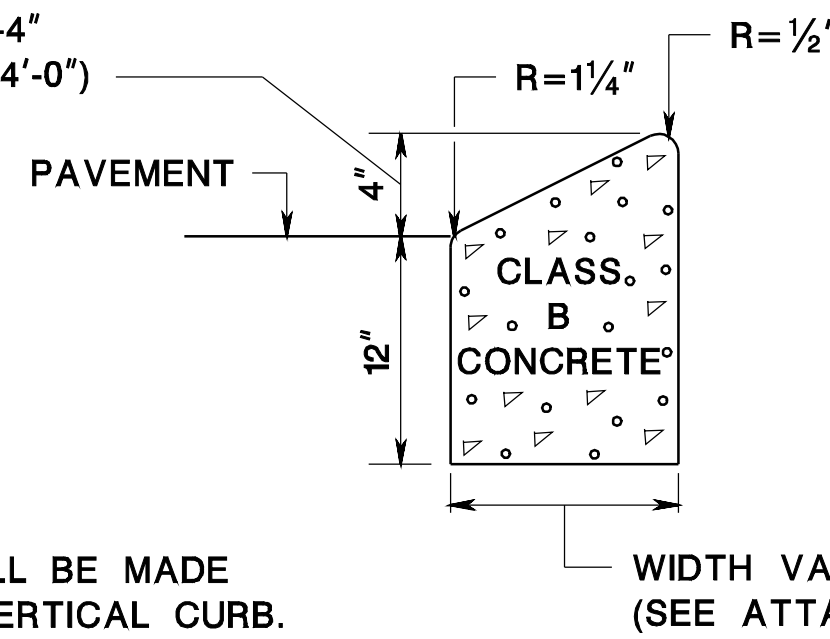
NOTE: FOUNDATION TO BE INSTALLED THE ENTIRE LENGTH OF THE GRANITE CURB.

NEW OR RESET GRANITE CURB

CD-607-1.8

ATTACHMENT TABLE		
CD NO.	ATTACH. TYPE	WIDTH
609-13	B	11 1/4"
609-15	A	7"
609-15	B	11 1/4"
609-16	A	7"
609-16	B	11 1/4"

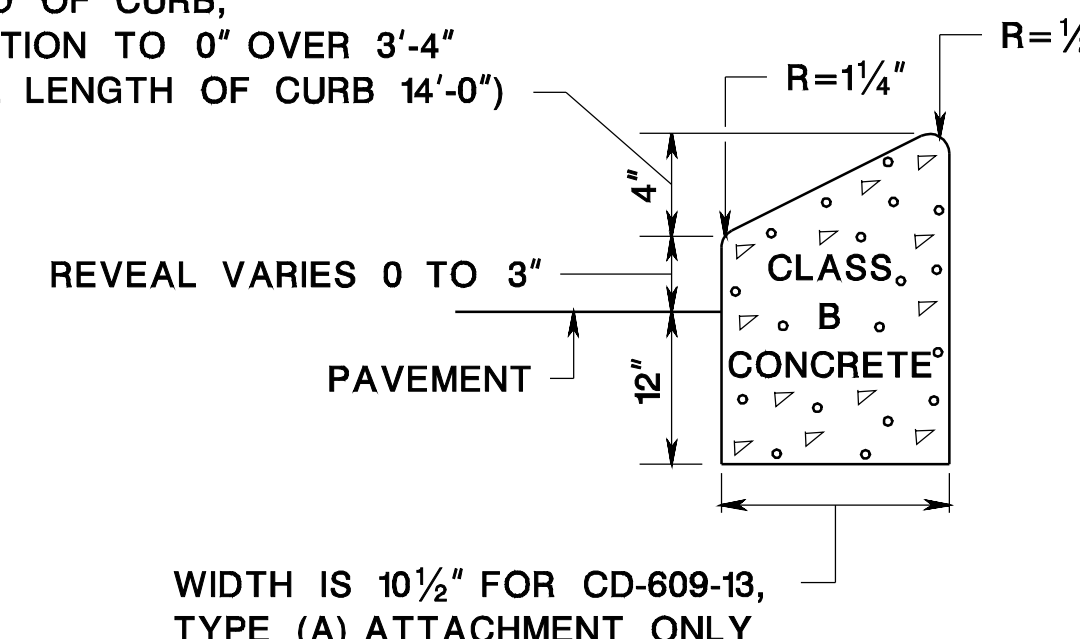
AT END OF CURB, TRANSITION TO 0" OVER 3'-4" (TOTAL LENGTH OF CURB 14'-0")



NOTE: PAYMENT FOR LIP CURB WILL BE MADE UNDER 9' x 16" CONCRETE VERTICAL CURB.

LIP CURB FOR BEAM GUIDE RAIL ATTACHMENTS

AT END OF CURB, TRANSITION TO 0" OVER 3'-4" (TOTAL LENGTH OF CURB 14'-0")



REVEAL VARIES 0 TO 3"

WIDTH IS 10 1/2" FOR CD-609-13, TYPE (A) ATTACHMENT ONLY

CD-607-1.9

CONCRETE AND GRANITE CURB

N.T.S.

REINFORCEMENT STEEL IS IN METRIC UNITS.
HMA = HOT MIX ASPHALT

CD-607-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

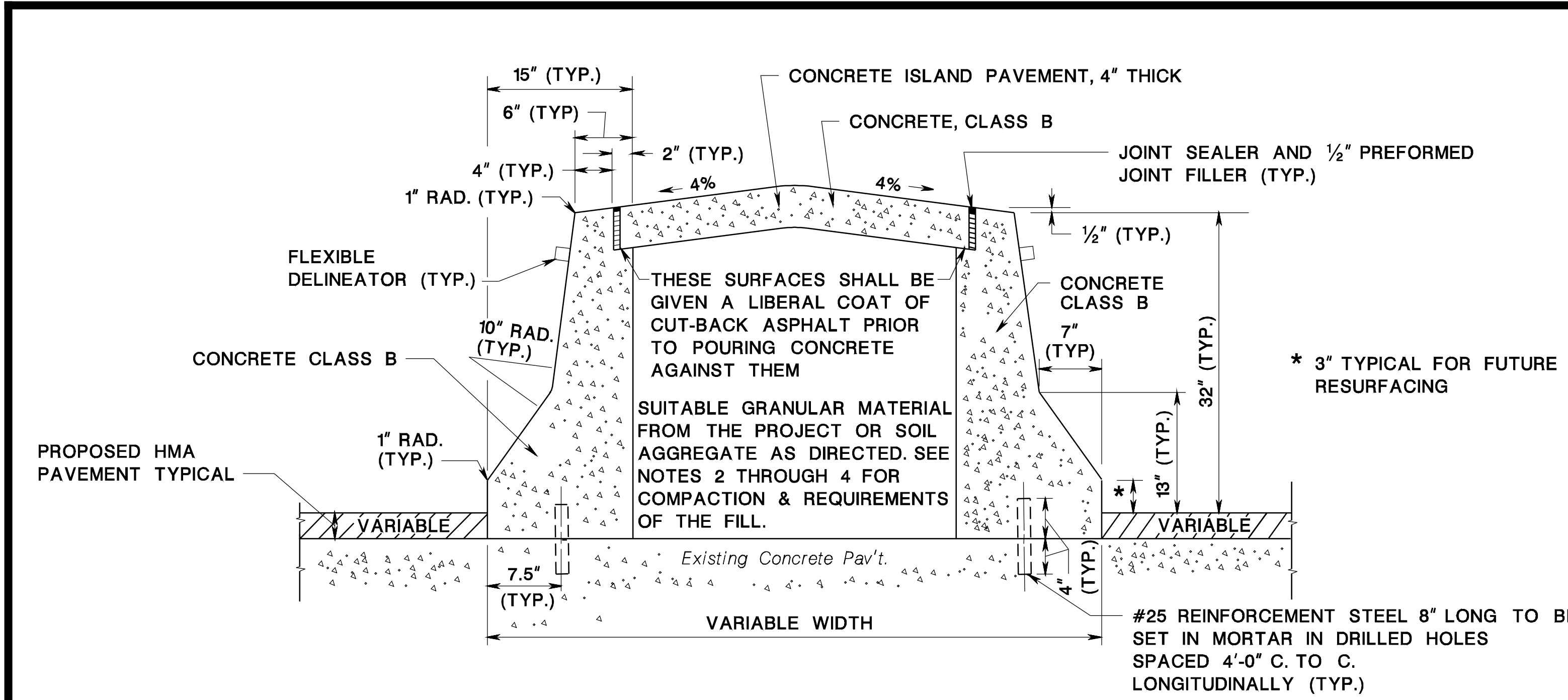
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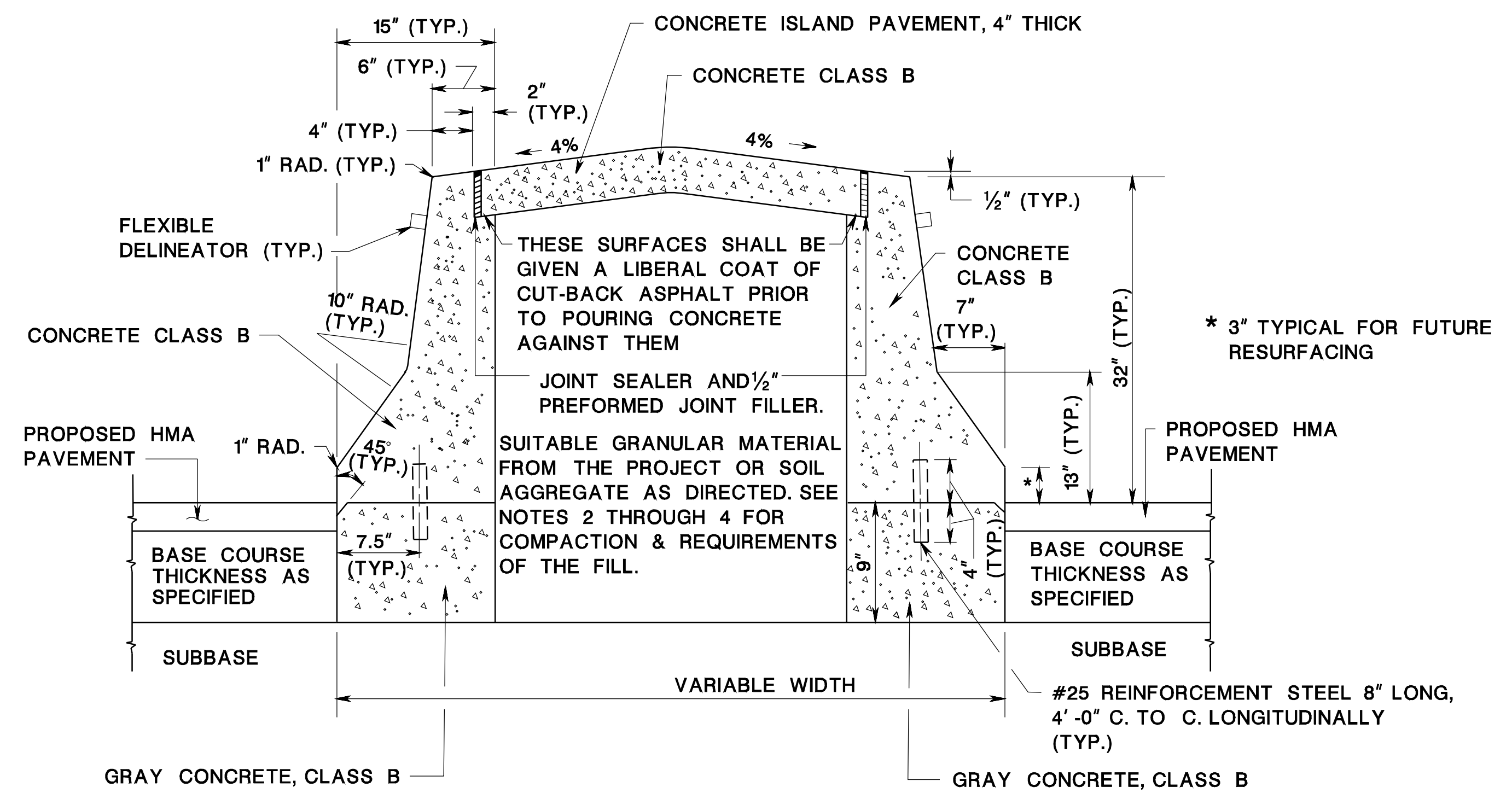
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BDC08D-01-LINEAR CURB TRANSITION
BDC07D-01-ORIGINAL SHEET



15" x VARIABLE HEIGHT CONCRETE BARRIER CURB, DOWELED

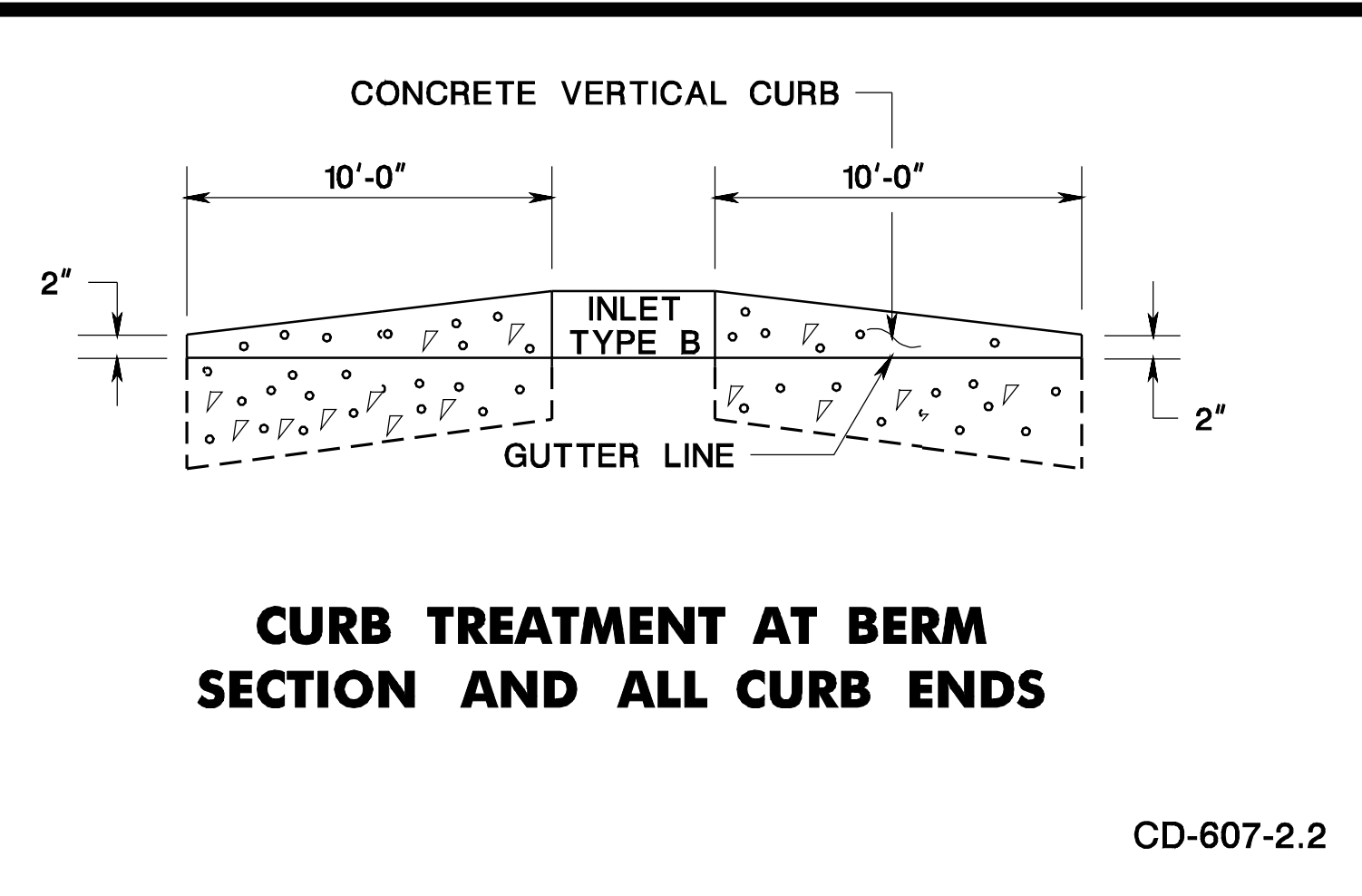


15" x 41" CONCRETE BARRIER CURB

NOTES:

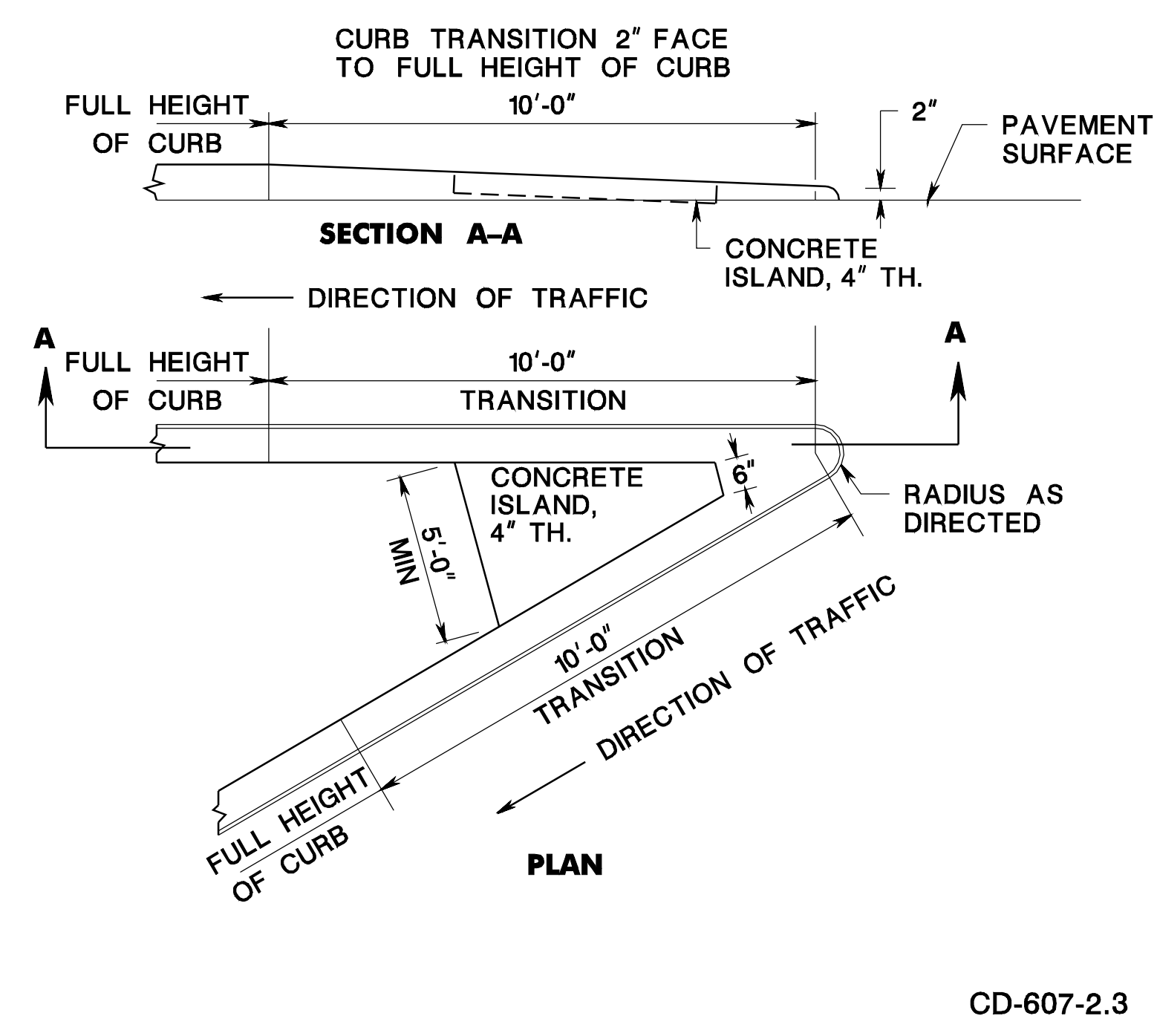
1. SEE GENERAL NOTES APPLYING TO ALL BARRIER CURB CD-607-3.2.
2. COMPACTION SHALL BE IN ACCORDANCE WITH THE DIRECTED METHOD OF THE NJDOT STANDARD SPECIFICATIONS AND ITS SUPPLEMENTS.
3. THE FILL BETWEEN THE CURBS SHALL BE SHAPED AND COMPACTED TO A FIRM EVEN SURFACE. UNSTABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL WHICH SHALL BE COMPACTED.
4. SOIL LIFTS SHALL BE LIMITED TO 12 INCHES AND EACH LIFT SHALL BE COMPACTED.

CD-607-2.1

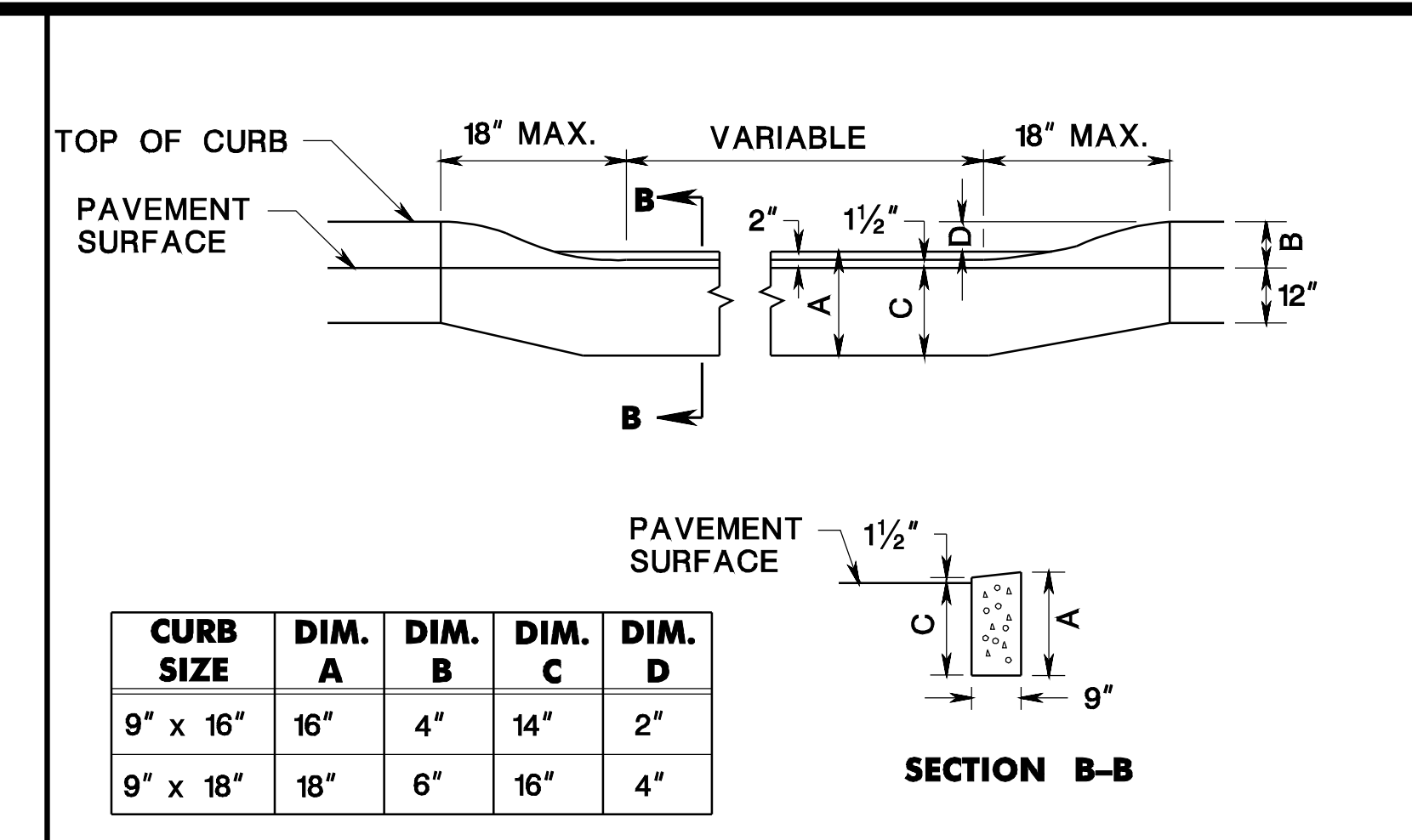


CURB TREATMENT AT BERM SECTION AND ALL CURB ENDS

CD-607-2.2



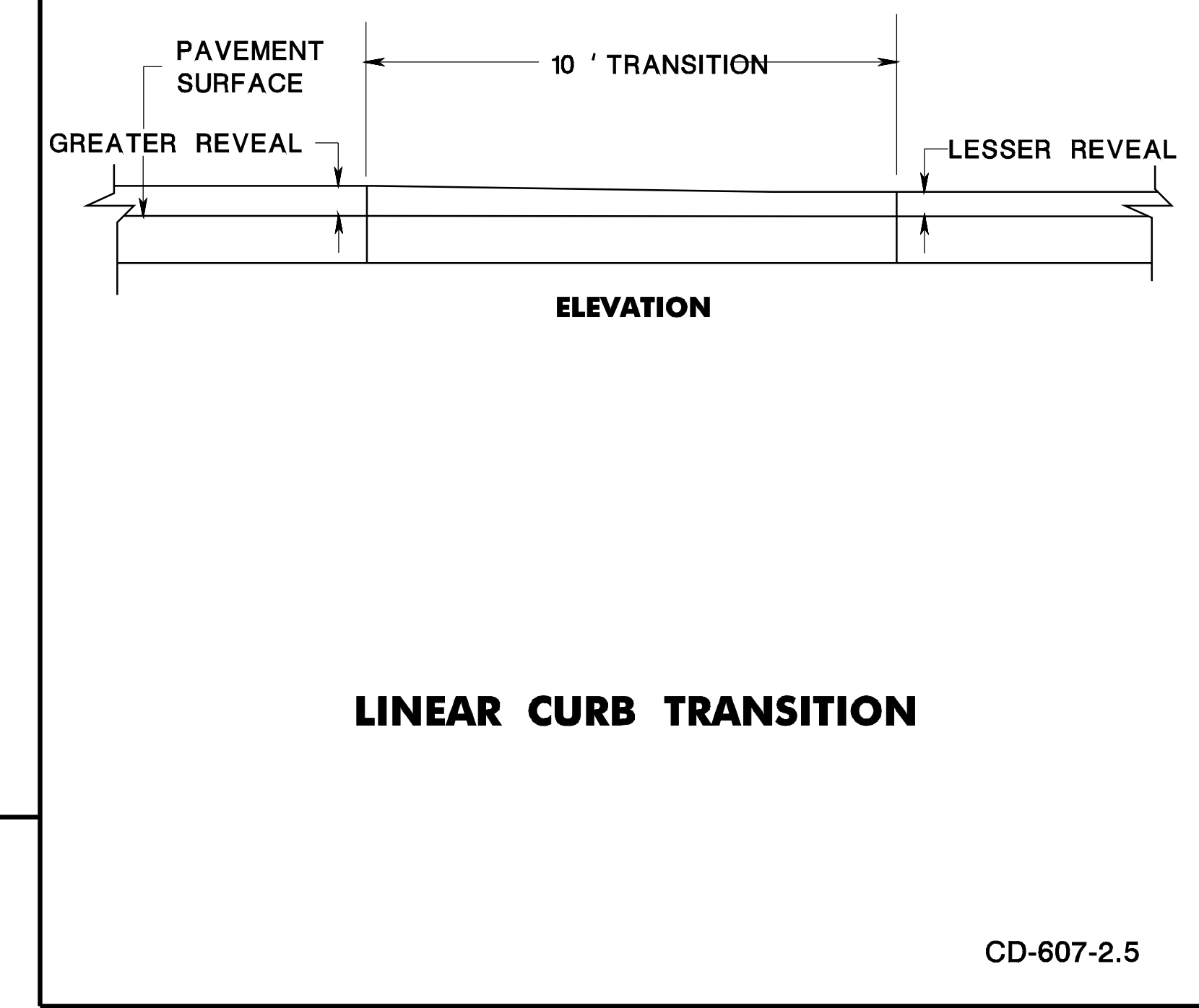
CD-607-2.3



CURB SIZE	DIM. A	DIM. B	DIM. C	DIM. D
9" x 16"	16"	4"	14"	2"
9" x 18"	18"	6"	16"	4"

METHOD OF DEPRESSING CURB AT DRIVEWAYS

CD-607-2.4



LINEAR CURB TRANSITION

CD-607-2.5

REINFORCEMENT STEEL IS IN METRIC UNITS
HMA = HOT MIX ASPHALT

BARRIER CURB AND VERTICAL CURB

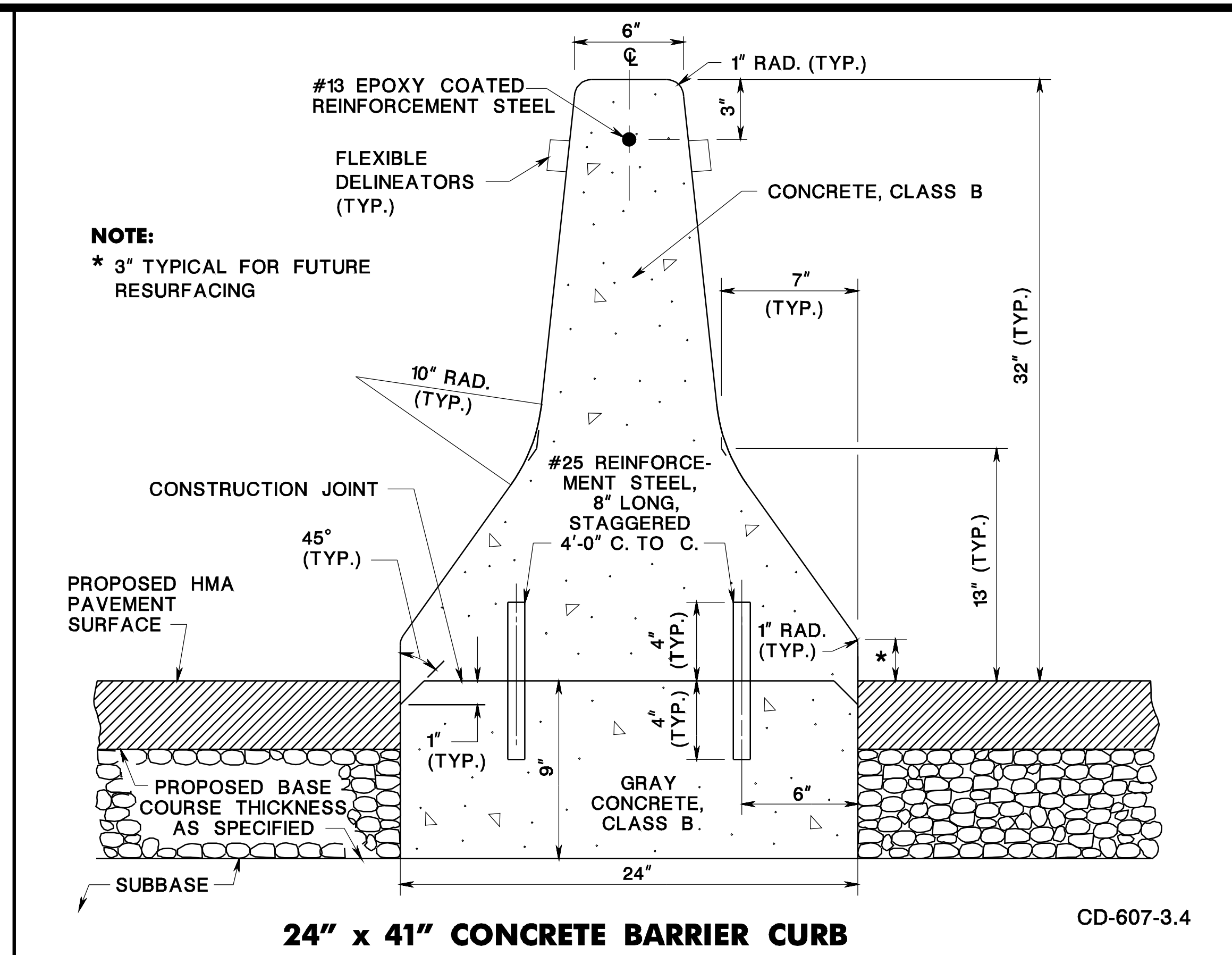
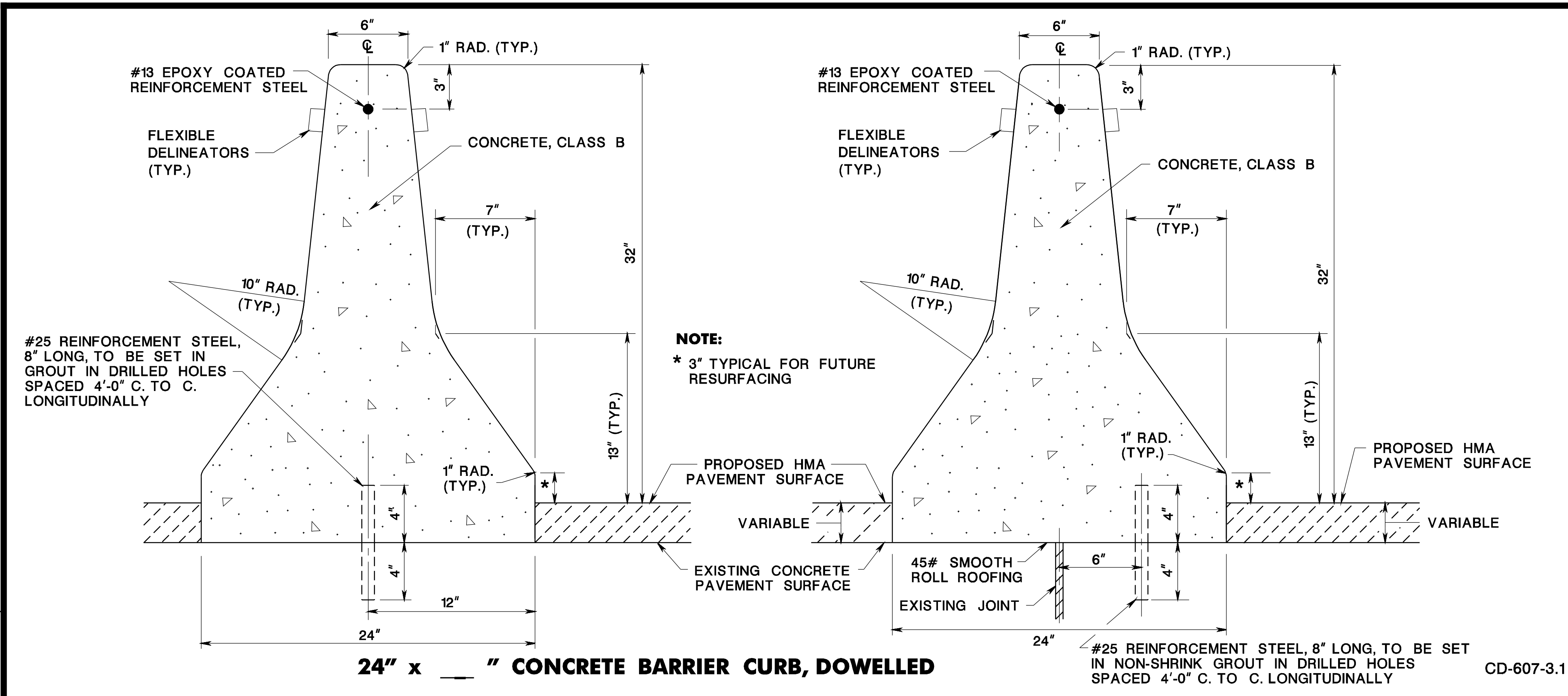
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CD-607-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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GENERAL NOTES

(A) WHERE BARRIER CURB, DOWELLED, IS TO BE CONSTRUCTED ON EXISTING CONCRETE PAVEMENT OR EXISTING CONCRETE BASE COURSE

TRANSVERSE JOINTS SHALL BE INSTALLED IN THE CURBS AT AND DIRECTLY OVER TRANSVERSE JOINTS IN THE PAVEMENT. DEFINITE CRACKS THROUGH THE PAVEMENT SHALL ALSO BE TREATED AS JOINTS. ADDITIONAL JOINTS SHALL ALSO BE CONSTRUCTED IN THE CURB SO SPACED AS TO MAKE EQUAL SECTIONS NOT OVER 15'-0" IN LENGTH.

THE TRANSVERSE JOINTS SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213 SPECIFICATION, RECESSED 1/4" IN FROM FACES AND TOP OF CURB. THE COST OF THE TRANSVERSE EXPANSION JOINTS IN THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BARRIER CURB. THE THICKNESS OF THE TRANSVERSE EXPANSION JOINT FILLER SHALL BE AS FOLLOWS:

1/2" FOR IMMEDIATE JOINTS AND JOINTS OVER DEFINITE CRACKS.
 1/2" OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS 50 FEET OR LESS.
 1" OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS MORE THAN 50 FEET.

VARIABLE IN MULTIPLES OF 1/2" BUT NOT LESS THAN THE EXISTING WIDTH OF THE TRANSVERSE JOINTS IN BRIDGES AND JOINTS BETWEEN THE APPROACH SLABS AND BRIDGES.

THE THICKNESS OF 1 INCH OR MORE, LAYERS OF 1/2" MATERIAL MAY BE GLUED OR OTHERWISE FASTENED TOGETHER BY A MEANS SATISFACTORY TO THE R.E. WHERE THE REQUIRED JOINT OPENING EXCEEDS 1 INCH, THE CONTRACTOR MAY CONSTRUCT OPEN JOINTS.

THE SURFACE OF THE EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE SHALL BE CLEANED IN ACCORDANCE WITH THE NJDOT SPECIFICATIONS PRIOR TO THE CONSTRUCTION OF THE CURB THEREON.

(A) CONT. WHERE DOWELLED CURB IS TO BE CONSTRUCTED ACROSS A LONGITUDINAL JOINT IN THE EXISTING CONCRETE OR BASE COURSE, THE DOWELS IN THE SHORTER PORTION OF THE CURB PANEL SHALL BE OMITTED AND THE CURB IN THIS PORTION OF THE PANEL SHALL BE CONSTRUCTED WITH 45# SMOOTH ROLL ROOFING BETWEEN IT AND THE EXISTING PAVEMENT.

(B) WHERE BARRIER CURB IS TO BE CONSTRUCTED ON PROPOSED CONCRETE BASE.

TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE BASE 20'-0" APART AND IN THE BARRIER CURB DIRECTLY OVER JOINTS IN THE BASE. THE JOINTS SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213 SPECIFICATION, RECESSED 1/4" IN FROM FACES AND TOP OF CURB. THE COST OF THE TRANSVERSE EXPANSION JOINTS IN THE BASE AND IN THE CURB SHALL BE INCLUDED IN THE UNIT PRICE FOR THE BARRIER CURB.

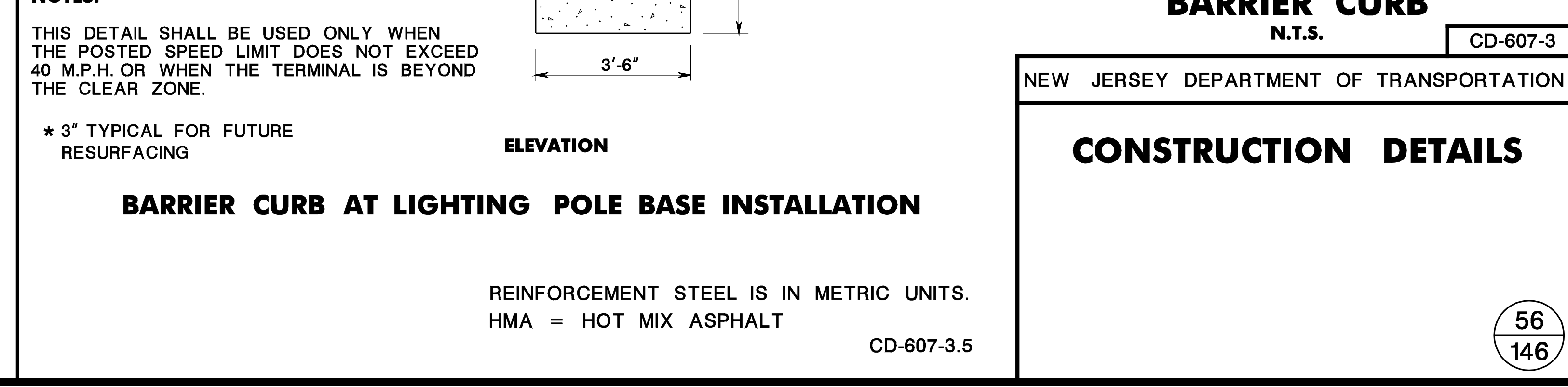
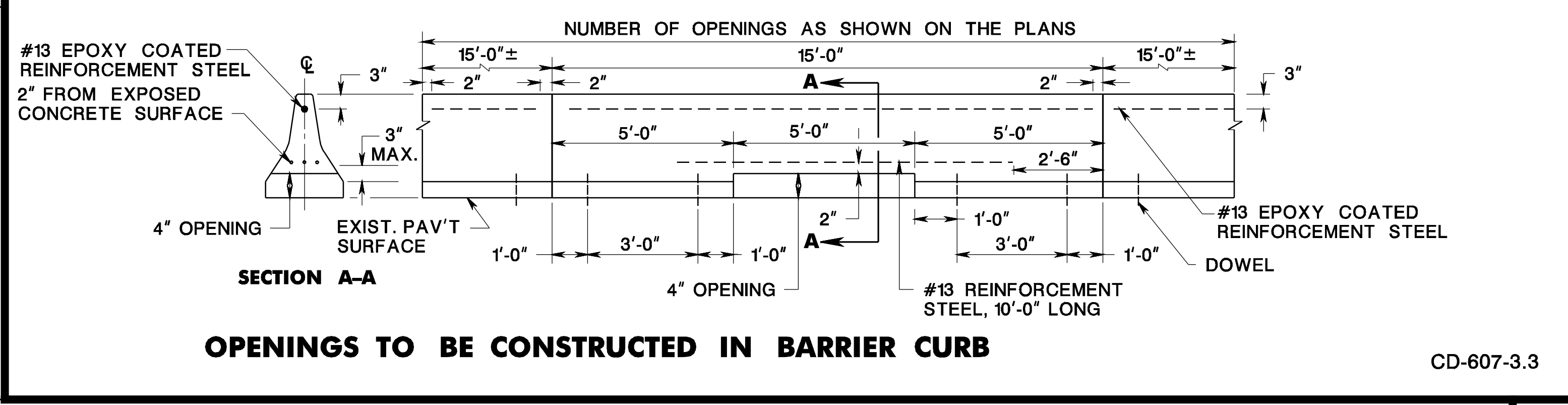
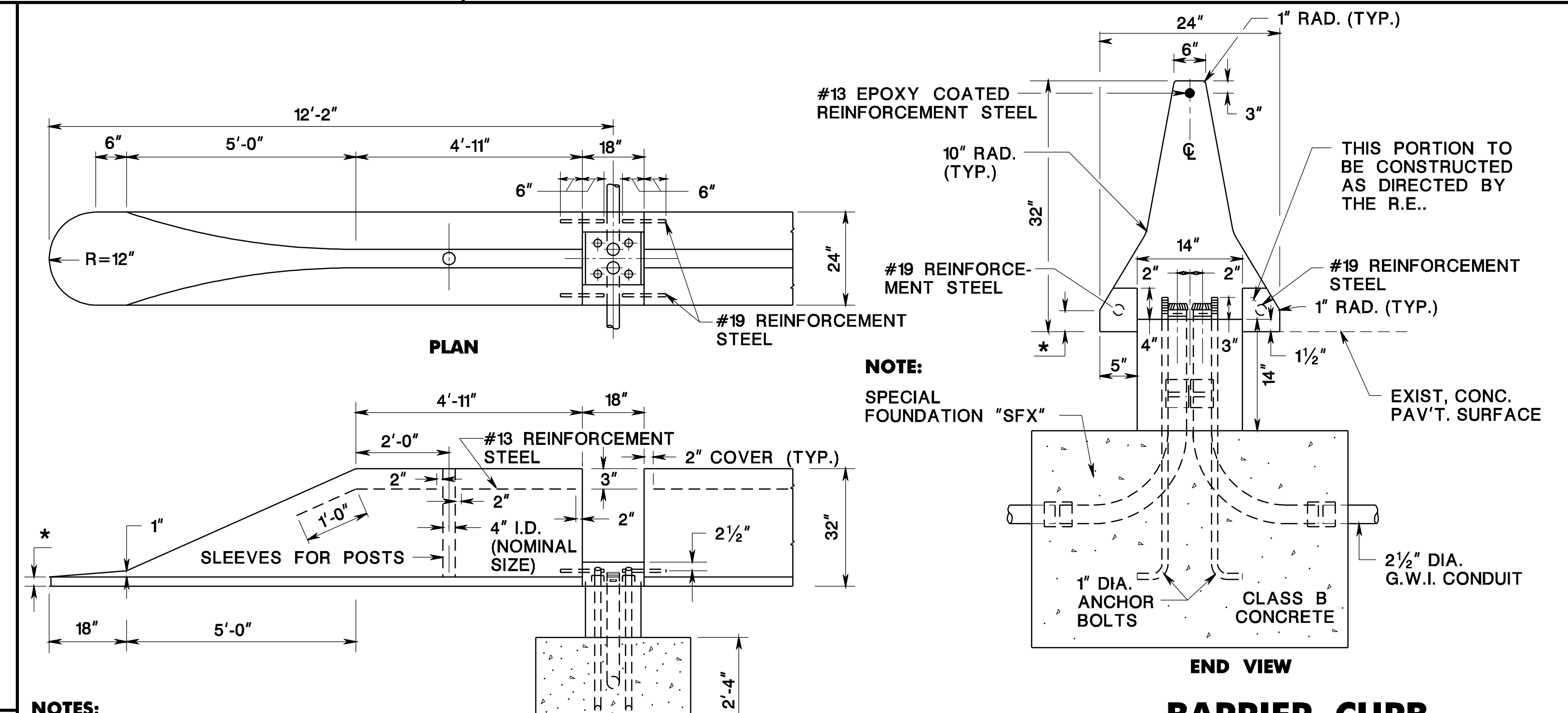
(C) GENERAL

THE FINISHED SURFACE OF THE BARRIER CURB SHALL BE SMOOTH, DENSE UNPITTED AND FREE FROM AIR BUBBLE POCKETS, DEPRESSIONS, AND HONEYCOMBS. IF THE R.E. DEEMS IT NECESSARY, THE CURB SHALL BE GIVEN A WOOD FLOAT FINISH RUBBED WITH A MIXTURE OF CEMENT, SAND, AND WATER TO OBTAIN THE ABOVE-MENTIONED FINISHED SURFACE.

(D) DELINEATORS

FLEXIBLE DELINEATORS, BARRIER CURB MOUNTED SHALL BE INSTALLED ON ALL BARRIER CURB.

CD-607-3.2



NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

REINFORCEMENT STEEL IS IN METRIC UNITS.
 HMA = HOT MIX ASPHALT

CD-607-3.5

56
146

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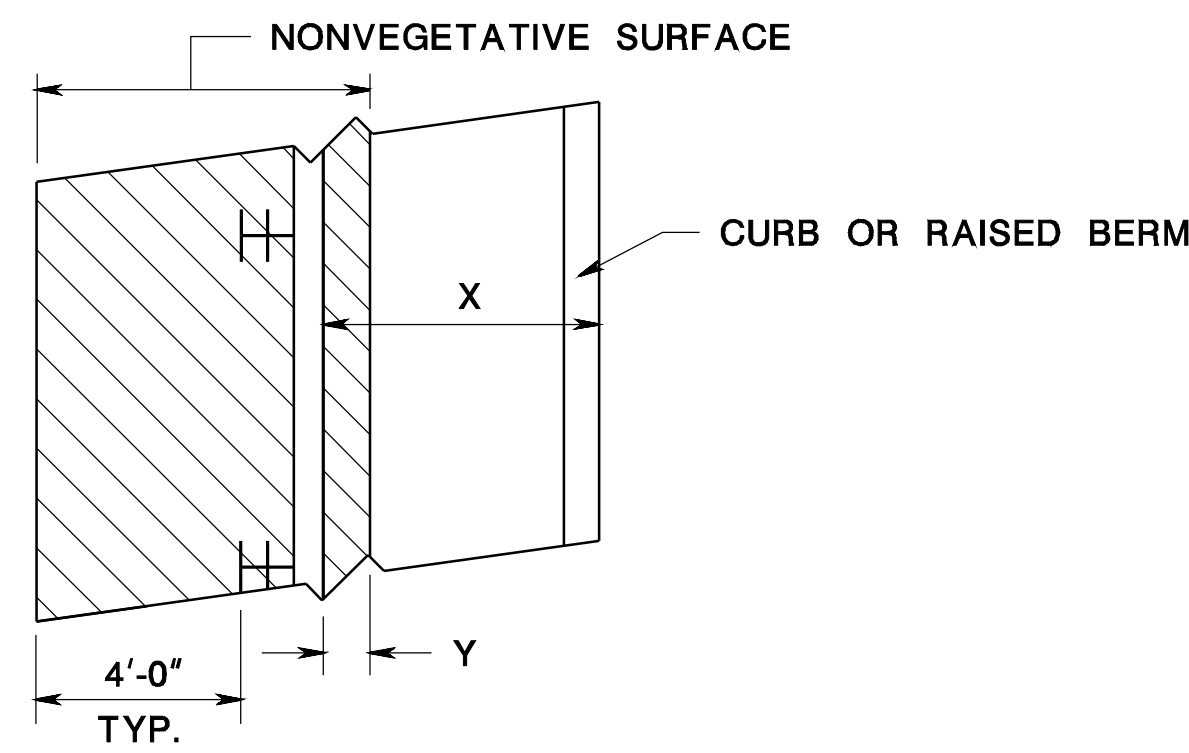
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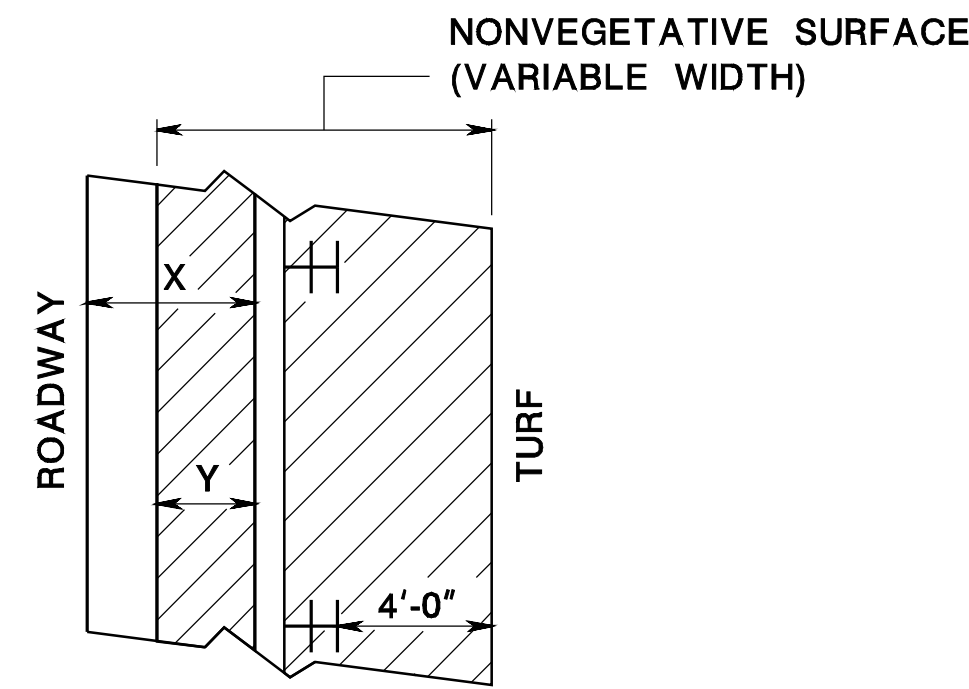
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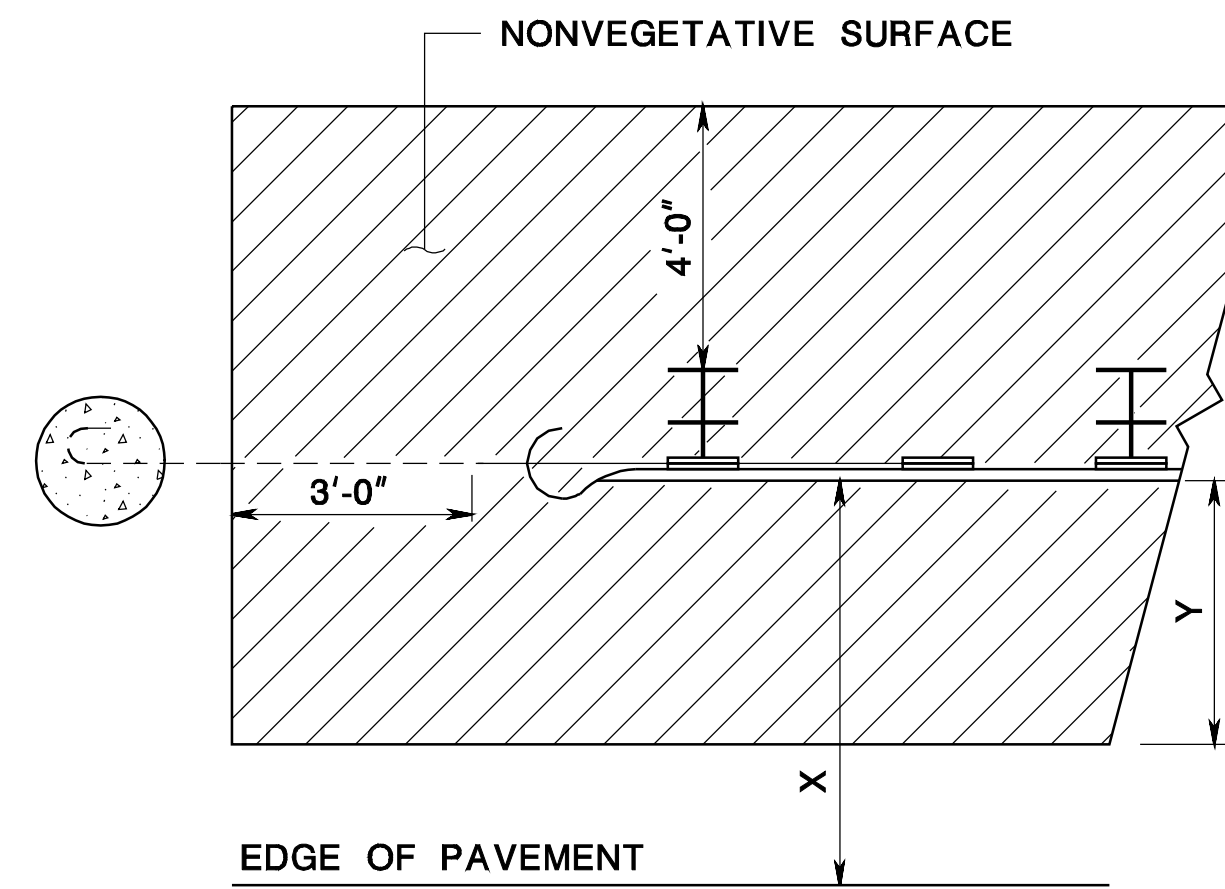
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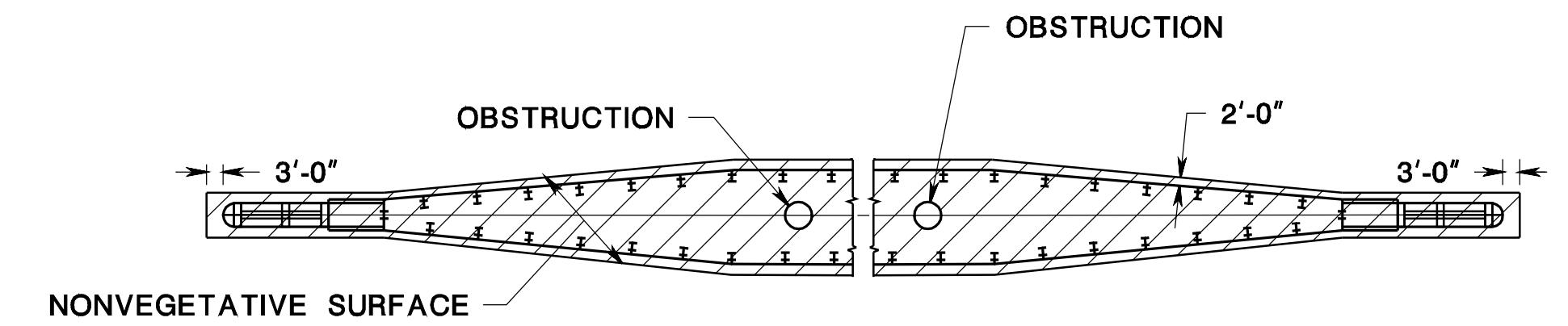
PLAN VIEW



PLAN VIEW

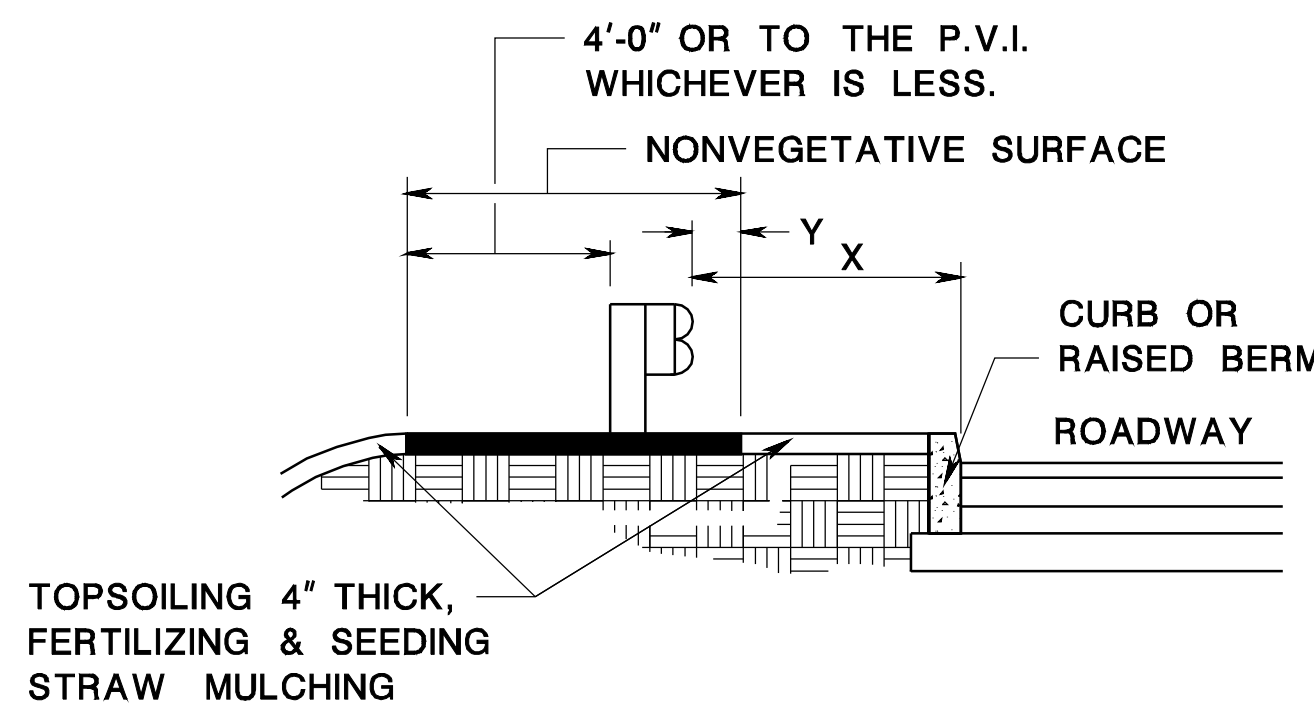


PLAN VIEW

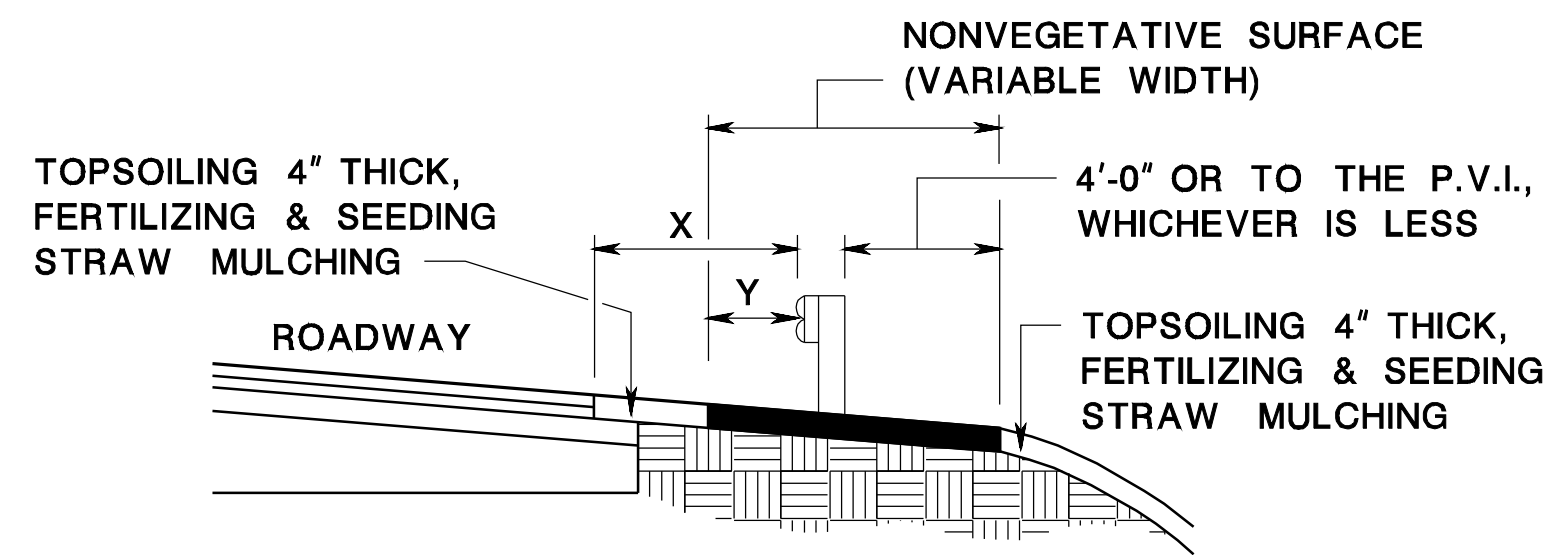


PLAN VIEW

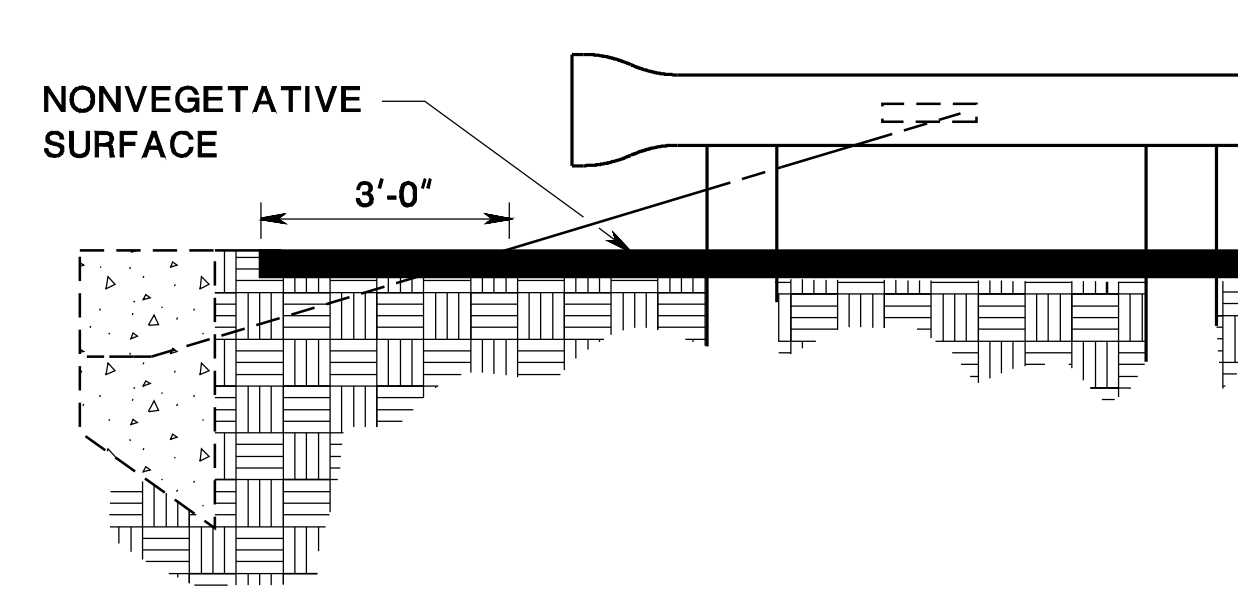
NONVEGETATIVE SURFACE AT MEDIAN GUIDE RAIL



SECTION VIEW



SECTION VIEW



SECTION VIEW

X	Y
GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT	WIDTH OF NONVEGETATIVE SURFACE IN FRONT OF GUIDE RAIL
7'-0" OR GREATER	2'-0"
4'-0"	4'-0"
0'-0"	0'-0"

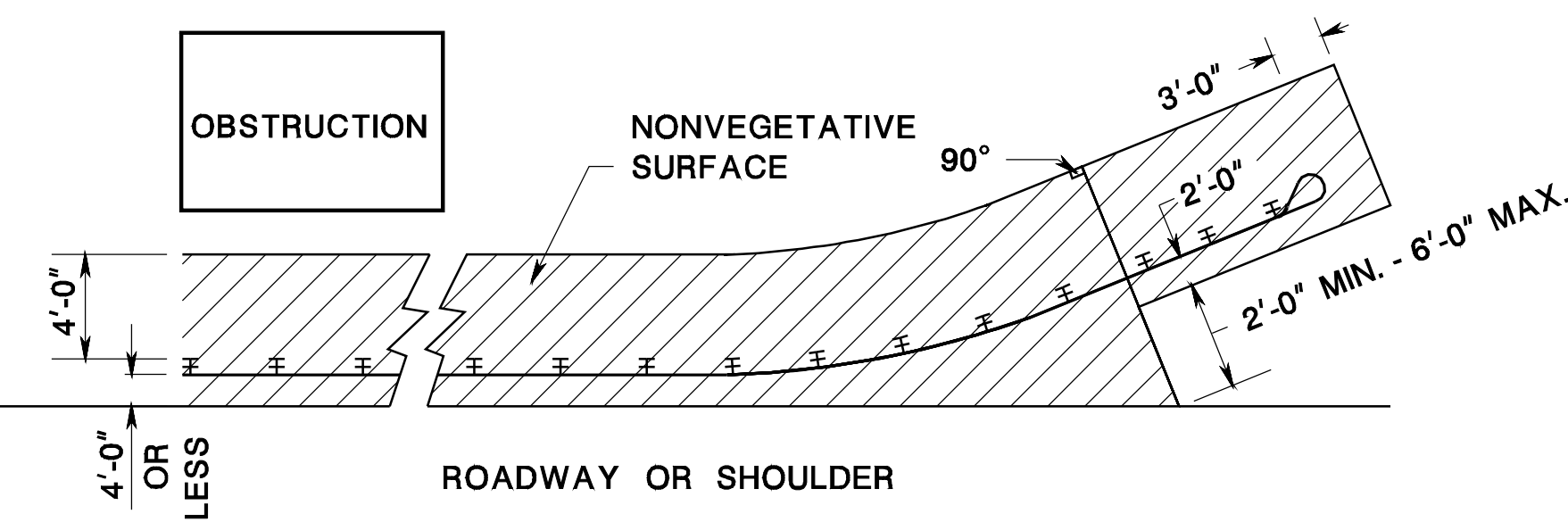
NONVEGETATIVE SURFACES AROUND GUIDE RAIL BEHIND CURB OR RAISED BERM

NONVEGETATIVE SURFACE AT EDGE OF PAVEMENT ON UMBRELLA SECTION WHERE GUIDE RAIL IS USED

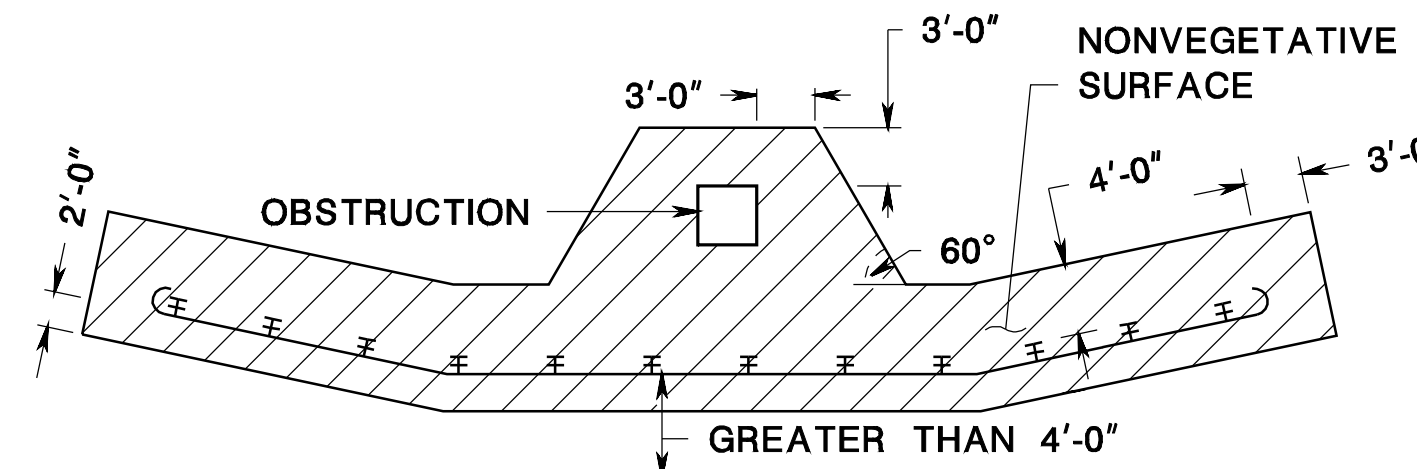
NONVEGETATIVE SURFACES AROUND GUIDE RAIL ANCHORAGE

GENERAL NOTES:

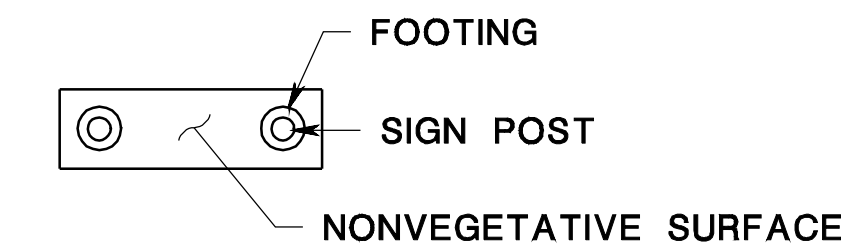
- IF THE END OF THE GUIDE RAIL IS BURIED IN THE SLOPE, THE LIMIT OF NONVEGETATIVE SURFACE RELATIVE TO THE BURIED GUIDE RAIL WILL BE DETERMINED BY THE RE.
- SEE TYPICAL SECTIONS FOR CROSS SLOPES IN ROADSIDE (BORDER OR SIDEWALK AREA).



PLAN VIEW



PLAN VIEW



PLAN VIEW

THE NONVEGETATIVE SURFACE SHALL FORM A RECTANGULAR PAD WHOSE OUTSIDE LIMITS EXTEND A MINIMUM OF 3'-0" BEYOND THE POST FOOTING.

NONVEGETATIVE SURFACE

N.T.S.

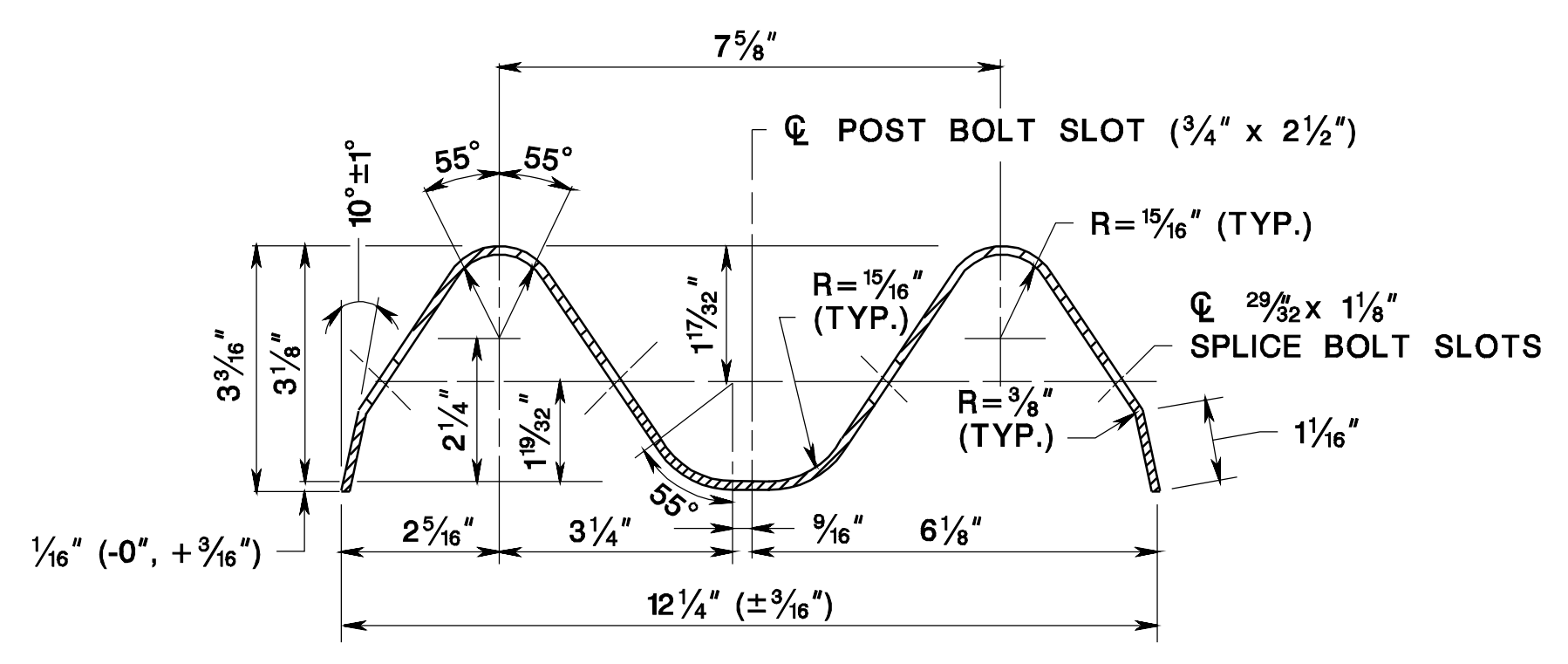
CD-608-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

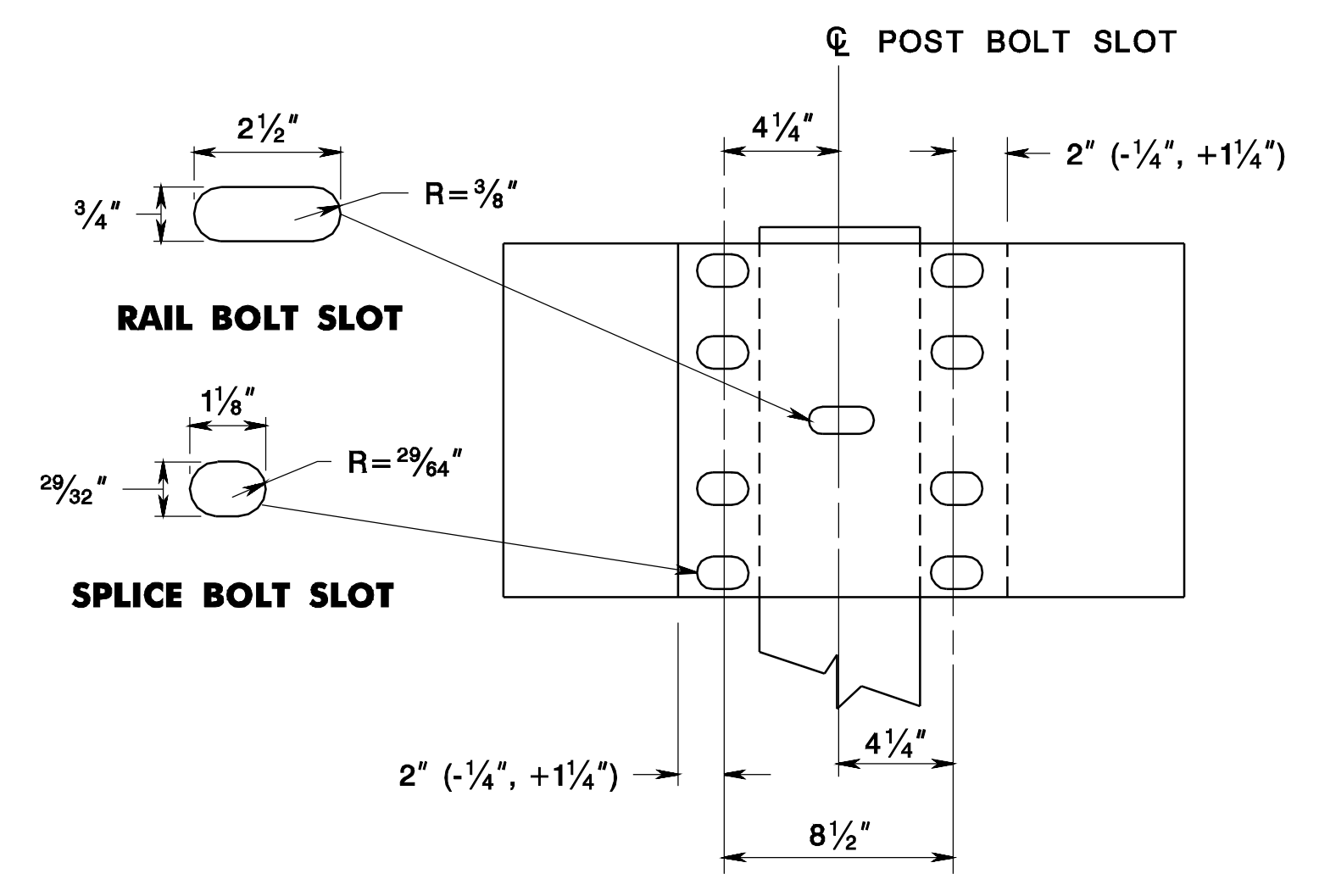
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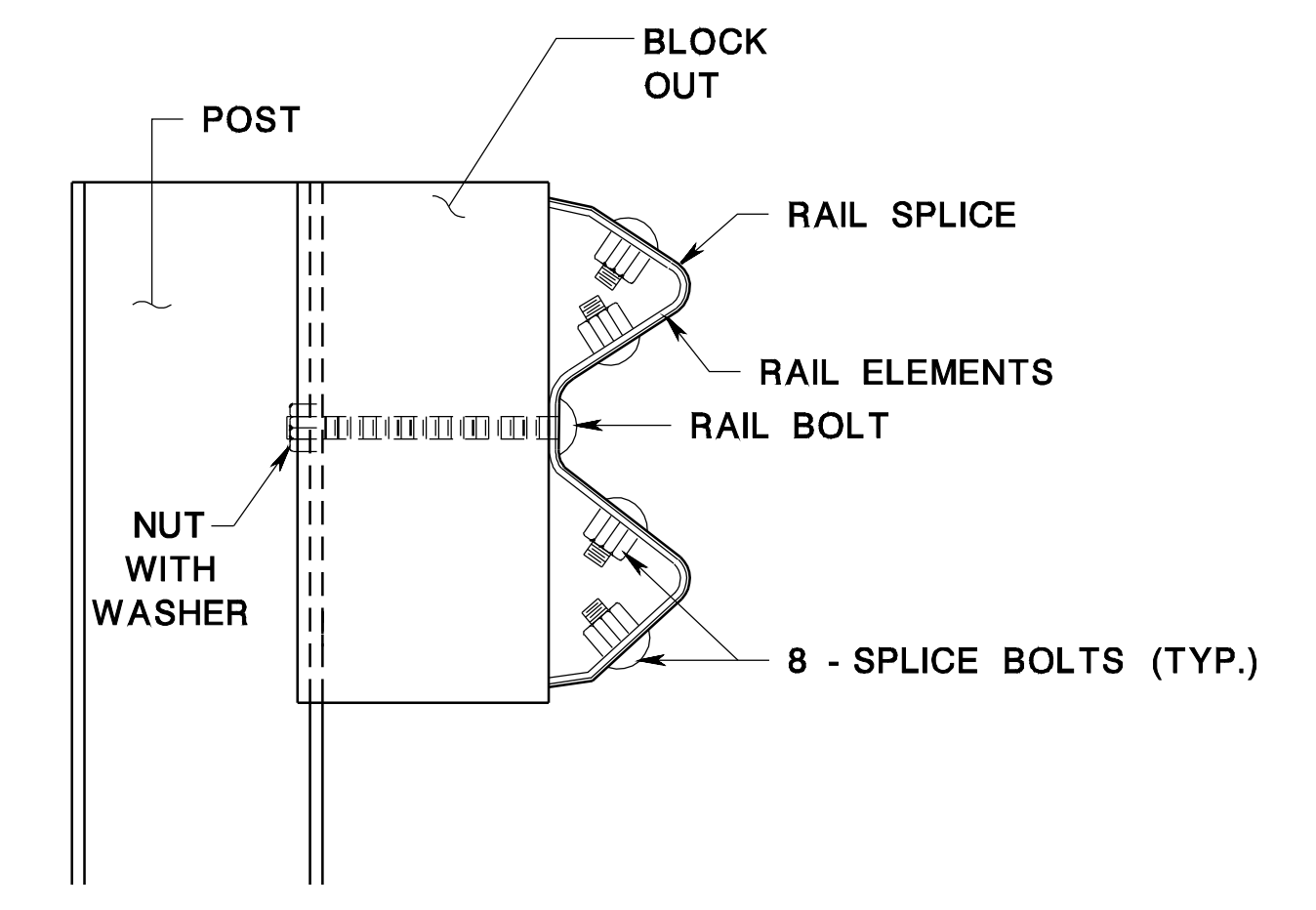


RAIL ELEMENT SHALL BE SUPPLIED IN LENGTHS OF 13'-6 1/2" OR 26'-1/2"

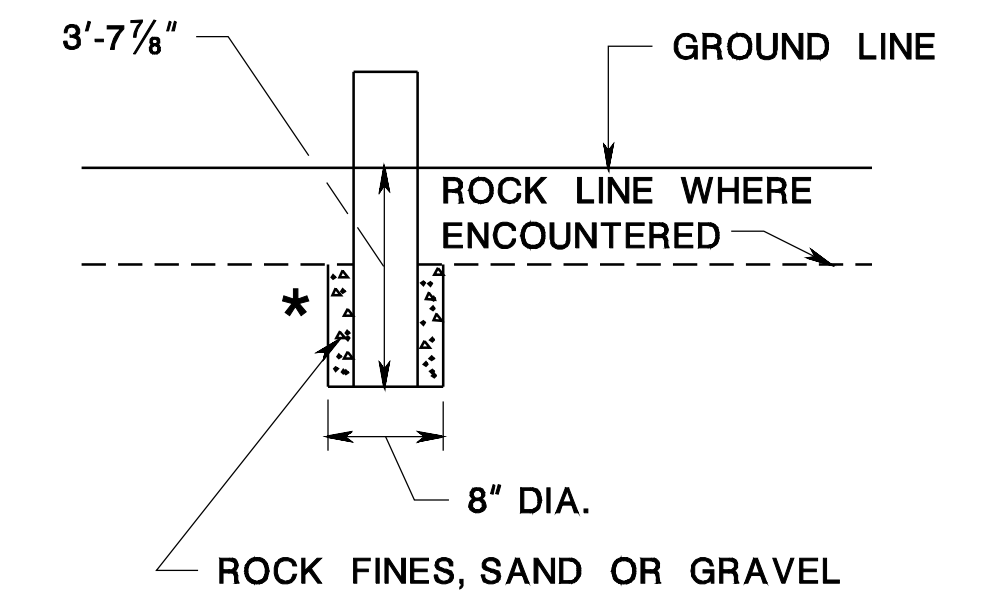
W-BEAM RAIL ELEMENT



RAIL SPLICE



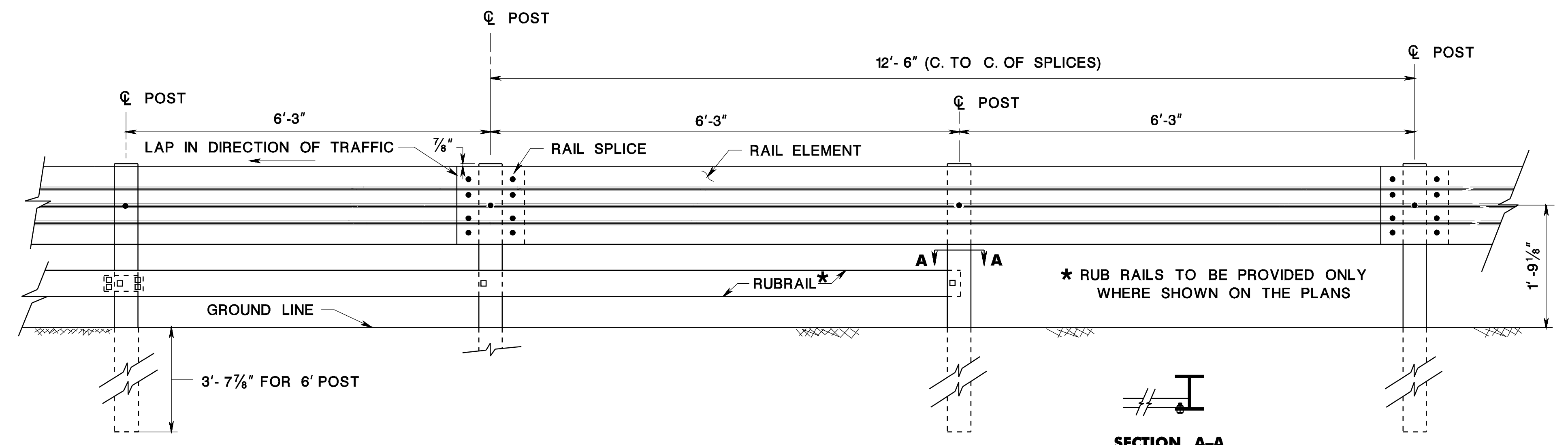
BEAM GUIDE RAIL POST ASSEMBLY



* ALTERNATE CONSTRUCTION METHOD: PLACE POST IN 8" DIA. HOLE AND BACKFILL WITH CLASS "B" CONCRETE

GUIDE RAIL POST INSTALLATION IN ROCK

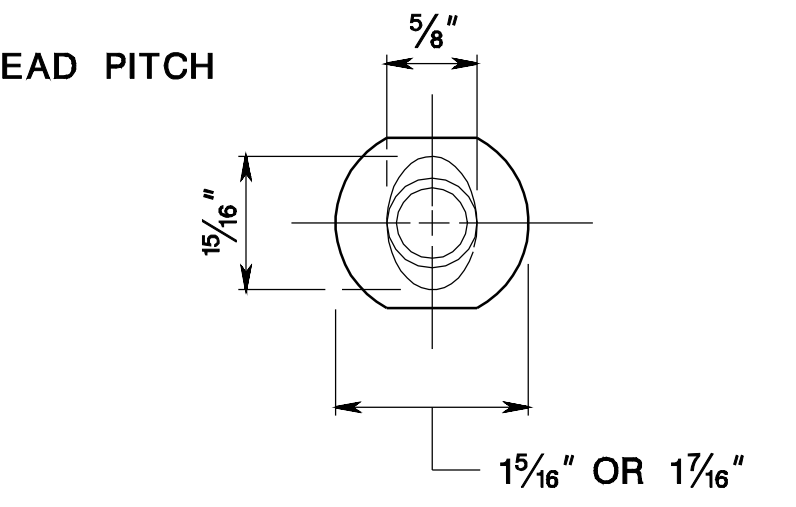
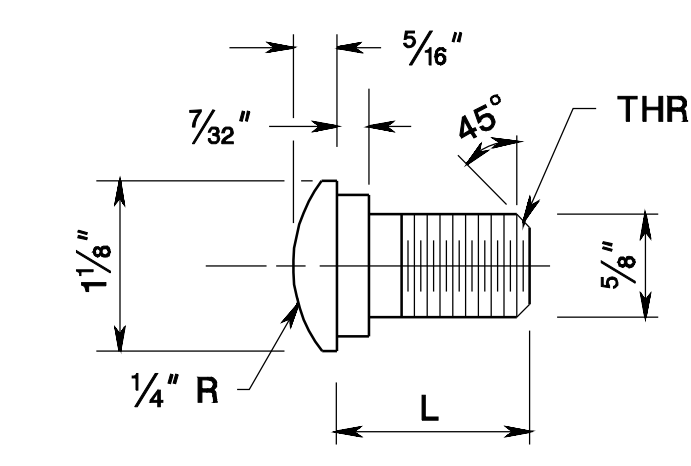
CD-609-1.2



BEAM GUIDE RAIL

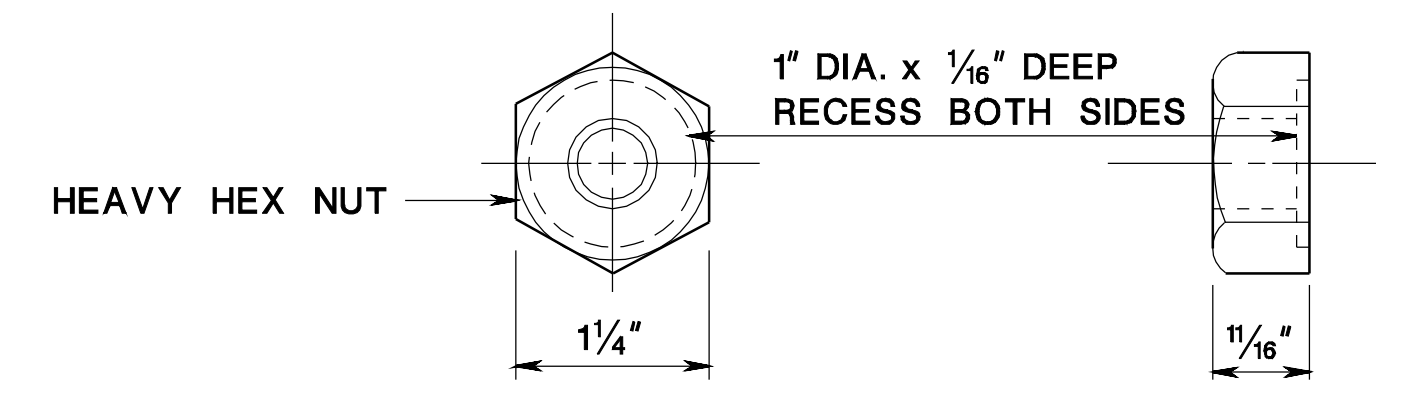
SECTION A-A

* RUB RAILS TO BE PROVIDED ONLY WHERE SHOWN ON THE PLANS

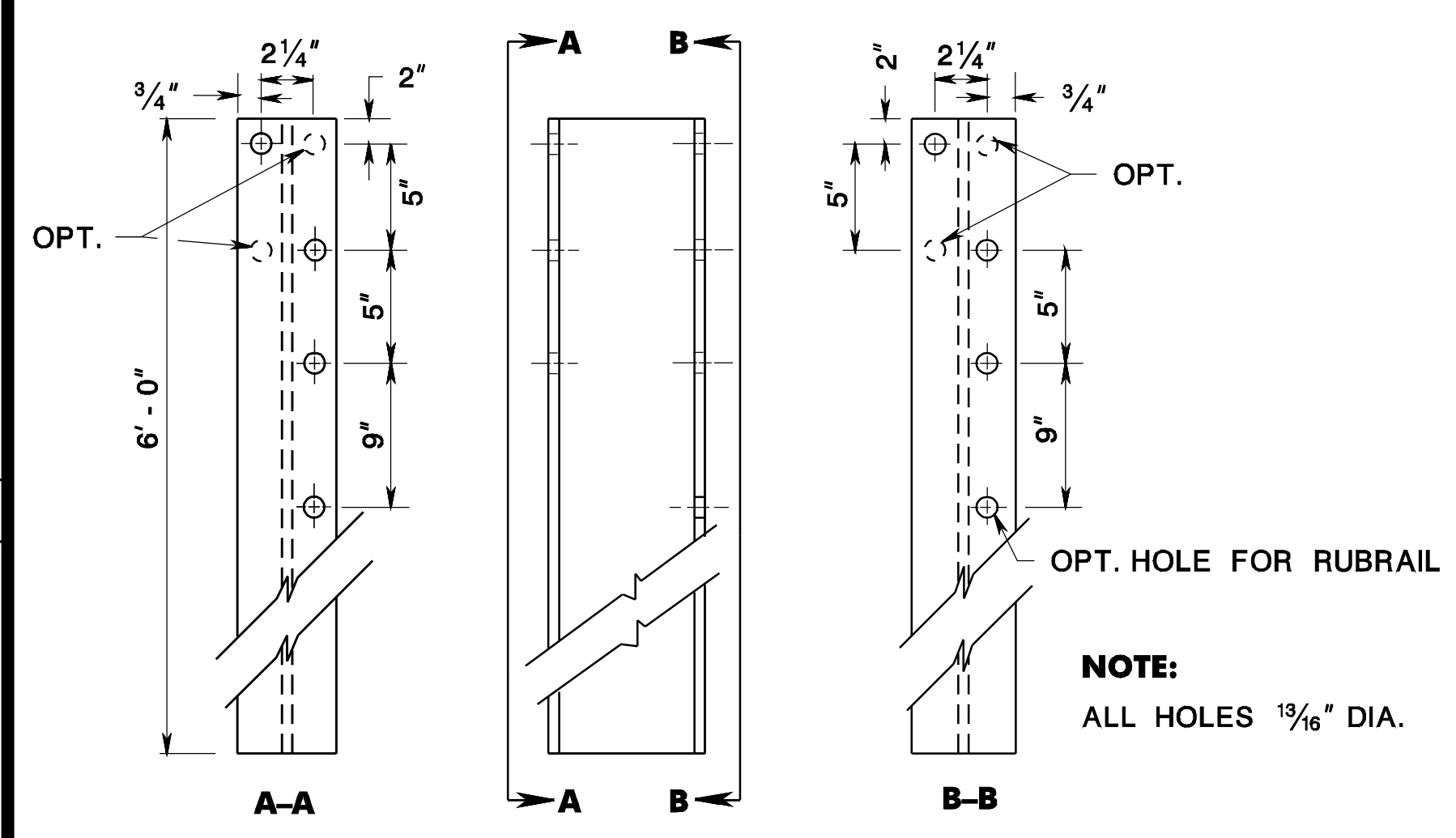


5/8" DIA. BUTTON HEAD BOLT

TYPE	L	MIN. THREAD LENGTH
SPLICE	1 1/4"	FULL LENGTH THREAD
RAIL	9 1/2"	1 3/4"



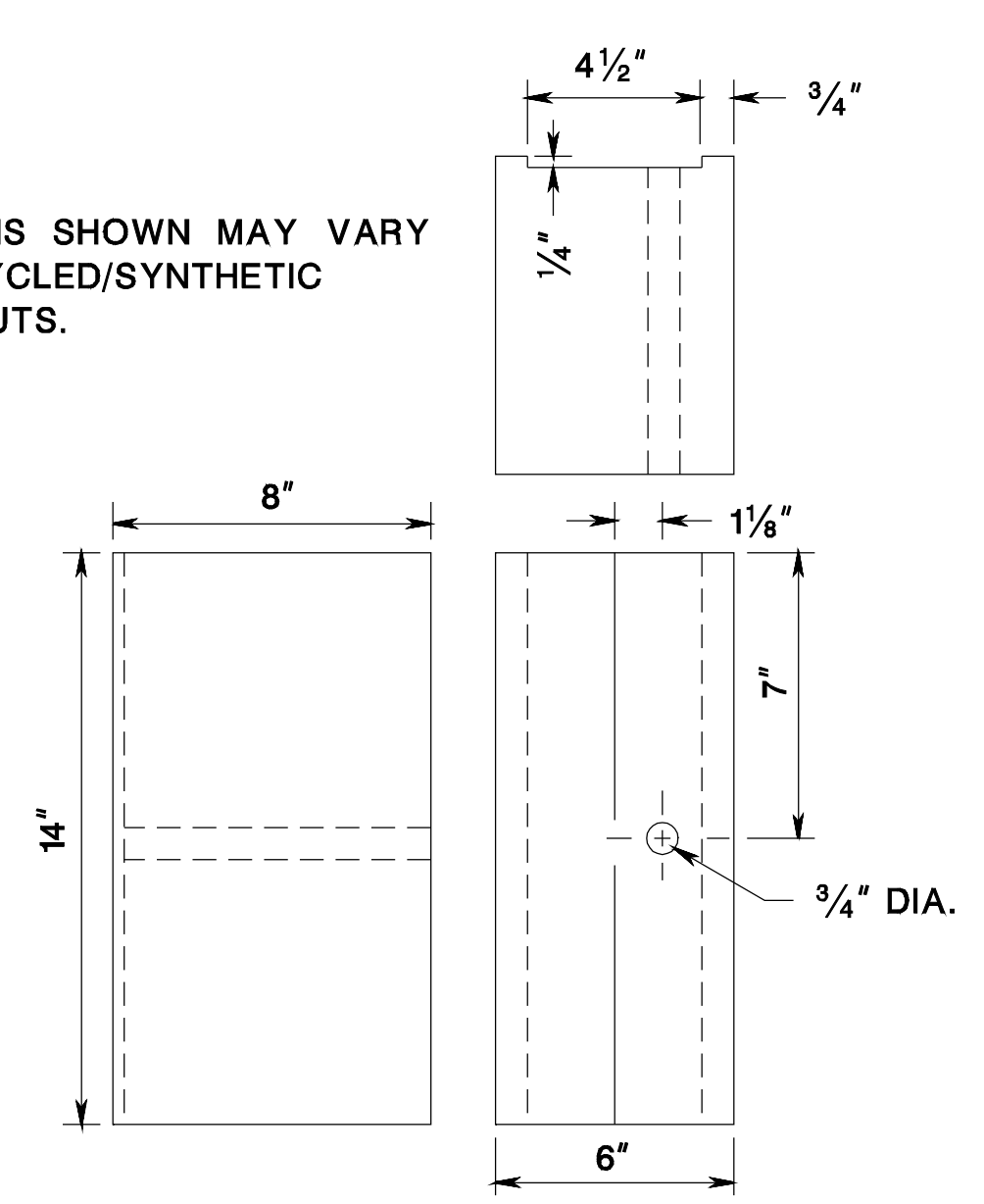
5/8" DIA. RECESS NUT SPLICE & RAIL NUT & BOLT



6" x 4" Steel, 8.5# or 9# per FOOT

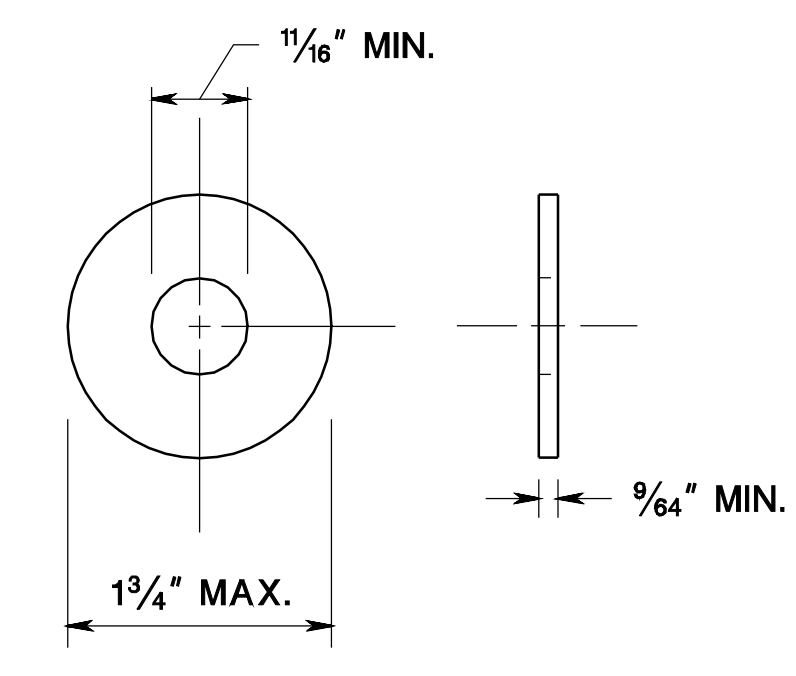
6' POST

NOTE: DIMENSIONS SHOWN MAY VARY FOR RECYCLED/SYNTHETIC BLOCK OUTS.



