

#### NOTES:

1. RAIL AND COMPONENTS SHALL CONFORM TO 115 RE RAIL SECTION.
2. RAIL DRILLINGS, BAR PUNCHINGS, OVAL NECK TRACK BOLTS AND TRACK BOLT NUTS SHALL BE IN ACCORDANCE WITH AREMA MANUAL, VOL. 1, PAGES 4-1-13 THRU 4-1-18 (36\"-8 HOLE JOINT BAR, 115 RE RAIL SECTION).
3. CROSSOVER END AND CENTER FROGS SHALL BE RAILBOUND RAILBOUND MANGANESE STEEL EXPLOSION HARDENED PER TRACKWORK SPECIFICATIONS.
4. ALL SPECIAL FROG PLATES SHALL BE 3/4\" THICK WITH NO RAIL CANT.
5. ELASTOMER PADS SHALL BE 3/4\" THICK AND EXTEND BEYOND THE FROG PLATES 1\" ON ALL SIDES.
6. THE BONDED FROG AND BONDED CENTER FROG INSERTS SHALL BE MILLED CARBON STEEL CASTINGS AS SPECIFIED IN THE CONTRACT SPECIFICATIONS, AND AS SHOWN ON THIS DRAWING.

PLAN  
SCALE: 12\"=1'-0\"

PLATE DETAILS		
PLATE	LENGTH	WIDTH
8D1G	7'-0"	3'-1 1/2"
8D2G	8'-8"	3'-1 1/4"

NO. 8 DOUBLE CROSSOVER END FROG - COMPLETE	
BILL OF MATERIAL	
QUANTITY	DESCRIPTION - FURNISHED THIS CONTRACT
2 EACH	MANGANESE STEEL INSERT END FROG WITH LEVEL GUARDS FOR 22'-25'-09\" CROSSING ANGLE, COMPLETE (PER AREMA STANDARD PLAN NO. 750-81 AND 781-83) AND MODIFIED AS INDICATED
2 EACH	MANGANESE STEEL INSERT CENTER FROG WITH LEVEL GUARDS FOR 22'-25'-09\" CROSSING ANGLE, COMPLETE (PER AREMA STANDARD PLAN NO. 750-81 AND 781-83)
2 EACH	SPECIAL PLATES 8D1 THRU 8D5, COMPLETE
2 PER FROG	BONDED FROG INSERTS
48	BOLTLESS ADJUSTABLE BRACE WITH LEFT HAND PANDROL CLIPS #2056
A.R.	ELASTOMER PAD AT EVERY PLATE

DESIGNED R. REYES 4/08  
DATE  
DRAWN ADAMS 07/07  
DATE  
CHECKED R. ROCKEFELLER 07/07  
DATE  
APPROVED L. PADGETT 07/07  
DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS	
DATE	DESCRIPTION
7/07	ADDED INFORMATION TO PLAN VIEW.

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED LR Padgett 10/2007  
DATE

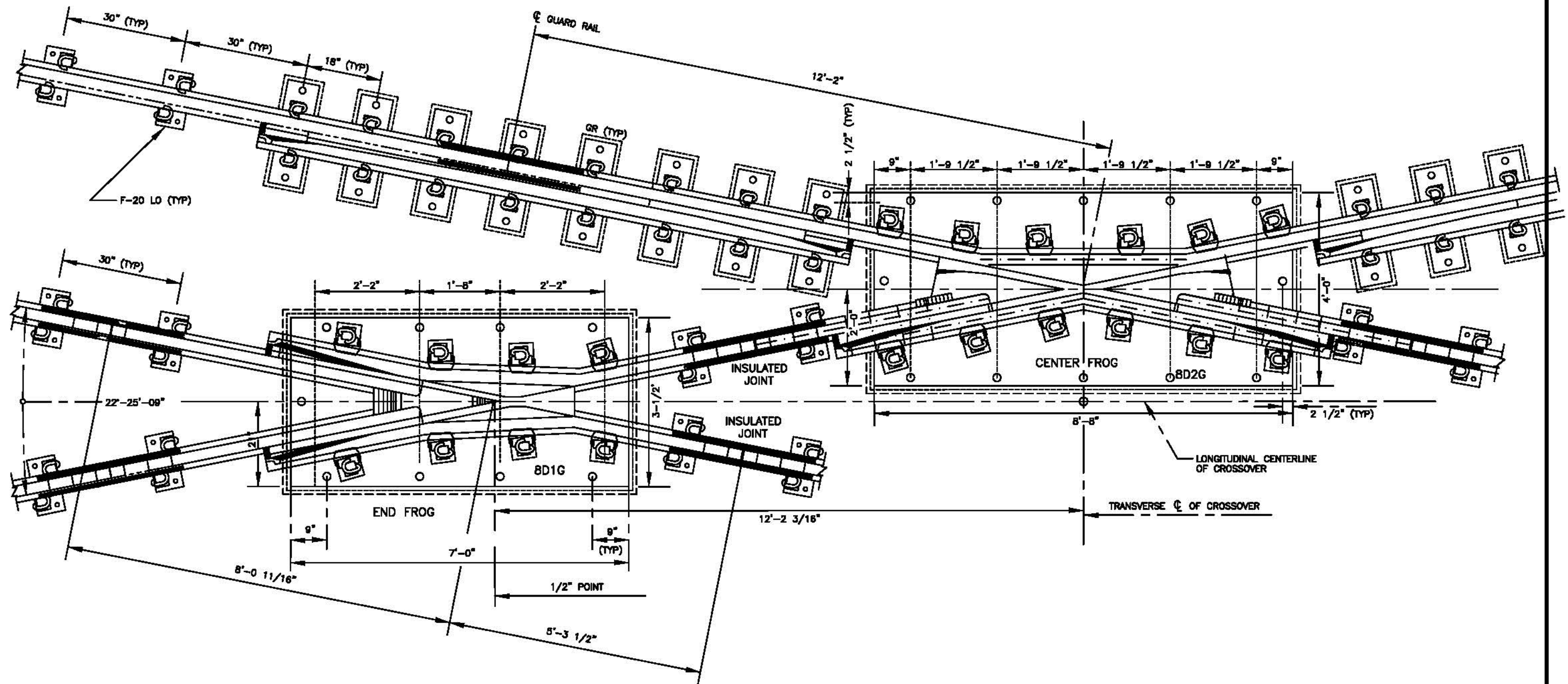
APPROVED [Signature] 10/2007  
DATE


TRACKWORK DESIGN DRAWING  
NO. 8 GUARDED DOUBLE CROSSOVER,  
DIAMOND, 36'-10\" TRACK CENTERS,  
DIRECT FIXATION TRACK

SCALE 3/4\"=1'-0\"  
1\"=12'-0\" FT

DRAWING NO. DD-TW-069



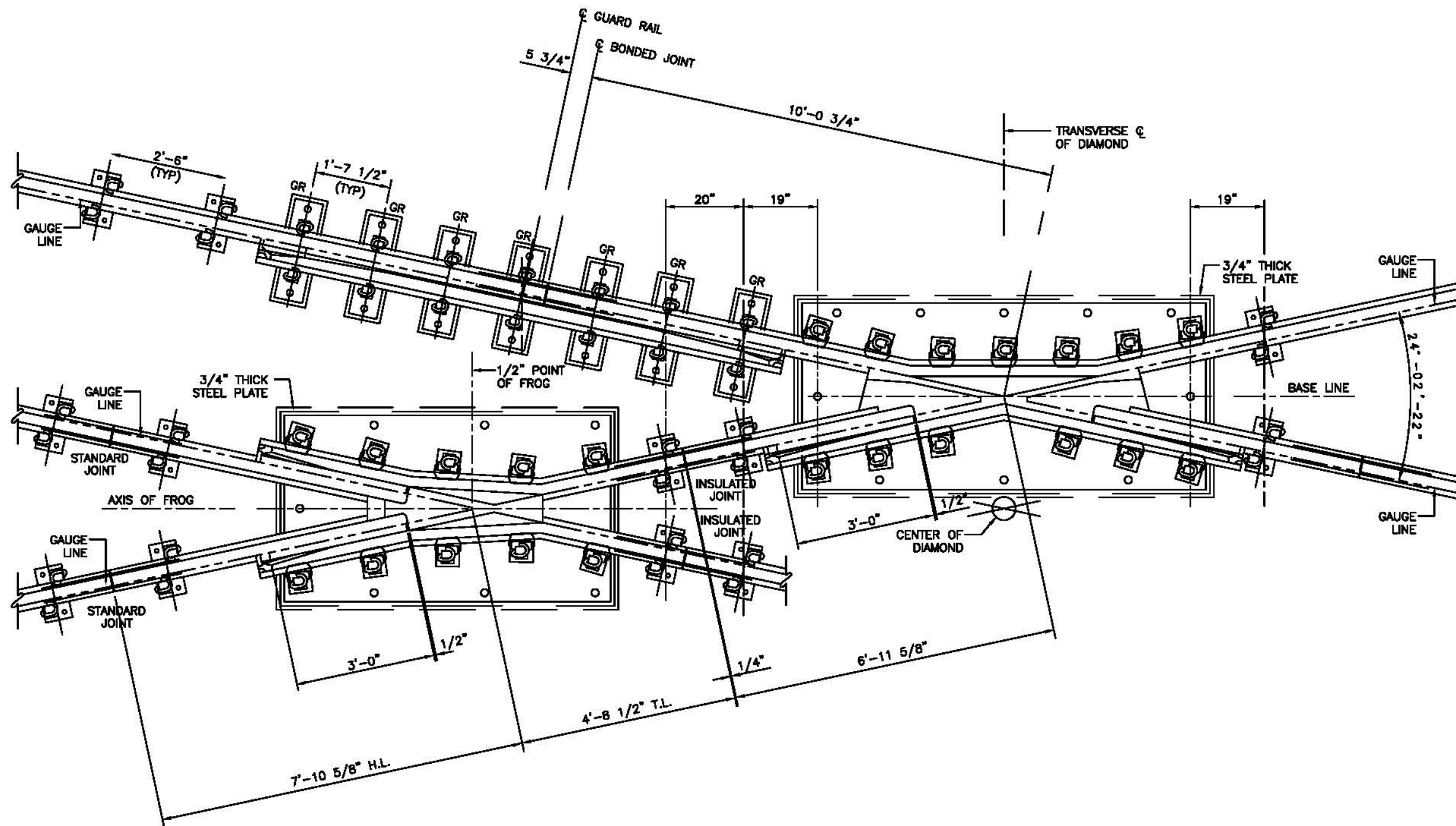


DESIGNED <u>R. REYES</u> <u>4/08</u> DATE			REFERENCE DRAWINGS		REVISIONS			WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY				TRACKWORK DESIGN DRAWING NO. 8 GUARDED DOUBLE CROSSOVER DIAMOND PLATE DETAILS, 36'-10" TRACK CENTERS, DIRECT FIXATION TRACK			
DRAWN <u>ADAMS</u> <u>07/07</u> DATE			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	OFFICE OF ENGINEERING SUPPORT SERVICES				SCALE 3/4"=1'-0"  1 FT			
CHECKED <u>R. ROCKEFELLER</u> <u>07/07</u> DATE							REVISED DIMENSIONS TO CENTER FROG.	SUBMITTED <u>L. Padgett</u> <u>10/2007</u> DATE				APPROVED <u>[Signature]</u> <u>10/2007</u> DATE			
APPROVED <u>L. PADGETT</u> <u>07/07</u> DATE												DRAWING NO. DD-TW-070			





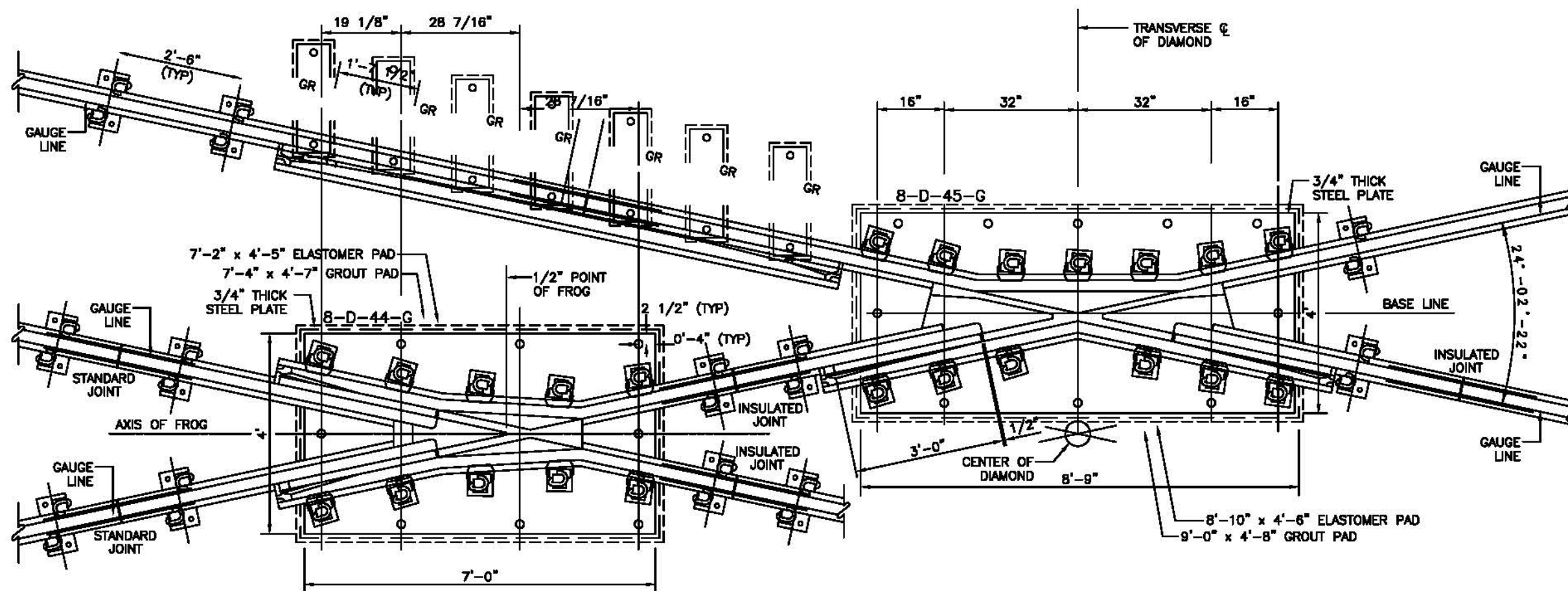




PLAN  
SCALE:  $\frac{3}{4}" = 1'-0"$

DESIGNED	RUEYES	10/06	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		TRACKWORK DESIGN DRAWING	
DRAWN	ADAMS	07/07	NUMBER	DESCRIPTION	DATE	BY	OFFICE OF ENGINEERING SUPPORT SERVICES		NO. 8 GUARDED DOUBLE Crossover, DIAMOND	
CHECKED	ROCKEFELLER	07/07			07/07	CBF	MODIFIED THIS REVISION		PLATE, 40'-6" TRACK CENTERS	
APPROVED	LPADGETT	07/07					SUBMITTED		PLAN, DIRECT FIXATION	
							10/2007		SCALE $\frac{3}{4}" = 1'-0"$	
							DATE		1 0 1 FT	
							APPROVED		DRAWING NO.	
							10/2007		DD-TW-072	
							DATE			





PLAN  
SCALE: 3/4"=1'-0"

NO. 8 DOUBLE CROSSOVER END FROG, CENTER FROG - COMPLETE	
BILL OF MATERIAL	
QUANTITY	DESCRIPTION - FURNISHED THIS CONTRACT
2 EACH	MANGANESE STEEL INSERT END FROG WITH LEVEL GUARDS FOR 24'-02'-22" CROSSING ANGLE, COMPLETE (PER AREA STANDARD PLAN NO. 750-81 AND 761-83) AND MODIFIED AS INDICATED
2 EACH	MANGANESE STEEL INSERT CENTER FROG WITH LEVEL GUARDS FOR 24'-02'-22" CROSSING ANGLE, COMPLETE (PER AREA STANDARD PLAN NO. 750-81 AND 761-83) AND MODIFIED AS INDICATED
2 PER FROG	BONDED FROG INSERTS
A.R.	GR PLATES
48	BOLTLESS ADJUSTABLE BRACE WITH LEFT HAND PANDROL CLIPS #2056

NOTES:

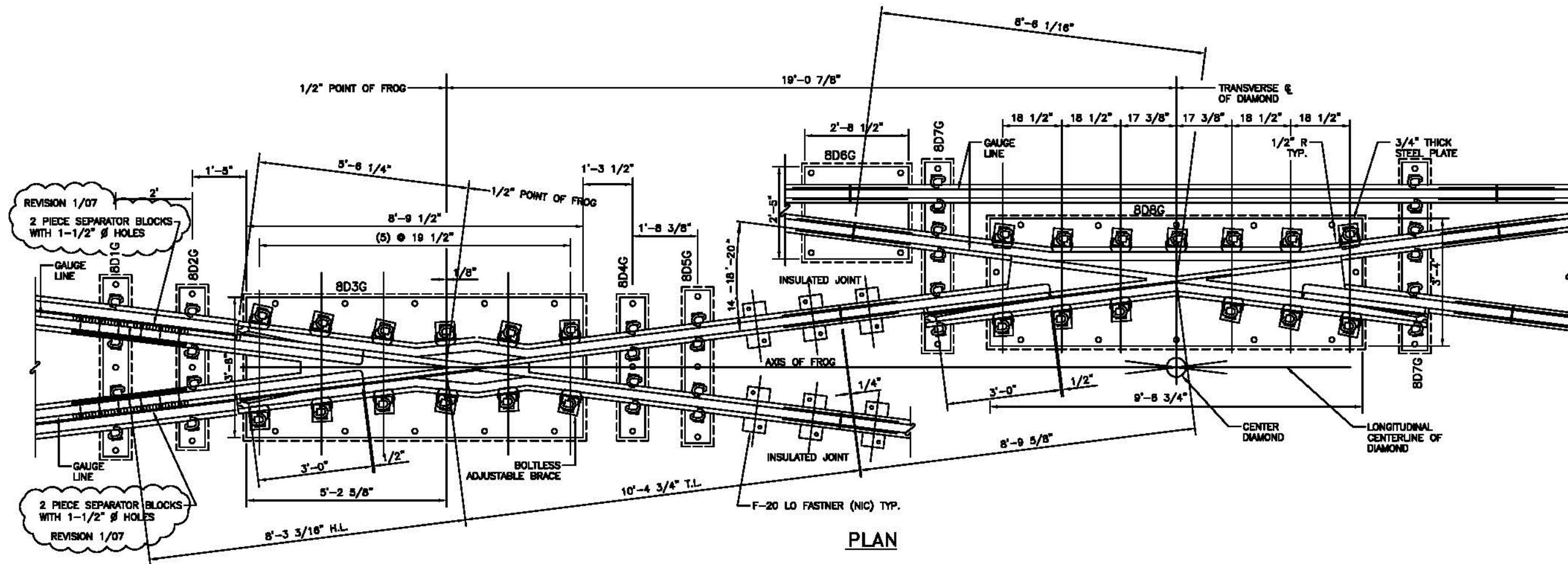
1. RAIL AND COMPONENTS SHALL CONFORM TO 115 RE RAIL SECTION.
2. RAIL DRILLINGS, BAR PUNCHINGS, OVAL NECK TRACK BOLTS AND TRACK BOLT NUTS SHALL BE IN ACCORDANCE WITH AREMA MANUAL, VOL. 1, PAGES 4-1-13 THRU 4-1-18 (36"-6 HOLE JOINT BAR, 115 RE RAIL SECTION).
3. CROSSOVER END AND CENTER FROGS SHALL BE RAILBOUND MANGANESE STEEL EXPLOSION HARDENED PER TRACKWORK SPECIFICATIONS.
4. ALL SPECIAL FROG PLATES SHALL BE 3/4" THICK WITH NO RAIL CANT.
5. ELASTOMER PADS SHALL BE 3/4" THICK AND EXTEND BEYOND THE FROG PLATES 1" ON ALL SIDES.
6. THE BONDED FROG AND BONDED CENTER FROG INSERTS SHALL BE MILLED CARBON STEEL CASTINGS AS SPECIFIED IN THE CONTRACT SPECIFICATIONS AND AS SHOWN ON THIS DRAWING.

DESIGNED	R. REYES	4/06	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		TRACKWORK PROCUREMENT		
DRAWN	C. GROSS	4/06	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	OFFICE OF ENGINEERING SUPPORT SERVICES		NO. 8 GUARDED DOUBLE CROSSOVER, DIAMOND	
CHECKED	R. REYES	4/06								PLATE, 40'-6" TRACK CENTERS,	
APPROVED	L. PADGETT	4/06								DETAILS, DIRECT FIXATION	
								SUBMITTED <i>L. Padgett</i> 10/2007		SCALE AS SHOWN	
								APPROVED <i>[Signature]</i> 10/2007		DRAWING NO. DD-TW-073	









NO. 8 DOUBLE CROSSOVER CENTER FROG & END FROG - COMPLETE	
BILL OF MATERIAL	
QUANTITY	DESCRIPTION - FURNISHED THIS CONTRACT
2 EACH	MANGANESE STEEL INSERT END FROG WITH LEVEL GUARDS FOR 14'-18'-20" CROSSING ANGLE, COMPLETE (PER AREMA STANDARD PLAN NO. 750-B1 AND 761-83) AND MODIFIED AS INDICATED
2 EACH	MANGANESE STEEL INSERT CENTER FROG WITH LEVEL GUARDS FOR 14'-18'-20" CROSSING ANGLE, COMPLETE (PER AREMA STANDARD PLAN NO. 750-B1 AND 761-83)
2 EACH	SPECIAL PLATES 8D1 THRU 8D5, COMPLETE
2 PER FROG	BONDED FROG INSERTS
48	BOLTLESS ADJUSTABLE BRACE WITH LEFT HAND PANDROL CLIPS #2056

PLATE DETAILS		
PLATE	LENGTH	WIDTH
8D1G	4'-8"	8"
8D2G	4'-2"	8"
8D4G	3'-8"	8"
8D5G	4'-0"	8"
8D7G	4'-11"	8"

#### NOTES:

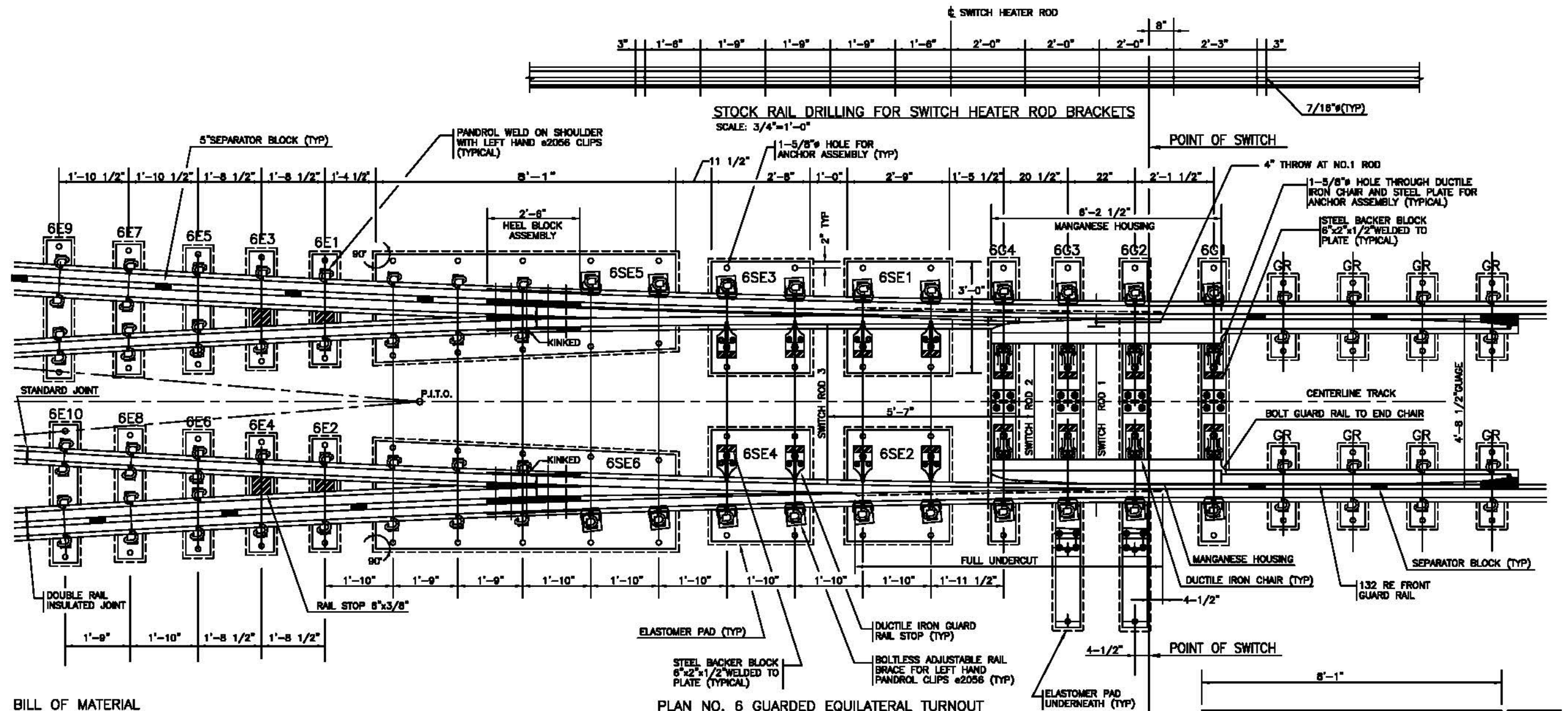
- RAIL AND COMPONENTS SHALL CONFORM TO 115 RE RAIL SECTION.
- RAIL DRILLINGS, BAR PUNCHINGS, OVAL NECK TRACK BOLTS AND TRACK BOLT NUTS SHALL BE IN ACCORDANCE WITH AREMA MANUAL, VOL. 1, PAGES 4-1-13 THRU 4-1-18 (36"-6 HOLE JOINT BAR, 115 RE RAIL SECTION).
- CROSSOVER END AND CENTER FROGS SHALL BE FULLY HEAT TREATED RAILBOUND MANGANESE STEEL EXPLOSION HARDENED PER TRACKWORK SPECIFICATIONS.
- ALL SPECIAL FROG PLATES SHALL BE 3/4" THICK WITH NO RAIL CANT.
- ELASTOMER PADS SHALL BE 3/4" THICK AND EXTEND BEYOND THE FROG PLATES 1" ON ALL SIDES.
- THE BONDED FROG AND BONDED CENTER FROG INSERTS SHALL BE MILLED CARBON STEEL CASTINGS AS SPECIFIED IN THE CONTRACT SPECIFICATIONS, AND AS SHOWN ON THIS DRAWING.

DESIGNED <u>R. REYES</u> 4/08	REFERENCE DRAWINGS	REVISIONS	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		TRACKWORK DESIGN DRAWING	
DRAWN <u>A. DAVIS</u> 7/07	NUMBER DESCRIPTION	DATE BY DESCRIPTION	OFFICE OF ENGINEERING SUPPORT SERVICES		NO. 8 GUARDED DOUBLE CROSSOVER, 14'-0"	
CHECKED <u>R. ROCKEFELLER</u> 7/07					TRACK CENTERS, DIAMOND & END FROG. DETAILS	
APPROVED <u>L. PADGETT</u> 7/07					DIRECT FIXATION TRACK	
			SUBMITTED <u>L. Padgett</u> 10/2007		SCALE 1/4" = 1'-0"	
			APPROVED <u>[Signature]</u> 10/2007		DRAWING NO. DD-TW-075	
					1 0 1 2 4 FT	







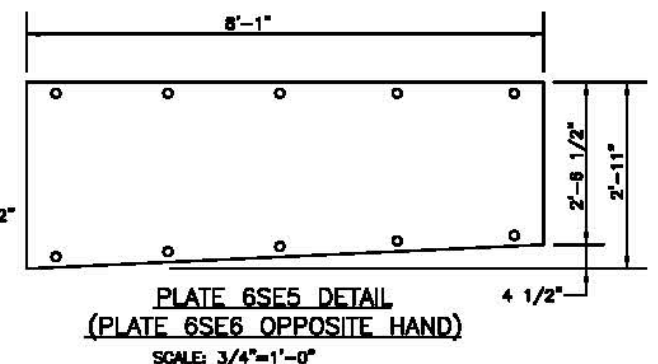
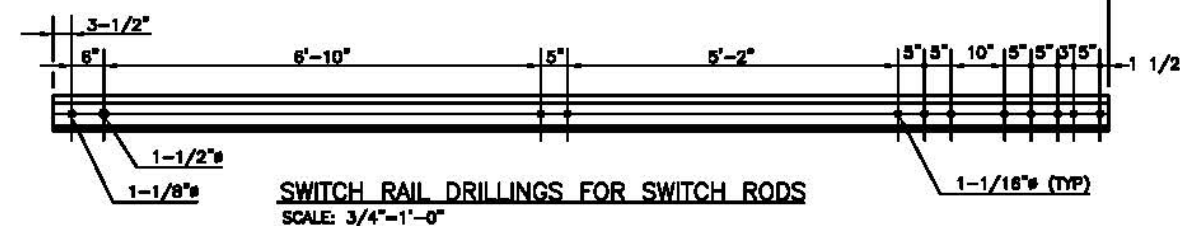


#### BILL OF MATERIAL

QTY	DESCRIPTION
2	NO. 6 GUARDED EQUILATERAL PLATED SWITCH WITH GRADUATED RISERS (REF. AREMA STD. PLAN 112-55)
2	18'-6" CURVED, GUARDED SWITCH RAILS
2	STOCK RAILS, UNDERCUT FOR SWITCH RAILS
2	MANGANESE HOUSINGS WITH DUCTILE IRON CHAIRS
20	BOLTLESS ADJUSTABLE RAIL BRACE FOR LEFT HAND PANDROL CLIPS #2056
8	DUCTILE IRON GUARD RAIL STOPS
A.R.	CLOSURE RAILS
2	HEEL BLOCK ASSEMBLY FOR GUARDED SWITCHES
A.R.	SG, GSE, GE PLATES
A.R.	ELASTOMER PAD FOR EVERY PLATE
A.R.	ANCHOR ASSEMBLIES
A.R.	GUARD RAILS AND FRONT GUARD RAIL
3	INSULATED SWITCH RODS, RAYCOR TYPE MJS
A.R.	SPACER BLOCKS

#### PLATE DETAILS

PLATE	LENGTH	WIDTH
GR	28"	6"
6E1	36"	8"
6E2	36"	8"
6E3	38"	8"
6E4	38"	8"
6E5	40"	8"
6E6	40"	8"
6E7	42"	8"
6E8	42"	8"
6E9	45"	8"
6E10	45"	8"



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *VR Padgett* 10/2007  
DATE

APPROVED *[Signature]* 10/2007  
DATE

TRACKWORK DESIGN DRAWING  
NO. 6 GUARDED EQUILATERAL TURNOUT,  
DIRECT FIXATION TRACK,  
PLATED SWITCH

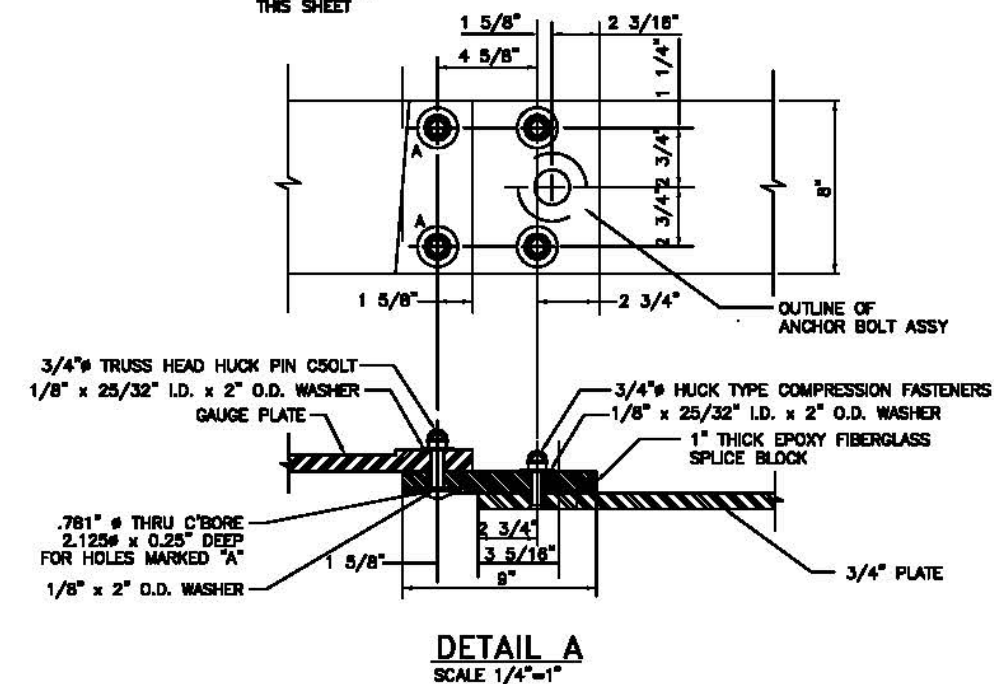
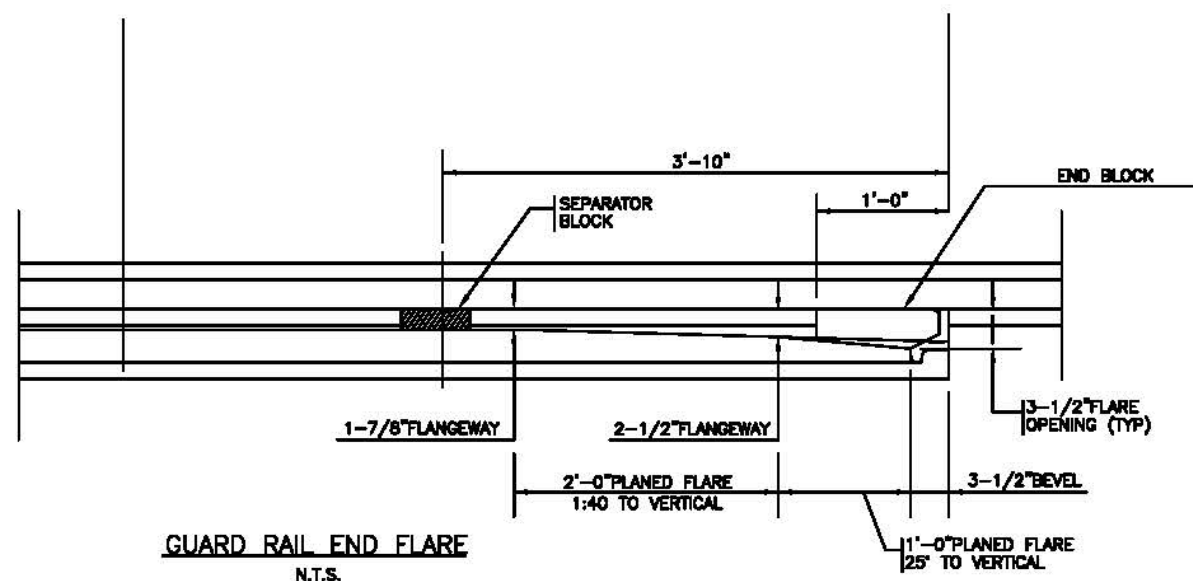
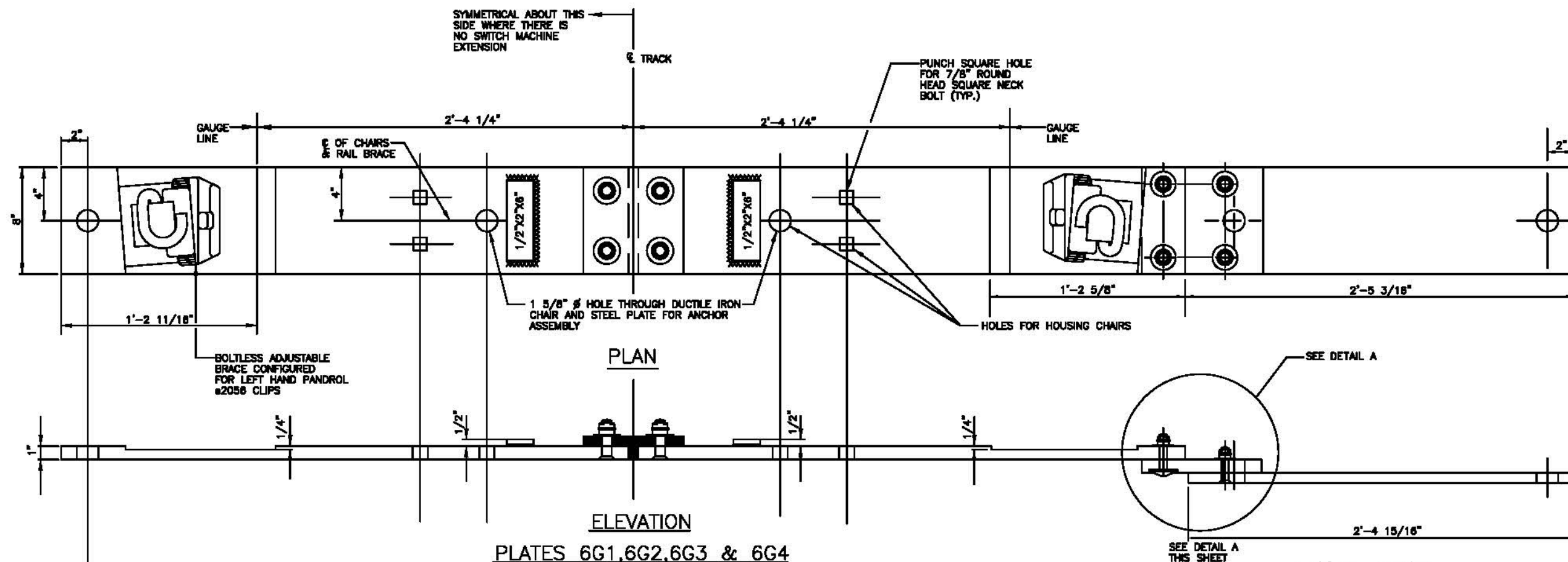
SCALE  
AS SHOWN

DRAWING NO.  
DD-TW-077









			REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DESIGNED	RJREYES	4/08					
DRAWN	A. DAVIS	7/07					
CHECKED	R. ROCKEFELLER	7/07					
APPROVED	L. PADGETT	7/07					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *LR Padgett* 10/2007  
DATE

