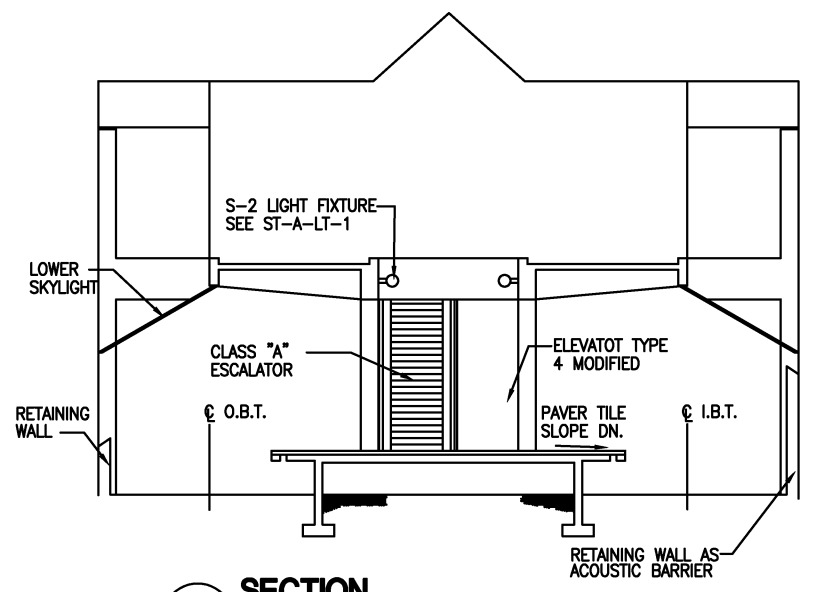
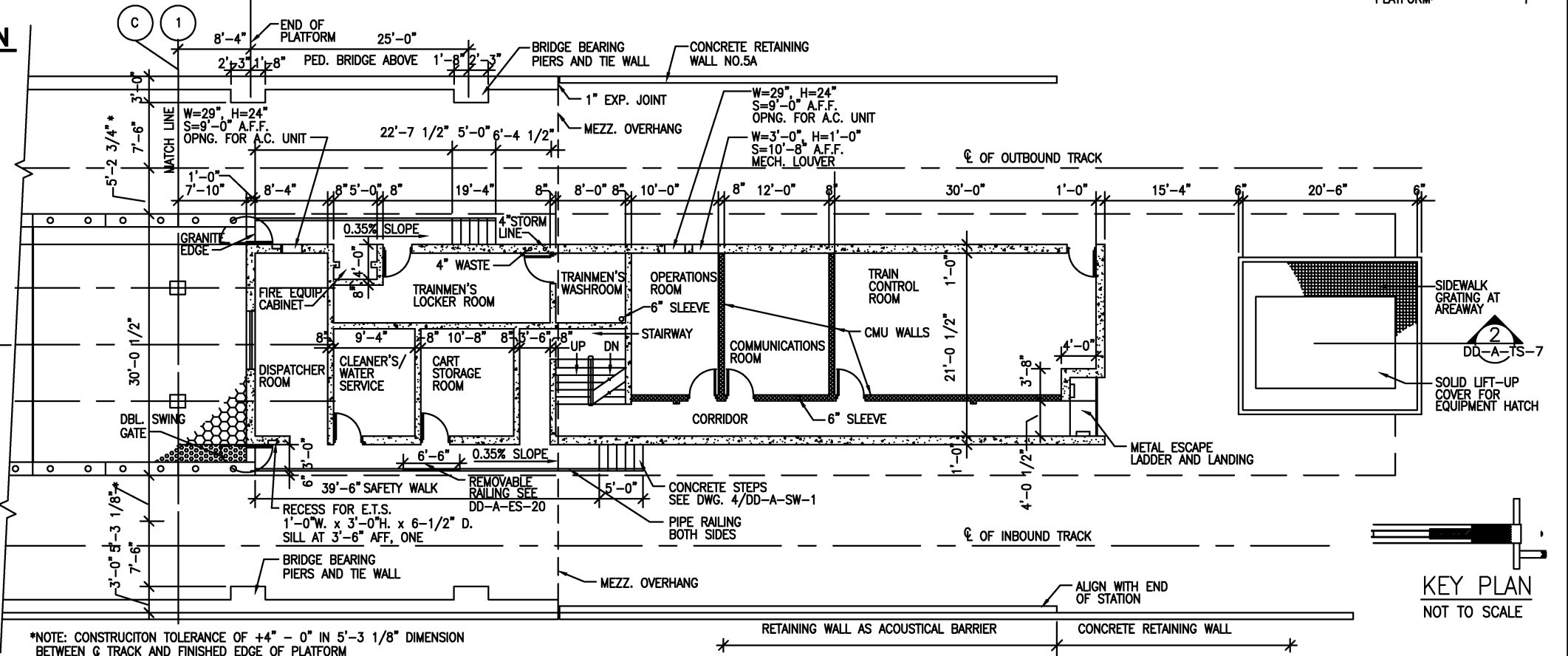


**2 PARTIAL PLATFORM AND SERVICE ROOMS PLAN**  
 1/8"=1'-0"  
 0 6' 12' 24'



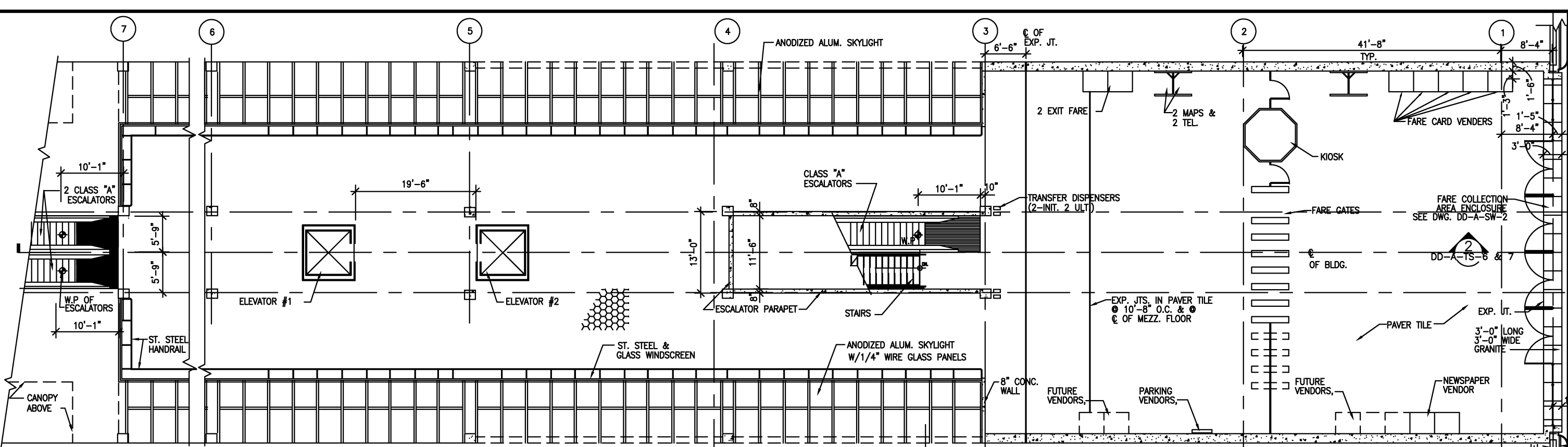
**1 SECTION**  
 1/8"=1'-0"  
 0 6' 12' 24'



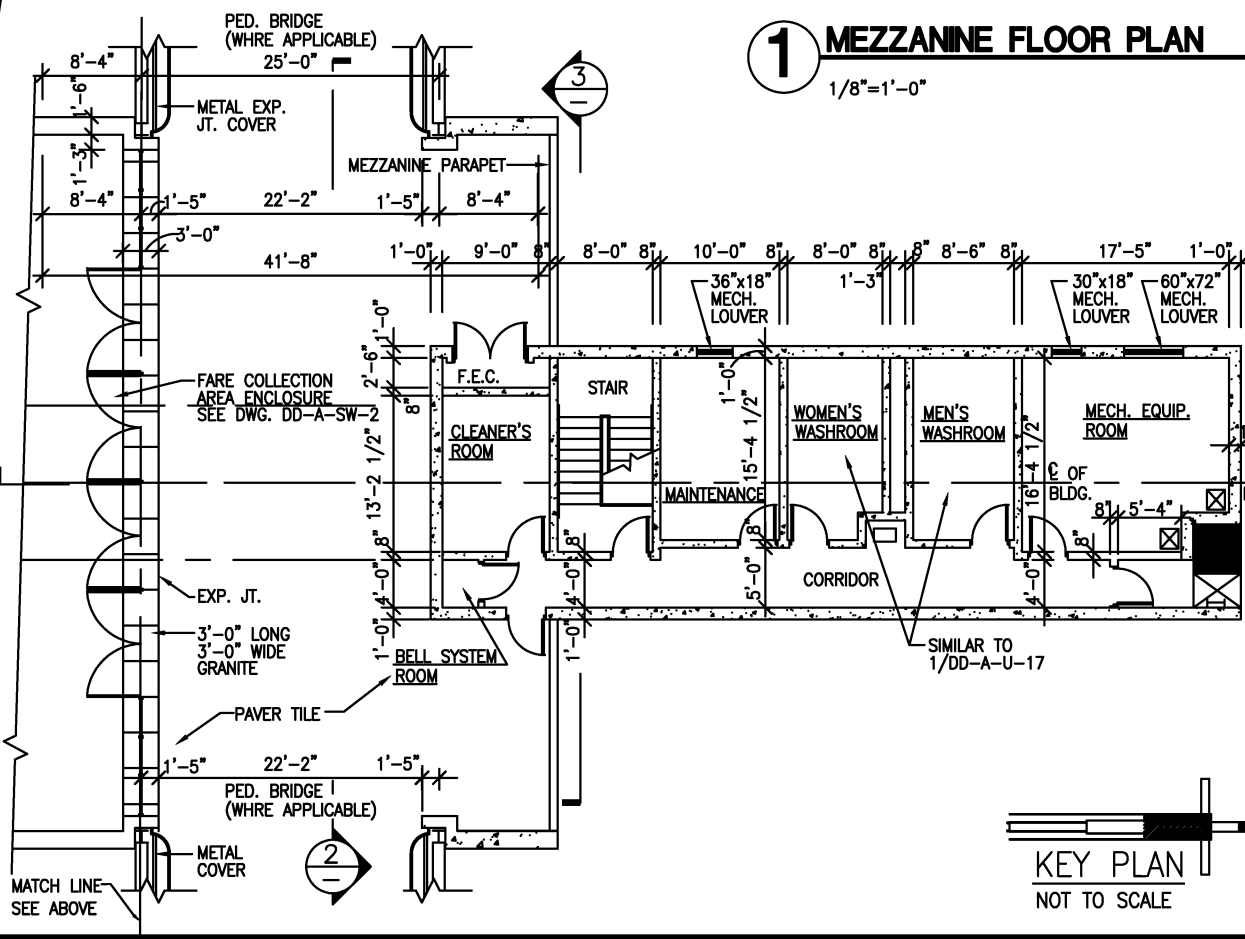
\*NOTE: CONSTRUCTION TOLERANCE OF +4" - 0" IN 5'-3 1/8" DIMENSION BETWEEN @ TRACK AND FINISHED EDGE OF PLATFORM

**KEY PLAN**  
 NOT TO SCALE

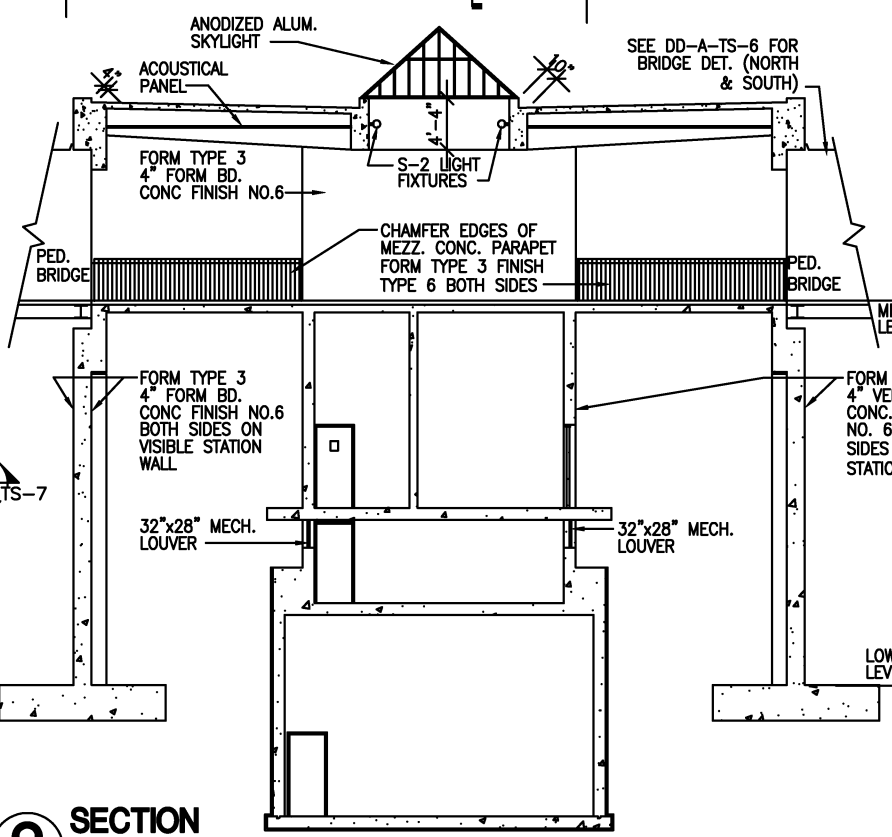
DESIGNED <b>D. MUNSON</b> 12/27/98 DATE		<b>REFERENCE DRAWINGS</b>		<b>REVISIONS</b>		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b>		<b>ARCHITECTURAL DESIGN DRAWING</b>	
DRAWN <b>N. IBIEBELE</b> 12/27/98 DATE		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE		SCALE 1/8"=1'-0" 0 4' 8' 16'
CHECKED <b>K. LANDESZ</b> 12/27/98 DATE							SUBMITTED _____ DATE _____		DRAWING NO. DD-A-TS-003
APPROVED <b>J. CORLEY</b> 12/27/98 DATE							APPROVED <i>[Signature]</i> May 3, 2001 DIRECTOR DATE		



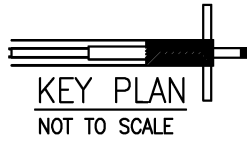
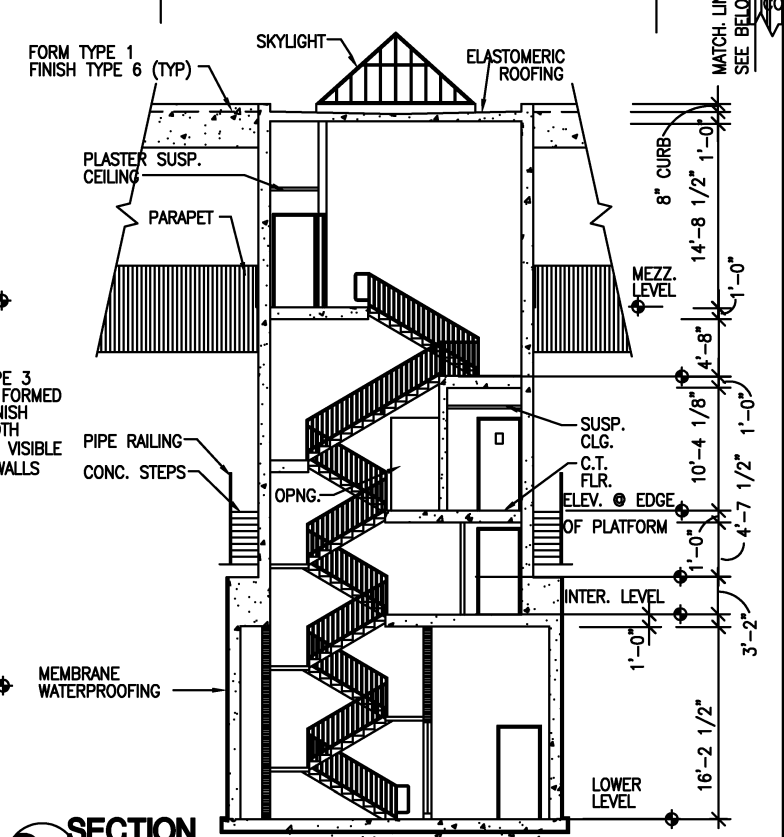
**1 MEZZANINE FLOOR PLAN**  
1/8"=1'-0"



**2 SECTION**  
1/8"=1'-0"



**3 SECTION**  
1/8"=1'-0"



DESIGNED		DATE		REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY
D.MUNSON	12/27/99		08/2001	ENGA	Revised and issued by the Authority				
N. IBIEBELE	12/27/99		9/2000	ENGA	Revised and issued by the Authority				
K. LANDESZ	12/27/99								
J. CORLEY	12/27/99								

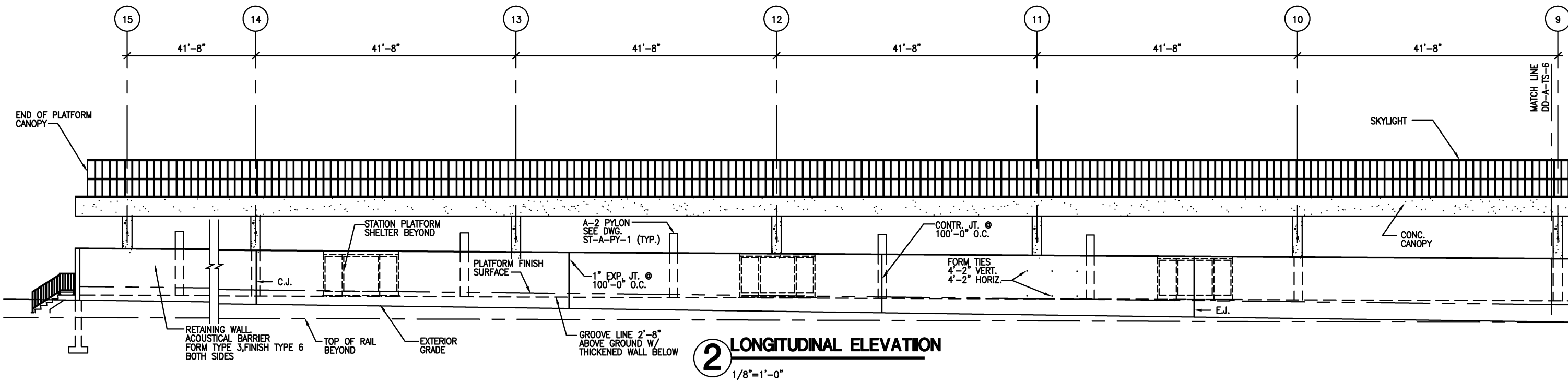
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

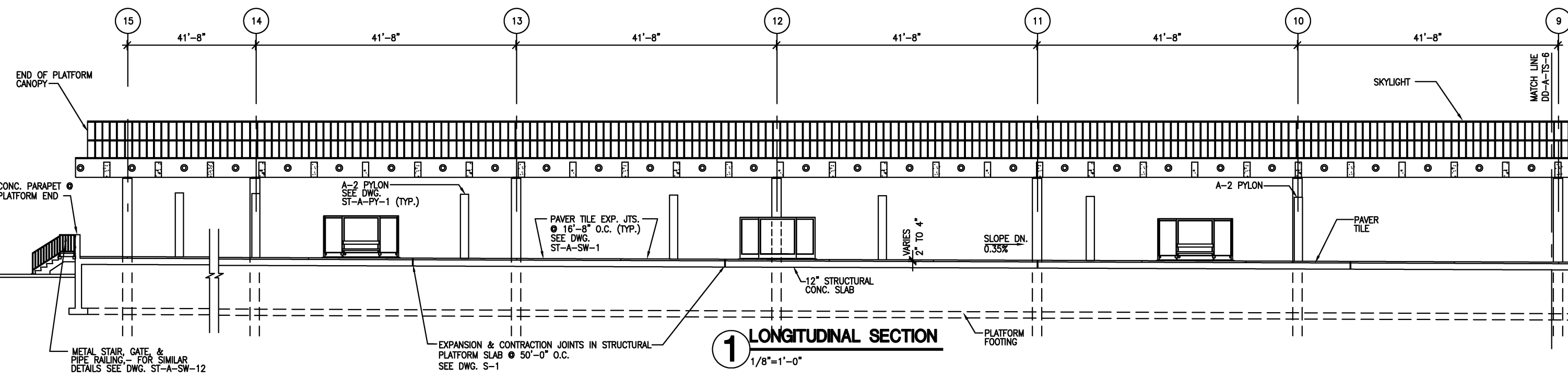
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
**TERMINAL STATIONS**  
**MEZZANINE PLAN & TRANSVERSE SECTION**

SCALE 1/8"=1'-0" DRAWING NO. DD-A-TS-004



**2 LONGITUDINAL ELEVATION**  
1/8"=1'-0"



**1 LONGITUDINAL SECTION**  
1/8"=1'-0"

DESIGNED	D. MUNSON	10/18/96
DRAWN	N. IBIEBELE	10/18/96
CHECKED	K. LANDESZ	10/18/96
APPROVED	J. CORLEY	10/18/96
UPDATED	ENGA (PAF)	08/2000

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	ENGA	Revised and issued by the Authority

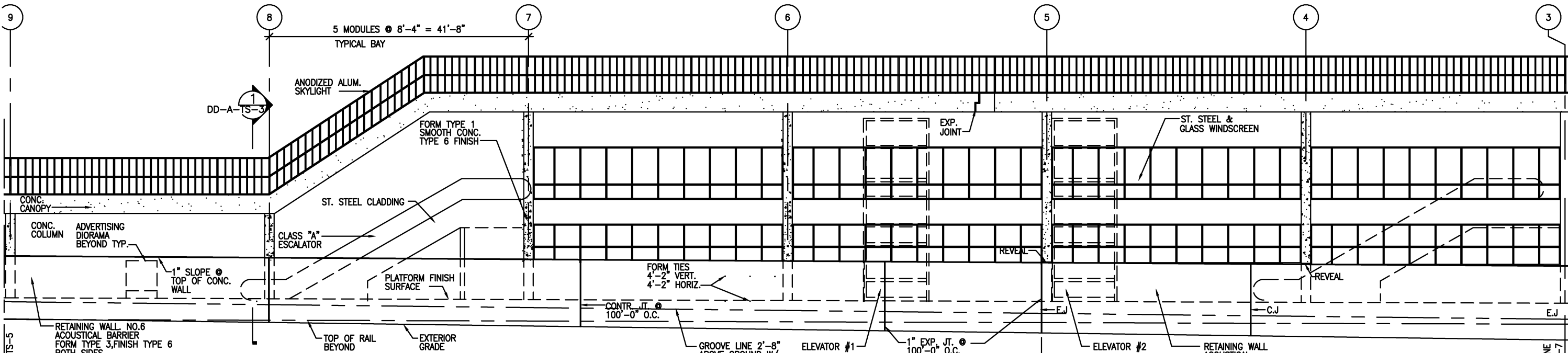
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

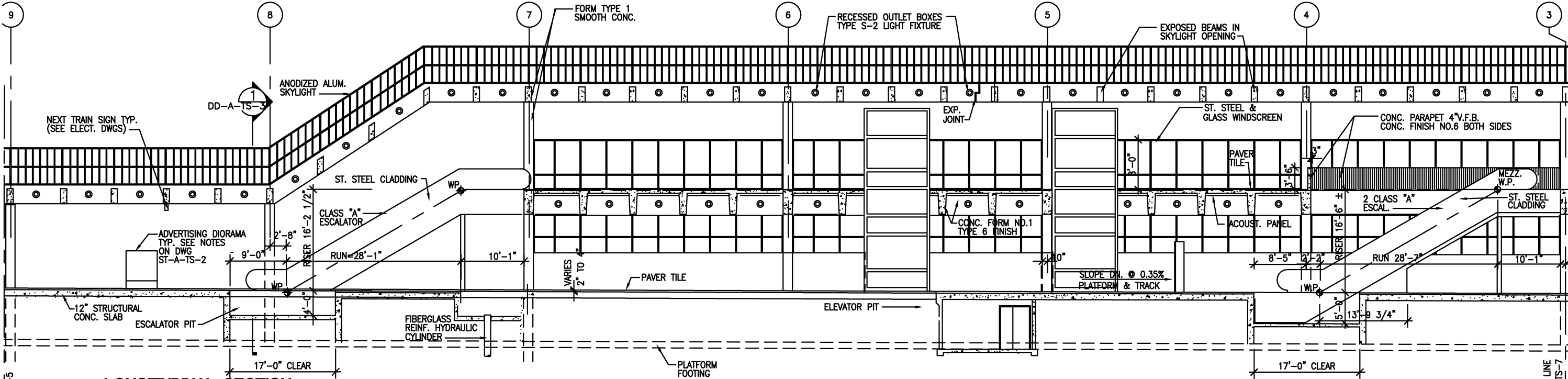
ARCHITECTURAL DESIGN DRAWING  
TERMINAL STATIONS  
LOGITUDINAL SECTION AND ELEVATION

SCALE 1/8"=1'-0"  
0 4' 8" 16'

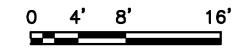
DRAWING NO. DD-A-TS-005



**1 LONGITUDINAL ELEVATION**  
1/8"=1'-0"



**2 LONGITUDINAL SECTION**  
1/8"=1'-0"



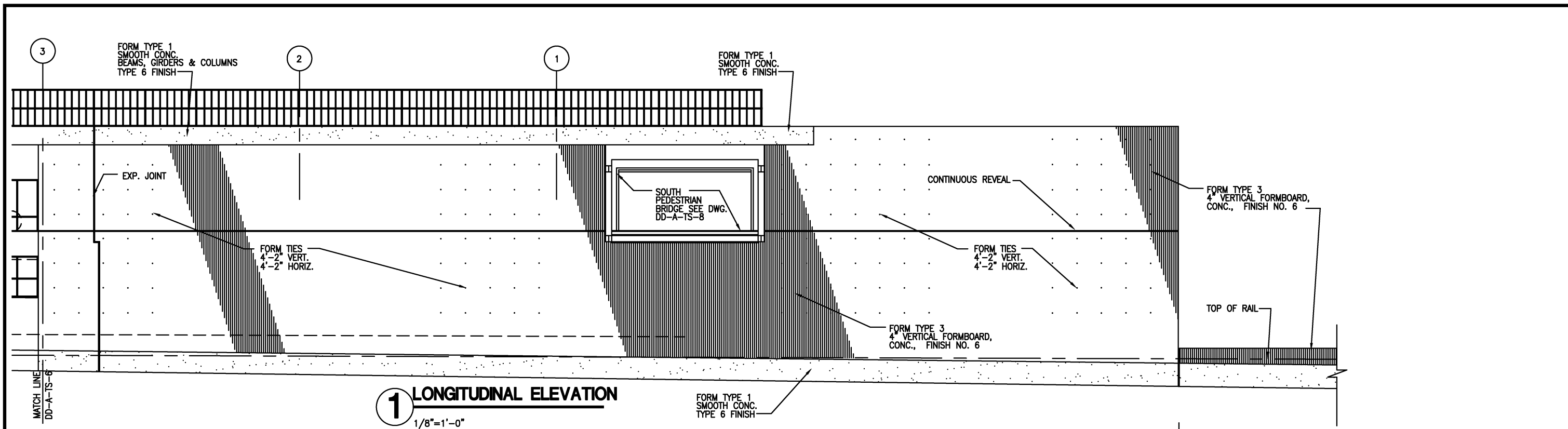
DESIGNED		DATE		NUMBER		DESCRIPTION		REVISIONS			
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
10/18/99	D. MUNSON		08/2001	ENGA	Revised and issued by the Authority						
10/18/99	N. IBIEBELE		9/2000	ENGA	Revised and issued by the Authority						
10/18/99	K. LANDEZ										
10/18/99	J. CORLEY										

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

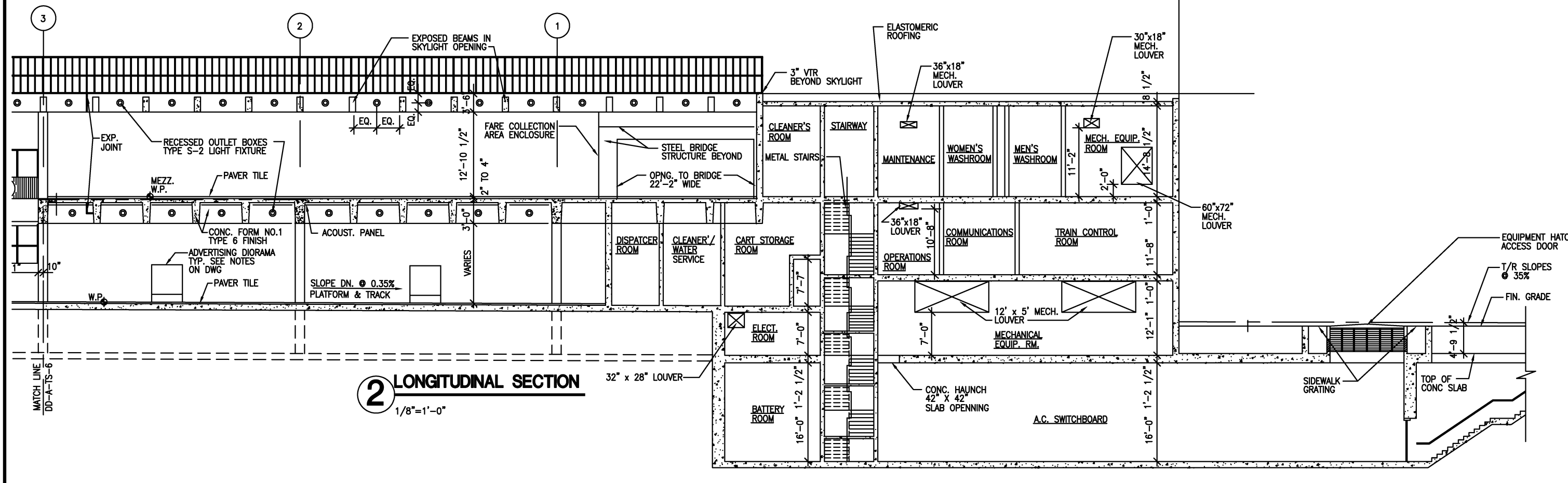
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED *[Signature]* May 3, 2001  
 DIRECTOR DATE

ARCHITECTURAL DESIGN DRAWING  
 TERMINAL STATIONS  
 LOGITUDINAL SECTION AND ELEVATION

SCALE 1/8"=1'-0"  
 DRAWING NO. DD-A-TS-006

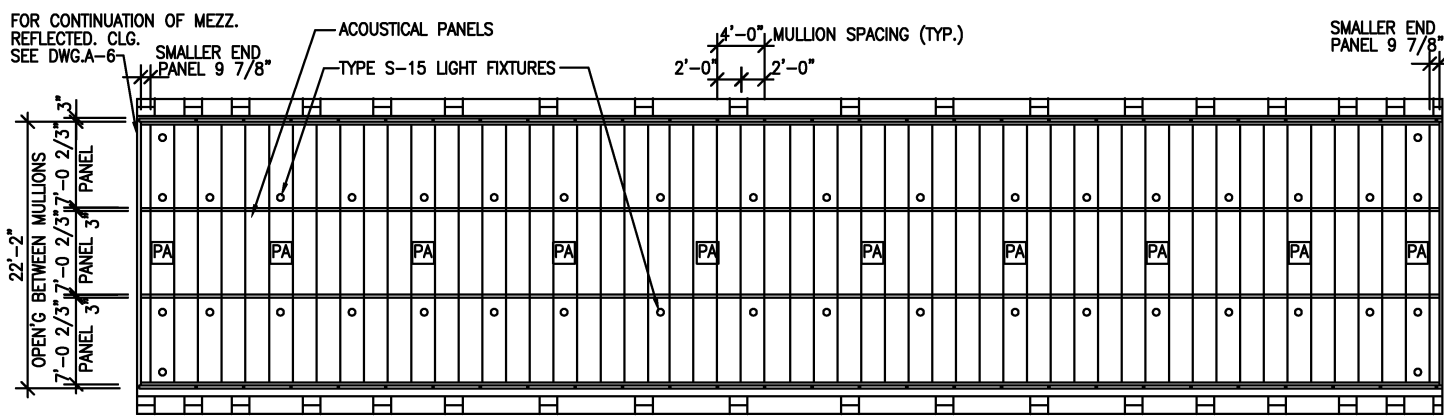


**1 LONGITUDINAL ELEVATION**  
1/8"=1'-0"

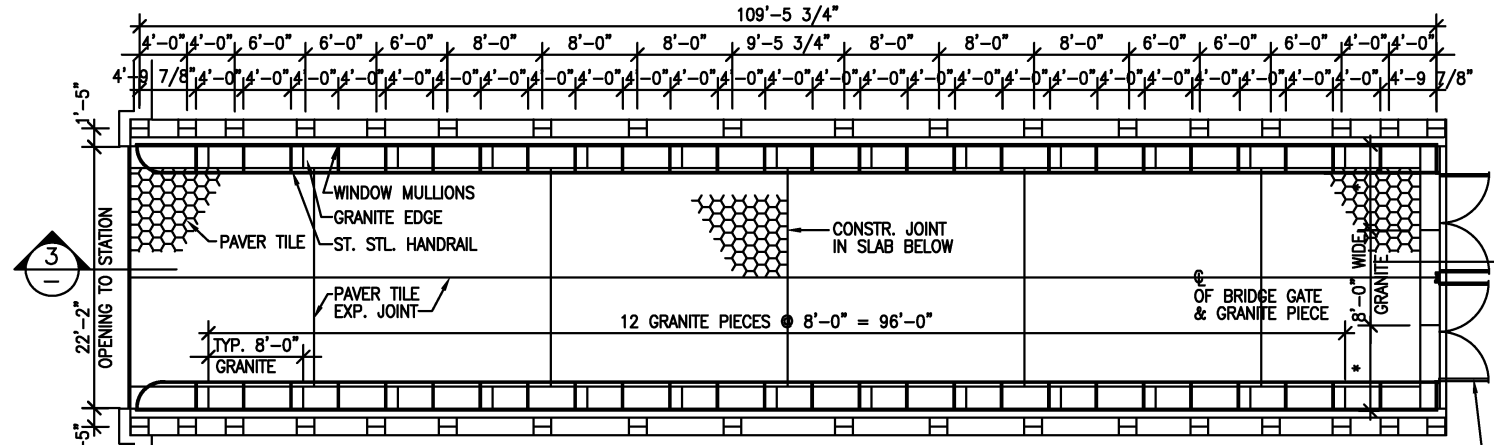
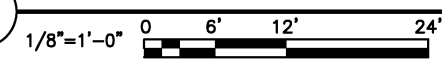


**2 LONGITUDINAL SECTION**  
1/8"=1'-0"

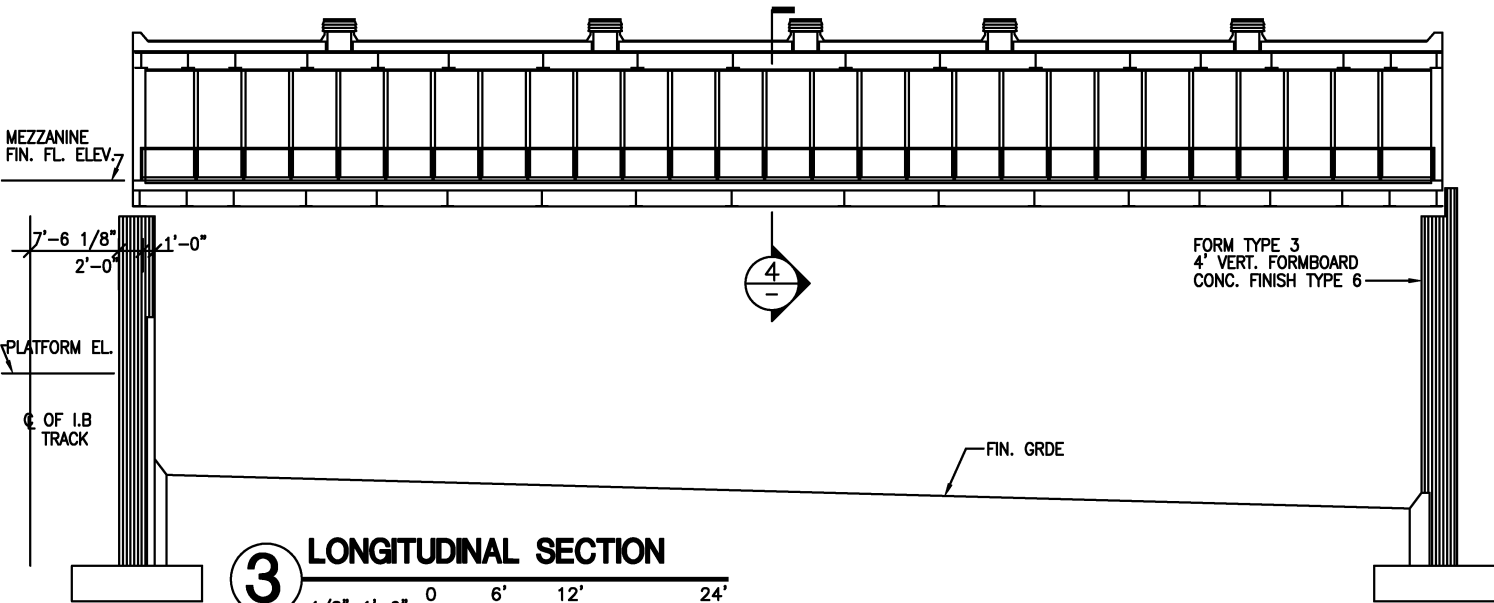
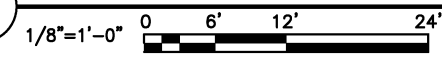
DESIGNED <u>D. MUNSON</u> 10/18/98 DATE		NUMBER DESCRIPTION		DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b>		<b>ARCHITECTURAL DESIGN DRAWING</b> TERMINAL STATIONS LOGITUDINAL SECTION AND ELEVATION	
DRAWN <u>N. JIBEBELE</u> 10/18/98 DATE						DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE		SCALE 1/8"=1'-0" 0 4 8 16	
CHECKED <u>K. LANDESZ</u> 10/18/98 DATE						SUBMITTED _____ DATE _____		DRAWING NO. DD-A-TS-007	
APPROVED <u>J. CORLEY</u> 10/18/98 DATE						APPROVED <i>[Signature]</i> DIRECTOR		May 3, 2001 DATE	



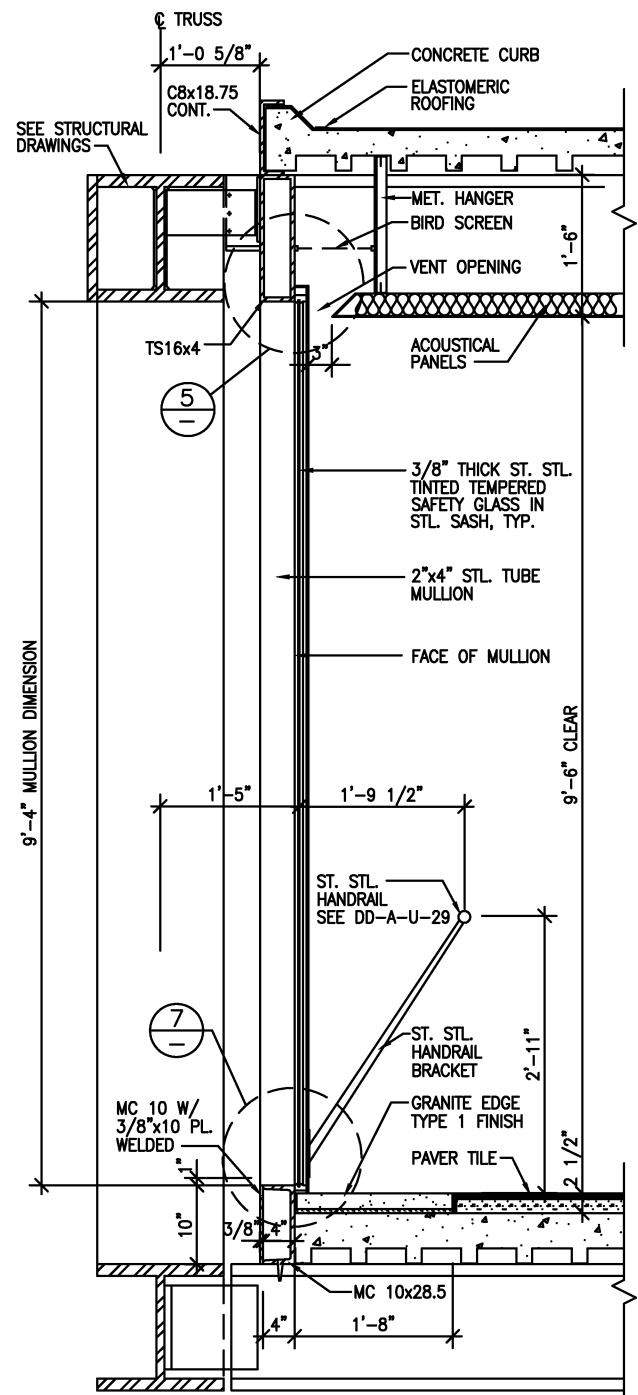
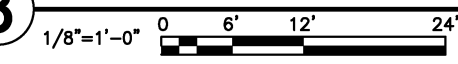
**1 REFLECTED CEILING PLAN**



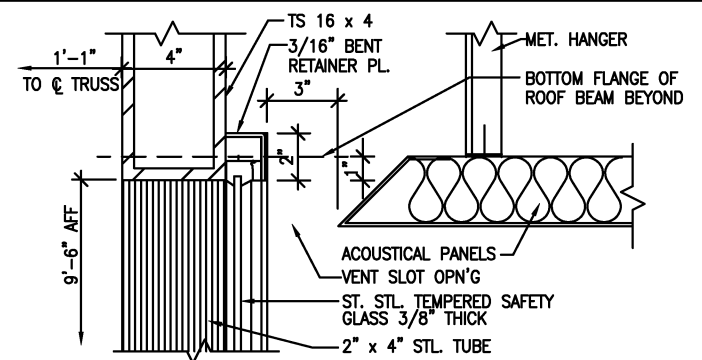
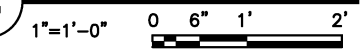
**2 PLAN**



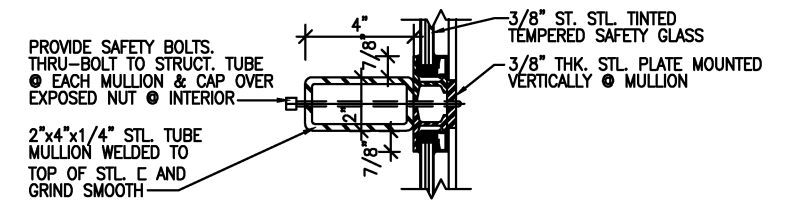
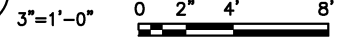
**3 LONGITUDINAL SECTION**



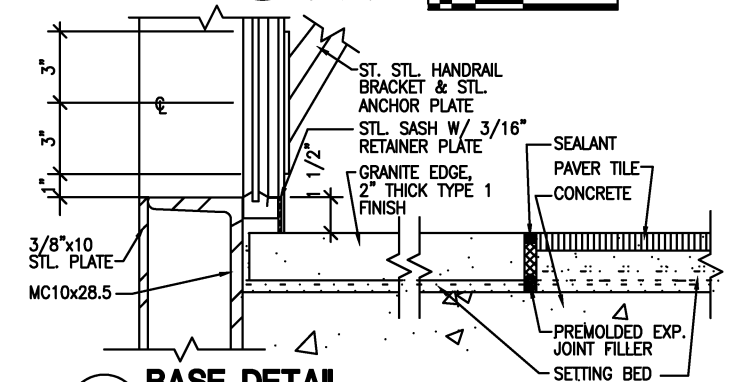
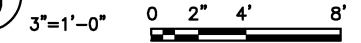
**4 WALL SECTION**



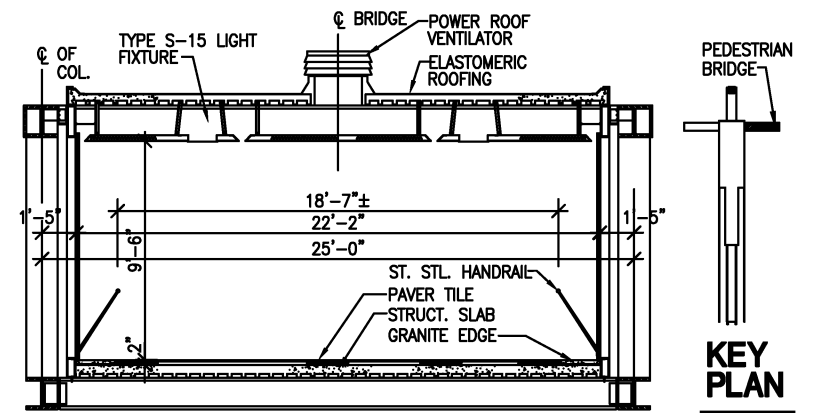
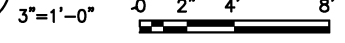
**5 HEAD DETAIL**



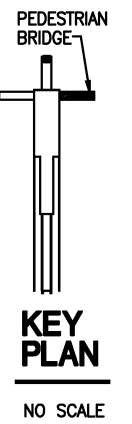
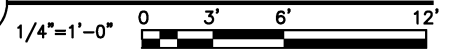
**6 JAMB - GLAZING DETAIL**



**7 BASE DETAIL**



**8 TRANSVERSE SECTION**



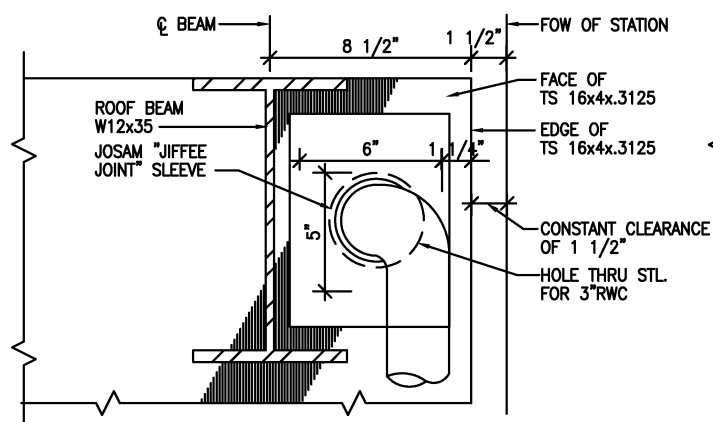
DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
DJUNSON		12/27/96					
N. IBERLE		12/27/96					
K. LANDEZ		12/27/96					
J. CORLEY		12/27/96					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

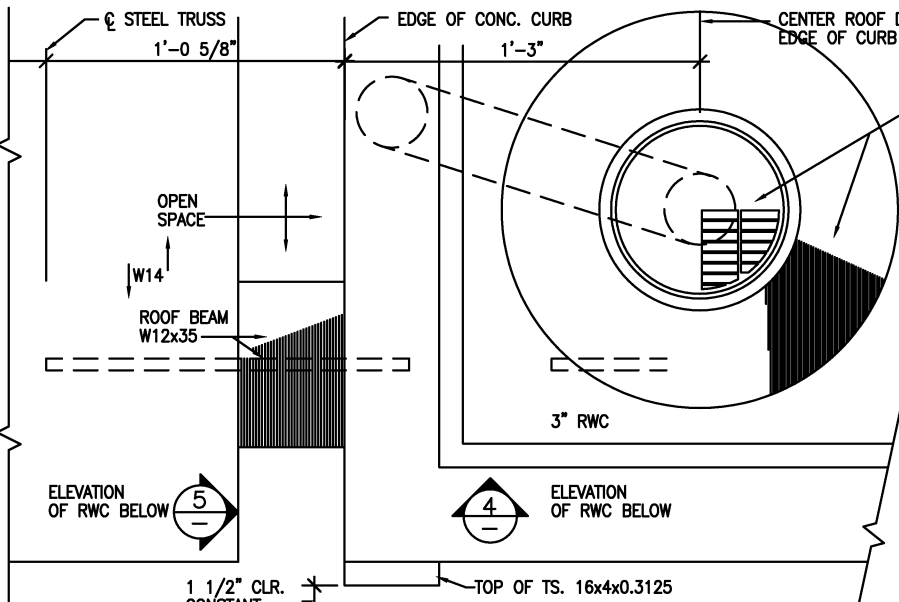
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
 TERMINAL STATIONS  
 PEDESTRIAN BRIDGE  
 PLANS, SECTIONS AND DETAILS

SCALE AS SHOWN  
 DRAWING NO. DD-A-TS-008

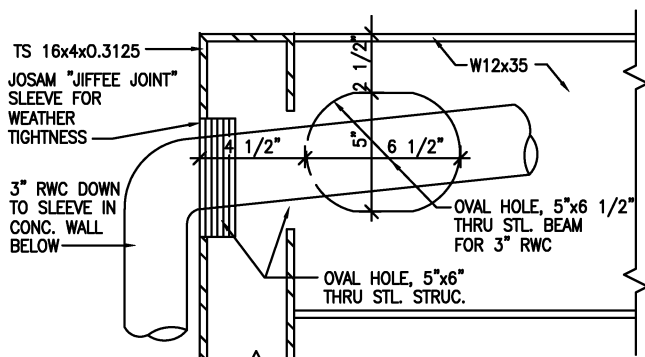


**5 DETAIL AT R.W.C.**  
 3"=1'-0" 0 2" 4" 8"

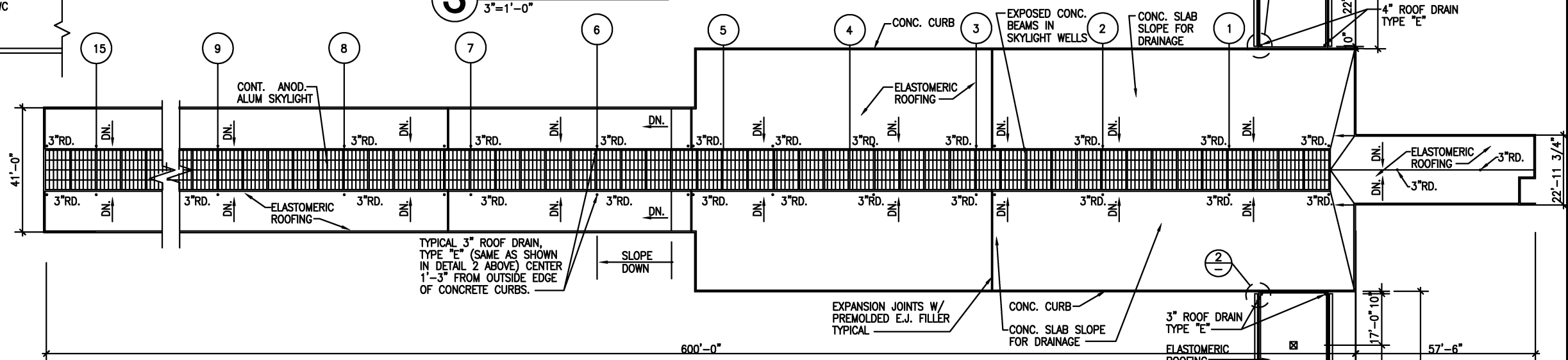


**2 PLAN DETAIL-ROOF DRAIN**  
 3"=1'-0" 0 2" 4" 8"

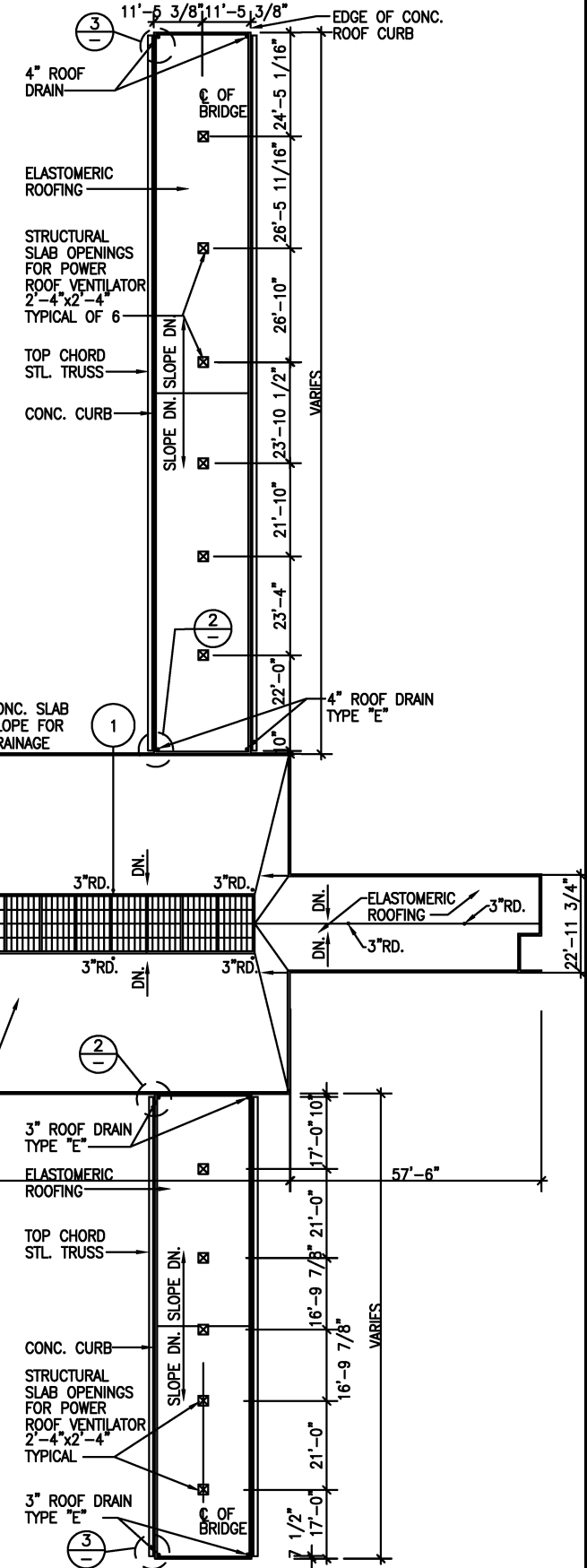
**3 SIMILAR TO ABOVE**  
 3"=1'-0"



**4 DETAIL AT R.W.C.**  
 3"=1'-0" 0 2" 4" 8"



**1 ROOF PLAN**  
 1" = 20'-0" 0 10' 20' 40"



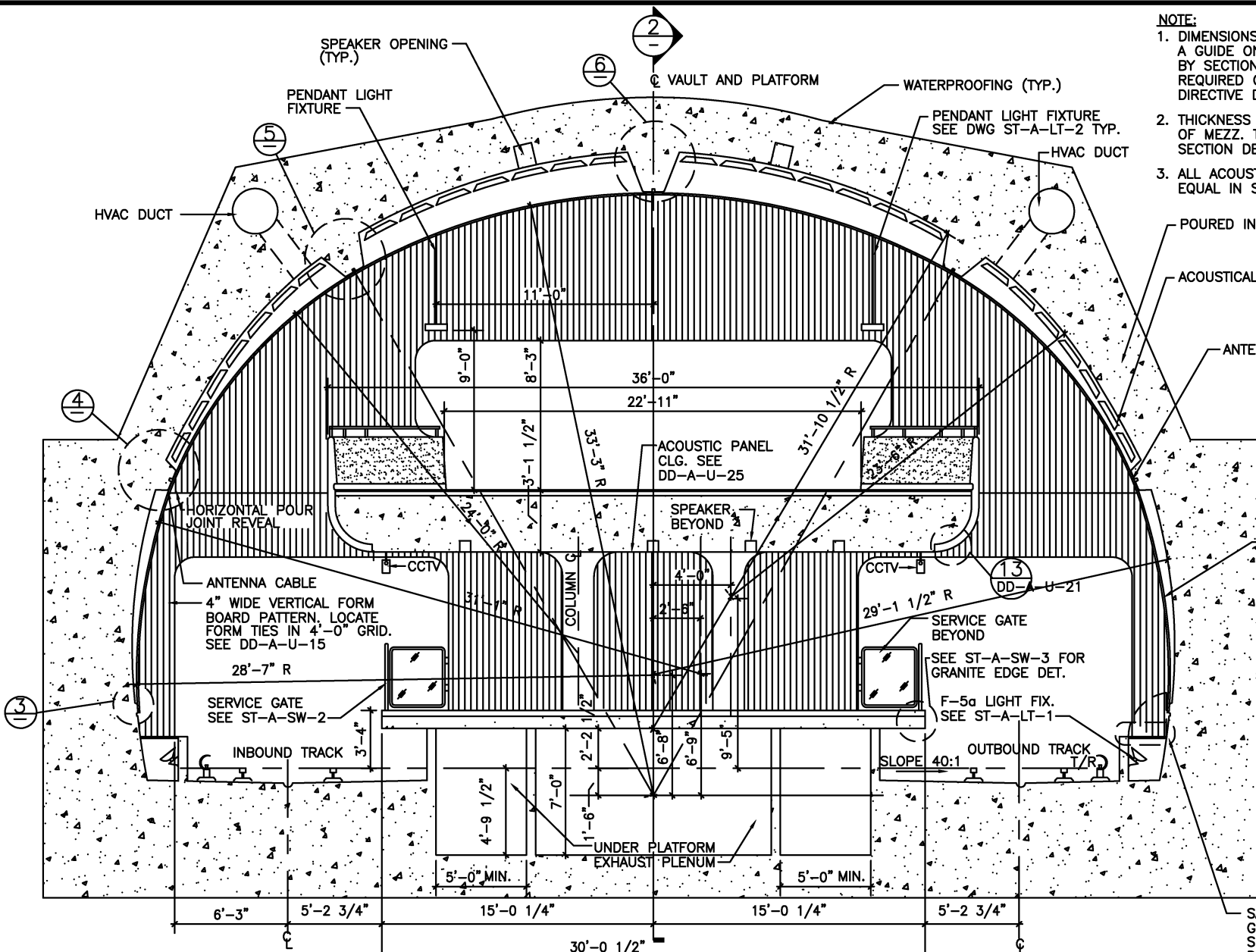
DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
DESIGNED	J.H.W.A.	12/22/98		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
DRAWN	N.BIEBELE	1998										Revised and issued by the Authority	
CHECKED	K. LANDESZ	1998											
APPROVED	J. CORLEY	12/22/98											

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

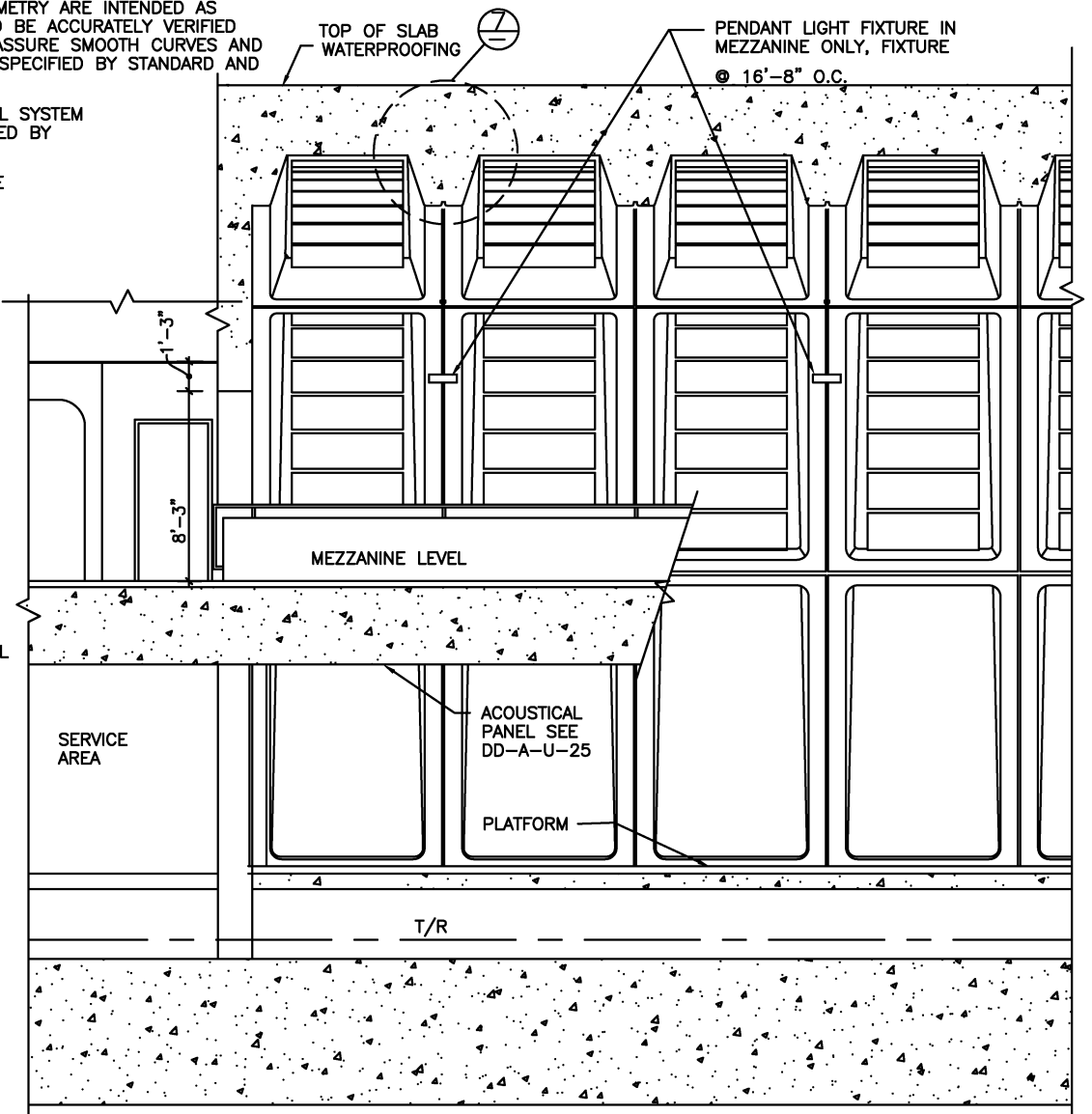
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

ARCHITECTURAL DESIGN DRAWING  
 TERMINAL STATIONS  
 ROOF PLAN AND DETAILS

SCALE AS SHOWN DRAWING NO. DD-A-TS-009



- NOTE:**
1. DIMENSIONS OF VAULT GEOMETRY ARE INTENDED AS A GUIDE ONLY AND SHOULD BE ACCURATELY VERIFIED BY SECTION DESIGNER TO ASSURE SMOOTH CURVES AND REQUIRED CLEARANCES AS SPECIFIED BY STANDARD AND DIRECTIVE DRAWINGS.
  2. THICKNESS AND STRUCTURAL SYSTEM OF MEZZ. TO BE DETERMINED BY SECTION DESIGNER.
  3. ALL ACOUSTIC PANEL TO BE EQUAL IN SIZE.

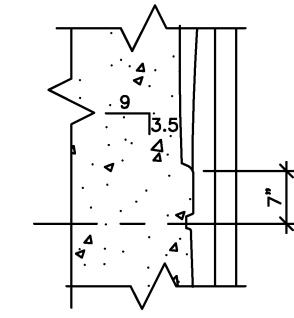


**1 VAULT GEOMETRY SECTION**

SCALE: 1/4" = 1'-0" 0 3' 6' 12'

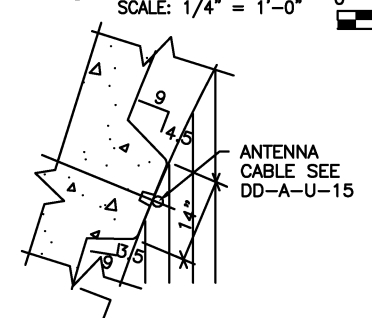
**2 SECTION**

SCALE: 1/4" = 1'-0" 0 3' 6' 12'



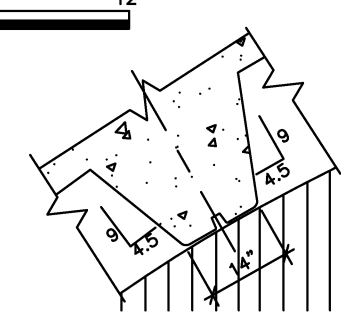
**3 DETAIL**

N.T.S.



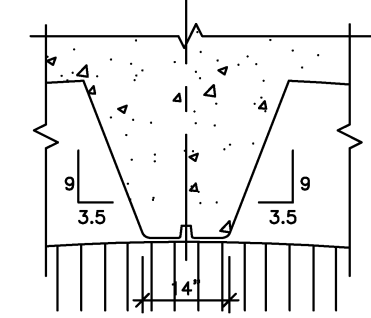
**4 DETAIL**

N.T.S.



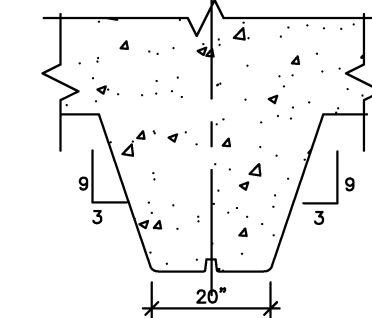
**5 DETAIL**

N.T.S.



**6 DETAIL**

N.T.S.



**7 DETAIL**

N.T.S.

DESIGNED	D. MUNSON	1998
DATE		
DRAWN	G. PATRICK	1998
DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		
UPDATED	ENGA (PAF)	08/2000

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	ENGA	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

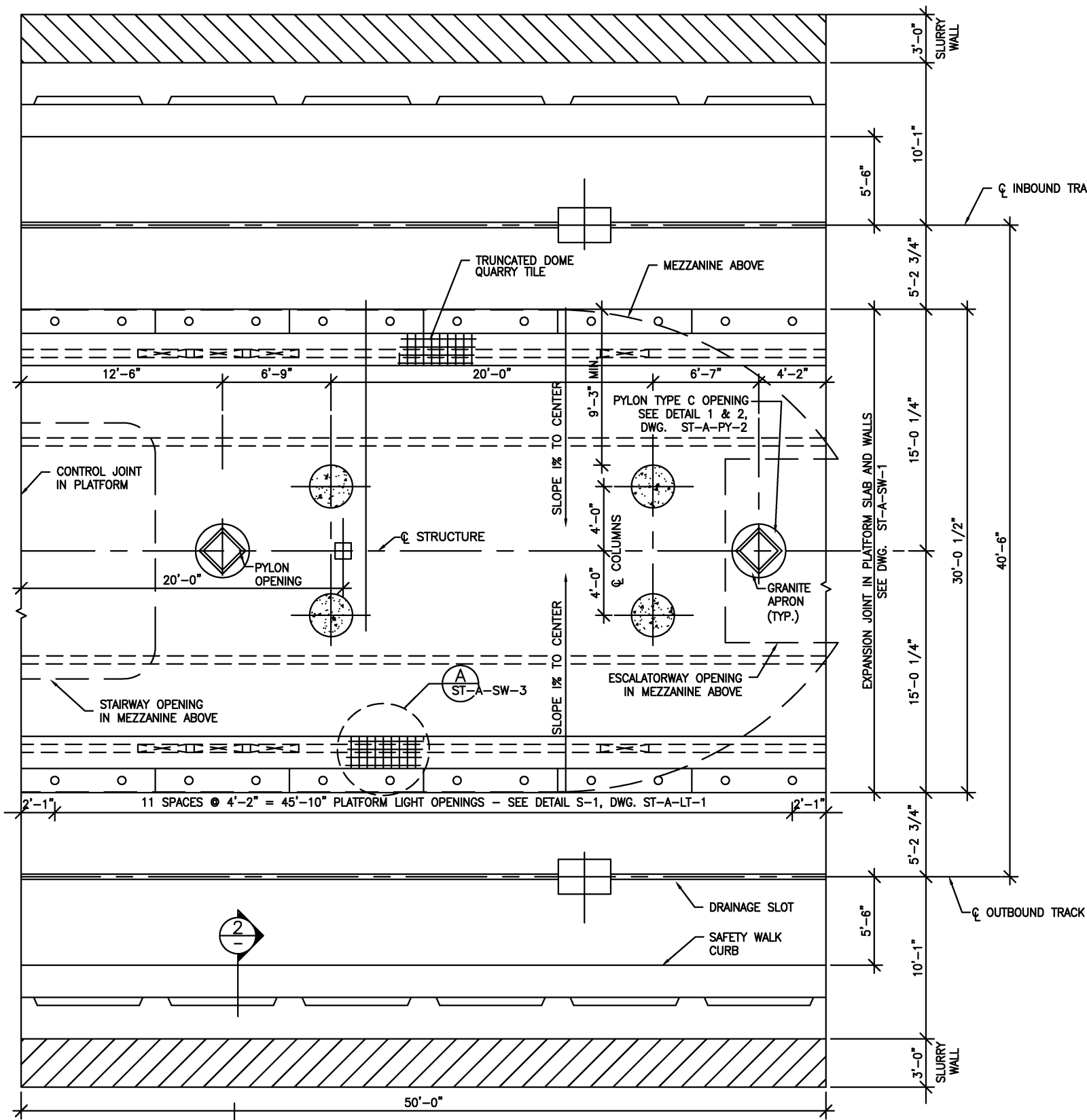
APPROVED *Harry* DIRECTOR DATE May 3, 2001

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
VAULT SECTION AND DETAILS-  
CAST IN PLACE

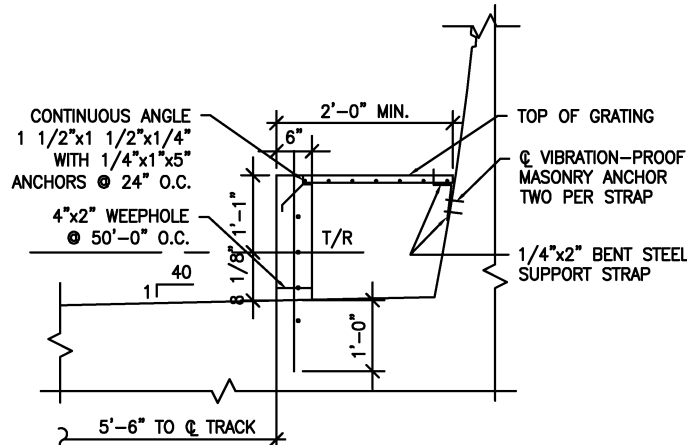
SCALE AS SHOWN

DRAWING NO. DD-A-U-001





**1 PARTIAL PLATFORM PLAN**  
 1/4" = 1'-0"  
 0 3' 6' 12'



**2 DETAIL - VAULT SAFETY WALK**  
 3/4" = 1'-0"  
 0 1' 2' 4'

- NOTES:
- CAST 2" I.D. STEEL PIPE IN INVERT SLAB.
  - PROVIDE PUMP INSIDE PIT DURING CONSTRUCTION TO REMOVE GROUND WATER.
  - COMPLETELY FILL 2" I.D. STEEL PIPE AND RECESS WITH PORTLAND CEMENT GROUT

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
D. MUNSON	1998			08/2001	Revised and issued by the Authority
V. WOHLLEBEN	1998				
K. LANDESZ	1998				
J. CORLEY	1998				

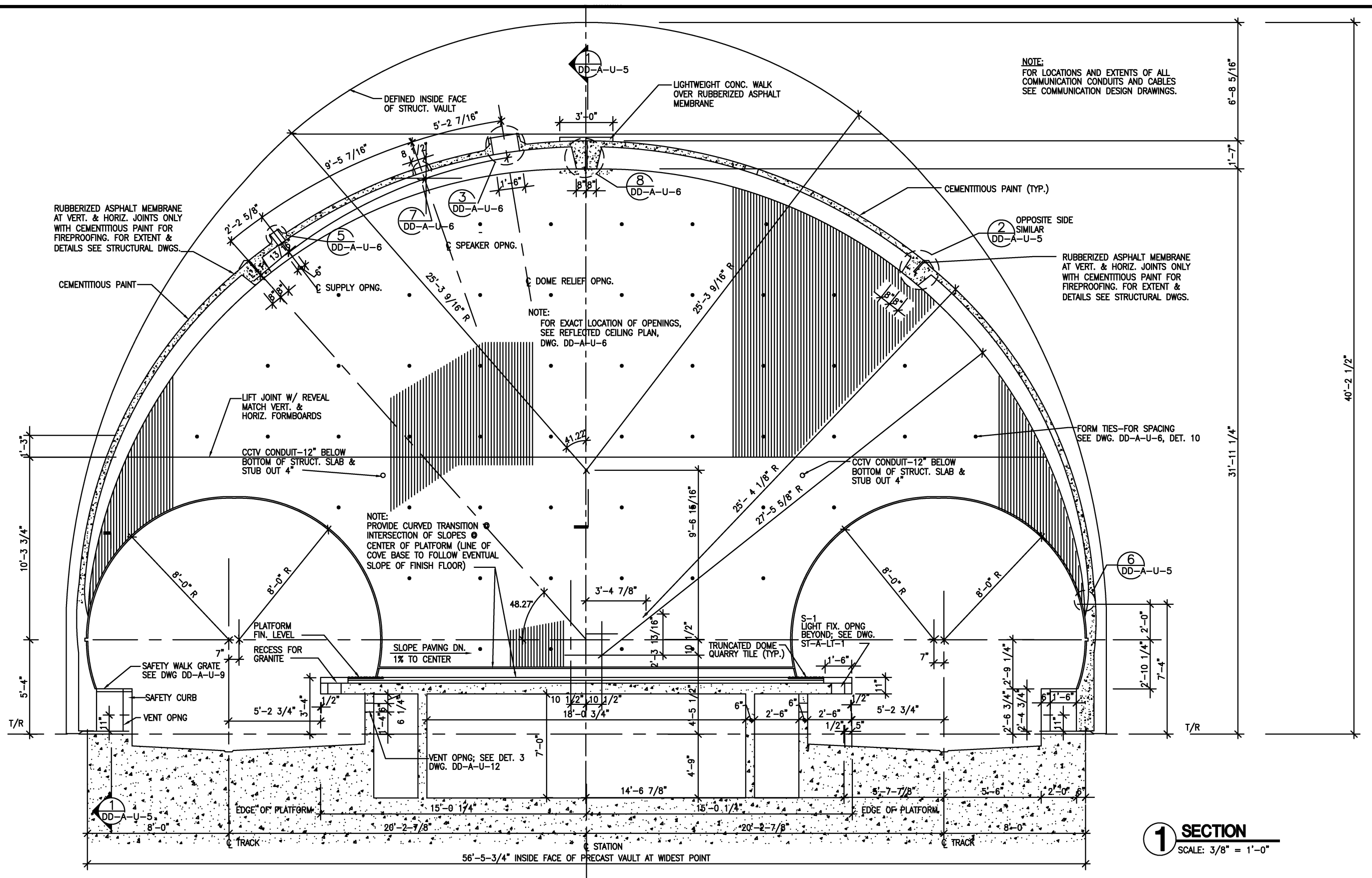
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR DATE **May 3, 2001**

**ARCHITECTURAL DESIGN DRAWING**  
UNDERGROUND STATION  
PLANS & DETAILS

SCALE: AS SHOWN DRAWING NO. **DD-A-U-002**



NOTE:  
FOR LOCATIONS AND EXTENTS OF ALL  
COMMUNICATION CONDUITS AND CABLES  
SEE COMMUNICATION DESIGN DRAWINGS.

NOTE:  
FOR EXACT LOCATION OF OPENINGS,  
SEE REFLECTED CEILING PLAN,  
DWG. DD-A-U-6

NOTE:  
PROVIDE CURVED TRANSITION  
INTERSECTION OF SLOPES @  
CENTER OF PLATFORM (LINE OF  
COVE BASE TO FOLLOW EVENTUAL  
SLOPE OF FINISH FLOOR)

**1 SECTION**  
SCALE: 3/8" = 1'-0"

DESIGNED	D. MUNSON	1998
DATE		
DRAWN	G. PATRICK	1998
DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

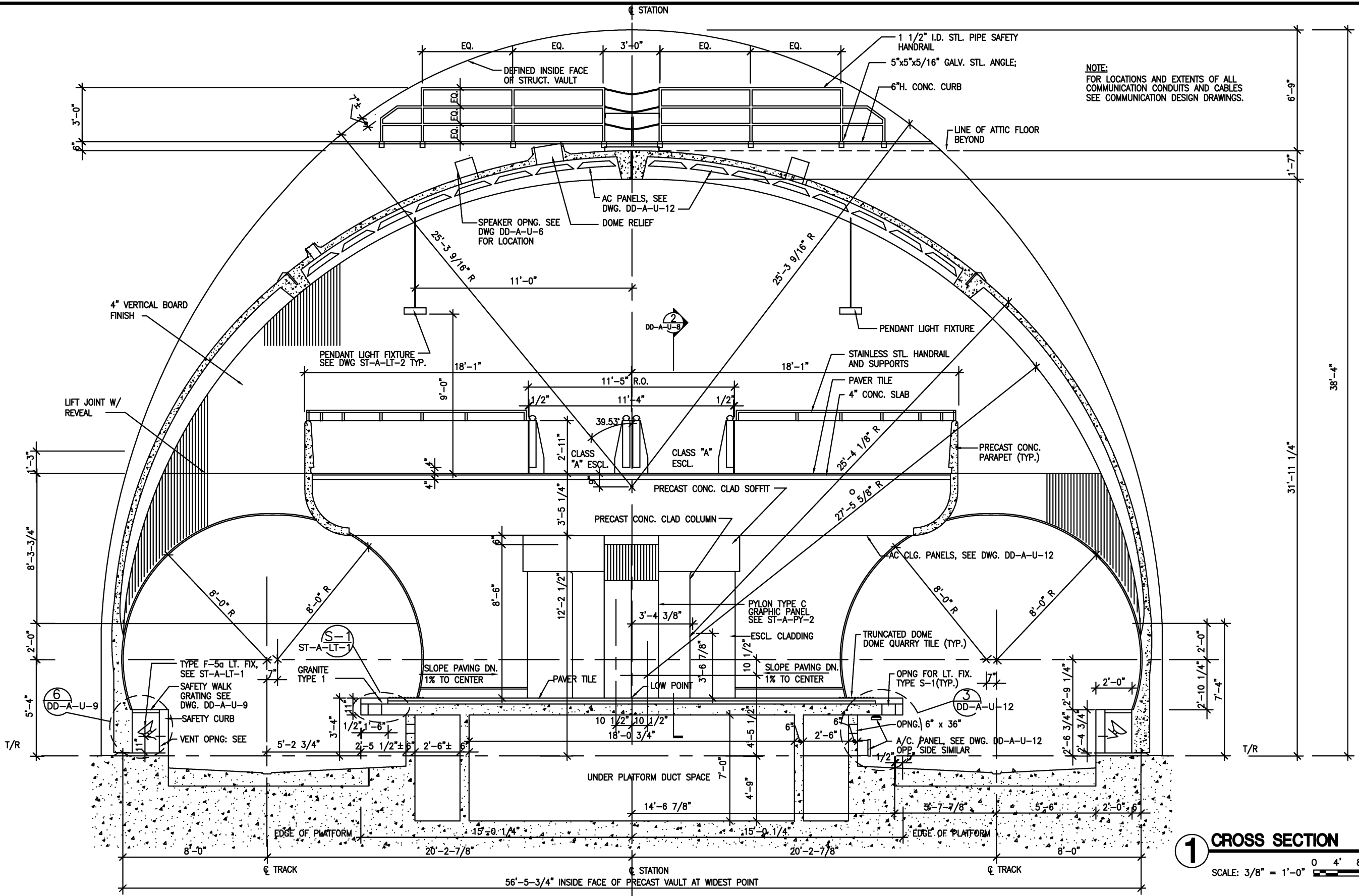
REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
UNDERGROUND STATION  
VAULT TRANSVERSE SECTION AND GEOMETRY-  
PRECAST CONCRETE

SCALE: 3/8" = 1'-0" DRAWING NO. DD-A-U-003



**1 CROSS SECTION**  
 SCALE: 3/8" = 1'-0" 0 4' 8' 16'

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DATE	DESCRIPTION	DATE	BY
1	D.MUNSON	1998					
2	G. PATRICK	1998	08/2001	ENGA	Revised and issued by the Authority		
3	K. LANDESZ	1998	9/2000	ENGA	Revised and issued by the Authority		
4	J. CORLEY	1998					

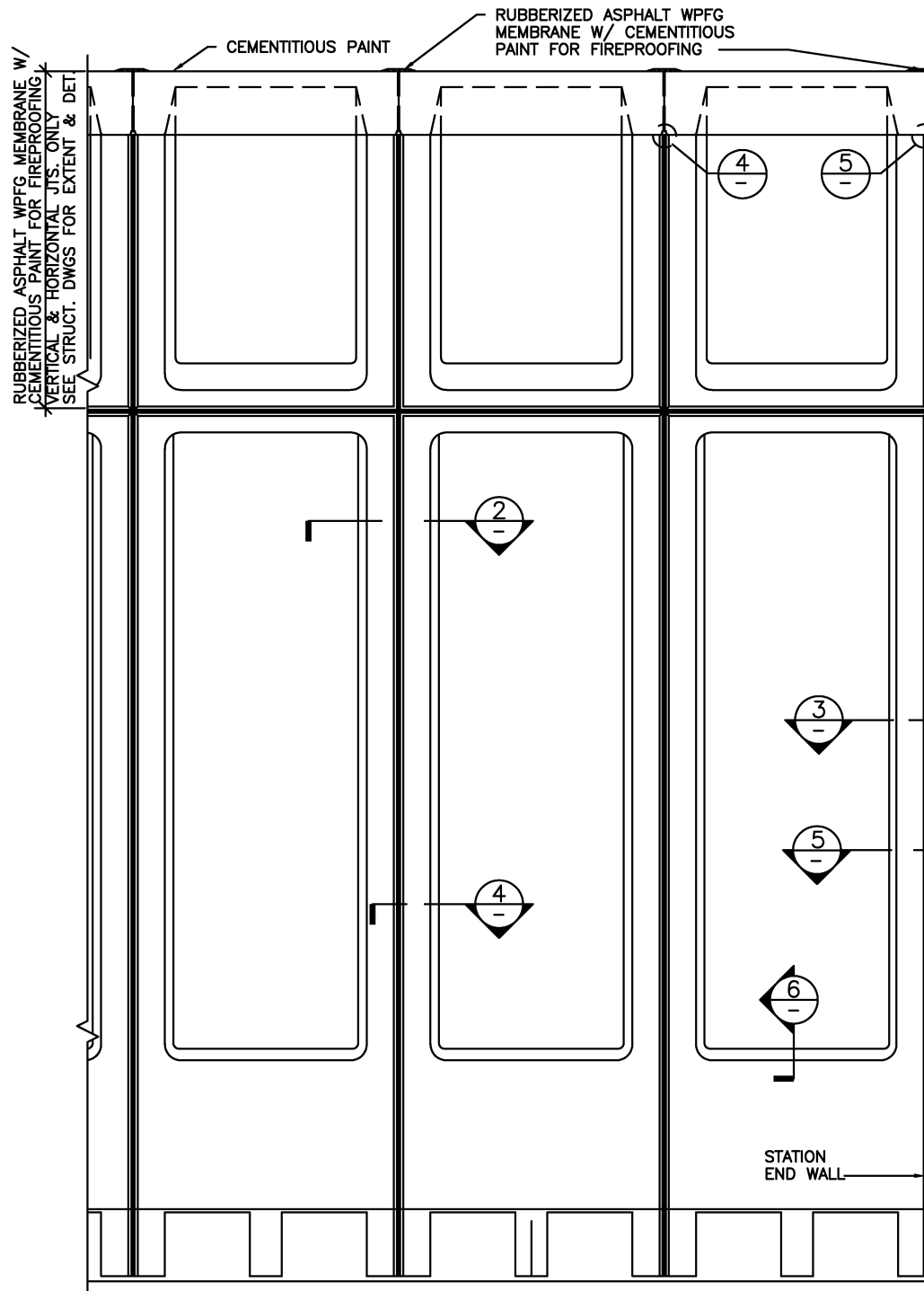
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *Harry [Signature]* May 3, 2001  
 DIRECTOR DATE

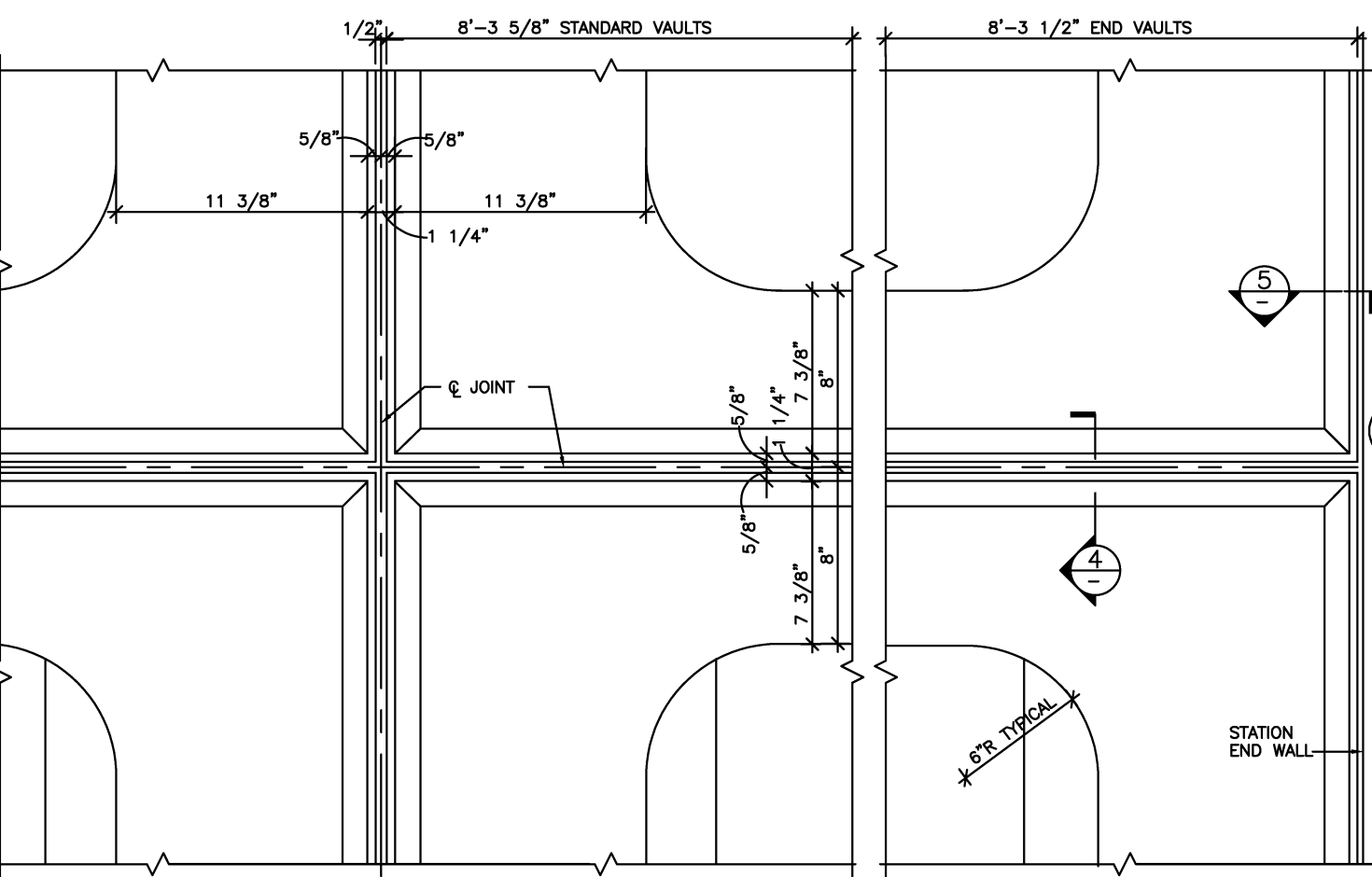
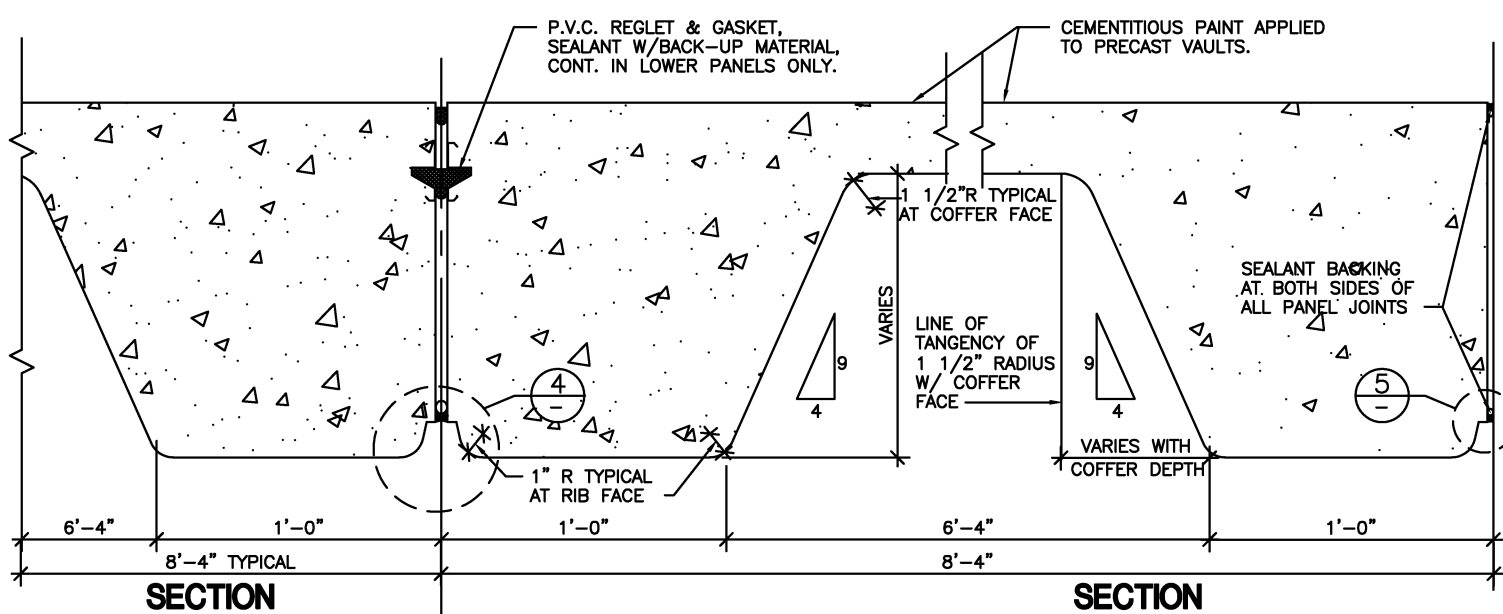
**ARCHITECTURAL DESIGN DRAWING**  
 UNDERGROUND STATION  
 CROSS SECTION THRU MEZZANINE-  
 PRECAST CONCRETE

SCALE: 3/8" = 1'-0" DRAWING NO. DD-A-U-004

RUBBERIZED ASPHALT WPFG MEMBRANE W/ CEMENTITIOUS PAINT FOR FIREPROOFING VERTICAL & HORIZONTAL JTS. ONLY SEE STRUCT. DWGS FOR EXTENT & DET.

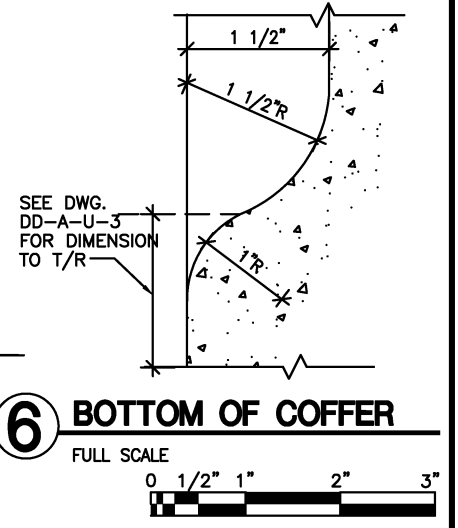
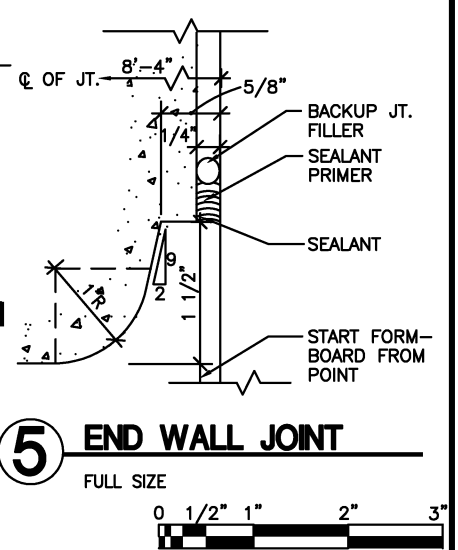
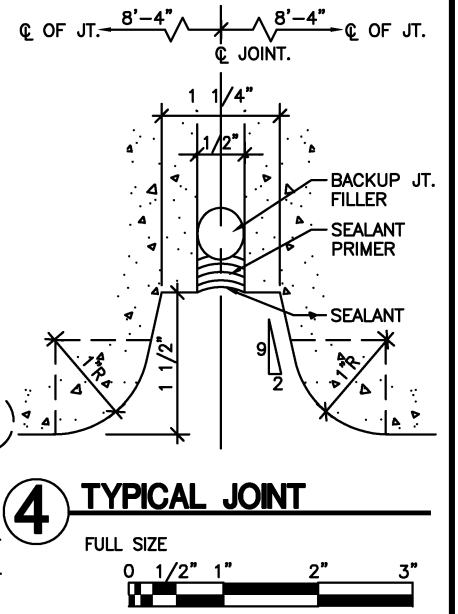


**1 ELEVATION**  
SCALE: 3/8" = 1'-0"  
0 2' 4' 8'



**2 DETAIL AT TYPICAL JOINT**  
SCALE: 3" = 1'-0"  
0 3" 6" 1'

**3 DETAIL AT END WALL**  
SCALE: 3" = 1'-0"  
0 3" 6" 1'



DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
D. MUNSON	1998			08/2001	ENGA	Revised and issued by the Authority
G. PATRICK	1998					
K. LANDEZ	1998					
J. CORLEY	1998					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

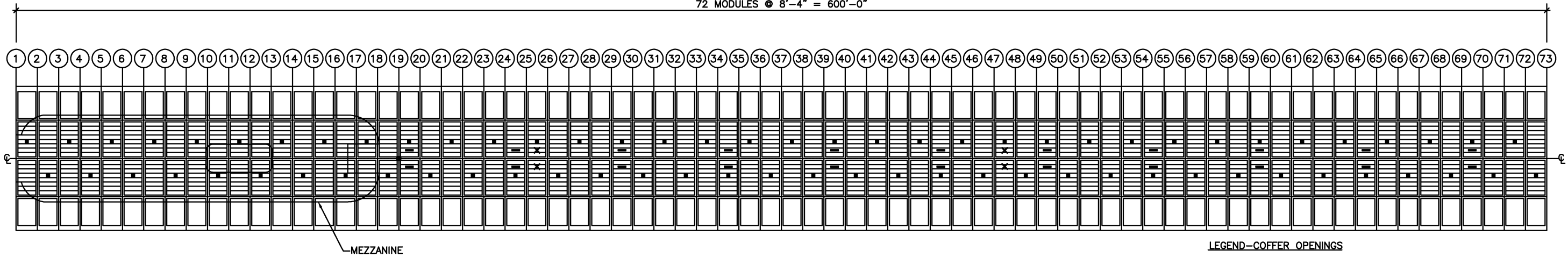
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED \_\_\_\_\_ DATE May 3, 2001

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
TYPICAL RIB AND COFFER GEOMETRY AND DETAILS

SCALE AS SHOWN

DRAWING NO. DD-A-U-005

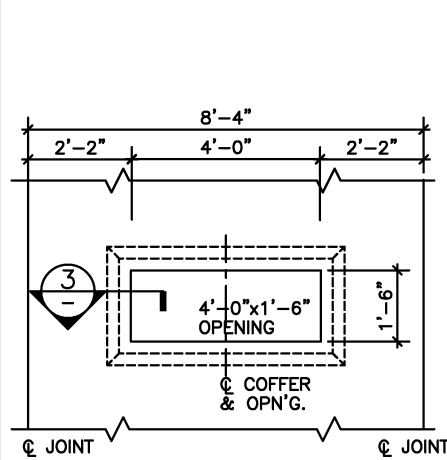


**LEGEND-COFFER OPENINGS**

- A/C SUPPLY
- SPEAKER OPENING
- CONDUIT COUPLING FOR T.V. CAMERA
- × DOME RELIEF OPENING ( @ 1/3 POINTS )

**1 REFLECTED CEILING PLAN (DEVELOPED)**

SCALE: 1" = 20'-0"

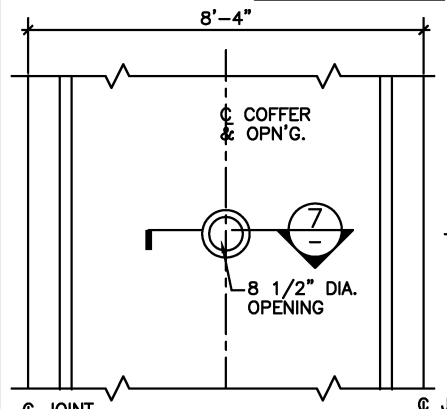


**3 DOME RELIEF CURB DETAIL**

1 1/2" = 1'-0"

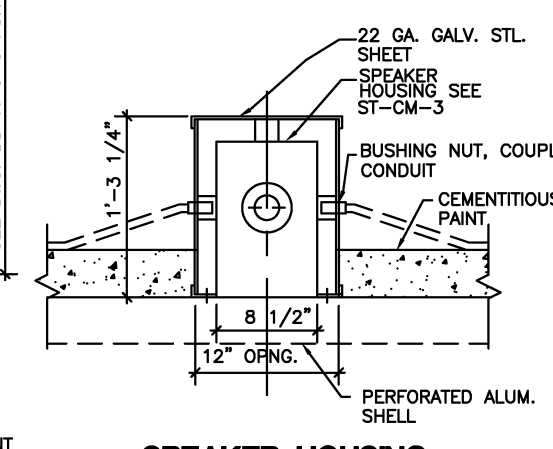
**2 DOME RELIEF OPENING**

1/2" = 1'-0"



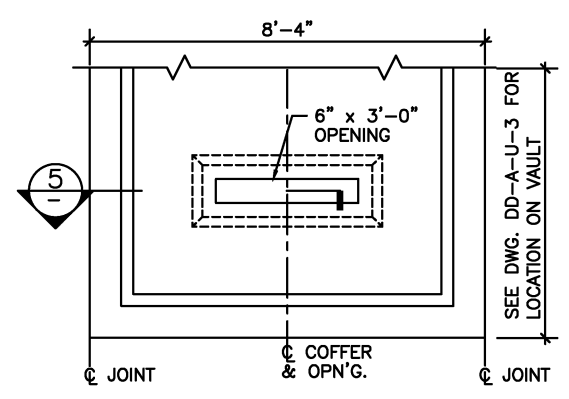
**6 SPEAKER OPENING**

1 1/2" = 1'-0"



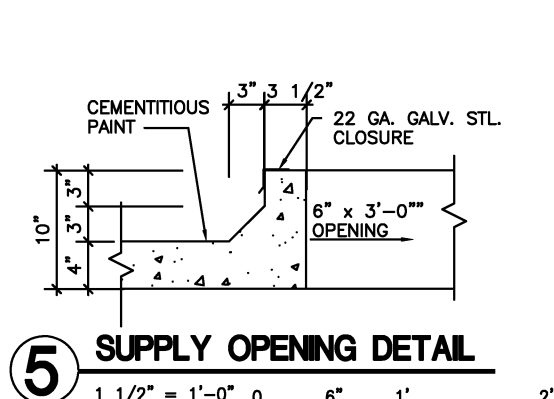
**7 SPEAKER HOUSING**

1 1/2" = 1'-0"



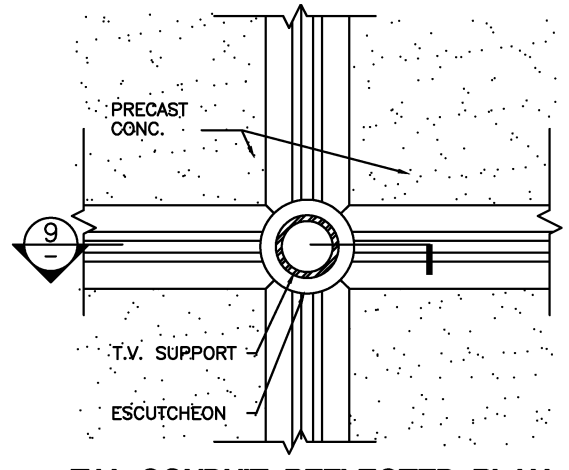
**4 SUPPLY OPENING**

SCALE: 1/2" = 1'-0"



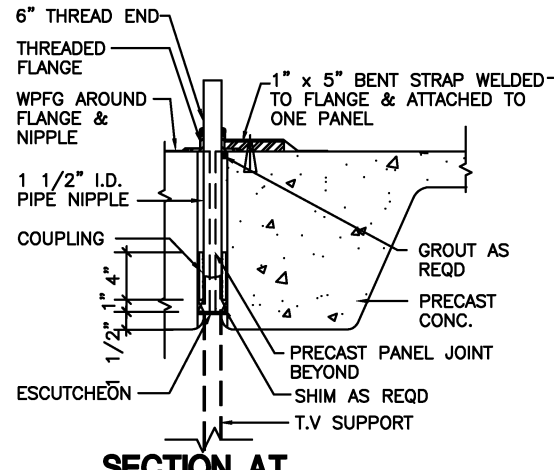
**5 SUPPLY OPENING DETAIL**

1 1/2" = 1'-0"



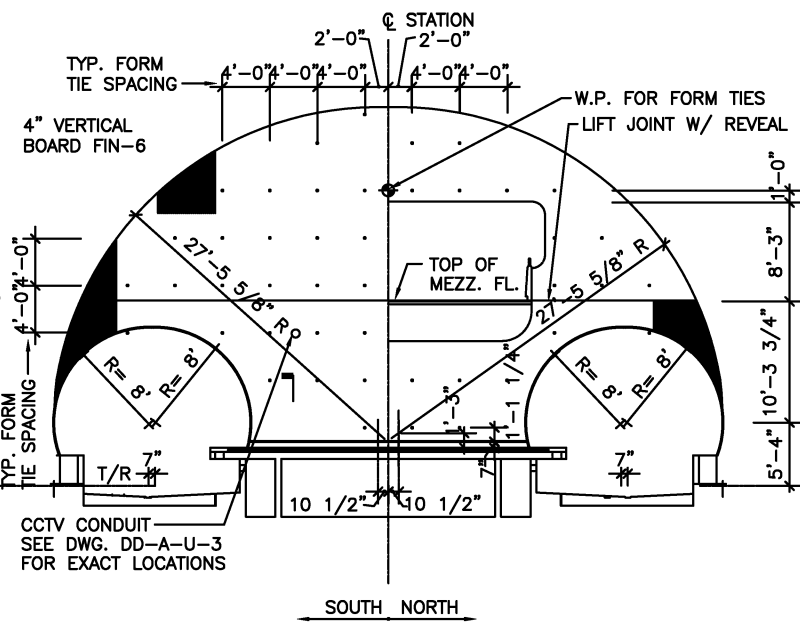
**8 T.V. CONDUIT REFLECTED PLAN**

SCALE: 3" = 1'-0"



**9 SECTION AT T.V. CONDUIT COUPLING**

1 1/2" = 1'-0"



**10 CROSS SECTION**

SCALE: 1/8" = 1'-0"

NOTE:  
FOR LOCATIONS AND EXTENT OF ALL COMMUNICATION CONDUITS AND CABLES SEE COMMUNICATION DESIGN DRAWINGS.

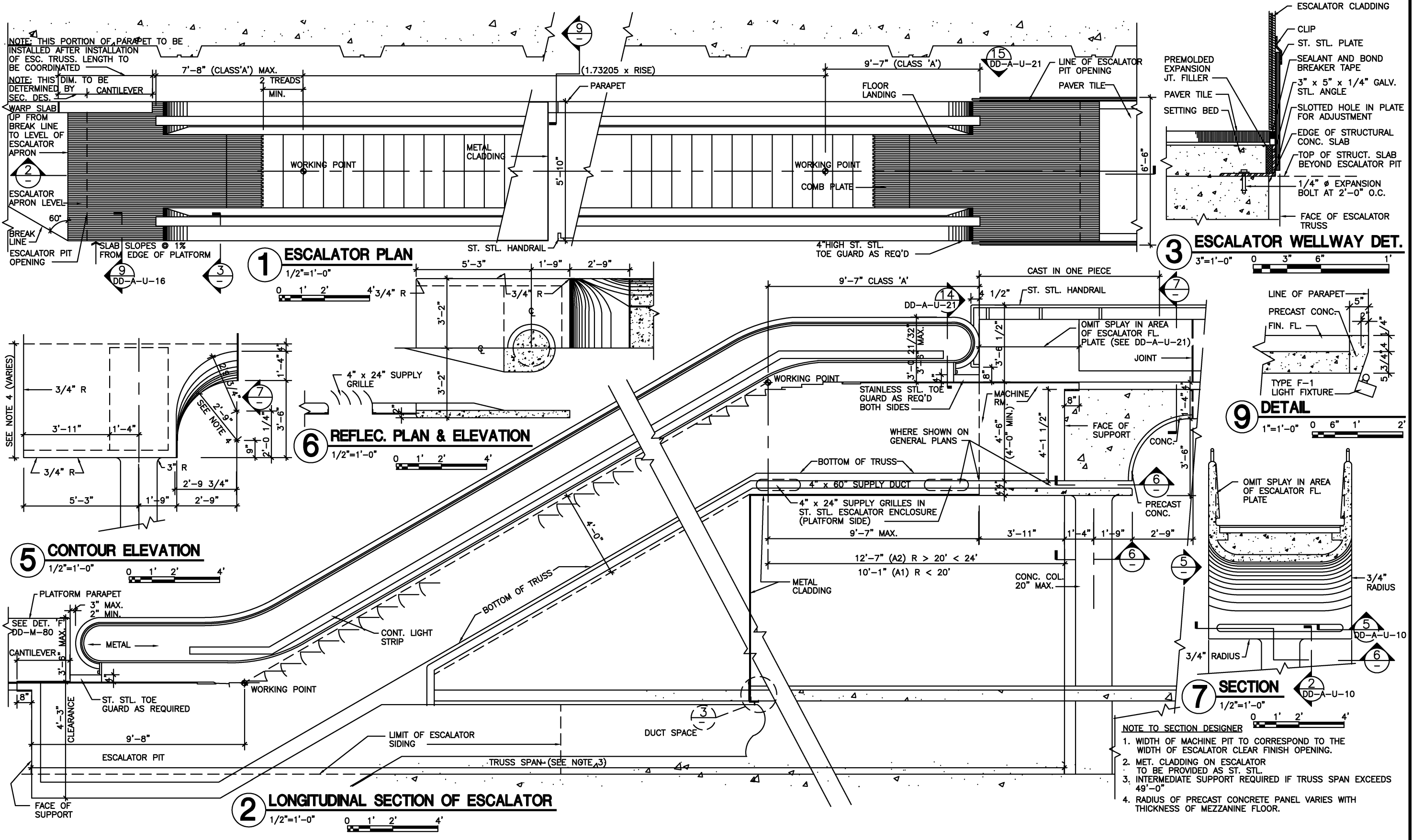
DESIGNED		1998		REFERENCE DRAWINGS			REVISIONS		
DATE	DESCRIPTION	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
D. MUNSON				08/2001	ENGA	Revised and issued by the Authority			
G. PATRICK				9/2000	ENGA	Revised and issued by the Authority			
K. LANDESZ									
J. CORLEY									

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
 UNDERGROUND STATION  
 VAULT OPENINGS AND DETAILS

SCALE AS SHOWN DRAWING NO. DD-A-U-006



DESIGNED	D. MUNSON	1998
DATE		
DRAWN	N. IBIEBELE	1998
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		
UPDATED	ENGA (PAF)	08/2000

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

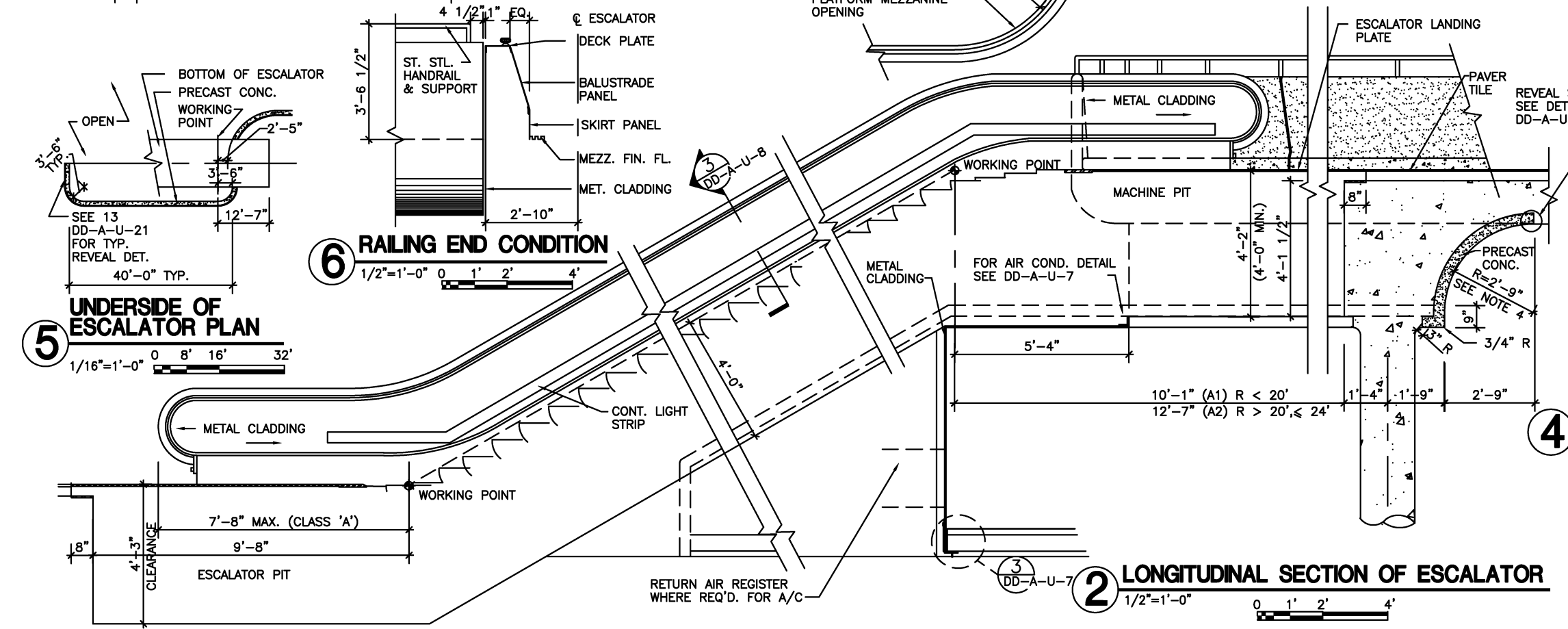
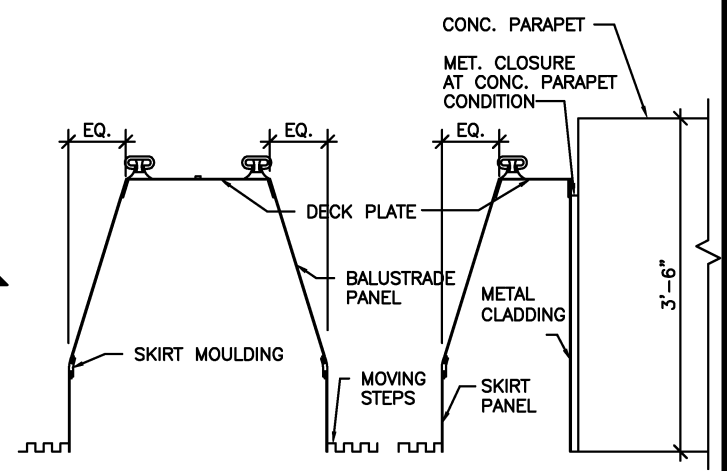
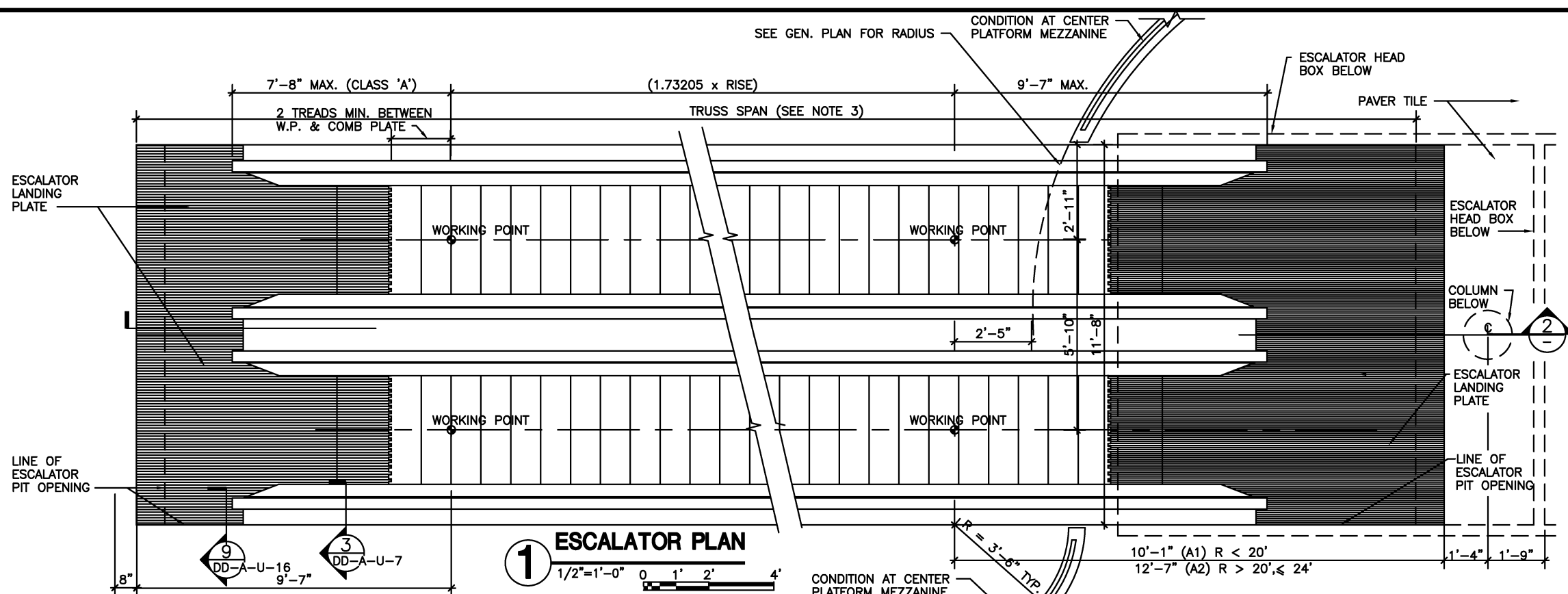
REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	ENGA	Revised and issued by the Authority

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

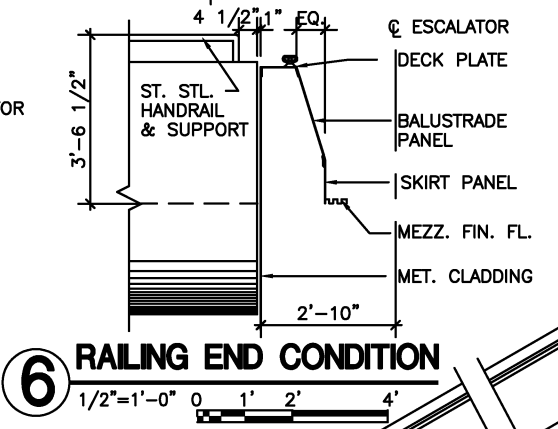
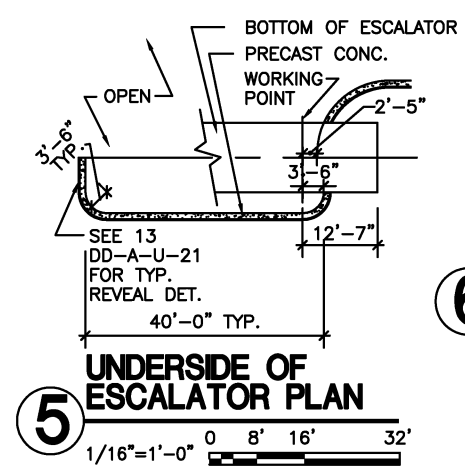
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001  
 DIRECTOR DATE

**ARCHITECTURAL DESIGN DRAWING**  
 UNDERGROUND STATION  
 SINGLE ESCALATOR CLASS 'A' MEZZANINE  
 TO PLATFORM

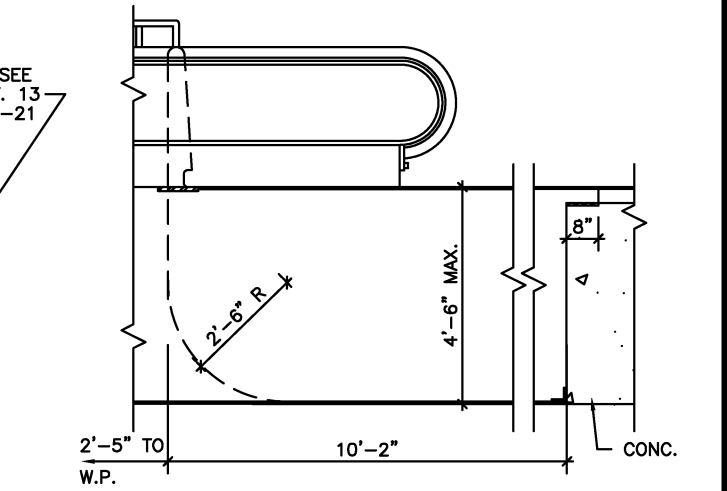
SCALE AS SHOWN DRAWING NO. DD-A-U-007



**3 ESCALATOR BALUSTRADE**  
 1"=1'-0" 0 6" 1' 2'



**6 RAILING END CONDITION**  
 1/2"=1'-0" 0 1' 2' 4'



**4 ESCALATOR DETAIL**  
**CONDITION AT CENTER PLATFORM MEZZANINE OPENING**  
 1/2"=1'-0" 0 1' 2' 4'

- NOTE TO SECTION DESIGNER**
1. WIDTH OF MACHINE PIT TO CORRESPOND TO THE WIDTH OF ESCALATOR CLEAR FINISH OPENING, SEE DD-M-63, 64.
  2. MET. CLADDING ON ESCALATOR TO BE PROVIDED AS ST. STL.
  3. INTERMEDIATE SUPPORT REQUIRED IF TRUSS SPAN EXCEEDS 49'-0"
  4. RADIUS OF PRECAST CONCRETE PANEL VARIES WITH THICKNESS OF MEZZANINE FLOOR.

DESIGNED		DATE		1998	
D. MUNSON	1998	08/2001	ENGA	Revised and issued by the Authority	
N. IRIEBELE	1998	9/2000	ENGA	Revised and issued by the Authority	
K. LANDESZ	1998				
J. CORLEY	1998				

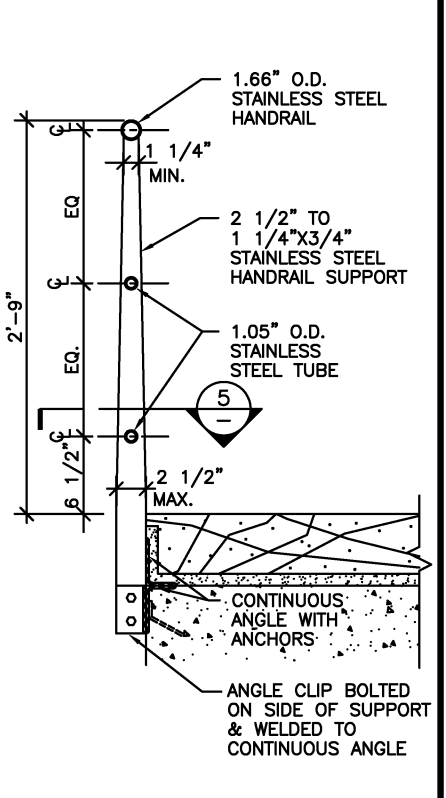
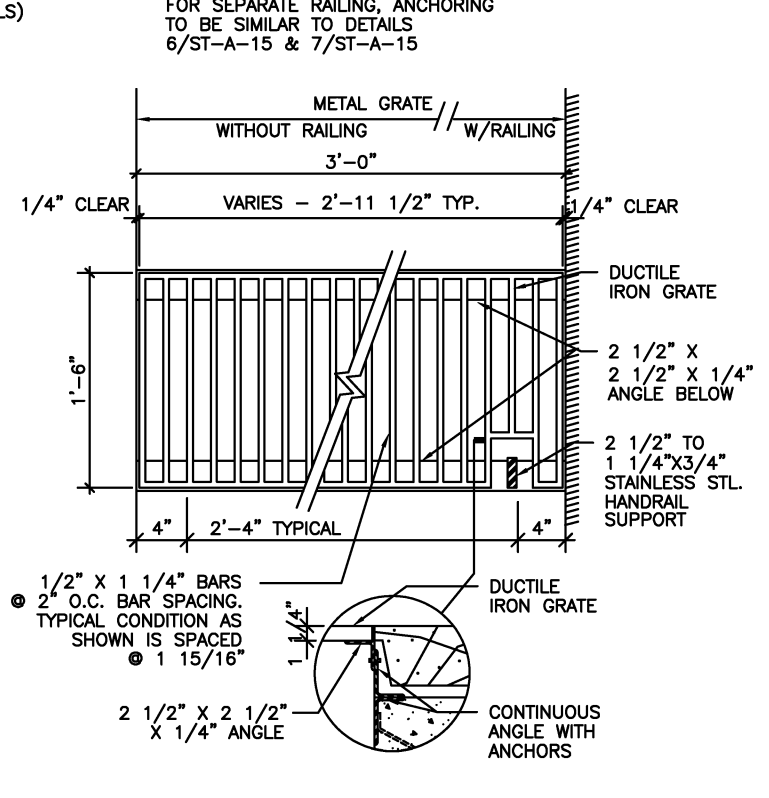
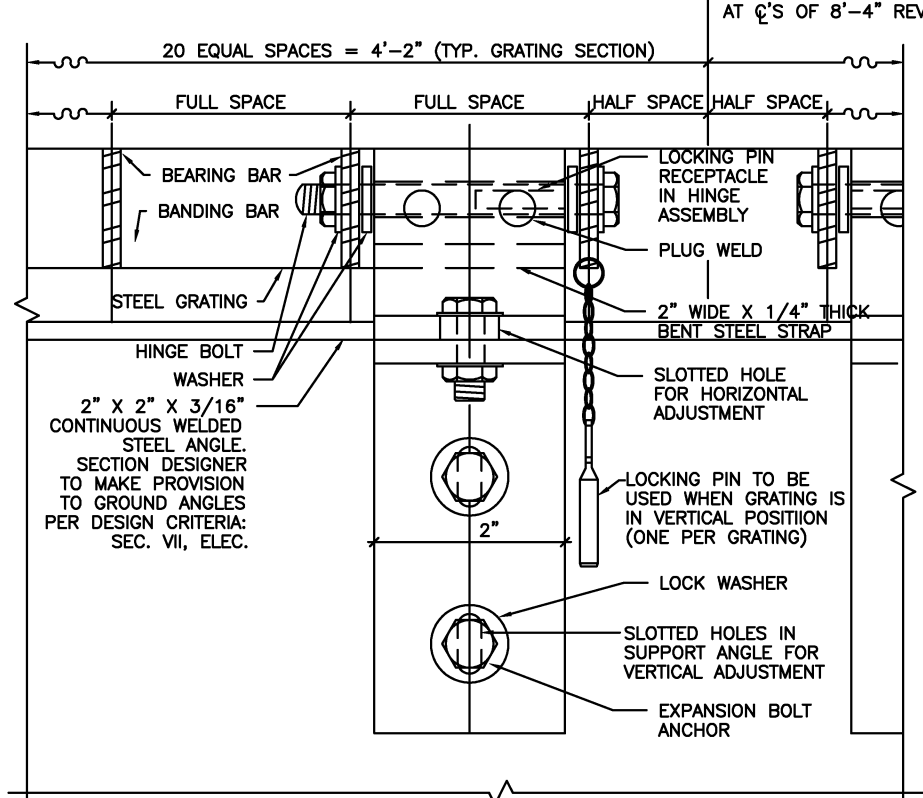
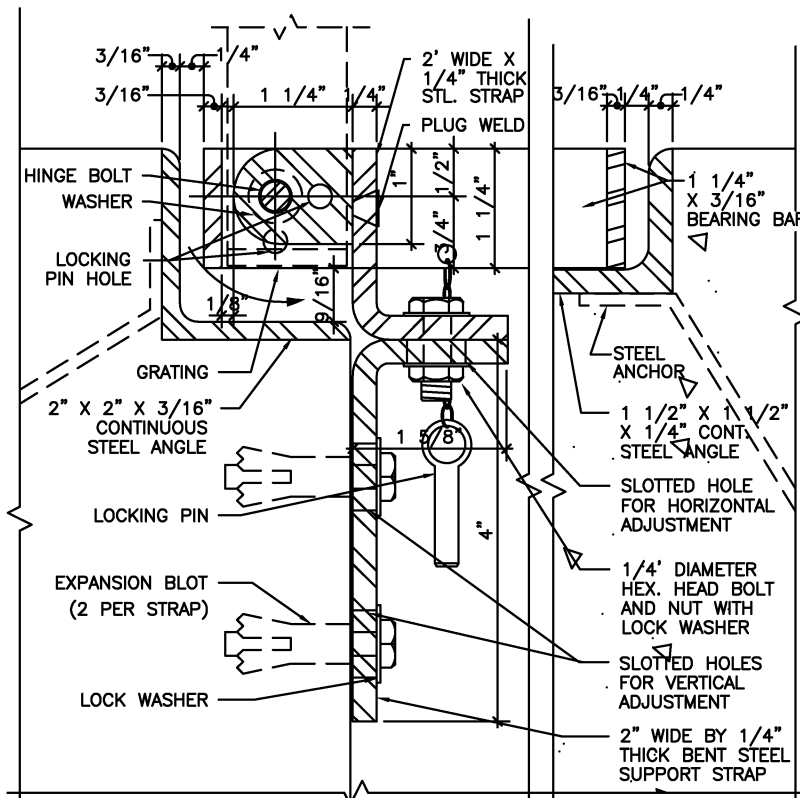
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
**UNDERGROUND STATION**  
**DOUBLE ESCALATOR MEZZANINE TO PLATFORM**

SCALE AS SHOWN DRAWING NO. DD-A-U-008

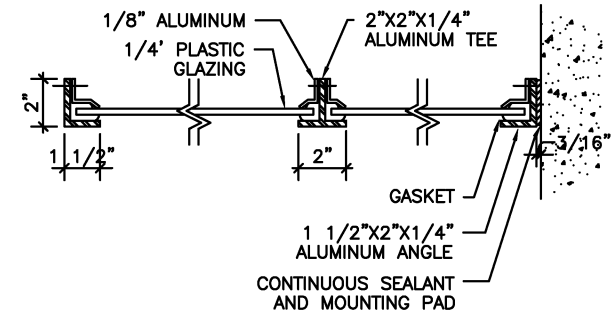


**4 SECTION OF SAFETY WALK GRATING HINGE**  
FULL SIZE 0 1/2" 1" 2"

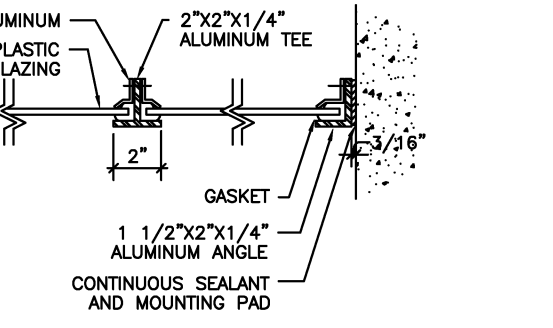
**3 ELEVATION OF SAFETY WALK GRATING HINGE**  
FULL SIZE 0 1/2" 1" 2"

**2 METAL GRATE PLAN**  
1 1/2"=1'-0" 0 3" 6" 1' 2"

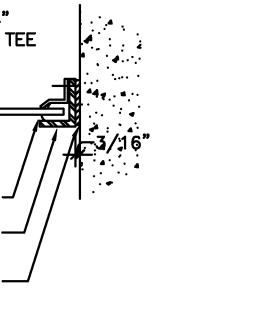
**1 RAIL SECTION**  
1 1/2"=1'-0" 0 3" 6" 1' 2"



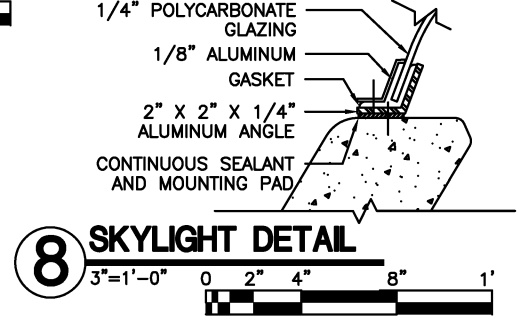
**11 END OF CANOPY DETAIL**  
3'=1'-0" 0 2" 4" 8" 1'



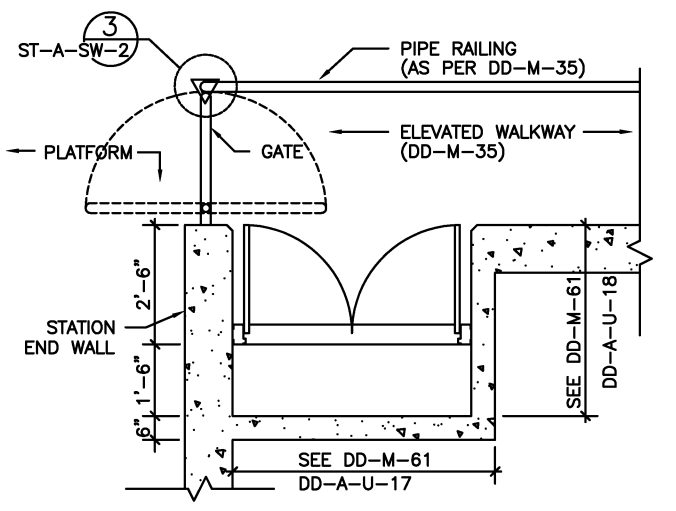
**10 SKYLIGHT @ JOINT DETAIL**  
3'=1'-0"



**9 SKYLIGHT @ COLUMN DETAIL**  
3'=1'-0"

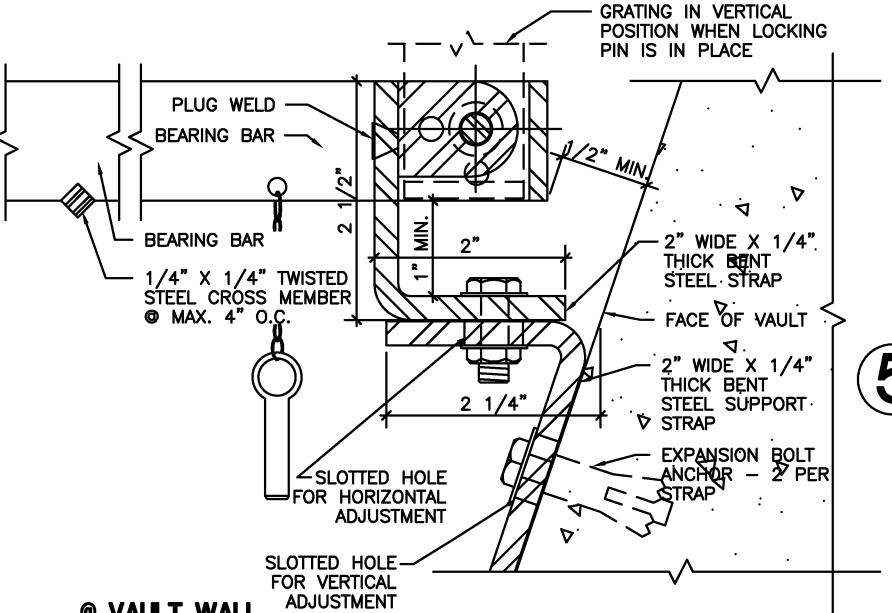


**8 SKYLIGHT DETAIL**  
3'=1'-0" 0 2" 4" 8" 1'

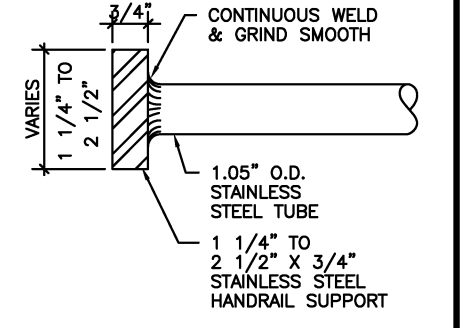


**7 PLAN OF FIRE EQUIPMENT CABINET**  
1/2"=1'-0" 0 1' 2' 4"

NOTE: FOR DETAILS OF FIRE EQUIPMENT CABINET AND CLEARANCE REQUIREMENTS SEE DRAWING DD-M-61



**6 @ VAULT WALL SAFETY WALK GRATING HINGE**  
FULL SIZE



**5 RAIL DETAIL**  
ONE HALF FULL SIZE 0 1" 2" 4"

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	
DESIGNED	D. MUNSON	1998						
DATE								
DRAWN	V. WOHLLEBEN	1998	08/2001	ENGA	Revised and issued by the Authority			
DATE			9/2000	ENGA	Revised and issued by the Authority			
CHECKED	K. LANDESZ	1998						
DATE								
APPROVED	J. CORLEY	1998						
DATE								
UPDATED	ENGA (PAF)	08/2000						

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

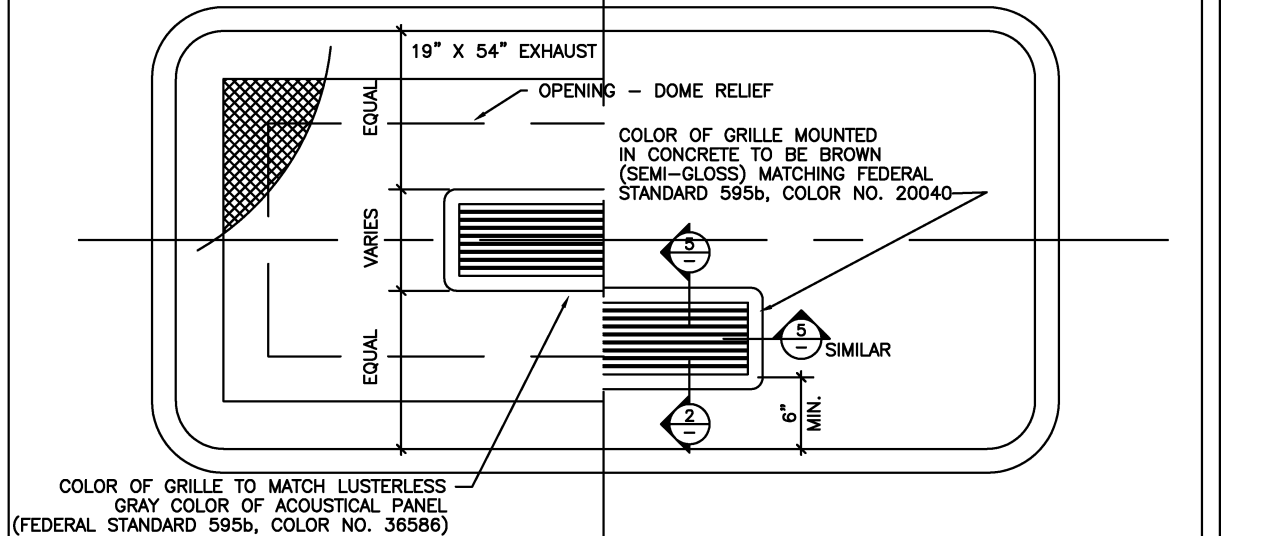
ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
MISCELLANEOUS DETAILS

SCALE AS SHOWN DRAWING NO. DD-A-U-009



CONDITION AT MEZZANINE SUPPLY THROUGH ACOUSTICAL PANEL

CONDITION AT PLATFORM SUPPLY THROUGH CONCRETE

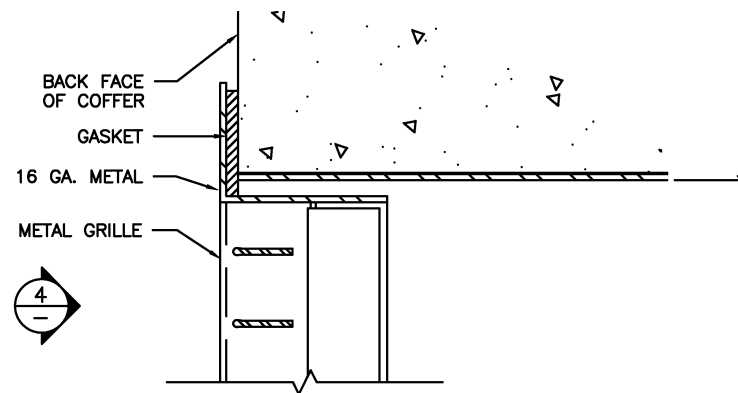
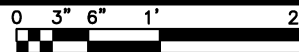


COLOR OF GRILLE TO MATCH LUSTERLESS GRAY COLOR OF ACOUSTICAL PANEL (FEDERAL STANDARD 595b, COLOR NO. 36586)

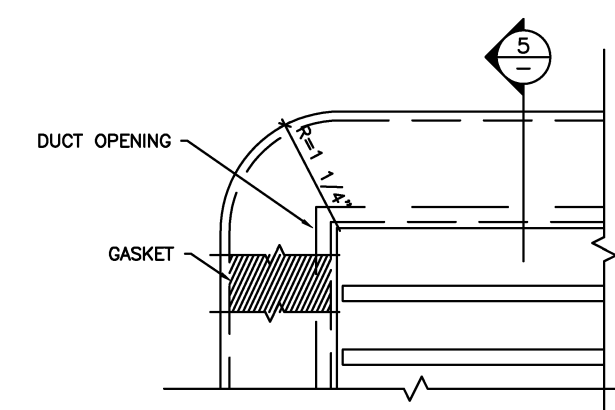
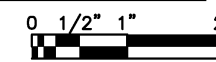
COLOR OF GRILLE MOUNTED IN CONCRETE TO BE BROWN (SEMI-GLOSS) MATCHING FEDERAL STANDARD 595b, COLOR NO. 20040

NOTE:  
FOR SPECIFIC GRILLE LOCATIONS,  
SEE MECHANICAL DIRECTIVE DRAWINGS  
DD-M-33, DD-M-37, AND DD-M-38

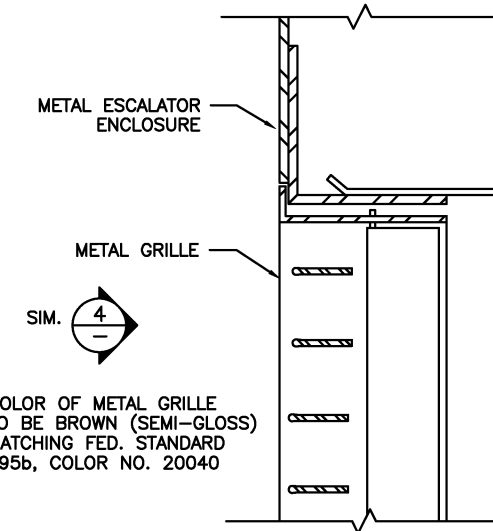
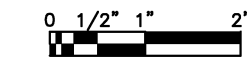
**6 ELEVATION - SUPPLY GRILLE IN COFFER**  
1 1/2"=1'-0"



**5 SECTION**  
FULL SCALE



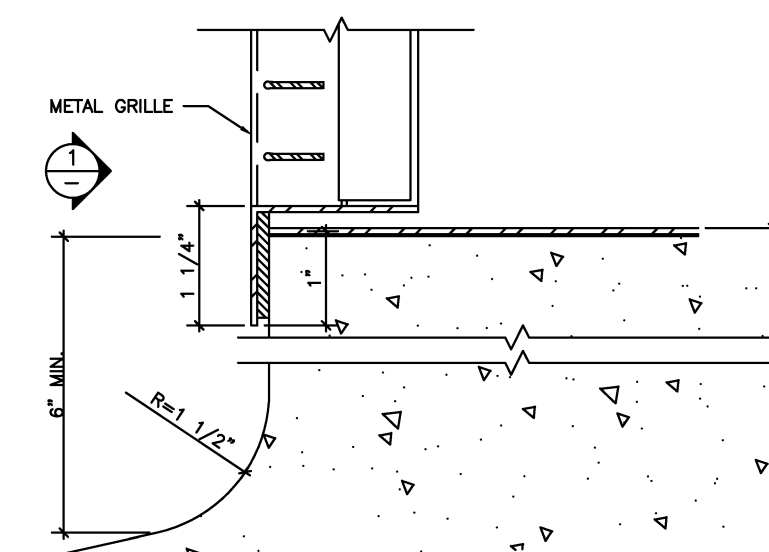
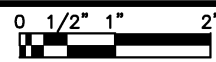
**4 DETAIL**  
FULL SCALE



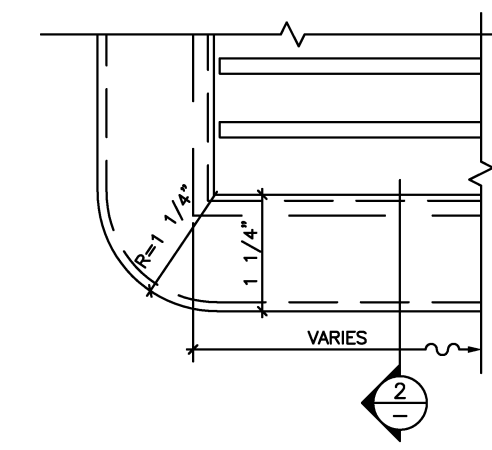
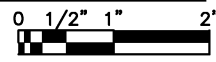
COLOR OF METAL GRILLE TO BE BROWN (SEMI-GLOSS) MATCHING FED. STANDARD 595b, COLOR NO. 20040

NOTE:  
A/C GRILLE ATTACHMENTS TO BE DEVELOPED BY SECTION DESIGNER SUBJECT TO APPROVAL BY WMATA

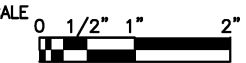
**3 SECTION - A/C GRILLE IN METAL**  
FULL SCALE



**2 SECTION**  
FULL SCALE



**1 DETAIL**  
FULL SCALE



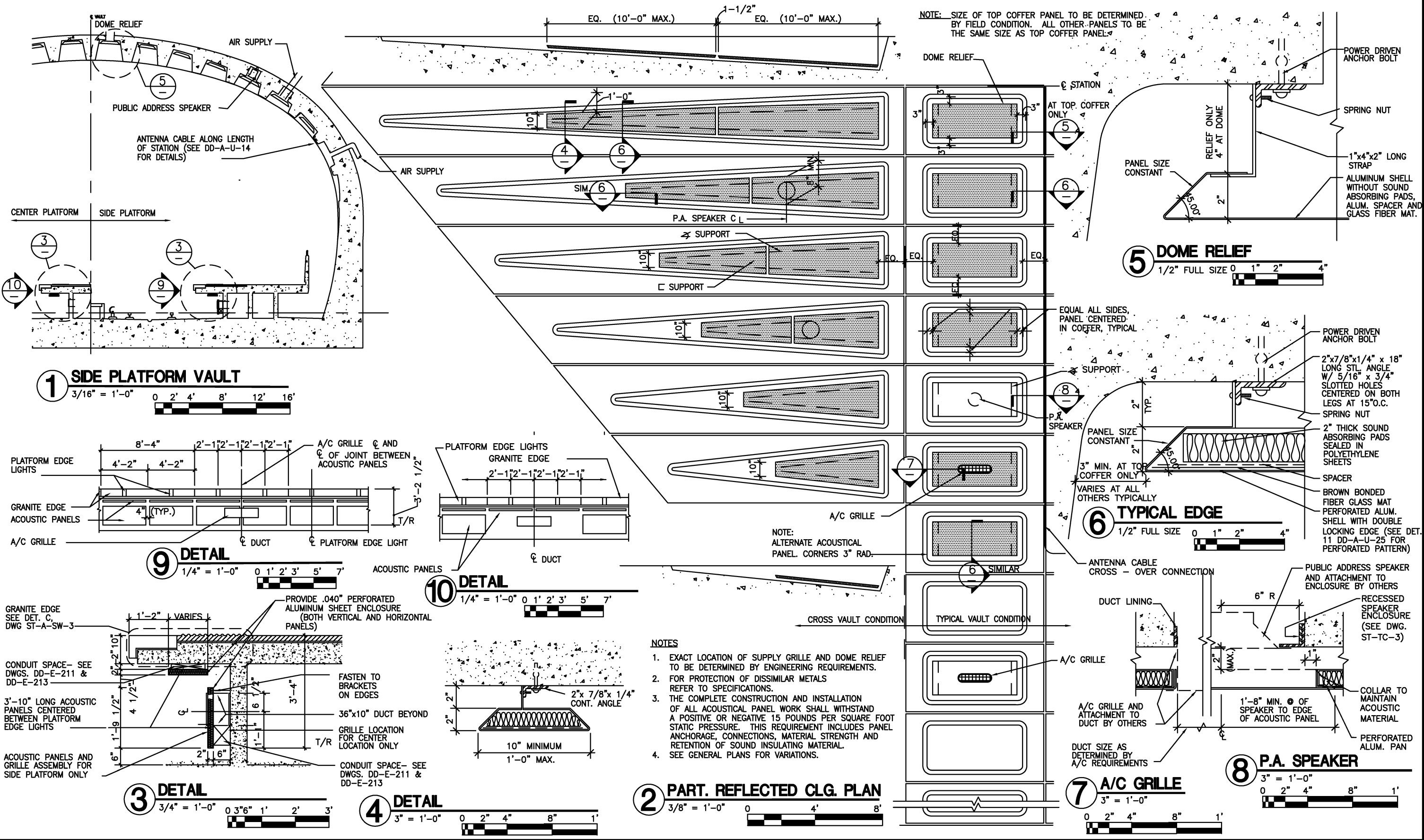
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
D.MUNSON	1998			08/2001	ENGA	Revised and issued by the Authority
V. WOHLLEBEN	1998			9/2000	ENGA	Revised and issued by the Authority
K. LANDESZ	1998					
J. CORLEY	1998					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
AIR CONDITIONING GRILLE INTERFACE DETAILS

SCALE AS SHOWN DRAWING NO. DD-A-U-010



DESIGNED		DATE		1998	
D.MUNSON	G. PATRICK	08/2001	9/2000	ENG	ENG
DRAWN		DATE		1998	
CHECKED		DATE		1998	
APPROVED		DATE		1998	

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
		08/2001	Revised and issued by the Authority
		9/2000	Revised and issued by the Authority

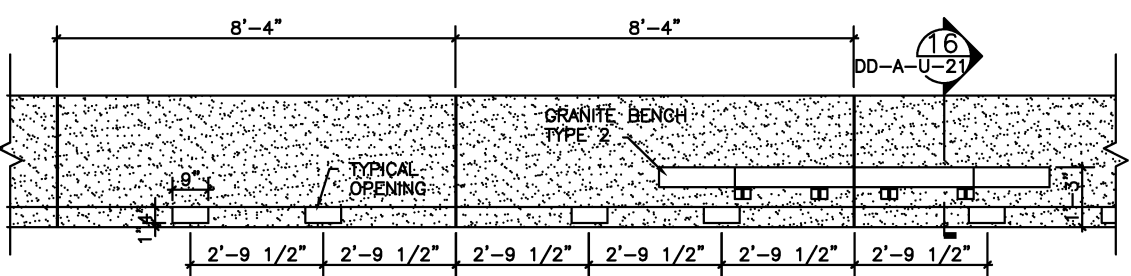
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

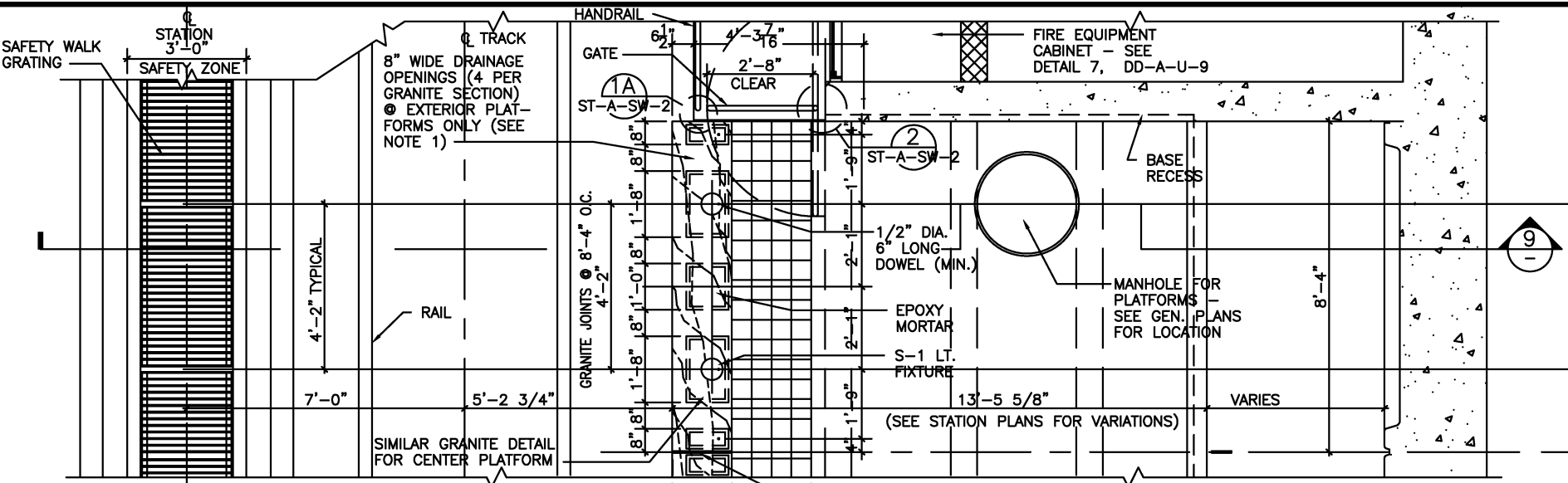
**ARCHITECTURAL DESIGN DRAWING**  
UNDERGROUND SIDE PLATFORM STATION  
PLATFORM VAULT - ACOUSTICAL DETAILS

SCALE AS SHOWN DRAWING NO. DD-A-U-012



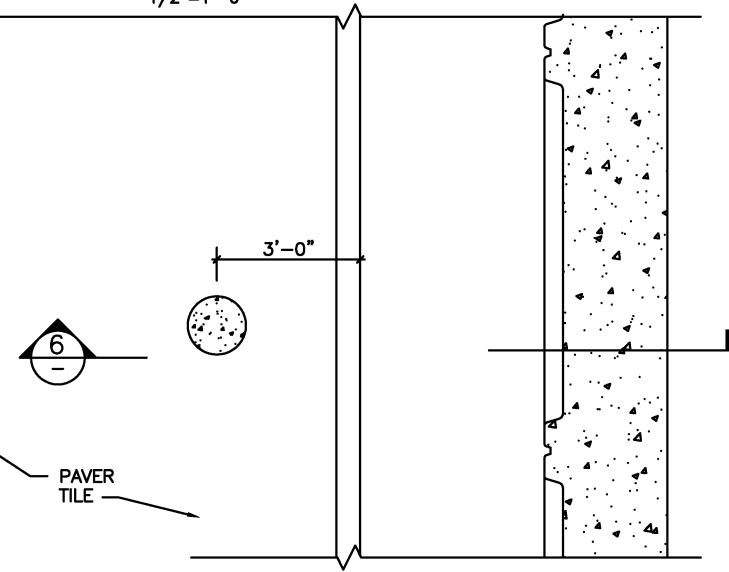
**12 PLATFORM RAILING ELEVATION**

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



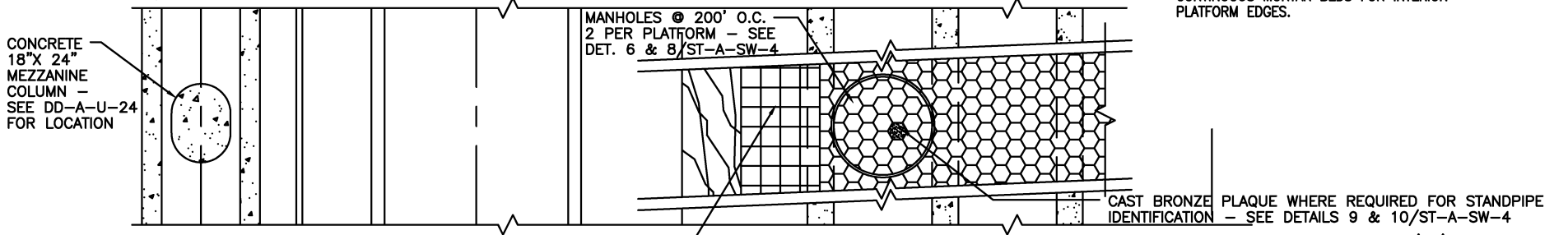
**7 PLAN - SIDE PLATFORM & TRACKBED**

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



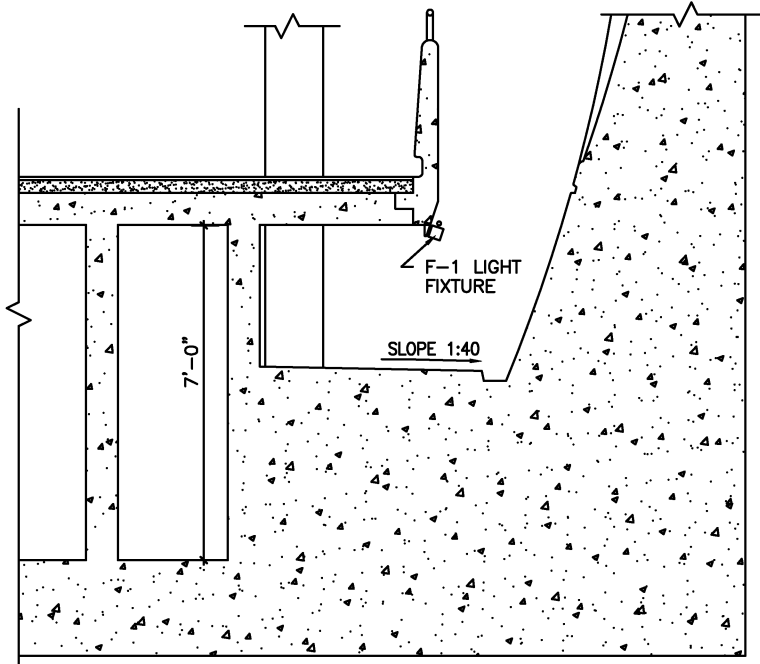
**5 PLAN - PLATFORM AT ESCALATOR**

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



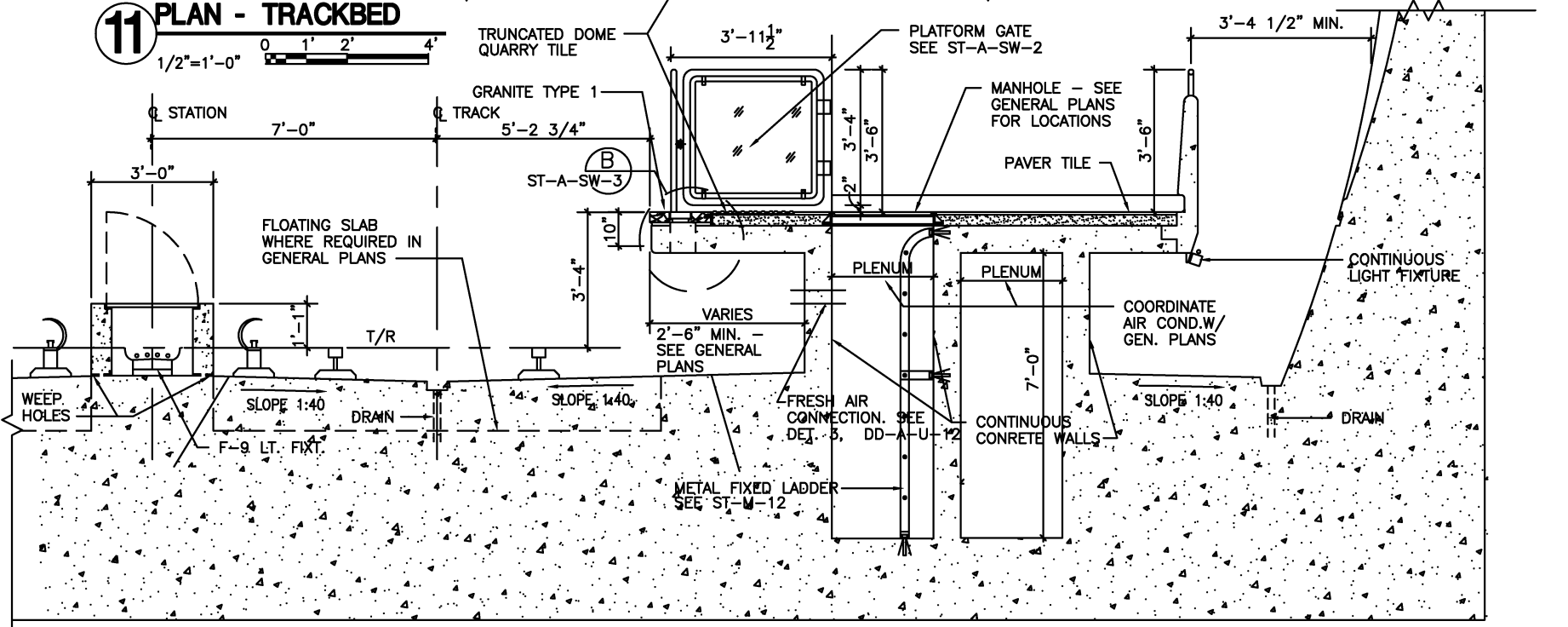
**11 PLAN - TRACKBED**

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



**6 SECTION - PLATFORM AT ESCALATOR**

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



**9 SECTION - TYPICAL SIDE PLATFORM & TRACKBED**

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

**NOTES TO SECTION DESIGNERS:**

- 8" WIDE DRAINAGE OPENINGS ARE APPLICABLE ONLY TO EXTERIOR PLATFORM EDGES. USE CONTINUOUS MORTAR BEDS FOR INTERIOR PLATFORM EDGES.

REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
DESIGNED	D. MUNSON	1998			
DATE					
DRAWN	T.C., N.C.	1998	08/2001	ENGA	Revised and issued by the Authority
DATE			9/2000	ENGA	Revised and issued by the Authority
CHECKED	K. LANDESZ	1998			
DATE					
APPROVED	J. CORLEY	1998			
DATE					
UPDATED	ENGA (PAF)	08/2000			

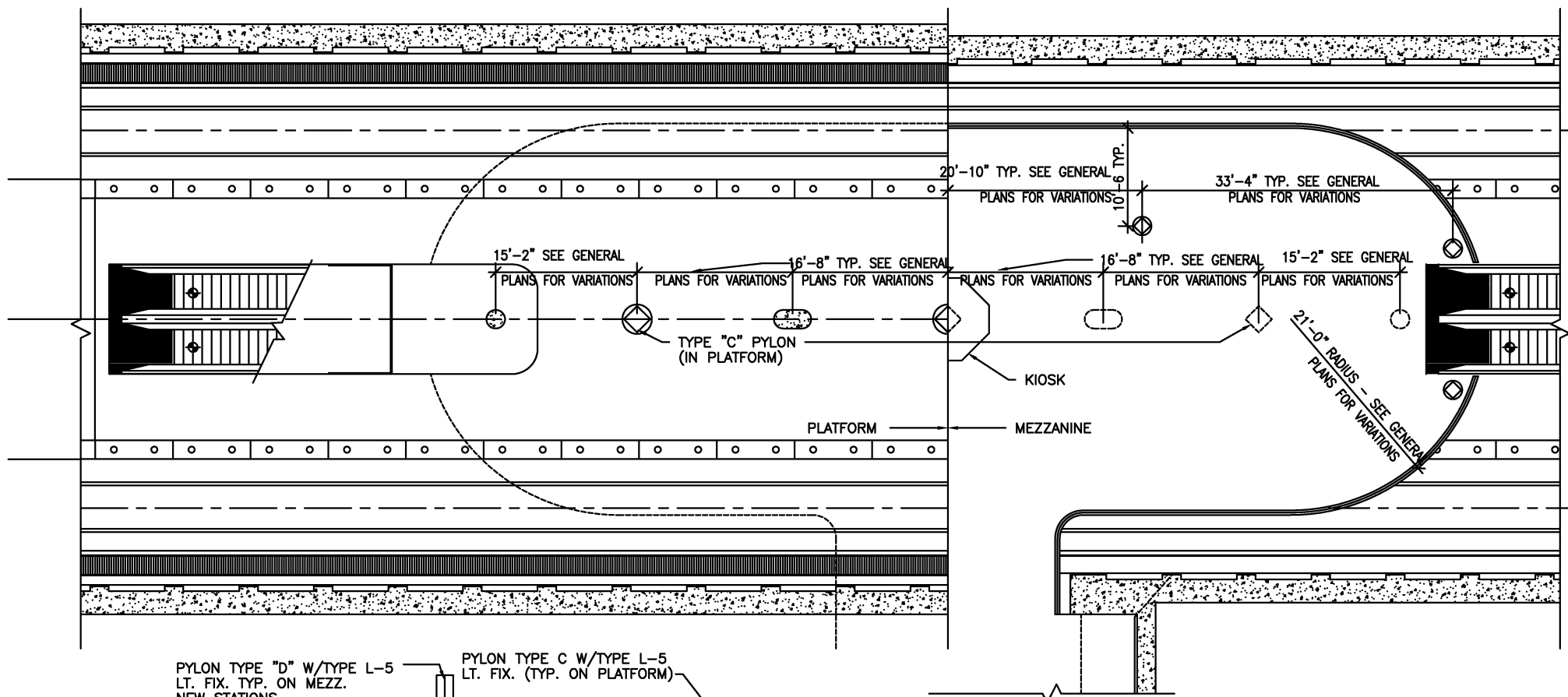
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

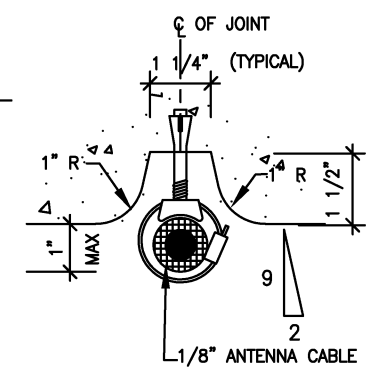
**ARCHITECTURAL DESIGN DRAWING**  
UNDERGROUND STATION  
TRACKBED & PLATFORM DETAILS FOR SIDE PLATFORM

SCALE AS SHOWN DRAWING NO. DD-A-U-013

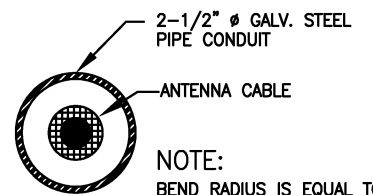


**2 PLAN - PLATFORM & MEZZANINE**

SCALE: 1/8" = 1'-0"

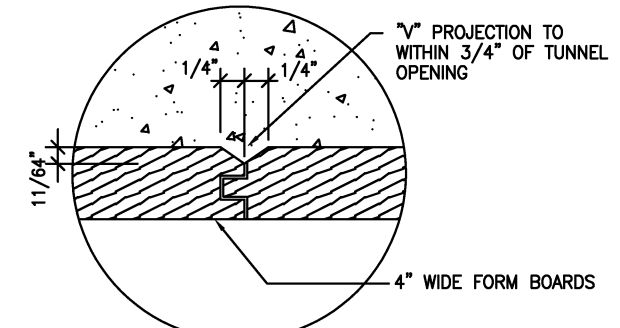


**7 DETAIL**  
1/2 FULL SIZE 0 3" 6" 1"

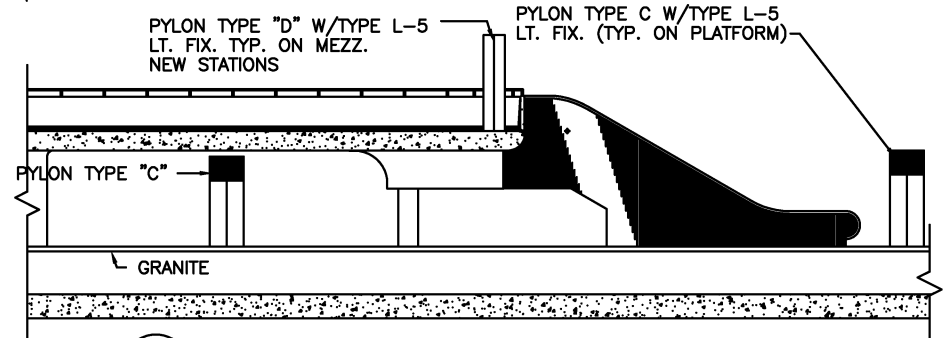


**8 ANTENNA CABLE DETAIL**  
1/2 FULL SIZE 0 3" 6" 1"

NOTE:  
BEND RADIUS IS EQUAL TO TEN (10) TIMES THE THICKNESS OF ANTENNA CABLE

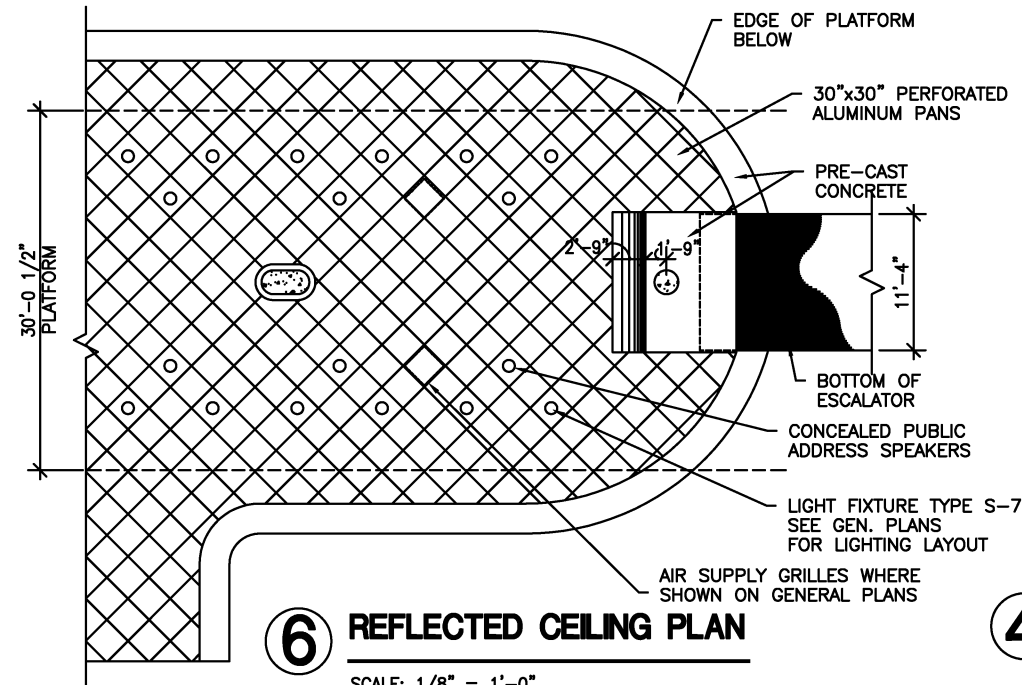


**9 DETAIL**  
FULL SIZE 0 1/2" 1" 2"



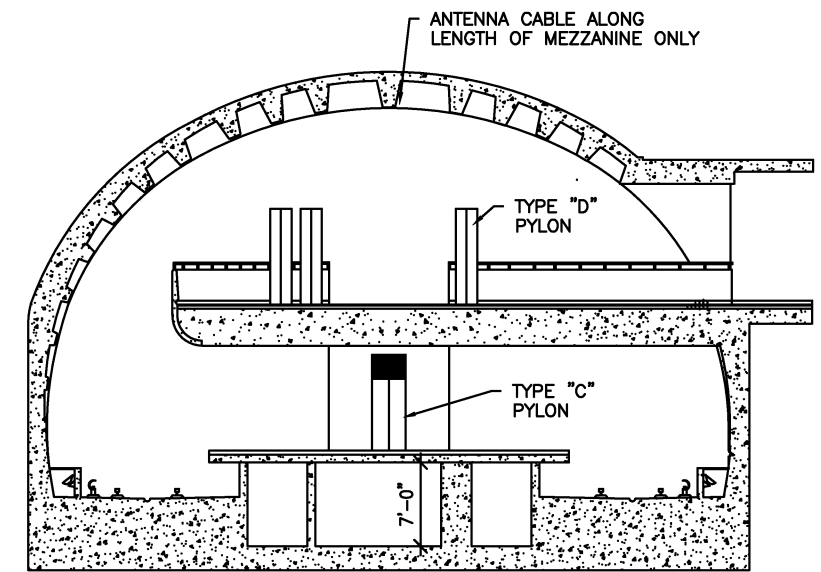
**1 SECTION - MEZZANINE & PLATFORM**

SCALE: 1/8" = 1'-0"



**6 REFLECTED CEILING PLAN**

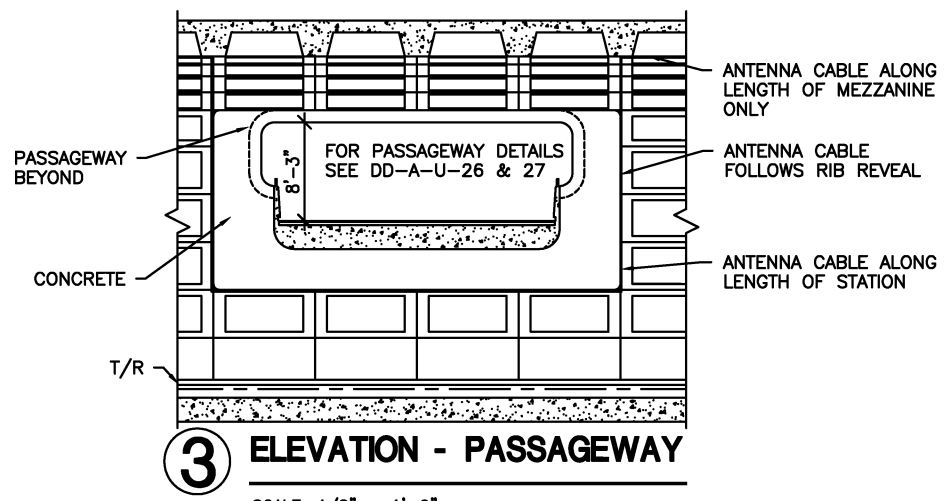
SCALE: 1/8" = 1'-0"



**4 SECTION: ENTRANCE - MEZZANINE & PLATFORM**

SCALE: 1/8" = 1'-0"

0 4' 8' 16'



**3 ELEVATION - PASSAGEWAY**

SCALE: 1/8" = 1'-0"

DESIGNED		DATE		REFERENCE DRAWINGS		DATE		BY		DESCRIPTION	
D.MUNSON	1998			NUMBER	DESCRIPTION	DATE	BY	DATE	BY	DESCRIPTION	
G. PATRICK	1998					08/2001	ENGA			Revised and issued by the Authority	
K. LANDESZ	1998					9/2000	ENGA			Revised and issued by the Authority	
J. CORLEY	1998										

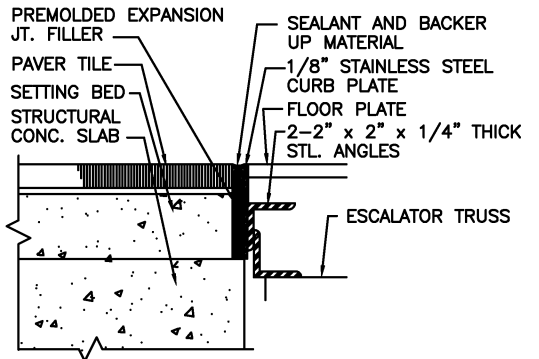
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

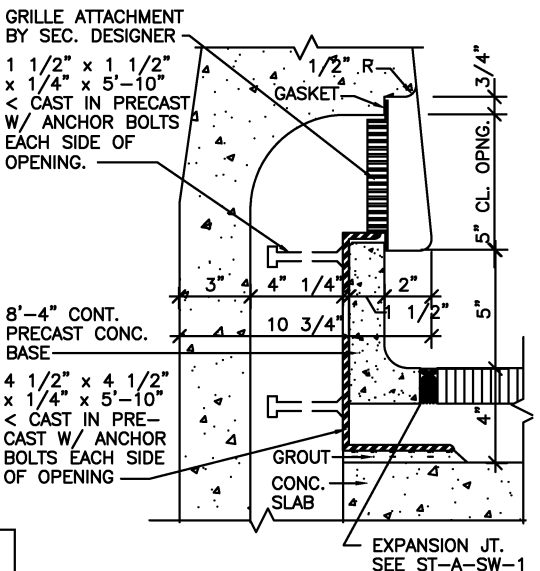
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
CENTER PLATFORM & MEZZANINE PLANS & SECTIONS

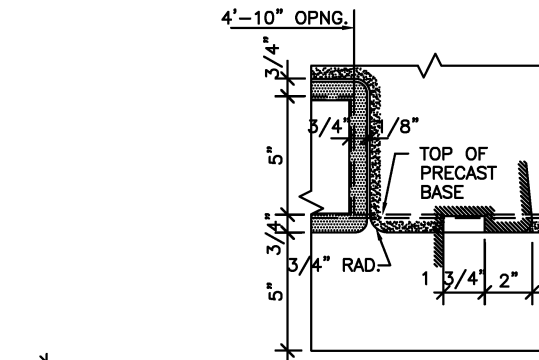
SCALE 1/8"=1'-0" DRAWING NO. DD-A-U-014



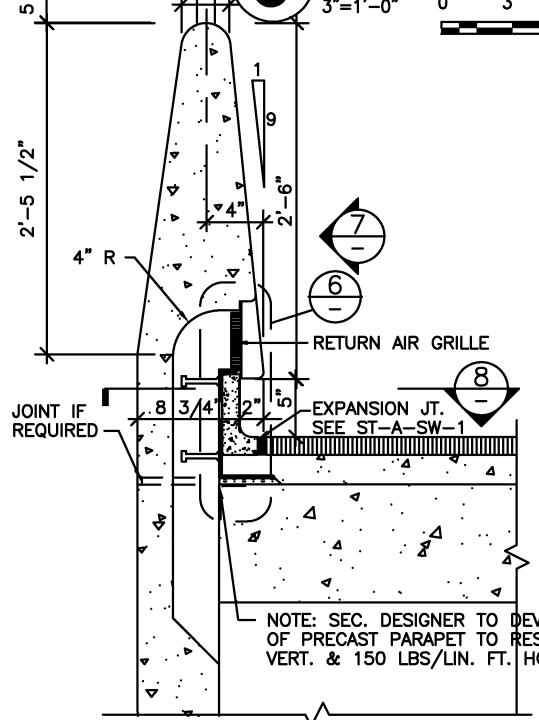
**9 ESCALATOR WELLWAY DET.**  
3"=1'-0"



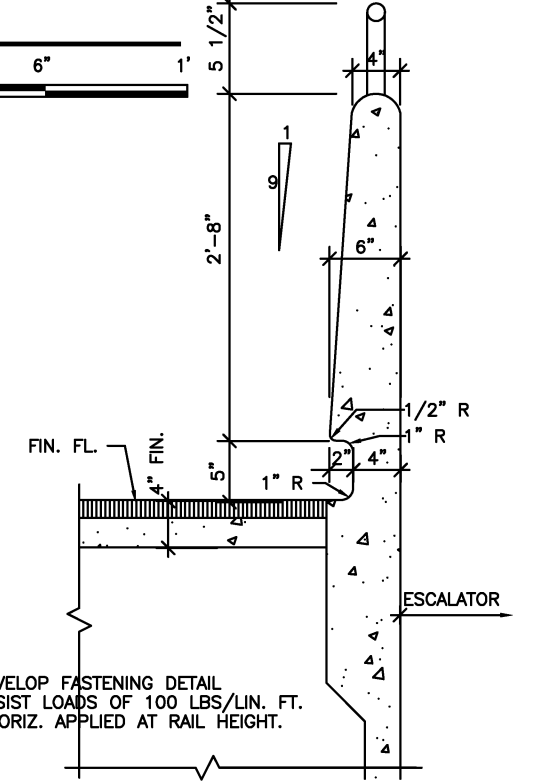
**6 SECTION**  
3"=1'-0"



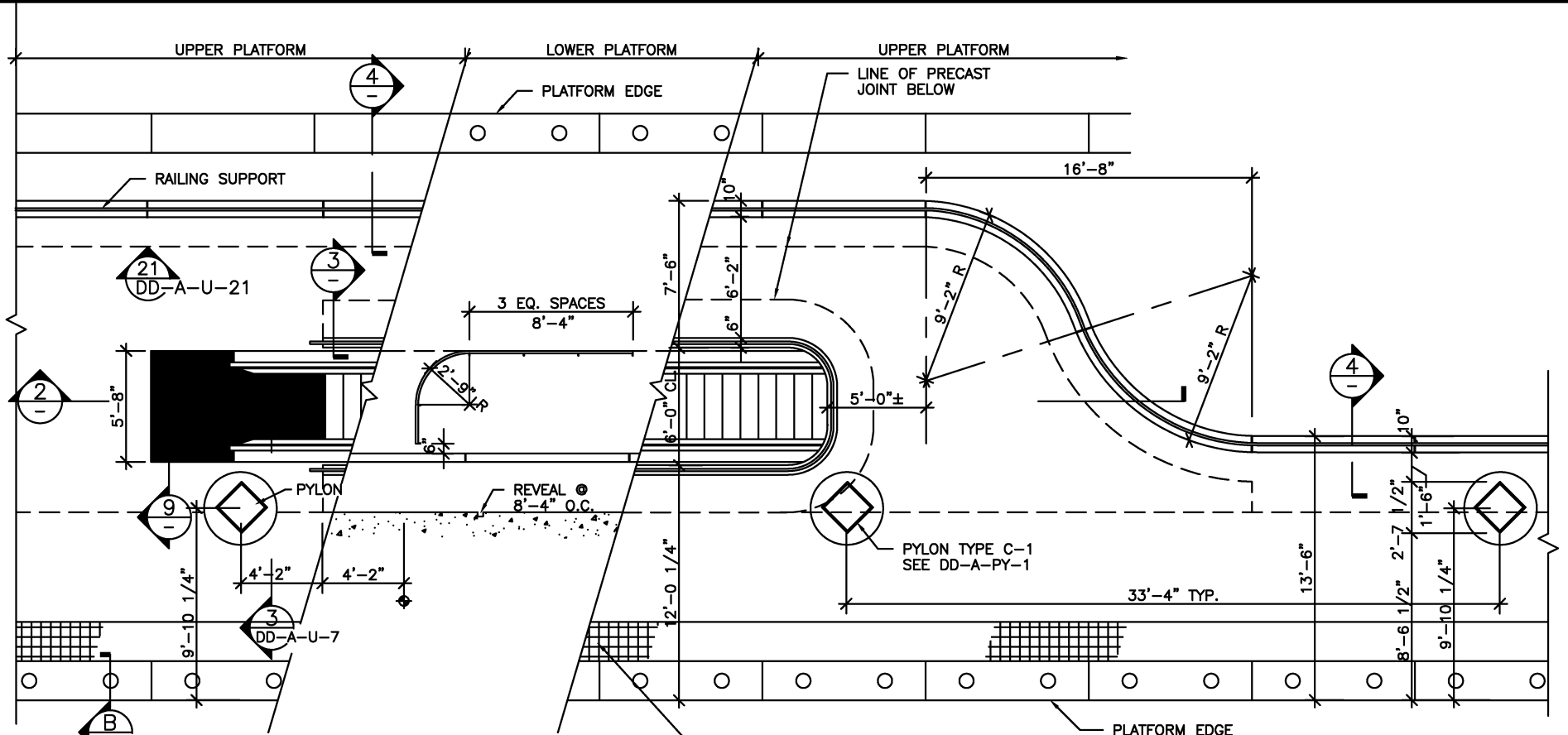
**5 DETAIL**  
3"=1'-0"



**4 SECTION**  
1 1/2"=1'-0"

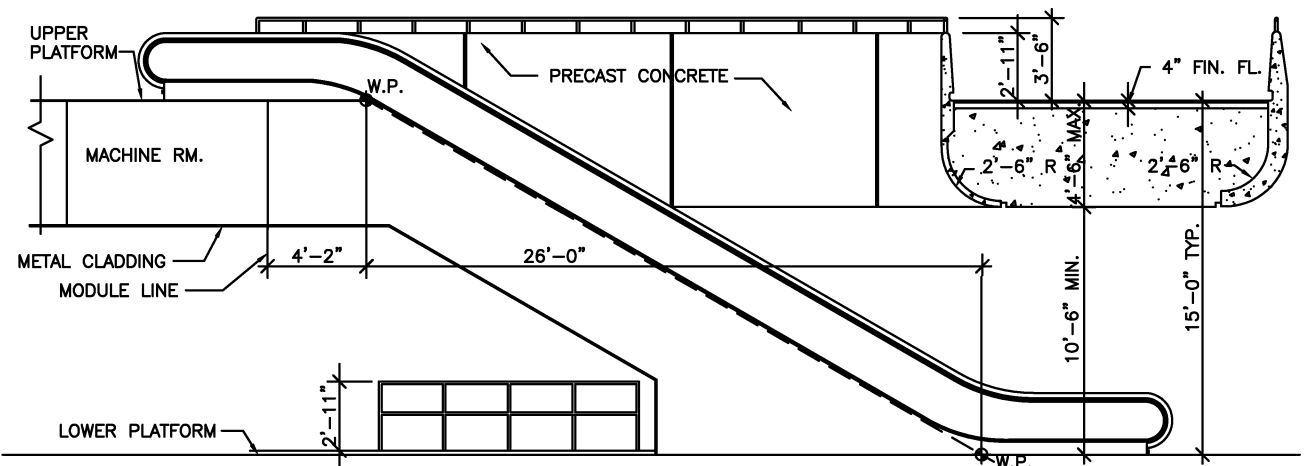


**3 SECTION**  
1 1/2"=1'-0"

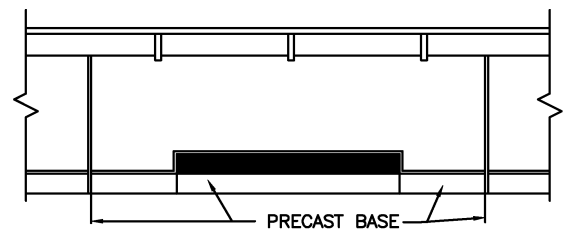


**1 ESCALATOR PLAN**  
1/4"=1'-0"

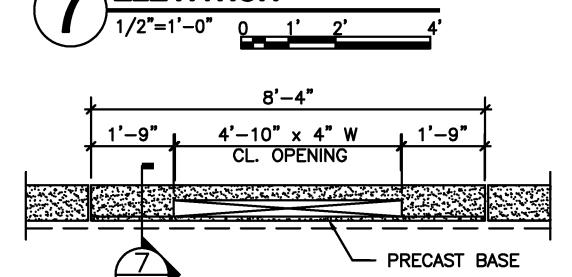
GENERAL NOTE:  
1. METAL CLADDING ON ESCALATORS TO BE PROVIDED AS EITHER PORCELAIN ENAMEL (F.S. 595A COLOR NUMBER 20040) OR STAINLESS STEEL AT THE OPTION OF THE ESCALATOR CONTRACTOR.