APPROVED RECYCLED/SYNTHETIC MATERIALS

14" BLOCK OUT



STEEL WASHER

GENERAL NOTES:

- ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
- RAIL ELEMENTS SHALL BE FURNISHED SHOPCURVED, CONCAVE OR CONVEX, FOR RADII BETWEEN 20 AND 150 FEET.
- THE STEEL FOR RAIL ELEMENTS AND BOLTS SHALL CONFORM TO NJDOT STANDARD SPECIFICATIONS AND ITS AMENDMENTS.

BEAM GUIDE RAIL N.T.S.

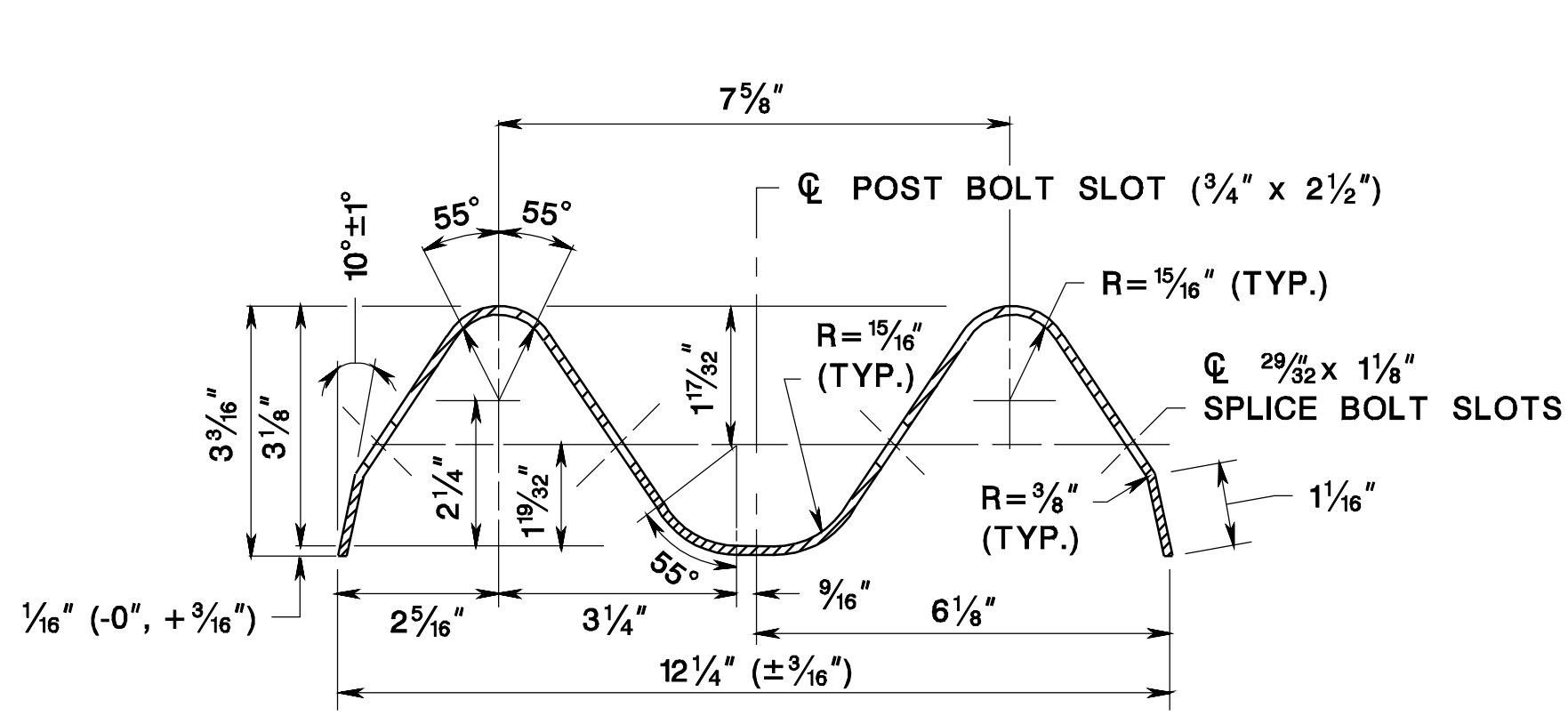
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-1

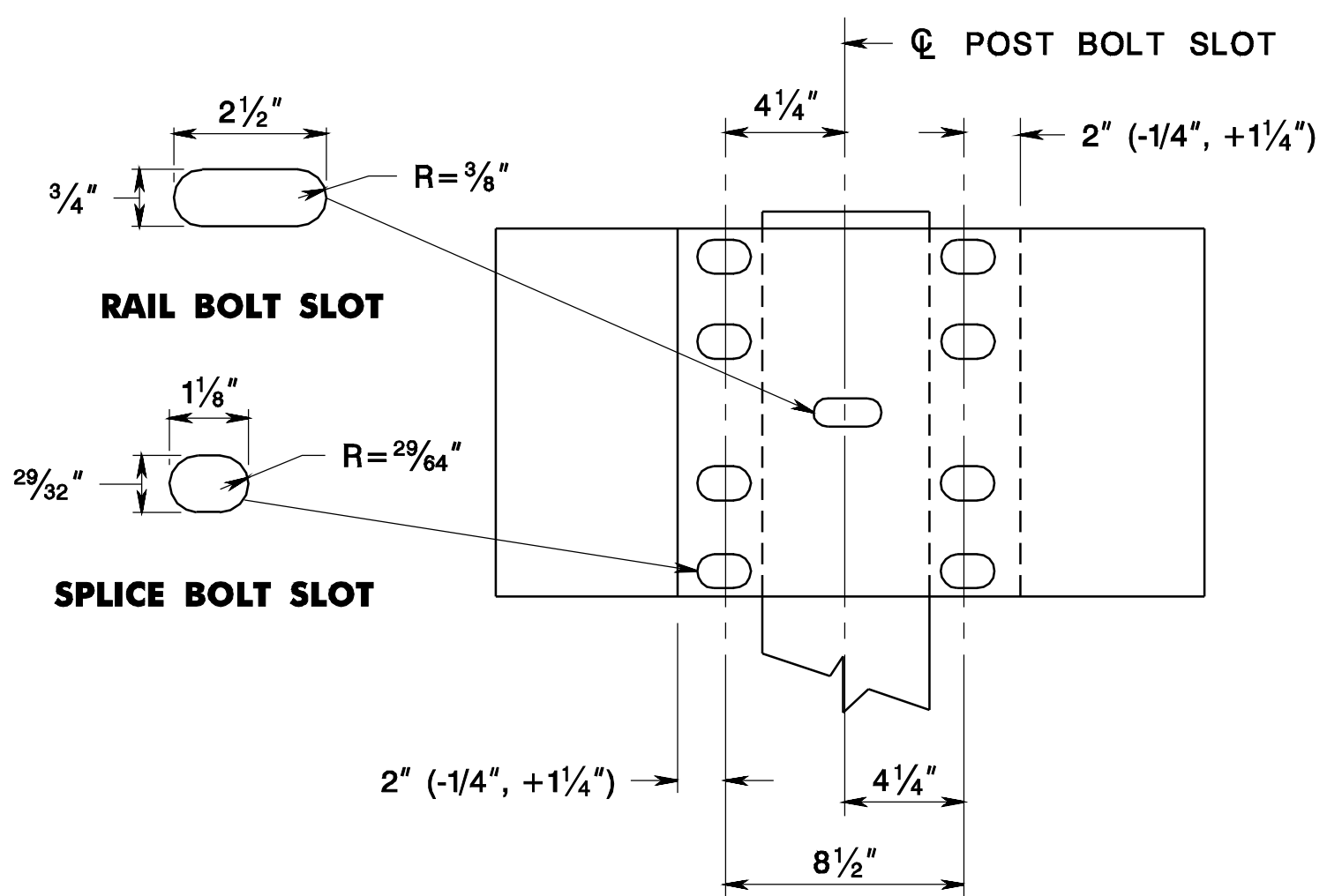
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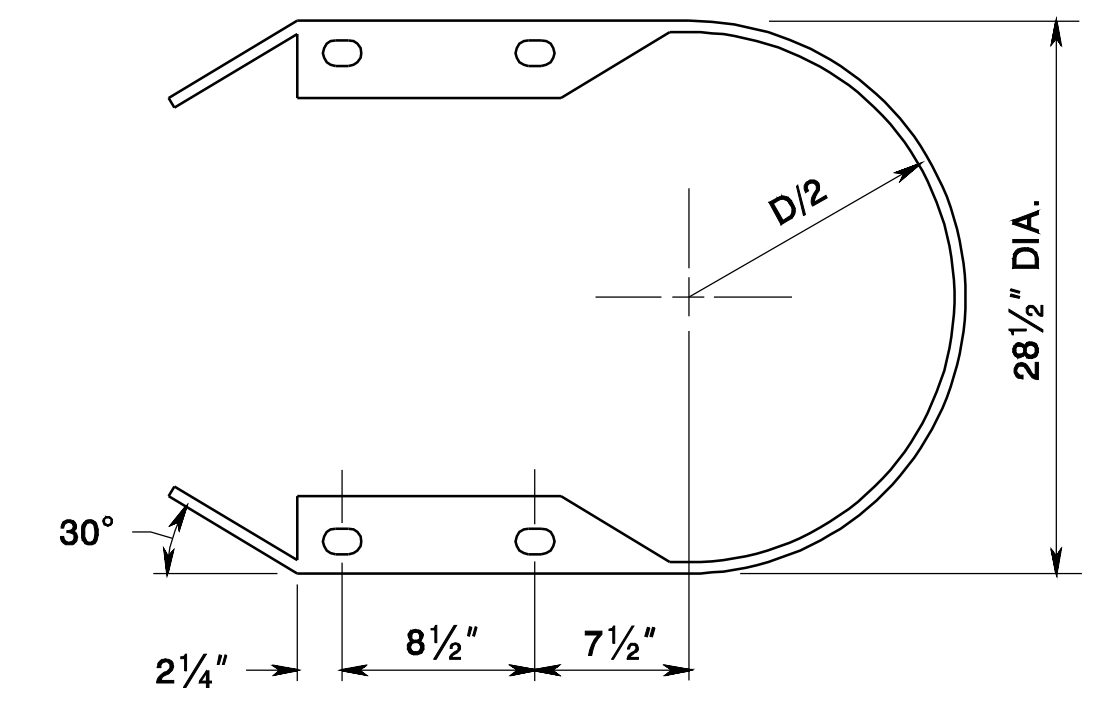


W-BEAM RAIL ELEMENT

RAIL ELEMENT SHALL BE SUPPLIED IN LENGTHS OF 13'-6 1/2" OR 26'-1/2"

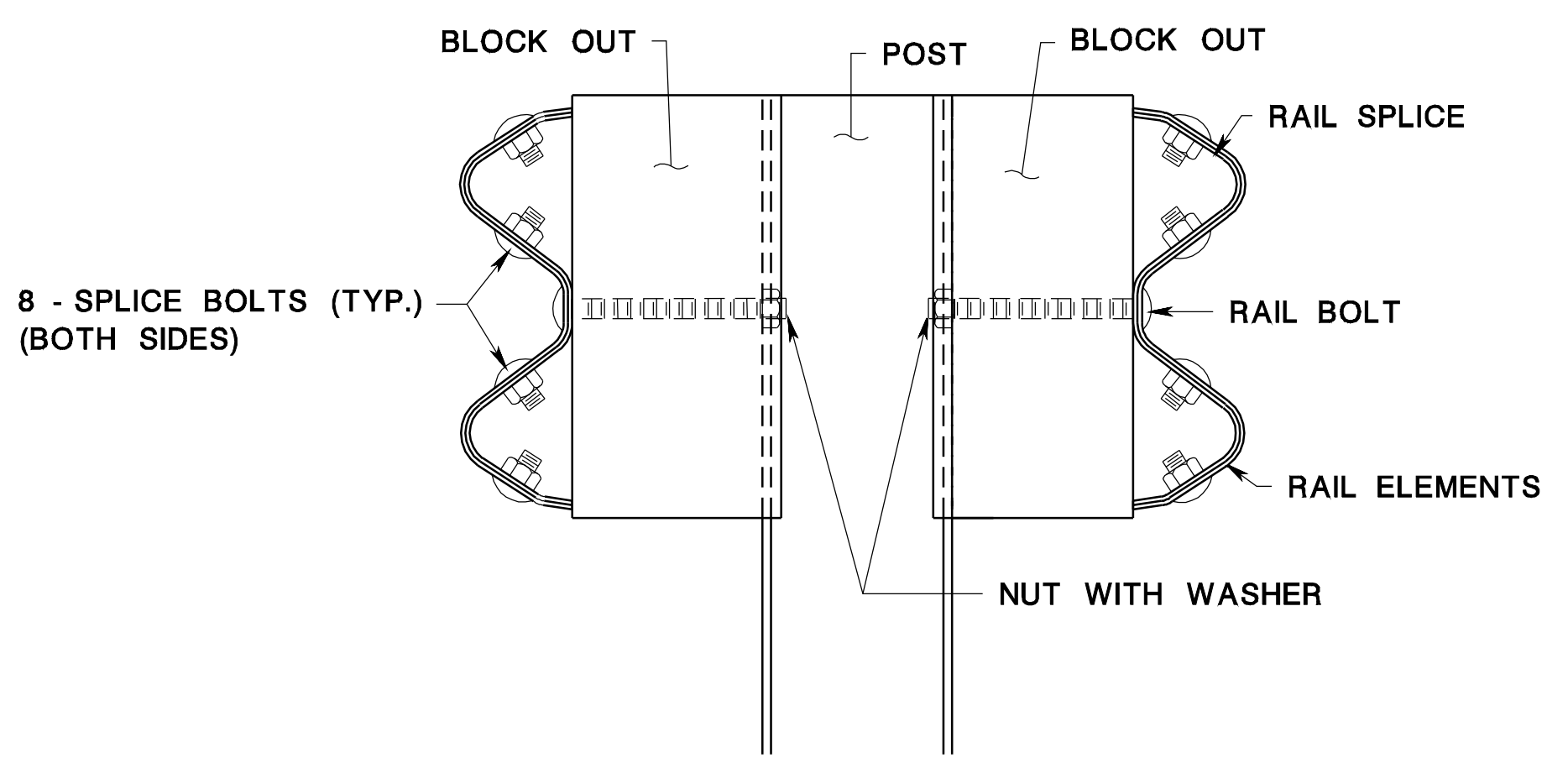


RAIL SPLICE

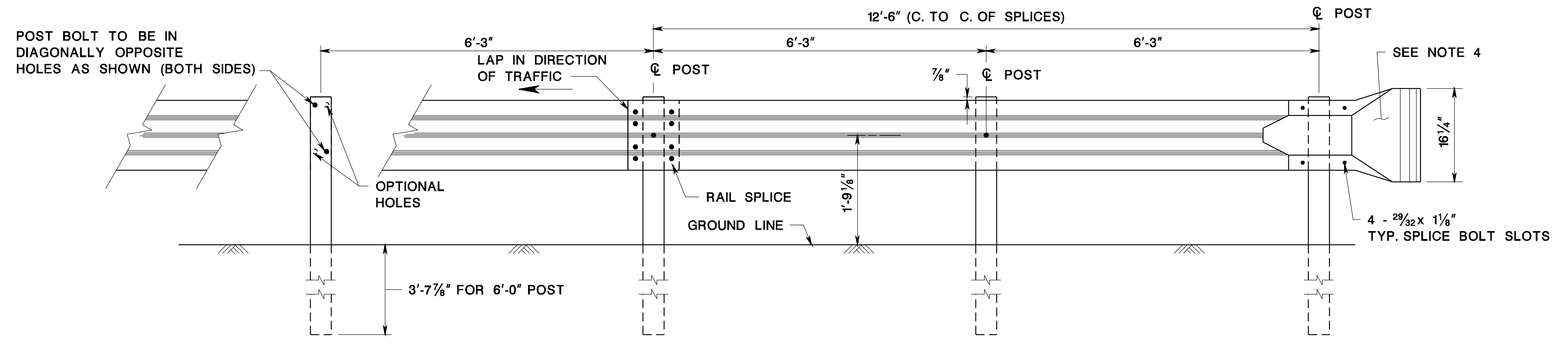


END SECTION (BUFFER)

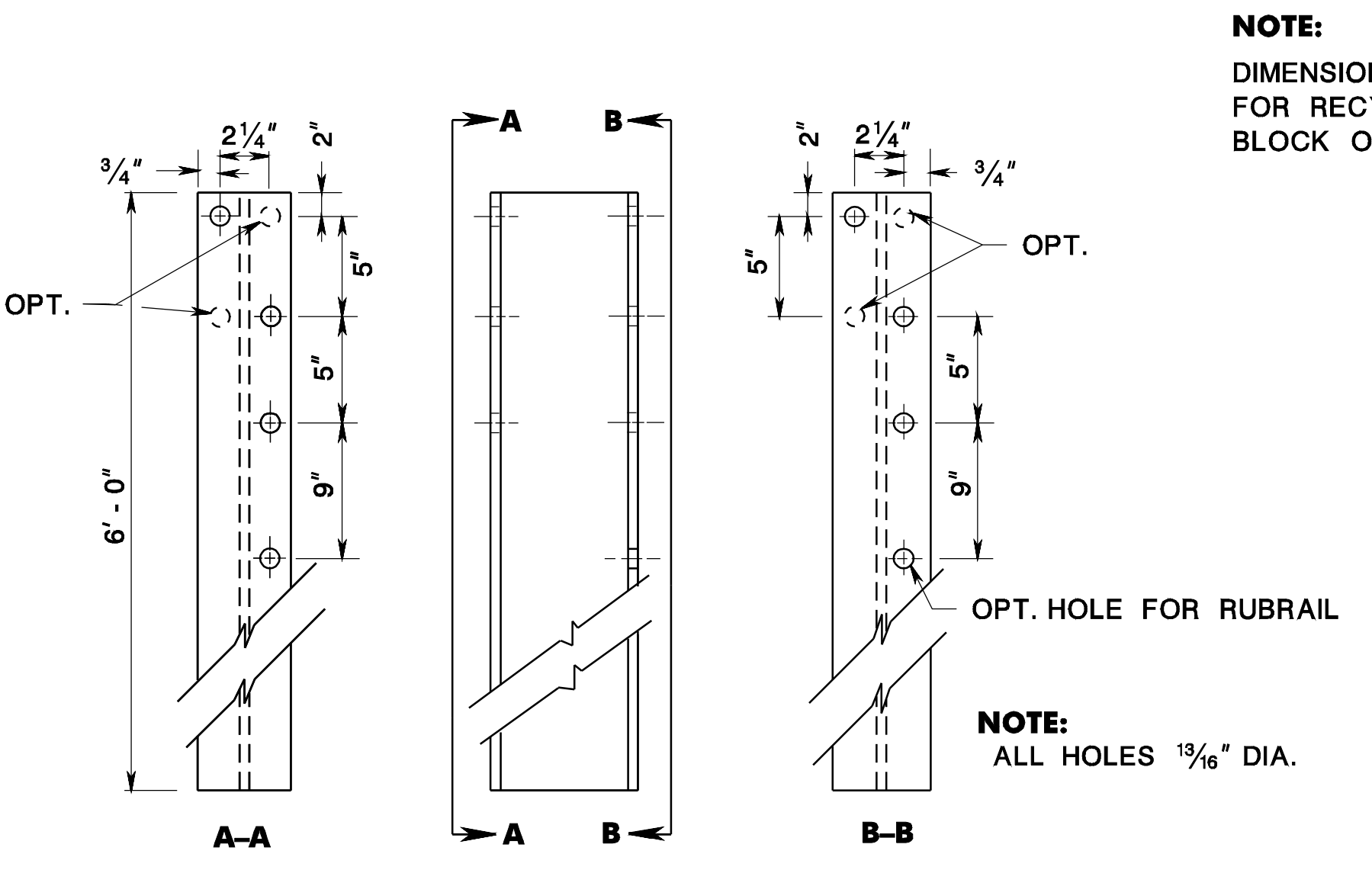
- GENERAL NOTES:**
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
 2. RAIL ELEMENTS SHALL BE FURNISHED SHOPCURVED, CONCAVE OR CONVEX. FOR RADI BETWEEN 20 FEET AND 150 FEET.
 3. THE STEEL FOR RAIL ELEMENTS AND BOLTS SHALL CONFORM TO NJDOT STANDARD SPECIFICATIONS AND IT'S AMENDMENTS.
 4. USE END SECTION (BUFFER) UNLESS THE CONSTRUCTION PLANS CALL FOR ANOTHER TYPE OF END TREATMENT.



POST ASSEMBLY, DUAL-FACED



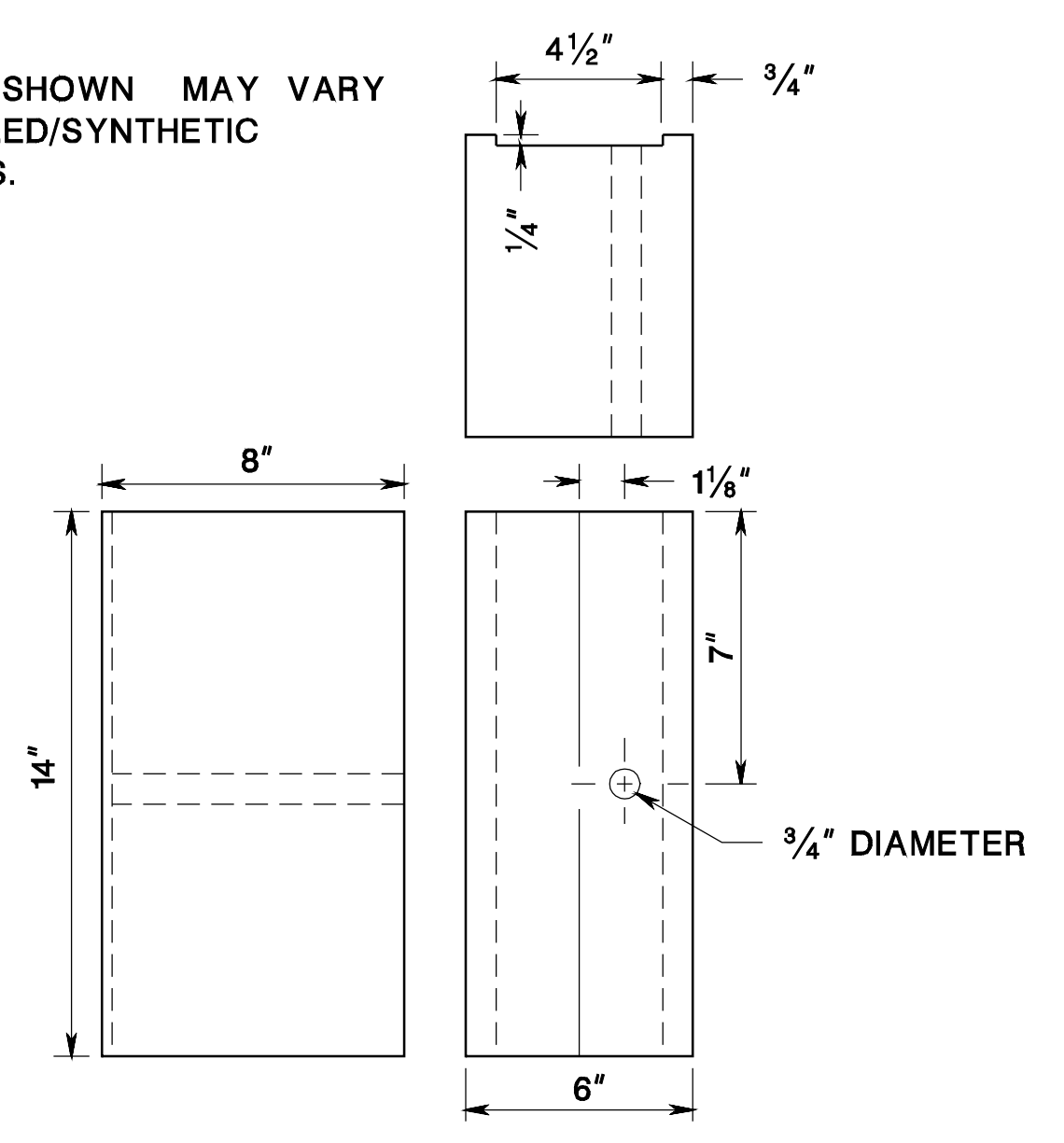
BEAM GUIDE RAIL, DUAL-FACED



6' POST

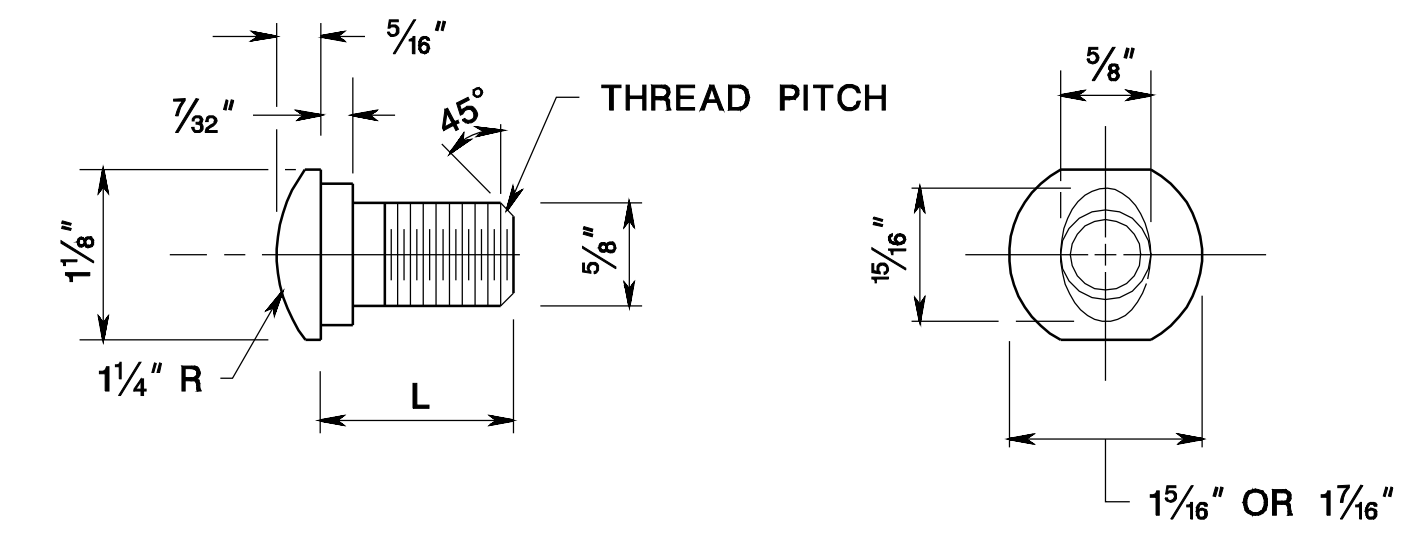
6" x 4" STEEL I, 8.5# OR 9# PER FOOT

NOTE:
 DIMENSIONS SHOWN MAY VARY FOR RECYCLED/SYNTHETIC BLOCK OUTS.



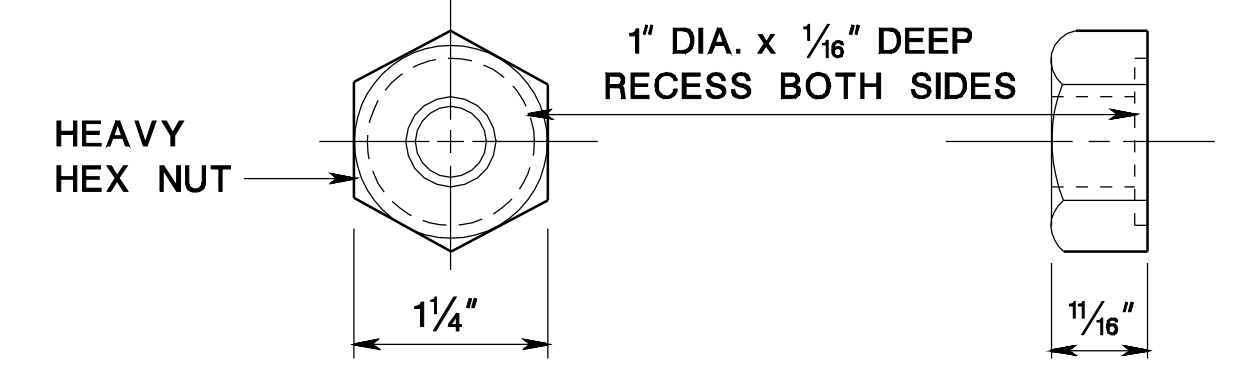
14" BLOCK OUT

APPROVED RECYCLED/SYNTHETIC MATERIALS

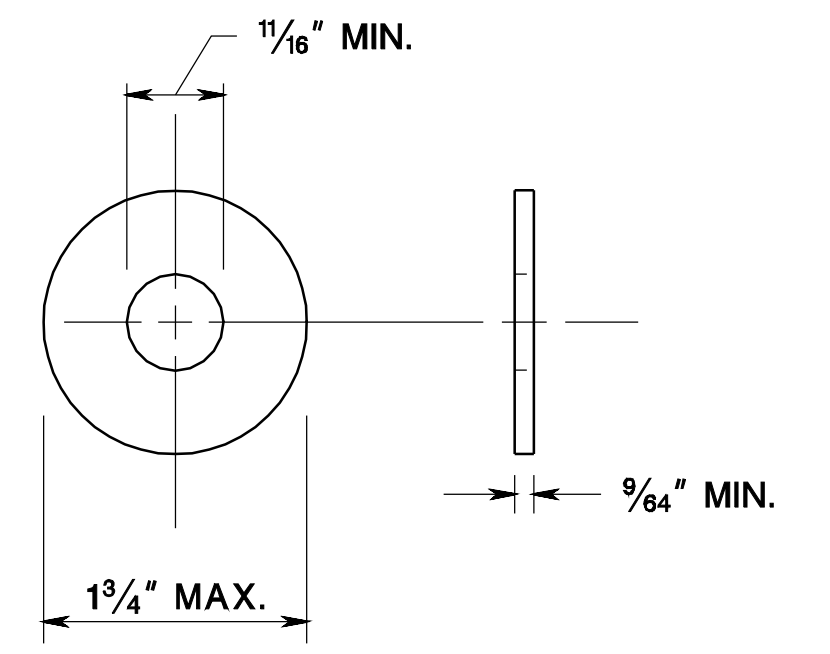


5/8" DIA. BUTTON HEAD BOLT

TYPE	L	MIN. THREAD LENGTH
SPLICE	1 1/4"	FULL LENGTH THREAD
RAIL	9 1/2"	1 3/4"



**5/8" DIA. RECESS NUT
 SPLICE & RAIL NUT & BOLT**



STEEL WASHER

BEAM GUIDE RAIL, DUAL-FACED

N.T.S.

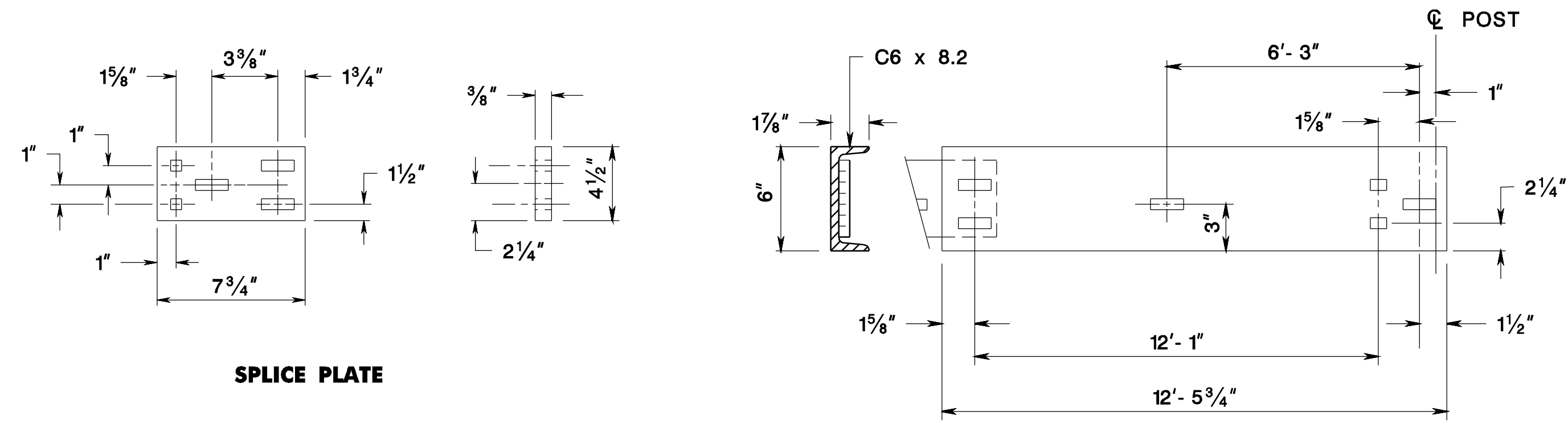
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-2.1

CD-609-2

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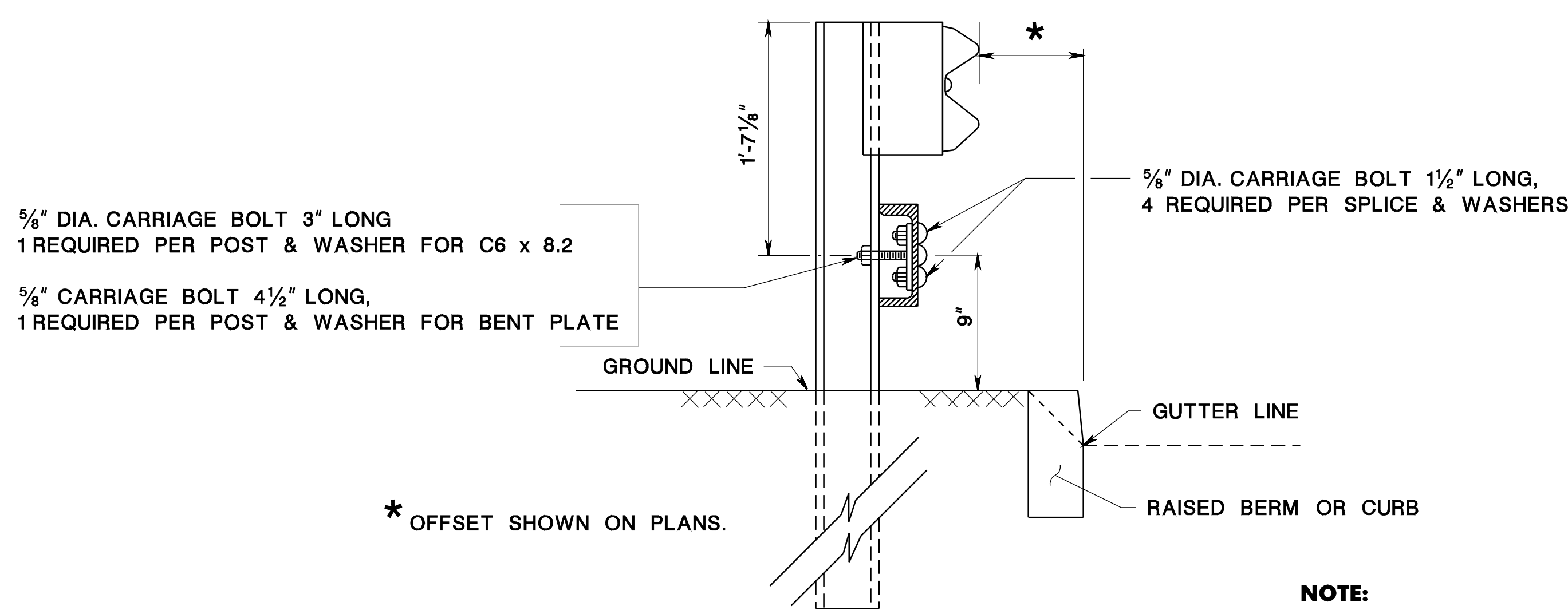
NOTE:
 ALL RECTANGULAR SLOTS ARE 1/16" x 2"
 ALL SQUARE HOLES ARE 1/16"

C6 x 8.2

RUB RAIL MAY BE SUPPLIED IN LENGTHS OF 12'- 5 3/4" OR 24'- 11 3/4"

NOTE:
 USE EITHER C6 x 8.2 OR BENT PLATE FOR RUB RAIL

CD-609-3.1

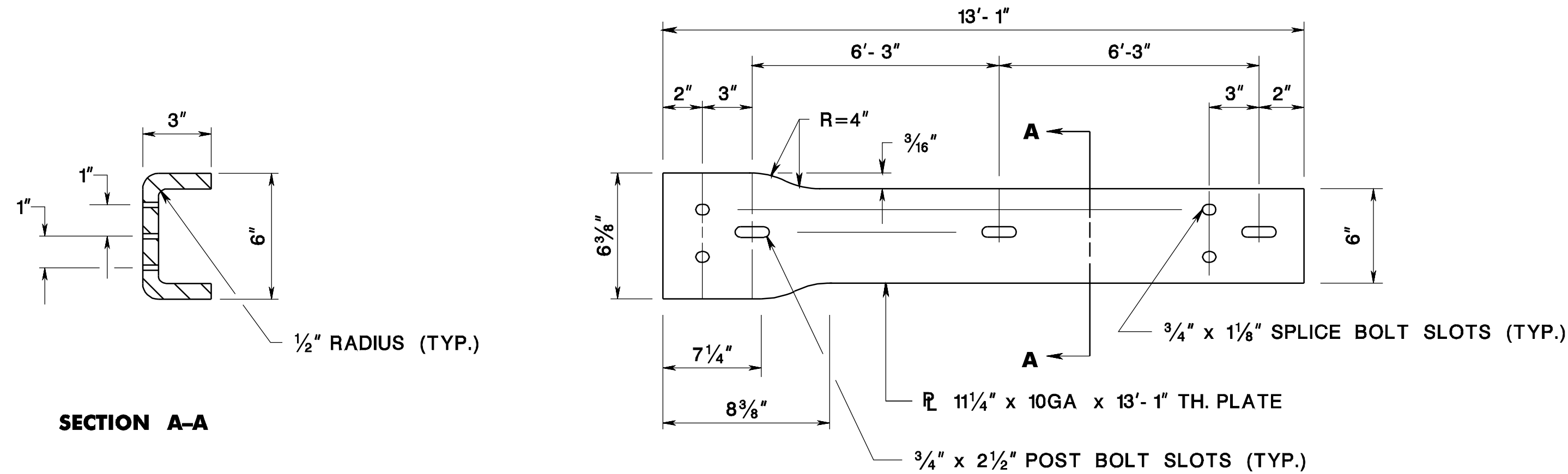


* OFFSET SHOWN ON PLANS.

RUB RAIL SECTION

NOTE:
 USE EITHER C6 x 8.2 OR BENT PLATE FOR RUB RAIL

CD-609-3.2

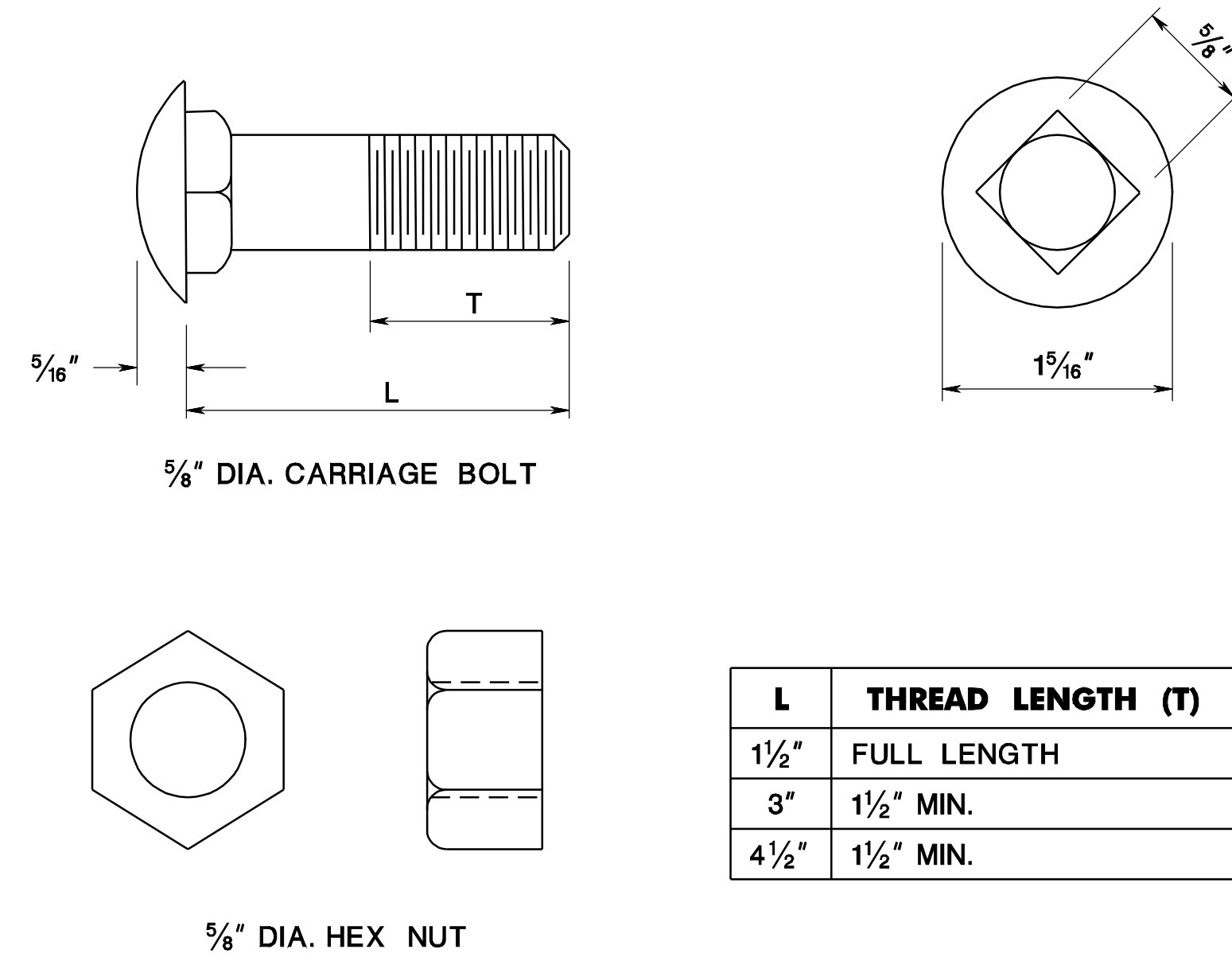


SECTION A-A

BENT PLATE

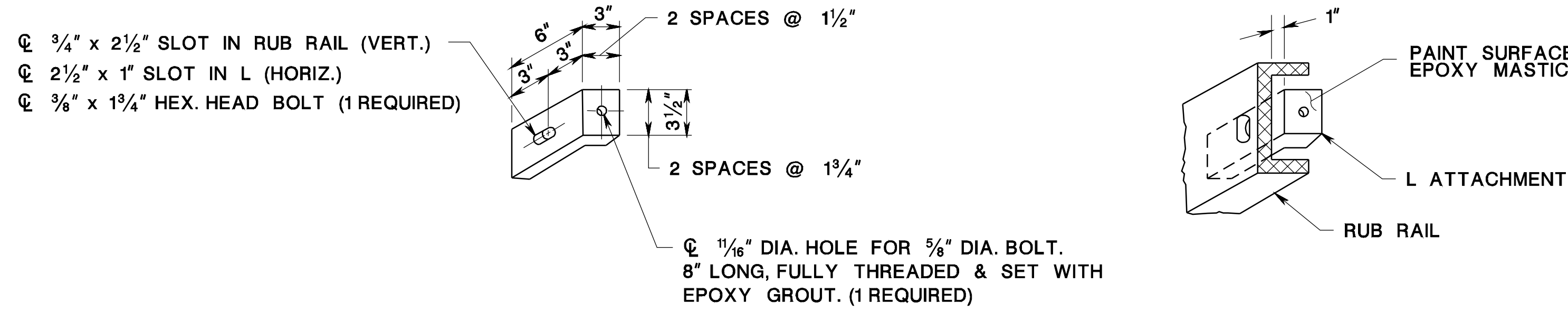
NOTE:
 USE EITHER C6 x 8.2 OR BENT PLATE FOR RUB RAIL

CD-609-3.3



CARRIAGE BOLT DETAIL

CD-609-3.4



RUB RAIL ANGLE ATTACHMENT

SEE CD-609-11.2 FOR GENERAL NOTES

CD-609-3.5

RUB RAIL

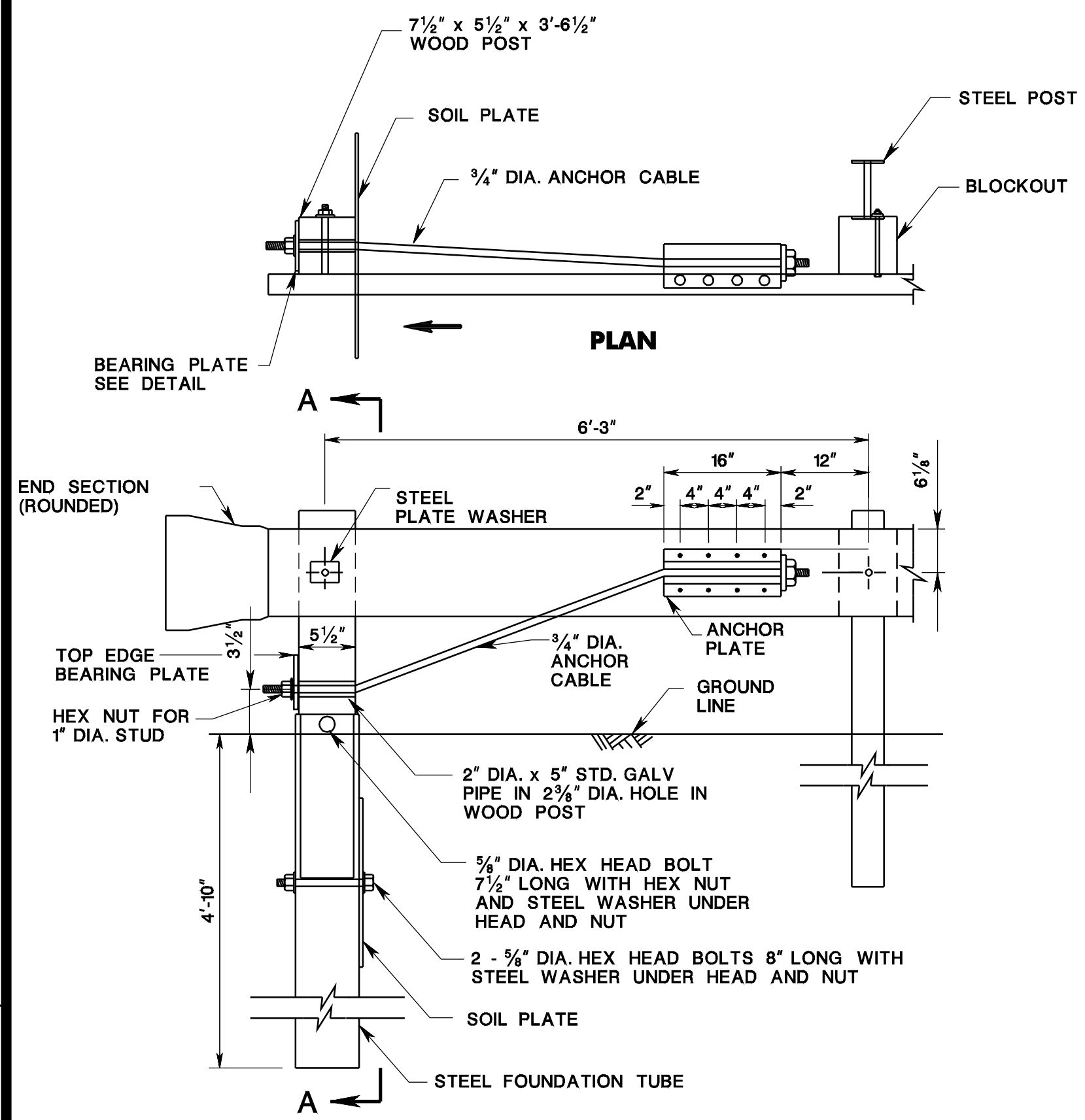
N.T.S.

HMA = HOT MIX ASPHALT CD-609-3

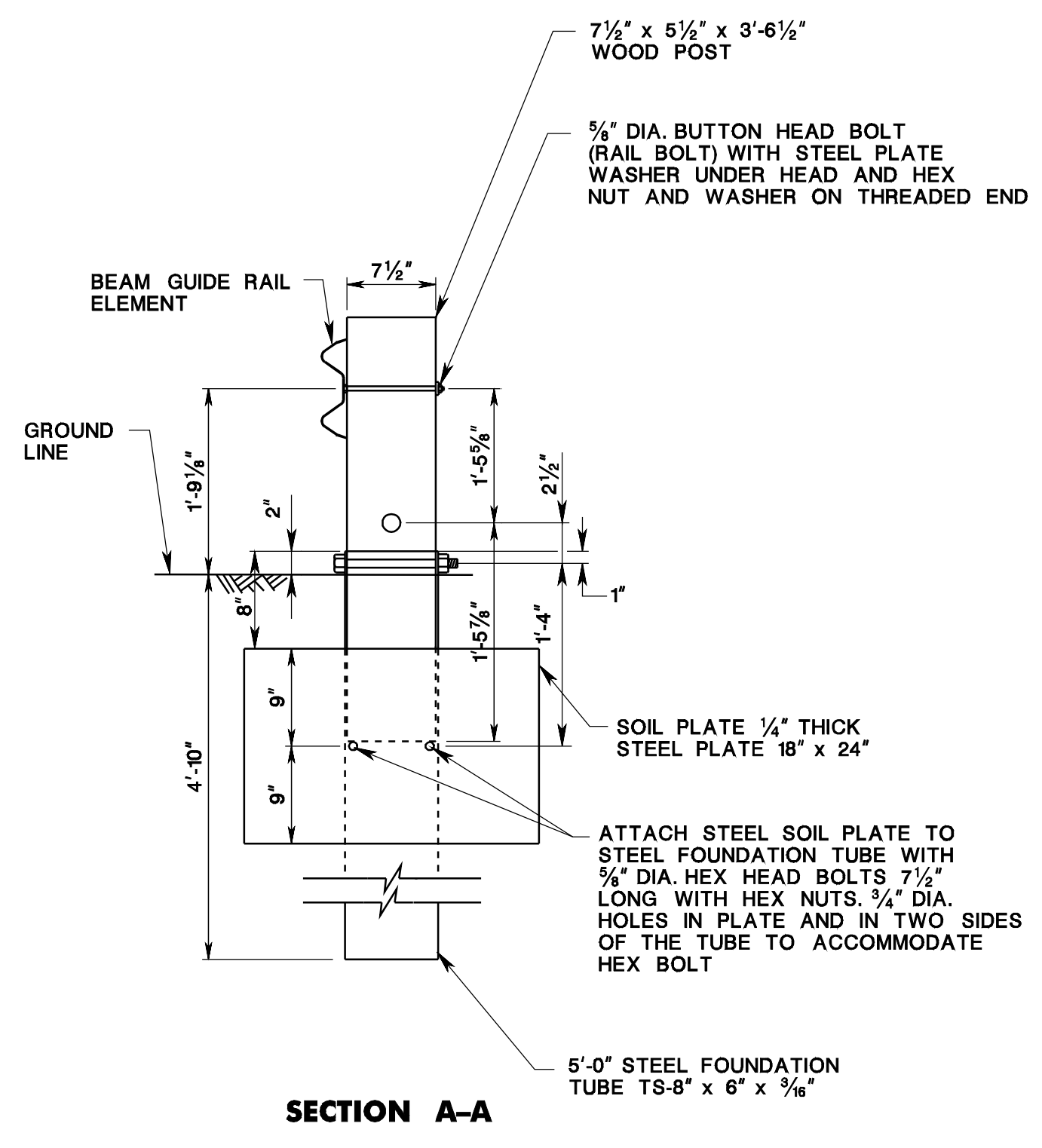
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

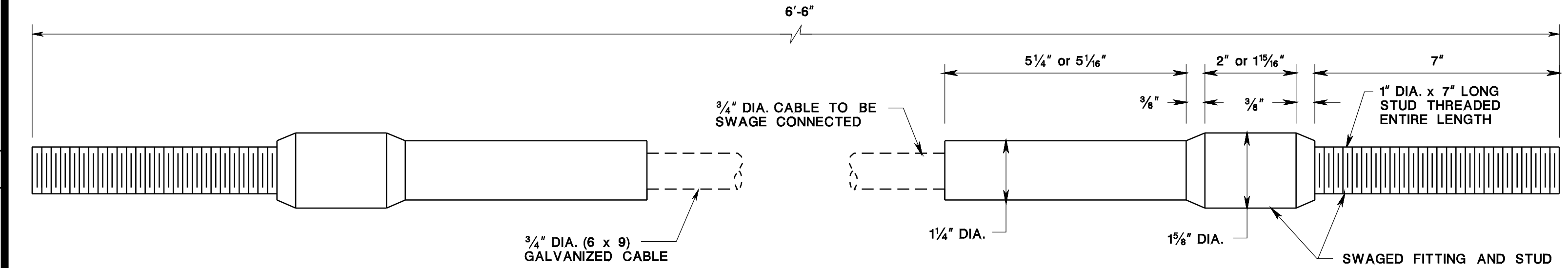
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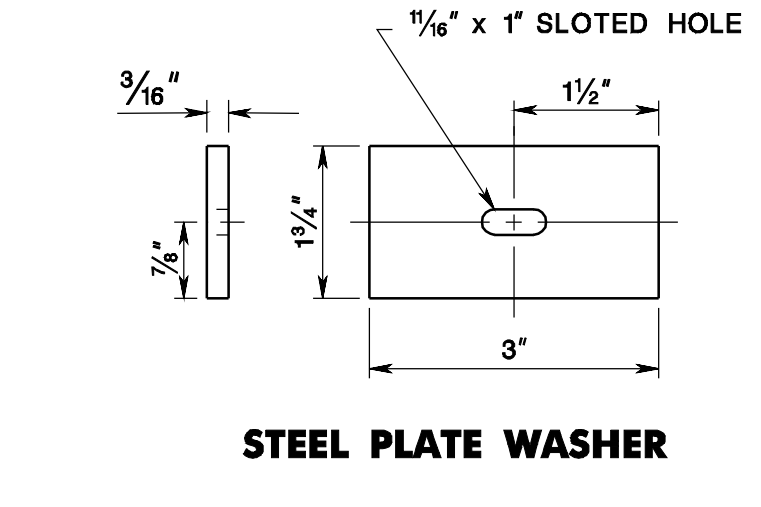
BEAM GUIDE RAIL END ANCHORAGE



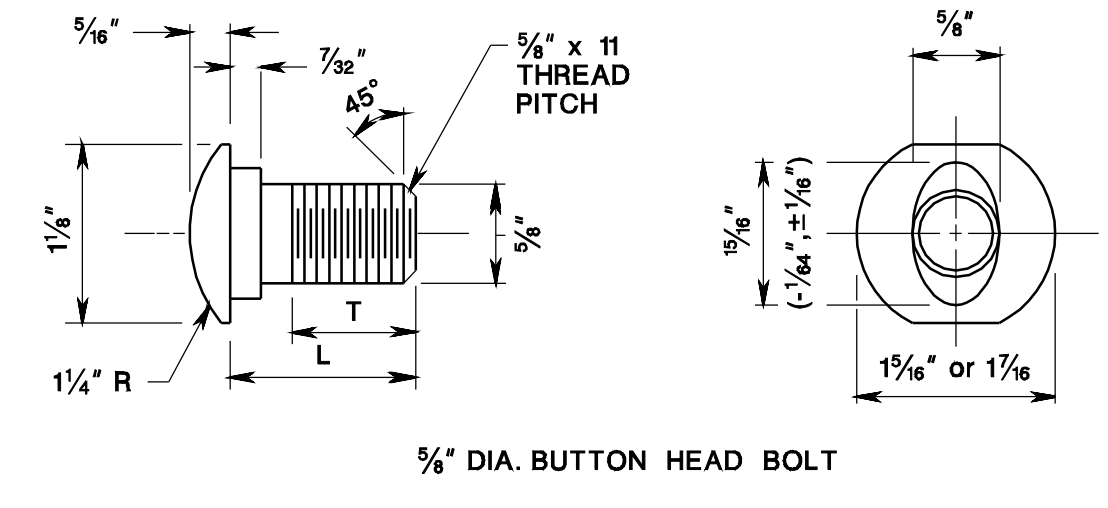
SECTION A-A



CABLE ASSEMBLY

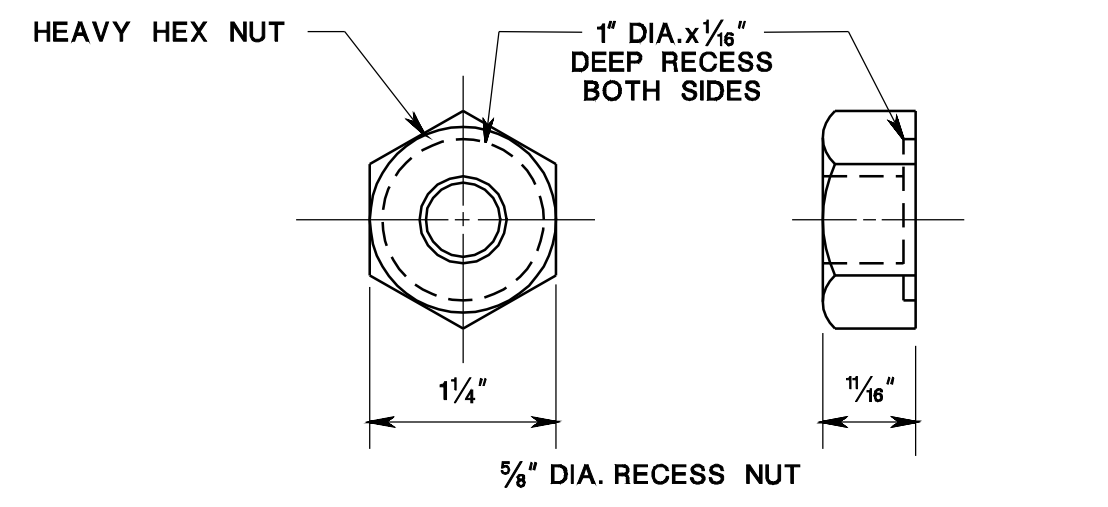


STEEL PLATE WASHER



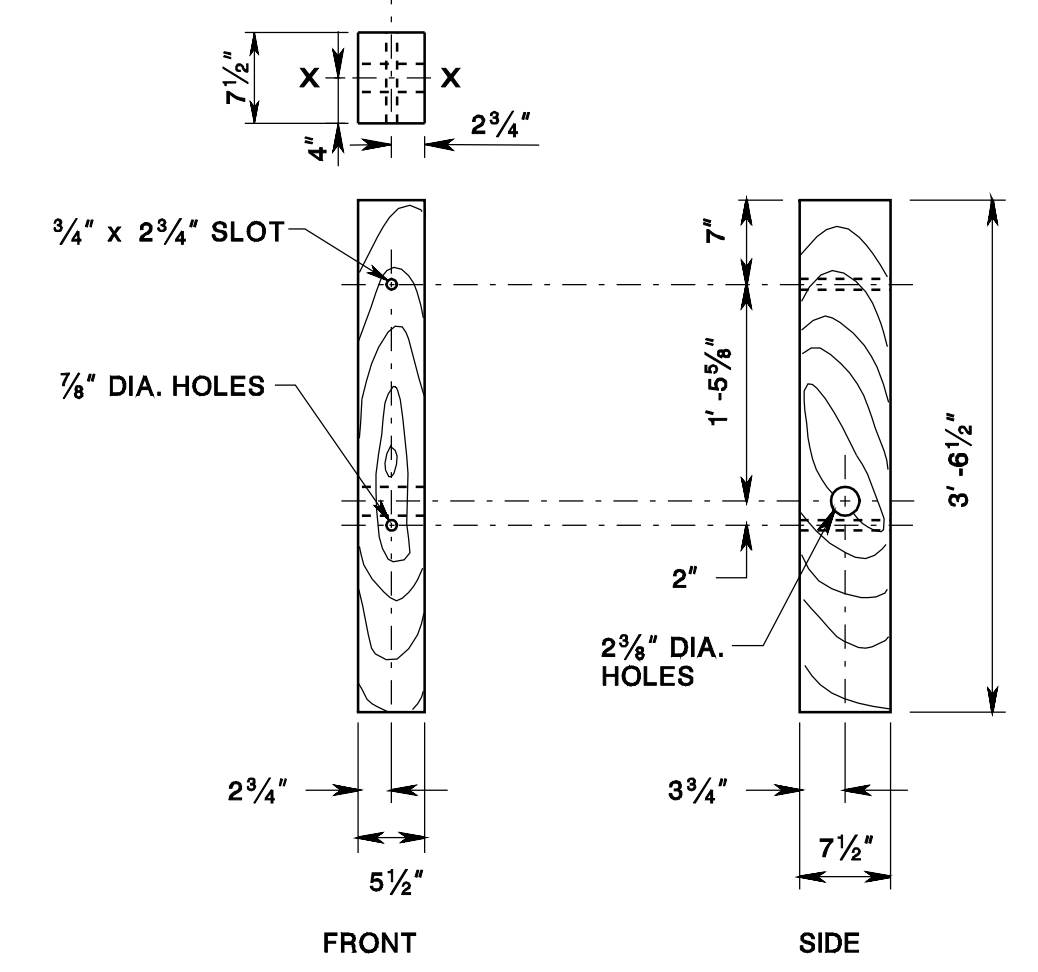
NUT & BOLT

TYPE	L	MIN. THREAD LENGTH (T)
RAIL	10"	4"
SPLICE	1 1/4"	1 1/4"

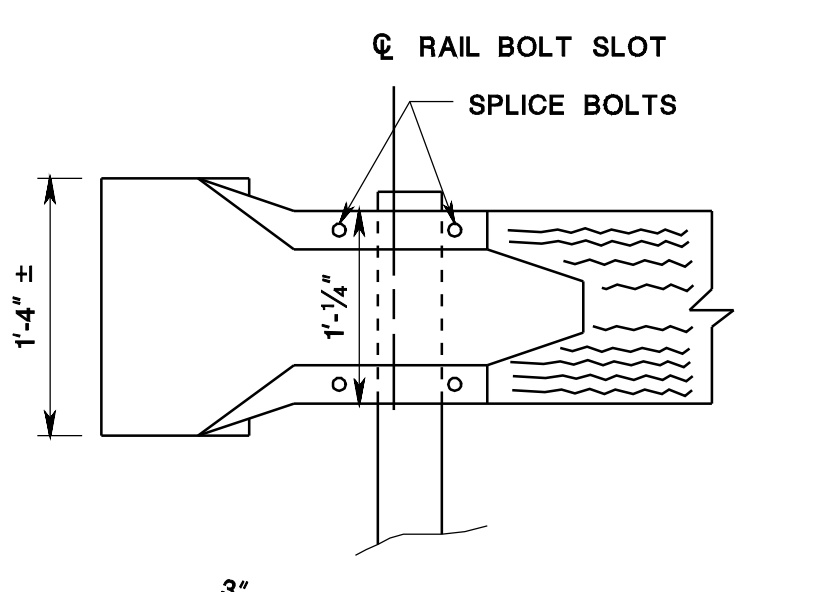


STEEL WASHER

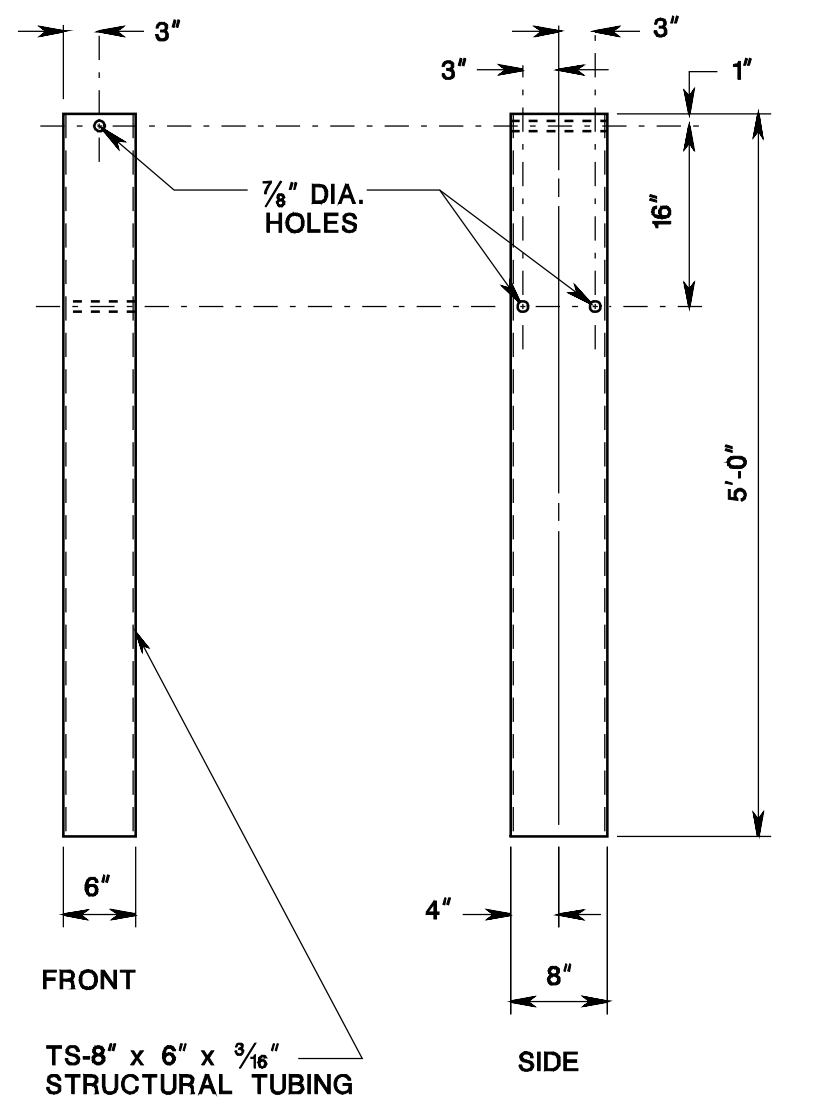
RAIL NUT & BOLT



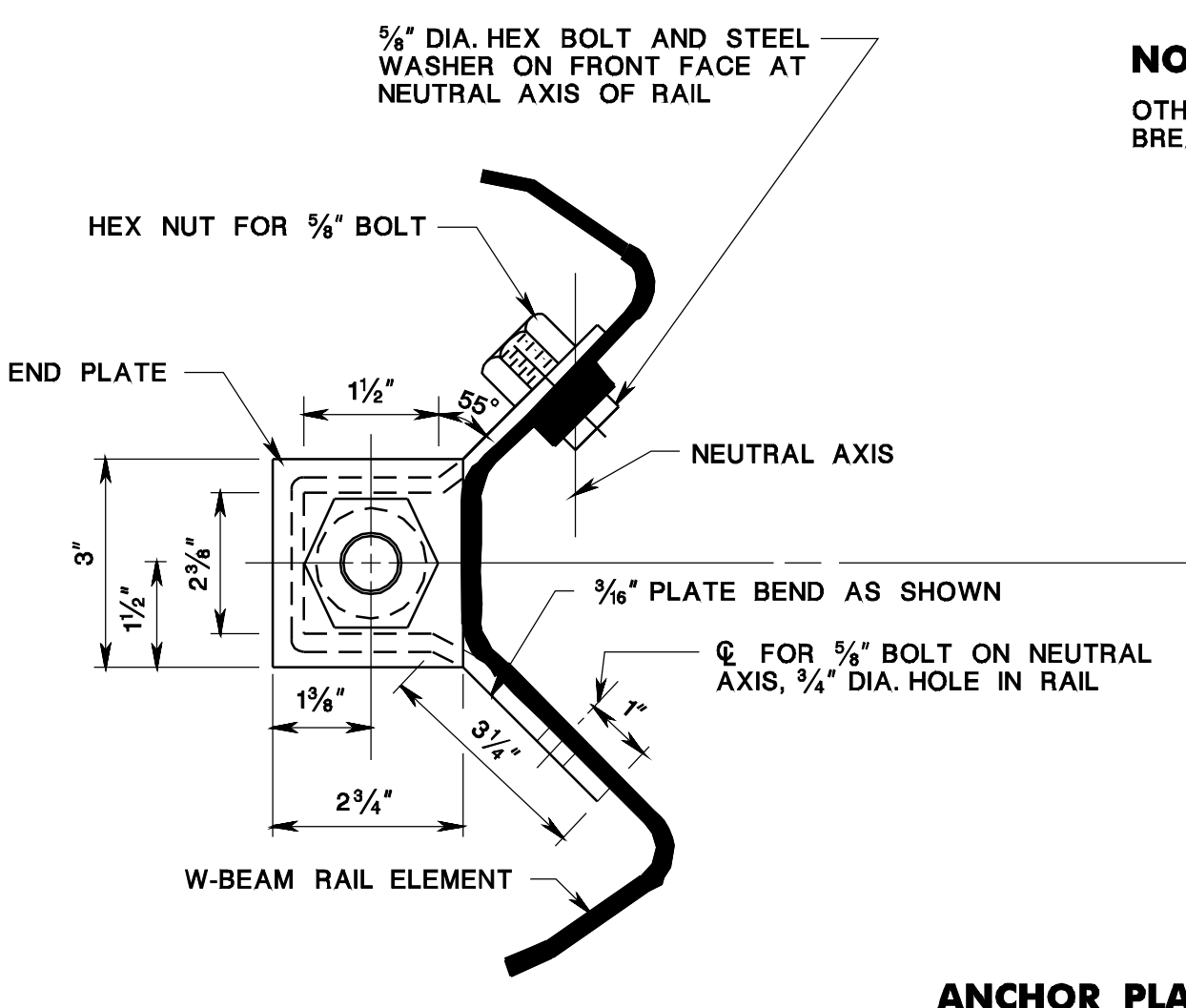
WOOD POST



END SECTION (ROUNDED)

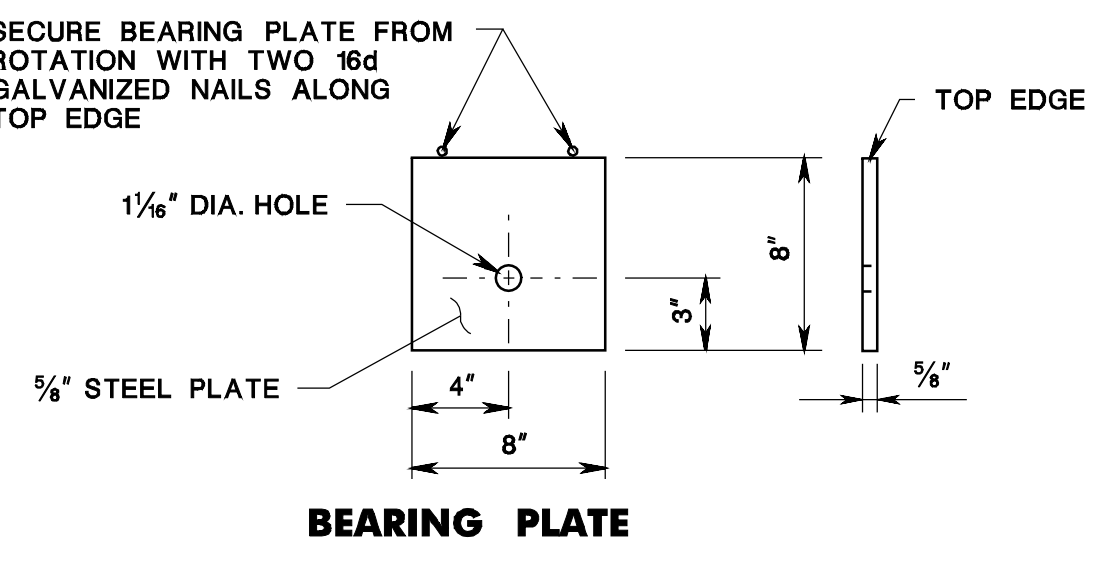


STEEL FOUNDATION TUBE

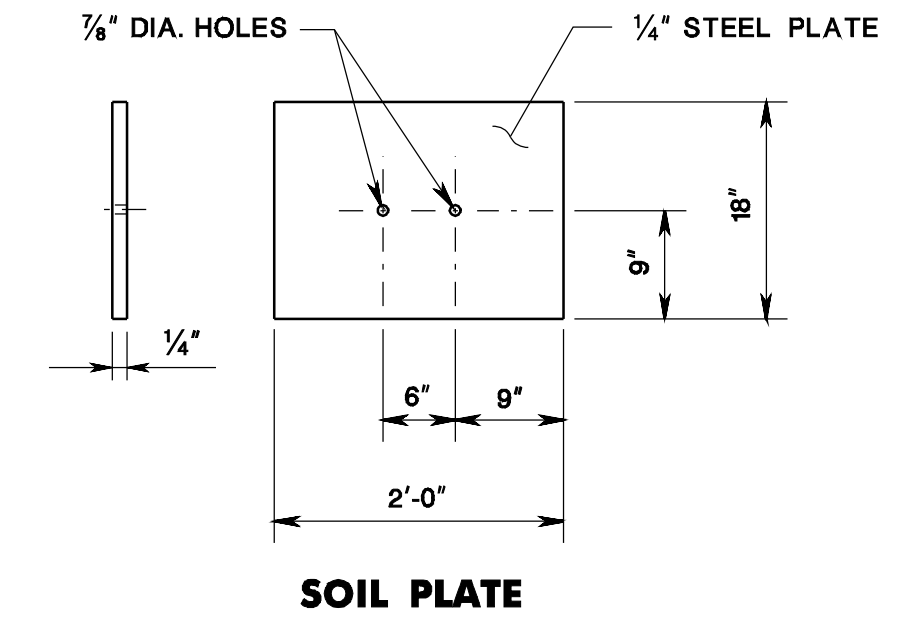


ANCHOR PLATE

NOTE:
 OTHER ANCHOR CABLE ASSEMBLIES MAY BE USED. MINIMUM BREAKING STRENGTH OF ASSEMBLY SHALL BE 40,000 LBS.



BEARING PLATE



SOIL PLATE

STANDARD SWAGED CONNECTION CONNECTION FOR 3/4\"/>

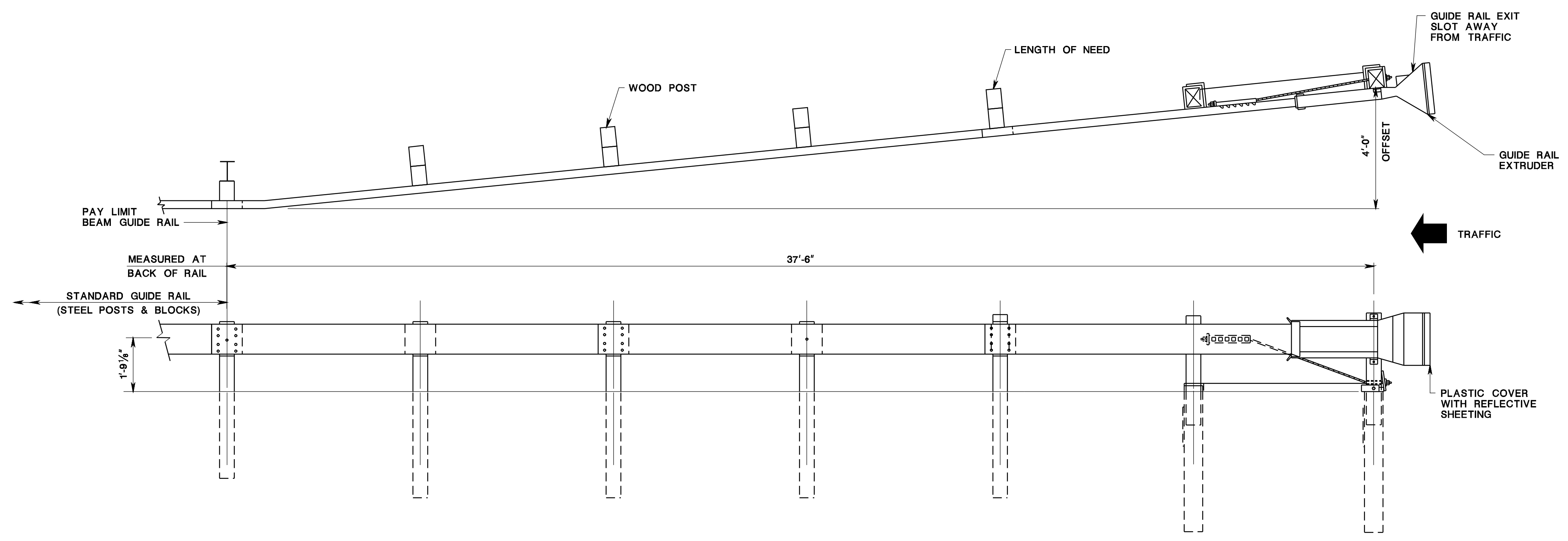
PAYMENT FOR ITEM ANCHORAGE SHALL INCLUDE THE ANCHOR PLATE, CABLE ASSEMBLY, WOOD POST, FOUNDATION TUBE AND SOIL PLATE

BEAM GUIDE RAIL ANCHORAGE
 N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

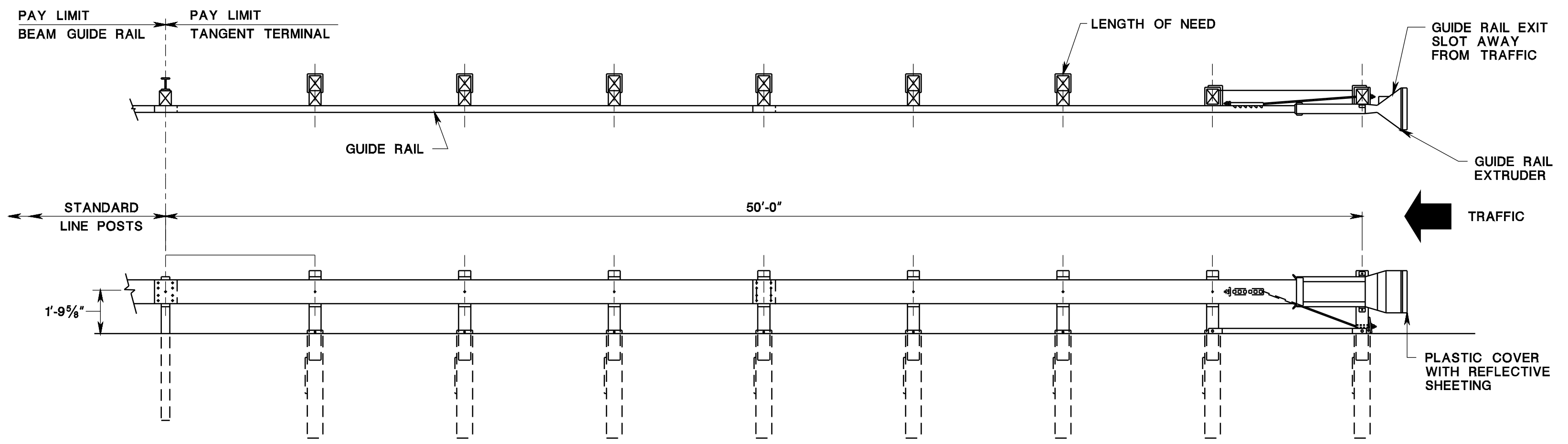
CONSTRUCTION DETAILS

CD-609-4



FLARED GUIDE RAIL TERMINAL

NOTE:
 NUMBER OF POSTS, TYPE OF POST, POST SPACING,
 FLARE RATE AND MATERIALS SHALL BE IN ACCORDANCE
 WITH THE MANUFACTURER'S RECOMMENDATION AND
 THE DEPARTMENT'S QUALIFIED PRODUCTS LIST



TANGENT GUIDE RAIL TERMINAL

NOTE:
 WOOD POSTS SHALL BE CONSTRUCTED USING FOUNDATION TUBES.

NOTE:
 NUMBER OF POSTS, TYPE OF POST, POST SPACING
 AND MATERIALS SHALL BE IN ACCORDANCE
 WITH THE MANUFACTURER'S RECOMMENDATION AND
 THE DEPARTMENT'S QUALIFIED PRODUCTS LIST

**FLARED GUIDE RAIL TERMINAL
 AND TANGENT TERMINAL
 N.T.S.**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-5.1

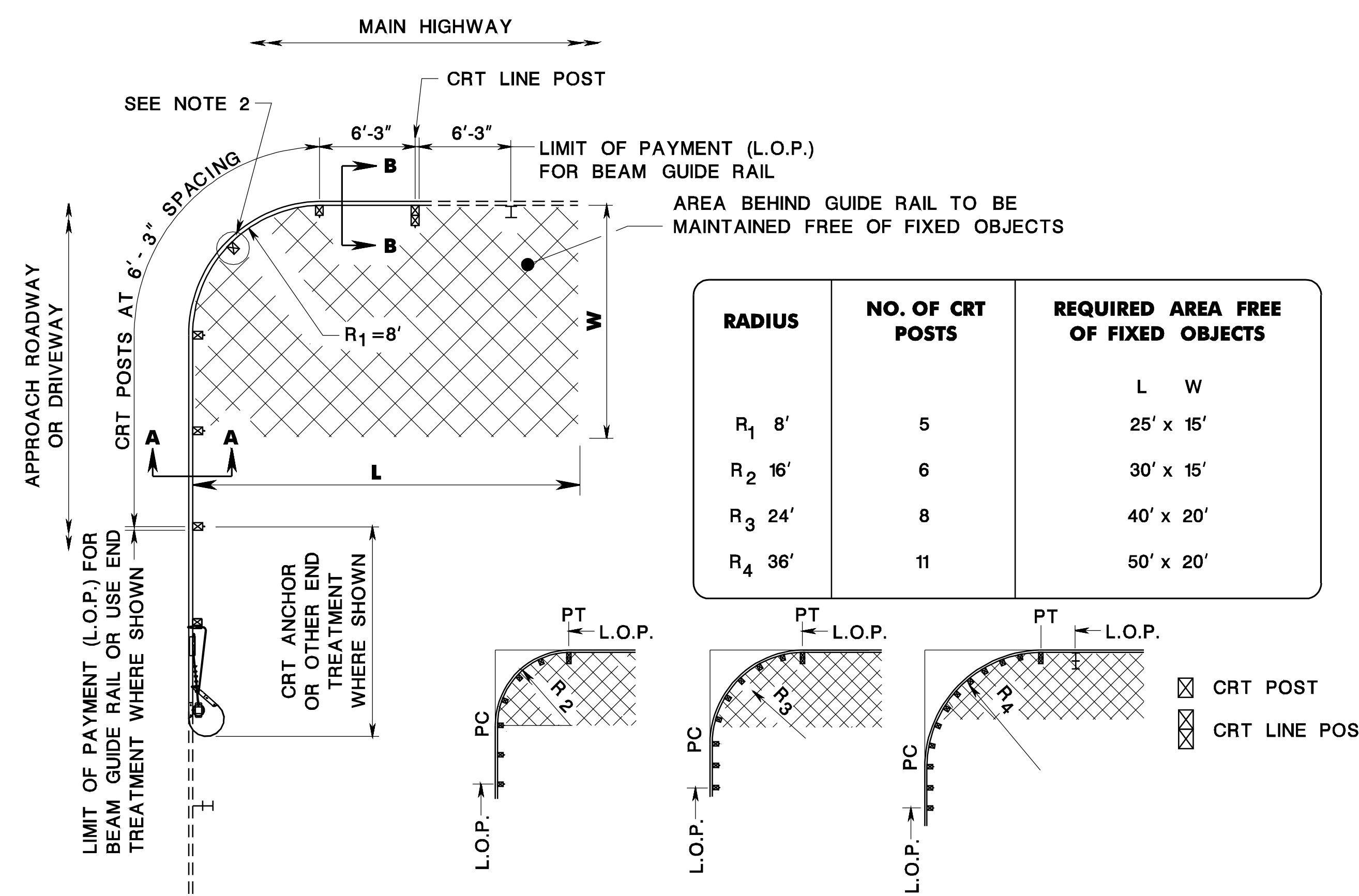
CD-609-5

CD-609-5.2

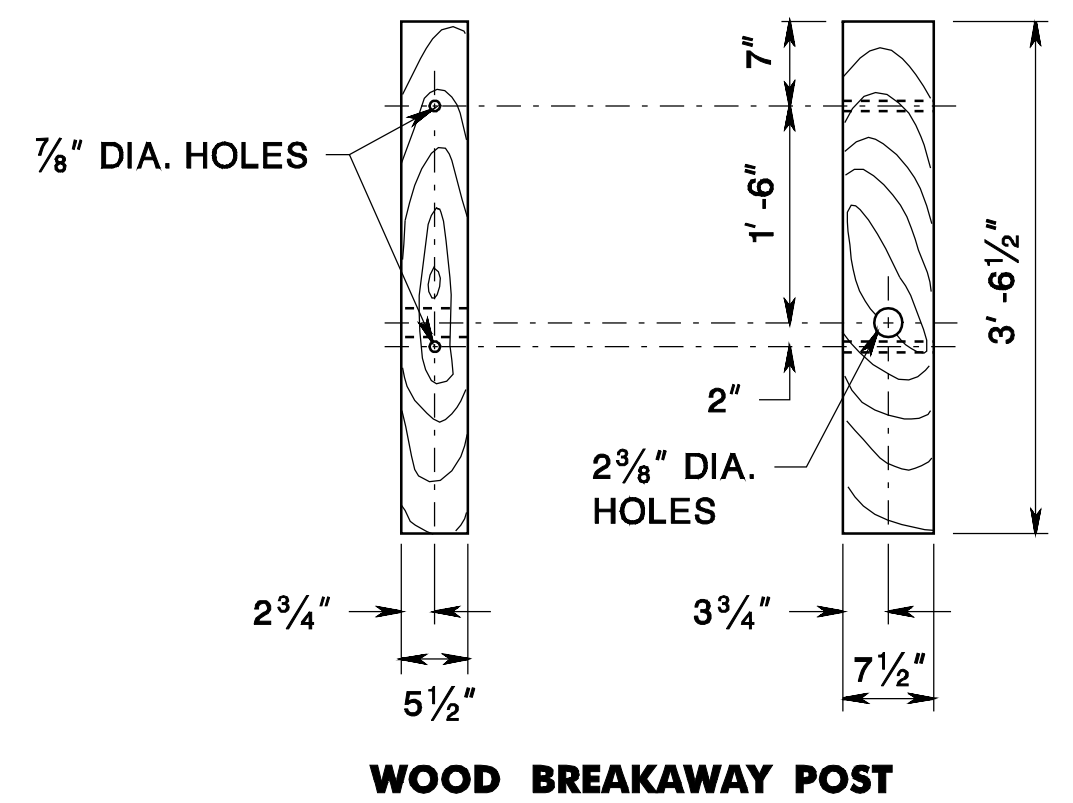
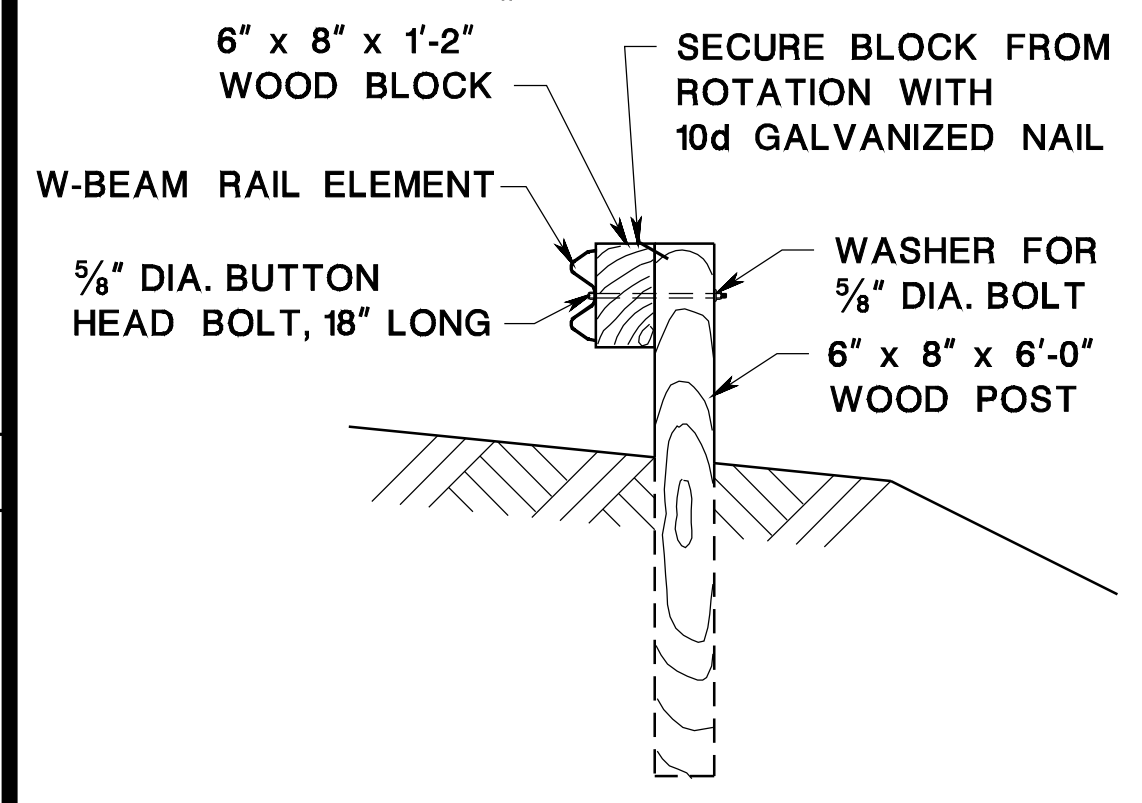
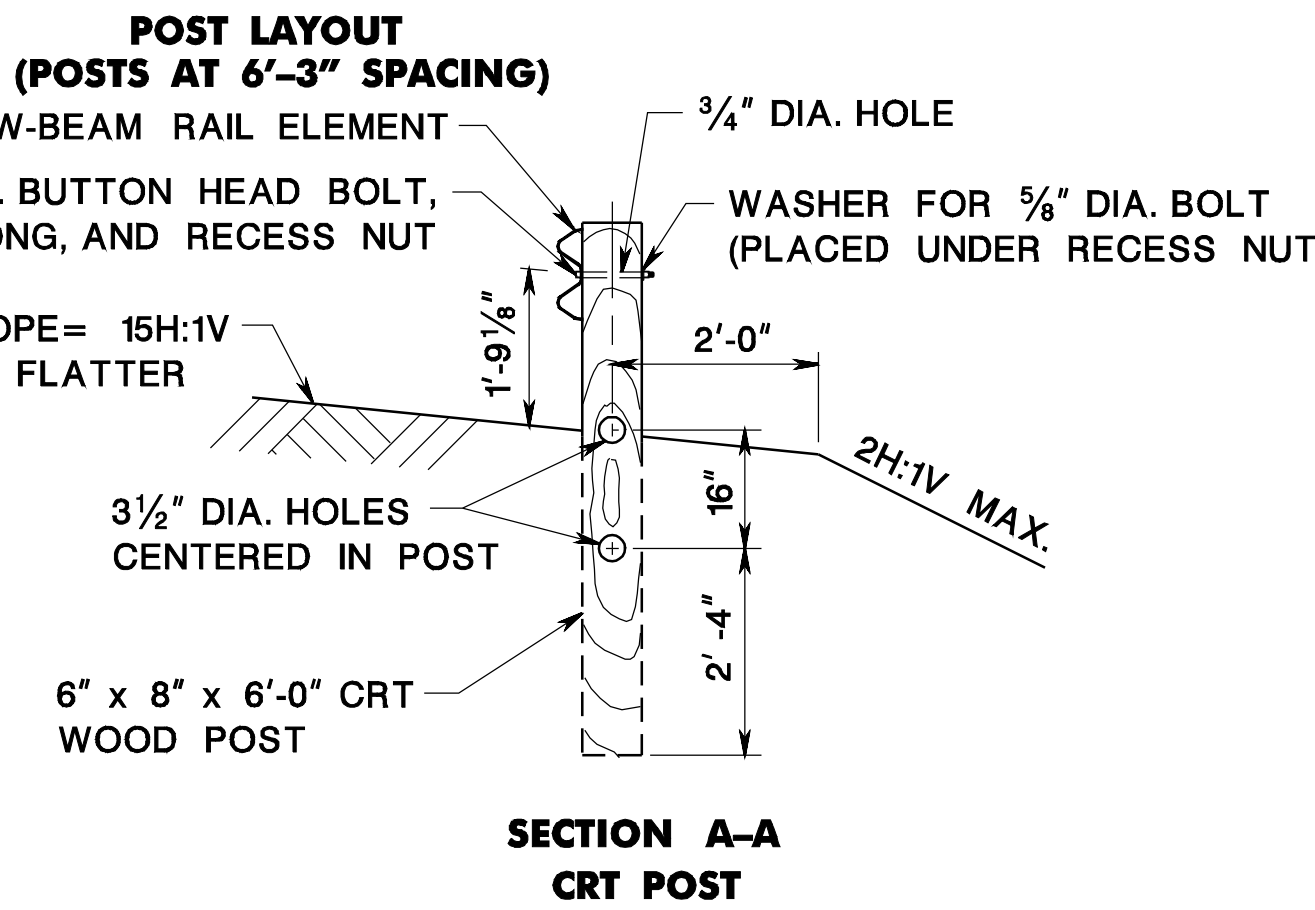
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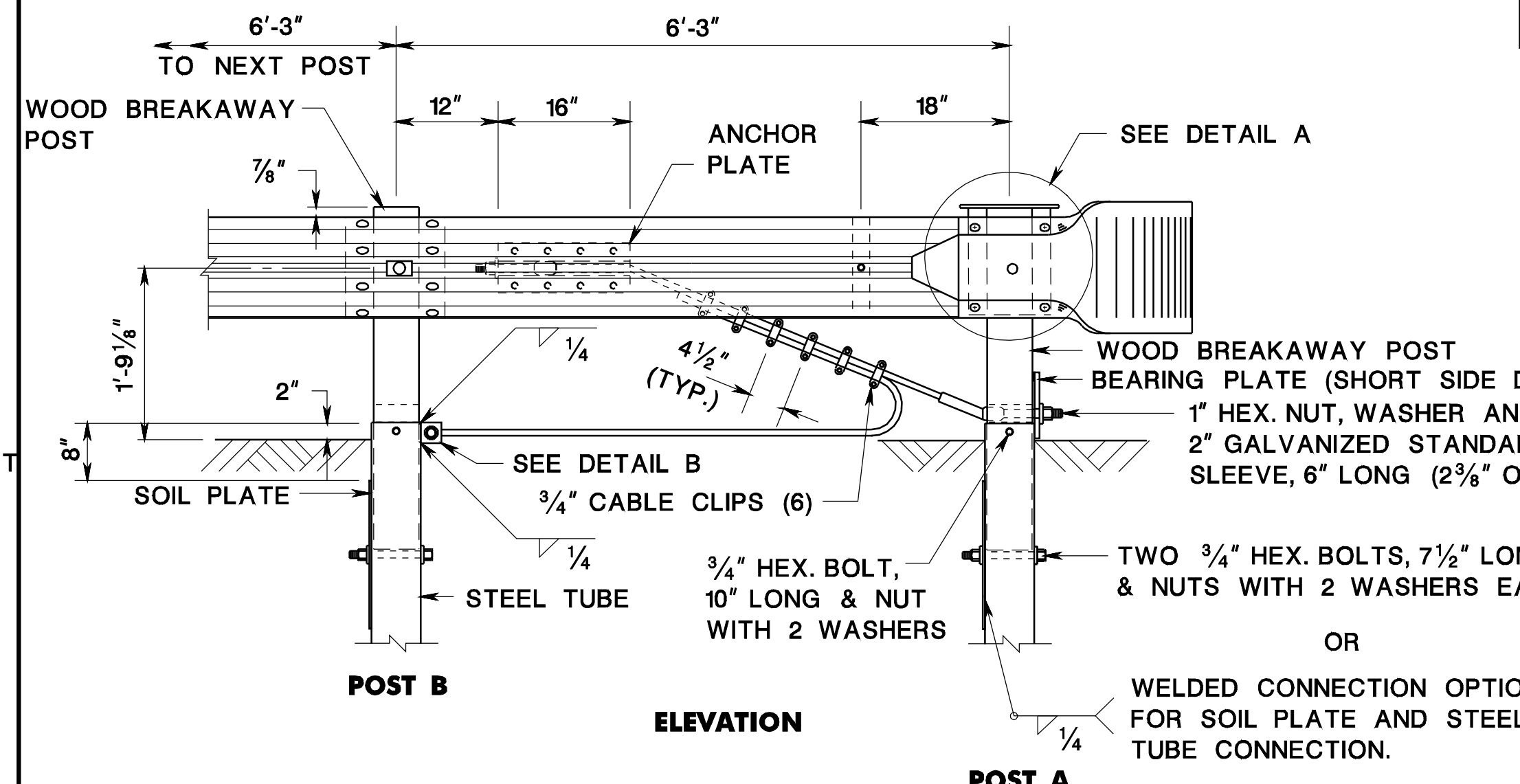
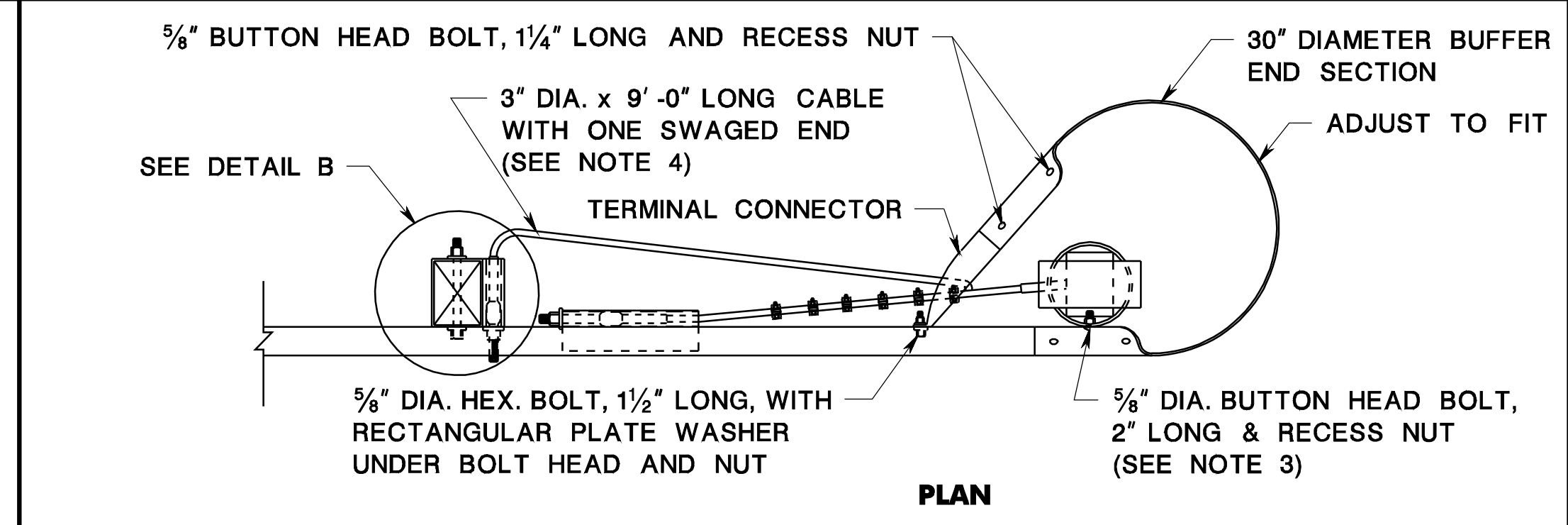
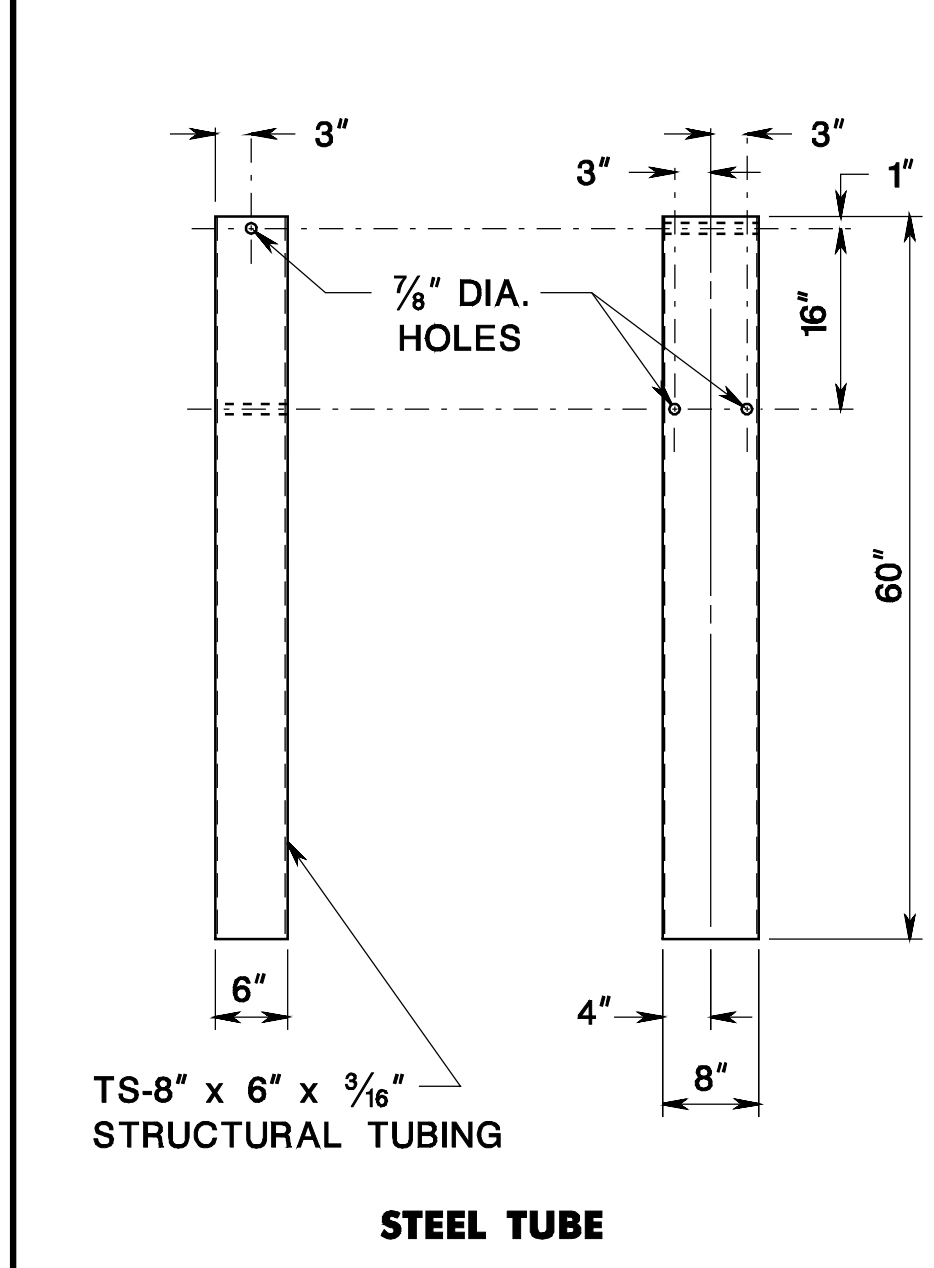