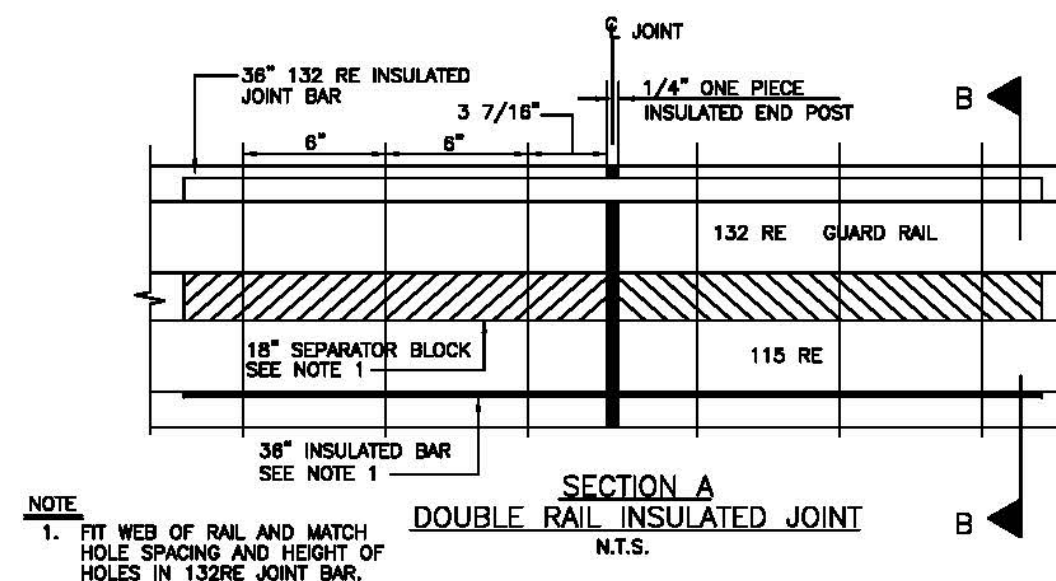
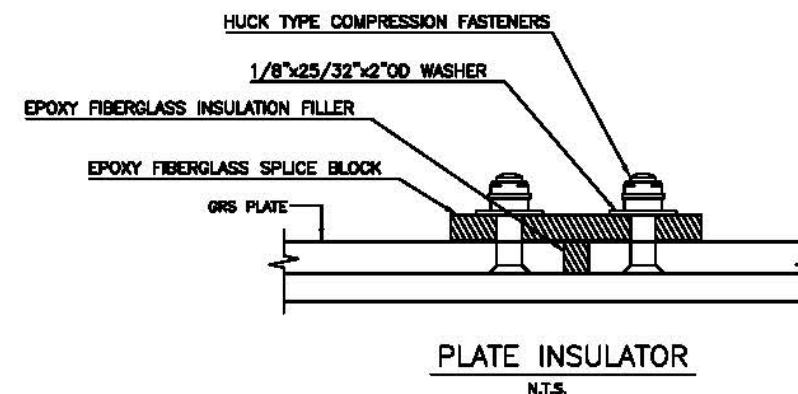
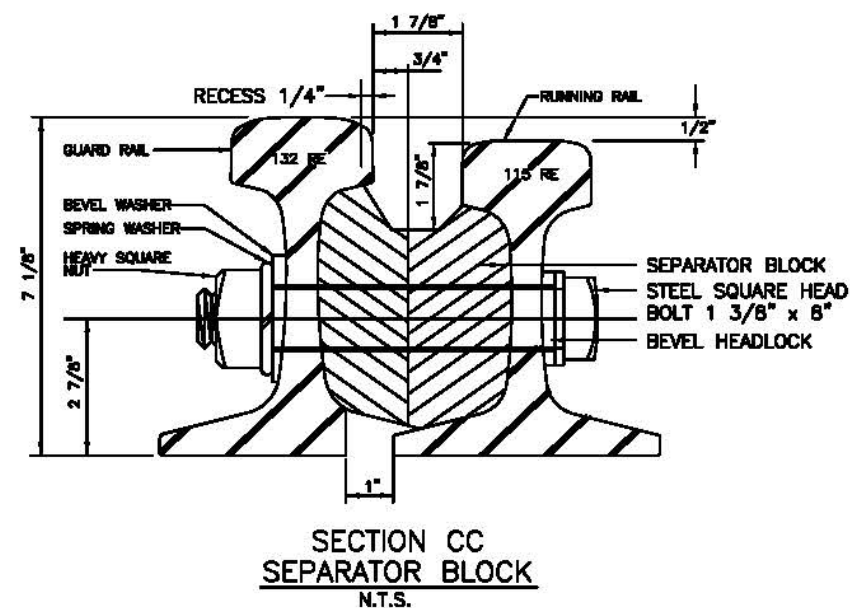
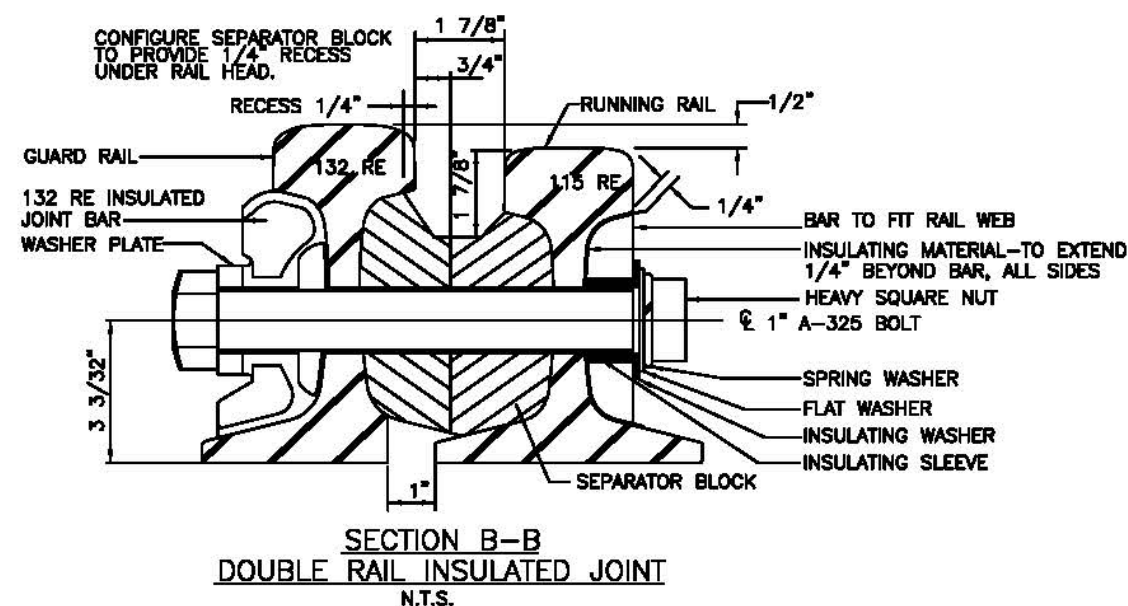
APPROVED *LR Padgett* 10/2007  
DATE

TRACKWORK DESIGN DRAWING  
NO. 6 GUARDED EQUILATERAL TURNOUT,  
DIRECT FIXATION TRACK,  
DETAILS, SHEET 1 OF 2

SCALE  
AS SHOWN

DRAWING NO.  
DD-TW-079



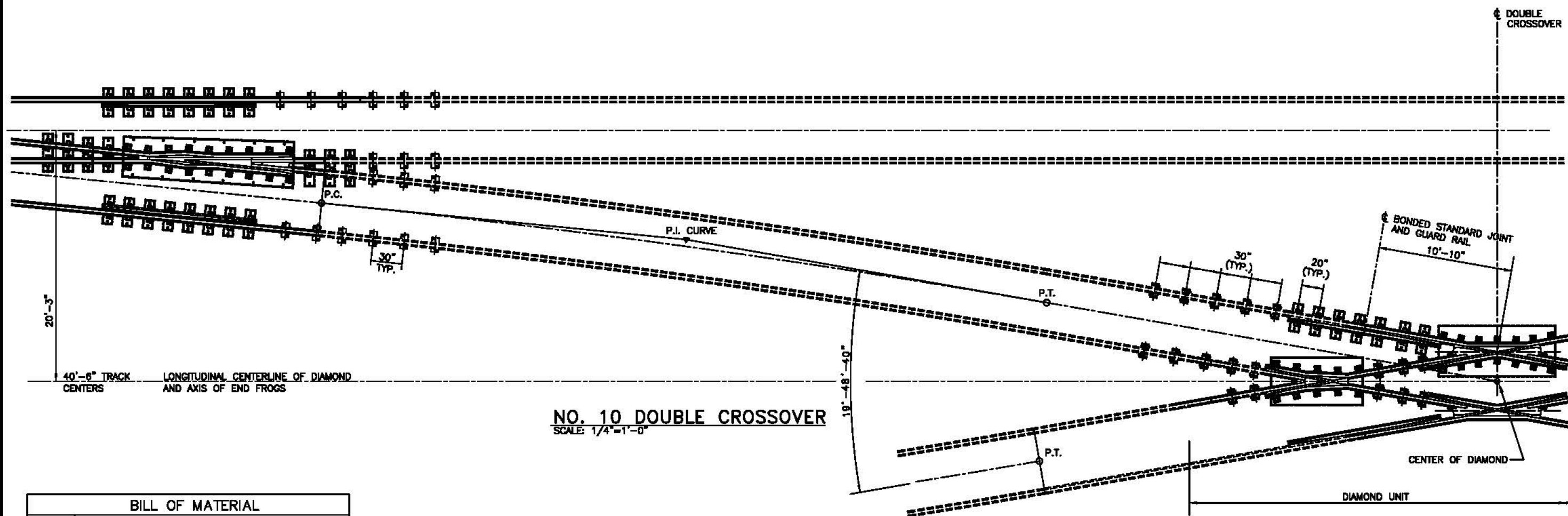


			REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DESIGNED	RJEYES	4/08					
DRAWN	A. DAVIS	7/07					
CHECKED	R. ROCKEFELLER	7/07					
APPROVED	L. PADGETT	7/07					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	<i>LR Padgett</i>	10/2007	DATE
APPROVED	<i>LR Padgett</i>	10/2007	DATE

TRACKWORK DESIGN DRAWING NO. 6 GUARDED EQUILATERAL TURNOUT, DIRECT FIXATION TRACK, DETAILS, SHEET 2 OF 2		
SCALE AS SHOWN	DRAWING NO. DD-TW-080	





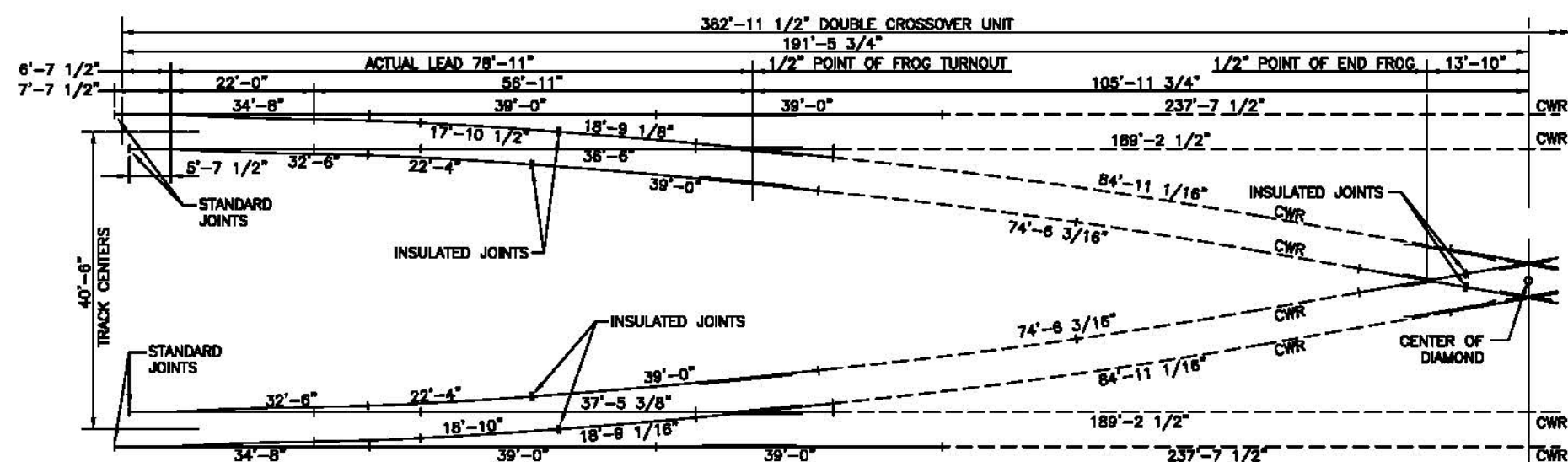
**NO. 10 DOUBLE CROSSOVER**  
SCALE: 1/4"=1'-0"

BILL OF MATERIAL	
QTY.	DESCRIPTION - FURNISHED THIS CONTRACT
4	NO. 10 PLATED BALLASTED TURNOUTS, COMPLETE
2 EACH	NO. 10 DOUBLE CROSSOVER, END AND CENTER FROG-G FOR 40'-6" TRACK CENTER DIAMOND
A.R.	BONDED STANDARD RAIL JOINTS, COMPLETE
A.R.	BONDED INSULATED RAIL JOINTS, COMPLETE
A.R.	ELASTOMER PADS AT EVERY PLATE FOR 7/8" SCREW SPIKES

CURVE DATA	
Δ	4°-10'-51"
R	812.84
T	28.67'
Lc	59.3142'
E	6 7/8"
SE	0

BILL OF MATERIAL	
QTY.	DESCRIPTION - FURNISHED BY OTHERS
A.R.	GROUT PADS
A.R.	INSERT AND ANCHOR ASSEMBLY, ANCHORING MATERIAL
A.R.	BONDED RAIL JOINTS TO CONNECT TURNOUTS AND DIAMOND TO CWR

- NOTES:**
- SEE DWG No. TW2007-52 FOR No.10 TURNOUT DATA.
  - CROSSOVER IS SYMMETRICALLY ROTATED ABOUT CENTER OF DIAMOND.



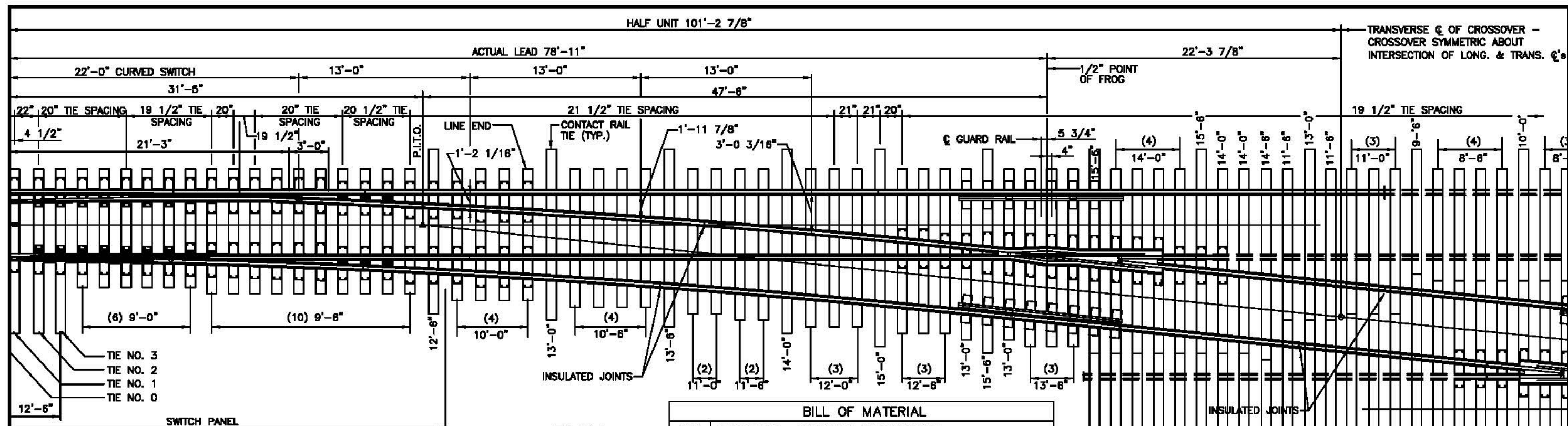
**NO. 10 DOUBLE CROSSOVER, RAIL LAYOUT DIAGRAM**  
SCALE: 3/32"=1'-0"

DESIGNED		REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		TRACKWORK DESIGN DRAWING	
DATE		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION		No. 10 PLATED DOUBLE CROSSOVER, TYPE 1,	
DRAWN				7/06	ENSS	ADDED INFORMATION TO PLAN VIEW		QUARTER UNIT, 40'-6" TRACK CENTERS, PLAN,	
CHECKED	10/07			10/07	ENSS	REVISED DELTA ANGLE		DIRECT FIXATION TRACK	
APPROVED	10/07							SCALE	DRAWING NO.
								NOT TO SCALE	DD-TW-081









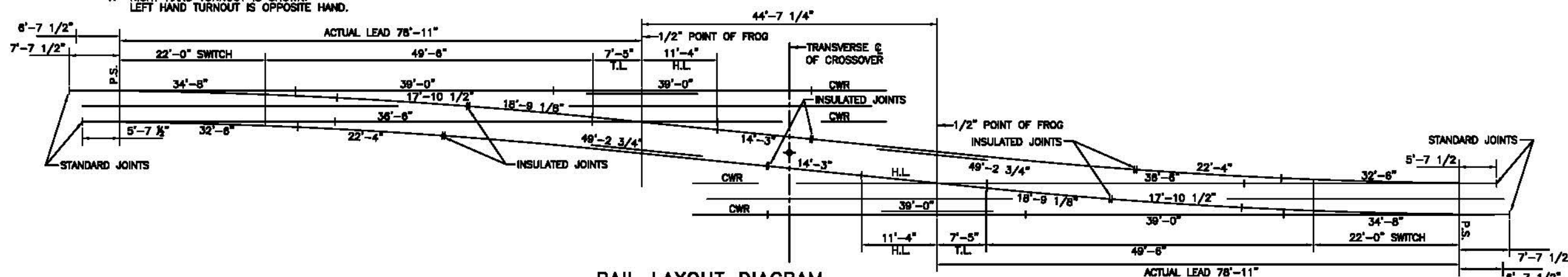
PLAN

BILL OF MATERIAL	
QTY.	DESCRIPTION - FURNISHED THIS CONTRACT
A.R.	ELASTIC FASTENER TIE PLATES PUNCHED FOR 7/8" SCREW SPIKES
A.R.	GR PLATES
A.R.	7/8" SCREW SPIKES
A.R.	PANDROL PLATES

BILL OF MATERIAL	
QTY.	DESCRIPTION - FURNISHED THIS CONTRACT
2	No. 10 STRAIGHT SWITCH, BALLASTED, COMPLETE
2	No. 10 CURVED SWITCH, BALLASTED, COMPLETE
2	No. 10 PLATED RAIL BOUND MANGANESE FROG, BALLASTED, COMPLETE
4	12'-6" GUARD RAIL, COMPLETE
A.R.	CURVED CLOSURE RAIL, STOCK RAIL, TURNOUT RAIL
A.R.	STRAIGHT CLOSURE RAIL, STOCK RAIL
A.R.	BOLTED STANDARD RAIL JOINTS, 6 HOLE, 36 INCH
A.R.	BOLTED INSULATED RAIL JOINTS, 6 HOLE, 36 INCH
A.R.	LEFT HAND PANDROL CLIPS #2056
A.R.	SPACER BLOCKS
A.R.	7" X 9" TIMBER SWITCH TIES AS SHOWN
A.R.	7" X 8" TIMBER CROSS TIES AS SHOWN

NOTES:

- RIGHT HAND TURNOUT IS SHOWN.  
LEFT HAND TURNOUT IS OPPOSITE HAND.



RAIL LAYOUT DIAGRAM  
NOT TO SCALE

TIE SCHEDULE	
LENGTH	QTY.
8'-6"	24
9'-0"	12
9'-6"	22
10'-0"	10
10'-6"	8
11'-0"	10
11'-6"	8
12'-0"	6
12'-6"	16
13'-0"	8
13'-6"	8
14'-0"	14
14'-6"	2
15'-0"	2
15'-6"	6
TOTAL	156

PANDROL PLATE WITH "6" CLIPS

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
RUEYES	4/06	NUMBER	DESCRIPTION	DATE	BY
A. DMS	7/07			07/07	CBF
CHECKED					
APPROVED					

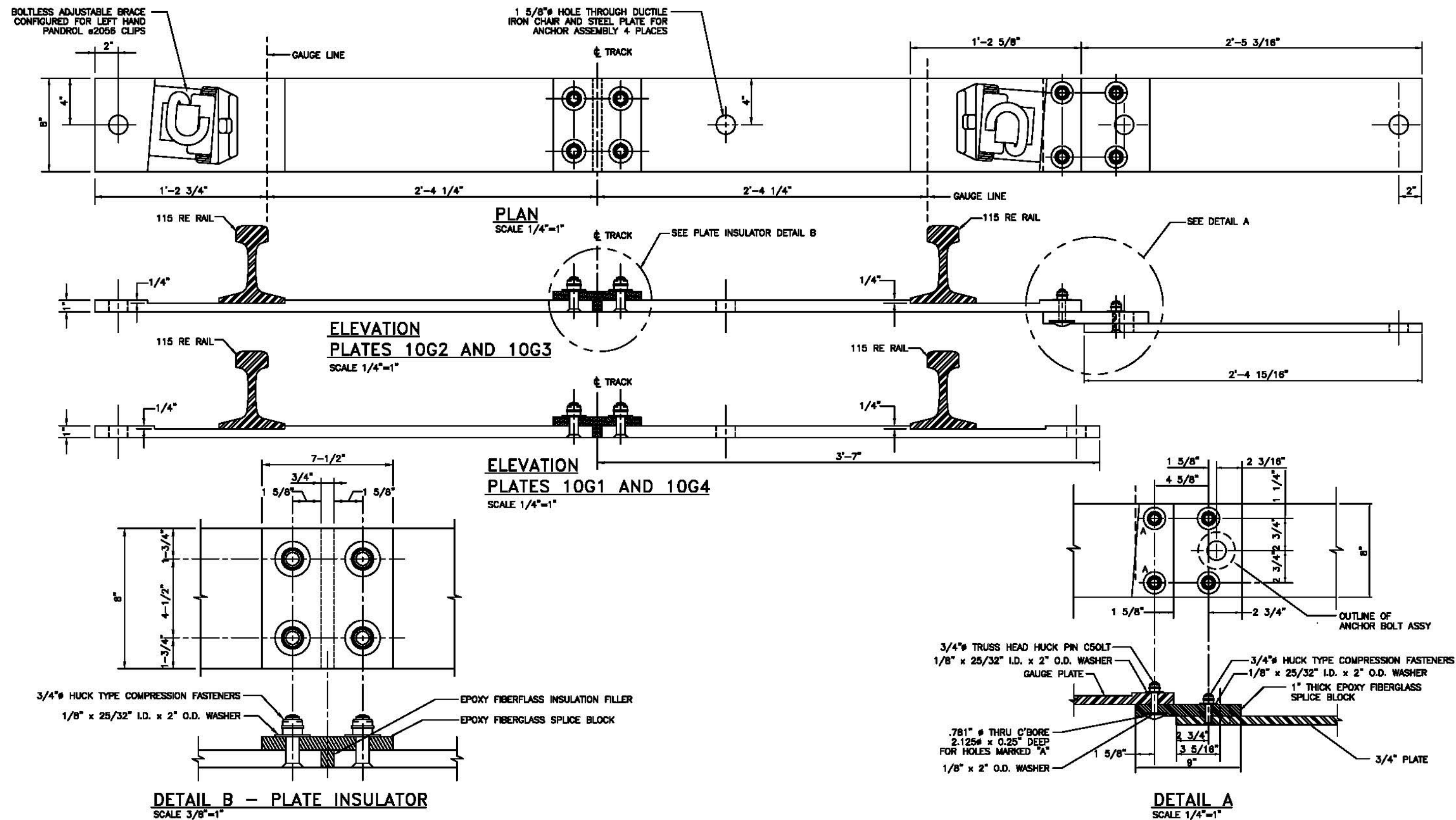
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

TRACKWORK DESIGN DRAWING	
NO. 10 SINGLE CROSSOVER, TYPE 1, HALF UNIT,	
14'-0" TRACK CENTERS, PLAN,	
BALLASTED TRACK	
SCALE	DRAWING NO.
AS SHOWN	DD-TW-083



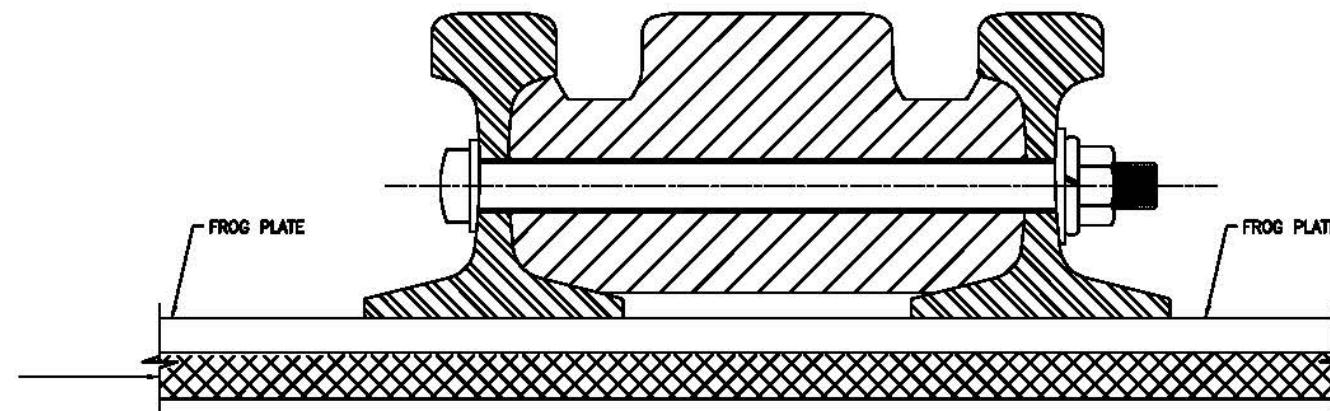




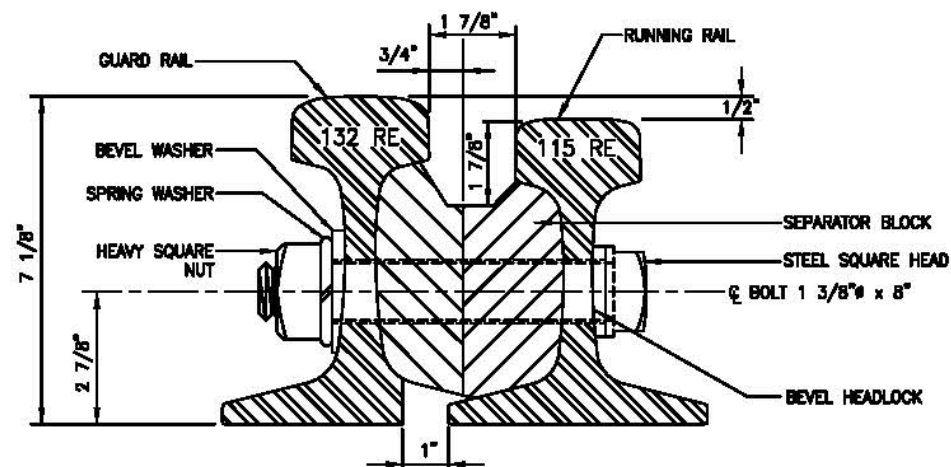


DESIGNED _____ DRAWN _____ CHECKED R.ROCKEFELLER APPROVED L.PADGETT	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF CHIEF ENGINEER - FACILITIES SUBMITTED <i>L.Padgett</i> 10/2007 APPROVED <i>R. Rockefeller</i> 10/2007	TRACKWORK DESIGN DRAWING	
	NUMBER	DESCRIPTION	DATE	BY		No. 10 TURNOUT, DETAILS, DIRECT FIXATION	
			08/2007	ENSS		TRACK, SHEET 1 OF 2	
						SCALE	DRAWING NO.
						NOT TO SCALE	DD-TW-085

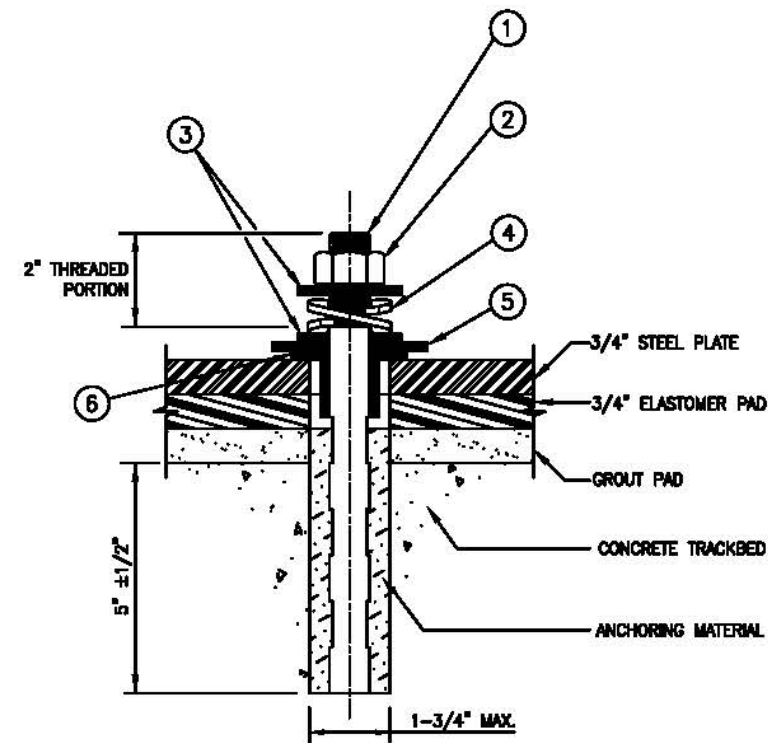




SECTION A-A - PLATED FROG  
NOT TO SCALE



SECTION C-C - SEPARATOR BLOCK  
NOT TO SCALE



SPECIAL PLATE ANCHOR ASSEMBLY  
NOT TO SCALE

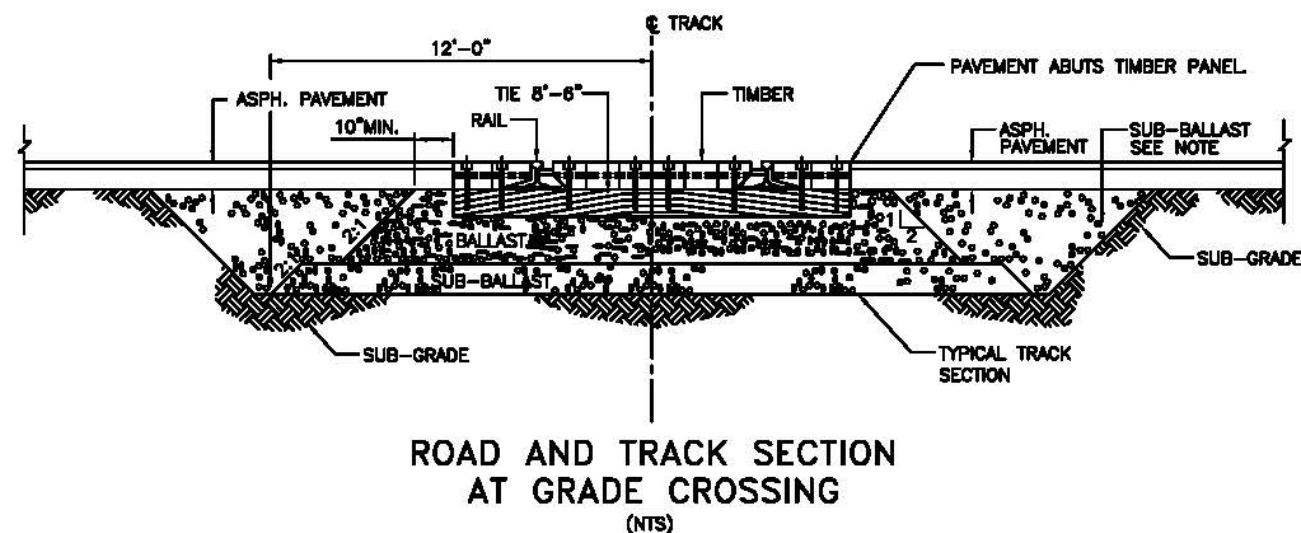
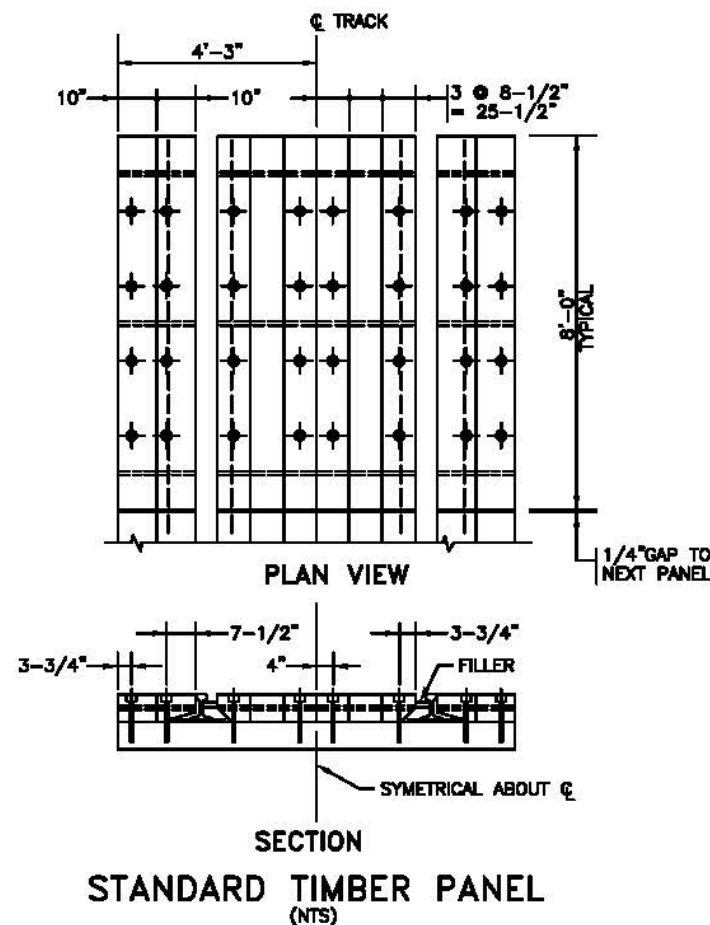
BILL OF MATERIAL - ANCHOR ASSEMBLY		
ITEM	QTY.	DESCRIPTION - FURNISHED BY OTHERS
1	1	STEEL STUD 7/8"x10" ASTM-A449
2	1	STEEL HEX NUT FOR 7/8" BOLT, WASHER FACED, ASTM-A-325
3	2	STEEL WASHER, 15/16" I.D., 2-1/4" O.D., 3/16" THICK, ASTM-A-325
4	1	DOUBLE COIL SPRING WASHER
5	1	INSULATING FIBER WASHER, 1-9/32" I.D., 3-3/8" O.D.
6	1	ONE PIECE - INSULATING FIBER WASHER (29/32" I.D., 2-1/2" O.D.) AND INSULATING FIBER SLEEVE (29/32" I.D., 1-9/32" O.D.)

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	BY
DRAWN	ONE			08/2007	ENSS
CHECKED	10/07				
APPROVED	10/07				

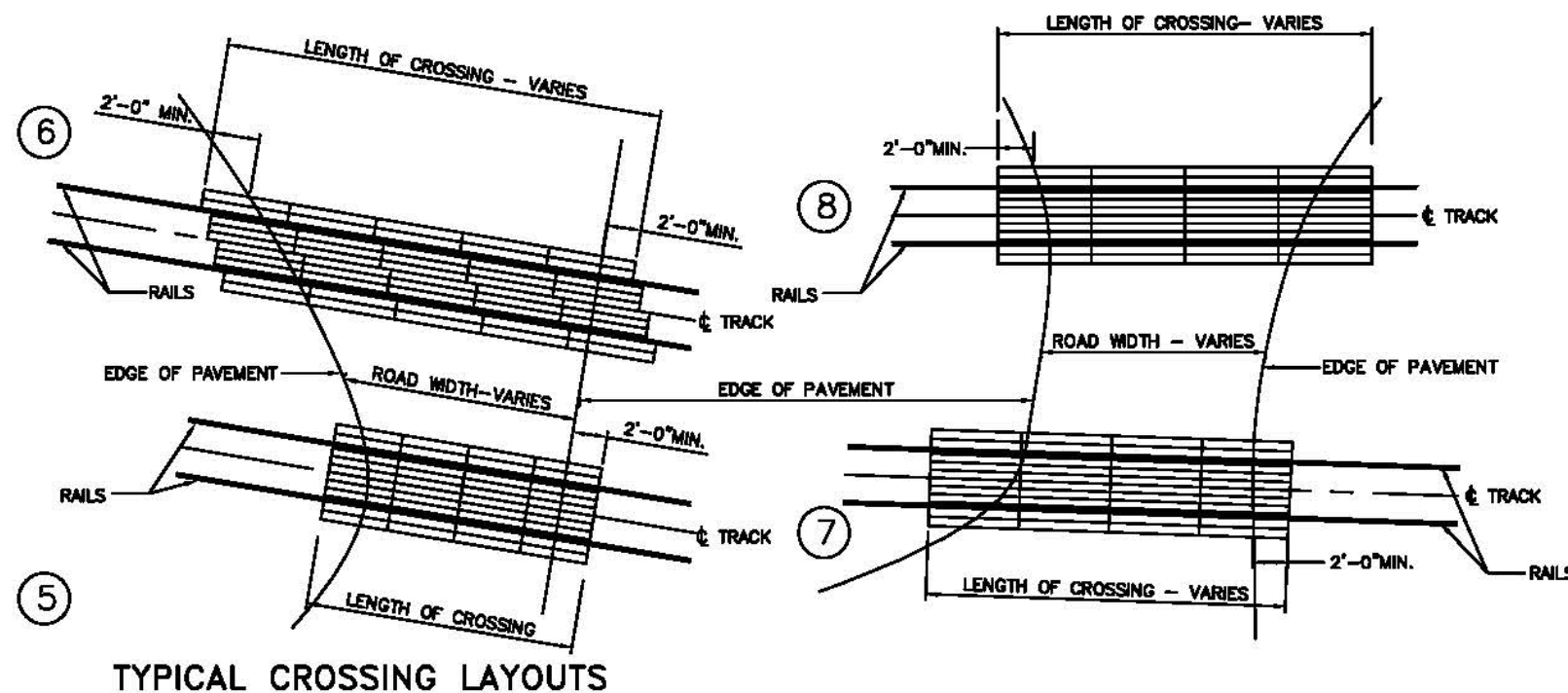
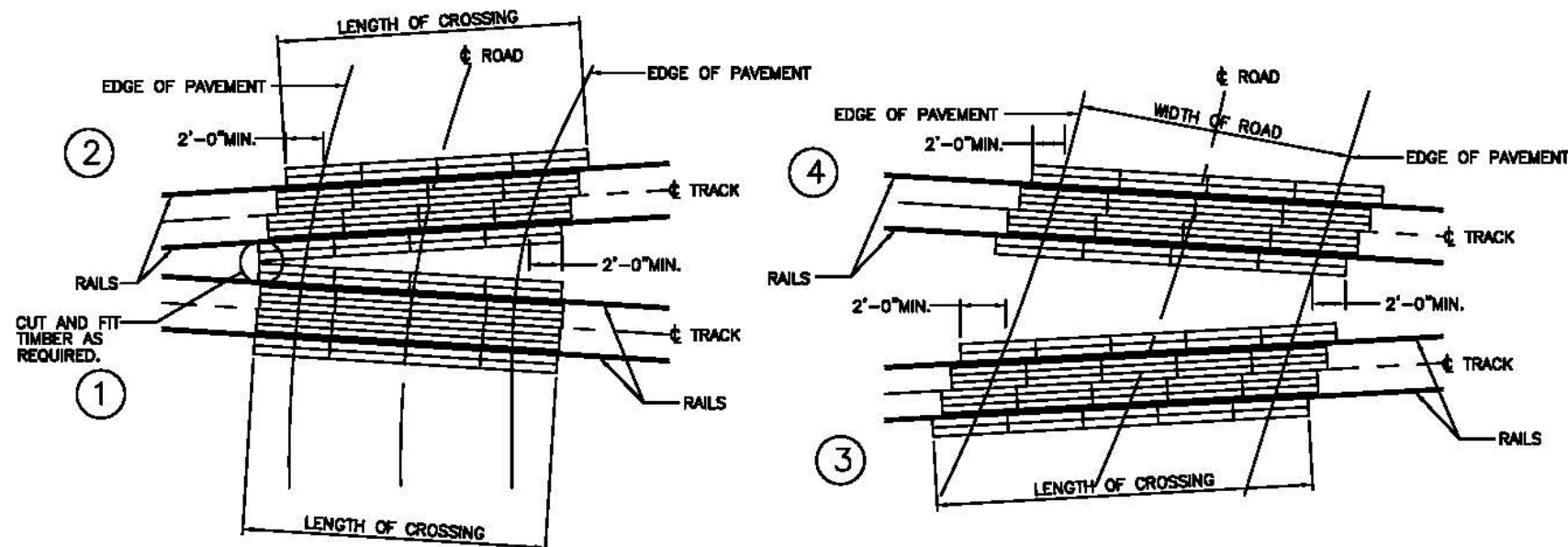
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF CHIEF ENGINEER - FACILITIES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

TRACKWORK DESIGN DRAWING		
NO. 10 TURNOUT, DETAILS, DIRECT FIXATION TRACK, SHEET 2 OF 2		
SCALE	DRAWING NO.	
NOT TO SCALE	DD-TW-086	





- NOTES:**
1. AREA BETWEEN SUBGRADE AND TOP OF RAIL MAY BE FILLED WITH SUB-BALLAST PRIOR TO TRACK CONSTRUCTION. THIS SUB-BALLAST SHALL BE REMOVED AS NECESSARY TO BUILD THE TRACK SECTION AND FINAL PAVEMENT.
  2. TIMBER GRADE CROSSINGS TO BE CONSTRUCTED IN ACCORDANCE WITH WMATA STD. SPECIFICATIONS.