**2 LONGITUDINAL SECTION OF ESCALATOR**  
1/4"=1'-0"



**7 ELEVATION**  
1/2"=1'-0"

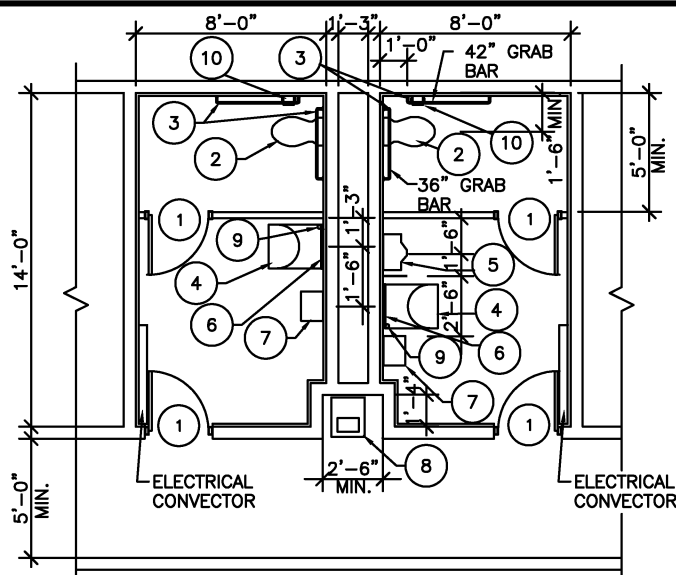


**8 SECTION**  
1/2"=1'-0"

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
1	D.MUNSON	1998	08/2001			ENGA	Revised and issued by the Authority
2	N. IBIEBELE	1998					
3	K. LANDEZ	1998					
4	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

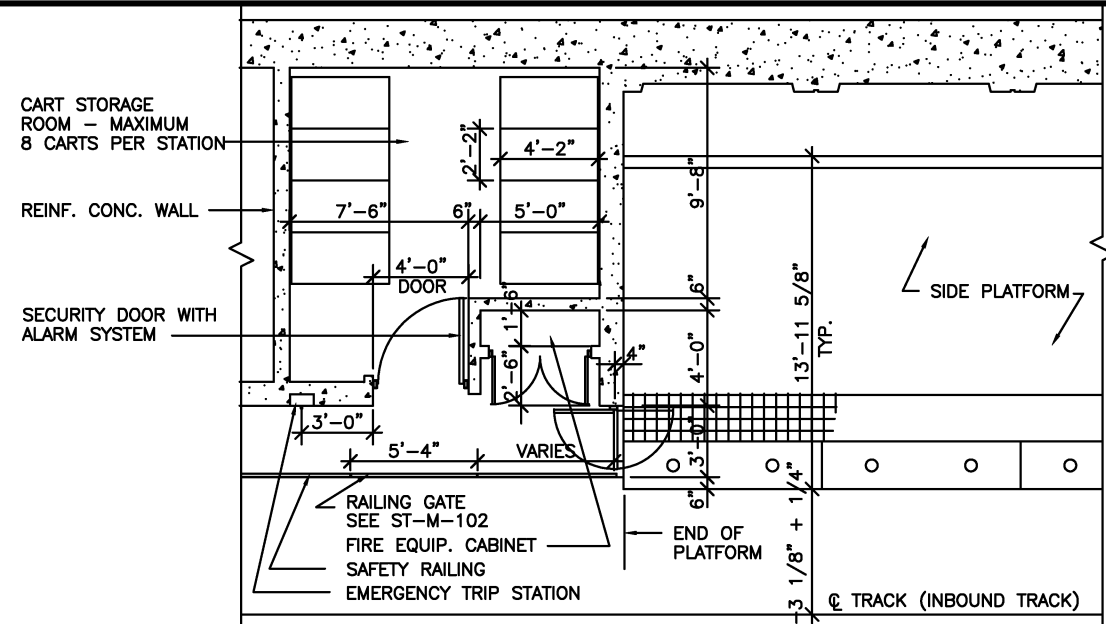
ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
SPLIT PLATFORM ESCALATOR GEOMETRY  
SCALE AS SHOWN DRAWING NO. DD-A-U-016



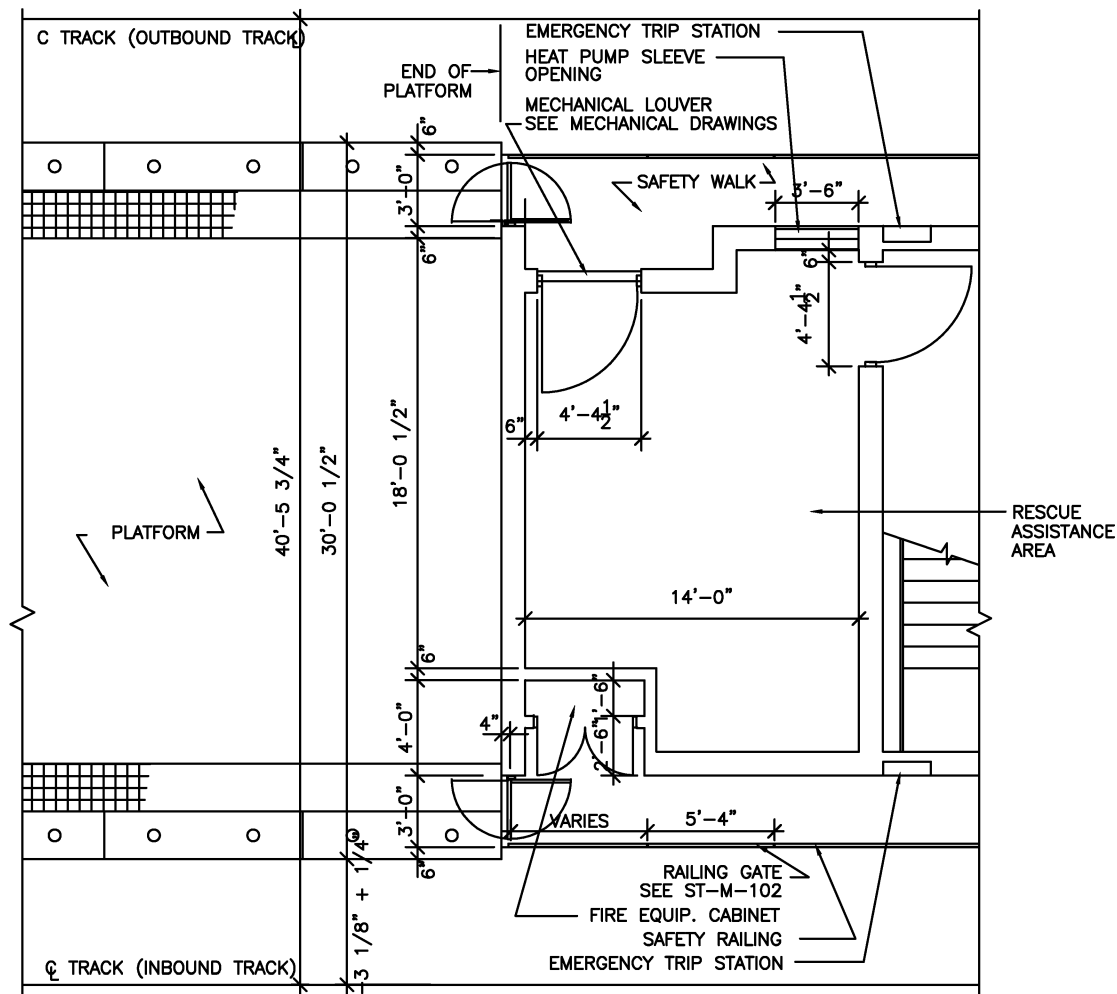
**1 MEN'S AND WOMEN'S WASHROOM**  
1/4"=1'-0"

- NO. ITEM
- ① DOOR: 3'-0" WIDE
  - ② WATER CLOSET: WALL HUNG, 19" HIGH TO TOP OF SEAT.
  - ③ GRAB BARS: 33" HIGH A.F.F.
  - ④ LAVATORY MOUNTED @ 34" MAX. A.F.F. CLEARANCE AND HARDWARE AS SPECIFIED BY ADA.
  - ⑤ URINAL: WALL MOUNTED @ 17" ABOVE FINISH FLOOR @ RIM
  - ⑥ MIRROR: MOUNT BOTTOM @ 40" MAX. ABOVE FINISH FLOOR.
  - ⑦ PAPER TOWEL DISPENSER AND DISPOSAL: TOWEL REACH MAX. 48" A.F.F.
  - ⑧ ELECTRICAL WATER COOLER SPOUT MOUNTED @ 36" ABOVE FINISH FLOOR HANDICAPPED TYPE PER ADA
  - ⑨ SOAP DISPENSER.
  - ⑩ TOILET PAPER DISPENSER: 19" A.F.F.

NOTE: MEN'S AND WOMEN'S WASHROOM SHALL MEET ALL REQUIREMENTS PER ADA.



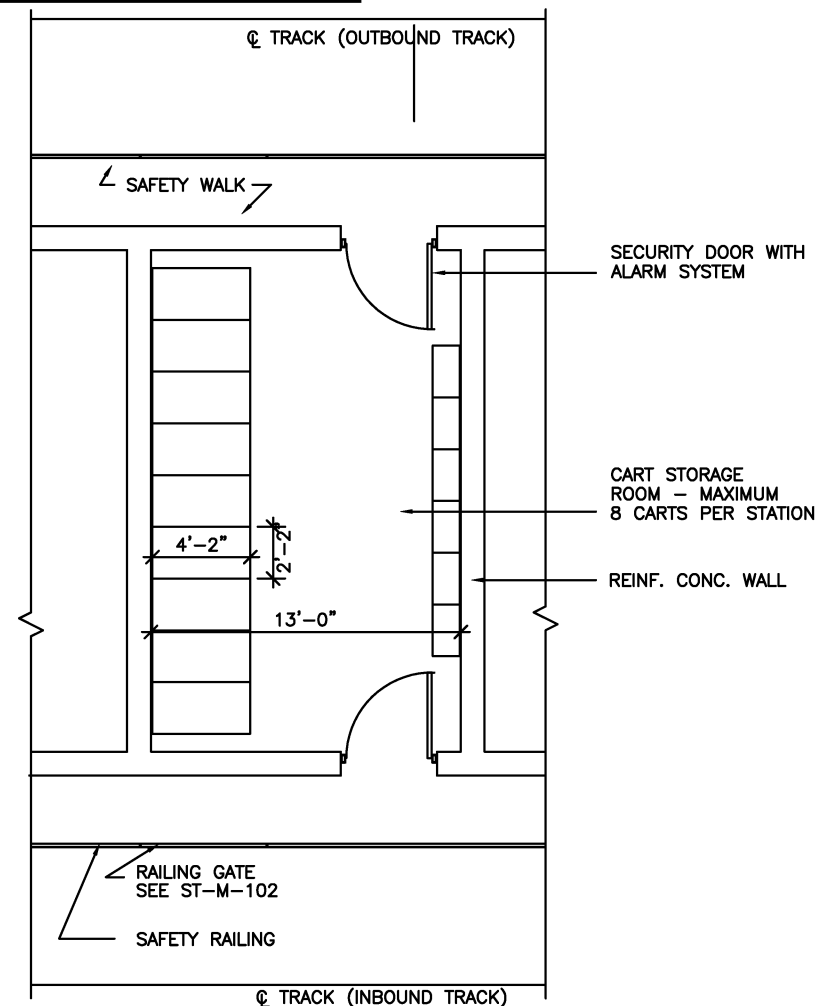
**2 CART STORAGE ROOM SIDE PLATFORM**  
1/4"=1'-0"



**4 A.O.R.A.**  
1/4"=1'-0"

NOTES:

1. LIGHTING IS TO BE PROVIDED BY TWO FLUORESCENT FIXTURES SELECTED FROM EXISTING FIXTURE SCHEDULE. OPERATED BY TWO 3-WAY SWITCHES ONE AT EACH DOOR (CENTER PLATFORM).
2. CART STORAGE ROOM AT SIDE PLATFORM IS ALWAYS TO BE LOCATED ON INBOUND TRACK SIDE AT EXIT END OF PLATFORM.



**3 CART STORAGE ROOM CENTER PLATFORM**  
1/4"=1'-0"

DESIGNED	D.MUNSON	1998
DRAWN	N. IBELE	1998
CHECKED	K. LANDEZ	1998
APPROVED	J. CORLEY	1998
UPDATED	ENGA (PAF)	08/2000

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	ENGA	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

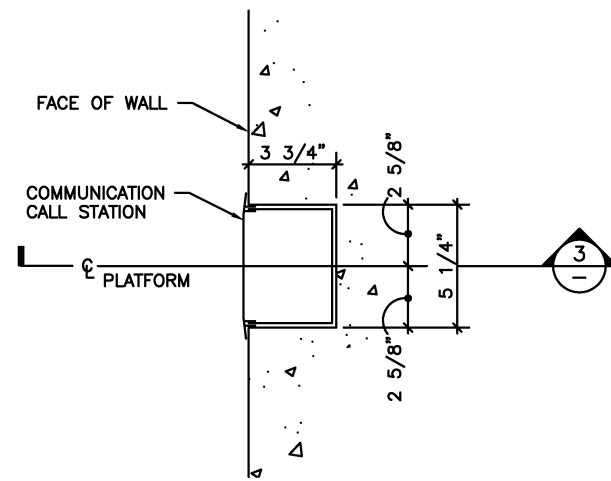
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

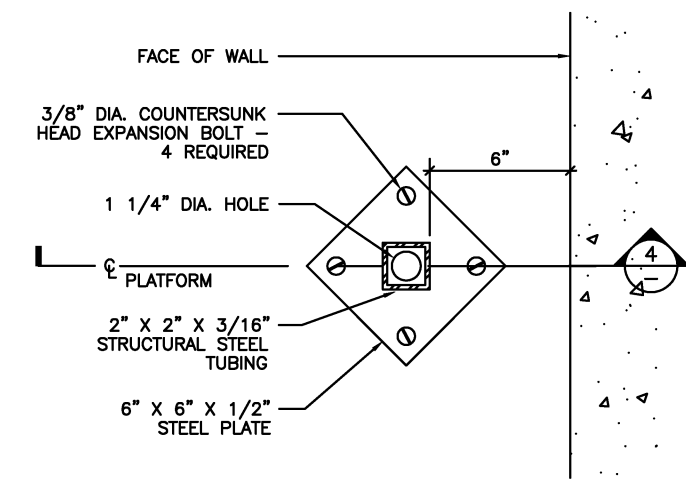
ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
MENS AND WOMENS WASHROOMS, CART STORAGE & ANCILLARY ROOMS FOR SIDE AND CENTER PLATFORM

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

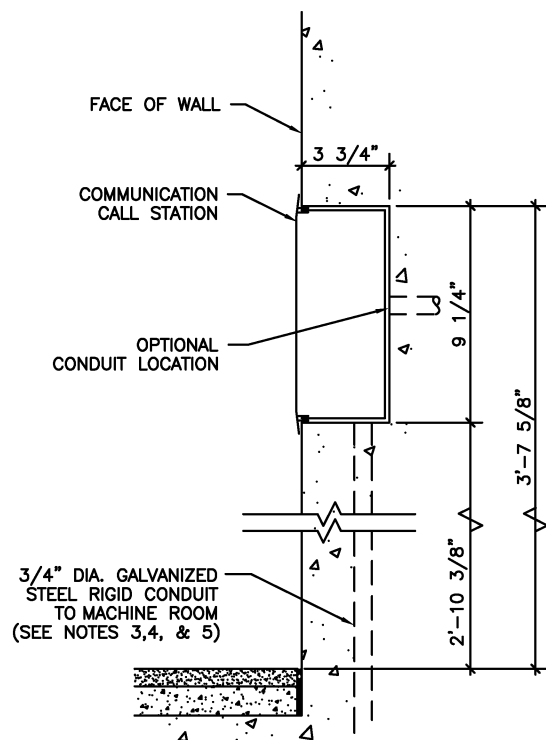
DRAWING NO. DD-A-U-017



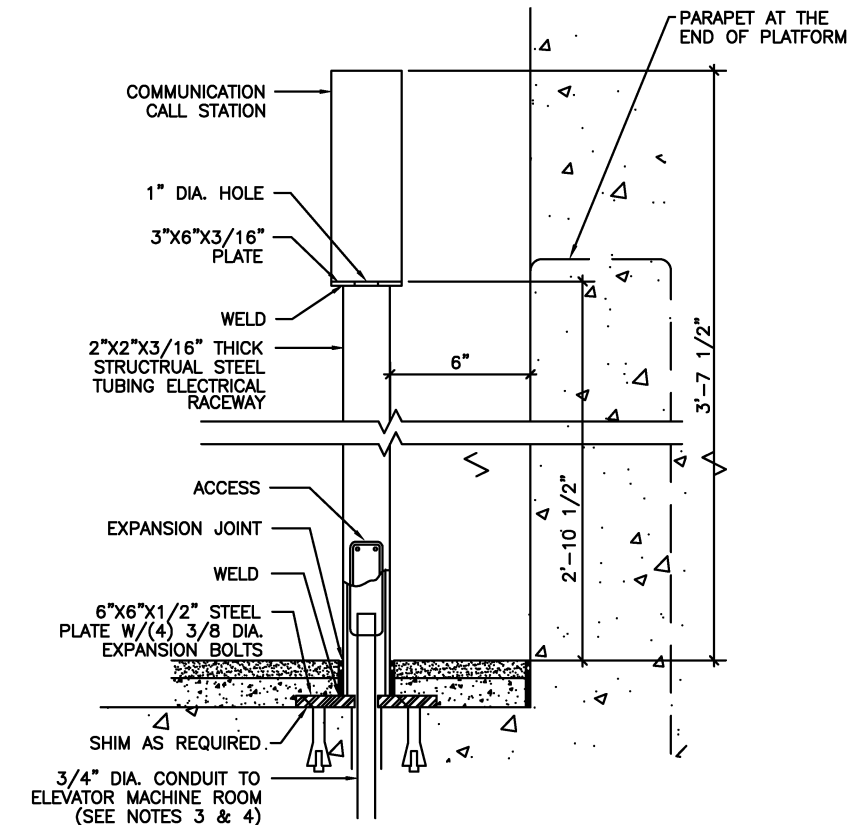
**1 WALL MOUNTED PLAN - TYPE 'A'**  
3"=1'-0" 0 2" 4" 8" 1'



**2 FLOOR MOUNTED PLAN - TYPE 'B'**  
3"=1'-0" 0 2" 4" 8" 1'



**3 SECTION - TYPE 'A'**  
3"=1'-0" 0 2" 4" 8" 1'



**4 SECTION - TYPE 'B'**  
3"=1'-0" 0 2" 4" 8" 1'

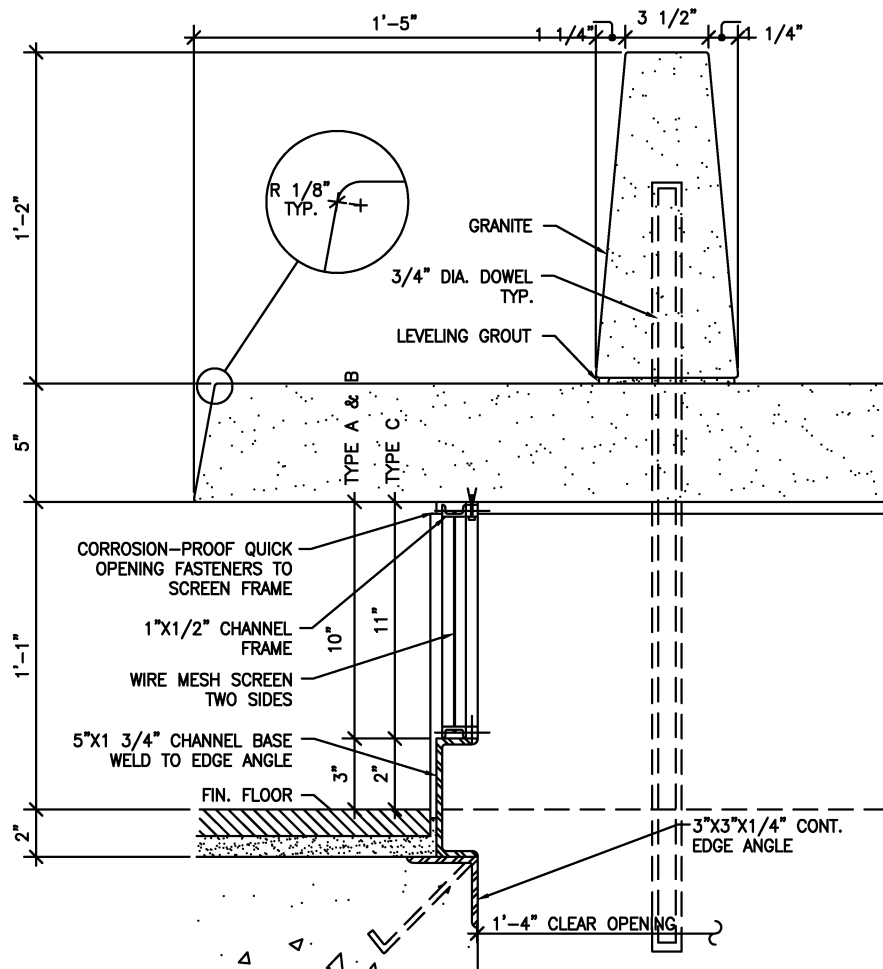
- NOTES:
- EMERGENCY COMMUNICATION CALL STATION IS TO BE LOCATED AT THE STATION 1/3-POINTS CALL STATION GRAPHICS TO BE SUBMITTED TO THE G.A.C FOR APPROVAL.
  - STUB CONDUIT BELOW PLATFORM. TERMINATE IN SINGLE JUNCTION BOX FOR SIDE PLATFORM STATION.
  - CONDUIT CAN BE RUN IN FINISH FLOOR SLAB IF DESIRED.
  - CONDUIT IS NOT TO EXTEND INTO BLOCK OUT FOR CALL STATION.

DESIGNED		DATE		1998	
D. MUNSON					
DRAWN		DATE		1998	
N. IBIEBELE					
CHECKED		DATE		1998	
K. LANDEZ					
APPROVED		DATE		1998	
J. CORLEY					

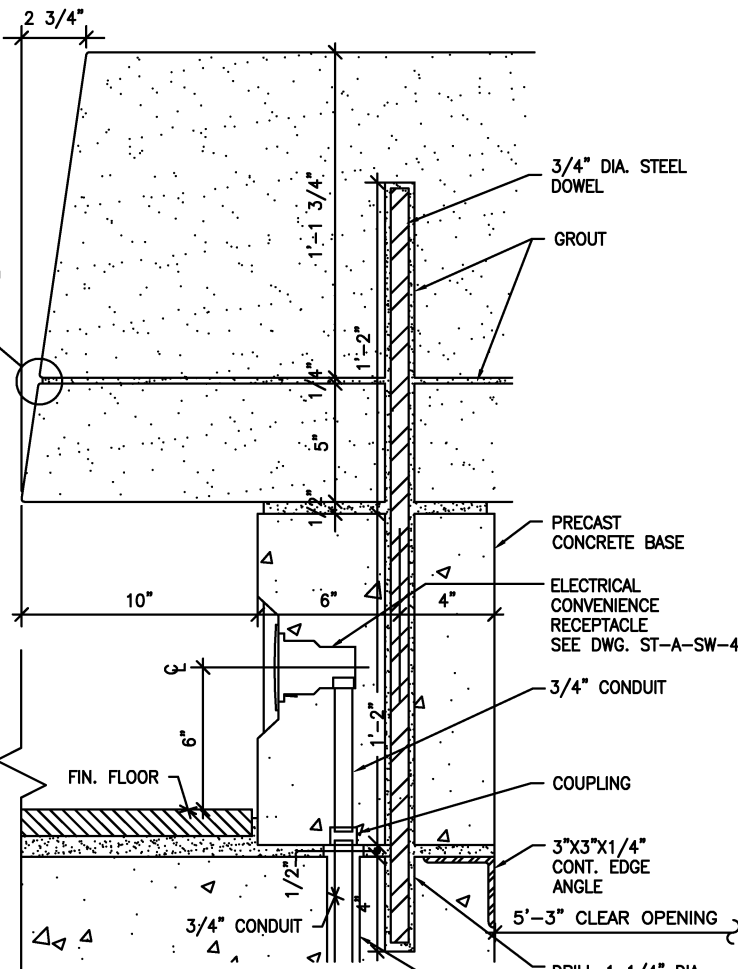
REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
		08/2001	ENGA	Revised and issued by the Authority

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

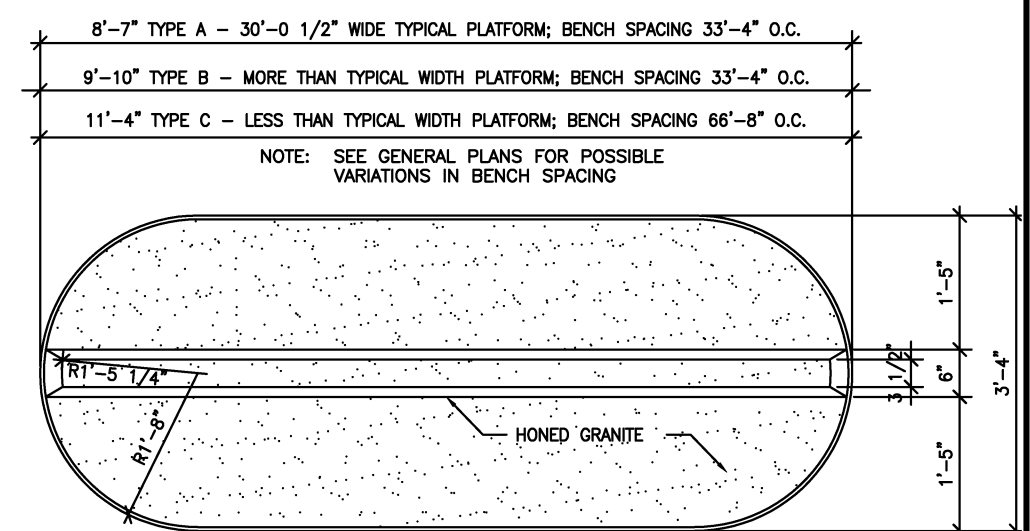
ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
EMERGENCY COMMUNICATION  
CALL STATION INSTALLATION  
SCALE AS SHOWN  
DRAWING NO. DD-A-U-019



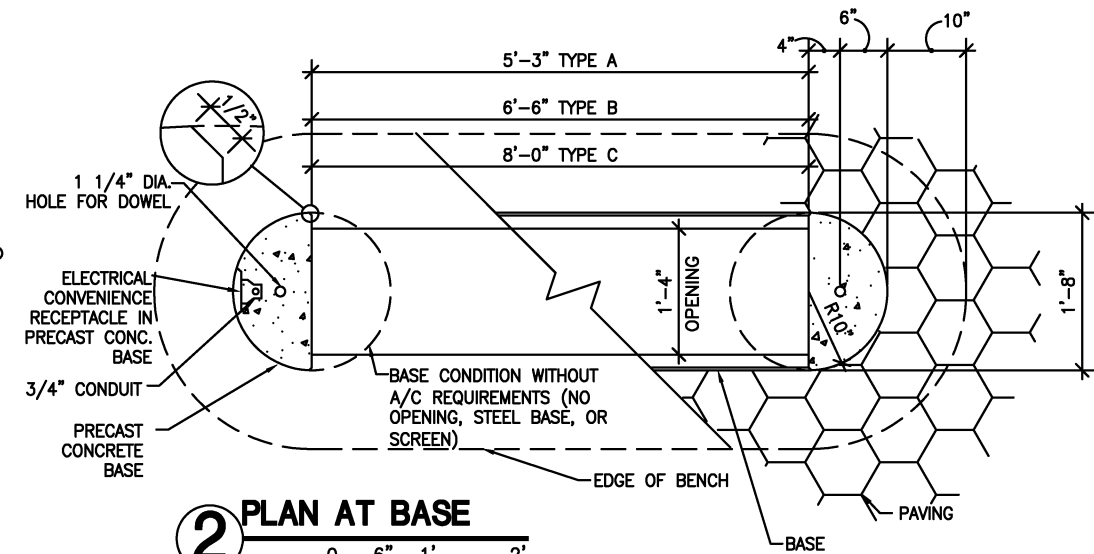
**6 SECTION**  
 3"=1'-0" 0 3" 6" 1'



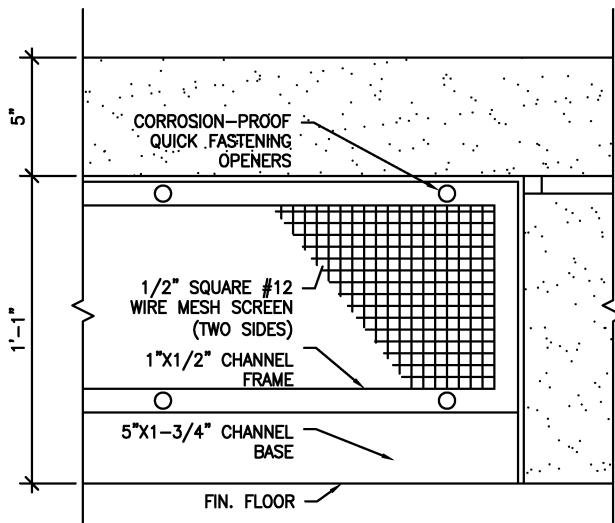
**5 SECTION**  
 3"=1'-0" 0 3" 6" 1'



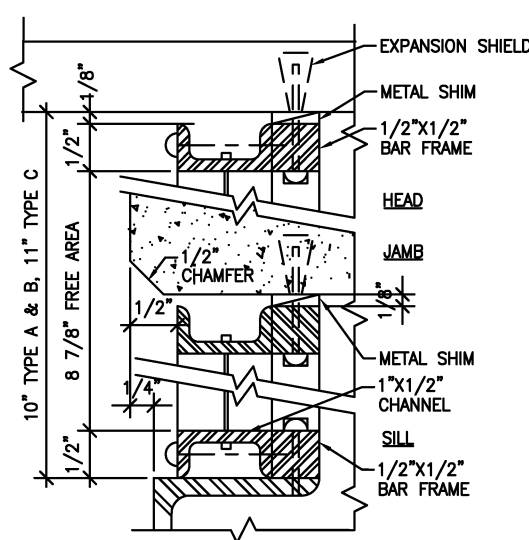
**1 PLAN AT BENCH TOP**  
 1"=1'-0" 0 6" 1' 2'



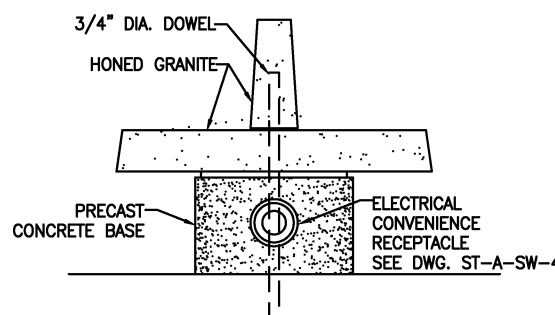
**2 PLAN AT BASE**  
 1"=1'-0" 0 6" 1' 2'



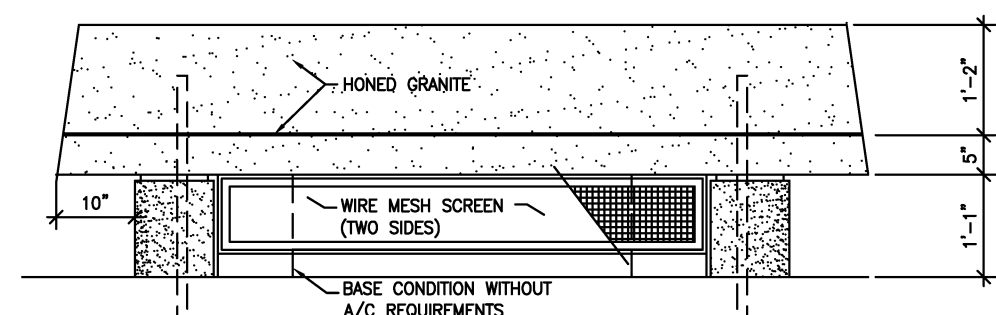
**7 SCREEN DETAIL**  
 3"=1'-0" 0 3" 6" 1'



**8 SCREEN DETAIL**  
 FULL SIZE



**4 SIDE ELEVATION**  
 1"=1'-0" 0 6" 1' 2'



**3 FRONT ELEVATION**  
 1"=1'-0" 0 6" 1' 2'

NOTE: THE ULTIMATE BENDING STRESS OF THE GRANITE BENCH AS DETERMINED BY INDEPENDENT LABORATORY TESTS SHALL NOT BE LESS THAN 500 P.S.I.

DESIGNED		DATE		REFERENCE DRAWINGS		DATE		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY
D.MUNSON		1998							
V. WOHLLEBEN		1998							
K. LANDESZ		1998							
J. CORLEY		1998							

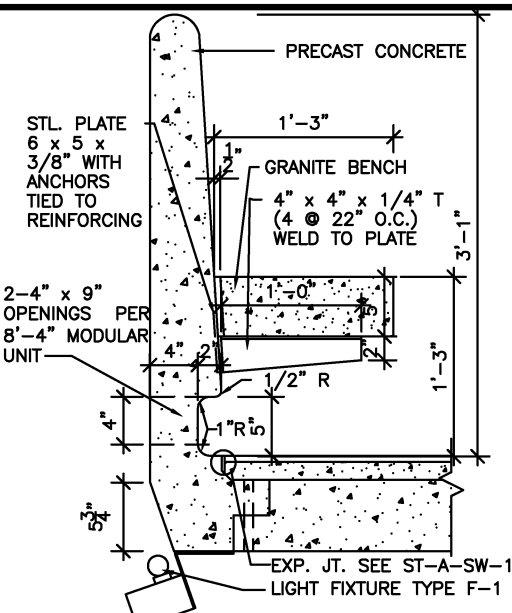
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

ARCHITECTURAL DESIGN DRAWING  
 UNDERGROUND STATION  
 CENTER PLATFORM BENCH

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

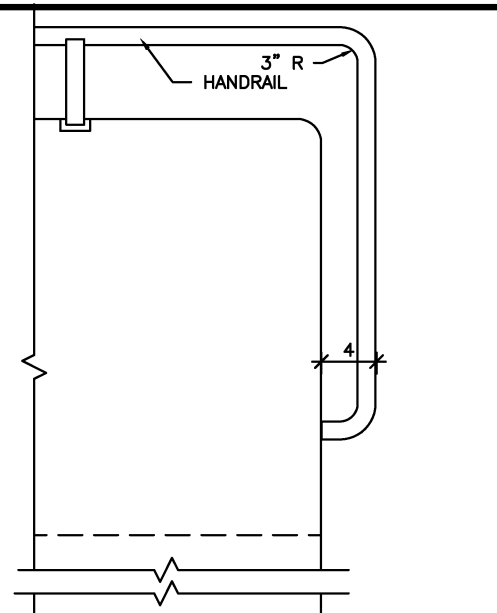
SCALE AS SHOWN DRAWING NO. DD-A-U-020





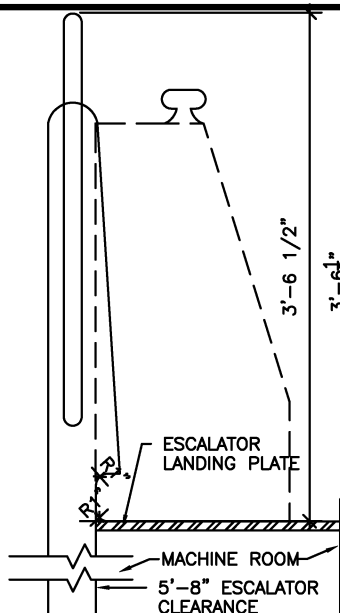
**SECTION-PLATFORM BENCH & RAILING**

**16** 1 1/2"=1'-0"



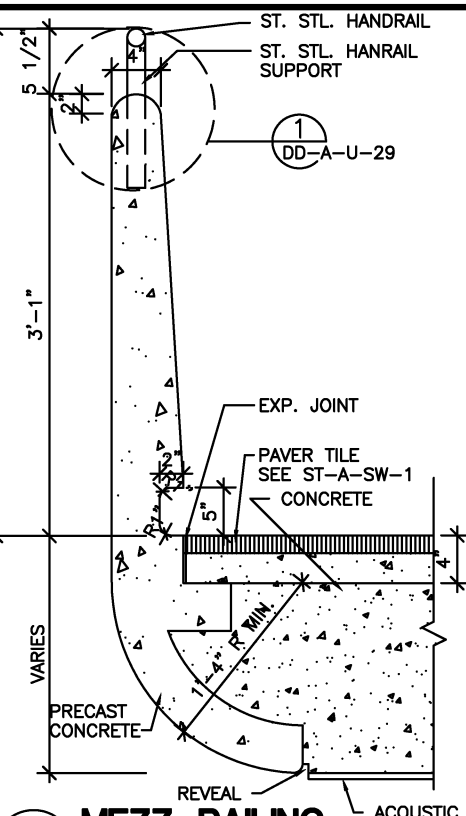
**ELEVATION MEZZANINE RAILING END CONDITION**

**15** 1 1/2"=1'-0"



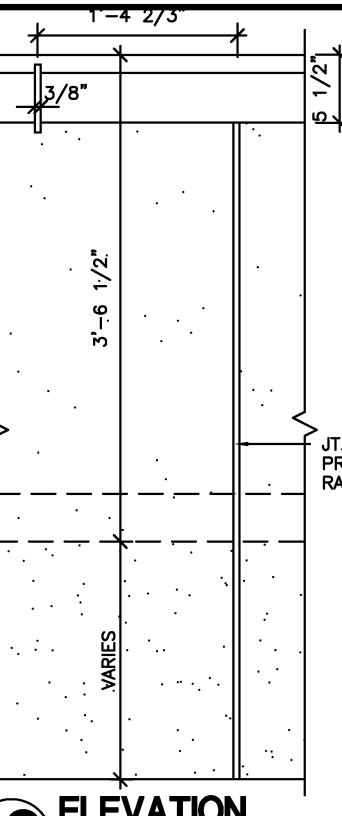
**MEZZANINE RAILING END CONDITION**

**14** 1 1/2"=1'-0"



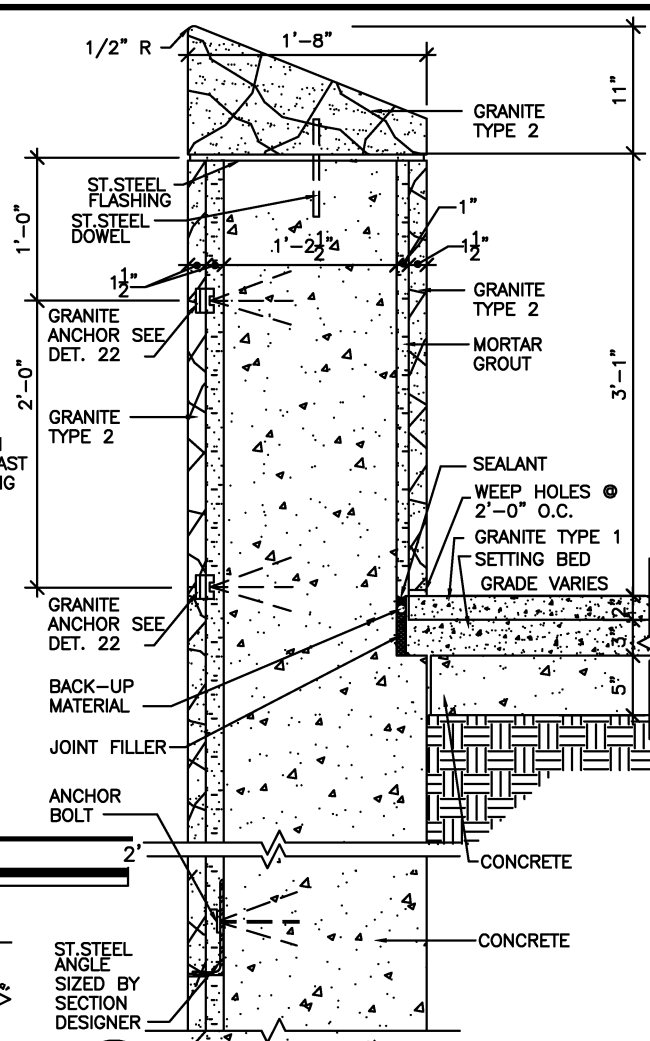
**MEZZ. RAILING**

**13** 1 1/2"=1'-0"



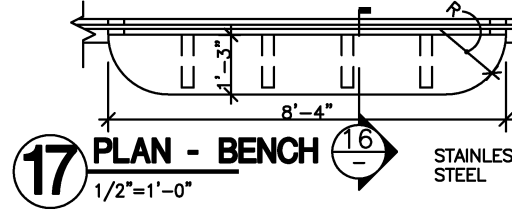
**ELEVATION**

**12** 1 1/2"=1'-0"



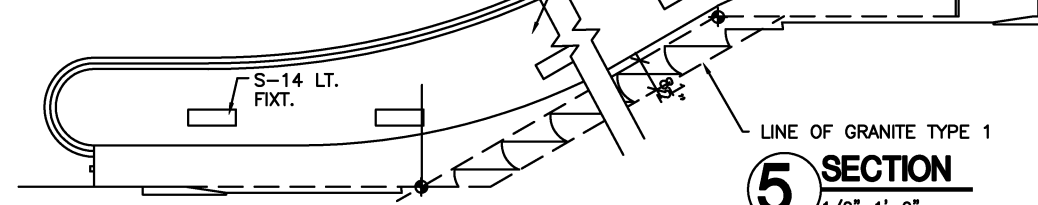
**SURFACE RAILING**

**11** 1 1/2"=1'-0"



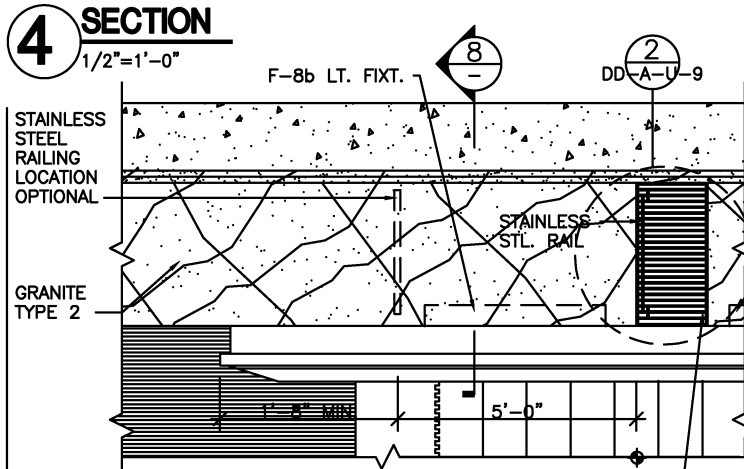
**PLAN - BENCH**

**17** 1/2"=1'-0"



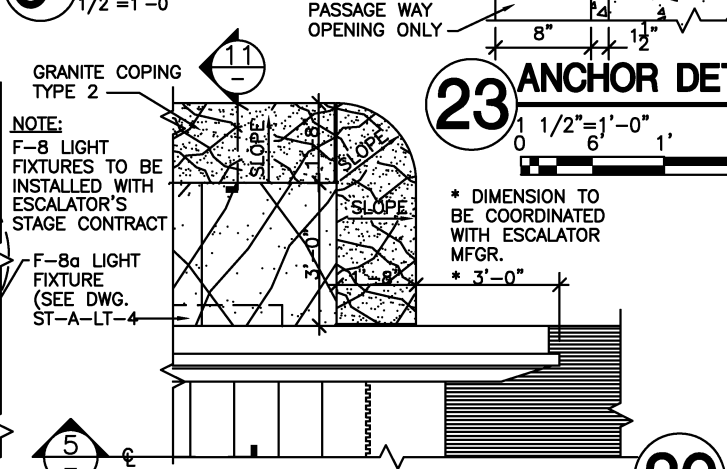
**SECTION**

**5** 1/2"=1'-0"



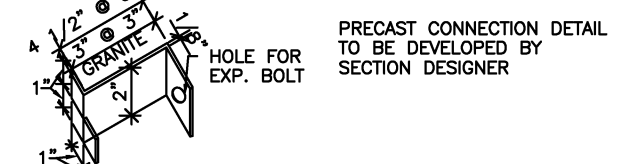
**PLAN AT PASSAGE**

**1** 1/2"=1'-0"



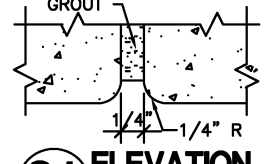
**PLAN AT SURFACE**

**2** 1/2"=1'-0"



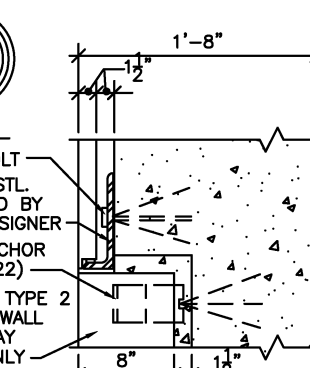
**GRANITE ANCHOR DET.**

**22** NOT TO SCALE



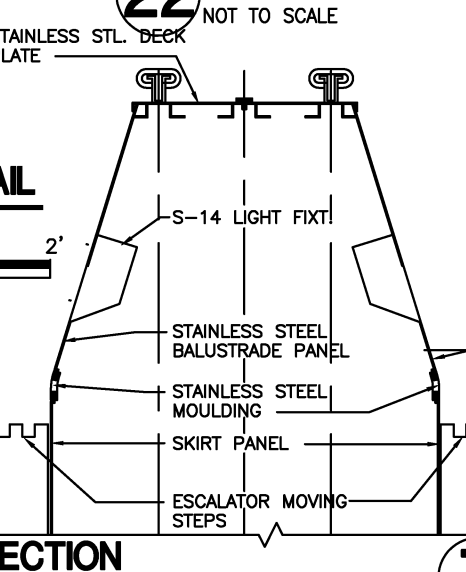
**ELEVATION**

**21** FULL SIZE



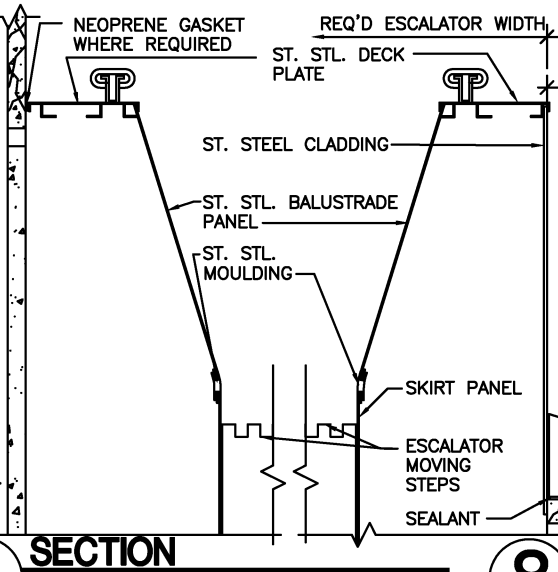
**ANCHOR DETAIL**

**23** 1 1/2"=1'-0"



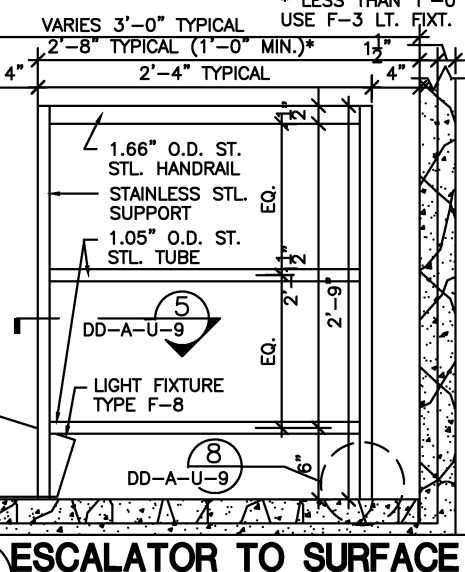
**SECTION**

**20** 1 1/2"=1'-0"



**SECTION**

**7** 1 1/2"=1'-0"



**ESCALATOR TO SURFACE**

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

DESIGNED	D. MUNSON	1998
DRAWN	N. IBIEBELE	1998
CHECKED	K. LANDESZ	1998
APPROVED	J. CORLEY	1998
UPDATED	ENGA (PAF)	08/2000

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	ENGA	Revised and issued by the Authority

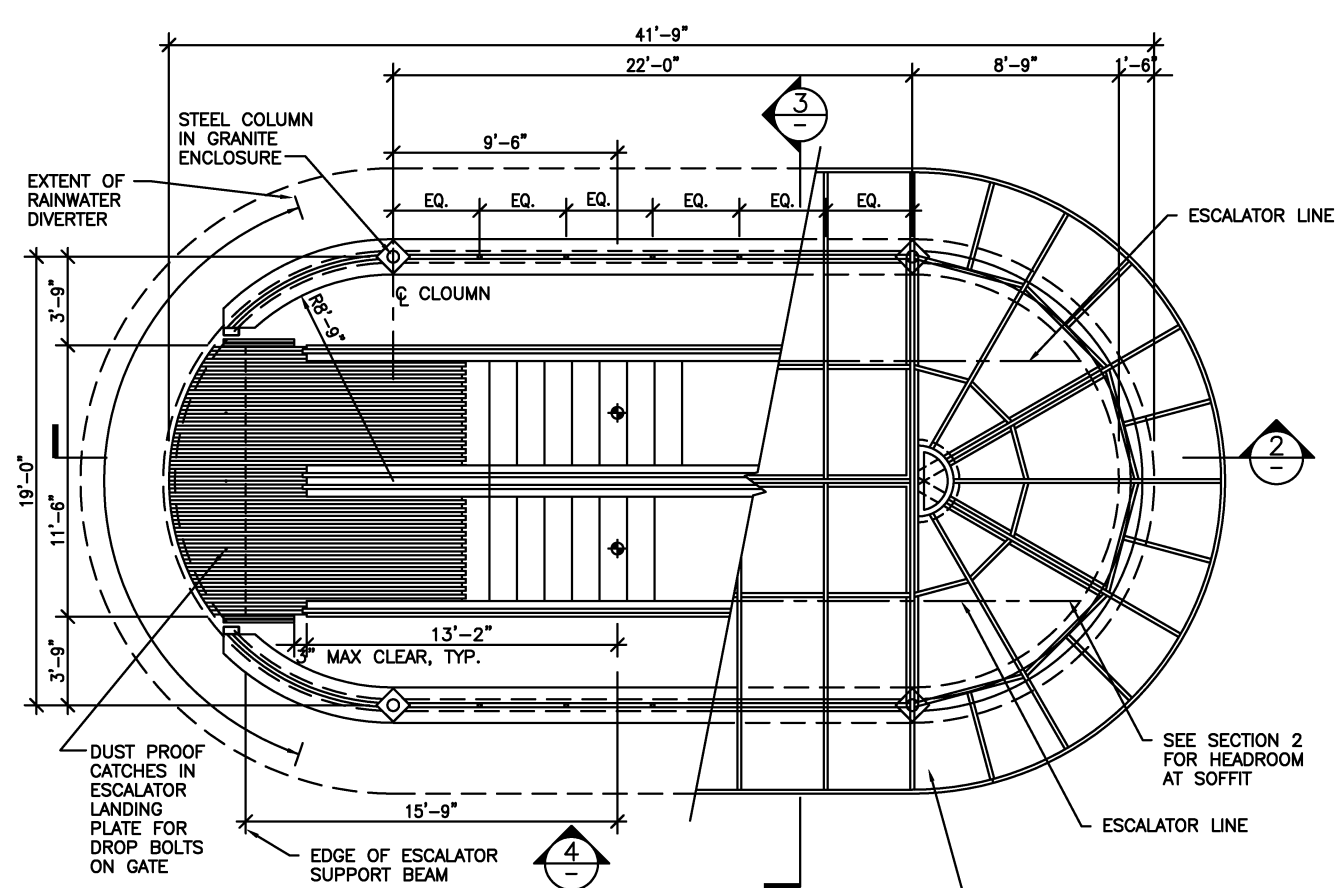
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

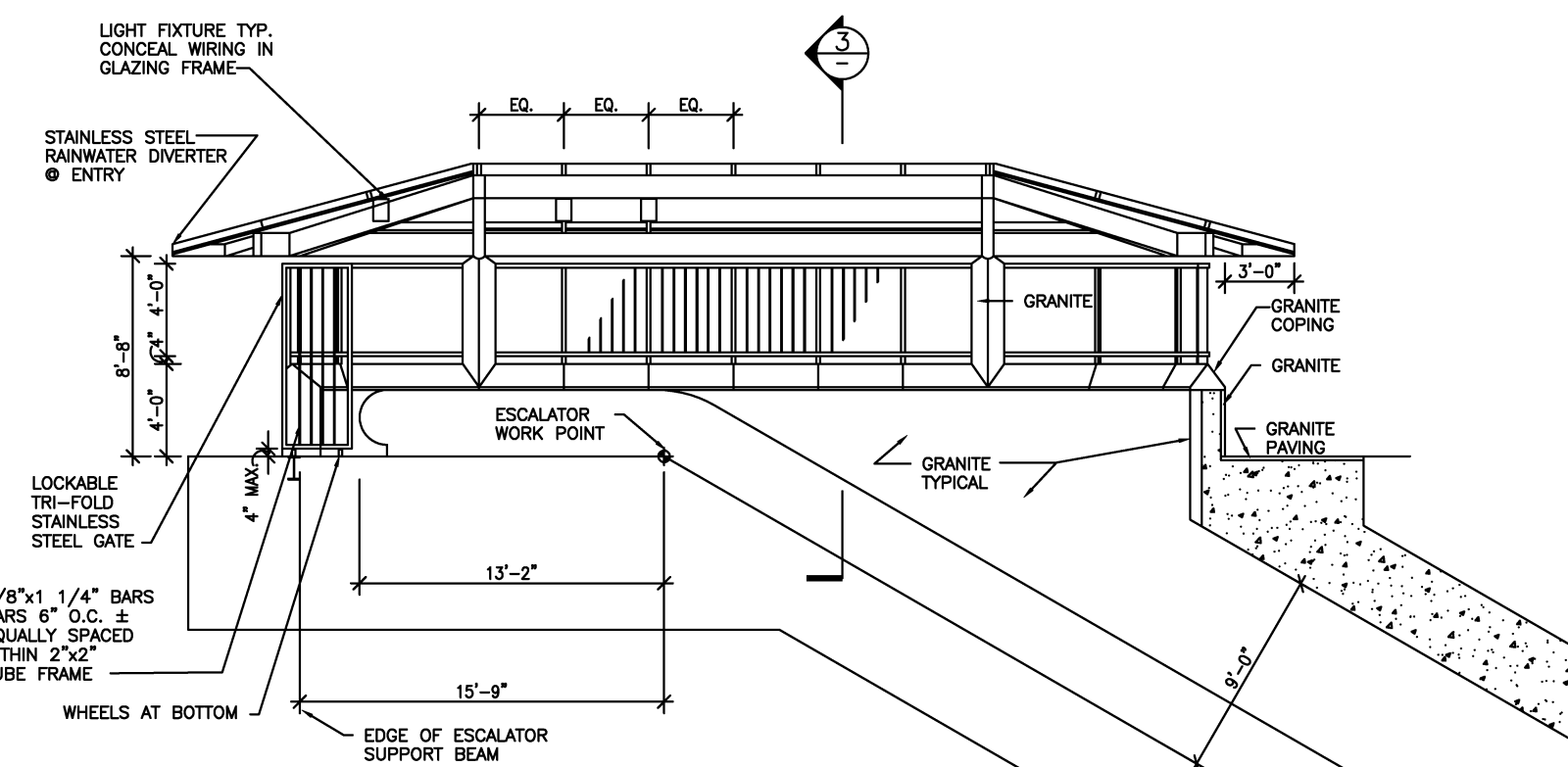
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *Harry J. ...* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
RAILING DETAILS

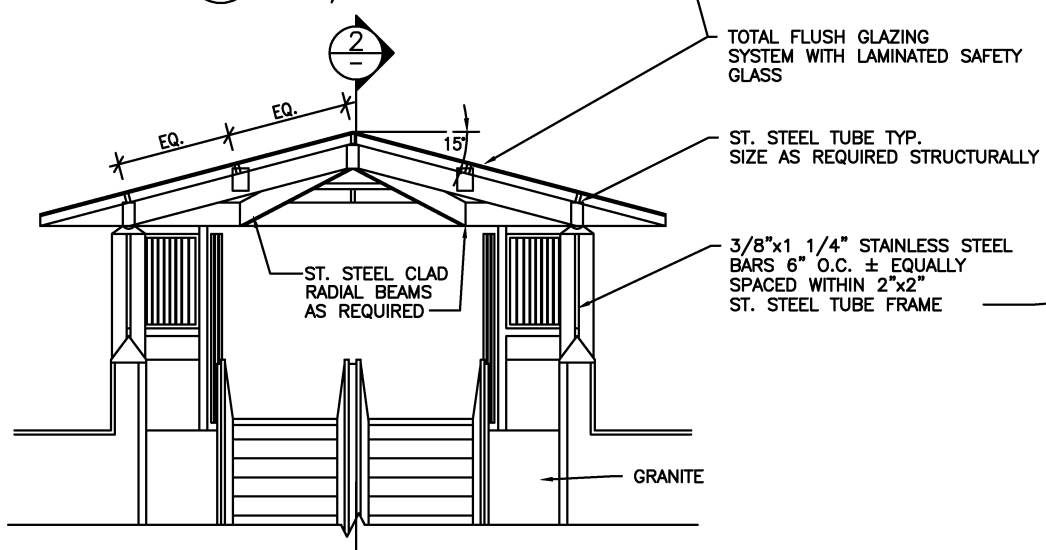
SCALE AS SHOWN DRAWING NO. DD-A-U-021



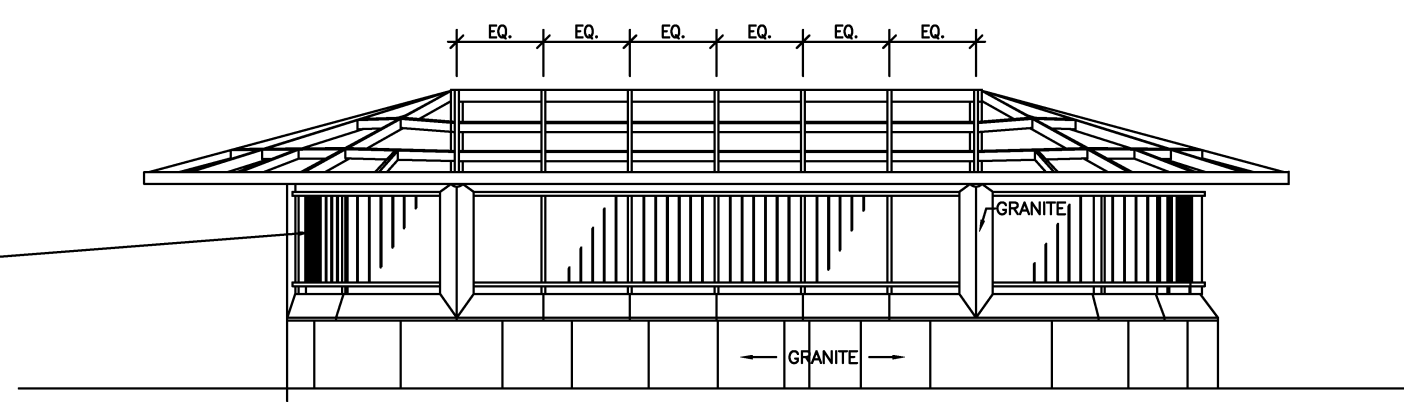
**1 PLAN / ROOF PLAN**  
SCALE: 1/4" = 1'-0"



**2 SECTION**  
SCALE: 1/4" = 1'-0"



**3 SECTION**  
SCALE: 1/4" = 1'-0"

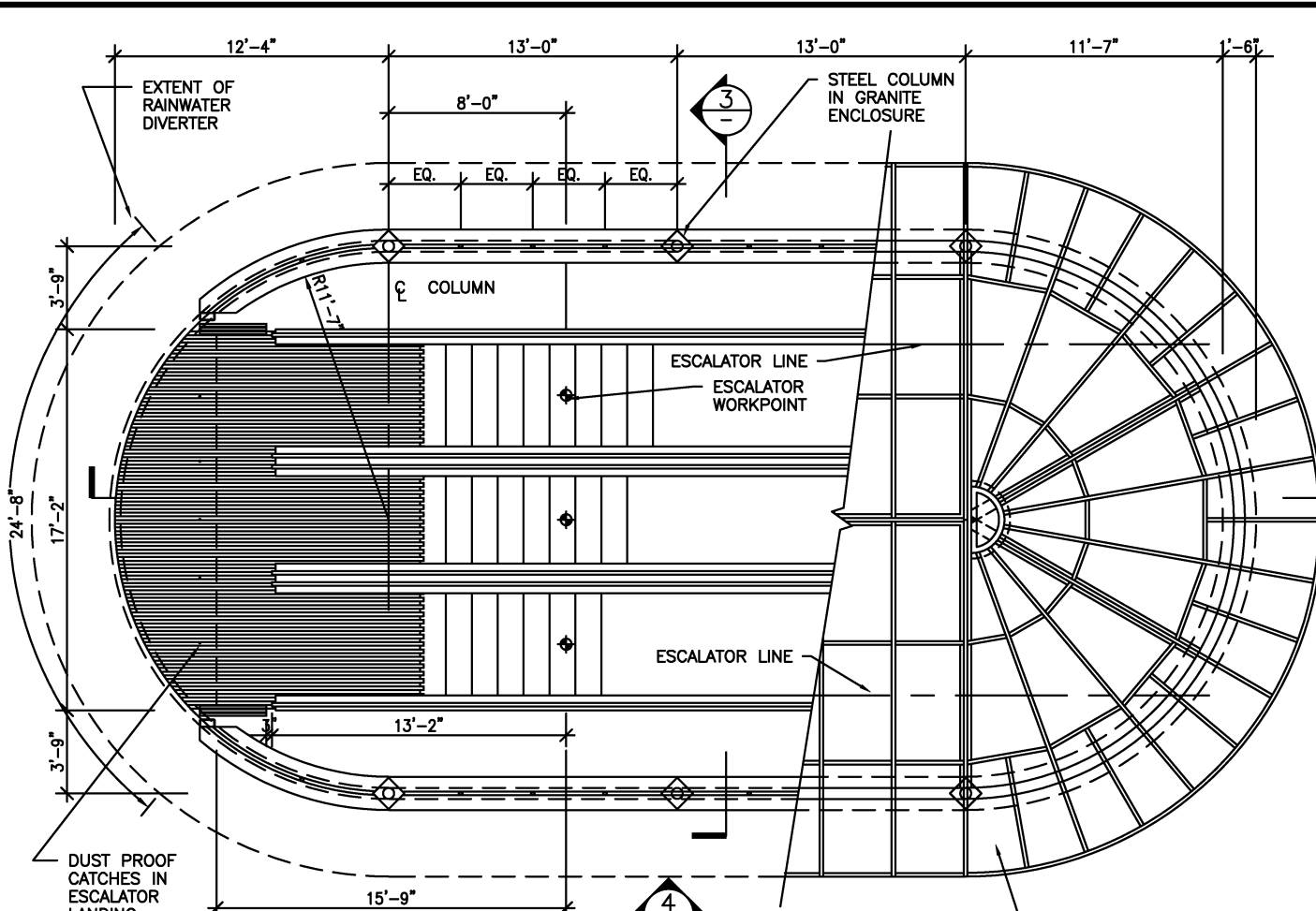


**4 ELEVATION**  
SCALE: 1/4" = 1'-0"  
0 2' 4' 8'

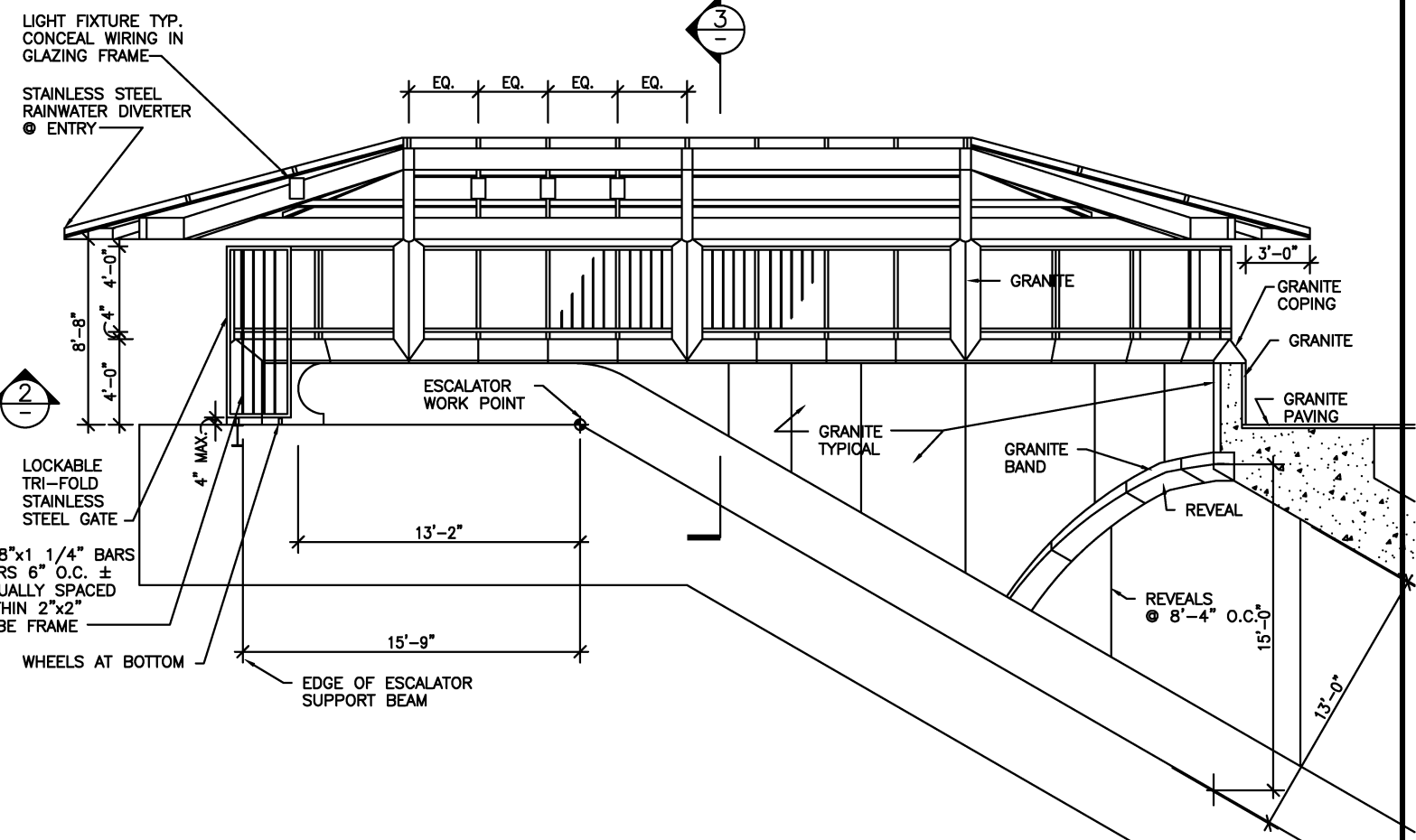
DESIGNED		1998		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

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

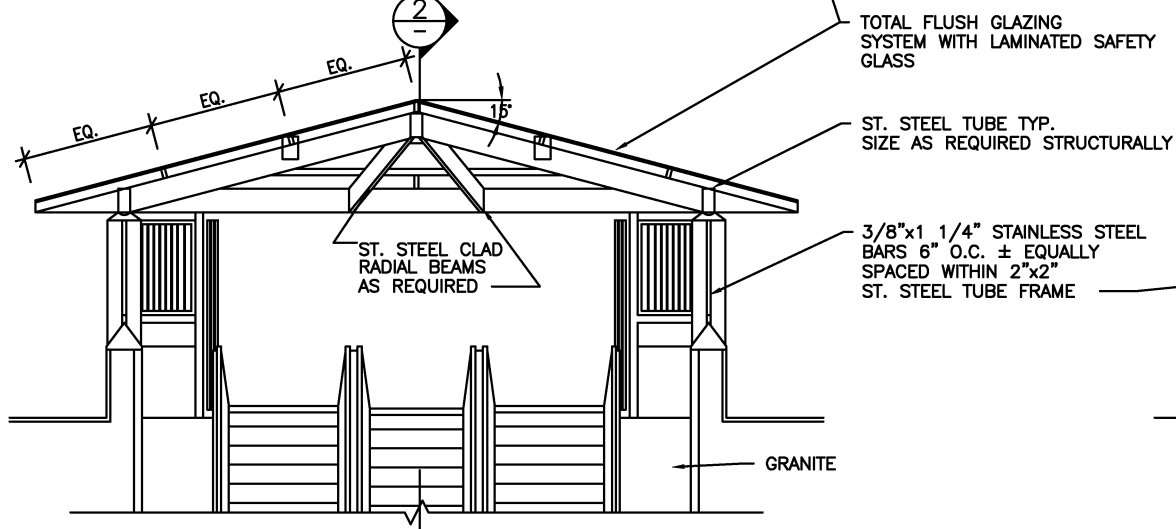
ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION 2 ESCALATOR CANOPY  
PLAN SECTIONS AND ELEVATION  
SCALE 1/4"=1'-0" DRAWING NO. DD-A-U-022



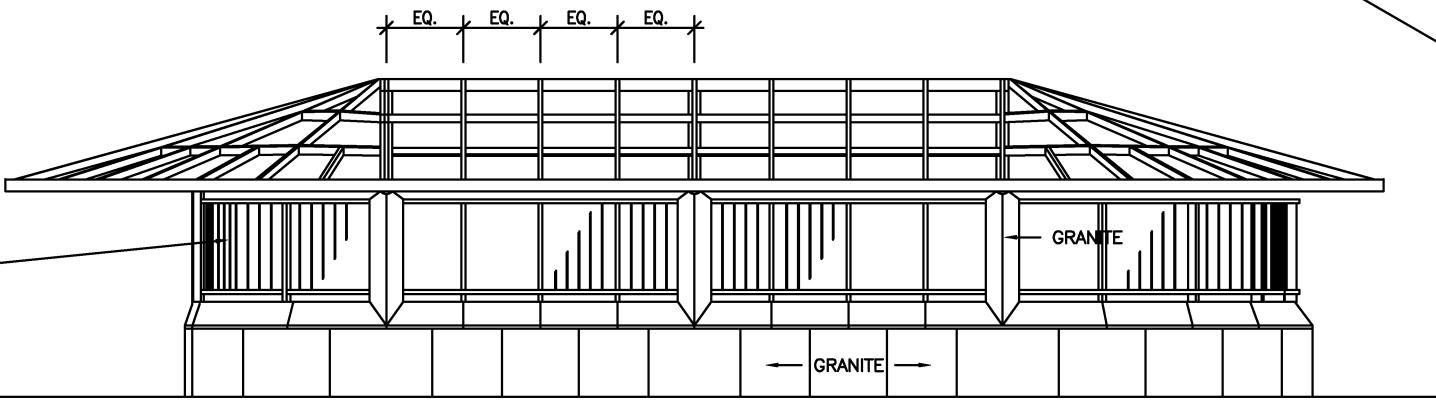
**1 PLAN / ROOF PLAN**  
SCALE: 1/4" = 1'-0"



**2 SECTION**  
SCALE: 1/4" = 1'-0"



**3 SECTION**  
SCALE: 1/4" = 1'-0"



**4 ELEVATION**  
SCALE: 1/4" = 1'-0"

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE
1								
2								
3								
4								

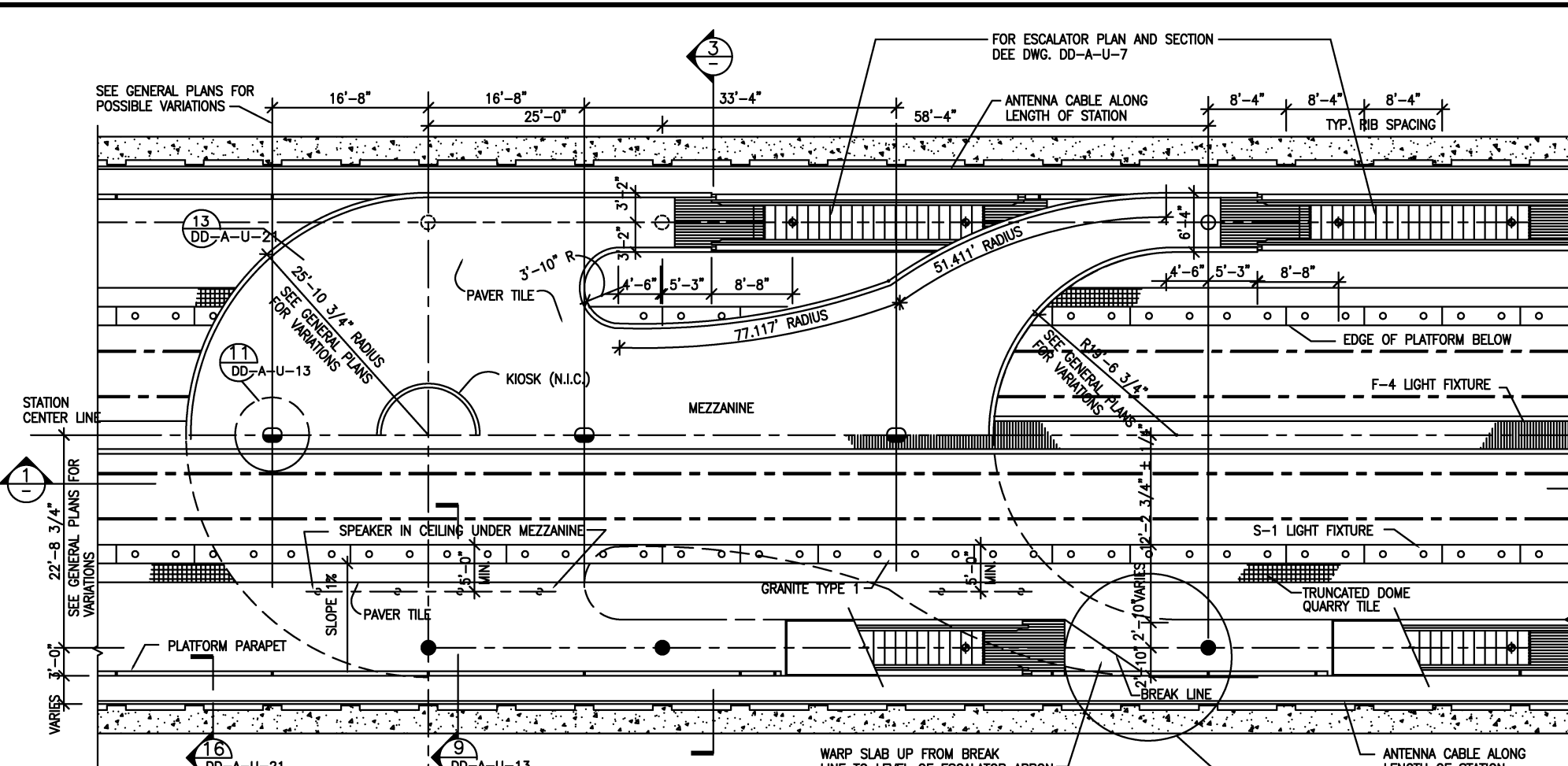
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

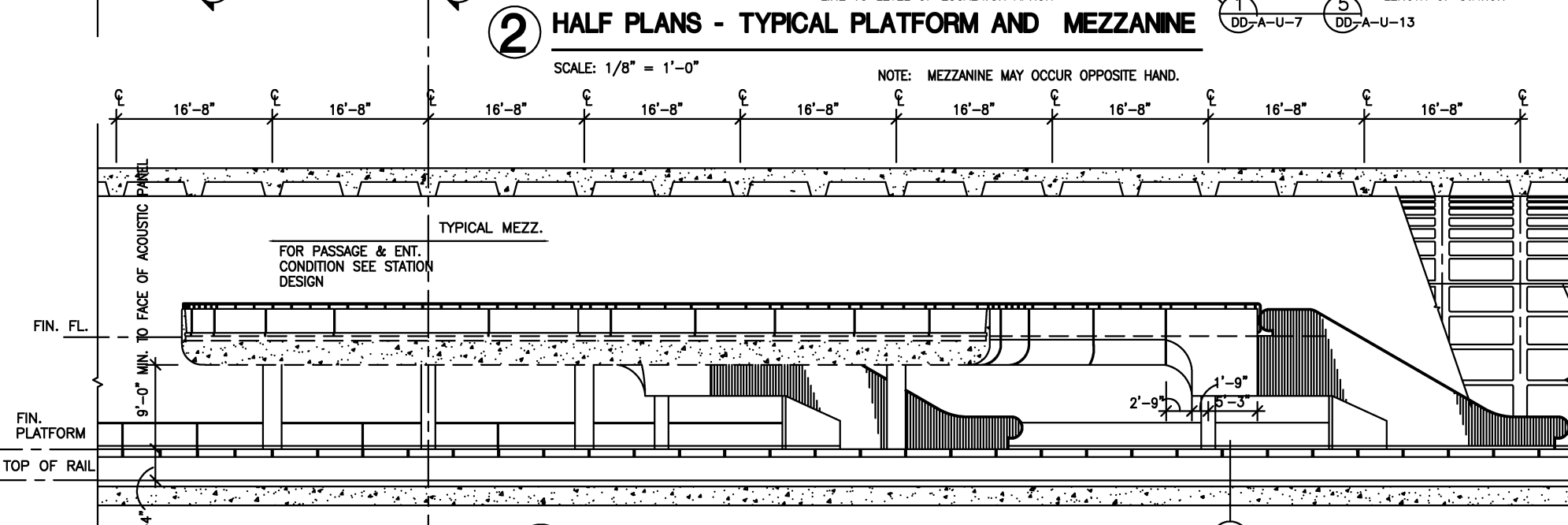
ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATIONS 3 ESCALATOR CANOPY  
PLAN SECTIONS AND ELEVATION

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

DRAWING NO. DD-A-U-023

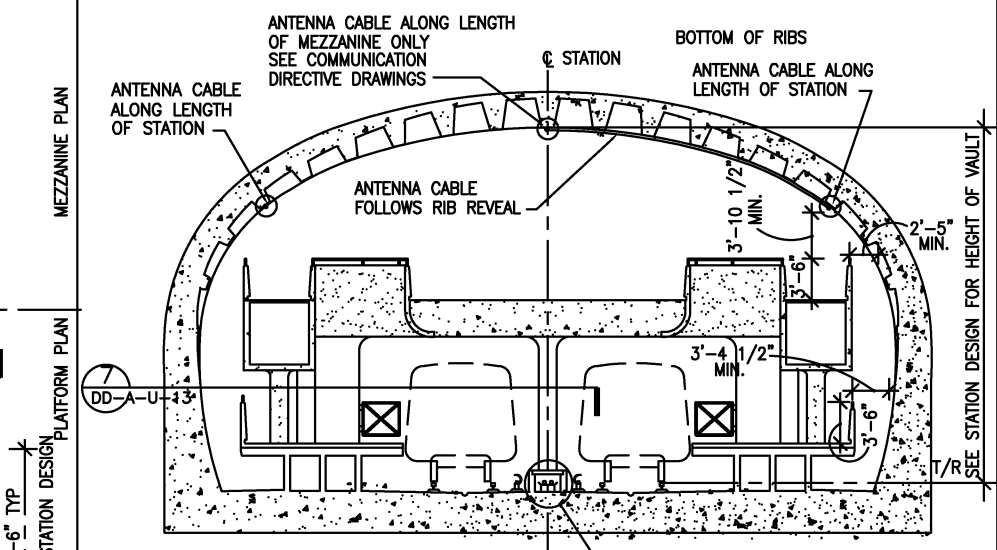


**2 HALF PLANS - TYPICAL PLATFORM AND MEZZANINE**  
SCALE: 1/8" = 1'-0"



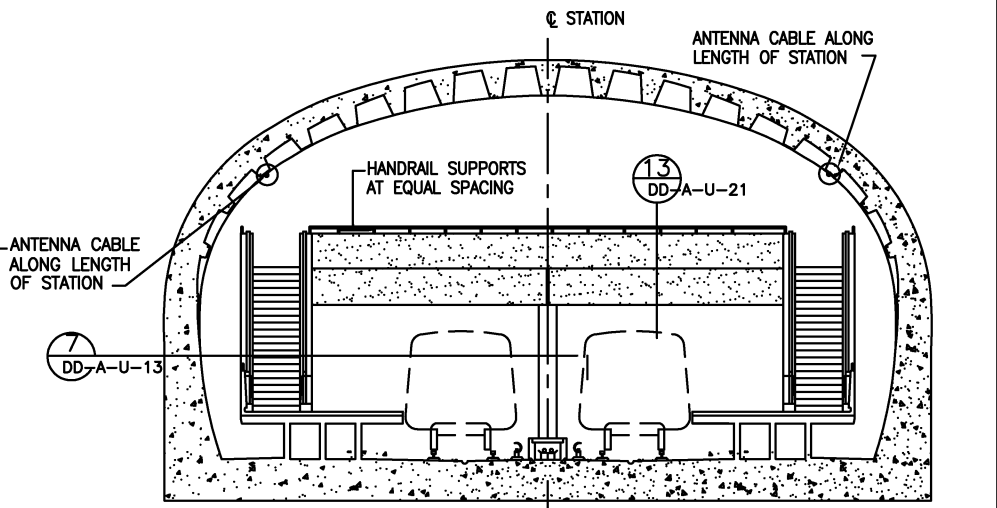
**1 SECTION TYPICAL PLATFORM AND MEZZANINE**  
SCALE: 1/8" = 1'-0"

**NOTE:**  
FOR LOCATIONS AND EXTENTS OF ALL COMMUNICATION CONDUITS AND CABLES SEE COMMUNICATION DESIGN DRAWINGS.

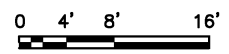


**3 SECTION**  
SCALE: 1/8" = 1'-0"

**NOTE:**  
SECTION 3 AND 4 ARE NO LONGER USED FOR NEW PROJECTS



**4 SECTION**  
SCALE: 1/8" = 1'-0"



DESIGNED		DATE		1998	
DRAWN		DATE		1998	
CHECKED		DATE		1998	
APPROVED		DATE		1998	
J. MUNSON	G. PATRICK	K. LANDEZ	J. CORLEY		

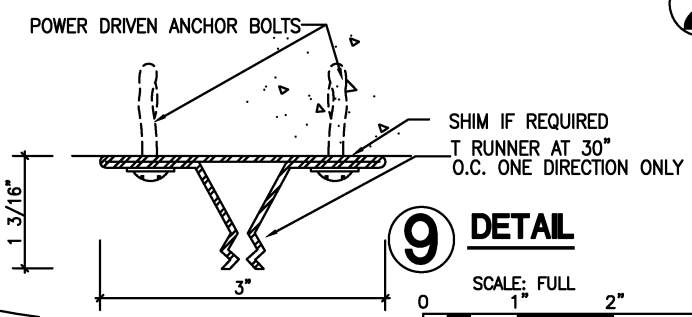
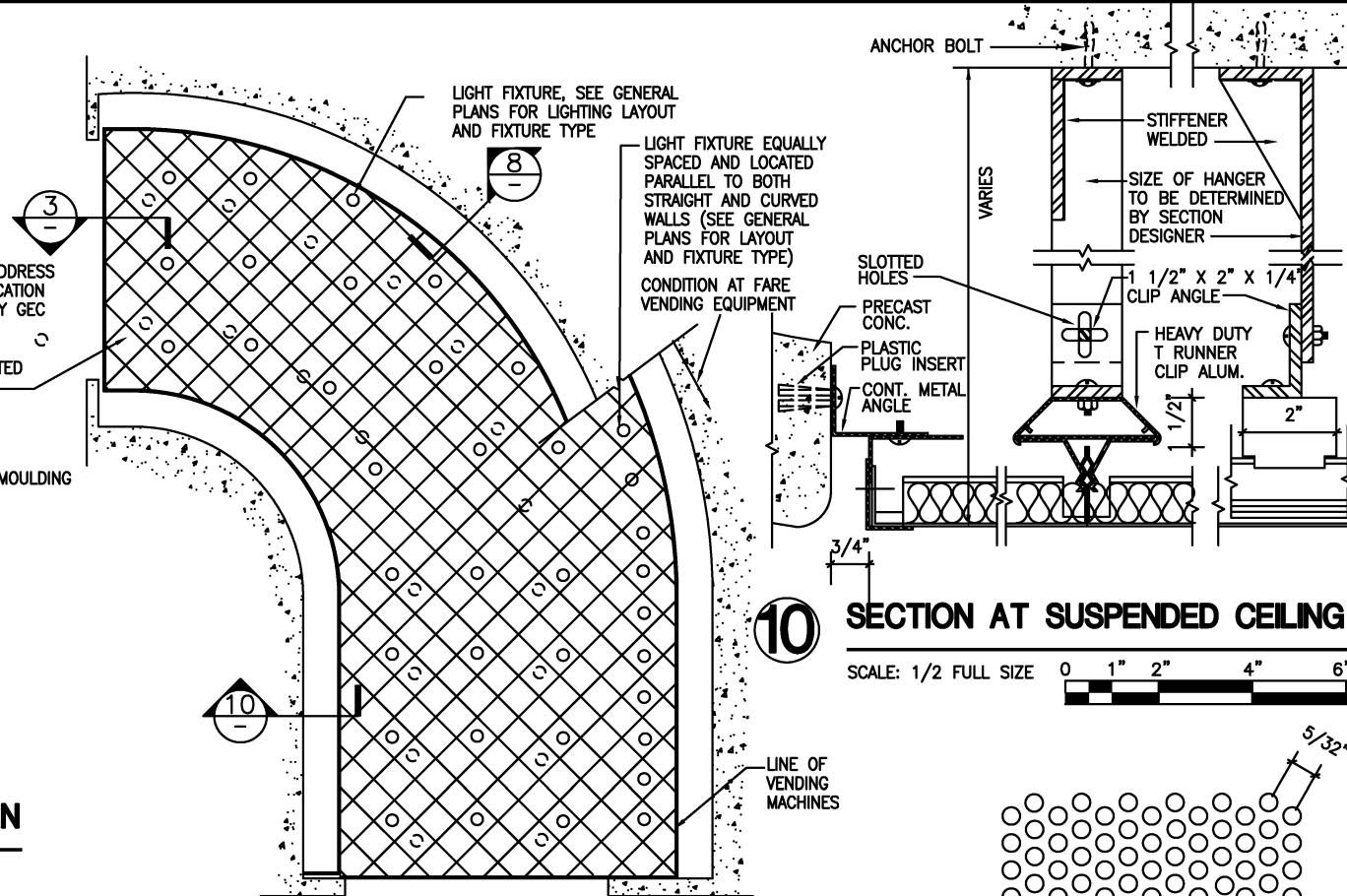
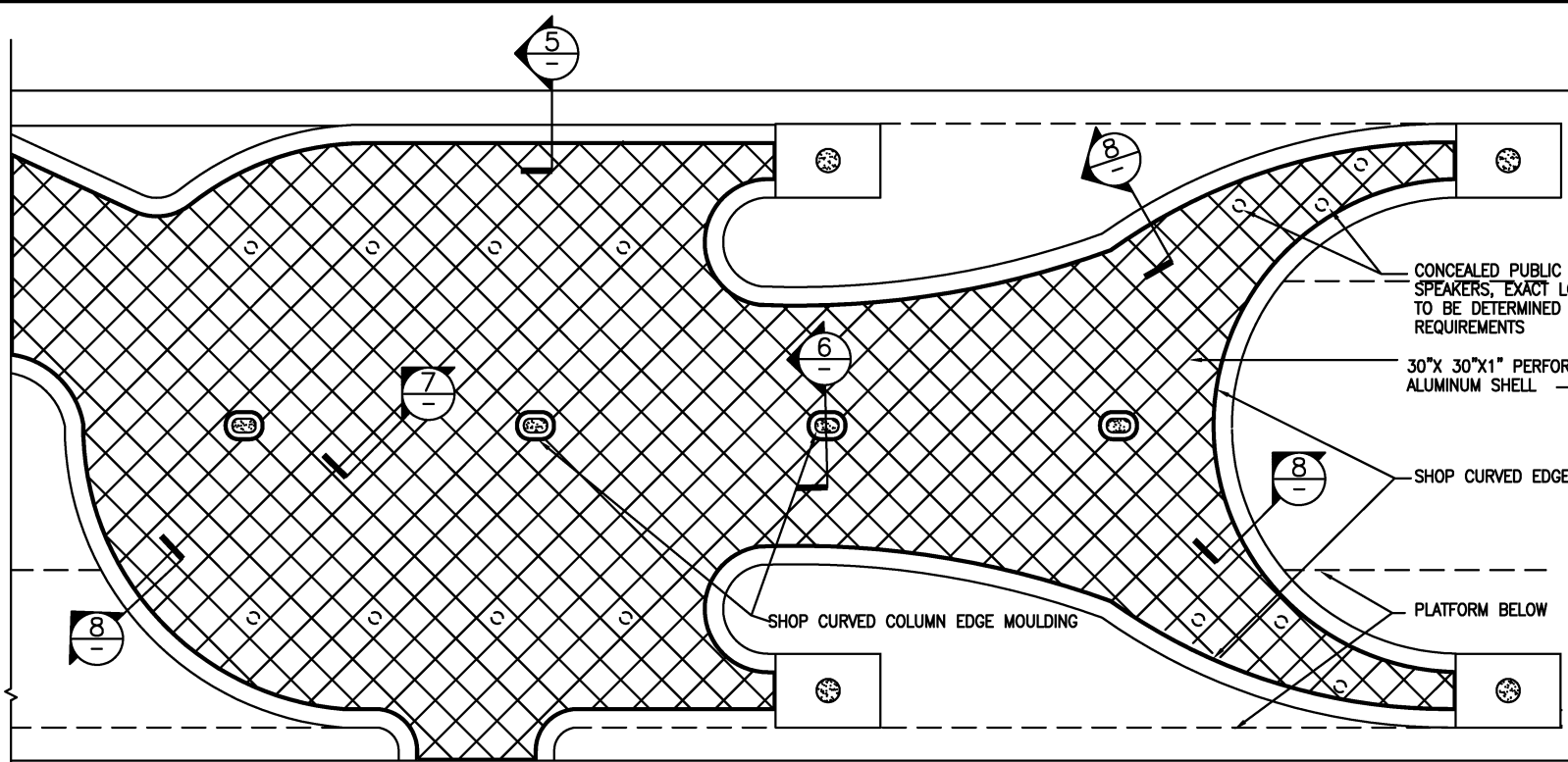
REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
		08/2001	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION SIDE PLATFORM  
PLAN, SECTIONS AND ELEVATION

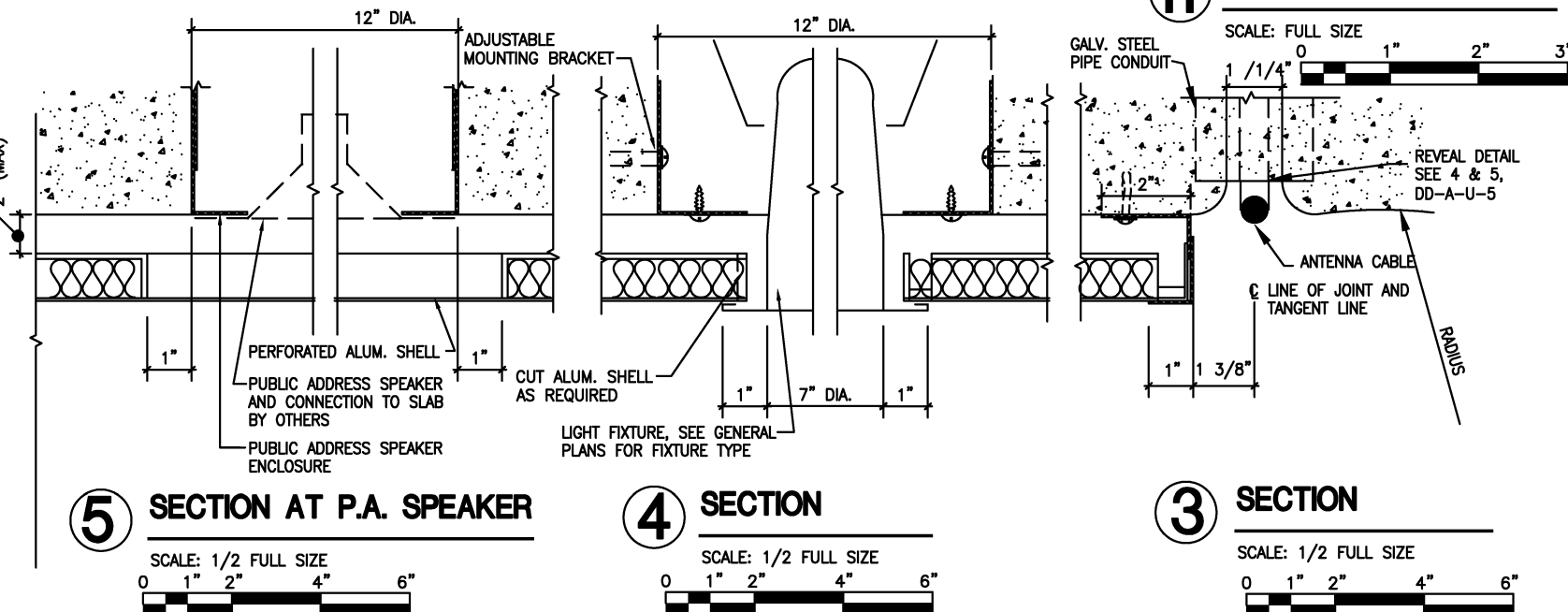
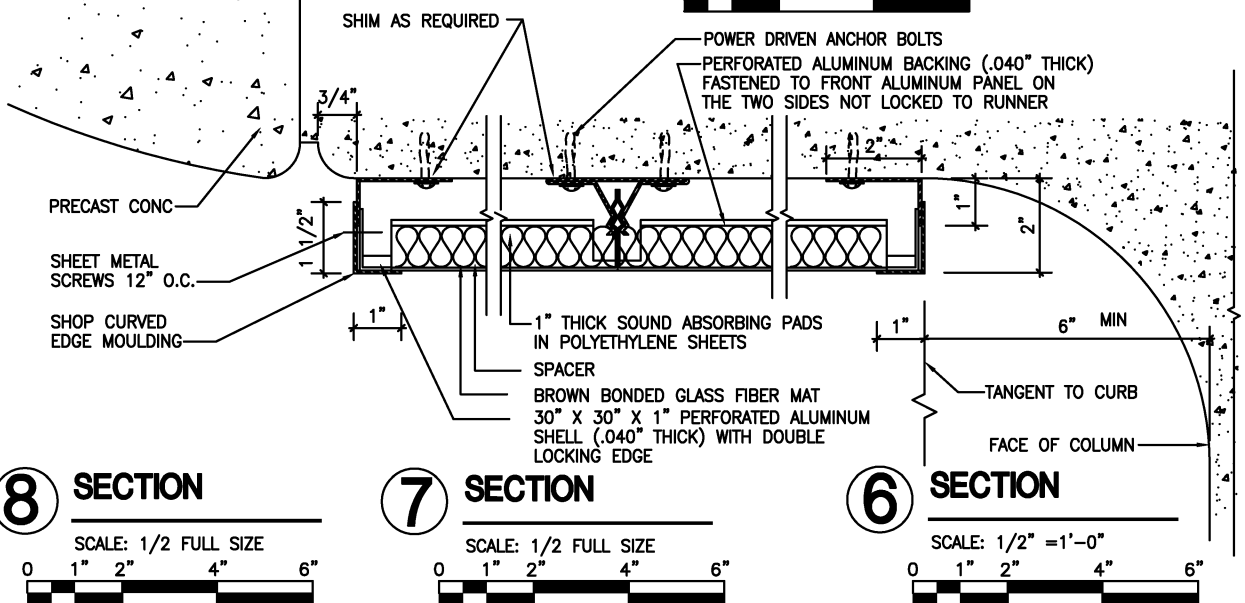
SCALE 1/8"=1'-0" DRAWING NO. DD-A-U-024



**2 MEZZANINE REFLECTED CEILING PLAN**  
 SCALE: 1/8" = 1'-0" 0 4' 8' 16'

NOTES TO SECTION DESIGNER:

- DESIGN THE COMPLETE CONSTRUCTION AND INSTALLATION OF ALL ACOUSTIC PANEL WORK TO WITHSTAND A POSITIVE OR NEGATIVE 15 POUNDS PER SQUARE FOOT STATIC PRESSURE. THIS REQUIREMENT INCLUDES PANEL ANCHORAGE, CONNECTIONS, MATERIAL STRENGTH AND RETENTION OF SOUND INSULATING MATERIAL. SUBMIT LAYOUT AND CALCULATIONS.
- FOR PROTECTION OF DISSIMILAR METALS, REFER TO THE SPECIFICATIONS.
- CEILING ACOUSTIC TREATMENT DETAILS ARE SIMILAR FOR CENTER PLATFORM MEZZANINE AND ALL PASSAGEWAYS WHERE CEILING IS FASTENED DIRECTLY TO CONCRETE.



DESIGNED	D. MUNSON	1998
DATE		
DRAWN	G. PATRICK	1998
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		
UPDATED	ENGA (PAF)	08/2000

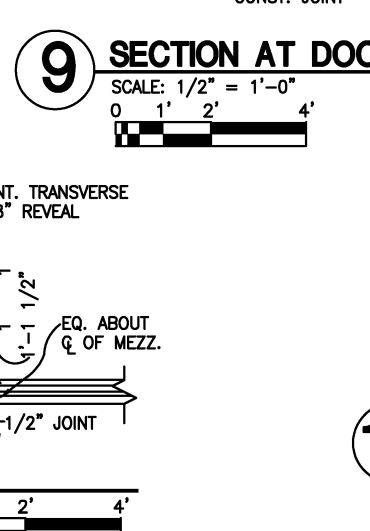
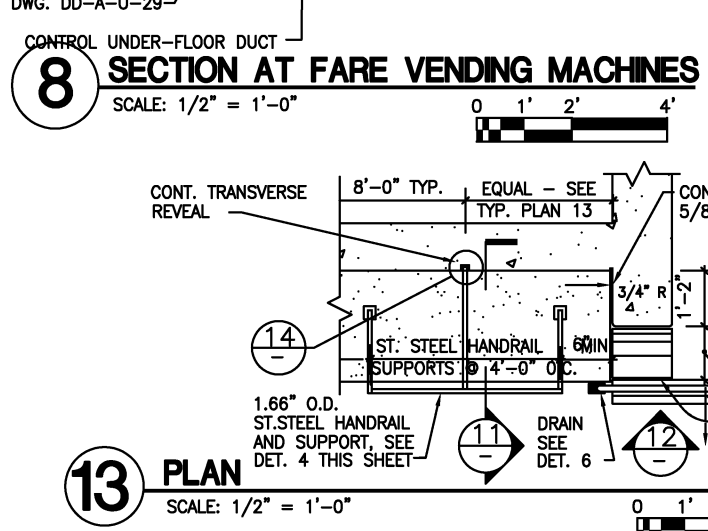
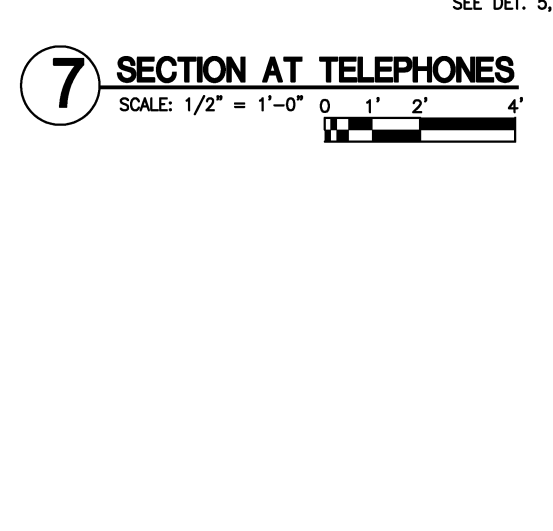
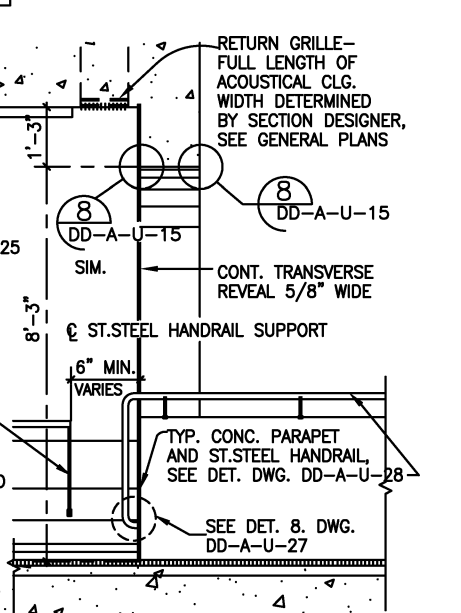
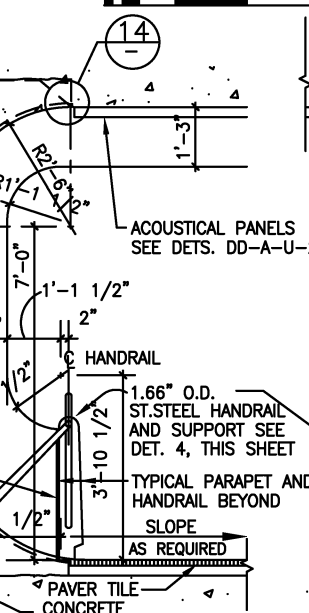
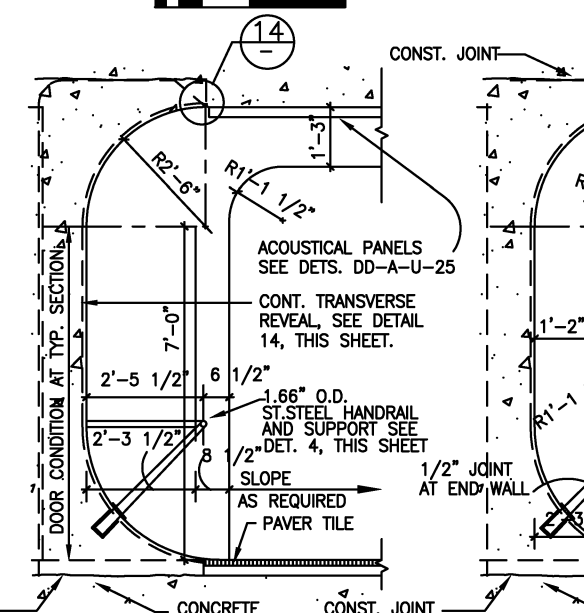
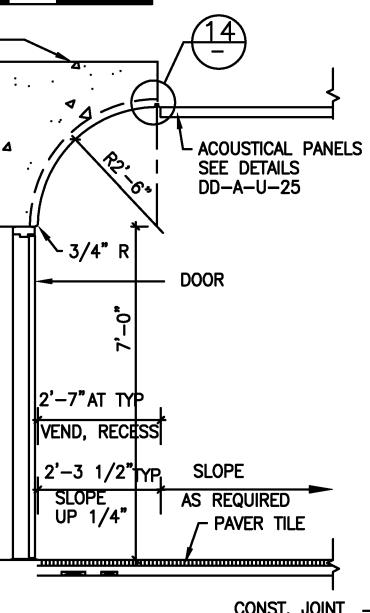
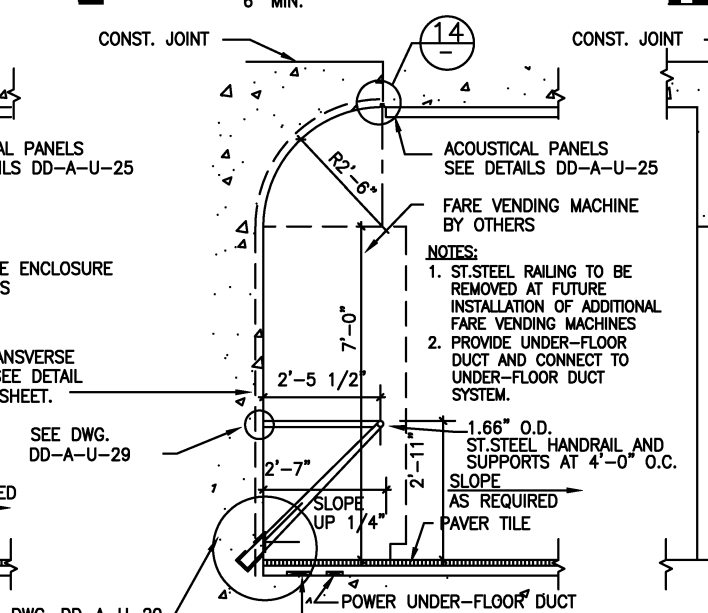
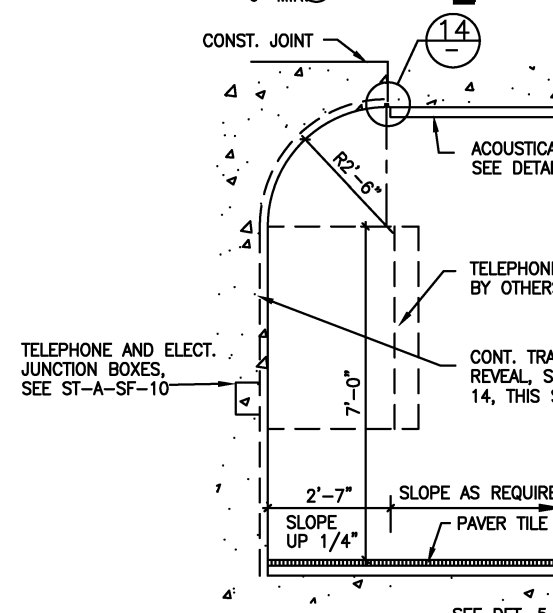
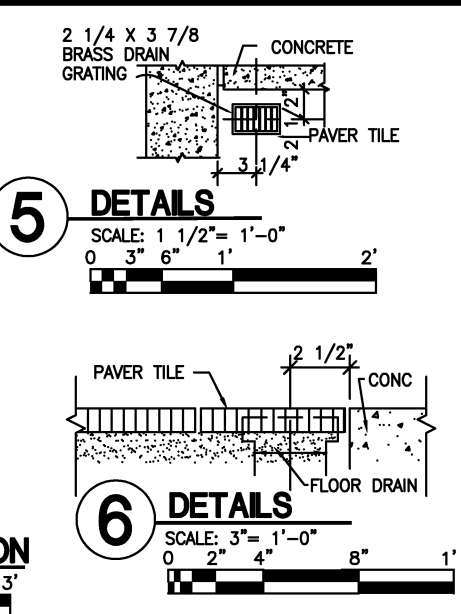
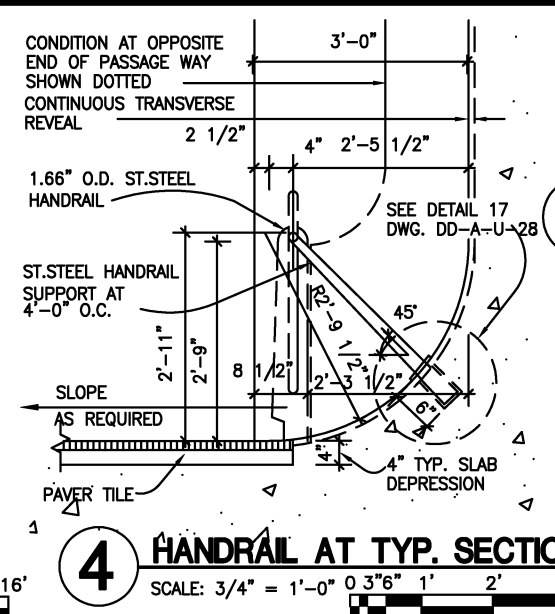
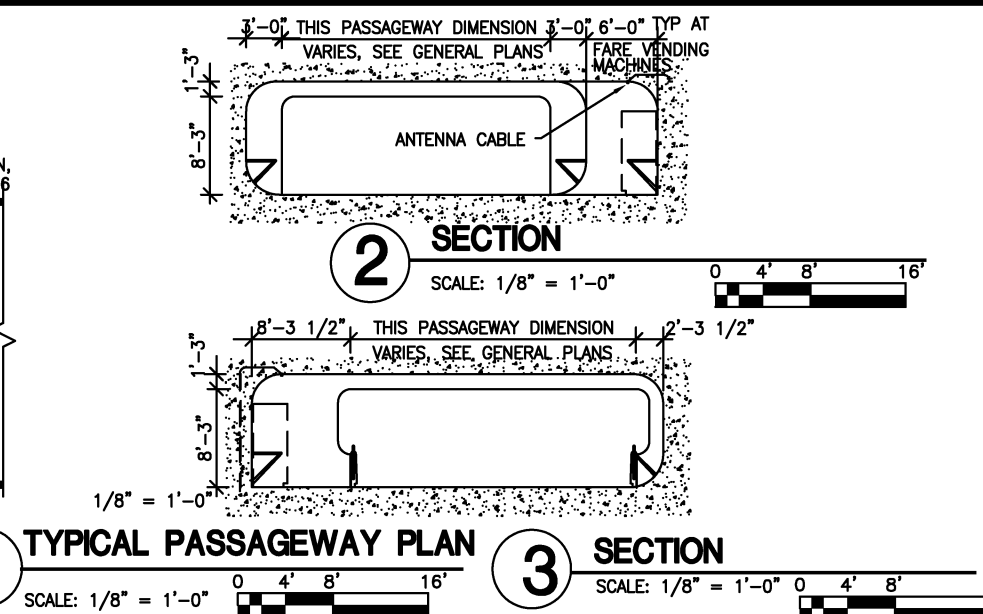
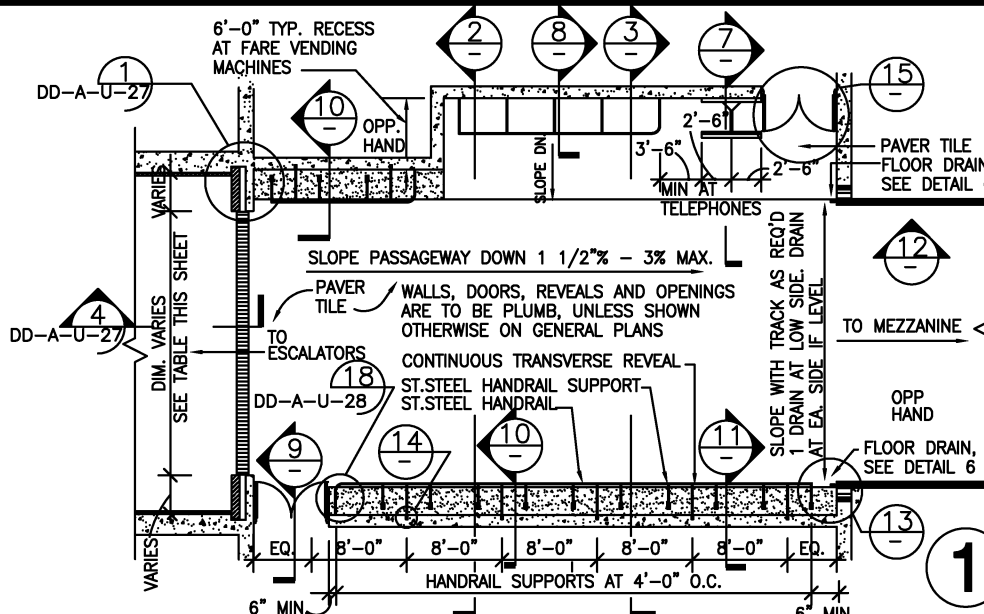
REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
		08/2001	ENGA	Revised and issued by the Authority
		9/2000	ENGA	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED *[Signature]* May 3, 2001  
 DIRECTOR DATE

ARCHITECTURAL DESIGN DRAWING  
 UNDERGROUND STATION  
 CEILING ACOUSTICAL DETAILS

SCALE AS SHOWN  
 DRAWING NO. DD-A-U-025



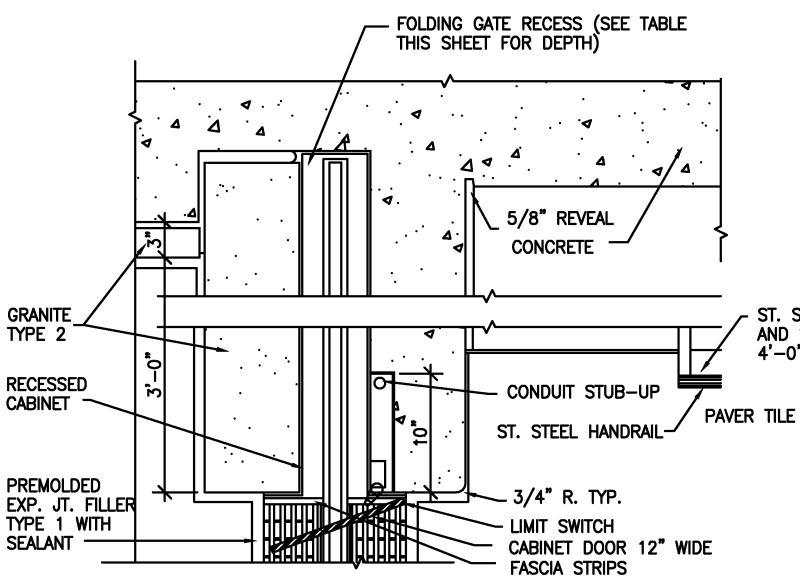
REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
DESIGNED	D. MUNSON	1998	
DRAWN	G. PATRICK	1998	
CHECKED	K. LANDESZ	1998	
APPROVED	J. CORLEY	1998	
		08/2001	ENGA Revised and issued by the Authority
		9/2000	ENGA Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

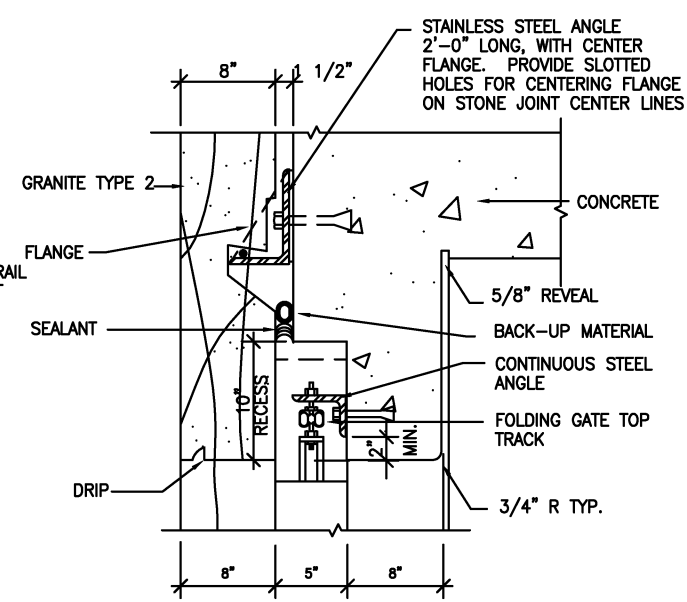
ARCHITECTURAL DESIGN DRAWING  
 UNDERGROUND STATION  
 PASSAGEWAY DETAILS

SCALE AS SHOWN DRAWING NO. DD-A-U-026



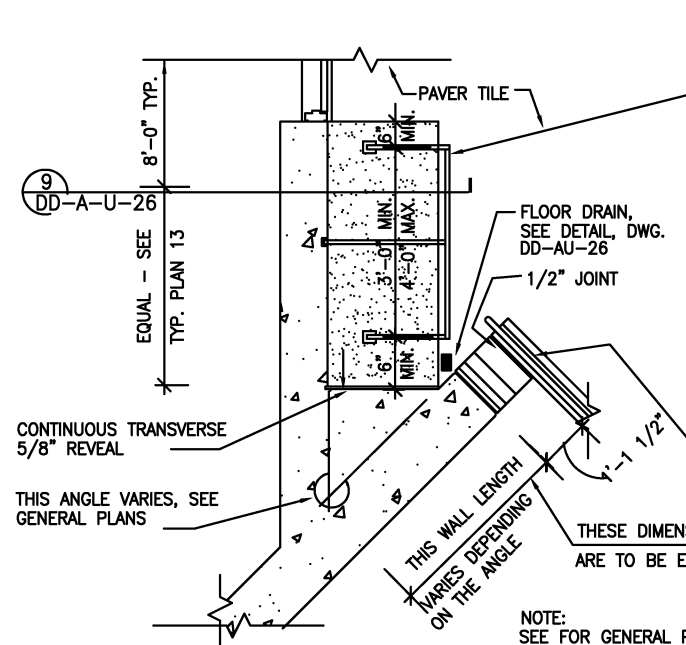
**1 JAMB FOLDING GATE POCKET**

SCALE: 1 1/2" = 1'-0"



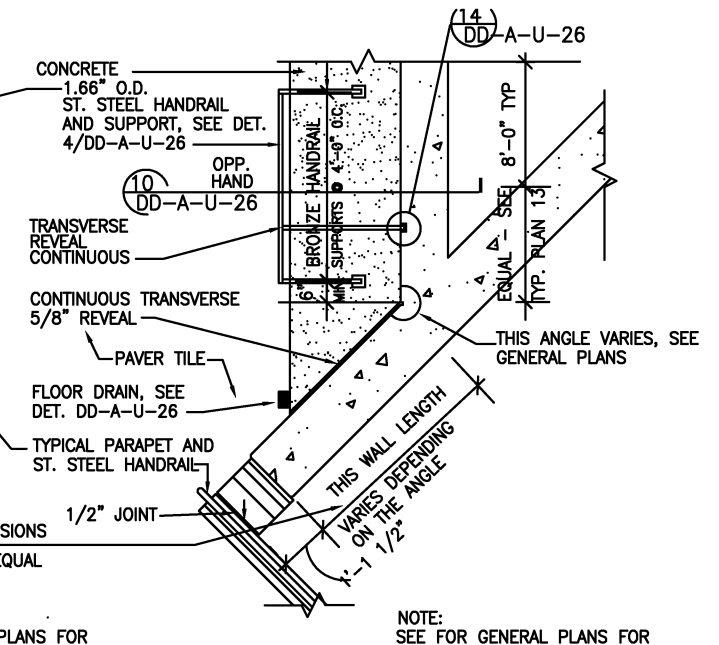
**3 HEAD AT FOLDING GATE**

SCALE: 1 1/2" = 1'-0"



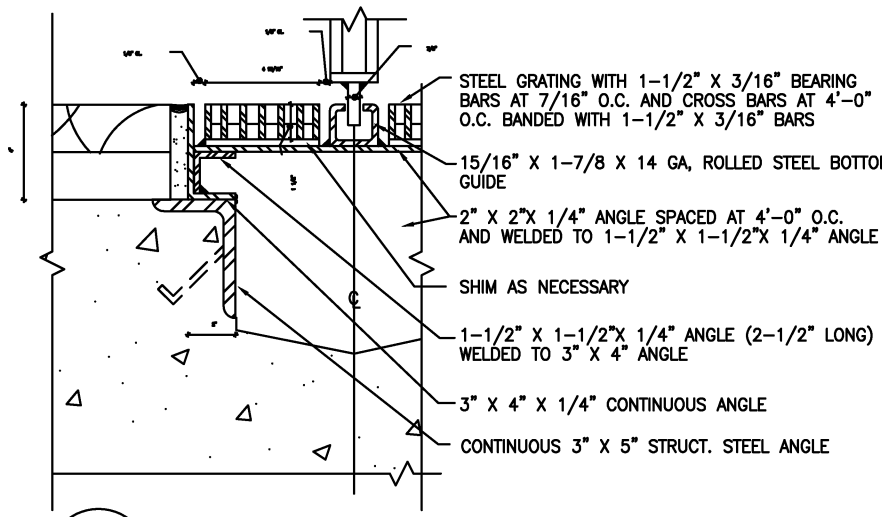
**5 PLAN**

SCALE: 1/2" = 1'-0"



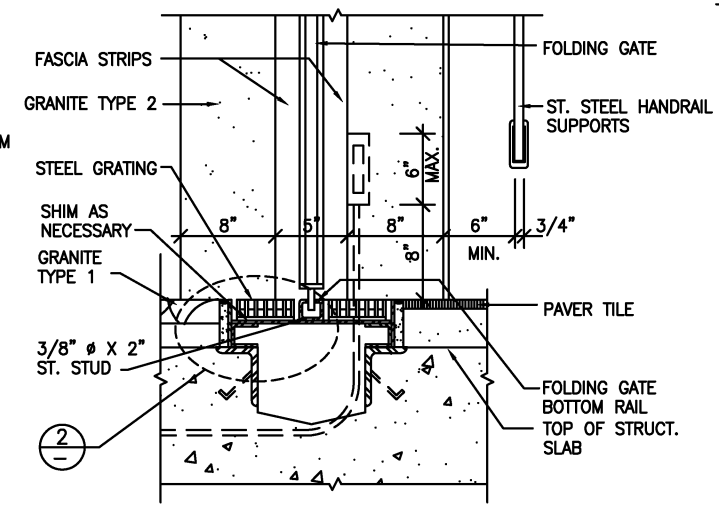
**7 PLAN**

SCALE: 1/2" = 1'-0"



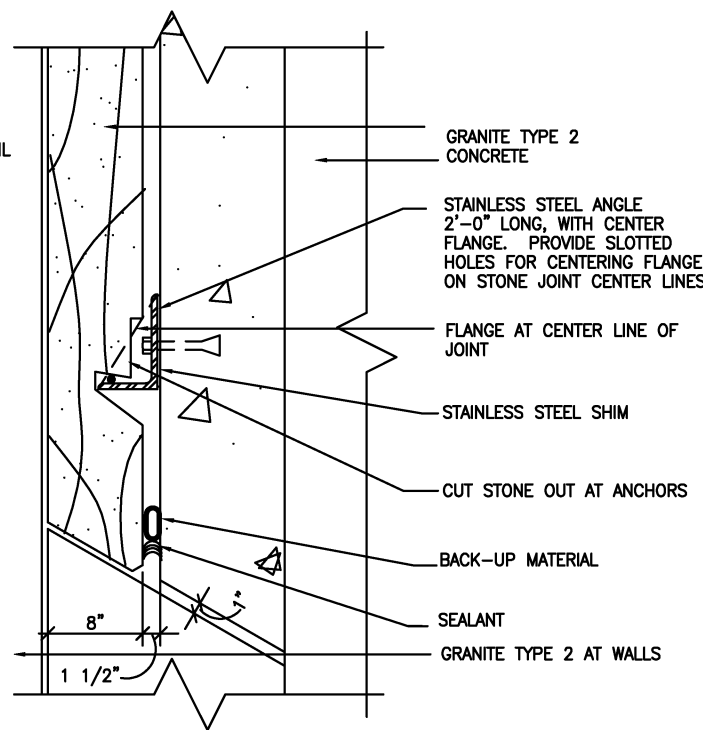
**2 DETAIL**

SCALE: 3" = 1'-0"



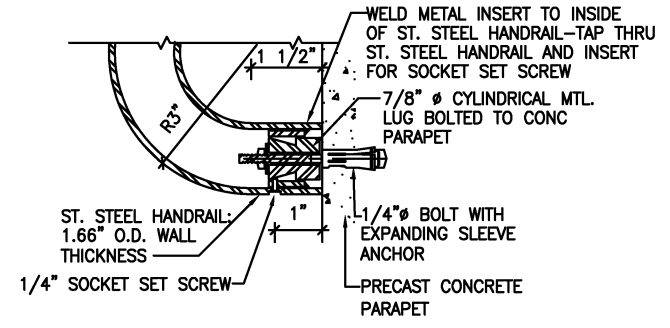
**4 SILL DRAIN AND GRATE TRACK**

SCALE: 1 1/2" = 1'-0"



**6 DETAIL**

SCALE: 1 1/2" = 1'-0"



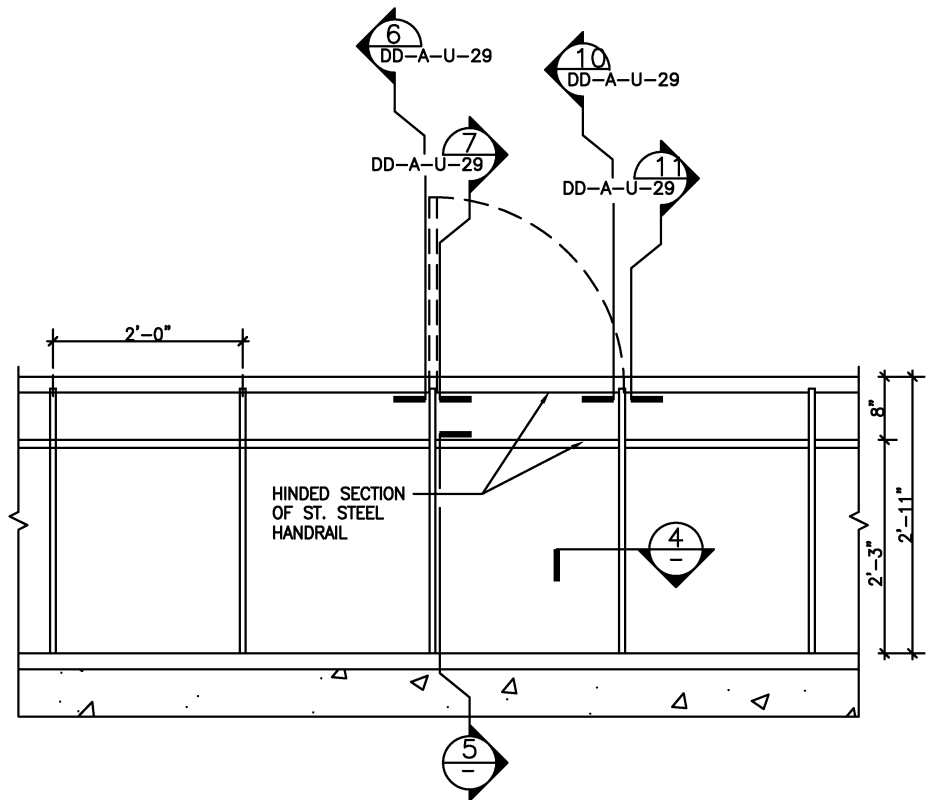
**8 ST. STEEL HANDRAIL DETAIL AT END OF CONCRETE PARAPET**

SCALE: 6" = 1'-0"

**FOLDING GATE TABLE**

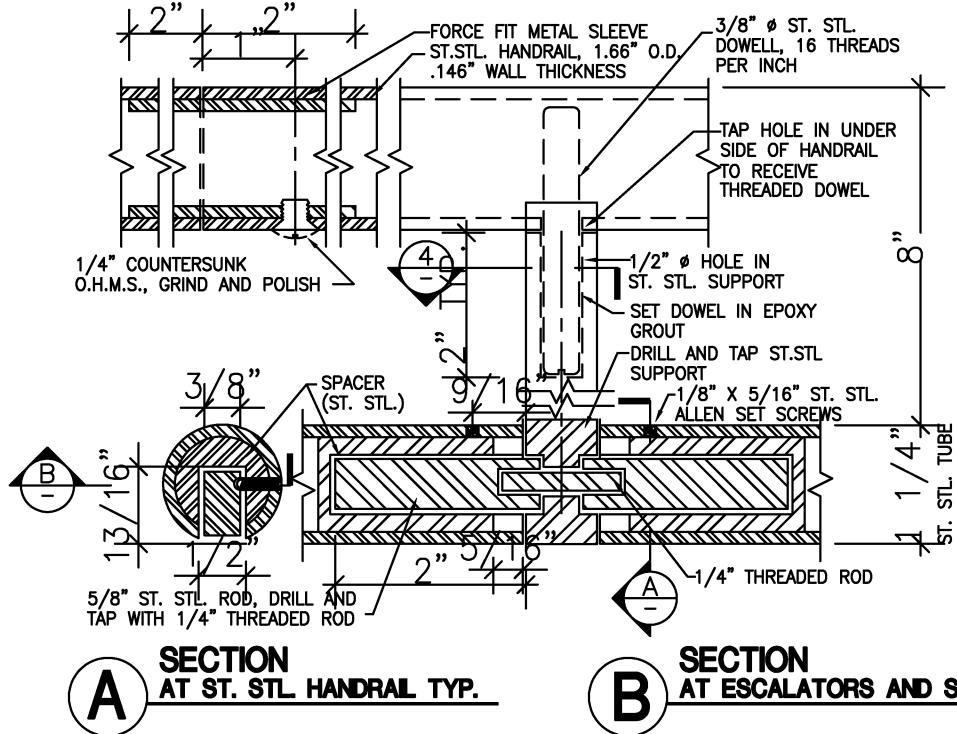
WIDTH OF DOUBLE FOLDING GATE OPENING	DEPTH PER FOLDING GATE RECESS
12'-0"	31"
14'-0"	33"
16'-0"	35"
18'-0"	38"
20'-0"	40"
24'-0"	45"
28'-0"	49"
30'-0"	51"

DESIGNED <u>D. MUNSON</u> 1998 DATE	REFERENCE DRAWINGS	REVISIONS	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY	ARCHITECTURAL DESIGN DRAWING UNDERGROUND STATION PASSAGEWAY DETAILS
DRAWN <u>G. PATRICK</u> 1998 DATE	NUMBER DESCRIPTION	DATE BY DESCRIPTION		
CHECKED <u>K. LANDEZ</u> 1998 DATE			DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	
APPROVED <u>J. CORLEY</u> 1998 DATE			SUBMITTED DATE	APPROVED DIRECTOR <u>[Signature]</u> May 3, 2001 DATE
			SCALE AS SHOWN	DRAWING NO. DD-A-U-027



**1** ELEVATION OF RAIL  
BENEATH ESC. AND STAR

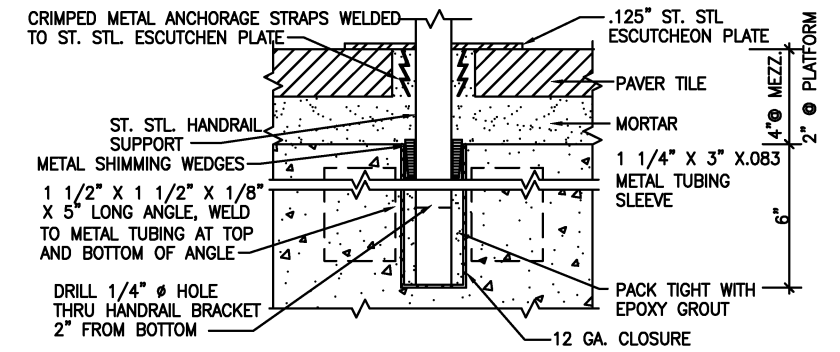
SCALE: 1" = 1'-0"  
0 6" 12" 24"



**A** SECTION AT ST. STL. HANDRAIL TYP.  
**B** SECTION AT ESCALATORS AND STAIR

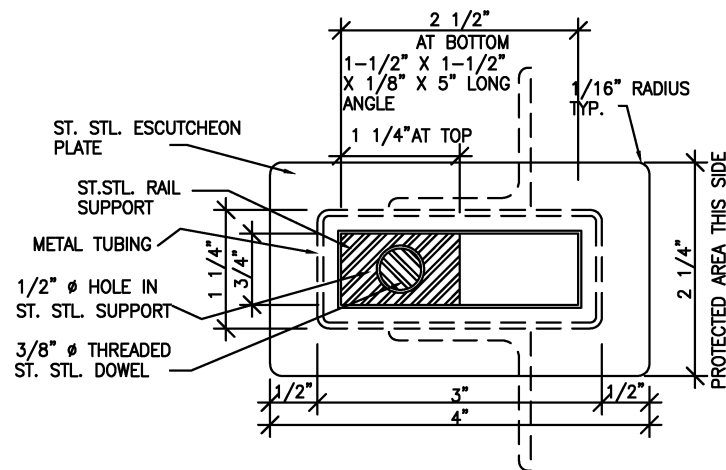
**2** TYPICAL JOINT  
SCALE: FULL SIZE

0 1/2" 1" 2"



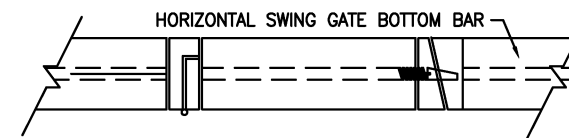
**3** ST. STL. HANDRAIL TYP. AT ESCALATORS  
SCALE: 1/2" FULL

0 1" 2" 4" 6"



**4** PLAN AT ST. STL.  
HANDRAIL SUPPORT  
SCALE: FULL SIZE

0 1/2" 1" 2"



**5** HORIZ. SWING GATE  
SCALE: FULL SIZE

0 1/2" 1" 2"

DESIGNED	D. MUNSON	1998
DATE		
DRAWN	G. PATRICK	1998
DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS

NUMBER	DESCRIPTION

REVISIONS

DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED DATE

APPROVED DIRECTOR

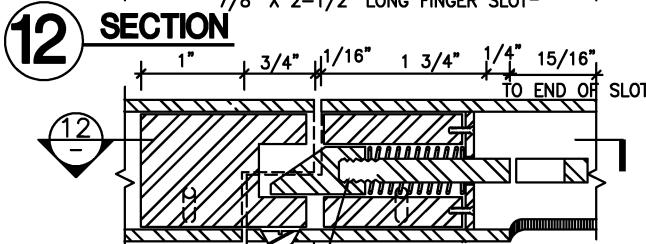
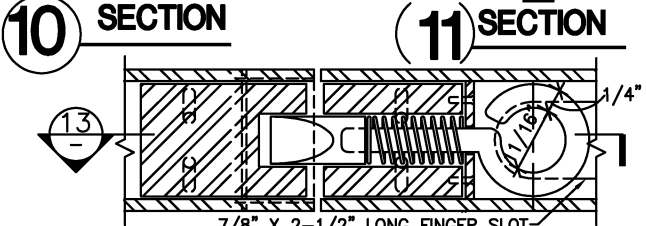
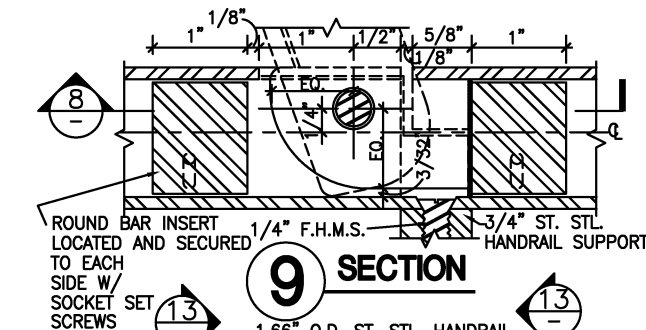
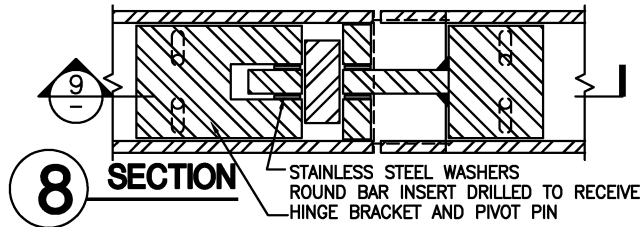
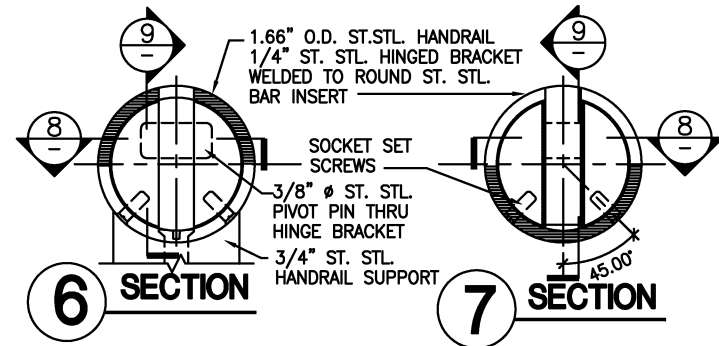
May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
UNDERGROUND STATION  
RAIL DETAILS

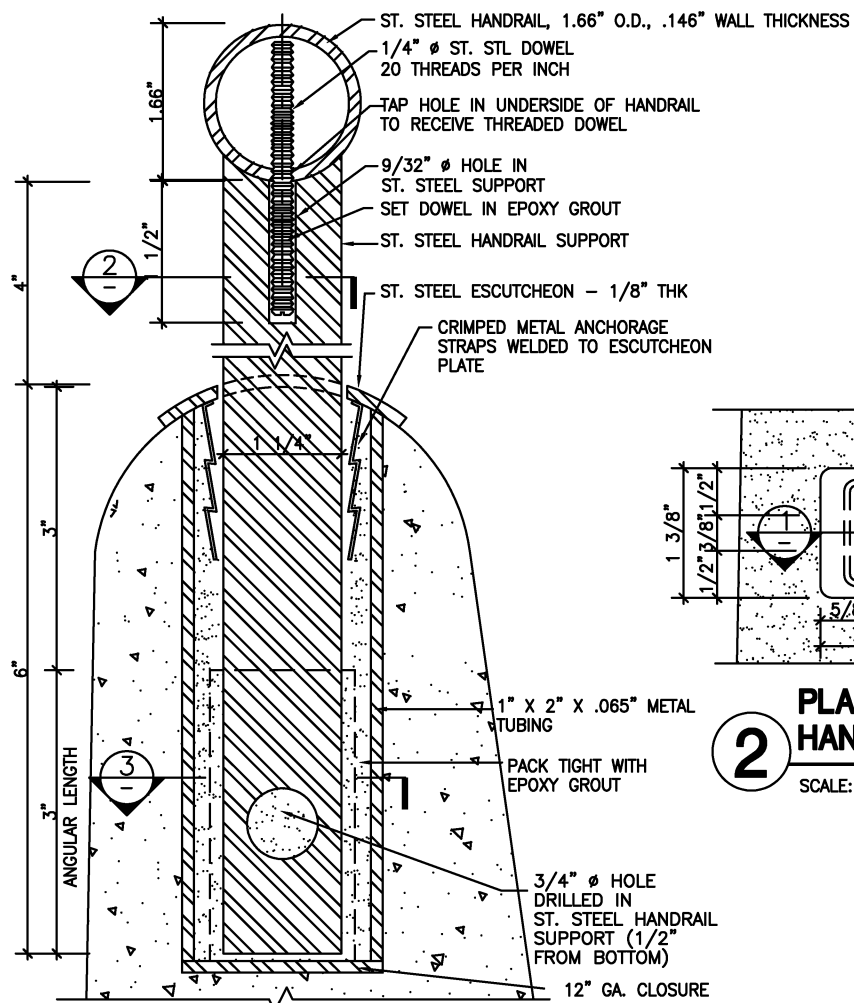
SCALE AS SHOWN

DRAWING NO. DD-A-U-028

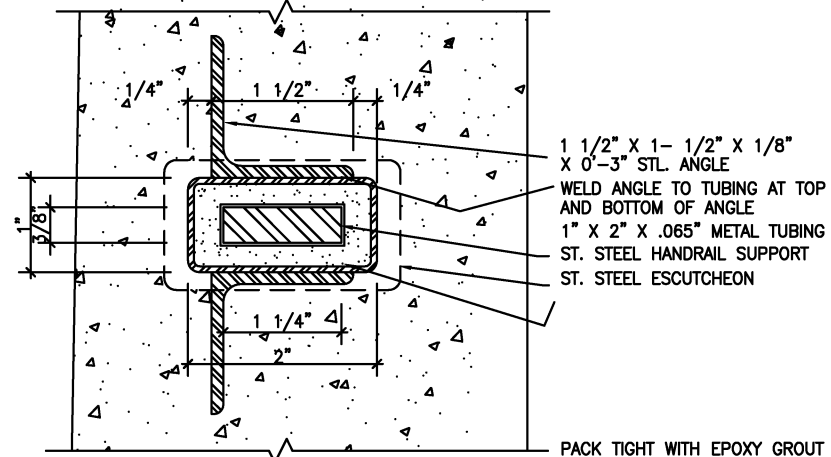




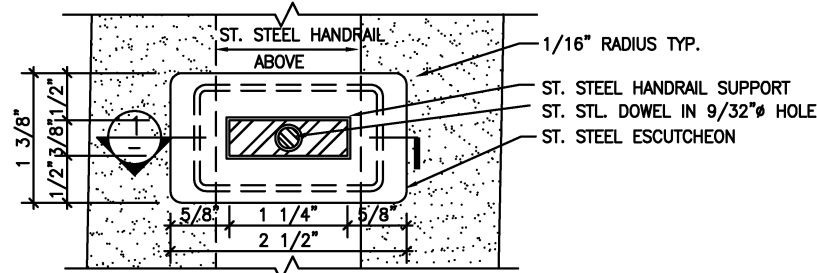
**13 SECTION**  
HINGED ST. STEEL HANDRAIL DETAILS  
SCALE: FULL SIZE



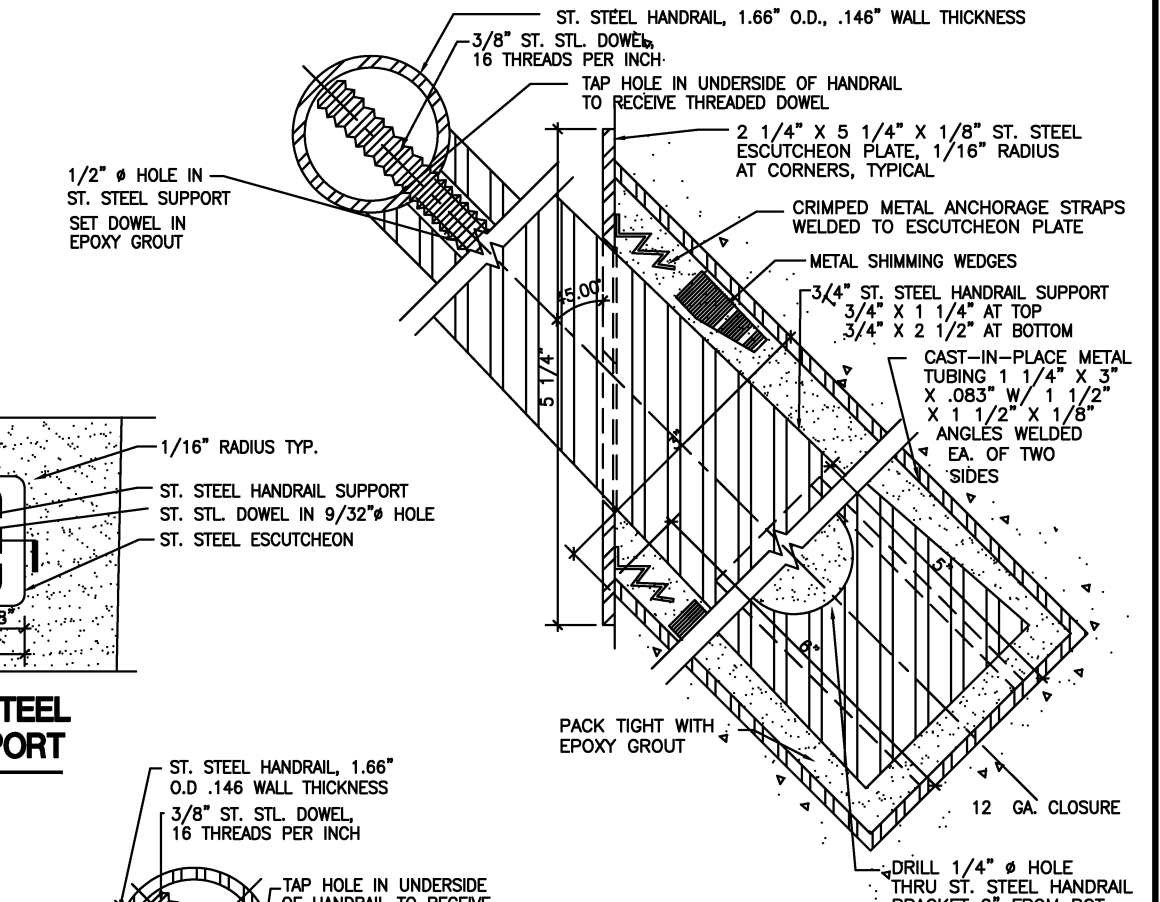
**1 SECTION AT ST. STEEL HANDRAIL SUPPORT**  
SCALE: FULL SIZE



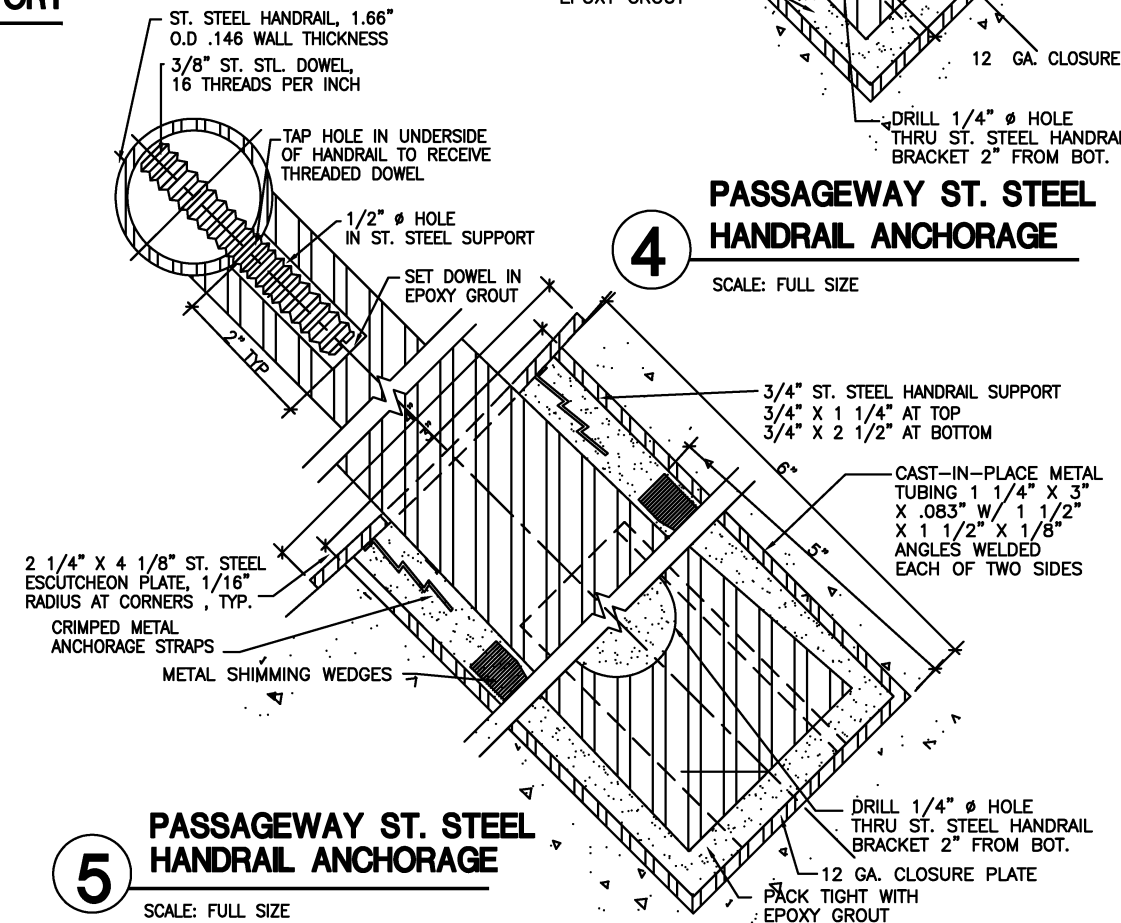
**3 PLAN AT ST. STEEL HANDRAIL SUPPORT**  
SCALE: FULL SIZE



**2 PLAN AT ST. STEEL HANDRAIL SUPPORT**  
SCALE: FULL SIZE



**4 PASSAGeway ST. STEEL HANDRAIL ANCHORAGE**  
SCALE: FULL SIZE



**5 PASSAGeway ST. STEEL HANDRAIL ANCHORAGE**  
SCALE: FULL SIZE

DESIGNED		DRAWN		CHECKED		APPROVED	
D. MUNSON	1998	G. PATRICK	1998	K. LANDESZ	1998	J. CORLEY	1998
	DATE		DATE		DATE		DATE

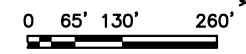
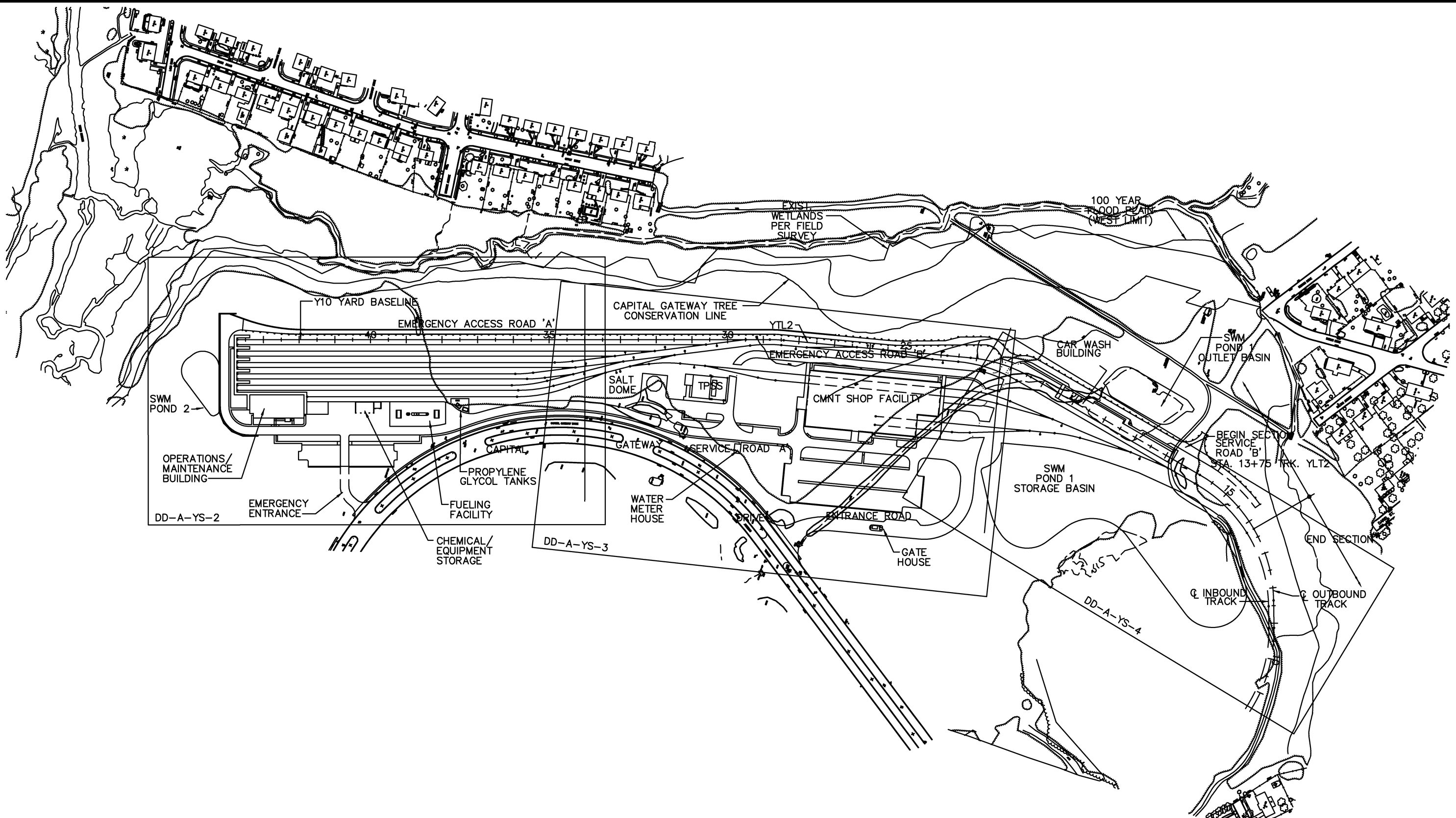
REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
		08/2001	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_  
 May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
 UNDERGROUND STATION  
 RAIL DETAILS

SCALE: 1/2" = 1" FULL SIZE  
 DRAWING NO. DD-A-U-029



**1 KEY PLAN**  
1" = 130'-0"

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
D.MUNSON	1998				
N. IBELE	1998			08/2001	ENGA Revised and issued by the Authority
K. LANDEZ	1998				
J. CORLEY	1998				

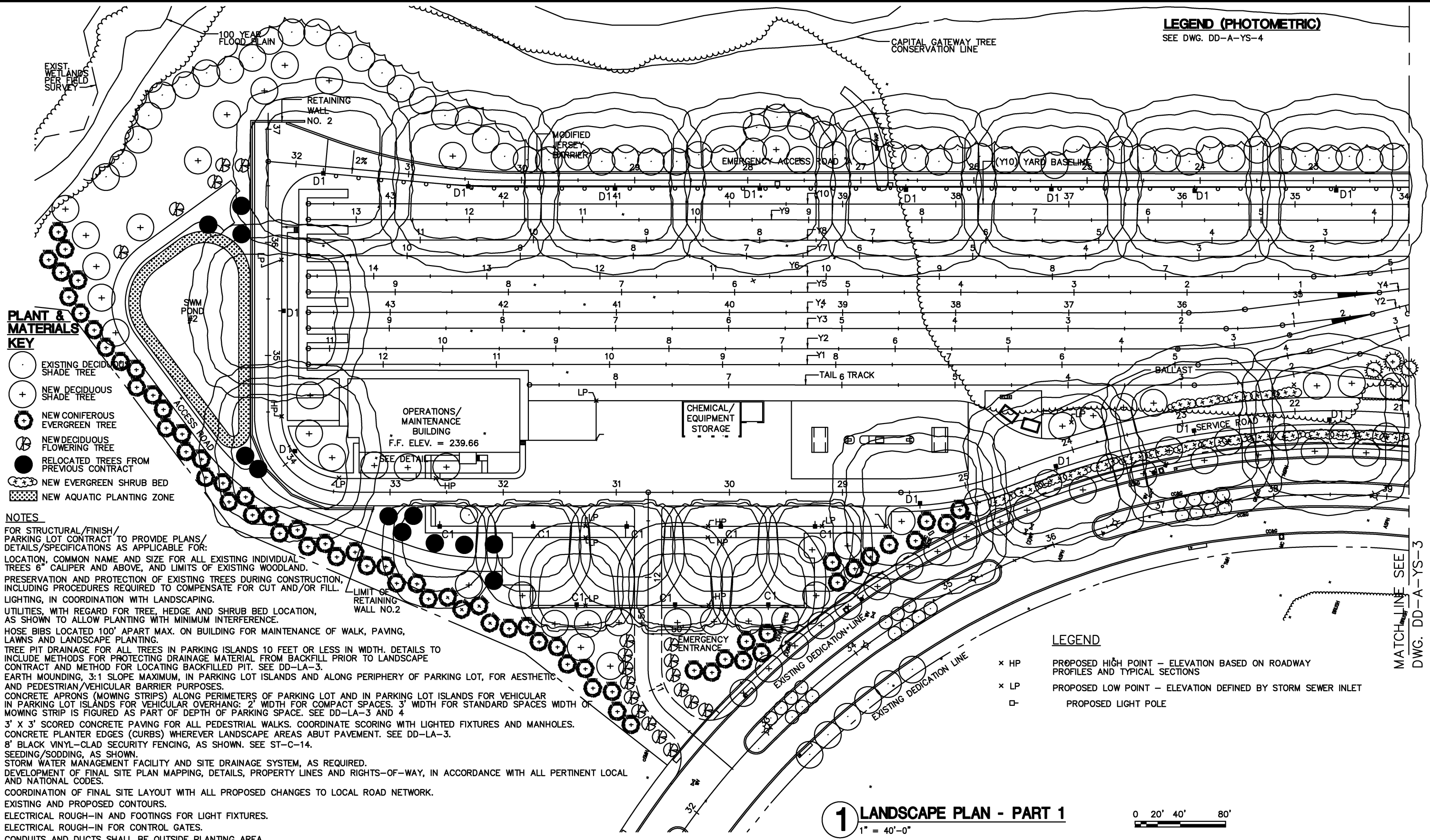
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
STORAGE AND INSPECTION YARD  
KEY PLAN

SCALE 1" = 130' DRAWING NO. DD-A-YS-001

**LEGEND (PHOTOMETRIC)**  
SEE DWG. DD-A-YS-4



- PLANT & MATERIALS KEY**
- EXISTING DECIDUOUS SHADE TREE
  - ⊕ NEW DECIDUOUS SHADE TREE
  - ⊕ NEW CONIFEROUS EVERGREEN TREE
  - ⊕ NEW DECIDUOUS FLOWERING TREE
  - RELOCATED TREES FROM PREVIOUS CONTRACT
  - ⊕ NEW EVERGREEN SHRUB BED
  - ⊕ NEW AQUATIC PLANTING ZONE

**NOTES**

FOR STRUCTURAL/FINISH/PARKING LOT CONTRACT TO PROVIDE PLANS/DETAILS/SPECIFICATIONS AS APPLICABLE FOR:

LOCATION, COMMON NAME AND SIZE FOR ALL EXISTING INDIVIDUAL TREES 6" CALIPER AND ABOVE, AND LIMITS OF EXISTING WOODLAND.

PRESERVATION AND PROTECTION OF EXISTING TREES DURING CONSTRUCTION, INCLUDING PROCEDURES REQUIRED TO COMPENSATE FOR CUT AND/OR FILL.

LIGHTING, IN COORDINATION WITH LANDSCAPING.

UTILITIES, WITH REGARD FOR TREE, HEDGE AND SHRUB BED LOCATION, AS SHOWN TO ALLOW PLANTING WITH MINIMUM INTERFERENCE.

HOSE BIBS LOCATED 100' APART MAX. ON BUILDING FOR MAINTENANCE OF WALK, PAVING, LAWNS AND LANDSCAPE PLANTING.

TREE PIT DRAINAGE FOR ALL TREES IN PARKING ISLANDS 10 FEET OR LESS IN WIDTH. DETAILS TO INCLUDE METHODS FOR PROTECTING DRAINAGE MATERIAL FROM BACKFILL PRIOR TO LANDSCAPE CONTRACT AND METHOD FOR LOCATING BACKFILLED PIT. SEE DD-LA-3.

EARTH MOUNDING, 3:1 SLOPE MAXIMUM, IN PARKING LOT ISLANDS AND ALONG PERIPHERY OF PARKING LOT, FOR AESTHETIC AND PEDESTRIAN/VEHICULAR BARRIER PURPOSES.

CONCRETE APRONS (MOWING STRIPS) ALONG PERIMETERS OF PARKING LOT AND IN PARKING LOT ISLANDS FOR VEHICULAR IN PARKING LOT ISLANDS FOR VEHICULAR OVERHANG: 2' WIDTH FOR COMPACT SPACES. 3' WIDTH FOR STANDARD SPACES WIDTH OF MOWING STRIP IS FIGURED AS PART OF DEPTH OF PARKING SPACE. SEE DD-LA-3 AND 4

3' X 3' SCORED CONCRETE PAVING FOR ALL PEDESTRIAN WALKS. COORDINATE SCORING WITH LIGHTED FIXTURES AND MANHOLES.

CONCRETE PLANTER EDGES (CURBS) WHEREVER LANDSCAPE AREAS ABUT PAVEMENT. SEE DD-LA-3.

8' BLACK VINYL-CLAD SECURITY FENCING, AS SHOWN. SEE ST-C-14.

SEEDING/SODDING, AS SHOWN.

STORM WATER MANAGEMENT FACILITY AND SITE DRAINAGE SYSTEM, AS REQUIRED.

DEVELOPMENT OF FINAL SITE PLAN MAPPING, DETAILS, PROPERTY LINES AND RIGHTS-OF-WAY, IN ACCORDANCE WITH ALL PERTINENT LOCAL AND NATIONAL CODES.

COORDINATION OF FINAL SITE LAYOUT WITH ALL PROPOSED CHANGES TO LOCAL ROAD NETWORK.

EXISTING AND PROPOSED CONTOURS.

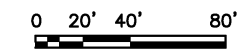
ELECTRICAL ROUGH-IN AND FOOTINGS FOR LIGHT FIXTURES.

ELECTRICAL ROUGH-IN FOR CONTROL GATES.

CONDUITS AND DUCTS SHALL BE OUTSIDE PLANTING AREA.