RADIUS	NO. OF CRT POSTS	REQUIRED AREA FREE OF FIXED OBJECTS	
		L	W
R_1 8'	5	25'	15'
R_2 16'	6	30'	15'
R_3 24'	8	40'	20'
R_4 36'	11	50'	20'

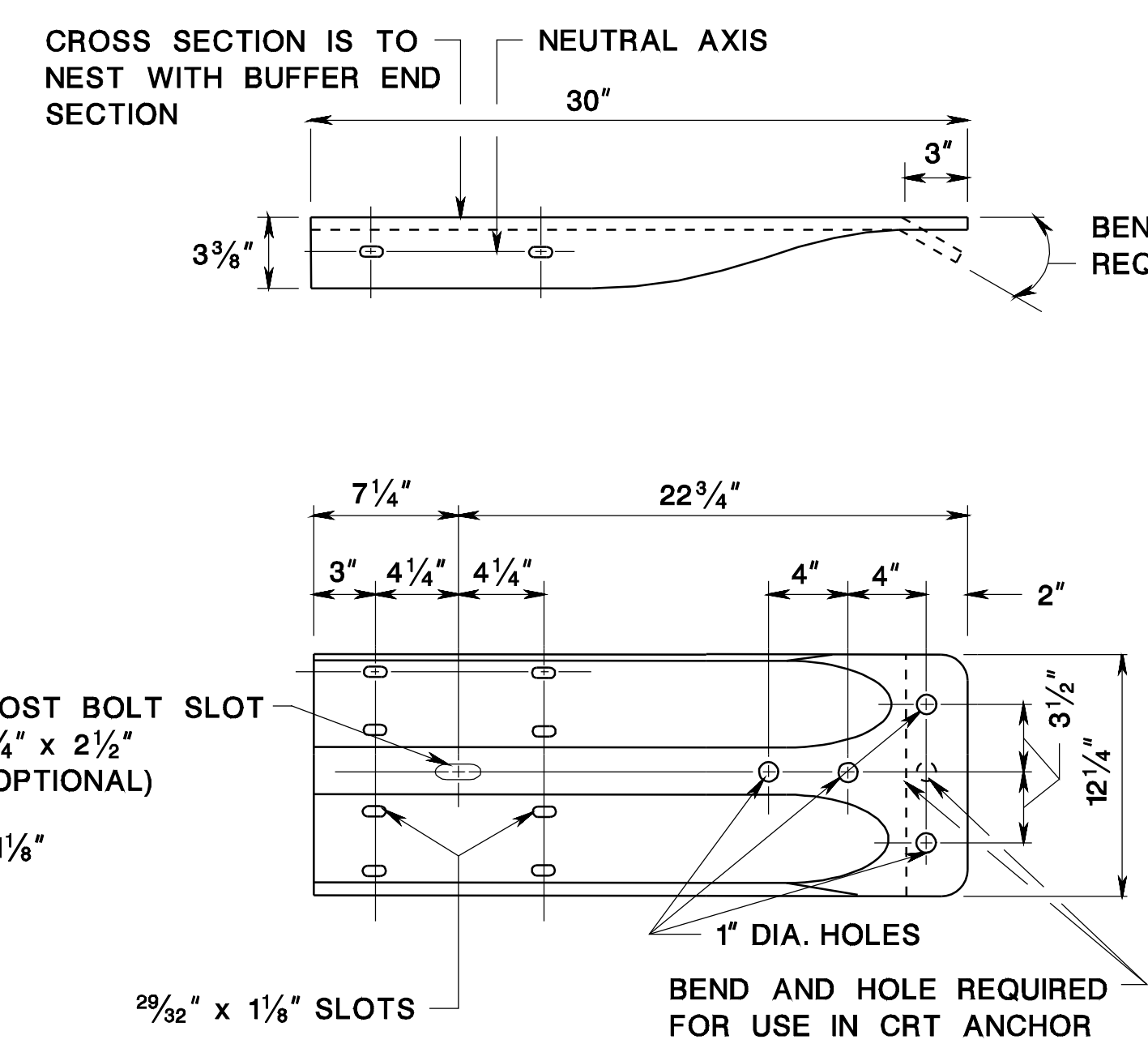
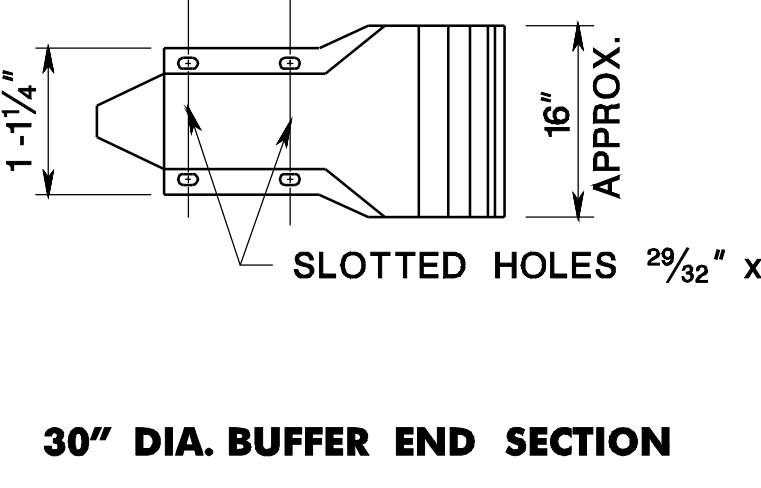
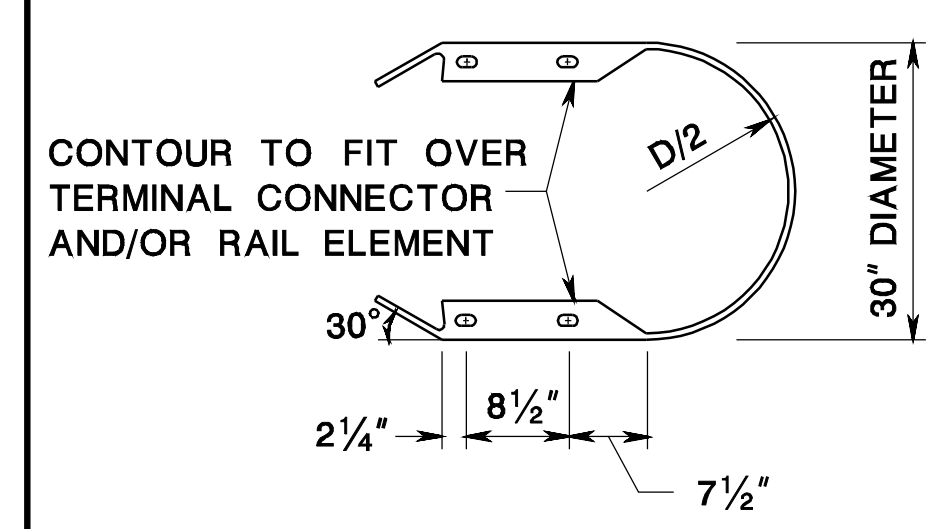


CONTROLLED RELEASE TERMINALS

CD-609-6.1



CRT ANCHOR

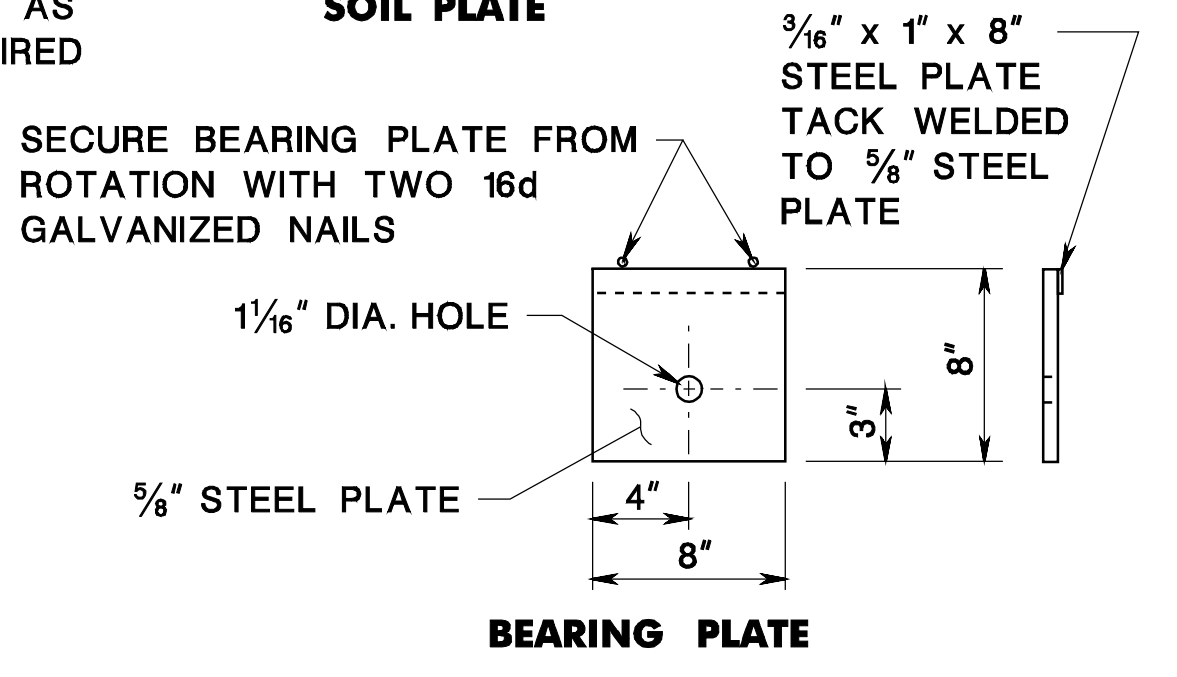
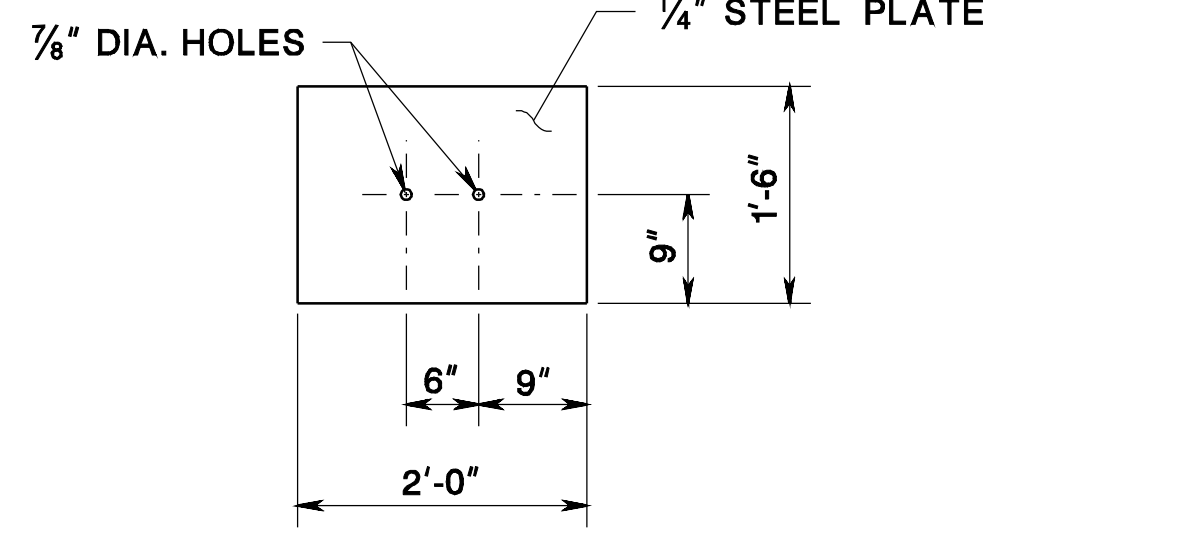
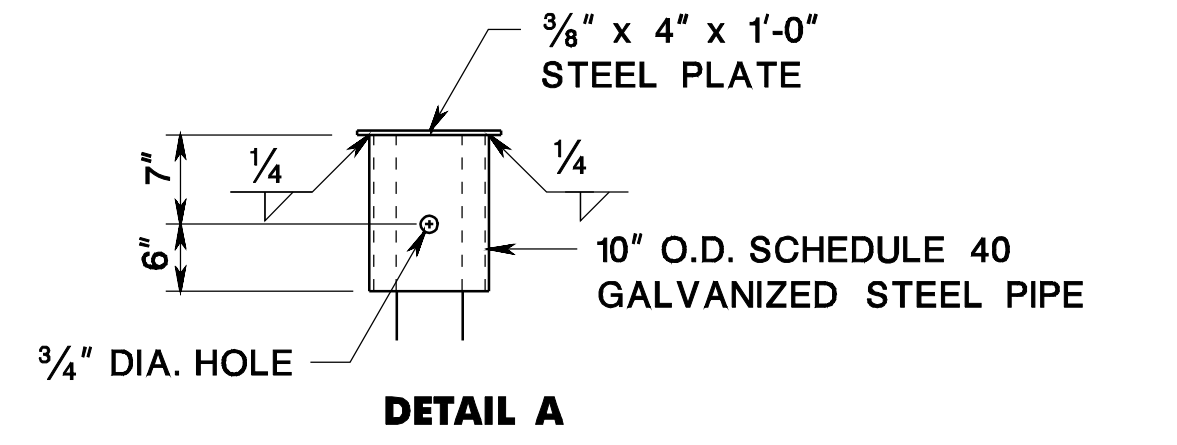
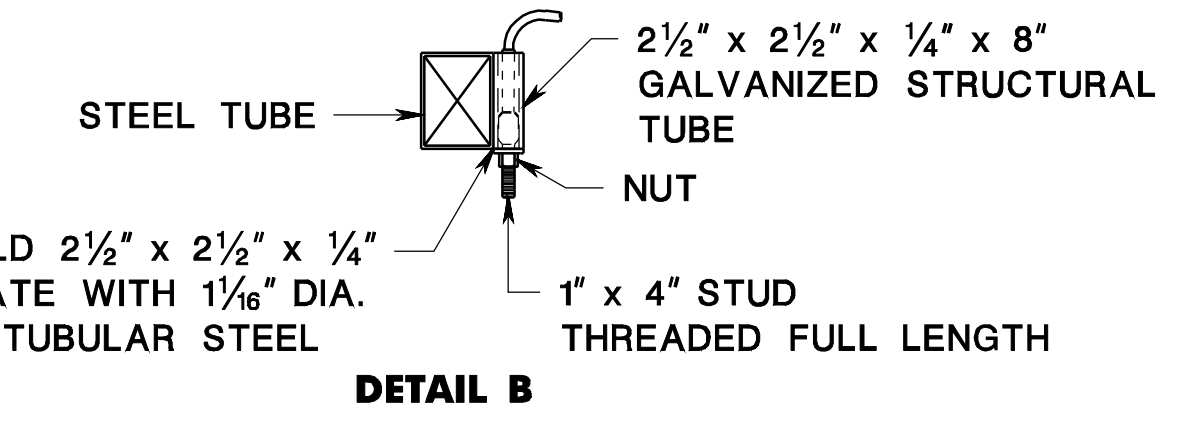


CONTROLLED RELEASE TERMINAL ANCHORAGE

CD-609-6.2

GENERAL NOTES

1. NO WASHERS ARE USED ON THE 5/8" DIA. BUTTON HEAD BOLTS CONNECTING THE RAIL TO THE CONTROLLED RELEASE TERMINAL (CRT) POSTS.
2. FOR 8 FOOT RADIUS, THE RAIL ELEMENT SHALL NOT BE BOLTED TO THE CRT POST AT THE CENTER OF THE NOSE AS SHOWN.
3. ATTACH W-BEAM TO STEEL PIPE WITH BUTTON HEAD BOLT WITH NO WASHER. NO CONNECTION TO POST IS REQUIRED.
4. WIRE ROPE CABLE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M30 AND SHALL BE 3/4" DIAMETER PREFORMED, 6 x 19, WIRE STRAND CORE OR INDEPENDENT WIRE ROPE CORE, GALVANIZED, RIGHT REGULAR LAY, MANUFACTURED OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 POUNDS.
5. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500. CD-609-6.3



CONTROLLED RELEASE TERMINALS

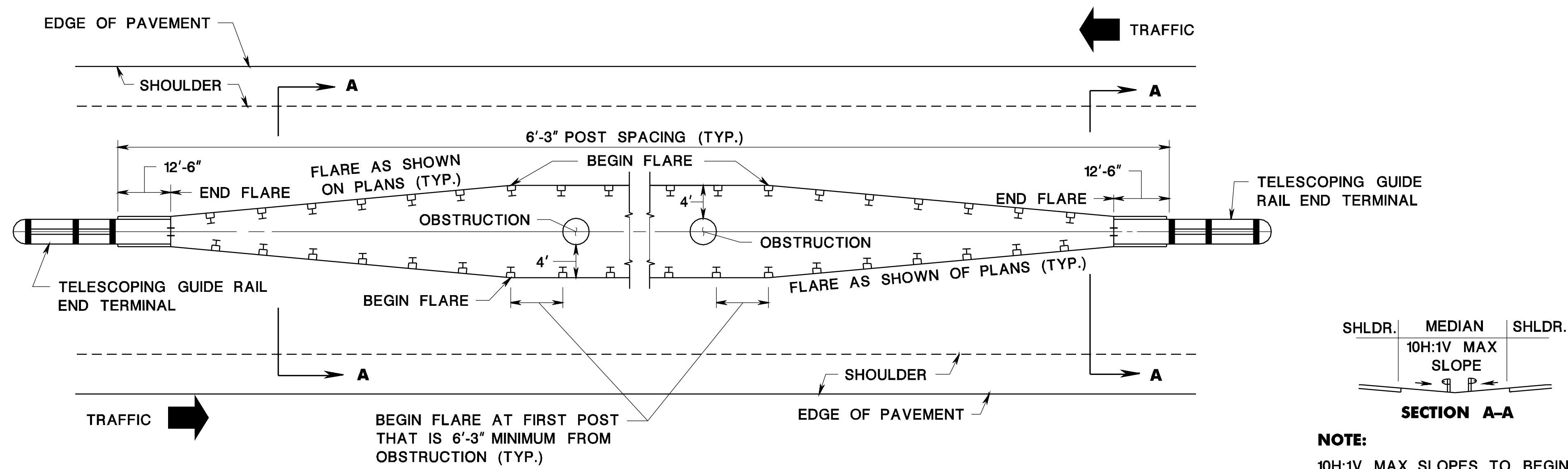
N.T.S.

CD-609-6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

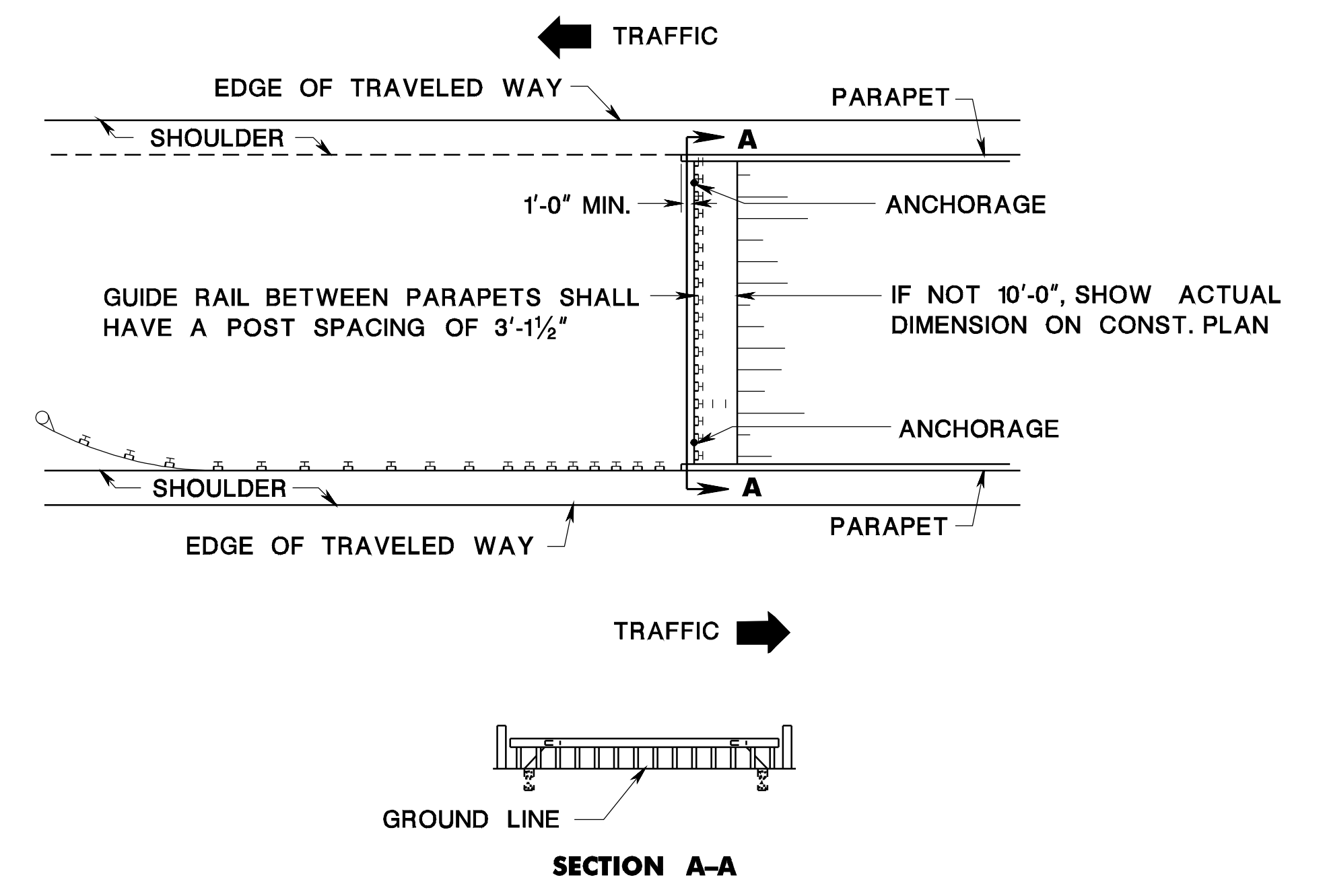
CONSTRUCTION DETAILS

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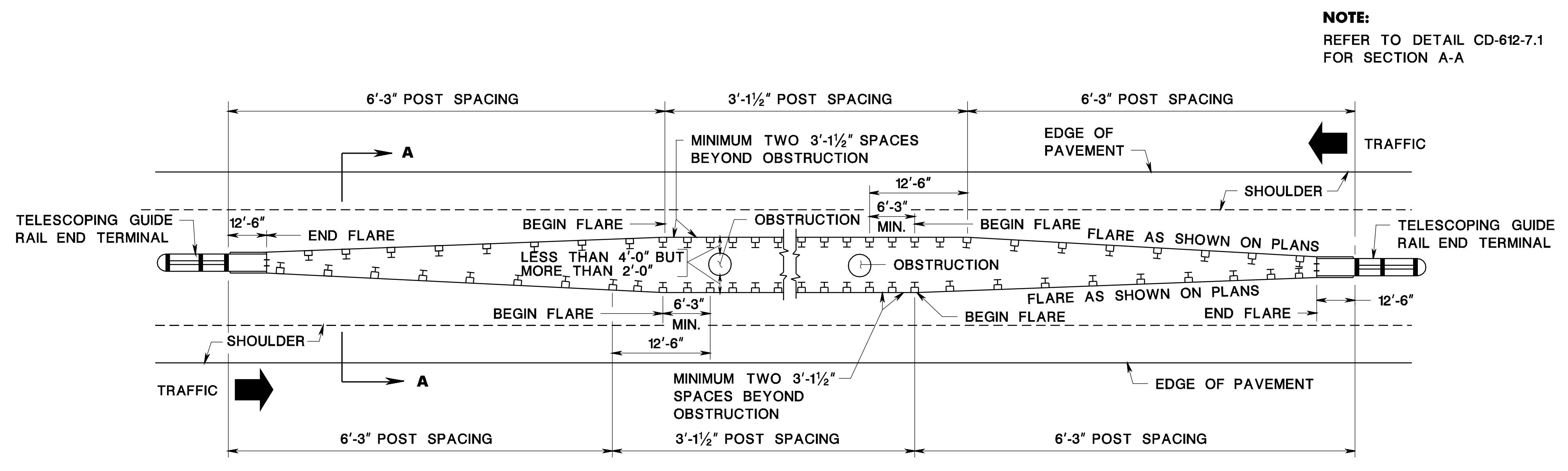
MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS 4' OR GREATER

CD-609-7.1



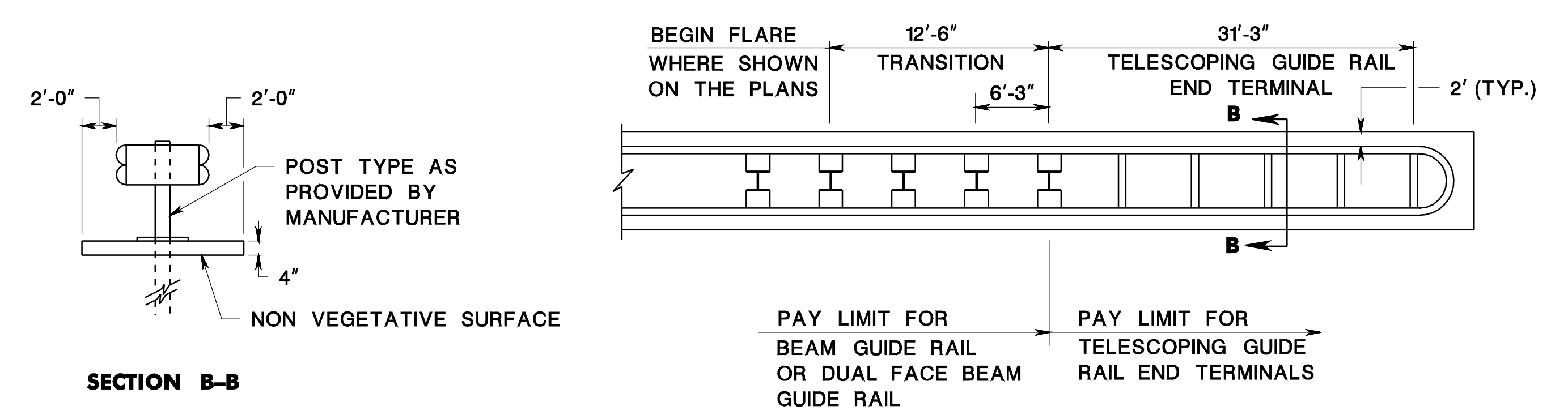
MEDIAN GUIDE RAIL TREATMENT AT ADJACENT BRIDGES

CD-609-7.4



MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS MORE THAN 2' BUT LESS THAN 4'

CD-609-7.2



TELESCOPING GUIDE RAIL END TERMINALS

NOTE:
 12'-6" OR 6'-3" TRANSITION AS RECOMMENDED BY THE MANUFACTURER-GUIDE RAIL SHALL NOT BEGIN TO FLARE WITHIN 12'-6" OF TELESCOPING GUIDE RAIL END TREATMENT.

CD-609-7.3

MEDIAN GUIDE RAIL TREATMENT

N.T.S.

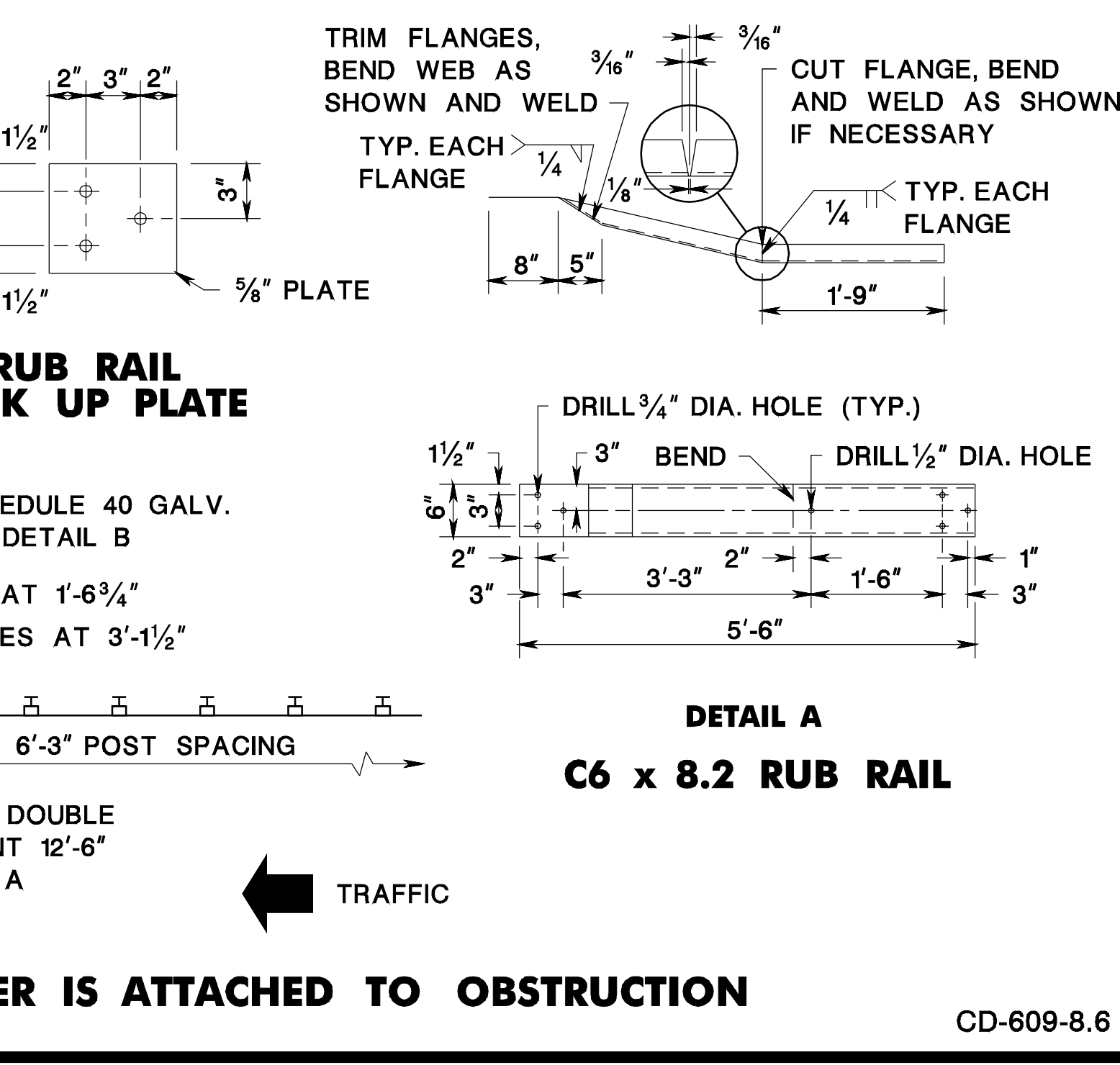
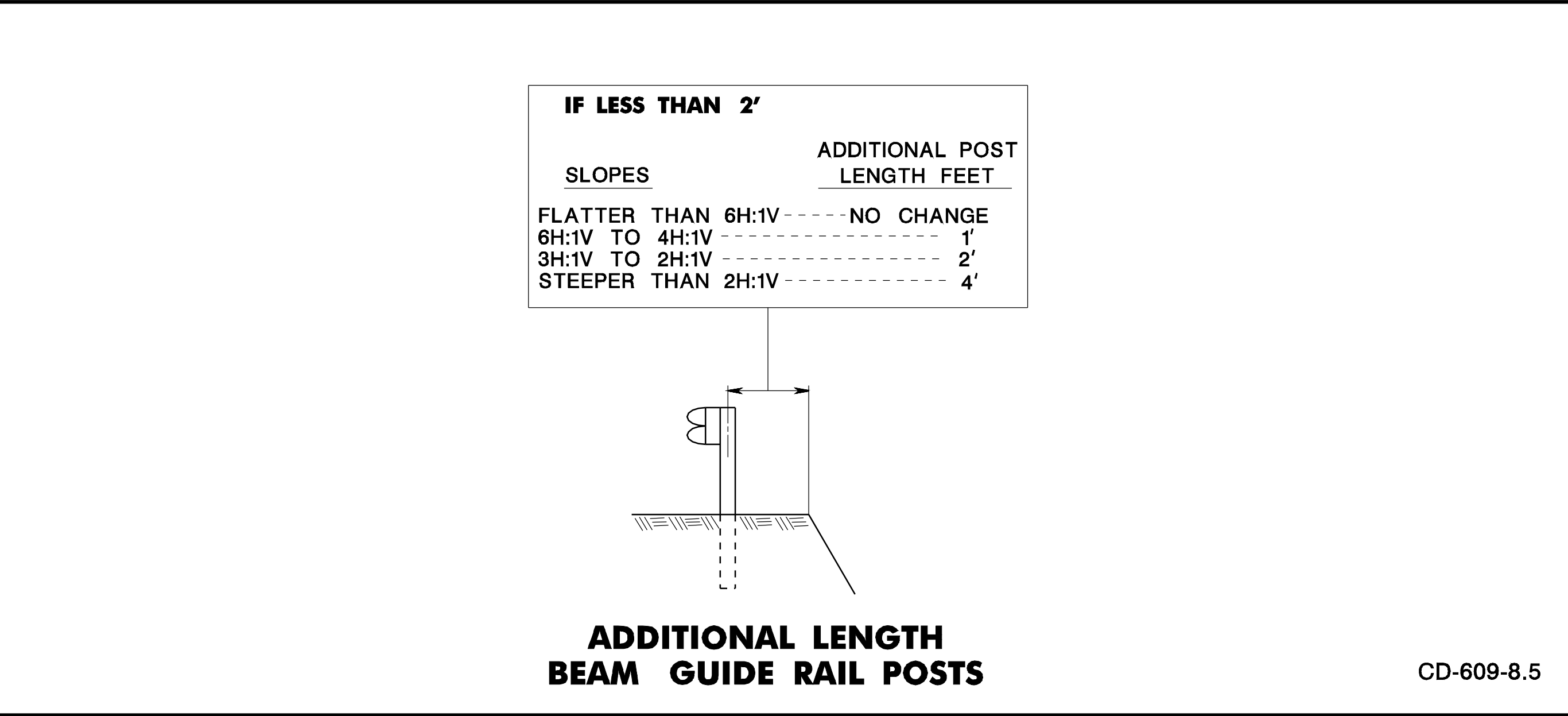
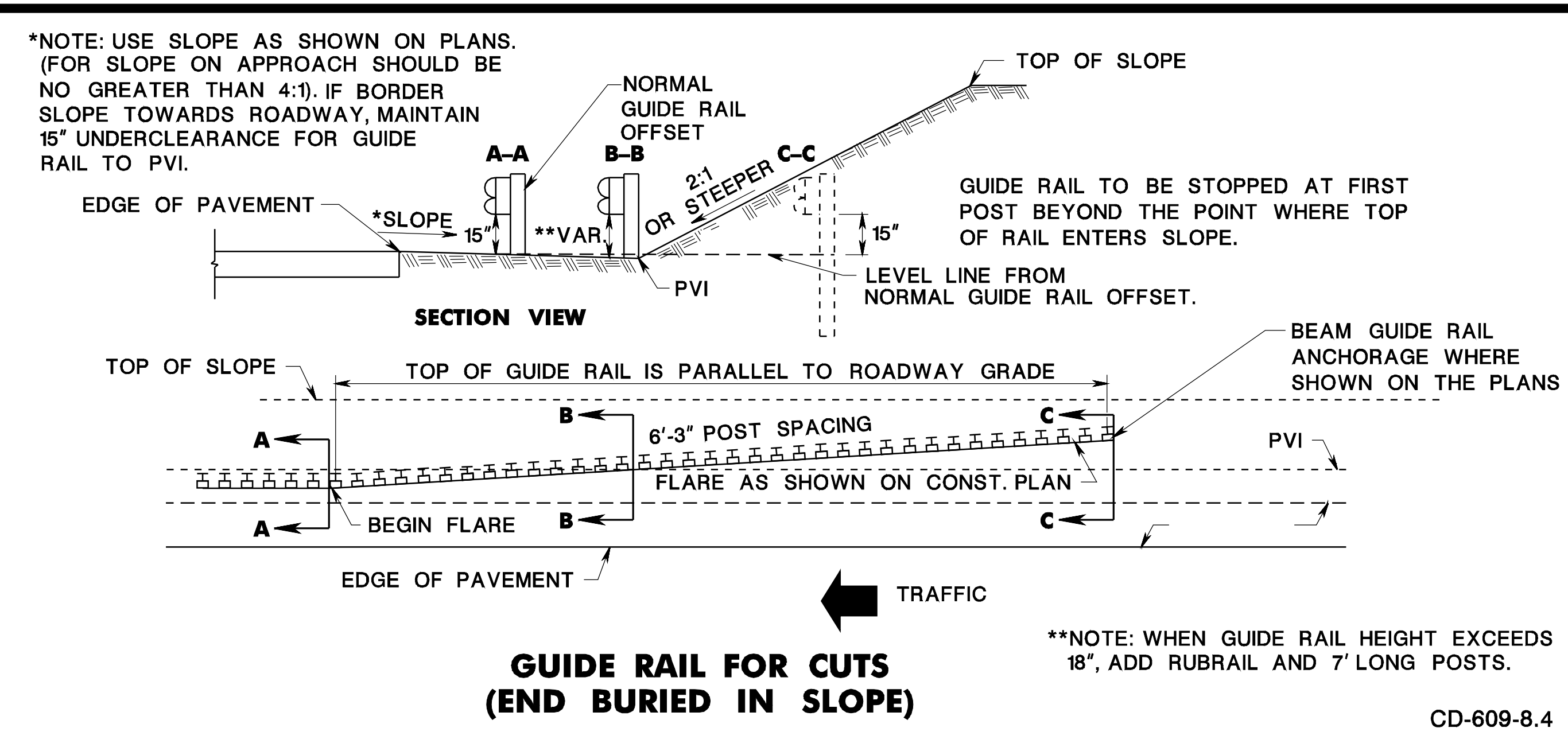
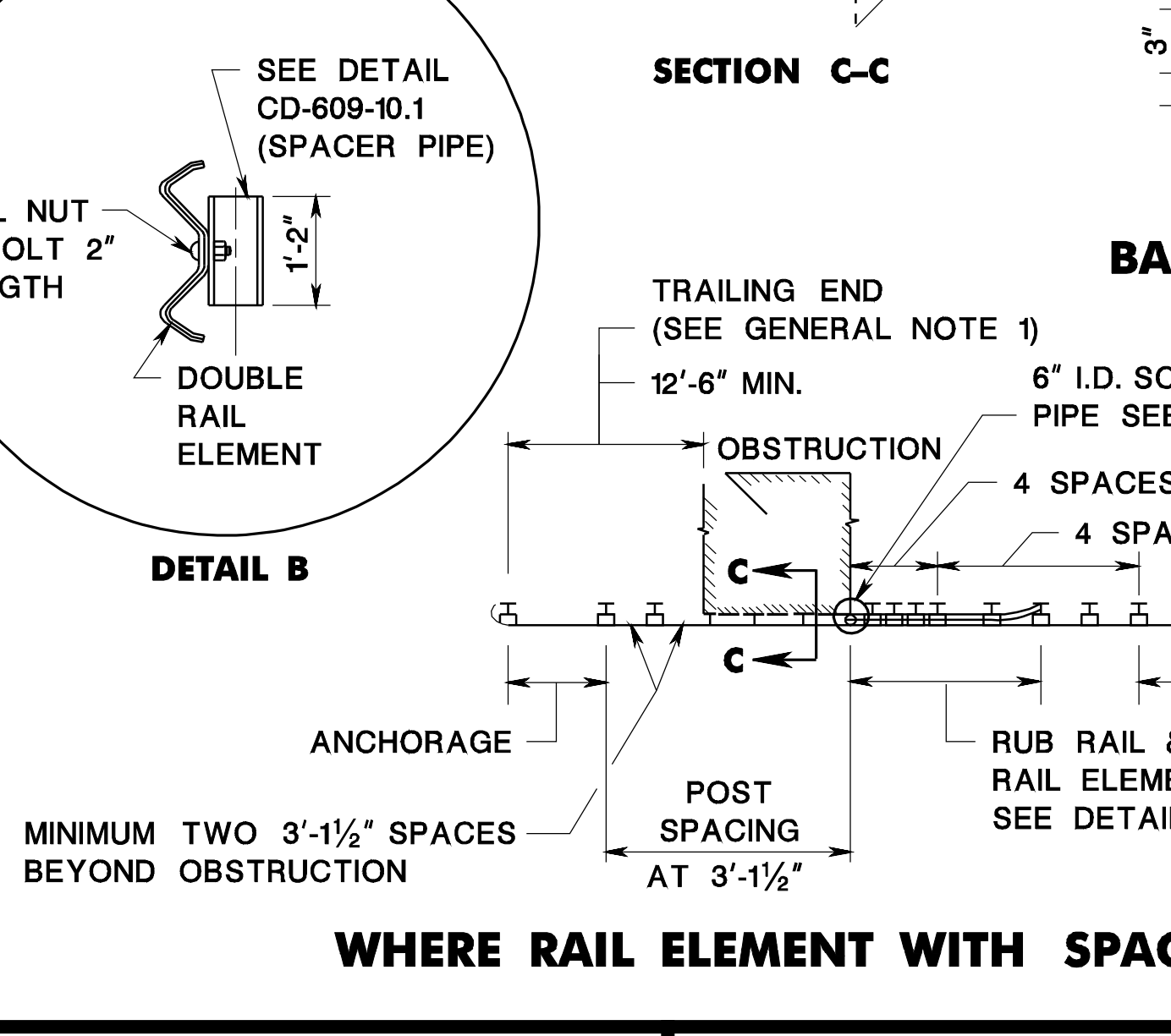
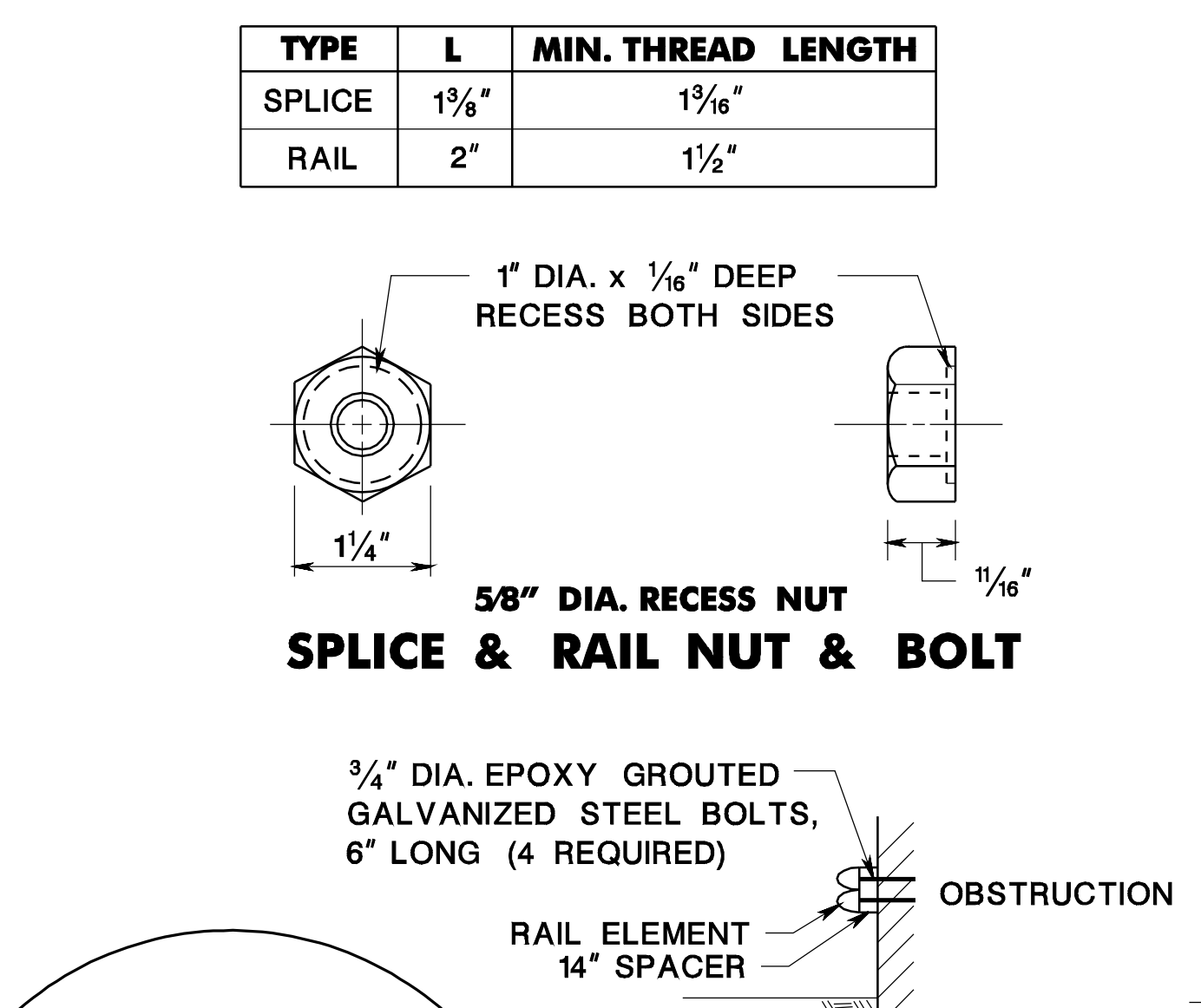
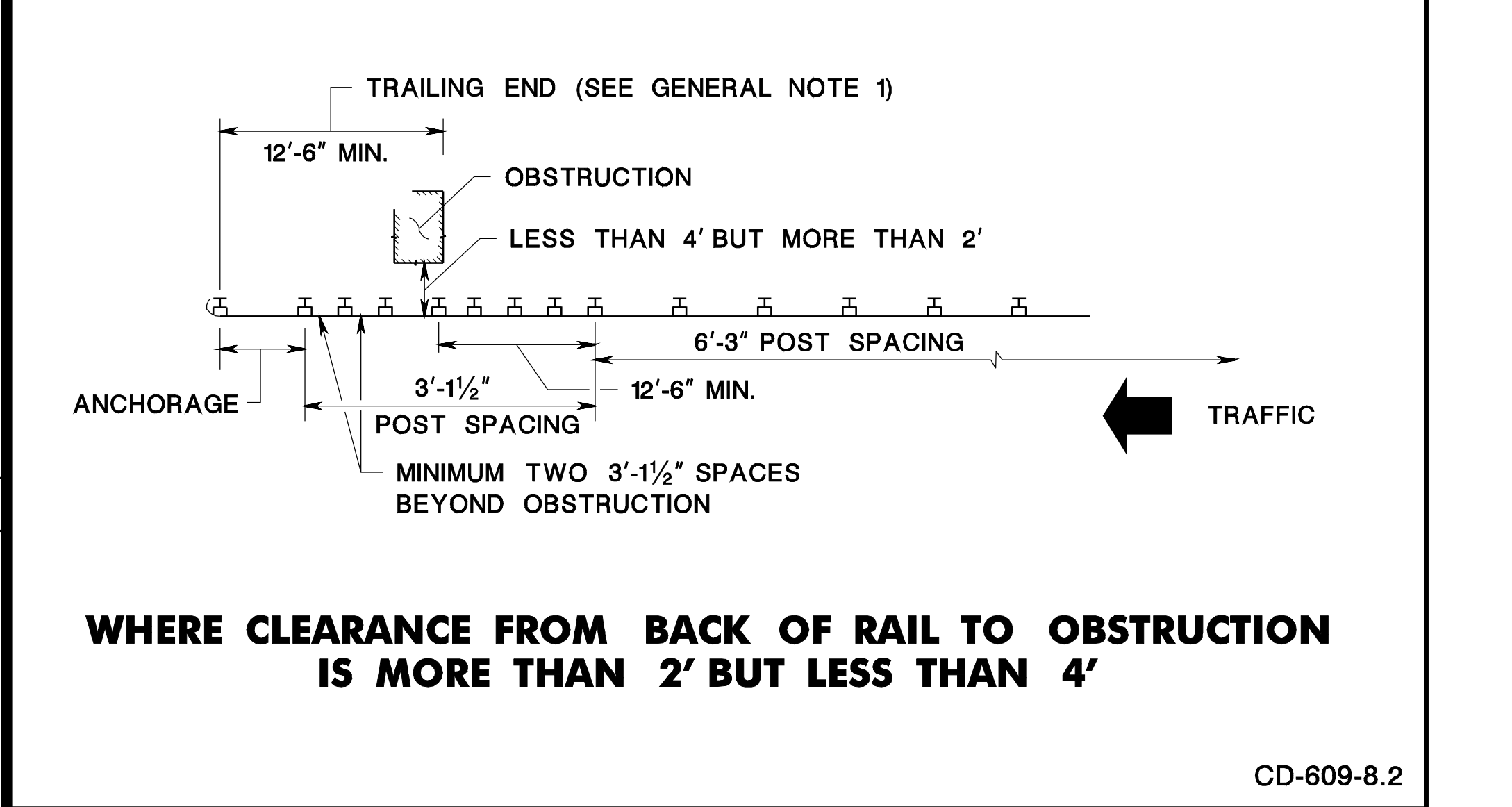
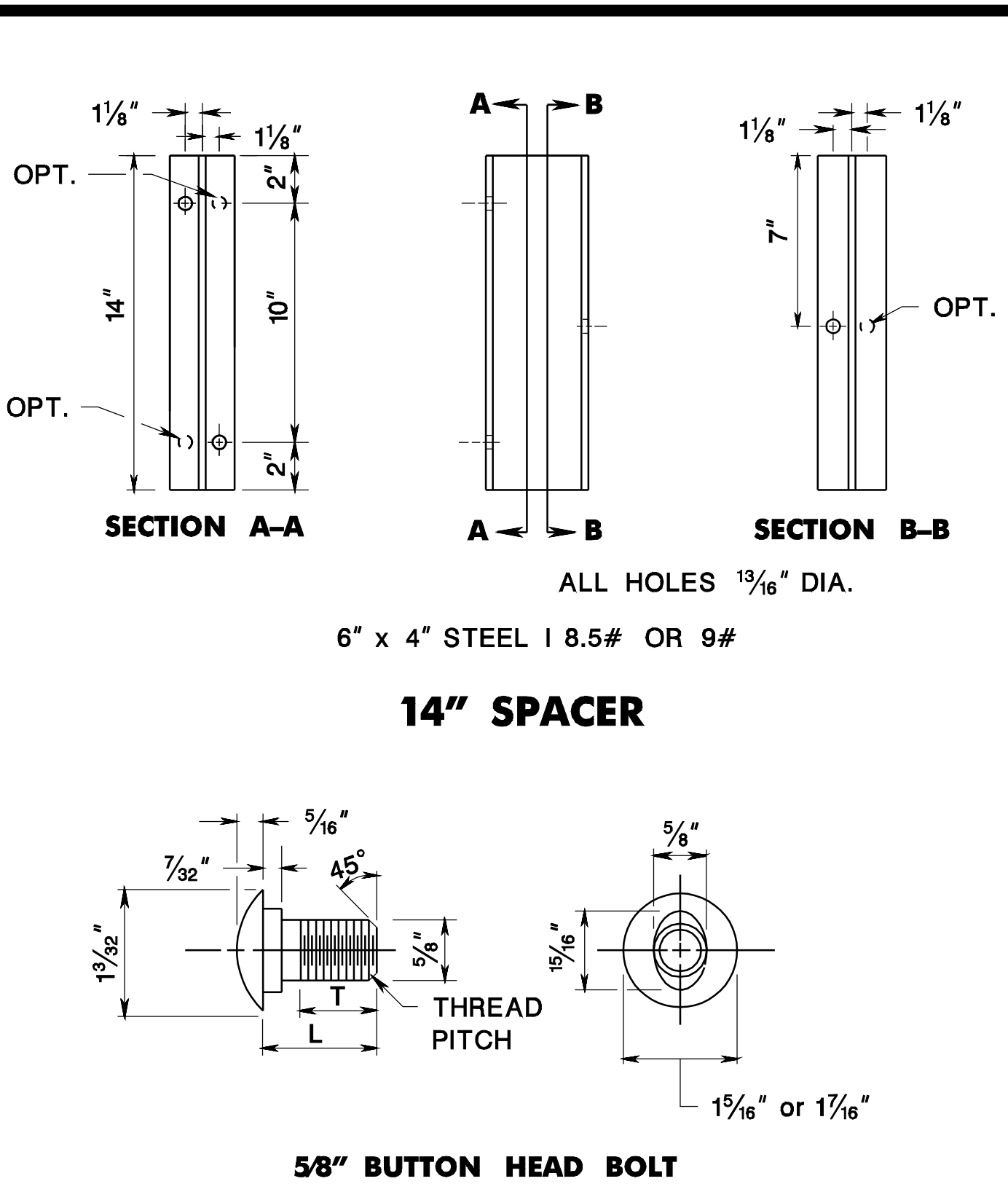
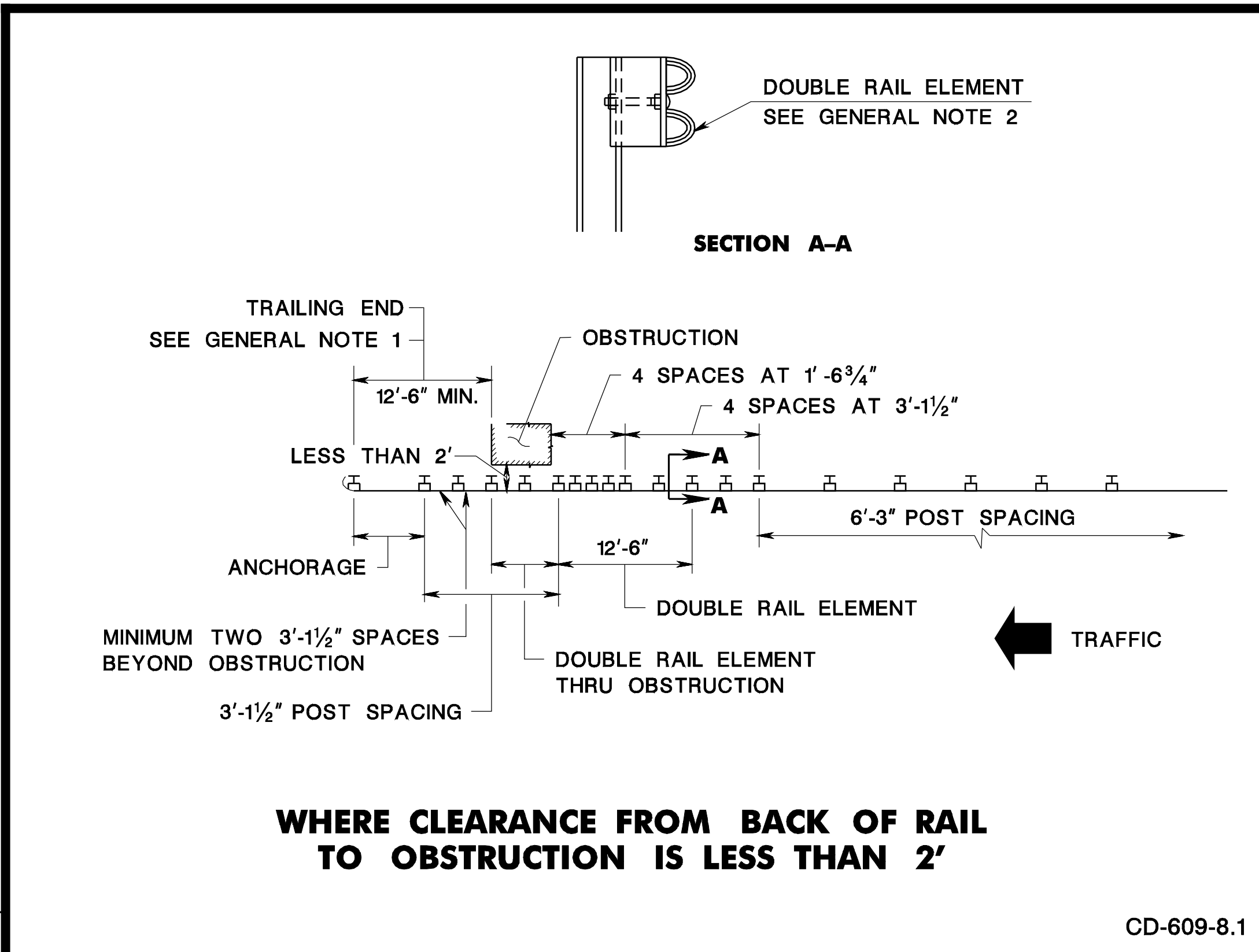
HMA = HOT MIX ASPHALT

CD-609-7

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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GENERAL NOTES

- WHERE A CRASHWORTHY END TREATMENT IS SHOWN AT THE TRAILING END ON THE PLANS, THE POST SPACING AND DOUBLE RAIL ELEMENT FOR THE GUIDE RAIL SHALL BE THE SAME AS THE APPROACH END.
- WHERE DOUBLE RAIL ELEMENT IS REQUIRED, THE ADDITIONAL RAIL ELEMENT SHOULD BE ADDED BEHIND THE CONTINUOUS FRONT RAIL.

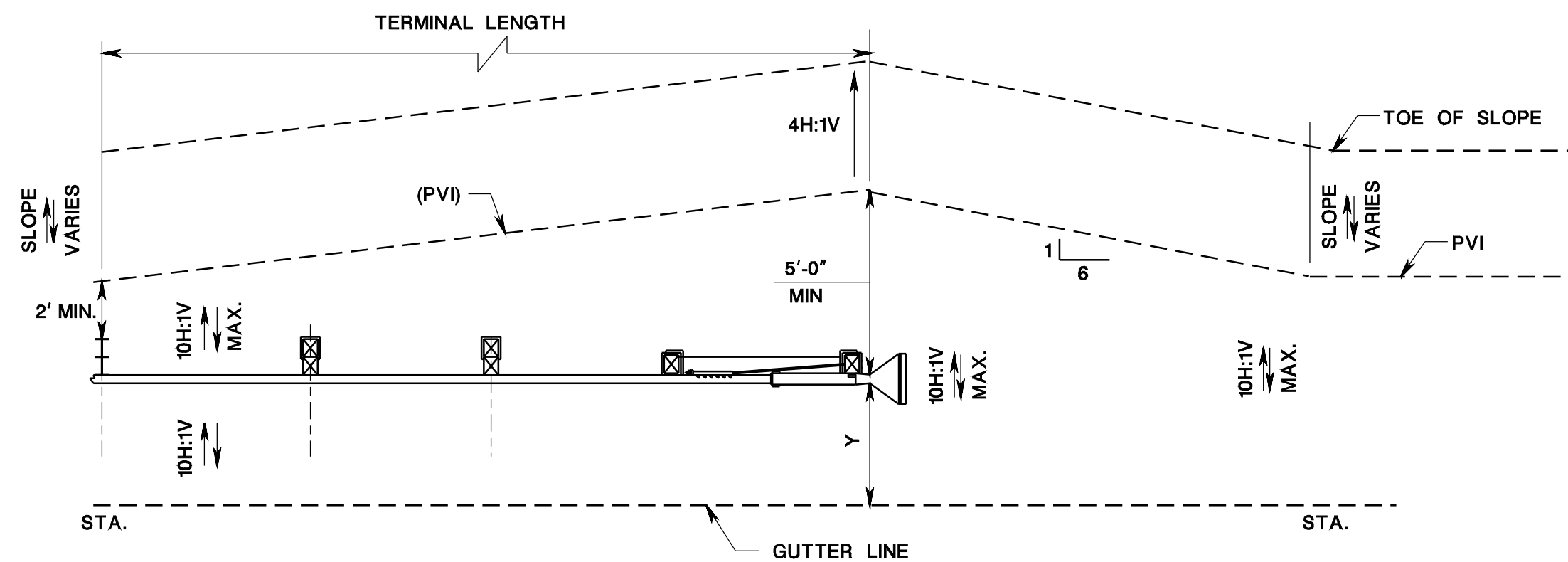
CD-609-8.7

BEAM GUIDE RAIL END TREATMENT
N.T.S.
CD-609-8

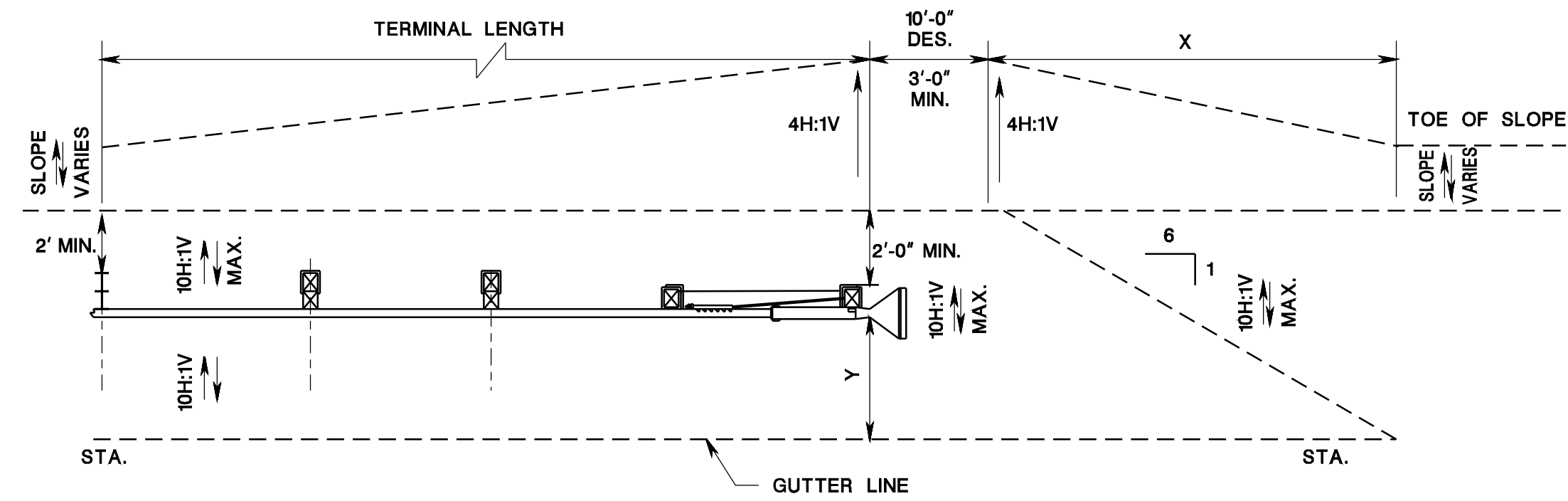
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-8.6



STANDARD GRADING



ALTERNATE GRADING

GRADING	STANDARD/ALTERNATE
STATION TO STATION	

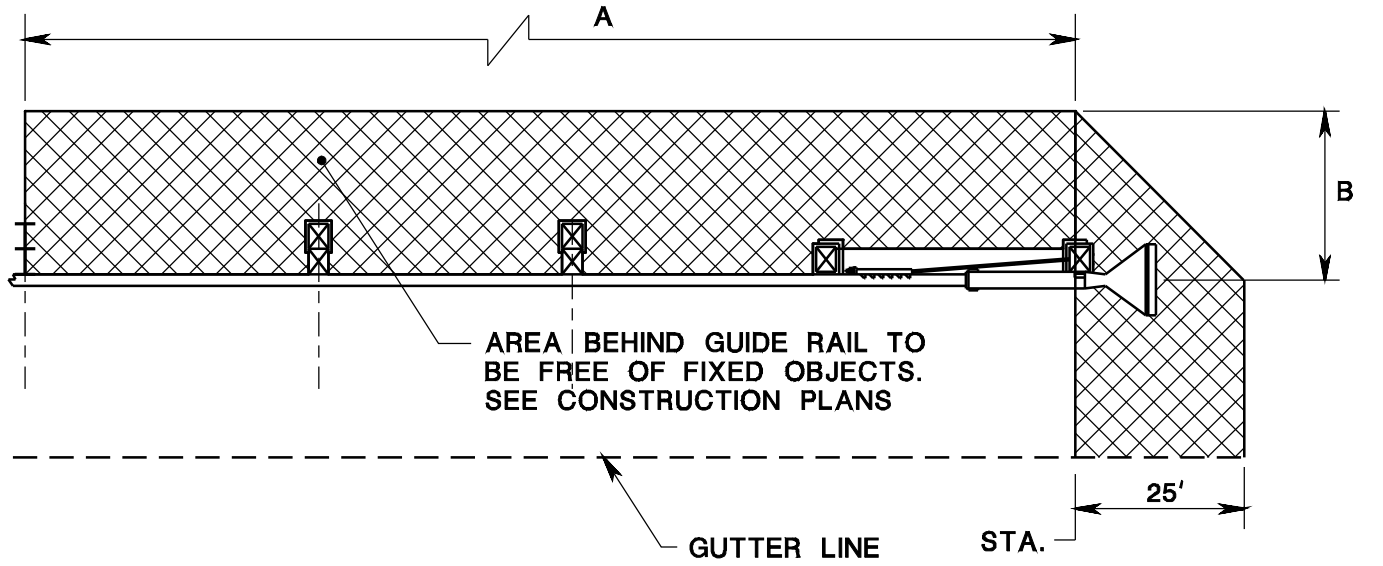
Y = OFFSET FROM GUTTER LINE	X	X + 10' (DES.)
* 1'-0"	24'-0"	34'-0"
4'-0"	42'-0"	52'-0"
7'-0"	60'-0"	70'-0"
10'-0"	78'-0"	88'-0"

GRADING TREATMENT AT FLARED AND TANGENT TERMINALS

*** NOTE:** WHERE GUIDE RAIL IS INSTALLED FLUSH WITH THE GUTTER LINE, THE TANGENT TERMINAL SHALL BE CONSTRUCTED WITH A 50:1 STRAIGHT FLARE FOR ITS ENTIRE LENGTH SO THAT THE EXTRUDER HEAD DOES NOT PROTRUDE INTO THE ROADWAY.

CD-609-9.2

ROADSIDE RECOVERY AREA		
STATION	A	B



NOTE: THERE SHALL BE NO FIXED OBJECTS IN FRONT OF THE GUIDE RAIL FOR ITS ENTIRE LENGTH.

RECOVERY AREA AT FLARED AND TANGENT TERMINALS

CD-609-9.1

GRADING AND ROADSIDE RECOVERY AREA AT FLARED AND TANGENT TERMINALS

CD-609-9

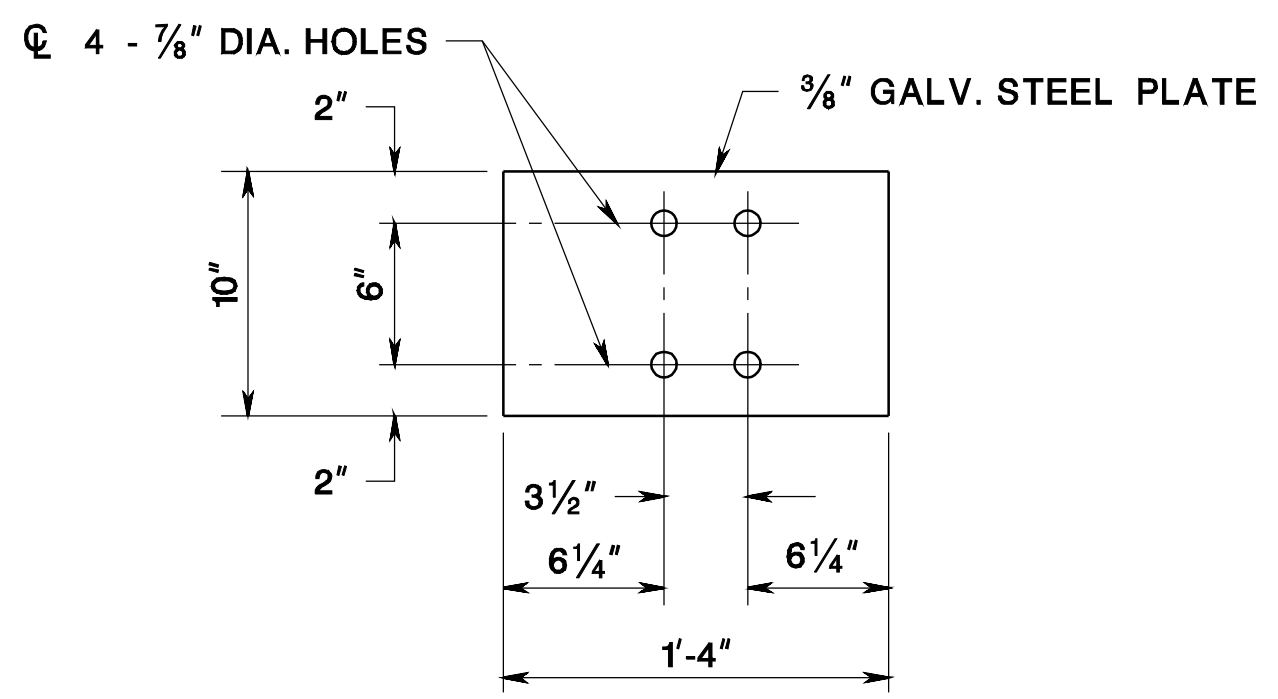
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

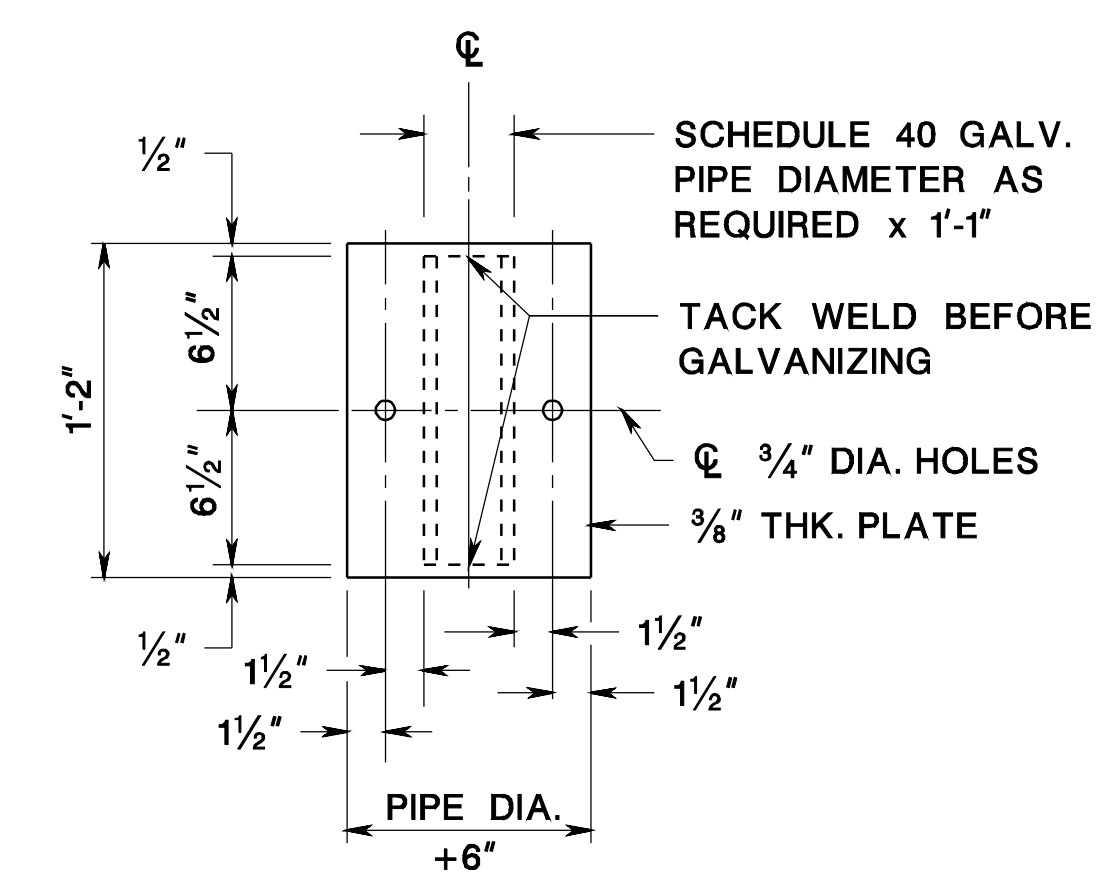
NOTE TO DESIGNER:
THIS SHEET REQUIRES DESIGN SPECIFIC INFORMATION TO BE ADDED AND INCLUDED IN THE CONTRACT PLANS.

REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

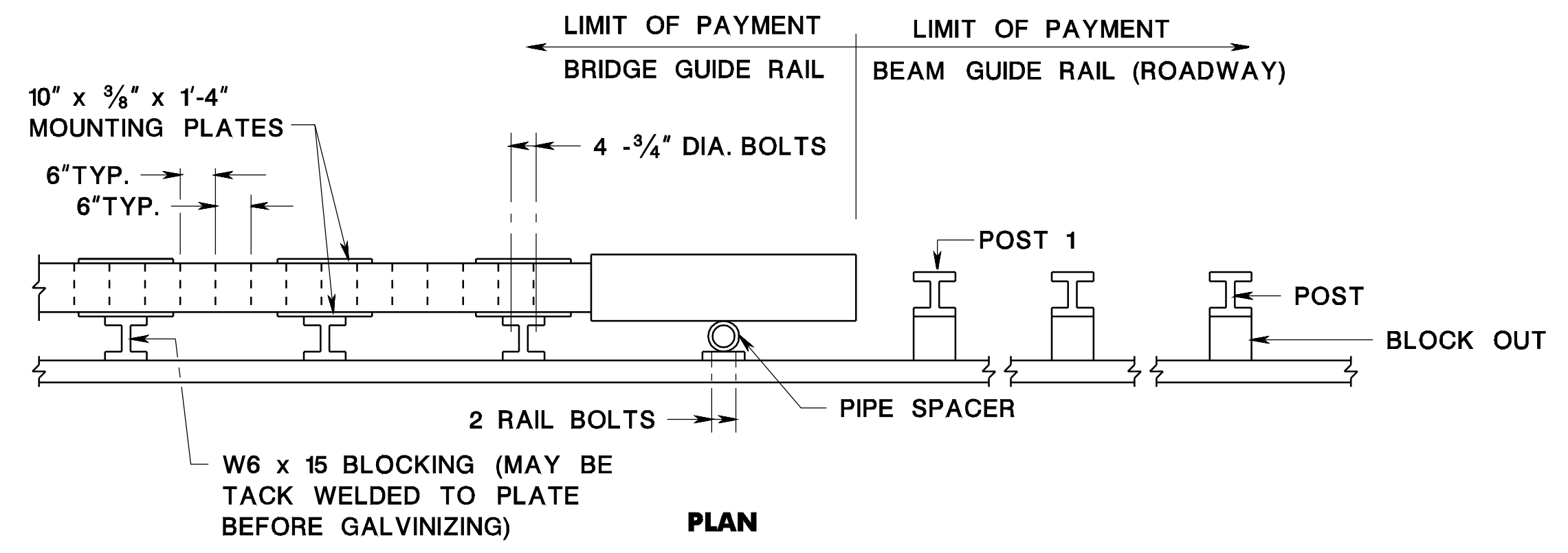
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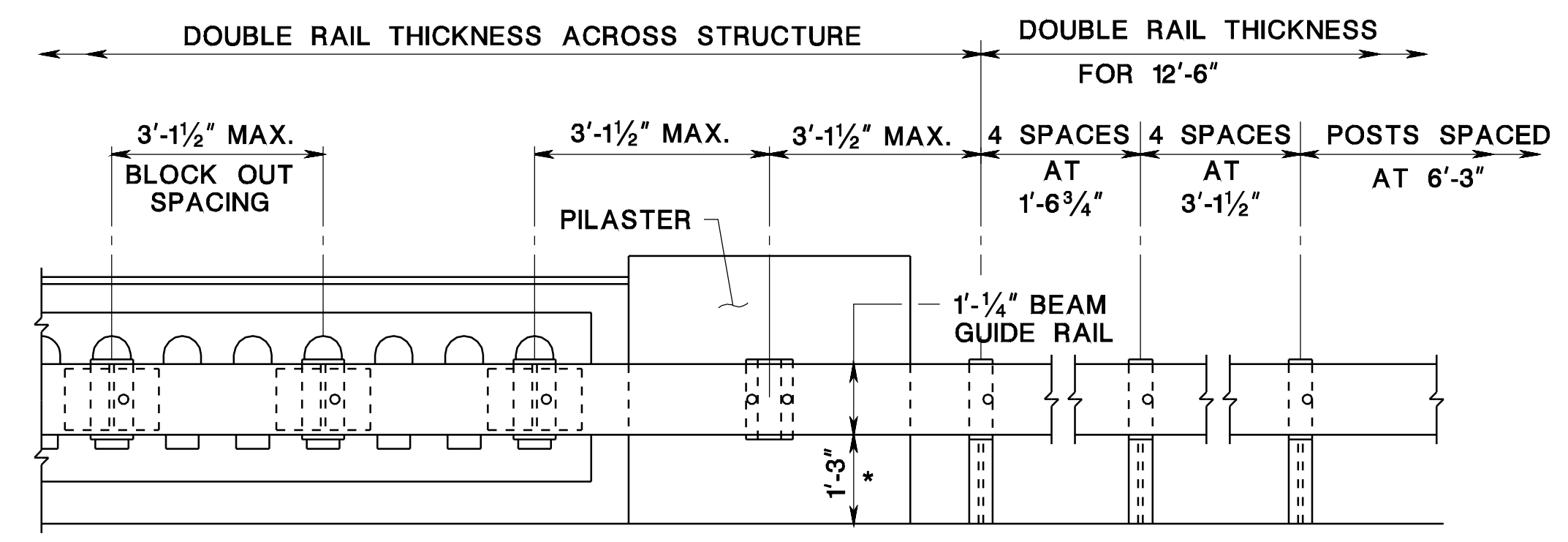
MOUNTING PLATE



PIPE SPACER



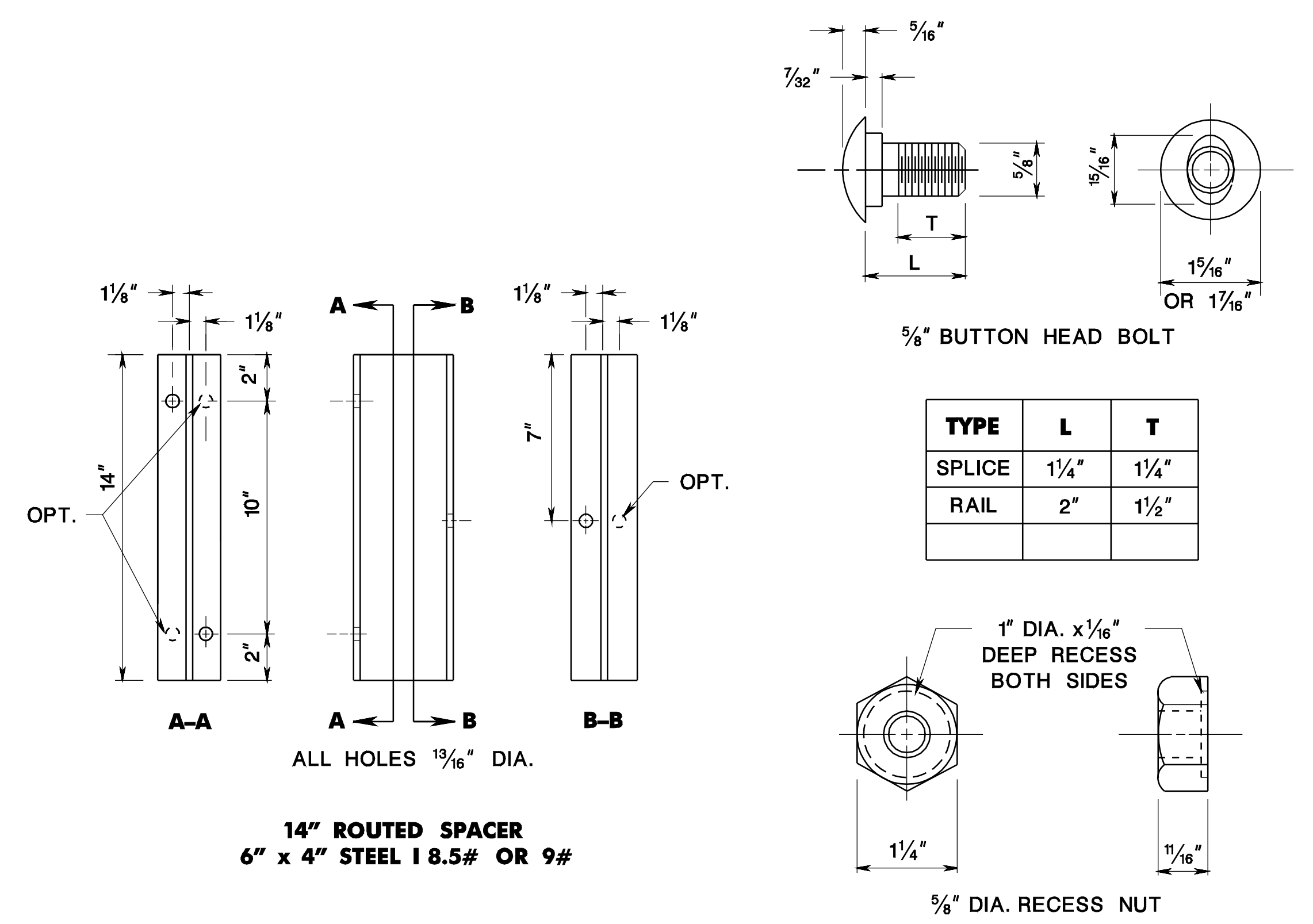
PLAN



ELEVATION

GUIDE RAIL ATTACHMENT TO BALUSTRADE

* MEASURED FROM TOP OF CURB IF ROADWAY CURB EXISTS, OTHERWISE MEASURED FROM GUTTERLINE.
 SEE CD-609-11.2 FOR GENERAL NOTES

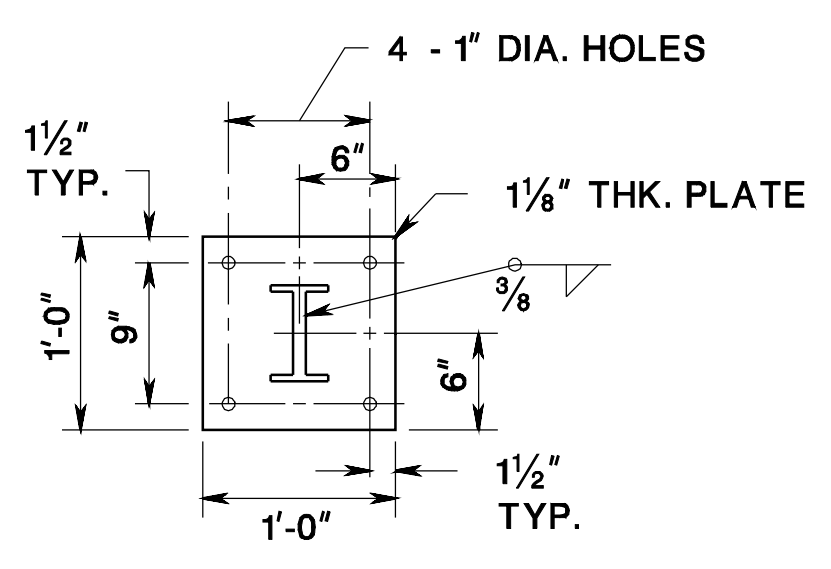


TYPE	L	T
SPLICE	1 1/4"	1 1/4"
RAIL	2"	1 1/2"

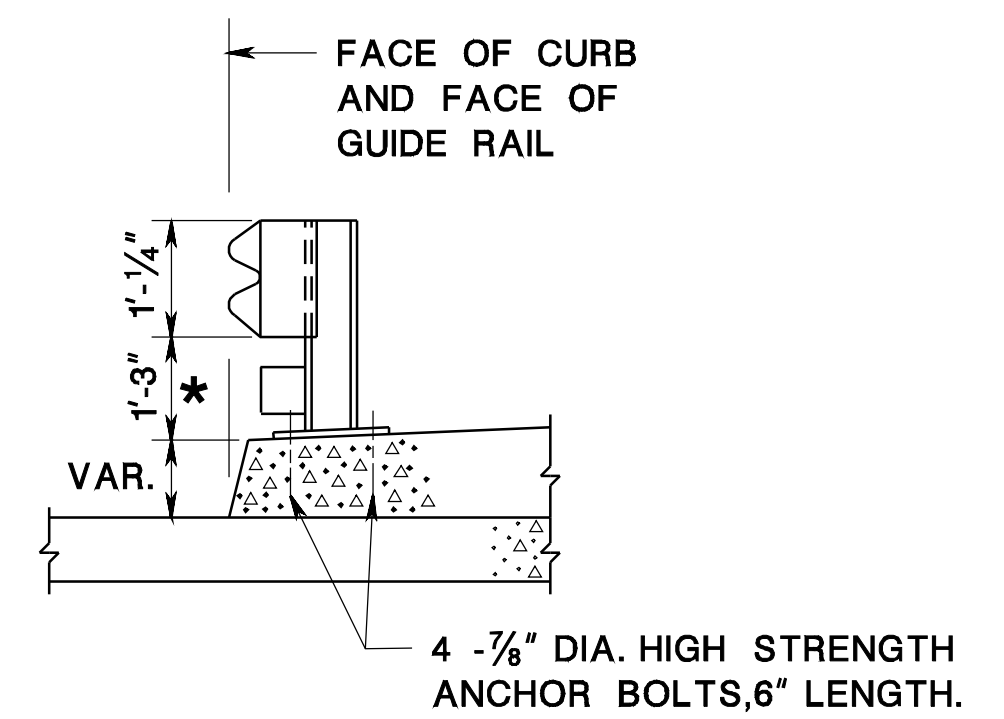
SPLICE & RAIL NUT & BOLT

NOTE 1: WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.

CD-609-10.1



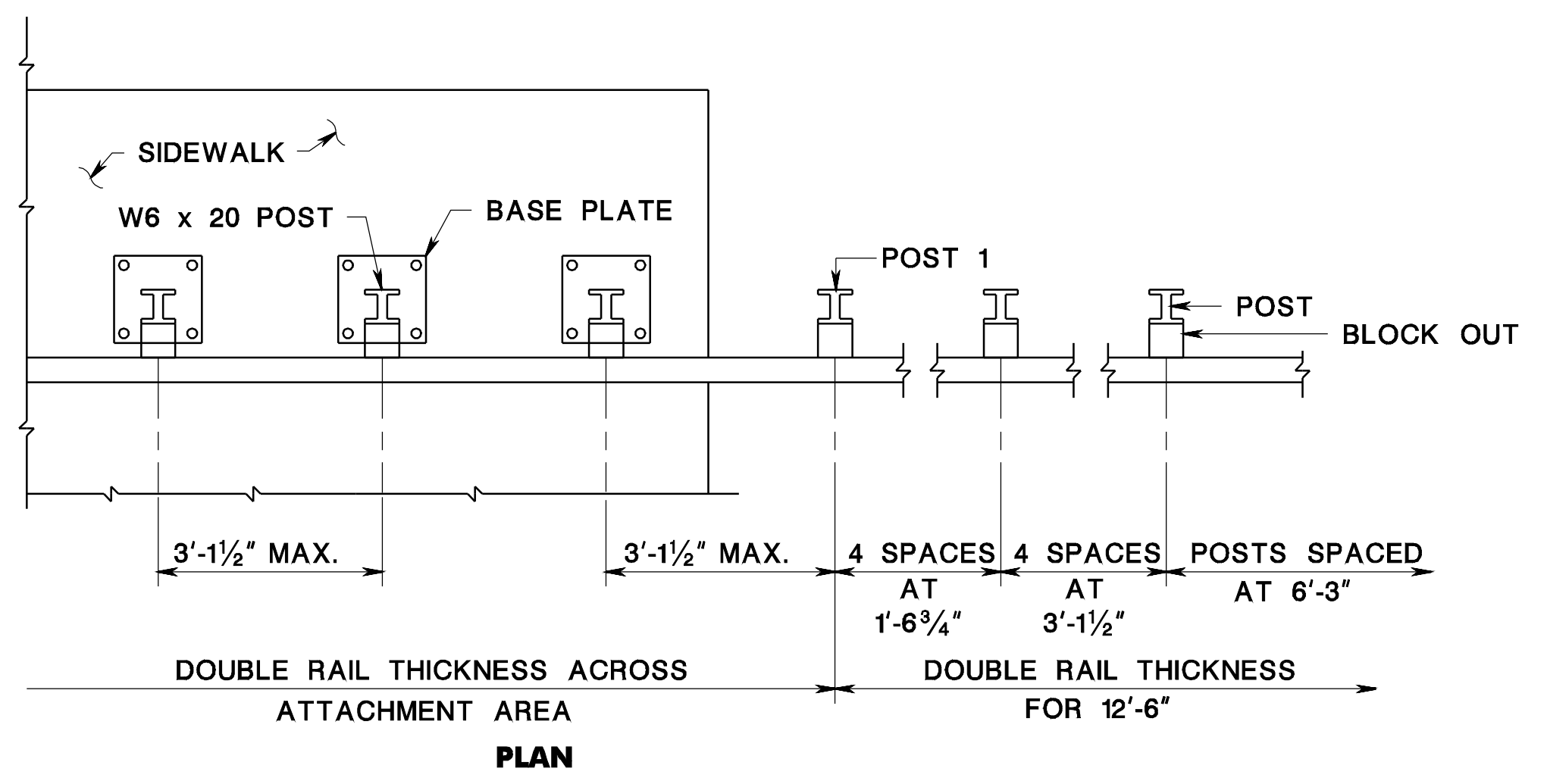
BASE PLATE



SECTION

* MEASURED FROM TOP OF CURB IF ROADWAY CURB EXISTS, OTHERWISE MEASURED FROM GUTTER LINE.

SEE CD-609-11.2 FOR GENERAL NOTES



PLAN

GUIDE RAIL ATTACHMENT TO SIDEWALK

NOTE 1: USE "BEAM GUIDE RAIL BRIDGE" ITEM IF SIDEWALK IS ON A STRUCTURE. IF SIDEWALK IS NOT ON A STRUCTURE USE "BEAM GUIDE RAIL" ITEM AND SIDEWALK SHALL BE MINIMUM 8 INCHES THICK
 NOTE 2: WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.

CD-609-10.2

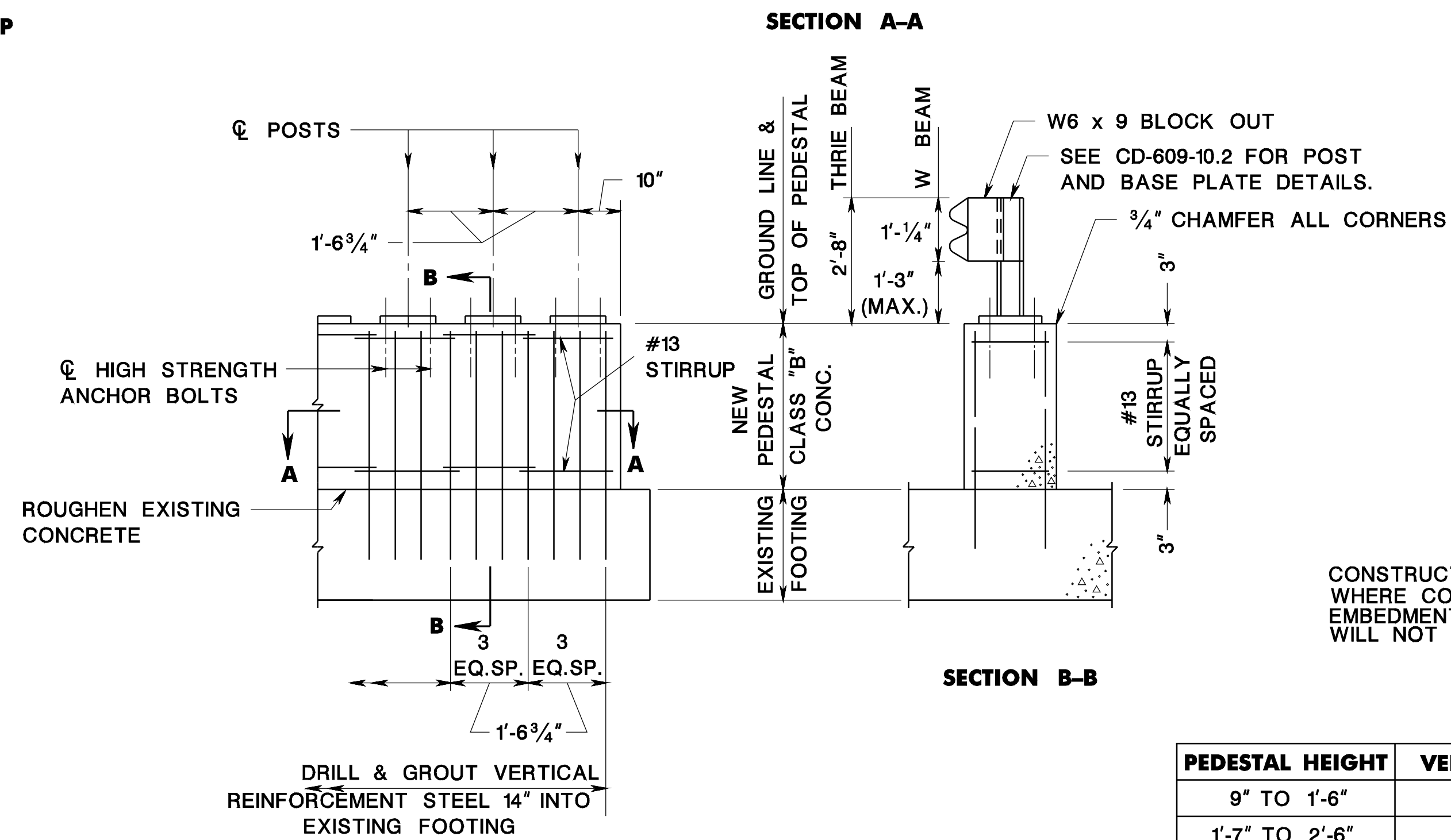
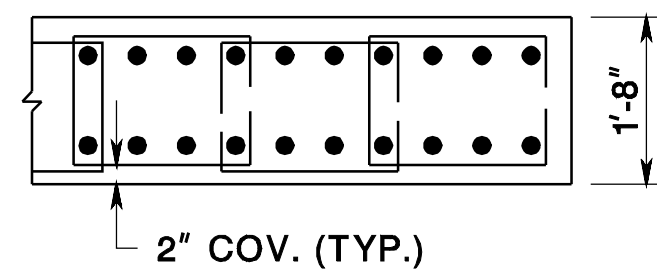
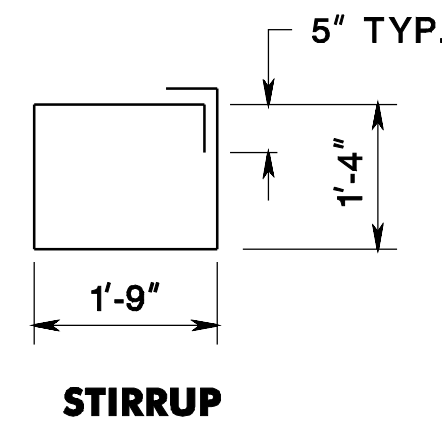
BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

CD-609-10

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



CONSTRUCT PEDESTAL ON EXISTING FOOTING WHERE COVER IS INSUFFICIENT FOR POST EMBEDMENT IN SOIL. SEPARATE PAYMENT WILL NOT BE MADE FOR PEDESTAL.

PEDESTAL HEIGHT	VERTICAL REINFORCEMENT STEEL	STIRRUPS
9" TO 1'-6"	#16	2 - #13
1'-7" TO 2'-6"	#16	3 - #13
2'-7" TO 3'-6"	#16	4 - #13
3'-7" TO 4'-0"	#16	5 - #13

GUIDE RAIL ATTACHMENT TO FOOTING

SEE CD-609-11.2 FOR GENERAL NOTES

CD-609-11.1

GENERAL NOTES

STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36 AND SHALL BE GALVANIZED PER ASTM A123.

STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A307, UNLESS DESIGNATED AS HIGH STRENGTH. HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325. HARDWARE SHALL BE GALVANIZED PER ASTM A153.

REINFORCEMENT SHALL CONFORM TO ASTM A 615, GRADE 60.

FOR CD-609-10.2 HIGH STRENGTH BOLTS FOR BASE PLATE ANCHORAGE SHALL BE FULLY THREADED AND INSTALLED IN CORED HOLES NO GREATER THAN THE BOLT DIAMETER PLUS 1/4". CARE SHALL BE EXERCISED TO AVOID DAMAGE TO EXISTING REINFORCEMENT AND CONDUITS. MINIMUM EMBEDMENT LENGTH SHALL BE 6" BOLTS SHALL BE EPOXY GROUDED IN PLACE PER MANUFACTURER'S RECOMMENDATIONS TO ATTAIN A MINIMUM PULLOUT STRENGTH OF 24,000 POUNDS AT THE CONSTRUCTION SITE AS CERTIFIED BY THE CONTRACTOR.

FOR CD-609-11.1, HIGH STRENGTH BOLTS FOR BASE PLATE ANCHORAGE MAY BE CAST IN PLACE IN FRESH CONCRETE WITH A MINIMUM EMBEDMENT LENGTH OF 20".

WELDING OF POSTS TO BASE PLATES SHALL CONFORM TO THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

CD-609-11.2

REINFORCEMENT STEEL IS IN METRIC UNITS.