DESIGNED	P.T.R.	DATE	REFERENCE DRAWINGS		REVISIONS	
			NUMBER	DESCRIPTION	DATE	BY
DRAWN	A. DMS	08/08			08/08	GRF
CHECKED	BROCKFELLER	11/08				
APPROVED	L. PADGETT	11/08				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	DATE	APPROVED

TRACKWORK DESIGN DRAWING	
TIMBER GRADE CROSSINGS	
PLANS AND DETAILS	
SCALE	DRAWING NO.
NOT TO SCALE	DD-TW-090





**NOTES:**

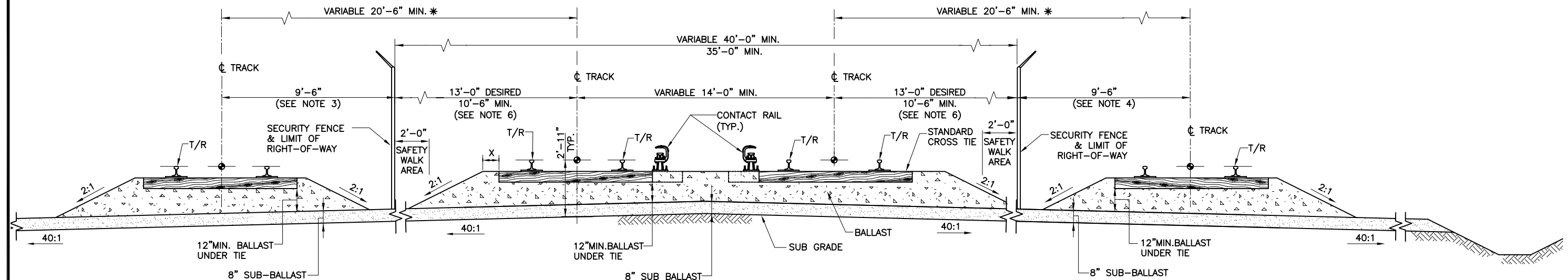
1. THE SERVICE ROAD AS SHOWN IS DESIRABLE BUT NOT MANDATORY. FURTHERMORE, IT NEED NOT BE CONTINUOUS NOR ON THE SAME SIDE OF TRACKS. THE FEASIBILITY OF A SERVICE ROAD SHALL BE EVALUATED IN EACH LOCATION FOR THE AUTHORITY'S CONSIDERATION.
2. WHERE THERE IS NO SERVICE ROAD ON EITHER SIDE, THE SUB BALLAST BERM SHALL BE 2'-6" ON BOTH SIDES OF TRACK.
3. SLOPE TO BE DEPENDENT ON THE REQUIREMENTS OF EACH LOCATION.
4. THE TRANSITION FROM THE ROADBED AND BALLAST SECTION IS SHOWN FOR TANGENT TRACK. THE ROADBED AND BALLAST SECTION SHOWN FOR SUPER ELEVATED TRACK MAY BE MADE THROUGH THE LENGTH OF THE SPIRAL.

<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b>			
<b>OFFICE OF ENGINEERING SUPPORT SERVICES</b>			
<b>SUBMITTED</b> <i>VR Padgett</i>	<b>10/2007</b>	<b>APPROVED</b> <i>[Signature]</i>	<b>10/2007</b>
	DATE		DATE

TRACKWORK DESIGN DRAWING  
STANDARD ROADBED & BALLAST SECTION  
METRO ON EXCLUSIVE RIGHT-OF-WAY

SCALE	DRAWING NO. DD-TW-110
-------	-----------------------





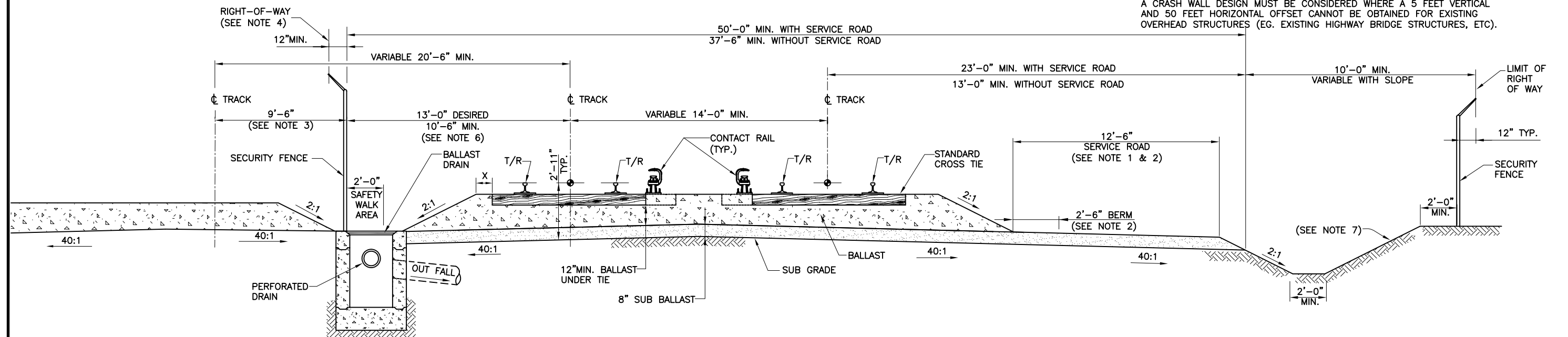
### STANDARD ROADBED & BALLAST SECTION FOR TRACK BETWEEN RAILROAD MAINS

TYPE OF TIE AT THE RECOMMENDED SPACING	WIDTH OF BALLAST SHOULDER (X)
7"x 9" x 8'-6" WOOD	10"
MONOLITHIC CONCRETE	12"

#### NOTES:

1. THE SERVICE ROAD AS SHOWN IS DESIRABLE BUT NOT MANDATORY. FURTHERMORE, IT NEED NOT BE CONTINUOUS NOR ON THE SAME SIDE OF TRACKS. THE FEASIBILITY OF A SERVICE ROAD SHALL BE EVALUATED IN EACH LOCATION FOR THE AUTHORITY'S CONSIDERATION.
2. WHERE THERE IS NO SERVICE ROAD ON EITHER SIDE THE SUB BALLAST SHOULDER BERM SHALL BE 2'-6" ON BOTH SIDES OF TRACK.
3. RECOMMENDED WHERE ALL ALIGNMENT DOES NOT EXCEED 2' CURVATURE; LATEST SPECIFICATIONS OF THE RAILROAD INVOLVED SHALL GOVERN.

4. ALLOWANCE FOR THREE (3) STRAND BARBED WIRE ON FENCE AT 45 DEGREE ANGLE FENCE IS 12".
5. WHEN EXISTING ROADBED IS DISTURBED OR RELOCATED, THE TRACK AND BALLAST SECTION SHALL CONFORM TO LATEST SPECIFICATIONS AND STANDARDS OF THE RAILROAD SECTION INVOLVED.
6. MIN. LATERAL CLEARANCE TO FENCE SHALL BE 13'-0" ON OUTSIDE OF CURVE WHEN TRACK SUPER ELEVATION EXCEEDS  $3\frac{1}{4}$ ".
7. SLOPE TO BE DEPENDENT ON THE REQUIREMENTS FOR EACH LOCATION.
- \* 8. WHERE FEASIBLE FOLLOW COMMON CORRIDOR STUDY RECOMMENDATIONS FOR 5 FEET VERTICAL OFFSET AND 50 FEET HORIZONTAL SEPARATION BETWEEN CENTERLINE OF THE RAILROAD CORRIDORS. WMATA INTRUSION DETECTION WARNING SYSTEM (IDW) IS REQUIRED IN ALL RAILROAD COMMON CORRIDORS FOR ALL WMATA TRACKS THAT PARALLEL A RAILROAD CORRIDOR. A CRASH WALL DESIGN MUST BE CONSIDERED WHERE A 5 FEET VERTICAL AND 50 FEET HORIZONTAL OFFSET CANNOT BE OBTAINED FOR EXISTING OVERHEAD STRUCTURES (EG. EXISTING HIGHWAY BRIDGE STRUCTURES, ETC).



### STANDARD ROADBED & BALLAST SECTION FOR TRACK ALONGSIDE RAILROAD MAINS

DESIGNED	K. Wojcicki	6-2007	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		TRACKWORK DESIGN DRAWING	
DRAWN	K. Wojcicki	6-2007	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	OFFICE OF ENGINEERING SUPPORT SERVICES	STANDARD ROADBED & BALLAST SECTION	
CHECKED	L.R. Padgett	6-2007							METRO IN RAILROAD CORRIDOR	
APPROVED	L.R. Padgett	6-2007								

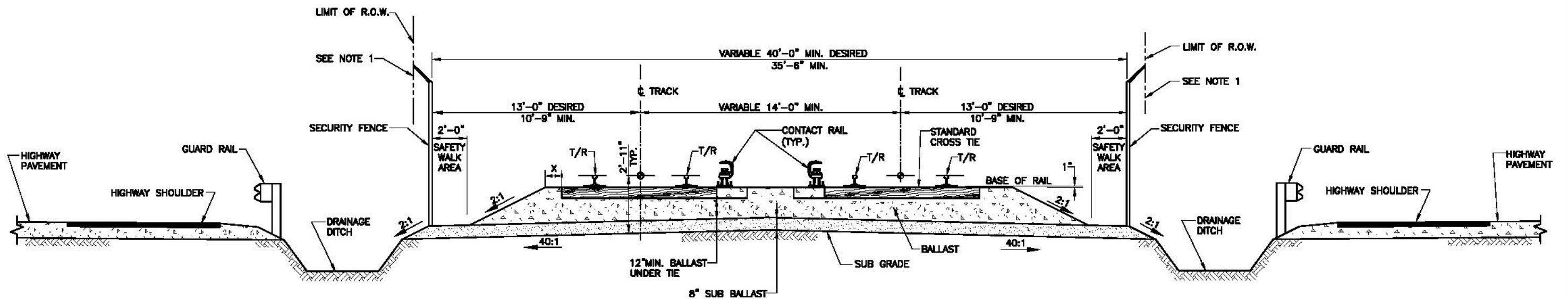
SUBMITTED *L.R. Padgett* 10/2007  
DATE

APPROVED *L.R. Padgett* 10/2007  
DATE

SCALE NOT TO SCALE

DRAWING NO. DD-TW-111



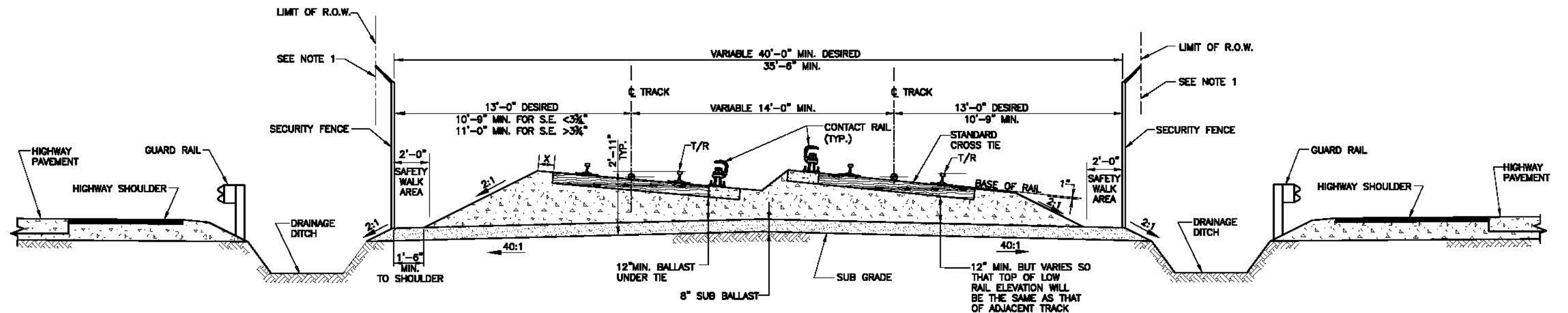


STANDARD ROADBED & BALLAST SECTION  
FOR TANGENT TRACK IN HIGHWAY MEDIAN

TYPE OF TIE AT THE RECOMMENDED SPACING	WIDTH OF BALLAST SHOULDER (X)
7"x 9" x 8'-6" WOOD	10"
MONOLITHIC CONCRETE	12"

**NOTES:**

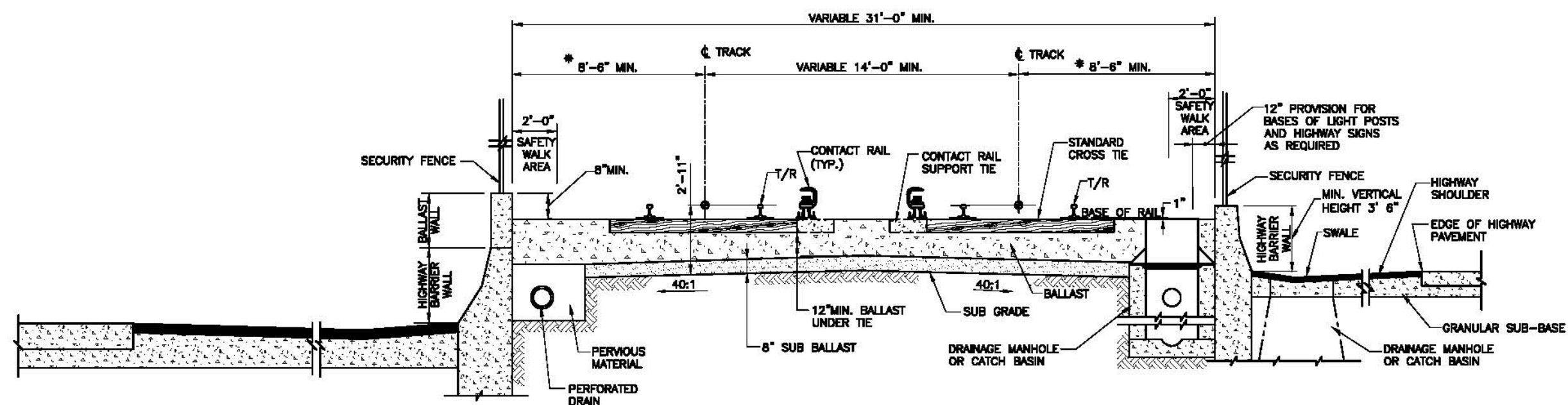
1. ALLOWANCE FOR FENCE IS 12" INSIDE WMATA PROPERTY.



STANDARD ROADBED & BALLAST SECTION  
FOR SUPER ELEVATED TRACK IN HIGHWAY MEDIAN

DESIGNED K. Wojcik 8-2007 DRAWN K. Wojcik 8-2007 CHECKED L.R. Padgett 8-2007 APPROVED L.R. Padgett 8-2007	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <i>L.R. Padgett</i> 10/2007 APPROVED <i>[Signature]</i> 10/2007	TRACKWORK DESIGN DRAWING STANDARD ROADBED & BALLAST SECTION METRO IN HIGHWAY MEDIAN	
	NUMBER	DESCRIPTION	DATE	BY			
						SCALE	DRAWING NO.
						NOT TO SCALE	DD-TW-112





### MINIMUM WIDTH ROADBED & BALLAST SECTION IN RESTRICTED HIGHWAY MEDIANS

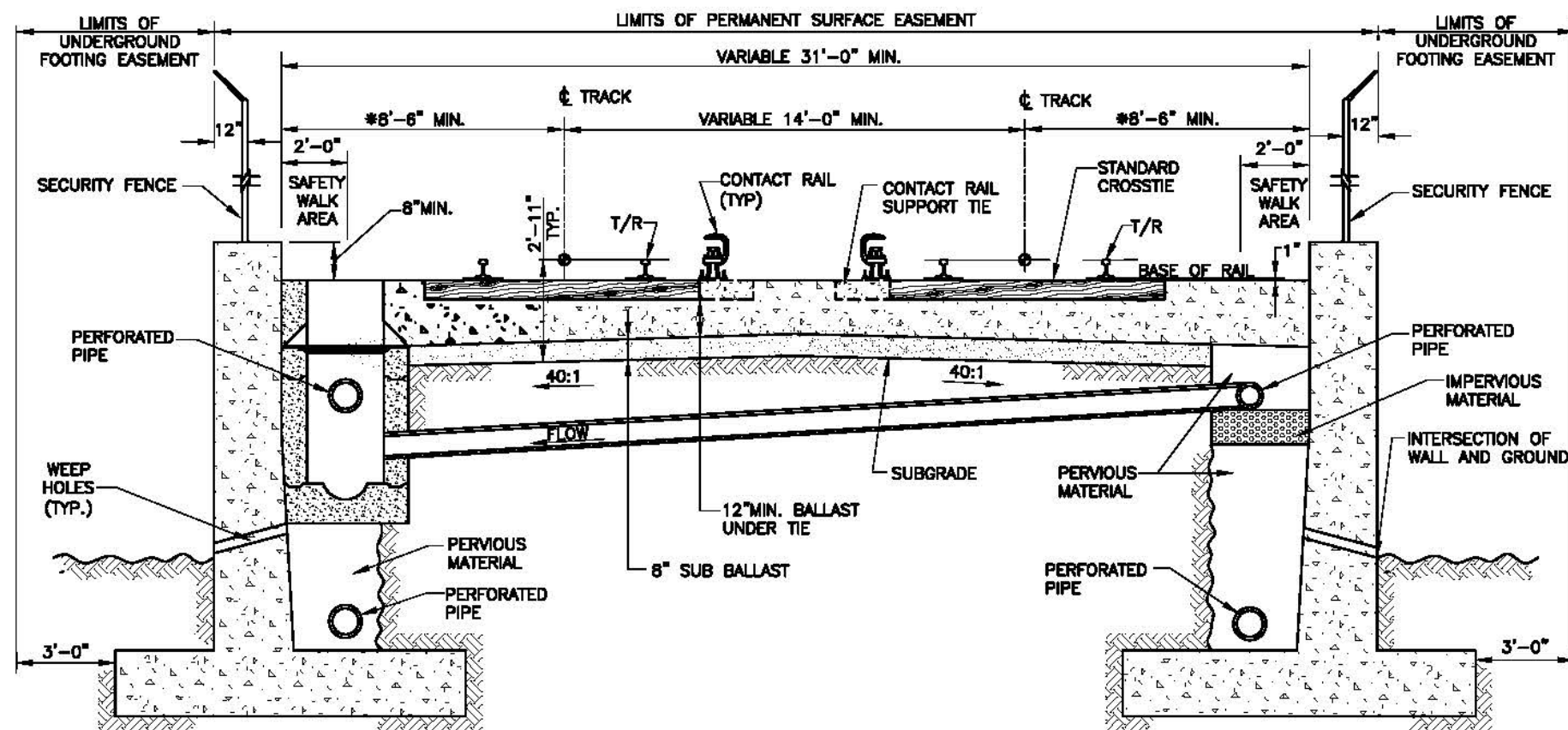
\* ALLOWANCES FOR CURVATURE SHALL BE ADDED WHERE APPLICABLE.

#### NOTES:

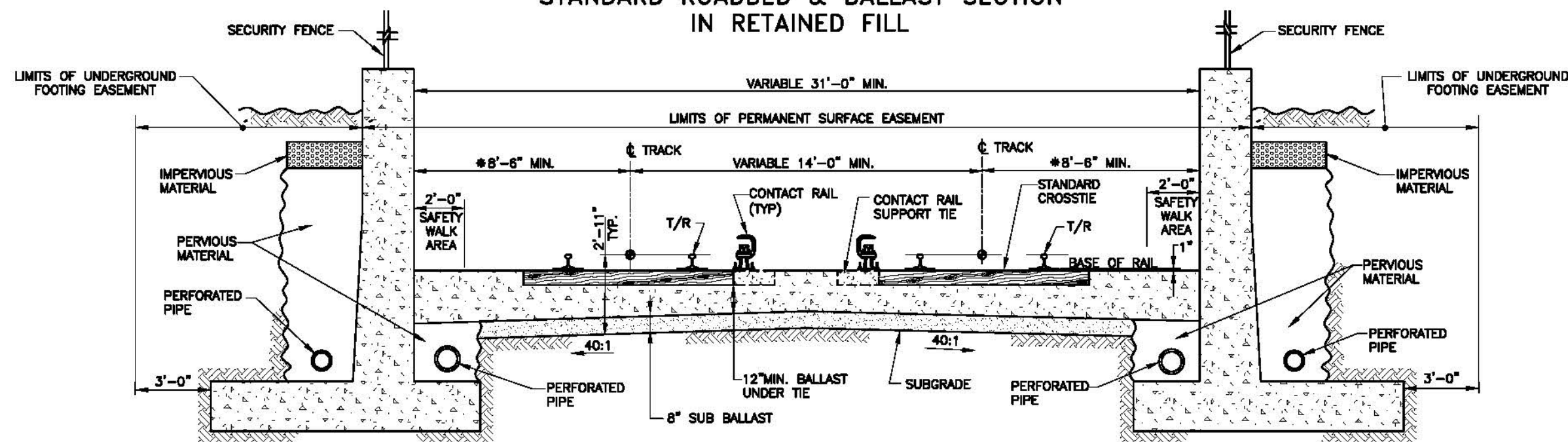
1. PROVIDE INLET MANHOLES IN ACCORDANCE WITH DD-M-23
2. BOTH 14'-0" MIN. TRACK CENTERS AND 8'-6" MIN. SIDE CLEARANCE SHALL BE INCREASE FOR CURVATURE AND SUPER ELEVATION AS PER DESIGN CRITERIA.

DESIGNED <u>K. Wojcik</u>	8-2007	REFERENCE DRAWINGS			REVISIONS			WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			TRACKWORK DESIGN DRAWING		
DRAWN <u>K. Wojcik</u>	8-2007	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION		OFFICE OF ENGINEERING SUPPORT SERVICES			STANDARD ROADBED & BALLAST SECTION		
CHECKED <u>L.R. Pedgett</u>	8-2007							SUBMITTED <u>L.R. Pedgett</u> 10/2007 DATE			METRO IN RESTRICTED HIGHWAY MEDIAN SCALE NOT TO SCALE		
APPROVED <u>L.R. Pedgett</u>	8-2007												
								APPROVED <u>[Signature]</u> 10/2007			DRAWING NO. DD-TW-113		
								DATE					





STANDARD ROADBED & BALLAST SECTION  
IN RETAINED FILL



STANDARD ROADBED & BALLAST SECTION  
IN RETAINED CUT

\* ALLOWANCE FOR CURVATURE AND SUPER ELEVATION  
SHALL BE ADDED WHERE APPLICABLE

# NOTES:

1. RETAINING WALL FORM AND DETAILS COVERED ELSEWHERE. LIMITS OF UNDERGROUND FOOTING EASEMENT.
2. APPLICABLE DIMENSIONS SHOWN ON THIS DRAWING SHALL ALSO GOVERN FOR TRACK ADJACENT TO A SINGLE RETAINING WALL OR FOR A SINGLE METRO TRACK IN RETAINING CUT OR FILL LOCATION.
3. PROVIDE INLET MANHOLES IN ACCORDANCE WITH DD-M-23.
4. REFER TO ST-U-34 FOR MOUNTING WMATA'S SECURITY FENCE ON THE RETAINING WALL.
5. BOTH 14'-0" MIN. TRACK CENTERS AND 8'-6" MIN. SIDE CLEARANCE SHALL BE INCREASE FOR CURVATURE AND SUPERELEVATION AS PER DESIGN CRITERIA.

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
K. Wojcik	8-2007	NUMBER	DESCRIPTION	DATE	BY
DRAWN	8-2007				
CHECKED	8-2007				
APPROVED	8-2007				

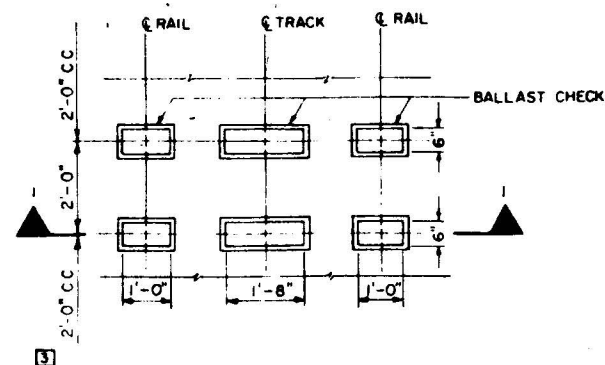
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

TRACKWORK DESIGN DRAWING  
STANDARD ROADBED & BALLAST SECTION  
METRO IN RETAINING WALL SECTION

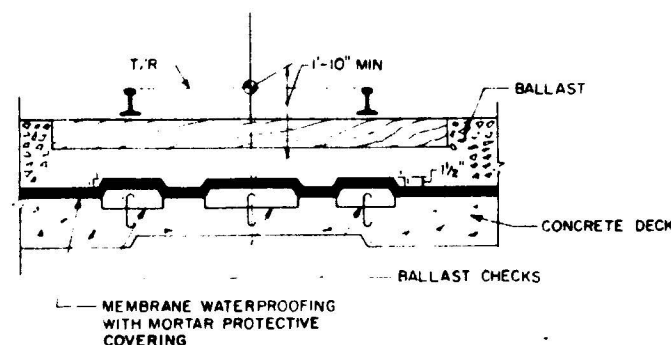
SCALE  
NOT TO SCALE

DRAWING NO.  
DD-TW-114

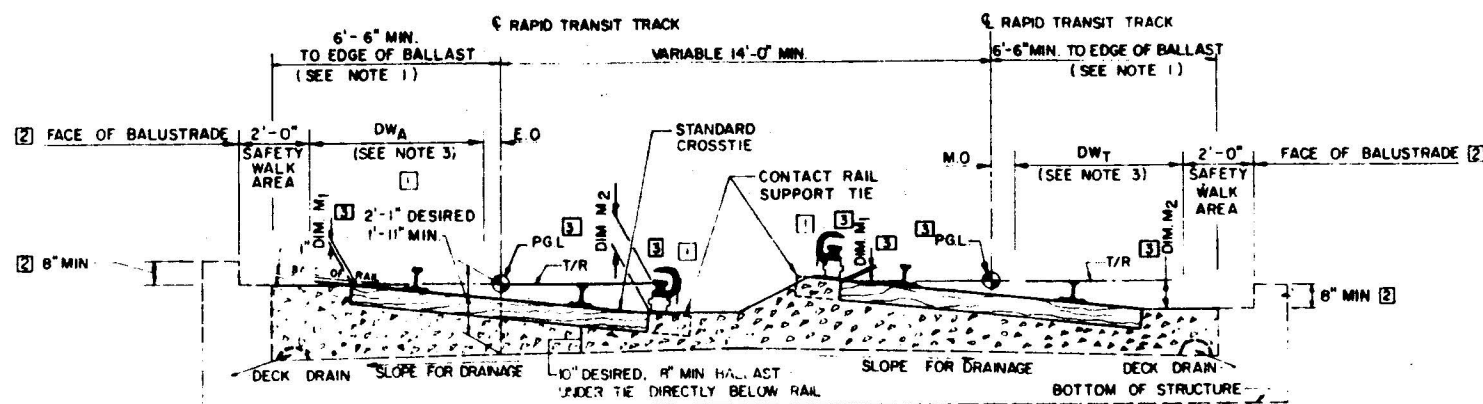




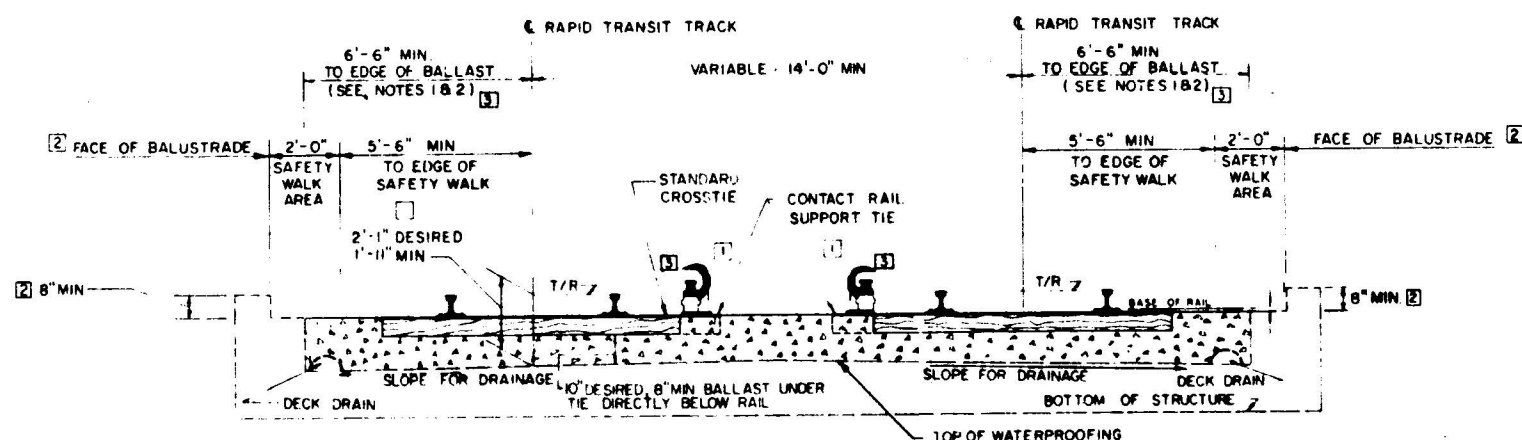
**BALLAST CHECK PLAN**  
NO SCALE



**BALLAST CHECKS - SECTION I-I**  
NO SCALE



**STANDARD BALLAST SECTION  
FOR SUPERELEVATED TRACK**



**STANDARD BALLAST SECTION  
FOR TANGENT TRACK**

**NOTES**

- 1 THIS DIMENSION DOES NOT INCLUDE 2'-0" ALLOWANCE FOR SAFETY WALK. SAFETY WALKS ON BOTH SIDES SHALL BE INCLUDED AS PART OF THE STRUCTURE DESIGN OR BY WIDENING THE BALLAST SHOULDER. TRACKSIDE EQUIPMENT INCLUDING SUCH EQUIPMENT PLACED IN BALLAST SHALL BE LOCATED CLEAR OF THIS DIMENSION.
- 2 APPLICABLE DIMENSIONS SHOWN ON THIS DRAWING SHALL ALSO GOVERN FOR SINGLE METRO TRACK ON BALLASTED DECK BRIDGE EXCEPT THAT THE DISTANCE TO EDGE OF BALLAST SHALL BE 7'-6" MIN ON SIDE OF CONTACT RAIL.
- 3 FOR DIMENSIONS E.O., M.O., DWA, AND DWY FROM C.O. OF CURVED TRACK TO EDGE OF SAFETY WALK REFER TO THE MANUAL OF DESIGN CRITERIA, SURFACE TRACK SECTION DESIGN TABLES.
- 4 FORMULAS FOR DIMENSIONS M<sub>1</sub> AND M<sub>2</sub> (ALL IN INCHES)  

$$M_1 = E_o + \frac{22.75}{56.50} (E_o - 7.5)$$

$$M_2 = \frac{22.75}{56.50} (E_o - 7.5)$$
- 5 BALLAST CHECKS SHOWN ON PLAN AND SECTION I SHALL BE CONSTRUCTED WHEN THE PROFILE GRADE TANGENT IS 2" OR GREATER AND ON ANY PORTION OF A VERTICAL CURVE HAVING TANGENTS EQUAL TO OR GREATER THAN 2" USING THE CURVE P.V.I. AS THE START OR END POINT. THE LAYOUT PATTERN WILL BE FOR 50' SECTIONS CHECKED AS SHOWN ALTERNATING WITH 50' SECTIONS OF PLAIN DECK. THE CHECKED PATTERN SHALL BEGIN AT EACH ABUTMENT ALTERNATING WITH PLAIN DECK SECTIONS TOWARD THE CENTER OF THE STRUCTURE.
- 6 FOR RAILING DETAILS, SEE DWG NO. DD-S-101.

DESIGNED	D. SMITH	9-15-69	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	CASSAGNOL	9-18-69					
CHECKED							
APPROVED							

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *UR Padgett* 10/2007  
DATE

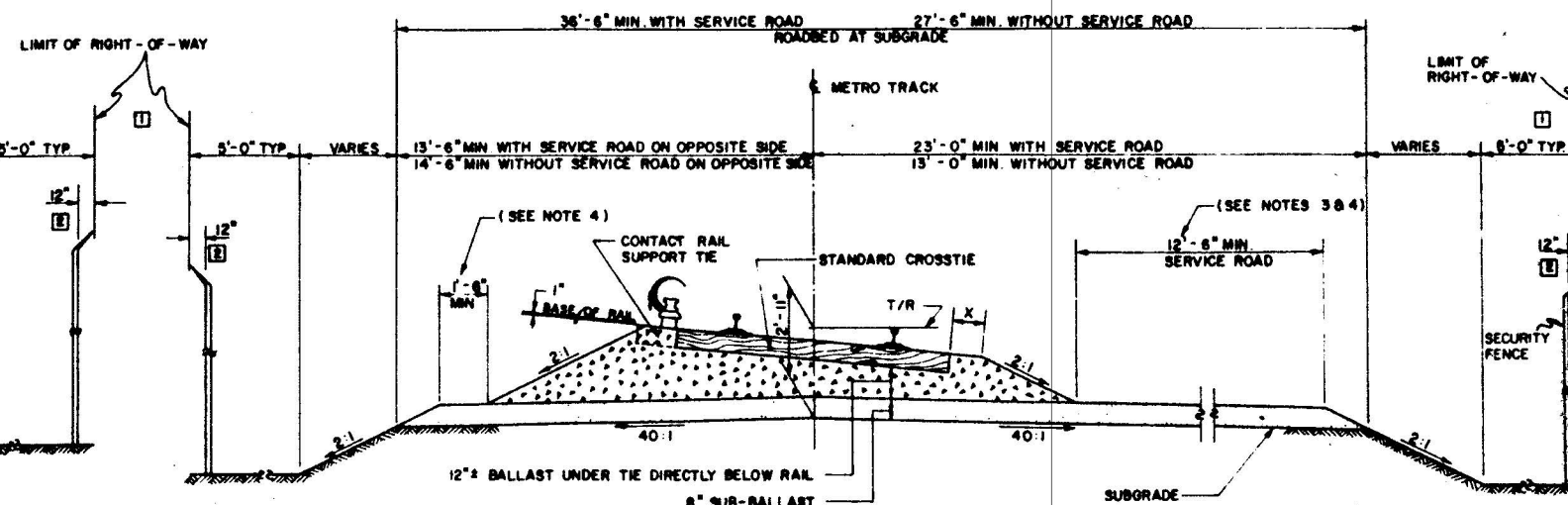
APPROVED *[Signature]* 10/2007  
DATE

TRACKWORK DESIGN DRAWING  
STANDARD ROADBED 8 BALLAST SECTIONS  
METRO ON BALLASTED DECK BRIDGE

SCALE  
1/4" = 1'-0"

DRAWING NO. DD-TW-115





### STANDARD ROADBED & BALLAST SECTION FOR SUPERELEVATED SINGLE TRACK

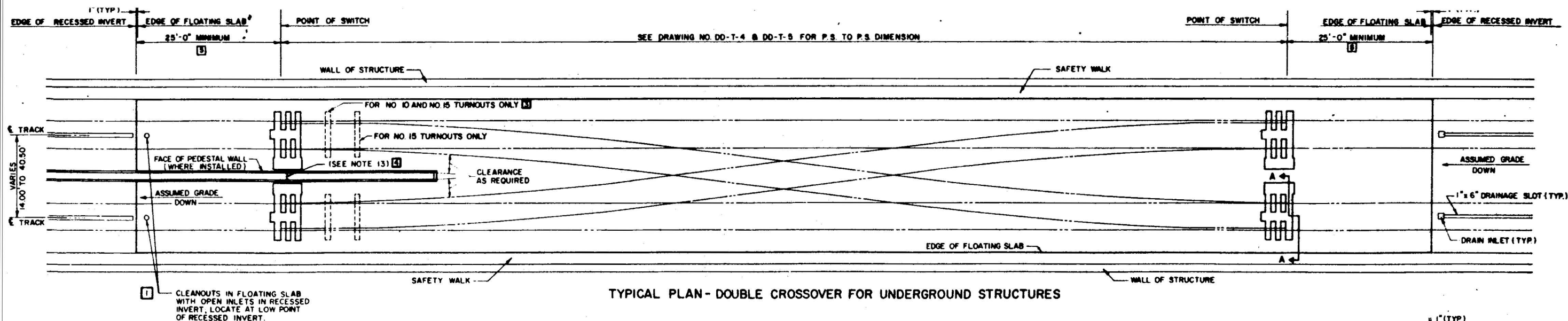


- NOTES: (CONT.)

- ### STANDARD ROADBED & BALLAST SECTION FOR DIVERGING TRACKS

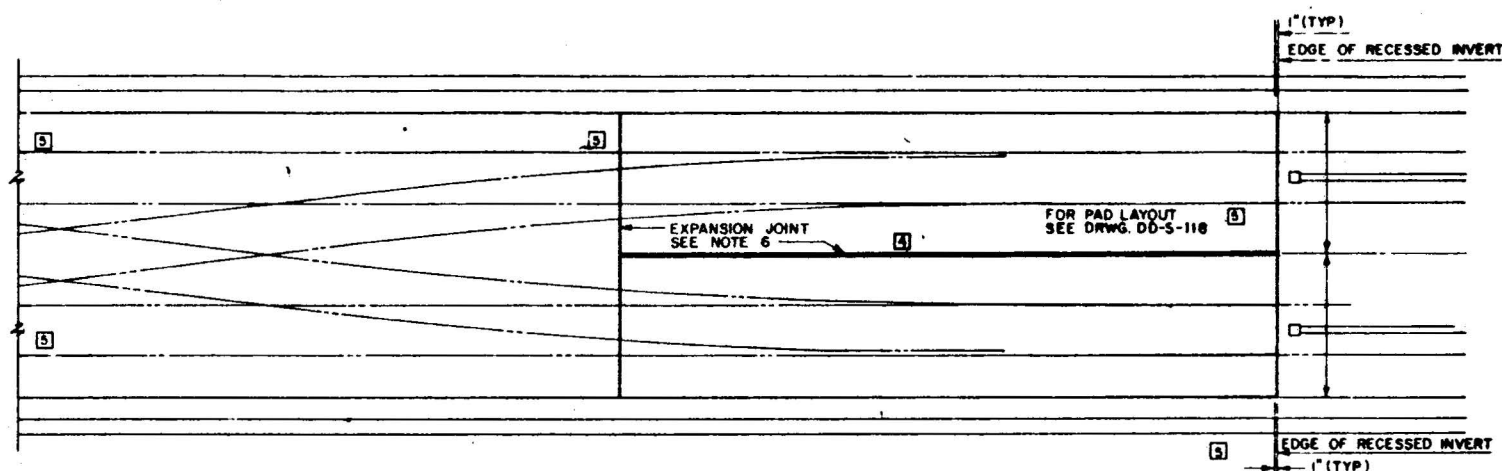
DESIGNED <u>SHAROOD</u> 8-18-70 DATE	<table><tr><th colspan="2">REFERENCE DRAWINGS</th><th colspan="3">REVISIONS</th></tr><tr><th>NUMBER</th><th>DESCRIPTION</th><th>DATE</th><th>BY</th><th>DESCRIPTION</th></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>	REFERENCE DRAWINGS		REVISIONS			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION																																									<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> <b>OFFICE OF ENGINEERING SUPPORT SERVICES</b>  SUBMITTED <u>WR Padgett</u> 10/2007 DATE APPROVED <u>[Signature]</u> 10/2007 DATE			<b>TRACKWORK DESIGN DRAWING</b> <b>STANDARD ROADBED 8 BALLAST SECTIONS</b> <b>METRO SINGLE AND DIVERGING TRACKS</b>		
REFERENCE DRAWINGS		REVISIONS																																																							
NUMBER		DESCRIPTION	DATE	BY	DESCRIPTION																																																				
DRAWN <u>VINCENT, WESTRA</u> 8-18-70 DATE	SCALE NOT TO SCALE			DRAWING NO. DD-TW-116																																																					
CHECKED _____ DATE																																																									
APPROVED _____ DATE																																																									





# NOTES:

- 1 TOP OF SPECIAL TRACKWORK FLOATING SLAB SHALL BE A PLANE.
- 2 FLOATING SLABS WILL BE REQUIRED UNDER ALL DIRECT FIXATION SPECIAL TRACKWORK LOCATED UNDERGROUND, AND AT OTHER LOCATIONS IN UNDERGROUND STRUCTURES SHOWN ON THE GENERAL PLANS.
- 3 DETAILS OF DIRECT FIXATION RAIL FASTENERS AND SPECIAL TRACKWORK BASE PLATES ARE SPECIFIED IN TRACKWORK FINAL DESIGN CONTRACT.
- 4 THE SWITCH ROD TROUGH DETAILS ARE SHOWN ON DRWGS. DD-S-69 AND DD-S-70. TROUGH DIMENSIONS SHALL BE AS SHOWN IN TABLE BELOW.
- 5 DETAILS OF CONSTRUCTION SEQUENCE FOR TYPES 1 AND 2 FLOATING SLABS AND THE CONFIGURATION OF TYPE 2 STANDARD TRACKWORK FLOATING SLABS ARE SHOWN ON DRWGS. DD-S-115, 116, 117, 118 AND 119.
- 6 THE LOCATION OF EXPANSION JOINTS IN THE FLOATING SLABS SHALL BE COORDINATED WITH THE GENERAL ENGINEERING CONSULTANT AND SHALL NOT BE LOCATED UNDER SPECIAL TRACKWORK BASE PLATES, DIRECT FIXATION FASTENERS, OR WITHIN 6 INCHES OF ANY SPECIAL TRACKWORK ANCHOR BOLTS. TRANSVERSE EXPANSION JOINTS SHALL BE NOT LESS THAN 55 FEET NOR MORE THAN 75 FEET APART. LONGITUDINAL EXPANSION JOINTS SHALL BE PROVIDED TO LIMIT INDIVIDUAL SLAB SECTION WIDTHS FROM 11 TO 13 FEET EXCEPT WHERE JOINTS WOULD BE BETWEEN THE TWO RAILS OF A TRACK.
- 7 FOR DETAILS OF VIBRATION ISOLATION PAD LAYOUT AT ENDS OF FLOATING SLABS SEE DRWG. DD-S-118. FOR SPECIAL TRACKWORK FLOATING SLAB ABUTTING A STANDARD TRACKWORK FLOATING SLAB, THE ADDITIONAL VIBRATION ISOLATION PADS FOR STIFFENING THE SUPPORT IN THE TRANSITION SECTION (FOR THE ABUTTING ENDS OF THE SLABS) SHALL BE OMITTED & THE 2'-0" C.C. PAD SPACING SHALL BE CONTINUOUS UNDER BOTH FLOATING SLABS.