- LEGEND**
- × HP PROPOSED HIGH POINT - ELEVATION BASED ON ROADWAY PROFILES AND TYPICAL SECTIONS
  - × LP PROPOSED LOW POINT - ELEVATION DEFINED BY STORM SEWER INLET
  - PROPOSED LIGHT POLE

**1 LANDSCAPE PLAN - PART 1**  
1" = 40'-0"



MATCHLINE SEE DWG. DD-A-YS-3

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
1998	D.MUNSON	08/2001	ENGA	Revised and issued by the Authority			
1998	A. SPRIGGS						
1998	K. LANDEZ						
1998	J. CORLEY						

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE








**ARCHITECTURAL DESIGN DRAWING**  
STORAGE AND INSPECTION YARD  
LANDSCAPE PLAN - PART 1

SCALE 1" = 40' DRAWING NO. DD-A-YS-002

**LEGEND (PHOTOMETRIC)**

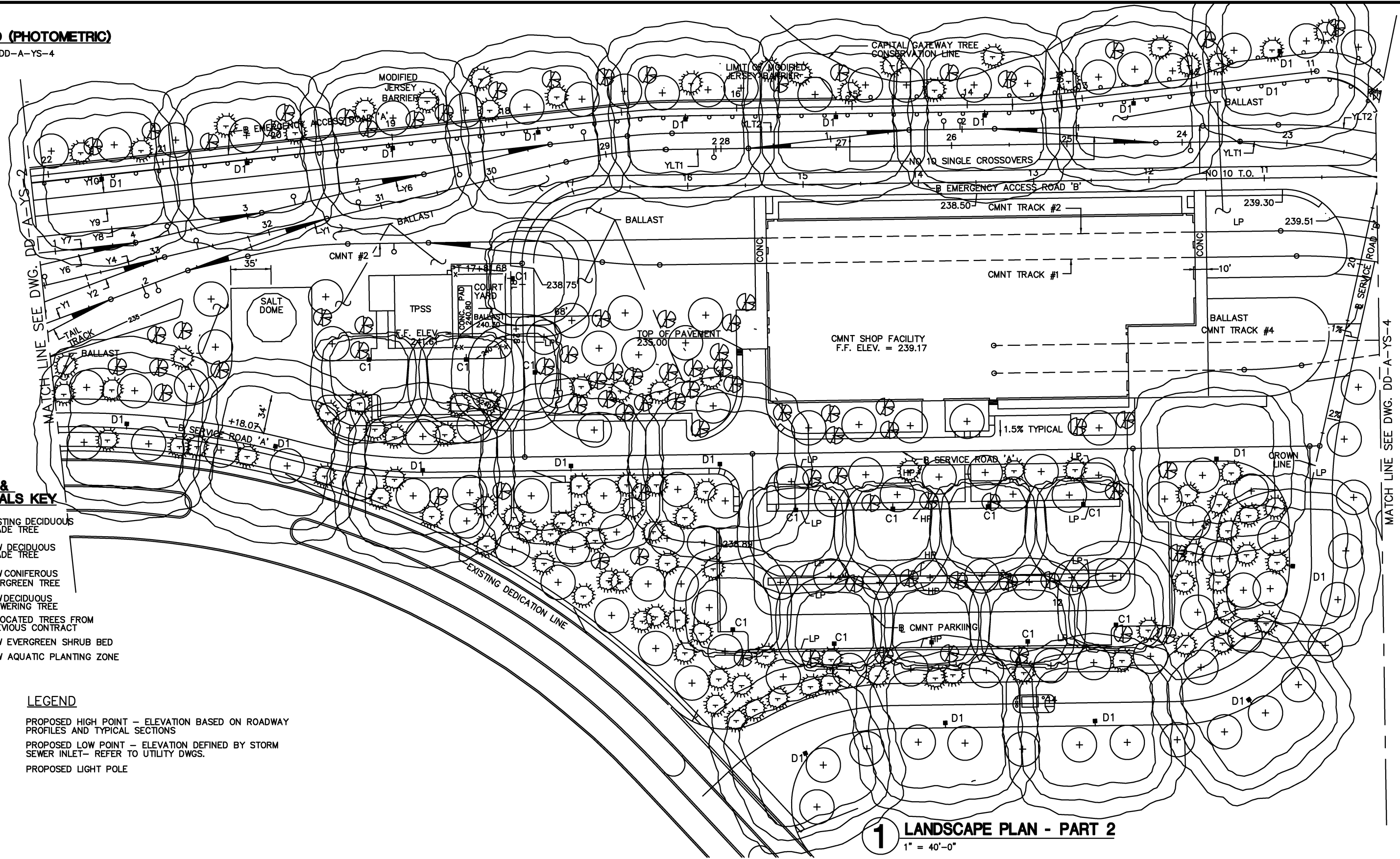
SEE DWG. DD-A-YS-4

**PLANT & MATERIALS KEY**

-  EXISTING DECIDUOUS SHADE TREE
-  NEW DECIDUOUS SHADE TREE
-  NEW CONIFEROUS EVERGREEN TREE
-  NEW DECIDUOUS FLOWERING TREE
-  RELOCATED TREES FROM PREVIOUS CONTRACT
-  NEW EVERGREEN SHRUB BED
-  NEW AQUATIC PLANTING ZONE

**LEGEND**

- x HP PROPOSED HIGH POINT - ELEVATION BASED ON ROADWAY PROFILES AND TYPICAL SECTIONS
- x LP PROPOSED LOW POINT - ELEVATION DEFINED BY STORM SEWER INLET- REFER TO UTILITY DWGS.
- C- PROPOSED LIGHT POLE



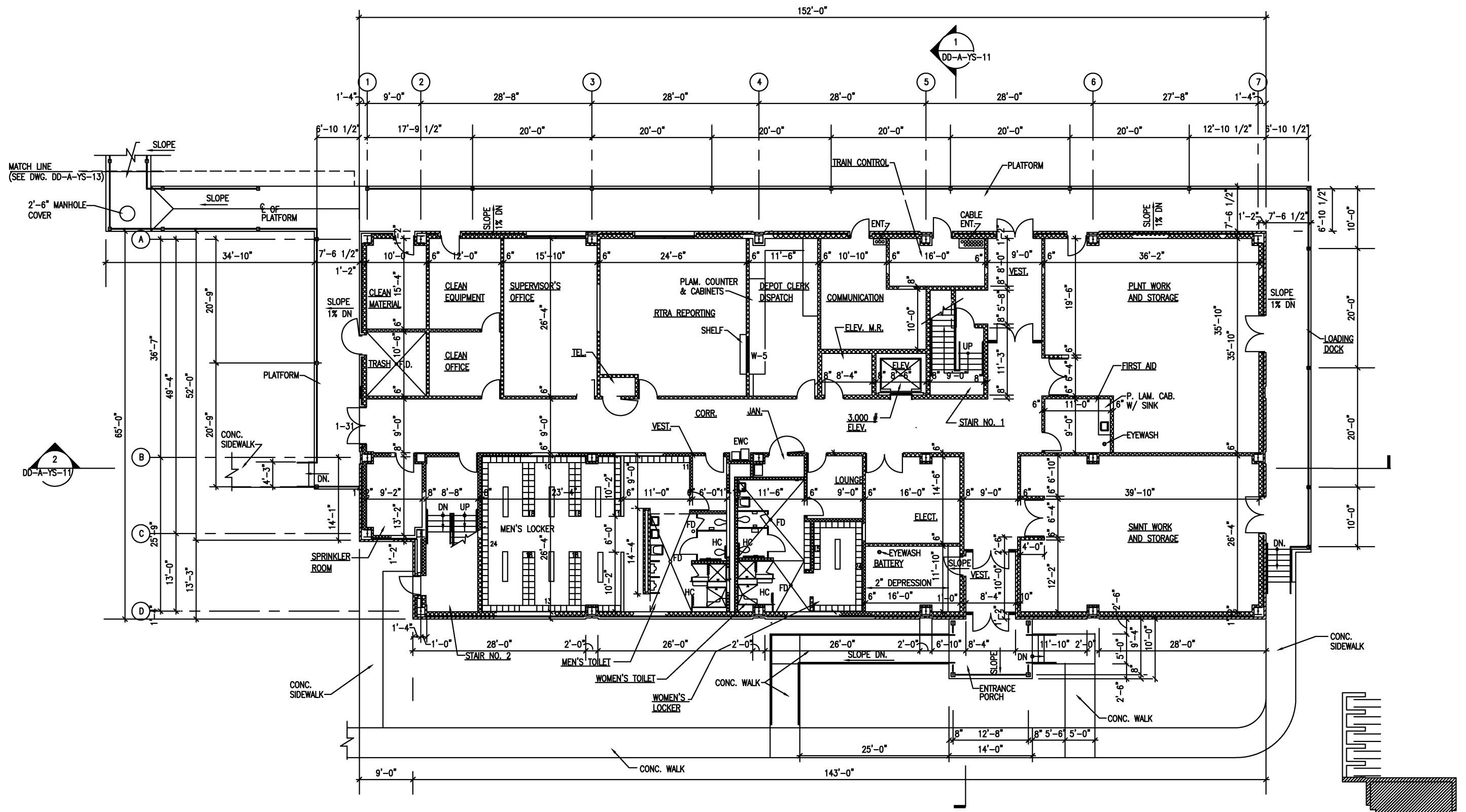
**1 LANDSCAPE PLAN - PART 2**  
1" = 40'-0"

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
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N. IBERELE	1998				
K. LANDESZ	1998				
J. CORLEY	1998				

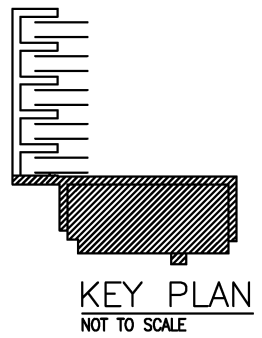
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE  
 SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**ARCHITECTURAL DESIGN DRAWING**  
 STORAGE AND INSPECTION YARD  
 LANDSCAPE PLAN - PART 2  
 SCALE 0" = 20' 40' = 80' DRAWING NO. DD-A-YS-003

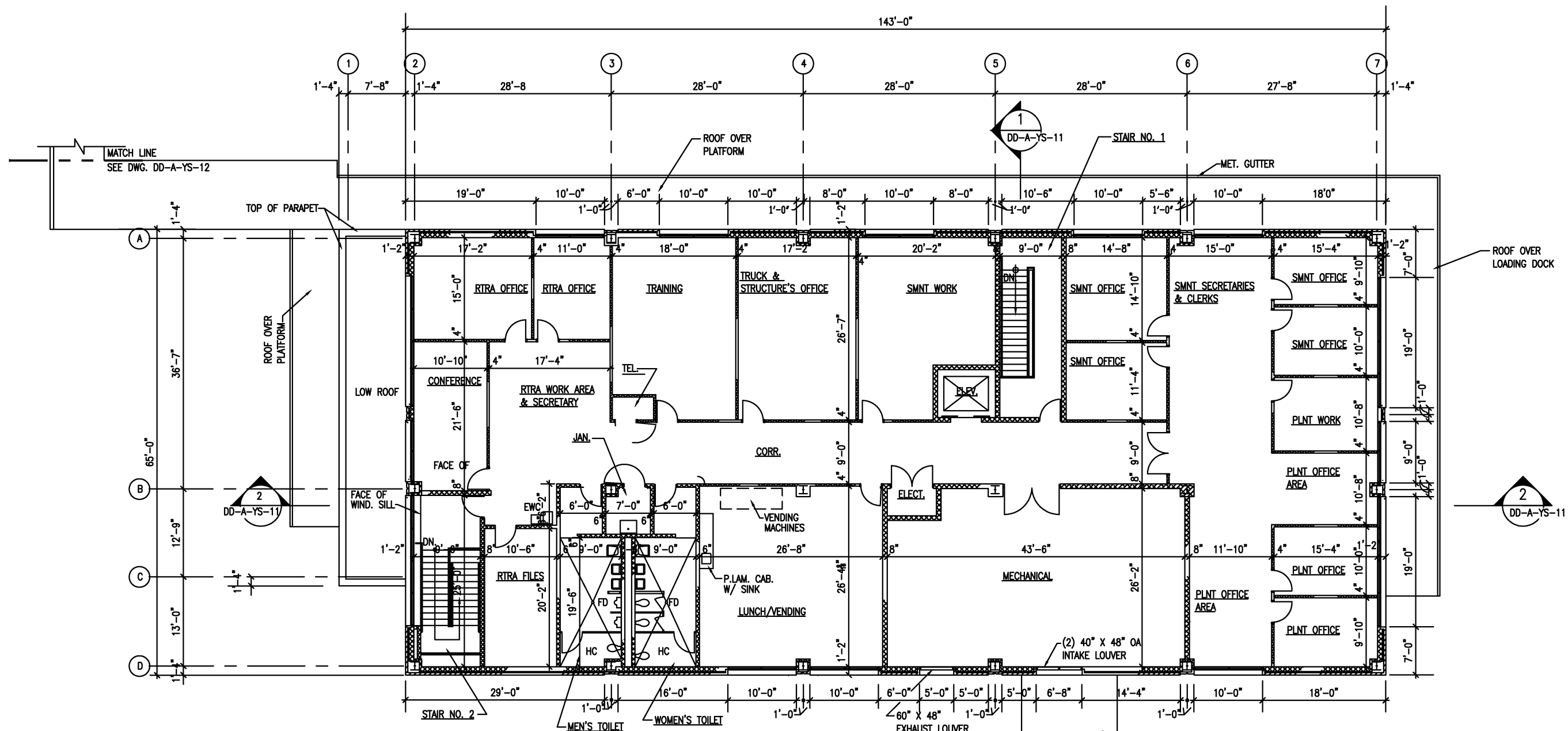




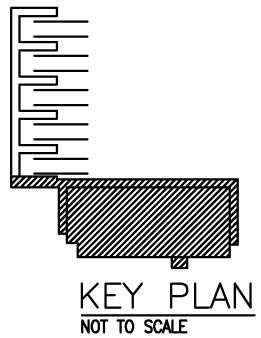
**1 FIRST FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



DESIGNED <u>D. MUNSON</u> 1998 DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ARCHITECTURAL DESIGN DRAWING</b> OPERATIONS/MAINTENANCE BLDG. FIRST FLOOR PLAN			
DRAWN _____ DATE			08/2001	ENGA	Revised and issued by the Authority				SCALE 1/8" = 1'-0"	DRAWING NO.
CHECKED <u>K. LANDESZ</u> 1998 DATE									2' 0' 2' 4' 6' 8' 10'	DD-A-YS-007
APPROVED <u>J. CORLEY</u> 1998 DATE									SUBMITTED _____ DATE	APPROVED <i>[Signature]</i> DIRECTOR May 3, 2001 DATE



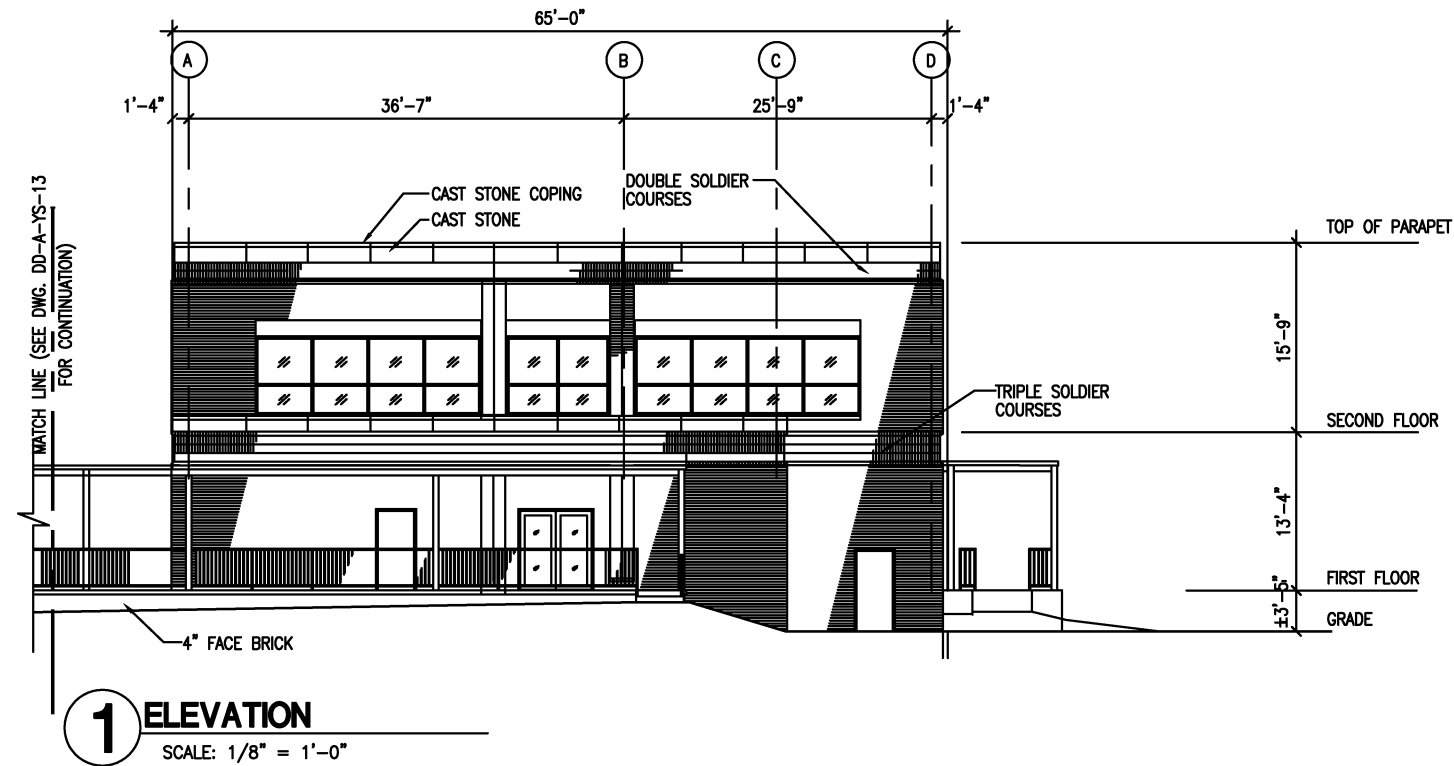
**1 SECOND FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



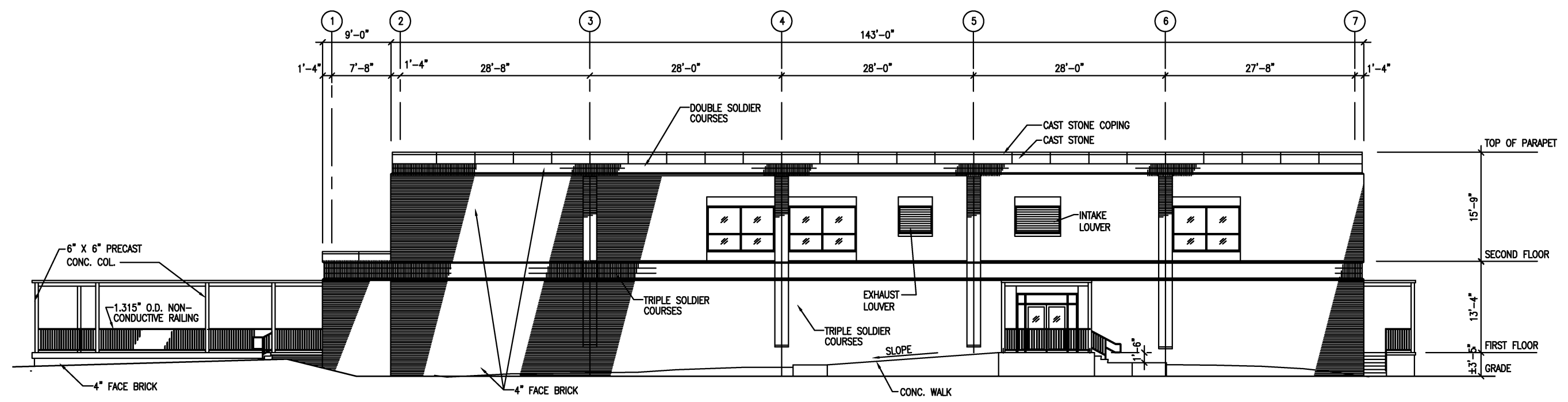
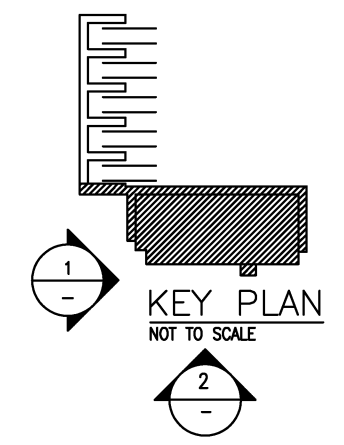
DESIGNED		DATE		1998		D.MUNSON	
DESIGNED	D.MUNSON	1998	DATE	08/2001	BY	ENGA	DESCRIPTION
DRAWN		1998	DATE				Revised and issued by the Authority
CHECKED	K. LANDESZ	1998	DATE				
APPROVED	J. CORLEY	1998	DATE				

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION

<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE			<b>ARCHITECTURAL DESIGN DRAWING</b> OPERATIONS/MAINTENANCE BLDG. SECOND FLOOR PLAN		
SUBMITTED	DATE	APPROVED	DATE	SCALE	DRAWING NO.
		<i>[Signature]</i>	May 3, 2001	1/8"=1'-0"	DD-A-YS-008



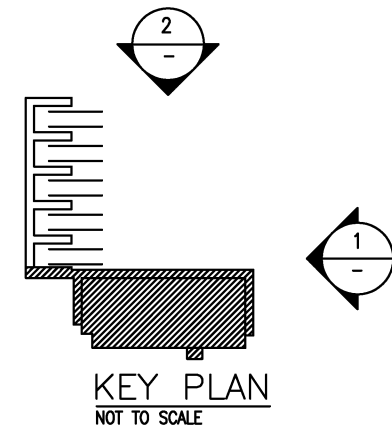
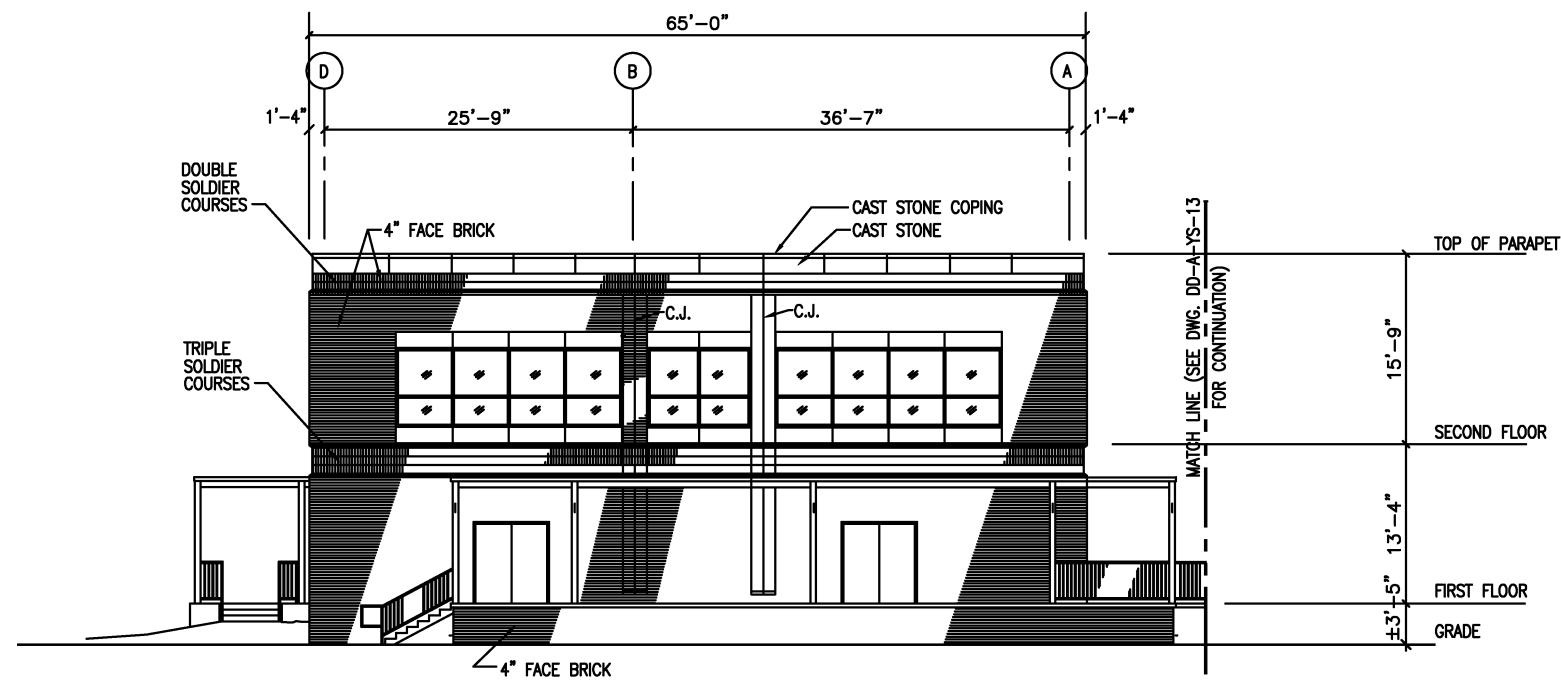
**1 ELEVATION**  
SCALE: 1/8" = 1'-0"



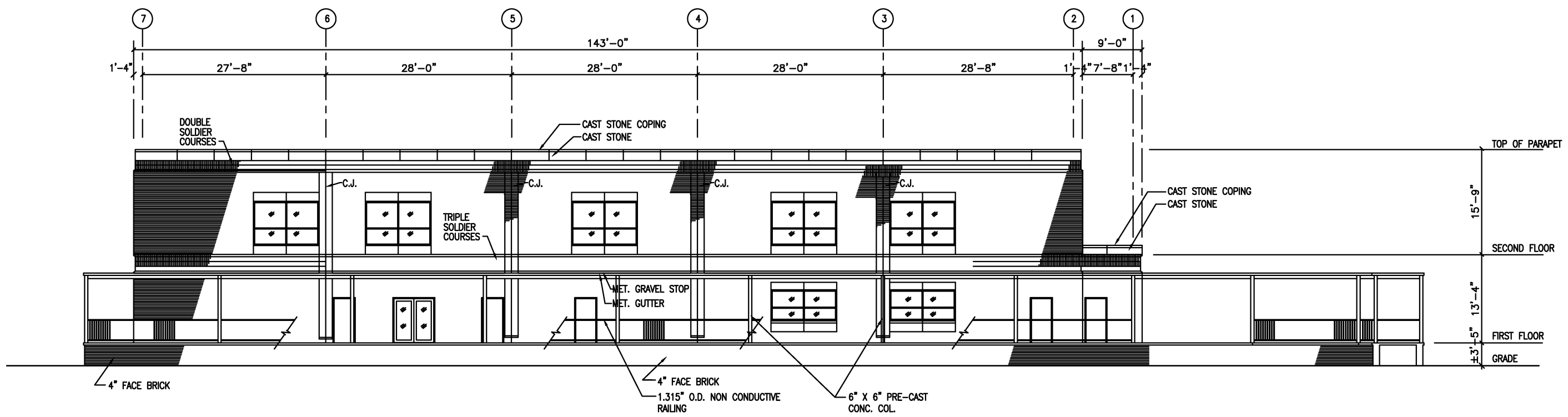
**2 ELEVATION**  
SCALE: 1/8" = 1'-0"

DESIGNED <u>D. MUNSON</u> 1998 DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ARCHITECTURAL DESIGN DRAWING</b> OPERATIONS/MAINTENANCE BLDG. ELEVATIONS
DRAWN _____ DATE			08/2001	ENGA	Revised and issued by the Authority		
CHECKED <u>K. LANDESZ</u> 1998 DATE						SUBMITTED _____ DATE APPROVED <i>[Signature]</i> DIRECTOR May 3, 2001 DATE	SCALE 1/8" = 1'-0" 2' 0" 2' 4" 6" 8" 10" DRAWING NO. DD-A-YS-009
APPROVED <u>J. CORLEY</u> 1998 DATE							

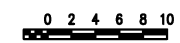




**1 ELEVATION**  
SCALE: 1/8" = 1'-0"



**2 ELEVATION**  
SCALE: 1/8" = 1'-0"



DESIGNED <u>D. MUNSON</u>	1998
DATE	
DRAWN	1998
DATE	
CHECKED <u>K. LANDEZ</u>	1998
DATE	
APPROVED <u>J. CORLEY</u>	1998
DATE	

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

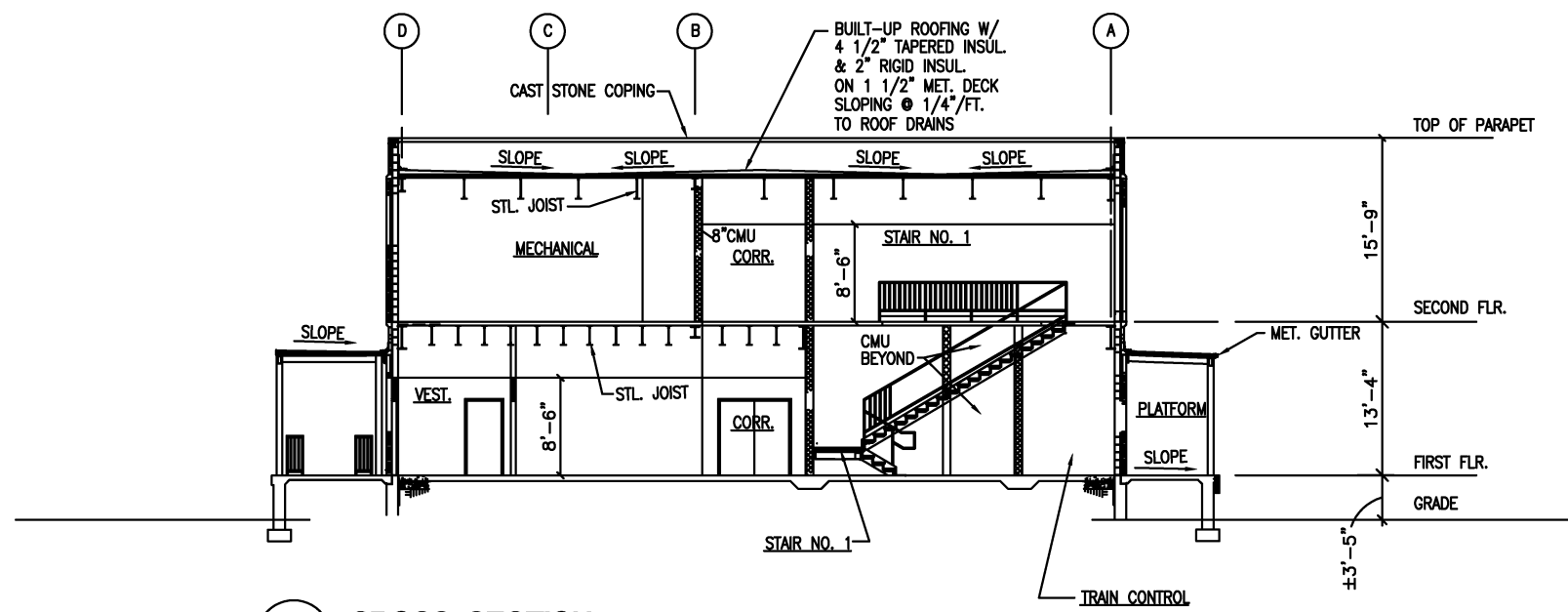
REVISIONS		
NUMBER	DATE	DESCRIPTION

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

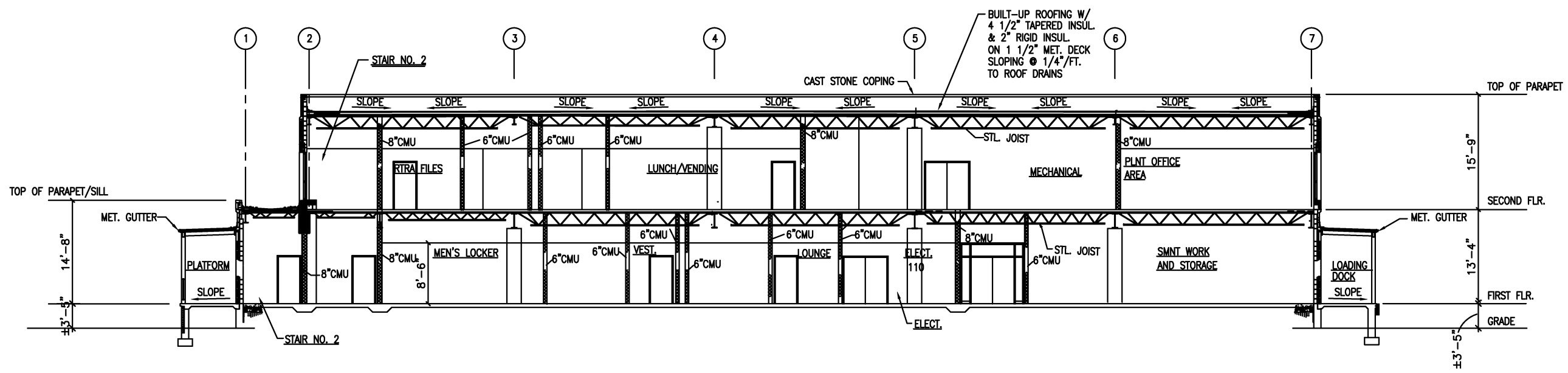
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
OPERATIONS/MAINTENANCE BLDG.  
ELEVATIONS

SCALE 1/8"=1'-0" DRAWING NO. DD-A-YS-010



**1 CROSS SECTION**  
SCALE: 1/8" = 1'-0"



**2 LONGITUDINAL SECTION**  
SCALE: 1/8" = 1'-0"

DESIGNED	D. MUNSON	1998
DATE		
DRAWN		
DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

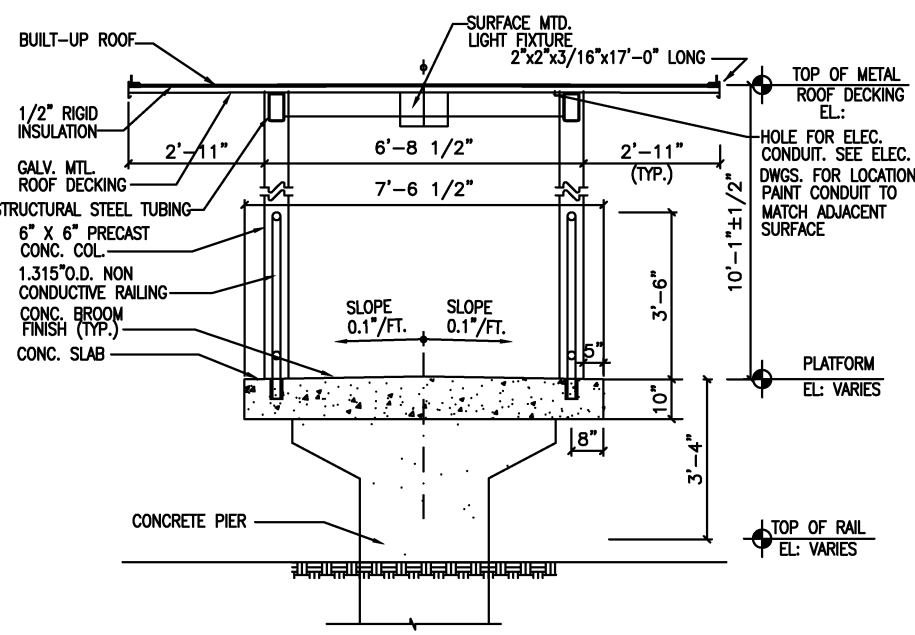
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APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

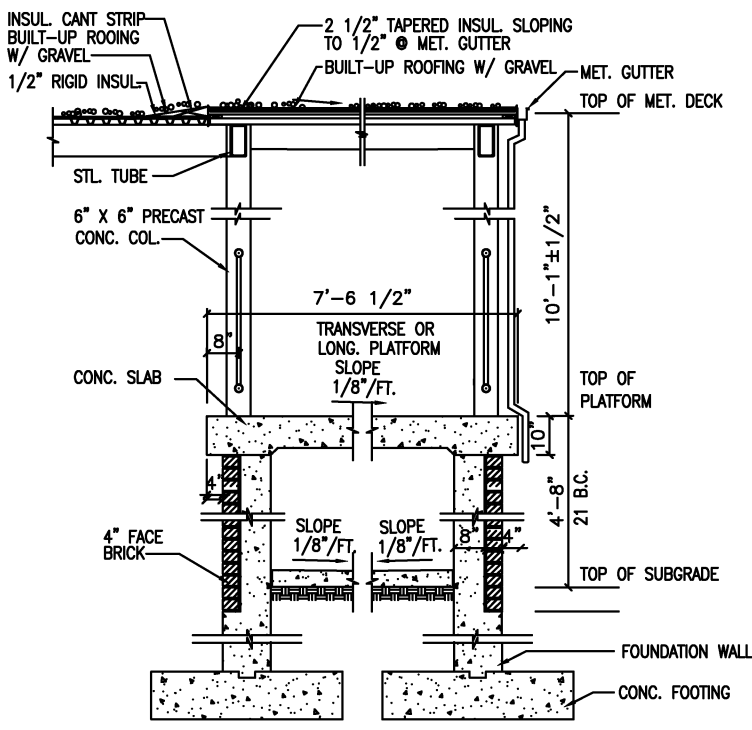
**ARCHITECTURAL DESIGN DRAWING**  
OPERATIONS/MAINTENANCE BLDG.  
CROSS & LONGITUDINAL SECTIONS

SCALE 1/8" = 1'-0"  
2' 0 2' 4' 6' 8' 10'

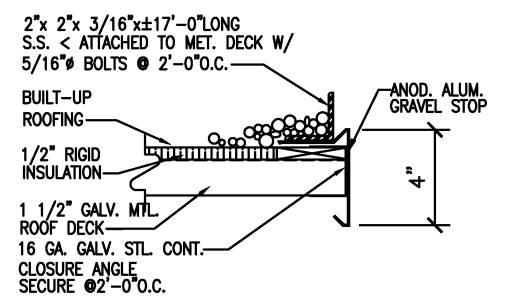
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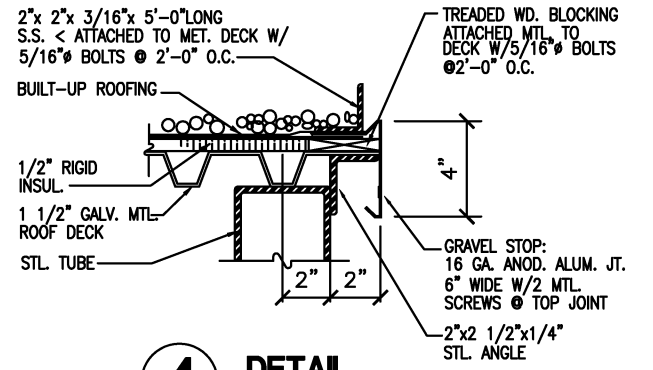
**1 SECTION THRU PLATFORM**  
SCALE: 1/2" = 1'-0"



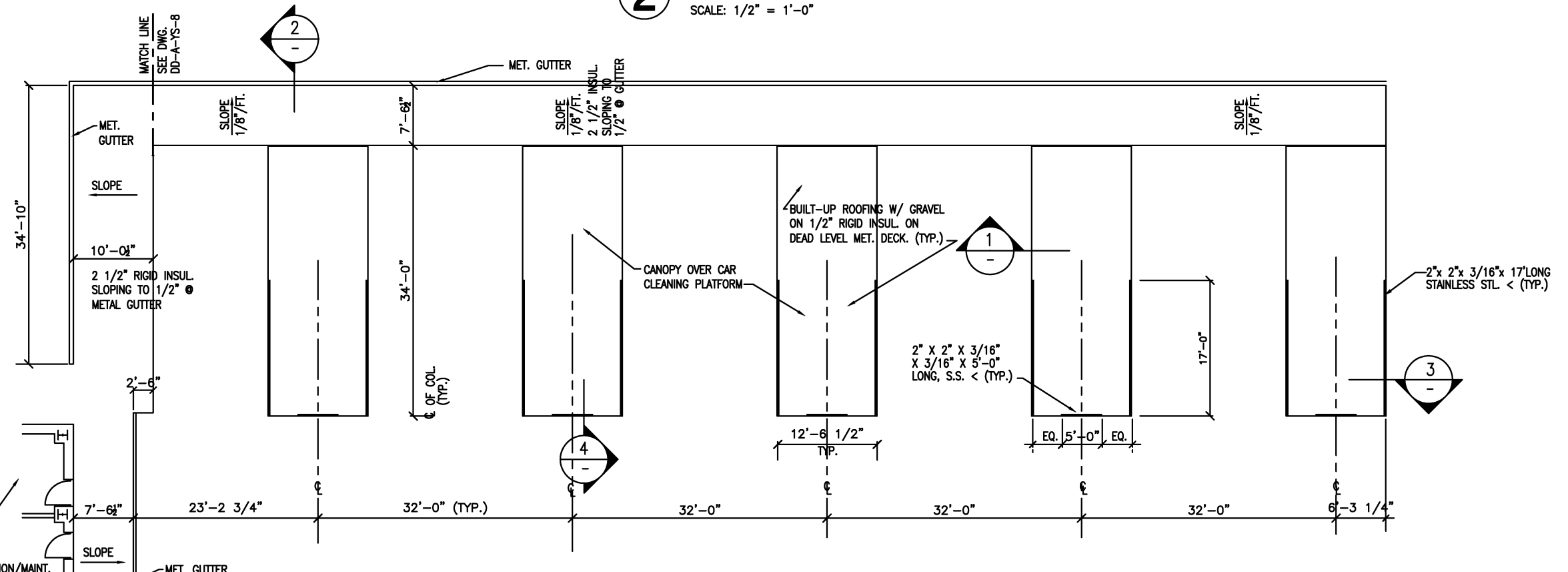
**2 SECTION**  
SCALE: 1/2" = 1'-0"



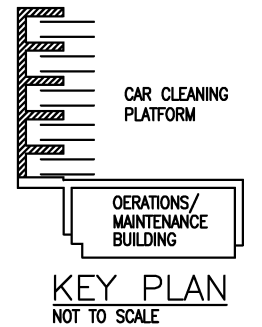
**3 DETAIL**  
SCALE: 3" = 1'-0"



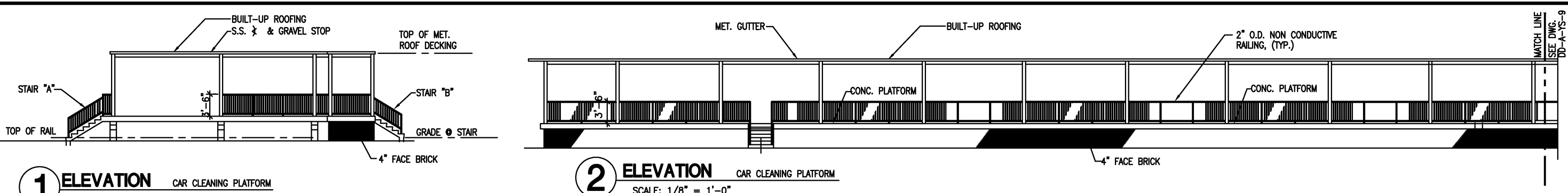
**4 DETAIL**  
SCALE: 3" = 1'-0"



**5 ROOF PLAN**  
SCALE: 1/8" = 1'-0"

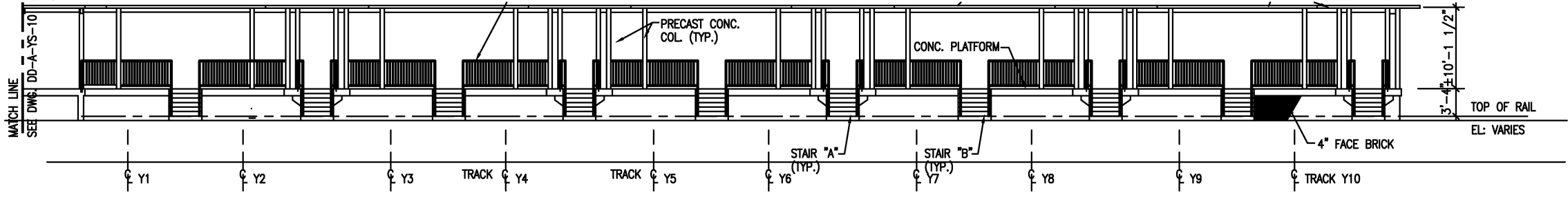


DESIGNED <u>D. MUNSON</u> DATE 1998	REFERENCE DRAWINGS	REVISIONS	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		ARCHITECTURAL DESIGN DRAWING	
DRAWN _____ DATE 1998	NUMBER DESCRIPTION	DATE BY DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT		CAR CLEANING PLATFORM	
CHECKED <u>K. LANDESZ</u> DATE 1998		08/2001 ENGA Revised and issued by the Authority	OFFICE OF ENGINEERING AND ARCHITECTURE		PLATFORM ROOF PLAN AND DETAILS	
APPROVED <u>J. CORLEY</u> DATE 1998			SUBMITTED _____	APPROVED <u>[Signature]</u> DIRECTOR	SCALE 1/8" = 1'-0"	DRAWING NO. DD-A-YS-012
				DATE _____		

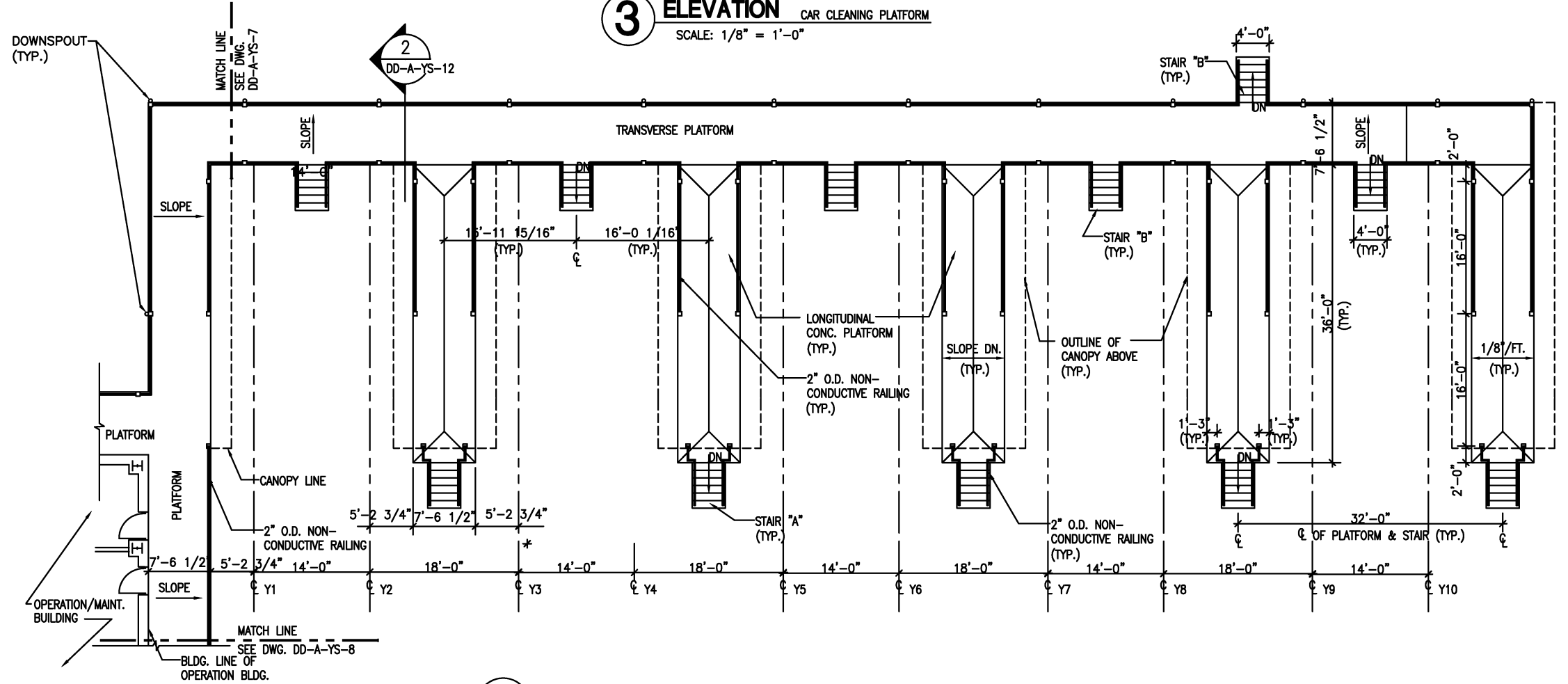


**1 ELEVATION** CAR CLEANING PLATFORM  
SCALE: 1/8" = 1'-0"

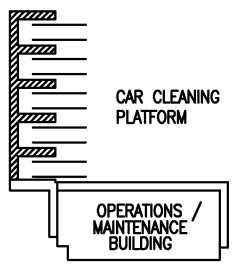
**2 ELEVATION** CAR CLEANING PLATFORM  
SCALE: 1/8" = 1'-0"



**3 ELEVATION** CAR CLEANING PLATFORM  
SCALE: 1/8" = 1'-0"



**4 FLOOR PLAN** CAR CLEANING PLATFORM  
SCALE: 1/8" = 1'-0"



**KEY PLAN**  
NOT TO SCALE

DESIGNED	D. MUNSON	1998
		DATE
DRAWN		DATE
CHECKED	K. LANDESZ	1998
		DATE
APPROVED	J. CORLEY	1998
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
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**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

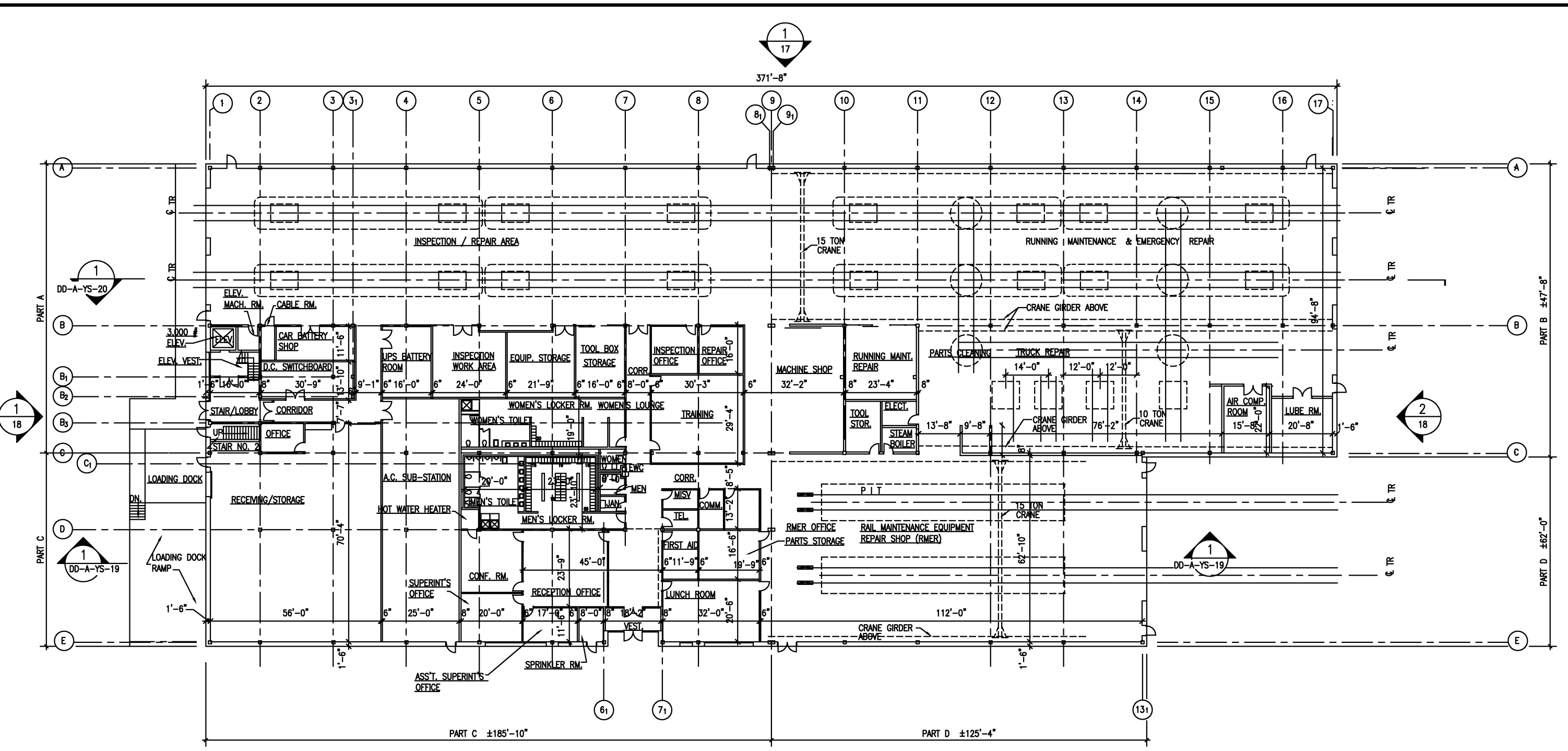
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
OPERATIONS/MAINTENANCE BLDG.  
CAR CLEANING PLATFORM ELEVATIONS

SCALE 1/8" = 1'-0"  
2' 0" 2' 4" 8' 10"

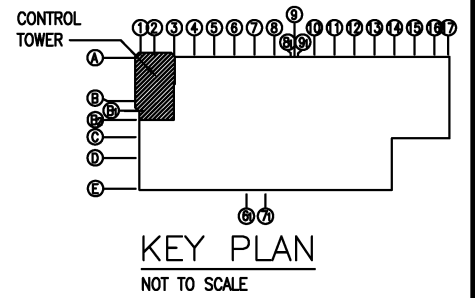
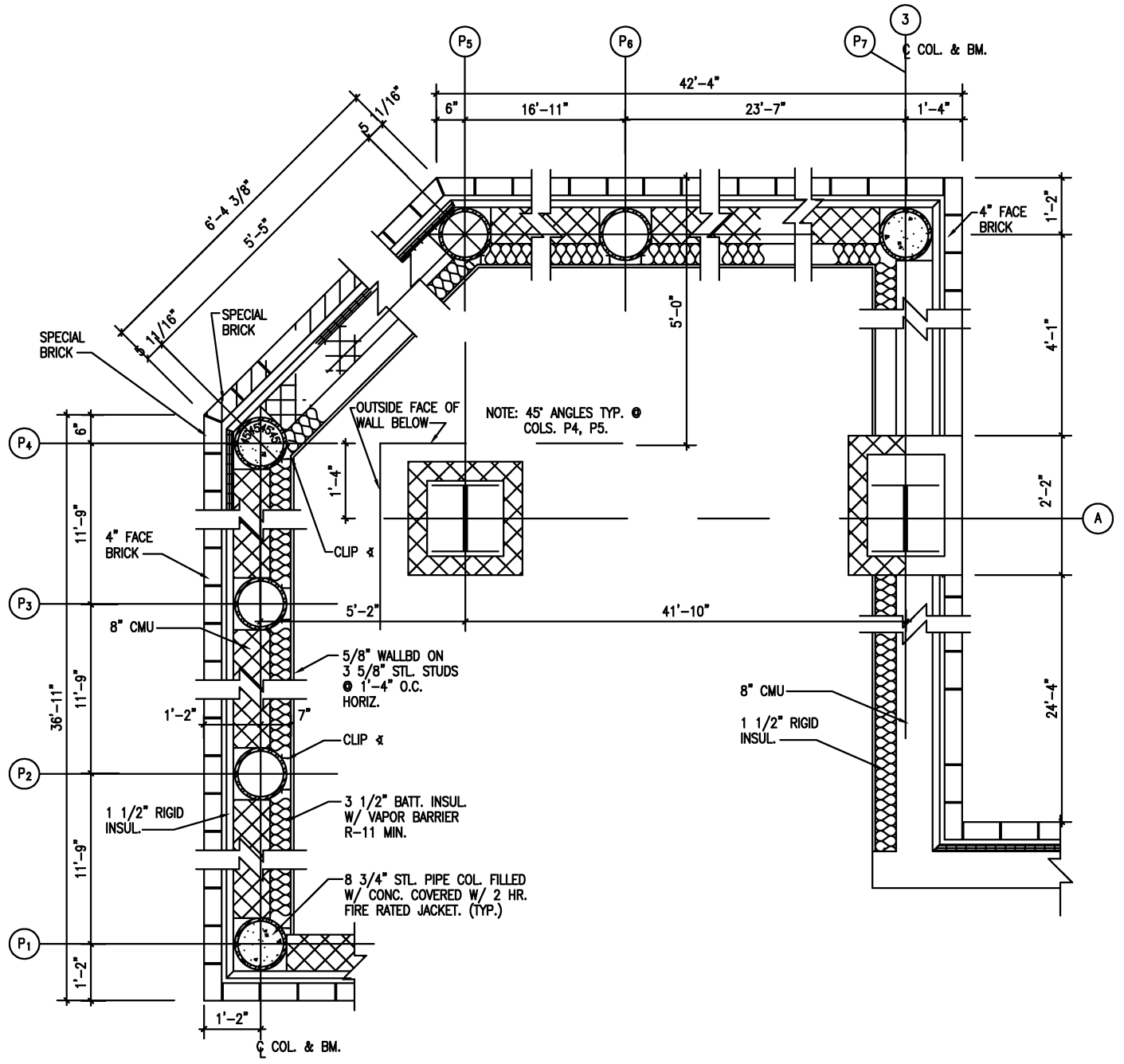
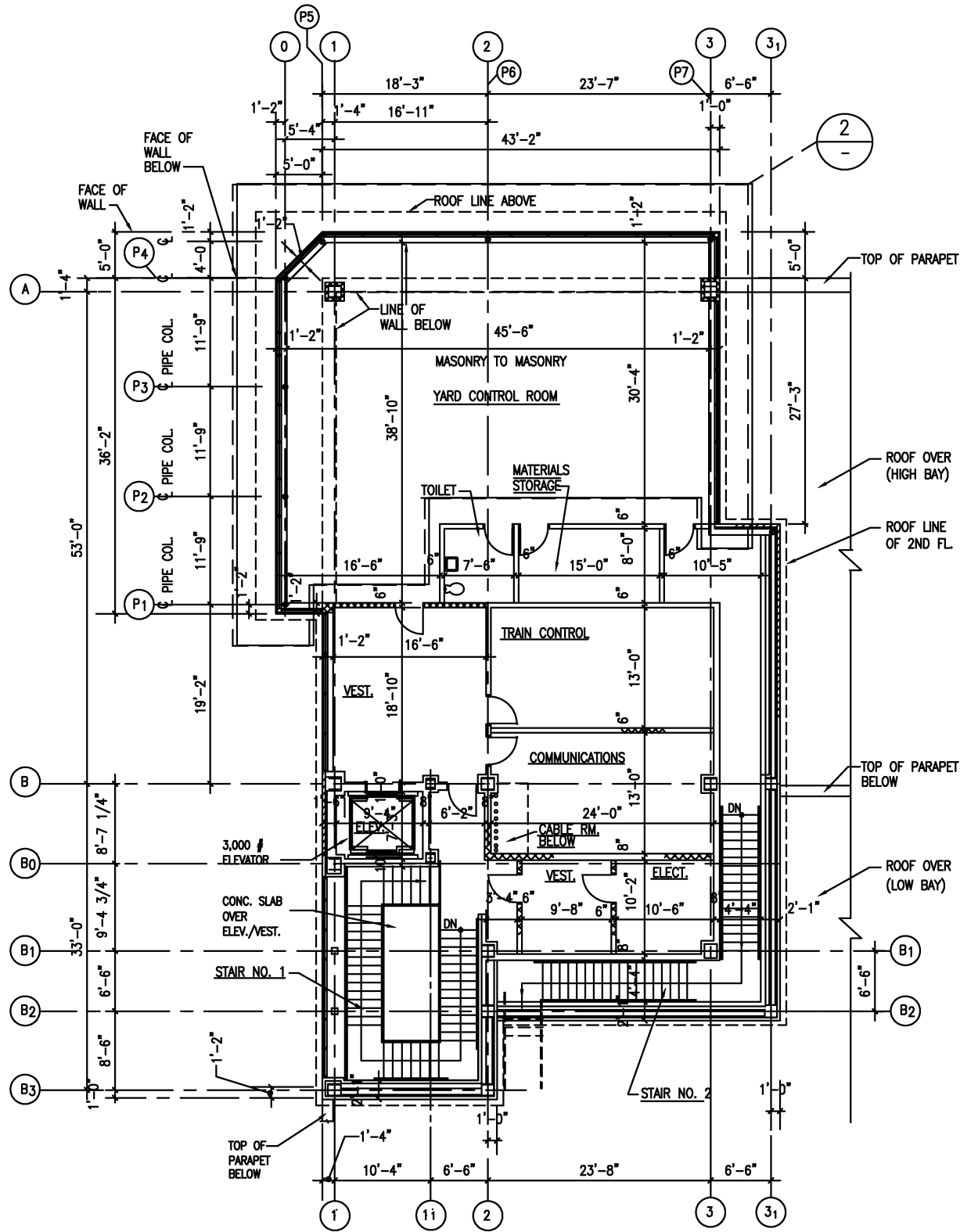
DRAWING NO. DD-A-YS-013



**1 LAYOUT PLAN**  
SCALE: 1/16" = 1'-0"

4' 0" 4' 8" 12' 16' 20'

DESIGNED <u>D. MUNSON</u> 1998 DATE DRAWN _____ 1998 DATE CHECKED <u>K. LANDESZ</u> 1998 DATE APPROVED <u>J. CORLEY</u> 1998 DATE	<b>REFERENCE DRAWINGS</b> <table border="1"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		NUMBER	DESCRIPTION							<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>08/2001</td> <td>ENGA</td> <td>Revised and issued by the Authority</td> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		DATE	BY	DESCRIPTION	08/2001	ENGA	Revised and issued by the Authority							<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE		<b>ARCHITECTURAL DESIGN DRAWING</b> CMNT SHOP FACILITY LAYOUT PLAN	
	NUMBER	DESCRIPTION																										
DATE	BY	DESCRIPTION																										
08/2001	ENGA	Revised and issued by the Authority																										
SUBMITTED _____ DATE _____	APPROVED <i>[Signature]</i> DIRECTOR	May 3, 2001 DATE	SCALE 1/16"=1'-0"	DRAWING NO. DD-A-YS-014																								



DESIGNED	D. MUNSON	1998
DATE		
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DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

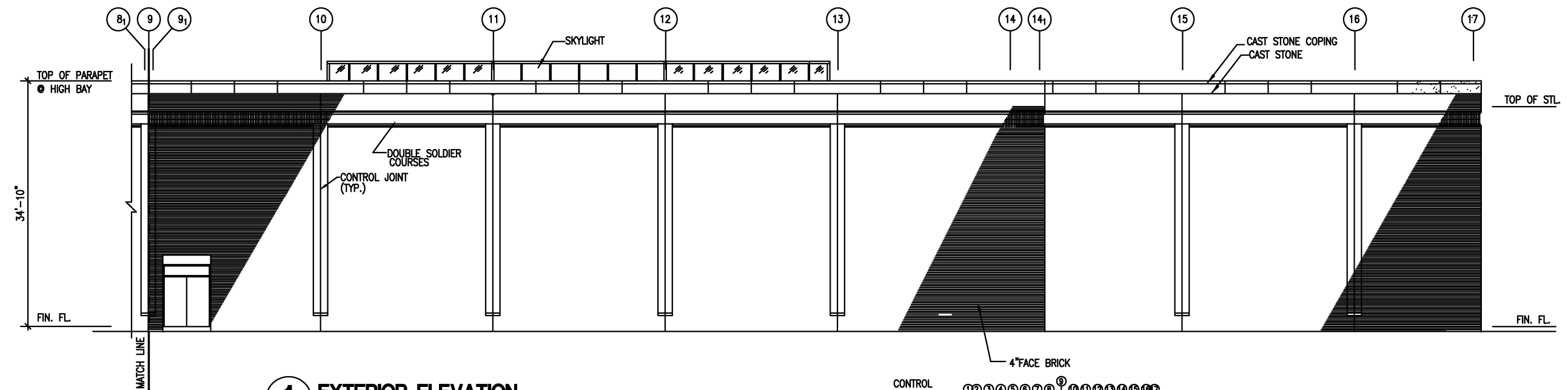
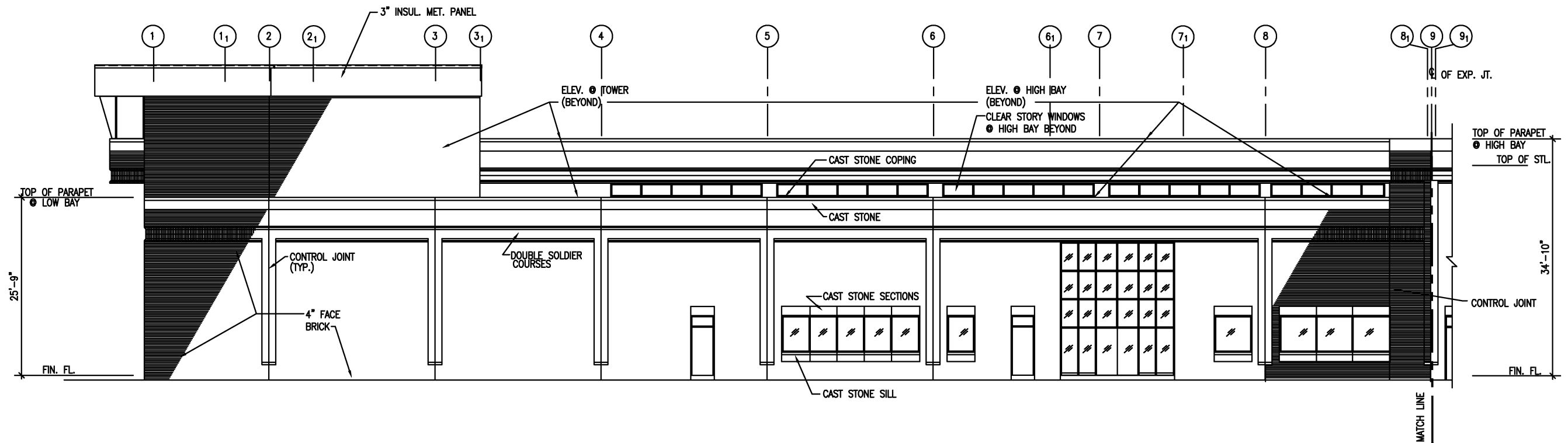
REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

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 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
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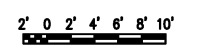
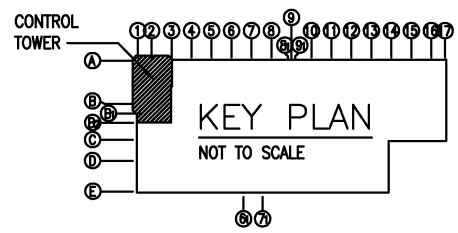
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ARCHITECTURAL DESIGN DRAWING**  
 CMNT SHOP FACILITY  
 SECOND FLOOR PLAN

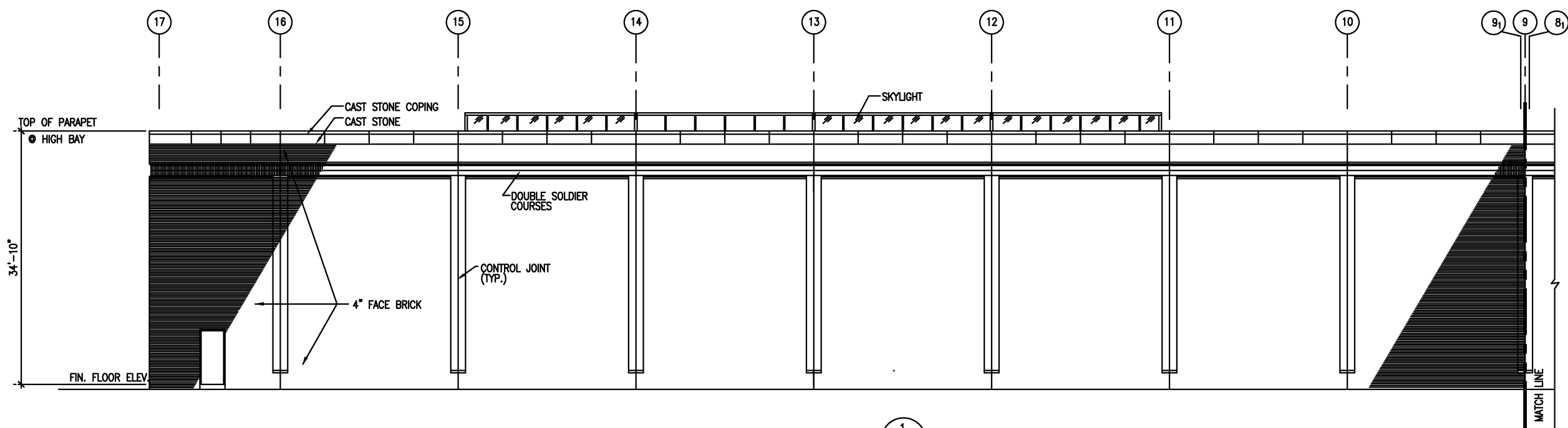
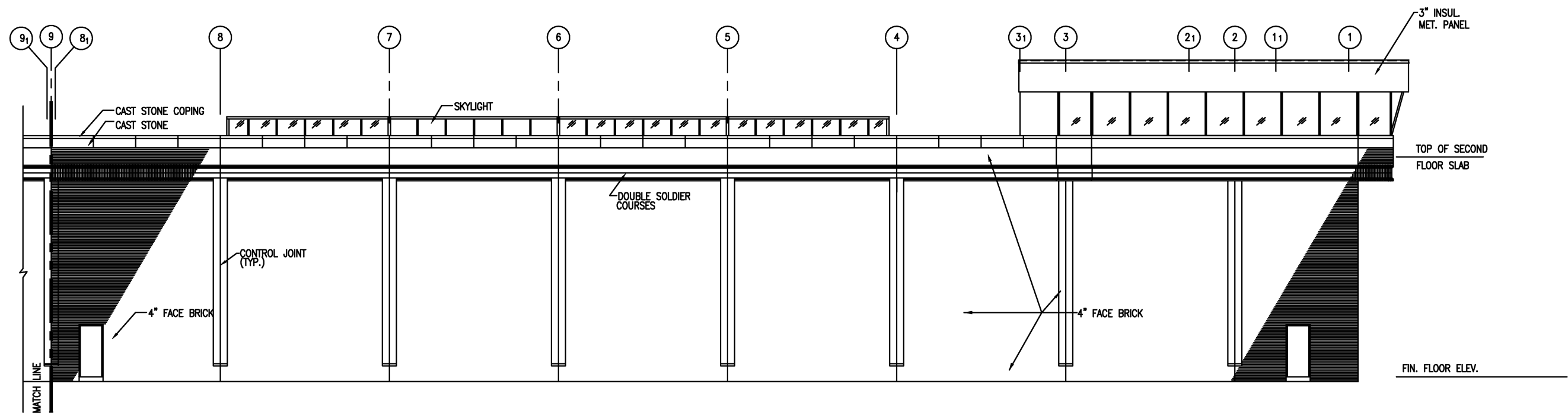
SCALE AS SHOWN  
 DRAWING NO. DD-A-YS-015



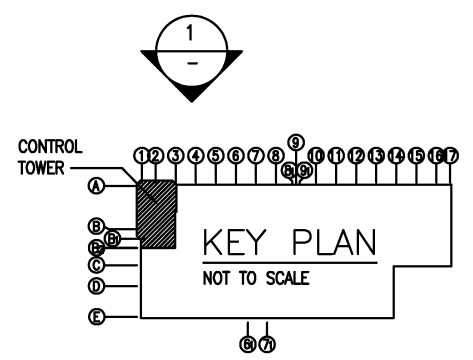
**1 EXTERIOR ELEVATION**  
SCALE: 1/8" = 1'-0"



DESIGNED <u>D. MUNSON</u> 1998 DATE DRAWN _____ 1998 DATE CHECKED <u>K. LANDESZ</u> 1998 DATE APPROVED <u>J. CORLEY</u> 1998 DATE	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION		<b>REVISIONS</b> DATE BY DESCRIPTION		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ARCHITECTURAL DESIGN DRAWING</b> CMNT SHOP FACILITY EXTERIOR ELEVATIONS	
					SUBMITTED _____ DATE	APPROVED <i>[Signature]</i> May 3, 2001 DIRECTOR DATE	SCALE 1/8"=1'-0" DRAWING NO. DD-A-YS-016



**1 EXTERIOR ELEVATION**  
SCALE: 1/8" = 1'-0"



DESIGNED	D. MUNSON	1998
DATE		
DRAWN		
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
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OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

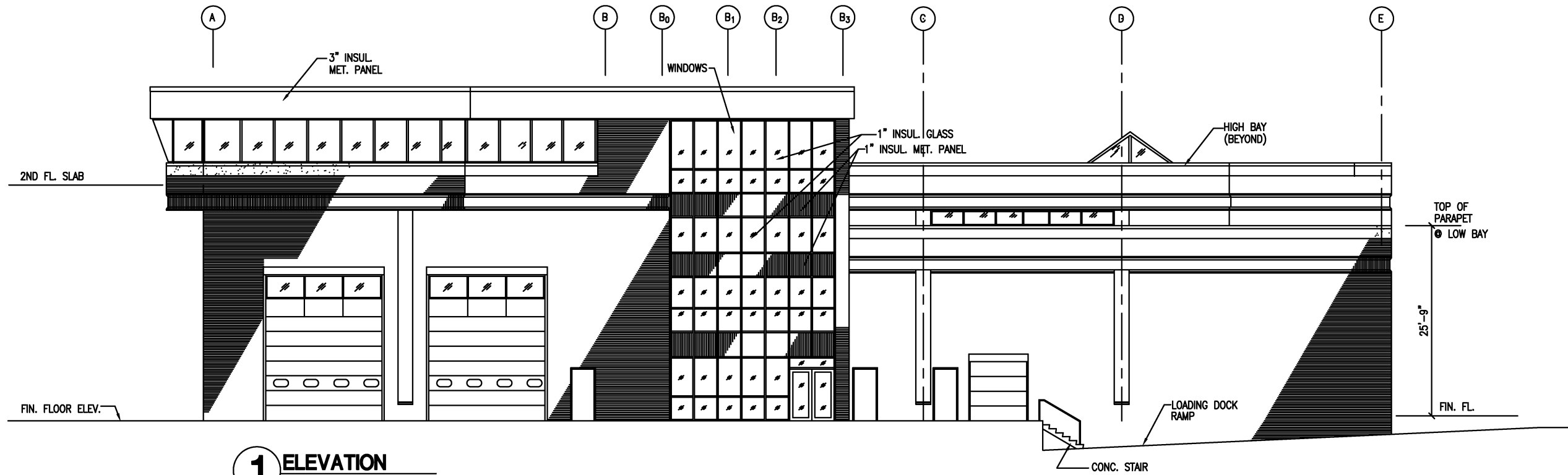
APPROVED *[Signature]* DIRECTOR DATE May 3, 2001

**ARCHITECTURAL DESIGN DRAWING**  
CMNT SHOP FACILITY  
EXTERIOR ELEVATIONS

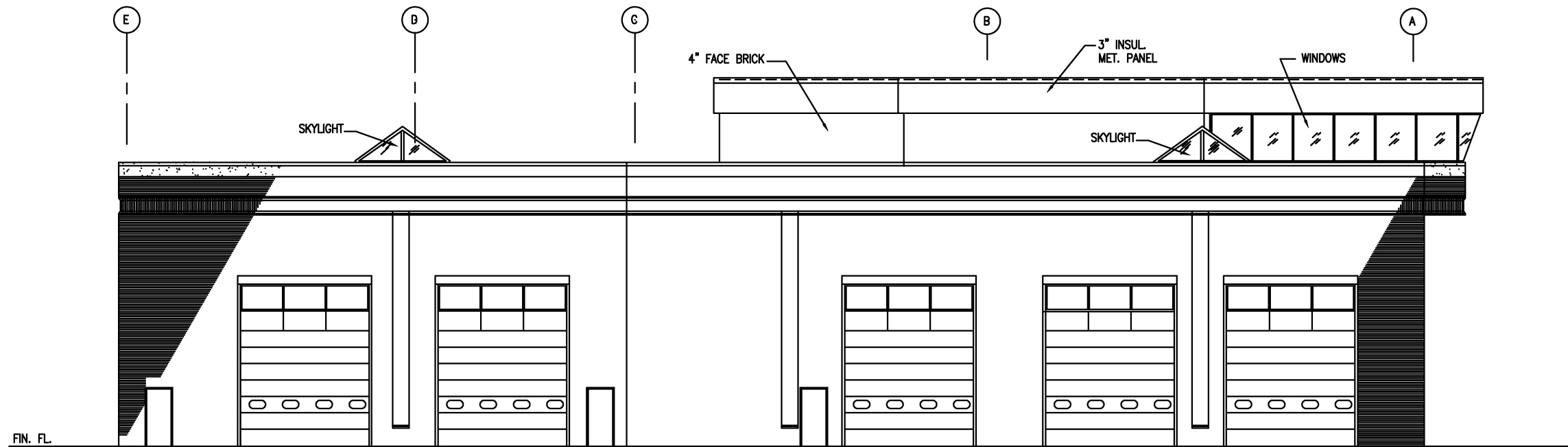
SCALE 1/8" = 1'-0"  
2' 0" 2' 4" 6" 8" 10"

DRAWING NO. DD-A-YS-017

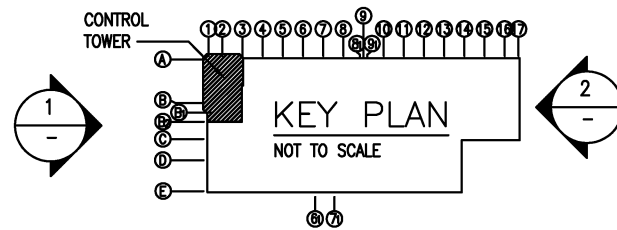




**1 ELEVATION**  
SCALE: 1/8" = 1'-0"

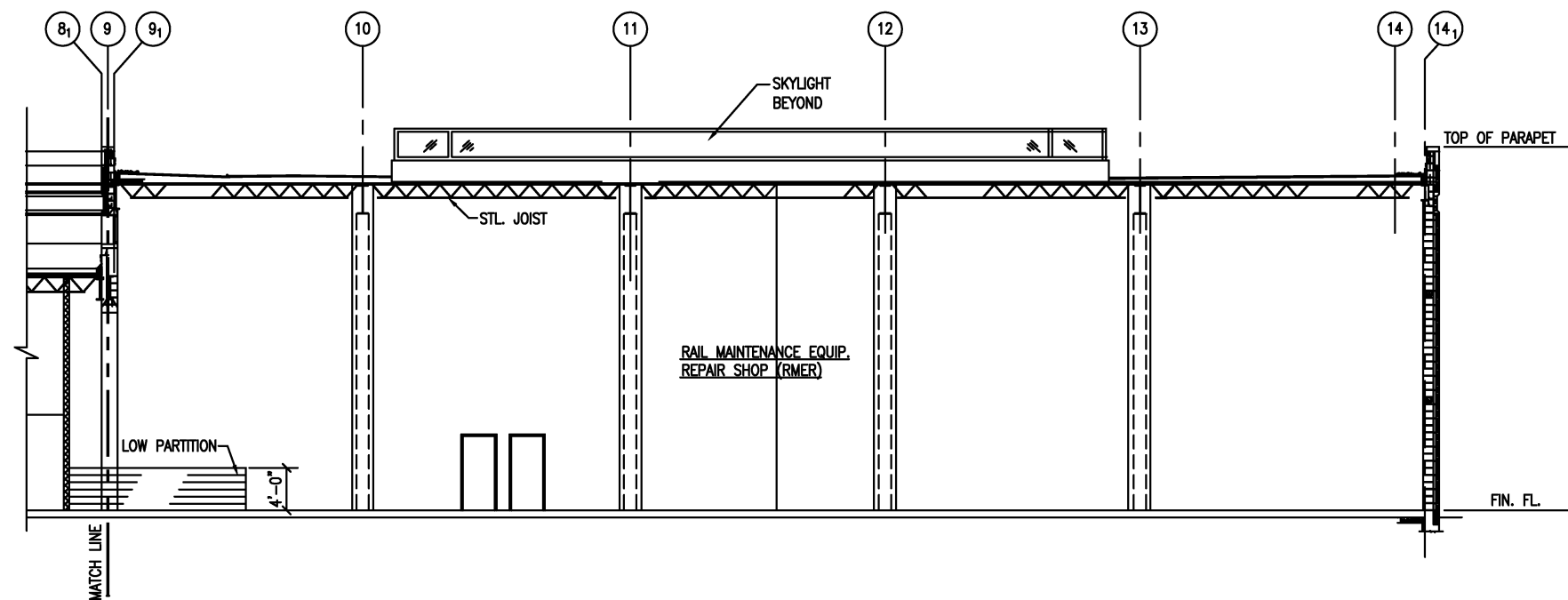
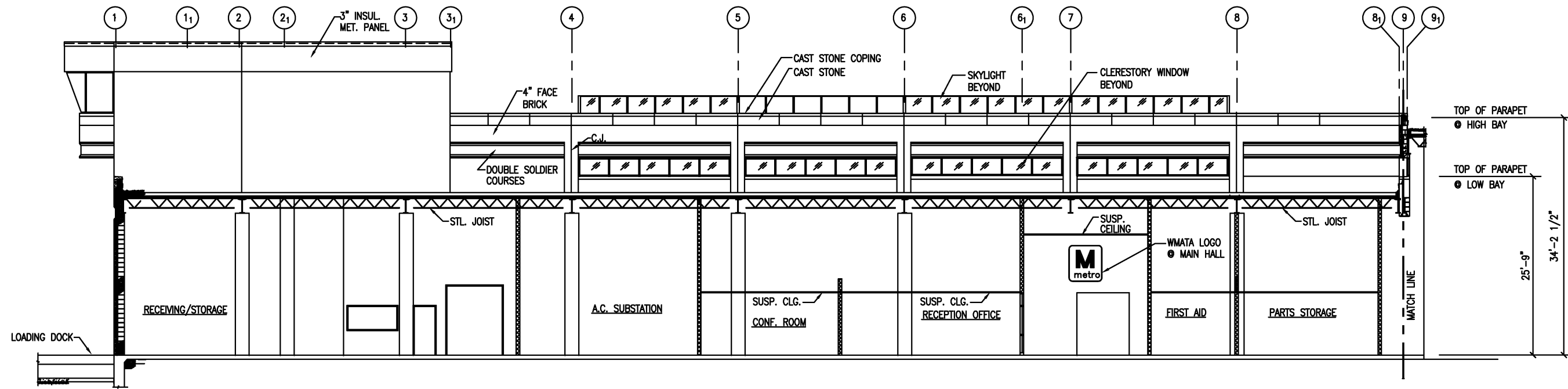


**2 ELEVATION**  
SCALE: 1/8" = 1'-0"



2' 0" 2' 4' 6' 8' 10'

DESIGNED <u>D. MUNSON</u> 1998 DATE DRAWN _____ 1998 DATE CHECKED <u>K. LANDEZ</u> 1998 DATE APPROVED <u>J. CORLEY</u> 1998 DATE	<b>REFERENCE DRAWINGS</b>		<b>REVISIONS</b>		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE SUBMITTED _____ DATE _____ APPROVED <i>[Signature]</i> DIRECTOR May 3, 2001 DATE	<b>ARCHITECTURAL DESIGN DRAWING</b> CMNT SHOP FACILITY EXTERIOR ELEVATIONS																					
	<table border="1"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td>08/2001</td> <td>ENGA</td> <td>Revised and issued by the Authority</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> </tbody> </table>	NUMBER	DESCRIPTION	DATE		BY	DESCRIPTION			08/2001	ENGA	Revised and issued by the Authority															
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION																							
		08/2001	ENGA	Revised and issued by the Authority																							



**1 SECTION**  
SCALE: 1/8" = 1'-0"

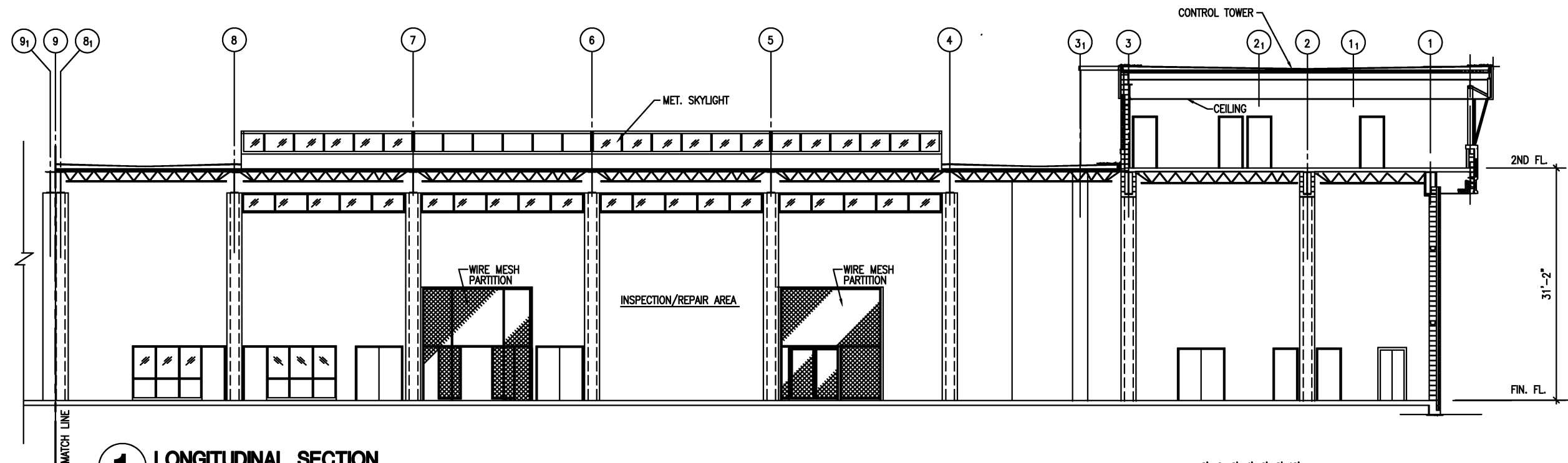
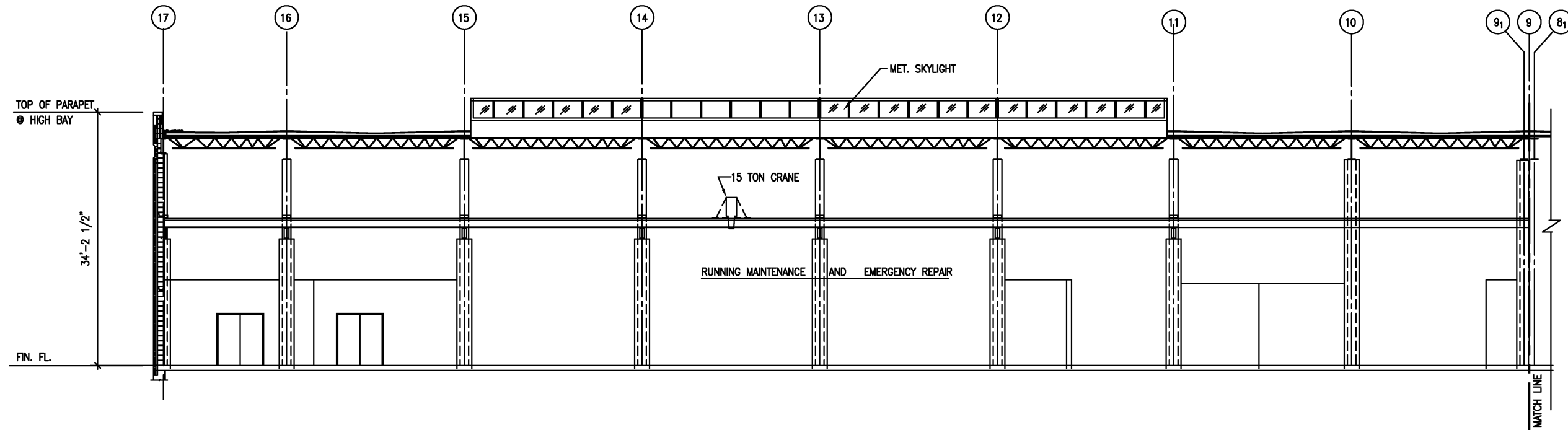
DESIGNED	D. MUNSON	1998
DATE		
DRAWN		
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

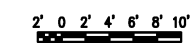
REVISIONS		
NUMBER	DATE	DESCRIPTION

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

ARCHITECTURAL DESIGN DRAWING  
 CMNT SHOP FACILITY  
 CROSS SECTIONS  
 SCALE 1/8" = 1'-0"  
 2' 0" 2' 4" 6" 8" 10"  
 DRAWING NO. DD-A-YS-019



**1** LONGITUDINAL SECTION  
SCALE: 1/8" = 1'-0"



DESIGNED	D. MUNSON	1998
DATE		
DRAWN		1998
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
NUMBER	DATE	DESCRIPTION

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

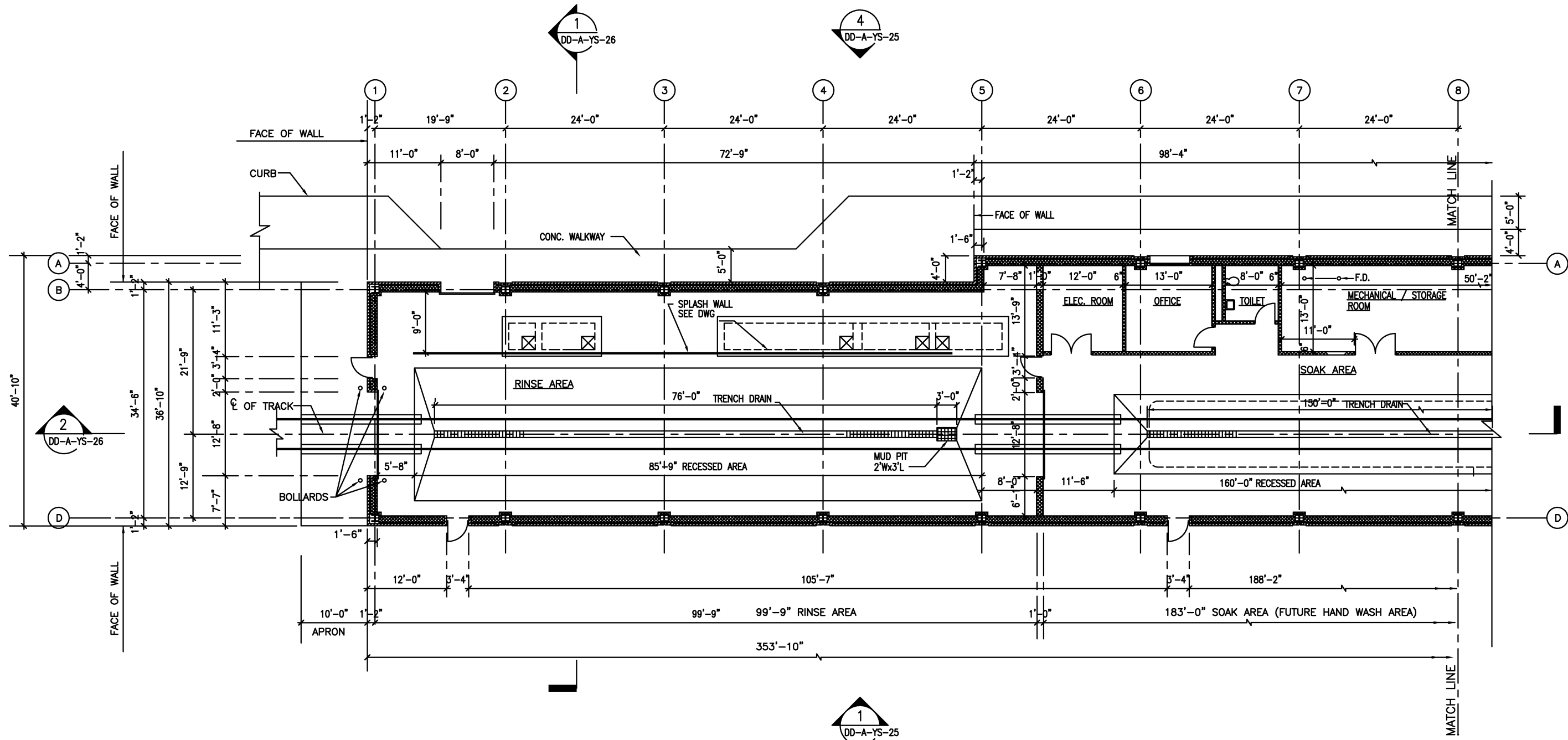
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

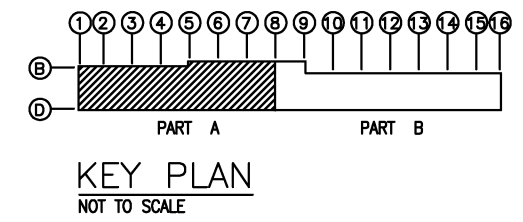
**ARCHITECTURAL DESIGN DRAWING**  
CMNT SHOP FACILITY  
LONGITUDINAL SECTIONS

SCALE 1/8" = 1'-0"

DRAWING NO. DD-A-YS-020



**1 FLOOR PLAN - PART "A"**  
SCALE: 1/8" = 1'-0"



DESIGNED	D. MUNSON	1998
		DATE
DRAWN		DATE
CHECKED	K. LANDESZ	1998
		DATE
APPROVED	J. CORLEY	1998
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS			
NUMBER	DATE	BY	DESCRIPTION

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

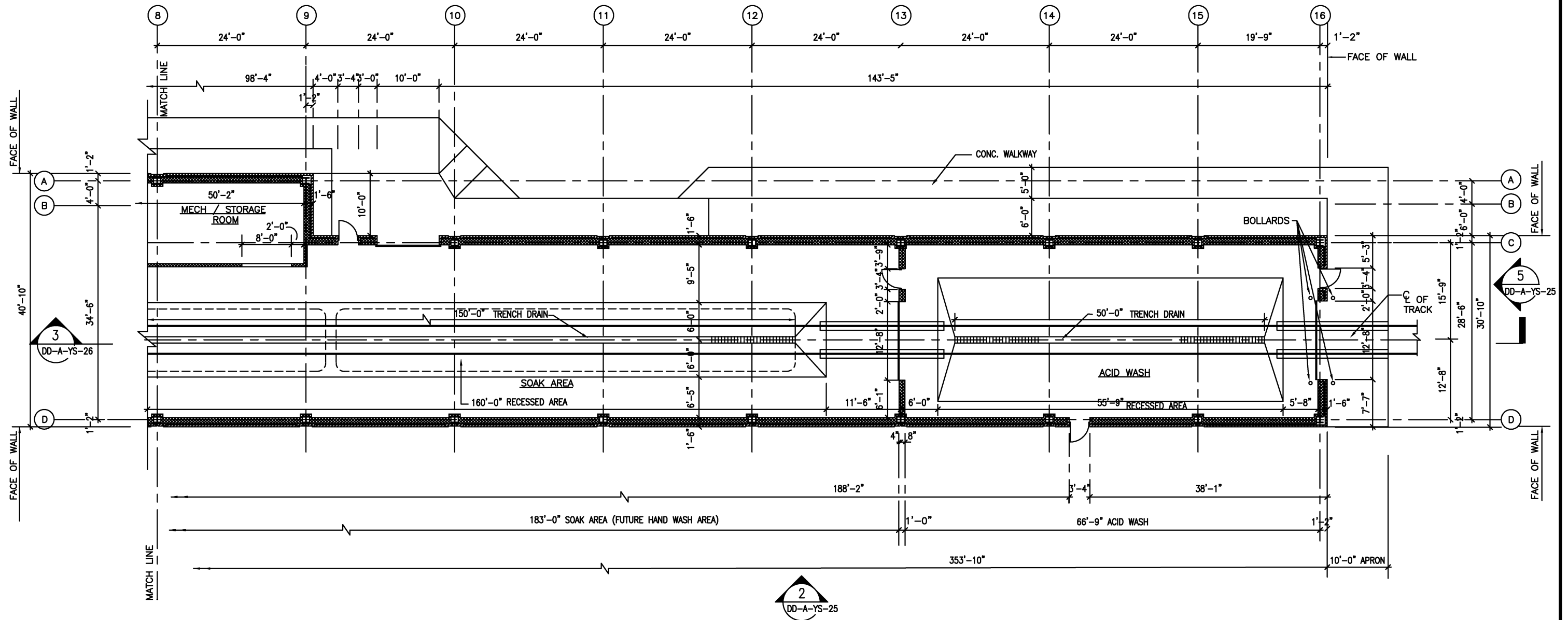
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
CAR WASH BUILDING  
FLOOR PLAN - PART "A"

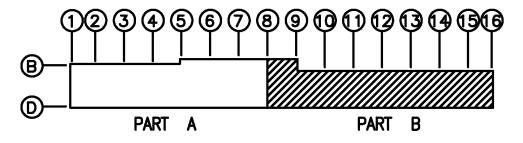
SCALE 1/8" = 1'-0"  
2' 0 2' 4' 6' 8' 10'

DRAWING NO. DD-A-YS-021

3  
DD-A-YS-25



**1 FLOOR PLAN - PART 'B'**  
SCALE: 1/8" = 1'-0"



**KEY PLAN**  
NOT TO SCALE

2  
DD-A-YS-25

5  
DD-A-YS-25

DESIGNED	D. MUNSON	1998
DATE		
DRAWN		1998
DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY
		08/2001	ENGA

REVISIONS	
DATE	DESCRIPTION
	Revised and issued by the Authority

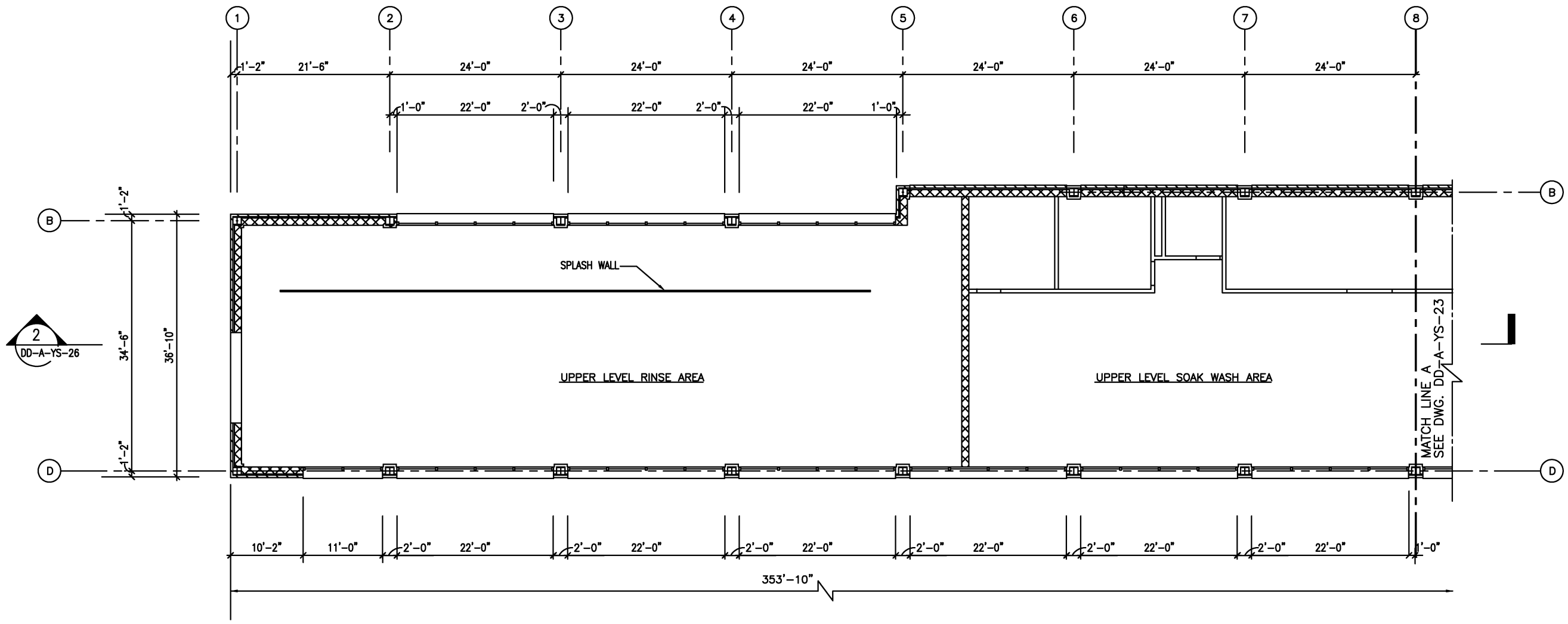
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

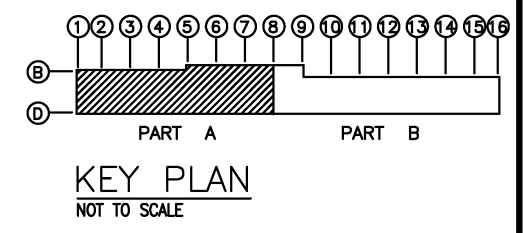
ARCHITECTURAL DESIGN DRAWING  
CAR WASH BUILDING  
FLOOR PLAN - PART "B"

SCALE 1/8"=1'-0" DRAWING NO. DD-A-YS-022

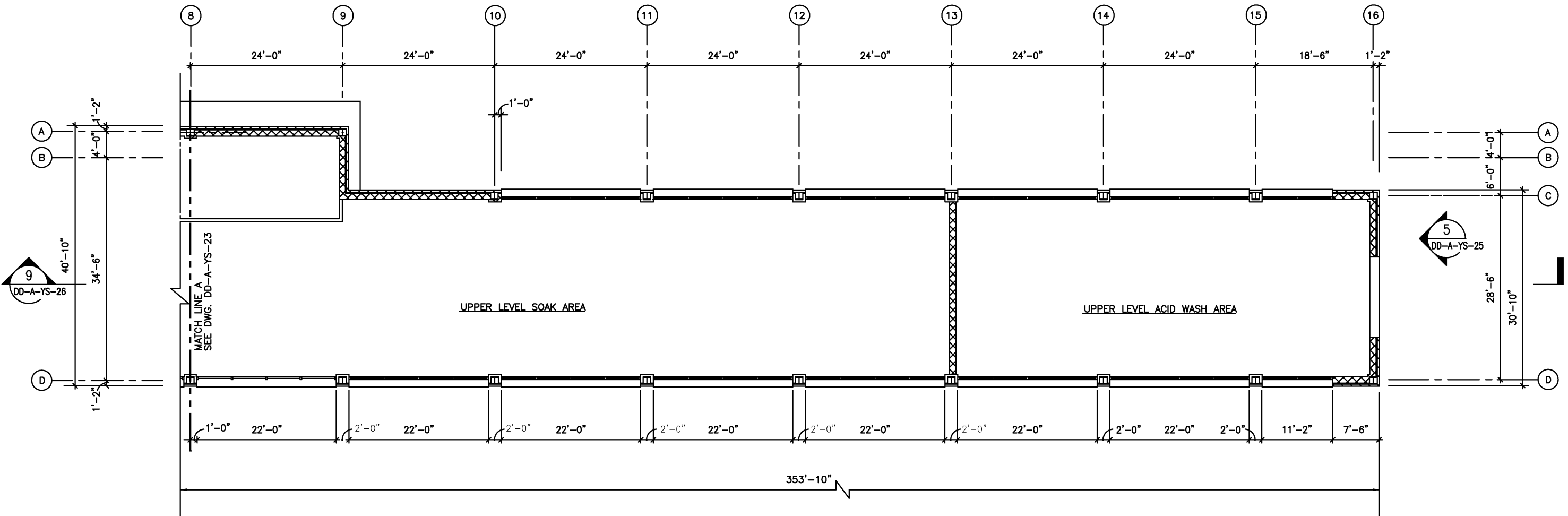
4  
DD-A-YS-25



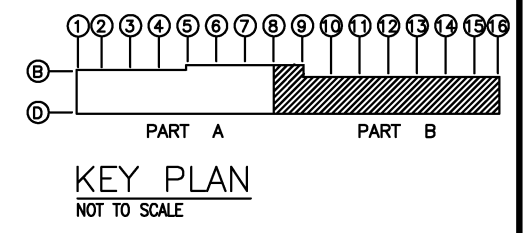
**1** UPPER LEVEL PLAN - PART "A"  
SCALE: 1/8" = 1'-0"



DESIGNED <u>D. MUNSON</u> 1998 DATE	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		ARCHITECTURAL DESIGN DRAWING	
DRAWN _____ DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT		UPPER LEVEL PLAN - PART "A"
CHECKED <u>K. LANDESZ</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 _____ DATE	APPROVED <i>[Signature]</i> DIRECTOR	SCALE 1/8" = 1'-0" 0 2' 4' 8' 12'
							May 3, 2001 DATE	DRAWING NO. DD-A-YS-023



**1 UPPER LEVEL PLAN - PART 'B'**  
SCALE: 1/8" = 1'-0"



DESIGNED	D. MUNSON	1998
DATE		
DRAWN		1998
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

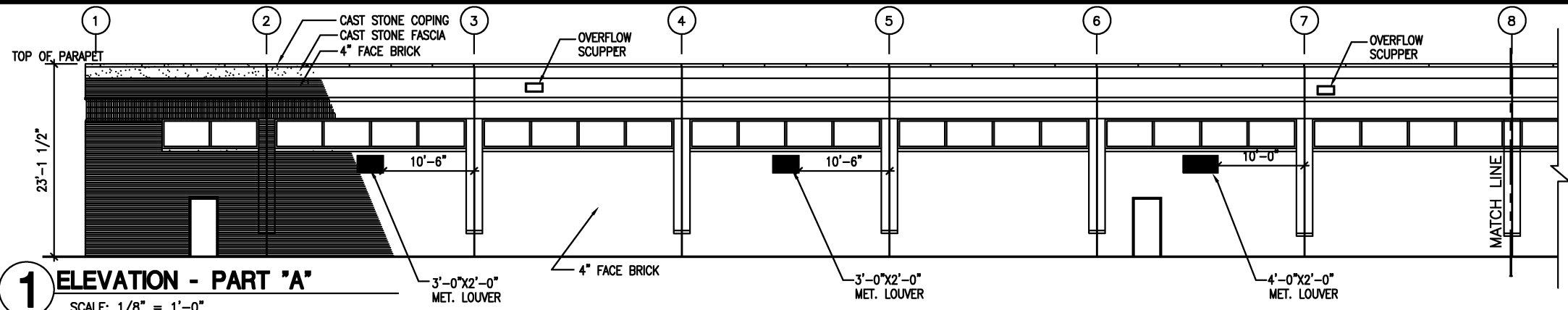
REVISIONS			
NUMBER	DATE	BY	DESCRIPTION

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

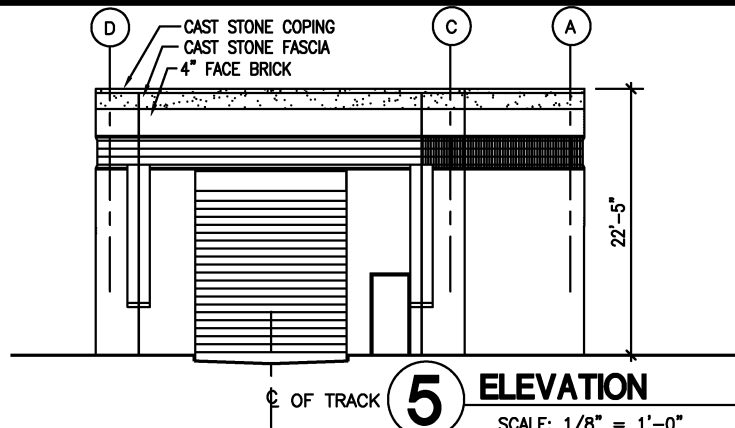
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
 CAR WASH BUILDING  
 UPPER LEVEL PLAN - PART "B"

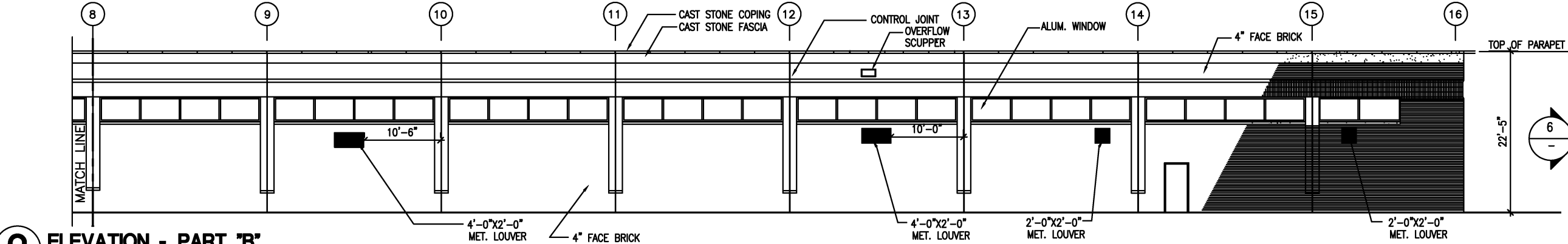
SCALE 1/8"=1'-0" DRAWING NO. DD-A-YS-024



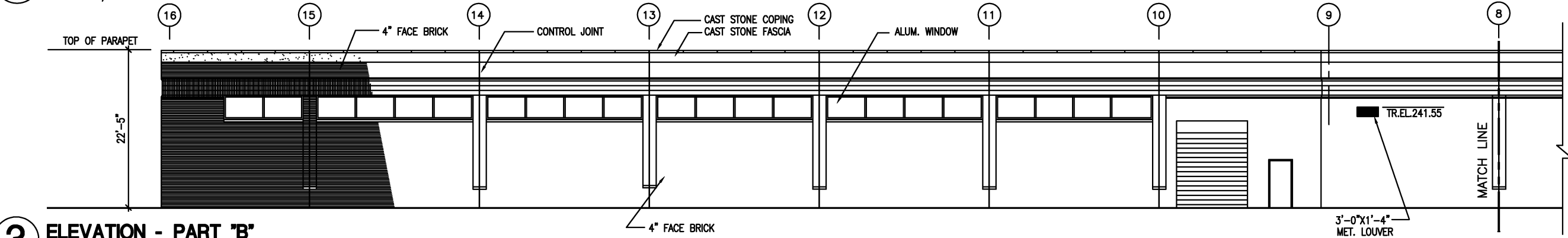
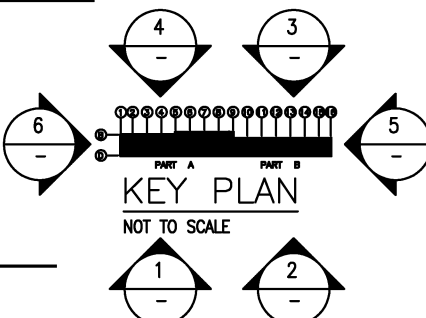
**1 ELEVATION - PART "A"**  
SCALE: 1/8" = 1'-0"



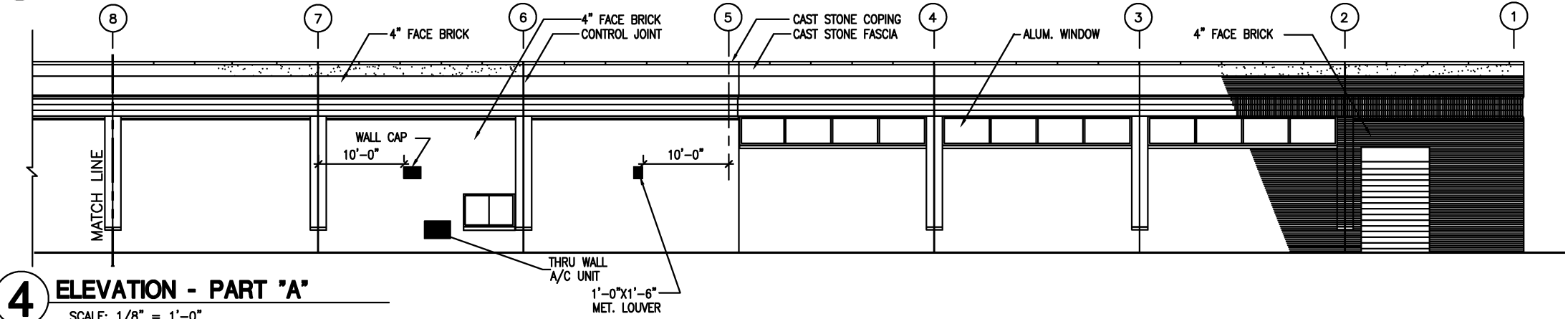
**5 ELEVATION**  
SCALE: 1/8" = 1'-0"



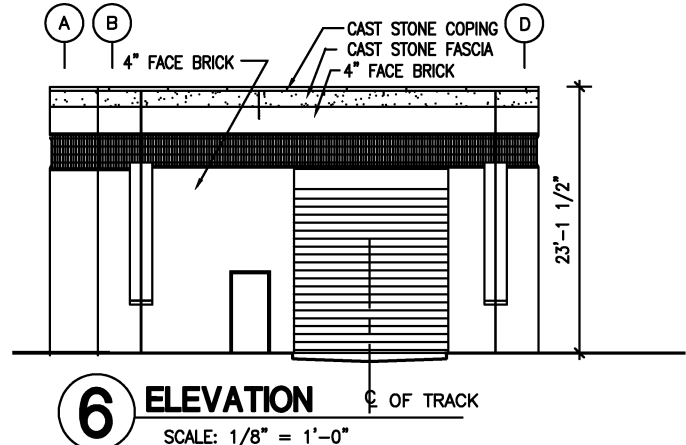
**2 ELEVATION - PART "B"**  
SCALE: 1/8" = 1'-0"



**3 ELEVATION - PART "B"**  
SCALE: 1/8" = 1'-0"



**4 ELEVATION - PART "A"**  
SCALE: 1/8" = 1'-0"



**6 ELEVATION**  
SCALE: 1/8" = 1'-0"

DESIGNED		DATE		1998	
D. MUNSON					
DRAWN		DATE			
CHECKED		DATE		1998	
K. LANDESZ					
APPROVED		DATE		1998	
J. CORLEY					

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
		08/2001	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

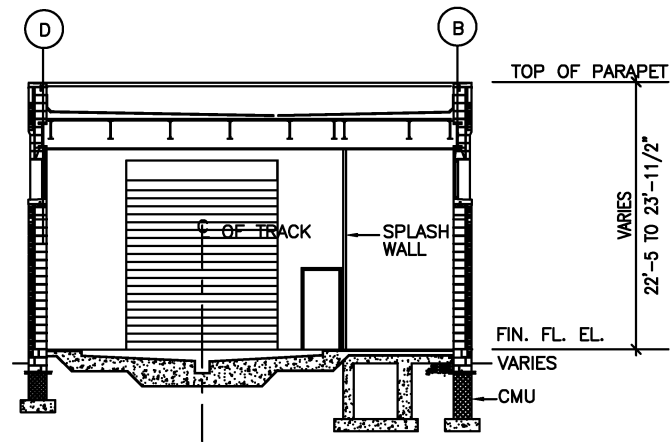
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
CAR WASH BUILDING  
EXTERIOR ELEVATIONS

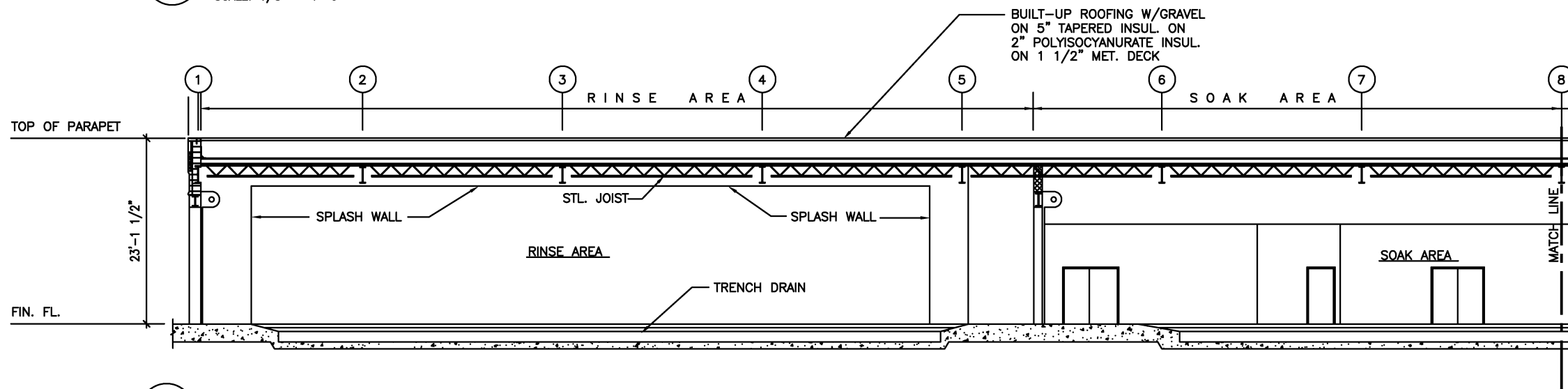
SCALE 1/8" = 1'-0"  
2' 0' 2' 4' 6' 8' 10'

DRAWING NO. DD-A-YS-025

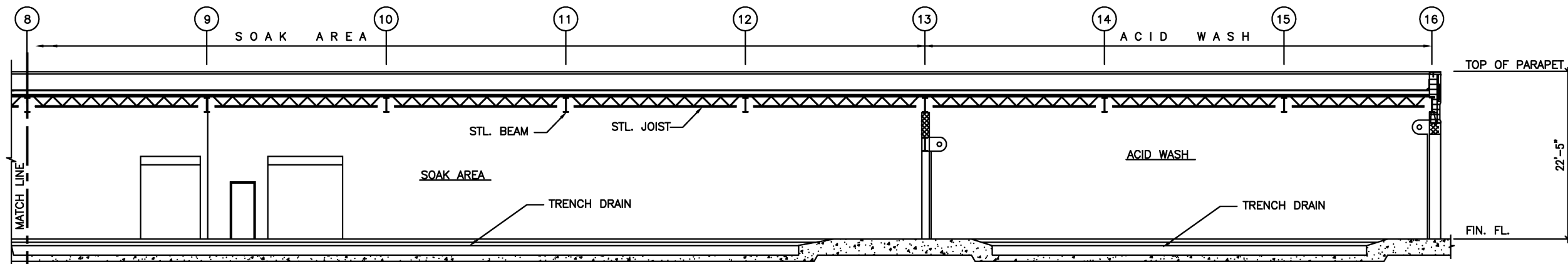




**1 CROSS SECTION**  
SCALE: 1/8" = 1'-0"



**2 LONGITUDINAL SECTION - PART 'A'**  
SCALE: 1/8" = 1'-0"



**3 LONGITUDINAL SECTION - PART 'B'**  
SCALE: 1/8" = 1'-0"

DESIGNED	D. MUNSON	1998
DATE		
DRAWN		1998
DATE		
CHECKED	K. LANDEZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

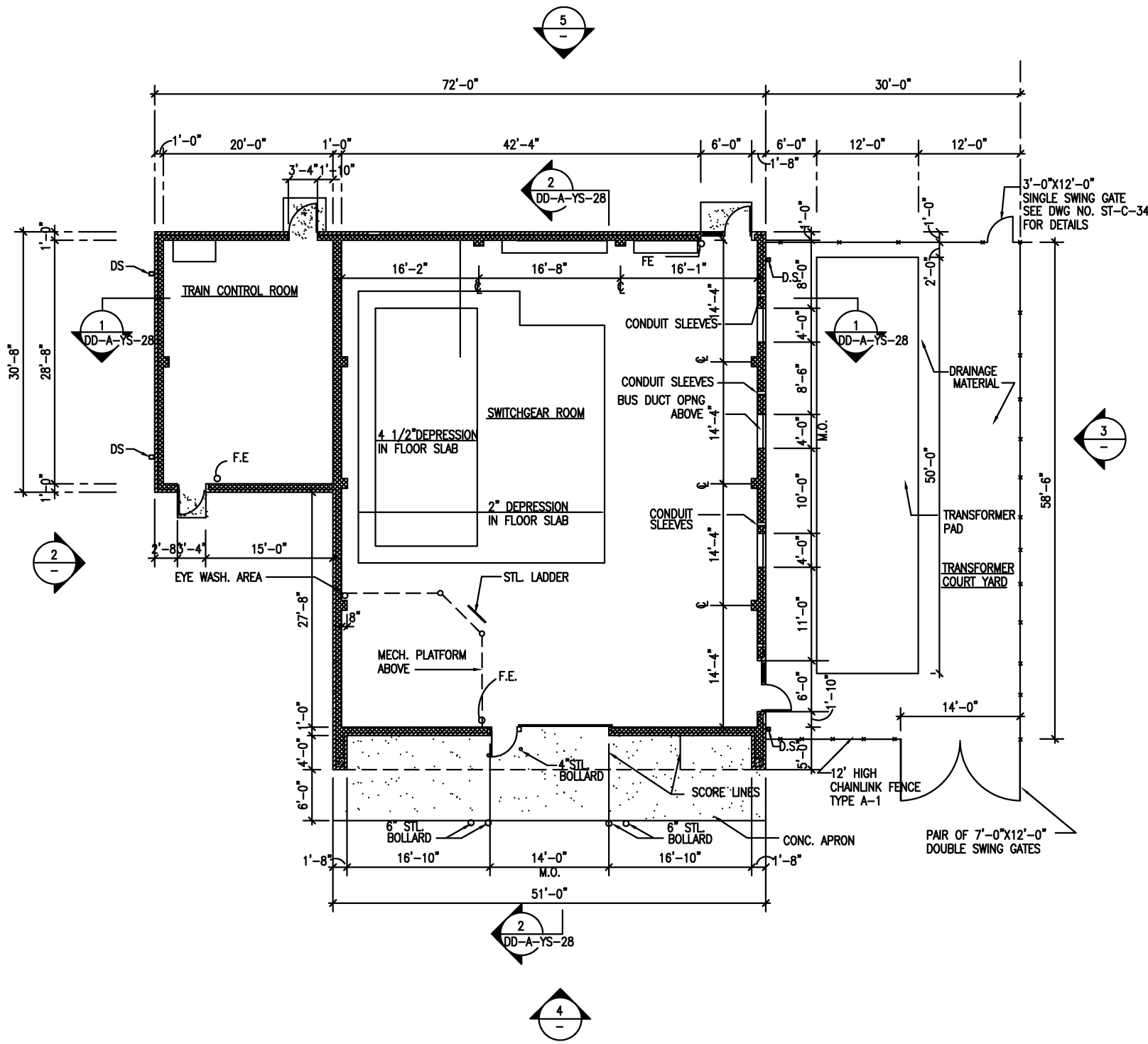
REVISIONS		
NUMBER	DATE	DESCRIPTION

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

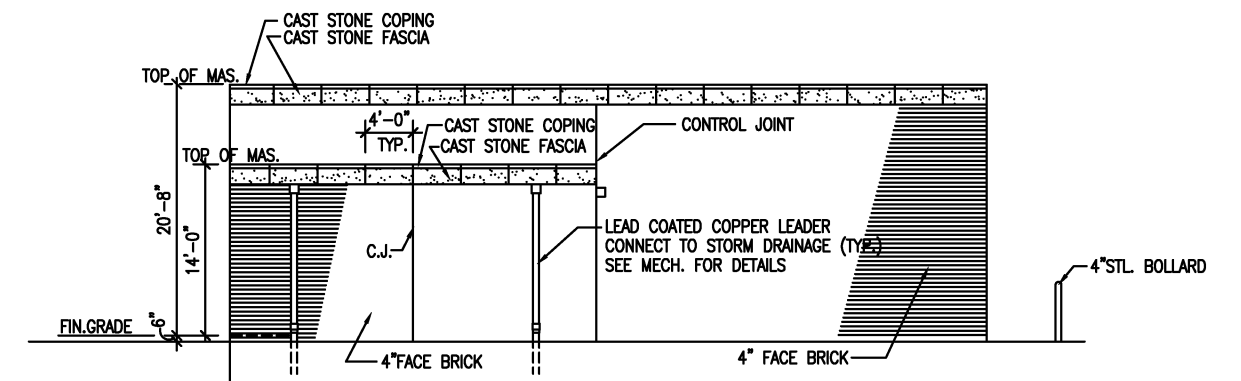
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ARCHITECTURAL DESIGN DRAWING  
CAR WASH BUILDING  
LONGITUDINAL / CROSS SECTIONS

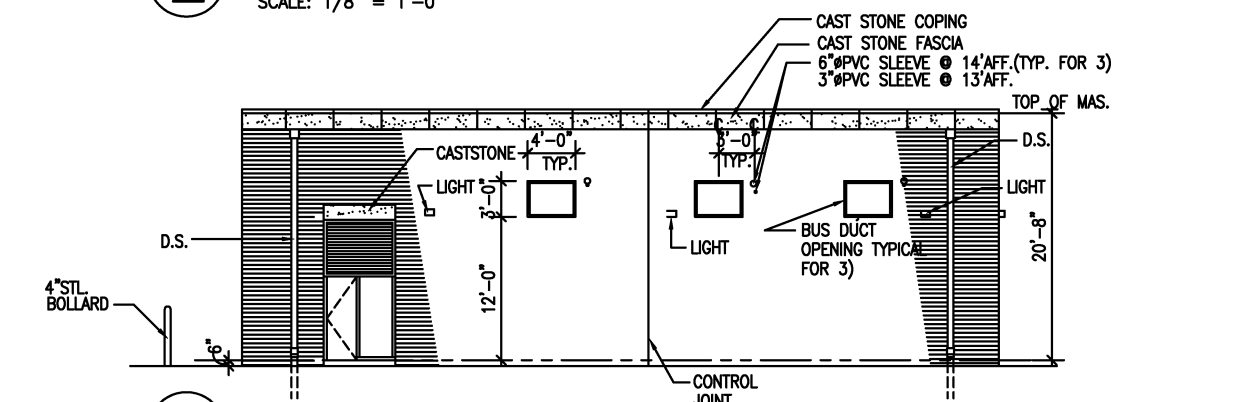
SCALE 1/8"=1'-0" DRAWING NO. DD-A-YS-026



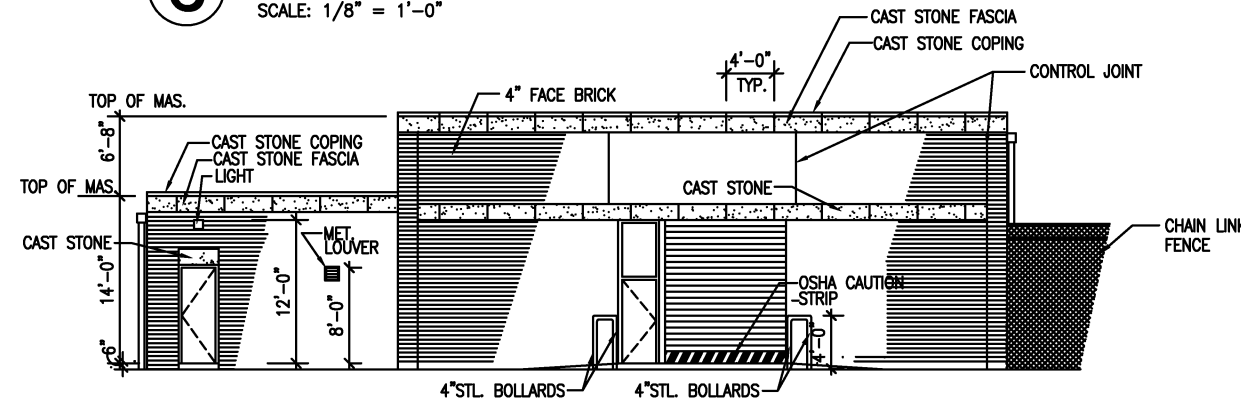
**1 FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



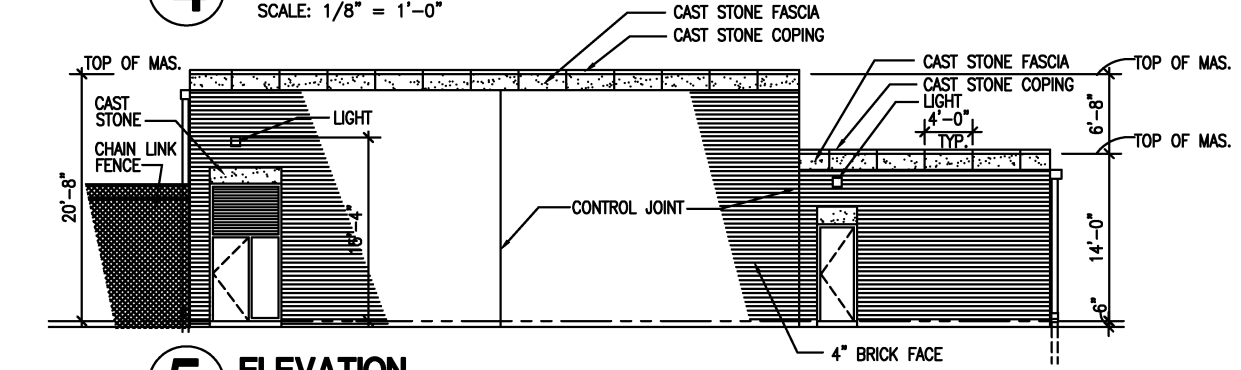
**2 ELEVATION**  
SCALE: 1/8" = 1'-0"



**3 ELEVATION**  
SCALE: 1/8" = 1'-0"



**4 ELEVATION**  
SCALE: 1/8" = 1'-0"



**5 ELEVATION**  
SCALE: 1/8" = 1'-0"

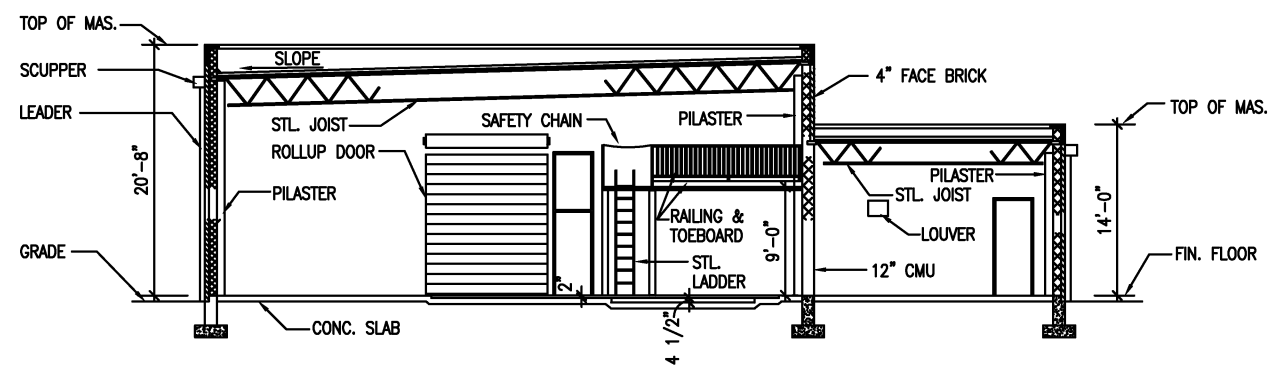
DESIGNED	D. MUNSON	1998
DATE		
DRAWN		
DATE		
CHECKED	K. LANDESZ	1998
DATE		
APPROVED	J. CORLEY	1998
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

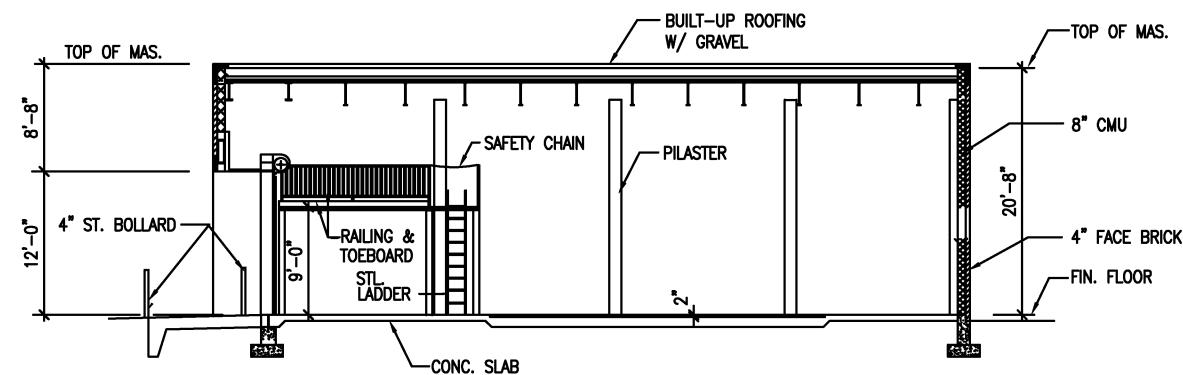
REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

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

ARCHITECTURAL DESIGN DRAWING  
 TRACTION POWER SUBSTATION / TRAIN CONTROL ROOM  
 FLOOR PLAN AND ELEVATIONS  
 SCALE 1/8" = 1'-0"  
 2' 0" 2' 4" 6" 8" 10"  
 DRAWING NO. DD-A-YS-027



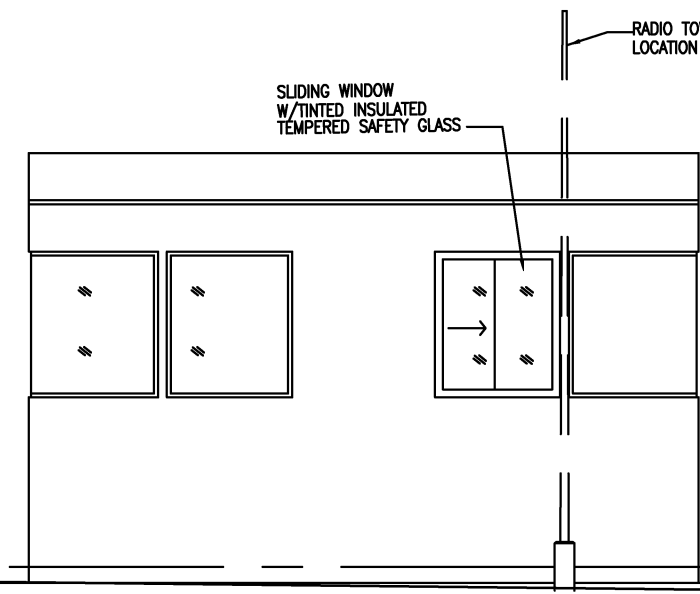
**1 CROSS SECTION**  
SCALE: 1/8" = 1'-0"



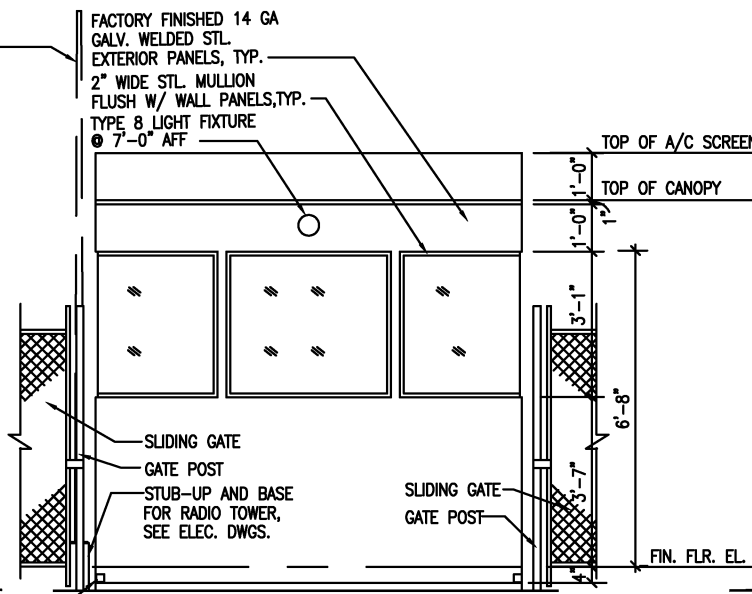
**2 CROSS SECTION**  
SCALE: 1/8" = 1'-0"

DESIGNED <u>D. MUNSON</u> DATE <u>1998</u>	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	ARCHITECTURAL DESIGN DRAWING TRACTION POWER SUBSTATION / TRAIN CONTROL ROOM CROSS SECTIONS	
DRAWN _____ DATE <u>1998</u>	NUMBER	DESCRIPTION	DATE	BY		DESCRIPTION	SCALE 1/8"=1'-0"
CHECKED <u>K. LANDEZ</u> DATE <u>1998</u>			08/2001	ENGA	Revised and issued by the Authority		
APPROVED <u>J. CORLEY</u> DATE <u>1998</u>							
					SUBMITTED _____ DATE _____	APPROVED <i>[Signature]</i> DIRECTOR	May 3, 2001 DATE

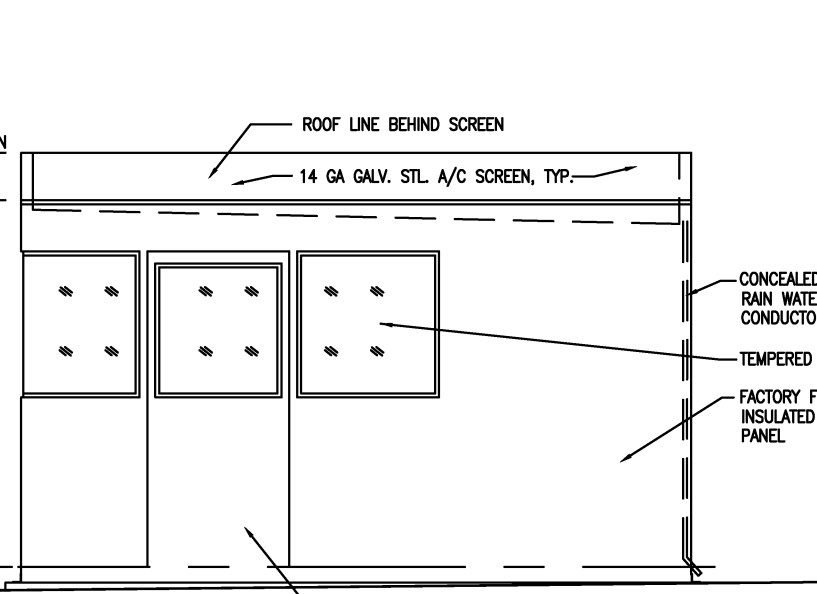




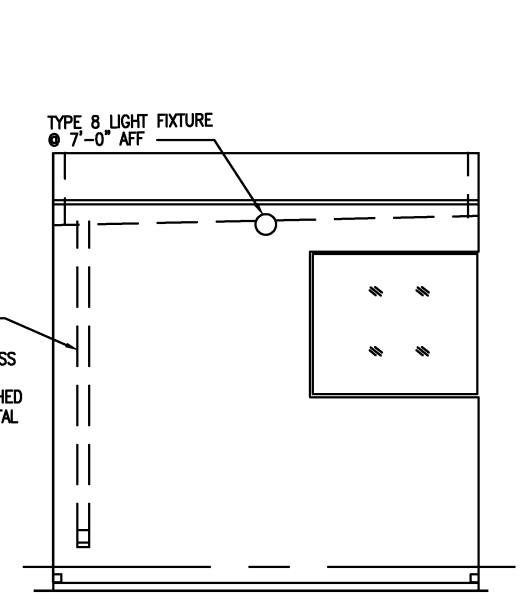
**1 ELEVATION**  
SCALE: 1/2" = 1'-0"



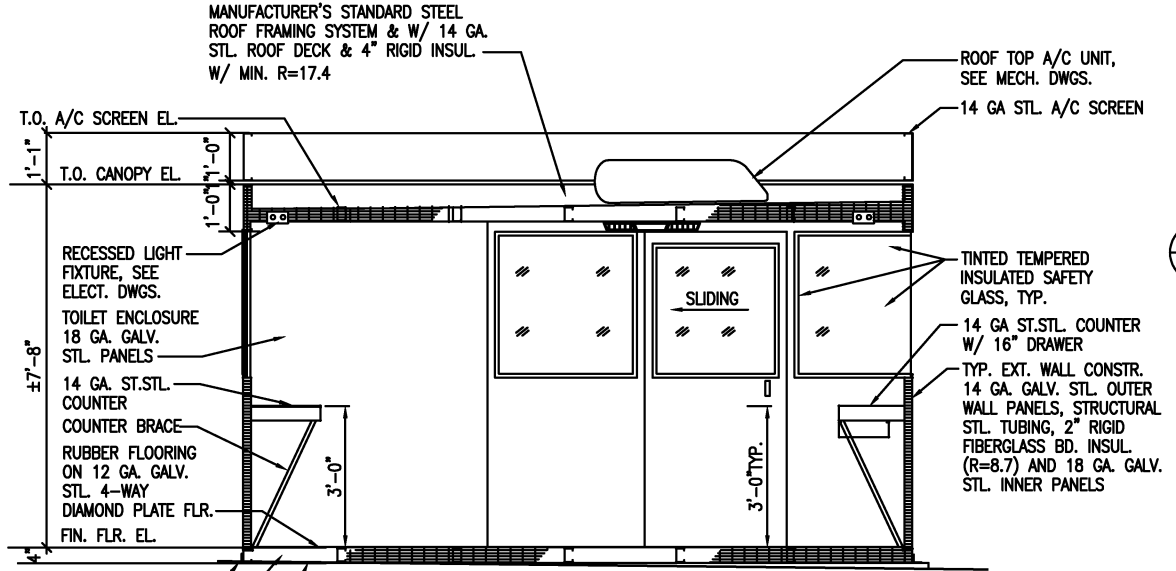
**2 ELEVATION**  
SCALE: 1/2" = 1'-0"



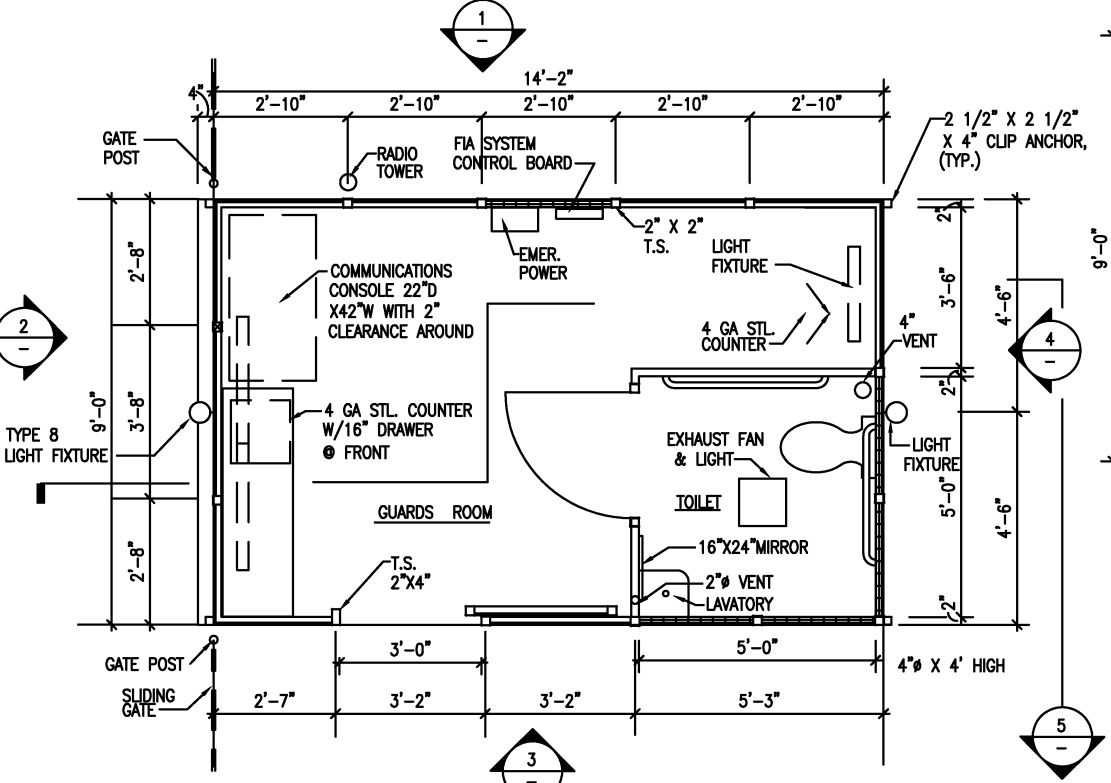
**3 ELEVATION**  
SCALE: 1/2" = 1'-0"



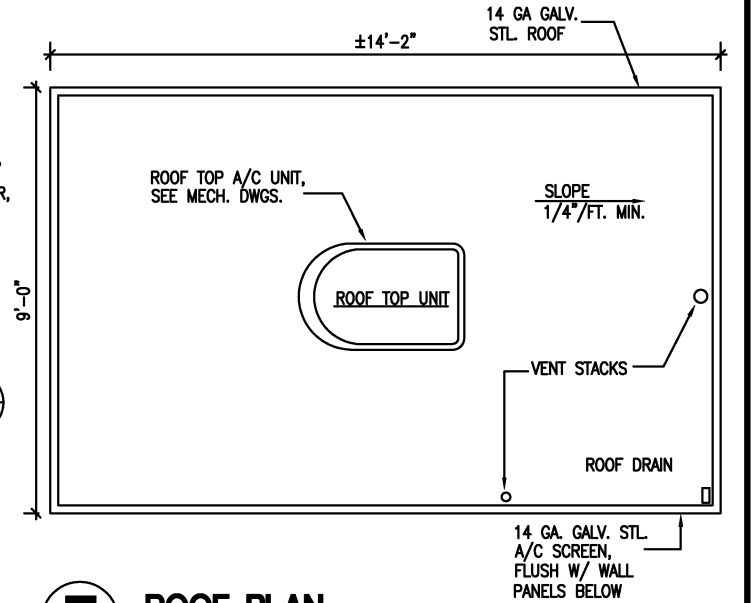
**4 ELEVATION**  
SCALE: 1/2" = 1'-0"



**5 SECTION**  
SCALE: 1/2" = 1'-0"



**6 FLOOR PLAN**  
SCALE: 1/2" = 1'-0"



**7 ROOF PLAN**  
SCALE: 1/2" = 1'-0"

- NOTES:**
- GATE HOUSE IS TO MEET THE REQUIREMENTS OF THE LATEST BOCA AND LOCAL COUNTY CODE
  - SEE MECHANICAL, ELECTRICAL AND TRAIN CONTROL DRAWINGS FOR GATE HOUSE PENETRATIONS.
  - MINOR VARIATIONS IN DIMENSIONS DUE TO MANUFACTURING TOLERANCES ACCEPTABLE.
  - PROVIDE DOOR THRESHOLD IN COMPLIANCE WITH ADA ACCESSIBILITY REQUIREMENTS.

DESIGNED	D. MUNSON	1998
DRAWN		1998
CHECKED	K. LANDEZ	1998
APPROVED	J. CORLEY	1998

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS	
DATE	DESCRIPTION
08/2001	Revised and issued by the Authority

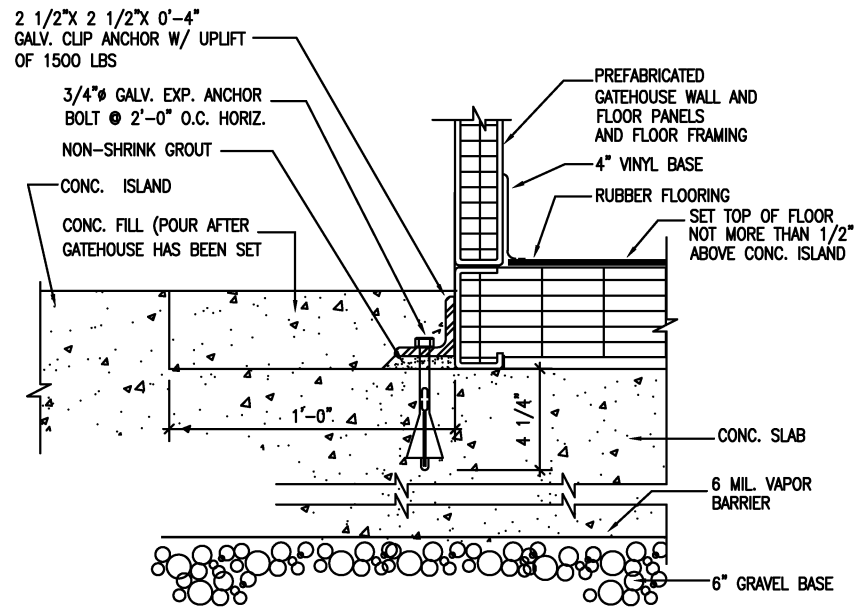
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

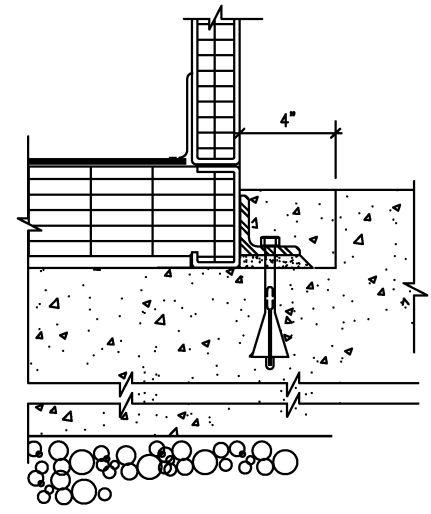
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

**ARCHITECTURAL DIRECTIVE DRAWING**  
**GATEHOUSE**  
**FLOOR PLAN AND ELEVATIONS**

SCALE: 1/2" = 1'-0" DRAWING NO. DD-A-YS-030

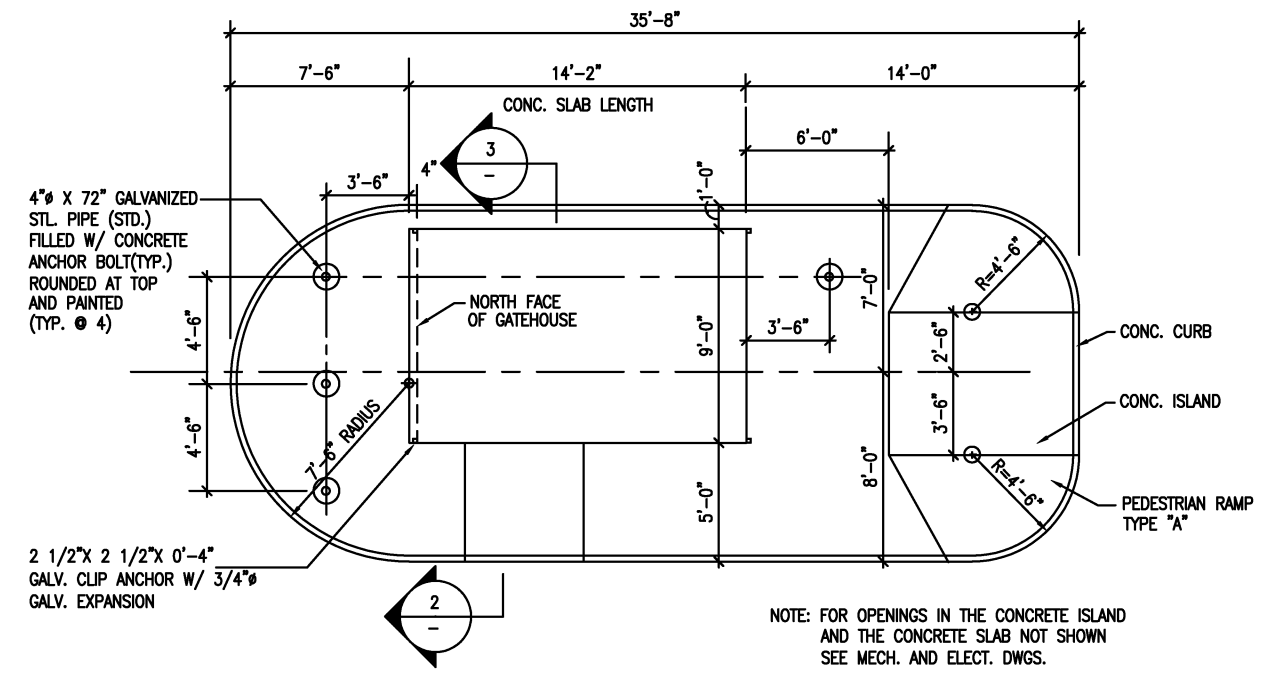


**2 CLIP ANCHOR DETAIL**  
 SCALE: 3" = 1'-0" 0 1" 2" 3" 6"  
 TYP. @ 3 SIDES



**3 CLIP ANCHOR DETAIL**  
 SCALE: 3" = 1'-0" 0 1" 2" 3" 6"

FOR ADDITIONAL NOTES SEE  
 2  
 DD-A-YS-31



**1 CONCRETE SLAB AND ISLAND PLAN**  
 SCALE: 1/4" = 1'-0" 0 1' 2' 3' 6"

DESIGNED	D. MUNSON	1998
DRAWN		
CHECKED	K. LANDEZ	1998
APPROVED	J. CORLEY	1998
UPDATED	ENGA (PAF)	08/2000

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	ENGA	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

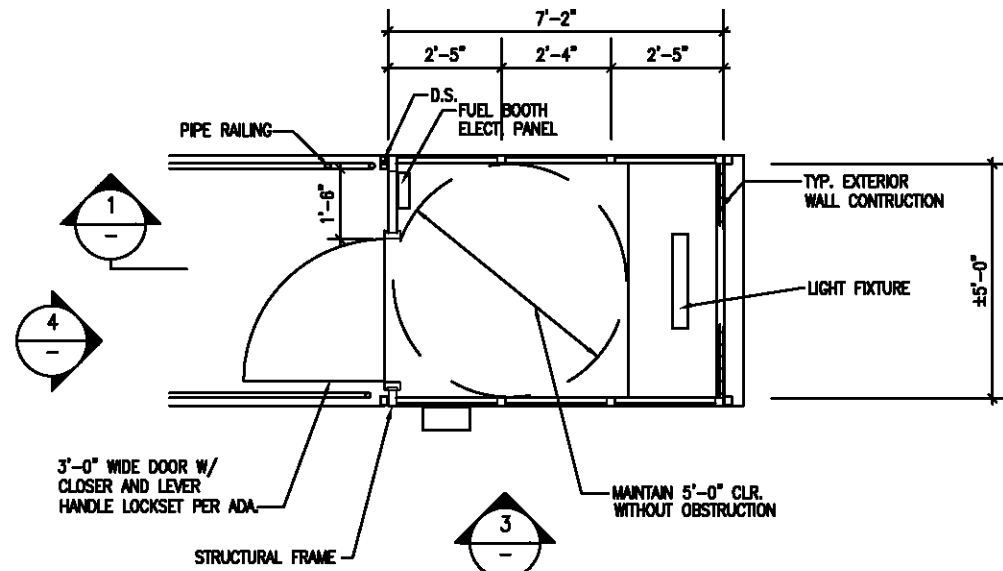
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* May 3, 2001  
 DIRECTOR DATE

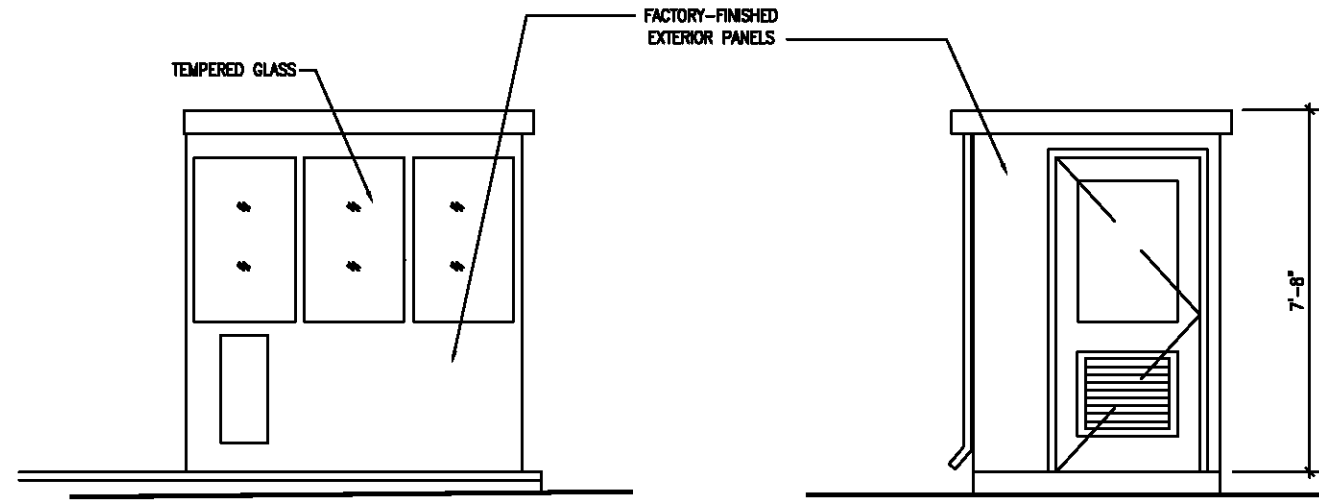
ARCHITECTURAL DESIGN DRAWING  
 GATEHOUSE  
 CONC. APRON & SLAB PLAN, SECTIONS & DETAILS

SCALE AS SHOWN

DRAWING NO. DD-A-YS-031

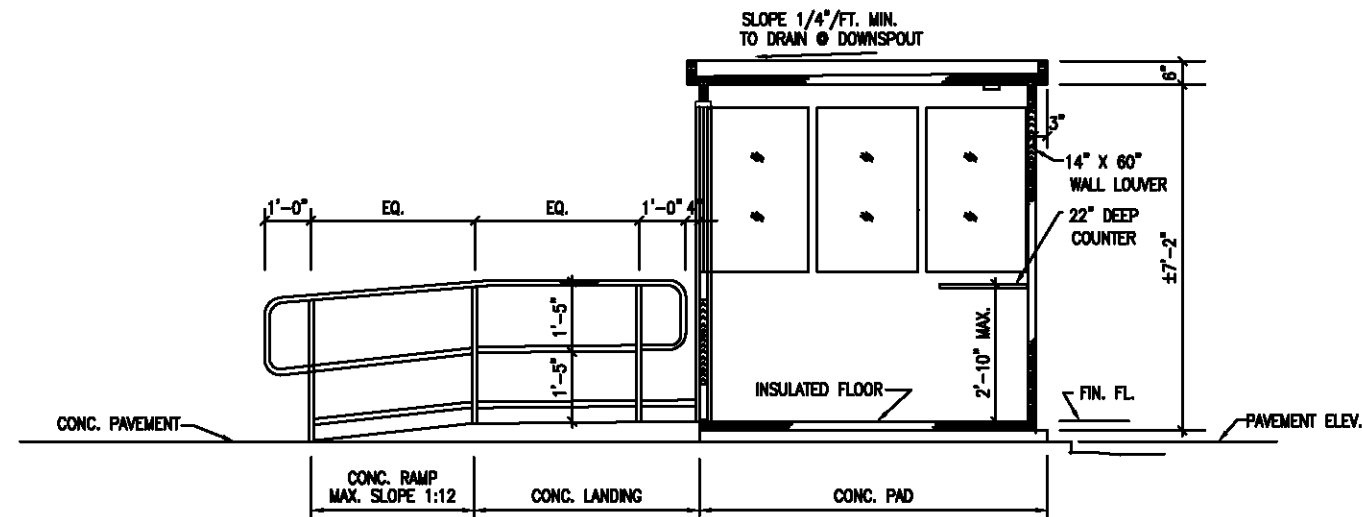


② FUEL RECORDS BOOTH / PLAN  
SCALE: 1/2" = 1'-0"



③ ELEVATION  
SCALE: 1/2" = 1'-0"

④ ELEVATION  
SCALE: 1/2" = 1'-0"



① BUILDING SECTION  
SCALE: 1/2" = 1'-0"  
1' 0' 1' 2'

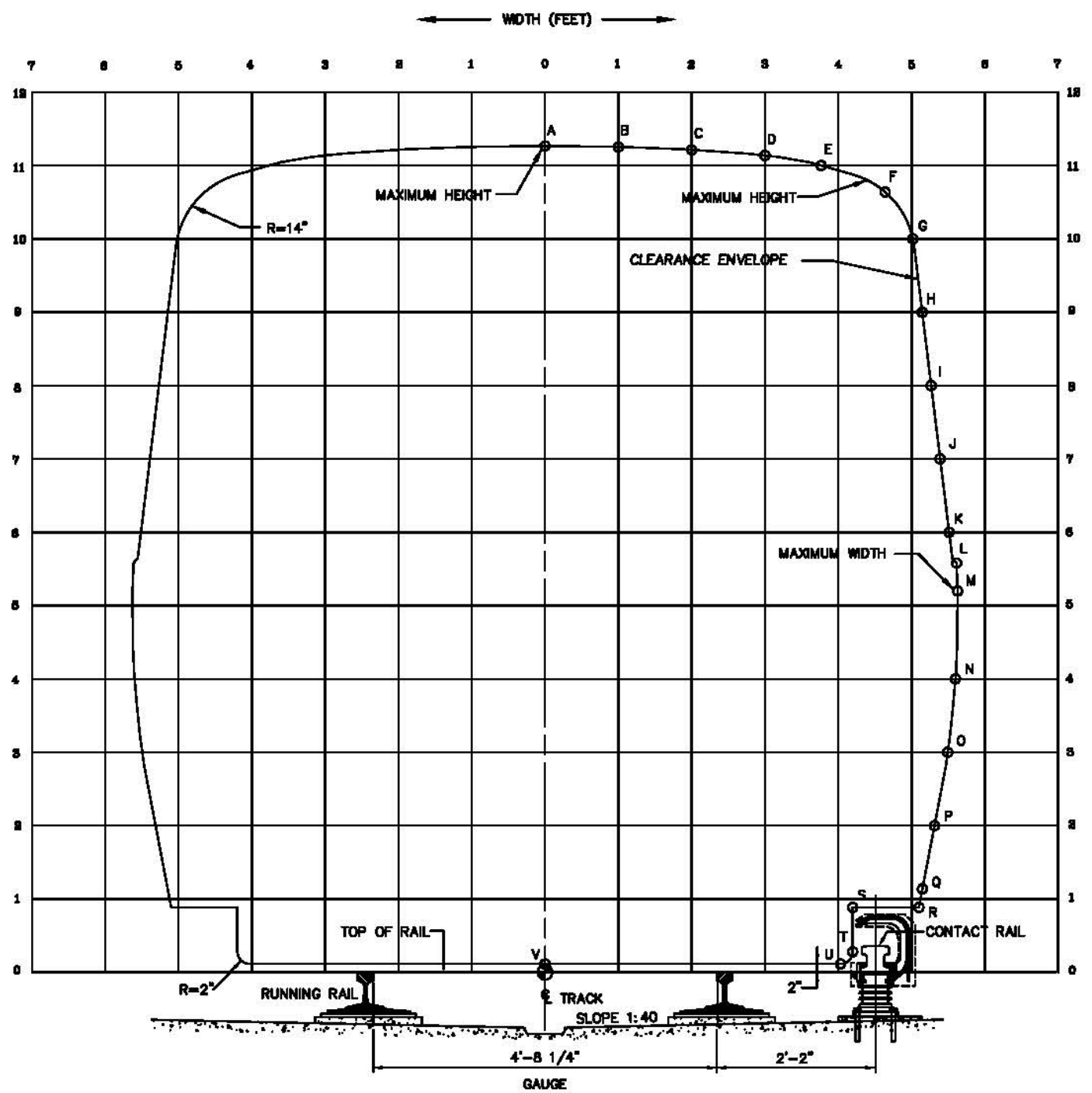
NOTE: MINOR VARIATIONS IN DIMENSIONS DUE TO MANUFACTURING TOLERANCES ARE ACCEPTABLE.

Time: 14:7:37  
Date: 12/29/1998  
Scale: 1/80(P/S)  
Drawing File: PROJECTS\WMATA\DIR-STD\YARDS-SHOPS\DD-A-YS-32.DWG (DUCHAMP)

DESIGNED	D. MUNSON	1998	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN		1998					
CHECKED	K. LANDRISZ	1998					
APPROVED	J. CORLEY	1998					

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

ARCHITECTURAL DESIGN DRAWING  
FUELING BOOTH  
FLOOR PLAN AND ELEVATIONS  
SCALE: 1/2" = 1'-0"  
DRAWING NO. DD-A-YS-032

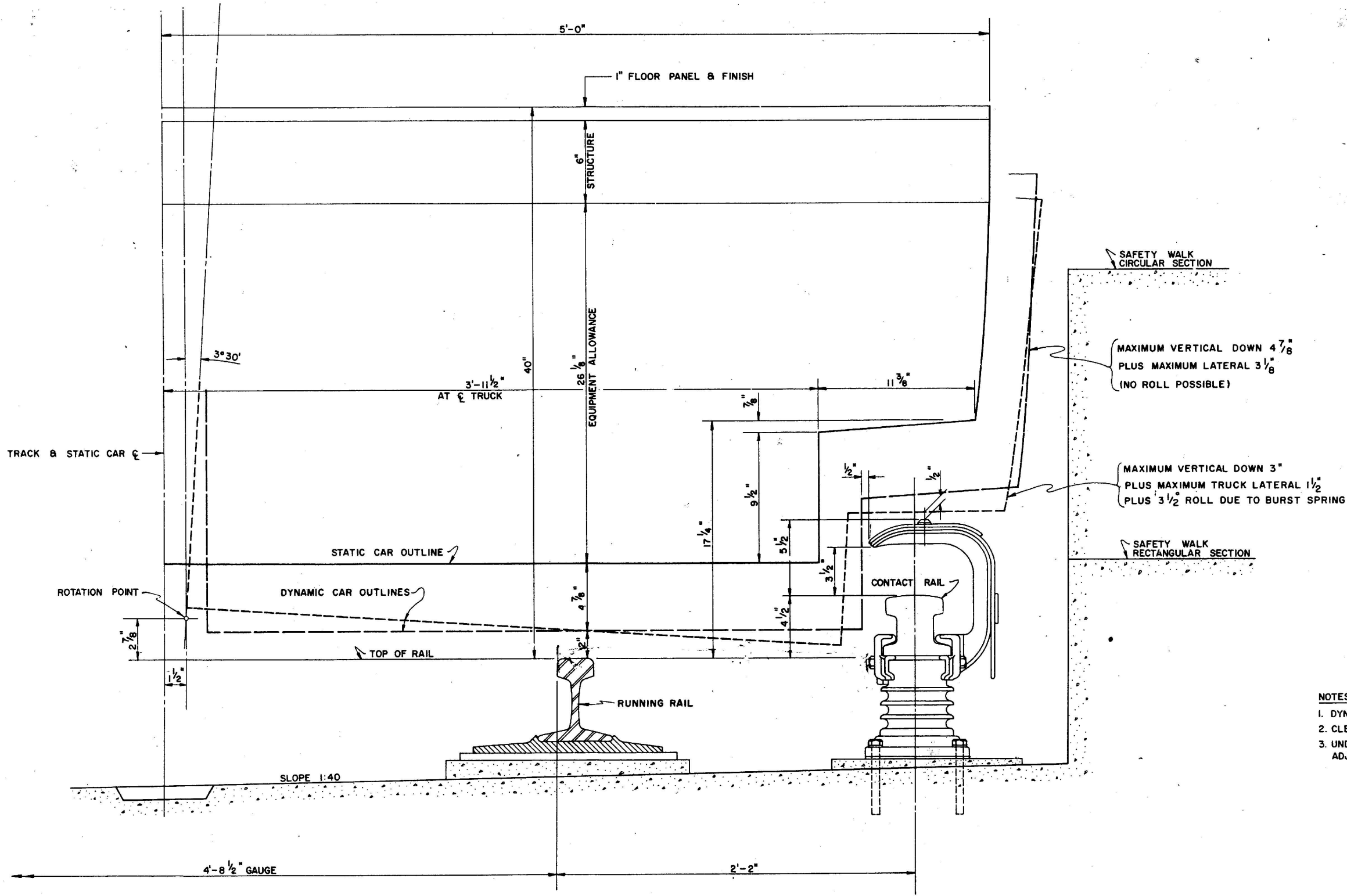


COORDINATES		
POINT	WIDTH	HEIGHT
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B	1.000	11.252
C	2.000	11.213
D	3.000	11.136
E	3.761	11.000
F	4.638	10.838
G	5.018	10.000
H	5.148	9.000
I	5.268	8.000
J	5.388	7.000
K	5.511	6.000
L	5.616	5.580
M	5.627	5.200
N	5.593	4.000
O	5.498	3.000
P	5.316	2.000
Q	5.149	1.138
R	5.100	0.885
S	4.198	0.885
T	4.198	0.281
U	4.031	0.167
V	0.000	0.167

- NOTES:
1. THIS DIAGRAM IS TO BE USED TO VERIFY CLEARANCES TO WAYSIDE FACILITIES AND UNDERCAR FIXTURES. FOR EXAMPLE, FIRELINES, SPECIAL TRACK HARDWARE AND SAFETY WALKS.
  2. THIS DIAGRAM DOES NOT APPLY TO PLATFORMS AND MAJOR STRUCTURAL ELEMENTS, SUCH AS TUNNEL WALLS AND CEILINGS, RETAINING WALLS, AND PIERS. USE THE MANUAL OF DESIGN CRITERIA.
  3. THIS DIAGRAM IS DIRECTLY APPLICABLE ONLY FOR LEVEL, TANGENT TRACK. USE THE MANUAL OF DESIGN CRITERIA TO COMPENSATE FOR HORIZONTAL CURVATURE, TRACK SUPERELEVATION, AND MOVEMENT THROUGH TURNOUTS AND CROSSEOVERS.
  4. THIS DIAGRAM AND DIMENSIONS ARE BASED ON THE FOLLOWING:
    - a. CAR BODY - THE CLEARANCE CAR FEELER OUTLINE, OR CLEARANCE ENVELOPE. THIS IS THE MAXIMUM POSSIBLE DYNAMIC OUTLINE PLUS AN ADDITIONAL ALLOWANCE OF 2 INCHES.
    - b. UNDERCAR - THE LOWEST POINT OF THE VEHICLE MINIMUM PROJECTED CLEARANCE. THIS IS DEFINED BY THE COLLECTOR PEDESTAL ASSEMBLY OF THE UNDERCARRIAGE. THESE CLEARANCES ARE DEFINED BY THE CLEARANCE ENVELOPE AND SHOULD ALSO ALLOW FOR AN ADDITIONAL 1/2 INCH AVERAGE PERMISSIBLE TOP RAIL WEAR.
    - c. CONTACT RAIL - THE RAIL CAR MAXIMUM POSSIBLE DYNAMIC OUTLINE FOR LOWER CAR BODY APPENDAGES.

DESIGNED _____ DATE _____ DRAWN A. DIMM DATE _____ CHECKED L.R. FARRITT DATE _____ APPROVED C. JENSEN DATE _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <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>06/2007</td> <td>ENGA</td> </tr> <tr> <td></td> <td></td> <td>06/2007</td> <td>CENF</td> </tr> <tr> <td></td> <td></td> <td>06/2007</td> <td>ENSS</td> </tr> </tbody> </table>	REFERENCE DRAWINGS		REVISIONS		NUMBER	DESCRIPTION	DATE	BY			06/2007	ENGA			06/2007	CENF			06/2007	ENSS	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> OFFICE OF ENGINEERING SUPPORT SERVICES SUBMITTED <i>LR Padgett</i> 10/2007 DATE APPROVED <i>[Signature]</i> 10/2007 DATE	<b>CIVIL DESIGN DRAWING</b> <b>WMATA RAPID TRANSIT CAR</b> <b>CLEARANCE ENVELOPE</b> SCALE NOT TO SCALE DRAWING NO. DD-C-001
REFERENCE DRAWINGS		REVISIONS																					
NUMBER	DESCRIPTION	DATE	BY																				
		06/2007	ENGA																				
		06/2007	CENF																				
		06/2007	ENSS																				





SAFETY WALK  
CIRCULAR SECTION

MAXIMUM VERTICAL DOWN  $4 \frac{7}{8}$ "  
PLUS MAXIMUM LATERAL  $3 \frac{1}{8}$ "  
(NO ROLL POSSIBLE)

MAXIMUM VERTICAL DOWN 3"  
PLUS MAXIMUM TRUCK LATERAL  $1 \frac{1}{2}$ "  
PLUS  $3 \frac{1}{2}$ " ROLL DUE TO BURST SPRING

SAFETY WALK  
RECTANGULAR SECTION

- NOTES
1. DYNAMIC OUTLINE SHOWN IS MAXIMUM POSSIBLE CONDITION.
  2. CLEARANCES SHOWN ARE FOR TANGENT TRACK.
  3. UNDERCAR CLEARANCES OTHER THAN AT  $\phi$  OF TRUCK MUST BE ADJUSTED ACCORDINGLY FOR CURVATURE & SUPERELEVATION.