BEAM GUIDE RAIL ATTACHMENTS

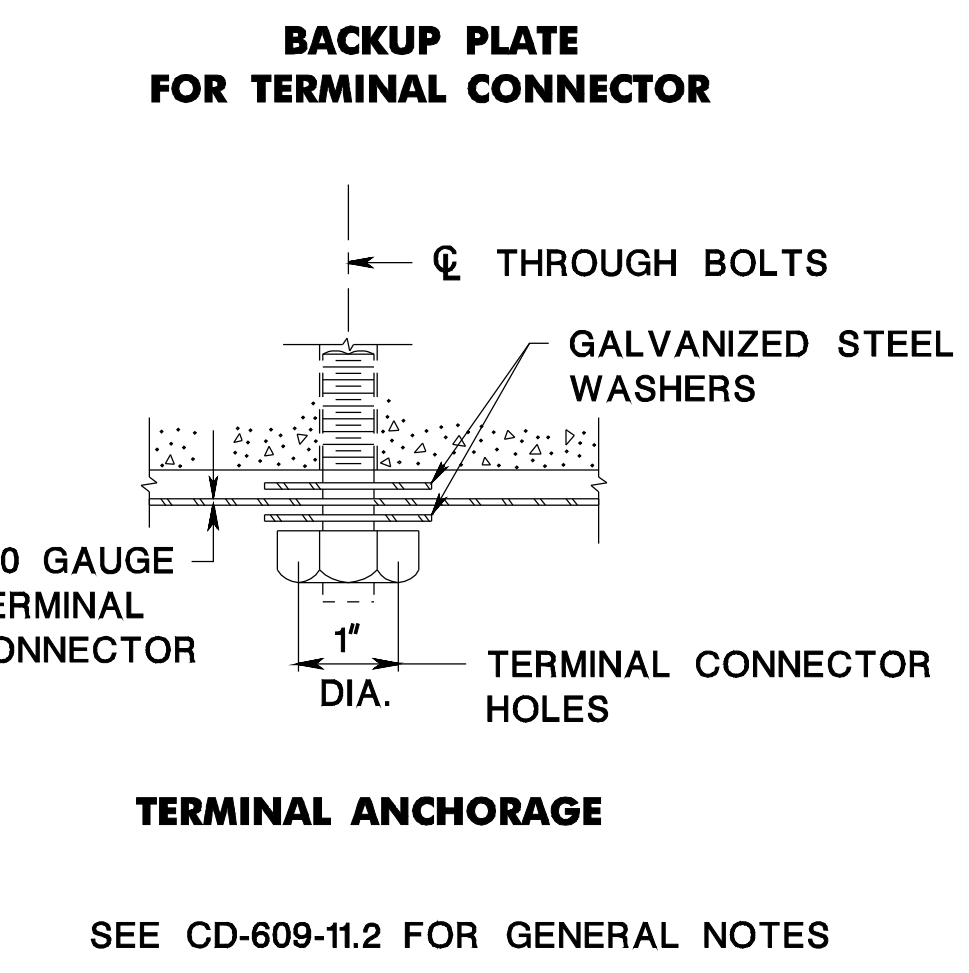
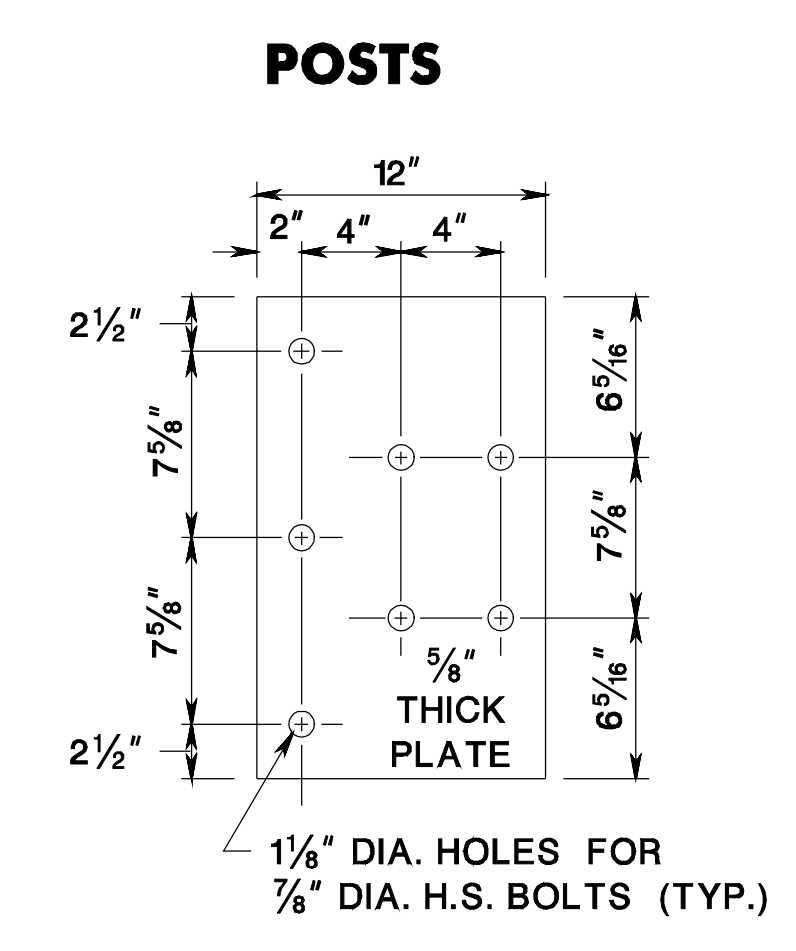
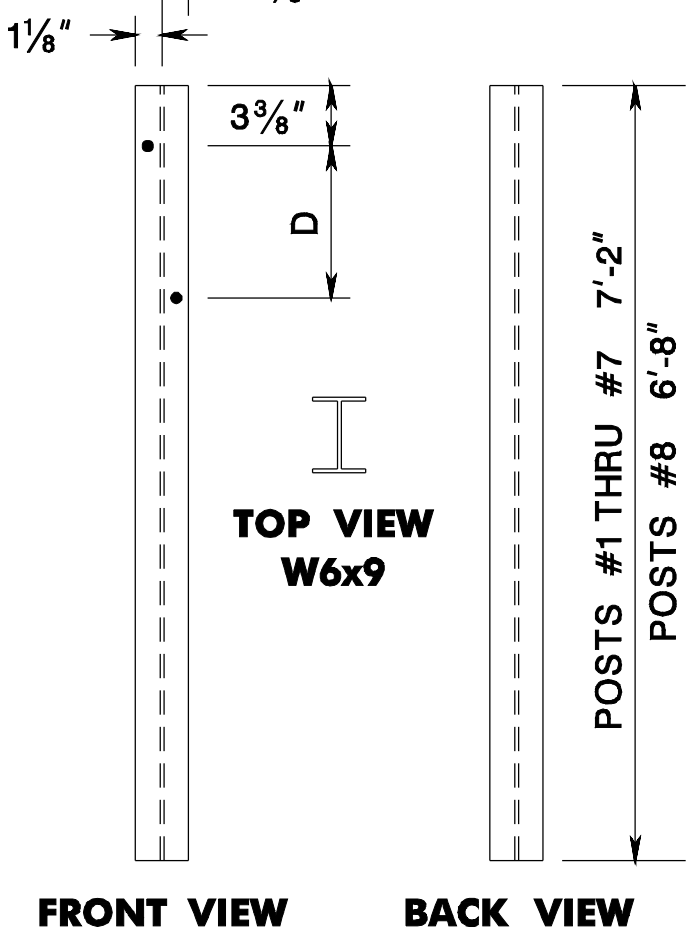
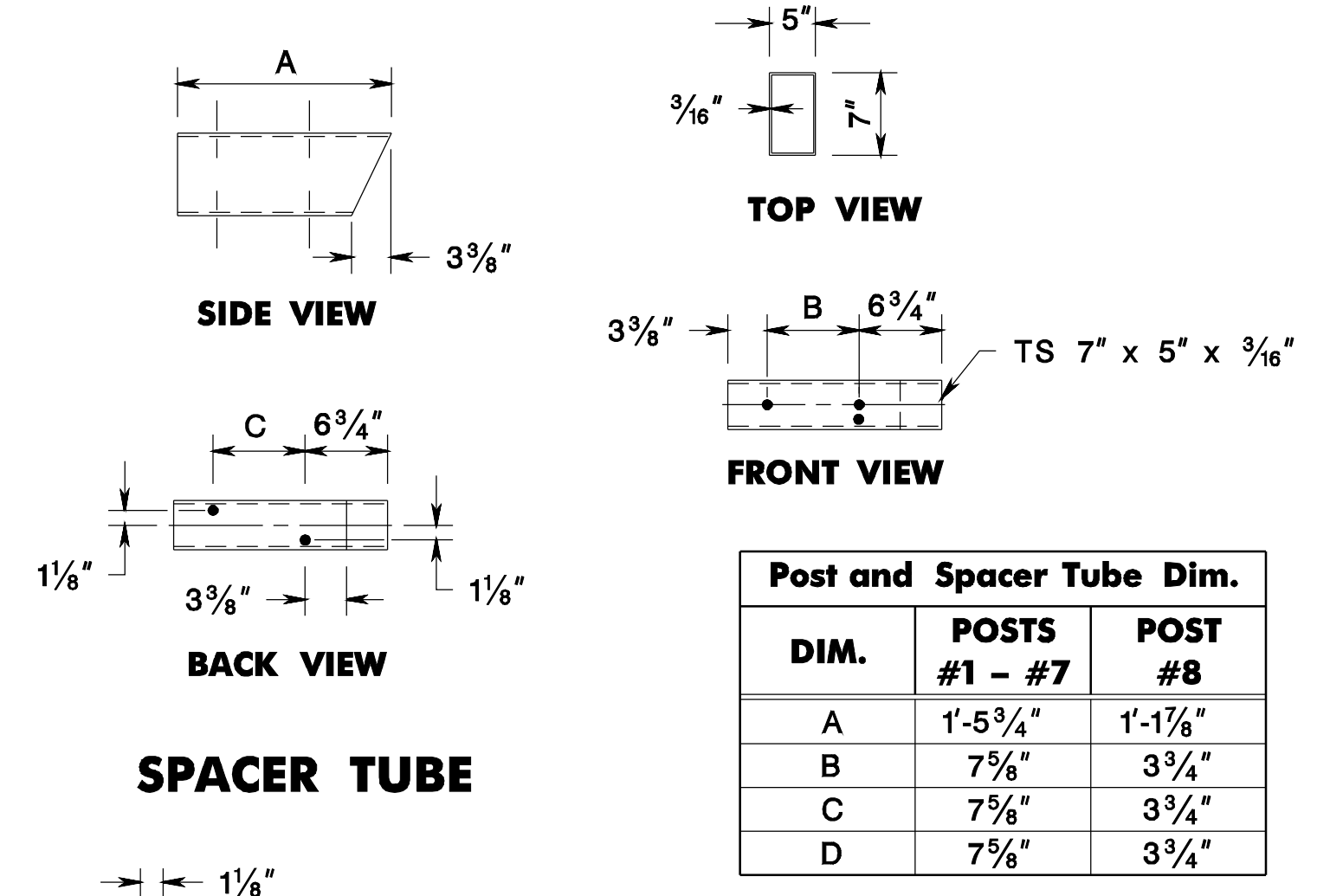
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CD-609-11

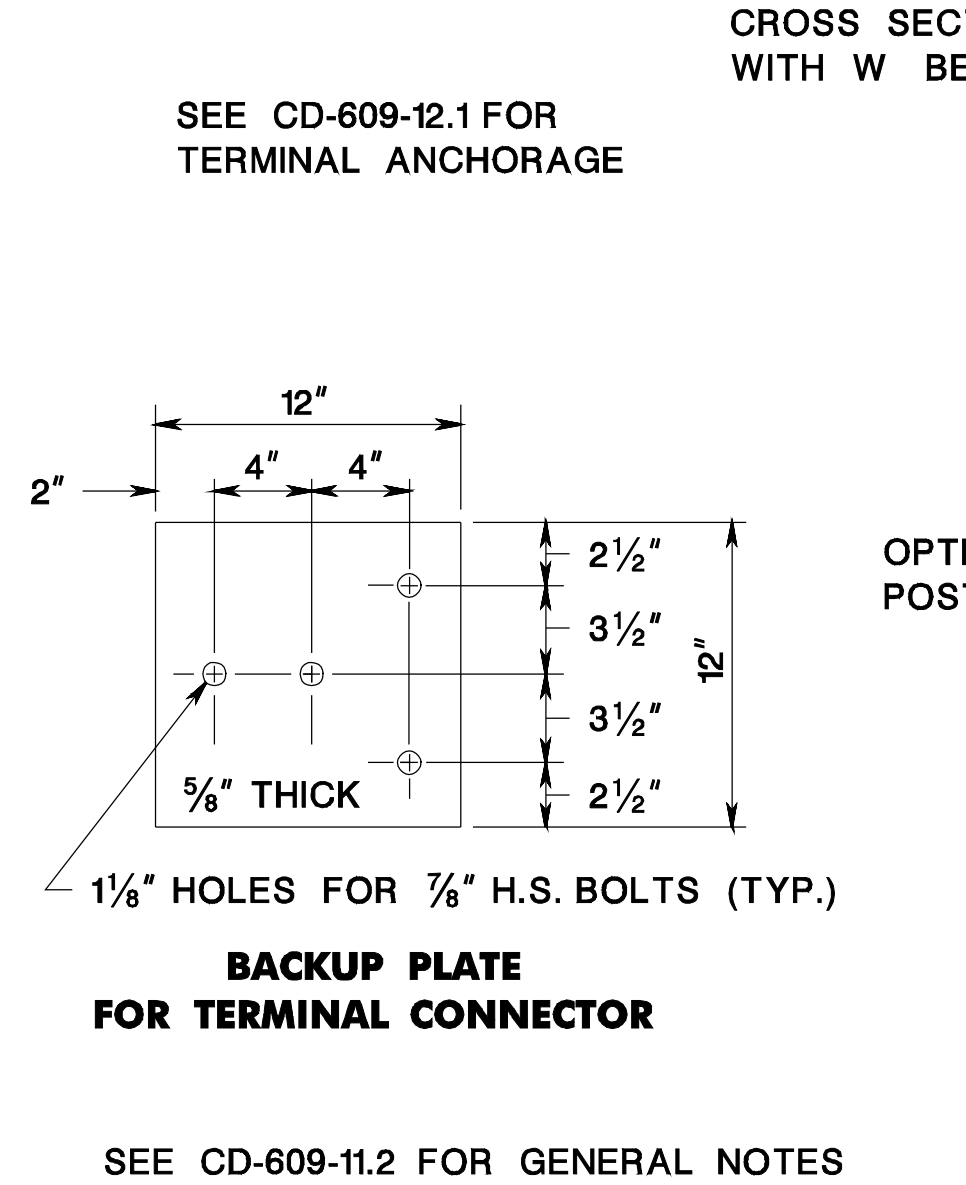
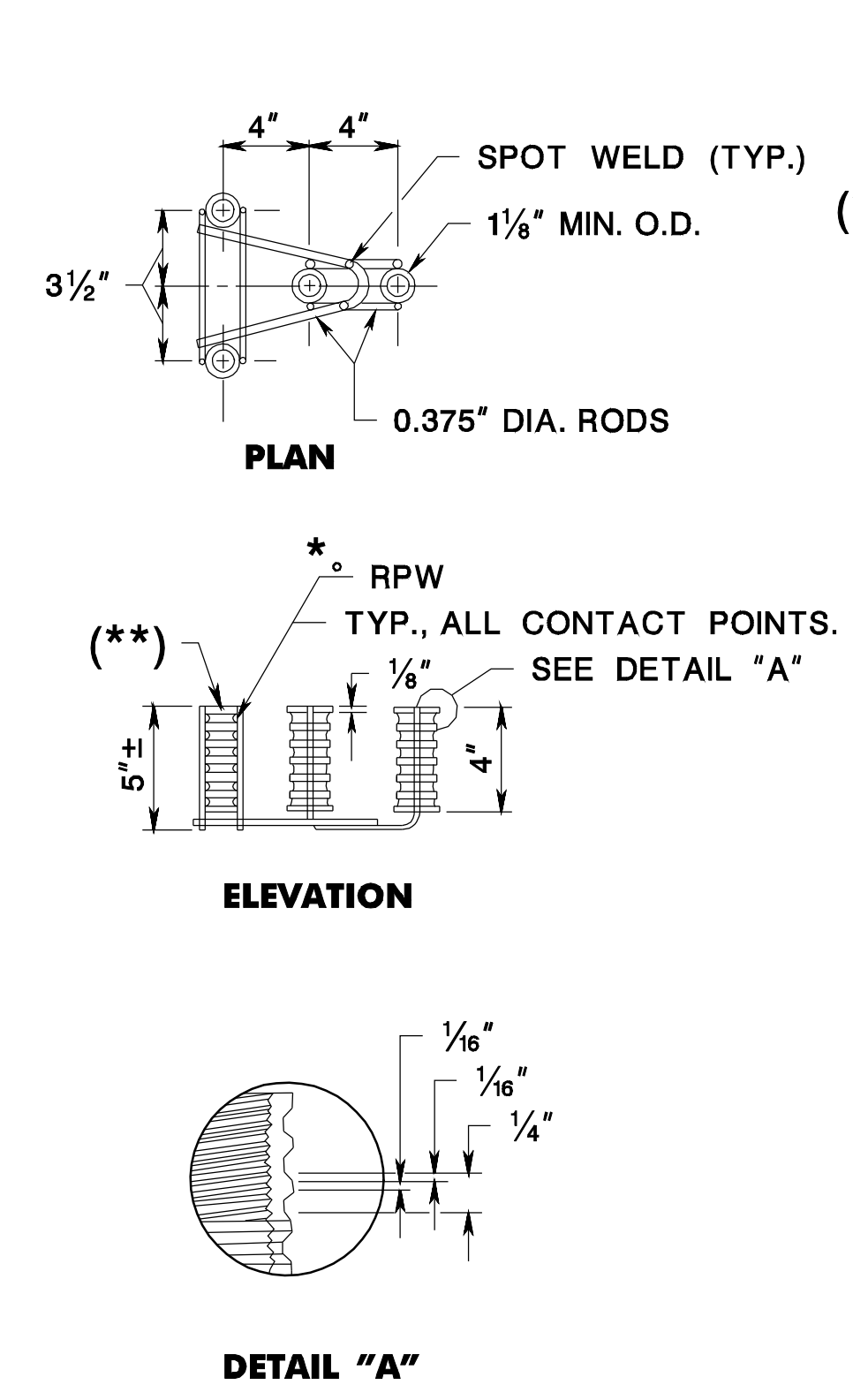
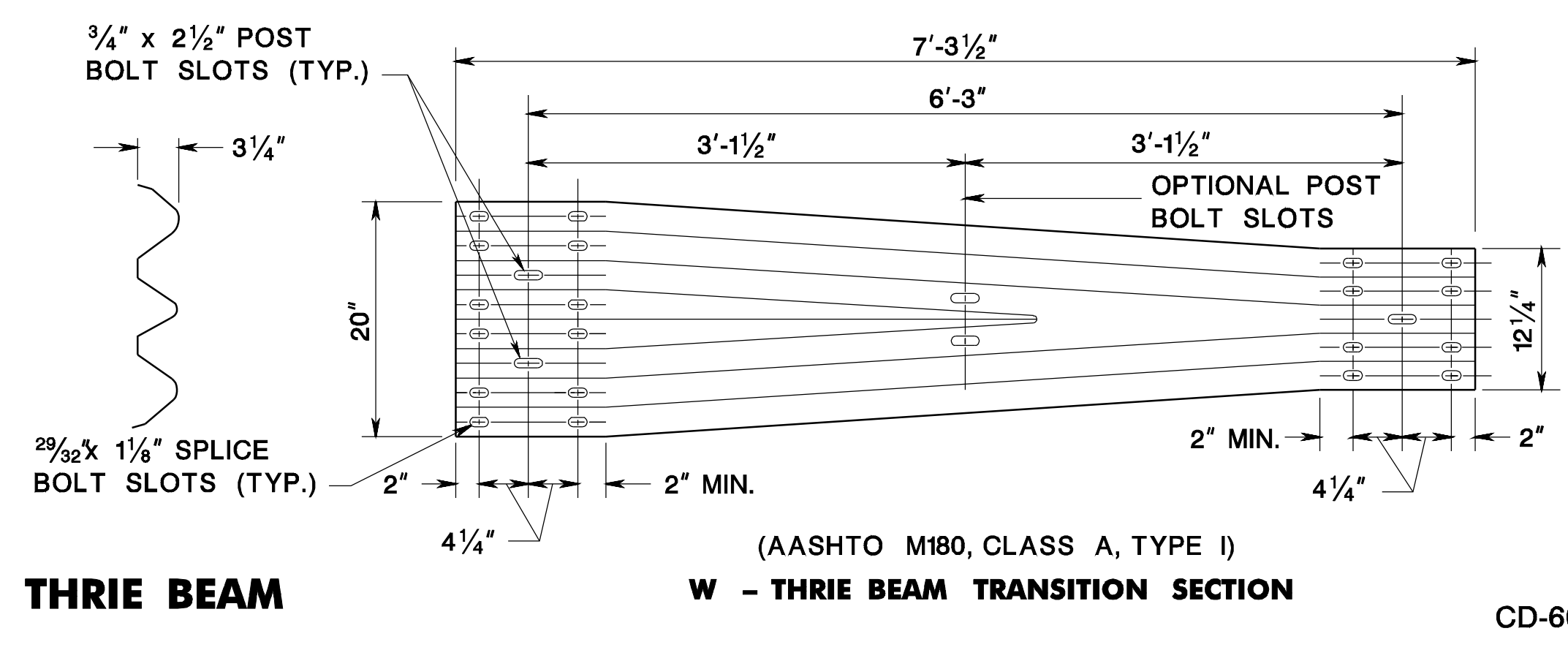
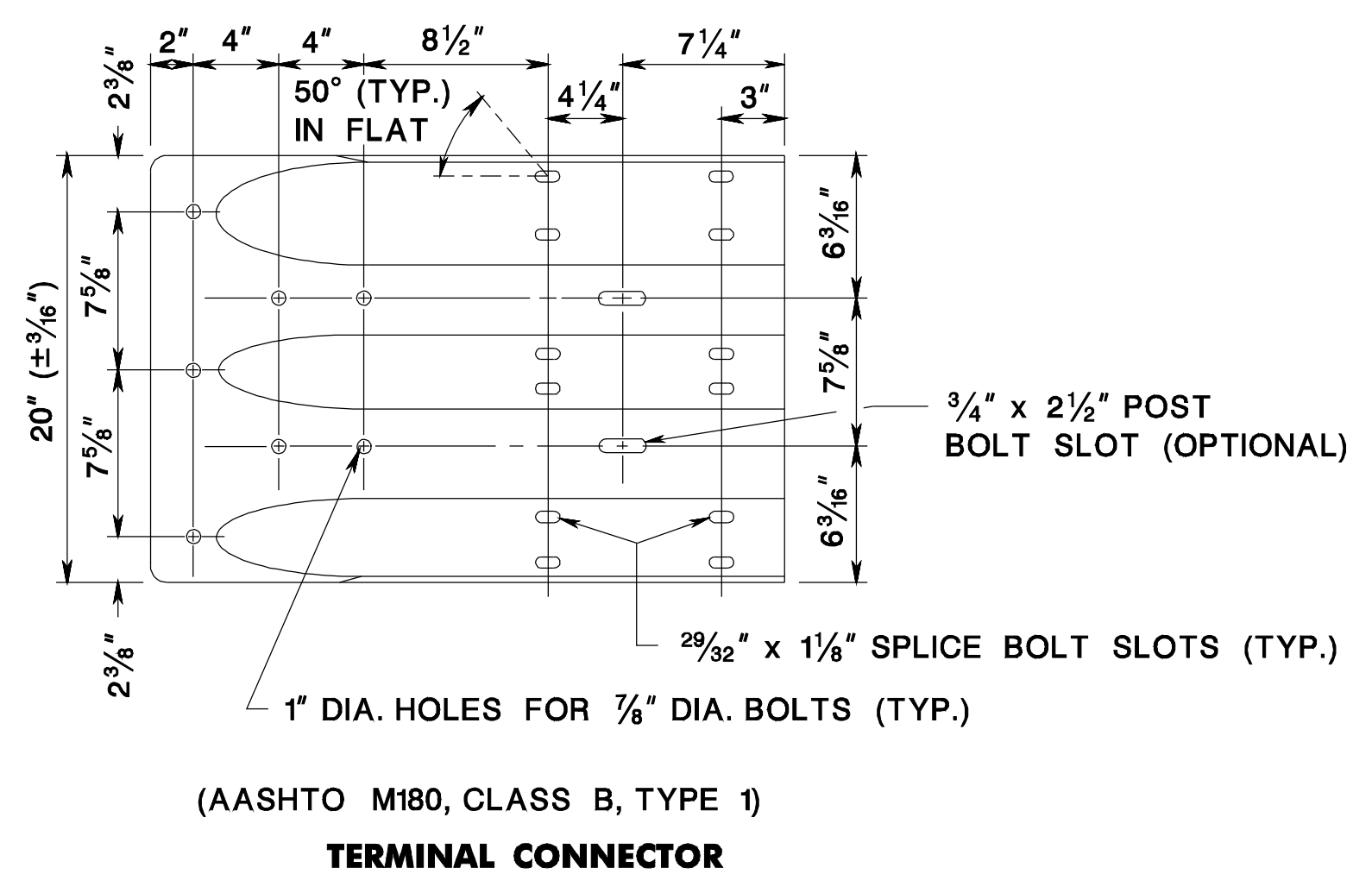
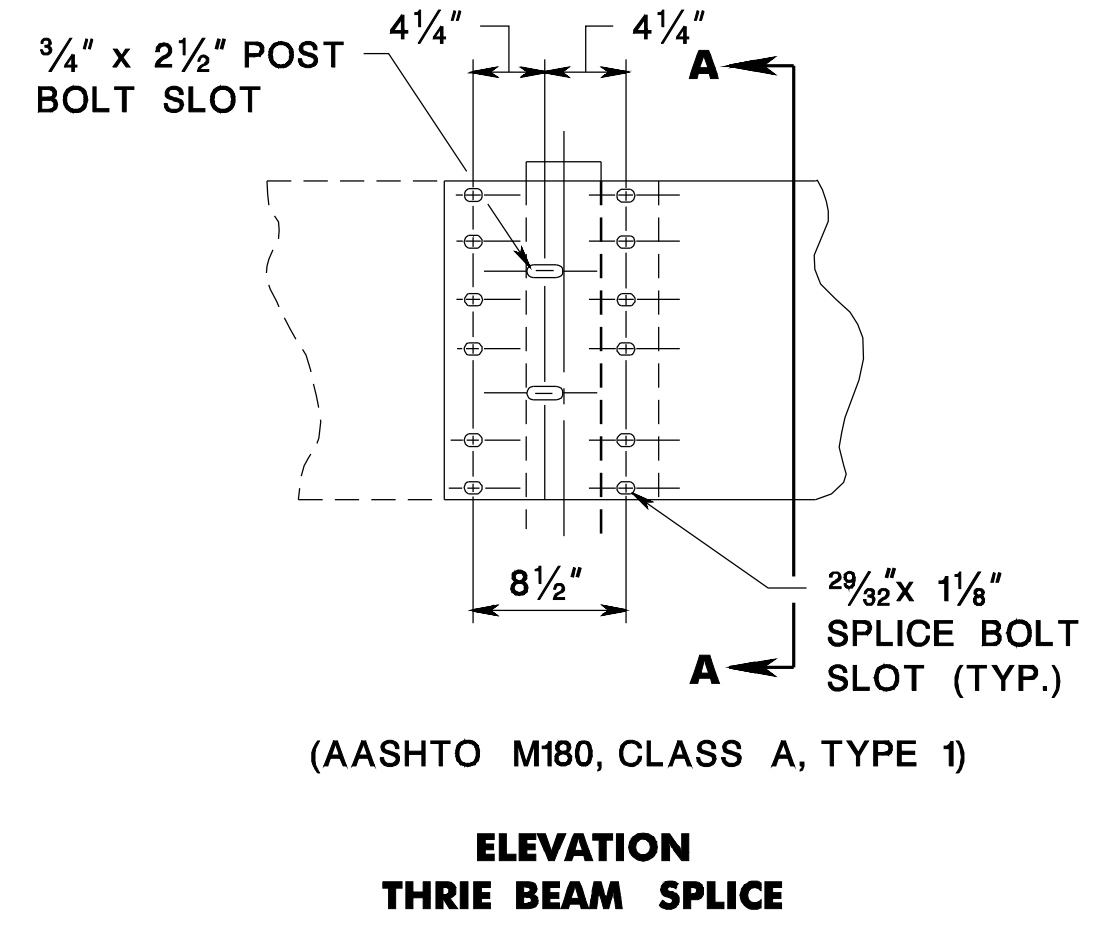
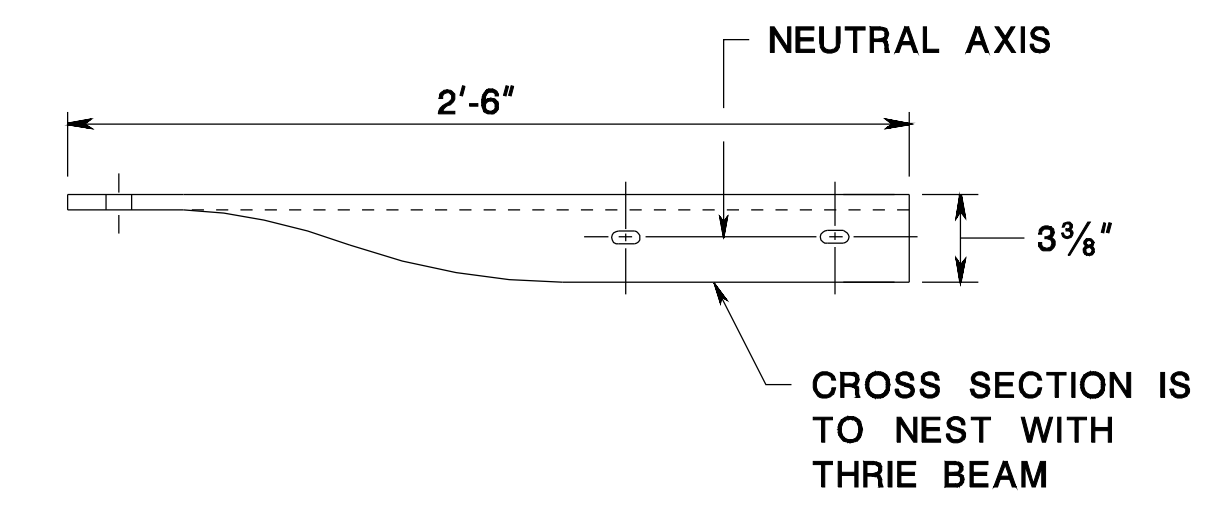
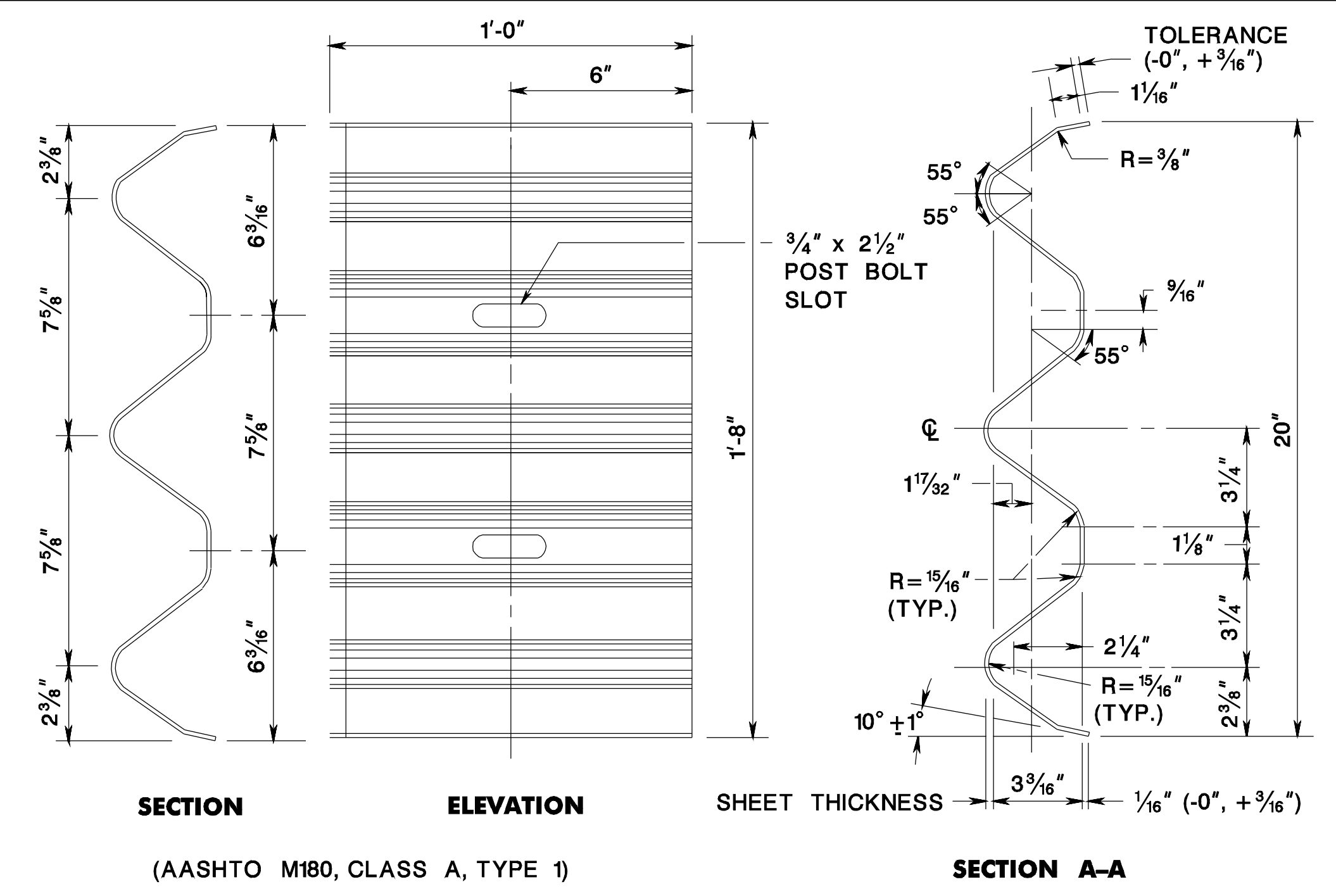
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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- NOTES:**
- STEEL FOR SPACER TUBE SHALL MEET ASTM A500 GRADE B.
 - STEEL FOR WIDE-FLANGE SHALL MEET ASTM A36.
 - GALVANIZED
 - ALL HOLES DRILLED OR PUNCHED TO 3/4" DIA.
 - WELDING OF SPACER TUBE SHALL BE DONE ACCORDING TO THE ANSI/AWS D1.1 STRUCTURAL WELDING CODE.



NOTES:

- * EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.
- (**) THREADED STEEL INSERT WITH SOLID BOTTOM TAPPED TO A MINIMUM THREADED DEPTH OF 2 1/2" FOR USE WITH 7/8" - 9 x 2 1/2" GALVANIZED H.S. HEX BOLT & A 1 5/16" I.D., 2 1/4" O.D., 5/32" THICK, TYPE A, PLAIN WASHER.

FOUR (4) BOLTS AND FOUR (4) WASHERS TO BE PROVIDED WITH EACH ASSEMBLY.

WIRES SHOWN ARE MINIMUM ALLOWABLE SIZE AND SHALL CONFORM TO THE REQUIREMENT OF ASTM A510, GRADE 1030 AND HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I.

FERRULES SHALL BE MADE OF STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14. INSERTS SHALL BE TAPPED TO THE DIMENSIONAL REQUIREMENTS SPECIFIED IN ASTM A563 FOR NUTS RECEIVING GALVANIZED BOLTS.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 OR A449 AND SHALL BE THREADED FULL LENGTH. WASHERS SHALL BE MADE OF STEEL AND SHALL MEET THE DIMENSIONAL REQUIREMENTS OF ASTM B272 TYPE A PLAIN WASHERS. BOTH SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

WIRE DIAMETERS, MATERIALS REQUIREMENTS, FERRULE MATERIALS REQUIREMENTS AND EXTERNAL DIAMETERS MAY BE ALTERED PROVIDED MANUFACTURER DEMONSTRATES REVISED DESIGN IS EQUIVALENT TO THE DESIGN SHOWN IN THIS STANDARD.

DIMENSIONAL TOLERANCE NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE, AND ACCEPTED MANUFACTURING PRACTICE.

CROSS SECTION IS TO NEST WITH W BEAM GUIDE RAIL

SEE CD-609-12.1 FOR TERMINAL ANCHORAGE

OPTIONAL 3/4" x 2 1/2" POST BOLT SLOT

1 1/8" HOLES FOR 7/8" H.S. BOLTS (TYP.)

BACKUP PLATE FOR TERMINAL CONNECTOR

SEE CD-609-11.2 FOR GENERAL NOTES

29/32" x 1 1/8" SPLICE BOLT SLOTS (TYP.)

1" DIA. HOLES FOR 7/8" DIA. H.S. BOLTS (TYP.)

(AASHTO M180, CLASS B, TYPE 1)

TERMINAL CONNECTOR

W BEAM TERMINAL CONNECTOR

CD-609-12.2

THRIE BEAM AND W BEAM TERMINAL CONNECTOR

N.T.S.

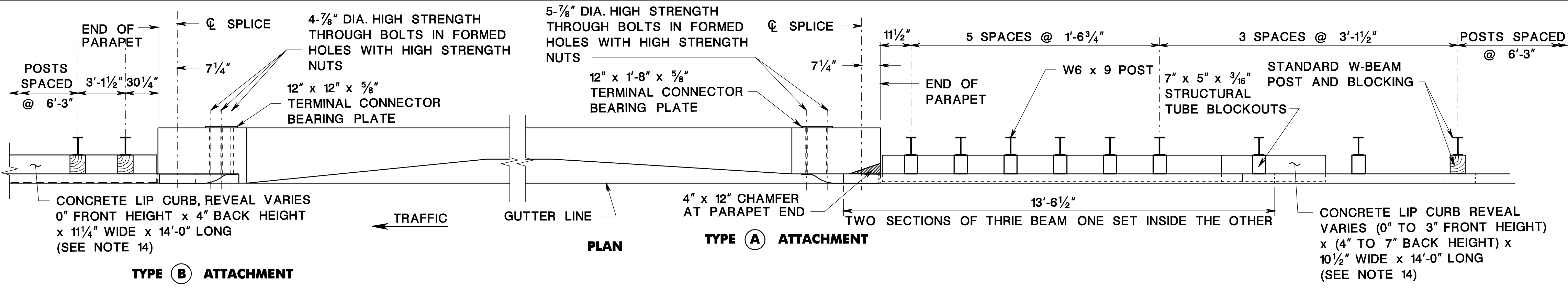
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NEW JERSEY DEPARTMENT OF TRANSPORTATION

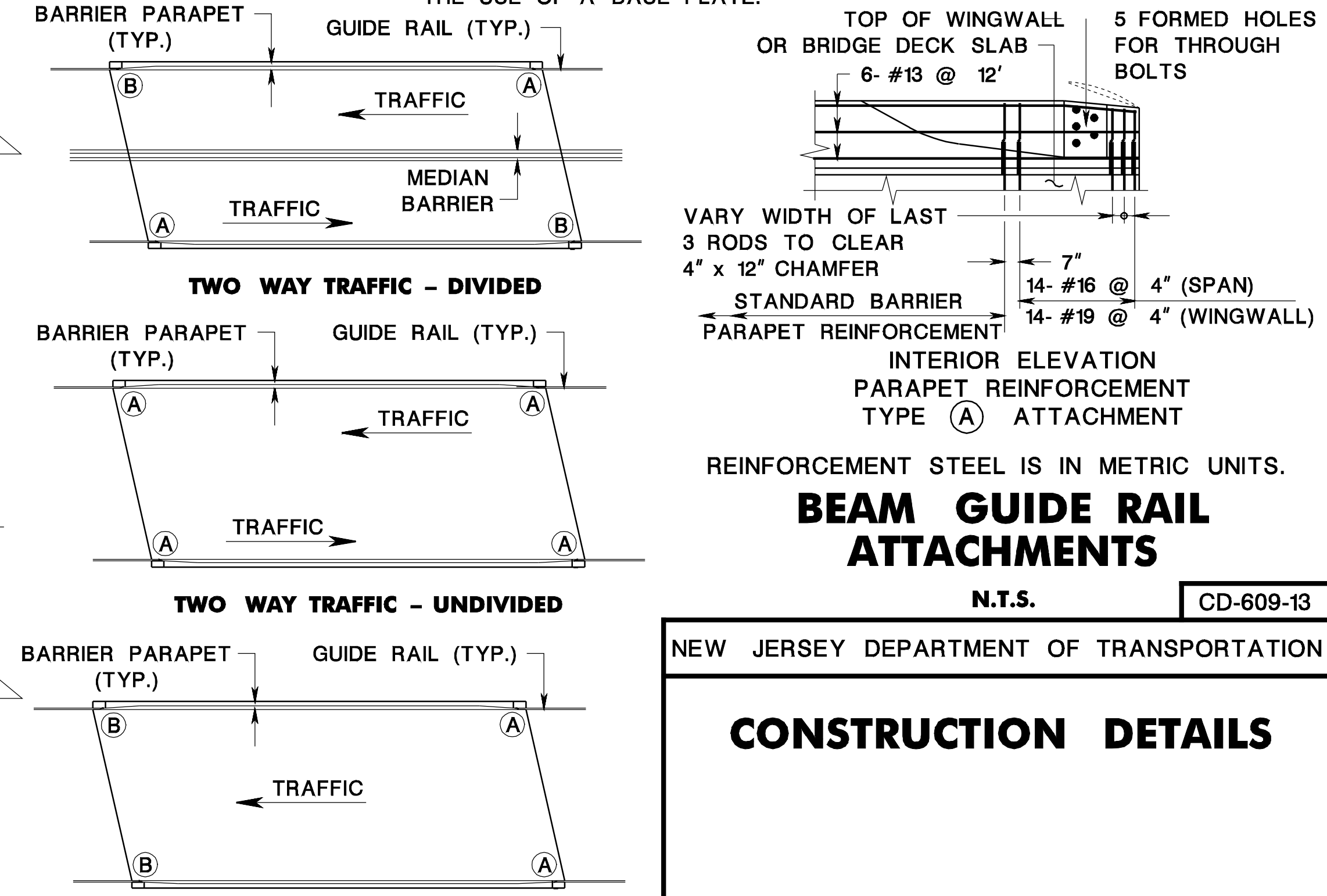
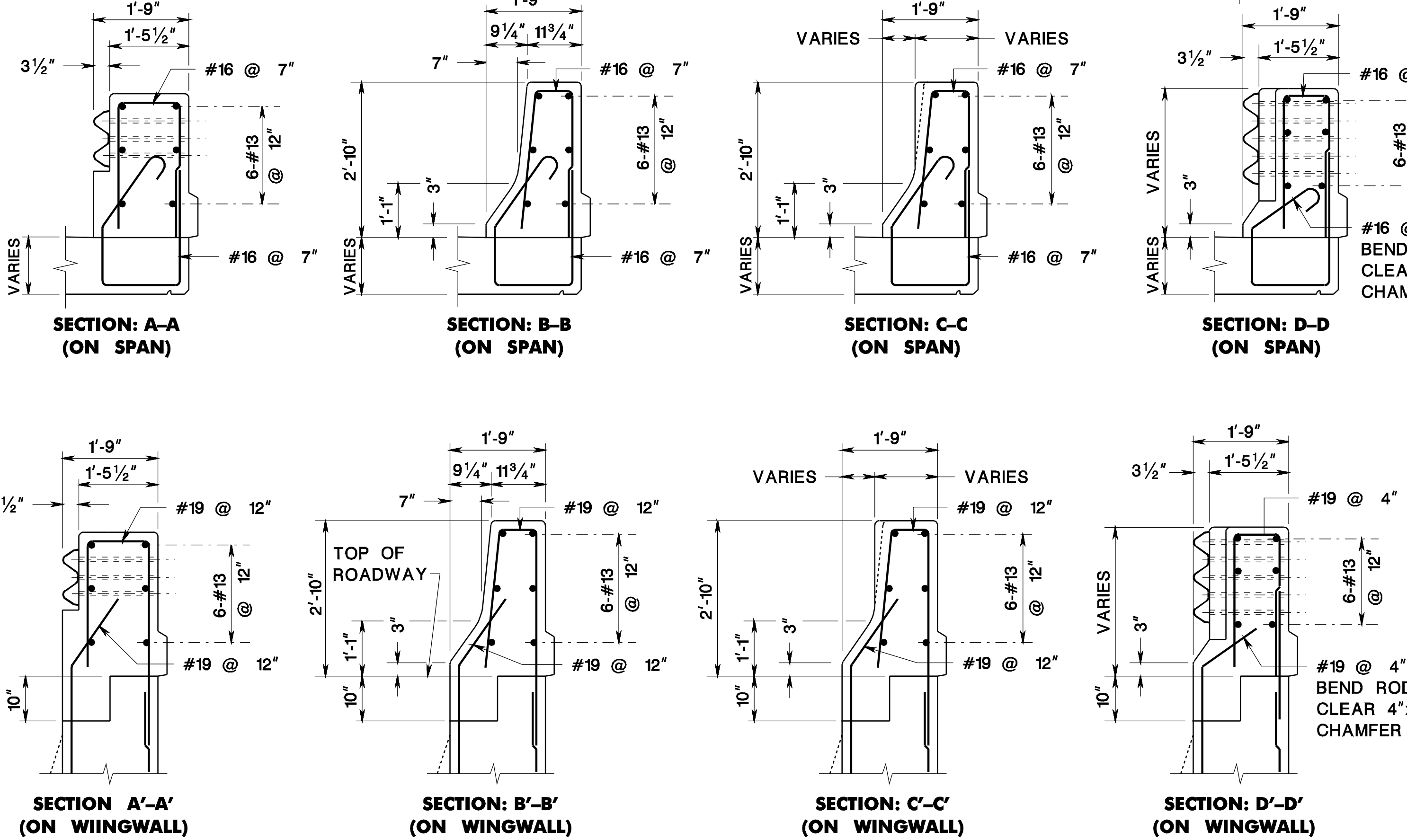
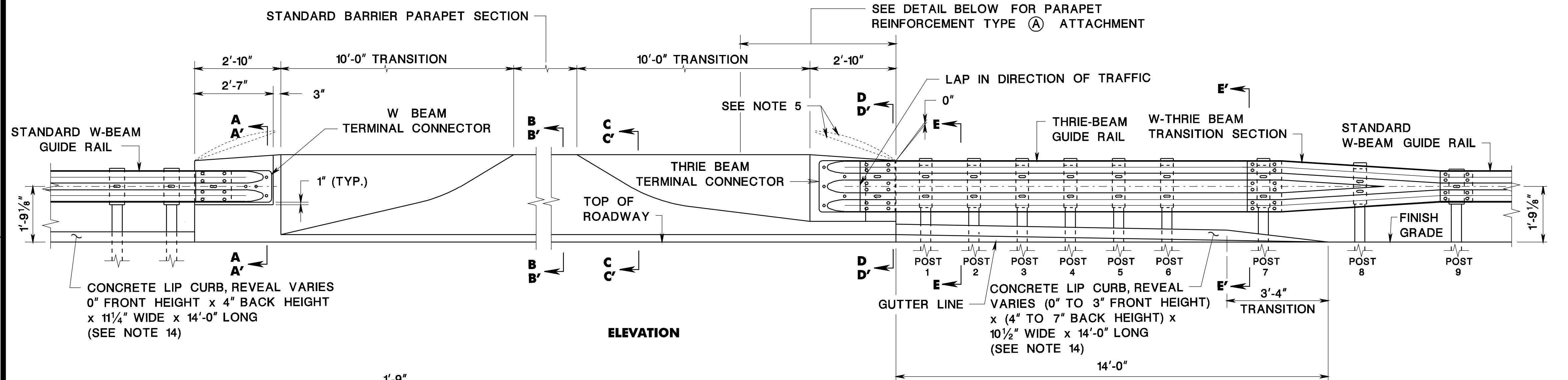
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- NOTES:**
- THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY BARRIER SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUIDE RAIL CONNECTION.
 - FOR RECOMMENDED ATTACHMENT, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
 - ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 10H:1V OR FLATTER.
 - EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
 - BARRIER PARAPET END MAY HAVE TO BE RECONFIGURED TO ACCEPT DIFFERENT TYPES OF RAILING OR FENCING THAT MAY BE MOUNTED ON TOP OF THE PARAPET.
 - AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, #3 AND #5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
 - POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
 - LOCATE CONDUIT AT END OF BARRIER PARAPETS SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - LOCATE DRAINAGE INLETS AND ELECTRICAL JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED PER AASHTO M111.
 - HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
 - THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 12-GAUGE.
 - FOR ADDITIONAL THRIE BEAM, AND W-BEAM DETAILS REFER TO CD-609-1, CD-609-3, AND CD-609-12.
 - CONCRETE LIP CURB TO BE PAID UNDER 9"x16" CONCRETE VERTICAL CURB, SEE CD-607-1.9. CONCRETE LIP CURB MAY BE OMITTED AT UNDERPASS, WHERE EROSION CONTROL IS NOT NECESSARY.
 - WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.

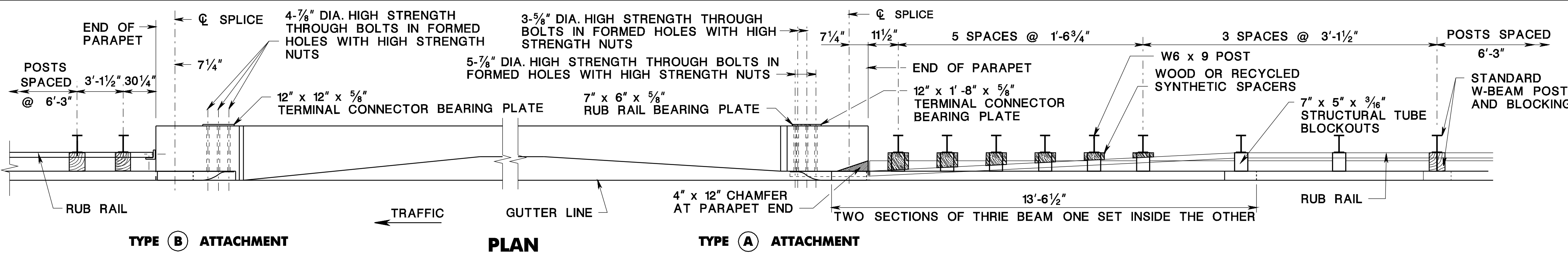


GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION
NEW JERSEY BARRIER SHAPE PARAPET (NO ROADWAY CURBING ON APPROACH)

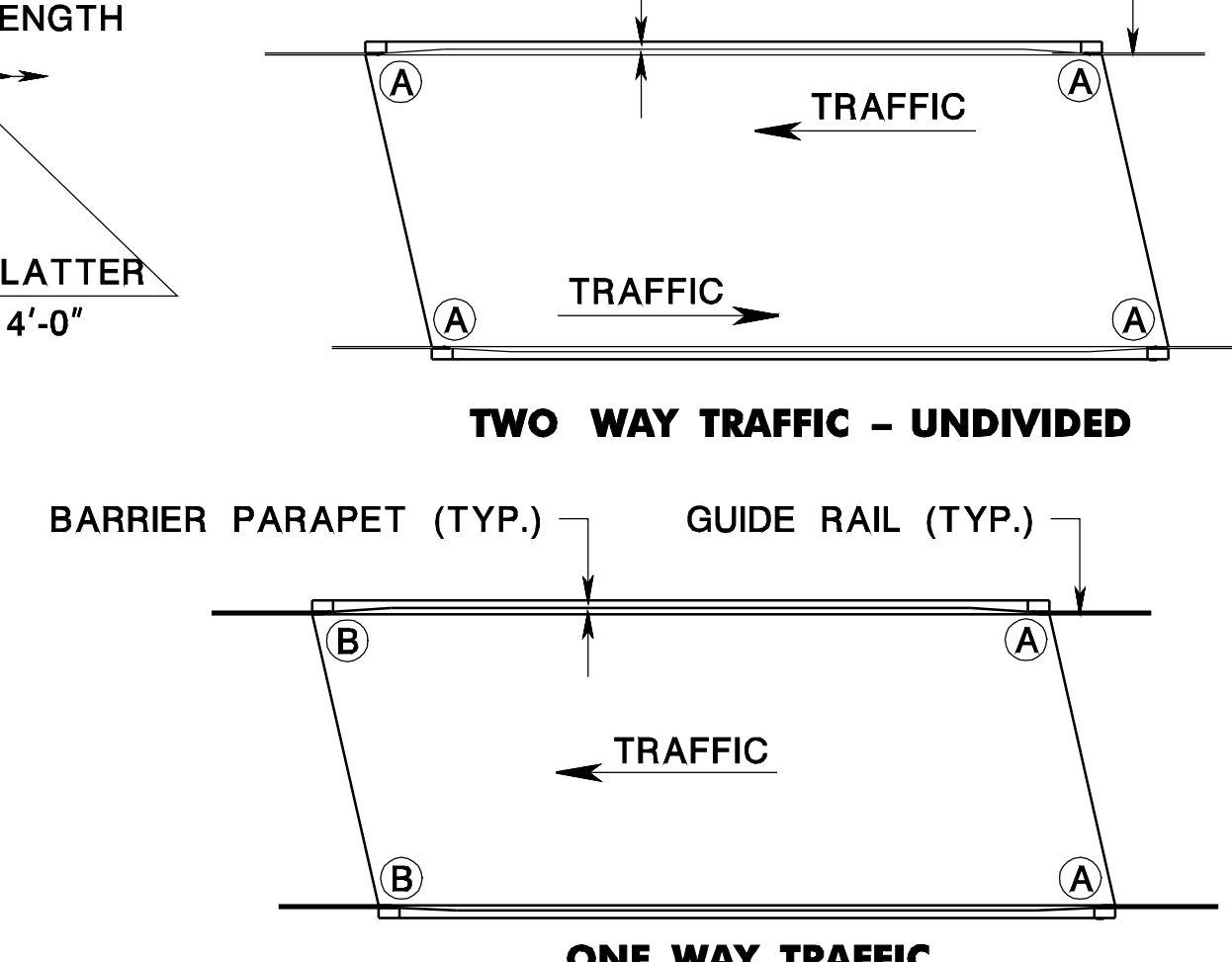
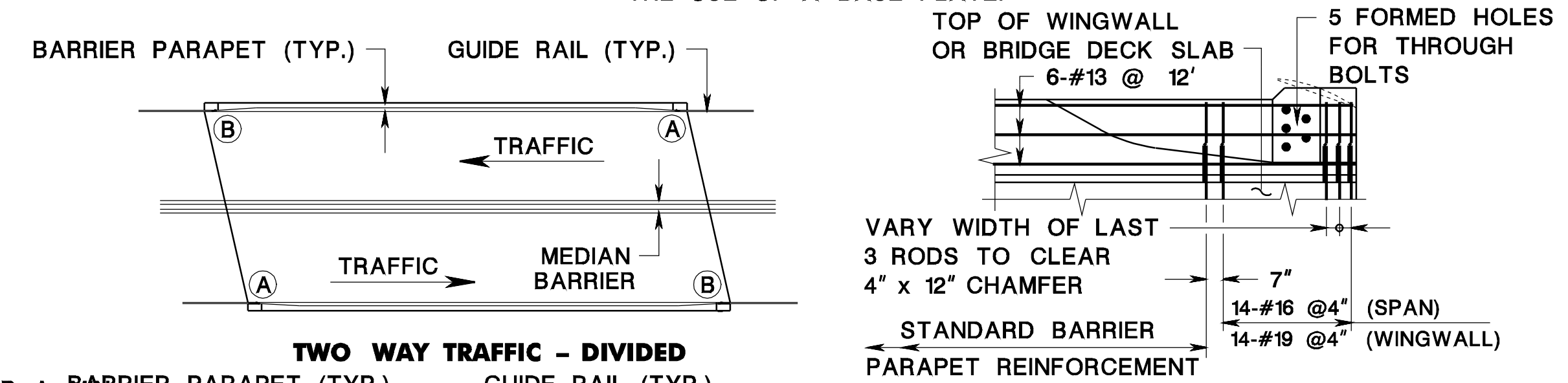
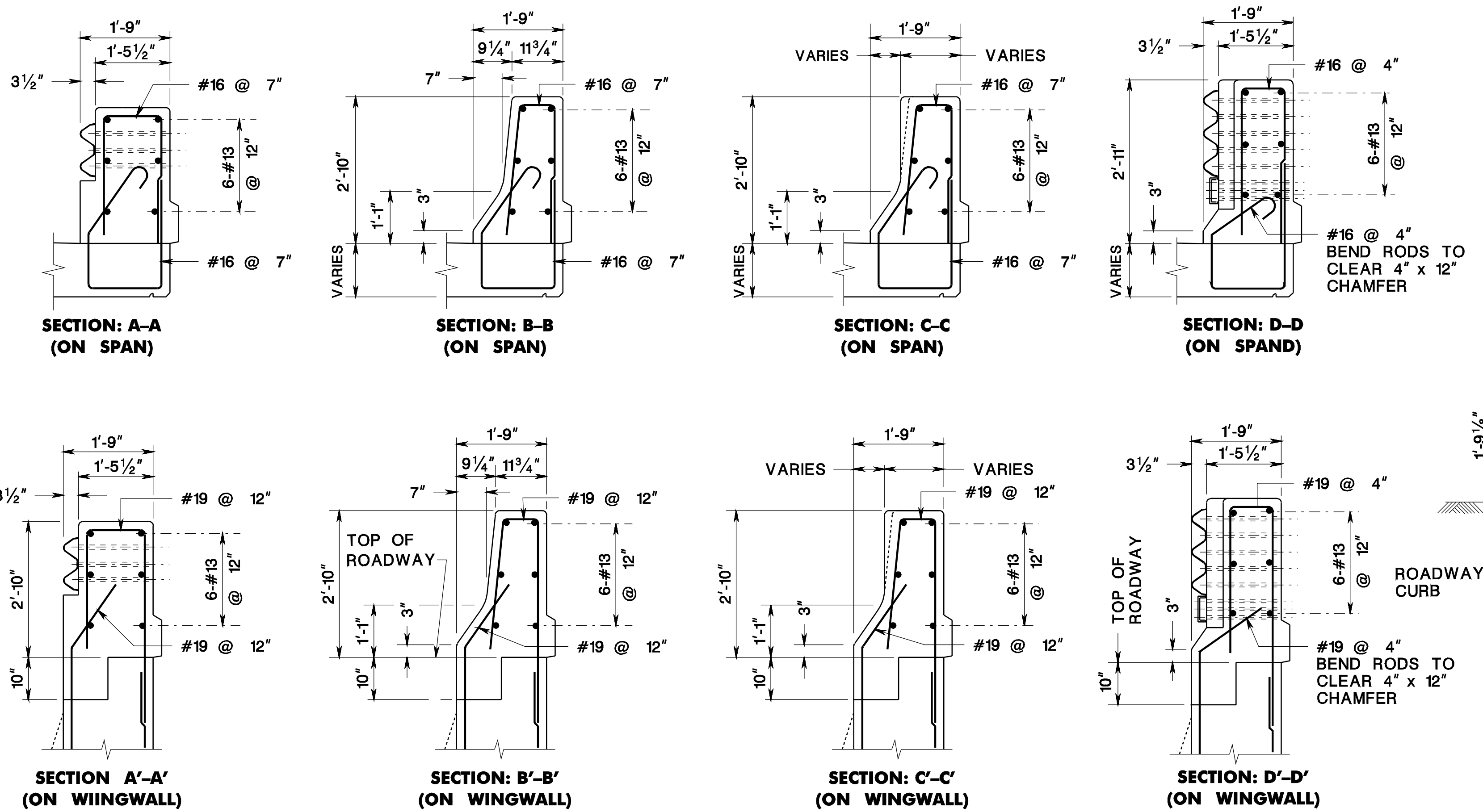
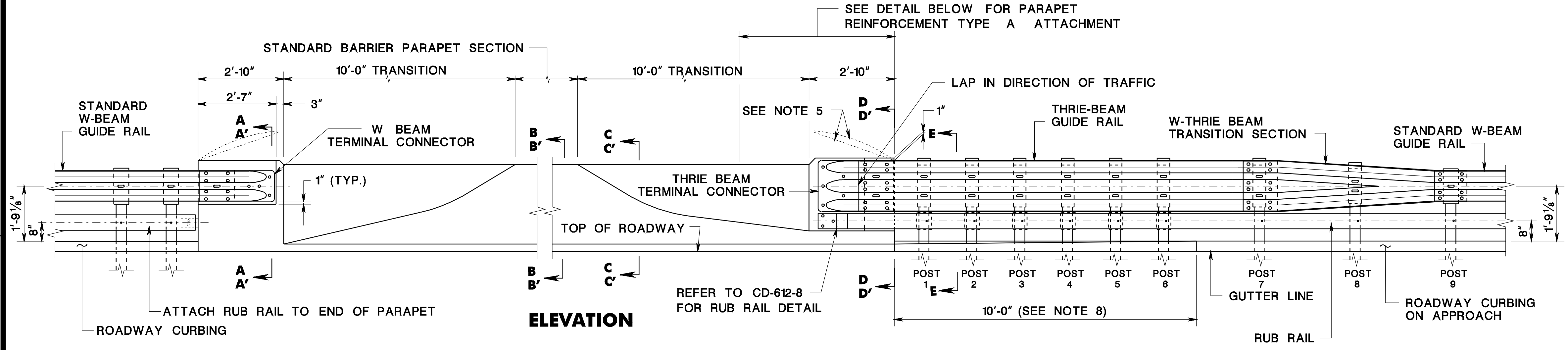
BEAM GUIDE RAIL ATTACHMENTS
 N.T.S. CD-609-13
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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- NOTES:**
- THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY BARRIER SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUIDE RAIL CONNECTION.
 - FOR RECOMMENDED ATTACHMENT, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
 - ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 1V:10H OR FLATTER.
 - EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 1V:2H SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
 - BARRIER PARAPET END MAY HAVE TO BE RECONFIGURED TO ACCEPT DIFFERENT TYPES OF RAILING OR FENCING THAT MAY BE MOUNTED ON TOP OF THE PARAPET.
 - AT TYPE A ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, #3 AND #5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
 - POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
 - TRANSITION LAST 10 FEET OF ROADWAY CURBING TO MATCH BARRIER PARAPET SHAPE.
 - LOCATE CONDUIT AT END OF BARRIER PARAPETS SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - LOCATE DRAINAGE INLETS AND ELECTRICAL JUNCTION BOXES ON APPROACHES SO AS TO NOT INTERFERE WITH GUIDE RAIL POST SPACING.
 - STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED PER AASHTO M111.
 - HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
 - THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 12-GAUGE.
 - FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-609-1, CD-609-3, AND CD-609-12.
 - WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.



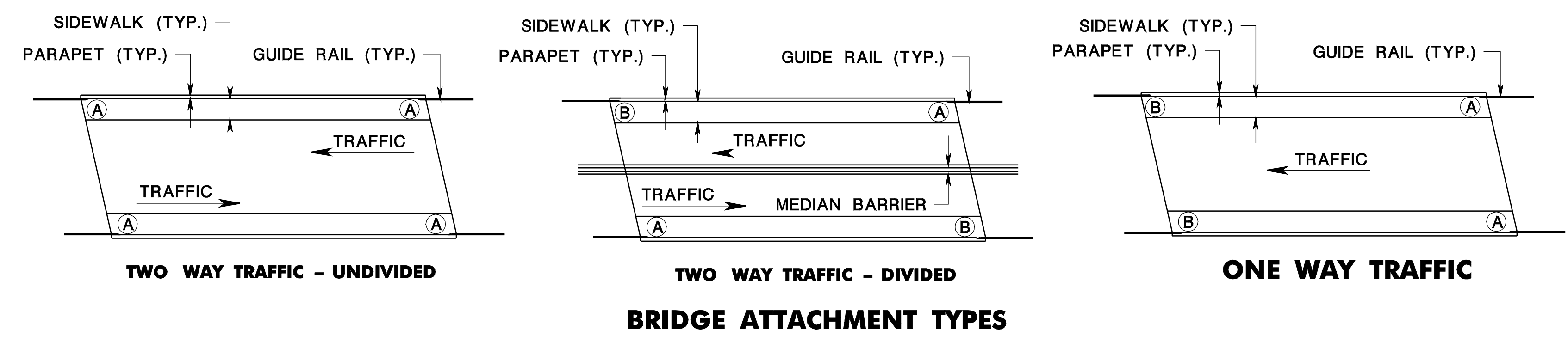
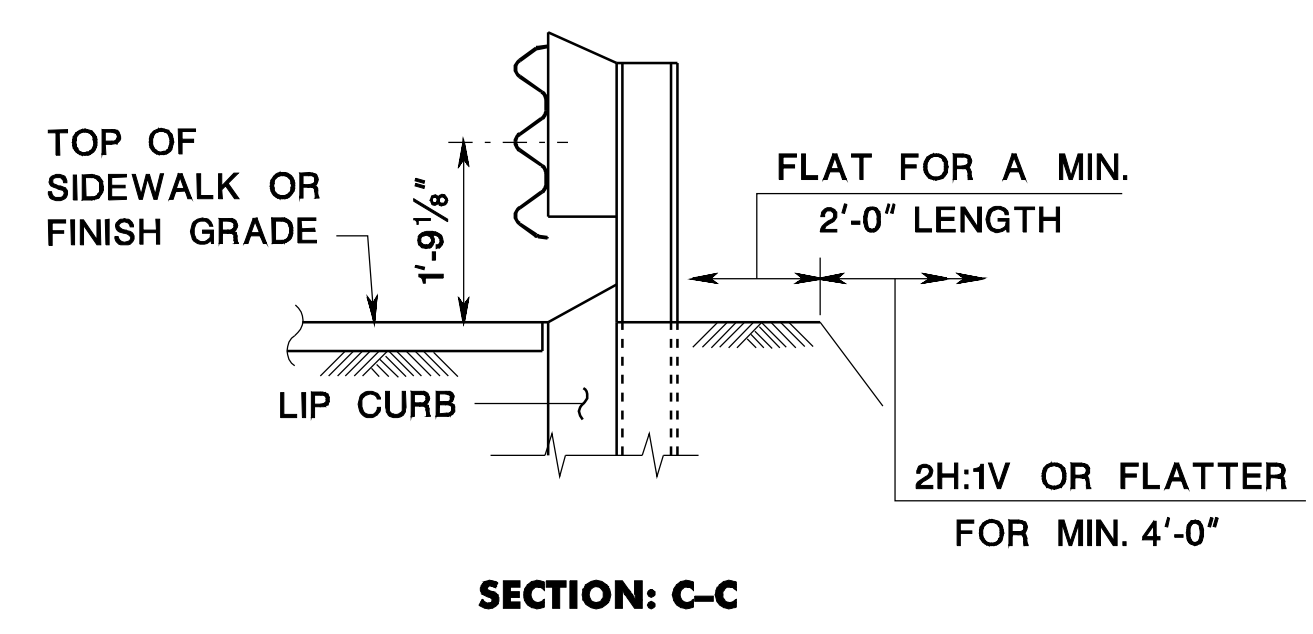
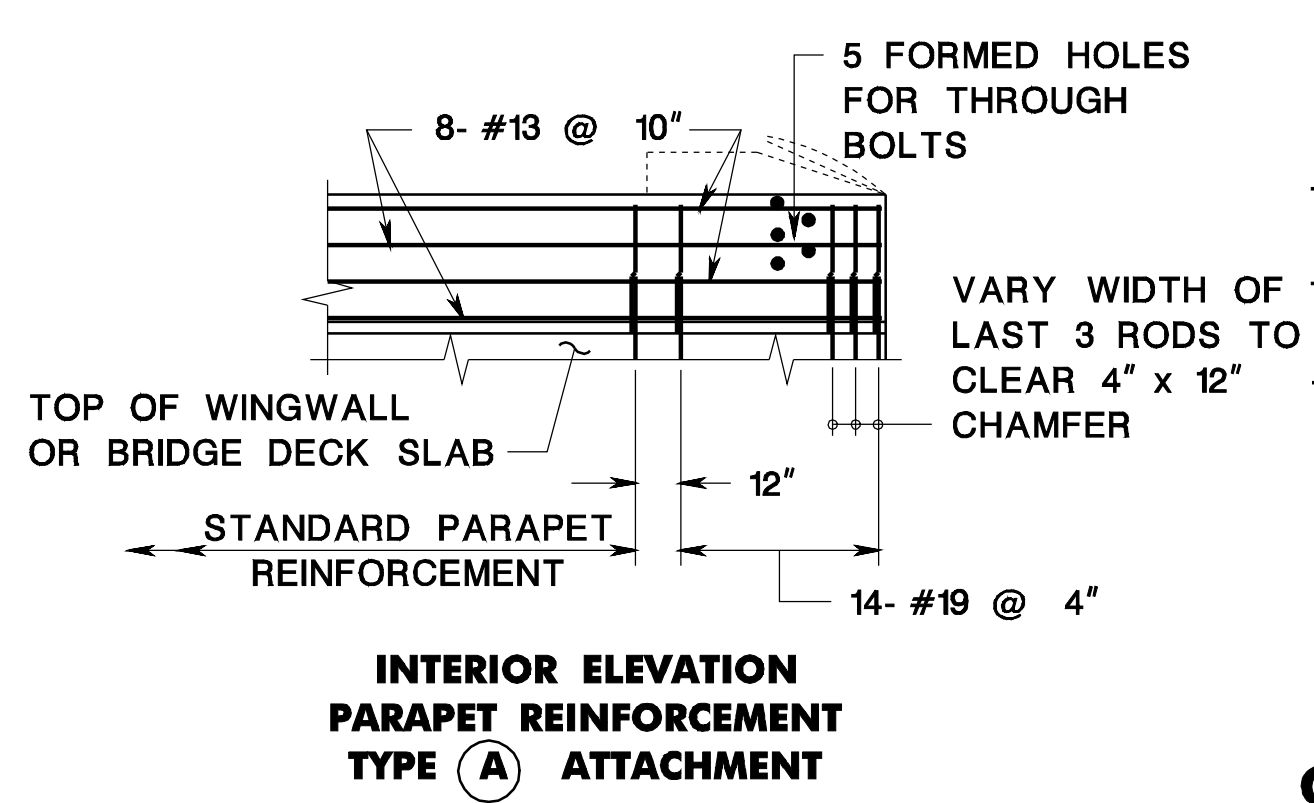
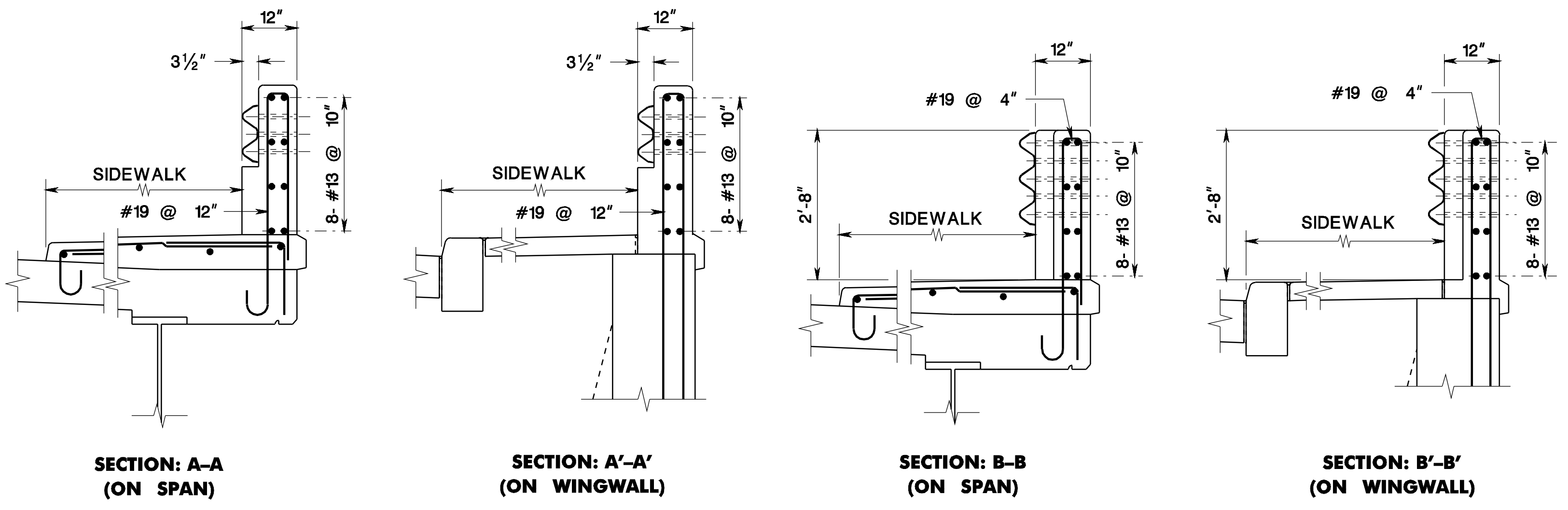
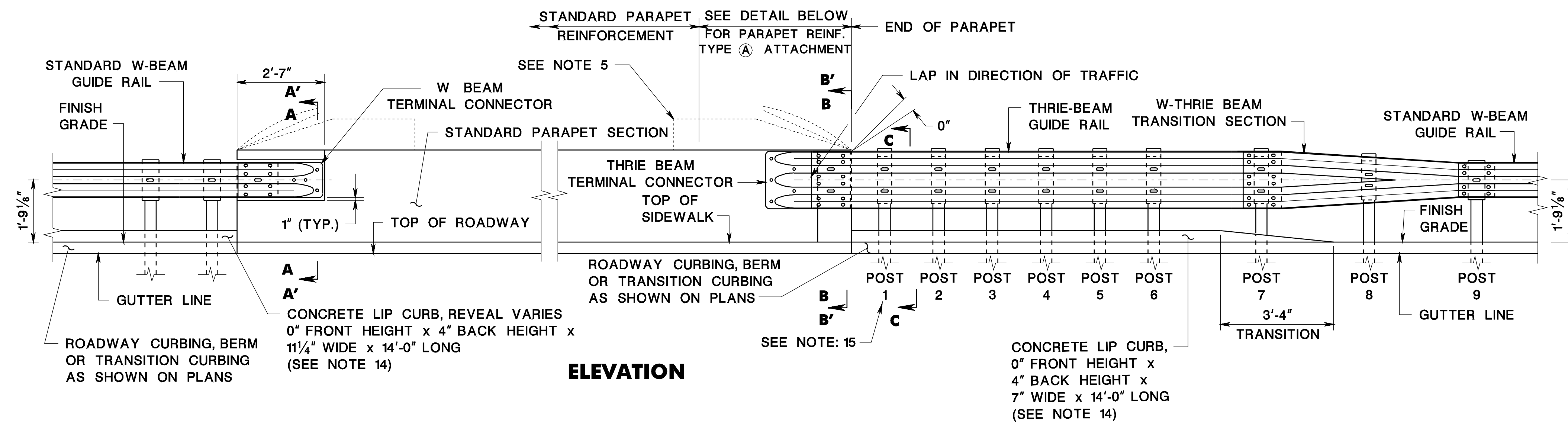
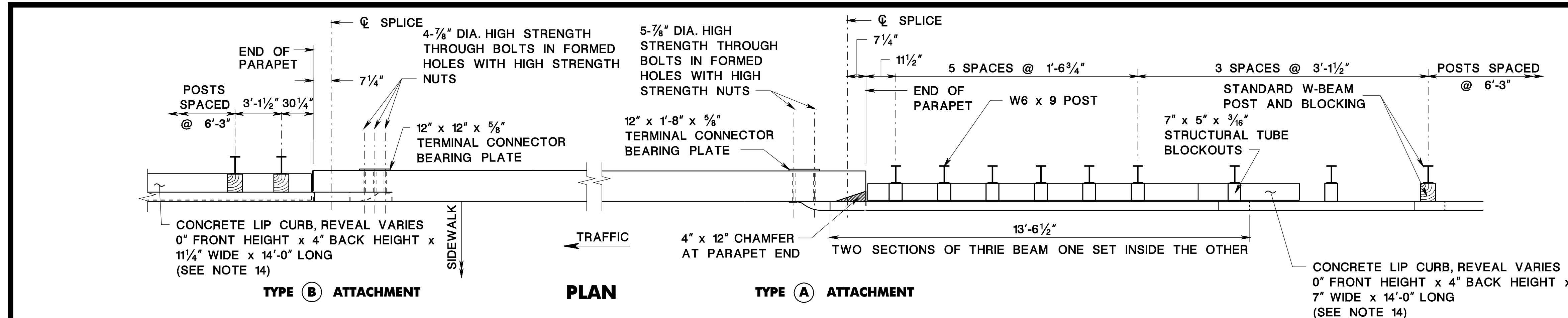
**GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION
 NEW JERSEY BARRIER SHAPE PARAPET (WITH ROADWAY CURBING ON APPROACH)**

**INTERIOR ELEVATION
 PARAPET REINFORCEMENT
 TYPE (A) ATTACHMENT**
 REINFORCEMENT STEEL IS IN METRIC UNITS.
**BEAM GUIDE RAIL
 ATTACHMENTS**
 N.T.S. CD-609-14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

**ONE WAY TRAFFIC
 BRIDGE ATTACHMENT TYPES**
 CD-609-14.1



- NOTES:**
- THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE.
 - FOR RECOMMENDED ATTACHMENT TYPE, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
 - ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 10H:1V OR FLATTER.
 - EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
 - WHEN RAILING IS INSTALLED ON TOP OF PARAPET, PARAPET END SHALL BE MODIFIED TO ACCOMMODATE HORIZONTAL RAIL ATTACHMENT TO PARAPET. REFER TO STANDARD RAILING PLATE FOR ATTACHMENT DETAILS.
 - AT TYPE A ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, 3 & 5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
 - POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
 - LOCATE CONDUIT AT END OF PYLON SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - LOCATE DRAINAGE INLETS AND ELECTRIC JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED AS PER AASHTO M111.
 - HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
 - THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 12-GAUGE.
 - FOR ADDITIONAL THRIE BEAM, AND W-BEAM DETAILS REFER TO CD-609-1, CD-609-3, AND CD-609-12.
 - CONCRETE LIP CURB TO BE PAID UNDER 9"x16" CONCRETE VERTICAL CURB, SEE CD-607-1.9. CONCRETE LIP CURB MAY BE OMITTED AT UNDERPASS, WHERE EROSION CONTROL IS NOT NECESSARY.
 - WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.

GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION (SIDEWALK WITH PARAPET)

NOTE: REINFORCEMENT STEEL IS IN METRIC UNITS.

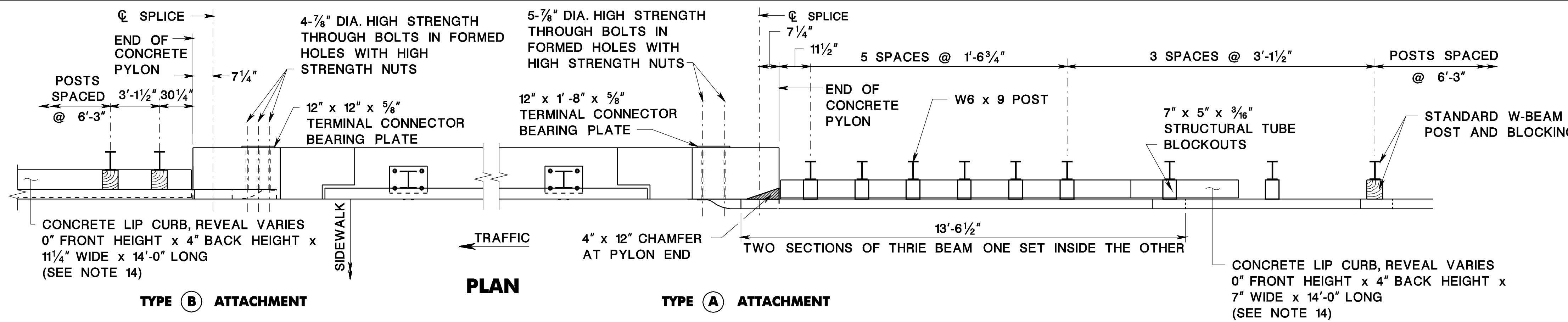
BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

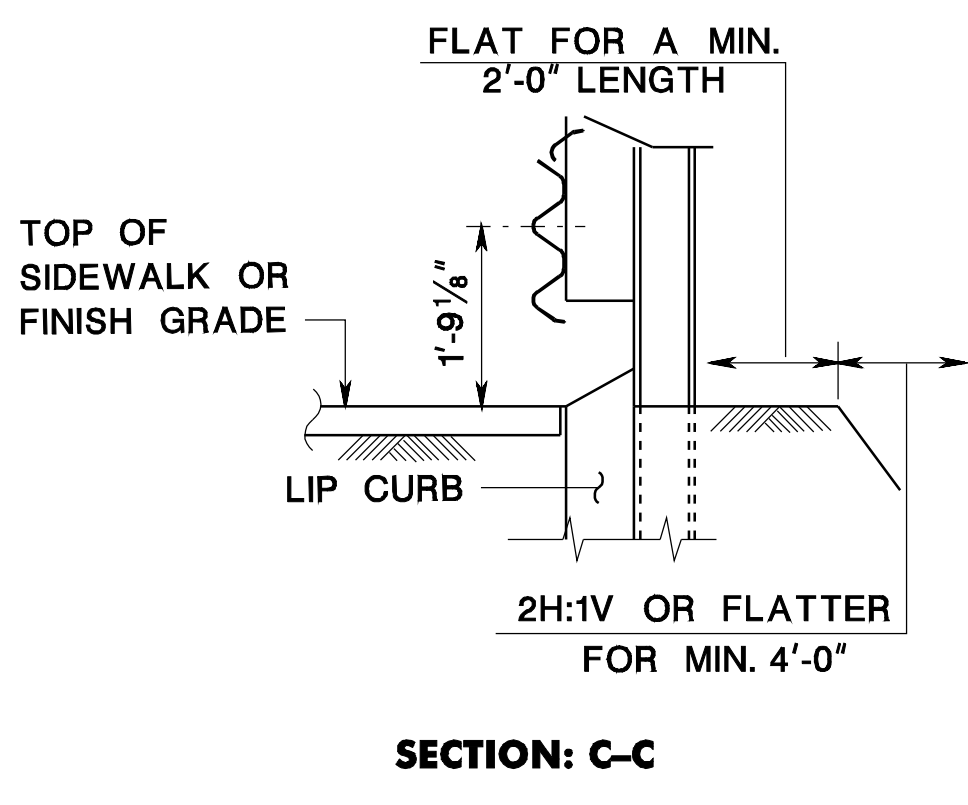
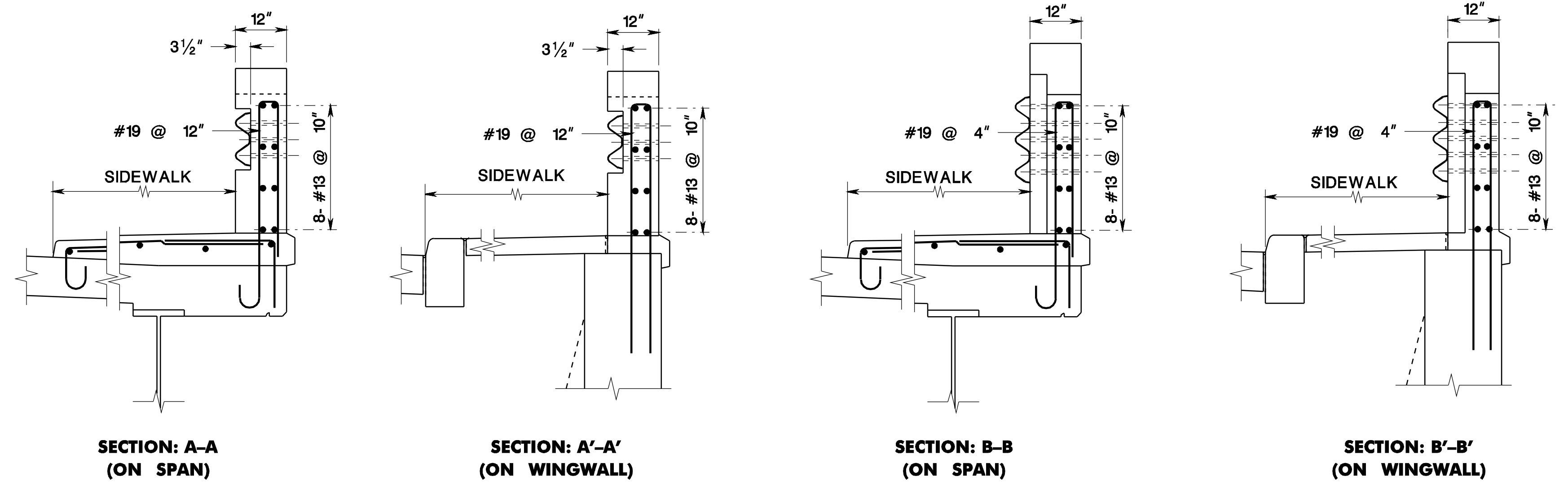
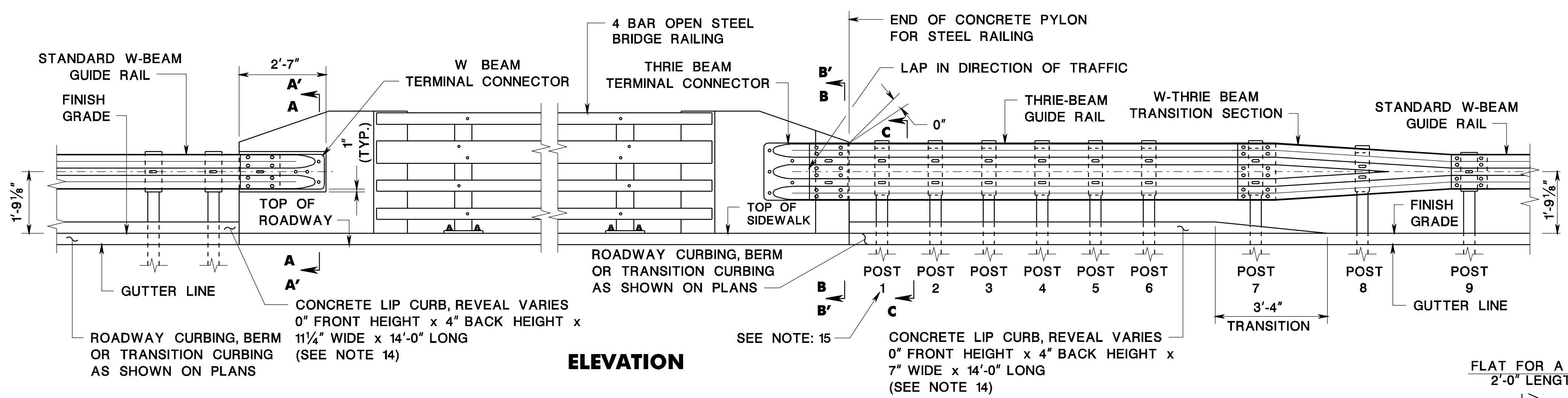
CD-609-15

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

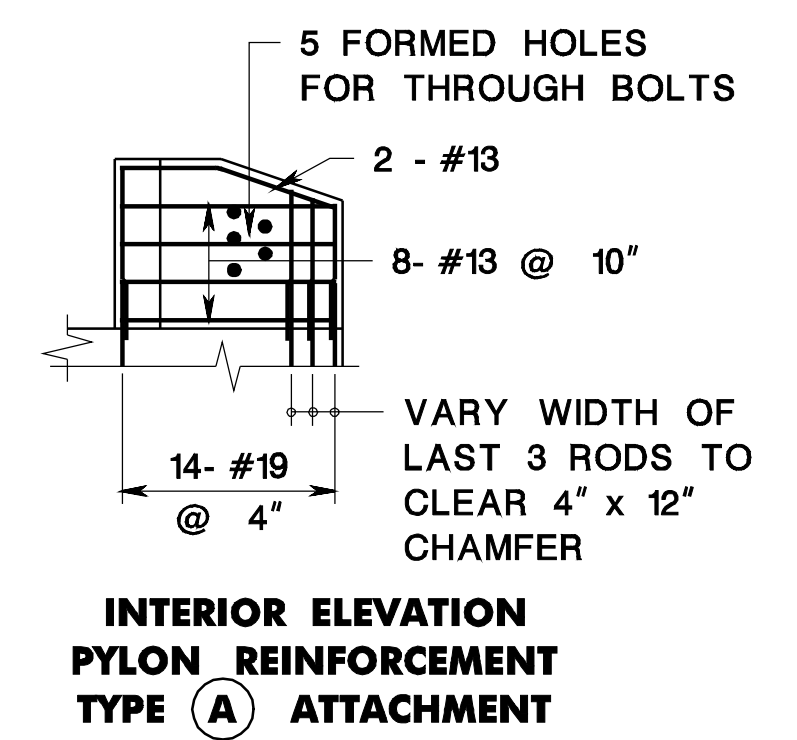
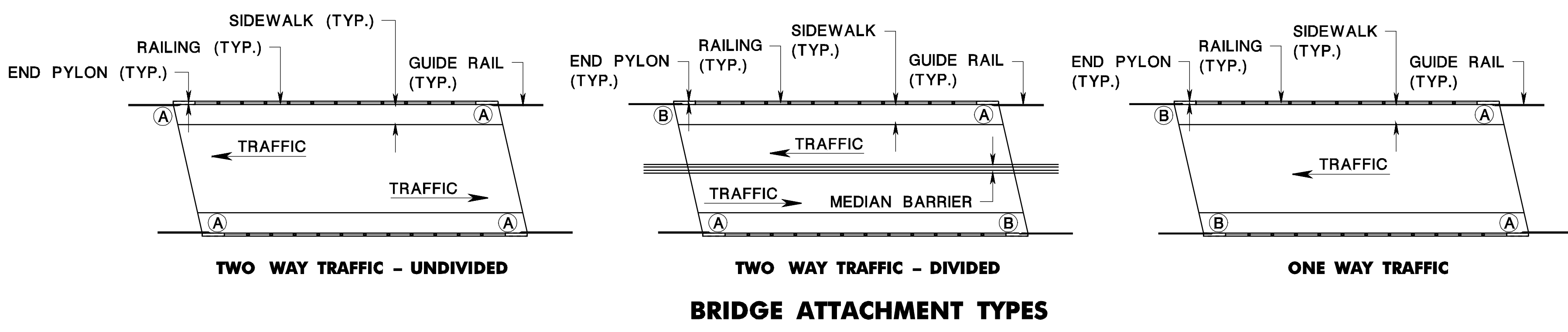


- NOTES:**
- THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE.
 - FOR RECOMMENDED ATTACHMENT TYPE, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
 - ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 10H:1V OR FLATTER.
 - EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
 - CONCRETE PYLONS TO BE CONSTRUCTED AT ALL ENDS OF STEEL RAILING. ATTACH GUIDE RAIL TO THE PYLONS.
 - AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, 3 & 5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
 - POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
 - LOCATE CONDUIT AT END OF PYLON SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - LOCATE DRAINAGE INLETS AND ELECTRIC JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
 - STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED AS PER AASHTO M11.
 - HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
 - THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 12-GAUGE.
 - FOR ADDITIONAL THRIE BEAM, AND W-BEAM DETAILS REFER TO CD-609-1, CD-609-3, AND CD-609-12
 - CONCRETE LIP CURB TO BE PAID UNDER 9"X16" CONCRETE VERTICAL CURB, SEE CD-607-1.9. CONCRETE LIP CURB MAY BE OMITTED AT UNDERPASS, WHERE EROSION CONTROL IS NOT NECESSARY.
 - WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.



GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION (SIDEWALK WITH STEEL RAILING)

NOTE:
REINFORCEMENT STEEL IS IN METRIC UNITS.



BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

CD-609-16

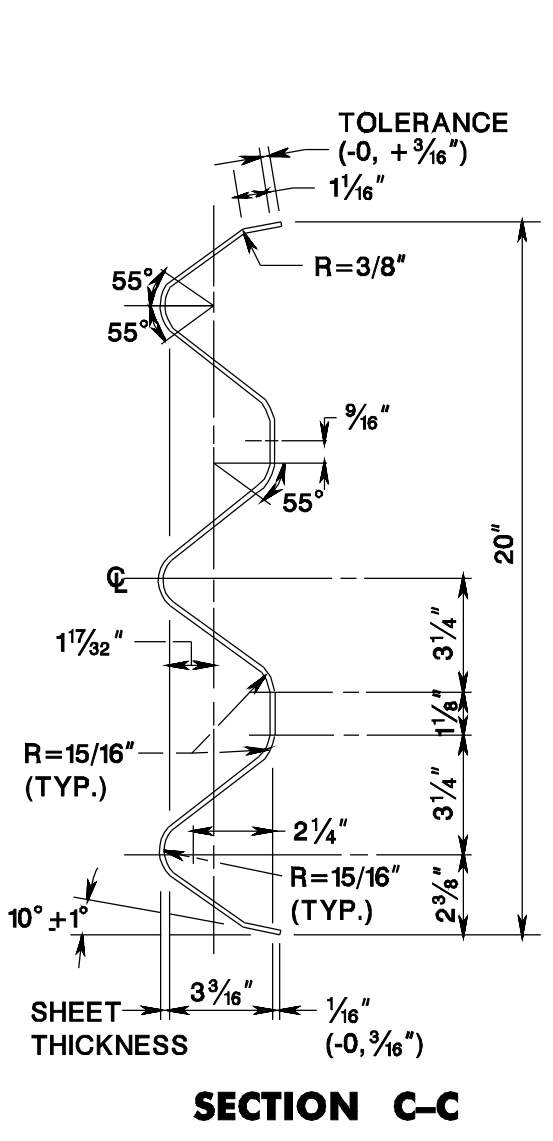
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

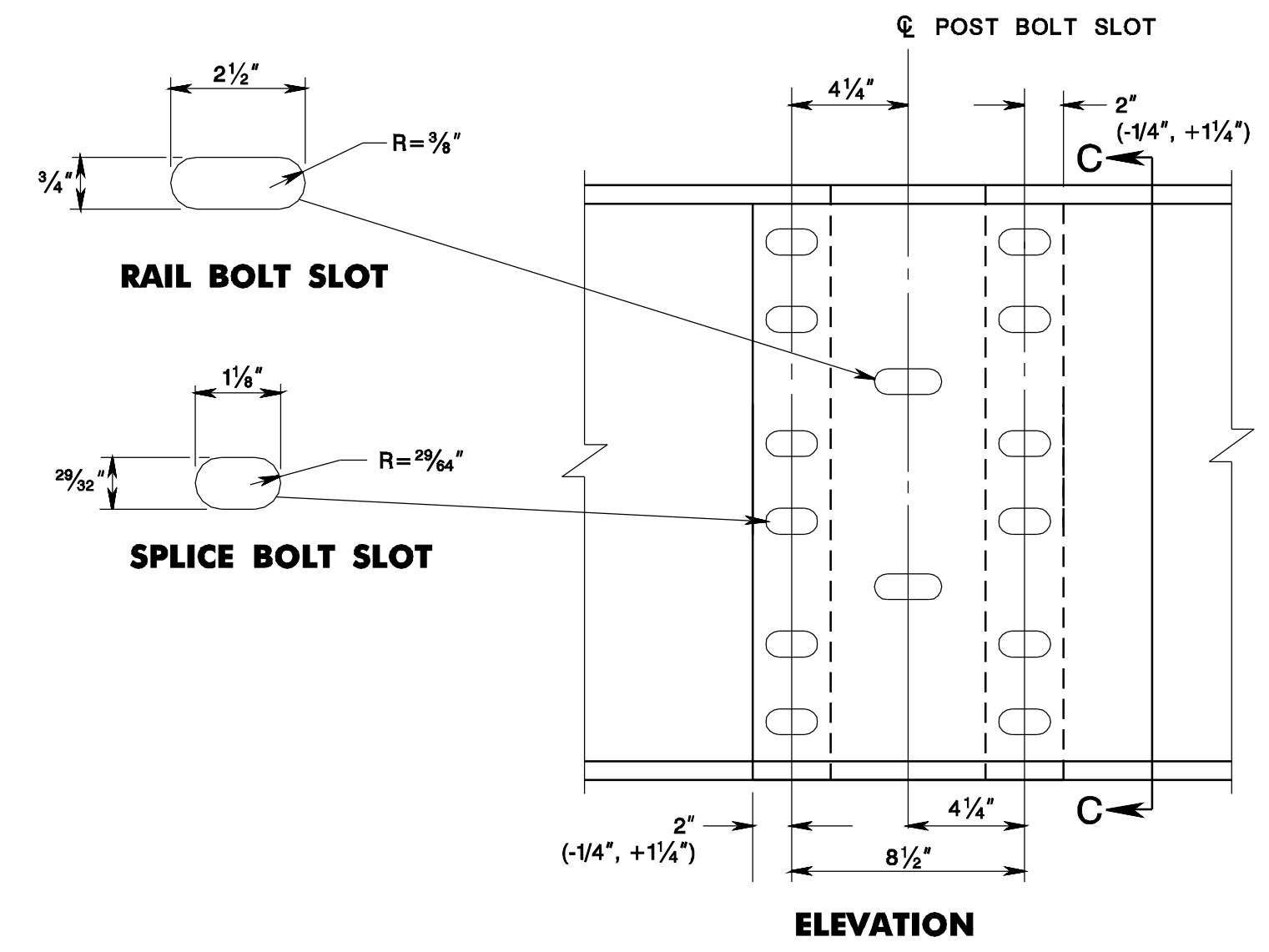
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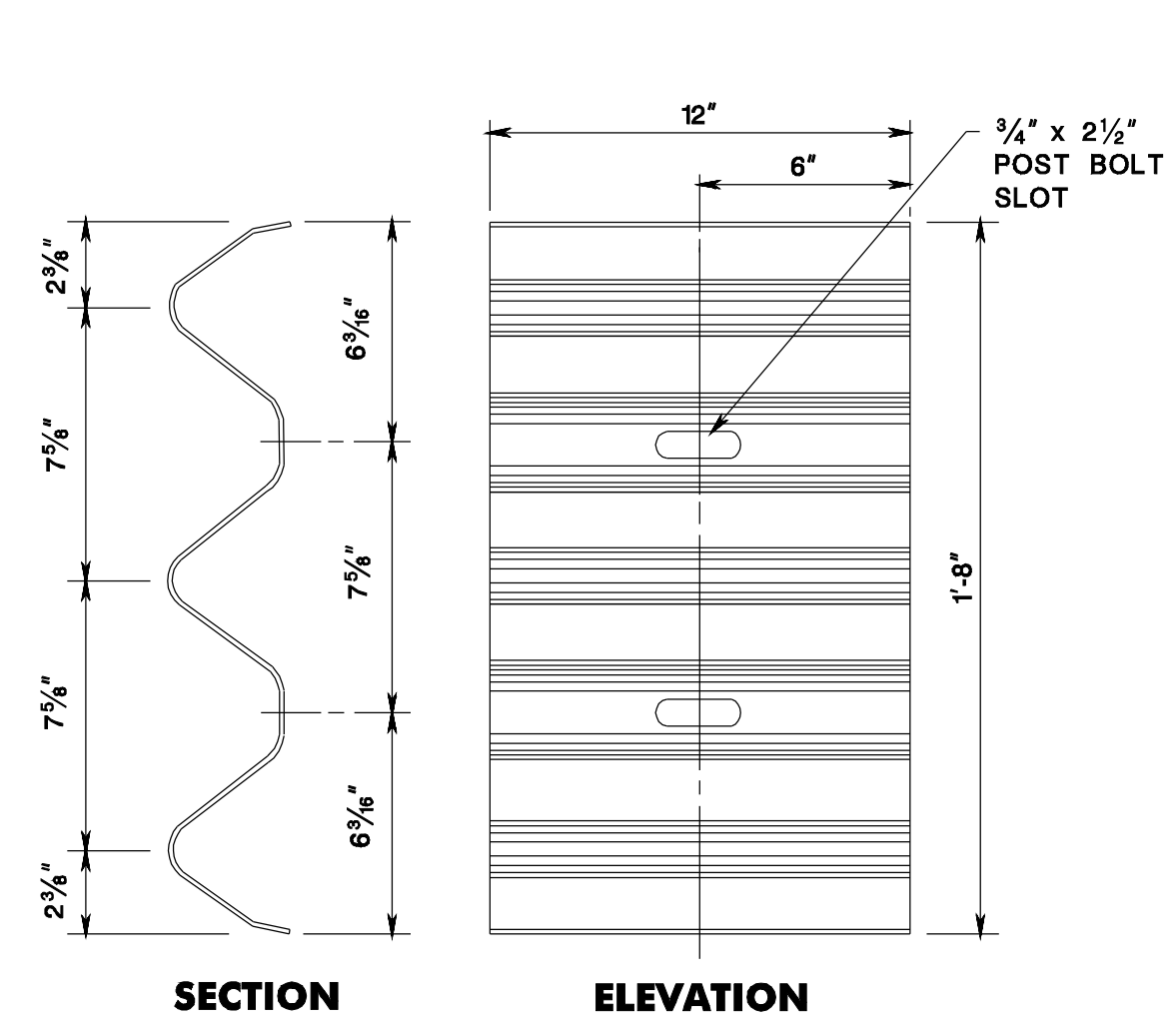
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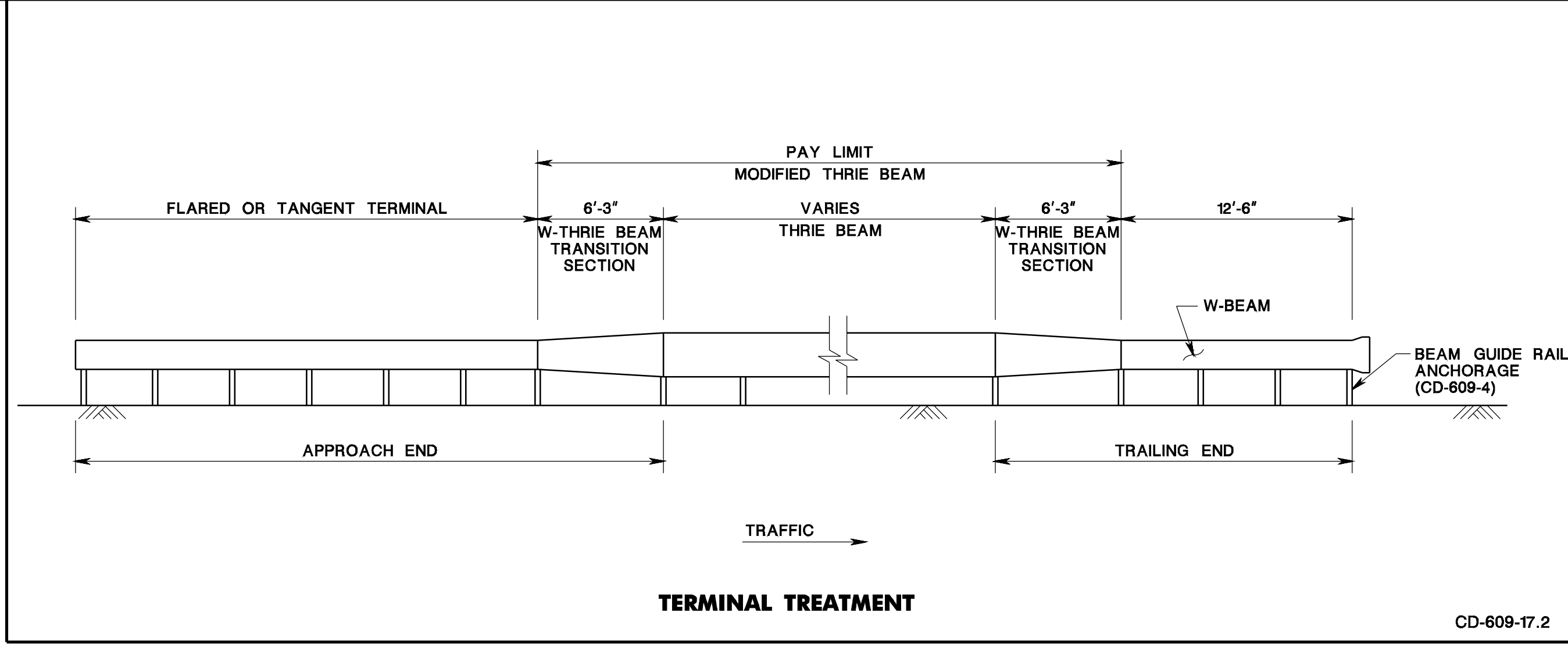
SECTION C-C
THRIE-BEAM RAIL ELEMENT
 RAIL ELEMENT SHALL BE SUPPLIED IN LENGTHS OF 13'-6 1/2" OR 25'-0 1/4"



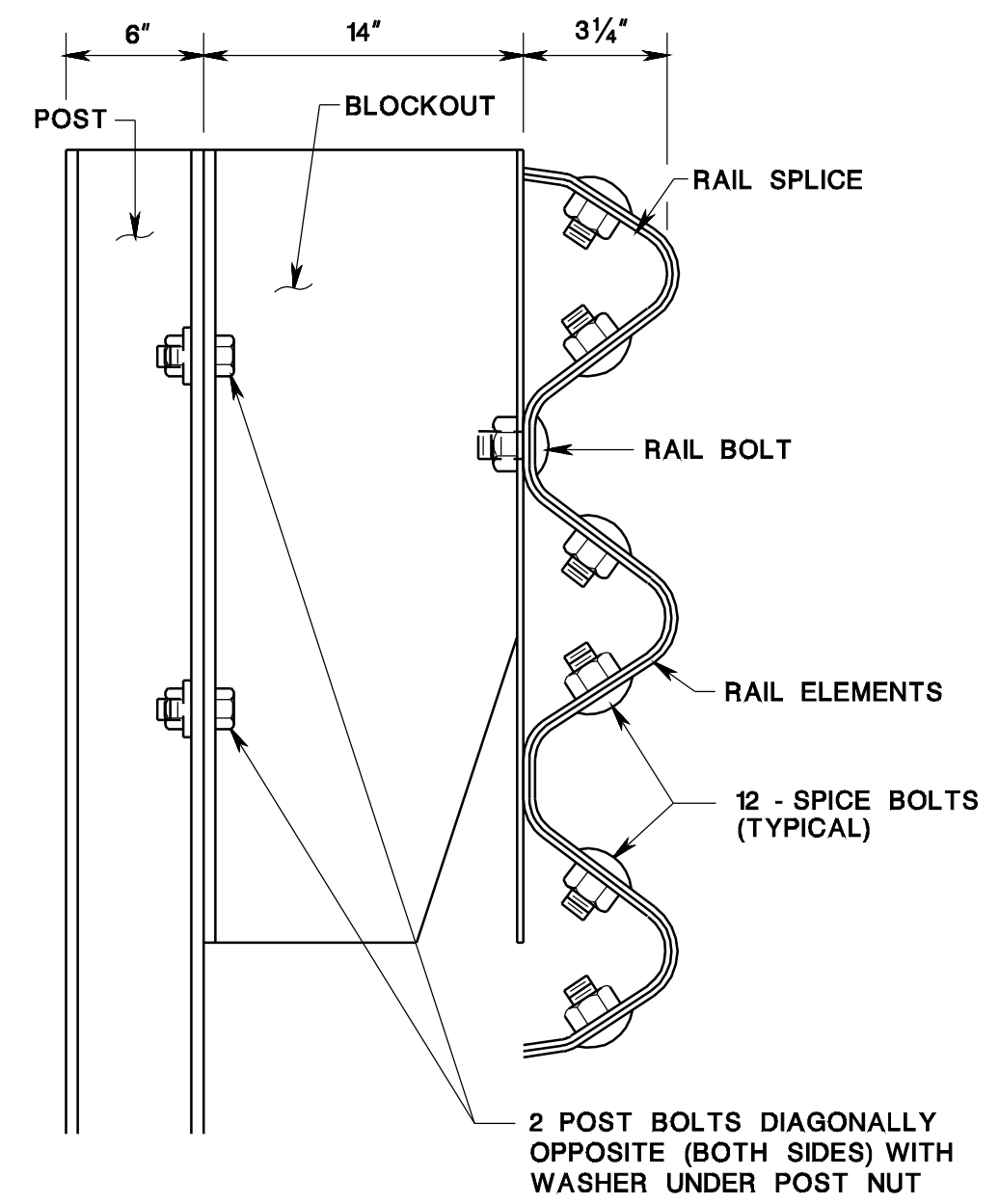
ELEVATION
THRIE BEAM RAIL SPLICE



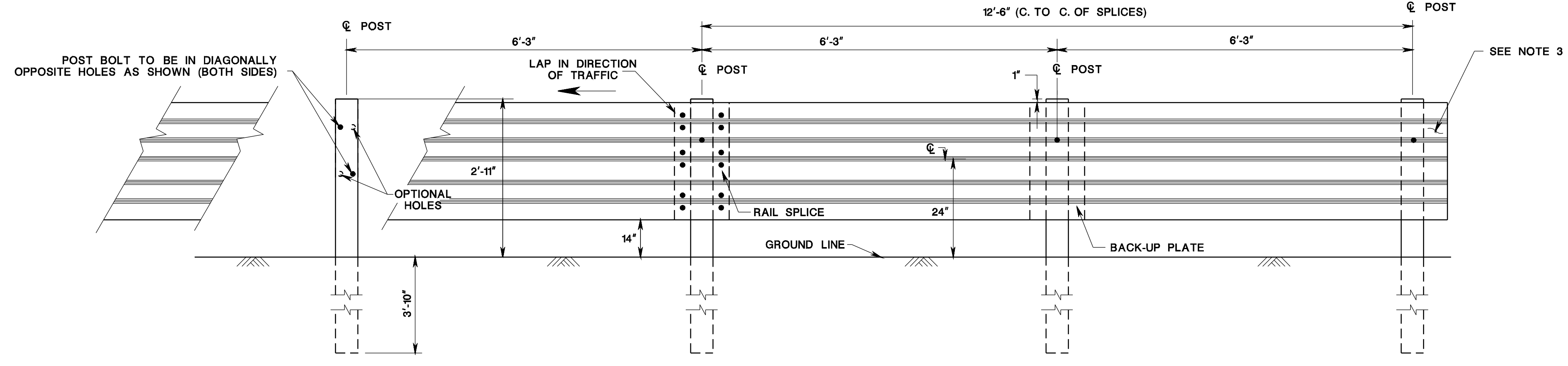
SECTION
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BACK-UP PLATE AT NON-SPLICE POSTS



CD-609-17.2

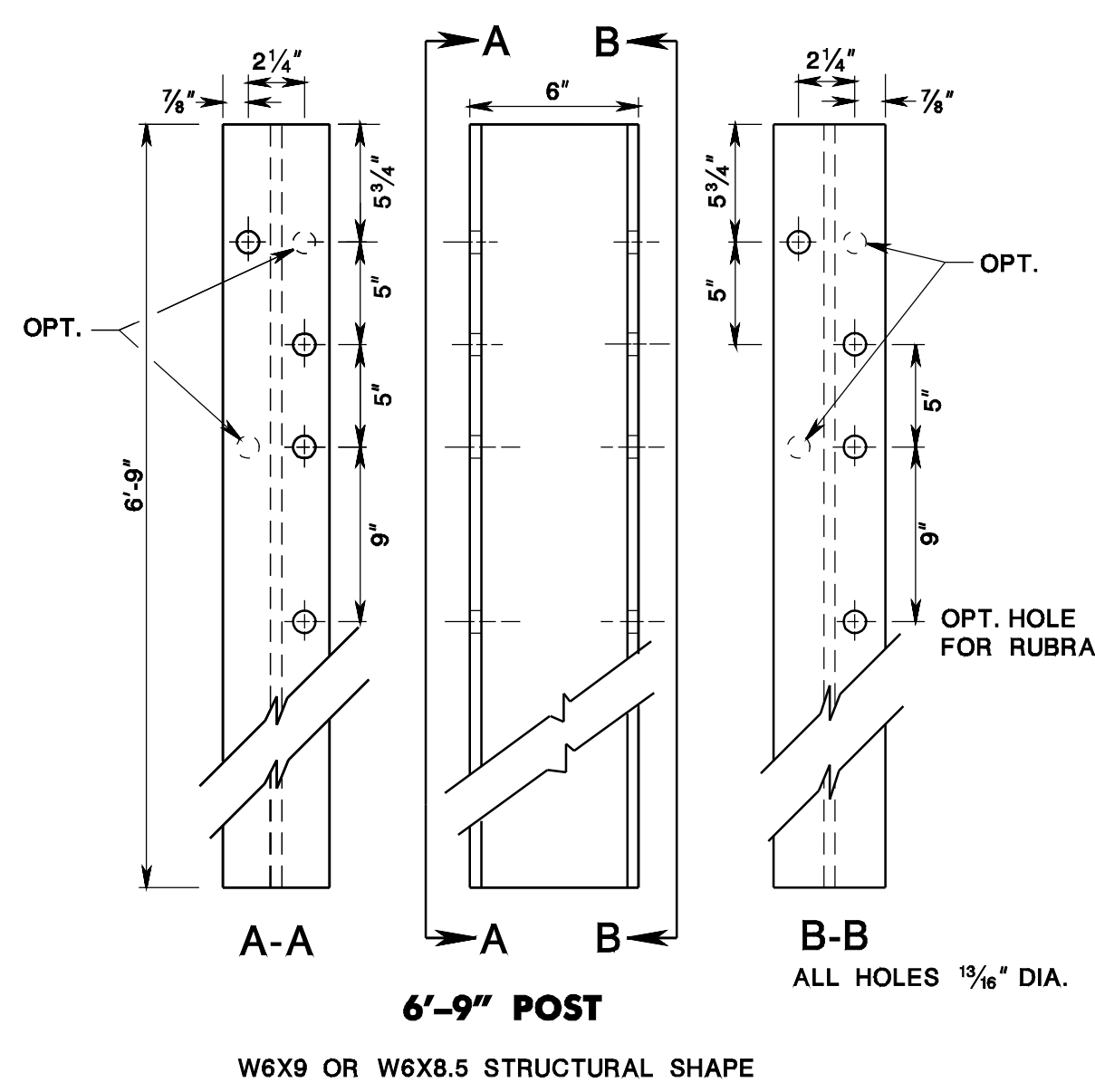


POST ASSEMBLY

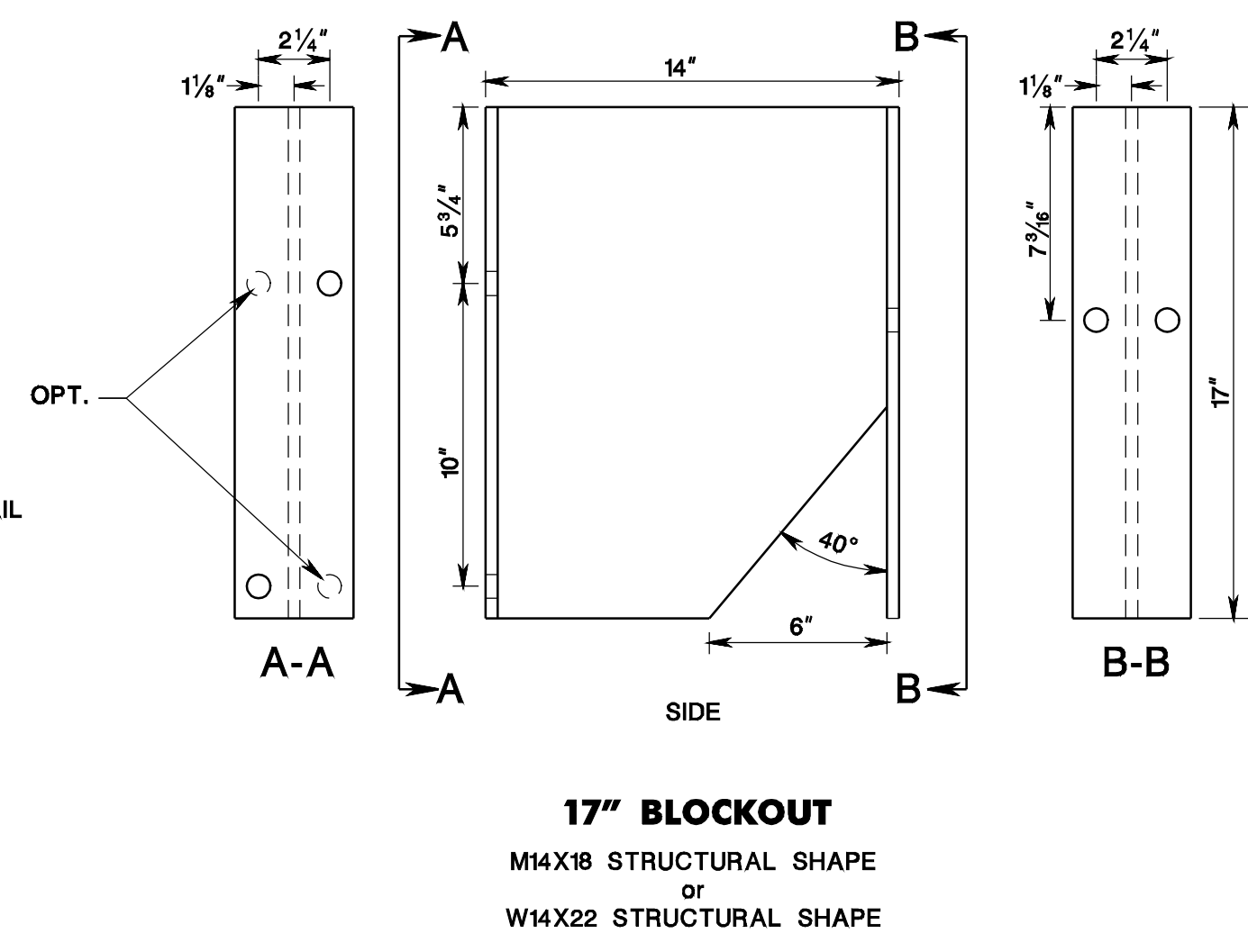


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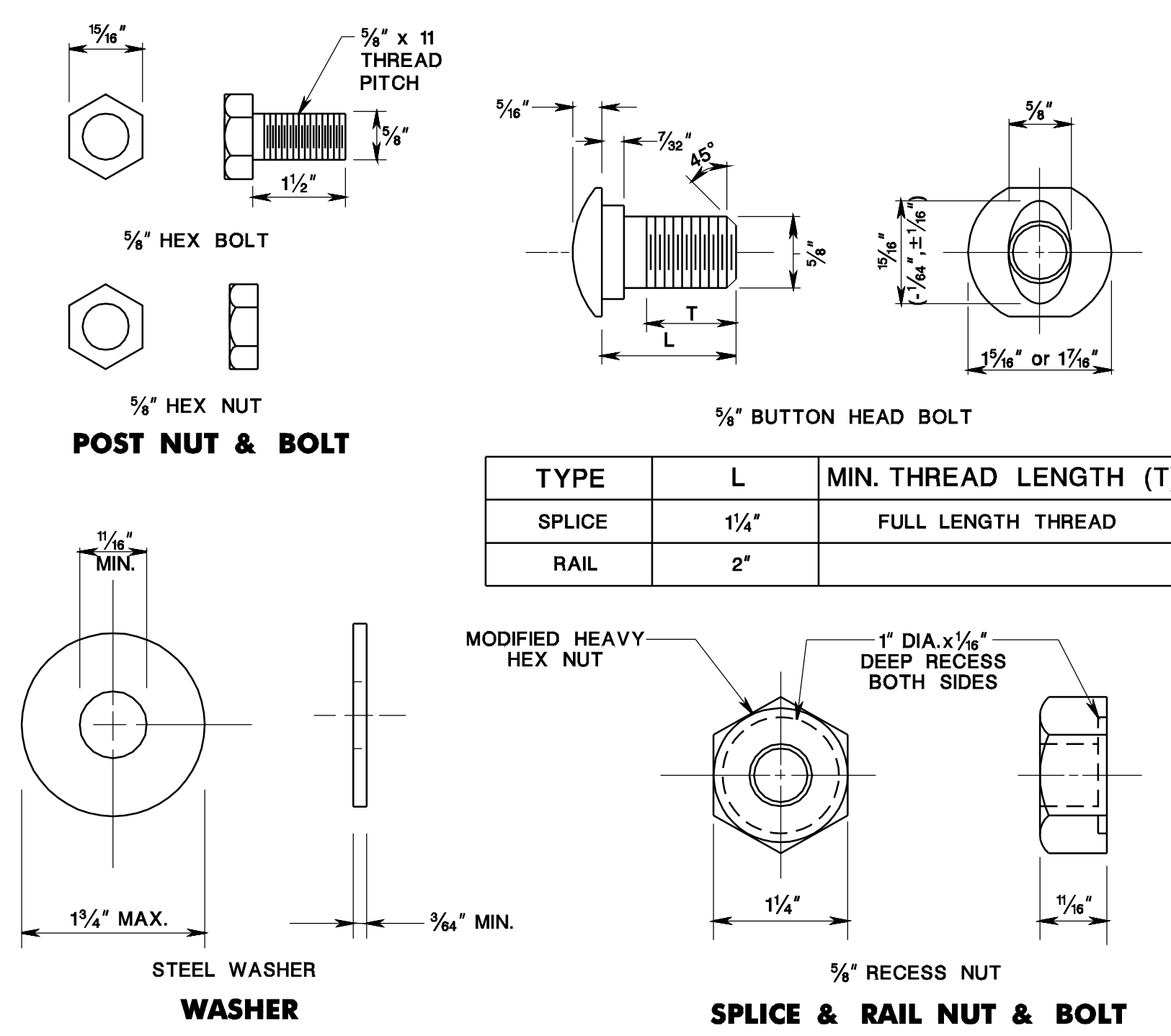
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES
2. RAIL ELEMENTS SHALL BE FURNISHED SHOPCURVED, CONCAVE OR CONVEX, FOR RADII BETWEEN 20 FEET AND 150 FEET
3. SEE CD-609.17.2 FOR TERMINAL TREATMENT



6'-9" POST
 W6X9 OR W6X8.5 STRUCTURAL SHAPE



17" BLOCKOUT
 M14X18 STRUCTURAL SHAPE OR W14X22 STRUCTURAL SHAPE



MODIFIED THRIE BEAM GUIDE RAIL
 N.T.S.

CD-609-17
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-17.1

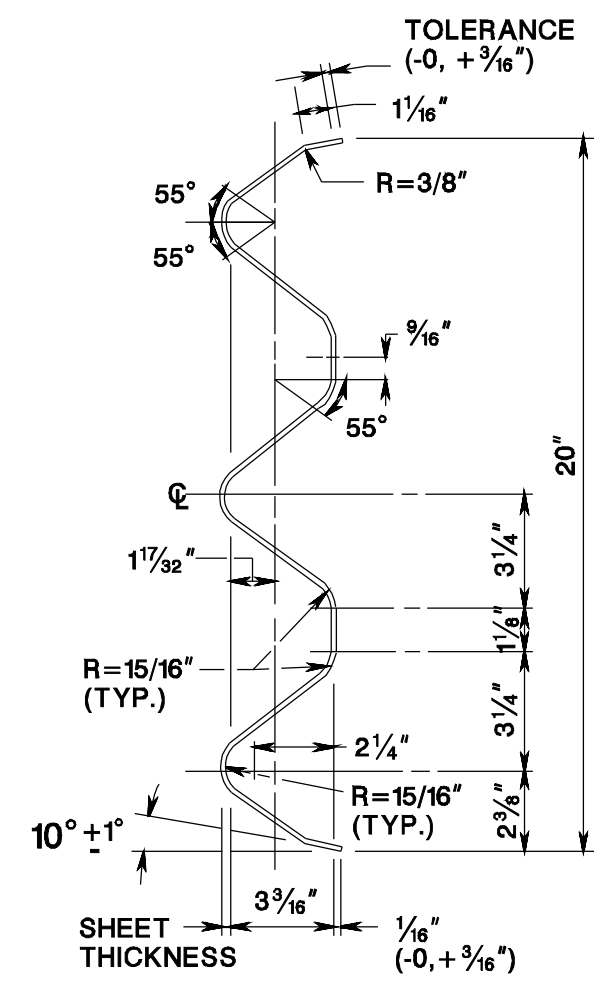
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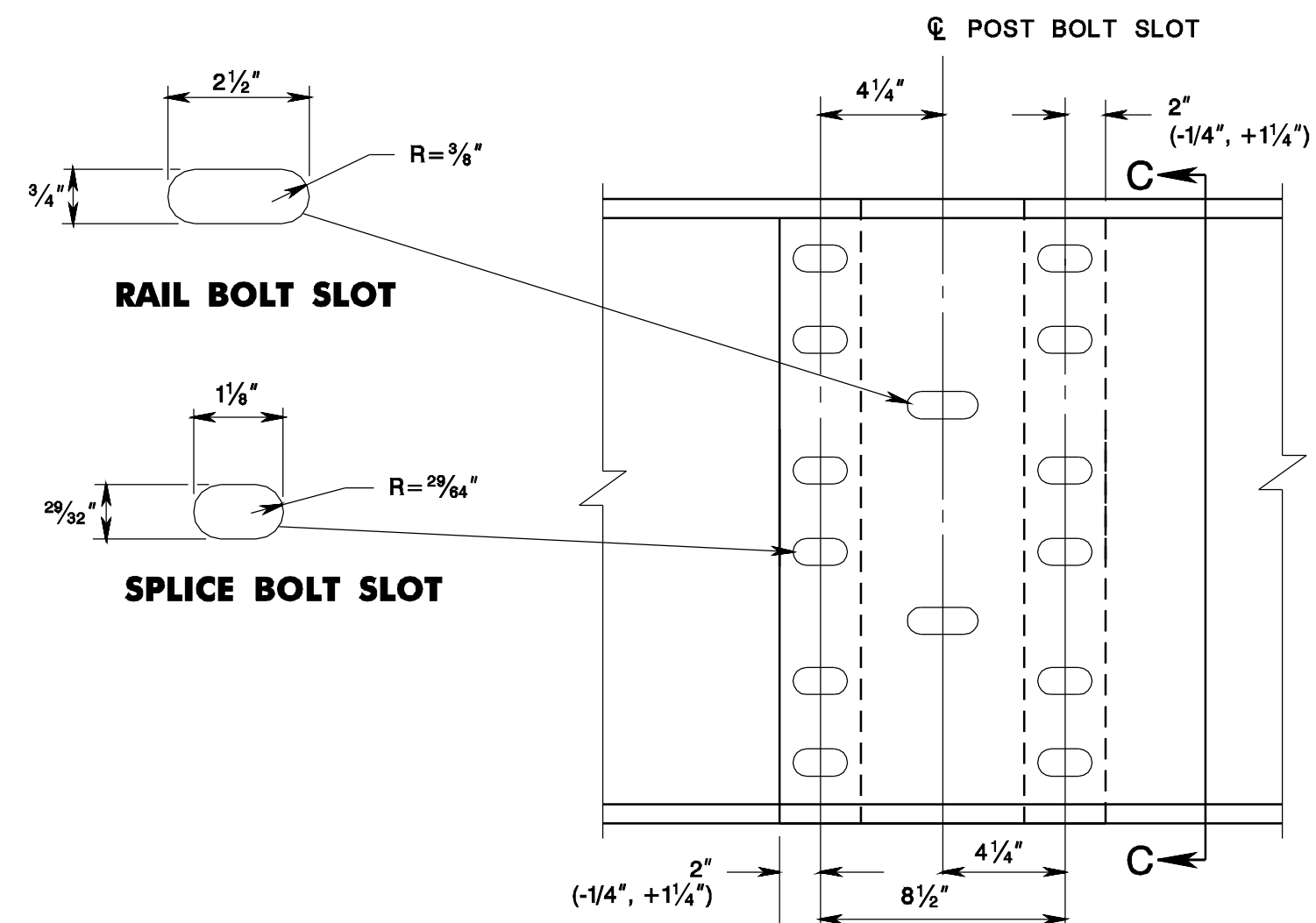
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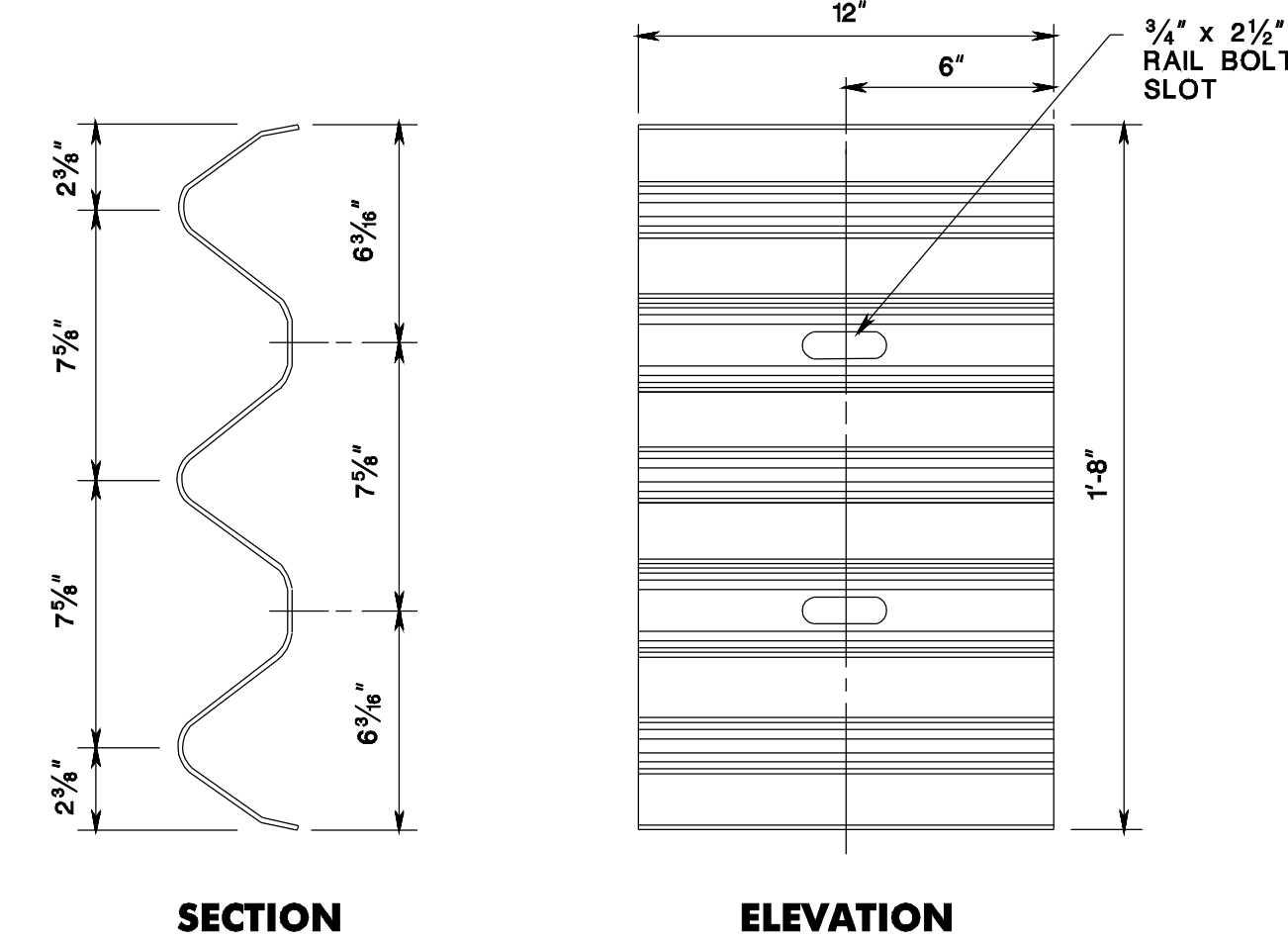
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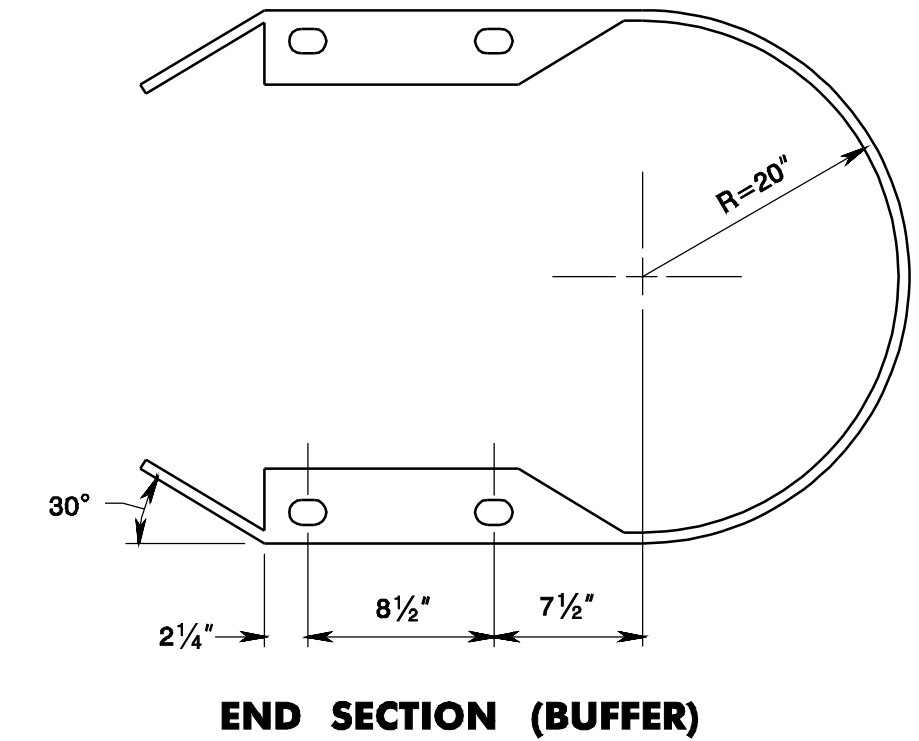
SECTION C-C
THRIE-BEAM RAIL ELEMENT
RAIL ELEMENT SHALL BE SUPPLIED
IN LENGTHS OF 13'-6 1/2" OR 25'-0 1/4"



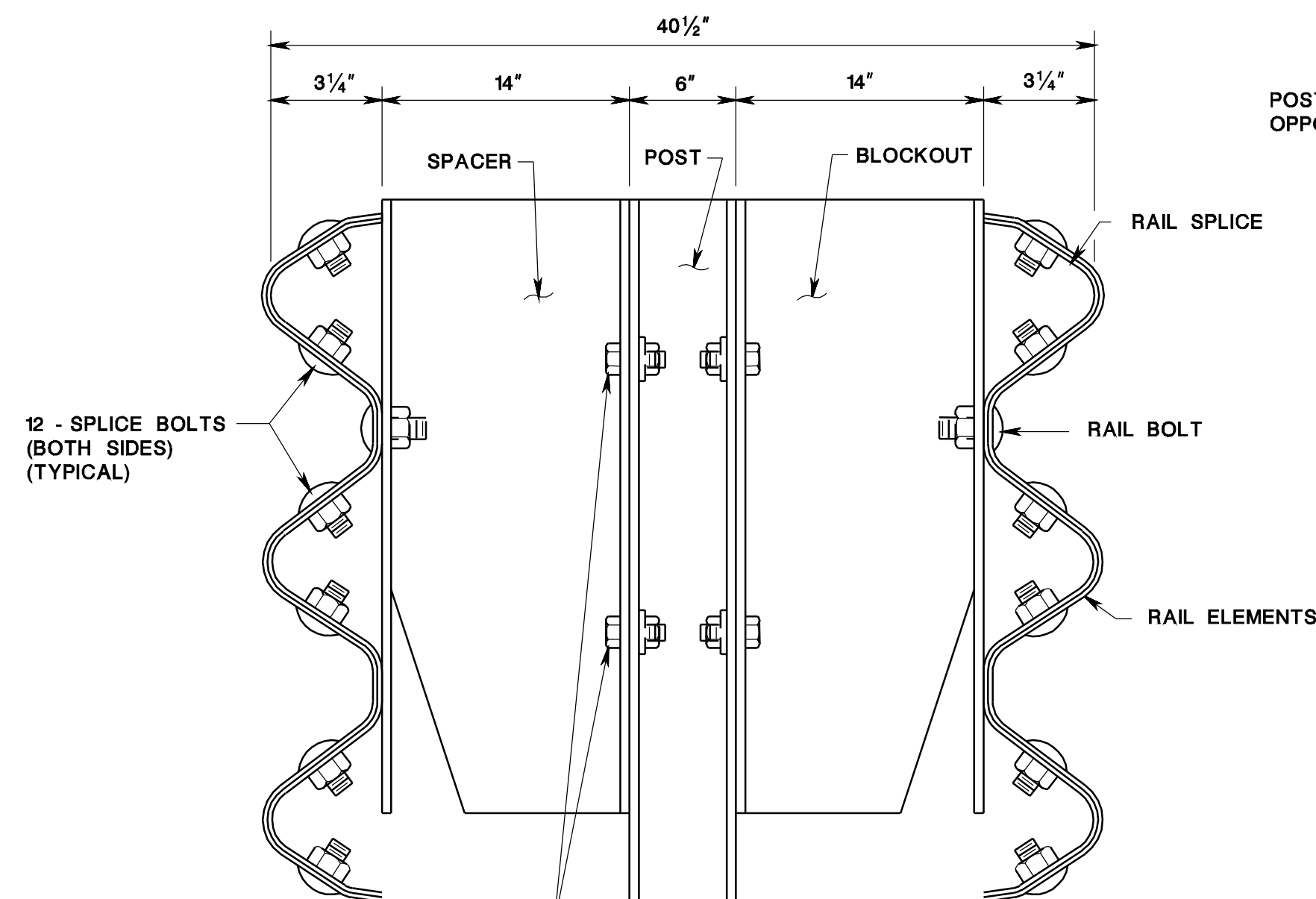
ELEVATION
THRIE BEAM RAIL SPLICE



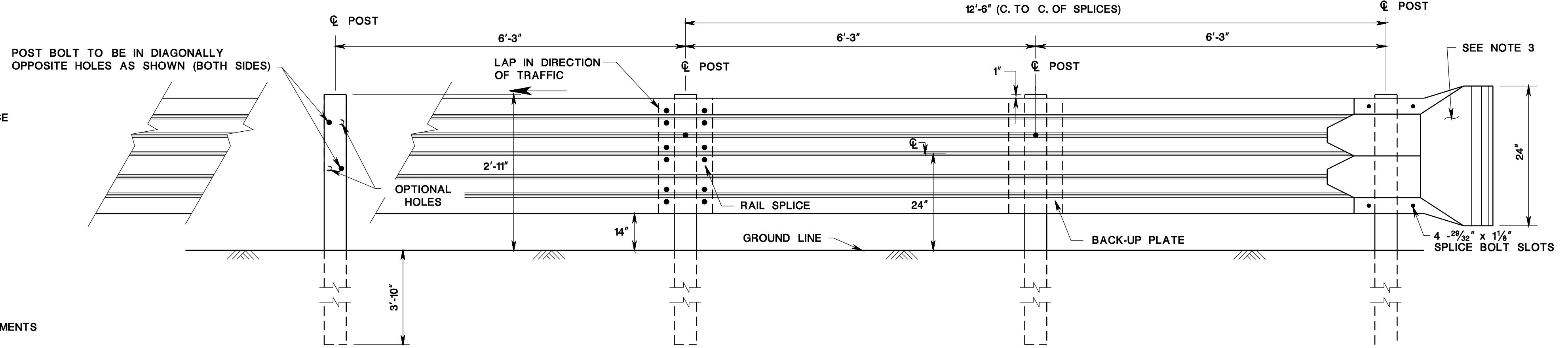
SECTION
ELEVATION
**BACK-UP PLATE AT
NON-SPLICE POSTS**



END SECTION (BUFFER)



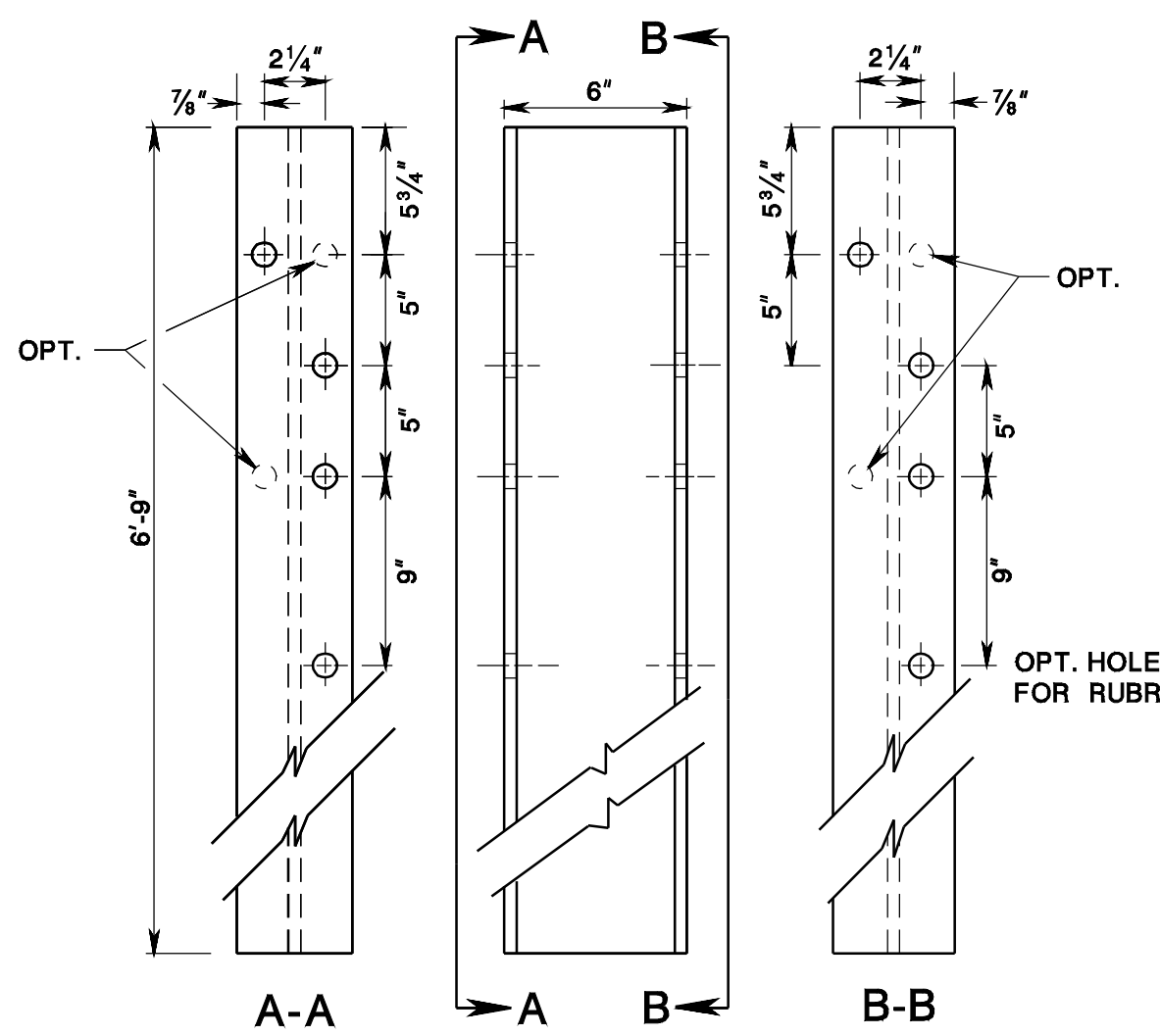
DUAL - FACED POST ASSEMBLY



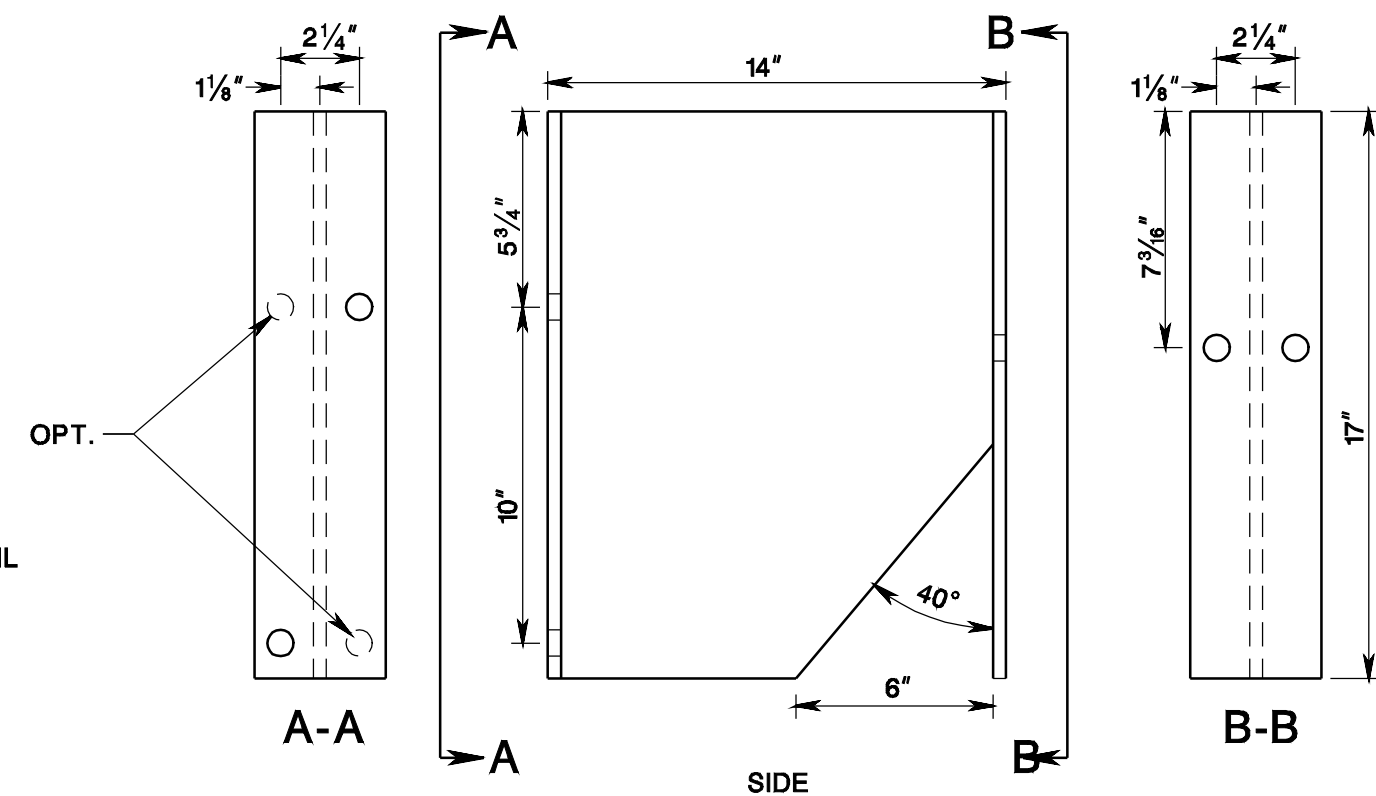
MODIFIED THRIE BEAM GUIDE RAIL, DUAL-FACED

NOTES:

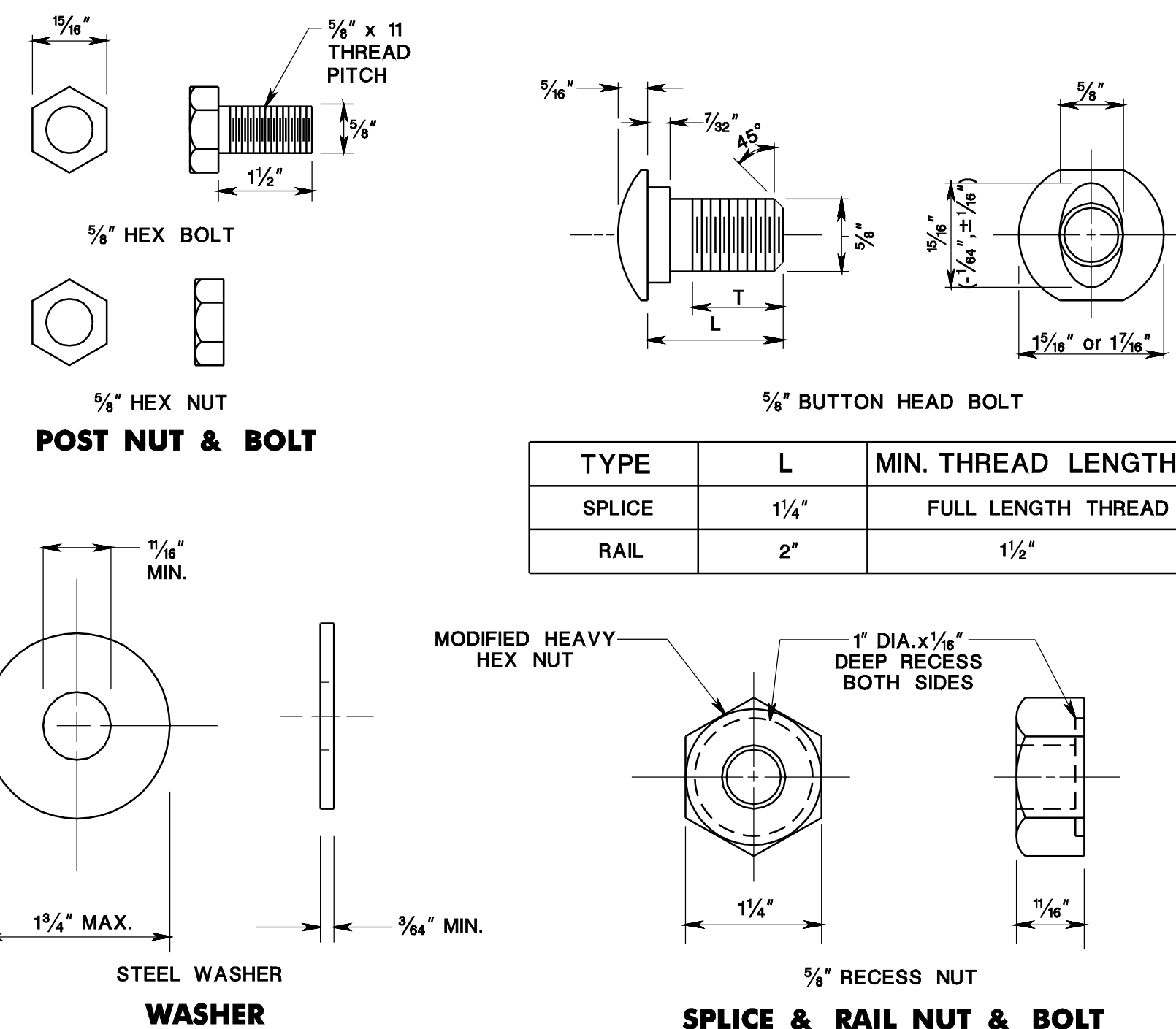
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES
2. RAIL ELEMENTS SHALL BE FURNISHED SHOPCURVED, CONCAVE OR CONVEX, FOR RADII BETWEEN 20 FEET AND 150 FEET
3. USE END SECTION (BUFFER) UNLESS THE CONSTRUCTION PLANS CALL FOR ANOTHER TYPE OF END TREATMENT
4. USE A 25' GUIDE RAIL TRANSITION WHERE A TELESCOPING GUIDE RAIL END TREATMENT IS TO BE ATTACHED TO THE END OF MODIFIED THRIE BEAM DUAL-FACED



6'-9" POST
W6X9 OR W6X8.5 STRUCTURAL SHAPE



17" BLOCKOUT
M14X18 STRUCTURAL SHAPE
OR
W14X22 STRUCTURAL SHAPE



TYPE	L	MIN. THREAD LENGTH (T)
SPLICE	1 1/4"	FULL LENGTH THREAD
RAIL	2"	1 1/2"

**MODIFIED THRIE
BEAM GUIDE RAIL, DUAL-FACED**

N.T.S.

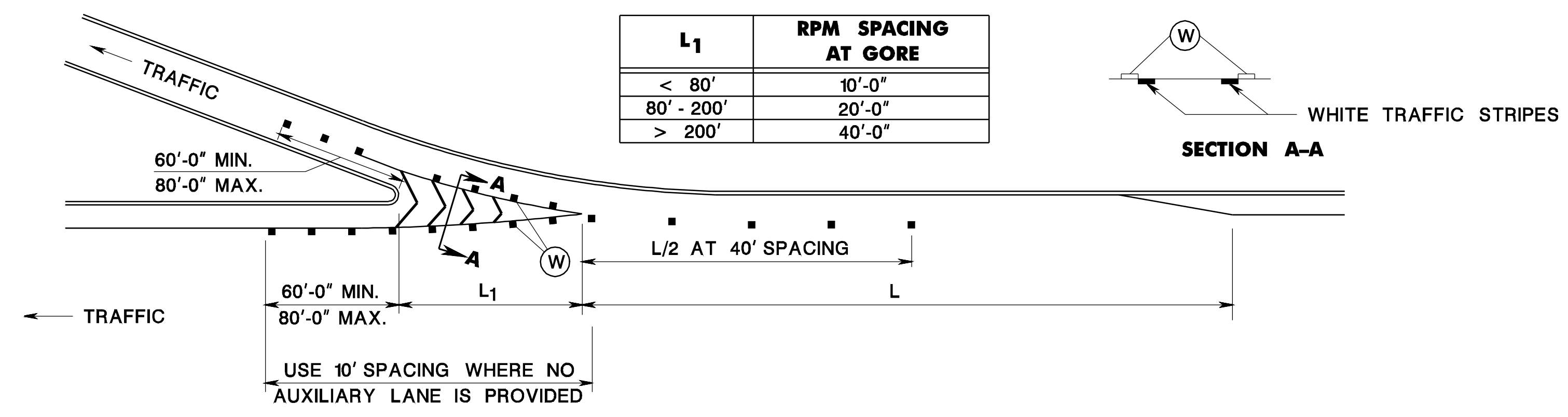
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-18

CD-612-18.1

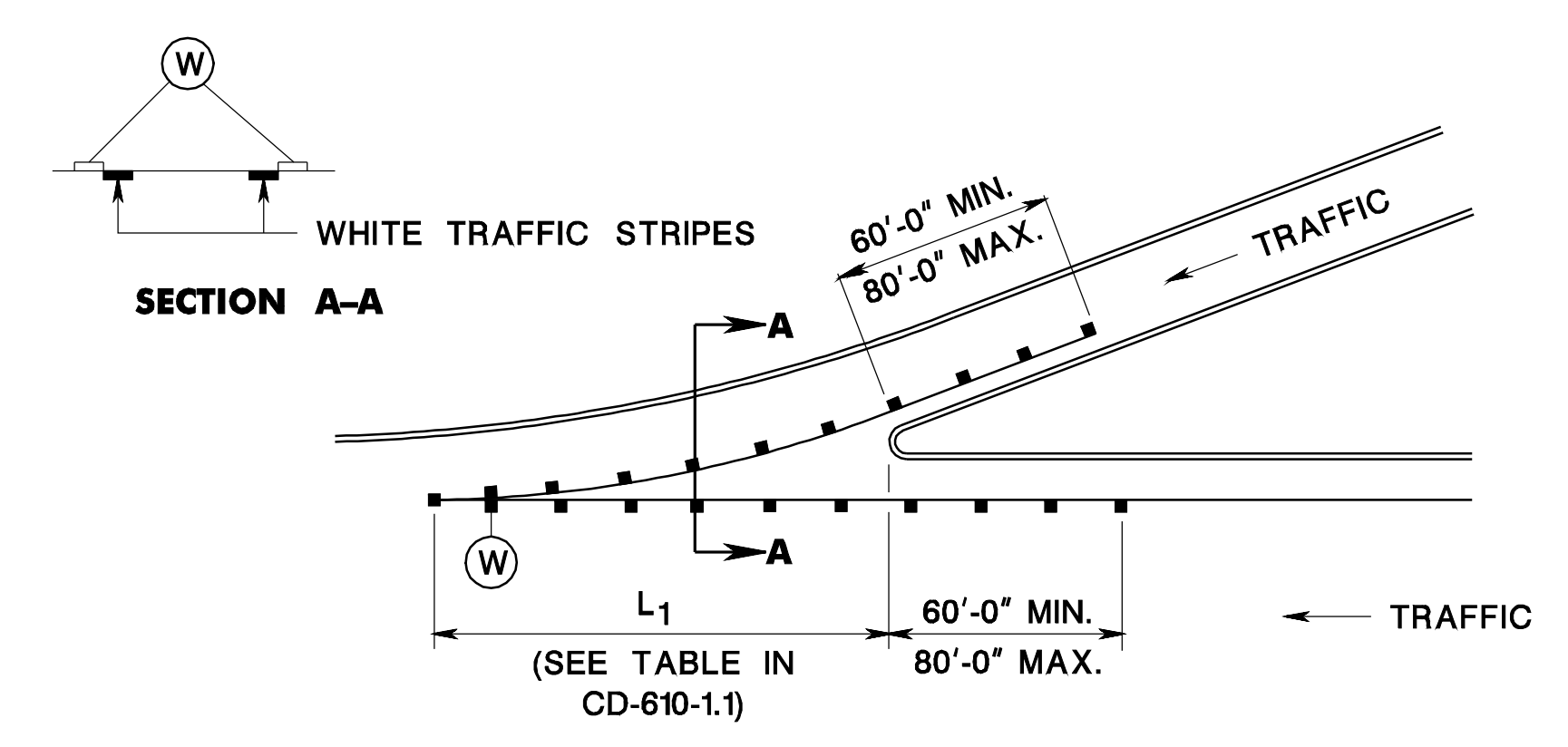
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 BDC07D-01-ORIGINAL SHEET



TYPICAL DECELERATION LANE TREATMENT

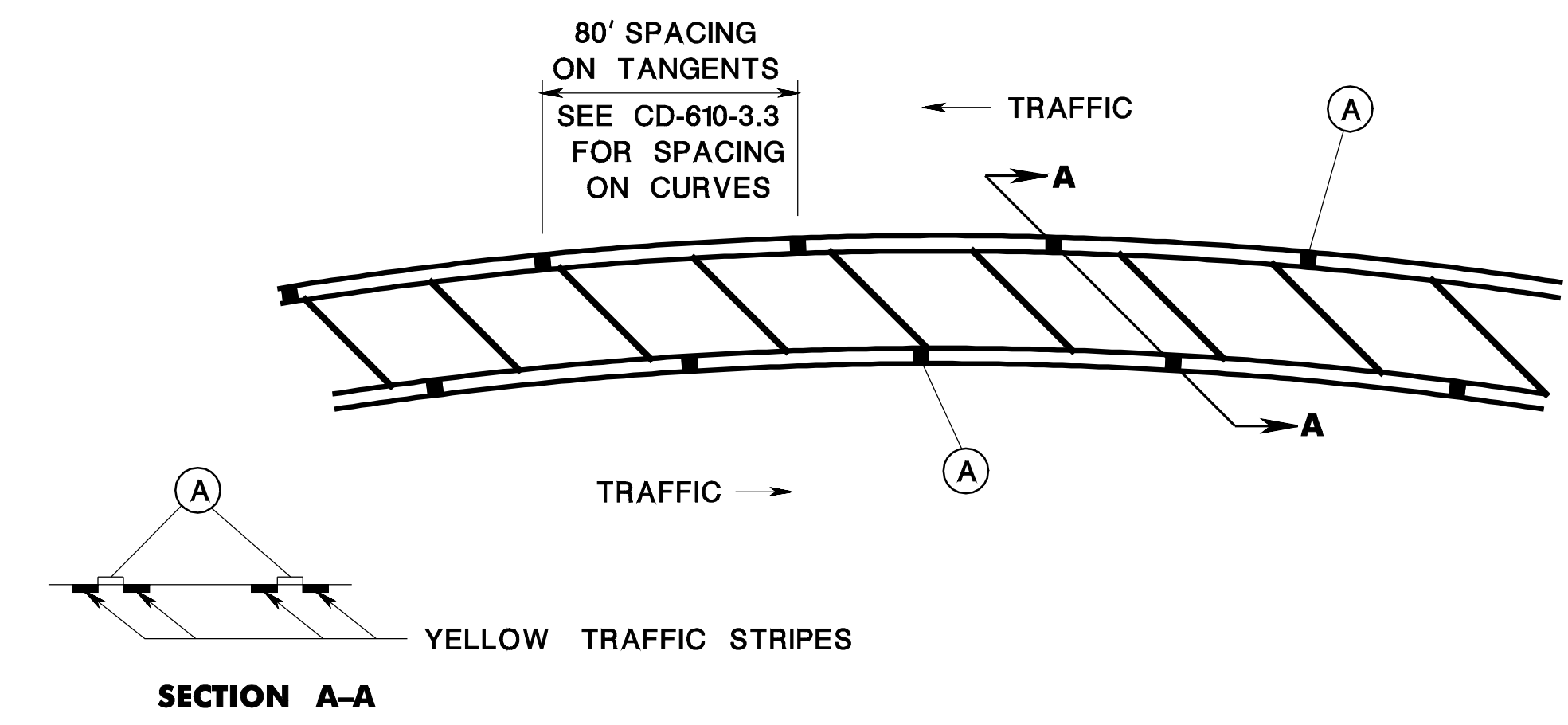
CD-610-1.1

CD-610-1.2



TYPICAL ACCELERATION LANE TREATMENT

CD-610-1.3



TYPICAL PAVED MEDIAN TREATMENT

CD-610-1.4

RAISED PAVEMENT MARKER, (RPM) LOCATION

N.T.S.

CD-610-1
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

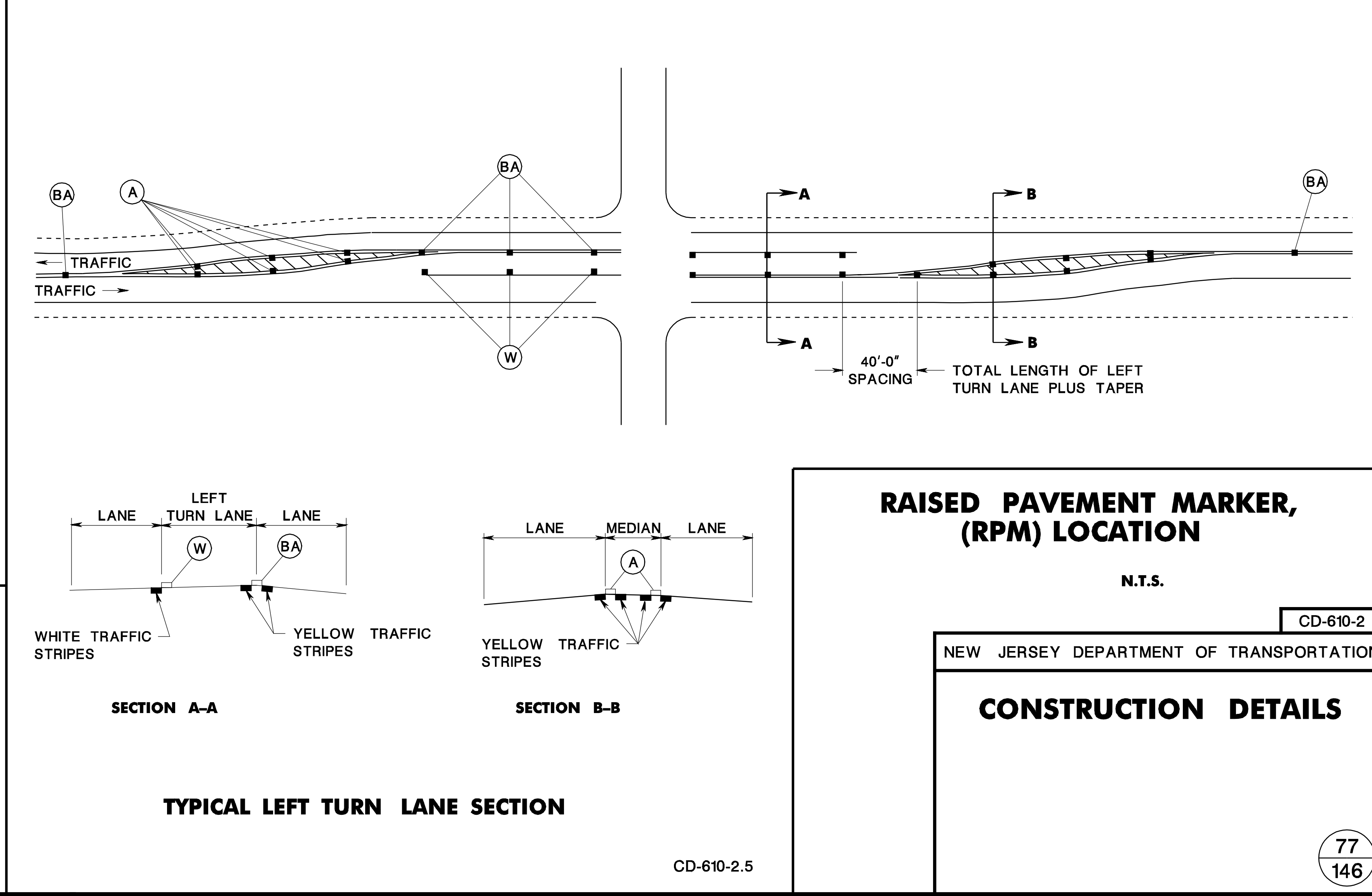
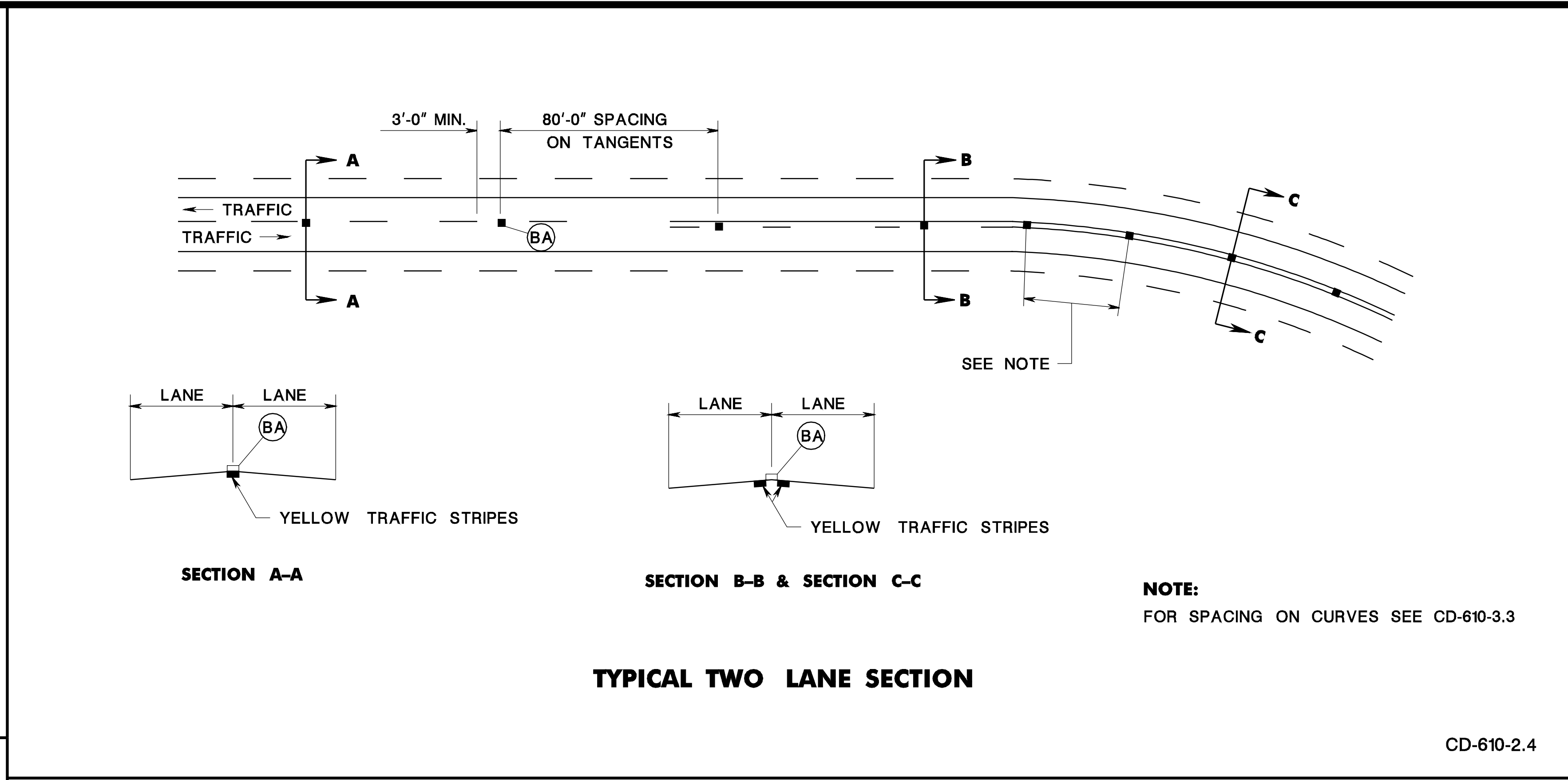
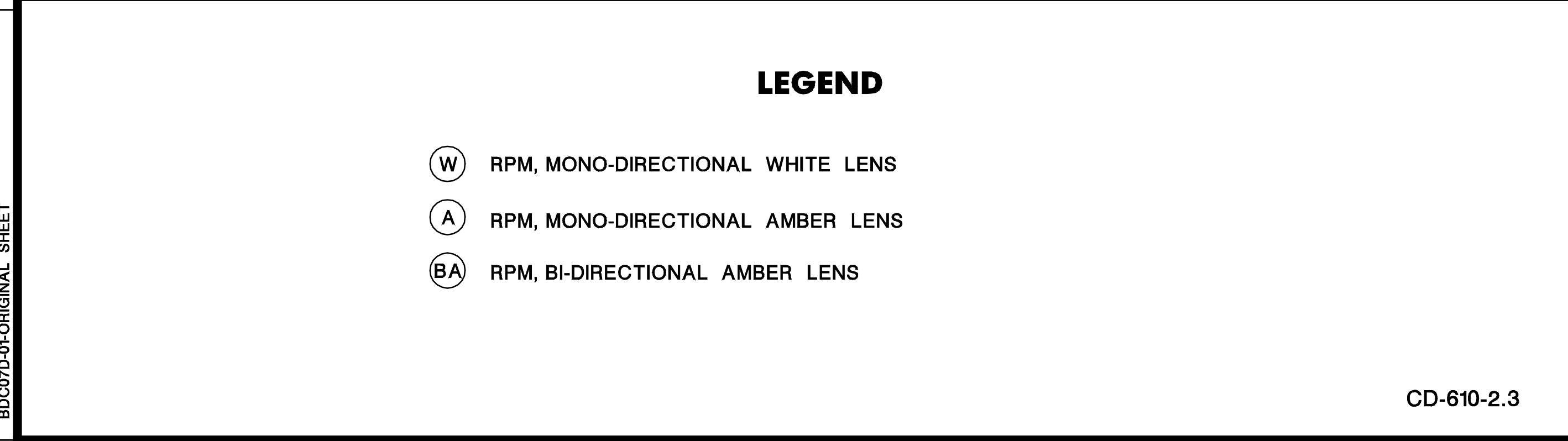
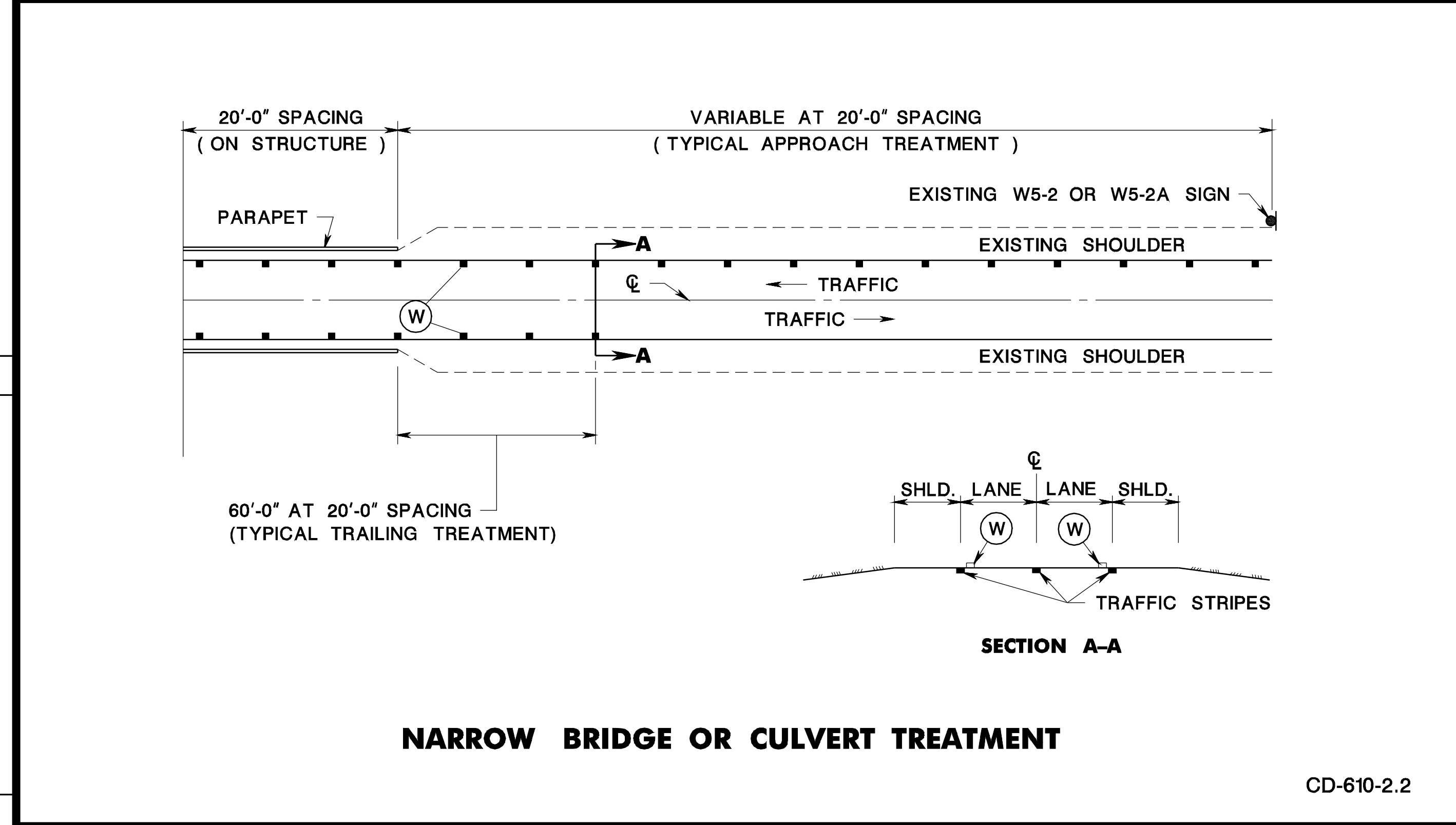
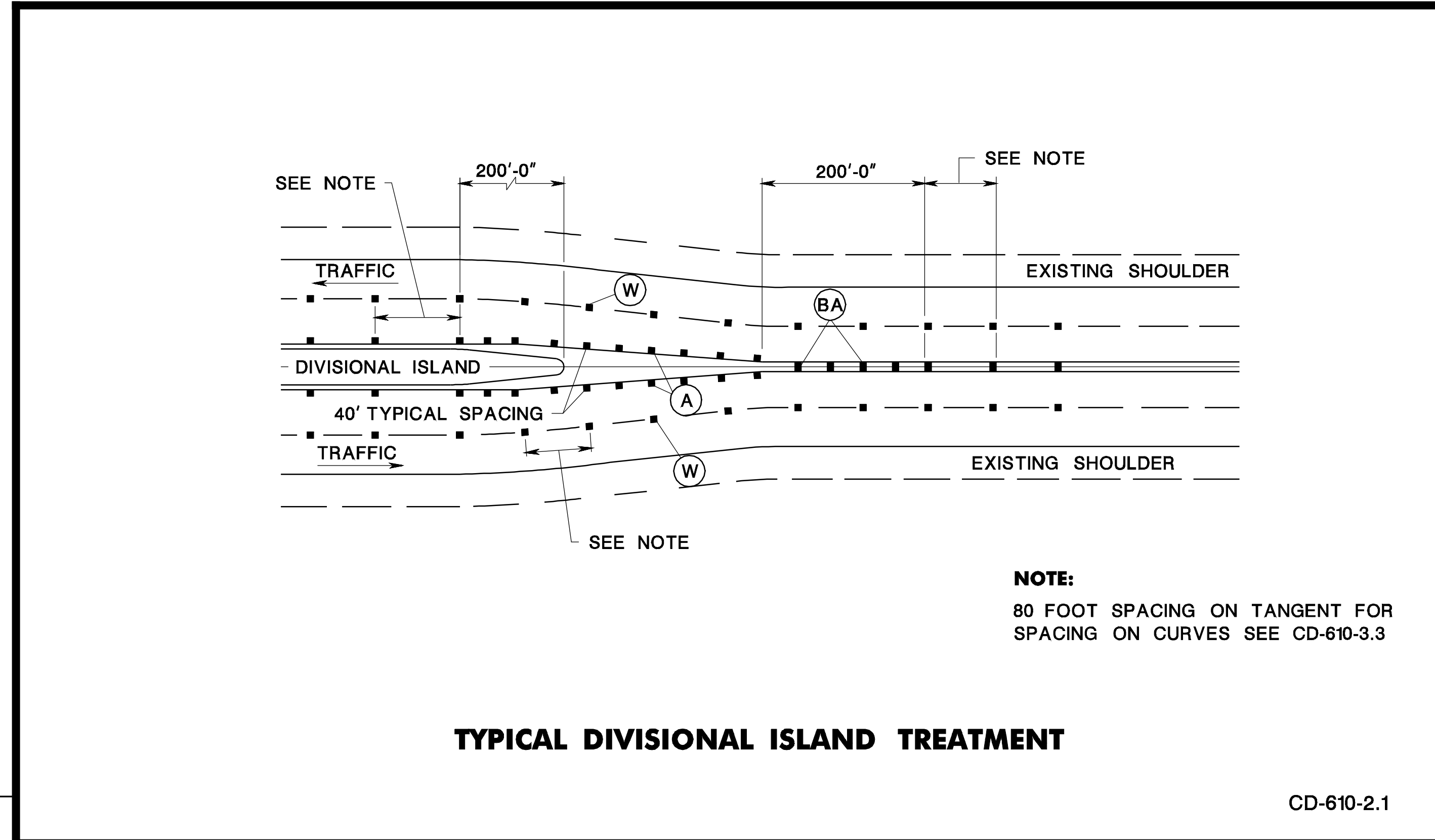
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BDC08D-01LEGEND
BDC07D-01ORIGINAL SHEET



RAISED PAVEMENT MARKER, (RPM) LOCATION

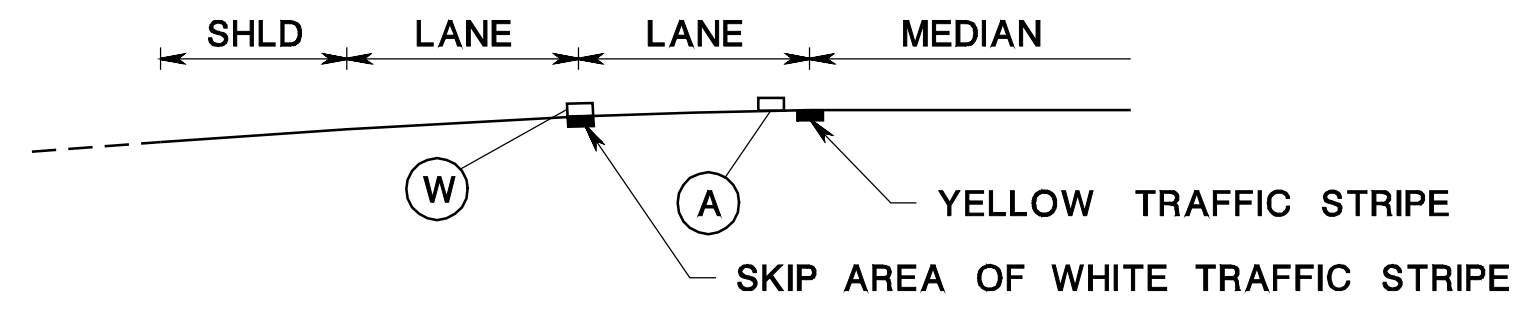
N.T.S.

CD-610-2

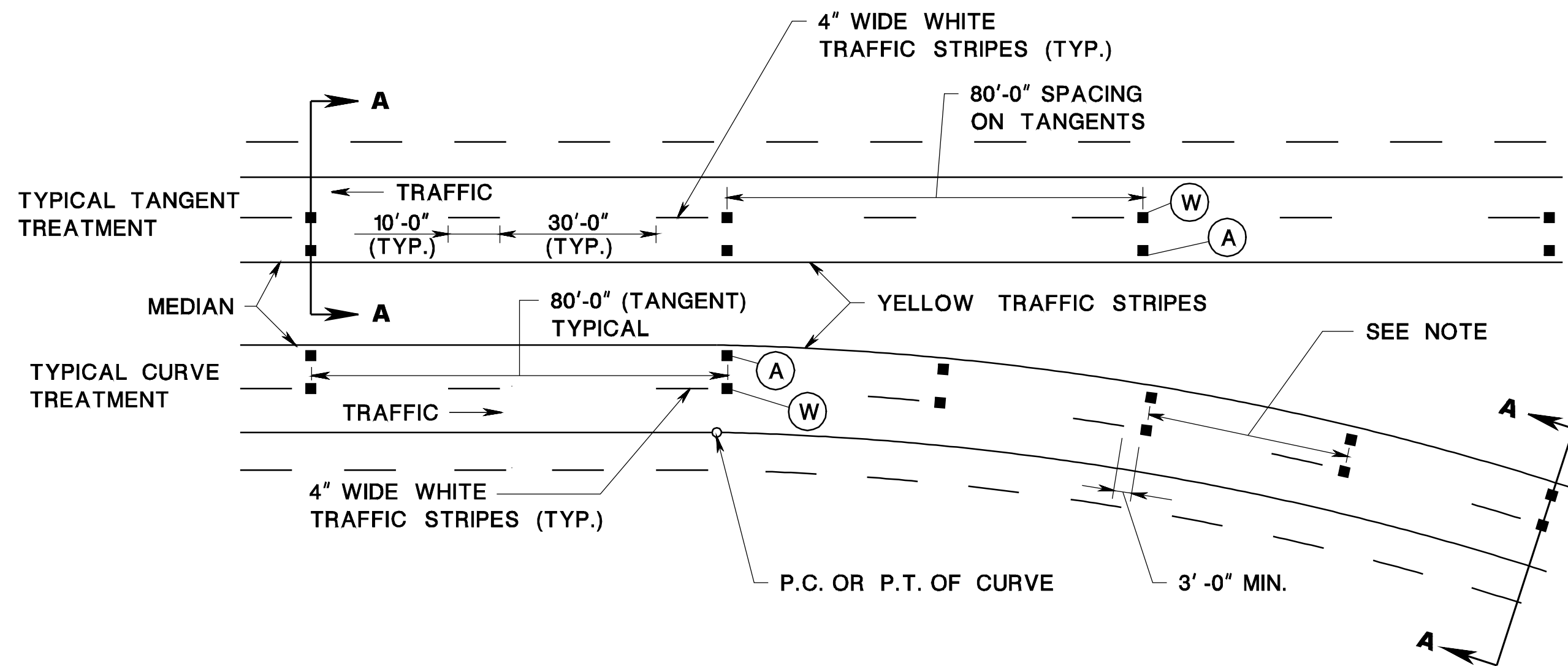
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

77
146



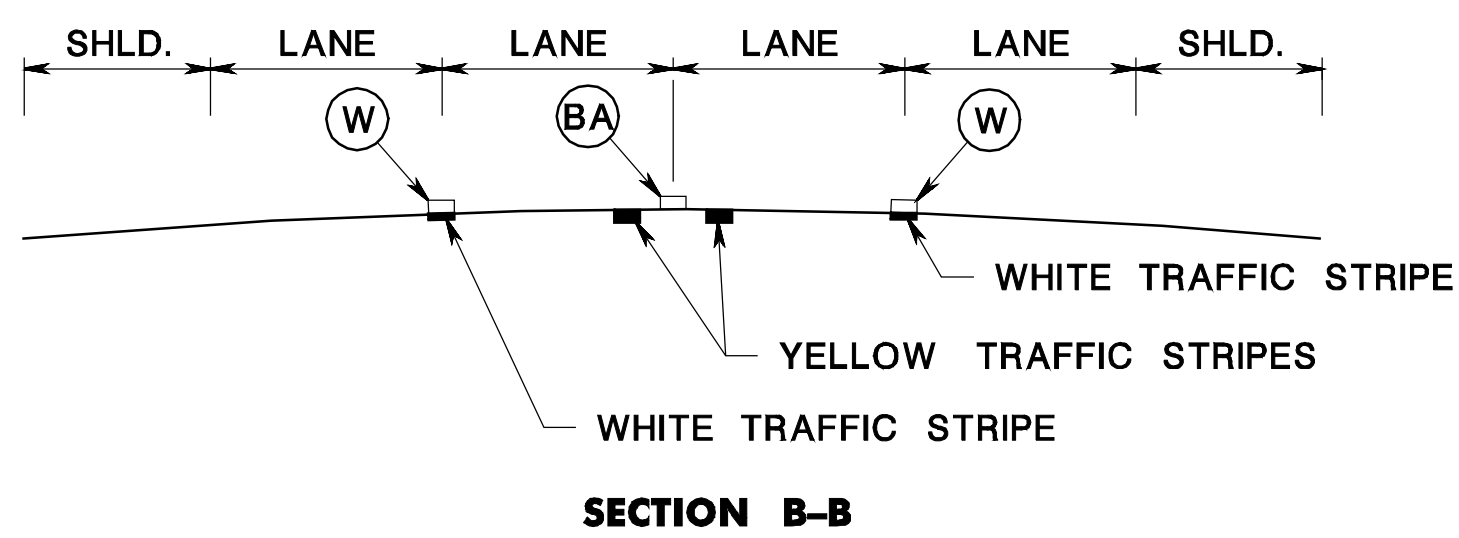
SECTION A-A (TYP.)



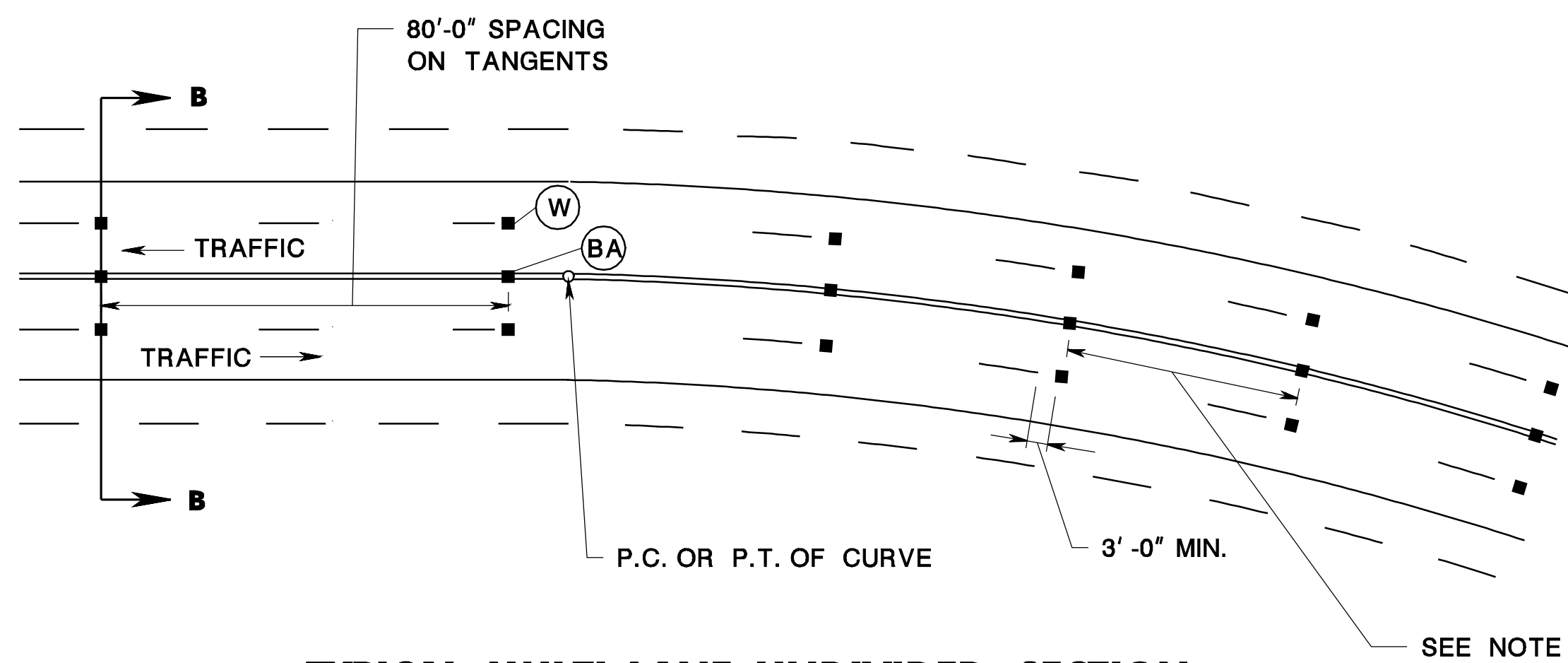
TYPICAL MULTI-LANE DIVIDED SECTION

NOTE:
FOR SPACING ON CURVES SEE CD-610-3.3

CD-610-3.1



SECTION B-B



TYPICAL MULTI-LANE UNDIVIDED SECTION

NOTE:
FOR SPACING ON CURVES SEE CD-610-3.3

CD-610-3.2

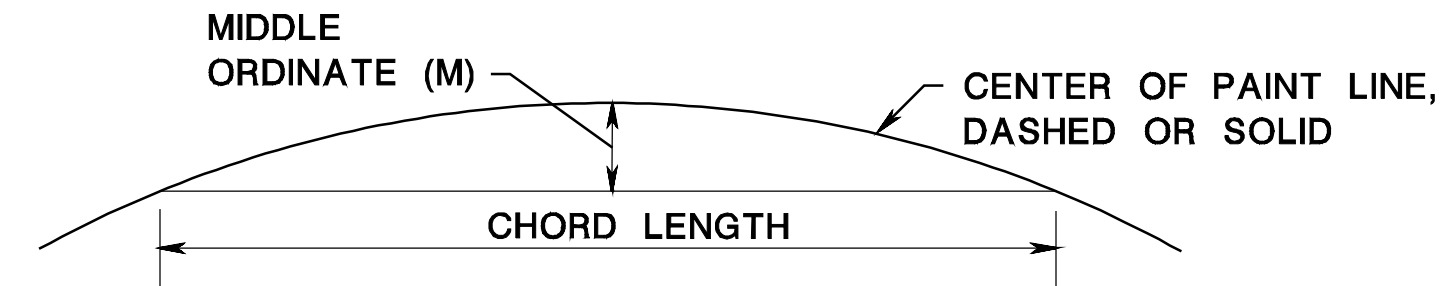


TABLE 1

CHORD LENGTH	MIDDLE ORDINATE	RADIUS	REFLECTOR SPACING
200'-0"	$M \geq 2'-7"$	$R \leq 1910'$	40'-0"
200'-0"	$M < 2'-7"$	$R > 1910'$	80'-0"

- USE 200 FOOT TAPE.
- ESTABLISH 200 FOOT CHORD.
- MEASURE MIDDLE ORDINATE PERPENDICULAR TO CHORD 100 FOOT FROM EITHER END.
- DETERMINE SPACING FROM TABLE 1.
- WHEN DIFFICULT TO DETERMINE MIDDLE ORDINATE, 80 FOOT OR 40 FOOT SPACING WILL BE AS DIRECTED BY THE DEPARTMENT.

< LESS THAN
 \leq EQUAL TO OR LESS THAN
 > GREATER THAN
 \geq EQUAL TO OR GREATER THAN

METHOD FOR DETERMINING RPM SPACING ON HORIZONTAL CURVES

CD-610-3.3

LEGEND

- (W) RPM, MONO-DIRECTIONAL WHITE LENS
- (A) RPM, MONO-DIRECTIONAL AMBER LENS
- (BA) RPM, BI-DIRECTIONAL AMBER LENS

CD-610-3.4

RAISED PAVEMENT MARKER, (RPM) LOCATION

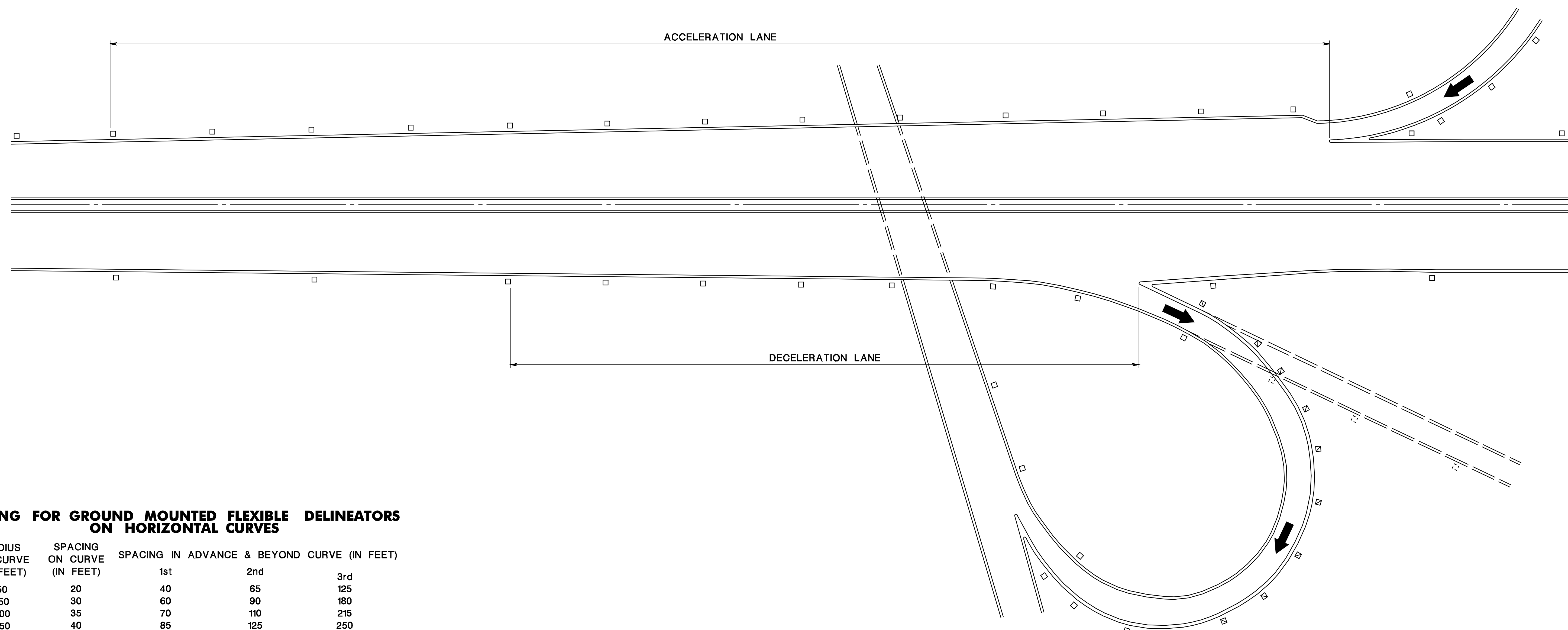
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CD-610-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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SPACING FOR GROUND MOUNTED FLEXIBLE DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (IN FEET)	SPACING ON CURVE (IN FEET)	SPACING IN ADVANCE & BEYOND CURVE (IN FEET)		
		1st	2nd	3rd
50	20	40	65	125
150	30	60	90	180
200	35	70	110	215
250	40	85	125	250
300	50	95	145	290
400	55	110	170	300
500	65	125	190	300
600	70	140	210	300
700	75	150	230	300
800	80	165	245	300
900	85	175	260	300
1000	90	185	275	300

SPACING FOR SPECIFIC RADII NOT SHOWN MAY BE INTERPOLATED FROM TABLE. THE MINIMUM SPACING SHALL BE 20 FEET. THE SPACING ON CURVES SHALL NOT EXCEED 300 FEET. IN ADVANCE OF OR BEYOND A CURVE, AND PROCEEDING AWAY FROM THE END OF THE CURVE, THE SPACING OF THE FIRST DELINEATOR IS 2S, THE SECOND 3S, AND THE THIRD 6S BUT NOT TO EXCEED 300 FEET. S REFERS TO THE DELINEATOR SPACING FOR SPECIFIC RADII COMPUTED FROM THE FORMULA $S = 3\sqrt{R - 50}$

LEGEND

- WHITE FLEXIBLE DELINEATORS ON MAINLINE AT 200 FEET SPACING, ON RAMPS, ACCELERATION AND DECELERATION LANES 100 FEET MAXIMUM SPACING.
- ▣ YELLOW FLEXIBLE DELINEATORS ON RAMPS 100 FEET MAXIMUM SPACING.

INSTALLATION, DIMENSIONS, COLOR AND DETAILS TO FOLLOW STANDARDS IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

GROUND MOUNTED FLEXIBLE DELINEATORS
N.T.S.