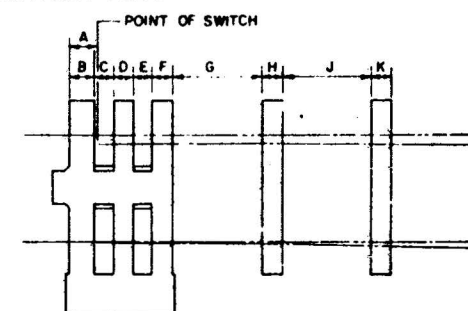


## TYPICAL LAYOUT OF FLOATING SLAB & VIBRATION ISOLATION PADS (SEE DRWG. DD-S-118)

### NOTES: (CONT'D)

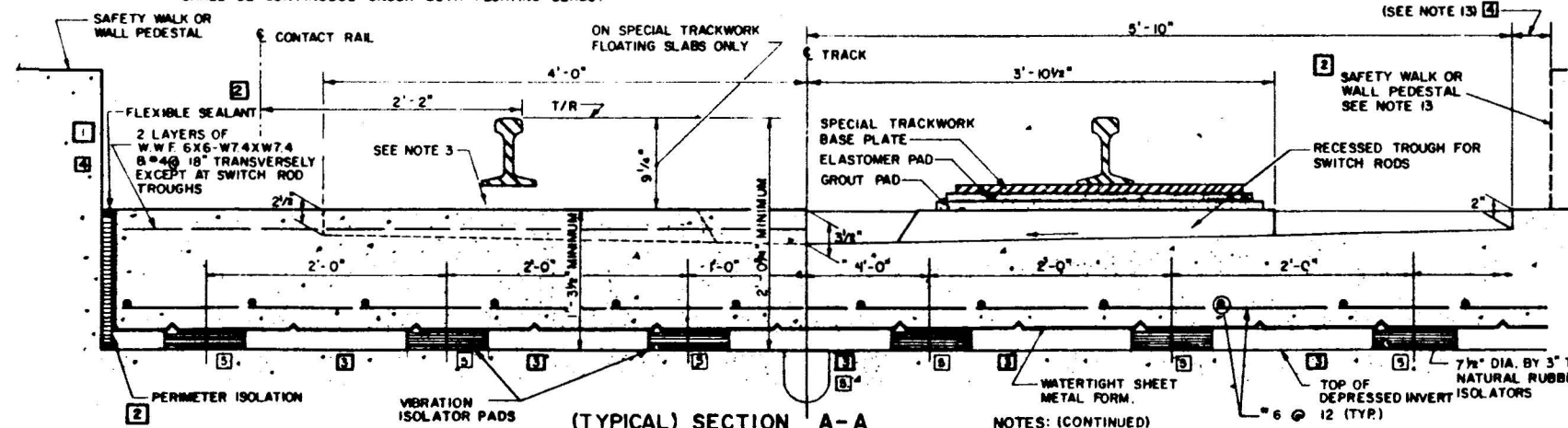
- 8 DRAINAGE DETAILS FOR SPECIAL TRACKWORK FLOATING SLABS ARE SHOWN ON DRWGS. DD-M-26 AND DD-M-27.
- 9 FOR DESIGN OF FLOATING SLABS FOR SINGLE TURNOUTS, THE EDGE OF RECESSED INVERT BEYOND THE HEEL OF FROG FOR TYPE 1 FLOATING SLABS SHALL BE LOCATED FROM THE POINT OF SWITCH AS FOLLOWS:

T.O. NO.	MINIMUM LENGTH
4-Y	67'-9"
8	103'-5 1/2"
10	116'-9"
15	154'-9"



T.O. NO.	A	B	C	D	E	F	G	H	J	K
4-Y	15 1/2"	14"	9"	11"	9"	11"				
8	14"	14"	10"	11"	10"	11"				
10	14"	14"	10"	11"	10"	11"	4'-1"	11"		
15	14"	14"	10"	11"	10"	11"	4'-1"	11"	4'-1"	11"

DIMENSIONS OF RECESSED TROUGH FOR SWITCH RODS



### NOTES: (CONTINUED)

- 14 4
- 15 5 DELETED

DESIGNED	SHAROOD	8-18-70	DATE	NUMBER	REFERENCE DRAWINGS	DESCRIPTION	DATE	BY	REVISIONS	DESCRIPTION
DRAWN	VINCENT, WESTRA	8-18-70	DATE							
CHECKED			DATE							
APPROVED			DATE							

## WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

### OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *UR Padgett* 10/2007 DATE

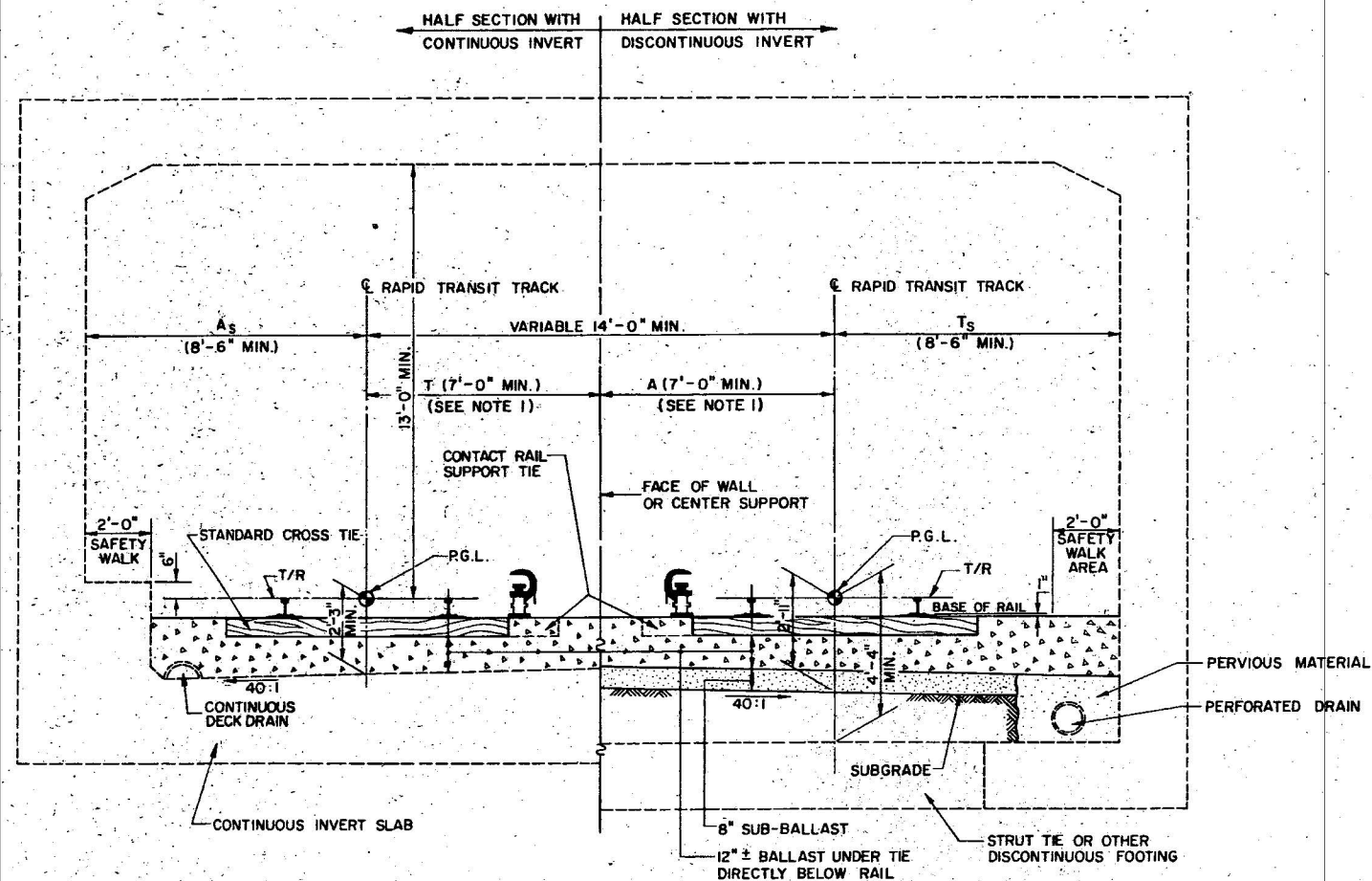
APPROVED *W. A. Myer* 10/2007 DATE

## TRACKWORK DESIGN DRAWING

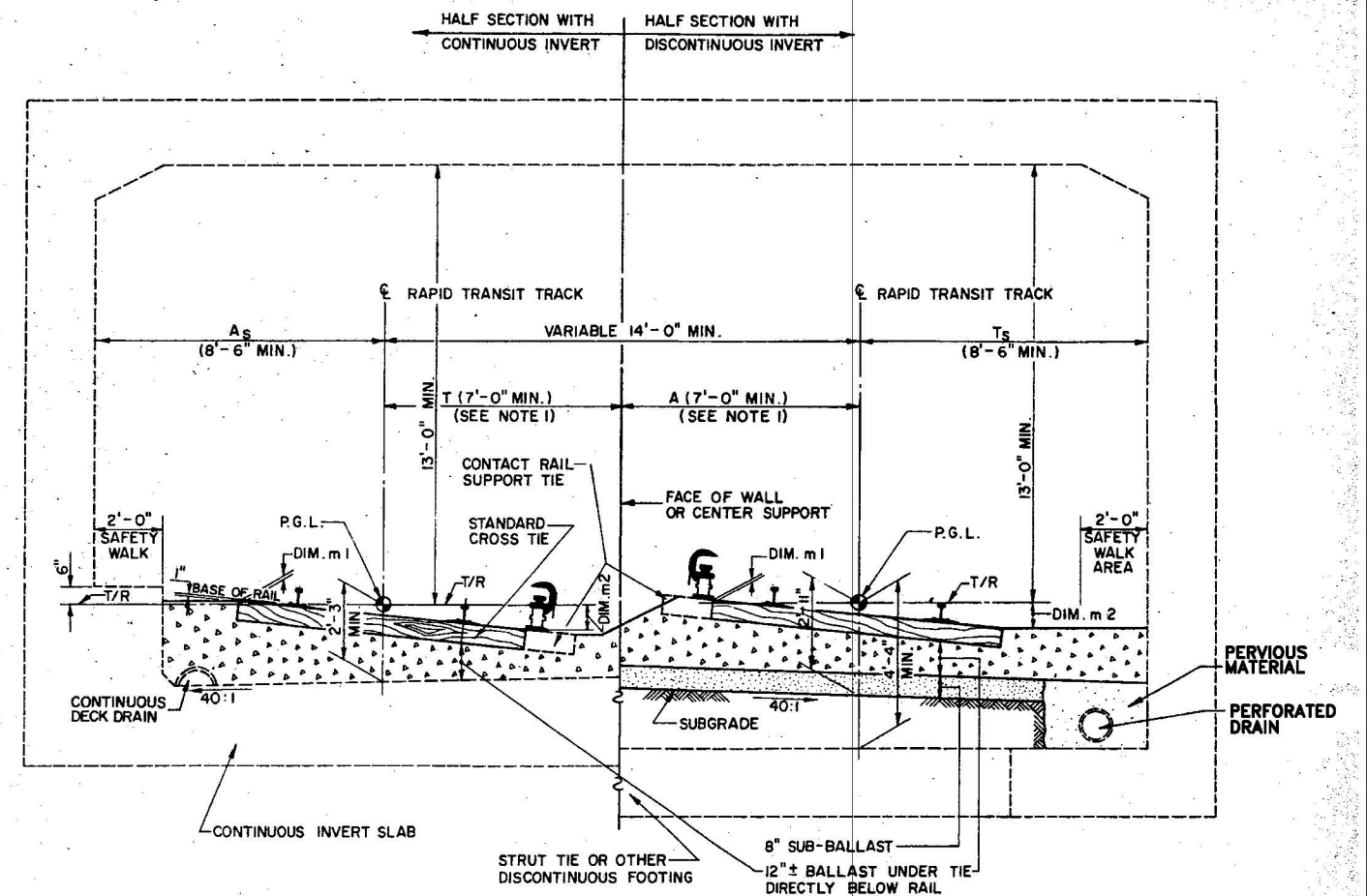
### TYPE 1 SPECIAL TRACKWORK FLOATING SLABS

SCALE NOT TO SCALE DRAWING NO. DD-TW-117





STANDARD BALLAST SECTION  
FOR TANGENT TRACK



STANDARD BALLAST SECTION  
FOR SUPERELEVATED TRACK

NOTE:

1. THIS DIMENSION IS FROM  $\phi$  TRACK TO FACE OF WALL IN SINGLE TRACK STRUCTURES OR TO CENTER SUPPORT IN DOUBLE TRACK STRUCTURES.
2. THIS TYPE OF STRUCTURE SHALL BE USED ONLY IN SPECIAL CASES AND ITS USE SHALL BE COORDINATED WITH THE GENERAL ENGINEERING CONSULTANT.
3. FORMULAS FOR DIMENSIONS m1 AND m2 :

$$m1 = Ea + \frac{22.75}{56.50}(Ea) - 7.5"$$

$$m2 = -\frac{22.75}{56.50}(Ea) - 7.5"$$

DESIGNED	ARNLUND	10-14-71	DATE	NUMBER	REFERENCE DRAWINGS	DESCRIPTION	DATE	BY	REVISIONS	DESCRIPTION
DRAWN	WESTRA	11-1-71	DATE							
CHECKED			DATE							
APPROVED			DATE							

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *URP* 10/2007  
DATE

APPROVED *[Signature]* 10/2007  
DATE

TRACKWORK DESIGN DRAWING

STANDARD BALLAST SECTION  
METRO BALLASTED TRACK IN BOX STRUCTURE

SCALE  
NOT TO SCALE

DRAWING NO. DD-TW-118

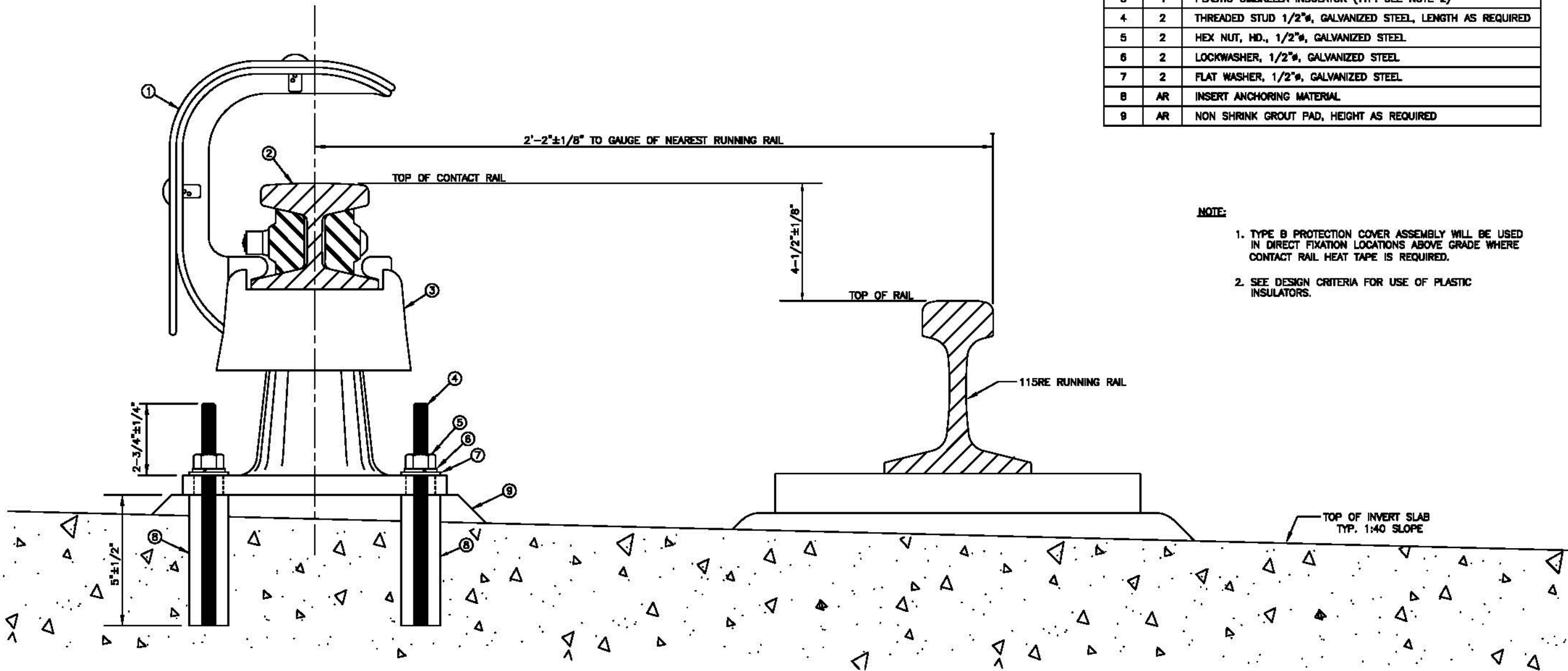


BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	LOT	TYPE A PROTECTION COVER ASSEMBLY (SEE NOTE)
2	LOT	COMPOSITE RAIL
3	1	PLASTIC UMBRELLA INSULATOR (TYP. SEE NOTE 2)
4	2	THREADED STUD 1/2", GALVANIZED STEEL, LENGTH AS REQUIRED
5	2	HEX NUT, HD., 1/2", GALVANIZED STEEL
6	2	LOCKWASHER, 1/2", GALVANIZED STEEL
7	2	FLAT WASHER, 1/2", GALVANIZED STEEL
8	AR	INSERT ANCHORING MATERIAL
9	AR	NON SHRINK GROUT PAD, HEIGHT AS REQUIRED

NOTE:

1. TYPE B PROTECTION COVER ASSEMBLY WILL BE USED IN DIRECT FIXATION LOCATIONS ABOVE GRADE WHERE CONTACT RAIL HEAT TAPE IS REQUIRED.
2. SEE DESIGN CRITERIA FOR USE OF PLASTIC INSULATORS.



CONTACT RAIL MOUNTING ARRANGEMENT  
FOR DIRECT FIXATION

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	BY
A. DAVIS	08/08			08/2007	CRP
CHECKED	11/08				
APPROVED	11/08				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

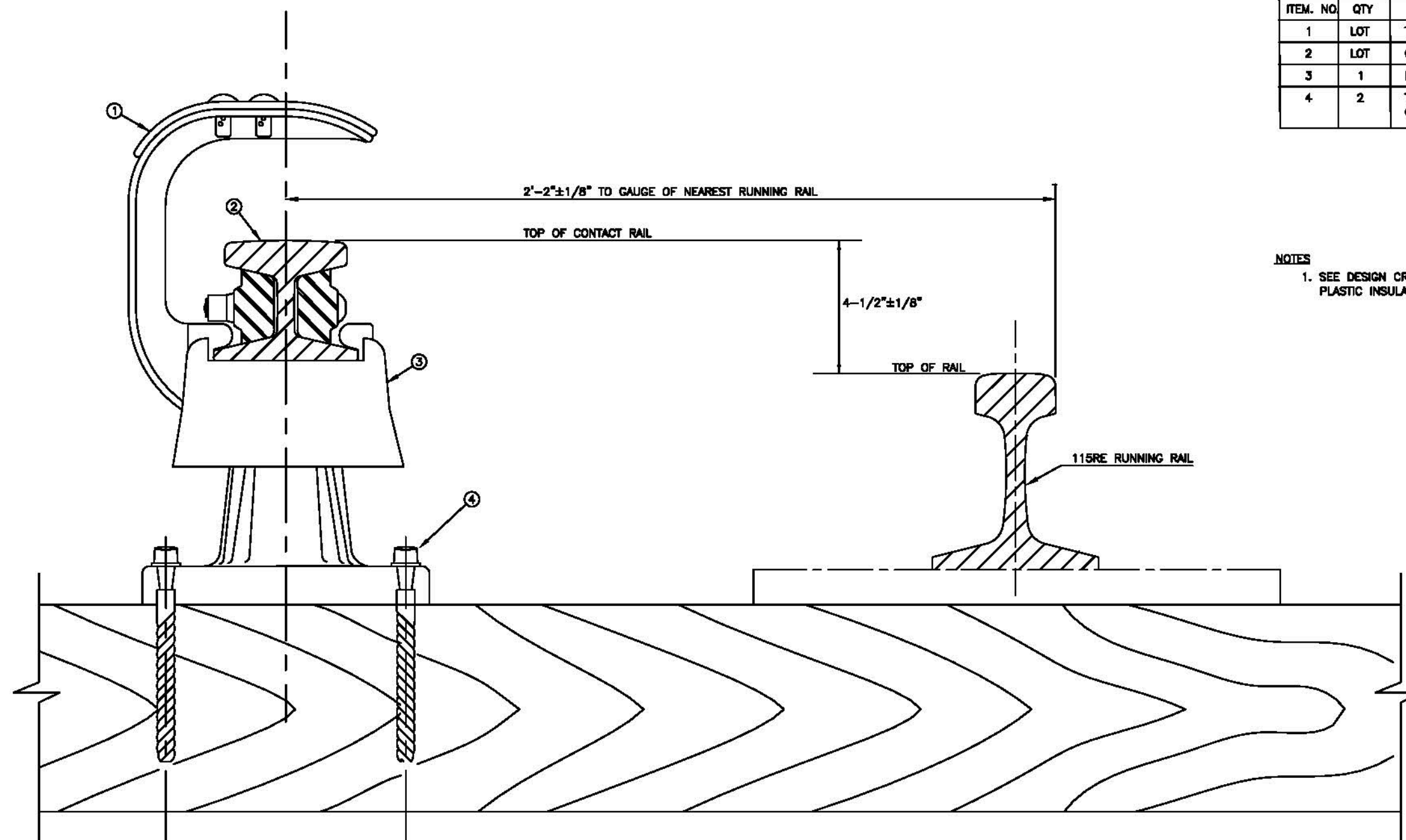
SUBMITTED *LR Padgett* 10/2007 DATE APPROVED *LR Padgett* 10/2007 DATE

CONTACT RAIL DESIGN DRAWING  
COMPOSITE RAIL  
ASSEMBLY-DIRECT FIXATION

SCALE 1/2" = 1"  
1 0 1 2

DRAWING NO. DD-TW-CR-001





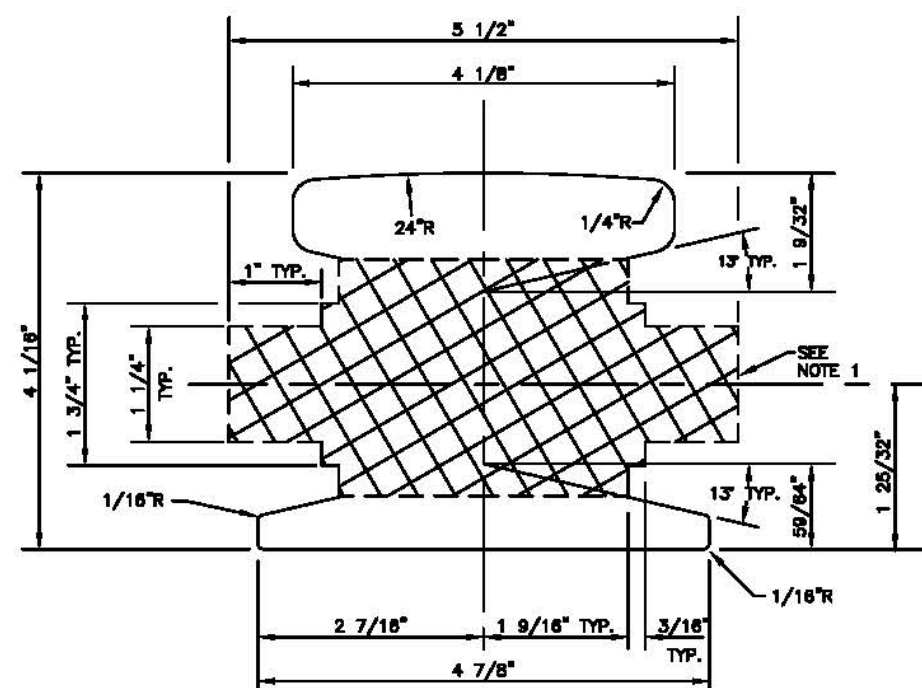
BILL OF MATERIAL		
ITEM. NO.	QTY	
1	LOT	TYPE B PROTECTION COVER ASSEMBLY
2	LOT	COMPOSITE RAIL
3	1	PLASTIC UMBRELLA INSULATOR (TYP.-SEE NOTE 1)
4	2	TIMBER DRIVE OR SCREW SPIKE 1/2" DIA. x 6 1/2" LG. GALVANIZED STEEL

NOTES  
 1. SEE DESIGN CRITERIA FOR USE OF PLASTIC INSULATORS.

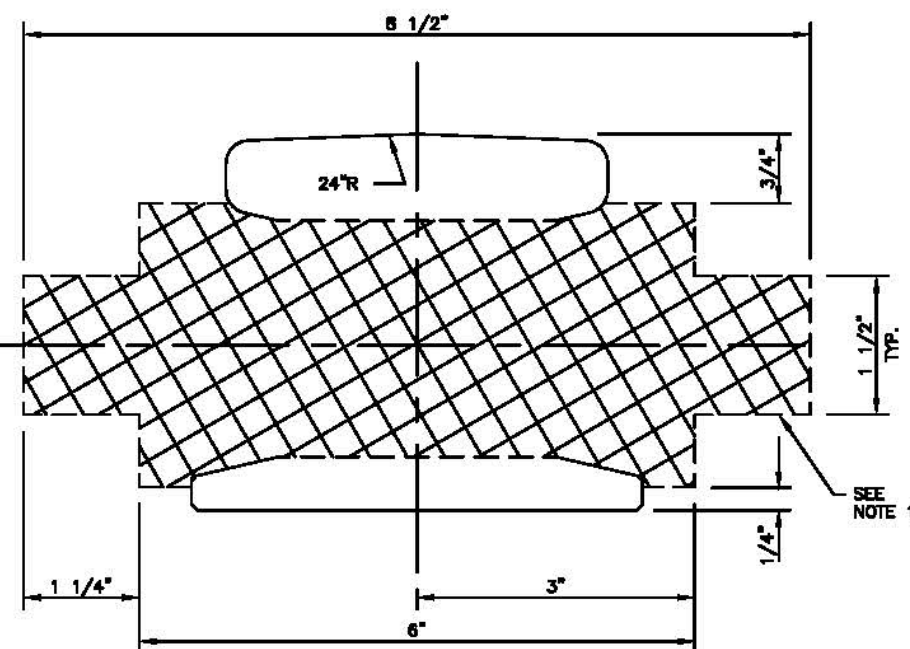
CONTACT RAIL MOUNTING ARRANGEMENT  
 FOR BALLASTED TRACKS

DESIGNED <u>W. TRIGUM</u> DRAWN <u>A. DAVIS</u> CHECKED <u>R. ROCKEFELLER</u> APPROVED <u>L. PADGETT</u>	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <u>LR Padgett</u> 10/2007 APPROVED <u>[Signature]</u> 10/2007	CONTACT RAIL DESIGN DRAWING COMPOSITE RAIL ASSEMBLY-BALLASTED TRACK SCALE 1/2" = 1" DRAWING NO. DD-TW-CR-002	
	NUMBER	DESCRIPTION	DATE	BY			
			08/2007	CRF			

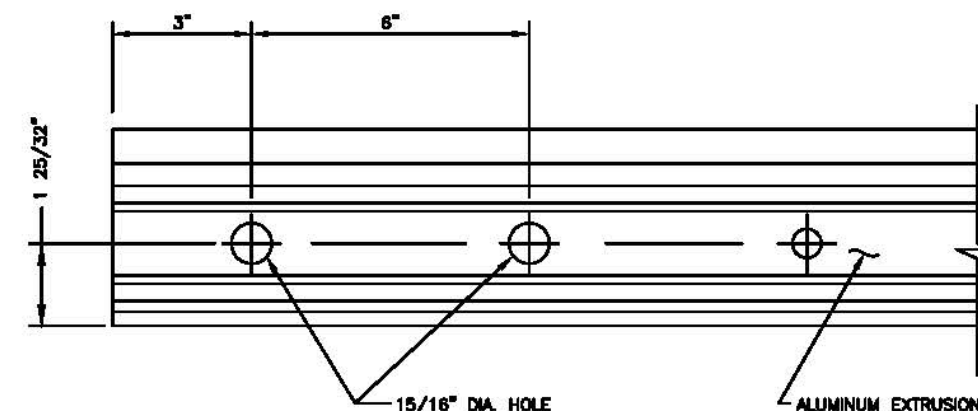




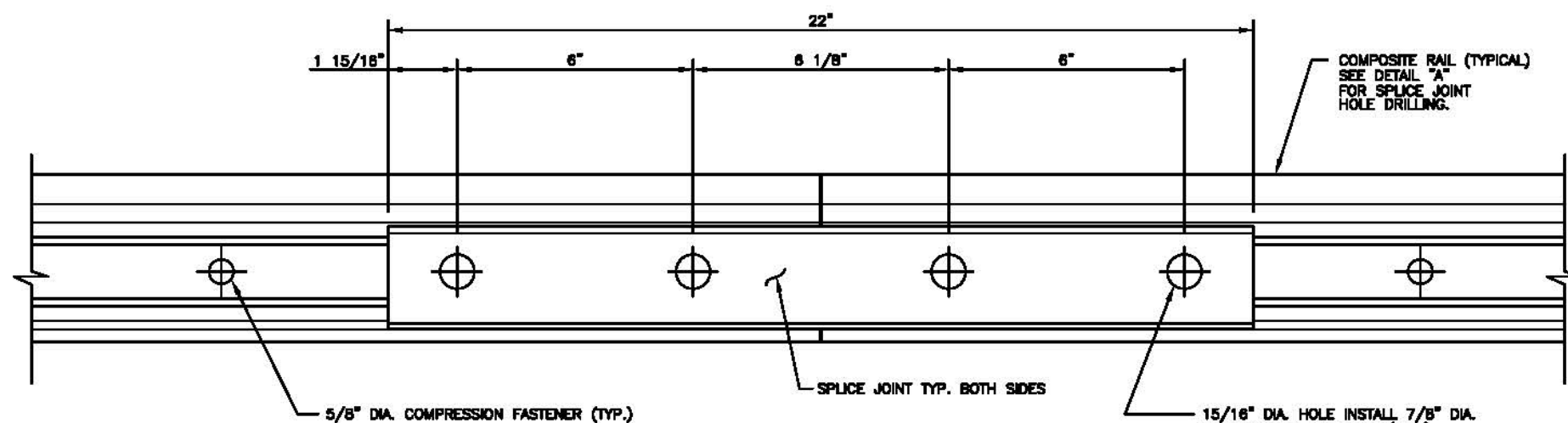
COMPOSITE RAIL  
CLEARANCE ENVELOPE  
SCALE: 1"=0'-1"



COMPOSITE RAIL  
CLEARANCE ENVELOPE  
AT SPLICE JOINT  
SCALE: 1"=0'-1"



DETAIL "A"  
(TYPICAL EACH END)  
SCALE: 1/2"=0'-1"



SPLICE JOINT ASSEMBLY  
SCALE: 1/2"=0'-1"

NOTES:

1. THE SHADED PORTION OF COMPOSITE RAIL INDICATES THE CLEARANCE ENVELOPE. THE UNSHADED PORTION REPRESENTS THE MANDATORY OUTLINE OF THE BASE RAIL.
2. COMPOSITE CONTACT RAIL SHALL BE INSTALLED SO THAT COMPRESSION FASTENER COLLARS FACE AWAY FROM CENTERLINE OF TRACK.

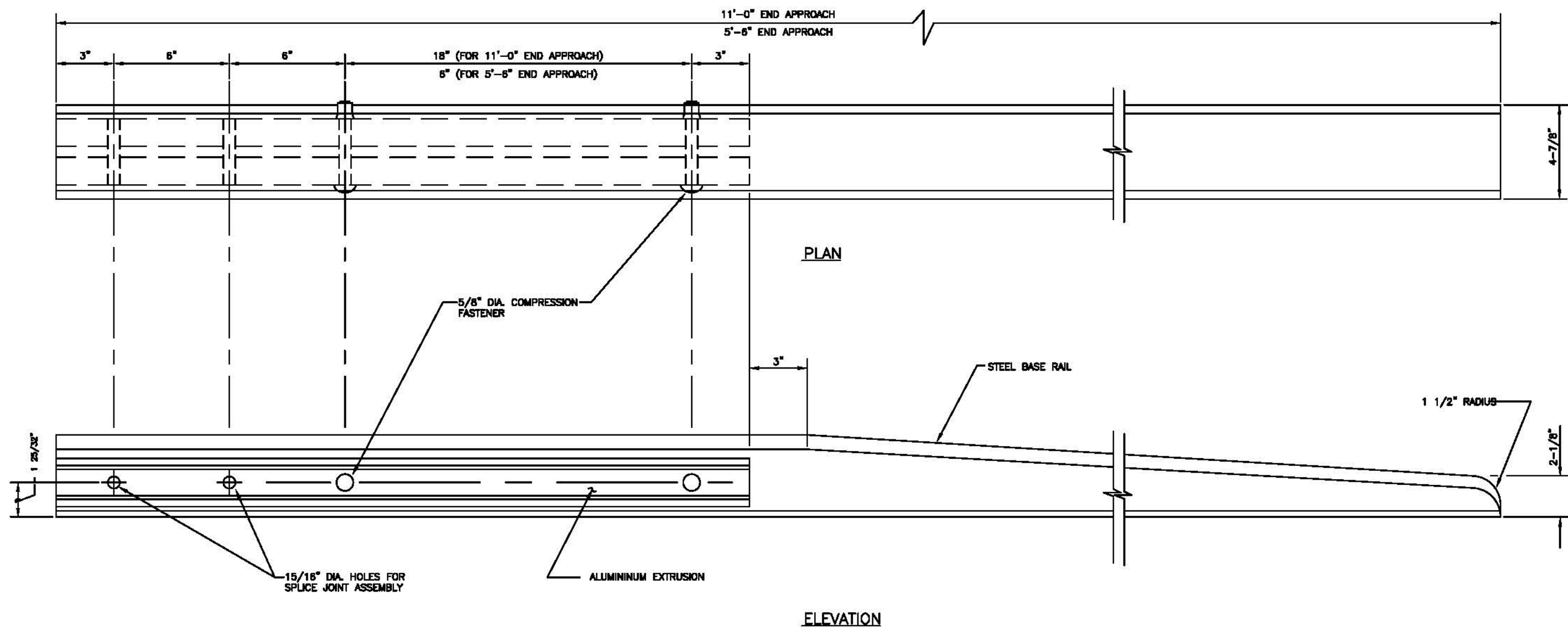
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	12/06			12/2006	CSHF	MINOR REVISIONS
CHECKED	11/09					
APPROVED	11/09					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	DATE	10/2007
APPROVED		DATE	

CONTACT RAIL DESIGN DRAWING  
COMPOSITE RAIL CLEARANCE ENVELOPE  
AND SPLICE JOINT ASSEMBLY

SCALE	DRAWING NO.
AS NOTED	DD-TW-CR-003





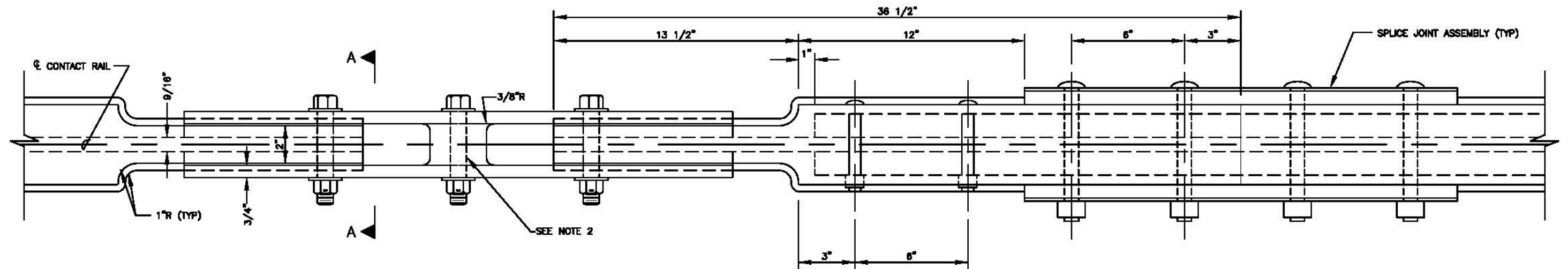
**NOTE:**  
1. SEE DESIGN CRITERIA FOR USE OF 11'-0" AND 5'-6" END APPROACHES.

		REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DESIGNED	M. TRISHAM	8-05		12/2008	GENF	MINOR REVISIONS, NOTES ADDED.
DRAWN	A. DAVIS	06/08				
CHECKED	R. ROCKWELL	11/08				
APPROVED	L. PADGETT	11/08				

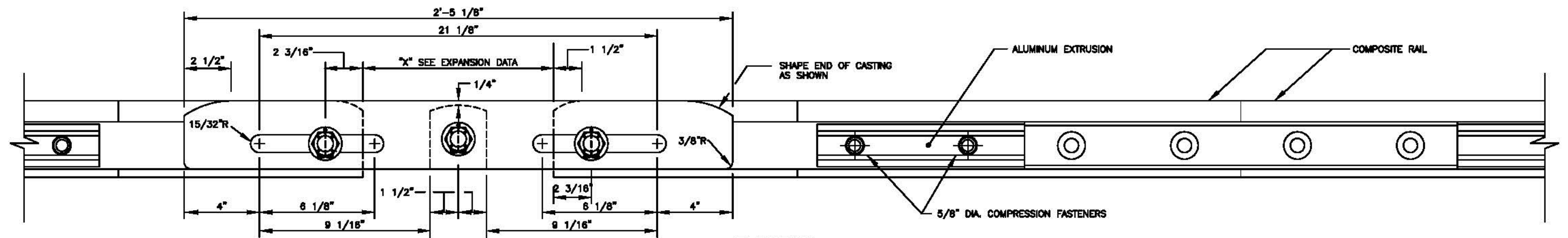
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	<i>L. Padgett</i>	10/2007	DATE
APPROVED	<i>L. Padgett</i>	10/2007	DATE

CONTACT RAIL DESIGN DRAWING COMPOSITE RAIL END APPROACHES	
SCALE 3/8" = 1"	DRAWING NO. DD-TW-CR-004

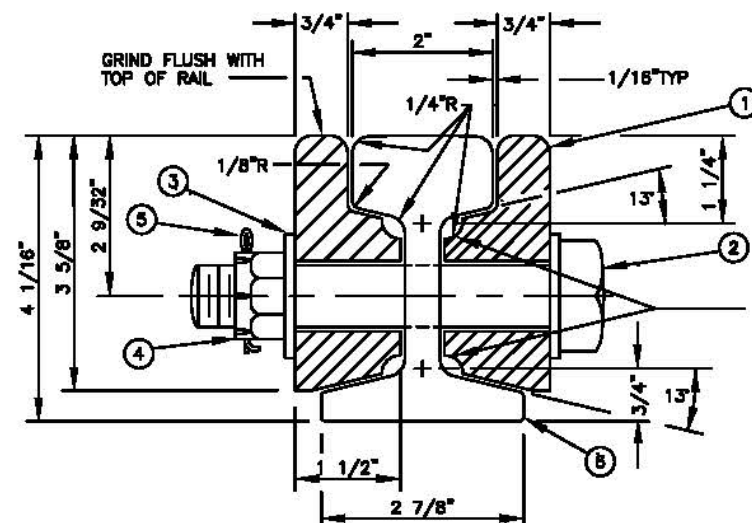




PLAN  
SCALE: 3/8"=1"



ELEVATION  
SCALE: 3/8"=1"



SECTION A-A  
SCALE: 3/8"=1"

EXPANSION DATA (SEE NOTE 1)																
TEMP OF RAILS-F	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
DIMENSION "X"	16 11/16	15 7/8	15 1/16	14 1/4	13 7/16	12 5/8	11 13/16	11	10 3/16	9 3/8	8 9/16	7 3/4	6 15/16	6 1/8	5 5/16	4 1/2

EXPANSION JOINT		
ITEM No.	QTY.	BILL OF MATERIAL
1	2	EXPANSION JOINT BAR (STEEL OR MALLEABLE IRON)
2	3	BOLT 7/8" x 5 1/4" LG, GALVANIZED STEEL
3	6	FLAT WASHER FOR 7/8" BOLT, GALVANIZED STEEL
4	3	CASTLE HEX. NUT FOR 7/8" BOLT GALVANIZED STEEL
5	3	COTTER PIN 1/8" x 1 3/4" LG. BRASS STEEL
6	2	COMPOSITE RAIL

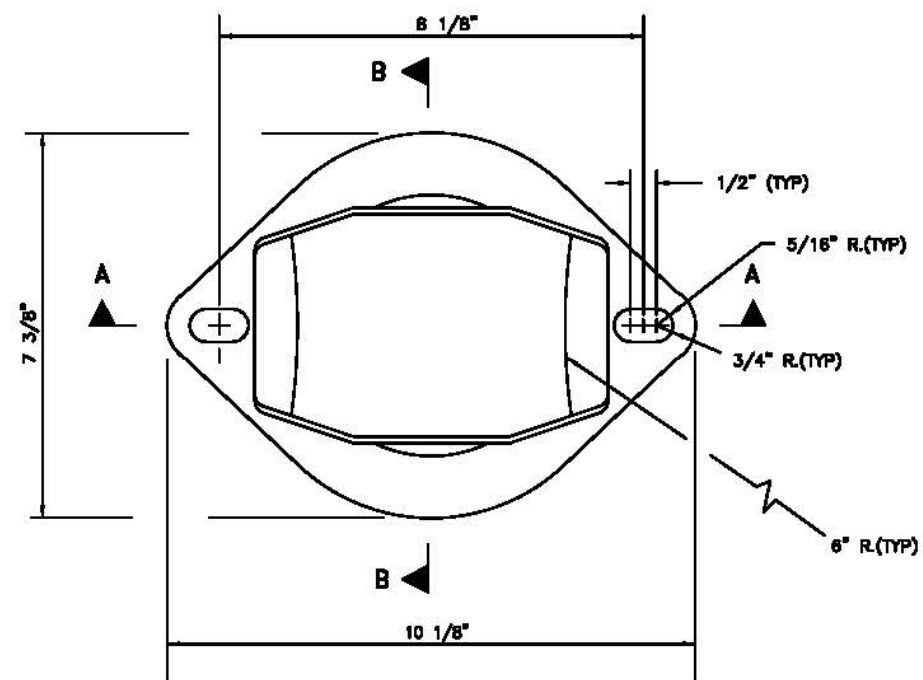
- NOTE:
1. TOLERANCES  $\pm 1"$  F,  $\pm 1/8"$
  2. A KEYED JOINT SHALL BE PROVIDED IN THE EXPANSION JOINT BARS (ITEM No. 1)

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
1		12/2006	CEP	MINOR REVISIONS	
2					
3					
4					
5					
6					

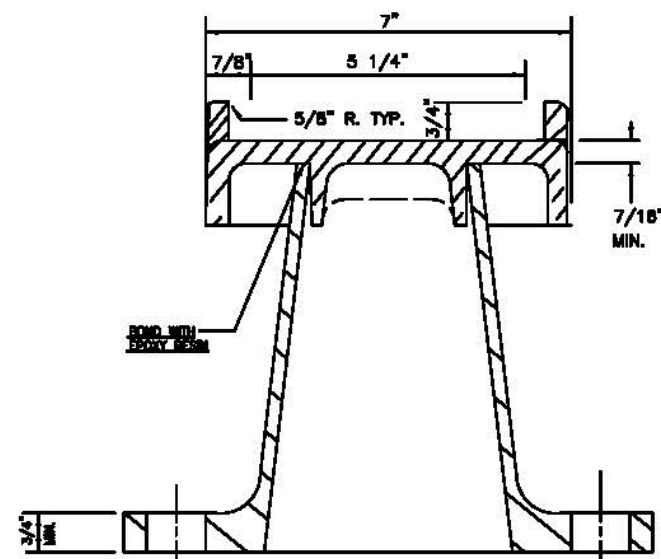
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	DATE	
APPROVED	10/2007	DATE	

CONTACT RAIL DESIGN DRAWING	
COMPOSITE RAIL EXPANSION JOINT	
ASSEMBLY AND DETAILS	
SCALE	DRAWING NO.
AS NOTED	DD-TW-CR-005

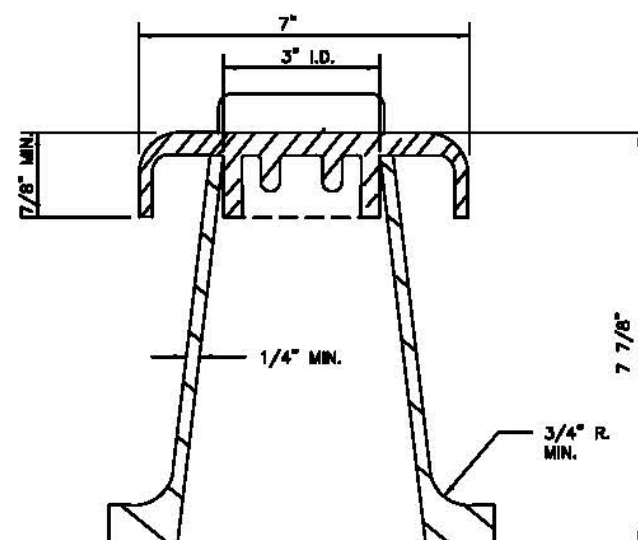




PLAN



SECTION A-A



SECTION B-B

NOTE:

1. TYPICAL EXTERIOR DIMENSIONS OF INSULATOR ARE SHOWN.
2. TOLERANCE OF WITHIN  $\pm 1/32$ .

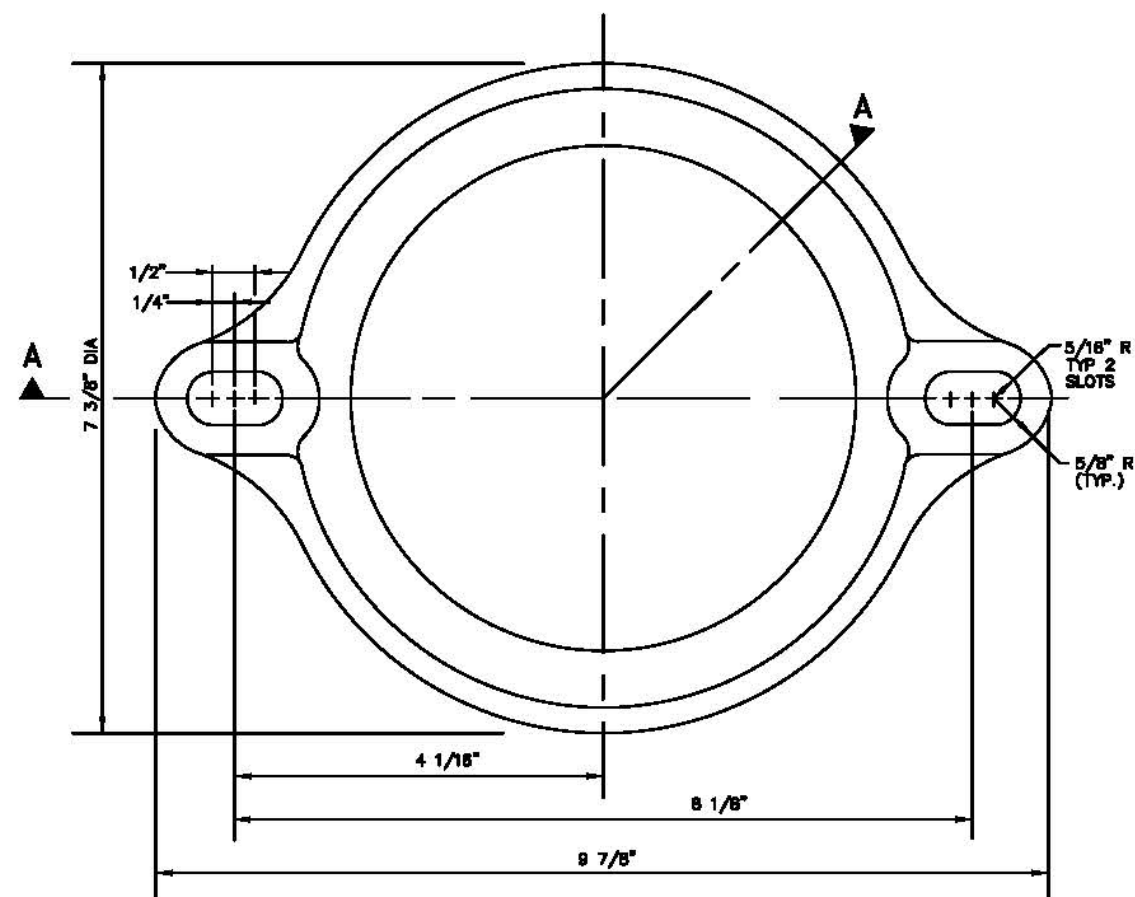
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
DESIGNED	12/2006			12/2006	CEMF
DRAWN	08/07			07/2007	CEMF
CHECKED	11/08				
APPROVED	11/08				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

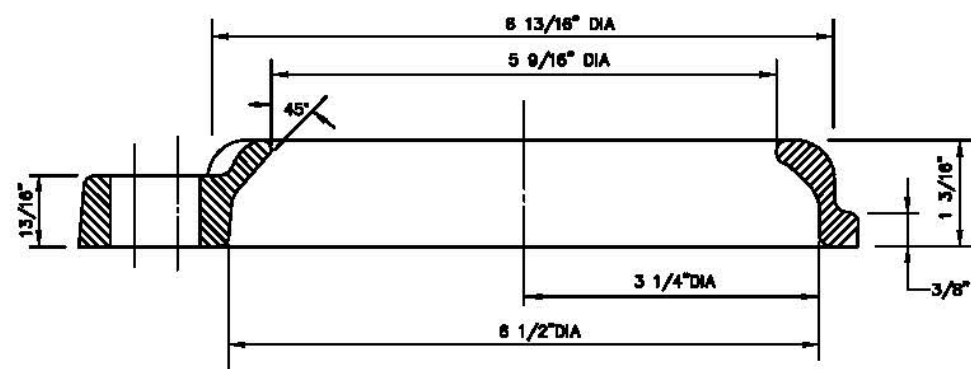
CONTACT RAIL DESIGN DRAWING	
CONTACT RAIL	
FIBERGLASS INSULATOR	
SCALE	DRAWING NO.
3/4" = 1"	DD-TW-CR-006



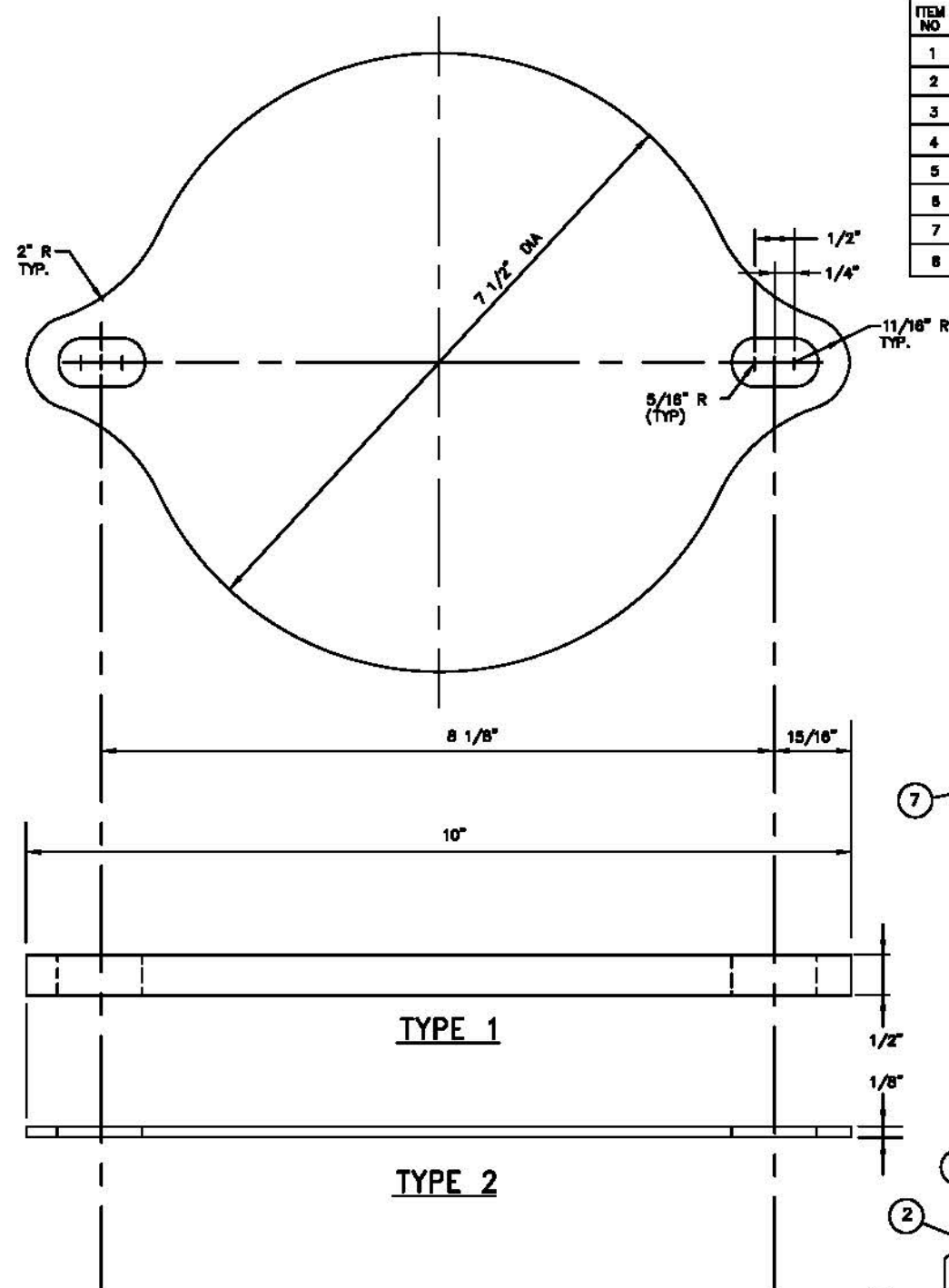
ITEM NO	QUAN	BILL OF MATERIAL
1	1	INSULATOR
2	1	INSULATOR MOUNTING BASE
3	1	BASE PAD
4	1	CONTACT RAIL CLIP CUSHION
5	1	INSULATOR BASE RING
6	2	CONTACT RAIL CLIP
7	1	1/2" - 13 UNC x 6 1/2" LG. SQ. HD BOLT - 2A GALVANIZED STEEL
8	1	1/2" - 13 UNC HEX. HD LOCKNUT - 2B GALVANIZED STEEL



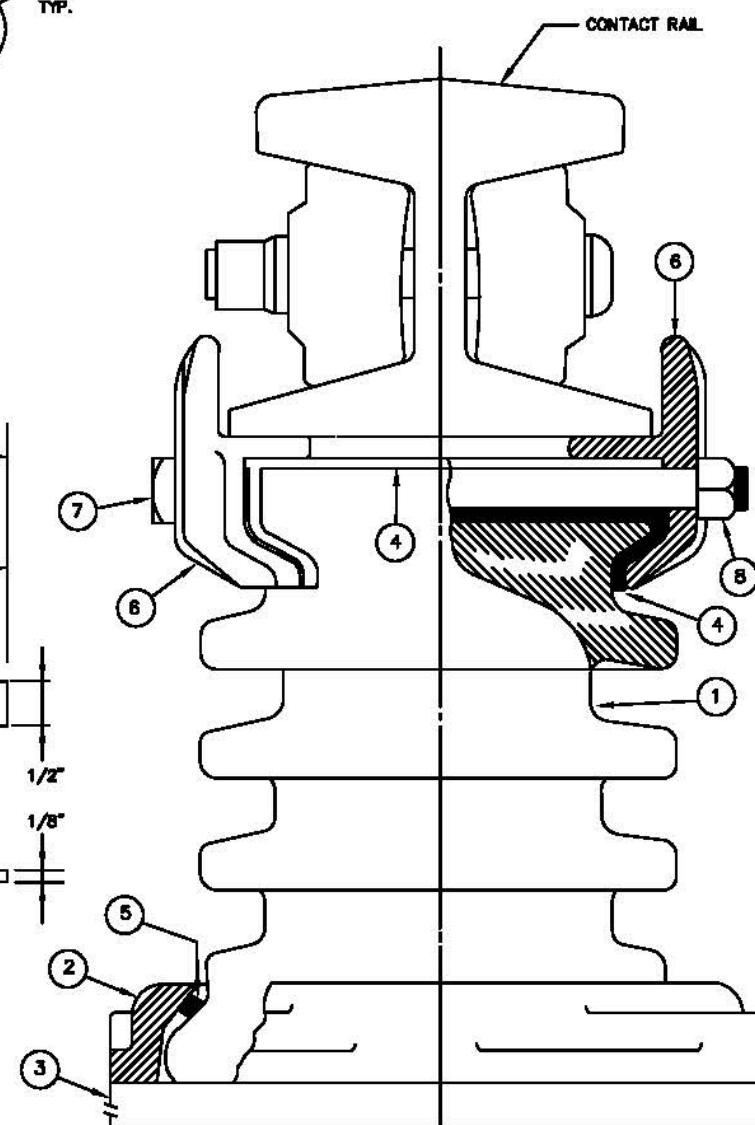
**INSULATOR MOUNTING BASE**  
MATERIAL: MALLEABLE IRON GALVANIZED



**SECTION A-A**



**BASE PAD**  
MATERIAL: NEOPRENE



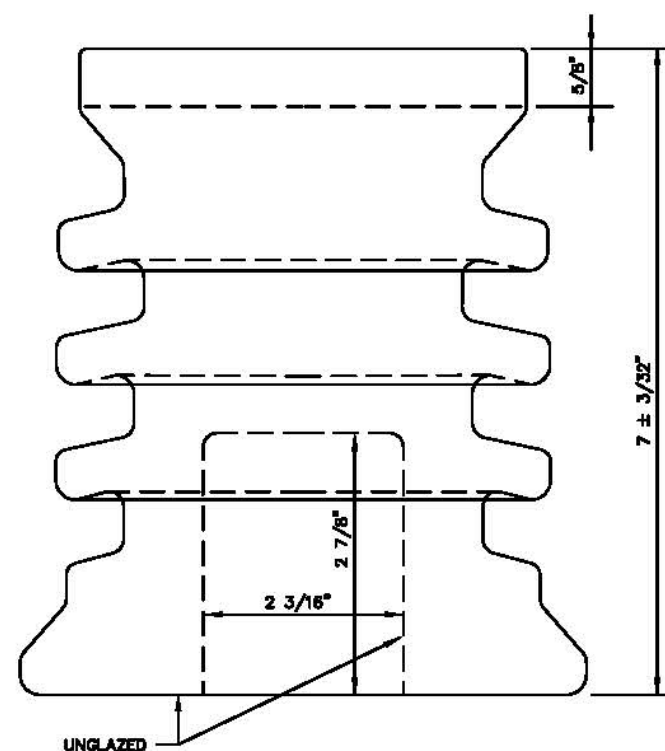
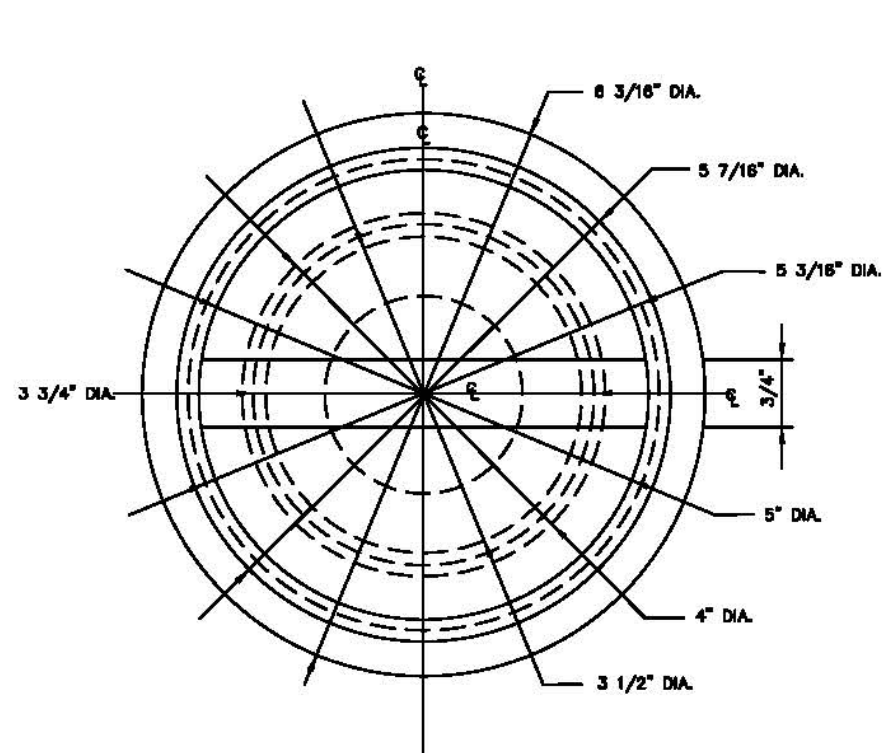
**INSULATOR ASSEMBLY**

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE
1								
2								
3								
4								
5								
6								
7								
8								

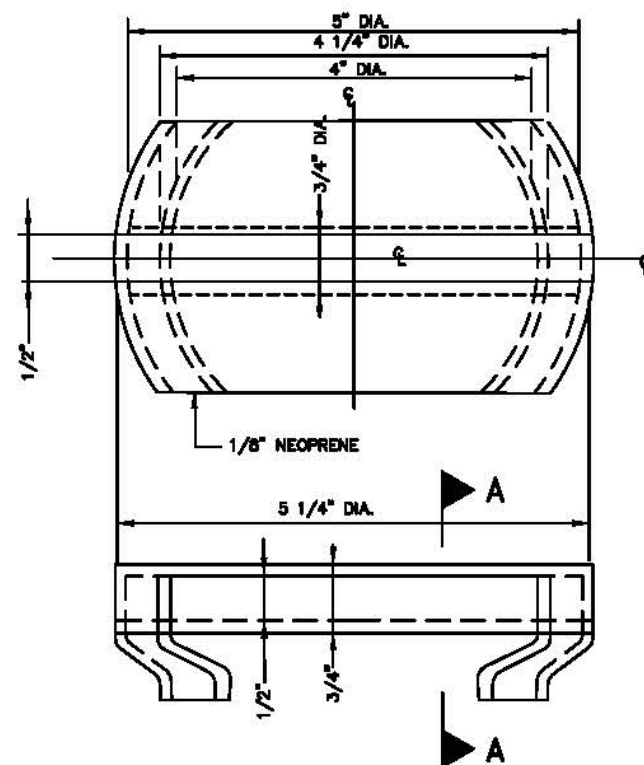
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
DATE		DATE	

CONTACT RAIL DESIGN DRAWING PORCELAIN INSULATOR ASSEMBLY AND DETAILS SHEET 1 OF 2	
SCALE 1" = 1"	DRAWING NO. DD-TW-CR-007



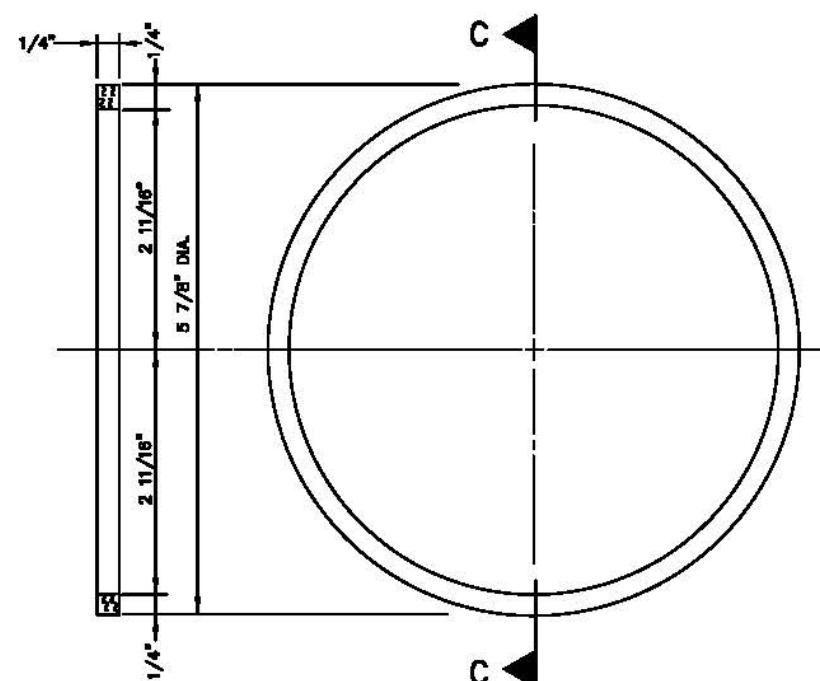


**INSULATOR**



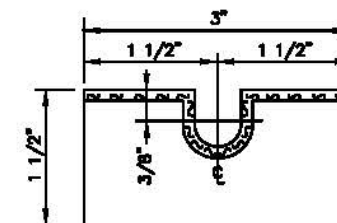
**CONTACT RAIL CLIP CUSHION**

MATERIAL: NEOPRENE

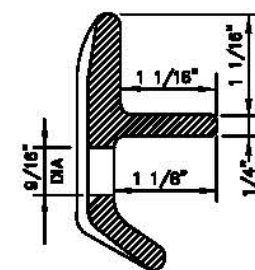


**INSULATOR BASE RING**

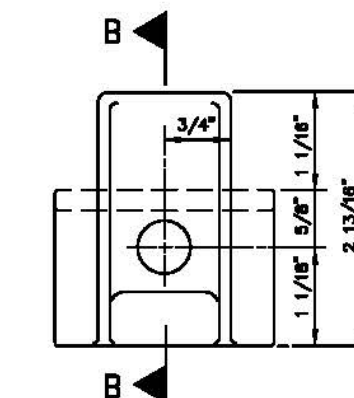
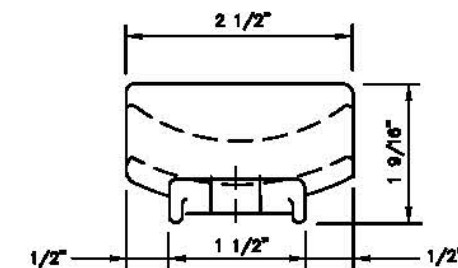
MATERIAL: NEOPRENE



**SECTION A-A**

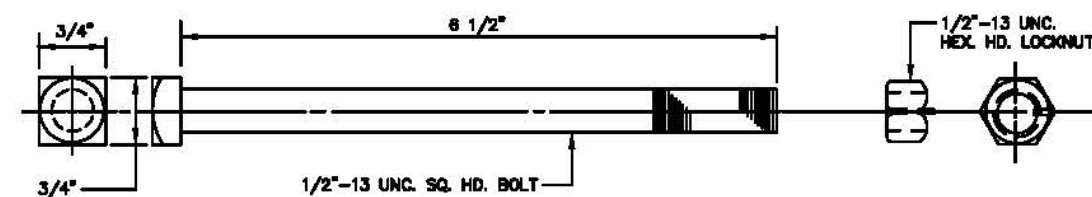


**SECTION B-B**



**CONTACT RAIL CLIP**

MATERIAL: MALLEABLE IRON GALVANIZED



**CONTACT RAIL CLIP BOLT & LOCKNUT**

MATERIAL: STEEL GALVANIZED

	REFERENCE DRAWINGS		REVISIONS	
	NUMBER	DESCRIPTION	DATE	BY
DESIGNED <u>M. THOMAS</u>	<u>8-00</u>			
DRAWN <u>A. DAVIS</u>	<u>05/05</u>			
CHECKED <u>R. ROCKEFELLER</u>	<u>11/05</u>			
APPROVED <u>L. ROBERT</u>	<u>11/05</u>			

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED LR Padgett 10/2007  
DATE

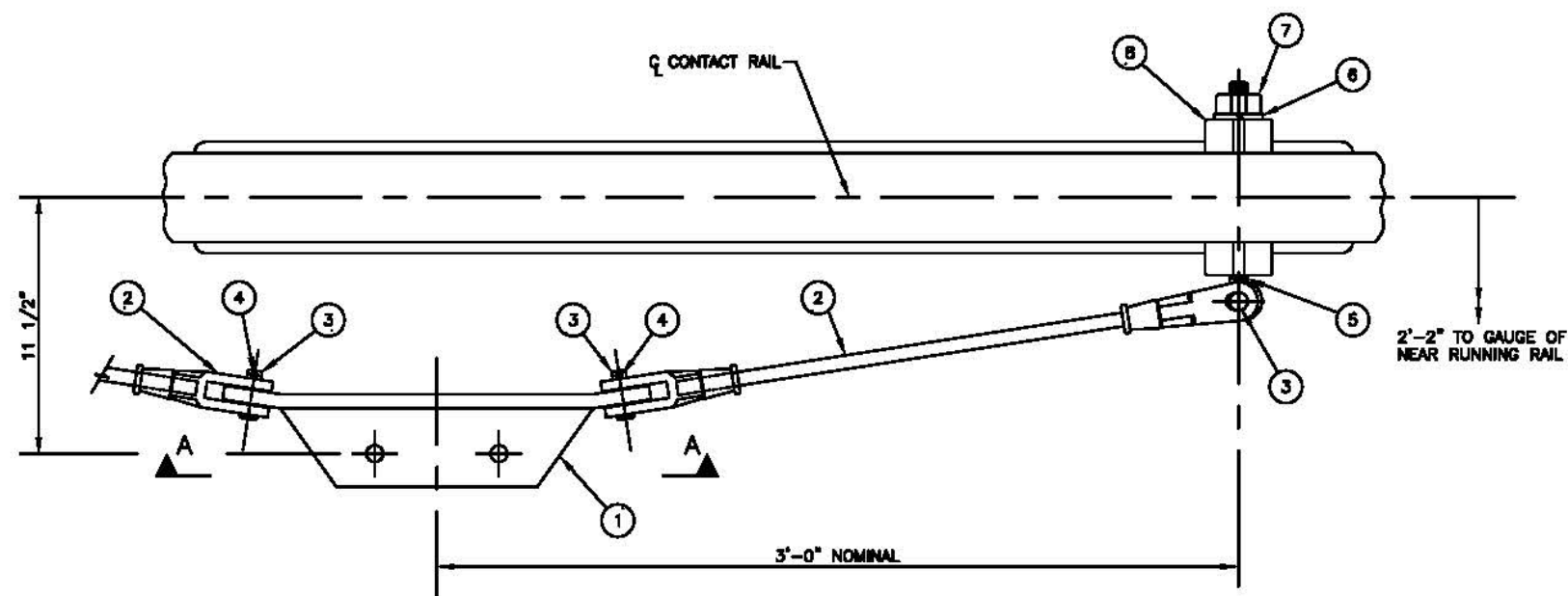
APPROVED [Signature] 10/2007  
DATE

**CONTACT RAIL DESIGN DRAWING**  
PORCELAIN INSULATOR ASSEMBLY AND DETAILS  
SHEET 2 OF 2

SCALE 1" = 1"

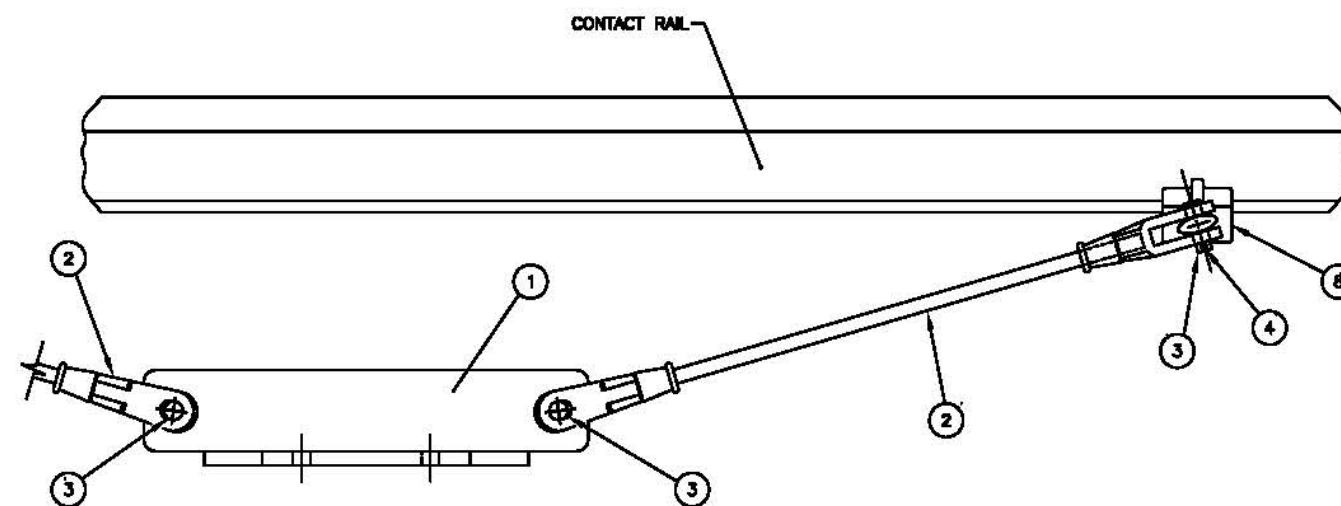
DRAWING NO. DD-TW-CR-008



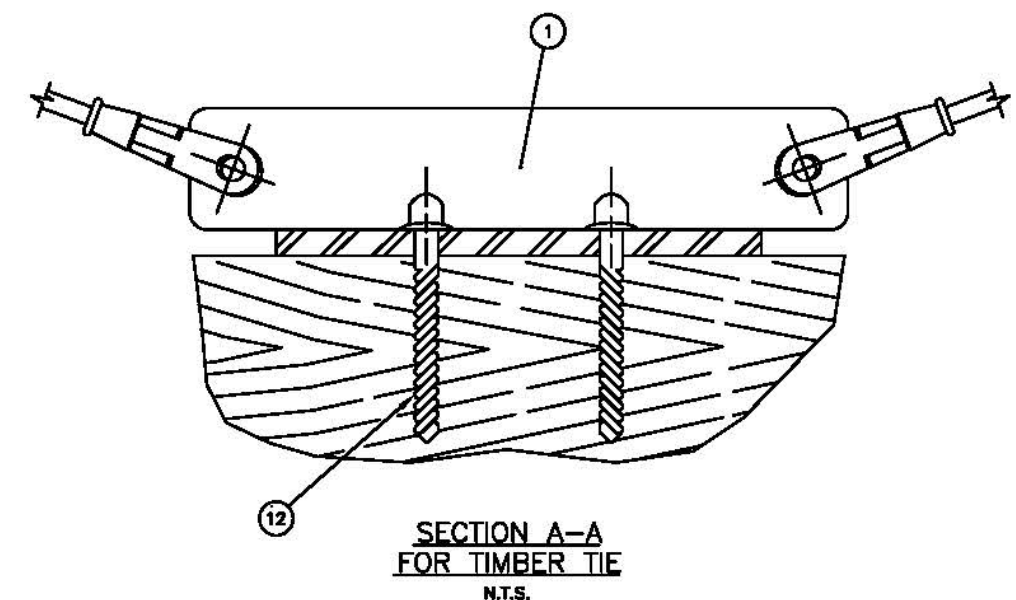
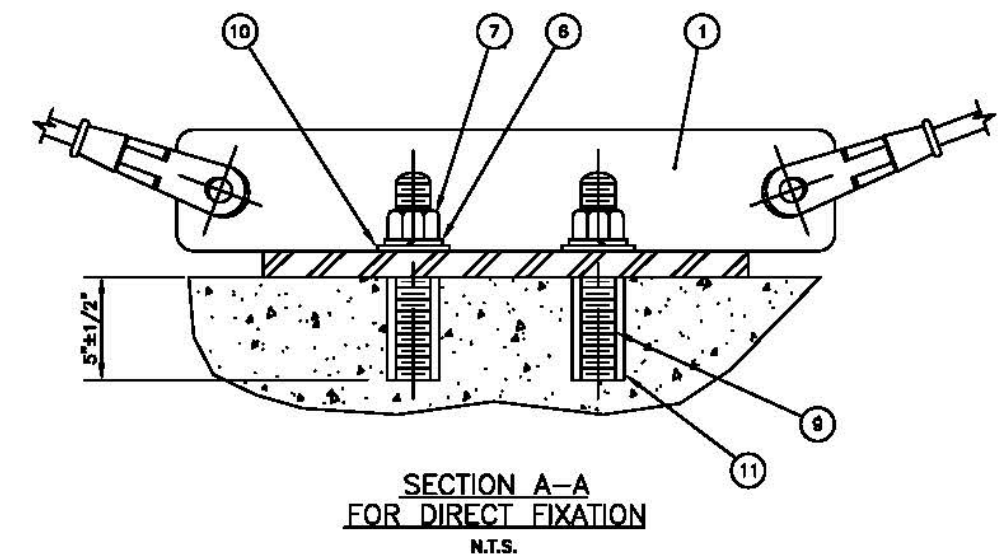


PLAN OF ASSEMBLY  
SCALE: 1/4" = 1"

ASSEMBLY DESCRIPTIONS (SEE SECTION A-A)  
ASSEMBLY No.1 CONTACT RAIL ANCHOR FOR TIMBER TIE  
ASSEMBLY No.2 CONTACT RAIL ANCHOR FOR DIRECT FIXATION



ELEVATION OF ASSEMBLY  
SCALE: 1/4" = 1"



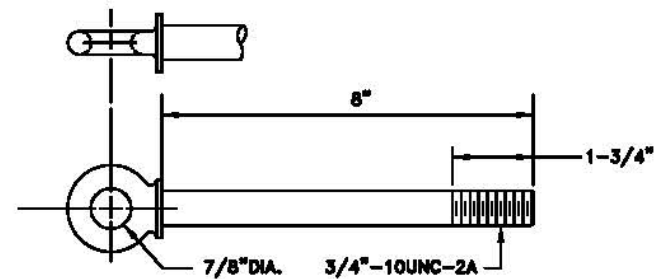
QUANTITY	ITEM	BILL OF MATERIAL
ASSY-1	ASSY-2	No.
1	1	1 BRACKET GALVANIZED STEEL
2	2	2 CLEVIS ASSEMBLY
4	4	3 CLEVIS PIN, .750" DIA.x2-1/8" LONG GALVANIZED STEEL
4	4	4 COTTER PIN, .125" DIA.x1.0" LONG BRASS
2	2	5 SHOULDER EYE BOLT, 3/4" DIA. GALVANIZED STEEL
2	4	6 LOCKWASHER, 3/4" DIA. GALVANIZED STEEL
2	4	7 HEX. NUT, 3/4" DIA. GALVANIZED STEEL
4	4	8 CLAMP, MALLEABLE IRON, GALVANIZED
-	2	9 THREADED STUD 3/4" DIA.x7-3/4" LONG GALVANIZED STEEL
-	2	10 FLAT WASHER 3/4" DIA.x3/16" THICK GALVANIZED STEEL
-	1	11 INSERT ANCHORING MATERIAL
2	-	12 WASHERHEAD DRIVE SPIKE 11/16" DIA.x6" LONG GALVANIZED STEEL

DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
A. DAVIS	05/09			12/2008	CRP	MAJOR REVISION
CHECKED	DATE					
APPROVED	DATE					

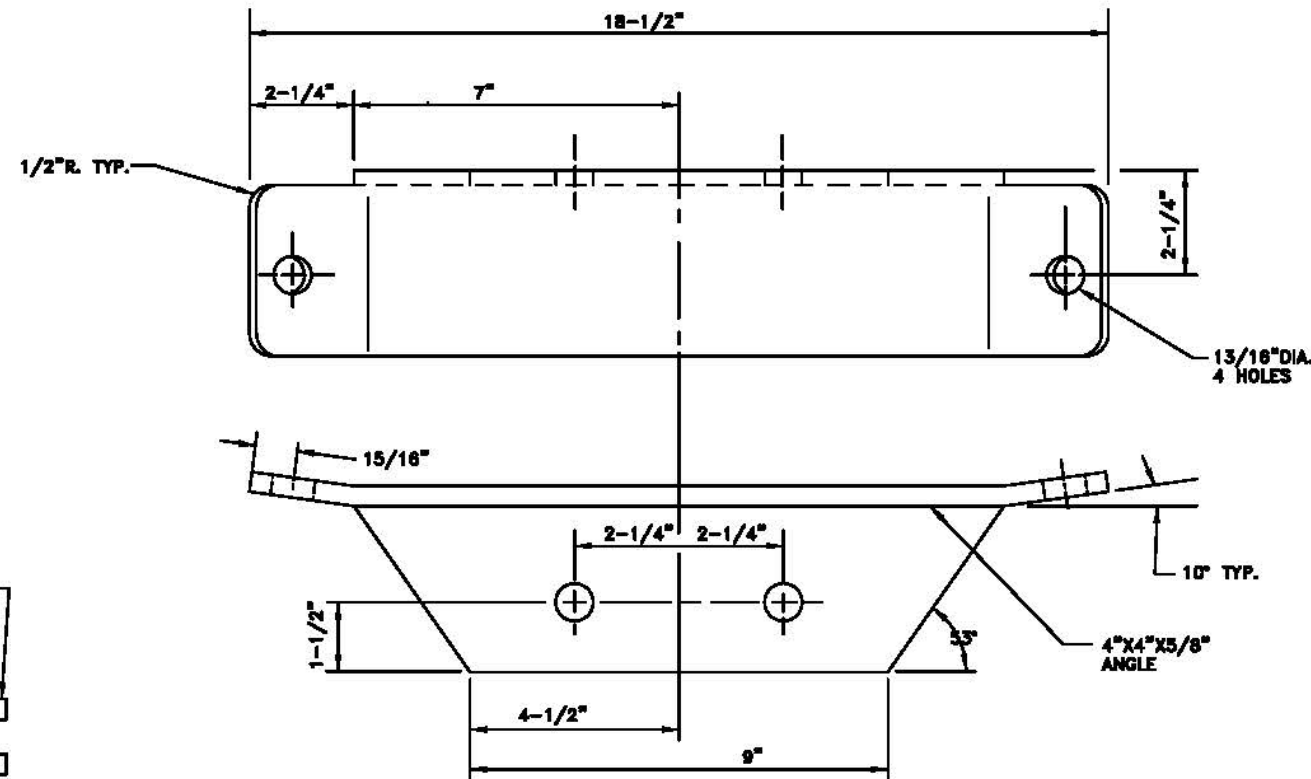
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	DATE	APPROVED