DESIGNED R. MONTEITH 8/8/71  
DATE  
DRAWN LUCAS 8/10/71  
DATE  
CHECKED \_\_\_\_\_  
DATE  
APPROVED \_\_\_\_\_  
DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
10/18/71		REVISE CONTACT RAIL COVER BOARD & VEHICLE DYNAMIC OUTLINE

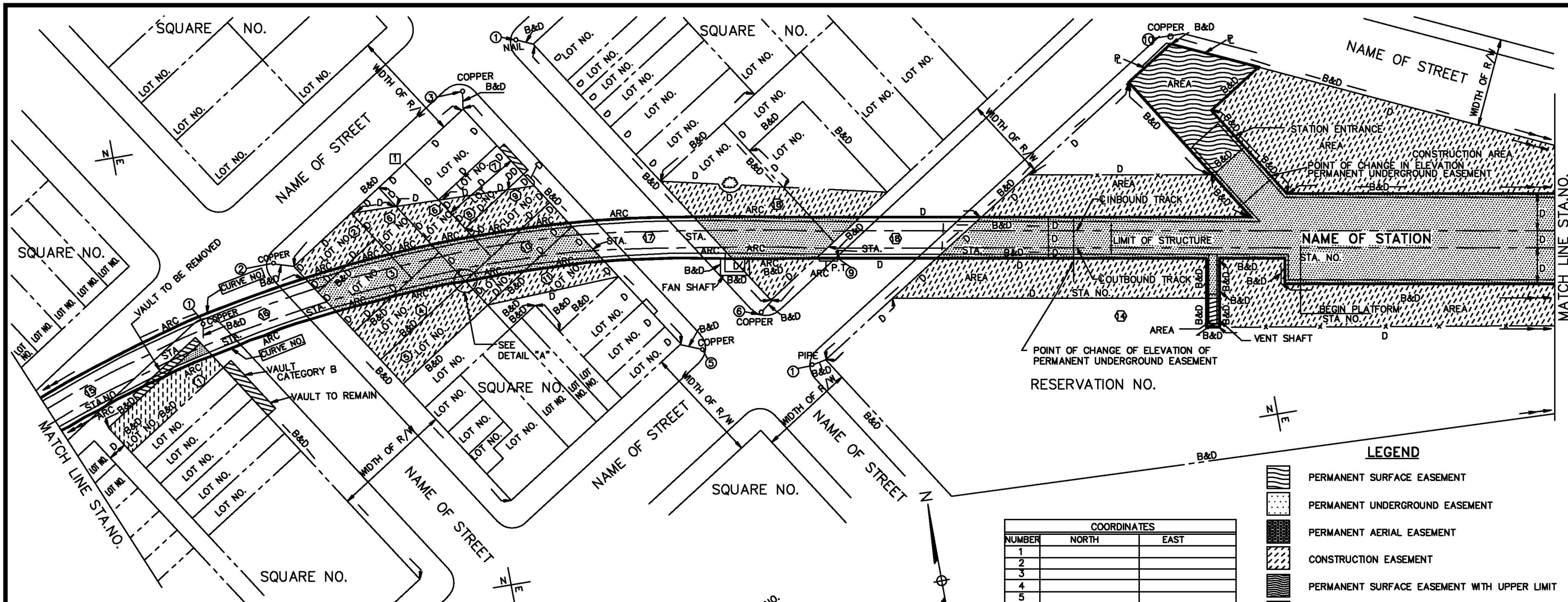
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *UR Padgett* 10/2007  
DATE

APPROVED *[Signature]* 10/2007  
DATE

CIVIL DIRECTIVE DRAWING  
METRO RAPID TRANSIT CAR  
DYNAMIC OUTLINE  
UNDER FLOOR CAR CLEARANCE

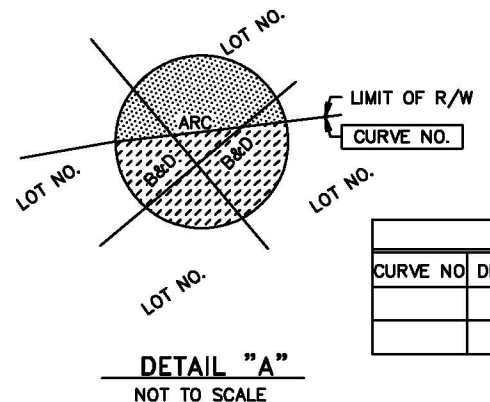
SCALE NOT TO SCALE  
DRAWING NO. DD-C-002



PROPERTY DISPOSITION AREAS IN SQUARE FEET							
PARCEL NO.	LOT NUMBER	TOTAL AREA	PERMANENT UNDERGROUND EASEMENT	PERMANENT SURFACE EASEMENT	PERMANENT AERIAL EASEMENT	CONSTRUCTION EASEMENT	UNDERPINNING CATEGORY
SQUARE NO.							
1							
SQUARE NO.							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
15							
SQUARE NO.							
12							
13							
RESERVATION NO.							
14							

**NOTES:**  
 1. USE OF ARROWHEADS TO CLEARLY DELINEATE DISTANCES ALONG PROPERTY LINES IS OPTIONAL.  
 2. LEGEND AND PROPERTY DISPOSITION TABLE SHOULD INCLUDE ONLY THE APPLICABLE TYPES OF EASEMENTS.

OWNER	REMARKS
	VAULT TO BE REMOVED, BLDG. TO REMAIN.
	BLDG. TO BE DEMOLISHED
	BLDG. TO BE DEMOLISHED VAULT TO REMAIN
	BLDG. TO BE DEMOLISHED
	BLDG. TO REMAIN



COORDINATES		
NUMBER	NORTH	EAST
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

CURVE DATA						
CURVE NO.	DELTA	RADING	TANGENT	ARC	CHORD	CHORD BEARING

VERTICAL LIMITS OF EASEMENTS						SURFACE ELEVATION OF EASEMENT
LOT	PARCEL	FROM STA.	TO STA.	UPPER ELEV.	LOWER ELEV.	
	1					
	15					

- LEGEND**
- PERMANENT SURFACE EASEMENT
  - PERMANENT UNDERGROUND EASEMENT
  - PERMANENT AERIAL EASEMENT
  - CONSTRUCTION EASEMENT
  - PERMANENT SURFACE EASEMENT WITH UPPER LIMIT
  - PROPOSED UTILITY EASEMENT
  - SLOPE EASEMENT
  - DRAINAGE EASEMENT
  - ELECTRIC GROUNDING GRID EASEMENT
  - UNDERGROUND VAULTS IN PUBLIC PROPERTY
  - PARCEL NUMBER
  - EXISTING UTILITY EASEMENT
  - PROPERTY LINE
  - LIMIT OF RIGHT-OF-WAY
  - SUBDIVISION LINE
  - CONSTRUCTION FENCING (TYPE TO BE INDICATED ON DRAWING)
  - EXISTING MONUMENT
  - COORDINATE NUMBER
  - CURVE NUMBER
  - R/W RIGHT-OF-WAY
  - B&D BEARING & DISTANCE
  - D DISTANCE

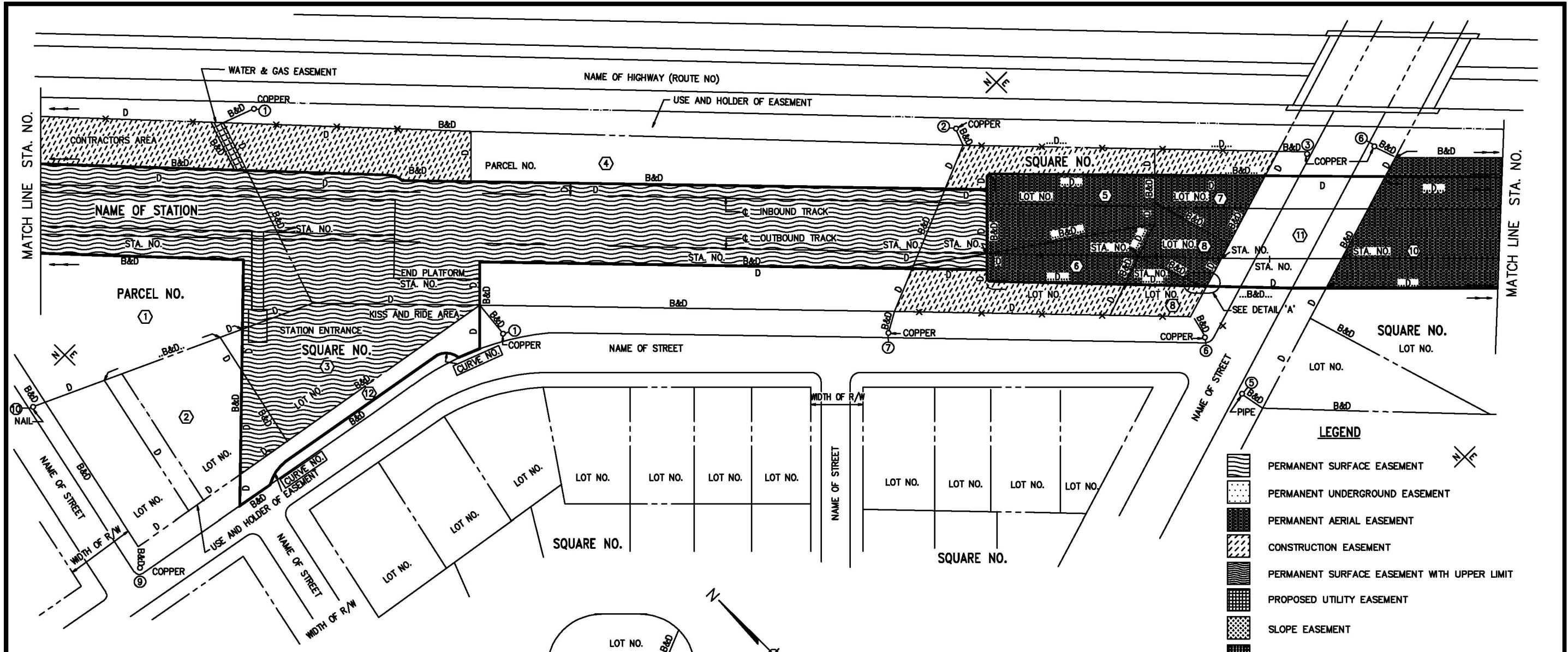
DESIGNED		REFERENCE DRAWINGS		REVISIONS	
DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
3-8-72			08/2007	ENGA	REVISED AND ISSUED BY THE AUTHORITY
3-11-72					
3-13-72					
4-13-72					

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 OFFICE OF ENGINEERING SUPPORT SERVICES

SUBMITTED *VPadgett* 10/2007 DATE APPROVED *[Signature]* 10/2007 DATE

**RIGHT-OF-WAY DESIGN DRAWING  
 UNDERGROUND SECTIONS  
 DISTRICT OF COLUMBIA**

SCALE: NOT TO SCALE DRAWING NO. DD-R-300

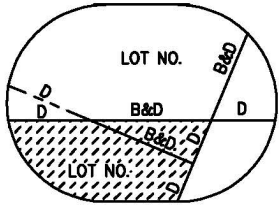


**LEGEND**

- PERMANENT SURFACE EASEMENT
- PERMANENT UNDERGROUND EASEMENT
- PERMANENT AERIAL EASEMENT
- CONSTRUCTION EASEMENT
- PERMANENT SURFACE EASEMENT WITH UPPER LIMIT
- PROPOSED UTILITY EASEMENT
- SLOPE EASEMENT
- DRAINAGE EASEMENT
- ELECTRIC GROUNDING GRID EASEMENT
- UNDERGROUND VAULTS IN PUBLIC PROPERTY
- PARCEL NUMBER
- EXISTING UTILITY EASEMENT
- PROPERTY LINE
- LIMIT OF RIGHT-OF-WAY
- SUBDIVISION LINE
- CONSTRUCTION FENCING (TYPE TO BE INDICATED ON DRAWING)
- EXISTING MONUMENT
- COORDINATE NUMBER
- CURVE NUMBER
- R/W RIGHT-OF-WAY
- B&D BEARING & DISTANCE
- D DISTANCE

**NOTES:**  
 1. USE OF ARROWHEADS TO CLEARLY DELINEATE DISTANCES ALONG PROPERTY LINES IS OPTIONAL.  
 2. LEGEND AND PROPERTY DISPOSITION TABLE SHALL INCLUDE ONLY THE APPLICABLE TYPES OF EASEMENTS.

PROPERTY DISPOSITION ALL AREAS IN SQUARE FEET							
PARCEL NO.	LOT NUMBER	TOTAL AREA	PERMANENT UNDERGROUND EASEMENT	PERMANENT SURFACE EASEMENT	PERMANENT AERIAL EASEMENT	CONST. FUNCTION EASEMENT	UTILITY EASEMENT
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							



**DETAIL "A"**  
NOT TO SCALE

COORDINATES		
NUMBER	NORTH	EAST
1		
2		
3		

CURVE DATA						
CURVE NO.	DELTA	RADIUS	TANGENT	ARC	CHORD	CHORD BEARING

VERTICAL LIMITS OF EASEMENTS						DISTANCE FROM SURFACE TO UPPER ELEVATION OF EASEMENTS
LOT	PARCEL	FROM STA.	TO STA.	UPPER ELEV.	LOWER ELEV.	

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
L.W. SZCZUR	3-9-72				
DRAWN	FINN				
CHECKED	L.W. SZCZUR				
APPROVED	R. O'NEIL				
	K. OAKBERG				

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 OFFICE OF ENGINEERING SUPPORT SERVICES

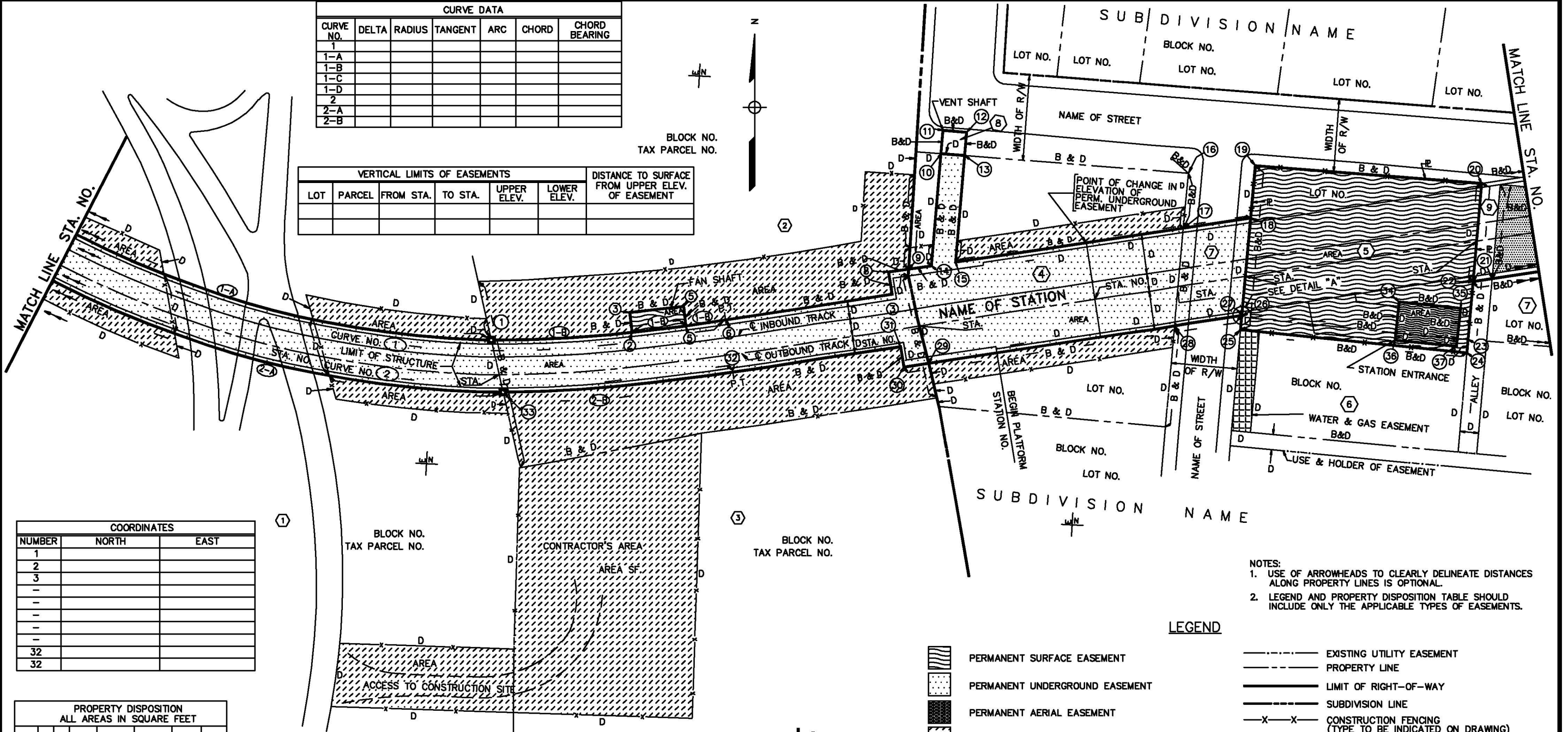
SUBMITTED *VR Padgett* 10/2007 DATE APPROVED *[Signature]* 10/2007 DATE

**RIGHT-OF-WAY DESIGN DRAWING**  
 SURFACE & AERIAL SECTIONS  
 DISTRICT OF COLUMBIA

SCALE: NOT TO SCALE DRAWING NO. DD-R-301

CURVE DATA						
CURVE NO.	DELTA	RADIUS	TANGENT	ARC	CHORD	CHORD BEARING
1						
1-A						
1-B						
1-C						
1-D						
2						
2-A						
2-B						

VERTICAL LIMITS OF EASEMENTS						DISTANCE TO SURFACE FROM UPPER ELEV. OF EASEMENT
LOT	PARCEL	FROM STA.	TO STA.	UPPER ELEV.	LOWER ELEV.	



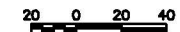
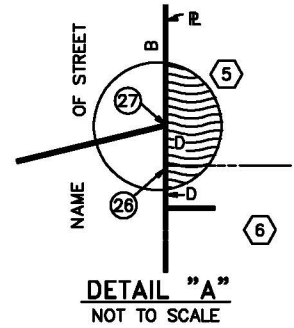
COORDINATES		
NUMBER	NORTH	EAST
1		
2		
3		
-		
-		
-		
-		
-		
32		
32		

PROPERTY DISPOSITION ALL AREAS IN SQUARE FEET							OWNER	DEED BOOK	DEED	REMARKS
PARCEL NO.	BLOCK NO.	LOT NO.	TOTAL AREA OF PARCEL	PERMANENT UNDERGROUND EASEMENT	PERMANENT SURFACE EASEMENT	CONSTRUCTION EASEMENT				
PARCEL NO.'S										
1										
2										
3										
SUBDIVISION NAME										BLDG. TO BE DEMOLISHED
4										
5										
6										
7										

NOTES:  
 1. USE OF ARROWHEADS TO CLEARLY DELINEATE DISTANCES ALONG PROPERTY LINES IS OPTIONAL.  
 2. LEGEND AND PROPERTY DISPOSITION TABLE SHOULD INCLUDE ONLY THE APPLICABLE TYPES OF EASEMENTS.

**LEGEND**

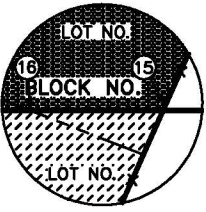
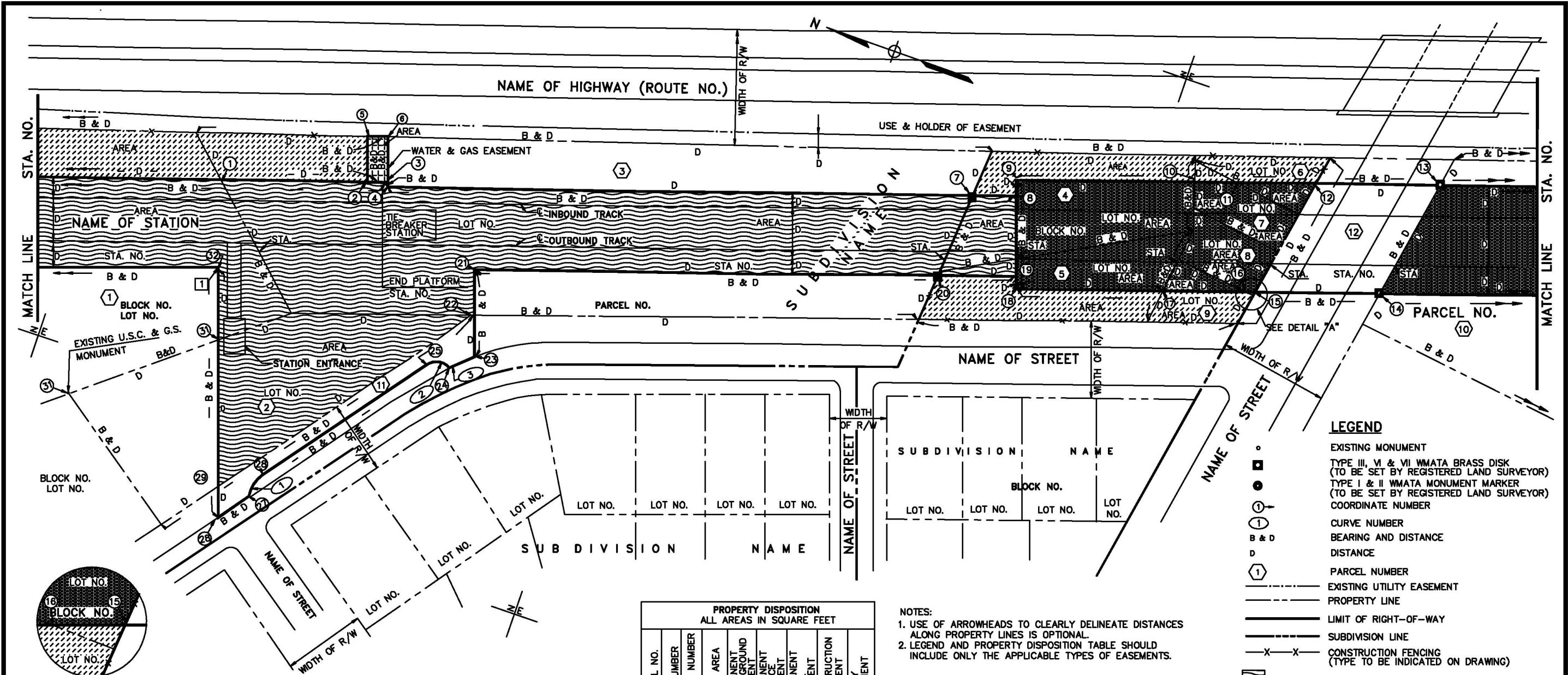
	PERMANENT SURFACE EASEMENT		EXISTING UTILITY EASEMENT
	PERMANENT UNDERGROUND EASEMENT		PROPERTY LINE
	PERMANENT AERIAL EASEMENT		LIMIT OF RIGHT-OF-WAY
	CONSTRUCTION EASEMENT		SUBDIVISION LINE
	PERMANENT SURFACE EASEMENT WITH UPPER LIMIT		CONSTRUCTION FENCING (TYPE TO BE INDICATED ON DRAWING)
	PROPOSED UTILITY EASEMENT		EXISTING MONUMENT
	SLOPE EASEMENT		TYPE III, VI & VII WMATA BRASS DISK (TO BE SET BY REGISTERED LAND SURVEYOR)
	DRAINAGE EASEMENT		TYPE I & II WMATA MONUMENT MARKER (TO BE SET BY REGISTERED LAND SURVEYOR)
	ELECTRIC GROUNDING GRID EASEMENT		COORDINATE NUMBER
			CURVE NUMBER
			BEARING AND DISTANCE
			DISTANCE
			PARCEL NUMBER



DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
L.W. SZCZUR	3-16-72			06/2007	ENG A REVISD AND ISSUED BY THE AUTHORITY
J.L. FIBLER	3-16-72				
L.W. SZCZUR	3-16-72				
R. O'NEIL	4-72				

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

RIGHT-OR-WAY DESIGN DRAWING  
 UNDERGROUND SECTIONS  
 MARYLAND & VIRGINIA  
 SCALE: NOT TO SCALE  
 DRAWING NO. DD-R-302



DETAIL "A"  
NOT TO SCALE

**LEGEND**

- EXISTING MONUMENT
- TYPE III, VI & VII WMATA BRASS DISK (TO BE SET BY REGISTERED LAND SURVEYOR)
- TYPE I & II WMATA MONUMENT MARKER (TO BE SET BY REGISTERED LAND SURVEYOR)
- COORDINATE NUMBER
- CURVE NUMBER
- BEARING AND DISTANCE
- DISTANCE
- PARCEL NUMBER
- EXISTING UTILITY EASEMENT
- PROPERTY LINE
- LIMIT OF RIGHT-OF-WAY
- SUBDIVISION LINE
- CONSTRUCTION FENCING (TYPE TO BE INDICATED ON DRAWING)
- PERMANENT SURFACE EASEMENT
- PERMANENT UNDERGROUND EASEMENT
- PERMANENT AERIAL EASEMENT
- CONSTRUCTION EASEMENT
- PERMANENT SURFACE EASEMENT WITH UPPER LIMIT
- PROPOSED UTILITY EASEMENT
- SLOPE EASEMENT
- DRAINAGE EASEMENT
- ELECTRIC GROUNDING GRID EASEMENT

NOTES:  
1. USE OF ARROWHEADS TO CLEARLY DELINEATE DISTANCES ALONG PROPERTY LINES IS OPTIONAL.  
2. LEGEND AND PROPERTY DISPOSITION TABLE SHOULD INCLUDE ONLY THE APPLICABLE TYPES OF EASEMENTS.

**PROPERTY DISPOSITION  
ALL AREAS IN SQUARE FEET**

PARCEL NO.	LOT NUMBER	BLOCK NUMBER	TOTAL AREA	PROPERTY DISPOSITION						OWNER	DEED BOOK	PAGE NO.	REMARKS
				PERMANENT UNDERGROUND EASEMENT	PERMANENT SURFACE EASEMENT	PERMANENT AERIAL EASEMENT	CONSTRUCTION EASEMENT	UTILITY EASEMENT	UTILITY EASEMENT				
PARCEL NO.'S													
1												DEMOLISH BUILDING	
2													
3													
SUBDIVISION NAME													
4													
5													
6													
7													
8													
9													
PARCEL NO.													
10													
11												PUBLIC R/W	
12												PUBLIC R/W	

VERTICAL LIMITS OF EASEMENT						DISTANCE FROM SURFACE TO UPPER ELEV. OF EASEMENT
LOT NO.	PARCEL NO.	FROM STA.	TO STA.	UPPER ELEV.	LOWER ELEV.	

CURVE DATA						
CURVE NO.	DELTA	RADIUS	TANGENT	ARC	CHORD	CHORD BEARING

NUMBER	COORDINATES	
	NORTH	EAST
1		
2		
3		
31		
32		

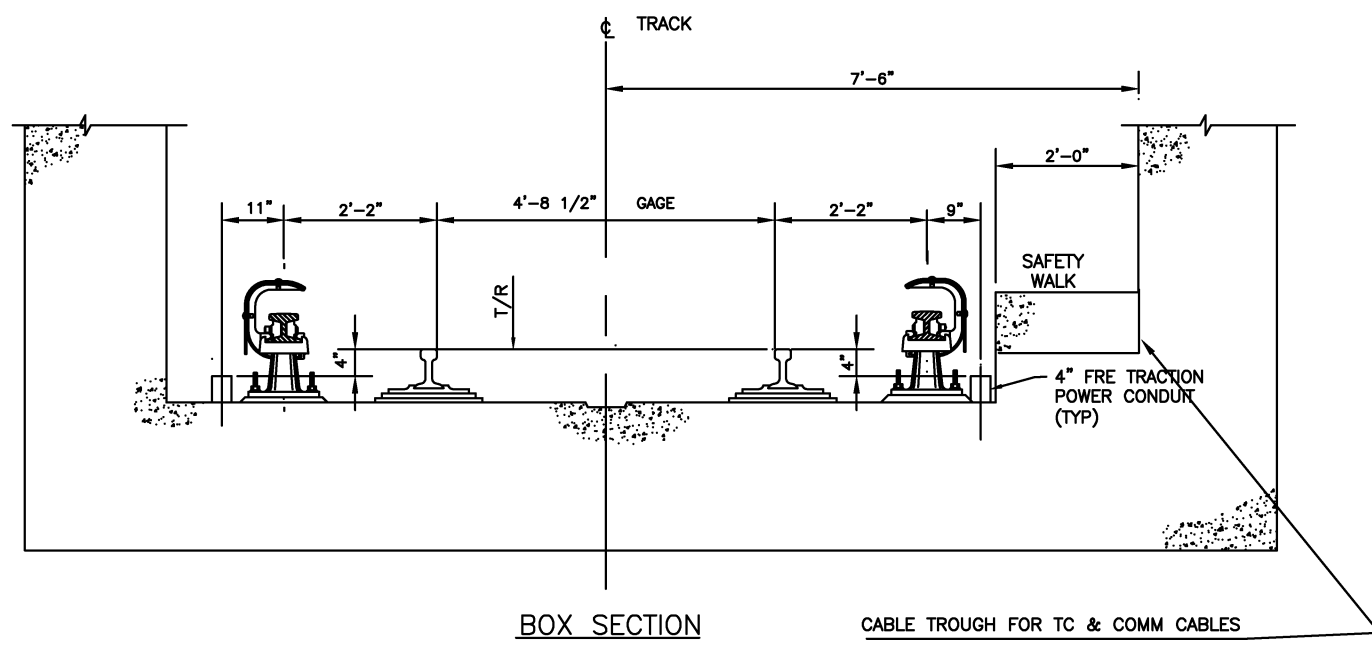
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
		ST-C-003	SURVEY MONUMENTS SHT. 1 OF 2	06/2007	ENGA	REVISED AND ISSUED BY THE AUTHORITY
DRAWN		ST-C-005	SURVEY MONUMENTS SHT. 2 OF 2			
CHECKED						
APPROVED						

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
OFFICE OF ENGINEERING SUPPORT SERVICES

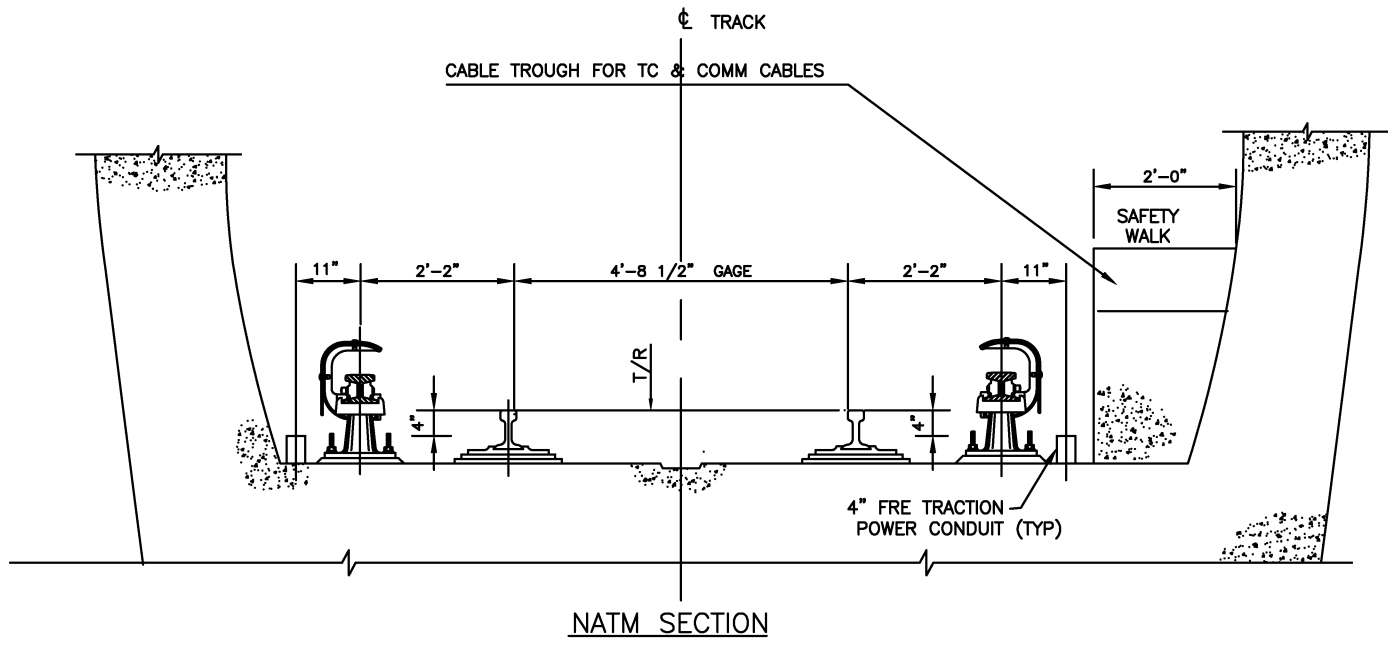
SUBMITTED *UR Padgett* 10/2007 DATE APPROVED *[Signature]* 10/2007 DATE

**RIGHT-OF-WAY DESIGN DRAWING  
UNDERGROUND SECTIONS  
MARYLAND & VIRGINIA**

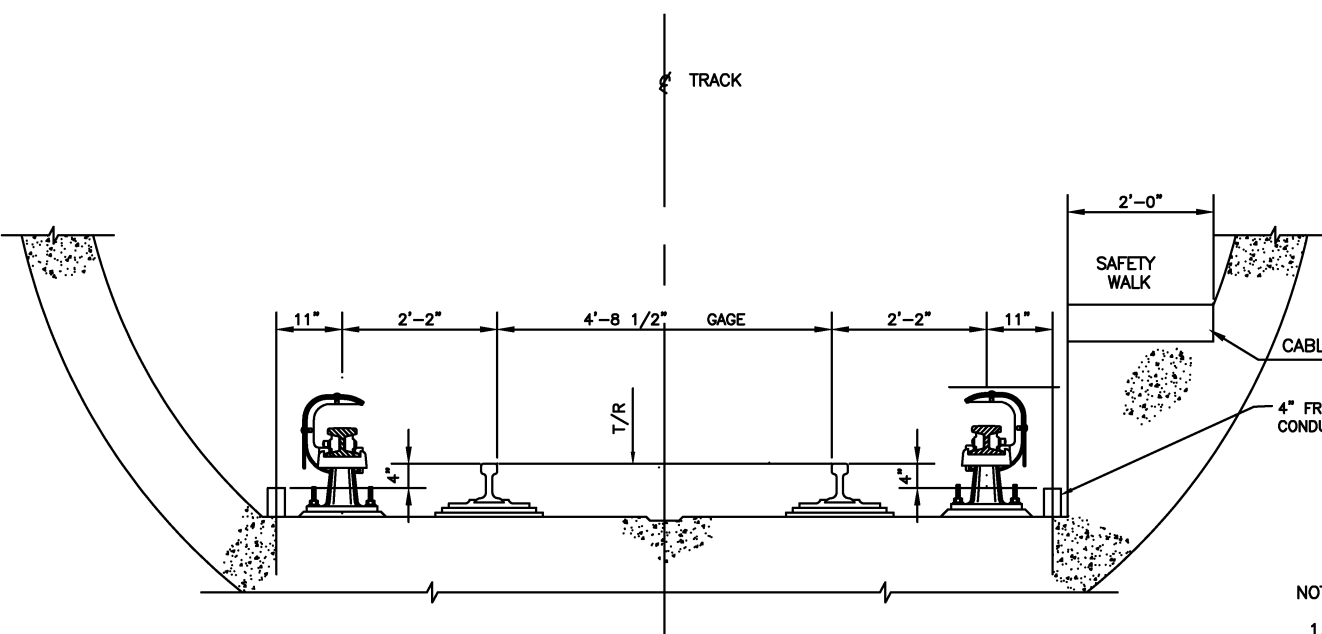
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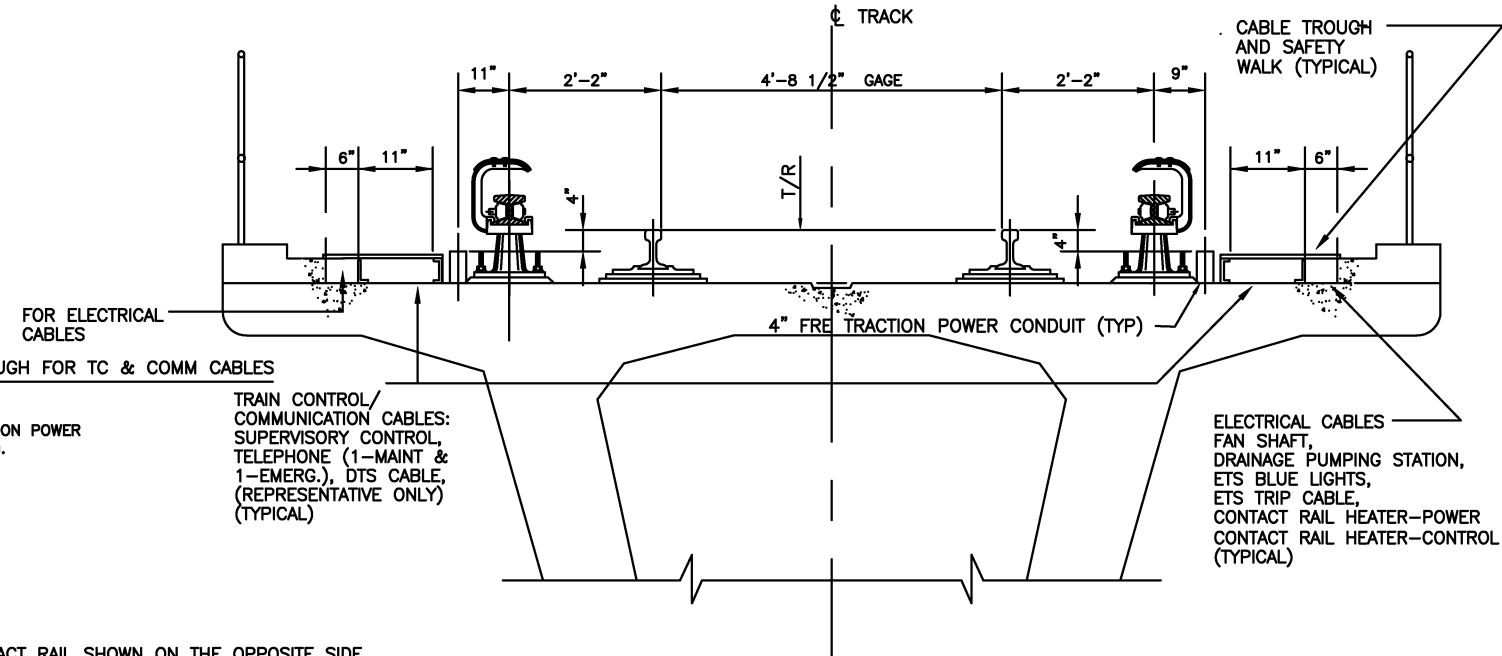
BOX SECTION



NATM SECTION



CIRCULAR SECTION



AERIAL STRUCTURE

NOTES:

1. CONTACT RAIL SHOWN ON THE OPPOSITE SIDE FROM THE SAFETY WALK IS IN THE NORMAL POSITION. CONTACT RAIL SHOWN ADJACENT TO SAFETY WALK IS AN ALTERNATE LOCATION REQUIRED AT CROSSOVERS, TRANSITIONS AND WHERE NORMAL POSITION IS OTHERWISE INAPPROPRIATE.
2. STRUCTURAL SECTIONS SHOWN ARE REPRESENTATIVE ONLY.
3. THE INTENT OF THIS DRAWING IS TO STANDARDIZE THE LOCATION OF CONDUIT TERMINATIONS FOR FEEDERS CONNECTED TO THE CONTACT RAIL.

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
5-70	DD-E-04C	CONTACT RAIL AND PROTECTION COVER ASSEMBLY	08/2001	ENGA	Revised and issued by the Authority			
5-70								
7-70								
7-70								
12-88								

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

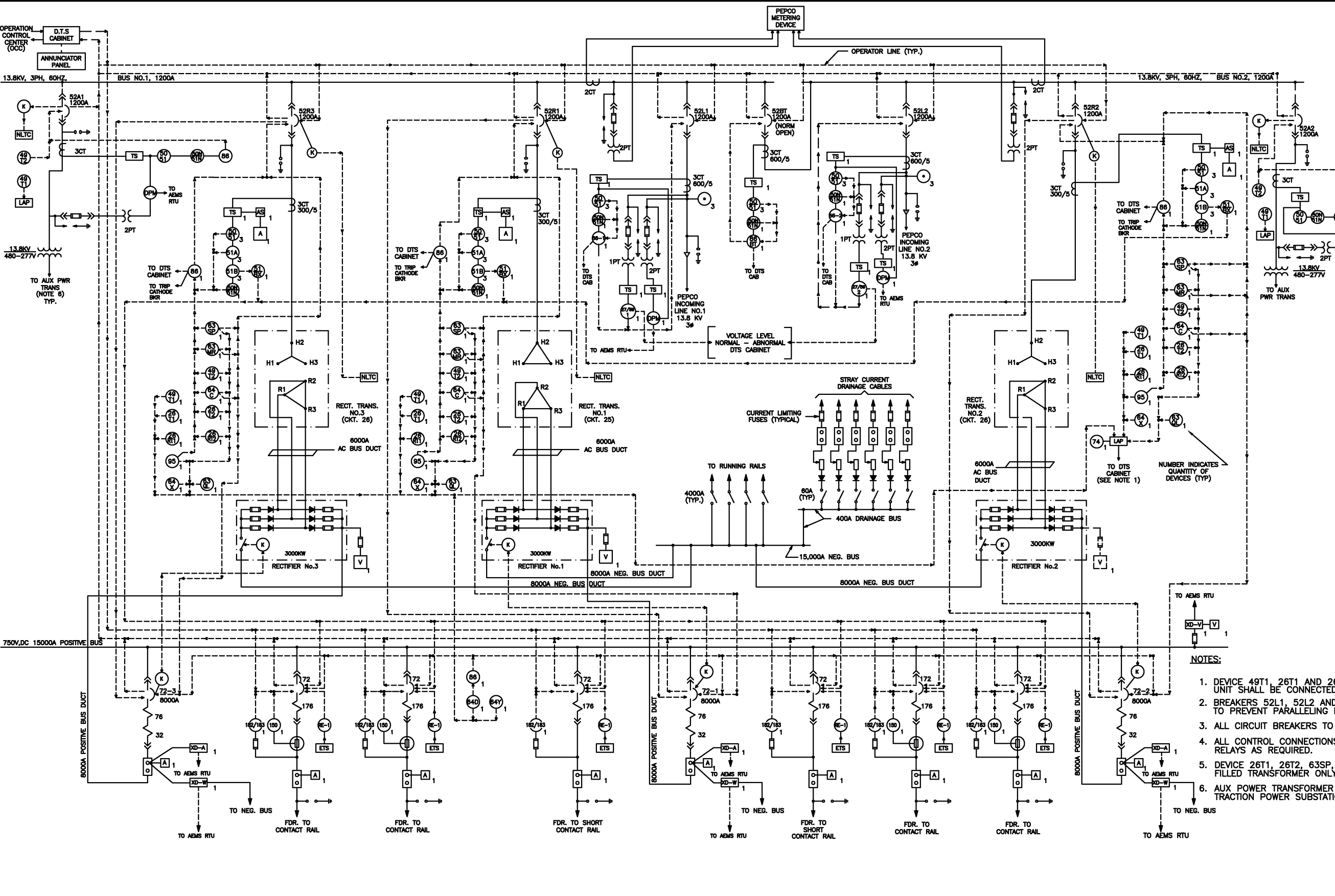
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

**ELECTRICAL DESIGN DRAWING**  
TRACTION POWER CONTACT RAIL AND  
CONDUIT LOCATION - LINE SECTIONS

SCALE N.T.S. DRAWING NO. DD-E-005

LEGEND	
DEVICE	DESCRIPTION
A	AMMETER
LAP	LOCAL ANNUNCIATOR PANEL
AS	AMMETER SWITCH
CT	CURRENT TRANSFORMER
ETS	EMERGENCY TRIP STATION AT TRACKSIDE
PT	POTENTIAL TRANSFORMER
RE-1	ETS AUXILIARY RELAY
TS	TEST SWITCH
V	VOLTMETER
26T1	TRANS. OIL OVER TEMP. DEVICE 1st STAGE
26T2	TRANS. OIL OVER TEMP. DEVICE 2nd STAGE
26RT1	RECTIFIER OVERTEMP. DEVICE 1st STAGE
26RT2	RECTIFIER OVERTEMP. DEVICE 2nd STAGE
DTS	DATA TRANSMISSION SYSTEM
27/59	UNDERVOLTAGE & OVERVOLTAGE RELAY
32	CATHODE BKR. REVERSE CURRENT TRIP DEVICE
49T1	TRANS. WINDING OVERTEMP. DEVICE 1st STAGE
49T2	TRANS. WINDING OVERTEMP. DEVICE 2nd STAGE
50/51	AC OVERCURRENT PHASE RELAY INST. & TIME
50N/51N	AC OVERCURRENT GRD. RELAY INST. & TIME
49	HALL EFFECT TRANSDUCER
51A	AC OVERCURRENT PHASE RELAY TIME
51B	AC OVERCURRENT PHASE RELAY TIME
51BX	AUX. TO DEVICE 51B
52A	AUX. TRANS. FEEDER BREAKER 13.8KV
52BT	BUS TIE AC CKT. BREAKER 13.8 KV
52R	RECTIFIER TRANSFORMER FEEDER BREAKER 13.8KV
52L	INCOMING LINE AC CKT. BREAKER 13.8KV
63MR	TRANS. EXPL. DIAPHRAGM DEVICE
63QL	TRANS. LOW OIL LEVEL DEVICE
63SP	TRANS. SUDDEN PRESSURE DEVICE
64C	RECT. GRD. RELAY HOT STRUCTURE
64X	RECT. GRD. RELAY GRD. STRUCTURE
64D	DC SWGR. GRD. RELAY HOT STRUCTURE
64Y	DC SWGR. GRD. RELAY GRD. STRUCTURE
72	CATHODE AIR CKT. BKR.
74	ALARM RELAY
76	CATHODE BKR. FORWARD CURRENT TRIP DEVICE
NLTC	NO LOAD TAP CHANGER
86	LOCK-OUT RELAY HAND RESET
95	DIODE FAILURE DEVICE
150	RATE-OF-RISE RELAY
172	DC AIR CKT. BKR.
176	DC BKR SERIES TRIP DEVICE
182/183	DC LOAD MEASURING/RECLOSE RELAY
—/—	KNIFE SWITCH
—	DIODE
—	SHUNT
—	VARIABLE RESISTOR
(K)	KEY INTERLOCK
—	POT. TRANSF. FUSE GROUNDING CONTACT
—	NEON GLOW TUBE HIGH VOLTAGE INDICATOR
—	SURGE ARRESTER
XD-A	CURRENT TRANSDUCER
XD-V	VOLTAGE TRANSDUCER
XD-W	WATT TRANSDUCER
DPM	DIGITAL POWER METER
RTU	REMOTE TERMINAL UNIT
AEMS	AUTOMATED ENERGY MANAGEMENT SYSTEM



- NOTES:
1. DEVICE 49T1, 26T1 AND 26RT1 FROM EACH TRANSFORMER-RECTIFIER UNIT SHALL BE CONNECTED TO DTS FOR REMOTE INDICATION.
  2. BREAKERS 52L1, 52L2 AND 52BT TO BE ELECTRICALLY INTERLOCKED TO PREVENT PARALLELING INCOMING LINES.
  3. ALL CIRCUIT BREAKERS TO BE 125V DC TRIP AND CLOSE.
  4. ALL CONTROL CONNECTIONS TO DTS SHALL HAVE INTERPOSING RELAYS AS REQUIRED.
  5. DEVICE 26T1, 26T2, 63SP, 63MR AND 63QL TO BE USED ON LIQUID FILLED TRANSFORMER ONLY.
  6. AUX POWER TRANSFORMER MAY NOT BE REQUIRED AT EVERY TRACTION POWER SUBSTATION.

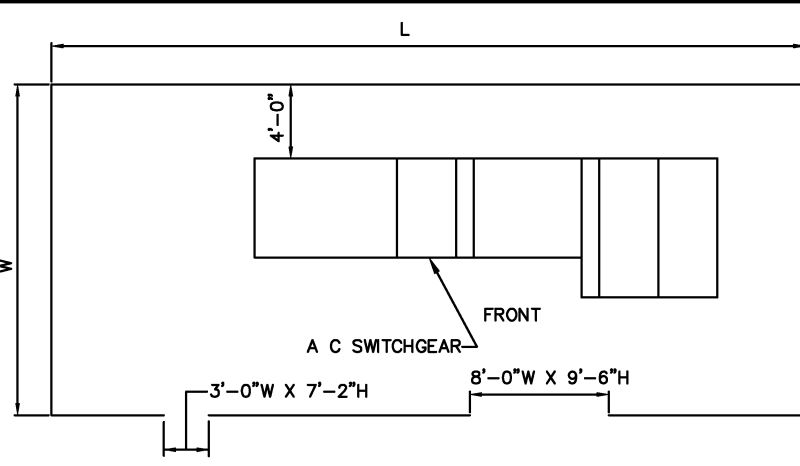
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
P.K. ROY	9-98			08/2001	Revised and issued by the Authority
R. THOMAS, JR.	9-98				
U. KHAN	9-98				
R. GANERWAL	9-98				

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
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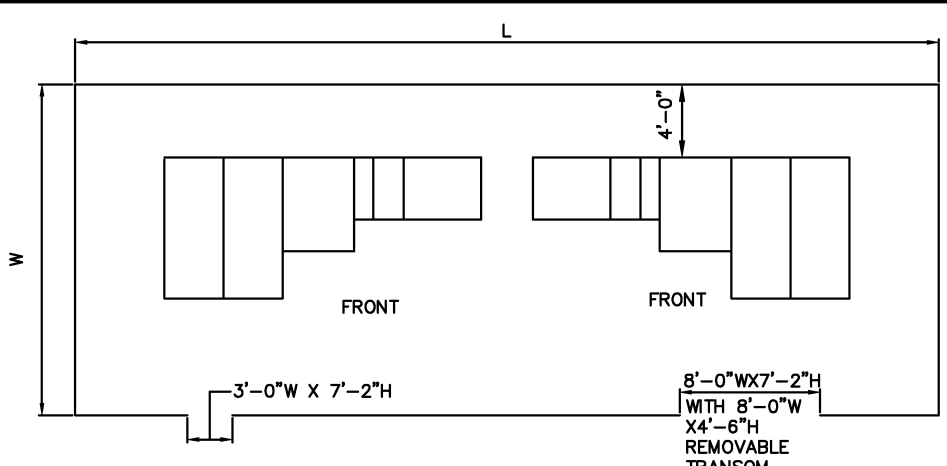
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
 TRACTION POWER SUPERVISORY CONTROL & SCHEMATIC  
 DIAGRAM 13.8KV SERVICE AREA

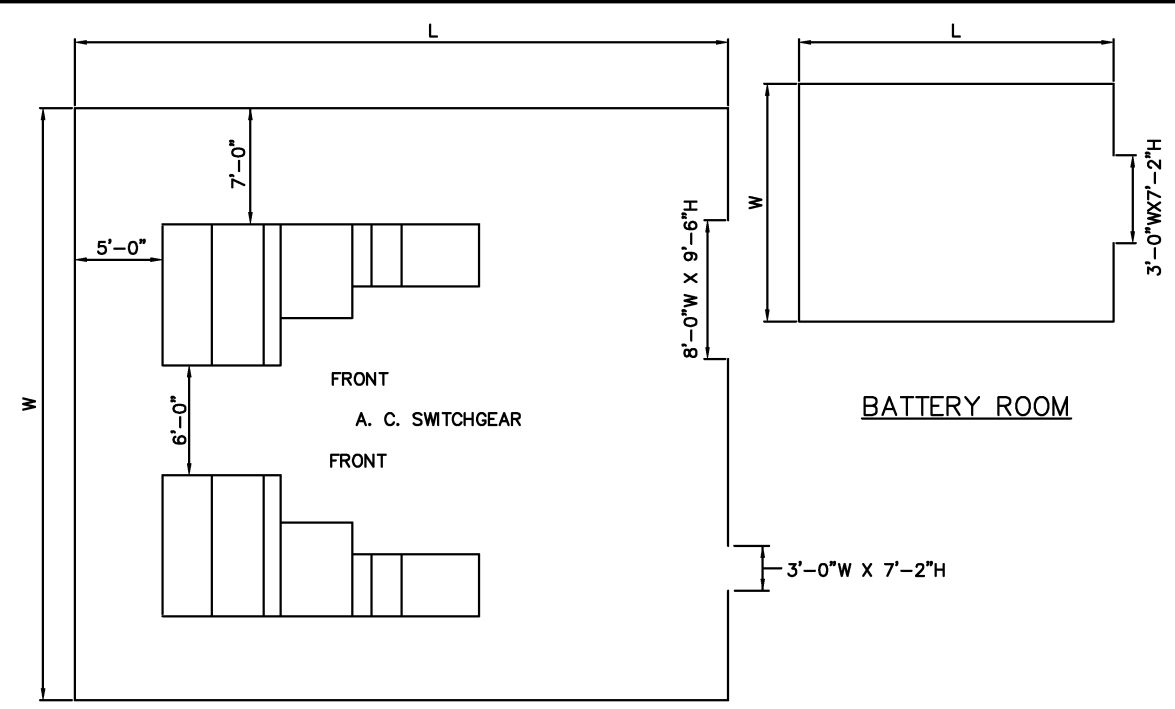
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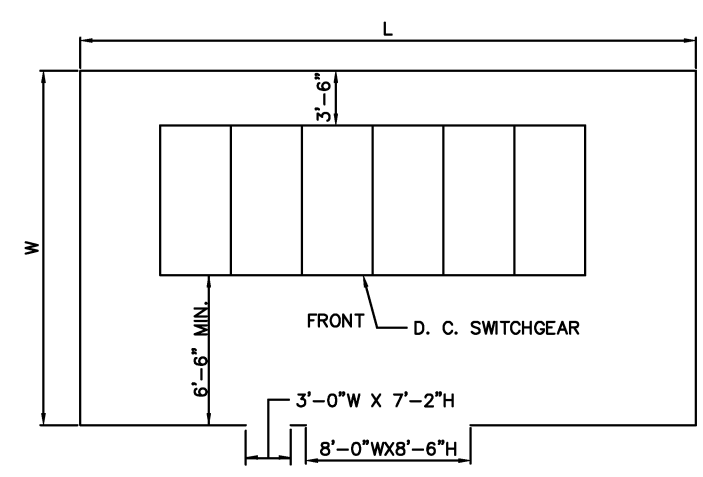
A.C. SWITCHBOARD ROOM-13.8 KV SERVICE AREA



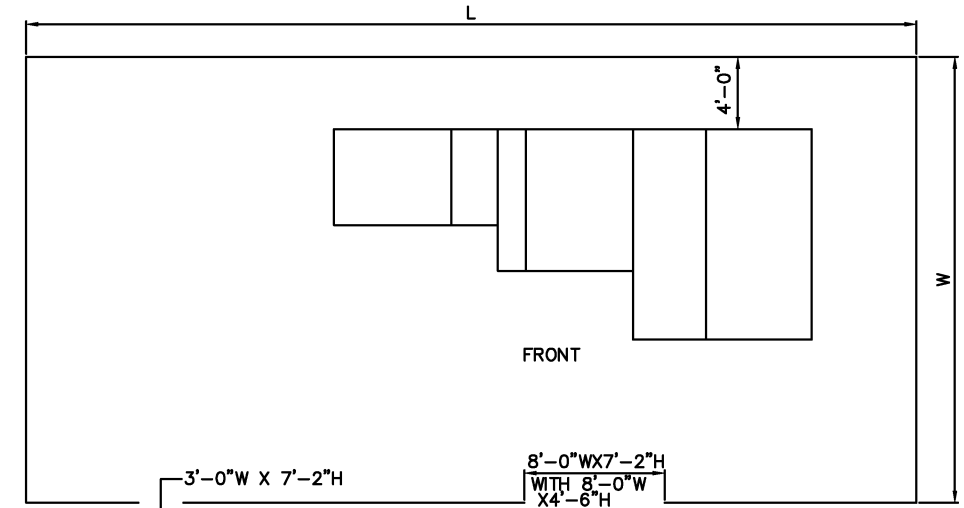
COMBINED A.C. SWITCHBOARD ROOM 34.5 KV SERVICE AREA



COMBINED A. C. SWITCHBOARD ROOM-13.8 KV SERVICE AREA



D.C. TIE BREAKER STATION



A. C. SWITCHBOARD ROOM 34.5 KV SERVICE AREA

**DOOR SCHEDULE**

- TRAIN CONTROL ROOM
- COMMUNICATIONS ROOM
- OPERATIONS ROOM
- BELL SYSTEM ROOM
- MAINTENANCE ROOM
- ELECTRICAL ROOM

**MINIMUM DOOR SIZE**

- 3'-0" X 7'-10"
- 3'-0" X 7'-10"
- 3'-0" X 7'-10"
- 3'-0" X 7'-2"
- 3'-0" X 7'-2"
- 3'-0" X 7'-2"

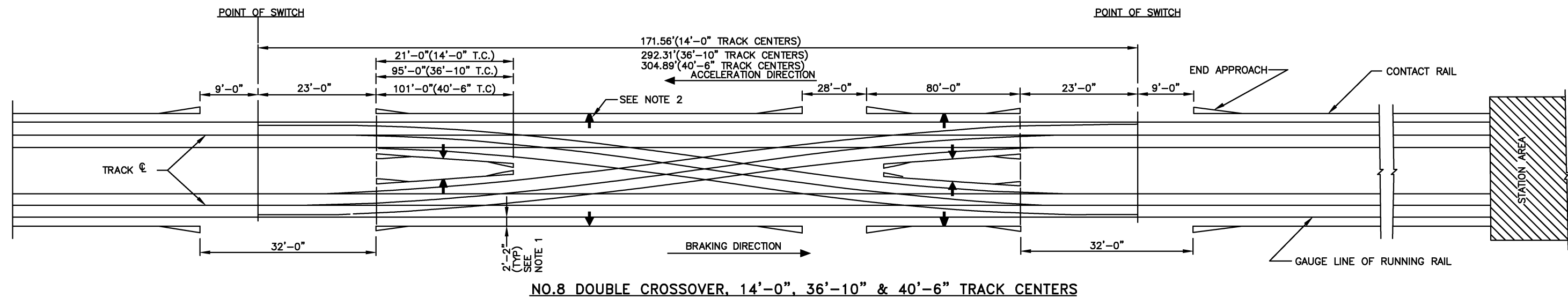
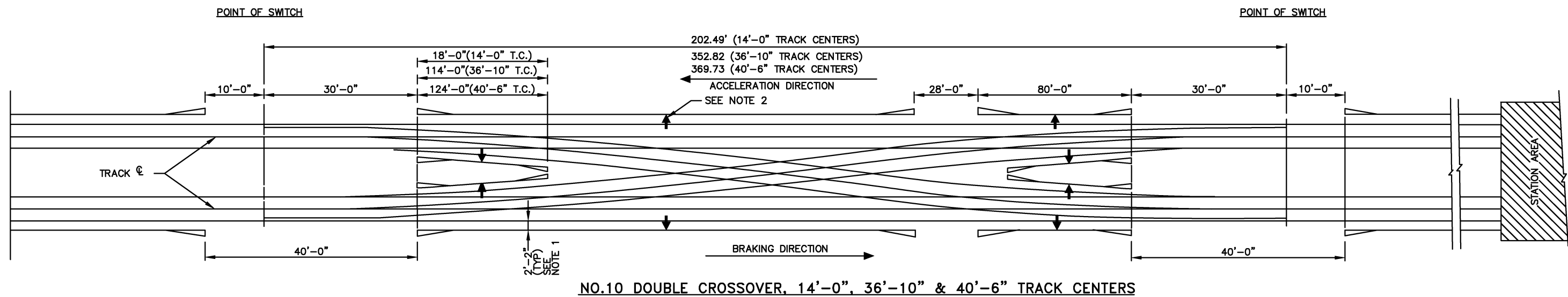
**NOTES**

1. SEE ARCHITECTURAL GENERAL PLANS FOR LOCATION OF ROOMS WITH REFERENCE TO PASSENGER STATIONS.
2. TRAIN CONTROL AND COMMUNICATIONS ROOMS SHALL BE ADJACENT AND SEPARATED BY A NON-LOAD BEARING WALL. ROOM SIZE MAY BE ADJUSTED DURING REVIEW BY SYSTEMS SECTION TO ACCOMMODATE UNIQUE CIRCUMSTANCES
3. A.C. SWITCHBOARD ROOM AND BATTERY ROOM SHALL BE ADJACENT AND DOOR INTO BATTERY ROOM SHALL BE FROM SAFETY WALK OR HALL.
4. ROOM DIMENSIONS SHOWN ARE MINIMUM. WHERE NECESSARY, THE ROOM SIZE SHALL BE ADJUSTED TO SUIT THE EQUIPMENT REQUIRED TO BE INSTALLED THERE IN.
5. SEE DD-A-SC-9 FOR DOOR SCHEDULE AND DETAILS.

TABLE OF ROOM DIMENSIONS (SEE NOTE 4)			
ROOM DESCRIPTION	LENGTH	WIDTH	HEIGHT
BELL SYSTEM ROOM	4'-0"	4'-0"	8'-0"
A.C. SWITCHBOARD ROOM 13.8 KV SERVICE AREA	40'-0"	18'-0"	12'-0"
COMBINED A.C. SWITCHBOARD RM-13.8 KV SERVICE AREA	40'-0"	36'-0"	12'-0"
A.C. SWITCHBOARD ROOM 34.5 KV SERVICE AREA	50'-0"	25'-0"	16'-0"
ELECTRICAL ROOM	8'-0" MIN.	6'-0" MIN.	12'-0"
COMBINED A.C. SWITCHBOARD RM-34.5 KV SERVICE AREA	85'-0"	25'-0"	16'-0"
D.C. TIE BREAKER STATION	27'-0"	17'-6"	12'-0"
COMMUNICATION ROOM	UNDERGROUND STATION	18'-0"	14'-0"
	SURFACE/AERIAL STATION	16'-0"	10'-0"
OPERATION ROOM	12'-0"	13'-0"	12'-0"
TRAIN CONTROL ROOM WITH INTERLOCKING EQUIPMENT	44'-0"	14'-0"	12'-0"
	36'-0"	17'-0"	
TRAIN CONTROL ROOM WITHOUT INTERLOCKING EQUIPMENT	28'-0"	14'-0"	12'-0"
	23'-0"	17'-0"	
TRAIN CONTROL ROOM WITH INTERL. AT TERMINAL OR STORAGE AREAS	44'-0"	14'-0"	12'-0"
	36'-0"	17'-0"	
MAINTENANCE ROOM	14'-0"	13'-0"	12'-0"
BATTERY ROOM	DC & MARYLAND	18'-0"	24'-0"
	VIRGINIA	18'-0"	24'-0"

DESIGNED W.P./E.F. 3-88 DATE DRAWN HAYDEN 7-71 DATE CHECKED A. WILLIAMS 6-71 DATE APPROVED R. ONEIL 6-91 DATE	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION DATE BY DESCRIPTION ST-TB-004 DC TIE BKR STA AT GRADE 08/2001 ENGA Revised and issued by the Authority DD-A-SC-009 DOOR SCHEDULE, ELEVATION & DETAILS DD-E-033 13.8KV A.C SWBD ROOM DD-E-062 34.5KV A.C. SWBD RM. DD-E-084 34.5KV COMB. A.C. SWBD RM. DD-E-083 13.8KV COMB. A.C. SWBD RM.	<b>REVISIONS</b> NUMBER DESCRIPTION DATE BY DESCRIPTION 1 Revised and issued by the Authority	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE SUBMITTED _____ DATE _____ APPROVED <i>[Signature]</i> May 3, 2001 DIRECTOR DATE	<b>ELECTRICAL DESIGN DRAWING</b> TYPICAL ELECTRICAL ROOMS EQUIPMENT LAYOUT SCALE NONE DRAWING NO. DD-E-014
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- NOTES :
1. DIMENSION IS FROM GAUGE LINE OF RUNNING RAIL TO CENTER LINE OF CONTACT RAIL.
  2. ↑ INDICATES ANCHOR POINTS.

DESIGNED	TINKHAM	11-74
DATE		
DRAWN	HILLARD	11-74
DATE		
CHECKED	T. HANSEN	1-75
DATE		
APPROVED	R. GANERWAL	9-98
DATE		
UPDATED	R. GANERWAL	9-98
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION
DD-E-005	TRACTION POWER CONTACT RAIL LOCATION
DD-E-010	TRACTION PWR & SUPERVISORY SCHEMATIC DIAGRAM

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

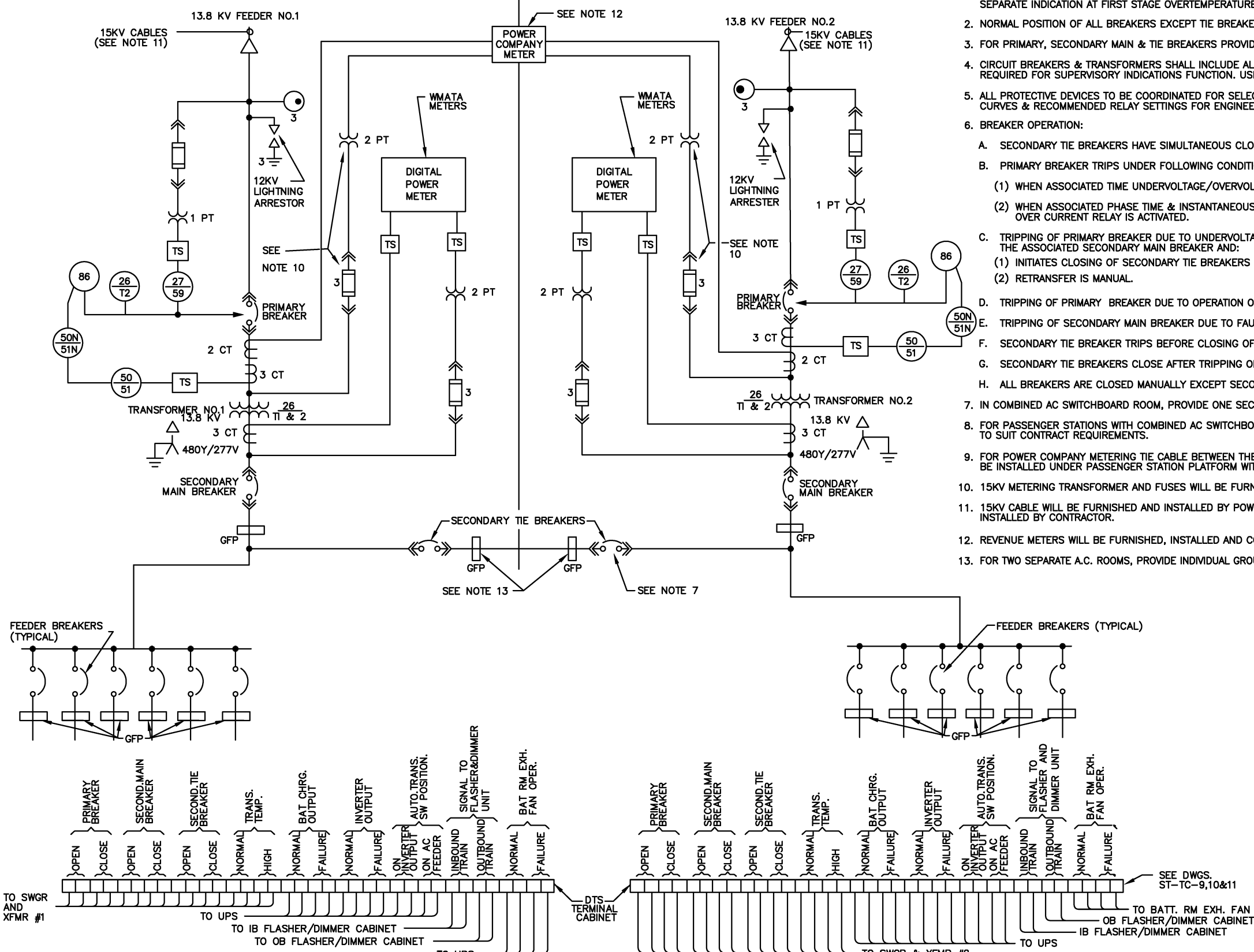
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ELECTRICAL DESIGN DRAWING  
CONTACT RAIL ARRANGEMENT FOR TRACTION POWER  
SECTIONALIZING AT TYPICAL CROSSOVERS

SCALE NOT TO SCALE DRAWING NO. DD-E-019

**NORTH OR EAST SUBSTATION**

**SOUTH OR WEST SUBSTATION**



**NOTES:**

1. TRANSFORMER OVER TEMPERATURE DEVICE PROVIDES FOR INDICATION AT DTS PANEL AT NORMAL TEMPERATURE (N) AND FOR SECOND SEPARATE INDICATION AT FIRST STAGE OVERTEMPERATURE (OTI).
2. NORMAL POSITION OF ALL BREAKERS EXCEPT TIE BREAKERS IS CLOSED. TIE BREAKERS ARE NORMALLY OPEN.
3. FOR PRIMARY, SECONDARY MAIN & TIE BREAKERS PROVIDE STATUS INDICATION AT DTS PANEL.
4. CIRCUIT BREAKERS & TRANSFORMERS SHALL INCLUDE ALL RELAYS & AUXILIARY CONTACTS FOR WIRING TO DTS TERMINAL CABINET REQUIRED FOR SUPERVISORY INDICATIONS FUNCTION. USE #14 AWG CONDUCTOR CABLE FOR WIRING TO TERMINAL CABINET.
5. ALL PROTECTIVE DEVICES TO BE COORDINATED FOR SELECTIVE TRIPPING & MINIMUM DISRUPTION OF POWER. SUBMIT COORDINATION CURVES & RECOMMENDED RELAY SETTINGS FOR ENGINEERS APPROVAL.
6. BREAKER OPERATION:
  - A. SECONDARY TIE BREAKERS HAVE SIMULTANEOUS CLOSE & TRIP OPERATIONS.
  - B. PRIMARY BREAKER TRIPS UNDER FOLLOWING CONDITIONS.
    - (1) WHEN ASSOCIATED TIME UNDERVOLTAGE/OVERVOLTAGE RELAY IS ACTIVATED.
    - (2) WHEN ASSOCIATED PHASE TIME & INSTANTANEOUS OVERCURRENT OR RESIDUAL GROUND TIME & INSTANTANEOUS OVER CURRENT RELAY IS ACTIVATED.
  - C. TRIPPING OF PRIMARY BREAKER DUE TO UNDERVOLTAGE/OVERVOLTAGE CONDITIONS ON POWER COMPANY FEEDER AUTOMATICALLY TRIPS THE ASSOCIATED SECONDARY MAIN BREAKER AND:
    - (1) INITIATES CLOSING OF SECONDARY TIE BREAKERS PROVIDED OTHER SECONDARY MAIN BREAKER IS CLOSED.
    - (2) RETRANSFER IS MANUAL.
  - D. TRIPPING OF PRIMARY BREAKER DUE TO OPERATION OF OVERCURRENT DEVICE DOES NOT INITIATE CLOSING OF SECONDARY TIE BREAKERS.
  - E. TRIPPING OF SECONDARY MAIN BREAKER DUE TO FAULT ON LOAD SIDE DOES NOT TRIP THE ASSOCIATED PRIMARY BREAKER.
  - F. SECONDARY TIE BREAKER TRIPS BEFORE CLOSING OF BOTH THE SECONDARY MAIN BREAKERS.
  - G. SECONDARY TIE BREAKERS CLOSE AFTER TRIPPING OF ONE OF THE SECONDARY MAIN BREAKERS.
  - H. ALL BREAKERS ARE CLOSED MANUALLY EXCEPT SECONDARY TIE BREAKERS WHICH ARE CLOSED AUTOMATICALLY.
7. IN COMBINED AC SWITCHBOARD ROOM, PROVIDE ONE SECONDARY TIE BREAKER.
8. FOR PASSENGER STATIONS WITH COMBINED AC SWITCHBOARD ROOM & ONE BATTERY ROOM, MODIFY WIRING TO DTS TERMINAL CABINET TO SUIT CONTRACT REQUIREMENTS.
9. FOR POWER COMPANY METERING TIE CABLE BETWEEN THE TWO AC SWITCHBOARD ROOM, PROVIDE ONE 1-1/4 INCH METALLIC CONDUIT TO BE INSTALLED UNDER PASSENGER STATION PLATFORM WITH 8"x8"x4" PULL BOX AT EACH MANHOLE.
10. 15KV METERING TRANSFORMER AND FUSES WILL BE FURNISHED BY POWER COMPANY AND INSTALLED BY CONTRACTOR.
11. 15KV CABLE WILL BE FURNISHED AND INSTALLED BY POWER COMPANY. TERMINATORS WILL BE FURNISHED BY POWER COMPANY AND INSTALLED BY CONTRACTOR.
12. REVENUE METERS WILL BE FURNISHED, INSTALLED AND CONNECTED BY POWER COMPANY.
13. FOR TWO SEPARATE A.C. ROOMS, PROVIDE INDIVIDUAL GROUND SENSORS AND RELAYS. FOR COMBINED A.C. ROOMS SEE DWG. DD-E-83.

SYMBOL DEVICE & ABBREVIATION	DESCRIPTION
	DRAWOUT FUSE
	DRAWOUT TYPE POWER CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER BOLT ON TYPE.
	NEON GLOW TUBE HIGH VOLTAGE INDICATOR NUMBER INDICATE NUMBER OF FACES
	GROUND FAULT PROTECTION
	TIME UNDERVOLTAGE/OVERVOLTAGE RELAY
	PHASE TIME AND INSTANTANEOUS OVERCURRENT RELAY
	RESIDUAL GROUND TIME AND INSTANTANEOUS OVERCURRENT RELAY
	TRANSFORMER OVER TEMPERATURE DEVICE 2 STAGES
	LOCKOUT RELAY
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	TEST SWITCH

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
DESIGNED	J. PRASAD	4.23.75		DD-E-088	TYPICAL 13.8 KV COMBINED A.C. SWITCHBOARD	08/2001	ENGA	Revised and issued by the Authority					
DRAWN	HILLARD-MANN	4.25.75											
CHECKED	FLAIFEL	5.12.75											
APPROVED	R. GANERIVAL	9-88											
UPDATED	R. GANERIVAL	9-98											

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

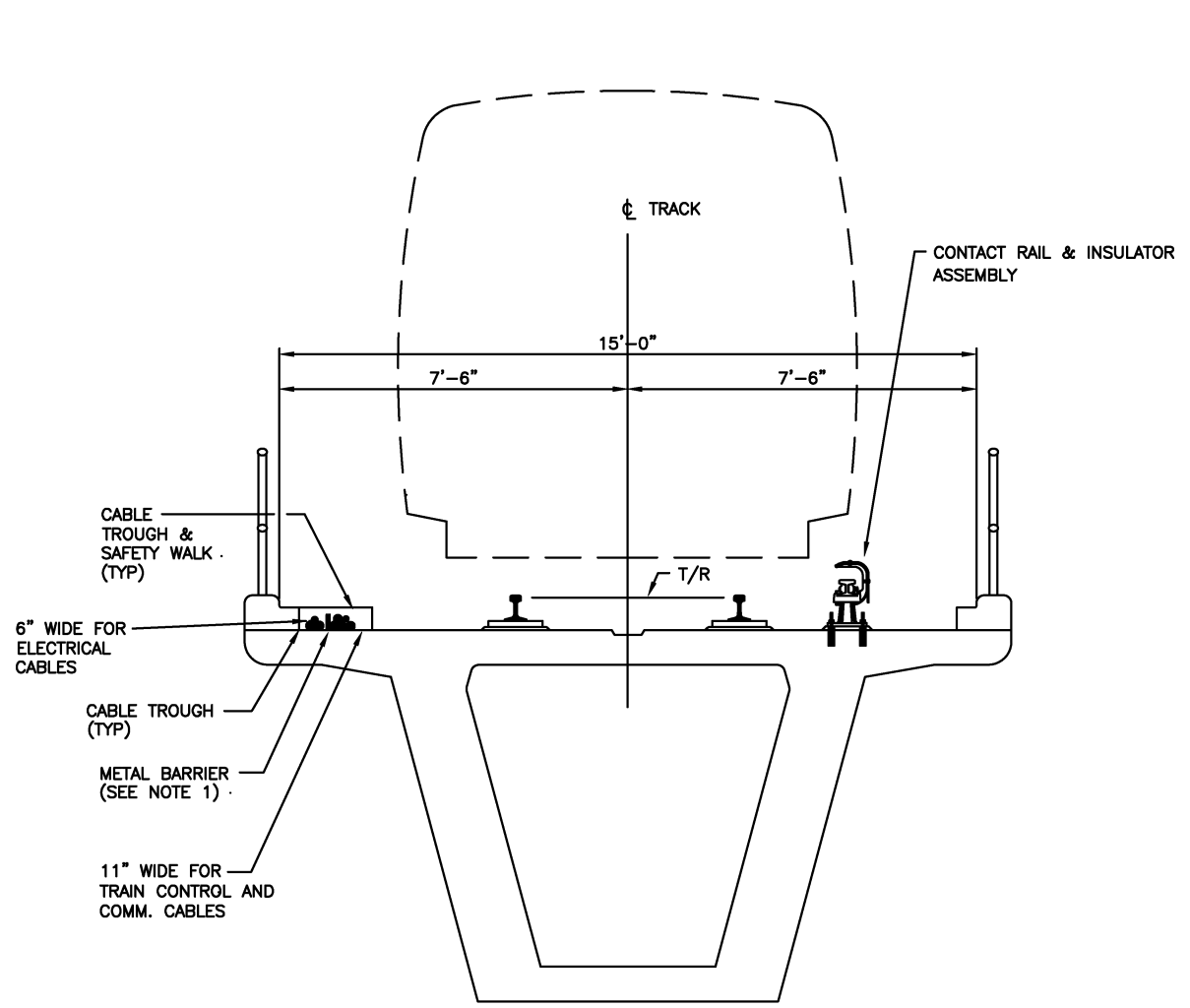
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

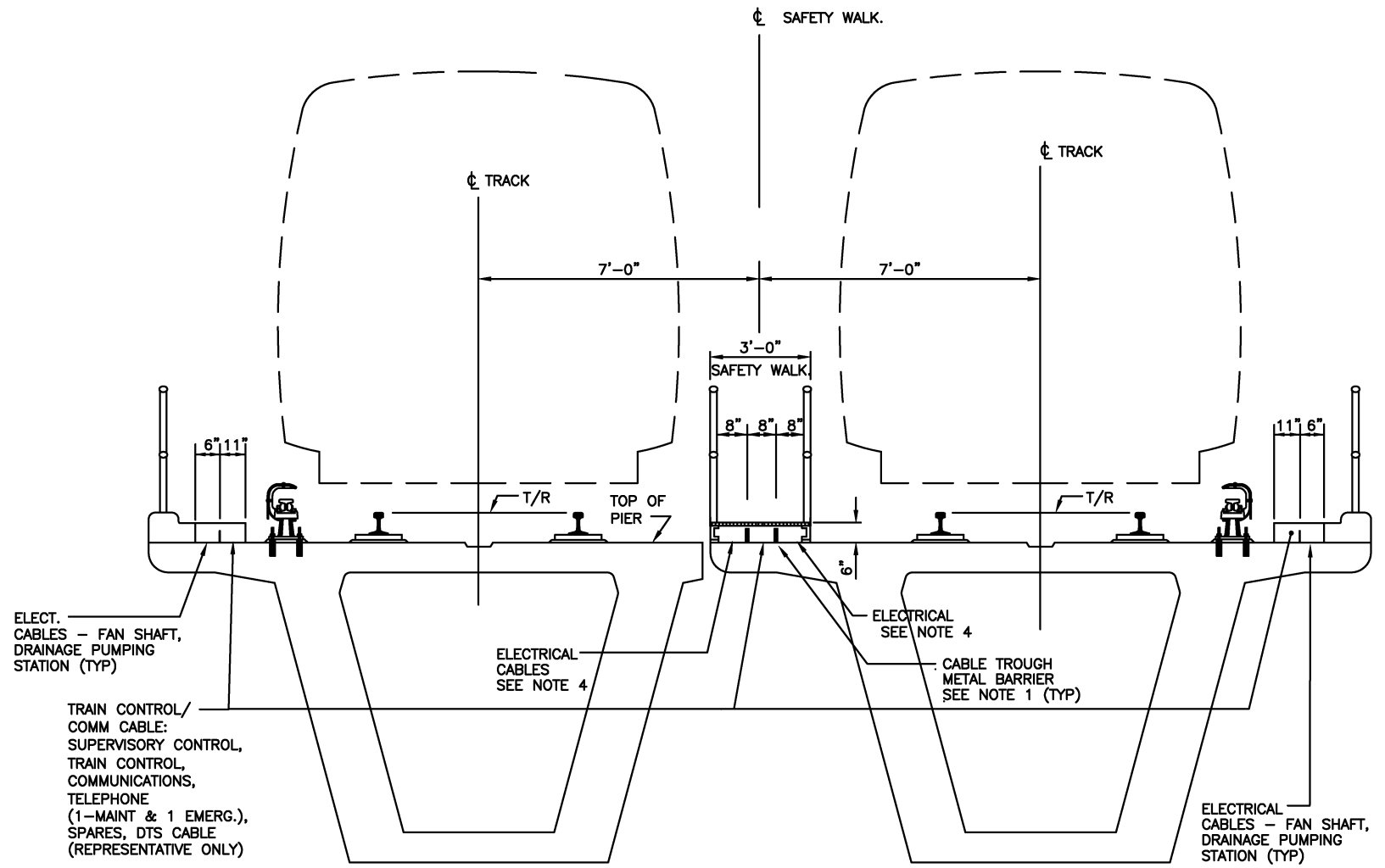
APPROVED DIRECTOR May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
**A.C. POWER SCHEMATIC DIAGRAM**  
**13.8 KV SERVICE**

SCALE NONE DRAWING NO. DD-E-023



CROSS SECTION  
SINGLE TRACK STRUCTURE



CROSS SECTION  
DOUBLE TRACK STRUCTURE

- NOTES:**
1. PROVIDE METAL BARRIER TO SEPARATE POWER CABLES FROM TRAIN CONTROL AND COMMUNICATIONS CABLES.
  2. FOR DETAILS OF SINGLE TRACK STRUCTURE, CABLE, TROUGH, SEE ARCHITECTURAL DWG DD-A-SW-1.
  3. CONTACT RAIL & COVERBOARD ARRANGEMENT IS REPRESENTATIVE ONLY.
  4. TYPICAL ELECTRICAL CABLES: ETS BLUE LIGHT, ETS TRIP CABLE, CONTACT RAIL HEATER POWER & CONTROL CABLES.

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
DESIGNED	W. TINKHAM	1-96		NUMBER		DATE		BY		DESCRIPTION			
DRAWN	L. POWELL	1-96				08/2001	ENGA			Revised and issued by the Authority			
CHECKED	J. KROLIK	1-96											
APPROVED	R. GRANERIVAL	1-96											
UPDATED	R. GRANERIVAL	12-98											

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

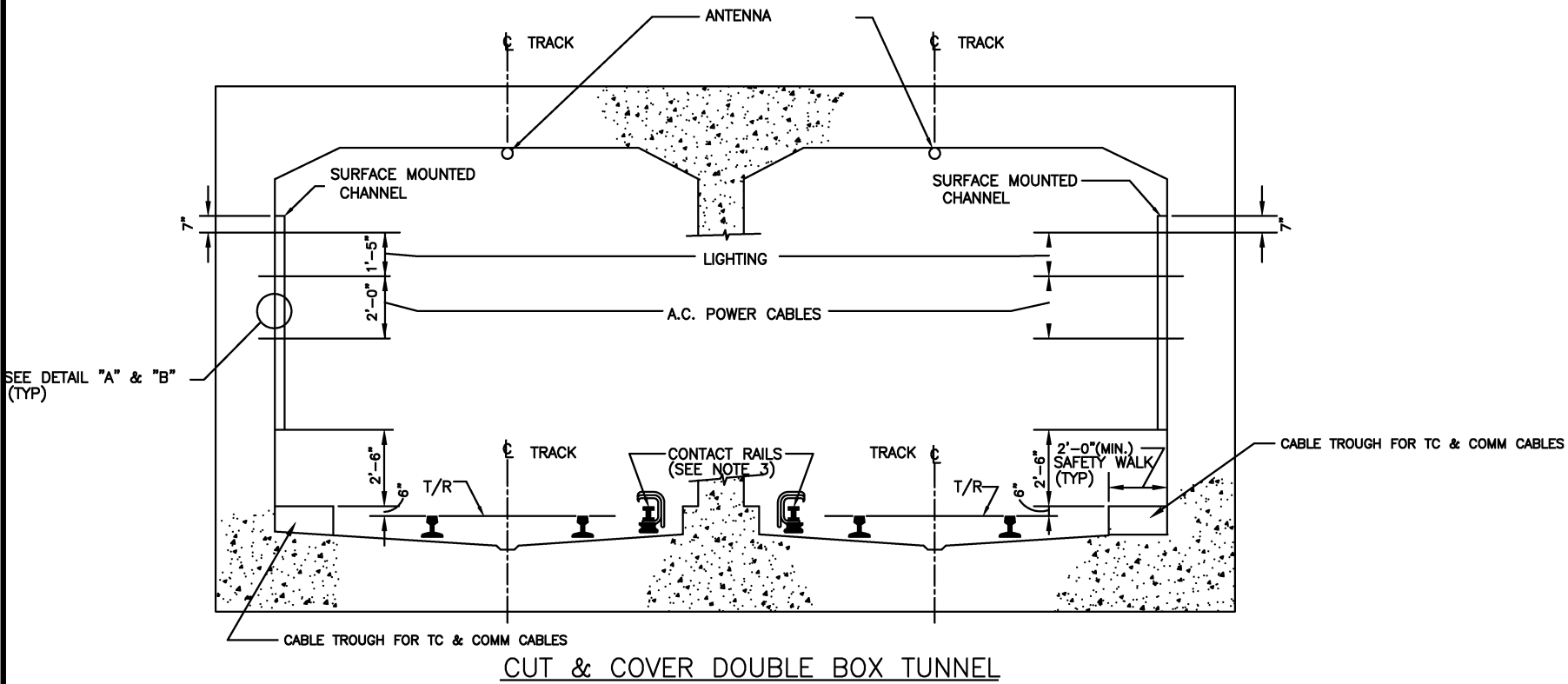
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ELECTRICAL DESIGN DRAWING  
CABLE COORDINATION  
AERIAL STRUCTURES

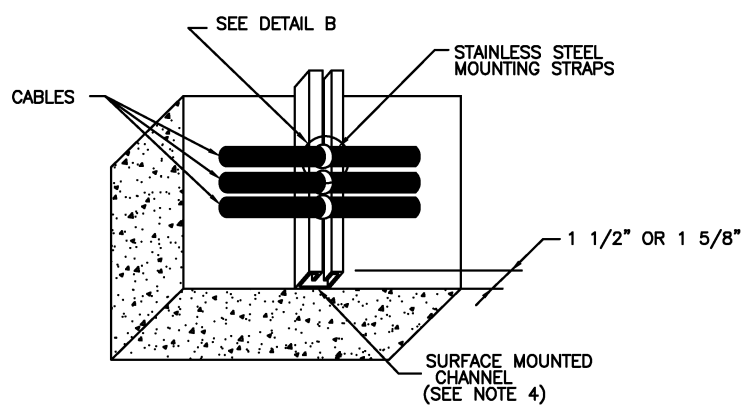
SCALE 1/2" = 1'-0" DRAWING NO. DD-E-025

**NOTES:**

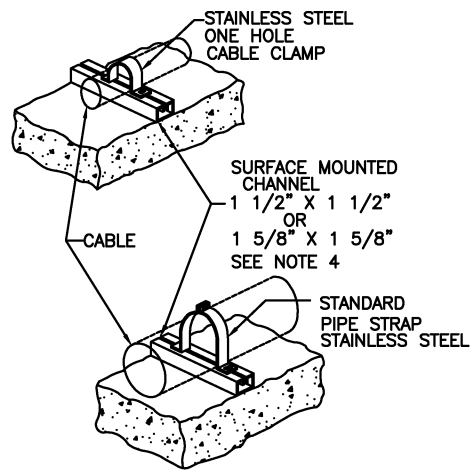
1. CHANNEL SHALL BE SPACED AT 4'-0" INTERVALS UNLESS OTHERWISE SPECIFIED SEE DD-E-47 FOR TRANSITION TO EMBEDDED CONDUITS.
2. NOT USED.
3. CONTACT RAIL & COVERBOARD ASSEMBLY IS SHOWN AS REPRESENTATIVE ONLY.
4. SURFACE MOUNTED CHANNELS SHALL BE MOUNTED USING SELF DRILLING EXPANSION BOLTS 16" ON CENTER MAXIMUM SO AS TO PROVIDE A MINIMUM PULL-OUT LOAD RATING OF 1000 POUNDS PER LINEAR FOOT OF CHANNEL. THE MINIMUM EMBEDMENT OF STAINLESS STEEL EXPANSION BOLTS SHALL BE 3 1/2". BOLT SIZE SHALL BE PER MANUFACTURER'S RECOMMENDATION AND VERIFICATION.



**CUT & COVER DOUBLE BOX TUNNEL**



**DETAIL "A"**  
TYPICAL INSTALLATION  
OF CABLES ON CHANNEL



**DETAIL "B"**  
TYPICAL MOUNTING OF A.C. POWER  
CABLE ON SURFACE MOUNTED CHANNEL  
(SEE NOTE 4)

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
ROBERTSON	3-78			DD-E-036	LIGHTING & RECEPTACLE MOUNTING DETAILS	08/2001	ENGA	Revised and issued by the Authority					
HILLIARD	3-78			DD-E-211	CABLE COORDINATION SIDE PLATFORM STATION SECTION								
PRASAD	4-78			DD-E-213	CABLE COORDINATION EARTH TUNNELS & BOX SECTIONS								
HANSEN	10-78												

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

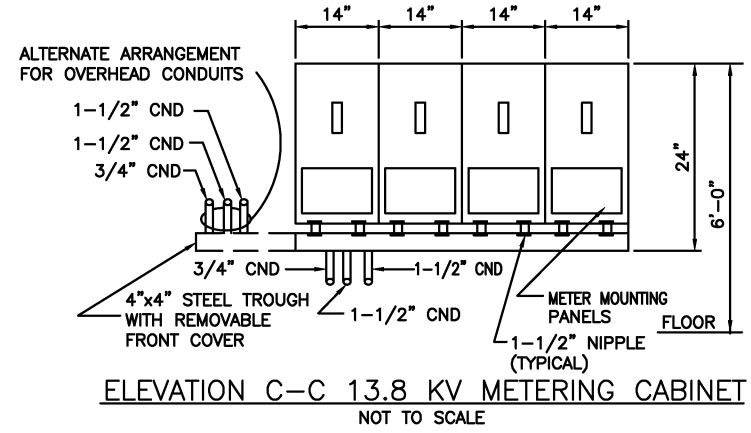
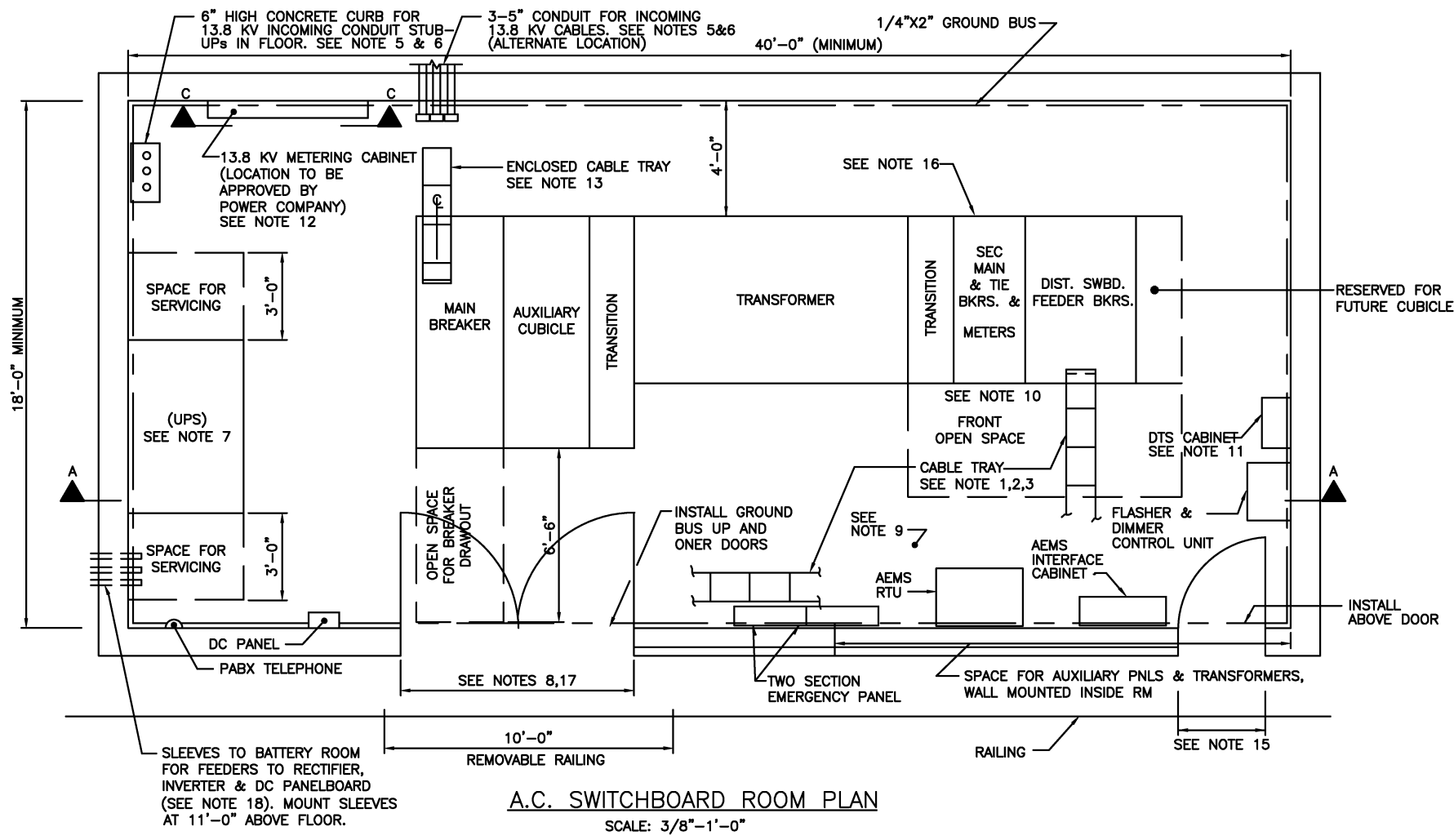
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

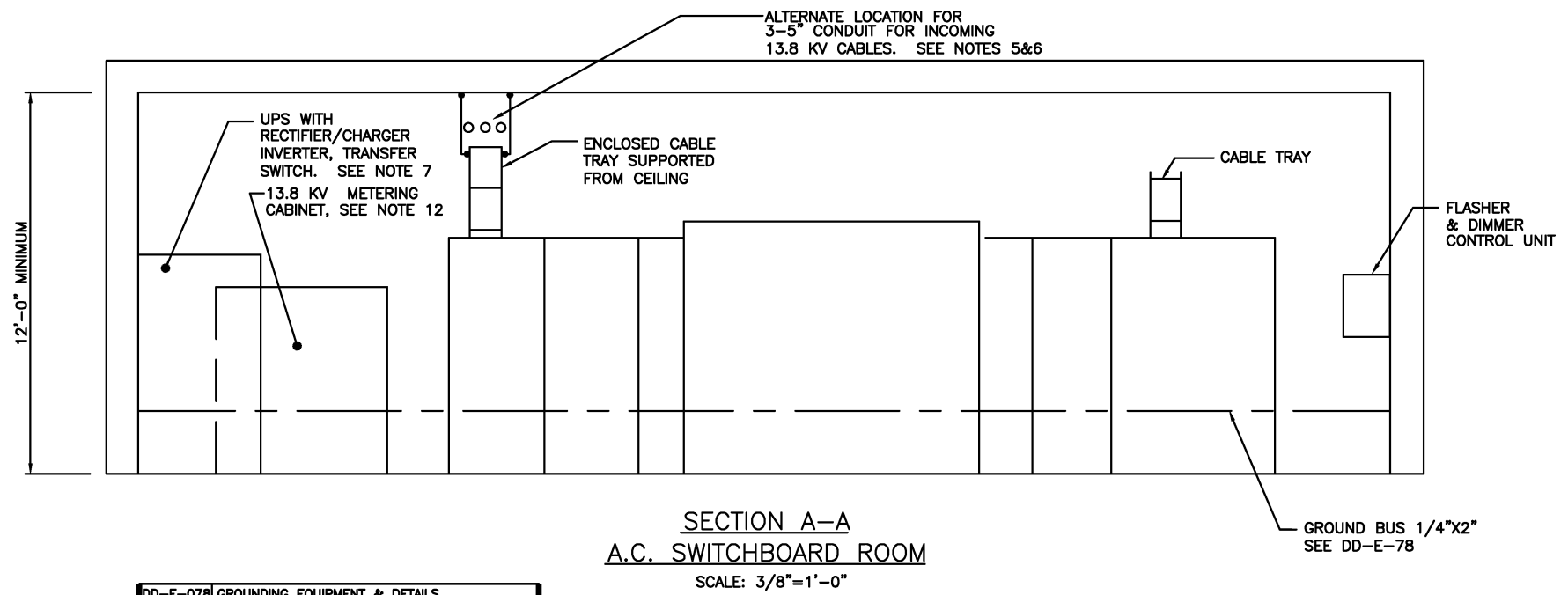
**ELECTRICAL DESIGN DRAWING**  
CABLE MOUNTING REQUIREMENTS  
REINFORCED CONCRETE SECTIONS

SCALE: N.T.S.

DRAWING NO. DD-E-026



- NOTES:**
- INSTALL TIE, FEEDER AND LOAD CABLES IN CABLE TRAYS OR CONDUITS, PROPERLY SUPPORTED, BETWEEN 480V SWITCHGEAR AND AUXILIARY PANELS.
  - CABLES TO THE PASSENGER STATION AND TIE CABLE TO ADJACENT AC SWITCHBOARD ROOM TO BE ROUTED VIA CONDUITS, CABLE TUNNEL OR RETURN AIR PLENUM. SEE NOTE 4.
  - PROVIDE TRANSITION JUNCTION BOX FOR TRANSITION OF SINGLE CONDUCTOR CABLE IN CONDUIT TO MULTIPLE CONDUCTOR CABLE (MOUNTED ON CHANNEL INSERTS)
  - QUANTITY, SIZE AND ROUTING OF CONDUITS AND ASSOCIATED CABLES TO BE DEVELOPED.
  - LOCATION AND DESIGN OF INCOMING 13.8KV SERVICE TO BE COORDINATED WITH THE POWER COMPANY. PROVIDE CABLE PULLING EYE, DESIGNED FOR PULLING TENSION OF 5000 POUNDS, AT SUITABLE LOCATION FOR 13.8 KV INCOMING SERVICE. FOR CABLE PULLING EYE DETAIL (SEE DD-E-62).
  - WHERE NECESSARY PROVIDE CONDUIT AND CABLE SEAL FITTING TO PREVENT WATER SEEPAGE FROM POWER COMPANY MANHOLE AND DUCT BANKS.
  - SOME UNITS NOT REQUIRING BACK ACCESS CAN BE INSTALLED AGAINST THE WALL KEEPING ADEQUATE CLEARANCE IN FRONT FOR DOOR OPENING. USUALLY RECTIFIER CHARGER, INVERTER AND TRANSFER SWITCH ARE FURNISHED AS A PACKAGE.
  - DOUBLE DOORS TO BE 9'-6" HIGH X 8'-0" WIDE MINIMUM.
  - FLOOR TO BE LEVELED TO 1/8" IN 10' TOLERANCE. FINISH FLOOR TO BE LEVEL WITH NORMAL SAFETY WALK ELEVATION.
  - SEE DRAWING DD-E-79 FOR LOW VOLTAGE SWITCHGEAR LAYOUT.
  - CONDUIT AND CABLE FROM EQUIPMENT TO BE MONITORED (AS PER DD-E-23) TO DTS CABINET, FROM SWITCHGEAR TO DC PANEL AND AC PANEL (SERVING SPACE HEATER), INVERTER TO EMERGENCY PANEL BOARD, ETC. SHALL BE SHOWN.
  - PROVIDE SPACE AND CONDUITS FOR ONE 13.8 KV METERING PANEL PER STATION AS INDICATED IN FRONT ELEVATION C-C. KEEP 4'-0" CLEARANCE IN FRONT. CONDUITS USED AS FOLLOWS:
    - 3/4" CONDUIT & CABLE FOR 120 VOLT, 15 AMP CIRCUIT FROM A.C. POWER PANEL FOR DEMAND METER.
    - 1 1/2" CONDUIT & DRAG WIRE FOR POWER COMPANY METERING TIE CABLE BETWEEN TWO SWITCHBOARD ROOMS.
    - 1 1/2" CONDUIT FOR METERING CABLE FROM 13.8KV SWITCHGEAR.
    - METERING PANEL FURNISHED BY POWER COMPANY AND INSTALLED BY CONTRACTOR. STEEL TROUGH AND RIGID STEEL CONDUIT BETWEEN TROUGH AND METER MOUNTING PANELS FURNISHED AND INSTALLED BY CONTRACTOR. POWER COMPANY SHALL FURNISH & INSTALL THE METERING WIRES FROM BOTH THE 13.8KV SWITCHGEARS.
  - FOR 13.8 KV INCOMING SERVICE CABLE PROVIDE 12' WIDE X 4' DEEP CABLE TRAY.
  - PROVIDE FOR VENTILATION IN AC SWITCHBOARD ROOM IN ACCORDANCE WITH DESIGN CRITERIA AND THE FOLLOWING REQUIREMENTS.
    - COORDINATE LOCATION AND ROUTING OF VENTILATING DUCTS, EXHAUST DAMPER, AIR INLET, ETC. WITH MECHANICAL DRAWINGS.
    - AVOID INSTALLATION OF VENTILATING DUCT ABOVE MAJOR ELECTRICAL EQUIPMENT (SWITCHGEAR, TRANSFORMER, RECTIFIER-CHARGER INVERTER) AND TO AVOID INTERFERENCE WITH LIGHTING FIXTURES. COORDINATE DUCT WORK LAYOUT WITH EQUIPMENT LAYOUT AND LIGHTING PLAN.
  - SINGLE DOOR TO BE 7'-2" HIGH X 3'-0" WIDE MINIMUM.
  - PROVIDE 2" CONDUIT AND CONTROL CABLE (AS RECOMMENDED BY MANUFACTURER) BETWEEN TIE BREAKERS AT EACH END OF THE STATION.
  - COORDINATE SHIPPING SIZE OF EQUIPMENT WITH SIZE OF DOOR AND EQUIPMENT HATCH TO AVOID ACCESS PROBLEM.
  - LOCATE BATTERY ROOM ADJACENT TO A.C. SWITCHBOARD ROOM. FOR BATTERY ROOM LAYOUT SEE DWG DD-E-94.



NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DD-E-023	AC POWER SCHEM DIAG 13.8KV PEPCO SERVICE	08/2001	ENGA	Revised and issued by the Authority
DD-E-076	FLASHER DIMMER CONTROL			
DD-E-081	CNDT & CABLE SEALS FOR DUCT PENETRATION			
DD-E-079	480V SWGR SCHEDULE FORMAT			
DD-TC-033	TYP. TRAIN CONTROL RISER DIAGRAM			
DD-E-082	EMERGENCY POWER SYSTEM			
DD-A-SC-009	DOOR SCHEDULE, ELEVATIONS & DETAILS			

NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DD-E-023	AC POWER SCHEM DIAG 13.8KV PEPCO SERVICE	08/2001	ENGA	Revised and issued by the Authority
DD-E-076	FLASHER DIMMER CONTROL			
DD-E-081	CNDT & CABLE SEALS FOR DUCT PENETRATION			
DD-E-079	480V SWGR SCHEDULE FORMAT			
DD-TC-033	TYP. TRAIN CONTROL RISER DIAGRAM			
DD-E-082	EMERGENCY POWER SYSTEM			
DD-A-SC-009	DOOR SCHEDULE, ELEVATIONS & DETAILS			

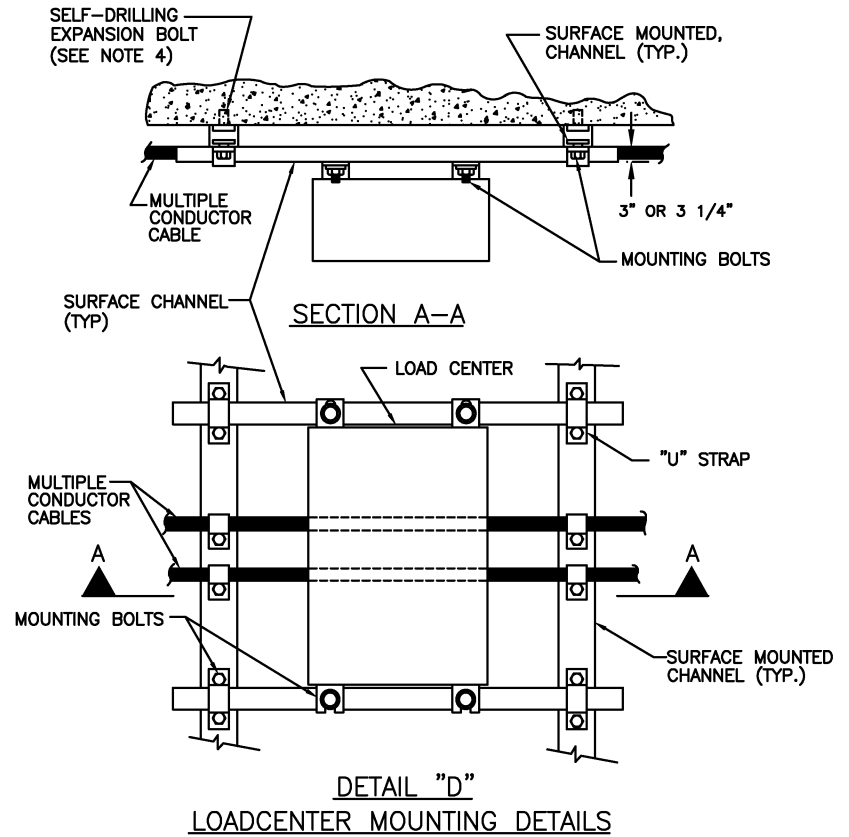
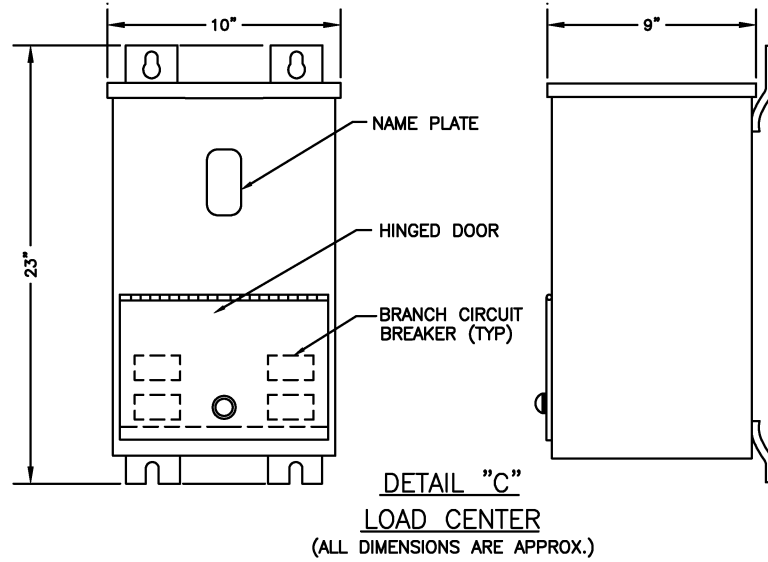
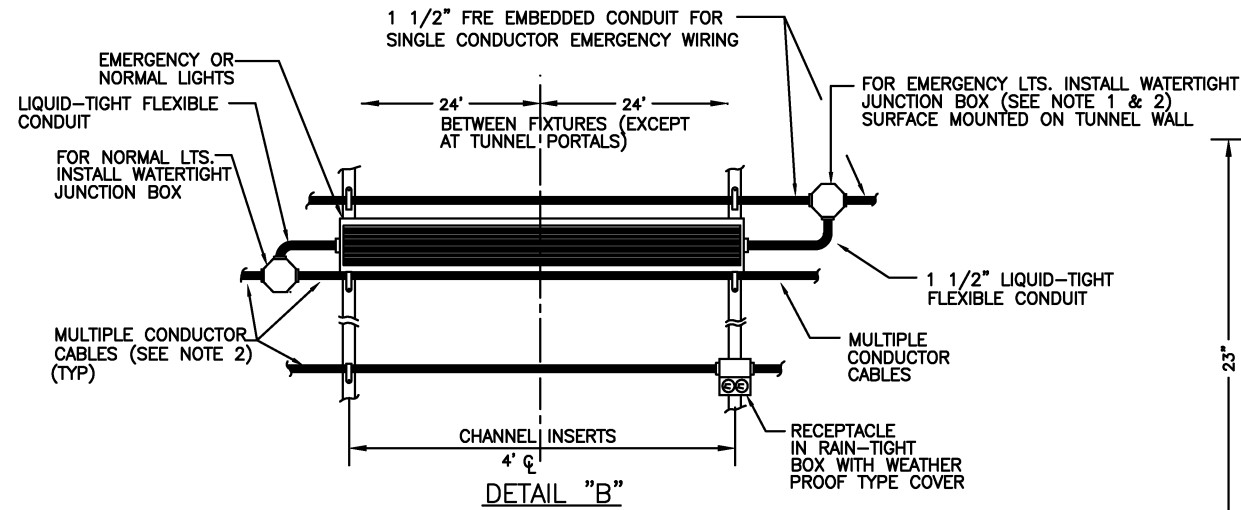
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
 TYPICAL 13.8KV A.C. SWITCHBOARD ROOM  
 AT PASSENGER STATION

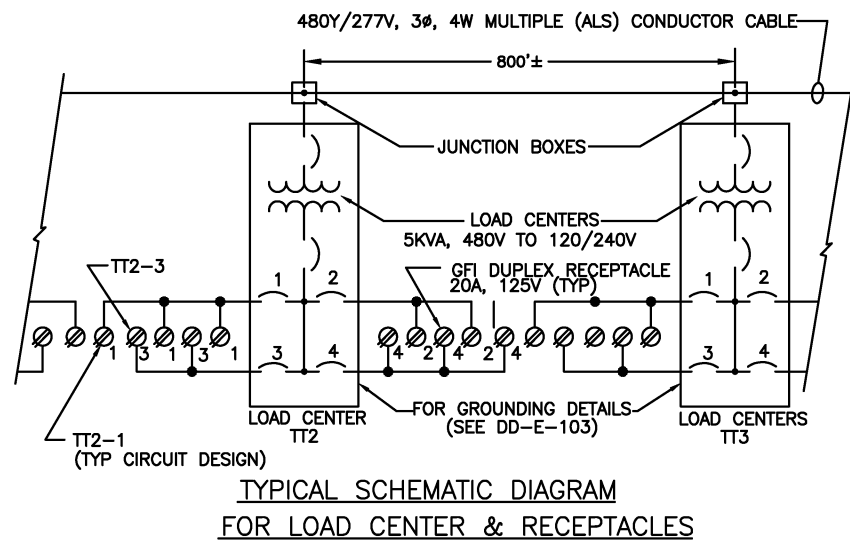
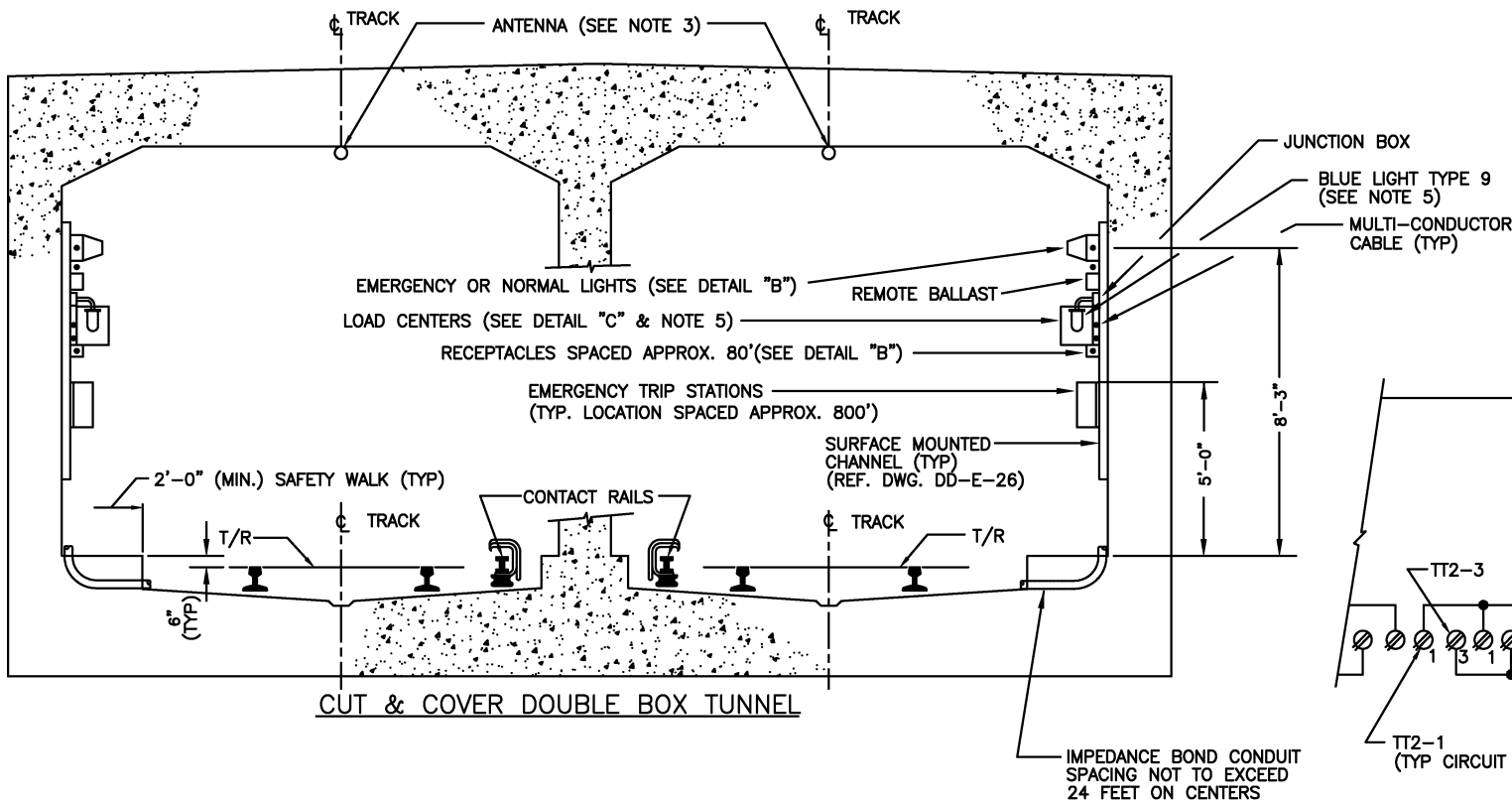
SCALE 3/8" = 1'-0" DRAWING NO. DD-E-033

DESIGNED	M. MELENDEZ	8-76
DRAWN	C. MANN	8-76
CHECKED	J. PRASAD	12-76
APPROVED	T. HANSEN	3-77
UPDATED	R. GANERWAL	6-98



NOTES:

1. FOR TUNNEL LIGHTING EVERY FOURTH FIXTURE SHALL BE CONNECTED TO THE EMERGENCY CIRCUIT. PROVIDE A PIGTAIL IN JUNCTION BOX FOR CONNECTION TO TYPE 9 ETS BLUE LIGHTS.
2. CONDUIT AND MULTIPLE CONDUCTOR CABLE ENTRIES INTO BOXES SHALL BE VIA THREADED CONDUIT ENTRANCE HUB OR WATERTIGHT ALUMINUM TERMINAL FITTINGS.
3. ANTENNA TO BE PROVIDED IN COMMUNICATIONS CONTRACT.
4. EXPANSION BOLT 16" ON CENTER MAXIMUM SO AS TO PROVIDE A MINIMUM PULL-OUT LOAD RATING OF 1000 POUNDS PER LINEAR FOOT OF CHANNEL. THE MINIMUM EMBEDMENT OF EXPANSION BOLTS SHALL BE 3 1/2". BOLT SIZE SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND CERTIFICATION.
5. MOUNT LOAD CENTERS LOWER THAN BLUE LIGHTS SO LOAD CENTERS WILL NOT OBSCURE THE BLUE LIGHTS.



REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DD-E-026	CABLE MOUNTING REQUIREMENTS	08/2001	ENGA	Revised and issued by the Authority
DD-E-076	GROUNDING & EQUIPMENT DETAILS			

DESIGNED	ROBERTSON	3-78	DATE
DRAWN	HILLIARD	3-78	DATE
CHECKED	PRASAD	4-78	DATE
APPROVED	J. HANSEN	10-78	DATE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED  
DIRECTOR

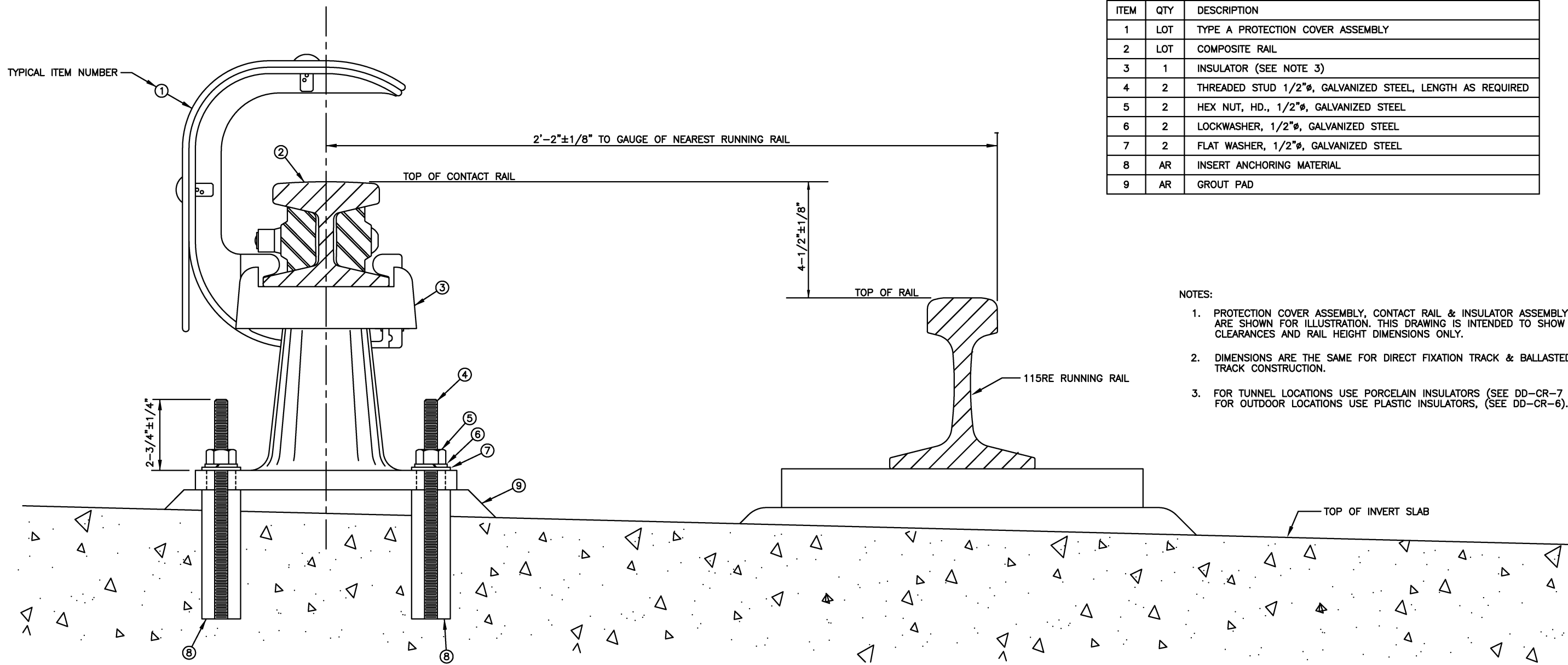
May 3, 2001  
DATE

SCALE  
N.T.S.

DRAWING NO.

DD-E-036

ELECTRICAL DESIGN DRAWING  
LIGHTING & RECEPTACLES MOUNTING DETAILS  
FOR DOUBLE-TRACK TUNNEL



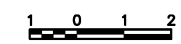
**BILL OF MATERIAL**

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

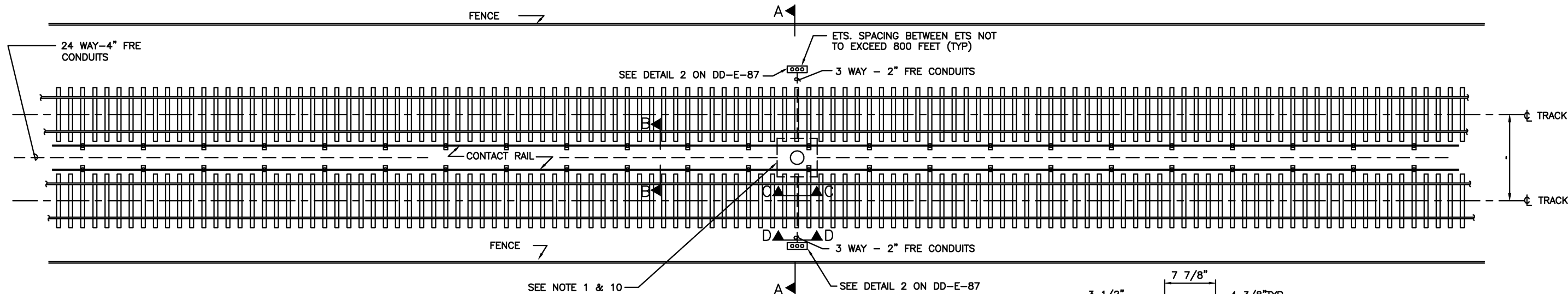
**NOTES:**

1. PROTECTION COVER ASSEMBLY, CONTACT RAIL & INSULATOR ASSEMBLY ARE SHOWN FOR ILLUSTRATION. THIS DRAWING IS INTENDED TO SHOW CLEARANCES AND RAIL HEIGHT DIMENSIONS ONLY.
2. DIMENSIONS ARE THE SAME FOR DIRECT FIXATION TRACK & BALLASTED TRACK CONSTRUCTION.
3. FOR TUNNEL LOCATIONS USE PORCELAIN INSULATORS (SEE DD-CR-7 & 8), FOR OUTDOOR LOCATIONS USE PLASTIC INSULATORS, (SEE DD-CR-6).

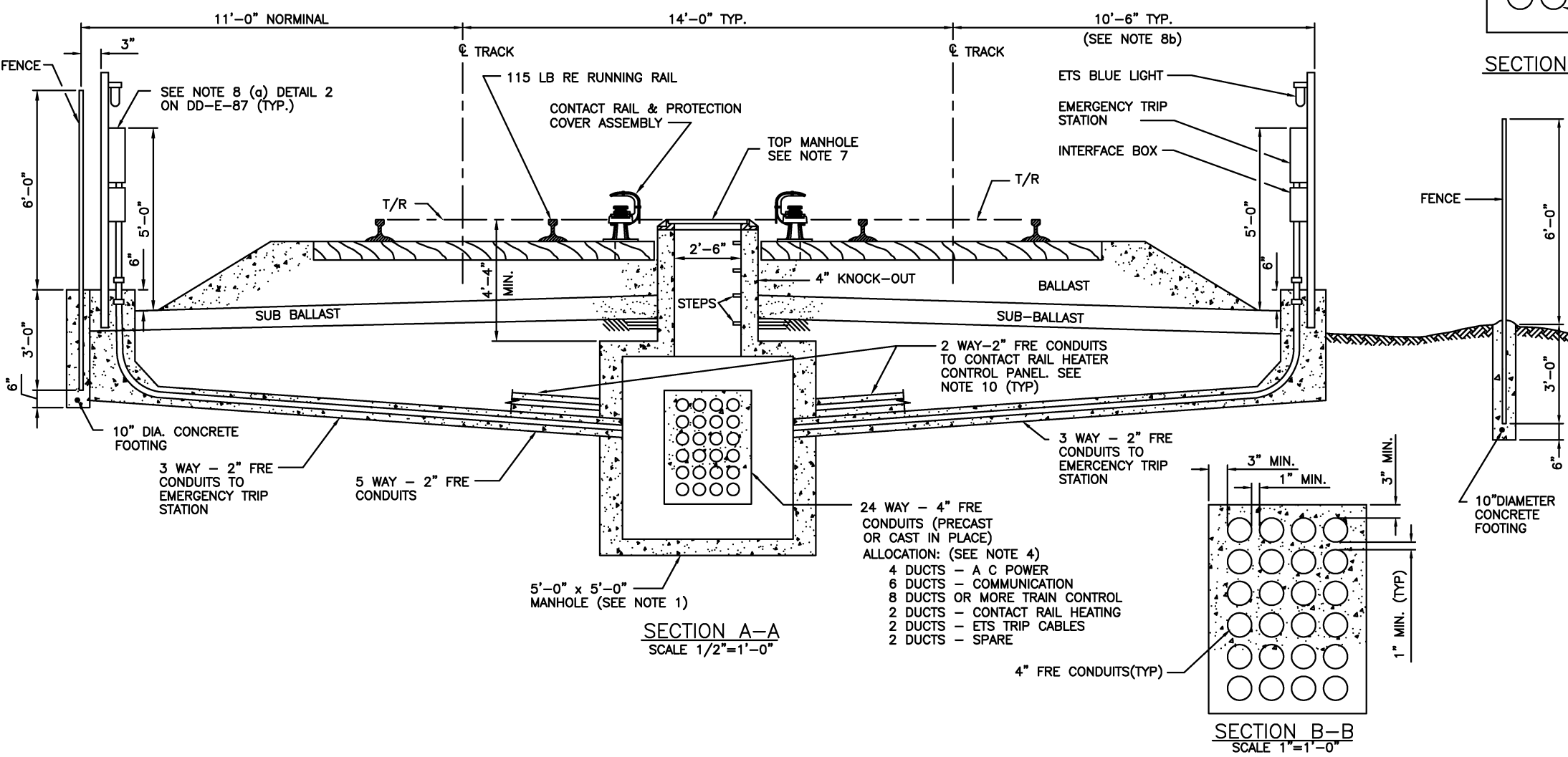
**CONTACT RAIL MOUNTING ARRANGEMENT  
FOR DIRECT FIXATION**



DESIGNED <u>W. TINKHAM</u> 1-97 DATE DRAWN <u>W. MASSEY</u> 1-97 DATE CHECKED <u>J. KROLIK</u> 1-97 DATE APPROVED _____ 1-97 DATE	<b>REFERENCE DRAWINGS</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>DD-A-SS-001</td> <td>ARCH. FLOOR PLAN ELEV. TYPE A</td> <td>08/2001</td> <td>ENGA</td> </tr> <tr> <td>DD-A-SS-002</td> <td>ARCH. FLOOR PLAN ELEV. TYPE B</td> <td></td> <td></td> </tr> <tr> <td>DD-A-SS-003</td> <td>ARCH. WALLS &amp; DETAILS</td> <td></td> <td></td> </tr> <tr> <td>DD-A-SS-004</td> <td>ARCH. WALL SECTIONS &amp; DETAILS</td> <td></td> <td></td> </tr> <tr> <td>DD-A-SS-005</td> <td>ARCH. WALL SECTIONS &amp; DETAILS</td> <td></td> <td></td> </tr> <tr> <td>DD-S-1520100</td> <td>STRUCTURAL SUBSTATION DWGS</td> <td></td> <td></td> </tr> <tr> <td>DD-M-148</td> <td>MECHANICAL SUBSTATION DWGS</td> <td></td> <td></td> </tr> </tbody> </table>	NUMBER	DESCRIPTION	DATE	BY	DD-A-SS-001	ARCH. FLOOR PLAN ELEV. TYPE A	08/2001	ENGA	DD-A-SS-002	ARCH. FLOOR PLAN ELEV. TYPE B			DD-A-SS-003	ARCH. WALLS & DETAILS			DD-A-SS-004	ARCH. WALL SECTIONS & DETAILS			DD-A-SS-005	ARCH. WALL SECTIONS & DETAILS			DD-S-1520100	STRUCTURAL SUBSTATION DWGS			DD-M-148	MECHANICAL SUBSTATION DWGS			<b>REVISIONS</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>08/2001</td> <td>ENGA</td> <td>Revised and issued by the Authority</td> </tr> </tbody> </table>	DATE	BY	DESCRIPTION	08/2001	ENGA	Revised and issued by the Authority	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE SUBMITTED _____ DATE _____ APPROVED <i>[Signature]</i> DIRECTOR May 3, 2001 DATE	<b>ELECTRICAL DESIGN DRAWING</b> CONTACT RAIL & PROTECTION COVER ASSEMBLY SCALE 1/2" = 1'-0" DRAWING NO. DD-E-040
NUMBER	DESCRIPTION	DATE	BY																																							
DD-A-SS-001	ARCH. FLOOR PLAN ELEV. TYPE A	08/2001	ENGA																																							
DD-A-SS-002	ARCH. FLOOR PLAN ELEV. TYPE B																																									
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DD-S-1520100	STRUCTURAL SUBSTATION DWGS																																									
DD-M-148	MECHANICAL SUBSTATION DWGS																																									
DATE	BY	DESCRIPTION																																								
08/2001	ENGA	Revised and issued by the Authority																																								



PLAN VIEW



SECTION A-A  
SCALE 1/2"=1'-0"

SECTION B-B  
SCALE 1"=1'-0"

SECTION C-C

SECTION D-D

NOTE:

1. LOCATE MANHOLES WITH CENTERS AT A MAXIMUM OF 400 FEET, AND 50 FEET FROM THE NEAREST POINT OF SWITCH.
2. AT EACH ON GRADE PASSENGER STATION TERMINATE 4-4" CONDUITS IN THE AC SWITCHBOARD ROOM, 8 OR MORE 4" CONDUITS IN THE COMMUNICATION ROOM AND TRAIN CONTROL ROOM AS DIRECTED BY THE AUTHORITY.
3. IN EACH SUBSTATION AND TIE BREAKER STATION TERMINATE THE FOLLOWING CONDUITS FROM THE DUCTBANK.
  - (a) FOR TRAIN CONTROL AND COMMUNICATION AS PER REQUIREMENTS OF DD-TC-37.
  - (b) FOR EMERGENCY TRIP STATION AS REQUIRED PER DD-E-87.
  - (c) 4-2" CONDUIT FOR AC POWER CABLE.
  - (d) 2-4"C FOR CONTACT RAIL HEATERS (1-4"C FOR POWER AND 1-4"C FOR CONTROL)
4. NUMBER OF CONDUIT SHOWN IN SECTION B-B IS TYPICAL AND SHALL BE MODIFIED AS DIRECTED BY THE AUTHORITY.
5. IN EACH FENCE PROVIDE SLIDING GATE AT 800 FOOT INTERVALS TO COINCIDE WITH THE LOCATION OF EMERGENCY TRIP STATION AS SHOWN ON ST-U-34.
6. IN EACH MANHOLE PROVIDE CABLE EYE DESIGNED FOR PULLING TENSION OF 5000 POUNDS, AT SUITABLE LOCATION. FOR CABLE PULLING EYE DETAIL SEE DD-E-62.
7. (a) FOR 14'-0" TRACK CENTERS, ELEVATION OF THE TOP OF THE MANHOLE SHALL BE SAME AS THAT OF TOP OF THE ADJACENT RUNNING RAIL.
  - (b) FOR TRACK CENTERS GREATER THAN 14'-0", TOP OF THE MANHOLE SHALL BE 1'-0" OR MORE ABOVE GRADE/BALLAST SO AS TO PREVENT ENTRANCE OF RAIN WATER FROM ADJACENT AREA INTO THE MANHOLE.
8. (a) FOR SECTION WITH FENCE LOCATED AT NOMINAL OF 11'-0" FROM CENTER OF ADJACENT TRACK, LOCATE EMERGENCY TRIP STATION WITH CLEARANCE FROM THE FENCE, AS SHOWN.
  - (b) FOR SECTION WITH FENCE LOCATED AT A DISTANCE GREATER THAN NOMINAL OF 11'-0", LOCATE EMERGENCY TRIP STATION AT 10'-6" FROM CENTER LINE OF THE TRACK AS SHOWN.
9. SEE DD-TC-44 FOR ADDITIONAL TRAIN CONTROL CONDUIT REQUIREMENTS AT MANHOLES.
10. SEE DD-E-92 FOR ADDITIONAL CONTACT RAIL HEATER CONTROL PANEL REQUIREMENTS AT MANHOLES.

DESIGNED		DATE		3-89	
DRAWN		DATE		3-89	
CHECKED		DATE		3-89	
APPROVED		DATE		4-89	
E. LEVINE		3-89		3-89	
E. LEVINE		3-89		3-89	
W. PREECE		3-89		3-89	
K. KNIGHT		4-89		4-89	

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
ST-TC-037	TRAIN CONTROL CONDUIT RISER DIAGRAM FOR REMOTE FACILITIES	08/2001	Revised and issued by the Authority
ST-TC-041	TRAIN CONTROL CONDUIT AT-GRADE		
DD-M-151	DRAIN DETAILS & CASTING SHT. 3		
DD-E-078	GROUNDING EQUIPMENT DETAILS/EMERGENCY TRIP STATION INTERFACE BOX		
DD-E-087	EMERGENCY TRIP STATION MOUNTING DETAILS AND WIRING LAYOUT		

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

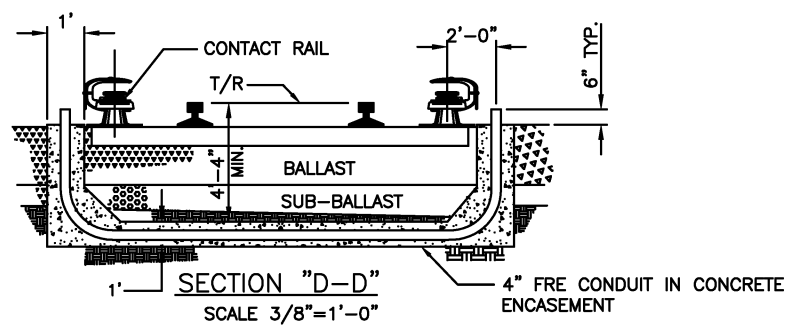
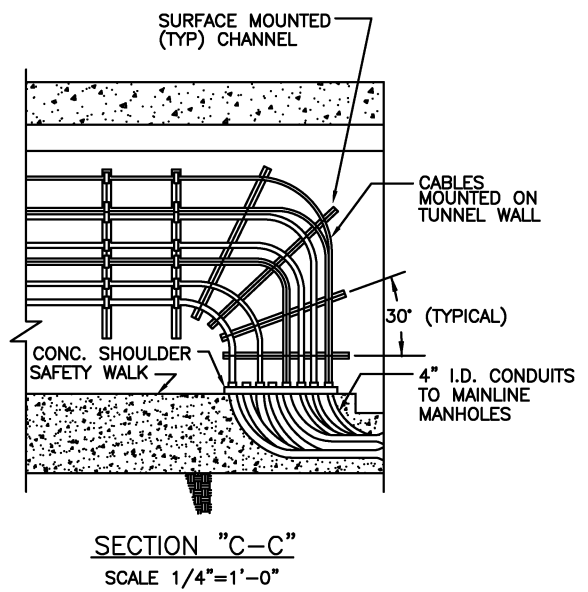
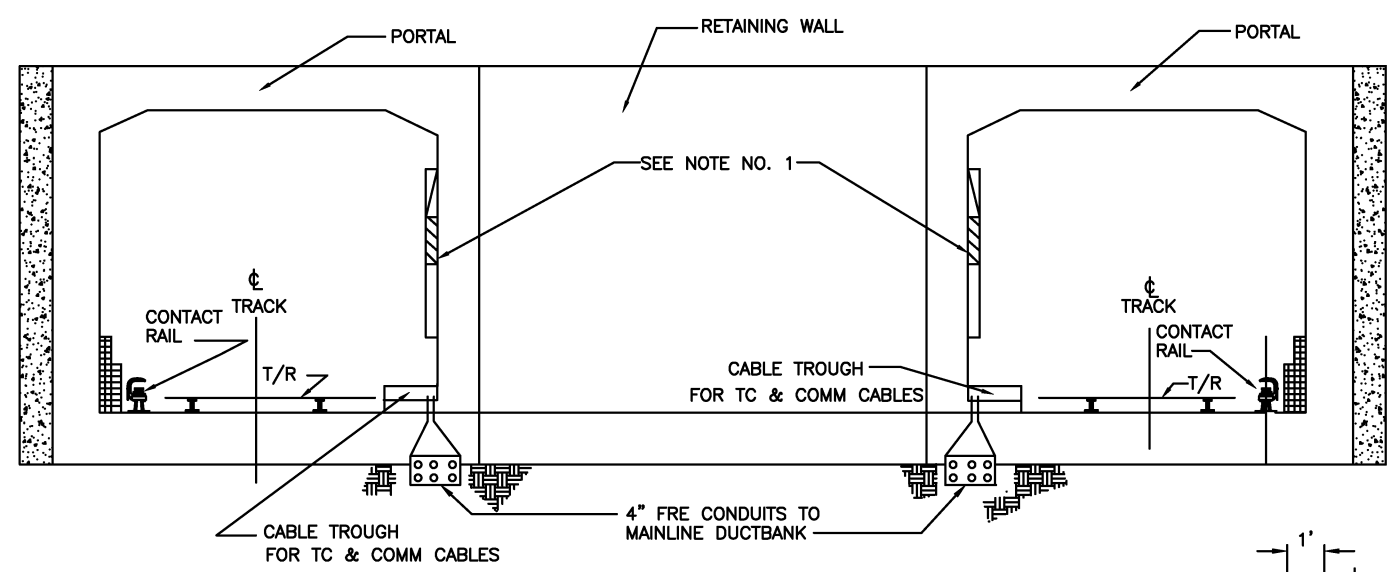
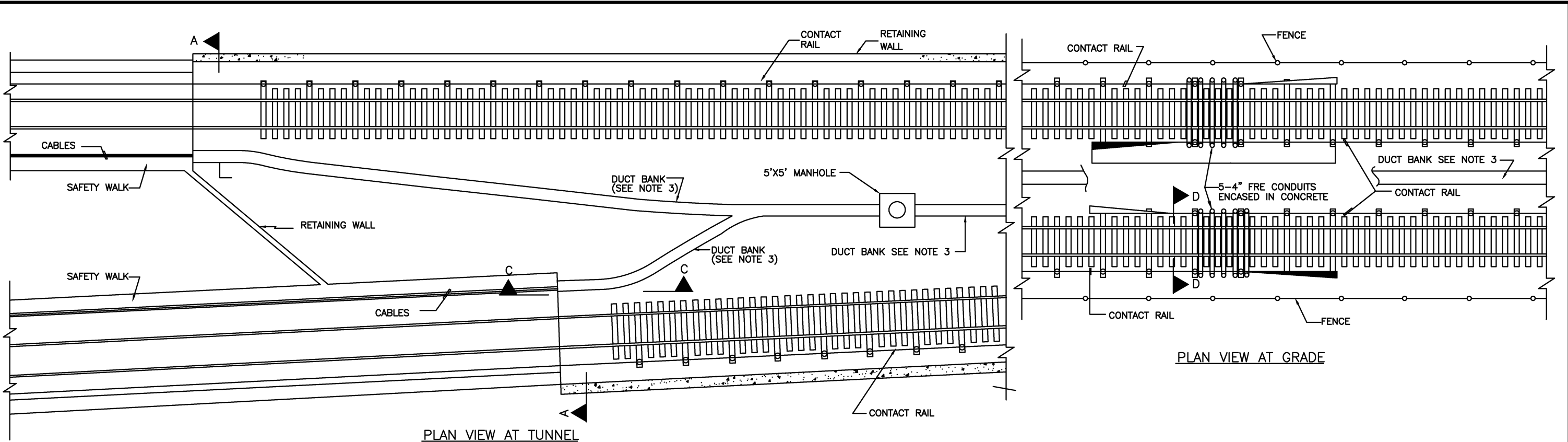
APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
CABLE AND CONTACT RAIL LOCATION  
AT-GRADE

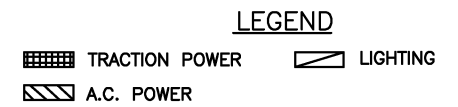
SCALE 1/8" = 1'-0"

DRAWING NO. DD-E-046





- NOTES**
1. SYMBOLS INDICATE SPACE ALLOCATED FOR PARTICULAR CABLE AND/OR DEVICES.
  2. NOT USED.
  3. PROVIDE 4" I.D. FRE CONDUITS FOR TRAIN CONTROL, COMMUNICATION A.C. POWER, 3RD RAIL HEATER POWER, 3RD RAIL HEATER CONTROL, ETS BLUE LIGHT AND ETS TRIP CABLES.



DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	
DD-E-046	CABLE & CONTACT RAIL LOCATION AT GRADE	08/2001	ENGA	Revised and issued by the Authority				

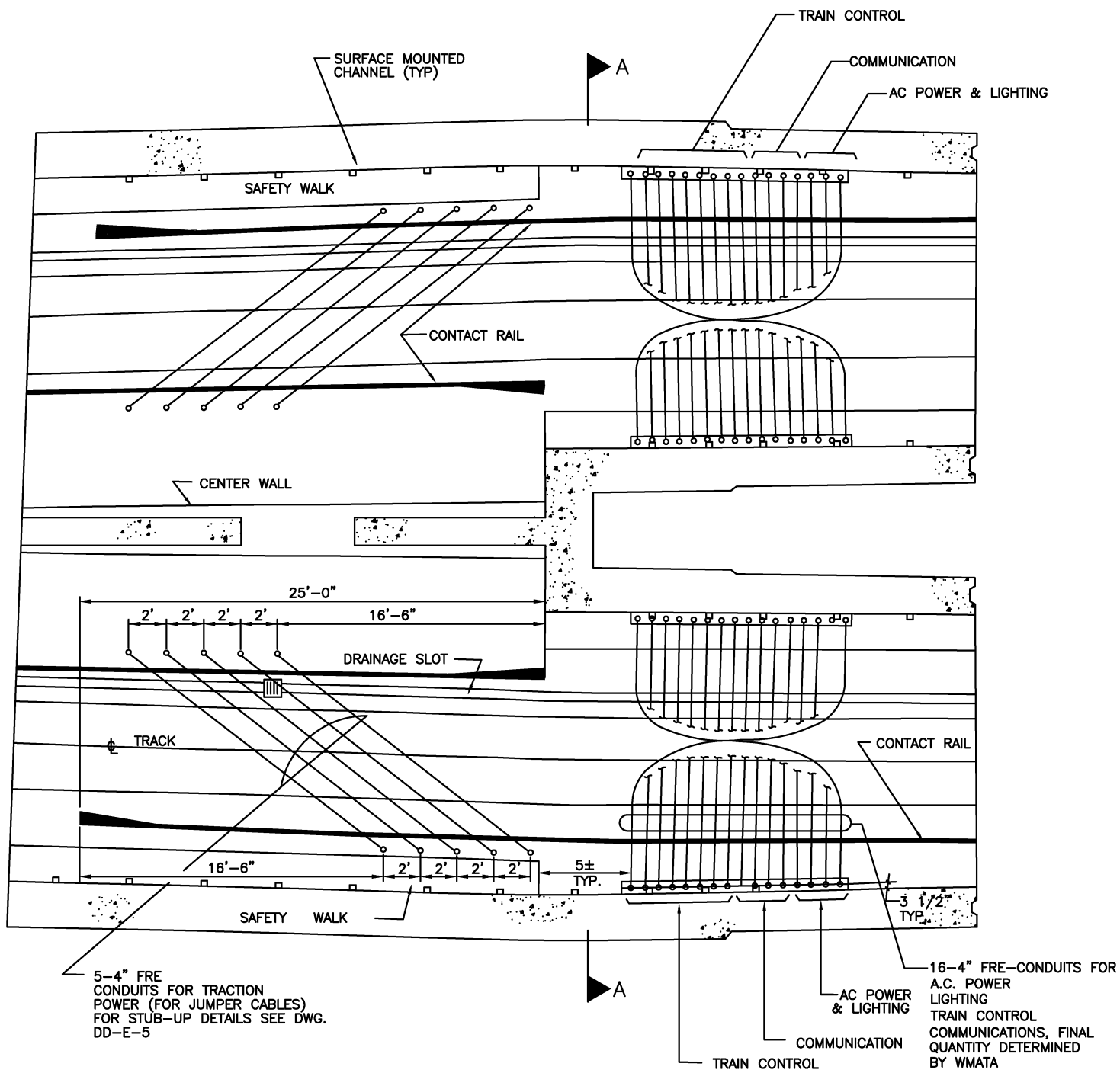
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

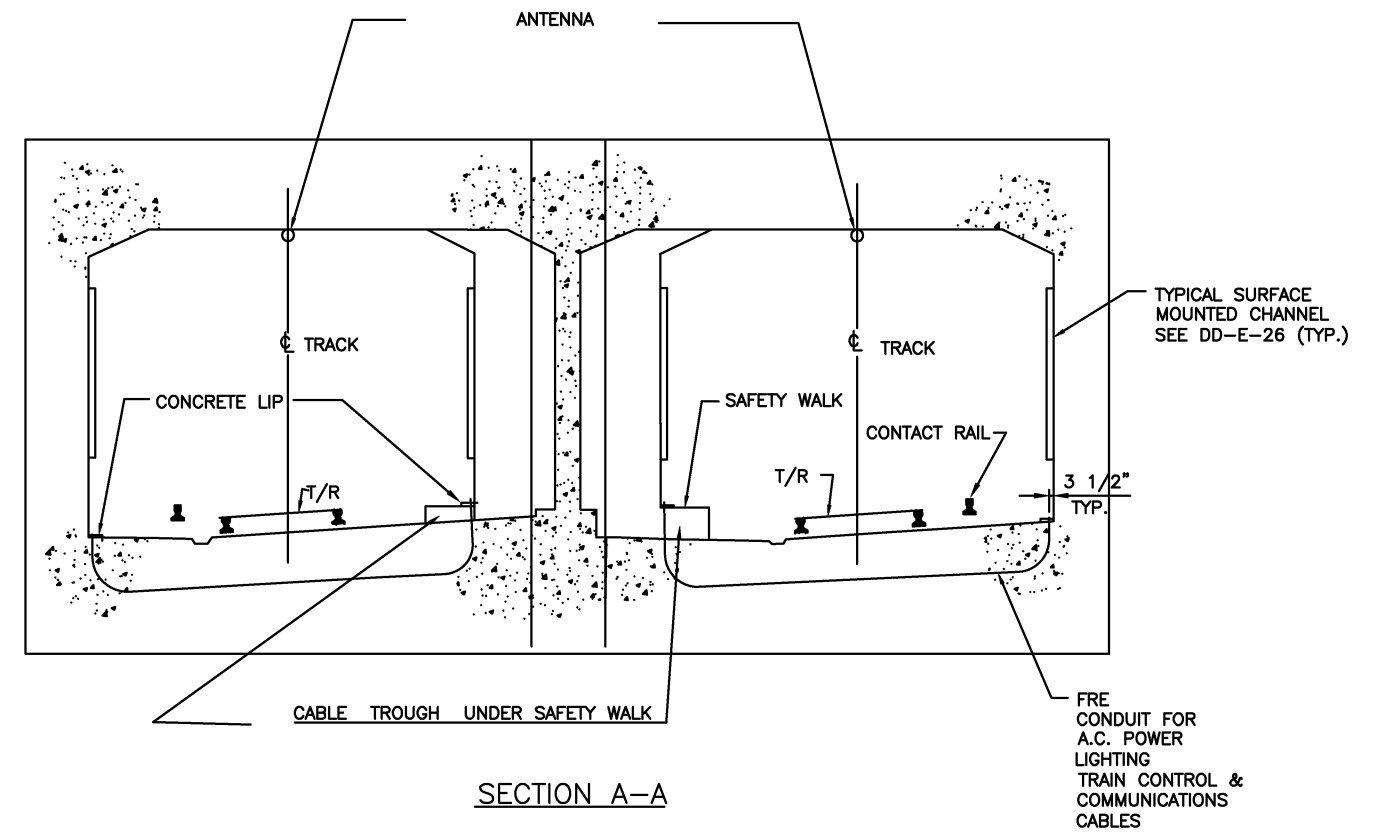
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
CABLE AND CONTACT RAIL LOCATION  
TUNNEL TO GRADE

SCALE 1/8"=1'-0" OR AS NOTED DRAWING NO. DD-E-047



PLAN VIEW



SECTION A-A

NOTES:

1. TRACKS SHOWN AT SUPER ELEVATED POSITION ARE FOR PICTORIAL REPRESENTATION ONLY.
2. TYPES OF STRUCTURES ARE SHOWN AS REPRESENTATIVE ONLY.
3. NOT USED.
4. CONDUIT QUANTITIES MAY VARY ACCORDING TO THE CONTRACT DESIGN REQUIREMENTS.
5. FOR TYPICAL ARRANGEMENT OF CHANNELS FOR MOUNTING CABLES IN TRANSITION, SEE SECTION C-C ON DWG. DD-E-47.

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
E. LEVINE		5-89		DD-E-005		TRACTION POWER CONTACT RAIL AND CONDUIT LOCATION-LINE SECTIONS		08/2001		ENGA		Revised and issued by the Authority	
DRAWN		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
E. LEVINE		5-89											
CHECKED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
W. PREECE		5-89											
APPROVED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
R. O'NEIL		8-89											

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ELECTRICAL DESIGN DRAWING  
 BURIED CONDUITS FOR CABLE TRANSFER  
 AND CONTACT RAIL TRANSITION JUMPERS

SCALE: N.T.S.  
 DRAWING NO. DD-E-048

LOAD CENTER: TLC1  
TRANSFORMER SIZE: 5 KVA  
RATING: 480 - 240/120 VOLT

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	FRAME	TRIP	AIC	
RECEPTACLES	.5			100	20	10,000	1
RECEPTACLES		.5		100	20	10,000	3
SUB-TOTAL							
.5			.5				

LOCATION DUTBOUND TUNNEL STATION 350+22  
PRIMARY BREAKER: 20 A, 480V 14,000 AIC  
SECONDARY BREAKER: 25 A, 240 V, 10,000 AIC

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	FRAME	TRIP	AIC	
RECEIPIACLES	.5			100	20	10,000	2
RECEIPIACLES		.5		100	20	10,000	4
SUB-TOTAL							
.5			.5				

CONNECTED LOAD: A $\phi$  1.0 KVA=2.5 AMPS  
C $\phi$  1.0 KVA=2.5 AMPS  
2.0 KVA

ESTIMATED DEMAND: 2.0 KVA @ 100% DF = 2.0 KVA

PANEL NO: ND (EMERGENCY)  
PANEL TYPE: 125V D C

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	FRAME	TRIP	AIC	
SWITCHGEAR & SPARES	100	20	10,000	100	20	10,000	1
		30			30		3
	100	50	10,000				5
SUB-TOTAL							
100			50			10,000	

LOCATION: NORTH A C SWITCHBOARD RM  
MAIN: 100 AF, 100 AT, 10,000 A I C  
PANEL MOUNTING: SURFACE

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	FRAME	TRIP	AIC	
SWITCHGEAR & SPARES	100	20	10,000	100	20	10,000	2
		30			30		4
	100	50	10,000				6
SUB-TOTAL							
100			50			10,000	

- LEGEND AND ABBREVIATIONS
- (Symbol) SINGLE - POLE CIRCUIT BREAKER
  - (Symbol) TWO - POLE CIRCUIT BREAKER
  - AIC AMPERE INTERRUPTING CAPACITY, SYMMETRICAL
  - AF AMPERE FRAME
  - AT AMPERE TRIP
  - MLO MAIN LUG ONLY
  - MCP MOTOR CIRCUIT PROTECTOR
  - DF DEMAND FACTOR
  - RVNR REDUCED VOLTAGE, NON-REVERSING AUTO TRANSFORMER TYPE
  - FVNR FULL VOLTAGE, NON-REVERSING
  - SYM SYMMETRICAL
  - (S/N) SOLID NEUTRAL
  - (GND) GROUND BUS

PANEL NO.: NES  
TYPE: LIGHTING 480/277 V, 3 $\phi$ , 4 W, GND BUS

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	FRAME	TRIP	AIC	
PLATFORM LIGHTING	2.6			100	20	14,000	1
		2.6					3
			2.8				5
SPARE				20	14,000		7
SPARE				20	14,000		9
SPARE				100	20	14,000	11
SUB-TOTAL							
2.6			2.6			2.8	

LOCATION: NORTH A C SWITCHBOARD ROOM  
MAIN: 100 AMPS MLO, 14,000 AIC  
PANEL MOUNTING: SURFACE

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	FRAME	TRIP	AIC	
PLATFORM LIGHTING	2.6			100	20	14,000	2
			2.8				4
			2.6				6
SPARE				20	14,000		8
BUSSED SPACE							10
BUSSED SPACE				100			12
SUB-TOTAL							
2.6			2.8			2.6	

CONNECTED LOAD: A $\phi$  5.2 KVA=18.7 AMPS  
B $\phi$  5.4 KVA=19.4 AMPS  
C $\phi$  5.4 KVA=19.4 AMPS  
TOTAL: 16.0 KVA

ESTIMATED DEMAND LOAD: 16.0 KVA @ 100% DF=16.0 KVA

MOTOR CONTROL CENTER: MCC-3, SEE NOTE 13  
600 AMPS, 480/277V, 3 $\phi$ , 3W, GND BUS  
BUS BRACING: 22,000 AMPS RMS SYM

LOCATION: MECHANICAL ROOM  
AVAILABLE SHORT CIRCUIT: 22,000 AMPS RMS SYM  
ENCLOSURE TYPE: NEMA 12

SEC. NO.	ITEM NO.	CIRCUIT BREAKER POLES	FRAME	TRIP AMP.	MCP CONTIN. RATING AMP.	STARTER NEMA SIZE	TYPE	CON-NECTED LOAD KVA	HP OR KW	DESCRIPTION	CONTROL DIAGRAM DWG NO.	ELEVATION	
												SECTION 1	SECTION 2
1	A	3	600	400	-	-	-	-	-	MAIN BREAKER (SEE NOTE 14)	-	-	-
	B	-	-	-	15	1	FVNR	6.3	5	FAN SF-1	SEE NOTE 15	-	-
	C	-	-	-	250	4	RVNR	79.8	75	CHILLED WATER PUMP	SEE NOTE 15	-	-
2	A	-	-	-	7	1	FVNR	2.8	2	FAN SF-2	SEE NOTE 15	-	-
	B	-	-	-	3	1	FVNR	1.7	1	FAN SF-3	SEE NOTE 15	-	-
	C	-	-	-	7	3	FAN EF-2	4.0	3	FAN EF-2	SEE NOTE 15	-	-
	D	-	-	-	15	1	FVNR	9.1	7.5	FAN EF-3	SEE NOTE 15	-	-
	E	-	-	-	15	1	FVNR	-	-	SPARE	-	-	-
	F	3	100	50	-	-	-	30.0	30.0	UNIT HEATER (30 KW)	-	-	-
	G	3	100	35	-	-	-	20.0	20.0	UNIT HEATER (20 KW)	-	-	-

TOTAL CONNECTED LOAD 153.7 KVA-184.9 AMPS

ESTIMATED DEMAND:

LOAD	KVA			
	CONNECTED	DF	SUMMER	WINTER
VENTILATION	23.9	70%	16.7	16.7
COOLING-MOTORS	79.8	80%	63.8	-
HEATING	50.0	70%	-	35.0
TOTAL DEMAND:			80.5	51.7

- THE FOLLOWING INFORMATION IS FOR USE FOR PREPARING THE FINAL DESIGN:
- INDICATE ALL LOADS IN KVA (IN PARTICULAR, LOADS FOR FLUORESCENT AND HID LAMPS TO INCLUDE BALLAST LOSSES AND POWER FACTOR)
  - EACH PANELBOARD TO INDICATE TOTAL CONNECTED LOAD, ESTIMATED TOTAL DEMAND LOAD, CONNECTED KVA LOAD PER PHASE AND CONNECTED AMPERES PER PHASE SO THAT ALL BASIC DESIGN INFORMATION IS RECORDED IN THE CONTRACT DRAWINGS.
  - DEMAND FACTORS TO BE IN ACCORDANCE WITH THE DESIGN CRITERIA. THE ESTIMATED DEMAND LOAD IN EACH PANELBOARD IS TO BE CARRIED OVER UP TO THE 480 VOLTS SWITCHGEAR SCHEDULE FOR RECORDING THE ESTIMATED DEMAND IN THE AC SUBSTATION.
  - DEMAND LOAD PLUS 20 PERCENT SPARE CAPACITY TO BE USED IN DETERMINING THE MINIMUM CONTINUOUS CURRENT RATING OF PANELBOARDS AND PANELBOARD FEEDERS. PROPER EVALUATION OF LOAD OPERATING CONDITION TO BE MADE BY SECTION DESIGNER TO AVOID UNDERSIZING THE EQUIPMENT.
  - LOAD IN PANELBOARDS TO BE BALANCED AMONG ALL PHASES WITHIN A 10 PERCENT RANGE.
  - PROVIDE SPARE CIRCUIT BREAKERS AND SPACES IN EACH PANELBOARD. SEE DESIGN CRITERIA FOR RECOMMENDED QUANTITIES.
  - WHERE A FEEDER OF SHORT LENGTH IS SERVING A PANELBOARD, THE CONDUCTOR SIZE AND ITS OVERCURRENT PROTECTION IS TO MATCH THE PANELBOARD BUS RATING FOR FUTURE FULL LOADING OF PANELBOARD.
  - PANELBOARD DESIGNATION TO INDICATE LOCATION AND SERVICE IN COMPLIANCE WITH DESIGN CRITERIA.
  - SHOW EQUIPMENT RATINGS AND COMPONENTS REPRESENTATIVE OF STANDARD INDUSTRY PRODUCTS.
  - QUANTITY OF MULTIPLE-POLE FUSED SWITCH UNITS SHALL NOT EXCEED 14 UNITS PER PANEL AS SHOWN. IF ADDITIONAL FUSED SWITCH UNITS ARE REQUIRED, USE A SEPARATE PANEL MEETING THE SAME REQUIREMENT FOR QUANTITY OF FUSED SWITCH UNITS.
  - NOT USED.
  - MAXIMUM TRANSFORMER CAPACITY LIMITED TO SIZE SUCH THAT MAGNETIZING INRUSH TO TRANSFORMER CAN BE CARRIED BY 30A UL CLASS J FUSE.
  - WHERE THE AVAILABLE SHORT-CIRCUIT CURRENT AT THE LINE TERMINALS OF THE MOTOR CONTROL CENTER EXCEEDS 22,000 AMPERES RMS SYMMETRICAL, SHORT CIRCUIT PROTECTION TO BE PROVIDED BY INTEGRALLY FUSED CIRCUIT BREAKER IN THE CIRCUIT SUPPLYING THE MOTOR CONTROL CENTER OR THE BUS BRACING TO BE INCREASED AND CIRCUIT BREAKERS/MOTOR CIRCUIT PROTECTORS TO BE RATED TO ACCOMMODATE THE AVAILABLE SHORT CIRCUIT CURRENT.
  - MAIN CIRCUIT BREAKER TO BE PROVIDED IN REMOTELY LOCATED MOTOR CONTROL CENTER.
  - INSERT CONTRACT DRAWING NUMBER CONTAINING APPLICABLE CONTROL DIAGRAM.
  - DATA INDICATED IN PANEL SCHEDULES IS REPRESENTATIVE OF TYPICAL DESIGN REQUIREMENTS. SCHEDULE SHALL INDICATE REQUIRED DATA FOR SPECIFIC CONTRACT DESIGN.

PANEL NO.: NE (MAIN EMERGENCY PANEL) SEE NOTE 10  
TYPE: FUSIBLE DISTRIBUTION 480/277V 3 $\phi$ , 4W, GND BUS

DESCRIPTION	CONNECTED LOAD (KVA)			RATING			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	SWITCH	FUSE	AIC	
LIGHTING - OB TUNNEL	3.2			30	20	200,000	1
		3.2					3
			3.2				5
ETS LIGHTS	1.0						7
SPARE				20			9
SPARE				30			11
PANEL "NEE"	5.0			30	30	200,000	13
SEE NOTE 12		5.0		30	30	200,000	15
			5.0	30	30	200,000	17
SUB-TOTAL							
9.2			8.2			8.2	

LOCATION: NORTH A C SWITCHBOARD ROOM  
MAIN: 100 AMPS MLO, 200,000 AIC  
PANEL MOUNTING: SURFACE

DESCRIPTION	CONNECTED LOAD (KVA)			RATING			CKT NO.
	A $\phi$	B $\phi$	C $\phi$	SWITCH	FUSE	AIC	
LIGHTING - IB TUNNEL	3.2			30	20	200,000	2
			3.2				4
			3.2				6
			2.0				8
COMMUNICATION FEEDER			2.0				10
SEE NOTE 12			2.0				12
			2.0				14
SPARE				20	200,000		16
				20	200,000		18
SUB-TOTAL							
5.2			5.2			5.2	

CONNECTED LOAD: A $\phi$  14.4 KVA=52.0 AMPS  
B $\phi$  13.4 KVA=48.4 AMPS  
C $\phi$  13.4 KVA=48.4 AMPS  
TOTAL: 41.2 KVA

ESTIMATED DEMAND LOAD: 39.4 KVA @ 100% DF=39.4 KVA

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
T. FLAIFEL	6-76	DD-E-079	480V SWITCHGEAR SCHEDULE FORMAT	08/2001	ENGA	Revised and issued by the Authority							
C. MANN	6-76												
B. ROBERTSON	6-76												
T. HANSEN	6-76												
R. GANERWAL	9-98												

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

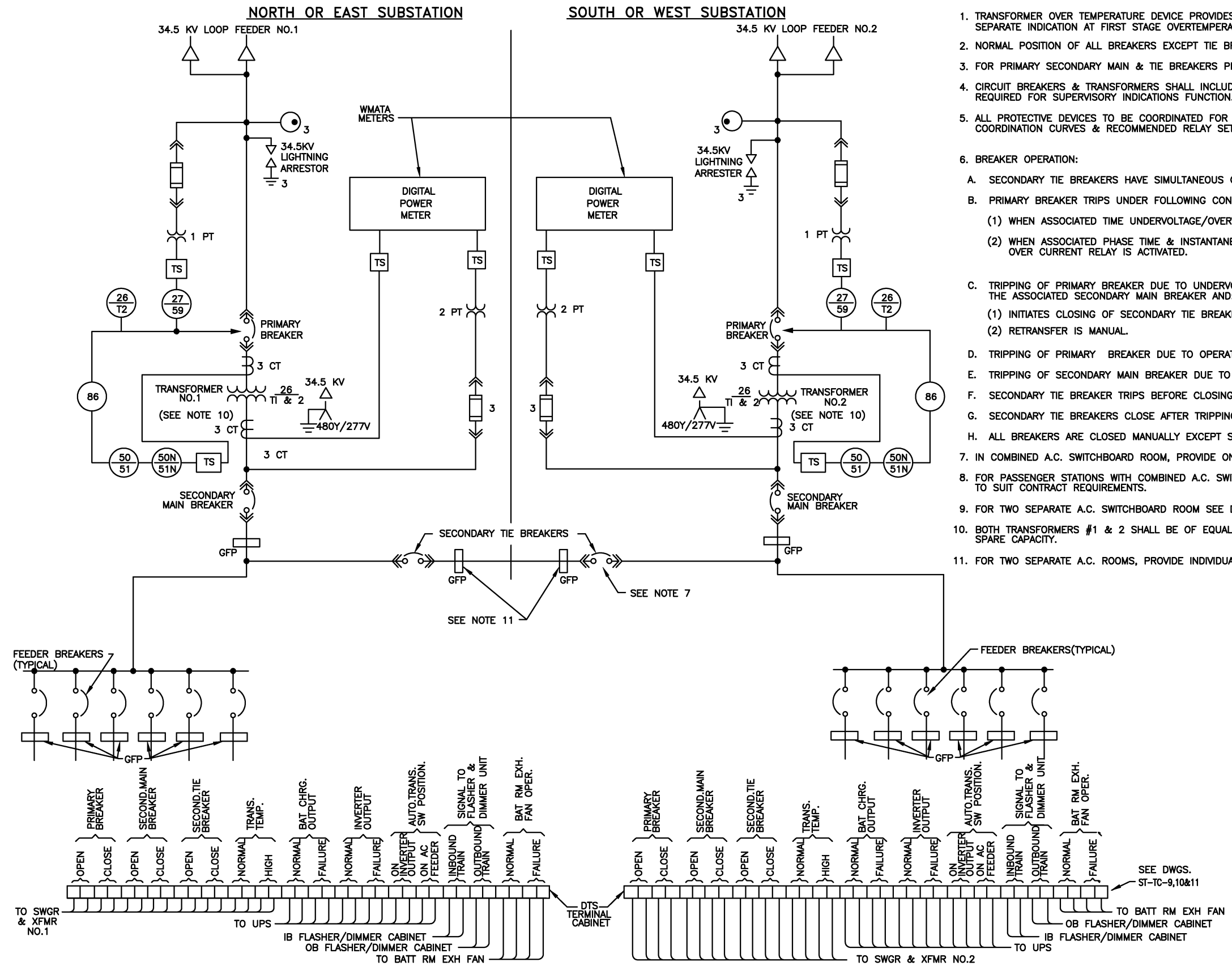
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

ELECTRICAL DESIGN DRAWING  
TYPICAL ELECTRICAL PANEL  
SCHEDULE FORMAT

SCALE: NOT TO SCALE

DRAWING NO. DD-E-057



**NOTES:**

1. TRANSFORMER OVER TEMPERATURE DEVICE PROVIDES FOR INDICATION AT DTS PANEL AT NORMAL TEMPERATURE (N) AND A SECOND SEPARATE INDICATION AT FIRST STAGE OVERTEMPERATURE (OTI).
  2. NORMAL POSITION OF ALL BREAKERS EXCEPT TIE BREAKERS ARE CLOSED. TIE BREAKERS ARE NORMALLY OPEN.
  3. FOR PRIMARY SECONDARY MAIN & TIE BREAKERS PROVIDE POSITION INDICATION AT DTS PANEL.
  4. CIRCUIT BREAKERS & TRANSFORMERS SHALL INCLUDE ALL RELAYS & AUXILIARY CONTACTS FOR WIRING TO DTS TERMINAL CABINET REQUIRED FOR SUPERVISORY INDICATIONS FUNCTION. USE #14 AWG CONDUCTOR CABLE FOR WIRING TO TERMINAL CABINET.
  5. ALL PROTECTIVE DEVICES TO BE COORDINATED FOR SELECTIVE TRIPPING & MINIMUM DISRUPTION OF POWER. SUBMIT DETAILED COORDINATION CURVES & RECOMMENDED RELAY SETTINGS FOR ENGINEERS APPROVAL.
  6. BREAKER OPERATION:
    - A. SECONDARY TIE BREAKERS HAVE SIMULTANEOUS CLOSE & TRIP OPERATIONS.
    - B. PRIMARY BREAKER TRIPS UNDER FOLLOWING CONDITIONS.
      - (1) WHEN ASSOCIATED TIME UNDERVOLTAGE/OVERVOLTAGE RELAY IS ACTIVATED.
      - (2) WHEN ASSOCIATED PHASE TIME & INSTANTANEOUS OVERCURRENT OR RESIDUAL GROUND TIME & INSTANTANEOUS OVER CURRENT RELAY IS ACTIVATED.
  - C. TRIPPING OF PRIMARY BREAKER DUE TO UNDERVOLTAGE/OVERVOLTAGE CONDITIONS ON POWER COMPANY FEEDER AUTOMATICALLY TRIPS THE ASSOCIATED SECONDARY MAIN BREAKER AND:
    - (1) INITIATES CLOSING OF SECONDARY TIE BREAKERS PROVIDED OTHER SECONDARY MAIN BREAKER IS CLOSED.
    - (2) RETRANSFER IS MANUAL.
  - D. TRIPPING OF PRIMARY BREAKER DUE TO OPERATION OF OVERCURRENT DEVICE DOES NOT INITIATE CLOSING OF SECONDARY TIE BREAKERS.
  - E. TRIPPING OF SECONDARY MAIN BREAKER DUE TO FAULT ON LOAD SIDE DOES NOT TRIP THE ASSOCIATED PRIMARY BREAKER.
  - F. SECONDARY TIE BREAKER TRIPS BEFORE CLOSING OF BOTH THE SECONDARY MAIN BREAKERS.
  - G. SECONDARY TIE BREAKERS CLOSE AFTER TRIPPING OF ONE OF THE SECONDARY MAIN BREAKERS.
  - H. ALL BREAKERS ARE CLOSED MANUALLY EXCEPT SECONDARY TIE BREAKERS WHICH ARE CLOSED AUTOMATICALLY.
7. IN COMBINED A.C. SWITCHBOARD ROOM, PROVIDE ONE SECONDARY TIE BREAKER IF BUS LENGTH IS LESS THAN 25'.
  8. FOR PASSENGER STATIONS WITH COMBINED A.C. SWITCHBOARD ROOM & ONE BATTERY ROOM, MODIFY WIRING TO DTS TERMINAL CABINET TO SUIT CONTRACT REQUIREMENTS.
  9. FOR TWO SEPARATE A.C. SWITCHBOARD ROOM SEE DWG. DD-E-23.
  10. BOTH TRANSFORMERS #1 & 2 SHALL BE OF EQUAL RATING, EACH TRANSFORMER SHALL BE SIZED TO SUPPORT TOTAL LOAD AND SPARE CAPACITY.
  11. FOR TWO SEPARATE A.C. ROOMS, PROVIDE INDIVIDUAL GROUND SENSORS AND RELAYS, FOR COMBINED A.C. ROOMS SEE DWG. DD-E-84.

SYMBOL DEVICE & ABBREVIATION	DESCRIPTION
	DRAWOUT FUSE
	DRAWOUT TYPE POWER CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER BOLT ON TYPE.
	NEON GLOW TUBE HIGH VOLTAGE INDICATOR, NUMBER INDICATES NUMBER OF PHASES
	GROUND FAULT PROTECTION
	TIME UNDERVOLTAGE/OVERVOLTAGE RELAY
	PHASE, TIME AND INSTANTANEOUS OVERCURRENT RELAY
	RESIDUAL GROUND TIME AND INSTANTANEOUS OVERCURRENT RELAY
	TRANSFORMER OVER TEMPERATURE DEVICE 2 STAGES
	TEST SWITCH

DESIGNED		DATE	
J. PRASAD	4-75		
DRAWN		DATE	
MANN-HILLIARD	4-75		
CHECKED		DATE	
FLAIFEL	5-75		
APPROVED		DATE	
R. GANERWAL	10-75		
UPDATED		DATE	
R. GANERWAL	9-88		

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
		08/2001	ENGA Revised and issued by the Authority

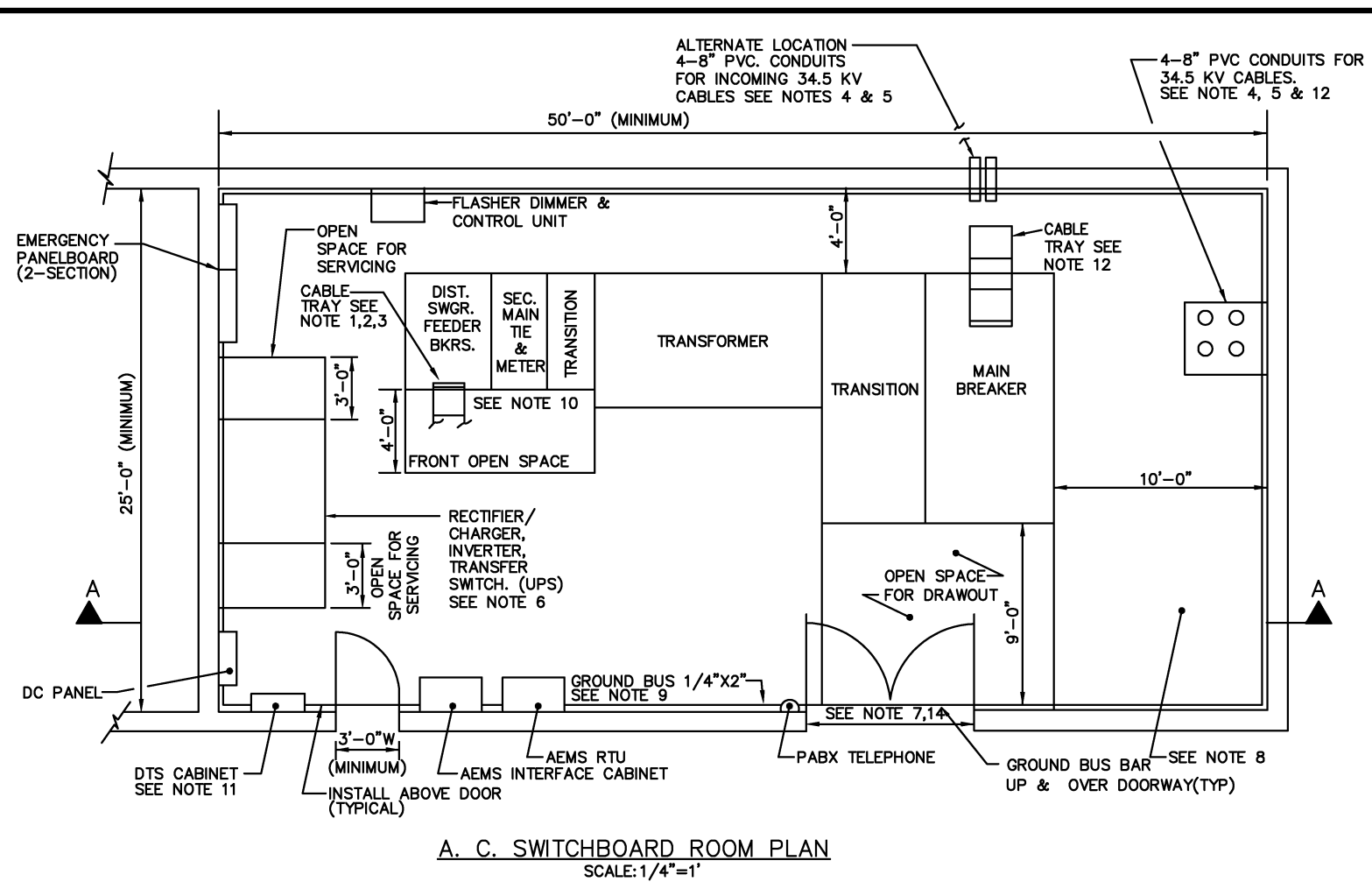
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

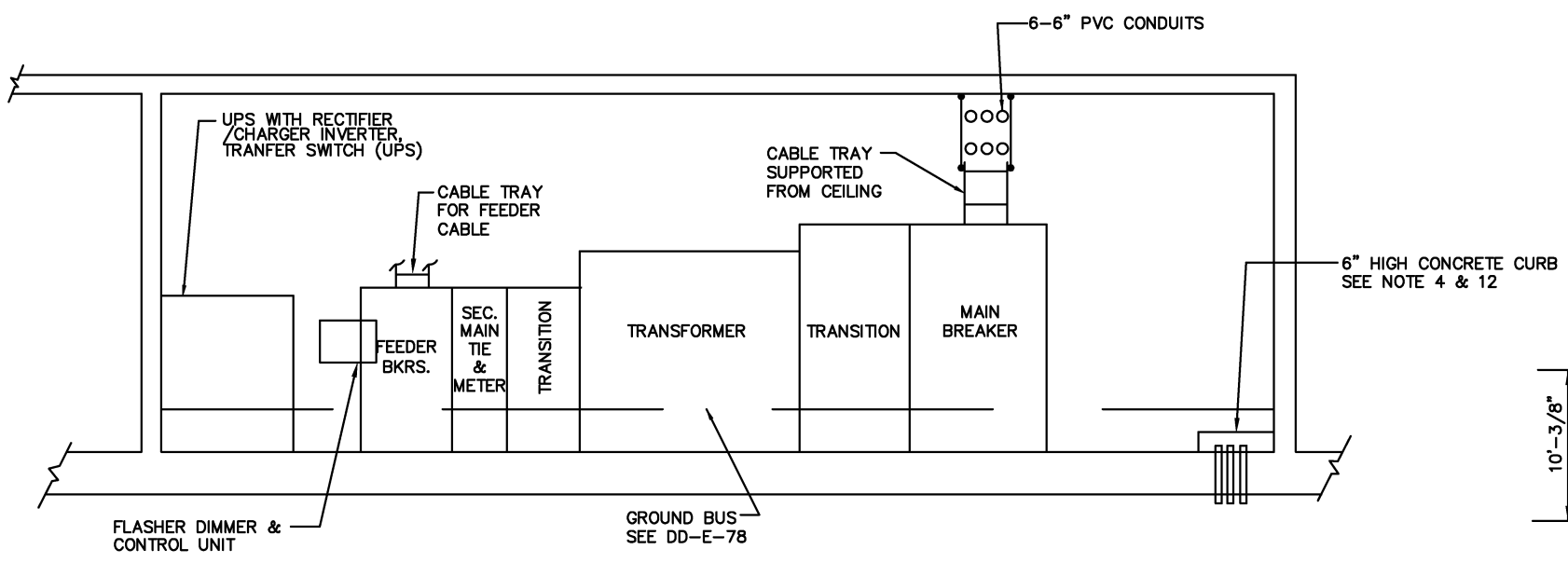
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
A.C. POWER SCHEDULE DIAGRAM  
34.5KV SERVICE

SCALE: NOT TO SCALE DRAWING NO. DD-E-061



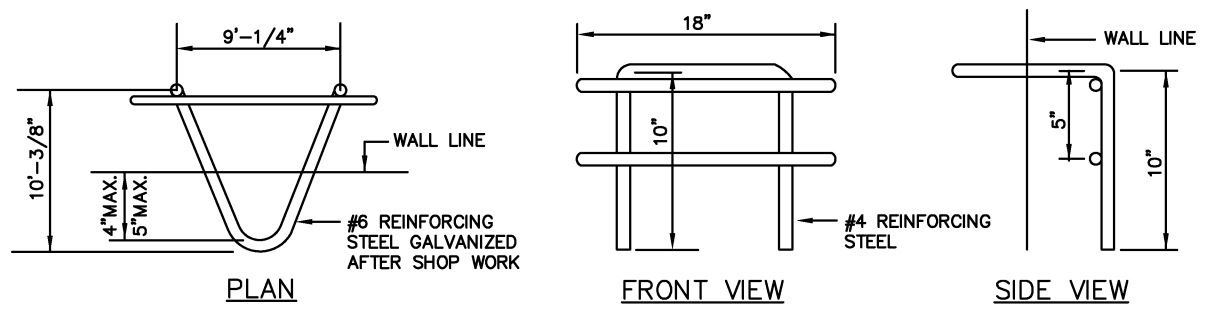
A. C. SWITCHBOARD ROOM PLAN  
SCALE: 1/4"=1'



SECTION A-A A. C. SWBD  
SCALE: 1/4"=1'

**NOTES:**

- INSTALL TIE, FEEDER AND LOAD CABLES IN CABLE TRAYS OR CONDUITS, PROPERLY SUPPORTED, BETWEEN 480V SWITCHGEAR AND AUXILIARY PANELS.
- CABLES TO THE PASSENGER STATION AND TIE CABLE TO THE ADJACENT A.C SWITCHBOARD ROOM TO BE ROUTED VIA CONDUITS, CABLE TUNNEL OR RETURN AIR PLENUM. SEE NOTE 15.
- PROVIDE TRANSITION/JUNCTION BOX FOR TRANSITION OF SINGLE CONDUCTOR CABLE IN CONDUIT TO MULTIPLE CONDUIT/CABLE CONDUCTOR CABLE (MOUNTED ON CHANNEL INSERTS).
- LOCATION AND DESIGN OF 34.5KV SERVICE TO BE COORDINATED WITH AND APPROVED BY POWER COMPANY. PROVIDE CABLE PULLING EYE DESIGNED FOR PULLING TENSION OF 5000 POUNDS, AT SUITABLE LOCATION FOR 34.5KV INCOMING SERVICE. PROVIDE PROTECTIVE BARRIER FOR CONDUITS STUBBING UP IN FLOOR PER POWER COMPANY REQUIREMENTS.
- WHERE NECESSARY USE CONDUIT CABLE SEAL FITTING TO PREVENT WATER SEEPAGE FROM DUCT-BANK, HANDHOLE, MANHOLE INCLUDING POWER COMPANY MANHOLE AND DUCTBANKS. SEE DD-E-81.
- UNITS NOT REQUIRING BACK ACCESS CAN BE INSTALLED AGAINST THE WALL KEEPING ADEQUATE CLEARANCE IN FRONT FOR DOOR OPENING. RECTIFIER/CHARGER, INVERTER AND TRANSFER SWITCH ARE USUALLY FURNISHED AS A PACKAGE.
- DOUBLE DOORS TO BE 7'-2" HIGH X 8'-0" WIDE, WITH 4'-6" HIGH BY 8'-0" WIDE REMOVABLE TRANSOM ABOVE DOOR. SIZES SHOWN ARE MINIMUM.
- FLOOR TO BE LEVELED TO 1/8" IN 10'-0" TOLERANCE. FINISH FLOOR TO BE LEVEL WITH NORMAL SAFETY WALK ELEVATION.
- FOR GROUND BUS BAR MOUNTING DETAILS SEE DD-E-78.
- SEE DRAWING DD-E-79 FOR LOW VOLTAGE SWITCHGEAR LAYOUT.
- CONDUIT AND CABLE FROM EQUIPMENT MONITORED (AS PER DD-E-61) TO DTS CABINET, FROM SWITCHGEAR TO DC PANEL AND AC PANEL (SERVING SPACE HEATER), INVERTER TO EMERGENCY PANELBOARD, ETC. SHALL BE SHOWN ON CONTRACT DRAWINGS.
- FOR 34.5KV INCOMING SERVICE CABLES, PROVIDE 24" WIDE X4" DEEP CABLE TRAY FROM 34.5KV SWITCHGEAR TO 34.5KV INCOMING CONDUIT LOCATION.
- PROVIDE 2" CONDUIT AND CONTROL CABLE (AS RECOMMENDED BY MANUFACTURER) BETWEEN TIE BREAKERS AT EACH END OF STATION.
- COORDINATE SHIPPING SIZE OF EQUIPMENT WITH SIZE OF DOOR AND EQUIPMENT HATCH TO AVOID ACCESS PROBLEM.
- QUANTITY, SIZE AND ROUTING OF CONDUITS AND ASSOCIATED CABLES TO BE DEVELOPED.
- LOCATE BATTERY ROOM ADJACENT TO A.C. SWITCHBOARD ROOM. FOR BATTERY ROOM LAYOUT SEE DWG. DD-E-94.



CABLE PULLING EYE  
NOT TO SCALE (SEE NOTE 4)

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
DD-E-061	A.C. PWR SCHEMATIC DIAGRAM 34.5KV SERVICE	08/2001	ENGA	Revised and issued by the Authority			
DD-E-081	CNDT & CABLE SEALS FOR DUCT PENETRATION						
DD-E-079	480V SWGR SCHEDULE FORMAT						
ST-TC-033	TYP. TRAIN CONTROL RISER DIAGRAM						
DD-A-SC-009	DOOR SCHEUDLE, ELEVATION & DETAILS						

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

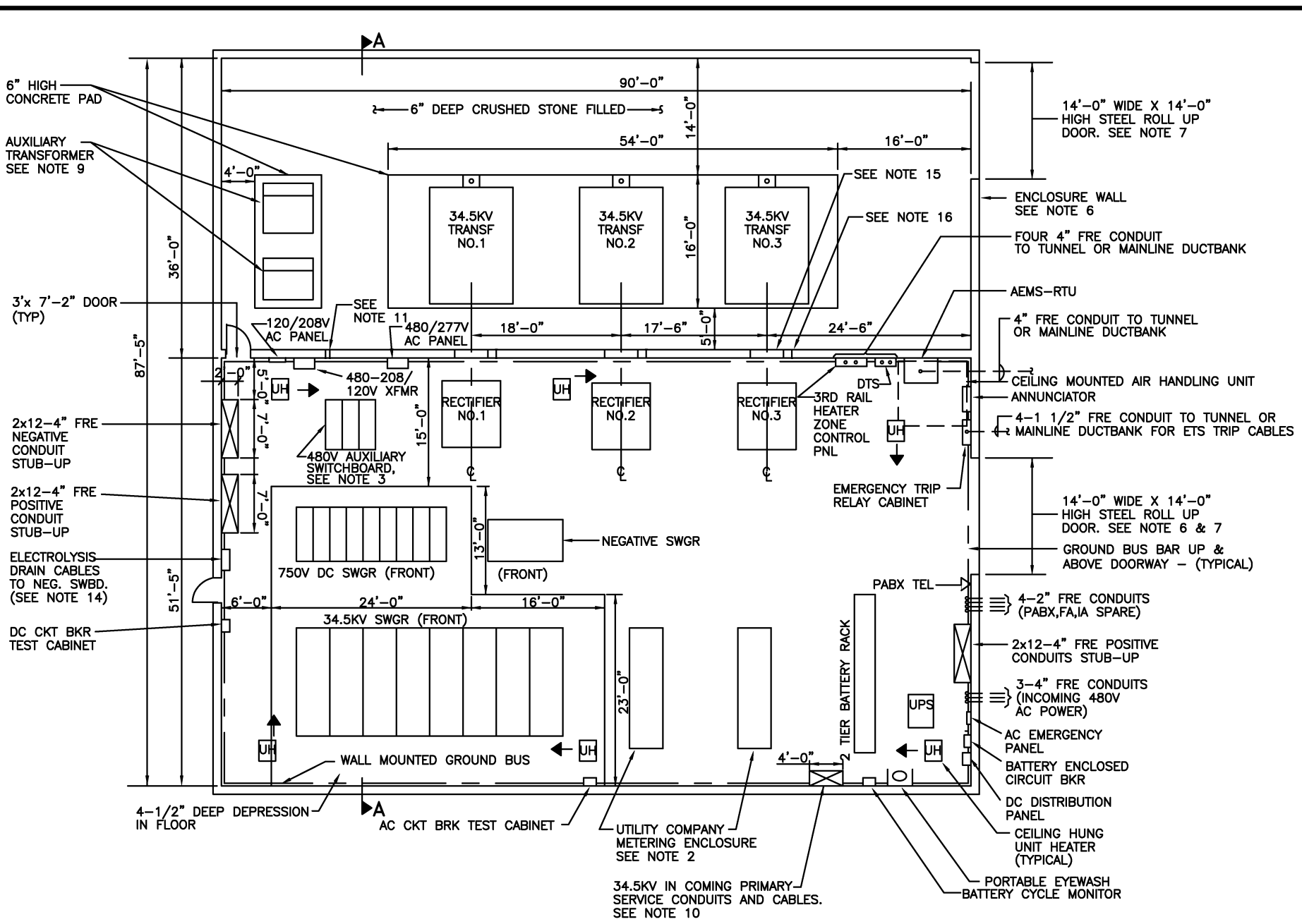
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

**ELECTRICAL DESIGN DRAWING**  
TYPICAL 34.5KV A.C. SWITCHBOARD ROOM  
AT PASSENGER STATION

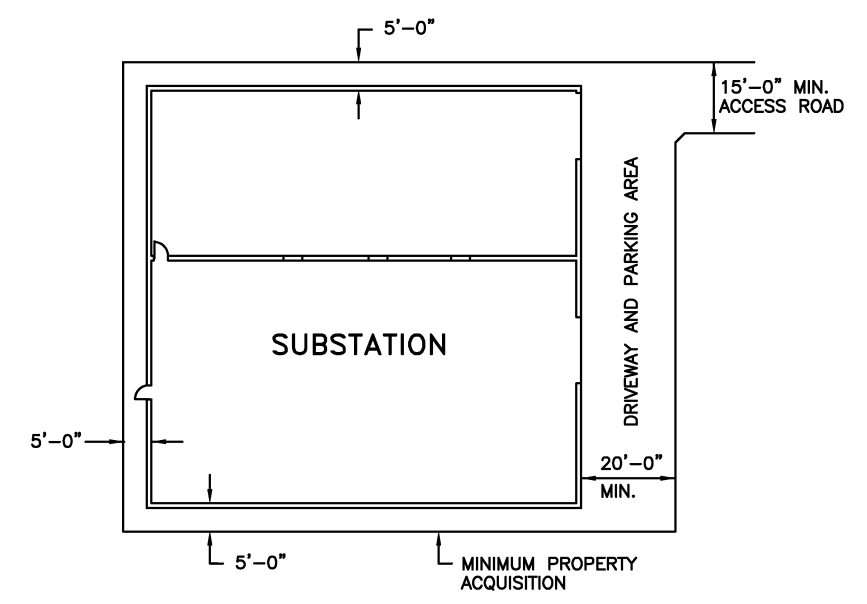
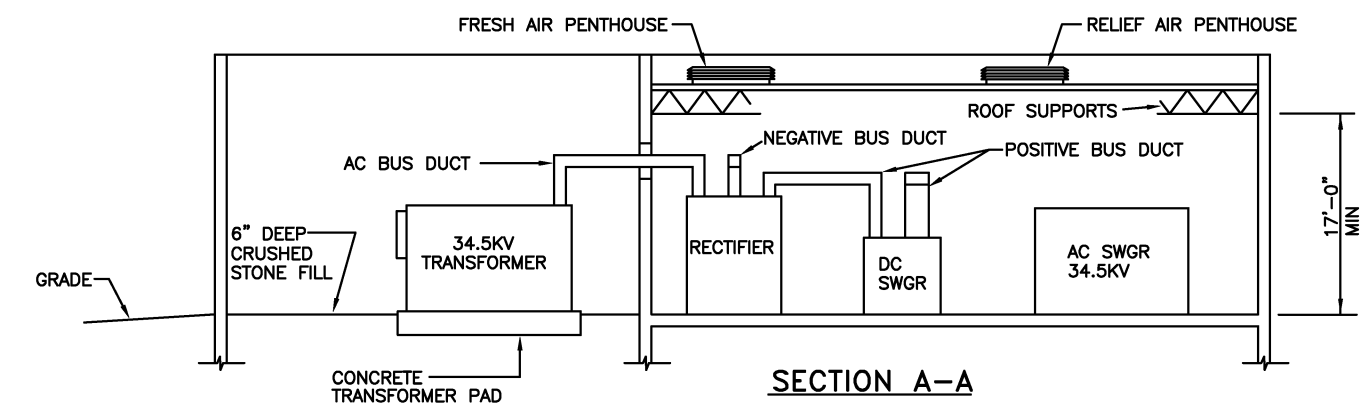
SCALE: 1/4" = 1'-0"

DRAWING NO. DD-E-062



**NOTE**

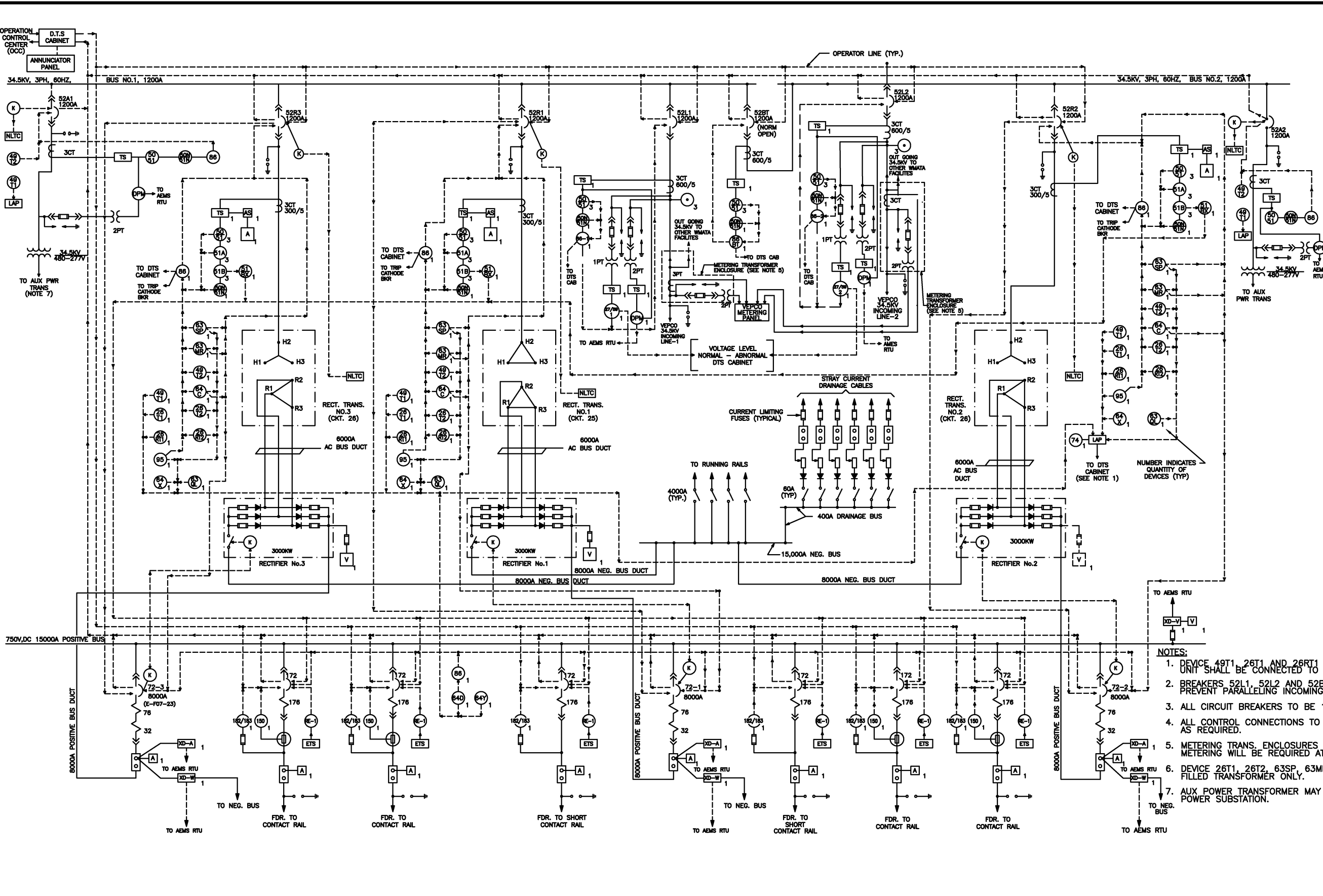
1. LOCATION OF SUBSTATION, CONDUITS & ACCESS ROAD SHALL BE COORDINATED WITH THE AUTHORITY.
2. METERING ENCLOSURE AND RELATED EQUIPMENT ARE ONLY REQUIRED AT SELECTIVE SUBSTATION AS DETERMINED BY POWER COMPANY.
3. PROVIDE AUTOMATIC TRANSFER SWITCH IN AUXILIARY 480V A.C. SWITCHBOARD.
4. EQUIPMENT DIMENSIONS ARE TYPICAL ONLY. REFER TO DESIGN CRITERIA FOR DETAILED DIMENSIONS.
5. COORDINATE CONDUIT STUB-UPS WITH FOOTING PENETRATIONS TO BE SHOWN ON STRUCTURAL DWGS.
6. ENCLOSURE WALL SHALL BE USED WHEN SUBSTATIONS LOCATED IN ANY AREA WHERE OPEN VIEW OR SOUND FROM THE TRANSFORMER WOULD BE OBJECTIONABLE. IN OTHER AREAS A REMOVABLE CHAIN LINK FENCE WILL BE PERMISSIBLE. DESIGNER SHALL COORDINATE THIS ITEM WITH THE AUTHORITY.
7. SEE DD-A-SC-8 FOR DOOR SCHEDULE AND DETAILS.
8. DESIGNER TO DETERMINE THE NEED FOR LIGHTING PROTECTION AIR TERMINALS.
9. AUXILIARY TRANSFORMERS & RELATED EQUIPMENT ARE NECESSARY ONLY WHERE AC POWER IS TO BE SUPPLIED FROM SUBSTATION.
10. 34.5KV PRIMARY INCOMING SERVICE SHALL BE COORDINATED WITH THE POWER. PROVIDE 6-8" PVC CONDUITS FOR NON-METERED SUBSTATIONS AND 10-8" PVC CONDUITS FOR METERED SUBSTATIONS. PROVIDE PROTECTIVE BARRIER IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS.
11. 4-3 1/2" WALL SLEEVES (2-POWER AND 2-CONTROL) FOR 34.5KV SERVICE TO AUXILIARY TRANSFORMER. SLEEVE 14'-0" AFF. CAP WALL SLEEVES.
12. 4-3 1/2" WALL SLEEVES (2-POWER AND 2-CONTROL) FOR 480V SERVICE TO AUXILIARY A.C. SWITCHBOARD. SLEEVES, 3'-0" AFF. CAP WALL SLEEVE.
13. ALL EXTERIOR ARCHITECTURAL TREATMENT SHALL BE COORDINATED WITH AUTHORITY.
14. STUB OUT 4-3" FRE CONDUITS 3' FROM STRUCTURE AND CAP.
15. 3'-0" H x 4'-0" W BUS DUCT OPENING. CENTERLINE OF OPENING 13'-0" AFF. TYPICAL 3 PLACES.
16. 1-6" FRE CONDUIT SLEEVE, 14'-0" AFF. 1-3" FRE CONDUIT SLEEVE, 13'-0" AFF. TYPICAL 3 PLACES.



**TYPICAL SITE PLAN**  
NTS

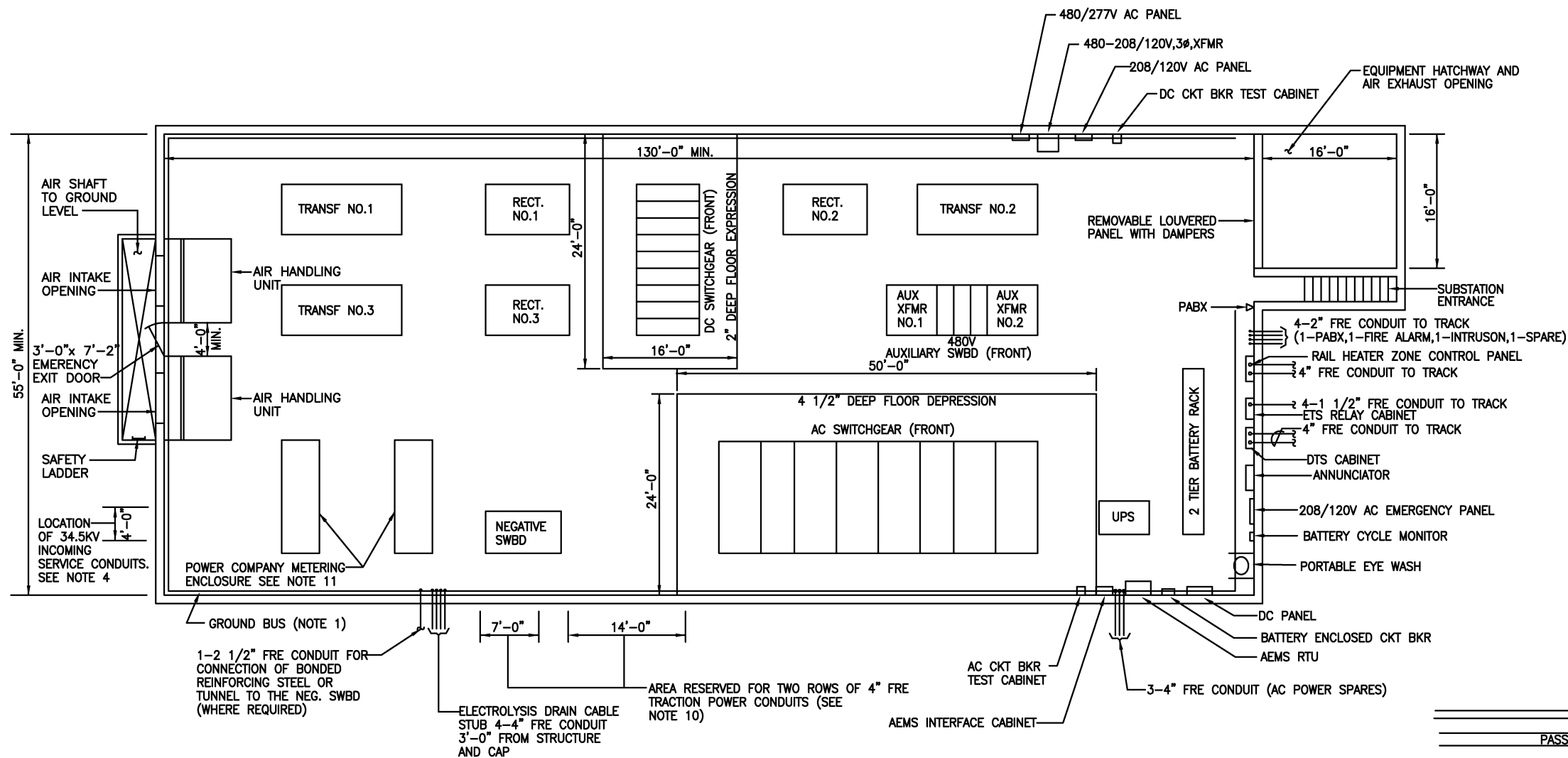
DESIGNED P. ROY 1-96 DRAWN W. MASSEY 1-96 CHECKED U. KHAN 1-97 APPROVED R. GANERWAL 1-97 UPDATED R. GANERWAL 12-98	<b>REFERENCE DRAWINGS</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>DD-M-136</td> <td>TYPICAL EMERGENCY EYE WASH/BODY SPRAY FACILITIES</td> <td>08/2001</td> <td>ENGA</td> <td>Revised and issued by the Authority</td> </tr> </tbody> </table>	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DD-M-136	TYPICAL EMERGENCY EYE WASH/BODY SPRAY FACILITIES	08/2001	ENGA	Revised and issued by the Authority	<b>REVISIONS</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION						<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> TYPICAL ONE STORY ON-GRADE SUBSTATION TYPE VI 34.5KV SERVICE AREA
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION																				
DD-M-136	TYPICAL EMERGENCY EYE WASH/BODY SPRAY FACILITIES	08/2001	ENGA	Revised and issued by the Authority																				
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION																				
SUBMITTED _____ DATE _____			APPROVED <i>[Signature]</i> May 3, 2001 DIRECTOR DATE		SCALE 1/8" = 1'-0" DRAWING NO. DD-E-063																			

LEGEND	
DEVICE	DESCRIPTION
A	AMMETER
LAP	LOCAL ANNUNCIATOR PANEL
AS	AMMETER SWITCH
CT	CURRENT TRANSFORMER
ETS	EMERGENCY TRIP STATION AT TRACKSIDE
PT	POTENTIAL TRANSFORMER
RE-1	ETS AUXILIARY RELAY
TS	TEST SWITCH
V	VOLTMETER
26T1	TRANS. OIL OVER TEMP. DEVICE 1st STAGE
26T2	TRANS. OIL OVER TEMP. DEVICE 2nd STAGE
26RT1	RECTIFIER OVERTEMP. DEVICE 1st STAGE
26RT2	RECTIFIER OVERTEMP. DEVICE 2nd STAGE
DTS	DATA TRANSMISSION SYSTEM
27/59	UNDERVOLTAGE & OVERVOLTAGE RELAY
32	CATHODE BKR. REVERSE CURRENT TRIP DEVICE
49T1	TRANS. WINDING OVERTEMP. DEVICE 1st STAGE
49T2	TRANS. WINDING OVERTEMP. DEVICE 2nd STAGE
50/51	AC OVERCURRENT PHASE RELAY INST. & TIME
50N/51N	AC OVERCURRENT GRD. RELAY INST. & TIME
51	HALL EFFECT TRANSDUCER
51A	AC OVERCURRENT PHASE RELAY TIME
51B	AC OVERCURRENT PHASE RELAY TIME
51BK	AUX. TO DEVICE 51B
52A	AUX. TRANS. FEEDER BREAKER 34.5KV
52BT	BUS TIE AC CKT. BREAKER 34.5KV
52R	RECTIFIER TRANSFORMER FEEDER BREAKER 34.5KV
52L	INCOMING LINE AC CKT. BREAKER 34.5KV
63MR	TRANS. EXPL. DIAPHRAGM DEVICE
63QL	TRANS. LOW OIL LEVEL DEVICE
63SP	TRANS. SUDDEN PRESSURE DEVICE
64C	RECT. GRD. RELAY HOT STRUCTURE
64X	RECT. GRD. RELAY GRD. STRUCTURE
64D	DC SWGR. GRD. RELAY HOT STRUCTURE
64Y	DC SWGR. GRD. RELAY GRD. STRUCTURE
72	CATHODE AIR CKT. BKR.
74	ALARM RELAY
78	CATHODE BKR. FORWARD CURRENT TRIP DEVICE
NLTC	NO LOAD TAP CHANGER
88	LOCK-OUT RELAY HAND RESET
95	DIODE FAILURE DEVICE
150	RATE-OF-RISE RELAY
172	DC AIR CKT. BKR.
176	DC BKR. SERIES TRIP DEVICE
182/183	DC LOAD MEASURING/RECLOSEING RELAY
34	KNIFE SWITCH
34	DIODE
□	SHUNT
○	VARIABLE RESISTOR
⊗	KEY INTERLOCK
○	POT. TRANSF. FUSE GROUNDING CONTACT
○	NEON GLOW TUBE HIGH VOLTAGE INDICATOR
— —	SURGE ARRESTER
XD-A	CURRENT TRANSDUCER
XD-V	VOLTAGE TRANSDUCER
XD-W	WATT TRANSDUCER
DPM	DIGITAL POWER METER
RTU	REMOTE TERMINAL UNIT
AEMS	AUTOMATED ENERGY MANAGEMENT SYSTEM



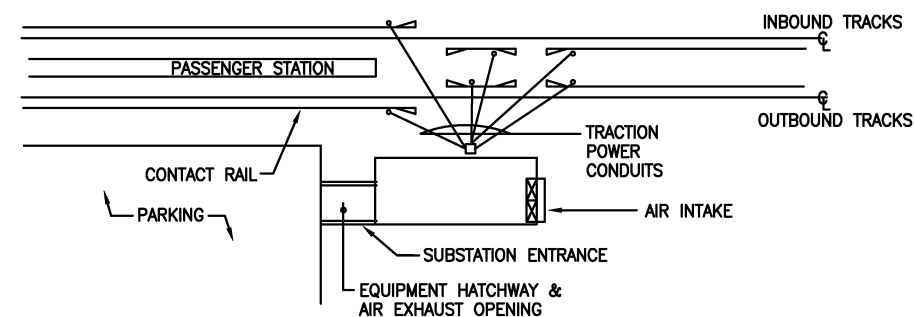
- NOTES:
1. DEVICE 49T1, 26T1 AND 26RT1 FROM EACH TRANSFORMER-RECTIFIER UNIT SHALL BE CONNECTED TO DTS FOR REMOTE INDICATION.
  2. BREAKERS 52L1, 52L2 AND 52BT TO BE ELECTRICALLY INTERLOCKED TO PREVENT PARALLELING INCOMING LINES.
  3. ALL CIRCUIT BREAKERS TO BE 125V DC TRIP AND CLOSE.
  4. ALL CONTROL CONNECTIONS TO DTS SHALL HAVE INTERPOSING RELAYS AS REQUIRED.
  5. METERING TRANS. ENCLOSURES & METERING PANEL FOR VIRGINIA POWER METERING WILL BE REQUIRED AT SELECTIVE TRACTION POWER SUBSTATION.
  6. DEVICE 26T1, 26T2, 63SP, 63MR AND 63QL TO BE USED ON LIQUID FILLED TRANSFORMER ONLY.
  7. AUX POWER TRANSFORMER MAY NOT BE REQUIRED AT EVERY TRACTION POWER SUBSTATION.

DESIGNED P.K. ROY 7-98 DRAWN R. THOMAS, JR. 7-98 CHECKED U. KHAN 7-98 APPROVED R. GANERWAL 7-98	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION   	<b>REVISIONS</b> DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> TRACTION POWER SUPERVISORY CONTROL & SCHEMATIC DIAGRAM 34.5KV SERVICE AREA
SUBMITTED DATE APPROVED DIRECTOR <i>[Signature]</i> May 3, 2001 DATE	SCALE NONE	DRAWING NO. DD-E-064		



**NOTES:**

1. PROVIDE GROUND BUS ON INSIDE WALLS AROUND ENTIRE SUBSTATION AND CONNECT TO GROUND GRID.
2. AUXILIARY TRANSFORMERS AND RELATED EQUIPMENT ARE NECESSARY ONLY WHEN AC POWER IS TO BE SUPPLIED FROM SUBSTATION.
3. EQUIPMENT LAYOUT IS TYPICAL ONLY. REFER TO DESIGN CRITERIA FOR DETAILED DIMENSIONS.
4. LOCATION OF THE 34.5KV PRIMARY INCOMING SERVICE SHALL BE COORDINATED WITH THE POWER COMPANY. INDICATE HEIGHT OF WALL PENETRATIONS ABOVE FINISH FLOOR. 6-8" PVC CONDUITS FOR NON-METERED SUBSTATION OR 10-8" PVC CONDUITS FOR METERED SUBSTATIONS.
5. THE INSIDE CEILING HEIGHT IS TO BE 17'-0" MINIMUM UNOBSTRUCTED.
6. THE TRAIN CONTROL AND COMMUNICATIONS SYSTEMS REQUIRE 3'-4" FRE CONDUITS TO THE TRACK LEVEL.
7. EXIT REQUIREMENTS TO BE IN ACCORDANCE WITH ALL APPLICABLE JURISDICTIONAL CODES AND REGULATIONS.
8. PROVIDE 2-4" FRE CONDUITS FOR ELECTRICAL PURPOSES TO THE TRACK LEVEL.
9. PROVIDE CONDUITS FOR ELECTROLYSIS DRAIN PER THE DESIGN CRITERIA.
10. ROUTING OF TRACTION POWER CONDUITS FOR EACH SUBSTATION TO BE DETERMINED BY THE DESIGNER. INDICATE HEIGHT OF WALL PENETRATIONS FROM FINISH FLOOR.
11. METERING ENCLOSURE AND RELATED EQUIPMENT ARE ONLY REQUIRED AT SELECTIVE SUBSTATION AS DETERMINED BY POWER COMPANY.



**TYPICAL LOCATION PLAN**

DESIGNED		DATE		NUMBER		DESCRIPTION	
DRAWN		DATE					
CHECKED		DATE					
APPROVED		DATE					

DATE		BY		DESCRIPTION	
08/2001	ENGA				Revised and issued by the Authority

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001 DATE \_\_\_\_\_  
 DIRECTOR

ELECTRICAL DESIGN DRAWING  
 TYPICAL UNDERGROUND SUBSTATION FOR  
 34.5KV SERVICE AREA

SCALE 1/8"=1'0" DRAWING NO. DD-E-070

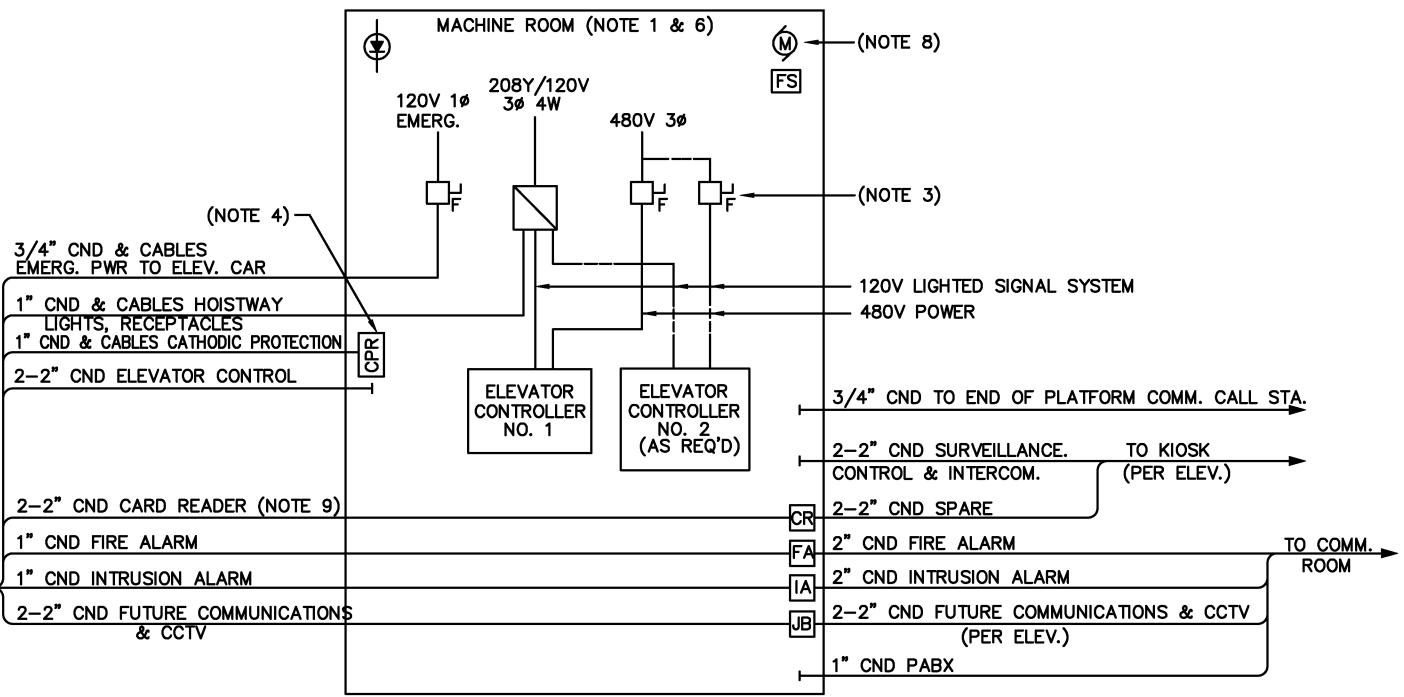
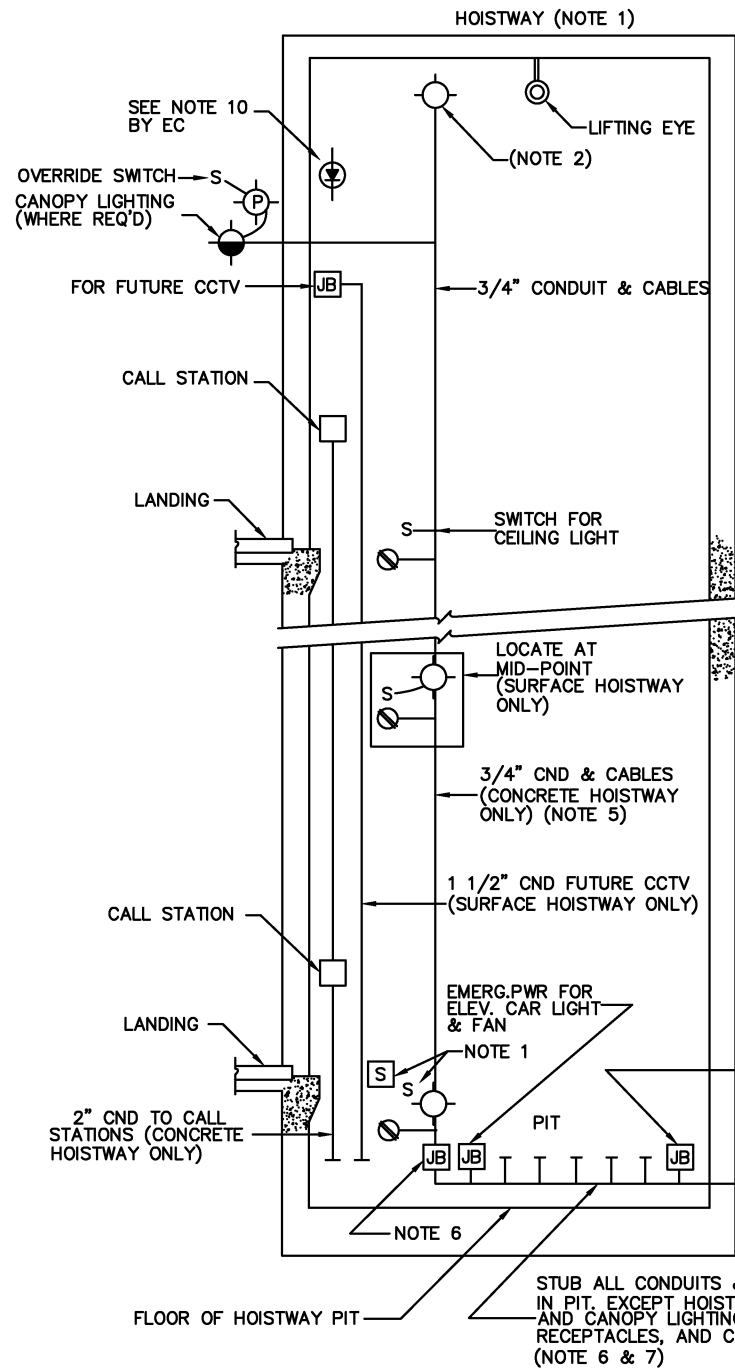


SYMBOLS AND ABBREVIATIONS

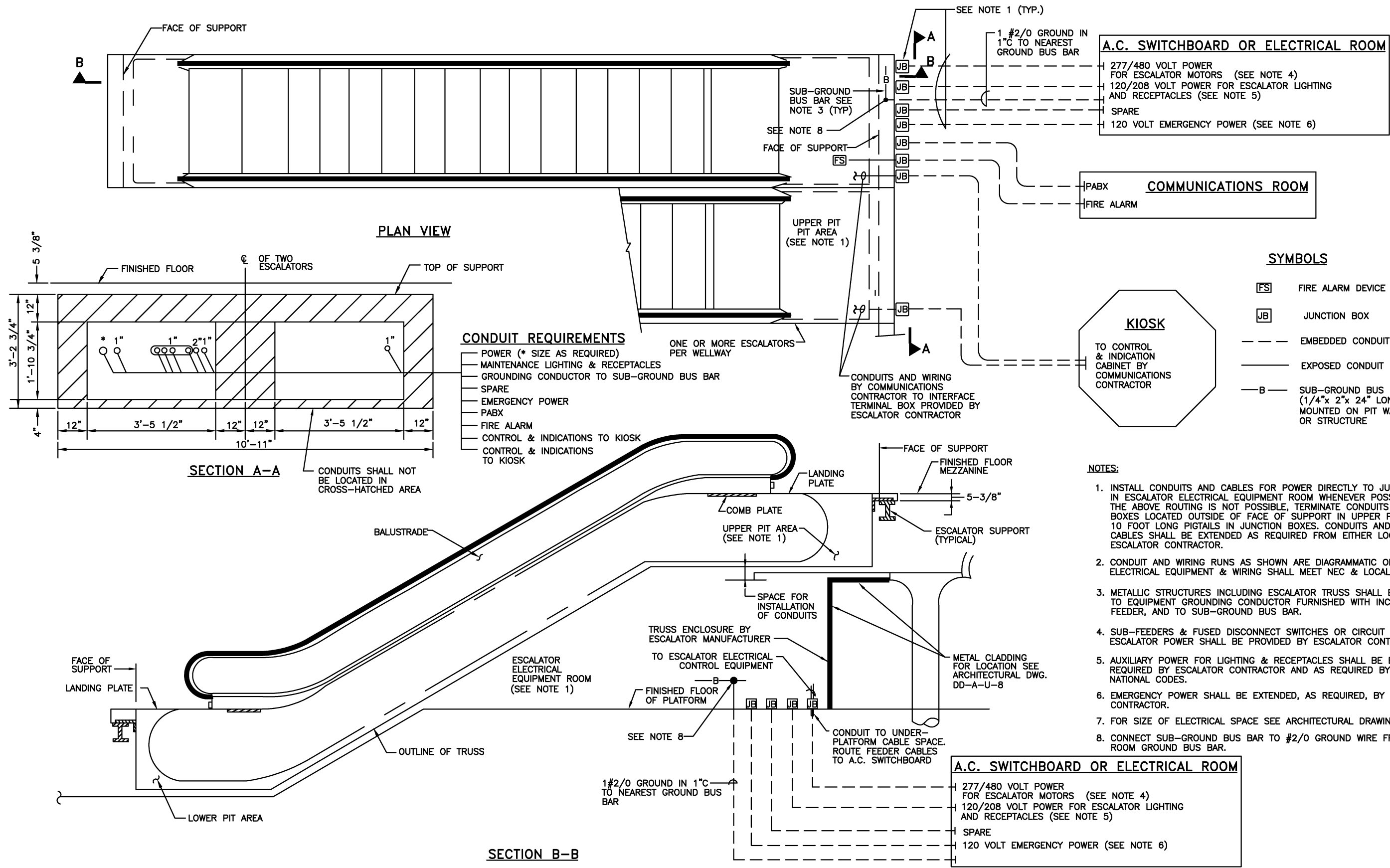
- |   |  |        |                                   |
|---|--|--------|-----------------------------------|
| ⊖ | GROUND FAULT CIRCUIT INTERRUPTER(GFCI)                         | ⊞      | ENCLOSED STOP SWITCH              |
| ⊞ | DUPLEX RECEPTACLE  | FS     | SMOKE & FIRE DETECTOR             |
| S | SNAP SWITCH  | ⊞      | INTRUSION ALARM SENSOR            |
| — | EMBEDDED CONDUIT STUB OUT                                      | IA     | INTRUSION ALARM INTERFACE CABINET |
| — | EXPOSED CONDUIT  | FA     | FIRE ALARM INTERFACE CABINET      |
| — | EMBEDDED CONDUIT   | CR     | CARD READER                       |
| ⊞ | INCANDESCENT LIGHT FIXTURE<br>(TYPE 6A, B, C OR D AS REQUIRED) | CPR    | CATHODIC PROTECTION RECTIFIER     |
| ⊞ | MERCURY VAPOR LIGHT FIXTURE<br>(TYPE S13)                      | IC     | INTERCOM SYSTEM                   |
| ⊞ | FUSED DISCONNECT SWITCH  | CND    | CONDUIT                           |
| ⊞ | PANEL BOARD  | EMERG. | EMERGENCY                         |
| ⊞ | JUNCTION BOX   | EC     | ELEVATOR CONTRACTOR               |
| ⊞ | PHOTOCELL  |        |                                   |
| ⊞ | VENTILATION FAN  |        |                                   |

NOTES :

1. CONDUIT, CABLES, AND EQUIPMENT AS SHOWN ARE DIAGRAMMATIC ONLY AND SHALL MEET NEC AND LOCAL CODES.
2. LIGHT FIXTURE SHALL BE OFF-SET MOUNTED TO AVOID LIFTING EYE.
3. TERMINATE 480 V INCOMING POWER IN A LOCK OPEN TYPE CIRCUIT BREAKER OR DISCONNECT SWITCH WITH CLASS K5 OR R FUSES LOCATE WITHIN 18" OF LOCK JAMB SIDE OF DOORWAY INSIDE MACHINE ROOM.
4. CATHODIC PROTECTION REQUIRED FOR STEEL HYDRAULIC CYLINDER WELL CASING ONLY PROVIDE SPACE FOR FUTURE CATHODIC PROTECTION RECTIFIER.
5. RECEPTACLES, SWITCHES, AND LIGHT FIXTURES ARE NOT REQUIRED ABOVE PIT IN GLASS HOISTWAY FROM MEZZANINE TO PLATFORM.
6. COORDINATE LOCATION OF CONDUIT STUBOUTS AND JUNCTION BOXES WITH ARCHITECTURAL AND MECHANICAL REQUIREMENTS.
7. LOCATE CONDUIT STUBOUTS AND JUNCTION BOXES WITHIN A 6" TO 16" SPACE ABOVE HOISTWAY PIT FLOOR.
8. PROVIDE VENTILATION PER MECHANICAL DESIGN CRITERIA REQUIREMENTS.
9. INSTALL CONDUIT FOR CARD READER ONLY WHERE THE NORMAL FARE COLLECTION SYSTEM IS CIRCUMVENTED.
10. INTRUSION ALARM DEVICE AT ENTRANCES WHICH OPEN TO OUTSIDE OF STATION.
11. RECEPTACLES TO BE GROUND FAULT CIRCUIT INTERRUPTER TYPE.



DESIGNED W. ROBERTSON DATE 4-76	NUMBER DD-M-108 DESCRIPTION ELEVATOR HYDRAULIC & LEGEND.	DATE 08/2001 BY ENGA	DESCRIPTION Revised and issued by the Authority	<p>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</p> <p>DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE</p> <p>SUBMITTED _____ DATE _____</p> <p>APPROVED <i>[Signature]</i> DIRECTOR May 3, 2001 DATE</p>	<p>ELECTRICAL DESIGN DRAWING ELECTRICAL SERVICE FOR ELEVATORS</p> <p>SCALE N.T.S.</p> <p>DRAWING NO. DD-E-072</p>
DRAWN C. MANN DATE 5-76	NUMBER DD-M-122 DESCRIPTION CATHODIC PROTECTION DETAILS.				
CHECKED J. UNGER DATE 8-76	NUMBER DD-S-098 DESCRIPTION GLASS ELEVATOR-FRAMING & DETAILS.				
APPROVED R. GANERWAL DATE 8-76					



DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
W. ROBERTSON		3-76		DD-E-063		CLASS "A" UNDERGROUND MEZZ TO PLAT ESCAL STRUCTURAL WELLWAY		08/2001		ENGA		Revised and issued by the Authority	
E. HILLIARD		3-76		DD-M-67		ESCALATOR LOADS & DETAILS							
J. UNGER		3-76		DD-M-80		ESCALATOR DETAILS & SUPPORTS							
T. HANSEN		3-76		DD-A-U-8		DOUBLE ESCALATOR MEZZANINE TO PLATFORM							
R. GANERWAL		9-98											

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR \_\_\_\_\_ DATE May 3, 2001

**ELECTRICAL DESIGN DRAWING**

TYPICAL CONDUIT LAYOUT FOR  
CLASS "A" UNDERGROUND STATION  
MEZZANINE TO PLATFORM ESCALATOR

SCALE NONE DRAWING NO. DD-E-073

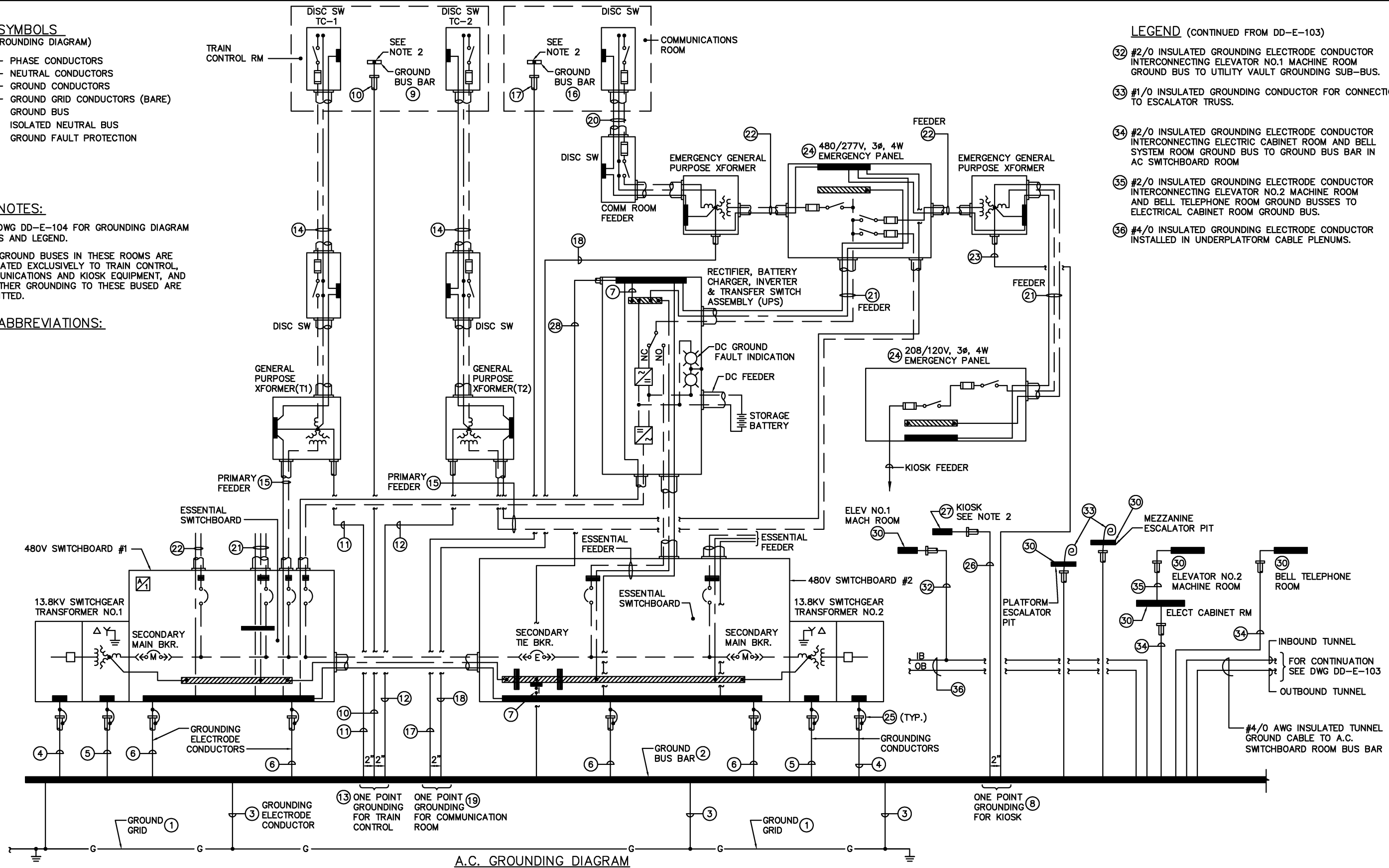
**SYMBOLS**  
(FOR GROUNDING DIAGRAM)

- PHASE CONDUCTORS
- NEUTRAL CONDUCTORS
- GROUND CONDUCTORS
- G GROUND GRID CONDUCTORS (BARE)
- GROUND BUS
- ISOLATED NEUTRAL BUS
- GROUND FAULT PROTECTION

**NOTES:**

1. SEE DWG DD-E-104 FOR GROUNDING DIAGRAM NOTES AND LEGEND.
2. SUB-GROUND BUSES IN THESE ROOMS ARE DEDICATED EXCLUSIVELY TO TRAIN CONTROL, COMMUNICATIONS AND KIOSK EQUIPMENT, AND NO OTHER GROUNDING TO THESE BUSED ARE PERMITTED.

**ABBREVIATIONS:**



**LEGEND (CONTINUED FROM DD-E-103)**

- 32 #2/0 INSULATED GROUNDING ELECTRODE CONDUCTOR INTERCONNECTING ELEVATOR NO.1 MACHINE ROOM GROUND BUS TO UTILITY VAULT GROUNDING SUB-BUS.
- 33 #1/0 INSULATED GROUNDING CONDUCTOR FOR CONNECTION TO ESCALATOR TRUSS.
- 34 #2/0 INSULATED GROUNDING ELECTRODE CONDUCTOR INTERCONNECTING ELECTRIC CABINET ROOM AND BELL SYSTEM ROOM GROUND BUS TO GROUND BUS BAR IN AC SWITCHBOARD ROOM
- 35 #2/0 INSULATED GROUNDING ELECTRODE CONDUCTOR INTERCONNECTING ELEVATOR NO.2 MACHINE ROOM AND BELL TELEPHONE ROOM GROUND BUSES TO ELECTRICAL CABINET ROOM GROUND BUS.
- 36 #4/0 INSULATED GROUNDING ELECTRODE CONDUCTOR INSTALLED IN UNDERPLATFORM CABLE PLENUMS.

A.C. GROUNDING DIAGRAM

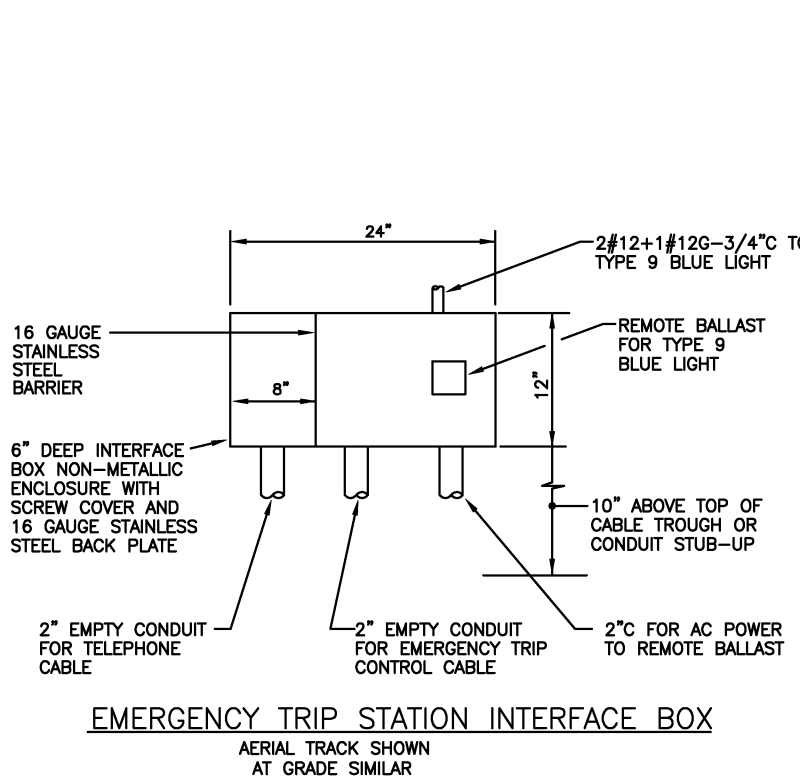
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
D. VANCOTT	7-98			08/2001	ENGA	Revised and issued by the Authority
C. BUTRAGO	7-98					
J. KROLIK	7-98					
R. GANERVAL	7-98					

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

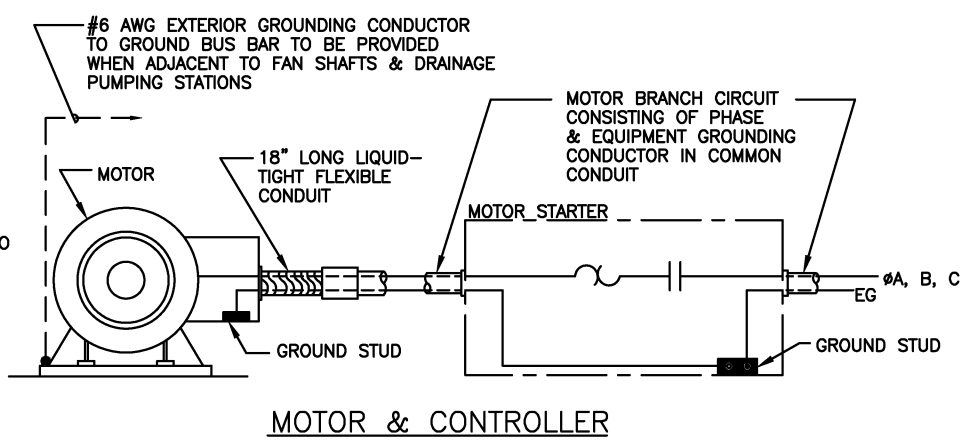
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *Harry [Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
A.C. POWER GROUNDING DIAGRAM  
SHEET 1 OF 2

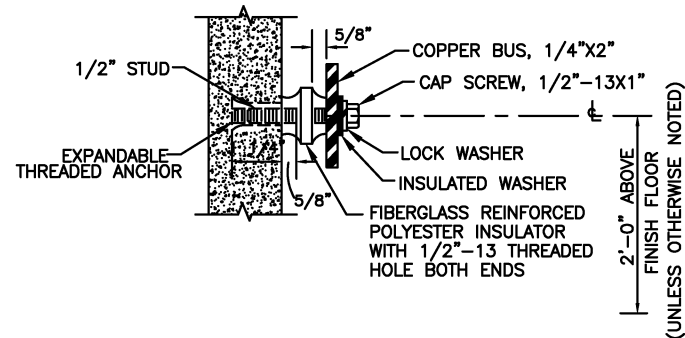
SCALE NONE DRAWING NO. DD-E-077



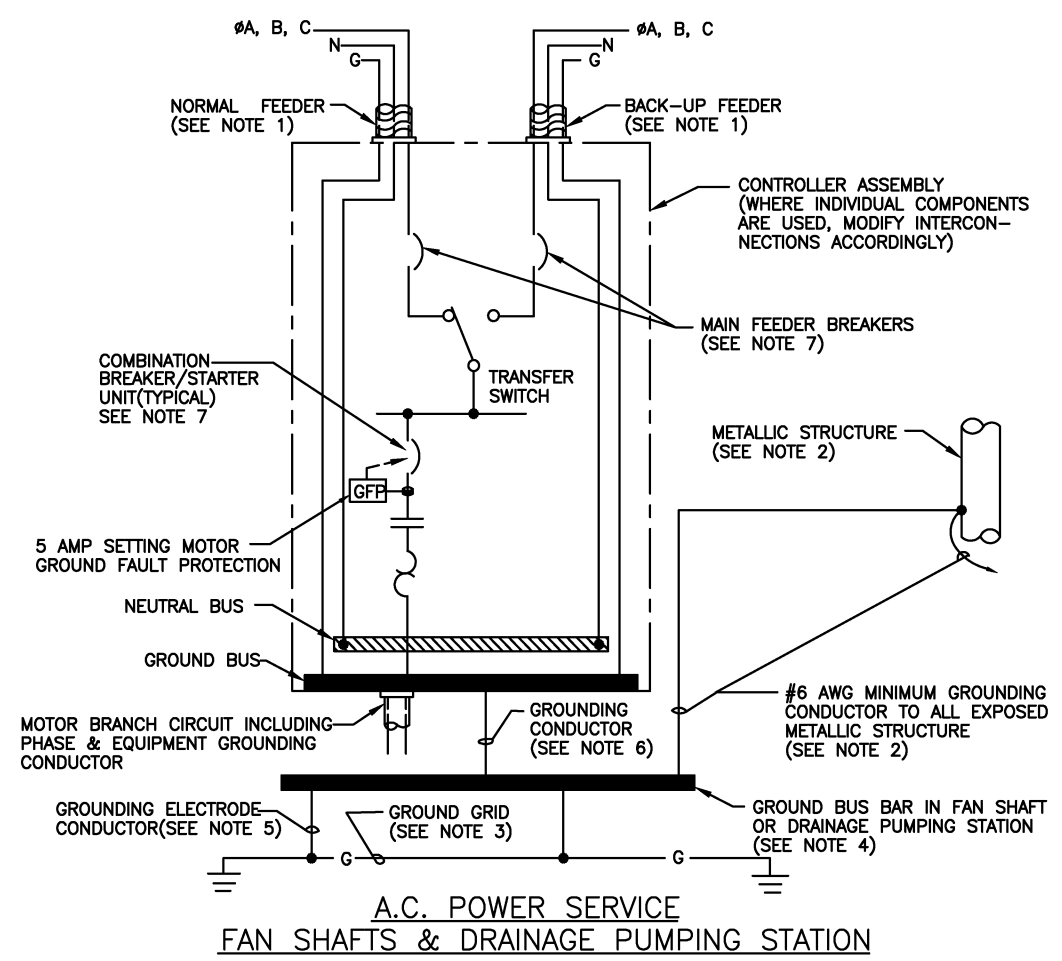
**EMERGENCY TRIP STATION INTERFACE BOX**



**MOTOR & CONTROLLER**

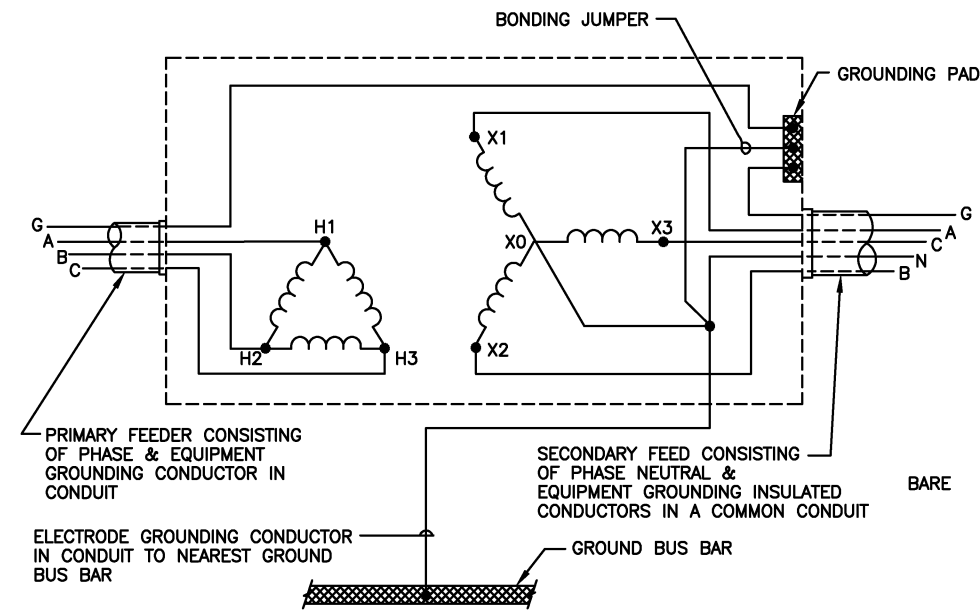


**GROUND BUS BAR INSTALLATION**

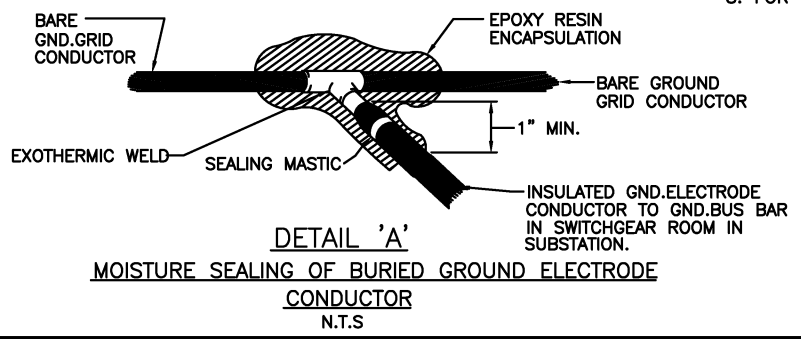


**A.C. POWER SERVICE  
FAN SHAFTS & DRAINAGE PUMPING STATION**

- NOTES - FAN SHAFTS, DRAINAGE PUMPING STATIONS & TUNNEL LOAD CENTERS:
- ONE NORMAL & ONE BACK-UP FEEDER, EACH CONSISTING OF A MULTIPLE CONDUCTOR CABLE WITH PHASE & NEUTRAL INSULATED CONDUCTORS & INTERSTITIAL BARE EQUIPMENT GROUNDING CONDUCTOR. EACH FEEDER SHALL ORIGINATE FROM DIFFERENT PASSENGER STATION A.C. SWITCHBOARD.
  - ALL MOTOR FRAMES, STEEL STRUCTURES, DUCT WORK & PIPING WHERE EXPOSED WITHIN FAN SHAFTS, TUNNELS & PUMPING STATIONS SHALL BE GROUNDED TO THE GROUND BUS.
  - GROUND GRID CONSISTING OF INSULATED CONDUCTORS & GROUND RODS WITH MAXIMUM RESISTANCE TO GROUND OF 2 OHMS; #4/0 COPPER CONDUCTOR MINIMUM.
  - COPPER GROUND BUS BAR SHALL BE 1/4 INCH BY 2 INCH, 24 INCHES ABOVE FINISHED FLOOR, EXTENDED ALONG ONE WALL.
  - #4/0 GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR INTERCONNECTING GROUND BUS BAR & GROUND GRID. PROVIDE A MINIMUM OF 2, ONE AT EACH END OF THE GROUND BUS BAR.
  - #4/0 GREEN INSULATED GROUNDING CONDUCTOR INTERCONNECTING GROUND BUS BAR & EQUIPMENT GROUND BUS.
  - ALL FAN SHAFTS BREAKERS & MOTOR OVERLOAD PROTECTIVE DEVICES SHALL BE OF THE TYPE SENSITIVE TO CURRENT ONLY, (MAGNETIC TYPE) TO ALLOW CONTINUOUS FAN OPERATION IN CASE OF FIRE.
  - FOR TUNNEL LOAD CENTER GROUNDING DETAILS SEE DWG DD-E-103.



**GENERAL PURPOSE TRANSFORMER**



**DETAIL 'A'  
MOISTURE SEALING OF BURIED GROUND ELECTRODE  
CONDUCTOR**  
N.T.S.

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		ELECTRICAL DESIGN DRAWING	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT	OFFICE OF ENGINEERING AND ARCHITECTURE	SCALE	DRAWING NO.
DD-E-046	CABLE & CONTACT RAIL LOCATION AT GRADE	08/2001	ENGA	Revised and issued by the Authority						N.T.S.	DD-E-078
DD-E-077	AC POWER GROUNDING DIAGRAM										
DD-E-103	A.C. POWER GROUNDING DIAGRAM										

DESIGNED	FLAIFEL	5-75	DATE
DRAWN	HILLIARD	5-75	DATE
CHECKED	ROBERTSON	7-75	DATE
APPROVED	R. GANERIVAL	11-75	DATE

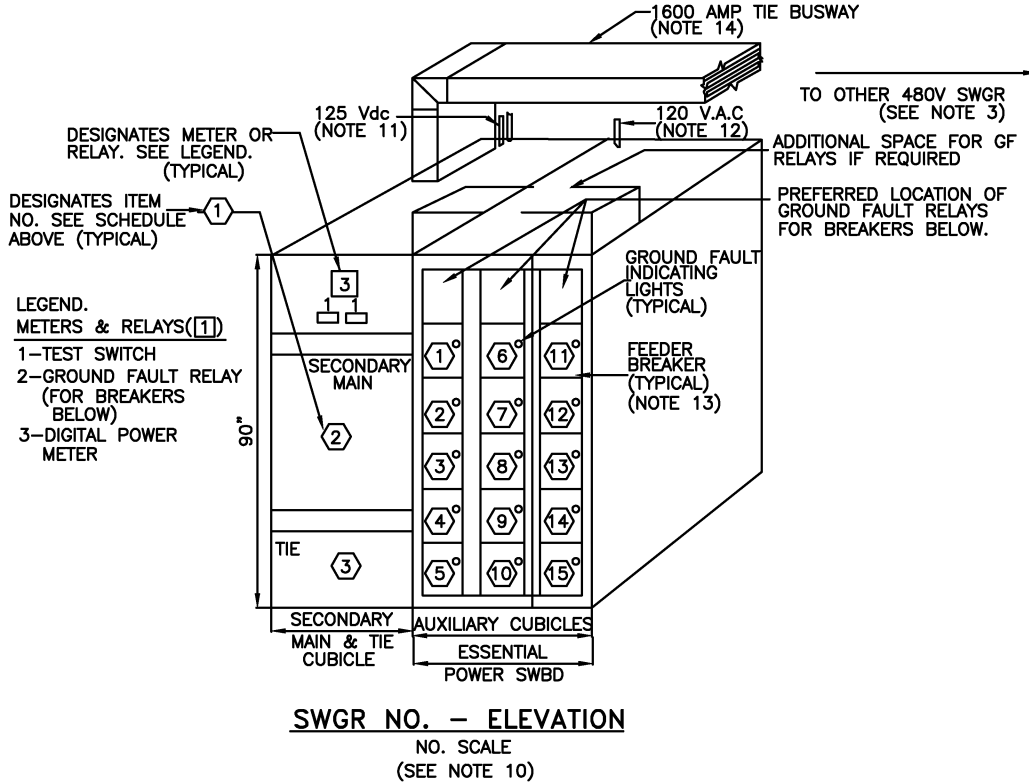
  

SUBMITTED	DATE	APPROVED DIRECTOR	DATE
		<i>[Signature]</i>	May 3, 2001

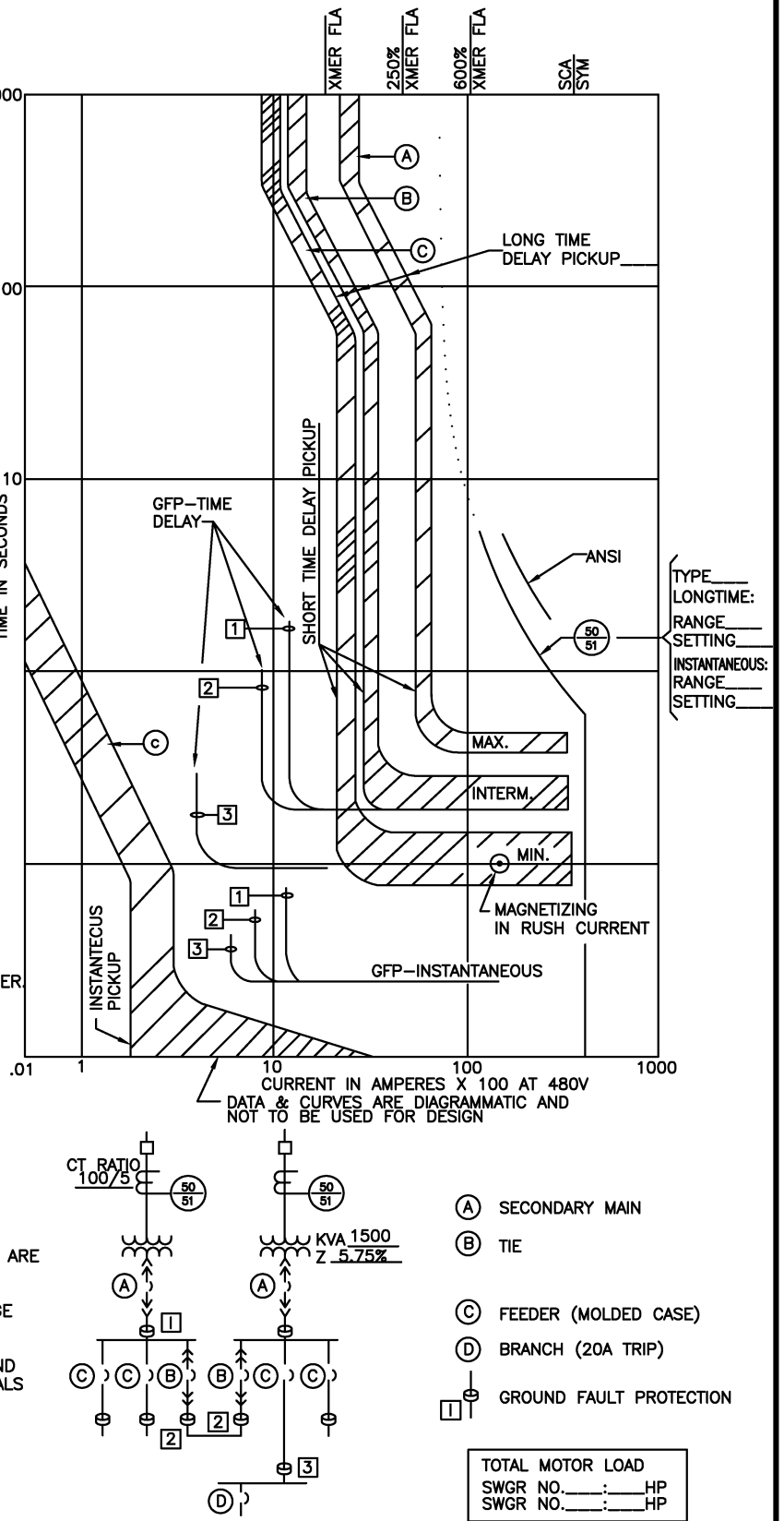
**480-VOLT SWITCHGEAR SCHEDULE**

SWITCHGEAR NO.	CUBICLE	ITEM	CIRCUIT BREAKER					GROUND FAULT PROTECTION		SERVING	REMARKS	LOAD (NOTE 9)																																																																																																																																																																																																																																																																																																																																																						
			POLES	FRAME (AMPS)	OVERCURRENT TRIP DEVICE (NOTE 5)			PICK-UP (AMPS)	TIME DELAY (CYCLES) (1=INSTANTANEOUS)			CONNECTED LOAD			DEMAND (KVA)																																																																																																																																																																																																																																																																																																																																																			
					TRIP COIL (AMPS)	LONG TIME PICKUP	SHORT TIME BAND					INTER-RUPTING CAPACITY (AIC)	AØ	BØ	CØ	TOTAL (KVA)	SUMMER	WINTER																																																																																																																																																																																																																																																																																																																																																
	SECONDARY MAIN & TIE	1	-	-	-	-	-	-	-	METERING & GROUND FAULT RELAYS																																																																																																																																																																																																																																																																																																																																																								
		2	3	3000	3000	80%	MAX.	50,000	1200	1 & 12	SECONDARY MAIN BREAKER	1123	1116	1109	930	645.3	723.3																																																																																																																																																																																																																																																																																																																																																	
		3	3	1600	1600	80%	INTERM.	42,000	800	1 & 12	TIE BREAKER (NOTE 3)	768	759	750	630	530	480																																																																																																																																																																																																																																																																																																																																																	
<p>NOTE 1: FEEDER BREAKER</p> <table border="1"> <thead> <tr> <th>TRIP</th> <th>CURR. SIZE</th> <th>LIMITER</th> <th>AIC SYM.</th> <th>INST. PICKUP</th> <th>SERVING</th> <th>REMARKS</th> <th>AØ</th> <th>BØ</th> <th>CØ</th> <th>TOTAL (KVA)</th> <th>SUMMER</th> <th>WINTER</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> <td>100</td> <td>50</td> <td>BY MFR</td> <td>FEEDER</td> <td>200,000</td> <td>-</td> <td>100</td> <td>1</td> <td>TRAIN CONTROL ROOM. (NOTE 15)</td> <td>3</td> <td>3</td> <td>3</td> <td>9</td> <td>6.3</td> <td>6.3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>3</td> <td>225</td> <td>125</td> <td>-</td> <td>-</td> <td>35,000</td> <td>HI</td> <td>400</td> <td>6</td> <td>UPS TRANSFER SWITCH (NOTE 6)</td> <td>48</td> <td>48</td> <td>48</td> <td>40</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>3</td> <td>225</td> <td>225</td> <td>-</td> <td>-</td> <td>35,000</td> <td>HI</td> <td>100</td> <td>1</td> <td>UPS BATTERY CHARGER (NOTE 6)</td> <td>120</td> <td>120</td> <td>120</td> <td>100</td> <td>100</td> <td>100</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>3</td> <td>400</td> <td>225</td> <td>-</td> <td>-</td> <td>35,000</td> <td>HI</td> <td>400</td> <td>6</td> <td>FAN SHAFT - STATION 600+75(NOTE 7)</td> <td>108</td> <td>108</td> <td>108</td> <td>90</td> <td>90</td> <td>90</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>3</td> <td>100</td> <td>100</td> <td>BY MFR</td> <td>PNL-S</td> <td>200,000</td> <td>-</td> <td>-</td> <td>-</td> <td>PANEL S</td> <td>75</td> <td>75</td> <td>75</td> <td>60</td> <td>60</td> <td>60</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>3</td> <td>400</td> <td>150</td> <td>-</td> <td>-</td> <td>35,000</td> <td>HI</td> <td>-</td> <td>-</td> <td>PUMPING STATION - STATION 605+50(NOTE 8)</td> <td>104</td> <td>104</td> <td>104</td> <td>86</td> <td>9</td> <td>9</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>3</td> <td>400</td> <td>400</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>DISTRIBUTION PANEL NMS</td> <td>190</td> <td>181</td> <td>172</td> <td>150</td> <td>141</td> <td>141</td> <td></td> <td></td> <td></td> </tr> <tr> <td>8</td> <td>3</td> <td>400</td> <td>225</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>ENTRANCE ESCALATORS</td> <td>163</td> <td>163</td> <td>163</td> <td>135</td> <td>99</td> <td>117</td> <td></td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>3</td> <td>400</td> <td>225</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>SPARE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>3</td> <td>400</td> <td>125</td> <td>-</td> <td>-</td> <td>35,000</td> <td>HI</td> <td>400</td> <td>6</td> <td>SPARE (NOTE 15)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>11</td> <td>3</td> <td>100</td> <td>100</td> <td>BY MFR</td> <td>PNL</td> <td>200,000</td> <td>-</td> <td>400</td> <td>6</td> <td>PANEL NMS1</td> <td>80</td> <td>84</td> <td>88</td> <td>70</td> <td>20</td> <td>40</td> <td></td> <td></td> <td></td> </tr> <tr> <td>12</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>DISTRIBUTION PANEL-NES</td> <td>84</td> <td>84</td> <td>84</td> <td>70</td> <td>60</td> <td>60</td> <td></td> <td></td> <td></td> </tr> <tr> <td>13</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-NES1</td> <td>62</td> <td>60</td> <td>58</td> <td>50</td> <td>20</td> <td>50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>14</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-NAES</td> <td>86</td> <td>86</td> <td>86</td> <td>70</td> <td>40</td> <td>50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>15</td> <td>3</td> <td>400</td> <td>225</td> <td>-</td> <td>-</td> <td>35,000</td> <td>HI</td> <td>400</td> <td>6</td> <td>SPARE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="11">LOAD TOTALS</td> <td>1123</td> <td>1116</td> <td>1109</td> <td>930</td> <td>6453</td> <td>723.3</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>																					TRIP	CURR. SIZE	LIMITER	AIC SYM.	INST. PICKUP	SERVING	REMARKS	AØ	BØ	CØ	TOTAL (KVA)	SUMMER	WINTER	1	3	100	50	BY MFR	FEEDER	200,000	-	100	1	TRAIN CONTROL ROOM. (NOTE 15)	3	3	3	9	6.3	6.3				2	3	225	125	-	-	35,000	HI	400	6	UPS TRANSFER SWITCH (NOTE 6)	48	48	48	40	0	0				3	3	225	225	-	-	35,000	HI	100	1	UPS BATTERY CHARGER (NOTE 6)	120	120	120	100	100	100				4	3	400	225	-	-	35,000	HI	400	6	FAN SHAFT - STATION 600+75(NOTE 7)	108	108	108	90	90	90				5	3	100	100	BY MFR	PNL-S	200,000	-	-	-	PANEL S	75	75	75	60	60	60				6	3	400	150	-	-	35,000	HI	-	-	PUMPING STATION - STATION 605+50(NOTE 8)	104	104	104	86	9	9				7	3	400	400	-	-	-	-	-	-	DISTRIBUTION PANEL NMS	190	181	172	150	141	141				8	3	400	225	-	-	-	-	-	-	ENTRANCE ESCALATORS	163	163	163	135	99	117				9	3	400	225	-	-	-	-	-	-	SPARE										10	3	400	125	-	-	35,000	HI	400	6	SPARE (NOTE 15)										11	3	100	100	BY MFR	PNL	200,000	-	400	6	PANEL NMS1	80	84	88	70	20	40				12										DISTRIBUTION PANEL-NES	84	84	84	70	60	60				13										-NES1	62	60	58	50	20	50				14										-NAES	86	86	86	70	40	50				15	3	400	225	-	-	35,000	HI	400	6	SPARE										LOAD TOTALS											1123	1116	1109	930	6453	723.3				
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\* SWITCHBOARD ROOM 3 # 4 W  
 \* ONE GROUND TO-NEUTRAL CONNECTION FOR BOTH SWITCHGEAR. (NOTE 2)  
 \* AVAILABLE SHORT CIRCUIT CURRENT SYMMETRICAL AMPERES: 34,300 A. (NOTE 4)



- NOTES:**
- FEEDER BREAKERS WITH CURRENT LIMITERS ARE TO INDICATE PROTECTION FOR THE FEEDER BREAKER ITSELF AND OR DOWNSTREAM BRANCH CIRCUIT BREAKERS. (AS DETERMINED BY APPROPRIATE SHORT CIRCUIT ANALYSIS).
  - IN COMBINED A.C. SWITCHBOARD ROOMS, SYSTEM NEUTRALS ARE TO BE TIED TOGETHER AND CONNECTED TO GROUND AT A SINGLE POINT.
  - IN COMBINED A.C. SWITCHBOARD ROOMS, PROVIDE ONLY ONE TIE BREAKER WHERE TOTAL LENGTH OF TIE BUSWAY DOES NOT EXCEED 25 FEET.
  - INDICATE THE AVAILABLE SHORT CIRCUIT CURRENT AT THE LINE TERMINAL OF THE SECONDARY MAIN BREAKER.
  - PROVIDE SELECTIVE OVERCURRENT TRIPPING, AS SHOWN AND INCLUDE SYSTEM GROWTH WHERE REQUIRED.
  - IN COMBINED A.C. SWITCHBOARD ROOMS, PROVIDE INPUT POWER FROM ONE ESSENTIAL SWITCHBOARD TO THE UPS CHARGER AND FROM THE OTHER ESSENTIAL SWITCHBOARD TO THE UPS TRANSFER SWITCH.
  - FEEDER BREAKER TRIP SETTINGS FOR FAN SHAFT FEEDERS ARE TO BE SELECTED FOR SEQUENTIAL STARTING OF ALL MOTORS. COORDINATE REQUIREMENTS WITH WMATA.
  - FEEDER BREAKER TRIP SETTINGS FOR DRAINAGE PUMPING STATION FEEDERS ARE TO BE SELECTED FOR SEQUENTIAL STARTING OF PUMP MOTORS.
  - CONNECTED LOADS ARE TO BE OPTIMIZED FOR PHASE BALANCE. AS FAR AS PRACTICAL, THE TOTAL 480V LOADS ARE TO BE EQUALLY DIVIDED BETWEEN THE SEPARATE SWITCHGEAR ASSEMBLIES. KVA LOADS ARE ARITHMETICALLY ADDED FOR SIMPLICITY.
  - FOR 13.8 KV AND 34.5 KV PRIMARY A.C. SUBSTATIONS, PROVIDE AN IN-LINE ASSEMBLY OF HIGH VOLTAGE SWITCHGEAR, TRANSFORMER AND LOW VOLTAGE SWITCHGEAR.
  - PROVIDE A 125V D.C. CIRCUIT FROM D.C. PANEL TO THE 480V SWITCHGEAR FOR D.C. CONTROL POWER AND 1-1/2" CONDUIT TO OTHER 480V SWITCHGEAR FOR BREAKER RELAY AND GROUND FAULT RESTRAINT SIGNALS (THESE ARE IN ADDITION TO THE CIRCUIT PROVIDED TO THE HIGH VOLTAGE SWITCHGEAR).
  - PROVIDE A 120V A.C. CIRCUIT FROM THE NEAREST ESSENTIAL PANEL TO THE 480V SWITCHGEAR FOR SPACE HEATERS. (THIS IS IN ADDITION TO THE CIRCUIT PROVIDED TO THE HIGH VOLTAGE SWITCHGEAR).
  - MAXIMUM HANDLE HEIGHT OF TOP FEEDER BREAKER IS NOT TO EXCEED 6'-6" COMPLY WITH NEC.
  - PROVIDE TIE BUSWAY IN COMBINED A.C. SWITCHBOARD ROOMS ONLY.
  - TRAIN CONTROL ROOM, UNINTERRUPTIBLE POWER SYSTEM, FAN SHAFT, PUMPING STATION AND OTHER LOADS INDICATED IN THE DESIGN CRITERIA TO BE FED DIRECTLY FROM THE ESSENTIAL SWITCHBOARD WHERE REQUIRED TO SUIT AVAILABLE SPACE, DISTRIBUTION PANELBOARDS MAY BE USED TO SUB-FEED REMAINING THREE-PHASE LOADS.



**SYSTEM COORDINATION--(SHOWING CHAIN OF ESSENTIAL DEVICES)**  
 (MANUFACTURER) CURVES USED FOR CLARIFICATION ONLY

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
FLAIFELT	6-78			DD-E-057	TYPICAL PANEL SCHEDULE FORMAT	08/2001	ENGA	Revised and issued by the Authority					

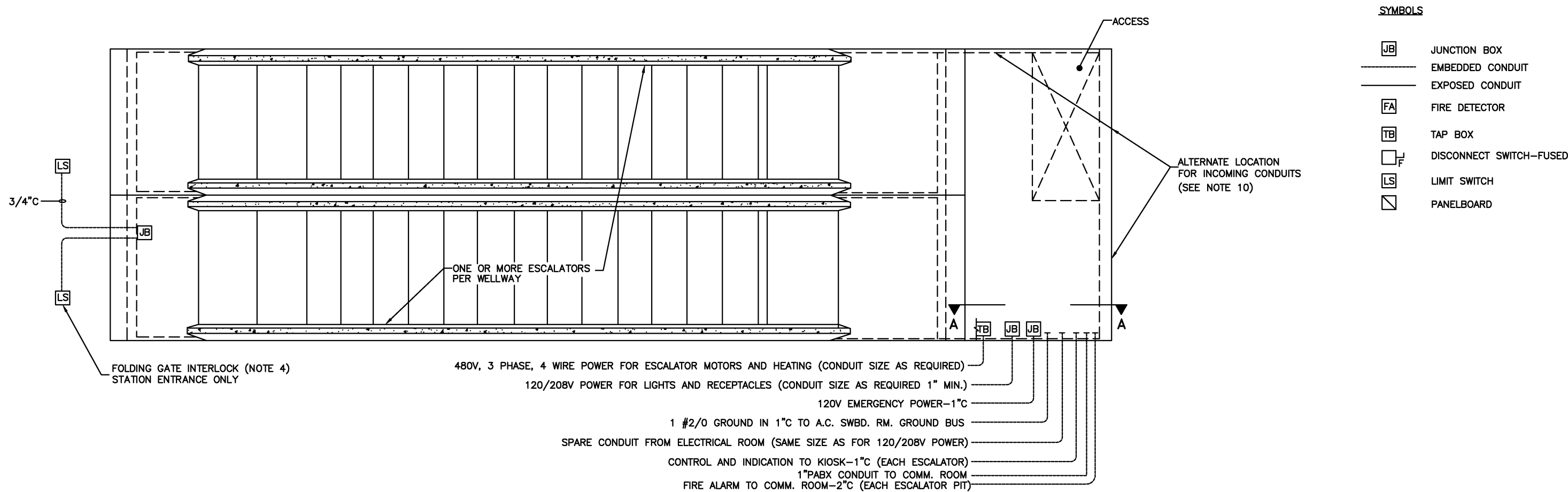
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

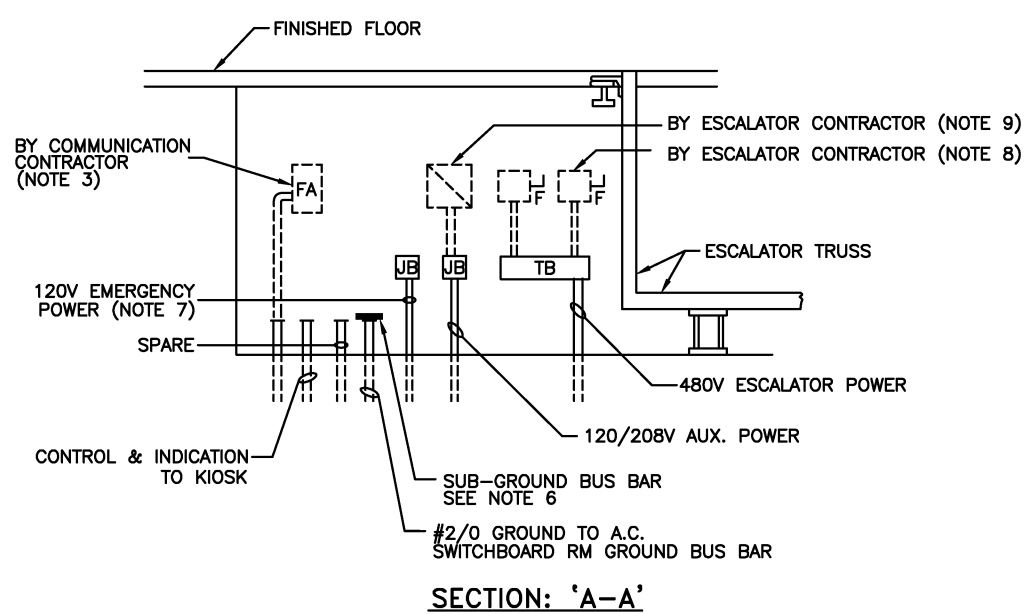
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
 480V SWITCHGEAR SCHEDULE FORMAT

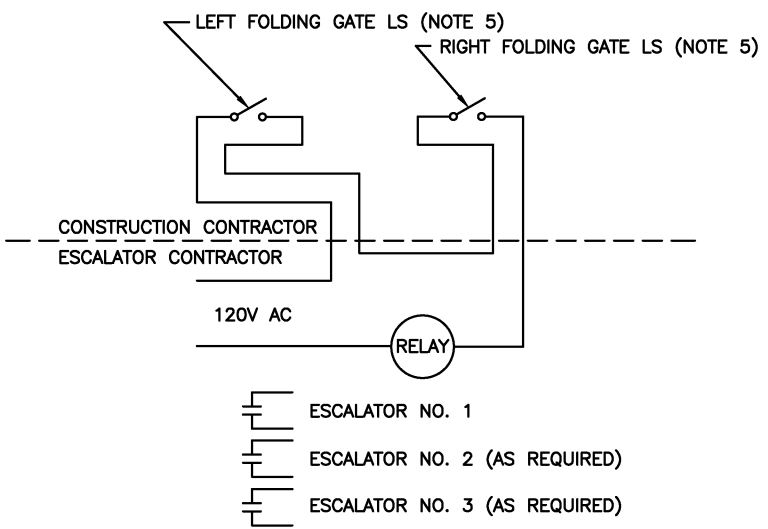
SCALE NONE DRAWING NO. DD-E-079



**PLAN VIEW**



**SECTION: 'A-A'**



**FOLDING GATE INTERLOCK SCHEMATIC DIAGRAM**

**NOTES:**

1. ALL CONDUITS SHALL BE INSTALLED IN STRUCTURAL CONTRACT AND TERMINATE FLUSH WITH WALL AND PLUGGED IN MACHINE ROOM, OR IN LOWER PIT AS SHOWN.
2. CONDUIT AND WIRING RUNS AS SHOWN ARE DIAGRAMMATIC ONLY. ALL ELECTRICAL EQUIPMENT & WIRING SHALL MEET NEC AND LOCAL CODES.
3. MOUNTING OF ELECTRICAL EQUIPMENT SHALL BE COORDINATED WITH ESCALATOR CONTRACTOR.
4. SEE ARCHITECTURAL DIRECTIVE DRAWINGS FOR LOCATION OF FOLDING GATE LIMIT SWITCHES. FOR LIMIT SWITCHES AT TOP OF ESCALATOR, RUN CONDUIT INTO UPPER PITS.
5. LIMIT SWITCHES ARE CLOSED WHEN FOLDING GATES ARE RETRACTED AND CABINET DOORS ARE FULLY CLOSED.
6. METALLIC STRUCTURES, INCLUDING ESCALATOR TRUSS SHALL BE BONDED TO EQUIPMENT GROUNDING CONDUCTOR FURNISHED WITH THE INCOMING POWER FEEDER AND TO SUB-BUS BAR.
7. EMERGENCY POWER SHALL BE EXTENDED, AS REQUIRED, BY ESCALATOR CONTRACTOR.
8. SUB-FEEDERS AND FUSED DISCONNECT SWITCHES OR CIRCUIT BREAKERS FOR ESCALATOR POWER AND HEATING SHALL BE PROVIDED BY ESCALATOR CONTRACTOR.
9. MULTI-CIRCUIT PANELBOARD FOR LIGHTING AND RECEPTACLES SHALL BE PROVIDED BY ESCALATOR CONTRACTOR.
10. AN ALTERNATIVE LOCATION FOR ESCALATOR ELECTRICAL EQUIPMENT IS IN A SEPARATE ESCALATOR ELECTRICAL EQUIPMENT ROOM PROVIDED OUTSIDE OF THE ESCALATOR PIT. COORDINATE NUMBER AND SIZE OF CONDUITS BETWEEN THIS ROOM AND ESCALATOR PIT.

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		REVISIONS	
W. ROBERTSON	3-78	3-78	DD-M-064	CLASS A ESCALATOR AND STRUCTURAL WELLWAL	08/2001	ENGA	Revised and issued by the Authority						
J. UNGER	3-78	3-78	DD-M-065	CLASS B ESCALATOR AND STRUCTURAL WELLWAL									
T. HANSEN	9-78	9-78	DD-M-066	CLASS C ESCALATOR AND STRUCTURAL WELLWAL									
T. HANSEN	9-78	9-78	DD-M-079	ESCALATOR DETAILS SECTIONS AND SUPPORT									
T. HANSEN	9-78	9-78	DD-M-080	ESCALATOR DETAILS SECTIONS AND SUPPORT									

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

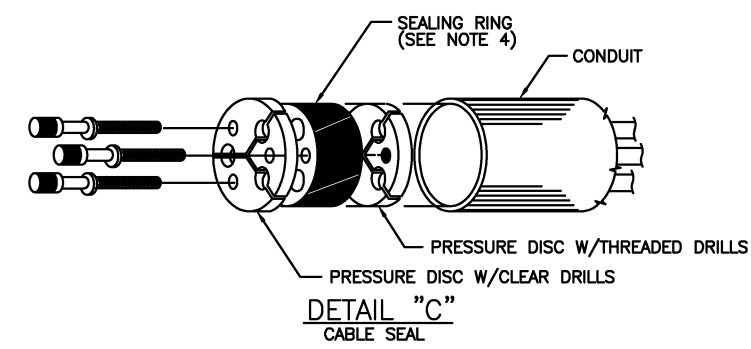
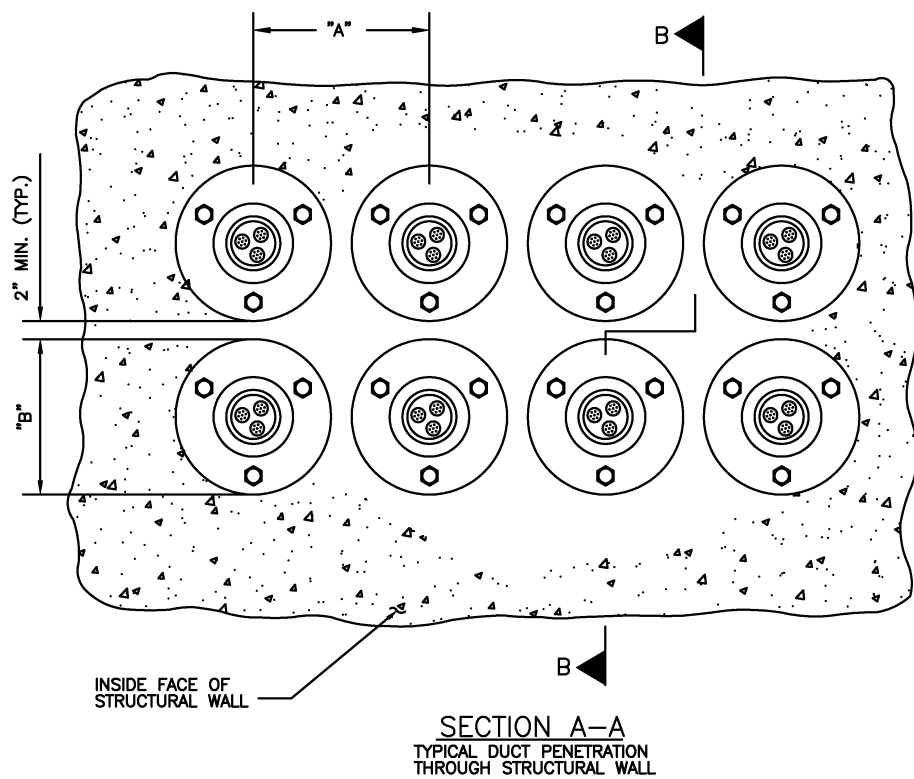
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
TYPICAL CONDUIT LAYOUT FOR  
CLASS A, B AND C ESCALATORS

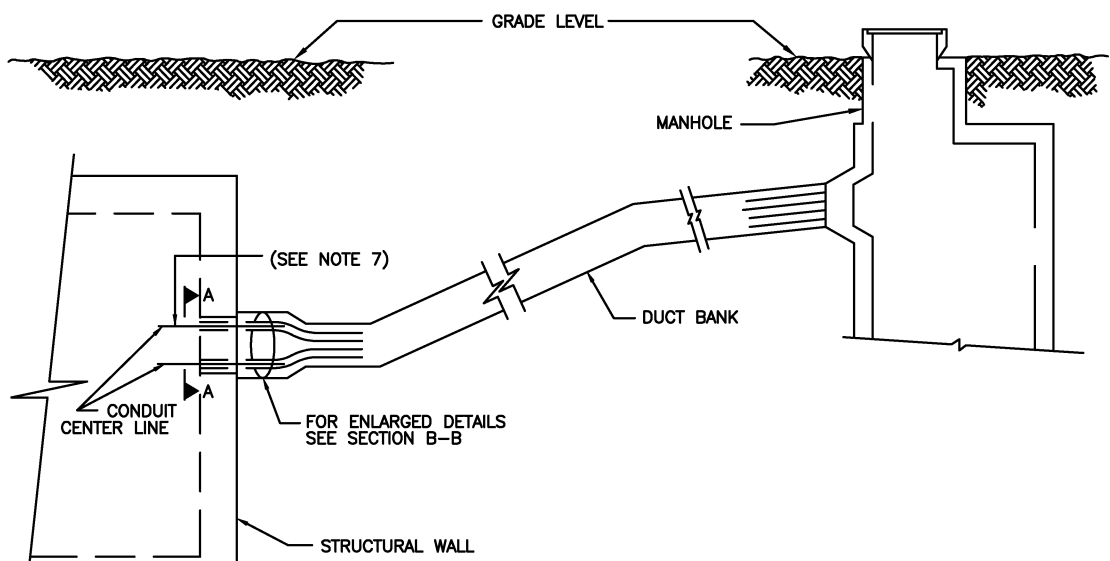
SCALE N.T.S. DRAWING NO. DD-E-080

DATE PLOTTED

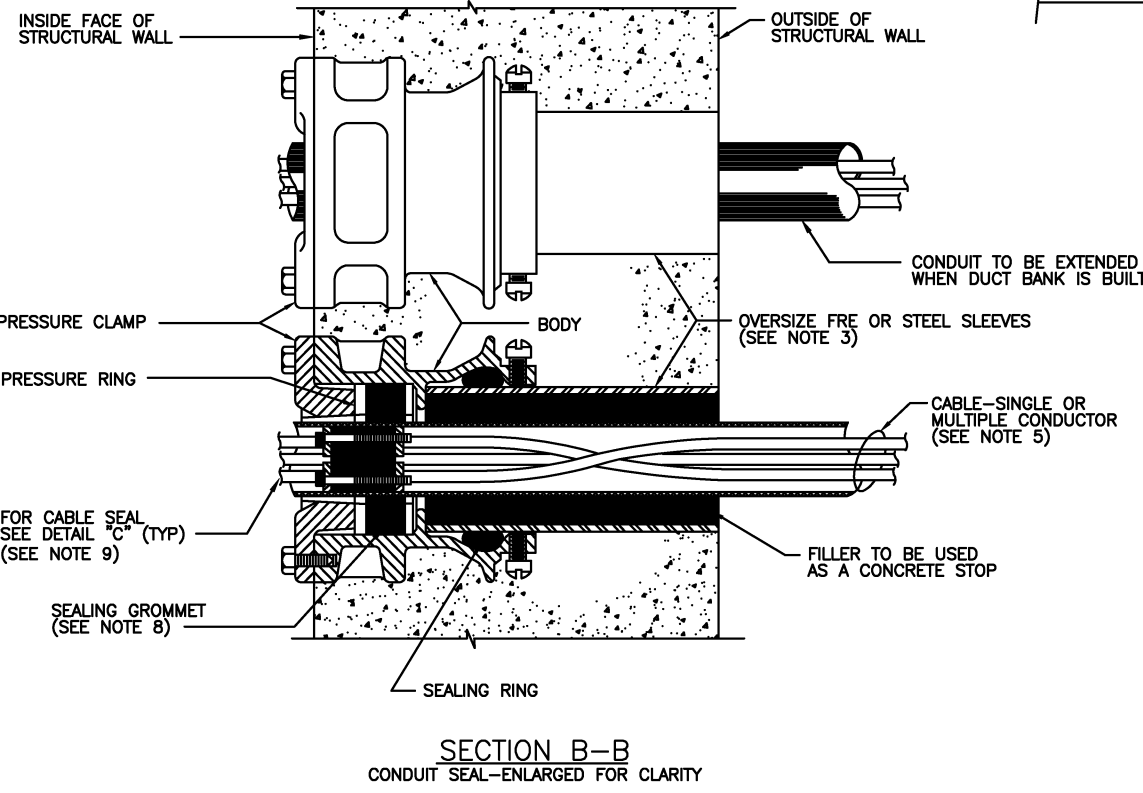


SPACING REQUIREMENT TABLE

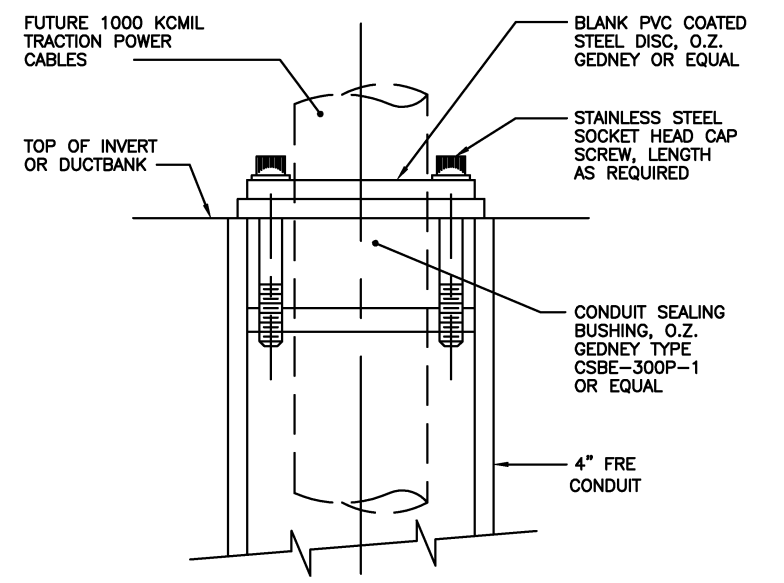
CONDUIT SIZE	CONDUIT SPACING "A"	CONDUIT SEAL		CABLE SEAL	REMARKS
		FLANGE DIAMETER "B"	SLEEVE DIAMETER NOMINAL		
6	12-1/4"	10-1/4"	7"	SIZE TO CORRESPOND TO CONDUIT INSIDE DIAMETER	
5	12-1/4"	10-1/4"	7"		
4	9-7/8"	7-7/8"	5"		
3	8-3/4"	6-3/4"	4"	SIZE TO CORRESPOND TO CONDUIT INSIDE DIAMETER	TRACTION POWER CONDUITS TO HAVE FRE SLEEVE



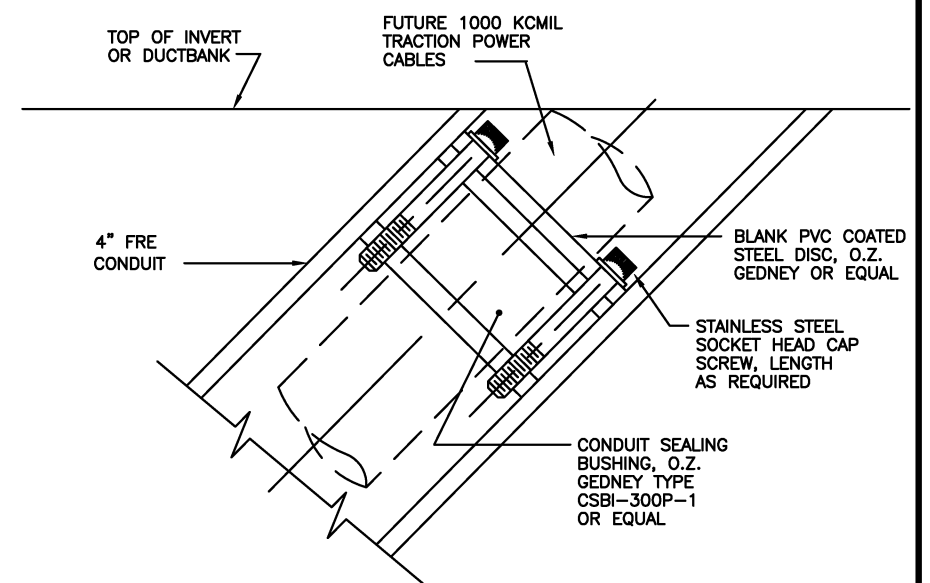
- NOTES:
- CONDUIT AND CABLE SEALING BUSHINGS ARE TO BE USED WHERE THE BUILDING PENETRATION IS AT A LOWER ELEVATION THAN MANHOLE OR BELOW WATER TABLE.
  - FOR CONDUITS SMALLER THAN 3 INCHES THE ANTICIPATED APPLICATIONS ARE EXPECTED TO REQUIRE CABLE SEALS ONLY.
  - SLEEVE FOR USE WITH TRACTION POWER CONDUITS SHALL BE FRE.
  - PROVIDE A BLANK CABLE SEALING RING WHERE EMPTY CONDUITS ARE INSTALLED FOR FUTURE CONTRACTS USE OR SPARE RACEWAY.
  - CABLE SEAL IS TO BE CAPABLE OF PROVIDING A SEAL AROUND SINGLE AND MULTIPLE CONDUCTOR CABLE.
  - CABLE SEAL IS TO BE CAPABLE OF WITHSTANDING A FLUID PRESSURE OF 50 PSIG.
  - CONDUIT SPACING IN DUCT MUST BE INCREASED TO ACCOMMODATE FLANGE OF CONDUIT SEAL. (SEE TABLE ABOVE FOR SPACING REQUIREMENTS).
  - SEALING GROMMET IS TO BE CAPABLE OF WITHSTANDING PRESSURES FROM A 50 FT. HEAD OF WATER WITHOUT LEAKING.
  - ALTERNATE METHOD TO SEAL CONDUITS IS TO INSTALL RAYFLATE DUCT SEALING SYSTEM AS MANUFACTURED BY RAYCHEM OR APPROVED EQUAL.



**INCOMING DUCT-TYPICAL INSTALLATION FOR CONDUIT & CABLE SEALS**



**TYPICAL TERMINATION OF POSITIVE TRACTION POWER CONDUIT STUB-UP AT CONTACT RAIL**



**TYPICAL TERMINATION OF NEGATIVE TRACTION POWER CONDUIT STUB-UP ADJACENT TO TRACK**

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
DATE	BY	DESCRIPTION	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
4-78	DAMS				08/2001	ENGA	Revised and issued by the Authority	
5-78	HILLIARD							
7-78	R. GANERWAL							
11-78	T. HANSEN							
12-88	R. GANERWAL							

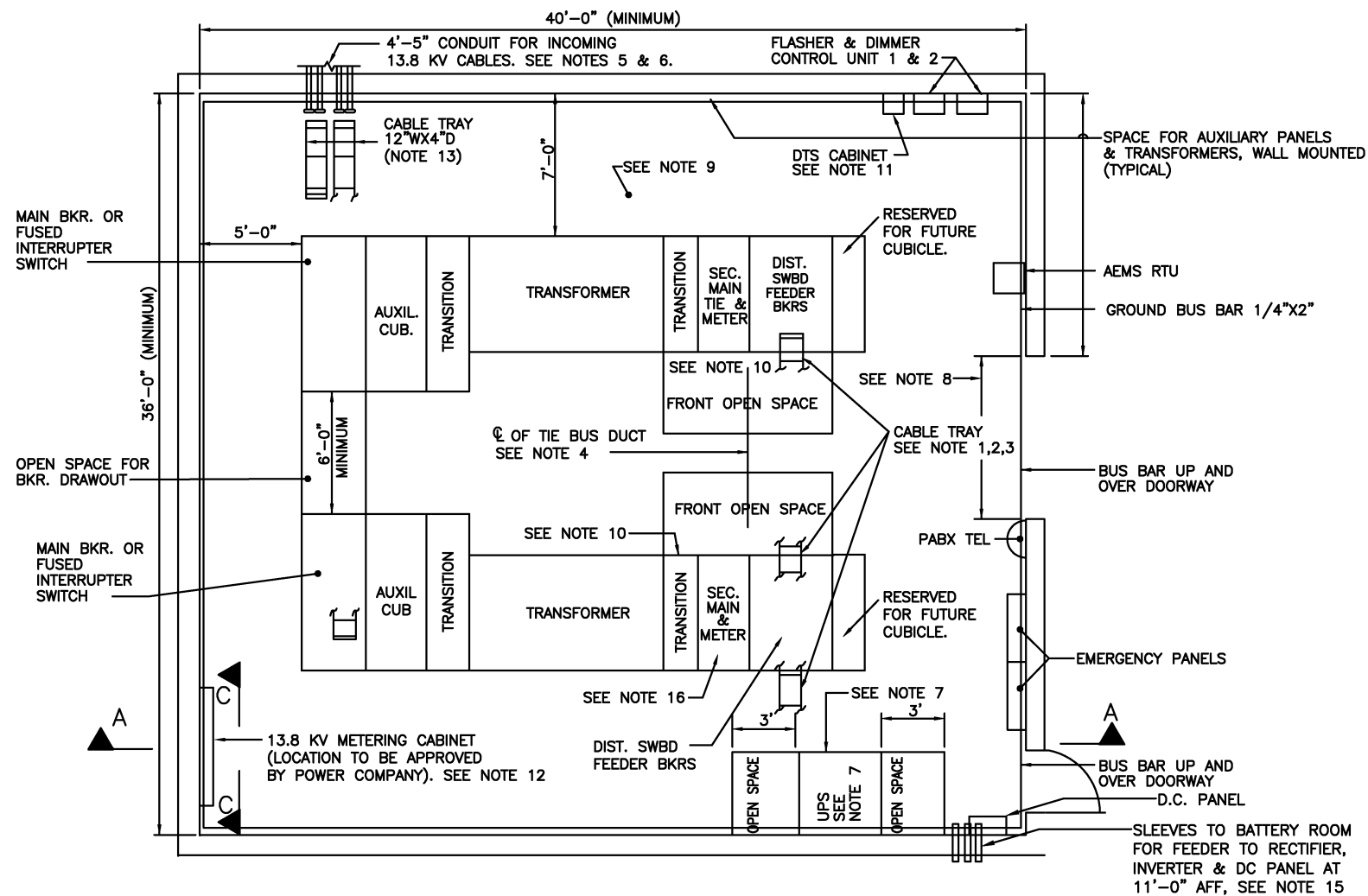
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

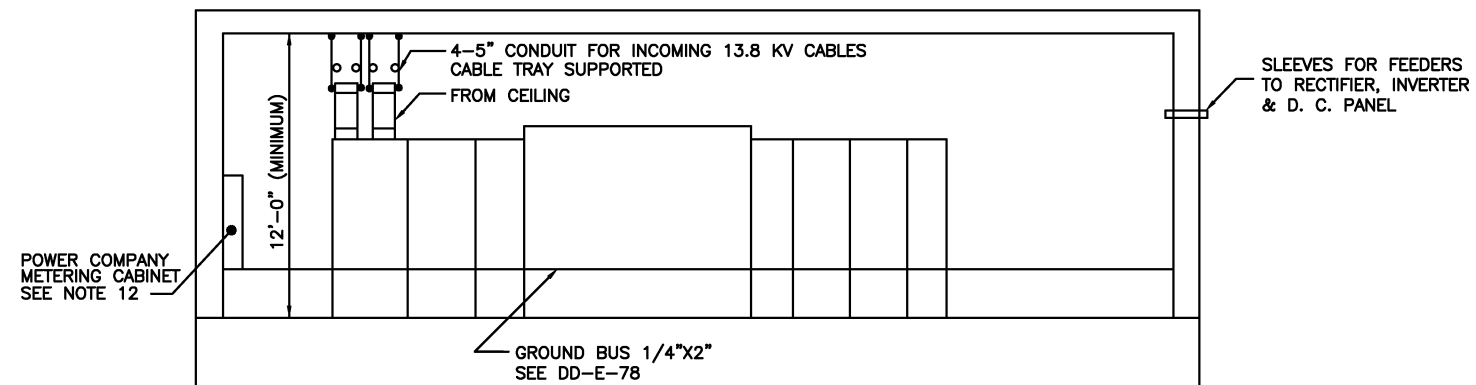
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING  
CONDUIT & CABLE SEALS  
FOR DUCT PENETRATIONS**

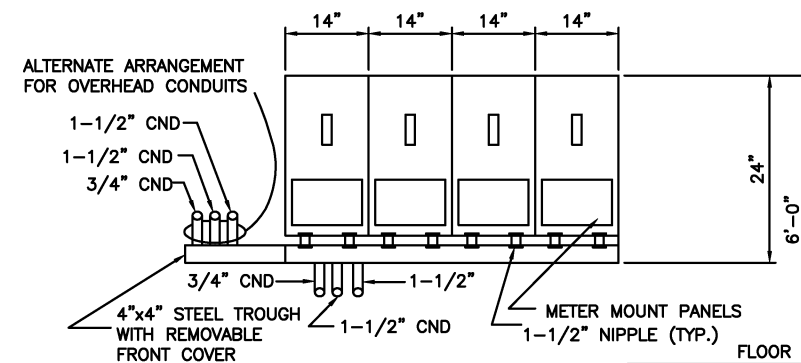
SCALE: N.T.S. DRAWING NO. DD-E-081



**A. C. SWITCHBOARD ROOM PLAN**  
SCALE: 1/4"=1'-0"



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



**ELEVATION C-C POWER COMPANY METERING CABINET**

N.T.S.

**NOTES:**

- INSTALL TIE, FEEDER AND LOAD CABLES IN CABLE TRAY OR CONDUITS, PROPERLY SUPPORTED, BETWEEN 480V SWITCHGEAR AND AUXILIARY PANELS.
- CABLES TO THE PASSENGER STATION, TO BE ROUTED VIA CONDUITS, CABLE TUNNEL OR RETURN AIR PLENUM.
- PROVIDE TRANSITION/JUNCTION BOX FOR TRANSITION OF SINGLE CONDUCTOR CABLE IN CONDUIT TO MULTIPLE CONDUCTOR CABLE (MOUNTED ON CHANNEL INSERTS).
- USE 3 PHASE, FOUR WIRE, FULL CAPACITY NEUTRAL AND HALF CAPACITY INSULATED GROUND BUS DUCT.
- LOCATION AND DESIGN OF INCOMING 13.8KV SERVICE TO BE COORDINATED WITH POWER COMPANY. PROVIDE CABLE PULLING EYE, DESIGN FOR PULLING TENSION OF 5000 POUNDS, AT SUITABLE LOCATION FOR 13.8 KV INCOMING SERVICE. FOR CABLE PULLING EYE DETAIL. SEE DD-E-62.
- WHERE NECESSARY, USE CONDUIT AND CABLE SEAL FITTING TO PREVENT WATER SEEPAGE FROM DUCT BANK, HANDHOLE, MANHOLE, AND POWER COMPANY MANHOLE, AND DUCT BANKS. SEE DD-E-81.
- SOME UNITS NOT REQUIRING BACK ACCESS CAN BE INSTALLED AGAINST THE WALL KEEPING ADEQUATE CLEARANCE IN FRONT FOR DOOR OPENING USUALLY, RECTIFIER/CHARGER, INVERTER AND TRANSFER SWITCH ARE FURNISHED AS A PACKAGE.
- DOUBLE DOORS TO BE 9'-6" HIGH X 8'-0" WIDE (MINIMUM).
- FLOOR TO BE LEVELED TO 1/8" IN 10' TOLERANCE.
- SEE DESIGN DRAWING DD-E-79 FOR LOW VOLTAGE SWITCHGEAR LAYOUT.
- CONDUIT AND CABLE FROM EQUIPMENT MONITORED (AS PER DD-E-23) TO DTS CABINET, FROM SWITCHGEAR TO DC PANEL AND AC PANEL (SERVING SPACE HEATER), INVERTER TO EMERGENCY PANELBOARD, ETC SHALL BE SHOWN.
- PROVIDE SPACE AND CONDUITS FOR ONE POWER COMPANY METERING PANEL, AS INDICATED IN FRONT ELEVATION C-C KEEPING 4'-0" CLEARANCE IN FRONT CONDUITS USED AS FOLLOWS
  - 3/4" CONDUITS & CABLE FOR 120V, 15AMP CIRCUIT FROM A.C. POWER PANEL FOR DEMAND METER.
  - TWO-1-1/2" CONDUIT FOR METERING CABLE, ONE FROM EACH 13.8KV SWITCHGEAR.
  - METERING PANEL FURNISHED BY POWER COMPANY, INSTALLED BY CONTRACTOR. STEEL TROUGH AND RIGID STEEL CONDUIT BETWEEN TROUGH AND METER MOUNTING PANEL FURNISHED AND INSTALLED BY CONTRACTOR. POWER COMPANY SHALL FURNISH AND INSTALL THE METERING WIRES FROM BOTH THE 13.8KV SWITCHGEARS.
- FOR 13.8 KV INCOMING SERVICE CABLE, PROVIDE 12" WIDE X 4" DEEP CABLE TRAY.
- PROVIDE FOR VENTILATION IN A.C SWITCHBOARD ROOM AND BATTERY ROOM IN ACCORDANCE WITH DESIGN CRITERIA AND THE FOLLOWING REQUIREMENTS.
  - COORDINATE LOCATION AND ROUTING OF VENTILATION DUCT, EXHAUST DAMPER, AIR INLET ETC.
  - TO AVOID INSTALLATION OF VENTILATING DUCT ABOVE MAJOR ELECTRICAL EQUIPMENT (SWITCHGEAR, TRANSFORMER, RECTIFIER, CHARGER, INVERTER) AND AVOID INTERFERENCE WITH LIGHTING FIXTURES, COORDINATE DUCT WORK LAYOUT WITH EQUIPMENT LAYOUT AND LIGHTING PLAN.
- LOCATE BATTERY ROOM ADJACENT TO A.C. SWITCHBOARD ROOM. FOR BATTERY ROOM LAYOUT SEE DD-E-94.
- IF THE BUS LENGTH EXCEED 25 FEET PROVIDE TIE BREAKER.

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
DD-E-023	A.C. PWR SCHEM. DIAG. 13.8KV PEPCO SERVICE	08/2001	ENGA	Revised and issued by the Authority	
DD-E-062	TYPICAL 34.5KV A.C. SWITCHBOARD ROOM				
DD-E-081	CNDT & CABLE SEALS FOR DUCT PENETRATION				
DD-E-079	480V SWGR SCHEDULE FORMAT				
DD-E-103	BATTERY ROOM LAYOUT				
ST-TC-033	TYP. TRAIN CONTROL RISER DIAGRAM				
DD-A-SC-008	DOOR SCHEDULES, ELEVATIONS & DETAILS				

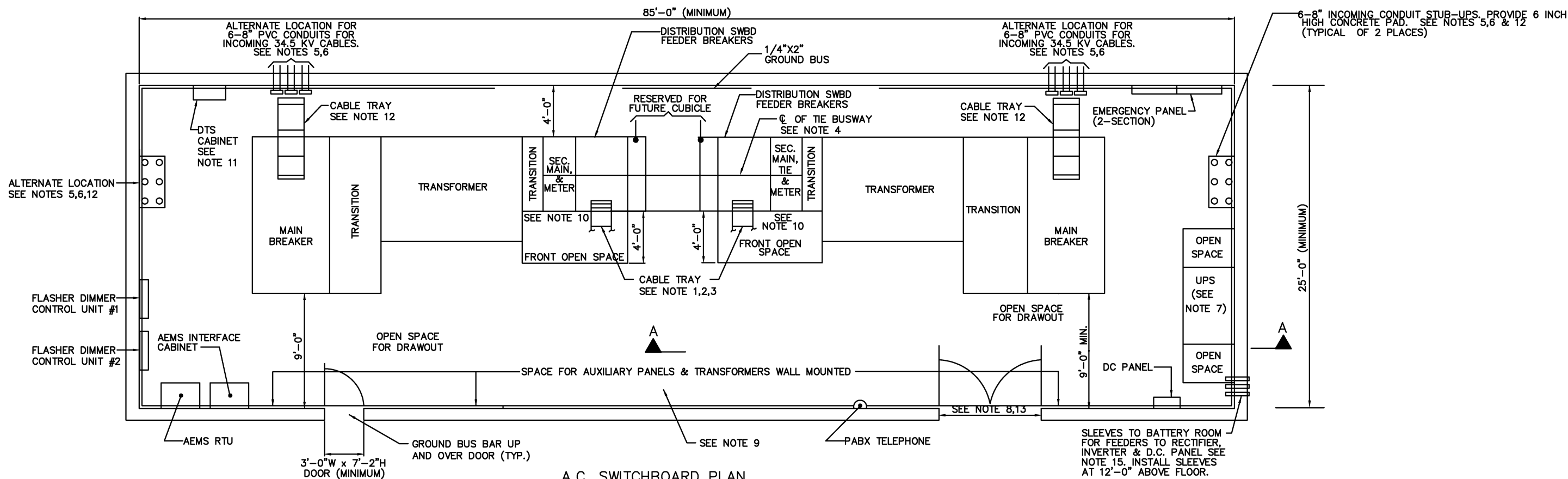
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
TYPICAL 13.8KV COMBINED A.C. SWITCHBOARD ROOM  
AT PASSENGER STATION

SCALE 1/4" = 1'-0" DRAWING NO. DD-E-083

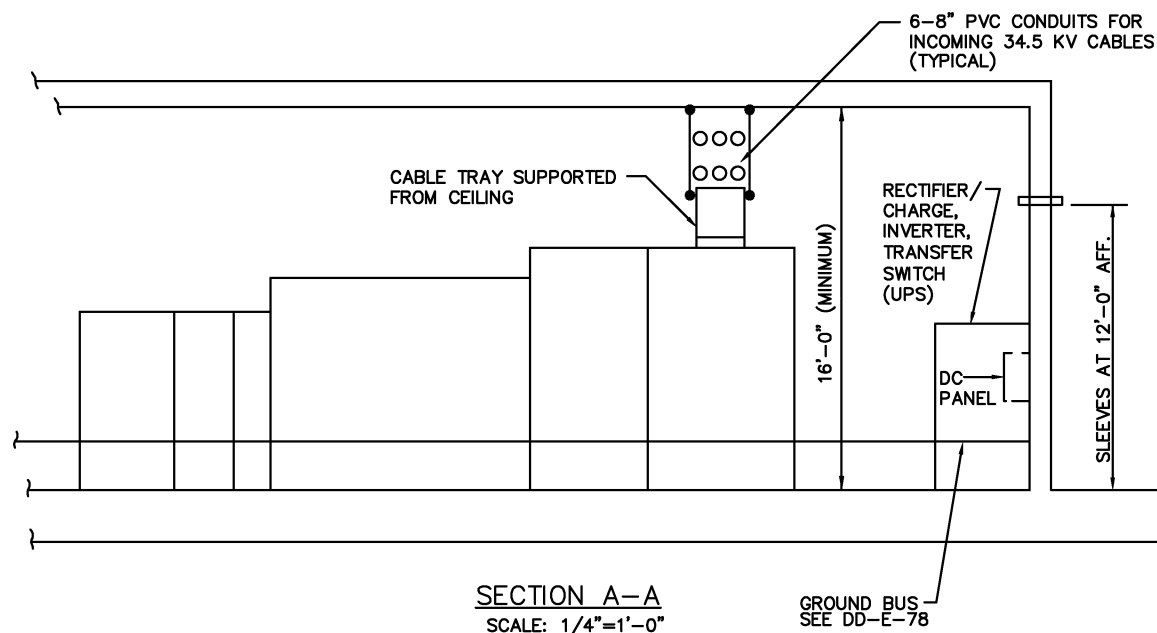




**A.C. SWITCHBOARD PLAN**  
SCALE: 1/4"=1'-0"

**NOTES:**

1. INSTALL TIE, FEEDER AND LOAD CABLES IN CABLE TRAY OR CONDUIT, PROPERLY SUPPORTED, BETWEEN 480V SWITCHGEAR AND AUXILIARY PANELS.
2. CABLES TO THE PASSENGER STATION TO BE ROUTED VIA CONDUIT, TUNNEL, RETURN AIR PLENUM OR OPEN SPACE UNDER PLATFORM.
3. PROVIDE JUNCTION BOX FOR TRANSITION FROM SINGLE CONDUCTOR CABLE IN CONDUIT TO MULTIPLE CONDUCTOR CABLE (MOUNTED ON CHANNEL INSERTS).
4. USE 3 PHASE, FOUR WIRE FULL CAPACITY NEUTRAL & HALF CAPACITY INSULATED GROUND BUS DUCT.
5. LOCATION AND DESIGN OF INCOMING 34.5 KV SERVICE TO BE COORDINATED WITH AND APPROVED BY THE POWER COMPANY. PROVIDE CABLE PULLING EYE, DESIGNED FOR PULLING TENSION OF 5,000 POUNDS, AT SUITABLE LOCATION FOR 34.5 KV INCOMING SERVICE. FOR CABLE PULLING EYE DETAIL SEE DD-E-62. PROVIDE PROTECTIVE BARRIER FOR CONDUITS STUBBING UP IN FLOOR PER POWER COMPANY REQUIREMENTS.
6. WHERE NECESSARY, PROVIDE CONDUIT AND CABLE SEAL FITTING TO PREVENT WATER SEEPAGE FROM DUCTBANK, HANDHOLE, MANHOLE INCLUDING POWER COMPANY, MANHOLES AND DUCTBANKS. SEE DD-E-81.
7. UNITS NOT REQUIRING BACK ACCESS CAN BE INSTALLED AGAINST THE WALL KEEPING ADEQUATE CLEARANCE IN FRONT FOR DOOR OPENING. RECTIFIER/CHARGER, INVERTER AND TRANSFER SWITCH ARE USUALLY FURNISHED AS A PACKAGE.
8. DOUBLE DOORS TO BE 7'-2" HIGH X 8'-0" WIDE, WITH 4'-6" HIGH X 8'-0" WIDE REMOVABLE TRANSOM, ABOVE DOOR. SIZES NOTED ARE MINIMUM.
9. FLOOR TO BE LEVELED TO 1/8" IN 10'-0" TOLERANCE.
10. SEE DRAWING DD-E-79 FOR LOW VOLTAGE SWITCHGEAR LAYOUT.
11. CONDUIT AND CABLE FROM EQUIPMENT MONITORED (AS PER DD-E-61) TO DTS CABINET. FROM SWITCHGEAR TO DC PANEL AND AC PANEL (SERVICING SPACE HEATER). INVERTER TO EMERGENCY PANELBOARD, ETC SHALL BE SHOWN.
12. FOR INCOMING SERVICE CABLES PROVIDE 24" WIDE X 4" DEEP CABLE TRAY FROM 34.5KV SWITCHGEAR TO 34.5KV INCOMING SERVICE CONDUIT LOCATION.
13. COORDINATE SHIPPING SIZE OF EQUIPMENT WITH SIZE OF DOOR AND EQUIPMENT HATCH TO AVOID ACCESS PROBLEM.
14. LOCATE BATTERY ROOM ADJACENT TO A.C. SWITCHBOARD ROOM. FOR BATTERY ROOM LAYOUT SEE DWG DD-E-94.



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

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	DATE	BY	DESCRIPTION			
10-78	M. MELENDEZ	10-78	DD-E-061	A.C. POWER SCHEM. DIAGRAM, 34.5KV SERVICE	08/2001	ENGA	Revised and issued by the Authority	
10-78	C. MANN	10-78	DD-E-078	GROUNDING EQUIPMENT & DETAILS				
10-78	J. PRASAD	10-78	DD-E-079	480V SWGR SCHEDULE FORMAT				
10-78	R. GANERWAL	2-77	DD-E-081	CNDT & CABLE SEALS FOR DUCT PENETRATION				
			DD-E-082	TYPICAL 34.5KV A.C. SWITCHBOARD ROOM				
			ST-TC-033	TYP. TRAIN CONTROL RISER DIAGRAM				
			DD-A-SC-008	DOOR SCHEDULE, ELEVATIONS & DETAILS				

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED

DIRECTOR

May 3, 2001

DATE

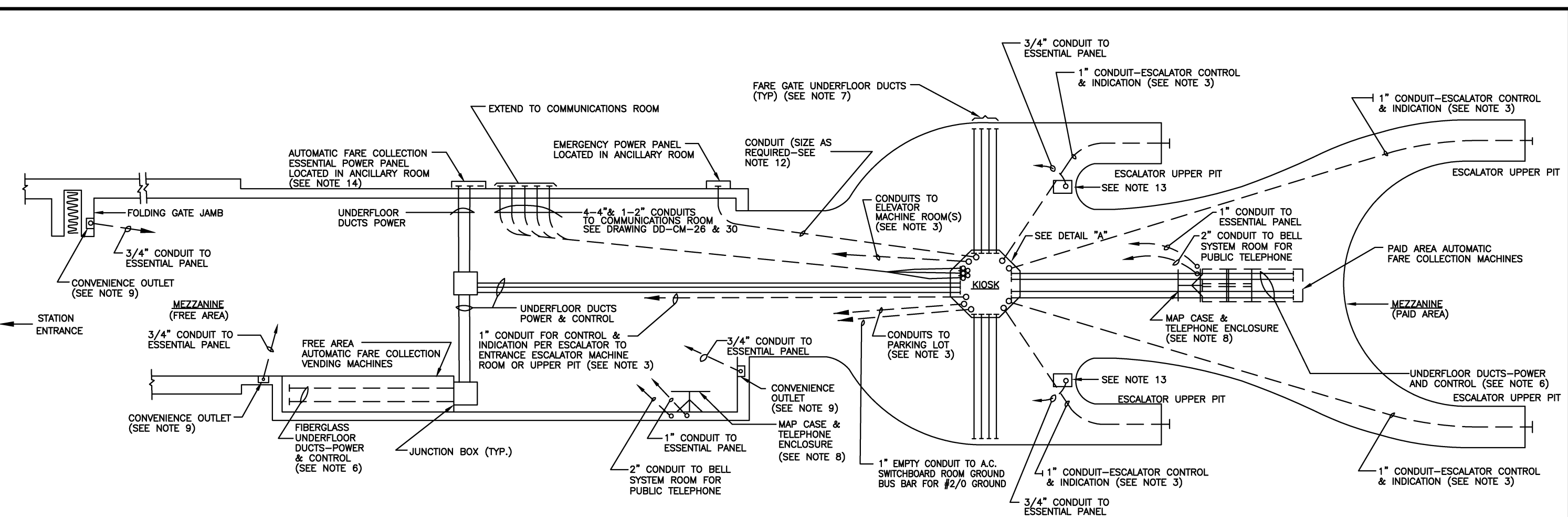
SCALE

1/4" = 1'-0"

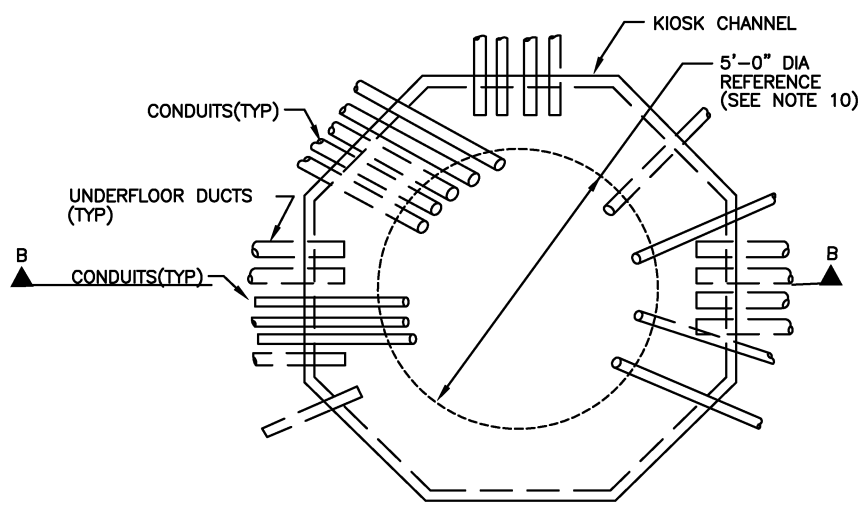
DRAWING NO.

DD-E-084

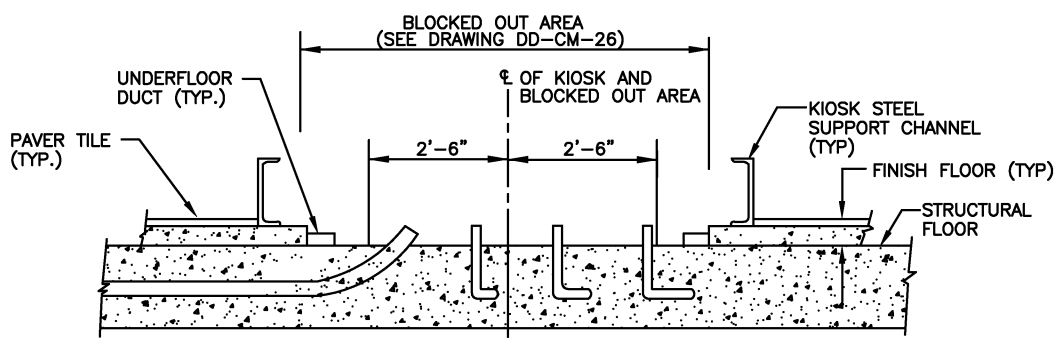
**ELECTRICAL DESIGN DRAWING**  
**TYPICAL 34.5KV COMBINED A.C. SWITCHBOARD**  
**AT PASSENGER STATION**



**MEZZANINE PLAN RACEWAYS**  
SEE NOTES 5 AND 11



**DETAIL "A"**  
**KIOSK RACEWAY LAYOUT**



**SECTION B-B**

- NOTES:**
1. ALL CONDUITS TO BE EMBEDDED IN STRUCTURAL FLOOR.
  2. ALL UNDERFLOOR DUCTS TO BE INSTALLED IN FINISH FLOOR. SEE NOTES 6 & 7.
  3. ALL CONDUITS TO ESCALATORS AND OTHER AUXILIARY EQUIPMENT SHALL BE IN ACCORDANCE WITH DESIGN CRITERIA AND REFERENCE DRAWINGS.
  4. FOR ARRANGEMENT OF KIOSK, FARE GATES, FARE VENDING MACHINES, MAP CASE AND TELEPHONE ENCLOSURE SEE ARCHITECTURAL GENERAL PLANS.
  5. SIDE PLATFORM MEZZANINE SHOWN. SEE ARCHITECTURAL GENERAL PLANS FOR OTHER MEZZANINE TYPES.
  6. PROVIDE ONE CONTROL AND ONE POWER DUCT UNDER EACH ROW OF AUTOMATIC FARE COLLECTION VENDING MACHINES.
  7. FIBERGLASS UNDERFLOOR DUCT TO EXTEND FROM KIOSK TO EDGE OF MEZZANINE FLOOR.
  8. CONDUIT LOCATIONS FOR MAP CASE AND TELEPHONE ENCLOSURE ARE SHOWN ON DRAWING ST-A-SF-10, 11 & 12.
  9. CONVENIENCE OUTLETS TO BE WALL MOUNTED IN ACCORDANCE WITH DRAWING ST-A-SW-4.
  10. CONDUITS EMBEDDED IN STRUCTURAL FLOORS ARE TO BE STUBBED UP WITHIN 2'-6" RADIUS OF CENTER OF KIOSK BASE. SEE DRAWING DD-CM-26 FOR OTHER DIMENSIONS.
  11. FOR REFERENCE DRAWINGS SEE:  
 DD-CM-26 CONDUIT & DUCT ENTERING AREA UNDER KIOSK  
 DD-CM-27 UNDERFLOOR DUCT UNDER FARE COLLECTION CONSOLES  
 DD-CM-30 COMMUNICATIONS CONDUIT RISER DIAGRAM  
 DD-CM-32 CONDUITS FOR PARKING LOT CONTROL GATE INTERFACE  
 DD-TC-33 TRAIN CONTROL CONDUIT RISER DIAGRAM  
 DD-CM-34 AUTOMATIC FARE COLLECTION RACEWAY RISER DIAGRAM  
 DD-TC-37 TRAIN CONTROL CONDUIT RISER DIAGRAM REMOTE FACILITIES  
 DD-CM-38 FARE COLLECTION CONDUIT ENTRANCE/EXIT ONLY PARKING LOT CONTROL GATES  
 DD-CM-44 FIRE AND INTRUSION SYSTEM CONDUIT RISER DIAGRAM  
 DD-CM-61 COMMUNICATIONS CONDUIT RISER DIAGRAM REMOTE FACILITIES
  12. FOR LONG FEEDER LENGTHS INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP
  13. BUS TRANSFER DISPENSER SEE ARCHITECTURAL GENERAL PLANS.
  14. LOCATION OF ESSENTIAL POWER PANEL TO BE ACCESSIBLE VIA UNDERFLOOR DUCT INSTALLED IN FINISH FLOOR THROUGHOUT ENTIRE RUN.

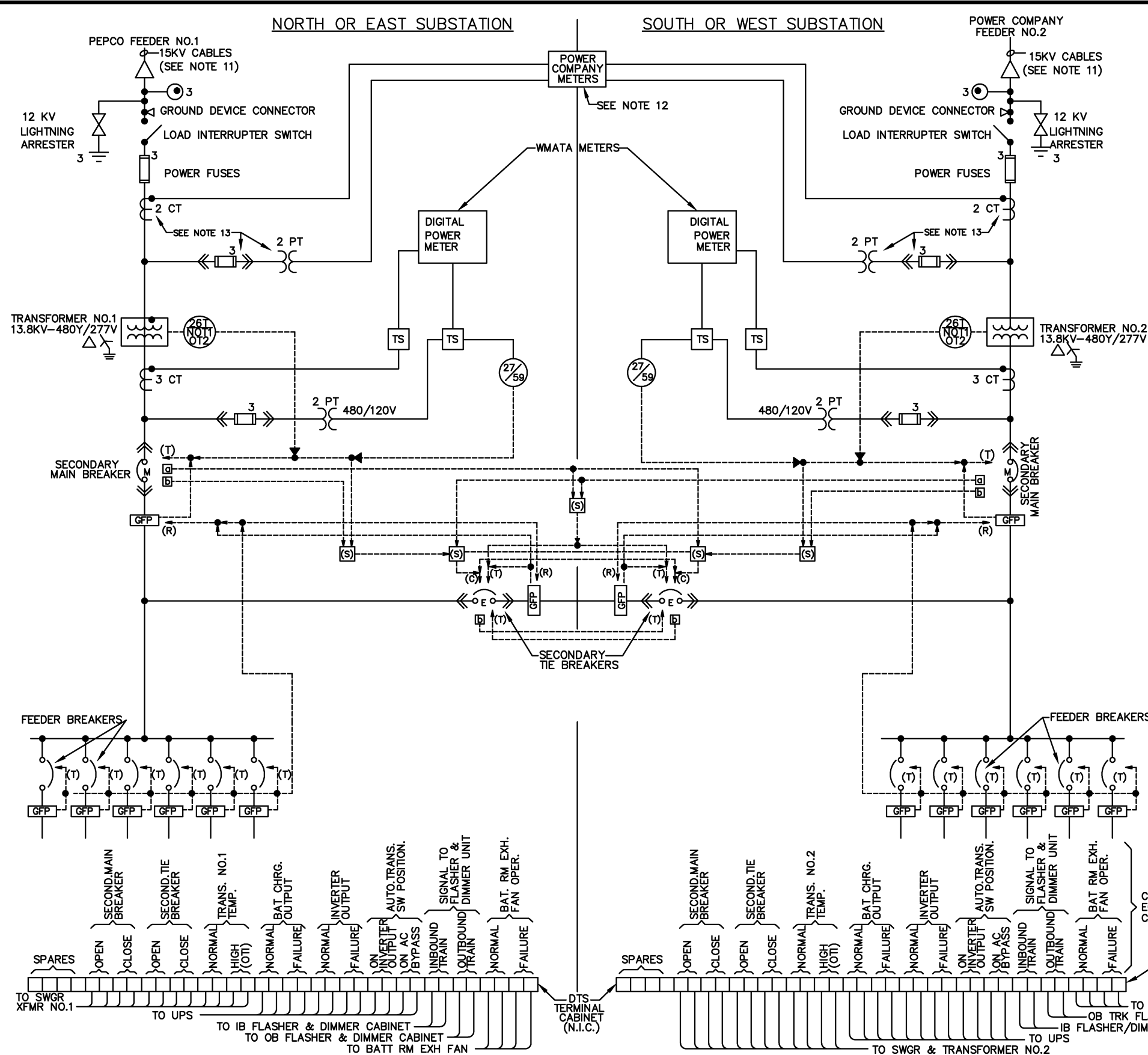
DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
W. ROBERTSON		1-77		DD-E-072		ELECTRICAL SERVICE FOR ELEVATORS		08/2001		ENGA		Revised and issued by the Authority	
E. HILLARD		2-77		DD-E-073		CONDUIT LAYOUT-CLASS "A" ESCALATORS							
PRASAD		2-77		DD-E-080		CONDUIT LAYOUT-CLASS "A","B"&"C" ESCALATORS							
T. HANSEN		2-77		ST-A-SW-001		OUTLETS, PLAQUE AND MANHOLE							
R. GANERIWAL		9-88											

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED *[Signature]* May 3, 2001  
 DIRECTOR DATE

**ELECTRICAL DESIGN DRAWING**  
**MEZZANINE RACEWAY**  
**LAYOUT**

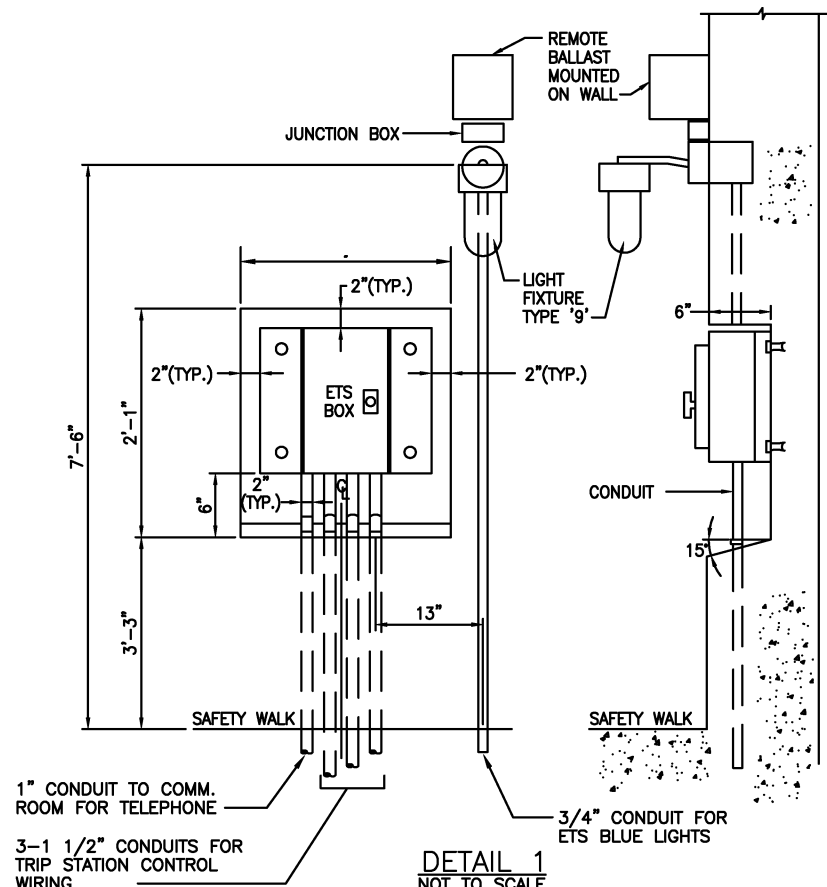
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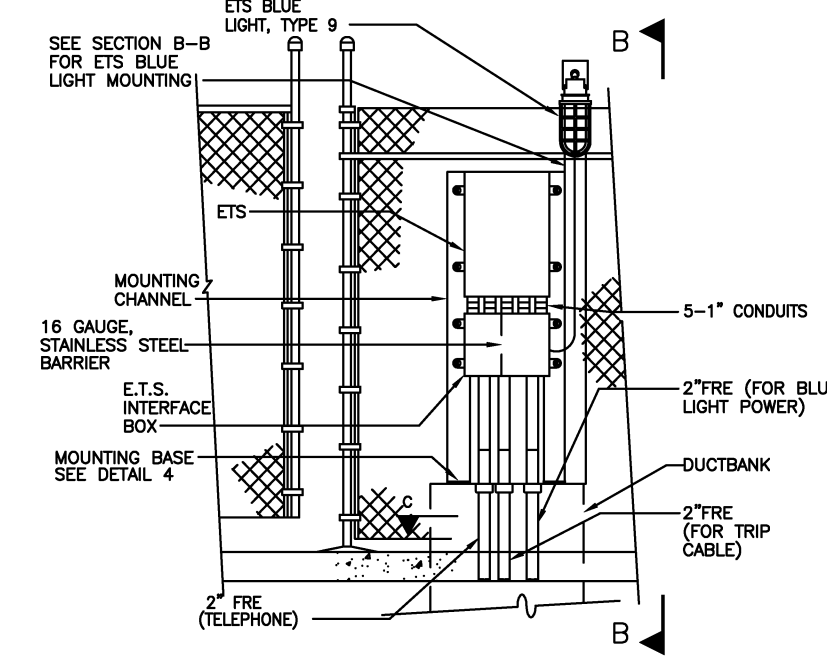
- NOTES:**
1. TRANSFORMER OVERTEMPERATURE DEVICE PROVIDES FOR INDICATION AT DTS PANEL AT NORMAL TEMPERATURE (N) AND FOR SECOND SEPARATE INDICATION AT FIRST STAGE OVERTEMPERATURE (OT1).
  2. NORMALLY ALL BREAKERS EXCEPT THE TIE BREAKERS ARE CLOSED. TIE BREAKERS ARE NORMALLY OPEN.
  3. FOR SECONDARY MAIN AND TIE BREAKERS PROVIDE POSITION INDICATION AT DTS PANEL.
  4. CIRCUIT BREAKERS AND TRANSFORMERS SHALL INCLUDE ALL RELAYS AND AUXILIARY CONTACTS FOR WIRING TO DTS TERMINAL CABINET REQUIRED FOR SUPERVISORY INDICATIONS FUNCTION. USE #14 AWG CONDUCTOR FOR WIRING TO TERMINAL CABINET.
  5. ALL OVERCURRENT PROTECTIVE DEVICES TO BE COORDINATED FOR SELECTIVE TRIPPING AND MINIMUM DISRUPTION OF POWER IN ACCORDANCE WITH SPECIFICATIONS.
  6. IN COMBINED AC SWITCHBOARD ROOM PROVIDE ONE SECONDARY TIE BREAKER AND PROVIDE GFP RELAYING WHICH IS SELECTIVE IN TRIPPING THE SECONDARY MAIN BREAKER ONLY ON THAT SIDE OF THE BUS TIE THAT A GROUND FAULT OCCURS.
  7. FOR PASSENGER STATIONS WITH COMBINED AC SWITCHBOARD ROOM AND ONE BATTERY ROOM MODIFY WIRING TO DTS TERMINAL CABINET TO SUIT CONTRACT REQUIREMENTS.
  8. FOR POWER COMPANY METERING TIE CABLE BETWEEN THE TWO AC SWITCHBOARD ROOMS PROVIDE ONE 1" METALLIC CONDUIT TO BE INSTALL WITH A PULL WIRE AND WITH 8"x8"x4" PULL BOX AT EACH PLATFORM MANHOLE AND UNDER THE PLATFORM.
  9. POWER COMPANY METERS ARE REQUIRED ONLY IN ONE AC SWITCHBOARD ROOM FOR EACH PASSENGER STATION.
  10. FOR CIRCUIT BREAKER CONTROL CIRCUITS BETWEEN THE TWO AC SWITCHBOARD ROOM PROVIDE ONE 1" METALLIC CONDUIT WITH A MINIMUM OF TWO 8"x8"x4" PULL BOXES LOCATED UNDER THE PLATFORM NEAR A PLATFORM MANHOLE AT EACH END OF PLATFORM.
  11. 15KV CABLE WILL BE FURNISHED AND INSTALLED BY POWER COMPANY. TERMINATORS WILL BE FURNISHED BY POWER COMPANY AND INSTALLED BY CONTRACTOR.
  12. REVENUE METERS WILL BE FURNISHED, INSTALLED AND CONNECTED BY POWER COMPANY.
  13. 15KV METERING TRANSFORMERS AND FUSED WILL BE FURNISHED BY POWER COMPANY AND INSTALLED BY CONTRACTOR.

SYMBOL, DEVICE & ABBREVIATION	DESCRIPTION
	FUSE AND DISCONNECT, NUMBER INDICATES NUMBER OF PHASES
	DRAWOUT TYPE POWER CIRCUIT BREAKER E-ELEC CLOSING - M-MANUAL CLOSING
	MOLDED CASE CIRCUIT BREAKER BOLT ON TYPE
	GROUND FAULT PROTECTION
	TIME UNDERVOLTAGE/OVERVOLTAGE RELAY NUMBER INDICATES QUANTITY RELAYS AND PHASES MONITORED
	TRANSFORMER OVERTEMPERATURE DEVICE, TWO STAGE, THREE CONTACT (NORMAL, OVERTEMP1 AND OVERTEMP2)
CT	CURRENT TRANSFORMER
PT	POTENTIAL TRANSFORMER
V	AC VOLTMETER
A	AC AMMETER
WH	AC WATT-HOUR METER
TS	TEST SWITCH
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
	NEON GLOW TUBE-CAPACITANCE COUPLED HIGH VOLTAGE INDICATOR, NUMBER INDICATES NUMBER OF FACES
	FUNCTIONS- FOR CIRCUIT BREAKER CONTROL
(T)	TRIP
(C)	CLOSE (APPLIES TO BREAKER WITH ELECTRICAL CLOSING ONLY)
(R)	TRIP TIME RESTRAINT (DELAYS TRIP FOR SHORT TIME)
(a)	BREAKER "a" CONTACT FUNCTION, CLOSED WHEN BREAKER IS CLOSED.
(b)	BREAKER "b" CONTACT FUNCTION, CLOSED WHEN BREAKER IS OPEN.
(S)	"SUMMING" OR "AND" FUNCTION, BOTH INPUT SIGNALS REQUIRED TO PUT OUT ONE OR MORE SIGNALS.

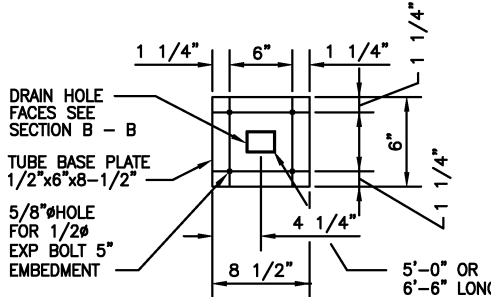
DESIGNED J. JUNGNER 3/77 DATE DRAWN GRAYSON 3/77 DATE CHECKED PRASAD, J. 5/77 DATE APPROVED J. HANSEN 7/6/77 DATE	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION  	<b>REVISIONS</b> DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE SUBMITTED _____ DATE _____ APPROVED _____ DIRECTOR _____ May 3, 2001 DATE	<b>ELECTRICAL DESIGN DRAWING</b> A.C. POWER SCHEMATIC DIAGRAM 13.8 KV SERVICE VIA LOAD INTERRUPTER SWITCH SCALE NONE DRAWING NO. DD-E-086
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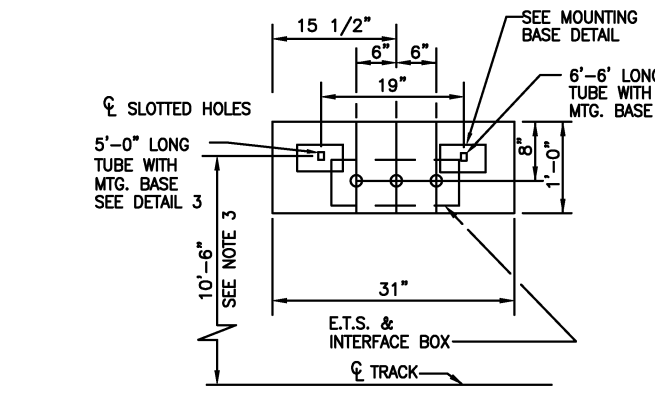
DETAIL 1  
NOT TO SCALE  
TYPICAL CONDUIT TERMINATION AND RECESS FOR EMERGENCY TRIP STATION ADJACENT TO STATION PLATFORM



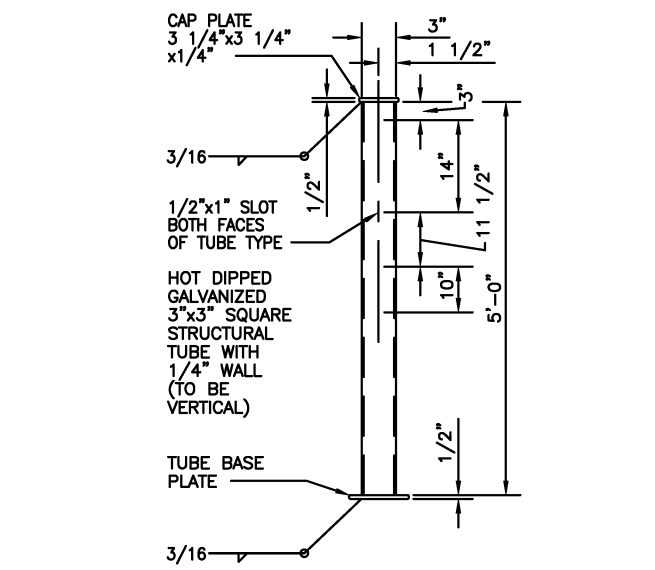
DETAIL 2  
SCALE: 3/4":1'-0"  
TYPICAL EMERGENCY TRIP STATION CHANNEL MOUNTED AT GRADE



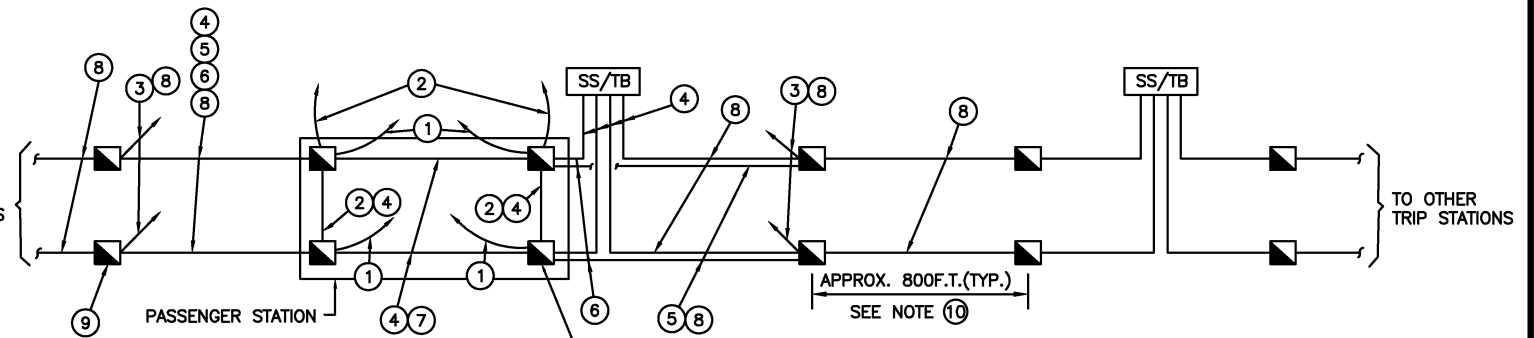
MOUNTING BASE



DETAIL 4



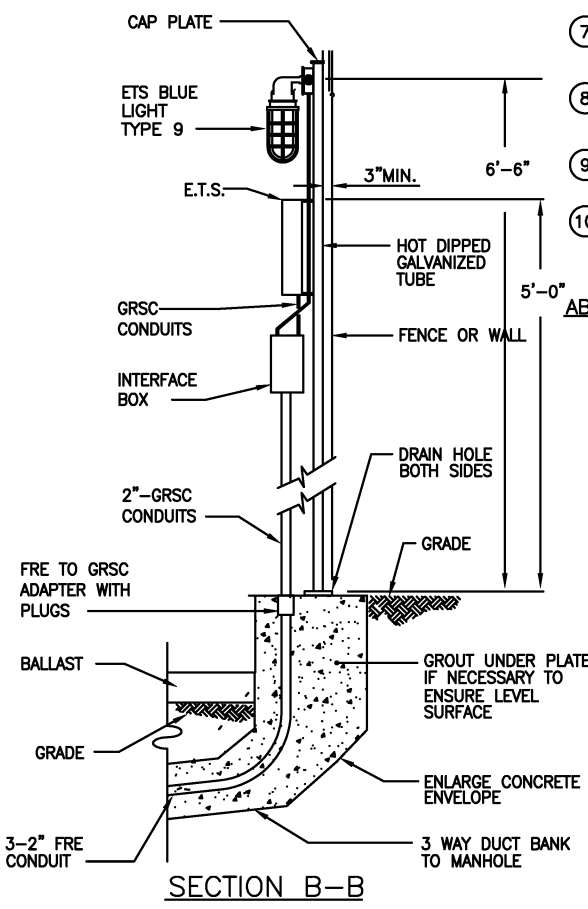
DETAIL 3



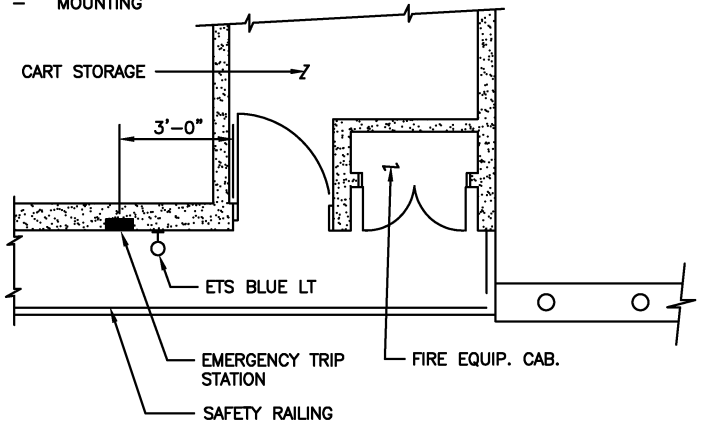
EMERGENCY TRIP STATION CONDUIT & CABLE ROUTING

- LEGEND:**
- ① ONE 1" CONDUIT FOR TRIP STATION EMERGENCY TELEPHONE TO COMMUNICATIONS ROOM.
  - ② ONE 3/4" CONDUIT FOR TRIP STATION BLUE LIGHTS TO NEAREST 120V EMERGENCY POWER PANEL.
  - ③ TO NEAREST 277V EMERGENCY CIRCUIT FOR TRIP STATION BLUE LIGHTS.
  - ④ ONE 1 1/2" CONDUIT FOR TRIP STATION TRIP SWITCH CONTROL WIRING.
  - ⑤ ONE 1" CONDUIT FOR TRIP STATION TELEPHONE CIRCUIT.
  - ⑥ FOR UNDERGROUND STATION, CONDUITS FROM E.T.S. AT PASSENGER STATION AREA SHALL TERMINATE IN BOXES NEAR TUNNEL WALL FOR INTERFACE WITH MULTI-CONDUCTOR CABLES; FOR AT GRADE STATION, CONDUITS SHALL TERMINATE IN CABLE TROUGH, PULLBOX, OR MANHOLE FOR INTERFACE WITH DUCTBANK; FOR AERIAL STATION, CONDUITS SHALL TERMINATE IN CABLE TROUGH.
  - ⑦ FOR UNDERGROUND AND ON GRADE STATIONS, CONDUIT FROM EACH TRIP STATION SHALL TERMINATE IN A JUNCTION BOX LOCATED IN PLENUM UNDERNEATH THE PLATFORM FOR INTERFACE WITH MULTI-CONDUCTOR CABLES INTERCONNECTING TRIP STATIONS.
  - ⑧ MULTI-CONDUCTOR CABLES VIA EMBEDDED CONDUITS FOR UNDERGROUND TRACKS; CABLE TROUGH FOR AERIAL OR ON-GRADE TRACKS; UNDERGROUND DUCTS FOR ON-GRADE TRACKS.
  - ⑨ PROVIDE EMERGENCY TRIP STATION AND INTERFACE BOX WHERE REQUIRED. CONNECT THE BLUE LIGHT TO THE EMERGENCY POWER CIRCUIT.
  - ⑩ MARK STATIONING FOR EACH EMERGENCY TRIP STATION BOX LOCATION.

- ABBREVIATIONS:**
- E.T.S. - EMERGENCY TRIP STATION
  - SS/TB - TRACTION POWER SUBSTATION OR TIE BREAKER STATION
  - GS - GALVANIZED RIGID STEEL
  - MTG. - MOUNTING



SECTION B-B



EMERGENCY TRIP STATION  
TYPICAL LOCATION PLAN ADJACENT TO STATION PLATFORM

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
VILLARIN		3-77		DD-E-088		EMERGENCY TRIP STATION MOUNTING DETAILS, AERIAL AND AT GRADE LOCATIONS		08/2001		ENGA		Revised and issued by the Authority	
DRAWN		3-77		DD-E-089		EMERGENCY TRIP STATION MOUNTING DETAILS, AERIAL AND TUNNEL LOCATION							
CHECKED		6-77		DD-E-078		GROUNDING EQUIPMENT AND DETAILS							
APPROVED		11-77		DD-E-046		CABLE AND CONTACT RAIL LOCATION AT GRADE							
UPDATED		12-88											

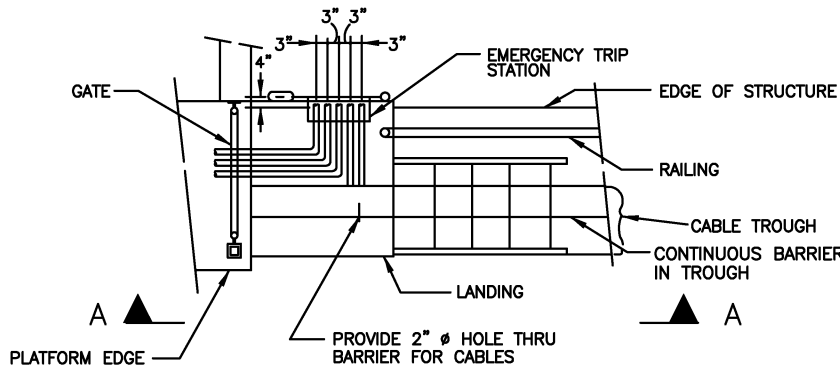
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

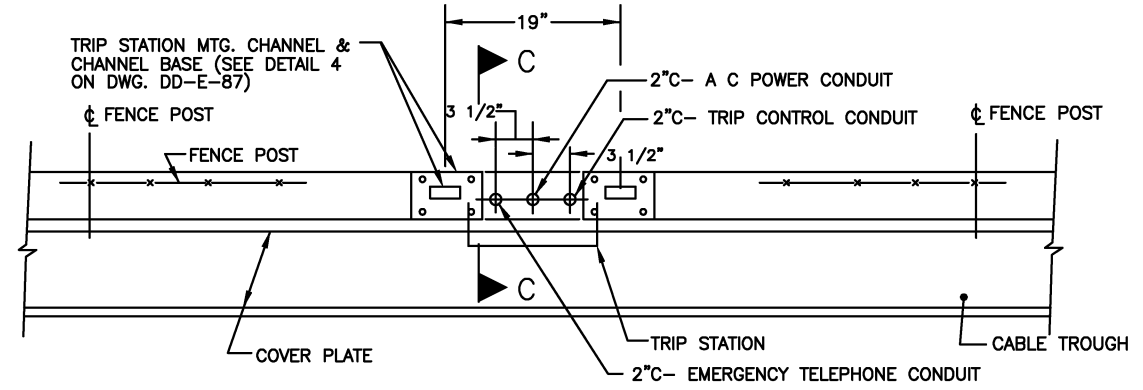
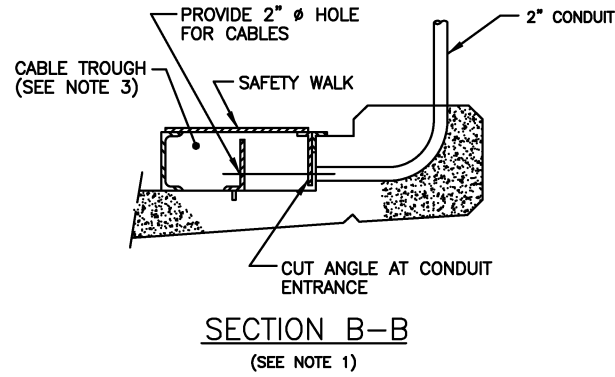
ELECTRICAL DESIGN DRAWING  
EMERGENCY TRIP STATION  
MOUNTING DETAILS AND WIRING LAYOUT

SCALE N.T.S. DRAWING NO. DD-E-087

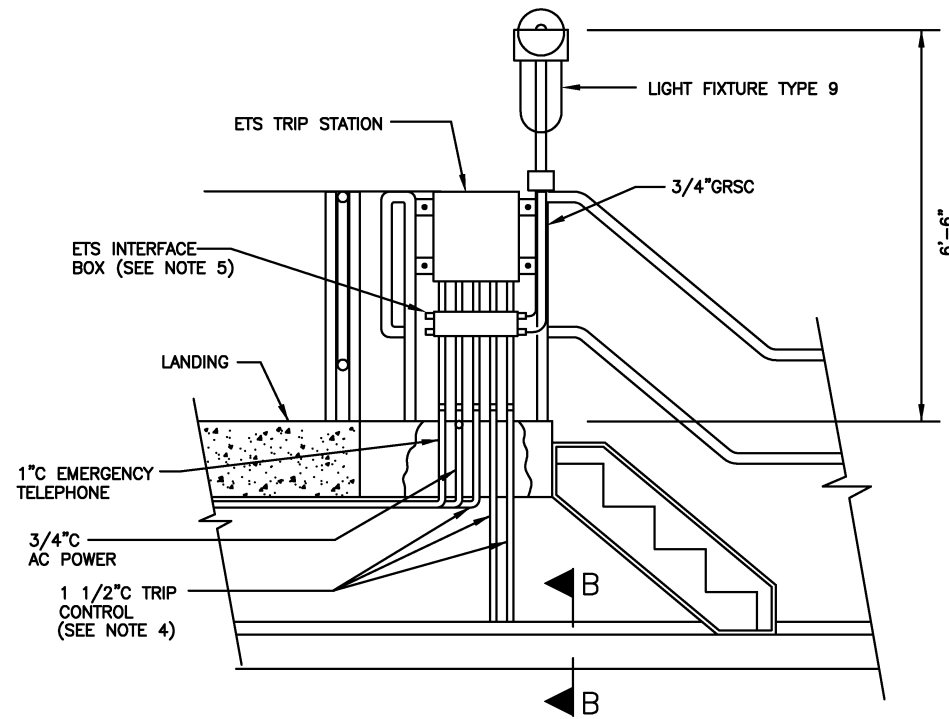


**PLAN VIEW**

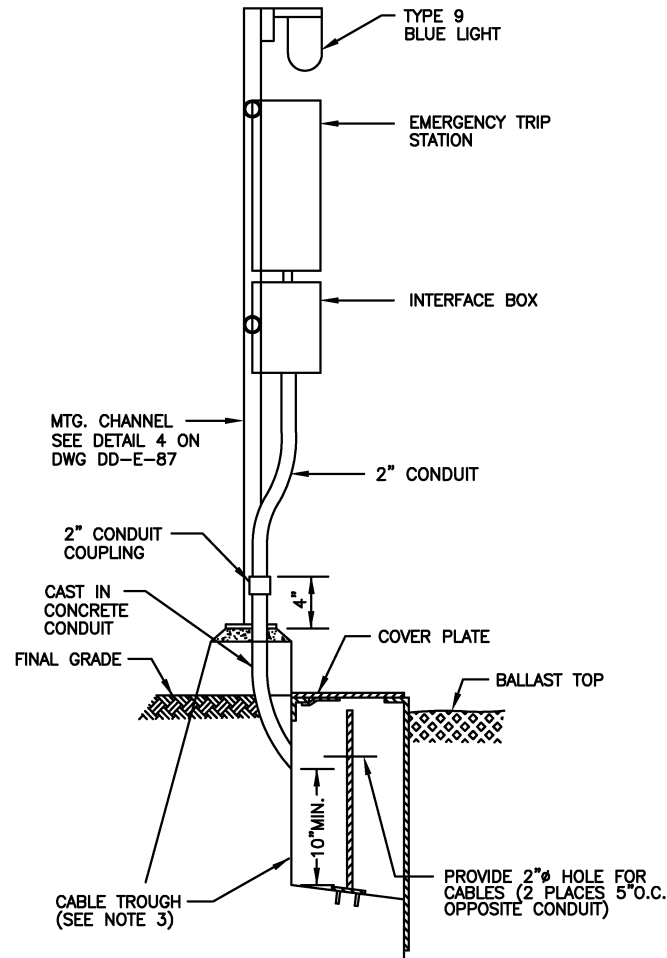
TYPICAL TRIP STATION RAILING MOUNTED AT GRADE OR AERIAL PASSENGER STATIONS



**PLAN VIEW**  
CONDUITS FOR CHANNEL-MOUNTED TRIP STATION AT GRADE BEAM



**SECTION A-A**  
OTHER SIDE - OPPOSITE HAND



**SECTION C-C**

**NOTES:**

1. AERIAL STRUCTURE SHOWN. CONDUIT ARRANGEMENT FOR AT GRADE STRUCTURE SIMILAR.
2. PROVIDE EMERGENCY TRIP STATION AND TYPE 9 LIGHT FIXTURE AND INTERFACE BOX WHERE REQUIRED. CONNECT THE BLUE LIGHT TO THE EMERGENCY POWER.
3. GRIND SMOOTH ALL PROTRUDING SHARP EDGES IN CABLE TROUGH WHICH CAN DAMAGE MULTI-CONDUCTOR CABLE.
4. WHERE CABLE TROUGH DOES NOT RUN CONTINUOUSLY UNDERNEATH THE PLATFORM, EXTEND ONE CONDUIT UP TO CABLE TROUGH AND THE OTHER CONDUIT UP TO THE TRIP STATION AT THE OTHER END OF THE PLATFORM. THE THIRD CONDUIT RUNS TO THE ADJACENT TRIP STATION AT THE OPPOSITE TRACK. SEE DD-E-87 FOR WIRING LAYOUT.
5. LOCATE REMOTE BALLAST TYPE 9 LIGHT FIXTURE IN INTERFACE BOX. SEE INTERFACE BOX DETAIL ON DWG. DD-E-78.

**ABBREVIATIONS**

- TYP. - TYPICAL
- SSI - SUBSTATION INSTALLATION
- MTG. - MOUNTING

DESIGNED		DATE		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
DD-E-087	EMERGENCY TRIP STATION MOUNTING DETAILS AND WIRING LAYOUT	08/2001	ENGA	Revised and issued by the Authority	
DD-E-089	EMERGENCY TRIP STATION MOUNTING DETAIL AERIAL AND TUNNEL LOCATIONS				
DD-E-078	GROUNDING EQUIPMENT & DETAILS				

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

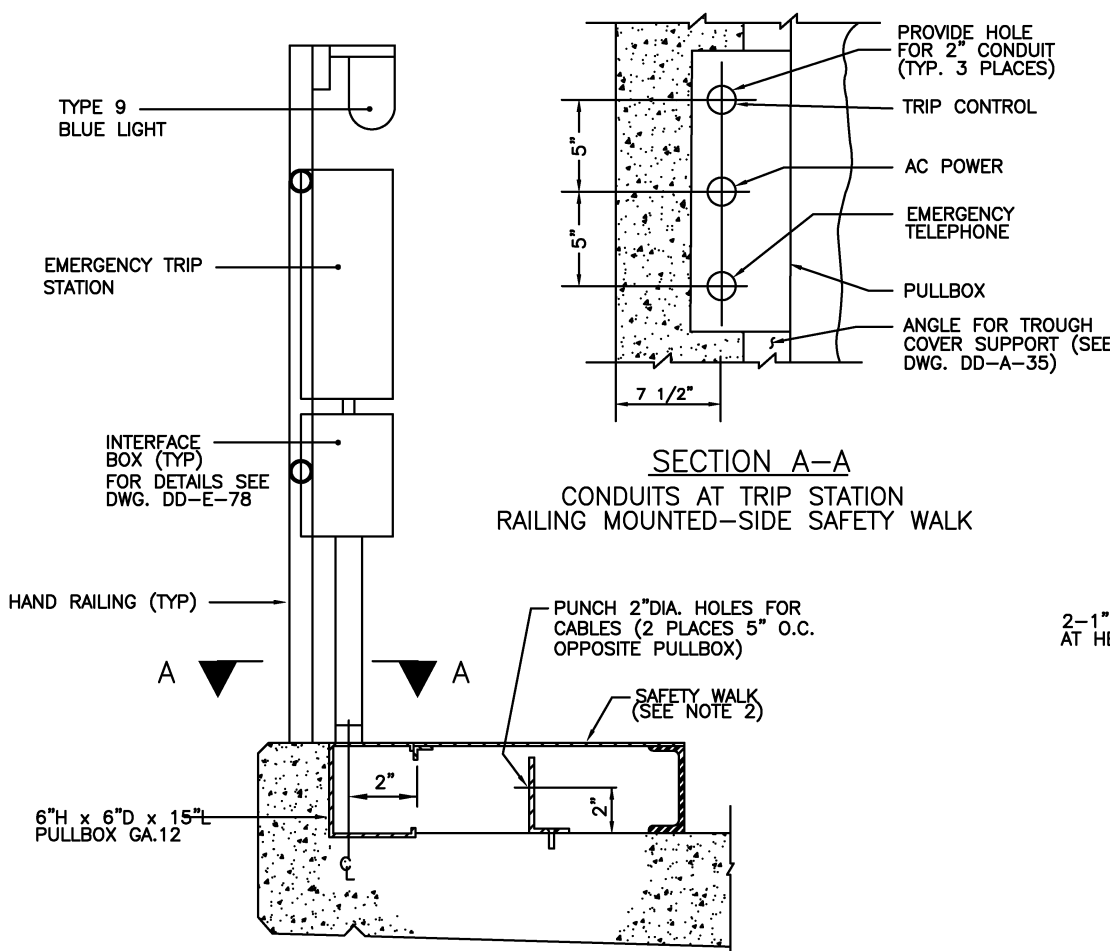
**ELECTRICAL DESIGN DRAWING**  
EMERGENCY TRIP STATION MOUNTING DETAILS  
AERIAL & AT-GRADE LOCATIONS

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

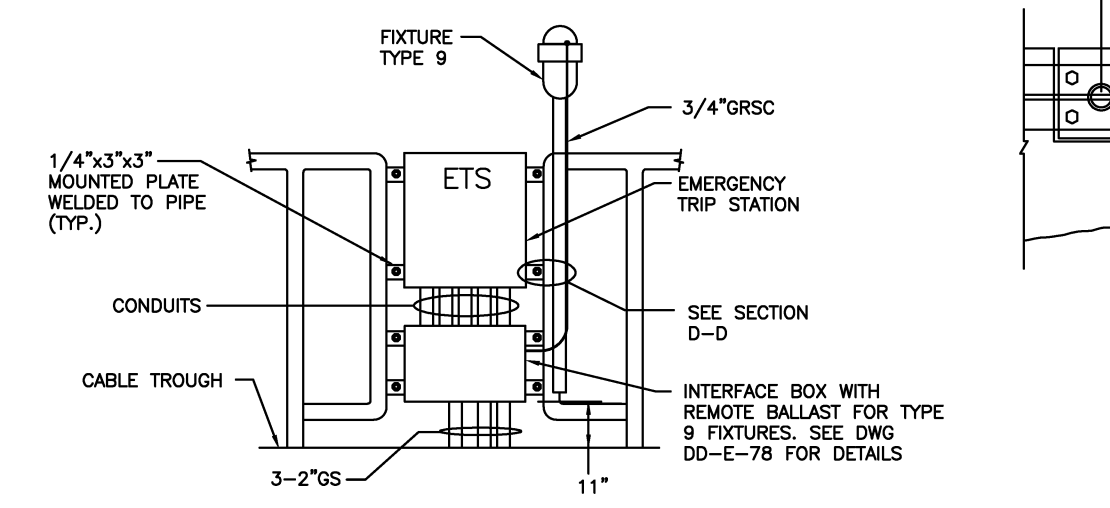
APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ DATE May 3, 2001

SCALE N.T.S.

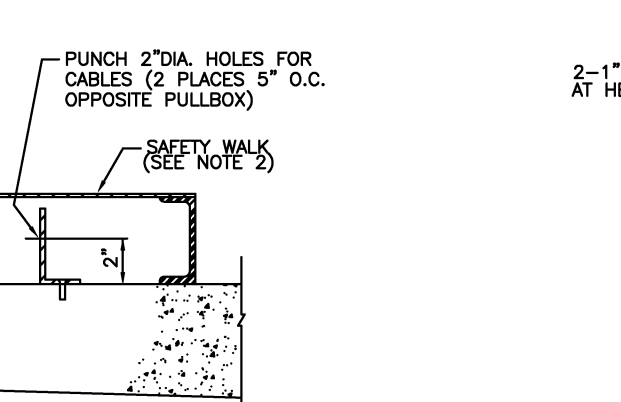
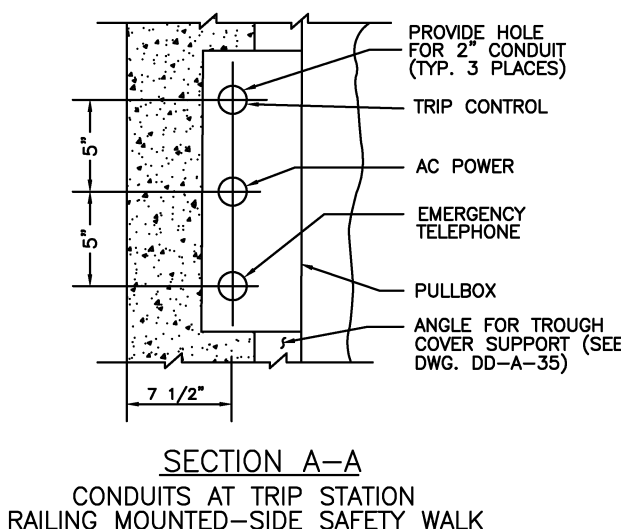
DRAWING NO. DD-E-088



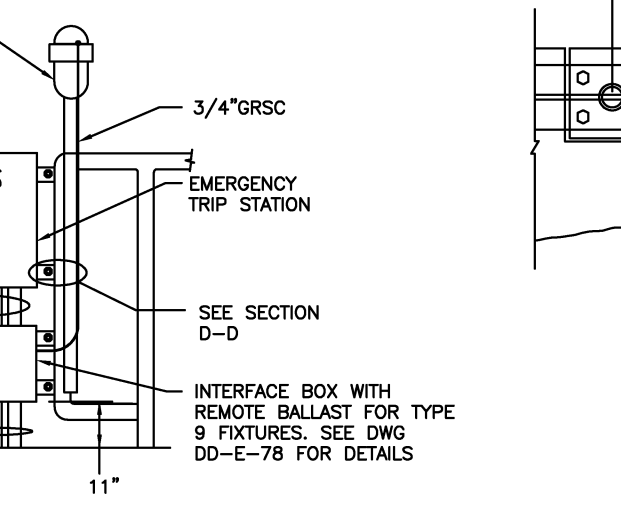
ELEVATION  
SIDE SAFETY WALK TRIP STATION



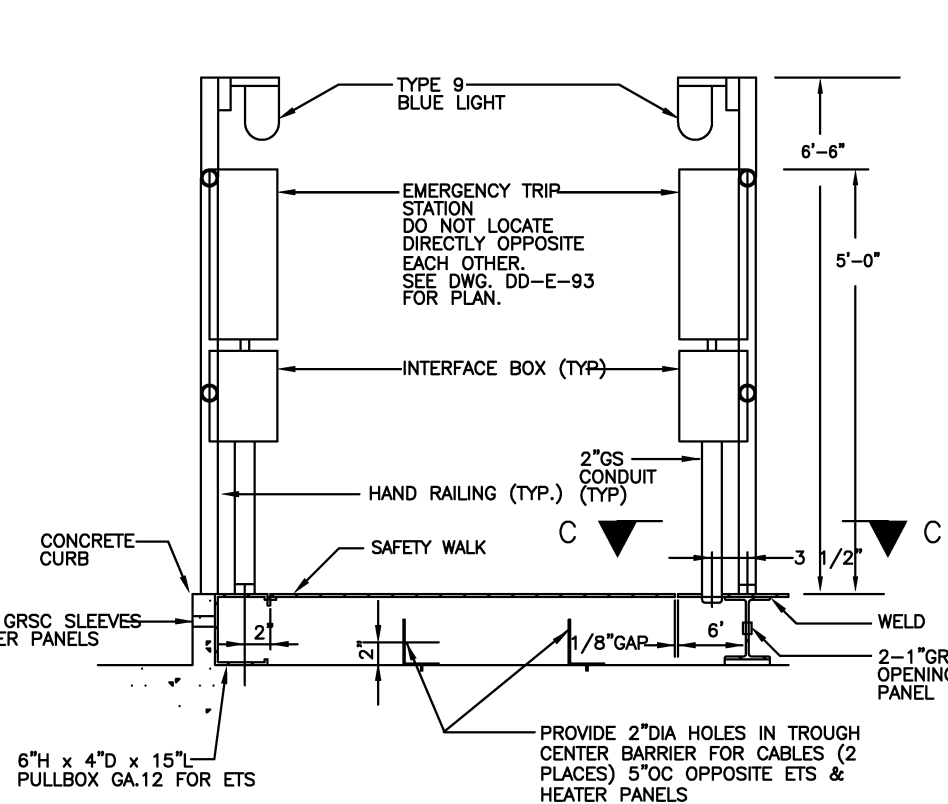
HANDRAIL MOUNTED EMERGENCY TRIP STATION



SECTION B-B  
(SEE DWG. DD-E-93)



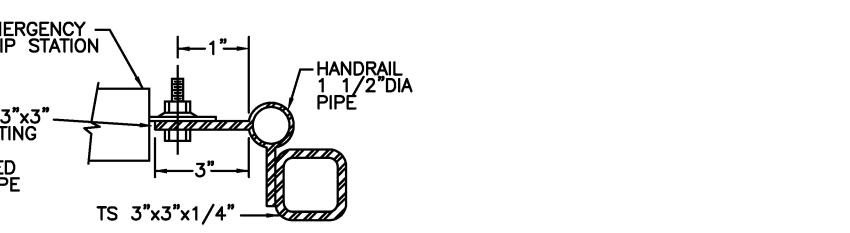
SECTION C-C  
CONDUITS AT TRIP STATION  
RAILING MOUNTED-CENTER SAFETY WALK



EMERGENCY TRIP STATION  
MOUNTED ON TUNNEL WALL

- NOTES
1. PROVIDE EMERGENCY TRIP STATION AND TYPE 9 BLUE LIGHT AND INTERFACE BOX WHERE REQUIRED. CONNECT THE BLUE LIGHT TO THE EMERGENCY POWER CIRCUIT.
  2. GRIND SMOOTH ALL PROTRUDING EDGES IN CABLE TROUGH WHICH CAN DAMAGE MULTI-CONDUCTOR CABLE.
  3. AS AN ALTERNATE METHOD OF MOUNTING, PROVIDE FOUR SPACERS AS SHOWN ON DETAIL A, 19" O.C. HORIZONTALLY AND 14" O.C. VERTICALLY.

- ABBREVIATIONS
- TYP. - TYPICAL
  - SSI - SUBSTATION INSTALLATION
  - GS - GALVANIZED STEEL
  - O.C. - ON CENTER



EMERGENCY TRIP STATION MOUNTING SECTION D-D

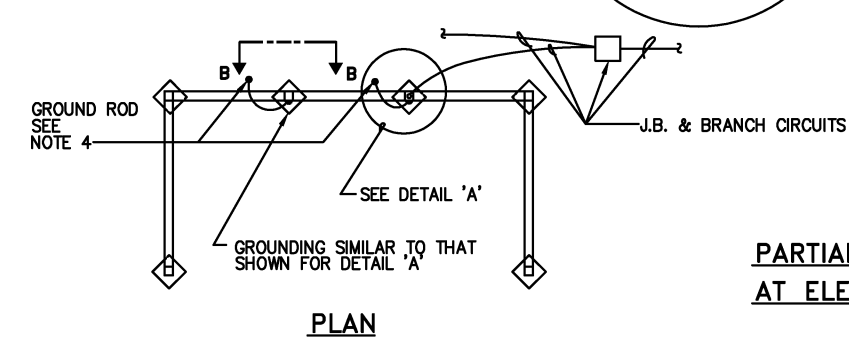
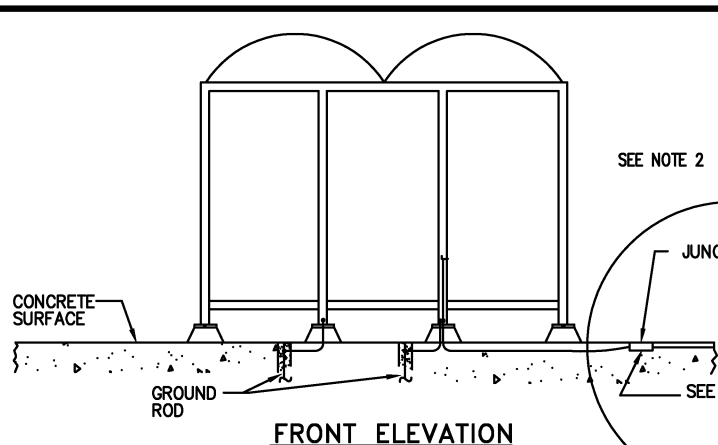
DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		REVISIONS	
D. GLEN	1-97	DD-E-087	EMERGENCY TRIP STATION MOUNTING DETAILS AND WIRING LAYOUT	08/2001	ENGA	Revised and issued by the Authority							
W. MASSEY	1-97	DD-E-088	EMERGENCY TRIP STATION, MOUNTING DETAILS, AERIAL & AT GRADE LOCATIONS										
J. KROLIK	1-97	DD-E-078	GROUNDING EQUIPMENT & DETAILS										
R. GANERWAL	1-97												
R. GANERWAL	12-98												

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

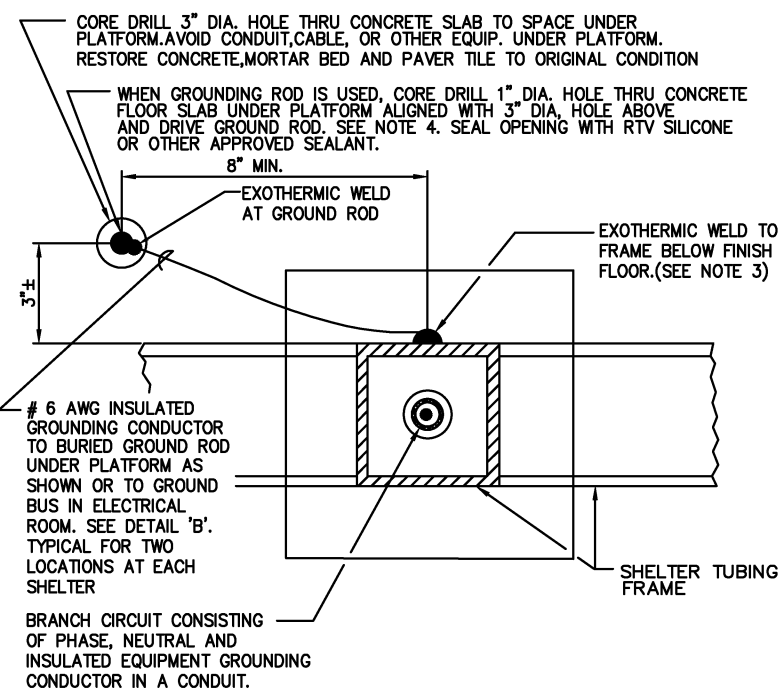
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

ELECTRICAL DESIGN DRAWING  
EMERGENCY TRIP STATION MOUNTING DETAILS  
AERIAL & TUNNEL LOCATIONS

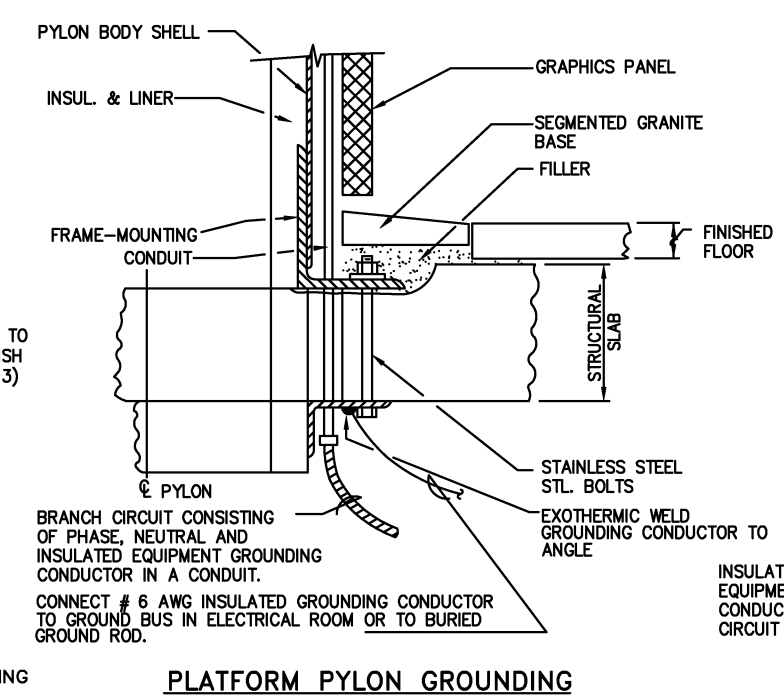
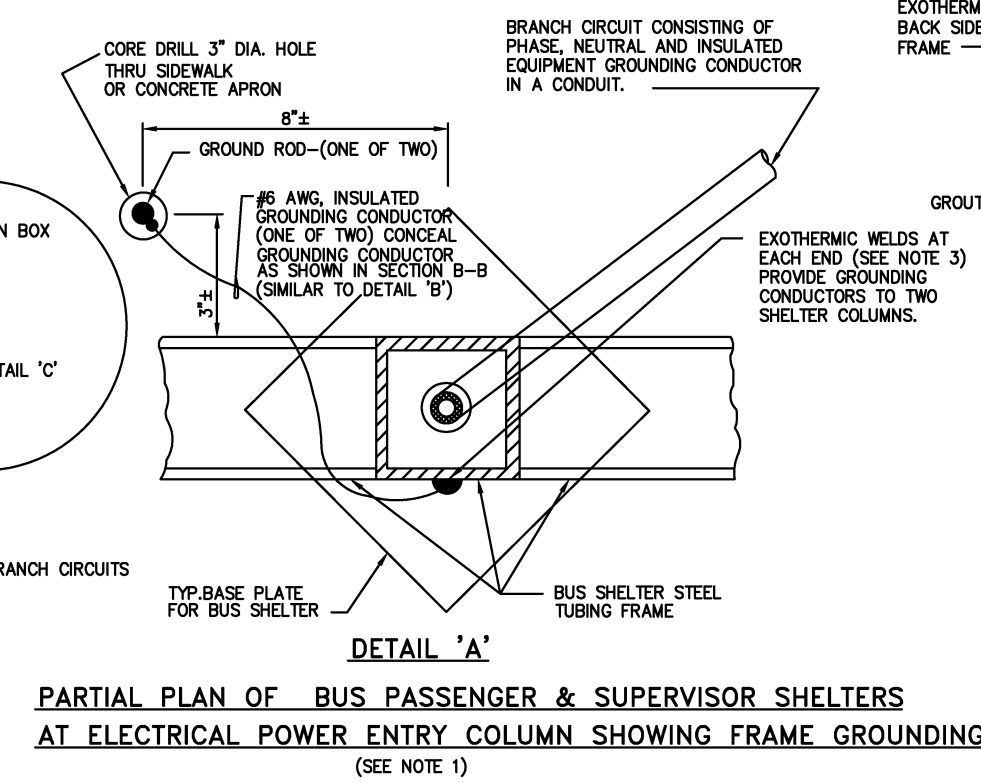
SCALE N.T.S. DRAWING NO. DD-E-089



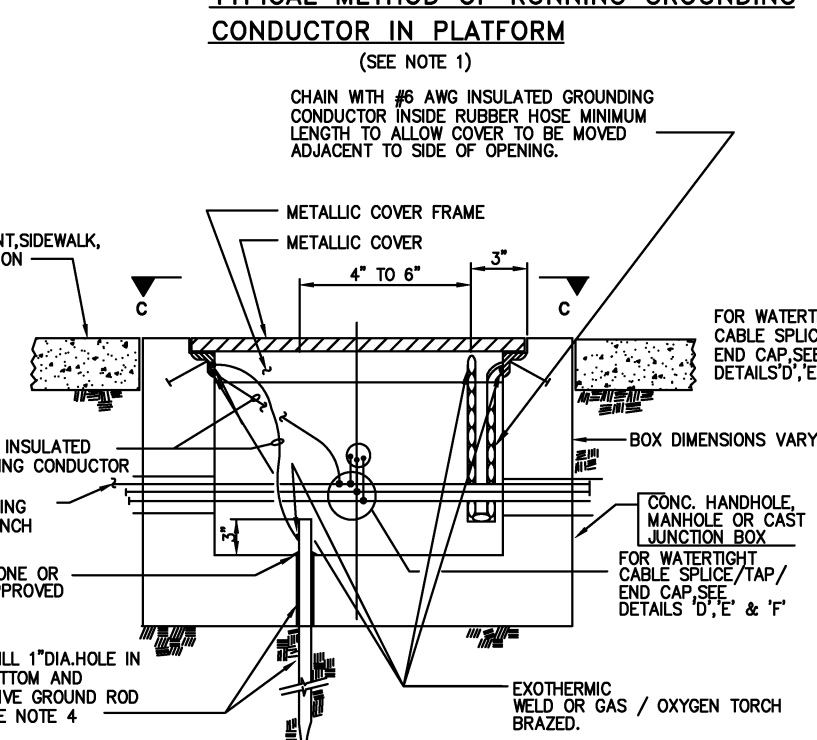
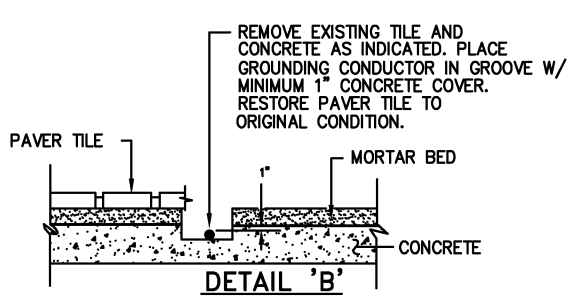
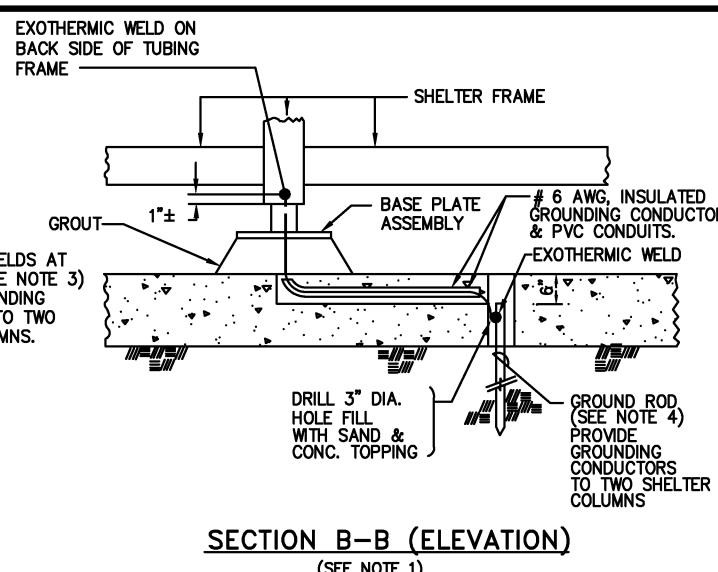
**FRAME GROUNDING OF BUS PASSENGER & SUPERVISOR SHELTERS**



**FRAMING OF BUS PASSENGER & SUPERVISOR SHELTERS**

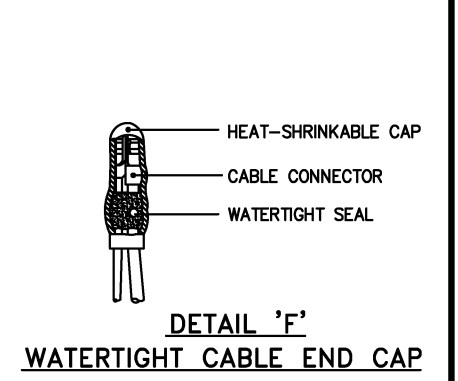
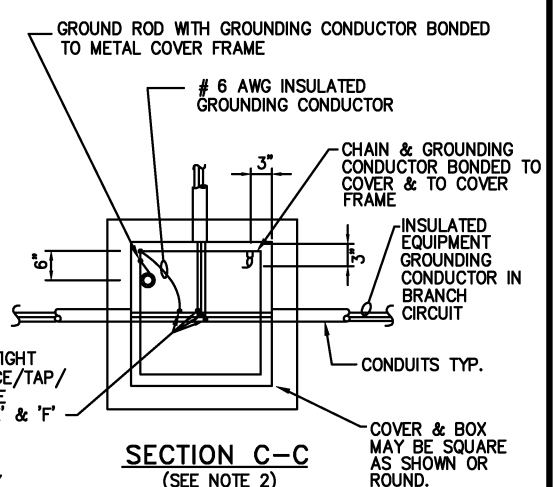
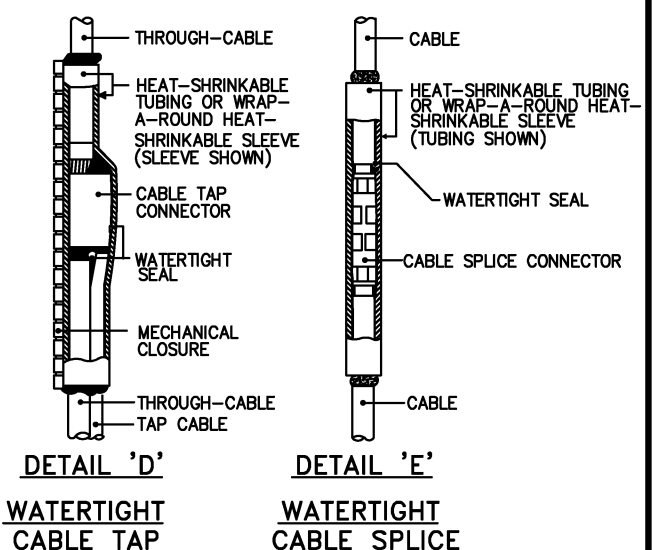


**GROUNDING OF COVERS AND METALLIC FRAMES FOR HANDHOLES, CAST JUNCTION BOXES OR MANHOLES** (SEE NOTE 2)



**GROUNDING OF COVERS AND METALLIC FRAMES FOR HANDHOLES, CAST JUNCTION BOXES OR MANHOLES** (SEE NOTE 2)

- NOTES:
- DETAILS ARE SHOWN TO ACCOMMODATE RETROFIT WORK. FOR NEW WORK, VARIATIONS IN DESIGN DETAILS ARE PERMISSIBLE PROVIDED THAT THE INTENT OF THE DESIGN CRITERIA IS MAINTAINED.
  - DETAILS ARE PROVIDED FOR RETROFIT WORK AND SHOULD NOT BE USED IN NEW WORK.
  - AFTER COMPLETION OF EXOTHERMIC WELD TO THE VERTICAL FRAME (COLUMN), CLEAN CHARRED PAINT AROUND THE WELD BEAD AND PAINT THE STEEL FRAME TO MATCH EXIST. FINISH.
  - DRIVE GROUND ROD CLEAR OF UNDERGROUND CONDUITS, UTILITIES, OR STRUCTURAL FOOTINGS. PROVIDE MINIMUM 24" SEPERATION FROM STRUCTURES.



DESIGNED	U. KHAN	10-87	REFERENCE DRAWINGS		REVISIONS	
			NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	L. POWELL	10-87			08/2001	ENGA Revised and issued by the Authority
CHECKED	S. AGRAWAL	2-88				
APPROVED	J. PRASAD	2-88				

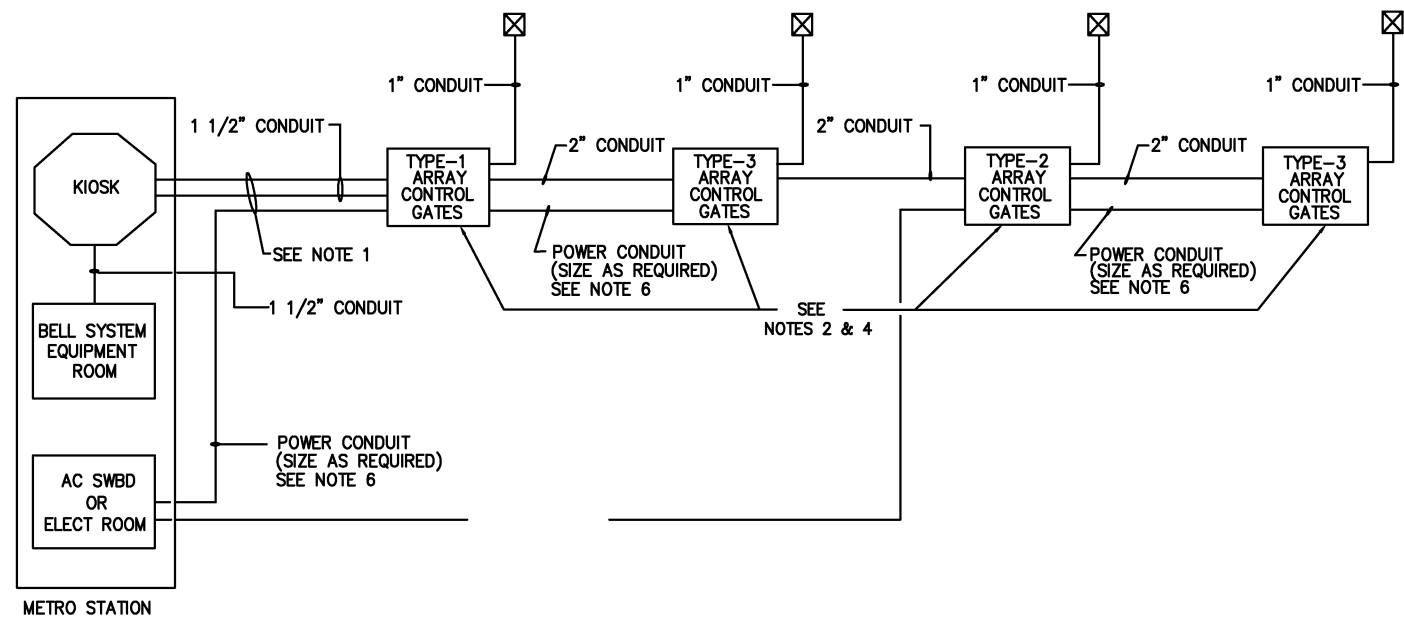
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED DATE: May 3, 2001  
APPROVED DIRECTOR: [Signature]

ELECTRICAL DESIGN DRAWING  
GROUNDING FOR MISCELLANEOUS STRUCTURES

SCALE: NOT TO SCALE  
DRAWING NO.: DD-E-090



**PARKING LOT CONDUIT RISER DIAGRAM**

**NOTES**

1. 2-1 1/2" COMMUNICATIONS AND CONTROL CONDUITS AND ONE POWER CONDUIT (SIZE AS REQUIRED) SHALL BE FROM THE METRO STATION TO THE NEAREST CONTROL GATE.
2. TYPE OF CONTROL GATE ARRAYS MAY VARY DEPENDING UPON PARKING LOT LAYOUT.
3. SEE FOLLOWING STANDARD DRAWING FOR CORRESPONDING CONTROL GATE ARRAY'S CONDUIT LAYOUT.  
 A DD-E-105 FOR MODIFIED TYPE 1 ARRAY  
 B DD-E-111 FOR ARRAY-2  
 C DD-E-112 FOR ARRAY-3
4. NUMBER OF CONTROL GATES REQUIRED DEPEND UPON SPECIFIC PARKING LOT LAYOUTS.
5. CONDUIT QUANTITIES ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY EXACT QUANTITIES TO BE CO-ORDINATED WITH THE AUTHORITY.
6. LONG FEEDER CABLES SHALL BE COMPENSATED FOR VOLTAGE DROP.

**LEGEND**

- CONTROL AND COMMUNICATIONS CONDUIT
- POWER CONDUIT
- ☒ REMOTE LOT FULL SIGN, WHEN REQUIRED

DESIGNED	P. BERA	6-88
		DATE
DRAWN	M. WILLIAMS	6-88
		DATE
CHECKED	J. BISHOP	6-88
		DATE
APPROVED	R. GANERWAL	6-88
		DATE
UPDATED	R. GANERWAL	9-88
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

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DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

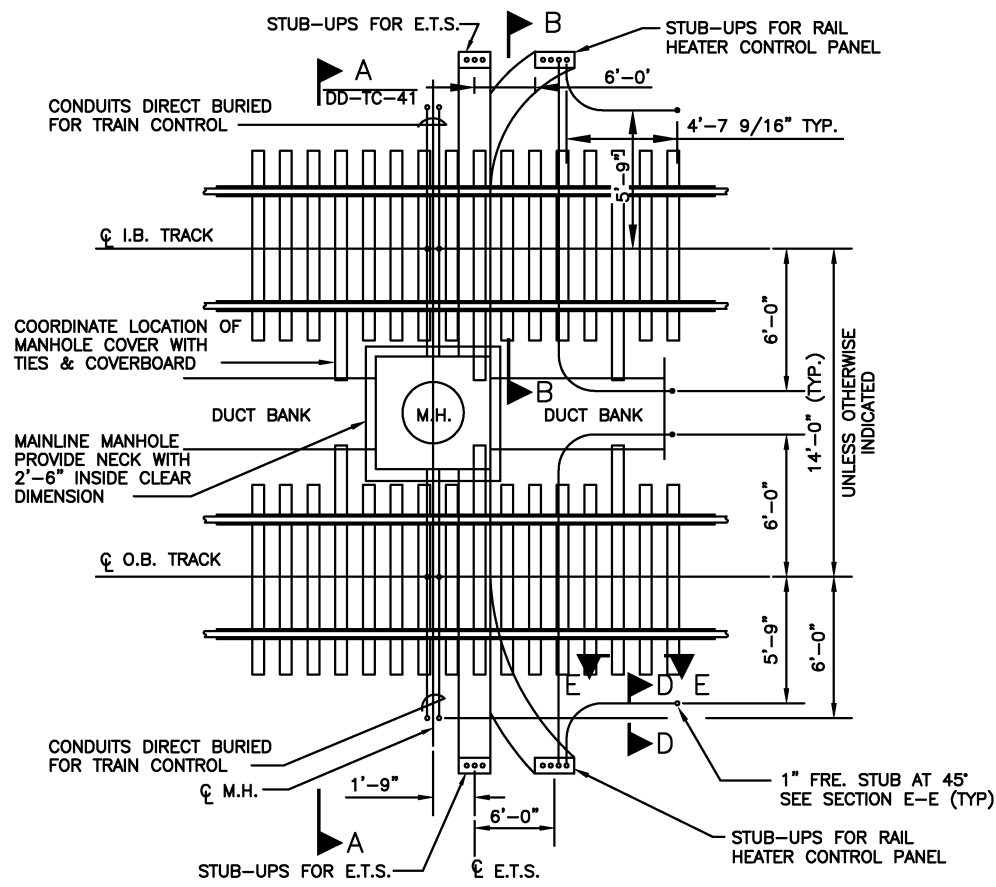
APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING  
PARKING LOT CONTROL GATES  
CONDUIT RISER DIAGRAM**

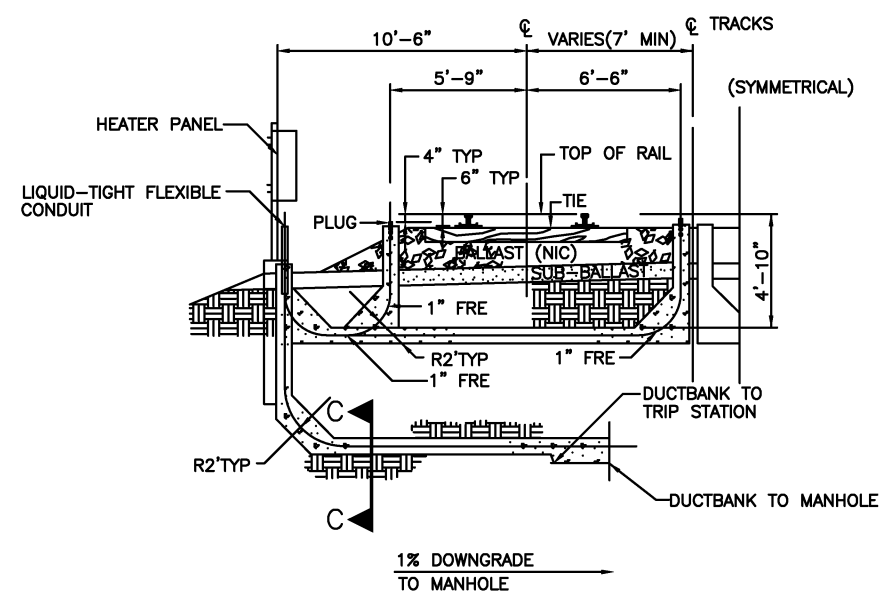
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DRAWING NO. DD-E-091

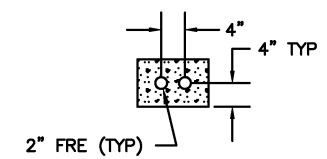




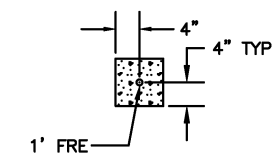
AT-GRADE CONDUIT PLAN  
SCALE: 1/4"=1'-0"



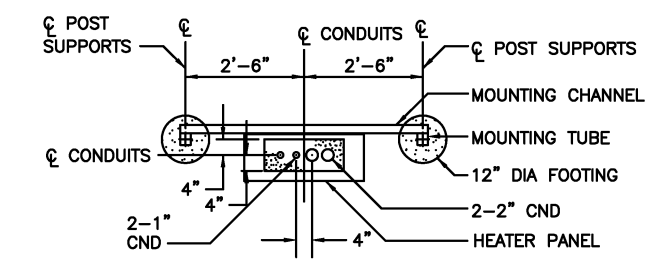
SECTION B-B PERPENDICULAR TO TRACK  
SCALE: 1/4"=1'-0"



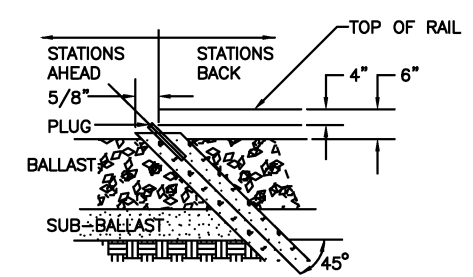
SECTION C-C  
SCALE: 3/4"=1'-0"



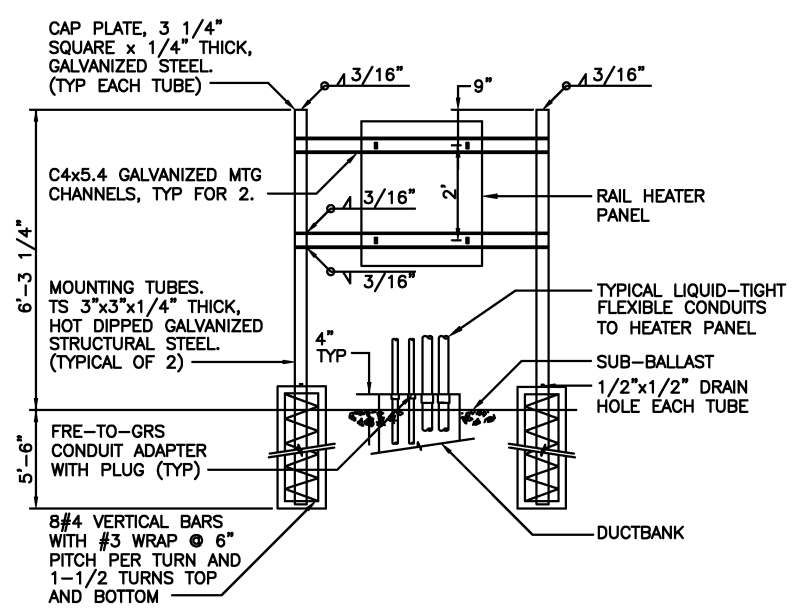
SECTION D-D  
SCALE: 3/4"=1'-0"



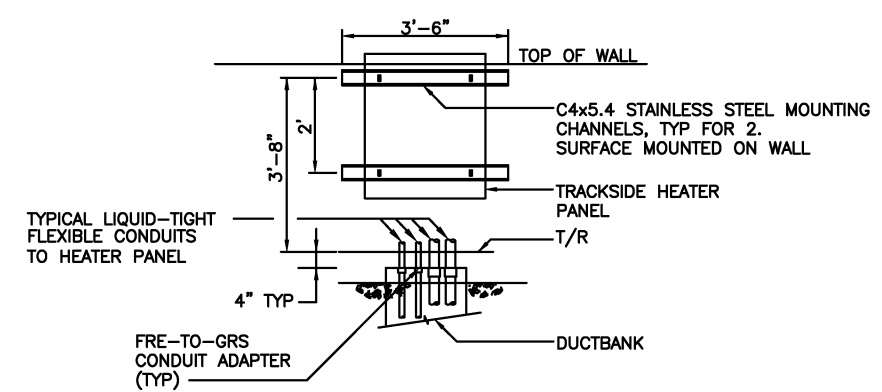
I.B. TRACK HEATER PANEL MOUNTING DETAIL  
SCALE: 1/2"=1'-0" (OPPOSITE HAND FOR O.B. TRACK)



SECTION E-E  
SCALE: 1/2"=1'-0"



ELEVATION - PANEL MOUNTING (AT-GRADE)  
SCALE: 1/2"=1'-0"



ELEVATION - PANEL MOUNTING TO WALL  
SCALE: 1/2"=1'-0"

DESIGNED	D. VANCOTT	1-97	REFERENCE DRAWINGS		REVISIONS	
			NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	L. POWELL	1-97			08/2001	ENGA Revised and issued by the Authority
CHECKED	J. KROLIK	1-97				
APPROVED	R. GANERWAL	1-97				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

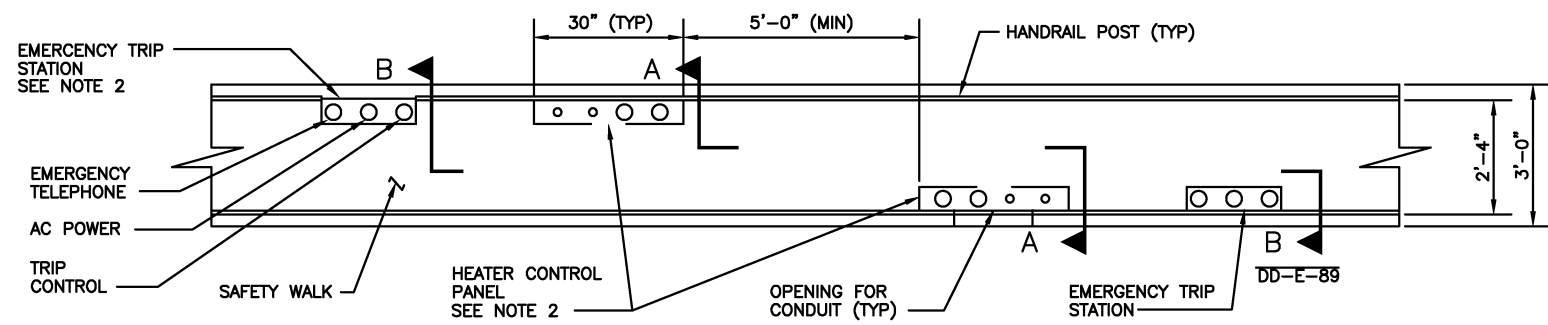
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

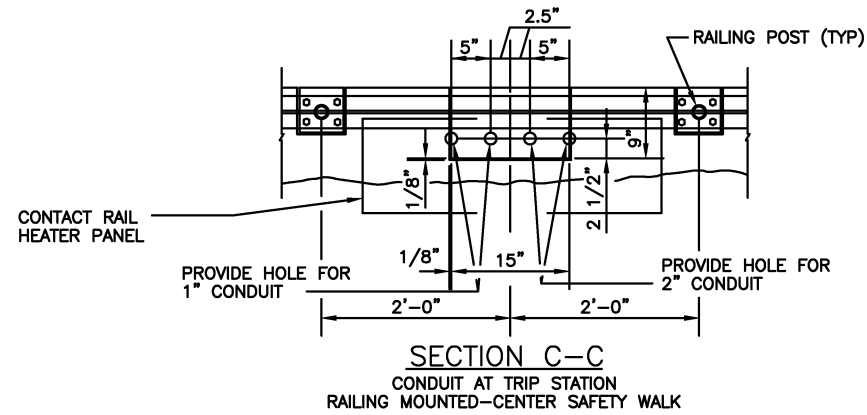
ELECTRICAL DESIGN DRAWING  
RAIL HEATER CONTROL PANEL AND  
DETAILS ON-GRADE

SCALE 1/4" = 1'-0" AND AS NOTED

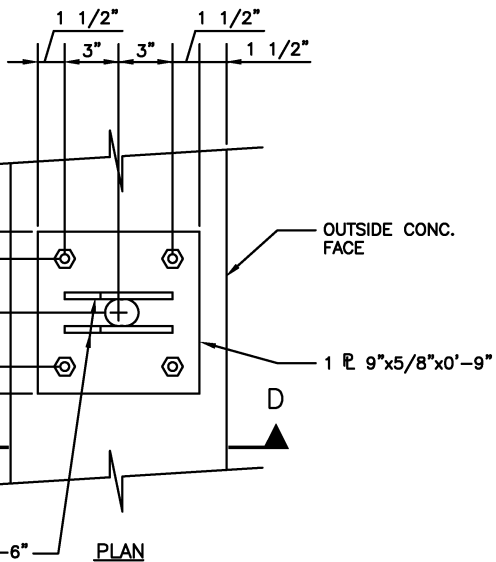
DRAWING NO. DD-E-092



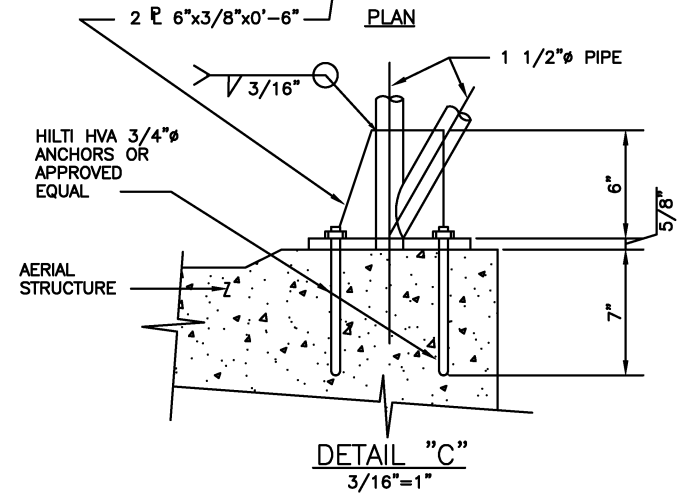
HEATER CONTROL PANEL AND TRIP STATION LOCATIONS AT CENTER SAFETY WALK  
ONE EACH TRACK RAILING MOUNTED  
SCALE: 1/2"=1'-0"



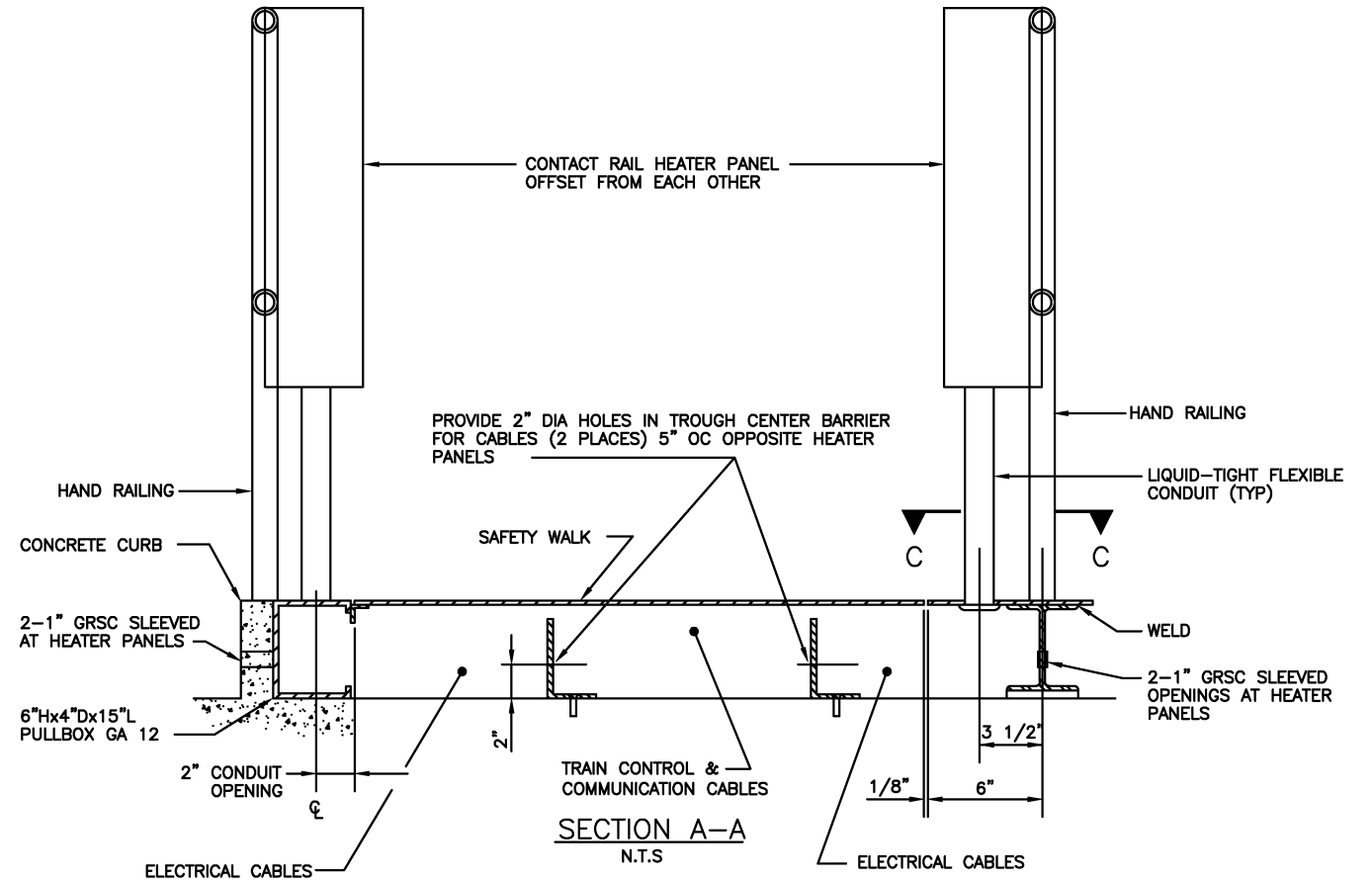
SECTION C-C  
CONDUIT AT TRIP STATION  
RAILING MOUNTED-CENTER SAFETY WALK



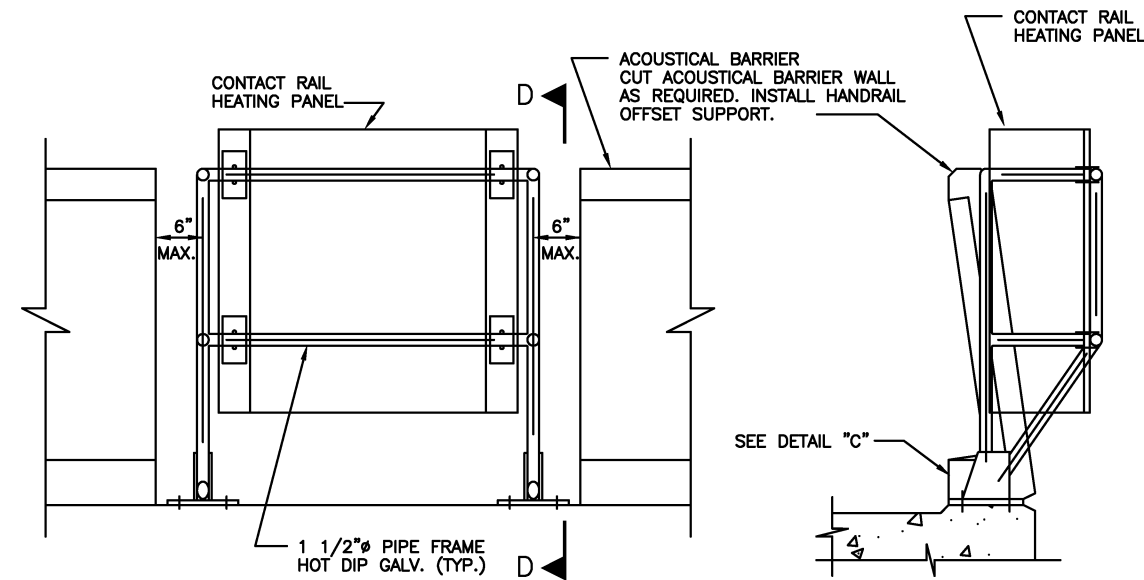
HANDRAIL OFFSET SUPPORT MOUNTING  
WITH TWO HANDRAIL  
NOT TO SCALE



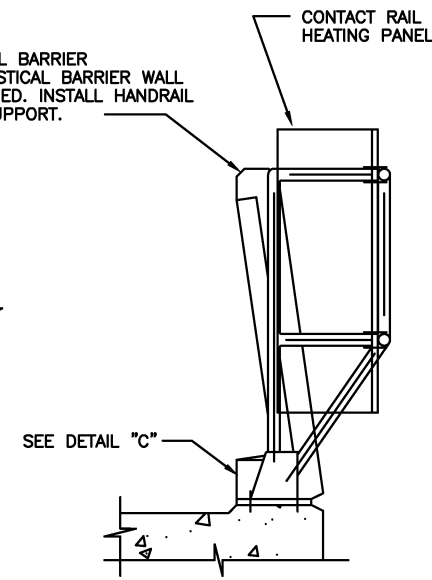
DETAIL "C"  
3/16"=1"



SECTION A-A  
N.T.S.



ACOUSTICAL BARRIER MOUNTING  
SCALE: 1/8"=1"



SECTION 'D-D'  
SCALE: 1/8"=1"

NOTES:

- GRIND SMOOTH ALL PROTRUDING EDGES IN CABLE THROUGH WHICH CAN DAMAGE MULTI-CONDUCTOR CABLE.
- INDICATE CENTER OF ETS AND CONTACT RAIL HEATER PANEL LOCATIONS SHALL BE INDICATED ON DRAWINGS USING TRACK STATIONING.

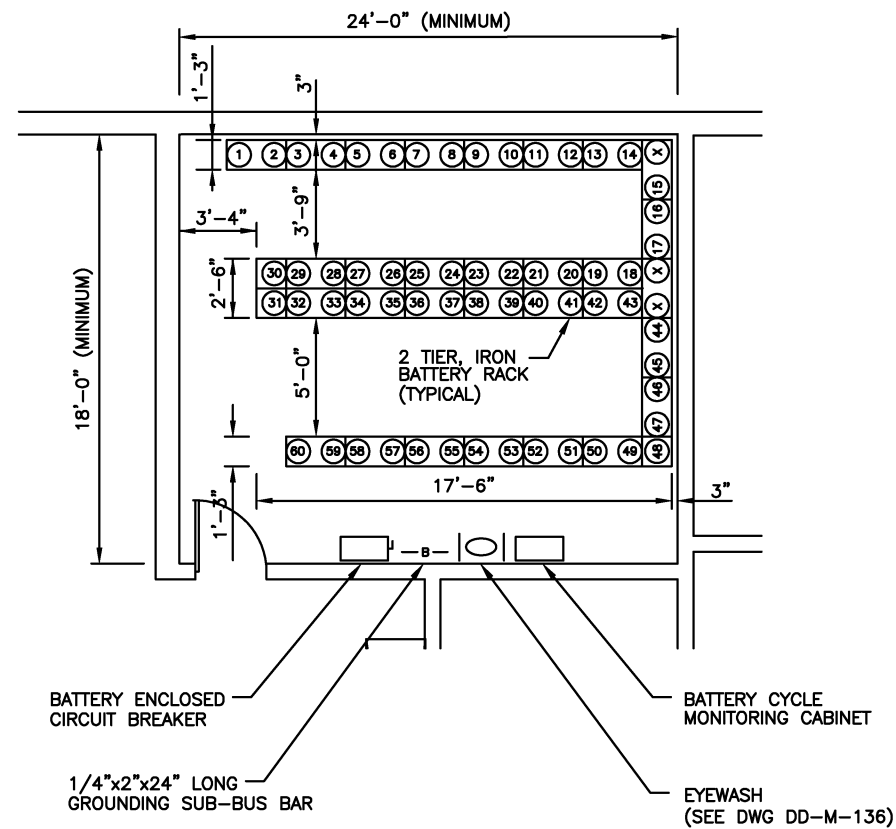
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
D. VANCOTT	1-96			08/2001	ENGA Revised and issued by the Authority
L. POWELL	1-96				
J. KROLIK	1-96				
R. GANERVAL	1-96				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

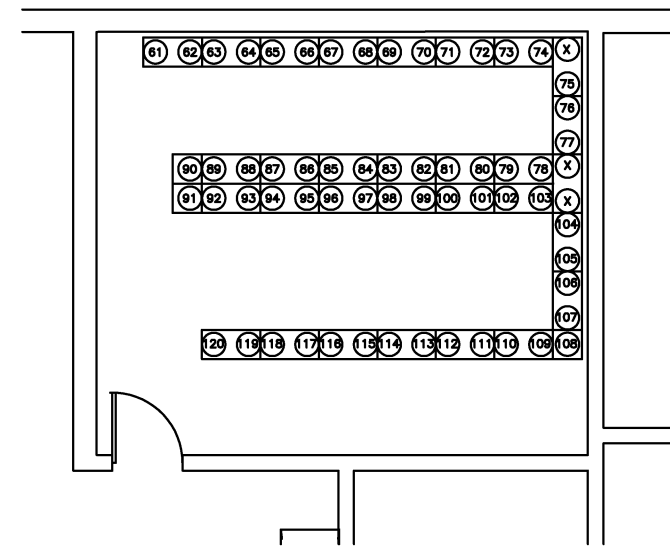
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE

ELECTRICAL DESIGN DRAWING  
RAIL HEATER CONTROL PANEL  
AND DETAILS - AERIAL

SCALE AS NOTED DRAWING NO. DD-E-093



**FIRST TIER  
UPS BATTERY ROOM LAYOUT**  
SCALE 1/4" = 1'-0"



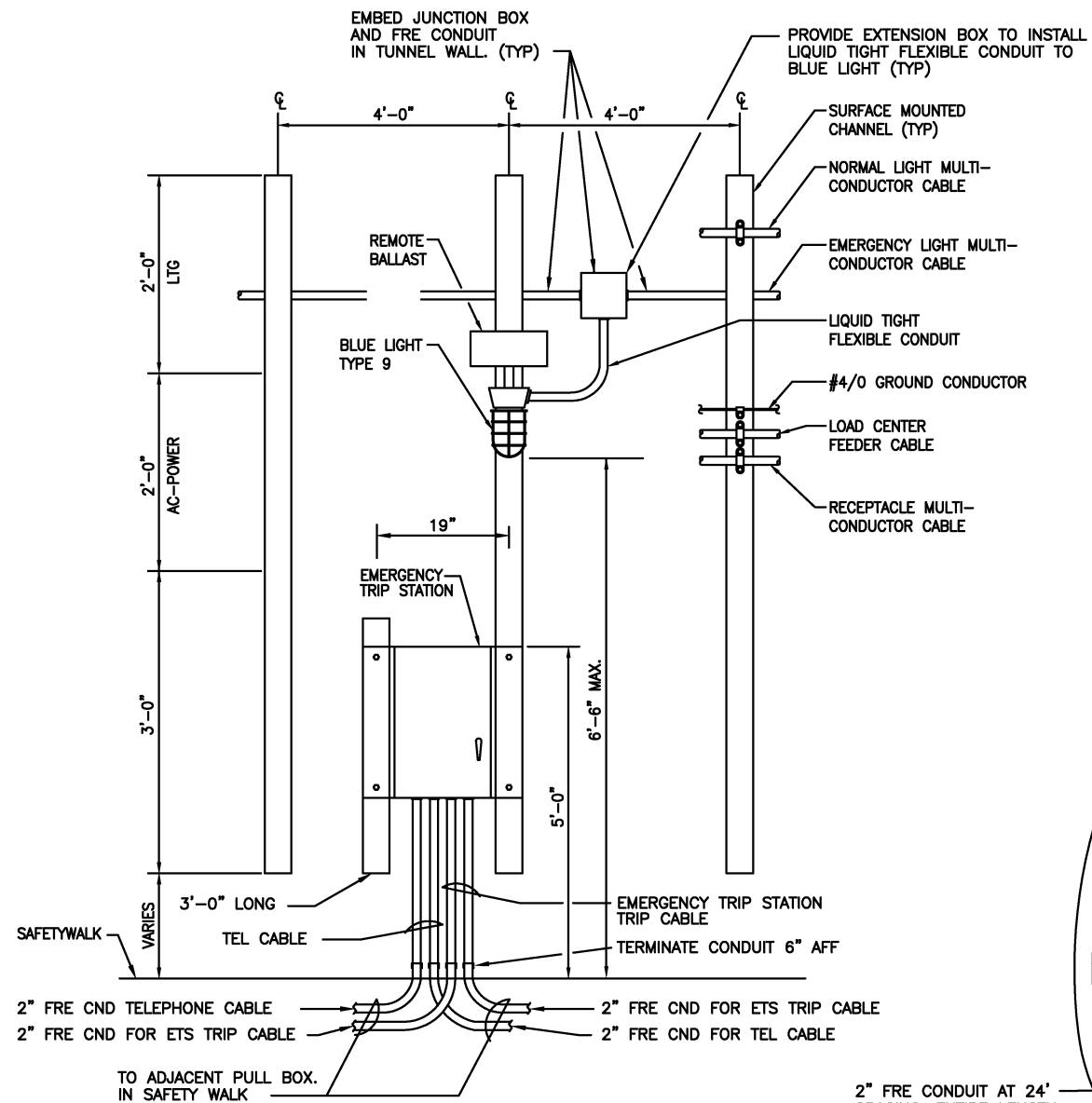
**SECOND TIER  
UPS BATTERY ROOM LAYOUT**  
SCALE 1/4" = 1'-0"

- NOTES:**
- COORDINATE LOCATION OF BATTERY ROOM EXHAUST FAN WITH BATTERIES (SEE DWG DD-M-136).
  - PROVIDE SLEEVES (3 3-1/2" FRE) IN WALL BETWEEN BATTERY ROOM AND A.C. SWITCHBOARD ROOM FOR POWER CABLES TO BATTERY DISCONNECT DEVICE. SEE DWG DD-E-33, 62, 83, 84.
  - BATTERY ROOM SIZE AND LAYOUT IS BASED ON 120 BATTERY CELLS SERVING A 62.5 KVA UPS. WHEN THE EMERGENCY LOAD EXCEEDS 62.5 KVA THE ROOM SIZE AND NUMBER OF BATTERIES SHALL BE ADJUSTED TO SUIT THE EMERGENCY LOAD. ACCEPTABLE BATTERY MANUFACTURERS ARE LUCENT TECHNOLOGIES, TYPE LIST 'IS' ROUND CELL, EXIDE FHGS IRONCLAD TUBULAR, C&D XT PLUS OR APPROVED EQUAL.

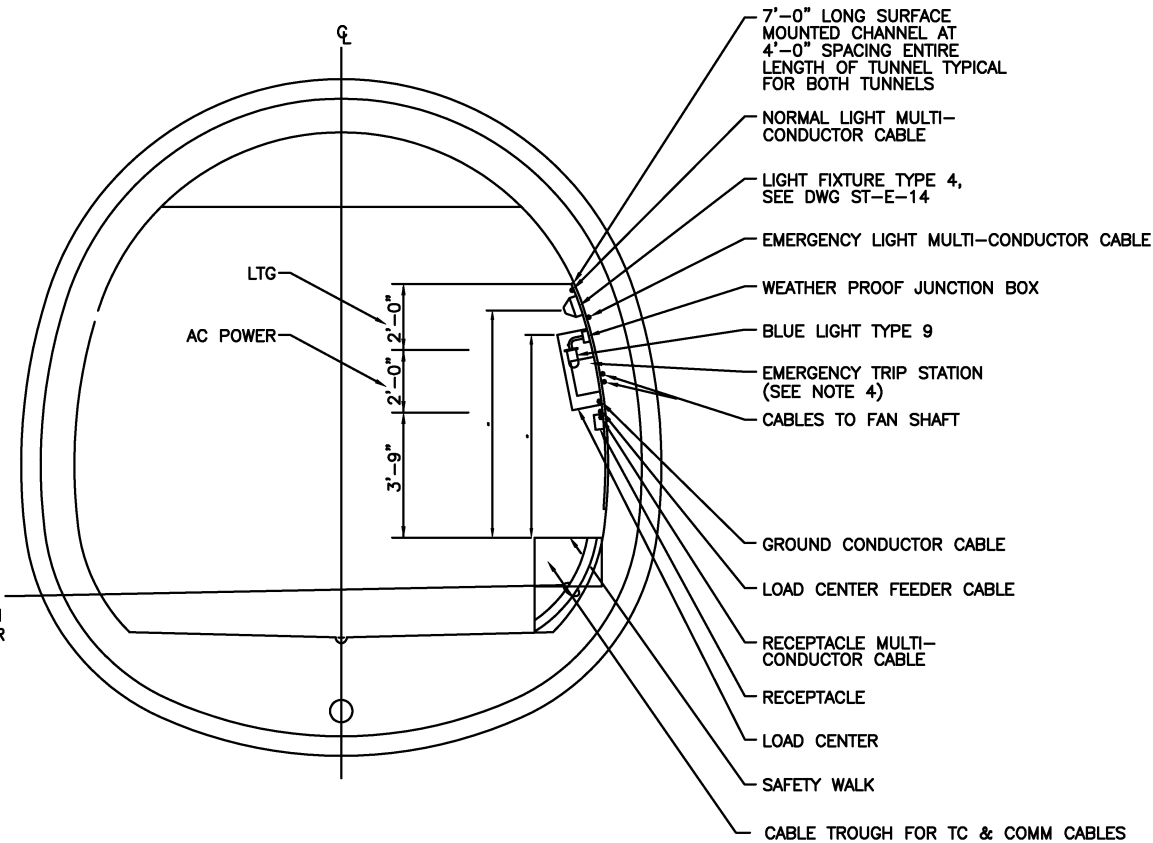
DESIGNED <u>D. VANCOTT</u> 6-98 DATE DRAWN <u>C. BUITRAGO</u> 6-98 DATE CHECKED <u>P.K. ROY</u> 6-98 DATE APPROVED <u>R. GANERWAL</u> 6-98 DATE	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION _____ _____		<b>REVISIONS</b> DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE		<b>ELECTRICAL DESIGN DRAWING</b> BATTERY ROOM LAYOUT AND DETAILS	
	SUBMITTED _____ DATE _____			APPROVED <i>[Signature]</i> DIRECTOR		May 3, 2001 DATE		SCALE AS NOTED

**NOTES**

1. FOR NATM TUNNEL GEOMETRY, DIMENSIONS AND DETAILS SEE STRUCTURAL DRAWING DD-S-121.
2. FOR CABLE MOUNTING DETAILS SEE DRAWING DD-E-26.
3. FOR TUNNEL LIGHT AND LOAD CENTER MOUNTING DETAILS SEE DRAWING DD-E-36.
4. FOR EMERGENCY TRIP STATION (ETS) BOX MOUNTING DETAILS SEE DRAWING DD-E-89.
5. FOR TWO PASS SYSTEM CIRCULAR EARTH TUNNEL GEOMETRY, DIMENSIONS AND DETAILS SEE STRUCTURAL DRAWING DD-S-123.
6. SPACING BETWEEN LOAD CENTERS NOT TO EXCEED 800 FEET ON CENTER, RECEPTACLES SPACING SHALL NOT EXCEED 80 FEET ON CENTERS.
7. SPACING BETWEEN EMERGENCY TRIP STATION (ETS.) SHALL NOT EXCEED 800 FEET ON CENTER.
8. SPACING BETWEEN TUNNEL LIGHTS IS 24 FEET ON CENTERS. EVERY FOURTH LIGHT FIXTURE SHALL BE ON THE EMERGENCY CIRCUIT.



**TYPICAL EMERGENCY TRIP STATION BLUE LIGHT TYPE 9 ON TUNNEL WALL MOUNTING DETAIL**



**NATM TUNNEL LIGHTING & POWER MOUNTING DETAIL**

(APPLICABLE TO TWO PASS CIRCULAR EARTH TUNNEL—SEE NOTE 5)

DESIGNED	D. VANCOTT	8-98
		DATE
DRAWN	C. BUSTRAGO	8-98
		DATE
CHECKED	J. KROLIK	8-98
		DATE
APPROVED	R. GANERWAL	8-98
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

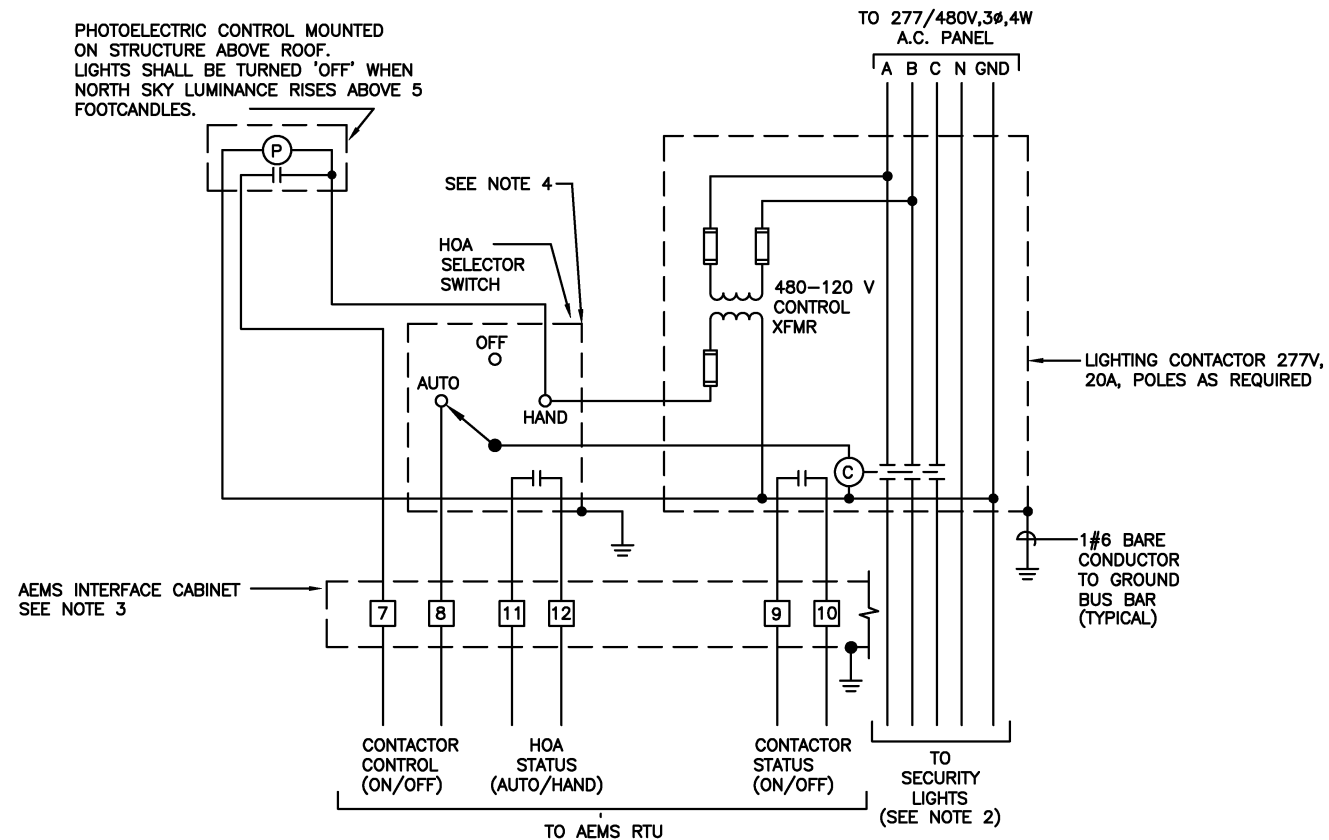
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

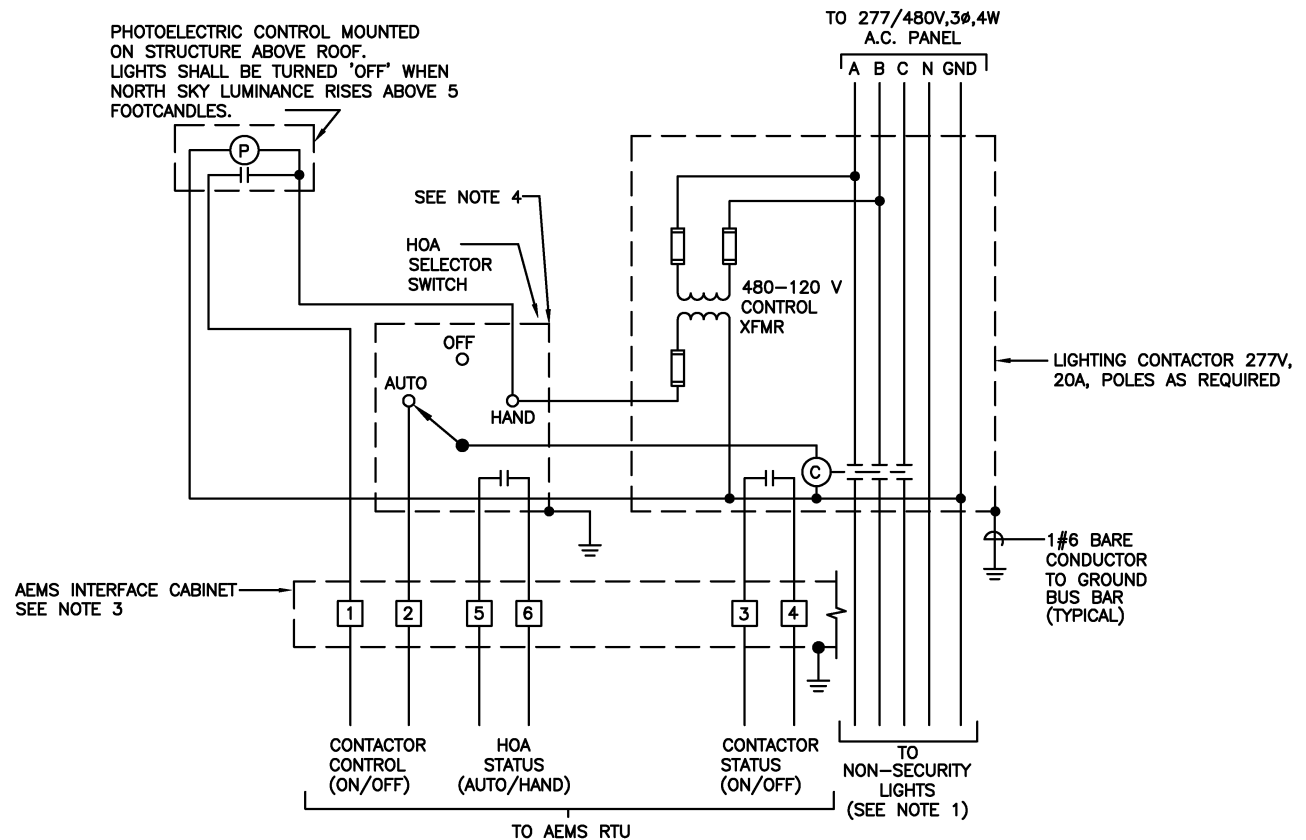
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
TUNNEL SECTIONS AND DETAILS – NATM TUNNEL &  
TWO PASS SYSTEM CIRCULAR EARTH TUNNEL

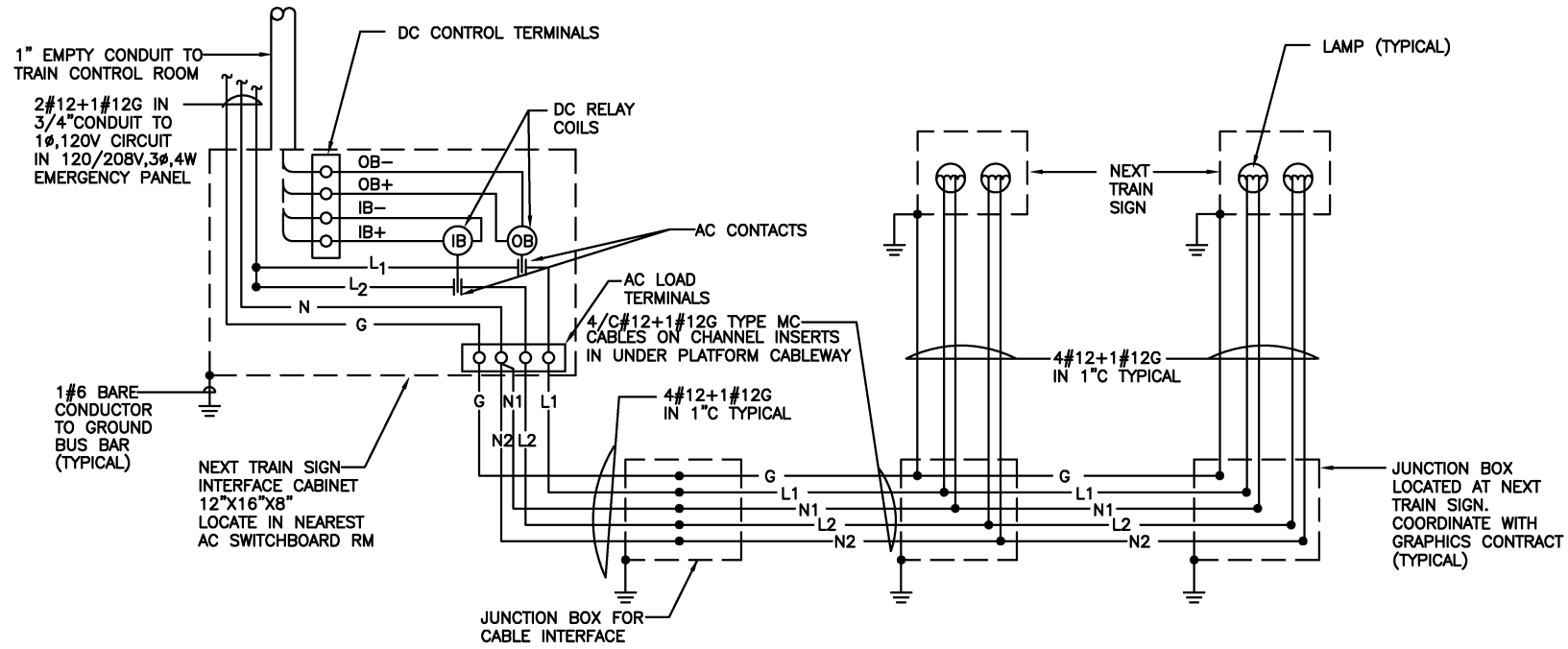
SCALE NONE DRAWING NO. DD-E-095



**CONTROL WIRING DIAGRAM FOR OUTDOOR SECURITY LIGHTING**  
(APPLICABLE TO SITE, PARKING LOT AND PARKING STRUCTURE LIGHTING)



**CONTROL WIRING DIAGRAM FOR OUTDOOR (NON-SECURITY) LIGHTING**  
(APPLICABLE TO SITE, PARKING LOT AND PARKING STRUCTURE LIGHTING)



**NEXT TRAIN SIGN WIRING DIAGRAM**

**NOTES:**

1. OUTDOOR (NON-SECURITY) LIGHTING SHALL NORMALLY REMAIN OPERATIONAL DURING TIME OF DARKNESS WHICH IS CONCURRENT WITH REVENUE SERVICE AND SHALL BE DISCONNECTED VIA AEMS CONTROL DURING NON-REVENUE SERVICE.
2. OUTDOOR SECURITY LIGHTING SHALL NORMALLY REMAIN OPERATIONAL DURING TIME OF DARKNESS BUT MAY BE DISCONNECTED VIA AEMS CONTROL IF NECESSARY.
3. TERMINAL NUMBERS INDICATED IN AEMS INTERFACE CABINET ARE REPRESENTATIVE OF A DEDICATED GROUP OF CONTROL/STATUS FUNCTIONS. PROVIDE UNIQUE TERMINATION NUMBERS FOR EACH GROUP OF CONTROL/STATUS FUNCTIONS IN AN AEMS INTERFACE CABINET LOCATED IN AC SWITCHBOARD ROOM IN PASSENGER STATION AND/OR ELECTRICAL ROOM IN PARKING STRUCTURE TO SUIT CONTRACT REQUIREMENTS. FOR AEMS INTERFACE CABINET, SEE DWG. DD-E-99 AND/OR DD-E-100 AS APPLICABLE.
4. LOCATE IN LIGHTING CONTROL PANEL IN AC SWITCHBOARD ROOM IN PASSENGER STATION OR IN ELECTRICAL ROOM IN PARKING STRUCTURE.

DESIGNED	D. VANCOTT	8-98
		DATE
DRAWN	R. THOMAS, JR.	8-98
		DATE
CHECKED	J. KROLIK	8-98
		DATE
APPROVED	R. GANERWAL	8-98
		DATE

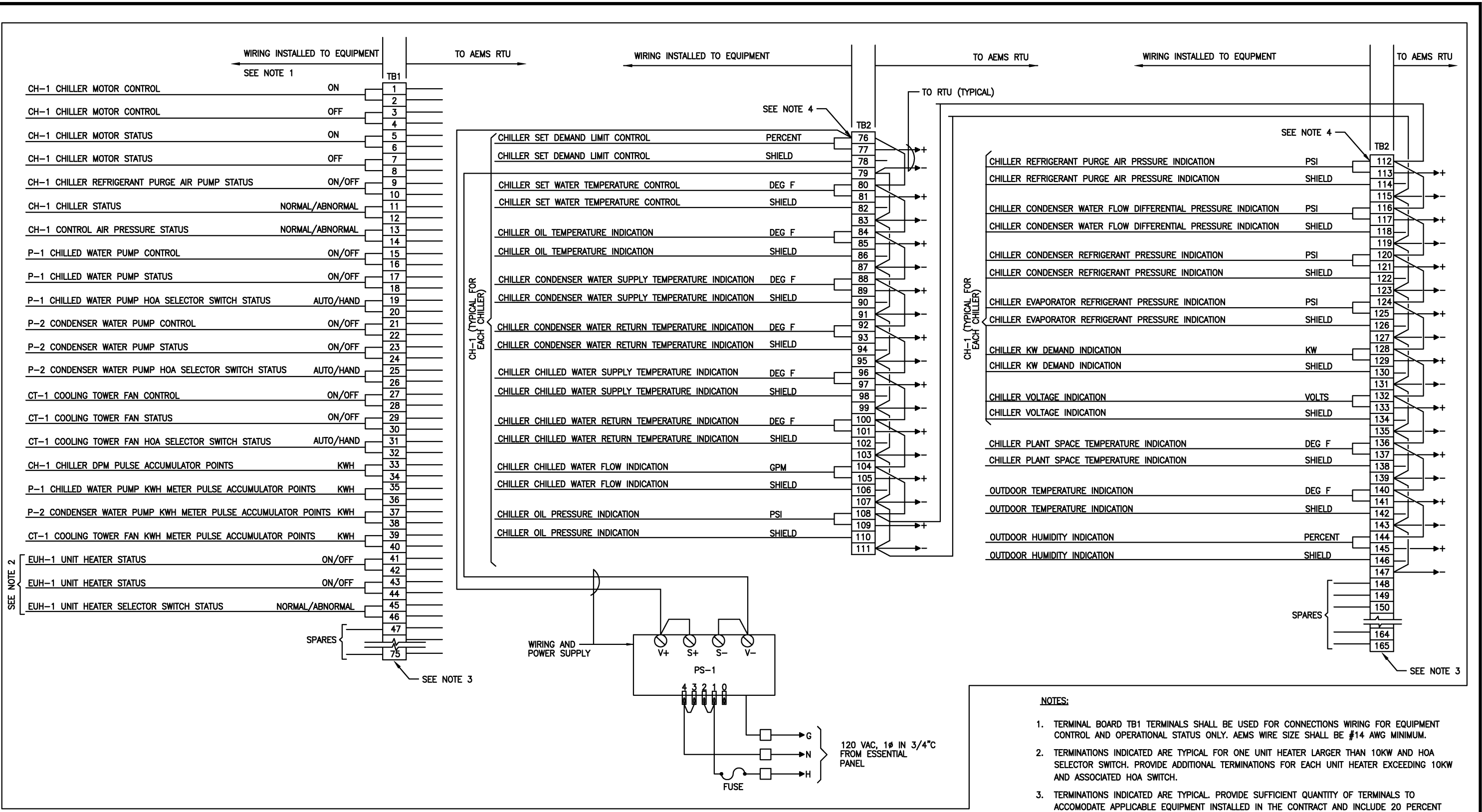
REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
		08/2001	ENGA	Revised and issued by the Authority

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
CONTROL WIRING DIAGRAM FOR  
OUTDOOR LIGHTING AND NEXT TRAIN SIGN

SCALE NONE DRAWING NO. DD-E-097



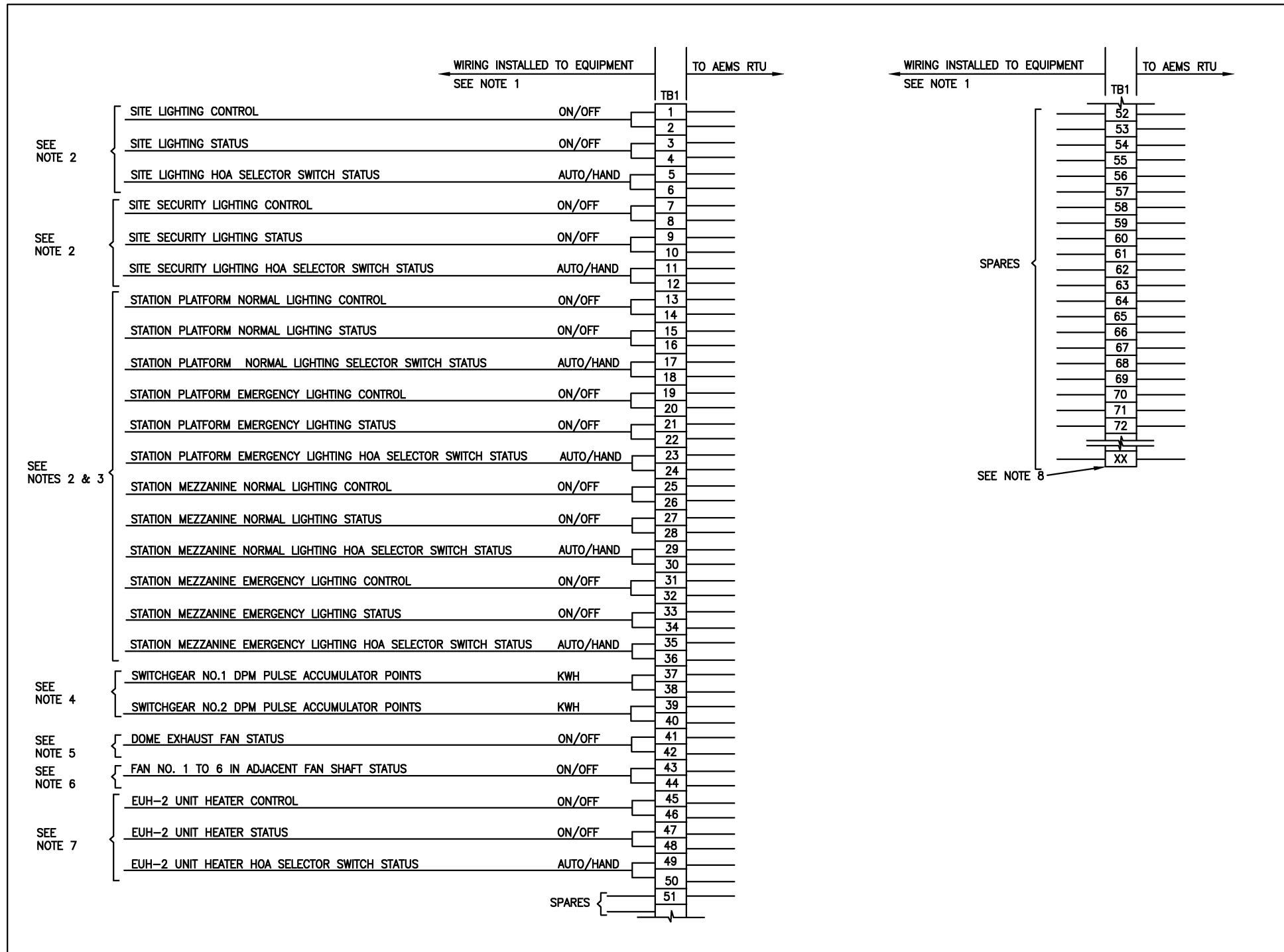
CHILLER PLANT AEMS INTERFACE CABINET

SEE NOTE 5

NOTES:

1. TERMINAL BOARD TB1 TERMINALS SHALL BE USED FOR CONNECTIONS WIRING FOR EQUIPMENT CONTROL AND OPERATIONAL STATUS ONLY. AEMS WIRE SIZE SHALL BE #14 AWG MINIMUM.
2. TERMINATIONS INDICATED ARE TYPICAL FOR ONE UNIT HEATER LARGER THAN 10KW AND HOA SELECTOR SWITCH. PROVIDE ADDITIONAL TERMINATIONS FOR EACH UNIT HEATER EXCEEDING 10KW AND ASSOCIATED HOA SWITCH.
3. TERMINATIONS INDICATED ARE TYPICAL. PROVIDE SUFFICIENT QUANTITY OF TERMINALS TO ACCOMMODATE APPLICABLE EQUIPMENT INSTALLED IN THE CONTRACT AND INCLUDE 20 PERCENT MINIMUM SPARE TERMINALS ON EACH TERMINAL BOARD.
4. TERMINAL BOARD TB2 TERMINALS SHALL BE USED FOR CONNECTING 2/C#18 AWG SHIELDED TWISTED PAIR ANALOG TELEMETRY CIRCUITS ONLY.
5. FOR ABBREVIATIONS, SEE DWG. NO. DD-E-100.

DESIGNED D. VANCOTT 8-98 DRAWN R. THOMAS, JR. 8-98 CHECKED J. KROLIK 8-98 APPROVED R. GANERWAL 8-98	<b>REFERENCE DRAWINGS</b>		<b>REVISIONS</b>		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> AUTOMATED ENERGY MANAGEMENT SYSTEMS (AEMS) INTERFACE CABINET CHILLER PLANT		
	NUMBER DD-M-141 DD-M-143 DD-M-144 DD-M-143	DESCRIPTION AEMS TYPICAL DIAGRAM CHILLED WATER PLANT AEMS EQUIPMENT SCHEDULE, SHEET 1 OF 2 AEMS EQUIPMENT SCHEDULE, SHEET 2 OF 2 AEMS TYPICAL DIAGRAMS ACUS, UHS AND FANS	DATE 08/2001	BY ENGA		DESCRIPTION Revised and issued by the Authority	SUBMITTED DATE	APPROVED DIRECTOR May 3, 2001 DATE



**NOTES:**

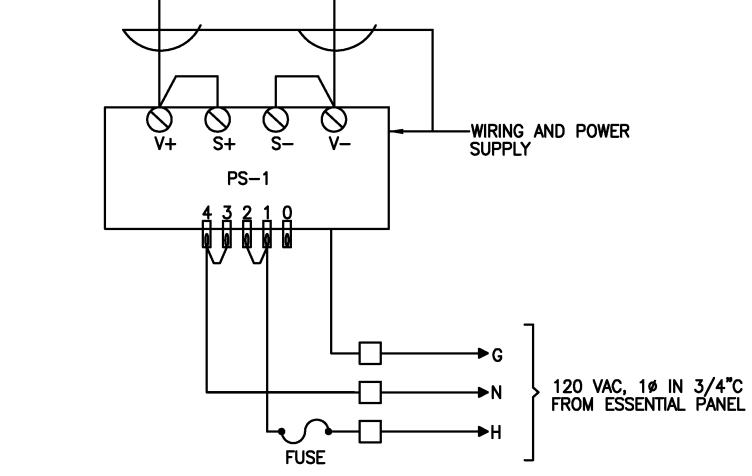
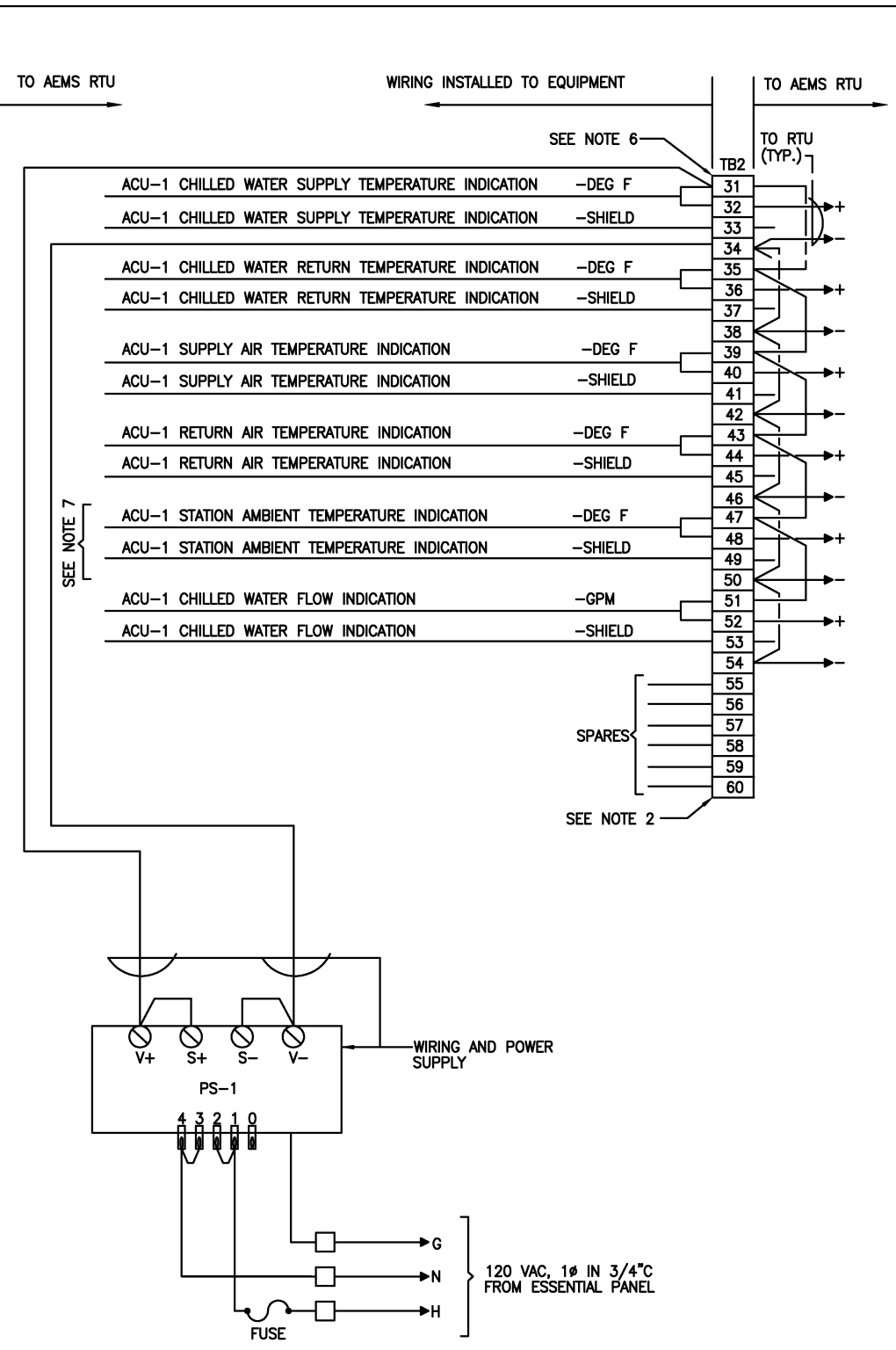
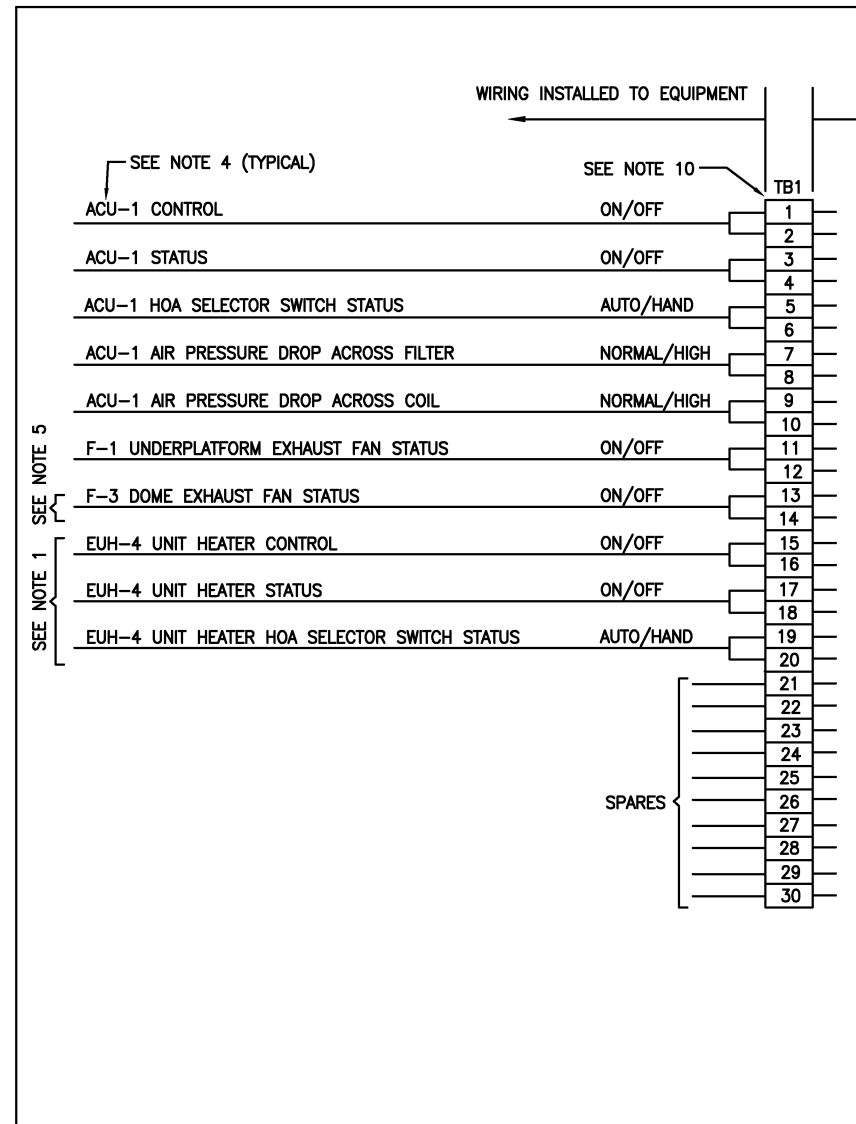
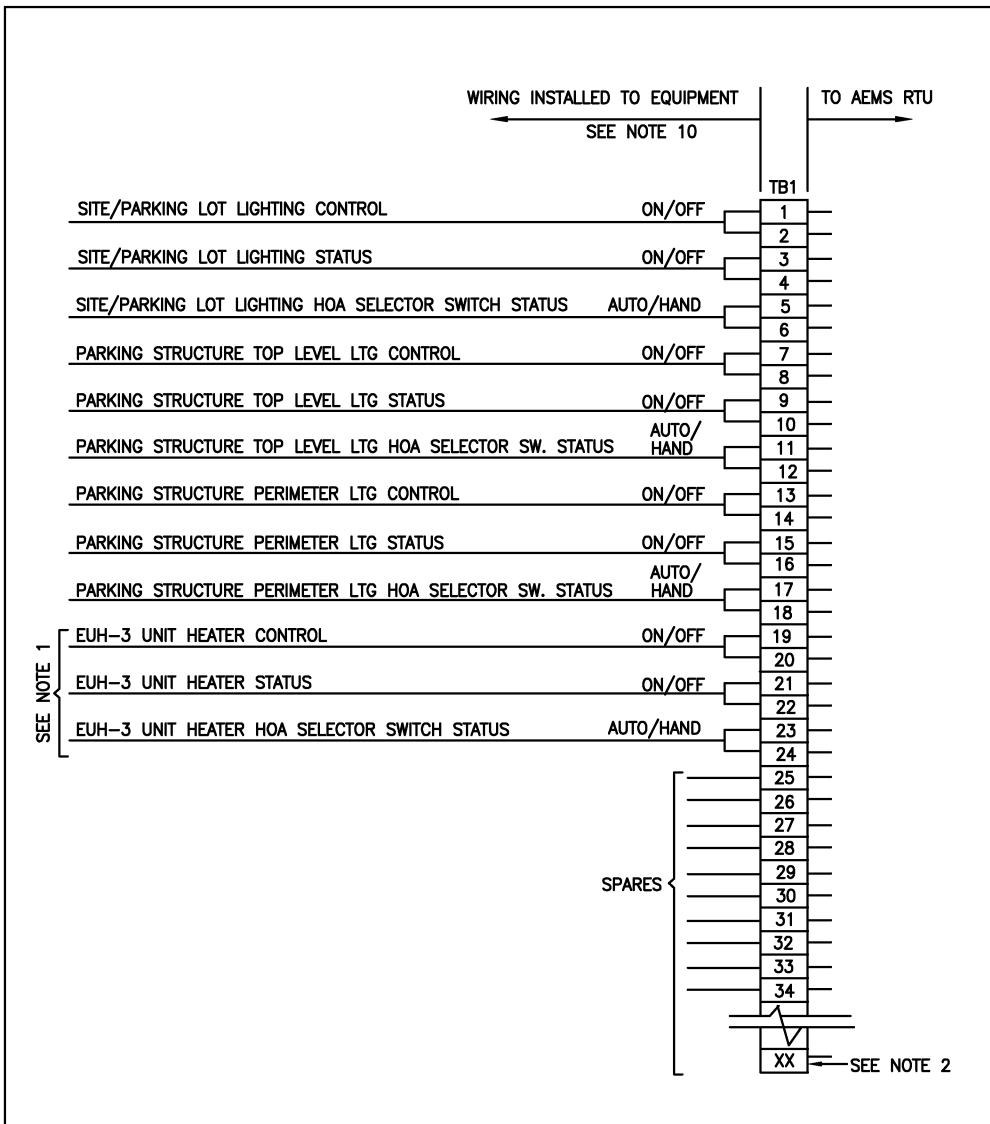
1. AEMS WIRE SIZE SHALL BE #14 AWG MINIMUM.
2. TERMINATIONS INDICATED ARE DEDICATED FOR HOA SWITCH AND ASSOCIATED LIGHTING CONTACTOR(S) FOR EACH GROUP OF LIGHTING CONTROL/STATUS FUNCTIONS LISTED, AS APPLICABLE.
3. TERMINATIONS INDICATED ARE FOR ABOVE GROUND PASSENGER STATION ONLY. FOR UNDERGROUND PASSENGER STATION, INCLUDED TERMINAL NUMBERS (13-36) ARE NOT USED.
4. TERMINATIONS INDICATED ARE FOR COMBINED AC SWITCHBOARD ROOM. FOR SINGLE AC SWITCHBOARD ROOM, ONLY ONE APPROPRIATE PAIR OF TERMINAL NUMBERS IS USED.
5. TERMINATIONS INDICATED ARE FOR UNDERGROUND PASSENGER STATION ONLY AND ARE ALTERNATE CONNECTIONS IF DOME EXHAUST FAN IS NOT CONNECTED TO MECHANICAL ROOM AEMS INTERFACE CABINET AS INDICATED ON DWG. NO. DD-E-100. FOR ABOVE GROUND PASSENGER STATION, INCLUDED TERMINAL NUMBERS (41-42) ARE NOT USED.
6. TERMINATIONS INDICATED ARE APPLICABLE AS REQUIRED BY CONTRACT.
7. TERMINATIONS INDICATED ARE TYPICAL FOR ONE UNIT HEATER LARGER THAN 10 KW AND HOA SELECTOR SWITCH. PROVIDE ADDITIONAL TERMINATIONS FOR EACH UNIT HEATER EXCEEDING 10 KW AND ASSOCIATED HOA SWITCH.
8. TERMINATIONS INDICATED ARE TYPICAL UNLESS OTHERWISE NOTED. PROVIDE SUFFICIENT QUANTITY OF TERMINALS TO ACCOMMODATE APPLICABLE EQUIPMENT INSTALLED IN THE CONTRACT AND INCLUDE 20 PERCENT MINIMUM SPARE TERMINALS.

**ABBREVIATIONS**

AEMS	AUTOMATED ENERGY MANAGEMENT SYSTEM
AUTO	AUTOMATIC
DPM	DIGITAL POWER METER
HOA	HAND - OFF - AUTOMATIC
KWH	KILOWATT-HOUR

**AC SWITCHBOARD ROOM AEMS INTERFACE CABINET**

DESIGNED <u>D. VANCOTT</u> 8-98 DATE DRAWN <u>R. THOMAS, JR.</u> 8-98 DATE CHECKED <u>J. KROLIK</u> 8-98 DATE APPROVED <u>R. GANERIWAL</u> 8-98 DATE UPDATED <u>R. GANERIWAL</u> 9-98	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION	<b>REVISIONS</b> DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> AUTOMATED ENERGY MANAGEMENT SYSTEM (AEMS) INTERFACE CABINET AC SWITCHBOARD ROOMS
	SUBMITTED _____ DATE _____ APPROVED <u>[Signature]</u> DIRECTOR May 3, 2001 DATE	SCALE NONE	DRAWING NO. DD-E-099	



**MECHANICAL ROOM AEMS INTERFACE CABINET**  
SEE NOTES 8 AND 9

**ELECTRICAL ROOM AEMS INTERFACE CABINET**  
(APPLICABLE ONLY TO ELECTRICAL ROOM LOCATED IN PARKING STRUCTURE)  
SEE NOTE 3

**ABBREVIATIONS**

A.C.	ALTERNATING CURRENT
AEMS	AUTOMATED ENERGY MANAGEMENT SYSTEM
AUTO	AUTOMATIC
DEG	DEGREE
EUH	ELECTRIC UNIT HEATER
F	FAHRENHEIT
GPM	GALLON PER MINUTE
HOA	HAND -OFF -AUTOMATIC
KW	KILOWATT
LTG	LIGHTING
PSI	POUNDS PER SQUARE INCH
SW	SWITCH
V	VOLTS

**NOTES:**

1. TYPICAL TERMINATIONS FOR ONE UNIT HEATER LARGER THAN 10KW AND HOA SELECTOR SWITCH. PROVIDE ADDITIONAL TERMINATIONS FOR EACH UNIT HEATER EXCEEDING 10KW AND ASSOCIATED HOA SWITCH.
2. TERMINATIONS INDICATED ARE TYPICAL. PROVIDE SUFFICIENT QUANTITY OF TERMINALS TO ACCOMMODATE APPLICABLE EQUIPMENT INSTALLED IN THE CONTRACT AND INCLUDE 20 PERCENT MINIMUM SPARE TERMINALS ON EACH TERMINAL BOARD.
3. PROVIDE ONE 3" EMPTY CONDUIT FROM AEMS INTERFACE CABINET TO VICINITY OF AEMS RTU IN NEAREST AC SWITCHBOARD ROOM.
4. DESIGNATION INDICATED IS FOR AIR CONDITIONING EQUIPMENT AND UNDERPLATFORM EXHAUST FAN LOCATED IN ONE OF TWO OR MORE MECHANICAL ROOMS IN PASSENGER STATION. PROVIDE APPROPRIATE DESIGNATION(S) FOR SIMILAR EQUIPMENT LOCATED IN OTHER MECHANICAL ROOM(S).
5. DESIGNATION INDICATED IS FOR DOME EXHAUST FAN SERVING ONE HALF OF PASSENGER STATION TRAIN ROOM. PROVIDE DESIGNATION FOR SIMILAR DOME EXHAUST FAN SERVING OTHER HALF OF PASSENGER STATION TRAIN ROOM.
6. TERMINAL BOARD TB2 TERMINALS SHALL BE USED FOR CONNECTING 2/C #18 AWG SHIELDED TWISTED PAIR ANALOG TELEMETRY CIRCUITS ONLY.
7. TERMINATION REQUIREMENT IS ONE PER PASSENGER STATION.
8. TERMINATIONS INDICATED ARE FOR UNDERGROUND PASSENGER STATION WITH CHILLER AND TRAIN ROOM EXHAUST EQUIPMENT. FOR ABOVE GROUND PASSENGER STATIONS, INCLUDE ONLY TERMINATION'S APPLICABLE TO THE CONTRACT.
9. PROVIDE TWO 3" EMPTY CONDUITS FROM AEMS INTERFACE CABINET TO VICINITY OF AEMS RTU IN NEAREST AC SWITCHBOARD ROOM.
10. AEMS WIRE SIZE SHALL BE #14AWG MINIMUM.

DESIGNED	D. VANCOTT	8-98	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	R. THOMAS, JR.	8-98			08/2001	ENGA	Revised and issued by the Authority
CHECKED	J. KROLIK	8-98					
APPROVED	R. GANERWAL	8-98					

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

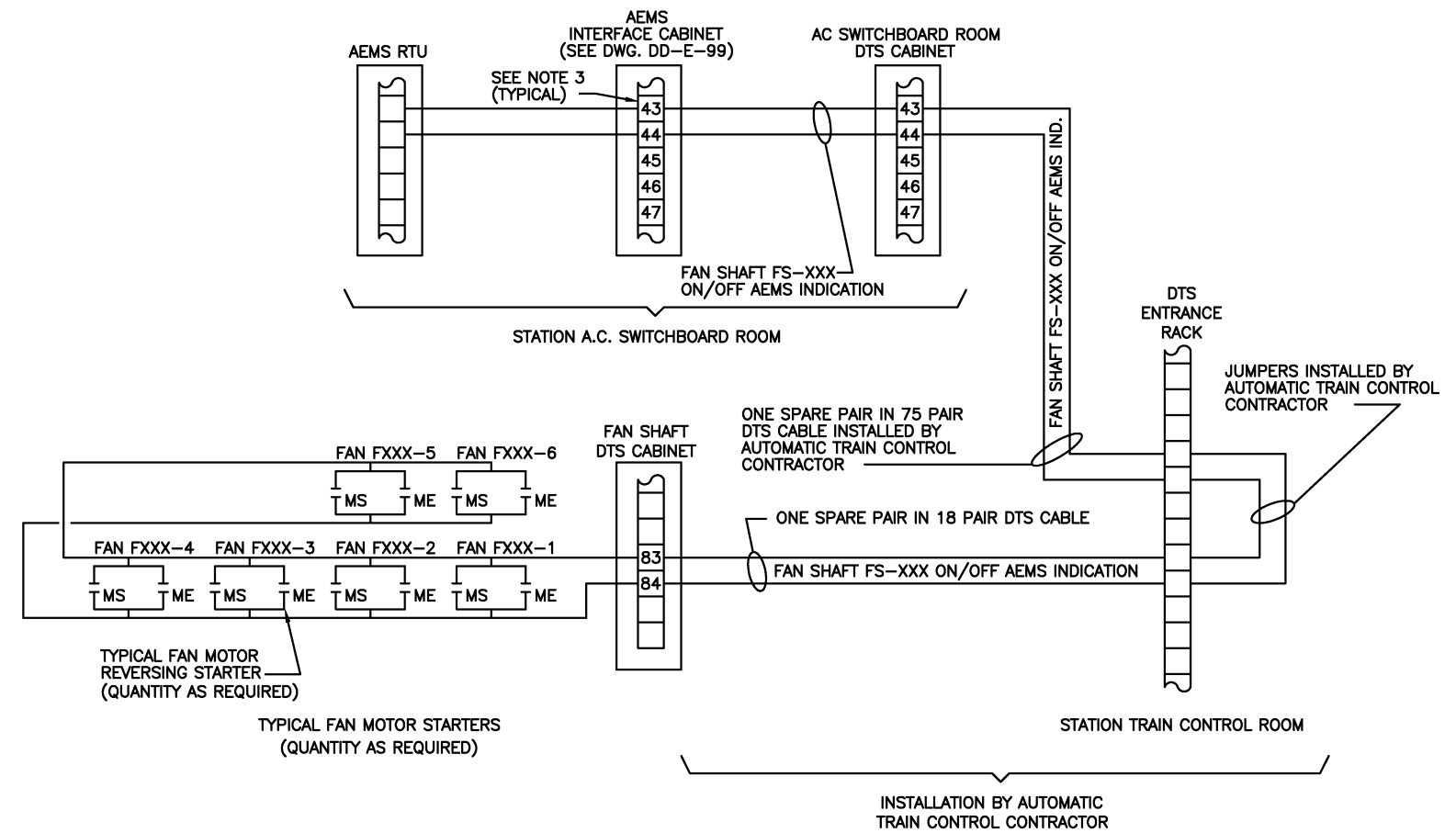
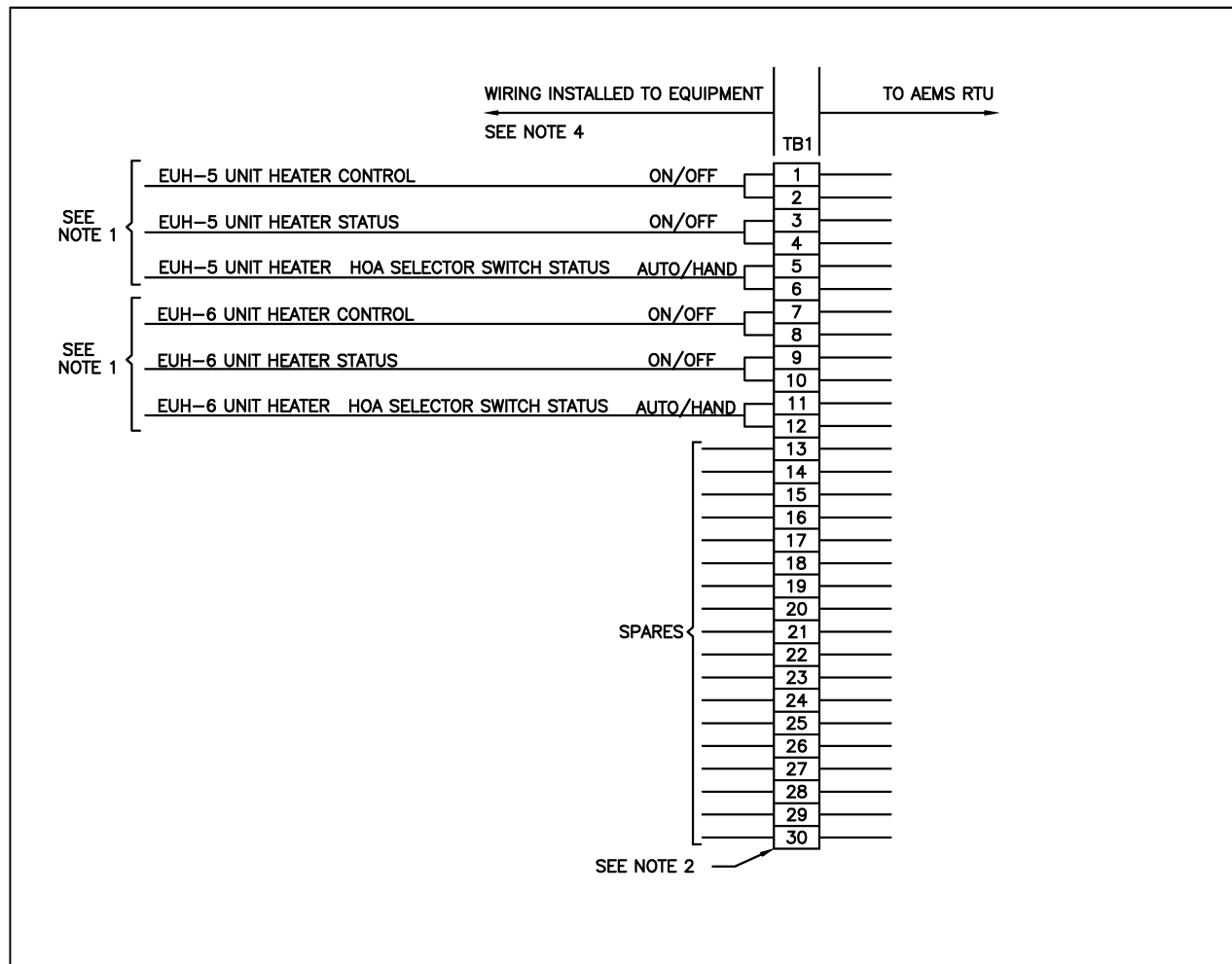
APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
AUTOMATED ENERGY MANAGEMENT SYSTEM (AEMS)  
INTERFACE CABINET AT STATION SERVICE ROOMS

SCALE NONE

DRAWING NO. DD-E-100





FAN SHAFT INTERFACE WIRING DIAGRAM

TRACTION POWER SUBSTATION (TPS) AEMS INTERFACE CABINET

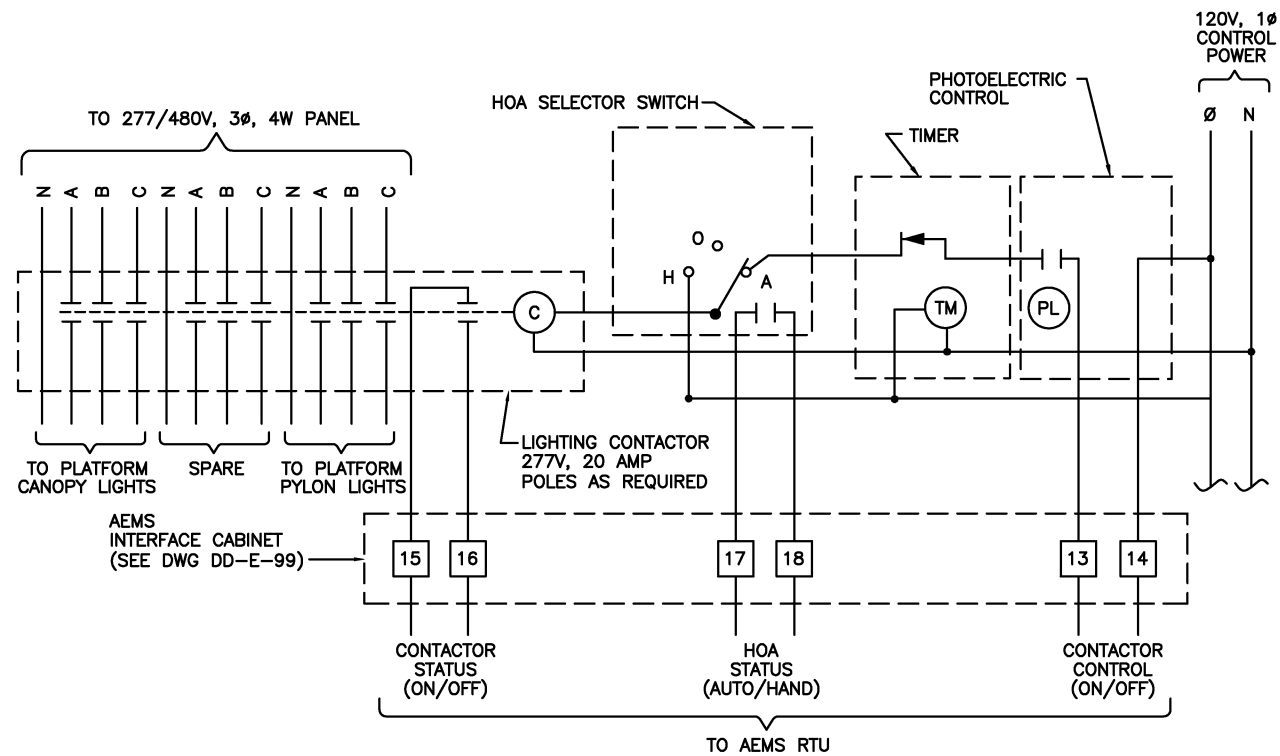
NOTES:

1. TYPICAL TERMINATIONS FOR ONE UNIT HEATER LARGER THAN 10KW AND HOA SELECTOR SWITCH. PROVIDE ADDITIONAL TERMINATIONS FOR EACH UNIT HEATER EXCEEDING 10KW AND ASSOCIATED HOA SWITCH.
2. TERMINATIONS INDICATED ARE TYPICAL. PROVIDE SUFFICIENT QUANTITY OF TERMINALS TO ACCOMMODATE APPLICABLE EQUIPMENT INSTALLED IN THE CONTRACT AND INCLUDE 20 PERCENT MINIMUM SPARE TERMINALS.
3. COORDINATE TERMINAL NUMBERS WITH THE CONTRACT REQUIRMENTS.
4. AEMS WIRE SIZE SHALL BE #14 AWG MINIMUM.

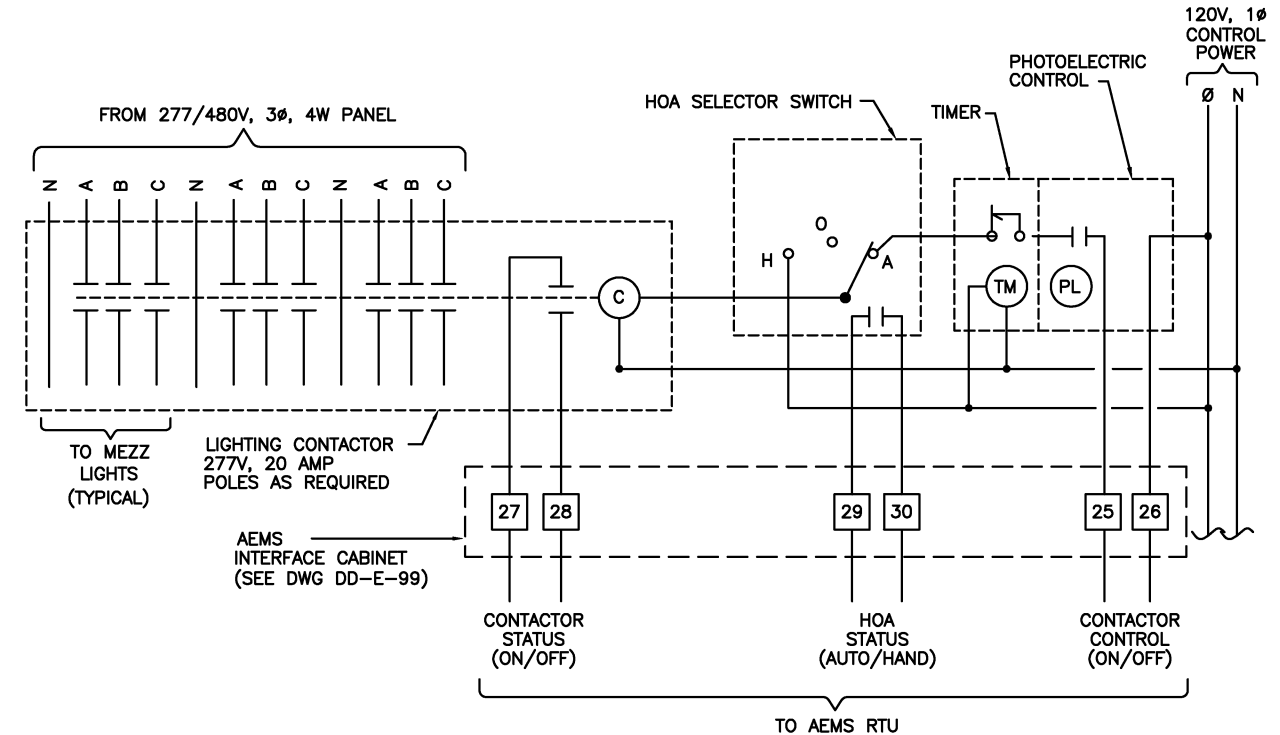
LEGEND

- FS - XXX FAN SHAFT IDENTIFICATION NUMBER (NUMBER ASSIGNED BY WMATA)
- F - XXX FAN IDENTIFICATION NUMBER
- AEMS AUTOMATED ENERGY MANAGEMENT SYSTEM

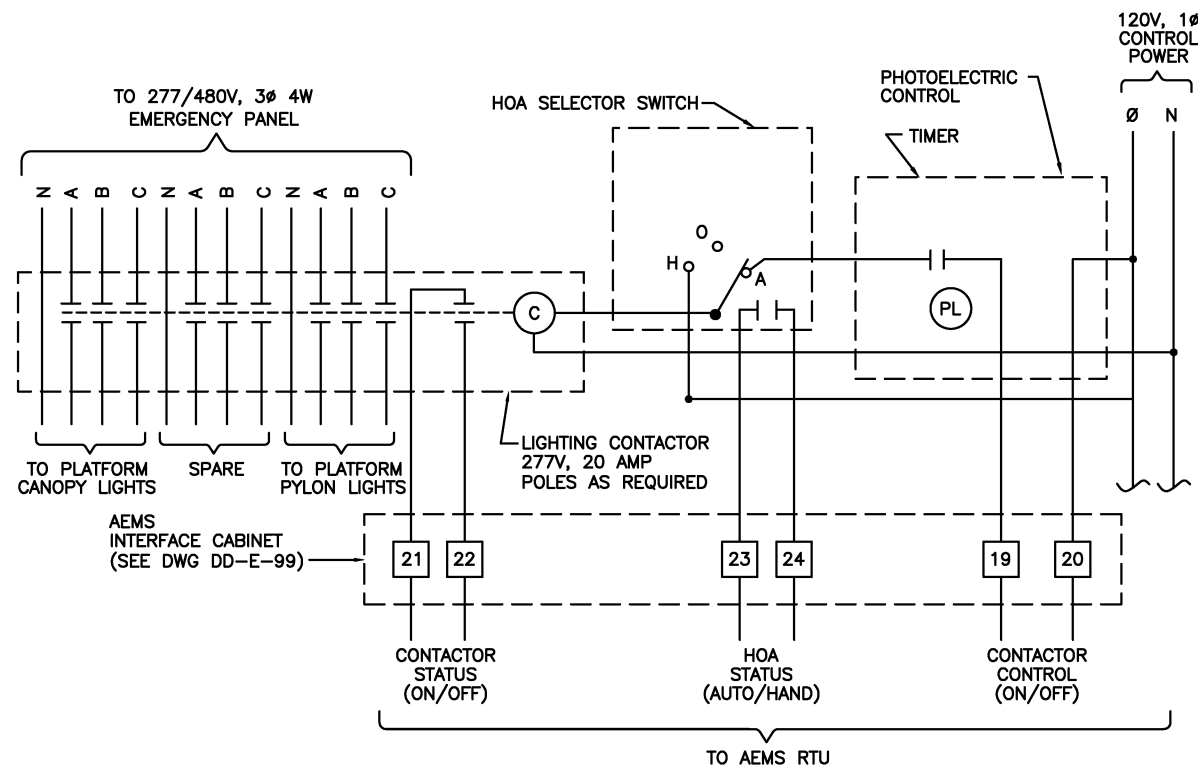
DESIGNED <u>D. VANCOTT</u> <u>8-98</u> DATE	REFERENCE DRAWINGS	REVISIONS	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		ELECTRICAL DESIGN DRAWING	
DRAWN <u>R. THOMAS, JR</u> <u>8-98</u> DATE	NUMBER DESCRIPTION	DATE BY DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT		AUTOMATED ENERGY MANAGEMENT SYSTEM (AEMS)	
CHECKED <u>J. KROLIK</u> <u>8-98</u> DATE			OFFICE OF ENGINEERING AND ARCHITECTURE		INTERFACE CABINET FOR TPS AND	
APPROVED <u>R. GANERWAL</u> <u>8-98</u> DATE			SUBMITTED _____ DATE _____	APPROVED <u>[Signature]</u> <u>May 3, 2001</u> DIRECTOR DATE	SCALE NONE	DRAWING NO. DD-E-101



**CONTROL WIRING DIAGRAM FOR STATION PLATFORM NORMAL LIGHTING**  
NOT TO SCALE



**CONTROL WIRING DIAGRAM FOR STATION MEZZANINE NORMAL LIGHTING**  
NOT TO SCALE



**CONTROL WIRING DIAGRAM FOR STATION PLATFORM EMERGENCY LIGHTING**  
NOT TO SCALE

**NOTE:**

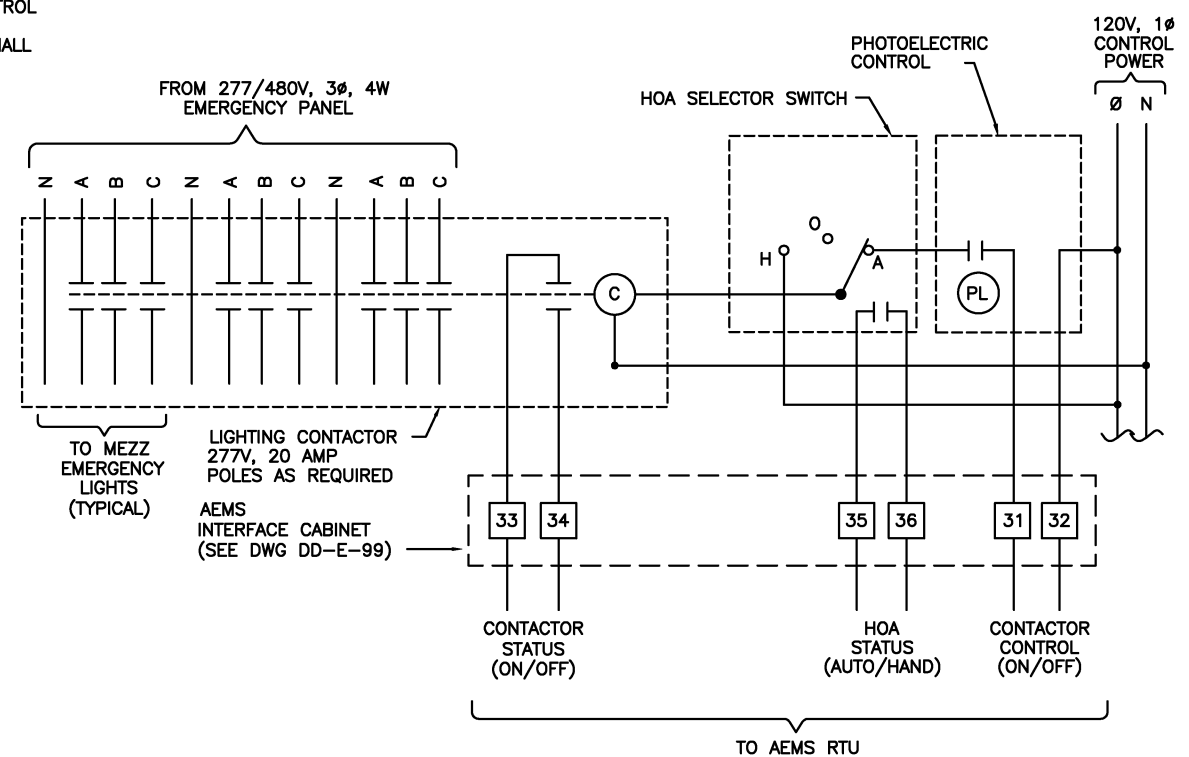
COORDINATE WITH ENERGY MANAGEMENT SYSTEM AND PROVIDE INTERFACE CABINET IN AC SWBD ROOM FOR CONNECTION OF ALL LIGHTING CONTROL SYSTEMS TO ENERGY MANAGEMENT SYSTEM. SIGNAL FROM ENERGY MANAGEMENT SYSTEM SHALL BE CAPABLE OF OVER-RIDING OTHER LIGHTING CONTROLS.

HAND-OFF-AUTO SWITCH (TYP.)

⊘ SITE LIGHTING	⊘ STATION PLATFORM NORMAL LIGHTING	⊘ STATION MEZZANINE NORMAL LIGHTING
⊘ SITE SECURITY LIGHTING	⊘ STATION PLATFORM EMERGENCY LIGHTING	⊘ STATION MEZZANINE EMERGENCY LIGHTING
⊘ SPARE	⊘ SPARE	⊘ TIMERS

(LOCATE IN A.C. SWBD ROOM)

**LIGHTING CONTROL PANEL DETAIL**



**CONTROL WIRING DIAGRAM FOR STATION MEZZANINE EMERGENCY LIGHTING**  
NOT TO SCALE

DESIGNED	D. VANCOTT	8-98	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	C. BUITRAGO	8-98	DD-E-099	INTERFACE CABINET A.C. SWITCHBOARD ROOM	08/2001	ENGA	Revised and issued by the Authority
CHECKED	J. KROLIK	8-98					
APPROVED	R. GANERWAL	8-98					

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED

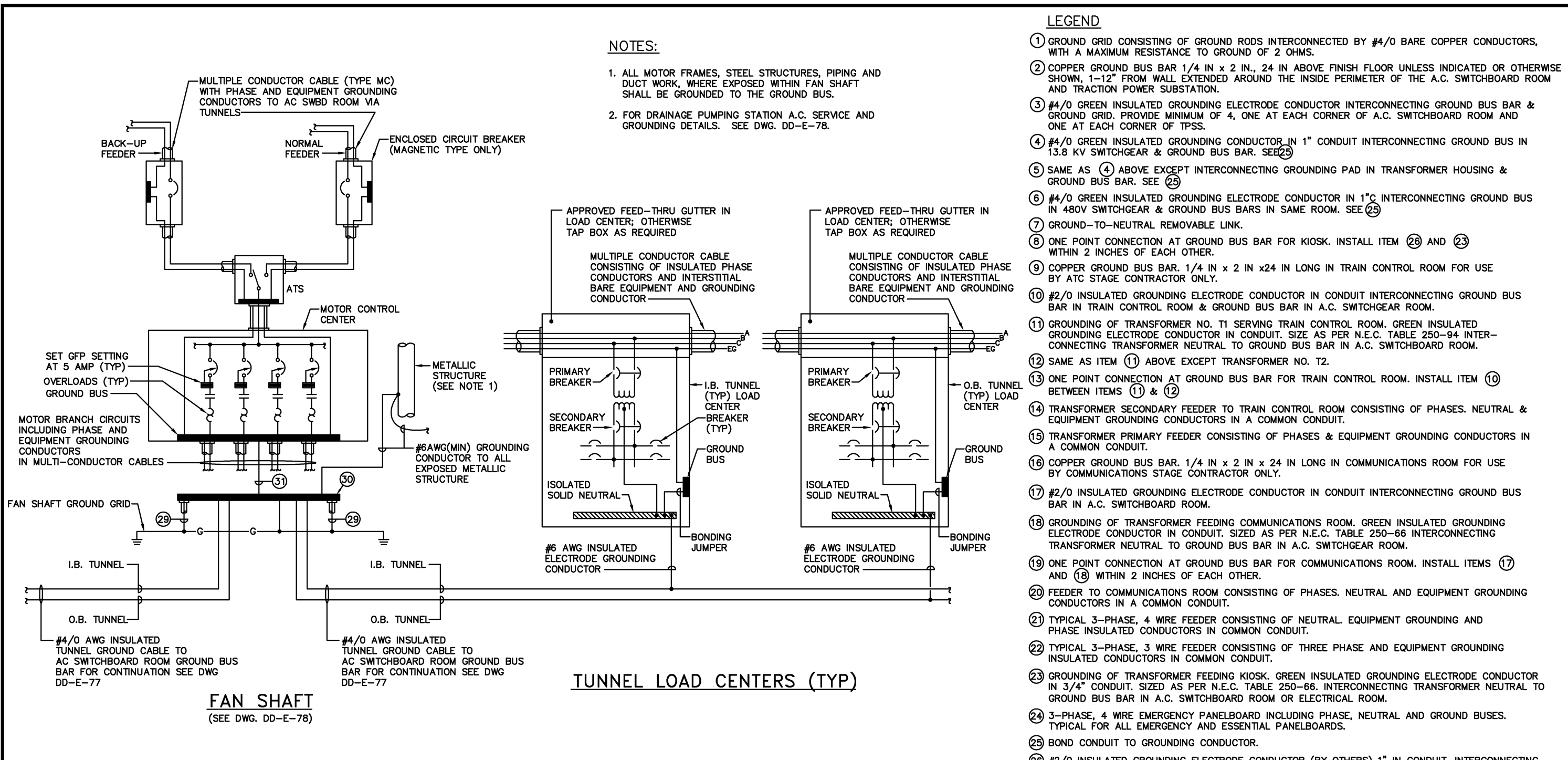
DIRECTOR

May 3, 2001  
DATE

**ELECTRICAL DESIGN DRAWING**  
CONTROL WIRING DIAGRAM FOR ABOVE  
GROUND STATION PLATFORM AND MEZZANINE LIGHTING

SCALE  
NONE

DRAWING NO.  
DD-E-102



**NOTES:**

1. ALL MOTOR FRAMES, STEEL STRUCTURES, PIPING AND DUCT WORK, WHERE EXPOSED WITHIN FAN SHAFT SHALL BE GROUNDED TO THE GROUND BUS.
2. FOR DRAINAGE PUMPING STATION A.C. SERVICE AND GROUNDING DETAILS. SEE DWG. DD-E-78.

**LEGEND**

- 1 GROUND GRID CONSISTING OF GROUND RODS INTERCONNECTED BY #4/0 BARE COPPER CONDUCTORS, WITH A MAXIMUM RESISTANCE TO GROUND OF 2 OHMS.
- 2 COPPER GROUND BUS BAR 1/4 IN x 2 IN., 24 IN ABOVE FINISH FLOOR UNLESS INDICATED OR OTHERWISE SHOWN, 1-12" FROM WALL EXTENDED AROUND THE INSIDE PERIMETER OF THE A.C. SWITCHBOARD ROOM AND TRACTION POWER SUBSTATION.
- 3 #4/0 GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR INTERCONNECTING GROUND BUS BAR & GROUND GRID. PROVIDE MINIMUM OF 4, ONE AT EACH CORNER OF A.C. SWITCHBOARD ROOM AND ONE AT EACH CORNER OF TPSS.
- 4 #4/0 GREEN INSULATED GROUNDING CONDUCTOR IN 1" CONDUIT INTERCONNECTING GROUND BUS IN 13.8 KV SWITCHGEAR & GROUND BUS BAR. SEE 25
- 5 SAME AS 4 ABOVE EXCEPT INTERCONNECTING GROUNDING PAD IN TRANSFORMER HOUSING & GROUND BUS BAR. SEE 25
- 6 #4/0 GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT INTERCONNECTING GROUND BUS IN 480V SWITCHGEAR & GROUND BUS BARS IN SAME ROOM. SEE 25
- 7 GROUND-TO-NEUTRAL REMOVABLE LINK.
- 8 ONE POINT CONNECTION AT GROUND BUS BAR FOR KIOSK. INSTALL ITEM 26 AND 23 WITHIN 2 INCHES OF EACH OTHER.
- 9 COPPER GROUND BUS BAR. 1/4 IN x 2 IN x 24 IN LONG IN TRAIN CONTROL ROOM FOR USE BY ATC STAGE CONTRACTOR ONLY.
- 10 #2/0 INSULATED GROUNDING ELECTRODE CONDUCTOR IN CONDUIT INTERCONNECTING GROUND BUS BAR IN TRAIN CONTROL ROOM & GROUND BUS BAR IN A.C. SWITCHGEAR ROOM.
- 11 GROUNDING OF TRANSFORMER NO. T1 SERVING TRAIN CONTROL ROOM. GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR IN CONDUIT. SIZE AS PER N.E.C. TABLE 250-94 INTERCONNECTING TRANSFORMER NEUTRAL TO GROUND BUS BAR IN A.C. SWITCHBOARD ROOM.
- 12 SAME AS ITEM 11 ABOVE EXCEPT TRANSFORMER NO. T2.
- 13 ONE POINT CONNECTION AT GROUND BUS BAR FOR TRAIN CONTROL ROOM. INSTALL ITEM 10 BETWEEN ITEMS 11 & 12
- 14 TRANSFORMER SECONDARY FEEDER TO TRAIN CONTROL ROOM CONSISTING OF PHASES, NEUTRAL & EQUIPMENT GROUNDING CONDUCTORS IN A COMMON CONDUIT.
- 15 TRANSFORMER PRIMARY FEEDER CONSISTING OF PHASES & EQUIPMENT GROUNDING CONDUCTORS IN A COMMON CONDUIT.
- 16 COPPER GROUND BUS BAR. 1/4 IN x 2 IN x 24 IN LONG IN COMMUNICATIONS ROOM FOR USE BY COMMUNICATIONS STAGE CONTRACTOR ONLY.
- 17 #2/0 INSULATED GROUNDING ELECTRODE CONDUCTOR IN CONDUIT INTERCONNECTING GROUND BUS BAR IN A.C. SWITCHBOARD ROOM.
- 18 GROUNDING OF TRANSFORMER FEEDING COMMUNICATIONS ROOM. GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR IN CONDUIT. SIZED AS PER N.E.C. TABLE 250-66 INTERCONNECTING TRANSFORMER NEUTRAL TO GROUND BUS BAR IN A.C. SWITCHGEAR ROOM.
- 19 ONE POINT CONNECTION AT GROUND BUS BAR FOR COMMUNICATIONS ROOM. INSTALL ITEMS 17 AND 18 WITHIN 2 INCHES OF EACH OTHER.
- 20 FEEDER TO COMMUNICATIONS ROOM CONSISTING OF PHASES, NEUTRAL AND EQUIPMENT GROUNDING CONDUCTORS IN A COMMON CONDUIT.
- 21 TYPICAL 3-PHASE, 4 WIRE FEEDER CONSISTING OF NEUTRAL, EQUIPMENT GROUNDING AND PHASE INSULATED CONDUCTORS IN COMMON CONDUIT.
- 22 TYPICAL 3-PHASE, 3 WIRE FEEDER CONSISTING OF THREE PHASE AND EQUIPMENT GROUNDING INSULATED CONDUCTORS IN COMMON CONDUIT.
- 23 GROUNDING OF TRANSFORMER FEEDING KIOSK. GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR IN 3/4" CONDUIT. SIZED AS PER N.E.C. TABLE 250-66. INTERCONNECTING TRANSFORMER NEUTRAL TO GROUND BUS BAR IN A.C. SWITCHBOARD ROOM OR ELECTRICAL ROOM.
- 24 3-PHASE, 4 WIRE EMERGENCY PANELBOARD INCLUDING PHASE, NEUTRAL AND GROUND BUSES. TYPICAL FOR ALL EMERGENCY AND ESSENTIAL PANELBOARDS.
- 25 BOND CONDUIT TO GROUNDING CONDUCTOR.
- 26 #2/0 INSULATED GROUNDING ELECTRODE CONDUCTOR (BY OTHERS) 1" IN CONDUIT. INTERCONNECTING GROUND BUS BAR IN A.C. SWITCHBOARD ROOM AND KIOSK.
- 27 COPPER GROUNDING BAR. 1/4 IN x 2 IN x 12 IN LONG IN KIOSK FURNISHED BY AND FOR THE USE OF KIOSK STAGE CONTRACTOR ONLY.
- 28 UPS GROUNDING #6 GREEN INSULATED GROUNDING ELECTRODE CONDUCTOR IN 3/4" CONDUIT INTERCONNECTING NEUTRAL OF UPS OUTPUT AND GROUND BUS BAR.
- 29 #4/0 INSULATED GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT INTERCONNECTING GROUND BUS BAR IN FAN SHAFT TO GROUND GRID.
- 30 COPPER GROUNDING BUS BAR, 1/4 IN x 2 IN, 24 IN ABOVE FLOOR AND EXTENDED ALONG ONE WALL.
- 31 #4/0 INSULATED GROUNDING CONDUCTOR INTERCONNECTING GROUND BUS BAR AND EQUIPMENT GROUND BUS.

**FAN SHAFT**  
(SEE DWG. DD-E-78)

**A.C. GROUNDING DIAGRAM**  
NOT TO SCALE

**TUNNEL LOAD CENTERS (TYP)**

DESIGNED <u>D. VANCOIT</u> 7-98 DATE	REFERENCE DRAWINGS	REVISIONS	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		ELECTRICAL DESIGN DRAWING	
DRAWN <u>C. BUSTRAGO</u> 7-98 DATE	NUMBER DESCRIPTION	DATE BY DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT		A.C. POWER GROUNDING DIAGRAM	
CHECKED <u>J. KROLIK</u> 7-98 DATE			OFFICE OF ENGINEERING AND ARCHITECTURE		SHEET 2 OF 2	
APPROVED <u>R. GANERWAL</u> 7-98 DATE			SUBMITTED	APPROVED DIRECTOR <i>[Signature]</i> May 3, 2001 DATE	SCALE NONE	DRAWING NO. DD-E-103

**SYMBOLS**

	HANDI-CAP BOOTH
	POWER-LOAD CENTER
	LIGHTING FIXTURE (SEE ARCH DWG DD-A-LT-9)
	CONTROL PULL BOX IN GROUND
	GATE CONSOLE AND BARRIER
	FOUNDATION AND TRAFFIC DIRECTION SIGNALS MOUNTED ON SIGNAL BRIDGE
	SIGNAL LIGHT WITH RED X
	SIGNAL LIGHT WITH GREEN ARROW POINTING DOWN
	BOLLARD
	GROUND ROD
	EMBEDDED CONDUIT
	INSULATED GROUND CONDUCTOR
	POWER CONDUIT
	CONTROL CONDUIT
	CONTROL EQUIPMENT ENCLOSURE
	NORMALLY CLOSED CONTACT
	NORMALLY OPEN CONTACT
	COIL
	OVERLOADS
	SELECTOR SWITCH

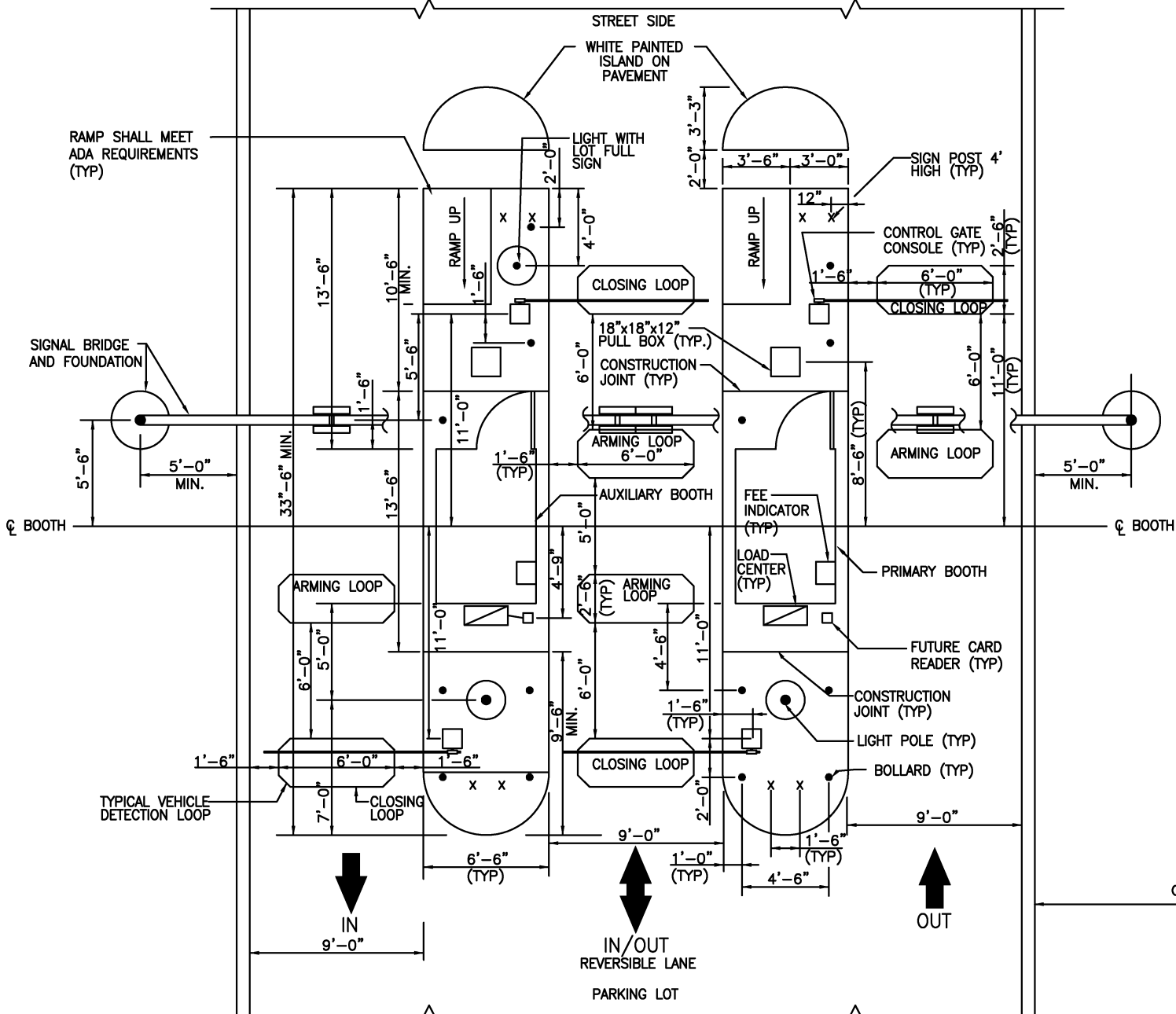
**ABBREVIATIONS**

A, AMP	AMPERE
AC	ALTERNATING CURRENT
AIC	AMPERE INTERRUPTING CURRENT
AFF	ABOVE FINISH FLOOR
AUTO	AUTOMATIC, AUTOMATICALLY
BFG	BELOW FINISH GRADE
C, CND	CONDUIT
CKT	CIRCUIT
CNTL	CONTROL
CR	CARD READER
DIA	DIAMETER
DISTR	DISTRIBUTION
DWG	DRAWING
ELEC	ELECTRIC
ENCL	ENCLOSURE
EG	EQUIPMENT GROUND
EQUIP	EQUIPMENT
EXP	EXPANSION
FLR	FLOOR
FRE	FIBERGLASS REINFORCED EPOXY
FT	FOOT
G, GND	GROUND
HT	HEIGHT
KVA	KILOVOLT AMPERES
LT	LIGHT
LTG	LIGHTING
MIN	MINIMUM
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N, NEUTR	NEUTRAL
#, NO	NUMBER
PNL	PANEL
PVC	POLYVINYL CHLORIDE
REC, RECEPT	RECEPTACLE
RTU	ROOF TOP UNIT
S/N	SOLID NEUTRAL
ST, STD	STANDARD
TD	TICKET DISPENSER
TYP	TYPICAL
V	VOLT
W/	WITH

**NOTES:**

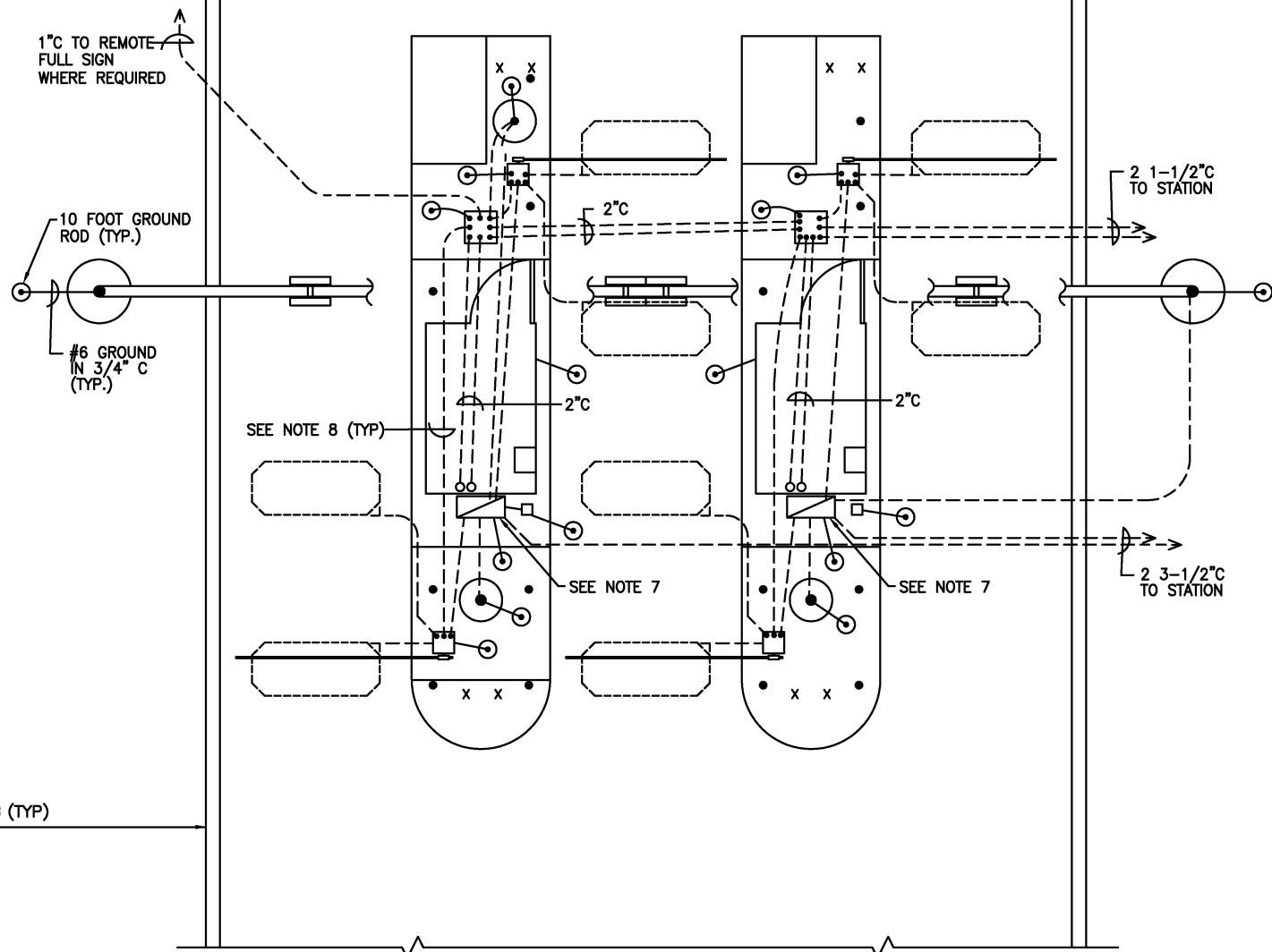
1. PLANS AND SCHEMATICS SHOWN ARE DIAGRAMMATICAL. COORDINATE EXACT SIZES, TYPES AND ROUTING OF RACEWAYS AND CABLES WITH EQUIPMENT VENDOR'S REQUIREMENTS, SPECIFICATIONS AND SHOP DRAWING DATA.
2. CONDUIT STUB-UP AT CONTROL GATES, LOAD CENTER AND BOOTH LOCATIONS SHALL BE MINIMUM 6" ABOVE CONCRETE.
3. FOR SCHEMATIC WIRING LEGEND SEE DRAWING DD-E-107.
4. FOR LOOP DETECTORS, IN CONCRETE PAVEMENT UTILIZE 1" PVC CONDUIT. USE ONLY PREFORMED CONDUIT AND EMBED CONDUITS INTO THE NEW CONCRETE FOUNDATIONS WITH A MINIMUM OF 2" COVER. REINFORCING STEEL SHALL BE PLACED 2" (MIN.) UNDER LOOP DETECTORS.

DESIGNED <u>D. VANCOTT</u> 6-98 DATE DRAWN <u>C. BUITRAGO</u> 6-98 DATE CHECKED <u>D. GLEN</u> 6-98 DATE APPROVED <u>R. GANERWAL</u> 6-98 DATE	<b>REFERENCE DRAWINGS</b>	<b>REVISIONS</b>	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> PARKING LOT CONTROL GATE SYMBOLS, ABBREVIATIONS & GENERAL NOTES																									
	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>08/2001</td> <td>ENGA</td> <td>Revised and issued by the Authority</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> </tbody> </table>	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION			08/2001	ENGA	Revised and issued by the Authority																	SUBMITTED _____ DATE _____ APPROVED  DIRECTOR May 3, 2001 DATE	SCALE NONE DRAWING NO. DD-E-104
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION																									
		08/2001	ENGA	Revised and issued by the Authority																									



**EQUIPMENT PLAN PARKING LOT ENTRANCE GATES**

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

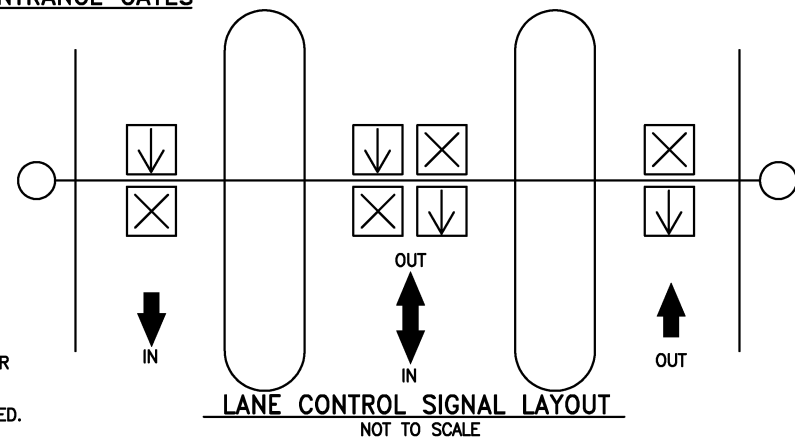


**CONDUIT PLAN PARKING LOT ENTRANCE GATES**

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

**NOTES**

1. FOR SYMBOLS AND NOTES SEE DWG DD-E-104.
2. NO EMBEDDED CONDUITS SHALL BE ROUTED THROUGH THE AREAS WHERE VEHICLE DETECTOR LOOPS ARE TO BE INSTALLED.
3. FOR PULL BOX DETAILS SEE DWG DD-E-110.
4. FOR OTHER DETAILS SEE DWGS DD-E-108 & 109.
5. NO WIRING REQUIRED FOR FUTURE CARD READER.
6. FUTURE CARD READER - 1" FPE CONDUIT STUBBED UP FLUSH WITH ISLAND SURFACE AND PLUG END OF CONDUIT.
7. PROVIDE TWO 1-1/2" CONDUITS BETWEEN THE BOOTH'S LOAD CENTER AND CONTROL EQUIPMENT CABINET.
8. ALL EMBEDDED CONDUITS SHALL BE 1" FPE UNLESS OTHERWISE NOTED.



**LANE CONTROL SIGNAL LAYOUT**  
NOT TO SCALE

DESIGNED	D. VANCOTT	9-98
DATE		
DRAWN	R. THOMAS, JR.	9-98
DATE		
CHECKED	J. BISHOP	9-98
DATE		
APPROVED	R. GANERWAL	9-98
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION
DD-S-150	CONCRETE ISLAND PLANS AND DETAILS-SHEET 1
DD-S-151	CONCRETE ISLAND PLANS AND DETAILS-SHEET 2

REVISIONS		
DATE	BY	DESCRIPTION
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**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

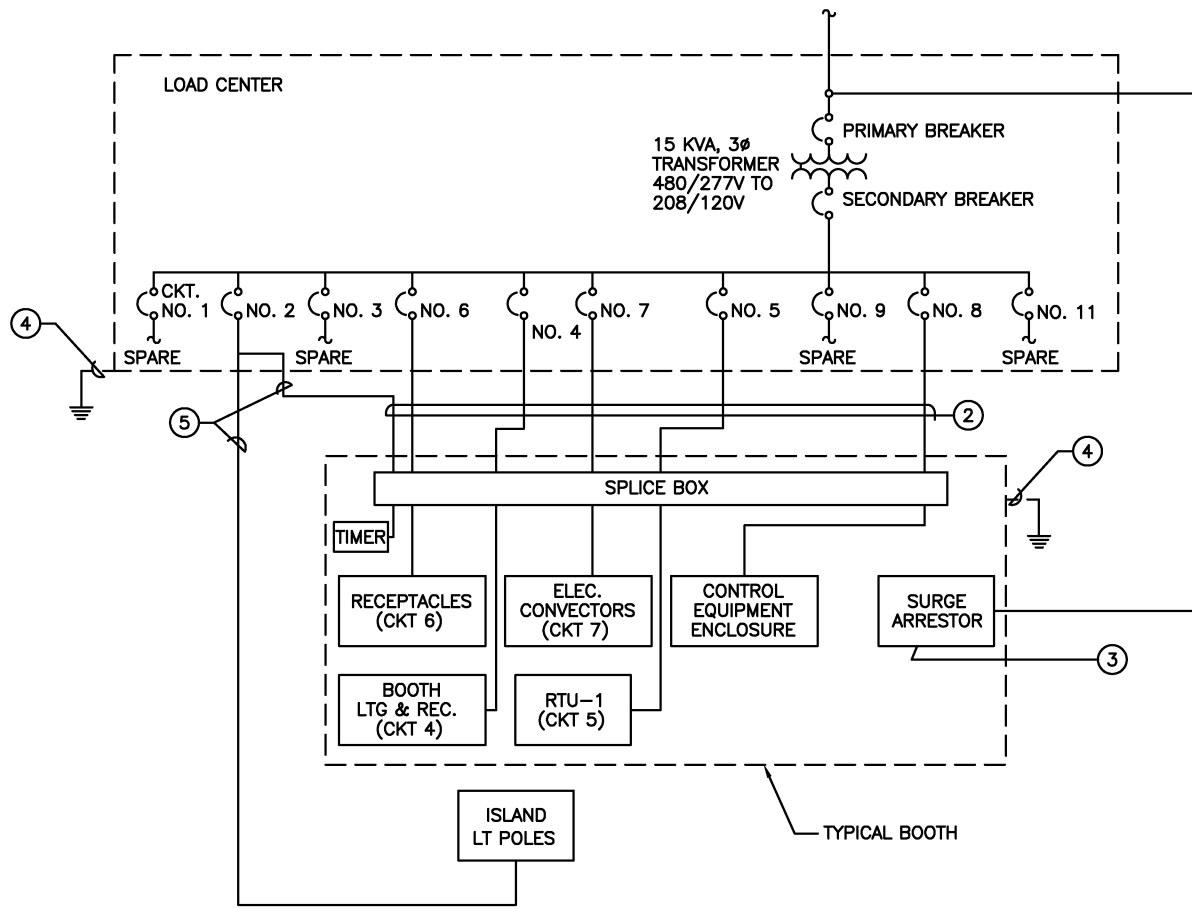
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
PARKING LOT CONTROL GATES  
MODIFIED TYPE 1 ARRAY CONDUIT  
AND EQUIPMENT LAYOUT

SCALE 1/4"=1'-0"  
0 3" 6" 12"

DRAWING NO. **DD-E-105**



**ELECTRICAL WIRING DIAGRAM – PRIMARY BOOTH**  
(TYPICAL FOR AUXILIARY BOOTH)

**NOTES:**

- ① FOR SYMBOLS, GENERAL NOTES AND ABBREVIATIONS SEE DWG. DD-E-104.
- ② CABLES FOR CKT. NO. 2, 4, 5, 6, 7, AND 8.
- ③ SURGE ARRESTOR, LIGHTING PROTECTION CORPORATION MODEL NO. 20805 OR EQUAL, IN NEMA 1 ENCLOSURE WILL BE MOUNTED BELOW COUNTER TOP INSIDE NEW BOOTH AND CONNECTED WITH 4#10, AND 1#10G THROUGH 2" PVC COND. TO INCOMING FEEDER.
- ④ FOR GROUNDING OF BOOTH AND LOAD CENTER, SEE DWG DD-E-108.
- ⑤ TWO SETS OF 2#12 AND 1#12G FOR CONTROL OF THE TWO ISLAND POLE LIGHTS.

LOAD CENTER: NR-LC-2 TRANSFORMER SIZE: 15 KVA RATING: THREE PHASE, 60 HERTZ 480 VOLT PRIMARY TO LOAD CENTER: 208Y/120 VOLTS SECONDARY										LOCATION: AUXILIARY BOOTH PRIMARY BREAKER: 3-POLE, 30A 14,000 AIC SECONDARY BREAKER: 3POLE, 60A 10,000 AIC													
PHASE AND NEUTR.	CND. WIRE	CND.	DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO	S/N	GND	CKT NO	CIRCUIT BREAKER			CONNECTED LOAD (KVA)			DESCRIPTION	CND.	CND. WIRE	PHASE AND NEUTR.
				AØ	BØ	CØ	FRAME	TRIP	AIC					FRAME	TRIP	AIC	AØ	BØ	CØ				
-	-	-	SPARE	-	-	-	100	20	10K	1			2	100	20	10K	1.0	-	-	ISLAND LTS	1"	1#12	2#12
-	-	-	SPARE	-	-	-	100	20	10K	3			4	100	20	10K	-	1.4	BOOTH - LTG & RECEPTACLE	3/4"	1#12	2#12	
2#12	1#12	3/4"	RTU - 1	-	-	1.9	100	20	10K	5			6	100	20	10K	-	1.4	RECEPTACLES	3/4"	1#12	2#12	
2#12	1#12	3/4"	ELEC. CONVECTORS	1.5	-	-	100	20	10K	7			8	100	20	10K	1.0	-	CONTROL EQUIP. ENCL.	3/4"	1#12	2#12	
			SPARE	-	-	-	100	20	10K	9			10	100	-	-	-	-	BUSSED SPACE	-	-	-	
			SPARE	-	-	-	100	20	10K	11			12	100	-	-	-	-	BUSSED SPACE	-	-	-	
SUB-TOTAL				1.5	-	1.9							2.0 1.4 1.4			SUB-TOTAL							
CONNECTED LOAD:										3.5 KVA	A	DEMAND LOAD:										3.5 KVA	A
										1.4 KVA	B	SUMMER:										0.7 KVA	B
										3.3 KVA	C											0.7 KVA	C
										8.2 KVA	TOTAL											4.9 KVA	TOTAL

LOAD CENTER: NR-LC-1 TRANSFORMER SIZE: 15 KVA RATING: THREE PHASE, 60 HERTZ 480 VOLT PRIMARY TO LOAD CENTER: 208Y/120 VOLTS SECONDARY										LOCATION: PRIMARY BOOTH PRIMARY BREAKER: 3-POLE, 30A 14,000 AIC SECONDARY BREAKER: 3POLE, 60A 10,000 AIC													
PHASE AND NEUTR.	CND. WIRE	CND.	DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT NO	S/N	GND	CKT NO	CIRCUIT BREAKER			CONNECTED LOAD (KVA)			DESCRIPTION	CND.	CND. WIRE	PHASE AND NEUTR.
				AØ	BØ	CØ	FRAME	TRIP	AIC					FRAME	TRIP	AIC	AØ	BØ	CØ				
-	-	-	SPARE	-	-	-	100	20	10K	1			2	100	20	10K	1.0	-	-	ISLAND LTS	1"	1#12	2#12
-	-	-	SPARE	-	-	-	100	20	10K	3			4	100	20	10K	-	1.4	BOOTH - LTG & RECEPTACLE	3/4"	1#12	2#12	
2#12	1#12	3/4"	RTU - 1	-	-	1.9	100	20	10K	5			6	100	20	10K	-	1.4	RECEPTACLES	3/4"	1#12	2#12	
2#12	1#12	3/4"	ELEC. CONVECTORS	1.5	-	-	100	20	10K	7			8	100	20	10K	1.0	-	CONTROL EQUIP. ENCL.	3/4"	1#12	2#12	
			SPARE	-	-	-	100	20	10K	9			10	100	-	-	-	-	BUSSED SPACE	-	-	-	
			SPARE	-	-	-	100	20	10K	11			12	100	-	-	-	-	BUSSED SPACE	-	-	-	
SUB-TOTAL				1.5	-	1.9							2.0 1.4 1.4			SUB-TOTAL							
CONNECTED LOAD:										3.5 KVA	A	DEMAND LOAD:										3.5 KVA	A
										1.4 KVA	B	SUMMER:										0.7 KVA	B
										3.3 KVA	C											0.7 KVA	C
										8.2 KVA	TOTAL											4.9 KVA	TOTAL

DESIGNED	D. VANCOTT	8-98
DATE		
DRAWN	C. BUETRAGO	8-98
DATE		
CHECKED	J. KROLIK	8-98
DATE		
APPROVED	R. GANERWAL	8-98
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
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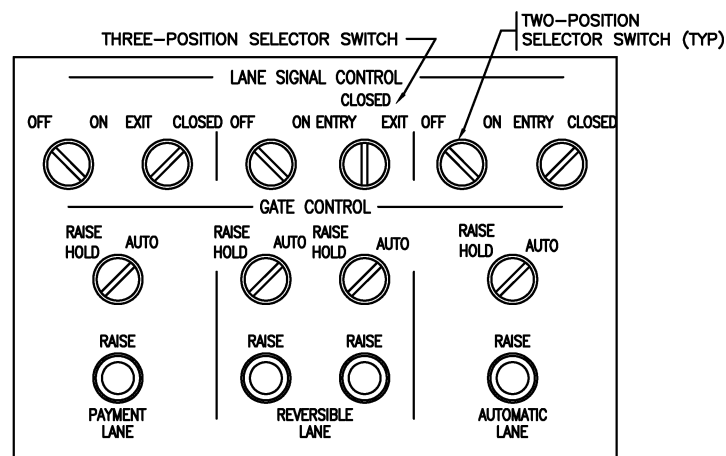
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OFFICE OF ENGINEERING AND ARCHITECTURE

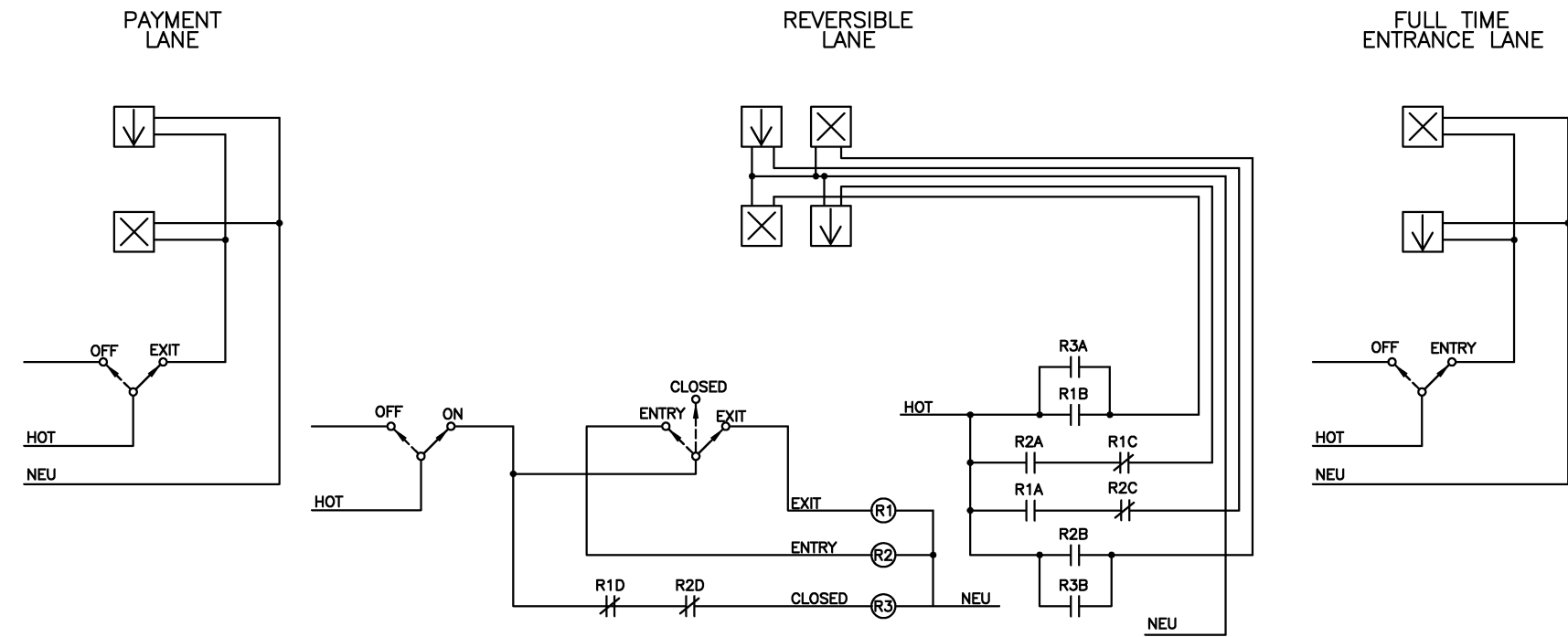
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**ELECTRICAL DESIGN DRAWING**  
PARKING LOT CONTROL GATES  
ELECTRICAL WIRING DIAGRAM  
AND PANEL SCHEDULES

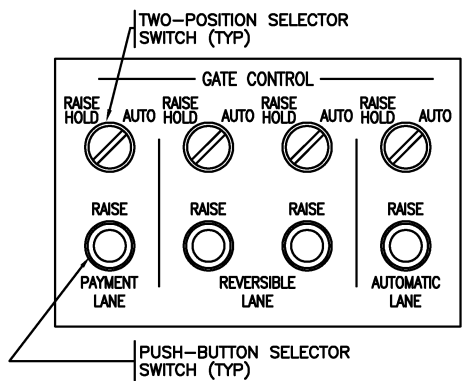
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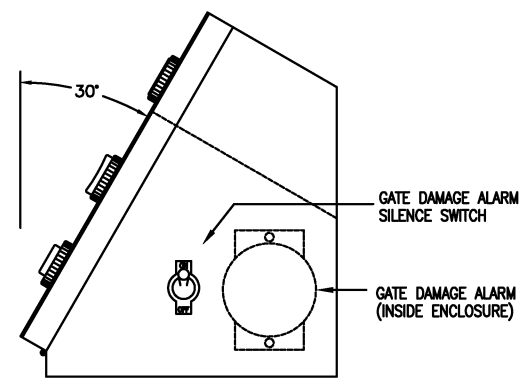
**PRIMARY GATE CONTROL PANEL**  
NOT TO SCALE



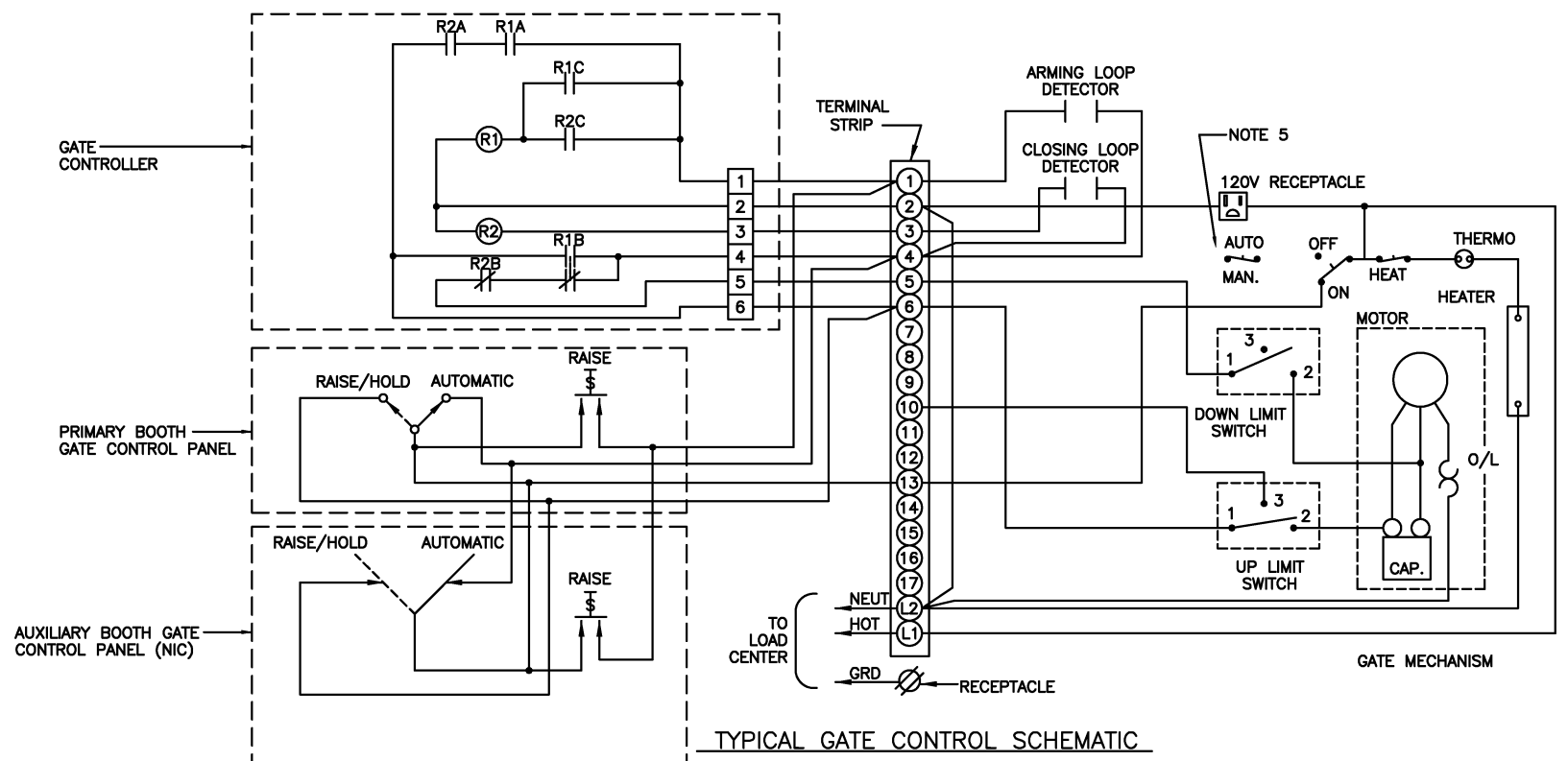
**TYPICAL TRAFFIC SIGNAL CONTROL SCHEMATIC**



**AUXILIARY GATE CONTROL PANEL**  
NOT TO SCALE



**CONTROL PANEL SIDE VIEW**  
NOT TO SCALE



**TYPICAL GATE CONTROL SCHEMATIC**

**NOTES:**

1. THE GATE PRIMARY AND AUXILIARY CONTROL PANELS AND WIRING DIAGRAMS SHOWN ON THIS DRAWINGS APPLY TO MODIFIED TYPE-1 ARRAY.
2. THE GATE CONTROL PANELS AND WIRING DIAGRAMS FOR TYPE-2 AND 3 ARRAYS IS SIMILAR TO THOSE SHOWN FOR MODIFIED TYPE-1 ARRAY.
3. ALL EQUIPMENT SHALL BE GROUNDED.
4. ALL WIRING SHALL BE #14 AWG MINIMUM SIZING, SINGLE OR MULTI-CONDUCTOR CABLE.
5. WIRING TO GATE CABINET AUTO/MANUAL SWITCH TO BE DISCONNECTED.

DESIGNED	D. VANCOTT	8-98
DATE		
DRAWN	R. THOMAS, JR.	8-98
DATE		
CHECKED	J. BISHOP	8-98
DATE		
APPROVED	R. GANERWAL	8-98
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
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08/2001	ENGA	Revised and issued by the Authority

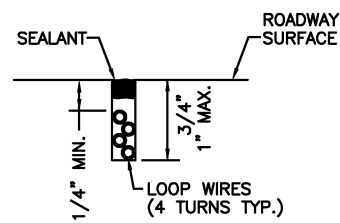
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

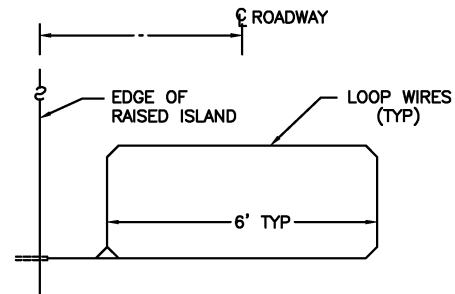
SUBMITTED	DATE	APPROVED DIRECTOR	DATE
		<i>[Signature]</i>	May 3, 2001

**ELECTRICAL DESIGN DRAWING**  
PARKING LOT CONTROL GATES  
GATE CONTROL AND TRAFFIC SIGNAL  
SCHEMATICS AND DETAILS

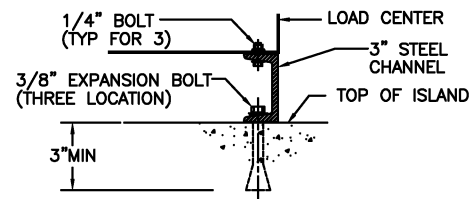
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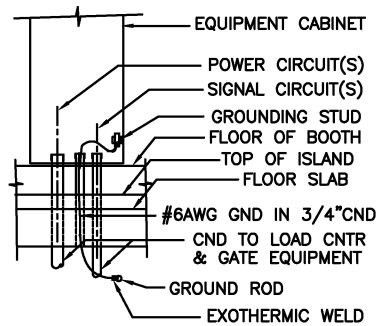
**DETAIL AT LOOP DETECTOR**  
NOT TO SCALE



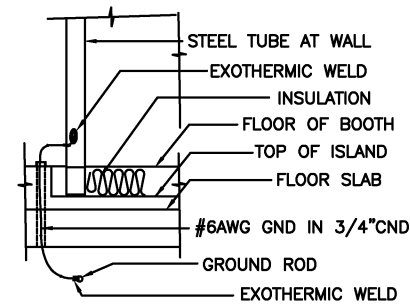
**DETECTOR LOOP PLAN**  
SCALE: 1/2"=1'-0"



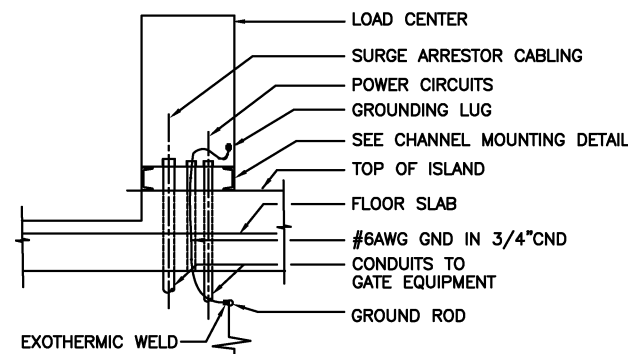
**DETAIL AT CHANNEL MOUNTING**  
SCALE: 3"=1'-0"



**DETAIL AT CONTROL EQUIPMENT CABINET**  
SCALE: 1"=1'-0"



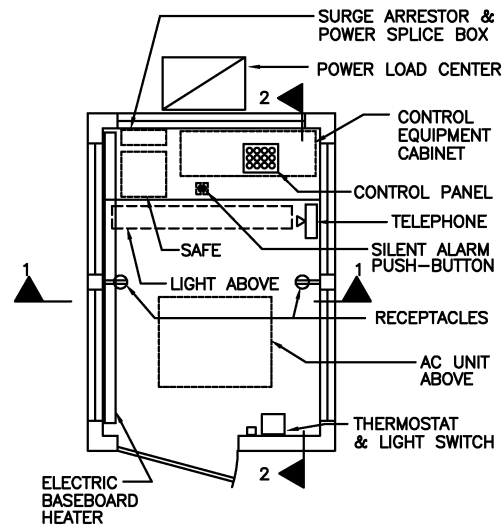
**BOOTH GROUNDING**  
SCALE: 1"=1'-0"



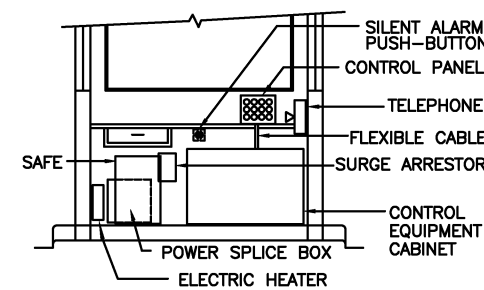
**DETAIL AT LOAD CENTER**  
SCALE: 1"=1'-0"

**NOTES:**

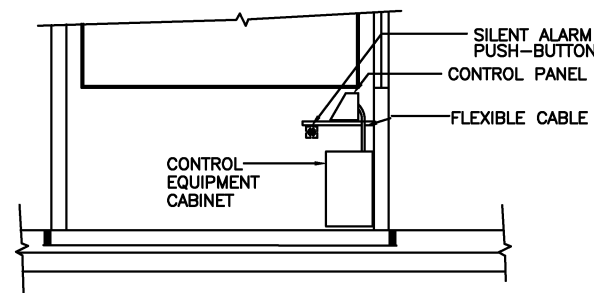
- ROUTE ALL POWER WIRING THROUGH POWER SPLICE BOX, MINIMUM SIZE 12"x12"x4" DEEP. ALL POWER WIRING MINIMUM NUMBER 12 AWG WITH NUMBER 12 AWG EQUIPMENT GROUND EACH CIRCUIT. SEE LOAD CENTER SCHEDULES FOR CIRCUITING.
- PROVIDE SURGE ARRESTOR FOR LOAD CENTER CIRCUITS, IN NEMA 1 ENCLOSURE AND CONNECTED TO LOAD CENTER PRIMARY FEEDER WITH 3#2(1#6EG) IN 2" CONDUIT BETWEEN BOOTH AND LOAD CENTER.
- FOR WIRING WITHIN BOOTH, INCLUDING SIGNAL CABLING, ROUTE CABLES WITHIN SURFACE METAL RACEWAY, WIREMOLD SERIES 200, OR EQUAL, WITH APPROPRIATE FITTINGS AND CONNECTORS.
- FOR CABLING BETWEEN EQUIPMENT CONTROL CABINET AND GATE CONTROL PANEL, PROVIDE MULTI-CONDUCTOR FLEXIBLE CABLE WITH ADEQUATE SLACK TO ALLOW POSITIONING CONTROL PANEL ANYWHERE ON WORK COUNTER SURFACE. INSTALL TERMINAL STRIPS IN CONTROL PANEL AND EQUIPMENT CABINET TO CONNECT FLEXIBLE CABLE.
- FOR EQUIPMENT LOCATED AT GRADE LEVEL GROUND EQUIPMENT ENCLOSURES BY EXOTHERMICALLY WELDING EACH #6AWG GROUND CONDUCTOR TO A SEPARATE 5/8" DIAMETER BY 10'-0" GROUND ROD DRIVEN SO THAT THE TOP OF ROD IS A MINIMUM OF 24" BELOW FLOOR SLAB AND A MINIMUM OF 24" AWAY FROM ANY NEARBY FOOTINGS OR PIPING.



**PLAN AT PRIMARY BOOTH**  
SCALE: 1/2"=1'-0"

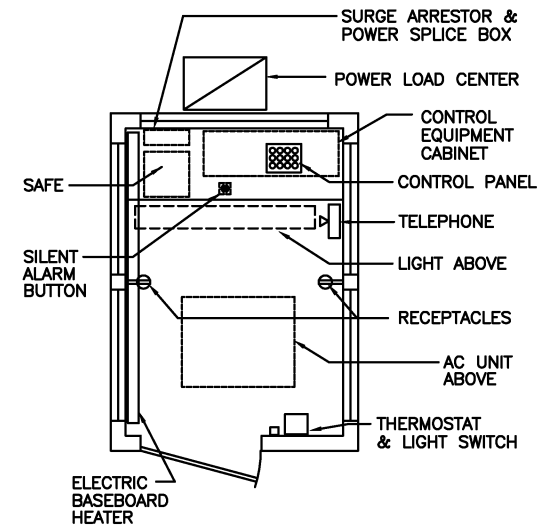


**SECTION 1-1**  
SCALE: 1/2"=1'-0"



**SECTION 2-2**  
SCALE: 1/2"=1'-0"

NOTE: 3" SPACE PROVIDED AT BACK OF COUNTER FROM BOOTH WALL.



**PLAN AT AUXILIARY BOOTH**  
SCALE: 1/2"=1'-0"

DESIGNED	D. VANCOTT	8-98	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	C. BUITRAGO	8-98			08/2001	ENGA	Revised and issued by the Authority
CHECKED	J. KROLIK	8-98					
APPROVED	R. GANERWAL	8-98					

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED  
DIRECTOR

May 3, 2001  
DATE

**ELECTRICAL DESIGN DRAWING**  
PARKING LOT CONTROL GATE  
TYPICAL BOOTH-LIGHTING, POWER  
AND EQUIPMENT

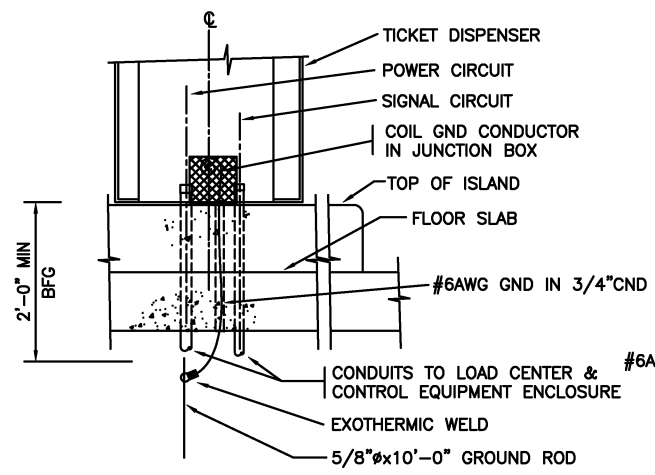
SCALE  
AS NOTED

DRAWING NO.

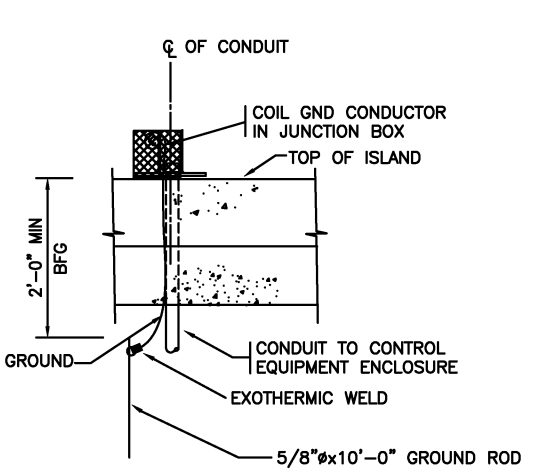
DD-E-108



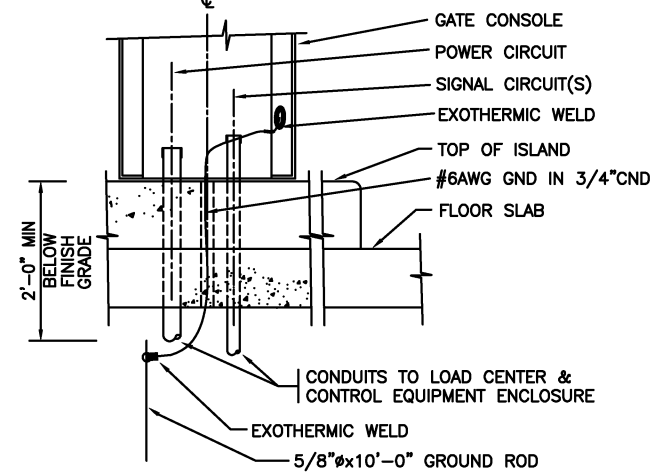




SECTION @ FUTURE TICKET DISPENSER  
SCALE: 1 1/2"=1'-0"



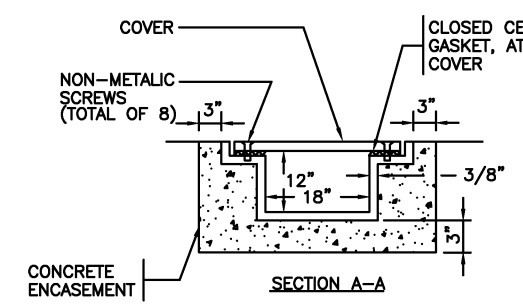
SECTION @ FUTURE CARD READER  
SCALE: 1 1/2"=1'-0"



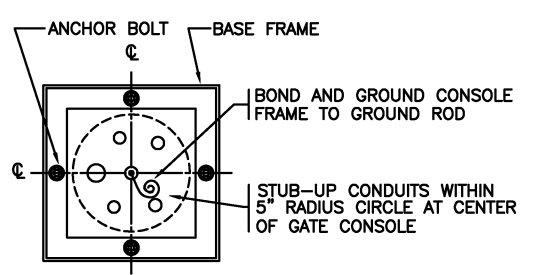
SECTION @ GATE CONSOLE  
SCALE: 1 1/2"=1'-0"

NOTES:

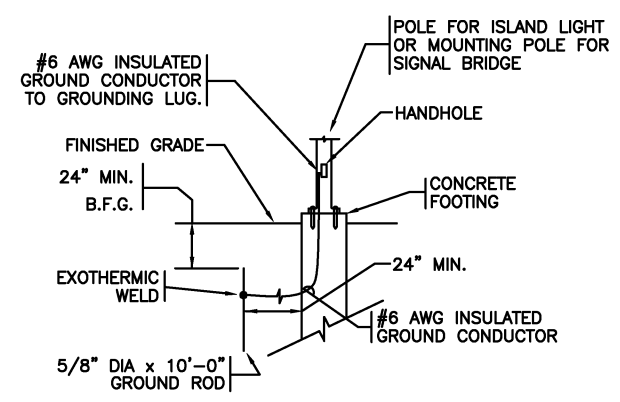
- FOR SIZES AND QUANTITIES OF CONTROL CONDUITS, COORDINATE WITH GATE PLANS AND VENDORS REQUIREMENTS. SEE GATE PLANS AND LOAD CENTER SCHEDULES FOR CIRCUITING INFORMATION. GROUND ENCLOSURES ARE SHOWN.
- FOR FUTURE CARD READERS AND TICKET DISPENSERS, INSTALL GROUND RODS WITH #6 AWG CONDUCTORS COILED AND TAGGED (18" LONG) WITHIN JUNCTION BOX ABOVE ISLANDS FOR FUTURE CONNECTION TO EQUIPMENT ENCLOSURES.



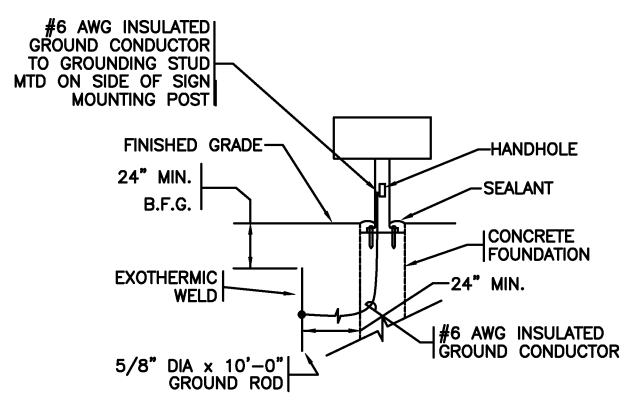
SECTION A-A



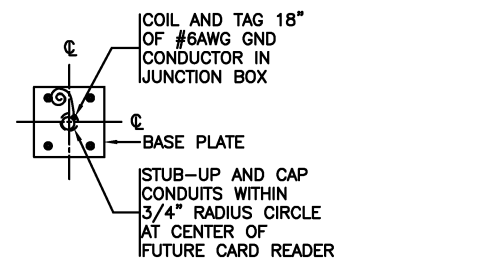
PLAN @ GATE CONSOLE  
SCALE: 1 1/2"=1'-0"



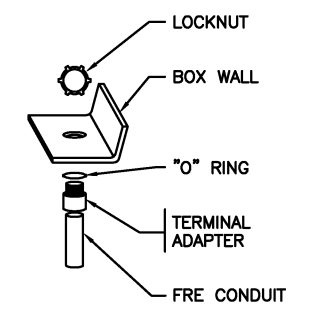
DETAIL E  
LIGHT POLE OR SIGNAL BRIDGE GROUNDING  
SCALE: 1/4" = 1'-0"



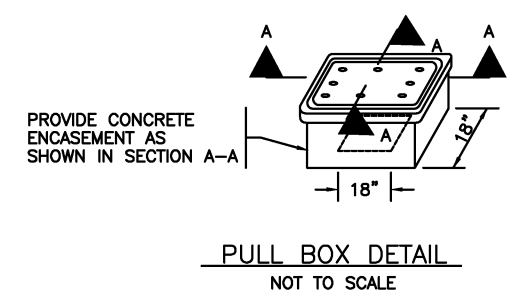
DETAIL F  
REMOTE LOT FULL SIGN GROUNDING  
SCALE: 1/4" = 1'-0"



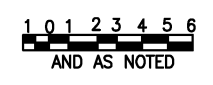
PLAN @ FUTURE CARD READER  
SCALE: 1 1/2"=1'-0"



CONDUIT TERMINATION DETAIL  
NOT TO SCALE



PULL BOX DETAIL  
NOT TO SCALE



DESIGNED	D. VANCOTT	8-98
DATE		
DRAWN	C. BUITRAGO	8-98
DATE		
CHECKED	J. KROLIK	8-98
DATE		
APPROVED	R. GANERWAL	8-98
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

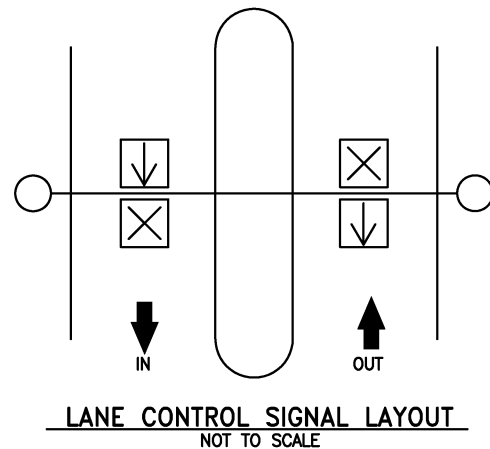
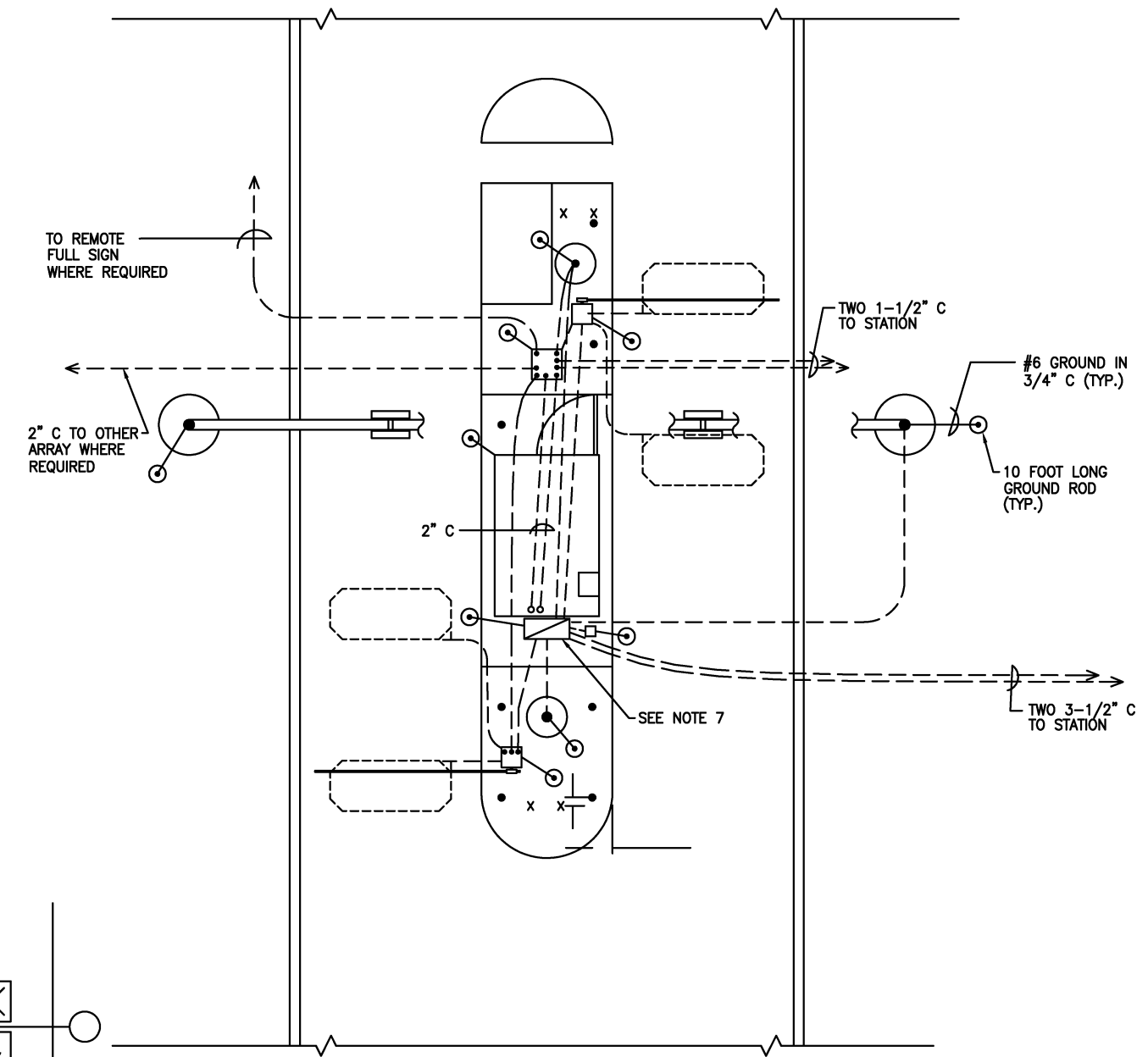
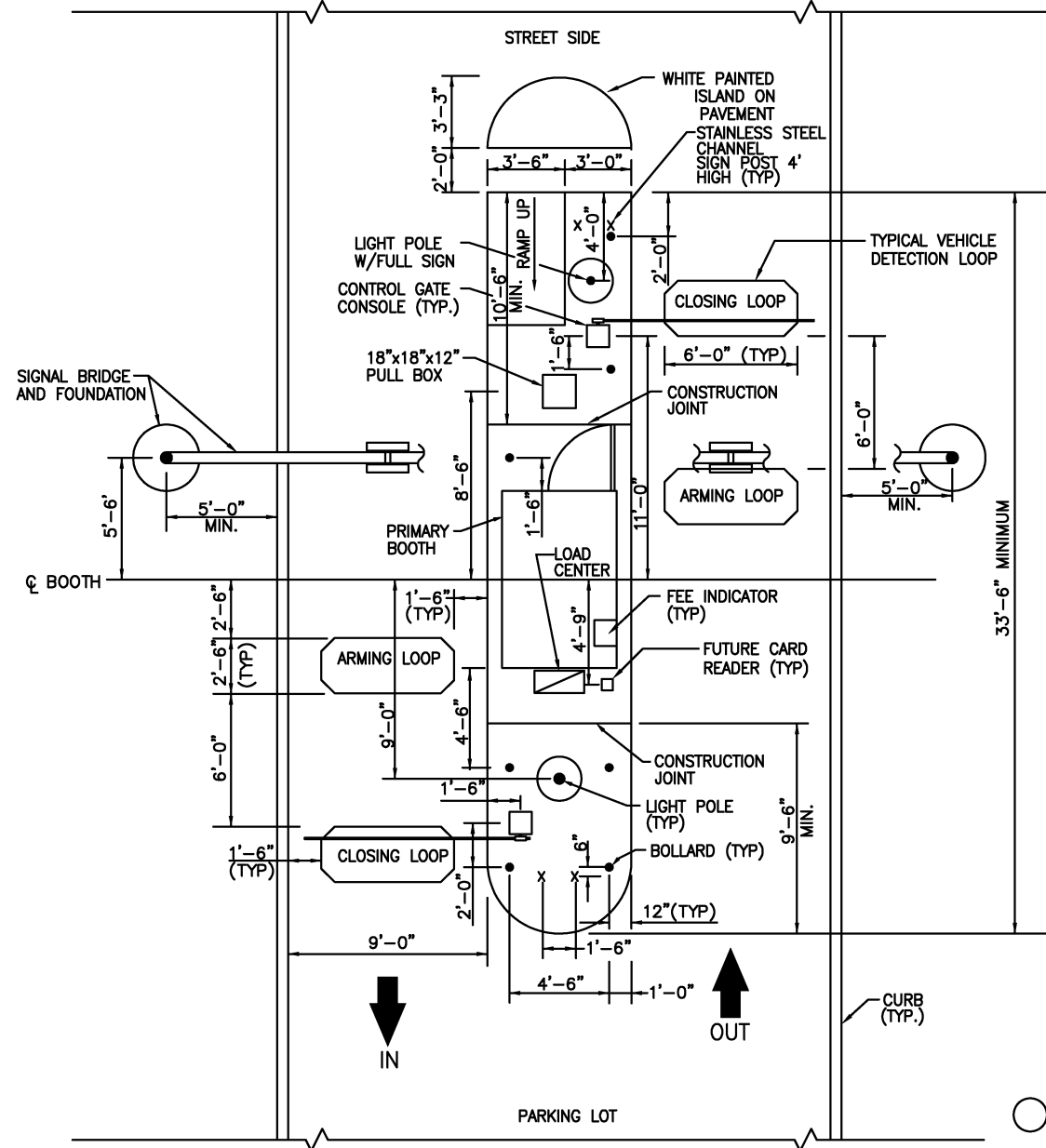
REVISIONS		
DATE	BY	DESCRIPTION
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

ELECTRICAL DESIGN DRAWING  
PARKING LOT CONTROL GATES  
PARKING CONTROL EQUIPMENT  
GROUNDING AND CONDUIT TERMINATIONS

SCALE 1/4"=1'-0" DRAWING NO. DD-E-110



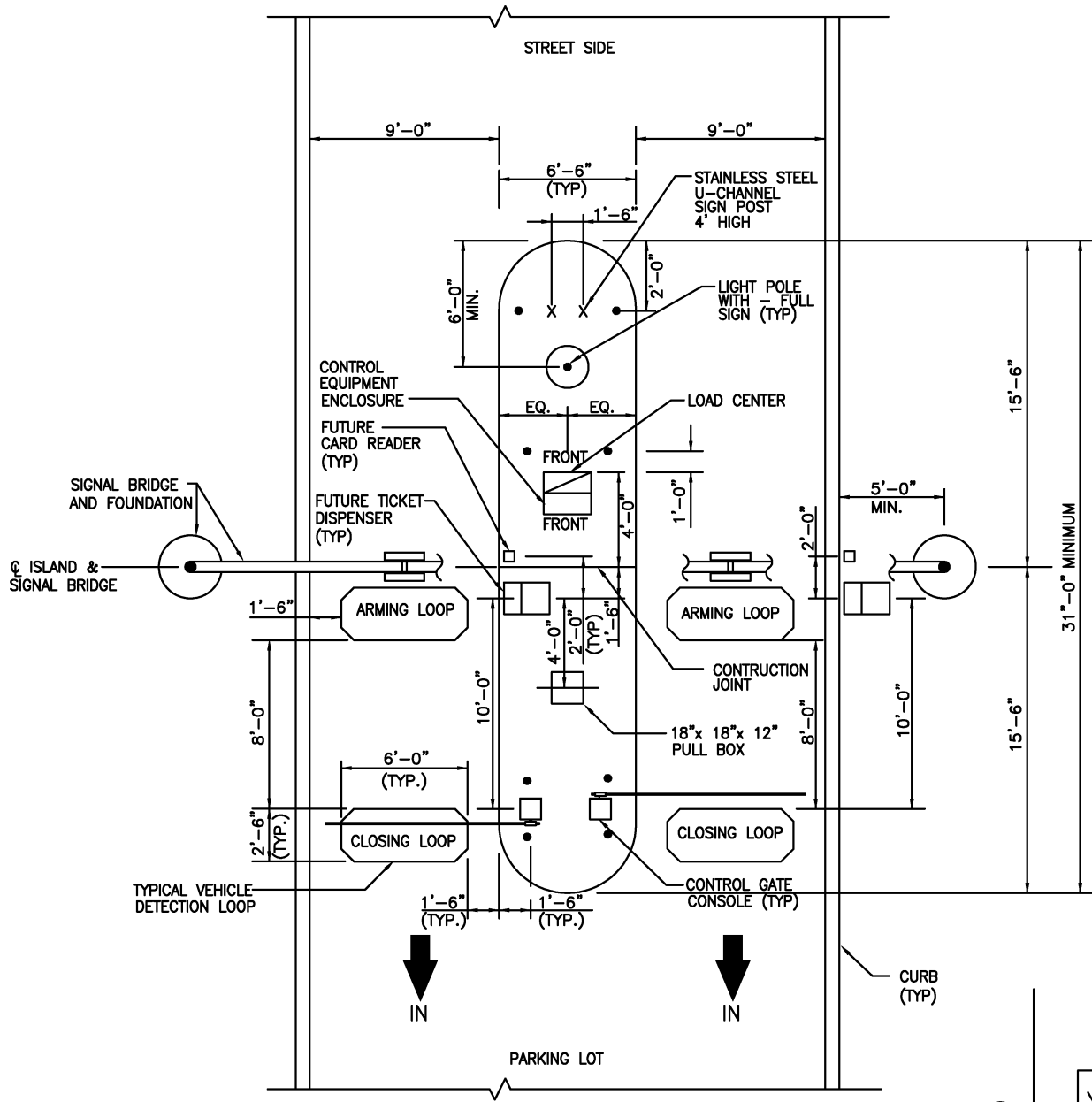
**EQUIPMENT PLAN PARKING LOT ENTRANCE GATES TYPE 2 ARRAY**

**CONDUIT PLAN PARKING LOT ENTRANCE GATES**  
(SEE NOTE 6)

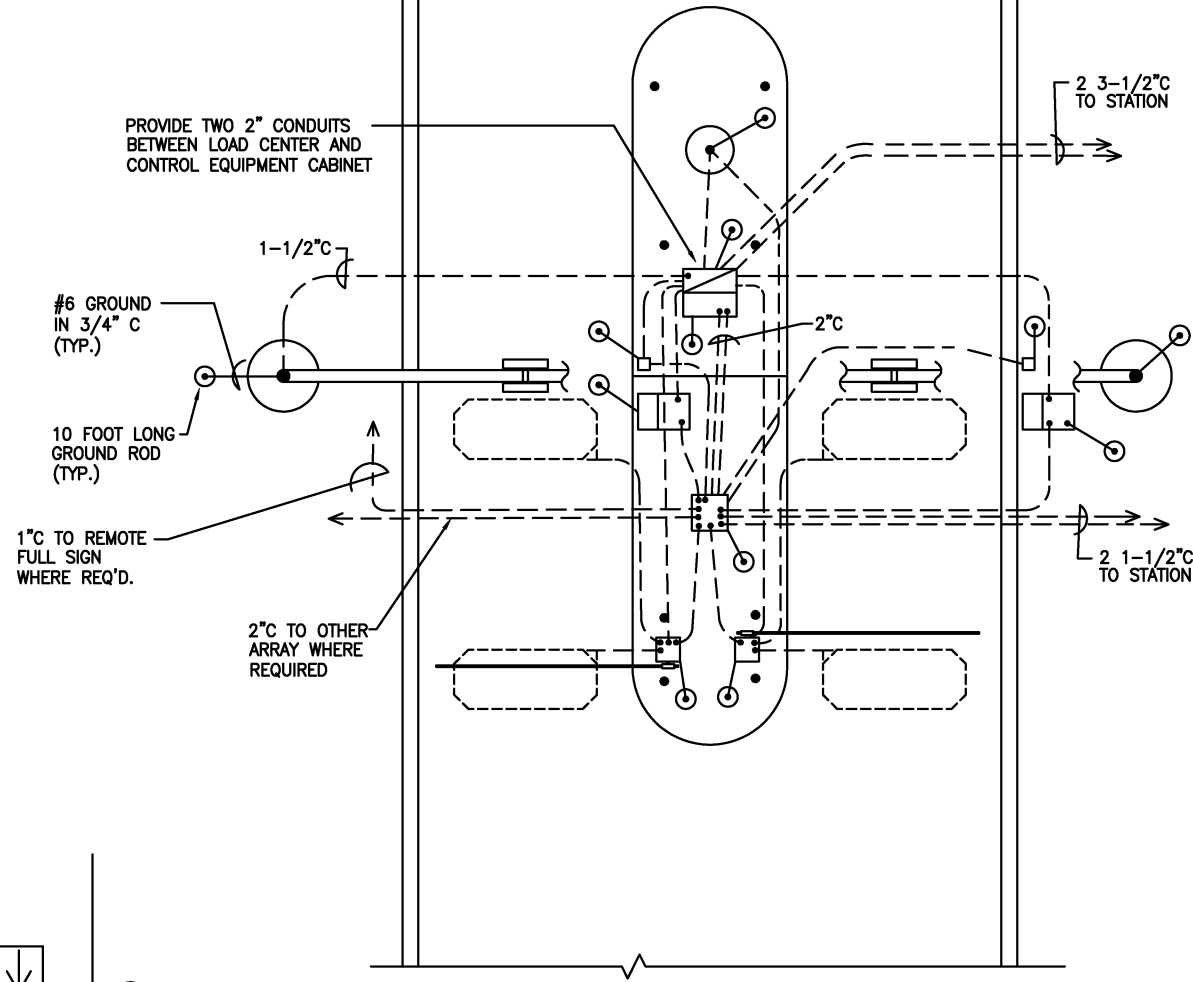
**LANE CONTROL SIGNAL LAYOUT**  
NOT TO SCALE

- NOTES**
1. FOR SYMBOLS AND NOTES SEE DWG DD-E-104.
  2. FOR HAND HOLE DETAILS SEE DWG DD-E-110.
  3. FOR OTHER DETAILS SEE DWGS DD-E-109 AND DD-E-110.
  4. NO WIRING REQUIRED FOR FUTURE CARD READER.
  5. FUTURE CARD READER - 1" FRE CONDUIT STUBBED UP FLUSH WITH ISLAND SURFACE AND PLUG END OF CONDUIT.
  6. ALL EMBEDDED CONDUITS SHALL BE 1" FRE UNLESS OTHERWISE NOTED.
  7. PROVIDE TWO 1-1/2" CONDUITS BETWEEN THE BOOTH'S LOAD CENTER AND CONTROL EQUIPMENT CABINET.

DESIGNED <u>D. VANGOTT</u> DATE <u>9-98</u>	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY	ELECTRICAL DESIGN DRAWING	
	NUMBER	DESCRIPTION	DATE	BY		DESCRIPTION	PARKING LOT CONTROL GATES
DRAWN <u>R. THOMAS, JR.</u> DATE <u>9-98</u>	DD-S-150	CONCRETE ISLAND PLANS & DETAILS-SHEET 1	08/2001	ENGA	Revised and issued by the Authority	TYPE 2 ARRAY CONDUIT AND EQUIPMENT LAYOUT	
CHECKED <u>J. BISHOP</u> DATE <u>9-98</u>	DD-S-151	CONCRETE ISLAND PLANS & DETAILS				SCALE 1/4" = 1'-0"	DRAWING NO. DD-E-111
APPROVED <u>R. GANERWAL</u> DATE <u>9-98</u>						0 3" 6" 12"	
					SUBMITTED	APPROVED DIRECTOR <i>[Signature]</i> May 3, 2001	
					DATE	DATE	

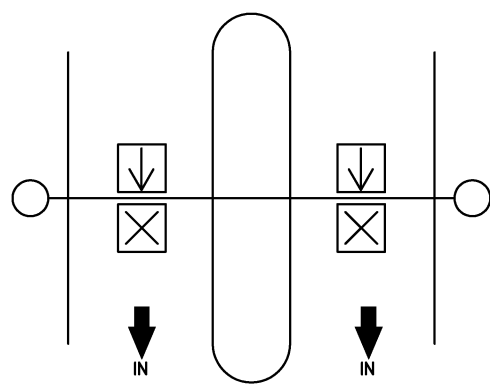


**EQUIPMENT PLAN PARKING LOT ENTRANCE GATES**



**CONDUIT PLAN PARKING LOT ENTRANCE GATES**

(SEE NOTE 2)

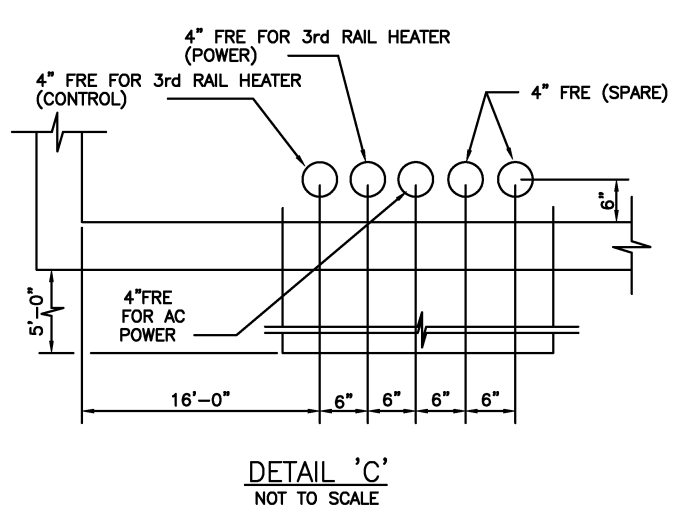
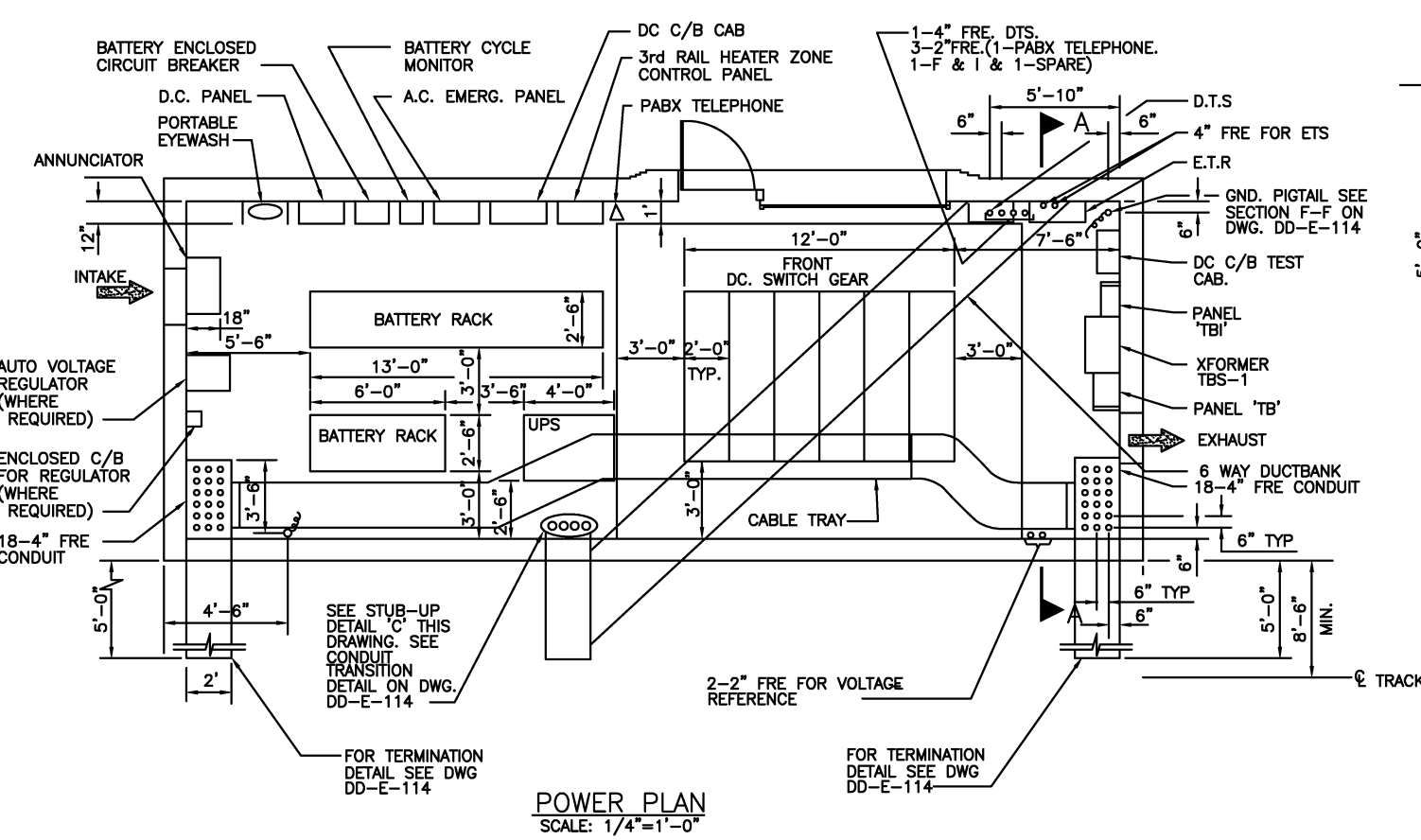
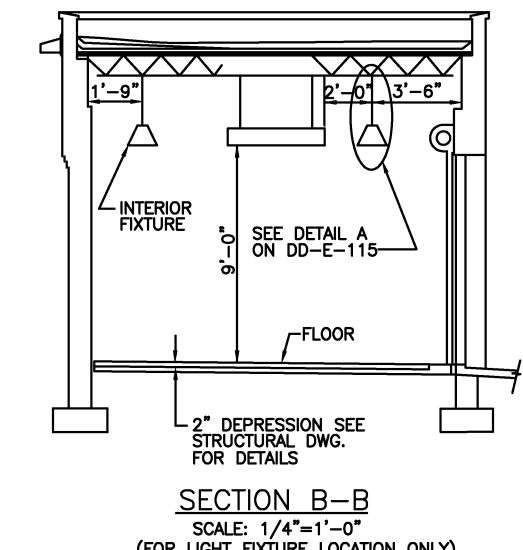
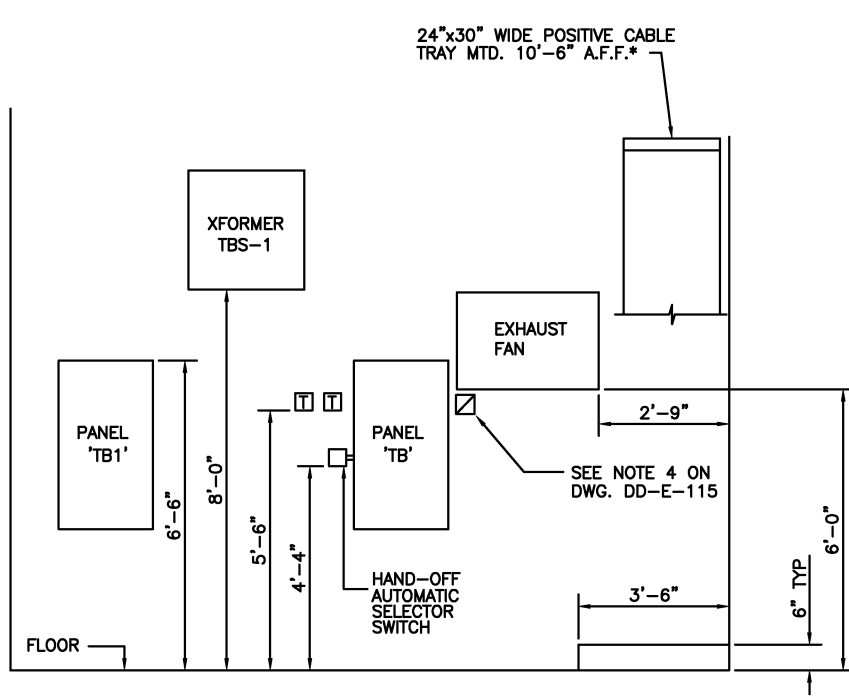
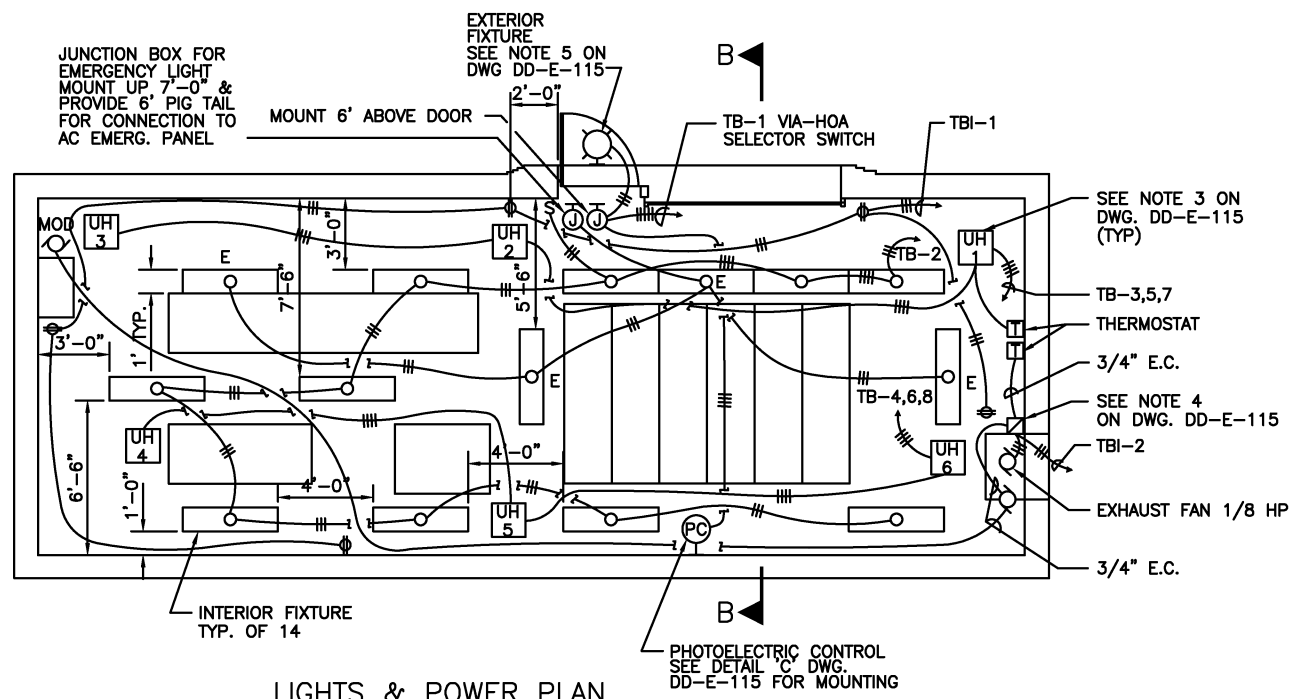


**LANE CONTROL SIGNAL LAYOUT**

NOT TO SCALE

- NOTES**
1. FOR SYMBOLS AND NOTES SEE DWG DD-E-104.
  2. ALL EMBEDDED CONDUITS SHALL BE 1" FRE UNLESS NOTED OTHERWISE.
  3. FOR FUTURE CARD READERS AND TICKET DISPENSERS STUB UP 1" CONDUITS FLUSH WITH ISLAND SURFACE AND PLUG ENDS OF CONDUITS. COIL AND TIE GROUND WIRES.

DESIGNED <b>D. VANCOTT</b> DATE 9-98	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY	ELECTRICAL DESIGN DRAWING PARKING LOT CONTROL GATES TYPE 3 ARRAY CONDUIT AND EQUIPMENT LAYOUT	
	NUMBER	DESCRIPTION	DATE	BY			
DRAWN <b>R. THOMAS, JR.</b> DATE 9-98	DD-S-150	CONCRETE ISLAND PLANS & DETAILS-SHEET 1	08/2001	ENGA	Revised and issued by the Authority	SCALE 1/4" = 1'-0"	
CHECKED <b>J. BISHOP</b> DATE 9-98	DD-S-151	CONCRETE ISLAND PLANS & DETAILS-SHEET 2					
APPROVED <b>R. GANERWAL</b> DATE 9-98						SUBMITTED DATE	APPROVED DIRECTOR <i>[Signature]</i> DATE May 3, 2001

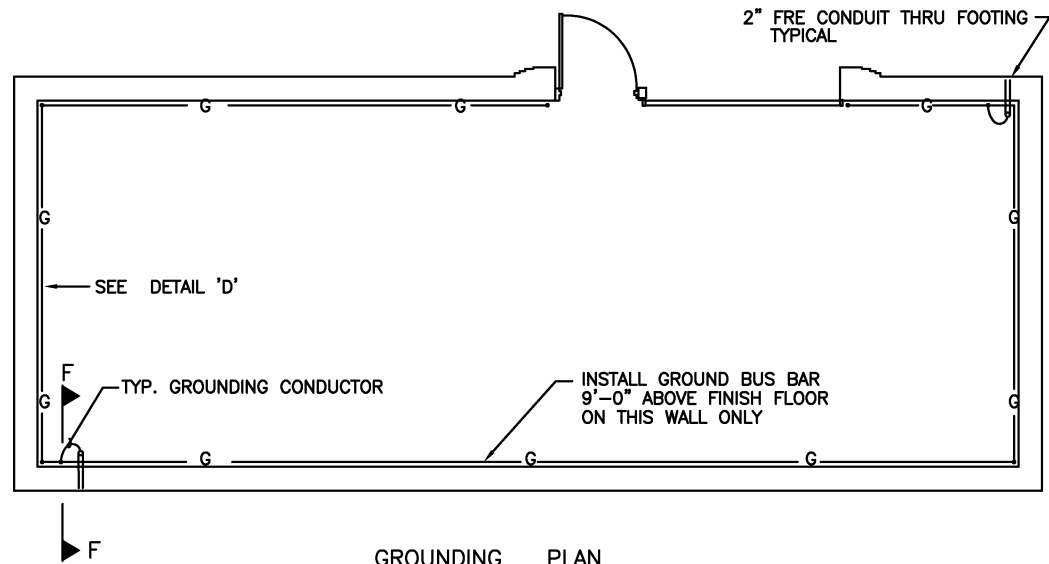


**SYMBOL LIST**

- FLUORESCENT FIXTURE - SUSPENDED - 277V.
- FLUORESCENT FIXTURE - SUSPENDED - EMERGENCY - 120V.
- MERCURY VAPOR FIXTURE - WALL
- SINGLE POLE SWITCH M.H. 4' - 6"
- DUPLEX RECEPTACLE M.H. 1' - 6"
- PHOTOELECTRIC CONTROL
- JUNCTION BOX
- MOTOR - HORSEPOWER AS SHOWN
- DISCONNECT SWITCH - 3 POLE 30 AMPERES NON FUSIBLE, SEE NOTE 3 ON DWG. DD-E-115
- THERMOSTAT PROVIDED & INSTALLED BY MECHANICAL SEE DD-M-147
- CONDUIT IN OR BELOW SLAB
- CONDUIT SURFACE MOUNTED
- HOME RUN TO PANELBOARD-NO. OF CROSS LINES DENOTES NUMBER OF CONDUCTORS.#12 AWG. MINIMUM INCLUDING GROUND CONDUCTOR.
- STARTER ACROSS THE LINE
- UNIT HEATER NO.1

NOTES:  
1. FOR GENERAL NOTES SEE DRAWING DD-E-115  
2. FOR ABBREVIATIONS SEE DRAWING DD-E-115

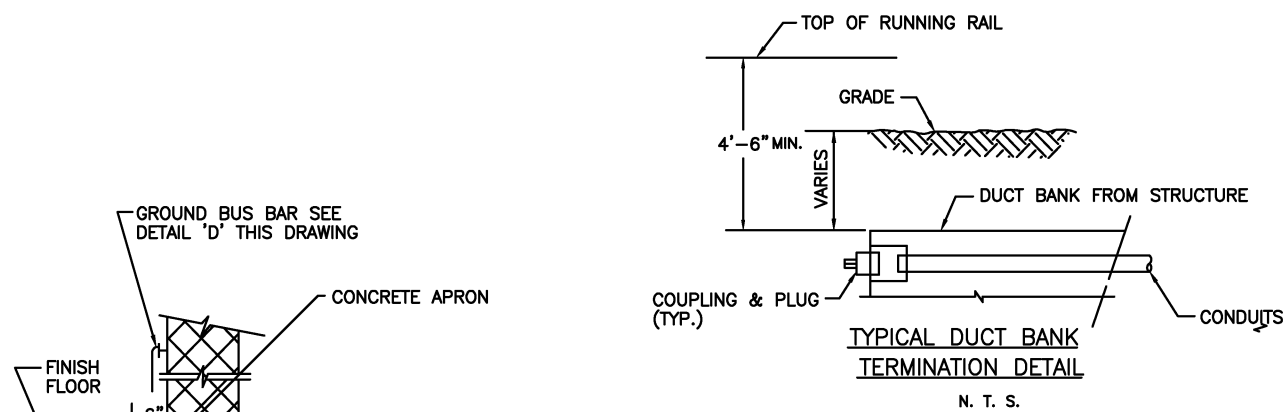
DESIGNED D. VANCOTT 1-97 DATE DRAWN L. POWELL 1-97 DATE CHECKED U. KHAN 1-97 DATE APPROVED R. GANERIWAL 1-97 DATE UPDATED R. GANERIWAL 9-98 DATE	<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION DD-M-147 MECH. PLAN & DETAILS ARCH. FLOOR PLAN, ELEVATIONS & SECTIONS ARCH. WALL SECTIONS DD-M-152 STRUC. FLOOR PLANS & DETAILS	<b>REVISIONS</b> DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> TIE BREAKER STATION PLANS AND DETAILS
	SUBMITTED DATE APPROVED DIRECTOR [Signature] May 3, 2001 DATE	SCALE 1/4" = 1'-0" 0 1 2 3 4 5	DRAWING NO. DD-E-113	



**GROUNDING PLAN**  
SCALE: 1/4"=1'-0"

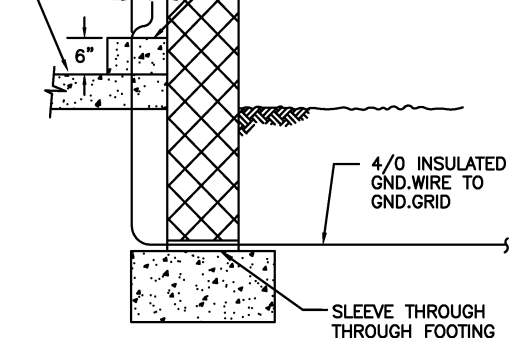
NOTE:  
1. FOR SYMBOLS, GENERAL NOTES AND ABBREVIATIONS SEE DWG. DD-E-115.

PANEL NO. - TB		SERVICE ENTRANCE		LOCATION - TIE BREAKER STATION									
PANEL TYPE -		24		MAIN - 100A FRAME, 60A TRIP - AIC 14K									
NO. OF CIRCUITS -		24		PANEL - MOUNTING SURFACE									
BUS RATING -		100A, 277, 480V, 3 Ø, 4W - GROUND BUS & NEUTRAL											
PHASE	GND WIRE	CND	DESCRIPTION	CONNECTED LOAD (KVA)	CIRCUIT BREAKER	CKT NO.	CKT NO.	CIRCUIT BREAKER	CONNECTED LOAD (KVA)	DESCRIPTION	PHASE	GND WIRE	CND
2#12	1#12	3/4"	OUTDOOR LIGHT	0.3	100 20 14K	1	2	100 20 14K	1.0	LIGHTS	2#12	1#12	3/4"
3#12	1#12	3/4"	UNIT HEATER 1,2,3	3.4	100 20 14K	3	4	100 20 14K	3.4	UNIT HEATER 4,5,6	3#12	1#12	3/4"
				3.4		5	6		3.4				
				3.4		7	8		3.4				
			UPS	3.4	100 40 14K	9	10	100 20 14K	3.0	TRANSFORMER FOR PANEL TBI	3#12	1#12	1"
				3.4		11	12		3.0				
						13	14						
			SPARE		100 20 14K	15	16	100 20 14K		SPARE			
			SPARE		100 20 14K	17	18	100 20 14K		SPARE			
			3RD RAIL ZONE CONTROL PANEL	1.0	100 20 14K	19	20	100 -		BUSSED SPACE			
				1.0		21	22	100 -		BUSSED SPACE			
			BUSSED SPACE		100 -	23	24	100 -		BUSSED SPACE			
SUB-TOTAL				8.1	7.8	6.8	7.4			6.4	6.4	SUB-TOTAL	
CONNECTED LOAD:				15.6	KVA A	SUMMER OR WINTER DEMAND LOAD				12	KVA A		
				14.2	KVA B					10	KVA B		
				13.2	KVA C					11	KVA C		
				43.0	TOTAL					33	TOTAL		

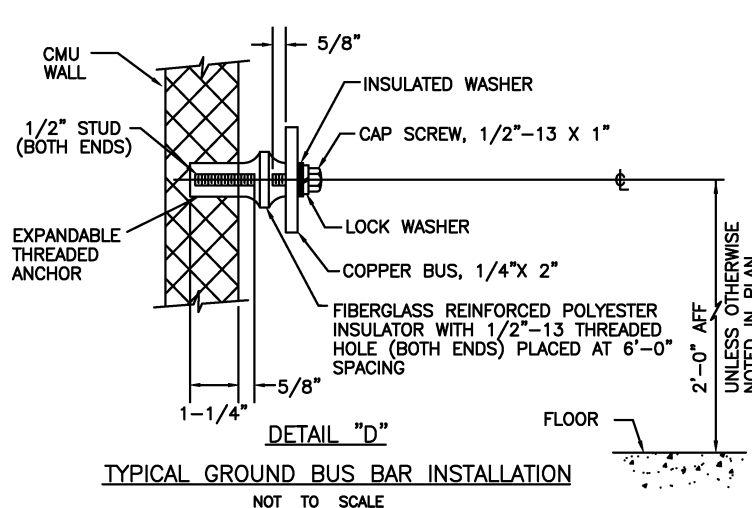


**TYPICAL DUCT BANK TERMINATION DETAIL**  
N. T. S.

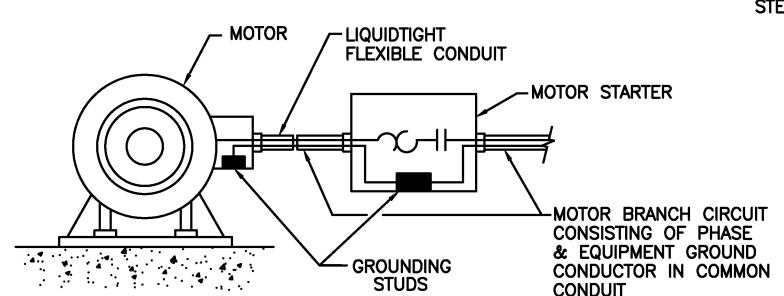
PANEL NO. - TBI		LIGHTING & APPLIANCE		LOCATION - TIE BREAKER STATION									
PANEL TYPE -		12		MAIN - 100A FRAME, 30A TRIP - AIC 10K									
NO. OF CIRCUITS -		12		PANEL - MOUNTING SURFACE									
BUS RATING -		100A, 120/208V, 3 Ø, 4W - GND BUS & NEUTRAL											
PHASE	GND WIRE	CND	DESCRIPTION	CONNECTED LOAD (KVA)	CIRCUIT BREAKER	CKT NO.	CKT NO.	CIRCUIT BREAKER	CONNECTED LOAD (KVA)	DESCRIPTION	PHASE	GND WIRE	CND
2#12	1#12	3/4"	RECEPTACLES	0.8	100 20 10K	1	2	100 20 10K	0.3	EXHAUST FAN 1/8HP.	2#12	1#12	3/4"
			NEG. SWGR. HEATER	0.3	100 20 10K	3	4	100 20 10K		SPARE			
			D.C. SWGR. HEATERS	1.2	100 20 10K	5	6	100 20 10K		SPARE			
			BUSSED SPACE			7	8		1.7				
			BUSSED SPACE			9	10	100 20 10K	1.7	AUTO XFER SW	3#12	1#12	3/4"
			BUSSED SPACE			11	12		1.7				
SUB-TOTAL				0.8	0.3	1.2	2.0			1.7	1.7	SUB-TOTAL	
CONNECTED LOAD:				2.8	KVA A	SUMMER OR WINTER DEMAND LOAD				2.8	KVA A		
				2.0	KVA B					2.0	KVA B		
				2.9	KVA C					2.9	KVA C		
				7.7	TOTAL					7.7	TOTAL		



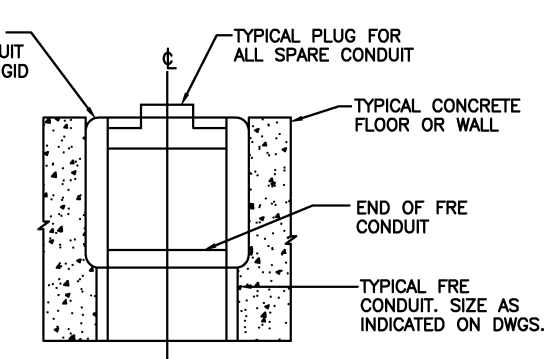
**SECTION F-F**  
NOT TO SCALE



**TYPICAL GROUND BUS BAR INSTALLATION**  
NOT TO SCALE

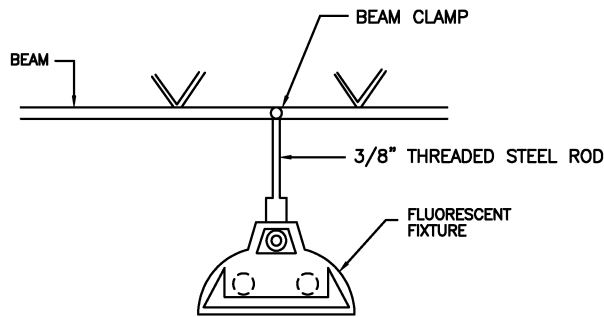


**TYPICAL MOTOR & STARTER GROUNDING**  
NOT TO SCALE

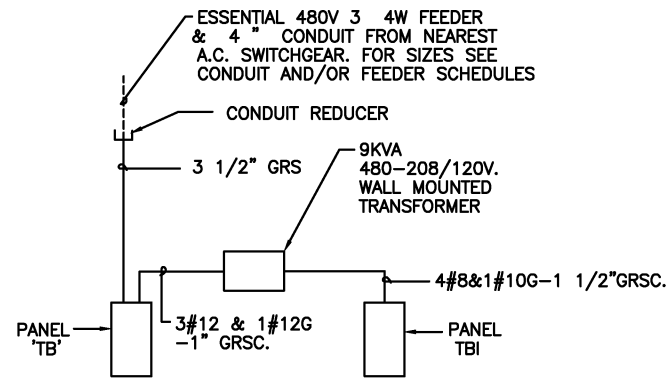


**TYPICAL FRE CONDUIT TO GALVANIZED RIGID STEEL CONDUIT TRANSITION DETAIL**  
NOT TO SCALE

DESIGNED <b>KHAN/VANCOTT</b> 1-97	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE	<b>ELECTRICAL DESIGN DRAWING</b> TIE BREAKER STATION GROUNDING PLAN & DETAILS
DRAWN <b>W. MASSEY</b> 1-97	DATE	DD-E-113	ELEC. POWER & LIGHTING PLANS & DETAILS	08/2001	ENGA	Revised and issued by the Authority		
CHECKED <b>D. GLEN</b> 1-97	DATE						SUBMITTED _____ DATE _____ APPROVED <i>[Signature]</i> DIRECTOR May 3, 2001 DATE _____	SCALE AS NOTED DRAWING NO. DD-E-114



DETAIL A  
N.T.S.



POWER ONE-LINE DIAGRAM

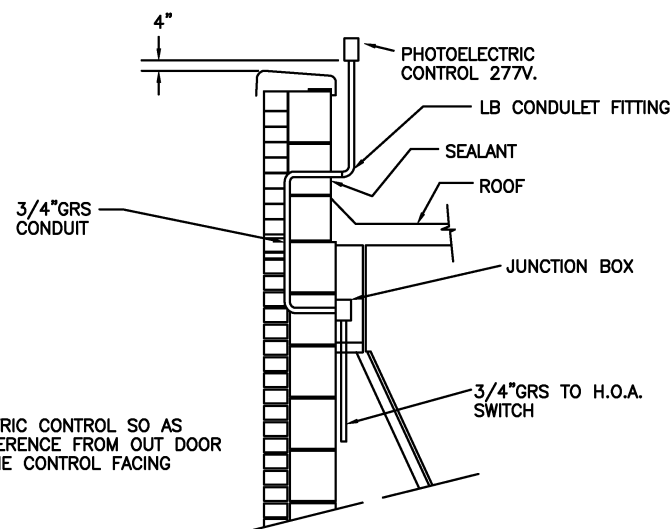
N.T.S.

GENERAL NOTES:

1. FOR EXPOSED CONDUITS USE GALVANIZED STEEL RIGID, FOR EMBEDDED USE PVC CONDUIT.
2. CONDUIT RUNS SHOWN ARE DIAGRAMMATICAL. INSTALL CONDUIT USING STRAIGHT RUN BETWEEN TERMINATIONS UNLESS OTHERWISE SHOWN AND AVOIDING INTERFERENCE WITH MECHANICAL OR STRUCTURAL FEATURES.
3. MOUNT DISCONNECT SWITCHES FOR UNIT HEATERS ON THE UNIT OR AS NEAR AS POSSIBLE.
4. ACROSS THE LINE STARTER NEMA SIZE-1 (120 VOLTS, 1 PHASE, 2POLES) WITH HAND-OFF-AUTO SELECTOR AND NORMALLY OPEN CONTACTS IN A NEMA 1 ENCLOSURE.
5. FOR MOUNTING HEIGHT OF EXTERIOR FIXTURE SEE ARCHITECTURAL DRAWINGS.

ABBREVIATIONS

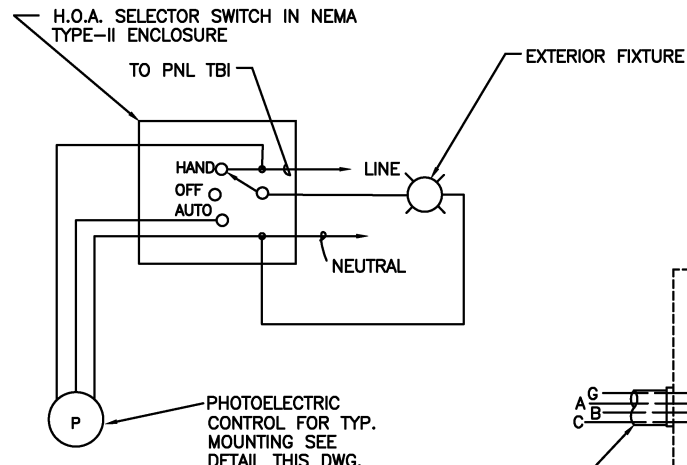
A	AMPERE
A.C.	ALTERNATING CURRENT
AFF	ABOVE FINISH FLOOR
ANNUN	ANNUNCIATOR
ATC	AUTOMATIC TRAIN CONTROL
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
CAB	CABINET
C/B	CIRCUIT BREAKER
C	CONDUIT
DTS	DATA TRANSMISSION SYSTEM
DWG	DRAWING
EC	EMPTY CONDUIT
EMERG	EMERGENCY
ETR	EMERGENCY TRIP RELAY CABINET
F&I	FIRE & INTRUSION
FRE	FIBERGLASS REINFORCED EPOXY
G, GND	GROUND
GRS	GALVANIZED STEEL RIGID CONDUIT
HOA	HAND-OFF-AUTOMATIC SELECTOR SWITCH
KVA	KILO-VOLT AMPERE
MH	MOUNTING HEIGHT
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTING
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
∅	PHASE
PNL	PANEL
PWR	POWER
REG	REGULATOR
SW	SWITCH
TYP	TYPICAL
X FER	TRANSFER
X FORMER	TRANSFORMER
V	VOLT
W	WIRE
UPS	UNINTERRUPTIBLE POWER SUPPLY



NOTE:  
LOCATE PHOTOELECTRIC CONTROL SO AS TO PREVENT INTERFERENCE FROM OUT DOOR LIGHTING & WITH THE CONTROL FACING NORTH.

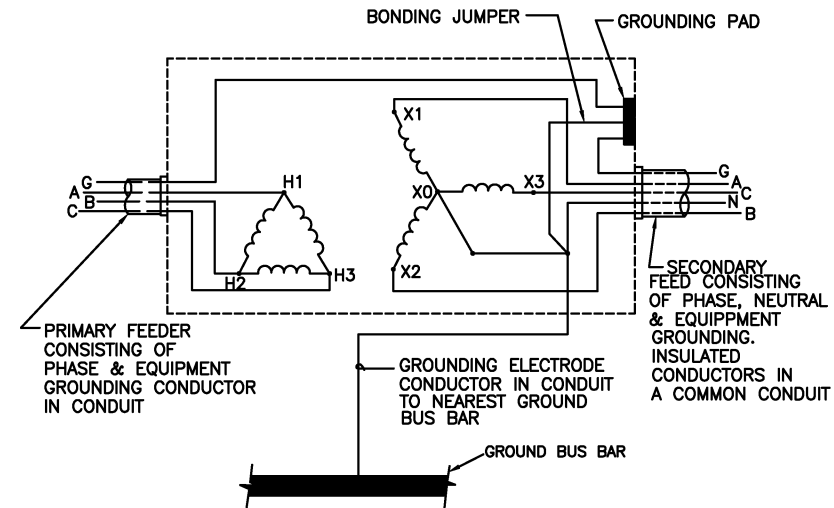
TYPICAL MOUNTING DETAIL  
FOR PHOTOELECTRIC CONTROL

N.T.S.



DETAIL C

N.T.S.



GENERAL PURPOSE TRANSFORMER

N.T.S.

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	DESCRIPTION
DESIGNED	D. VANCOTT	1-97	
DATE			
DRAWN	R. THOMAS, JR.	1-97	
DATE			
CHECKED	U. KHAN	1-97	
DATE			
APPROVED	R. GANERWAL	1-97	
DATE			
UPDATED	R. GANERWAL	12-98	
DATE			

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

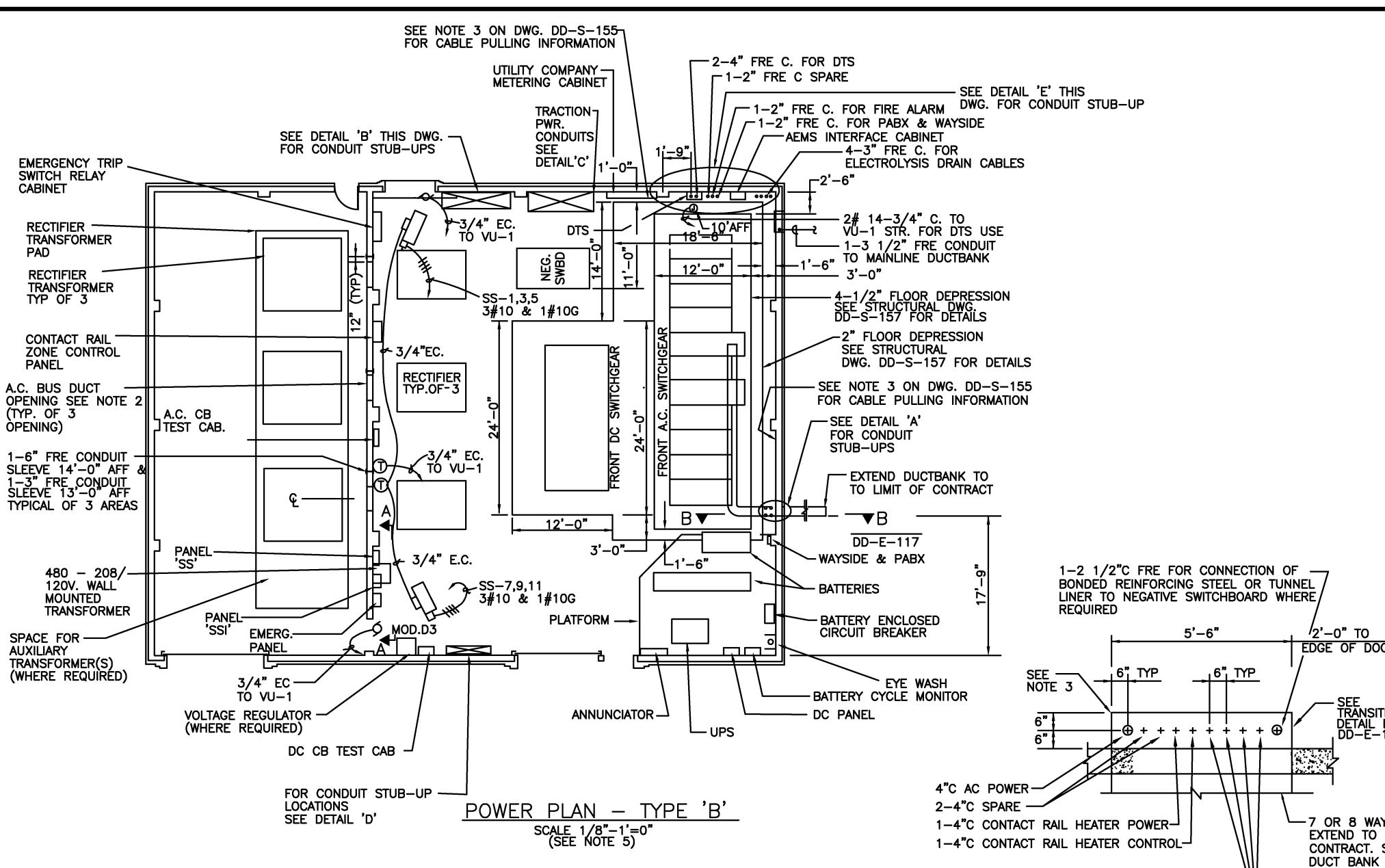
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

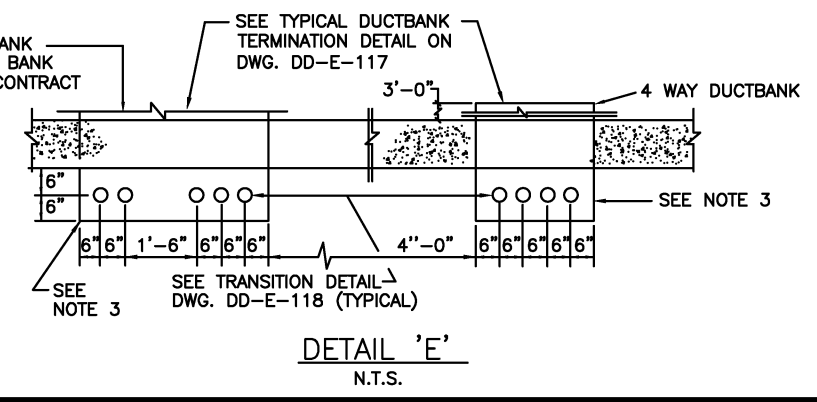
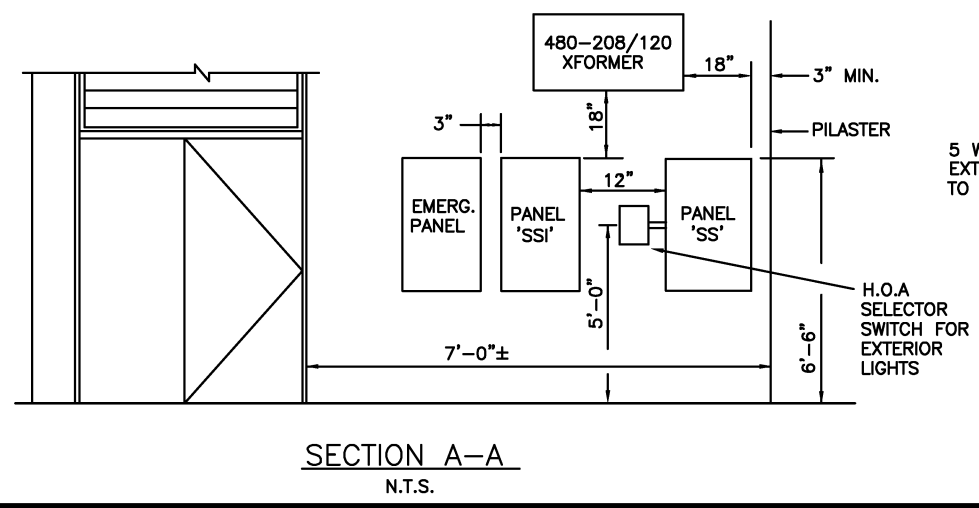
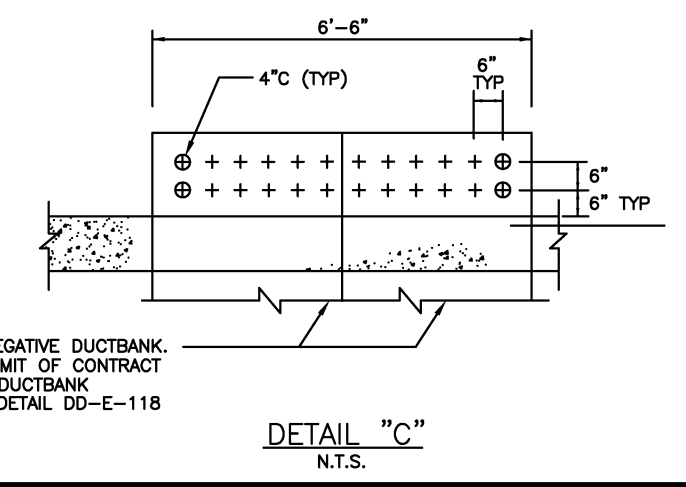
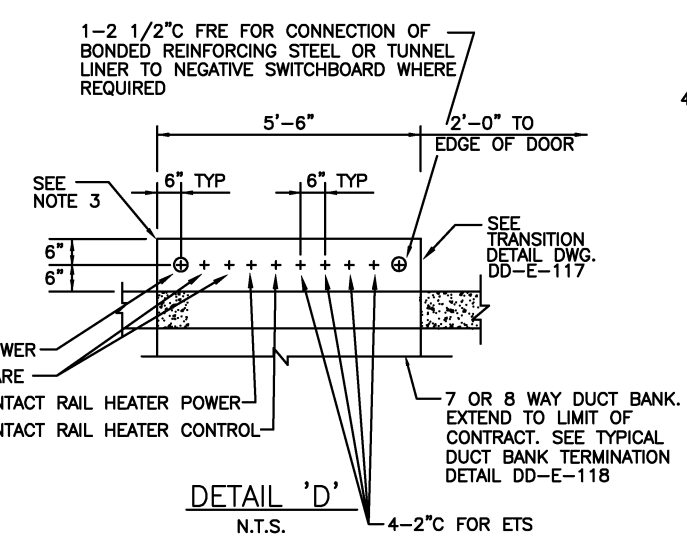
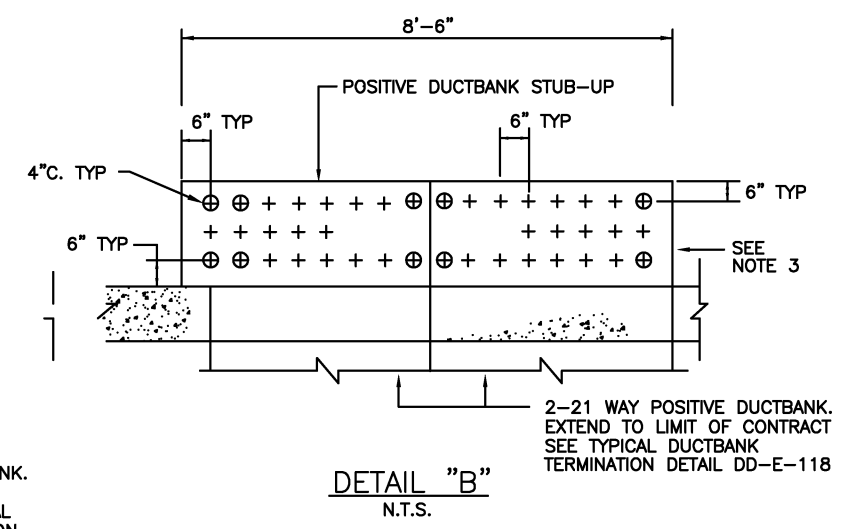
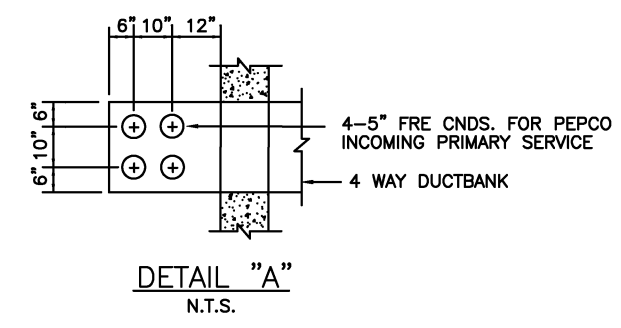
APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**  
TIE BREAKER STATION  
ELECTRICAL DETAILS & NOTES

SCALE AS NOTED DRAWING NO. DD-E-115



- NOTES:**
1. THE CONTRACTOR SHALL MOUNT THE DISCONNECT SWITCHES FOR UNIT HEATERS ON THE UNIT OR AS NEAR AS POSSIBLE.
  2. OPENINGS FOR A.C. BUS DUCT SHALL BE 36" WIDE X 24" HIGH WITH CENTERLINE 13'-0" ABOVE FINISH FLOOR, TYPICAL OF 3. FOR LOCATION OF OPENINGS SEE STRUCTURAL FLOOR PLAN ON DWG. DD-S-159.
  3. TERMINATE DUCTBANK 6" ABOVE TOP OF SLAB/FINISH FLOOR.
  4. FOR SYMBOLS, GENERAL NOTES AND ABBREVIATIONS SEE DWG. DD-E-119.
  5. LAYOUT FOR TYPE 'A' SUBSTATION IS SIMILAR ONLY OPPOSITE HAND.



DESIGNED D. VANCOTT 10-98		DATE		NUMBER		DESCRIPTION		DATE		BY		REVISIONS		DESCRIPTION	
DRAWN R. THOMAS, JR. 10-98		DATE		DD-A-SS-001		ARCH. FLOOR PLAN ELEV. TYPE A		08/2001		ENGA		Revised and issued by the Authority			
CHECKED U. KHAN 10-98		DATE		DD-A-SS-002		ARCH. FLOOR PLAN ELEV. TYPE B									
APPROVED R. GANERWAL 10-98		DATE		DD-A-SS-003		ARCH. WALLS & DETAILS									
				DD-A-SS-004		ARCH. WALL SECTIONS & DETAILS									
				DD-A-SS-005		ARCH. WALL SECTIONS & DETAILS									
				DD-S-152 TO 160		STRUCTURAL SUBSTATION DWGS									
				DD-M-148		MECHANICAL SUBSTATION DWGS									

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

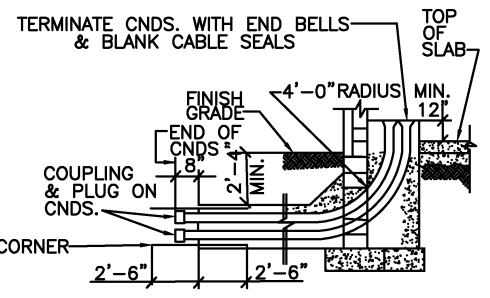
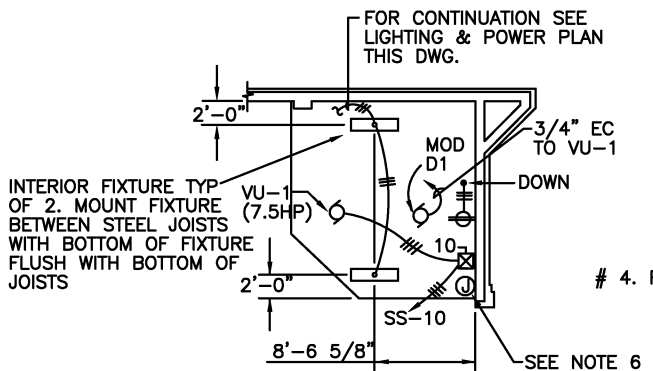
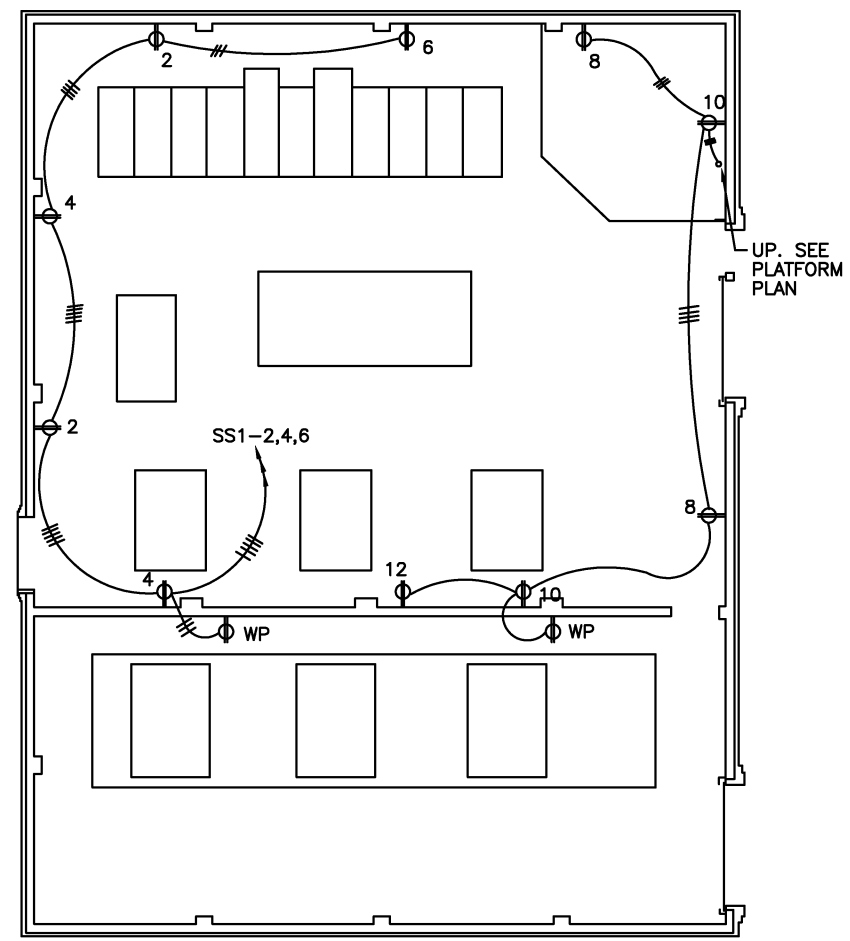
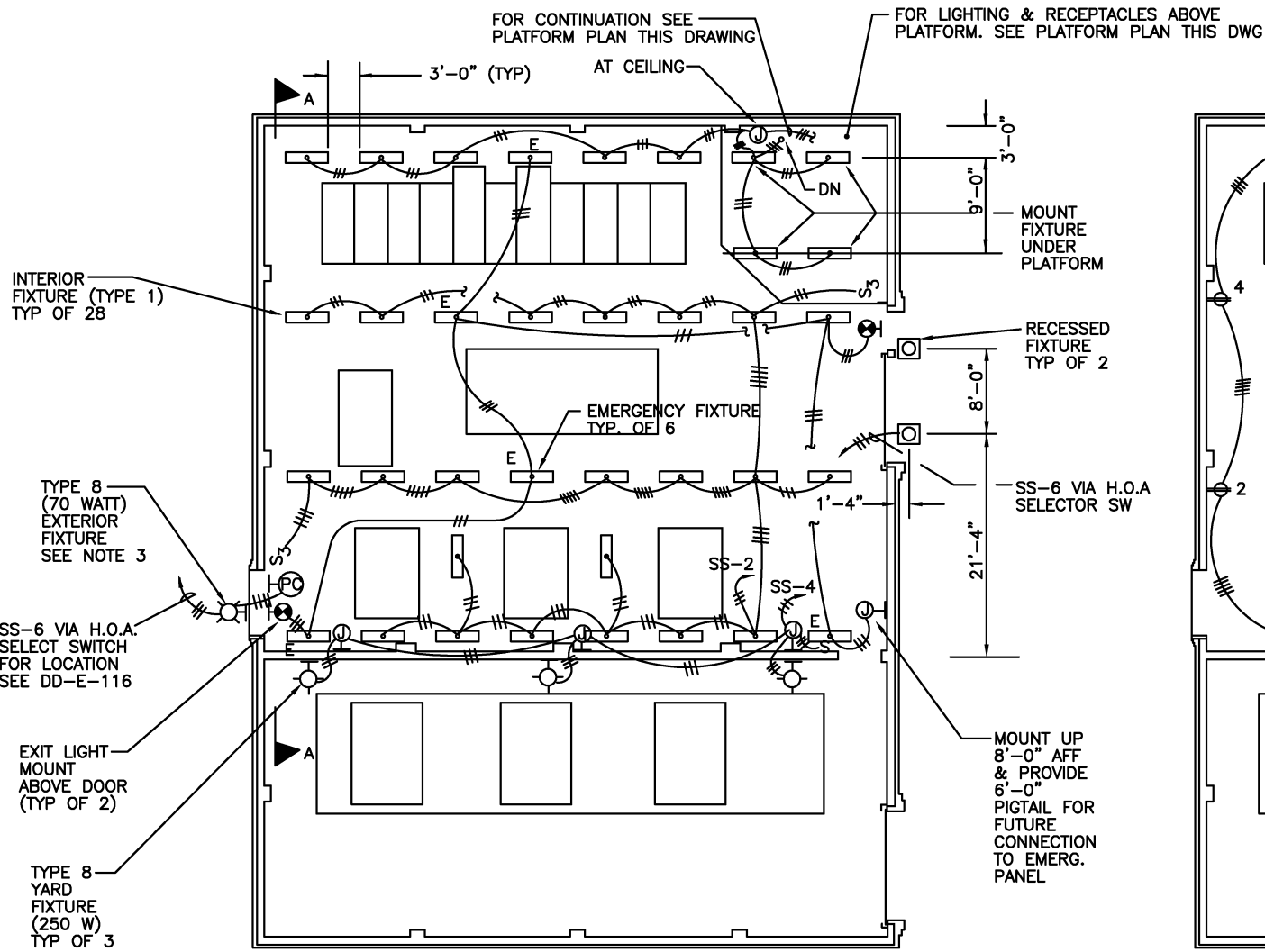
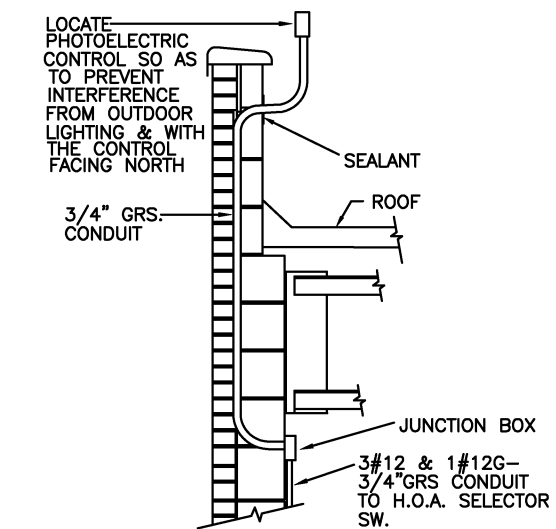
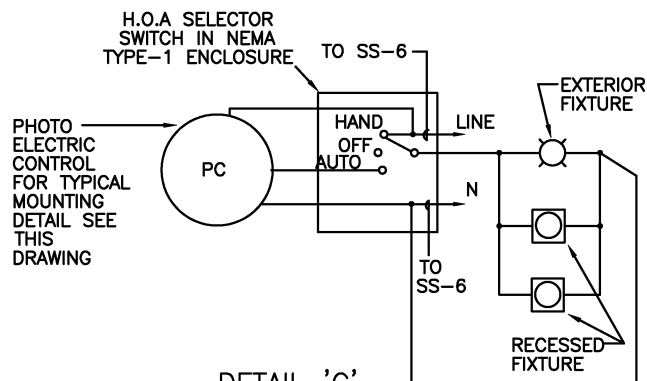
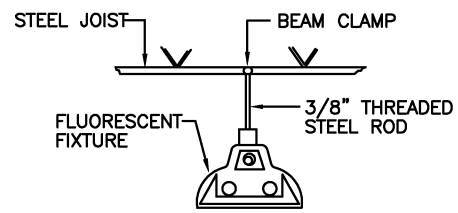
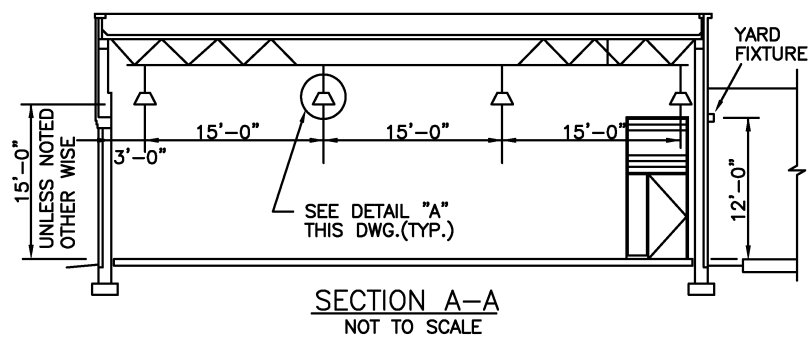
APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWING**

TRACTION POWER SUBSTATION ELECTRICAL  
POWER PLAN, SECTIONS AND DETAILS

SCALE AS NOTED DRAWING NO. DD-E-116





- NOTES:**
- FOR SYMBOLS & ABBREVIATIONS SEE DD-E-119.
  - FOR PANEL SCHEDULE, SEE DD-E-119.
  - FOR MOUNTING HEIGHT SEE ARCHITECTURAL DRAWINGS.
  - CONTRACTOR SHALL COORDINATE MOUNTING OF ALL LIGHTING FIXTURES IN TRACTION POWER SUBSTATION WITH CONTRACTOR FOR INSTALLING TRACTION POWER EQUIPMENT.
  - FOR EQUIPMENT DESIGNATIONS AND LOCATIONS SEE DWG DD-E-116.
  - PROVIDE & INSTALL JUNCTION BOX ADJACENT TO STARTER. WITH 2#14-3/4"C. CONNECT WIRES TOGETHER AS A TEMPORARY CONNECTION FOR FUTURE FIRE DETECTION USE. SEE CONTROL DIAGRAM DWG. DD-E-116.

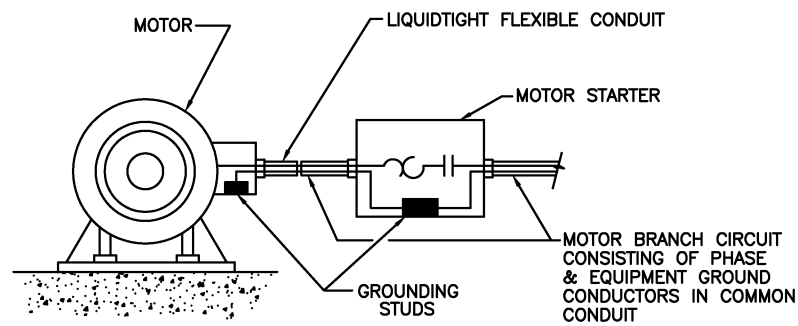
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	BY
D. VANCOTT	10-98	DD-A-SS-001	ARCH. FLOOR PLAN ELEV. TYPE A	08/2001	ENGA
R. THOMAS, JR.	10-98	DD-A-SS-002	ARCH. FLOOR PLAN ELEV. TYPE B		
U. KHAN	10-98	DD-A-SS-003	ARCH. WALLS & DETAILS		
R. GANERWAL	10-98	DD-A-SS-004	ARCH. WALL SECTIONS & DETAILS		
R. GANERWAL	10-98	DD-A-SS-005	ARCH. WALL SECTIONS & DETAILS		
R. GANERWAL	12-98	DD-S-1920189	STRUCTURAL SUBSTATION DWGS		
R. GANERWAL	12-98	DD-M-148	MECHANICAL SUBSTATION DWGS		

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

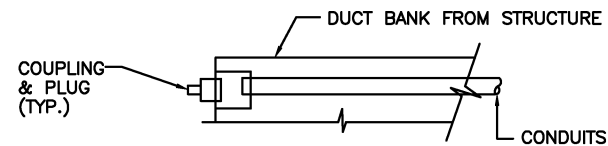
**ELECTRICAL DESIGN DRAWING**  
 TRACTION POWER SUBSTATION ELECTRICAL  
 POWER AND LIGHTING PLANS AND DETAILS

SCALE AS NOTED DRAWING NO. DD-E-117



DETAIL "E"

TYPICAL MOTOR & MOTOR STARTER GROUNDING  
N.T.S.

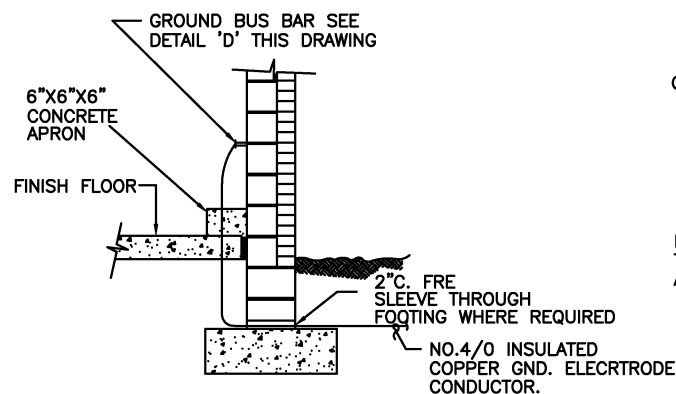


TYPICAL DUCT BANK  
TERMINATION DETAIL

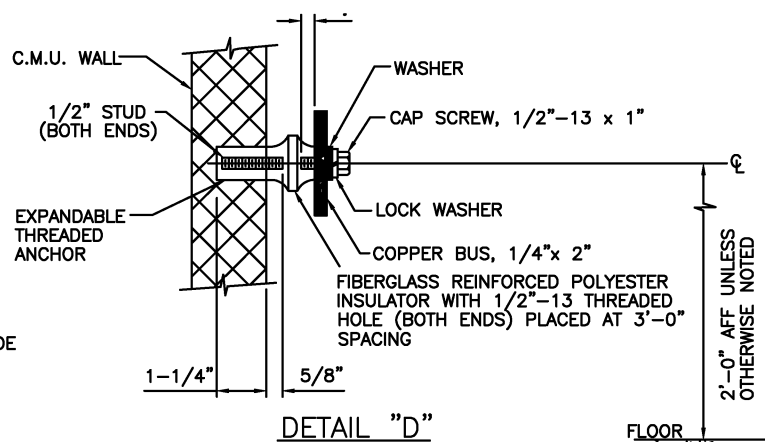
N.T.S.

NOTES:

1. NO. 4/0 INSULATED COPPER GND. ELECTRODE TO GND.GRID.
2. PROVIDE 6'-0" LONG PIGTAIL ABOVE TRANSFORMER PAD.
3. FOR SYMBOLS AND ABBREVIATIONS SEE DWG. DD-E-119.

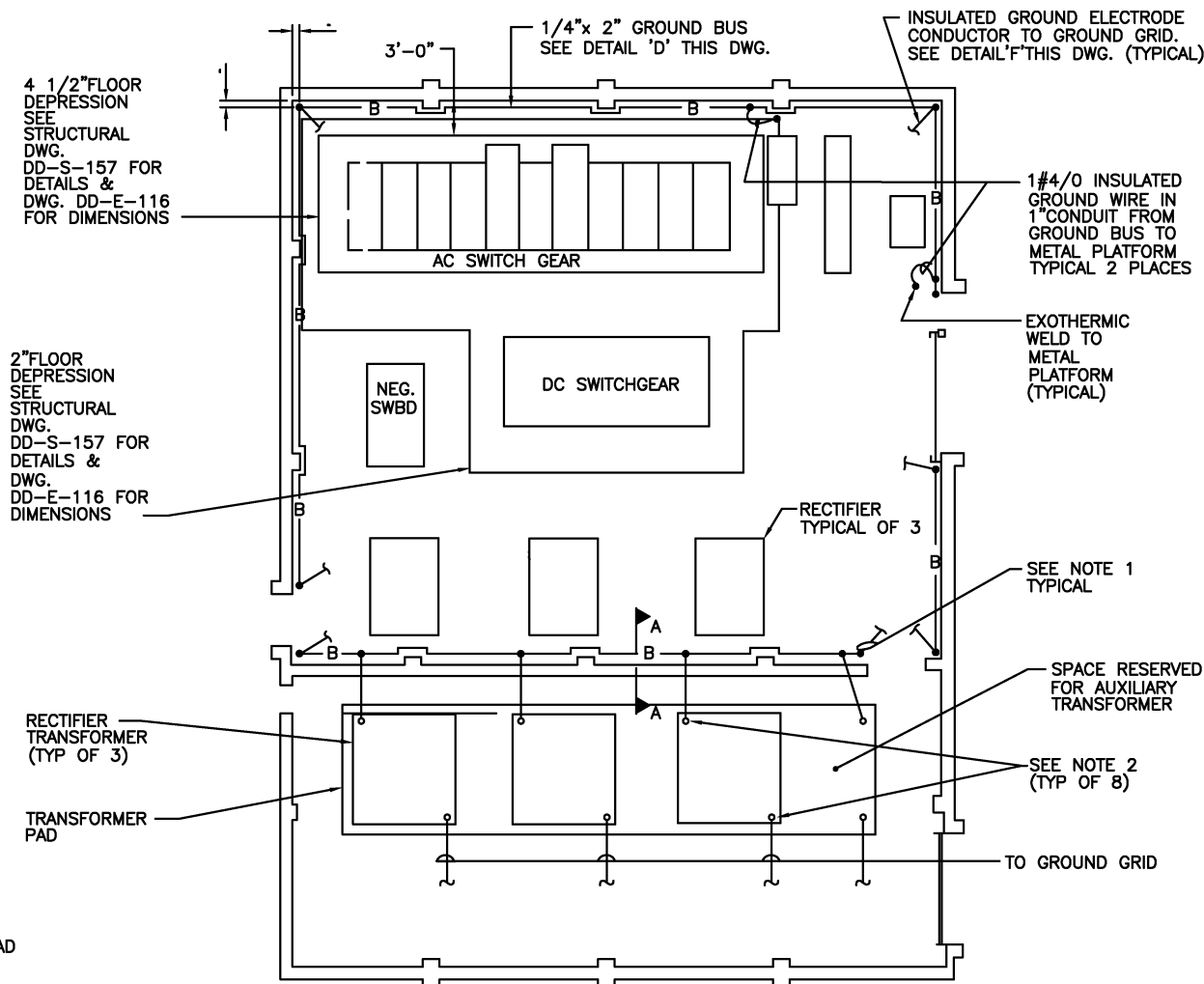


SECTION A-A  
N.T.S.



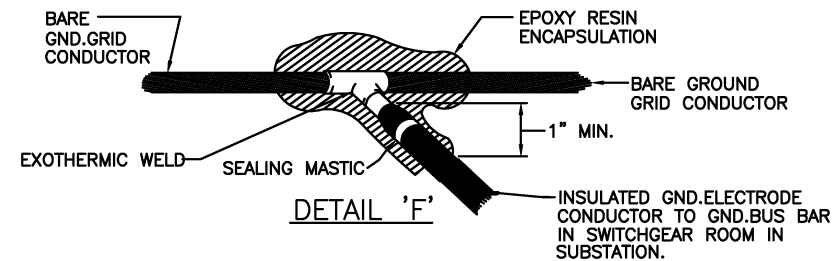
DETAIL "D"

TYPICAL GROUND BUS BAR INSTALLATION  
N.T.S.



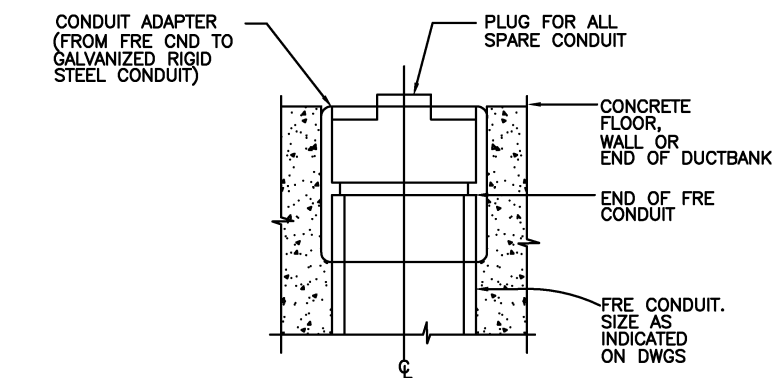
GROUNDING PLAN - TYPE 'B'

SCALE: 1/8"=1'-0"  
(LAYOUT FOR TYPE 'A' IS SIMILAR ONLY OPPOSITE HAND)

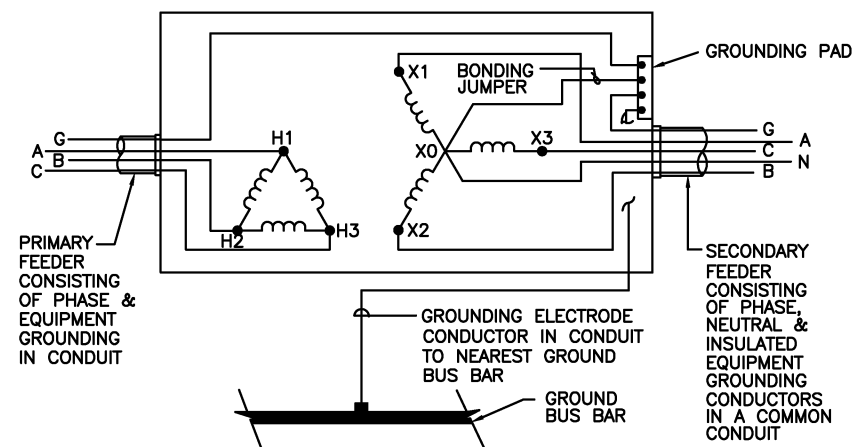


DETAIL 'F'

MOISTURE SEALING OF BURIED GROUND ELECTRODE  
CONDUCTOR  
N.T.S.



TYPICAL PVC CONDUIT TO  
GALVANIZED RIGID STEEL CONDUIT  
TRANSITION DETAIL  
N.T.S.



GENERAL PURPOSE TRANSFORMER

N.T.S.

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
D. VANCOTT	12-96	DD-A-SS-001	ARCH. FLOOR PLAN ELEV. TYPE A	08/2001	ENGA Revised and issued by the Authority
R. THOMAS, JR.	12-96	DD-A-SS-002	ARCH. FLOOR PLAN ELEV. TYPE B		
U. KHAN	12-96	DD-A-SS-003	ARCH. WALLS & DETAILS		
U. KHAN	12-96	DD-A-SS-004	ARCH. WALL SECTIONS & DETAILS		
R. GANERWAL	12-96	DD-A-SS-005	ARCH. WALL SECTIONS & DETAILS		
		DD-S-18270188	STRUCTURAL SUBSTATION DWGS		
		DD-M-148	MECHANICAL SUBSTATION DWGS		

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED

DIRECTOR

May 3, 2001  
DATE

SCALE  
AS NOTED

DRAWING NO.

DD-E-118

ELECTRICAL DESIGN DRAWING  
TRACTION POWER SUBSTATION ELECTRICAL  
GROUNDING PLAN AND DETAILS

PANEL NO.- SS  
 PANEL TYPE- DISTRIBUTION AND SERVICE ENTRANCE  
 NO OF CIRCUITS- 30  
 BUS RATING- 225 AMP. 3PHASE, 4WIRE, 480/277 VOLT A.C.

LOCATION-TRACTION POWER SUBSTATION  
 MAIN-3 POLE, 225A FRAME, 150A. TRIP- 22K AIC  
 PANEL-MOUNTING-SURFACE - ESSENTIAL

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT. NO.	A B C	CKT. NO.	CIRCUIT BREAKER			CONNECTED LOAD (KVA)			DESCRIPTION
	AØ	BØ	CØ	FRAME	TRIP	AIC				AØ	BØ	CØ	AØ	BØ	CØ	
UNIT HEATER	2.5			100	20	14K	1		2	100	20	14K	3.2			INTERIOR LIGHTS
		2.5					3		4	100	20	14K		0.5		EXTERIOR LIGHTS
			2.5				5		6	100	20	14K		0.3		EXTERIOR LIGHTS
UNIT HEATER	2.5			100	20	14K	7		8				3.1			VENT UNIT VU-1
		2.5					9		10	100	25	14K		3.1		
			2.5				11		12					3.1		
TRANSFORMER(PNL SSI)	10			100	45	14K	15		14	100	25	14K	5.0			UPS
		10					15		16	100	25	14K		5.0		
			10				17		18					5.0		
3RD RAIL HEATER	1.0			100	20	14K	19		20							
ZONE CONTROL PANEL		1.0					21		22	100	20	14K				SPARE
SPARE				100	20	14K	23		24							
BUSSED SPACE				100	-	-	25		26	100	-	-				BUSSED SPACE
							27		28							
							29		30							
SUB-TOTAL	16	16	15										11.3	8.6	8.6	SUB-TOTAL

S/N GND

CONNECTED LOAD: 27.3 KVA AØ, 17.6 KVA BØ, 23.6 KVA CØ  
 68.5 TOTAL + 15KVA. FUTURE=83.5KVA

SUMMER OR WINTER: 20.4 KVA AØ, 18.7 KVA BØ, 18.6 KVA CØ  
 DEMAND LOAD: 57.7 TOTAL

PANEL NO.- SSI  
 PANEL TYPE- LIGHTING AND APPLIANCE  
 NO. OF CIRCUITS- 30  
 BUS RATING- 100 AMP, 3PHASE, 4WIRE, 208/120 VOLT AC.

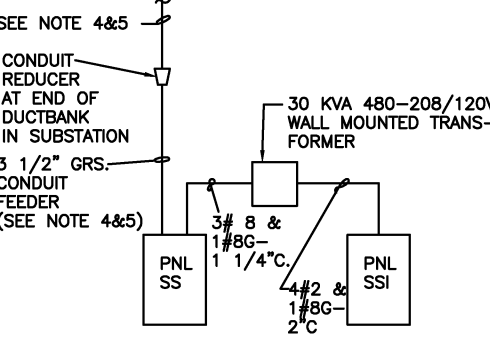
LOCATION-TRACTION POWER SUBSTATION  
 MAIN-3 POLE, 100A FRAME, 100A. TRIP- 10K AIC  
 PANEL-MOUNTING-SURFACE - ESSENTIAL

DESCRIPTION	CONNECTED LOAD (KVA)			CIRCUIT BREAKER			CKT. NO.	A B C	CKT. NO.	CIRCUIT BREAKER			CONNECTED LOAD (KVA)			DESCRIPTION
	AØ	BØ	CØ	FRAME	TRIP	AIC				AØ	BØ	CØ	AØ	BØ	CØ	
BUS DUCT HTR.	.5			100	20	10K	1		2	100	20	10K	1.2			RECEPTACLES
BUS DUCT HTR.		.5					3		4				1.2			RECEPTACLES
BUS DUCT HTR.			.5				5		6					1.5		REC. VAC. CLEANER
SPARE							7		8				1.2			RECEPTACLES
SPARE							9		10				1.2			RECEPTACLES
AC SWGR HTRS.			1.5				11		12					1.5		REC. VAC. CLEANER
DC SWGR HTRS.	1.6						13		14							SPARE
AC SWGR HTRS.			1.5				15		16							SPARE
SPARE							17		18		20	10K				SPARE
UPS XFER SW	1.7						19		20							BUSSED SPACE
		1.7					21		22							
			1.7				23		24							
BUSSED SPACE							25		26							
BUSSED SPACE							27		28							
BUSSED SPACE				100	-	-	29		30	100	-	-				BUSSED SPACE
SUB-TOTAL	3.8	3.7	3.7										2.4	2.4	3.0	SUB-TOTAL

S/N GND

CONNECTED LOAD: 6.2 KVA AØ, 6.1 KVA BØ, 6.7 KVA CØ  
 19.0 TOTAL + 5KVA. FUTURE=24.0KVA

SUMMER OR WINTER: 5.5 KVA AØ, 5.5 KVA BØ, 5.8 KVA CØ  
 DEMAND LOAD: 16.8 TOTAL



POWER ONE-LINE DIAGRAM  
 N. T. S

- SYMBOL LIST**
- FLUORESCENT FIXTURE, 277 VOLT
  - <sub>E</sub> FLUORESCENT FIXTURE-EMERGENCY, 120 VOLT
  - HIGH PRESSURE SODIUM FIXTURE-RECESSED, 277 VOLT
  - HIGH PRESSURE SODIUM FIXTURE-WALL MOUNTED, 277 VOLT
  - ⊙ EXIT LIGHT-WALL MOUNTED, 120 VOLT
  - S SWITCH-SINGLE POLE-MOUNTED 4'-6" ABOVE FINISH FLOOR
  - S<sub>3</sub> SWITCH- THREE WAY-MOUNTED 4'-6" ABOVE FINISH FLOOR
  - ⊖ WP RECEPTACLE-WP DENOTES WEATHER PROOF MOUNTED 18" ABOVE FINISH FLOOR
  - ⊖ JUNCTION BOX-WALL MOUNTED
  - ⊙ MOTOR
  - ⊖ PHOTOELCTRIC CONTROL
  - DISCONNECT SWITCH, 3P+GND, 480V, 30A
  - ⊖ COMBINATION STARTER M.H. 5'-0", 3P+GND
  - ⊖ THERMOSTAT-PROVIDED & INSTALLED BY MECHANICAL
  - ELECTRIC UNIT HEATER
  - CONCEALED CONDUIT-CROSS LINES DENOTE NO. OF CONDUCTORS
  - EXPOSED CONDUIT-CROSS LINES DENOTE NO. OF CONDUCTORS
  - HOMERUN TO PANELBOARD-CROSSLINES DENOTE NO. OF CONDUCTORS & ARROW HEADS DENOTE NO. OF CIRCUITS
  - CONDUIT TURNING UP
  - CONDUIT TURNING DOWN
  - B GROUND BUS BAR

- ABBREVIATIONS**
- A AMPERE
  - AC ALTERNATING CURRENT
  - AEMS RTU AUTOMATED ENERGY MANAGEMENT SYSTEM REMOTE TERMINAL UNIT
  - AFF ABOVE FINISH FLOOR
  - AUTO AUTOMATIC
  - CAB CABINET
  - CB CIRCUIT BREAKER
  - CKT CIRCUIT
  - ⊕ CENTERLINE
  - CMU CONCRETE MASONRY UNIT
  - CNDS, C CONDUITS
  - DC DIRECT CURRENT
  - DN DOWN
  - DTS DATA TRANSMISSION SYSTEM
  - DWG, DWGS DRAWING, DRAWINGS
  - EC EMPTY CONDUIT
  - EMERG EMERGENCY
  - ETS EMERGENCY TRIP STATION
  - FRE FIBERGLASS REINFORCED EPOXY
  - GND, G GROUND
  - GRS GALVANIZED RIGID STEEL
  - HOA HAND-OFF-AUTOMATIC
  - KVA KILOVOLTAMPERE
  - MIN MINIMUM
  - MH MOUNTING HEIGHT
  - MOD MOTOR OPERATED DAMPER
  - NEG NEGATIVE
  - NIC NOT IN CONTRACT
  - NO. NUMBER
  - NTS NOT TO SCALE
  - P POLE
  - PABX PRIVATE AUTOMATIC BRANCH EXCHANGE
  - PEPCO POTOMAC ELECTRIC POWER COMPANY
  - PVC POLYVINYL CHLORIDE
  - PWR POWER
  - STR STARTER
  - SW SWITCH
  - SWBD SWITCHBOARD
  - TYP TYPICAL
  - XFORMER TRANSFORMER
  - SWGR. SWITCHGEAR
  - C CONDUIT
  - HTR HEATER
  - KAIC KILO AMPERES INTERRUPTING CAPACITY
  - REC RECEPTACLE
  - UPS UNINTERRUPTIBLE POWER SYSTEM
  - V VOLT
  - VAC VACUUM
  - W WIRE
  - ∅ PHASE
  - W/ WITH

- GENERAL NOTES:**
- FOR EXPOSED RACEWAYS, USE GALVANIZED RIGID STEEL CONDUIT FOR EMBEDDED RACEWAYS, USE PVC CONDUIT.
  - CONDUIT RUNS SHOWN ARE DIAGRAMMATICAL INSTALL EMBEDDED CONDUIT USING STRAIGHT RUN BETWEEN TERMINATIONS UNLESS OTHERWISE SHOWN & AVOIDING INTERFERENCE WITH MECHANICAL OR STRUCTURAL FEATURES.
  - MINIMUM SIZE WIRE IS #12 & MINIMUM SIZE CONDUIT IS 3/4" UNLESS OTHERWISE SHOWN.
  - ESSENTIAL 480V, 3Ø, 4W FEEDER CABLE FROM NEAREST A.C. SWBD RM VIA 4" FRE CONDUIT. FOR CONTINUATION SEE CONDUIT AND/OR FEEDER SCHEDULES.
  - SIZE FEEDER CABLES TO COMPENSATE FOR VOLTAGE DROP.

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
D. VANCOTT	1-97	DD-M-148	MECHANICAL SUBSTATION DWGS.	08/2001	ENGA		Revised and issued by the Authority
R. THOMAS, JR.	1-97						
U. KHAN	1-97						
R. GANERWAL	1-97						
R. GANERWAL	12-98						

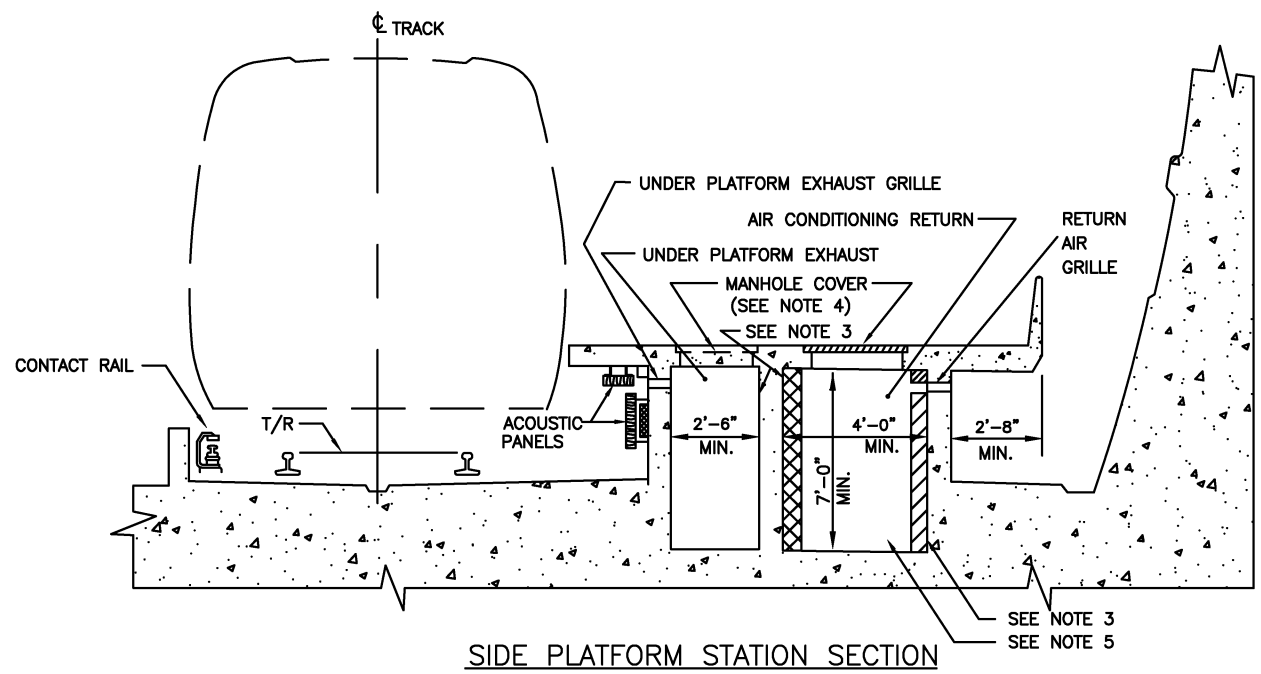
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**ELECTRICAL DESIGN DRAWINGS**  
 TRACTION POWER SUBSTATION  
 NOTES, ABBREVIATIONS AND SYMBOLS

SCALE N.T.S. DRAWING NO. DD-E-119



**NOTES:**

1. CONVENIENCE RECEPTACLES AND EMERGENCY TRIP CIRCUITS AND GROUNDING CABLES ARE INCLUDED WITH A.C. POWER CIRCUITS.
2. SYMBOLS INDICATE SPACE ALLOCATED FOR PARTICULAR CABLES AND OR DEVICES.
3. PROVIDE SURFACE MOUNTED VERTICAL CHANNELS ON 4' SPACING FOR FULL LENGTH OF PLATFORM.
4. FOR DETAILS & LOCATION OF MANHOLE COVERS SEE DD-A-3.
5. PROVIDE LIGHT IN UNDER-PLATFORM SPACE EVERY 25'-0" ON CENTERS.

**LEGEND**

- TRAIN CONTROL AND COMMUNICATIONS
- A.C. POWER

DESIGNED	J. KROLIK	1-97
		DATE
DRAWN	R. THOMAS, JR.	1-97
		DATE
CHECKED	D. VANCOTT	1-97
		DATE
APPROVED	R. GANERWAL	12-98
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
NUMBER	DATE	DESCRIPTION

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

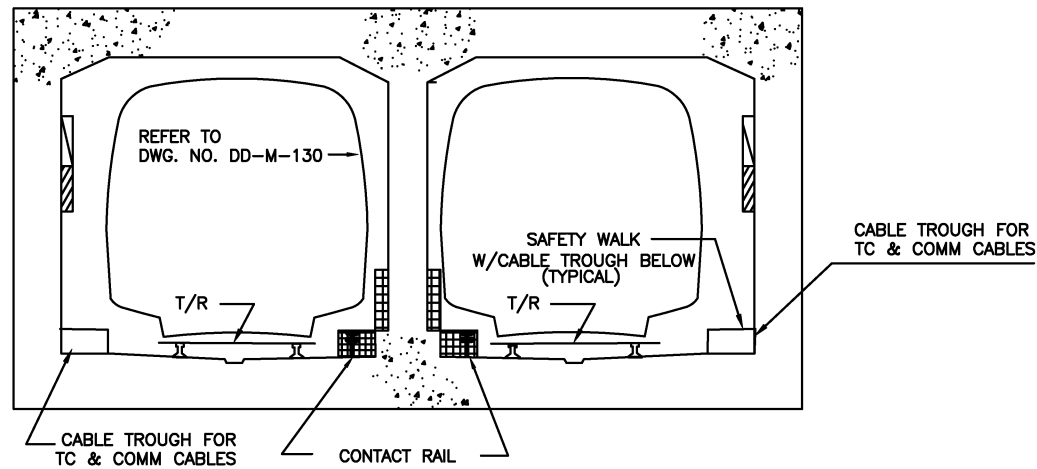
APPROVED DIRECTOR

May 3, 2001  
DATE

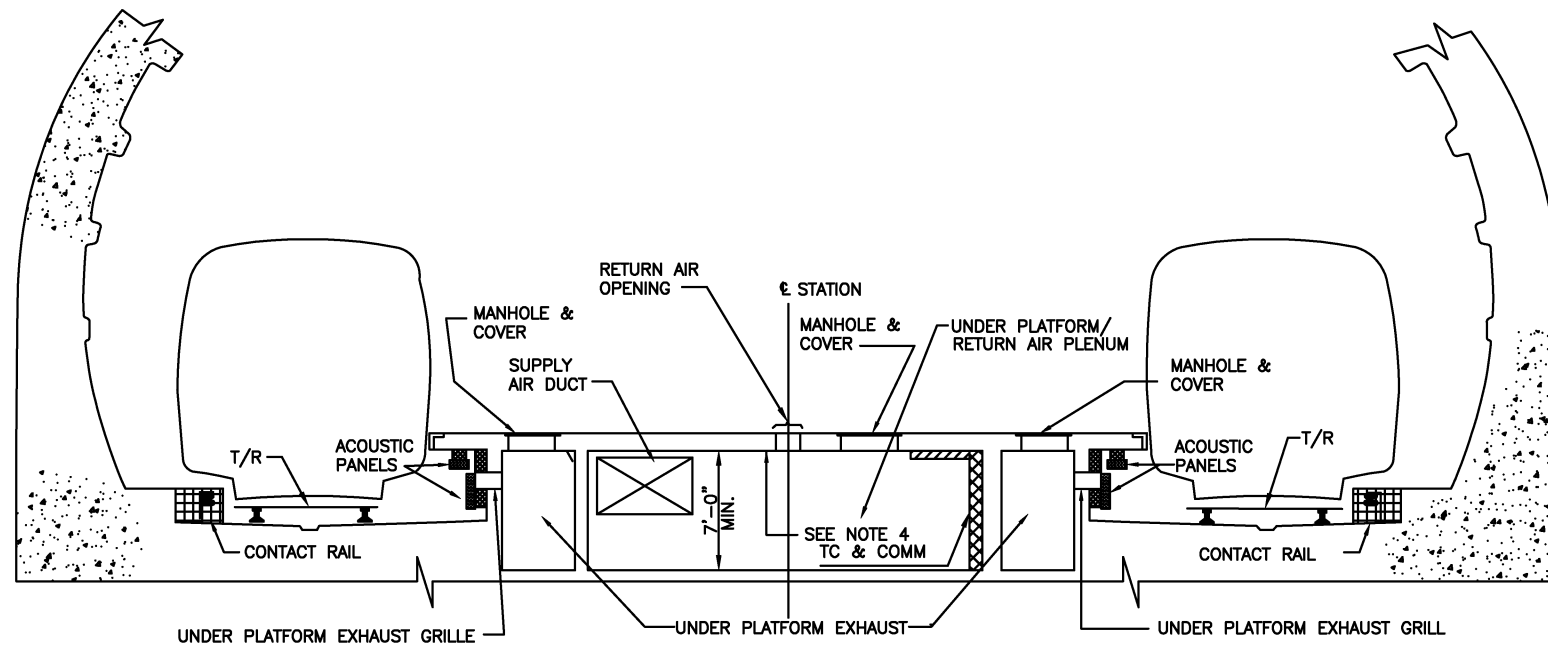
**ELECTRICAL DESIGN DRAWING**  
CABLE COORDINATION  
SIDE PLATFORM STATION SECTION

SCALE 3/8"=1'-0"

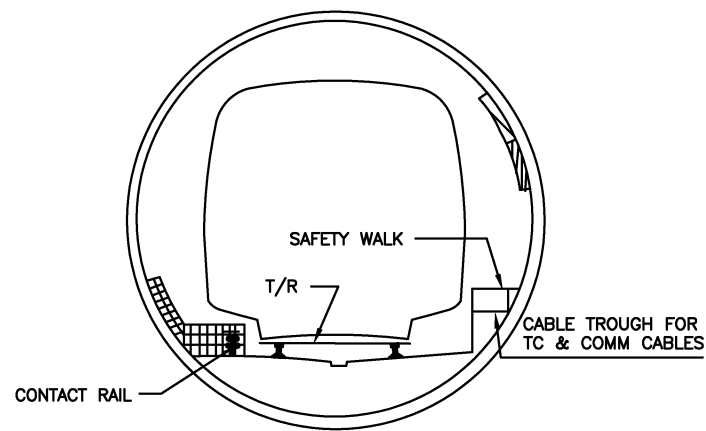
DRAWING NO. DD-E-211



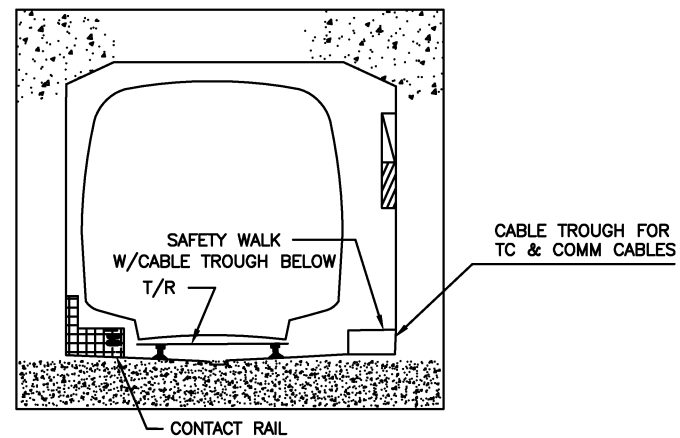
DOUBLE BOX SECTION



CENTER PLATFORM STATION SECTION



CIRCULAR TUNNEL SECTION



SINGLE BOX SECTION

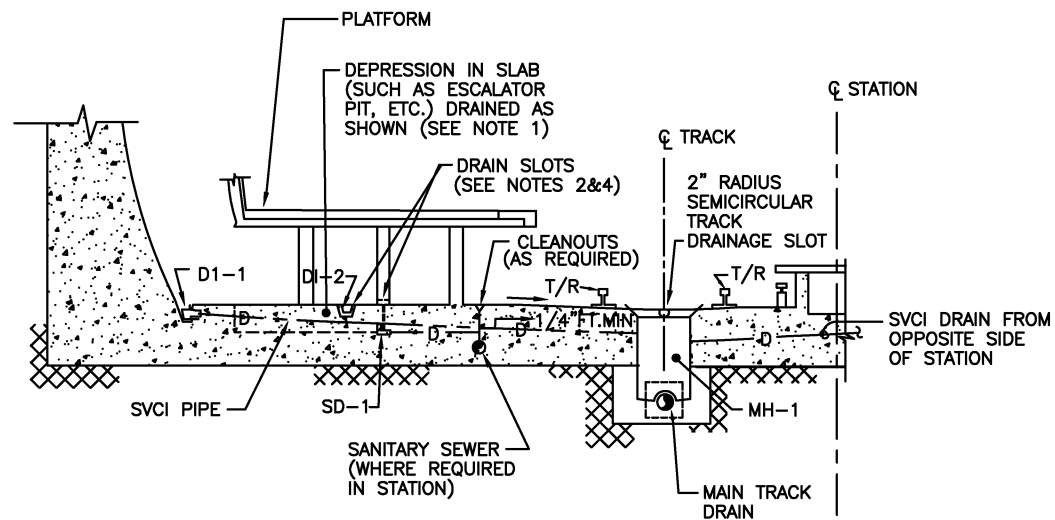
LEGEND

- TRAIN CONTROL AND COMMUNICATIONS
- A.C. POWER
- LIGHTING
- D.C. TRACTION POWER

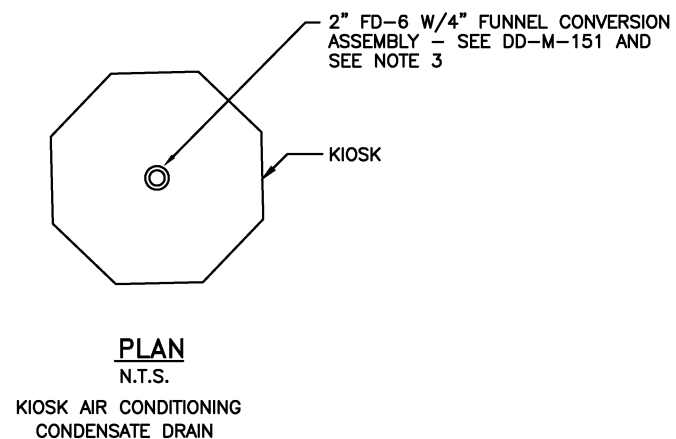
NOTES:

1. RECEPTACLE AND EMERGENCY TRIP CIRCUITS AND GROUNDING CABLES INCLUDED WITH AC POWER.
2. CABLE LOCATIONS REPRESENTED BY LEGEND
3. CHANNELS FOR INSTALLING CABLE IN STATIONS AND TUNNELS TO BE SURFACE MOUNTED ON CONCRETE.
4. PROVIDE LIGHT IN THE UNDER-PLATFORM SPACE EVERY 25'-0" ON CENTERS.

DESIGNED	E. FEAK	5-67	REFERENCE DRAWINGS				REVISIONS				WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY				ELECTRICAL DESIGN DRAWING			
		DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT				CABLE COORDINATION						
DRAWN	S. HOWARD	5-67	DD-E-026	CABLE MOUNTING REQUIREMENTS	08/2001	ENGA	Revised and issued by the Authority	OFFICE OF ENGINEERING AND ARCHITECTURE				EARTH TUNNELS AND BOX SECTIONS						
CHECKED	C. BISHOP	5-67						SUBMITTED				APPROVED						
		DATE						DATE				DIRECTOR						
APPROVED	K. KNIGHT	5-67						DATE				May 3, 2001						
UPDATED	R. GANERWAL	12-98						DATE				DATE						
												SCALE		DRAWING NO.				
												1/4"=1'-0"		DD-E-213				



**SIDE PLATFORM  
(SECTION AT MANHOLE)**

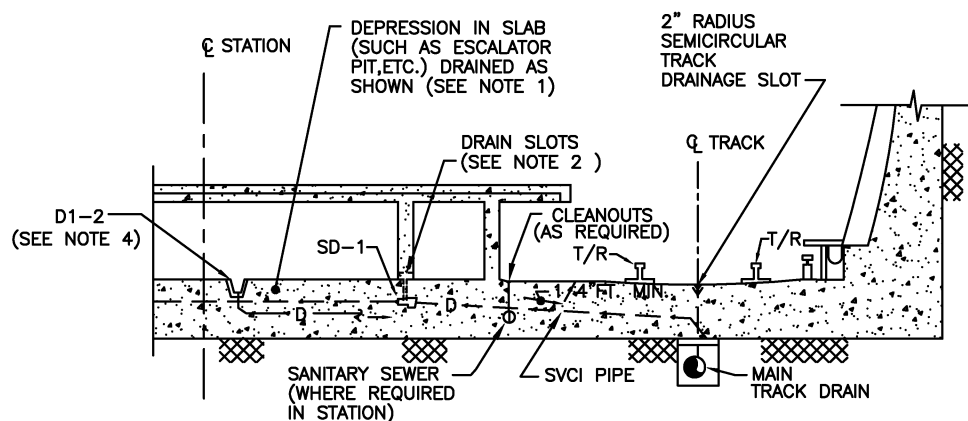


**NOTES :**

1. IF DEPRESSION IS BELOW MAIN TRACK DRAIN, SUMP PITS WITH SUMP PUMPS SHALL BE PROVIDED TO PUMP WATER TO MAIN TRACK DRAIN SYSTEM.
2. PROVIDE SLOTS THRU WALLS UNDER PLATFORM TO DRAIN TUNNELS UNDER PLATFORMS TO TRACK DRAIN.
3. PROVIDE 2" MINIMUM DRAIN CONNECTION TO NEAREST LINE TO TRACK DRAIN (OR STORM DRAIN AT GRADE.)
4. PROVIDE FLOOR DRAIN AT EVERY 100 FEET IN THE UNDER THE PLATFORM PLENUM.

**TYPICAL STATION DRAINAGE CROSS-SECTIONS IN EARTH**

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



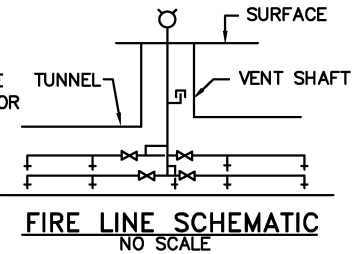
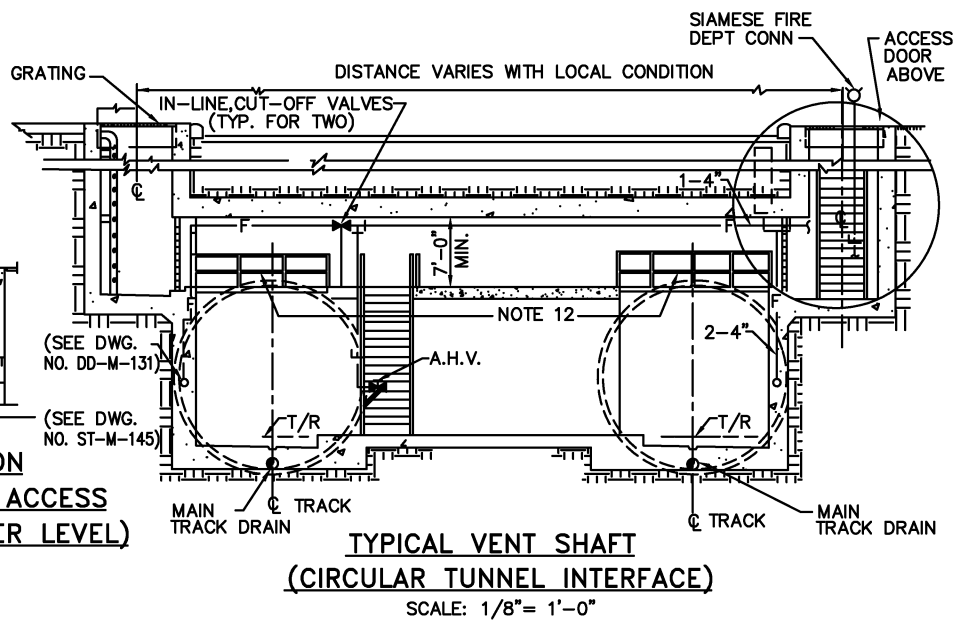
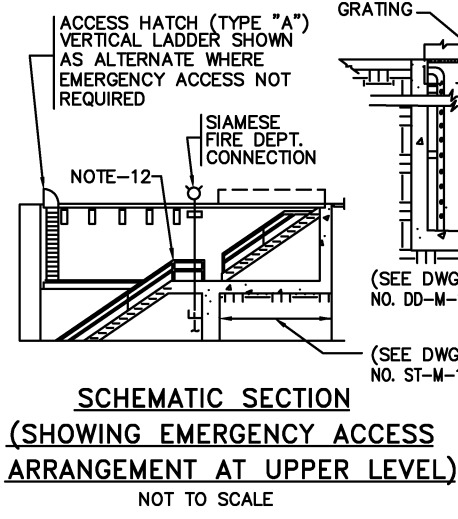
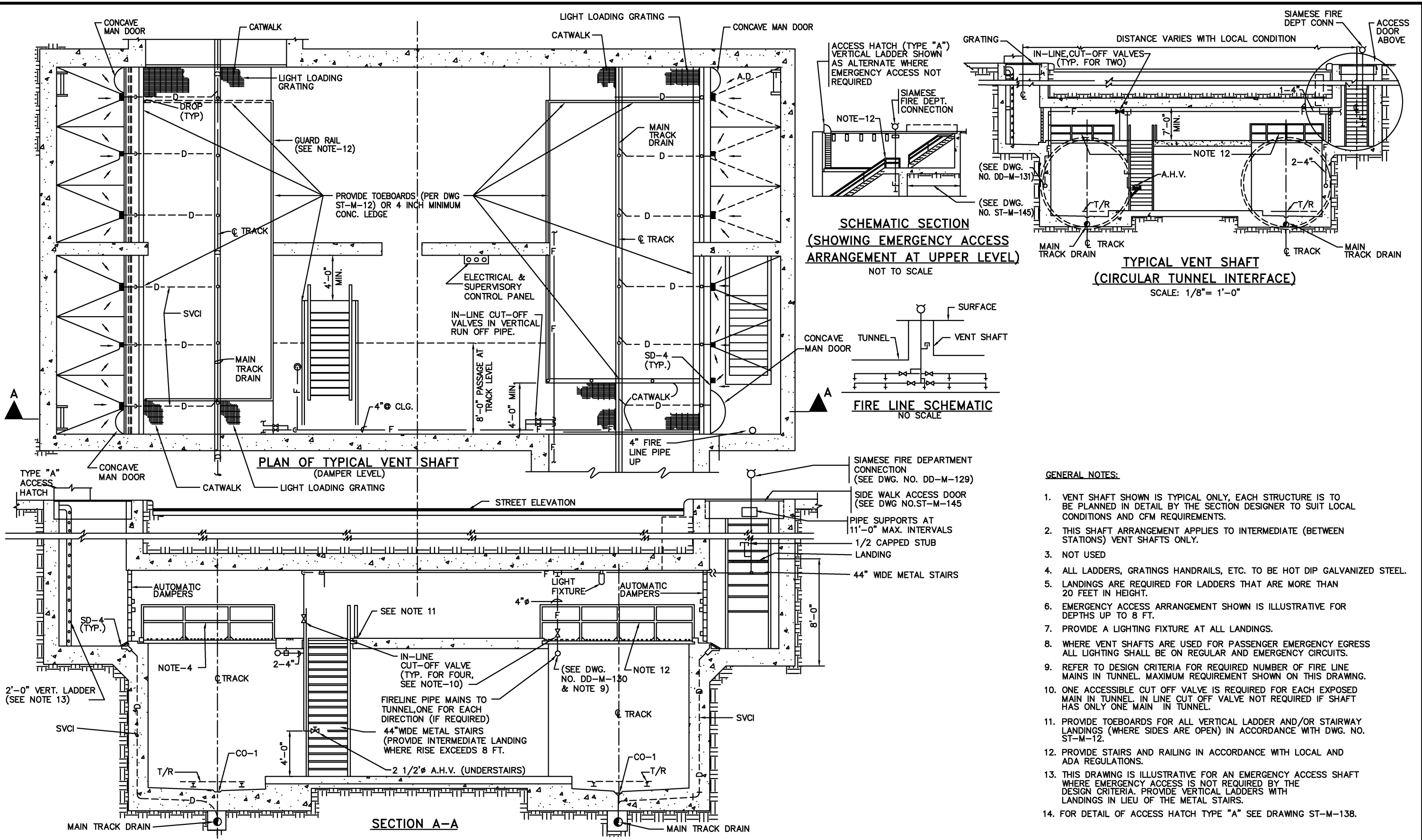
**CENTER PLATFORM  
(SECTION UPSTREAM/OR DOWNSTREAM FROM MANHOLE)**

DESIGNED		DATE		DRAWN		DATE		CHECKED		DATE		APPROVED		DATE	
P. EASLEY	4-77	L. PROCYK	4-77	D. LEWIS	4-77	T. HANSEN	7-77	ENGA	12-98						

REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DD-M-149	DRAINAGE DETAILS AND CASTINGS SHT.1	08/2001	ENGA	Revised and issued by the Authority
DD-M-150	DRAINAGE DETAILS AND CASTINGS SHT.2			
DD-M-151	DRAINAGE DETAILS AND CASTINGS SHT.3			
DD-M-152	DRAINAGE DETAILS AND CASTINGS SHT.4			

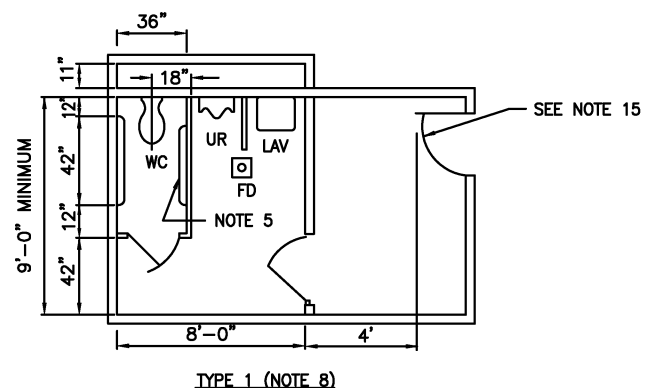
<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b>		<b>MECHANICAL DESIGN DRAWING</b>	
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE		TYPICAL STATION DRAINAGE CROSS SECTIONS	
SUBMITTED	DATE	APPROVED DIRECTOR	SCALE
		<i>[Signature]</i> May 3, 2001	AS NOTED
		DRAWING NO.	DD-M-004



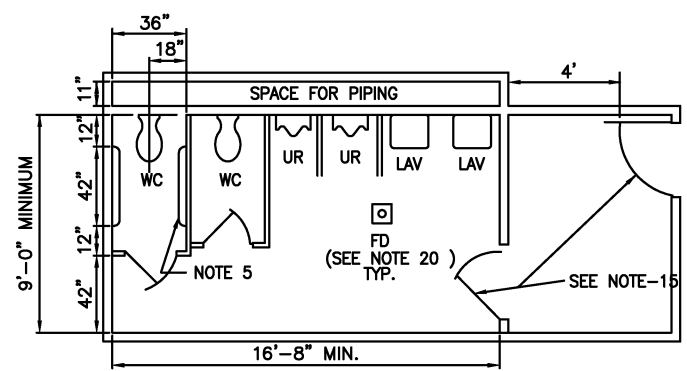
**GENERAL NOTES:**

1. VENT SHAFT SHOWN IS TYPICAL ONLY, EACH STRUCTURE IS TO BE PLANNED IN DETAIL BY THE SECTION DESIGNER TO SUIT LOCAL CONDITIONS AND CFM REQUIREMENTS.
2. THIS SHAFT ARRANGEMENT APPLIES TO INTERMEDIATE (BETWEEN STATIONS) VENT SHAFTS ONLY.
3. NOT USED
4. ALL LADDERS, GRATINGS HANDRAILS, ETC. TO BE HOT DIP GALVANIZED STEEL.
5. LANDINGS ARE REQUIRED FOR LADDERS THAT ARE MORE THAN 20 FEET IN HEIGHT.
6. EMERGENCY ACCESS ARRANGEMENT SHOWN IS ILLUSTRATIVE FOR DEPTHS UP TO 8 FT.
7. PROVIDE A LIGHTING FIXTURE AT ALL LANDINGS.
8. WHERE VENT SHAFTS ARE USED FOR PASSENGER EMERGENCY EGRESS ALL LIGHTING SHALL BE ON REGULAR AND EMERGENCY CIRCUITS.
9. REFER TO DESIGN CRITERIA FOR REQUIRED NUMBER OF FIRE LINE MAINS IN TUNNEL. MAXIMUM REQUIREMENT SHOWN ON THIS DRAWING.
10. ONE ACCESSIBLE CUT OFF VALVE IS REQUIRED FOR EACH EXPOSED MAIN IN TUNNEL. IN LINE CUT OFF VALVE NOT REQUIRED IF SHAFT HAS ONLY ONE MAIN IN TUNNEL.
11. PROVIDE TOEBOARDS FOR ALL VERTICAL LADDER AND/OR STAIRWAY LANDINGS (WHERE SIDES ARE OPEN) IN ACCORDANCE WITH DWG. NO. ST-M-12.
12. PROVIDE STAIRS AND RAILING IN ACCORDANCE WITH LOCAL AND ADA REGULATIONS.
13. THIS DRAWING IS ILLUSTRATIVE FOR AN EMERGENCY ACCESS SHAFT WHERE EMERGENCY ACCESS IS NOT REQUIRED BY THE DESIGN CRITERIA. PROVIDE VERTICAL LADDERS WITH LANDINGS IN LIEU OF THE METAL STAIRS.
14. FOR DETAIL OF ACCESS HATCH TYPE "A" SEE DRAWING ST-M-138.

DESIGNED	C.M. BISHOP	7-86	<b>REFERENCE DRAWINGS</b>		<b>REVISIONS</b>		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b>			<b>MECHANICAL DESIGN DRAWING</b>		
DATE			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	<b>DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT</b>			<b>TYPICAL INTERMEDIATE VENT SHAFT</b>	
			DD-M-039	MISCELLANEOUS METAL DETAILS	08/2001	ENGA	Revised and issued by the Authority	<b>OFFICE OF ENGINEERING AND ARCHITECTURE</b>			SCALE	DRAWING NO.
DRAWN	D.F. HERBERT	8-86	ST-M-012	STAIRS, LADDER & HANDRAILS				SUBMITTED			NONE	DD-M-008
DATE			DD-M-131	FIRE PROTECTION LINE FOR CIRCULAR TUNNEL, SECTION				APPROVED				
				AND DETAILS				DIRECTOR				
CHECKED	C.M. BISHOP	8-86	ST-M-137	FRAMES AND GRATINGS-SHT 1 OF 2				DATE			May 3, 2001	
DATE			ST-M-138	FRAMES AND GRATINGS-SHT 2 OF 2				DATE				
APPROVED	C.W. DAUGHERTY	8-86						DATE				

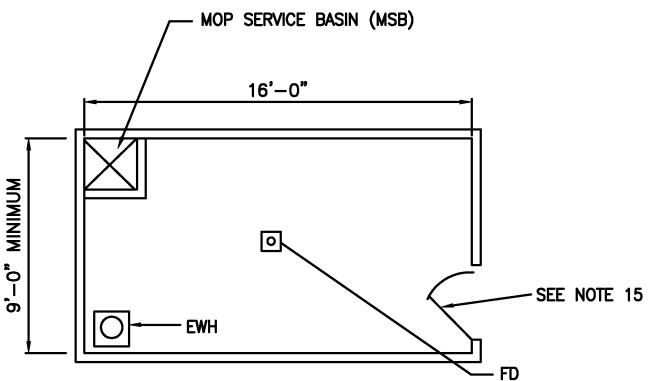


TYPE 1 (NOTE 8)

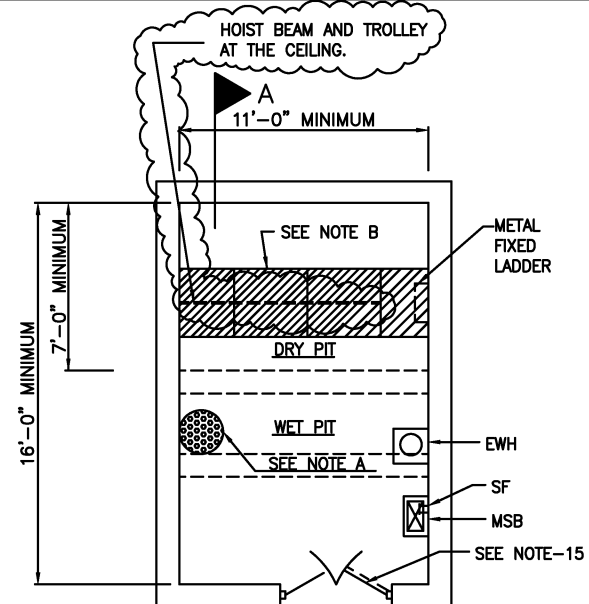


TYPE 2 (NOTE 8)

BUS DRIVER'S WASHROOMS

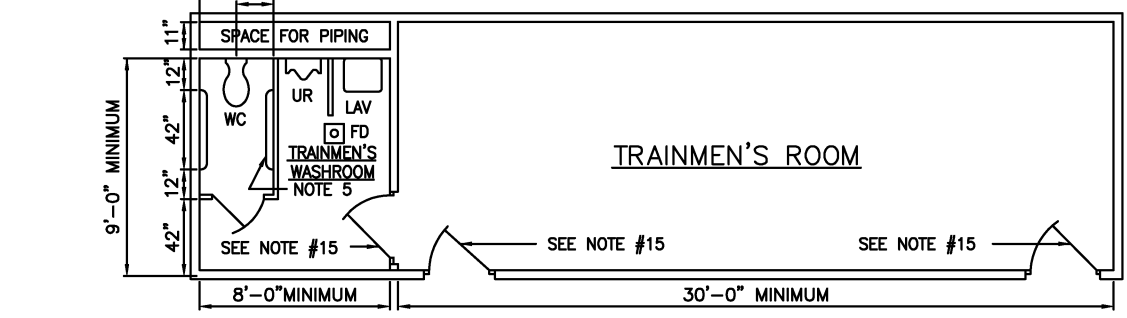


CLEANER'S ROOM

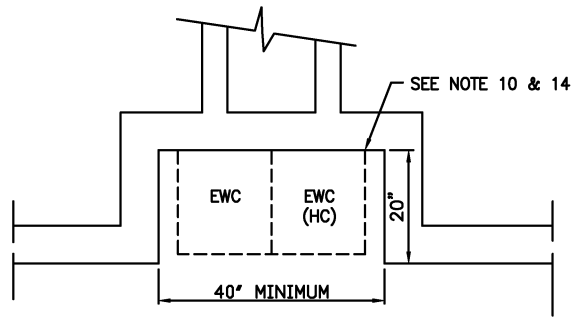


CLEANER'S ROOM W/EJECTOR

SCALE: 1/4"=1'-0"  
 NOTE A: 24"Ø GAS TIGHT MANHOLE AND STEPS.  
 NOTE B: 1 1/4" THICK STEEL GRATING SECTIONS AS REQUIRED

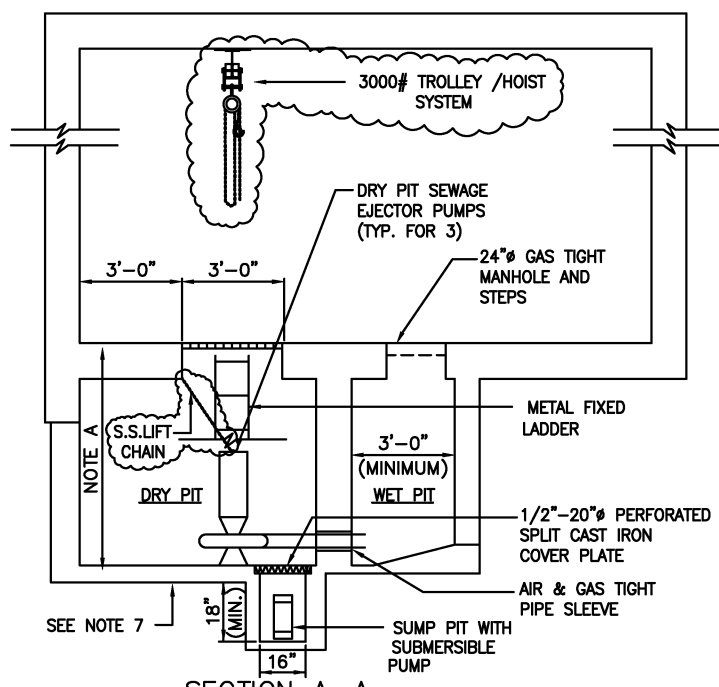


TRAINMEN'S ROOM & TRAINMEN'S WASHROOM (NOTE 8)



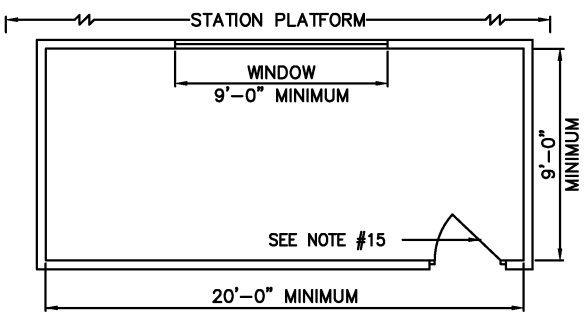
ALCOVE FOR ELECTRIC COOLER

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



SECTION A-A

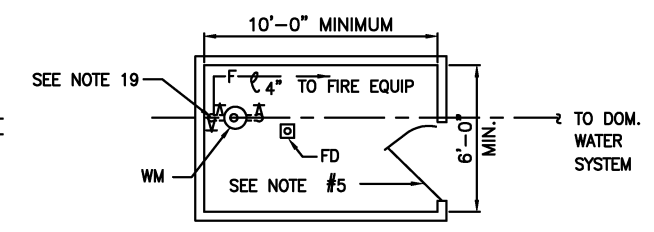
NOTE A: SCALE: 3/8"=1'-0"  
 DETERMINE SITE SPECIFIC DRY AND WET PIT DIMENSIONS ON THE BASIS OF SANITARY LINE ELEVATIONS.



DISPATCH ROOM

1' 0 1' 2' 3' 4' 5'

20. FLOOR DRAINS IN WASHROOMS SHALL HAVE TRAP PRIMER.



WATER SERVICE ROOM

FOR UNDERGROUND STATIONS ONLY  
 (SEE NOTE 9 FOR SURFACE STATIONS)

SYMBOL AND ABBREVIATIONS

WC	WATER CLOSET
UR	URINAL
LAV	LAVATORY
N.T.S	NOT TO SCALE
EWH	ELECTRIC WATER HEATER
MSB	MOP SERVICE BASIN
MIN.	MINIMUM
FD	FLOOR DRAIN
SF	SERVICE FAUCET
WM	STANDARD WATER METER (DOMESTIC) BY OTHERS.
EWC	ELECTRIC WATER COOLER
HC	HANDICAP
DOM	DOMESTIC
EQUIP.	EQUIPMENT
S.S.	STAINLESS STEEL

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

NOTES:

- LAYOUT OF ROOMS IS TYPICAL ONLY.
- ROOM SIZES ARE MINIMUM.
- DESIGNER SHALL DETAIL ROOMS TO SUIT STRUCTURES.
- MINIMUM HEAD ROOM IS 8'-0".
- WATER CLOSET ENCLOSURES SHALL BE 5'-6"x3'-0" MINIMUM EXCEPT WHERE OTHERWISE NOTED. ENCLOSURE DOORS SHALL BE 2'-8" MINIMUM EXCEPT WHERE OTHERWISE NOTED.
- ALL PLUMBING FIXTURES SHALL BE WALL HUNG.
- FLOOR OF DRY PIT TO SUMP SHALL BE SLOPE AT 1/8" PER FOOT.
- ALL WASH ROOMS ARE SHOWN WITH MINIMUM NUMBER OF FIXTURES AND SHALL BE INCREASED ACCORDING TO OPERATIONAL REQUIREMENTS AND LATEST ADA STANDARDS.
- SURFACE STATION FIRE PROTECTION SYSTEM SHALL NOT INTERCONNECT WITH WATER SERVICE. SEE DWG. DD-M-124.
- WALL MOUNTED HAND OPERATED ELECTRIC WATER COOLERS SHALL BE PROVIDED FOR HANDICAPPED AND NON-HANDICAPPED PERSONNEL AND IN ACCORDANCE WITH LATEST ADA STANDARDS.
- ALL PLUMBING FIXTURES PROVIDED FOR HANDICAPPED PERSONNEL SHALL HAVE CLEARANCE FROM FLOOR LEVEL IN ACCORDANCE WITH LATEST ADA STANDARDS.
- ALL EXPOSED HOT WATER AND DRAIN PIPES SHALL BE INSULATED OR PROTECTED AGAINST PERSONNEL CONTACT.
- ALL DOORS TO ACCESSIBLE TOILET ROOMS SHALL NOT SWING INTO THE CLEAR FLOOR SPACE REQUIRED FOR ANY FIXTURES AND COMPLY WITH LATEST ADA STANDARDS.
- SEE DD-A-U-17 FOR TYPICAL MEN'S AND WOMEN BATHROOM AND LOCATION OF ELECTRICAL WATER COOLER.
- REFER TO DD-A-SC-8 FOR DOOR TYPE AND SIZES.
- DESIGNER SHALL REVIEW ACCESS REQUIREMENT TO PLUMBING FIXTURE AND PIPING SYSTEM AND PROVIDE ACCESS DOORS AS REQUIRED.
- ALL PLUMBING FIXTURES AND PIPING ACCESSORIES SHALL BE PROVIDED WITH ACCESS DOOR WHERE EVER REQUIRED FOR MAINTENANCE.
- SUBMERSIBLE PUMP SHALL DISCHARGE INTO WET PIT.
- REFER TO SCHEMATIC ARRANGEMENT OF FIRE AND DOMESTIC WATER LINE DIAGRAM ON DWG. DD-M-146.

DD-E-212	SERVICE ROOM SCHEDULE
ST-M-012	STAIRS, LADDERS AND HANDRAILS

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION
ST-M-001	DRAINAGE DETAILS AND CASTINGS
ST-M-011	SERVICE DETAILS
DD-M-041	TYPICAL STATION FIRE PROTECTION SYSTEMS (UG)
DD-M-124	TYPICAL DRY STAND PIPES FOR SURFACE STATION
DD-A-SC-008	DOOR SCHEDULE, ELEVATION & DETAILS
DD-A-U-017	CART STORAGE & ANCILLARY ROOMS
DD-M-155	PLUMBING & FIRE PROTECTION SYMBOLS

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority
9/2000	SYSP	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

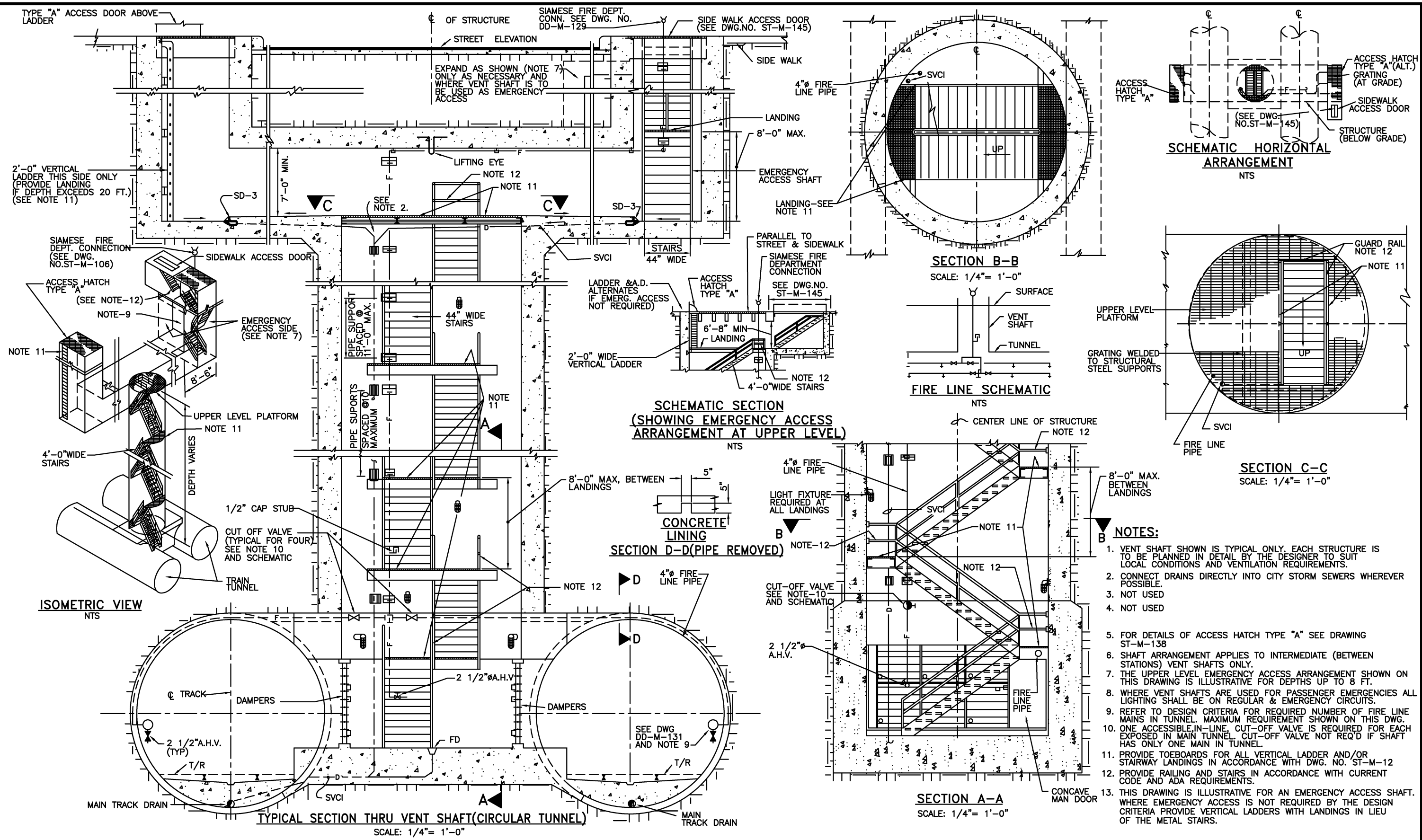
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *Harry J. [Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

MECHANICAL DESIGN DRAWING  
 TYPICAL MECHANICAL SERVICE ROOMS

SCALE 1/4"=1'-0" AND AS NOTED DRAWING NO. DD-M-010





- NOTES:**
1. VENT SHAFT SHOWN IS TYPICAL ONLY. EACH STRUCTURE IS TO BE PLANNED IN DETAIL BY THE DESIGNER TO SUIT LOCAL CONDITIONS AND VENTILATION REQUIREMENTS.
  2. CONNECT DRAINS DIRECTLY INTO CITY STORM SEWERS WHEREVER POSSIBLE.
  3. NOT USED
  4. NOT USED
  5. FOR DETAILS OF ACCESS HATCH TYPE "A" SEE DRAWING ST-M-138
  6. SHAFT ARRANGEMENT APPLIES TO INTERMEDIATE (BETWEEN STATIONS) VENT SHAFTS ONLY.
  7. THE UPPER LEVEL EMERGENCY ACCESS ARRANGEMENT SHOWN ON THIS DRAWING IS ILLUSTRATIVE FOR DEPTHS UP TO 8 FT.
  8. WHERE VENT SHAFTS ARE USED FOR PASSENGER EMERGENCIES ALL LIGHTING SHALL BE ON REGULAR & EMERGENCY CIRCUITS.
  9. REFER TO DESIGN CRITERIA FOR REQUIRED NUMBER OF FIRE LINE MAINS IN TUNNEL. MAXIMUM REQUIREMENT SHOWN ON THIS DWG.
  10. ONE ACCESSIBLE, IN-LINE, CUT-OFF VALVE IS REQUIRED FOR EACH EXPOSED IN MAIN TUNNEL. CUT-OFF VALVE NOT REQ'D IF SHAFT HAS ONLY ONE MAIN IN TUNNEL.
  11. PROVIDE TOEBOARDS FOR ALL VERTICAL LADDER AND/OR STAIRWAY LANDINGS IN ACCORDANCE WITH DWG. NO. ST-M-12
  12. PROVIDE RAILING AND STAIRS IN ACCORDANCE WITH CURRENT CODE AND ADA REQUIREMENTS.
  13. THIS DRAWING IS ILLUSTRATIVE FOR AN EMERGENCY ACCESS SHAFT. WHERE EMERGENCY ACCESS IS NOT REQUIRED BY THE DESIGN CRITERIA PROVIDE VERTICAL LADDERS WITH LANDINGS IN LIEU OF THE METAL STAIRS.

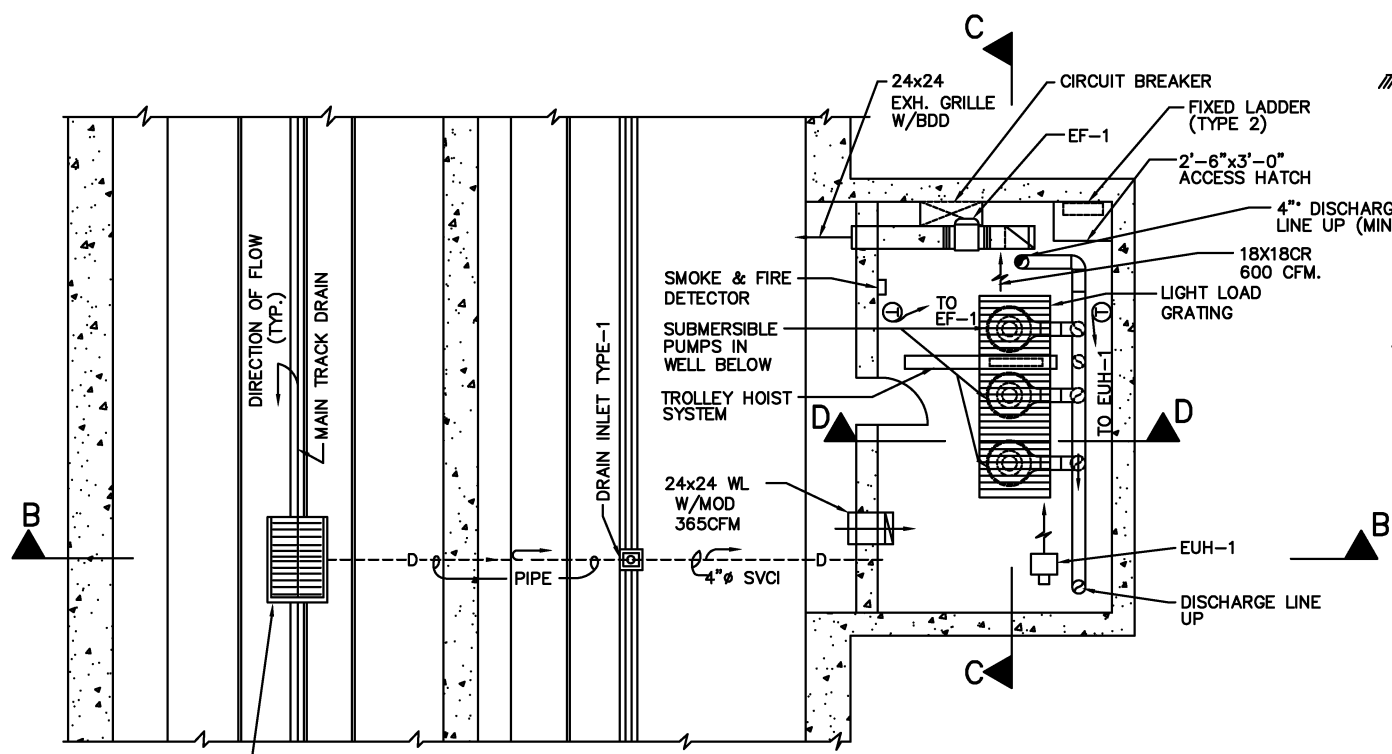
REFERENCE DRAWINGS			REVISONS			
DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
C.M. BISHOP	12-88	DD-M-039	MISCELLANEOUS METAL DETAIL	08/2001	ENGA	Revised and issued by the Authority
P.E. EASLEY	12-88	ST-M-012	STAIRS, LADDERS & HANDRAILS			
I.M. SOLOMON	11-87	ST-M-137&138	FRAMES AND GRATINGS			
C.W. DAUGHERTY	11-87	DD-M-008	TYP. INTERMEDIATE VENT SHAFT IN EARTH TYPE-1			
		DD-M-024	TYP. INTERMEDIATE VENT SHAFT IN EARTH TYPE-2			
		DD-M-129	ABOVE-GRADE SIAMESE FIRE DEPARTMENT CONNECTION			

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

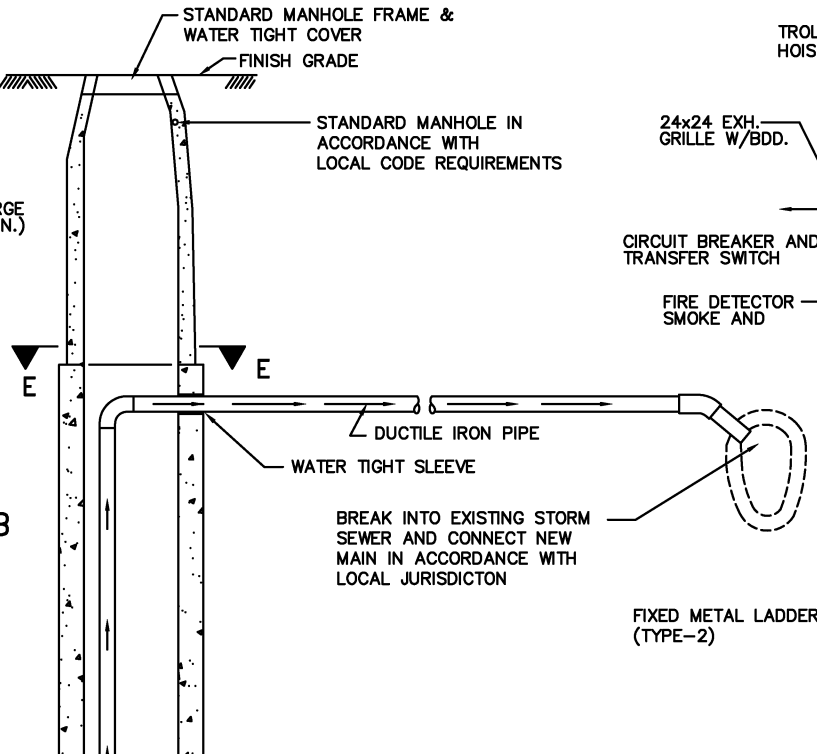
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

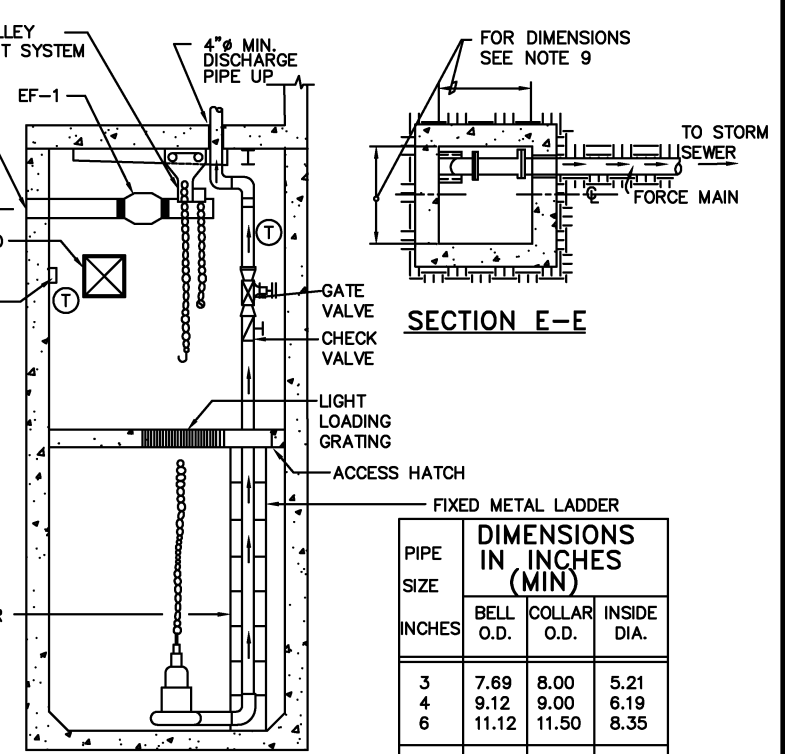
<b>MECHANICAL DESIGN DRAWING</b>		<b>TYPICAL INTERMEDIATE VENT SHAFT</b>		<b>IN EARTH-TYPE 3</b>	
SCALE	AS SHOWN	DRAWING NO.	DD-M-015		



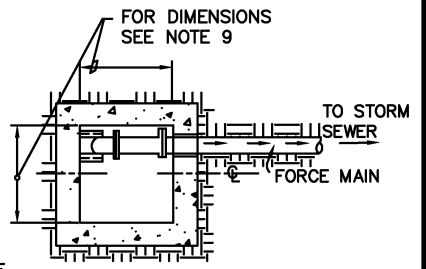
**SECTION A-A**  
(PLAN AT TRACK AND FLOOR LEVEL)



**SECTION B-B**



**SECTION C-C**

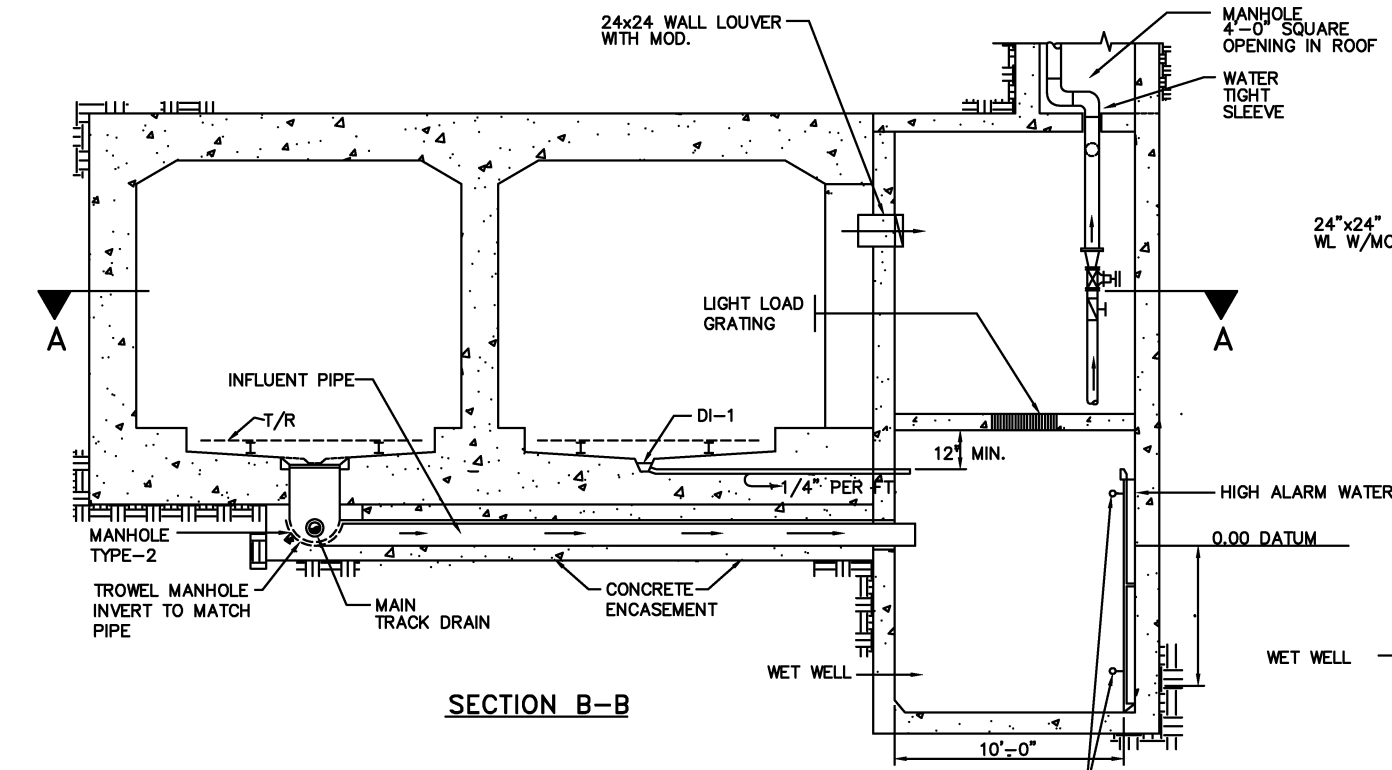


**SECTION D-D**

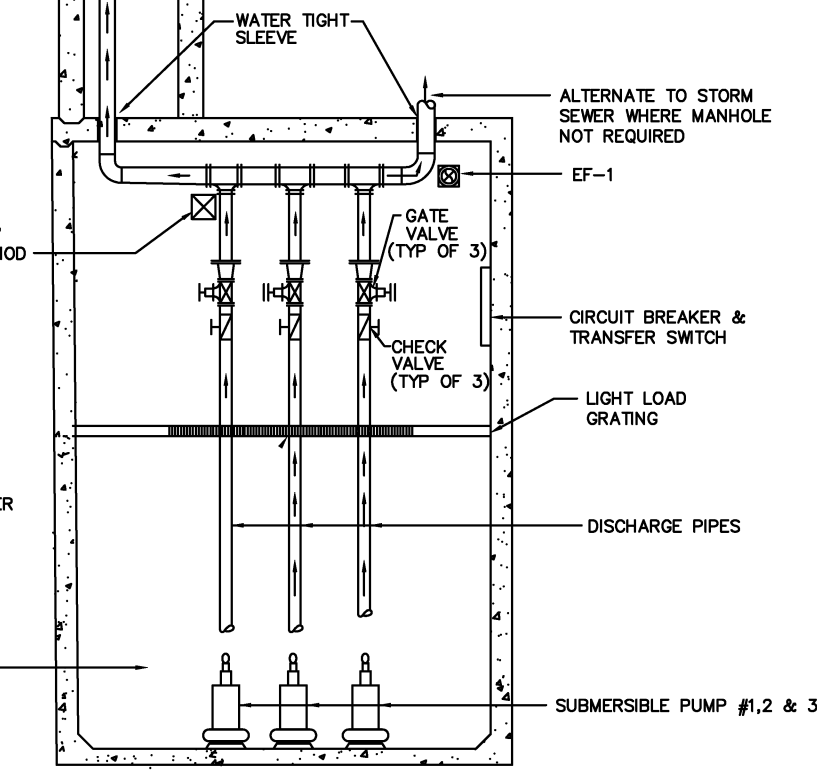
**SECTION E-E**

PIPE SIZE INCHES	DIMENSIONS IN INCHES (MIN)		
	BELL O.D.	COLLAR O.D.	INSIDE DIA.
3	7.69	8.00	5.21
4	9.12	9.00	6.19
6	11.12	11.50	8.35
8	13.37	13.50	10.60
10	15.62	16.00	12.81
12	17.88	18.00	15.05

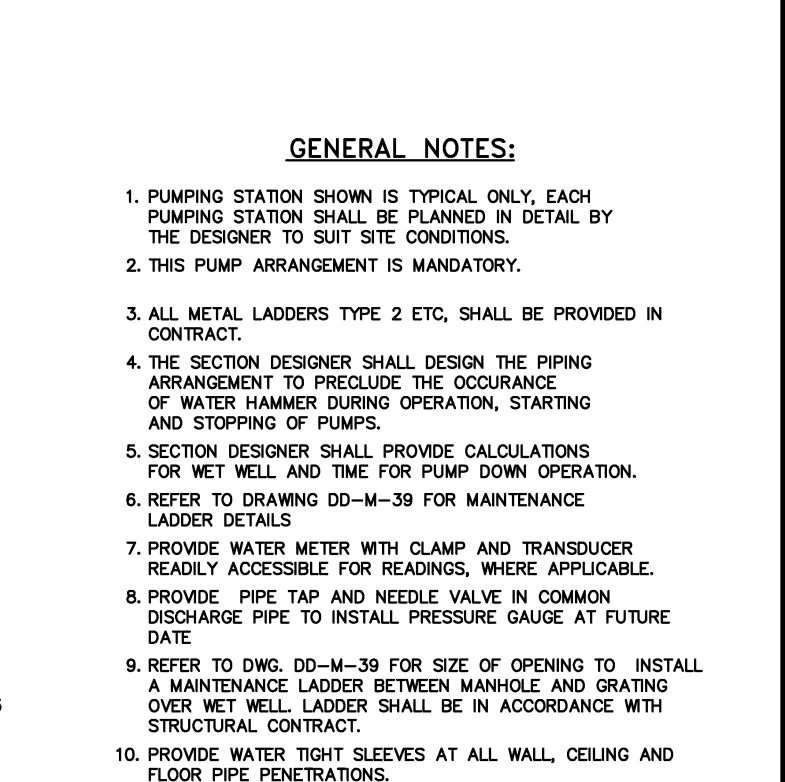
**MECHANICAL JOINT ADAPTER SLEEVE DIMENSIONS**



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**

**GENERAL NOTES:**

- PUMPING STATION SHOWN IS TYPICAL ONLY, EACH PUMPING STATION SHALL BE PLANNED IN DETAIL BY THE DESIGNER TO SUIT SITE CONDITIONS.
- THIS PUMP ARRANGEMENT IS MANDATORY.
- ALL METAL LADDERS TYPE 2 ETC, SHALL BE PROVIDED IN CONTRACT.
- THE SECTION DESIGNER SHALL DESIGN THE PIPING ARRANGEMENT TO PRECLUDE THE OCCURANCE OF WATER HAMMER DURING OPERATION, STARTING AND STOPPING OF PUMPS.
- SECTION DESIGNER SHALL PROVIDE CALCULATIONS FOR WET WELL AND TIME FOR PUMP DOWN OPERATION.
- REFER TO DRAWING DD-M-39 FOR MAINTENANCE LADDER DETAILS
- PROVIDE WATER METER WITH CLAMP AND TRANSDUCER READILY ACCESSIBLE FOR READINGS, WHERE APPLICABLE.
- PROVIDE PIPE TAP AND NEEDLE VALVE IN COMMON DISCHARGE PIPE TO INSTALL PRESSURE GAUGE AT FUTURE DATE
- REFER TO DWG. DD-M-39 FOR SIZE OF OPENING TO INSTALL A MAINTENANCE LADDER BETWEEN MANHOLE AND GRATING OVER WET WELL. LADDER SHALL BE IN ACCORDANCE WITH STRUCTURAL CONTRACT.
- PROVIDE WATER TIGHT SLEEVES AT ALL WALL, CEILING AND FLOOR PIPE PENETRATIONS.
- THIRD PUMP SHALL BE MANUAL OPERATION.

DESIGNED			DATE			NUMBER			DESCRIPTION			DATE			BY			DESCRIPTION		
C.M. BISHOP	4-87	ST-M-012	STAIRS, LADDERS AND HANDRAILS	08/2001	ENGA	Revised and issued by the Authority														
P.E. EASLEY	4-87	DD-M-150	DRAINAGE DETAILS & CASTINGS SHEET-2																	
C. M. BISHOP	4-87																			
C.W. DAUGHERTY	5-87																			
ENGA	12-88																			

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

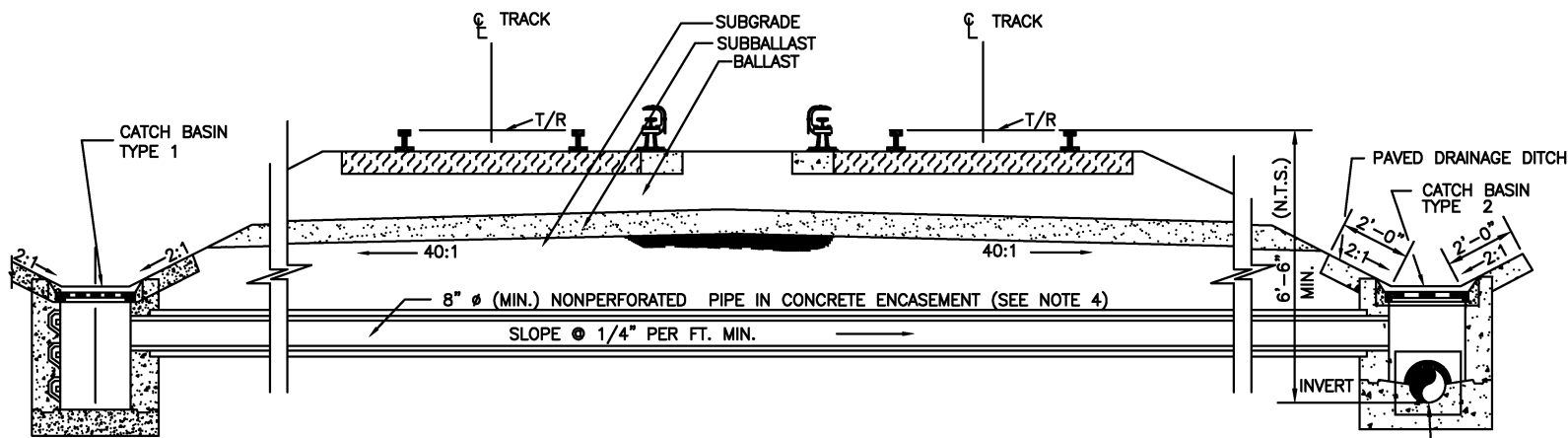
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

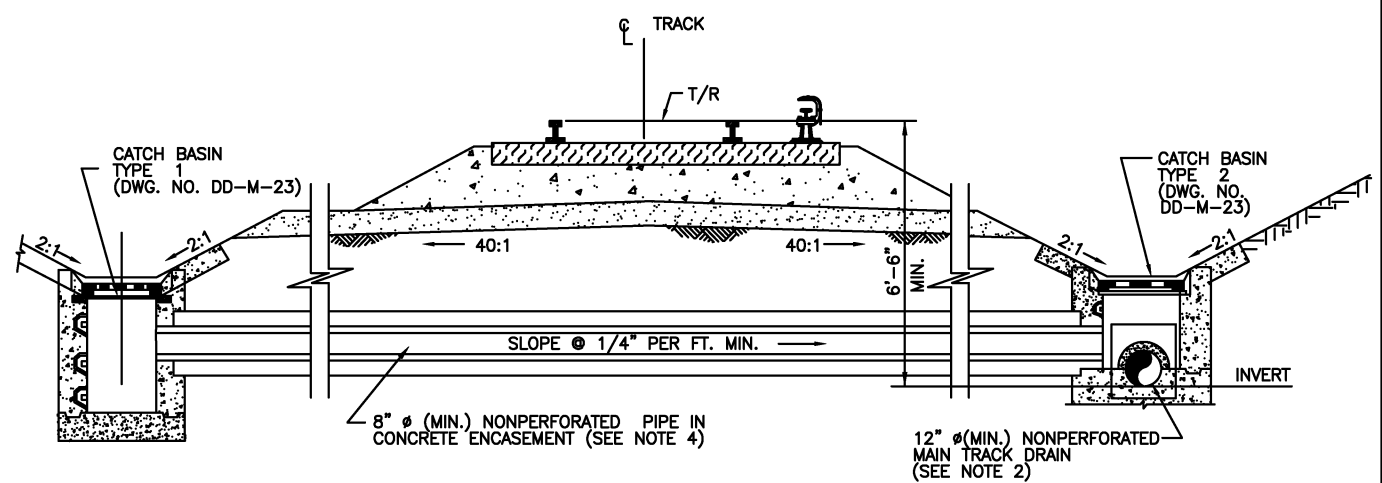
**MECHANICAL DESIGN DRAWING**

TYPICAL DRAINAGE  
PUMPING STATION

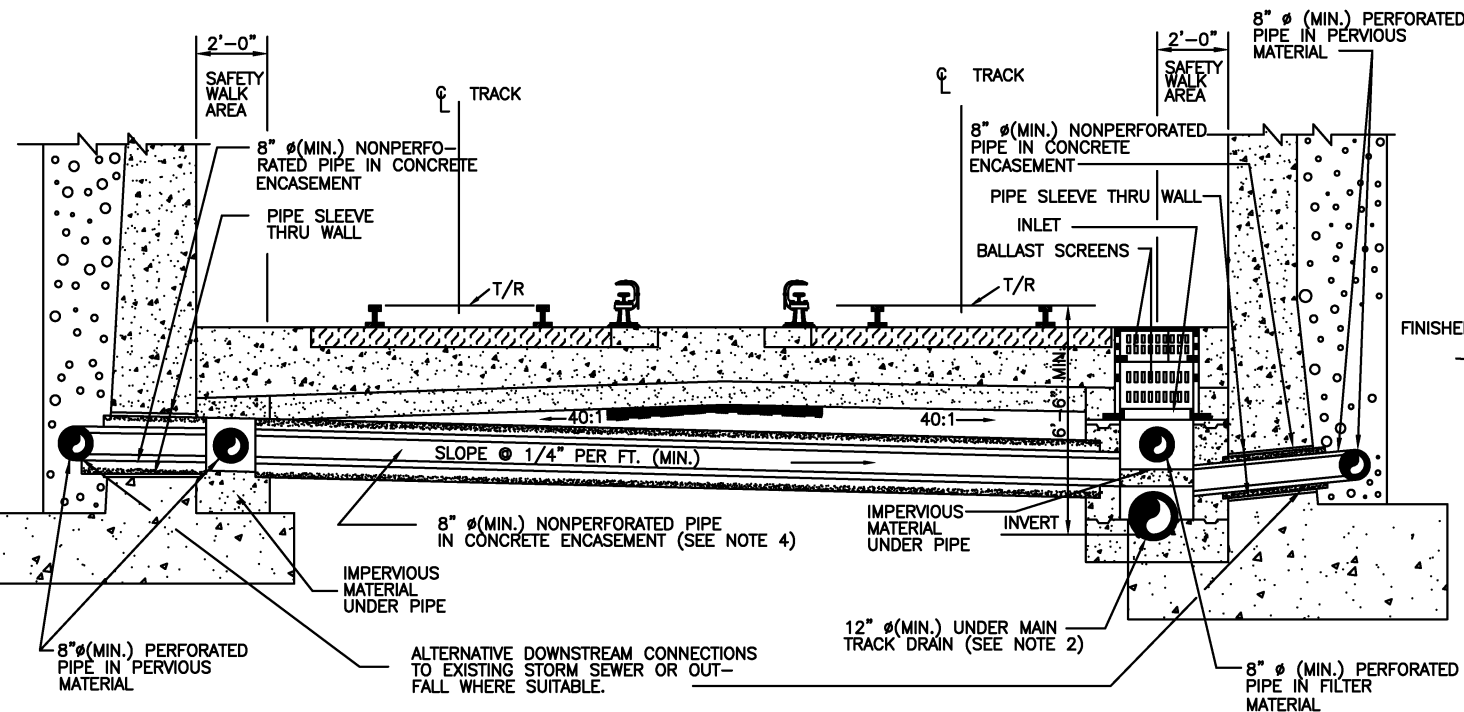
SCALE 1/4"=1'-0" DRAWING NO. DD-M-017



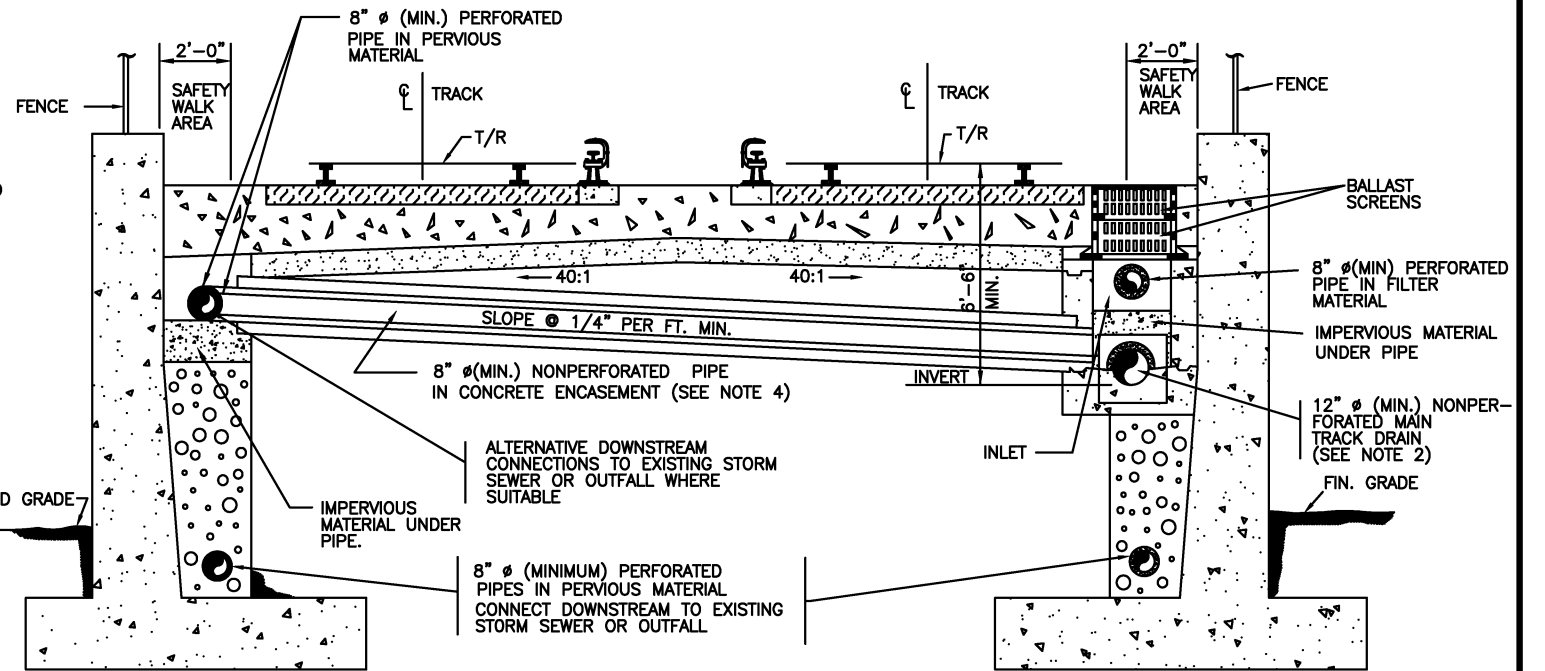
TYPICAL DOUBLE TRACK CROSS-SECTION  
(TANGENT TRACK)  
(METRO ON EXCLUSIVE RIGHT-OF-WAY)



TYPICAL SINGLE TRACK CROSS-SECTION  
(TANGENT TRACK)  
(METRO ON EXCLUSIVE RIGHT-OF-WAY)



TYPICAL DOUBLE TRACK CROSS-SECTION  
(TANGENT TRACK IN RETAINED CUT)



TYPICAL DOUBLE TRACK CROSS-SECTION  
(TANGENT TRACK IN RETAINED FILL)

GENERAL NOTES

1. DRAINAGE CROSS SECTIONS SHOWN ARE TYPICAL ONLY, EACH SECTION SHALL BE DESIGNED IN DETAIL AND COORDINATED WITH ELECTRICAL, UTILITIES, RIGHT-OF-WAY, ETC., BY THE SECTION DESIGNER TO SUIT LOCAL CONDITIONS.
2. MAIN TRACK DRAIN CONTINUES DOWNSTREAM TO PUMPING STATION OR EXISTING STORM SEWER.
3. MANHOLE OR CATCH BASIN MAY BE LOCATED ON EITHER OR BOTH SIDES (BUT NOT BETWEEN RAILS) DEPENDING UPON LOCAL CONDITIONS.
4. CROSS DRAINS TO BE PLACED AT LOW POINTS AND AT APPROPRIATE INTERVALS.

DESIGNED		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
7-87	C.M. BISHOP				
DD-M-023	DRAINAGE DETAILS & CASTINGS AT GRADE CONSTRUCTION	08/2001	ENGA	Revised and issued by the Authority	
7-87	P.E. EASLEY				
7-87	C.M. BISHOP				
7-87	C.W. DAUGHERTY				
12-88	J. BUMANIS				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

APPROVED

DIRECTOR

May 3, 2001

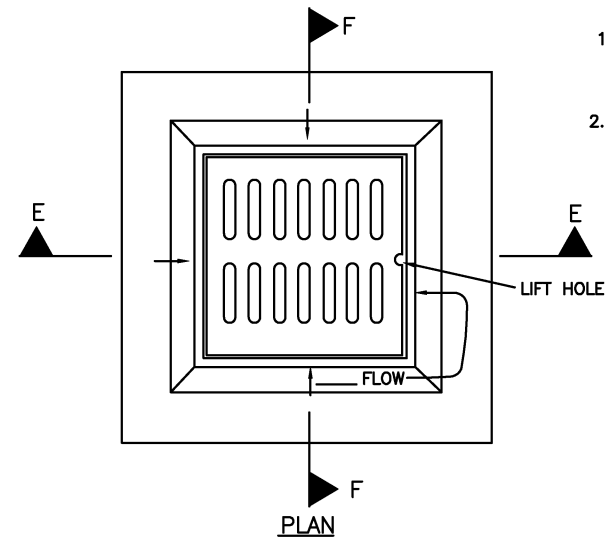
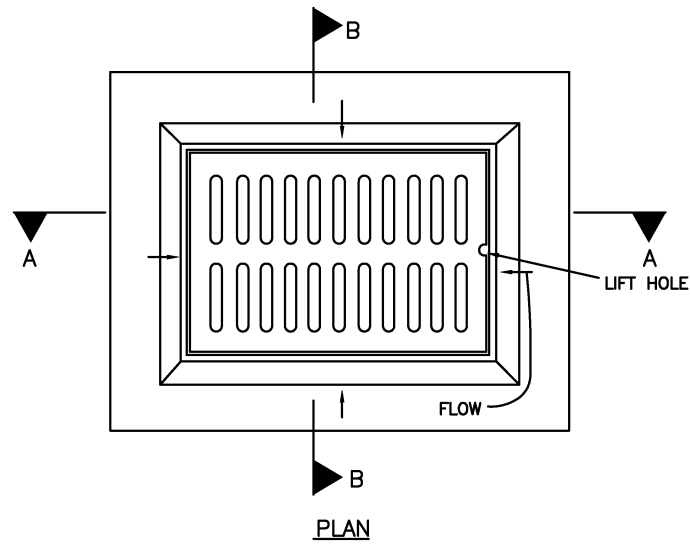
DATE

MECHANICAL DESIGN DRAWING  
TYPICAL DRAINAGE CROSS SECTIONS  
AT-GRADE CONSTRUCTION

SCALE 3/8" = 1'-0"

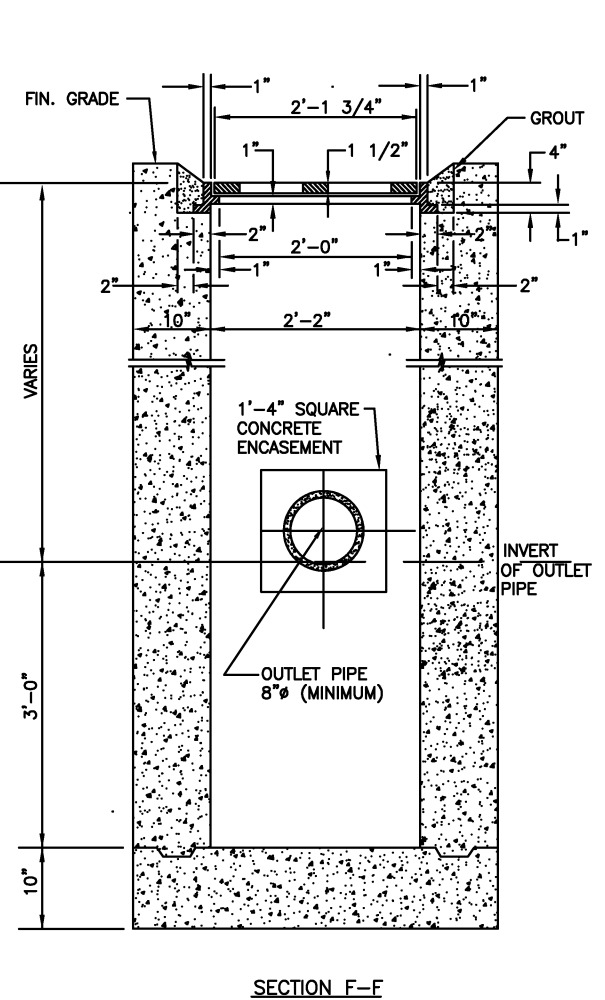
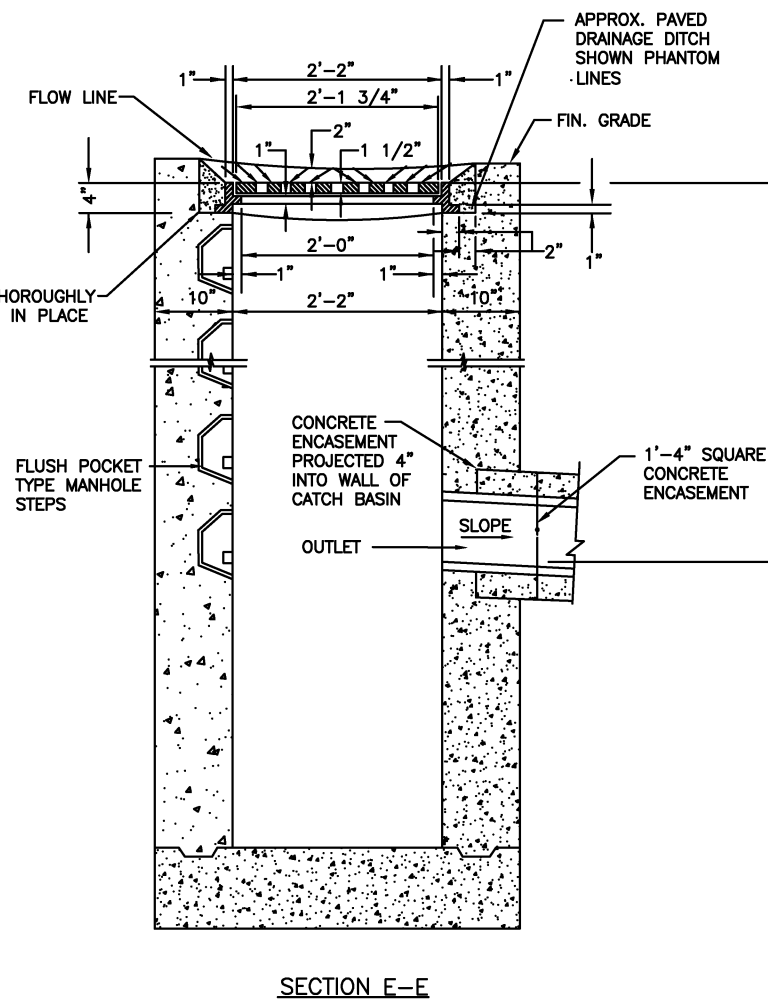
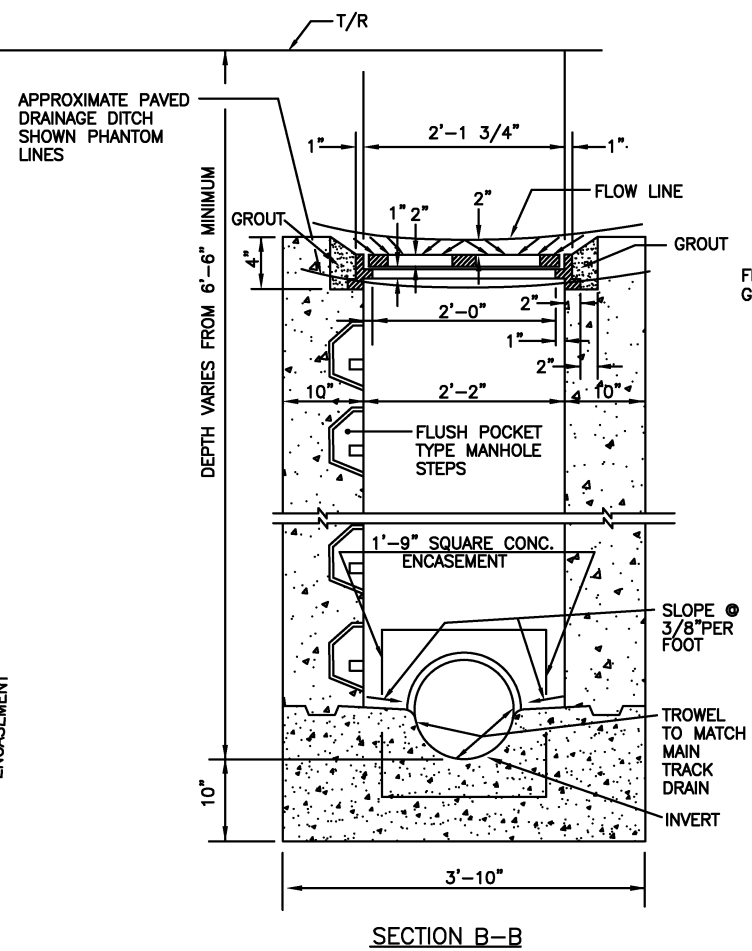
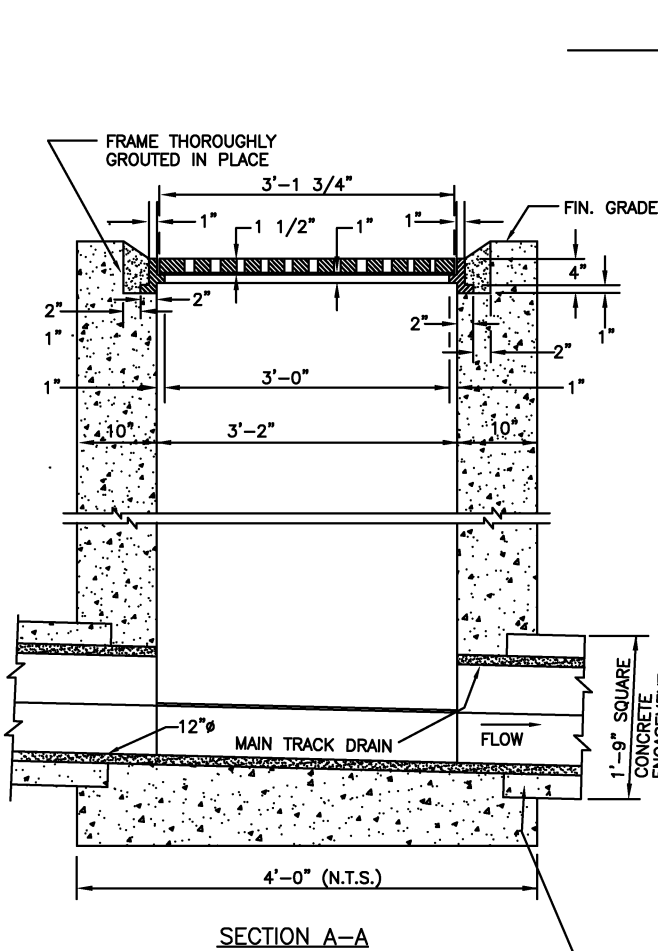
DRAWING NO.

DD-M-021



**GENERAL NOTES**

1. STRUCTURAL DIMENSIONS OF CASTINGS ARE SUGGESTED ONLY. SECTION DESIGNER MAY SUBMIT ALTERNATIVE DIMENSIONS FOR APPROVAL.
2. CONCRETE DIMENSIONS SHOWN ARE MINIMUM. REFER TO STRUCTURAL DRAWINGS FOR REINFORCING REQUIREMENTS.



**DETAIL OF CATCH BASIN - TYPE 2**

PROVIDE MANHOLES-TYPE 2 AT MAXIMUM 350 FOOT CENTERS IN TRACK SECTIONS AT-GRADE AND AT MAXIMUM 120 FOOT CENTERS IN STATION SECTIONS AT-GRADE. WEIGHT OF GRATE AND FRAME: 325 POUNDS

**DETAIL OF CATCH BASIN - TYPE 1**

PROVIDE CATCH BASINS-TYPE 1 AS SHOWN "TYPICAL DRAINAGE CROSS-SECTIONS-AT GRADE" AND WHERE REQUIRED BY LOCAL CONDITIONS WEIGHT OF GRATE AND FRAME: 225 POUNDS

REFERENCE DRAWINGS			REVISIONS		
DESIGNED	DATE	DESCRIPTION	DATE	BY	DESCRIPTION
C.M. BISHOP	7-67	DD-M-021 TYPICAL DRAINAGE CROSS SECTIONS AT-GRADE CONSTRUCTION	08/2001	ENGA	Revised and issued by the Authority
P.E. EASLEY	7-67	DD-M-149 DRAINAGE DETAILS AND CASTINGS SHT.1			
C.M. BISHOP	7-67	DD-M-150 DRAINAGE DETAILS AND CASTINGS SHT.2			
C.W. DAUGHERTY	7-67				
J. BUMANIS	12-98				

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

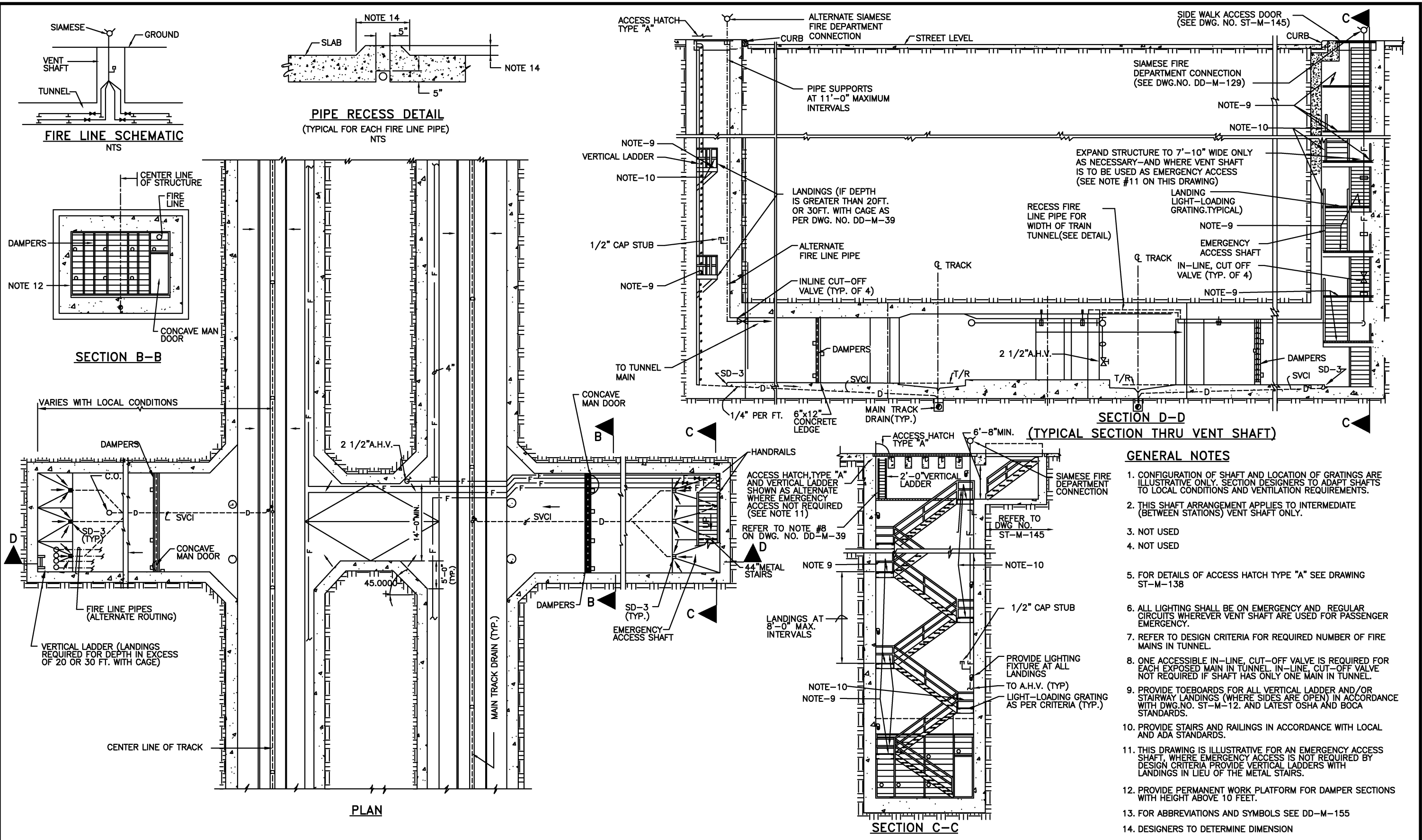
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**MECHANICAL DESIGN DRAWING**  
DRAINAGE DETAILS AND CASTINGS  
AT-GRADE CONSTRUCTION

SCALE 1"=1'-0"  
0 3" 6" 9" 1'-0" 1'-6"

DRAWING NO. DD-M-023



DESIGNED			DATE			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	
8-67	C.M. BISHOP	8-67									
ST-M-138	FRAMES AND GRATINGS - SHT 2 OF 2	08/2001	ENGA	Revised and issued by the Authority							
ST-M-012	STAIRS, LADDERS AND HANDRAILS										
DD-M-039	MISCELLANEOUS METAL DETAILS										
DD-M-137	TYPICAL VENT SHAFT DAMPER INSTALLATION										
	DETAILS										
ST-M-137	FRAMES & GRATINGS - SHEET 1 OF 2										

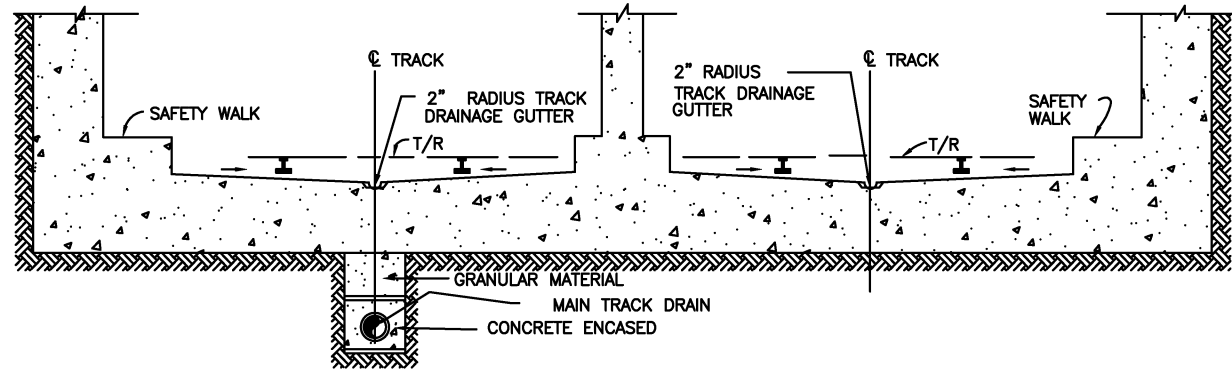
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

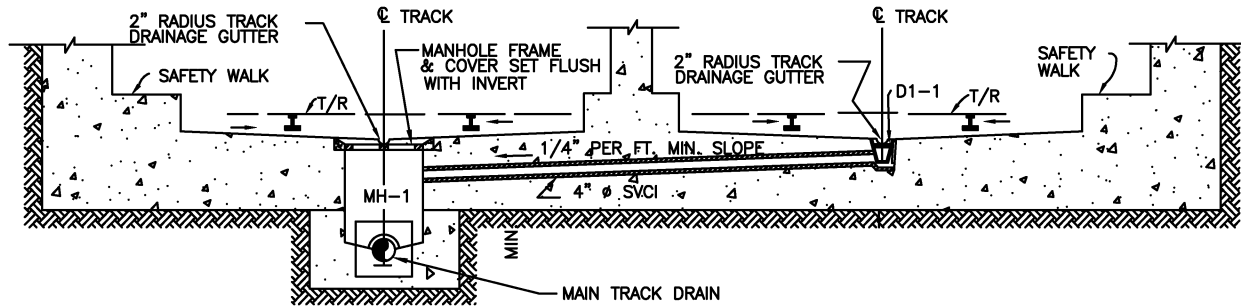
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**MECHANICAL DESIGN DRAWING**  
TYPICAL INTERMEDIATE VENT SHAFT  
IN EARTH-TYPE 2

SCALE 1/8"=1'-0" DRAWING NO. DD-M-024



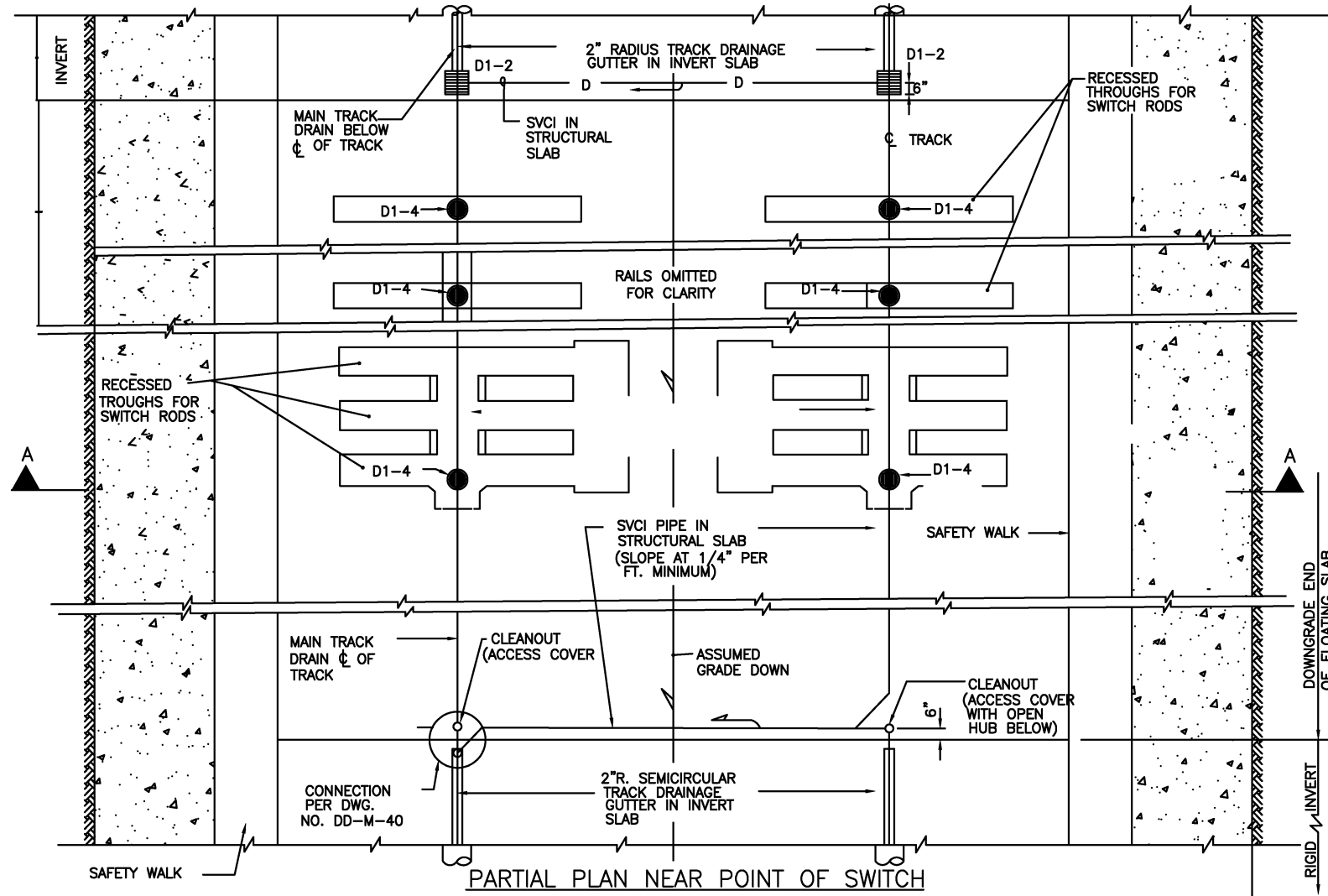
TYPICAL DRAINAGE CROSS - SECTION  
(STANDARD DOUBLE BOX TANGENT SECTION)



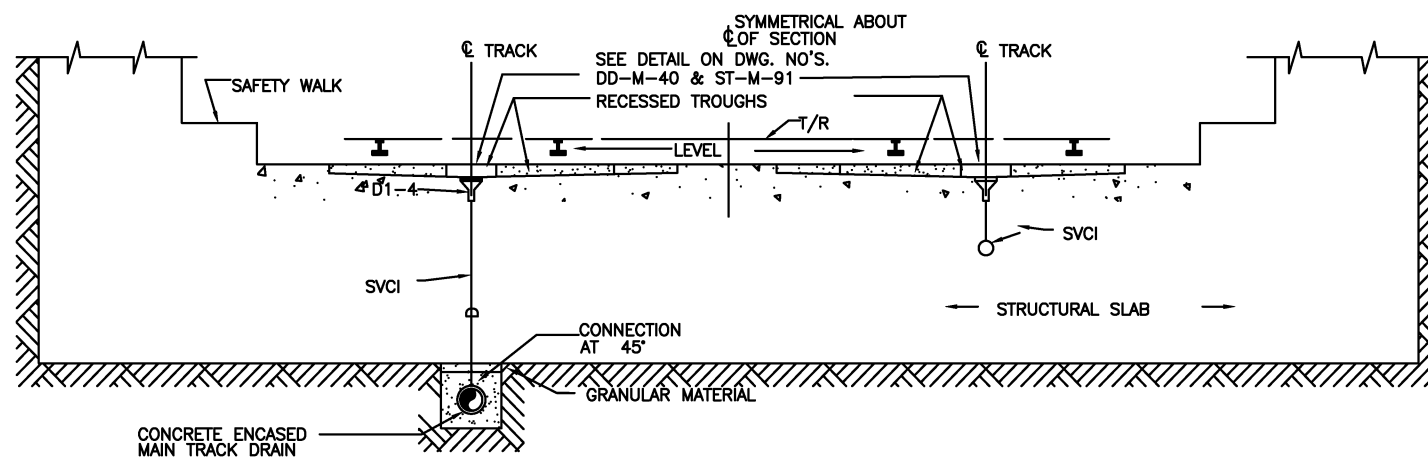
TYPICAL DRAINAGE CROSS-SECTION AT DRAIN INLET AND MANHOLE  
(STANDARD DOUBLE BOX TANGENT SECTION)

GENERAL NOTES

- FOR DETAILS AND SPACING OF DRAINAGE STRUCTURES REFER TO DD-M-149
- ABBREVIATIONS:  
SVC - SERVICE WEIGHT CAST IRON  
  
MH-1 MANHOLE - TYPE 1  
D1-1 DRAIN INLET - TYPE 1; D1-4 DRAIN INLET-TYPE 4
- DRAINAGE CROSS- SECTIONS SHOWN ARE TYPICAL ONLY. EACH SECTION SHALL BE PLANNED IN DETAIL BY THE DESIGNER TO SUIT LOCAL CONDITIONS.



PARTIAL PLAN NEAR POINT OF SWITCH  
(STANDARD CROSSOVER CUT AND COVER SECTION)



SECTION A-A  
DRAINAGE CROSS SECTION NEAR POINT OF SWITCH  
(STANDARD CROSSOVER CUT AND COVER SECTION)  
(SEE "PARTIAL PLAN" ABOVE)

1' 0" 1' 2" 3"  
AND AS NOTED

DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
C.M. BISHOP	9-67	DD-S-020	CUT AND COVER DOUBLE BOX DETAILS	08/2001	ENGA	Revised and issued by the Authority							
P.E. EASLEY	9-67	DD-M-149	DRAINAGE DETAILS AND CASTINGS SHEET 1										
C.M. BISHOP	9-67												
R. GANERWAL	11-67												

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED

DATE

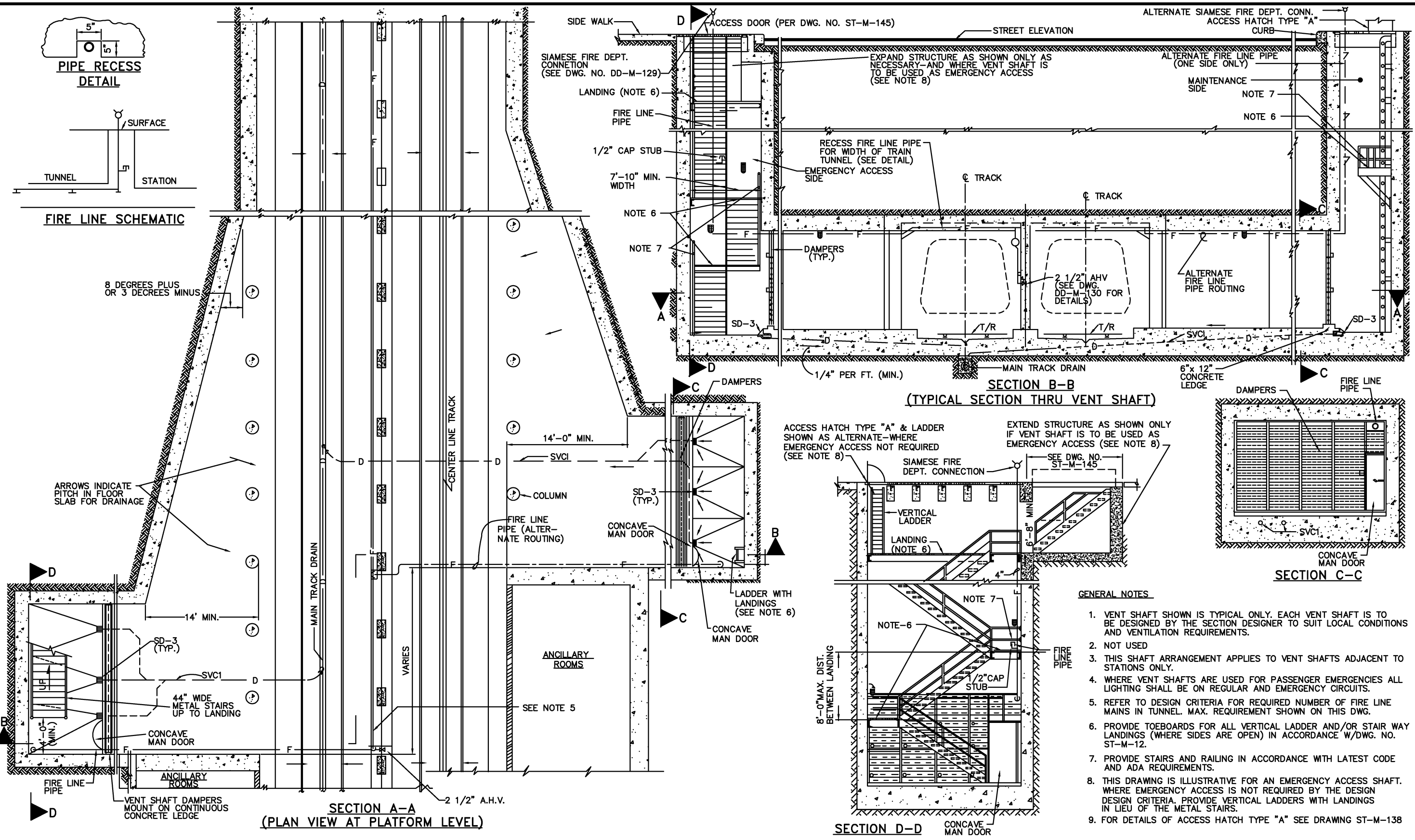
APPROVED  
DIRECTOR

May 3, 2001  
DATE

SCALE  
3/8"=1'-0"

DRAWING NO.

DD-M-026



DESIGNED			REFERENCE DRAWINGS			REVISIONS		
DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
1-88	DD-M-190	DRAINAGE DETAILS AND CASTINGS SHIT.2	08/2001	ENGA	Revised and issued by the Authority			
1-88	ST-M-137/ST-M-138	FRAMES AND GRATINGS - SHITS 1 & 2						
1-88	ST-M-012	STAIRS, LADDERS, AND HANDRAILS						
1-88	DD-M-137	TYPICAL VENT SHAFT DAMPER INSTALLATION DET.						
6-88	DD-M-129	ABOVE GRADE SIAMESE FIRE DEPARTMENT CONNECTION						
12-88								

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

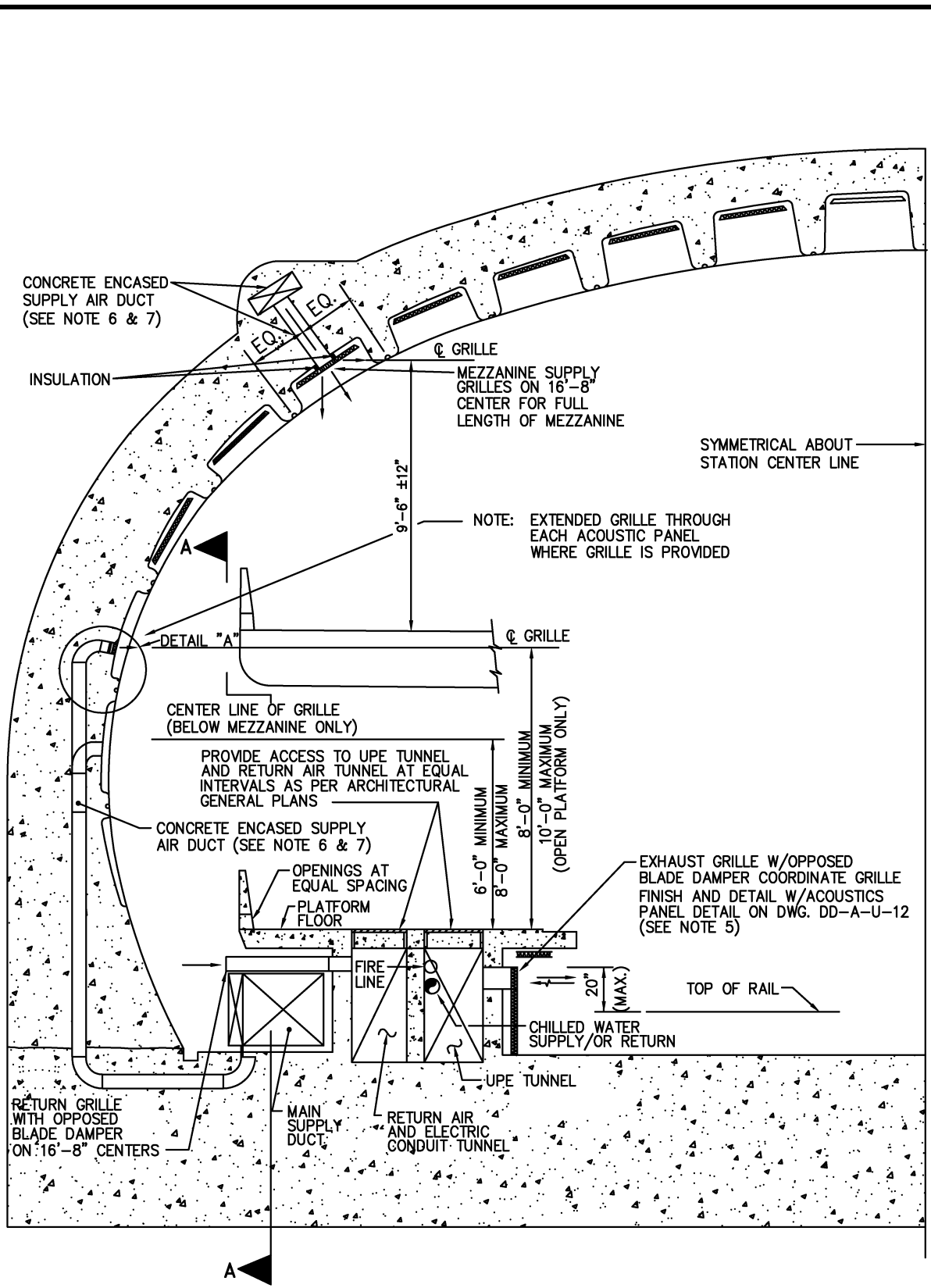
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE \_\_\_\_\_

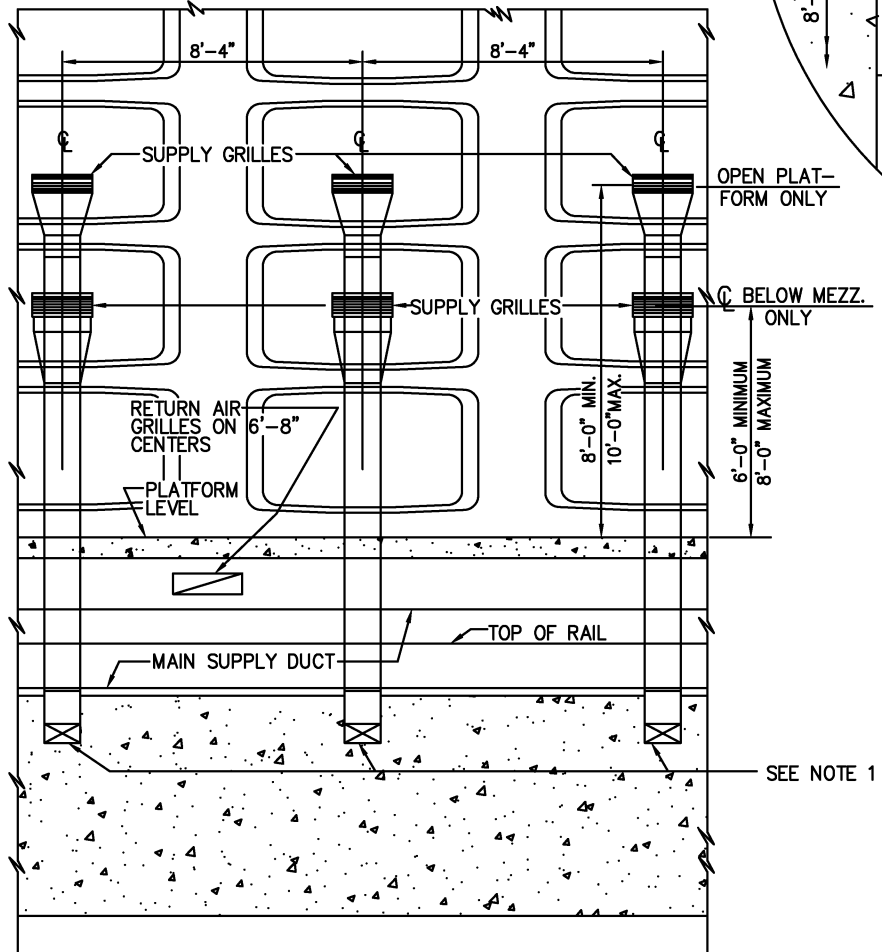
**MECHANICAL DESIGN DRAWING**  
TYPICAL STATION END VENT SHAFT  
IN EARTH

SCALE 3/16"=1'-0"

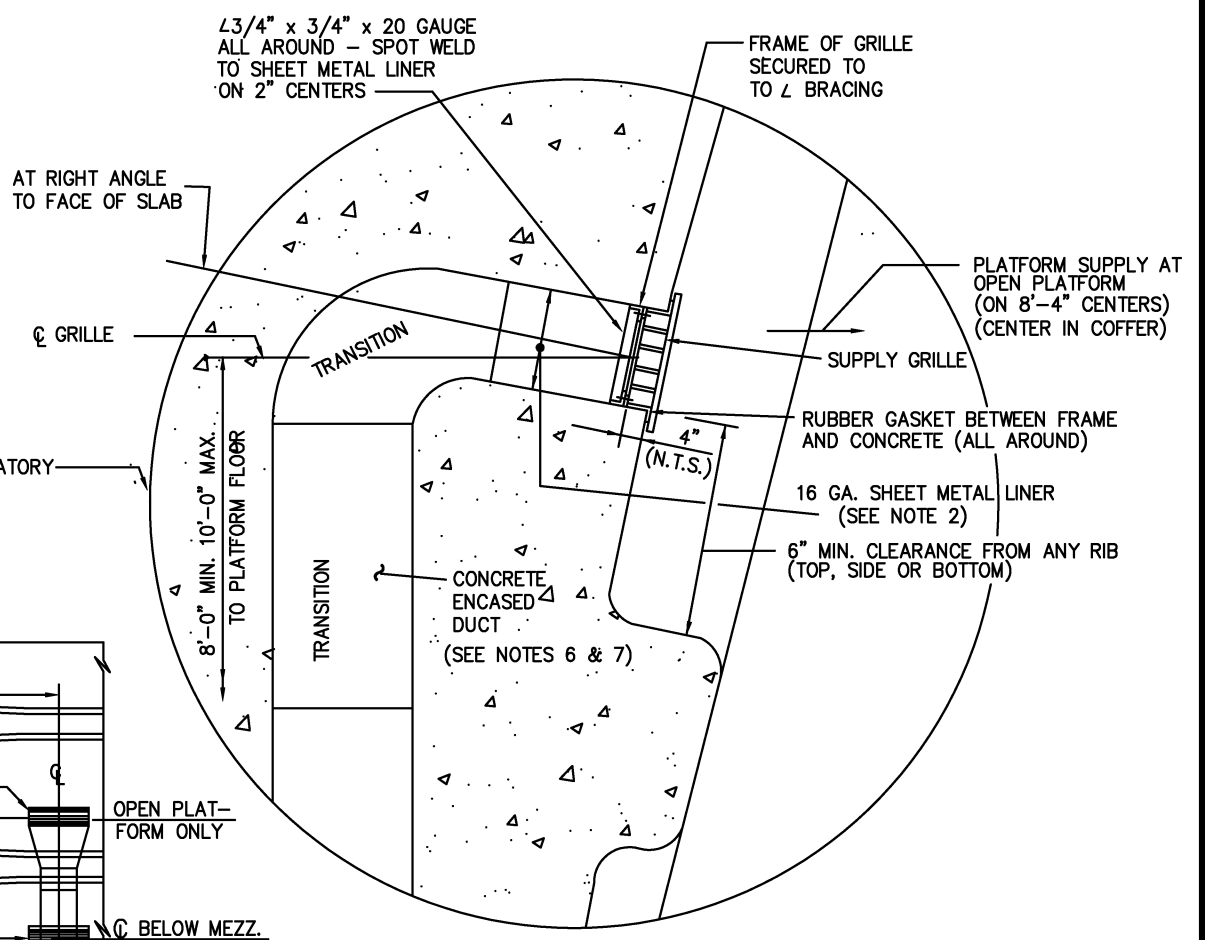
DRAWING NO. DD-M-029



**TYPICAL HALF SECTION THRU STATION**  
SCALE: 3/8" = 1'-0"



**SECTION A-A**



**DETAIL "A"**  
SCALE: 3" = 1'-0"

**GENERAL NOTES:**

1. EQUIVALENT ROUND DUCT WILL BE ACCEPTABLE WHERE RECTANGULAR DUCT IS SHOWN.
2. BRACE AND/OR MAKE OF HEAVIER GAUGE AS REQUIRED DURING CONCRETE POUR. DO NOT RESTRICT FINAL AIR FLOW.
3. FOR ABBREVIATIONS AND SYMBOLS SEE DWG. NO. DD-M-153.
4. FOR LOCATIONS OF ACCESS MANHOLES TO UNDER PLATFORM EXHAUST AND RETURN AIR TUNNELS REFER TO ARCHITECTURAL DWG: ST-A-SW-4.
5. DETAIL OF GRILLE TO BE COORDINATED WITH ACOUSTICS PANEL DETAIL. THE STRUCTURAL OUTLETS SHALL BE ARRANGED TO PERMIT GRILLES TO BE INSTALLED SYMMETRICALLY, AS SHOWN ON ARCHITECTURAL DESIGN DRAWINGS.
6. DUCT WORK INSULATION IS NOT REQUIRED FOR THE CONCRETE ENCASED OR EMBEDDED DUCT WORK INDICATED.
7. ALL DUCT WORK, ENCASED OR EMBEDDED SHALL BE 1/4" THICK GALVANIZED SHEET METAL.

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	DATE	BY	DESCRIPTION			
I.M. SOLOMON	2-88	ST-A-SW4	08/2001	ENGA	Revised and issued by the Authority			
P.E. EASLEY	2-88	DD-M-37	9/2000	SYSP	Revised and issued by the Authority			
I.M. SOLOMON	2-88	DD-A-U-12						
C.W. DAUGHERTY	6-88	ST-AC-46						
ENGA	12-88							

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

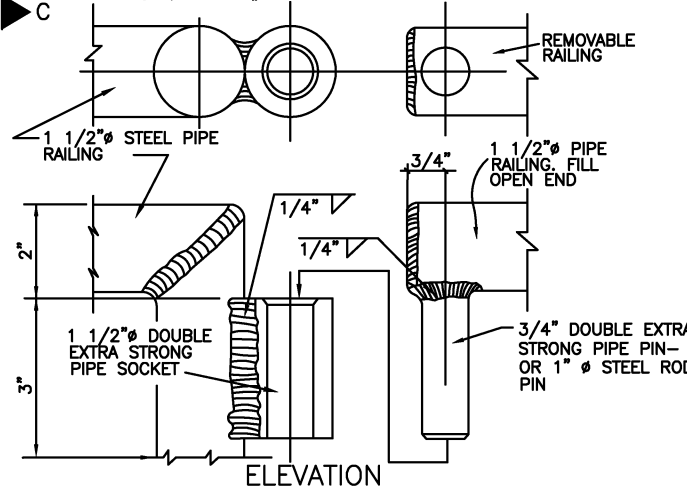
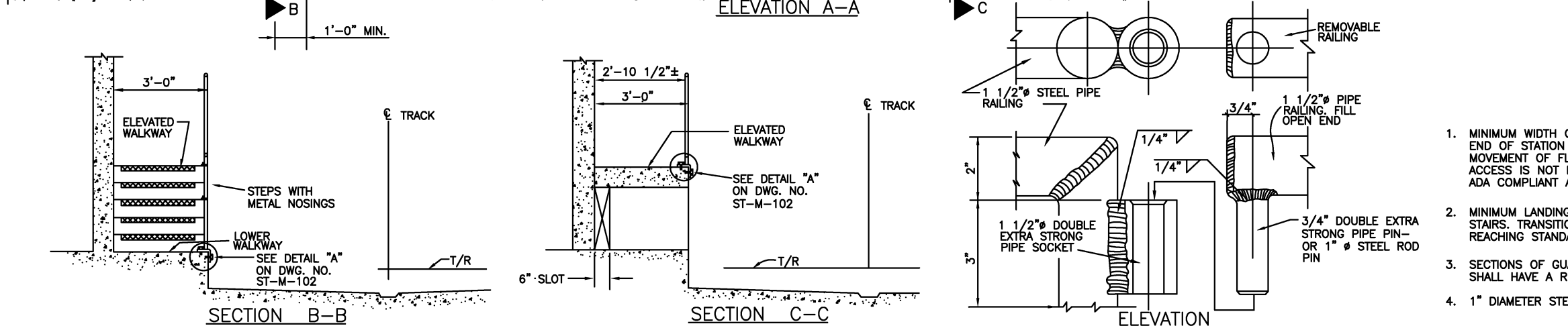
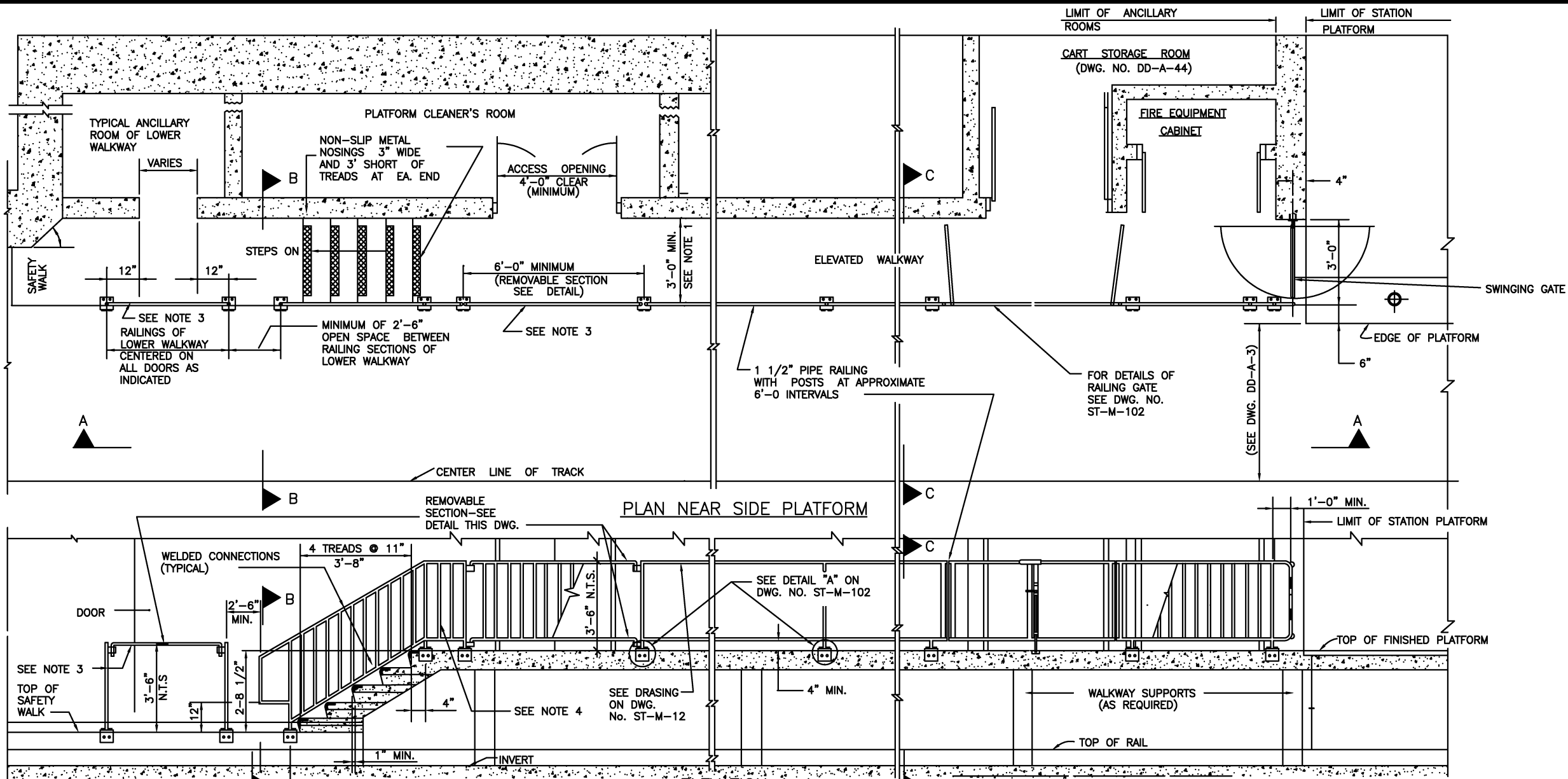
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

**MECHANICAL DESIGN DRAWING**  
SECTIONS AND DETAILS FOR TYPICAL SIDE  
PLATFORM STATION AIR DISTRIBUTION SYSTEM

SCALE: AS NOTED      DRAWING NO. DD-M-033





- GENERAL NOTES**
1. MINIMUM WIDTH OF 3'-0" FOR ELEVATED SAFETY WALK TO BE MAINTAINED FROM END OF STATION PLATFORM BEYOND DOOR OF CLEANER'S ROOM TO FACILITATE MOVEMENT OF FLOOR CLEANING EQUIPMENT IN CASES WHERE ADA COMPLIANT ACCESS IS NOT REQUIRED. INCREASE WALKWAY WIDTH TO 4'-0" CLEAR WHEN ADA COMPLIANT ACCESS IS REQUIRED.
  2. MINIMUM LANDING LENGTH OF 4'-0" MAINTAINED BEYOND THE END OF WALKWAY STAIRS. TRANSITION TO 2'-0" MINIMUM SAFETY WALK WIDTH TO BE MADE UPON REACHING STANDARD WIDTH RUNNING TUNNEL SECTION.
  3. SECTIONS OF GUARD RAIL IMMEDIATELY IN FRONT OF ALL ANCILLARY ROOM DOORS SHALL HAVE A REMOVABLE SECTION.
  4. 1" DIAMETER STEEL PICKETS AT 5" O.C. MAXIMUM, EVEN SPACING..

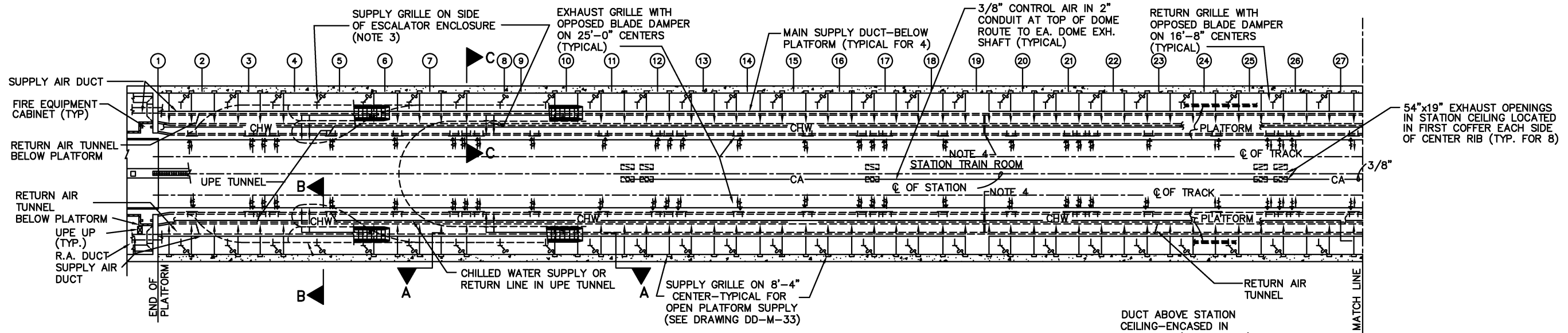
DESIGNED	I.M. SOLOMON	3-88	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	P.E. EASLEY	3-88	DD-M-010	TYPICAL MECHANICAL SERVICE ROOMS	08/2001	ENGA	Revised and issued by the Authority
CHECKED	I.M. SOLOMON	3-88	DD-M-041	TYPICAL STATION FIRE WATER LINE SYSTEMS			
APPROVED	L.W. DAUGHERTY	6-88	ST-M-012	STAIRS, LADDERS, HANDRAILS			
UPDATED	J. BUMANS	12-98					

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
 OFFICE OF ENGINEERING AND ARCHITECTURE

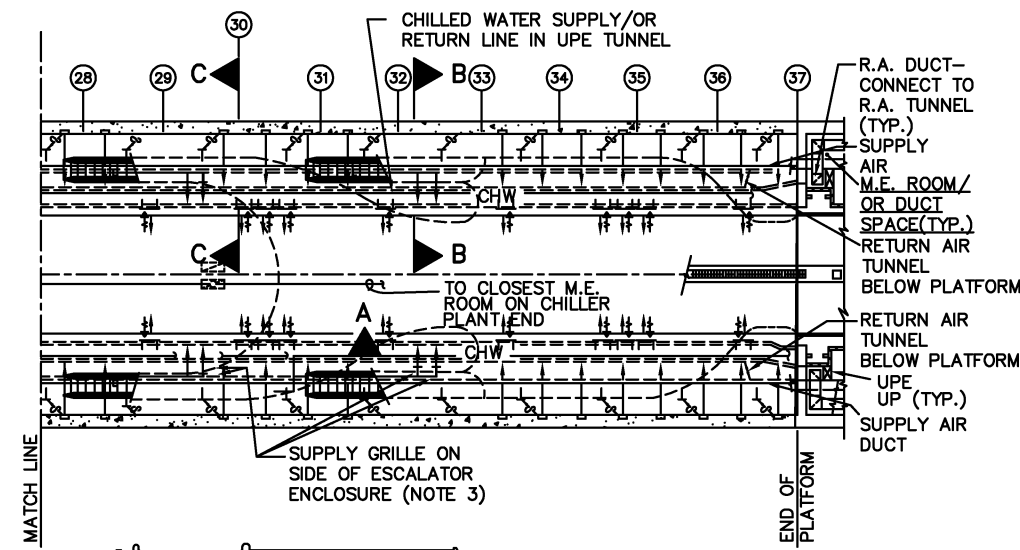
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
 DIRECTOR

**MECHANICAL DESIGN DRAWING**  
 DETAILS OF WALKWAY TO  
 STATION ANCILLARY ROOMS

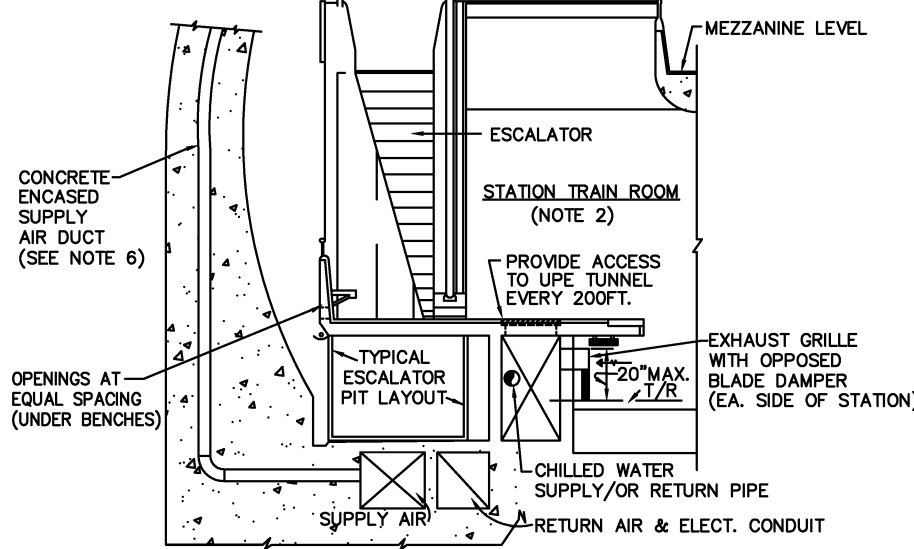
SCALE: 1/2"=1'-0" AND AS SHOWN  
 DRAWING NO. DD-M-035



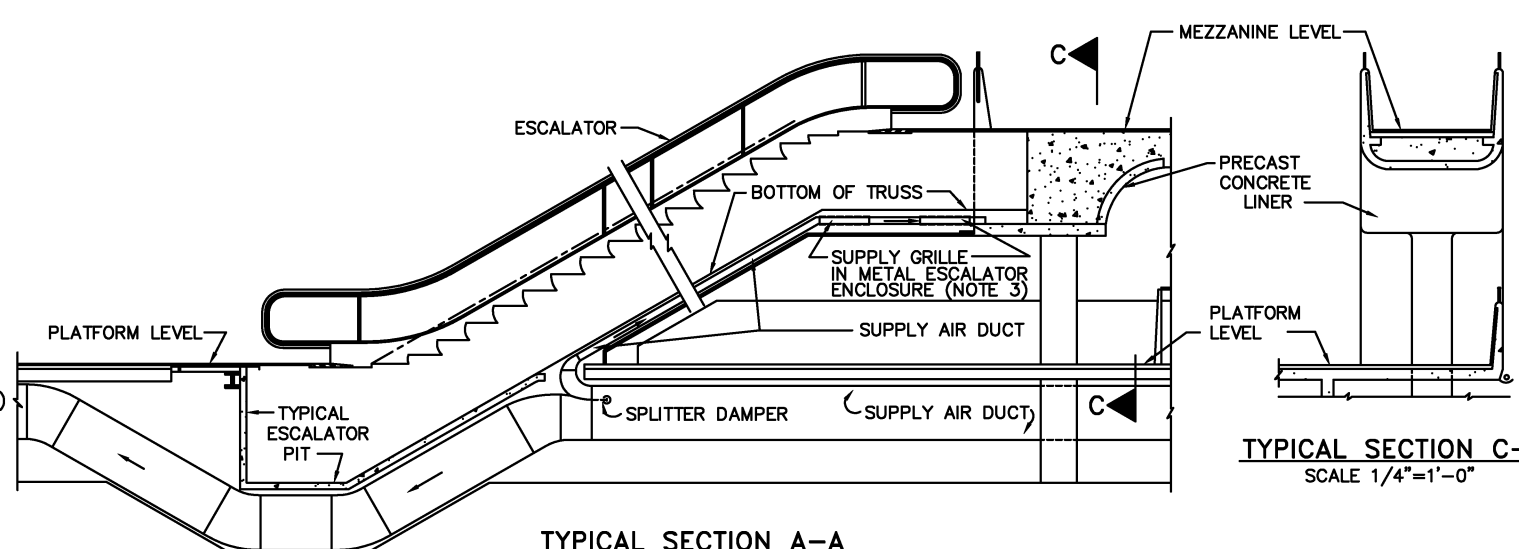
TYPICAL SIDE PLATFORM PLAN



TYPICAL MEZZANINE PLAN



TYPICAL SECTION B-B  
SCALE 1/4"=1'-0"



TYPICAL SECTION A-A  
SCALE 1/4"=1'-0"

TYPICAL SECTION C-C  
SCALE 1/4"=1'-0"

GENERAL NOTES

1. SEE DWG. DD-M-33 FOR TYPICAL SECTIONS.
2. FOR LOCATIONS OF ACCESS MANHOLES TO UPE AND RETURN AIR TUNNELS, REFER TO ARCHITECTURAL DESIGN DRAWINGS.
3. LOCATIONS FOR THE SUPPLY GRILLES ON THE SIDES OF ESCALATOR ENCLOSURES SHALL BE COORDINATED WITH THE ESCALATOR INSTALLATION.
4. PROVIDE BARRIER WALLS IN UPE AIR AND RETURN AIR TUNNELS TO SEPARATE SYSTEMS.
5. DETAIL OF GRILLE SHALL BE COORDINATED W/ACOUSTIC PANEL DETAIL. THE STRUCTURAL OUTLETS SHALL BE ARRANGED TO PERMIT AND INSTALL GRILLE SYMMETRICALLY AS SHOWN ON DWG. NO. DD-A-U-12.
6. DUCT WORK INSULATION WILL NOT REQUIRED IN THE CONCRETE ENCASED OR EMBEDDED DUCT WORK INDICATED.
7. SEE DESIGN CRITERIA FOR UPE GRILLE SPACING.

DESIGNED	D.S. GILL	4-88
DATE		
DRAWN	E.A. COX	4-88
DATE		
CHECKED	I.M. SOLOMON	8-88
DATE		
APPROVED	C.W. DAUGHERTY	8-88
DATE		
UPDATED	J. BUMANIS	12-98

NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DD-M-033	SECTION AND DETAIL FOR TYPICAL SIDE PLATFORM STATION AIR DISTRIBUTION	08/2001	ENGA	Revised and issued by the Authority
DD-M-153	AIR CONDITIONING AND VENTILATION SYMBOLS			

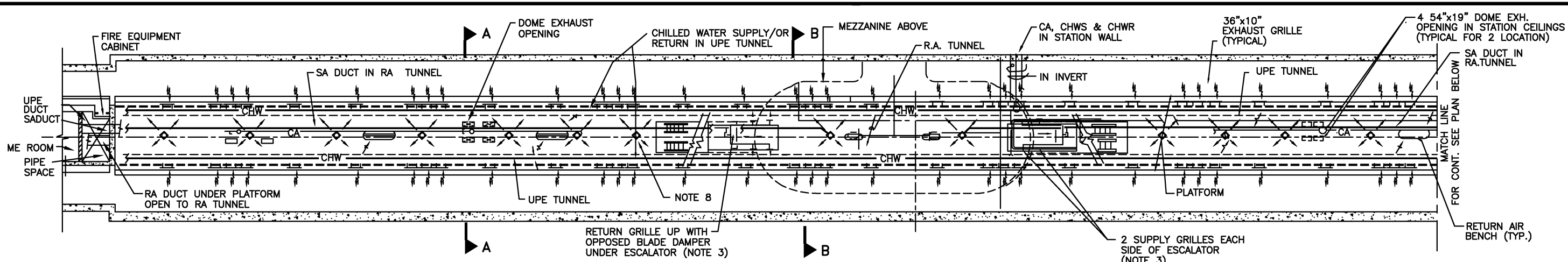
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

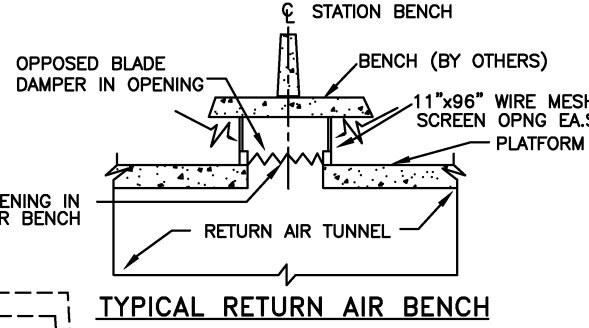
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**MECHANICAL DESIGN DRAWING**  
TYPICAL SIDE PLATFORM STATION  
AIR DISTRIBUTION SYSTEM

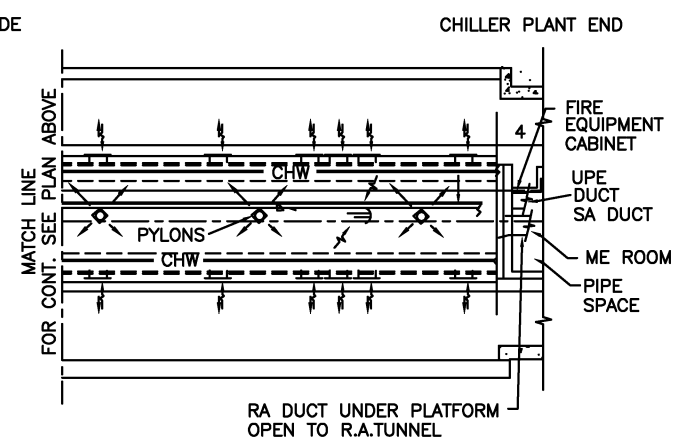
SCALE 1"=20' DRAWING NO. DD-M-037



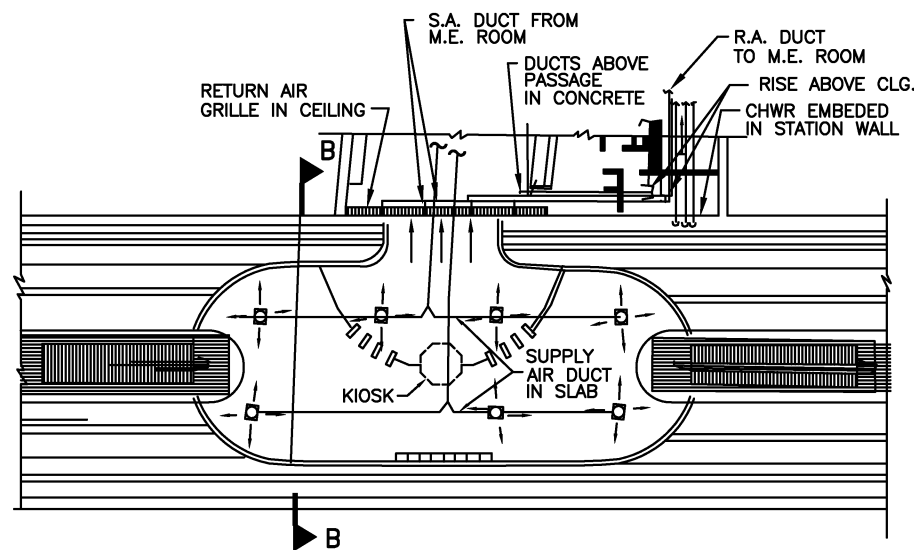
TYPICAL CENTER PLATFORM PLAN



TYPICAL RETURN AIR BENCH

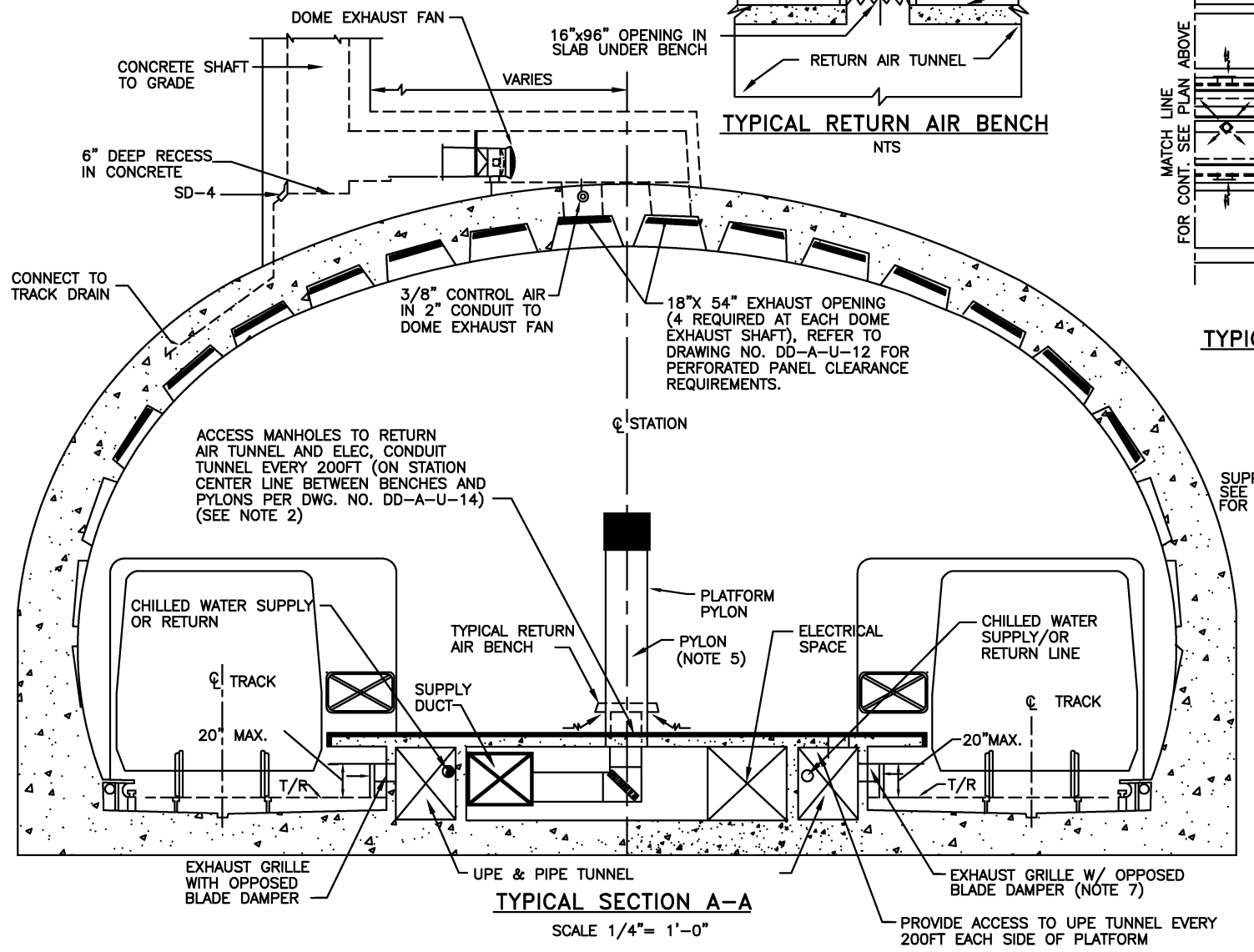


TYPICAL CENTER PLATFORM PLAN



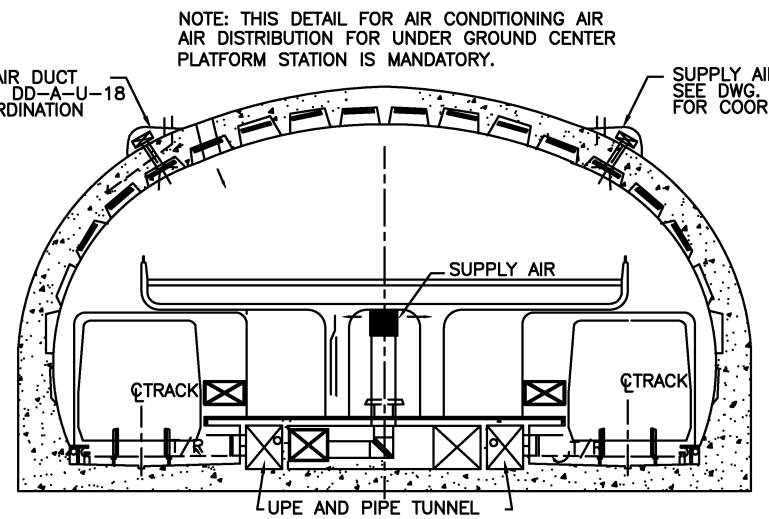
TYPICAL MEZZANINE PLAN

WITH ESCALATOR AND STAIR USES.



TYPICAL SECTION A-A

SCALE 1/4" = 1'-0"



SECTION B-B

GENERAL NOTES:

1. REFER TO MECHANICAL DESIGN DRAWING DD-M-153 FOR SYMBOL LIST AND ABBREVIATIONS.
2. FOR LOCATIONS OF ACCESS MANHOLE TO FRESH AIR TUNNEL, RETURN AIR TUNNELS, PYLONS & BENCHES SEE ARCHITECTURAL PLANS.
3. LOCATIONS FOR THE SUPPLY GRILLES ON THE SIDES OF THE ESCALATOR ENCLOSURES AND THE RETURN GRILLES UNDER THE ESCALATOR TO BE COORDINATED WITH ESCALATOR INSTALLATION.
4. THIS DRAWING ILLUSTRATES A NARROW CENTER PLATFORM (STATION) AND SHOWS TYPICAL AIR DISTRIBUTION SYSTEM FOR BOTH NARROW AND WIDE CENTER PLATFORM STATIONS.
5. FOR DETAILS OF AIR CONDITIONING PYLON REFER TO MECHANICAL STANDARD DRAWING NO'S ST-M-83 & 90.
6. CHWS & R LINES IN CONCRETE STRUCTURE SHALL BE IN CONDUIT.
7. DETAIL OF GRILLE SHALL BE COORDINATED W/ACOUSTIC PANEL DETAIL. THE STRUCTURAL OUTLETS SHALL BE ARRANGED TO PERMIT GRILLES TO BE INSTALLED SYMMETRICALLY, AS SHOWN ON DWG. NO. DD-A-U-12.
8. FINAL PYLON LOCATIONS SHALL BE SELECTED TO PREVENT INTERFERENCE

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
A.S. GILL	4-88	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
E.A. COX	4-88	DD-A-U-020	STANDARD ARCHITECTURAL DETAILS CENTER PLATFORM STATION BENCH	08/2001	ENGA	Revised and issued by the Authority	
I.M. SOLOMON	5-88	DD-M-153	AIR CONDITIONING & VENTILATION SYMBOLS				
L.W. DAUGHERTY	7-86	DD-A-U-012	UNDERGROUND STATION, PLATFORM VAULT ACOUSTIC DETAILS				
		DD-E-213	CABLE COORD. EARTH TUNNELS & BOX SECTIONS				

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

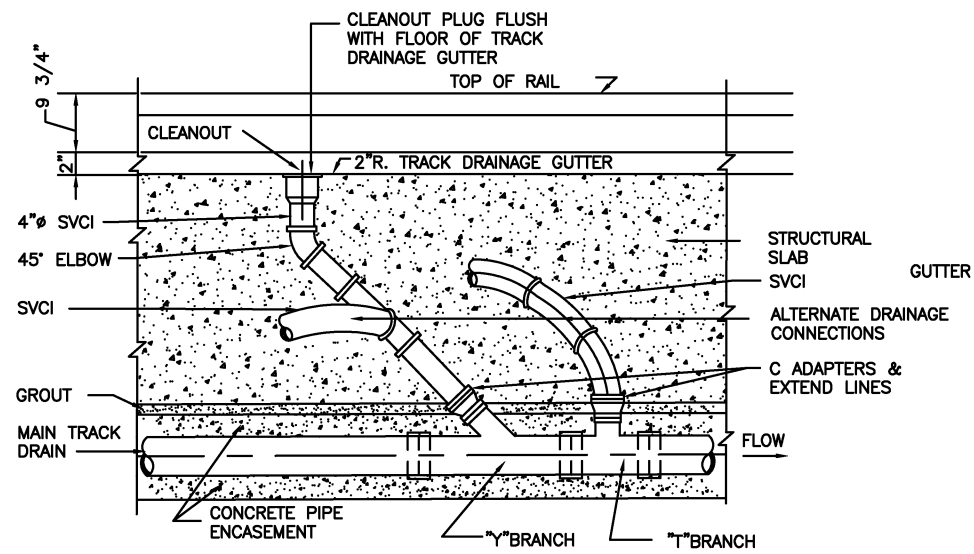
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DATE May 3, 2001

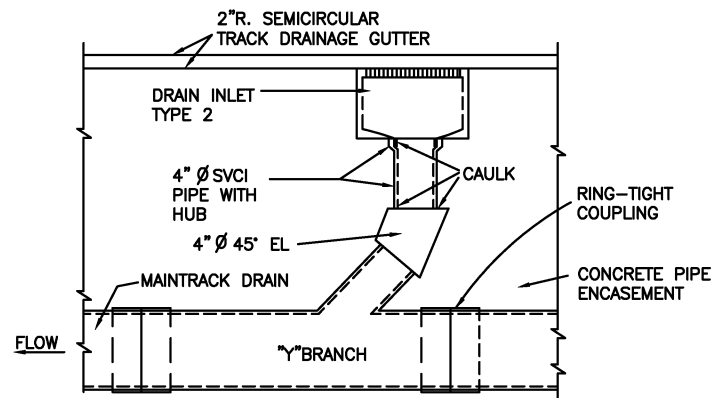
**MECHANICAL DESIGN DRAWING**  
TYPICAL CENTER PLATFORM STATION  
AIR DISTRIBUTION SYSTEM

SCALE 1" = 20'-0" OR AS NOTED DRAWING NO. DD-M-038

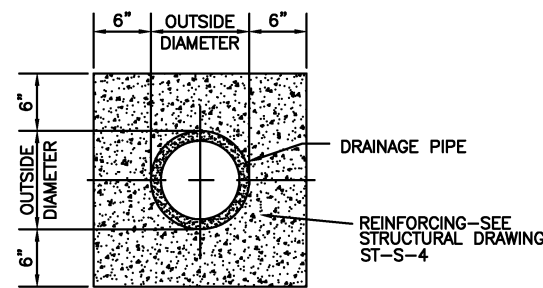




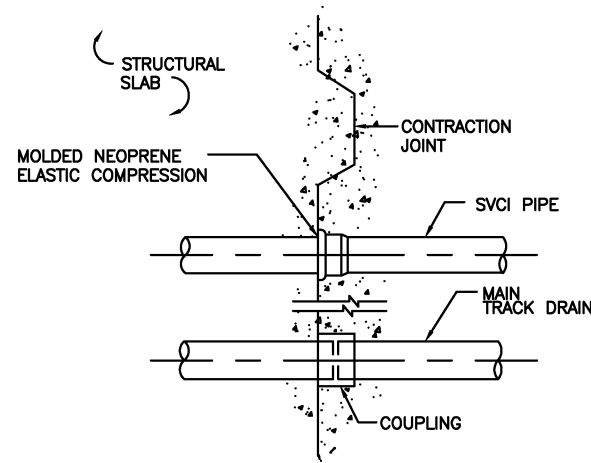
**DRAINAGE PIPING CONNECTIONS TO MAIN TRACK DRAIN**



**DRAIN INLET CONNECTION TO MAIN TRACK DRAIN**



**CONCRETE PIPE ENCASEMENT FOR STANDARD TRACK DRAIN**



**PIPE JOINT AT CONTRACTION JOINT**

DESIGNED	I.M. SOLOMON	4-88	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	P.E. EASLEY	5-88			08/2001	ENGA	Revised and issued by the Authority
CHECKED	I.M. SOLOMON	5-88					
APPROVED	C.W. DAUGHERTY	5-88					

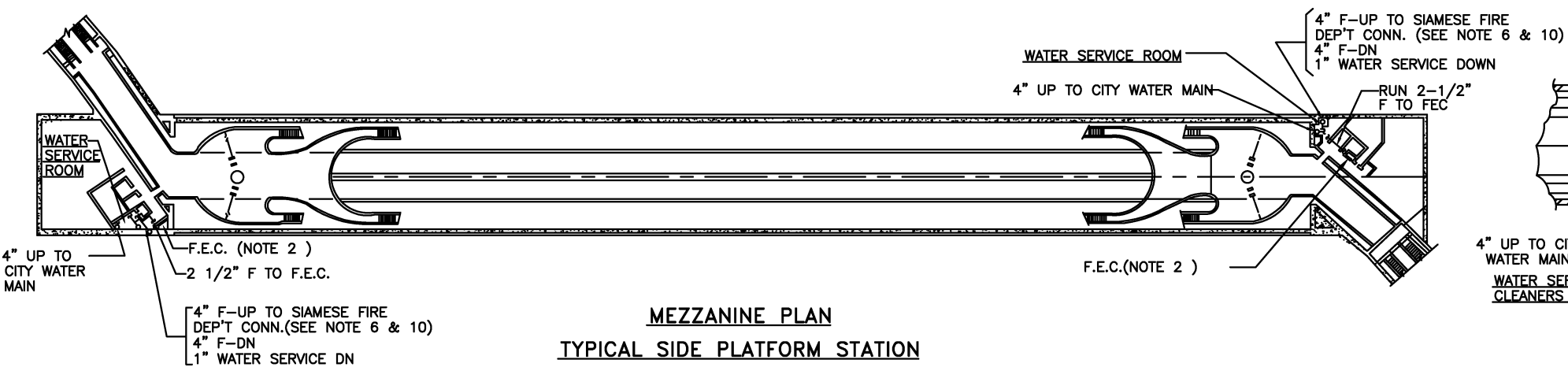
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

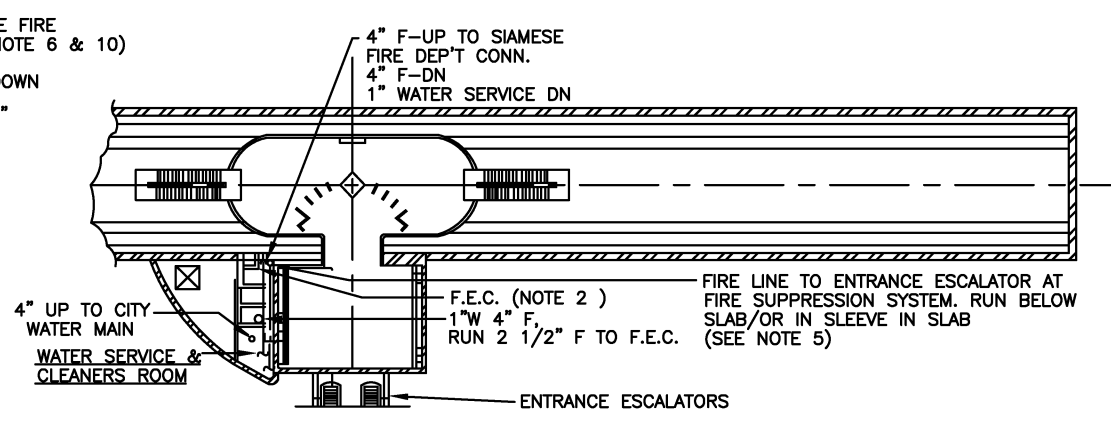
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**MECHANICAL DESIGN DRAWING  
MISCELLANEOUS DRAINAGE DETAILS**

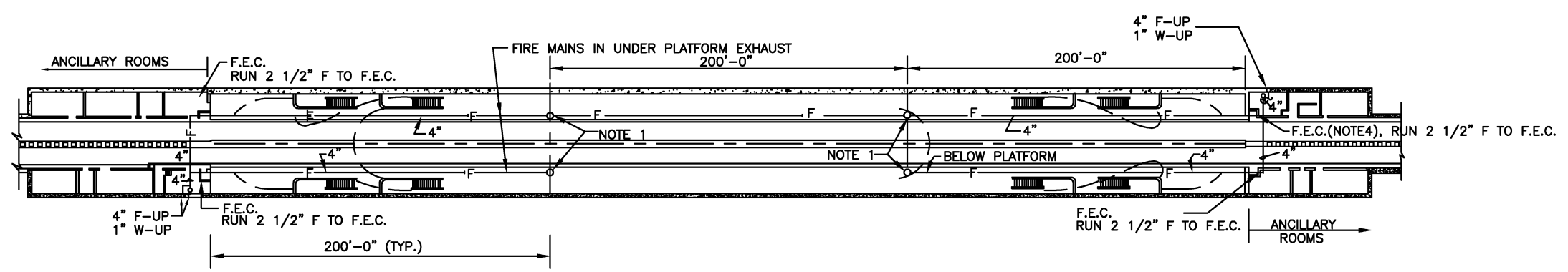
SCALE: NOT TO SCALE DRAWING NO. DD-M-040



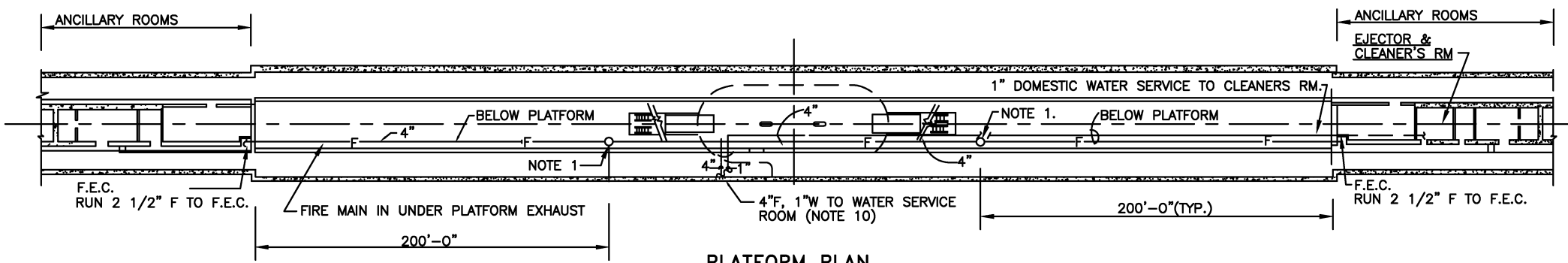
**MEZZANINE PLAN**  
**TYPICAL SIDE PLATFORM STATION**



**MEZZANINE PLAN**  
**TYPICAL CENTER PLATFORM STATION**



**PLATFORM PLAN**  
**TYPICAL SIDE PLATFORM STATION**



**PLATFORM PLAN**  
**TYPICAL CENTER PLATFORM STATION**

**GENERAL NOTES**

1. AHV CONNECTION BELOW PLATFORM. SEE PLAN DWG. NO. DD-M-146.
2. THE ABBREVIATION "F.E.C." DENOTES FIRE EQUIPMENT CABINET.
3. PROVIDE FIRE DETECTION DEVICES IN ESCALATOR TRUSS SPACES AND AT UPPER AND LOWER LANDINGS.
4. NOT USED
5. ENTRANCE ESCALATORS FOR STATIONS HAVING SINGLE ENTRANCE ONLY SHALL BE PROVIDED WITH FIRE SUPPRESSION SYSTEM. DELUGE AND SURVEILLANCE VALVES LOCATED TO BE READILY ACCESSIBLE IN A HEATED AND LIGHTED SPACE.
6. PROVIDE ONE SIAMESE FIRE DEPT CONNECTION AT EACH ENTRANCE, COORDINATE WITH LOCAL FIRE DEPT.
7. SIAMESE FIRE DEPARTMENT CONNECTION TO BE LETTERED "STANDPIPE".
8. 90° TURNS SHOULD BE ANCHORED TO WITHSTAND REACTION FORCES AT FULL FLOW CONDITIONS.
9. WHERE SIAMESE IS LOCATED INSIDE METRO PROPERTY LIMITS (SUCH AS YARDS, ETC) OMIT METRO LOGO TYPE "B" PROVIDE METRO LOGO AT ALL OTHER SIAMESE LOCATIONS.
10. INSTALL PIPING IN CONDUIT TO ENSURE THAT PIPING IS ACCESSIBLE.
11. ALL PIPE PENETRATION THROUGH WALL AND SLAB SHALL BE PROVIDED WITH SLEEVE.
12. NOT USED
13. HYDRAULIC CALCULATION SHALL BE PROVIDED BY SECTION DESIGNER TO WMATA FOR THEIR APPROVAL.

DESIGNED	R.D. BAKER	6-88
DRAWN	P.E. EASLEY	8-88
CHECKED	J.M. SOLOMON	7-88
APPROVED	C.W. DAUGHERTY	10-88
UPDATED	J. BUMANIS	12-88

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION
DD-M-035	DETAILS OF WALKWAY TO STATION ANCILLARY ROOMS
DD-M-010	TYPICAL MECHANICAL SERVICE ROOMS
DD-M-088	SUPERVISORY CONTROL & IND.-STA & VENT SHAFT DETAILS

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

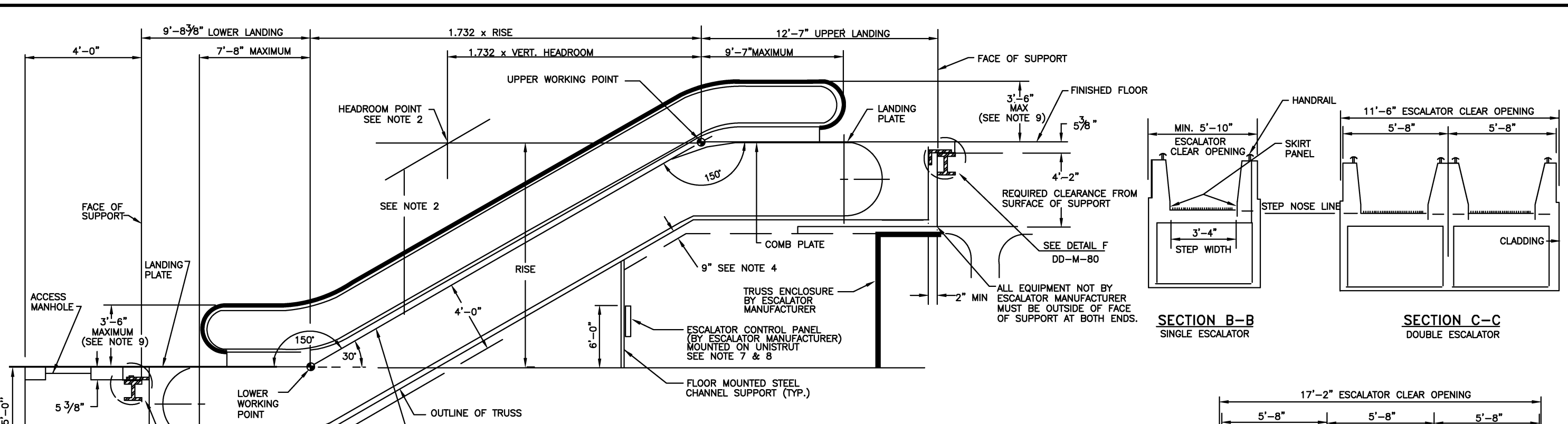
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

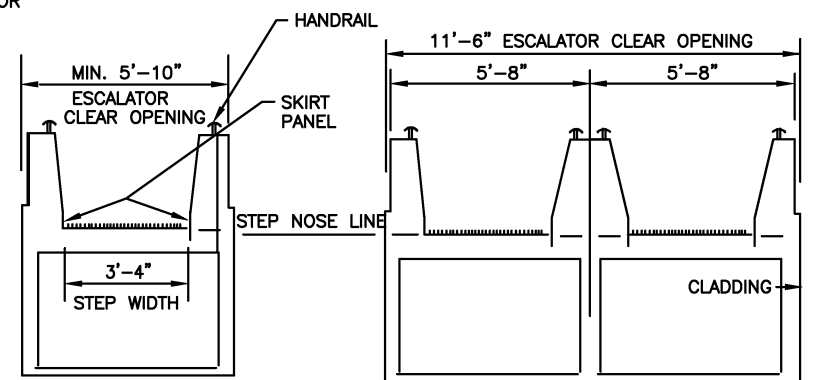
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**MECHANICAL DESIGN DRAWING**  
**TYPICAL STATION FIRE WATER LINE SYSTEMS**  
**FOR UNDERGROUND STATIONS**

SCALE 1"=40'-0" DRAWING NO. DD-M-041

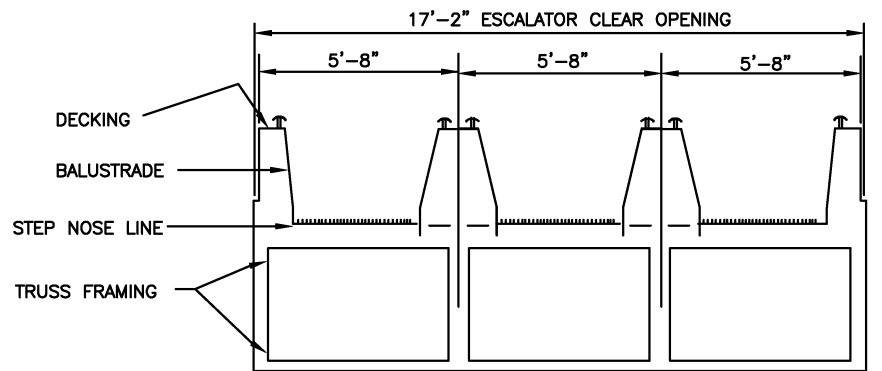


**SECTION A-A  
ELEVATION**

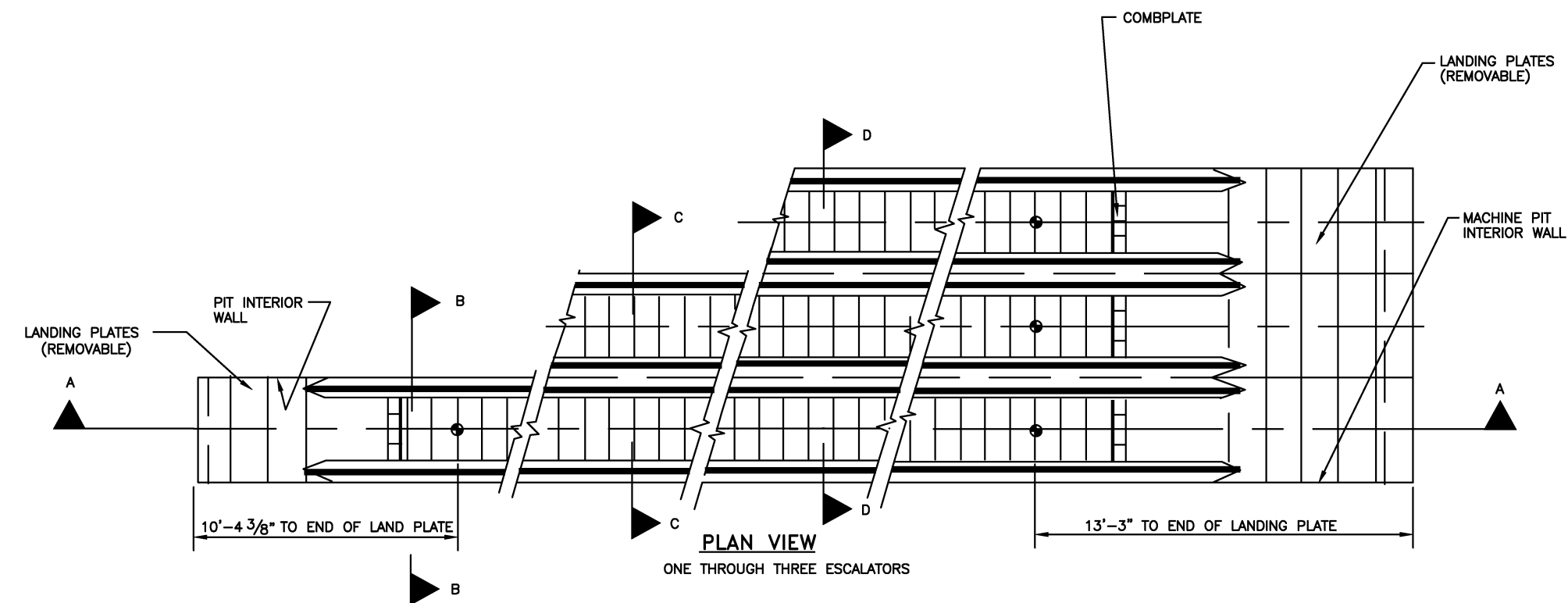


**SECTION B-B  
SINGLE ESCALATOR**

**SECTION C-C  
DOUBLE ESCALATOR**



**SECTION D-D  
TRIPLE ESCALATOR**



**PLAN VIEW  
ONE THROUGH THREE ESCALATORS**

**NOTES:**

1. THE DIMENSIONS SHOWN ON THIS DRAWING ARE A COMPOSITE OF DIMENSIONS FROM VARIOUS MANUFACTURERS OF HEAVY DUTY ESCALATORS.
2. COORDINATE VERTICAL CLEARANCE WITH THE ARCHITECTURAL DESIGN DRAWINGS. THE DIMENSIONS SHOWN ON THIS DRAWING ARE MINIMUM REQUIREMENTS FOR EQUIPMENT INSTALLATION.
3. CONDUIT MUST BE RACKED VERTICALLY BETWEEN UNITS TO MINIMIZE EXPOSURE TO WATER INTRUSION. CONDUITS WILL NOT BE PERMITTED ON CONCRETE WELLWAY WALLS AND FLOOR.
4. SUPPLY AIR DUCT FOR STATION AIR CONDITIONING SHOULD BE INSTALLED IN THIS AREA AS REQUIRED. DUCTWORK SHALL BE DESIGNED BY THE DESIGNER TO FIT WITHIN THE LIMITS.
5. THIS DRAWING IS INTENDED TO GIVE DESIGNERS THE NECESSARY STRUCTURAL PARAMETERS.
6. WIDTH OF MACHINE PIT CORRESPONDS TO WIDTH OF FINISHED CLEAR OPENING SHOWN IN ESCALATORS CROSS SECTIONS.
7. COORDINATE WITH AIR CONDITIONING SUPPLY DUCT WORK.
8. WORKING CLEARANCE FOR ESCALATOR CONTROLS SHALL BE PER CODE.
9. DIMENSION SHOWN IS FROM TOP OF HANDRAIL TO FINISHED FLOOR.

DESIGNED	R. PITTSCH	1-71
DRAWN	E. PENNINGTON	1-71
CHECKED	R. LARSEN	4-71
APPROVED	R.S. O'NEAL	4-71
UPDATED	ENGA	12-88

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION
DD-M-080	ESCALATOR DETAILS AND SUPPORTS
DD-M-067	ESCALATOR LOADS AND DETAIL

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	ENGA	Revised and issued by the Authority

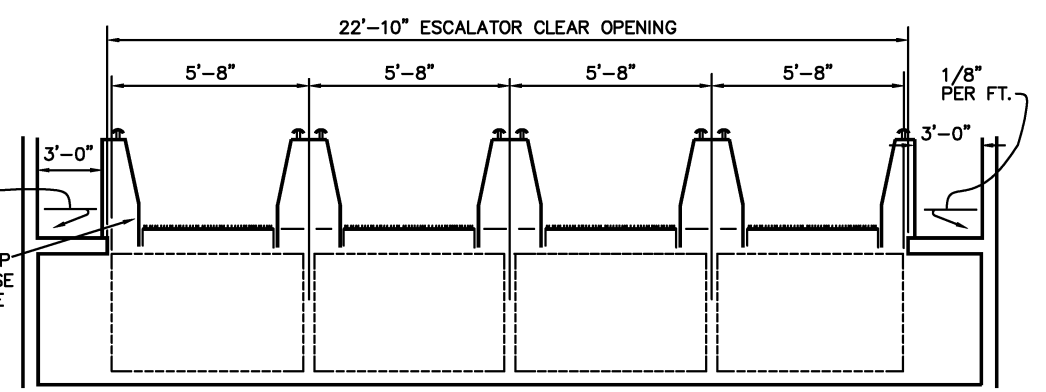
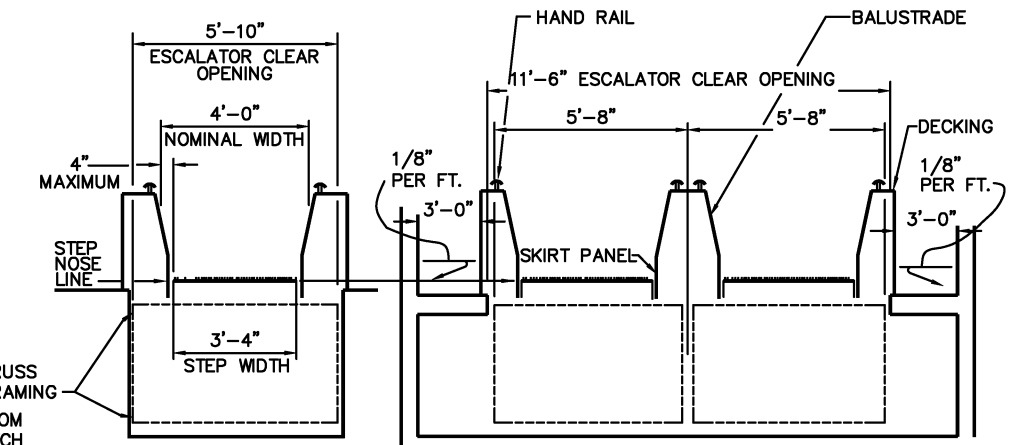
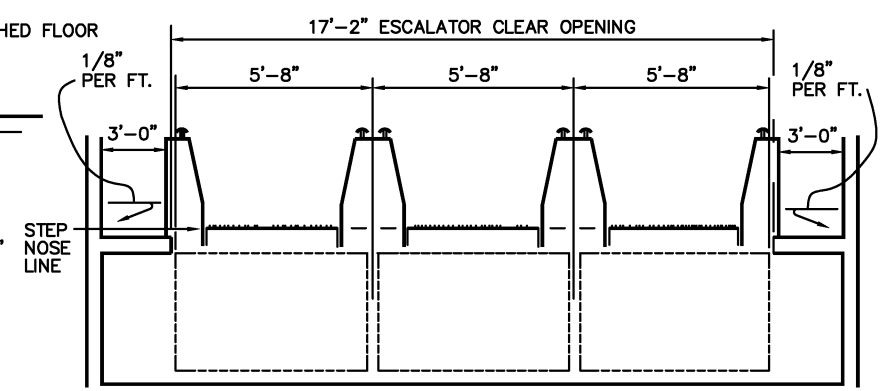
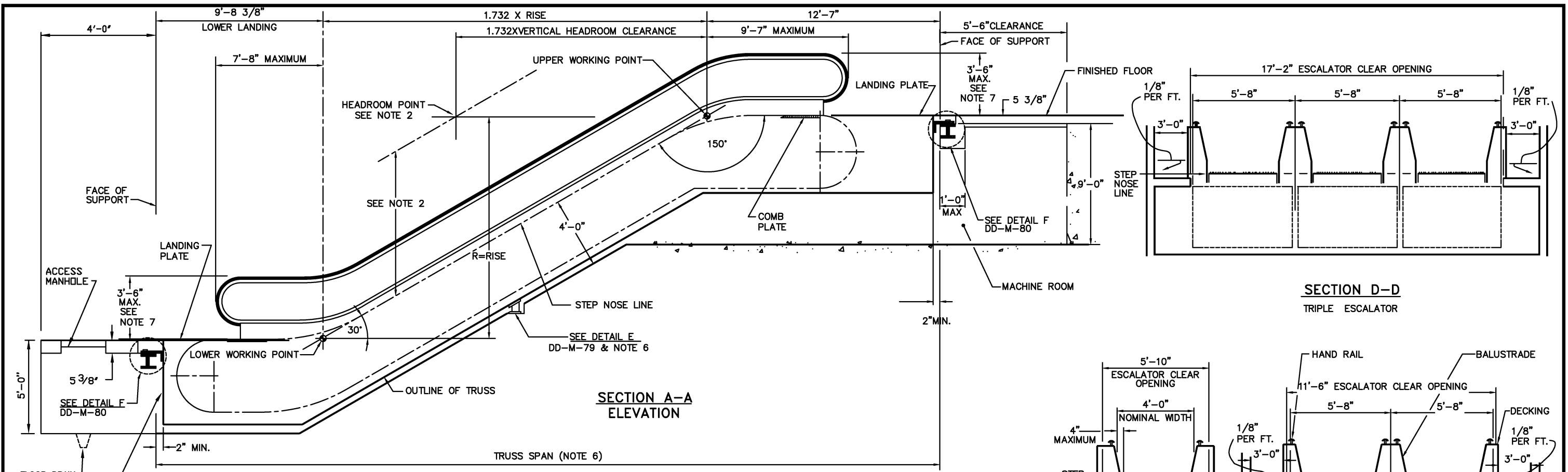
**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

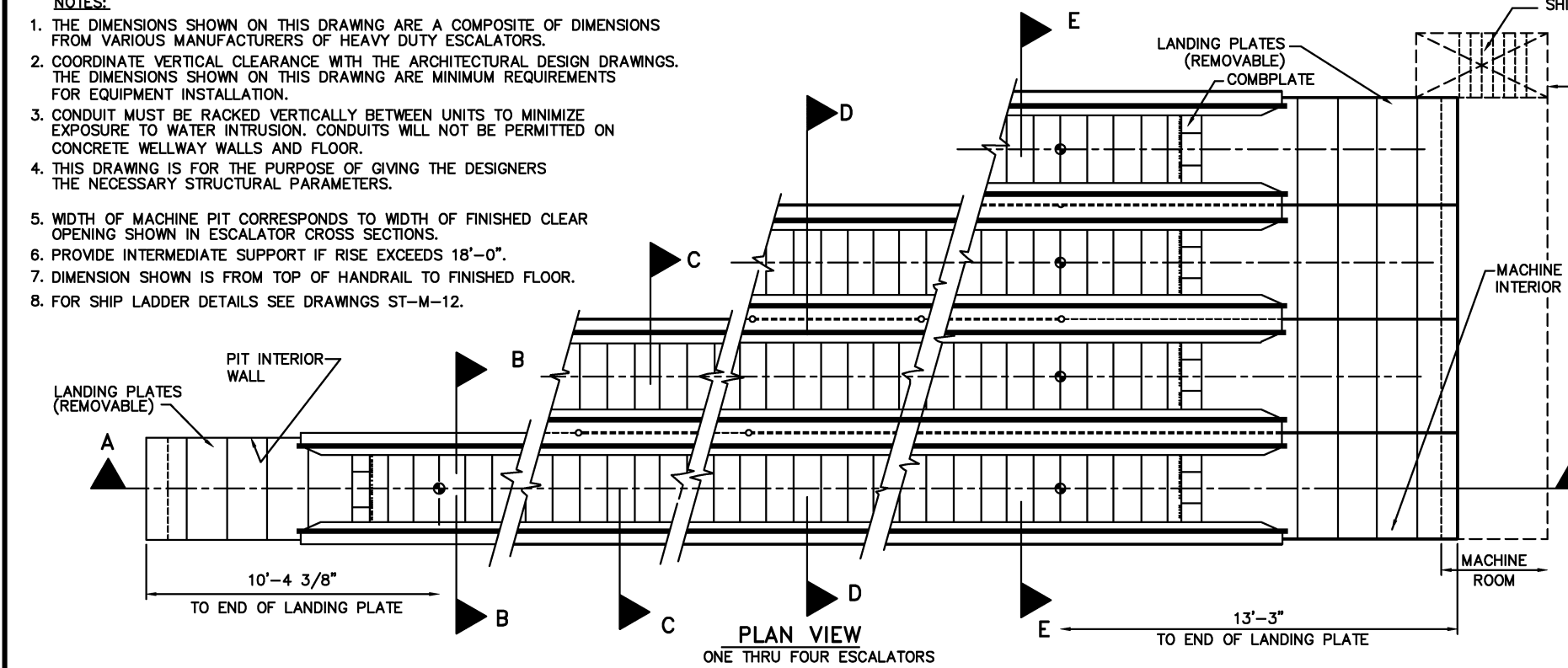
SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED *[Signature]* May 3, 2001  
DIRECTOR DATE

**MECHANICAL DESIGN DRAWING  
CLASS "A" UNDERGROUND MEZZANINE TO PLATFORM  
ESCALATOR AND STRUCTURAL WELLWAY**

SCALE NONE DRAWING NO. DD-M-063

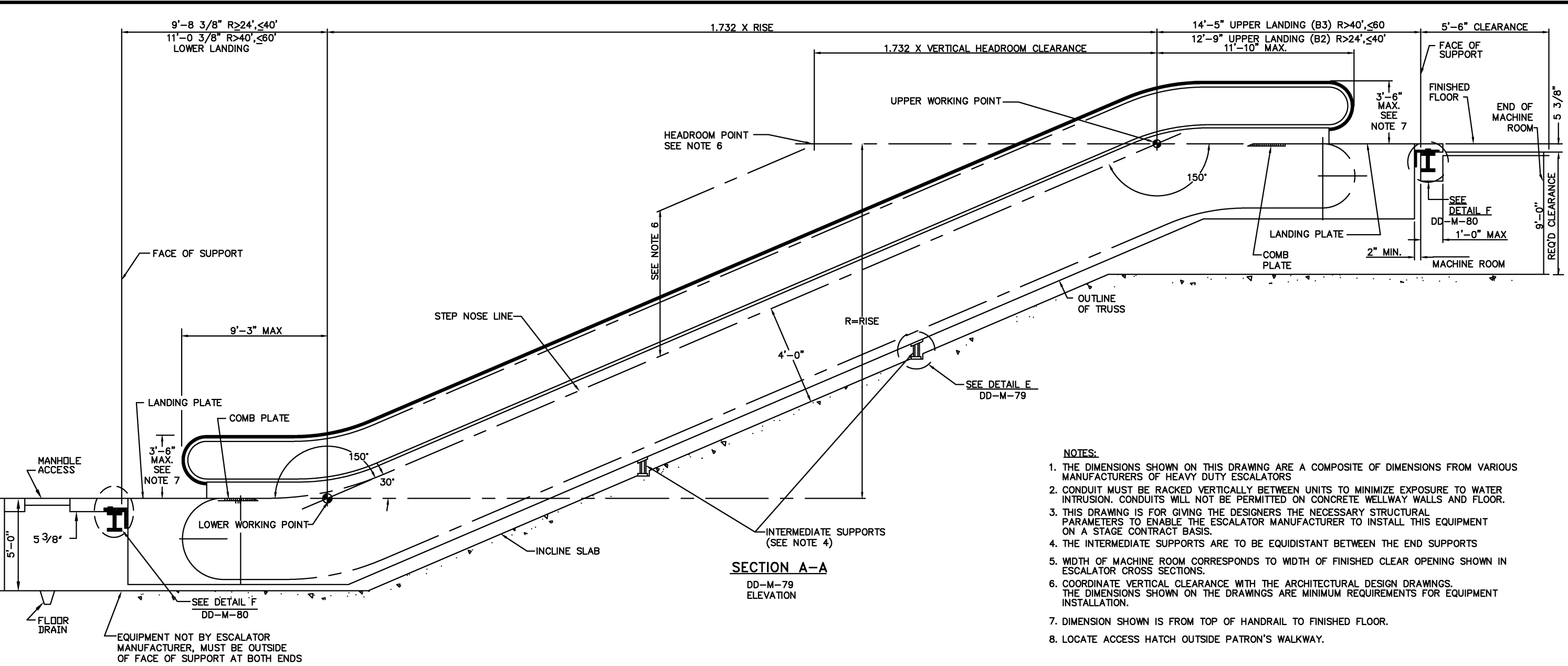


- NOTES:**
1. THE DIMENSIONS SHOWN ON THIS DRAWING ARE A COMPOSITE OF DIMENSIONS FROM VARIOUS MANUFACTURERS OF HEAVY DUTY ESCALATORS.
  2. COORDINATE VERTICAL CLEARANCE WITH THE ARCHITECTURAL DESIGN DRAWINGS. THE DIMENSIONS SHOWN ON THIS DRAWING ARE MINIMUM REQUIREMENTS FOR EQUIPMENT INSTALLATION.
  3. CONDUIT MUST BE RACKED VERTICALLY BETWEEN UNITS TO MINIMIZE EXPOSURE TO WATER INTRUSION. CONDUITS WILL NOT BE PERMITTED ON CONCRETE WELLWAY WALLS AND FLOOR.
  4. THIS DRAWING IS FOR THE PURPOSE OF GIVING THE DESIGNERS THE NECESSARY STRUCTURAL PARAMETERS.
  5. WIDTH OF MACHINE PIT CORRESPONDS TO WIDTH OF FINISHED CLEAR OPENING SHOWN IN ESCALATOR CROSS SECTIONS.
  6. PROVIDE INTERMEDIATE SUPPORT IF RISE EXCEEDS 18'-0".
  7. DIMENSION SHOWN IS FROM TOP OF HANDRAIL TO FINISHED FLOOR.
  8. FOR SHIP LADDER DETAILS SEE DRAWINGS ST-M-12.



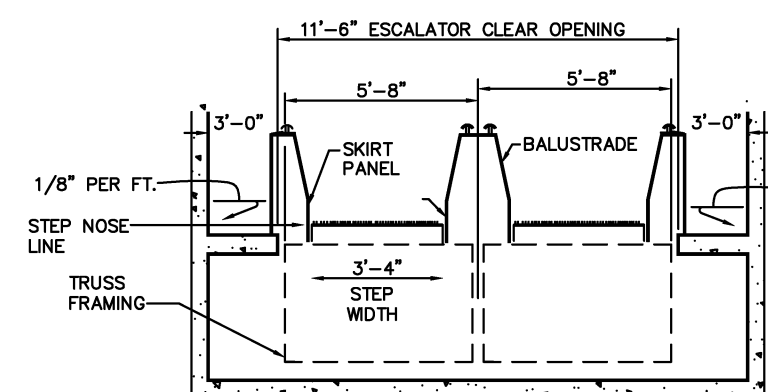
DESIGNED R. PITTSCH 1-71 DATE DRAWN E. PENNINGTON 1-71 DATE CHECKED R.D. LARSEN 4-71 DATE APPROVED R.S. O'NEAL 4-71 DATE		<b>REFERENCE DRAWINGS</b> NUMBER DESCRIPTION DATE BY DESCRIPTION DD-M-079 ESC. DETAILS SEC. AND SUPPORTS 08/2001 ENGA Revised and issued by the Authority DD-M-080 ESCALATOR DETAILS AND SUPPORTS DD-M-067 ESCALATOR LOADS AND DETAILS DD-A-U-007 SINGLE ESCALATOR CLASS "A" MEZZANINE TO PLATFORM DD-M-096 TYPICAL DRAINAGE DETAILS FOR ENTRANCES TO UNDERGROUND STATIONS		<b>REVISIONS</b> DATE BY DESCRIPTION 08/2001 ENGA Revised and issued by the Authority		<b>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</b> DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF ENGINEERING AND ARCHITECTURE SUBMITTED _____ DATE _____ APPROVED _____ DATE May 3, 2001 DIRECTOR		<b>MECHANICAL DESIGN DRAWING</b> CLASS "A" ESCALATOR AND STRUCTURAL WELLWAY SCALE NONE DRAWING NO. DD-M-064	
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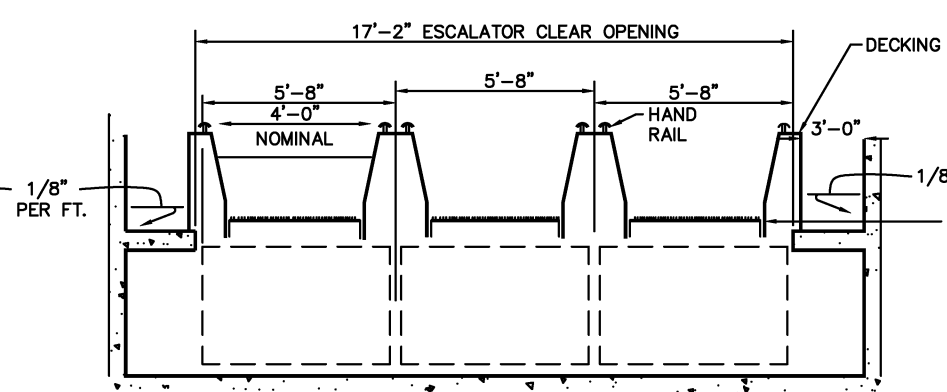


- NOTES:**
1. THE DIMENSIONS SHOWN ON THIS DRAWING ARE A COMPOSITE OF DIMENSIONS FROM VARIOUS MANUFACTURERS OF HEAVY DUTY ESCALATORS
  2. CONDUIT MUST BE RACKED VERTICALLY BETWEEN UNITS TO MINIMIZE EXPOSURE TO WATER INTRUSION. CONDUITS WILL NOT BE PERMITTED ON CONCRETE WELLWAY WALLS AND FLOOR.
  3. THIS DRAWING IS FOR GIVING THE DESIGNERS THE NECESSARY STRUCTURAL PARAMETERS TO ENABLE THE ESCALATOR MANUFACTURER TO INSTALL THIS EQUIPMENT ON A STAGE CONTRACT BASIS.
  4. THE INTERMEDIATE SUPPORTS ARE TO BE EQUIDISTANT BETWEEN THE END SUPPORTS
  5. WIDTH OF MACHINE ROOM CORRESPONDS TO WIDTH OF FINISHED CLEAR OPENING SHOWN IN ESCALATOR CROSS SECTIONS.
  6. COORDINATE VERTICAL CLEARANCE WITH THE ARCHITECTURAL DESIGN DRAWINGS. THE DIMENSIONS SHOWN ON THE DRAWINGS ARE MINIMUM REQUIREMENTS FOR EQUIPMENT INSTALLATION.
  7. DIMENSION SHOWN IS FROM TOP OF HANDRAIL TO FINISHED FLOOR.
  8. LOCATE ACCESS HATCH OUTSIDE PATRON'S WALKWAY.

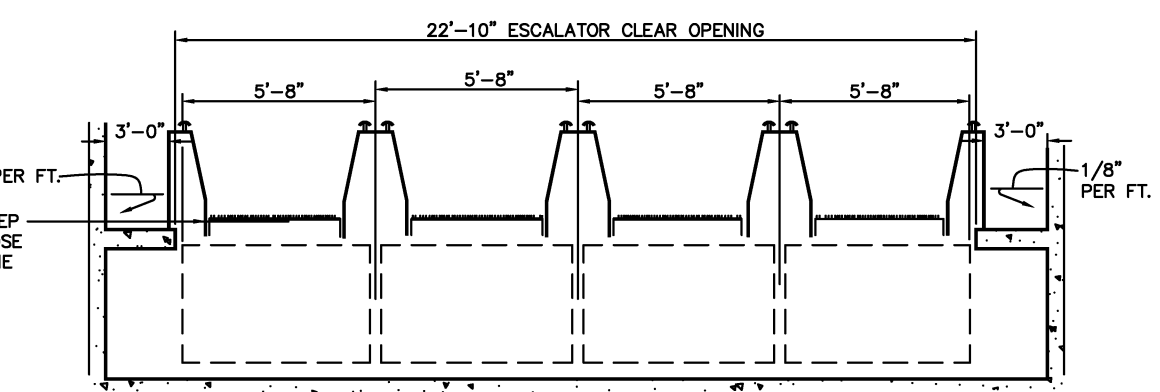
**SECTION A-A**  
DD-M-79  
ELEVATION



**SECTION B-B**  
DD-M-79  
DOUBLE ESCALATOR



**SECTION C-C**  
DD-M-79  
TRIPLE ESCALATOR



**SECTION D-D**  
DD-M-79  
QUADRUPLE ESCALATOR

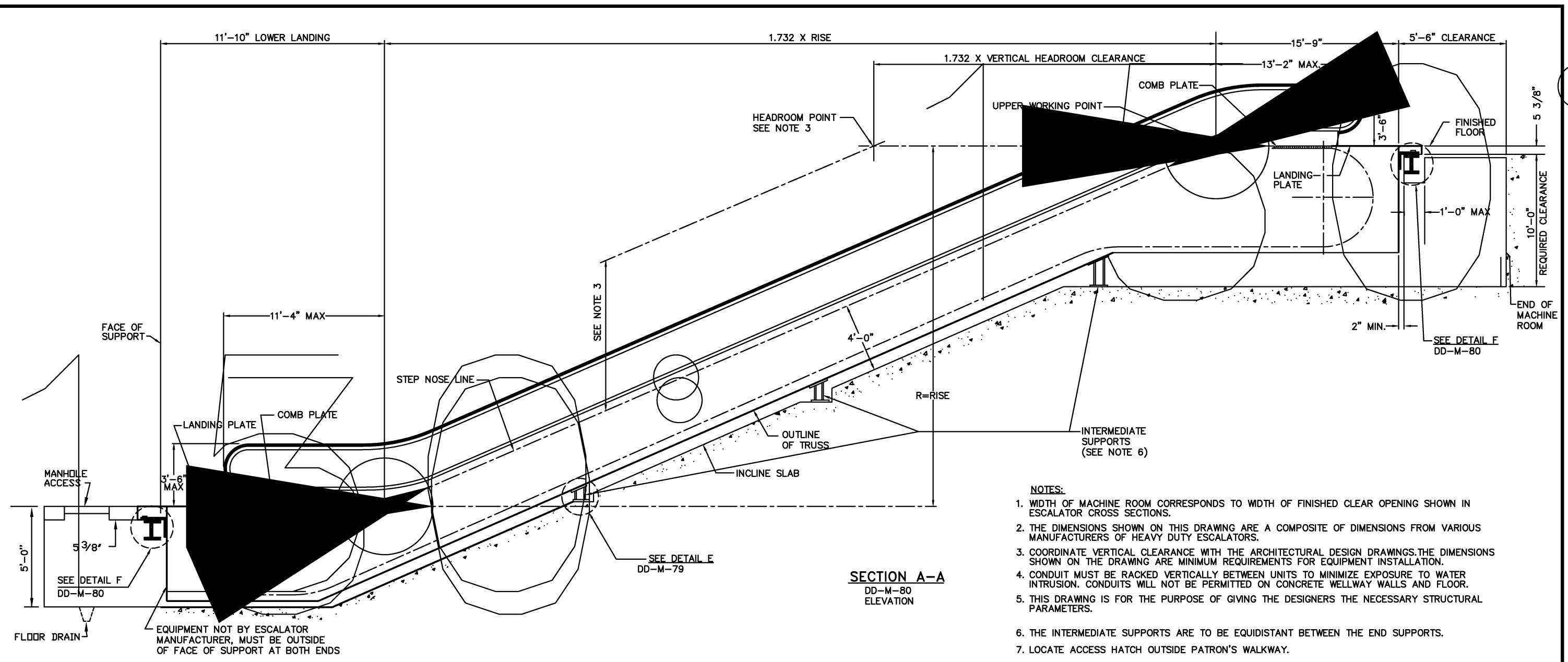
DESIGNED		DATE		NUMBER		DESCRIPTION		DATE		BY		DESCRIPTION	
R. PITTSCH	1-71	DD-M-079	ESC. DETAILS SECTIONS AND SUPPORTS	08/2001	ENGA	Revised and issued by the Authority							
E. PENNINGTON	1-71	DD-M-080	ESCALATOR DETAILS AND SUPPORTS										
R. LARSEN	4-71	DD-M-067	ESCALATOR LOADS AND DETAILS										
R.S. O'NEAL	4-71	DD-M-096	TYPICAL DRAINAGE DETAILS FOR ENTRANCES TO UNDERGROUND STATIONS										
ENGA	12-98												

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**MECHANICAL DESIGN DRAWING**  
**CLASS "B"**  
**ESCALATOR AND STRUCTURAL WELLWAY**

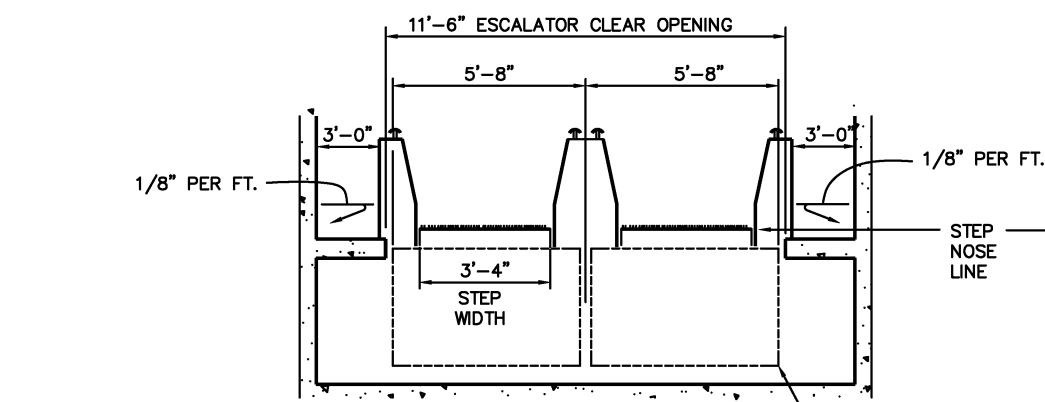
SCALE NONE DRAWING NO. DD-M-065



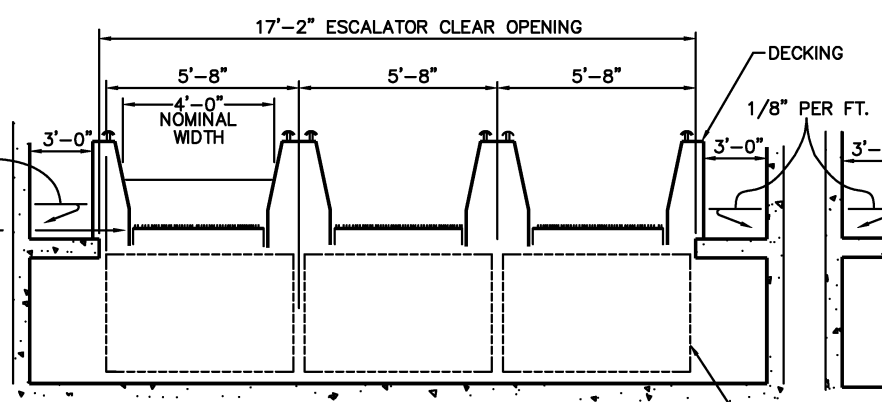
**SECTION A-A**  
DD-M-80  
ELEVATION

**NOTES:**

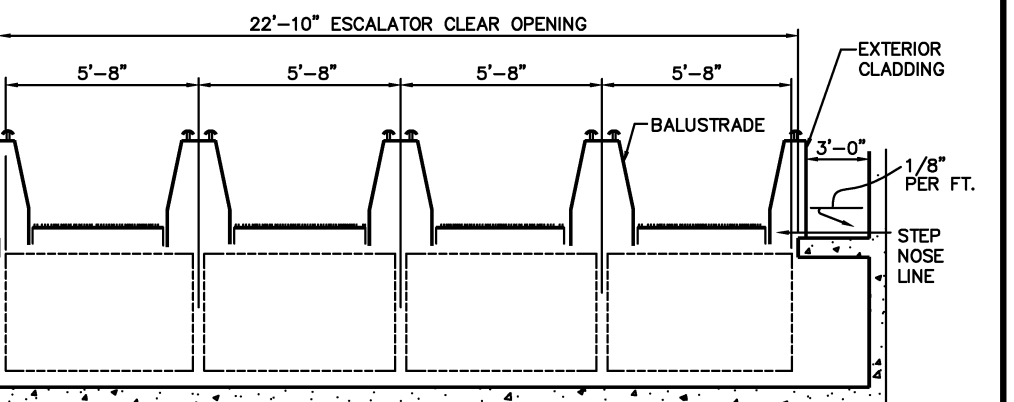
1. WIDTH OF MACHINE ROOM CORRESPONDS TO WIDTH OF FINISHED CLEAR OPENING SHOWN IN ESCALATOR CROSS SECTIONS.
2. THE DIMENSIONS SHOWN ON THIS DRAWING ARE A COMPOSITE OF DIMENSIONS FROM VARIOUS MANUFACTURERS OF HEAVY DUTY ESCALATORS.
3. COORDINATE VERTICAL CLEARANCE WITH THE ARCHITECTURAL DESIGN DRAWINGS. THE DIMENSIONS SHOWN ON THE DRAWING ARE MINIMUM REQUIREMENTS FOR EQUIPMENT INSTALLATION.
4. CONDUIT MUST BE RACKED VERTICALLY BETWEEN UNITS TO MINIMIZE EXPOSURE TO WATER INTRUSION. CONDUITS WILL NOT BE PERMITTED ON CONCRETE WELLWAY WALLS AND FLOOR.
5. THIS DRAWING IS FOR THE PURPOSE OF GIVING THE DESIGNERS THE NECESSARY STRUCTURAL PARAMETERS.
6. THE INTERMEDIATE SUPPORTS ARE TO BE EQUIDISTANT BETWEEN THE END SUPPORTS.
7. LOCATE ACCESS HATCH OUTSIDE PATRON'S WALKWAY.



**SECTION B-B**  
DD-M-80  
DOUBLE ESCALATOR



**SECTION C-C**  
DD-M-80  
TRIPLE ESCALATOR



**SECTION D-D**  
DD-M-80  
QUADRUPLE ESCALATOR

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
DD-M-079	ESCALATOR DETAILS, SECTIONS AND SUPPORTS	08/2001	ENGA	Revised and issued by the Authority			
DD-M-080	ESCALATOR DETAILS AND SUPPORTS						
DD-M-067	ESCALATOR LOAD AND DETAILS						
DD-A-U-021	UNDERGROUND STATION RAILING DETAIL						
DD-M-096	TYPICAL DRAINAGE DETAILS FOR ENTRANCES TO UNDERGROUND STATIONS						

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**  
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT  
OFFICE OF ENGINEERING AND ARCHITECTURE

SUBMITTED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DIRECTOR \_\_\_\_\_ May 3, 2001 DATE \_\_\_\_\_

**MECHANICAL DESIGN DRAWING**  
**CLASS "C"**  
**ESCALATOR AND STRUCTURAL WELLWAY**

SCALE: NONE DRAWING NO. DD-M-066