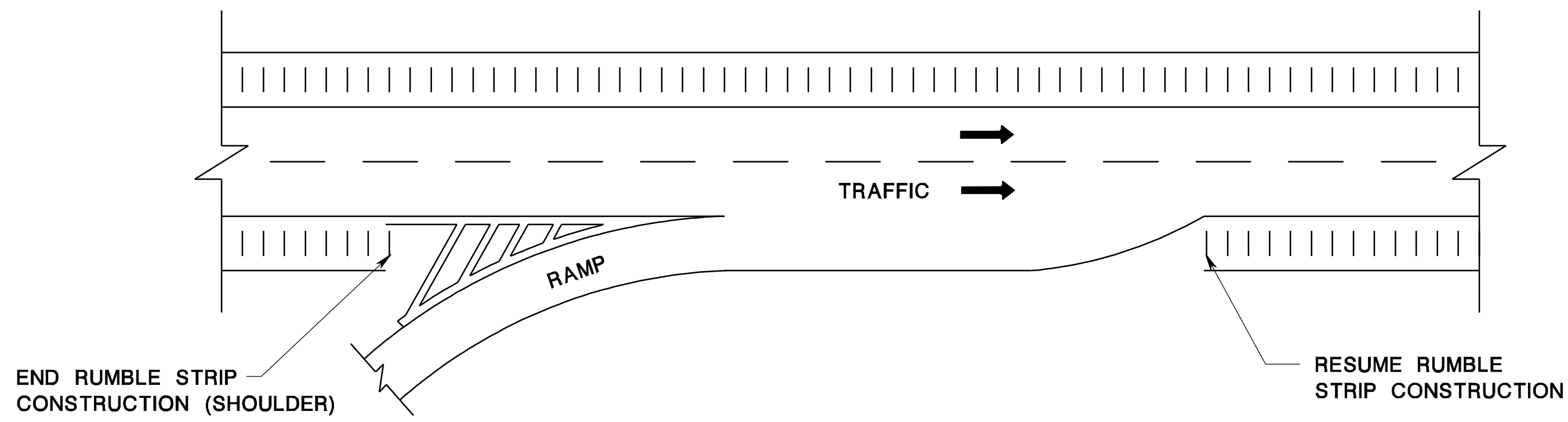
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CONSTRUCTION DETAILS

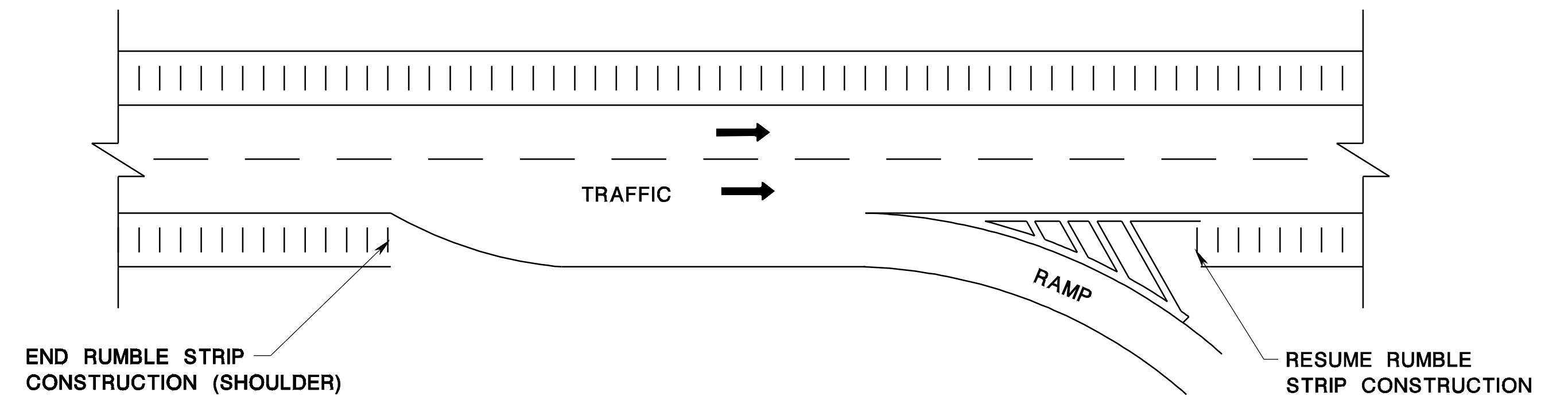
CD-610-4

CD-610-4.1

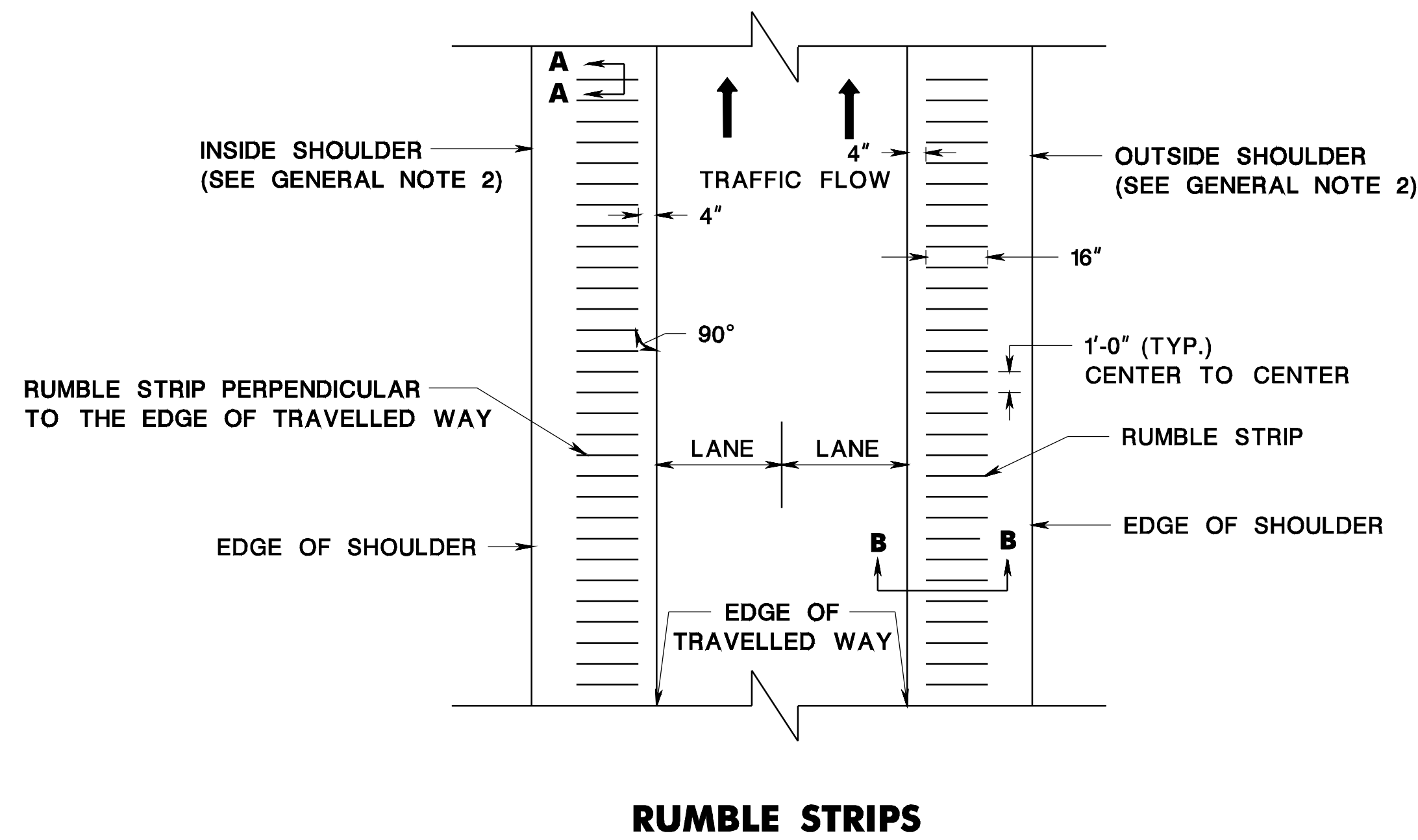
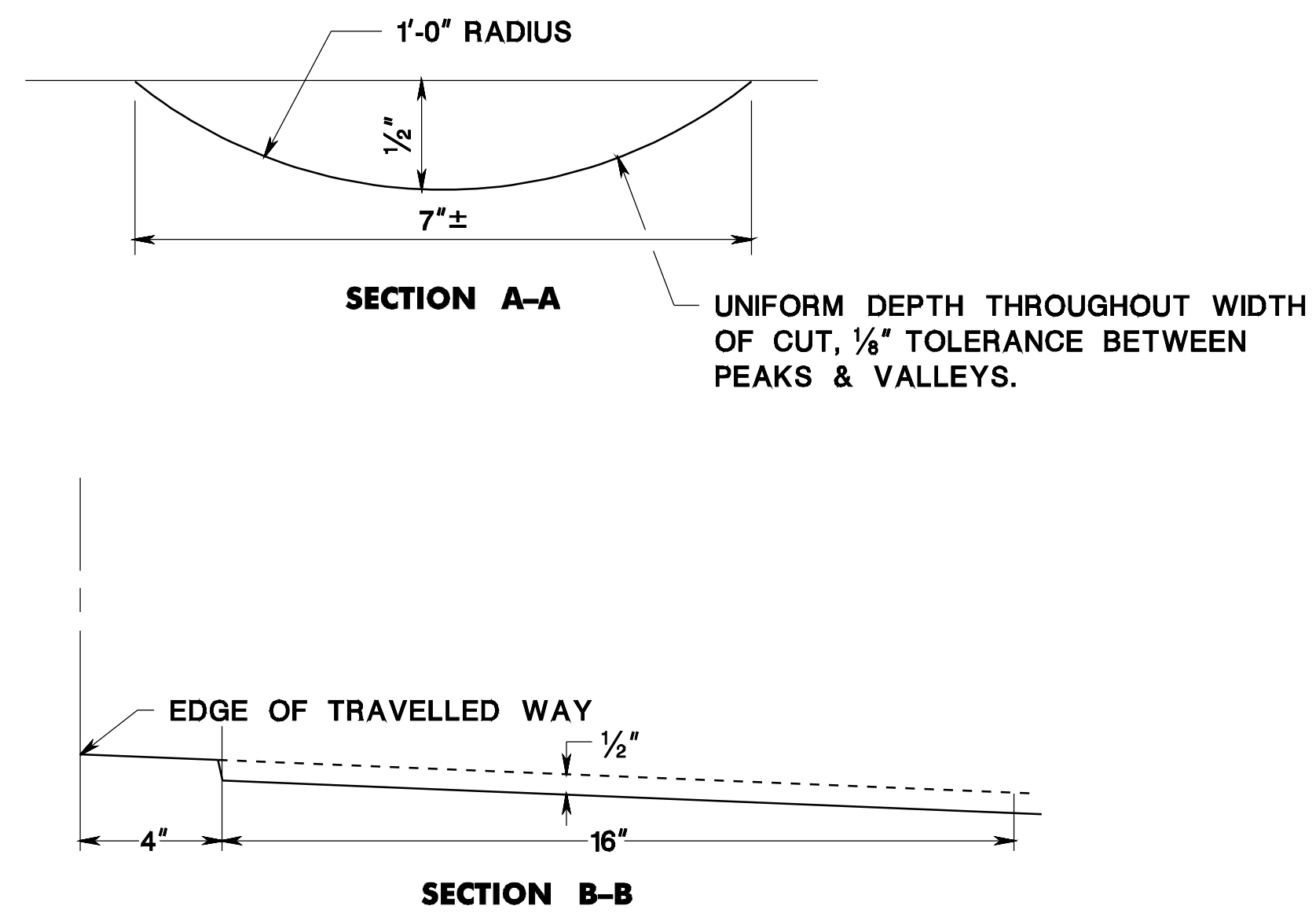
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TYPICAL ACCELERATION LANE (RUMBLE STRIP CONSTRUCTION)



TYPICAL DECELERATION LANE (RUMBLE STRIP CONSTRUCTION)



RUMBLE STRIPS

GENERAL NOTES:

1. THE MINIMUM LENGTH OF RUMBLE STRIPS MEASURED LONGITUDINALLY ALONG THE SHOULDER SHALL BE 100 FEET.
2. RUMBLE STRIPS SHALL BE CONSTRUCTED ON 3 FEET OR WIDER INSIDE SHOULDERS AND 8 FEET OR WIDER OUTSIDE SHOULDERS.
3. RUMBLE STRIPS SHALL NOT BE CONSTRUCTED ACROSS BRIDGE DECKS.
4. RUMBLE STRIPS SHALL NOT BE CONSTRUCTED WITHIN 100 FEET BEFORE AND 100 FEET AFTER THE P.C. OF INTERSECTING ROADWAYS AND DRIVEWAYS.

NOTE:

HMA = HOT MIX ASPHALT

RUMBLE STRIPS

N.T.S.

BDC0705-ORIGINAL SHEET

CD-610-5
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-610-5.1



M1 - 1 [1, 2 DIGITS - 24" x 24"]
(4 S.F.)
[3 DIGITS - 30" x 24"]
(5 S.F.)

M1 - 1 (S) [1, 2 DIGITS - 36" x 36"]
(9 S.F.)
[3 DIGITS - 45" x 36"]
(11.3 S.F.)



M1 - 4 [1, 2 DIGITS - 24" x 24"]
(4 S.F.)
[3 DIGITS - 30" x 24"]
(5 S.F.)

M1 - 4 (S) [1, 2 DIGITS - 36" x 36"]
(9 S.F.)
[3 DIGITS - 45" x 36"]
(11.3 S.F.)



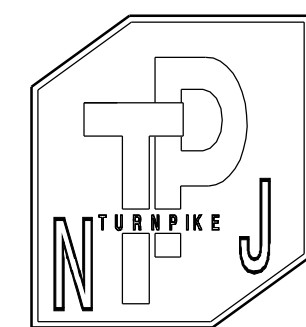
M1 - 5 [1, 2 DIGITS - 24" x 24"]
(4 S.F.)
[3 DIGITS - 30" x 24"]
(5 S.F.)

M1 - 5 (S) [1, 2 DIGITS - 36" x 36"]
(9 S.F.)
[3 DIGITS - 45" x 36"]
(11.3 S.F.)



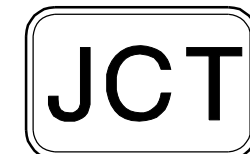
M1 - 6 [1, 2, 3 DIGITS - 24" x 24"]
(4 S.F.)

M1 - 6 (S) [1, 2, 3 DIGITS - 36" x 36"]
(9 S.F.)



NJTP - 1 [24" x 24"]
(4 S.F.)

NJTP - 1 (S) [36" x 36"]
(9 S.F.)



M2 - 1 [21" x 15"]
(2.2 S.F.)

M2 - 1 (S) [32" x 23"]
(5.1 S.F.)



M3 - 1 [24" x 12"]
(2 S.F.)

M3 - 1 (S) [36" x 18"]
(4.5 S.F.)



M3 - 2 [24" x 12"]
(2 S.F.)

M3 - 2 (S) [36" x 18"]
(4.5 S.F.)



M3 - 3 [24" x 12"]
(2 S.F.)

M3 - 3 (S) [36" x 18"]
(4.5 S.F.)



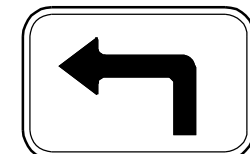
M3 - 4 [24" x 12"]
(2 S.F.)

M3 - 4 (S) [36" x 18"]
(4.5 S.F.)



M4 - 5 [24" x 12"]
(2 S.F.)

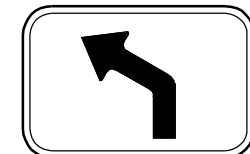
M4 - 5 (S) [30" x 15"]
(3 S.F.)



(L or R)

M5 - 1 [21" x 15"]
(2.2 S.F.)

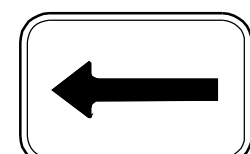
M5 - 1 (S) [32" x 23"]
(5.1 S.F.)



(L or R)

M5 - 2 [21" x 15"]
(2.2 S.F.)

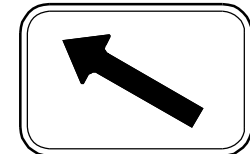
M5 - 2 (S) [32" x 23"]
(5.1 S.F.)



(L or R)

M6 - 1 [21" x 15"]
(2.2 S.F.)

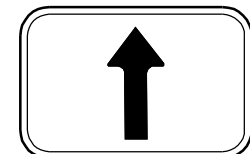
M6 - 1 (S) [32" x 23"]
(5.1 S.F.)



(L or R)

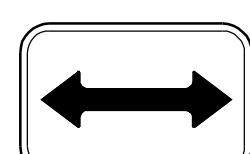
M6 - 2 [21" x 15"]
(2.2 S.F.)

M6 - 2 (S) [32" x 23"]
(5.1 S.F.)



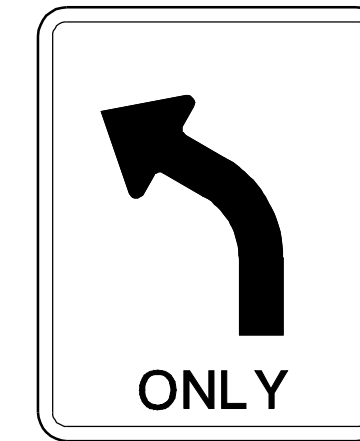
M6 - 3 [21" x 15"]
(2.2 S.F.)

M6 - 3 (S) [32" x 23"]
(5.1 S.F.)



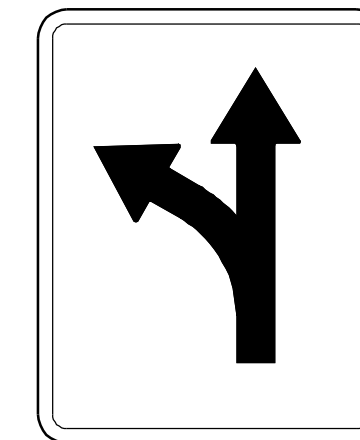
M6 - 4 [21" x 15"]
(2.2 S.F.)

M6 - 4 (S) [32" x 23"]
(5.1 S.F.)



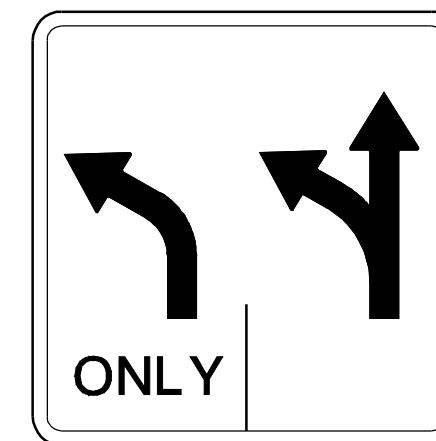
R3 - 5 [30" x 36"]
(7.5 S.F.)
OVERHEAD

R3 - 5 [30" x 30"]
(6.3 S.F.)
GROUND MOUNT

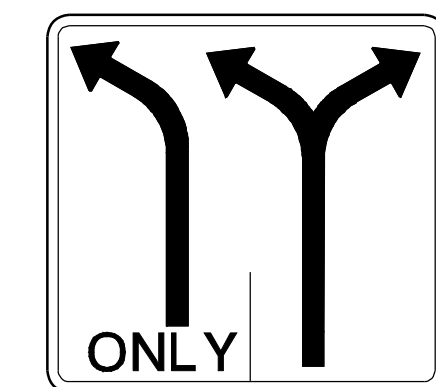


R3 - 6 [30" x 36"]
(7.5 S.F.)
OVERHEAD

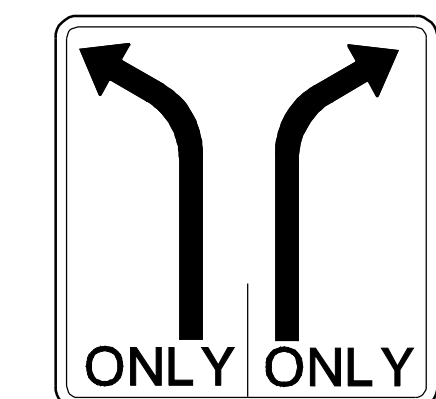
R3 - 6 [30" x 30"]
(6.3 S.F.)
GROUND MOUNT



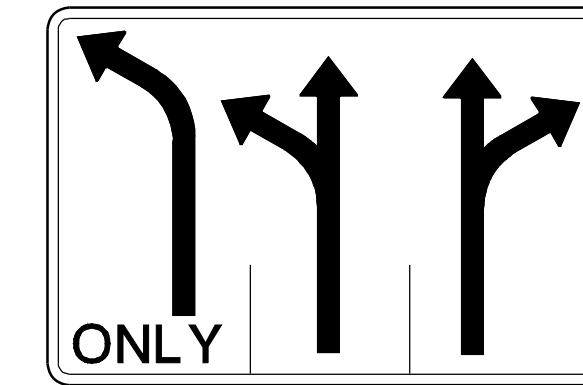
R3 - 8 [30" x 30"]
(6.3 S.F.)



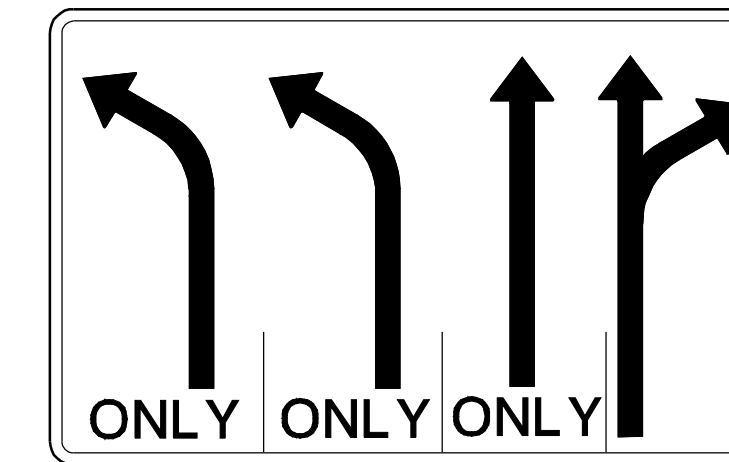
R(NJ)3 - 8A [36" x 30"]
(7.5 S.F.)



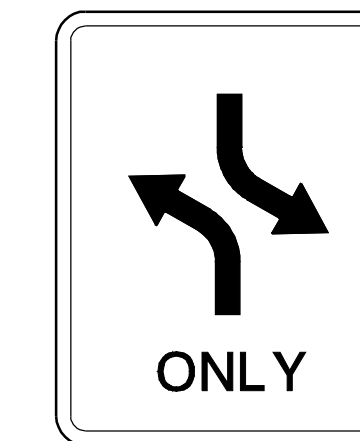
R(NJ)3 - 8B [30" x 30"]
(6.3 S.F.)



R(NJ)3 - 8C [48" x 30"]
(10 S.F.)



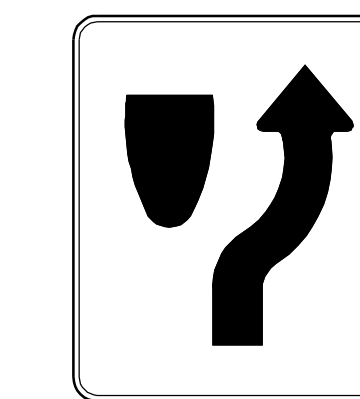
R(NJ)3 - 8D [60" x 30"]
(12.5 S.F.)



R3 - 9a [30" x 36"]
(7.5 S.F.)

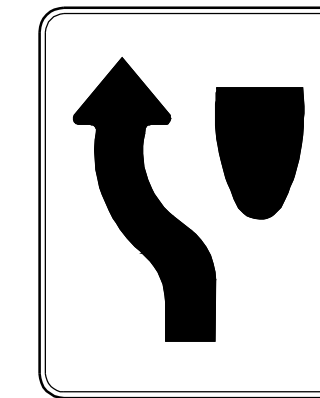


R3 - 9b [24" x 36"]
(6 S.F.)



R4 - 7 [24" x 30"]
(5 S.F.)

R4 - 7 (S) [36" x 48"]
(12 S.F.)



R4 - 8 [24" x 30"]
(5 S.F.)

R4 - 8 (S) [36" x 48"]
(12 S.F.)



GSP - 1 24" DIA.
(3.1 S.F.)

GSP - 1 (S) 36" DIA.
(7.1 S.F.)

GENERAL NOTES:

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(S) DENOTES A SPECIAL SIZE SIGN.

ALL SIGNS SHALL BE ASTM D 4956 TYPE III SHEETING

SIGNS
N.T.S.

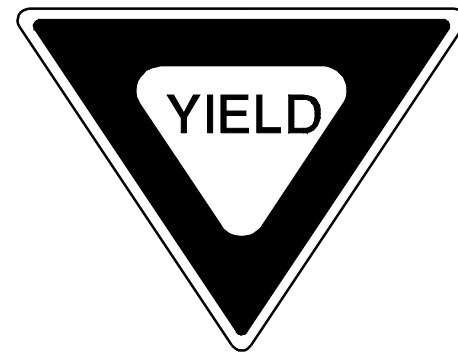
CD-612-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

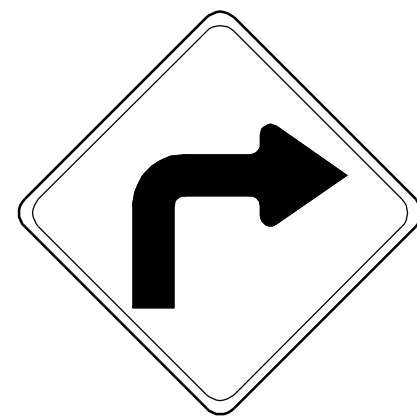
CONSTRUCTION DETAILS



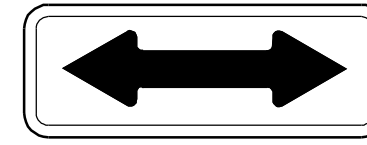
R1 - 1 [30" x 30"]
(5.5 S.F.)



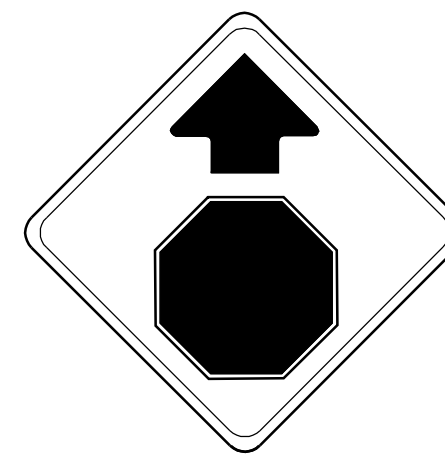
R1 - 2
[36" x 36" x 36"]
(3.9 S.F.)



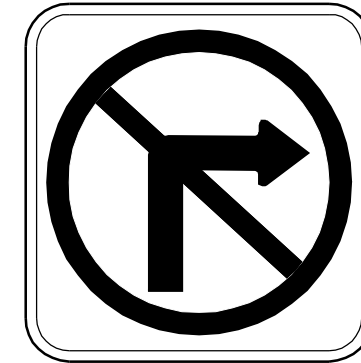
(L OR R)
W1 - 1 [30" x 30"]
(6.3 S.F.)
W1 - 1 (S) [36" x 36"]
(9 S.F.)



W1 - 7 [48" X 24"]
(8 S.F.)
W1 - 7 (S) [60" X 30"]
(12.5 S.F.)

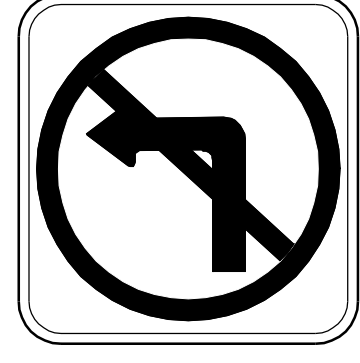


W3 - 1a [30" x 30"]
(6.3 S.F.)
W3 - 1a (S) [48" X 48"]
(16 S.F.)



R3 - 1 [24" X 24"]
(4 S.F.)

R3 - 1 (S) [30" X 30"]
(6.3 S.F.)

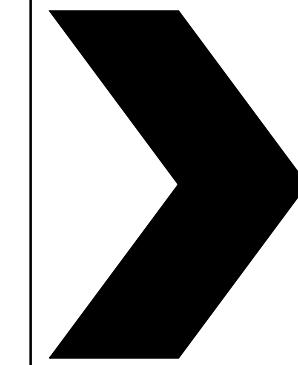


R3 - 2 [24" X 24"]
(4 S.F.)

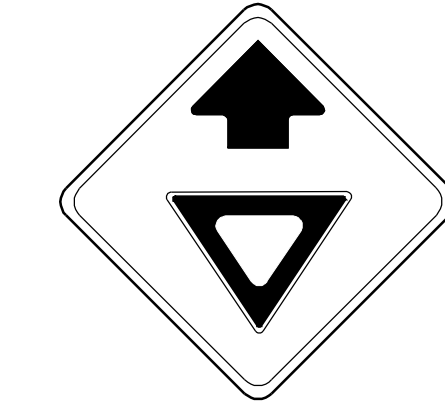
R3 - 2 (S) [30" X 30"]
(6.3 S.F.)



(L OR R)
W1 - 2 [30" X 30"]
(6.3 S.F.)
W1 - 2 (S) [36" X 36"]
(9 S.F.)



(L OR R)
W1 - 8 [18" X 24"]
(3 S.F.)
W1 - 8 (S) [24" X 30"]
(5 S.F.)

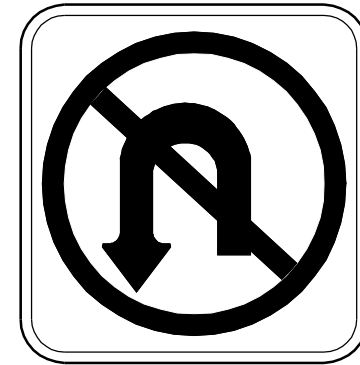


W3 - 2a [30" X 30"]
(6.3 S.F.)
W3 - 2a (S) [48" X 48"]
(16 S.F.)



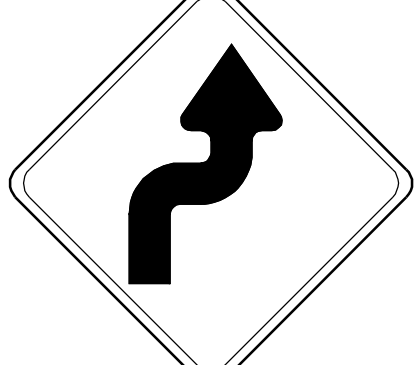
R3 - 3 [24" X 24"]
(4 S.F.)

R3 - 3 (S) [30" X 30"]
(6.3 S.F.)

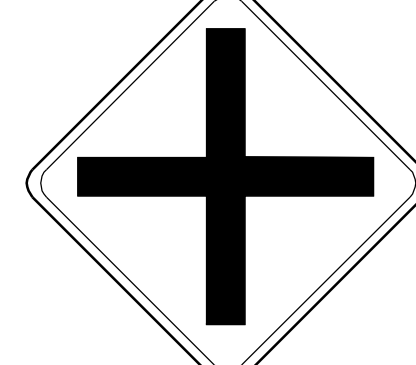


R3 - 4 [24" X 24"]
(4 S.F.)

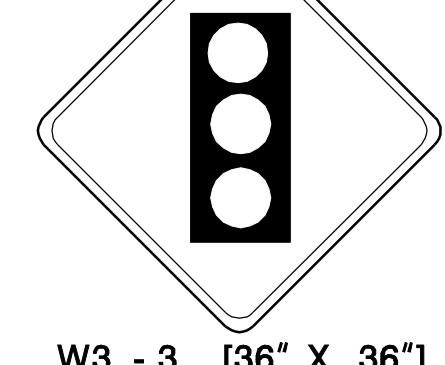
R3 - 4 (S) [30" X 30"]
(6.3 S.F.)



(L OR R)
W1 - 3 [30" X 30"]
(6.3 S.F.)
W1 - 3 (S) [36" X 36"]
(9 S.F.)



W2 - 1 [30" X 30"]
(6.3 S.F.)
W2 - 1 (S) [36" X 36"]
(9 S.F.)



W3 - 3 [36" X 36"]
(9 S.F.)
W3 - 3 (S) [48" X 48"]
(16 S.F.)

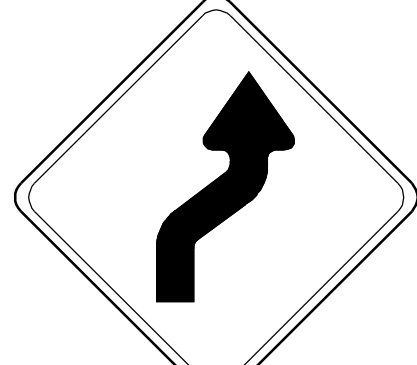


(L OR R)
R3 - 7 [30" X 30"]
(6.3 S.F.)

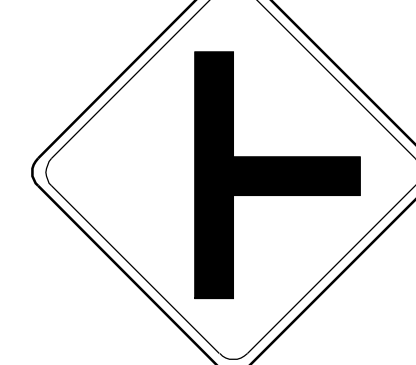


R5 - 1 [30" X 30"]
(6.3 S.F.)

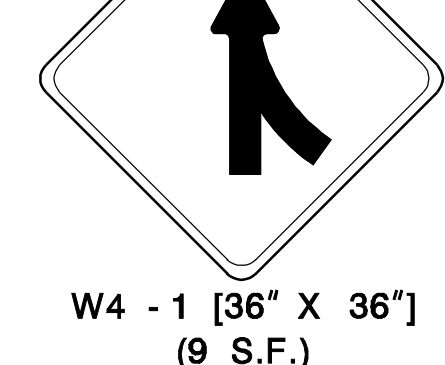
R5 - 1 (S) [36" X 36"]
(9 S.F.)



(L OR R)
W1 - 4 [30" X 30"]
(6.3 S.F.)
W1 - 4 (S) [36" X 36"]
(9 S.F.)



(L OR R)
W2 - 2 [30" X 30"]
(6.3 S.F.)
W2 - 2 (S) [36" X 36"]
(9 S.F.)



W4 - 1 [36" X 36"]
(9 S.F.)
W4 - 1 (S) [48" X 48"]
(16 S.F.)
W4 - 1 (EXPWY) [36" X 36"]
(9 S.F.)

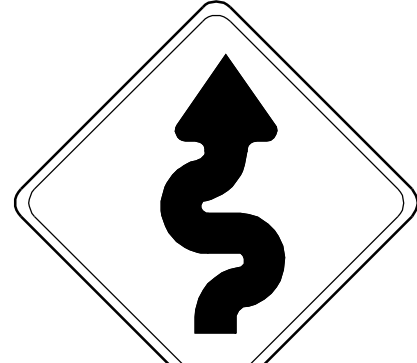


R5 - 1a [36" X 24"]
(6 S.F.)

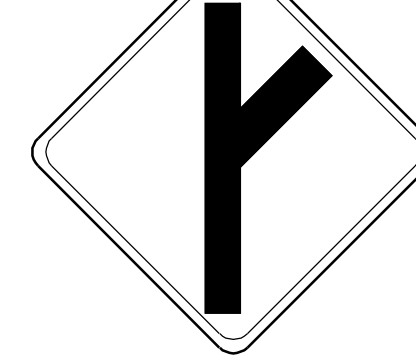
R5 - 1a (S) [30" X 18"]
(3.8 S.F.)



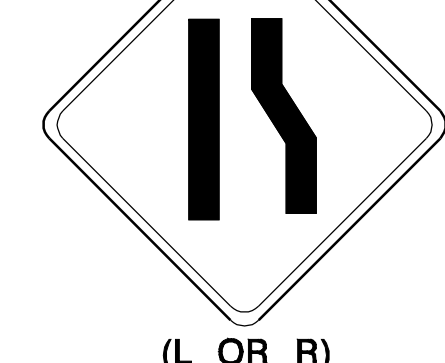
(L OR R)
R6 - 1 [36" X 12"]
(3 S.F.)



(L OR R)
W1 - 5 [30" X 30"]
(6.3 S.F.)
W1 - 5 (S) [36" X 36"]
(9 S.F.)



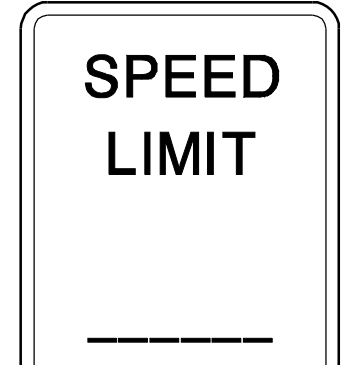
(L OR R)
W2 - 3 [30" X 30"]
(6.3 S.F.)
W2 - 3 (S) [36" X 36"]
(9 S.F.)



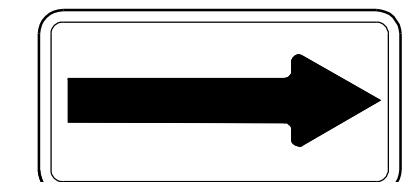
(L OR R)
W4 - 2 [36" X 36"]
(9 S.F.)
W4 - 2 (S) [48" X 48"]
(16 S.F.)



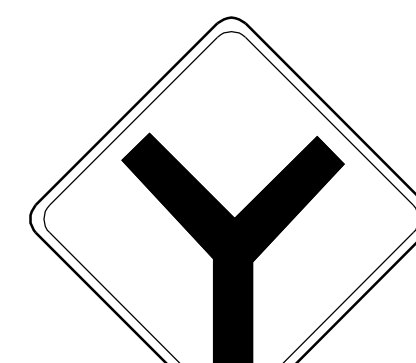
R10 - 11a [24" X 30"]
(5 S.F.)



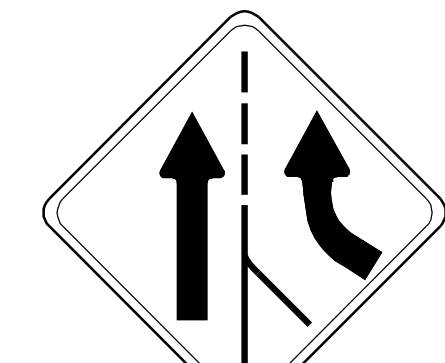
R2 - 1 [24" X 30"]
(5 S.F.)
R2 - 1 (EXPWY) [36" X 48"]
(12 S.F.)
R2 - 1 (S) [48" X 60"]
(20 S.F.)



(L OR R)
W1 - 6 [48" X 24"]
(8 S.F.)
W1 - 6 (S) [60" X 30"]
(12.5 S.F.)



W2 - 5 [30" X 30"]
(6.3 S.F.)
W2 - 5 (S) [36" X 36"]
(9 S.F.)



(L OR R)
W4 - 3 [36" X 36"]
(9 S.F.)
W4 - 3 (S) [48" X 48"]
(16 S.F.)

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SIGNS

N.T.S.

CD-612-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-612-2.1



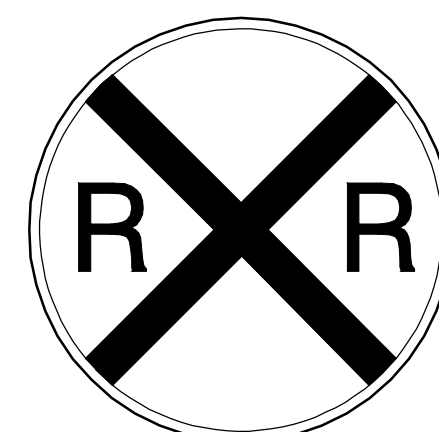
W5 - 1 [36" x 36"]
(9 S.F.)
W5 - 1 (S) [48" x 48"]
(16 S.F.)



W6 - 1 [36" x 36"]
(9 S.F.)
W6 - 1 (S) [48" x 48"]
(16 S.F.)



W8 - 5 [30" x 30"]
(6.3 S.F.)
W8 - 5 (S) [36" x 36"]
(9 S.F.)



W10 - 1 [36" DIA.]
(7.1 S.F.)



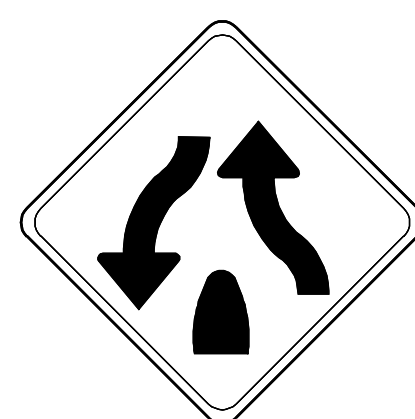
W13 - 1 [18" x 18"]
(2.3 S.F.)
W13 - 1 (S) [24" x 24"]
(4 S.F.)



W14 - 1 [30" x 30"]
(6.3 S.F.)
W14 - 1 (S) [36" x 36"]
(9 S.F.)



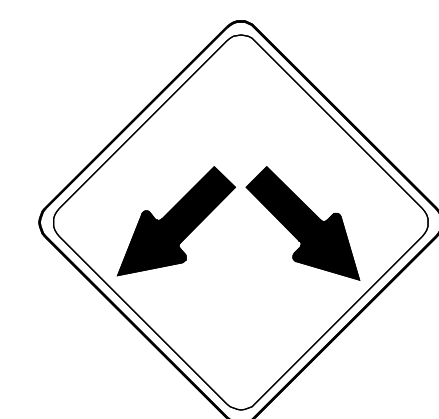
W5 - 2 [30" x 30"]
(6.3 S.F.)
W5 - 2 (S) [36" x 36"]
(9 S.F.)



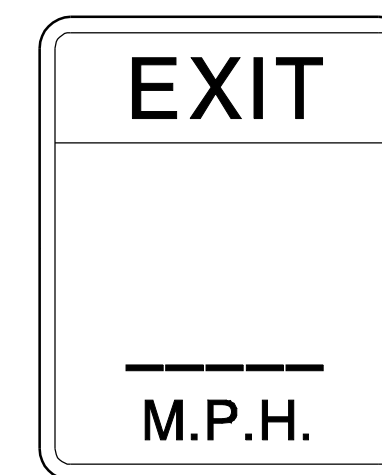
W6 - 2 [36" x 36"]
(9 S.F.)
W6 - 2 (S) [48" x 48"]
(16 S.F.)



(L OR R)
W9 - 1 [36" x 36"]
(9 S.F.)
W9 - 1 (S) [48" x 48"]
(16 S.F.)



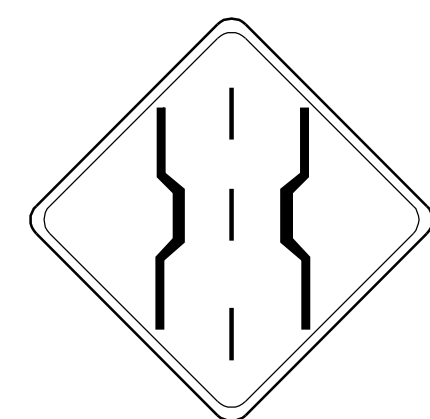
W12 - 1 [24" x 24"]
(4 S.F.)
W12 - 1 (S) [30" x 30"]
(6.3 S.F.)



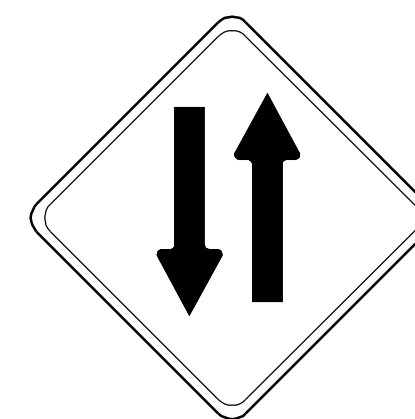
W13 - 2 [48" x 60"]
(20 S.F.)
W13 - 2 (EXPWY) [36" x 48"]
(12 S.F.)
W13 - 2 (S) [24" x 30"]
(5 S.F.)



W14 - 2 [30" x 30"]
(6.3 S.F.)
W14 - 2 (S) [36" x 36"]
(9 S.F.)



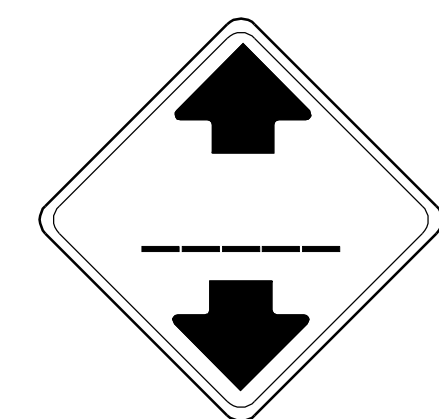
W5 - 2a [30" x 30"]
(6.3 S.F.)
W5 - 2a (S) [36" x 36"]
(9 S.F.)



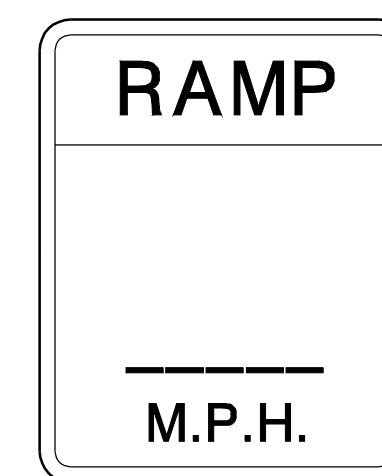
W6 - 3 [30" x 30"]
(6.3 S.F.)
W6 - 3 (S) [36" x 36"]
(9 S.F.)



(L OR R)
W9 - 2 [36" x 36"]
(9 S.F.)
W9 - 2 (S) [48" x 48"]
(16 S.F.)



W12 - 2 [36" x 36"]
(9 S.F.)
W12 - 2 (S) [48" x 48"]
(16 S.F.)



W13 - 3 [48" x 60"]
(20 S.F.)
W13 - 3 (EXPWY) [36" x 48"]
(12 S.F.)
W13 - 3 (S) [24" x 30"]
(5 S.F.)



W14 - 3 [36" x 48" x 48"]
(6 S.F.)
W14 - 3 (S) [48" x 64" x 64"]
(10.7 S.F.)

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SIGNS

N.T.S.

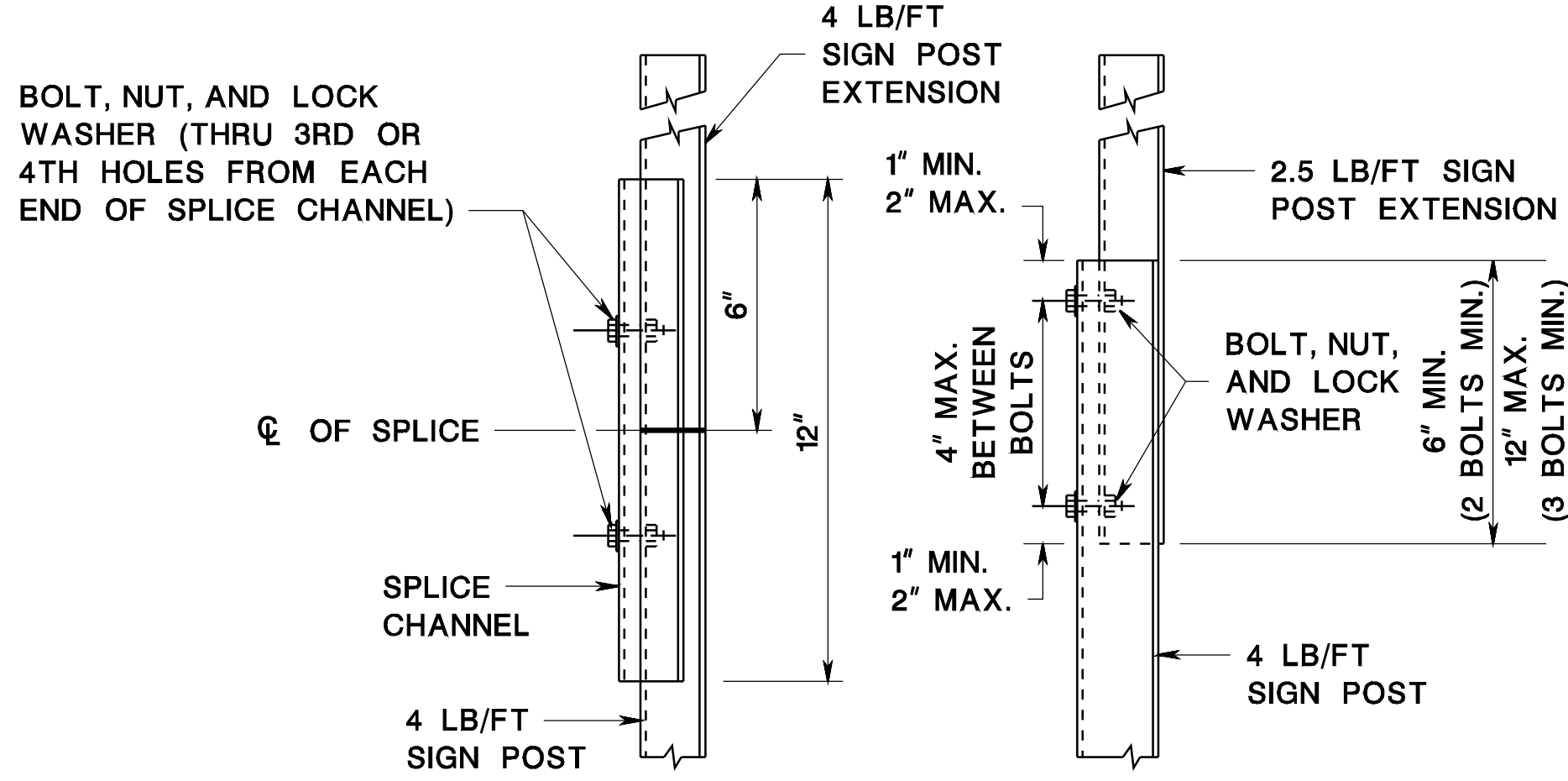
CD-612-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

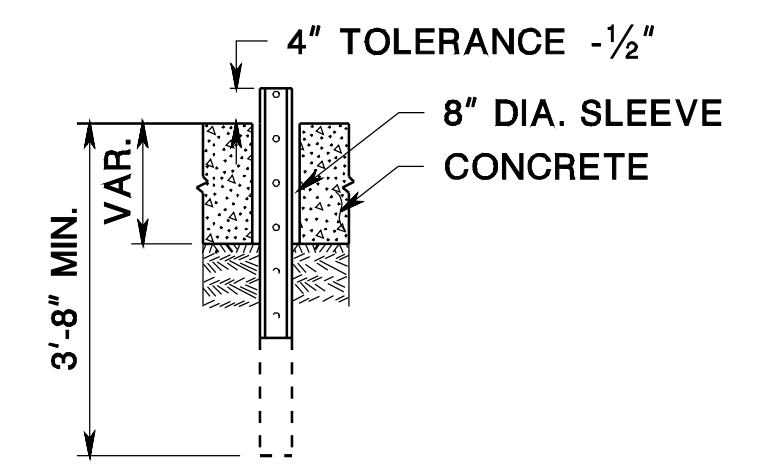
CONSTRUCTION DETAILS

CD-612-3.1

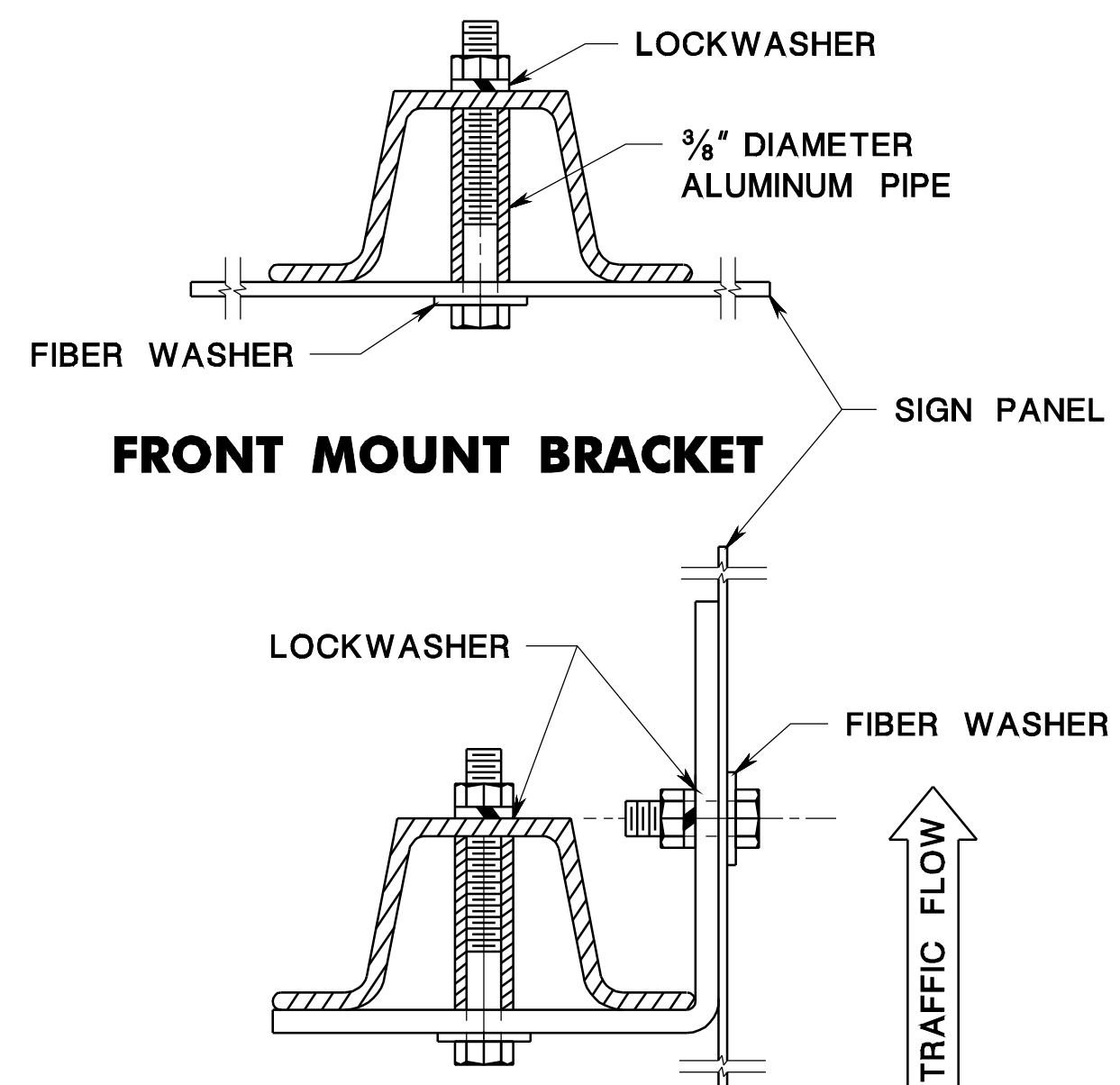
pen table= \\n\jdotprjws\vsystem\jdotpws\Projects\jdotEng\pilot\TBLs\Roadway\basic.tbl
scale= 30.0000000:1.0000000
date= 17-DEC-2007 09:51
ID= TPXBHAY
BDC070-01-ORIGINAL SHEET



SIGN POST EXTENSION SPLICE DETAILS

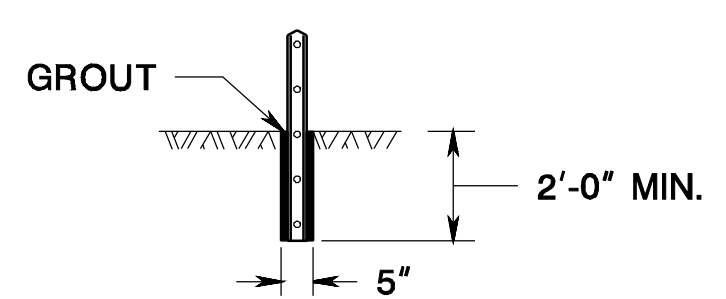


CONCRETE INSTALLATION

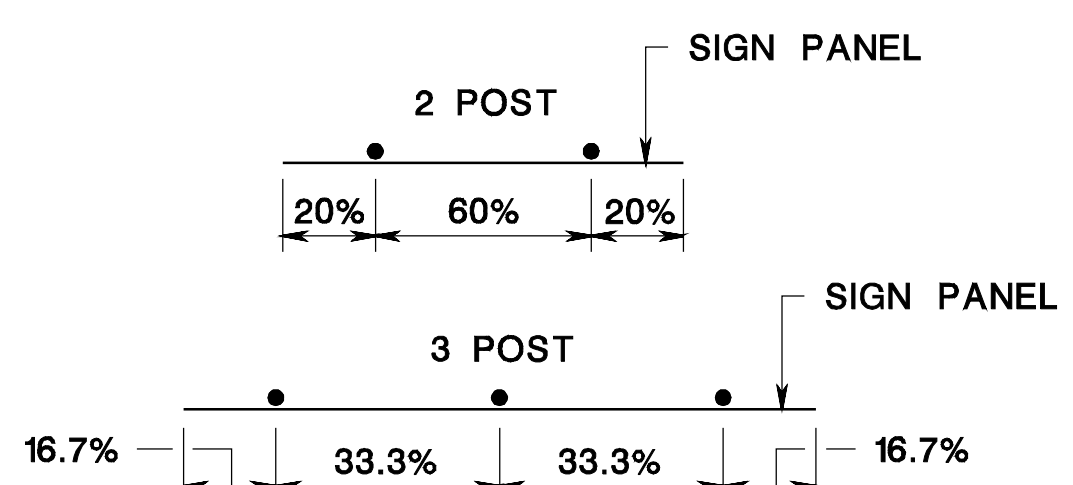


FRONT MOUNT BRACKET

SIDE MOUNT BRACKET



ROCK INSTALLATION

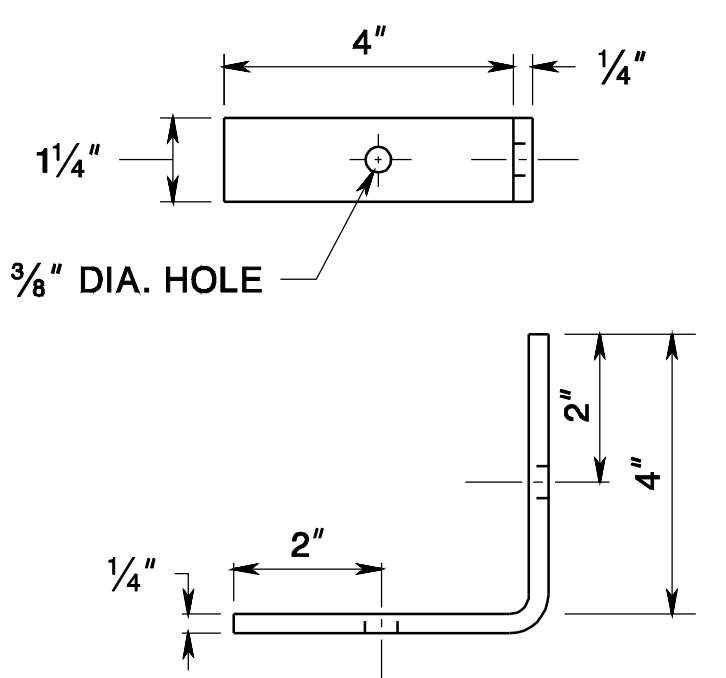


STEEL U-POST SPACING

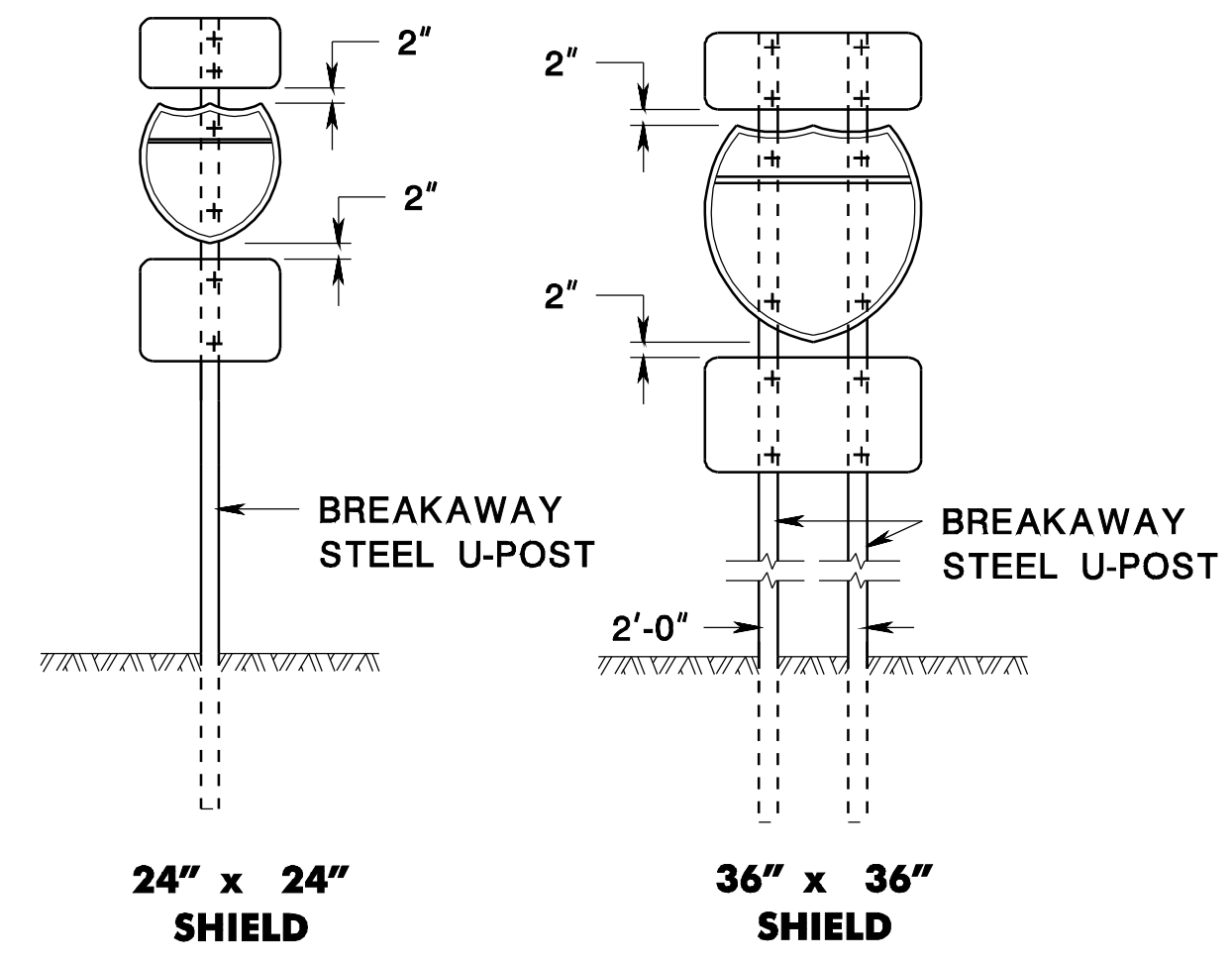
PANEL SIZE (W x H)	# OF POSTS	POST SIZE (LB/FT)
18" x 18"	1	2.5
18" x 24"	1	2.5
24" x 24"	1	2.5
24" x 30"	1	2.5
24" x 36"	1	2.5
30" x 24"	1	2.5
30" x 30"	1	2.5
36" x 12"	2	2.5
36" x 36" x 36"	2	2.5
30" x 36"	1	4.0

PANEL SIZE (W x H)	# OF POSTS	POST SIZE (LB/FT)
36" x 36"	2	2.5
36" x 48"	2	2.5
45" x 36"	2	2.5
48" x 24"	2	2.5
48" x 36"	2	2.5
48" x 48"	2	4.0
48" x 64" x 64"	2	2.5
60" x 36"	2	4.0
48" x 60"	2	4.0
60" x 30"	2	4.0

**U-POST SELECTION TABLE
BREAKAWAY SIGN SUPPORT**

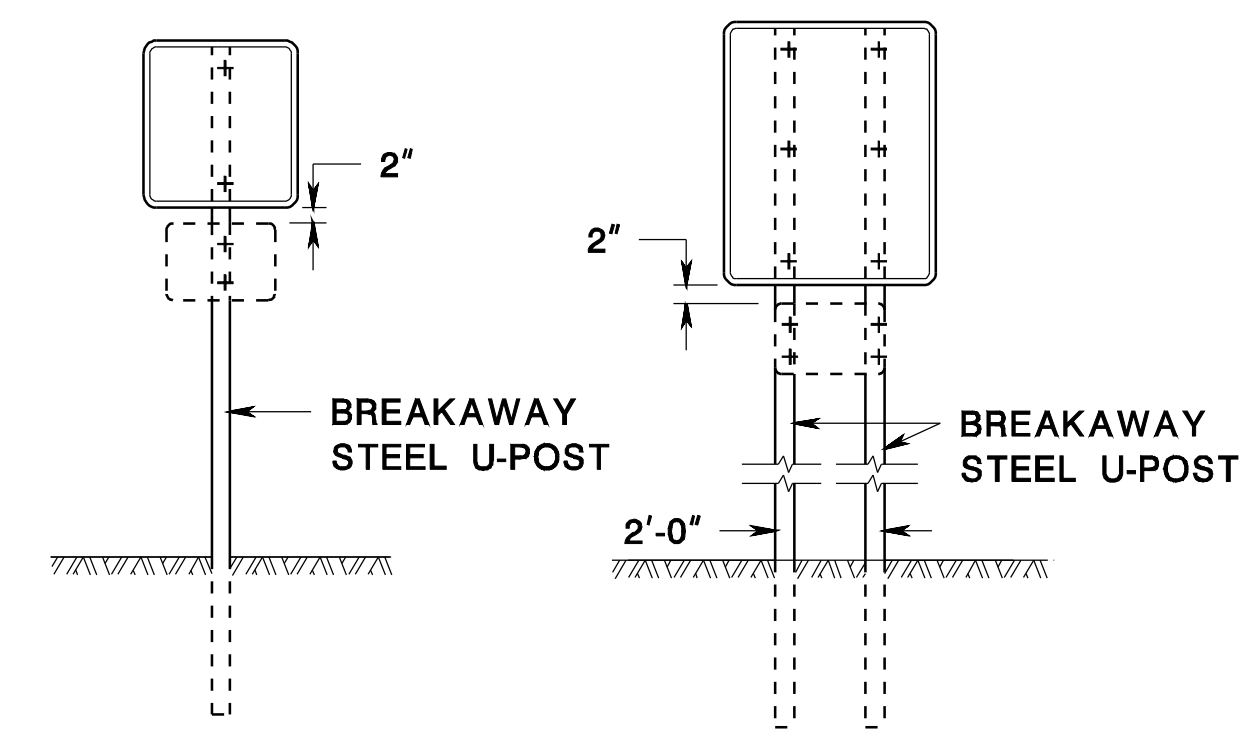


DETAIL OF BRACKET FOR SIDE MOUNTED SIGNS



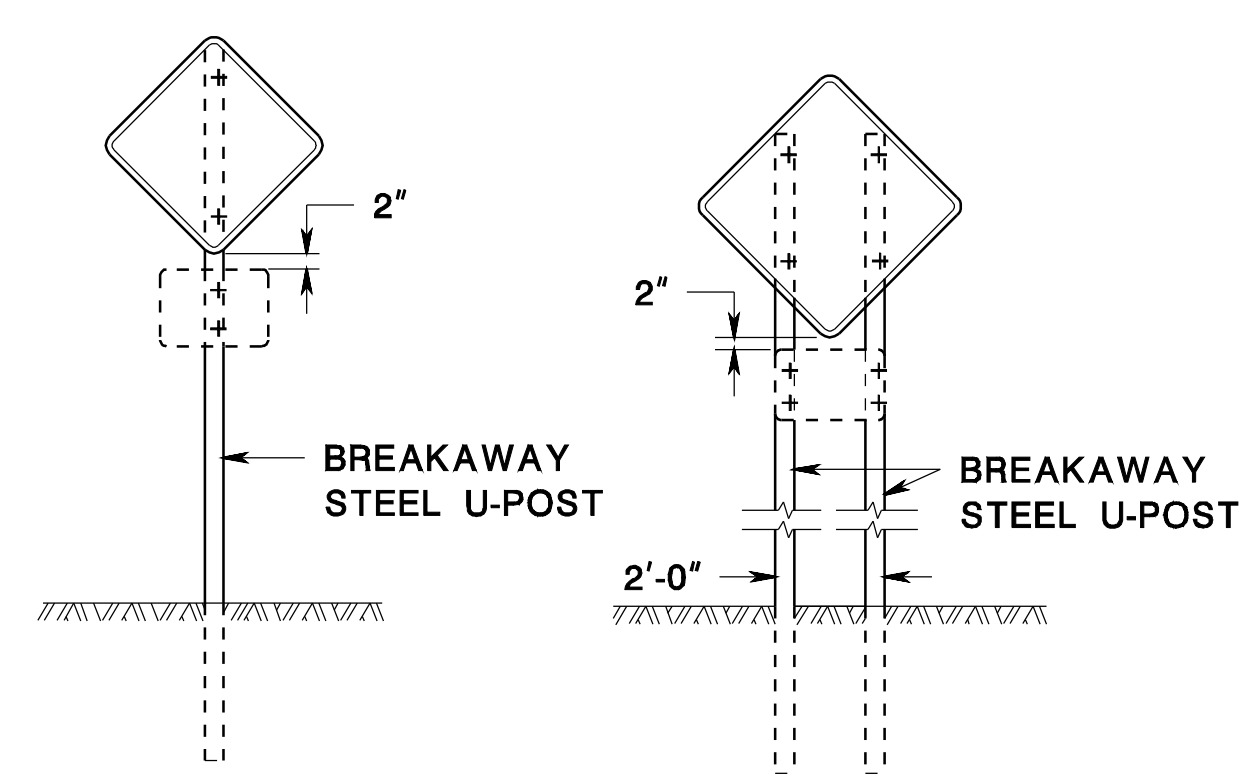
24" x 24" SHIELD

36" x 36" SHIELD



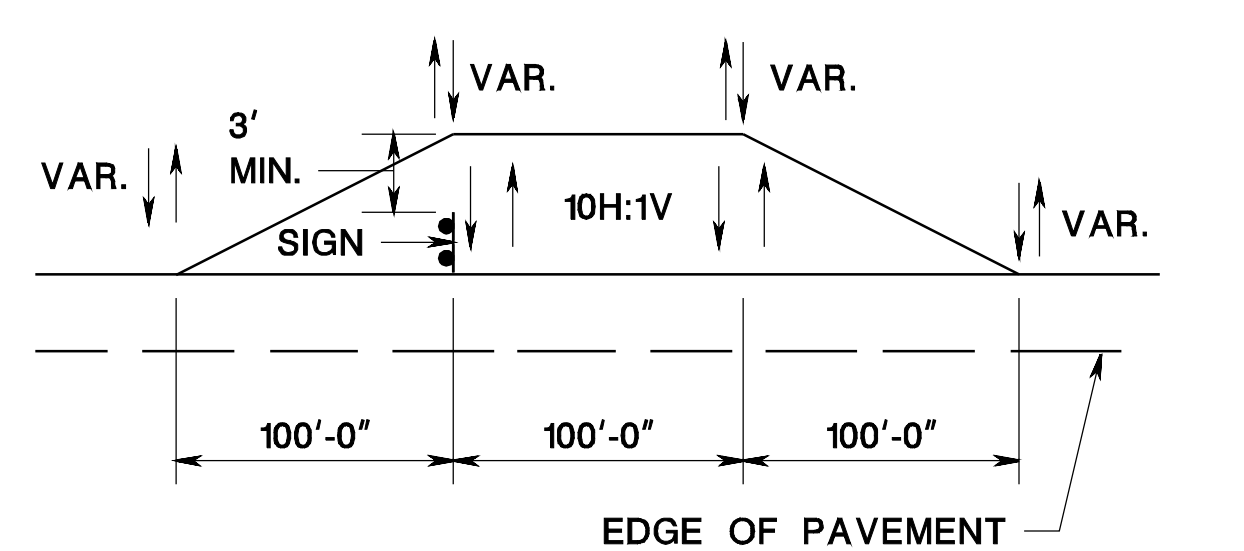
30" x 30" OR SMALLER

36" x 36" OR LARGER



30" x 30" OR SMALLER

36" x 36" OR LARGER



STEEL U-POST GRADING DETAIL

GENERAL NOTES:

- ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND AS INDICATED BELOW.
- ALL SMALL SIGN SUPPORTS SHALL BE OF THE BREAKAWAY TYPE WITH EXCEPTION OF THOSE INSTALLED BEHIND GUIDE RAIL OR OTHER ROADSIDE BARRIER.
- ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT, AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH ASTM A123.
- ALL STEEL U-POST SIGN SUPPORTS MUST BE INSTALLED FACING THE PREDOMINANT TRAFFIC FLOW. A MOUNTING BRACKET SHOULD BE USED ON SIDE MOUNTED SIGNS SUCH AS "ONE WAY" SIGNS INSTALLED IN MEDIANS.
- SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBER AS SHOWN ON THIS DETAIL.
- BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT, BUT SHALL ENGAGE ALL THREADS IN THE NUT.
- WHEN SIGNS ARE INSTALLED ON SLOPES 10H:1V OR FLATTER, THE MINIMUM VERTICAL CLEARANCE REQUIREMENTS FOR SIGNS ARE:
FOR SINGLE POST INSTALLATIONS - THE MINIMUM DISTANCE BETWEEN THE EDGE OF THE PAVEMENT AND THE BOTTOM OF ANY PANEL MUST BE 7 FEET, AND THE MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO THE TOP OF ANY SIGN PANEL MUST BE 9 FEET.
FOR MULTI-POST INSTALLATIONS - THE MINIMUM DISTANCE BETWEEN THE EDGE OF PAVEMENT AND THE BOTTOM OF A MAJOR SIGN PANEL MUST BE 7 FEET.
SECONDARY SIGN PANELS (LAND SERVICE HIGHWAYS) - THE MINIMUM DISTANCE BETWEEN THE EDGE OF PAVEMENT AND THE BOTTOM OF A SECONDARY SIGN PANEL IS 6 FEET.
SECONDARY SIGN PANELS (INTERSTATE AND FREEWAYS) - THE BOTTOM OF THE MAJOR SIGN SHALL BE A MINIMUM OF 8 FEET AND THE SECONDARY SIGN PANEL A MINIMUM OF 5 FEET ABOVE THE EDGE OF PAVEMENT.
WHERE GRADING OF 10H:1V OR FLATTER CANNOT BE OBTAINED, OR WHERE CURB OR BERM IS GREATER THAN 4 INCHES, THE MINIMUM VERTICAL CLEARANCE WILL BE MEASURED FROM THE GROUND LINE TO THE BOTTOM OF THE SIGN.
- PERMANENT SIGN SUPPORTS SHOULD NOT BE INSTALLED ON SLOPES GREATER THAN 10H:1V, EXCEPT WHERE GRADING OF 10H:1V CANNOT BE OBTAINED OR THE SIGN SUPPORTS WILL BE BEHIND A TRAFFIC BARRIER. THE SLOPE SHALL EXTEND A MINIMUM OF 3 FEET BEYOND THE OUTSIDE EDGE OF SIGN (SEE GRADING DETAIL FOR SLOPE TREATMENT).
- EXTRUDED ALUMINUM SIGN PANELS ARE NOT PERMITTED FOR USE WITH STEEL U-POST SIGN SUPPORTS.
- STEEL U-POST SIGN SUPPORTS SHALL NOT BE PLACED IN FRONT OF GUIDE RAIL AND THE POSTS MUST NOT STRADDLE GUIDE RAIL.
- TO EXTEND THE HEIGHT OF A SIGN POST, A MAXIMUM OF ONE SPLICE MAY BE MADE AND MUST BE A MINIMUM OF 9 FEET FROM THE GROUNDLINE TO CENTER LINE OF SPLICE.

STEEL U-POST SIGN SUPPORTS

N.T.S.

CD-612-4

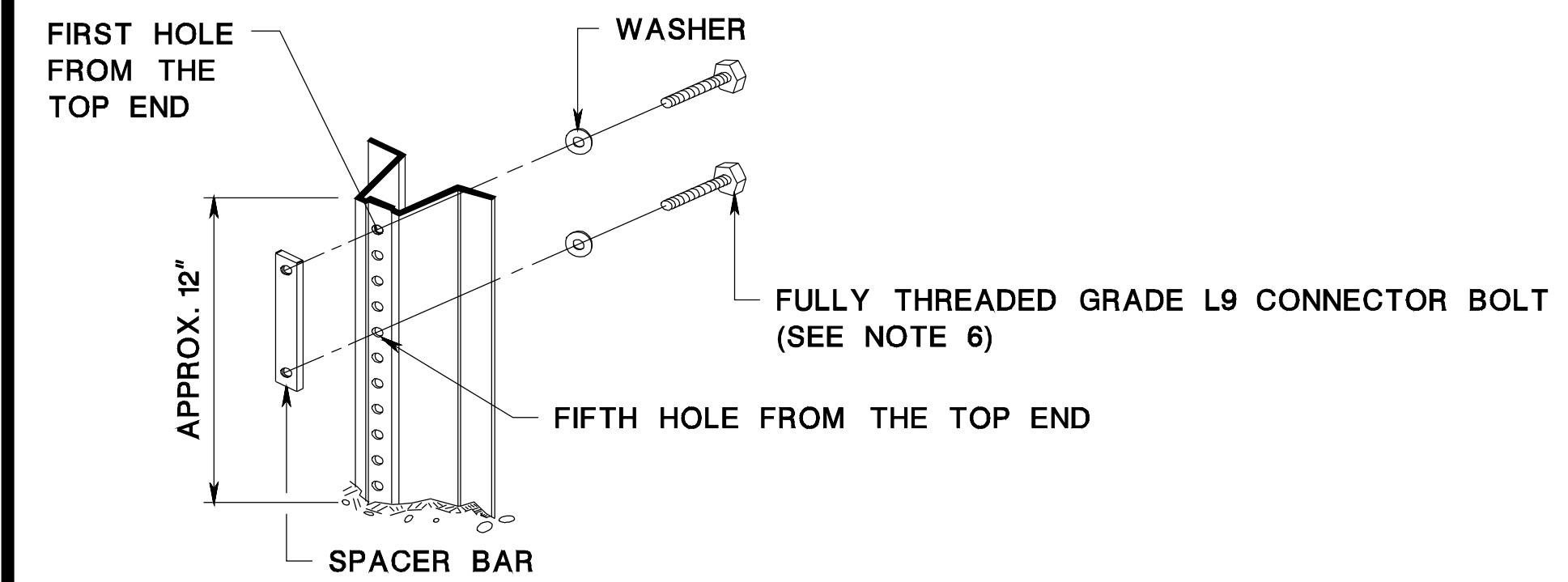
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

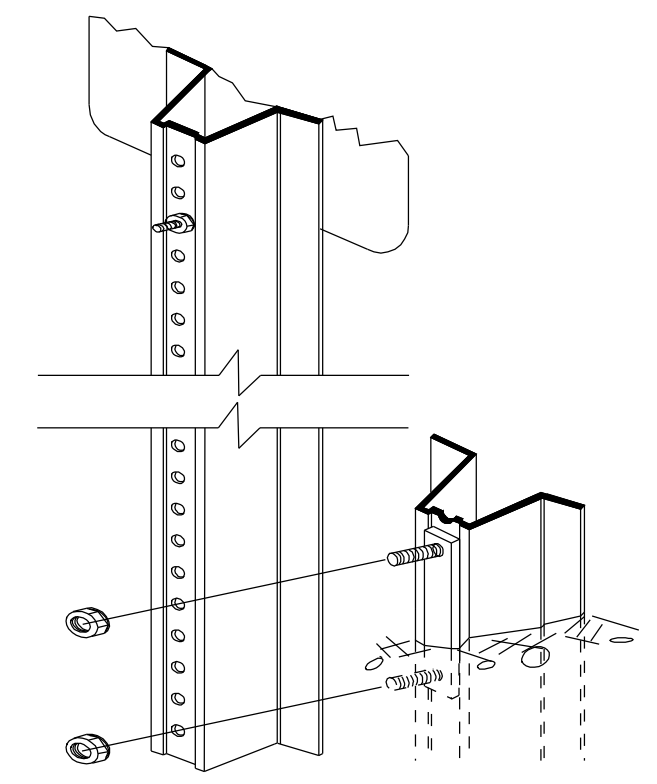
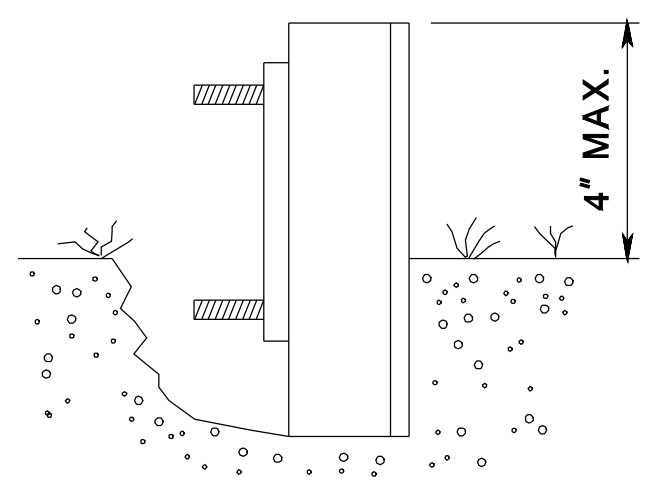
STEEL POSTS, POST CLIPS, SPACING, ETC. AND TWO PIECE STEEL U-POSTS.

CD-612-4.1

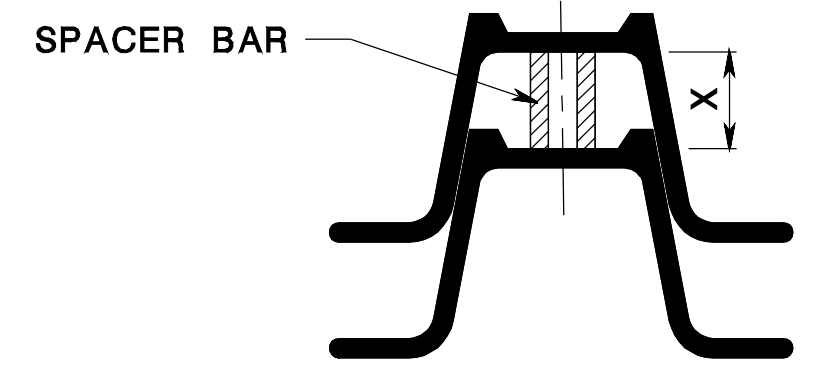
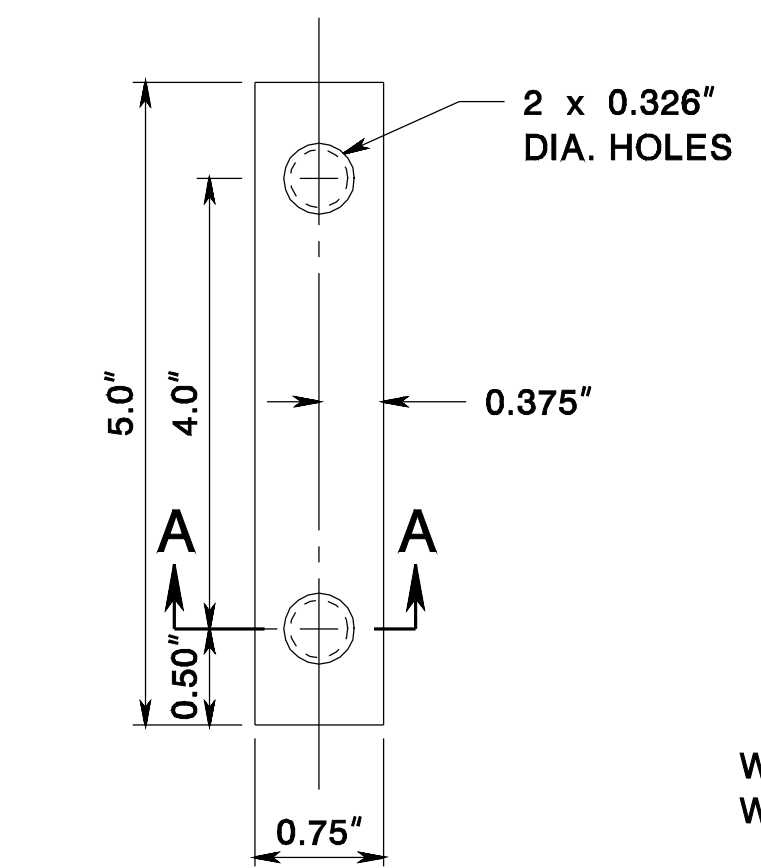
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 BDC0703-ORIGINAL SHEET



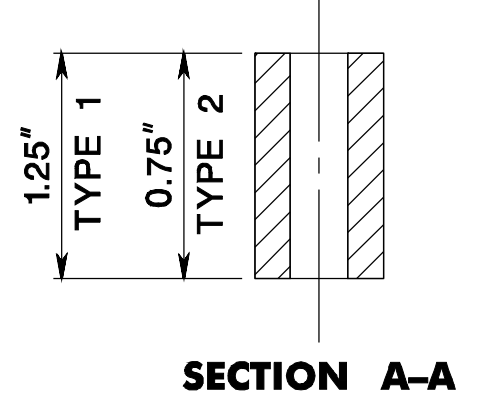
- NOTES:**
1. DRIVE ANCHOR POST ASSEMBLY TO WITHIN APPROXIMATELY 12 INCHES ABOVE GROUND LEVEL. PLACE BOLT AND WASHER IN FIRST AND FIFTH HOLES FROM THE TOP END, AND SECURE BOLTS ONTO SPACER BAR.
 2. DRIVE ANCHOR POST ASSEMBLY TO WITHIN A MAXIMUM OF 4 INCHES ABOVE GROUND LEVEL.
 3. DIG OUT AROUND BACK OF ANCHOR POST ASSEMBLY TO ALLOW ROOM FOR TOP POST TO BE ATTACHED.
 4. NEST TOP POST ASSEMBLY ONTO PROTRUDING ANCHOR POST ASSEMBLY BOLTS, THROUGH THE FIRST AND FIFTH HOLES FROM THE BOTTOM OF THE TOP POST.
 5. PLACE AND TIGHTEN A SELF-LOCKING FLANGE NUT ON EACH BOLT. WHEN INSTALLATION IS COMPLETE, TOP OF GROUND POST SHALL NOT EXCEED 4 INCHES ABOVE GROUND LEVEL.
 6. SIZE OF CONNECTOR BOLT FOR TYPE 1, $\frac{5}{16}$ " x $1\frac{1}{2}$ "
 SIZE OF CONNECTOR BOLT FOR TYPE 2, $\frac{5}{16}$ " x 2"
 7. THE CONNECTOR BOLTS SHALL BE FULLY THREADED. EACH CONNECTOR BOLT AND NUT SHALL BE CLEARLY STAMPED WITH MANUFACTURER'S IDENTIFYING MARK.



ANCHOR POST ASSEMBLY SIGN SUPPORTS



WHEN X IS GREATER THAN 0.75", USE TYPE 1 SPACER BAR
 WHEN X IS 0.75" OR LESS, USE TYPE 2 SPACER BAR

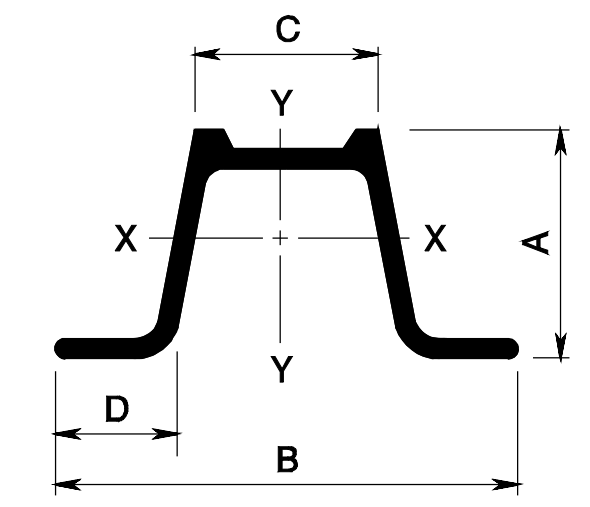


SPACER BAR

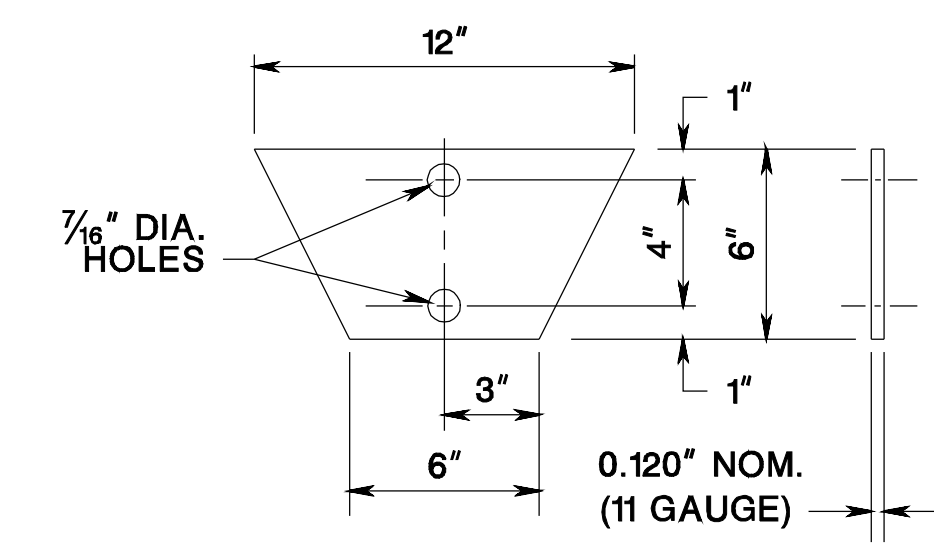
WEIGHT * LBS./FT.	DIMENSIONS (IN)				AREA IN. ²	X-X AXIS **		Y-Y AXIS	
	"A"	"B"	"C"	"D"		I(IN. ⁴)	S(IN. ³)	I(IN. ⁴)	S(IN. ³)
2.50	1.516	3.062	1.278	0.669	0.760	0.228	0.313	0.539	0.352
4.00	1.968	3.500	1.336	0.834	1.187	0.611	0.707	1.161	0.664

TYPE 1 STEEL U-POST PROPERTIES

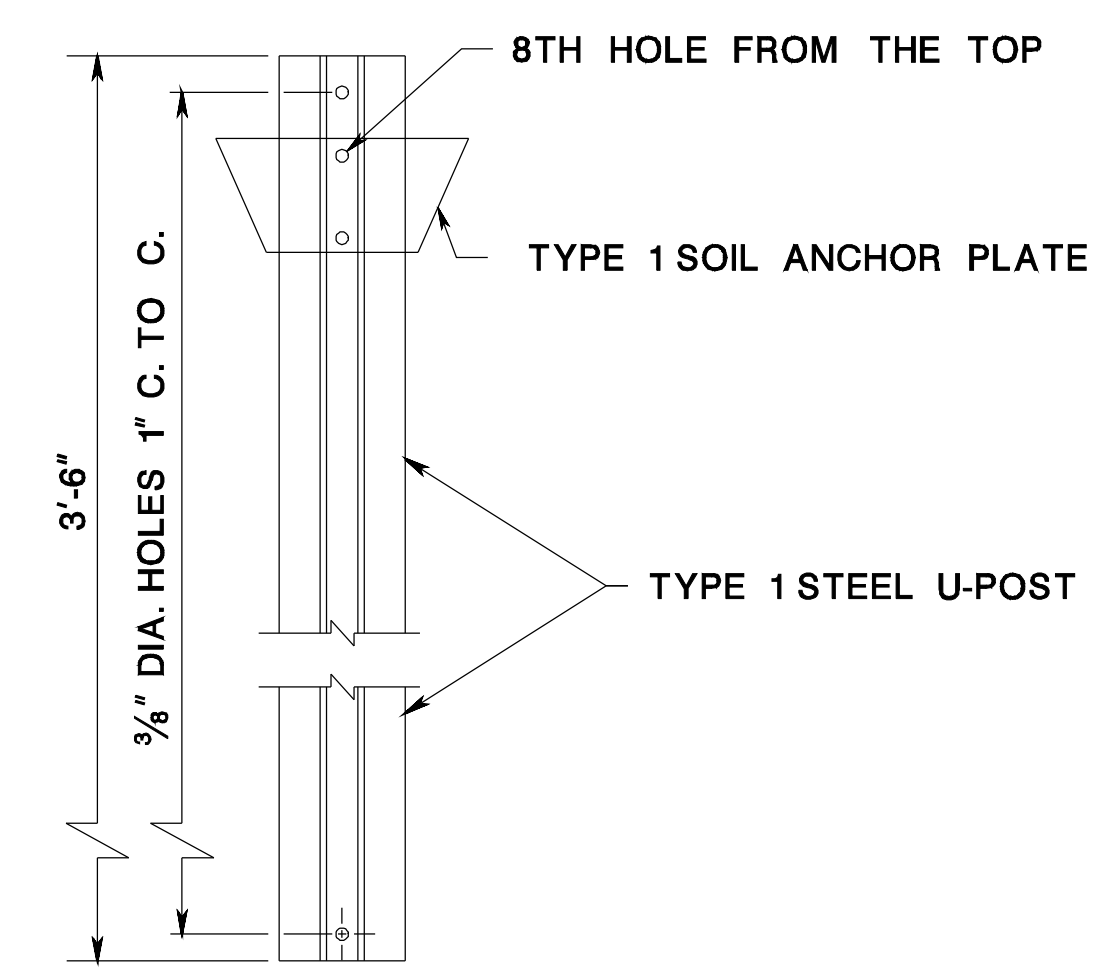
* ± 5%
 ** GOVERNING SECTION



TYPE 1 STEEL U-POST



TYPE 1 SOIL ANCHOR PLATE

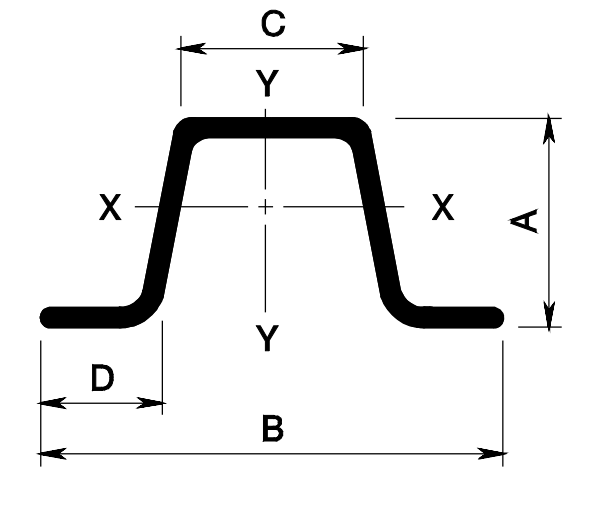


TYPE 1 ANCHOR POST ASSEMBLY

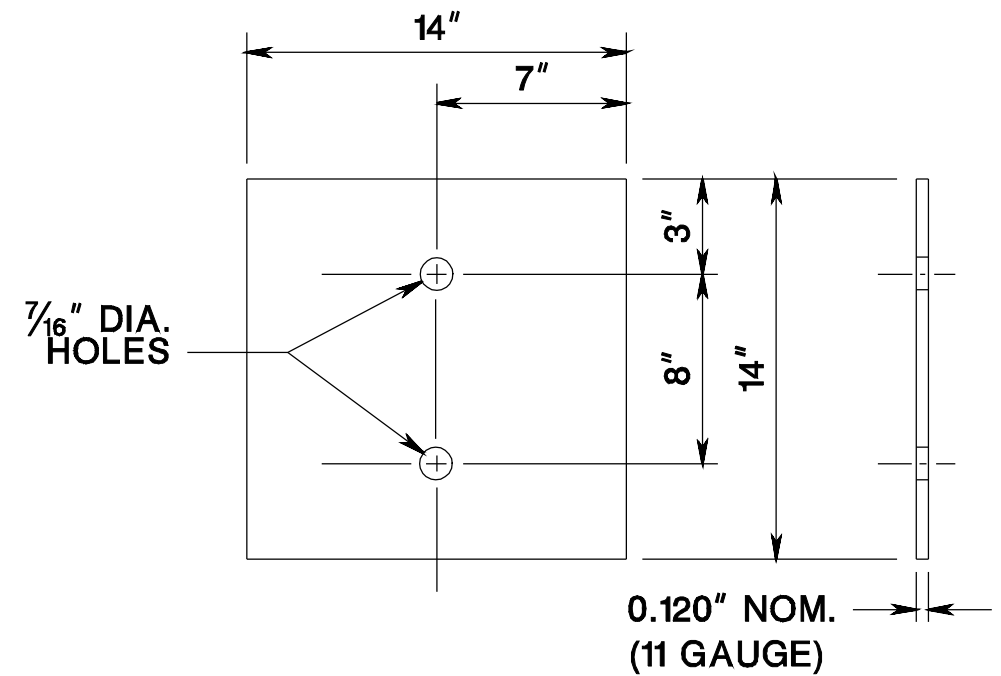
WEIGHT * LBS./FT.	DIMENSIONS (IN)				AREA IN. ²	X-X AXIS **		Y-Y AXIS	
	"A"	"B"	"C"	"D"		I(IN. ⁴)	S(IN. ³)	I(IN. ⁴)	S(IN. ³)
2.50	1.549	3.125	1.250	0.625	0.748	0.233	0.289	0.551	0.353
4.00	1.845	3.500	1.625	0.718	1.190	0.500	0.560	1.190	0.690

TYPE 2 STEEL U-POST PROPERTIES

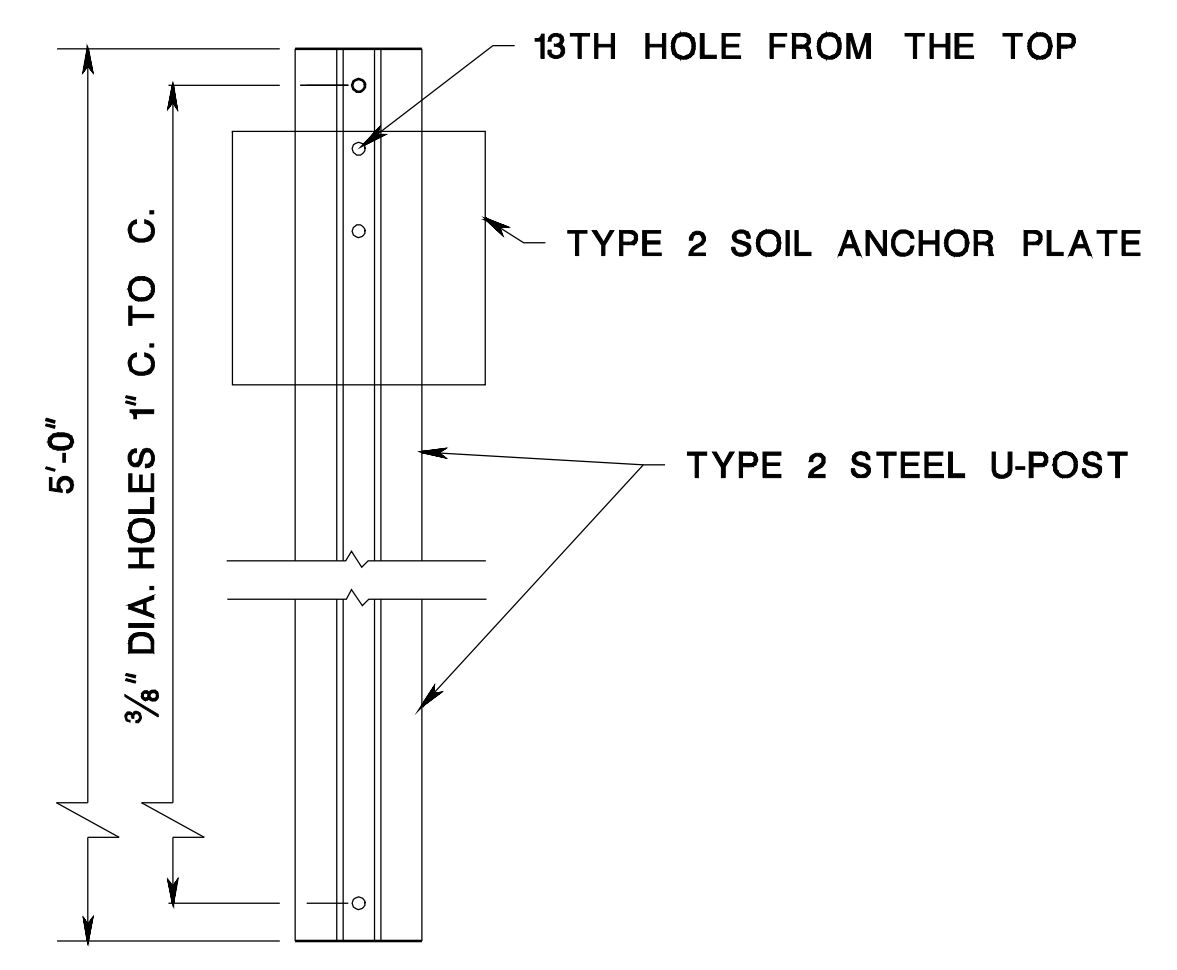
* ± 5%
 ** GOVERNING SECTION



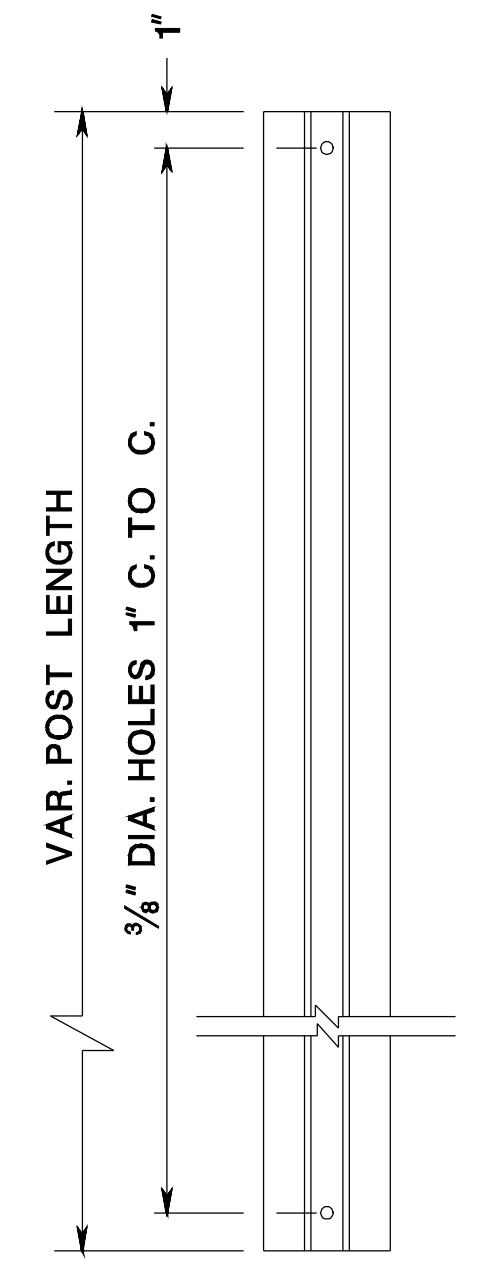
TYPE 2 STEEL U-POST



TYPE 2 SOIL ANCHOR PLATE



TYPE 2 ANCHOR POST ASSEMBLY



TOP POST U-POST

STEEL POSTS, POST CLIPS, SPACING, ETC. AND TWO PIECE STEEL U-POSTS.

- NOTES:**
1. ANCHOR POST AND TOP POST SHALL BE OF EQUAL WEIGHT/FEET.
 2. SOIL ANCHOR PLATE SHALL BE ATTACHED TO ALL ANCHOR POSTS.
 3. THE MATERIAL FOR THE SOIL ANCHOR PLATES SHALL BE CARBON SHEET STEEL.
 4. THE STEEL "U" POST SHALL BE GRADE 60.

STEEL U-POST SIGN SUPPORTS

N.T.S.

CD-612-5
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-612-5.2

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BDC07D-D-ORIGINAL SHEET

STEEL U-POST SIGN SUPPORT DATA TABLE

IDENTIFICATION		OFFSET	PANEL SIZE		NO. OF POSTS	POST HEIGHT			POST SIZE	POST TYPE
NO.	STATION	X ₁	W	B ₁		P ₁	P ₂	P ₃		

NOTE TO DESIGNER:
 THIS SHEET REQUIRES DESIGN SPECIFIC INFORMATION TO BE ADDED AND INCLUDED IN THE CONTRACT PLANS.

 REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

STEEL U-POST SIGN SUPPORTS

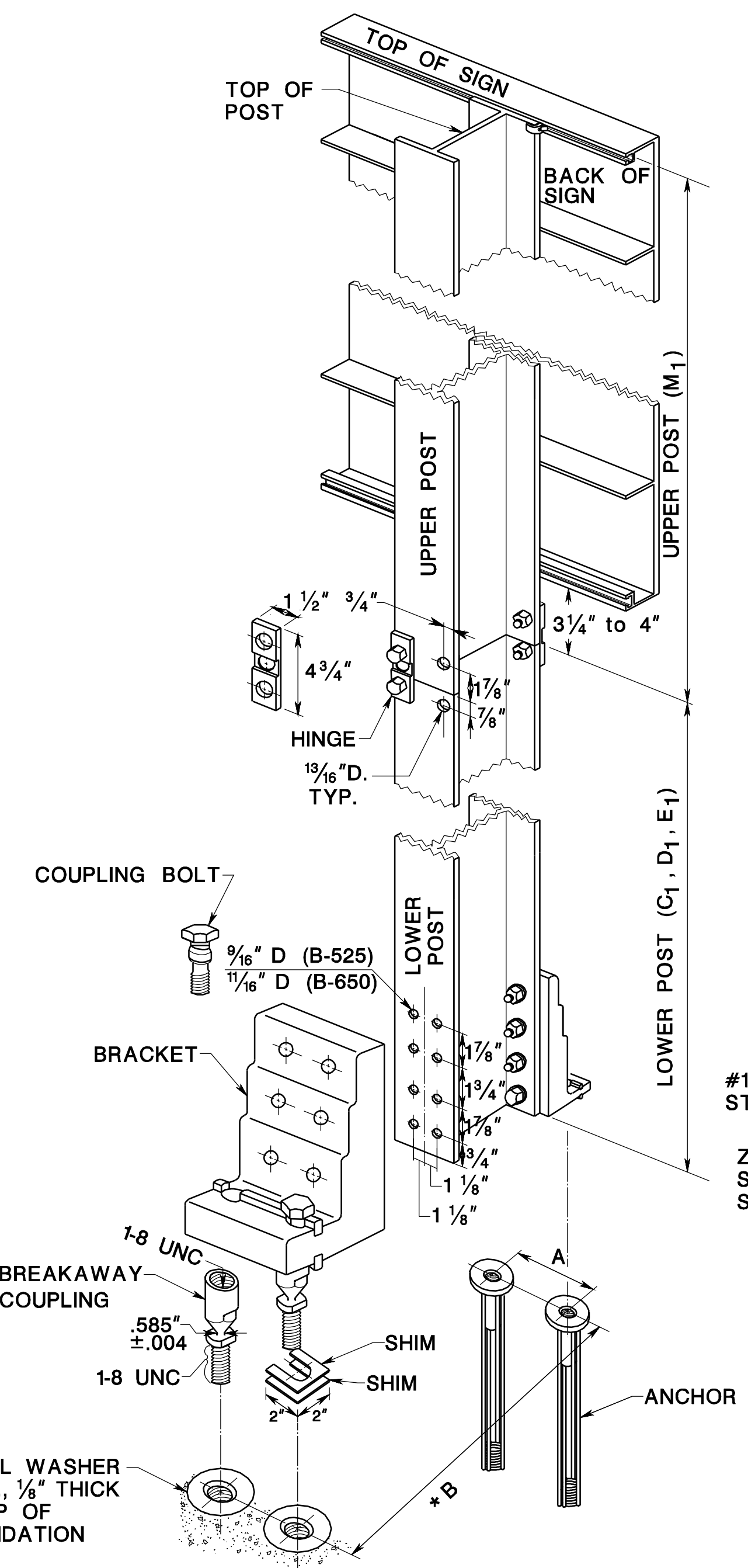
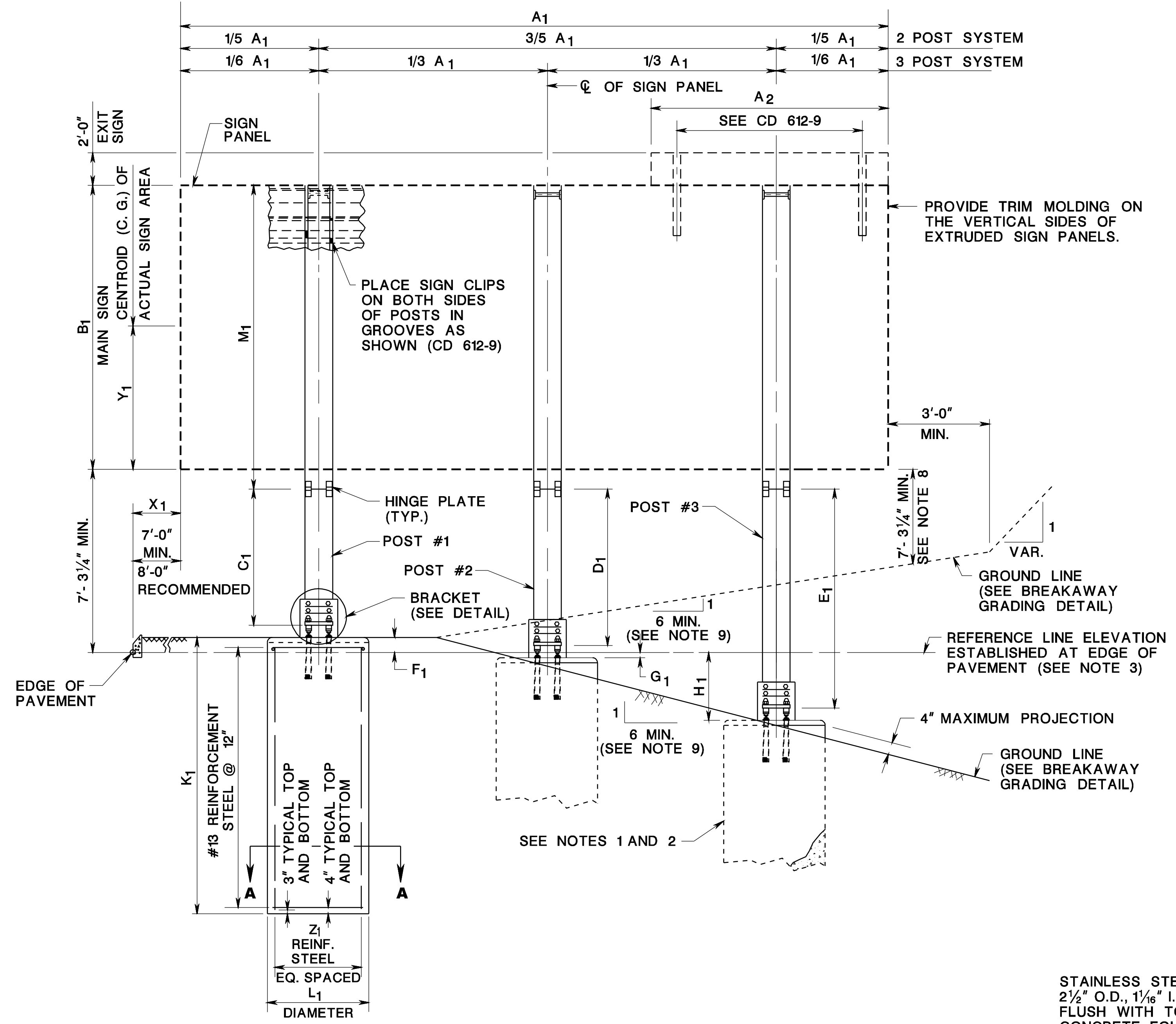
CD-612-6
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

STEEL POSTS, POST CLIPS, SPACING, ETC. AND TWO PIECE STEEL U-POSTS.

CD-612-6.1

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 BDC09D-02 BREAKAWAY SIGN SUPPORTS
 BDC09D-01 ORIGINAL SHEET

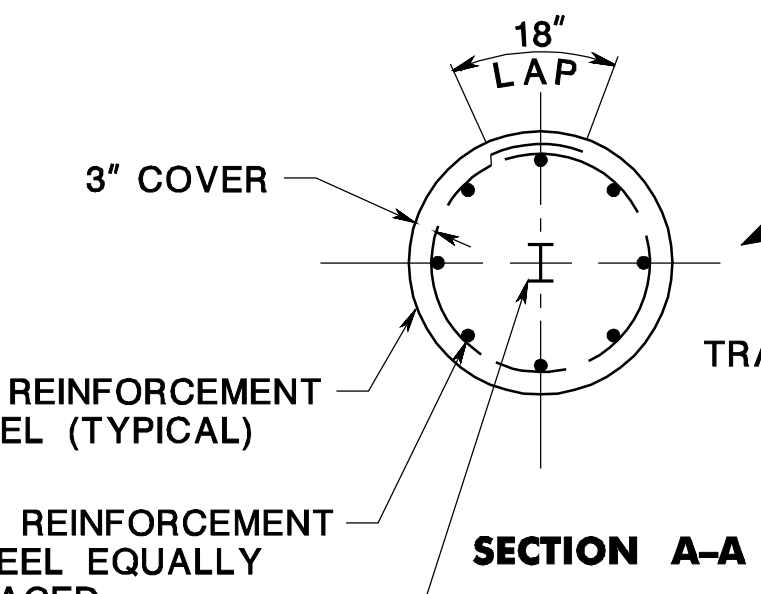


GENERAL NOTES:

1. USE CLASS B CONCRETE IN ALL FOOTINGS, AS SPECIFIED IN SECTION 903 OF THE STANDARD SPECIFICATIONS.
2. ALL FOOTINGS SHALL BE PLACED AGAINST UNDISTURBED EARTH, EXCEPT FOR FOOTING TOPS WHICH SHALL BE FORMED TO A DEPTH OF 3 INCHES BELOW GROUND LINE.
3. TOPS OF FOOTINGS ABOVE REFERENCE LINE ARE INDICATED BY PLUS (+) VALUE, AND BELOW BY MINUS (-) VALUE.
4. UNUSUAL FOUNDATION CONDITIONS MAY REQUIRE RE-DESIGNING OF FOOTINGS AND SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT.
5. FOR Z₁, L₁ & K₁, REFER TO CD-612-10 "SIGN SUPPORT DATA TABLE".
6. ALL POSTS SHALL BE GALVANIZED
7. BREAKAWAY GRADING DETAIL, FOOTING/STUB PROJECTION DETAIL, AND FOOTING BEVEL DETAIL, DO NOT APPLY TO SIGNS BEHIND GUIDE RAIL OR BEYOND THE CLEAR ZONE.
8. SIGN UNDERCLEARANCE AT FAR END OF SIGN IS 1 FOOT MINIMUM WHEN SIGN IS BEHIND GUIDE RAIL OR BEYOND THE CLEAR ZONE.
9. BACK SLOPE MAY BE 2H:1V MAXIMUM WHEN SIGN IS BEHIND GUIDE RAIL OR BEYOND CLEAR ZONE.

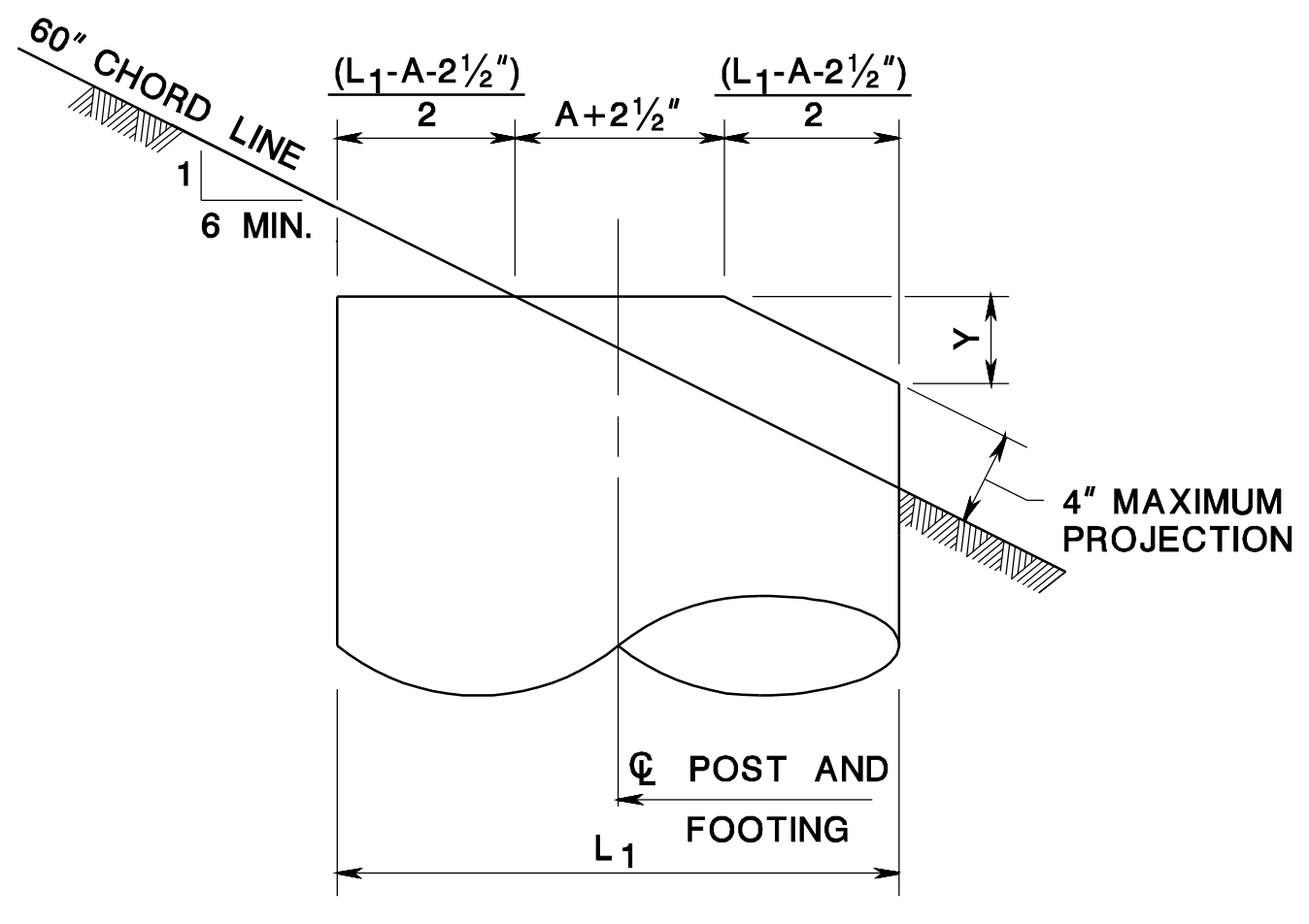
ANCHOR SPACING

A	(MODEL B525) = 3"
A	(MODEL B650) = 4"
B	(BRACKET No. 1) = DEPTH OF POST + 7 ¹⁵ / ₁₆ "
B	(BRACKET No. 2) = DEPTH OF POST + 8 ¹ / ₁₆ "
B	(BRACKET No. 3) = DEPTH OF POST + 8 ¹ / ₁₆ "

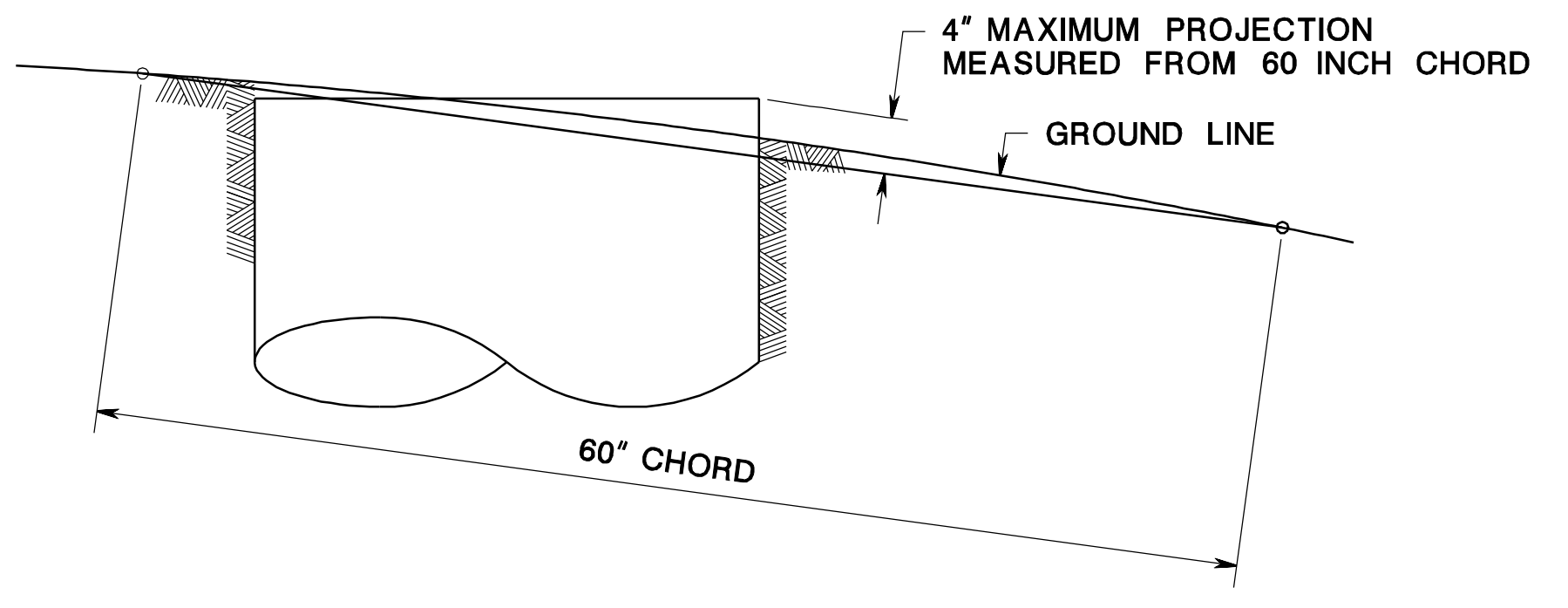


BREAKAWAY COUPLING AND HINGE PLATE ASSEMBLY (TYPICAL)

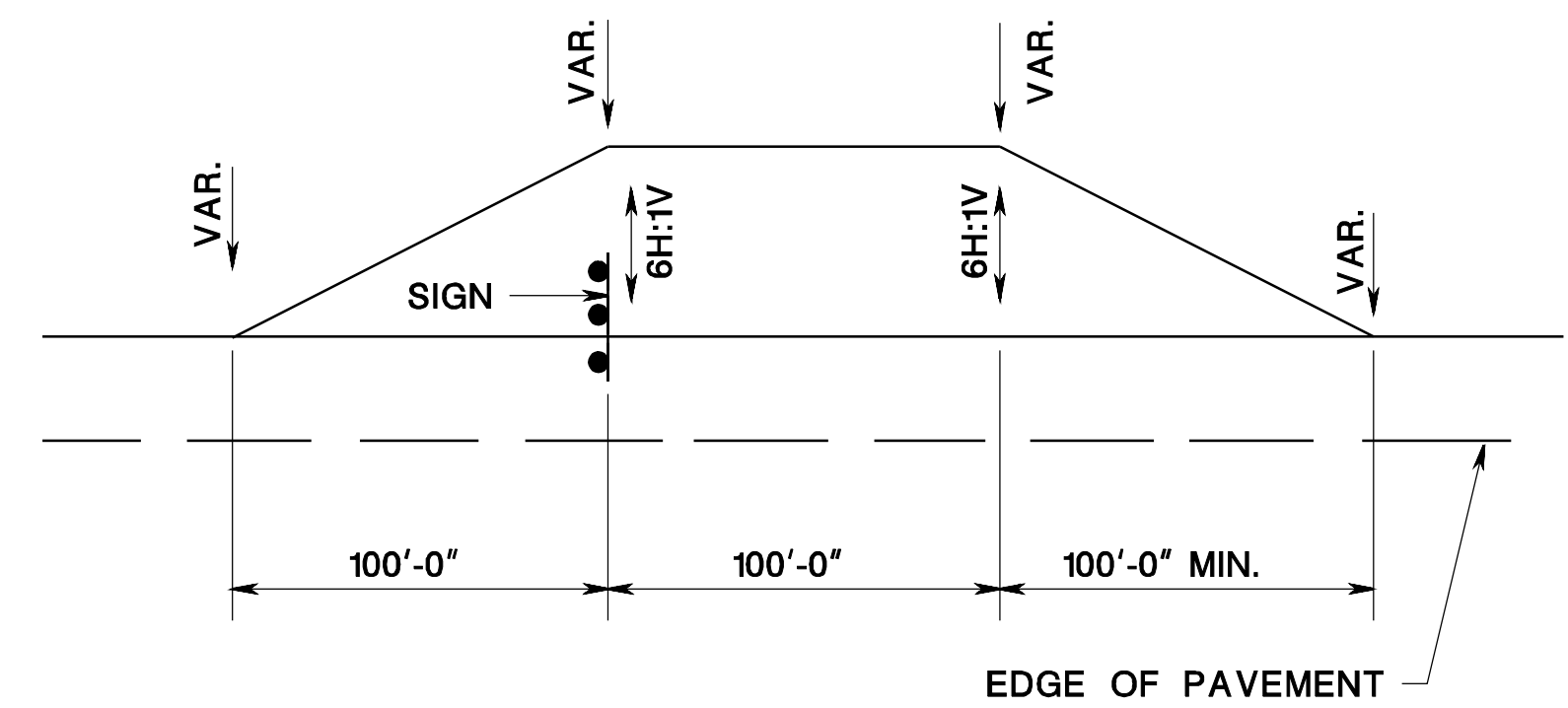
REINFORCEMENT STEEL IS IN METRIC UNITS



(BEND REINFORCEMENT STEEL TO FIT)
FOOTING BEVEL DETAIL (SEE NOTE 7)



FOOTING/STUB PROJECTION DETAIL (SEE NOTE 7)



BREAKAWAY GRADING DETAIL (SEE NOTE 7) (PLAN VIEW)

BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

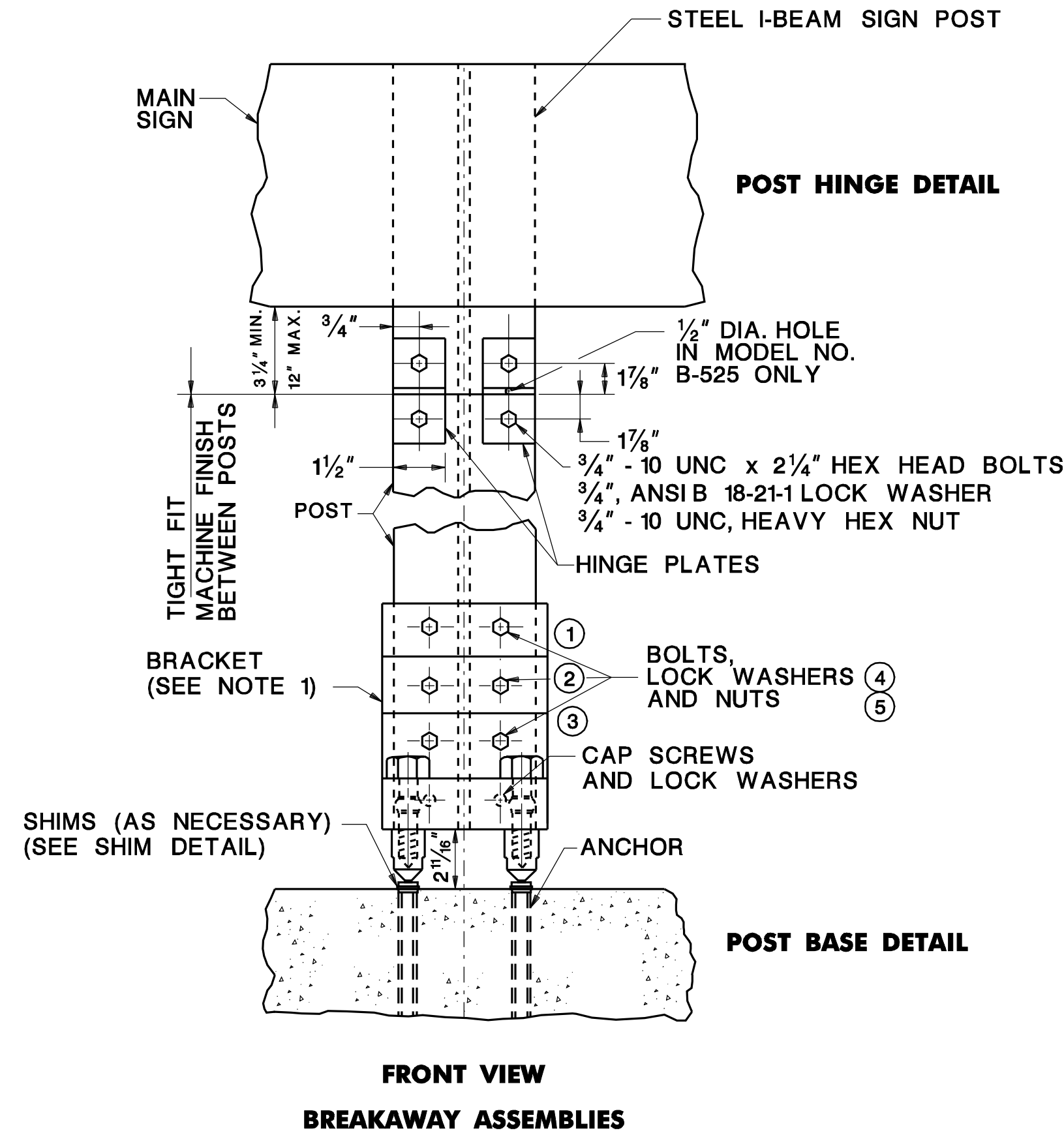
N.T.S.

CD-612-7

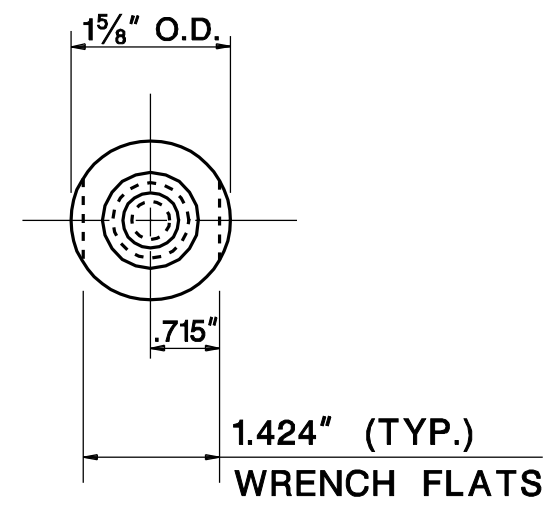
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

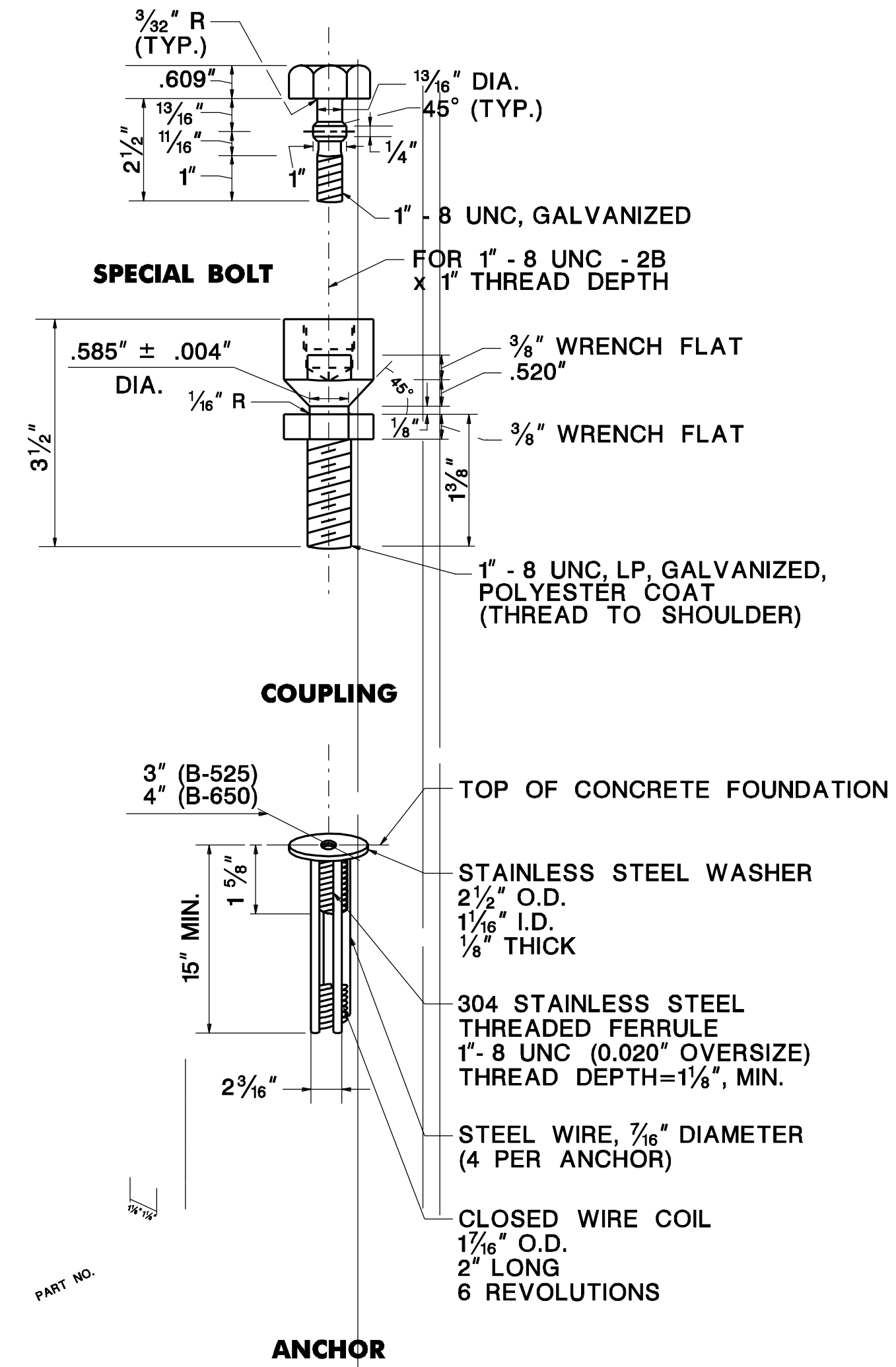
CD-612-7.1



BRACKET No.	E (IN.)
1	0.100
2	0.150
3	0.200



SPECIAL BOLT, ANCHOR & COUPLING DETAIL



NOTES:

1. THE BRACKET NUMBER SHALL BE STAMPED ON THE BRACKET.
2. BOLT THE BRACKETS TO POST. THEN PLACE POST AND CONNECTED BRACKET TO BREAKAWAY COUPLING.
3. ALL BOLTS TO BE TIGHTENED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. DESIGNATION B-525 IS FOR 6" AND 8" BEAM SIZES.
5. DESIGNATION B-650 IS FOR 10", 12", 14", 16", 18" AND 21" BEAM SIZES
6. DO NOT PLACE TORQUE WRENCH ACROSS NECK OF COUPLING

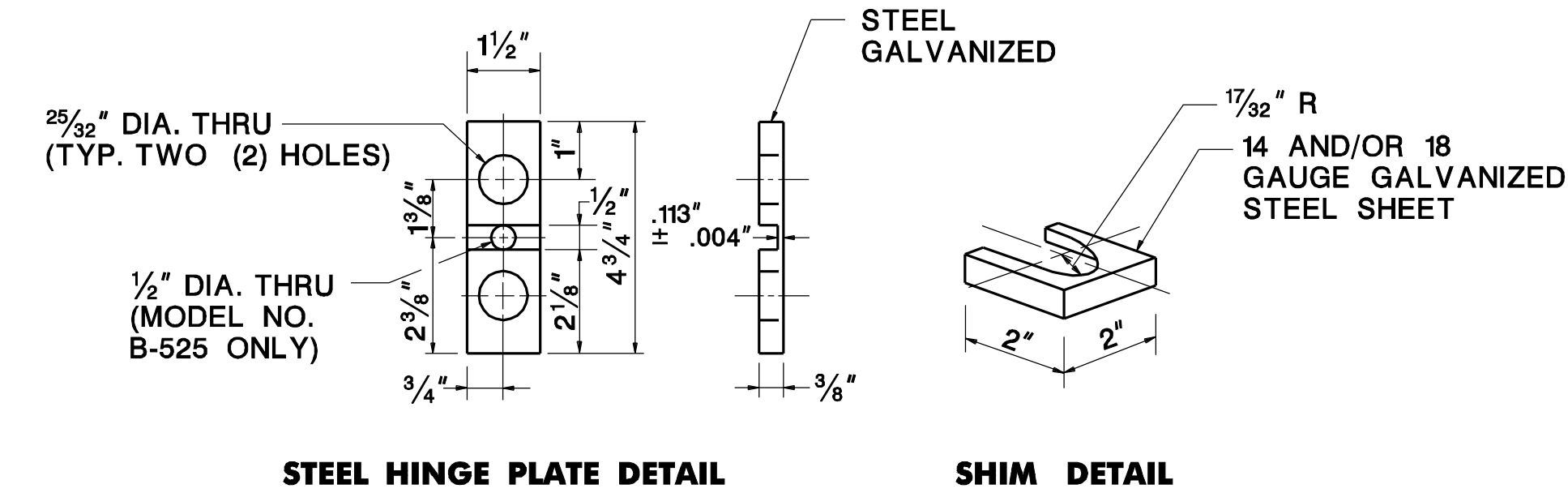
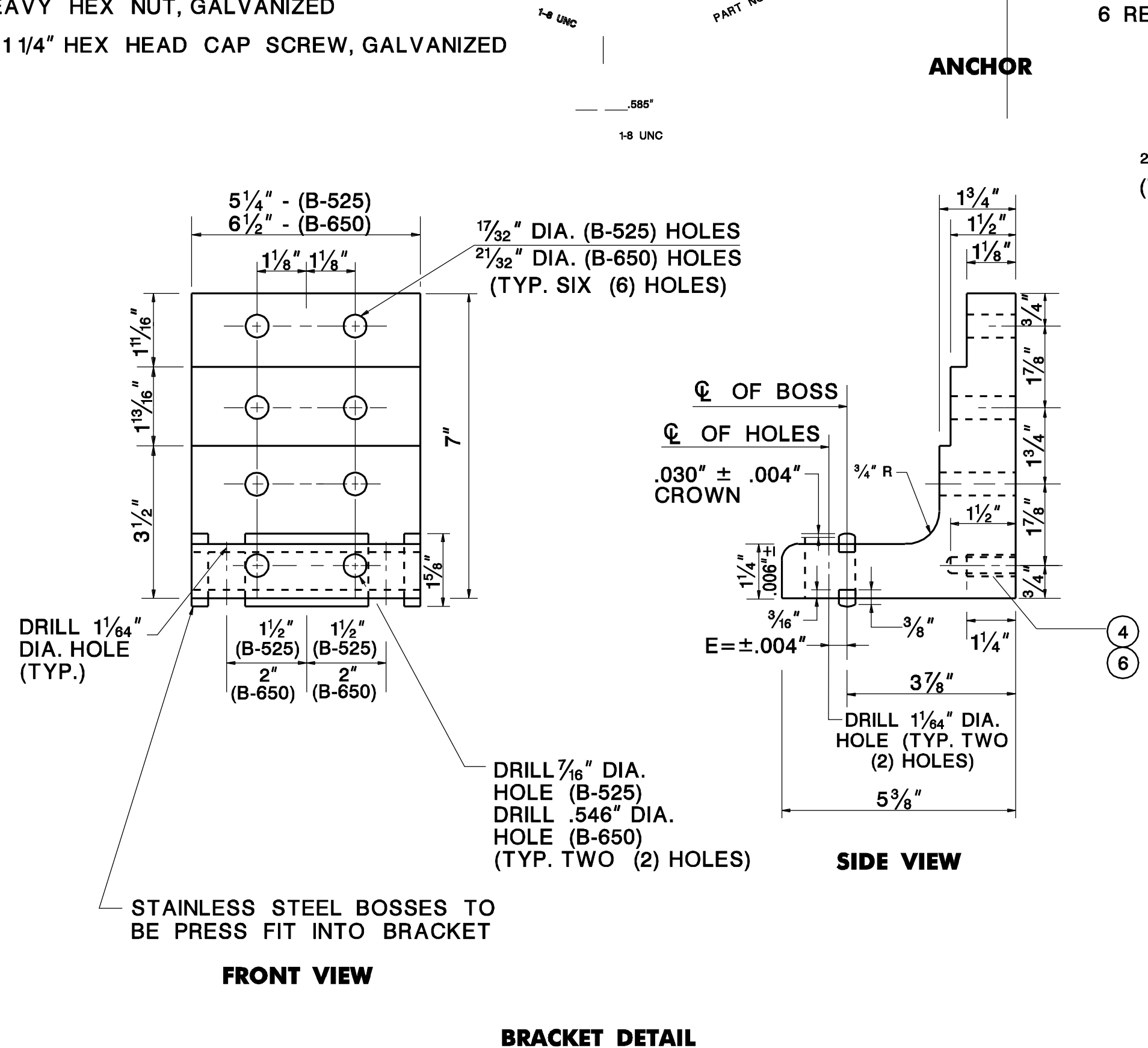
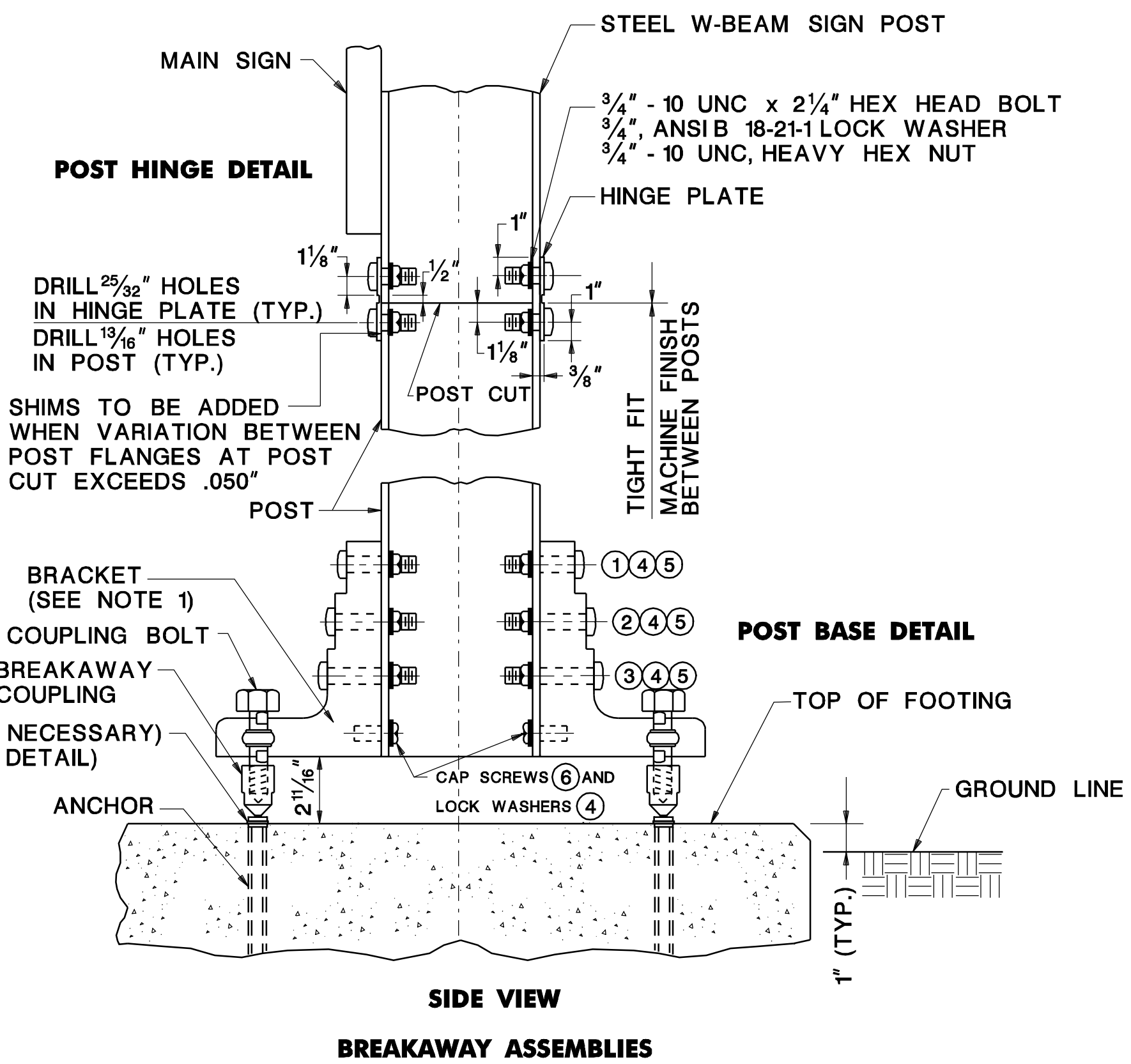
BOLTS, LOCK WASHERS, NUTS & CAP SCREWS

MODEL 525

1. 1/2" - 13 UNC x 2 1/2" HEX HEAD BOLT, GALVANIZED
2. 1/2" - 13 UNC x 2 3/4" HEX HEAD BOLT, GALVANIZED
3. 1/2" - 13 UNC x 3" HEX HEAD BOLT, GALVANIZED
4. 1/2", ANSIB 18-21-1 LOCK WASHER, GALVANIZED
5. 1/2" - 13 UNC, HEAVY HEX NUT, GALVANIZED
6. 1/2" - 13 UNC x 1 1/4" HEX HEAD CAP SCREW, GALVANIZED

MODEL 650

1. 5/8" - 11 UNC x 2 3/4" HEX HEAD BOLT, GALVANIZED
2. 5/8" - 11 UNC x 3" HEX HEAD BOLT, GALVANIZED
3. 5/8" - 11 UNC x 3 1/4" HEX HEAD BOLT, GALVANIZED
4. 5/8", ANSIB 18-21-1 LOCK WASHER, GALVANIZED
5. 5/8" - 11 UNC, HEAVY HEX NUT, GALVANIZED
6. 5/8" - 11 UNC x 1 1/4" HEX HEAD CAP SCREW, GALVANIZED



BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

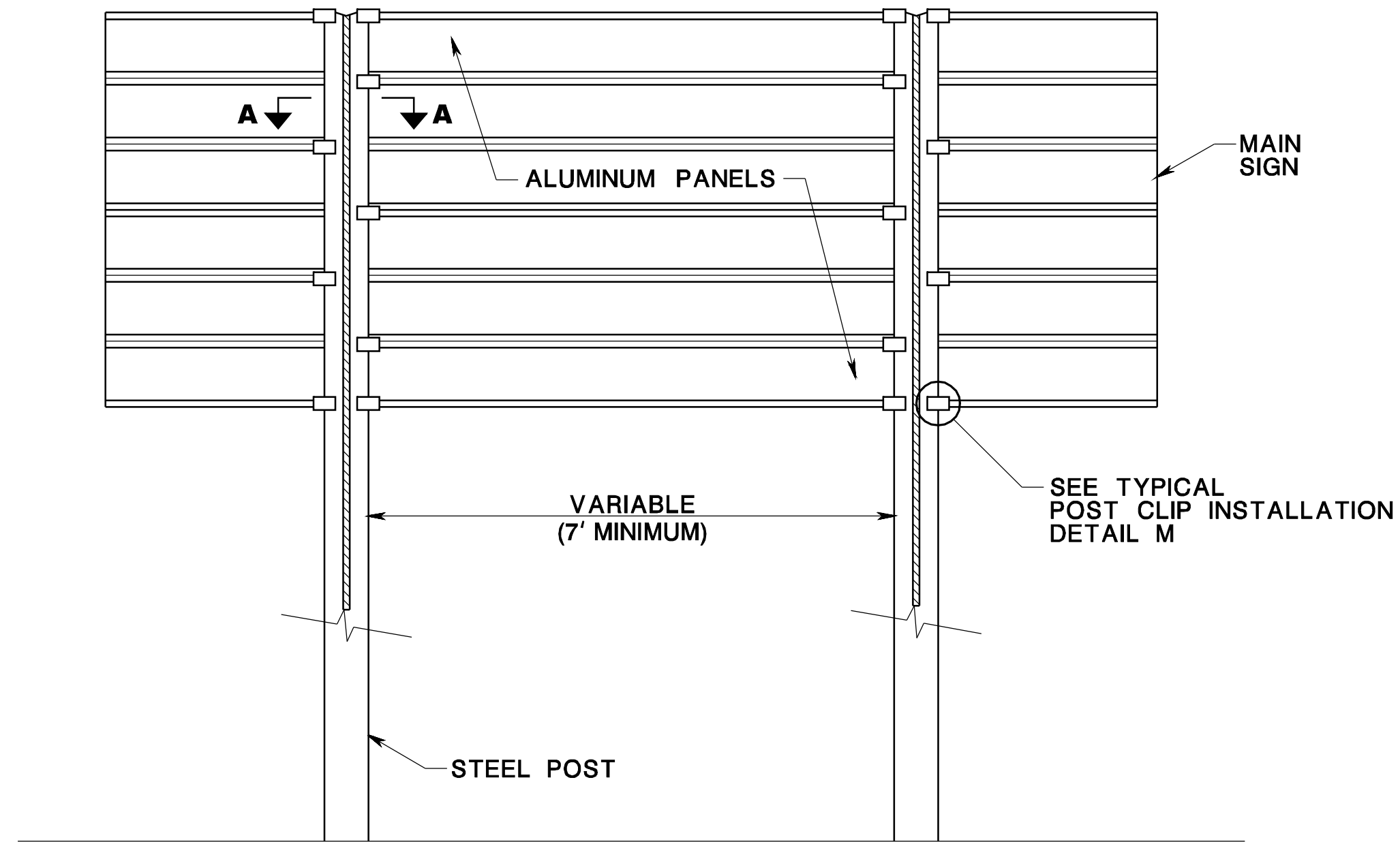
CONSTRUCTION DETAILS

CD-612-8.1

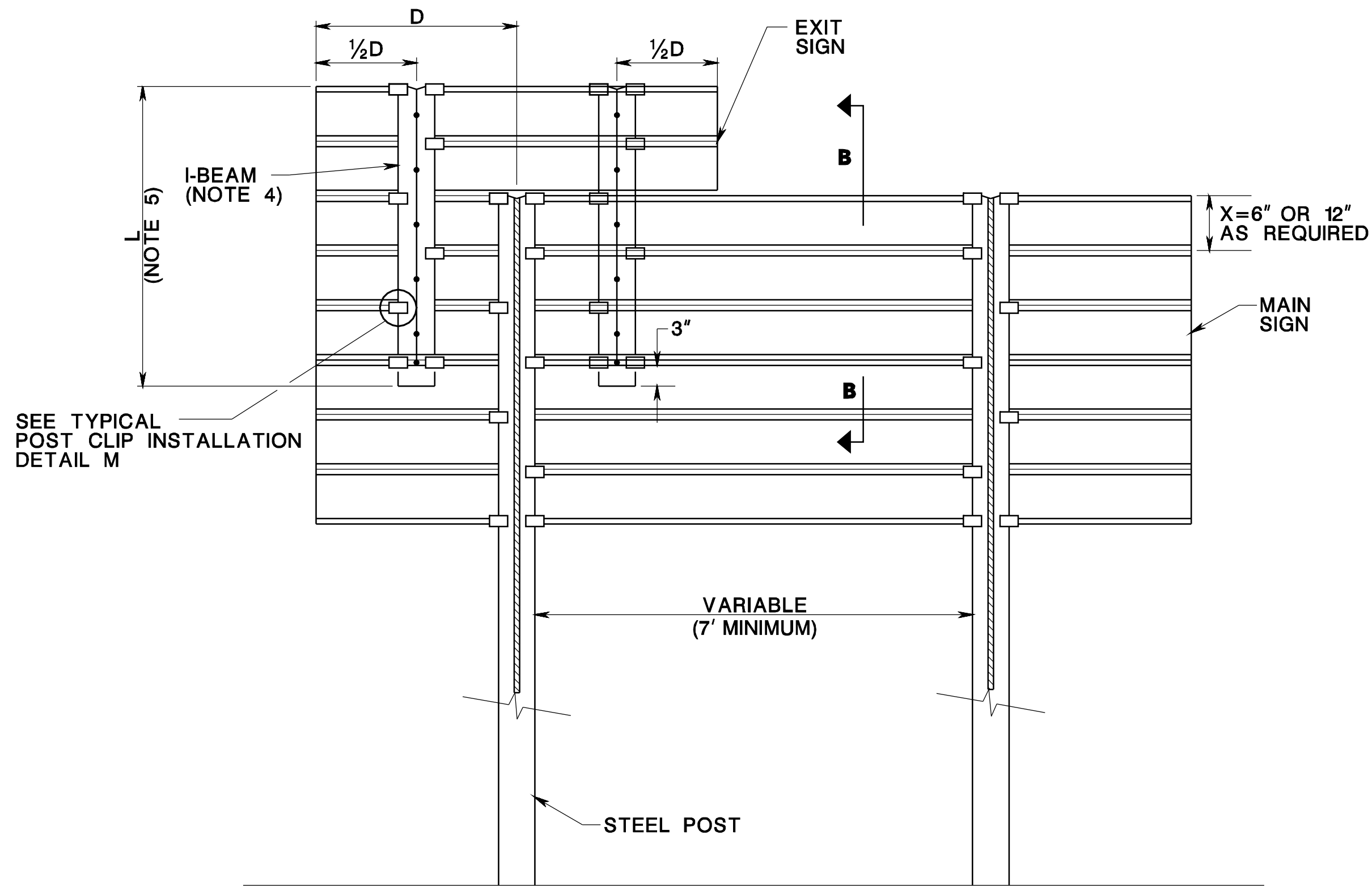
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BDC09D-02 BREAKAWAY SIGN SUPPORTS
BDC07D-01 ORIGINAL SHEET

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 BDC09D-01 ORIGINAL SHEET



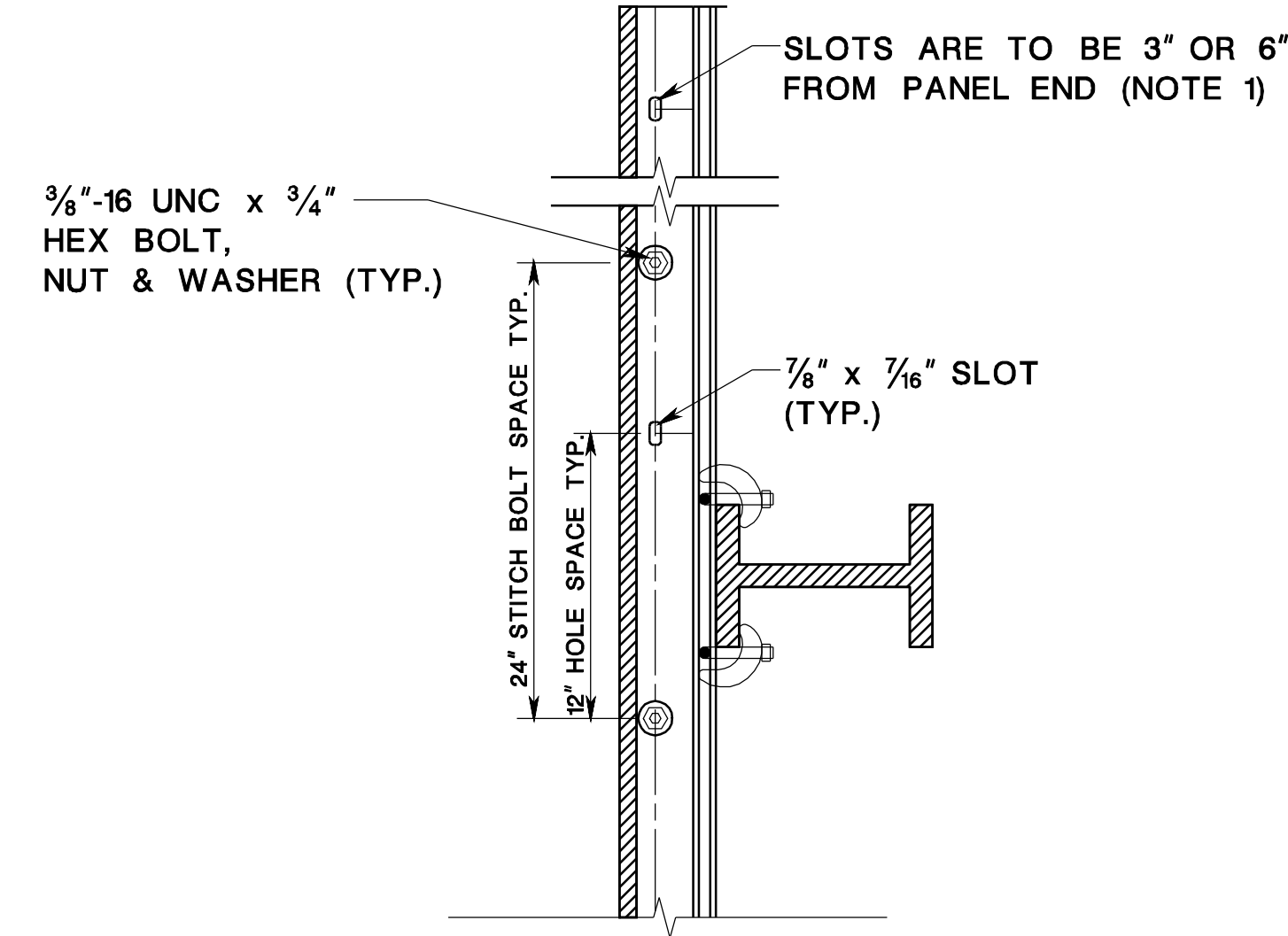
SIGN WITHOUT EXIT SIGN



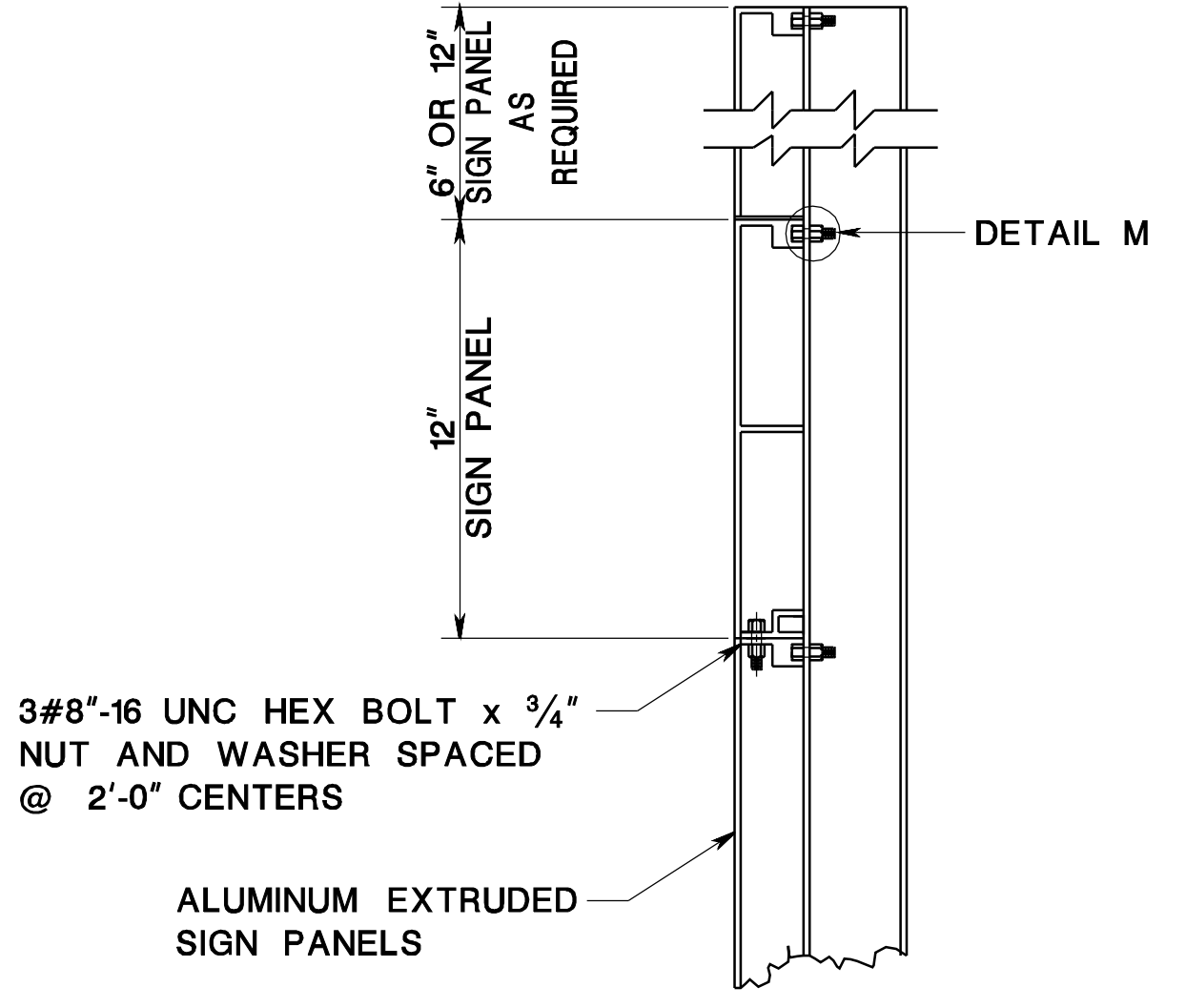
SIGN WITH EXIT SIGN

GENERAL NOTES :

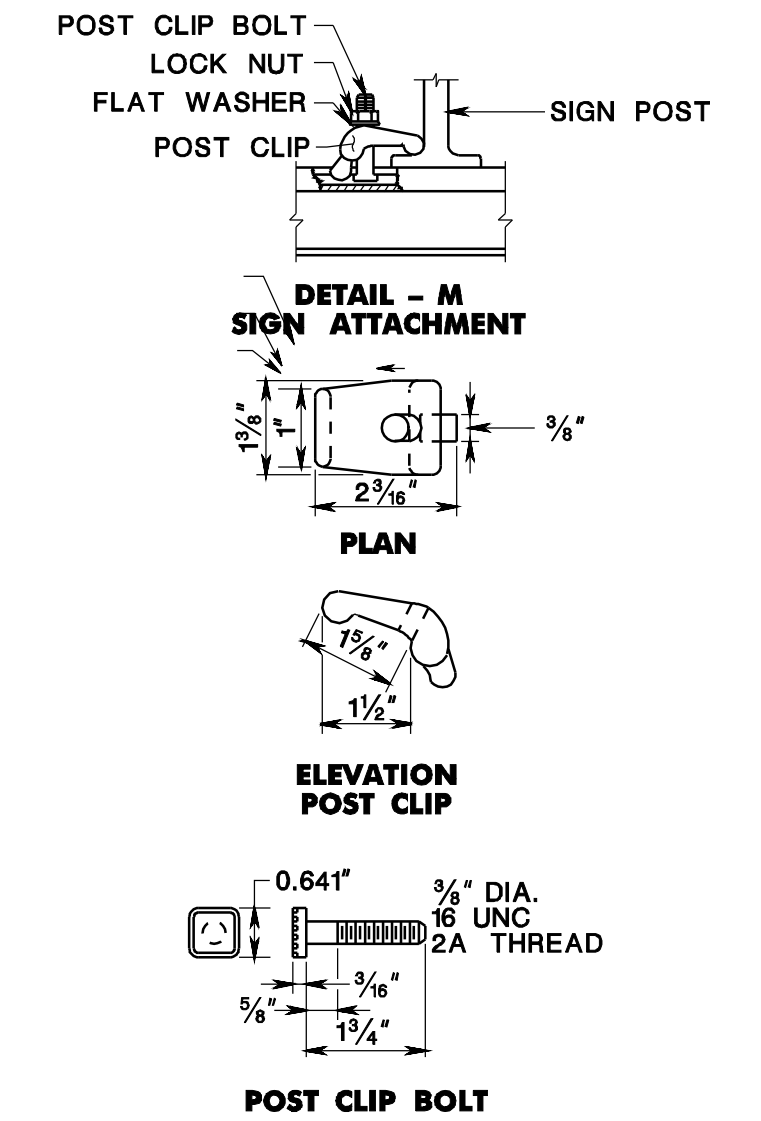
- EXTRUDED SIGN PANEL SECTIONS SHALL BE BOLTED TOGETHER WITH 3/8"-16 UNC x 3/4" HEX BOLTS. A HEX BLOT SHALL BE INSTALLED IN THE FIRST HOLE FROM THE PANEL END AND AT 24" C TO C THERE AFTER.
- INSTALL HEX BOLTS IN ACCORDANCE WITH NOTE 1 BETWEEN SIGN PANEL AND EXIT PANEL (WHEN PROVIDED)
- EXIT SIGN SHALL BE PLACED ON EXIT SIDE OF SIGN MAIN.
- ALUMINUM I-BEAM (DEPTH=4"), WEB THICKNESS=0.25", FLANGE THICKNESS=0.25", FLANGE WIDTH=3.5"
- L=5'-3" WHEN X=12" AND L=4'-9" WHEN X=6"
- SIGNS WITHOUT EXIT SIGNS OR SIGNS WITH PARTIAL WIDTH EXIT SIGNS SHALL BE PROVIDED WITH I-BEAM EXTENDING TO THE TOP OF THE MAIN SIGN AS SHOWN. THE UPPER POST SHALL BE EXTENDED TO THE TOP OF THE EXIT SIGN WHEN FULL WIDTH EXIT SIGNS ARE EMPLOYED.



SECTION A-A



SECTION B-B
(EXIT PANEL NOT SHOWN IN SECTION B-B)



BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

N.T.S.

CD-612-9
 NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-612-9.1

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BDC09D-02 BREAKAWAY SIGN SUPPORTS
BDC09D-01 ORIGINAL SHEET

SIGN SUPPORT DATA TABLE

IDENTIFICATION		OFFSET X ₁	SIGN SIZE A ₁ B ₁ A ₂			C.G. SIGN Y ₁	NO. OF POSTS	POST SIZE	MODEL	BRACKET NO.	POST HEIGHT				DIMENSIONS TO TOP OF FOOTING			FOOTING DIMENSIONS		REINF. STEEL Z ₁
											C ₁	D ₁	E ₁	M ₁	F ₁	G ₁	H ₁	K ₁	L ₁	

FOOTING BEVEL TABLE

IDENT. NO.	(L ₁ - B) 2	Y		
		POST #1	POST #2	POST #3

GENERAL NOTES:

1. AN ASTERISK (*) IN COLUMN L₁ INDICATES THAT THE EXPOSED EDGE OF FOOTING MUST BE BEVELLED TO MEET THE 4 INCH MAXIMUM PROJECTION REQUIREMENT.
2. FOR IDENTIFICATION OF TABULAR ITEMS AND DETAILS RELATING THERETO, REFER TO BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS (CD-612-7)

NOTE TO DESIGNER:
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 REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

**BREAKAWAY SIGN SUPPORTS
FOR GROUND MOUNTED SIGNS**

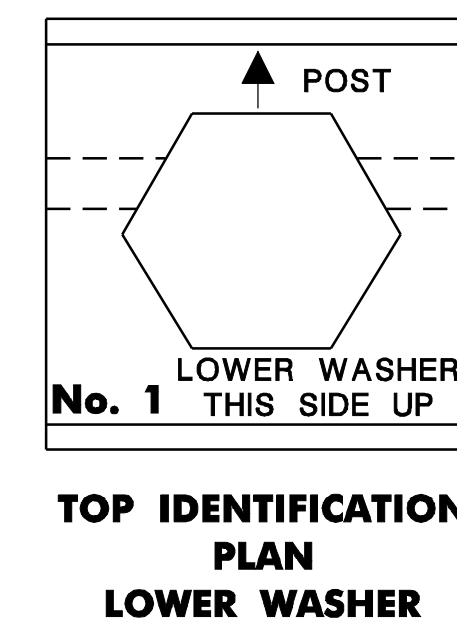
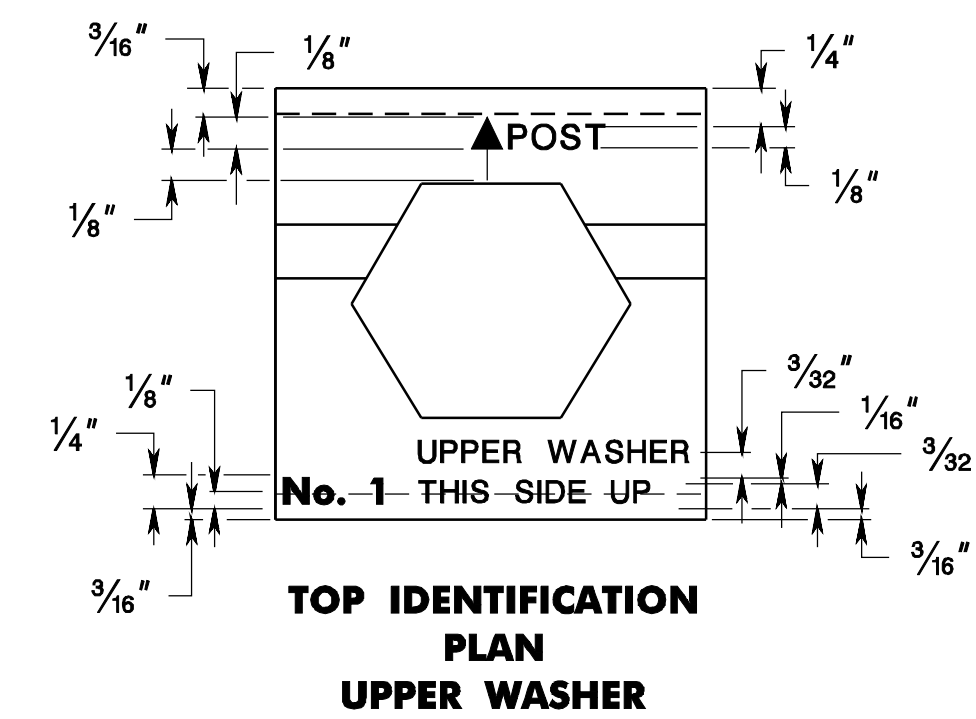
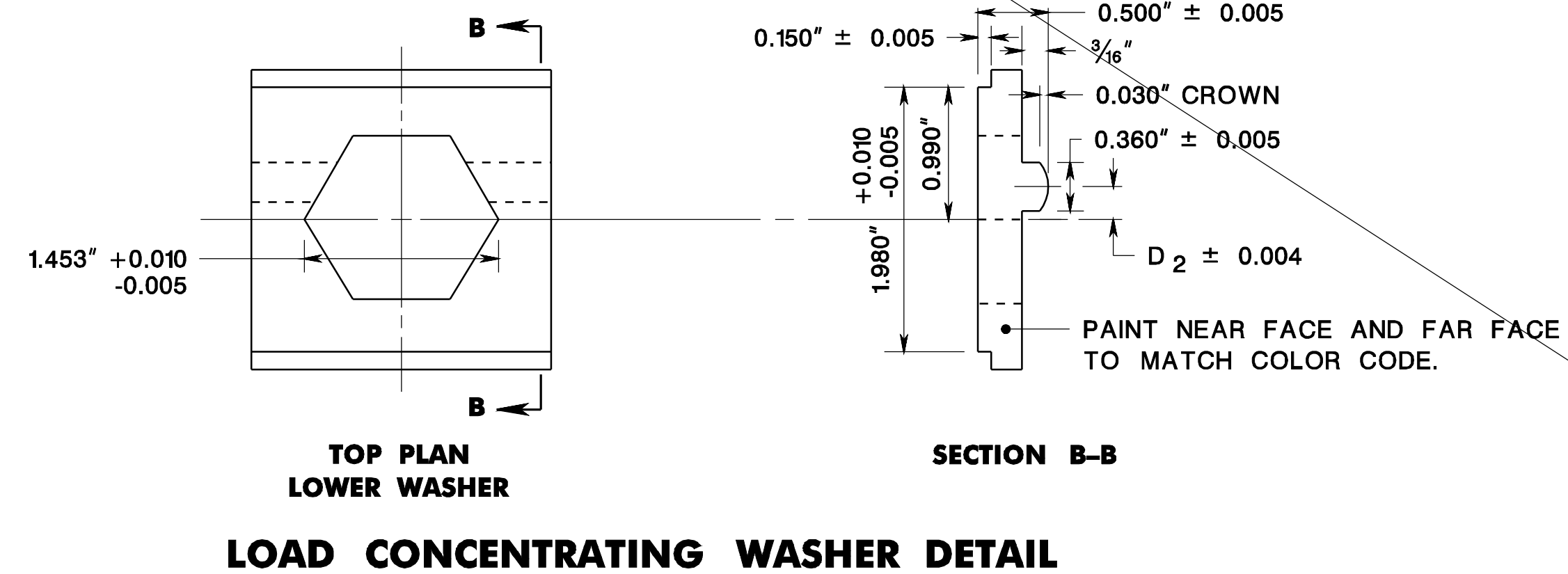
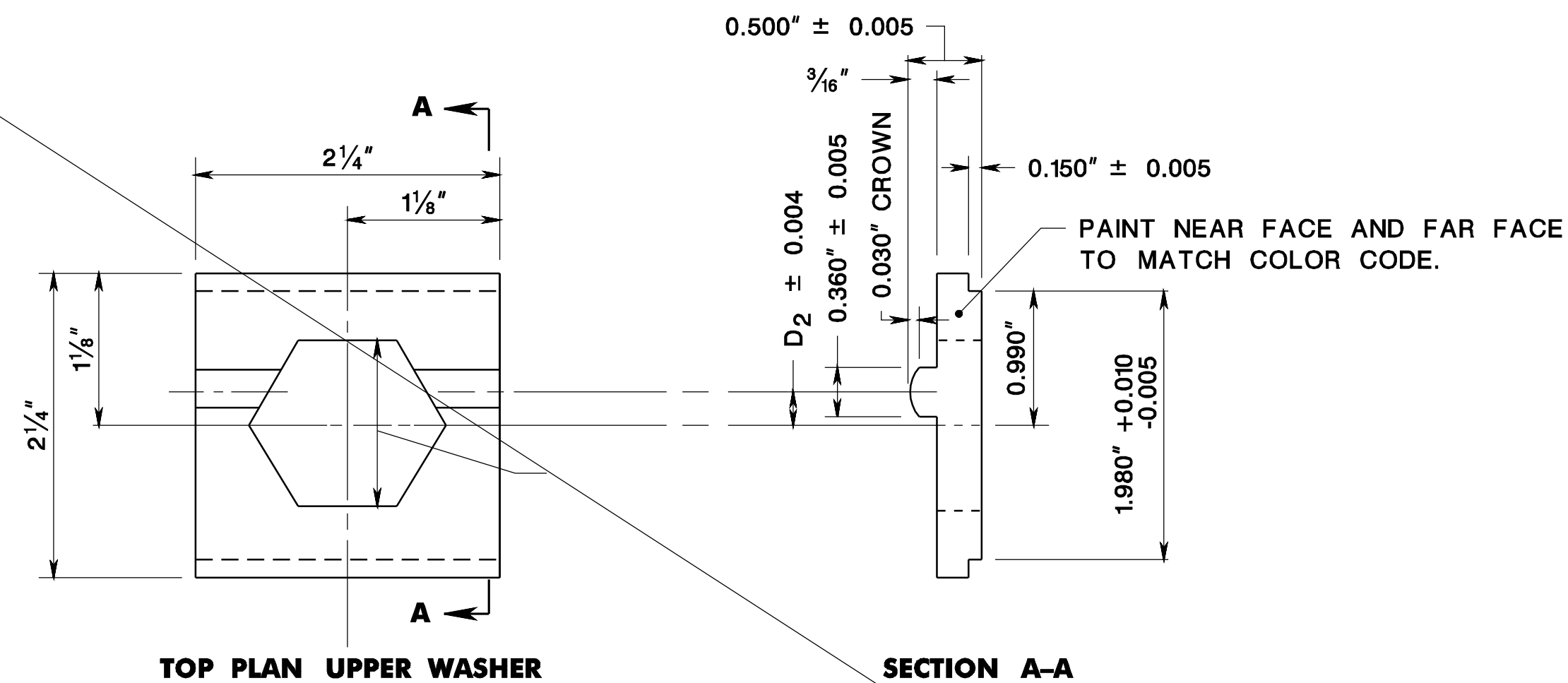
N.T.S.

CD-612-10

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

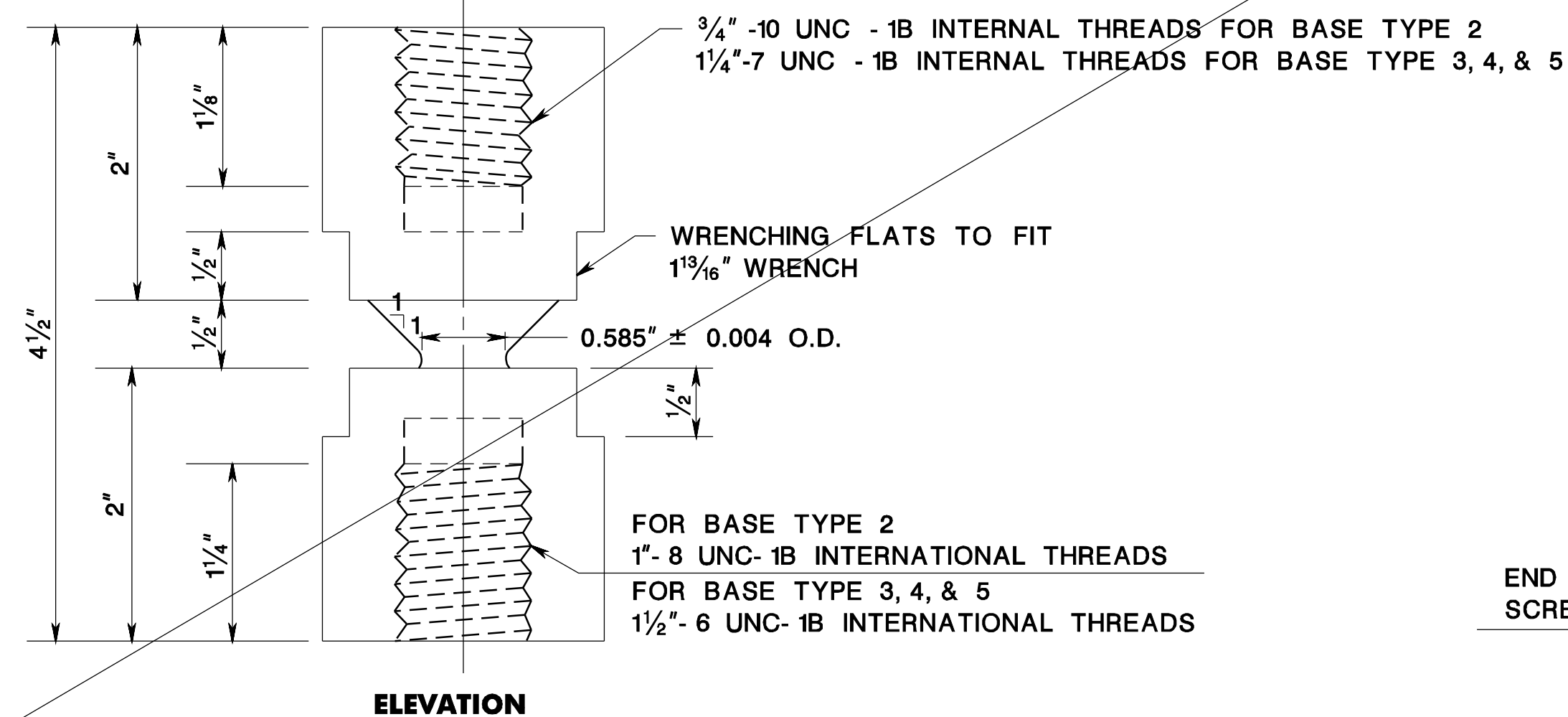
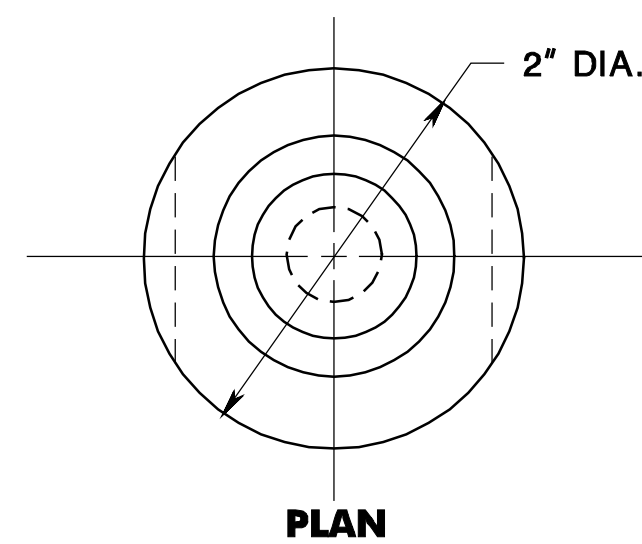
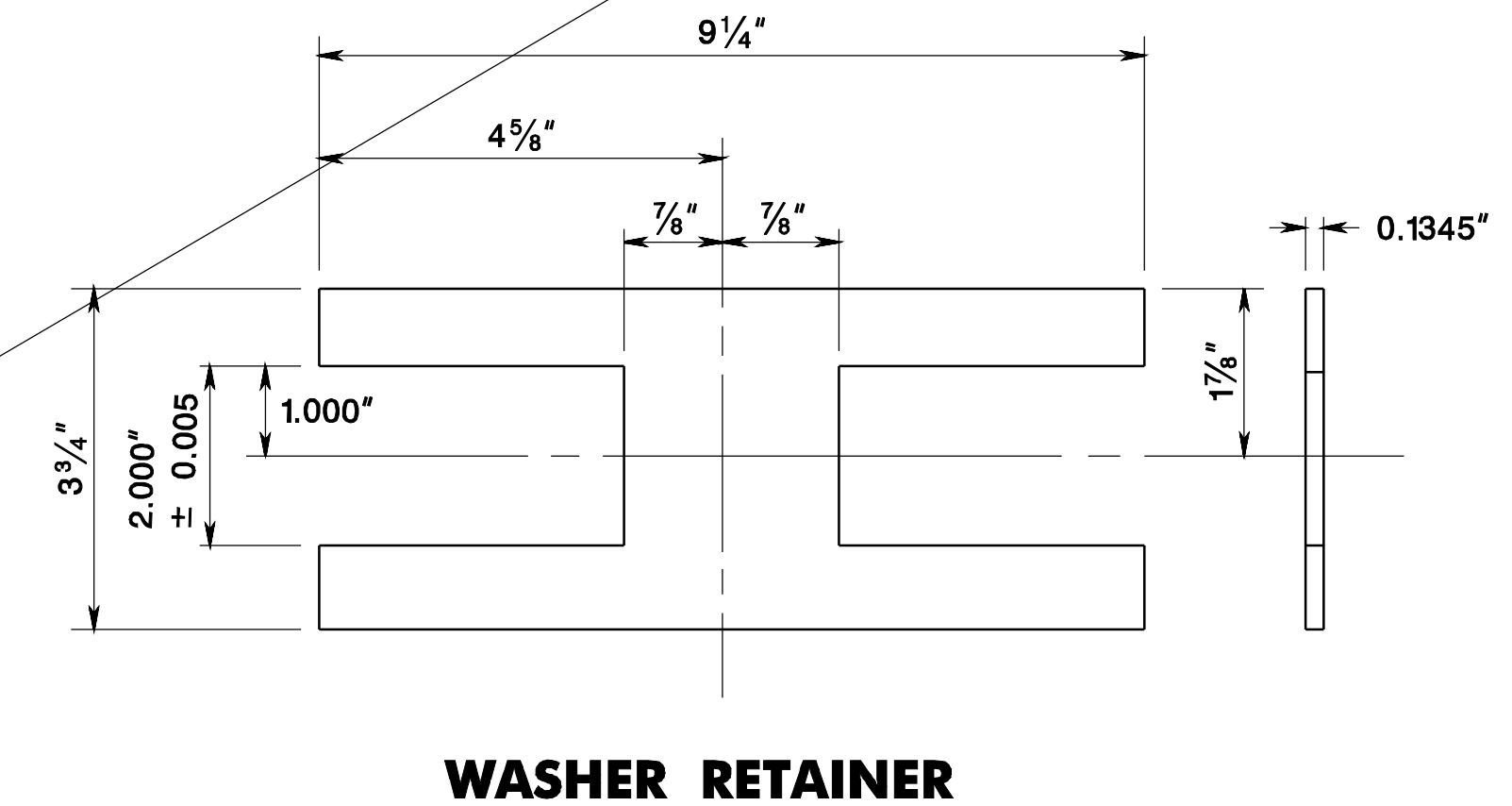
BDC09D-02 DELETED
BDC09D-02 ORIGINAL SHEET



LOAD CONCENTRATING WASHER IDENTIFICATION DETAIL

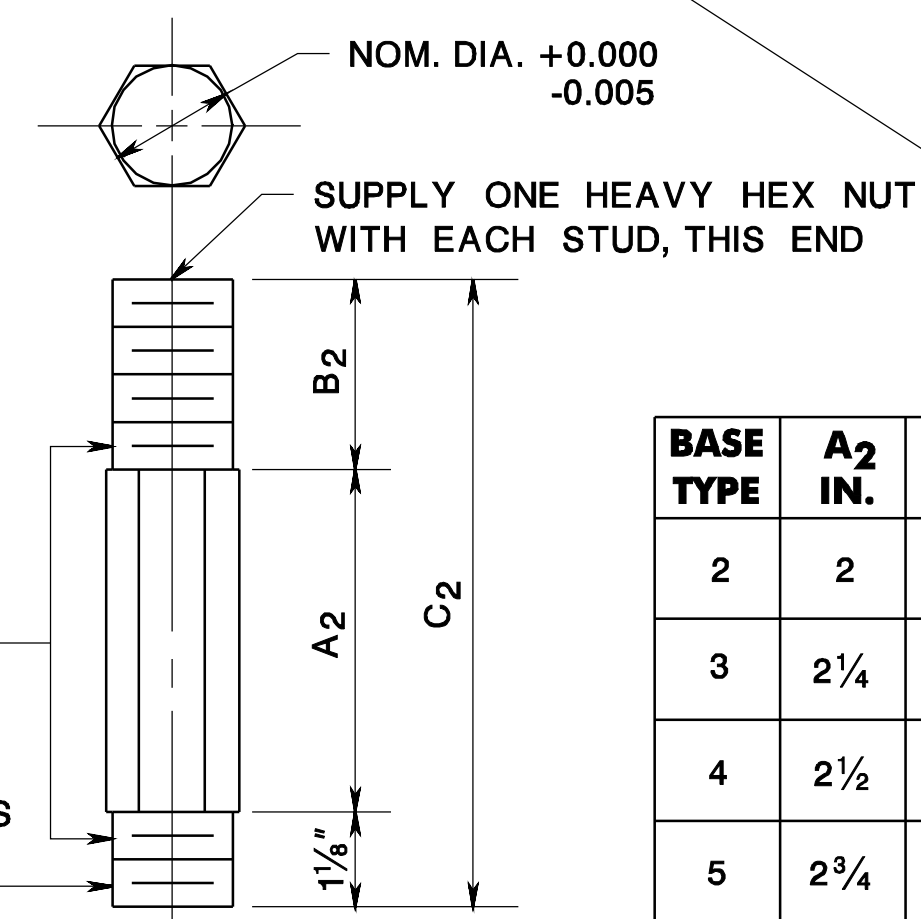
NOTE:
ALL LOAD CONCENTRATING WASHERS SHALL BE PERMANENTLY LABELED WITH APPROPRIATE WASHER NUMBER AND IDENTIFICATION AS SHOWN

WASHER NUMBER	D ₂ INCHES	FACE COLOR CODE
1	0.100	ORANGE
2	1.150	YELLOW
3	0.200	BLUE
4	0.250	GREEN



BREAKAWAY COUPLING *

* SHOWN FOR INFORMATION ONLY. COUPLINGS SHALL BE SUPPLIED BY N.J.D.O.T.



FOR BASE TYPE 2
3/4" - 10 UNC-1A THREADS (BOTH ENDS)
FOR BASE TYPE 3, 4, & 5
1 1/4" - 7 UNC-1A THREADS (BOTH ENDS)
END WITH THE SHORTER THREAD DEPTH (1 1/8") IS SCREWED INTO TOP OF BREAKAWAY COUPLING

BASE TYPE	A ₂ IN.	B ₂ IN.	C ₂ IN.	HEX SIZE
2	2	1 1/2	4 5/8	3/4
3	2 1/4	2 1/2	5 1/2	1 1/4
4	2 1/2	2 1/2	5 3/4	1 1/4
5	2 3/4	2 1/2	6	1 1/4

HEX STUD LENGTHS & SIZES

OBSOLETE PER BDC09D-02
BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

N.T.S.

CD-612-11

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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SIGN SUPPORT DATA TABLE

IDENTIFICATION		OFFSET X ₁	SIGN SIZE				C.G. SIGN Y ₁	NO. OF POSTS	TUBE SIZE		POST HEIGHT			BASE TYPE	DIMENSIONS TO TOP OF FOOTING			FOOTING DIMENSIONS	REINF. STEEL	L. C. WASHER NUMBER		
NO.	STATION		A ₁	B ₁	A ₂				O.D.	THK.	C ₁	D ₁	E ₁		F ₁	G ₁	H ₁			K ₁	L ₁	Z ₁

FOOTING BEVEL TABLE

IDENT. NO.	(L ₁ - B) 2	Y		
		POST #1	POST #2	POST #3

- GENERAL NOTES:**
1. AN ASTERISK (*) IN COLUMN L₁ INDICATES THAT THE EXPOSED EDGE OF FOOTING MUST BE BEVELLED TO MEET THE 4 INCH MAXIMUM PROJECTION REQUIREMENT.
 2. LOAD CONCENTRATING WASHER FACE COLOR CODE SHALL BE AS FOLLOWS:
L.C. WASHER # 1 ORANGE
L.C. WASHER # 2 YELLOW
L.C. WASHER # 3 BLUE
L.C. WASHER # 4 GREEN
 3. FOR IDENTIFICATION OF TABULAR ITEMS AND DETAILS RELATING THERETO, REFER TO BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS (CD-612-7)

NOTE TO DESIGNER:
THIS SHEET REQUIRES DESIGN SPECIFIC INFORMATION TO BE ADDED AND INCLUDED IN THE CONTRACT PLANS.

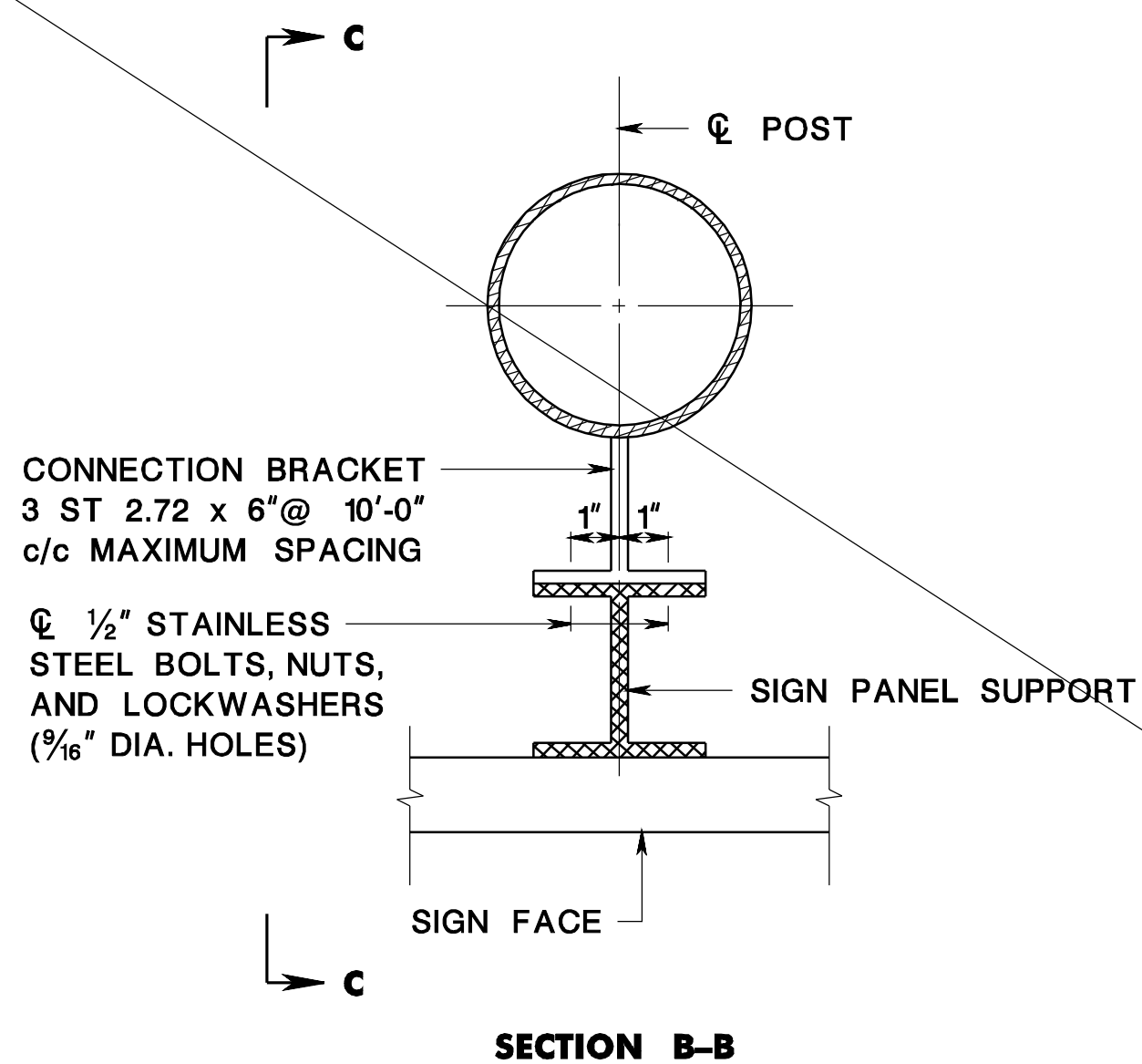
REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

**OBSOLETE PER BDC09D-02
BREAKAWAY SIGN SUPPORTS
FOR GROUND MOUNTED SIGNS
N.T.S.**

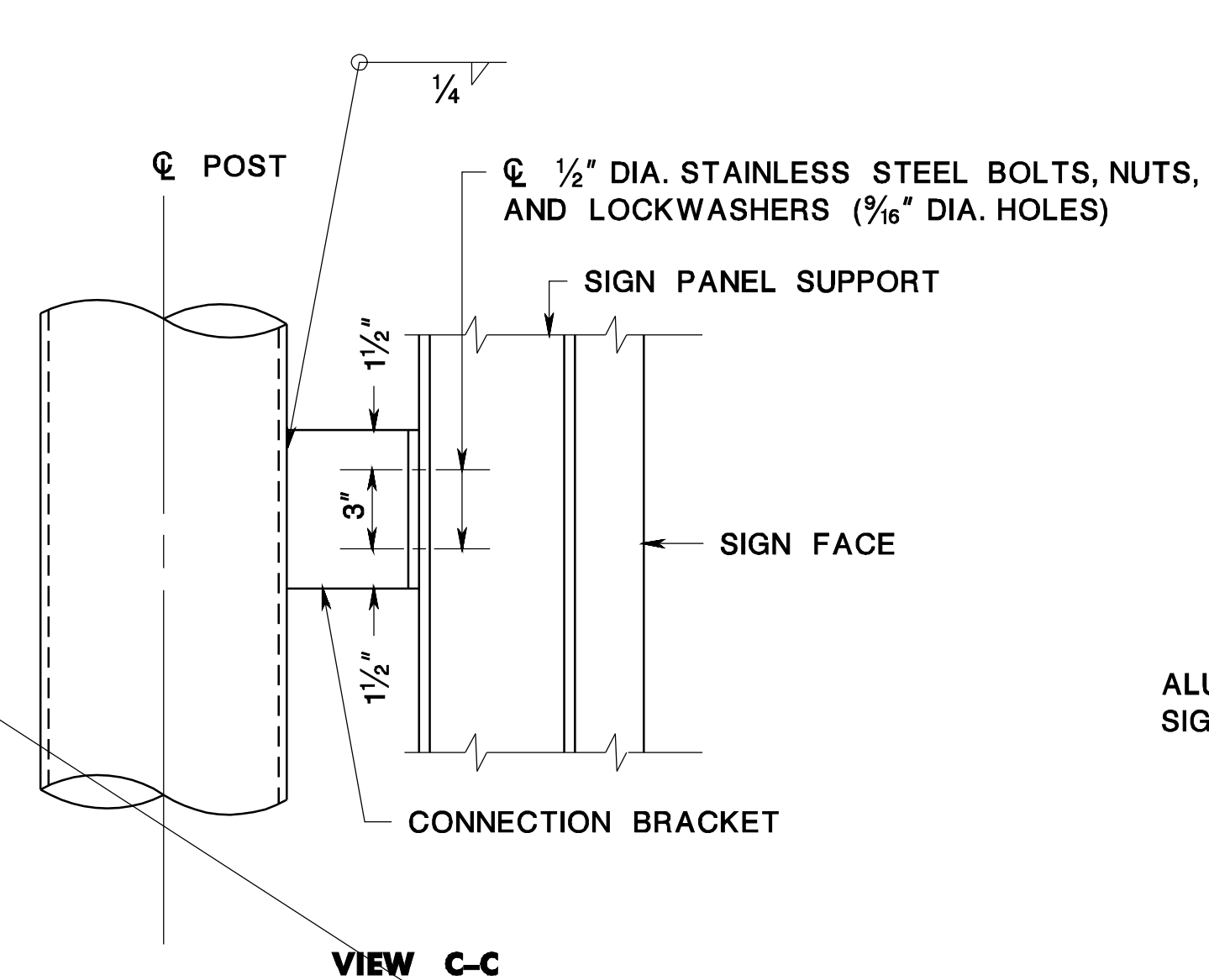
CD-612-12

NEW JERSEY DEPARTMENT OF TRANSPORTATION

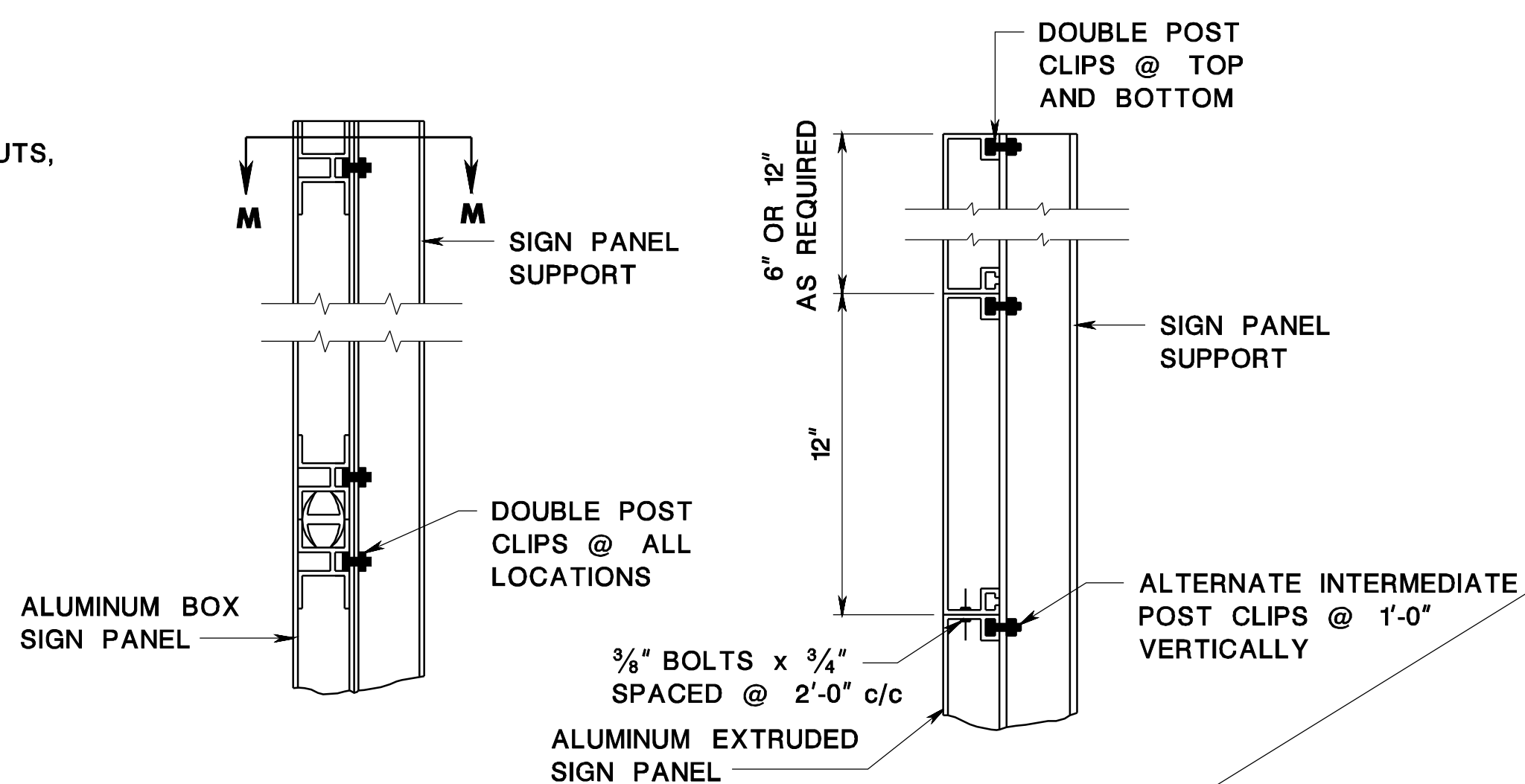
**CONSTRUCTION DETAILS
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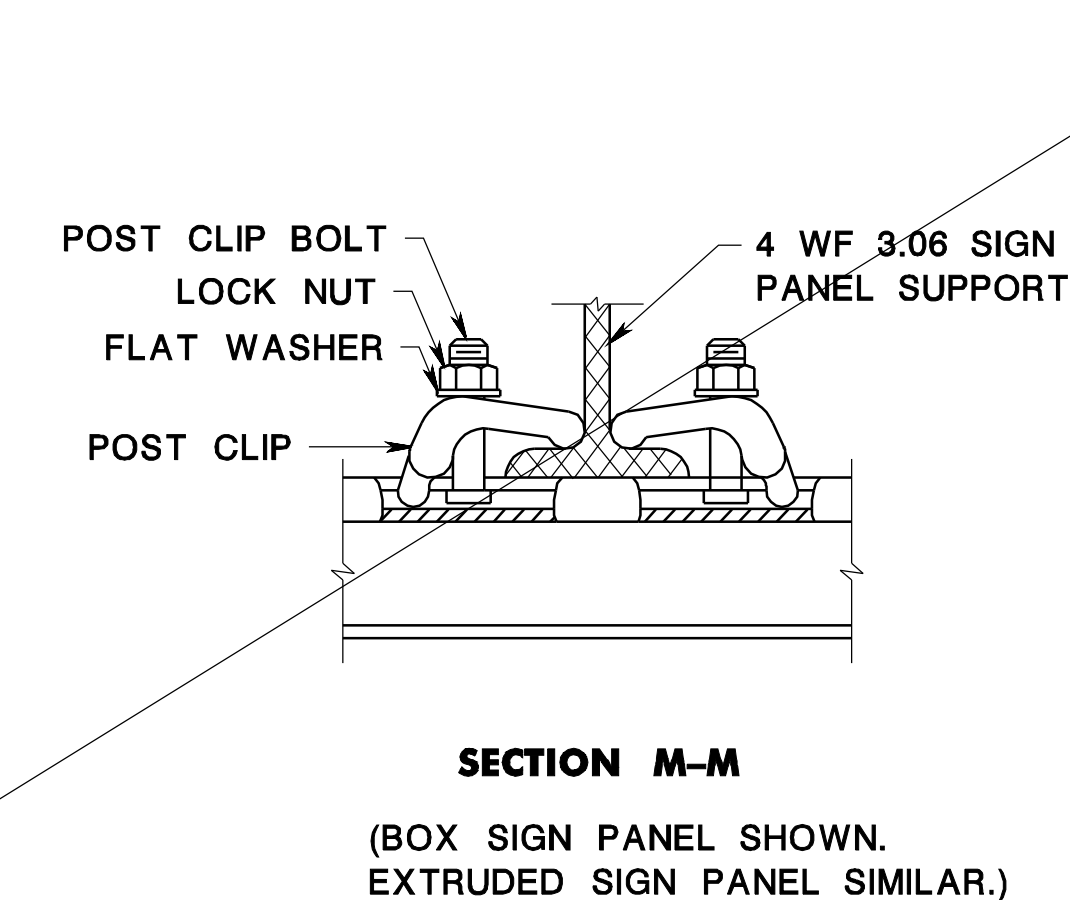
SECTION B-B



VIEW C-C



SIGN PANEL CONNECTION DETAILS



SECTION M-M
(BOX SIGN PANEL SHOWN.
EXTRUDED SIGN PANEL SIMILAR.)