CONTACT RAIL DESIGN DRAWING ANCHOR ASSEMBLY DETAILS AND SECTIONS SHEET 1 OF 2	
SCALE	DRAWING NO.
AS NOTED	DD-TW-CR-009

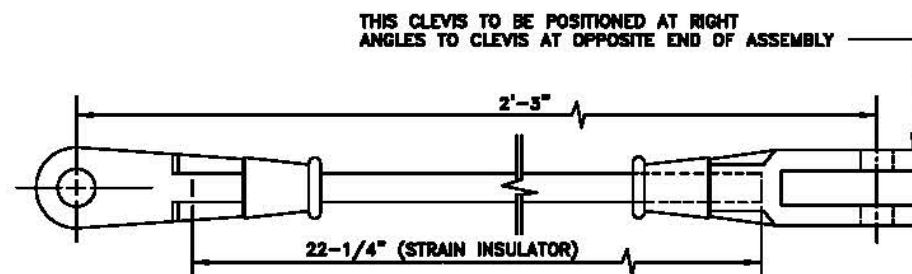




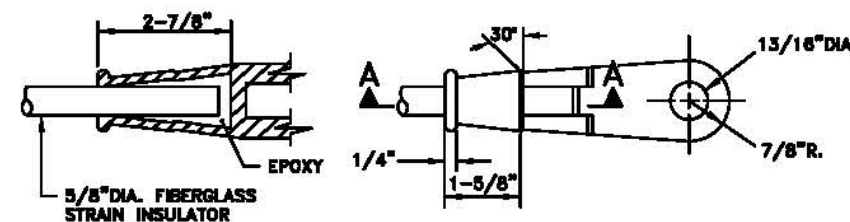
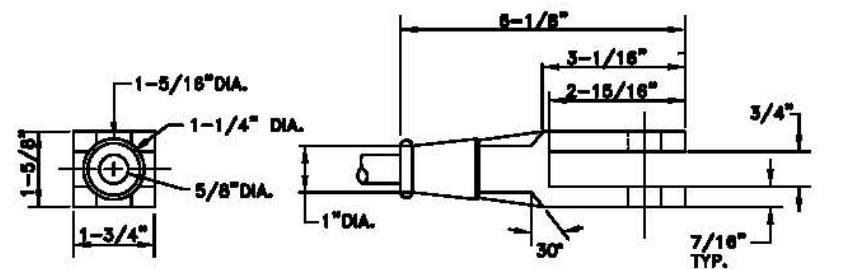
**SHOULDER EYE BOLT**  
MATERIAL: FORGED STEEL GALVANIZED



**BRACKET**  
MATERIAL: STEEL GALVANIZED

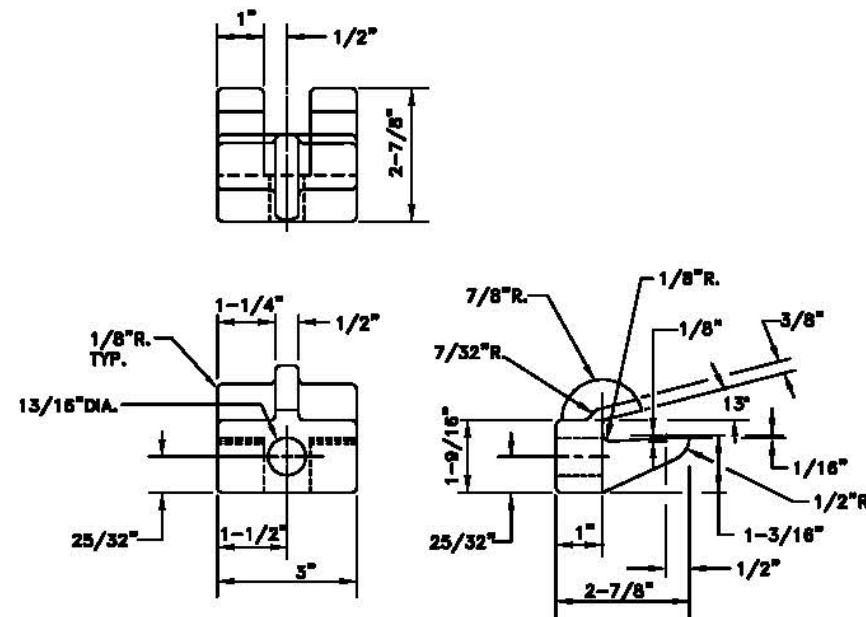


**CLEVIS ASSEMBLY**

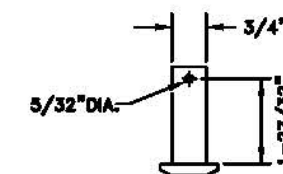


**SECTION A-A**

**CLEVIS**  
MATERIAL: MALLEABLE IRON GALVANIZED



**CLAMP**  
MATERIAL: MALLEABLE IRON, GALVANIZED



**CLEVIS PIN**  
MATERIAL: STEEL, GALVANIZED

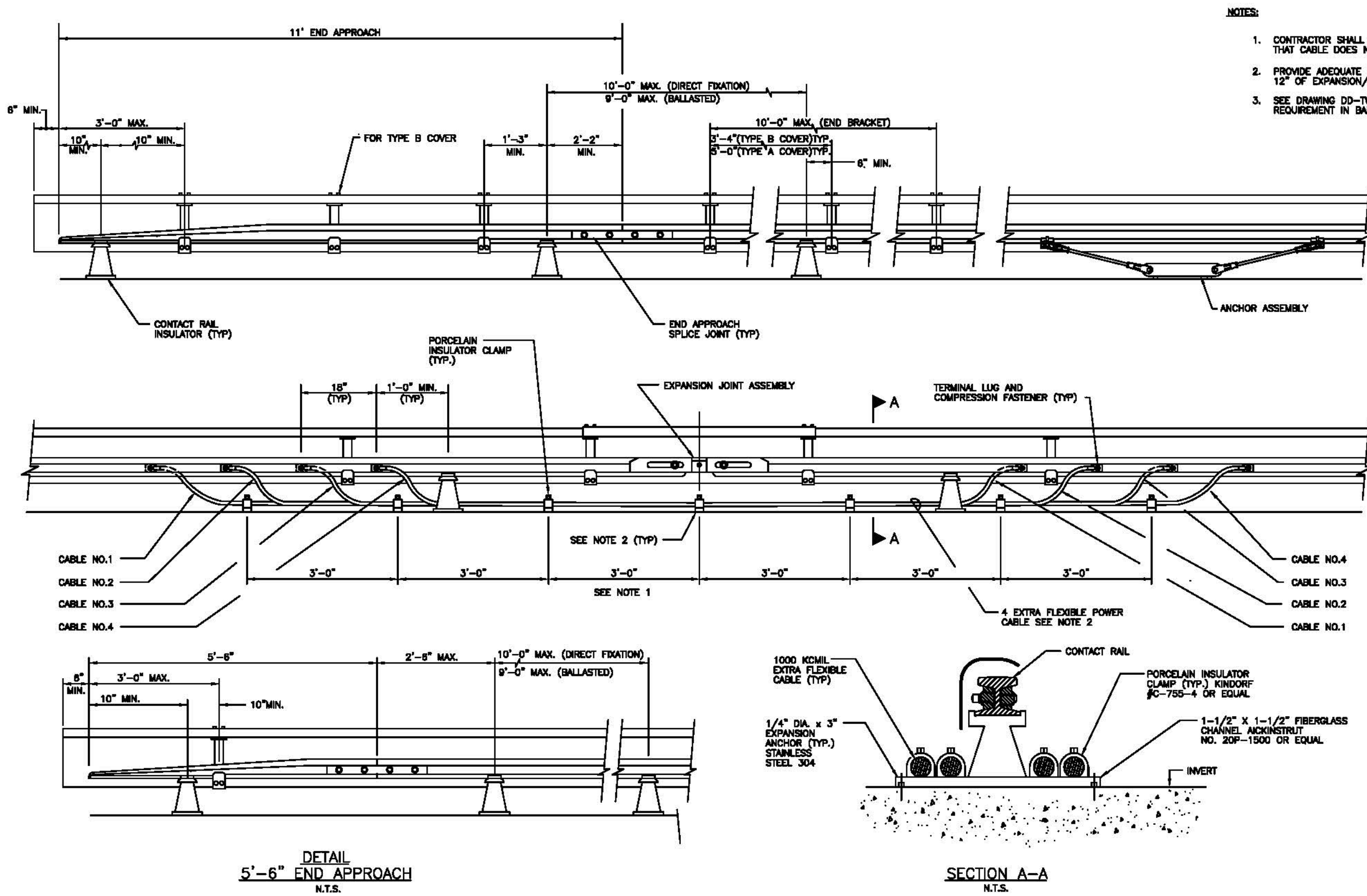
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	08/05			12/2008	Q2P
CHECKED	11/05				
APPROVED	11/05				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

CONTACT RAIL DESIGN DRAWING  
ANCHOR ASSEMBLY DETAILS AND SECTIONS  
SHEET 2 OF 2

SCALE	DRAWING NO.
1/2" = 1"	DD-TW-CR-010





- NOTES:
1. CONTRACTOR SHALL ADJUST LOCATION OF CHANNEL SO THAT CABLE DOES NOT TOUCH THE CONCRETE INVERT.
  2. PROVIDE ADEQUATE SLACK IN CABLES TO ALLOW FOR 12" OF EXPANSION/CONTRACTION OF THE CONTACT RAIL.
  3. SEE DRAWING DD-TW-CR-12 FOR CABLE MOUNTING REQUIREMENT IN BALLASTED TRACK AREA.

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	05/08			12/2006	CONP
CHECKED	11/08				
APPROVED	11/08				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *UR Padgett* 10/2007 DATE

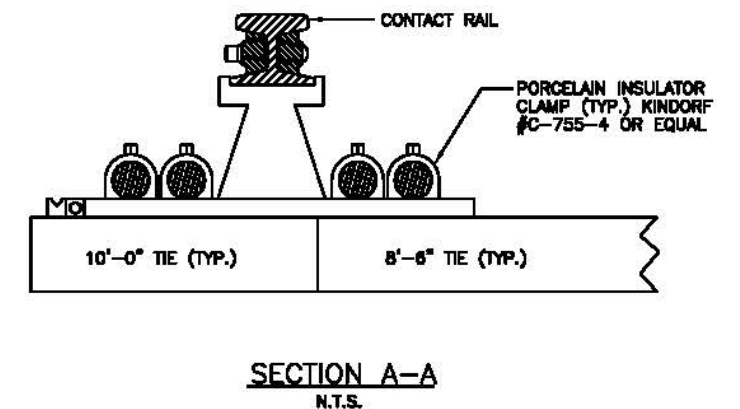
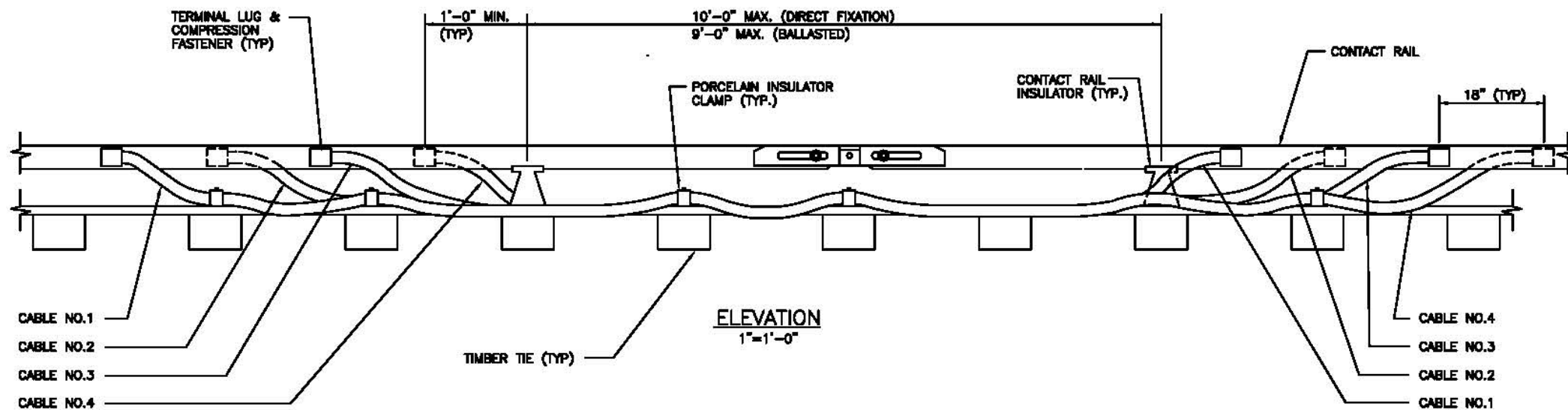
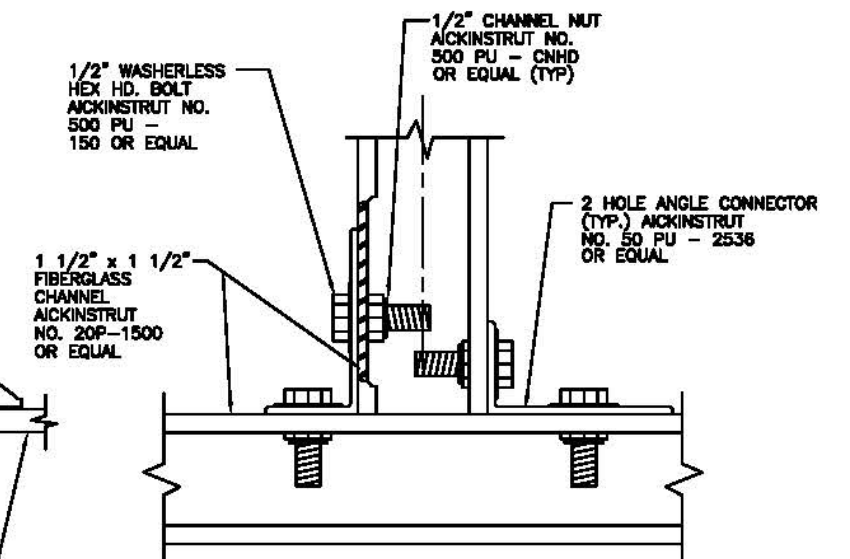
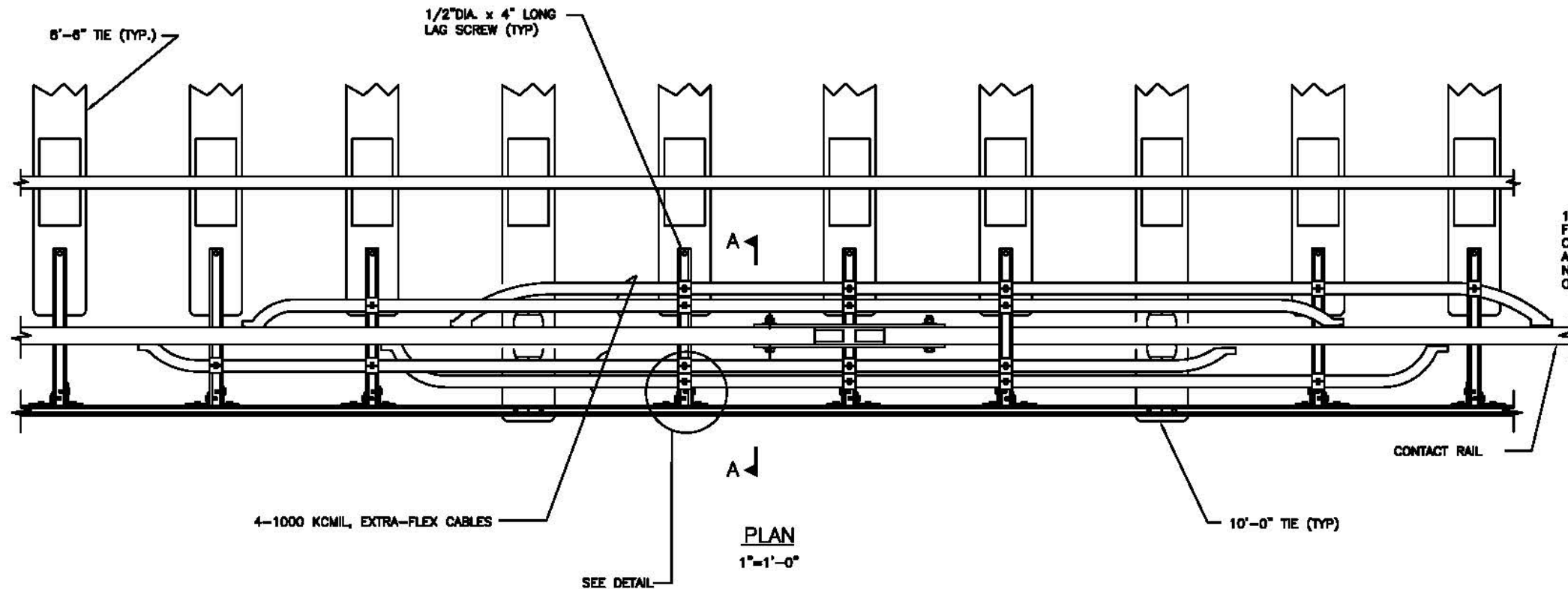
APPROVED *[Signature]* 10/2007 DATE

CONTACT RAIL DESIGN DRAWING  
SPACING-EXPANSION JOINTS,  
ANCHORS AND INSULATORS

SCALE NONE

DRAWING NO. DD-TW-CR-011



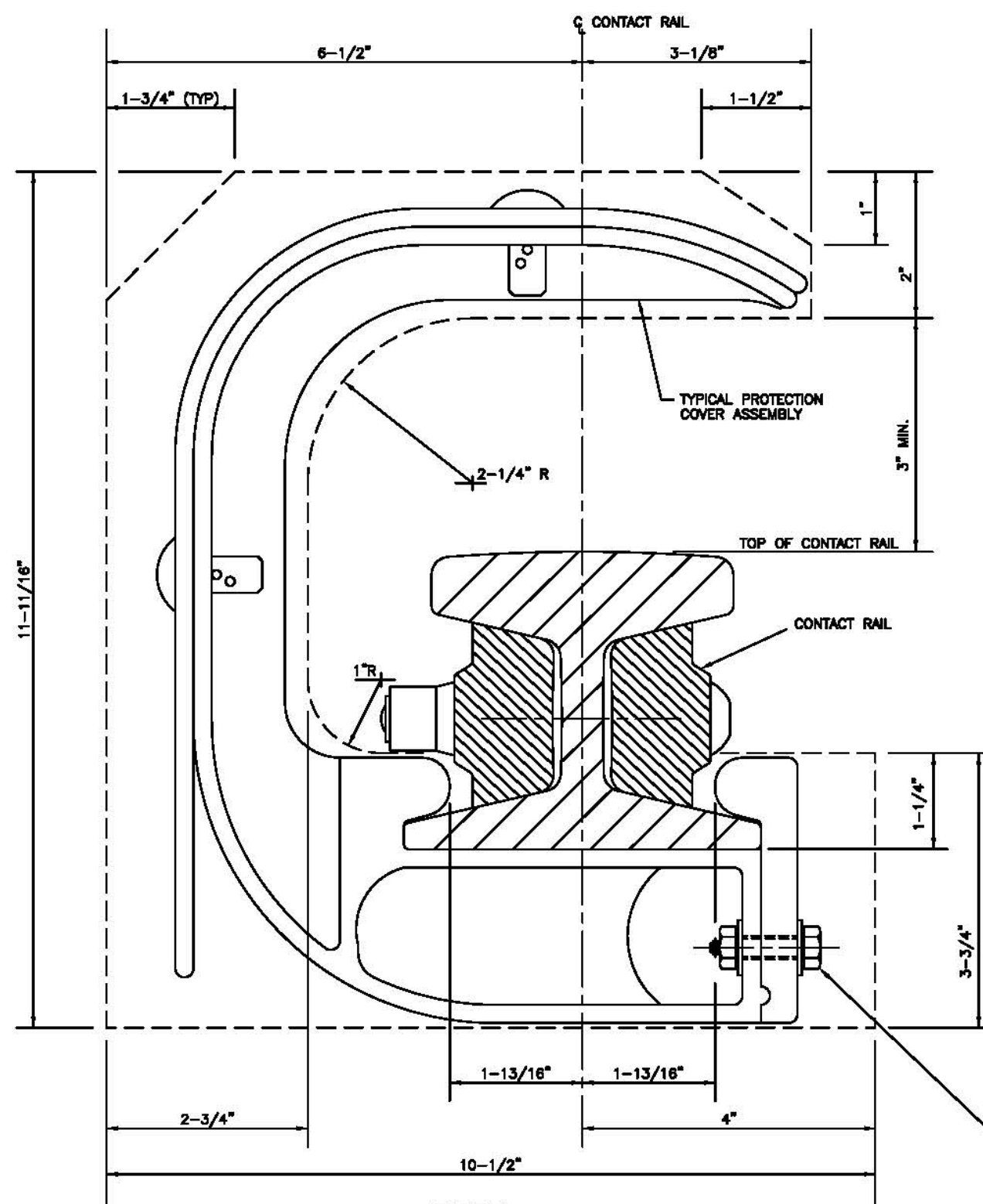


DESIGNED	DRAWN	CHECKED	APPROVED	REFERENCE DRAWINGS		REVISIONS	
				NUMBER	DESCRIPTION	DATE	BY
J. THOMAS	A. DAVIS	R. ROSENFELDER	L. PROBERT			9/2000	ENGA
						12/2006	CDNF

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

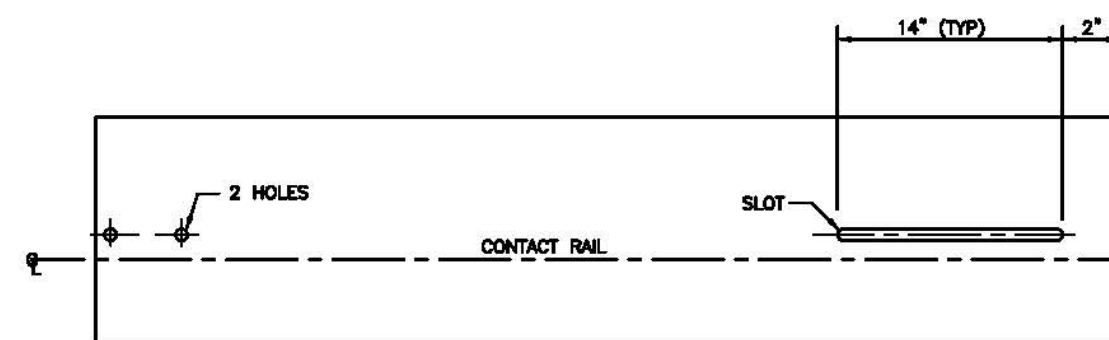
CONTACT RAIL DESIGN DRAWING EXPANSION JOINT JUMPER CABLE SUPPORT DETAILS IN BALLASTED TRACK	
SCALE AS NOTED	DRAWING NO. DD-TW-CR-012



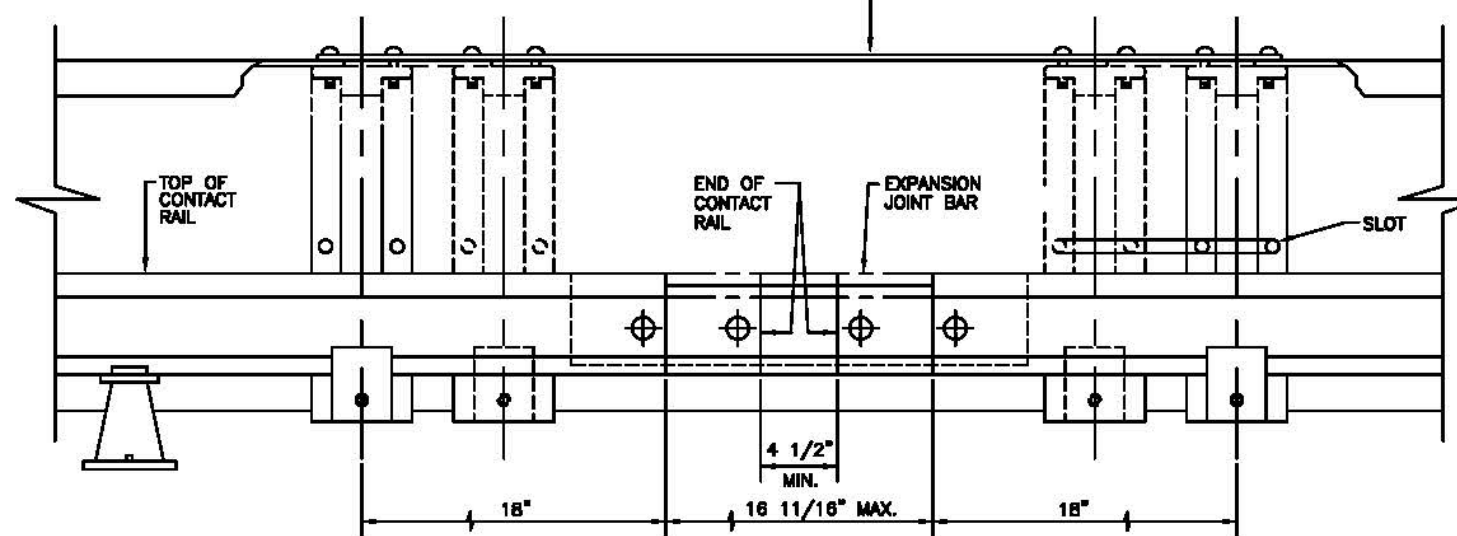


**TYPE A  
PROTECTION COVER ASSEMBLY  
CLEARANCE ENVELOPE**  
1'-0"-1"

GALVANIZED STEEL  
BOLT, NUT & WASHERS



**TOP VIEW  
N.T.S.**



**TYPICAL BRACKET & PROTECTION COVER  
AT EXPANSION JOINT**  
N.T.S.

NOTE:

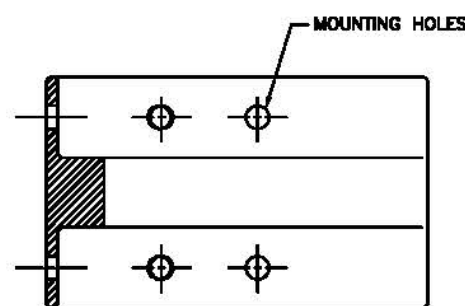
1. TYPE A PROTECTION COVER ASSEMBLY IS USED IN UNDERGROUND LOCATIONS WHERE CONTACT RAIL HEATER TAPE IS NOT REQUIRED.

DESIGNED	DATE	NUMBER	REFERENCE DRAWINGS	DATE	BY	REVISIONS
J. THOMAS	12/06		DESCRIPTION	12/06	CEM	MINOR REVISION
DRAWN	12/06					
CHECKED	11/08					
APPROVED	11/08					

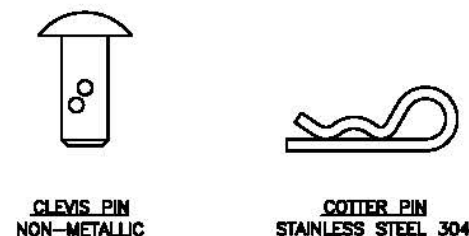
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

CONTACT RAIL DESIGN DRAWING COMPOSITE RAIL WITH TYPE A PROTECTION COVER	
SCALE AS NOTED	DRAWING NO. DD-TW-CR-013

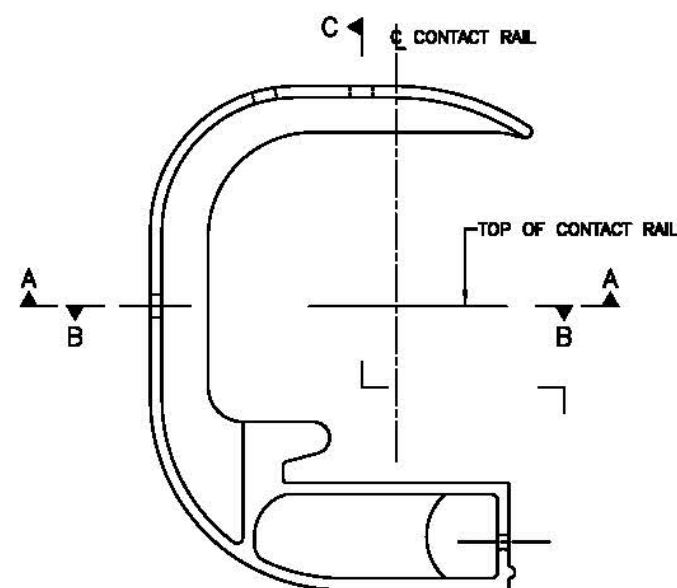




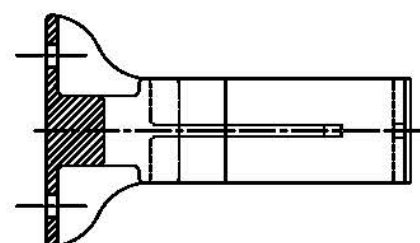
SECTION A-A



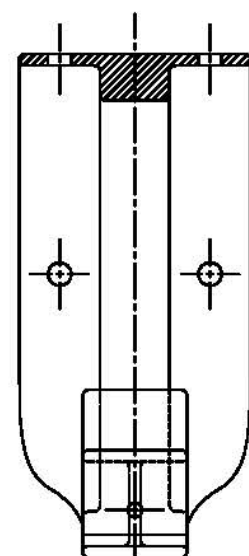
FASTENER



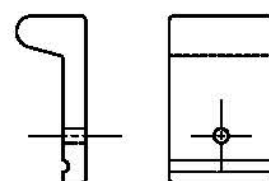
BRACKET  
FIBERGLASS



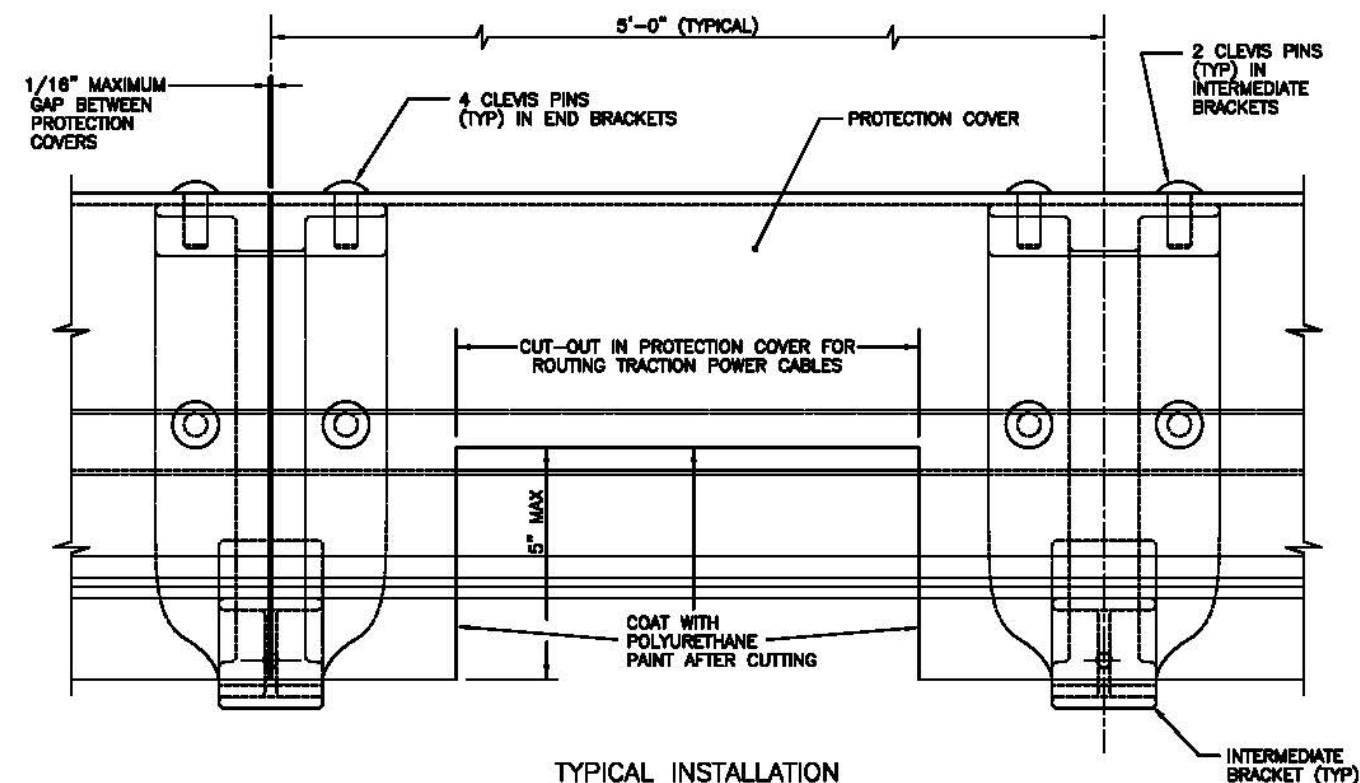
SECTION B-B



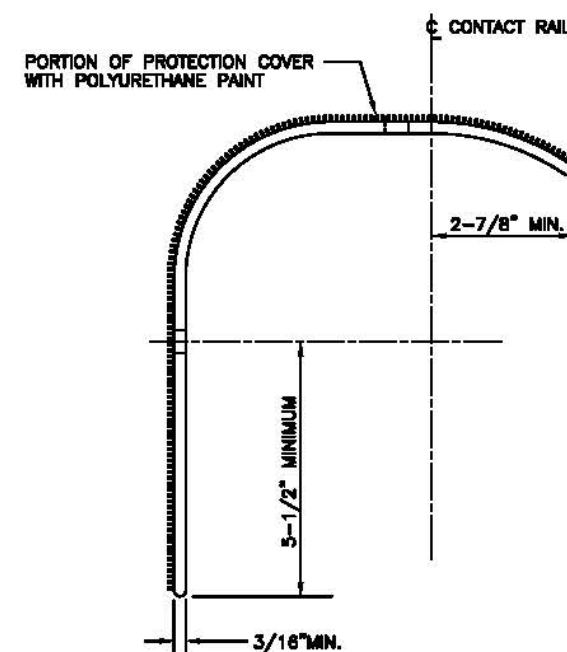
SECTION C-C



CLAMP  
FIBERGLASS



TYPICAL INSTALLATION



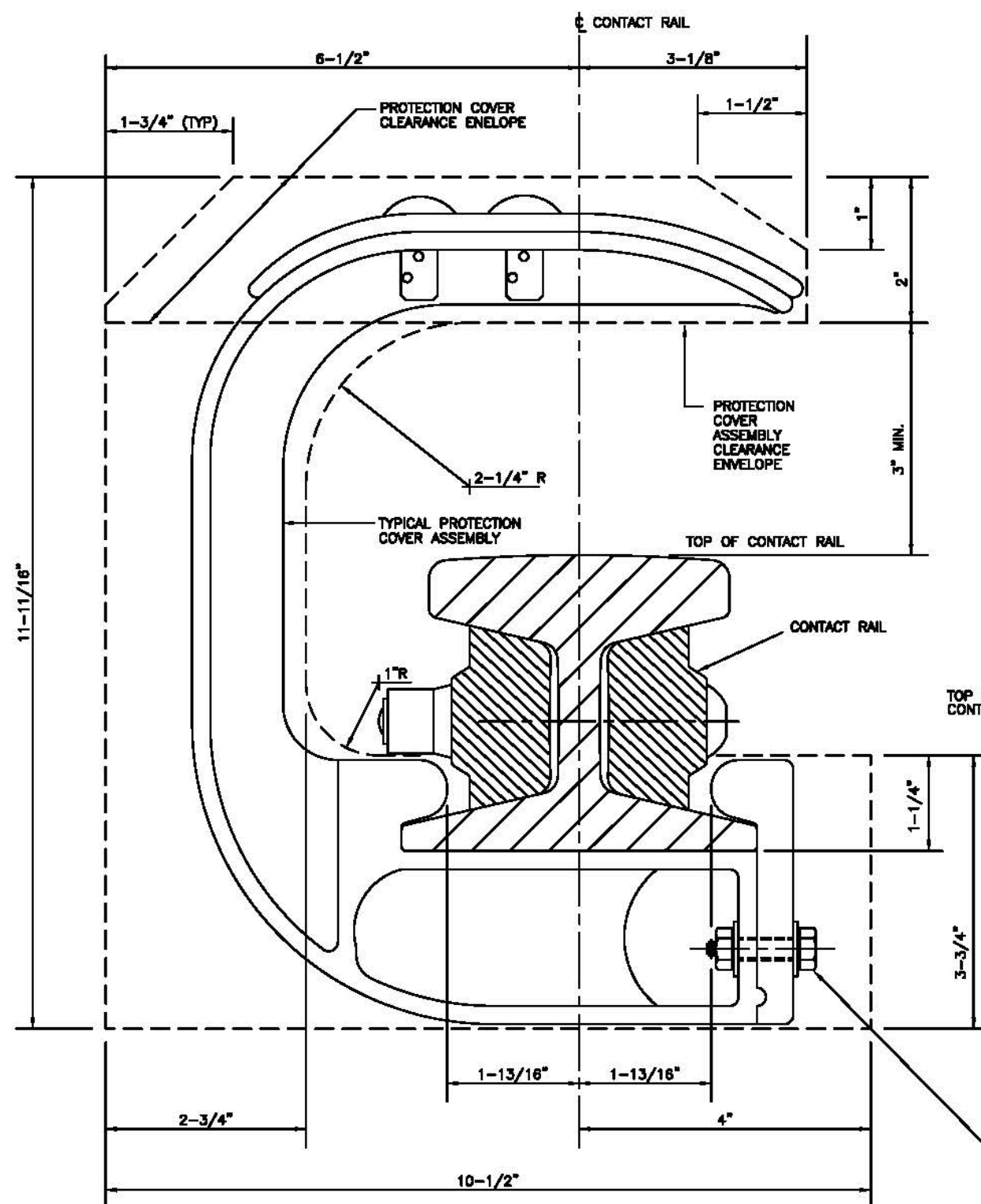
PROTECTION COVER  
FIBERGLASS

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	08/06			12/2006	MINOR REVISION
CHECKED	11/08				
APPROVED	11/08				

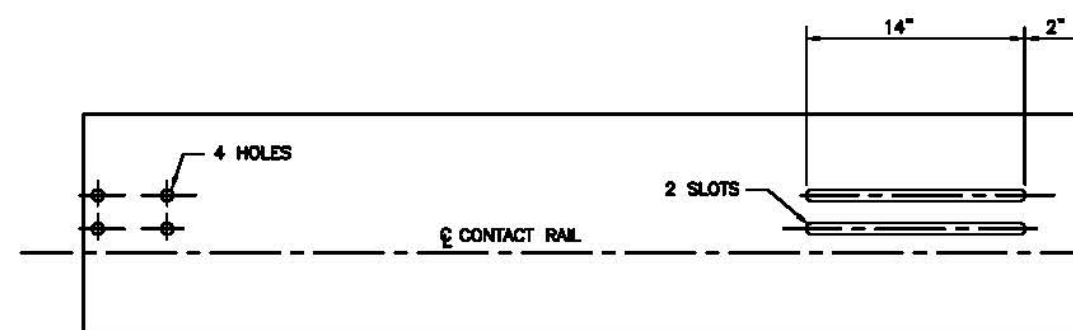
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

CONTACT RAIL DESIGN DRAWING	
TYPE A PROTECTION COVER ASSEMBLY	
DETAILS AND SECTIONS	
SCALE	DRAWING NO.
1/2" = 1"	DD-TW-CR-014

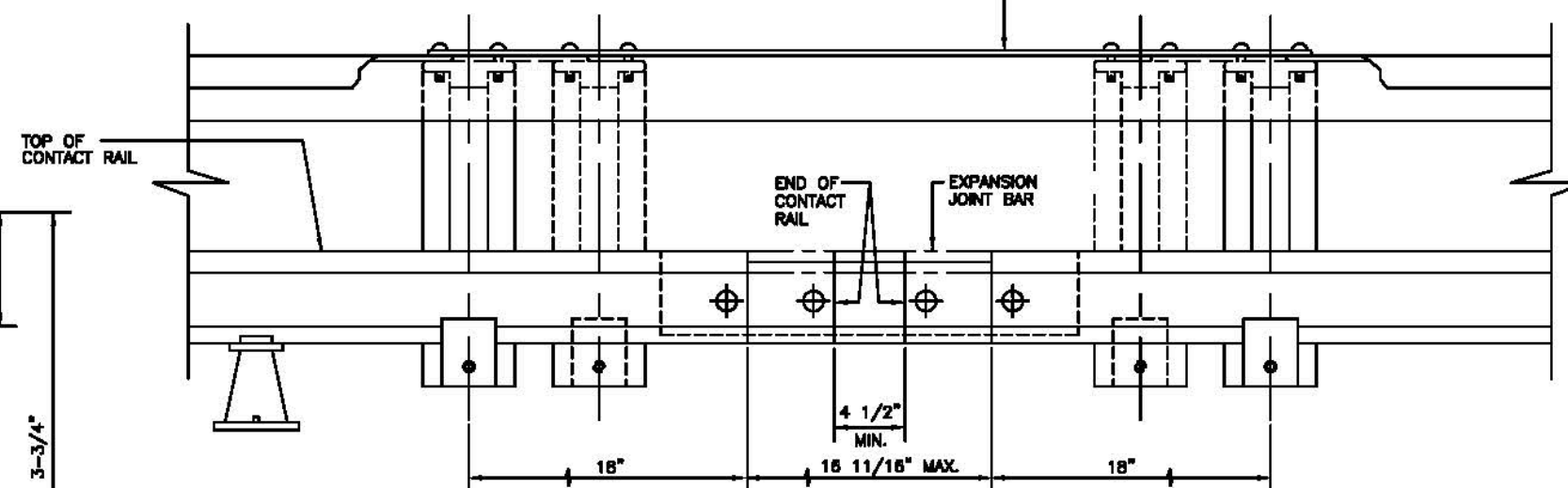




**TYPE B**  
**PROTECTION COVER ASSEMBLY**  
**CLEARANCE ENVELOPE**  
 1"=0'-1"



**TOP VIEW**  
 N.T.S.



**TYPICAL BRACKET & PROTECTION COVER**  
**AT EXPANSION JOINT**  
 N.T.S.

**NOTE:**

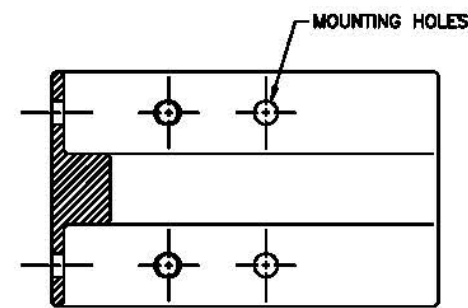
1. TYPE B PROTECTION COVER ASSEMBLY IS USED IN ABOVE GROUND LOCATIONS WHERE CONTACT RAIL HEATER TAPE IS REQUIRED TO BE INSTALLED.

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	BY
DRAWN	08/08			12/2008	CEM
CHECKED	11/08				
APPROVED	11/08				

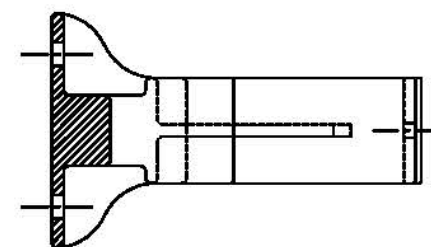
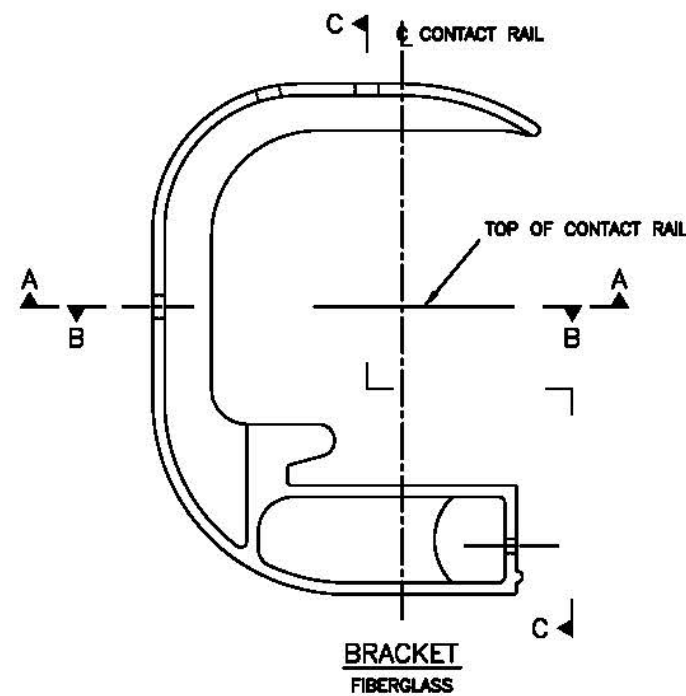
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

CONTACT RAIL DESIGN DRAWING	
COMPOSITE RAIL	
WITH TYPE B PROTECTION COVER	
SCALE	DRAWING NO.
AS NOTED	DD-TW-CR-015

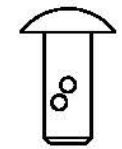




SECTION A-A



SECTION B-B

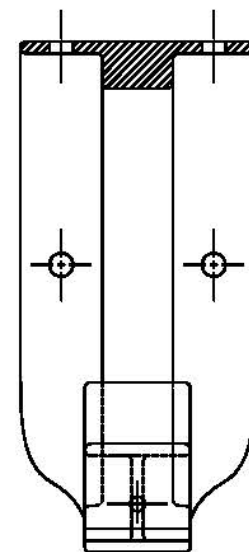


CLEVIS PIN  
NON-METALLIC

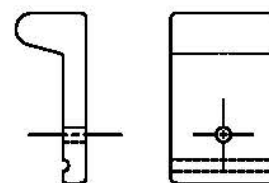


COTTER PIN  
STAINLESS STEEL 304

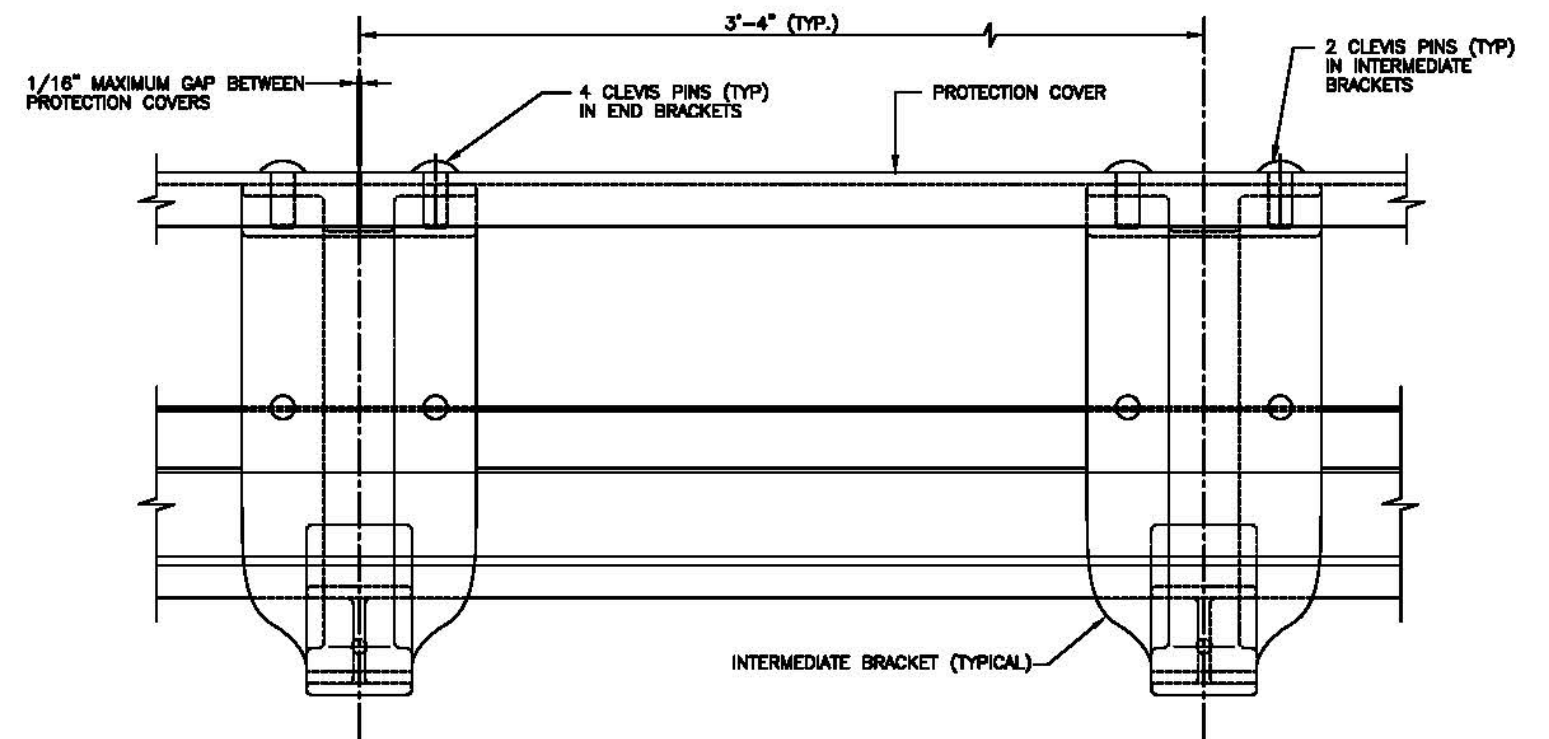
FASTENER



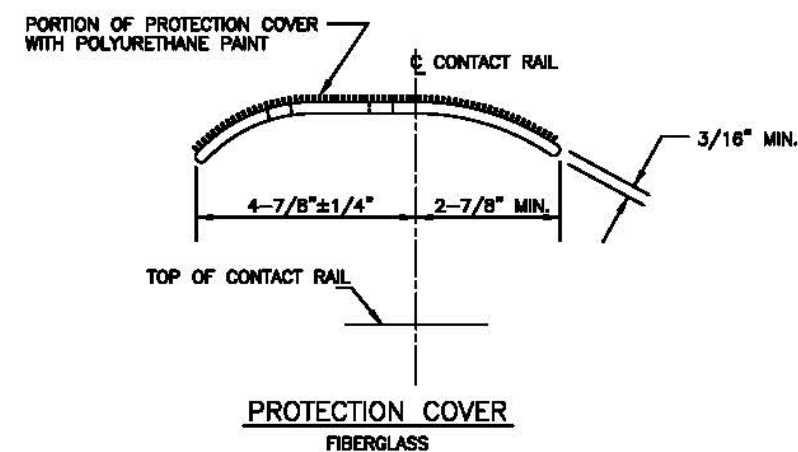
SECTION C-C



CLAMP  
FIBERGLASS



TYPICAL INSTALLATION

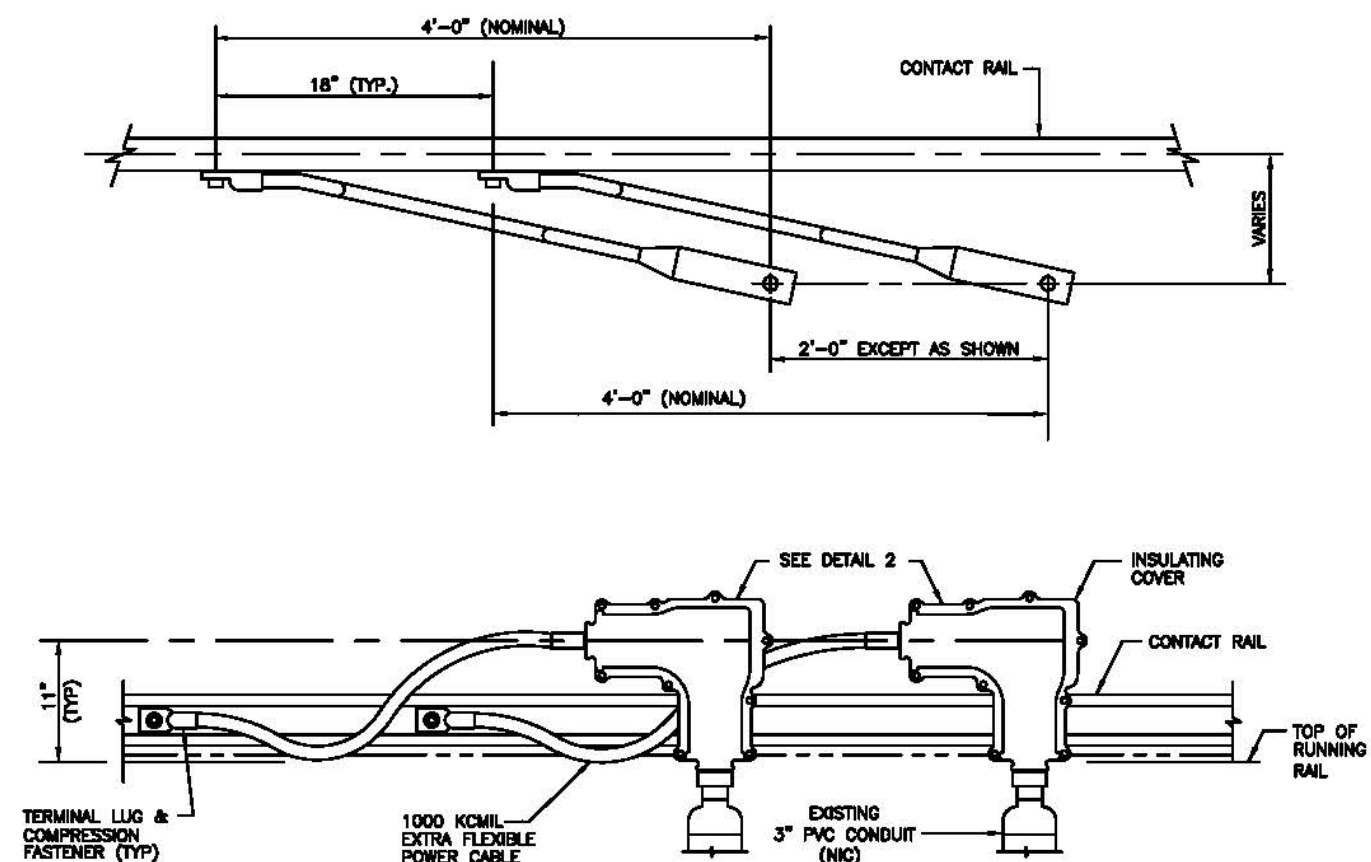


DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	08/08			12/2008	MINOR REVISION
CHECKED	11/08				
APPROVED	11/08				

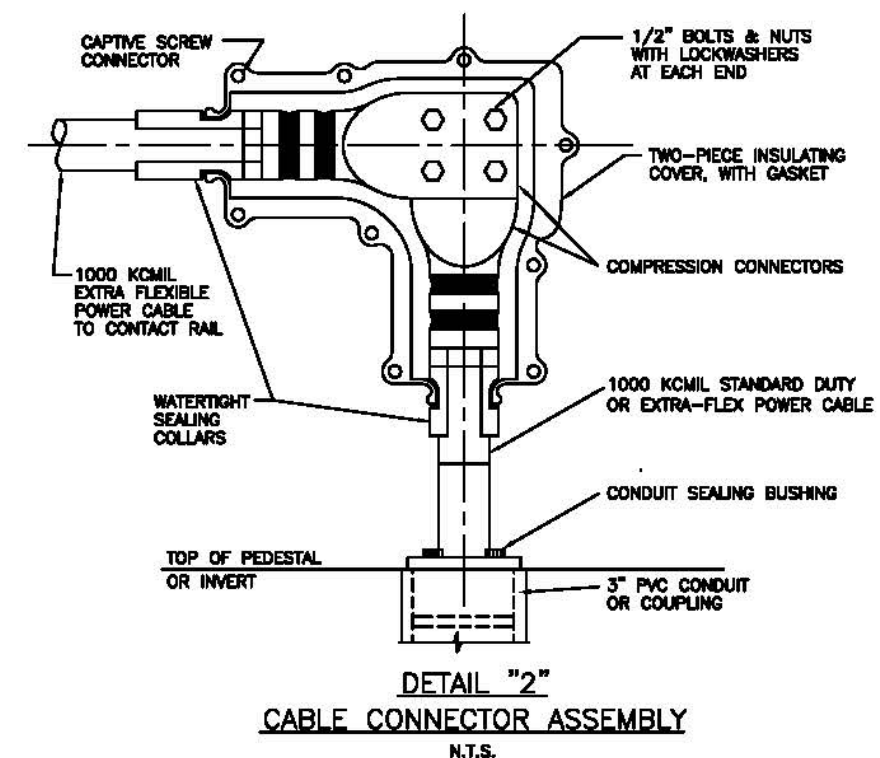
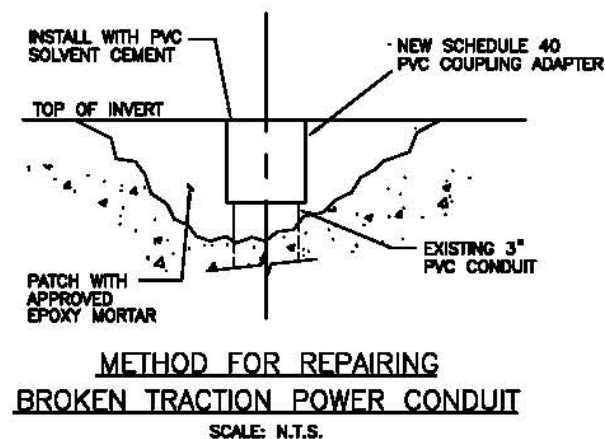
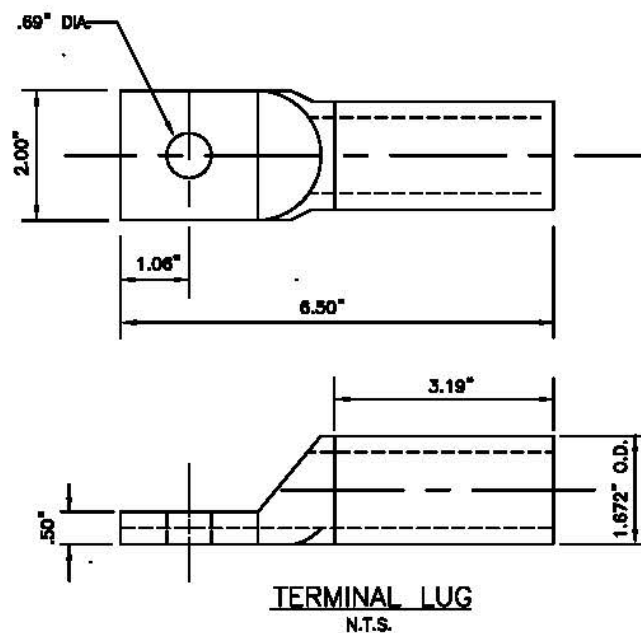
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

CONTACT RAIL DESIGN DRAWING	
TYPE B PROTECTION COVER ASSEMBLY	
DETAILS AND SECTIONS	
SCALE	DRAWING NO.
1/2" = 1"	DD-TW-CR-016





**DETAIL "1"**  
TYPICAL CONNECTION FOR COMPOSITE CONTACT RAIL  
N.T.S.



DESIGNED R. TINGHAM 8-08  
DATE

DRAWN A. DREW 08/08  
DATE

CHECKED R. ROCKEFELLER 11/09  
DATE

APPROVED L. PROBITT 11/09  
DATE

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY
		12/2006	CEW
			MINOR REVISIONS

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED UR Padgett 10/2007 DATE

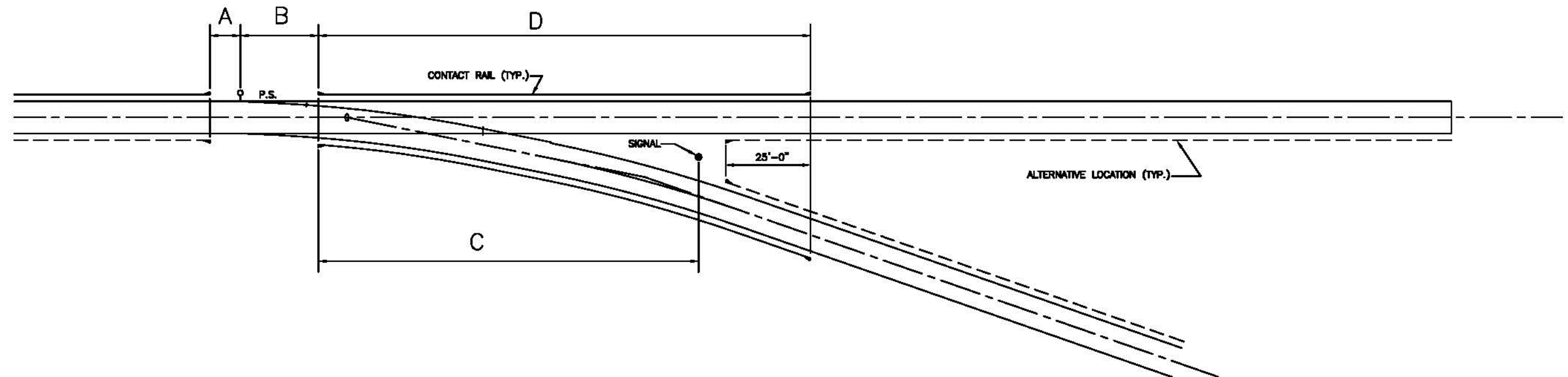
APPROVED [Signature] 10/2007 DATE

**CONTACT RAIL DESIGN DRAWING**  
COMPOSITE RAIL  
TYPICAL CONDUIT AND CABLE ARRANGEMENT

SCALE NONE

DRAWING NO. DD-TW-CR-017





TURNOUT NO.	A	B	C	D
6	9'-0"	23'-0"	*	145'-0"
8	9'-0"	23'-0"	*	180'-0"
10	10'-0"	30'-0"	*	205'-0"
15	10'-0"	58'-0"	*	280'-0"

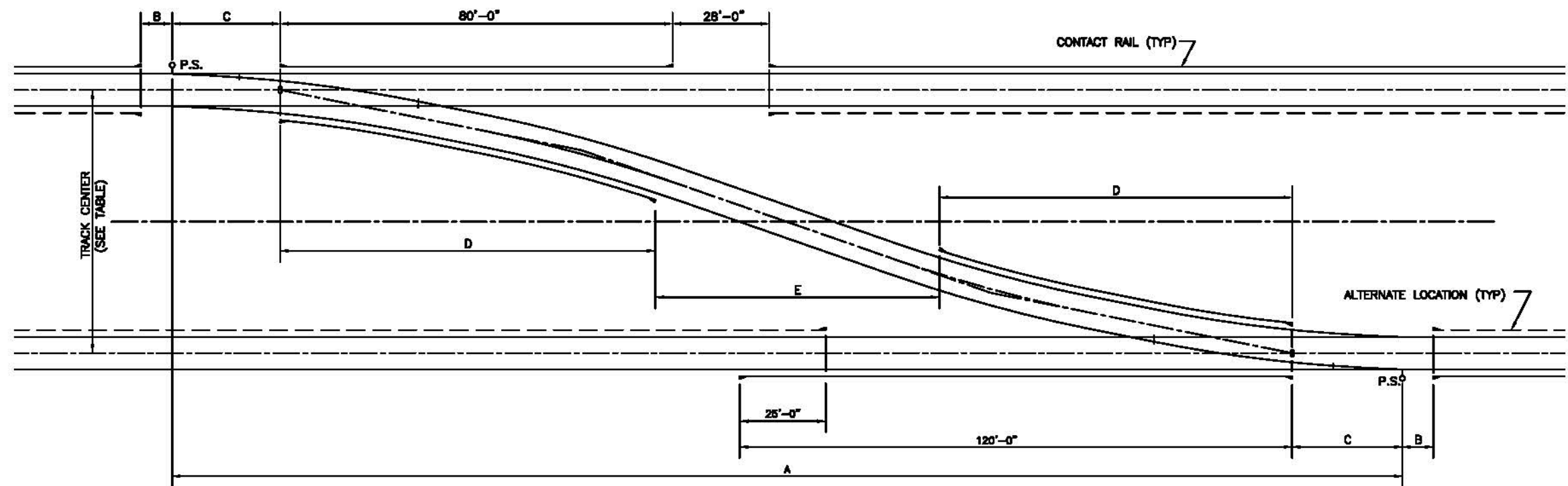
(\*) SEE DESIGN CRITERIA

**NOTES:**

1. FOR LOCATION AND DETAILS OF CONTACT RAIL CABLE AT TRACKSIDE, ELECTRICAL DD DRAWINGS.
2. CONTACT RAIL LAYOUTS/ ARRANGEMENTS MAY VARY FROM CONTACT TO CONTACT AND SHOULD BE FIELD VERIFIED PRIOR TO ANY PROCUREMENT OR FABRICATION PHASES. DISTANCES SHOWN ARE BASED ON CLEARANCES TO TANGENT DIVERGING TRACK-SEE DESIGN CRITERIA.

DESIGNED <u>K. THOMAS</u> 7-05 DRAWN <u>A. DINE</u> 08/06 CHECKED <u>R. BOGGS/ELLER</u> 11/06 APPROVED <u>L. PADGETT</u> 11/06	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <u>L. Padgett</u> 10/2007 APPROVED <u>[Signature]</u> 10/2007	CONTACT RAIL DESIGN DRAWING CONTACT RAIL ARRANGEMENT NO.6, NO.8, NO.10, NO.15 TURNOUTS		
	NUMBER	DESCRIPTION	DATE	BY		DESCRIPTION	SCALE	DRAWING NO.
			12/2006	CEW		MINOR REVISIONS	NONE	DD-TW-CR-018





#8 SINGLE CROSSOVER PLAN

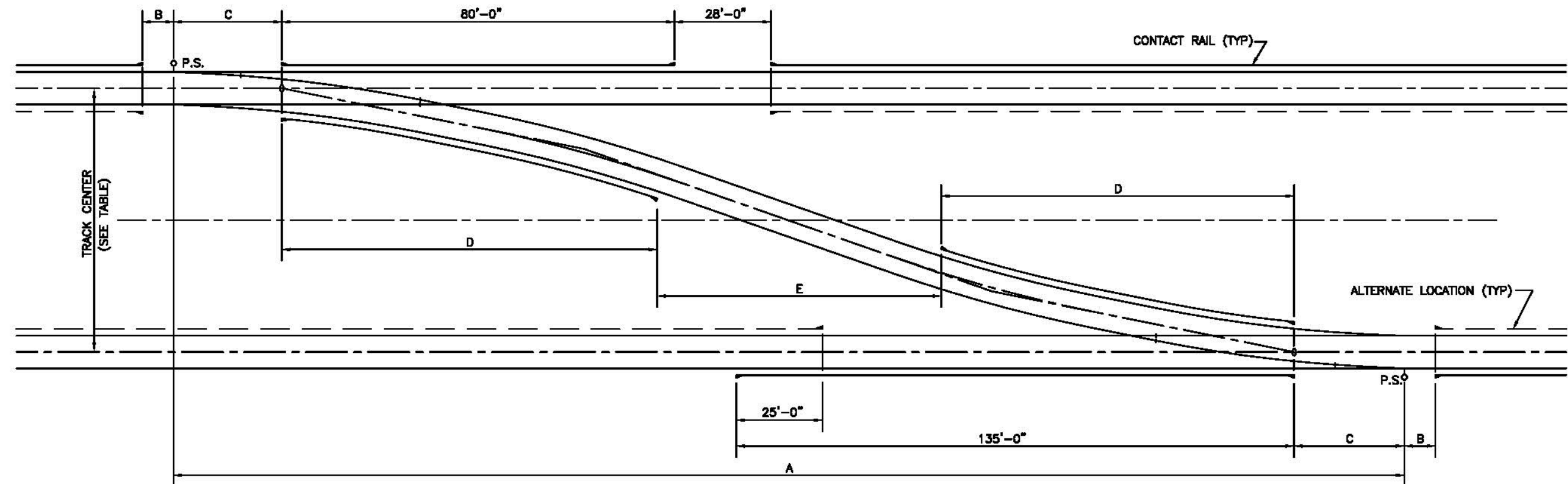
TRACK CENTER	A	B	C	D	E
14'-0"	191.56'	33'-0"	23'-0"	35'-0"	75.56'
36'-10"	295.00'	9'-0"	23'-0"	96'-0"	24.00'
40'-6"	304.00'	33'-0"	23'-0"	128'-0"	0

NOTE:

1. FOR LOCATION AND DETAILS OF CONTACT RAIL CABLE AT TRACKSIDE SEE ELECTRICAL DD DRAWINGS.
2. CONTACT RAIL LAYOUTS/ ARRANGEMENTS MAY VARY FROM VERIFIED PRIOR TO CONTRACT TO CONTRACT AND SHOULD ANY PROCUREMENT OR FABRICATION PHASES.

DESIGNED <u>IL THORNTON</u> 10-08-06 DRAWN <u>A. DAVIS</u> 08-08-06 CHECKED <u>R. ROSENFELDER</u> 11-09-06 APPROVED <u>L. PADGETT</u> 11-09-06		<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> <th colspan="2">REVISIONS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>02/2006</td> <td>GEN</td> </tr> <tr> <td></td> <td></td> <td>09/06</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		REFERENCE DRAWINGS		REVISIONS		NUMBER	DESCRIPTION	DATE	BY			02/2006	GEN			09/06														WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <u>LR Padgett</u> 10/2007 APPROVED <u>[Signature]</u> 10/2007		CONTACT RAIL DESIGN DRAWING CONTACT RAIL ARRANGEMENT NO. 8 SINGLE CROSSOVER 14'-0", 36'-10" AND 40'-6" TRACK CENTERS SCALE NONE DRAWING NO. DD-TW-CR-019	
REFERENCE DRAWINGS		REVISIONS																																	
NUMBER	DESCRIPTION	DATE	BY																																
		02/2006	GEN																																
		09/06																																	





#10 SINGLE CROSSOVER PLAN

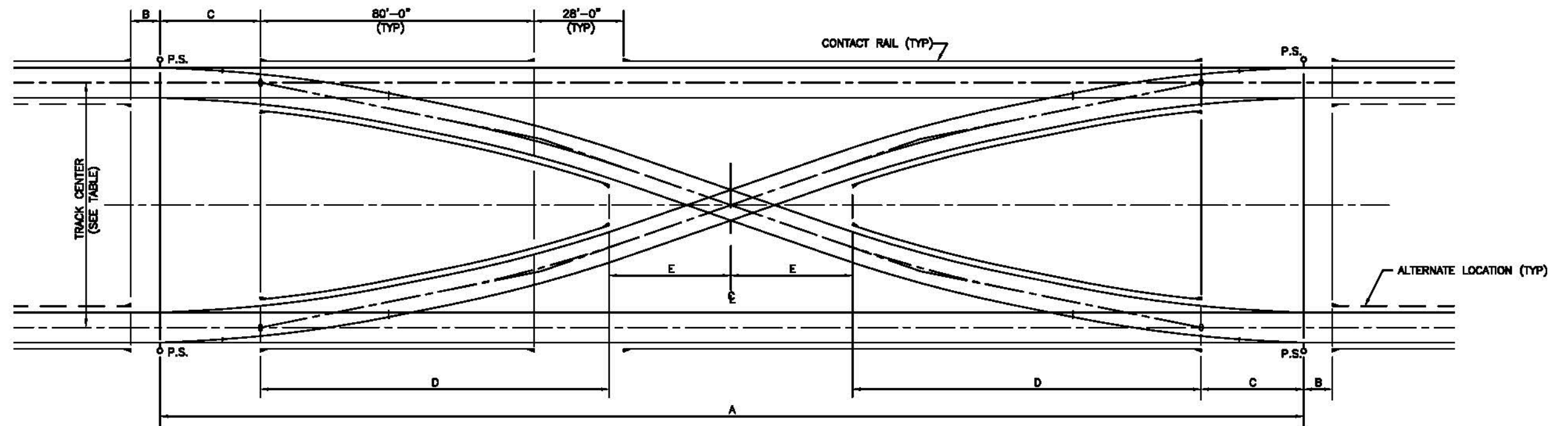
TRACK CENTERS	A	B	C	D	E
14'-0"	202.5'	10'-0"	30'-0"	38'-0"	86.50'
36'-10"	352.82'	10'-0"	30'-0"	116'-0"	80.82'
40'-6"	369.73'	10'-0"	30'-0"	124'-0"	81.73'

NOTE:

1. FOR LOCATION AND DETAILS OF CONTACT RAIL CABLES AT TRACKSIDE SEE ELECTRICAL DD DRAWINGS.
2. CONTRACT RAIL LAYOUTS/ ARRANGEMENTS MAY VARY FROM CONTRACT TO CONTRACT AND SHOULD BE VERIFIED PRIOR TO ANY PROCUREMENT OR FABRICATION PHASES.

DESIGNED <u>J. TIRUM</u> 10/07 DRAWN <u>A. DAVIS</u> 08/08 CHECKED <u>R. ROOSEVELL</u> 11/08 APPROVED <u>L. PROBST</u> 11/08	<b>REFERENCE DRAWINGS</b> <table border="1"> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>		NUMBER	DESCRIPTION							<b>REVISIONS</b> <table border="1"> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> <tr> <td>12/2006</td> <td>CONF</td> <td>REVISION</td> </tr> <tr> <td>09/06</td> <td> </td> <td>ADDED NOTE NO. 2</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		DATE	BY	DESCRIPTION	12/2006	CONF	REVISION	09/06		ADDED NOTE NO. 2							<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <u>UR Padgett</u> 10/2007 APPROVED <u>[Signature]</u> 10/2007		<b>CONTACT RAIL DESIGN DRAWING</b> CONTACT RAIL ARRANGEMENT NO. 10 SINGLE CROSSOVER 14'-0", 36'-10" AND 40'-6" TRACK CENTERS SCALE NONE DRAWING NO. DD-TW-CR-020	
	NUMBER	DESCRIPTION																													
DATE	BY	DESCRIPTION																													
12/2006	CONF	REVISION																													
09/06		ADDED NOTE NO. 2																													





#8 DOUBLE CROSSOVER PLAN

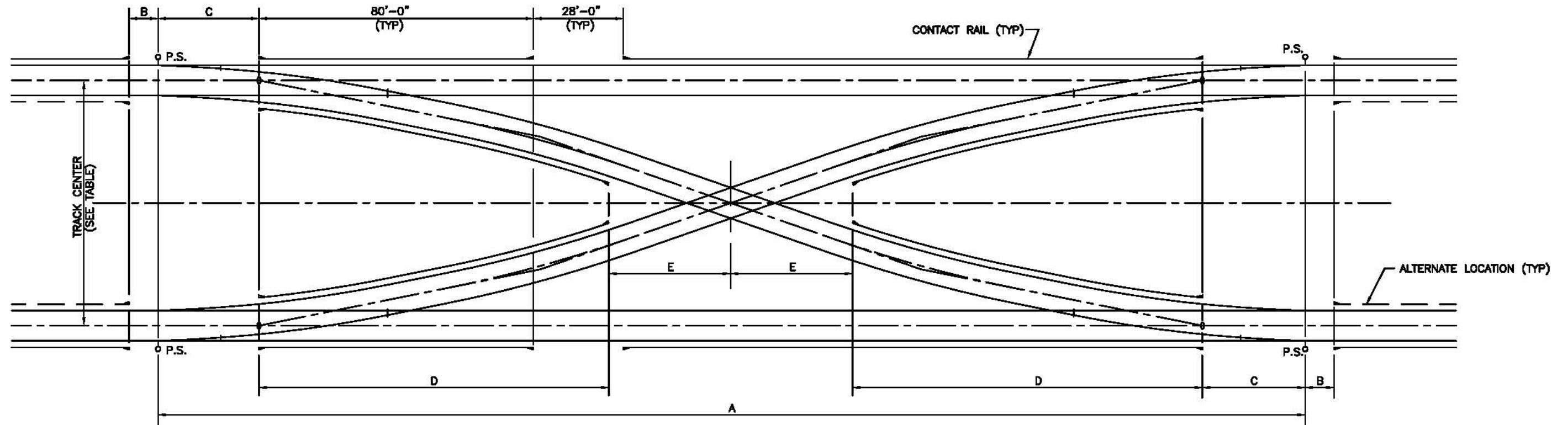
TRACK CENTERS	A	B	C	D	E
14'-0"	174'	19'-0"	23'-0"	18.0'	46'
36'-10"	295'	9'-0"	23'-0"	98.0'	28.5'
40'-6"	368'	101'-0"	30'-0"	124.0'	30'

NOTE:

1. FOR LOCATION AND DETAILS OF CONTACT RAIL CABLES AT TRACKSIDE SEE ELECTRICAL DD DRAWINGS.
2. CONTRACT RAIL LAYOUTS/ ARRANGEMENTS MAY VARY FROM CONTRACT TO CONTRACT AND SHOULD BE VERIFIED PRIOR TO ANY PROCUREMENT OR FABRICATION PHASES.

DESIGNED <u>W. TINGHAM</u> DRAWN <u>A. DAVIS</u> CHECKED <u>R. DUNFELL</u> APPROVED <u>L. PROBERT</u>	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <u>L. Probert</u> 10/2007 APPROVED <u>[Signature]</u> 10/2007	CONTACT RAIL DESIGN DRAWING CONTACT RAIL ARRANGEMENT No. 8 DOUBLE CROSSOVER 14'-0", 36'-10" AND 40'-6" TRACK CENTERS	
	NUMBER	DESCRIPTION	DATE	BY		DESCRIPTION	SCALE
						NONE	DD-TW-CR-021





#10 DOUBLE CROSSOVER PLAN

TRACK CENTERS	A	B	C	D	E
14'-0"	202.48'	10'-0"	31'-42"	15.0'	53.5'
36'-10"	352.81'	10'-0"	31'-42"	105.0'	41'
40'-6"	369.71'	7.625'	31'-42"	124.0'	30.865'

NOTE:

- FOR LOCATION AND DETAILS OF CONTACT RAIL CABLES AT TRACKSIDE SEE ELECTRICAL DD DRAWINGS.
- CONTACT RAIL LAYOUTS/ ARRANGEMENTS MAY VARY FROM CONTRACT TO CONTRACT AND SHOULD BE VERIFIED PRIOR TO ANY PROCUREMENT OR FABRICATION PHASES.

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	REVISION	DESCRIPTION
10-08		10/2006	CEP	1	ADDED NOTE NO. 2
11/08					
11/08					
11/08					
11/08					
11/08					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY			
OFFICE OF ENGINEERING SUPPORT SERVICES			
SUBMITTED	10/2007	APPROVED	10/2007
	DATE		DATE

CONTACT RAIL DESIGN DRAWING	
CONTACT RAIL ARRANGEMENT	
No. 10 DOUBLE CROSSOVER	
14'-0", 36'-10" AND 40'-6" TRACK CENTERS	
SCALE	DRAWING NO.
NONE	DD-TW-CR-022





1. WHEN DERAIL IS INSTALLED ON THE SAME SIDE OF TRACK AS THE CONTACT RAIL, THIS DIMENSION SHALL BE 23'-0".
2. THIS DIMENSION CAN BE REDUCED TO 33'-0" IF THE 10'-0" DIMENSION IS INCREASED, (TOTAL GAP= 56'-0").
3. FOR LOCATION AND DETAILS OF CONTACT RAIL CABLES AT TRACKSIDE SEE ELECTRICAL DD DRAWINGS.
4. CONTACT RAIL LAYOUTS/ARRANGEMENTS MAY VARY FROM CONTRACT TO CONTRACT AND SHOULD BE VERIFIED PRIOR TO ANY PROCUREMENT OR FABRICATION PHASES.

DESIGNED <u>DDCD</u>	1-08 DATE	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY				CONTRACT RAIL DESIGN DRAWING					
DRAWN <u>A. DAVIS</u>	08/08 DATE	NUMBER	DESCRIPTION	DATE 08/08	BY DDF	DESCRIPTION		OFFICE OF ENGINEERING SUPPORT SERVICES				CONTACT RAIL ARRANGEMENT No.6 EQUILATERAL TURNOUT			
CHECKED <u>R. BROOKS-FELLER</u>	11/08 DATE					REVISIONS		SUBMITTED <u>LR Padgett</u> 10/2007 DATE				SCALE 1/4" = 1'-0" 1 0 1 2 3 4 5			
APPROVED <u>L. PADGETT</u>	11/08 DATE					NO. 1 ADD NOTE NO. 4									

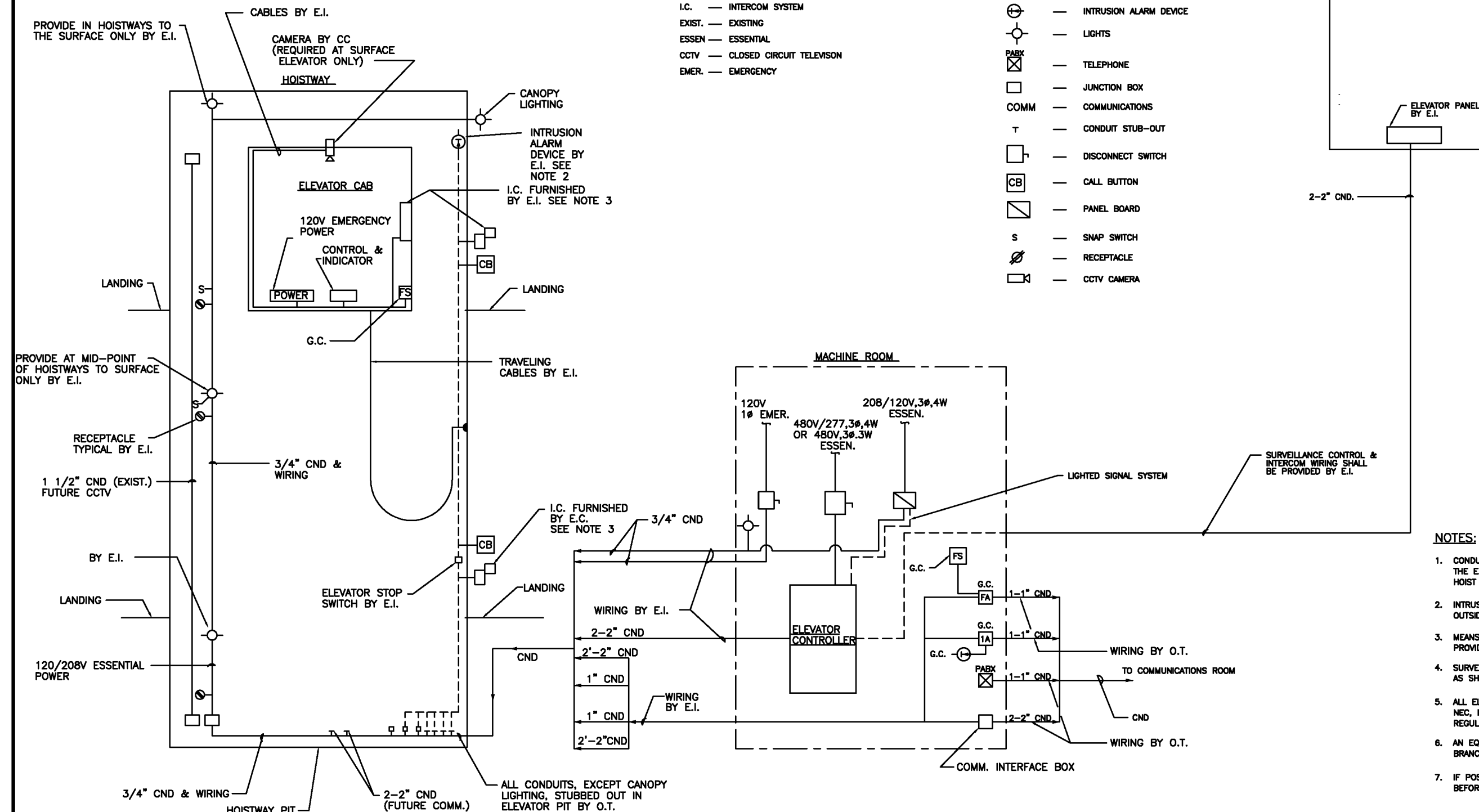


# ABBREVIATIONS

CND	—	CONDUIT
E.I.	—	ELEVATOR INSTALLER
C.C.	—	STATION COMMUNICATION CONTRACTOR
O.T.	—	OTHER TRADES
I.C.	—	INTERCOM SYSTEM
EXIST.	—	EXISTING
ESSEN	—	ESSENTIAL
CCTV	—	CLOSED CIRCUIT TELEVISION
EMER.	—	EMERGENCY

# SYMBOLS

FS	—	SMOKE & FIRE DETECTOR
IA	—	INTRUSION ALARM INTERFACE CABINET
FA	—	FIRE ALARM INTERFACE CABINET
⊕	—	INTRUSION ALARM DEVICE
⊙	—	LIGHTS
PABX	—	TELEPHONE
□	—	JUNCTION BOX
COMM	—	COMMUNICATIONS
T	—	CONDUIT STUB-OUT
□	—	DISCONNECT SWITCH
CB	—	CALL BUTTON
▧	—	PANEL BOARD
S	—	SNAP SWITCH
⊘	—	RECEPTACLE
◻	—	CCTV CAMERA



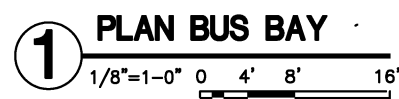
## NOTES:

- CONDUIT & WIRING SHOWN DASHED ARE TO BE PROVIDED BY THE E.I. FROM TERMINATIONS IN MACHINE ROOM, PIT AND/OR HOIST WAY TO THE ELEVATOR CAB, EQUIPMENT AND LIGHTING
- INTRUSION ALARM DEVICE AT ENTRANCES WHICH OPEN TO OUTSIDE OF STATION ONLY.
- MEANS FOR COMMUNICATION WITH THE KIOSK SHALL BE PROVIDED WITHIN THE CAR AND AT ALL LANDINGS.
- SURVEILLANCE AND CONTROL WIRING SHALL BE PROVIDED AS SHOWN AND AS REQUIRED.
- ALL ELECTRICAL INSTALLATION WORK SHALL COMPLY WITH NEC, ELEVATOR CODE AND OTHER APPLICABLE RULES AND REGULATIONS OF JURISDICTIONAL AUTHORITIES.
- AN EQUIPMENT GROUND WIRE SHALL BE INSTALLED IN ALL BRANCH CIRCUITS AND FEEDERS.
- IF POSSIBLE THE E.I. SHALL VERIFY ALL EXISTING CONDITIONS BEFORE STARTING WORK ON THIS CONTRACT.

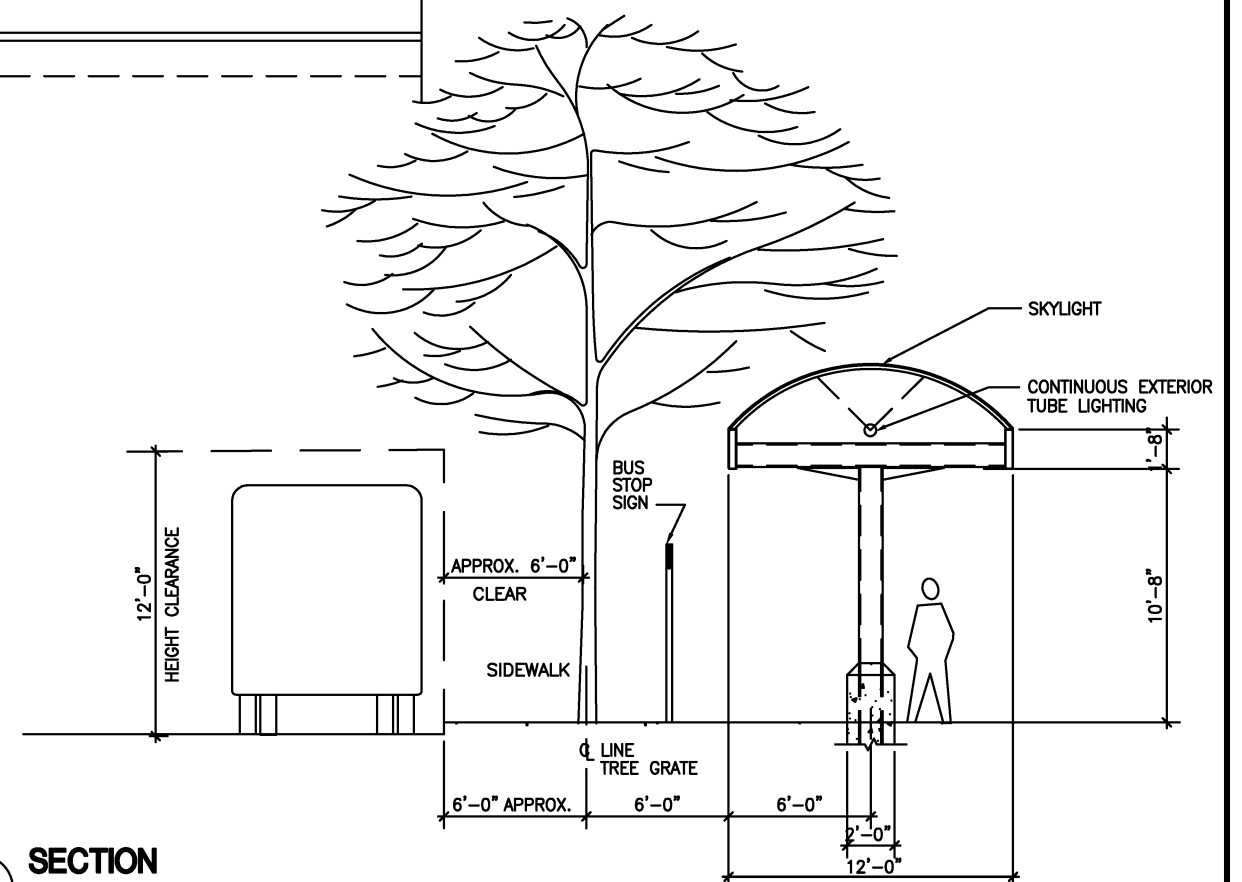
NOTE: FOR ADDITIONAL DETAILS REFER TO DD-A-EL-001 THROUGH DD-A-EL-016, DD-M-108, DD-M-122, DD-M-123, DD-M-126 & DD-M-145

DESIGNED <u>D. GLEN</u> 2-01 DATE		NUMBER DESCRIPTION		REVISIONS DATE BY DESCRIPTION		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS		HYDRAULIC ELEVATOR INSTALLATIONS ELEVATOR ELECTRICAL INTERFACE	
DRAWN <u>R. THOMAS, JR.</u> 2-01 DATE						SUBMITTED DATE		SCALE NONE	
CHECKED <u>W. TINKHAM</u> 2-01 DATE						APPROVED DIRECTOR		DRAWING NO. DD-ELEV-001	
APPROVED <u>R. GANERWAL</u> 2-01 DATE						May 3, 2001 DATE			






1. SCORING PATTERN SHOWN FOR GUIDANCE, TYPICALLY AT RIGHT ANGLES AND PARALLEL TO PARAPET WALLS.
2. SEE ST-LA-3 FOR TREE GRATE DETAILS.
3. REFER TO GENERAL PLANS FOR WIDTH OF UNOBSTRUCTED SIDEWALK.



**2 SECTION**

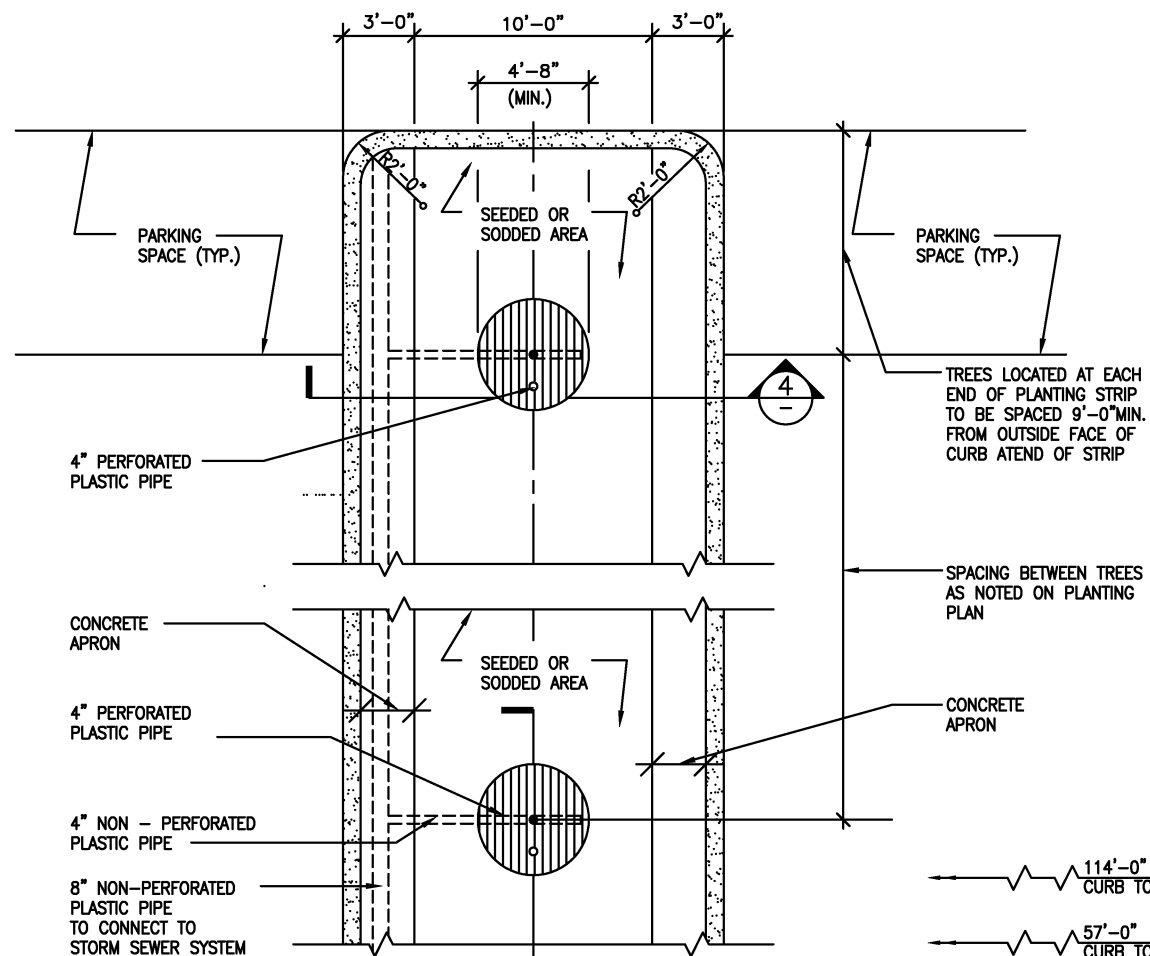
1/4"=1'-0" 0 2' 4' 8'

DESIGNED <u>J. RITTER</u>	1998 DATE	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		LANDSCAPE DESIGN DRAWING TYPICAL BUS BAY PLAN AND SECTION	
DRAWN <u>T. CONNER</u>	1998 DATE	NUMBER	DESCRIPTION	DATE	BY	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE		SCALE AS SHOWN	DRAWING NO. DD-A-LA-006
CHECKED <u>K. LANDESZ</u>	1998 DATE			08/2001	ENG	Revised and issued by the Authority			
APPROVED <u>J. CORLEY</u>	1998 DATE								
						SUBMITTED _____ DATE _____		APPROVED  DIRECTOR	May 3, 2001 DATE

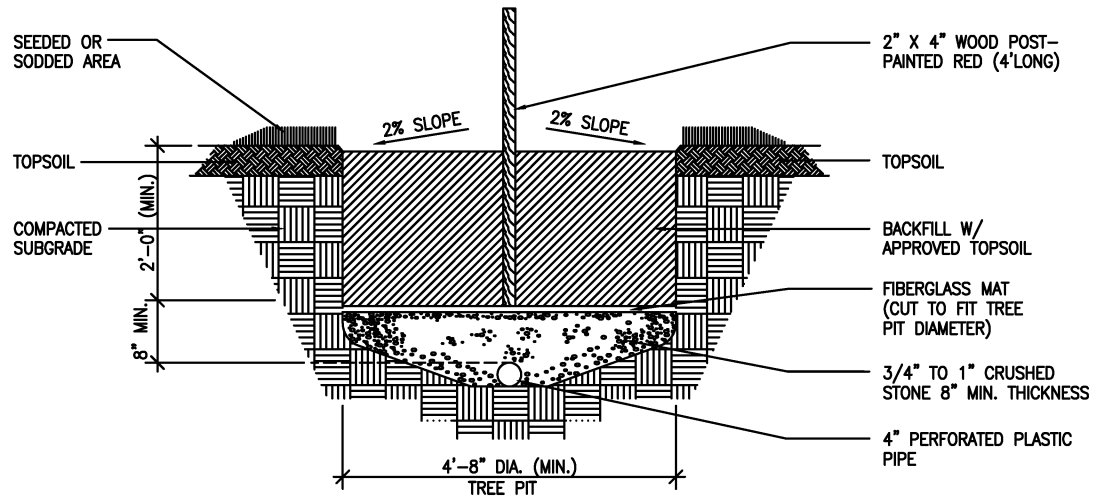




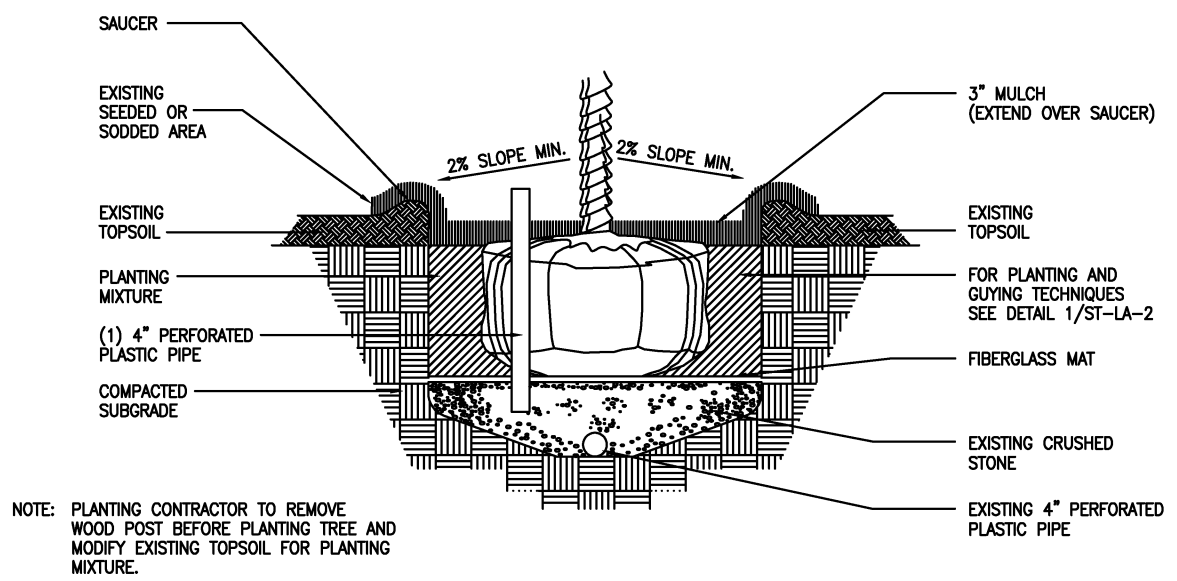




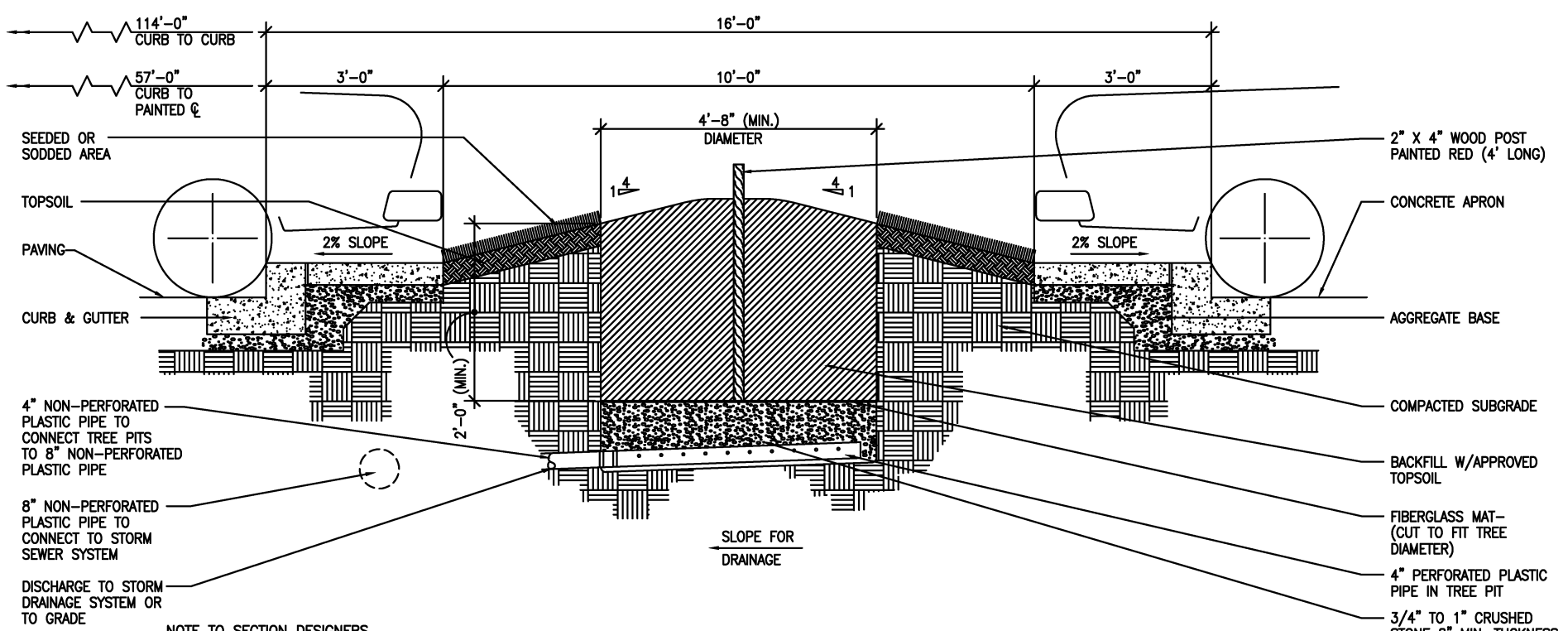
**1 PLAN - TREE SPACING IN PARKING LOTS**  
SCALE: 1/4"=1'-0"



**3 SECTION/ELEVATION - TREE PIT & DRAINAGE**  
SCALE: 3/4"=1'-0" (FOR STRUCTURAL, FINISH & PARKING LOT CONTRACTS ONLY)



**2 SECTION/ELEVATION - TREES PLANTING WITH EXISTING DRAINAGE**  
SCALE: 3/4"=1'-0" (FOR PLANTING CONTRACTS ONLY)



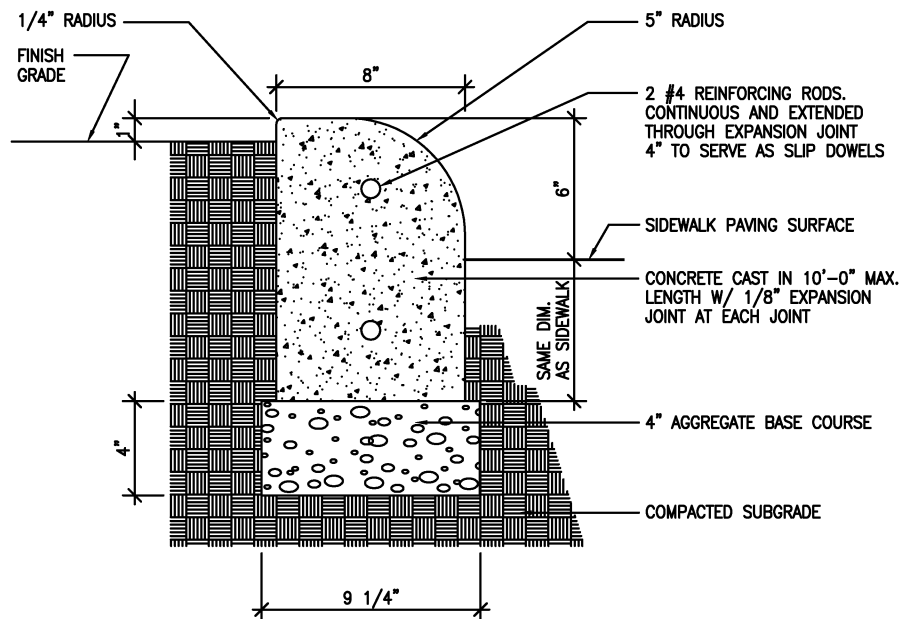
**4 SECTION/ELEVATION - TREE PIT & DRAINAGE**  
SCALE: 3/4"=1'-0" (FOR STRUCTURAL, FINISH & PARKING LOT CONTRACTS ONLY)

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
D.MUNSON	1998	NUMBER	DESCRIPTION	DATE	BY
M. GREY	1998			08/2001	ENG
A. DICKINSON	1998				
J. CORLEY	1998				

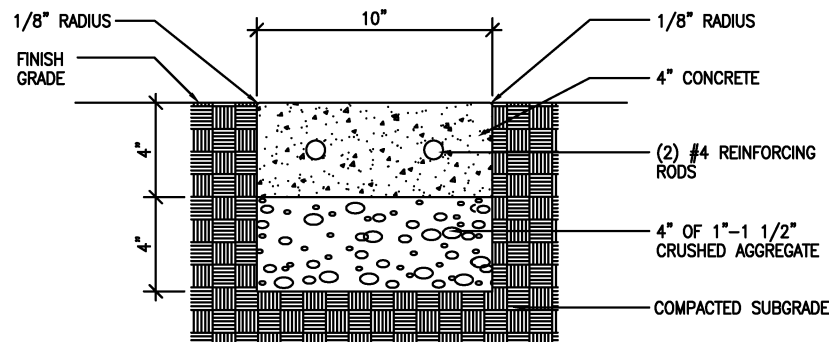
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE  
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

LANDSCAPE DESIGN DRAWING  
TREE PLANTING & DRAINAGE FOR PARKING LOTS  
SCALE 1/4"=1'-0"  
3/4"=1'-0"  
DRAWING NO. DD-A-LA-004

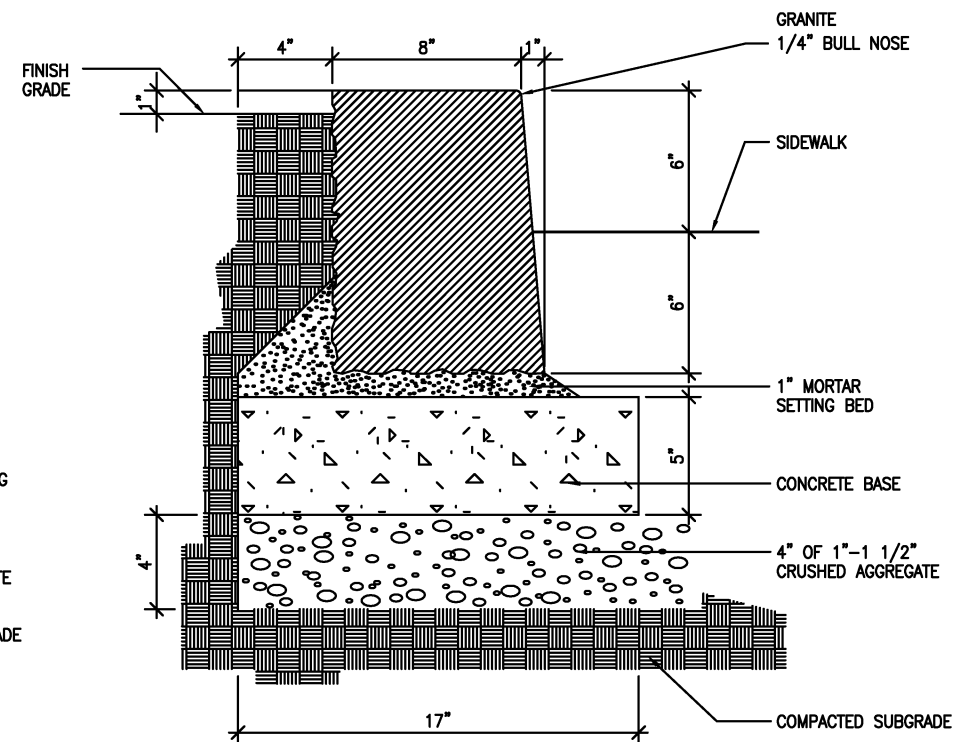




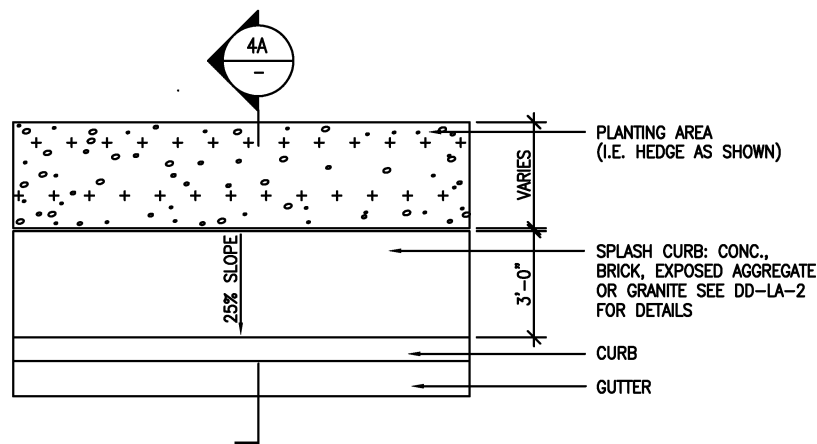
**1 SECTION - CONCRETE PLANTER EDGE**  
SCALE: 3"=1'-0"



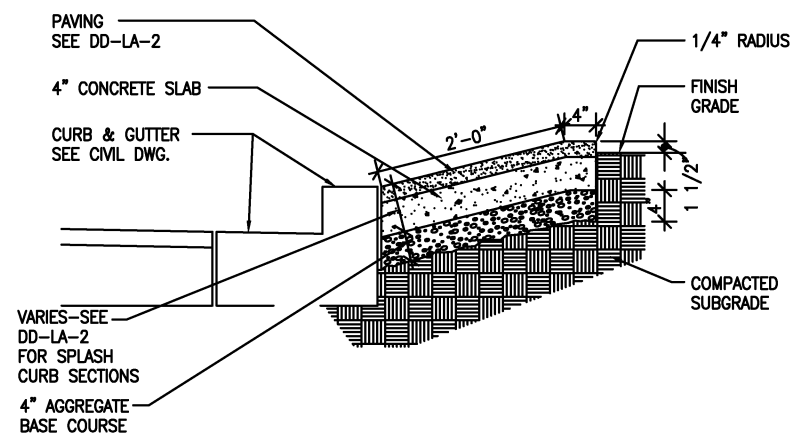
**2 SECTION - MOWING STRIP**  
SCALE: 3"=1'-0"



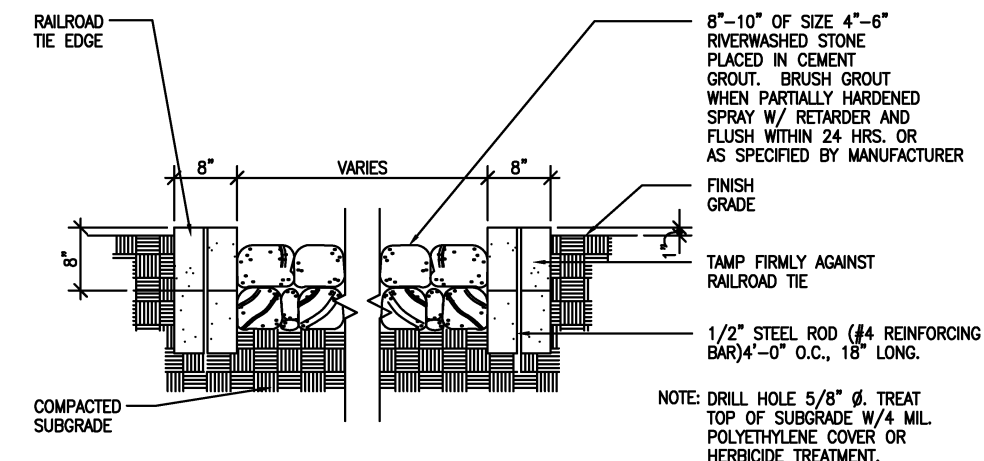
**3 SECTION - GRANITE PLANTER EDGE**  
SCALE: 3"=1'-0"



**4 PLAN - SPLASH CURB**  
SCALE: 3/8"=1'-0"



**4A SECTION - SPLASH CURB**  
SCALE: 1"=1'-0"



**5 SECTION - RAILROAD TIE EDGING**  
SCALE: 1"=1'-0"



























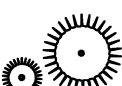

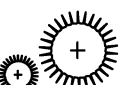





DESIGNED <u>D. MUNSON</u> 1998 DATE	REFERENCE DRAWINGS	REVISIONS	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY	LANDSCAPE DESIGN DRAWING
DRAWN <u>M. GREY</u> 1998 DATE	NUMBER DESCRIPTION	DATE BY DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT	EDGING AND SLOPE STABILIZATION
CHECKED <u>A. DICKINSON</u> 1998 DATE		08/2001 ENGA Revised and issued by the Authority	OFFICE OF ENGINEERING AND ARCHITECTURE	
APPROVED <u>J. CORLEY</u> 1998 DATE			SUBMITTED	SCALE AS SHOWN
			APPROVED DIRECTOR <i>Harry J. [Signature]</i> May 3, 2001 DATE	DRAWING NO. DD-A-LA-003




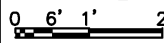










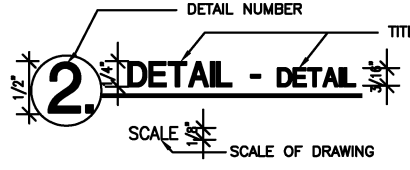
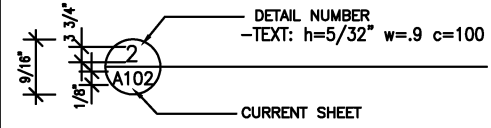
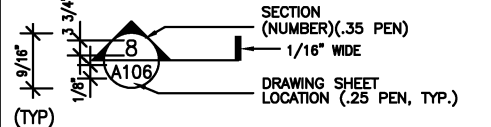
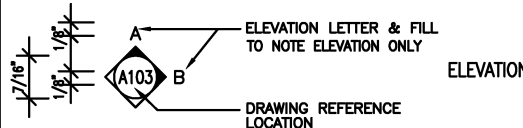

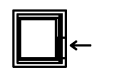
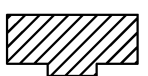
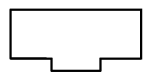





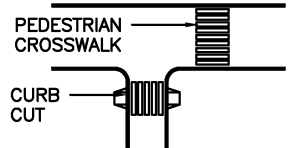
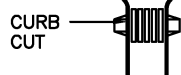
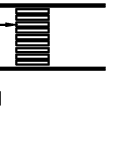










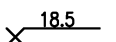
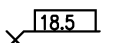
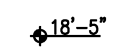
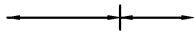




PLANT & MATERIALS KEY

	TREE TO BE REMOVED		NEW ACCENT BROADLEAF EVERGREEN TREE
	SHRUBS TO BE REMOVED		EXISTING DECIDUOUS SHRUB TO REMAIN
	HEDGE TO BE REMOVED		NEW DECIDUOUS SHRUB BED
	EXISTING DECIDUOUS TREE		NEW EVERGREEN SHRUBS
	EXISTING DECIDUOUS TREE TO REMAIN W/ TREE GRATE		EXISTING HEDGE TO REMAIN
	NEW DECIDUOUS TREE		NEW DECIDUOUS HEDGE
	NEW DECIDUOUS TREE W/ TREE GRATE		NEW EVERGREEN HEDGE
	NEW FLOWERING DECIDUOUS TREE		EXISTING GRASS (TO BE NOTED)
	NEW FLOWERING DECIDUOUS TREE W/ TREE GRATE		NEW GROUNDCOVER
	NEW DECIDUOUS TREE W/ TREE GRATE		MULCH AREA (TO BE NOTED)
	EXISTING CONIFEROUS EVERGREEN TREE TO REMAIN		PLANTING MIXTURE (TO BE NOTED)
	NEW CONIFEROUS EVERGREEN TREE		PEA GRAVEL (TO BE NOTED)
	NEW ACCENT CONIFEROUS EVERGREEN TREE		SAND (TO BE NOTED)
	EXISTING BROADLEAF EVERGREEN TREE TO REMAIN		CRUSHED STONE (TO BE NOTED)
	NEW BROADLEAF EVERGREEN TREE		CONCRETE PAVING
			RIPRAP [TO BE NOTED]
			EXPOSED AGGREGATE (TO BE NOTED)
			GRANITE [TO BE NOTED]
			BRICK [TO BE NOTED]

SYMBOLS

	NORTH ARROW
	GRAPHIC SCALE
	LIMIT OF LANDSCAPING
	CENTER LINE OF TRACK
	WMATA SURFACE REQUIREMENTS
	PROPERTY LINE/R.O.W.
	FENCE
	STREAM
	EXISTING CONTOUR
	NEW CONTOUR
	MOWING STRIP
	CURB
	DETAIL - DETAIL
	DETAIL REFERENCE
	DETAIL SECTION
	ELEVATION
	BUS PASSENGER SHELTER
	ELEVATOR
	BUILDING TO REMAIN
	BUILDING TO BE REMOVED
	BENCH
	TRASH RECEPTICLE
	PYLON

	PEDESTRIAN CROSSWALK
	CURB CUT
	PEDESTRIAN CROSSWALK AND CURB CUT
	VEHICULAR TRAFFIC DIRECTION
[NOTE] 	G-1 / G-4 LIGHT
[NOTE] 	G-2 LIGHT
[NOTE] 	G-3 / G-5 LIGHT
	TRAFFIC LIGHT ON STREET POLE
	TRAFFIC LIGHT ON POLE, NO STREET LIGHT
	STREET LIGHT
	UTILITY POLE
	PEDESTRIAN SIGNS
	VENT
	ELEVATION-EXISTING GRADE
	ELEVATION-NEW GRADE
	ELEVATION-SECTION/ELEVATION/DETAIL
	DIMENSION/DIRECTION POINT
	SITE GRAPHIC LOCATION
	TELEPHONE BOOTH

ABBREVIATIONS

B&B	BALLED & BURLAPPED	MIN.	MINIMUM
BL	BASE LINE	N.I.C.	NOT IN CONTRACT
B.R.	BARE ROOT	N.P.S.	NATIONAL PARK SERVICE
CAL.	CALIPER	O.B.T.	OUTBOUND TRACK
CL	CENTER LINE	O.C.	ON CENTER
CONT.	CONTAINER	O.D.	OUTSIDE DIAMETER
DEC.	DECIDUOUS	PKWY.	PARKWAY
DIA.	DIAMETER	R.O.W.	RIGHT OF WAY
E.B.L.	EASTBOUND LANE	SP.	SPECIES
GAL.	GALLON	SPD.	SPREAD
HT.	HEIGHT	STA.	STATION
I.B.T.	INBOUND TRACK	TOPO.	TOPOGRAPHY
IRRG.	IRRIGATION	TYP.	TYPICAL
L.A.	LANDSCAPE ARCHITECT	W/	WITH
MAX.	MAXIMUM	W.B.L.	WESTBOUND LANE

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	1998			08/2001	ENG	Revised and issued by the Authority
CHECKED	1998					
APPROVED	1998					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED  
DIRECTOR

May 3, 2001  
DATE

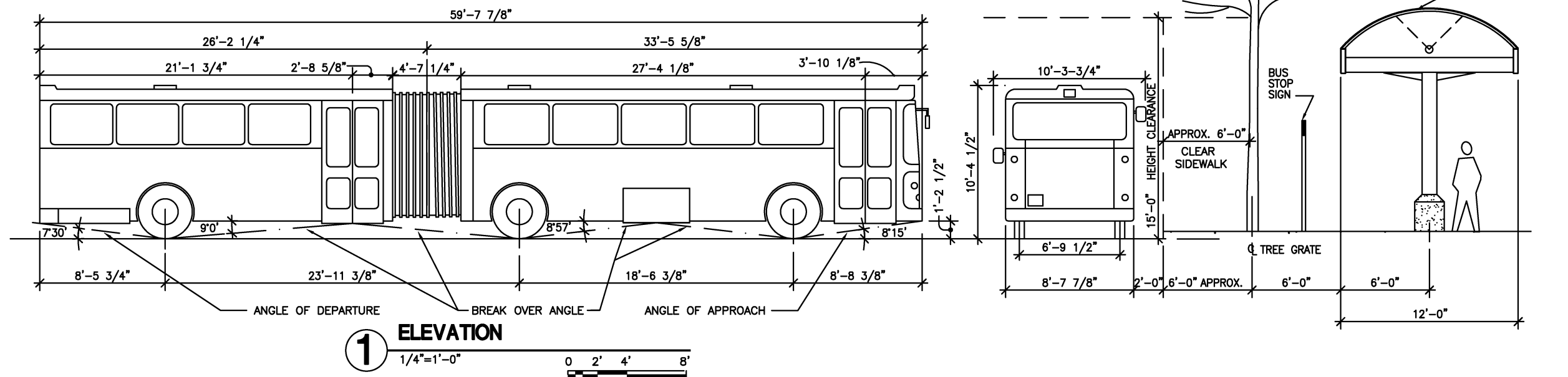
LANDSCAPE DESIGN DRAWING  
KEY, SYMBOLS, ABBREVIATIONS, & NOTES

SCALE

DRAWING NO.  
DD-A-LA-001



1. SCORING PATTERN SHOWN FOR GUIDANCE, AND IS TYPICALLY AT RIGHT ANGLES AND PARALLEL TO PARAPET WALLS.
2. SEE ST-LA-3 FOR TREE GRATE DETAILS.
3. PROVIDE DRAINAGE FOR TREES AT BUS BAYS. SEE DD-LA-4 FOR DETAILS.
4. REFER TO GENERAL PLANS FOR WIDTH OF UNOBSTRUCTED SIDEWALK.
5. BUS DATA BASED ON MAN TRUCK & BUS CORPORATION MODEL SG-310-USA.

[illegible]