GENERAL NOTES:

1. USE CLASS "B" CONCRETE IN ALL FOOTINGS.
2. ALL FOOTINGS SHALL BE PLACED AGAINST UNDISTURBED OR ADEQUATELY COMPACTED EARTH, EXCEPT FOR FOOTING TOPS WHICH SHALL BE FORMED TO A DEPTH OF 3 INCHES BELOW GROUND LINE.
3. TOPS OF FOOTINGS ABOVE REFERENCE LINE ARE INDICATED BY PLUS (+) VALUE; AND BELOW REFERENCE LINE BY MINUS (-) VALUE.
4. MATERIAL FOR STRUCTURAL SHAPES AND PLATES SHALL BE ALUMINUM ALLOY 6061-T6.
5. ANCHOR BOLT ASSEMBLY SHALL BE STRUCTURAL STEEL CONFORMING TO ASTM SPECIFICATION F1554. NUTS, WASHERS AND BOLTS SHALL BE HOTDIP GALVANIZED CONFORMING TO ASTM A153 CLASS C. THE TOP 6 INCHES OF ALL ANCHOR BOLTS SHALL BE THREADED.
6. WELDING OF ALUMINUM SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS
7. UNUSUAL FOUNDATION CONDITIONS MAY REQUIRE REDESIGN OF FOOTING AND SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT.
8. DIMENSIONS FOR BASE TYPE A ARE DESIGNATED (A). DIMENSIONS FOR BASE TYPE B ARE DESIGNATED (B).
9. PROVIDE 4 WF 3.06 EXIT PANEL BRACE FOR PARTIAL WIDTH EXIT PANELS ONLY.

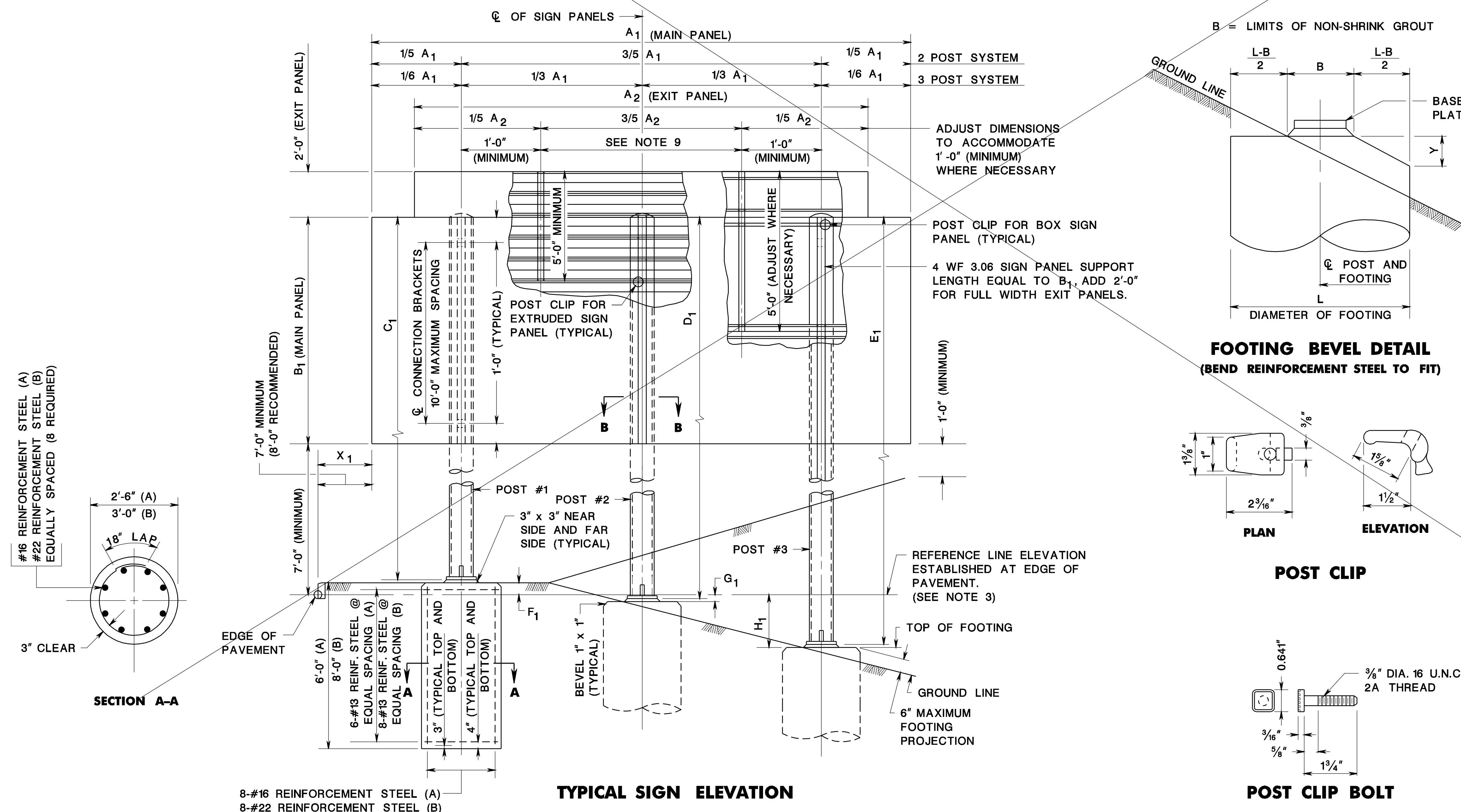
NOTES:

REINFORCEMENT STEEL IS IN METRIC UNITS.

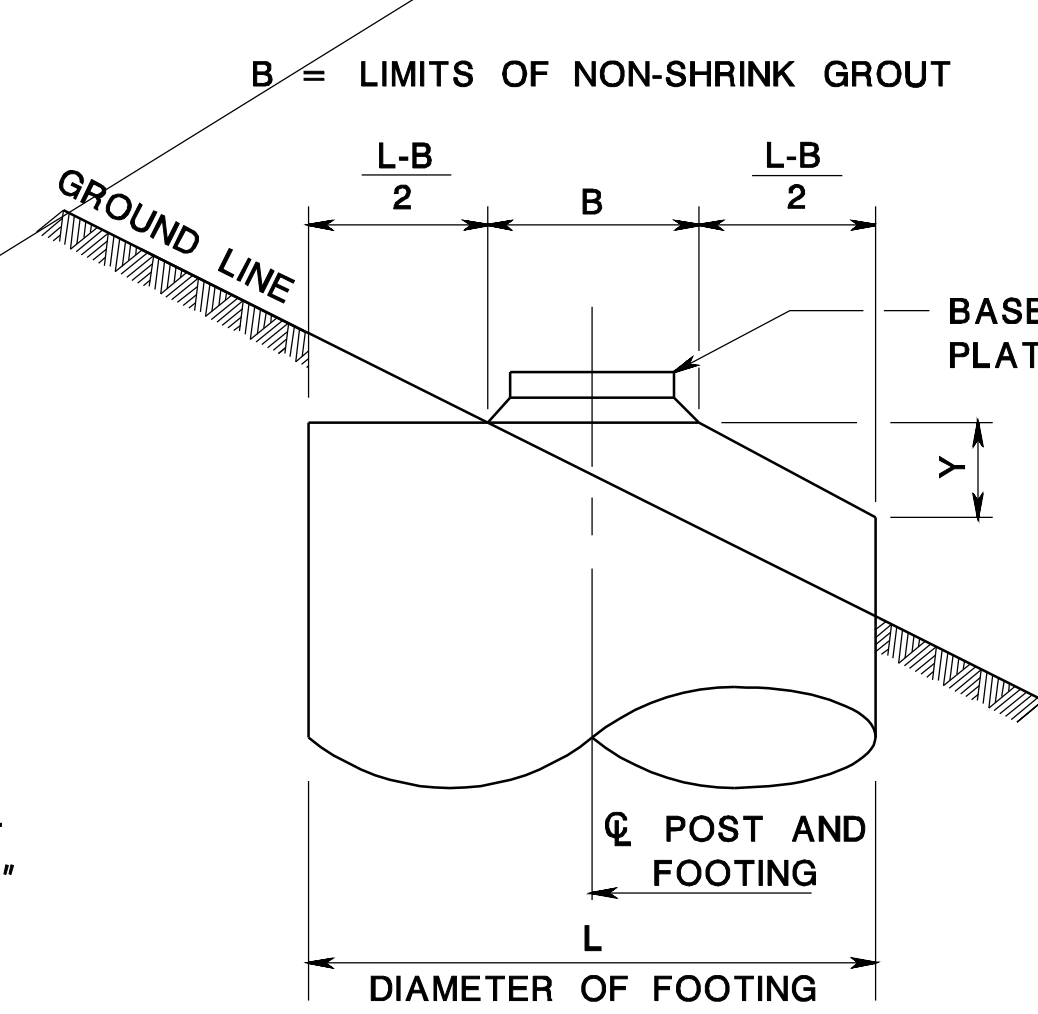
OBSOLETE PER BDC09D-02

NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

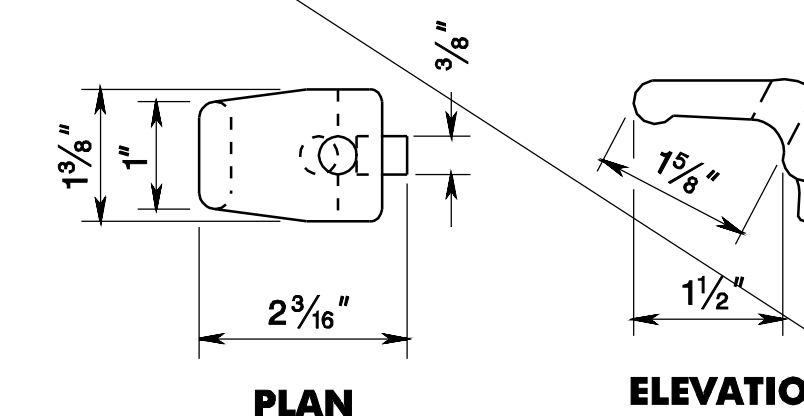
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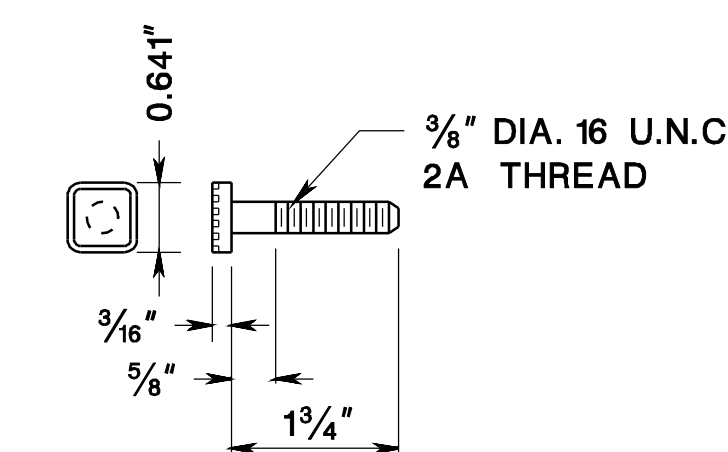
TYPICAL SIGN ELEVATION



FOOTING BEVEL DETAIL
(BEND REINFORCEMENT STEEL TO FIT)



POST CLIP



POST CLIP BOLT

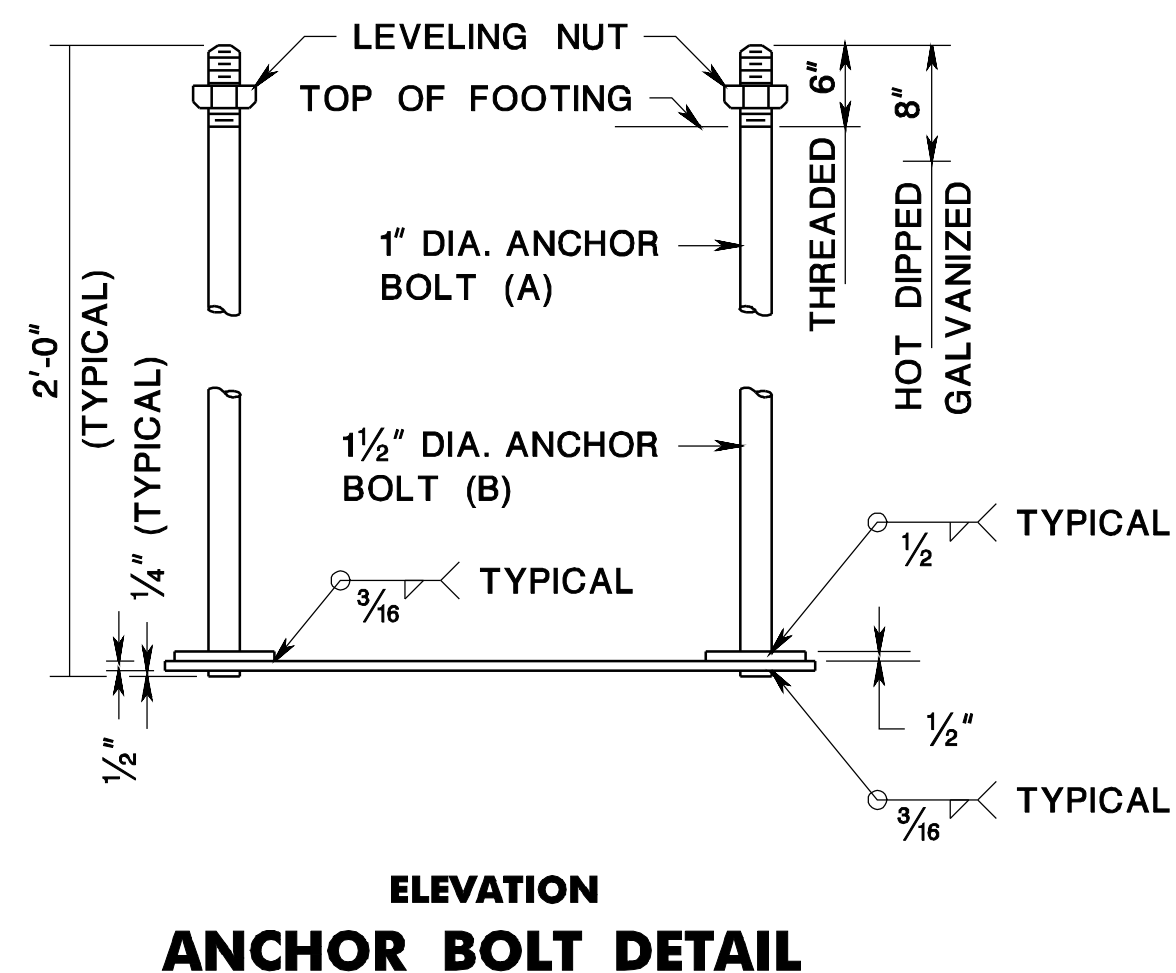
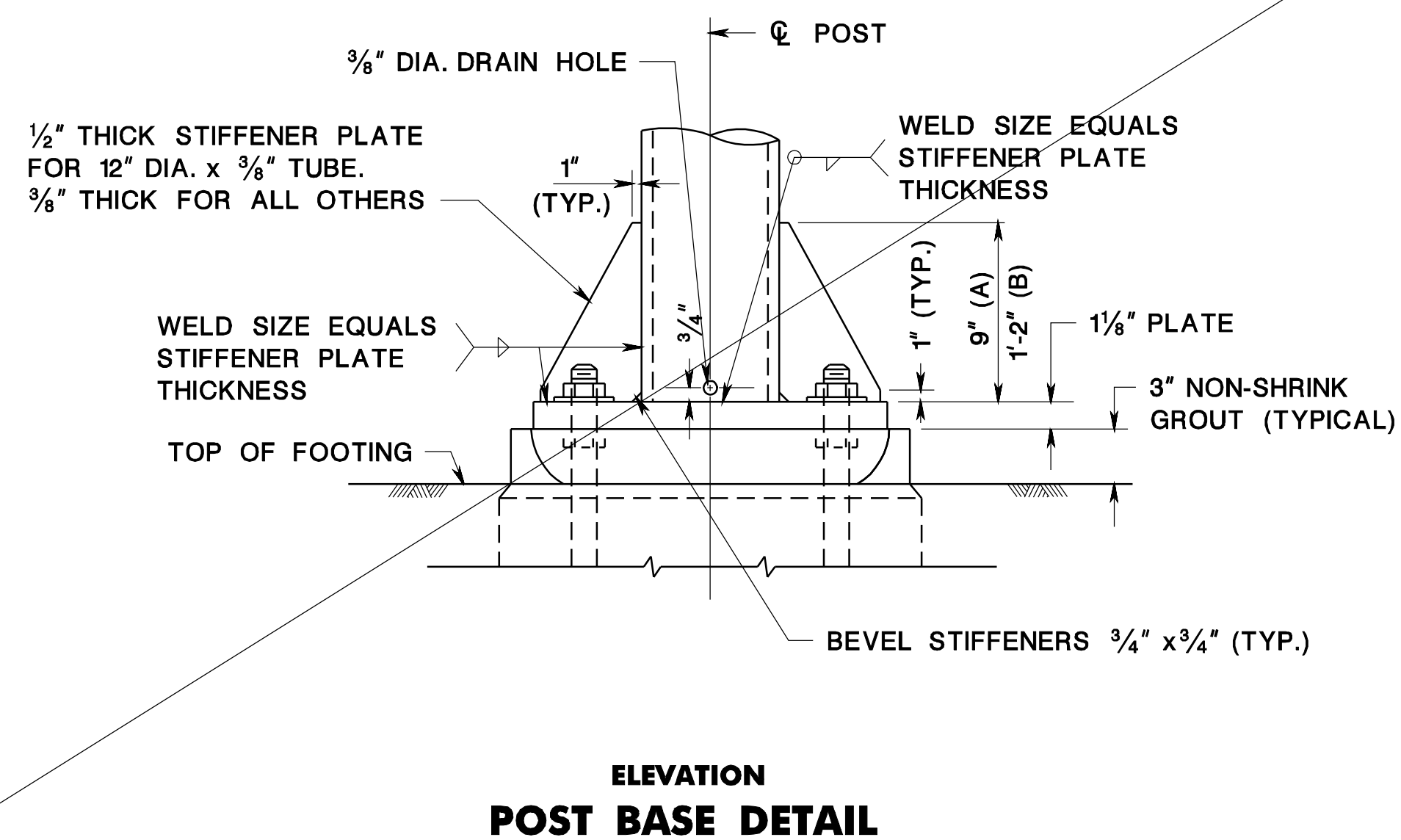
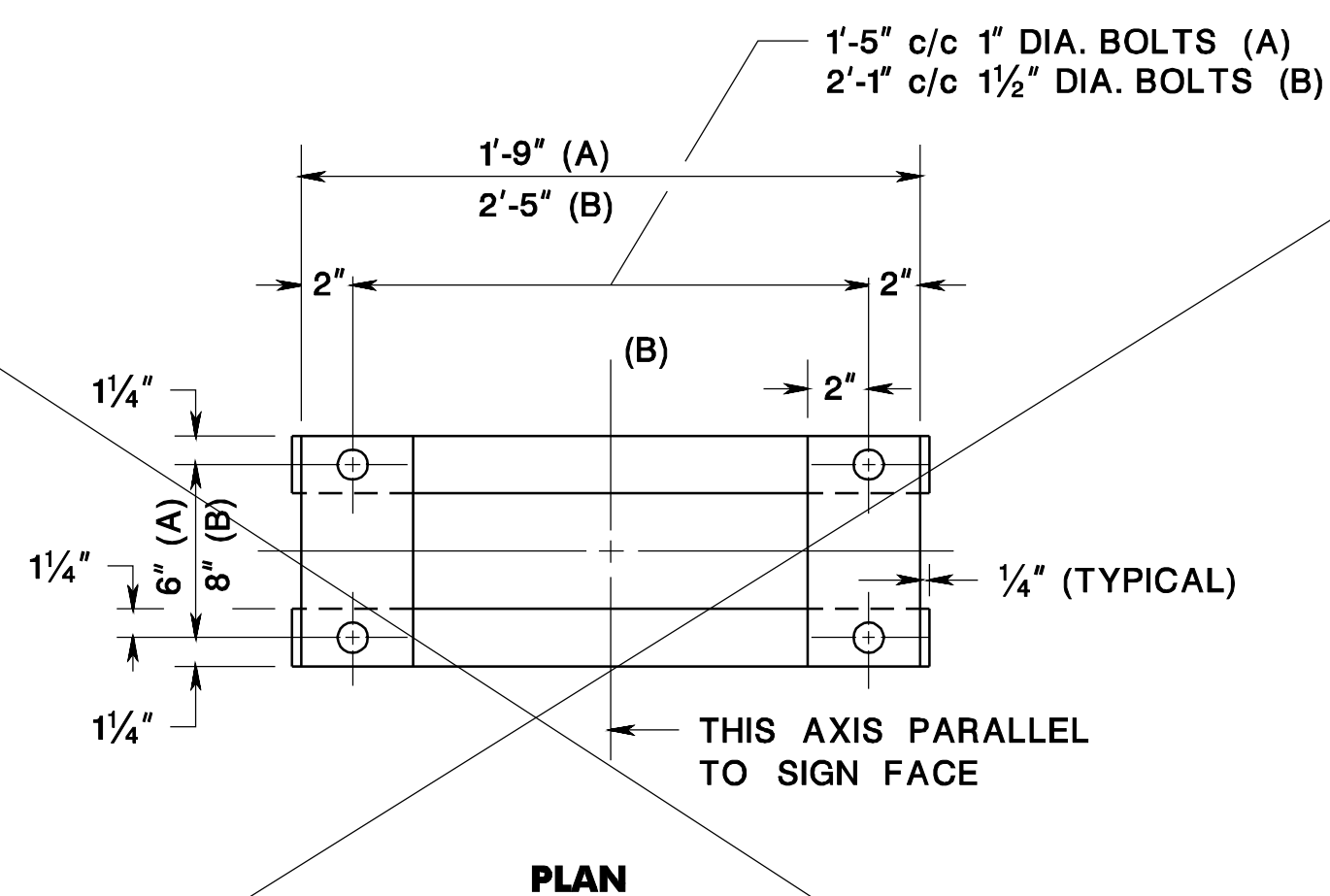
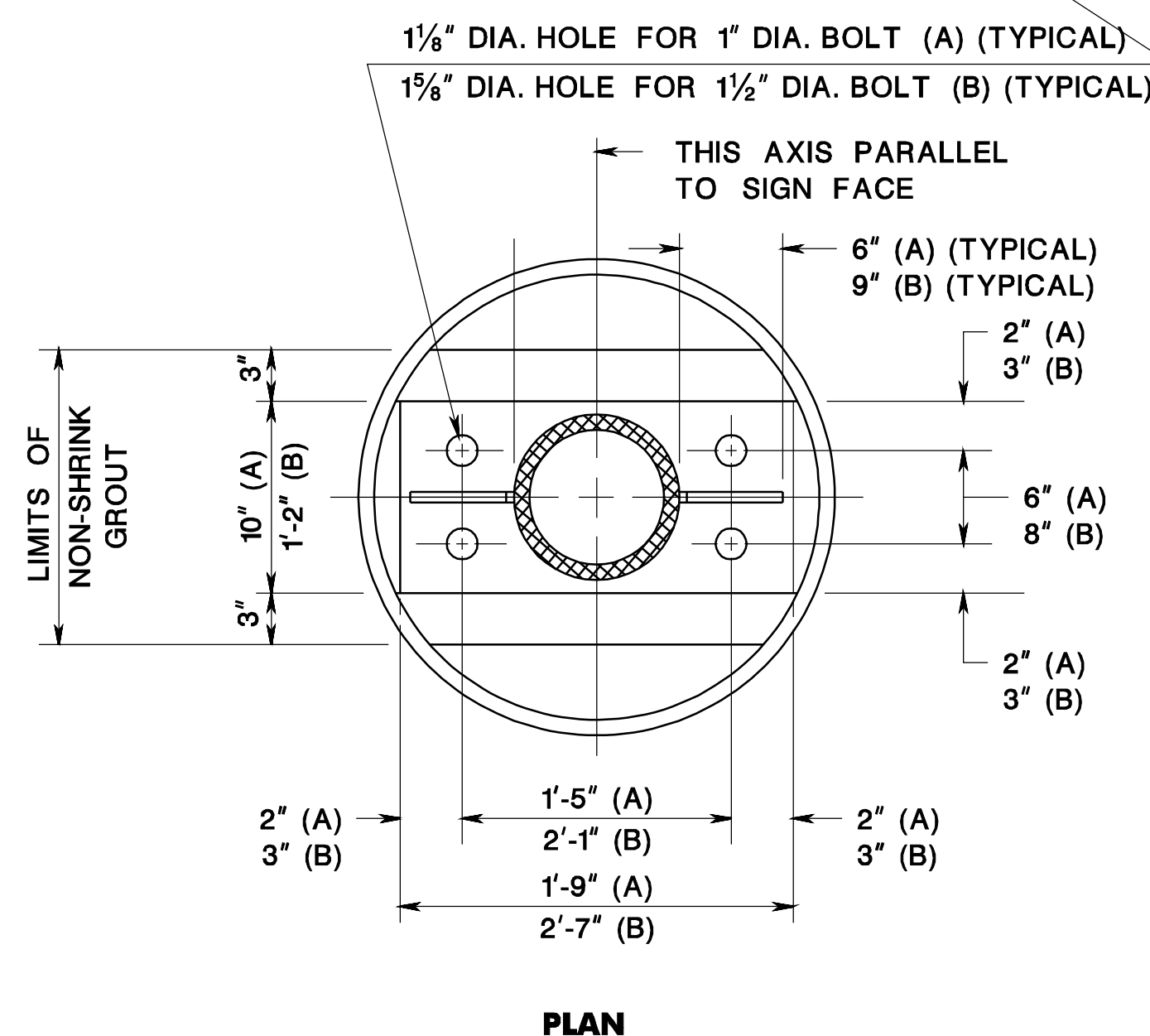
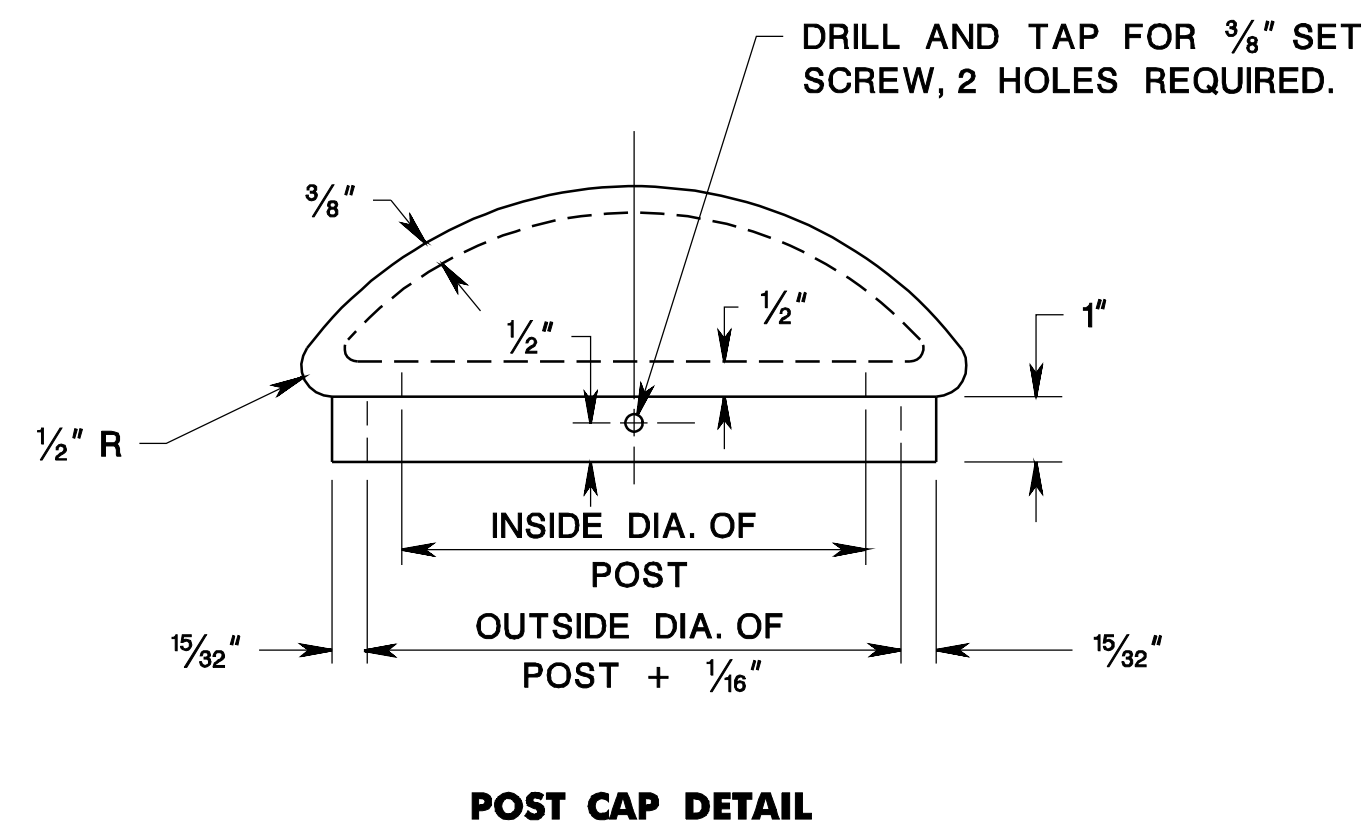
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

DELETED

CD-612-13

CD-612-13.1



GENERAL NOTES:

1. USE CLASS "B" CONCRETE IN ALL FOOTINGS.
2. ALL FOOTINGS SHALL BE PLACED AGAINST UNDISTURBED OR ADEQUATELY COMPACTED EARTH, EXCEPT FOR FOOTING TOPS WHICH SHALL BE FORMED TO A DEPTH OF 3 INCHES BELOW GROUND LINE.
3. TOPS OF FOOTINGS ABOVE REFERENCE LINE ARE INDICATED BY PLUS (+) VALUE; AND BELOW REFERENCE LINE BY MINUS (-) VALUE.
4. MATERIAL FOR STRUCTURAL SHAPES AND PLATES SHALL BE ALUMINUM ALLOY 6061-T6.
5. ANCHOR BOLT ASSEMBLY SHALL BE STRUCTURAL STEEL CONFORMING TO ASTM SPECIFICATION A36 NUTS, WASHERS AND BOLTS SHALL BE HOT DIP GALVANIZED. THE TOP 6 INCHES OF ALL ANCHOR BOLTS SHALL BE THREADED.
6. WELDING OF ALUMINUM SHALL BE AS SPECIFIED IN THE SPECIFICATIONS.
7. UNUSUAL FOUNDATION CONDITIONS MAY REQUIRE REDESIGN OF FOOTING AND SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT.
8. DIMENSIONS FOR BASE TYPE A ARE DESIGNATED (A). DIMENSIONS FOR BASE TYPE B ARE DESIGNATED (B).

OBSOLETE PER BDC09D-02

NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

N.T.S.

CD-612-14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

DELETED

SIGN SUPPORT DATA TABLE

IDENTIFICATION		OFFSET	SIGN SIZE			NO. OF POSTS	TUBE SIZE		POST HEIGHT			BASE TYPE	DIMENSIONS TO TOP OF FOOTING		
NO.	STATION	X ₁	A ₁	B ₁	A ₂	O.D.	THK.	C ₁	D ₁	E ₁	F ₁		G ₁	H ₁	

FOOTING BEVEL TABLE

IDENT. NO.	(L - B) / 2	Y		
		POST #1	POST #2	POST #3

- GENERAL NOTES:**
1. AN ASTERISK (*) IN COLUMN BASE TYPE INDICATES THAT THE EDGE OF FOOTING MUST BE BEVELLED TO MEET THE 6" MAXIMUM PROJECTION REQUIREMENT.
 2. FOR IDENTIFICATION OF TABULAR ITEMS, AND DETAILS RELATING THERETO, REFER TO NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS (CD-612-13).

NOTE TO DESIGNER:
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 REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

OBSOLETE PER BDC09D-02

NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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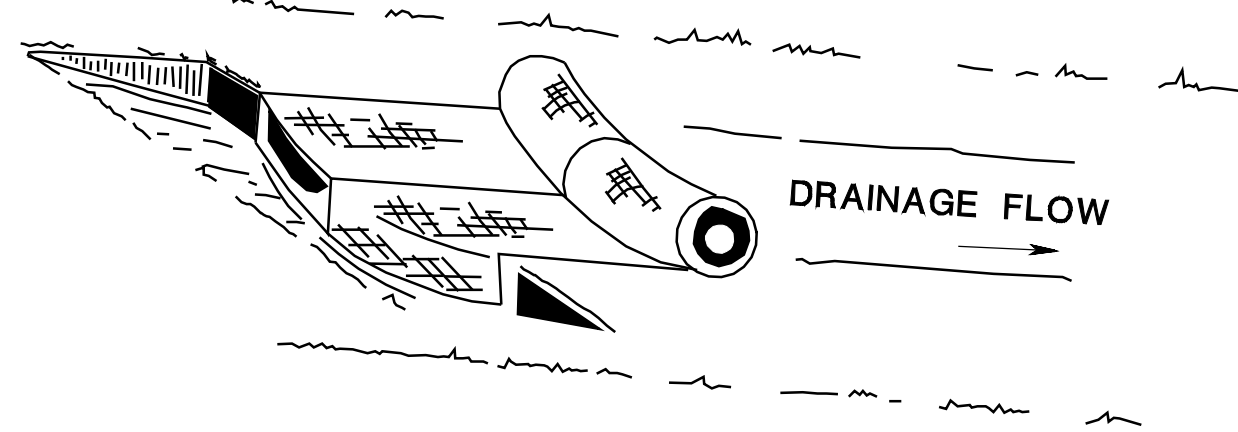
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CD-612-15.1

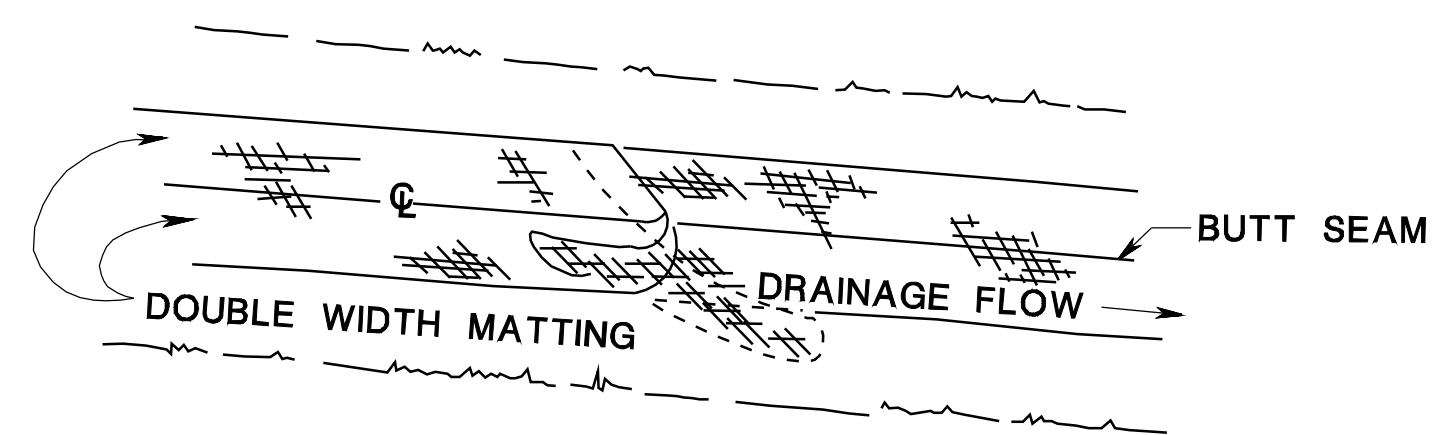
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SWALE OR DITCH

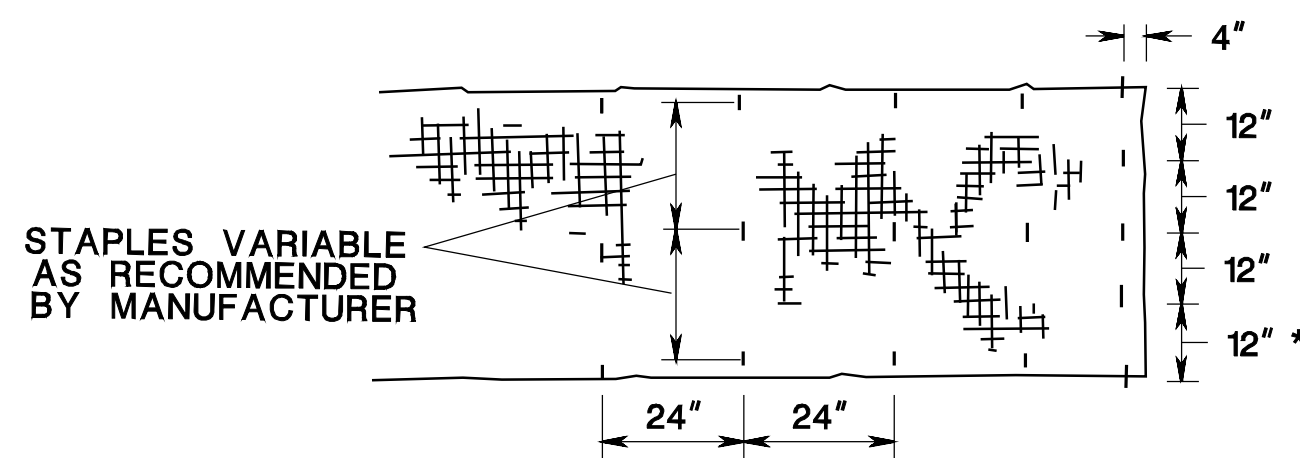
DOUBLE WIDTH MATTING AND BLANKETS IN SWALE, USE 3'-6" OVERLAP WHERE TWO OR MORE STRIPS ARE REQUIRED, AND STAPLE ON 2'-0" CENTERS



BURY TOP END OF MATTING AND BLANKETS IN A 6" TRENCH TAMP TRENCH FULL OF SOIL. SECURE WITH ROW OF STAPLES, 12" MAXIMUM SPACING 4" DOWN FROM TRENCH.



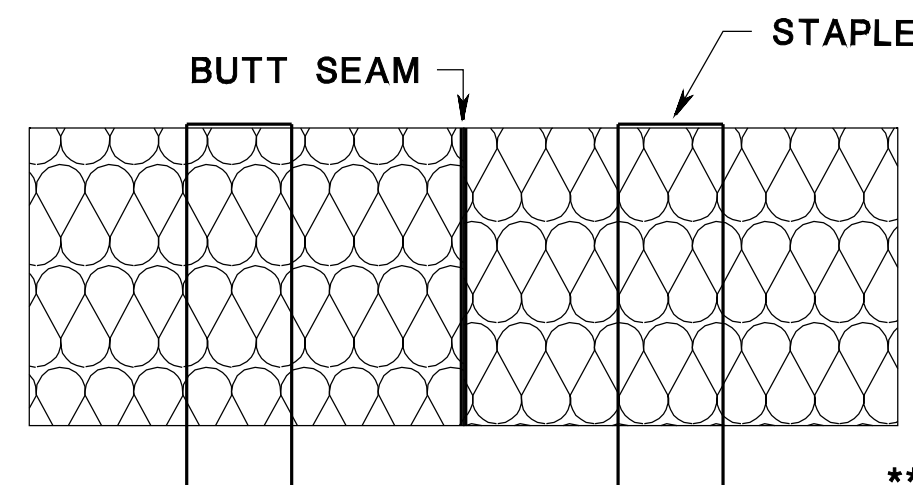
OVERLAP: BURY UPPER END OF LOWER STRIP AS PER ABOVE DETAIL. OVERLAP END OF TOP STRIP 6" AND STAPLE EITHER SIDE OF JOINT.



STAPLES VARIABLE AS RECOMMENDED BY MANUFACTURER

* DEPENDANT ON WIDTH OF PRODUCT

SECURE MATTING AND BLANKETS WITH STAPLES SPACED 24" APART ALONG THE SIDES AND DOWN THE CENTER. AT THE ENDS OF THE MATTING AND AT 50 FOOT INTERVALS STAPLES SHALL BE PLACED 12" APART ACROSS THE WIDTH.

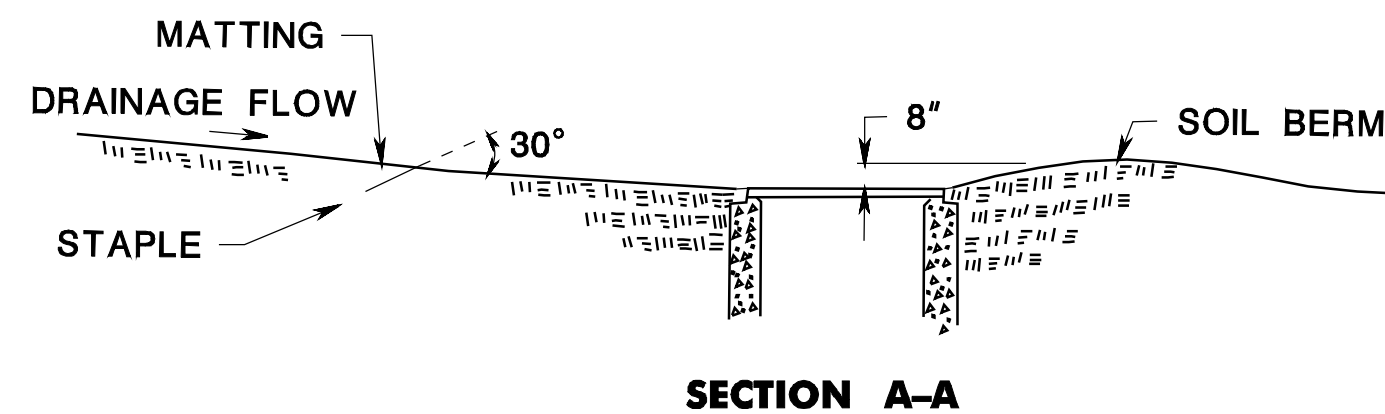
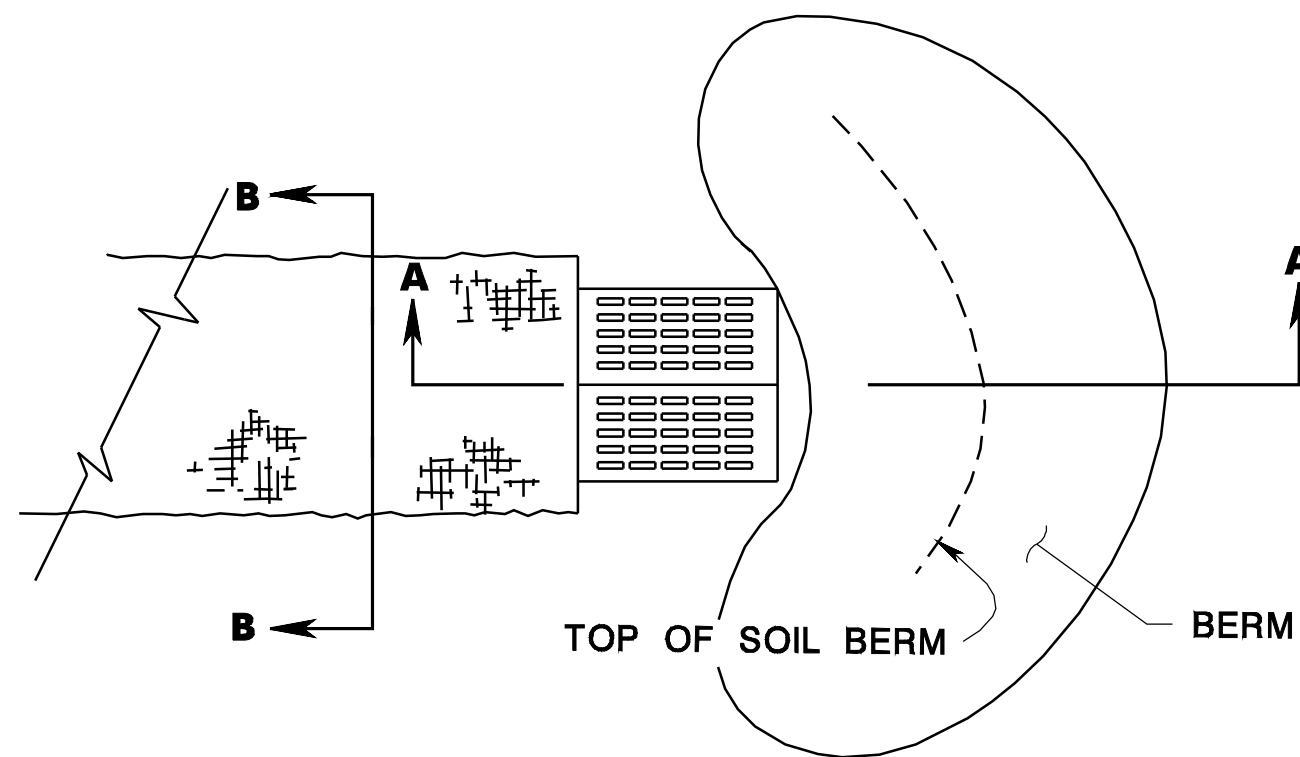


EXCELSIOR BUTT SEAM

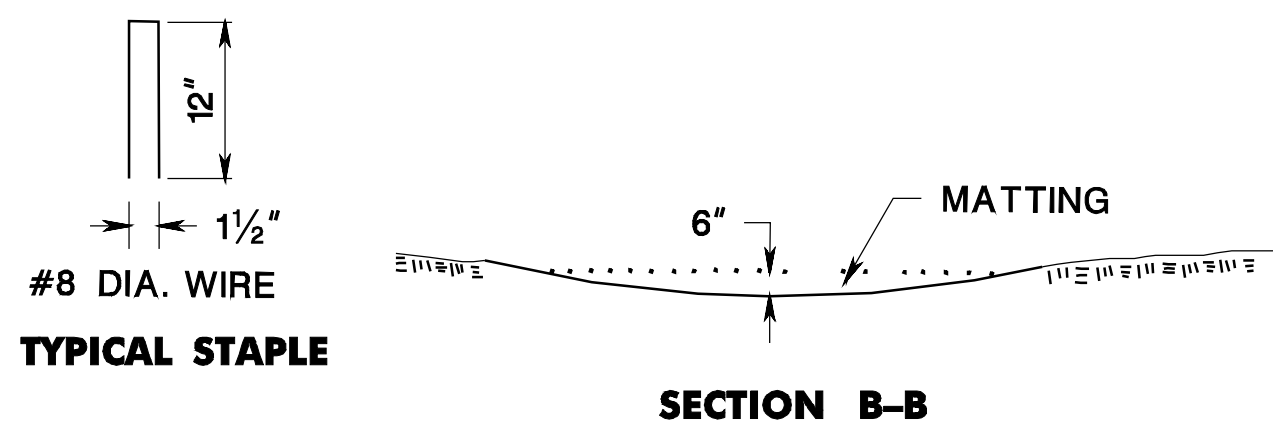
** REFER TO SE&SC MANUAL CHAPTER 3.9 FOR WHERE THIS TREATMENT IS TO BE USED.

TOPSOIL STABILIZATION MATTING

INLET AND MOUND



SECTION A-A



SECTION B-B

#8 DIA. WIRE
TYPICAL STAPLE

TOPSOIL STABILIZATION

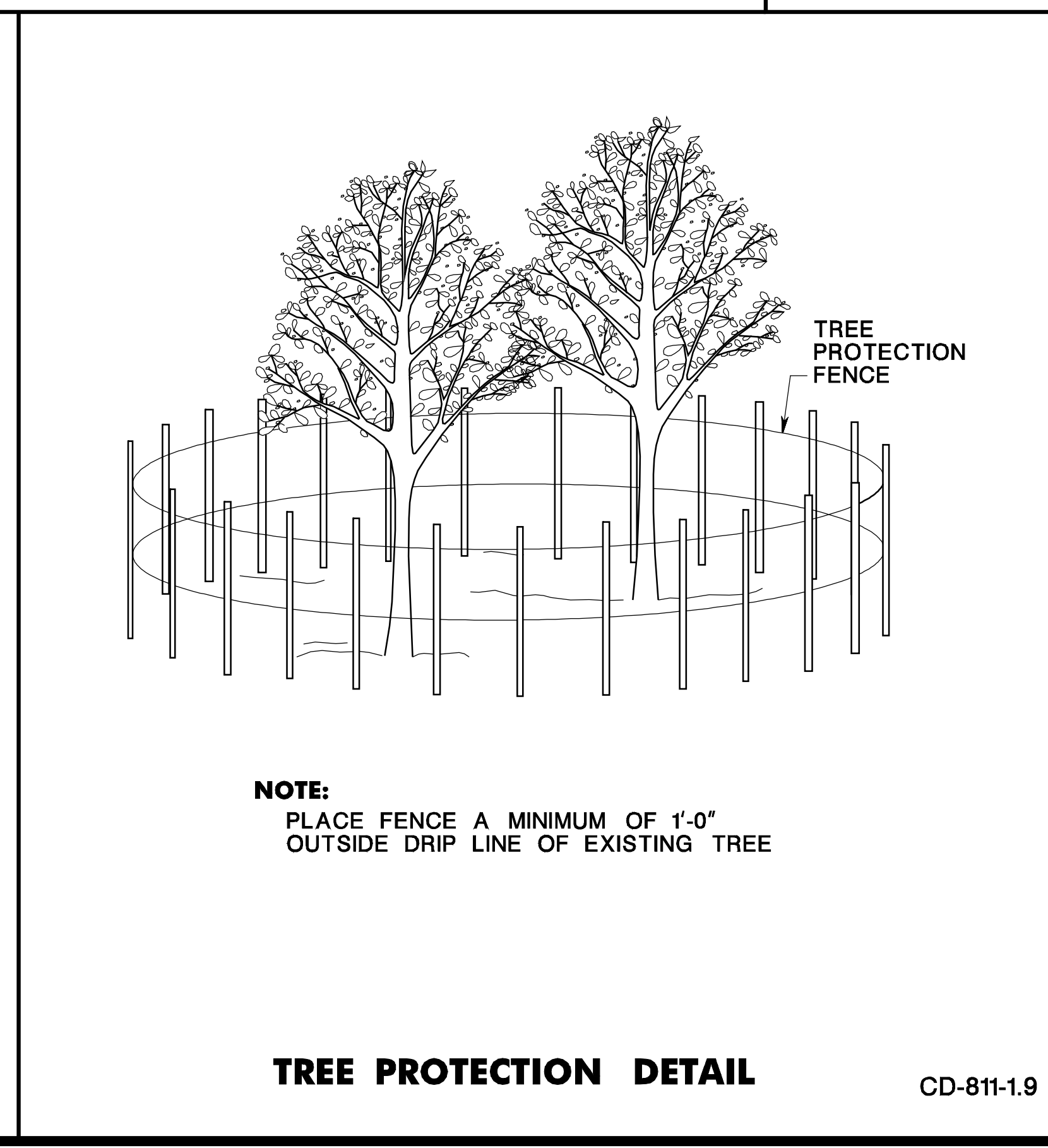
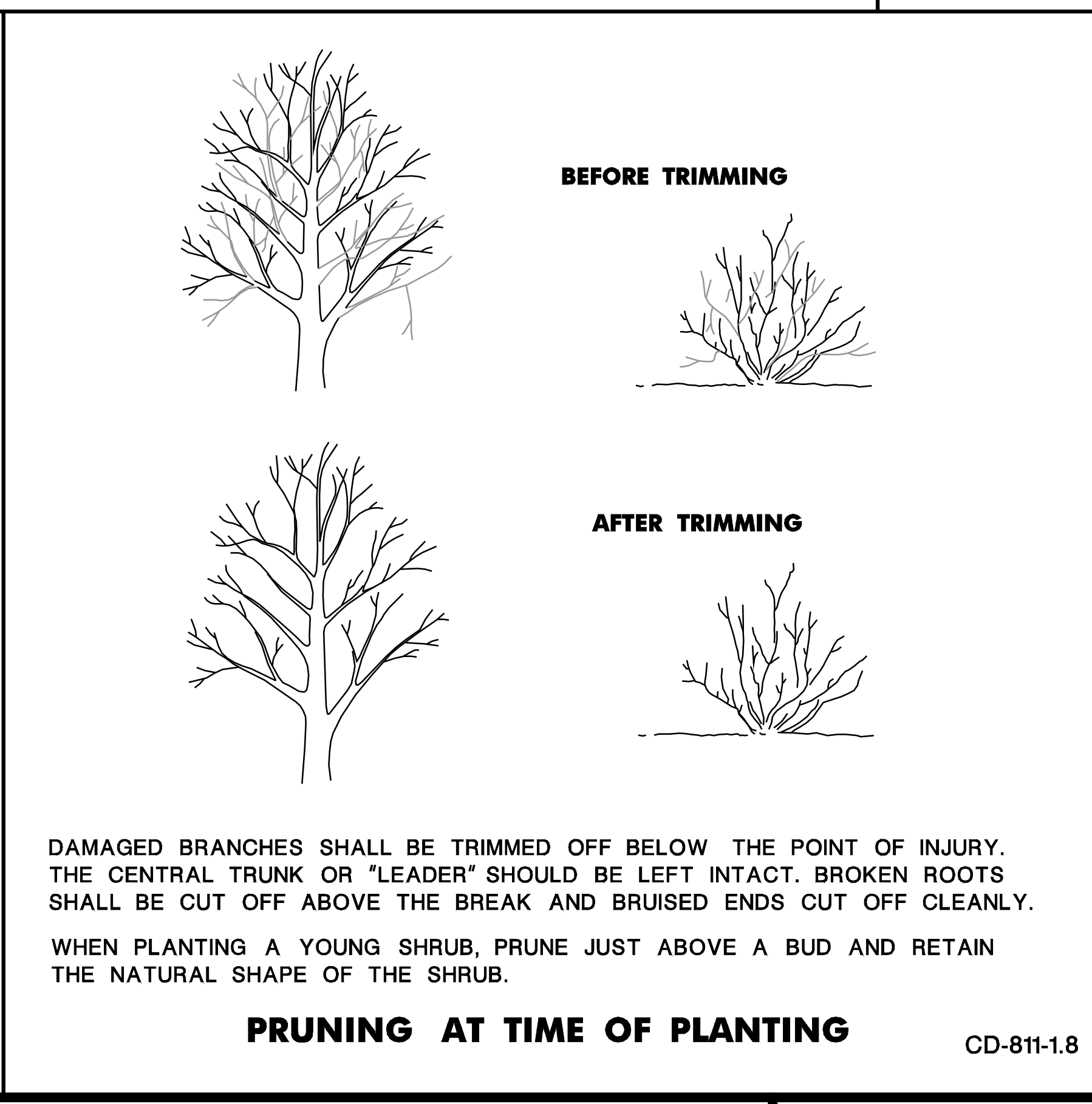
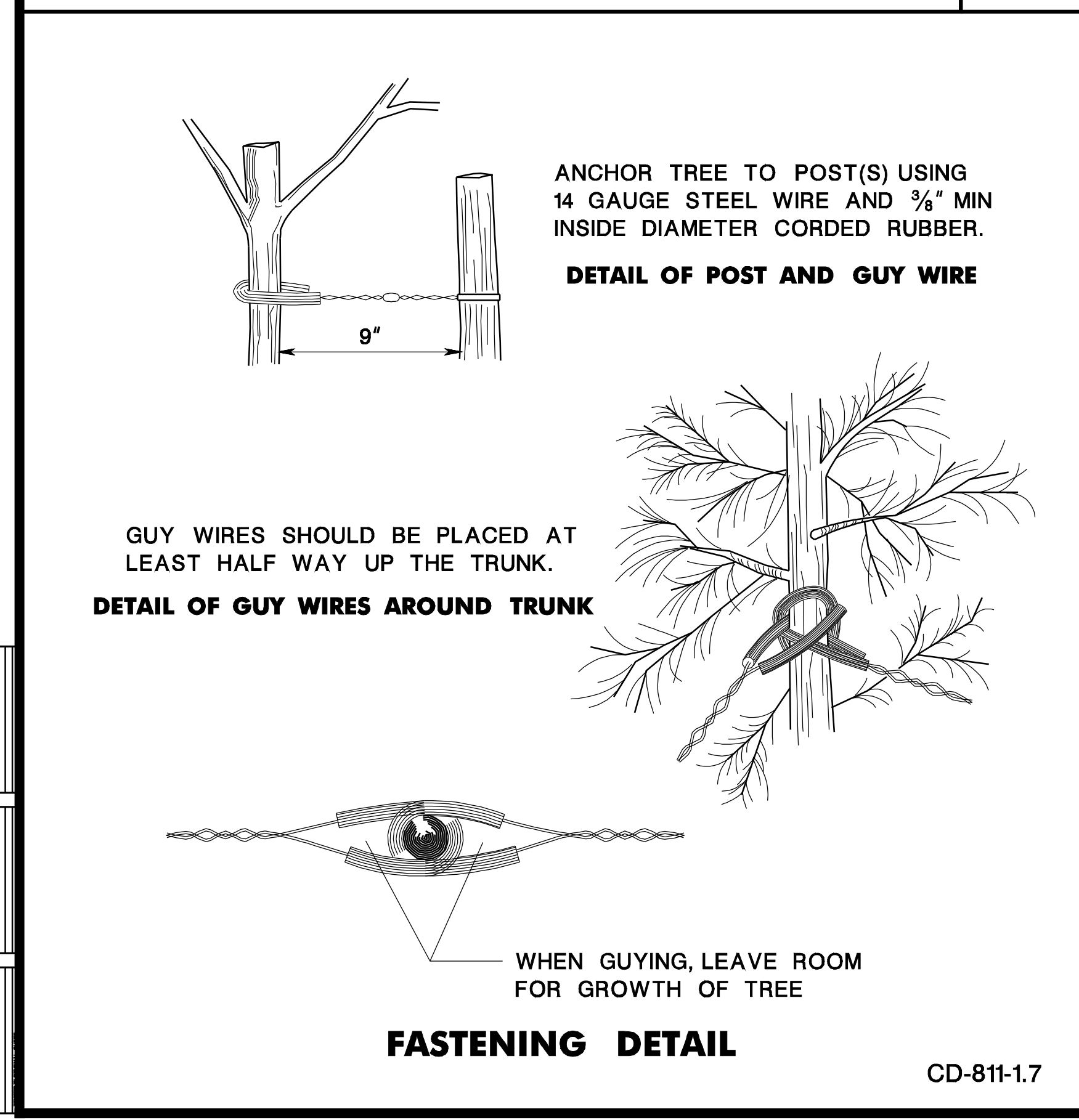
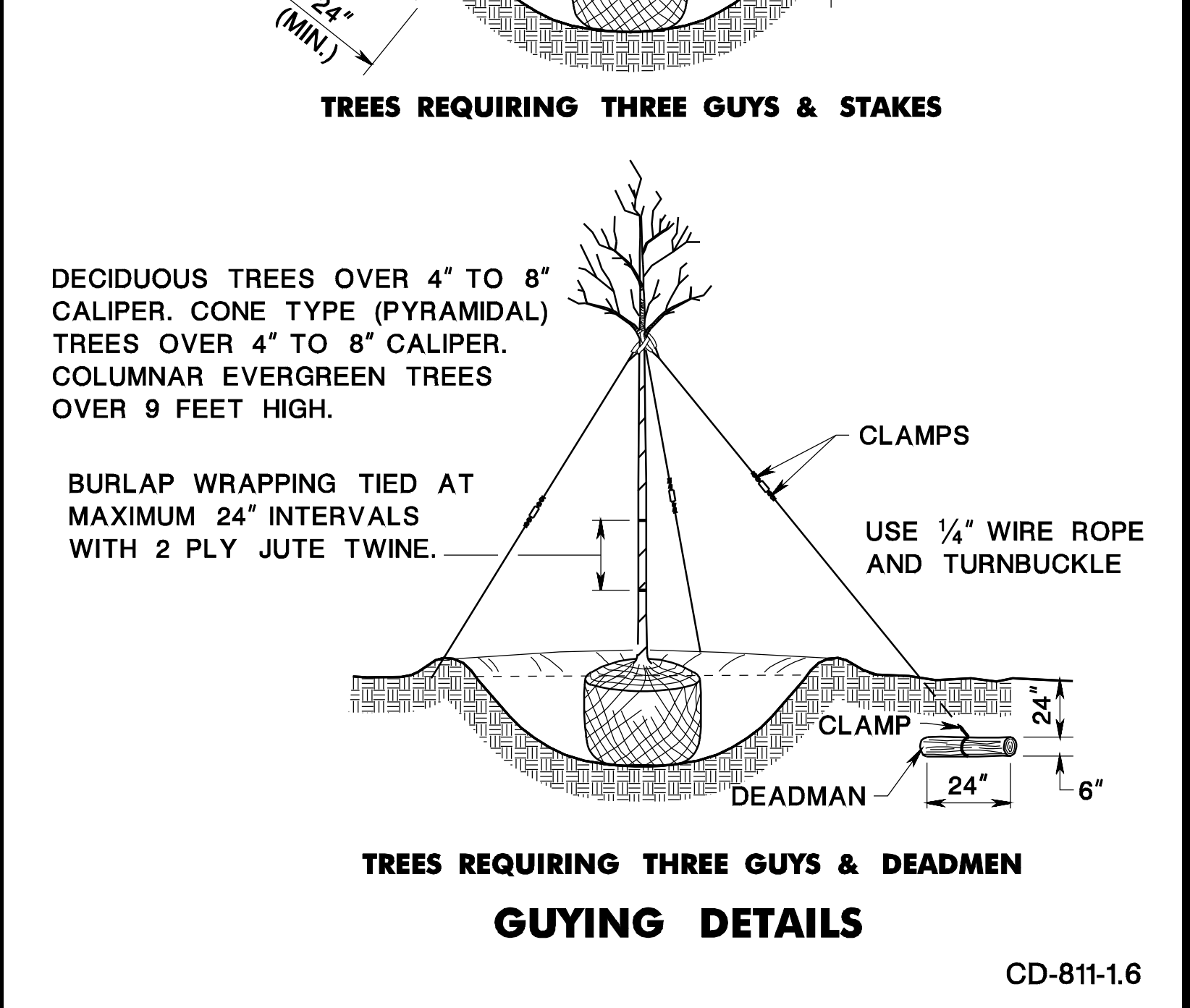
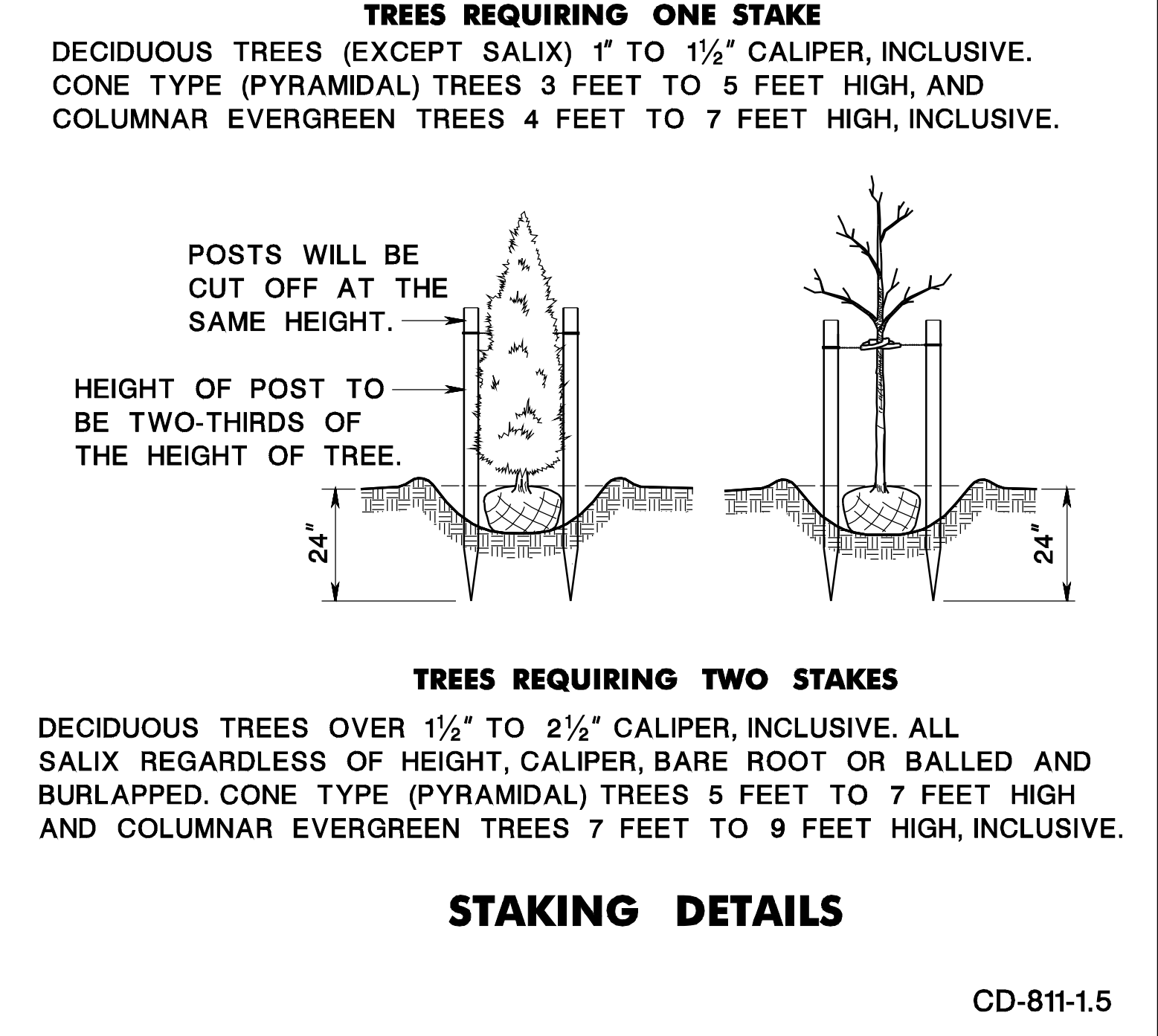
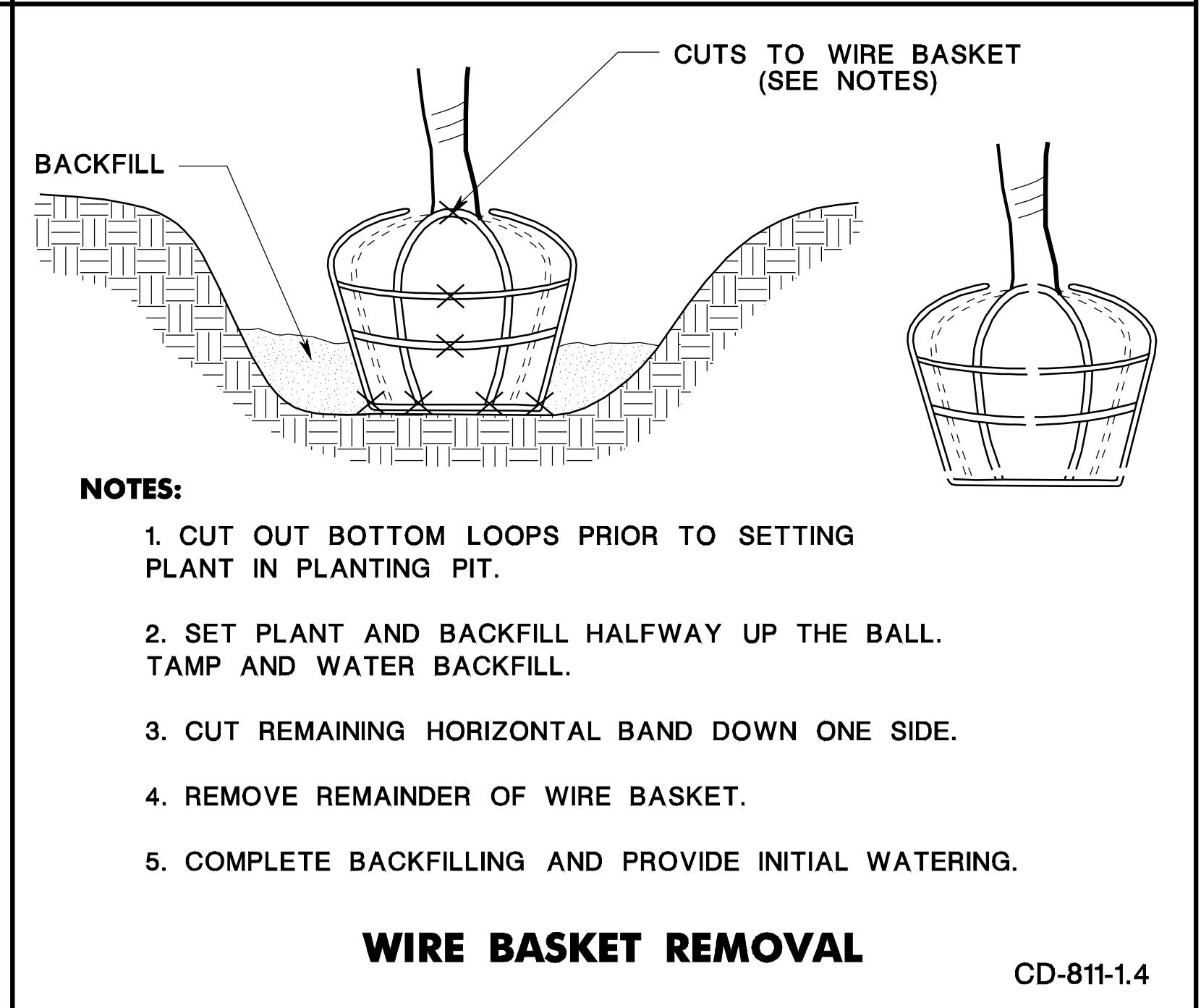
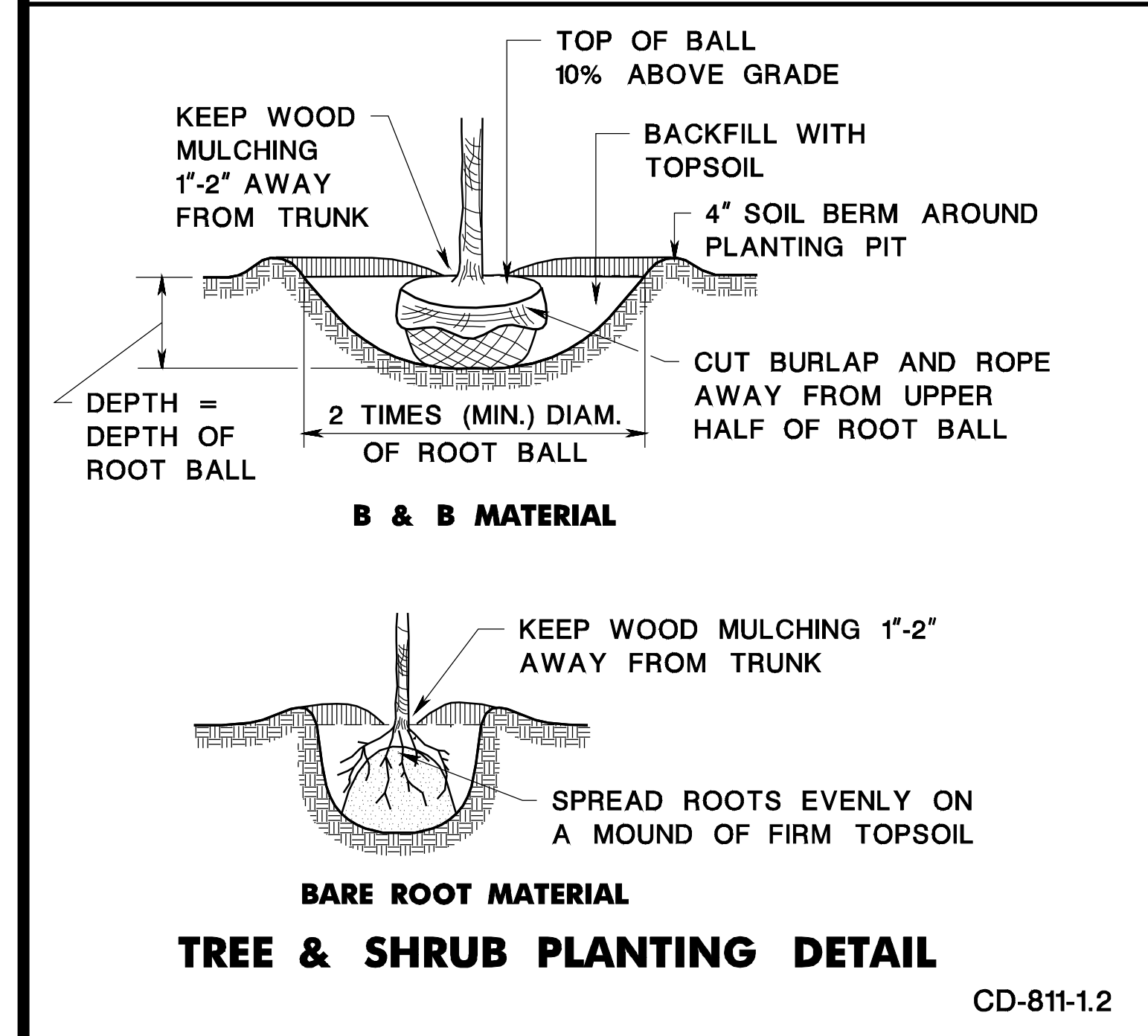
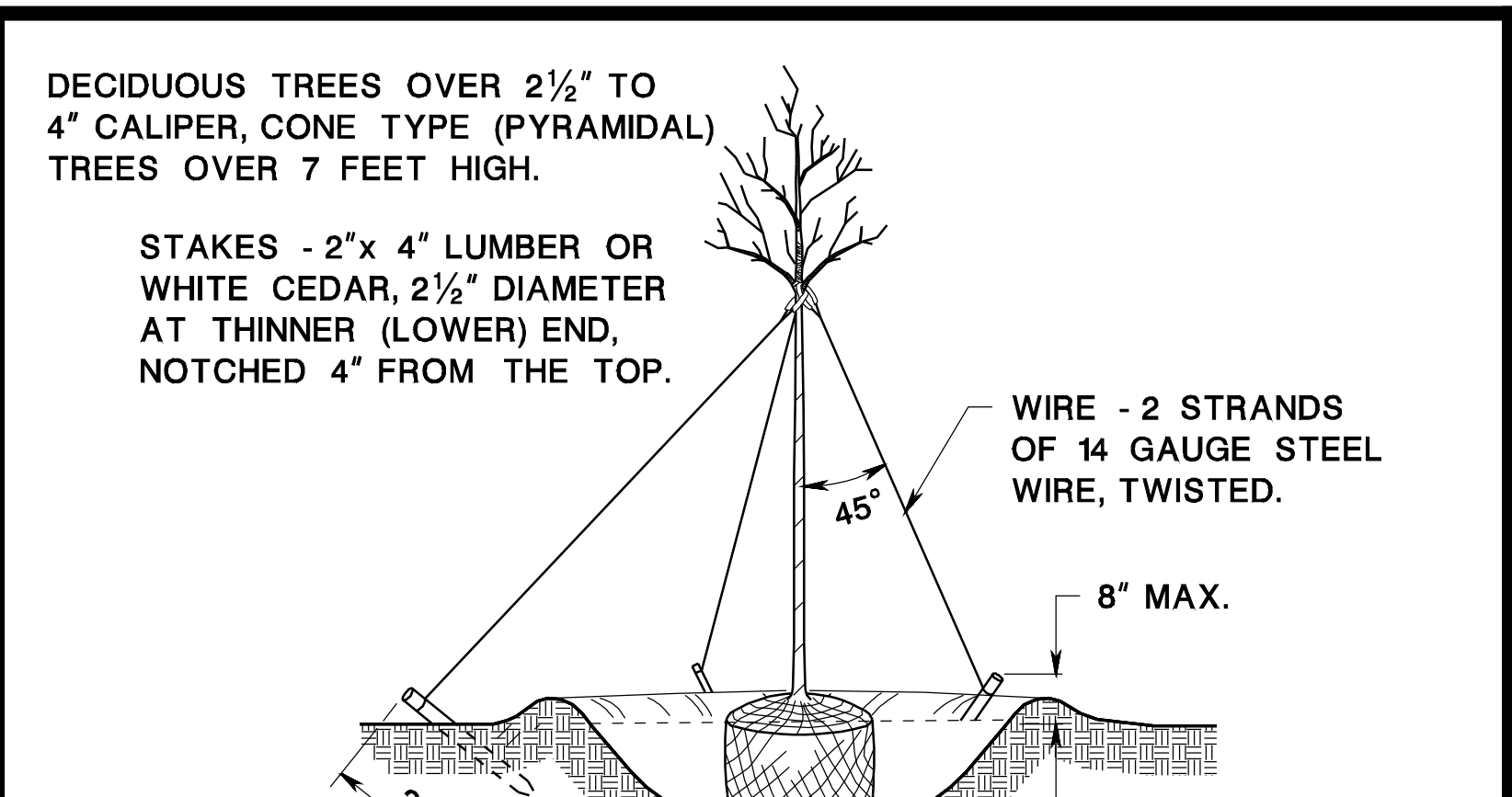
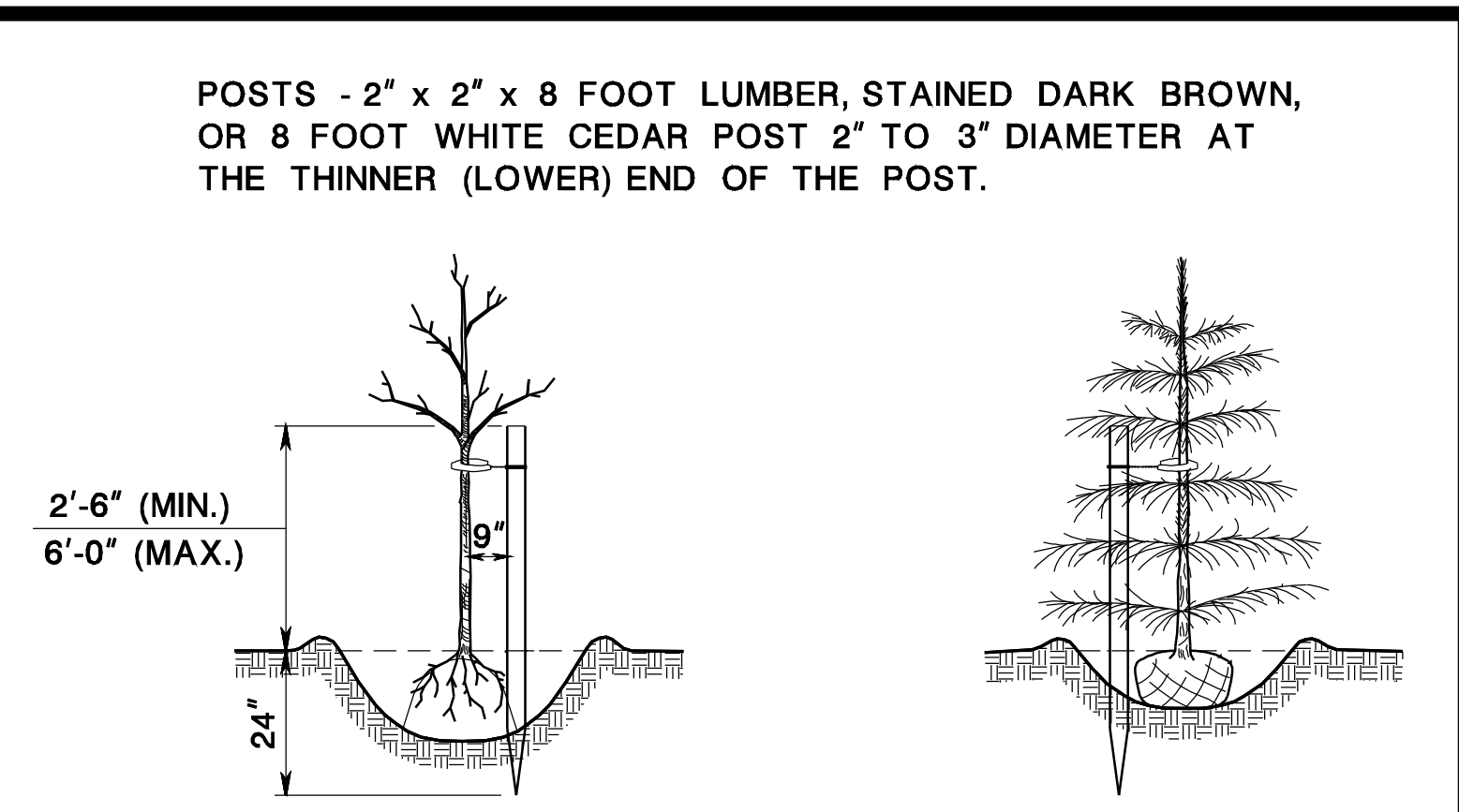
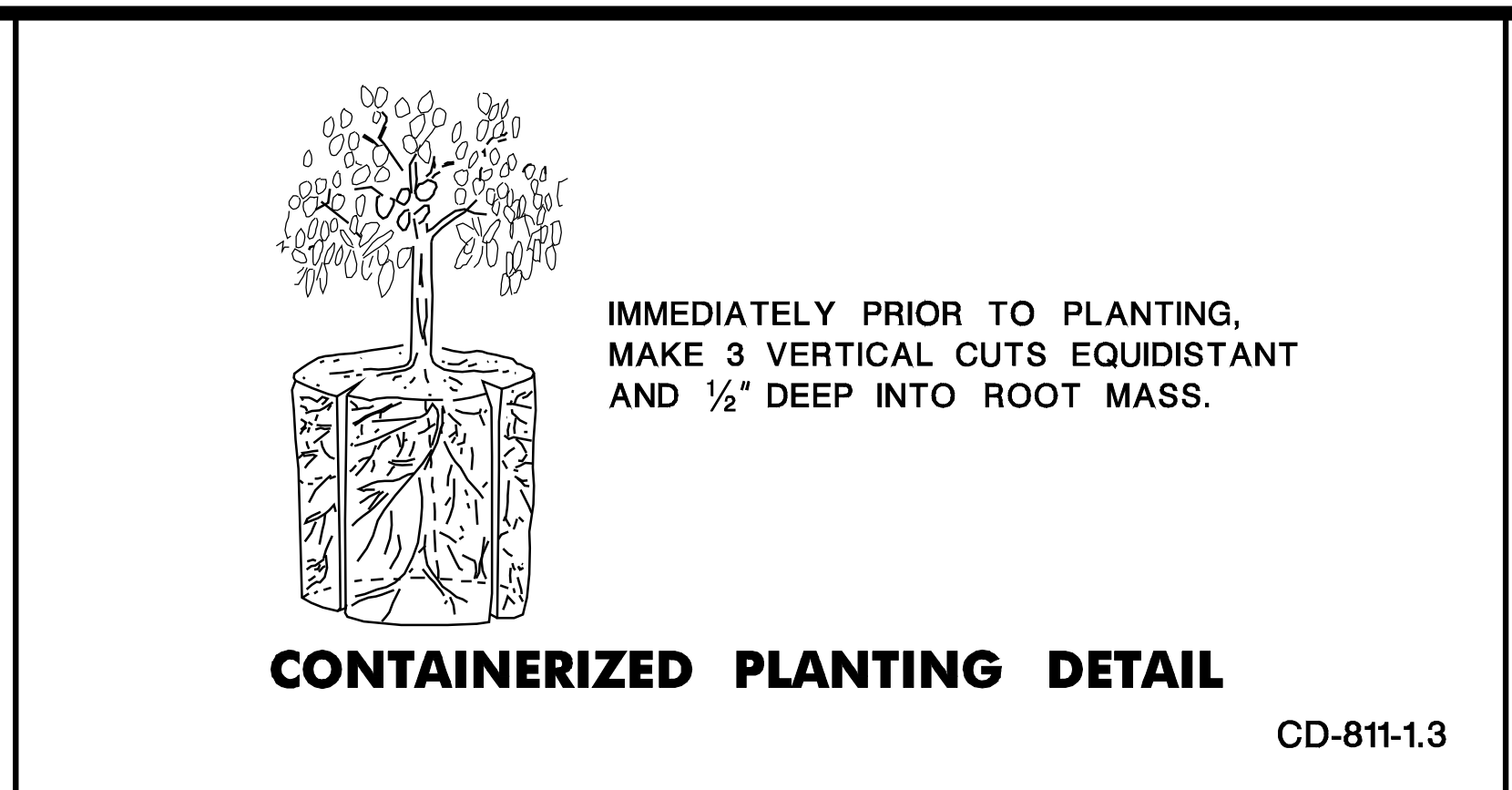
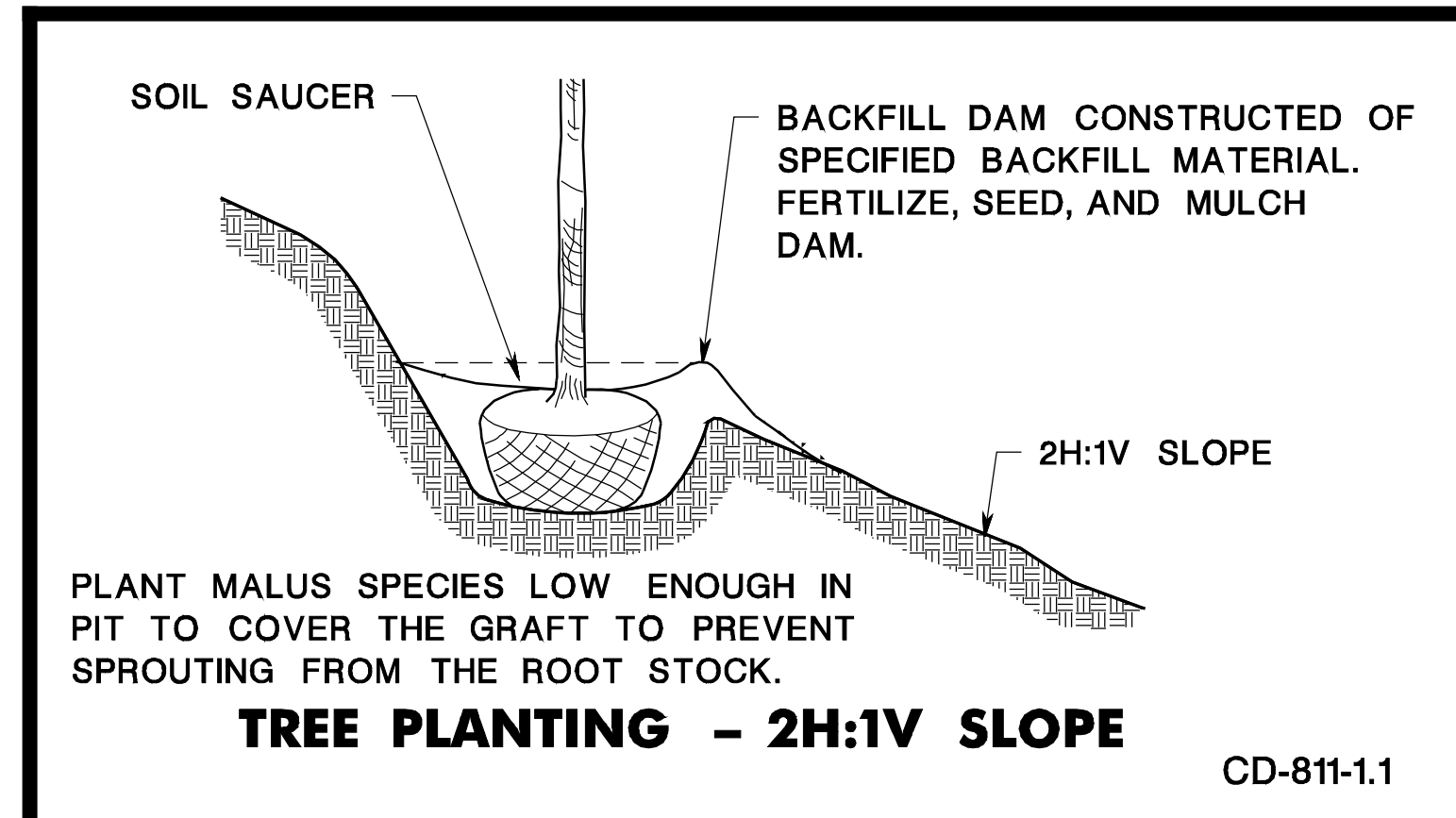
N.T.S.

CD-807-1.1

CD-807-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



PLANTING
N.T.S.

CD-811-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

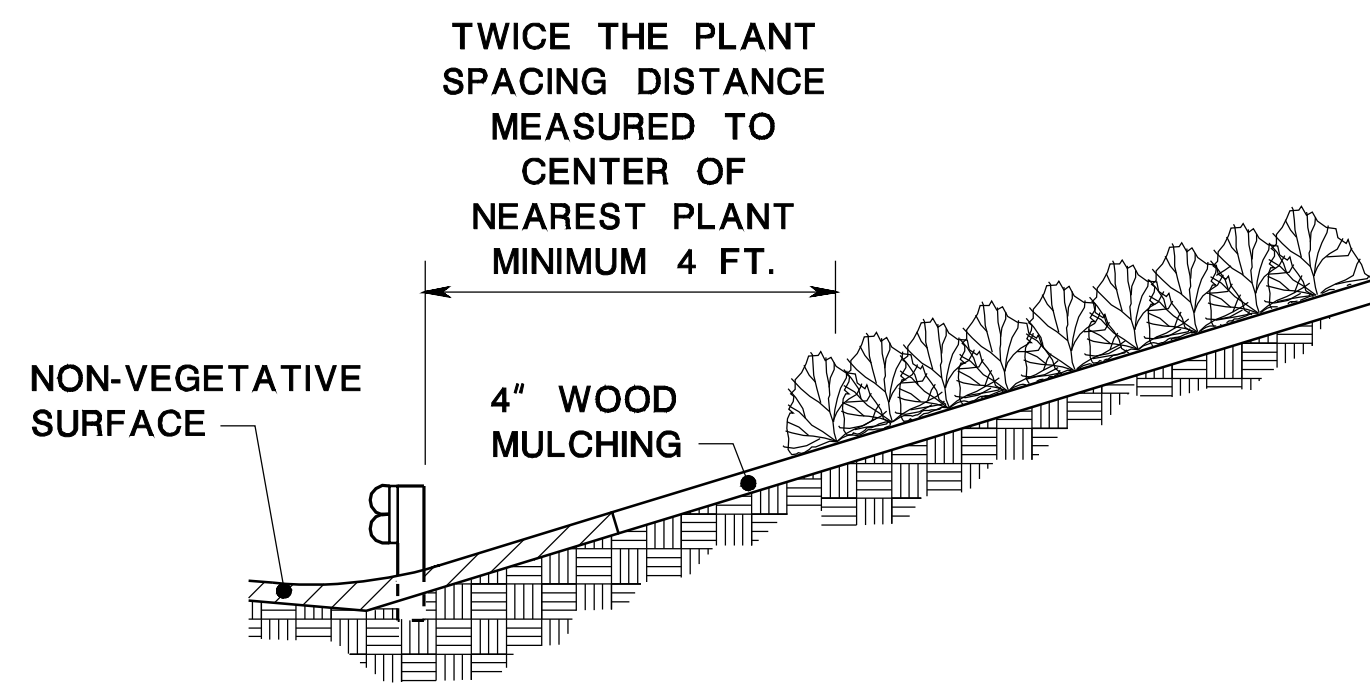
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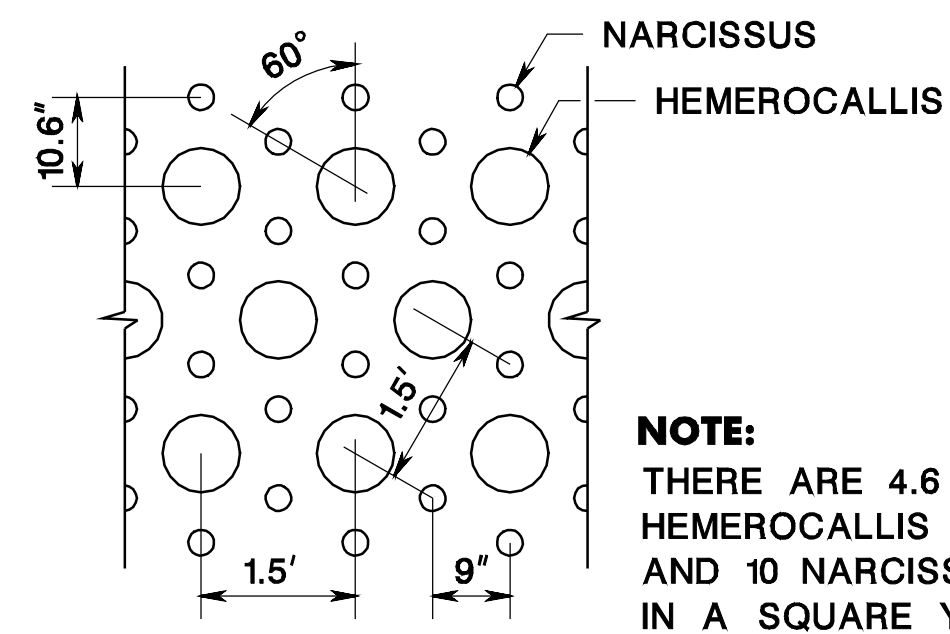
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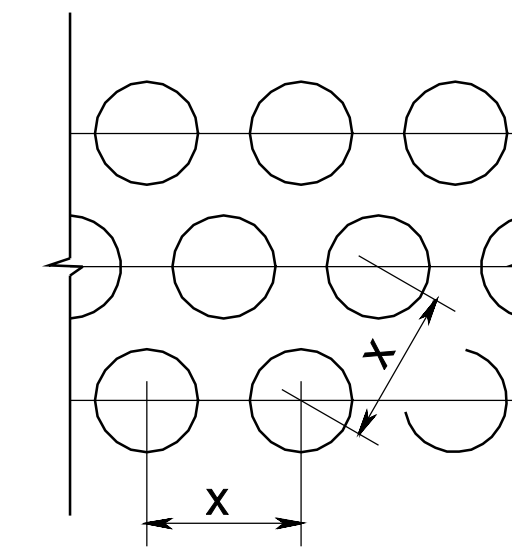
SHRUB PLANTING BEHIND GUIDE RAIL

CD-811-2.1



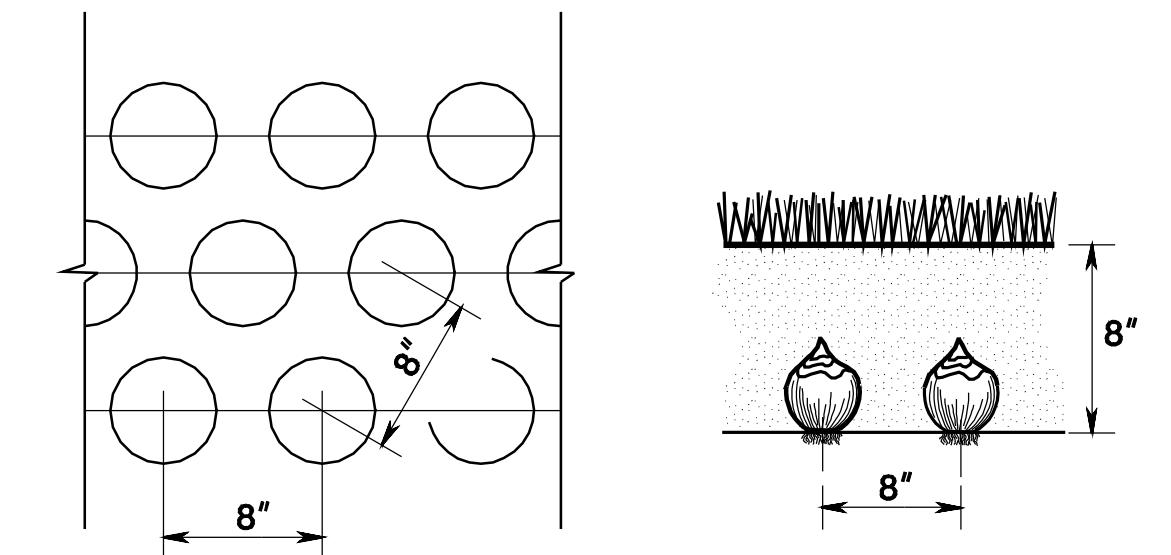
HEMEROCALLIS AND NARCISSUS BED PLANTING DETAIL

CD-811-2.2



SHRUB BED PLANTING DETAIL

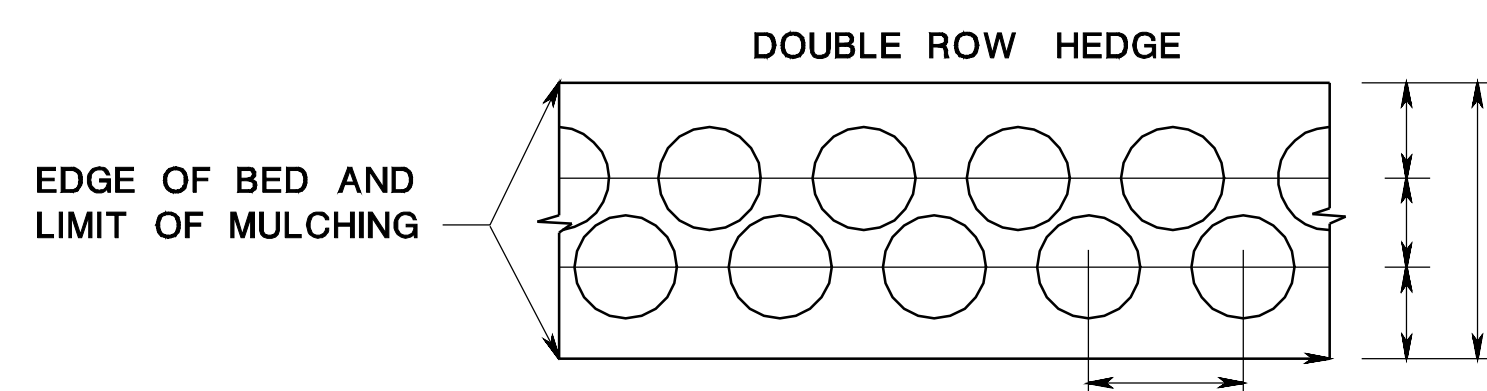
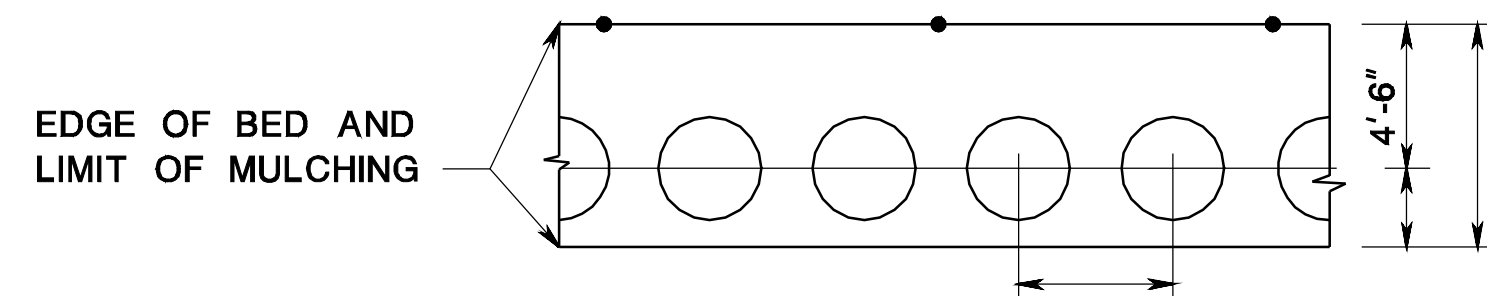
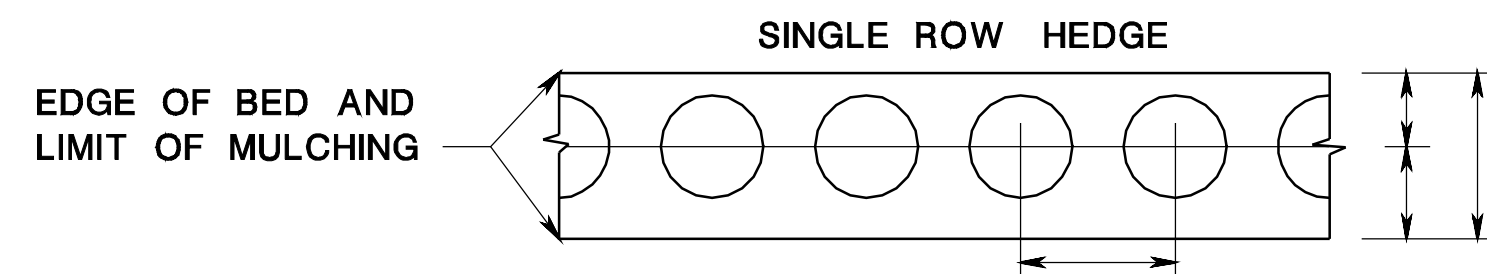
CD-811-2.3



NOTE:
 NARCISSUS TO BE PLANTED IN TURF
 AREAS AND SHALL NOT RECEIVE WOOD
 MULCHING.

NARCISSUS IN TURF DETAIL

CD-811-2.4



HEDGE PLANTING DETAILS

CD-811-2.5

NOTE TO DESIGNER:
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 INFORMATION TO BE ADDED AND INCLUDED
 IN THE CONTRACT PLANS.
 REMOVE THIS NOTE AFTER DESIGN SPECIFIC
 INFORMATION IS ADDED.

PLANTING

N.T.S.

CD-811-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS