Oversight / NHS	
FHWA OVERSIGHT?	☐NO ☒YES
NATIONAL HIGHWAY SYSTEM?	☐NO ☒YES

DEPARTMENT OF TRANSPORTATION
STATE OF COLORADO

HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED

FEDERAL AID PROJECT NO. IM-0703-269

STATE HIGHWAY NO. 70

SUMMIT AND CLEAR CREEK COUNTIES

PROJECT CODE NO. 13166

Related Projects:
P.E. UNDER PROJECT:
Project Number IM 0703-242
Project Code 12117
R.O.W. Projects:
R.O.W. Project Description

NORTH BORE TUNNEL LIGHTING / VMS

TABULATION OF LENGTH & DESIGN DATA

STATION	LINEAR FEET ROADWAY FEET	LINEAR FEET MAJOR STRUCTURE
APPROACH TO THE PROJECT MILE POST 212.0 TO MILE POST 213.0		
STA. 105+00 BEGIN IM-0703-269 (I-70 WESTBOUND)	3100	NONE
BEGIN STRUCTURES STA. 136+00 EISENHOWER/JOHNSON MEMORIAL TUNNEL SOUTH TUNNEL (JOHNSON/I-70 EASTBOUND) STRUCTURE NO. F-13-X NORTH TUNNEL (EISENHOWER/I-70 WESTBOUND) STRUCTURE NO. F-12-Y STA. 225+31	8931	EJMT-NORTH TUNNEL & VENTILATION BUILDINGS
STA. 280+30 END IM-0703-269	5499	NONE
APPROACH TO THE PROJECT MILE POST 216.3 TO MILE POST 217.3		
TOTAL	17530	

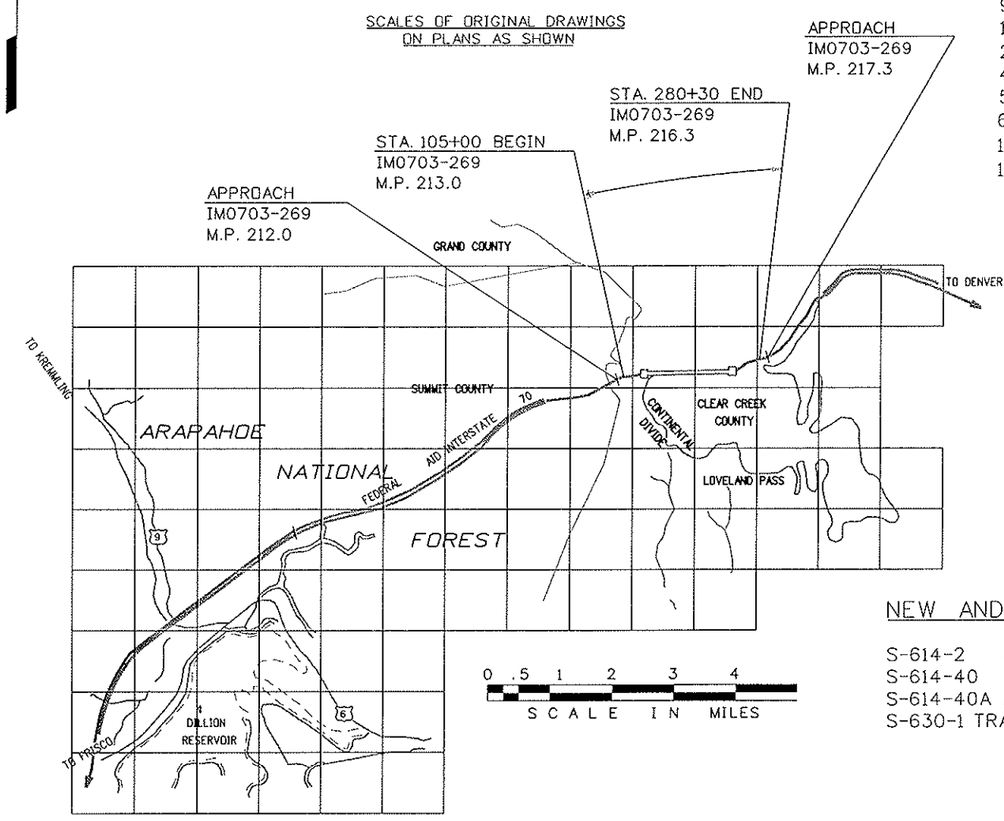
SUMMARY OF PROJECT LENGTH	FEET	MILES
ROADWAY (NET LENGTH) MAJOR STRUCTURE	8931	1.70
PROJECT GROSS LENGTH	17530	3.32

DESIGN DATA	
MINIMUM RADIUS OF CURVE (EXISTING)	3°30'
MAXIMUM GRADE (EXISTING)	2.23%
MINIMUM S.S.D HORIZONTAL (EXISTING)	350'
MINIMUM S.S.D VERTICAL (EXISTING)	490'
MAXIMUM DESIGN SPEED	*65 MPH
2023 DESIGN TRAFFIC	47,271 ADT
DHV % TRUCKS	10.62 %
CLEARZONE DISTANCE (TANGEANT)	
CLEARZONE DISTANCE (3' 3')	

* - POSTED SPEED LIMIT = 50 MPH.

N

SUMMIT AND CLEAR CREEK COUNTIES



INDEX OF SHEETS

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S-614-40 TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS 3/18/2002
S-614-40A ALTERNATE TRAFFIC SIGNAL INSTALLATION DETAILS 11/01/2003
S-630-1 TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 9/3/2003

Sverdrup
260 MADISON AVENUE
NEW YORK, NEW YORK
212-481-9460

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Last Modification Date:	12/04/03	Initials: DJB			
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Drawing File Name:	getsO1n.plt				
Acad Ver. R14	Scale: AS NOTED	Units: English			

DOT DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

No Revisions:	
Revised:	
Void:	

Contractor	
Resident Engineer - Inessa N. Zismon	IM 0703-269
Project Engineer -	13166
PROJECT STARTED - ACCEPTED -	Sheet Number 1
Comments: -	

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NOTES:

1. THE M & S STANDARD PLANS LISTED ABOVE HAVE BEEN SUPPLEMENTED AND MODIFIED BY NEW AND REVISED STANDARD PLANS. THOSE NEW AND REVISED STANDARD PLANS SPECIFICALLY APPLICABLE TO THIS PROJRCT ARE LISTED ON THE TITLE SHEET. PROJECT SPECIFIC REVISIONS AND SUPPLEMENTS TO THESE PLAN ARE ALSO INCLUDED IN THIS PLAN SET.

2. ALL OF THE M & S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY A DESIGNATED PAY ITEM.

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Plot File Name: $PLOTFILE*
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Sheet Revisions		
07/03/07	ASBUILT	DJB

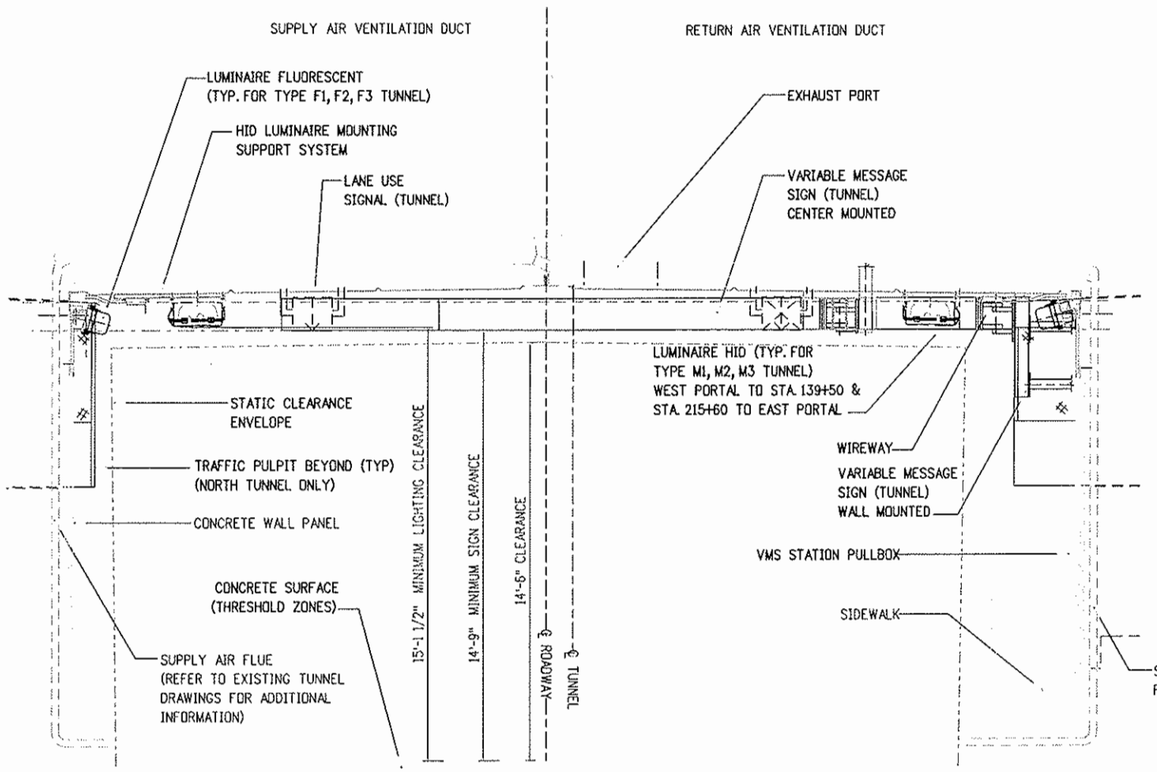
Colorado Department of Transportation
CDOT DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

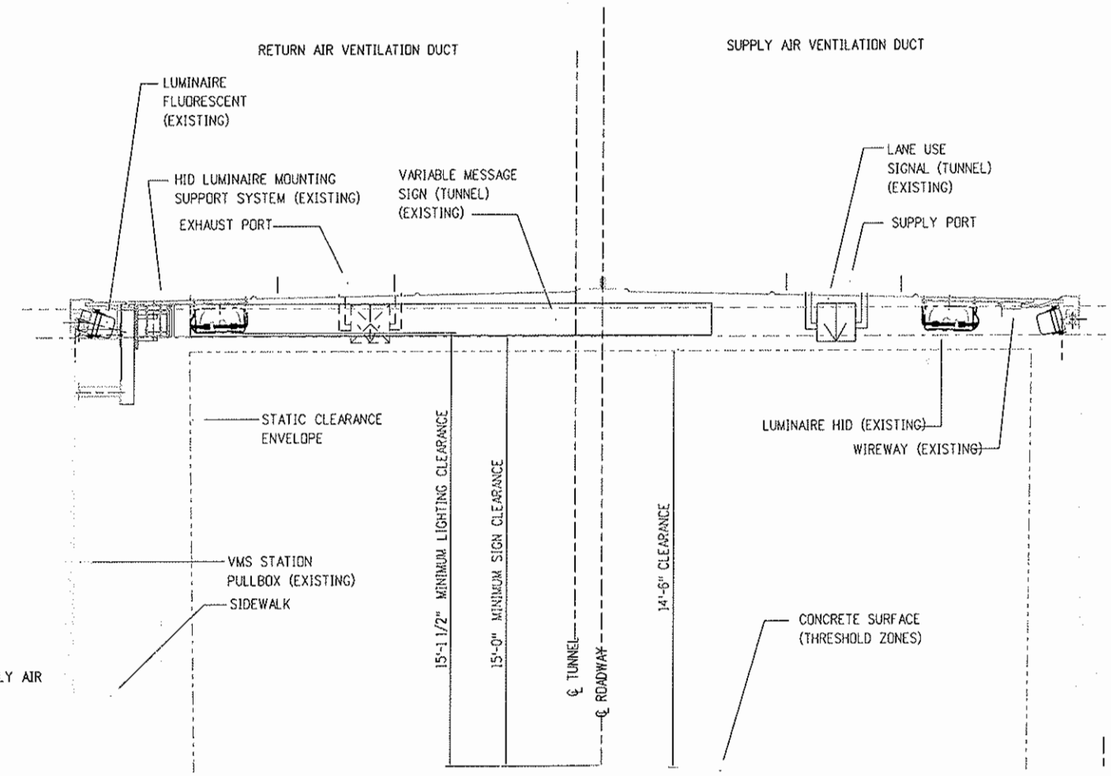
STANDARD PLANS LIST

Designer: C.D.O.T.
Detailer: D. Burroughs
Sheet Subset: GENERAL
Structure Numbers
Subset Sheets: 1 of 1

Project No./Code
IM 0703-269
13166
Sheet Number 2



NORTH TUNNEL
TYPICAL SECTION LOOKING EAST (1)
(AGAINST TRAFFIC)



SOUTH TUNNEL
TYPICAL SECTION LOOKING EAST (2)
(WITH TRAFFIC)
(FOR REFERENCE ONLY)

0 3 6 12 FEET
3/8 "= 1'-0"

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Sheet Revisions		
07/03/07	ASBUILT	DJB

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DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

TYPICAL SECTION

Designer:	J. KROLL	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	GENERAL	Subset Sheets:	1 of 2

Project No./Code
IM 0703-269
13166
Sheet Number 3

NOTES:

A. ALL CLEARANCES ARE BASED ON PHYSICAL DESIGN DIMENSIONS AS INDICATED ON DESIGN DRAWINGS. ACTUAL DIMENSIONS MAY VARY.

B. ALL VERTICAL DIMENSIONS ARE TAKEN FROM THE HIGHPOINT OF THE ROADWAY.

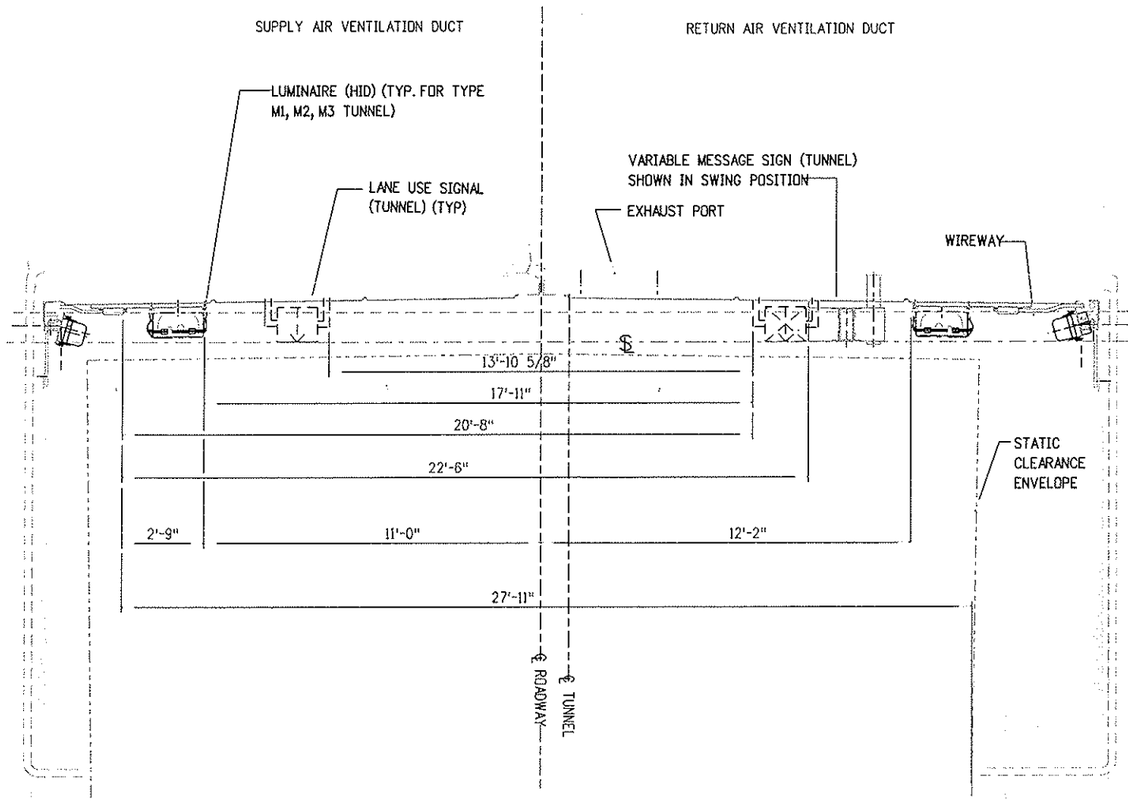
C. LANE USE SIGNALS AND LUMINAIRES (HID) ARE REMOVABLE WHEN REQUIRED.

LEGEND:

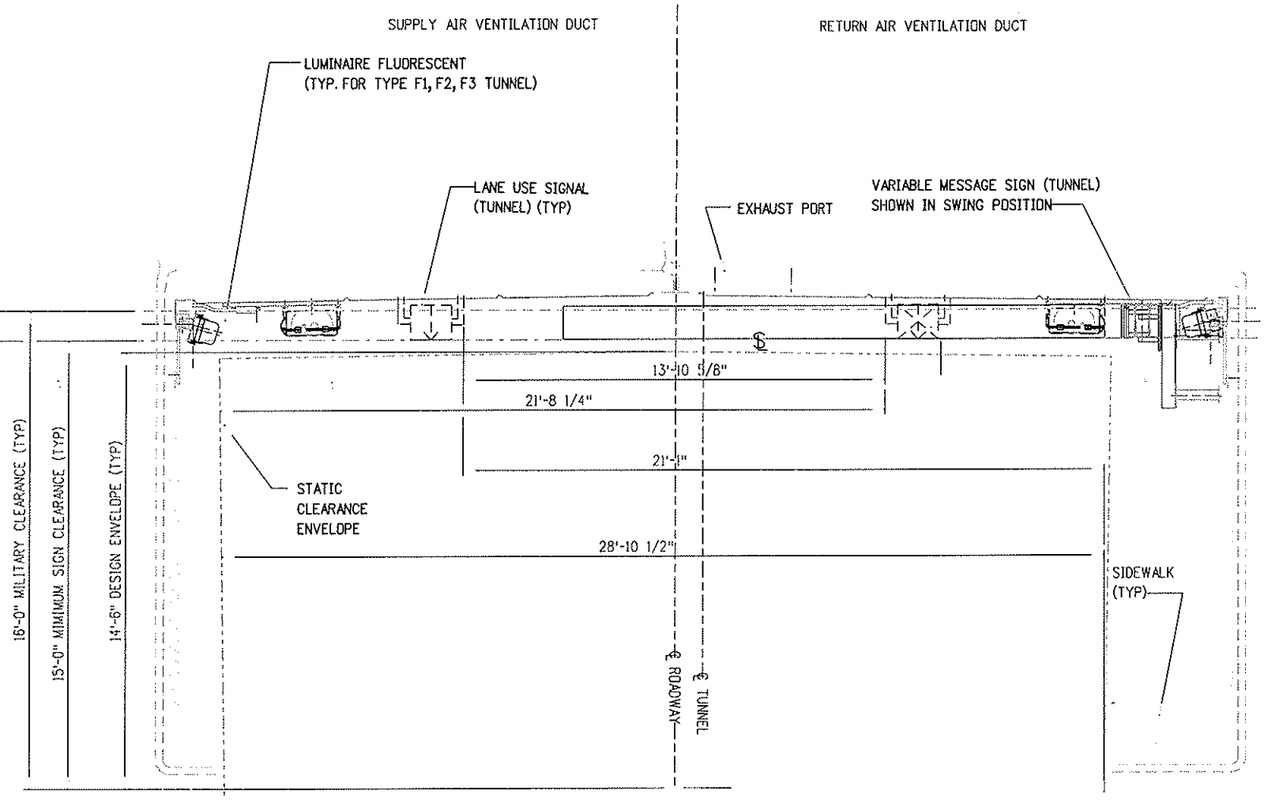
= 14'-6" DESIGN ENVELOPE

= 15'-0" MIN. SIGN CLEARANCE

= 16'-0" MILITARY CLEARANCE



NORTH TUNNEL
TYPICAL SECTION LOOKING EAST - 1
AT VMS #1



NORTH TUNNEL
TYPICAL SECTION LOOKING EAST - 2
AT VMS #2 THROUGH #11

0 3 6 12 FEET
3/8 "= 1'-0"

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P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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TYPICAL SECTION CLEARANCES (NORTH TUNNEL)

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Structure Numbers
Sheet Subset: GENERAL
Subset Sheets: 2 of 2

Project No./Code
IM 0703-269
13166
Sheet Number 4

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY PLAN	ROADWAY AS CONST.	PROJECT TOTALS PLAN	PROJECT TOTALS AS CONST.
			202-00700	Removal of Light Standard	EACH	16		16	
			202-00725	Removal of Existing Lighting System	L S	1		1	
			202-00750	Removal of Luminaire	EACH	2,407		2,407	
			202-00828	Removal of Traffic Signal Equipment	LS	1		1	
			250-00010	Environmental Health and Safety Management	L S	1		1	
			606-00301	Guardrail Type 3 (6-3 Post Spacing)	LF	315		315	
			606-01340	End Anchorage Type 3D	EACH	5		5	
			606-02005	End Anchorage (Flared)	EACH	5		5	
			613-00075	3/4 Inch Electrical Conduit	LF	1,000		1,000	
			613-00100	1 Inch Electrical Conduit	LF	41,000		41,000	
			613-00125	1-1/4 Inch Electrical Conduit	LF	18,400		18,400	
			613-00150	1-1/2 Inch Electrical Conduit	LF	19,000		19,000	
			613-00200	2 Inch Electrical Conduit	LF	700		700	
			613-00300	3 Inch Electrical Conduit	LF	48,000		48,000	
			613-00303	3 Inch Electrical Conduit Body (Type BUB)	EACH	8		8	
			613-00350	3-1/2 Inch Electrical Conduit	LF	200		200	
			613-01300	3 Inch Electrical Conduit (Plastic)	LF	2,500		2,500	
			613-03501	HID Fixtures (Type M1 Tunnel Luminaire)	EACH	483		483	
			613-03502	HID Fixtures (Type M2 Tunnel Luminaire)	EACH	66		66	
			613-03503	HID Fixtures (Type M3 Tunnel Luminaire)	EACH	36		36	
			613-03511	HID Fixtures (Type M1 Tunnel Luminaire)(Furnish Only)	EACH	15		15	
			613-04125	1-1/4 Inch Electrical Conduit (Liquidtight Flexible Metal)	LF	400		400	
			613-04250	2-1/2 Inch Electrical Conduit (Liquidtight Flexible Metal)	LF	50		50	
			613-04300	3 Inch Electrical Conduit (Liquidtight Flexible Metal)	LF	20		20	
			613-05000	Direct-Burial Cable	LF	8,200		8,200	
			613-05500	Wireway	LF	1,620		1,620	
			613-07024	Pull Box (24"x24"x8") Deep	EACH	2		2	
			613-07026	Pull Box (16"x24"x12") Deep	EACH	38		38	
			613-07027	Pull Box (28"x28"x12") Deep	EACH	2		2	
			613-07029	Pull Box (24"x24"x12") Deep	EACH	8		8	
			613-07030	Pull Box (24"x16"x24") Deep	EACH	4		4	
			613-07033	Pull Box (24"x20"x12") Deep	EACH	8		8	
			613-07035	Pull Box (32"x24"x12") Deep	EACH	14		14	
			613-07037	Pull Box (37"x37x12") Deep	EACH	2		2	
			613-07180	Pull Box (24"x36"x36") Deep	EACH	15		15	
			613-07190	Pull Box (36"x16"x12") Deep	EACH	4		4	
			613-07200	2 Inch Electrical Body (Type LB)	EACH	2		2	
			613-07210	2 Inch Electrical Conduit Body (Type TEE)	EACH	84		84	
			613-07300	3 Inch Electrical Conduit Body (Type LB)	EACH	4		4	
			613-10000	Wiring	L S	1		1	
			613-12100	Luminaire Fluorescent (Type F1 Tunnel)	EACH	1798		1798	
			613-12101	Luminaire Fluorescent (Type F1 Tunnel)(Furnish Only)	EACH	20		20	
			613-12200	Luminaire Fluorescent (Type F2 Tunnel)	EACH	72		72	
			613-12201	Luminaire Fluorescent (Type F2 Tunnel)(Furnish Only)	EACH	5		5	
			613-12300	Luminaire Fluorescent (Type F3 Tunnel)	EACH	268		268	
			613-12301	Luminaire Fluorescent (Type F3 Tunnel)(Furnish Only)	EACH	5		5	
			613-15750	HID Luminaire Mounting Support System	L S	1		1	
			613-20400	Lens Assemblies (Furnish Only)	EACH	50		50	
			613-32400	Light Standard Steel (40 Foot)	EACH	33		33	
			613-40000	Concrete Foundation Pad	EACH	33		33	

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Colorado Department of Transportation
DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed

No Revisions:

Revised:

Void:

SUMMARY OF APPROXIMATE QUANTITIES

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Structure Numbers
Sheet Subset: GENERAL
Subset Sheets: 1 of 3

Project No./Code
IM 0703-269
13166
Sheet Number 5

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY PLAN	ROADWAY AS CONST	PROJECT TOTALS PLAN	PROJECT TOTALS AS CONST
			613-50000	Lowering Device	EACH	4		4	
			613-50050	Portable Power Unit	EACH	2		2	
			613-50110	Lighting Fixture (Fluorescent Type A Tunnel Luminaire)	EACH	39		39	
			613-50325	Tunnel Lighting Control System	L S	1		1	
			613-50359	Power Transformer (150KVA,2400-480V,3 Phase)	EACH	8		8	
			613-50362	Power Transformer (300KVA,480-2400V,3 Phase)	EACH	2		2	
			613-70400	Luminaire High Pressure Sodium (400Watt)	EACH	33		33	
			613-71000	Luminaire High Pressure Sodium (1000Watt)	EACH	16		16	
			613-71500	Luminaire High Pressure Sodium (Type B)	EACH	352		352	
			613-80015	Circuit Breaker (150A, 3 Pole)	EACH	1		1	
			613-80040	Circuit Breaker (400A, 3 Pole)	EACH	3		3	
			613-80200	2.4KV Motor Control Center Cubicle	EACH	3		3	
			613-80270	Medium Voltage Load Interrupter Switch	EACH	4		4	
			613-80400	EXHAUST FAN	EACH	4		4	
			613-81022	Panelboard (225A, 277/480V, 3 Phase)	EACH	12		12	
			613-81500	Panelboard (5KVA Mini Load Center)	EACH	13		13	
			614-00818	Steel Sign Post (W8x18)	LF	56		56	
			614-03003	Concrete Footing (Type 3)	EACH	4		4	
			614-03100	Concrete Footing (Traffic Signal Pole)	EACH	4		4	
			614-10140	Variable Message Sign LED (Double Faced)	EACH	11		11	
			614-10141	Variable Message Sign LED (Double Faced) (Furnish Only)	EACH	1		1	
			614-10240	Lane Use Control Signal LED (Double Faced)	EACH	44		44	
			614-10242	Lane Use Control Signal LED (Double Faced) (Furnish Only)	EACH	2		2	
			614-10310	TMS Management Software	L S	1		1	
			614-10320	System Intergration and Testing	L S	1		1	
			614-10350	VMS Mounting Support and Wiring (Double Faced)	EACH	11		11	
			614-10351	VMS Mounting Support and Wiring (Double Faced) (Furnish Only)	EACH	1		1	
			614-10360	LUS Mounting Support and Wiring (Double Faced)	EACH	44		44	
			614-70336	Traffic Signal Face (12-12-12)	EACH	4		4	
			614-72856	Recessed Control Cabinet	EACH	11		11	
			614-72857	Surface Mounted Control Cabinet	EACH	4		4	
			614-80000	Flashing Beacon	EACH	4		4	
			614-81010	Traffic Signal-Light Pole Steel (1 Mast Arm)	EACH	2		2	
			614-84455	Traffic Signal Pedestal Pole (Install Only)	EACH	4		4	
			614-86245	Controller (Type 170E)	EACH	13		13	
			614-86721	Weigh-In-Motion (LED) (Single Faced)	EACH	1		1	
			614-87001	Work Stations and Software	EACH	2		2	
			614-87006	Fiber Optic Termination Panel - 6 Fiber	EACH	11		11	
			614-87012	Fiber Optic Termination Panel-12 Fiber	EACH	4		4	
			614-87015	Buffer Tube Fan Out Kit	EACH	34		34	
			614-87020	Optical Transceiver	EACH	15		15	
			614-87040	Cable Innerduct (1 Inch)	LF	30,000		30,000	
			614-87318	Master Computer and Software	LS	1		1	
			614-87407	Fiber Optic Cable (Multi Mode) (6 Strands)	LF	60,000		60,000	

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Colorado Department of Transportation

P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775

Region 1 Mountain Residency I.N.Z.

As Constructed

No Revisions:

Revised:

Void:

SUMMARY OF APPROXIMATE QUANTITIES

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Sheet Subset: GENERAL
Structure Numbers:
Subset Sheets: 2 of 3

Project No./Code
IM 0703-269
13166
Sheet Number 6

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY																PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.															PLAN	AS CONST.
			626-00000	Mobilization	L S	1																1	
				FORCE ACCOUNT ==========																			
			700-70010	F/A Minor Contract Revisions	F A	1																1	
			700-70020	F/A On-The-Job Trainee	EACH	1																1	
			700-70022	F/A OJT Pilot	F A	1																1	
			700-70028	F/A ESB Program	F A	1																1	
			700-70492	F/A Traffic Control For Installation	F A	1																1	

CALCULATION OF WIRING NORTH TUNNEL

APPROACH LIGHTING SUBSET

WIRING DESCRIPTION	UNIT	QUANTITY
WIRING (#4 AWG, 600V, CU/XHHW)	LF	2400
WIRING (1 AWG, 600V, CU/XHHW)	LF	2800
WIRING (#10 AWG, 600V, CU/XHHW)	LF	1300
WIRING (#3 AWG, 600V, CU/XHHW)	LF	5600

NOTE: THE QUANTITIES PROVIDED IN THE ABOVE TABLES ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL QUANTITIES. ALL WIRING SHALL BE PAID FOR UNDER PAY ITEM 613 "WIRING".

TUNNEL POWER SUBSET

WIRING DESCRIPTION	UNIT	QUANTITY
WIRING (#8, 600V, CU/XHHW)	LF	46,000
WIRING (#10, 600V, CU/XHHW)	LF	557,000
WIRING (#2, SHIELDED 5KV, CU/EPR)	LF	90,000
WIRING (#4, 600V, CU/XHHW)	LF	64,000
WIRING (#6, 600V, CU/XHHW)	LF	135,000
WIRING (#4/0, 600V, CU/XHHW)	LF	700

VENT BUILDING ELECTRICAL SUBSET

WIRING DESCRIPTION	UNIT	QUANTITY
WIRING (500KCMIL, 600V, CU/XHHW)	LF	1,500
WIRING (4/0, 600V, CU/XHHW)	LF	400
WIRING (#2 SHIELDED 5 KV, CU/EPR)	LF	5,000
WIRING (#4, 600V, CU/XHHW)	LF	8000
WIRING (#8, 600V, CU/XHHW)	LF	300
WIRING (#10, 600V, CU/XHHW)	LF	14,000
WIRING (#1/0, 600V, CU/XHHW)	LF	200
WIRING (#2, 600V, CU/XHHW)	LF	700

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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SUMMARY OF APPROXIMATE QUANTITIES

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Sheet Subset: GENERAL
Structure Numbers
Subset Sheets: 3 of 3

Project No./Code
IM 0703-269
13166
Sheet Number 7

PI CURVE COORDINATES AND CURVE DATA

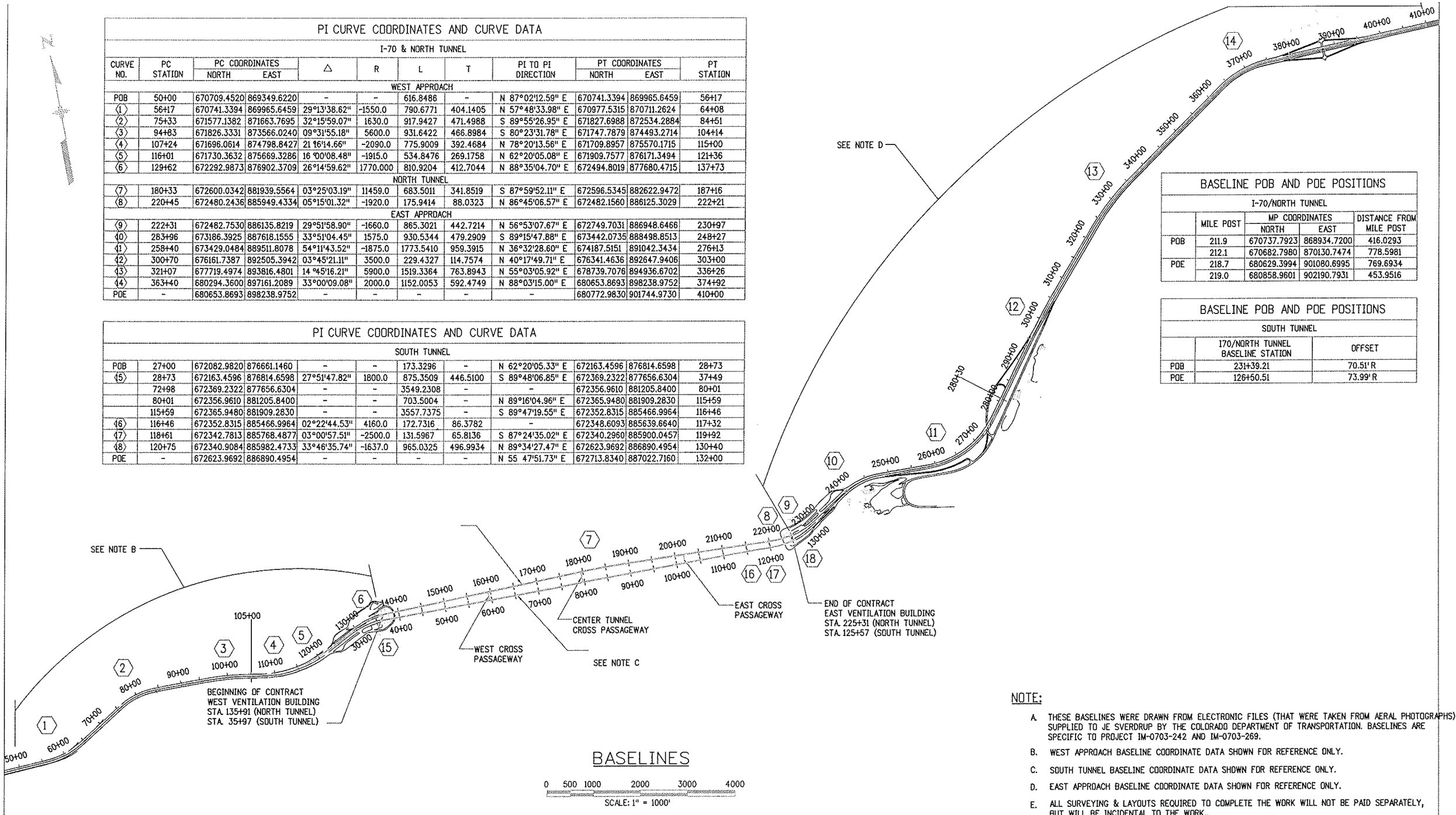
I-70 & NORTH TUNNEL

CURVE NO.	PC STATION	PC COORDINATES NORTH	PC COORDINATES EAST	Δ	R	L	T	PI TO PI DIRECTION	PT COORDINATES NORTH	PT COORDINATES EAST	PT STATION
WEST APPROACH											
POB	50+00	670709.4520	869349.6220	-	-	616.8486	-	N 87°02'12.59" E	670741.3394	869965.6459	56+17
⟨1⟩	56+17	670741.3394	869965.6459	29°13'38.62"	-1550.0	790.6771	404.1405	N 57°48'33.98" E	670977.5315	870711.2624	64+08
⟨2⟩	75+33	671577.1382	871663.7695	32°15'59.07"	1630.0	917.9427	471.4988	S 89°55'26.95" E	671827.6988	872534.2884	84+51
⟨3⟩	94+83	671826.3331	873566.0240	09°31'55.18"	5600.0	931.6422	466.8984	S 80°23'31.78" E	671747.7879	874493.2714	104+14
⟨4⟩	107+24	671696.0614	874798.8427	21°16'14.66"	-2090.0	775.9009	392.4684	N 78°20'13.56" E	671709.8957	875570.1715	115+00
⟨5⟩	116+01	671730.3632	875669.3286	16°00'08.48"	-1915.0	534.8476	269.1758	N 62°20'05.08" E	671909.7577	876171.3494	121+36
⟨6⟩	129+62	672292.9873	876902.3709	26°14'59.62"	1770.000	810.9204	412.7044	N 88°35'04.70" E	672494.8019	877680.4715	137+73
NORTH TUNNEL											
⟨7⟩	180+33	672600.0342	881939.5564	03°25'03.19"	11459.0	683.5011	341.8519	S 87°59'52.11" E	672596.5345	882622.9472	187+16
⟨8⟩	220+45	672480.2436	885949.4334	05°15'01.32"	-1920.0	175.9414	88.0323	N 86°45'06.57" E	672482.1560	886125.3029	222+21
EAST APPRDACH											
⟨9⟩	222+31	672482.7530	886135.8219	29°51'58.90"	-1660.0	865.3021	442.7214	N 56°53'07.67" E	672749.7031	886948.6466	230+97
⟨10⟩	283+96	673186.3925	887618.1555	33°51'04.45"	1575.0	930.5344	479.2909	S 89°15'47.88" E	673442.0735	888498.8513	248+27
⟨11⟩	258+40	673429.0484	889511.8078	54°11'43.52"	-1875.0	1773.5410	959.3915	N 36°32'28.60" E	674187.5151	891042.3434	276+13
⟨12⟩	300+70	676161.7387	892505.3942	03°45'21.11"	3500.0	229.4327	114.7574	N 40°17'49.71" E	676341.4636	892647.9406	303+00
⟨13⟩	321+07	677719.4974	893816.4801	14°45'16.21"	5900.0	1519.3364	763.8943	N 55°03'05.92" E	678739.7076	894936.6702	336+26
⟨14⟩	363+40	680294.3600	897161.2089	33°00'09.08"	2000.0	1152.0053	592.4749	N 88°03'15.00" E	680653.8693	898238.9752	374+92
POE	-	680653.8693	898238.9752	-	-	-	-	-	680772.9830	901744.9730	410+00

PI CURVE COORDINATES AND CURVE DATA

SOUTH TUNNEL

POB	27+00	672082.9820	876661.1460	-	-	173.3296	-	N 62°20'05.33" E	672163.4596	876814.6598	28+73
⟨15⟩	28+73	672163.4596	876814.6598	27°51'47.82"	1800.0	875.3509	446.5100	S 89°48'06.85" E	672369.2322	877656.6304	37+49
	72+98	672369.2322	877656.6304	-	-	3549.2308	-	-	672356.9610	881205.8400	80+01
	80+01	672356.9610	881205.8400	-	-	703.5004	-	N 89°16'04.96" E	672365.9480	881909.2830	115+59
	115+59	672365.9480	881909.2830	-	-	3557.7375	-	S 89°47'19.55" E	672352.8315	885466.9964	116+46
⟨16⟩	116+46	672352.8315	885466.9964	02°22'44.53"	4160.0	172.7316	86.3782	-	672348.6093	885639.6640	117+32
⟨17⟩	118+61	672342.7813	885768.4877	03°00'57.51"	-2500.0	131.5967	65.8136	S 87°24'35.02" E	672340.2960	885900.0457	119+92
⟨18⟩	120+75	672340.9084	885982.4733	33°46'35.74"	-1637.0	965.0325	496.9934	N 89°34'27.47" E	672623.9692	886890.4954	130+40
POE	-	672623.9692	886890.4954	-	-	-	-	N 55 47'51.73" E	672713.8340	887022.7160	132+00



BASELINES

0 500 1000 2000 3000 4000

SCALE: 1" = 1000'

BASELINE POB AND POE POSITIONS

I-70/NORTH TUNNEL

	MILE POST	MP COORDINATES NORTH	MP COORDINATES EAST	DISTANCE FROM MILE POST
POB	211.9	670737.7923	868934.7200	416.0293
	212.1	670682.7980	870130.7474	778.5981
POE	218.7	680629.3994	901080.6995	769.6934
	219.0	680858.9601	902190.7931	453.9516

BASELINE POB AND POE POSITIONS

SOUTH TUNNEL

	170/NORTH TUNNEL BASELINE STATION	OFFSET
POB	231+39.21	70.51' R
POE	126+50.51	73.99' R

NOTE:

A. THESE BASELINES WERE DRAWN FROM ELECTRONIC FILES (THAT WERE TAKEN FROM AERAL PHOTOGRAPHS) SUPPLIED TO JE SVERDRUP BY THE COLORADO DEPARTMENT OF TRANSPORTATION. BASELINES ARE SPECIFIC TO PROJECT IM-0703-242 AND IM-0703-269.

B. WEST APPROACH BASELINE COORDINATE DATA SHOWN FOR REFERENCE ONLY.

C. SOUTH TUNNEL BASELINE COORDINATE DATA SHOWN FOR REFERENCE ONLY.

D. EAST APPROACH BASELINE COORDINATE DATA SHOWN FOR REFERENCE ONLY.

E. ALL SURVEYING & LAYOUTS REQUIRED TO COMPLETE THE WORK WILL NOT BE PAID SEPARATELY, BUT WILL BE INCIDENTAL TO THE WORK..

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Date of Plot: $$$$DATE$$$$

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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GENERAL PLAN AND BASELINES

Designer: L F KEEGAN
Detailer: C W BAISLY
Sheet Subset: GENERAL
Structure Numbers
Subset Sheets: 1 of 1

Project No./Code
IM 0703-269
13166
Sheet Number 8

CONDUIT, WIRE AND PLAN SYMBOLS

EXPOSED CONDUIT

CONDUIT CONCEALED, EMBEDDED OR BELOW GRADE

CONDUIT TURNING TOWARDS VIEWER

CONDUIT TURNING AWAY FROM VIEWER

CONDUIT CHANGE IN ELEVATION

1 — CONSTRUCTION NOTES

WATERTIGHT (LIQUIDTIGHT) FLEXIBLE METAL CONDUIT

P500 — CONDUIT CONTAINING CIRCUITS. (SEE CIRCUIT SCHEDULES FOR CONDUIT WIRE TYPE SIZE, NUMBER AND CIRCUIT DESCRIPTION

(J) — JUNCTION BOX

JB-P500 / P500 — JUNCTION OR PULL BOX (DIMENSION ON PLAN)

GROUND CONDUCTOR CONNECTION, BOLTED

CONDUIT RUN EXPOSED TO PANEL BOARD INDICATED ON PLANS. CROSS-HATCHED LINES INDICATE QUANTITY OF CONDUCTORS IN CONDUIT. EACH HALF ARROW INDICATES A SINGLE POLE

GROUND CONDUCTOR

QUANTITY OF NEUTRAL CONDUCTOR

QUANTITY OF PHASE CONDUCTOR

(P) — PHOTOELECTRIC CONTROL SENSOR (APPROACH LIGHTING)

GFI — DUPLEX RECEPTACLE GFI= GROUND FAULT INTERRUPTER

LIGHTING FIXTURE (HID)

LIGHTING FIXTURE (FLUORESCENT)

WIREWAY

BREAK IN WIREWAY(S) TO ACCOMMODATE VMS SIGN

LANE USE SIGN LOCATION

VARIABLE MESSAGE SIGN LOCATION

EXISTING VARIABLE MESSAGE SIGN LOCATION

INDICATES DEMOLITION ITEM(S)

DIAGRAM SYMBOLS

201 / 225 / 200 — MOLDED CASE AIR CIRCUIT BREAKER, THERMAL MAGNETIC TYPE
FRAME SIZE AS INDICATED (225)
TRIP SETTING AS INDICATED (200)
3 POLE, 480 VOLT EXCEPT WHERE OTHERWISE INDICATED.
"201" BREAKER DESIGNATION NUMBER.

ELECTRICALLY OPERATED DRAWOUT
480 VOLT POWER AIR CIRCUIT BREAKER. DUAL MAGNETIC TRIP UNDER VOLTAGE TRIP AS INDICATED.

120V-480V / CPT — FUSE AND CONTROL POWER TRANSFORMER

500/5 / CT — CURRENT TRANSFORMER (CT) RATING AS INDICATED

(25) — MOTOR - HORSEPOWER AS INDICATED (25)

DISCONNECT SWITCH (UNFUSED)

(ETM) — ELASPED TIME METER - RESET TYPE

(27) — UNDERVOLTAGE RELAY

(46) — PHASE - BALANCE CURRENT RELAY

(49) — THERMAL OVERLOAD RELAY

(52C) — CIRCUIT BREAKER CLOSING COIL

(52T) — CIRCUIT BREAKER TRIP COIL

(50 / GS) — INSTANTANEOUS OVERCURRENT GROUND RELAY

(V) — VOLTMETER

VS — VOLTMETER SWITCH

AS — AMMETER SWITCH

DRAWOUT DEVICE AS SPECIFIED

LOCAL AND/OR REMOTE CONTROLS & INTERLOCKS (SEE ELEMENTARY DIAGRAMS)

600 / 100 — DUAL SPEED MOTOR (AS INDICATED)
600 HORSEPOWER (HIGHER SPEED)
100 HORSEPOWER (LOWER SPEED)

100E — FUSED LOAD AIR INTERRUPTER SWITCH WITH "E" RATED FUSES

CL / H / I1 / CL — MULTI-SPEED, DRAWOUT TYPE, FAN MOTOR STARTER/CONTROLLER
H= HIGH SPEED
I1= INTERMEDIATE SPEED 1
I2= INTERMEDIATE SPEED 2
L= LOW SPEED
CL= CURRENT LIMITING (FUSE)

75 — POWER FACTOR CORRECTION CAPACITOR KVAR RATING AS INDICATED

DRY-TYPE TRANSFORMER, DELTA PRIMARY-DELTA SECONDARY WINDINGS

DRY-TYPE TRANSFORMER, DELTA PRIMARY-WYE SECONDARY WINDINGS

225 / AS / ST — MOLDED CASE CIRCUIT BREAKER- TRIP RATING AS INDICATED, 3 POLE UNLESS OTHERWISE INDICATED.
ST INDICATES SHUNT TRIP.
AS INDICATES AUXILARY ALARM SWITCH.

6 — LIGHTING OR POWER PANELBOARD NO. AS INDICATED

(H) / (L) — CONTACTOR (MOTOR STARTER) COIL, LETTER DENOTES SPEED

50 A — OIL FUSE CUTOUT WITH FUSE LINE(S) AS INDICATED

NORMALLY OPEN CONTACT

NORMANALLY CLOSED CONTACT

52a — AUXILIARY CONTACT-OPEN WHEN BREAKER IS OPEN (NORMALLY OPEN)

52b — AUXILIARY CONTACT-CLOSED WHEN BREAKER IS OPEN (NORMALLY CLOSE)

CS C — CONTROL SWITCH (CLOSING)

CS T — CONTROL SWITCH (TRIPPING)

E — ELECTRICAL INTERLOCK

K — KEY INTERLOCK (KIRK-KEY)

CONTROL SWITCH WITH KEY INTERLOCK SWITCH

ABBREVIATIONS

A	AMP
AWG	AMREICAN WIRE GAGE
BKR, CB, OR C/B	CIRCUIT BREAKER
BLDG	BUILDING
C	CONDUIT
CC	CROSSCUT
CKT	CIRCUIT
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
E	EVEN (NUMBER)
ELEC	ELECTRICAL
EM	EMERGENCY
EXIST.	EXISTING
GND	GROUND
GS	GROUND SENSOR
HID	HIGH INTENSITY DISCHARGE (LUMINAIRE)
HT	HEAT TRACE
INCL	INCLUDING
INT	INTERIOR ZONE
KV	KILOVOLT
LTG	LIGHTING
LUS	LANE USE SIGN
MB	MESSAGE BOARD
MV	MEDIUM VOLTAGE (2.4 KV TO 5.0 KV)
NO.	NORTH
O	ODD (NUMBER)
R1	CALLOUT FOR CONCRETE ROAD SURFACE
SO.	SOUTH
SS	STAINLESS STEEL
ST	SHUNT TRIP
STA	STATION
TH	THRESHOLD ZONE
THRESH	THRESHOLD
TR1	TRANSITION ZONE 1
TR2	TRANSITION ZONE 2
TR3	TRANSITION ZONE 3
TYP.	TYPICAL
V	VOLT
VENT	VENTILATION (BUILDING)
VMS	VARIABLE MESSAGE SIGN

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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LEGEND TO ELECTRICAL SYMBOLS

Designer:	J. KROLL	Structure Numbers	
Detailer:	C. BAISLY		
Sheet Subset:	GENERAL	Subset Sheets:	1 of 1

Project No./Code
IM 0703-269
13166
Sheet Number 9

ELECTRICAL DEMOLITION NOTES:

1. THE MAIN OBJECTIVE SHALL BE TO MAINTAIN A FULLY FUNCTIONAL TUNNEL DURING CONSTRUCTION. ALL LIGHTING, VMS, LUS OR ELECTRICAL DISTRIBUTION, DEMOLITION OR MOBILIZATION THAT REQUIRES LANE CLOSURE SHALL BE PERFORMED DURING OFF-PEAK TRAFFIC PERIODS AND COORDINATED WITH THE ENGINEER. SEE CONTRACT DOCUMENTS AND SPECIAL PROVISIONS TO THE SPECIFICATIONS FOR OTHER RESTRICTIONS.

2. PRIOR TO RE-OPENING OF A LANE TO TRAFFIC, INSURE EQUIPMENT, DEVICES AND ANCHORAGE ARE SECURE AND MEET CLEARANCE REQUIREMENTS. CLEAN-UP SHALL BE PERFORMED CONTINUOUSLY AND SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS ON A DAILY BASIS.

3. DRAWINGS REPRESENT DIAGRAMMATIC LOCATIONS AND APPROXIMATE QUANTITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES AND SHALL EXERCISE SUITABLE CARE TO AVOID DISRUPTION OR DAMAGE OF UTILITIES OR EQUIPMENT TO REMAIN IN SERVICE. REPAIR DAMAGE ACCORDING TO THE PROVISIONS.

4. REFER TO ELECTRICAL DRAWINGS TO COORDINATE SUITABLE PHASING OF DEMOLITION AND NEW CONSTRUCTION. IMMEDIATELY NOTIFY THE ENGINEER IF CONCEALED UTILITIES, CONDUIT OR CONDITIONS ARE DISCOVERED THAT WILL INHIBIT NEW CONSTRUCTION INDICATED ON THE CONTRACT DOCUMENTS. CONTRACTOR TO PROPOSE RESOLUTIONS FOR APPROVAL BY THE ENGINEER.

5. MAINTAIN EMERGENCY CIRCUITING UNTIL RAPID CHANGE-OVER TO NEW EMERGENCY CIRCUITING OCCURS. ALL TEMPORARY WIRING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE AND BE PRE-APPROVED BY THE ENGINEER. RE-LABEL ALL CIRCUIT BREAKERS WITH REVISED LOAD DESCRIPTIONS WHERE CONNECTED LOAD CHANGES HAVE OCCURED.

6. REUSE EXISTING PULLBOXES, CONDUIT OR PENETRATIONS WHERE SUITABLE, SUCH AS WHERE THE ELECTRICAL ROOM CONDUIT INTERFACES WITH THE TUNNEL. ANY ANTICIPATED REUSE OF EXISTING ITEMS SHALL FIRST BE APPROVED IN WRITING BY THE ENGINEER.

7. WHERE EQUIPMENT OR DEVICE IS INDICATED AS REMOVED, REMOVE EXISTING EXPOSED CONDUIT IN ITS ENTIRETY TO WHERE IT IS EMBEDDED OR CONCEALED. RETAIN 18" OF SURPLUS CONDUCTOR LENGTH, TAPE ENDS AND PERMANENTLY MARK TO IDENTIFY SOURCE. INSTALL NEW JUNCTION BOX AND INSERT SURPLUS CONDUCTOR LENGTH INTO BOX, PLUG ALL HOLES AND ADD BLANK COVERPLATE. INSIDE OF TUNNELS, PROVIDE HIGH DENSITY POLYETHYLENE GASKETS TO WITHSTAND HIGH PRESSURE WASHDOWN. AT SUPPLY END, DISCONNECT CONDUCTOR AND MAKE SAFE. ABANDON IN THE SAME MANNER WITH PERMANENT MARKING TO INDICATE DESTINATION, SUCH AS "TUNNEL SO. WALL, STA 60+00".

8. WHERE CONDUIT IS PERMANENTLY REMOVED ON BOTH SIDES OF A PENETRATION, SEAL HOLE WITH 2-HOUR RATED FIRESTOP. PATCH HOLES IN TUNNEL GLAZED CERAMIC WALLS AND ENAMELED CEILING PANELS PER TUNNEL MAINTENANCE PROCEDURES, TO MATCH EXISTING FINISH.

9. SAWCUT AND CAREFULLY REMOVE THE MINIMUM AMOUNT OF TUNNEL GLAZED CERAMIC WALL AS REQUIRED TO INSTALL (RECESS) THE VMS/LUS SIGN CONTROLLER CABINETS AND ASSOCIATED CONDUIT. STORE SALVAGABLE GLAZED UNITS FOR FUTURE REUSE AND/OR PATCHING.

10. ASBESTOS ABATEMENT PROCEDURES SHALL BE UTILIZED IN THE VENTILATION BUILDING FIRST FLOOR AREA & CONTROL ROOM CEILINGS. TEST OTHER AREAS THAT MAY BE SUSPECT AND PROVIDE A WRITTEN REPORT OF FINDINGS TO THE ENGINEER. ABESTOS ABATEMENT SHALL BE HANDLED IN ACCORDANCE TO SECTION 250 OF THE SPECIFICATIONS.

11. LOW LEVEL OF HEAVY METALS MAY BE PRESENT IN VENTILATION DUCTS AND SHALL BE HANDLED IN ACCORDANCE WITH SECTION 250 OF THE SPECIFICATIONS.

12. PROVIDE TEMPORARY CONNECTION BETWEEN ADJACENT FLUORESCENT LIMINAIRES AT VMS LOCATIONS AS REQUIRED. INSTALL LIQUIDTIGHT FLEXIBLE CONDUIT WITH EQUIVALENT SIZE AND TYPE OF CIRCUIT CONDUCTORS, SEE SPECIFICATIONS, "SPECIAL CONSTRUCTION REQUIREMENTS".

13. REMOVE EXISTING LUMINAIRE, CONDUIT AND WIRING.

14. STAGE REMOVAL OF WALL MOUNTED LUMINAIRES, CONDUIT AND WIRING AS DESCRIBED IN THE SPECIAL CONSTRUCTION REQUIREMENTS.

LIGHTING DEMOLITION NOTES:

1. REMOVE NORTH TUNNEL FLUORESCENT & HPS LIGHTING AND ASSOCIATED WIRING AS INDICATED ON PLAN, DRAWINGS AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS. ALL REMOVED HPS FIXTURES WILL BECOME PROPERTY OF THE CONTRACTOR.
2. FOR NORTH TUNNEL FLUORESCENT LIGHTING DEMOLITION DETAIL, SEE ELECT DEMO SUBSET SHEET 5.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF LUMINAIRES INCLUDING BALLASTS AND LAMPS IN ACCORDANCE WITH THE STATE OF COLORADO RULES AND REGULATIONS GOVERNING ALL SUCH DISPOSAL. REFER TO SECTION 250 OF THE SPECIFICATIONS SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
4. AFTER REMOVAL OF EXISTING HID LUMINAIRES, CONTRACTOR SHALL PROVIDE SNAP-IN PLUGS TO SEAL UP LEFTOVER HOLES. FINISH TO MATCH EXISTING CEILING PANEL AND MATERIAL.
5. WHEN REMOVING EXISTING HID FIXTURES WHERE THE CEILING SYSTEM IS A HUNG CEILING, CONTRACTOR SHALL REMOVE ALL HARDWARE USED TO SUPPORT FIXTURE WHICH EXTENDS THROUGH THE CEILING PANEL TO THE STRUT. LEAVE EXISTING STRUT ABOVE IN PLACE.
6. BEYOND HUNG CEILING AREA, REMOVE AND DISPOSE OF ALL FIXTURE HARDWARE AND PLATES IN DUCTS WHICH ARE REMOVABLE WITHOUT REMOVING THE CEILING PANEL. IN AREAS WHERE THE PLATE RESTS ON THE CEILING PANEL, PUSH THREADED BOLT/PLATE BEYOND LOWER SURFACE OF CEILING PANEL. PRIOR TO INSTALLATION, PLUG MATERIAL SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
7. CONTRACTOR SHALL PROVIDE PLANKING IN AREA OF SUSPENDED CEILINGS AT TUNNEL PORTAL AREAS.

QUANTITIES - NORTH TUNNEL ELECTRICAL DEMOLITION

ITEM NUMBER	DESCRIPTION	UNIT	ROADWAY	
			PLAN	AS CONST.
202	REMOVAL OF LUMINAIRE	EACH	2407	
202	REMOVAL OF EXISTING LIGHTING & VMS/LUS SYSTEM	LS	1	
250	ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT	LS	1	

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Last Modification Date: 02/07/02	Initials: DJR
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Drawing File Name:	gesno01n.dgn
Acad Ver. R14 Scale: NTS	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

Colorado Department of Transportation
DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
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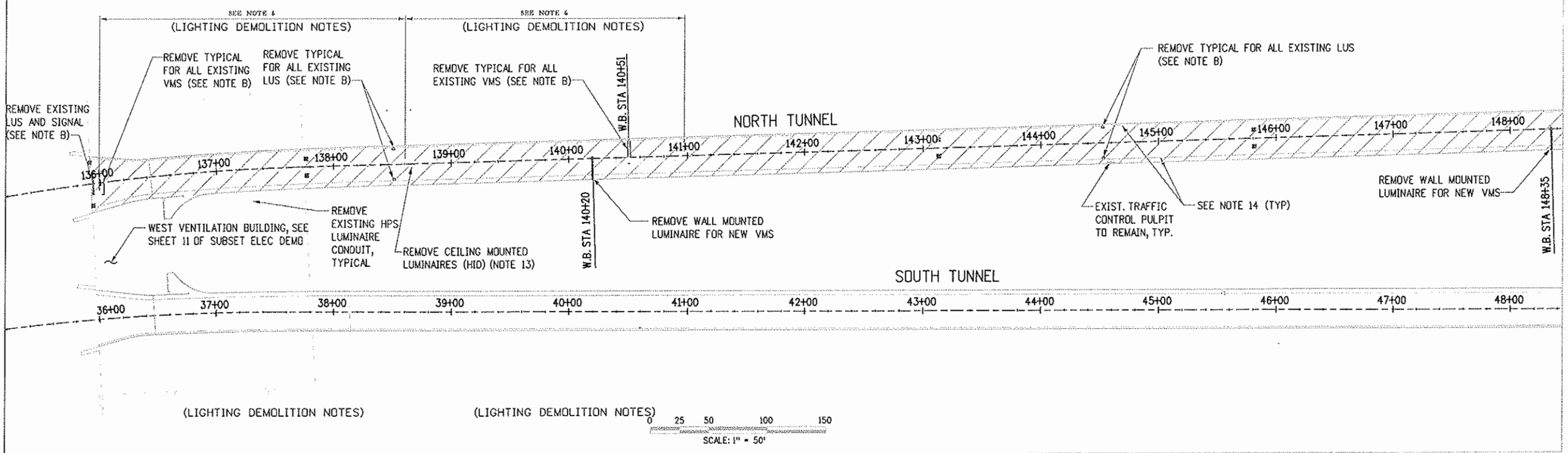
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

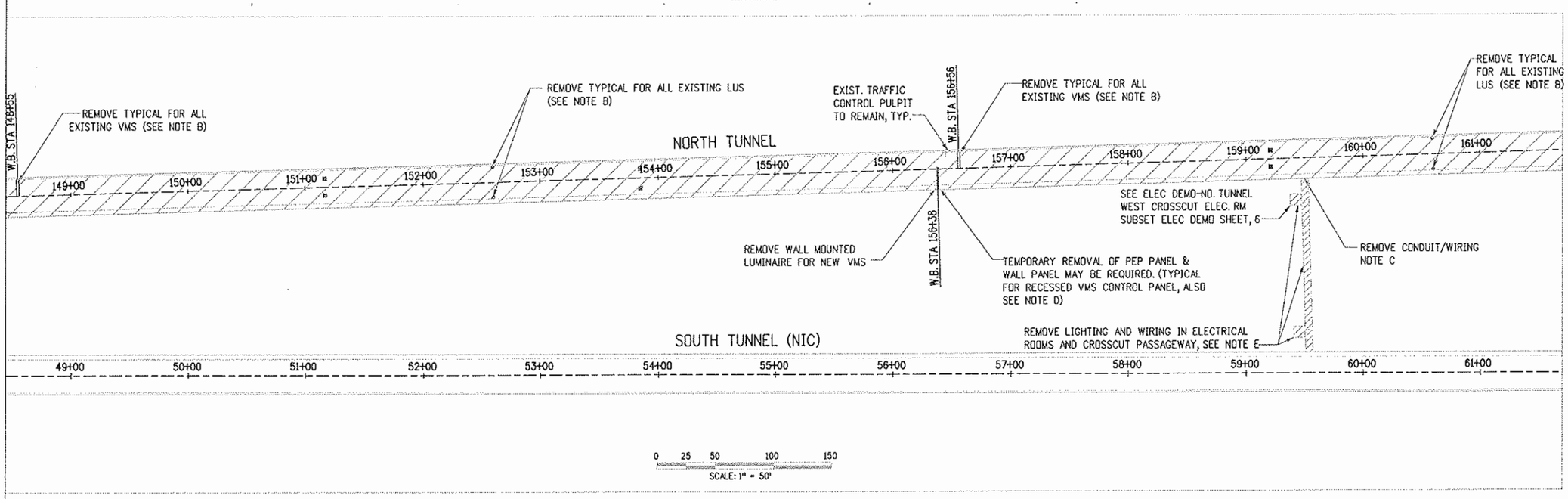
TUNNEL ELECTRICAL DEMO NOTES & QUANTITIES

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: ELECT DEMO
Structure Numbers:
Subset Sheets: 1 of 15

Project No./Code
IM 0703-269
13166
Sheet Number 10



PLAN 1



PLAN 2

NOTES

A. SEE GENERAL DEMOLITION NOTES, SHEET 1 OF SUBSET ELECT DEMO.

B. REFER TO VMS DRAWINGS FOR REMOVALS AND ASSOCIATED WORK.

C. SPACE FOR CONDUIT ROUTING FROM TUNNEL INTO CROSSCUT PASSAGE-WAY IS LIMITED. CONTRACTOR SHALL COORDINATE PHASING SUITABLE TO MAINTAIN THE TUNNEL OPERATION, PROVIDE TEMPORARY WIRING AS REQUIRED.

D. STRUCTURAL WALL VARIES BEHIND THE SURFACE OF THE PEP PANEL & WALL PANEL, CONTRACTOR SHALL VERIFY IN FIELD. SEE VMS SUBSET.

E. REMOVE AND DISPOSE OF EXISTING CONDUIT/WIRING, SWITCHES AND LUMINAI (APPROX. 14 INCANDESCENT FIXTURES).

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Last Modification Date:	02/07/01	Initials:	DMO
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Acad Ver. R14	Scale: 1=50	Units:	ENGLISH

Sheet Revisions		
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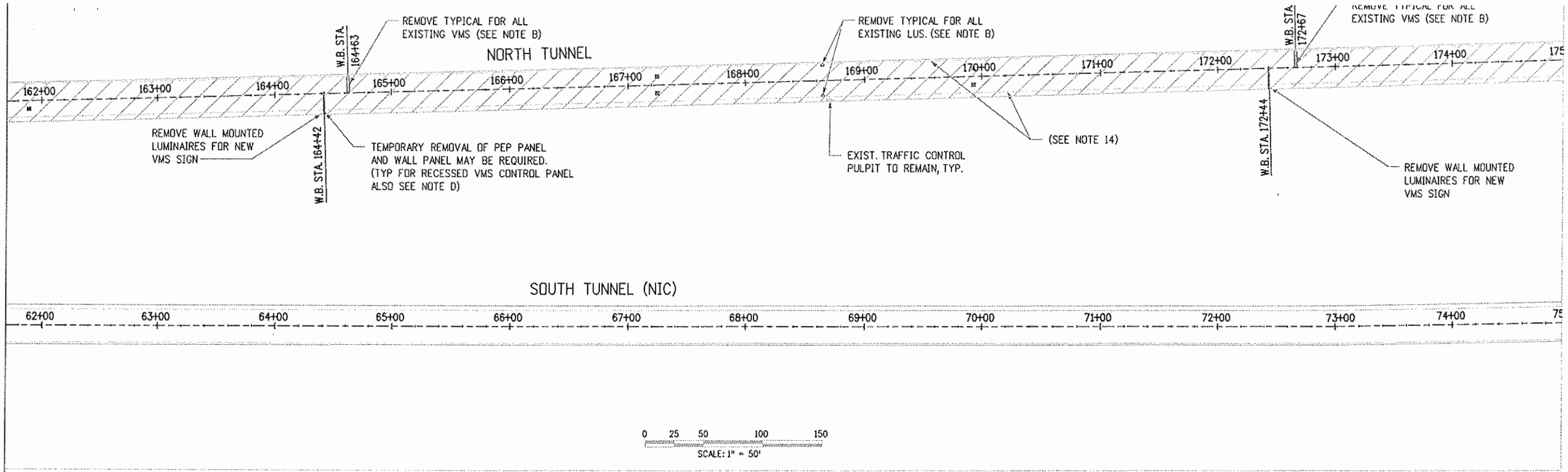
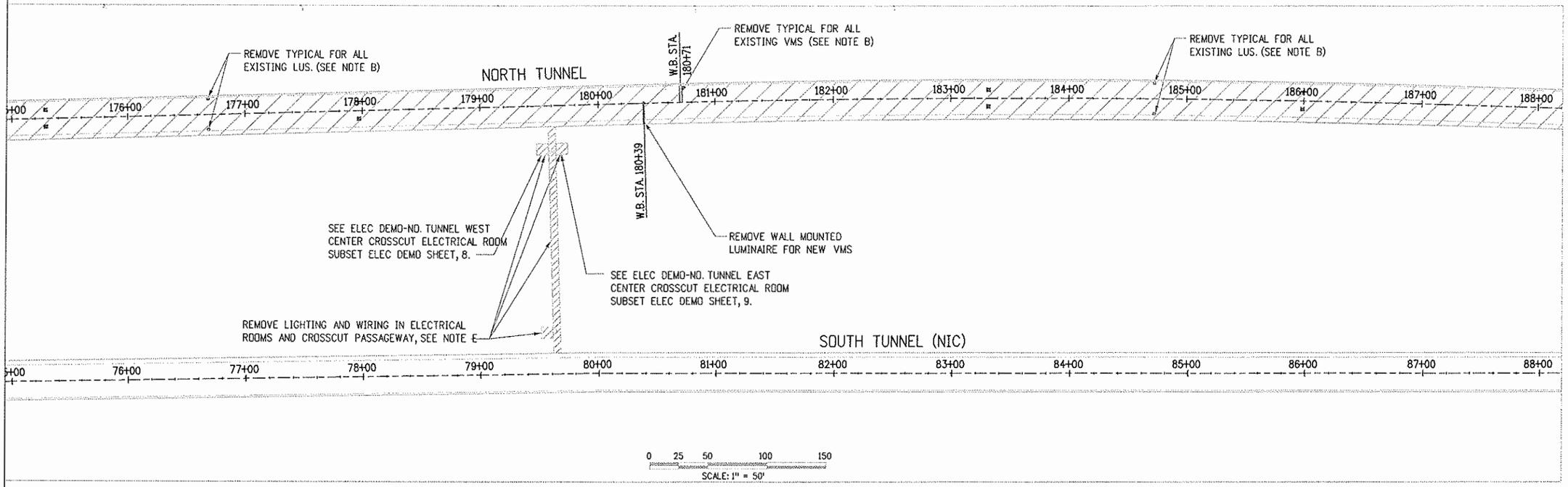
TUNNEL ELECTRICAL DEMO PLAN - SHEET 1 OF 4

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: ELECT DEMO
Structure Numbers
Subset Sheets: 2 of 15

Project No./Code
IM 0703-269
13166
Sheet Number 11



PLAN 1



PLAN 2

NOTES

A. SEE GENERAL DEMOLITION NOTES, SHEET 1 OF SUBSET ELECT DEMO.

B. REFER TO VMS DRAWINGS FOR REMOVALS AND ASSOCIATED WORK.

C. SPACE FOR CONDUIT ROUTING FROM TUNNEL INTO CROSSCUT PASSAGE-WAY IS LIMITED. CONTRACTOR SHALL COORDINATE PHASING SUITABLE TO MAINTAIN THE TUNNEL OPERATION, PROVIDE TEMPORARY WIRING AS REQUIRED.

D. STRUCTURAL WALL VARIES BEHIND THE SURFACE OF THE PEP PANEL & WALL PANEL, CONTRACTOR SHALL VERIFY IN FIELD. SEE VMS SUBSET.

E. REMOVE AND DISPOSE OF EXISTING CONDUIT/WIRING, SWITCHES AND LUMINA (APPROX. 16 INCANDESCENT FIXTURES).

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information		
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Last Modification Date:	Initials:	
Full Path:	14102\700cadd\703elet\	
Drawing File Name:		
Acad Ver. R14	Scale: 1"=50'-0"	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

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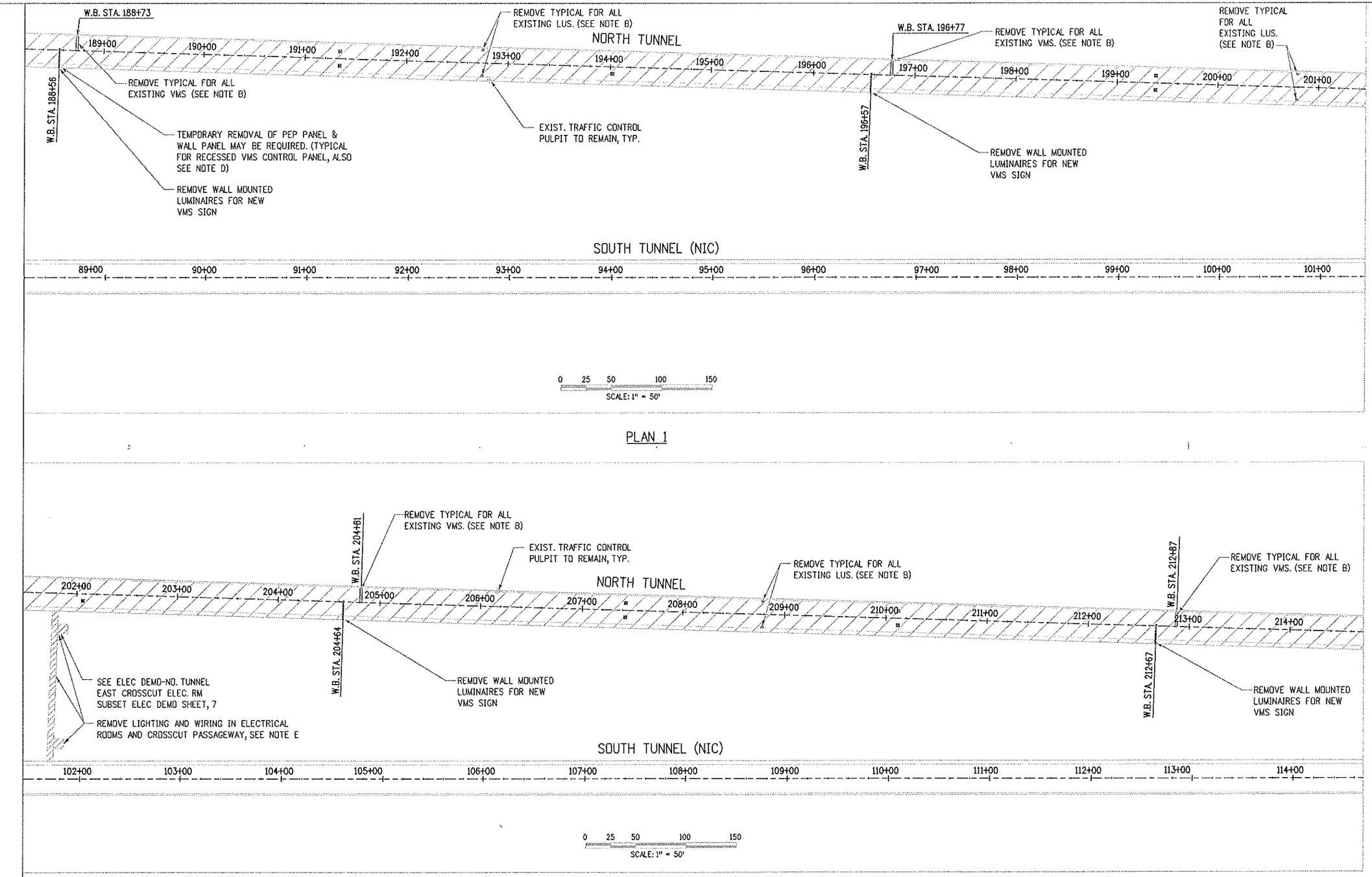
No Revisions:
Revised:
Void:

TUNNEL ELECTRICAL DEMO
PLAN - SHEET 2 OF 4

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: ELECT DEMO
Structure Numbers
Subset Sheets: 3 of 15

Project No./Code
IM 0703-269
13166
Sheet Number 12



NOTES

A. SEE GENERAL DEMOLITION NOTES, SHEET 1 OF SUBSET ELECT DEMO.

B. REFER TO VMS DRAWINGS FOR REMOVALS AND ASSOCIATED WORK.

C. SPACE FOR CONDUIT ROUTING FROM TUNNEL INTO CROSSCUT PASSAGE-WAY IS LIMITED. CONTRACTOR SHALL COORDINATE PHASING SUITABLE TO MAINTAIN THE TUNNEL OPERATION, PROVIDE TEMPORARY WIRING AS REQUIRED.

D. STRUCTURAL WALL VARIES BEHIND THE SURFACE OF THE PEP PANEL & WALL PANEL, CONTRACTOR SHALL VERIFY IN FIELD. SEE VMS SUBSET.

E. REMOVE AND DISPOSE OF EXISTING CONDUIT/WIRING, SWITCHES AND LUMINA (APPROX. 14 INCANDESCENT FIXTURES).

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Date of Plot: $$$$DATE$$$$

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Last Modification Date:	Initials:
Full Path:	14102\700cadd\703elect\
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07/03/07	ASBUILT	DJB

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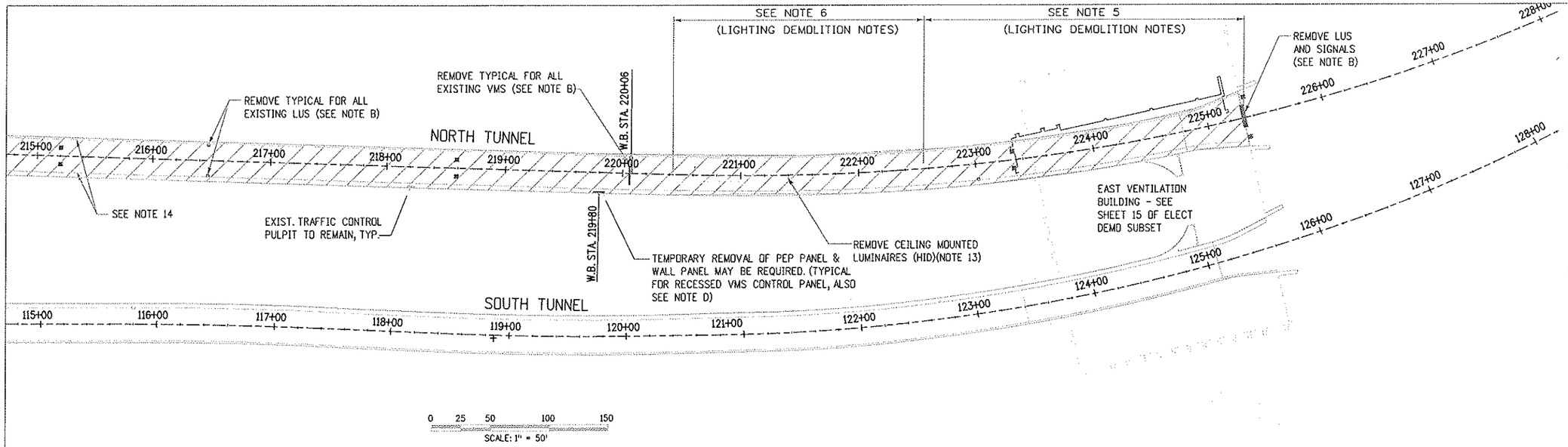
No Revisions:
Revised:
Void:

TUNNEL ELECTRICAL DEMO PLAN - SHEET 3 OF 4

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: ELECT DEMO
Structure Numbers
Subset Sheets: 4 of 15

Project No./Code
IM 0703-269
13166
Sheet Number 13



PLAN 1

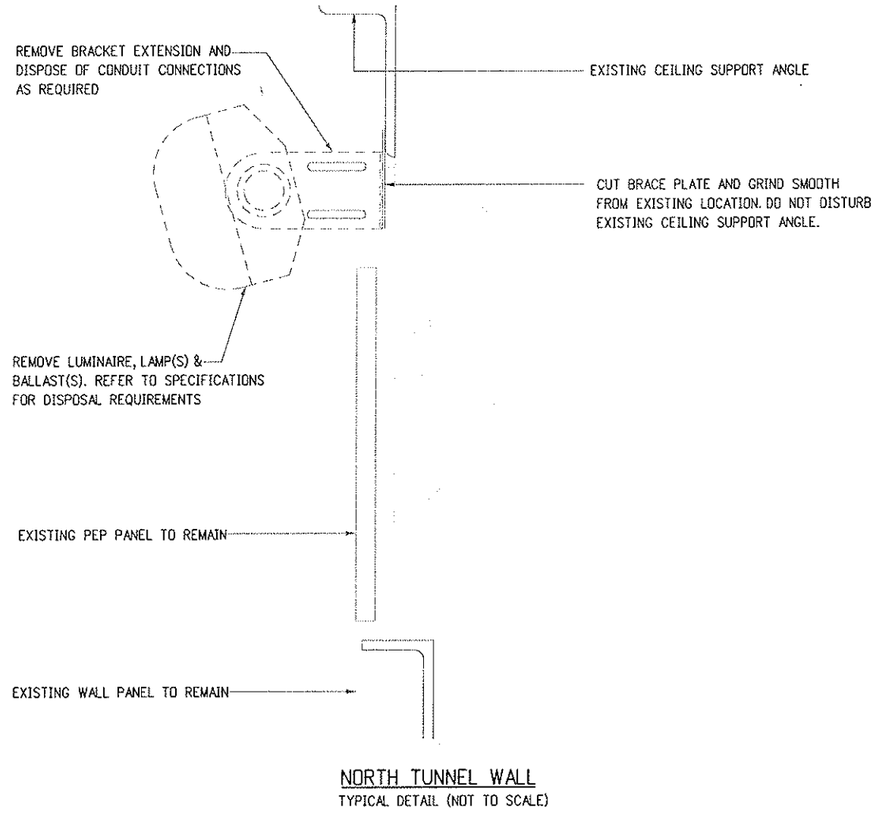
NOTES

A. SEE GENERAL DEMOLITION NOTES, SHEET 1 OF SUBSET ELECT DEMO.

B. REFER TO VMS DRAWINGS FOR REMOVALS AND ASSOCIATED WORK.

C. SPACE FOR CONDUIT ROUTING FROM TUNNEL INTO CROSSCUT PASSAGE-WAY IS LIMITED. CONTRACTOR SHALL COORDINATE PHASING SUITABLE TO MAINTAIN THE TUNNEL OPERATION, PROVIDE TEMPORARY WIRING AS REQUIRED.

D. STRUCTURAL WALL VARIES BEHIND THE SURFACE OF THE PEP PANEL & WALL PANEL, CONTRACTOR SHALL VERIFY IN FIELD. SEE VMS SUBSET.



NORTH TUNNEL WALL
TYPICAL DETAIL (NOT TO SCALE)

Design File Name: DGN$SPEC$
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Date of Plot: $$$$DATE$$$$

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Last Modification Date:	03\07\01	Initials:	SL
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Sheet Revisions		
07/03/07	ASBUILT	DJB

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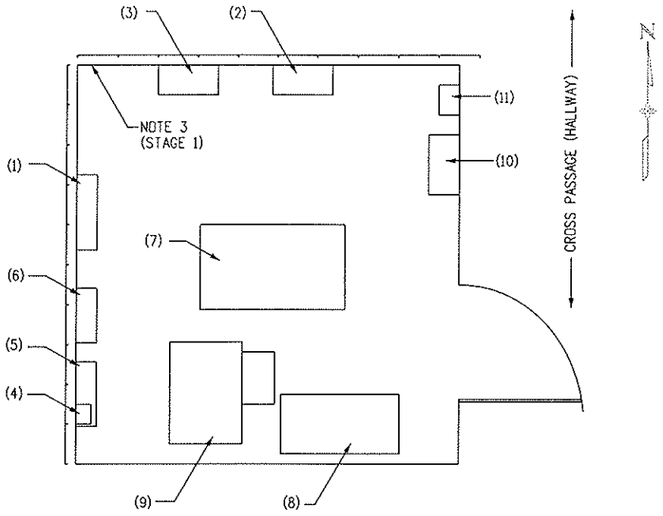
As Constructed	
No Revisions:	
Revised:	
Void:	

TUNNEL ELECTRICAL DEMO PLAN - SHEET 4 OF 4

Designer: E.A. GAYAMAT		Structure Numbers	
Detailer: R. MILLER			
Sheet Subset: ELECT DEMO	Subset Sheets: 5 of 15		

Project No./Code	
IM 0703-269	
13166	
Sheet Number	14

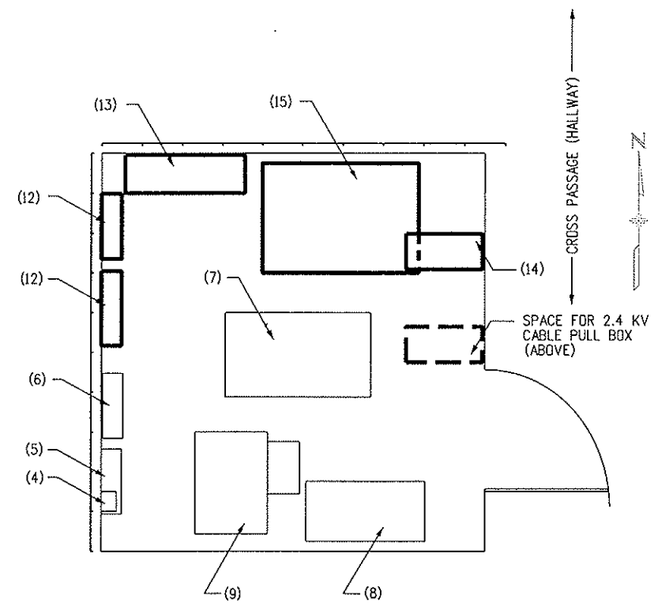


EXISTING PLAN

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

EXISTING PLAN LEGEND

(1) 277 / 480 V PANEL- 22"W x 65"H x 6"D
(2) LIGHTING AND HEATING CONTACTOR PANEL- 18"W x 32"H x 9"D
(3) LIGHTING CONTROL PANEL- 18"W x 20"H x 9"D
(4) 3 KVA, 480 V - 120 / 240 V TRANSFORMER- 6"W x 11"H x 5"D
(5) 120 / 240 V PANELBOARD - 20" W x 17"H x 6"D
(6) 30A / ASCO SWITCH - 16"W x 21"H x 6"D
(7) 150 kVA, 2400 V - 277 / 480 V TRANSFORMER- 40"W x 41"H x 25"D
(8) MV FUSED OIL CUTOUT SWITCH- 35"W x 38"(55")H x 18"D
(9) FIBER OPTIC CABINET- 22"W x 75"H x 31"D
(10) CABINET- 14"W x 38"H x 9"D
(11) JUNCTION BOX- 8"W x 8"H x 4"D



INTERIM PLAN

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

INTERIM PLAN LEGEND

(1) REMOVED - 277 / 480 V PANEL- 22"W x 65"H x 6"D
(2) REMOVED - LIGHTING AND HEATING CONTACTOR PANEL- 18"W x 32"H x 9"D
(3) REMOVED - LIGHTING CONTROL PANEL- 18"W x 20"H x 9"D
(4) 3 KVA, 480 V - 120 / 240 V TRANSFORMER- 6"W x 11"H x 5"D (EXIST)
(5) 120 / 240 V PANELBOARD - 20" W x 17"H x 6"D (EXIST)
(6) 30A / ASCO SWITCH - 16"W x 21"H x 6"D (EXIST.)
(7) 150 kVA, 2400 V - 277 / 480 V TRANSFORMER- 40"W x 41"H x 25"D (EXIST), NOTE 10.
(8) MV FUSED OIL CUTOUT SWITCH- 35"W x 38"(55")H x 18"D (EXIST)
(9) FIBER OPTIC CABINET- 22"W x 75"H x 31"D (EXIST)
(10) REMOVED - CABINET- 14"W x 38"H x 9"D
(11) REMOVED - JUNCTION BOX- 8"W x 8"H x 4"D
(12) NEW 277 / 480 V PANEL- 22"W x 65"H x 6"D
(13) NEW CONTACTOR CABINET
(14) NEW 2.4 KV CABLE PULL BOX - 24" W x 20"H x 12"D
(15) NEW 150 kVA, 2400 V - 277 / 480 V TRANSFORMER- 48"W x 58"H x 32"D, NOTE 10.

STAGE 1 CONSTRUCTION NOTES:

1. STEP 1 OF THE FIRST STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES THE CONSECUTIVE TEMPORARY DEENERGIZING OF INDIVIDUAL TUNNEL LIGHTING CIRCUITS USING THE THREE-POLE CIRCUIT BREAKERS IN THE PANELBOARDS SERVING THESE LIGHTING LOADS.

2. FOLLOWING THE DEENERGIZATION OF AN INDIVIDUAL THREE-PHASE LIGHTING CIRCUIT, STEP 2 REQUIRES THAT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE LIGHTING CONTACTOR CONTROLLING THAT CIRCUIT BE REMOVED AND EXTENDED TO A TEMPORARY WIREWAY. THE WIREWAY SHALL EXTEND OVER AND BETWEEN THE PANELBOARD AND CONTACTOR PANEL AND BE MOUNTED AT A HEIGHT ABOVE THE HORIZONTAL RUNS OF LIGHTING CIRCUIT CONDUITS THAT ARE ROUTED TO THE CONTACTOR PANEL. IN LOCATING THE WIREWAY, AVOID INTERFERENCE WITH ANY NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. THE EXTENDED CIRCUIT CONDUCTORS FROM THE CONTACTOR PANEL WOULD BE TEMPORARILY SPLICED IN THE WIREWAY TO NEW CIRCUIT CONDUCTORS FROM THE PANELBOARD. THE ONLY CONTROL FOR EACH REROUTED LIGHTING CIRCUIT WOULD BE THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD. ONCE THE CHANGES FOR ONE LIGHTING CIRCUIT HAVE BEEN COMPLETED, THE REROUTING OF THE NEXT CIRCUIT CAN PROCEED.

3. STEP 3 REQUIRES THE TEMPORARY DEENERGIZATION OF THE THREE-PHASE HEAT TRACE CIRCUIT USING THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD SERVING THIS HEATING LOAD. DISCONNECT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE HEATING CONTACTOR CONTROLLING THE CIRCUIT AND RELOCATE THE HEATING CONTACTOR TO AN ENCLOSURE MOUNTED ADJACENT TO THE WIREWAY. THE ENCLOSURE SHALL BE LOCATED TO AVOID INTERFERENCE WITH NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. EXTEND THE HEATING CIRCUIT TO THE RELOCATED HEATING CONTACTOR AND MAKE THE NECESSARY LINE AND LOAD CIRCUIT CONNECTIONS. EXTEND THE THERMOSTATIC CONTROL CIRCUIT TO THE HEATING CONTACTOR AND MAKE THE NECESSARY CONTROL CIRCUIT CONNECTIONS TO OPERATE IT AUTOMATICALLY FROM THE REMOTE THERMOSTAT. THE CONTRACTOR MAY REQUEST PERMISSION FROM THE STATE ENGINEER TO OMIT THE TEMPORARY RECONNECTION OF THE THERMOSTATIC CONTROL CIRCUIT FOR THE CONSTRUCTION WORK THAT IS TO BE COMPLETED DURING SUMMER MONTHS.

4. STEP 4 REQUIRES THAT THE LIGHTING AND HEATING CONTACTOR PANEL, THE LIGHTING CONTROL PANEL AND ASSOCIATED CONDUIT/WIRING BE REMOVED FROM THE THE ELECTRICAL ROOM. THIS WORK CAN PROCEED ONCE ALL LIGHTING AND HEATING CIRCUITS HAVE BEEN EXTENDED AND REROUTED THROUGH THE NEW WIREWAY/CONTACTOR ENCLOSURE AND ARE FULLY OPERATIONAL AS DESCRIBED ABOVE.

STAGE 2 CONSTRUCTION NOTES:

1. STEP 1 OF THE SECOND STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES INSTALLING THE NEW 2400 V - 480Y / 277 VOLT TRANSFORMER, THE NEW MEDIUM VOLTAGE CABLE PULLBOX AND THE TRANSFORMER MEDIUM VOLTAGE FEEDER WHICH ORIGINATES FROM THE VENTILATION BUILDING.

2. FOLLOWING THE INSTALLATION OF THE NEW TRANSFORMER AND PRIMARY FEEDER, STEP 2 REQUIRES THAT THE NEW 480Y / 277 VOLT PANELBOARD NWN-1 AND SECONDARY FEEDER BETWEEN THE TRANSFORMER AND PANELBOARD BE INSTALLED IN THE ELECTRICAL ROOM.

3. STEP 3 REQUIRES THAT THE NEW CONTACTOR CABINET BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN. INSTALL A 120 VOLT POWER CIRCUIT FROM THE EXISTING 240 / 120 VOLT PANEL LOCATED IN THE CROSSCUT ELECTRICAL ROOM TO THE NEW CONTACTOR CABINET. INSTALL ANY REQUIRED CONTROL / SIGNAL CIRCUITS TO THE NEW CONTACTOR CABINET FROM THE NEAREST CROSSCUT ELECTRICAL ROOM(S) AND / OR VENTILATION BUILDING. ALSO, INSTALL THE FOUR NEW THREE-PHASE LIGHTING CIRCUITS FROM THE PANELBOARD TO THEIR ASSOCIATED CONTACTORS IN THE CONTACTOR CABINET. A MAXIMUM OF TWO THREE-PHASE FOUR-WIRE CIRCUITS SHALL BE INSTALLED IN ANY ONE CONDUIT. MAKE ALL CONDUCTOR TERMINATIONS TO THE CIRCUIT BREAKERS, NEUTRAL AND GROUND BUS AND LIGHTING CONTACTORS.

4. STEP 4 REQUIRES THAT THE EXISTING THREE-PHASE LIGHTING CIRCUITS THAT SERVE A SECTION OF THE TUNNEL WALL (ONE SIDE), BE DEENERGIZED AND THE CIRCU CONDUCTORS REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX. REMOVE THE CONDUIT FOR THESE CIRCUITS BETWEEN THE PANEL AND THE PULLBOX LOCATED ABOVE THE ENTRANCE TO THE CROSSCUT PASSAGE. THIS CONSTRUCTION STEP FACILITATES THE INSTALLATION OF A SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE CONDUITS AND CONDUCTORS WHICH WILL BE USED TO SUPPLY POWER TO THEM.

5. STEP 5 REMOVE THE EXISTING LUMINAIRES THAT WERE DEENERGIZED IN STEP 4. CONTRACTOR SHALL OWN AND DISPOSE LUMINAIRES INCLUDING BALLASTS AND LAMPS. PROVIDE CERTIFICATION TO STATE THAT DISPOSAL METHOD UTILIZED FOR LUMINAIRES, BALLASTS AND LAMPS MEETS STATE OF COLORADO AND FEDERAL REGULATIONS.

6. STEP 6 REQUIRES THAT THE FLUORESCENT LUMINAIRES ON ONE SIDE OF THE TUNNEL BE INSTALLED. ONCE INSTALLED, THE NEW LIGHTING CIRCUITS SHALL BE TERMINATED ON THE LOAD SIDE OF THEIR RESPECTIVE LIGHTING CONTACTORS IN THE CONTACTOR CABINET.

7. STEP 7 REQUIRES THAT THE THREE-PHASE CIRCUIT CONDUCTORS FOR THE HEAT TRACE CIRCUIT BE INSTALLED BETWEEN THE CONTACTOR CABINET AND THE NEW 480 / 277 VOLT PANELBOARD. DEENERGIZE THE EXISTING THREE-PHASE HEAT TRACE CIRCUIT THAT SERVES THE ADJACENT SECTIONS OF THE TUNNEL AT THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUIT TO THE NEW CONTACTOR CABINET. INSTALL JUNCTION BOXES AS REQUIRED FOR SPLICING CIRCUIT CONDUCTORS.

8. STEP 8 REQUIRES THAT ALL OTHER 480 AND 277 VOLT LOADS, EXCLUDING THE FOUR REMAINING TUNNEL LIGHTING CIRCUITS, BE TRANSFERRED FROM THE EXISTING 480 VOLT PANEL TO THE NEW 480 / 277 VOLT PANELBOARD. THESE CIRCUITS INCLUDE THE FEEDER TO THE 480 - 240/ 120 VOLT TRANSFORMER (WHICH SUPPLIES THE EXISTING 120/240 VOLT PANEL), MESSAGE BOARD FEEDERS AND TELEVISION CAMERA FEEDERS. DEENERGIZE THE EXISTING CIRCUITS FROM THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUITS TO THE NEW 480 / 277 VOLT PANELBOARD. INSTALL JUNCTION BOXES AS REQUIRED FOR SPLICING CIRCUIT CONDUCTORS.

9. STEP 9 REQUIRES THAT THE EXISTING 480V PANEL BE REMOVED AND A SECOND NEW 480/277 PANELBOARD NWS-1 BE INSTALLED IN ITS PLACE. PRIOR TO INSTALLI THE SECOND PANELBOARD, THE MEDIUM VOLTAGE OIL CUTOUT SWITCH CAN BE OPENED AND THE SECONDARY FEEDER FROM THE TRANSFORMER TO THE EXISTING 480 VOLT PANEL CAN BE REMOVED. NEXT, THE CONDUCTORS FOR THE REMAINING THREE-PHASE LIGHTING CIRCUITS THAT SERVE THE OPPOSITE SIC OF THE TUNNEL SHALL BE REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX.
THE EXISTING 480 VOLT PANNEL SHALL THEN BE REMOVED. THIS CONSTRUCTION STEP FACILITATES THE INSTALLATION OF PANEL NWS-1 AND REMOVAL AND REPLACEMENT OF THE EXISTING 2400V-480Y/277V TRANSFORMER. IT ALSO FACILITIES THE REMOVAL OF THE EXISTING MEDIUM VOLTAGE CABLE PULL AND OIL CUTOUT WITCH. ALSO, THE INSTALLATION OF THE REMAINING SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE ASSOCIATED LIGHTING CIRCUITS SUPPLIED FROM THIS ELECTRICAL ROOM CAN PROCEED FOLLOWING THIS CONSTRUCTION STEP.

10. DE-ENERGIZE, DISCONNECT AND RELOCATE (TEMPORARILY) THE EXISTING TRANSFORMER AND APPURTENANCES FOR THE INSTALLATION OF THE NEW TRANSFORMER (TX-NWN-1) AND COORDINATE STAGING OF WORK WITH INSTALLATION OF ALL EQUIPMENT AS INDICATED ON THE FINAL PLANS AS REQUIRED.

NOTE:

THE INTENT OF STAGING IS TO MAINTAIN A FULLY OPERATIONAL TUNNEL DURING CONSTRUCTION. SEE SPECIAL CONTRUCTION REQUIREMENTS (K).

Computer File Information		Sheet Revisions		
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Last Modification Date:	12/04/03 Initials: DJB			
Full Path:	014102\700cadd\703elect\			
Drawing File Name:	102epl50n.dgn			
Acad Ver. R14	Scale: Units: ENGLISH			

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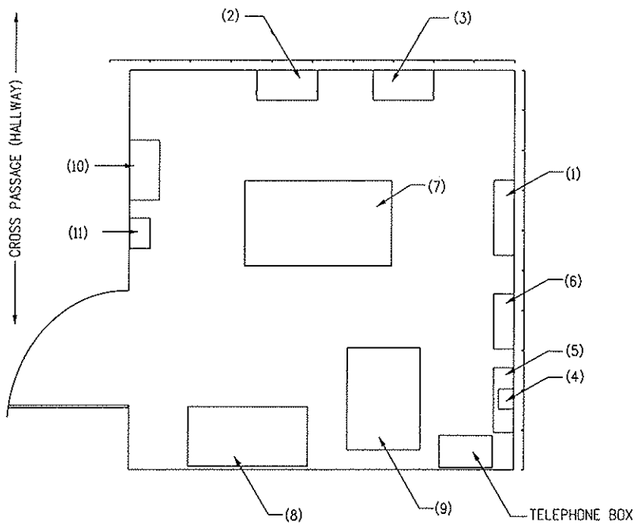
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed	ELEC DEMO - NO. TUNNEL WEST CROSSCUT ELEC RM			Project No./Code
No Revisions:				IM 0703-269
Revised:	Designer: E.A. GAYAMAT	Structure Numbers		13166
Void:	Detailer: R. MILLER			
	Sheet Subset: ELEC DEMO	Subset Sheets:	6 of 15	Sheet Number 15

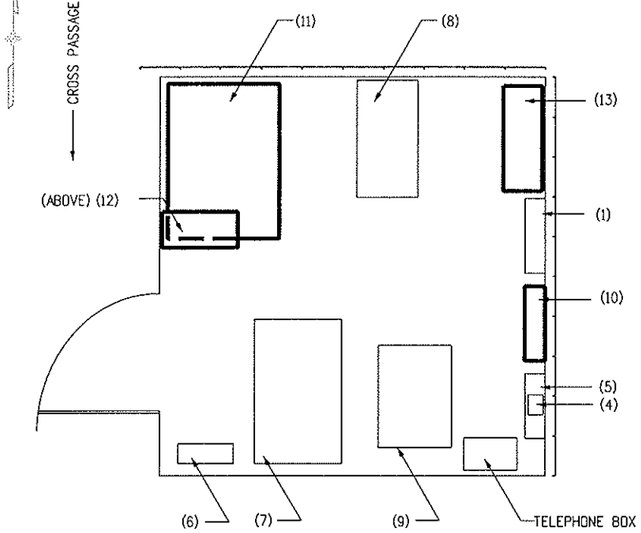


EXISTING PLAN

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

EXISTING PLAN LEGEND

(1) 277 / 480 V PANEL- 22"W x 65"H x 6"D
(2) LIGHTING AND HEATING CONTACTOR PANEL- 18"W x 32"H x 9"D
(3) LIGHTING CONTROL PANEL- 18"W x 20"H x 9"D
(4) 3 KVA, 480 V - 120 / 240 V TRANSFORMER- 6"W x 11"H x 5"D
(5) 120 / 240 PANEL- 16"W x 21"H x 6"D
(6) 120 / 240 V 30A, ASCO SWITCH - 20" W x 17"H x 6"D
(7) 150 KVA, 2400 V - 277 / 480 V TRANSFORMER- 40"W x 41"H x 25"D
(8) MV FUSED OIL CUTOUT SWITCH - 35"W x 38"(55")H x 18"D
(9) FIBER OPTIC CABINET- 22"W x 75"H x 31"D
(10) CABINET- 14"W x 38"H x 9"D
(11) JUNCTION BOX- 8"W x 8"H x 4"D



INTERIM PLAN

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

INTERIM PLAN LEGEND

(1) 480 / 277 V PANEL- 22"W x 65"H x 6"D (EXIST)
(2) REMOVED - LIGHTING AND HEATING CONTACTOR PANEL
(3) REMOVED - LIGHTING CONTROL PANEL
(4) 3 KVA, 480 V - 120 / 240 V TRANSFORMER- 6"W x 11"H x 5"D (EXIST.)
(5) 120 / 240 PANEL- 16"W x 21"H x 6"D
(6) RELOCATED - 120 / 240 V 30A, ASCO SWITCH- 20" W x 17"H x 6"D (EXIST.)
(7) 150 KVA, 2400 V- 480Y / 277 V TRANSFORMER (EXIST), NOTE 10
(8) RELOCATED - MV FUSED OIL CUTOUT SWITCH- 35"W x 38"H x 18"D (EXIST.)
(9) FIBER OPTIC CABINET
(10) NEW 480 / 277 V PANEL- 22"W x 65"H x 6"D
(11) 150 KVA, 2400 V - 480Y / 277 V TRANSFORMER TX-NEN-1 48"W x 58"H x 32"D, NOTE 10
(12) NEW MV CABLE PULL BOX- 24"W x 20"H x 12"D
(13) NEW CONTACTOR CABINET

STAGE 1 CONSTRUCTION NOTES:

1. STEP 1 OF THE FIRST STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES THE CONSECUTIVE TEMPORARY DEENERGIZING OF INDIVIDUAL TUNNEL LIGHTING CIRCUITS USING THE THREE-POLE CIRCUIT BREAKERS IN THE PANELBOARDS SERVING THESE LIGHTING LOADS.

2. FOLLOWING THE DEENERGIZATION OF AN INDIVIDUAL THREE-PHASE LIGHTING CIRCUIT, STEP 2 REQUIRES THAT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE LIGHTING CONTACTOR CONTROLLING THAT CIRCUIT BE REMOVED AND EXTENDED TO A TEMPORARY WIREWAY. THE WIREWAY SHALL EXTEND OVER AND BETWEEN THE PANELBOARD AND CONTACTOR PANEL AND BE MOUNTED AT A HEIGHT ABOVE THE HORIZONTAL RUNS OF LIGHTING CIRCUIT CONDUITS THAT ARE ROUTED TO THE CONTACTOR PANEL. IN LOCATING THE WIREWAY, AVOID INTERFERENCE WITH ANY NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. THE EXTENDED CIRCUIT CONDUCTORS FROM THE CONTACTOR PANEL WOULD BE TEMPORARILY SPLICED IN THE WIREWAY TO NEW CIRCUIT CONDUCTORS FROM THE PANELBOARD. THE ONLY CONTROL FOR EACH REROUTED LIGHTING CIRCUIT WOULD BE THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD. ONCE THE CHANGES FOR ONE LIGHTING CIRCUIT HAVE BEEN COMPLETED, THE REROUTING OF THE NEXT CIRCUIT CAN PROCEED.

3. STEP 3 REQUIRES THE TEMPORARY DEENERGIZATION OF THE THREE-PHASE HEAT TRACE CIRCUIT USING THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD SERVING THIS HEATING LOAD. DISCONNECT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE HEATING CONTACTOR CONTROLLING THE CIRCUIT AND RELOCATE THE HEATING CONTACTOR TO AN ENCLOSURE MOUNTED ADJACENT TO THE WIREWAY. THE ENCLOSURE SHALL BE LOCATED TO AVOID INTERFERENCE WITH NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. EXTEND THE HEATING CIRCUIT TO THE RELOCATED HEATING CONTACTOR AND MAKE THE NECESSARY LINE AND LOAD CIRCUIT CONNECTIONS. EXTEND THE THERMOSTATIC CONTROL CIRCUIT TO THE HEATING CONTACTOR AND MAKE THE NECESSARY CONTROL CIRCUIT CONNECTIONS TO OPERATE IT AUTOMATICALLY FROM THE REMOTE THERMOSTAT. THE CONTRACTOR MAY REQUEST PERMISSION FROM THE STATE ENGINEER TO OMIT THE TEMPORARY RECONNECTION OF THE THERMOSTATIC CONTROL CIRCUIT FOR THE CONSTRUCTION WORK THAT IS TO BE COMPLETED DURING SUMMER MONTHS.

4. STEP 4 REQUIRES THAT THE LIGHTING AND HEATING CONTACTOR PANEL AND THE LIGHTING CONTROL PANEL BE REMOVED FROM THE ELECTRICAL ROOM. THIS WORK CAN PROCEED ONCE ALL LIGHTING AND HEATING CIRCUITS HAVE BEEN EXTENDED AND REROUTED THROUGH THE NEW WIREWAY / CONTACTOR ENCLOSURE AND ARE FULLY OPERATIONAL AS DESCRIBED ABOVE.

STAGE 2 CONSTRUCTION NOTES:

1. STEP 1 OF THE SECOND STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES INSTALLING THE NEW 2400 V - 480Y / 277 VOLT TRANSFORMER, THE NEW MEDIUM VOLTAGE CABLE PULLBOX AND THE TRANSFORMER MEDIUM VOLTAGE FEEDER WHICH ORIGINATES FROM THE VENTILATION BUILDING.

2. FOLLOWING THE INSTALLATION OF THE NEW TRANSFORMER AND PRIMARY FEEDER, STEP 2 REQUIRES THAT THE NEW 480Y / 277 VOLT PANELBOARD NEN-1 AND SECONDARY FEEDER BETWEEN THE TRANSFORMER AND PANELBOARD BE INSTALLED IN THE ELECTRICAL ROOM.

3. STEP 3 REQUIRES THAT THE NEW CONTACTOR CABINET BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN. INSTALL A 120 VOLT POWER CIRCUIT FROM THE EXISTING 208 / 120 VOLT PANEL LOCATED IN THE CROSSCUT ELECTRICAL ROOM TO THE NEW CONTACTOR CABINET. INSTALL ANY REQUIRED CONTROL / SIGNAL CIRCUITS TO THE NEW CONTACTOR CABINET FROM THE NEAREST CROSSCUT ELECTRICAL ROOM(S) AND / OR VENTILATION BUILDING. ALSO, INSTALL THE FOUR NEW THREE-PHASE LIGHTING CIRCUITS FROM THE PANELBOARD TO THEIR ASSOCIATED CONTACTORS IN THE CONTACTOR CABINET. A MAXIMUM OF TWO THREE-PHASE FOUR-WIRE CIRCUITS SHALL BE INSTALLED IN ANY ONE CONDUIT. MAKE ALL CONDUCTOR TERMINATIONS TO THE CIRCUIT BREAKERS, NEUTRAL AND GROUND BUS AND LIGHTING CONTACTORS.

4. STEP 4 REQUIRES THAT THE EXISTING THREE-PHASE LIGHTING CIRCUITS THAT SERVE A SECTION OF THE TUNNEL WALL (ONE SIDE), BE DEENERGIZED AND THE CIRCUIT CONDUCTORS REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX. REMOVE THE CONDUIT FOR THESE CIRCUITS BETWEEN THE PANEL AND THE PULLBOX LOCATED ABOVE THE ENTRANCE TO THE CROSSCUT PASSAGE. THIS CONSTRUCTION STEP FACILITATES THE INSTALLATION OF A SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE CONDUITS AND CONDUCTORS WHICH WILL BE USED TO SUPPLY POWER TO THEM.

5. STEP 5 REMOVE THE EXISTING LUMINAIRES THAT WERE DEENERGIZED IN STEP 4. CONTRACTOR SHALL OWN AND DISPOSE LUMINAIRES INCLUDING BALLASTS AND LAMPS. PROVIDE CERTIFICATION TO STATE THAT DISPOSAL METHOD UTILIZED FOR LUMINAIRES, BALLASTS AND LAMPS MEETS STATE OF COLORADO AND FEDERAL REGULATIONS.

6. STEP 6 REQUIRES THAT THE FLUORESCENT LUMINAIRES ON ONE SIDE OF THE TUNNEL BE INSTALLED. ONCE INSTALLED, THE NEW LIGHTING CIRCUITS SHALL BE TERMINATED ON THE LOAD SIDE OF THEIR RESPECTIVE LIGHTING CONTACTORS IN THE CONTACTOR CABINET.

7. STEP 7 REQUIRES THAT THE THREE-PHASE CIRCUIT CONDUCTORS FOR THE HEAT TRACE CIRCUIT BE INSTALLED BETWEEN THE CONTACTOR CABINET AND THE NEW 480 / 277 VOLT PANELBOARD. DEENERGIZE THE EXISTING THREE-PHASE HEAT TRACE CIRCUIT THAT SERVES THE ADJACENT SECTIONS OF THE TUNNEL AT THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUIT TO THE NEW CONTACTOR CABINET. INSTALL JUNCTION BOXES REQUIRED OF SPLICED CIRCUIT CONDUCTORS.

8. STEP 8 REQUIRES THAT ALL OTHER 480 AND 277 VOLT LOADS, EXCLUDING THE FOUR REMAINING TUNNEL LIGHTING CIRCUITS, BE TRANSFERRED FROM THE EXISTING 480 VOLT PANEL TO THE NEW 480 / 277 VOLT PANELBOARD. THESE CIRCUITS INCLUDE THE FEEDER TO THE 480 - 208Y / 120 VOLT TRANSFORMER (WHICH SUPPLIES THE EXISTING 208 VOLT PANEL), MESSAGE BOARD FEEDERS AND TELEVISION CAMERA FEEDERS. DEENERGIZE THE EXISTING CIRCUITS FROM THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUITS TO THE NEW 480 / 277 VOLT PANELBOARD. INSTALL JUNCTION BOXES REQUIRED OF SPLICED CIRCUIT CONDUCTORS.

9. STEP 9 REQUIRES THAT THE EXISTING 480V PANEL BE REMOVED AND A SECOND NEW 480/277 VOLT PANELBOARD NES-1 BE INSATALLED IN ITS PLACE. PRIOR TO THE REMOVAL OF THE CABINET, THE CONTRACTOR SHALL COORDINATE WITH THE STATE ENGINEER REGARDING THE REROUTING OF THE EXISTING CABLES THAT ARE ROUTED THROUGH THIS CABINET. ONCE THE SECOND NEW PANELBOARD IS INSTALLED, THE MEDIUM VOLTAGE OIL CUTOUT SWITCH CAN BE OPENED AND THE SECONDARY FEEDER FROM THE TRANSFORMER TO THE EXISTING 480 VOLT PANEL CAN BE REMOVED. NEXT, THE CONDUCTORS FOR THE REMAINING THREE-PHASE LIGHTING CIRCUITS THAT SERVE THE OPPOSITE SIDE OF THE TUNNEL SHALL BE REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX. THE EXISTING 480VOLT PANEL SHALL THEN BE REMOVED. THIS CONSTRUCTION STEP FACILITIES THE INSTALATION OF PANEL NES-1 AND THE REMOVAL AND REPLACEMENT OF THE EXISTING 2400 V - 480Y / 277 VOLT TRANSFORMER. IT ALSO FACILITIES THE REMOVAL OF THE EXISTING MEDIUM VOLTAGE CABLE PULLBOX AND OIL CUTOUT SWITCH. ALSO, THE INSTALLATION OF THE REMAINING SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE ASSOCIATED LIGHT CIRCUITS SUPPLIED FROM THIS ELECTRICAL ROOM CAN PROCEED FOLLOWING THIS CONSTRUCTION SETP.

10. DE-ENERGIZE, DISCONNECT AND REMOVE (TEMPORARY) THE EXISTING TRANSFORMER AND APPURTENANCES FOR THE INSTALLATION OF THE NEW TRANSFORMER (TX-NEN-1) AND COORDINATE STAGING OF WORK WITH INSTALLATION OF ALL EQUIPMENT AS INDICATED ON THE FINAL PLANS AS REQUIRED.

NOTE:

THE INTENT OF STAGING IS TO MAINTAIN A FULLY OPERATIONAL TUNNEL DURING CONSTRUCTION. SEE SPECIAL CONSTRUCTION REQUIREMENTS (K).

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Sheet Revisions		
07/03/07	ASBUILT	DJB

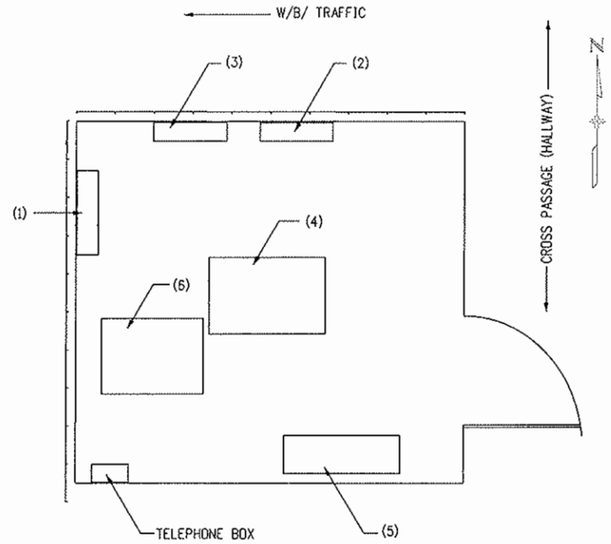
Colorado Department of Transportation
DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

ELEC DEMO - NO. TUNNEL EAST CROSSCUT ELEC RM

Designer: E.A. GAYAMAT		Structure Numbers	
Detailer: R. MILLER			
Sheet Subset: ELEC DEMO	Subset Sheets: 7 of 15		

Project No./Code	
IM 0703-269	
13166	
Sheet Number	16

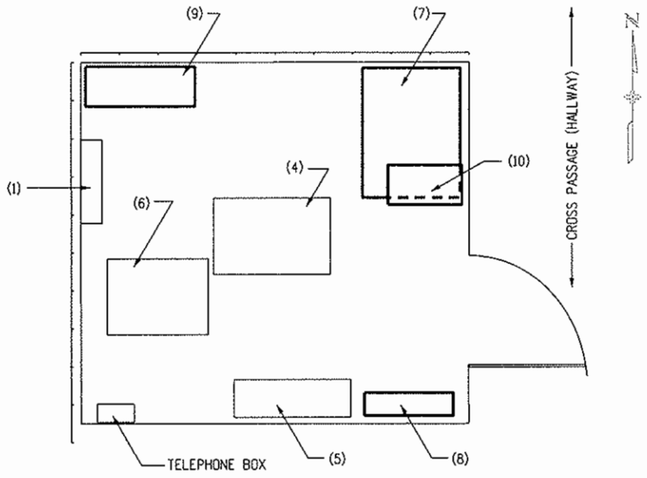


EXISTING PLAN

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

EXISTING PLAN LEGEND

(1) 480 / 277 V PANEL - 22"W x 65"H x 6"D
(2) LIGHTING AND HEATING CONTACTOR PANEL
(3) LIGHTING CONTROL CABINET - 15"W x 20"H x 9"D
(4) 75 KVA, 2400 V - 480Y / 277 V TRANSFORMER
(5) MV FUSED OIL CUTOUT SWITCH - 35"W x 38"H x 18"D
(6) F.O. CABINET



INTERIM PLAN

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

INTERIM PLAN LEGEND

(1) 480 / 277 V PANEL - 22"W x 65"H x 6"D (EXIST)
(2) REMOVED - LIGHTING AND HEATING CONTACTOR PANEL
(3) REMOVED - LIGHTING CONTROL PANEL
(4) 75 KVA, 2400 V - 480Y / 277 V TRANSFORMER (EXIST), NOTE 10
(5) MV FUSED OIL CUTOUT SWITCH - 35"W x 38"H x 18"D (EXIST), NOTE 10
(6) F.O. CABINET (EXIST)
(7) NEW 150 KVA, 2400 V - 480Y / 277 V TRANSFORMER TX-NCS-2W 48"W x 58"H x 32"D, NOTE 10
(8) NEW 480 / 277 V PANEL - 22"W x 65"H x 6"D
(9) NEW CONTACTOR CABINET
(10) NEW MV CABLE PULLBOX - 24"W x 20"H x 12"D

STAGE 1 CONSTRUCTION NOTES:

1. STEP 1 OF THE FIRST STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES THE CONSECUTIVE TEMPORARY DEENERGIZING OF INDIVIDUAL TUNNEL LIGHTING CIRCUITS USING THE THREE-POLE CIRCUIT BREAKERS IN THE PANELBOARDS SERVING THESE LIGHTING LOADS.

2. FOLLOWING THE DEENERGIZATION OF AN INDIVIDUAL THREE-PHASE LIGHTING CIRCUIT, STEP 2 REQUIRES THAT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE LIGHTING CONTACTOR CONTROLLING THAT CIRCUIT BE REMOVED AND EXTENDED TO A TEMPORARY WIREWAY. THE WIREWAY SHALL EXTEND OVER AND BETWEEN THE PANELBOARD AND CONTACTOR PANEL AND BE MOUNTED AT A HEIGHT ABOVE THE HORIZONTAL RUNS OF LIGHTING CIRCUIT CONDUITS THAT ARE ROUTED TO THE CONTACTOR PANEL. IN LOCATING THE WIREWAY, AVOID INTERFERENCE WITH ANY NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. THE EXTENDED CIRCUIT CONDUCTORS FROM THE CONTACTOR PANEL WOULD BE TEMPORARILY SPLICED IN THE WIREWAY TO NEW CIRCUIT CONDUCTORS FROM THE PANELBOARD. THE ONLY CONTROL FOR EACH REROUTED LIGHTING CIRCUIT WOULD BE THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD. ONCE THE CHANGES FOR ONE LIGHTING CIRCUIT HAVE BEEN COMPLETED, THE REROUTING OF THE NEXT CIRCUIT CAN PROCEED.

3. STEP 3 REQUIRES THE TEMPORARY DEENERGIZATION OF THE THREE-PHASE HEAT TRACE CIRCUIT USING THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD SERVING THIS HEATING LOAD. DISCONNECT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE HEATING CONTACTOR CONTROLLING THE CIRCUIT AND RELOCATE THE HEATING CONTACTOR TO AN ENCLOSURE MOUNTED ADJACENT TO THE WIREWAY. THE ENCLOSURE SHALL BE LOCATED TO AVOID INTERFERENCE WITH NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. EXTEND THE HEATING CIRCUIT TO THE RELOCATED HEATING CONTACTOR AND MAKE THE NECESSARY LINE AND LOAD CIRCUIT CONNECTIONS. EXTEND THE THERMOSTATIC CONTROL CIRCUIT TO THE HEATING CONTACTOR AND MAKE THE NECESSARY CONTROL CIRCUIT CONNECTIONS TO OPERATE IT AUTOMATICALLY FROM THE REMOTE THERMOSTAT. THE CONTRACTOR MAY REQUEST PERMISSION FROM THE STATE ENGINEER TO OMIT THE TEMPORARY RECONNECTION OF THE THERMOSTATIC CONTROL CIRCUIT FOR THE CONSTRUCTION WORK THAT IS TO BE COMPLETED DURING SUMMER MONTHS.

4. STEP 4 REQUIRES THAT THE LIGHTING AND HEATING CONTACTOR PANEL AND THE LIGHTING CONTROL PANEL BE REMOVED FROM THE ELECTRICAL ROOM. THIS WORK CAN PROCEED ONCE ALL LIGHTING AND HEATING CIRCUITS HAVE BEEN EXTENDED AND REROUTED THRUGH THE NEW WIREWAY / CONTACTOR ENCLOSURE AND ARE FULLY OPERATIONAL AS DESCRIBED ABOVE.

STAGE 2 CONSTRUCTION NOTES:

1. STEP 1 OF THE SECOND STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES INSTALLING THE NEW 2400 V - 480Y / 277 VOLT TRANSFORMER, THE NEW MEDIUM VOLTAGE CABLE PULLBOX AND THE TRANSFORMER MEDIUM VOLTAGE FEEDER WHICH ORIGINATES FROM THE VENTILATION BUILDING.

2. FOLLOWING THE INSTALLATION OF THE NEW TRANSFORMER AND PRIMARY FEEDER, STEP 2 REQUIRES THAT THE NEW 480Y / 277 VOLT PANELBOARD AND NCS-2W SECONDARY FEEDER BETWEEN THE TRANSFORMER AND PANELBOARD BE INSTALLED IN THE ELECTRICAL ROOM.

3. STEP 3 REQUIRES THAT THE NEW CONTACTOR CABINET BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN. INSTALL A 120 VOLT POWER CIRCUIT FROM THE EXISTING 208 / 120 VOLT PANEL LOCATED IN THE CROSSCUT ELECTRICAL ROOM TO THE NEW CONTACTOR CABINET. INSTALL ANY REQUIRED CONTROL / SIGNAL CIRCUITS TO THE NEW CONTACTOR CABINET FROM THE NEAREST CROSSCUT ELECTRICAL ROOM(S) AND / OR VENTILATION BUILDING. ALSO, INSTALL THE FOUR NEW THREE-PHASE LIGHTING CIRCUITS FROM THE PANELBOARD TO THEIR ASSOCIATED CONTACTORS IN THE CONTACTOR CABINET. A MAXIMUM OF TWO THREE-PHASE FOUR-WIRE CIRCUITS SHALL BE INSTALLED IN ANY ONE CONDUIT. MAKE ALL CONDUCTOR TERMINATIONS TO THE CIRCUIT BREAKERS, NEUTRAL AND GROUND BUS AND LIGHTING CONTACTORS.

4. STEP 4 REQUIRES THAT THE EXISTING THREE-PHASE LIGHTING CIRCUITS THAT SERVE A SECTION OF THE TUNNEL WALL (ONE SIDE), BE DEENERGIZED AND THE CIR CONDUCTORS REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX. REMOVE THE CONDUIT FOR THESE CIRCUITS BETWEEN THE PANEL AND THE PULLBOX LOCATED ABOVE THE ENTRANCE TO THE CROSSCUT PASSAGE. THIS CONSTRUCTION STEP FACILITATES THE INSTALLATION OF A SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE CONDUITS AND CONDUCTORS WHICH WILL BE USED TO SUPPLY POWER TO THEM.

5. STEP 5 REMOVE THE EXISTING LUMINAIRES THAT WERE DEENERGIZED IN STEP 4. CONTRACTOR SHALL OWN AND DISPOSE LUMINAIRES INCLUDING BALLASTS AND LAMPS. PROVIDE CERTIFICATION TO STATE THAT DISPOSAL METHOD UTILIZED FOR LUMINAIRES, BALLASTS AND LAMPS MEETS STATE OF COLORADO AND FEDERAL REGULATIONS.

6. STEP 6 REQUIRES THAT THE FLUORESCENT LUMINAIRES ON ONE SIDE OF THE TUNNEL BE INSTALLED. ONCE INSTALLED, THE NEW LIGHTING CIRCUITS SHALL BE TERMINATED ON THE LOAD SIDE OF THEIR RESPECTIVE LIGHTING CONTACTORS IN THE CONTACTOR CABINET.

7. STEP 7 REQUIRES THAT THE THREE-PHASE CIRCUIT CONDUCTORS FOR THE HEAT TRACE CIRCUIT BE INSTALLED BETWEEN THE CONTACTOR CABINET AND THE NEW 480 / 277 VOLT PANELBOARD. DEENERGIZE THE EXISTING THREE-PHASE HEAT TRACE CIRCUIT THAT SERVES THE ADJACENT SECTIONS OF THE TUNNEL AT THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUIT TO THE NEW CONTACTOR CABINET. INSTALL JUNCTION BOXES REQUIRED OF SPLICED CIRCUIT CONDUCTORS.

8. STEP 8 REQUIRES THAT ALL OTHER 480 AND 277 VOLT LOADS, EXCLUDING THE FOUR REMAINING TUNNEL LIGHTING CIRCUITS, BE TRANSFERRED FROM THE EXISTING 480 VOLT PANEL TO THE NEW 480 / 277 VOLT PANELBOARD. THESE CIRCUITS INCLUDE THE FEEDER TO THE 480 - 208Y / 120 VOLT TRANSFORMER (WHICH SUPPLIES THE EXISTING 208 VOLT PANEL), MESSAGE BOARD FEEDERS AND TELEVISION CAMERA FEEDERS. DEENERGIZE THE EXISTING CIRCUITS FROM THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUITS TO THE NEW 480 / 277 VOLT PANELBOARD. INSTALL JUNCTION BOXES REQUIRED OF SPLICED CIRCUIT CONDUCTORS.

9. STEP 9 REQUIRES THAT EXISTING 480 VOLT PANEL BE REMOVED. PRIOR TO THE REMOVAL OF THE EXISTING 480V PANEL, THE MEDIUM VOLTAGE OIL CUTOUT SWI CAN BE OPENED AND THE SECONDARY FEEDER FROM THE TRANSFORMER TO THE EXISTING 480 VOLT PANEL CAN BE REMOVED. NEXT, THE CONDUCTORS FOR THE REMAINING THREE-PHASE LIGHTING CIRCUITS THAT SERVE THE OPPOSITE SIDE OF THE TUNNEL SHALL BE REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNE CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX. LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTO COILED IN THE PULLBOX. THE EXISTING 480 VOLT PANEL SHALL THEN BE REMOVED. THIS CONSTRUCTION STEP FACILITATES THE REMOVAL AND REPLACEMENT OF EXISTING 2400 V - 480Y / 277 VOLT TRANSFORMER. IT ALSO FACILITATES THE REMOVAL OF THE EXISTING MEDIUM VOLTAGE CABLE PULLBOX AND OIL CUTOUT ALSO, THE INSTALLATION OF THE REMAINING SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE ASSOCIATED LIGHTING CIRCUITS SUPPLIED FROM ELECTRICAL ROOM CAN PROCEED FOLLOWING THIS CONSTRUCTION STEP.

10. DE-ENERGIZE, DISCONNECT AND REMOVE (TEMPORARY) THE EXISTING TRANSFORMER AND APPURTENANCES FOR THE INSTALLATION OF THE NEW TRANSFORMER (TX-NCS-2W) AND COORDINATE STAGING OF WORK WITH INSTALLATION OF ALL EQUIPMENT AS INDICATED ON THE FINAL PLANS AS REQUIRED.

NOTE:

THE INTENT OF STAGING IS TO MAINTAIN A FULLY OPERATIONAL TUNNEL DURING CONSTRUCTION. SEE SPECIAL CONSTRUCTION REQUIREMENTS (K).

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Date of Plot: $$$$DATE$$$$

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Sheet Revisions		
07/03/07	ASBUILT	DJB

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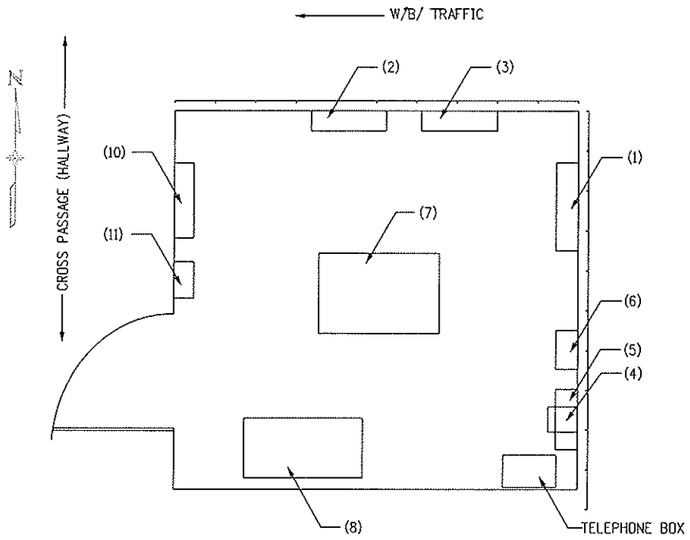
DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

ELEC DEMO - NO. TUNNEL CENTER CROSSCUT WEST ELECTRICAL ROOM

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: ELEC DEMO
Structure Numbers:
Subset Sheets: 8 of 15

Project No./Code
IM 0703-269
13166
Sheet Number 17

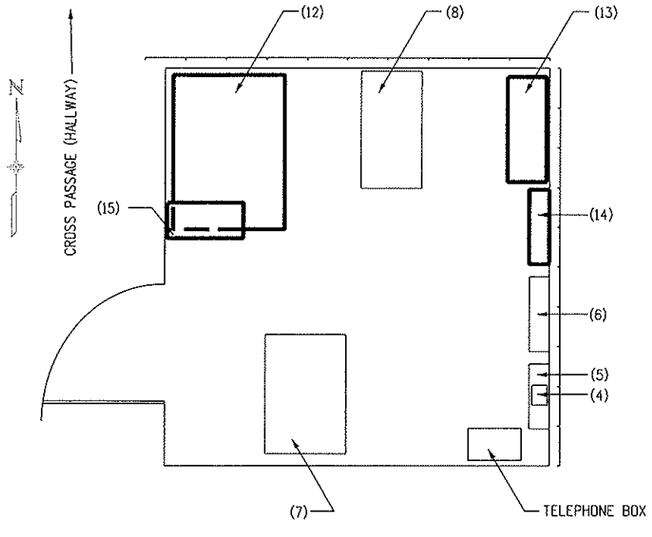


EXISTING PLAN

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

EXISTING PLAN LEGEND

(1) 480 / 277 V PANEL - 22"W x 65"H x 6"D
(2) LIGHTING AND HEATING CONTACTOR PANEL
(3) LIGHTING CONTROL PANEL - 15"W x 20"H x 9"D
(4) 3 KVA, 480 V - 208Y / 120 V TRANSFORMER
(5) 120 / 240 V PANEL - 16"W x 21"H x 6"D
(6) 30A, 2P, 120/240 V ASCO SW. (ATS)
(7) 75 KVA, 2400 V - 480Y / 277 V TRANSFORMER
(8) MV FUSED OIL CUTOUT SWITCH - 35"W x 38"H x 18"D
(9) NOT USED
(10) CABINET
(11) J-BOX



INTERIM PLAN

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

INTERIM PLAN LEGEND

(1) REMOVED - 480 / 277 V PANEL- 22"W x 65"H x 6"D
(2) REMOVED - LIGHTING AND HEATING CONTACTOR PANEL
(3) REMOVED - LIGHTING CONTROL PANEL
(4) 3 KVA, 480 V - 208Y / 120 V TRANSFORMER (EXIST)
(5) 120 / 240 V PANEL - 16"W x 21"H x 6"D (EXIST)
(6) 30A, 2P, 120/240 V ASCO SW. (ATS) (EXIST)
(7) RELOCATED - 75 KVA, 2400 V- 480Y / 277 V TRANSFORMER, NOTE 10
(8) RELOCATED - MV FUSED OIL CUTOUT SWITCH- 35"W x 38"H x 18"D (EXIST), NOTE 10
(9) NOT USED
(10) REMOVED - CABINET- 14"W x 38"H x 9"D
(11) REMOVED - J-BOX
(12) NEW 150 KVA, 2400 V - 480Y / 277 V TRANSFORMER TX-NCS-2E 48"W x 58"H x 32"D
(13) NEW CONTACTOR CABINET
(14) NEW 480 / 277 V PANEL- 22"W x 65"H x 6"D
(15) NEW MV CABLE PULL BOX- 24"W x 20"H x 12"D

STAGE 1 CONSTRUCTION NOTES:

1. STEP 1 OF THE FIRST STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES THE CONSECUTIVE TEMPORARY DEENERGIZING OF INDIVIDUAL TUNNEL LIGHTING CIRCUITS USING THE THREE-POLE CIRCUIT BREAKERS IN THE PANELBOARDS SERVING THESE LIGHTING LOADS.

2. FOLLOWING THE DEENERGIZATION OF AN INDIVIDUAL THREE-PHASE LIGHTING CIRCUIT, STEP 2 REQUIRES THAT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE LIGHTING CONTACTOR CONTROLLING THAT CIRCUIT BE REMOVED AND EXTENDED TO A TEMPORARY WIREWAY. THE WIREWAY SHALL EXTEND OVER AND BETWEEN THE PANELBOARD AND CONTACTOR PANEL AND BE MOUNTED AT A HEIGHT ABOVE THE HORIZONTAL RUNS OF LIGHTING CIRCUIT CONDUITS THAT ARE ROUTED TO THE CONTACTOR PANEL. IN LOCATING THE WIREWAY, AVOID INTERFERENCE WITH ANY NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. THE EXTENDED CIRCUIT CONDUCTORS FROM THE CONTACTOR PANEL WOULD BE TEMPORARILY SPLICED IN THE WIREWAY TO NEW CIRCUIT CONDUCTORS FROM THE PANELBOARD. THE ONLY CONTROL FOR EACH REROUTED LIGHTING CIRCUIT WOULD BE THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD. ONCE THE CHANGES FOR ONE LIGHTING CIRCUIT HAVE BEEN COMPLETED, THE REROUTING OF THE NEXT CIRCUIT CAN PROCEED.

3. STEP 3 REQUIRES THE TEMPORARY DEENERGIZATION OF THE THREE-PHASE HEAT TRACE CIRCUIT USING THE THREE-POLE CIRCUIT BREAKER IN THE PANELBOARD SERVING THIS HEATING LOAD. DISCONNECT THE LINE AND LOAD CIRCUIT CONNECTIONS TO THE HEATING CONTACTOR CONTROLLING THE CIRCUIT AND RELOCATE THE HEATING CONTACTOR TO AN ENCLOSURE MOUNTED ADJACENT TO THE WIREWAY. THE ENCLOSURE SHALL BE LOCATED TO AVOID INTERFERENCE WITH NEW EQUIPMENT INDICATED TO BE INSTALLED IN THE ELECTRICAL ROOM. EXTEND THE HEATING CIRCUIT TO THE RELOCATED HEATING CONTACTOR AND MAKE THE NECESSARY LINE AND LOAD CIRCUIT CONNECTIONS. EXTEND THE THERMOSTATIC CONTROL CIRCUIT TO THE HEATING CONTACTOR AND MAKE THE NECESSARY CONTROL CIRCUIT CONNECTIONS TO OPERATE IT AUTOMATICALLY FROM THE REMOTE THERMOSTAT. THE CONTRACTOR MAY REQUEST PERMISSION FROM THE STATE ENGINEER TO OMIT THE TEMPORARY RECONNECTION OF THE THERMOSTATIC CONTROL CIRCUIT FOR THE CONSTRUCTION WORK THAT IS TO BE COMPLETED DURING SUMMER MONTHS.

4. STEP 4 REQUIRES THAT THE LIGHTING AND HEATING CONTACTOR PANEL AND THE LIGHTING CONTROL PANEL BE REMOVED FROM THE ELECTRICAL ROOM. THIS WORK CAN PROCEED ONCE ALL LIGHTING AND HEATING CIRCUITS HAVE BEEN EXTENDED AND REROUTED THROUGH THE NEW WIREWAY / CONTACTOR ENCLOSURE AND ARE FULLY OPERATIONAL AS DESCRIBED ABOVE.

STAGE 2 CONSTRUCTION NOTES:

1. STEP 1 OF THE SECOND STAGE OF CONSTRUCTION FOR EACH CROSSCUT ELECTRICAL ROOM INVOLVES INSTALLING THE NEW 2400 V - 480Y / 277 VOLT TRANSFORMER, THE NEW MEDIUM VOLTAGE CABLE PULLBOX AND THE TRANSFORMER MEDIUM VOLTAGE FEEDER WHICH ORIGINATES FROM THE VENTILATION BUILDING.

2. FOLLOWING THE INSTALLATION OF THE NEW TRANSFORMER AND PRIMARY FEEDER, STEP 2 REQUIRES THAT THE NEW 480Y / 277 VOLT PANELBOARD NCS-2E AND SECONDARY FEEDER BETWEEN THE TRANSFORMER AND PANELBOARD BE INSTALLED IN THE ELECTRICAL ROOM.

3. STEP 3 REQUIRES THAT THE NEW CONTACTOR CABINET BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN. INSTALL A 120 VOLT POWER CIRCUIT FROM THE EXISTING 208 / 120 VOLT PANEL LOCATED IN THE CROSSCUT ELECTRICAL ROOM TO THE NEW CONTACTOR CABINET. INSTALL ANY REQUIRED CONTROL / SIGNAL CIRCUITS TO THE NEW CONTACTOR CABINET FROM THE NEAREST CROSSCUT ELECTRICAL ROOM(S) AND / OR VENTILATION BUILDING. ALSO, INSTALL THE FOUR NEW THREE-PHASE LIGHTING CIRCUITS FROM THE PANELBOARD TO THEIR ASSOCIATED CONTACTORS IN THE CONTACTOR CABINET. A MAXIMUM OF TWO THREE-PHASE FOUR-WIRE CIRCUITS SHALL BE INSTALLED IN ANY ONE CONDUIT. MAKE ALL CONDUCTOR TERMINATIONS TO THE CIRCUIT BREAKERS, NEUTRAL AND GROUND BUS AND LIGHTING CONTACTORS.

4. STEP 4 REQUIRES THAT THE EXISTING THREE-PHASE LIGHTING CIRCUITS THAT SERVE A SECTION OF THE TUNNEL WALL (ONE SIDE), BE DEENERGIZED AND THE CIRCU CONDUCTORS REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBOX. TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX. REMOVE THE CONDUIT FOR THESE CIRCUITS BETWEEN THE PANEL AND THE PULLBOX LOCATED ABOVE THE ENTRANCE TO THE CROSSCUT PASSAGE. THIS CONSTRUCTION STEP FACILITATES THE INSTALLATION OF A SEGMENT OF THE TUNNEL INTERIOR FLUORESCENT LIGHTING AND THE CONDUITS AND CONDUCTORS WHICH WILL BE USED TO SUPPLY POWER TO THEM.

5. STEP 5 REMOVE THE EXISTING LUMINAIRES THAT WERE DEENERGIZED IN STEP 4. CONTRACTOR SHALL DWN AND DISPOSE LUMINAIRES INCLUDING BALLASTS AND LAMPS. PROVIDE CERTIFICATION TO STATE THAT DISPOSAL METHOD UTILIZED FOR LUMINAIRES, BALLASTS AND LAMPS MEETS STATE OF COLORADO AND FEDERAL REGULATIONS.

6. STEP 6 REQUIRES THAT THE FLUORESCENT LUMINAIRES ON ONE SIDE OF THE TUNNEL BE INSTALLED. ONCE INSTALLED, THE NEW LIGHTING CIRCUITS SHALL BE TERMINATED ON THE LOAD SIDE OF THEIR RESPECTIVE LIGHTING CONTACTORS IN THE CONTACTOR CABINET.

7. STEP 7 REQUIRES THAT THE THREE-PHASE CIRCUIT CONDUCTORS FOR THE HEAT TRACE CIRCUIT BE INSTALLED BETWEEN THE CONTACTOR CABINET AND THE NEW 480 / 277 VOLT PANELBOARD. DEENERGIZE THE EXISTING THREE-PHASE HEAT TRACE CIRCUIT THAT SERVES THE ADJACENT SECTIONS OF THE TUNNEL AT THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUIT TO THE NEW CONTACTOR CABINET. INSTALL JUNCTION BOXES REQUIRED OF SPLICED CIRCUIT CONDUCTORS.

8. STEP 8 REQUIRES THAT ALL OTHER 480 AND 277 VOLT LOADS, EXCLUDING THE FOUR REMAINING TUNNEL LIGHTING CIRCUITS, BE TRANSFERRED FROM THE EXISTING 480 VOLT PANEL TO THE NEW 480 / 277 VOLT PANELBOARD. THESE CIRCUITS INCLUDE THE FEEDER TO THE 480 - 208Y / 120 VOLT TRANSFORMER (WHICH SUPPLIES THE EXISTING 208 VOLT PANEL), MESSAGE BOARD FEEDERS AND TELEVISION CAMERA FEEDERS. DEENERGIZE THE EXISTING CIRCUITS FROM THE EXISTING 480 VOLT PANEL AND EXTEND THE CIRCUITS TO THE NEW 480 / 277 VOLT PANELBOARD. INSTALL JUNCTION BOXES REQUIRED OF SPLICED CIRCUIT CONDUCTORS.

9. STEP 9 REQUIRES THAT THE EXISTING 480V PANEL IMMEDIATELY ADJACENT TO THE DOOR OF THE ELECTRICAL ROOM BE REMOVED AND A SECOND NEW 480/277 VOL PANELBOARD BE INSTALLED IN ITS PLACE. PRIOR TO THE REMOVAL OF THE EXISTING 480V PANEL, THE MEDIUM VOLTAGE OIL CUTOUT SWITCH CAN BE OPENED AND TH SECONDARY FEEDER FROM THE TRANSFORMER TO THE EXISTING 480 VOLT PANEL CAN BE REMOVED. NEXT, THE CONDUCTORS FOR THE REMAINING THREE-PHASE LIGHTING CIRCUITS THAT SERVE THE OPPOSITE SIDE OF THE TUNNEL SHALL BE REMOVED BETWEEN THE PANEL AND THE NEAREST TUNNEL LIGHTING CIRCUIT PULLBO TAPE THE ENDS OF THE ABANDONED CIRCUIT CONDUCTORS IN THE PULLBOX, LEAVING A MINIMUM OF THREE FEET SURPLUS OF EACH CONDUCTOR COILED IN THE PULLBOX. THE EXISTING 480 VOLT PANEL SHALL THEN BE REMOVED. THIS CONTRUCTION STEP FACILITIES THE REMOVAL AND REPLACEMENT OF THE EXISTING 2400 V - 480Y / 277 VOLT TRANSFORMER. IT ALSO FACILITATES THE REMOVAL OF THE EXISTING MEDIUM VOLTAGE CABLE PULLBOX AND OIL CUTOUT SWITCH, ALSO, THE INSTALLATION OF THE REMAINING SEGMENT OF THE TUNNEL INTERIOR FLUORECENT LIGHTING AND THE ASSOCIATED LIGHTING CIRCUITS SUPPLIED FROM THI ELECTRICAL ROOM CAN PROCEED FOLLOWING THIS CONSTRUCTION STEP.

10. DE-ENERGIZE, DISCONNECT AND REMOVE (TEMPORARY) THE EXISTING TRANSFORMER AND APPURTENANCES FOR THE INSTALLATION OF THE NEW TRANSFORMER (TX-NCS-1E) AND COORDINATE STAGING OF WORK WITH INSTALLATION OF ALL EQUIPMENT AS INDICATED ON THE FINAL PLANS AS REQUIRED.

NOTE:

THE INTENT OF STAGING IS TO MAINTAIN A FULLY OPERATIONAL TUNNEL DURING CONSTRUCTION.
SEE SPECIAL CONSTRUCTION REQUIREMENTS (K).

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Date of Plot: $$$$DATE$$$$

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Last Modification Date:	12/04/03	Initials:	DJB
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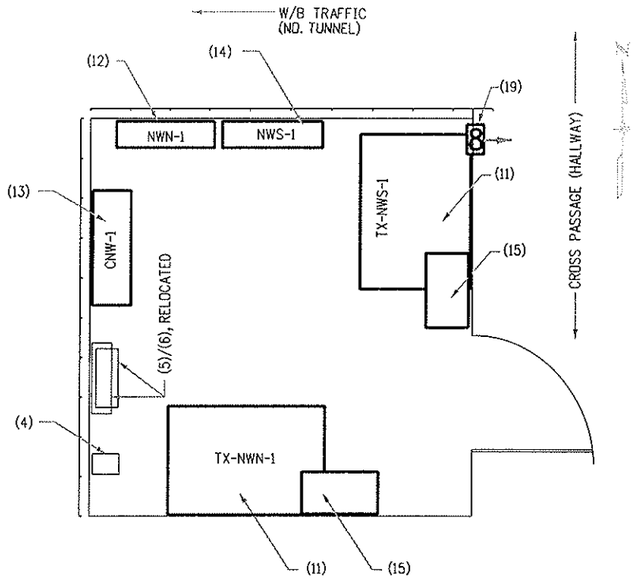
As Constructed			
No Revisions:			
Revised:			
Void:			

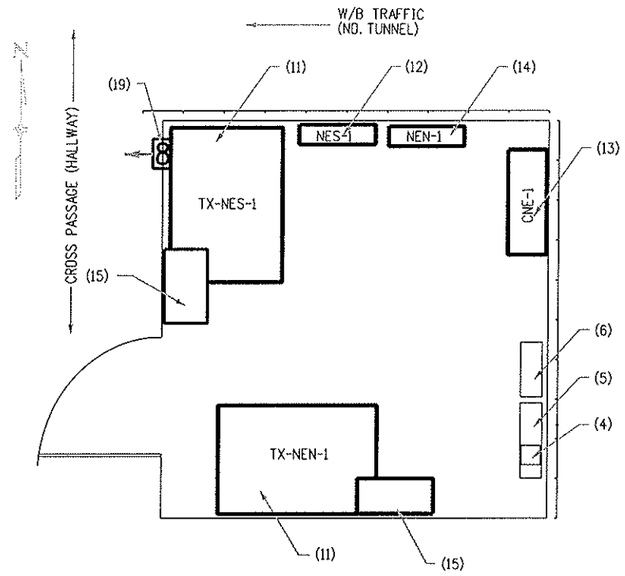
ELEC DEMO - NO. TUNNEL CENTER CROSSCUT EAST ELECTRICAL ROOM		
Designer: E.A. GAYAMAT	Structure Numbers	
Detailer: R. MILLER		
Sheet Subset:ELEC DEMO	Subset Sheets:	9 of 15

Project No./Code	
IM 0703-269	
13166	
Sheet Number	18



FINAL PLAN
CROSSCUT WEST

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



FINAL PLAN
CROSSCUT EAST

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

NOTES

A. SUPPORT MV PULLBOX FROM WALL BRACKETS FABRICATED FROM STEEL STRUT AND FROM CEILING THREADED RODS.

B. REFERENCE THE NORTH TUNNEL CROSSCUT ELECTRICAL ROOM PLANS FOR CONSTRUCTION STAGING REQUIREMENTS AS FOLLOWS:

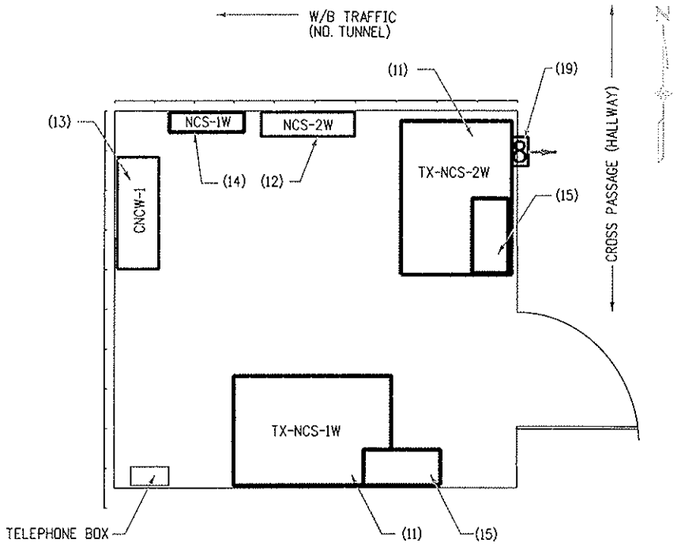
WEST: "NORTH TUNNEL WEST CROSSCUT ELECTRICAL ROOM"
CENTER: "NORTH TUNNEL CENTER CROSSCUT ELECTRICAL ROOM"-EAST/WEST
EAST: "NORTH TUNNEL EAST CROSSCUT ELECTRICAL ROOM"

C. REFERENCE THE "NORTH TUNNEL POWER PLAN"- SHEET FOR TUNNEL CIRCUITS WHICH ROUTE TO PANEL NWN-1 AND CONTACTOR CABINET CNW-1

D. REFERENCE THE "NORTH TUNNEL POWER PLAN"- SHEET FOR TUNNEL CIRCUITS WHICH ROUTE TO PANEL NCN-1 AND CONTACTOR CABINET CNC-1.

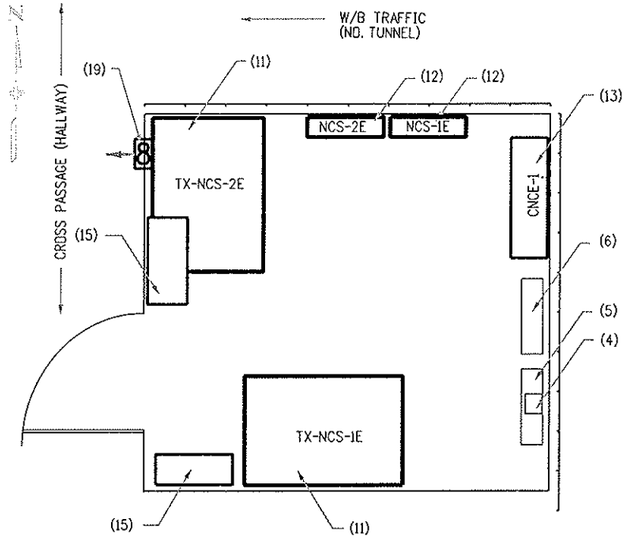
E. REFERENCE THE "NORTH TUNNEL POWER PLAN"- SHEET FOR TUNNEL CIRCUITS WHICH ROUTE TO PANEL NEN-1 AND CONTACTOR CABINET CNE-1.

F. INSTALL A JUNCTION BOX IN PLACE OF THE TEMPORARILY RELOCATED CONTACTOR FOR THE EXISTING WATER MAIN HEAT TAPE CIRCUITS. REFERENCE STAGE 1 CONSTRUCTION NOTE 3 ON THE "NORTH TUNNEL _____CROSSCUT ELECTRICAL ROOM" PLAN SHEETS. INSTALL NEW 5#10 AWG CIRCUIT CONDUCTORS FROM THE CONTACTOR CABINET (CNW-1, CNC-1 OR CNE-1) TO THIS JUNCTION BOX. A #10 AWG GROUNDING CONDUCTOR IS INCLUDED IN THE CONDUCTOR COUNT. SPLICE THE EXISTING HEAT TRACE CIRCUIT CONDUCTORS TO THE NEW CONDUCTORS IN THE JUNCTION BOX. INSTALL A JUNCTION BOX FOR THE HEAT TRACE CONTROL CIRCUIT. INSTALL NEW THERMOSTATIC CONTROL CIRCUIT CONDUCTORS, NUMBER AND SIZE TO MATCH EXISTING, BETWEEN THE JUNCTION BOX AND THE CONTACTOR CABINET. SPLICE THE EXISTING HEAT TRACE CONTROL CIRCUIT CONDUCTORS TO THE NEW CONDUCTORS IN THE JUNCTION BOX.



FINAL PLAN
CENTER CROSSCUT WEST

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



FINAL PLAN
CENTER CROSSCUT EAST

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

LEGEND:

(4) 3 KVA, 480 V - 208Y / 120 V TRANSFORMER (EXIST)
(5) 120 / 240 V PANEL - 16"W x 21"H x 6"D (EXIST)
(6) 30A, 2P, 120/240 V ASCO SW. (ATS) (EXIST)
(11) NEW 150 KVA, 2400 V - 480Y/277 V TRANSFORMER-48"W x 58"H x 32"D
(12) NEW 480 / 277 V PANEL - 22"W x 65"H x 6"D
(13) NEW CONTACTOR CABINET - 20"W x 30"H x 8"D
(14) NEW 480 / 277 V PANEL - 22"W x 50"H x 6"D
(15) NEW - MV CABLE PULLBOX - 24"W x 20"H x 12"D
(18) NOT USED
(19) NEW THRU-WALL EXHAUST FAN (3000 CFM)

NOTE:
THE INTENT OF STAGING IS TO MAINTAIN A FULLY OPERATIONAL TUNNEL DURING CONSTRUCTION. SEE SPECIAL CONSTRUCTION REQUIREMENTS (K).

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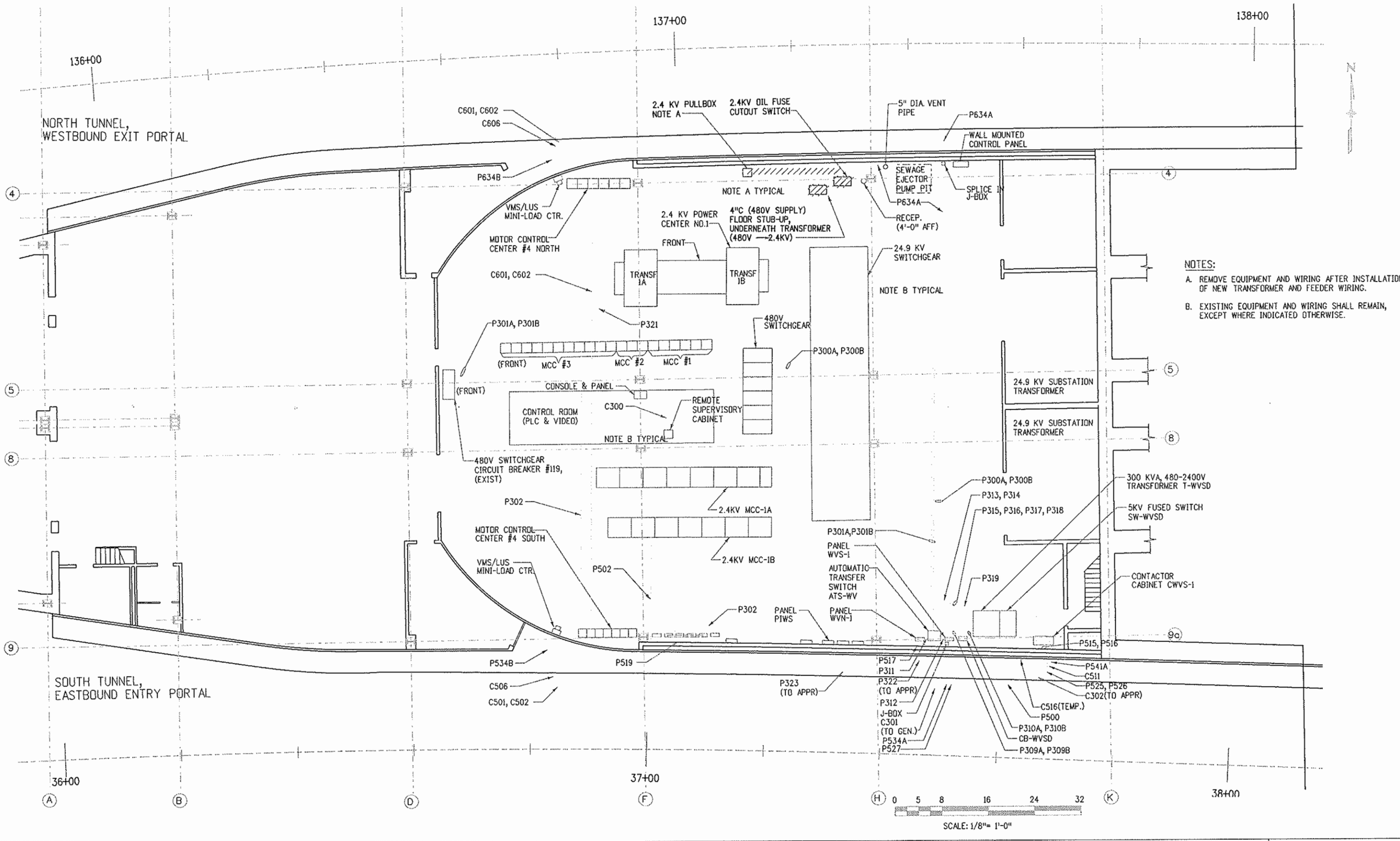
As Constructed	ELEC PLANS - NO. TUNNEL FINAL CROSSCUT ELECTRICAL ROOMS		Project No./Code
No Revisions:			IM 0703-269
Revised:	Designer: E.A. GAYAMAT	Structure Numbers	13166
Void:	Detailer: R. MILLER		
	Sheet Subset: ELEC DEMO	Subset Sheets: 10 of 15	Sheet Number 19



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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Last Modification Date:	Initials:
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Acad Ver. R14	Scale: 1/8" = 1'-0" Units: ENGLISH

Sheet Revisions		
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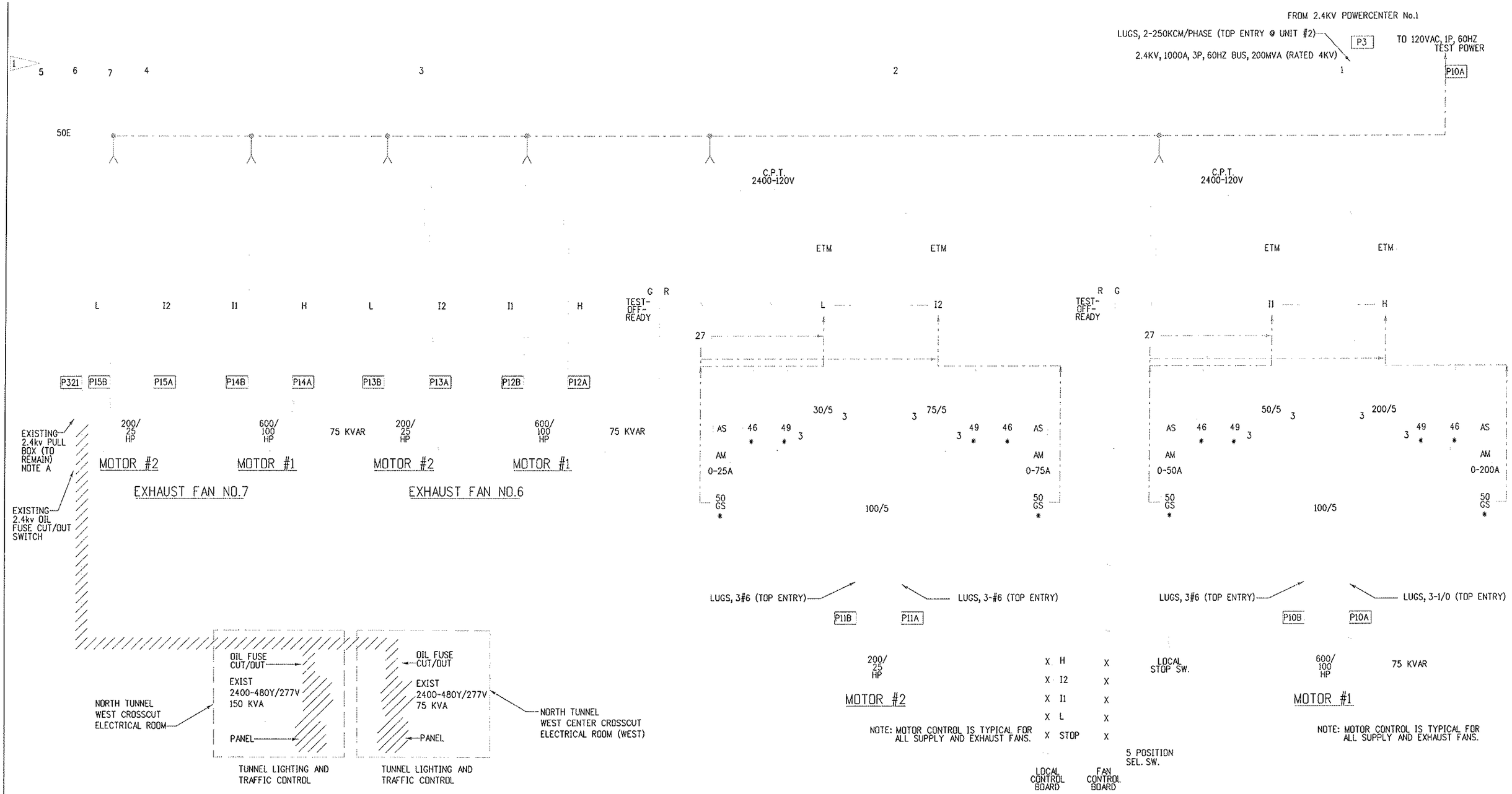
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

ELECTRICAL DEMOLITION
WEST VENT BUILDING PLAN

Designer: E.A. GAYAMAT		Structure Numbers	
Detailer: R. MILLER			
Sheet Subset: ELEC DEMO	Subset Sheets: 11 OF 15		

Project No./Code
IM 0703-269
13166
Sheet Number 20



NOTE:
A. REFER TO WEST VENT BUILDING FOR LOCATION, SHEET 11.

* EXISTING PROTECTIVE DEVICES OF MOTOR, TYPICAL.

EXISTING TO WEST VENT. BUILDING
2.4KV MOTOR CONTROL CENTER NO. 1A
(RATED 4KV)

Computer File Information			
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Last Modification Date:	02/07/02	Initials:	DJR
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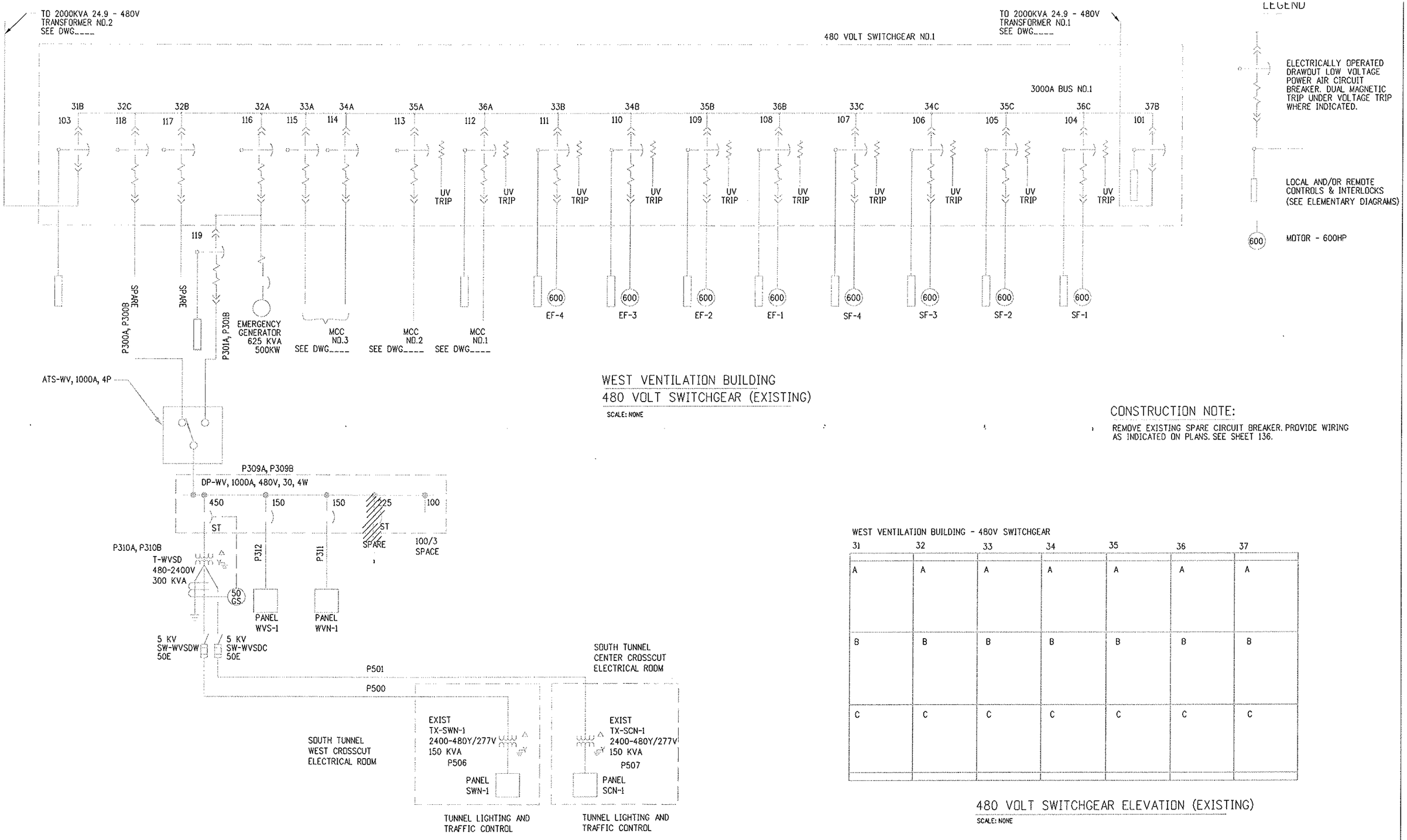
ELECTRICAL DEMOLITION
WEST 2.4KV MCC NO. 1A

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers
Sheet Subset: ELEC DEMO
Subset Sheets: 12 of 15

Project No./Code
IM 0703-269
13166
Sheet Number 21



WEST VENTILATION BUILDING 480 VOLT SWITCHGEAR (EXISTING)

SCALE: NONE

LEGEND

- ELECTRICALLY OPERATED DRAWOUT LOW VOLTAGE POWER AIR CIRCUIT BREAKER. DUAL MAGNETIC TRIP UNDER VOLTAGE TRIP WHERE INDICATED.
- LOCAL AND/OR REMOTE CONTROLS & INTERLOCKS (SEE ELEMENTARY DIAGRAMS)
- (600) MOTOR - 600HP

CONSTRUCTION NOTE:

REMOVE EXISTING SPARE CIRCUIT BREAKER. PROVIDE WIRING AS INDICATED ON PLANS. SEE SHEET 136.

WEST VENTILATION BUILDING - 480V SWITCHGEAR

31	32	33	34	35	36	37
A	A	A	A	A	A	A
B	B	B	B	B	B	B
C	C	C	C	C	C	C

480 VOLT SWITCHGEAR ELEVATION (EXISTING)

SCALE: NONE

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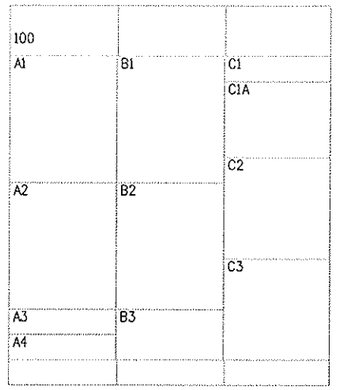
ELECTRICAL DEMOLITION WEST 480V SWITCHGEAR

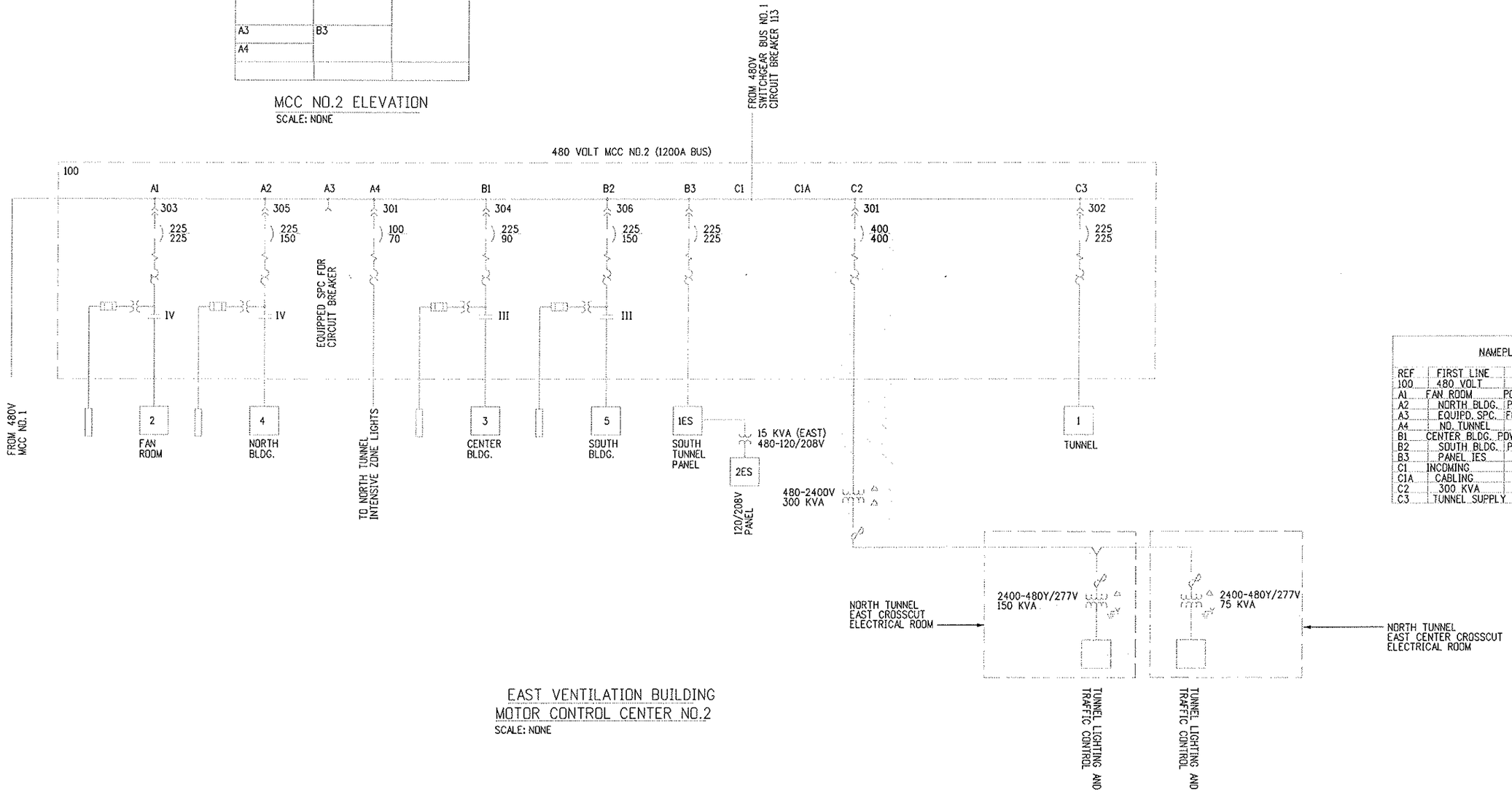
Designer: E.A. GAYAMAT		Structure Numbers	
Detailer: R. MILLER			
Sheet Subset: ELEC DEMO	Subset Sheets: 13 of 15		

Project No./Code	
IM 0703-269	
13166	
Sheet Number	22

EAST VENTILATION BUILDING (MCC) NO. 2



MCC NO.2 ELEVATION
SCALE: NONE



NAMEPLATE SCHEDULE

REF	FIRST LINE	SECOND LINE	THIRD LINE
100	480 VOLT	MCC NO. 2	NORTH
A1	FAN ROOM	POWER DIST.	PANEL NO. 2
A2	NORTH BLDG.	POWER DIST.	PANEL NO. 4
A3	EQUIPD. SPC.	FOR CIRCUIT	BREAKER
A4	NO. TUNNEL	INTENSIVE	ZONE LIGHTS
B1	CENTER BLDG.	POWER DIST.	PANEL NO. 3
B2	SOUTH BLDG.	POWER DIST.	PANEL NO. 5
B3	PANEL 1ES	SOUTH	TUNNEL
C1	INCOMING	FEEDER	BUS
C1A	CABLING	300 KVA	TRANSFORMER
C2	300 KVA	TRANSFORMER	PRIMARY
C3	TUNNEL SUPPLY	POWER DIST.	PANEL NO. 1

EAST VENTILATION BUILDING
MOTOR CONTROL CENTER NO.2
SCALE: NONE

Design File Name: DGN$SPEC*
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ELECTRICAL DEMOLITION
EAST MCC NO.2

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers
Sheet Subset: ELEC DEMO
Subset Sheets: 14 of 15

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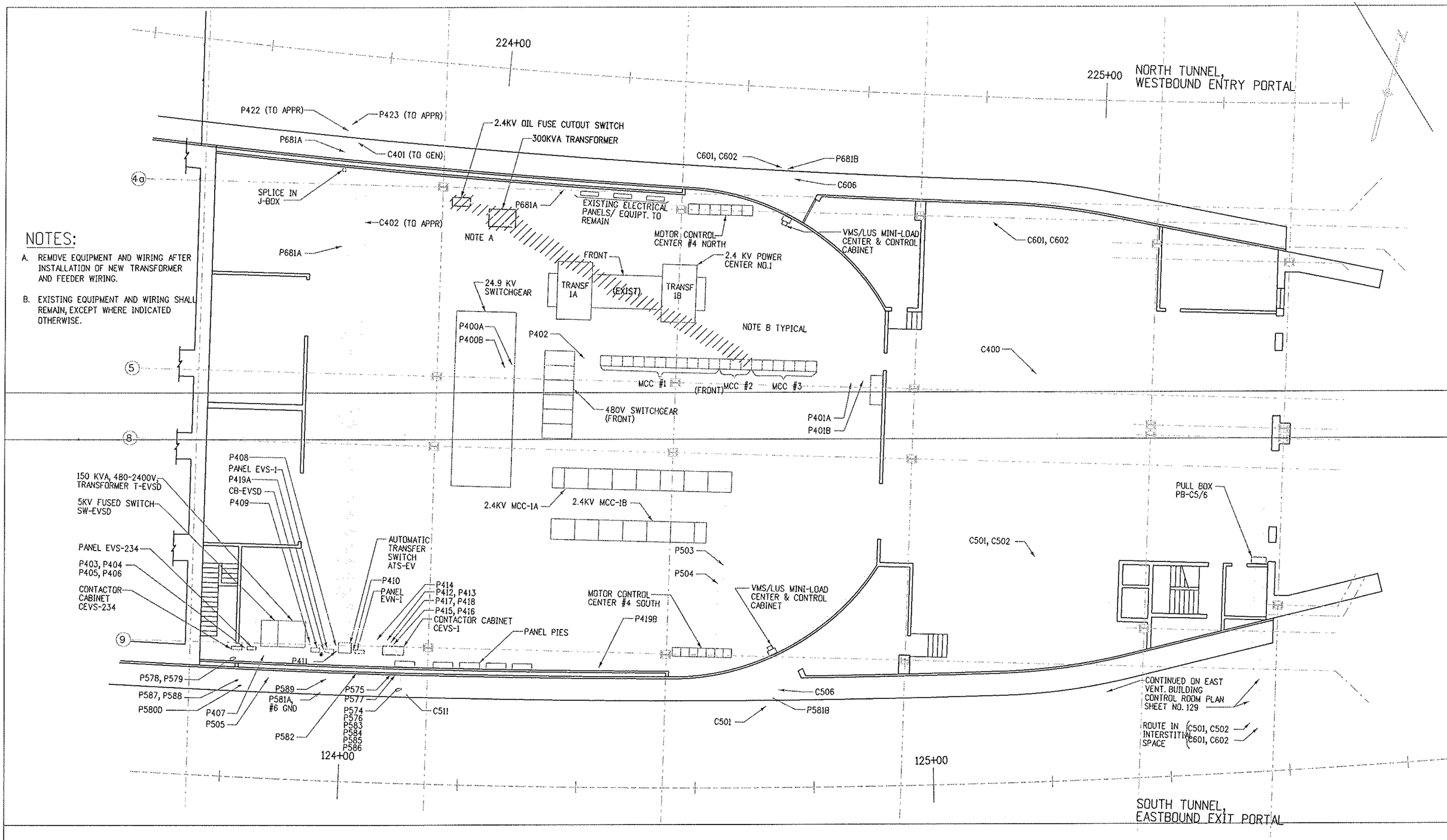
13166
Sheet Number 23



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Region 1 Mountain Residency I.N.Z.

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ELECTRICAL DEMOLITION EAST VENT BUILDING PLAN

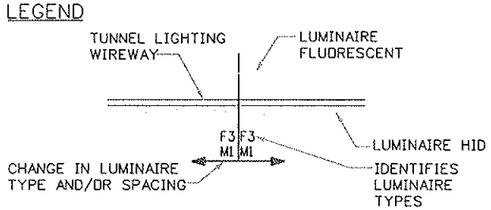
Designer: E.A. GAYAMAT		Structure Numbers	
Detailer: R. MILLER			
Sheet Subset: ELEC DEMO	Subset Sheets: 15 of 15		

Project No./Code
IM 0703-269
13166
Sheet Number 24

TUNNEL LIGHTING NOTES

1. UNLESS OTHERWISE NOTED, ALL LUMINAIRES SHALL BE MOUNTED IN ACCORDANCE TO THE TYPICAL MOUNTING DETAILS SHOWN ON SUBSET "TLD" TUNNEL LIGHTING DETAILS SHEETS.
2. PLAN DRAWINGS ARE SCHEMATIC FOR LUMINAIRE LOCATION AND INFORMATION ONLY. REFER TO TUNNEL LIGHTING DETAILS FOR PROPOSED PLACEMENT ON WALLS AND CEILINGS.
3. UNDER THIS CONTRACT, LIGHTING WORK IS TO BE COMPLETED IN CROSS PASSAGEWAY AREAS AS SHOWN ON SUBSET "TUN. LTG." SHEET 20.
4. AT VMS LOCATIONS WITHIN THE TUNNEL, THE ROW OF FLUORESCENT TUNNEL LUMINAIRES (INCLUDING WIREWAYS) END APPROXIMATELY 3'-0" IN FRONT OF THE C OF SIGN, AND RESUMES APPROXIMATELY 3'-0" AFTER ℄ OF THE SIGN. SEE SUBSET "TLD", SHEET 5 FOR DETAILS.
5. AT BREAKS IN THE ROW OF LUMINAIRES FLUORESCENT, WHERE WIREWAY IS NOT CONTINUOUS, POWER FEED BOXES SHALL BE PROVIDED AT BOTH STARTING AND STOPPING POINTS OF TUNNEL LIGHTING RUN. TO CONTINUE CIRCUIT RUNS ACROSS INTERRUPTION POINTS USE 1 1/4" RGS CONDUIT, COMPLETE CONNECTION USING LIQUIDTIGHT FLEXIBLE METAL CONDUIT TO POWER FEED ENTRY, SEE SUBSET "TLD" SHEET 6 FOR INTERCONNECT REQUIREMENTS.
6. CONTRACTOR SHALL COORDINATE TUNNEL LIGHTING WIREWAY POWER FEED LOCATIONS AS INDICATED ON THE TUNNEL POWER PLANS, REFER TO SUBSET "TUN POWER" FOR LOCATIONS.
7. SEE SUBSET "TLD" TUNNEL LIGHTING DETAILS DRAWING SHEETS FOR SPECIFIC MOUNTING REQUIREMENTS OF EACH SYSTEM COMPONENT.
8. FOR TABULATION OF TUNNEL MOUNTING CONDITIONS, REFER TO SUBSET "TLD" TUNNEL LIGHTING DETAILS, SHEET 1.
9. PROVIDE ONE EXTRA SUPPLEMENTAL MOUNTING PLATE WITH A LUMINAIRE MOUNTING BRACKET AT THE END OF EACH RUN OF FLUORESCENT LUMINAIRES (TYPES F1, F2 AND F3 TUNNEL).
10. PROVIDE A CAST ALUMINUM CAP AT THE END OF EACH RUN OF FLUORESCENT LUMINAIRES AND WIREWAYS TO ENSURE AGAINST WATER INTRUSION, CONTRACTOR SHALL COORDINATE ACTUAL NUMBER REQUIRED.
11. LUMINAIRES HID MOUNTED TO LESS THAN 8'-0" ON CENTER SHALL BE MOUNTED IN CONJUNCTION WITH A CONTINUOUS WIREWAY. WHEN TRANSITIONING FROM 5'-0" ON CENTER SPACING TO 8'-0" ON CENTER SPACING, BEGIN 8'-0" ON CENTER SPACING FROM THE NEXT JOINT BETWEEN CEILING SLABS. PROVIDE A MINIMUM OF 5'-0" (MAXIMUM OF 8'-0") BETWEEN MOUNTING METHODS. SEE SUBSET "TLD" TUNNEL LIGHTING DETAILS SHEET 11.
12. THE LOCATIONS SHOWN ON THE TUNNEL LIGHTING PLANS AND DETAILS, DEPICTING BEGINNING AND ENDING OF MOUNTING CONDITIONS FOR THE TUNNEL LUMINAIRES ARE APPROXIMATE. CONTRACTOR TO VERIFY EXACT LOCATION, LAYOUT, MOUNTING CHANNEL, AND ANCHOR POINTS ACCORDINGLY.
13. THE NOTATIONS FOR R1 (CONCRETE) PAVEMENT ARE FOR REFERENCE ONLY.
14. ALL QUANTITIES SHOWN ON THE SHEETS NOTED BETWEEN STATIONS ARE APPROXIMATE. DUE TO THE FLEXIBLE NATURE OF THE TUNNEL LIGHTING SYSTEM DESIGN, LUMINAIRES MAY SHIFT TO ADJACENT CALLOUT AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CHANGES WHICH ARE REQUIRED.
15. ACCESS HATCH SHOWN FOR REFERENCE. LUMINAIRES SHOULD BE COORDINATED SO AS NOT TO AFFECT ACCESS. ROUTE ALL CONDUIT AROUND HATCH IF REQUIRED.
16. NOT USED
17. REFER TO SUBSET TUN. POWER OF THE NORTH TUNNEL POWER PLANS FOR POWER REQUIREMENTS.
18. NOTE TYPE A FLUORESCENT TUNNEL FIXTURES LOCATED IN TUNNEL CROSS PASSAGEWAY AREAS SHALL BE MOUNTED TO CROSS PASSAGEWAY CEILING AS SHOWN ON THE PLANS SO AS NOT TO INTERFERE WITH OTHER EQUIPMENT IN THE AREA. REFER TO FIXTURE SPECIFICATION FOR COMPLETE DESCRIPTION OF REQUIREMENTS.

LEGEND



LUMINAIRE LOCATION TABULATION - NORTH TUNNEL

	LUMINAIRE LOCATION FROM	LUMINAIRE LOCATION TO	QUANTITIES (UNIT EACH) F1	F2	F3	M1	M2	M3	HID WIREWAY (UNIT LF)
TH	135+98.6	138+02			25	39			200
	138+02	138+54			6		7		
TR1	138+54	139+50			12			6	
	139+50	140+13		7					
TR2	140+13	140+24	VMS BREAK (SEE NOTES 4 & 6)						
	140+24	140+50		3					
TR3	140+50	141+48	12						
▲	141+48	144+55	37						
	144+55	144+65	PULPIT BREAK (SEE NOTES 5 & 6)						
	144+65	148+29	44						
	148+29	148+41	VMS BREAK (SEE NOTES 4 & 6)						
	148+41	156+34	96						
	156+34	156+43	VMS BREAK (SEE NOTES 4 & 6)						
	156+43	159+45	37						
	159+45	164+36	59						
	164+36	164+45	VMS BREAK (SEE NOTES 4 & 6)						
	164+45	168+66.5	51						
	168+66.5	168+75	PULPIT BREAK (SEE NOTES 5 & 6)						
	168+75	172+39	44						
INT	172+39	172+48	VMS BREAK (SEE NOTES 4 & 6)						
	172+48	179+62	87						
	179+62	180+33	8						
	180+33	180+42	VMS BREAK (SEE NOTES 4 & 6)						
	180+42	188+52.4	98						
	188+52.4	188+62.5	VMS BREAK (SEE NOTES 4 & 6)						
	188+62.5	192+76	50						
	192+76	192+87.5	PULPIT BREAK (SEE NOTES 5 & 6)						
	192+87.5	196+51	44						
	196+51	196+62	VMS BREAK (SEE NOTES 4 & 6)						
	196+62	201+75	62						
	201+75	204+55	34						
	204+55	204+67	VMS BREAK (SEE NOTES 4 & 6)						
	204+67	212+60	96						
	212+60	212+72	VMS BREAK (SEE NOTES 4 & 6)						
▽	212+72	213+26	7						
TR3	213+26	215+58	28						
TR2	215+58	217+64		25				12	
	217+64	218+18			6		4		
TR1	218+18	218+25	PULPIT BREAK (SEE NOTES 5 & 6)						
	218+25	219+70			17		22		60
TH	219+70	225+23			68	201			550
TOTALS			894	35	134	240	33	18	810

SOUTH WALL

WEST CROSS PASSAGEWAY
CENTRAL CROSS PASSAGEWAY
EAST CROSS PASSAGEWAY

NOTE: LUMINAIRE LOCATION TABULATION TOTALS DO NOT INCLUDE FURNISH ONLY ITEM AMOUNTS.

RECOMMENDED EXPANSION JOINTS SPACING FOR LUMINAIRE FLUORESCENT

TEMPERTURE AT TIME OF CONSTRUCTION (DEGREES F)	NUMBER OF LUMINAIRE FLUORESCENT BETWEEN EXPANSION JOINTS: 5	10	15	20
	MINIMUM EXPANSION JOINT IN INCHES			
30 - 40	.5"	1"	1.5"	2"
45 - 60	.375"	.75"	1.25"	1.5"
65 - 80	.25"	.5"	.75"	1"
85 - 100	.125"	.25"	.375"	.5"

NOTE: IF THE NUMBER OF LUMINAIRES ON BOTH SIDES OF AN EXPANSION JOINT ARE DIFFERENT, THE AVERAGE EXPANSION JOINT WIDTH MAY BE USED.

QUANTITIES - NORTH TUNNEL LIGHTING PROJECT

ITEM NUMBER	DESCRIPTION	UNIT	ROADWAY PLAN	ROADWAY AS CONST.
	CONSTRUCTION			
613	LUMINAIRE FLUORESCENT (TYPE F1 TUNNEL)	EA	1798	
613	LUMINAIRE FLUORESCENT (TYPE F2 TUNNEL)	EA	72	
613	LUMINAIRE FLUORESCENT (TYPE F3 TUNNEL)	EA	268	
613	LUMINAIRE FLUORESCENT (TYPE A TUNNEL)	EA	39	
613	WIREWAY	LF	1620	
613	HID LUMINAIRE MOUNTING SUPPORT SYSTEM	LS	1	
613	HID FIXTURES (TYPE M1 TUNNEL LUMINAIRE)	EA	479	
613	HID FIXTURES (TYPE M2 TUNNEL LUMINAIRE)	EA	66	
613	HID FIXTURES (TYPE M3 TUNNEL LUMINAIRE)	EA	36	
613	LUMINAIRE FLUORESCENT (TYPE F1 TUNNEL)(FURNISH ONLY)	EA	20	
613	LUMINAIRE FLUORESCENT (TYPE F2 TUNNEL)(FURNISH ONLY)	EA	5	
613	LUMINAIRE FLUORESCENT (TYPE F3 TUNNEL)(FURNISH ONLY)	EA	5	
613	HID FIXTURES (TYPE M1 TUNNEL LUMINAIRE) (FURNISH ONLY)	EA	19	
613	LENS ASSEMBLIES (FURNISH ONLY)	EA	50	

LUMINAIRE LOCATION TABULATION - NORTH TUNNEL

	LUMINAIRE LOCATION FROM	LUMINAIRE LOCATION TO	QUANTITIES (UNIT EACH) F1	F2	F3	M1	M2	M3	HID WIREWAY (UNIT LF)
TH	135+99	138+02			25	39			200
	138+02	138+54			6		7		
TR1	138+54	139+50			12			6	
TR2	139+50	140+50		12					
TR3	140+50	141+49	12						
▲	141+49	156+38	180						
	156+38	156+51	PULPIT BREAK (SEE NOTES 5 & 6)						
	156+51	159+48	36						
	159+48	179+62	244						
	179+62	180+55	11						
INT	180+55	180+70	PULPIT BREAK (SEE NOTES 5 & 6)						
	180+70	201+75	255						
	201+75	206+13	53						
	206+13	206+27	PULPIT BREAK (SEE NOTES 5 & 6)						
▽	206+27	213+29	85						
TR3	213+29	215+61	28						
TR2	215+61	217+67		25				12	
TR1	217+67	219+73			24		26		60
TH	219+73	225+24			67	200			550
TOTALS			904	37	134	239	33	18	810

NORTH WALL

WEST CROSS PASSAGEWAY
CENTER CROSS PASSAGEWAY
EAST CROSS PASSAGEWAY

NOTE: LUMINAIRE LOCATION TABULATION TOTALS DO NOT INCLUDE FURNISH ONLY ITEM AMOUNTS.

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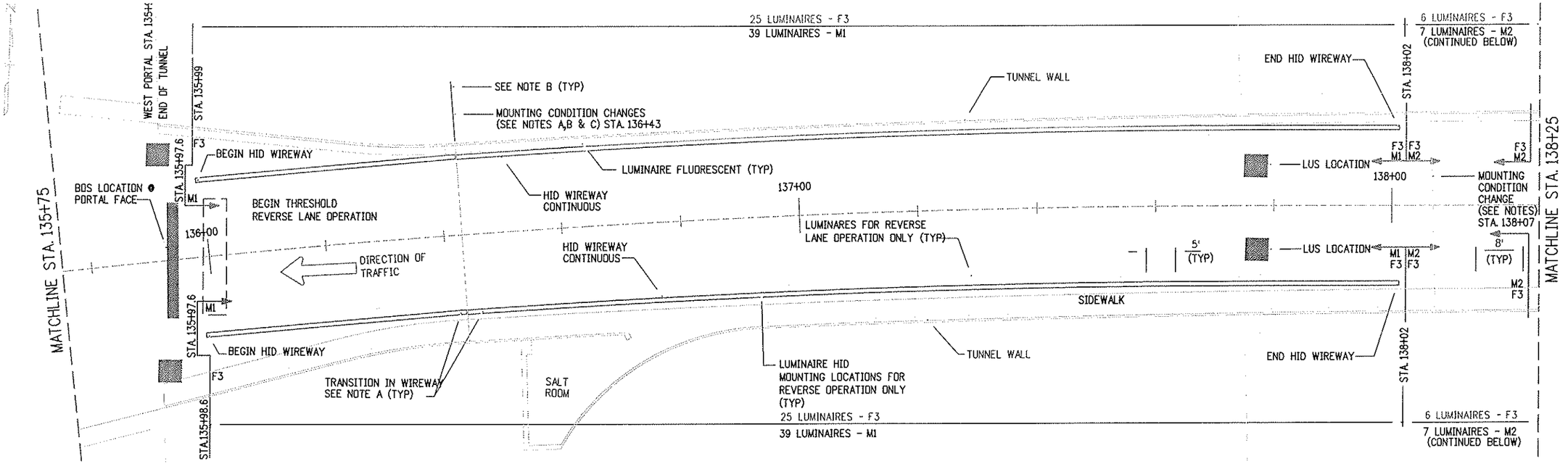
NORTH TUNNEL LIGHTING NOTES

Designer:	J. KROLL	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	1 of 20

Project No./Code: IM 0703-269
13166
Sheet Number 25



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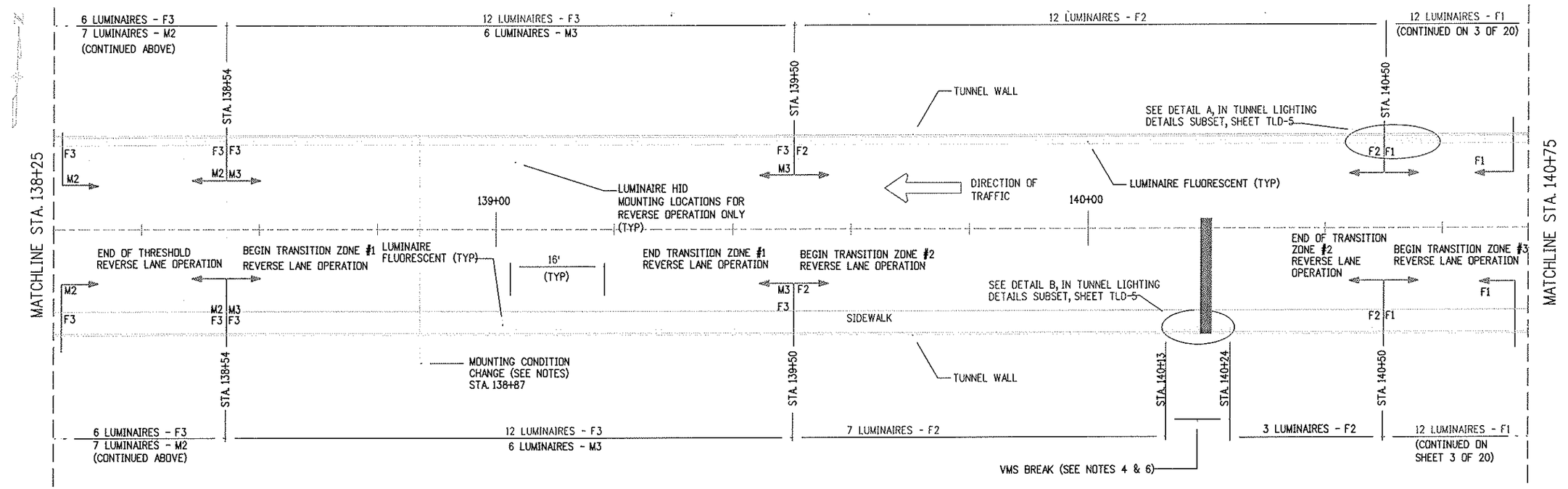

PLAN2

NOTES:

A. AN ABRUPT CHANGE IN CEILING ANGLE OCCURS AT STA 136+43± . CONTRACTOR SHALL COORDINATE TRANSITION TO MAINTAIN CONTINUANCE OF WIREWAY.

B. CONTRACTOR SHALL MAINTAIN CONTINUANCE OF FLUORESCENT LUMINAIRES THROUGH TRANSITION IN TUNNEL CEILING AT STA 136+45 .

C. ROADWAY AT P.G. TO CEILING DISTANCE TAPERS FROM 20'-9½" AT STA 135+91±TO 16'-4" ±AT STA 136+43± . AT WHICH POINT DISTANCE IS RELATIVELY CONSTANT.

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NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	2 of 20

Project No./Code	IM 0703-269
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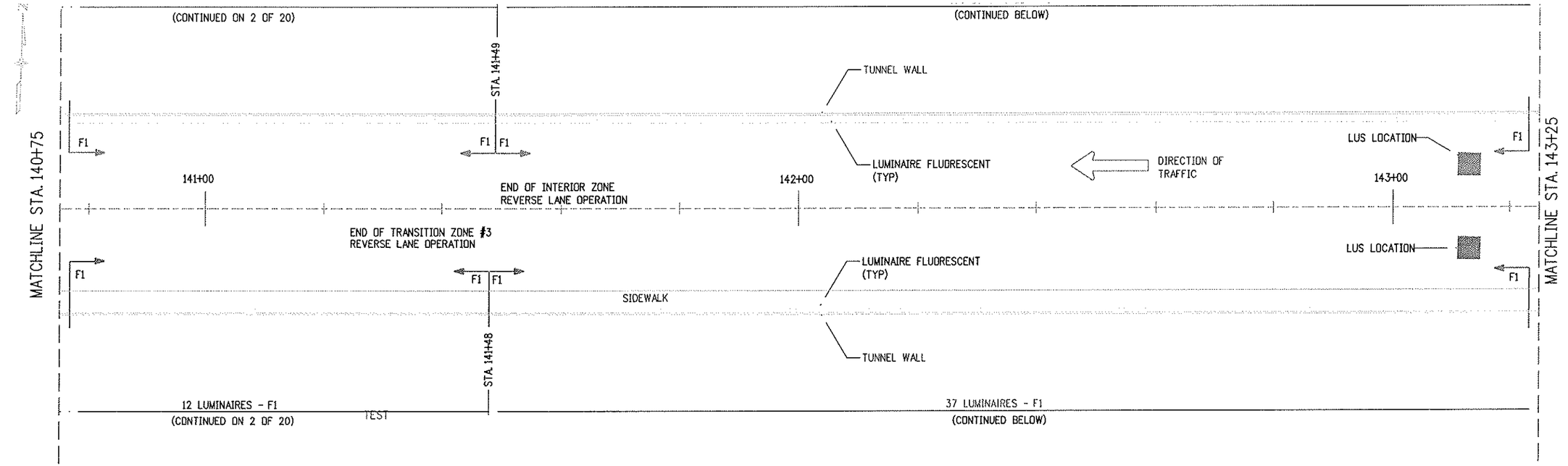
Sheet Number	26



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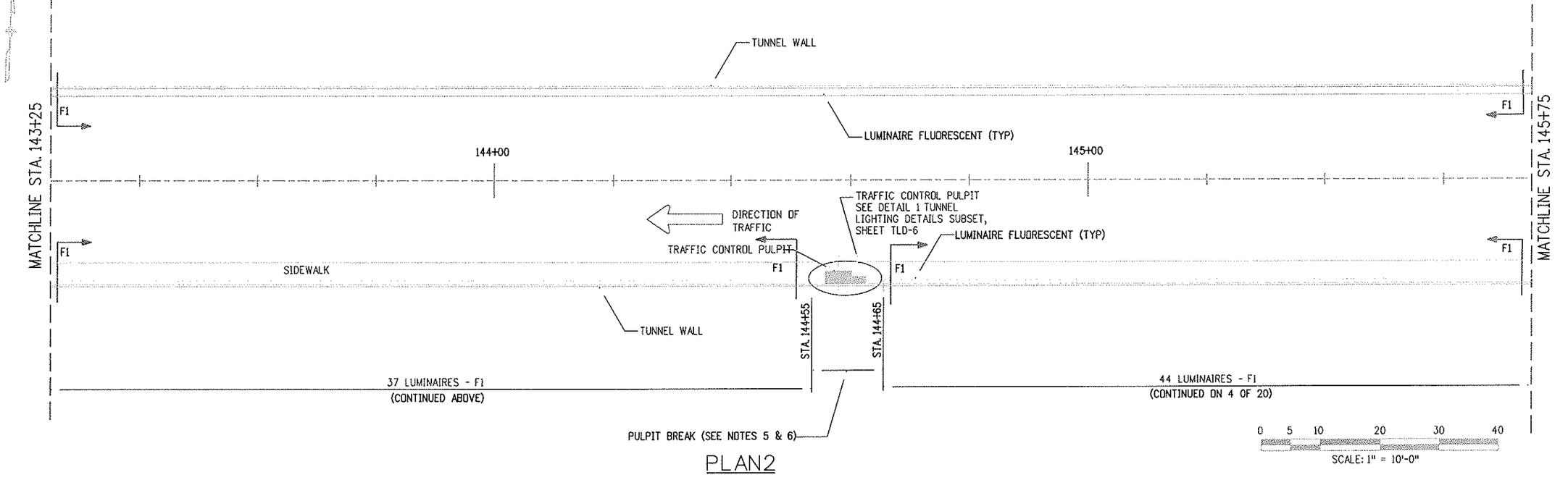

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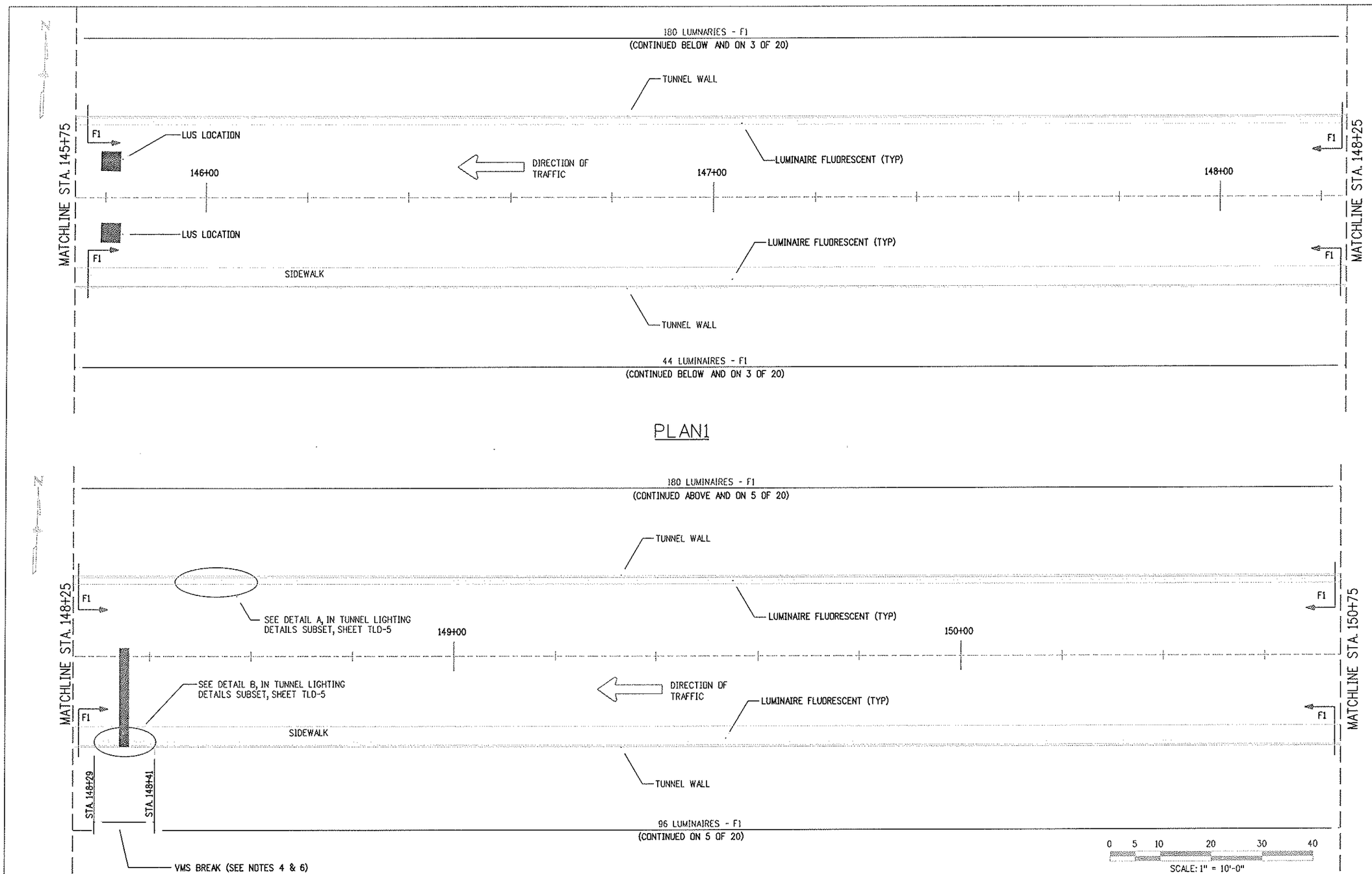
NORTH TUNNEL LIGHTING PLANS

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Structure Numbers
Sheet Subset: TUN. LTG.
Subset Sheets: 3 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 27



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NORTH TUNNEL LIGHTING PLANS

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Sheet Subset: TUN. LTG.
Structure Numbers:
Subset Sheets: 4 of 20

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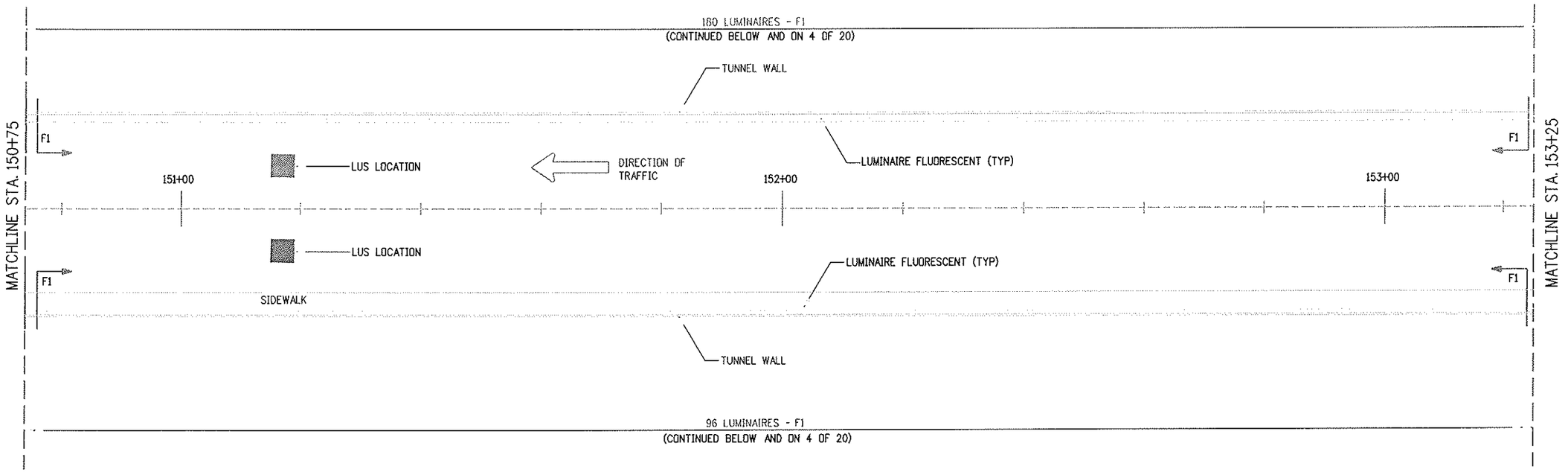
13166
Sheet Number 28



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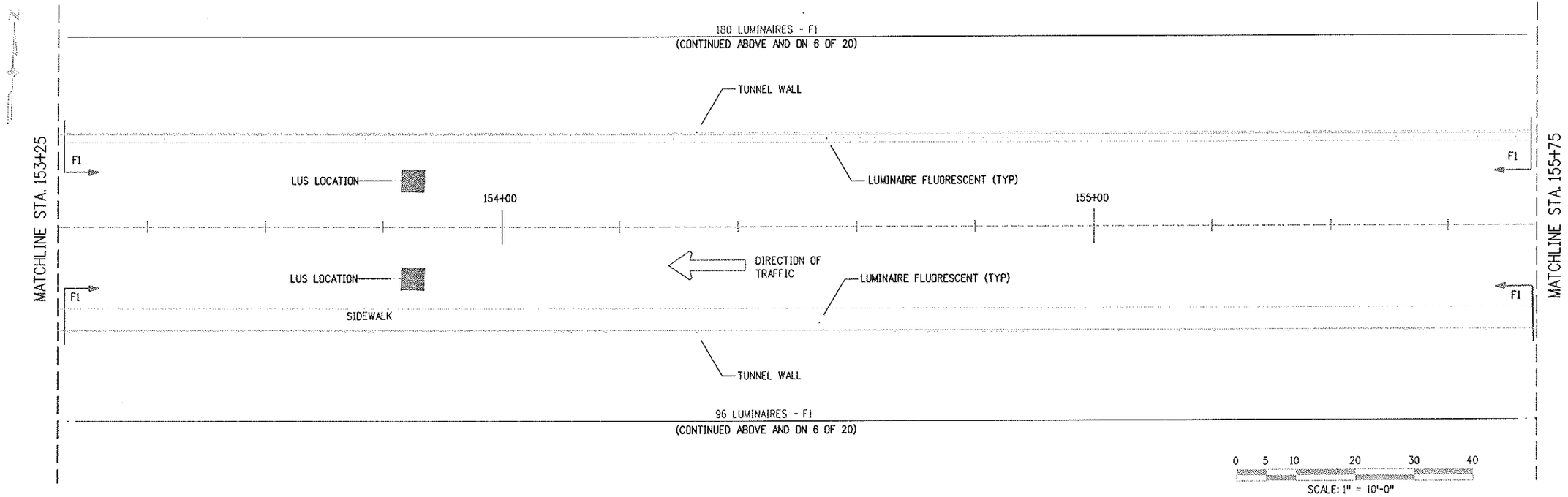

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Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	5 of 20

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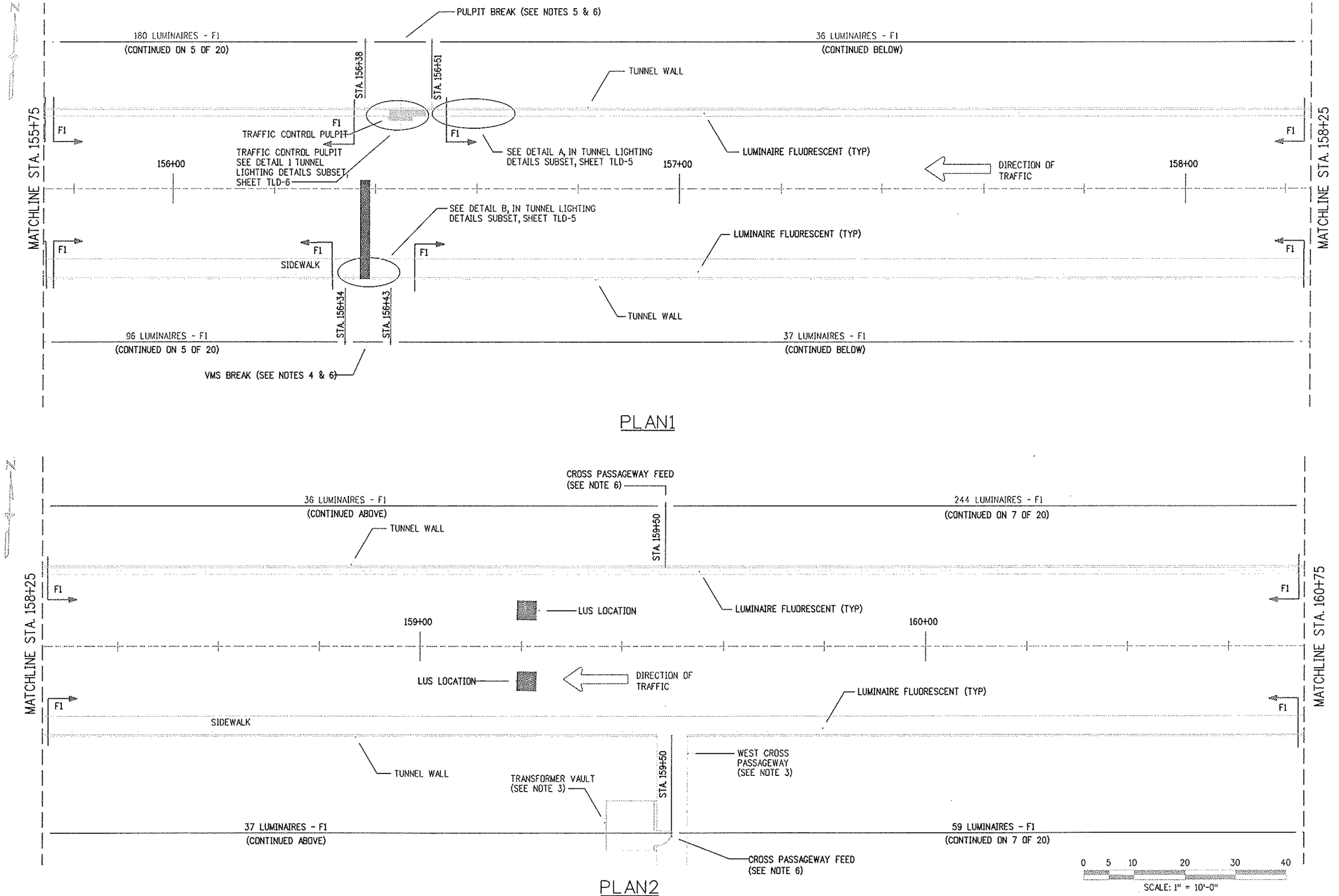

PLAN1

PLAN2

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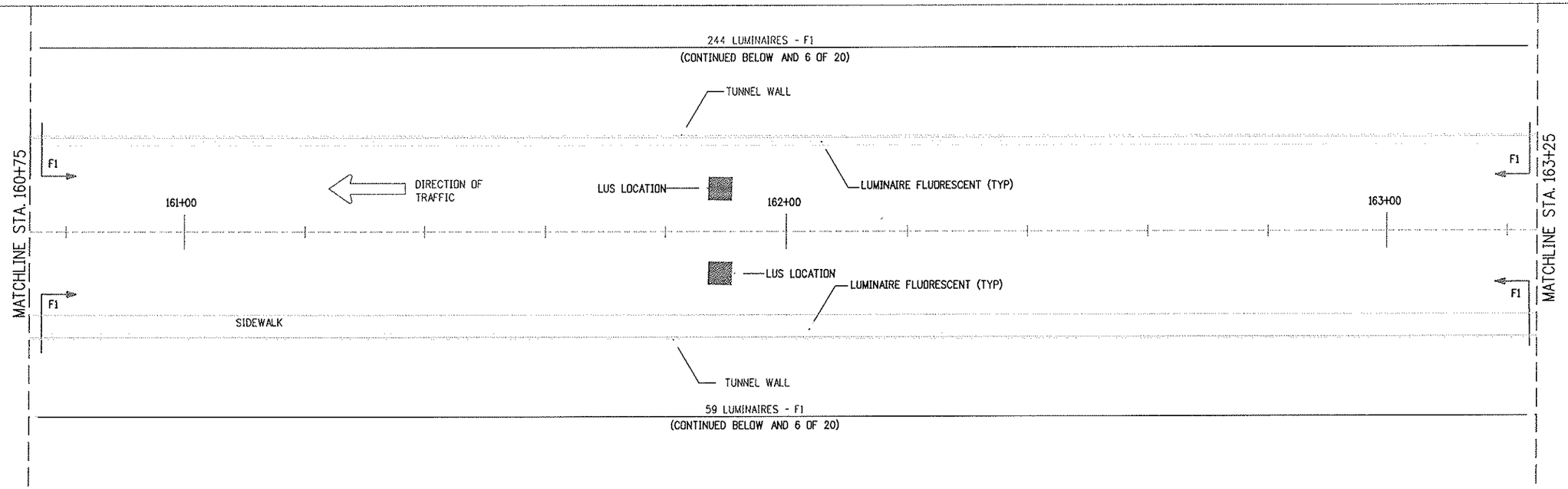
NORTH TUNNEL LIGHTING PLANS

Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Sheet Subset: TUN. LTG.
Structure Numbers:
Subset Sheets: 6 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 30



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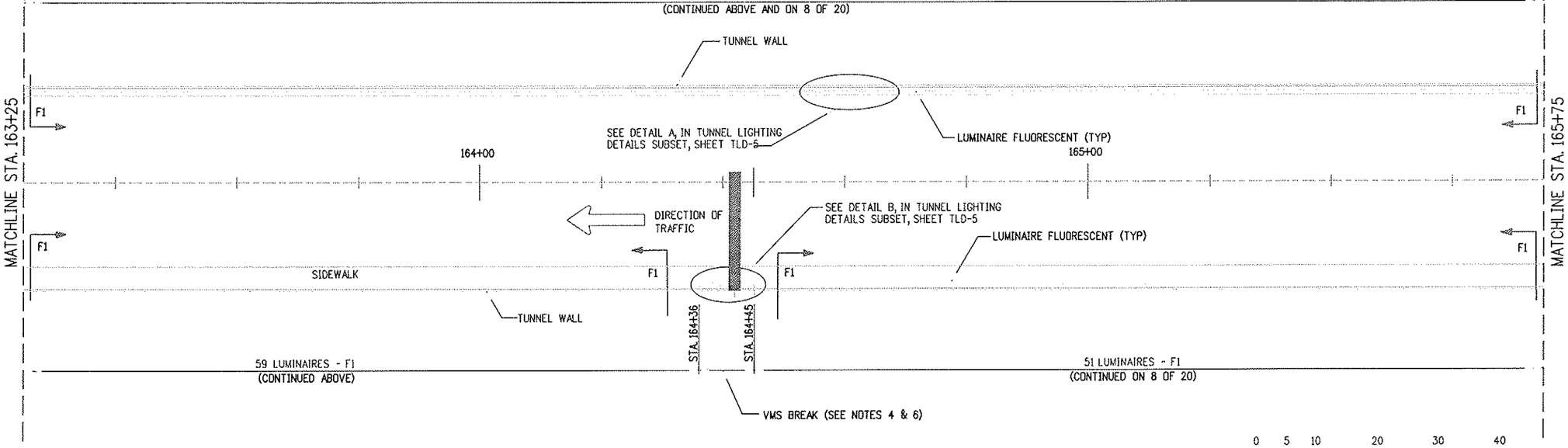

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NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	7 of 20

Project No./Cod	
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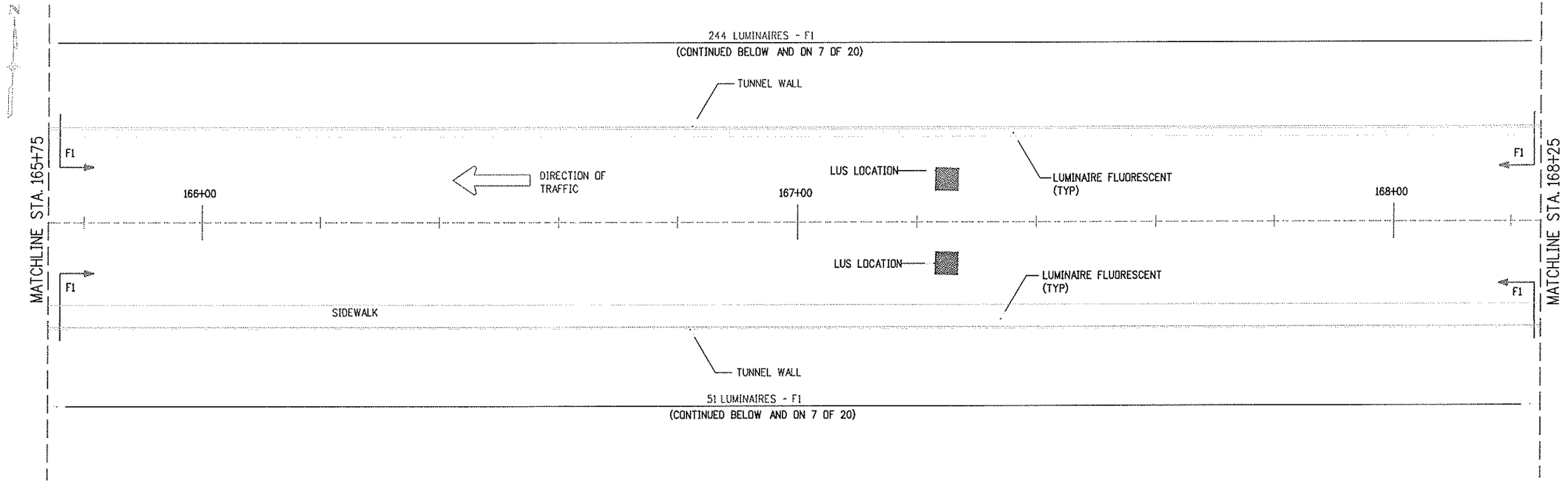
13166	
Sheet Number	31



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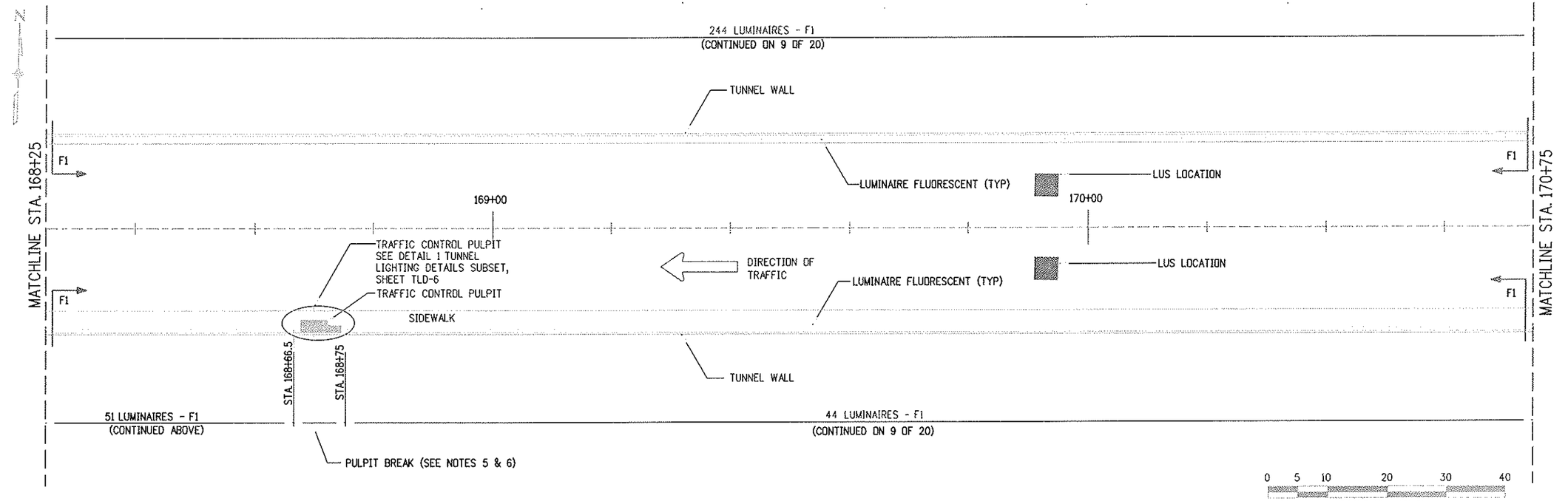

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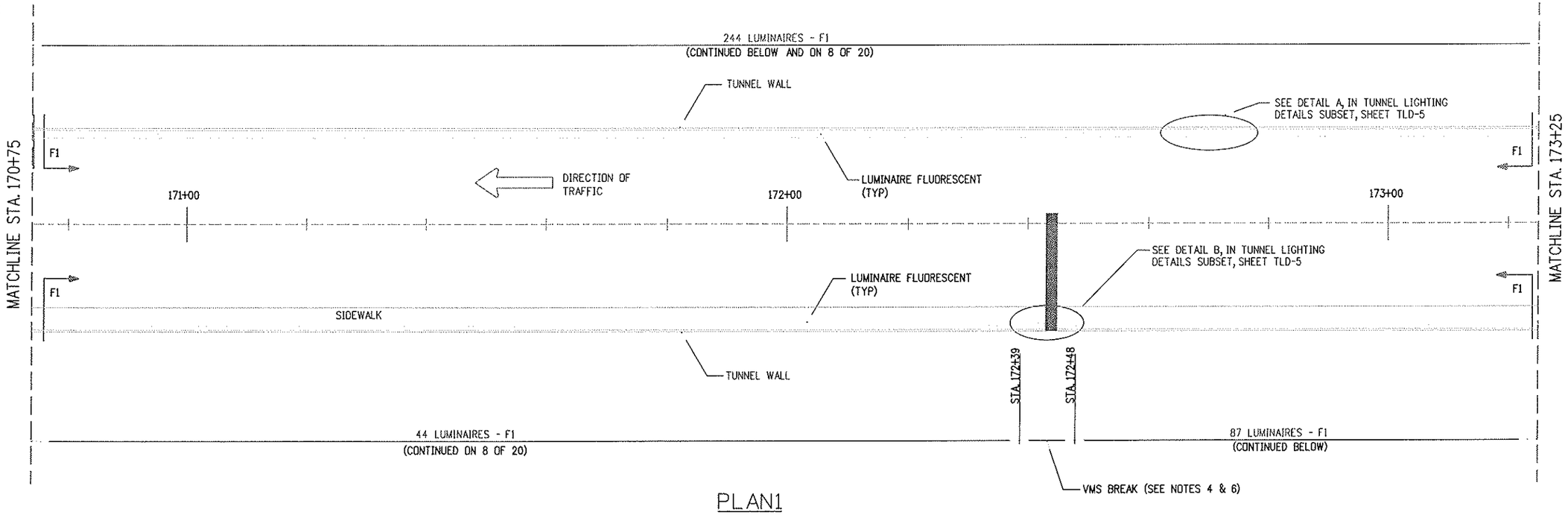
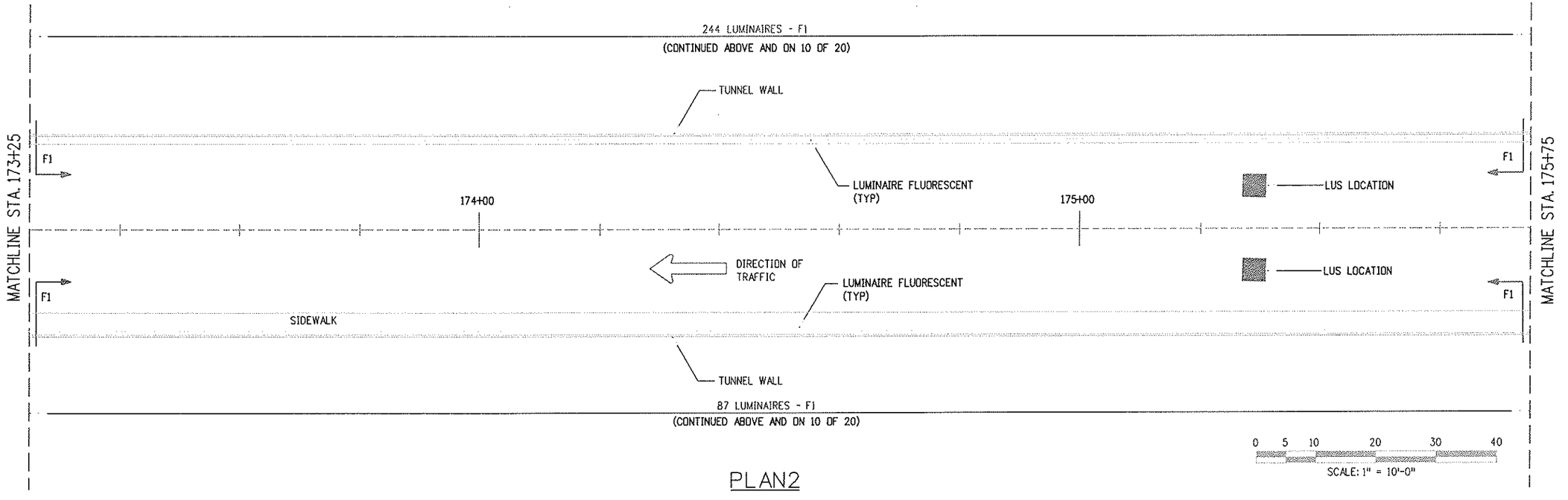
NORTH TUNNEL LIGHTING PLANS

Designer: D.BURROUGHS
Detailer: D.BURROUGHS
Sheet Subset: TUN. LTG.
Structure Numbers
Subset Sheets: 8 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 32



PLAN1



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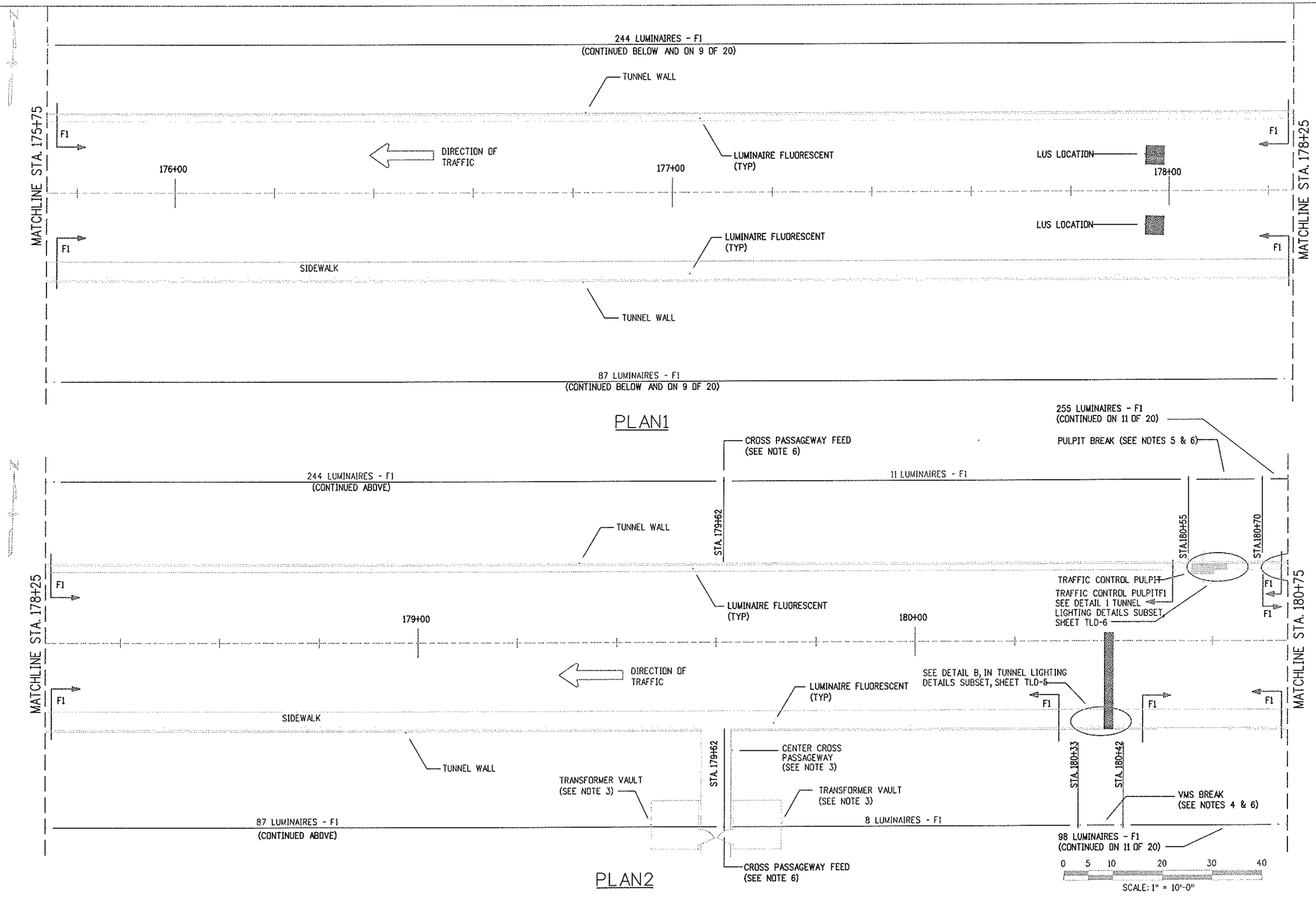
NORTH TUNNEL LIGHTING PLANS

Designer: D BURROUGHS
Detailer: D BURROUGHS
Structure Numbers:
Sheet Subset: TUN. LTG.
Subset Sheets: 9 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 33



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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Last Modification Date:	02/06/01	Initials:	DJB
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Drawing File Name:			ltpl09n.dwg
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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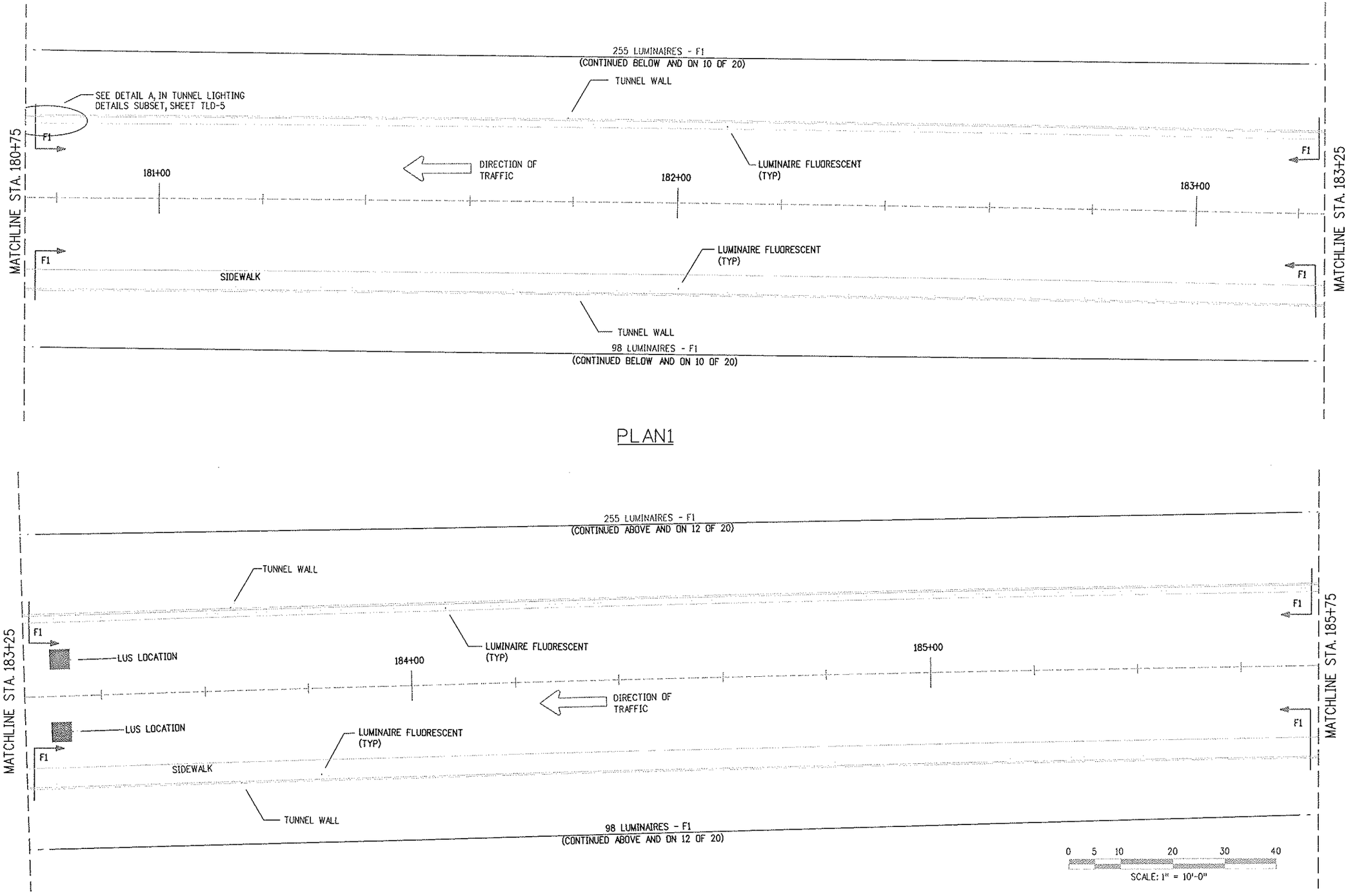
No Revisions:
Revised:
Void:

NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	10 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 34



PLAN1

PLAN2

Design File Name: USRDSPLY#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	02/06/01	Initials:	DJB
Full Path:	14102\700CADD\703elec\		
Drawing File Name:			ltpl10n.dwg
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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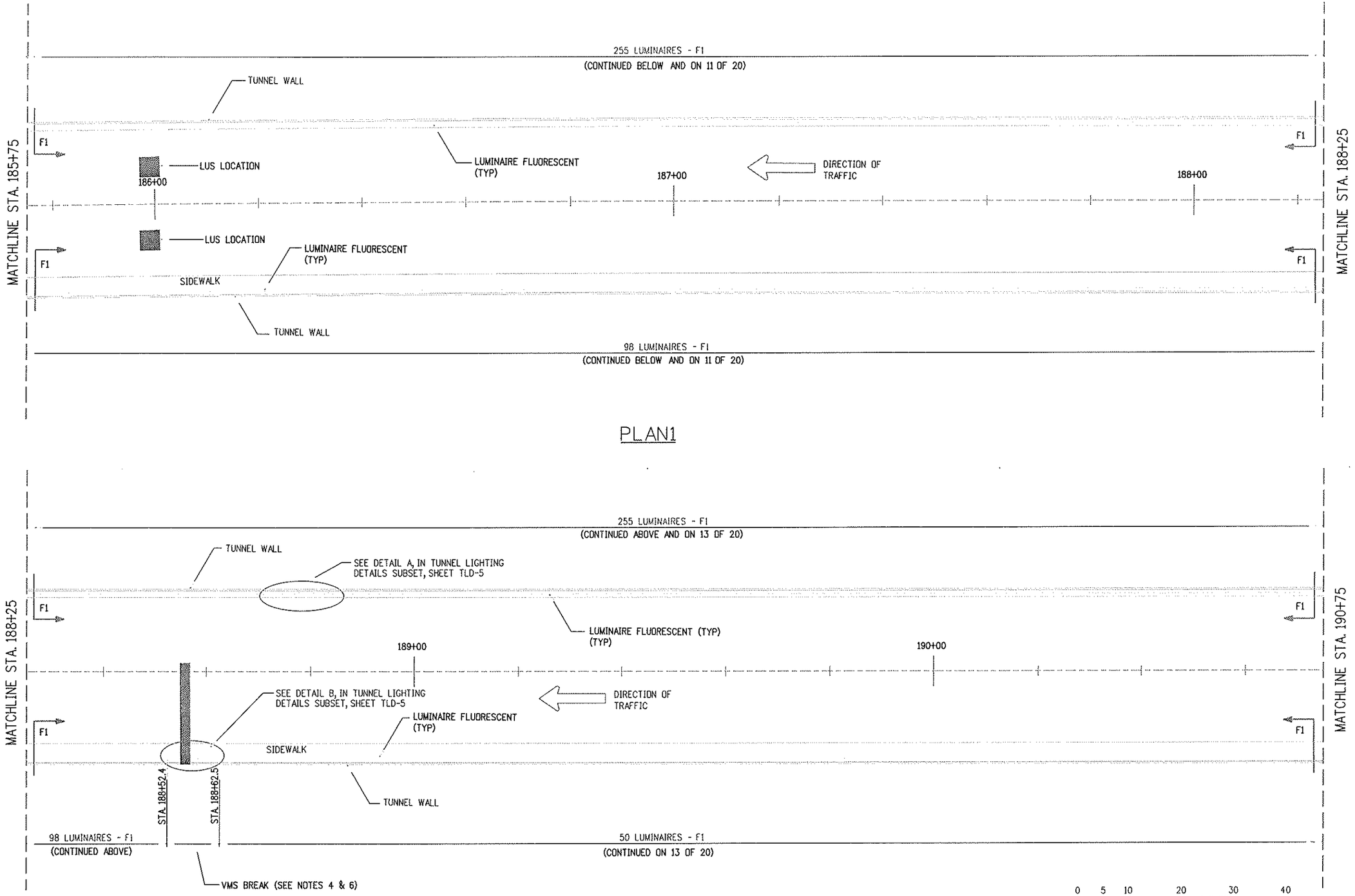
NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	11 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 35



Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	11◇20◇00	Initials:	DJB
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Drawing File Name:			ltpl1n.dwg
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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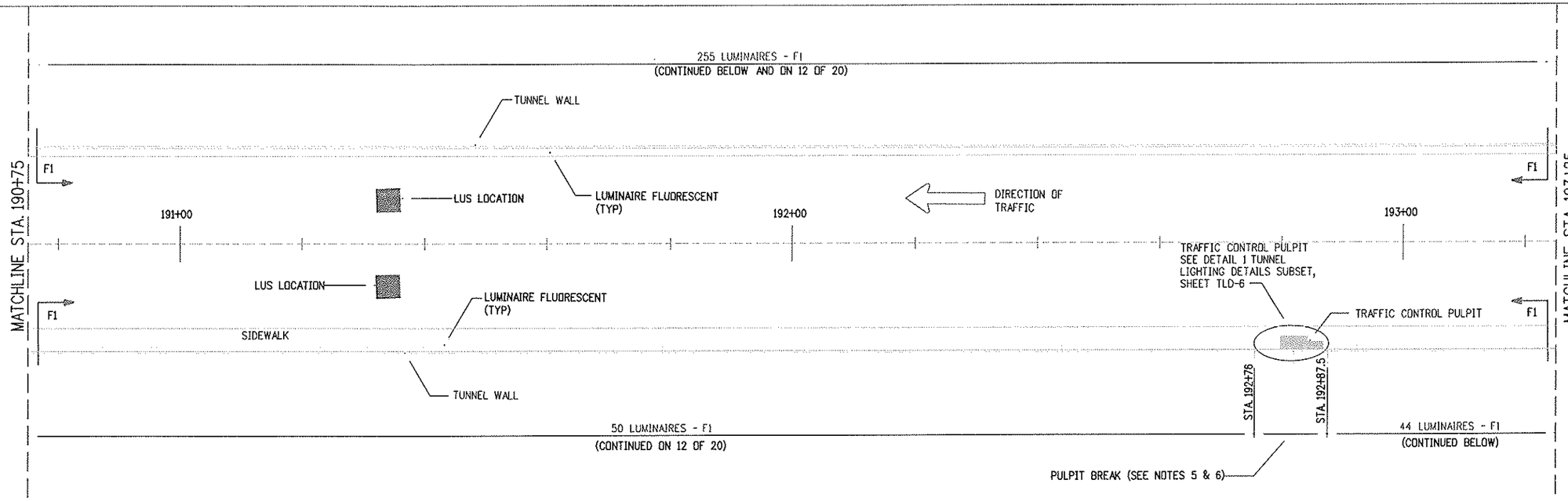
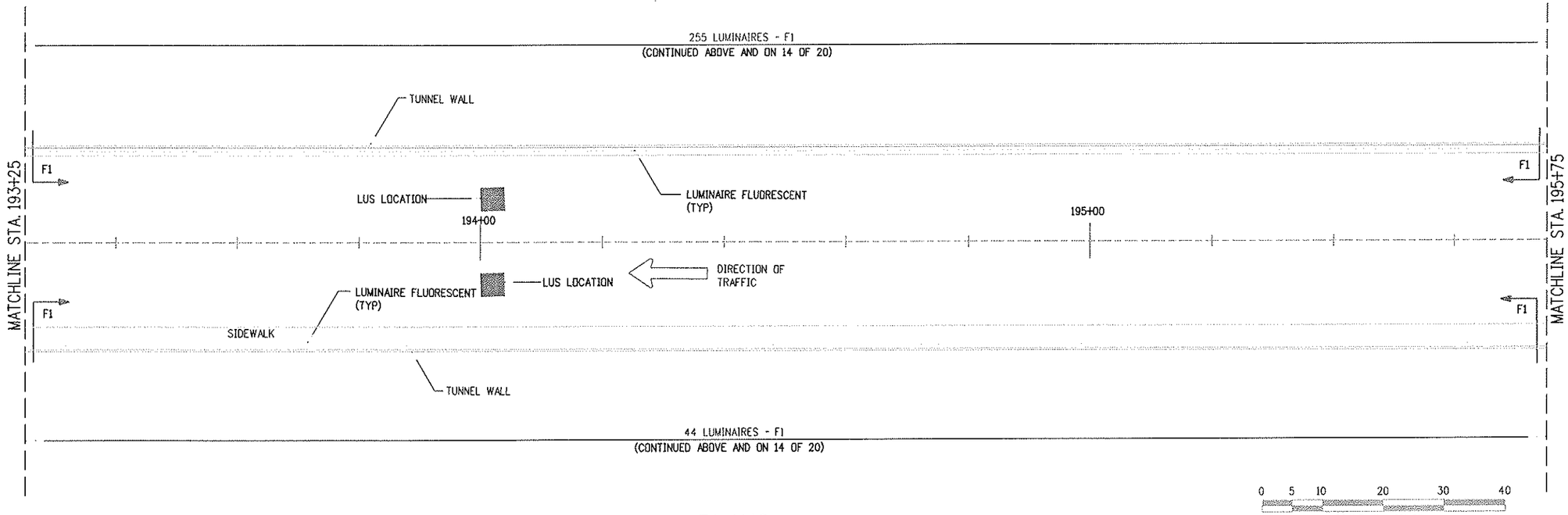
NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	12 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 36



PLAN1



PLAN2

Design File Name: DGN:$$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	02◇06◇01	Initials:	DJB
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Acad Ver. R14	Scale:1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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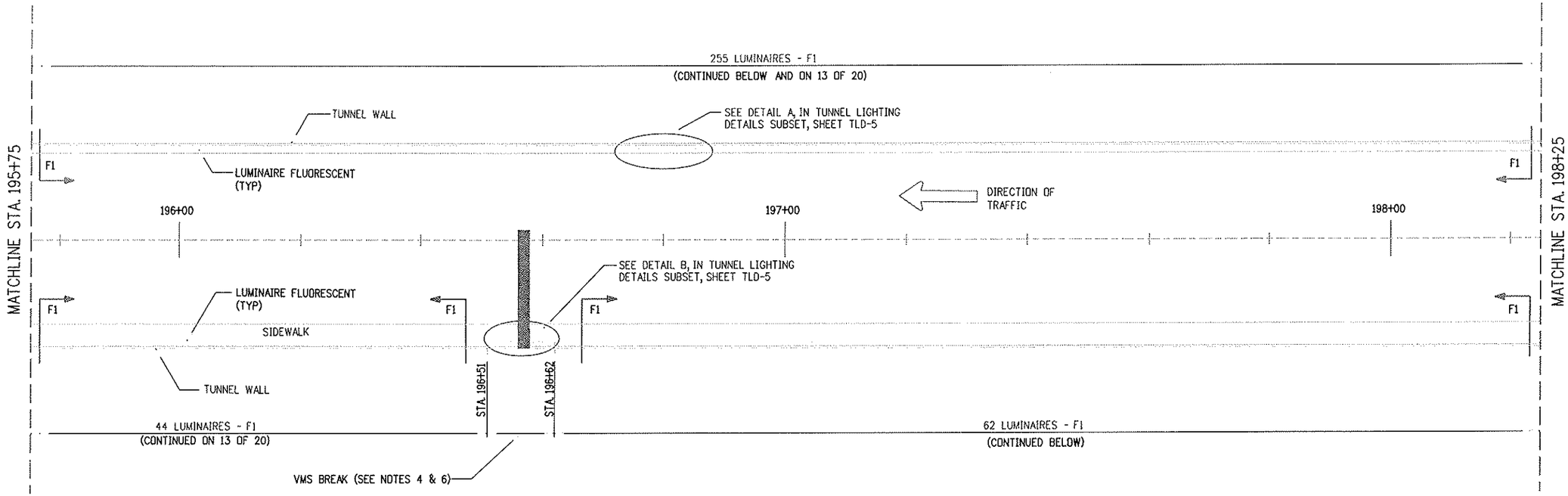
Revised:
Void:

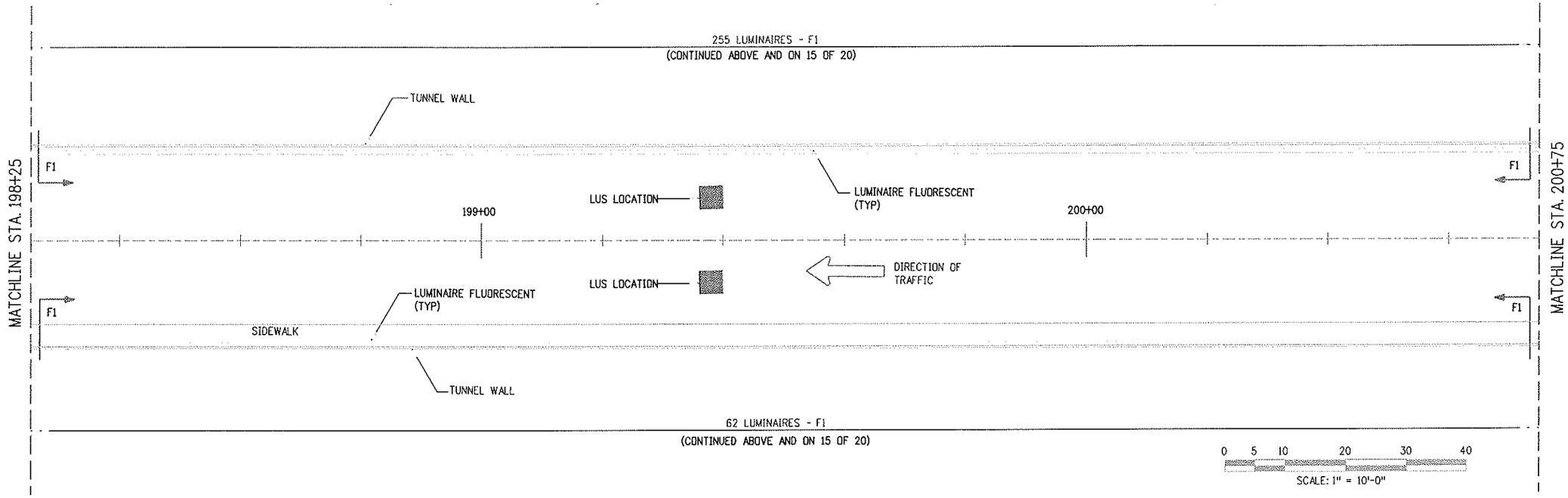
NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	13 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 37



PLAN1



PLAN2

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Last Modification Date:	07/06/01	Initials:	DJB
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Drawing File Name:	ltpl13n.dwg		
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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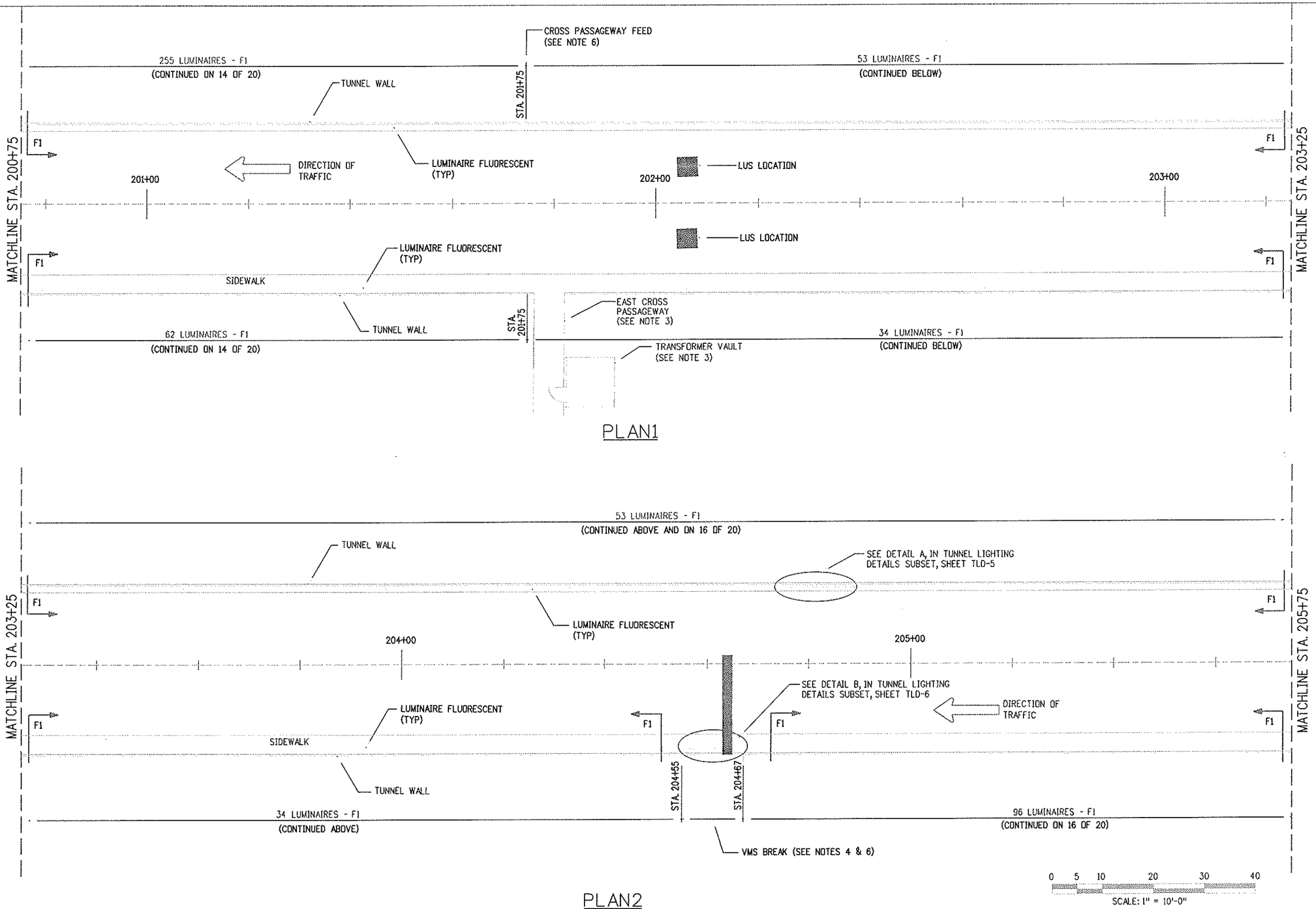
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	14 of 20

Project No./Code	
IM 0703-269	
13166	
Sheet Number	38

Date of Plot: $$$$DATE$$$$



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Last Modification Date:	07/06/01	Initials:	DJB
Full Path:	14202\700CADD\703elec\		
Drawing File Name:	tlpl14n.dwg		
Acad Ver. R14	Scale: 1" = 20'-0"	Units: English	

Design File Name: DGN$$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

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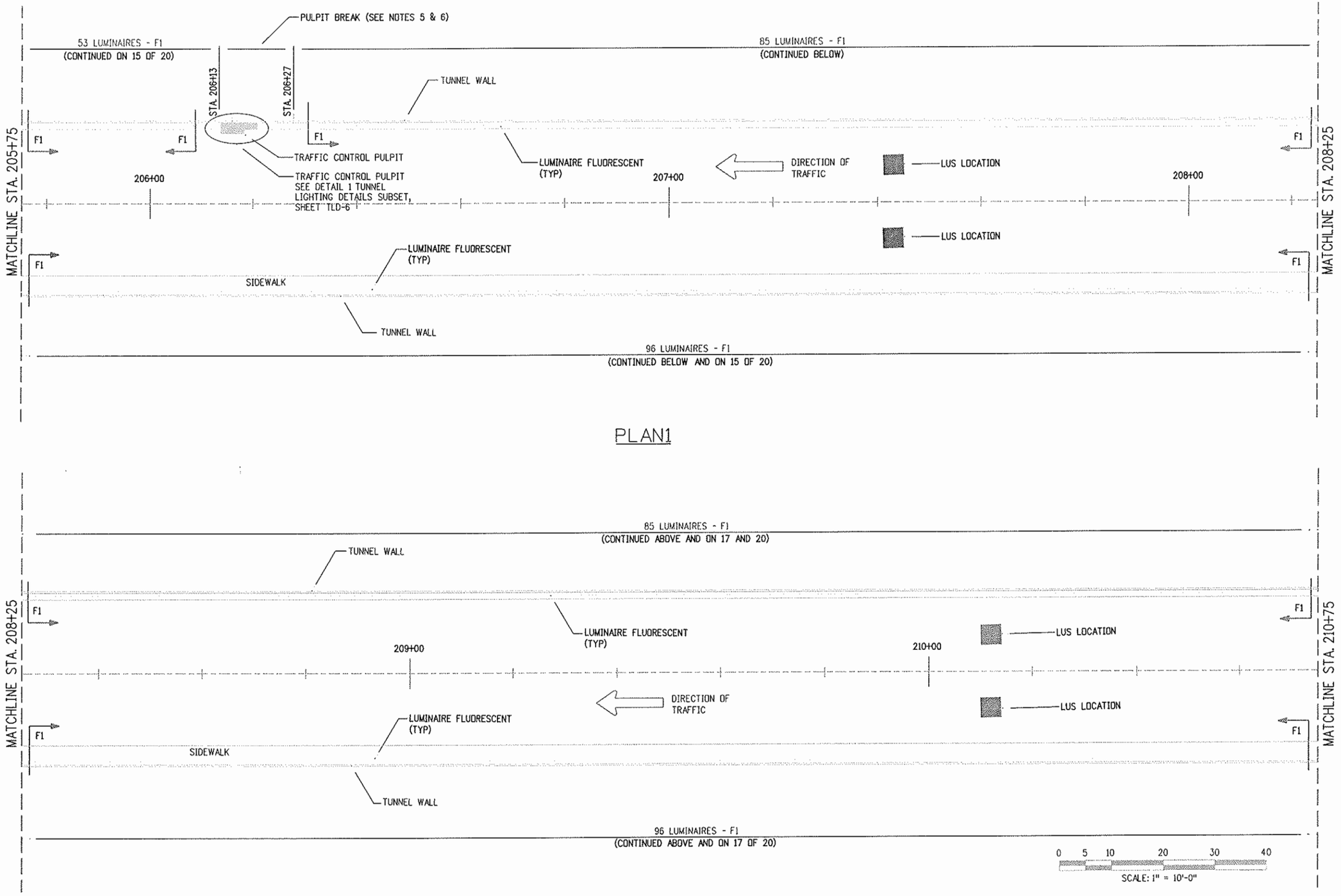
No Revisions:
Revised:
Void:

NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	15 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 39



Computer File Information			
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Last Modification Date:	02◇06◇01	Initials:	DJB
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Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Sheet Revisions		
07/03/07	ASBUILT	DJB

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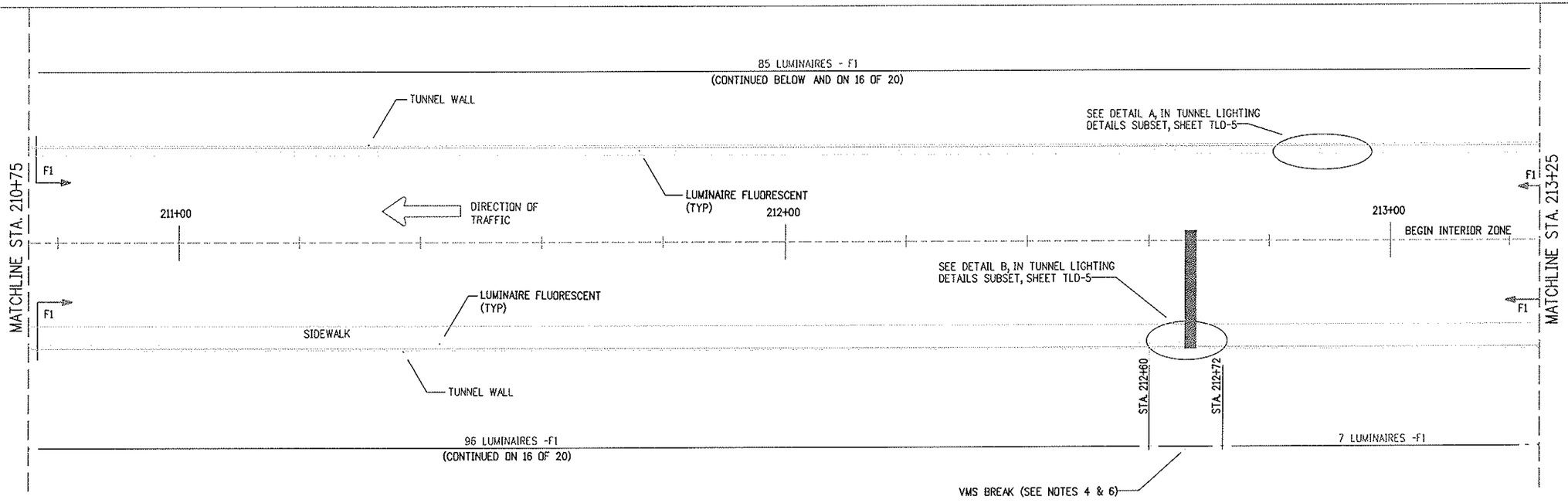
No Revisions:	
Revised:	
Void:	

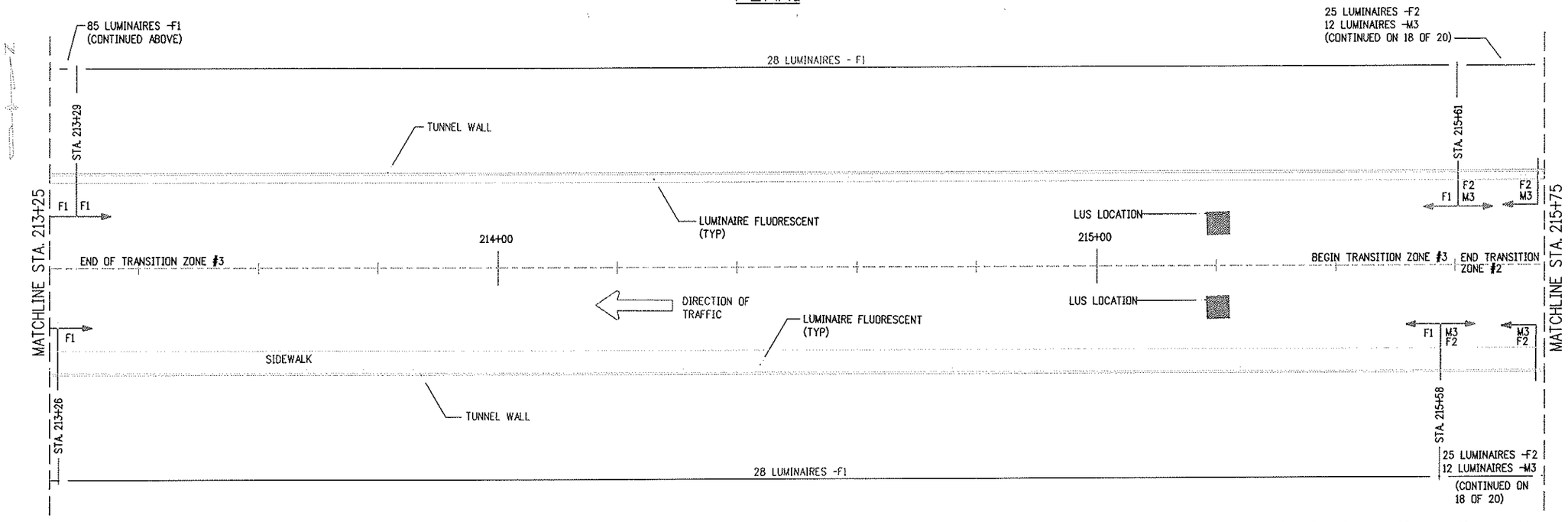
NORTH TUNNEL LIGHTING PLANS

Designer:	D BURROUGHS	Structure Numbers	
Detailer:	D BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	16 of 20

Project No./Code	
IM 0703-269	
13166	
Sheet Number	40



PLAN1



PLAN2

0 5 10 20 30 40
SCALE: 1" = 10'-0"

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	02/06/01	Initials:	DJB
FullPath:	14102\700CADD\703elec\		
Drawing File Name:	itpl16n.dwg		
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

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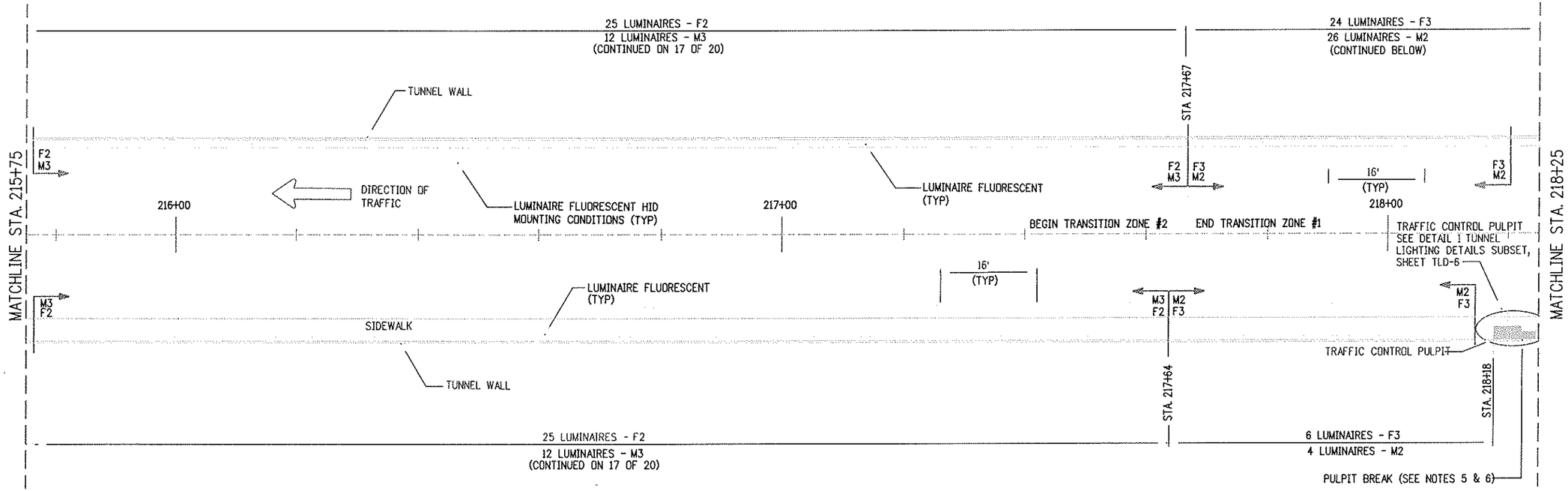
No Revisions:
Revised:
Void:

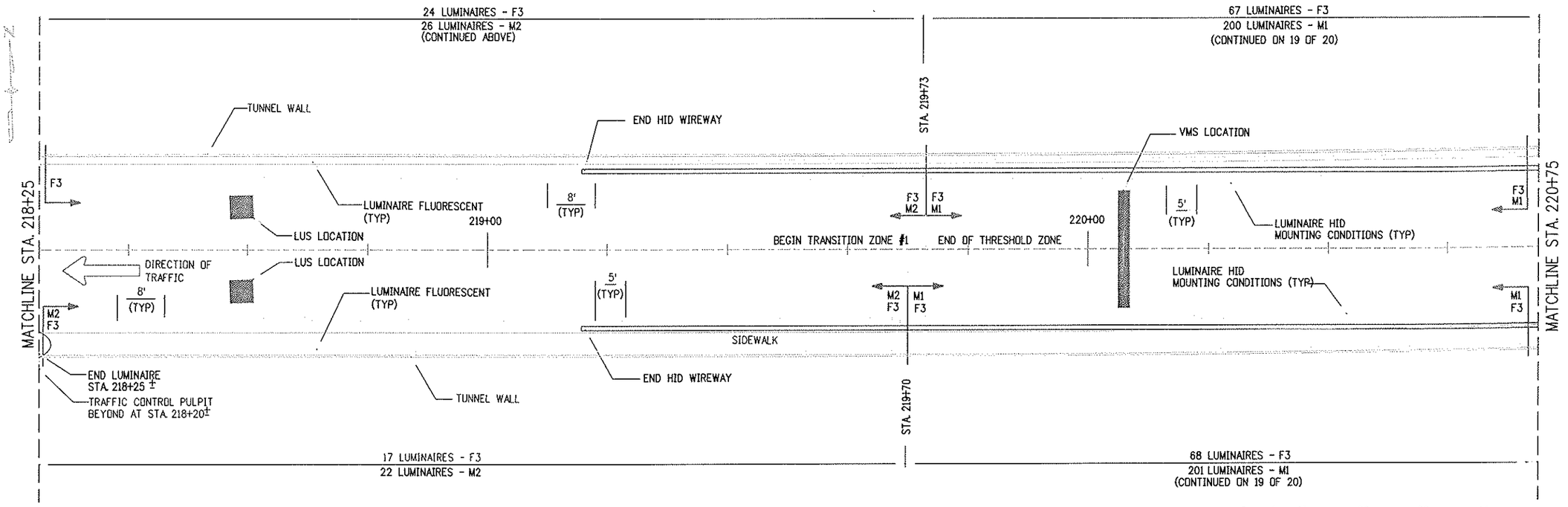
NORTH TUNNEL LIGHTING PLANS

Designer:	D. BURROUGHS	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	17 of 20

Project No./Cod
IM 0703-269
13166
Sheet Number 41



PLAN1



PLAN2

0 5 10 20 30 40

SCALE: 1" = 10'-0"

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	11◇20◇00	Initials:	DJB
Full Path:	14102\700CADD\703elec\		
Drawing File Name:		ltpl17n.dwg	
Acad Ver. R14	Scale:1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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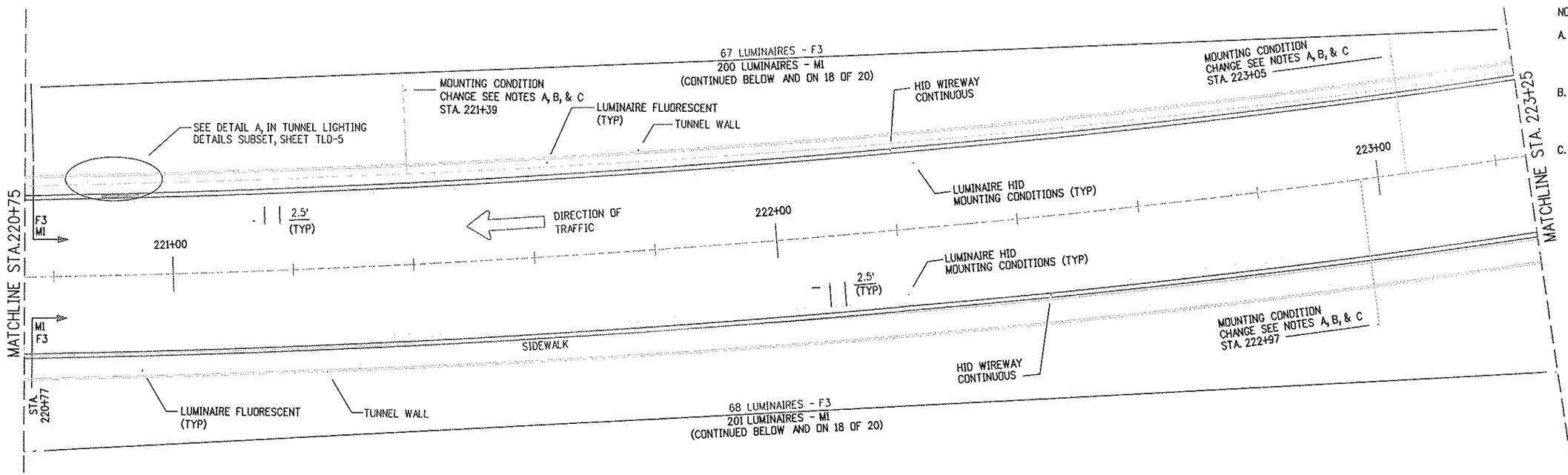
As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL LIGHTING PLANS

Designer:	D BURROUGHS	Structure Numbers	
Detailer:	D BURROUGHS		
Sheet Subset:	TUN. LTG.	Subset Sheets:	18 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 42



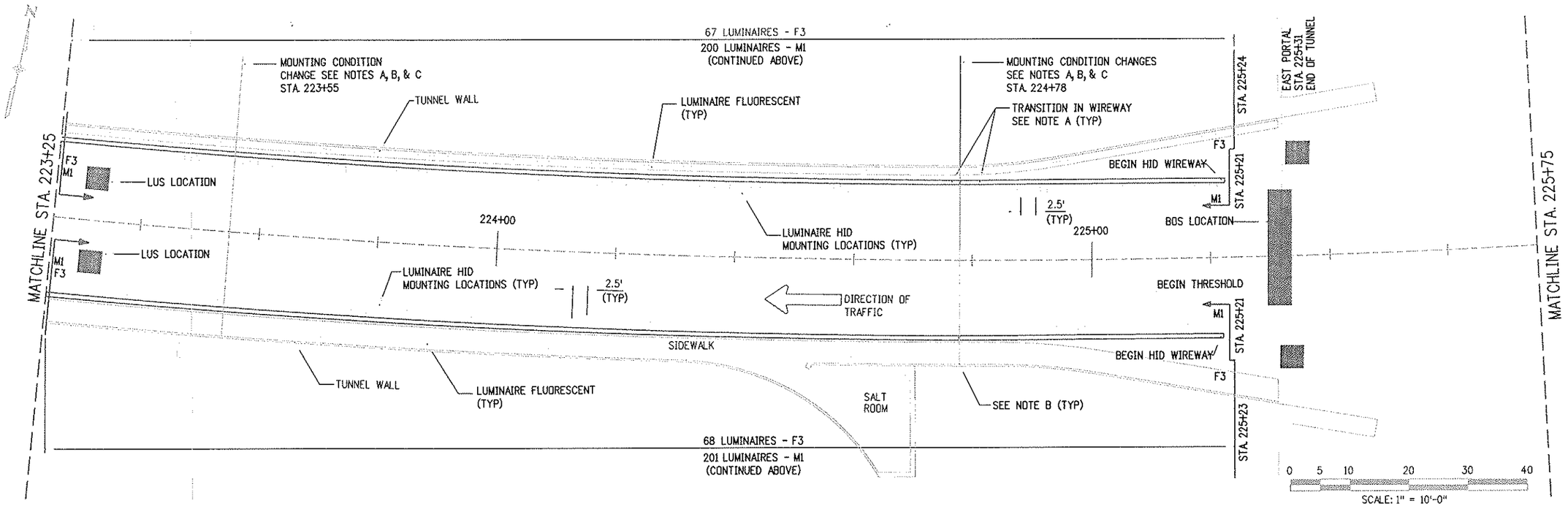
PLAN1

NOTES:

A. AN ABRUPT CHANGE IN CEILING ANGLE OCCURS AT STA 224+78± . CONTRACTOR SHALL COORDINATE TRANSITION TO MAINTAIN CONTINUANCE OF WIREWAY.

B. CONTRACTOR SHALL MAINTAIN CONTINUANCE OF FLUORESCENT LUMINAIRES THROUGH TRANSITION IN TUNNEL CEILING AT STA 224+78± .

C. THE TUNNEL CEILING IS RELATIVELY CONSTANT AT 16'-4"± TO STA 224+78± AND GRADUALLY RISES TO 24'-0" AT STA 225+31± .



PLAN2

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	02/06/01	Initials:	DJB
Full Path:	14102\700CADD\703elec\		
Drawing File Name:	ltpl18n.dwg		
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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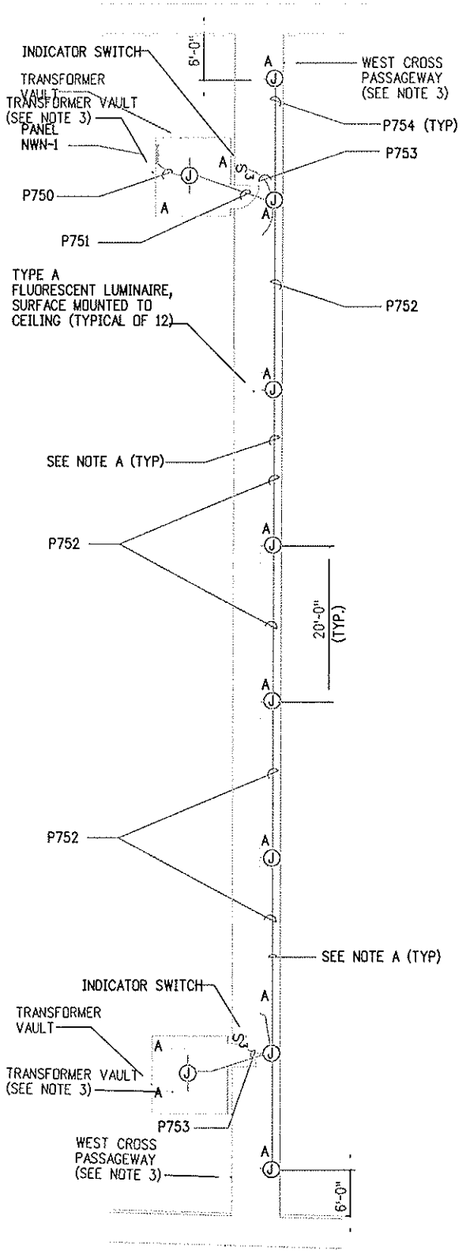
NORTH TUNNEL LIGHTING PLANS

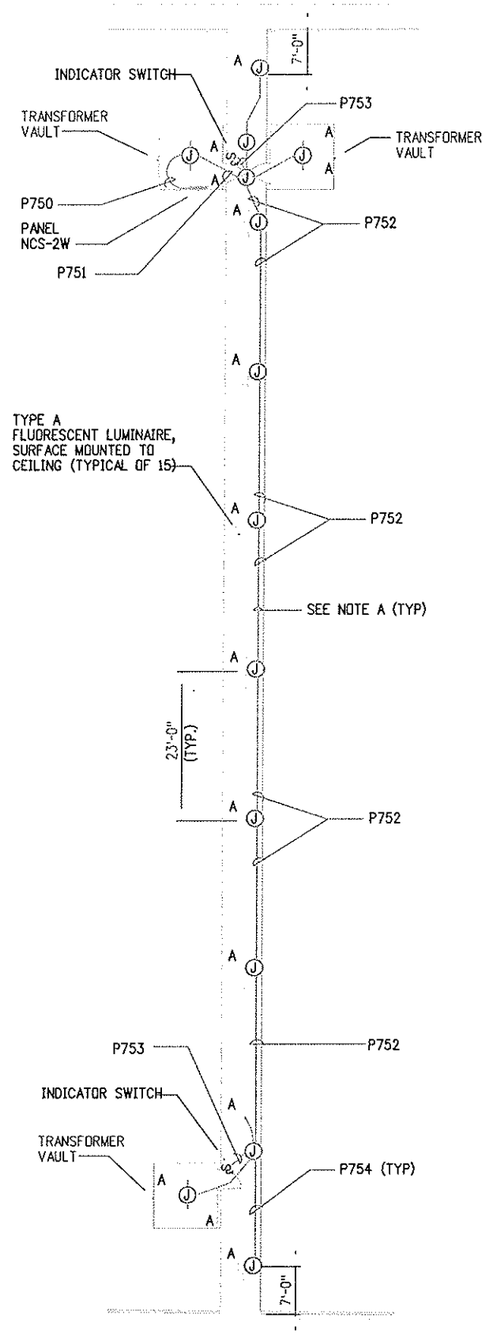
Designer: D. BURROUGHS
Detailer: D. BURROUGHS
Sheet Subset: TUN. LTG.
Structure Numbers:
Subset Sheets: 19 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 43



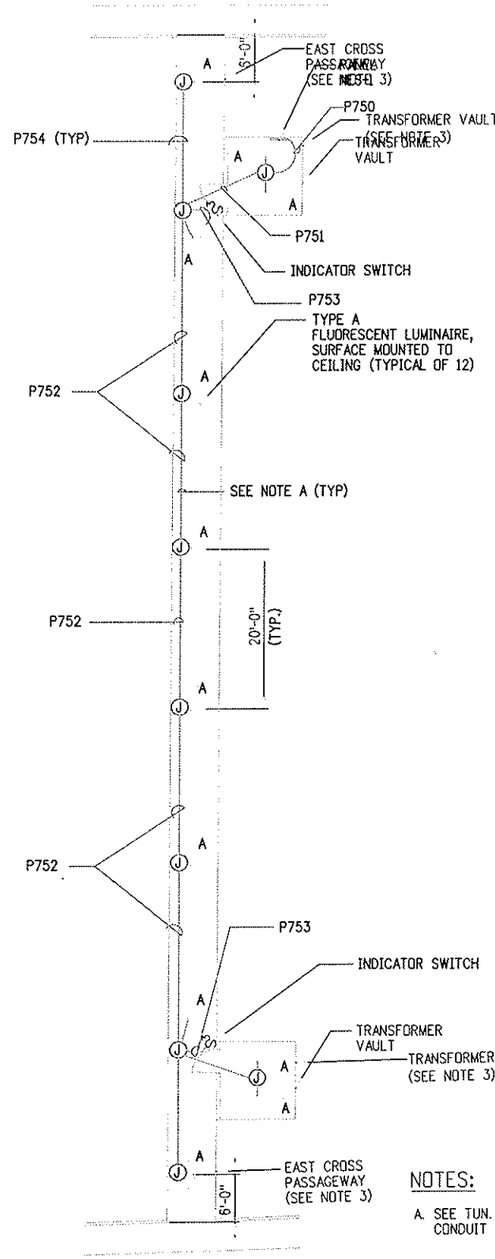
WEST CROSS PASSAGEWAY PLAN

SCALE: 1" = 15'



CENTER CROSS PASSAGEWAY PLAN

SCALE: 1" = 15'



EAST CROSS PASSAGEWAY PLAN

SCALE: 1" = 15'

NOTES:

A. SEE TUN. POWER SUBSET FOR CONDUIT AND WIRE QUANTITIES

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	05/06/99	Initials:	SFD
Last Modification Date:	01◇21◇02	Initials:	DJB
Full Path:	14102\700cadd\703elec\		
Drawing File Name:	tplec01a.plt		
Acad Ver. R14	Scale: As Shown	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

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No Revisions:
Revised:
Void:

CROSS PASSAGEWAY LIGHTING & POWER PLAN

Designer: J. KROLL
Detailer: D. BURROUGHS
Sheet Subset: TUN. LTG.
Structure Numbers:
Subset Sheets: 20 of 20

Project No./Code: IM 0703-269
13166
Sheet Number 44

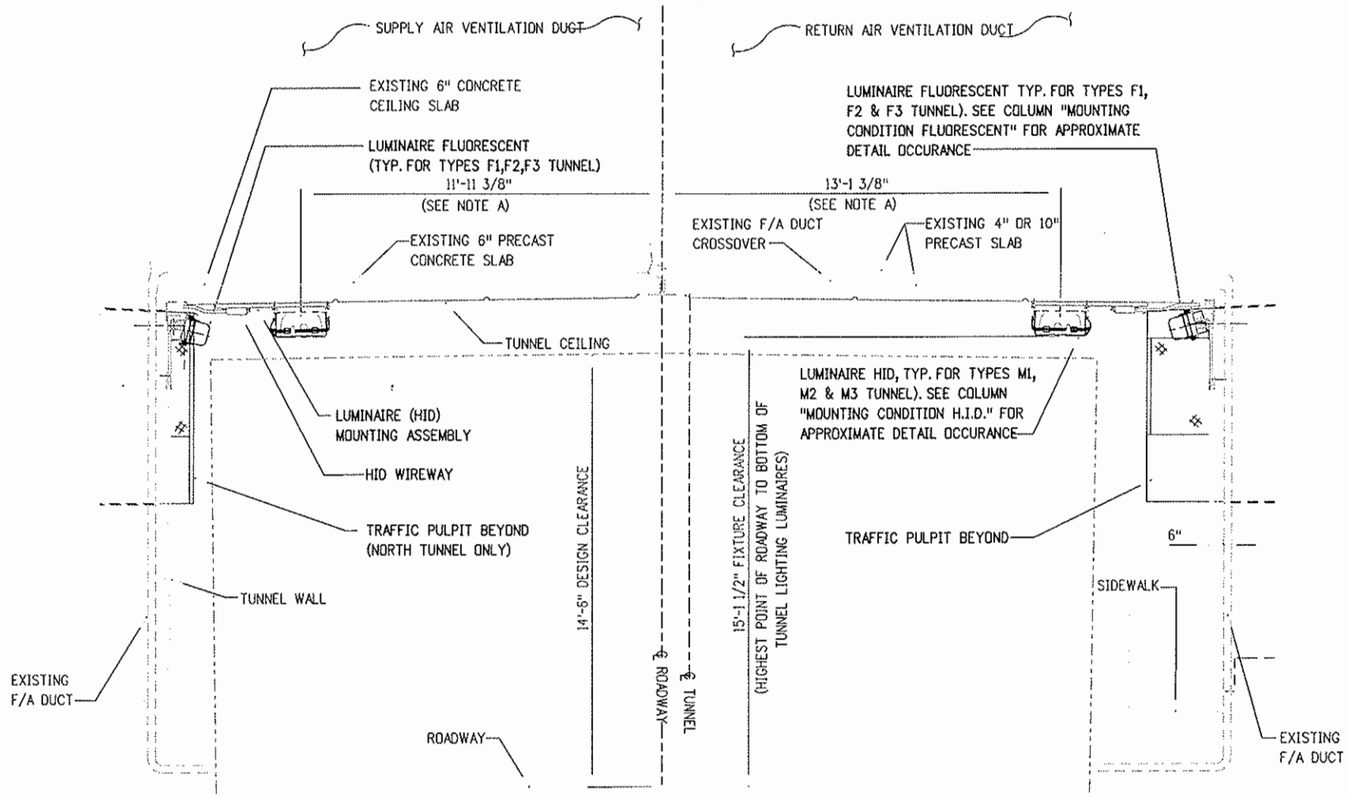
NOTES:

A. SEE DETAILS TLD-10 (B & D) FOR STARTING DIMENSION TO POSITION TRANSVERSE LUMINAIRE MOUNTING SUPPORT CHANNEL

B. NUMBER IN PARENTHESIS ON TABULATION SCHEDULE INDICATE MOUNTING CONDITION FOR FLUORESCENT AND HID LUMINAIRE AS SHOWN ON THE ASSOCIATED TLD SUBSET SHEETS.

TITLE — TYPICAL LIGHT (XX/XX) — REFERENCE TO SHEET WHERE DETAIL OR ELEVATION IS DRAWN. A DASH SIGNIFIES DETAIL OR ELEVATION IS ON SAME SHEET

DETAIL IDENTIFIER — DETAIL NUMBER OR ELEVATION LETTER



NORTH TUNNEL

TYPICAL SECTION LOOKING EAST (AGAINST TRAFFIC) — 1 / -

STA. 135+99 TO STA. 139+50

STA. 215+82 TO STA. 225+24

NORTH TUNNEL LUMINAIRE FLUORESCENT TUNNEL MOUNTING TABULATION

	STATION FROM	STATION TO	DESCRIPTION	MOUNTING CONDITION FLUORESCENT: DETAIL	SUPPLEMENTAL MOUNTING PLATE: TYPE A	TYPE B	TYPE C	QUANTITY OF LUMINAIRE FLUORESCENT MOUNTING BRACKET (BY TYPE/HAND): 1R	1L	2R	2L	3R	3L
NORTH WALL	135+91	135+99	NO LUMINAIRES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	135+99	138+07	REVERSE LANE OPERATION THRESHOLD	TLD-3 (1)	N/A	50	N/A	50	25				
	138+07	138+87	REVERSE LANE OPERATION THRESHOLD AND TRANSITION ZONE #1	TLD-3 (2)	N/A	20	20	20	10				
	138+87	221+39	THRESHOLD, TRANSITIONS #1,#2 & #3, INTERIOR AND REVERSE LANE OPERATION TRANSITION ZONE #3,#2 & #1	TLD-4 (3)	N/A	1990	N/A	1987	992				
	221+39	223+05	THRESHOLD ZONE	TLD-4 (4)	N/A	40	N/A	40	20				
	223+05	223+55	THRESHOLD ZONE	TLD-3 (2)	N/A	12	12	12	6				
	223+55	225+24	PORTAL / THRESHOLD ZONE	TLD-3 (1)	N/A	42	N/A	42	21				
	225+24	225+31	NO LUMINAIRES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SOUTH WALL	135+91	135+98.6	NO LUMINAIRES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	135+98.6	138+07	REVERSE LANE OPERATION THRESHOLD	TLD-3 (1)	N/A	50	N/A	50	25				
	138+07	138+87	REVERSE LANE OPERATION THRESHOLD AND TRANSITION ZONE #1	TLD-3 (2)	N/A	20	20	20	10				
	138+87	222+97	THRESHOLD, TRANSITIONS #1,#2 & #3, INTERIOR AND REVERSE LANE OPERATION TRANSITION ZONE #3,#2 & #1	TLD-4 (3)	N/A	2015	N/A	2001	999				
	222+97	223+55	THRESHOLD ZONE	TLD-3 (2)	N/A	14	14	14	7				
	223+55	225+23	PORTAL / THRESHOLD ZONE	TLD-3 (1)	N/A	42	N/A	42	21				
	225+23	225+31	NO LUMINAIRES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				TOTAL	N/A	4295	66	4278	2136	N/A	N/A	N/A	N/A

REFER TO TLD-3 "DETAIL KEY " FOR GENERAL LOCATION OF FLUORESCENT MOUNTING CONDITION NUMBERS.

SEE SHEET NUMBER 45A FOR HID SUPPORT SYSTEM TABULATION

0 3 6 12 FEET

3/8 "= 1'-0"

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	08/2/99	Initials:	DJB
Last Modification Date:	12/04/03	Initials:	DJB
Full Path:	014102\800deliv\AsBuilt\		
Drawing File Name:	ttty03n.plt		
Acad Ver. R14	Scale: 3/8" = 1'-0"	Units:	English

Sheet Revisions		
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Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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No Revisions:
Revised:
Void:

TUNNEL LIGHTING DETAILS

Designer: JPK/DJB
Detailer: D. BURROUGHS
Structure Numbers:
Sheet Subset: TLD
Subset Sheets: 1 of 13

Project No./Code: IM 0703-269
13166
Sheet Number 45

HID SUPPORT SYSTEM TABULATION

NORTH WALL - WEST PORTAL

WIREWAY - RACK MOUNT

FROM	TO	LENGTH
135+99	138+02	200'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
135+97.6	136+43	45.4'	TLD-11	0	2 x 45.4'	90.8	13 x 4'	52	7 x 6'	42	21	0	0	0	0	0	12
136+43	138+00	157'	TLD-11	0	2 x 157'	314	43 x 4'	172	21 x 6'	126	63	0	0	0	0	0	44

CEILING - MOUNT

FROM	TO	LENGTH
138+02	139+50	148'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
138+00	138+54	54'	TLD-11	7	0	0	8 x 2'	16	15 x 6'	90	0	22	0	0	0	0	0
138+54	139+50	96'	TLD-12	6	0	0	12 x 2'	24	0	0	0	0	0	24	0	0	0

SOUTH WALL - WEST PORTAL

WIREWAY - RACK MOUNT

FROM	TO	LENGTH
135+98.6	138+02	203.4'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
135+97.6	136+43	45.4'	TLD-11	0	2 x 45.4'	90.8	13 x 4'	52	7 x 6'	42	21	0	0	0	0	0	12
136+43	138+00	157'	TLD-11	0	2 x 157'	314	43 x 4'	172	21 x 6'	126	63	0	0	0	0	0	44

CEILING - MOUNT

FROM	TO	LENGTH
138+02	139+50	148'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
138+00	138+54	54'	TLD-11	7	0	0	8 x 2'	16	15 x 6'	90	0	22	0	0	0	0	0
138+54	139+50	96'	TLD-13	6	0	0	12 x 2'	24	0	0	0	0	0	0	0	24	0

NORTH WALL - EAST PORTAL

WIREWAY - RACK MOUNT

FROM	TO	LENGTH
225+24	219+16	608'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
224+78	225+21	43'	TLD-11	0	2 x 43'	86	12 x 4'	36	7 x 6'	42	21	0	0	0	0	0	10
222+57	224+78	221'	TLD-11	0	2 x 221'	442	60 x 4'	240	28 x 6'	126	84	0	0	0	0	0	64
219+16	222+57	341'	TLD-12	0	2 x 341'	682	88 x 4'	352	0	0	0	0	129	0	0	0	90

CEILING - MOUNT

FROM	TO	LENGTH
219+16	215+16	355'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
218+26	219+16	90'	TLD-12	13	0	0	13 x 2'	26	0	0	0	0	0	39	0	0	0
215+80	218+26	246'	TLD-12	16	0	0	31 x 2'	62	0	0	0	0	0	63	0	0	0

SOUTH WALL - EAST PORTAL

WIREWAY - RACK MOUNT

FROM	TO	LENGTH
225+23	219+16	607'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
224+78	225+23	43'	TLD-11	0	2 x 43'	90	13 x 4'	52	7 x 6'	42	21	0	0	0	0	0	12
222+57	224+78	221'	TLD-11	0	2 x 221'	442	60 x 4'	240	28 x 6'	168	84	0	0	0	0	0	64
219+16	222+57	341'	TLD-13	0	2 x 341'	682	88 x 4'	352	0	0	0	0	0	129	0	0	90

CEILING - MOUNT

FROM	TO	LENGTH
219+16	215+16	355'

FROM	TO	LENGTH	DETAIL	QUANTITY	LONGITUNDINAL STRUT -SS		TRANSVERSE STRUT - SS		SUPPORT STRUT - GALV.		SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	SUPPORT	CONNECTION
					QUANTITY	LENGTH	QUANTITY	LENGTH	QUANTITY	LENGTH	TLD-11(1)	TLD-11(2)	TLD-12(1)	TLD-12(2)	TLD-13(1)	TLD-13(2)	TLD-11(3)
218+26	219+16	90'	TLD-13	13	0	0	13 x 2'	26	0	0	0	0	0	0	0	39	0
215+80	218+26	246'	TLD-13	16	0	0	31 x 2'	62	0	0	0	0	0	0	0	63	0
TOTALS				84		3233.6		1976		936	378	44	129	126	129	126	442

NOTES:

A. SEE DETAILS TLD-10 (B & D) FOR STARTING DIMENSION TO POSITION TRANSVERSE LUMINAIRE MOUNTING SUPPORT CHANNEL

B. NUMBER IN PARENTHESIS ON TABULATION SCHEDULE INDICATE MOUNTING CONDITION FOR FLUORESCENT AND HID LUMINAIRE AS SHOWN ON THE ASSOCIATED TLD SUBSET SHEETS.

Computer File Information			
Creation Date:	01/4/07	Initials:	DJB
Last Modification Date:	01/4/07	Initials:	DJB
Full Path:	014102\800deliv\AsBuilt\		
Drawing File Name:			ltty03an.plt
Acad Ver. R14	Scale: AS NOTED	Units:	English

Sheet Revisions		
07/03/07	ASBUILT	DJB

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
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No Revisions:	
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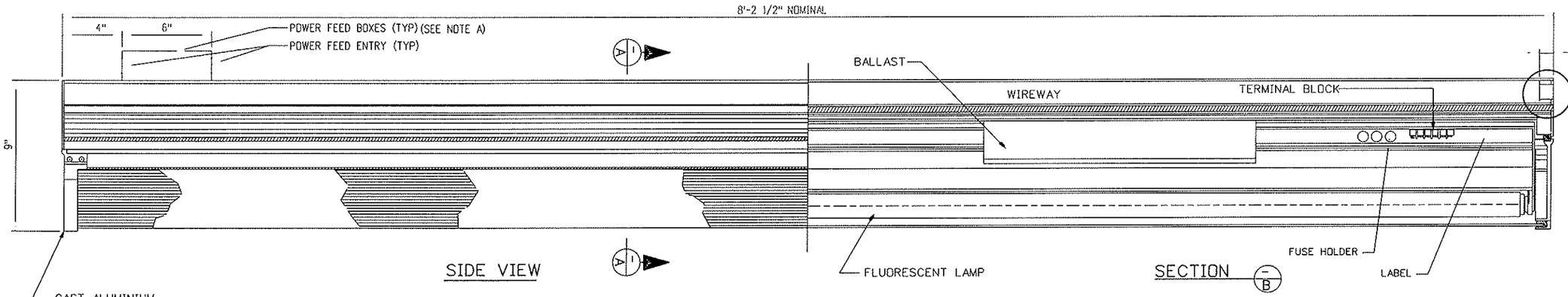
TUNNEL LIGHTING DETAILS

Designer:		Structure Numbers	
Detailer:			
Sheet Subset:	TLD	Subset Sheets:	1A of 13

Project No./Code	
IM 0703-269	
13166	
Sheet Number	45A



NOTES:

A. POWER FEEDER BOXES TO ACCOMODATE CONDUIT REQUIREMENTS. ALL BOXES ARE TO BE WELDED AND TO INCLUDE THREADED PLUG TO ENSURE AGAINST WATER ENTRY WHEN NOT IN USE.

B. CABLE SUPPORT STRAPS TO BE CONTINUOUSLY WELDED IN PLACE.

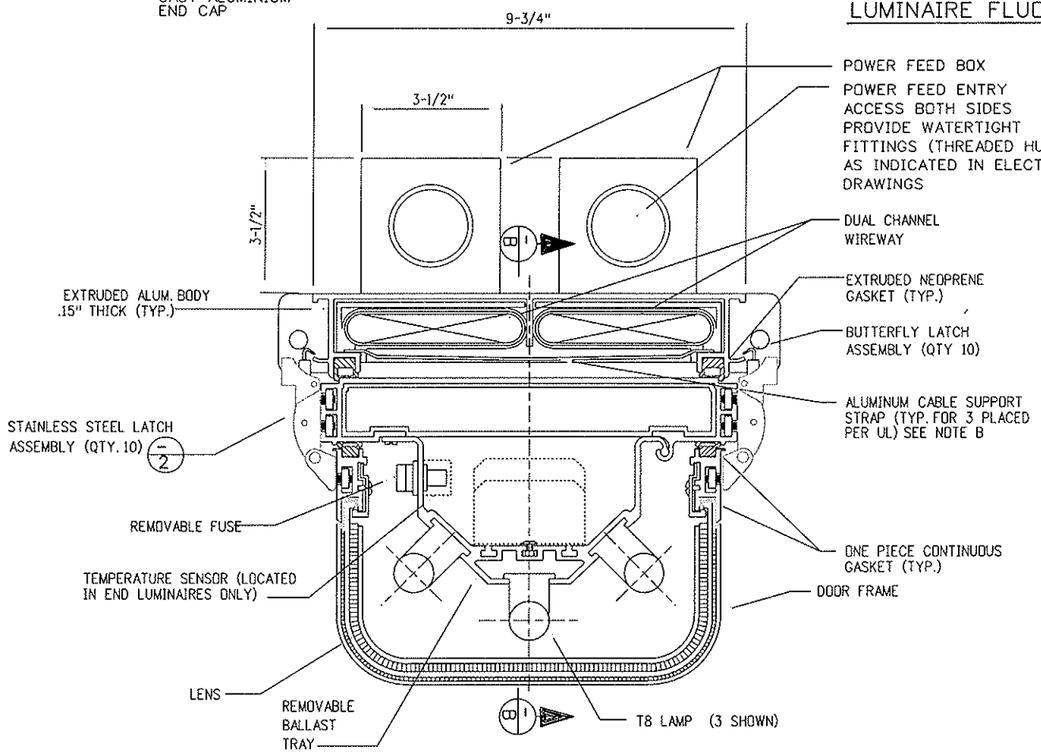
C. TERMINATE END OF WIREWAY DIVIDER, (FOR SPLIT WIREWAY) 1" FROM END OF LUMINAIRE. (TYP. BOTH ENDS)

D. LABEL TO BE LOCATED SO AS TO BE EASILY VIEWED WHEN LENS IS OPENED. LABEL WILL CLEARLY INDICATE FIXTURE TYPE F1, F2 OR F3.

E. SEE CHART ON SHEET 1 OF TUNNEL LIGHTING SUBSET.

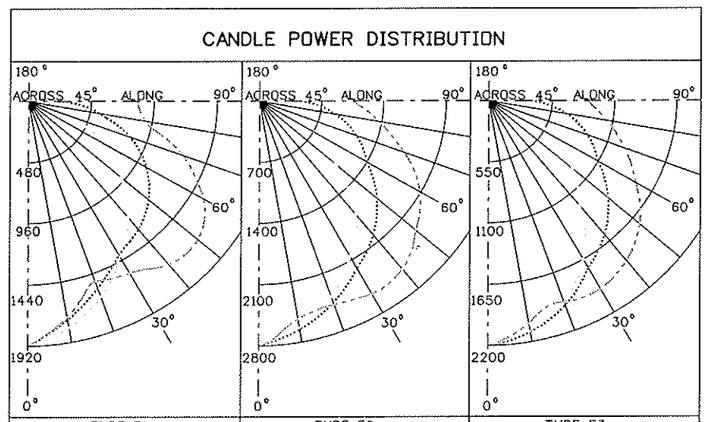
LUMINAIRE FLUORESCENT (TYPES F1, F2 & F3 TUNNEL)

(THREE LAMP VERSION SHOWN)



LUMINAIRE FLUORESCENT (TYPES F1,F2 & F3 TUNNEL) — A

CANDLE POWER DISTRIBUTION

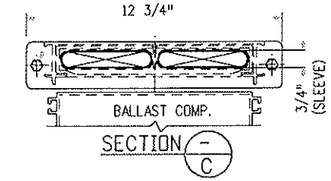


TYPE F1	TYPE F2	TYPE F3
2-210MA, 59 WATTS/LAMP	2-800MA, 75 WATTS/LAMP 1-210MA, 59 WATTS/LAMP	1-800MA, 75 WATTS/LAMP 2-210MA, 59 WATTS/LAMP

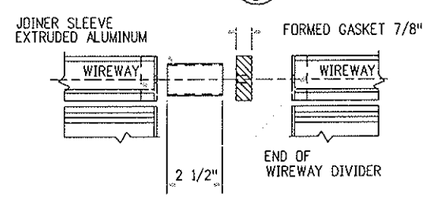
PHOTOMETRIC DATA

PHOTOMETRIC KEY

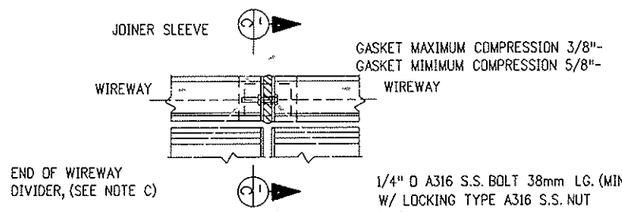
——— ACROSS
- - - - - ALONG
..... 45°



SECTION — C

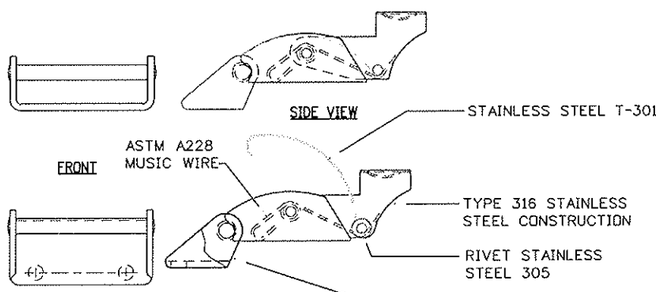


SIDE VIEW (UNCOMPRESSED)



SIDE VIEW (COMPRESSED)

JOINER SLEEVE FOR WIREWAY — 1



LATCH DETAIL — 2

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Last Modification Date:	11/27/00	Initials:	DJB
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Drawing File Name:	ltdt05n.dwg		
Acad Ver. R14	Scale: NTS	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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No Revisions:	
Revised:	
Void:	

TUNNEL LIGHTING DETAILS

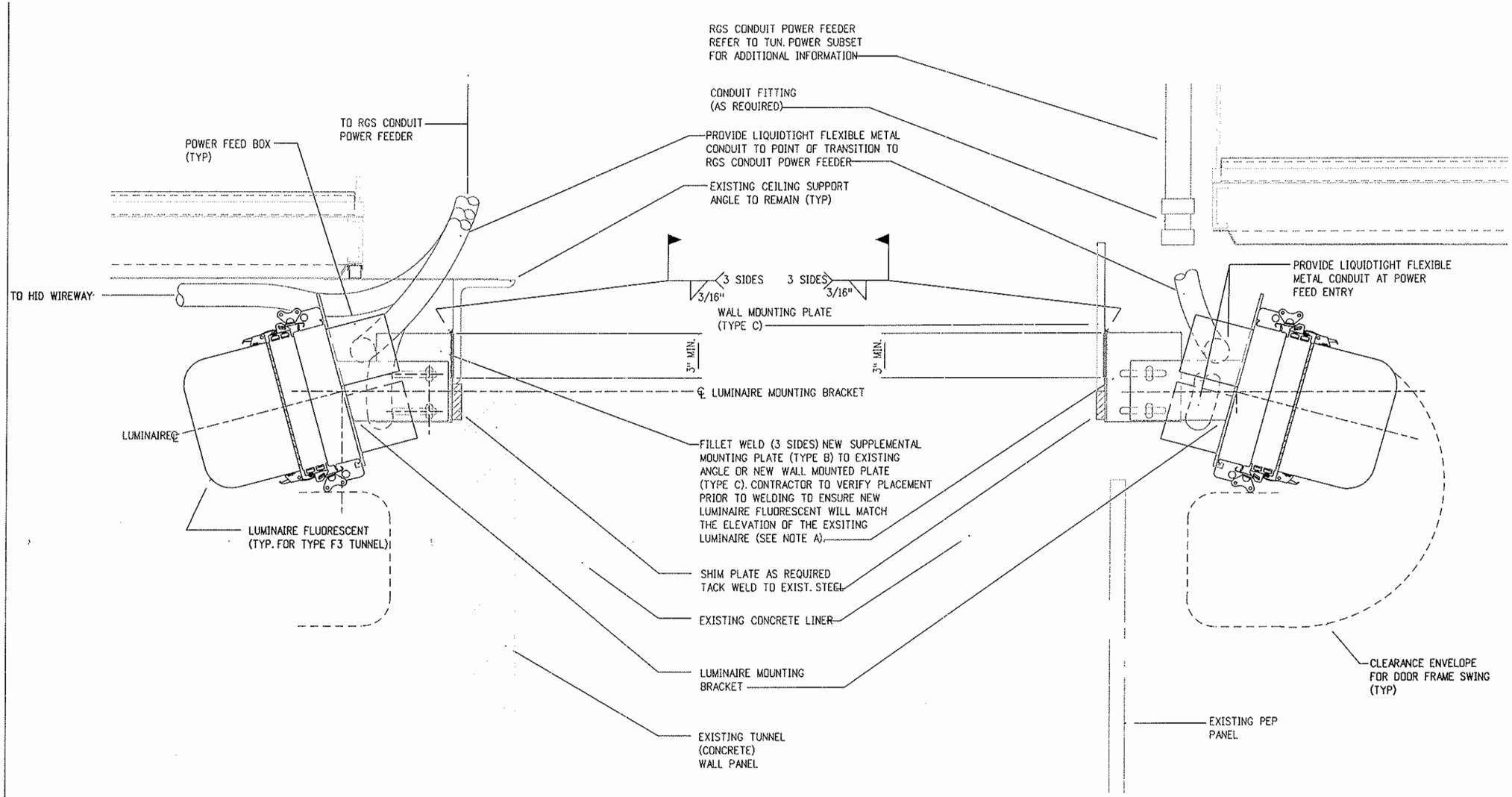
Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	2 of 13

Project No./Code	
IM 0703-269	
13166	
Sheet Number	46

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

A. PROVIDE 3 TYPE B SUPPLEMENTAL MOUNTING PLATES FOR EACH LUMINAIRE, ONE AT EACH END AND ONE IN THE MIDDLE. WHERE FIXTURES ARE INSTALLED END TO END IN A ROW, ONE TYPE B SUPPLEMENTAL MOUNTING PLATE WILL BE PROVIDED AT THE JOINT AND WILL BE SHARED BY ADJACENT FIXTURES. SEE SUBSET TLD SHEET 7 DETAILS AND NOTES FOR ADDITIONAL REQUIREMENTS.

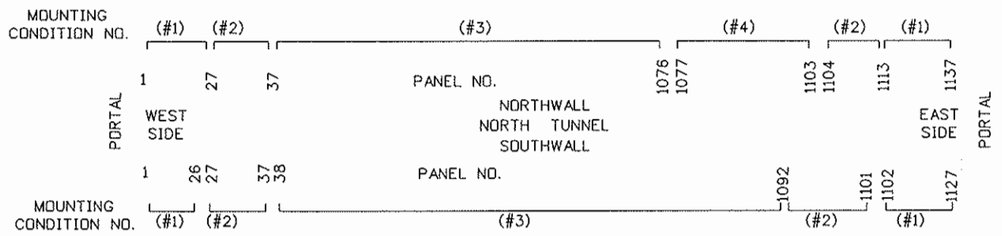
B. POWER FEEDERS ARE SHOWN TO ILLUSTRATE APPROXIMATE LOCATION AND METHOD TO FEED FLUORESCENT TUNNEL LUMINAIRES. FOR LOCATIONS REFER TO TUNNEL POWER SHEETS.



TUNNEL PORTAL TRANSITION (MOUNTING CONDITION #1) — TLD-3 1

NORTH BORE
NORTH WALL - WEST SIDE
STA. 135+99 TO STA. 138+07
NORTH WALL - EAST SIDE
STA. 223+55 TO STA. 225+24

SOUTH WALL - WEST SIDE
STA. 135+98.6 TO STA. 138+07
SOUTH WALL - EAST SIDE
STA. 223+55 TO STA. 225+23



DETAIL KEY

TUNNEL TRANSITION (MOUNTING CONDITION #2) — TLD-3 2

NORTH BORE
NORTH WALL - WEST SIDE
STA. 138+07 TO 138+87
NORTH WALL - EAST SIDE
STA. 223+05 TO 223+55
SOUTH WALL - WEST SIDE
STA. 138+07 TO 138+87
SOUTH WALL - EAST SIDE
STA. 222+97 TO 223+55

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	12/04/05	Initials:	DJB
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Drawing File Name:			ltdtl4n.dwg
Acad Ver. R14	Scale: 1 1/2"=1'-0"	Units:	English

Sheet Revisions		
07/03/07	ASBUILT	DJB

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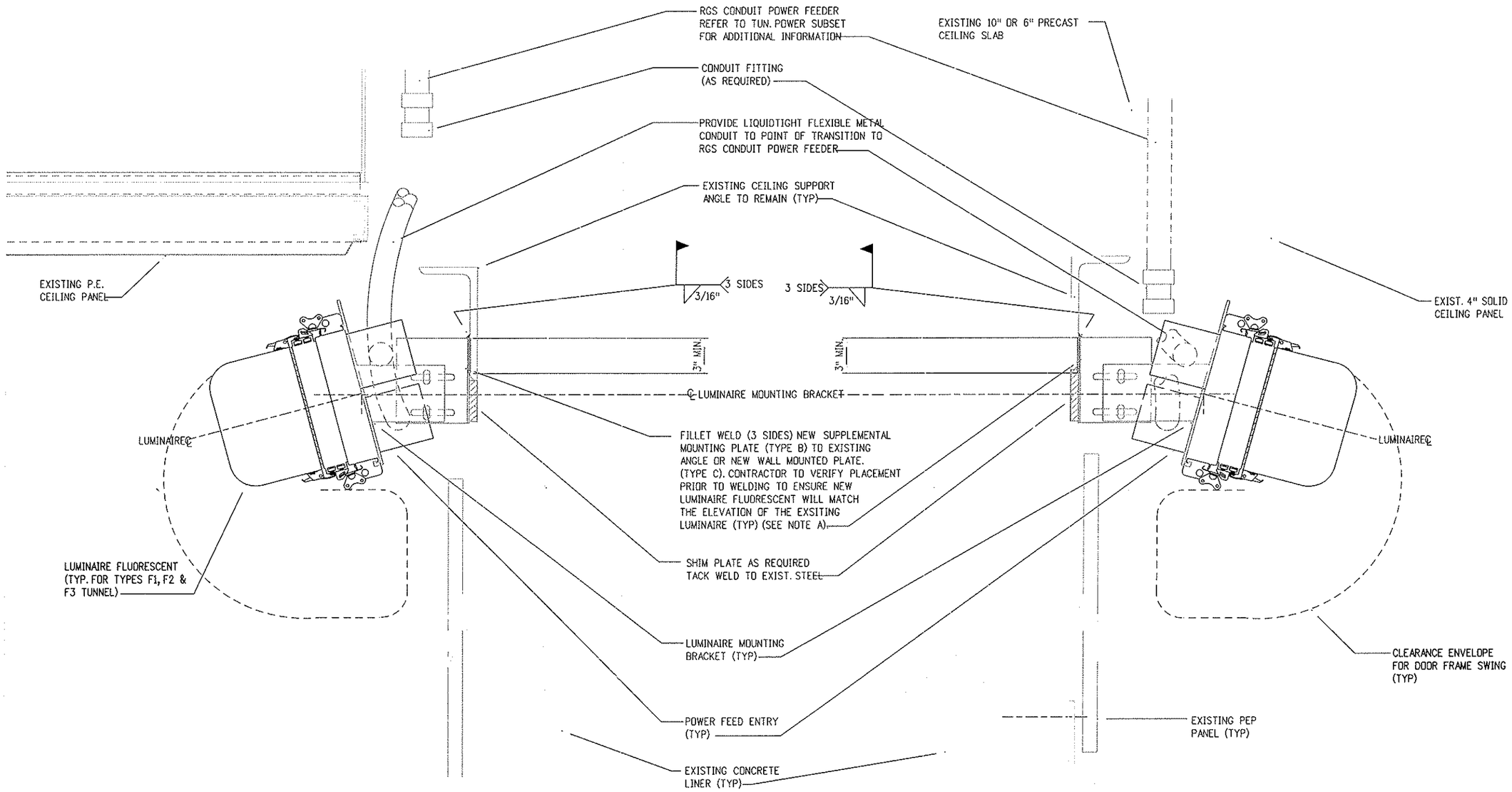
Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	3 of 13

Project No./Code	
IM 0703-269	
13166	
Sheet Number	47



TYPICAL INTERIOR ZONE (MOUNTING CONDITION #3) — TLD-4 1

NORTH BORE

NORTH WALL - INTERIOR
STA. 138+87 TO 221+39

SOUTH WALL - INTERIOR
STA. 138+87 TO 222+97

NOTES:

A. PROVIDE 3 TYPE B SUPPLEMENTAL MOUNTING PLATES FOR EACH LUMINAIRE, ONE AT EACH END AND ONE IN THE MIDDLE. WHERE FIXTURES ARE INSTALLED END TO END IN A ROW, ONE TYPE B SUPPLEMENTAL MOUNTING PLATE WILL BE PROVIDED AT THE JOINT AND WILL BE SHARED BY ADJACENT FIXTURES. SEE SUBSET TLD SHEET 7 DETAILS AND NOTES FOR ADDITIONAL REQUIREMENTS.

B. POWER FEEDERS ARE SHOWN TO ILLUSTRATE APPROXIMATE LOCATION AND METHOD TO FEED FLUORESCENT TUNNEL LUMINAIRES. FOR LOCATIONS REFER TO TUNNEL POWER SHEETS.

TYPICAL INTERIOR ZONE (MOUNTING CONDITION #4) — TLD-4 2

NORTH BORE

NORTH WALL - EAST SIDE
STA. 221+39 TO 223+05

0 ½ 1 1½ FEET
3"= 1'-0"

Computer File Information			
Creation Date:	06/26/99	Initials:	DJB
Last Modification Date:	12/04/08	Initials:	DJB
Full Path:	14102\700CADD\703elec\		
Drawing File Name:			ltdtl5n.dwg
Acad Ver. R14	Scale: 3" = 1'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Phone: 303-512-5750 FAX: 303-512-5775
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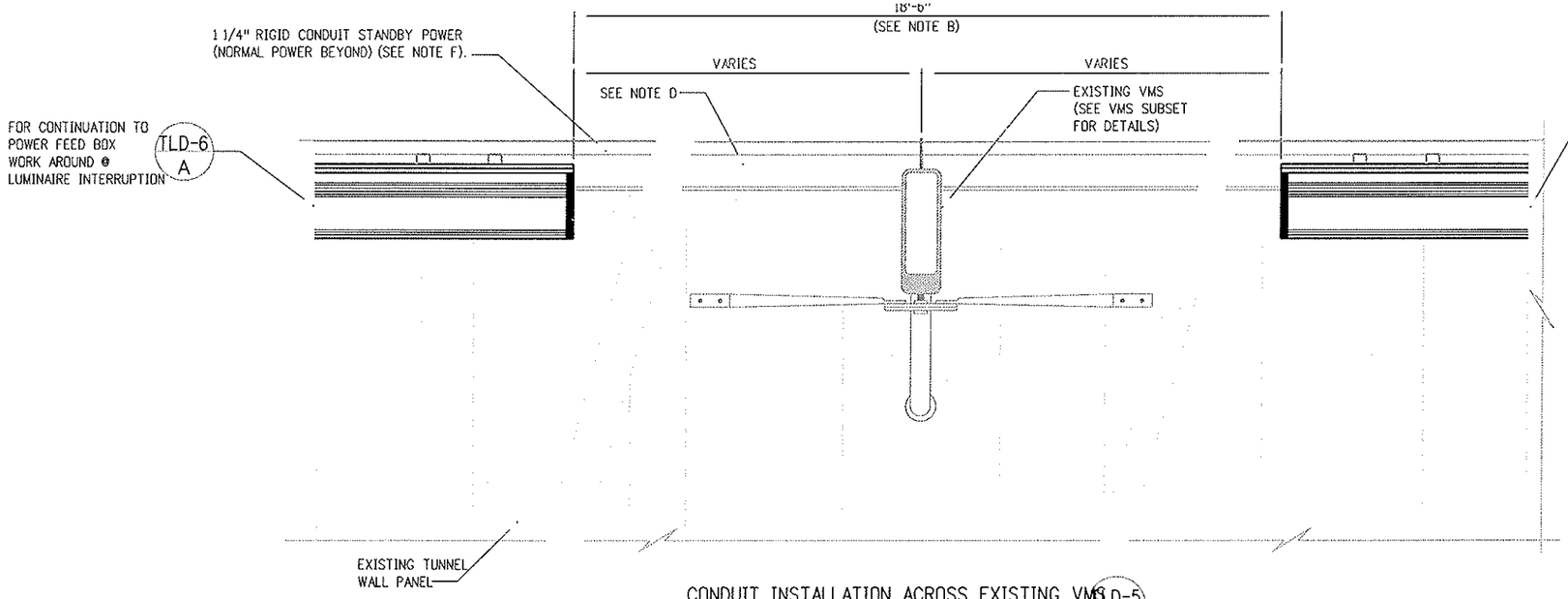
No Revisions:
Revised:
Void:

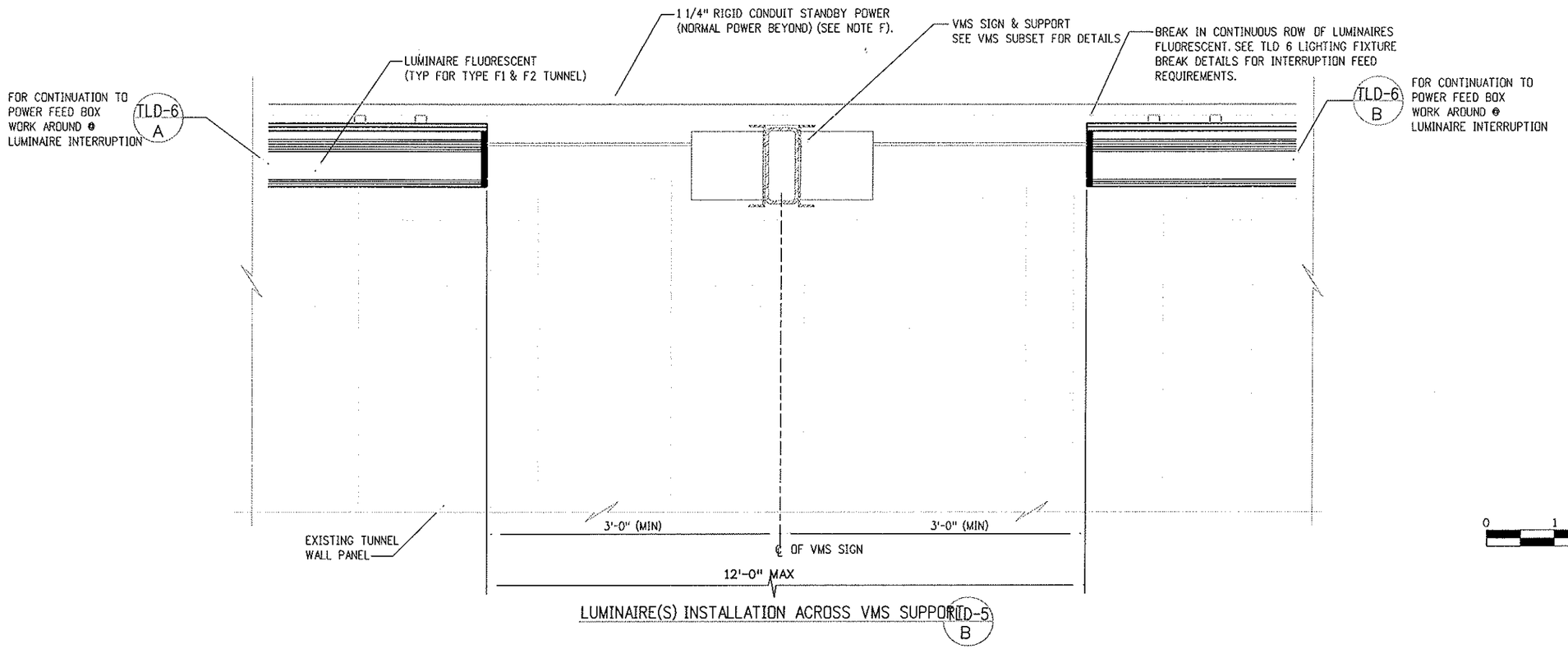
TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	4 of 13

Project No./Code
IM 0703-269
13166
Sheet Number 48



CONDUIT INSTALLATION ACROSS EXISTING VMS (TLD-5 A)



LUMINAIRE(S) INSTALLATION ACROSS VMS SUPPORT (TLD-5 B)

NOTES

A. NOT USED

B. PROVISION SHALL BE MADE TO ALLOW FOR INSTALLATION OF 2-FLUORESCENT TUNNEL LIMINAIRES AFTER EXISTING VMS SIGN IS REMOVED. CONTRACTOR RESPONSIBLE FOR MAINTAINING THE NOTED DIMENSION IN ORDER TO INSTALL LUMINAIRES AND PROVIDE APPROXIMATELY 2 FEET OF SPACE AT A LATER DATE.

C. PROVIDE CONDUIT SUPPORT ON EITHER SIDE OF MOGUL TYPE (CONDUIT BODY) FITTINGS. FOR FITTINGS SPACED GREATER THAN 10'-0" ON CENTER, PROVIDE AN ADDITIONAL CONDUIT SUPPORT CENTERED BETWEEN FITTINGS.

D. DURING CONSTRUCTION, INSTALLATION ON AND/OR STAGING OF WORK, THE HID FIXTURE WIREWAY MAY BE INTERRUPTED AS INDICATED ON THE CONTRACT DRAWINGS. PROVIDE CONDUIT(S) BETWEEN WIREWAY FEED, ROUTED AS REQUIRED.

E. FOR ACTUAL VMS SIGNS REFERENCE VMS SUBSET SHEETS.

F. FOR ACTUAL CONDUIT SIZES AND REQUIREMENTS REFER TO TUNNEL POWER SUBSET SHEETS, UNLESS NOTED OTHERWISE.

Design File Name: $PLOTFILE$
Plot File Name: $$$$DATE$$$$
Date of Plot:

Computer File Information			
Creation Date:	03/23/99	Initials:	DJB
Last Modification Date:	02/08/01	Initials:	DJB
Full Path:	014102\700cadd\703elec\		
Drawing File Name:	ltty01n.plt		
Acad Ver. R14	Scale: 1" = 1'- 0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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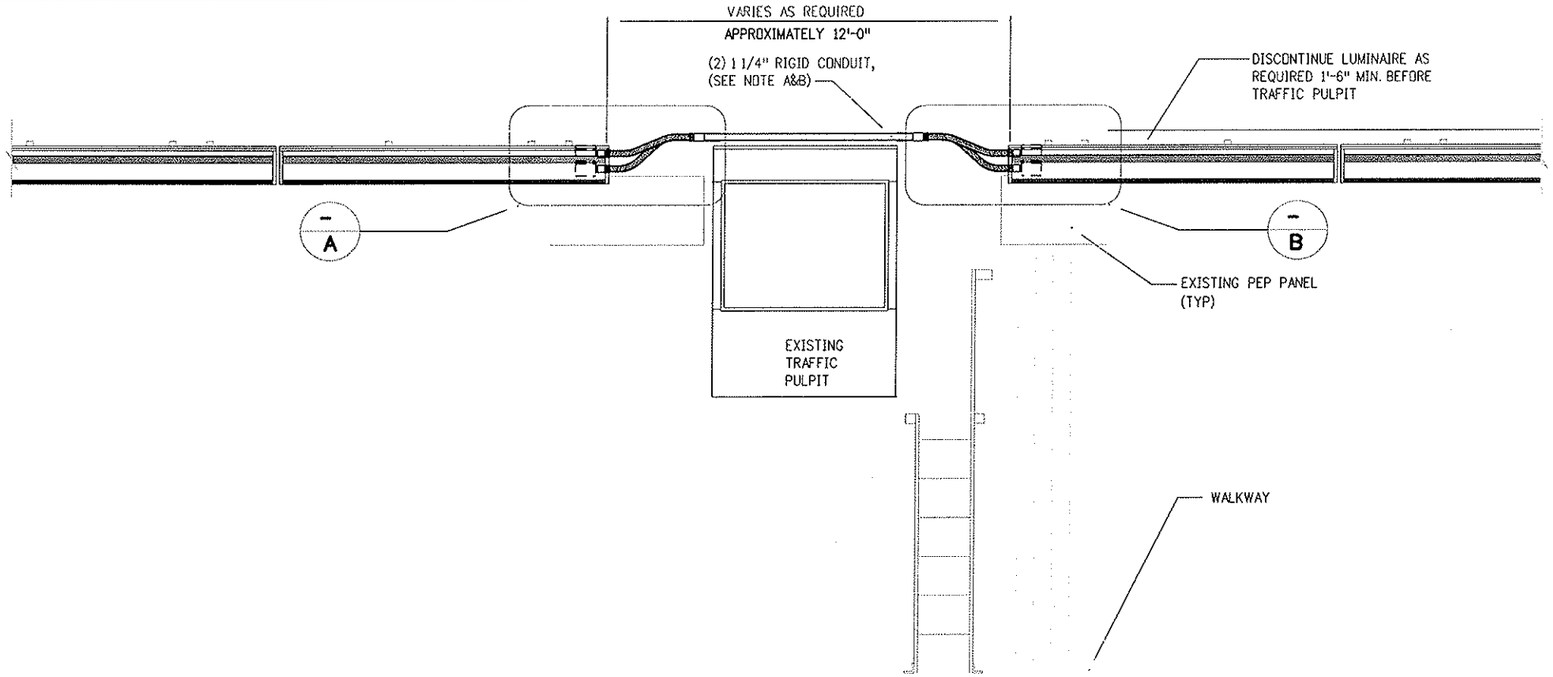
As Constructed
No Revisions:
Revised:
Void:

TUNNEL LIGHTING DETAILS

Designer: JPK/DJB
Detailer: D. BURROUGHS
Sheet Subset: TLD
Structure Numbers:
Subset Sheets: 5 of 13

Project No./Code
IM 0703-269
13166
Sheet Number 49



NOTES

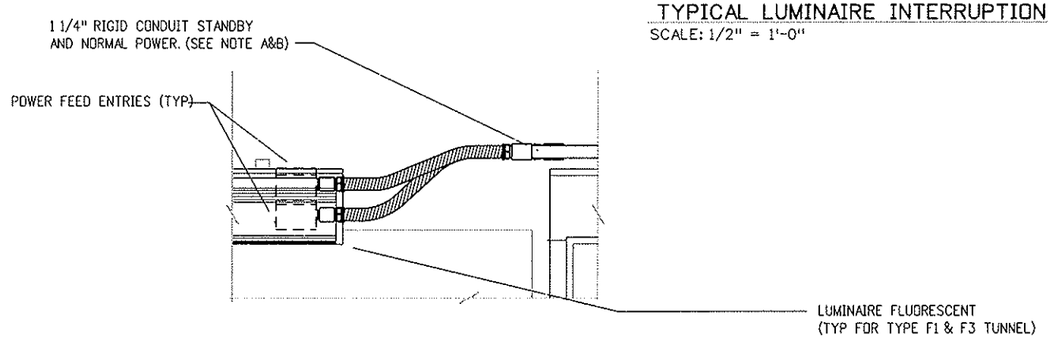
A. FOR ACTUAL CONDUIT SIZES AND REQUIREMENTS REFER TO TUNNEL POWER SUBSET SHEETS, UNLESS NOTED OTHERWISE.

B. FOR SPACING BETWEEN FIXTURES LESS THAN 3'-0 RGS CONDUIT IS NOT REQUIRED.

C. LUMINAIRE INTERRUPTION FEED FOR BREAKS IN LUMINAIRES AT VMS SIGNS SIMILAR.

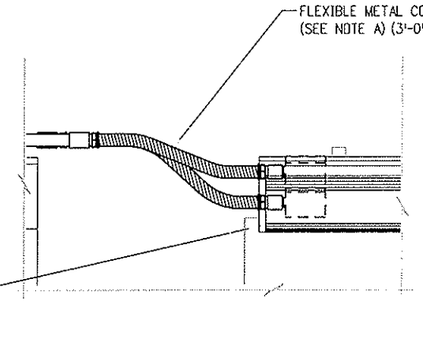
TYPICAL LUMINAIRE INTERRUPTION FEED — TLD-6 / 1

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



INTERRUPTION FEED LEFT SIDE — A

SCALE: 1" = 1'-0"



INTERRUPTION FEED RIGHT SIDE — B

SCALE: 1" = 1'-0"

0 2 4 10 FEET
1/2 "= 1'-0"

0 1 2 5 FEET
1 "= 1'-0"

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	03/23/99	Initials: DJB	
Last Modification Date:	02/04/02	Initials: DJB	
Full Path:	P:\14102\700cadd\703elec\		
Drawing File Name:			ltdt07a.plt
Acad Ver. R14	Scale: AS NOTED	Units: ENGLISH	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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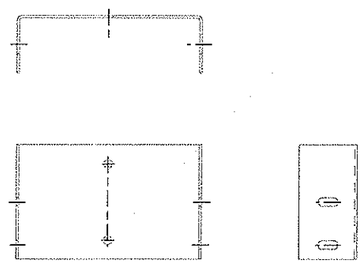
DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

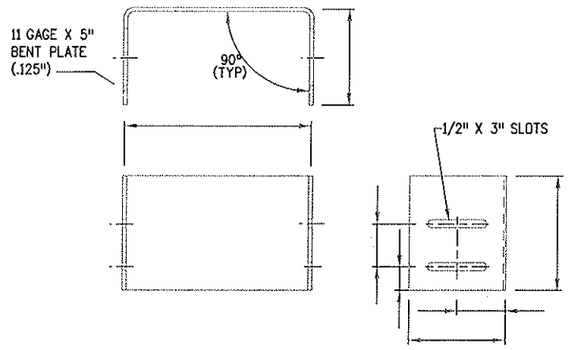
LIGHTING FIXTURE BREAK DETAILS

Designer: JPK/DJB
Detailer: D. BURROUGHS
Sheet Subset: TLD
Structure Numbers:
Subset Sheets: 6 of 13

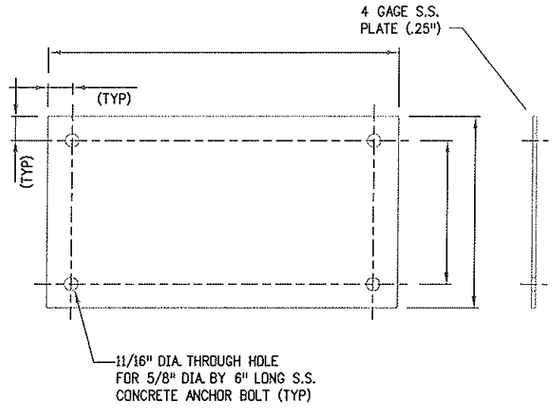
Project No./Code
IM 0703-269
13166
Sheet Number 50



WALL MOUNTING PLATE
TYPE A



SUPPLEMENTAL MOUNTING PLATE
TYPE B



WALL MOUNTING PLATE
TYPE C

NOTES:

A. BRACKET SHALL BE MODIFIED AS REQUIRED TO ACCOMMODATE FLUORESCENT TUNNEL LUMINAIRE.

B. COORDINATE BRACKET BEND WITH LUMINAIRE TO CREATE AN INTERLOCK.

C. THE DESIGN INTENT IS TO HAVE BRACKET FORMED USING A SINGLE PIECE OF METAL PLATE USING A 3/8"R BEND. A CONTINUOUS WELD ON BOTH SIDES CAN BE SUBSTITUTED BY VENDOR AS APPROVED.

D. CUT-OFF EXISTING FIXTURE MOUNTING BRACKET THAT EXTENDS BEYOND EXISTING ANGLE OR WALL PLATE.

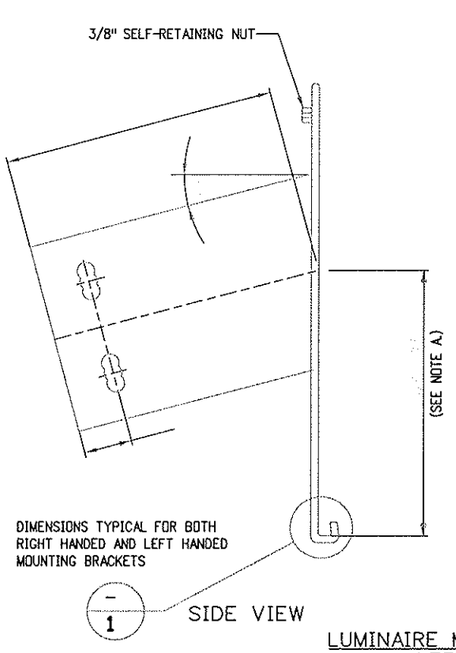
E. PROVIDE 3 TYPE B SUPPLEMENTAL MOUNTING PLATES FOR EACH LUMINAIRE, ONE AT EACH END AND ONE IN THE MIDDLE. WHERE FIXTURES ARE INSTALLED END TO END IN A ROW, ONE TYPE B SUPPLEMENTAL MOUNTING PLATE WILL BE PROVIDED AT THE JOINT AND WILL BE SHARED BY ADJACENT FIXTURES.

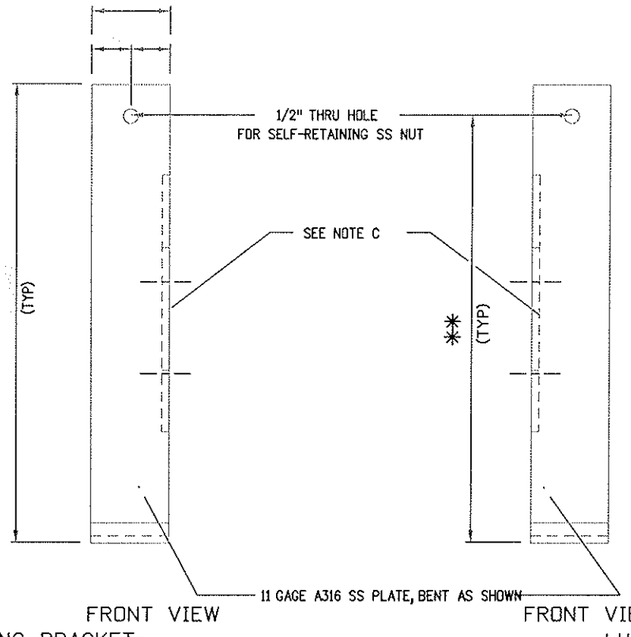
F. * DIMENSION IS APPROXIMATE DEPENDING ON WIDTH OF LUMIN

G. ** DIMENSION SHALL BE SUPPLIED BY CONTRACTOR ON SHOP DRAWING FOR APPROVAL.

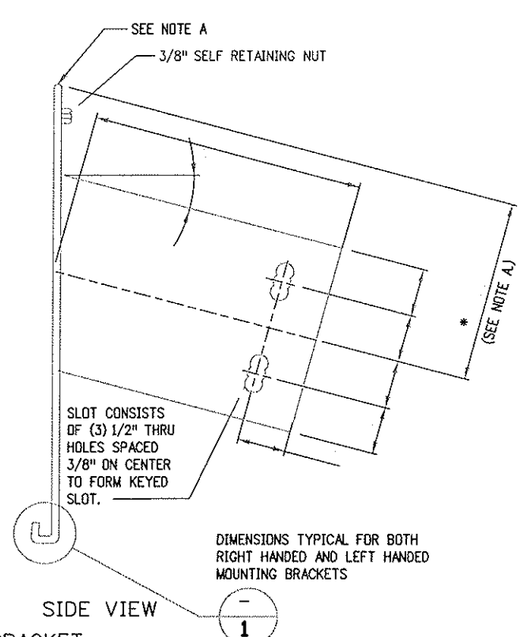
H. PROVIDE ONE LUMINAIRE MOUNTING BRACKET (RIGHT OR LEFT HANDED) PER SUPPLEMENTAL TYPE B MOUNTING PLATE AS REQUIRED. DESIGN INTENT IS TO HAVE 3 LUMINAIR MOUNTIN BRACKETS PER FLUORESCENT TUNNEL LUMINAIRE.

J. FOR REFERENCE ONLY: SUPPLEMENTAL MOUNTING PLATE SIMILAR SHAPE AND DIMENSION TO TYPE B AS USED IN SOUTH TUNNEL. THE LUMINAIRE MOUNTING BRACKET (RIGHT OR LEFT HANDED) SIMILAR SHAPE AND DIMENSION TO TYPE 1 AS USED IN SOUTH TUNNEL.

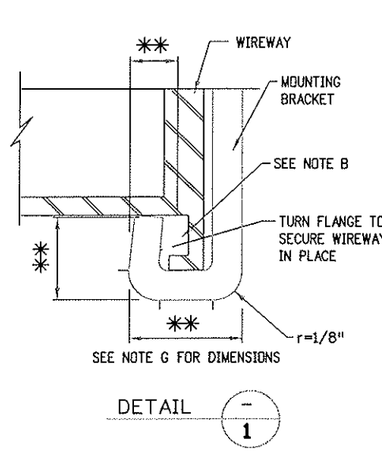




LUMINAIRE MOUNTING BRACKET
LEFT HANDED
(SEE NOTE J)



LUMINAIRE MOUNTING BRACKET
RIGHT HANDED
(SEE NOTE J)



DETAIL 1

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	12/04/05	Initials:	DJB
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Acad Ver. R14	Scale: N.T.S.	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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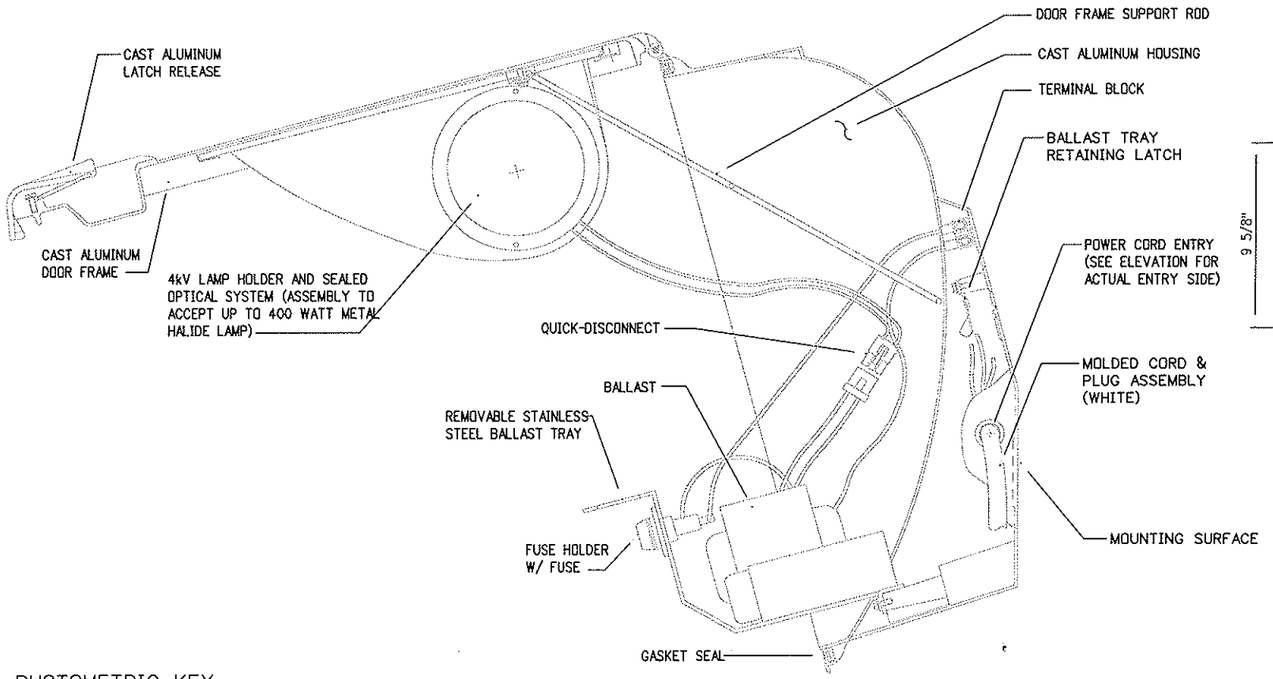
No Revisions:
Revised:
Void:

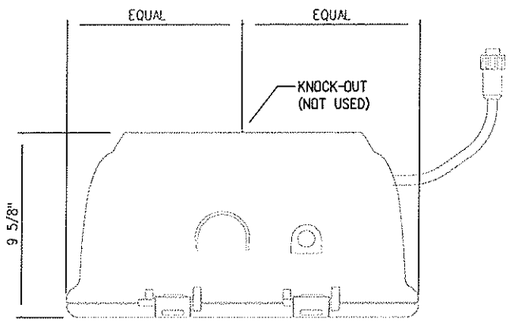
TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	7 of 13

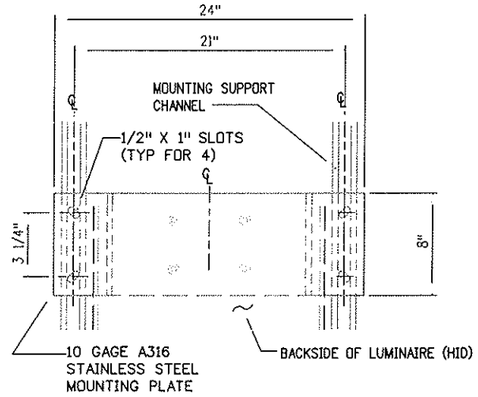
Project No./Code
IM 0703-269
13166
Sheet Number 51



LUMINAIRE HID (TYPES M1, M2 & M3 TUNNEL) (A)



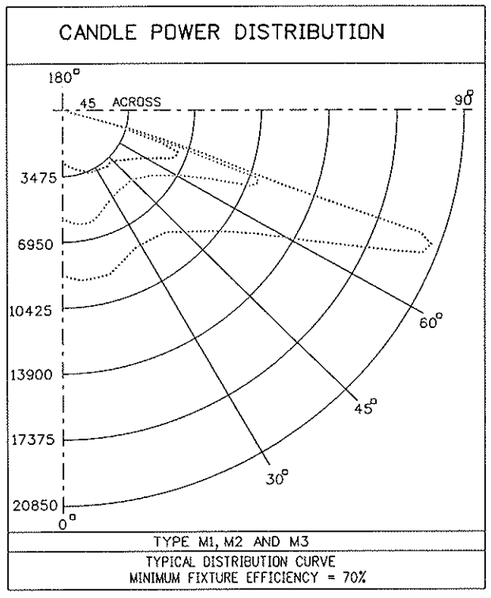
TOP VIEW



LUMINAIRE HID
MOUNTING PLATE DETAIL

PHOTOMETRIC KEY

..... 45°



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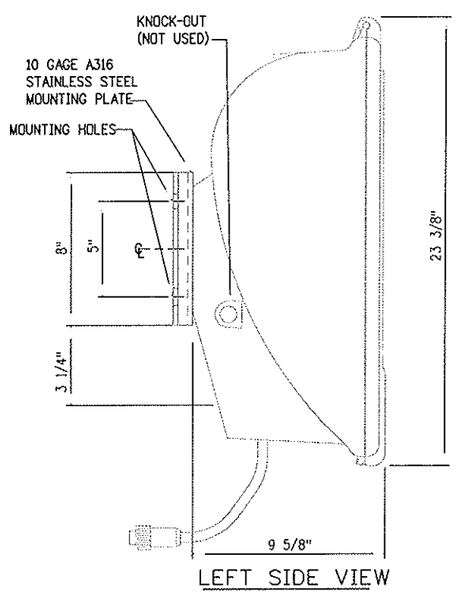
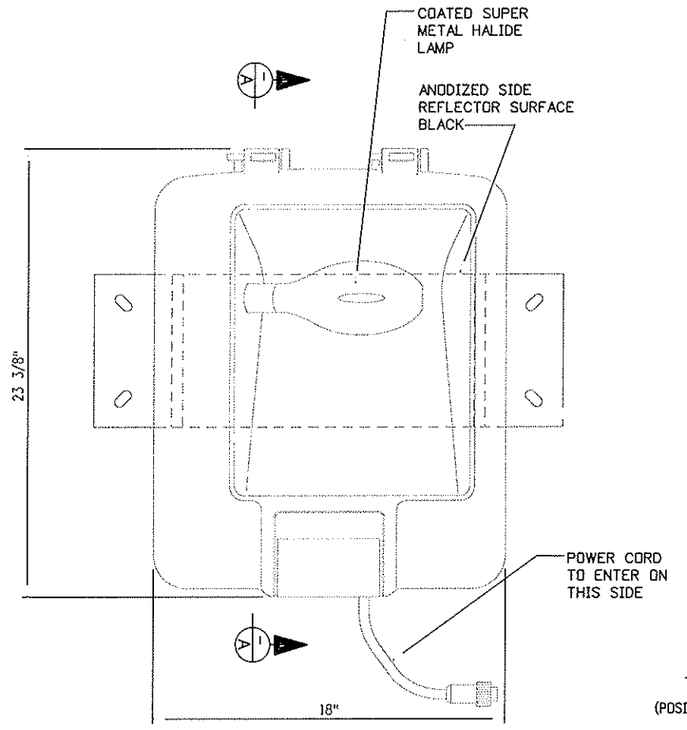
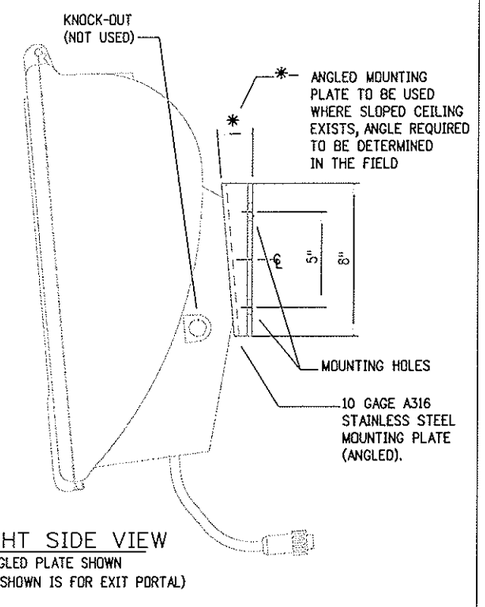


LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW
ANGLED PLATE SHOWN
(POSITION SHOWN IS FOR EXIT PORTAL)

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	11/27/00	Initials:	DJB
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Drawing File Name:		ltdt06n.dwg	
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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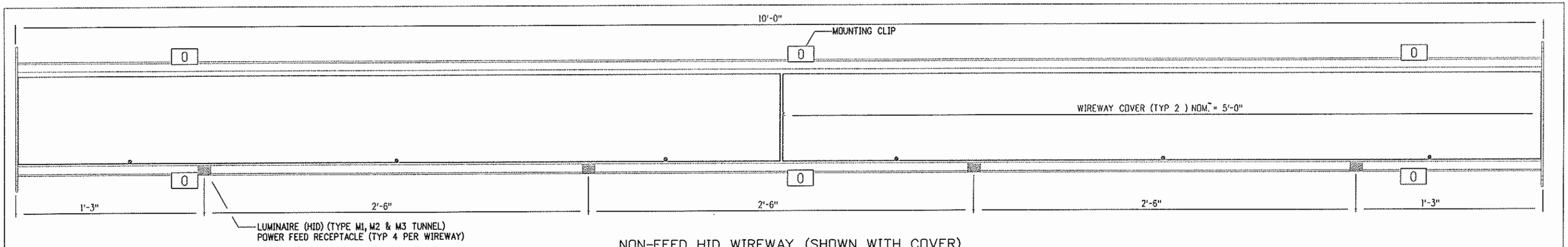
No Revisions:
Revised:
Void:

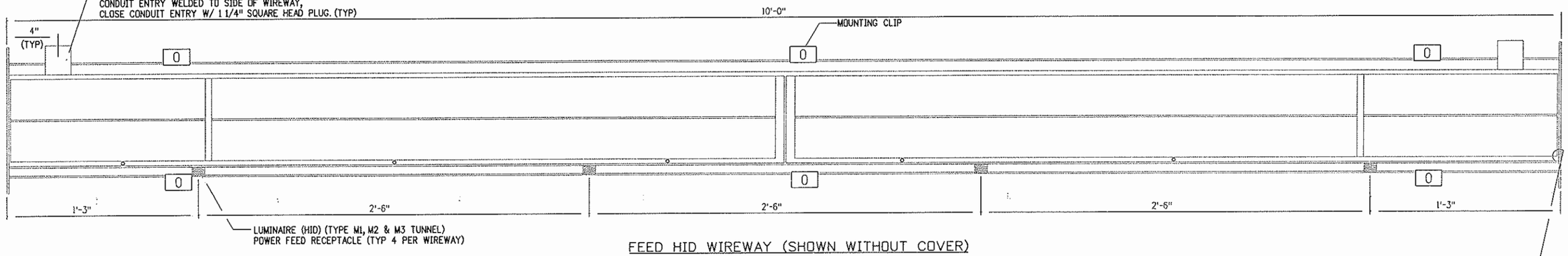
TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	8 of 13

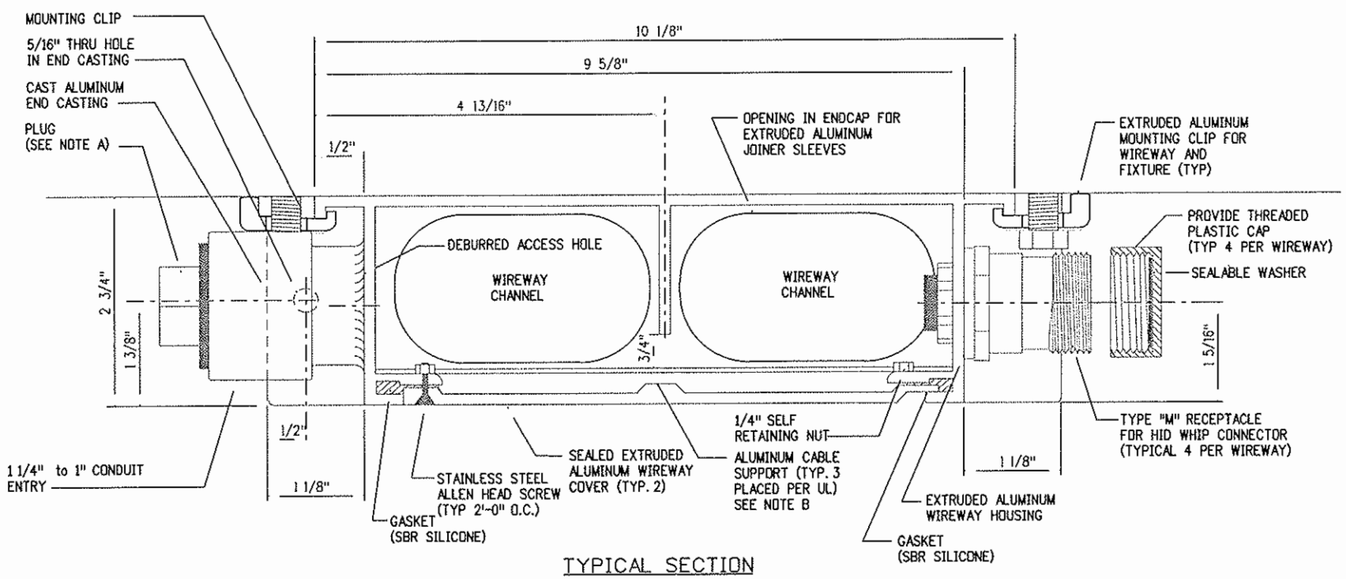
Project No./Code
IM 0703-269
13166
Sheet Number 52



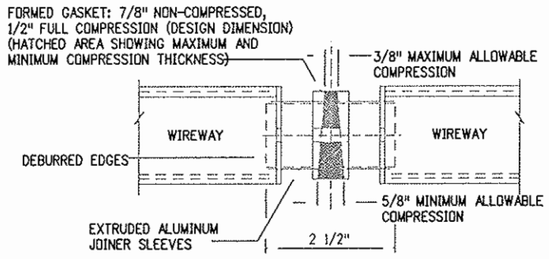
NON-FEED HID WIREWAY (SHOWN WITH COVER)



FEED HID WIREWAY (SHOWN WITHOUT COVER)



TYPICAL SECTION



SIDE VIEW AT HID WIREWAY JOINT

NOTE:

A. CONTRACTOR TO PROVIDE A PLUG TO CLOSE CONDUIT ENTRY WHEN NOT USED.

B. CABLE SUPPORT STRAPS TO BE CONTINUOUSLY WELDED IN PLACE.

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Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

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Sheet Revisions		
07/03/07	ASBUILT	DJB

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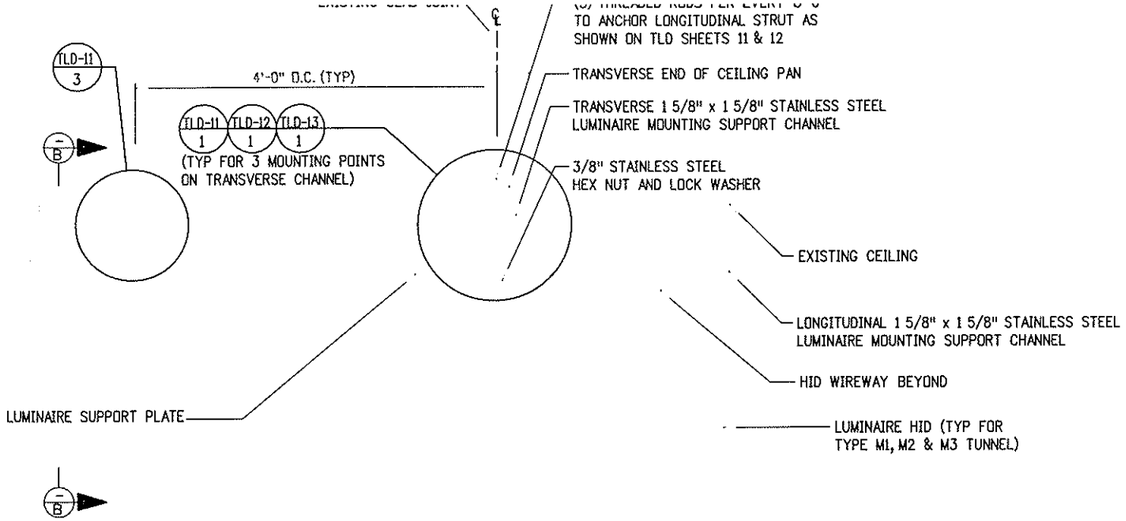
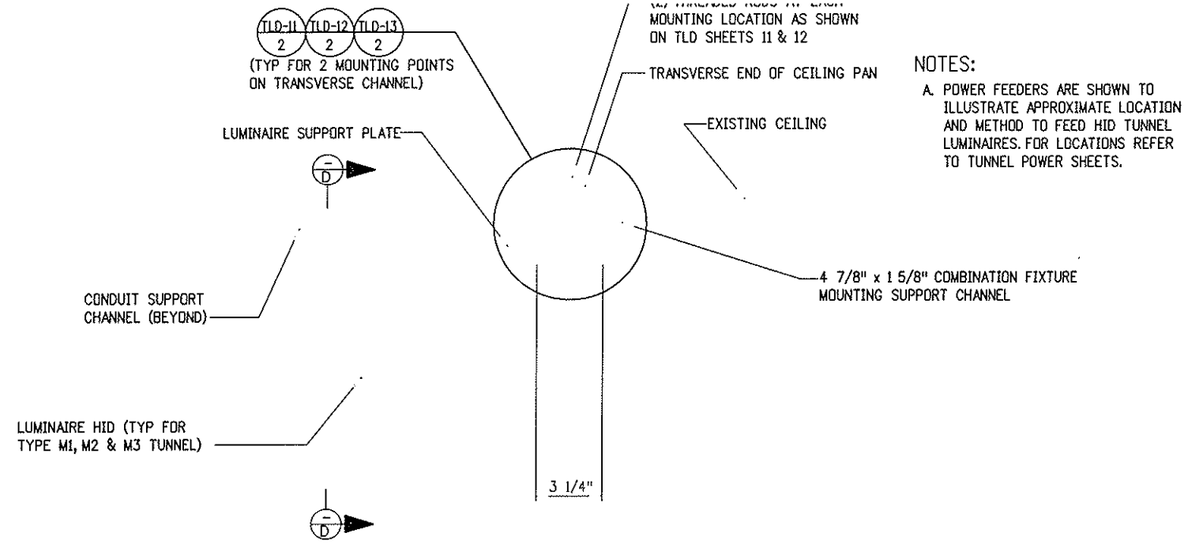
TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset: TLD		Subset Sheets:	9 of 13

Project No./Code
IM 0703-269
13166
Sheet Number 53

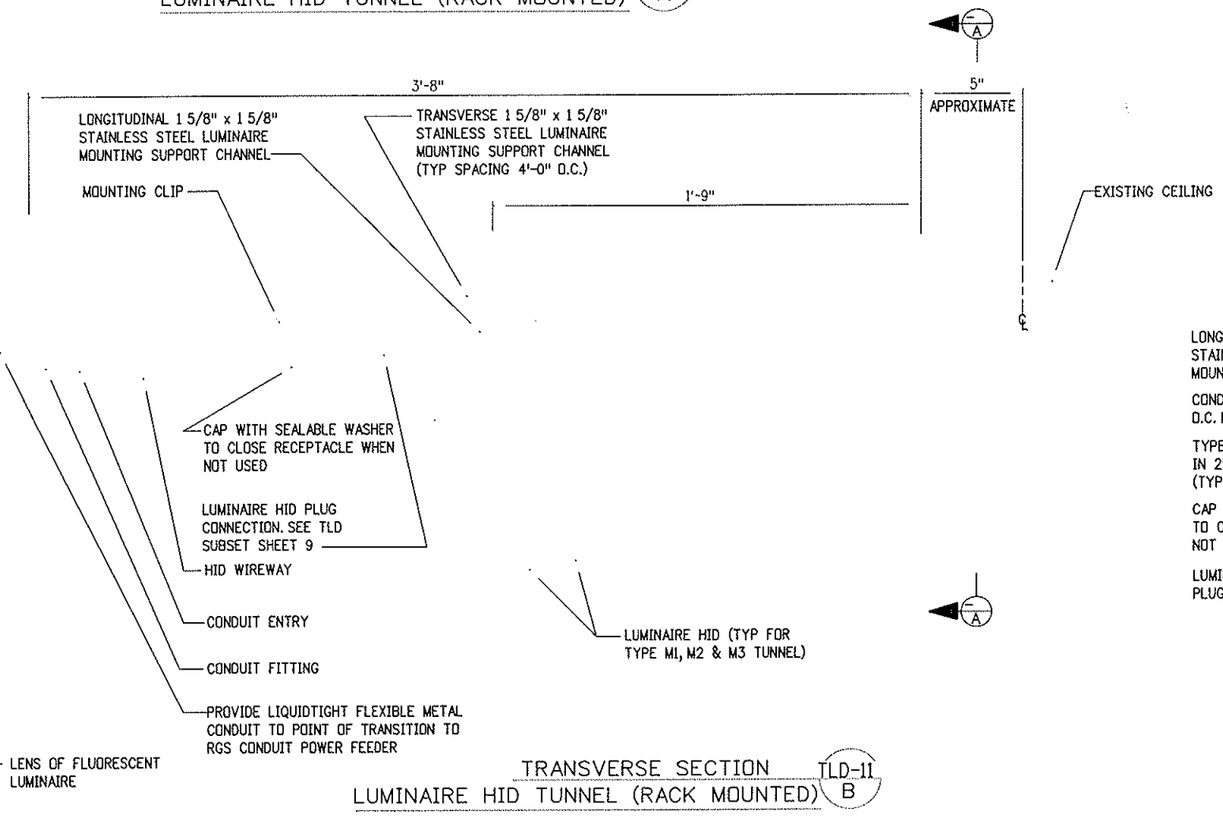




NOTES:

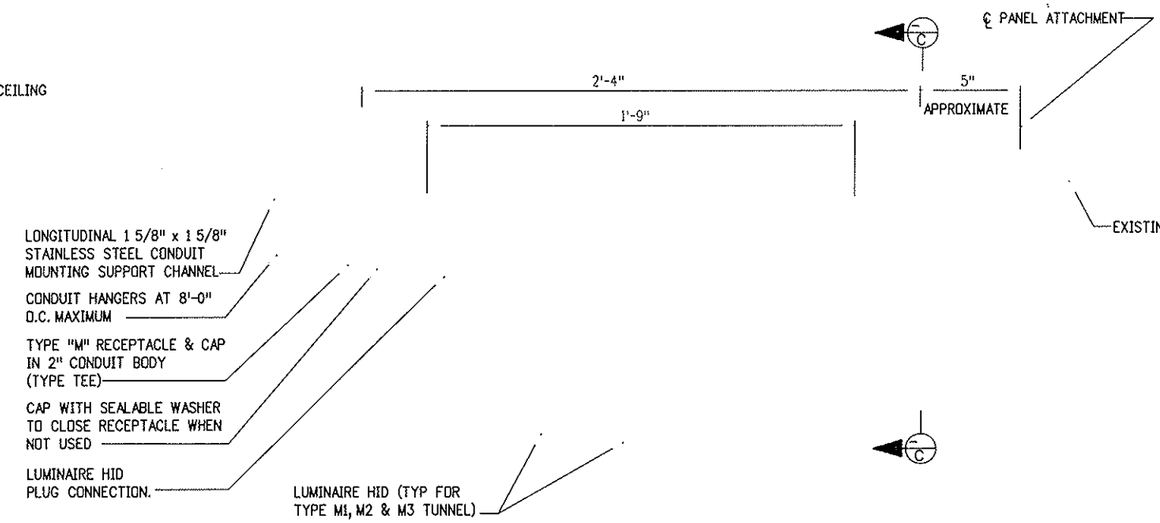
A. POWER FEEDERS ARE SHOWN TO ILLUSTRATE APPROXIMATE LOCATION AND METHOD TO FEED HID TUNNEL LUMINAIRES. FOR LOCATIONS REFER TO TUNNEL POWER SHEETS.

LONGITUDINAL SECTION LUMINAIRE HID TUNNEL (RACK MOUNTED) TLD-11 A



TRANSVERSE SECTION LUMINAIRE HID TUNNEL (RACK MOUNTED) TLD-11 B

LONGITUDINAL SECTION LUMINAIRE HID TUNNEL (CEILING MOUNTED) TLD-11 C



TRANSVERSE SECTION LUMINAIRE (HID) TUNNEL (CEILING MOUNTED) TLD-11 D

0 ½ 1 1½ FEET
3"= 1'-0"

Computer File Information			
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Last Modification Date:	02/27/03	Initials:	DJB
Full Path:	14102\700CADD\703elec\		
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Sheet Revisions		
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No Revisions:
Revised:
Void:

TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	10 of 13

Project No./Code
IM 0703-269
13166
Sheet Number 54

Design File Name: DGNSSPEC*
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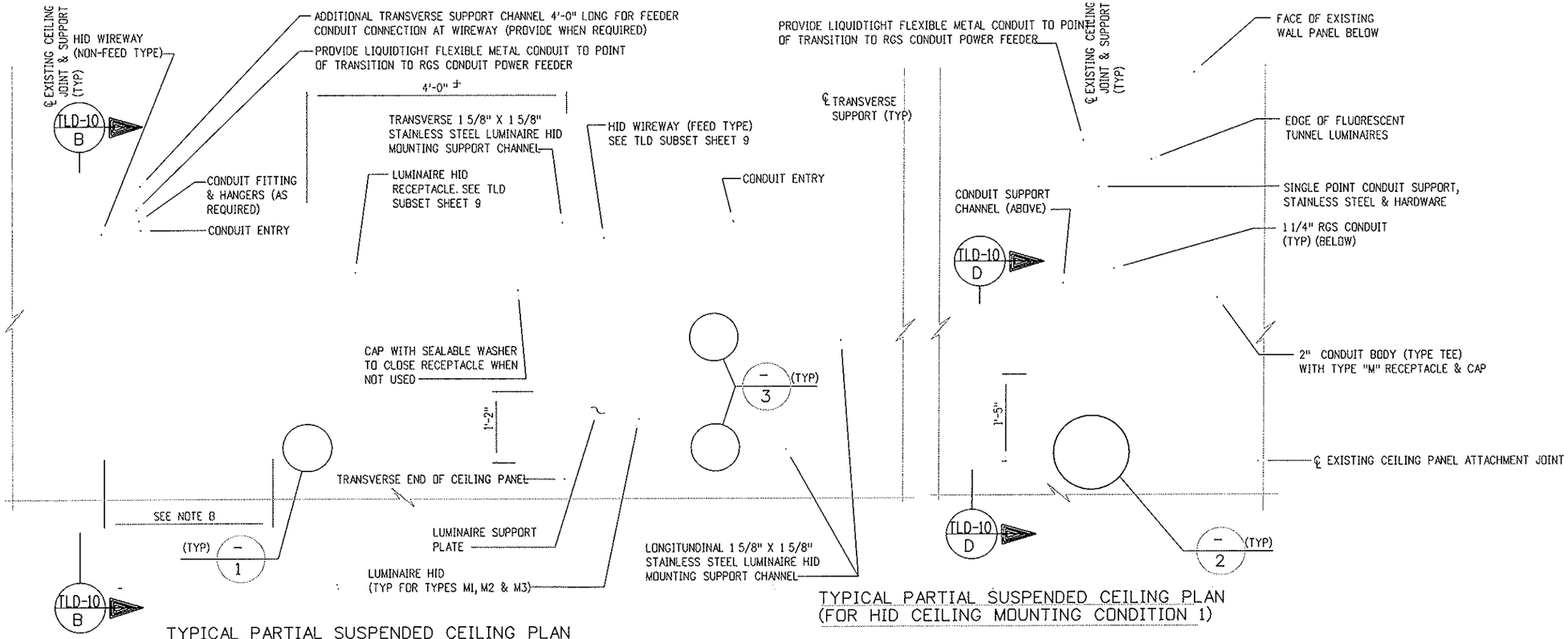


TYPICAL PARTIAL SUSPENDED CEILING PLAN
(FOR HID RACK MOUNTING CONDITION 1)

TYPICAL PARTIAL SUSPENDED CEILING PLAN
(FOR HID CEILING MOUNTING CONDITION 1)

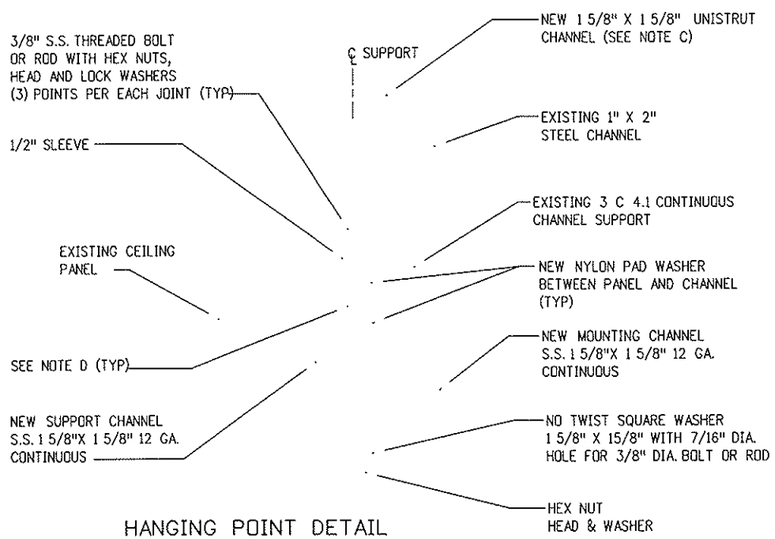
NOTES:

A. POWER FEEDERS ARE SHOWN TO ILLUSTRATE APPROXIMATE LOCATION AND METHOD TO FEED LUMINAIRES HID - FOR LOCATIONS REFER TO TUNNEL POWER SHEETS.

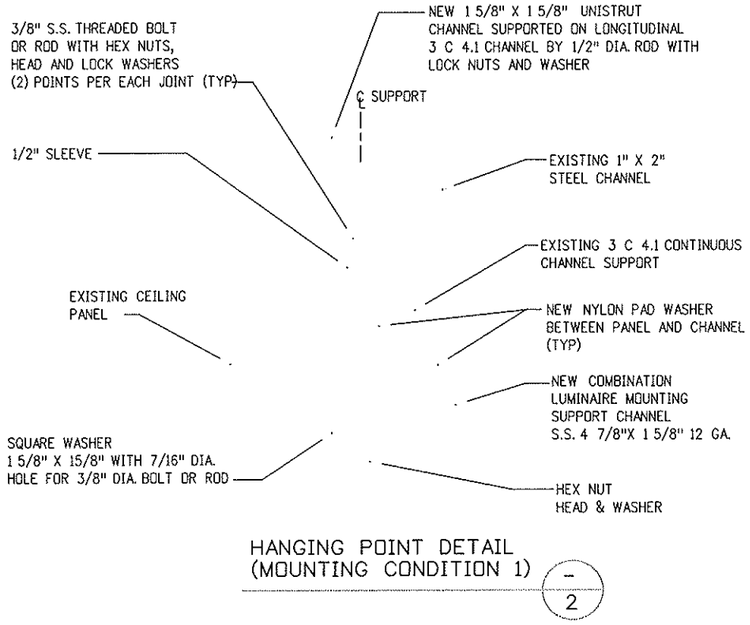
B. FOR LUMINAIRE HID SPACING DIMENSIONS REFER TO NORTH TUNNEL LIGHTING PLANS, SHEETS 2, 18 & 19.

C. NEW 1 5/8" X 1 5/8" UNISTRUT CHANNEL SUPPORTED ON LONGITUDINAL 3 C 4.1 CHANNEL BY 1/2" DIA. ROD WITH LOCK NUTS AND WASHER. PROVIDE LENGTH REQUIRED TO SPAN FROM EDGE OF CEILING TO FIRST LONGITUDINAL CHANNEL. WHEN SPAN IS GREATER THAN 6'-0" PROVIDE ADDITIONAL SUPPORTING ROD SECURED TO CEILING BY MEANS OF AN EMBEDDED EPOXY ANCHOR.

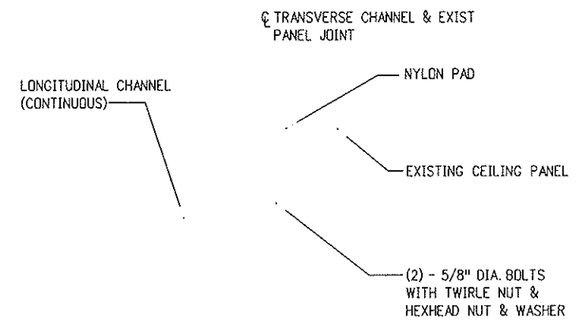
D. MOUNTING OF HID SUPPORTS IS CONSTRAINED TO CEILING PANEL JOINT LOCATIONS AS INDICATED ON TUNNEL LIGHTING DETAILS FOR HID RACK MOUNTING SYSTEM. SEE SHEETS TLD-11,12 & 13.



HANGING POINT DETAIL
(MOUNTING CONDITION 1) – 1



HANGING POINT DETAIL
(MOUNTING CONDITION 1) – 2



CHANNEL CONNECTION
(MOUNTING CONDITION 1, 2 & 3) – 3

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Drawing File Name:	ltdtl18n.dwg		
Acad Ver. R14	Scale: NTS	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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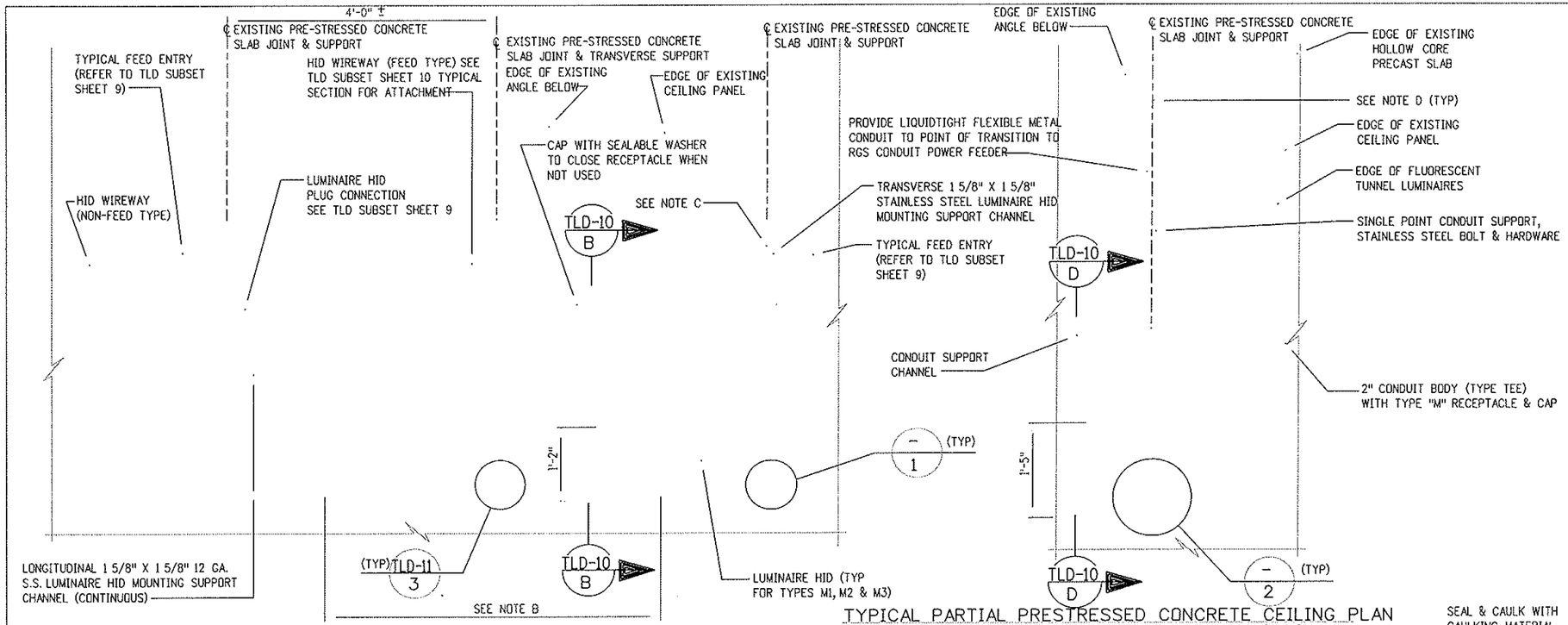
No Revisions:
Revised:
Void:

TUNNEL LIGHTING DETAILS

Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	11 of 13

Project No./Code
IM 0703-269
13166
Sheet Number 55



TYPICAL PARTIAL PRESTRESSED CONCRETE CEILING PLAN
(FOR HID RACK MOUNTING CONDITION 2 & 3)

TYPICAL PARTIAL PRESTRESSED CONCRETE CEILING PLAN
(FOR HID CEILING MOUNTING CONDITION 2 & 3)

NOTES:

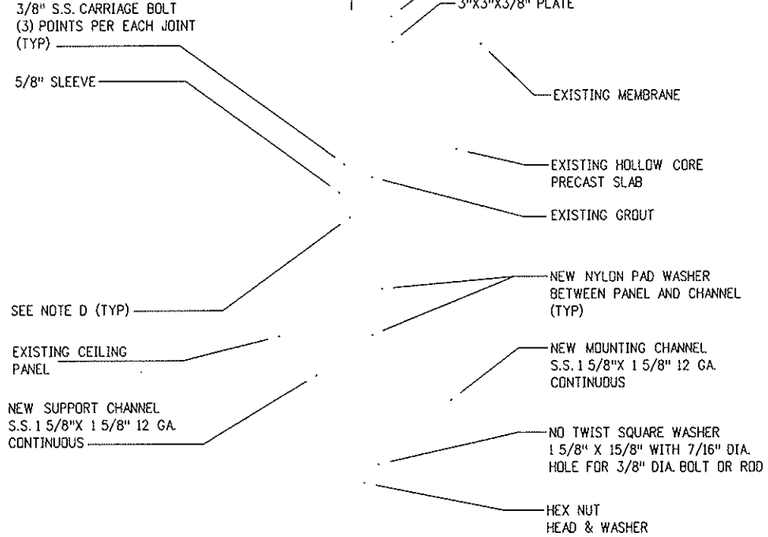
A. POWER FEEDERS ARE SHOWN TO ILLUSTRATE APPROXIMATE LOCATION AND METHOD TO FEED LUMINAIRE HID - FOR LOCATIONS REFER TO TUNNEL POWER SHEETS.

B. FOR LIMINAIRE HID SPACING DIMENSIONS REFER TO NORTH TUNNEL LIGHTING PLANS, SHEETS 2, 18 & 19.

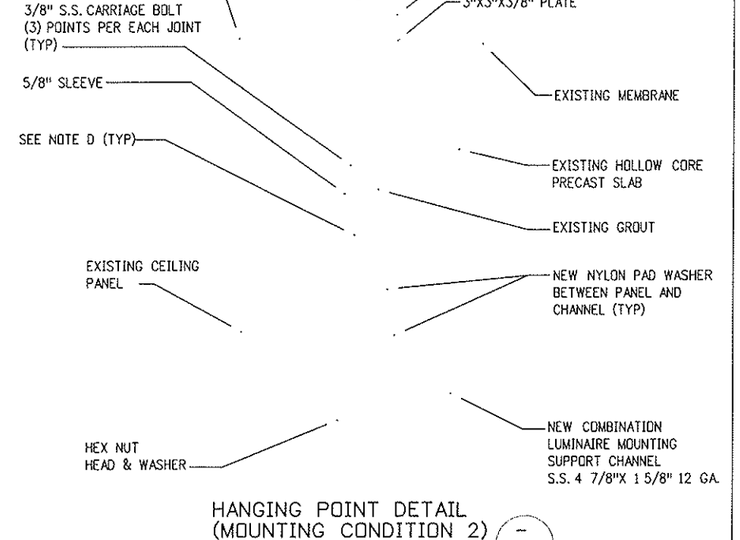
C. WHEN EXISTING CONDITION PROHIBITS USE OF CARRIAGE BOLT ANCHOR METHOD, A THREADED ROD SHALL BE SUBSITITUTED AND SHALL BE SECURED TO THE CEILING BY MEANS OF AN EMBEDDED EPOXY ANCHOR.

D. MOUNTING OF HID SUPPORTS IS CONSTRAINED TO CEILING PANEL JOINT LOCATIONS AS INDICATED ON TUNNEL LIGHTING DETAILS FOR HID RACK MOUNTING SYSTEM. SEE SHEETS TLD-11,12 & 13.

E. MOUNTING CONDITION 2 SHOWN ON TLD-12, IS FOR NORTH SIDE (SUPPLY DUCT) OF TUNNEL CEILING. MOUNTING CONDITION 3 SHOWN ON TLD-13, IS FOR SOUTH SIDE (EXHAUST DUCT) OF TUNNEL CEILING.



HANGING POINT DETAIL
(MOUNTING CONDITION 2) – 1



HANGING POINT DETAIL
(MOUNTING CONDITION 2) – 2

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	03/25/03	Initials:	DJB
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Acad Ver. R14	Scale: NTS	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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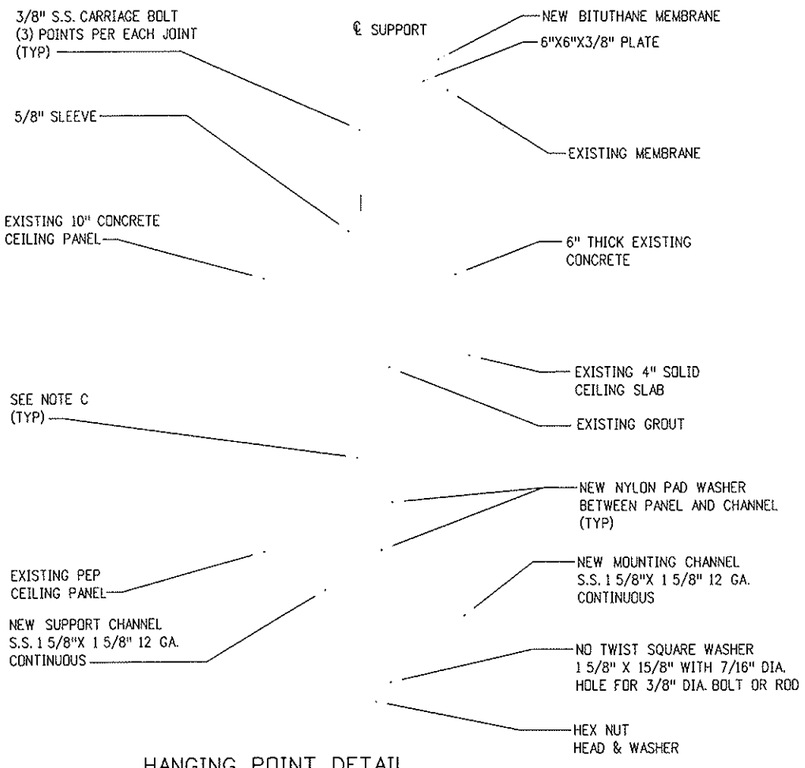
No Revisions:
Revised:
Void:

TUNNEL LIGHTING DETAILS

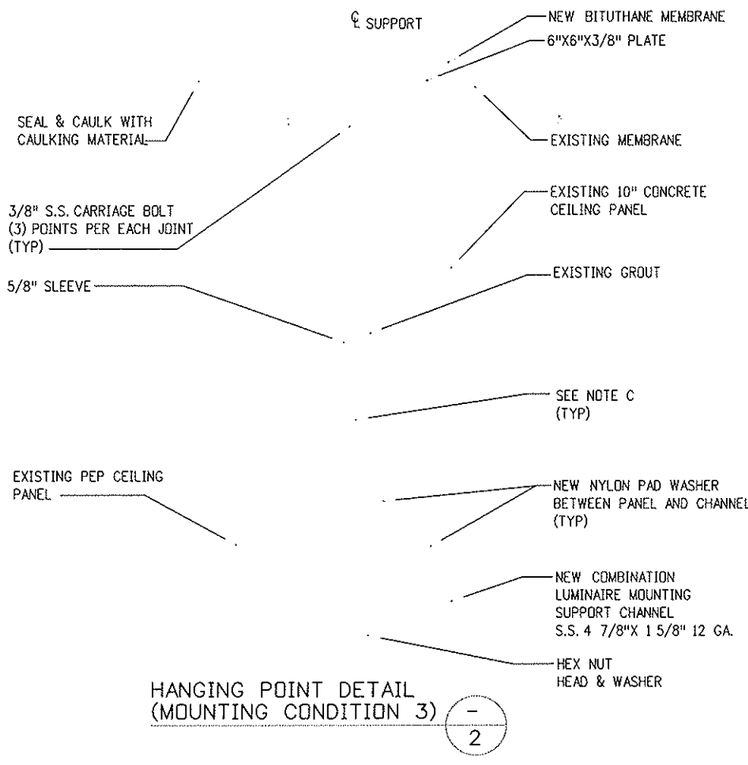
Designer:	JPK/DJB	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	12 of 13

Project No./Code	
IM 0703-269	
13166	
Sheet Number	56

TYPICAL EXHAUST SIDE CONCRETE CEILING DETAIL
(FOR HID RACK MOUNTING CONDITION 3) ODD AND EVEN SEGMENTS



HANGING POINT DETAIL
(MOUNTING CONDITION 3) - 1



HANGING POINT DETAIL
(MOUNTING CONDITION 3) - 2

NOTES:

A. REFER TO TUNNEL LIGHTING DETAILS SHEETS TLD-10 & TLD-12 FOR TYPICAL HID SUPPORT REQUIREMENTS AND NOTES.

B. THE 4'-0" WIDE CEILING PANELS IN MAIN TUNNEL OF THE NORTH BORE ARE ARRANGED IN SEGMENTS, INDICATED AS ODD OR EVEN WHICH ARE 50'-3" IN LENGTH CORRESPOND TO TUNNEL WALL SEGMENTS WHICH ARE NUMBERED FROM WEST TO EAST IN ASCENDING ORDER.THE ILLISTRATION SHOWN PORTRAYS THE PATTERN WHICH IS REPEATED THROUGHOUT THE LENGTH OF THE MAIN TUNNEL CEILING. NOTE THAT THE TRANSVERSE HID MOUNTING SUPPORT CHANNELS ARE HUNG FROM THE CEILING SLAB JOINTS AT 4'-0" O.C. EXCEPT WHERE AN OBSTRUCTION (eg: DUCT, CONDUIT, etc) PREVENTS SUCH SPACING, AT WHICH THE 8'-0" O.C. DIMENSION WILL BE USED. SHOULD A CHANGE TO THE PATTERN SHOWN BE REQUIRED, IT MUST FIRST BE REVIEWED AND APPROVED BY THE RESIDENT ENGINEER.

C. MOUNTING OF HID SUPPORTS IS CONSTRAINED TO CEILING PANEL JOINT LOCATIONS AS INDICATED ON TUNNEL LIGHTING DETAILS FOR HID RACK MOUNTING SYSTEM. SEE SHEETS TLD-11,12 & 13.

Design File Name: DGNSSPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	02\08\01	Initials:	DJB
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TUNNEL LIGHTING DETAILS

Designer:	DJB/JPK	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TLD	Subset Sheets:	13 of 13

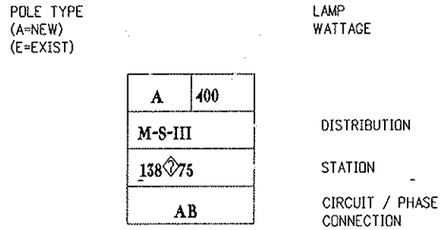
Project No./Code
IM 0703-269
13166
Sheet Number 57

APPROACH LIGHTING NOTES

1. APPROACH LIGHTING POLE LOCATIONS ARE BASED ON A 10'-0" SET-BACK FROM THE EDGE OF THE PAVEMENT AT THE STATION INDICATED ON THE PLANS.
2. FOR HIGHMAST REFURBISHMENT SEE SPECIFICATIONS, APPROACH LIGHTING PLANS AND CDOT STANDARD PLANS.
3. STATIONS SHOWN FOR EXISTING POLES ARE APPROXIMATE.
4. ■ LIGHT POLES AND LUMINAIRES TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
5. NO PHOTOCELLS ARE REQUIRED FOR APPROACH LIGHTING. THE TUNNEL LIGHTING CONTROL SYSTEM WILL CONTROL APPROACH LIGHTING FOR EACH APPROACH FROM THEIR RESPECTIVE PHOTOCELLS AT EACH VENTILATION BUILDING.

LEGEND

- NEW LIGHTING POLE, LUMINAIRE AND FOUNDATION
- REMOVE EXISTING LIGHTING POLE ,LUMINAIRE AND FOUNDATION
- EXISTING HIGHMAST POLE. INSTALL NEW LUMINAIRES AND LOWERING SYSTEM.
- PROPOSED CONCRETE PULL BOX
- EXISTING ELECTRICAL CONDUIT(S)/UNDERGROUND DUCTBANK (PVC)
- PROPOSED DIRECT-BURIAL CABLE
- PROPOSED ELECTRICAL CONDUITS ON STRUCTURE (METAL)
- EXISTING MANHOLE/PULLBOX, TO REMAIN



LIGHTING STANDARD / LUMINAIRE NOTATION

APPROXIMATE QUANTITIES - APPROACH LIGHTING

CONTRACT ITEM NUMBER	CONTRACT ITEM	UNIT	ROADWAY	
			PLAN	AS CONST.
	CONSTRUCTION			
	EAST APPROACH (WESTBOUND)			
■ 202	REMOVAL OF LIGHT STANDARD	EA	13	
613	LIGHT STANDARD STEEL (40 FOOT)	EA	22	
613	CONCRETE FOUNDATION PAD	EA	22	
613	LOWERING DEVICE	EA	2	
613	PORTABLE POWER UNIT	EA	2	
613	LUMINAIRE HIGH PRESSURE SODIUM (400 WATT)	EA	22	
613	LUMINAIRE HIGH PRESSURE SODIUM (1000 WATT)	EA	8	
613	DIRECT-BURIAL CABLE	LF	5300	
	WEST APPROACH (EASTBOUND)			
■ 202	REMOVAL OF LIGHT STANDARD	EA	3	
613	LIGHT STANDARD STEEL (40 FOOT)	EA	11	
613	CONCRETE FOUNDATION PAD	EA	11	
613	LOWERING DEVICE	EA	2	
613	LUMINAIRE HIGH PRESSURE SODIUM (400 WATT)	EA	11	
613	LUMINAIRE HIGH PRESSURE SODIUM (1000 WATT)	EA	8	
613	DIRECT-BURIAL CABLE	LF	2900	
613	PULL BOX (24"x36"x36") DEEP	EA	2	

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Sheet Revisions		
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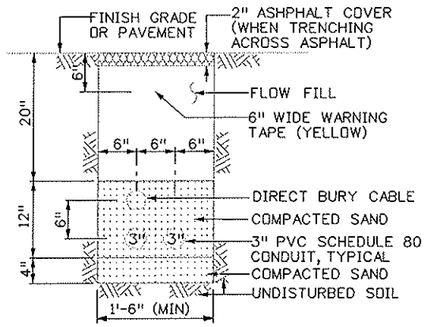
APPROACH POWER AND LIGHTING NOTES

Designer: J. WEAVER
Detailer: D. BURROUGHS
Sheet Subset: APPROACH LTG
Structure Numbers
Subset Sheets: 1 of 9

Project No./Code
IM 0703-269
13166
Sheet Number 58



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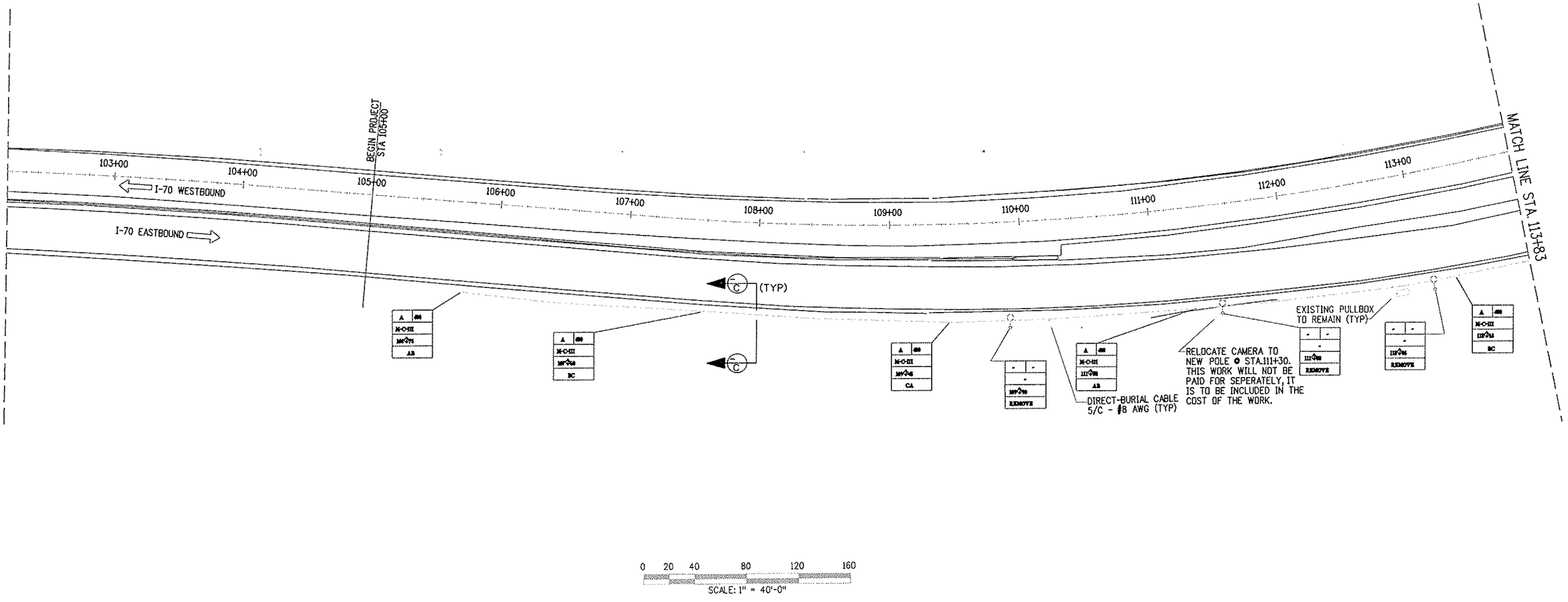

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Sheet Revisions		
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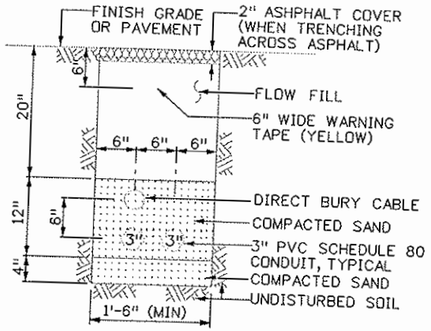
WEST APPROACH POWER & LIGHTING PLAN

Designer: J. WEAVER
Detailer: D. BURROUGHS
Structure Numbers:
Sheet Subset: APPROACH LTG
Subset Sheets: 2 OF 9

Project No./Code
IM 0703-269
13166
Sheet Number 59



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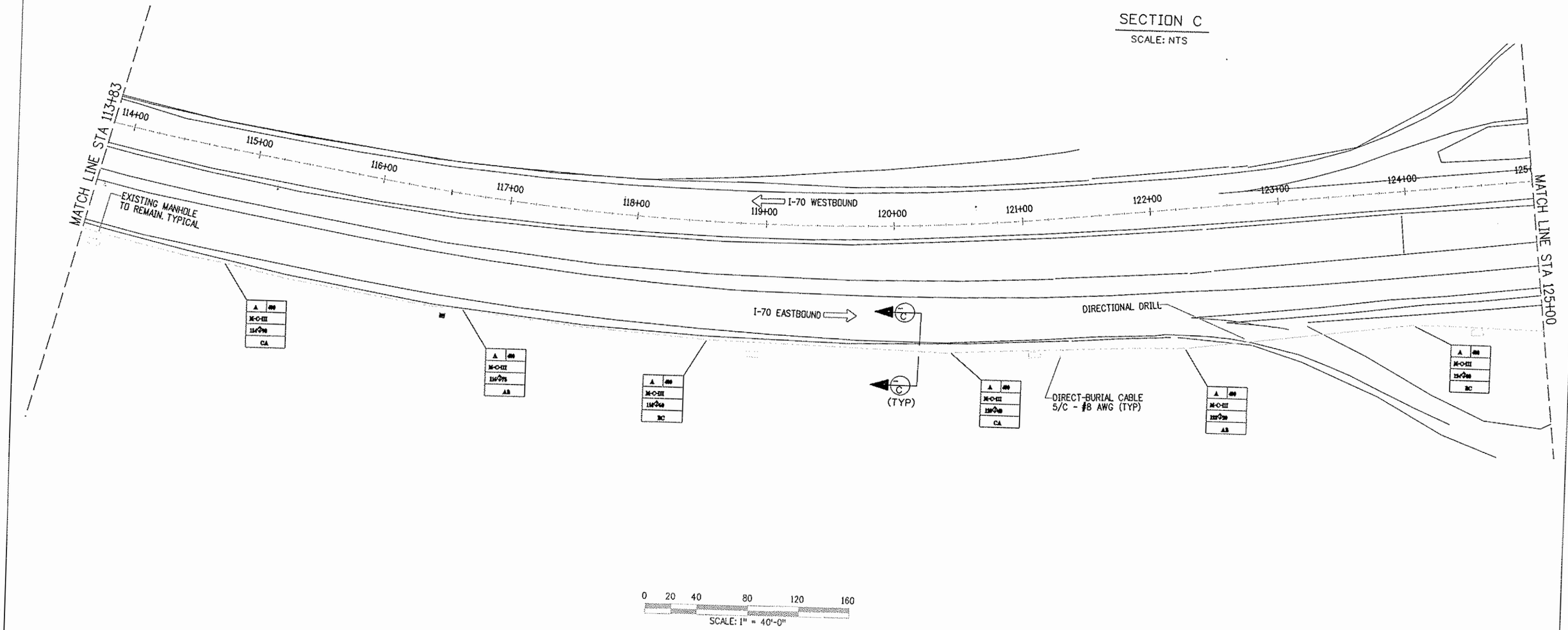

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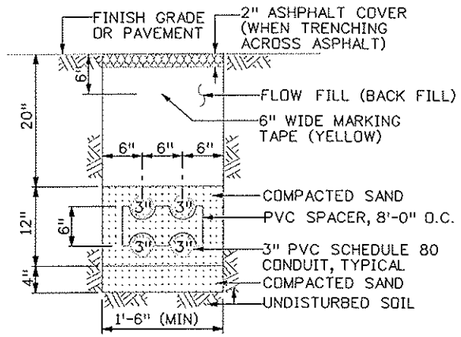
WEST APPROACH POWER & LIGHTING PLAN

Designer: J. WEAVER
Detailer: D. BURROUGHS
Structure Numbers
Sheet Subset: APPROACH LTG
Subset Sheets: 3 OF 9

Project No./Code
IM 0703-269
13166
Sheet Number 60



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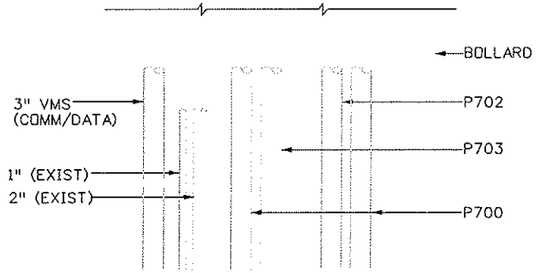

NOTE: RIGID GALVANIZED RISER CONDUITS.

SECTION B

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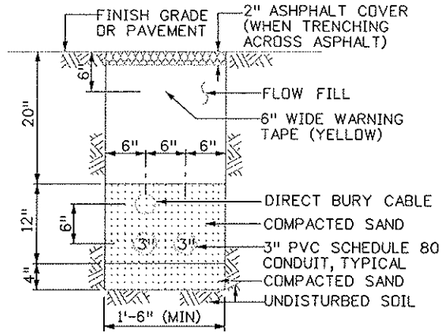

SECTION C

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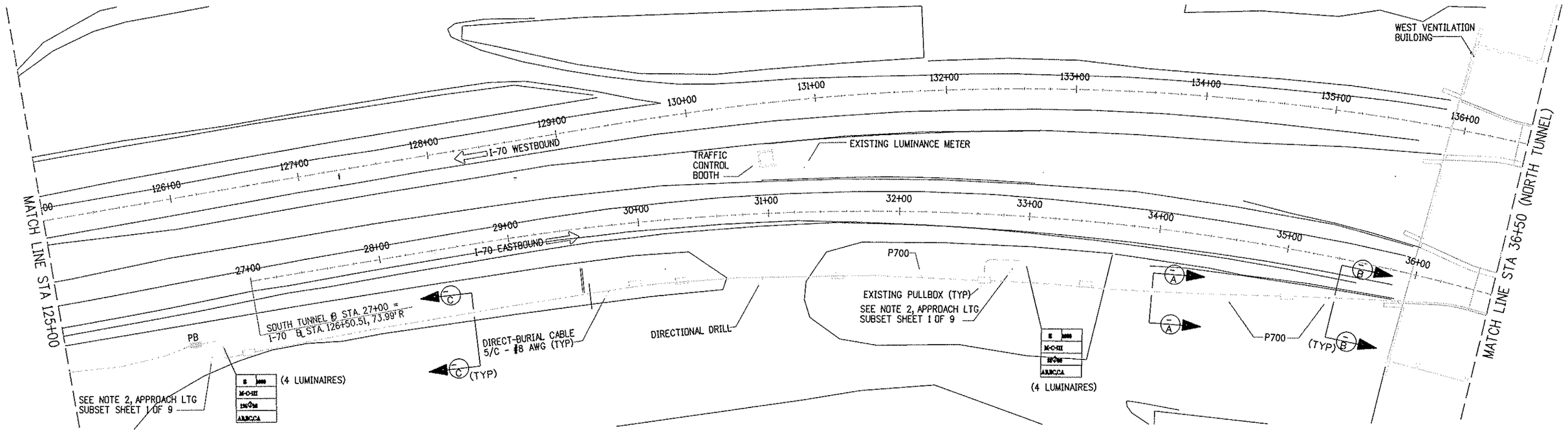

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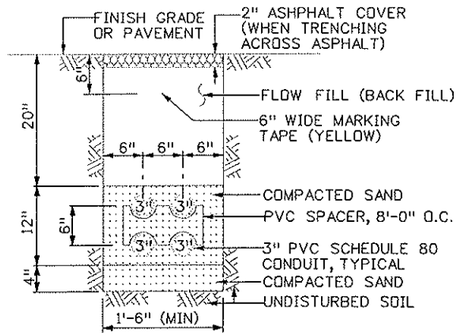
WEST APPROACH POWER & LIGHTING PLAN

Designer: J. WEAVER
Detailer: D. BURROUGHS
Sheet Subset: APPROACH LTG
Structure Numbers:
Subset Sheets: 4 OF 9

Project No./Code
IM 0703-269
13166
Sheet Number 61



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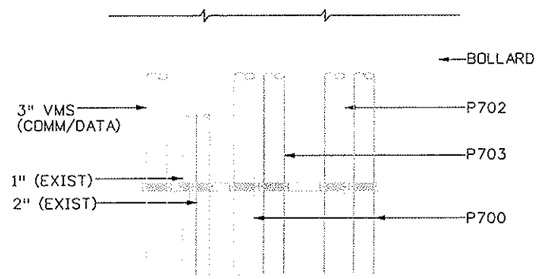

NOTE: RIGID GALVANIZED RISER CONDUITS.

SECTION B

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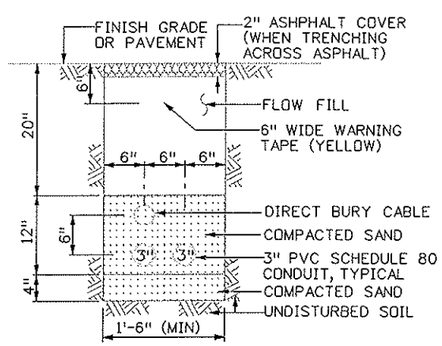

SECTION C

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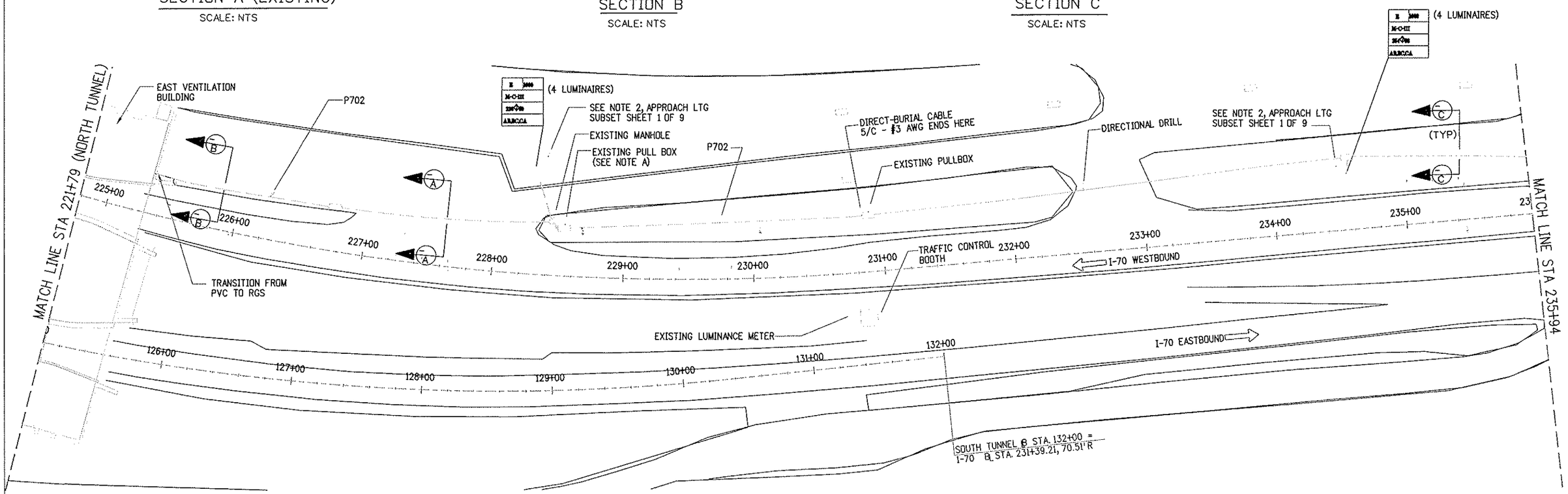
NOTES:

A. ROUTE CONDUIT BETWEEN EXISTING PULL BOX AND EXISTING MANHOLE TO PROVIDE LIGHTING CIRCUITS TO HIGHMAST LUMINAIRES AT STA.228+30



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Last Modification Date: 02/19/07	Initials: DJB				
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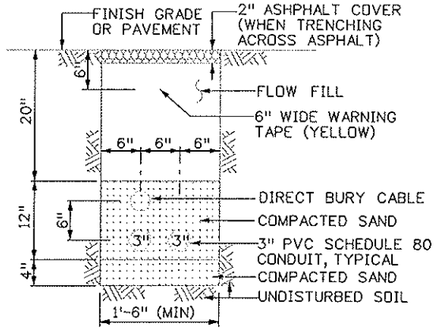
EAST APPROACH POWER & LIGHTING PLAN

Designer: J. T. Weaver
Detailer: D.J. Burroughs
Structure Numbers:
Sheet Subset: APPROACH LTG
Subset Sheets: 5 OF 9

Project No./Code
IM 0703-269
13166
Sheet Number 62



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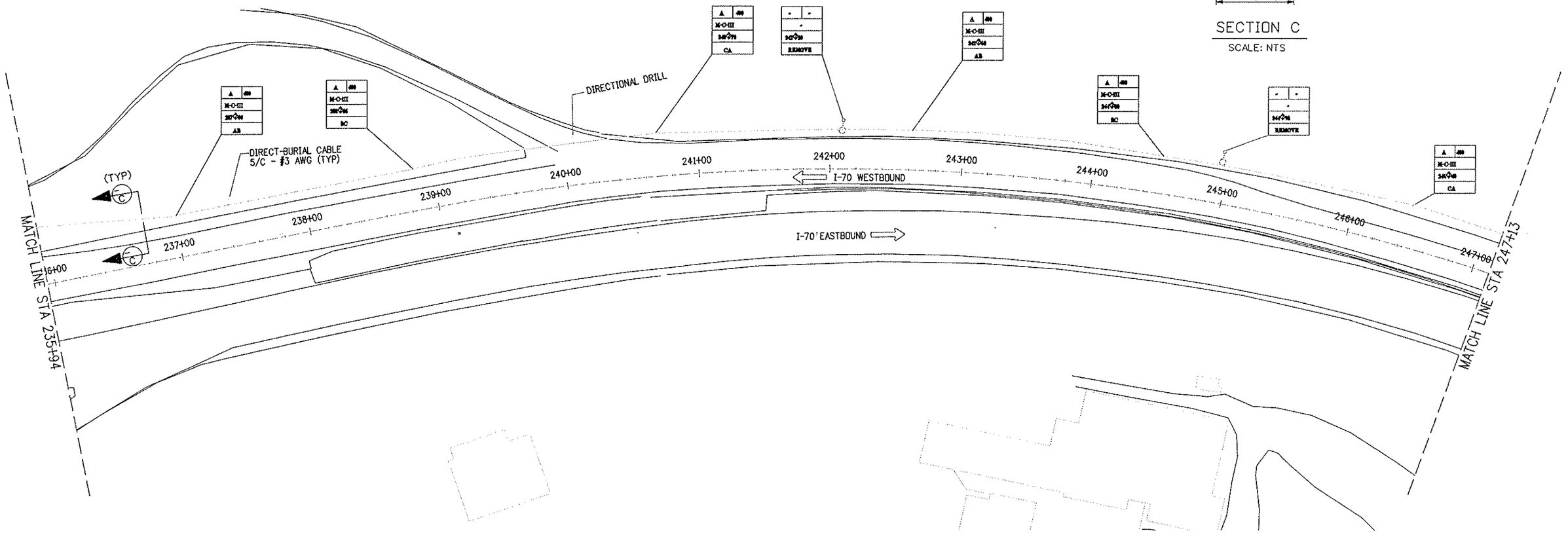

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EAST APPROACH POWER & LIGHTING PLAN

Designer:	J. T. Weaver	Structure Numbers	
Detailer:	D. J. Burroughs		
Sheet Subset: APPROACH LTG		Subset Sheets: 6 OF 9	

Project No./Code
IM 0703-269
13166
Sheet Number 63

SECTION C

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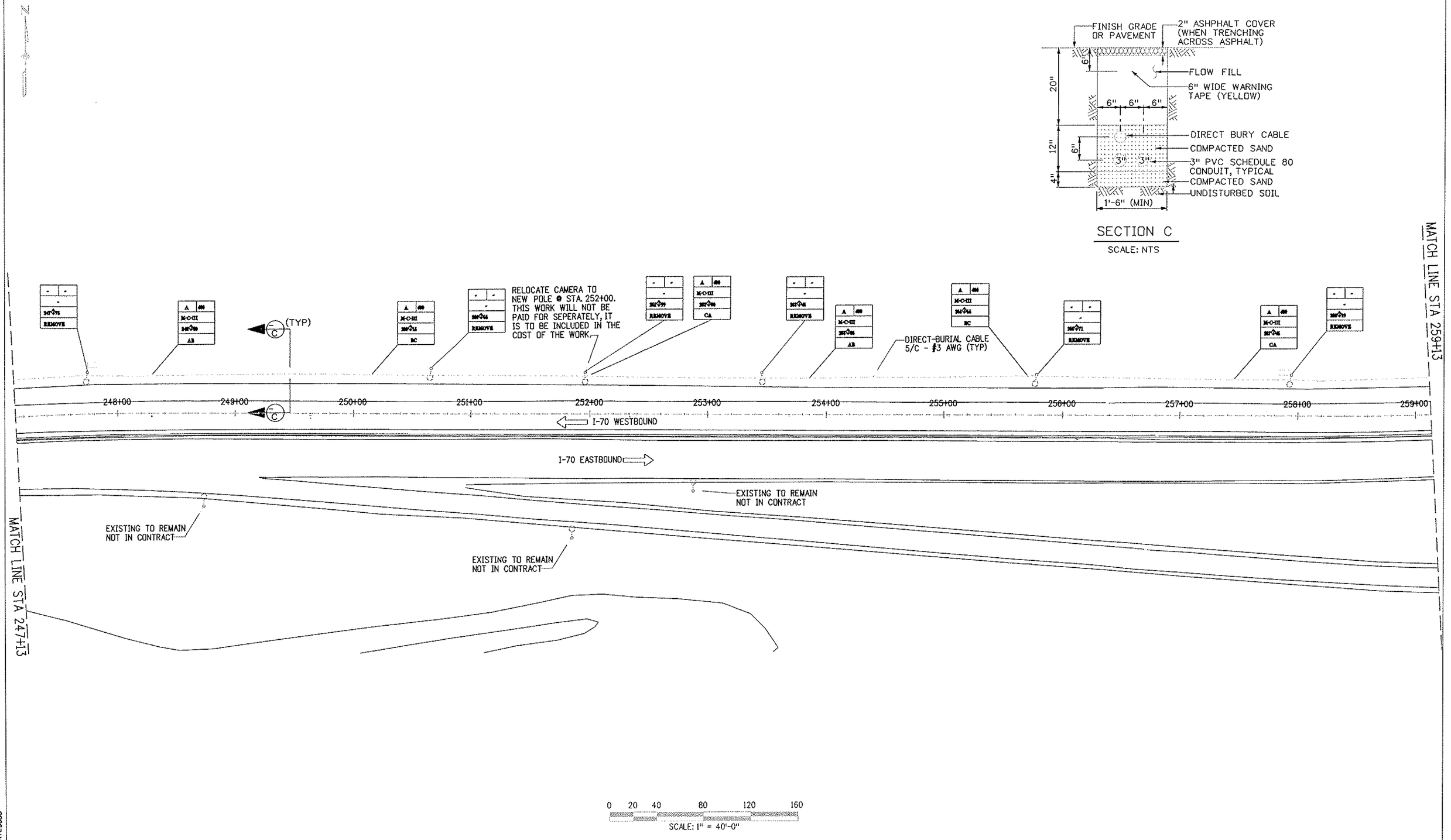

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Sheet Revisions		
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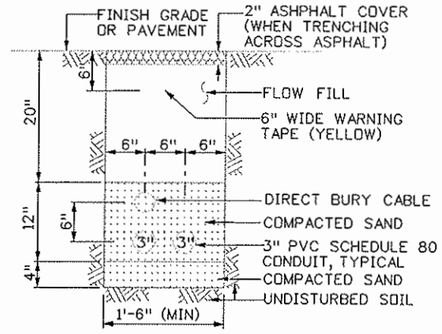
EAST APPROACH POWER & LIGHTING PLAN

Designer:	J. T. Weaver	Structure Numbers	
Detailer:	D. J. Burroughs		
Sheet Subset: APPROACH LTG		Subset Sheets: 7 OF 9	

Project No./Code
IM 0703-269
13166
Sheet Number 64



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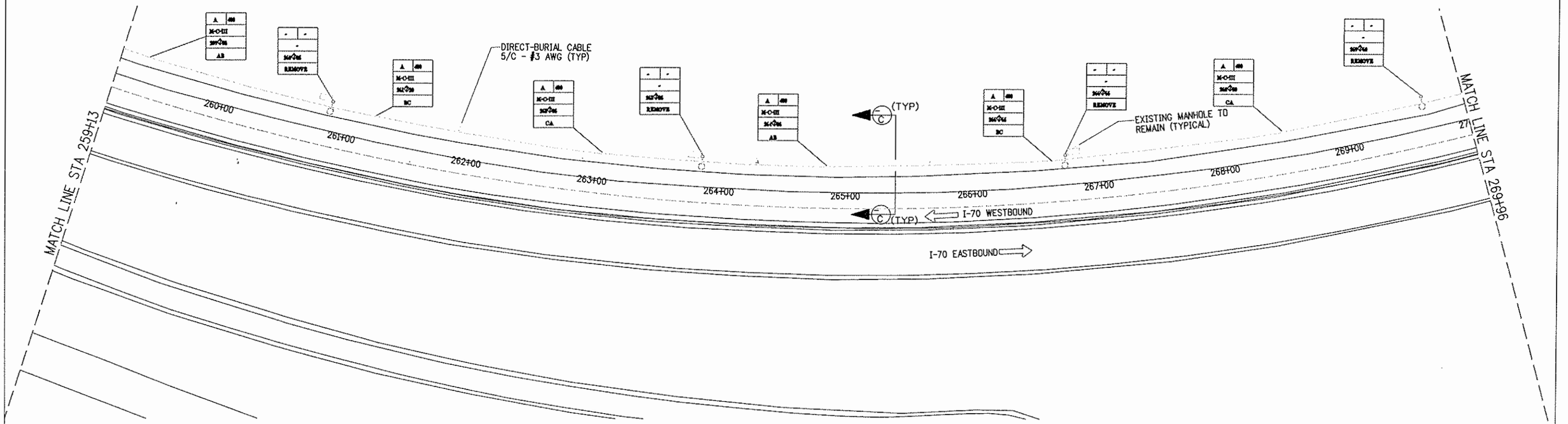

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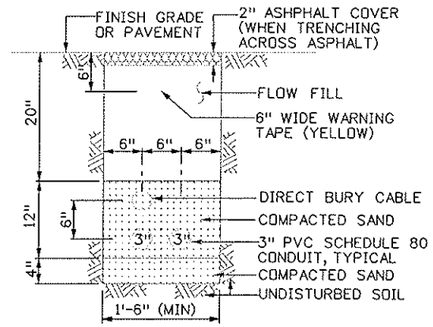
EAST APPROACH POWER & LIGHTING PLAN

Designer: J. T. Weaver
Detailer: D. J. Burroughs
Structure Numbers:
Sheet Subset: APPROACH LTG
Subset Sheets: 8 OF 9

Project No./Code
IM 0703-269
13166
Sheet Number 65



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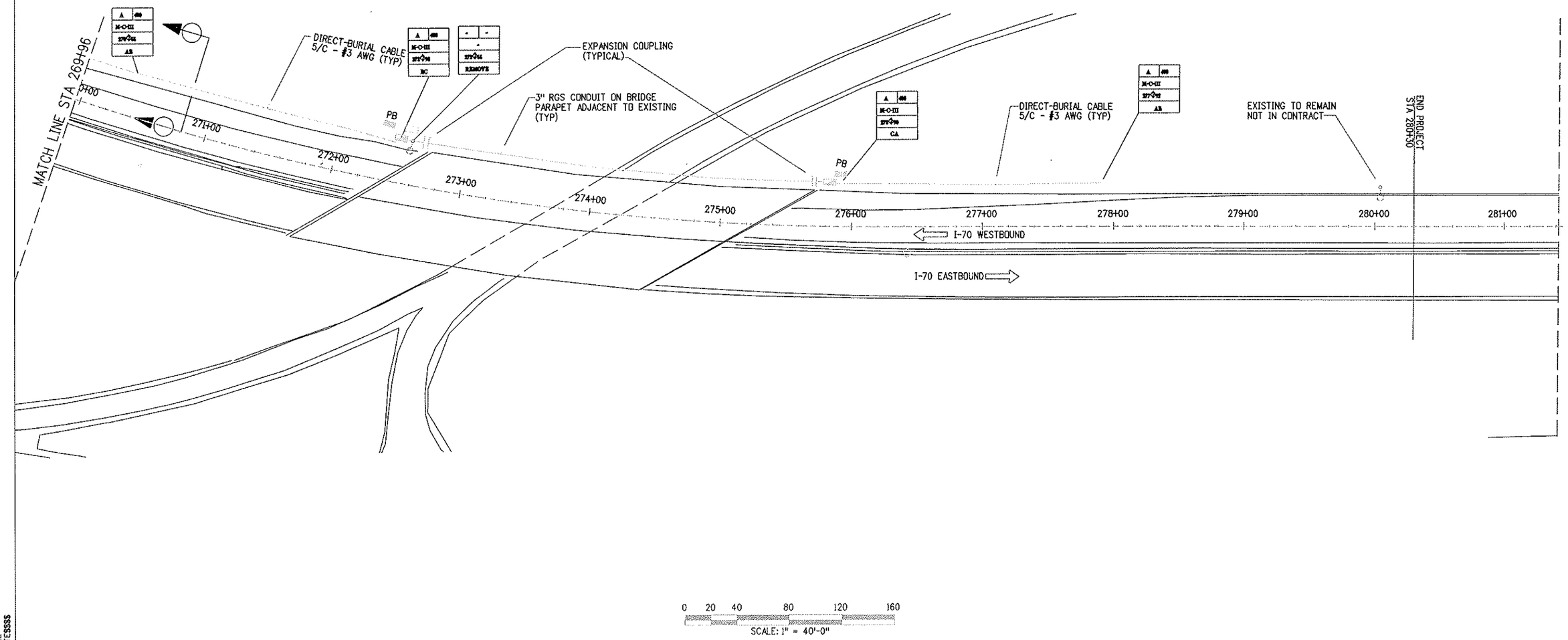

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Sheet Revisions		
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No Revisions:

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EAST APPROACH POWER & LIGHTING PLAN

Designer: J. T. Weaver
Detailer: D. J. Burroughs
Structure Numbers
Sheet Subset: APPROACH LTG
Subset Sheets: 9 OF 9

Project No./Code
IM 0703-269
13166
Sheet Number 66

TUNNEL POWER PLAN NOTES

1. THE MAIN OBJECTIVE SHALL BE TO MAINTAIN A FULLY FUNCTIONAL TUNNEL DURING CONSTRUCTION. ALL LIGHTING, VMS, LUS OR ELECTRICAL DISTRIBUTION SYSTEMS OR MOBILIZATION THAT REQUIRES LANE CLOSURE SHALL BE PERFORMED DURING OFF-PEAK TRAFFIC PERIODS AND COORDINATED WITH THE ENGINEER. SEE CONTRACT DOCUMENTS AND SPECIAL PROVISIONS FOR OTHER RESTRICTIONS.

2. PRIOR TO RE-OPENING OF A LANE TO TRAFFIC, ENSURE EQUIPMENT, DEVICES AND ANCHORAGE ARE SECURE AND MEET CLEARANCE REQUIREMENTS. CLEAN-UP SHALL BE PERFORMED CONTINUOUSLY AND SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS.

3. DRAWINGS REPRESENT DIAGRAMMATIC LOCATIONS AND APPROXIMATE QUANTITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES AND SHALL EXERCISE SUITABLE CARE TO AVOID DISRUPTION OR DAMAGE OF UTILITIES OR EQUIPMENT TO REMAIN IN SERVICE. REPAIR DAMAGE ACCORDING TO THE PROVISIONS.

4. REFER TO ELECTRICAL DRAWINGS TO COORDINATE SUITABLE PHASING OF DEMOLITION AND NEW CONSTRUCTION. IMMEDIATELY NOTIFY THE ENGINEER IF CONCEALED UTILITIES, CONDUIT OR CONDITIONS ARE DISCOVERED THAT WILL INHIBIT NEW CONSTRUCTION INDICATED ON THE CONTRACT DOCUMENTS. ACT TO RESOLVE THESE ISSUES AS EXPEDIENTLY AS POSSIBLE.

5. MAINTAIN EMERGENCY CIRCUITING UNTIL RAPID CHANGE-OVER TO NEW EMERGENCY CIRCUITING OCCURS. ALL TEMPORARY WIRING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE AND BE PRE-APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION. RE-LABEL ALL CIRCUIT BREAKERS WITH TEMPORARY OR PERMANENT REVISED LOAD DESCRIPTIONS AS REQUIRED.

6. RE-UTILIZE EXISTING PULLBOXES, CONDUIT OR PENETRATIONS WHERE SUITABLE, SUCH AS WHERE THE ELECTRICAL ROOM CONDUIT INTERFACES WITH THE TUNNEL.

7. INSTALL 3/4" RGS CONDUIT W/2#10 + 1 #10G DOWN FROM JB-P765 AND ACROSS SUPPLY AIR DUCT FLOOR. MOUNT FS TYPE BOX WITH COVER TO FLOOR WITH PROVISION TO EXTEND A FUTURE 3/4" RGS CONDUIT DOWN TO TUNNEL WALL. CORE DRILL (1"Ø) SUPPLY AIR DUCT FLOOR FOR FUTURE INSTALLATION OF A 3/4" RGS CONDUIT. CORE DRILL LOCATION TO BE DETERMINED BY ENGINEER.

8. CONNECT CONDUIT TO FLUORESCENT LIGHTING WIREWAY WHERE INDICATED ON TUNNEL POWER PLANS. WIREWAY IS CONTINUOUS AS SHOWN ON LIGHTING PLANS EXCEPT AT VMS SIGNS OR EQUIPMENT INTERRUPTIONS. ROUTE CONDUIT THROUGH ELECTRICAL ROOM WALL AND SEAL WITH FIRESTOP AND CONDUIT SEAL FITTING. END RIGID METAL CONDUIT IN THE INTERSTITIAL SPACE TO ALLOW LIQUIDTIGHT FLEXIBLE METAL CONDUIT TO CONTINUE UNSUPPORTED, 3' MAX, TO THE BACK OF THE FLUORESCENT WIREWAY. SEE TUNNEL LIGHTING DETAILS.

9. ROUTE CIRCUITS BETWEEN LUMINAIRES IN CONDUIT AT VMS SIGN LOCATIONS. PROVIDE 1 1/4" CONDUIT CONNECTING EACH OF THE CHANNELS OF THE WIREWAY, (2) 1 1/4" TOTAL, TRANSISTION FROM RGS TO POWER FEED ENTRY USING 1 1/4" LIQUIDTIGHT FLEXIBLE METAL CONDUIT. (UNLESS NOTED OTHERWISE MAKE ALL NECESSARY CONNECTIONS & SUPPORTS AS REQUIRED PER CODE).

10. ALL CONDUIT SHOWN ABOVE THE ROADWAY IN THE VENT BUILDING AREA SHALL BE ROUTED FROM THE TUNNEL CEILING, DROP AND TRAVEL IN NORTH-SOUTH DIRECTION IN THE INTERSTITAL SPACE AND INTO THE VENT BUILDING.

11. ALL CONDUITS AND PULLBOXES SHOWN ABOVE THE ROADWAY IN THE TUNNEL INTERIOR PAST THE PARTIAL INTERSTITIAL SPACE SHALL BE ROUTED WITHIN THE SUPPLY VENTILATION DUCT UNLESS SHOWN CROSSING INTO THE EXHAUST VENT DUCT (NORTH SIDE) OF THE NORTH TUNNEL.

12. CONNECT CONDUIT TO HID LIGHTING WIREWAY MOUNTED TO TUNNEL CEILING. ROUTE CONDUIT THROUGH ELECTRICAL ROOM WALL AND SEAL WITH FIRESTOP AND CONDUIT SEAL FITTING. END RIGID METAL CONDUIT IN THE INTERSTITIAL SPACE TO ALLOW LIQUIDTIGHT FLEXIBLE METAL CONDUIT, (3' MAX), TO CONTINUE UNSUPPORTED TO THE SIDE OF THE METAL HALIDE POWER FEED TYPE WIREWAY. SEE TUNNEL LIGHTING DETAILS. ROUTE ALL CONDUCTORS FOR HID LIGHTING TO END OF THE WIREWAY CONTROL ZONE IDENTIFIED.

13. ROUTE CONDUIT FROM SUPPLY VENTILATION DUCT TO CONDUIT AT TUNNEL CEILING FOR CIRCUITING HID LIGHTING. SEE TUNNEL LIGHTING DETAILS, SHEETS 3 AND 4.

14. ROUTE CIRCUIT FOR THERMAL DETECTION IN CONDUIT ALONG WALL ABOVE FLUORESCENT LIGHTING TO THE SURFACE MOUNTED TRANSMITTER JUNCTION BOX. ROUTE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FROM J-BOX TO FLUORESCENT RACEWAY. PROVIDE A NEMA 4X JUNCTION BOX, 6"x4"x4" STAINLESS STEEL WITH HINGED COVER, AND INSTALL TRANSMITTER WITHIN AS REQUIRED.

15. ASBESTOS ABATEMENT PROCEDURES SHALL BE UTILIZED IN THE VENTILATION BUILDING FIRST FLOOR AREA & CONTROL ROOM CEILINGS. TEST OTHER AREAS THAT MAY BE SUSPECT AND PROVIDE A WRITTEN REPORT OF FINDINGS TO THE ENGINEER AND SHALL BE HANDLED IN ACCORDANCE TO SECTION 250 OF THE SPECIFICATIONS.

16. LOW LEVEL LEAD CONTAMINATION MAY BE PRESENT IN VENTILATION DUCTS AND SHALL BE HANDLED IN ACCORDANCE TO SECTION 250 OF THE SPECIFICATIONS.

17. CONNECT CONDUIT FROM POWER FEED TYPE WIREWAY AND ROUTE ON STRUT BETWEEN HID LUMINAIRES. SEE TUNNEL LIGHTING DETAILS.

18. WHERE HID LUMINAIRES ARE SPACED AT 5'-0" ON CENTER, TERMINATE ONLY TO ALTERNATE WIREWAY TYPE 'M' RECEPTACLES WHERE LUMINAIRE IS INDICATED.

19. TERMINATE LUS SIGN POWER AND CONTROL CONDUCTORS TO RECEPTACLES AS INDICATED ON SIGN CONNECTION DETAILS OF VMS SUBSET.

20. CONDUIT PENETRATION THROUGH CONCRETE TUNNEL CEILING AND VENTILATION DUCT CENTER WALL SHALL BE SEALED WITH NON-SHRINK GROUT TO MAINTAIN CEILING OR WALL FIRE RATING.

21. SUPPORTS FOR CONDUITS AND BOXES LOCATED IN THE VENTILATION DUCTS SHALL BE DESIGNED TO WITHSTAND 100 MILE-PER-HOUR WIND SPEEDS.

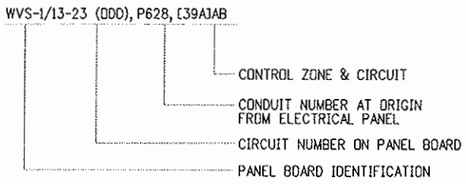
22. REFERENCE VB ELECT SUBSET SHEET 19 "ELECT CIRCUIT SCHEDULES, SHEET 2" FOR SERIES 600 CONTROL CONDUIT AND WIRE (OR CABLE) DESRIPTIONS AND ROUTING.

23. REFERENCE TUN. POWER SUBSET SHEETS 5 (6,7, & 8) "TUNNEL CIRCUIT SCHEDULES, SHEET 1 (2,3 & 4)" FOR POWER CONDUIT AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING WITHIN TUNNEL.

24. REFERENCE VB ELECT SUBSET SHEET 18 "ELECT CIRCUIT SCHEDULES, SHEET 1" FOR P670 THROUGH P712 CONDUIT AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING.

QUANTITIES - NORTH TUNNEL POWER

CONTRACT ITEM NUMBER	CONTRACT ITEM	UNIT	ROADWAY	
			PLAN	AS CONST.
613	3/4" ELECTRICAL CONDUIT	LF	500	
613	1" ELECTRICAL CONDUIT	LF	40,000	
613	1 1/4" ELECTRICAL CONDUIT (LIQUIDTIGHT FLEXIBLE METAL)	LF	400	
613	1 1/4" ELECTRICAL CONDUIT	LF	18,000	
613	1 1/2" ELECTRICAL CONDUIT	LF	17,500	
613	2" ELECTRICAL CONDUIT	LF	600	
613	3" ELECTRICAL CONDUIT	LF	46,600	
613	3" ELECTRICAL CONDUIT (LIQUIDTIGHT FLEXIBLE METAL)	LF	20	
613	2 1/2" ELECTRICAL CONDUIT (LIQUIDTIGHT FLEXIBLE METAL)	LF	50	
613	2" ELECTRICAL CONDUIT BODY (TYPE TEE)	EACH	84	
613	3" ELECTRICAL CONDUIT BODY (TYPE BUB)	EACH	8	
613	3" ELECTRICAL CONDUIT BODY (TYPE LB)	EACH	4	
613	PULL BOX (16"x24"x12") DEEP	EACH	38	
613	PULL BOX (24"x20"x12") DEEP	EACH	8	
613	PULL BOX (24"x24"x12") DEEP	EACH	8	
613	PULL BOX (24"x16"x24") DEEP	EACH	4	
613	PULL BOX (36"x16"x12") DEEP	EACH	4	
613	PULL BOX (28"x28"x12") DEEP	EACH	2	
613	PULL BOX (32"x24"x12") DEEP	EACH	14	
613	PULL BOX (37"x37"x12") DEEP	EACH	2	
613	POWER TRANSFORMER (150KVA,2400-480V,3 PHASE)	EACH	8	
613	PANELBOARD (5KVA MINI-LOAD CENTER)	EACH	11	
613	PANELBOARD (225A, 277/480V, 3-PHASE)	EACH	8	
613	EXHAUST FAN	EACH	4	
613	LUMINAIRE HIGH PRESSURE SODIUM (TYPE B)	EACH	352	



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Sheet Revisions		
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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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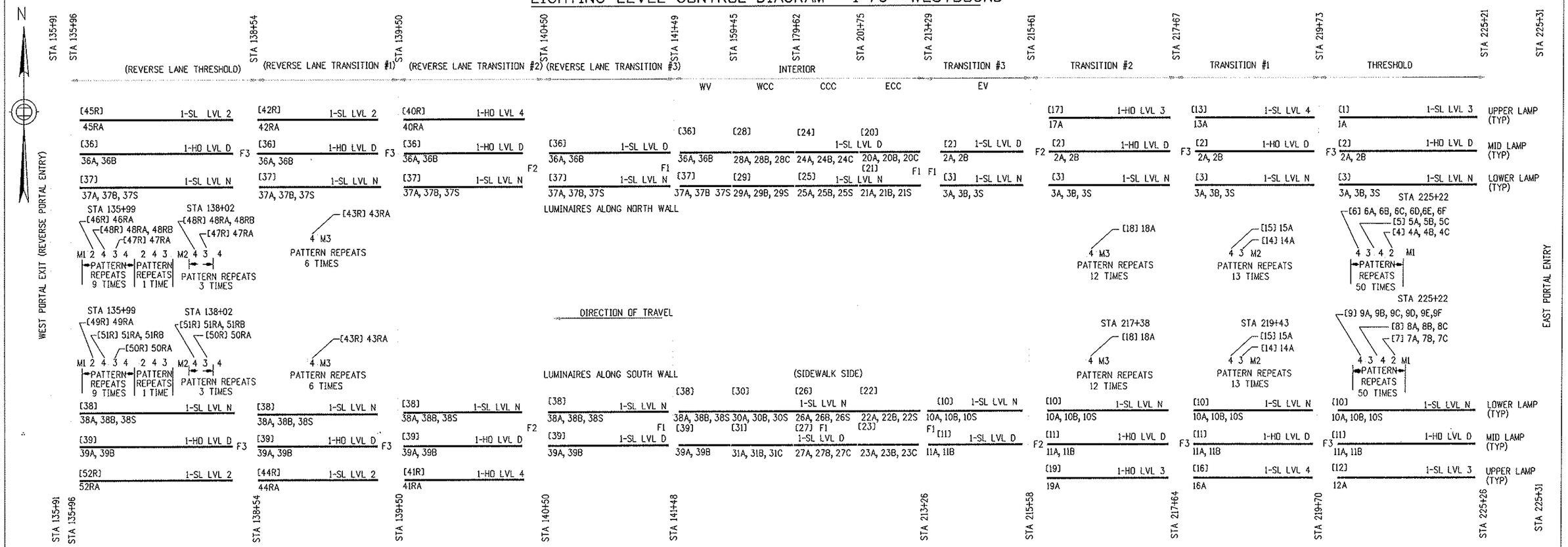
TUNNEL POWER PLAN NOTES & QUANTITIES

Designer: J. WALSH
Detailer: R RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers:
Subset Sheets: 1 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 67

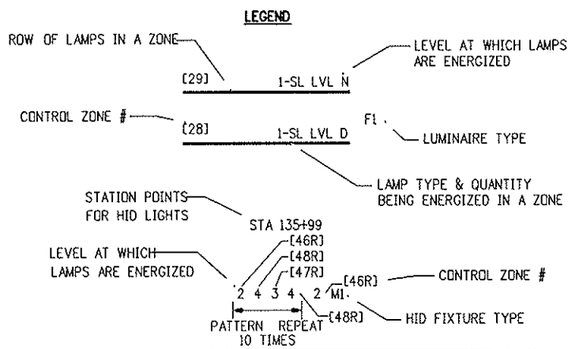
LIGHTING LEVEL CONTROL DIAGRAM - I-70 WESTBOUND



SENSOR SETTINGS (cd/m²) (I-70 W BD)

LEVEL	ON INCREASING DAYLIGH	OFF DECREASING DAYLIGHT	%
4	4000	3800	100
3	800	700	40
2	200	180	22
D	50	35	5
NIGHT	0 TO 50		4

LEGEND



TUNNEL LIGHTING SWITCHING TABLE

CONTROL ZONE / NOTE	LEVEL 4	LEVEL 3	LEVEL 2	LEVEL D	LEVEL N
1	ON	ON	OFF	OFF	OFF
2/a	ON	ON	ON	ON	OFF
3/a	ON	ON	ON	ON	ON
4	ON	ON	ON	OFF	OFF
5	ON	ON	OFF	OFF	OFF
6	ON	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	ON	ON	OFF	OFF	OFF
9	ON	OFF	OFF	OFF	OFF
10/a	ON	ON	ON	ON	ON
11/a	ON	ON	ON	ON	OFF
12	ON	ON	OFF	OFF	OFF
13	ON	OFF	OFF	OFF	OFF
14	ON	ON	OFF	OFF	OFF
15	ON	OFF	OFF	OFF	OFF
16	ON	OFF	OFF	OFF	OFF
17	ON	ON	OFF	OFF	OFF
18	ON	OFF	OFF	OFF	OFF
19	ON	ON	OFF	OFF	OFF
20/a	ON	ON	ON	ON	OFF
21/a	ON	ON	ON	ON	ON
22/a	ON	ON	ON	ON	ON
23/a	ON	ON	ON	ON	OFF
24/a	ON	ON	ON	ON	OFF
25/a	ON	ON	ON	ON	ON
26/a	ON	ON	ON	ON	ON
27/a	ON	ON	ON	ON	OFF
28/a	ON	ON	ON	ON	OFF
29/a	ON	ON	ON	ON	ON
30/a	ON	ON	ON	ON	ON
31/a	ON	ON	ON	ON	OFF
32/c	-	-	-	-	-
33/c	-	-	-	-	-
34/c	-	-	-	-	-
35/c	-	-	-	-	-
36/a	ON	ON	ON	ON	OFF
37/a	ON	ON	ON	ON	ON
38/a	ON	ON	ON	ON	ON
39/a	ON	ON	ON	ON	OFF
40/b	ON	OFF	OFF	OFF	OFF
41/b	ON	OFF	OFF	OFF	OFF
42/b	ON	ON	ON	OFF	OFF
43/b	ON	OFF	OFF	OFF	OFF
44/b	ON	ON	ON	OFF	OFF
45/b	ON	ON	ON	OFF	OFF
46/b	ON	ON	ON	OFF	OFF
47/b	ON	ON	OFF	OFF	OFF
48/b	ON	OFF	OFF	OFF	OFF
49/b	ON	ON	ON	OFF	OFF
50/b	ON	ON	OFF	OFF	OFF
51/b	ON	OFF	OFF	OFF	OFF
52/b	ON	ON	ON	OFF	OFF

SWITCHING TABLE NOTES:

A. CONTROL ZONES WITH AN "A" DESIGNATED WILL BE ALTERNATELY ENERGIZED AT NIGHT.

B. ALL LUMINAIRES WITH THE SAME SWITCH LEVEL DESIGNATED AS SHOWN ON THE DRAWING ARE ENERGIZED TOGETHER PART OF A SINGLE ZONE.

C. CONTROL ZONES WITH AN "R" DESIGNATED ARE ENERGIZED DURING REVERSE LANE OPERATION ONLY "R" OR "C".

D. INTERIOR ZONE POWER IS SERVED FROM 4 SEPERATE ELECTRICAL ROOM LOCATIONS.

E. CONTROL ZONES WITH AN "E" DESIGNATION ARE NOT USED.

1 / B3 NORTH TUNNEL LIGHTING CONTROL

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Computer File Information			
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Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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No Revisions:
Revised:
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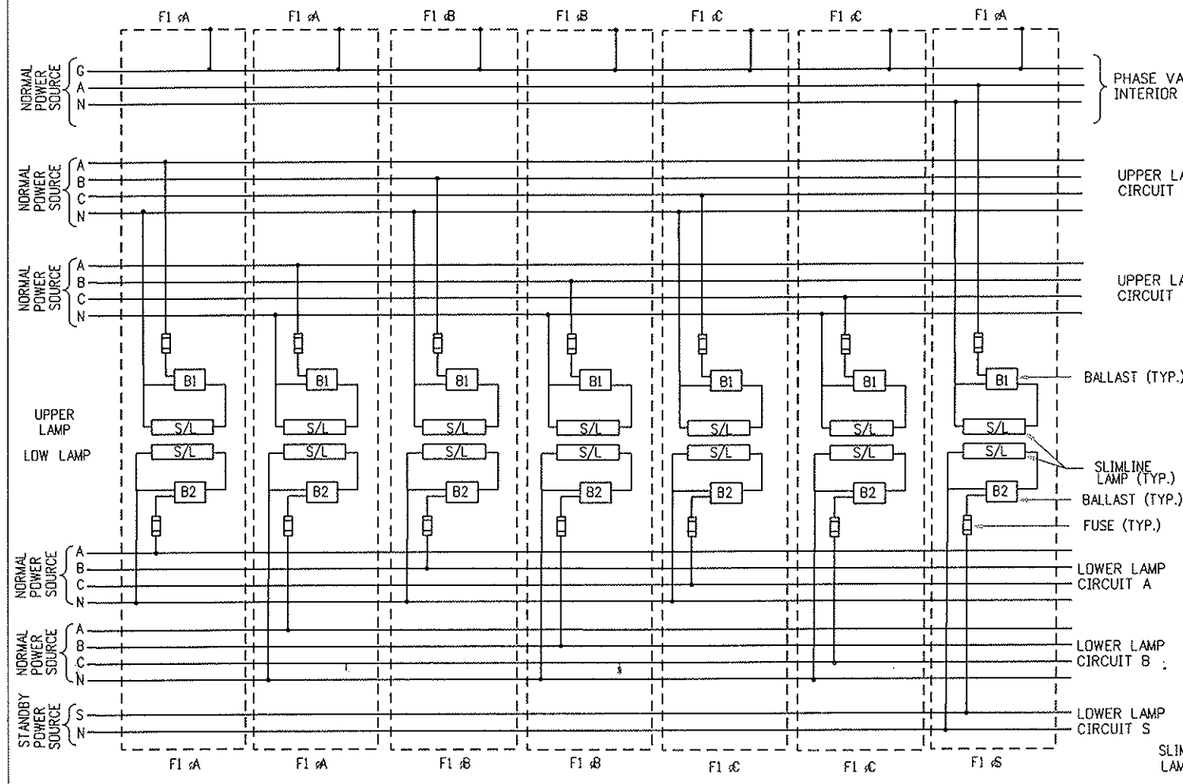
NORTH TUNNEL LIGHTING CONTROL DIAGRAM

Designer: K. MOLLOY
Detailer: D. BURROUGHS
Sheet Subset: TLCS
Structure Numbers:
Subset Sheets: 1 of 12

Project No./Code
IM 0703-269
13166
Sheet Number 68



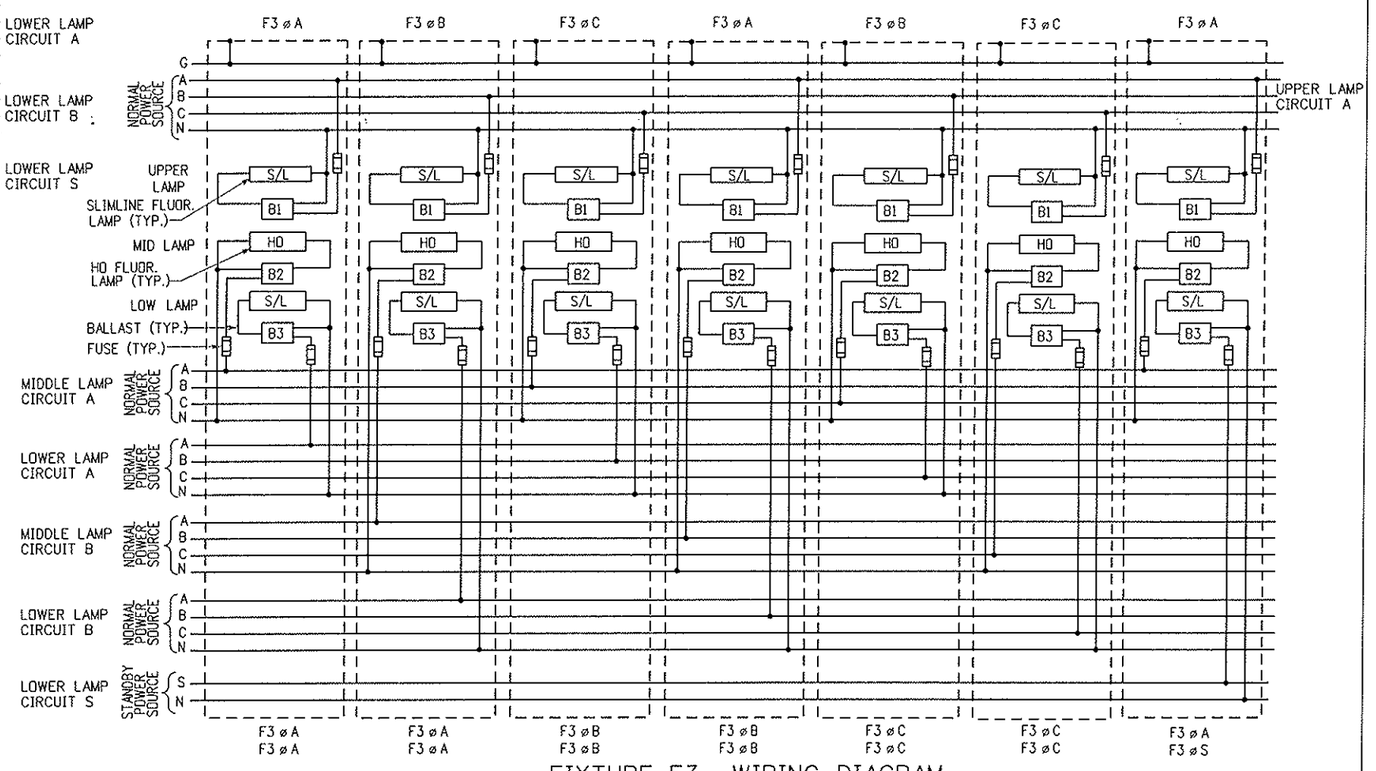
FIXTURE F1 WIRING DIAGRAM

NOTES:

A. THE LOWER FLUORESCENT LAMP IN EVERY SEVENTH FIXTURE SHALL BE ON THE STANDBY (S) CIRCUIT. CIRCUITING SEQUENCE SHALL BE AS SHOWN BELOW AND REPEATED.

B. ON OPPOSITE WALL OF TUNNEL, STAGGER THE LOCATION OF THE LAMP CONNECTED TO THE STANDBY CIRCUIT.

C. SEE CONDUIT SCHEDULES FOR THE CIRCUIT NUMBER AND PHASE FOR EACH INTERIOR ZONE. THIS SINGLE PHASE CIRCUIT IS NOT USED IN THE FIXTURE TYPE F1 FED FROM THE VENT BUILDINGS, BETWEEN STATIONS 140+50 TO 159+45 AND 213+26 TO 215+58. IN THOSE LOCATIONS, CONNECT THE UPPER LAMP TO THE NEXT 3-PHASE LEG IN SEQUENCE.



FIXTURE F3 WIRING DIAGRAM

(FIXTURE F2 WIRING DIAGRAM SAME EXCEPT UPPER LAMP TYPE IS "HO")

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Last Modification Date:	01◇01◇02	Initials:	DJR
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TUNNEL LIGHTING FLUORESCENT TERMINATIONS DIAGRAM

Designer: J WALSH
Detailer: D. BURROUGHS
Structure Numbers
Sheet Subset: TUN POWER
Subset Sheets: 3 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 69

HID LUMINAIRE TERMINATION SCHEDULE - NORTH TUNNEL

THRESHOLD ZONE							
STATION 225+21/225+26, BEGIN TERMINATION SEQUENCE WESTWARD (NORTH/SOUTH)							
SOUTH ROW HID				NORTH ROW HID			
LTG LVL	LUMINAIRE/ CONTROL ZONE NO.	PANEL NO./ CIRCUIT NO.	INPUT LOAD (VA)	LUMINAIRE/ CONTROL ZONE NO.	PANEL NO./ CIRCUIT NO.	INPUT LOAD (VA)	LTG LVL
2	1 M1 [7]A	EV-1/2	510	1 M1 [4]A	EV-1/25	510	2
4	2 M1 [9]A	EV-3/37	510	2 M1 [6]A	EV-3/1	510	4
3	3 M1 [8]A	EV-2/31	510	3 M1 [5]A	EV-2/13	510	3
4	4 M1 [9]B	EV-3/2	510	4 M1 [6]B	EV-3/7	510	4
2	5 M1 [7]B	EV-1/8	510	5 M1 [4]B	EV-1/31	510	2
4	6 M1 [9]C	EV-3/8	510	6 M1 [6]C	EV-3/13	510	4
3	7 M1 [8]B	EV-2/37	510	7 M1 [5]B	EV-2/19	510	3
4	8 M1 [9]D	EV-3/14	510	8 M1 [6]D	EV-3/19	510	4
2	9 M1 [7]C	EV-1/14	510	9 M1 [4]C	EV-1/37	510	2
4	10 M1 [9]E	EV-3/20	510	10 M1 [6]E	EV-3/25	510	4
3	11 M1 [8]C	EV-2/2	510	11 M1 [5]C	EV-2/25	510	3
4	12 M1 [9]F	EV-3/26	510	12 M1 [6]F	EV-3/31	510	4
2	13 M1 [7]A	EV-1/4	510	13 M1 [4]A	EV-1/27	510	2
4	14 M1 [9]A	EV-3/39	510	14 M1 [6]A	EV-3/3	510	4
3	15 M1 [8]A	EV-2/33	510	15 M1 [5]A	EV-2/15	510	3
4	16 M1 [9]B	EV-3/4	510	16 M1 [6]B	EV-3/9	510	4
2	17 M1 [7]B	EV-1/10	510	17 M1 [4]B	EV-1/33	510	2
4	18 M1 [9]C	EV-3/10	510	18 M1 [6]C	EV-3/15	510	4
3	19 M1 [8]B	EV-2/39	510	19 M1 [5]B	EV-2/21	510	3
4	20 M1 [9]D	EV-3/16	510	20 M1 [6]D	EV-3/21	510	4
2	21 M1 [7]C	EV-1/16	510	21 M1 [4]C	EV-1/39	510	2
4	22 M1 [9]E	EV-3/22	510	22 M1 [6]E	EV-3/27	510	4
3	23 M1 [8]C	EV-2/4	510	23 M1 [5]C	EV-2/27	510	3
4	24 M1 [9]F	EV-3/28	510	24 M1 [6]F	EV-3/33	510	4
2	25 M1 [7]A	EV-1/6	510	25 M1 [4]A	EV-1/29	510	2
4	26 M1 [9]A	EV-3/41	510	26 M1 [6]A	EV-3/5	510	4
3	27 M1 [8]A	EV-2/35	510	27 M1 [5]A	EV-2/17	510	3
4	28 M1 [9]B	EV-3/6	510	28 M1 [6]B	EV-3/11	510	4
2	29 M1 [7]B	EV-1/12	510	29 M1 [4]B	EV-1/35	510	2
4	30 M1 [9]C	EV-3/12	510	30 M1 [6]C	EV-3/17	510	4
3	31 M1 [8]B	EV-2/41	510	31 M1 [5]B	EV-2/23	510	3
4	32 M1 [9]D	EV-3/18	510	32 M1 [6]D	EV-3/23	510	4
2	33 M1 [7]C	EV-1/18	510	33 M1 [4]C	EV-1/41	510	2
4	34 M1 [9]E	EV-3/24	510	34 M1 [6]E	EV-3/29	510	4
3	35 M1 [8]C	EV-2/6	510	35 M1 [5]C	EV-2/29	510	3
4	36 M1 [9]F	EV-3/30	510	36 M1 [6]F	EV-3/35	510	4

ABOVE CIRCUITING PATTERN REPEATS TO END OF ZONE

HID LUMINAIRE TERMINATION SCHEDULE - NORTH TUNNEL

TRANSITION ZONE #1							
STATION 219+73/219+70, BEGIN TERMINATION SEQUENCE WESTWARD (NORTH/SOUTH)							
SOUTH ROW HID				NORTH ROW HID			
LTG LVL	LUMINAIRE/ CONTROL ZONE NO.	PANEL NO./ CIRCUIT NO.	INPUT LOAD (VA)	LUMINAIRE/ CONTROL ZONE NO.	PANEL NO./ CIRCUIT NO.	INPUT LOAD (VA)	LTG LVL
3	3 M2 [14]A	EV-2/8	325	2 M2 [14]A	EV-2/8	325	3
4	5 M2 [15]A	EV-1/20	325	4 M2 [15]A	EV-1/20	325	4
3	7 M2 [14]A	EV-2/10	325	6 M2 [14]A	EV-2/10	325	3
4	9 M2 [15]A	EV-1/22	325	8 M2 [15]A	EV-1/22	325	4
3	11 M2 [14]A	EV-2/12	325	10 M2 [14]A	EV-2/12	325	3
4	13 M2 [15]A	EV-1/24	325	12 M2 [15]A	EV-1/24	325	4

TRANSITION ZONE #2							
STATION 217+67/217+64, BEGIN TERMINATION SEQUENCE WESTWARD (NORTH/SOUTH)							
4	3 M3 [18]A	EV-1/26	132	2 M3 [18]A	EV-1/26	132	4
4	5 M3 [18]A	EV-1/28	132	4 M3 [18]A	EV-1/28	132	4
4	7 M3 [18]A	EV-1/30	132	6 M3 [18]A	EV-1/30	132	4

ABOVE CIRCUITING PATTERNS REPEAT TO END OF ZONES

LUMINAIRE / CONTROL ZONE NO. LEGEND

20 M1 [9] D

- MODIFIER (CIRCUIT GROUP) IF MORE THAN ONE CONTACTOR/HOA APPLIES PER CONTROL ZONE
- CONTROL ZONE NUMBER
- FIXTURE TYPE
- FIXTURE NUMBER DESIGNATION

NOTES:

A. FIXTURE LABEL SHALL INCLUDE: FIXTURE TYPE, CONTROL ZONE NUMBER AND ZONE CONTACTOR MODIFIER (CIRCUIT GROUP).

B. INSTALL PERMANENT LABEL ON THE BODY OF THE WIREWAY AND READABLE FROM WALKING BELOW.

C. LABELING SYSTEM INDICATED ON THIS SHEET APPLIES ALSO TO THE FLUORESCENT WIREWAY. CONTRACTOR SHALL SUBMIT A COMPLETE TERMINATION SCHEDULE FOR NORTH TUNNEL FLOURECENT AND H.I.D. LUMINAIRES.

HID LUMINAIRE TERMINATION SCHEDULE - NORTH TUNNEL

REVERSE LANE TRANSITION ZONE #1							
STATION 139+50, BEGIN TERMINATION SEQUENCE WESTWARD							
SOUTH ROW HID				NORTH ROW HID			
LTG LVL	LUMINAIRE/ CONTROL ZONE NO.	PANEL NO./ CIRCUIT NO.	INPUT LOAD (VA)	LUMINAIRE/ CONTROL ZONE NO.	PANEL NO./ CIRCUIT NO.	INPUT LOAD (VA)	LTG LVL
4	3 M3 [43R]A	WV-1/25	132	2 M3 [43R]A	WV-1/25	132	4
4	5 M3 [43R]A	WV-1/27	132	4 M3 [43R]A	WV-1/27	132	4
4	7 M3 [43R]A	WV-1/29	132	6 M3 [43R]A	WV-1/29	132	4
4	9 M3 [43R]A	WV-1/25	132	8 M3 [43R]A	WV-1/25	132	4
4	11 M3 [43R]A	WV-1/27	132	10 M3 [43R]A	WV-1/27	132	4
4	13 M3 [43R]A	WV-1/29	132	12 M3 [43R]A	WV-1/29	132	4
REVERSE LANE THRESHOLD							
STATION 138+54, BEGIN TERMINATION SEQUENCE WESTWARD							
4	2 M2 [51R]A	WV-1/26	325	2 M2 [48R]A	WV-1/2	325	4
3	4 M2 [50R]A	WV-1/20	325	4 M2 [47R]A	WV-1/37	325	3
4	6 M2 [51R]B	WV-1/32	325	6 M2 [48R]B	WV-1/8	325	4
3	8 M2 [50R]A	WV-1/22	325	8 M2 [47R]A	WV-1/39	325	3
4	10 M2 [51R]A	WV-1/28	325	10 M2 [48R]A	WV-1/4	325	4
3	12 M2 [50R]A	WV-1/24	325	12 M2 [47R]A	WV-1/41	325	3
4	14 M2 [51R]B	WV-1/34	325	14 M2 [48R]B	WV-1/10	325	4
STATION 138+02, BEGIN TERMINATION SEQUENCE WESTWARD							
2	16 M1 [49R]A	WV-1/14	510	16 M1 [46R]A	WV-1/31	510	2
4	18 M1 [51R]A	WV-1/30	510	18 M1 [48R]A	WV-1/6	510	4
3	20 M1 [50R]A	WV-1/20	510	20 M1 [47R]A	WV-1/37	510	3
4	22 M1 [51R]B	WV-1/36	510	22 M1 [48R]B	WV-1/12	510	4
2	24 M1 [49R]A	WV-1/16	510	24 M1 [46R]A	WV-1/33	510	2
4	26 M1 [51R]A	WV-1/26	510	26 M1 [48R]A	WV-1/2	510	4
3	28 M1 [50R]A	WV-1/22	510	28 M1 [47R]A	WV-1/39	510	3
4	30 M1 [51R]B	WV-1/32	510	30 M1 [48R]B	WV-1/8	510	4
2	32 M1 [49R]A	WV-1/18	510	32 M1 [46R]A	WV-1/35	510	2
4	34 M1 [51R]A	WV-1/28	510	34 M1 [48R]A	WV-1/4	510	4
3	36 M1 [50R]A	WV-1/24	510	36 M1 [47R]A	WV-1/41	510	3
4	38 M1 [51R]B	WV-1/34	510	38 M1 [48R]B	WV-1/10	510	4
2	40 M1 [49R]A	WV-1/14	510	40 M1 [46R]A	WV-1/31	510	2
4	42 M1 [51R]A	WV-1/30	510	42 M1 [48R]A	WV-1/6	510	4
3	44 M1 [50R]A	WV-1/20	510	44 M1 [47R]A	WV-1/37	510	3
4	46 M1 [51R]B	WV-1/36	510	46 M1 [48R]B	WV-1/12	510	4
2	48 M1 [49R]A	WV-1/16	510	48 M1 [46R]A	WV-1/33	510	2

ABOVE CIRCUITING (BEGINNING AT STA. 138+02) PATTERN CONTINUES TO PORTAL

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:		Initials:	
Last Modification Date:	01/31/02	Initials:	DJR
Full Path:	14102\700CADD\703elect		
Drawing File Name:	1021a01L4		
Acad Ver. R14	Scale:	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

Colorado Department of Transportation
DOT
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

TUNNEL LIGHTING H.I.D. TERMINATIONS DIAGRAM

Designer: J. WALSH		Structure Numbers	
Detailer: R RODDENBERRY			
Sheet Subset: TUN POWER	Subset Sheets: 4 of 45		

Project No./Code
IM 0703-269
13166
Sheet Number 70

ZONE	CIRCUIT GROUP	NO.	SIZE (IN) & KIND	QTY.	SIZE & TYPE (AWG-kcmil)	FROM	TO
27	27A	P619A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CNCW-1 No. 3	SOUTH WALL FLUOR WIREWAY
27	27B			4	10-1/C 600	CONT. CAB. CNCW-1 No. 4	SOUTH WALL FLUOR WIREWAY
27	27C			2	10-1/C 600	CONT. CAB. CNCW-1 No. 5	SOUTH WALL FLUOR WIREWAY
31	31A	P620	1 59/64" RGS	4	10-1/C 600	PNL NWS-1 CKT 1, 3, 5	CONT. CAB. CNW-1 No. 10
31	31B			4	10-1/C 600	PNL NWS-1 CKT 7, 9, 11	CONT. CAB. CNW-1 No. 11
31	31C			2	10-1/C 600	PNL NWS-1 CKT 13	CONT. CAB. CNW-1 No. 12
28	28A	P620A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CNW-1 No. 1	NORTH WALL FLUOR WIREWAY
28	28B			4	10-1/C 600	CONT. CAB. CNW-1 No. 2	NORTH WALL FLUOR WIREWAY
28	28C			2	10-1/C 600	CONT. CAB. CNW-1 No. 3	NORTH WALL FLUOR WIREWAY
30	30A	P621	1 59/64" RGS	4	10-1/C 600	PNL NWS-1 CKT 19, 21, 23	CONT. CAB. CNW-1 No. 7
30	30B			4	10-1/C 600	PNL NWS-1 CKT 25, 27, 29	CONT. CAB. CNW-1 No. 8
29	29S			2	10-1/C 600	PNL NWS-1 CKT 15	CONT. CAB. CNW-1 No. 6
30	30S			2	10-1/C 600	PNL NWS-1 CKT 17	CONT. CAB. CNW-1 No. 9
29	29A	P621A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CNW-1 No. 4	NORTH WALL FLUOR WIREWAY
29	29B			4	10-1/C 600	CONT. CAB. CNW-1 No. 5	NORTH WALL FLUOR WIREWAY
29	29S			2	10-1/C 600	CONT. CAB. CNW-1 No. 6	NORTH WALL FLUOR WIREWAY
29	29A	P622	1 59/64" RGS	4	10-1/C 600	PNL NWN-1 CKT 2, 4, 6	CONT. CAB. CNW-1 No. 4
29	29B			4	10-1/C 600	PNL NWN-1 CKT 8, 10, 12	CONT. CAB. CNW-1 No. 5
30	30A	P622A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CNW-1 No. 7	SOUTH WALL FLUOR WIREWAY
30	30B			4	10-1/C 600	CONT. CAB. CNW-1 No. 8	SOUTH WALL FLUOR WIREWAY
-	-	P623	1" RGS	2	10-1/C 600	PNL NWN-1 SPARE	CONT. CAB. CNW-1 SPARE
30	30S	P623A*	1" RGS	2	10-1/C 600	CONT. CAB. CNW-1 No. 9	SOUTH WALL FLUOR WIREWAY
28	28A	P624	1 59/64" RGS	4	10-1/C 600	PNL NWN-1 CKT 14, 16, 18	CONT. CAB. CNW-1 No. 1
28	28B			4	10-1/C 600	PNL NWN-1 CKT 20, 22, 24	CONT. CAB. CNW-1 No. 2
28	28C			2	10-1/C 600	PNL NWN-1 CKT 26	CONT. CAB. CNW-1 No. 3
31	31A	P624A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CNW-1 No. 10	SOUTH WALL FLUOR WIREWAY
31	31B			4	10-1/C 600	CONT. CAB. CNW-1 No. 11	SOUTH WALL FLUOR WIREWAY
31	31C			2	10-1/C 600	CONT. CAB. CNW-1 No. 12	SOUTH WALL FLUOR WIREWAY
36	36A	P625	1 59/64" RGS	4	10-1/C 600	PNL WVN-1 CKT 1, 3, 5	CONT. CAB. CWVN-1 No. 1
36	36B			4	10-1/C 600	PNL WVN-1 CKT 7, 9, 11	CONT. CAB. CWVN-1 No. 2
36	36A	P625A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 1	NORTH WALL FLUOR WIREWAY
36	36B			4	10-1/C 600	CONT. CAB. CWVN-1 No. 2	NORTH WALL FLUOR WIREWAY
37	37A	P626	1 59/64" RGS	4	10-1/C 600	PNL WVN-1 CKT 13, 15, 17	CONT. CAB. CWVN-1 No. 3
37	37B			4	10-1/C 600	PNL WVN-1 CKT 19, 21, 23	CONT. CAB. CWVN-1 No. 4
37	37S			2	10-1/C 600	PNL WVN-1 CKT 25	CONT. CAB. CWVN-1 No. 5
37	37A	P626A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 3	NORTH WALL FLUOR WIREWAY
37	37B			4	10-1/C 600	CONT. CAB. CWVN-1 No. 4	NORTH WALL FLUOR WIREWAY
37	37S			2	10-1/C 600	CONT. CAB. CWVN-1 No. 5	NORTH WALL FLUOR WIREWAY
38	38A	P627	1 59/64" RGS	4	10-1/C 600	PNL WVS-1 CKT 31, 33, 35	CONT. CAB. CWVN-1 No. 6
38	38B			4	10-1/C 600	PNL WVS-1 CKT 7, 9, 11	CONT. CAB. CWVN-1 No. 7
38	38S			2	10-1/C 600	PNL WVS-1 CKT 25	CONT. CAB. CWVN-1 No. 8
38	38A	P627A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 6	SOUTH WALL FLUOR WIREWAY

ZONE	CIRCUIT GROUP	NO.	SIZE (IN) & KIND	QTY.	SIZE & TYPE (AWG-kcmil)	FROM	TO
38	38B			4	10-1/C 600	CONT. CAB. CWVN-1 No. 7	SOUTH WALL FLUOR WIREWAY
38	38S			2	10-1/C 600	CONT. CAB. CWVN-1 No. 8	SOUTH WALL FLUOR WIREWAY
39	39A	P628	1 59/64" RGS	4	10-1/C 600	PNL WVS-1 CKT 13, 15, 17	CONT. CAB. CWVN-1 No. 9
39	39B			4	10-1/C 600	PNL WVS-1 CKT 19, 21, 23	CONT. CAB. CWVN-1 No. 10
39	39A	P628A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 9	SOUTH WALL FLUOR WIREWAY
39	39B			4	10-1/C 600	CONT. CAB. CWVN-1 No. 10	SOUTH WALL FLUOR WIREWAY
40R	40RA	P629	1" RGS	4	10-1/C 600	PNL WV-1 CKT 1, 3, 5	CONT. CAB. CWVN-1 No. 11
40R	40RA	P629A	1" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 11	JB-P629
40R	40RA	P629B*	1" RGS	4	10-1/C 600	JB-P629	NORTH WALL FLUOR WIREWAY
41R	41RA	P630	1" RGS	4	10-1/C 600	PNL WV-1 CKT 7, 9, 11	CONT. CAB. CWVN-1 No. 12
41R	41RA	P630A	1" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 12	JB-P630
41R	41RA	P630B*	1" RGS	4	10-1/C 600	JB-P630	SOUTH WALL FLUOR WIREWAY
42R	42RA	P631	1" RGS	4	10-1/C 600	PNL WV-1 CKT 13, 15, 17	CONT. CAB. CWVN-1 No. 13
42R	42RA	P631A	1" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 13	JB-P631
42R	42RA	P631B*	1" RGS	4	10-1/C 600	JB-P631	NORTH WALL FLUOR WIREWAY
44R	44RA	P632	1" RGS	4	10-1/C 600	PNL WV-1 CKT 19, 21, 23	CONT. CAB. CWVN-1 No. 14
44R	44RA	P632A	1" RGS	4	10-1/C 600	CONT. CAB. CWVN-1 No. 14	JB-P632
44R	44RA	P632B*	1" RGS	4	10-1/C 600	JB-P632	SOUTH WALL FLUOR WIREWAY
45R	45RA	P633	1" RGS	4	10-1/C 600	PNL WVN-1 CKT 2, 4, 6	CONT. CAB. CWVN-2 No. 2
45R	45RA	P633A*	1" RGS	4	10-1/C 600	CONT. CAB. CWVN-2 No. 2	NORTH WALL FLUOR WIREWAY
52R	52RA	P634	1" RGS	4	10-1/C 600	PNL WVS-1 CKT 2, 4, 6	CONT. CAB. CWVN-2 No. 11
52R	52RA	P634A*	1" RGS	4	10-1/C 600	CONT. CAB. CWVN-2 No. 11	SOUTH WALL FLUOR WIREWAY
43R	43RA	P635	1 59/64" RGS	4	10-1/C 600	WV-1 CKT 25, 27, 29	CONT. CAB. CWVN-2 No. 1
46R	46RA			4	10-1/C 600	WV-1 CKT 31, 33, 35	CONT. CAB. CWVN-2 No. 3
49R	49RA			4	10-1/C 600	WV-1 CKT 14, 16, 18	CONT. CAB. CWVN-2 No. 7
43R	43RA	P635A	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-2 No. 1	JB-P635A
46R	46RA			4	10-1/C 600	CONT. CAB. CWVN-2 No. 3	JB-P635A
49R	49RA			4	10-1/C 600	CONT. CAB. CWVN-2 No. 7	JB-P635A
43R	43RA	P635B	1" RGS	4	10-1/C 600	JB-P635A	JB-635B
46R	46RA	P635C*	1" RGS	4	10-1/C 600	JB-P635A	NORTH CEILING MH WIREWAY
49R	49RA	P635D*	1" RGS	4	10-1/C 600	JB-P635A	SOUTH CEILING MH WIREWAY
43R	43RA	P635E*	1" RGS	4	10-1/C 600	JB-P635B	NORTH CEILING MH WIREWAY
43R	43RA	P635F*	1" RGS	4	10-1/C 600	JB-P635B	SOUTH CEILING MH WIREWAY
47R	47RA	P636	1 59/64" RGS	4	10-1/C 600	WV-1 CKT 37, 39, 41	CONT. CAB. CWVN-2 No. 4
48R	48RA			4	10-1/C 600	WV-1 CKT 2, 4, 6	CONT. CAB. CWVN-2 No. 5
48R	48RB			4	10-1/C 600	WV-1 CKT 8, 10, 12	CONT. CAB. CWVN-2 No. 6
47R	47RA	P636A*	1 59/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-2 No. 4	NORTH CEILING MH WIREWAY
48R	48RA			4	10-1/C 600	CONT. CAB. CWVN-2 No. 5	NORTH CEILING MH WIREWAY
48R	48RB			4	10-1/C 600	CONT. CAB. CWVN-2 No. 6	NORTH CEILING MH WIREWAY
47R	47RA	P636B	1 1/4" RGS	4	10-1/C 600	NORTH CEILING MH WIREWAY	NORTH CEILING MH CONDUIT WIREWAY
48R	48RA			4	10-1/C 600	NORTH CEILING MH WIREWAY	NORTH CEILING MH CONDUIT WIREWAY

* SEE NOTE A, SUBSET SHEET 8 OF TUN POWER

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Colorado Department of Transportation
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
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TUNNEL CIRCUIT SCHEDULES
SHEET 2
Designer: J. WALSH
Detailer: R RODDENBERRY
Structure Numbers

Project No./Code
IM 0703-269
13166
Sheet Number 72

ZONE	CIRCUIT GROUP	CIRCUIT NO.	WIRE OR CABLE SIZE (IN) & KIND	WIRE OR CABLE QTY.	WIRE OR CABLE SIZE & TYPE (AWG-kcmil)	ROUTING FROM	ROUTING TO
48R	48RB			4	10-1/C 600	NORTH CEILING MH WIREWAY	NORTH CEILING MH CONDUIT WIREWAY
50R	50RA	P637	1 5/64" RGS	4	10-1/C 600	WV-1 CKT 20, 22, 24	CONT. CAB. CWVN-2 No. 8
51R	51RA			4	10-1/C 600	WV-1 CKT 26, 28, 30	CONT. CAB. CWVN-2 No. 9
51R	51RB			4	10-1/C 600	WV-1 CKT 32, 34, 36	CONT. CAB. CWVN-2 No. 10
50R	50RA	P637A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CWVN-2 No. 8	SOUTH CEILING MH WIREWAY
51R	51RA			4	10-1/C 600	CONT. CAB. CWVN-2 No. 9	SOUTH CEILING MH WIREWAY
51R	51RB			4	10-1/C 600	CONT. CAB. CWVN-2 No. 10	SOUTH CEILING MH WIREWAY
50R	50RA	P637B	1 1/4" RGS	4	10-1/C 600	SOUTH CEILING MH WIREWAY	SOUTH CEILING MH CONDUIT WIREWAY
51R	51RA			4	10-1/C 600	SOUTH CEILING MH WIREWAY	SOUTH CEILING MH CONDUIT WIREWAY
51R	51RB			4	10-1/C 600	SOUTH CEILING MH WIREWAY	SOUTH CEILING MH CONDUIT WIREWAY
4	4A	P638	1 5/64" RGS	4	10-1/C 600	EV-1 CKT 25, 27, 29	CONT. CAB. CEVN-2 No. 1
4	4B			4	10-1/C 600	EV-1 CKT 31, 33, 35	CONT. CAB. CEVN-2 No. 6
4	4C			4	10-1/C 600	EV-1 CKT 37, 39, 41	CONT. CAB. CEVN-2 No. 11
4	4A	P638A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 1	NORTH CEILING MH WIREWAY
4	4B			4	10-1/C 600	CONT. CAB. CEVN-2 No. 6	NORTH CEILING MH WIREWAY
4	4C			4	10-1/C 600	CONT. CAB. CEVN-2 No. 11	NORTH CEILING MH WIREWAY
5	5A	P639	1 5/64" RGS	4	10-1/C 600	EV-2 CKT 13, 15, 17	CONT. CAB. CEVN-2 No. 2
5	5B			4	10-1/C 600	EV-2 CKT 19, 21, 23	CONT. CAB. CEVN-2 No. 7
5	5C			4	10-1/C 600	EV-2 CKT 25, 27, 29	CONT. CAB. CEVN-2 No. 12
5	5A	P639A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 2	NORTH CEILING MH WIREWAY
5	5B			4	10-1/C 600	CONT. CAB. CEVN-2 No. 7	NORTH CEILING MH WIREWAY
5	5C			4	10-1/C 600	CONT. CAB. CEVN-2 No. 12	NORTH CEILING MH WIREWAY
6	6A	P640	1 5/64" RGS	4	10-1/C 600	EV-3 CKT 1, 3, 5	CONT. CAB. CEVN-2 No. 3
6	6B			4	10-1/C 600	EV-3 CKT 7, 9, 11	CONT. CAB. CEVN-2 No. 8
6	6C			4	10-1/C 600	EV-3 CKT 13, 15, 17	CONT. CAB. CEVN-2 No. 13
6	6A	P640A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 3	NORTH CEILING MH WIREWAY
6	6B			4	10-1/C 600	CONT. CAB. CEVN-2 No. 8	NORTH CEILING MH WIREWAY
6	6C			4	10-1/C 600	CONT. CAB. CEVN-2 No. 13	NORTH CEILING MH WIREWAY
6	6D	P641	1 5/64" RGS	4	10-1/C 600	EV-3 CKT 19, 21, 23	CONT. CAB. CEVN-2 No. 4
6	6E			4	10-1/C 600	EV-3 CKT 25, 27, 29	CONT. CAB. CEVN-2 No. 9
6	6F			4	10-1/C 600	EV-3 CKT 31, 33, 35	CONT. CAB. CEVN-2 No. 14
6	6D	P641A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 4	NORTH CEILING MH WIREWAY
6	6E			4	10-1/C 600	CONT. CAB. CEVN-2 No. 9	NORTH CEILING MH WIREWAY
6	6F			4	10-1/C 600	CONT. CAB. CEVN-2 No. 14	NORTH CEILING MH WIREWAY
7	7A	P642	1 5/64" RGS	4	10-1/C 600	EV-1 CKT 2, 4, 6	CONT. CAB. CEVN-2 No. 5
7	7B			4	10-1/C 600	EV-1 CKT 8, 10, 12	CONT. CAB. CEVN-2 No. 10
7	7C			4	10-1/C 600	EV-1 CKT 14, 16, 18	CONT. CAB. CEVN-2 No. 15
7	7A	P642A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 5	SOUTH CEILING MH WIREWAY
7	7B			4	10-1/C 600	CONT. CAB. CEVN-2 No. 10	SOUTH CEILING MH WIREWAY
7	7C			4	10-1/C 600	CONT. CAB. CEVN-2 No. 15	SOUTH CEILING MH WIREWAY
8	8A	P643	1 5/64" RGS	4	10-1/C 600	EV-2 CKT 31, 33, 35	CONT. CAB. CEVN-2 No. 16
8	8B			4	10-1/C 600	EV-2 CKT 37, 39, 41	CONT. CAB. CEVN-2 No. 21
8	8C			4	10-1/C 600	EV-2 CKT 2, 4, 6	CONT. CAB. CEVN-2 No. 26
8	8A	P643A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 16	SOUTH CEILING MH WIREWAY
8	8B			4	10-1/C 600	CONT. CAB. CEVN-2 No. 21	SOUTH CEILING MH WIREWAY
8	8C			4	10-1/C 600	CONT. CAB. CEVN-2 No. 26	SOUTH CEILING MH WIREWAY
9	9A	P644	1 5/64" RGS	4	10-1/C 600	EV-3 CKT 37, 39, 41	CONT. CAB. CEVN-2 No. 17
9	9B			4	10-1/C 600	EV-3 CKT 2, 4, 6	CONT. CAB. CEVN-2 No. 22
9	9C			4	10-1/C 600	EV-3 CKT 8, 10, 12	CONT. CAB. CEVN-2 No. 27
9	9A	P644A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 17	SOUTH CEILING MH WIREWAY
9	9B			4	10-1/C 600	CONT. CAB. CEVN-2 No. 22	SOUTH CEILING MH WIREWAY
9	9C			4	10-1/C 600	CONT. CAB. CEVN-2 No. 27	SOUTH CEILING MH WIREWAY
9	9D	P645	1 5/64" RGS	4	10-1/C 600	EV-3 CKT 14, 16, 18	CONT. CAB. CEVN-2 No. 18
9	9E			4	10-1/C 600	EV-3 CKT 20, 22, 24	CONT. CAB. CEVN-2 No. 23
9	9F			4	10-1/C 600	EV-3 CKT 26, 28, 30	CONT. CAB. CEVN-2 No. 28
9	9D	P645A*	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 18	SOUTH CEILING MH WIREWAY
9	9E			4	10-1/C 600	CONT. CAB. CEVN-2 No. 23	SOUTH CEILING MH WIREWAY
9	9F			4	10-1/C 600	CONT. CAB. CEVN-2 No. 28	SOUTH CEILING MH WIREWAY
14	14A	P646	1" RGS	4	10-1/C 600	EV-2 CKT 8, 10, 12	CONT. CAB. CEVN-2 No. 19
14	14A	P646A	1" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 19	JB-P646A
14	14A	P646B	1" RGS	4	10-1/C 600	JB-P646A	JB-P646B
14	14A	P646C*	1" RGS	4	10-1/C 600	JB-P646B	NORTH CEILING MH WIREWAY
14	14A	P646D*	1" RGS	4	10-1/C 600	JB-P646B	SOUTH CEILING MH WIREWAY
15	15A	P647	1 5/64" RGS	4	10-1/C 600	EV-1 CKT 20, 22, 24	CONT. CAB. CEVN-2 No. 24
18	18A			4	10-1/C 600	EV-1 CKT 26, 28, 30	CONT. CAB. CEVN-2 No. 29
15	15A	P647A	1 5/64" RGS	4	10-1/C 600	CONT. CAB. CEVN-2 No. 24	JB-P647A
18	18A			4	10-1/C 600	CONT. CAB. CEVN-2 No. 29	JB-P647A
15	15A	P647B	1 5/64" RGS	4	10-1/C 600	JB-P647A	JB-P647B
18	18A			4	10-1/C 600	JB-P647A	JB-P647B
18	18A	P647C	1" RGS	8	10-1/C 600	JB-P647B	JB-P647C
15	15A	P647D*	1" RGS	4	10-1/C 600	JB-P647B	NORTH CEILING MH WIREWAY
15	15A	P647E*	1" RGS	4	10-1/C 600	JB-P647B	SOUTH CEILING MH WIREWAY
18	18A	P647F*	1" RGS	8	10-1/C 600	JB-P647C	NORTH CEILING MH WIREWAY
18	18A	P647G*	1" RGS	8	10-1/C 600	JB-P647C	SOUTH CEILING MH WIREWAY
LUS 120 PWR		P648A	1" RGS	6	10-1/C 600	JB-P648 @ MINI-LOAD CENTER	JB-P648 @ LUS
120V		P648B	1" RGS	4	10-1/C 600	JB-P648 @ MINI-LOAD CENTER	MINI-LOAD CENTER
				5	6-1/C 600	JB-P648 @ MINI-LOAD CENTER	MINI-LOAD CENTER
MPC 480V		P648C	1" RGS	3	6-1/C 600	JB-P648 @ MINI-LOAD CENTER	MINI-LOAD CENTER
VMS/CONTROL. PWR		P648D	1" RGS	4	10-1/C 600	VMS MINI-LOAD CENTER IN SUPPLY DUCT	VMS/LUS CABINET IN TUNNEL
VMS 120V PWR		P648E	2-3/4" FLEX	5	10-1/C 600	VMS/LUS CABINET IN TUNNEL	TUNNEL VMS
LUS 120V PWR		P648F	3/4"RGS	5	10-1/C 600	JB-P648 @ LUS	LUS SIGN

* SEE NOTE A, SUBSET SHEET 8 OF TUN POWER

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
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TUNNEL CIRCUIT SCHEDULES SHEET 3

Designer: J. WALSH
Detailer: R RODDENBERRY
Structure Numbers

Project No./Code
IM 0703-269
13166

Sheet Number 73

ZONE	CIRCUIT GROUP	NO.	SIZE (IN) & KIND	QTY.	SIZE & TYPE (AWG-kcmil)	FROM	TO
-----		P649	1" RGS	3	10-1/C 600	EXHAUST FAN	EXIST. 120/208V PANEL BOARD
		P700A	1" RGS	5	8 - I/C 600	PANEL WVN-1	CONTACTOR CABINET CWVN-2
		P702A	1½" RGS	5	3 - I/C 600	PANEL EV-2	CONTACTOR CABINET CEVN-2
		P750	1" RGS	3	10 - I/C 600	CROSSCUT LIGHTING	LOCAL PANELBOARD
		P751	1" RGS	5	10 - I/C 600	CROSSCUT LTG W/SWITCH LEG	CROSSCUT LIGHTING FIXTURE
		P752	1" RGS	5	10 - I/C 600	CROSSCUT LTG W/3-WAY SWITCH LEGS	CROSSCUT LTG W/3-WAY SWITCH LEGS
		P753	1" RGS	4	10 - I/C 600	CROSSCUT LTG J-BOX	CROSSCUT LTG 3-WAY SWITCH
		P754	1" RGS	3	10 - I/C 600	CROSSCUT LIGHTING	CROSSCUT LIGHTING
		P755	1¼" RGS	4	10 - I/C 600	CNW-1 (W. CROSSCUT)	TERMINAL BOX P12W (HT. TAPE)
		P756	1¼" RGS	4	10 - I/C 600	CNE-1 (E. CROSSCUT)	TERMINAL BOX P12E (HT. TAPE)
		P757	1¼" RGS	4	10 - I/C 600	CNCW-1 (CTR. CROSSCUT W.)	TERMINAL BOX P12CW (HT. TAPE)
		P758	1¼" RGS	4	10 - I/C 600	CNCE-1 (CTR. CROSSCUT E.)	TERMINAL BOX P12CE (HT. TAPE)
		P759	1 ½" RGS	5	6 - I/C 600	PNLBD NWS-1 (W. CROSSCUT)	JB-P759
		P759A	1 ½" RGS	5	6 - I/C 600	JB-P759	JB-P648 @ VMS3 MINI-PWR CTR
		P759B	1 ½" RGS	3	6 - I/C 600	JB-P648 @ VMS3 MINI-PWR CTR	JB-P648 @ VMS2 MINI-PWR CTR
		P760	1 ½" RGS	5	6 - I/C 600	PNLBD NCS-2W (WEST CENTER CROSSCUT)	JB-P760
		P760A	1 ½" RGS	5	6 - I/C 600	JB-P760	JB-P648 @ VMS5 MINI-PWR CTR
		P760B	1 ½" RGS	3	6 - I/C 600	JB-P648 @ VMS5 MINI-PWR CTR	JB-P648 @ VMS4 MINI-PWR CTR
		P761	1 ½" RGS	4	6 - I/C 600	PNLBD NCS-2E (EAST CENTER CROSSCUT)	JB-P761
		P761A	1 ½" RGS	4	6 - I/C 600	JB-P761	JB-P648 @ VMS6 MINI-PWR CTR
		P761B	1 ½" RGS	4	6 - I/C 600	JB-P648 @ VMS6 MINI-PWR CTR	JB-P648 @ VMS7 MINI-PWR CTR
		P761C	1 ½" RGS	3	6 - I/C 600	JB-P648 @ VMS7 MINI-PWR CTR	JB-P648 @ VMS8 MINI-PWR CTR
		P762	1 ½" RGS	5	6 - I/C 600	PNLBD NES-1 (EAST CROSSCUT)	JB-P762
		P762A	1 ½" RGS	5	6 - I/C 600	JB-P762	JB-P648 @ VMS9 MINI-PWR CTR
		P762B	1 ½" RGS	3	6 - I/C 600	JB-P648 @ VMS9 MINI-PWR CTR	JB-P648 @ VMS10 MINI-PWR CTR
		P763	1 " RGS	3	6 - I/C 600	PNLBD WV-1	JB-P648 @ VMS1 MINI-PWR CTR
		P764	1 " RGS	3	6 - I/C 600	PNLBD EVN-1	JB-P648 @ VMS11 MINI-PWR CTR
		P765	1¼" RGS	4	8 - I/C 600	CWVN-2	JB-P765 HEAT TRACE(FOR FUTURE USE)SEE NOTE B
		P765A	1¼" RGS	3	8 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765B	1¼" RGS	4	8 - I/C 600	CNW-1	JB-P765 (FOR FUTURE USE) SEE NOTE B
		P765C	1¼" RGS	3	8 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765D	1¼" RGS	4	8 - I/C 600	JB-765	JB-P765 (FOR FUTURE USE) SEE NOTE B
		P765E	1¼" RGS	5	8 - I/C 600	CNCW-1	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765F	1¼" RGS	4	8 - I/C 600	CNCE-1	JB-P765 (FOR FUTURE USE) SEE NOTE B
		P765G	1¼" RGS	3	8 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765H	1¼" RGS	3	8 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765I	1¼" RGS	4	8 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765J	1¼" RGS	5	8 - I/C 600	CNE-1	JB-P765 HEAT TRACE(FOR FUTURE USE)SEE NOTE B
		P765K	1¼" RGS	3	6 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765L	1¼" RGS	4	6 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P765M	1¼" RGS	5	6 - I/C 600	CEVN-2	JB-P765 HEAT TRACE(FOR FUTURE USE)SEE NOTE B
		P765Z	1¼" RGS	3	8 - I/C 600	JB-P765	JB-P765 HEAT TRACE (FOR FUTURE USE)
		P766	1" RGS	5	10 - I/C 600	PNLBD NWN-1	CNW-1 HEAT TRACE
		P767	1" RGS	5	10 - I/C 600	PNLBD NCS-1W	CNCW-1 HEAT TRACE
		P768	1" RGS	5	10 - I/C 600	PNLBD NCS-1E	CNCE-1 HEAT TRACE
		P769	1" RGS	5	10 - I/C 600	PNLBD NES-1	CNE-1 HEAT TRACE
		P770	1" RGS	4	10 - I/C 600	PNLBD WVN-1	CWVN-2 HEAT TRACE
		P771	1" RGS	5	10 - I/C 600	PNLBD EVN-1	CEVN-2 HEAT TRACE
		P772	1" RGS	4	10 - I/C 600	PNLBD NCS-1E CKT.13,15,17	CONTACTOR CABINET CNCE-1 NO. 4
				4	10 - I/C 600	PNLBD NCS-1E CKT.19,21,23	CONTACTOR CABINET CNCE-1 NO. 5

NOTE

A. * DENOTES A 3'-0" MAX LENGTH OF 1 1/4" FLEXIBLE METAL CONDUIT TO ACCOMMODATE TRANSITION FROM RGS CONDUIT TO DESIGNATED WIREWAY. USE REDUCERS WHERE NECESSARY.

B. CABLES FOR FUTURE HEAT TRACE SHALL ENTER EACH RESPECTIVE CONTACTOR CABINET AND SUFFICIENT SLACK SHALL BE PROVIDED FOR FUTURE CONNECTION TO HEAT TRACE CONTACTOR.

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DOT DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
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TUNNEL CIRCUIT SCHEDULES SHEET 4

Designer: J. WALSH
Detailer: R RODDENBERY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 8 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 74

PANEL WV-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION WEST VENTILATION BLDG
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
40RA/UPR	360					1		2			1855			
		360		3	20	3		4	20	3		1855		48RA/M2
			360			5		6					2040	
41RA/UPR	300					7		8			1855			
		300		3	20	9		10	20	3		1855		48RB/M2
			300			11		12					2040	
42RA/UPR	341					13		14			2040			
		341		3	20	15		16	20	3		2040		49RA/M1
			341			17		18					1530	
44RA/UPR	341					19		20			2365			
		341		3	20	21		22	20	3		1855		50RA/M1
			341			23		24					1855	
43RA/M3	528					25		26			1855			
		528		3	20	27		28	20	3		1855		51RA/M2
			528			29		30					2040	
46RA/M1	2040					31		32			1855			
		2040		3	20	33		34	20	3		1855		51RB/M2
			1530			35		36					2040	
47RA/M2	2365					37		38			2500			
		1855		3	20	39	20 2	40				2500		MINI PWR CTRS NORTH TUNNEL (VMS 1)
			1855			41		42	20	1				SPARE
TOTALS	6275	5765	5255				S/N				14325	13815	11545	

BUS A	20600	MAIN BREAKER	150 AMPS.	LINE AMPS	80.63	
BUS B	19580	LOCATION	TOP	PHASING	3 Ø 480	
BUS C	16800	FEEDER SIZE	4#1/0, 1#4G, 1 1/2"C	kVA CONN	56.98	
TOTAL LOAD	56980	SOURCE	DP-WV	DATE	07/24/02	

PANEL WVN-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION WEST VENTILATION BLDG
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
36A/MID	3512					1		2			719			
		3423		3	20	3		4	20	3		719		45RA/UPR
			3423			5		6					719	
36B/MID	3423					7		8			2375			TH-TR3 MID LAMP, 2A
		3423		3	20	9		10	20	3		2300		TH-TR3 MID LAMP, 2A
			3423			11		12					2300	TH-TR3 MID LAMP, 2A
37A/LOW	2829					13		14			2300			TH-TR3 MID LAMP, 2B
		2829		3	20	15		16	20	3		2300		TH-TR3 MID LAMP, 2B
			2760			17		18					2300	TH-TR3 MID LAMP, 2B
37B/LOW	2829					19		20			1575			TH-TR3 LOW LAMP, 3A
		2760		3	20	21		22	20	3		1575		TH-TR3 LOW LAMP, 3A
			2760			23		24					1500	TH-TR3 LOW LAMP, 3A
37S/LOW	2760			1	20	25		26			1575			TH-TR3 LOW LAMP, 3B
SPARE		0		1	20	27		28	20	3		1575		TH-TR3 LOW LAMP, 3B
SPARE			0	1	20	29		30					1500	TH-TR3 LOW LAMP, 3B
HEAT TRACE	4800			2	20	31		32	20	1	1500			TH-TR3 LOW LAMP, 3S
HEAT TRACE		4800				33		34	20	2		1000		LCP CWVN-2 CONTROL PWR
SPARE			0	1	20	35		36					1000	
SPARE	0					37		38			5402			
		0		3	20	39		40	30	3		5402		APPROACH LIGHTING
			0			41		42					5817	
TOTALS	20153	17235	12366				S/N				15446	14871	15136	

BUS A	35599	MAIN BREAKER	150 AMPS.	LINE AMPS	114.57	
BUS B	32106	LOCATION (TOP)	BOTTOM	PHASING	3 Ø 480	
BUS C	27502	FEEDER SIZE	4#1/0, 1#6, 1 1/2"C	kVA CONN.	95.21	
TOTAL LOAD	95207	SOURCE	DP-WV	DATE	2/25/03	

PANEL WVS-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION WEST VENTILATION BLDG
MOUNTING SURFACE BUS CONNECTION 3P 4W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
LCP CWVS-1 CONTROL PWR	750					1		2			719			
		750		3	20	3		4	20	3		719		52RA/UPR
			0			5		6					719	
38B/LOW	2829					7		8			2375			TH-TR3 MID LAMP, 11A
		2691		3	20	9		10	20	3		2300		TH-TR3 MID LAMP, 11A
			2760			11		12					2300	TH-TR3 MID LAMP, 11A
39A/MID	3423					13		14			2300			TH-TR3 MID LAMP, 11B
		3423		3	20	15		16	20	3		2300		TH-TR3 MID LAMP, 11B
			3354			17		18					2300	TH-TR3 MID LAMP, 11B
39B/MID	3334					19		20			1575			TH-TR3 LOW LAMP, 10A
		3423		3	20	21		22	20	3		1575		TH-TR3 LOW LAMP, 10A
			3354			23		24					1500	TH-TR3 LOW LAMP, 10A
38S/LOW	2829			1	20	25		26			1575			TH-TR3 LOW LAMP, 10B
SPARE				1	20	27		28	20	3		1575		TH-TR3 LOW LAMP, 10B
SPARE				1	20	29		30					1500	TH-TR3 LOW LAMP, 10B
38A/LOW	2829					31		32	20	1	1500			TH-TR3 LOW LAMP, 10S
		2760		3	20	33		34	20	2		1000		LCP CWVN-1 CONTROL PWR
			2851			35		36					1000	
SPARE				1	20	37		38			3565			VMS AND LUS SIGNS
DRAINAGE PIPE HT TRACING	4800			2	30	39		40	30	3		3565		FOR SOUTH
DRAINAGE PIPE HT TRACING		4800				41		42					3565	TUNNEL
TOTALS	15994	17897	17159				S/N				13609	13034	12884	

BUS A	29603	MAIN BREAKER	150 AMPS.	LINE AMPS	108.53	
BUS B	30881	LOCATION (TOP)	BOTTOM	PHASING	3 Ø 480	
BUS C	30043	FEEDER SIZE	4#1/0, 1#6G, 1 1/2"C	kVA CONN.	90.53	
TOTAL LOAD	90527	SOURCE	DP-WV	DATE	07/24/02	

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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ELECTRICAL PANEL SCHEDULES - SHEET 1

Designer: J. WALSH	Structure Numbers		Project No./Code: IM 0703-269
Detailer: R RODDENBERRY			13166
Sheet Subset: TUN POWER	Subset Sheets: 9 of 45		Sheet Number 75

PANEL NWN-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION WEST CROSS CUT
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
HEAT TRACE	4800					1		2			2410			
HEAT TRACE		4800		3	30	3		4	20	3		2410		29A/LOW
HEAT TRACE			4800			5		6					2346	
SPACE	0					7		8			2410			
EXIST. 3 kVA TRANSFORMER		1500		2	20	9		10	20	3		2346		29B/LOW
			1500			11		12					2346	
	0					13		14			2410			
SPARE REMOVED BY CDOT		0		3	30	15		16	20	3		2410		28A/MID
			0			17		18					2346	
	0					19		20			2410			
SPARE		0		3	20	21		22	20	3		2346		28B/MID
			0			23		24					2346	
	0					25		26	20	2	2346			28C/MID
SPARE		0		3	20	27		28	20	1		1200		CROSSCUT LTG
			0			29		30	20	1			0	SPARE
SPARE	0			1	20	31		32			0			
SPACE		0				33		34				0		SPACE
			0			35		36					0	
	0					37		38			0			
SPACE		0				39		40				0		SPACE
			0			41		42					0	
TOTALS	4800	6300	6300				S/N				11986	10712	9384	

BUS A	16786	MAIN BREAKER 150 AMPS.	LINE AMPS 59.54
BUS B	17012	LOCATION TOP	PHASING 3 Ø 480V
BUS C	15684	FEEDER SIZE 4#4/0 1#4G, 2"C	kVA CONN. 49.48
TOTAL LOAD	49482	SOURCE	DATE 07/25/02

PANEL NWS-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION WEST CROSS CUT
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
	2410					1		2			85			
31A/MID		2410		3	20	3		4	20	3		85		TUNNEL TV CAMERAS
			2410			5		6					85	
	2410					7		8			3050			
31B/MID		2410		3	20	9		10	20	3		3050		PULPET P5, P6, P7
			2410			11		12					3050	
31C/MID	2346			1	20	13		14	20	2	2500			MINI PWR CTRS NORTH TUNNEL (VMS 2)
29S/LOW		2346		1	20	15		16				2500		
30S/LOW			2346	1	20	17		18	20	1			0	SPARE
	2410					19		20			0			
30A/LOW		2410		3	20	21		22	30	3		0		SPARE
			2410			23		24					0	
	2410					25		26	20	2	2500			MINI PWR CTRS (VMS 3)
30B/LOW		2410		3	20	27		28				2500		
			2410			29		30	20	1			0	SPARE
	0					31		32			0			
SPARE		0		3	20	33		34				0		SPACE
			0			35		36					0	
	1000					37		38			0			
LCP CNW-1 CONTROL PWR		1000		3	20	39		40				0		SPACE
			0			41		42					0	
TOTALS	12986	12986	11986				S/N				8135	8135	3135	

BUS A	21121	MAIN BREAKER 150 AMPS.	LINE AMPS 69.03
BUS B	21121	LOCATION TOP	PHASING 3 Ø 480V
BUS C	15121	FEEDER SIZE 4#4/0 1#4G, 2"C	kVA CONN. 57.36
TOTAL LOAD	57363	SOURCE	DATE 07/25/02

PANEL NCS-1W CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION WEST CENTER CROSS CUT
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESPRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
HEAT TRACE	4800					1		2			0			
HEAT TRACE		4800		3	30	3		4	30	3		0		SPARE
HEAT TRACE			4800			5		6					0	
SPACE	0					7		8	20	1	0			SPARE
		0		3	20	9		10	20	1		0		SPARE
SPARE			0			11		12	20	1				SPARE
	0					13		14			0			
		0		3	20	15		16	30	3		0		SPARE
SPARE			0			17		18					0	
	0					19		20			0			
		0		3	20	21		22	20	3		0		SPARE
SPARE			0			23		24					0	
	0					25		26			0			
		0		3	20	27		28	20	3		0		SPARE
SPARE			0			29		30					0	
	0					31		32			0			
SPACE		0				33		34				0		SPACE
SPACE			0			35		36					0	
SPACE	0					37		38			0			
SPACE		0				39		40				0		SPACE
SPACE			0			41		42					0	
TOTALS	4800	4800	4800				S/N				0	0	0	

BUS A	4800	MAIN BREAKER 150 AMPS.	LINE AMPS 17.33
BUS B	4800	LOCATION (TOP)	PHASING 3 Ø 480V
BUS C	4800	FEEDER SIZE 4#4/0 1#4G, 2"C	kVA CONN. 14.40
TOTAL LOAD	14400	SOURCE TX-NCS-1W	DATE 05/10/01

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Colorado Department of Transportation
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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ELECTRICAL PANEL SCHEDULES - SHEET 2

Designer: J. WALSH
Detailer: R RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 10 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 76

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

PANEL NCS-2W CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 — BUS RATING 225A — LOCATION WEST CENTER CROSS CUT
MOUNTING SURFACE — BUS CONNECTION 3 P 4 W — DRAWING No.

LOAD DESPRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
	2622					1		2	20	2	2500			MINI PWR CTRS NORTH TUNNEL (VMS 4)
26A/LOW		2622		3	20	3		4				2500		
			2553			5		6	20	2			2500	MINI PWR CTRS NORTH TUNNEL (VMS 5)
	2622					7		8			2500			
26B/LOW		2553		3	20	9		10	20	2		1000		LCP CNCW-1 CONTROL PWR
			2553			11		12					1000	
	2622					13		14			85			
27A/MID		2622		3	20	15		16	20	3		85		TUNNER TV CAMERAS
			2553			17		18					85	
	2622					19		20	20	2	1525			PULPIT P4
27B/MID		2553		3	20	21		22				1525		
\			2553			23		24	20	1			1500	CTR CROSSCUT LTG
27C/MID	2553			1	20	25		26			0			
SPARE		0		1	20	27		28	30	3		0		SPARE
SPARE			0	1	20	29		30					0	
	0					31		32			0			
SPACE		0				33		34	30	3		0		SPARE
			0			35		36					0	
	0					37		38			0			
SPACE		0				39		40				0		SPACE
			0			41		42					0	
TOTALS	13041	10350	10212				S/N				6610	5110	5085	

BUS A	19651	MAIN BREAKER	150 AMPS.	LINE AMPS	60.66	
BUS B	15460	LOCATION	TOP	PHASING	3 ⌀ 480V	
BUS C	15297	FEEDER SIZE	4#4/0 1#4G, 2"C	kVA CONN.	50.41	
TOTAL LOAD	50408	SOURCE	TX-NCS-2W	DATE	07/25/02	

PANEL NCS-2E CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 — BUS RATING 225A — LOCATION EAST CENTER CROSS CUT
MOUNTING SURFACE — BUS CONNECTION 3 P 4 W — DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
	0					1		2			0			
SPARE		0		3	20	3		4	20	3		0		SPARE
			0			5		6					0	
	0					7		8			0			
SPARE		0		3	20	9		10	20	3		0		SPARE
			0			11		12					0	
SPARE			0	1	20	13		14			85			
25S/LOW		2644		1	20	15		16	20	3		85		TUNNER TV CAMERAS
26S/LOW			2553	1	20	17		18					85	
	0					19		20	20	2	1000			LCP CNCE-1 CONTROL PWR
SPARE		0		3	20	21		22				1000		
\			0			23		24	20	1			0	SPARE
	0					25		26			5000			
SPARE		0		3	20	27		28	30	3		5000		MINI-PWR CTRS FOR VMS 7,8 & 9 & LUS'S
			0			29		30					5000	
	0					31		32			0			
SPACE		0				33		34	30	3		0		SPARE
			0			35		36					0	
	0					37		38			0			
SPACE		0				39		40				0		SPACE
			0			41		42					0	
TOTALS	0	2644	2553				S/N				6085	6085	5085	

BUS A	6085	MAIN BREAKER	150 AMPS.	LINE AMPS	27.02	
BUS B	8729	LOCATION	TOP	PHASING	3 ⌀ 480V	
BUS C	7638	FEEDER SIZE	4#4/0 1#4G, 2"C	kVA CONN.	22.45	
TOTAL LOAD	22452	SOURCE	TX-NCS-2E	DATE	07/25/02	

PANEL NCS-1E CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 — BUS RATING 225A — LOCATION EAST CENTER CROSS CUT
MOUNTING SURFACE — BUS CONNECTION 3 P 4 W — DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	B	C	BREAKER POLE	AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	POLE	VOLTAMPS A	B	C	LOAD DESCRIPTION
HEAT TRACE	4800					1		2			0			
HEAT TRACE		4800		3	30	3		4	30	3		0		SPARE
HEAT TRACE			4800			5		6					0	
24C/MID	2644			1	20	7		8			2644			
EXIST 3 KVA TRANSFORMERS		1500		2	20	9		10	20	3		2644		24A/MID
			1500			11		12					2644	
	2644					13		14			2644			
25A/LOW		2644		3	20	15		16	20	3		2644		24B/MID
			2644			17		18					2644	
	2644					19		20			0			
25B/LOW		2644		3	20	21		22	20	3		0		SPARE
			2644			23		24					0	
	0					25		26			0			
SPARE		0		3	20	27		28	20	3		0		SPARE
			0			29		30					0	
	0					31		32			0			
SPACE		0				33		34				0		SPACE
			0			35		36					0	
	0					37		38			0			
SPACE		0				39		40				0		SPACE
			0			41		42					0	
TOTALS	12732	11588	11588				S/N				5288	5288	5288	

BUS A	18020	MAIN BREAKER	150 AMPS.	LINE AMPS	62.30	
BUS B	16876	LOCATION (TOP)		PHASING	3 ⌀ 480V	
BUS C	16876	FEEDER SIZE	4#4/0 1#4G, 2"C	kVA CONN.	51.77	
TOTAL LOAD	51772	SOURCE	TX-NCS-1E	DATE	05/10/01	

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFO
Last Modification Date:	02/20/07	Initials:	DJB
Full Path:	14102\800Deliv\AsBuilt\		
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Colorado Department of Transportation
DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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No Revisions:
Revised:
Void:

ELECTRICAL PANEL SCHEDULES - SHEET 3

Designer: J. WALSH
Detailer: R RODDENEBRRY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 11 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 77

PANEL NES-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION EAST CROSS CUT
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	1379					1		2			85			TUNNEL TV
22A/LOW		1379		3	20	3		4	20	3		85		CAMERAS
			1311			5		6					85	
	1379					7		8			3050			PULPIT
22B/LOW		1379		3	20	9		10	20	3		3050		P5, P6, P7
			1311			11		12					3050	
	1379					13		14	20	2	2500			MINI PWR CTRS NORTH TUNNEL (VMS 9)
23A/MID		1379		3	20	15		16				2500		
			1311			17		18					0	
	1379					19		20	30	3	0			SPARE
23B/MID		1379		3	20	21		22				0		
			1311			23		24					0	SPACE
23C/MID	1311			1	20	25		26			4800			HEAT TRACE
22S/LOW		1311		1	20	27		28	30	3		4800		HEAT TRACE
21S/LOW			1311	1	20	29		30					4800	HEAT TRACE
	0					31		32	20	2	1500			EXIST. 3KVA
SPARE		0		3	20	33		34				1500		TRANSFORMER
			0			35		36	20	1			0	SPARE
	1000					37		38			2500			MINI PWR CTRS NORTH TUNNEL (VMS 10)
LCP CNE-1 CONTROL PWR		1000		3	20	39		40	20	2		2500		
			0			41		42	20	1			0	SPARE
TOTALS	7827	7827	6555				S/N				14435	14435	7935	

BUS A	22262	MAIN BREAKER	150 AMPS.	LINE AMPS	71.00
BUS B	22262	LOCATION	TOP	PHASING	3 Ø 480V
BUS C	14490	FEEDER SIZE	4#4/0 1#4G, 2"C	kVA CONN.	59.00
TOTAL LOAD	59014	SOURCE	TX-NES-1	DATE	07/25/02

PANEL NEN-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION EAST CROSS CUT
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	0					1		2			1379			
SPARE		0		3	30	3		4	20	3		1379		20A/MID
			0			5		6					1379	
	0					7		8			1379			
SPARE		0		3	20	9		10	20	3		1379		20B/MID
			0			11		12					1311	
	0					13		14	20	1	1311			20C/MID
SPARE		0		3	20	15		16	20	1		1200		CROSS CUT LIGHTING
			0			17		18	20	1			0	SPARE
	0					19		20			1379			
SPARE		0		3	20	21		22	20	3		1379		21A/LOW
			0			23		24					1379	
	0					25		26			1379			
SPARE		0		3	20	27		28	20	3		1379		21B/LOW
			0			29		30					1311	
	0					31		32			0			
SPACE		0				33		34				0		SPACE
			0			35		36					0	
	0					37		38			0			
SPACE		0				39		40				0		SPACE
			0			41		42					0	
TOTALS	0	0	0				S/N				6827	6716	6691	

BUS A	6827	MAIN BREAKER	150 AMPS.	LINE AMPS	22.77
BUS B	6716	LOCATION	TOP	PHASING	3 Ø 480V
BUS C	5380	FEEDER SIZE	4#4/0 1#4G, 2"C	kVA CONN.	18.92
TOTAL LOAD	18923	SOURCE	TX-NEN-1	DATE	07/25/02

NOTES:

A. REMOVE BRANCH CIRCUIT CONDUCTORS AND LEVEL THE CIRCUIT BREAKER "SPARE" AFTER THE NEWS VMS'S ARE OPERATIONAL.

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

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Last Modification Date: 02/20/07	Initials: DJB
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Drawing File Name:	102.V01
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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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ELECTRICAL PANEL SCHEDULES - SHEET 4

Designer: J. WALSH
Detailer: R RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 12 OF 45

Project No./Code
IM 0703-269
13166
Sheet Number 78

PANEL EVN-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION EAST VENTILATION BLDG.
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	3064					1		2			2050			TH-INT MID LAMP, 36A
2A/MID		3064		3	20	3		4	20	3		2050		TH-INT MID LAMP, 36A
			3064			5		6					2050	TH-INT MID LAMP, 36A
	3064					7		8			2050			TH-INT MID LAMP, 36B
2B/MID		3064		3	20	9		10	20	3		2050		TH-INT MID LAMP, 36B
			3064			11		12					2050	TH-INT MID LAMP, 36B
	1449					13		14	20	1	0			SPARE
3A/LOW		1449		3	20	15		16	20	1		1575		TH-INT LOW LAMP, 37S
			1380			17		18					1575	TH-INT LOW LAMP, 37A
	1449					19		20	20	3	1575			TH-INT LOW LAMP, 37A
3B/LOW		1449		3	20	21		22				1575		TH-INT LOW LAMP, 37A
			1380			23		24					1575	TH-INT LOW LAMP, 37B
3S/LOW	1380			1	20	25		26	20	3	1575			TH-INT LOW LAMP, 37B
SPARE		0		1	20	27		28				1575		TH-INT LOW LAMP, 37B
SPARE			0	1	20	29		30					750	TH UPPER LAMP, 45R
HEAT TRACE	0					31		32	20	3	825			TH UPPER LAMP, 45R
HEAT TRACE		0		3	20	33		34				825		TH UPPER LAMP, 45R
HEAT TRACE			0			35		36	20	1			0	SPACE
LCP CEVS CONTROL PWR	750					37		38	20	2	2500			MINI PWR CTRS NORTH TUNNEL (VMS 11)
		750		3	20	39		40				2500		
			0			41		42	20	1			0	SPACE
TOTALS	11156	9776	8888				S/N				10575	12625	8000	

BUS A	21731	MAIN BREAKER	150 AMPS.	LINE AMPS	73.43
BUS B	22401	LOCATION (TOP)	BOTTOM	PHASING	3 Ø 480
BUS C	16888	FEEDER SIZE	4#2, 1#8G, 1-1/4"C	kVA CONN.	61.00
TOTAL LOAD	61020	SOURCE	DP-EV	DATE	07/25/02

PANEL EVS-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 BUS RATING 225A LOCATION EAST VENTILATION BLDG.
MOUNTING SURFACE BUS CONNECTION 3 P 4 W DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	1449					1		2			2050			TH-INT MID LAMP, 39A
10A/LOW		1449		3	20	3		4	20	3		2050		TH-INT MID LAMP, 39A
			1380			5		6					2050	TH-INT MID LAMP, 39A
	1449					7		8			2050			TH-INT MID LAMPS, 39B
10B/LOW		1449		3	20	9		10	20	3		2050		TH-INT MID LAMPS, 39B
			1380			11		12					2050	TH-INT MID LAMPS, 39B
	3064					13		14	20	1	0			SPARE
11A/MID		3064		3	20	15		16	20	2		1575		TH-INT LOW LAMP, 38S
			3064			17		18					1575	TH-INT LOW LAMP, 38A
	3064					19		20			1575			TH-INT LOW LAMP, 38A
11B/MID		3064		3	20	21		22	20	3		1575		TH-INT LOW LAMP, 38A
			3064			23		24					1575	TH-INT LOW LAMP, 38B
10S/LOW	1380			1	20	25		26			1575			TH-INT LOW LAMP, 38B
SPARE		0		2	20	27		28	20	3		1575		TH-INT LOW LAMP, 38B
			0			29		30					750	TH-INT UPPER LAMP, 52R
LCP CEVN-1 CONTROL PWR	1000					31		32			825			TH-INT UPPER LAMP, 52R
		1000		3	20	33		34	20	2		825		TH-INT UPPER LAMP, 52R
			0			35		36	20	1			0	SPACE
VMS AND LUS SIGNS FOR SOUTH TUNNEL	4398					37		38	30	1	2400			DRAINAGE PIPE HT TRACING
		4398		3	30	39		40	30	1		4800		DRAINAGE PIPE HT TRACING
			4398			41		42	30	1			5600	DRAINAGE PIPE HT TRACING
TOTALS	15804	14424	13286				S/N				10475	14450	13600	

BUS A	26279	MAIN BREAKER	150 AMPS.	LINE AMPS	98.72
BUS B	28874	LOCATION (TOP)	BOTTOM	PHASING	3 Ø 480
BUS C	26886	FEEDER SIZE	4#2, 1#8G, 1-1/4"C	kVA CONN.	82.04
TOTAL LOAD	82039	SOURCE	DP-EV	DATE	07/25/02

PLOT FILE NAME: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

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Drawing File Name:	102_V02
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Sheet Revisions		
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DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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ELECTRICAL PANEL SCHEDULES - SHEET 5

Designer: J WALSH
Detailer: R RODDENBERRY
Structure Numbers
Sheet Subset: TUN POWER
Subset Sheets: 13 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 79

PANEL EV-1 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 — BUS RATING 225A — LOCATION EAST VENTILATION BUILDING
MOUNTING SURFACE — BUS CONNECTION 3 P 4 W — DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	1528					1		2			3060			
1A/UPR		1528		3	20	3		4	20	3		3060		7A/M1
			1528			5		6					2550	
	1528					7		8			3060			
12A/UPR		1528		3	20	9		10	20	3		3060		7B/M1
			1528			11		12					2550	
	732					13		14			3060			
17A/UPR		732		3	20	15		16	20	3		3060		7C/M1
			732			17		18					2550	
	732					19		20			3250			
19A/UPR		732		3	20	21		22	20	3		2600		15A/M2
			732			23		24					2600	
	3060					25		26			1056			
4A/M1		3060		3	20	27		28	20	3		1056		18A/M3
			2550			29		30					1056	
	3060					31		32			0			
4B/M1		3060		3	20	33		34	20	3		0		SPARE
			2550			35		36					0	
	3060					37		38			0			
4C/M1		2550		3	20	39		40	20	3		0		SPARE
			2550			41		42					0	
TOTALS	13700	13190	12170				S/N				13486	12836	11306	

BUS A	27186	MAIN BREAKER	150 AMPS.	LINE AMPS	92.24	
BUS B	26026	LOCATION (TOP)	NOTE A	PHASING	3 Ø 480V	
BUS C	23476	FEEDER SIZE	4#500 1 #2G, 3-1/2"C	kVA CONN.	75.69	
TOTAL LOAD	76688	SOURCE	EAST MCC NO. 2	DATE	07/25/02	

PANEL EV-2 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 — BUS RATING 225A — LOCATION EAST VENTILATION BUILDING
MOUNTING SURFACE — BUS CONNECTION 3 P 4 W — DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	552					1		2			3060			
13A/UPR		552		3	20	3		4	20	3		3060		8C/M1
			552			5		6					2550	
	552					7		8			3250			
16A/UPR		552		3	20	9		10	20	3		2600		14A/M2
			552			11		12					2600	
	3060					13		14			0			
5A/M1		3060		3	20	15		16	20	3		0		SPARE
			2550			17		18					0	
	3060					19		20			0			
5B/M1		3060		3	20	21		22	20	3		0		SPARE
			2550			23		24					0	
	3060					25		26			0			
5C/M1		2550		3	20	27		28	20	3		0		SPARE
			2550			29		30					0	
	3060					31		32			1000			
8A/M1		3060		3	20	33		34	20	3		1000		LCP CEVN-2 CONTROL PWR
			2550			35		36					0	
	3060					37		38			4776			
8B/M1		3060		3	20	39		40	50	3		4776		APPROACH LIGHTING
			2550			41		42					4776	
TOTALS	16404	15894	13854				S/N				12086	11436	9926	

BUS A	28490	MAIN BREAKER	150 AMPS.	LINE AMPS	95.79	
BUS B	27330	LOCATION (TOP)	NOTE A	PHASING	3 Ø 480V	
BUS C	23780	FEEDER SIZE	4#500 1 #2G, 3-1/2"C	kVA CONN.	79.60	
TOTAL LOAD	79600	SOURCE	EAST MCC NO. 2	DATE	2/25/03	

PANEL EV-3 CIRCUIT SCHEDULE

SERVICE VOLTAGE 480Y/277 — BUS RATING 225A — LOCATION EAST VETILATION BULDING
MOUNTING SURFACE — BUS CONNECTION 3 P 4 W — DRAWING No.

LOAD DESCRIPTION	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	BREAKER POLE	BREAKER AMP	CKT No	BUS CONNECTION	CKT No	BREAKER AMP	BREAKER POLE	VOLTAMPS A	VOLTAMPS B	VOLTAMPS C	LOAD DESCRIPTION
	3060					1		2			3060			
6A/M1		3060		3	20	3		4	20	3		3060		9B/M1
			2550			5		6					2550	
	3060					7		8			3060			
6B/M1		3060		3	20	9		10	20	3		3060		9C/M1
			2550			11		12					2550	
	3060					13		14			3060			
6C/M1		3060		3	20	15		16	20	3		3060		9D/M1
			2550			17		18					2550	
	3060					19		20			3060			
6D/M1		3060		3	20	21		22	20	3		3060		9E/M1
			2550			23		24					2550	
	3060					25		26			3060			
6E/M1		2550		3	20	27		28	20	3		3060		9F/M1
			2550			29		30					2550	
	3060					31		32			0			
6F/M1		2550		3	20	33		34	20	3		0		SPARE
			2550			35		36					0	
	3060					37		38			0			
9A/M1		3060		3	20	39		40	20	3		0		SPARE
			2550			41		42					0	
TOTALS	21420	20400	17850				S/N				15300	15300	12750	

BUS A	36720	MAIN BREAKER	200 AMPS.	LINE AMPS	123.99	
BUS B	35700	LOCATION (TOP)	NOTE A	PHASING	3 Ø 480V	
BUS C	30600	FEEDER SIZE	4#500 1 #2G, 3-1/2"C	kVA CONN.	103	
TOTAL LOAD	103020	SOURCE	EAST MCC NO. 2	DATE	07/25/02	

NOTES:

A. PROVIDE PANELS EV-1, EV-2 AND EV-3 WITH MAIN BREAKERS LEGS SIZED FOR 500 KCM PHASE CONDUCTORS. PANELS EV-1 AND EV-2 SHALL BE FURNISHED WITH DOUBLE LEGS PER PHASE ON THE MAIN BREAKER

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information	
Creation Date: 04/29/01	Initials: SPO
Last Modification Date: 02/21/07	Initials: DJB
Full Path:	14102\800Deliv\AsBuilt\
Drawing File Name:	102sV03.DGN
Acad Ver. R14	Scale: None Units:

Sheet Revisions		
07/03/07	ASBUILT	DJB

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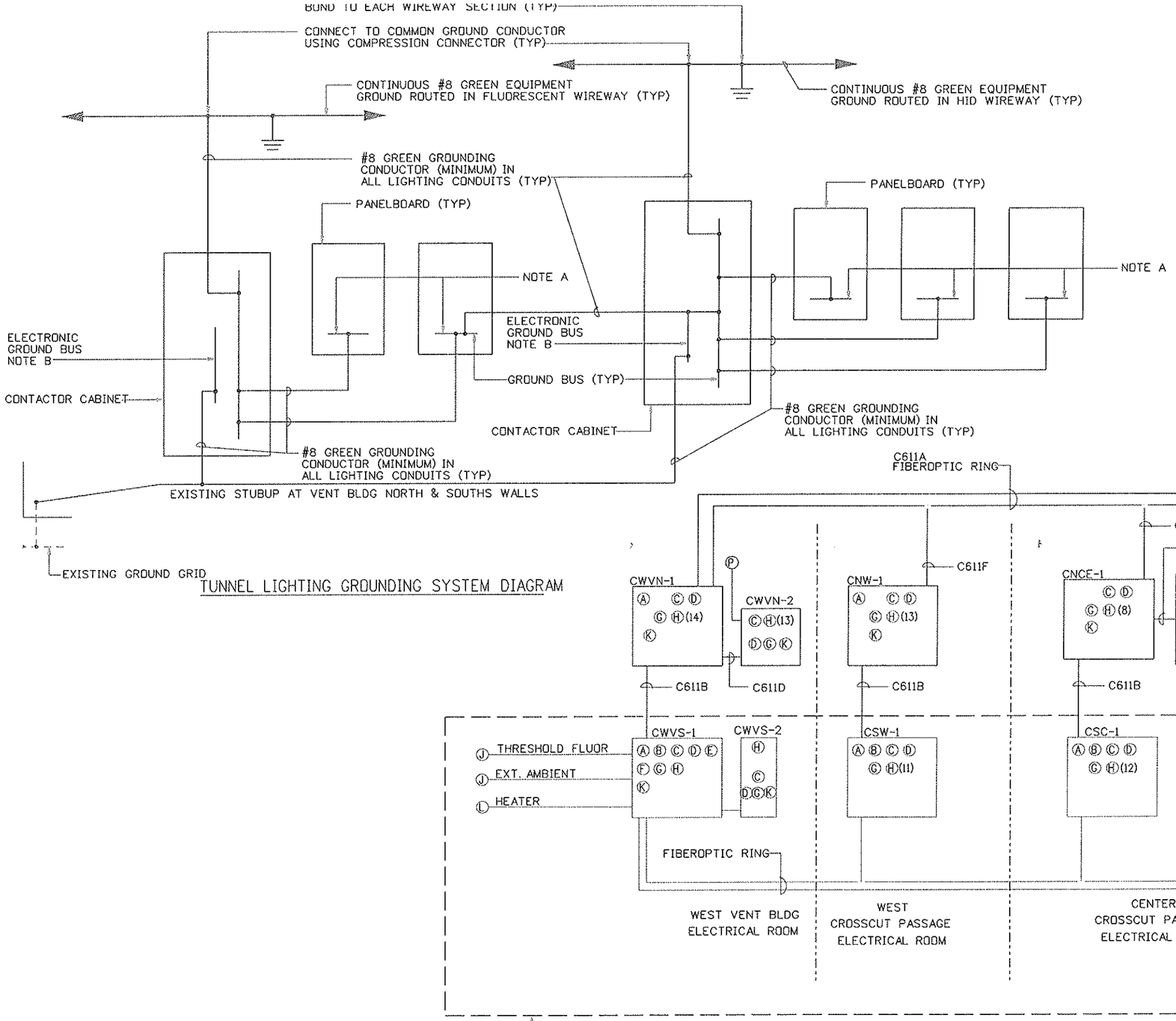
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

ELECTRICAL PANEL SCHEDULES - SHEET 6

Designer: J. WALSH
Detailer: R RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 14 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 80



TUNNEL LIGHTING GROUNDING SYSTEM DIAGRAM

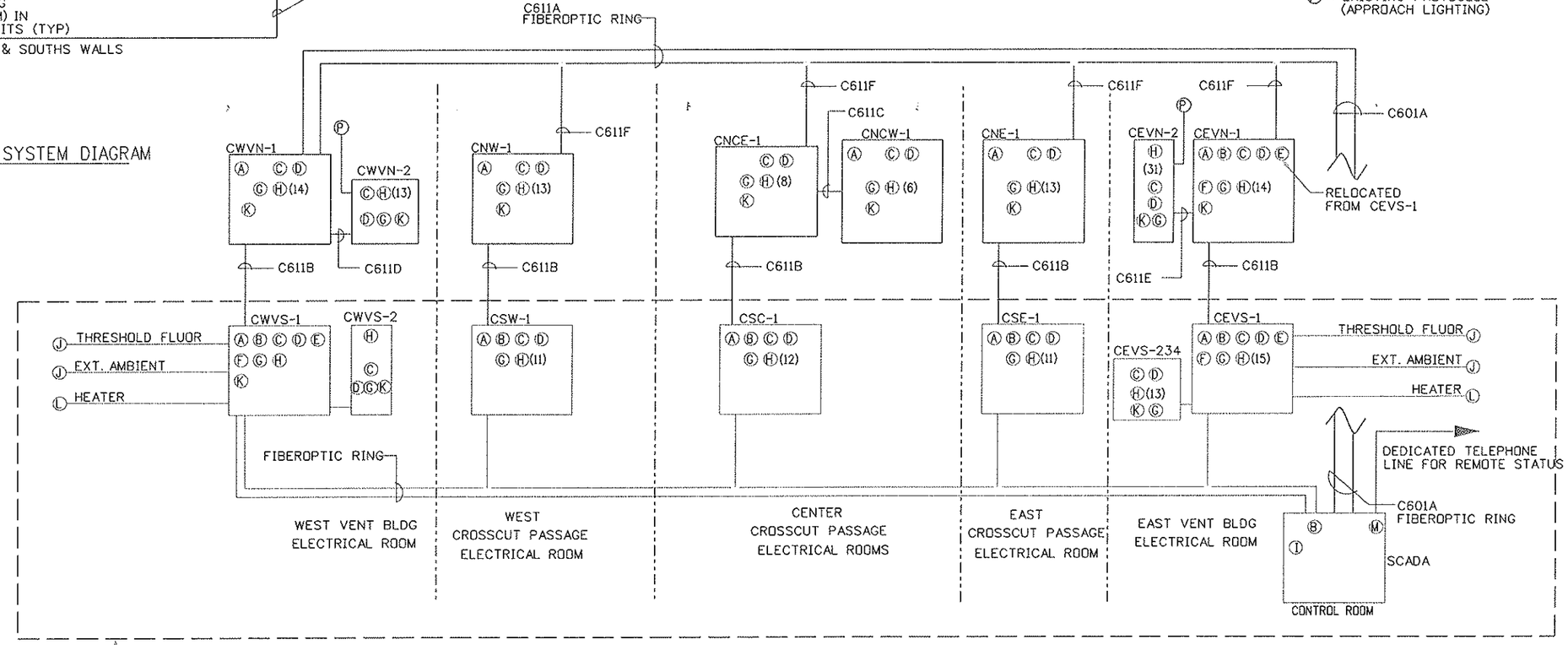
NOTES:

A. NEUTRAL BUS (EACH PANELBOARD) SHALL NOT BE BONDED TO THE GROUND BUS OF THE PANELBOARD. CONNECTION SHALL BE MADE ONLY AT THE SOURCE. FOR A SEPERATELY DERIVED SYSTEM ("STEP DOWN" TRANSFORMER) IT SHALL BE BONDED WITH THE TRANSFORMER NEUTRAL GROUNDING PAD OR LUG.

B. GROUNDING FOR ELECTRONIC, DATA LOGGING, TRANSMITTERS/RECEIVERS AND OTHER ELECTRONIC DEVICES SHALL BE SEPARATE FROM THE ELECTRICAL (A/C) SYSTEM GROUND. BONDING OF THESE SYSTEMS "GROUND" SHALL BE MADE AT THE SOURCE ONLY.

LEGEND

- Ⓐ = SERIAL COMM.
- Ⓑ = F.O. COMM.
- Ⓒ = HOA SELECTOR SWITCHES
- Ⓓ = PILOT LIGHT (LED HOA)
- Ⓔ = OPERATOR TERMINAL
- Ⓕ = ANALOG I/O
- Ⓖ = DIGITAL I/O
- Ⓗ = LIGHTING CONTACTORS (QTY)
- Ⓘ = PC WORKSTATION (BY ITS)
- Ⓙ = TEMPERATURE SENSOR
- Ⓚ = RACK COMMUNICATION MODULE
- Ⓛ = LUMINANCE SENSOR
- Ⓜ = MODEM
- Ⓟ = EXISTING PHOTOCELL (APPROACH LIGHTING)



SOUTH TUNNEL (EXISTING) - SEE CONTRACT # IM0703-264 : 12982 ASBUILTS FOR FURTHER REFERENCE.

TUNNEL LIGHTING CONTROL BLOCK DIAGRAM

Computer File Information			
Creation Date:	04◇19◇99	Initials:	SFO
Last Modification Date:	02◇21◇07	Initials:	DJB
Full Path:	14102\800Deliv\AsBuilt\		
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Acad Ver. R14	Scale: NONE	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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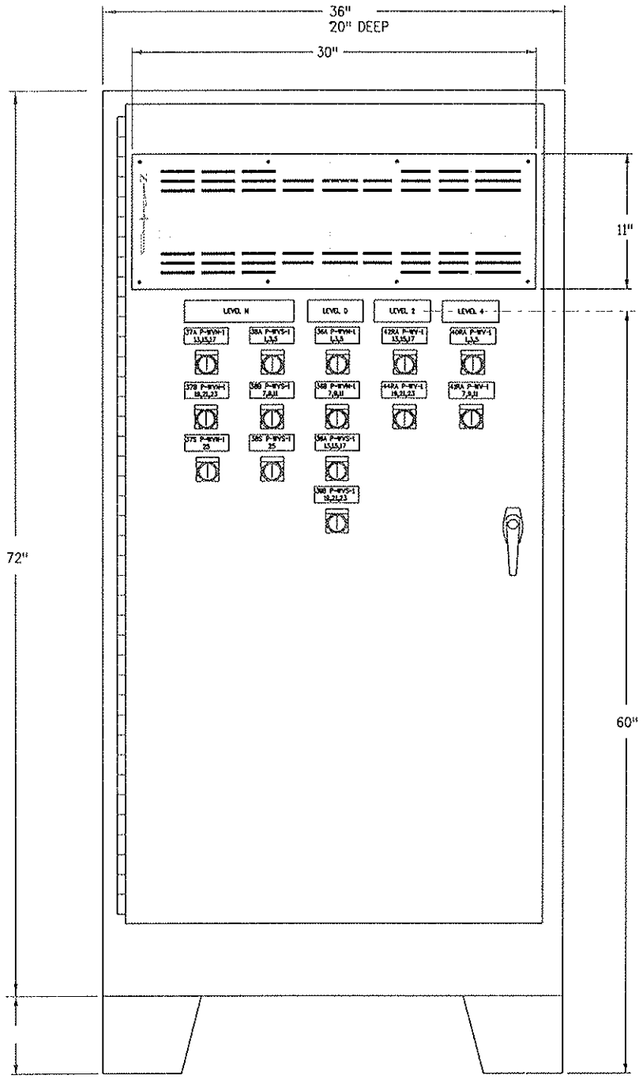
As Constructed	
No Revisions:	
Revised:	
Void:	

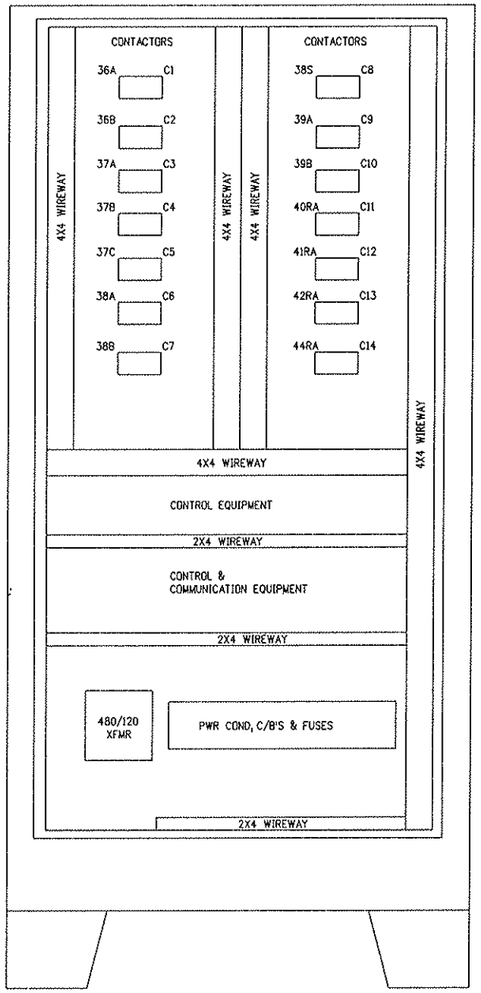
TUNNEL LIGHTING CONTROL SYSTEMS

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN POWER	Subset Sheets:	15 of 45

Project No./Code	
IM 0703-269	
13166	
Sheet Number	81



FRONT DOOR VIEW



INTERIOR VIEW

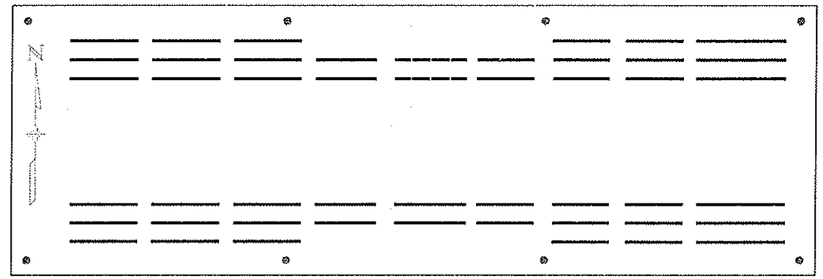
FLOOR STAND

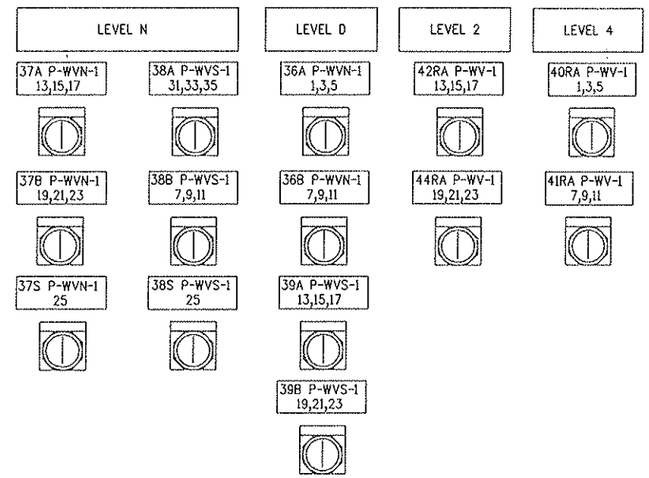
LIGHTING CONTROL AND CONTACTOR CABINET CWVN-1

PANEL ASSEMBLY IN WEST VENT. BLDG.

1/4" CLEAR VIRGIN ACRYLIC SHEET WITH WEATHERSTRIP EDGES AND SECURED BY (8) 3/16" STAINLESS STEEL PAN HEAD MACHINE SCREWS WITH WASHERS AND NUTS

REPRODUCE THE "LIGHTING LEVEL CONTROL DIAGRAM - I-70 WESTBOUND" AS SHOWN ON THE NORTH TUNNEL LIGHTING CONTROL DIAGRAM DRAWING SHEET 2 OF THE SUBSET TUN POWER. SIZE THE REPRODUCTION TO FULLY FIT THE FRAME





ENLARGED VIEW OF

FRONT DOOR SWITCHES FOR CABINET CWVN-1

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04◇19◇99	Initials:	SFO
Last Modification Date:	02◇21◇07	Initials:	DJB
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	ld20wn		
Acad Ver. R14	Scale: None	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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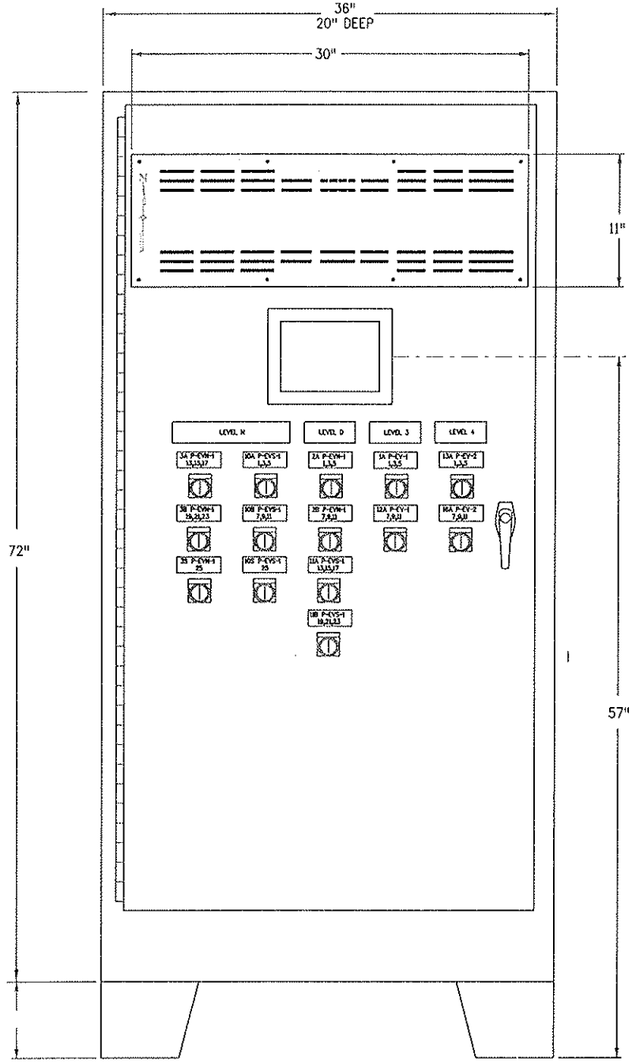
Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL
LIGHTING CONTROL 1

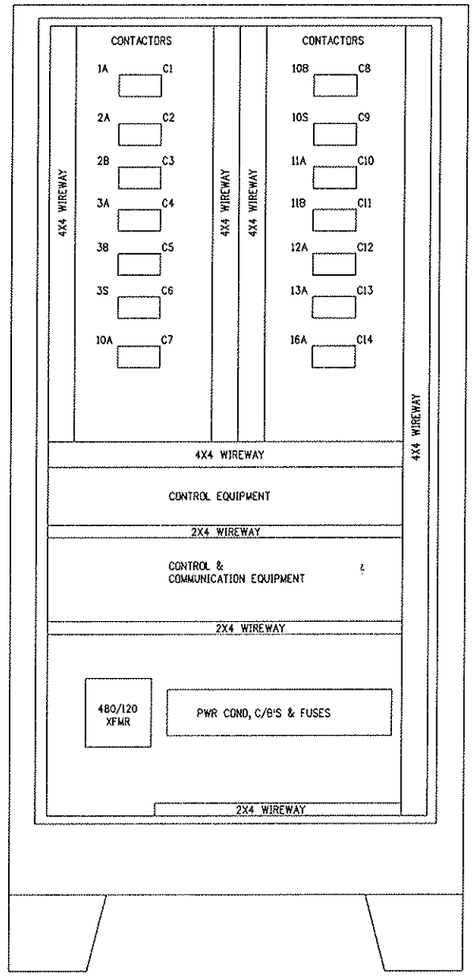
Designer:	J WALSH	Structure Numbers	
Detailer:	D. BURROUGHS		
Sheet Subset:	TUN POWER	Subset Sheets:	16 of 45

Project No./Code	
IM 0703-269	
13166	
Sheet Number	82



FRONT DOOR VIEW

FLOOR STAND



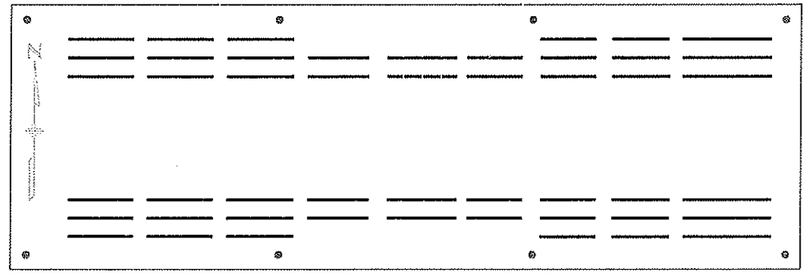
INTERIOR VIEW

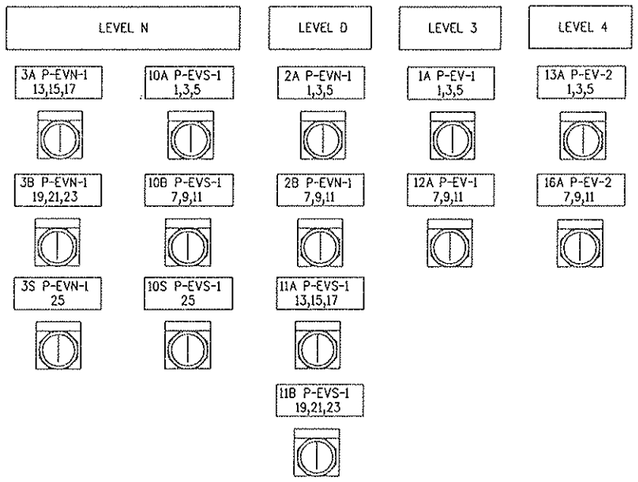
LIGHTING CONTROL AND CONTACTOR CABINET CEVN-1

PANEL ASSEMBLY IN EAST VENT BLDG

1/4" CLEAR VIRGIN ACRYLIC SHEET WITH WEATHERSTRIP EDGES AND SECURED BY (8) 3/16" STAINLESS STEEL PAN HEAD MACHINE SCREWS WITH WASHERS AND NUTS

REPRODUCE THE "LIGHTING LEVEL CONTROL DIAGRAM - I-70 WESTBOUND" AS SHOWN ON THE NORTH TUNNEL LIGHTING CONTROL DIAGRAM DRAWING SHEET 2 OF THE SUBSET TUN POWER. SIZE THE REPRODUCTION TO FULLY FIT THE FRAME





ENLARGED VIEW OF

FRONT DOOR SWITCHES FOR CABINET CEVN-1

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	09/21/07	Initials:	DJB
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	tc21sm		
Acad Ver. R14	Scale: None	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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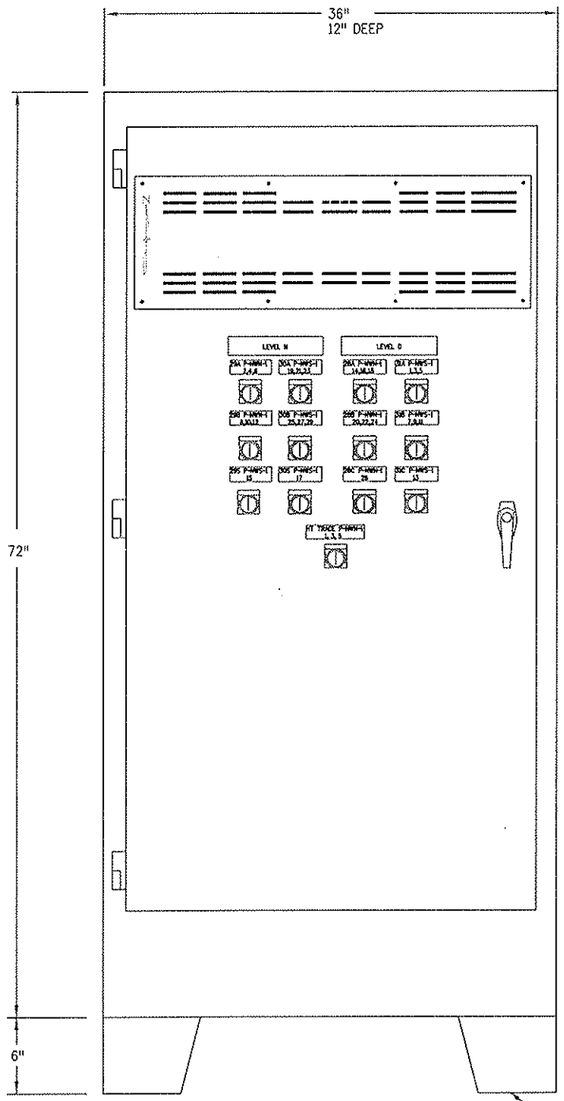
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

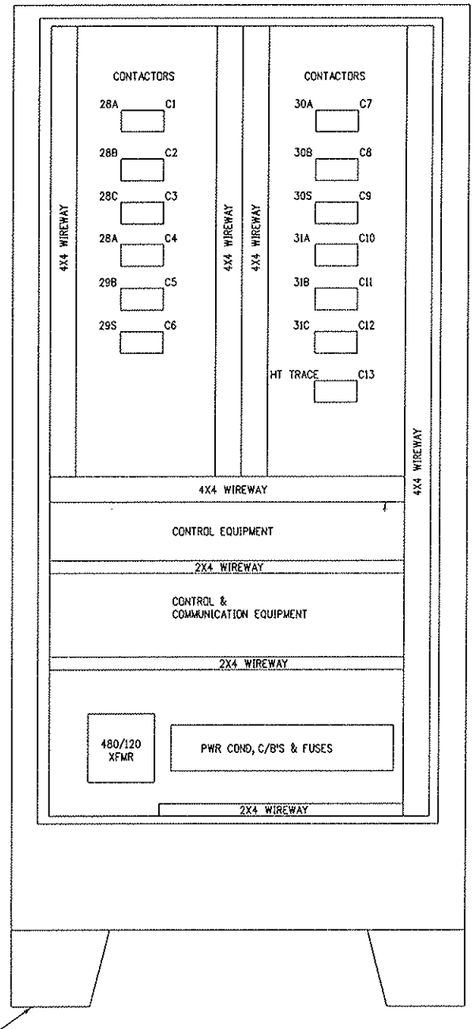
NORTH TUNNEL
LIGHTING CONTROL 2

Designer: J WALSH
Detailer: D. BURROUGHS
Sheet Subset: TUN POWER
Structure Numbers:
Subset Sheets: 17 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 83

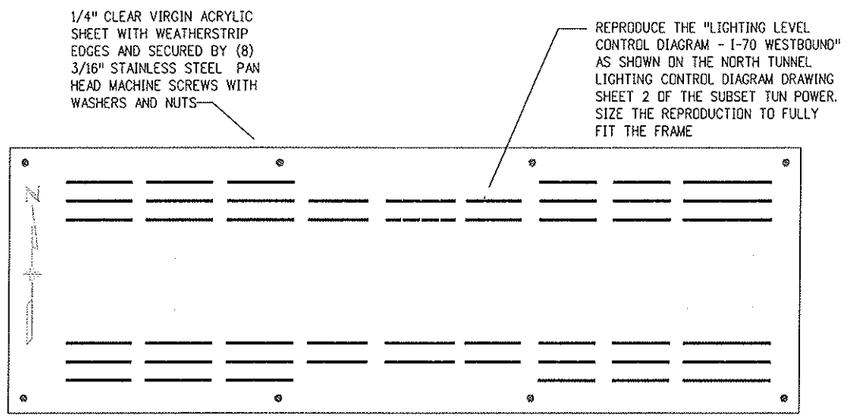


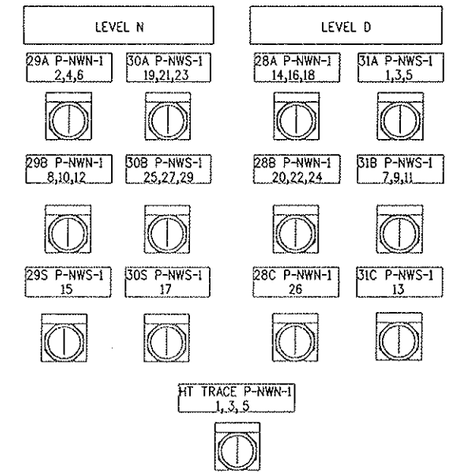
FRONT DOOR VIEW



INTERIOR VIEW

FLOOR STAND





ENLARGED VIEW OF
FRONT DOOR SWITCHES FOR CABINET CNW-1

LIGHTING CONTROL AND CONTACTOR CABINET CNW-1
PANEL ASSEMBLY IN NORTH TUNNEL WEST CROSSCUT PASSAGE ELECTRICAL ROOM

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	02/21/07	Initials:	DJB
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Drawing File Name:	1412??.		
Acad Ver. R14	Scale: NONE	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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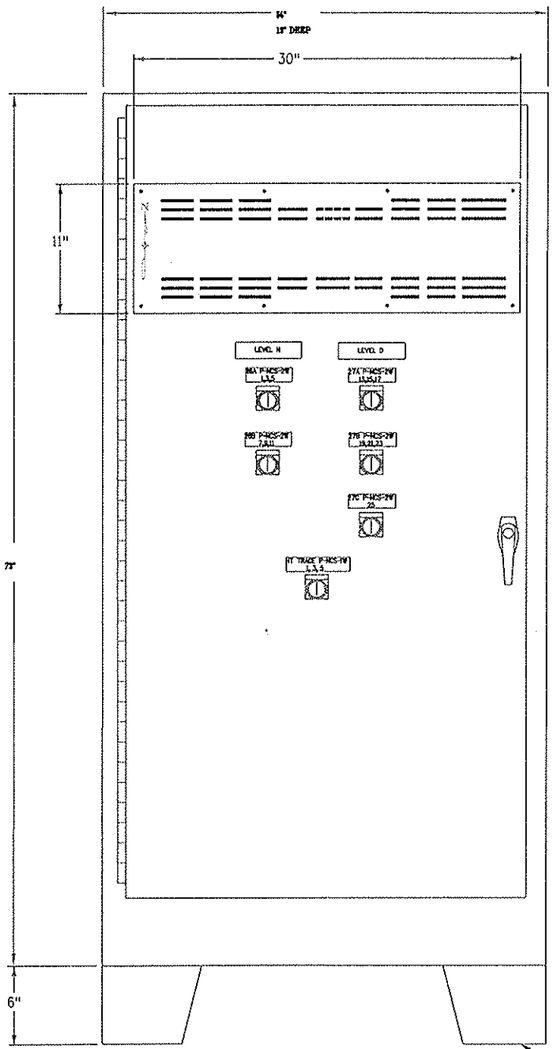
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

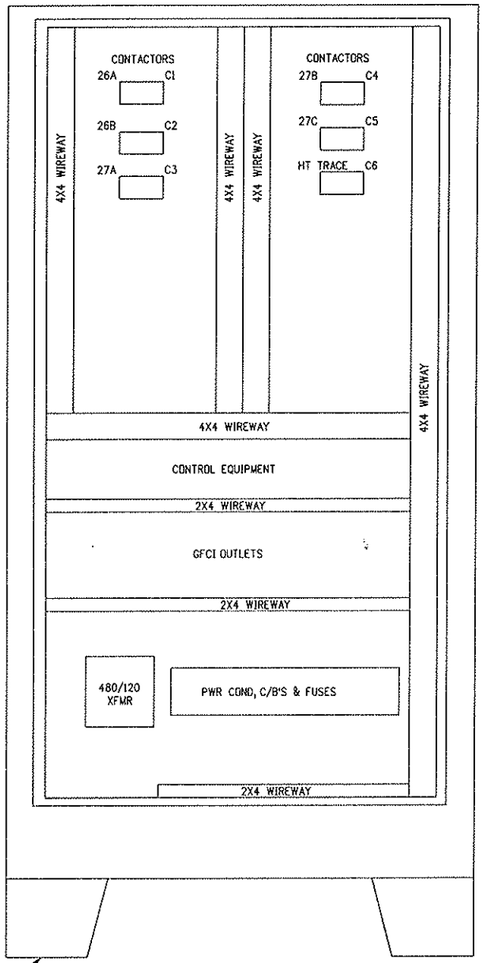
NORTH TUNNEL
LIGHTING CONTROL 3

Designer: J. WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers:
Subset Sheets: 18 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 84



FRONT DOOR VIEW



INTERIOR VIEW

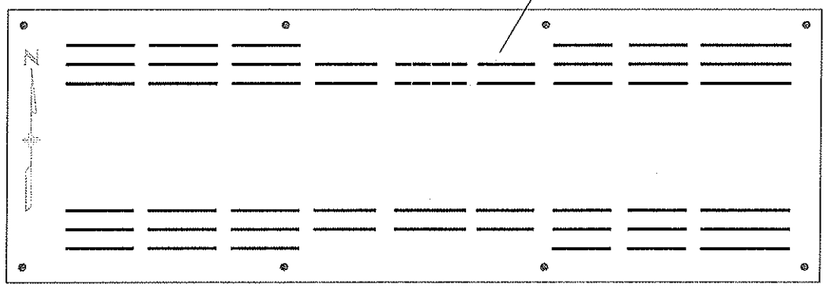
FLOOR STAND

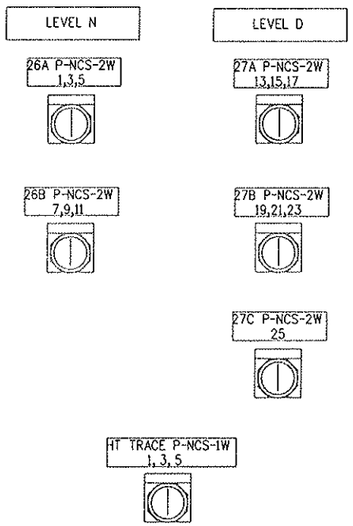
LIGHTING CONTROL AND CONTACTOR CABINET CNCW-1

PANEL ASSEMBLY IN NORTH TUNNEL WEST CENTER CROSSCUT PASSAGE ELECTRICAL ROOM

1/4" CLEAR VIRGIN ACRYLIC SHEET WITH WEATHERSTRIP EDGES AND SECURED BY (8) 3/16" STAINLESS STEEL PAN HEAD MACHINE SCREWS WITH WASHERS AND NUTS

REPRODUCE THE "LIGHTING LEVEL CONTROL DIAGRAM - I-70 WESTBOUND" AS SHOWN ON THE NORTH TUNNEL LIGHTING CONTROL DIAGRAM DRAWING SHEET 2 OF THE SUBSET TUN POWER. SIZE THE REPRODUCTION TO FULLY FIT THE FRAME.





ENLARGED VIEW OF

FRONT DOOR SWITCHES FOR CABINET CNCW-1

Computer File Information				Sheet Revisions		
Creation Date:	04/19/99	Initials:	SFO	07/03/07	ASBUILT	DJB
Last Modification Date:	02/21/07	Initials:	DJB			
Full Path:	14102\800Deliv\AsBuilt\					
Drawing File Name:						
Acad Ver. R14	Scale: NONE	Units:				

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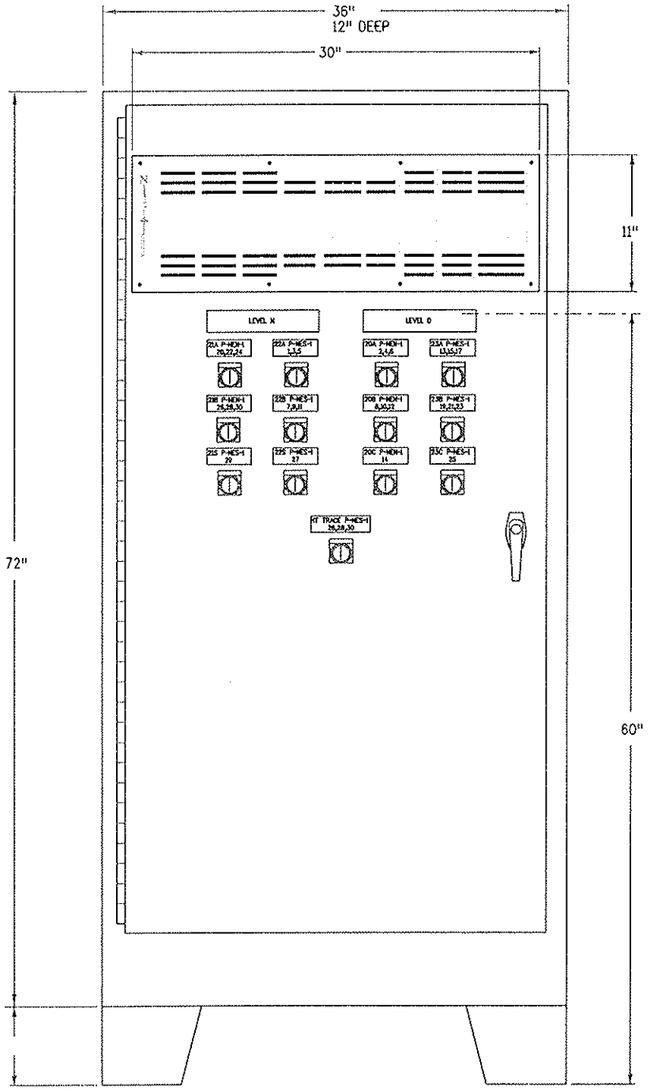
As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL
LIGHTING CONTROL 4

Designer: J. WALSH
Detailer: RODDENBERRY
Structure Numbers
Sheet Subset: TUN POWER
Subset Sheets: 19 of 45

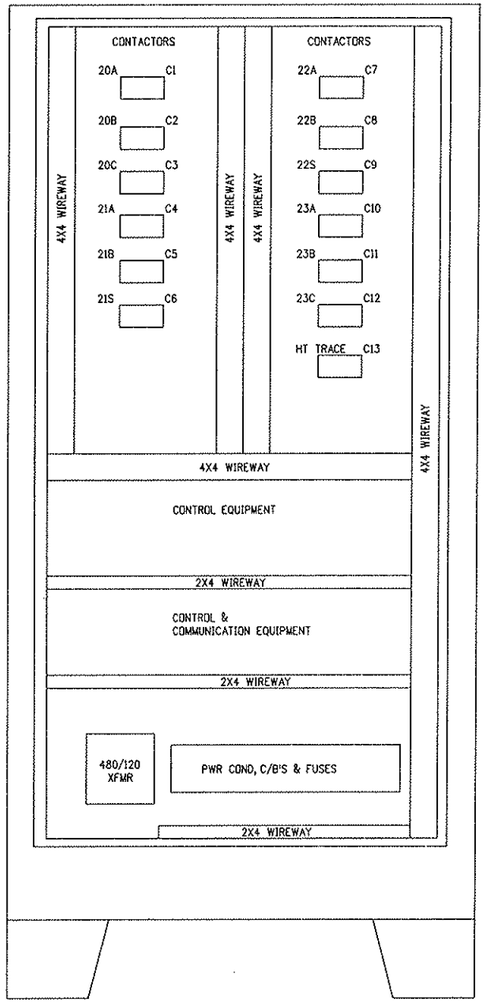
Project No./Code
IM 0703-269
13166
Sheet Number 85

Plot File Name: 3PLUTILE*
Date of Plot: $$$$DATE$$$$



FRONT DOOR VIEW

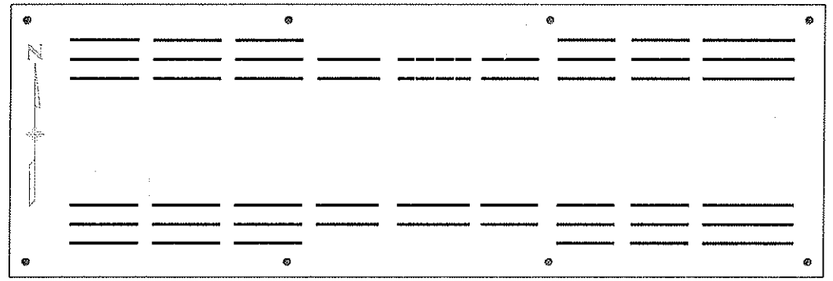
FLOOR STAND



INTERIOR VIEW

1/4" CLEAR VIRGIN ACRYLIC SHEET WITH WEATHERSTRIP EDGES AND SECURED BY (8) 3/16" STAINLESS STEEL PAN HEAD MACHINE SCREWS WITH WASHERS AND NUTS

REPRODUCE THE "LIGHTING LEVEL CONTROL DIAGRAM - I-70 WESTBOUND" AS SHOWN ON THE NORTH TUNNEL LIGHTING CONTROL DIAGRAM DRAWING SHEET 2 OF THE SUBSET TUN POWER. SIZE THE REPRODUCTION TO FULLY FIT THE FRAME



ENLARGED VIEW OF
FRONT DOOR SWITCHES FOR CABINET CNE-1

LIGHTING CONTROL AND CONTACTOR CABINET CNE-1
PANEL ASSEMBLY IN NORTH TUNNEL EAST CROSSCUT PASSAGE ELECTRICAL ROOM

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	05-21-07	Initials:	DJB
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Drawing File Name:	$dgnSE$		
Acad Ver. R14	Scale: None	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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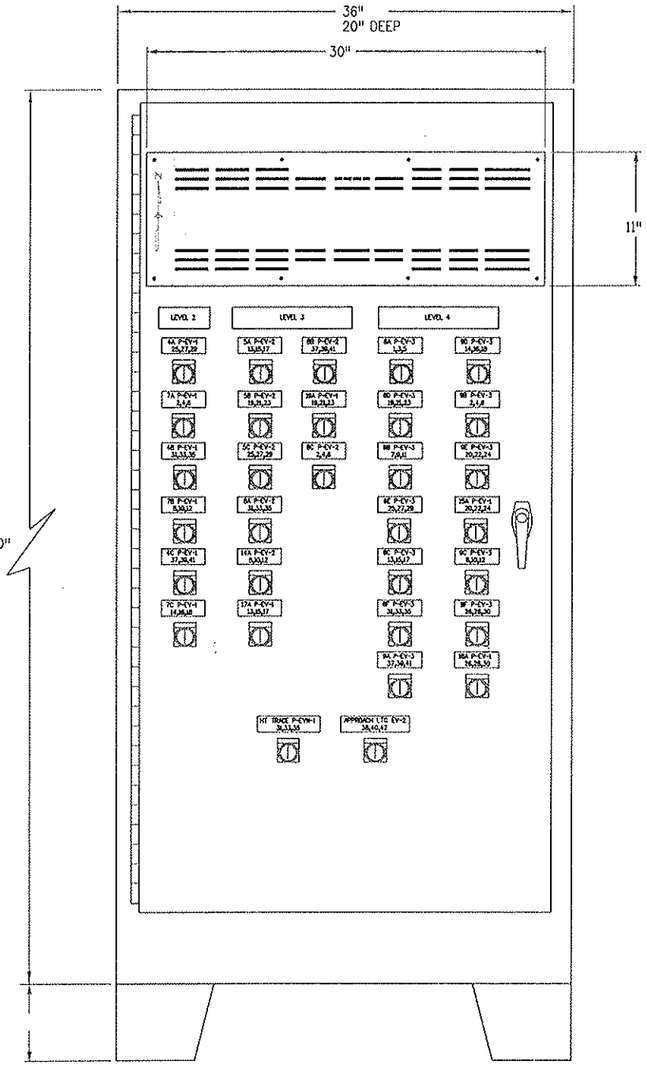
As Constructed
No Revisions:
Revised:
Void:

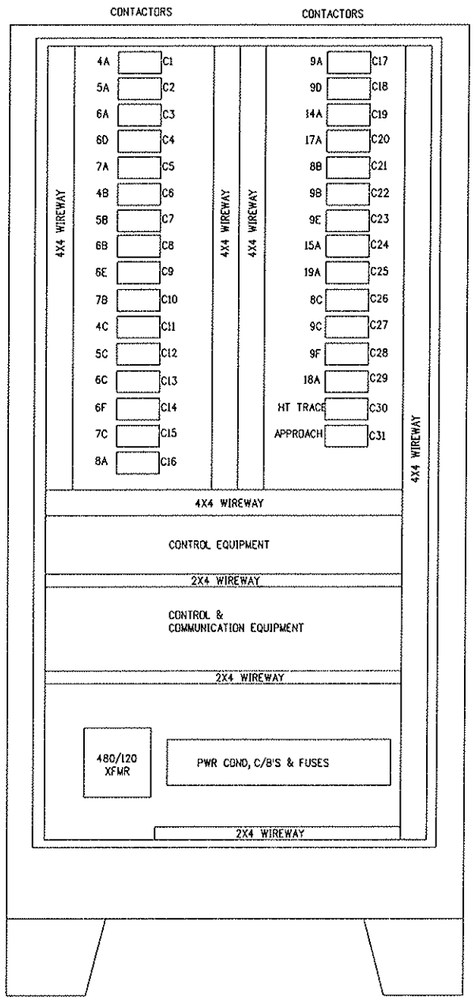
NORTH TUNNEL
LIGHTING CONTROL 5

Designer: J. WALSH | Structure Numbers:
Detailer: RODDENBERRY
Sheet Subset: TUN POWER | Subset Sheets: 20 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 86



FRONT DOOR VIEW



INTERIOR VIEW

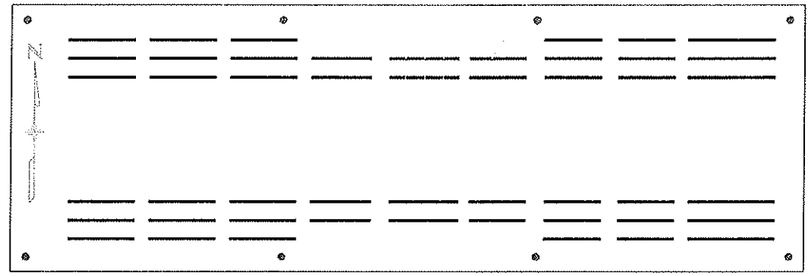
FLOOR STAND

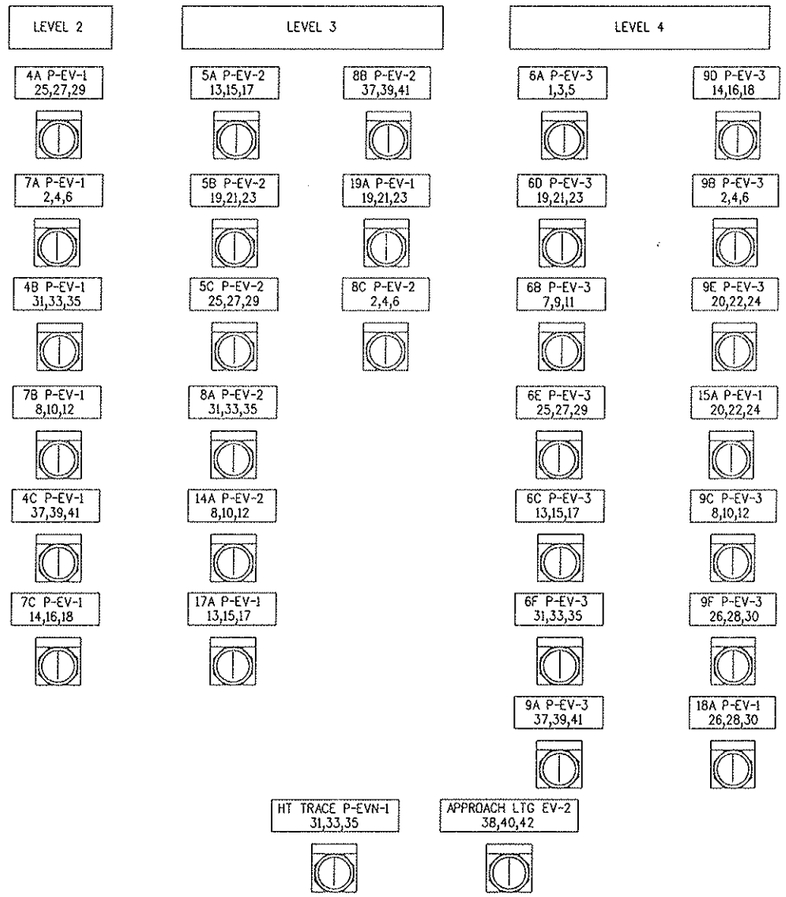
LIGHTING CONTROL AND CONTACTOR CABINET CEVN-2

PANEL ASSEMBLY IN EAST VENT. BLDG.

1/4" CLEAR VIRGIN ACRYLIC SHEET WTH WEATHERSTRIP EDGES AND SECURED BY (8) 3/16" STAINLESS STEEL PAN HEAD MACHINE SCREWS WITH WASHERS AND NUTS

REPRODUCE THE "LIGHTING LEVEL CONTROL DIAGRAM - I-70 WESTBOUND" AS SHOWN ON THE NORTH TUNNEL LIGHTING CONTROL DIAGRAM DRAWING SHEET 2 OF THE SUBSET TUN POWER. SIZE THE REPRODUCTION TO FULLY FIT THE FRAME





ENLARGED VIEW OF
FRONT DOOR SWITCHES FOR CABINET CEVN-2

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/19/99	Initials:	SFO
Last Modification Date:	03/21/07	Initials:	DJB
FullPath:	14102\800Deliv\AsBuilt\		
Drawing File Name:			
Acad Ver. R14	Scale: None	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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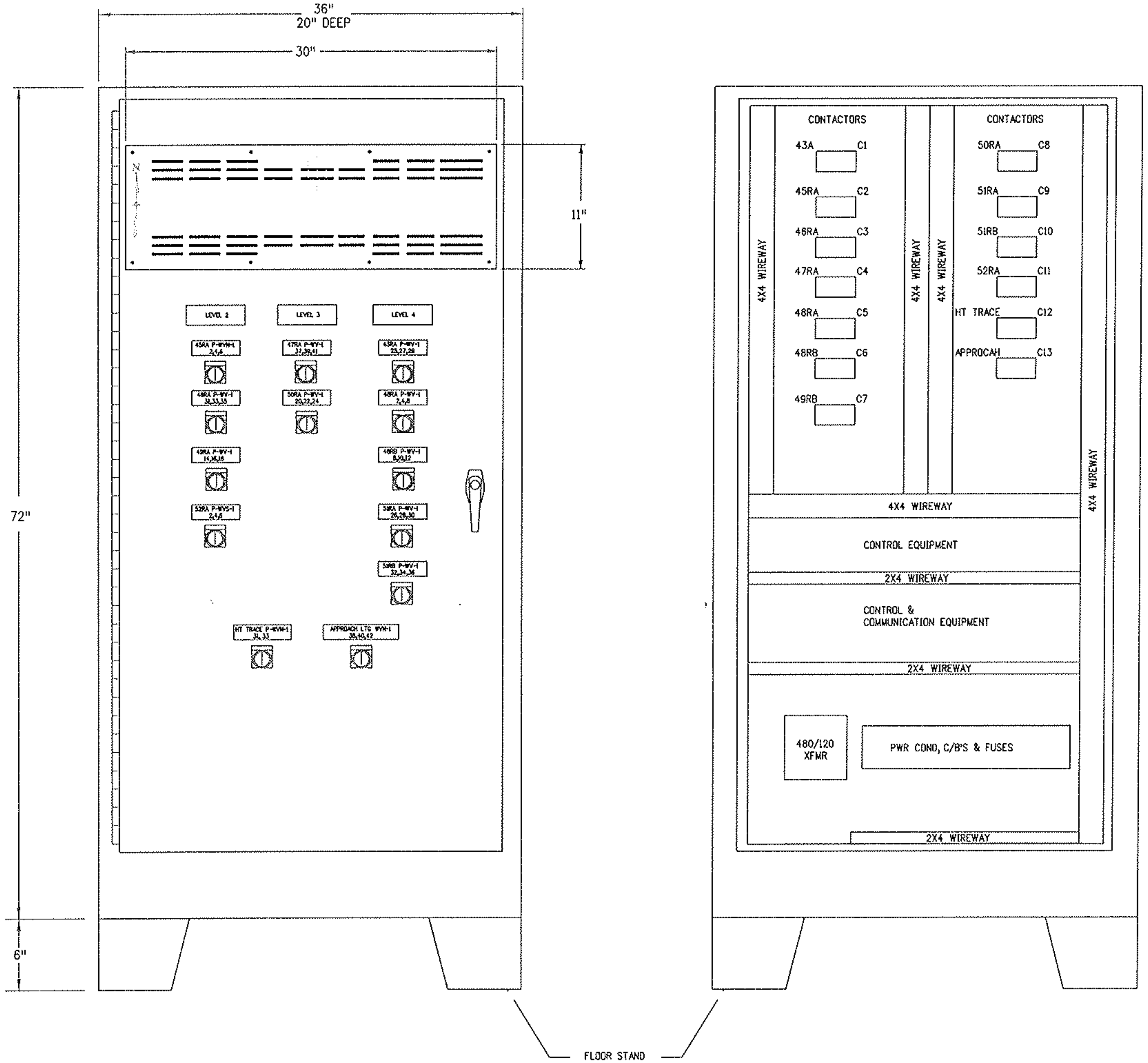
Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL LIGHTING CONTROL 6			
Designer: J WALSH	Structure Numbers		
Detailer: RODDENBERRY			
Sheet Subset: TUN POWER	Subset Sheets:	21 of 45	

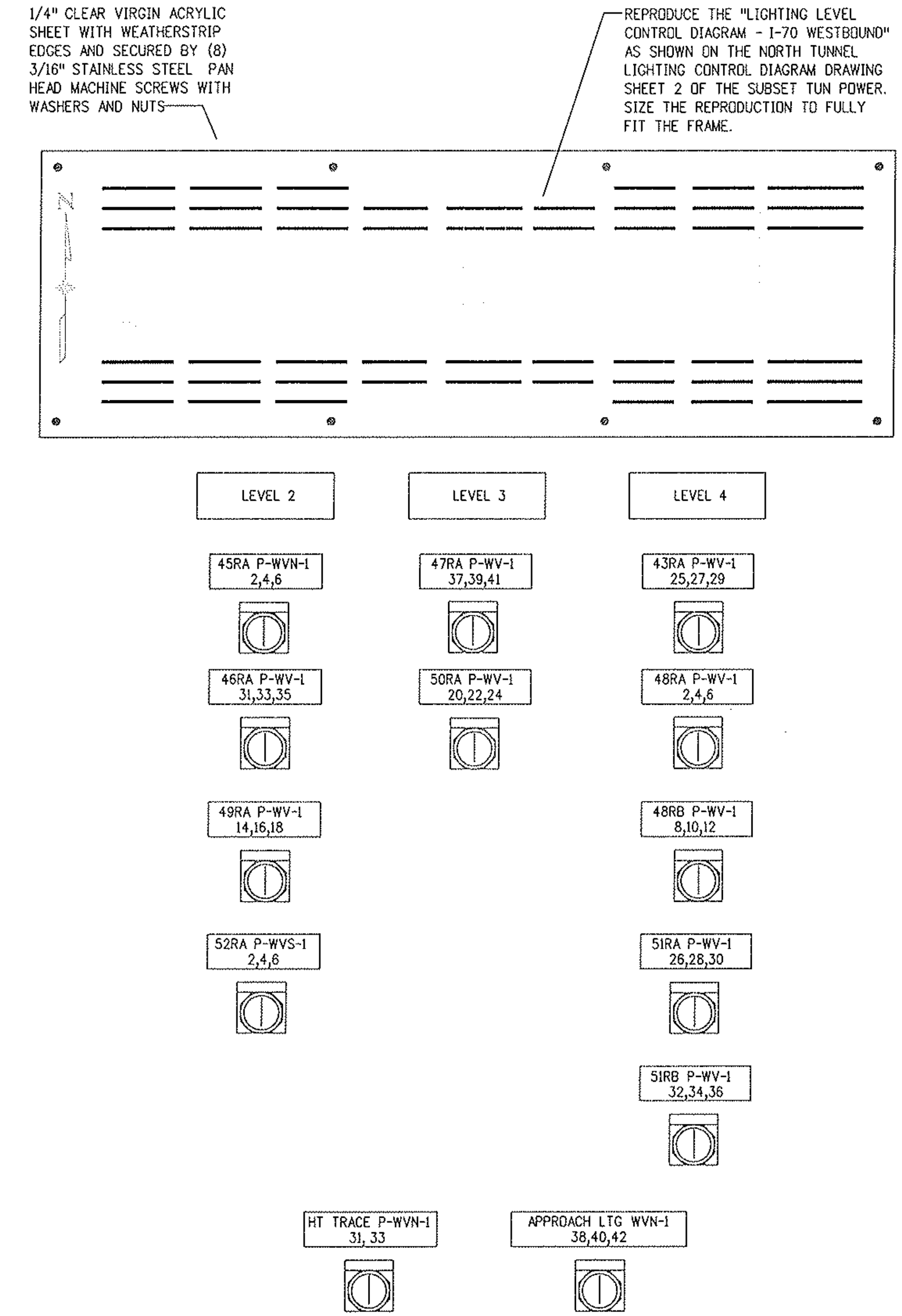
Project No./Code	
IM 0703-269	
13166	
Sheet Number	87



FRONT DOOR VIEW

INTERIOR VIEW

LIGHTING CONTROL AND CONTACTOR CABINET CWVN-2
WALL PANEL ASSEMBLY IN WEST VENT BUILDING



ENLARGED VIEW OF
FRONT DOOR SWITCHES FOR CABINET CWVN-2

Computer File Information				Sheet Revisions		
Creation Date:	09/23/99	Initials:	DMO	07/03/07	ASBUILT	DJB
Last Modification Date:	01/31/02	Initials:	DJR			
Full Path:	14102\700CADD\703ELECT\					
Drawing File Name:	lclc27wndwg					
Acad Ver. R14	Scale: NONE	Units:				

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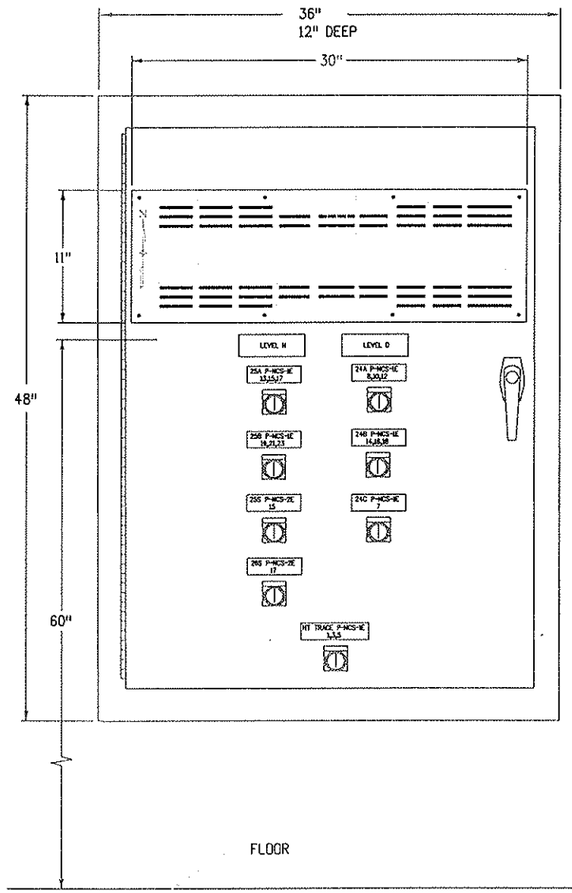
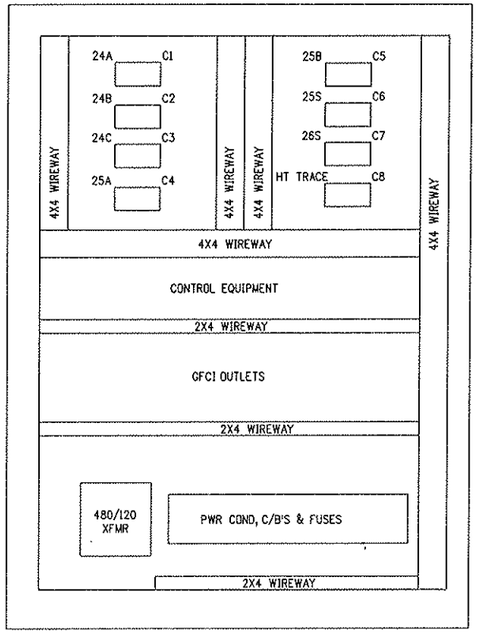
Region 1 Mountain Residency I.N.Z.

As Constructed	NORTH TUNNEL LIGHTING CONTROL 7		Project No./Code
No Revisions:			IM 0703-269
Revised:	Designer: J WALSH	Structure Numbers	13166
Void:	Detailer: RODDENBERRY		
	Sheet Subset: TUN POWER	Subset Sheets: 22 of 45	Sheet Number 88

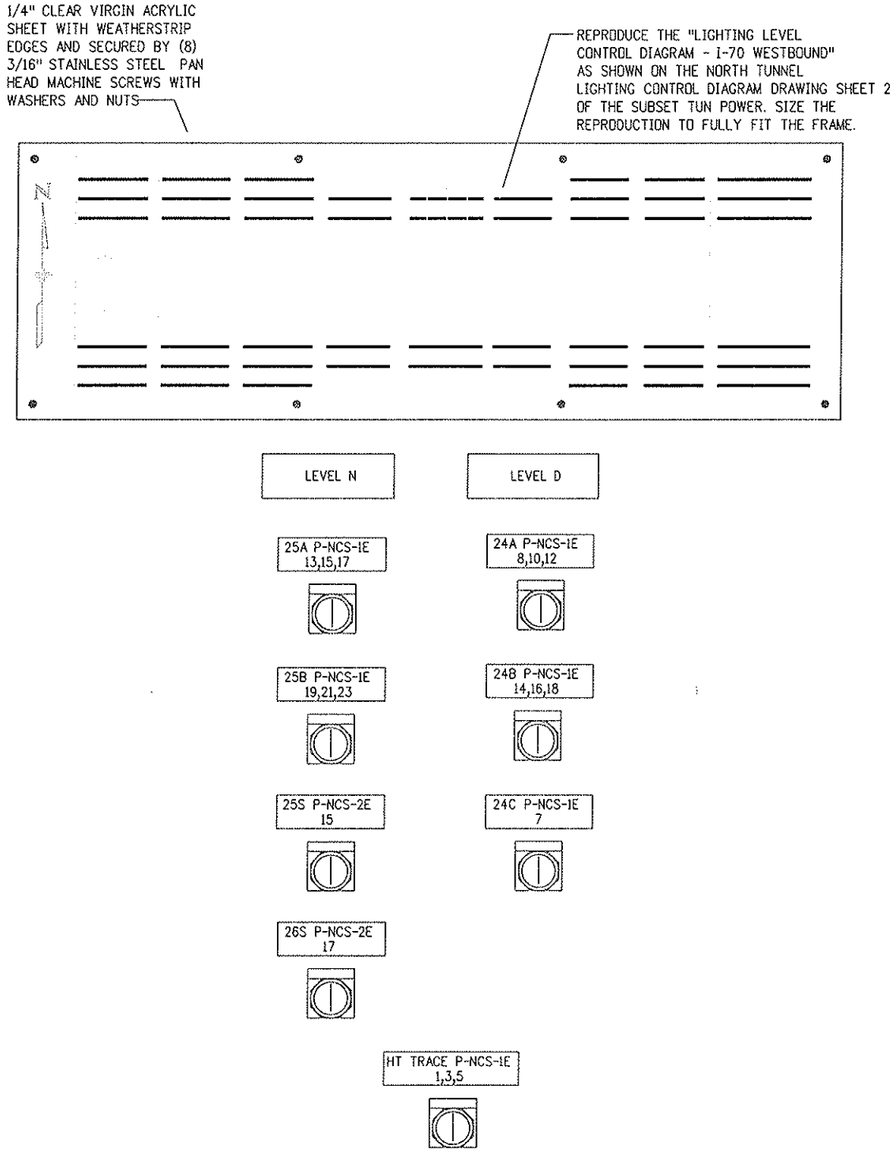


FRONT DOOR VIEW



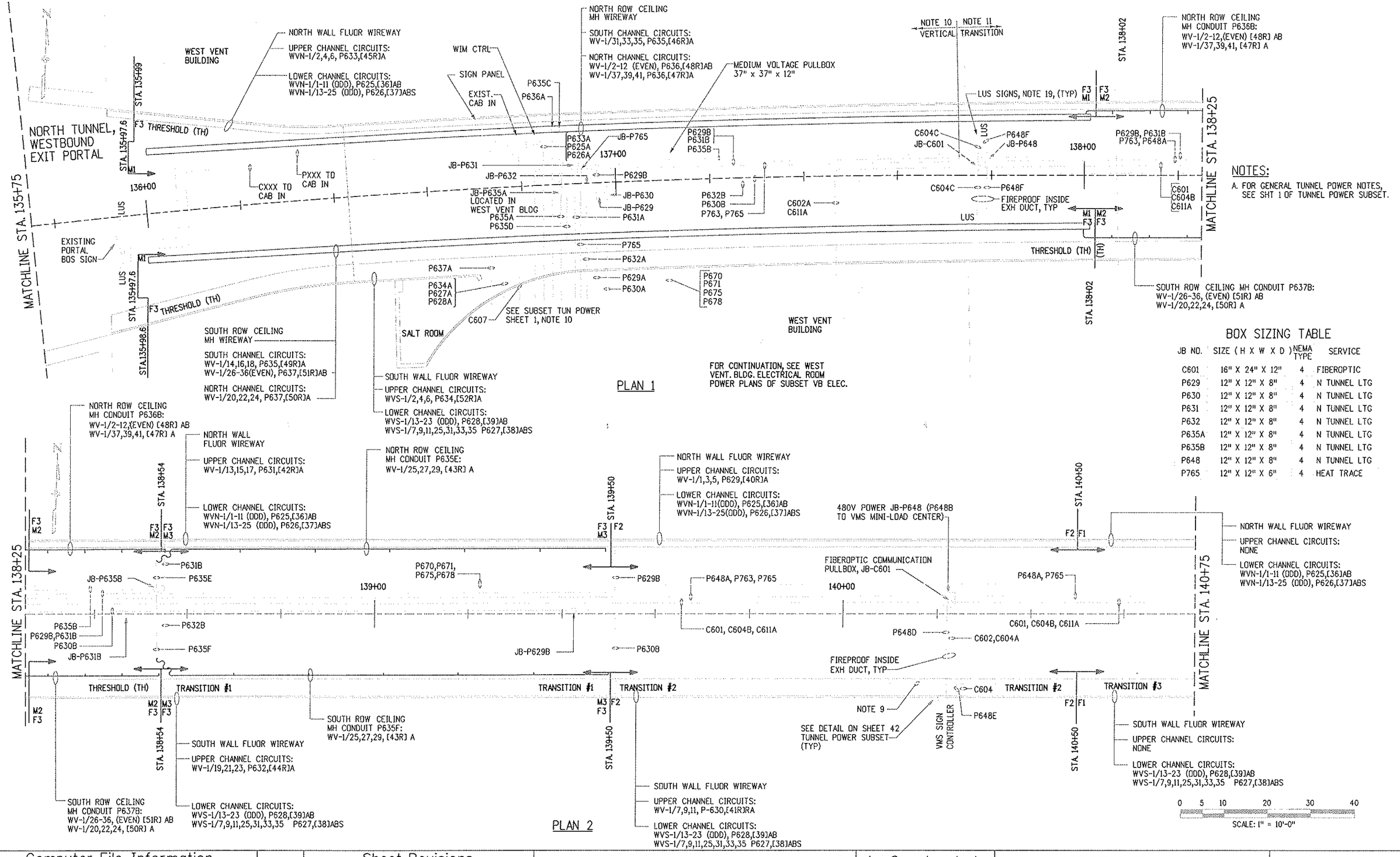
INTERIOR VIEW

LIGHTING CONTROL AND CONTACTOR CABINET CNCE-1
WALL PANEL ASSEMBLY IN NORTH CENTER EAST CROSSCUT PASSAGE ELECTRICAL ROOM



ENLARGED VIEW OF
FRONT DOOR SWITCHES FOR CABINET CNCE-1

Computer File Information				Sheet Revisions			Colorado Department of Transportation	As Constructed	NORTH TUNNEL LIGHTING CONTROL 8		Project No./Code
Creation Date:	09/23/99	Initials:	DMO	07/03/07	ASBUILT	DJB	P.O. BOX 399 DUMONT, CO. 80436 Phone: 303-512-5750 FAX: 303-512-5775	No Revisions:	Designer: J WALSH	Structure Numbers	IM 0703-269
Last Modification Date:	07◇21◇07	Initials:	DJB					Revised:	Detailer: RODDENBERRY		13166
Full Path:	14102\800Deliv\AsBuilt\							Void:	Sheet Subset: TUN POWER	Subset Sheets: 23 of 45	Sheet Number 89
Drawing File Name:							Region 1 Mountain Residency I.N.Z.				
Acad Ver. R14	Scale: NONE	Units:									



NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHT 1 OF TUNNEL POWER SUBSET.

BOX SIZING TABLE

JB NO.	SIZE (H X W X D)	NEMA TYPE	SERVICE
C601	16" X 24" X 12"	4	FIBEROPTIC
P629	12" X 12" X 8"	4	N TUNNEL LTG
P630	12" X 12" X 8"	4	N TUNNEL LTG
P631	12" X 12" X 8"	4	N TUNNEL LTG
P632	12" X 12" X 8"	4	N TUNNEL LTG
P635A	12" X 12" X 8"	4	N TUNNEL LTG
P635B	12" X 12" X 8"	4	N TUNNEL LTG
P648	12" X 12" X 8"	4	N TUNNEL LTG
P765	12" X 12" X 6"	4	HEAT TRACE

Design File Name: $DGNSPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	05/27/99	Initials:	SFD
Last Modification Date:	07/22/07	Initials:	DJB
Full Path:	14102\800deliv\AsBuilt		
Drawing File Name:	ppp101a		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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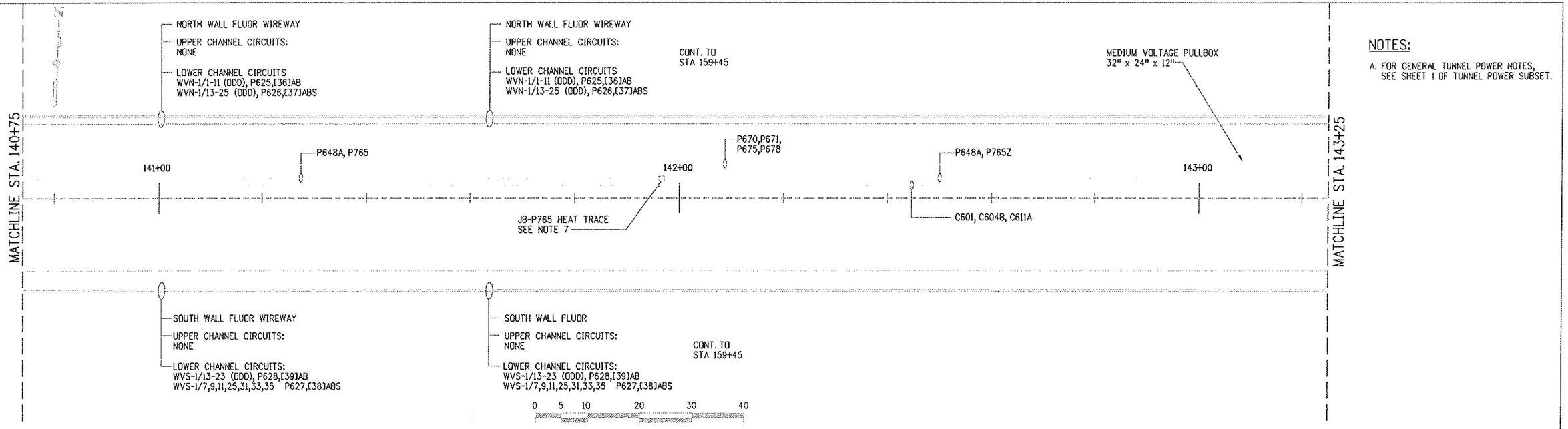
As Constructed
No Revisions:
Revised:
Void:

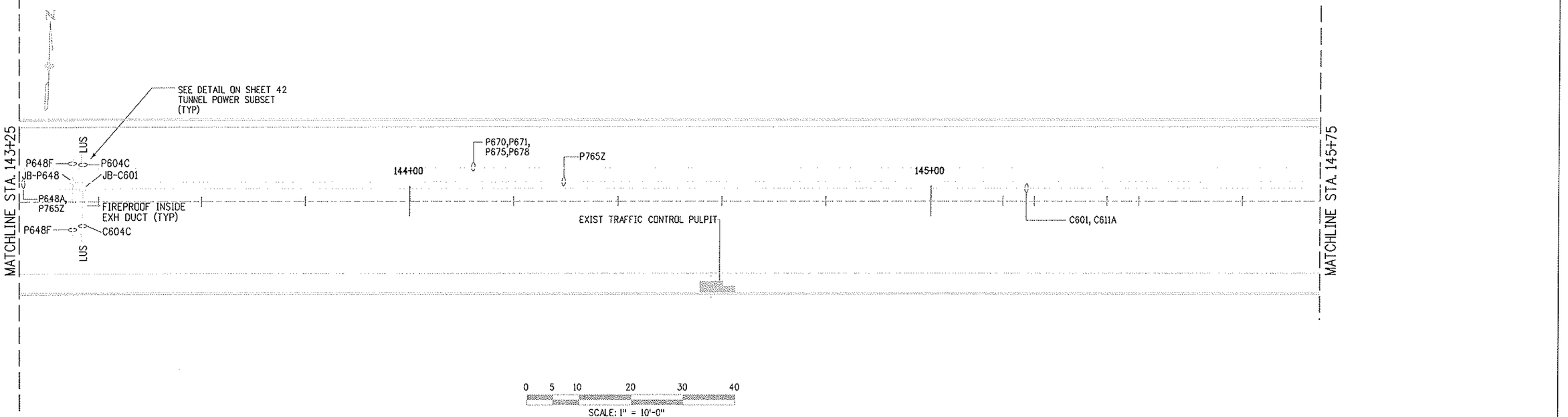
NORTH TUNNEL POWER PLANS 1

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN POWER	Subset Sheets:	24 of 45

Project No./Code	IM 0703-269
	13166
Sheet Number	90



PLAN 1



PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Design File Name: DGNSSPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	05/28/99	Initials:	SFD
Last Modification Date:	02/27/07	Initials:	DJR
FullPath:	14102\700CADD\[Discipline]\[Filenome]		
Drawing File Name:			
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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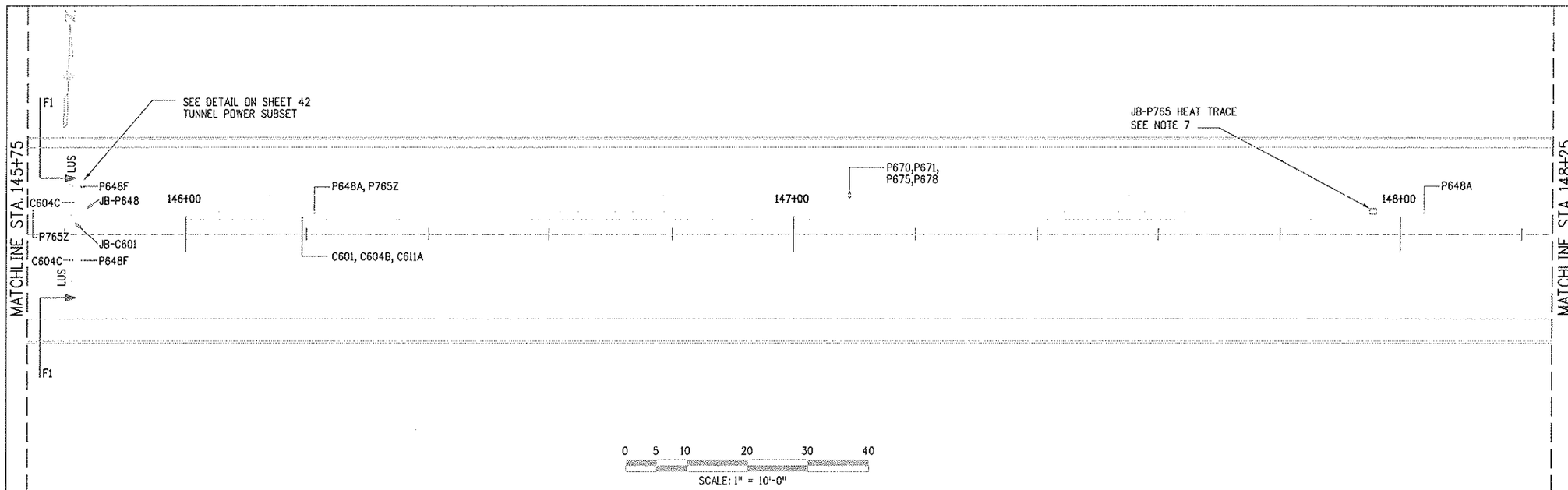
As Constructed
No Revisions:
Revised:
Void:

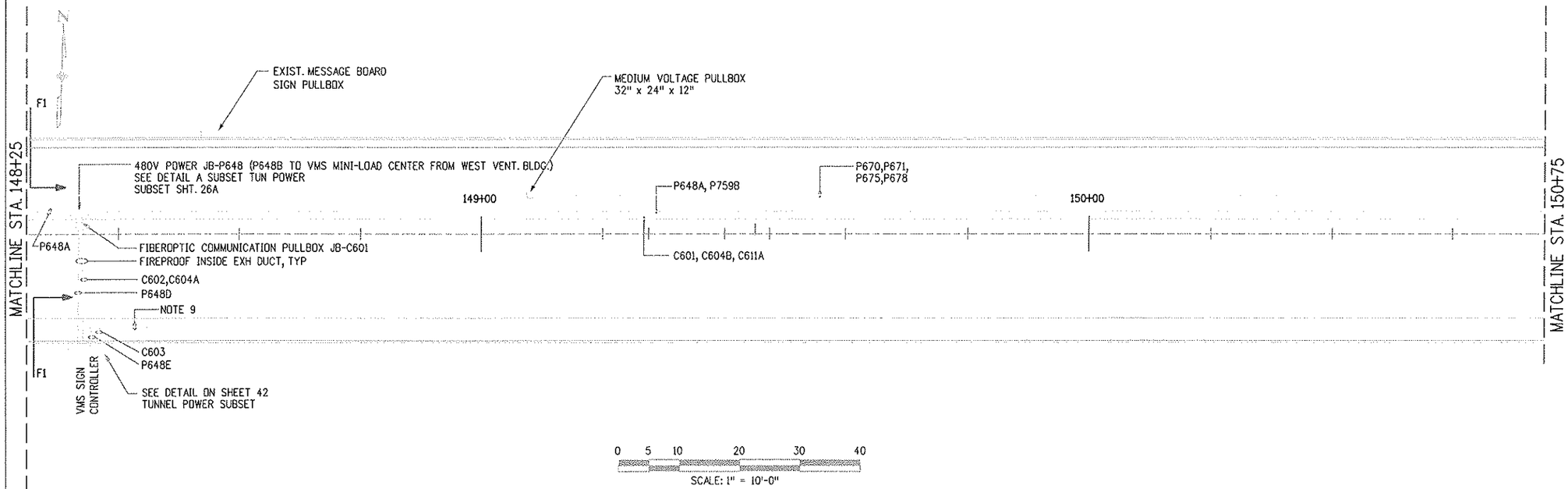
NORTH TUNNEL
POWER PLANS 2

Designer: J. WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN. POWER
Structure Numbers:
Subset Sheets: 25 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 91



PLAN 1



PLAN 2

NOTES

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 TUNNEL POWER SUBSET.

Computer File Information			
Creation Date:	04/26/99	Initials:	SPD
Last Modification Date:	01◇31◇07	Initials:	DJR
Full Path:	14102\800deliv\AsBuilt		
Drawing File Name:			
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Sheet Revisions		
07/03/07	ASBUILT	DJB

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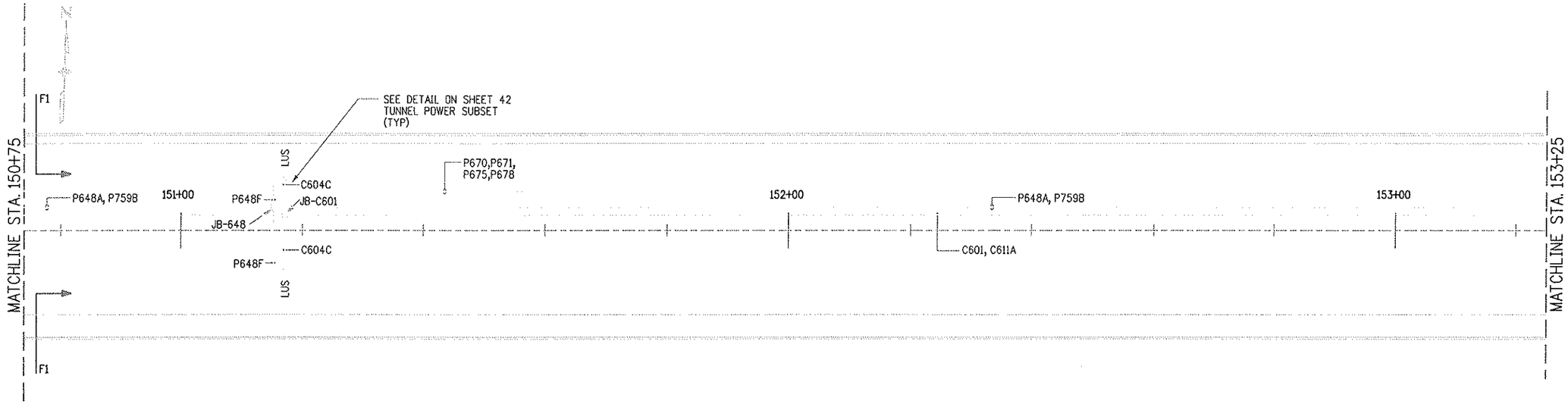
As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL
POWER PLANS 3

Designer: J. WALSH
Detailer: D. BURROUGHS
Sheet Subset: TUN. POWER
Structure Numbers:
Subset Sheets: 26 of 45

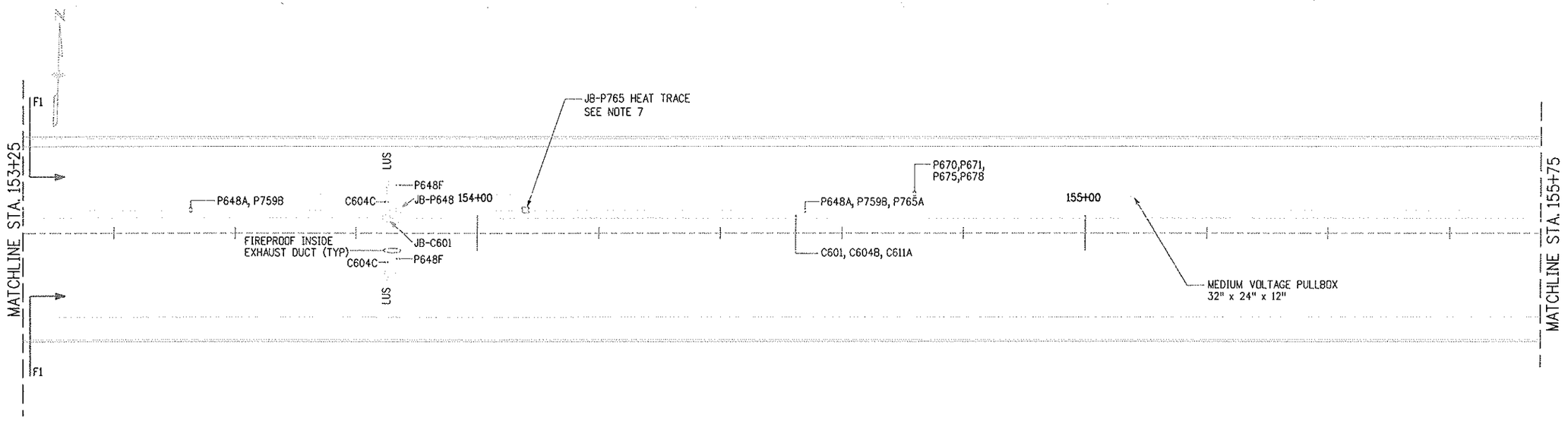
Project No./Code
IM 0703-269
13166
Sheet Number 92



0 5 10 20 30 40

SCALE: 1" = 10'-0"

PLAN 1



0 5 10 20 30 40

SCALE: 1" = 10'-0"

PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Design File Name: DGNSPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	02/27/07	Initials:	DJB
Full Path:	14102\800deliv\AsBuilt		
Drawing File Name:	**p104*		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

As Constructed

No Revisions:

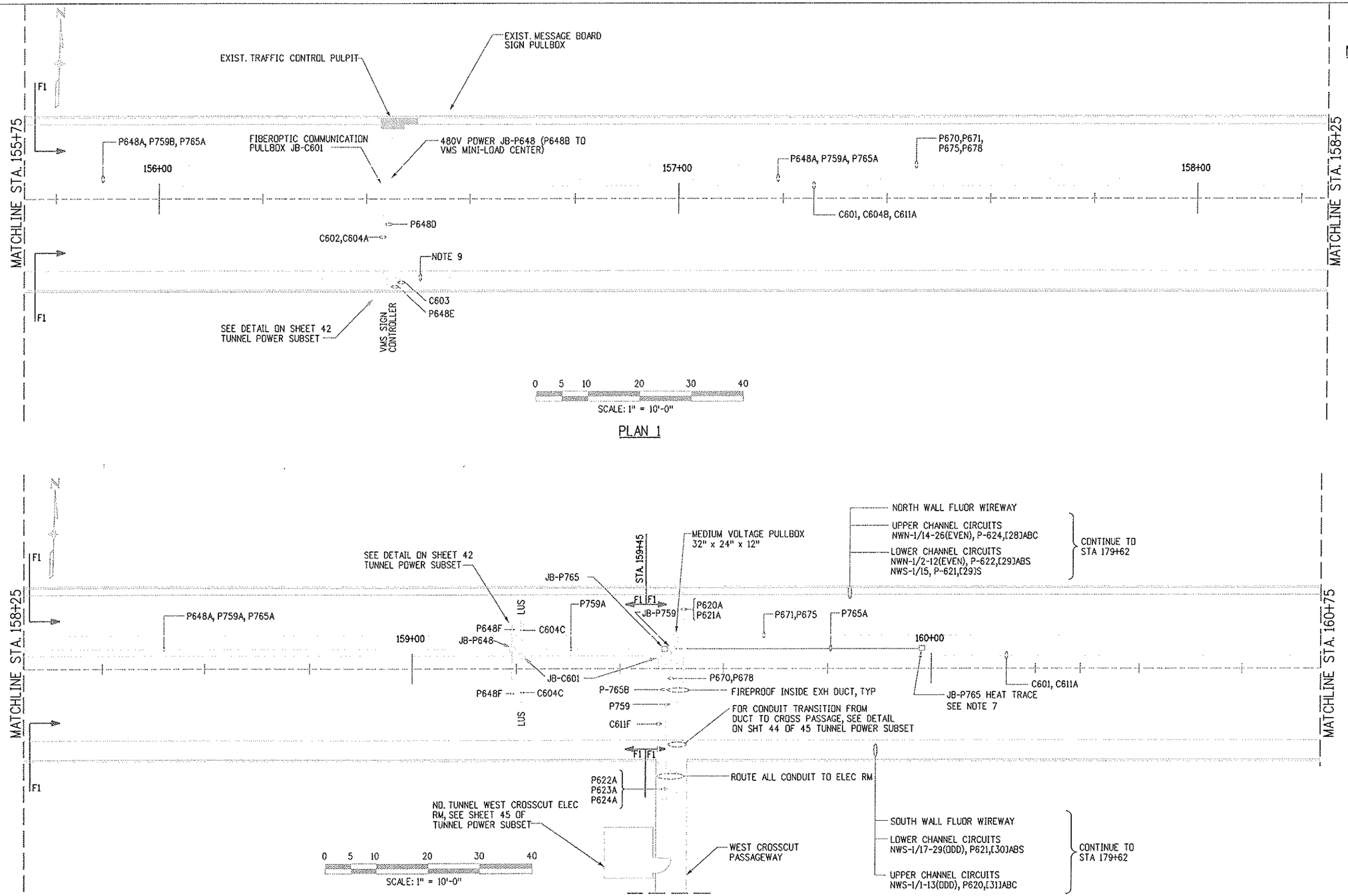
Revised:

Void:

NORTH TUNNEL POWER PLANS 4

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset: TUN. POWER		Subset Sheets:	27 of 45

Project No./Code	
IM 0703-269	
13166	
Sheet Number	93



NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	05/27/07	Initials:	DJB
FullPath:	14102\800deliv\AsBuilt		
Drawing File Name:	$$$105.$		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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No Revisions:
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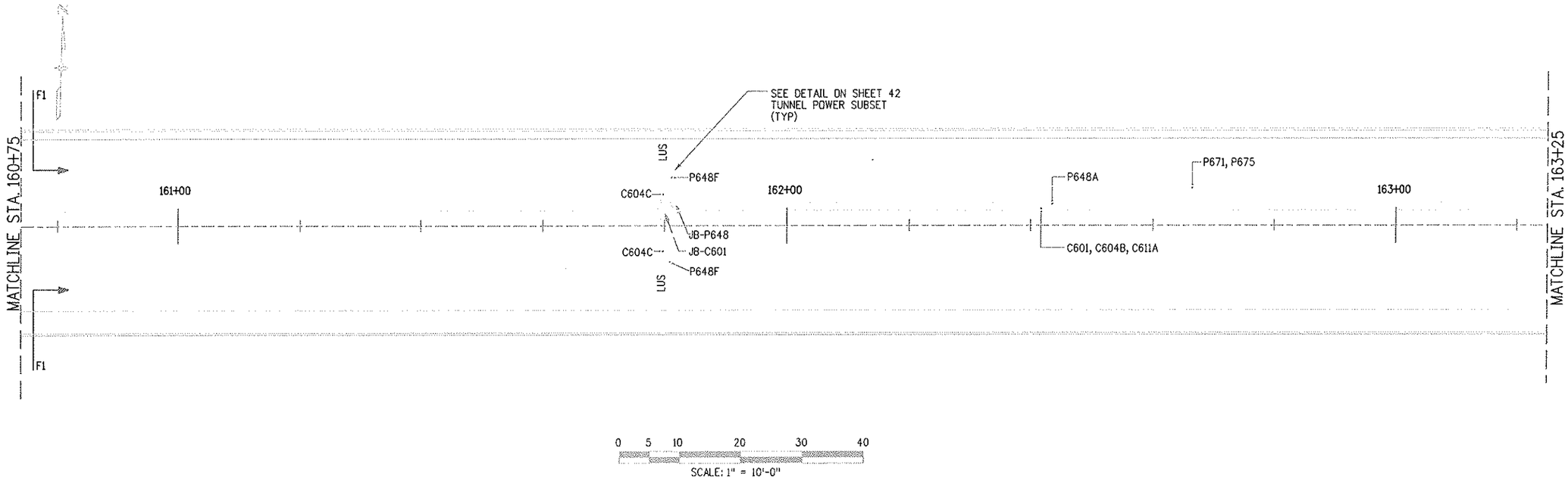
Void:

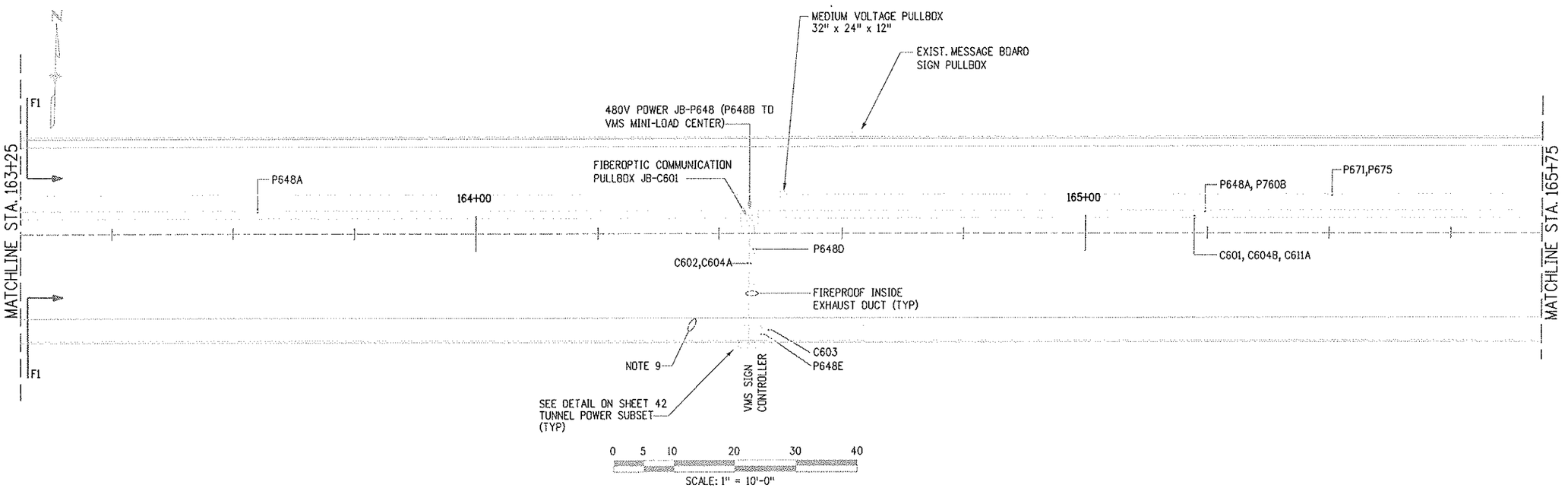
NORTH TUNNEL POWER PLANS 5

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN. POWER	Subset Sheets:	28 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 94



PLAN 1



PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	01◇31◇02	Initials:	DJR
Full Path:	14102\700CADD\(Discipline)\(Filename)		
Drawing File Name:	sppl06a.dwg		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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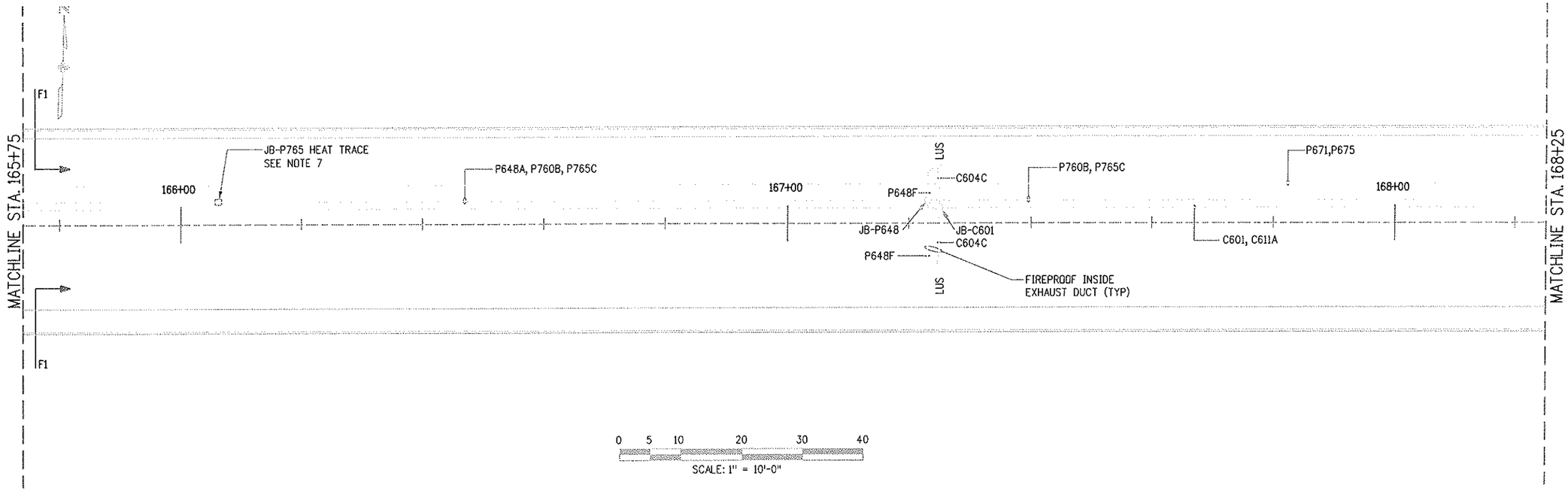
As Constructed	
No Revisions:	
Revised:	
Void:	

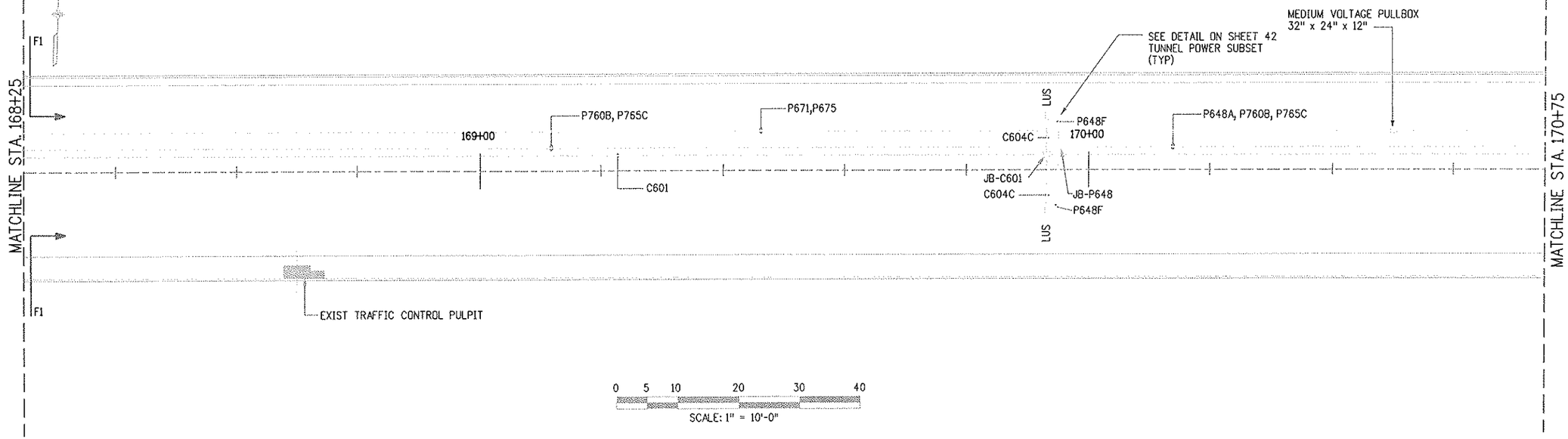
NORTH TUNNEL
POWER PLANS 6

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN. POWER	Subset Sheets:	29 of 45

Project No./Code	
IM 0703-269	
13166	
Sheet Number	95



PLAN 1



PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	01◇31◇07	Initials:	DJB
Full Path:	14102\800deliv\AsBuilt		
Drawing File Name:	••p107a		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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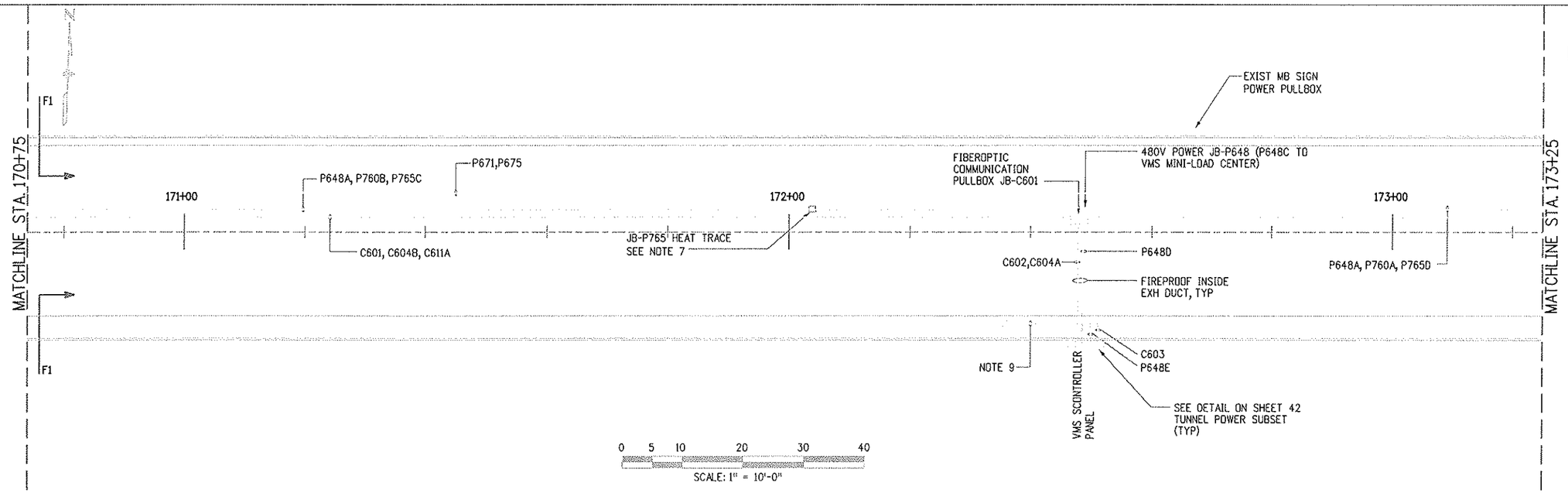
As Constructed	
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL POWER PLANS 7

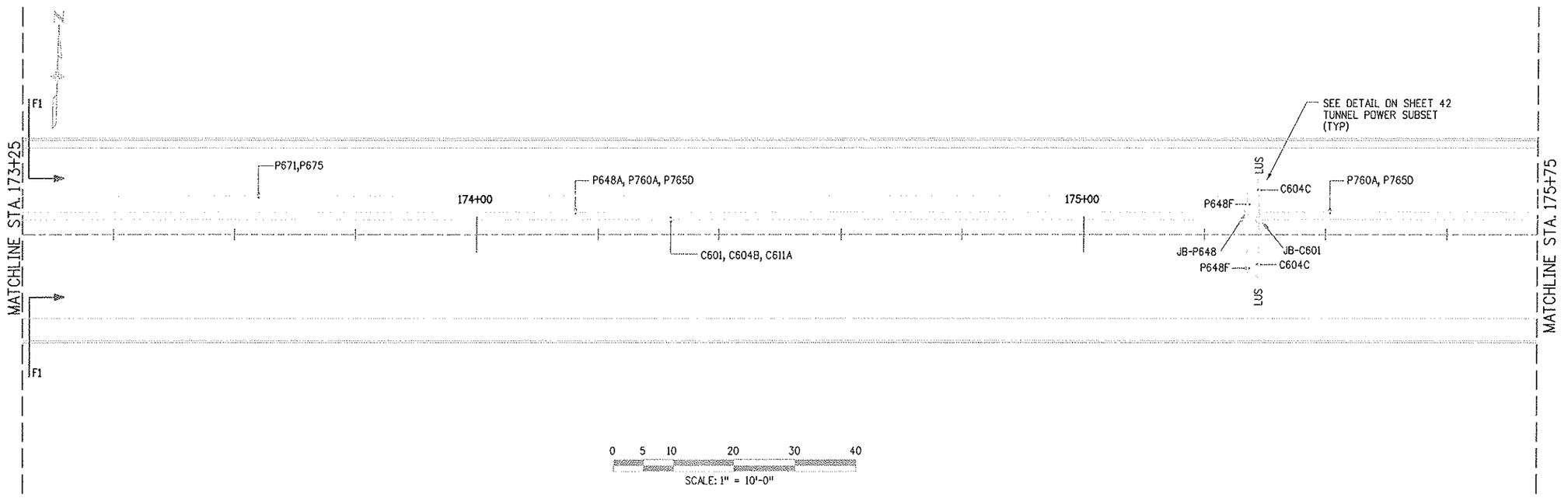
Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN. POWER	Subset Sheets:	30 of 45

Project No./Code	
IM 0703-269	
13166	
Sheet Number	96

Design File Name: $FILENAME$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$



PLAN 1



PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 TUNNEL POWER SUBSET.

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	01◇21◇07	Initials:	DFB
Full Path:	14102\800deliv\AsBuilt		
Drawing File Name:	##p108##		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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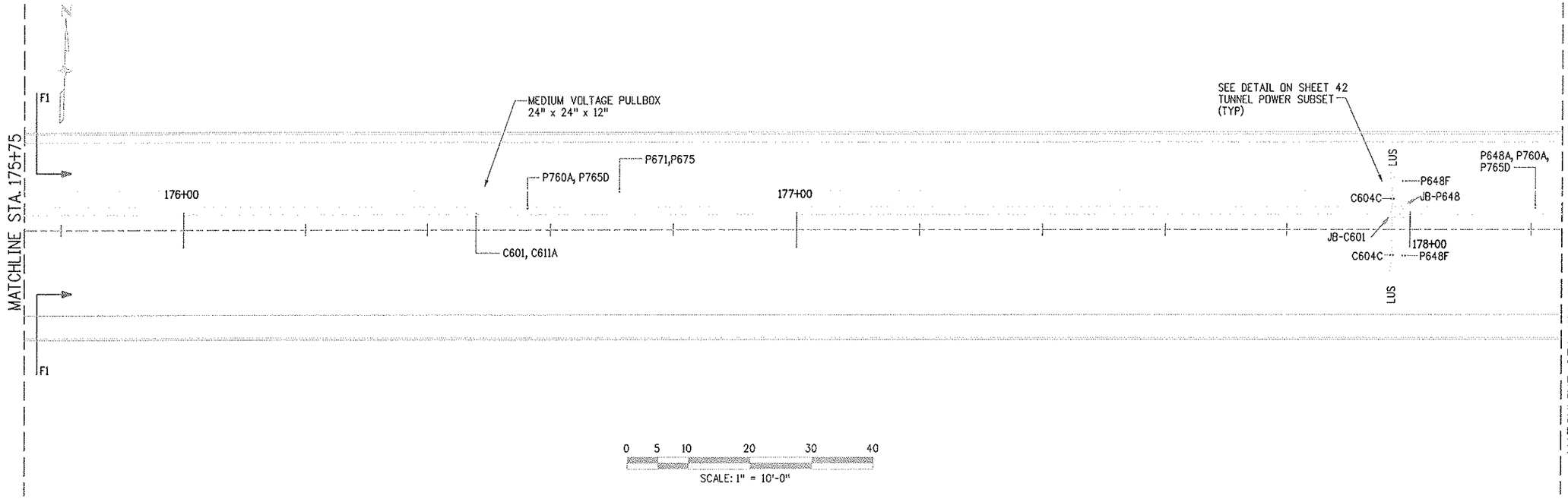
As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL
POWER PLANS 8

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN. POWER	Subset Sheets:	31 of 45

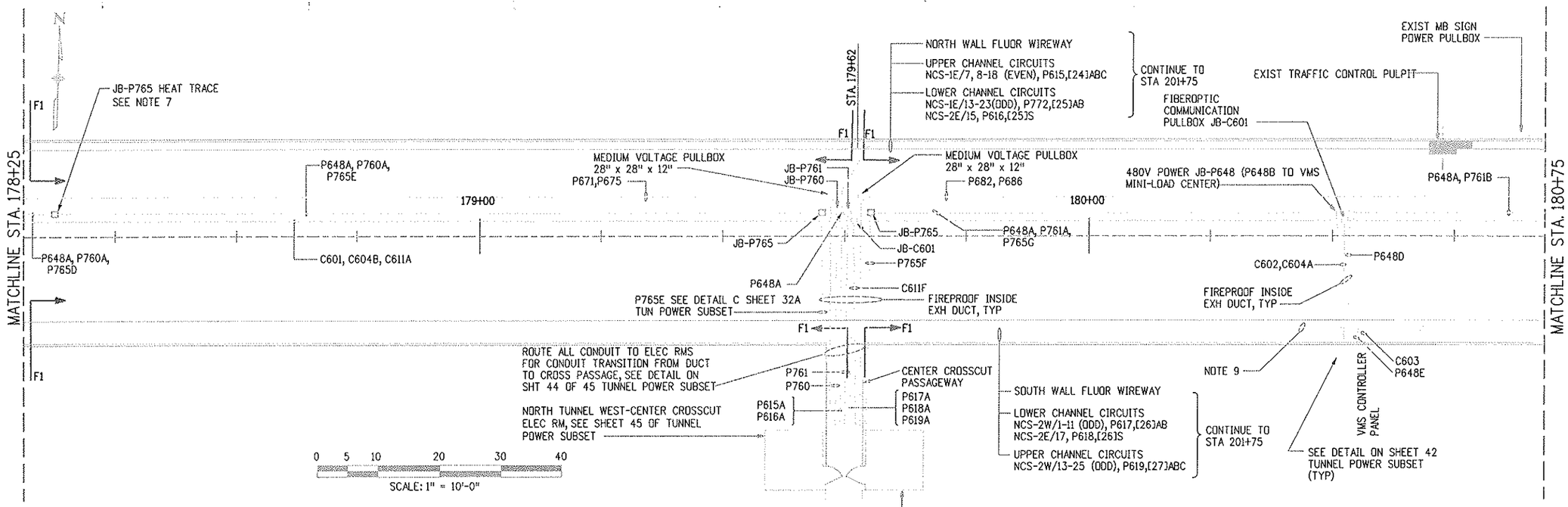
Project No./Code	
IM 0703-269	
13166	
Sheet Number	97



PLAN 1

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.



PLAN 2

Computer File Information			
Creation Date:	04/26/99	Initials:	SPD
Last Modification Date:	02/28/07	Initials:	DJB
FullPath:	14102\700CADD\[Discipline]\[Filename]		
Drawing File Name:	eppl09n		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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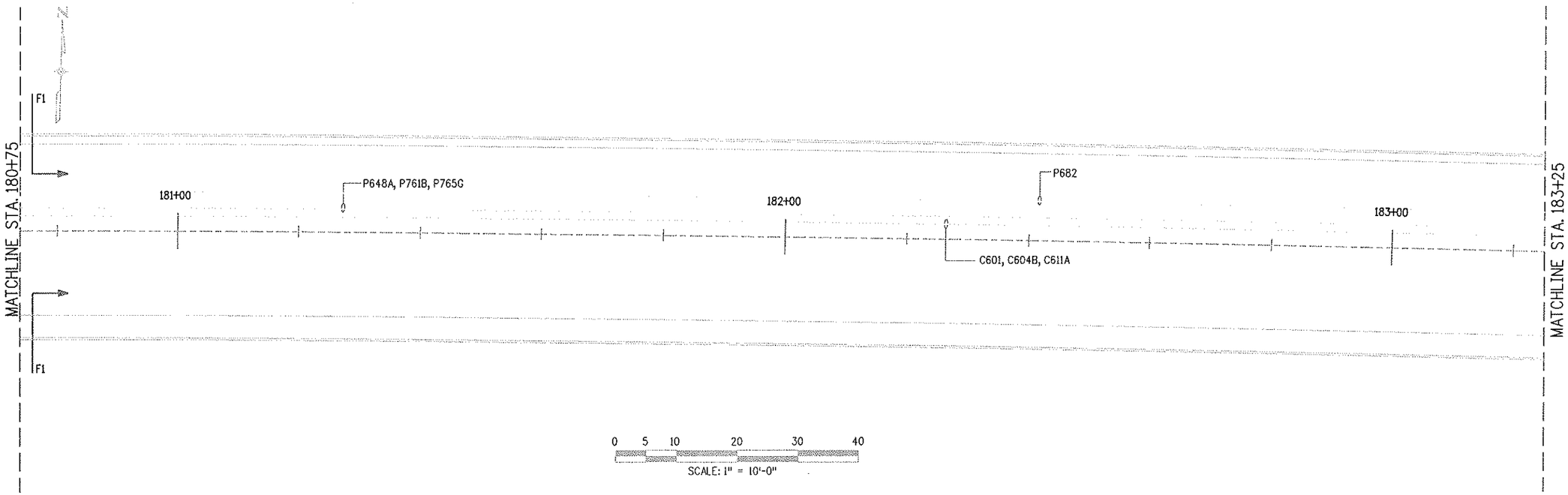
As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL
POWER PLANS 9

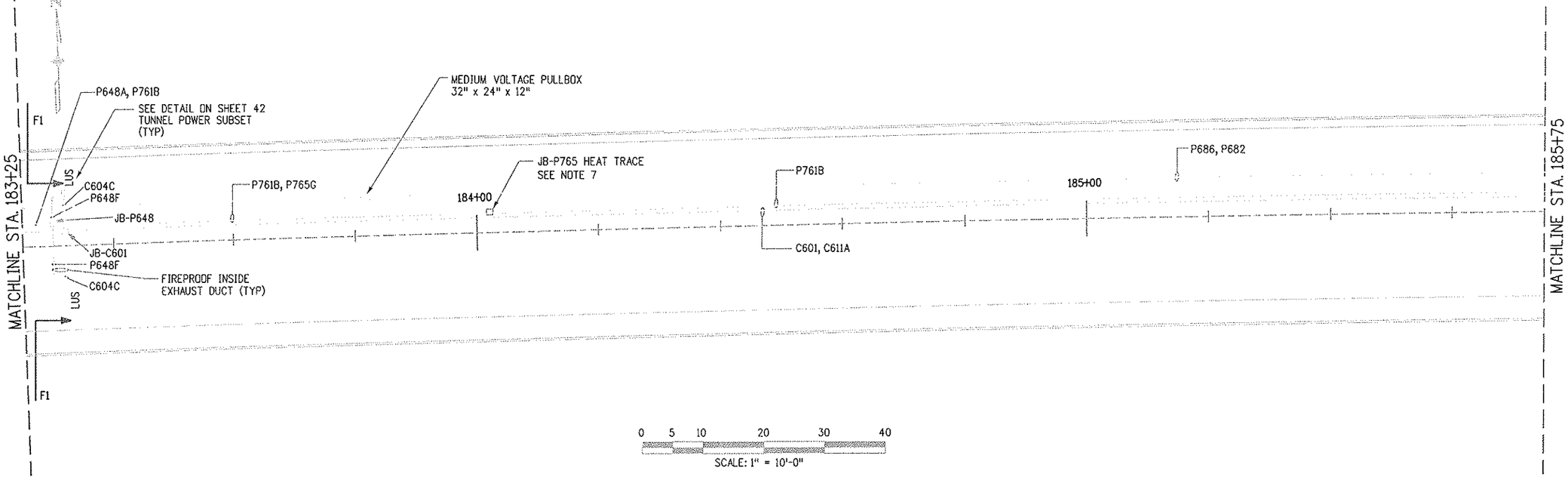
Designer: J. WALSH
Detailer: RODENBERRY
Sheet Subset: TUN POWER
Structure Numbers:
Subset Sheets: 32 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 98

Design File Name: $PLOTFILE$
Plot File Name: $$$$DATE$$$$
Date of Plot:



PLAN 1



PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	03\17\07	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt		
Drawing File Name:	epp110n		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	English

Sheet Revisions		
07/03/07	ASBUILT	DJB

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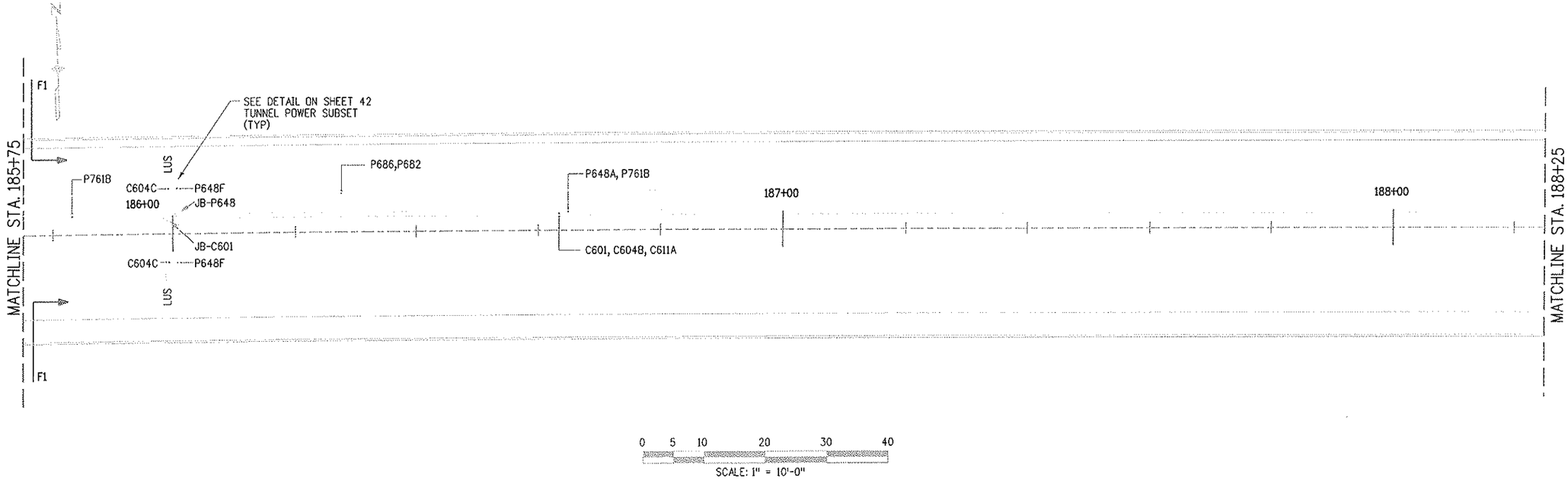
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL POWER PLANS 10

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN POWER	Subset Sheets:	33 of 45

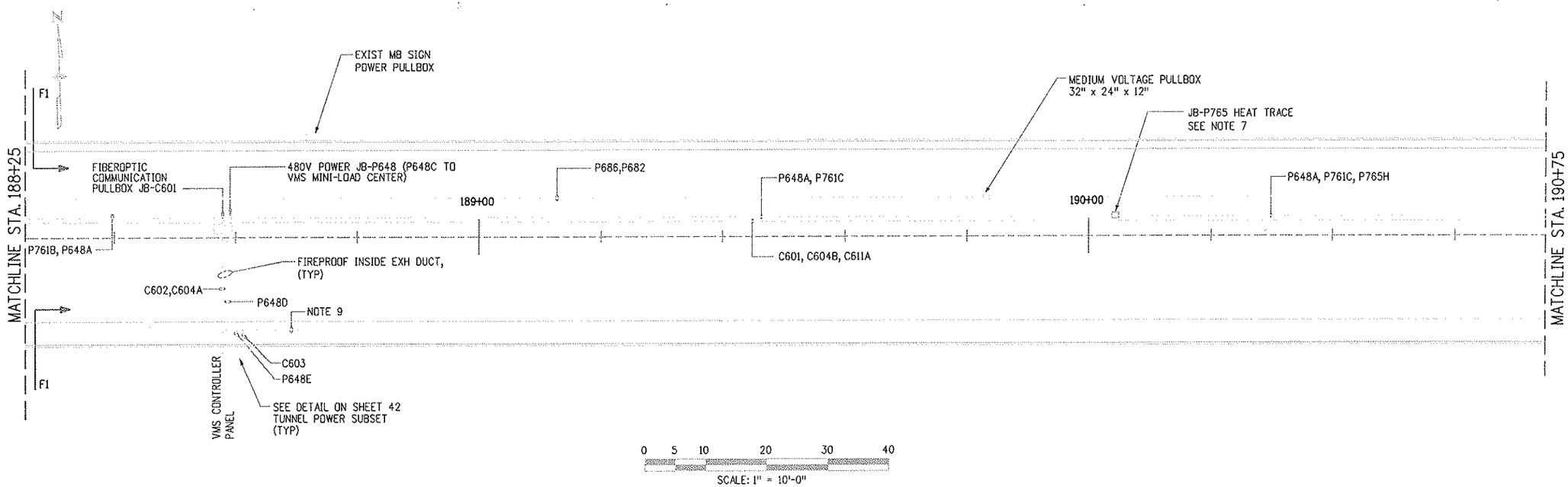
Project No./Code	
IM 0703-269	
13166	
Sheet Number	99



PLAN 1

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.



PLAN 2

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	05/16/07	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt		
Drawing File Name:	eppl1n		
Acad Ver. R14	Scale: 1" = 10'-0"	Units: English	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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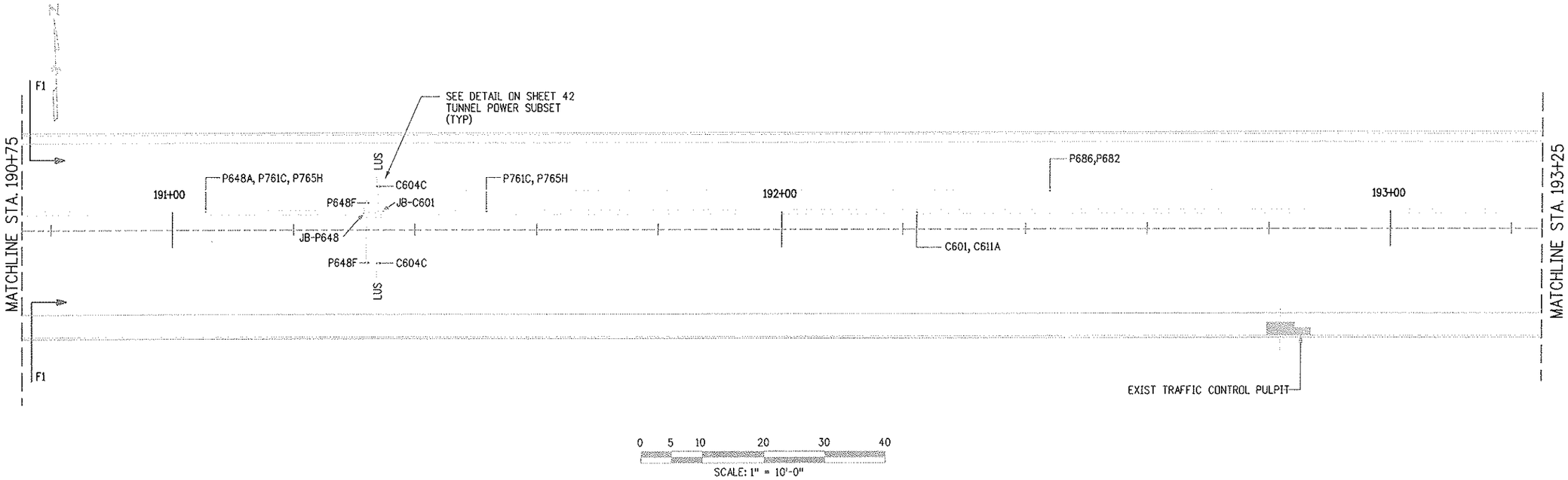
As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL
POWER PLANS 11

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN POWER	Subset Sheets:	34 of 45

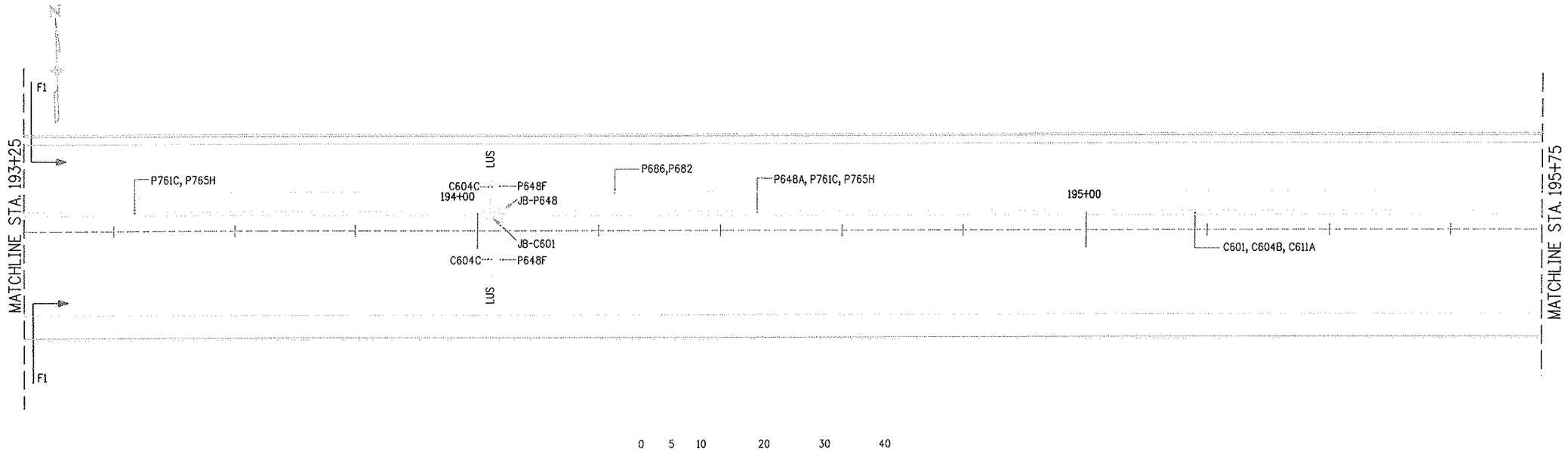
Project No./Code
IM 0703-269
13166
Sheet Number 100



0 5 10 20 30 40

SCALE: 1" = 10'-0"

PLAN 1



0 5 10 20 30 40

SCALE: 1" = 10'-0"

PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	01◇31◇02	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	epp12n		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	English

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

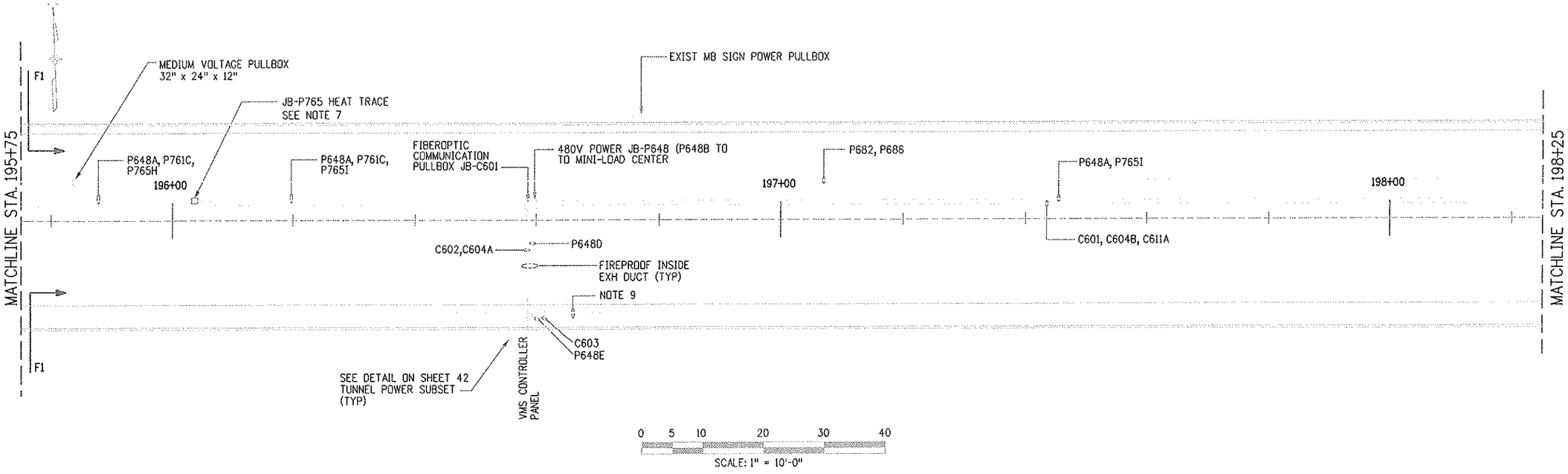
As Constructed	
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL POWER PLANS 12

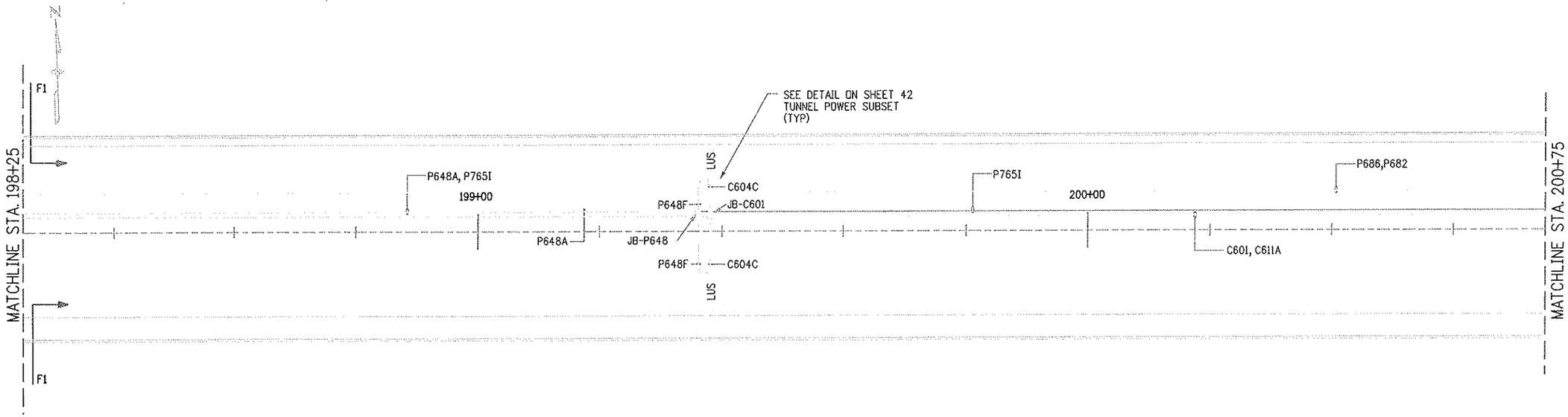
Designer:	J WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN POWER	Subset Sheets:	35 of 45

Project No./Code	
IM 0703-269	
13166	
Sheet Number	101

Date of Plot: $$$$DATE$$$$



PLAN 1



PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Computer File Information			
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Last Modification Date:	01◇21◇02	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	eppl13n		
Acad Ver. R14	Scale: 1" = 10'-0"	Units:	English

Sheet Revisions		
07/03/07	ASBUILT	DJB

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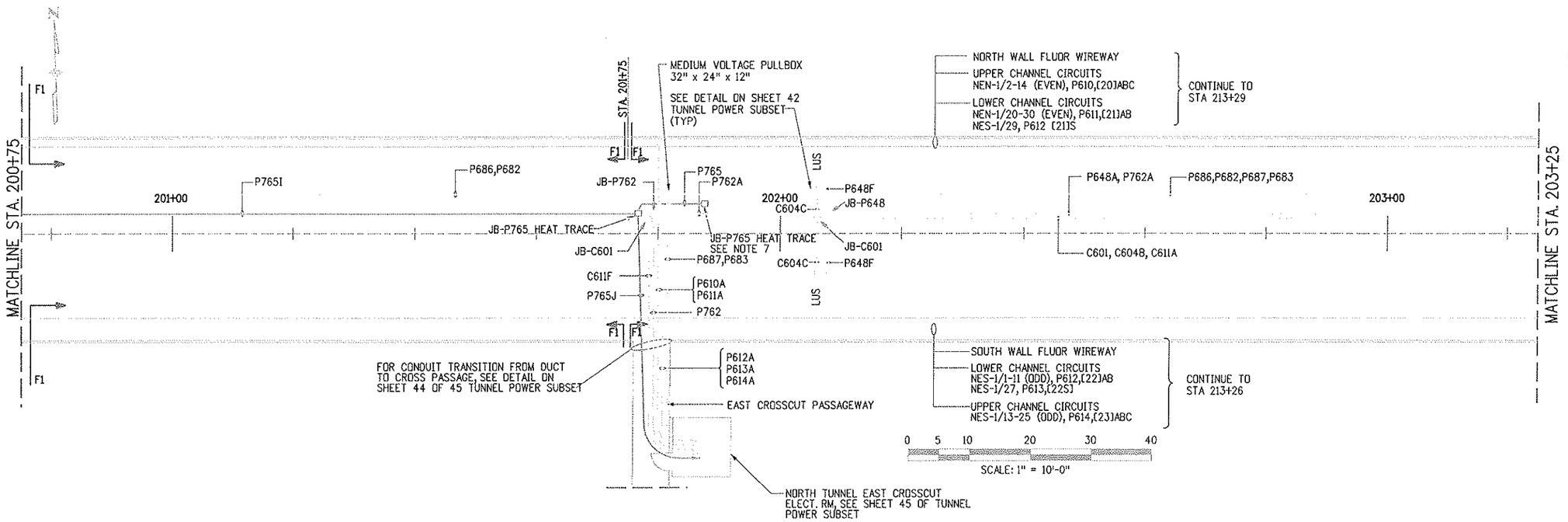
No Revisions:
Revised:
Void:

NORTH TUNNEL
POWER PLANS 13

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset:	TUN. POWER	Subset Sheets:	36 of 45

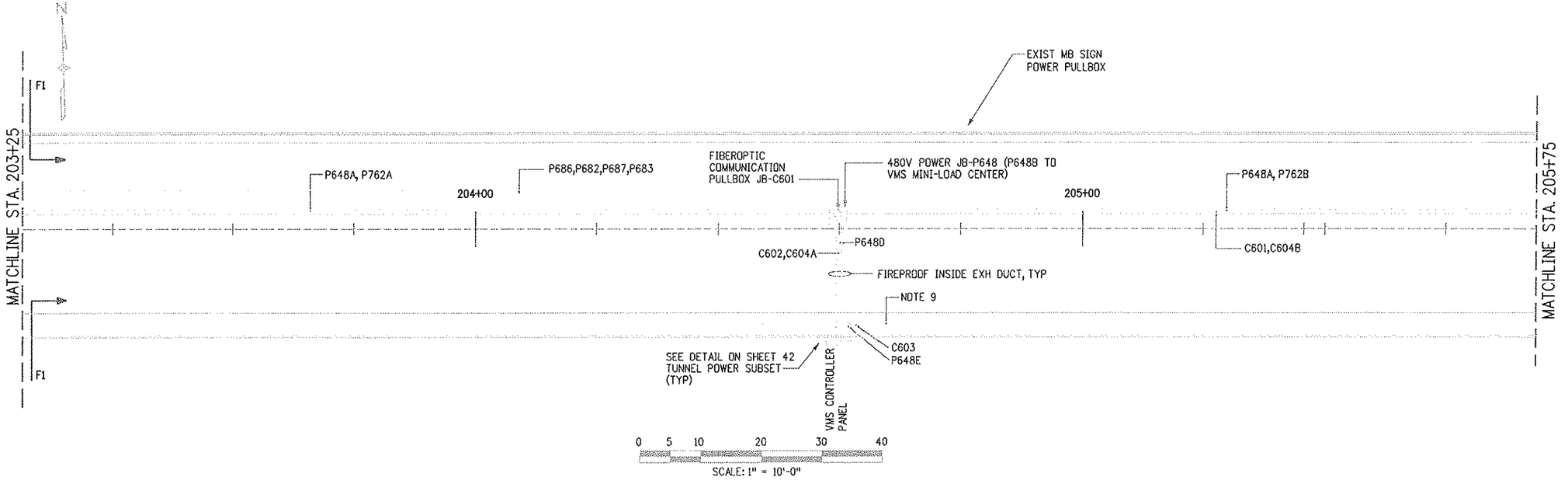
Project No./Code
IM 0703-269
13166
Sheet Number 102



PLAN 1

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.



PLAN 2

Computer File Information				Sheet Revisions		
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Last Modification Date:	08/16/07	Initials: DJB				
Full Path:	14102\800Deliv\AsBuilt					
Drawing File Name:	applla					
Acad Ver. R14	Scale: 1"=10'-0"	Units:				

Design File Name: DGN$$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

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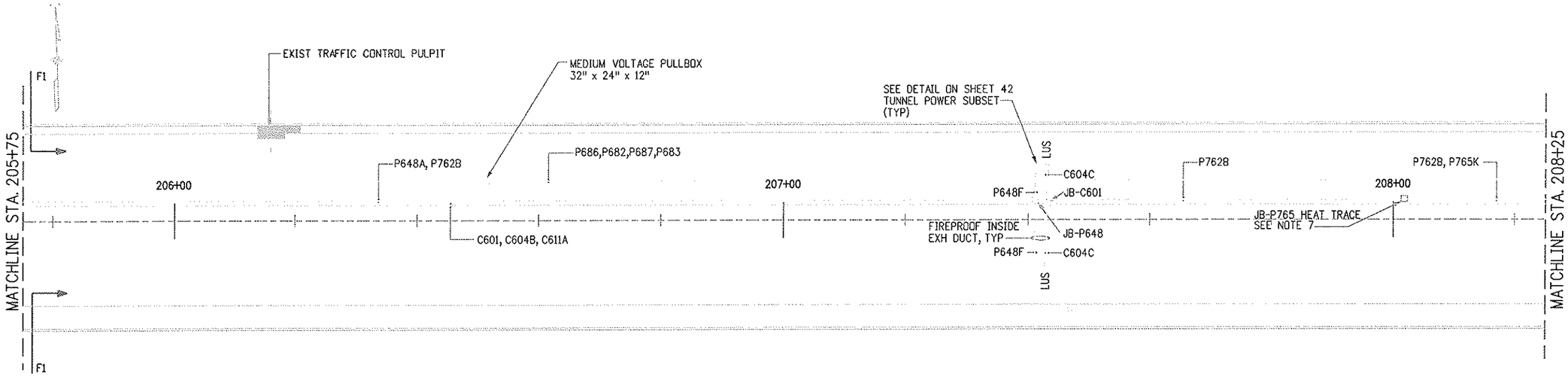
No Revisions:
Revised:
Void:

NORTH TUNNEL
POWER PLANS 14

Designer: J. WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN. POWER
Structure Numbers
Subset Sheets: 37 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 103



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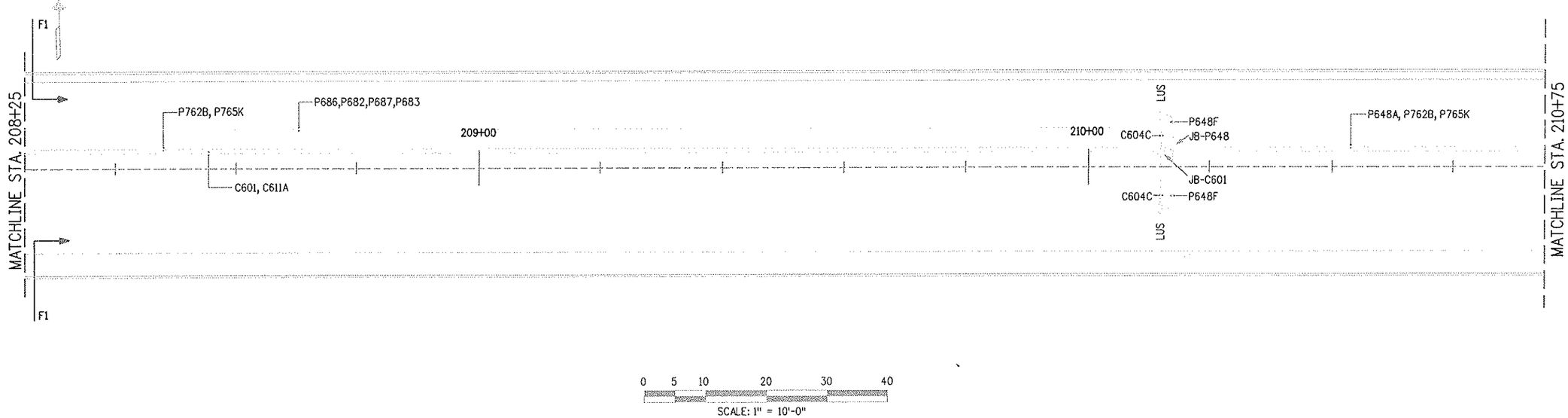
SCALE: 1" = 10'-0"

PLAN 1



0 5 10 20 30 40

SCALE: 1" = 10'-0"

PLAN 2

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

Computer File Information			
Creation Date:	04/26/99	Initials:	SFD
Last Modification Date:	01◇21◇02	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt		
Drawing File Name:			
Acad Ver. R14	Scale: 1"◇10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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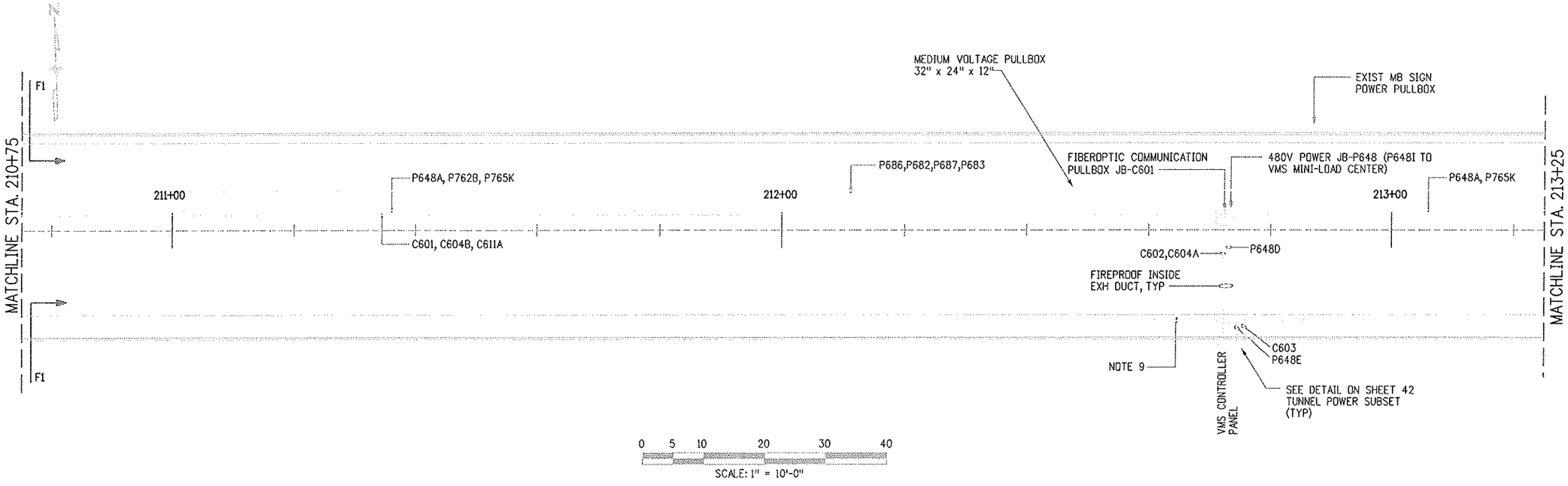
Revised:
Void:

NORTH TUNNEL
POWER PLANS 15

Designer:	J. WALSH	Structure Numbers	
Detailer:	RODDENBERRY		
Sheet Subset: TUN. POWER		Subset Sheets:	38 of 45

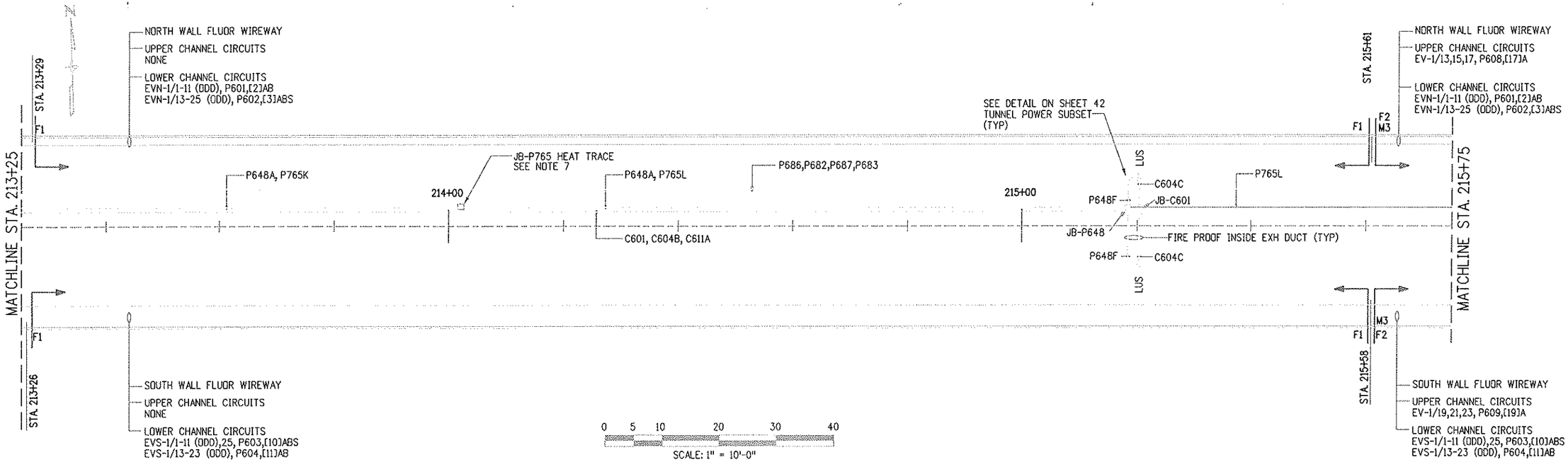
Project No./Code
IM 0703-269
13166
Sheet Number 104



PLAN 1

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.



PLAN 2

Computer File Information				Sheet Revisions		
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Last Modification Date:	01◇21◇02	Initials:	DJR			
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Acad Ver. R14	Scale: 1"◇10'-0"	Units:				

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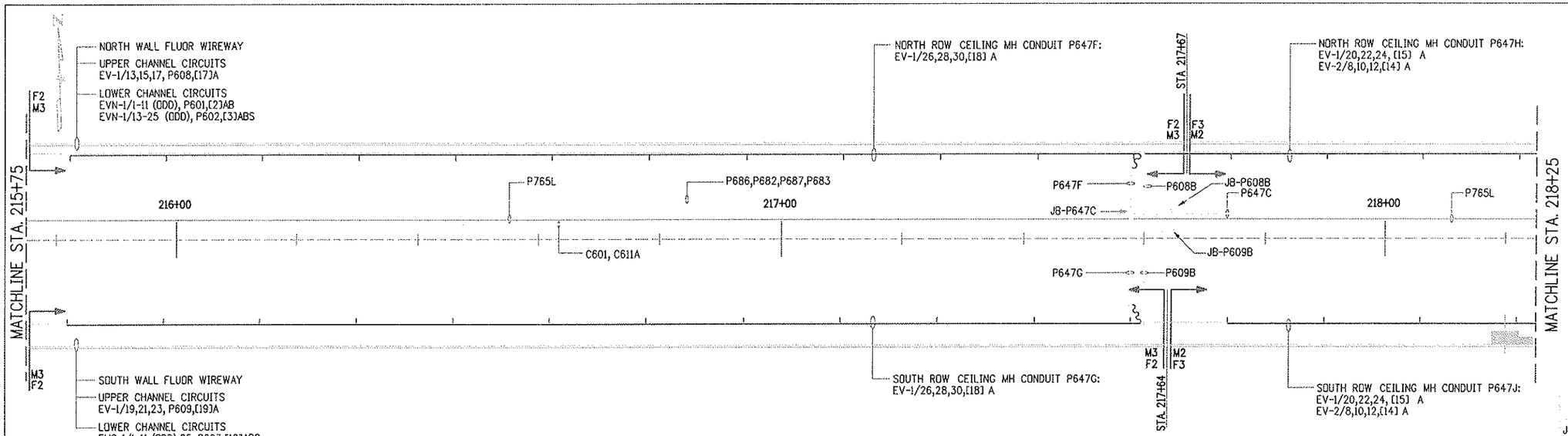
Revised:
Void:

NORTH TUNNEL
POWER PLANS 16

Designer: J. WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN. POWER
Structure Numbers
Subset Sheets: 39 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 105

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$



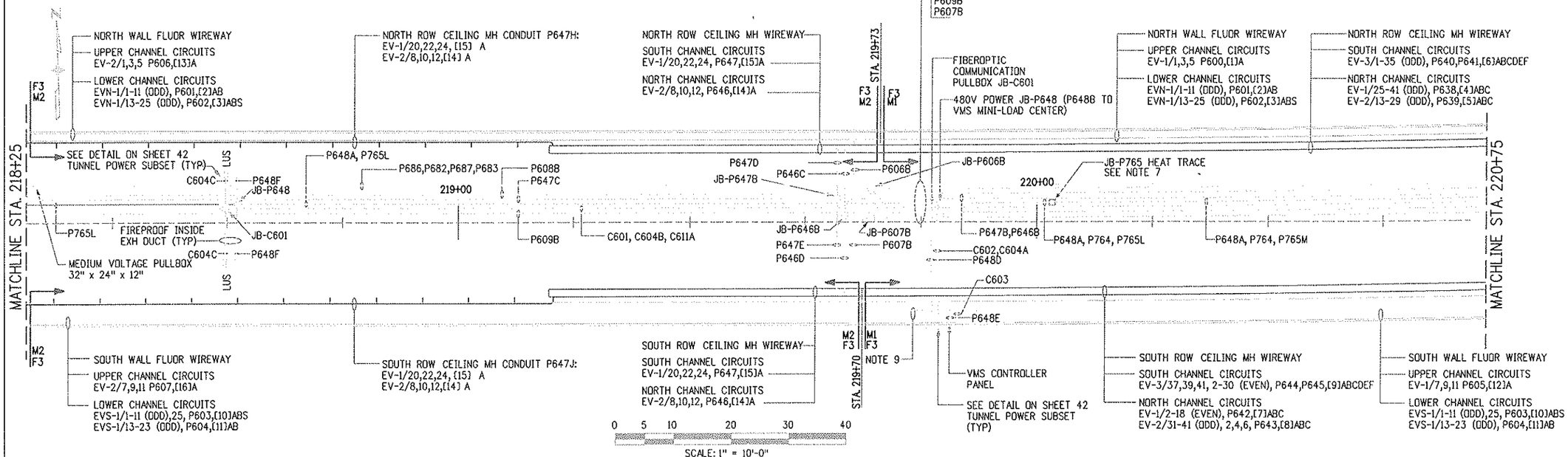
PLAN 1

NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

BOX SIZING TABLE

JB NO.	SIZE (H X W X D)	NEMA TYPE	SERVICE
P647E	12" X 12" X 8"	4	N TUNNEL LTG
P647B	12" X 12" X 8"	4	N TUNNEL LTG
P646B	12" X 12" X 8"	4	N TUNNEL LTG
P765	12" X 12" X 6"	4	HEAT TRACE



PLAN 2

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	05/16/07	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt		
Drawing File Name:	$$$$		
Acad Ver. R14	Scale: 1"=10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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No Revisions:	
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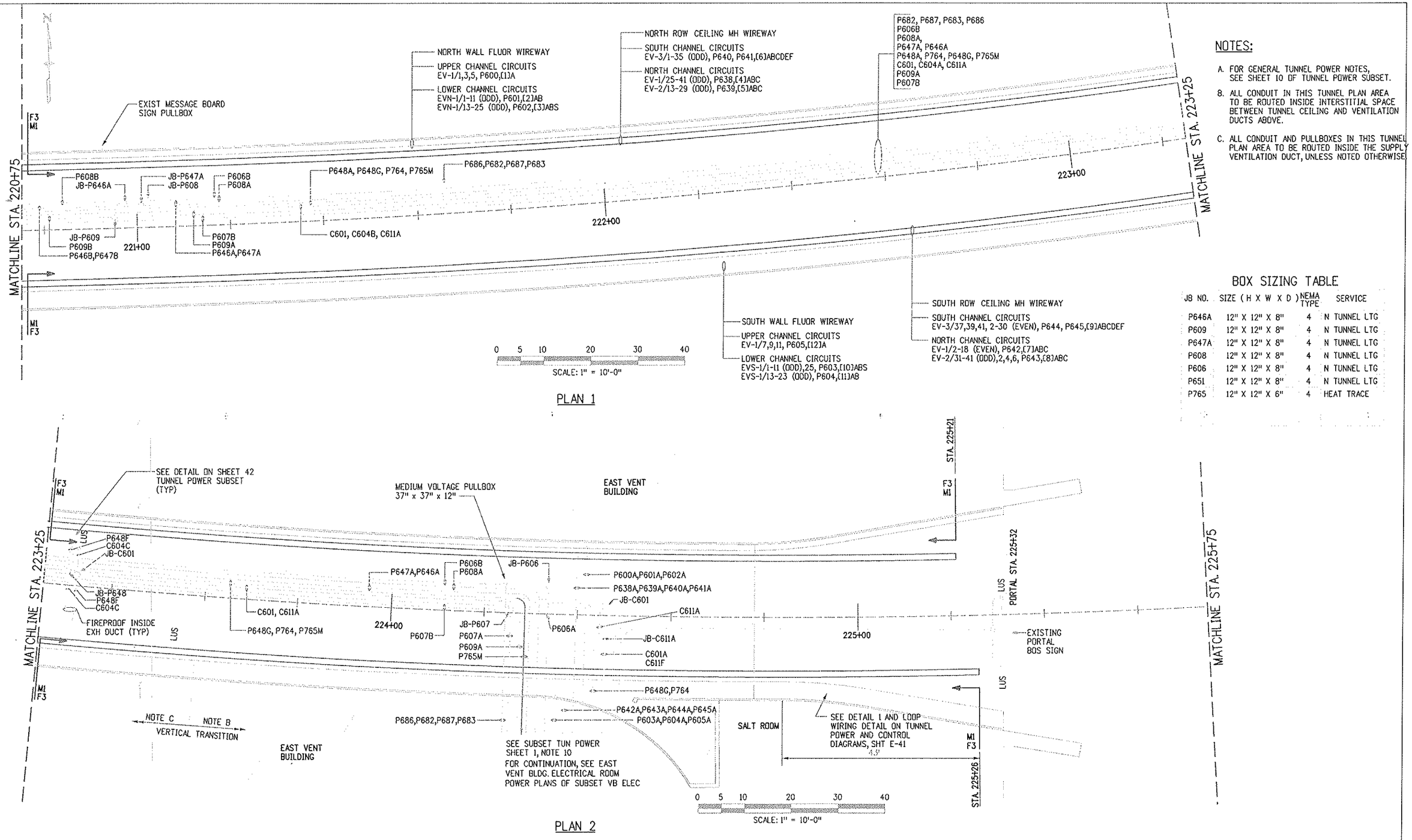
Void:	

NORTH TUNNEL POWER PLANS 17			
Designer: J WALSH	Structure Numbers		
Detailer: RODDENBERRY			
Sheet Subset: TUN POWER	Subset Sheets:	40 of 45	Sheet Number 106

Project No./Code
IM 0703-269
13166



NOTES:

A. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 10 OF TUNNEL POWER SUBSET.

B. ALL CONDUIT IN THIS TUNNEL PLAN AREA TO BE ROUTED INSIDE INTERSTITIAL SPACE BETWEEN TUNNEL CEILING AND VENTILATION DUCTS ABOVE.

C. ALL CONDUIT AND PULLBOXES IN THIS TUNNEL PLAN AREA TO BE ROUTED INSIDE THE SUPPLY VENTILATION DUCT, UNLESS NOTED OTHERWISE.

BOX SIZING TABLE

JB NO.	SIZE (H X W X D)	NEMA TYPE	SERVICE
P646A	12" X 12" X 8"	4	N TUNNEL LTG
P609	12" X 12" X 8"	4	N TUNNEL LTG
P647A	12" X 12" X 8"	4	N TUNNEL LTG
P608	12" X 12" X 8"	4	N TUNNEL LTG
P606	12" X 12" X 8"	4	N TUNNEL LTG
P651	12" X 12" X 8"	4	N TUNNEL LTG
P765	12" X 12" X 6"	4	HEAT TRACE

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	04/26/99	Initials:	SPD
Last Modification Date:	08◇16◇07	Initials:	DJB
FullPath:	14102\800Deliv\AsBuilt		
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Acad Ver. R14	Scale: 1"◇10'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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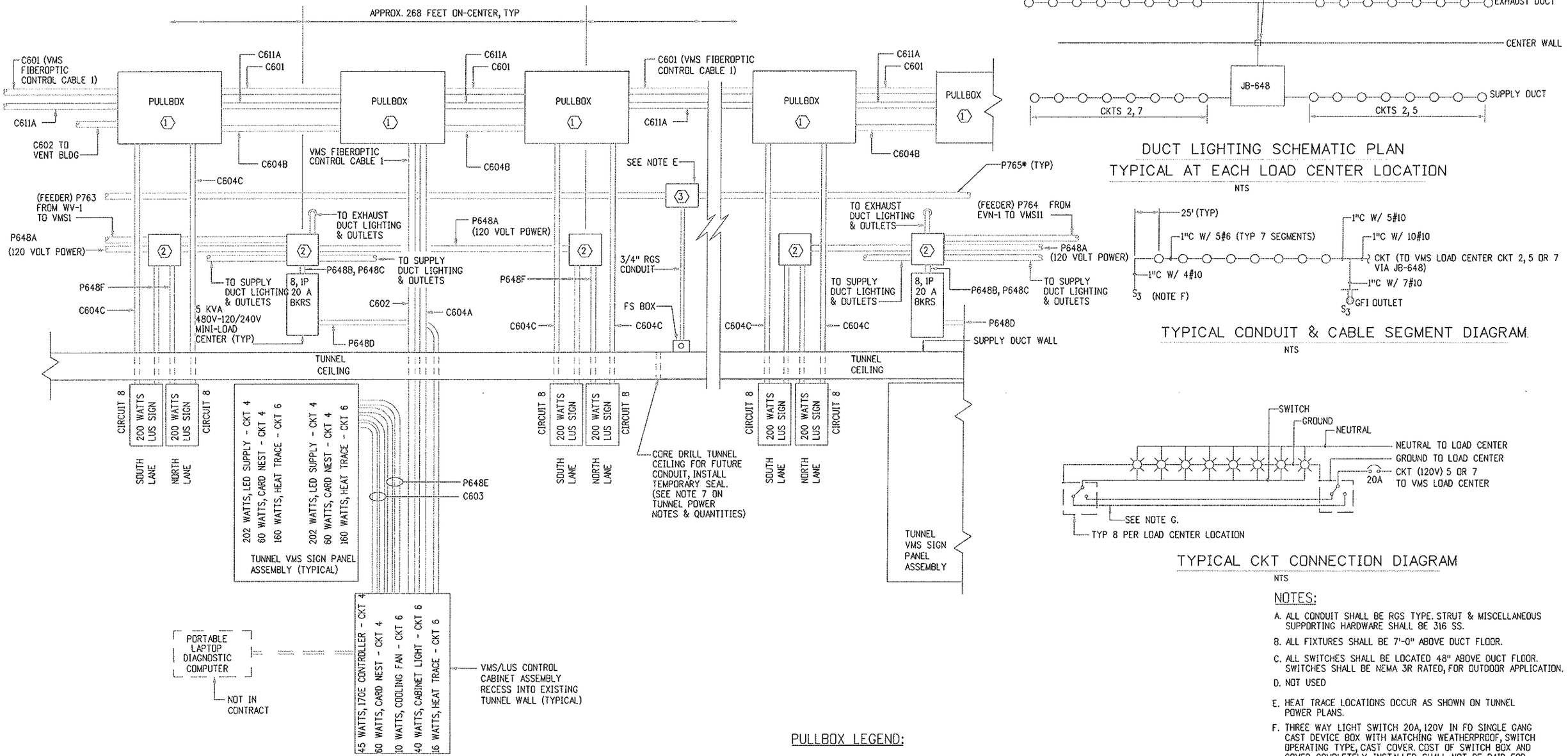
NORTH TUNNEL POWER PLANS 18

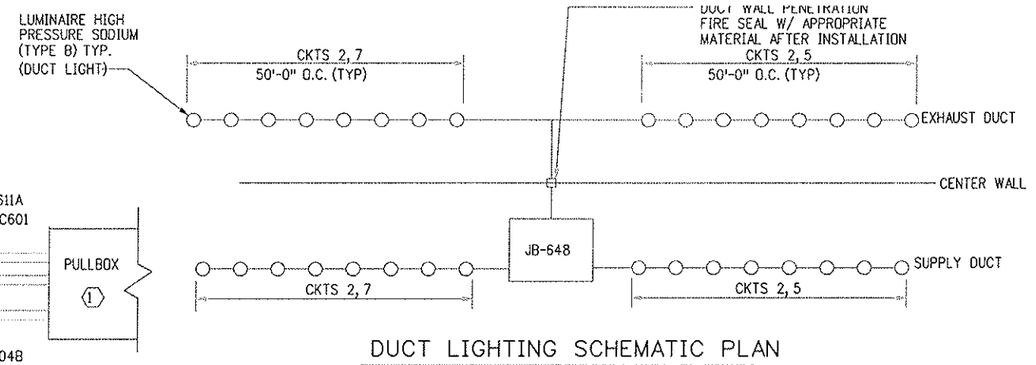
Designer: J. WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 41 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 107



VMS/LUS SIGN POWER AND CONTROL DIAGRAM (DUCT LIGHTING NOT SHOWN FOR CLARITY)

SCALE: NONE



DUCT LIGHTING SCHEMATIC PLAN TYPICAL AT EACH LOAD CENTER LOCATION

NTS

TYPICAL CONDUIT & CABLE SEGMENT DIAGRAM

NTS

TYPICAL CKT CONNECTION DIAGRAM

NTS

PULLBOX LEGEND:

(1) FIBEROPTIC COMMUNICATION CABLE PULLBOX
JB-C601 - 16"H x 24"W x 12"D.

(2) 480 & 120 VOLT POWER PULLBOX
JB-P648 - 12" x 12" x 8"D.

(3) HEAT TRACE POWER PULLBOX
JB-P765 - 12" x 12" x 6"D.

NOTES:

A. ALL CONDUIT SHALL BE RGS TYPE. STRUT & MISCELLANEOUS SUPPORTING HARDWARE SHALL BE 316 SS.

B. ALL FIXTURES SHALL BE 7'-0" ABOVE DUCT FLOOR.

C. ALL SWITCHES SHALL BE LOCATED 48" ABOVE DUCT FLOOR. SWITCHES SHALL BE NEMA 3R RATED, FOR OUTDOOR APPLICATION.

D. NOT USED

E. HEAT TRACE LOCATIONS OCCUR AS SHOWN ON TUNNEL POWER PLANS.

F. THREE WAY LIGHT SWITCH 20A, 120V IN FD SINGLE GANG CAST DEVICE BOX WITH MATCHING WEATHERPROOF, SWITCH OPERATING TYPE, CAST COVER. COST OF SWITCH BOX AND COVER, COMPLETELY INSTALLED SHALL NOT BE PAID FOR SEPERATELY BUT ALL COST ASSOCIATED THEREOF SHALL BE INCINDENTIAL TO THE SUPPLY AND INSTALLATION OF LUMINAIRE HIGH PRESSURE SODIUM (TYPE B).

G. SPLICE WITH "C" TYPE COMPRESSION CONNECTORS WITH INSULATED COVER

Computer File Information			Sheet Revisions		
Creation Date:	Initials: SPD		07/03/07	ASBUILT	DJB
Last Modification Date:	Initials: DJB				
Full Path:	14102\800Deliv\AsBuilt\				
Drawing File Name:					
Acad Ver. R14	Scale: N.T.S.	Units:			

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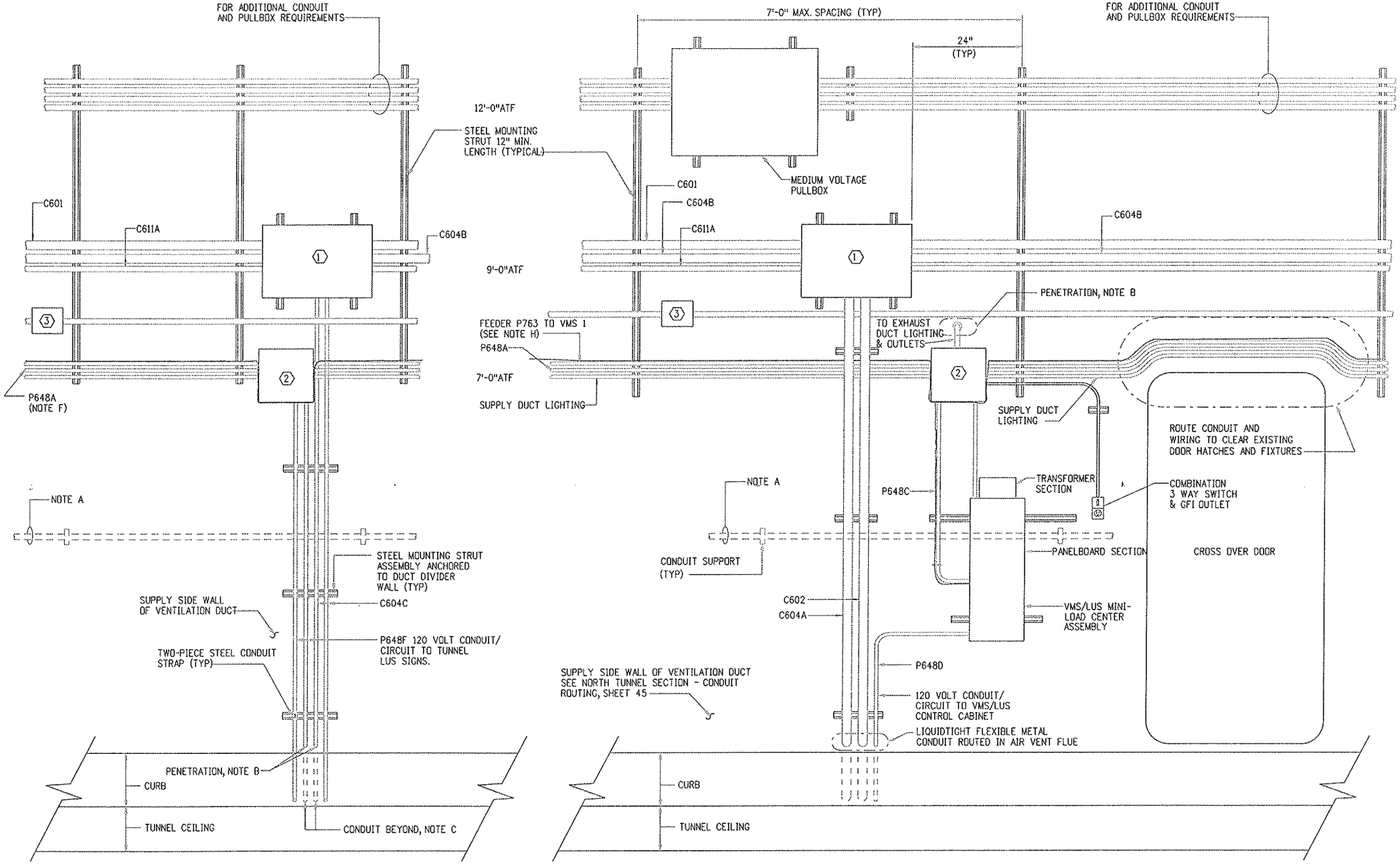
Revised:
Void:

TUNNEL POWER AND CONTROL DIAGRAMS

Designer: J WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers:
Subset Sheets: 42 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 108



VENTILATION SUPPLY DUCT PARTIAL ELEVATION AT LUS SIGNS (DUCT LIGHTING NOT SHOWN FOR CLARITY)

SCALE: NONE

VENTILATION SUPPLY DUCT PARTIAL ELEVATION AT VMS/LUS MINI-LOAD CENTER (DUCT LIGHTING NOT SHOWN FOR CLARITY)

SCALE: NONE

NOTES::

A. REMOVE EXISTING EXPOSED (SUPPLY/EXHAUST VENTILATION DUCT) LIGHTING AND RECEPTACLE CONDUIT/ CONDUCTORS FROM STA 224+00 TO 180+50 (APPROX) REMOVE EXIST DISCONNECT, TRANSFORMER & PANELBOARDS LOCATED ON DUCT DIVIDER WALL (SUPPLY SIDE) AT APPROX STATIONS 190+50, 201+50, 212+50, & 223+50

B. CORE DRILL HOLE THROUGH CONCRETE DIVIDER WALL AND SEAL AROUND CONDUIT USING APPROVED FIRESTOP SEALANT. CONTROL CONDUITS SHALL HAVE 8 INCH MINIMUM BEND RADIUS.

C. ROUTE CONDUIT OVER WALL CURB AND ACROSS FLOOR OF EXHAUST VENTILATION DUCT. ALL CONDUIT AND PULLBOXES IN EXHAUST DUCT SHALL BE DUST-TIGHT WITH TWO-HOUR FIREPROOFING. PROVIDE PERMANENT RAMP OVER CONDUIT CROSSING ALL FLOORS TO FACILITATE WHEELING SUPPLIES AND EQUIPMENT FOR CONSTRUCTION AND MAINTENANCE.

D. ALL DUCT WALL PENETRATIONS SHALL AVOID EMBEDDED TENSION RODS SUPPORTING DUCT STRUCTURE.

E. DRILL INSERTS FOR CONDUIT IN DUCT WALL SHALL NOT PENETRATE DUCT WALL.

F. P648G ONLY AT JB-P648G FOR FEED FROM VENT BLDG.

G. FOR GENERAL TUNNEL POWER NOTES, SEE SHEET 1 OF TUNNEL POWER SUBSET.

H. SEE CONDUIT SHCEDULES AND TUN POWER PLANS FOR SPECIFIC CONDUIT IDENTIFICATION FROM VMS 2 THROUGH VMS 11.

PULLBOX LEGEND:

(1) FIBEROPTIC COMMUNICATION CABLE PULLBOX JB-C601 - 16"H x 24"W x 12"D.

(2) 480 & 120 VOLT POWER PULLBOX JB-P648 - 12"H x 12"W x 8"D

(3) HEAT TRACE PULLBOX JB-P765 - 12"H x 12"W x 6"D

Computer File Information		Sheet Revisions		
Creation Date: 04/26/99	Initials:	07/03/07	ASBUILT	DJB
Last Modification Date: 03/04/07	Initials: DJB			
Full Path:	14102\800Deliv\AsBuilt\			
Drawing File Name:	102d05			
Acad Ver. R14	Scale: None Units:			

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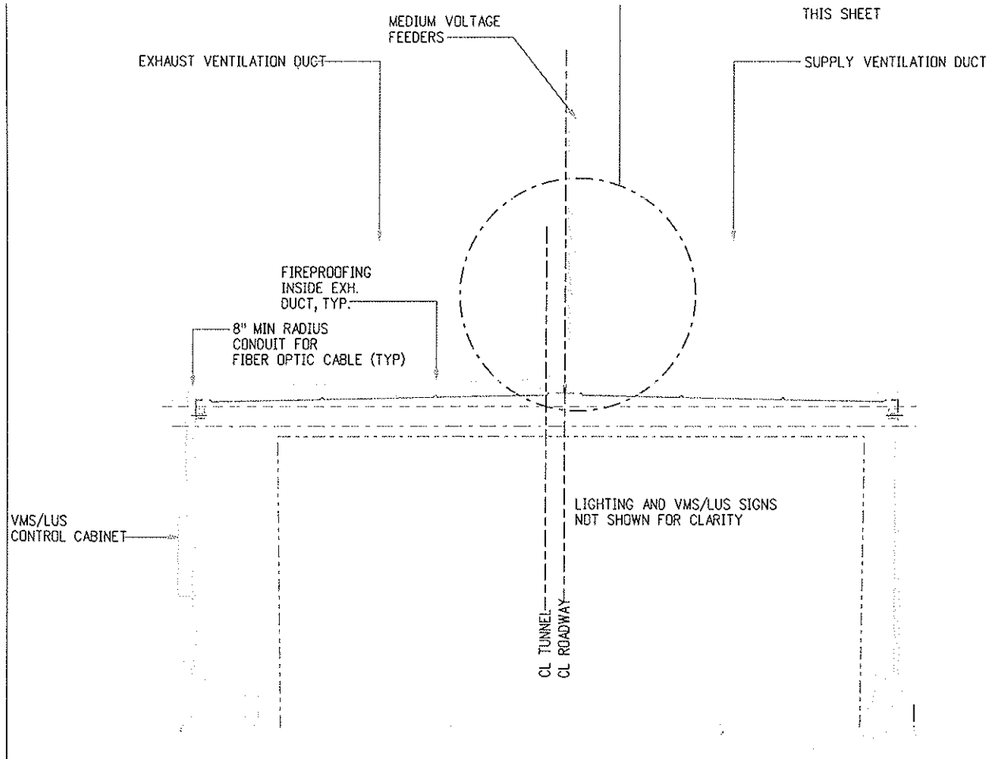
No Revisions:
Revised:
Void:

VENTILATION DUCT POWER SECTIONS / ELEVATIONS

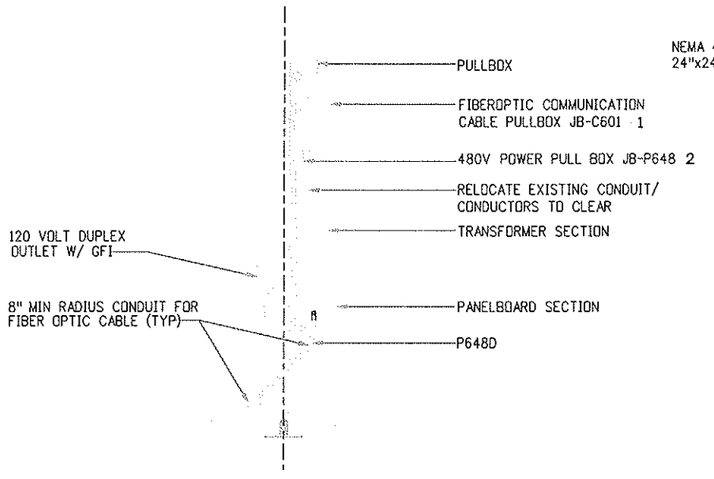
Designer: J WALSH
Detailer: RODDENBERRY
Sheet Subset: TUN POWER
Structure Numbers
Subset Sheets: 43 of 45

Project No./Code
IM 0703-269
13166
Sheet Number 109



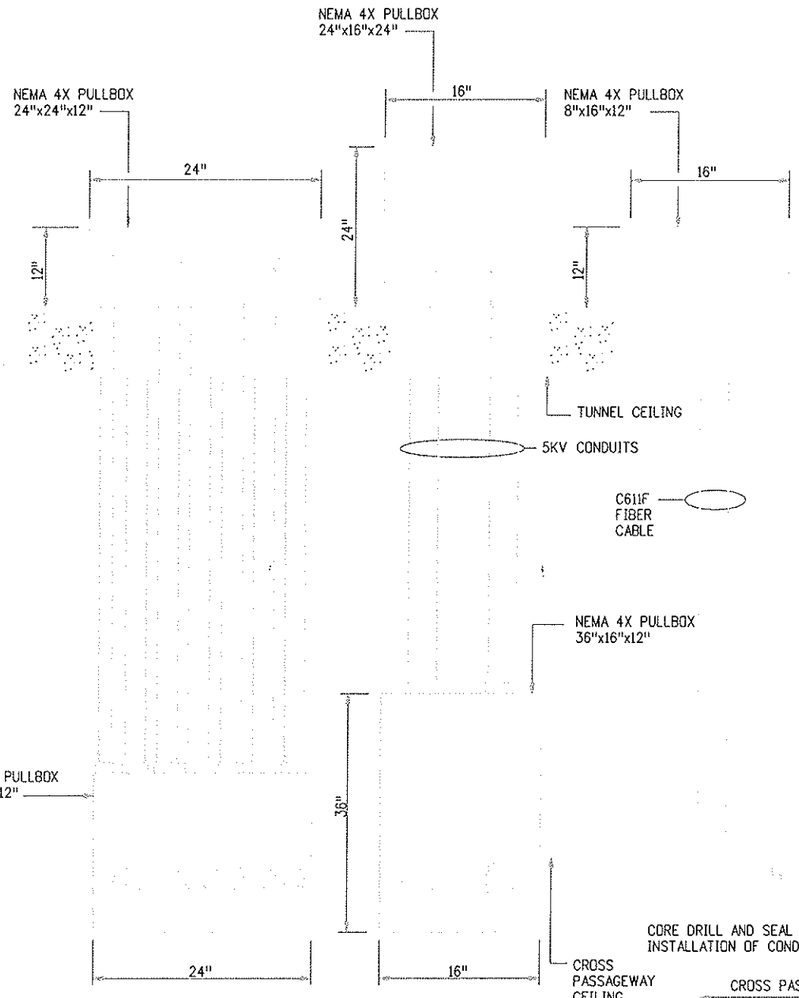
NORTH TUNNEL TYPICAL SECTION LOOKING WEST
AT VMS/LUS MINI-LOAD CENTER (DUCT LIGHTING NOT SHOWN FOR CLARITY)

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



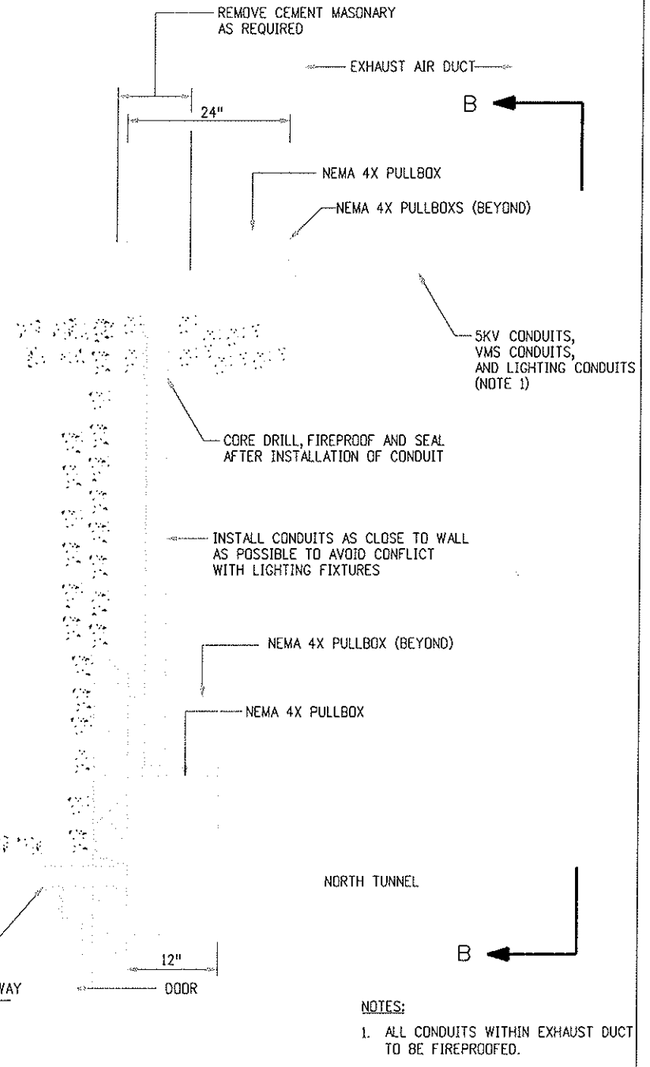
DETAIL A

NTS



ELEVATION B-B

NTS



NOTES:

1. ALL CONDUITS WITHIN EXHAUST DUCT TO BE FIREPROOFED.

NORTH TUNNEL TRANSISTION FROM
EXHAUST DUCT TO CROSS CUT ROOMS

SCALE: NTS

Computer File Information				Sheet Revisions		
Creation Date:	08/26/99	Initials:		07/03/07	ASBUILT	DJB
Last Modification Date:	02/26/07	Initials: DJB				
Full Path:	14102\800Deliv\AsBuilt\					
Drawing File Name:	102EDT06					
Acad Ver. R14	Scale:	Units:				

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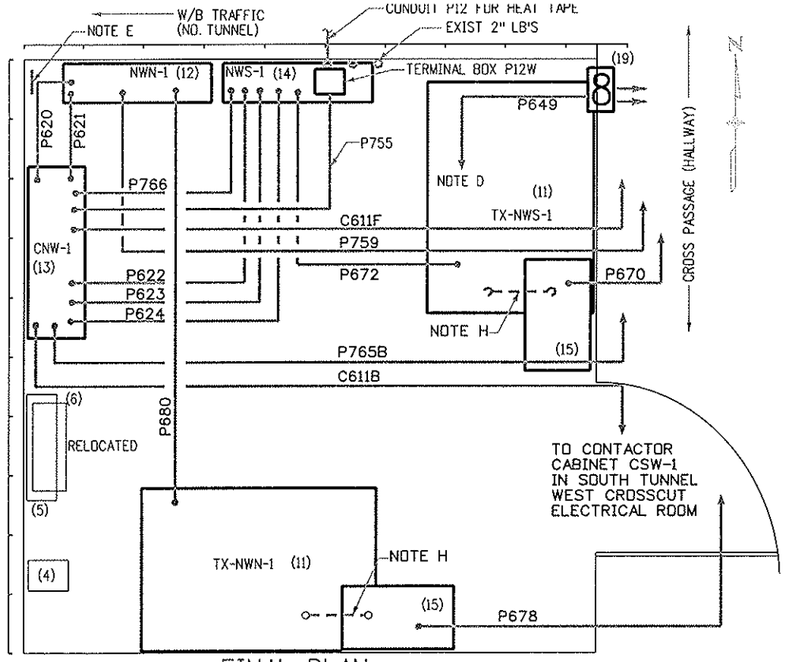
Revised:
Void:

TUNNEL SECTION AND DETAILS

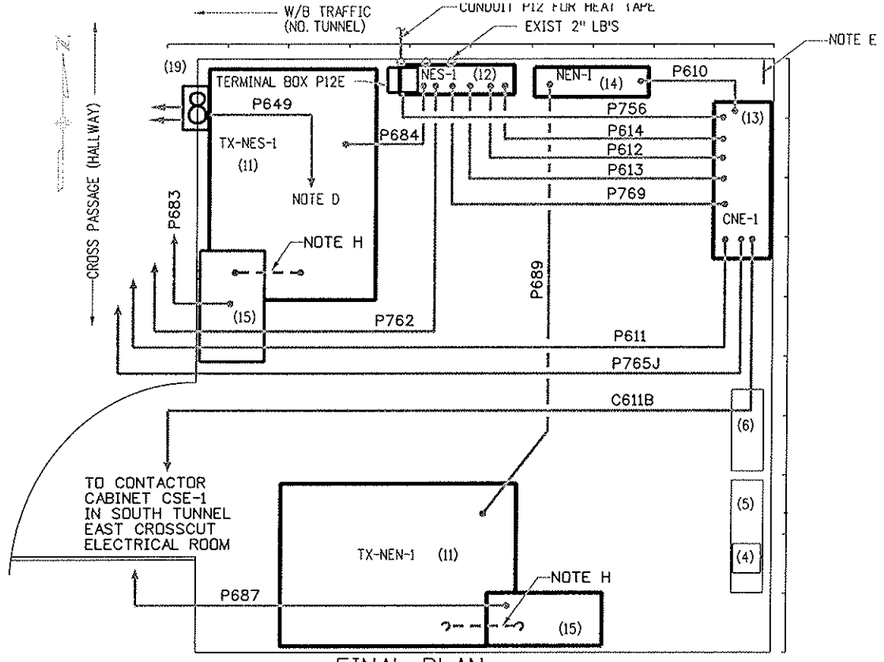
Designer: J. WALSH		Structure Numbers	
Detailer: RODDENBERRY			
Sheet Subset: TUN POWER	Subset Sheets: 44 of 45		

Project No./Code
IM 0703-269
13166
Sheet Number 110



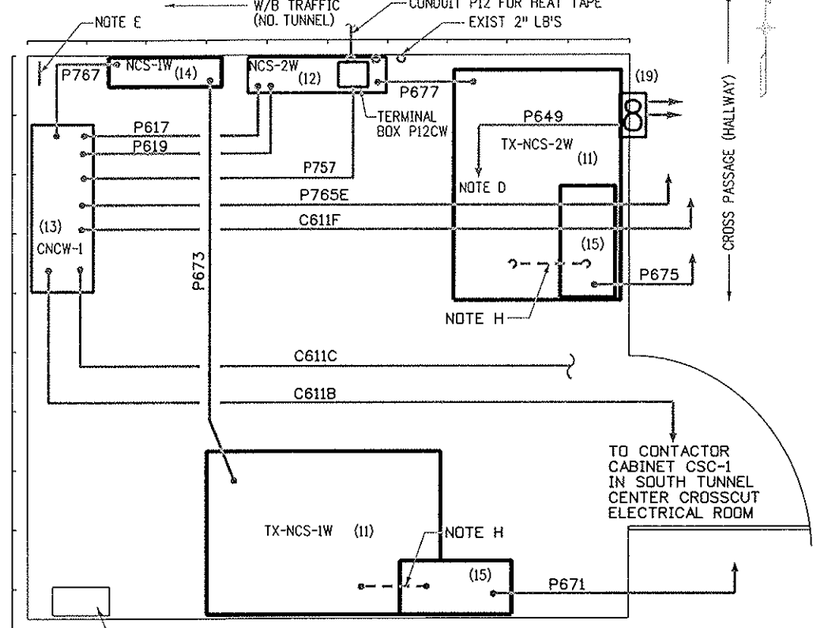
FINAL PLAN CROSSCUT WEST

SCALE: NONE



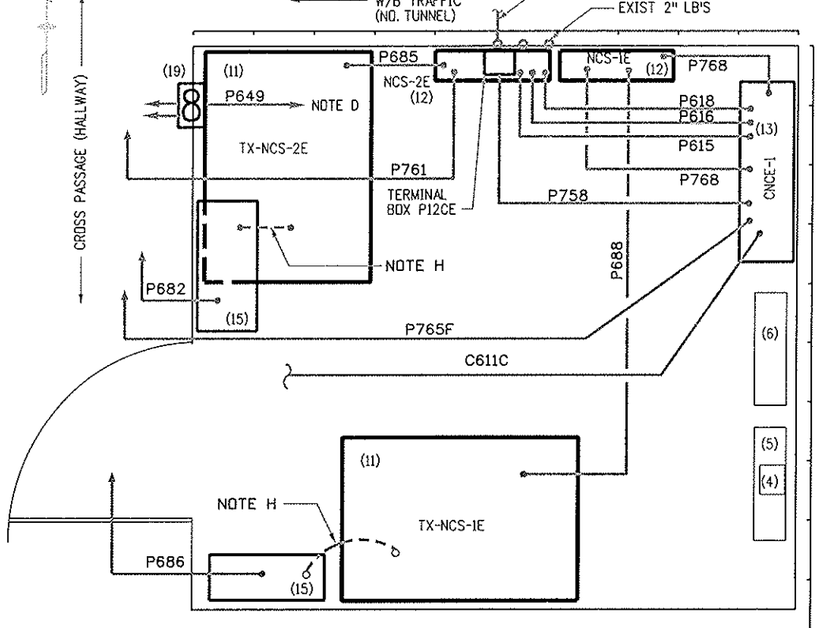
FINAL PLAN CROSSCUT EAST

SCALE: NONE



FINAL PLAN CENTER CROSSCUT WEST

SCALE: NONE



FINAL PLAN CENTER CROSSCUT EAST

SCALE: NONE

NOTES

A. REFER TO THE ELEC DEMO SUBSET- SHEETS 6,7,8,9 &10 FOR CONSTRUCTION STAGING REQUIREMENTS FOR WEST, WEST CENTER, EAST CENTER AND EAST CROSSCUT ELECTRICAL ROOMS

B. REFER TO THE TUN. POWER- SUBSET SHEETS 28, 32 & 37 FOR TUNNEL CIRCUITS WHICH ROUTE TO CONTACTOR CABINETS (CNW-1, CNCW-1, CNE-1 & CNCE-1).

C. REFERENCE TUN. POWER SUBSET-SHEET 15 "TUNNEL LIGHTING CONTROL SYSTEMS" FOR ROUTING OF C611B AND C611C.

D. HOMERUN TO EXISTING 120/240V PANEL. TERMINATE ON EXISTING SPACE OR SPARE. PROVIDE 20A/1P BRANCH BREAKER WHERE REQUIRED.

E. THREE EXISTING 1 1/2-INCH CONDUITS, P16 (MESSAGE BOARDS), P17 (TV CAMERA), P18 (PULPIT FEEDER) CONTAINING CONDUCTORS THAT ARE TO BE RECONECTED TO CIRCUIT BREAKERS IN NEW PANELBOARD. A FOURTH EXISTING 1 1/2-INCH CONDUIT IS A SPARE. EXTEND EXISTING CONDUITS FROM NORTH WALL OF ELECTRICAL ROOM TO NEW PANELBOARD. REINSTALL TEMPORARILY REMOVED CONDUCTORS FROM NEAREST PULLBOX BACK INTO CONDUIT AND TO NEW PANELBOARD. SEE DEMO DRAWINGS ON SHEETS 15 THROUGH 18.

F. REFERENCE VB ELECT SUBSET SHEETS 18 "ELECT CIRCUIT SCHEDULES, SHEET 1 FOR CONDUIT P670 -P712 AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING.

G. REFERENCE TUN. POWER SUBSET SHEETS 5 (6,7, & 8) "TUNNEL CIRCUIT SCHEDULES, SHEET1 (2,3, & 4)" FOR CONDUIT AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING, WITHIN TUNNEL.

H. 3 INCH FLEXIBLE METAL CONDUIT WITH BUB FITTING FOR CONNECTION TO TRANSFORMER.

LEGEND:

(4) 3 KVA, 480 V - 208Y / 120 V TRANSFORMER (EXIST)
(5) 120 / 240 V PANEL - 16"W x 21"H x 6"D (EXIST)
(6) 30A, 2P, 120/240 V ASCO SW. (ATS) (EXIST)
(11) NEW 150 KVA, 2400 V - 480Y/277 V TRANSFORMER-48"W x 58"H x 32"D
(12) NEW 480 / 277 V PANEL - 22"W x 65"H x 6"D
(13) NEW CONTACTOR CABINET - (SEE SHEET 16 THRU 23 OF TUN PWR SUBSET)
(14) NEW 480 / 277 V PANEL - 22"W x 50"H x 6"D
(15) NEW - MV CABLE PULLBOX - 24"W x 20"H x 12"D
(18) RELOCATED - F.O. CABINET
(19) NEW THRU-WALL EXHAUST FAN (3000 CFM)

NOTE:

CONDUIT ROUTING IS DIAGRAMMATIC ON THIS SHEET..

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	DJB
Last Modification Date:	03◇28◇07	Initials:	DJB
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	102_p160		
Acad Ver. R14	Scale: NTS	Units: ENGLISH	

Sheet Revisions		
07/03/07	ASBUILT	DJB

Colorado Department of Transportation
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Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

NORTH TUNNEL ELEC. RM. CROSSCUT POWER PLANS

Designer: S. O'ROURKE
Detailer: D. BURROUGHS
Sheet Subset: TUN. POWER
Structure Numbers:
Subset Sheets: 45 of 45

Project No./Code: IM 0703-269
13166
Sheet Number 111

VENTILATION BUILDING POWER NOTES:

1. THE MAIN OBJECTIVE SHALL BE TO MAINTAIN A FULLY FUNCTIONAL TUNNEL DURING CONSTRUCTION. ALL LIGHTING, VMS, LUS OR ELECTRICAL DISTRIBUTION SYSTEMS OR MOBILIZATION THAT REQUIRES LANE CLOSURE SHALL BE PERFORMED DURING OFF-PEAK TRAFFIC PERIODS AND COORDINATED WITH THE ENGINEER. SEE CONTRACT DOCUMENTS AND SPECIAL PROVISIONS FOR OTHER RESTRICTIONS.

2. NOT USED

3. DRAWINGS REPRESENT DIAGRAMATIC LOCATIONS AND APPROXIMATE QUANTITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES AND SHALL EXERCISE SUITABLE CARE TO AVOID DISRUPTION OR DAMAGE OF UTILITIES OR EQUIPMENT TO REMAIN IN SERVICE. REPAIR DAMAGE ACCORDING TO THE PROVISIONS.

4. REFER TO ELECTRICAL DRAWINGS TO COORDINATE SUITABLE PHASING OF DEMOLITION AND NEW CONSTRUCTION. IMMEDIATELY NOTIFY THE ENGINEER IF CONCEALED UTILITIES, CONDUIT OR CONDITIONS ARE DISCOVERED THAT WILL INHIBIT NEW CONSTRUCTION INDICATED ON THE CONTRACT DOCUMENTS. ACT TO RESOLVE THESE ISSUES AS EXPEDIENTLY AS POSSIBLE.

5. MAINTAIN EMERGENCY CIRCUITING UNTIL RAPID CHANGE-OVER TO NEW EMERGENCY CIRCUITING OCCURS. ALL TEMPORARY WIRING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE AND BE PRE-APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION. RE-LABEL ALL CIRCUIT BREAKERS WITH TEMPORARY OR PERMANENT REVISED LOAD DESCRIPTIONS AS REQUIRED.

6. RE-UTILIZE EXISTING PULLBOXES, CONDUIT OR PENETRATIONS WHERE SUITABLE, SUCH AS WHERE THE ELECTRICAL ROOM CONDUIT INTERFACES WITH THE TUNNEL.

7. REFERENCE VB ELECT SUBSET SHEET 19 "ELECT CIRCUIT SCHEDULES, SHEET 2" FOR SERIES 600 CONTROL CONDIUT AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING.

8. REFERENCE TUN. POWER SUBSET SHEETS 5 (6, 7 & 8) "TUNNEL CIRCUIT SCHEDULES, SHEET 1 (2, 3 & 4)" FOR POWER CONDUIT AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING WITHIN TUNNEL.

9. REFERENCE VB ELECT SUBSET SHEET 18 "ELECT CIRCUIT SCHEDULES, SHEET 1" FOR P670 THROUGH P712 CONDUIT AND WIRE (OR CABLE) DESCRIPTIONS AND ROUTING WITHIN TUNNEL.

10. INTERCEPT CONDUIT P-702 IN EAST VENTILATION BUILDING AND RE-ROUTE TO CONTRACTOR CABINET CEVN-2.

11. INTERCEPT CONDUIT P-700 IN WEST VENTILATION BUILDING AND RE-ROUTE TO CONTRACTOR CABINET CWVN-2.

QUANTITIES - TUNNEL POWER

CONTRACT ITEM NUMBER	CONTRACT ITEM	UNIT	ROADWAY	
			PLAN	AS CONST.
613	MEDIUM VOLTAGE LOAD INTERRUPTER SWITCH	EA	4	
613	3/4 INCH ELECTRICAL CONDUIT	LF	500	
613	1-1/4 INCH ELECTRICAL CONDUIT	LF	1000	
613	2 INCH ELECTRICAL BODY (TYPE LB)	EA	2	
613	2 INCH ELECTRICAL CONDUIT	LF	100	
613	3 INCH ELECTRICAL CONDUIT	LF	1400	
613	3-1/2 INCH ELECTRICAL CONDUIT	LF	200	
613	1 INCH ELECTRICAL CONDUIT	LF	1000	
613	2.4KV MOTOR CONTROL CENTER CUBICLE	EA	3	
613	CIRCUIT BREAKER (400A, 3 POLE)	EA	3	
613	PANELBOARD (225A, 277/480V, 3 PHASE)	EA	4	
613	PANELBOARD (5KVA,480-120/240V MINI LOAD CENTER)	EA	2	
613	POWER TRANSFORMER (300KVA, 480-2400V, 3 PHASE)	EA	2	
613	TUNNEL LIGHTING CONTROL SYSTEM	LS	1	
613	1-1/2 INCH ELECTRICAL CONDUIT	LF	1500	
613	CIRCUIT BREAKER (150A, 3 POLE)	EA	1	

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information	
Creation Date:	02/26/99 Initials: SL
Last Modification Date:	03-07-03 Initials: DJR
Full Path:	14102\700cadd\703elect\
Drawing File Name:	gesno03n.dgn
Acad Ver. R14	Scale: NTS Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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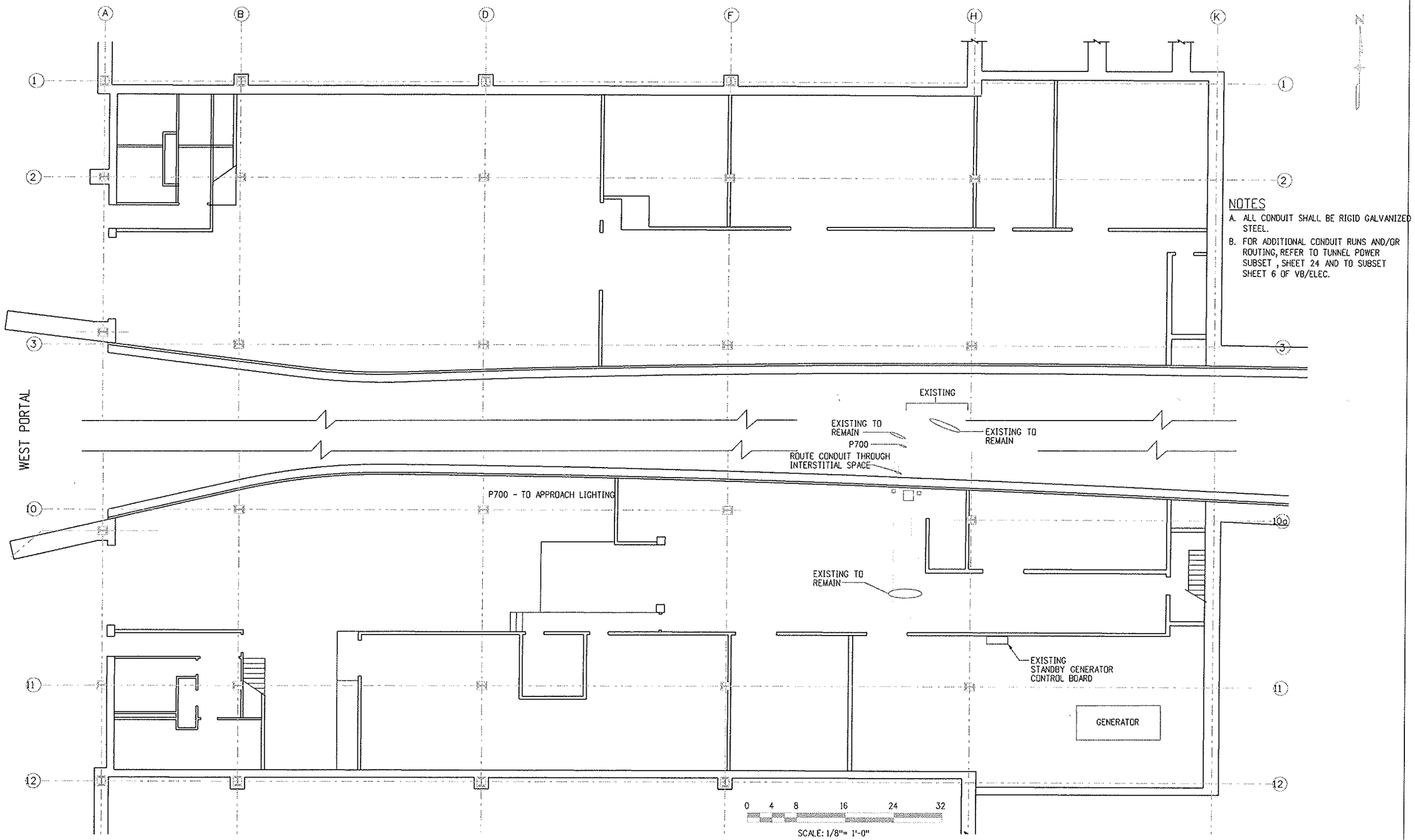
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

VENT. BUILDING POWER NOTES & QUANTITIES

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers
Subset Sheets: 1 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 112



NOTES

A. ALL CONDUIT SHALL BE RIGID GALVANIZED STEEL.

B. FOR ADDITIONAL CONDUIT RUNS AND/OR ROUTING, REFER TO TUNNEL POWER SUBSET , SHEET 24 AND TO SUBSET SHEET 6 OF VB/ELEC.

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	SL
Last Modification Date:	05/10/01	Initials:	LK
Full Path:	14102\700cadd\703elect\		
Drawing File Name:	eppl22wn.dgn		
Acad Ver. R14	Scale: 1/8" = 1'-0"	Units:	ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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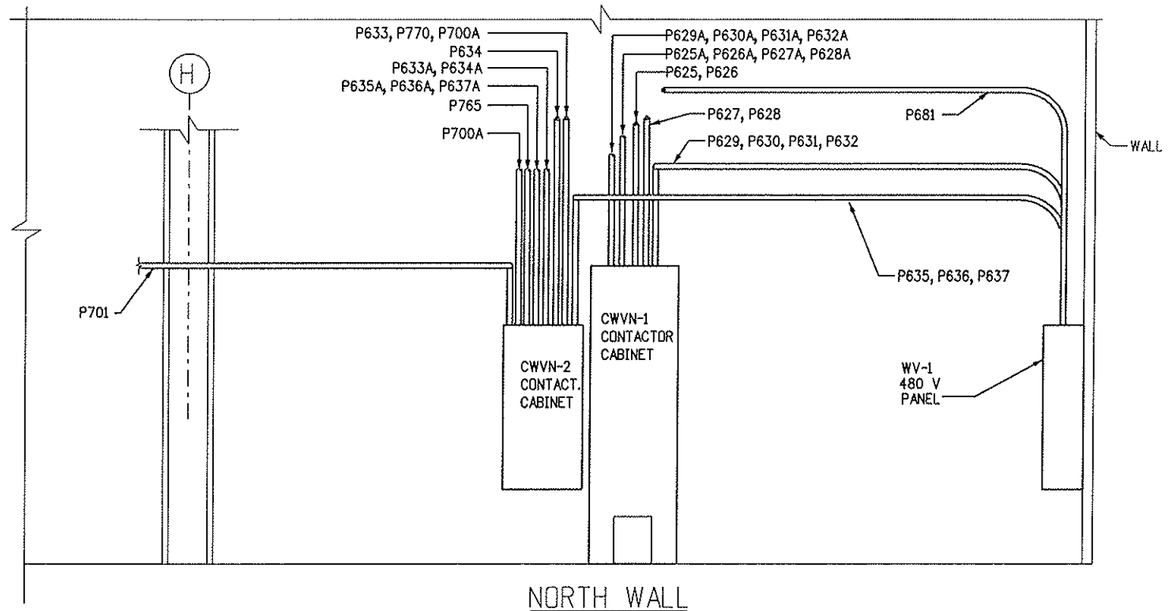
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

WEST VENT BUILDING PARTIAL POWER PLAN

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers
Subset Sheets: 2 of 20

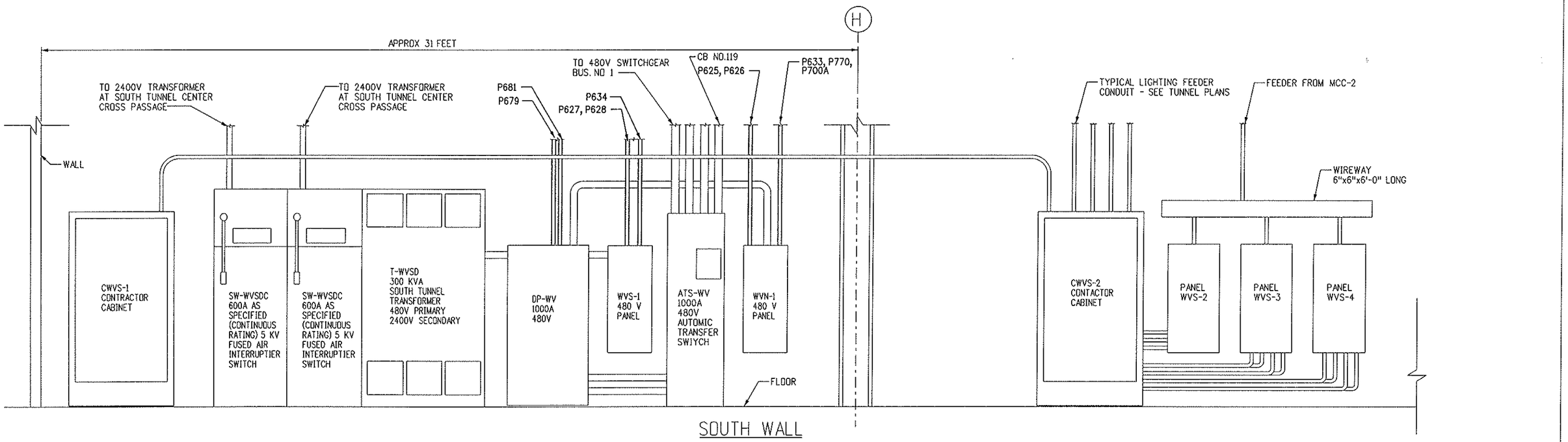
Project No./Code
IM 0703-269
13166
Sheet Number 113



NORTH WALL

NOTES:

1. NEW WORK IS INDICATED BY HEAVY LINES FOR WV-1, CWVN, AND CWVN-2, AND CONDUITS. ALSO SEE SHEET 18 OF VB/ELEC AND SHEET 6 OF TUNNEL POWER FOR CONDUIT REQUIREMENTS.



SOUTH WALL

PARTIAL ELEVATIONS MAIN ELECTRICAL ROOM EQUIPMENT
WEST VENTILATION BUILDING

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

0 1 2 4 6
SCALE: 1/2"= 1'-0"

Computer File Information			
Creation Date:	02/26/99	Initials:	SL
Last Modification Date:	03/13/07	Initials:	DJB
Full Path:			14102\800Deliv\AsBuilt
Drawing File Name:			102eel02n
Acad Ver.	R14	Scale: As Shown	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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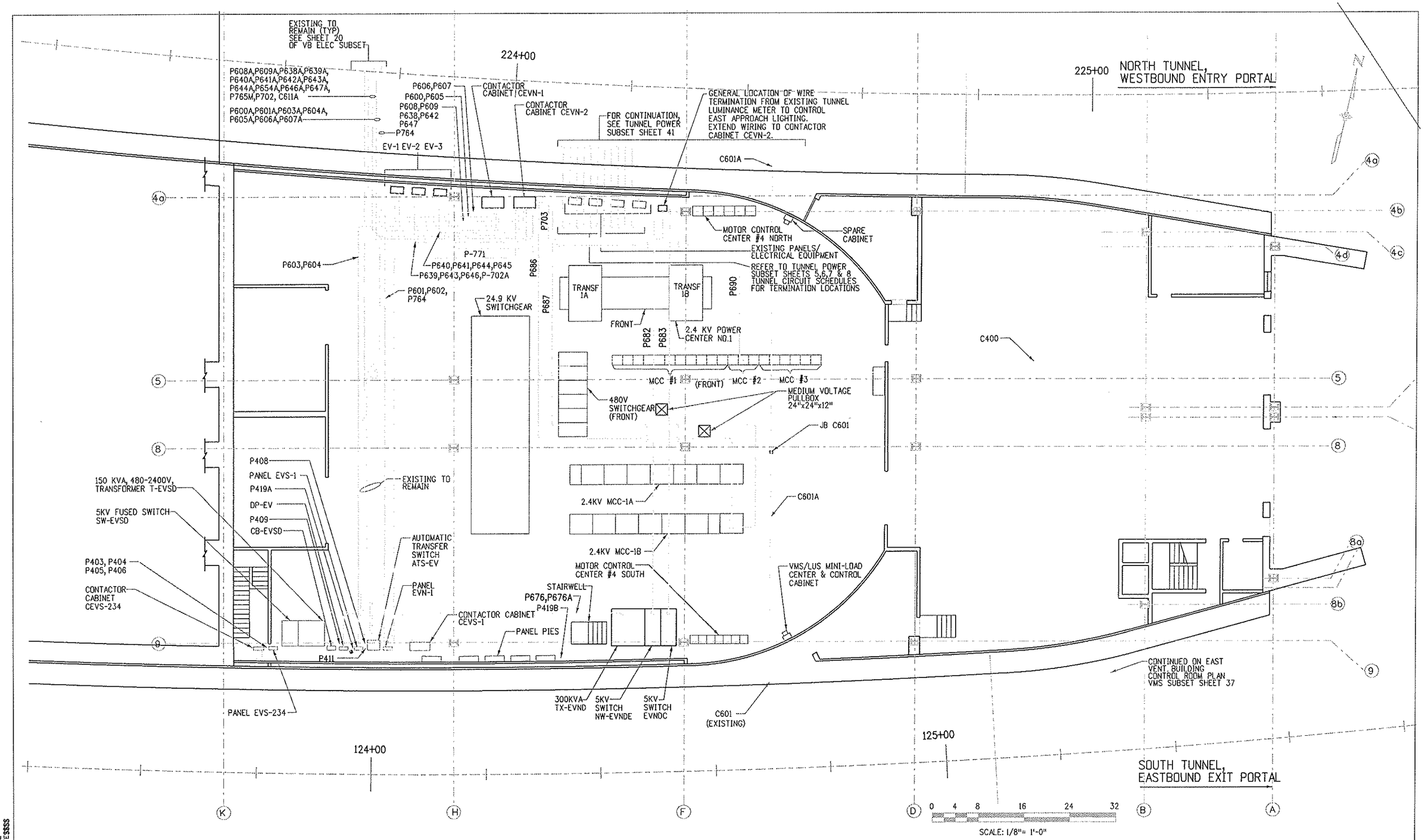
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

WEST VENT BUILDING
ELECTRICAL ROOM DETAILS

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers
Subset Sheets: 3 OF 20

Project No./Code
IM 0703-269
13166
Sheet Number 114



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Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

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Last Modification Date:	03/16/07	Initials: DJB	
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Acad Ver. R14	Scale: 1=0'-1'-0"	Units:	ENGLISH

Sheet Revisions		
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Region 1 Mountain Residency I.N.Z.

As Constructed	
No Revisions:	
Revised:	
Void:	

EAST VENT BUILDING ELECTRICAL POWER PLAN

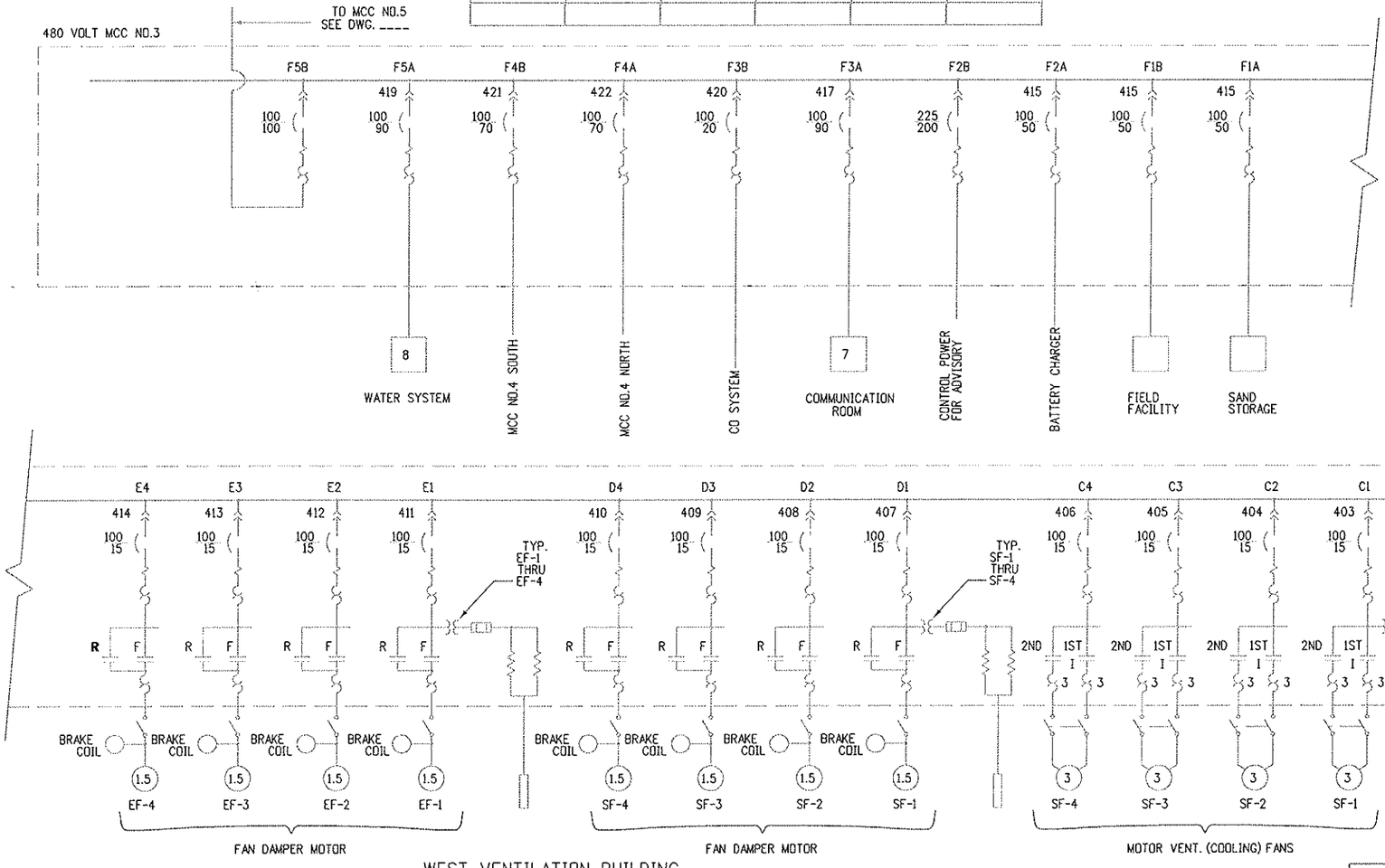
Designer: E.A. GAYAMAT		Structure Numbers	
Detailer: R. MILLER			
Sheet Subset: VB ELEC	Subset Sheets: 4 of 20		

Project No./Code	
IM 0703-269	
13166	
Sheet Number	115

WEST VENTILATION BUILDING (MCC) NO. 3

100					
F1A	E1	D1	C1	B1	A1
F1B					
F2A	E2	D2	C2		A2
F2B					
F3A	E3	D3	C3		A3
F3B					
F4A					
F4B	E4	D4	C4		
F5A					
F5B					

MCC NO.3 ELEVATION
SCALE: NONE



WEST VENTILATION BUILDING
MOTOR CONTROL CENTER NO.3
SCALE: NONE

LEGEND:

201
225 / 200
MOLDED CASE AIR CIRCUIT BREAKER.
THERMAL MAGNETIC.
FRAME SIZE AS INDICATED (225)
TRIP SETTING AS INDICATED (200)
3 POLE EXCEPT WHERE OTHERWISE INDICATED.
"201" BREAKER DESIGNATION NUMBER.

FUSE AND CONTROL TRANSFORMER

LOCAL AND/OR REMOTE CONTROLS & INTERLOCKS (SEE ELEMENTARY DIAGRAMS)

6 — LIGHT OR POWER PANEL. NO. AS INDICATED

1.5 — MOTOR - HORSEPOWER AS INDICATED (1.5)

NAMEPLATE SCHEDULE

REF.	FIRST LINE	SECOND LINE	THIRD LINE
100	480 VOLT	MCC NO. 3	SOUTH
A1	EQUIPD. SPC.	FOR STARTER	SIZE 3
A2	SPARE	CIRCUIT BREAKER	
A3	INCOMING	FEEDER NO.1	FEEDER NO.2
B1	CURRENT LIMITING	REACTOR	
C1	VENT FAN	FOR	SF-1
C2	VENT FAN	FOR	SF-2
C3	VENT FAN	FOR	SF-3
C4	VENT FAN	FOR	SF-4
D1	DAMPER	FOR	SF-1
D2	DAMPER	FOR	SF-2
D3	DAMPER	FOR	SF-3
D4	DAMPER	FOR	SF-4
E1	DAMPER	FOR	EF-1
E2	DAMPER	FOR	EF-2
E3	DAMPER	FOR	EF-3
E4	DAMPER	FOR	EF-4
F1A	SAND	STORAGE	
F1B	FIELD	FACILITY	
F2A	BATTERY	CHARGER	
F2B	CONTROL	POWER FOR.	SUPERVISORY
F3A	STATE	COMMUNICATION	
F3B	CO SYSTEM		
F4A	MOTOR CONTRL	CENTER NO. 4	NORTH
F4B	MOTOR CONTRL	CENTER NO. 4	SOUTH
F5A	WATER SYSTM	POWER DIST.	PANEL NO.8
F5B	MOTOR CONTRL	CENTER NO. 5	

FOR REFERENCE ONLY

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	2/26/99	Initials:	SL
Last Modification Date:	02/07/02	Initials:	DJR
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Sheet Revisions		
07/03/07	ASBUILT	DJB

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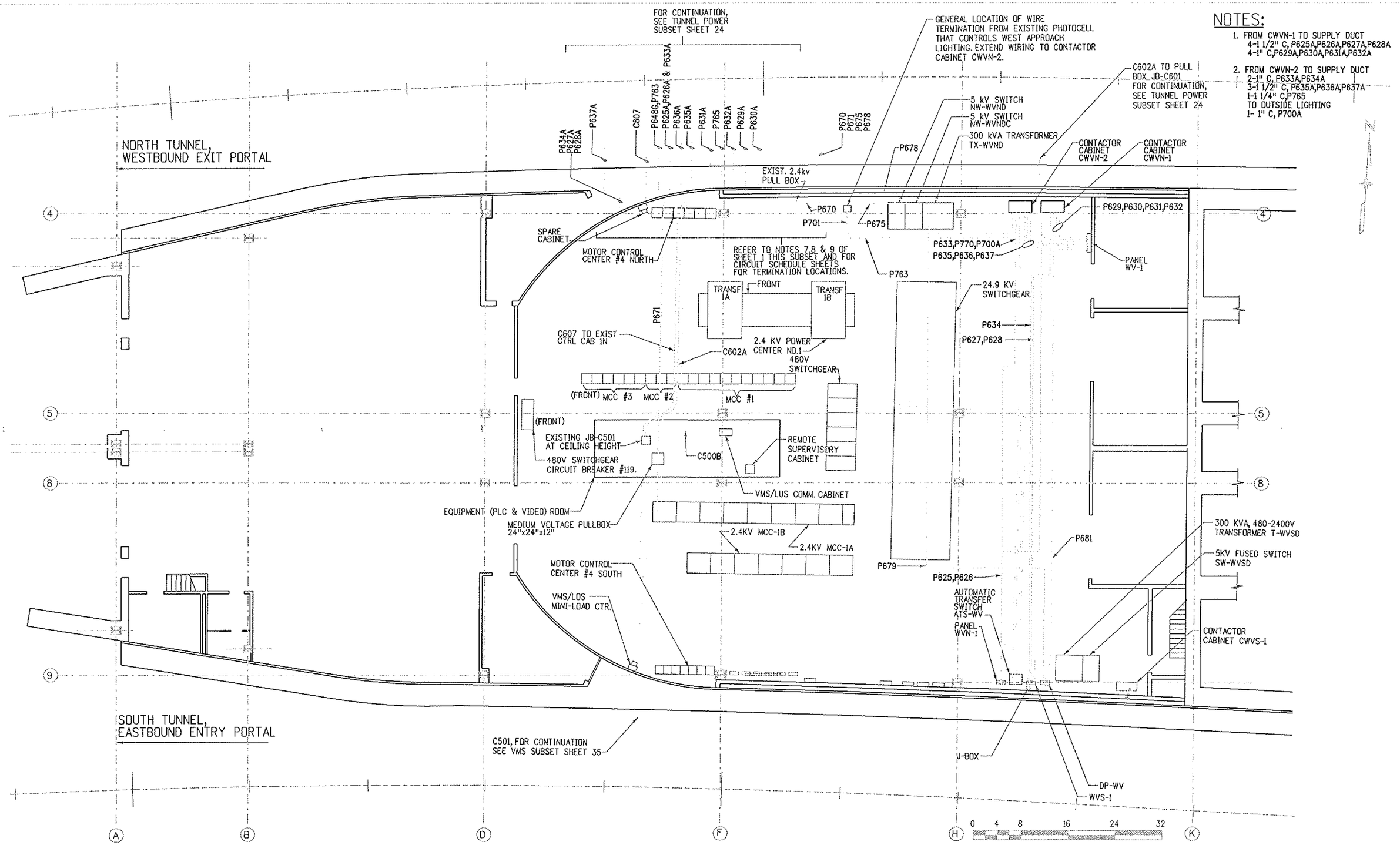
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

ONE LINE DIAGRAM
WEST MCC NO.3

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers:
Subset Sheets: 5 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 116



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Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Sheet Revisions		
07/03/07	ASBUILT	DJB

Colorado Department of Transportation
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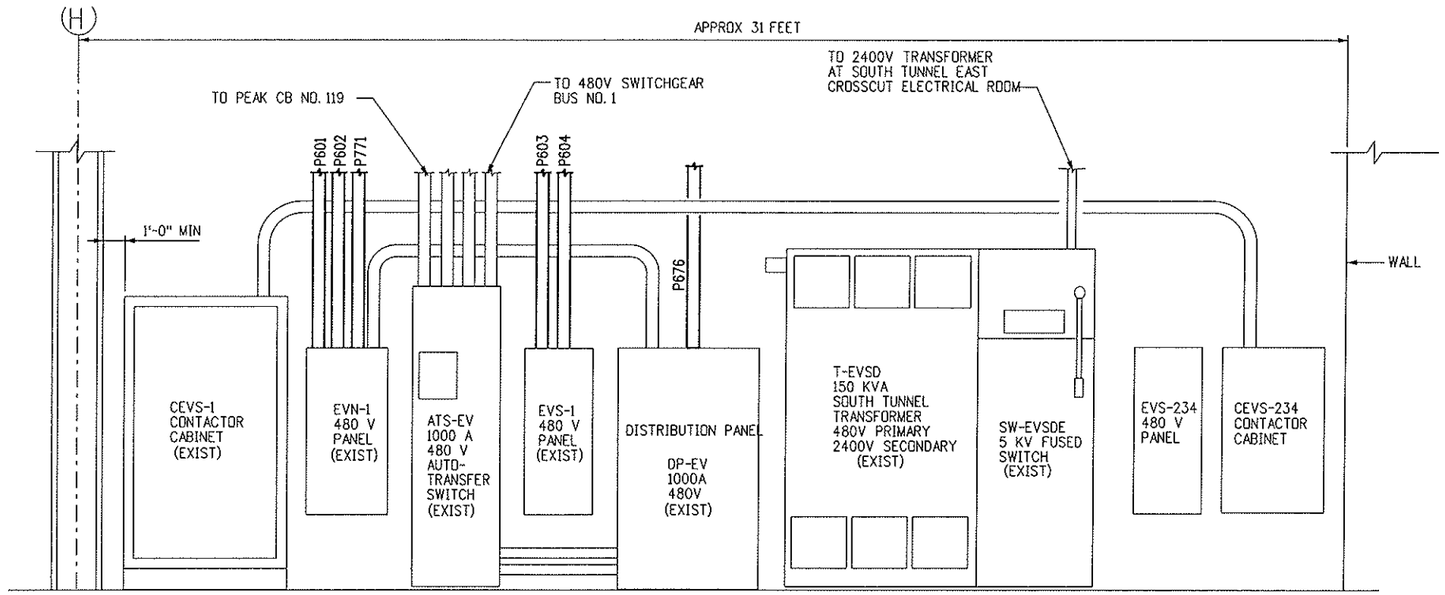
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

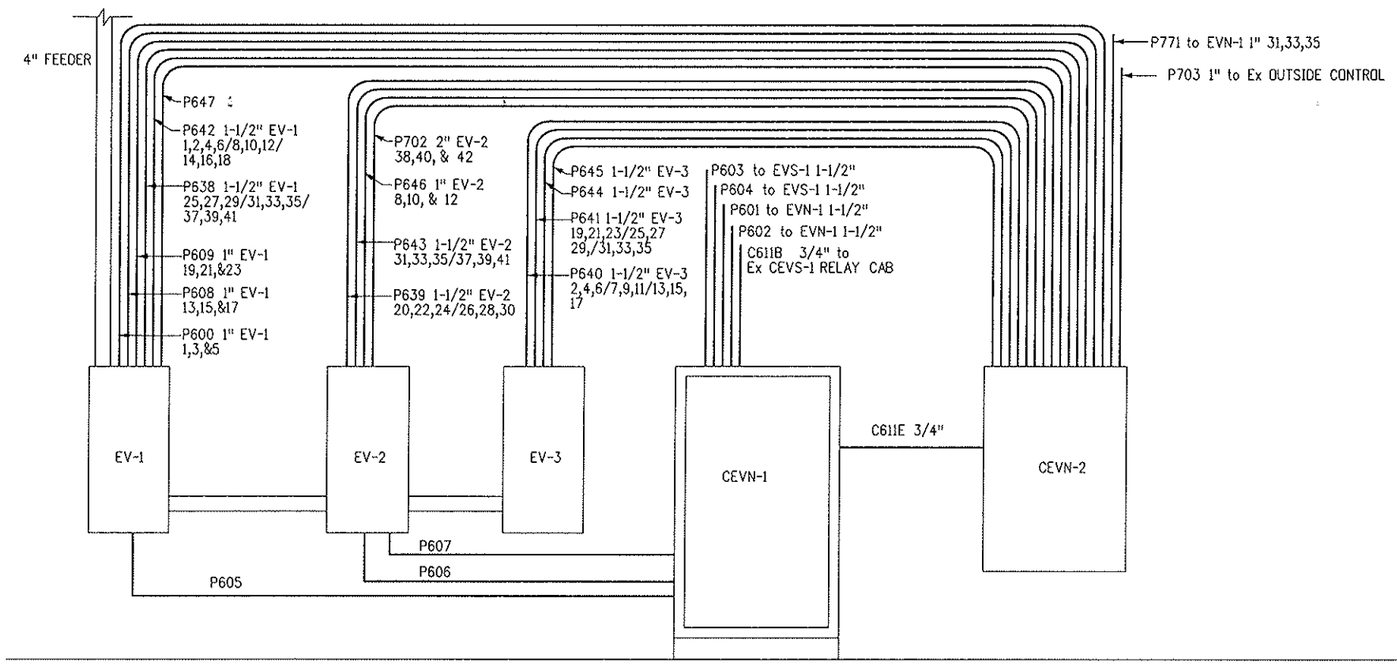
WEST VENT BUILDING ELECTRICAL POWER PLAN

Designer:	E.A. GAYAMAT	Structure Numbers	
Detailer:	R. MILLER		
Sheet Subset:	VB ELEC	Subset Sheets:	6 OF 20

Project No./Code	IM 0703-269
	13166
Sheet Number	117



SOUTH WALL



NORTH WALL

PARTIAL ELEVATIONS MAIN ELECTRICAL ROOM
EAST VENTILATION BUILDING

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

0 1 2 4 6
SCALE: 1/2"= 1'-0"

Computer File Information				Sheet Revisions		
Creation Date:	05/26/99	Initials: SL		07/03/07	ASBUILT	DJB
Last Modification Date:	03/05/07	Initials: LK				
Full Path:	14102\800Deliv\AsBuilt\					
Drawing File Name:	102eel01n					
Acad Ver. R14	Scale: AS SHOWN	Units: ENGLISH				

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Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

EAST VENT BUILDING
ELECTRICAL ROOM DETAILS

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers
Subset Sheets: 7 OF 20

Project No./Code
IM 0703-269
13166
Sheet Number 118

LOCAL CONTROL BOARD
EXHAUST FAN CONT.

XX

C.P.T. 1KVA
2400-120V

FROM 2.4KV POWERCENTER No.1

LUGS, 2-250KCM/PHASE (TOP ENTRY @ UNIT #2)

P3

2.4KV, 1000A, 3P, 60HZ BUS, 200MVA (RATED 4KV)

TO 120VAC, 1P, 60HZ TEST POWER

P10A

5 6 7 4 3 2 1

50E 50E VACUUM TYPE LIMIT AMP

C.P.T. 2400-120V

C.P.T. 2400-120V

G R

TEST-OFF-READY

L I2 I1 H L I2 I1 H

P15B P15A P14B P14A P13B P13A P12B P12A

EXISTING 2.4kv PULL BOX (WEST VENT. BLDG)

200/25 HP

600/100 HP

75 KVAR

200/25 HP

600/100 HP

75 KVAR

MOTOR #2 MOTOR #1 MOTOR #2 MOTOR #1

EXHAUST FAN NO.7 EXHAUST FAN NO.6

P671

P670

TX-NWN-1
2400-480Y/277V
150 KVA

PANEL NWN-1

P672

TX-NCS-1W
2400-480Y/277V
150 KVA

PANEL NCS-1W

P673

NORTH TUNNEL WEST CROSSCUT ELECTRICAL ROOM

NORTH TUNNEL WEST CENTER CROSSCUT ELECTRICAL ROOM (WEST)

TUNNEL LIGHTING AND TRAFFIC CONTROL

TUNNEL LIGHTING AND TRAFFIC CONTROL

ETM ETM

L I2

27

30/5 3 3 75/5

AS 46 49 3 3 49 46 AS

AM 0-25A 50 GS * AM 0-75A 50 GS *

100/5

LUGS, 3#6 (TOP ENTRY) LUGS, 3-#6 (TOP ENTRY)

P11B P11A

200/25 HP

MOTOR #2

NOTE: MOTOR CONTROL IS TYPICAL FOR ALL SUPPLY AND EXHAUST FANS.

X H X
X I2 X
X I1 X
X L X
X STOP X

LOCAL CONTROL BOARD

FAN CONTROL BOARD

5 POSITION SEL. SW.

EXHAUST FAN NO.5

ETM ETM

R G

TEST-OFF-READY

I1 H

27

50/5 3 3 200/5

AS 46 49 3 3 49 46 AS

AM 0-50A 50 GS * AM 0-200A 50 GS *

100/5

LUGS, 3#6 (TOP ENTRY) LUGS, 3-1/0 (TOP ENTRY)

P10B P10A

LOCAL STOP SW.

600/100 HP

75 KVAR

MOTOR #1

NOTE: MOTOR CONTROL IS TYPICAL FOR ALL SUPPLY AND EXHAUST FANS.

* EXISTING PROTECTIVE DEVICES OF MOTOR, TYPICAL.

EXISTING 2.4KV MOTOR CONTROL CENTER NO.1A

(RATED 4KV)

Design File Name: DGNSSPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	05/26/99	Initials:	SL
Last Modification Date:	03/05/07	Initials:	LK
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Drawing File Name:	102esd29n		
Acad Ver. R14	Scale: N.T.S.	Units:	ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed

No Revisions:

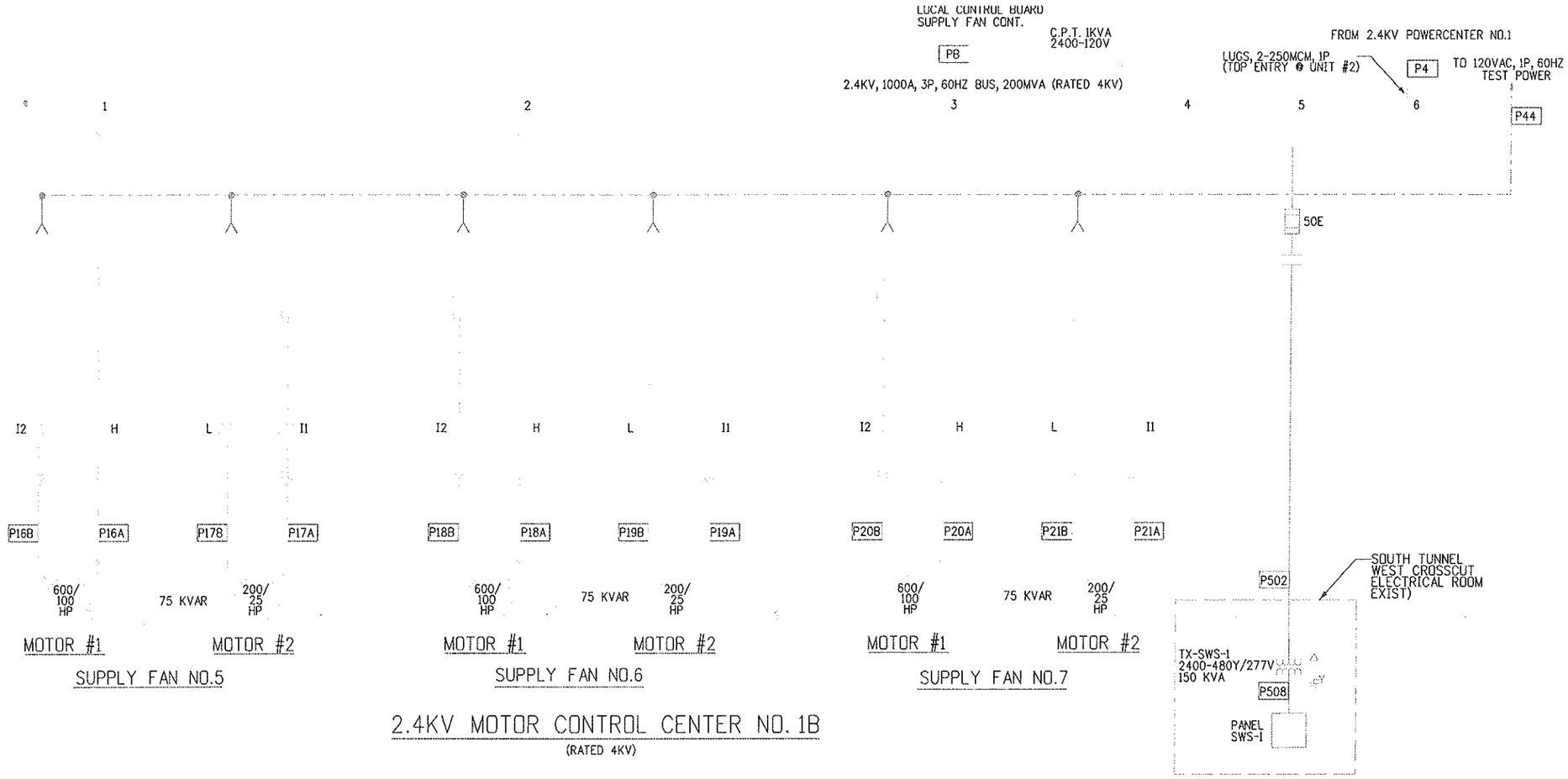
Revised:

Void:

ONE LINE DIAGRAM WEST 2.4KV MCC NO.1A

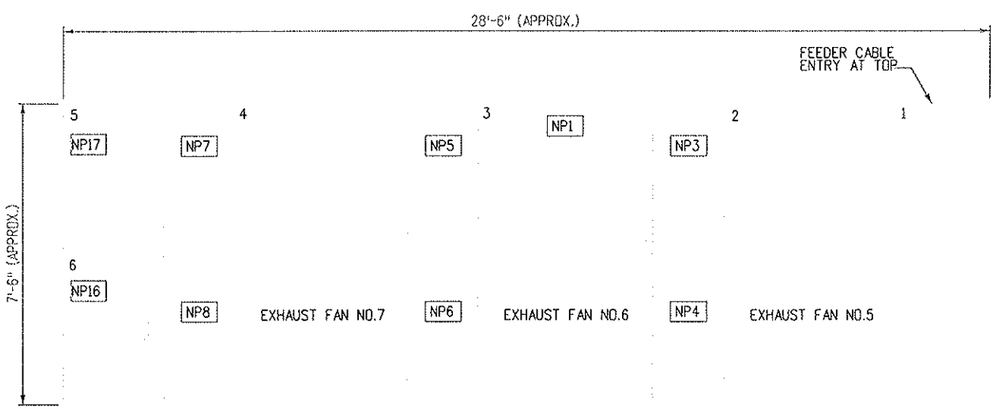
Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers
Sheet Subset: VB ELEC
Subset Sheets: 8 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 119



2.4KV MOTOR CONTROL CENTER NO.1B

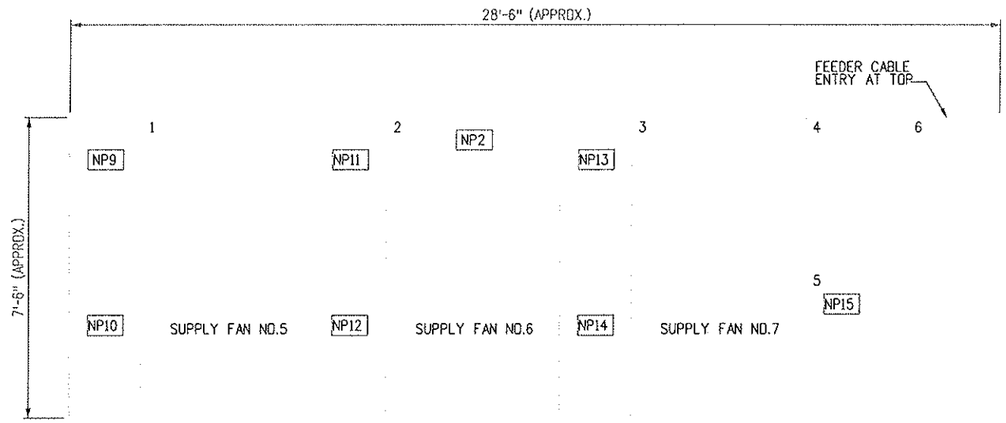
(RATED 4KV)



2.4KV MOTOR CONTROL CENTER NO.1A - FRONT VIEW

N.T.S.

(EXISTING)



2.4KV MOTOR CONTROL CENTER NO.1B - FRONT VIEW

N.T.S.

(EXISTING)

NP NO.	ENGRAVING
1	2.4KV M.C.C. NO.1A SOUTH TUNNEL
2	2.4KV M.C.C. NO.1B SOUTH TUNNEL
3	EXHAUST FAN EF-5 MOTOR NO.1
4	EXHAUST FAN EF-5 MOTOR NO.2
5	EXHAUST FAN EF-6 MOTOR NO.1
6	EXHAUST FAN EF-6 MOTOR NO.2
7	EXHAUST FAN EF-7 MOTOR NO.1
8	EXHAUST FAN EF-7 MOTOR NO.2
9	SUPPLY FAN SF-5 MOTOR NO.1
10	SUPPLY FAN SF-5 MOTOR NO.2
11	SUPPLY FAN SF-6 MOTOR NO.1
12	SUPPLY FAN SF-6 MOTOR NO.2
13	SUPPLY FAN SF-7 MOTOR NO.1
14	SUPPLY FAN SF-7 MOTOR NO.2
15	SOUTH TUNNEL TRANSFORMER FEEDER
16	NORTH TUNNEL WEST CENTER CROSSCUT TX-NCS-1W
17	NORTH TUNNEL WEST CROSSCUT TX-NWN-1

NAMEPLATE SCHEDULE

FOR REFERENCE ONLY

Computer File Information			
Creation Date:	05/27/99	Initials:	SFD
Last Modification Date:	03/05/07	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	102esd30n		
Acad Ver. R14	Scale: None	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

Colorado Department of Transportation
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Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

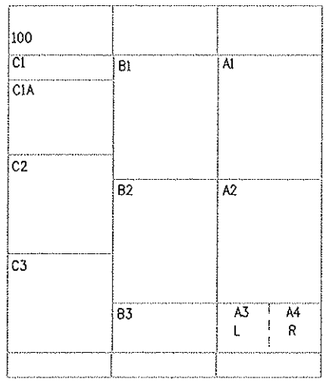
As Constructed	
No Revisions:	
Revised:	
Void:	

ONE LINE DIAGRAM
WEST 2.4KV MCC NO.1B

Designer:	E.A. GAYAMAT	Structure Numbers	
Detailer:	R. MILLER		
Sheet Subset:	VB ELEC	Subset Sheets:	9 of 20

Project No./Code	
IM 0703-269	
13166	
Sheet Number	120

WEST VENTILATION BUILDING (MCC) NO. 2



MCC NO.2 ELEVATION
SCALE: NONE

LEGEND:

201
225
200

MOLDED CASE AIR CIRCUIT BREAKER.
THERMAL MAGNETIC.
FRAME SIZE AS INDICATED (225)
TRIP SETTING AS INDICATED (200)
3 POLE EXCEPT WHERE OTHERWISE INDICATED.
"201" BREAKER DESIGNATION NUMBER.

FUSE AND CONTROL TRANSFORMER

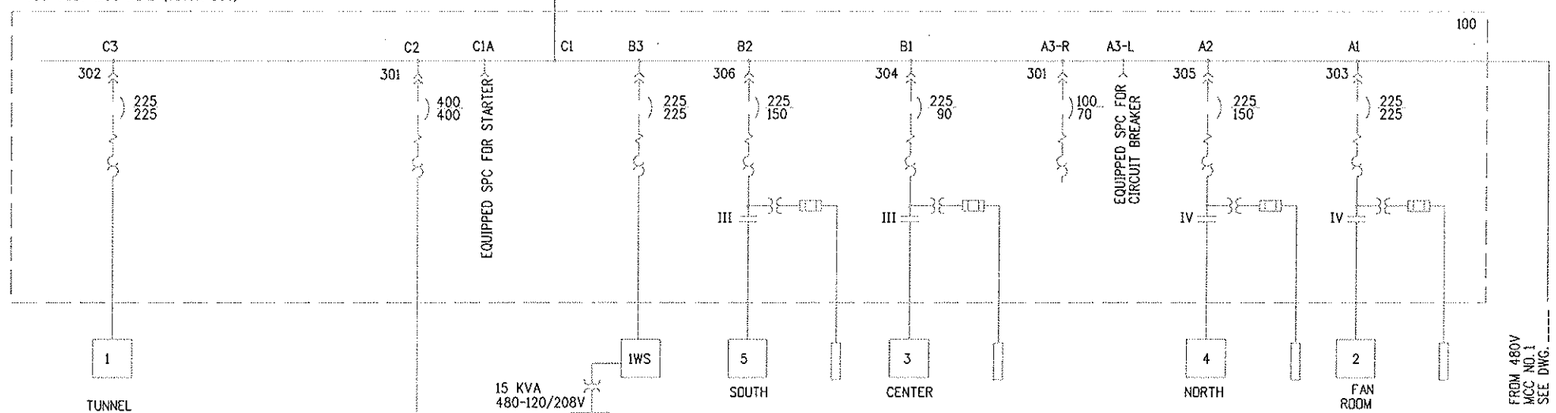
LOCAL AND/OR REMOTE CONTROLS & INTERLOCKS (SEE ELEMENTARY DIAGRAMS)

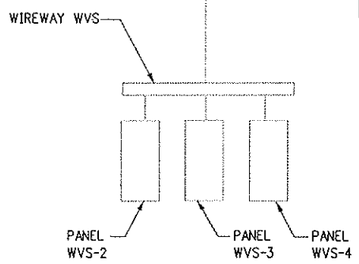
2

LIGHT OR POWER PANEL.
NO. AS INDICATED

DRY-TYPE TRANSFORMER

480 VOLT MCC NO.2 (1200A BUS)





WEST VENTILATION BUILDING
MOTOR CONTROL CENTER NO.2

SCALE: NONE

NAMEPLATE SCHEDULE

REF	FIRST LINE	SECOND LINE	THIRD LINE
100	480 VOLT	MCC NO. 2	SOUTH
A1	FAN ROOM	POWER DIST.	PANEL NO. 2
A2	NORTH BLDG.	POWER DIST.	PANEL NO. 4
A3-L	SPARE	CIRCUIT	BREAKER
A3-R	EQUIPD. SPC.	FOR CIRCUIT	BREAKER
B1	CENTER BLDG.	POWER DIST.	PANEL NO. 3
B2	SOUTH BLDG.	POWER DIST.	PANEL NO. 5
B3	PANEL	IWS	SOUTH TUNNEL
C1	INCOMING	FEEDER	BUS
C1A	EQUIPD. SPC.	FOR STARTER	SIZE 3
C2	WIREWAY WVS	FOR PANELS	WVS-2,-3,-4
C3	TUNNEL SUPPLY	POWER DIST.	PANEL NO. 1

FOR REFERENCE ONLY

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	05/28/99	Initials: SFD	
Last Modification Date:	02/07/02	Initials: DJR	
Full Path:		14102\700cadd\703elect\	
Drawing File Name:		102esd24n.dgn	
Acad Ver. R14	Scale: NONE	Units: ENGLISH	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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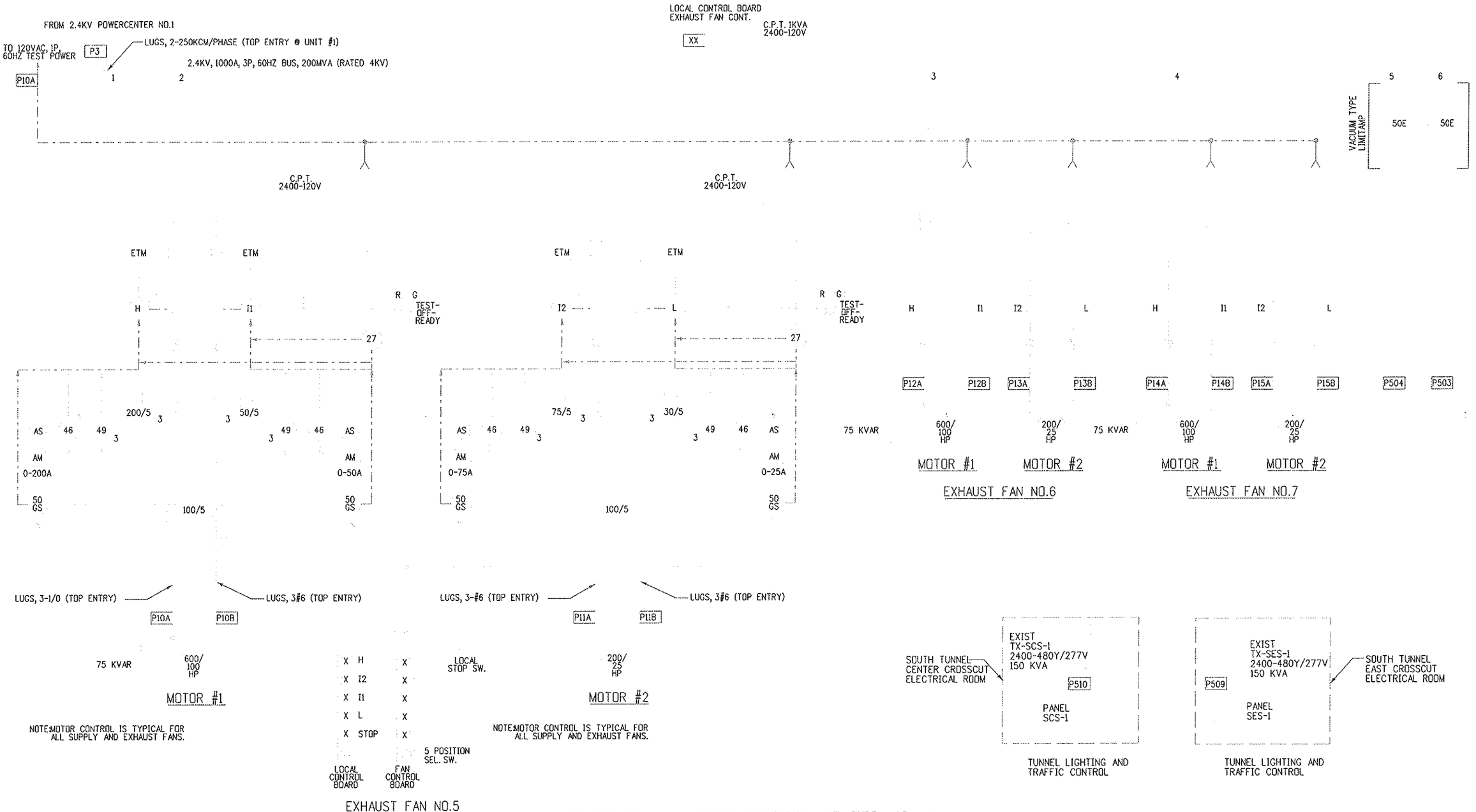
As Constructed	ONE LINE DIAGRAM WEST MCC NO.2		Project No./Code
No Revisions:			IM 0703-269
Revised:	Designer: E.A. GAYAMAT	Structure Numbers	13166
Void:	Detailer: R. MILLER		
	Sheet Subset: VB ELEC	Subset Sheets: 10 of 20	Sheet Number 121



EXIST. 2.4KV MOTOR CONTROL CENTER NO. 1A

(RATED 4KV)

FOR REFERENCE ONLY

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials: SFD	
Last Modification Date:	02/07/02	Initials: DJR	
Full Path:	14102\700cadd\703elect\		
Drawing File Name:			
Acad Ver. R14	Scale: None	Units: ENGLISH	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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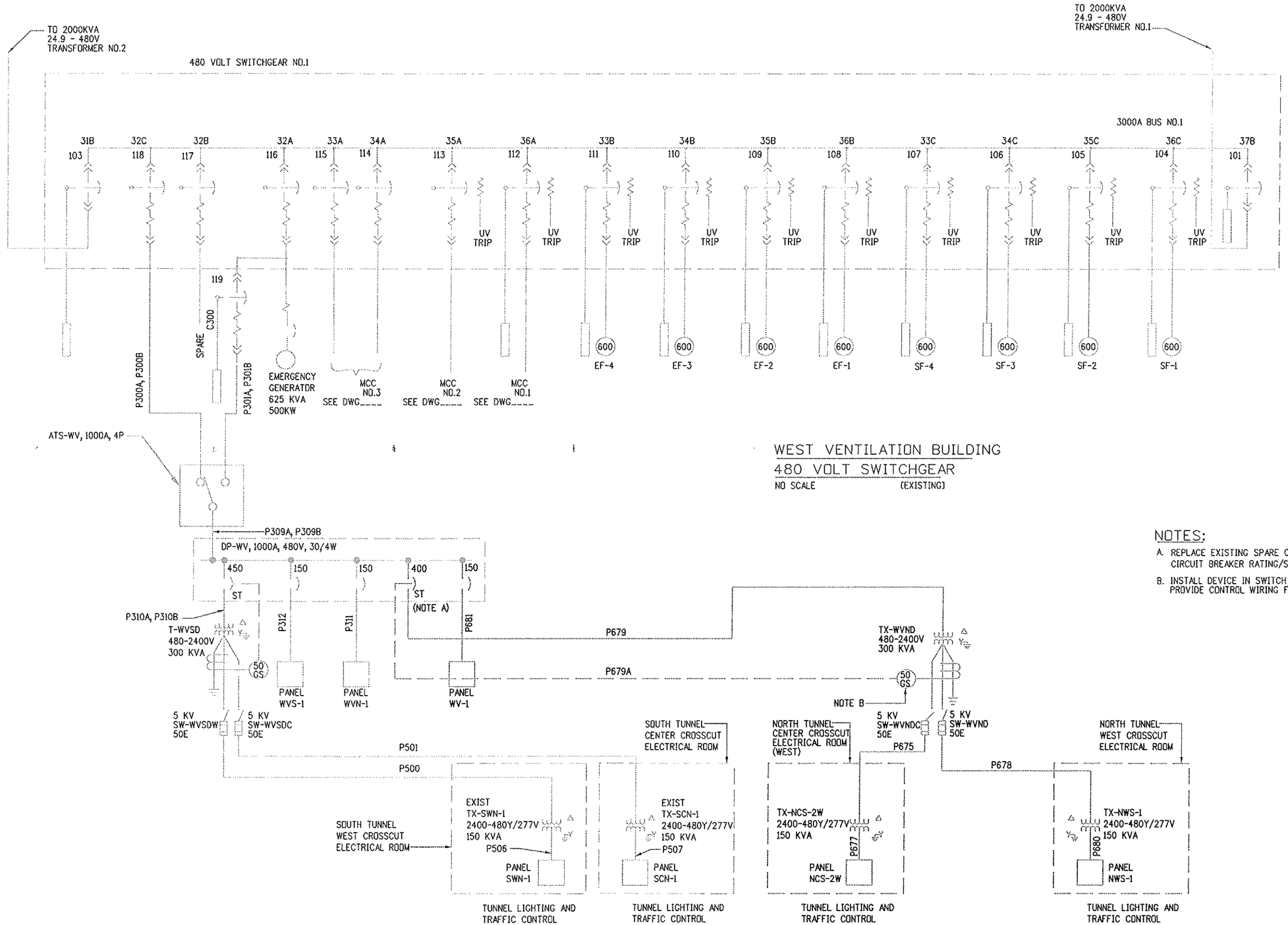
Region 1 Mountain Residency I.N.Z.

As Constructed	ONE LINE DIAGRAM EAST 2.4 KV MCC NO. 1A		Project No./Code
No Revisions:			IM 0703-269
Revised:	Designer: E.A. GAYAMAT	Structure Numbers	13166
Void:	Detailer: R. MILLER		
	Sheet Subset: VB ELEC	Subset Sheets: 11 of 20	Sheet Number 122



WEST VENTILATION BUILDING
480 VOLT SWITCHGEAR

NO SCALE (EXISTING)

NOTES:

A. REPLACE EXISTING SPARE CIRCUIT BREAKER AS REQUIRED. CIRCUIT BREAKER RATING/SIZE AS INDICATED.

B. INSTALL DEVICE IN SWITCH COMPARTMENT. SEE SPECIFICATIONS. PROVIDE CONTROL WIRING FOR SHUNT-TRIP DEVICE AS REQUIRED.

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/29/99	Initials:	SL
Last Modification Date:	03/05/07	Initials:	LK
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Drawing File Name:	102esd26n		
Acad Ver. R14	Scale: None	Units:	ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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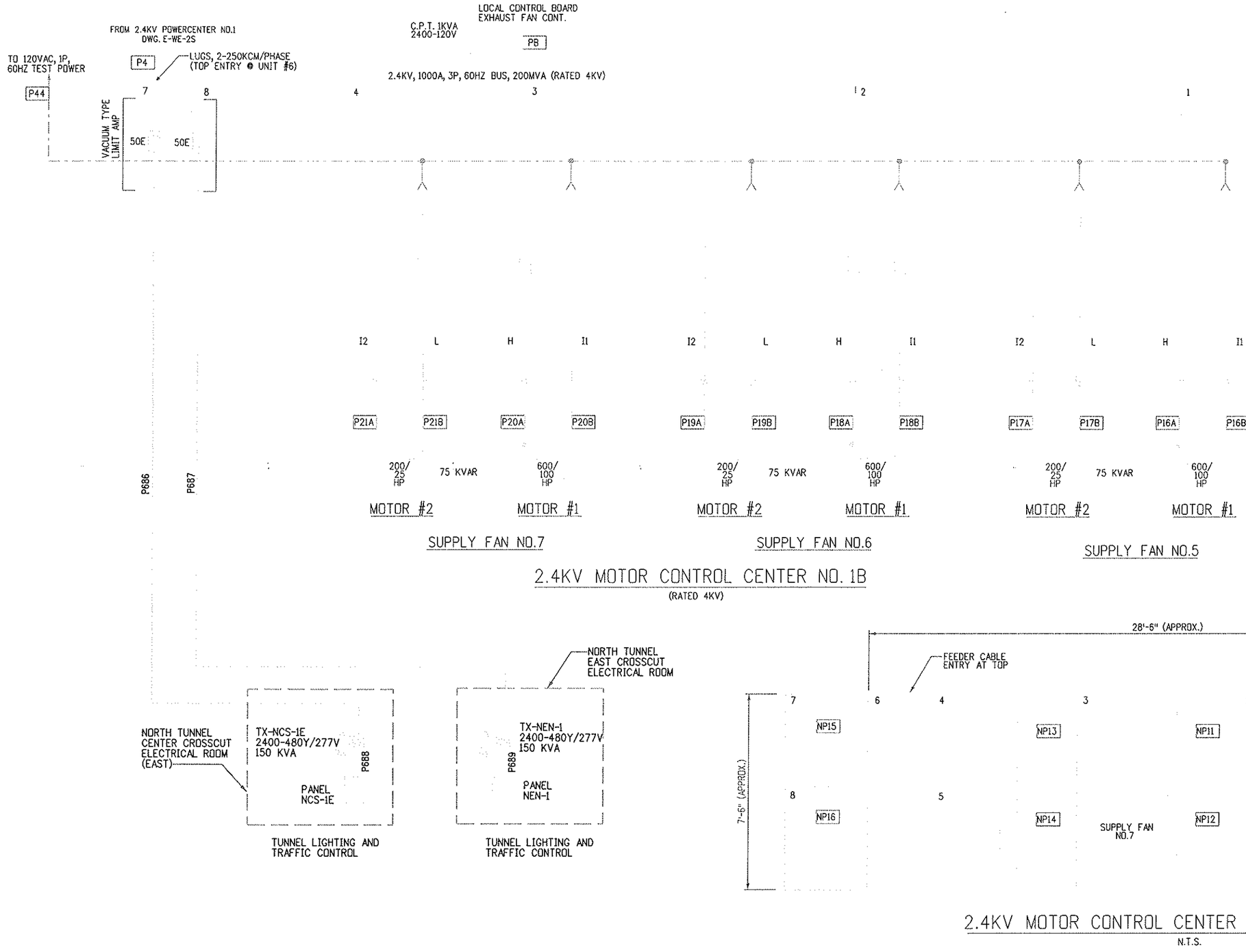
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

ONE LINE DIAGRAM
WEST 480V SWITCHGEAR

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers
Sheet Subset: V8 ELEC
Subset Sheets: 12 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 123



NP NO.	ENGRAVING
1	2.4KV M.C.C. NO.1A SOUTH TUNNEL
2	2.4KV M.C.C. NO.1B SOUTH TUNNEL
3	EXHAUST FAN EF-5 MOTOR NO.1
4	EXHAUST FAN EF-5 MOTOR NO.2
5	EXHAUST FAN EF-6 MOTOR NO.1
6	EXHAUST FAN EF-6 MOTOR NO.2
7	EXHAUST FAN EF-7 MOTOR NO.1
8	EXHAUST FAN EF-7 MOTOR NO.2
9	SUPPLY FAN SF-5 MOTOR NO.1
10	SUPPLY FAN SF-5 MOTOR NO.2
11	SUPPLY FAN SF-6 MOTOR NO.1
12	SUPPLY FAN SF-6 MOTOR NO.2
13	SUPPLY FAN SF-7 MOTOR NO.1
14	SUPPLY FAN SF-7 MOTOR NO.2
15	NORTH TUNNEL EAST CROSSCUT (EAST) TX-NCS-1E
16	NORTH TUNNEL EAST CROSSCUT TX-NEN-1

NAMEPLATE SCHEDULE

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/27/99	Initials: SL	
Last Modification Date:	07/08/99	Initials: SL	
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Acad Ver. R14	Scale: [illegible]	Units: ENGLISH	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Region 1 Mountain Residency I.N.Z.

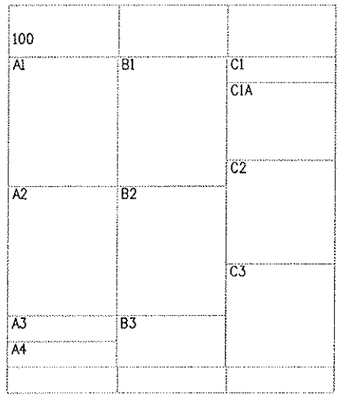
As Constructed
No Revisions:
Revised:
Void:

ONE LINE DIAGRAM
EAST 2.4KV MCC NO.1B

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers:
Sheet Subset: VB ELEC
Subset Sheets: 13 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 124

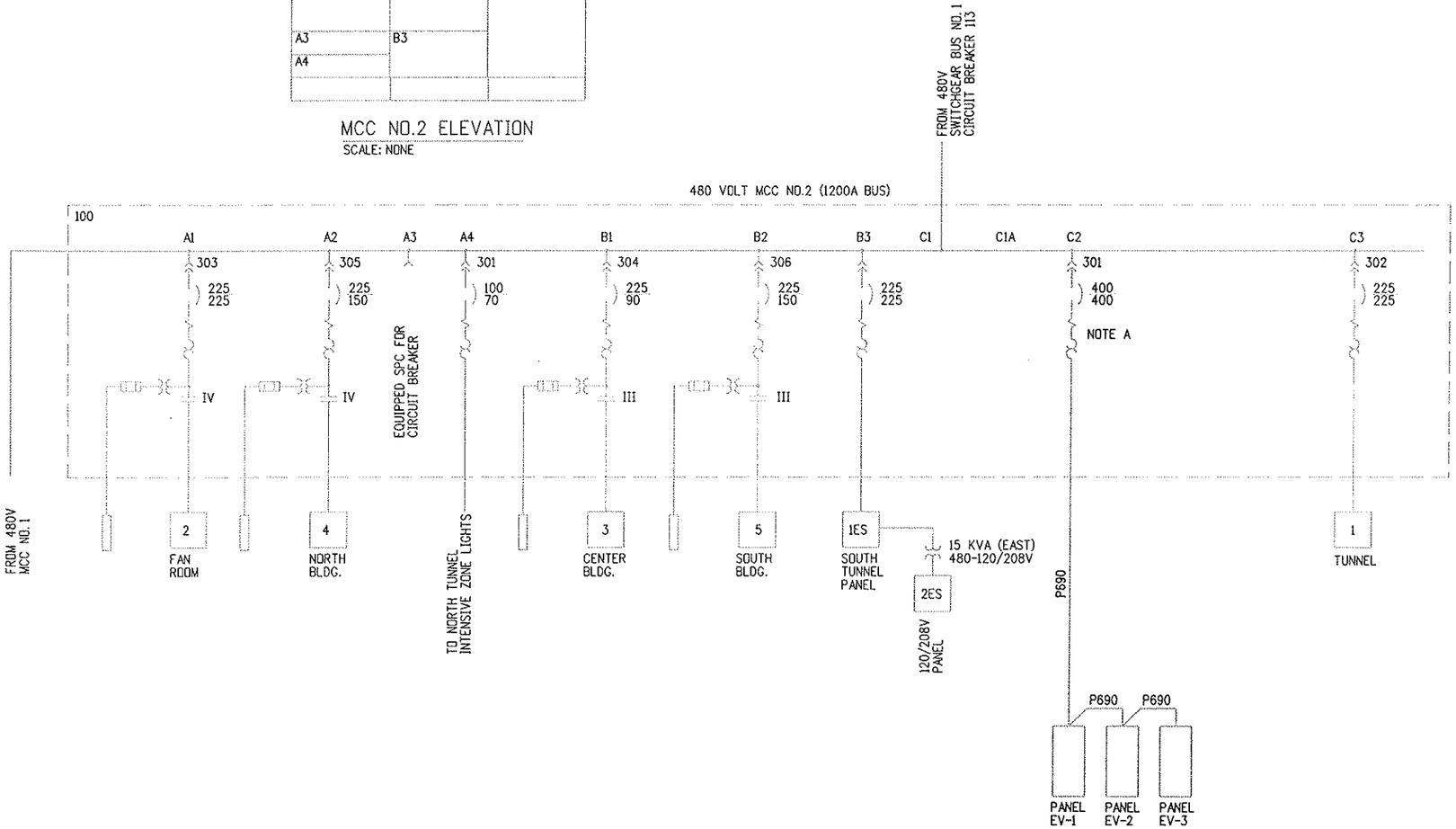
EAST VENTILATION BUILDING (MCC) NO. 2



MCC NO.2 ELEVATION
SCALE: NONE

NOTE:

A. PROVIDE MATCHING TYPE CIRCUIT BREAKER TO FIT COMPARTMENT SPACE AS REQUIRED. CIRCUIT BREAKER RATING/SIZE AS INDICATED.



EAST VENTILATION BUILDING
MOTOR CONTROL CENTER NO.2
SCALE: NONE

NAMEPLATE SCHEDULE

REF	FIRST LINE	SECOND LINE	THIRD LINE
100	480 VOLT	MCC NO. 2	NORTH
A1	FAN ROOM	POWER DIST.	PANEL NO. 2
A2	NORTH BLDG.	POWER DIST.	PANEL NO. 4
A3	EQUIPD. SPC.	FOR CIRCUIT	BREAKER
A4	NO. TUNNEL	INTENSIVE	ZONE LIGHTS
B1	CENTER BLDG.	POWER DIST.	PANEL NO. 3
B2	SOUTH BLDG.	POWER DIST.	PANEL NO. 5
B3	PANEL 1ES	SOUTH	TUNNEL
C1	INCOMING	FEEDER	BUS
C1A	CABLING	300 KVA	TRANSFORMER
C2	480VOLT	PANELS	EV-1,EV-2,EV-3
C3	TUNNEL SUPPLY	POWER DIST.	PANEL NO. 1

Computer File Information			
Creation Date:	02/26/99	Initials:	SL
Last Modification Date:	07/28/99	Initials:	SL
Full Path:	14102\700cadd\703elect\		
Drawing File Name:	102esd05n.dgn		
Acad Ver. R14	Scale: NONE	Units:	ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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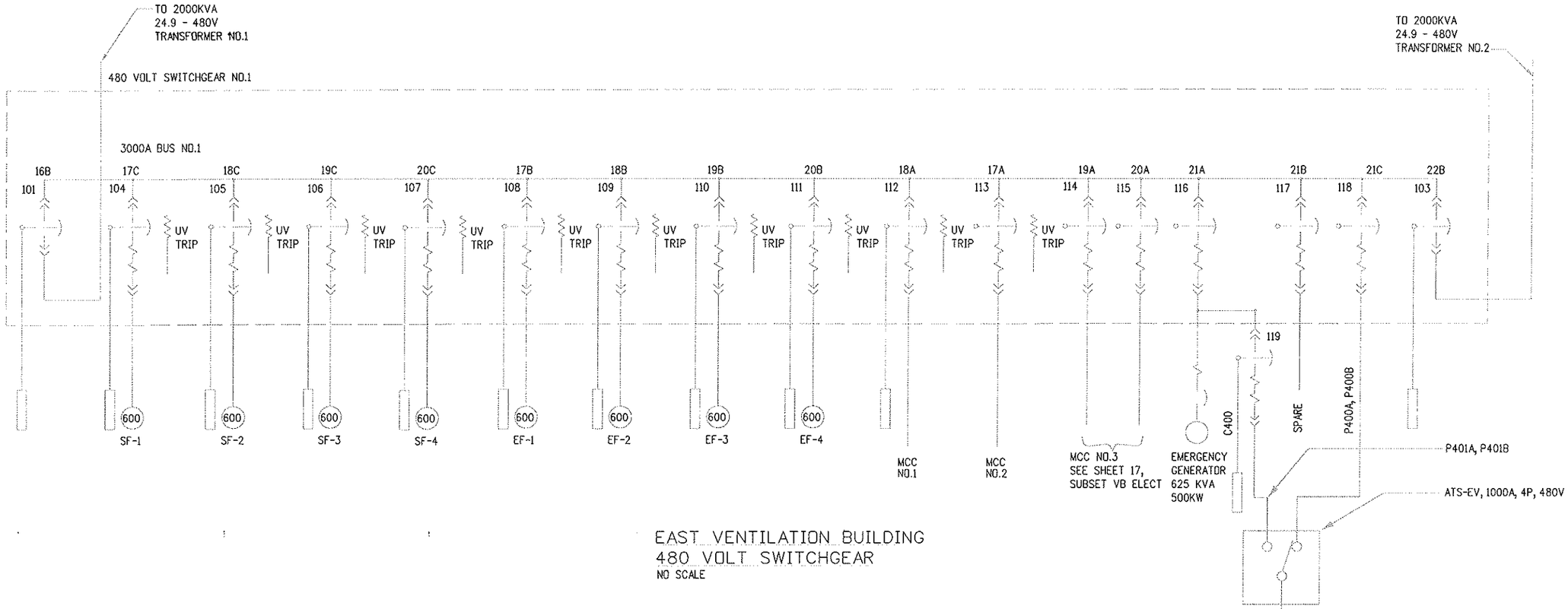
As Constructed
No Revisions:
Revised:
Void:

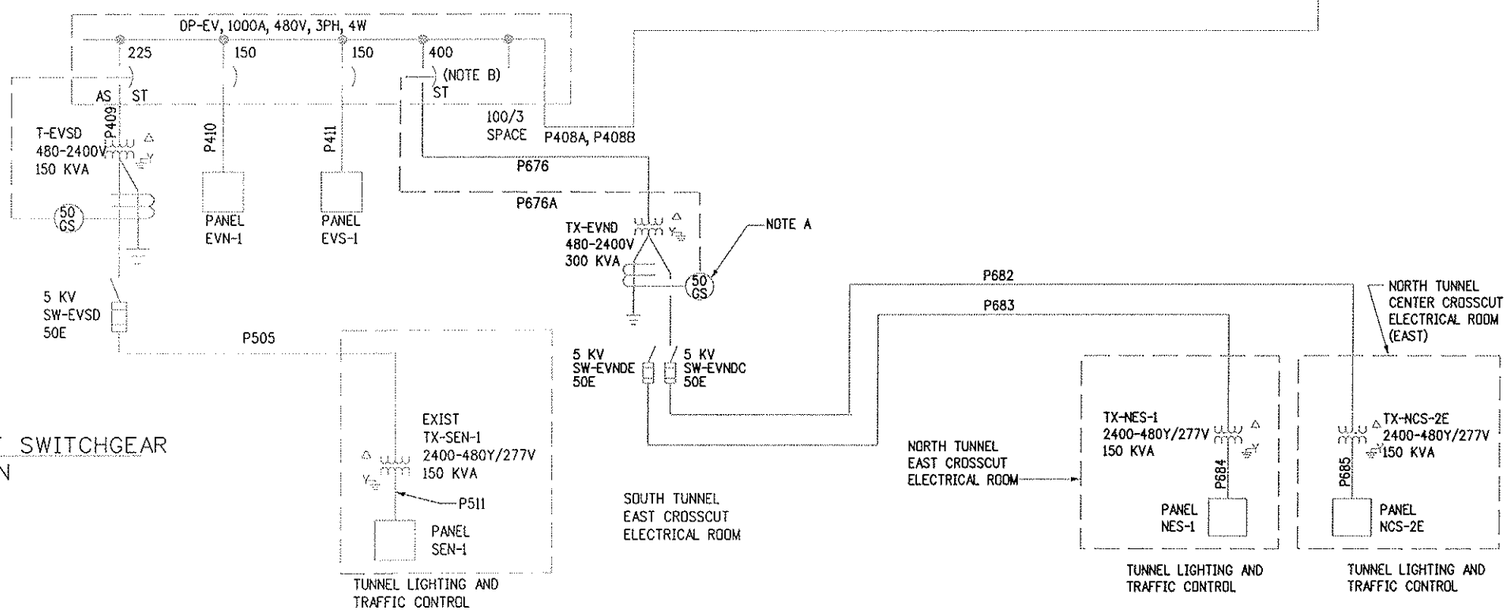
ONE LINE DIAGRAM
EAST MCC NO.2

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers
Subset Sheets: 14 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 125



EAST VENTILATION BUILDING
480 VOLT SWITCHGEAR
NO SCALE



480 VOLT SWITCHGEAR
ELEVATION
NO SCALE

NOTES:

A. REPLACE EXISTING SPARE CIRCUIT BREAKER AS REQUIRED. CIRCUIT BREAKER RATING/SIZE AS INDICATED.

B. INSTALL DEVICE IN SWITCH COMPARTMENT. SEE SPECIFICATIONS. PROVIDE CONTROL WIRING FOR SHUNT-TRIP DEVICE AS REQUIRED.

Computer File Information			
Creation Date:	02/29/99	Initials:	SL
Last Modification Date:	03/05/07	Initials:	SL
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	102esd12n		
Acad Ver. R14	Scale: None	Units:	ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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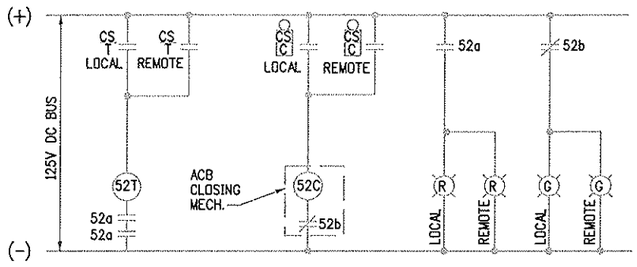
As Constructed
No Revisions:
Revised:
Void:

ONE LINE DIAGRAM EAST 480V SWITCHGEAR

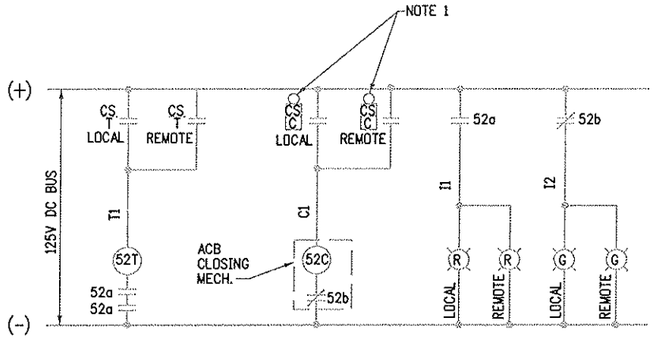
Designer: E.A. GAYAMAT
Detailer: R. MILLER
Sheet Subset: VB ELEC
Structure Numbers
Subset Sheets: 15 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 126



AUTOMATIC TRANSFER SWITCH 460V BREAKER #118 CONTROL

TYPICAL FOR BREAKER #118 IN WEST (SERVING ATS-WV) AND EAST (SERVING ATS-EV) VENTILATION BUILDING ELECTRICAL ROOMS.



STANDBY POWER (FORMER PEAK SHAVING) 460V BREAKER #119 CONTROL (EAST)

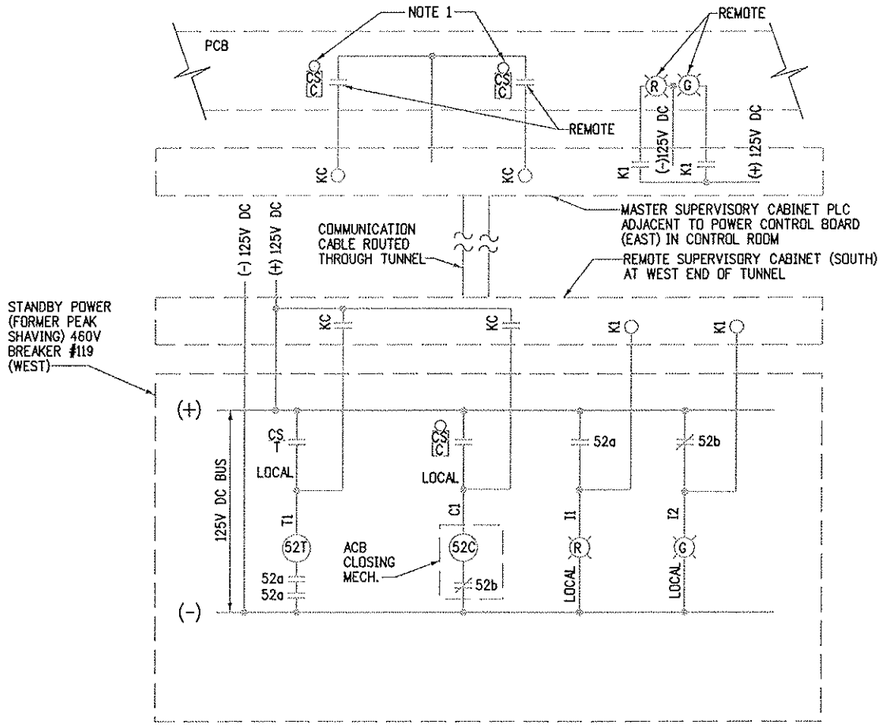
○ KEY INTERLOCK SWITCHES

LEGEND:

52	AC CIRCUIT BREAKER
52a	AUXILIARY SWITCH-OPEN WHEN BREAKER IS OPEN
52b	AUXILIARY SWITCH-CLOSED WHEN BREAKER IS OPEN
52C	BREAKER CLOSING RELAY
52T	BREAKER TRIP COIL
CS	CONTROL SWITCH
CS-C	CONTROL SWITCH (CLOSING)
CS-T	CONTROL SWITCH (TRIPPING)
CS	CONTROL SWITCH WITH KEY INTERLOCK SWITCH
LOCAL	ON MCC OR ON THE BOARD CONTAINING THE EQUIPMENT
PCB	POWER CONTROL BOARD IN CONTROL ROOM
REMOTE	ON "POWER CONTROL BOARD" IN CONTROL ROOM

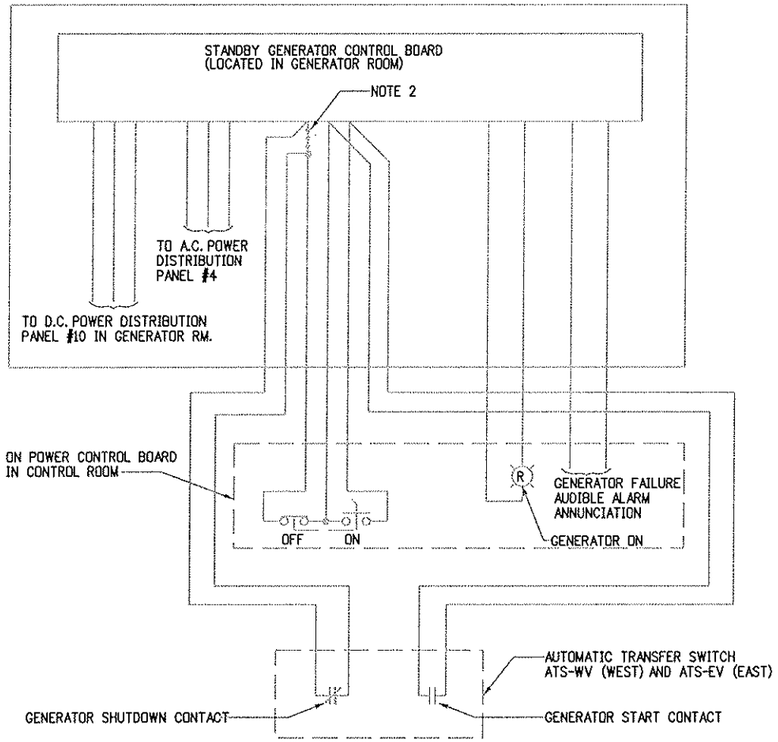
NOTES:

1. REMOVE KIRK-KEY INTERLOCK SWITCHES ASSOCIATED WITH THE CONTROL OF BREAKER #119 ON THE POWER CONTROL BOARD IN THE CONTROL ROOM AND ON BREAKER #119 ITSELF. INSTALL NEW CONTROL WIRING TO BYPASS THE PREVIOUS INTERLOCK FUNCTION OF THESE SWITCHES WHILE MAINTAINING ALL OTHER CONTROL FUNCTIONALITY.
2. MAKE MODIFICATIONS TO GENERATOR CONTROL BOARD WIRING AS REQUIRED TO INTERFACE NEW AUTOMATIC TRANSFER SWITCH START AND SHUTDOWN CONTACTS WHILE MAINTAINING ALL OTHER CONTROL FUNCTIONALITY.



STANDBY POWER (FORMER PEAK SHAVING) 460V BREAKER #119 CONTROL (WEST)

○ KEY INTERLOCK SWITCHES



STANDBY GENERATOR AC-DC POWER SUPPLIES CONTROL AND INDICATION

FOR REFERENCE ONLY

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	02/26/99	Initials:	SL
Last Modification Date:	02/07/02	Initials:	DJR
Full Path:	14102\700cadd\703elect\		
Drawing File Name:			
Acad Ver. R14	Scale: NONE	Units:	ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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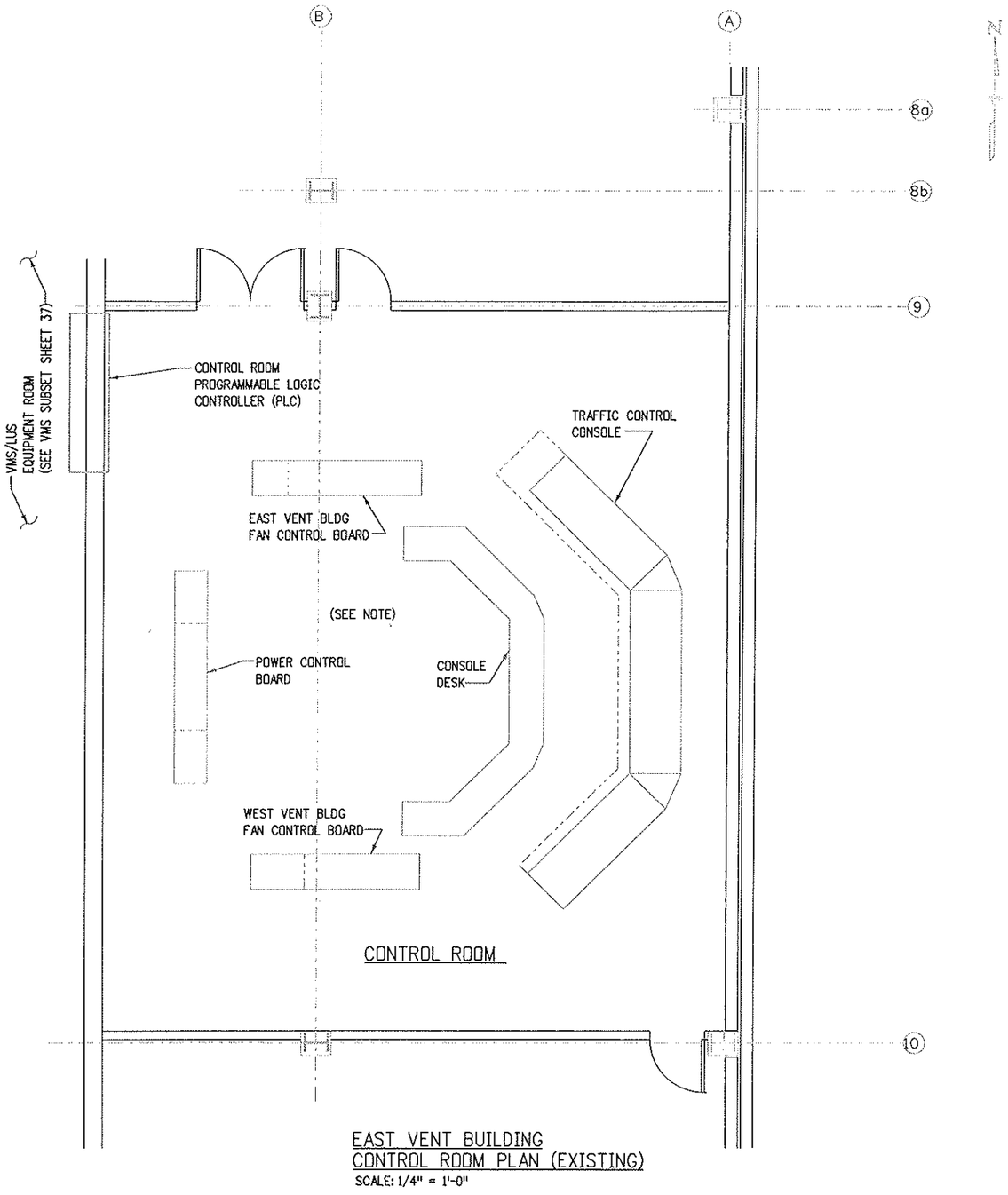
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

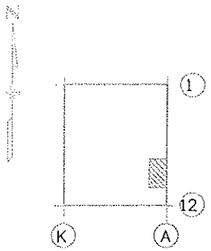
As Constructed
No Revisions:
Revised:
Void:

MISCELLANEOUS CONTROL AND ELEMENTARY DIAGRAMS

Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers:
Sheet Subset: VB ELEC
Subset Sheets: 16 of 20

Project No./Code: IM 0703-269
13166
Sheet Number 127





EAST VENT BUILDING
CONTROL ROOM PLAN (EXISTING)
SCALE: 1/4" = 1'-0"

KEY PLAN

NOTE:
FOR VMS/LUS CONTROL CIRCUIT AND WIRING REFER TO VMS SUBSET.

Computer File Information		Sheet Revisions		
Creation Date: Initials: SL	⬭	07/03/07	ASBUILT	DJB
Last Modification Date: 027/07/02 Initials: DJR	⬭			
Full Path: 14102\700cadd\703elect\	⬭			
Drawing File Name: 102epl26n.dgn	⬭			
Acad Ver. R14 Scale: 1◇4"◇1'-0" Units: ENGLISH	⬭			

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Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

EAST VENTILATION BUILDING
CONTROL ROOM PLAN
Designer: E.A. GAYAMAT
Detailer: R. MILLER
Structure Numbers
Sheet Subset: VB ELEC
Subset Sheets: 17 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 128

CONDUIT NO.	SIZE (IN) & KIND	QTY.	WIRE OR CABLE SIZE & TYPE (AWG-kcmil)	ROUTING FROM	TO	FUNCTION
P670	3 RGS	3	2 1/c – 5kv	EXISTING PULL BOX, WEST VENT. BUILDING	WEST CROSSCUT ELECTRICAL ROOM	TX-NWN-1
		1	4 1/c-600V	EXISTING PULL BOX, WEST VENT. BUILDING	WEST CROSSCUT ELECTRICAL ROOM	GROUND WIRE
P671	3 RGS	3	2 1/c – 5kv	2.4kv MOTOR CONTROL CENTER NO. 1A	WEST CENTER CROSSCUT ELECTRICAL ROOM	TX-NCS-1W
		1	4 1/c-600V	2.4kv MOTOR CONTROL CENTER NO. 1A	WEST CENTER CROSSCUT ELECTRICAL ROOM	GROUND WIRE
P672	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NWN-1	PANELBOARD NWN-1, WEST CROSS CUT	SECONDARY FEEDER
		1	4 1/c-600V	150KVA XFMR TX-NWN-1	PANELBOARD NWN-1, WEST CROSS CUT	GROUND WIRE
P673	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NCS-1W	PANELBOARD NCS-1W, CENTER CROSS CUT (WEST)	SECONDARY FEEDER
		1	4 1/c-600V	150KVA XFMR TX-NCS-1W	PANELBOARD NCS-1W, CENTER CROSS CUT (WEST)	GROUND WIRE
P674						
P675	3 RGS	3	2 1/c – 5KV	5.0KV SW-WVNDC IN WEST VENT BUILDING	WEST CENTER CROSSCUT ELECTRICAL ROOM	TX-NCS-2W
		1	4 1/c-600V	5.0KV SW-WVNDC IN WEST VENT BUILDING	WEST CENTER CROSSCUT ELECTRICAL ROOM	GROUND WIRE
P676	4 RGS	3	500 1/c-600V	DISTRIBUTION PANEL DP-EV	300 KVA XFMR TX-EVND	FEEDER
		1	2 1/c – 600V	DISTRIBUTION PANEL DP-EV	300 KVA XFMR TX-EVND	GROUND WIRE
P676A	3/4 RGS	1	2 #12	TX-EVND 50-GS	DISTRIBUTION PANEL DP-EV	GROUND FAULT
P677	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NCS-2W	PANELBOARD NCS-2W CENTER CROSSCUT (WEST)	SECONDARY FEEDER
		1	4 1/c-600V	150KVA XFMR TX-NCS-2W	PANELBOARD NCS-2W CENTER CROSSCUT (WEST)	GROUND WIRE
P678	3 RGS	3	2 1/c – 5KV	5.0KV SW-WVNDC IN WEST VENT BUILDING	WEST CROSSCUT ELECTRICAL ROOM	TX-NWS-1
		1	2 1/c-600V	5.0KV SW-WVNDC IN WEST VENT BUILDING	WEST CROSSCUT ELECTRICAL ROOM	GROUND WIRE
P679	4 RGS	3	500 1/c – 600V	DISTRIBUTION PANEL. DP-WV	300KVA XFMR TX-WVND	FEEDER
		1	2 1/c-600V	DISTRIBUTION PANEL. DP-WV	300KVA XFMR TX-WVND	GROUND WIRE
P679A	3/4 RGS	1	2 #12	TX-WVND 50-GS	DISTRIBUTION PANEL DP-WV	GROUND FAULT
P680	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NWS-1	PANELBOARD NWS-1, WEST CROSSCUT	SECONDARY FEEDER
		1	4 1/c-600V	150KVA XFMR TX-NWS-1	PANELBOARD NWS-1, WEST CROSSCUT	GROUND WIRE
P681	1 1/2 RGS	4	1/0 1/c – 600V	DISTRIBUTION PANEL. DP-WV	PANELBOARD WV-1	FEEDER
		1	4 1/c-600V	DISTRIBUTION PANEL. DP-WV	PANELBOARD WV-1	GROUND WIRE
P682	3 RGS	3	2 1/c – 5KV	5.0KV SW EVNDC. EAST VB	CENTER CROSSCUT ELECTRICAL ROOM (EAST)	TX-NCS-2E
		1	4 1/c-600V	5.0KV SW EVNDC. EAST VB	CENTER CROSSCUT ELECTRICAL ROOM (EAST)	GROUND WIRE
P683	3 RGS	3	2 1/c – 5KV	5.0KV SW EVNDE. EAST VB	EAST CROSSCUT ELECTRICAL ROOM	TX-NES-1
		1	4 1/c –600V	5.0KV SW EVNDE. EAST VB	EAST CROSSCUT ELECTRICAL ROOM	GROUND WIRE
P684	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NES-1	PANELBOARD NES-1, EAST CROSSCUT	FEEDER
		1	4 1/c – 600V	150KVA XFMR TX-NES-1	PANELBOARD NES-1, EAST CROSSCUT	GROUND WIRE
P685	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NCS-2E	PANELBOARD NCS-2E, CENTER CROSSCUT (EAST)	FEEDER
		1	4 1/c – 600V	150KVA XFMR TX-NCS-2E	PANELBOARD NCS-2E, CENTER CROSSCUT (EAST)	GROUND WIRE
P686	3 RGS	3	2 1/c – 5KV	EAST 2.4KV MOTOR CONTROL CENTER 1B	150KVA XFMR TX-NCS-1E	FEEDER
		1	4 1/c –600V	EAST 2.4KV MOTOR CONTROL CENTER 1B	150KVA XFMR TX-NCS-1E	GROUND WIRE
P687	3 RGS	3	2 1/c – 5KV	EAST 2.4KV MOTOR CONTROL CENTER 1B	150KVA XFMR TX-NEN-1	FEEDER
		1	4 1/c –600V	EAST 2.4KV MOTOR CONTROL CENTER 1B	150KVA XFMR TX-NEN-1	GROUND WIRE
P688	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NCS-1E	PANELBOARD NCS-1E, CENTER CROSSCUT (EAST)	FEEDER
		1	4 1/c – 600V	150KVA XFMR TX-NCS-1E	PANELBOARD NCS-1E, CENTER CROSSCUT (EAST)	GROUND WIRE
P689	3 RGS	4	4/0 1/c – 600V	150KVA XFMR TX-NEN-1	PANELBOARD NEN-1, EAST CROSSCUT	FEEDER
		1	4 1/c – 600V	150KVA XFMR TX-NEN-1	PANELBOARD NEN-1, EAST CROSSCUT	GROUND WIRE
P690	4 RGS	4	500 1/c – 600V	EAST MCC NO.2	PANELBOARDS EV-1, EV-2, EV-3	FEEDER
		1	2 1/c – 600V	EAST MCC NO.2	PANELBOARDS EV-1, EV-2, EV-3	GROUND WIRE

CONDUIT NO.	SIZE (IN) & KIND	QTY.	WIRE OR CABLE SIZE & TYPE (AWG-kcmil)	ROUTING FROM	TO	FUNCTION
P691						
P692						
P693						
P694						
P695						
P696						
P697						
P698						
P699						
P700	2 RGS	4	4 1/c – 600V	CONTACTOR CABINET CWVN-2	EXISTING CONDUIT AT PORTAL	EB APPROACH LIGHTING
		1	10 1/c-600V			GROUND WIRE
P701	1 RGS	2	12 1/c – 600V	WIRE TERMINALS IN WEST VENT BLDG	CONTACTOR CABINET CWVN-2	EB APPROACH LTG COTROL
			12 1/c – 600V	(FROM EXISTING EAST APPROACH LIGHTING PHOTOCELL)		GROUND WIRE
P702	2 RGS	4	4 1/c – 600V	CONTACTOR CABINET CEVN-2	EXISTING CONDUIT AT PORTAL	WB APPROACH LIGHTING
		1	10 1/c-600V			GROUND WIRE
P703	1 RGS	2	12 1/c – 600V	WIRE TERMINALS IN EAST VENT BLDG	CONTACTOR CABINET CEVN-2	WB APPROACH LTG COTROL
			12 1/c – 600V	(FROM EXISTING WEST APPROACH LIGHTING PHOTOCELL)		GROUND WIRE
P704						
P705						
P706						
P707						
P708						
P709						
P710						
P711						
P712						

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information

Creation Date: 04/21/99 Initials: SFD
Last Modification Date: 03/06/07 Initials: DJB
Full Path: 14102\800Deliv\AsBuilt\
Drawing File Name: E-129
Acad Ver. R14 Scale: NONE Units: ENGLISH

Sheet Revisions

07/03/07 ASBUILT	DJB

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DEPARTMENT OF TRANSPORTATION
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DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
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ELECT CIRCUIT SCHEDULES SHEET 1

Project No./Code
IM 0703-269
13166

Designer: E. GAYAMAT
Detailer: L. KORSUNSKY
Structure Numbers
Sheet Subset: VB ELEC Subset Sheets: 18 OF 20
Sheet Number 129

CONDUIT		WIRE OR CABLE		ROUTING		
NO.	SIZE (IN) & KIND	QTY.	SIZE & TYPE (AWG-kcmil)	FROM	TO	FUNCTION
C601	3 RGS	4	F.O. CABLES	VMS/LUS COMM PULLBOX IN SUPPLY DUCT	FIBER TERMINATION CABINET	VMS/LUS CONTROL LOOP
C601A	3 RGS	4	F.O. CABLES	VMS/LUS COMM PULLBOX IN SUPPLY DUCT	PULL BOX PB-C5/6 IN EAST VB	VMS/LUS CONTROL LOOP
C602	1 1/2 RGS	2	F.O. CABLES	VMS/LUS COMM PULLBOX IN SUPPLY DUCT	VMS/LUS CTRL CABINETS IN TUNNEL	VMS/LUS CONTROL LOOP
C602A	3 RGS	4	F.O. CABLES	VMS/LUS COMM PULLBOX IN SUPPLY DUCT	PULL BOX JB-C501 IN WEST VB	VMS/LUS CONTROL LOOP
C603	3/4 FLEX	2	VMS DATA	VMS/LUS CTRL CABINET IN TUNNEL	TUNNEL VMS SIGN PANEL ASSEMBLY	VMS CONTROL
C604A	1 1/2 RGS	8	LUS DATA	VMS/LUS CTRL CABINET IN TUNNEL	JB - C601 PULL BOX	LUS CONTROL
C604B	1 1/4 RGS	4	LUS DATA	JB - C601 PULL BOX	JB-C601 PULL BOX	LUS CONTROL
C604C	3/4 RGS	2	BOS DATA	JB - C601 PULL BOX	TUNNEL LUS SIGNS, EACH	LUS CONTROL
C607	1* RGS	2	F.O. CABLES	WEST VENT. BLDG PULL BOX PB-C501	EXISTING CAB IN	VMS/LUS CONTROL LOOP
C608						
C609						
C610						
C611A	1 1/2 RGS	1	LTG FIBEROPTIC	TERMINATION PANEL IN CONTROL ROOM	NORTH TUNNEL	TUNNEL LTG CONTROL LOOP
C611B	3/4 RGS	1	LTG CABLE	CONT. CAB IN SOUTH ELEC ROOM CROSSCUT	CONT. CAB IN CROSSCUT NORTH ELEC RM	CONTROL COMMUNICATIONS
C611C	3/4 RGS	1	LTG CABLE	CONT. CAB CNCW-1 (NCCC-WEST)	CONT. CAB CNCE-1 (NCCC-EAST)	CONTROL COMMUNICATIONS
C611D	3/4 RGS	1	LTG CABLE	CONTACTOR CABINET CWVN-1	CONTACTOR CABINET CWVN-2	CONTROL COMMUNICATIONS
C611E	3/4 RGS	1	LTG CABLE	CONTACTOR CABINET CEVN-1	CONTACTOR CABINET CEVN-2	CONTROL COMMUNICATIONS
C611F	1 1/2 RGS	1	LTG FIBEROPTIC	LIGHTING CONTROLLER CONTINUOS LOOP TEE	LIGHTING CONTACTOR CABINETS IN CROSS CUT ROOMS	TUNNEL LTG CONTROL LOOP

CONDUIT		WIRE OR CABLE		ROUTING		
NO.	SIZE (IN) & KIND	QTY.	SIZE & TYPE (AWG-kcmil)	FROM	TO	FUNCTION
C500B	3 RGS	2	F.O. CABLES	VMS/LUS COMM CABINET IN VB EQUIPMENT RM	VMS/LUS COMM PULLBOX IN VB EQUIPMENT RM	VMS/LUS CONTROL LOOP
C501	3 EXIST	2	F.O. CABLES	W. VB EQUIPMENT RM VMS/LUS COMM PULLBOX	E. VB EQUIPMENT RM VMS/LUS COMM PULLBOX	VMS/LUS CONTROL LOOP

NOTES:

1. EXTEND EXISTING CAPPED CONDUIT AS REQUIRED AND INSTALL NEW CABLES AS SCHEDULED AND SHOW ON THE DRAWINGS.

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P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775

Region 1 Mountain Residency I.N.Z.

As Constructed
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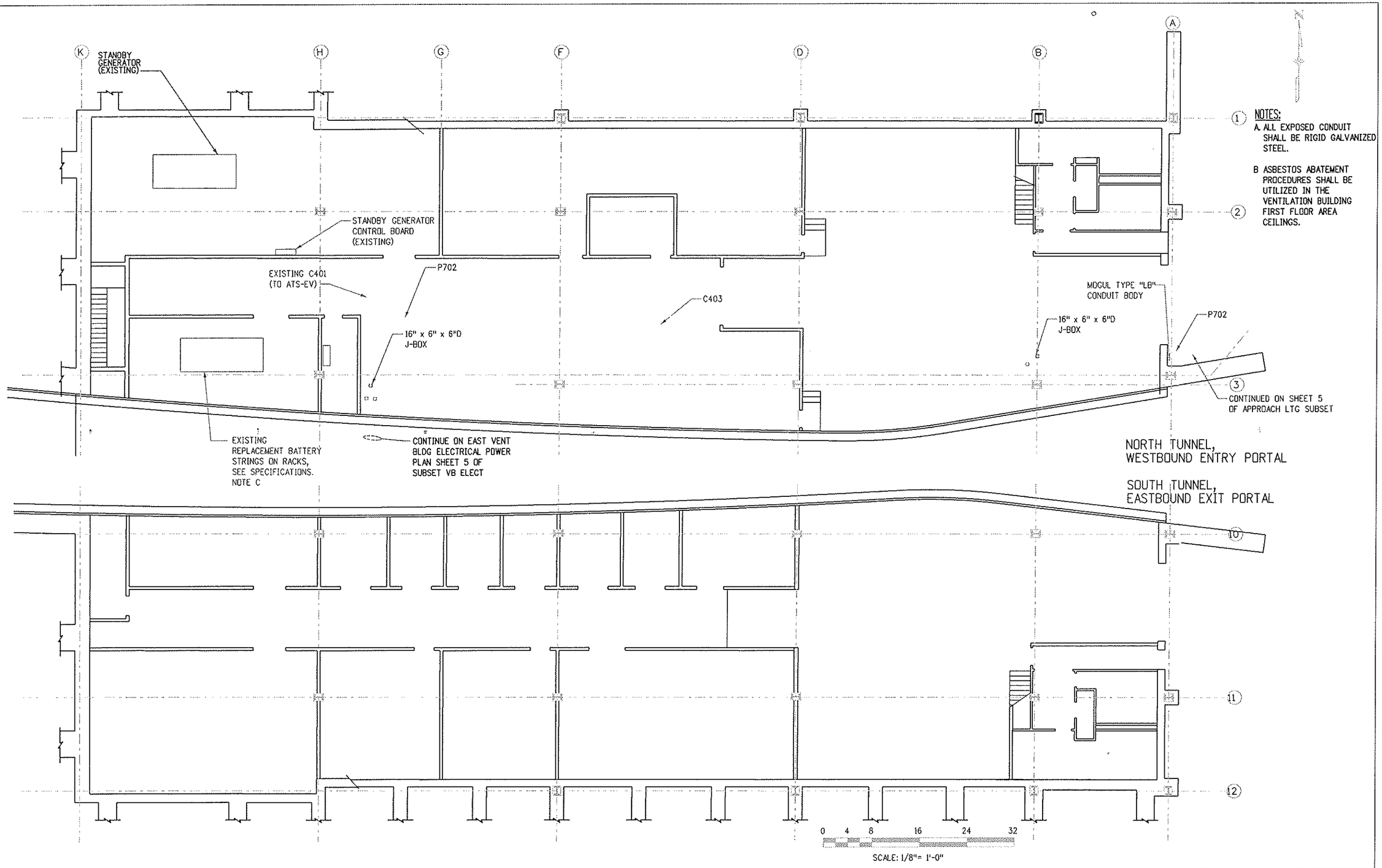
ELECT CIRCUIT SCHEDULES
SHEET 2

Designer: E. GAYAMAT
Detailer: L. KORSUNSKY
Structure Numbers
Sheet Subset: VB ELEC
Subset Sheets: 19 OF 20

Project No./Code
IM 0703-269
13166
Sheet Number 130



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P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
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EAST VENT BUILDING PARTIAL POWER PLANS

Designer:	S. O'ROURKE	Structure Numbers	
Detailer:	S. O'ROURKE		
Sheet Subset:	VB ELECT	Subset Sheets:	20 of 20

Project No./Code
IM 0703-269
13166
Sheet Number 131

VMS NOTES

1. UNLESS OTHERWISE NOTED, ALL VMS AND LUS ARE TO BE MOUNTED IN ACCORDANCE TO THE TYPICAL MOUNTING DETAILS SHOWN ON VMS AND LUS SIGN SUPPORT DETAILS, VMS SUBSET SHEETS 22 TO 30.
2. PROPOSED SIGN AND RECESSED CONTROL CABINET LOCATIONS ARE APPROXIMATE. FINAL LOCATION SHALL BE FIELD SURVEY ADJUSTED AS PER FIELD CONDITION AND COORDINATED WITH THE TUNNEL LIGHTING FIXTURES AND APPROVED BY THE ENGINEER PRIOR TO DEVELOPING OF SHOP DRAWING. LOCATE THE LUS IN THE LEFT LANE FIRST AND MATCH THE OFFSET ON THE RIGHT TO ENSURE PROPER SPACING AND TO AVOID OVERHEAD AIR SUPPLY DUCTS.
3. ALL SIGN INSTALLATIONS THAT REQUIRE A LANE CLOSURE SHALL BE PERFORMED DURING THE WORKING HOURS SPECIFIED.
4. ALL EXISTING TRAFFIC SIGNS AND SIGNAL EQUIPMENT BEING REMOVED. AFTER REMOVAL THE WEIGH-IN-MOTION VMS SIGNS WILL REMAIN THE PROPERTY OF CDOT.
5. EXISTING TUNNEL VMS AND LUS SHALL BE MAINTAINED IN OPERATIONAL CONDITION AT ALL TIMES DURING THE INSTALLATION OF THE PROPOSED VMS AND LUS. EXISTING VMS WILL BE REMOVED AFTER THE INSTALLATION OF THE PROPOSED VMS ARE COMPLETED, TESTED AND IN OPERATIONAL CONDITION.
6. FOR PROPOSED TYPICAL TUNNEL VMS AND LUS CROSS SECTION, SEE VMS SUBSET SHEETS 15 THRU 17.
7. FOR SIGN SUPPORT LOCATIONS, SIGNS CONTROLLERS, CONTROL CABINETS AND TRAFFIC SIGNS TO BE INSTALLED IN THIS CONTRACT, SEE TABULATION OF SIGNS VMS SUBSET SHEETS 2 AND 3.
8. FOR VARIABLE MESSAGE SIGNS, THE MAXIMUM SIGN (CONTRACTOR DESIGNED) MOUNTING BRACKET SPACING ONTO THE FRAMING SUPPORT SYSTEM SHALL BE 2'-6" CENTER TO CENTER.
9. FOR CONTROL CABINET MOUNTING DETAIL, SEE VMS SUBSET SHEETS 28 AND 29.
10. FOR VMS/LUS MANAGEMENT SYSTEM, SEE VMS SUBSET SHEETS 31 THRU 47.
11. FOR ADDITIONAL LEGEND AND ABBREVIATION, SEE VMS SUBSET SHEETS 22 AND 31.
12. PROVIDE AND/OR EXTEND POWER SUPPLY, FIBER OPTIC CONTROL CABLE AND COPPER SIGNAL CIRCUIT WIRING TO EXISTING VMS/LUS BLANKOUT SIGN(S) TO BE RELOCATED AND PROPOSED AS REQUIRED.
13. ALL ELECTRICAL SERVICES, TRAFFIC SIGNAL CONDUIT AND WIRING INSTALLATION SHALL CONFORM TO CDOT SPECIFICATION AND STANDARD PLAN NO. S-614-14 AND S-614-40.
14. EXISTING OVERHEIGHT VEHICLE DETECTORS WILL REMAIN OPERATIONAL AT ALL TIMES UNTIL THE TIME OF RELOCATION. THE TIME AND METHOD OF RELOCATION WILL BE COORDINATED WITH THE TUNNEL OPERATIONS AND APPROVED BY THE ENGINEER.

LEGEND

CMS = CHANGEABLE MESSAGE SIGN
VMS = VARIABLE MESSAGE SIGN
LUS = LANE USE SIGNAL
TSCS = TRAFFIC SIGNAL CONTROL SYSTEM
C = CONTROLLER
CAB = CABINET
BOS = BLANKOUT SIGN
OHVD = OVERHEIGHT VEHICLE DETECTOR
MB-XX = EXISTING MESSAGE BOARD IDENTIFIER
VMS-XX = VMS IDENTIFIER
LUS-XX = LANE USE SIGNAL (LUS) IDENTIFIER
LUS-PXX = PORTAL LUS IDENTIFIER
C-XXN = CONTROLLER IDENTIFIER
CAB-XXN = CABINET IDENTIFIER
BOS-NPX = PORTAL BLANKOUT SIGN IDENTIFIER
S-X = SIGN IDENTIFIER

= TUNNEL VMS
= EXISTING TUNNEL VMS
= LUS
= EXISTING LUS
HP = HIGH POINT
PGL = PAVING GRADE LEVEL
PEP = PORCELAIN ENAMEL PANEL
CONST. = CONSTRUCTION LEVEL
LF = LINEAR FEET
EA = EACH
LS = LUMP SUM
STA. = STATION
= EXISTING TRAFFIC SIGNAL WITH MAST ARM
= PROPOSED TRAFFIC SIGNAL WITH MAST ARM
= EXISTING ELECTRICAL CONDUIT AND PULL BOX
= PROPOSED ELECTRICAL CONDUIT AND PULL BOX
= EXISTING TRAFFIC SIGNAL FACE
= PROPOSED TRAFFIC SIGNAL FACE

QUANTITIES - NORTH TUNNEL VMS

ITEM NUMBER	DESCRIPTION	UNIT	ROADWAY PLAN	ROADWAY AS CONST.
	CONSTRUCTION			
614	CABLE INNERDUCT (1 INCH)	LF	30,000	
614	OPTICAL TRANSCEIVER	EA	15	
614	BUFFER TUBE FAN OUT KIT	EA	34	
614	FIBER OPTIC CABLE (MULTI MODE) (6 STRANDS)	LF	60,000	
614	FIBER OPTIC TERMINATION PANEL-6 FIBER	EA	11	
614	FIBER OPTIC TERMINATION PANEL-12 FIBER	EA	4	
614	MASTER COMPUTER AND SOFTWARE	LS	1	
614	WORKSTATIONS AND SOFTWARE	EA	2	
614	TMS MANAGEMENT SOFTWARE	LS	1	
614	SYSTEM INTEGRATION AND TESTING	LS	1	

QUANTITIES - NORTH TUNNEL VMS

ITEM NUMBER	DESCRIPTION	UNIT	ROADWAY PLAN	ROADWAY AS CONST.
	CONSTRUCTION			
202	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	1	
606	GUARDRAIL TYPE 3 (6-3 POST SPACING)	LF	315	
606	END ANCHORAGE (FLARED)	EA	5	
606	END ANCHORAGE TYPE 3D	EA	5	
613	PULL BOX (24"x36"x36") DEEP	EA	13	
613	PULL BOX (24"x24"x8") DEEP	EA	2	
613	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	2500	
614	VARIABLE MESSAGE SIGN LED (DOUBLE FACED)	EA	11	
614	WEIGH-IN-MOTION (LED) (SINGLE FACED)	EA	1	
614	LANE USE CONTROL SIGNAL LED (DOUBLE FACED)	EA	44	
614	CONTROLLER (TYPE 170E)	EA	13	
614	RECESSED CONTROL CABINET	EA	11	
614	SURFACE MOUNTED CONTROL CABINET	EA	4	
614	LUS MOUNTING SUPPORT AND WIRING (DOUBLE FACED)	EA	44	
614	VMS MOUNTING SUPPORT AND WIRING (DOUBLE FACED)	EA	11	
614	TRAFFIC SIGNAL (12-12-12) LED	EA	4	
614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1 MAST ARM)	EA	2	
614	CONCRETE FOOTING (TYPE 3)	EA	4	
614	FLASHING BEACON	EA	4	
614	STEEL SIGN POST (W8x18)	LF	56	
614	TRAFFIC SIGNAL PEDESTAL POLE (INSTALL ONLY)	EA	4	
614	CONCRETE FOOTING (TRAFFIC SIGNAL POLE)	EA	4	
614	LANE USE CONTROL SIGNAL LED (DOUBLE FACED) (FURNISH ONLY)	EA	2	
614	VARIABLE MESSAGE SIGN LED (DOUBLE FACED) (FURNISH ONLY)	EA	1	
614	VMS MOUNTING SUPPORT AND WIRING (DOUBLE FACED) (FURNISH ONLY)	EA	1	

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DEPARTMENT OF TRANSPORTATION
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

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VMS GENERAL NOTES

Designer: K HO
Detailer: E. MCCHESNEY
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 1 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 132

SIGN SCHEDULE

LOCATION	LUS	VMS	MOUNTING & WIRING (BETWEEN SIGN & CONTROLLER)	VMS CONTROLLER 170E	CONTROL CABINET	CONTROL CABINET LOCATION	FIBEROPTIC TERMINATION PANEL	FIBEROPTIC TRANSCEIVER	FO PRIMARY RING OUT SECONDARY RING IN		FO PRIMARY RING IN SECONDARY RING OUT		DISTANCE TO NEXT DEVICE	REMARKS
									CABLE	FIBERS	CABLE	FIBERS		
STA. 135+94	LUS-P1A, P1B	BDS-NP1	INCLUDED IN CONTRACT	C-1N	CAB-1N	WEST EXIT	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	1,2	1	1,2	178'	WEST EXIT
STA. 137+72	LUS-1A, 1B	—	INCLUDED IN CONTRACT	—	—	PANEL #0027	—	—	—	—	—	—	242'	
STA. 140+20	—	VMS-1	INCLUDED IN CONTRACT	C-2N	CAB-2N	140+14 PANEL #0058	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	2	1,2	2	1,2	*8' 328'	MARKED OUT IN DUCT
STA. 143+48	LUS-2A, 2B	—	INCLUDED IN CONTRACT	—	—	PANEL #0098	—	—	—	—	—	—	239'	
STA. 145+87	LUS-3A, 3B	—	INCLUDED IN CONTRACT	—	—	PANEL #0127-#0128	—	—	—	—	—	—	242'	
STA. 148+37	—	VMS-2	INCLUDED IN CONTRACT	C-3N	CAB-3N	148+29 PANEL #0158	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	3,4	1	3,4	*8' 283'	MARKED OUT IN DUCT
STA. 151+20	LUS-4A, 4B	—	INCLUDED IN CONTRACT	—	—	PANEL #0194	—	—	—	—	—	—	266'	
STA. 153+86	LUS-5A, 5B	—	INCLUDED IN CONTRACT	—	—	PANEL #0227	—	—	—	—	—	—	245'	
STA. 159+15	—	VMS-3	INCLUDED IN CONTRACT	C-4N	CAB-4N	156+31 PANEL #0258	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	2	3,4	2	3,4	*284' 8'	MARKED OUT IN DUCT
STA. 159+23	LUS-6A, 6B	—	INCLUDED IN CONTRACT	—	—	PANEL #0294	—	—	—	—	—	—	274'	
WEST CROSSCUT ELECTRIC ROOM														
STA. 161+97	LUS-7A, 7B	—	INCLUDED IN CONTRACT	—	—	PANEL #0328	—	—	—	—	—	—	230'	
STA. 164+51	—	VMS-4	INCLUDED IN CONTRACT	C-5N	CAB-5N	164+27 PANEL #0357	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	1,2	1	1,2	*24' 280'	MARKED OUT IN DUCT
STA. 167+31	LUS-8A, 8B	—	INCLUDED IN CONTRACT	—	—	PANEL #0395	—	—	—	—	—	—	267'	
STA. 169+98	LUS-9A, 9B	—	INCLUDED IN CONTRACT	—	—	PANEL #0429	—	—	—	—	—	—	217'	
STA. 172+47	—	VMS-5	INCLUDED IN CONTRACT	C-6N	CAB-6N	172+15 PANEL #0456	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	2	1,2	2	1,2	*32' 284'	INSTALLED OVER DUCT
STA. 175+31	LUS-10A, 10B	—	INCLUDED IN CONTRACT	—	—	PANEL #0496	—	—	—	—	—	—	296'	
STA. 178+27	LUS-11A, 11B	—	INCLUDED IN CONTRACT	—	—	PANEL #0530	—	—	—	—	—	—	168'	168'+90'=258'
CENTER CROSSCUT WEST/EAST ELECTRIC ROOMS													90'	
STA. 180+85	—	VMS-6	INCLUDED IN CONTRACT	C-7N	CAB-7N	181+17 PANEL #0560	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	3,4	1	3,4	**32' 242'	
STA. 183+59	LUS-12A, 12B	—	INCLUDED IN CONTRACT	—	—	PANEL #0596	—	—	—	—	—	—	267'	
STA. 186+26	LUS-13A, 13B	—	INCLUDED IN CONTRACT	—	—	PANEL #0630	—	—	—	—	—	—	254'	
STA. 188+88	—	VMS-7	INCLUDED IN CONTRACT	C-8N	CAB-8N	188+80 PANEL #0662	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	2	3,4	2	3,4	*8' 273'	BOXES WITHIN 5'
STA. 191+61	LUS-14A, 14B	—	INCLUDED IN CONTRACT	—	—	PANEL #0697	—	—	—	—	—	—	266'	
STA. 194+27	LUS-15A, 15B	—	INCLUDED IN CONTRACT	—	—	PANEL #0731	—	—	—	—	—	—	239'	
STA. 196+74	—	VMS-8	INCLUDED IN CONTRACT	C-9N	CAB-9N	196+66 PANEL #0761	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	1,2	1	1,2	*8' 285'	BOXES OVER DUCT
EAST CROSSCUT ELECTRIC ROOM														
STA. 199+59	LUS-16A, 16B	—	INCLUDED IN CONTRACT	—	—	PANEL #0798	—	—	—	—	—	—	272'	
STA. 202+31	LUS-17A, 17B	—	INCLUDED IN CONTRACT	—	—	PANEL #0832	—	—	—	—	—	—	259'	
STA. 204+90	—	VMS-9	INCLUDED IN CONTRACT	C-10N	CAB-10N	204+90 PANEL #0865	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	2	1,2	2	1,2	*0' 270'	CAMERA TO BE RELOCATED OVER DUCT OR 9' EAST
STA. 207+60	LUS-18A, 18B	—	INCLUDED IN CONTRACT	—	—	PANEL #0899	—	—	—	—	—	—	269'	
STA. 210+29	LUS-19A, 19B	—	INCLUDED IN CONTRACT	—	—	PANEL #0933	—	—	—	—	—	—	223'	
STA. 212+84	—	VMS-10	INCLUDED IN CONTRACT	C-11N	CAB-11N	212+52 PANEL #0961	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	3,4	1	3,4	*32' 253'	BOXES ARE 9' EAST OF DUCT
STA. 215+37	LUS-20A, 20B	—	INCLUDED IN CONTRACT	—	—	PANEL #0997	—	—	—	—	—	—	335'	
STA. 218+72	LUS-21A, 21B	—	INCLUDED IN CONTRACT	—	—	PANEL #1040	—	—	—	—	—	—	152'	
STA. 220+64	—	VMS-11	INCLUDED IN CONTRACT	C-12N	CAB-12N	220+24 PANEL #1059	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	2	3,4	2	3,4	*40' 280'	BOXES ARE 38' WEST OF DUCT
STA. 223+44	LUS-22A, 22B	—	INCLUDED IN CONTRACT	—	—	PANEL #1099	—	—	—	—	—	—	187'	BOXES ARE 16' WEST OF SIGN IN INTERSTESIAL SPACE
STA. 225+31	LUS-P2A, P2B	BDS-NP2	INCLUDED IN CONTRACT	C-13S	CAB-13S	LOCATED IN GROUND LEVEL VENT ROOM	INCLUDED IN CONTRACT	INCLUDED IN CONTRACT	1	1,2	1	1,2	TOTAL 8,939'	CONTROLLER HOUSED IN CONTROL CABINET CAB-13S

NOTE: * = DISTANCE FROM CONTROLLER TO VMS.
** = DISTANCE FROM VMS TO CONTROLLER.

Computer File Information			Sheet Revisions		
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Last Modification Date: 03/06/07	Initials: KLN				
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Acad Ver. R14	Scale: NTS	Units: ENGLISH			

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TABULATION OF SIGNS

Designer: K. HO
Detailer: K.J.SINGH
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 2 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 133

GUARDRAIL TABULATION

LOCATION STA TO STA	SIDE	END ANCHORAGE (FLARED)	END ANCHORAGE TYPE 3D	GUARDRAIL TYPE 3 6-3 POST SPACING	MISCELLANEOUS
		EACH	EACH	EACH	
105+70 TO 106+70	SHOULDER RIGHT	1	1	25	
105+90 TO 106+50	MEDIAN			120	ON BOTH FACES OF MEDIAN BARRIER: TERMINAL SECTION (CONNECTOR) FOR TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 105+90 TO 105+92.5 GUARDRAIL TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 105+92.5 TO 106+15 GUARDRAIL TYPE 3 W-BEAM (1-6 SPACING) FROM STA 106+15 TO 106+25 GUARDRAIL TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 106+25 TO 106+47.5 ON BOTH FACES OF MEDIAN BARRIER: TERMINAL SECTION (CONNECTOR) FOR TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 106+47.5 TO 106+50 SEE PLANS FOR DETAILS AND PAYMENT ITEMS-SEE NOTE 6
116+50 TO 117+50	SHOULDER RIGHT	1	1	25	
233+07.5 TO 233+82.5	SHOULDER LEFT	1	1	125	
245+50 TO 246+50	SHOULDER LEFT	1	1	25	
255+00 TO 256+00	SHOULDER LEFT	1	1	25	
255+20 TO 255+80	MEDIAN			120	ON BOTH FACES OF MEDIAN BARRIER: TERMINAL SECTION (CONNECTOR) FOR TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 255+20 TO 255+22.5 GUARDRAIL TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 255+22.5 TO 255+45 GUARDRAIL TYPE 3 W-BEAM (1-6 SPACING) FROM STA 255+45 TO 255+55 GUARDRAIL TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 255+55 TO 255+77.5 ON BOTH FACES OF MEDIAN BARRIER: TERMINAL SECTION (CONNECTOR) FOR TYPE 3 W-BEAM ON TYPE 4 BARRIER FROM STA 255+77.5 TO 255+80 SEE PLANS FOR DETAILS AND PAYMENT ITEMS-SEE NOTE 6
PROJECT TOTAL		5	5	315	

GUARDRAIL TABULATION NOTES:

1. LOCATIONS ARE APPROXIMATE ONLY. EXACT LOCATIONS WILL BE AS DIRECTED BY THE ENGINEER.
2. THE COST OF ADDITIONAL EMBANKMENT (APPROXIMATELY 65 CY EACH) AND PAVEMENT (APPROXIMATELY 60 SY EACH) REQUIRED FOR SRTS WILL BE INCIDENTAL TO THE COST OF SRT.
3. ALL GUARDRAIL TYPE 3 SHALL BE WEATHERED STEEL.
4. ALL GUARDRAIL TYPE 3 SHALL BE 10 GAUGE STEEL.
5. EACH END ANCHOR (SRT) SHALL INCLUDE ONE OM-BT SUPPLEMENTAL DELINEATOR. THE COST OF THESE DELINEATORS SHALL BE CONSIDERED SUBSIDIARY TO END ANCHOR (SRT) AND WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
6. TERMINAL SECTION CONNECTOR SHALL BE MEASURED PER LINEAR FOOT AND PAID FOR UNDER PAYMENT ITEM #606-00301: GUARDRAIL TYPE 3 (6-3 POST SPACING).

TABULATION OF SIGNS

SIGN NO.	SIGN CODE	STATION	SIGN PANEL SIZE	BACK-GROUND COLOR	NUMBER OF POSTS (FOR INFORMATION ONLY)	STEEL SIGN POSTS (W8x18)	TRAFFIC SIGNAL PEDESTAL POLE (INSTALL ONLY)	LENGTH OF POST	CONC FOOTING (TYPE 3)	CONCRETE FOOTING (TRAFFIC SIGNAL POLE)	FLASHING BEACON	NOTES
						LF	EA	LF	EA	EA	EA	
D-1	OHVD	106+20			2		2			2		
S-1	OHVD BOS #1	117+00			2	28		14	2			
S-2		124+60	3'x3'	YELLOW	1						1	
S-3		124+60	3'x3'	YELLOW	1						1	
S-4		238+57	3'x3'	YELLOW	1						1	
S-5		238+57	3'x3'	YELLOW	1						1	
S-6	OHVD BOS #2	246+00			2	28		14	2			
D-2	OHVD	255+50			2		2			2		
PROJECT TOTALS						56	4		4	4	4	

TABULATION OF SIGNS NOTES:

1. FABRICATIONS OF REGULATORY SIGNS SHALL CONFORM TO CDOT STANDARD SPECIFICATIONS.
2. FOR TYPICAL GROUND SIGN PLACEMENT, SEE M&S STANDARD S-614-19.
3. FOR DETAILS OF SIGN SUPPORTS AND FOOTINGS FOR GROUND SIGNS, SEE M&S STANDARD S-614-5, S-614-6.
4. POST LENGTHS ARE APPROXIMATE ONLY. EXACT LENGTHS AS APPROVED BY THE ENGINEER.
5. OHVD BOS ELECTRONICS AND ATTACHED PULLBOXES WILL BE MOVED FROM EXISTING LOCATION TO PROPOSED LOCATION BY TUNNEL PERSONNEL ONLY.
6. TRAFFIC SIGNAL PEDESTAL POLE WILL BE STATE FURNISHED, CONTRACTOR INSTALLED.
7. GROUND MOUNTED TRAFFIC SIGNAL PEDESTAL POLES WILL REQUIRE CONCRETE FOOTING IN ACCORDANCE WITH M&S STANDARD S-614-40. BOLT PATTERN TO MATCH STATE FURNISHED POLES.
8. TRAFFIC SIGNAL PEDESTAL MOUNTING SYSTEM WILL BE PAID FOR AS CONCRETE FOOTING (TRAFFIC SIGNAL POLE), EACH.
9. WIRING AND FIBER OPTIC FOR OHVD WILL BE PAID FOR SEPARATELY.
10. FINAL TRAFFIC SIGNAL PEDESTAL POLE HEIGHT SHALL BE MINIMUM 16' ABOVE ROADWAY SURFACE.

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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Phone: 303-512-5750 FAX: 303-512-5775
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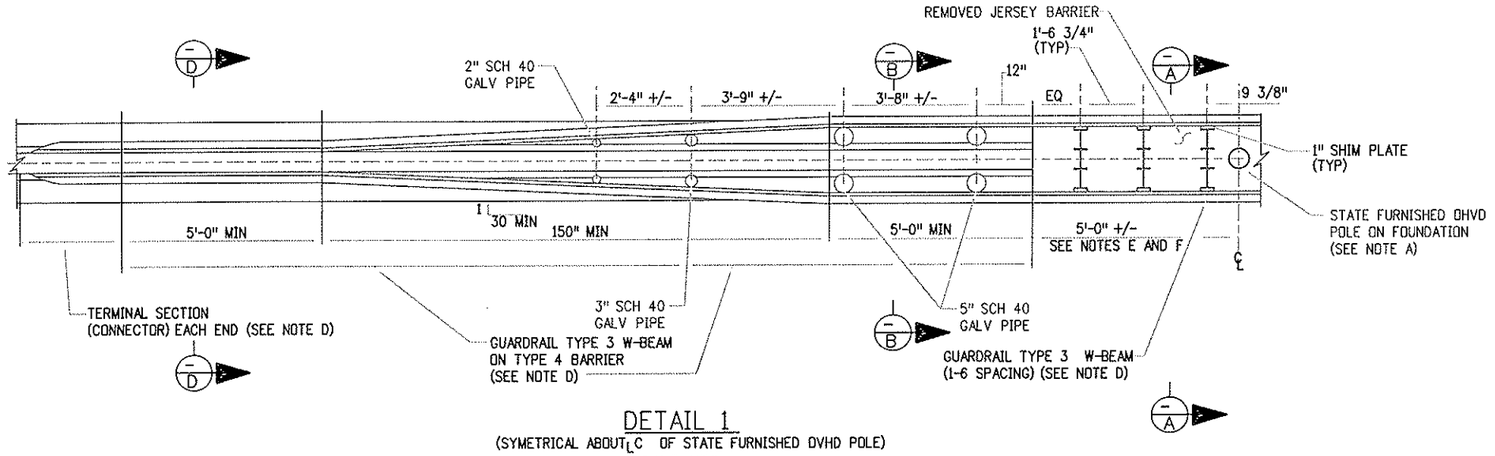
TABULATION OF SIGNS

Designer: K. HO
Detailer: K.J.SINGH
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 3 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 134



DETAIL 1

(SYMETRICAL ABOUT ℄ OF STATE FURNISHED OVHD POLE)
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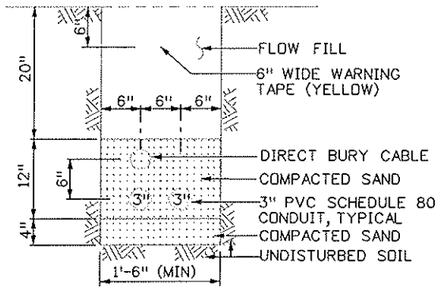
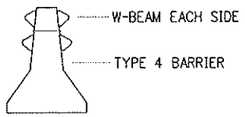


COMMON TRENCH SECTION



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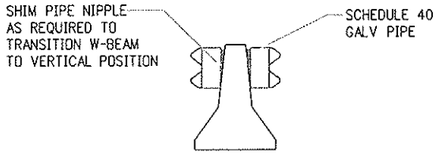

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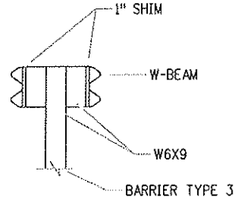

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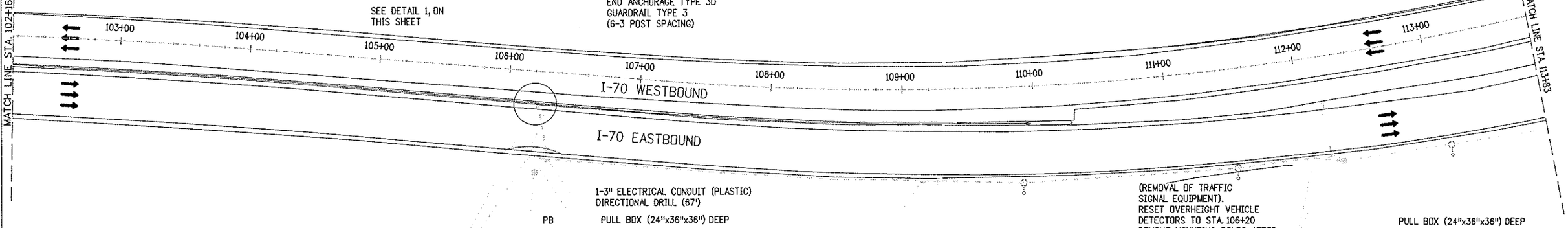

NOTES:

A. CONTRACTOR SHALL PROVIDE FOUNDATION FOR RELOCATED OVERHEIGHT VEHICLE DETECTORS AND SHALL MOUNT THE STATE FURNISHED POLES

B. THE DETECTOR SYSTEM SHALL BE RELOCATED/TRANSFERRED FROM THE EXISTING LOCATION TO THE PROPOSED LOCATION BY TUNNEL PERSONNEL ONLY.

C. THE CONTRACTOR SHALL INSTALL 4-#3AWG AND 1 SIX-STRANDFIBER OPTIC CABLE IN THE INSTALLED CONDUITS

D. GUARD RAIL AND TERMINAL SECTION CONNECTOR COMPLETELY INSTALLED AS DETAILED, SHALL BE PAID FOR PER LINEAR FOOT EACH FACE UNDER PAYMENT ITEM #606-00301; GUARDRAIL TYPE 3 (6-3 POST SPACING).

E. COST FOR REMOVAL OF JERSEY BARRIER SHALL NOT BE PAID FOR SEPARATELY. IT SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR PAYMENT ITEM #202-00828; REMOVAL OF TRAFFIC SIGNAL EQUIPMENT. REMOVED JERSEY BARRIER SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

F. PATCH AREA UNDER REMOVED BARRIER WITH ASPHALT, TO BE LEVEL WITH ADJACENT ROADWAY. COST OF PATCHUP COMPLETE IN PLACE, SHALL NOT BE PAID FOR SEPARATELY BUT ALL COST ASSOCIATED THEREOF SHALL BE INCIDENTAL TO THE REMOVAL OF THE JERSEY BARRIER.

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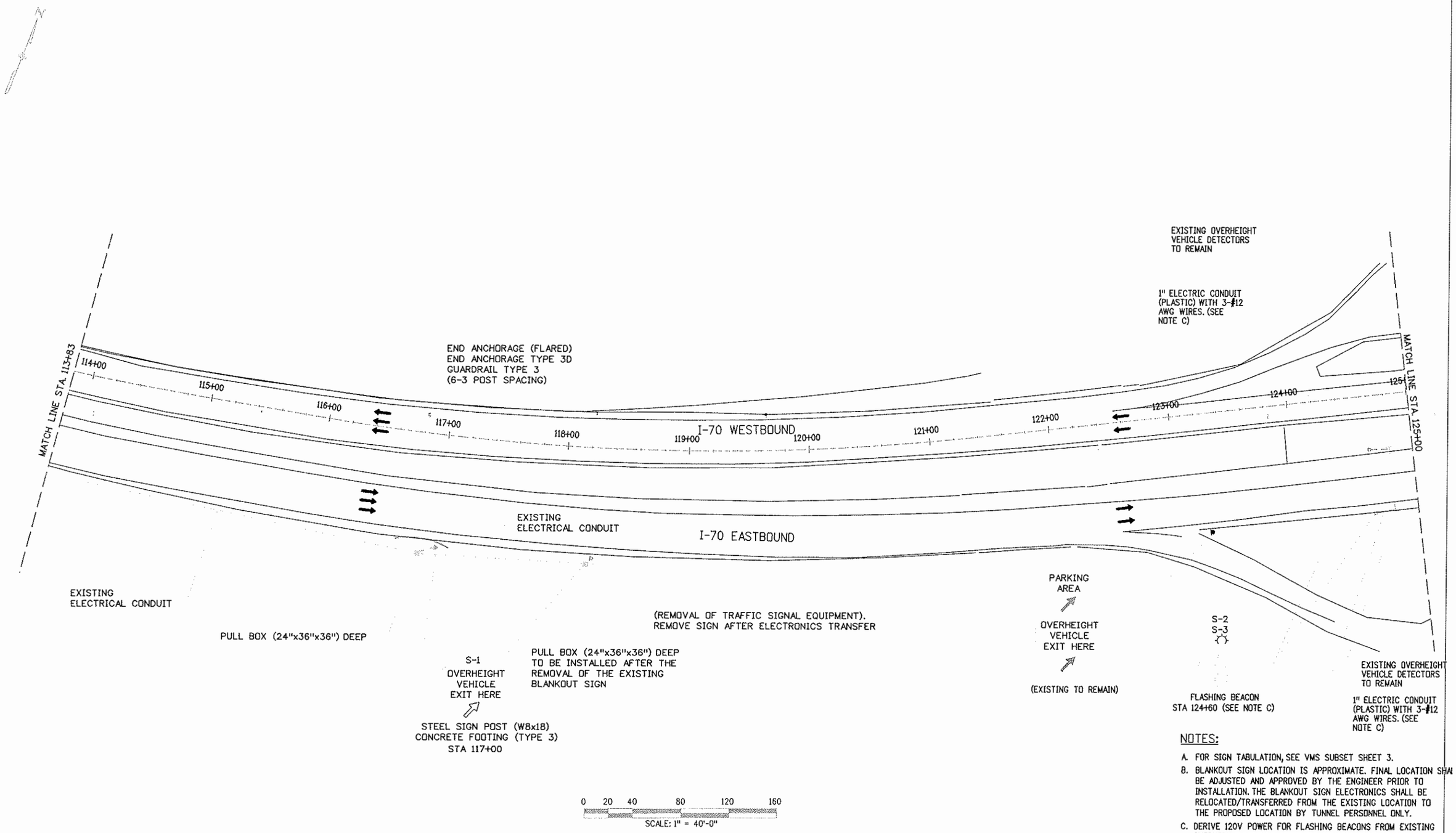
I-70 EASTBOUND POWER & APPROACH VMS

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset:	VMS	Subset Sheets:	4 OF 46

Project No./Code	
IM 0703-269	
13166	
Sheet Number	135

Plot File Name: $$PLOTFILE$$
Date of Plot: $$DATE$$



NOTES:

A. FOR SIGN TABULATION, SEE VMS SUBSET SHEET 3.

B. BLANKOUT SIGN LOCATION IS APPROXIMATE. FINAL LOCATION SHA BE ADJUSTED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. THE BLANKOUT SIGN ELECTRONICS SHALL BE RELOCATED/TRANSFERRED FROM THE EXISTING LOCATION TO THE PROPOSED LOCATION BY TUNNEL PERSONNEL ONLY.

C. DERIVE 120V POWER FOR FLASHING BEACONS FROM EXISTING OVERHEIGHT VEHICLE DETECTOR NEARBY. COST OF CONDUIT AND WIRE SHALL BE INCIDENTAL TO PAYMENT ITEM FOR FLASHING BEACON.

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I-70 EASTBOUND POWER & APPROACH VMS

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset:	VMS	Subset Sheets:	5 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 136

MATCH LINE STA. 125+00

126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00

I-70 WESTBOUND

EXISTING TRAFFIC SIGNAL TO REMAIN

27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

I-70 EASTBOUND

SOUTH TUNNEL ℄ STA. 27+00 =
I-70 ℄ STA. 126+50.51, 73.99' R

EXISTING TRAFFIC SIGNAL TO REMAIN

OVERHEIGHT VEHICLE EXIT HERE

BLANKOUT SIGN WITH SIREN AND FLASHING BEACON TO REMAIN

WEST PORTAL

EISENHOWER/JOHNSON MEMORIAL TUNNELS

0 20 40 80 120 160
SCALE: 1" = 40'-0"

Computer File Information

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Last Modification Date: 02/08/01 Initials: KLN
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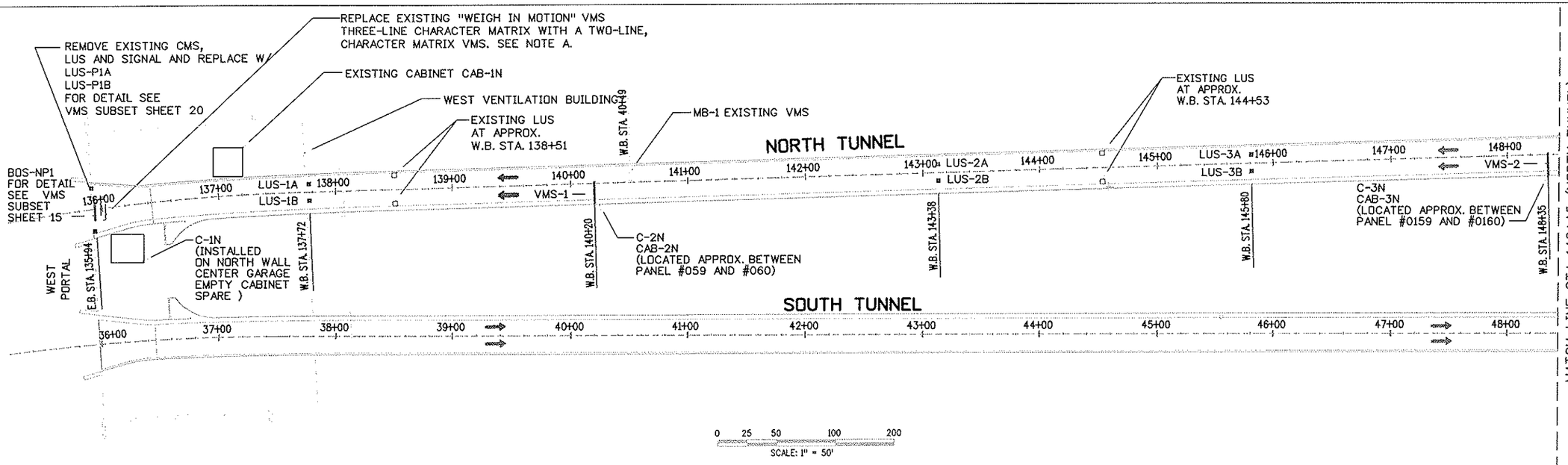
I-70 EASTBOUND POWER & APPROACH VMS

Designer: K. Ho
Detailer:

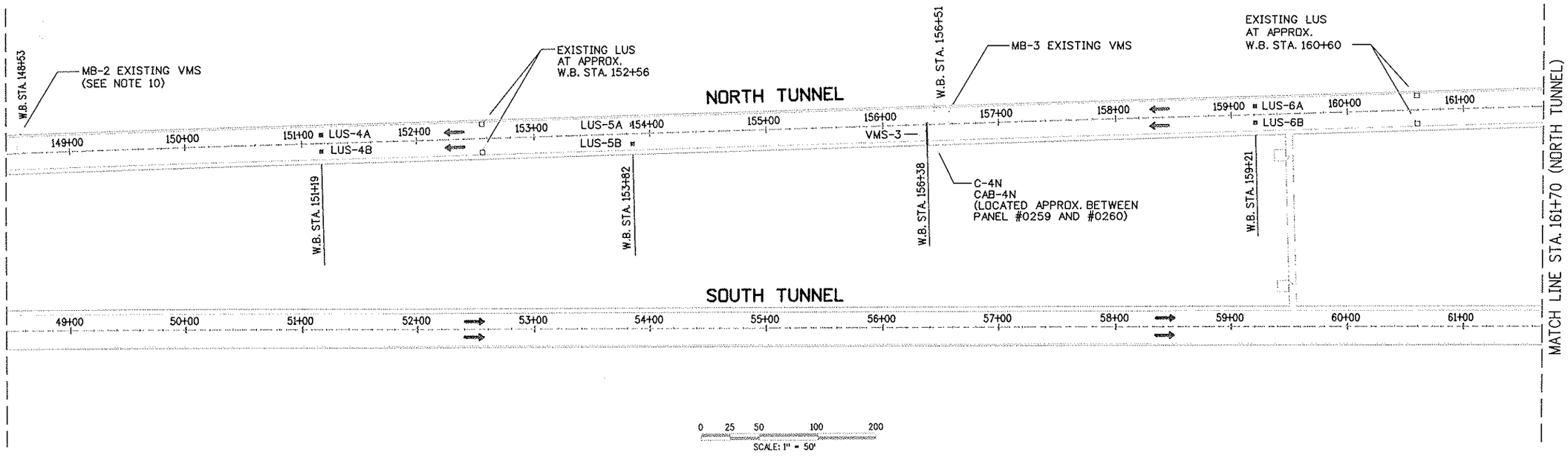
Project No. 70



PLAN 1

NOTES:

A. THE EXISTING 34 (12") CHARACTERS, CHARACTER MATRIX VMS, CONSISTS OF THREE LINES. THE TOP LINE PROVIDES FIXED MESSAGES AND THE BOTTOM TWO LINES PROVIDE VARIABLE MESSAGES. THE PROPOSED REPLACE-IN-KIND 34 (12") CHARACTERS, CHARACTER MATRIX VMS SHALL PROVIDE TWO LINES OF VARIABLE MESSAGE.



PLAN 2

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Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

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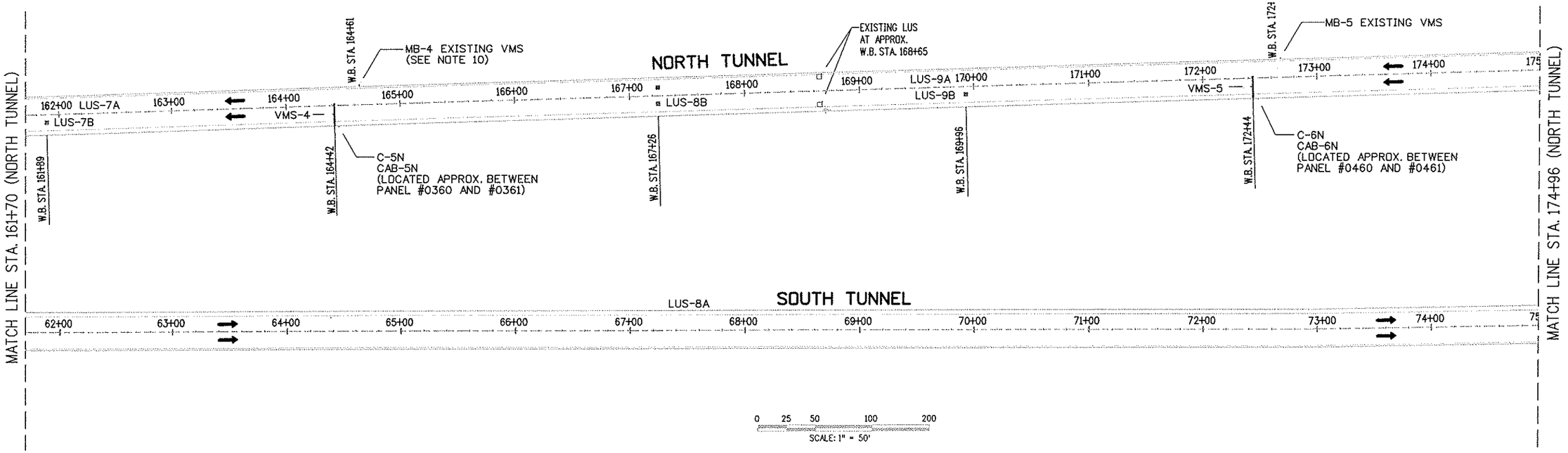
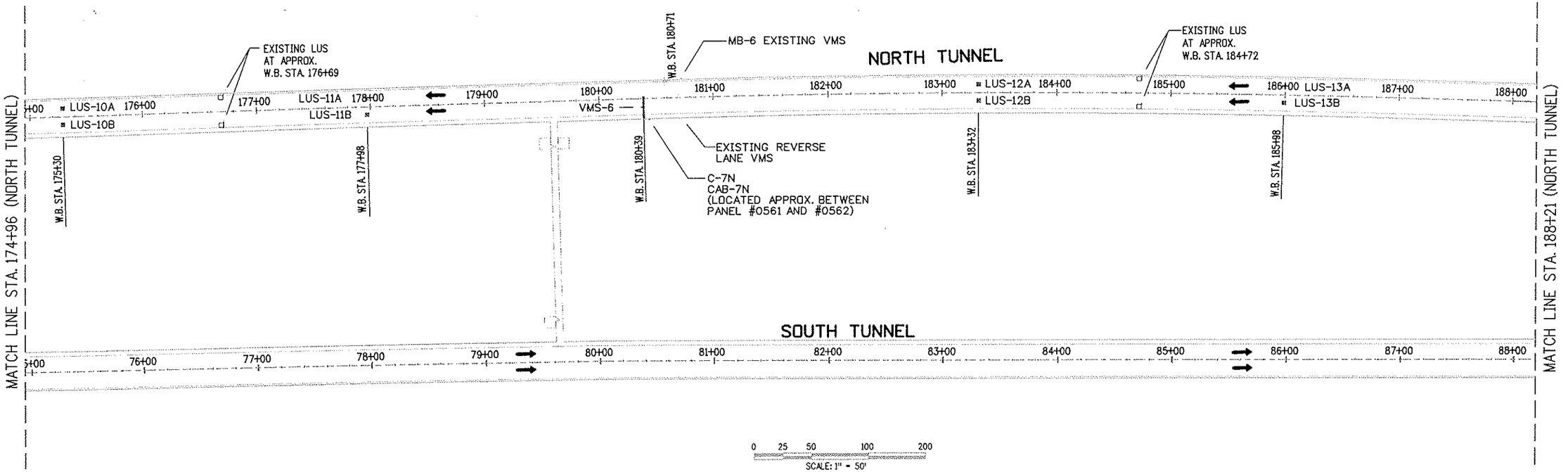
NORTH TUNNEL VMS & LUS PLAN

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset:	VMS	Subset Sheets:	7 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 138



PLAN 1



PLAN 2

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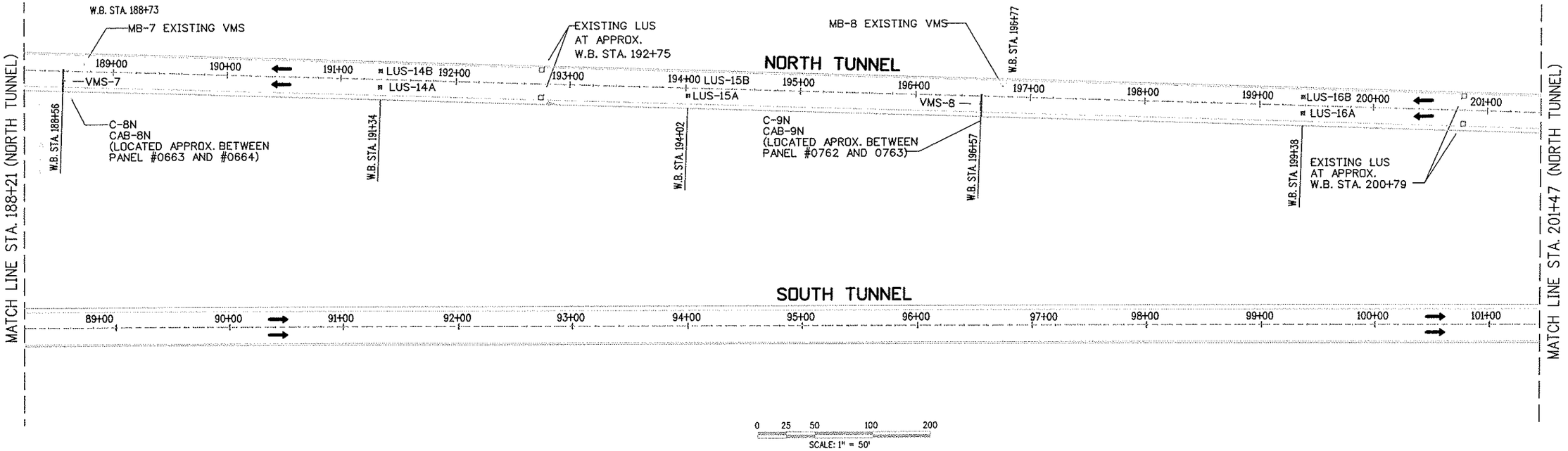
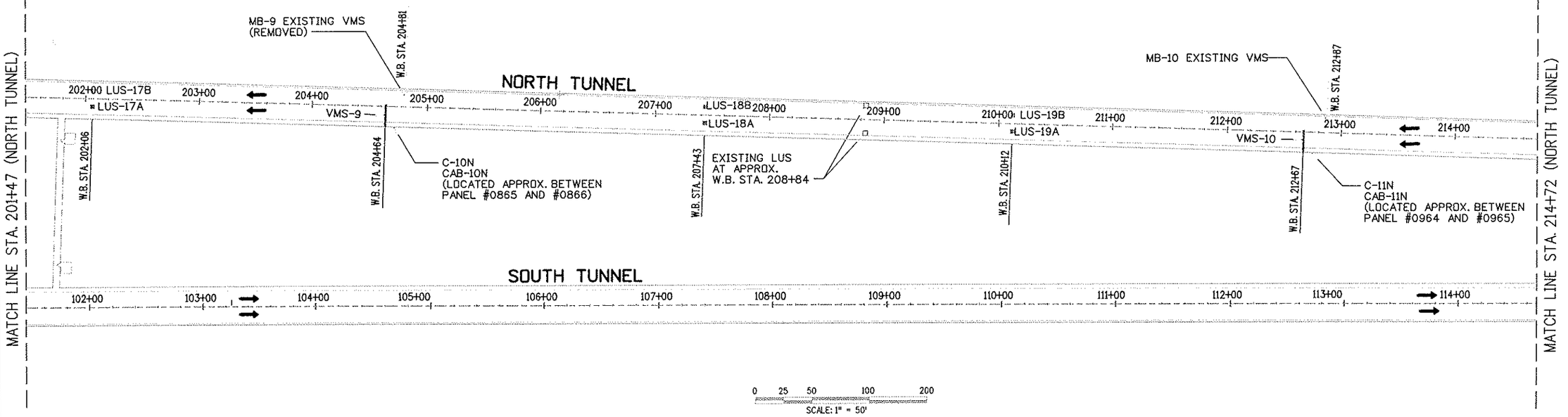
NORTH TUNNEL VMS & LUS PLAN

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset:	VMS	Subset Sheets:	8 OF 46

Project No./Code	
IM 0703-269	
13166	
Sheet Number	139



PLAN 1



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NORTH TUNNEL VMS & LUS PLAN

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset:	VMS	Subset Sheets:	9 OF 46

Project No./Code	
IM 0703-269	
13166	
Sheet Number	140

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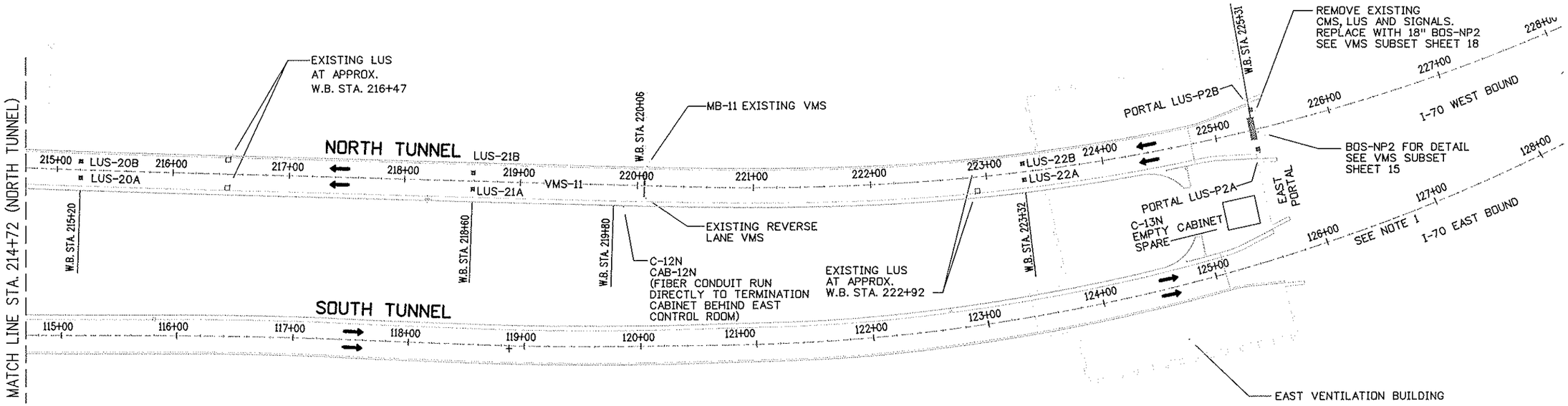

PLAN 1

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Last Modification Date: 02/27/07	Initials: DJR				
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Date of Plot: $$$$DATE$$$$

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No Revisions:				IM 0703-269
Revised:	Designer: K. Ho	Structure Numbers		13166
Void:	Detailer: E. McChesney			Sheet Number 141
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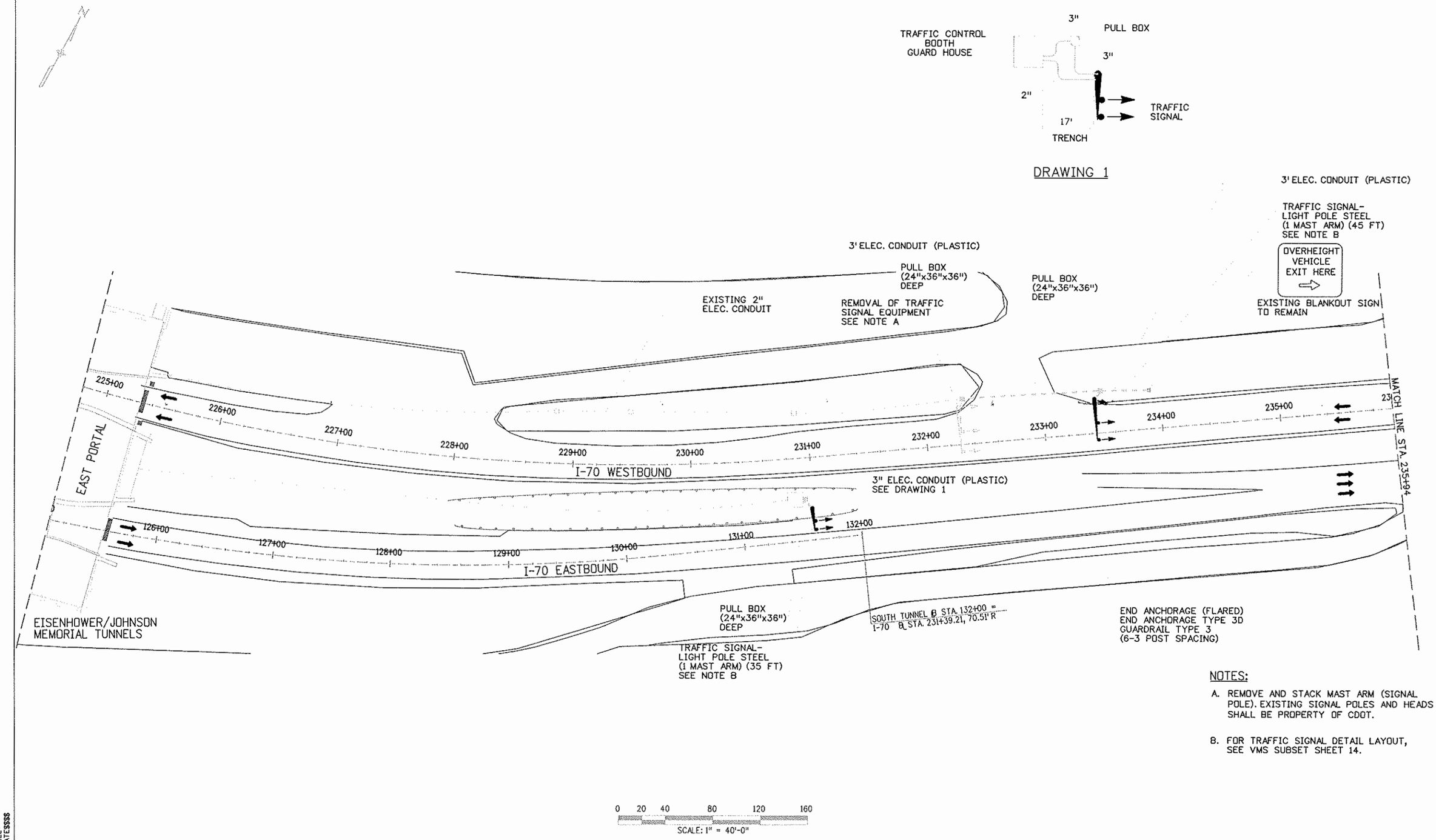

NOTES:

A. REMOVE AND STACK MAST ARM (SIGNAL POLE). EXISTING SIGNAL POLES AND HEADS SHALL BE PROPERTY OF CDOT.

B. FOR TRAFFIC SIGNAL DETAIL LAYOUT, SEE VMS SUBSET SHEET 14.

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	11/28/00	Initials:	KLN
Last Modification Date:	03/06/07	Initials:	DJR
Full Path: 014102\800Deliv\AsBuilt			
Drawing File Name: sgap05n			
Acad Ver. R14	Scale: 1" = 40'-0"	Units:	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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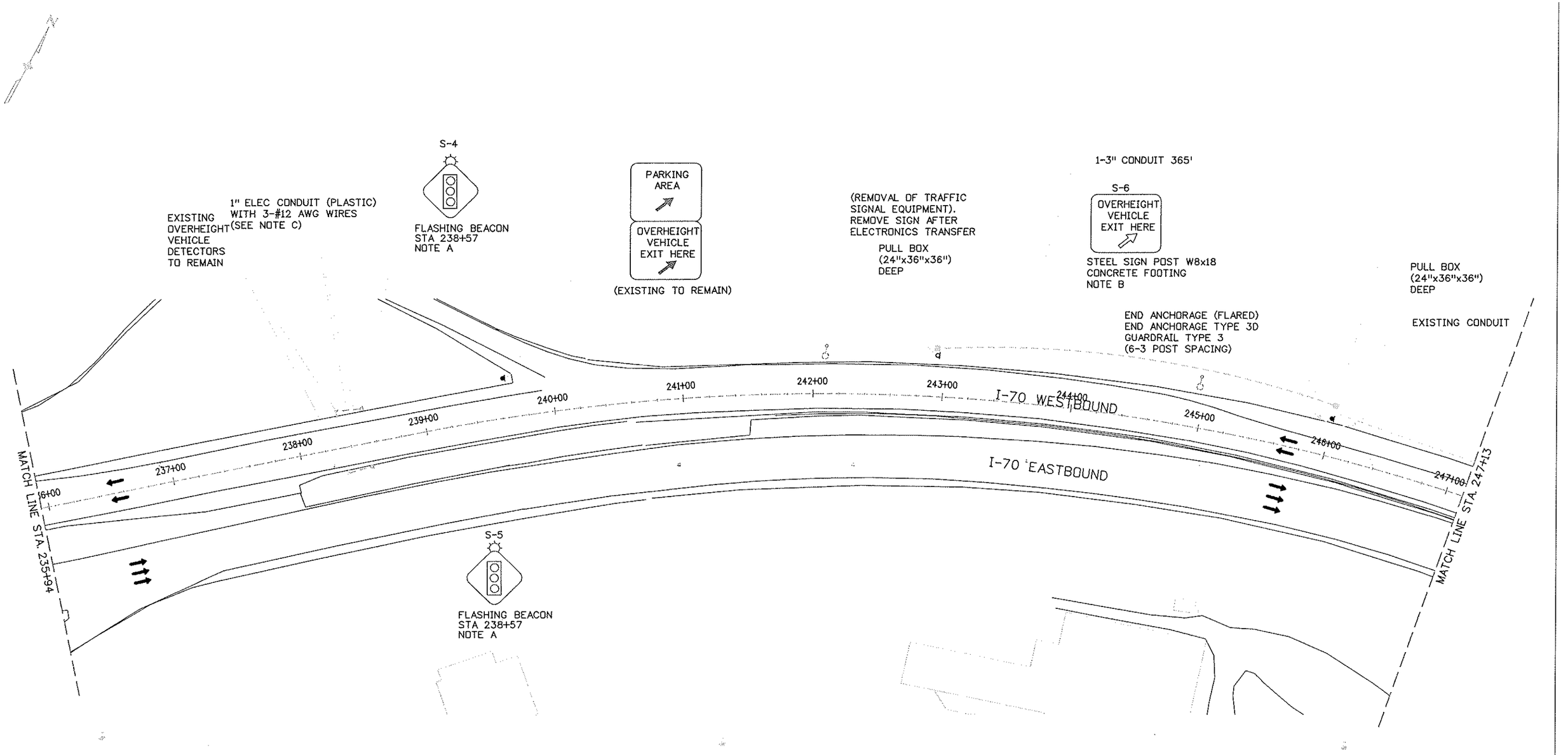
No Revisions:
Revised:
Void:

I-70 WESTBOUND POWER & APPROACH VMS

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset: VMS		Subset Sheets:	11 OF 46

Project No./Code	
IM 0703-269	
13166	
Sheet Number	142



A. CONNECT FLASHING BEACON TO SIGNAL CONTROL.

B. BLANKOUT SIGN LOCATION IS APPROXIMATE. FINAL LOCATION SHALL BE ADJUSTED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. THE BLANKOUT SIGN ELECTRONICS SHALL BE RELOCATED/TRANSFERRED FROM THE EXISTING TO THE PROPOSED LOCATION BY THE TUNNEL PERSONNEL ONLY.

C. DERIVE 120V POWER FOR FLASHING BEACONS FROM EXISTING OVERHEIGHT VEHICLE DETECTOR NEARBY. COST OF CONDUIT AND WIRE SHALL BE INCIDENTAL TO PAYMENT ITEM FOR FLASHING BEACON.

Computer File Information			
Creation Date:	11/28/00	Initials:	ELN
Last Modification Date:	08/06/07	Initials:	DJR
Full Path:	014102\800Deliv\AsBuilt		
Drawing File Name:	sgap06n		
Acad Ver. R14	Scale: 1" = 40'-0"	Units:	

Sheet Revisions		
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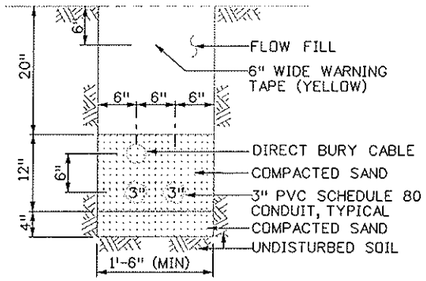
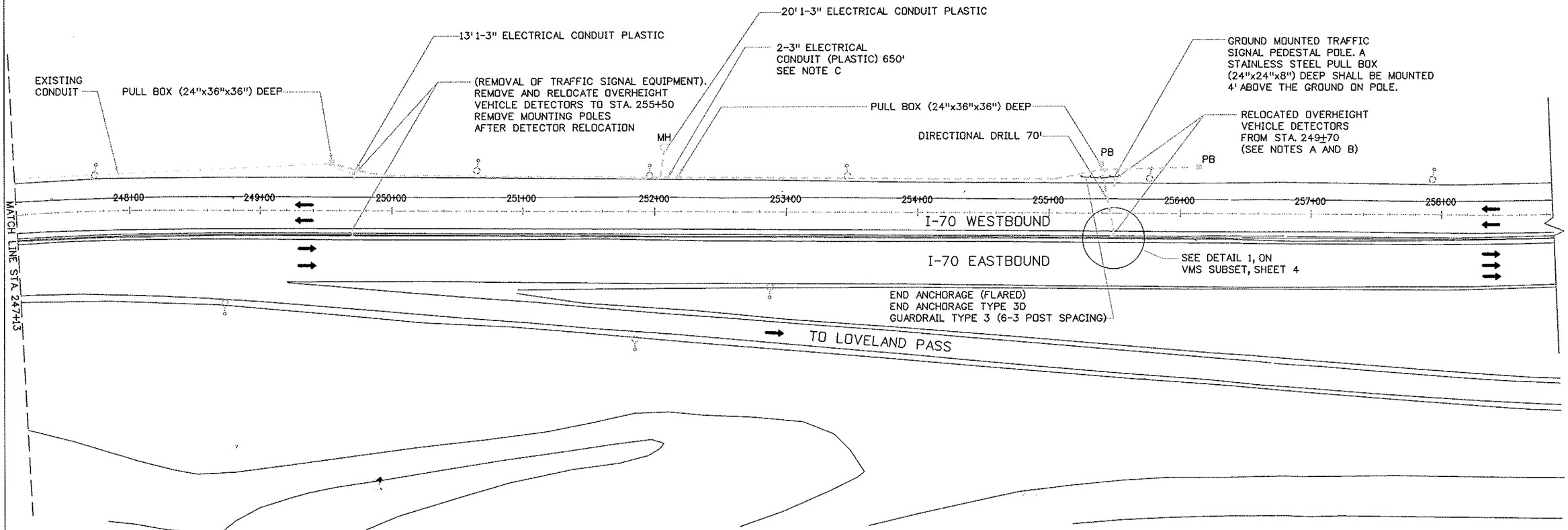
I-70 WESTBOUND POWER & APPROACH VMS

Designer:	K. Ho	Structure Numbers	
Detailer:	E. McChesney		
Sheet Subset:	VMS	Subset Sheets:	12 OF 46

Project No./Code	
IM 0703-269	
13166	
Sheet Number	143



COMMON TRENCH SECTION



0 20 40 80 120 160

SCALE: 1" = 40'-0"

NOTES:

A. CONTRACTOR SHALL PROVIDE FOUNDATION FOR RELOCATED OVERHIEGHT VEHICLE DETECTORS AND SHALL MOUNT THE STATE FURNISHED POLES

B. THE DETECTOR SYSTEM SHALL BE RELOCATED/TRANSFERRED FROM THE EXISTING LOCATION TO THE PROPOSED LOCATION BY TUNNEL PERSONNEL ONLY.

C. THE CONTRACTOR SHALL INSTALL 4-#3AWG AND 1 SIX-STRANDFIBER OPTIC CABLE IN THE INSTALLED CONDUITS

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	11/28/00	Initials:	KLN
Last Modification Date:	05/06/07	Initials:	DJR
Full Path:	014102\800Deliv\AsBuilt\		
Drawing File Name:	sgap07n		
Acad Ver. R14	Scale: 1" = 40'-0"	Units:	

Sheet Revisions		
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I-70 WESTBOUND POWER & APPROACH VMS

Designer: K. Ho
Detailer: E. McChesney
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 13 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 144

SIGNAL IDENTIFICATION

EXISTING (W/REMOVED AND RESET LOCATIONS)
1A (2A)
1B (2B)
1C (2C)

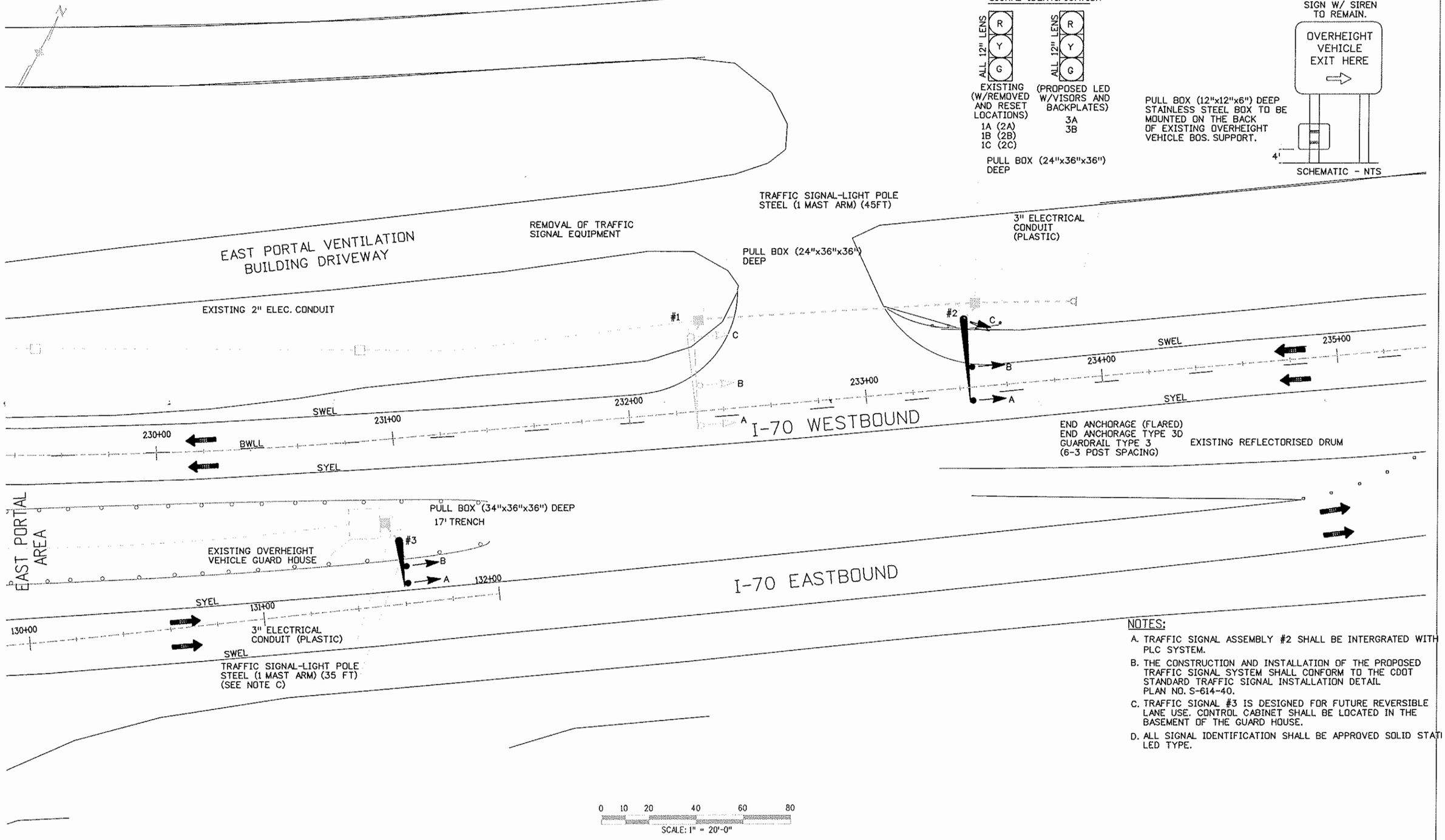
(PROPOSED LED W/VISORS AND BACKPLATES)
3A
3B

PULL BOX (24"x36"x36") DEEP

EXISTING BLANKOUT SIGN W/ SIREN TO REMAIN.

SCHEMATIC - NTS

PULL BOX (12"x12"x6") DEEP STAINLESS STEEL BOX TO BE MOUNTED ON THE BACK OF EXISTING OVERHEIGHT VEHICLE BOS. SUPPORT.



NOTES:

A. TRAFFIC SIGNAL ASSEMBLY #2 SHALL BE INTERGRATED WITH PLC SYSTEM.

B. THE CONSTRUCTION AND INSTALLATION OF THE PROPOSED TRAFFIC SIGNAL SYSTEM SHALL CONFORM TO THE CDOT STANDARD TRAFFIC SIGNAL INSTALLATION DETAIL PLAN NO. S-614-40.

C. TRAFFIC SIGNAL #3 IS DESIGNED FOR FUTURE REVERSIBLE LANE USE. CONTROL CABINET SHALL BE LOCATED IN THE BASEMENT OF THE GUARD HOUSE.

D. ALL SIGNAL IDENTIFICATION SHALL BE APPROVED SOLID STATI LED TYPE.

0 10 20 40 60 80
SCALE: 1" = 20'-0"

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	05/06/07	Initials:	DJR
Full Path: 014102\800Deliv\AsBuilt\			
Drawing File Name: trafsign			
Acad Ver. R14	Scale: 1" = 20'-0"	Units:	

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I-70 WESTBOUND TRAFFIC SIGNAL PLAN

Designer: E. McChesney
Detailer: E. McChesney
Structure Numbers:
Sheet Subset: VMS
Subset Sheets: 14 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 145

FOR REFERENCE ONLY

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date: 11/28/00	Initials: KLN		
Last Modification Date: 02/27/02	Initials: DJR		
Full Path: 014102\700CADD\713TRA\			
Drawing File Name: sgdt11n.plt			
Acad Ver. R14	Scale: NTS	Units: ENGLISH	

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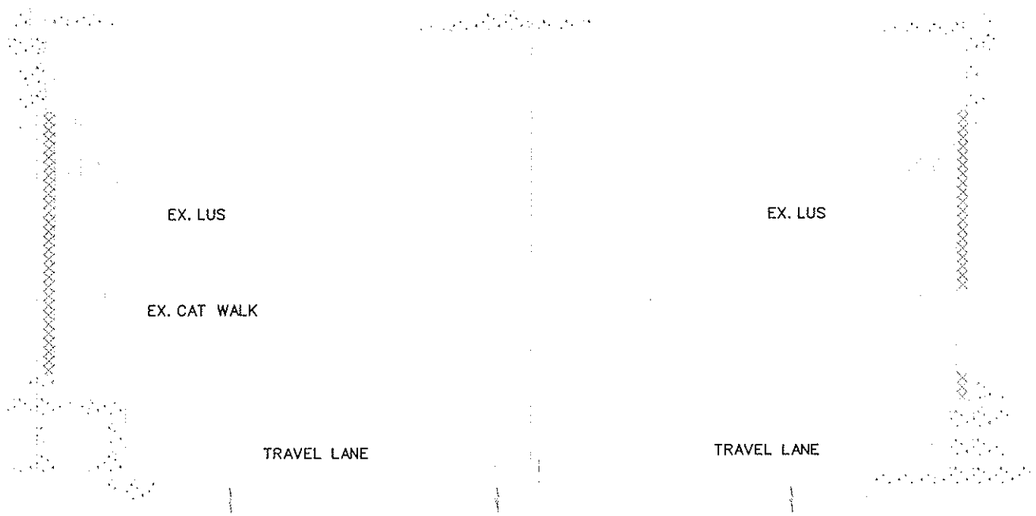
Void:

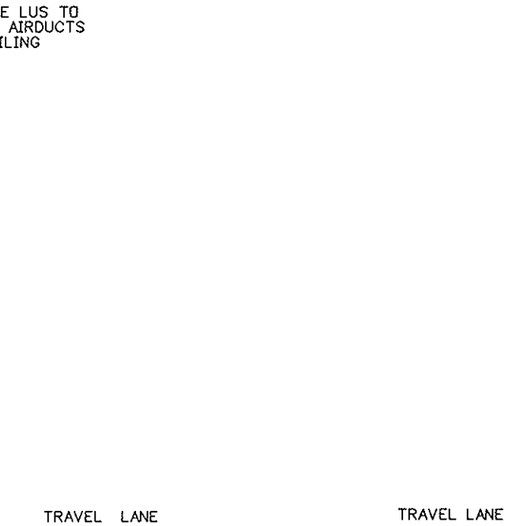
ELEVATION PORTAL FACE VMS & LUS

Designer: K. Ho
Detailer: K. J. Singh
Sheet Subset: VMS
Structure Numbers
Subset Sheets: 15 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 146



NORTH TUNNEL
EXISTING LUS (DOUBLE FACE) SIGN ELEVATION
LOOKING WEST
SCALE: NTS



NOTES:
A. FOR SIGN SUPPORT DETAIL, SEE VMS STRUCTURAL DRAWINGS.

Design File Name: DONASEC_
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			Sheet Revisions		
Creation Date: 4/29/99	Initials: KLN		07/03/07	ASBUILT	DJB
Last Modification Date: 2/27/02	Initials: DJR				
Full Path: 014102\700cadd\713tra\					
Drawing File Name: sgdt04n.plt					
Acad Ver. R14	Scale: NTS	Units:			

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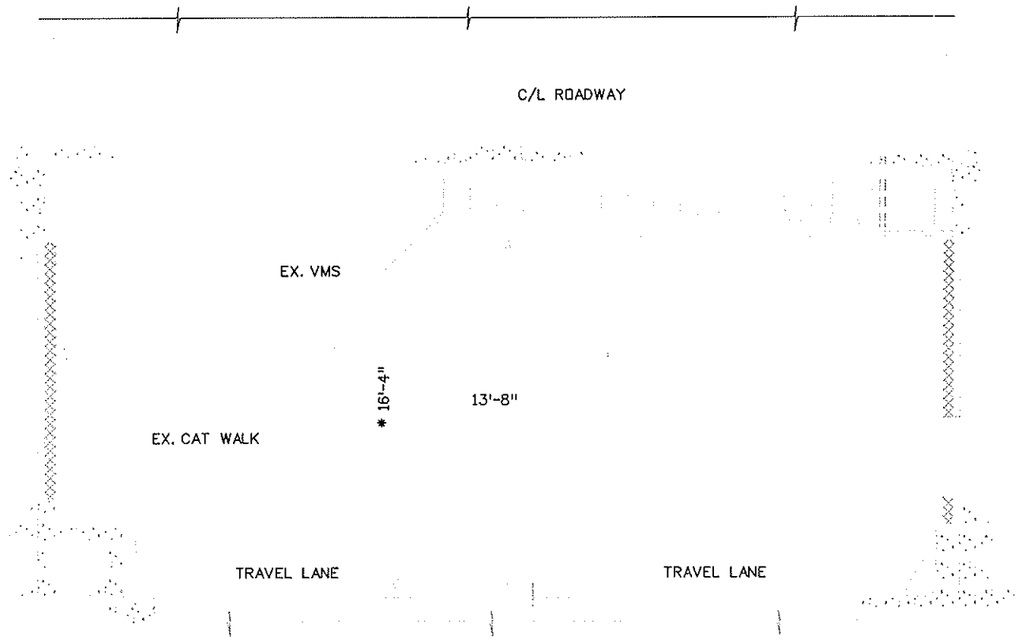
Void:

TUNNEL LUS CROSS-SECTION

Designer: K. Ho
Detailer: E. McChesney
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 16 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 147



NORTH TUNNEL
EXISTING VMS (SINGLE FACE) SIGN ELEVATION
LOOKING WEST
SCALE: NTS

NOTE:

A. FOR VMS SIGN SUPPORT #11 SEE VMS SUBSET SHEET 27.

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFILE*
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	02/27/02	Initials:	KLN
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Drawing File Name:	sgdt03n.plt		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

Sheet Revisions		
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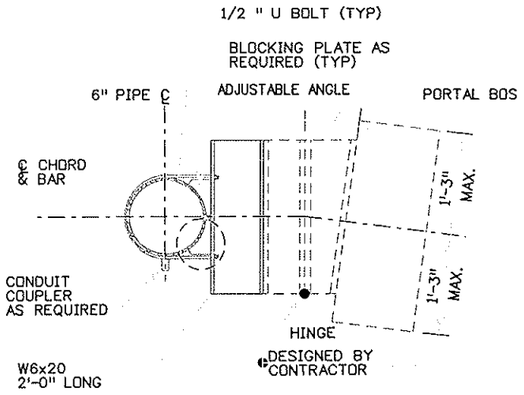
Void:

TUNNEL VMS ELEVATION

Designer: K. Ho
Detailer: E. McChesney
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 17 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 148



SIDE VIEW
SCALE: NTS

FOR SIGN SUPPORT DETAIL, SEE VMS SUBSET SHEET 24

SIDE VIEW
SCALE: NTS

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information		
Creation Date: 4/20/99	Initials: KJS	
Last Modification Date: 02/27/02	Initials: DJR	
Full Path: 014102\700CADD\713TRA\		
Drawing File Name: sgdt09n.plt		
Acad Ver. R14	Scale: NTS	Units: ENGLISH

Sheet Revisions		
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VMS SIGN FACE LAYOUT DETAILS

Designer:		Structure Numbers	
Detailer:			
Sheet Subset: VMS		Subset Sheets: 18 OF 46	

Project No./Code
IM 0703-269
13166
Sheet Number 149

NOTES:

A. THE WEIGH-IN-MOTION VMS WILL BE MOUNTED ON THE EXISTING MODIFIED SUPPORT STRUCTURE. THIS NEW WEIGH-IN-MOTION VMS SHALL BE CONNECTED AND FULLY INTEGRATED WITH THE EXISTING WEIGH-IN-MOTION SYSTEM.

B. FOR INFORMATION RELATED TO THE EXISTING WEIGH-IN-MOTION VMS SUPPORT SYSTEM AND CROSS SECTION, SEE VMS SUBSET SHEET 21.

Design File Name: DGN$SPEC*
Plot File Name: $PLOTFIL*
Date of Plot: $$$$DATE$$$$

Computer File Information			
Creation Date:	11/28/00	Initials:	KLN
Last Modification Date:	02/27/02	Initials:	KLN
Full Path:	014102\700cadd\713tro		
Drawing File Name:	sgdt24n.plt		
Acad Ver. R14	Scale:	Units:	

Sheet Revisions		
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SIGN FACE LAYOUT DETAILS

Designer:	K. HO	Structure Numbers	
Detailer:	E. MCCHESNEY		
Sheet Subset:	VMS	Subset Sheets:	19 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 150

NOTES:

A. FOR LUS LOCATIONS TO BE INSTALLED IN THIS CONTRACT, SEE SIGN TABULATION VMS SUBSET SHEET 2.

Design File Name: DONGREEN
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information		
Creation Date: 4/21/99	Initials: PTR	
Last Modification Date: 03/24/03	Initials: CWB	
Full Path: 014102\700CADD\713TRA\		
Drawing File Name: sgdt22n.plt		
Acad Ver. R14	Scale: NTS	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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No Revisions:
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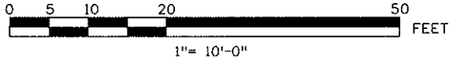
Void:

LUS SIGN FACE LAYOUT & POWER CONNECTION DETAILS			Project No./Code
			IM 0703-269
Designer: K. Ho	Structure Numbers		13166
Detailer: E. McChesney			
Sheet Subset: VMS	Subset Sheets: 20 OF 46		Sheet Number 151

NOTES:

A. THE EXISTING WEIGH-IN-MOTION VMS SUPPORT SYSTEM IS SHOWN FOR INFORMATIONAL PURPOSE.

B. THE CONTRACTOR SHALL PROVIDE NECESSARY CLAMPS AND BOLT TO ATTACH THE PROPOSED VMS SIGN TO EXISTIG STRUCTURES.



1"= 10'-0"

Design File Name: DGNSSPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$

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Last Modification Date:	03/27/03	Initials:	DJR
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Drawing File Name:	install1n.plt		
Acad Ver.	R14	Scale:	Units:

Sheet Revisions		
07/03/07	ASBUILT	DJB

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No Revisions:	
Revised:	
Void:	

EXISTING WEIGH-IN-MOTION VMS SUPPORT SYSTEM

Designer:		Structure Numbers	
Detailer:			
Sheet Subset:	VMS	Subset Sheets:	21 OF 46

Project No./Code	
IM 0703-269	
13166	
Sheet Number	152

STRUCTURAL NOTES

SPECIFICATIONS AND CODES

SPECIFICATIONS:

STRUCTURAL DESIGN: AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS," 1985 AS REVISED BY INTERIM SPECIFICATIONS-BRIDGES 1986-1989, 1991, 1993 AND 1994.

CONSTRUCTION: COLORADO DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 1999 SPECIFICATIONS, THE PROJECT CONSTRUCTION DRAWINGS, SPECIFICATIONS AND SPECIAL PROVISIONS.

WELDING:

1. AWS D1.1-94 STRUCTURAL WELDING CODE.
2. ALL AREAS TO BE WELDED SHALL BE GROUND TO BRIGHT METAL. NO BUTT WELD SPLICES WILL BE PERMITTED.

STRUCTURAL DESIGN CRITERIA

1. THE DESIGN OF SIGN AND EQUIPMENT SUPPORTS ARE IN ACCORDANCE WITH THE WORKING STRESS METHOD.

2. DESIGN LOADS:

A. WIND LOADS:

60 MPH DESIGN BASIC WIND SPEED (TUNNEL INSIDE)
80 MPH DESIGN BASIC WIND SPEED (TUNNEL PORTAL)

B. DEAD LOADS:

IN ADDITION TO THE SELF-WEIGHT OF THE STRUCTURAL SUPPORT, THE FOLLOWING MAJOR DEAD LOAD HAS BEEN INCLUDED

DOUBLE FACED VMS SIGN AND HARDWARE (TUNNEL)	1,600 LBS
SINGLE FACED VMS SIGN AND HARDWARE (PORTAL)	550 LBS
DOUBLE FACED LUS SIGN AND HARDWARE (TUNNEL)	50 LBS
SINGLE FACED LUS SIGN AND HARDWARE (PORTAL)	80 LBS

C. EARTHQUAKE:

SEISMIC PERFORMANCE CATEGORY A REQUIREMENTS U.S.A. ACCORDING FOR BRIDGES - AASTHO STANDARD SPECIFICATIONS FOR BRIDGES-1996.

3. DESIGN STRENGTHS:

MATERIAL DESIGN STRENGTHS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A. STRUCTURAL STEEL:

PIPE (ROUND):	ASTM A 53, EXTRA STRONG, WELDED AND SEAMLESS STEEL PIPE
TUBE:	ASTM A 500, GRADE B OR C
BARS, PLATES AND SHAPES:	AASHTO M270, ASTM DESIGNATION A 36
ANCHOR ROD:	ASTM A 193, GRADE B7. STEEL.
PIN OR SHAFT:	AASHTO M222, ASTM A 588
HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS:	ASTM A 325 SC SHALL CONFORM TO THE PROVISIONS OF COLORADO DOT SPECIFICATION SECTION 509.28.

B. ALL TUBE AND PIPE MEMBER SHALL BE HOT-DIP GALVANIZED AS PER ASTM A 123.

C. STRUCTURAL STEEL, NUTS, BOLTS AND WASHERS FOR SIGN STRUCTURES SHALL BE GALVANIZED AFTER FABRICATION AS PER ASTM A 123 OR ASTM A 153 AS APPROPRIATE, AND SHALL NOT BE PAINTED.

4. CLEARANCES: ALL SIGNS, EQUIPMENT AND SUPPORT STRUCTURES SHALL BE INSTALLED TO PROVIDE A MINIMUM VERTICAL CLEARANCE FROM THE ROADWAY AS SHOWN ON THE CONTRACT PLANS AND ELEVATIONS.

5. ALL MATERIAL, FABRICATIONS, AND ATTACHMENT OF FIXED ALUMINUM SHALL CONFORM TO CURRENT EDITION OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR CDOT HIGHWAY SIGNS, LUMINAIRE AND TRAFFIC SIGNALS, UNLESS OTHERWISE SHOWN ON THESE CONTRACT DOCUMENTS.

6. FOR PAY ITEMS, QUANTITIES, AND GENERAL NOTES SEE NORTH TUNNEL VMS SUBSET SHEET 1.

7. CAULKING AND SEALER MATERIAL FOR TILE WALLS AND P.E.P. CEILING SHALL BE POLYURETHANE, ELASTOMERIC, NON-SAG SEALANT, CONFORM TO ASTM C 920, TYPE M, GRADE NS, CLASS 25, USE NT OR APPROVED EQUAL.

8. ALL GROUT SHALL BE EPOXY NON-SHRINK, NON-METALLIC GROUT UNLESS OTHERWISE NOTED.

9. ALL MEMBRANES SHALL CONSIST OF RUBBERIZED ASPHALT BONDED TO POLYETHYLENE SHEETING. SHEET MEMBRANE WILL BE SEALED WITH FILLET AND FLASHING MASTIC AROUND ENTIRE PERIMETER OF NEW SHEET.

ABBREVIATIONS

ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	GALV.	GALVANIZED	R	RADIUS
AWS	AMERICAN WELDING STANDARD	HEX	HEXAGON	REINF	REINFORCEMENT
&	AND	H.P.	HIGH POINT	RD.	ROAD
@	AT	HORIZ	HORIZONTAL	REQ'D	REQUIRED
B.C.	BOLT CIRCLE	LBS	POUNDS	SQ.	SQUARE
B.S.	BOTH SIDE	LS	LUMPSUM	S.S.	STAINLESS STEEL
CJP	COMPLETE JOINT PENETRATION	LG	LONG	STD	STANDARD
CL	CLEAR, CLEARANCE	LUS	LANE USAGE SIGNAL	STA	STATION
CONC.	CONCRETE	MAX	MAXIMUM	STIFF	STIFFNESS
CONT.	CONTINUOUS	MIN	MINIMUM	TS	TUBE STEEL
CY	CUBIC YARD	MANUF	MANUFACTURE	TYP	TYPICAL
℄	CENTERLINE	MAT'L	MATERIAL	THK	THICK
C/C	CENTER TO CENTER	NTS	NOT TO SCALE	VMS	VARIABLE MESSAGE SIGN
DEG	DEGREE	NO. or #	NUMBER	WA	WEDGE ANCHOR
DWG	DRAWING	PL or ℞	PLATE	XS	EXTRA STRONG
DIA	DIAMETER	PCF	POUNDS PER CUBIC FOOT		
EA	EACH	PSF	POUNDS PER SQUARE FOOT		
EXIST	EXISTING	PSI	POUNDS PER SQUARE INCH		
FT	FEET	PEP	PORCELAIN ENAMELED PANEL		
FDN	FOUNDATION	PGL	PAVING GRADE LEVEL		
		PAV'T	PAVEMENT		

Computer File Information			
Creation Date: 11/15/00	Initials: HCM		
Last Modification Date: 2/06/02	Initials: DJR		
Full Path: 14102\700CADD\713TRA\			
Drawing File Name: SGP20.N.PLT			
Acad Ver. R14	Scale: NONE	Units: ENGLISH	

Sheet Revisions		
07/03/07	ASBUILT	DJB

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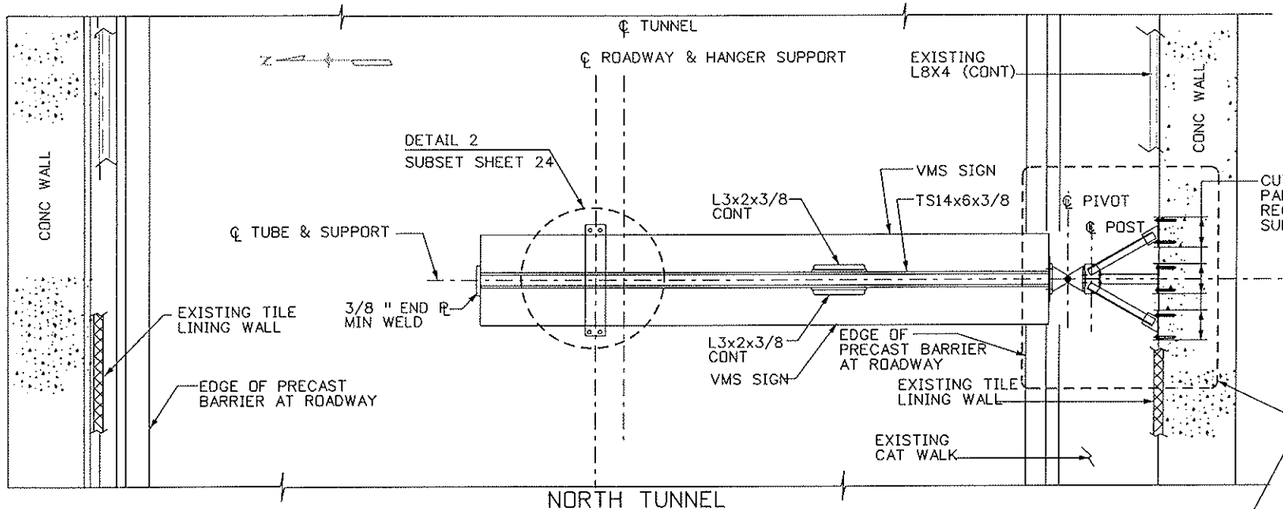
No Revisions:	
Revised:	
Void:	

NORTH TUNNEL VMS SUPPORT STRUCTURAL NOTES

Designer: NHP		Structure Numbers	
Detailer: HCM			
Sheet Subset: VMS		Subset Sheets: 22 of 47	

Project No./Code
IM 0703-269
13166
Sheet Number 153

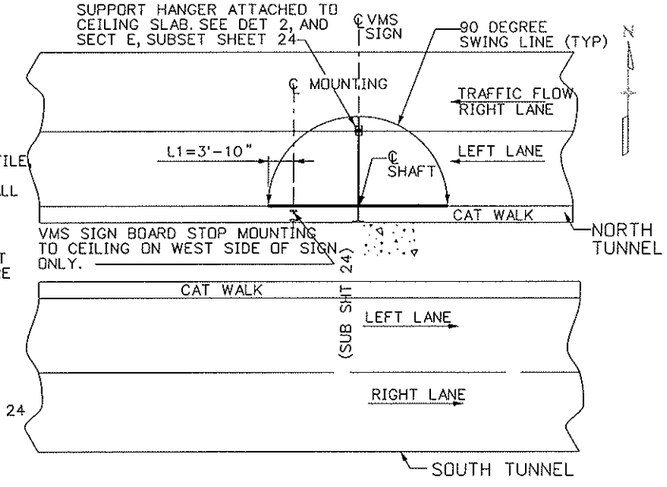


NORTH TUNNEL

TYPICAL TUNNEL DOUBLE FACE VMS SIGN SUPPORT PLAN

(STRUCTURES 1 THRU 10)

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

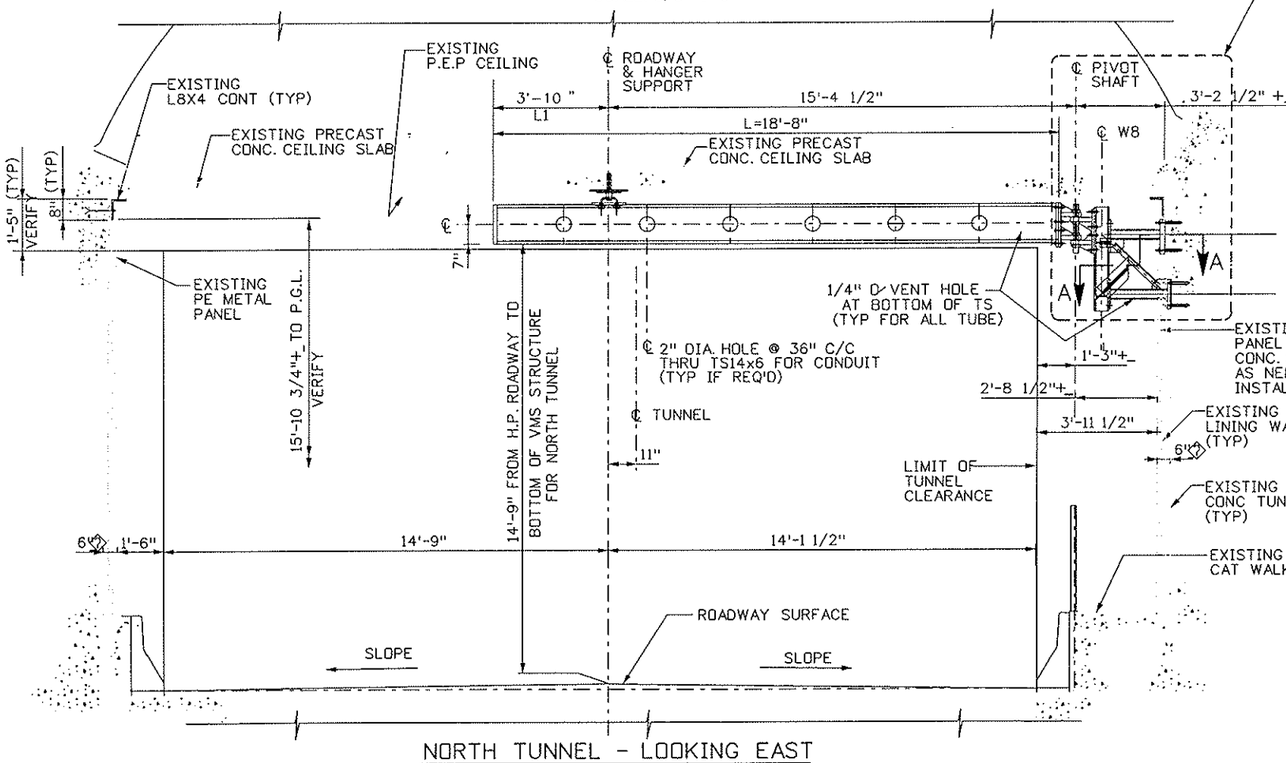


VMS SIGN SUPPORT ORIENTATION PLAN

(STRUCTURES 1 THRU 10)

SCALE: NTS

VMS SUPPORTS SCHEDULE (TUNNEL)	
NORTH TUNNEL	
SIGN SUPPORT STRUCTURE NO.	LOCATION STATION
1	STA. 140 + 20
2	STA. 148 + 35
3	STA. 156 + 38
4	STA. 164 + 42
5	STA. 172 + 44
6	STA. 180 + 39
7	STA. 188 + 56
8	STA. 196 + 57
9	STA. 204 + 64
10	STA. 212 + 67
11	STA. 219 + 80

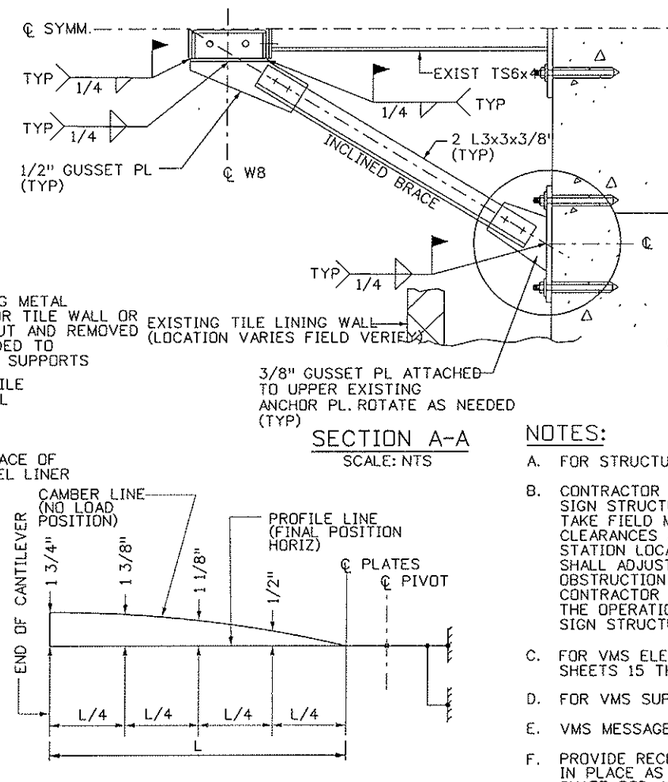


NORTH TUNNEL - LOOKING EAST

TYPICAL TUNNEL DOUBLE FACE VMS SIGN SUPPORT ELEVATION

(STRUCTURES 1 THRU 10)

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



SECTION A-A

SCALE: NTS

CAMBER DIAGRAM

TUBE SECTION

SCALE: NTS

NOTES:

A. FOR STRUCTURAL NOTES, SEE VMS SUBSET SHEET 22.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FIT OF SIGN STRUCTURES AT ANCHORAGES. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS TO VERIFY ANCHORAGE LOCATIONS, ELEVATIC CLEARANCES AND MEMBER SPANS PRIOR TO PREPARING SHOP DRAWINGS. STATION LOCATION SHOWN ON THIS SHEET ARE APPROXIMATE. CONTRACT SHALL ADJUST LOCATION PER FIELD CONDITION. REMOVE AND RELOCATE OBSTRUCTION WITH APPROVAL OF ENGINEER AT NO ADDITIONAL COST. CONTRACTOR SHALL FABRICATE/INSTALL ONE SIGN STRUCTURE TO ASSUF THE OPERATIONAL PERFORMANCE PRIOR TO SUBSEQUENT SUBMITTAL FOR SIGN STRUCTURES.

C. FOR VMS ELECTRONIC SIGN, SEE VMS SIGN ELEVATIONS SHEETS 15 THRU 21.

D. FOR VMS SUPPORT FRAMING DETAILS, SEE VMS SUBSET SHEET 24.

E. VMS MESSAGE BOARD SIGN LOCATION SEE SUBSET SHEET 2.

F. PROVIDE RECESS HOLE AND PIN INTO 2" DIA. SHAFT ROD TO HOLD IN PLACE AS REQUIRED. LUBRICATE WITH GREASE ALL PINS AND SHAFT ROD AS REQUIRED FOR EASY OPERATION.

Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information		
Creation Date:	11/15/00	Initials: HCM
Last Modification Date:	03/06/07	Initials: DJB
Full Path:	14102\800Deliv\AsBuilt\	
Drawing File Name:	SGP21N	
Acad Ver. R14	Scale:AS NOTED	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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No Revisions:

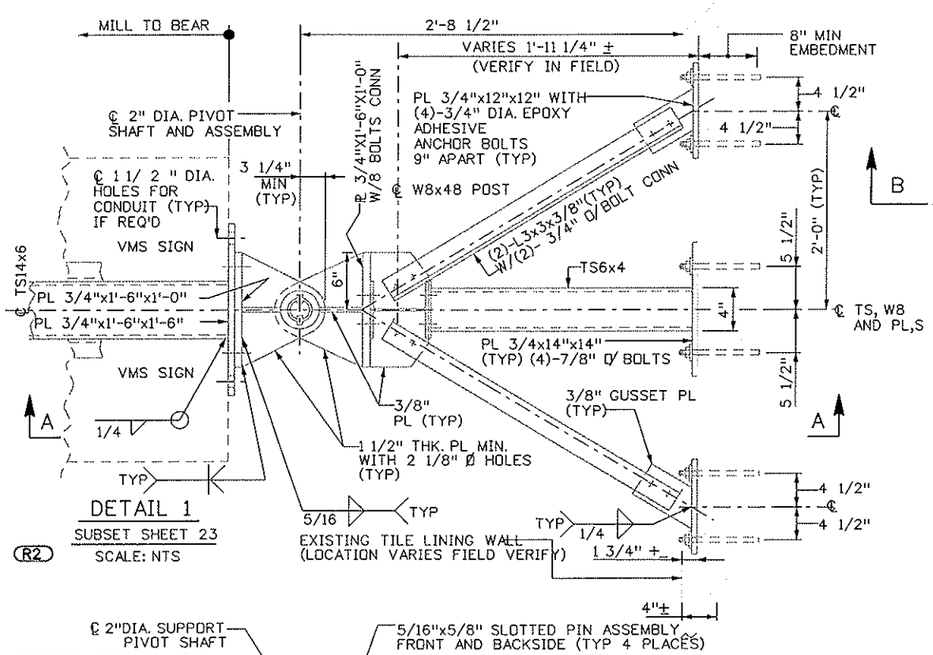
Revised:

Void:

NORTH TUNNEL VMS SUPPORT PLAN AND ELEVATION

Designer: NHP		Structure Numbers	
Detailer: HCM			
Sheet Subset: VMS		Subset Sheets: 23 of 46	

Project No./Code	IM 0703-269
	13166
Sheet Number	154

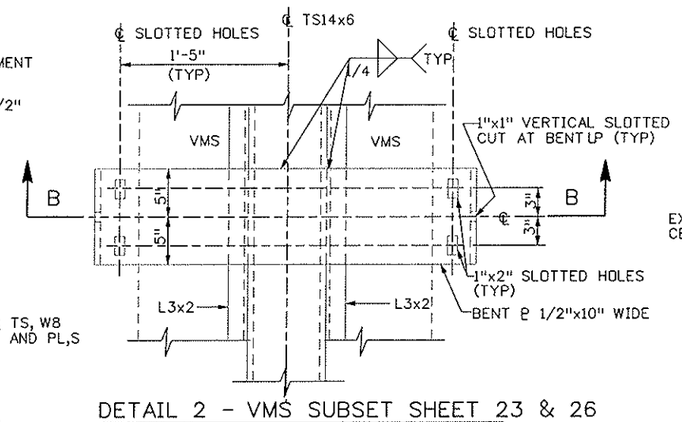


DETAIL 1

SUBSET SHEET 23

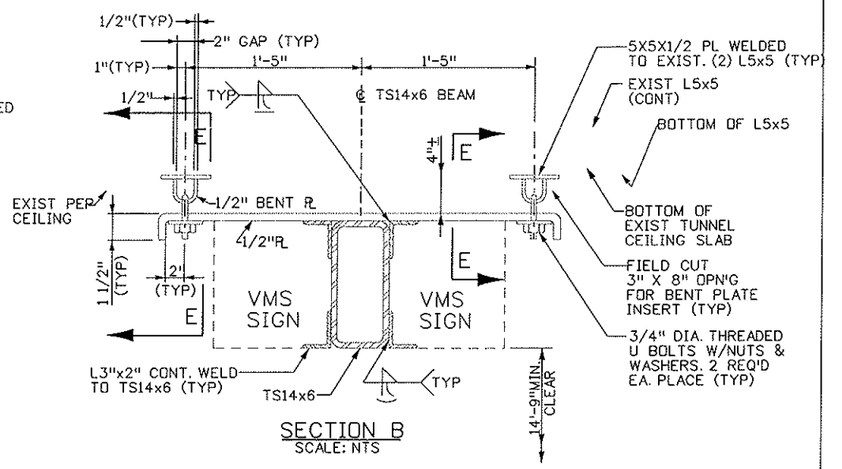
SCALE: NTS

R2



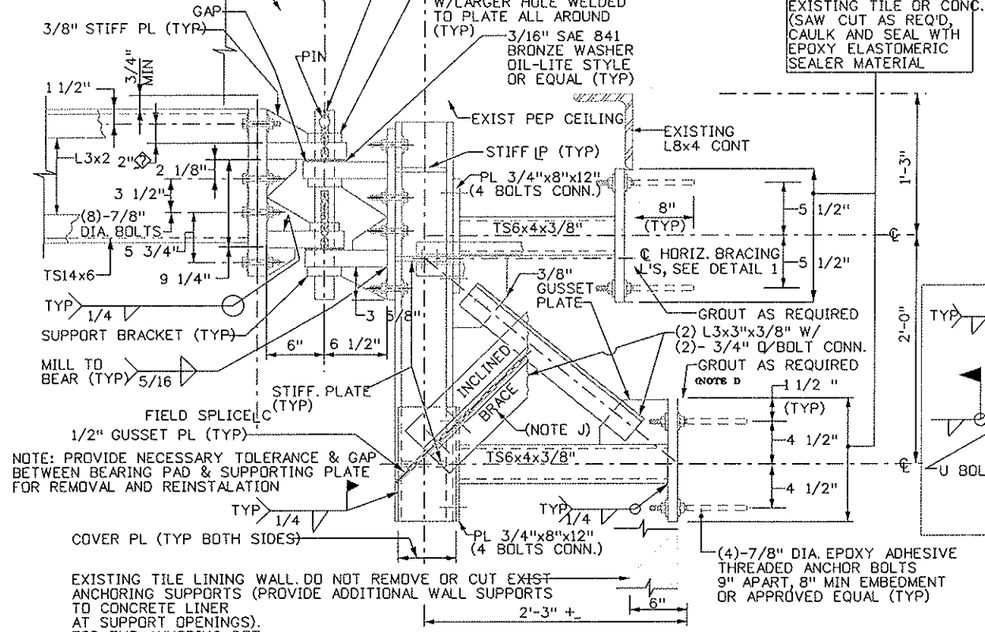
DETAIL 2 - VMS SUBSET SHEET 23 & 26

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



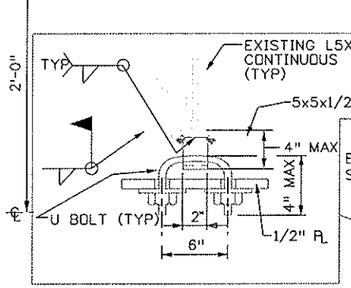
SECTION B

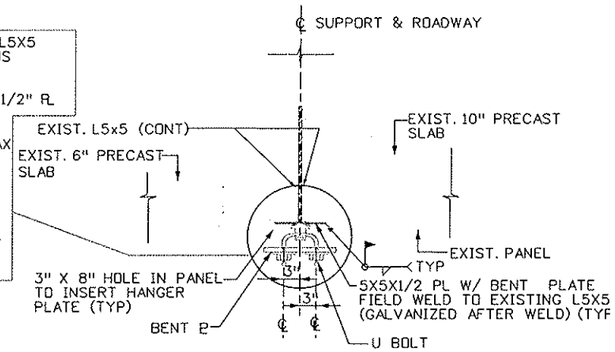
SCALE: NTS



SECTION A - VMS SUBSET SHEET 24

SCALE: NTS





SECTION E-CENTER CEILING HANGER SUPPORT

SCALE: NTS

NOTES:

A. VMS STEEL STRUCTURE, ATTACHMENT, CONNECTION, STEEL FRAMING, GROUT, CAULKING, SEALER, MEMBRANE, WIRING AND CUT PANEL, CONC. OR TILE ARE INCLUDED IN THE COST OF VMS STEEL SUPPORT STRUCTURE PAY ITEMS.

B. FOR ALL ANCHORING SYSTEMS TO EXISTING CONCRETE OR PRECAST CONCRETE SLAB, USE HILTI HSE 2411 EPOXY ADHESIVE, HAS SUPER THREADED ROD WITH LOCK NUTS OR APPROVED EQUAL.

C. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER AND EASY MANUAL SWING OPERATION OF BALL BEARING SUPPORT AND BRACKETS.

D. ALL CONNECTION BOLTS SHALL BE 7/8"Ø A 325 SC UNLESS NOTED OTHERWISE.

E. MINIMUM 3/8" THICK ELASTOMERIC PAD SHALL BE 100% VIRGIN CHLOROPRENE (NEOPRENE) 60+/- 5 DUROMETER (SHORE A). INTERNAL STEEL LAMINATE SHALL BE ASTM A570 GRADE 33.

F. NEW MEMBRANE SHALL BE MATCHED WITH EXISTING MEMBRANE TYPE AND THICKNESS.

G. CONTRACTOR SHALL DESIGN & PROVIDE NECESSARY PINS, LUGS, HOLES FOR LIFTING & REMOVAL OF PINS FROM SHAFT SLOTS AND FOR HOLDING SHAFT IN PLACE.

H. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE SUGGESTED DIMENSIONS ONLY. IF NEEDED, ADJUST DIMENSIONS AND SUBMIT TO ENGINEER FOR APPROVAL.

I. PROVIDE GROUT AND LEVELING NUTS AS NEEDED TO PROVIDE UNIFORM BEARING OF SIGN SUPPORT AGAINST THE EXISTING TUNNEL STRUCTURE. GROUT BEHIND PLATE NOT SHOWN IN DETAIL 1 THIS SHEET.

J. INCLINED BRACE IS APPROXIMATELY 2'-11" LONG.

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			Sheet Revisions		
Creation Date:	11/15/00	Initials: HCM	07/03/07	ASBUILT	DJB
Last Modification Date:	12/04/03	Initials: DJB			
Full Path:	I:\102\700CADD\713TRA\				
Drawing File Name:	SGP22.N.PLT				
Acad Ver. R14	Scale: AS NOTED	Units: ENGLISH			

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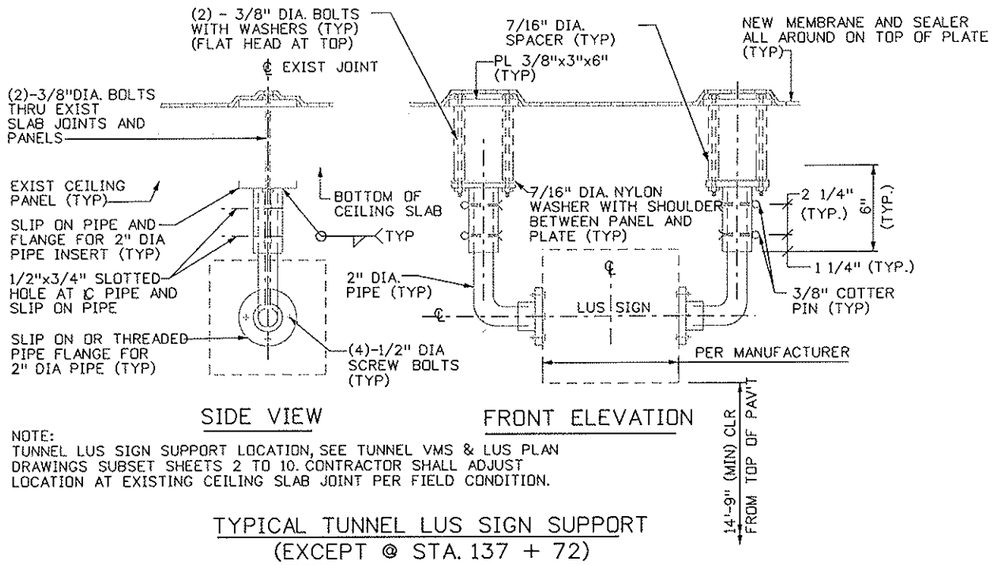
As Constructed	NORTH TUNNEL VMS SUPPORT SECTIONS AND DETAILS		Project No./Code
No Revisions:			IM 0703-269
Revised:	Designer: NHP	Structure Numbers	13166
Void:	Detailer: HCM		
	Sheet Subset: VMS	Subset Sheets: 24 of 46	Sheet Number 155

NOTES:

A. FOR STRUCTURAL NOTES, SEE VMS SUBSET SHEET 22.

B. COST OF TUNNEL LUS SIGN SUPPORT FRAME, ATTACHMENT, WIRING, NEW MEMBRANE, MOUNTING, CUTTING PANEL, CAULKING, AND RELATED MISC. ITEMS ARE INCLUDED IN COST OF TUNNEL LUS SIGN SUPPORT PAY ITEM.



SIDE VIEW

FRONT ELEVATION

NOTE:
TUNNEL LUS SIGN SUPPORT LOCATION, SEE TUNNEL VMS & LUS PLAN DRAWINGS SUBSET SHEETS 2 TO 10. CONTRACTOR SHALL ADJUST LOCATION AT EXISTING CEILING SLAB JOINT PER FIELD CONDITION.

TYPICAL TUNNEL LUS SIGN SUPPORT (EXCEPT @ STA. 137 + 72)

SCALE: NTS

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Drawing File Name:	SGP23.N.PLT		
Acad Ver.	R14	Scale: AS NOTED	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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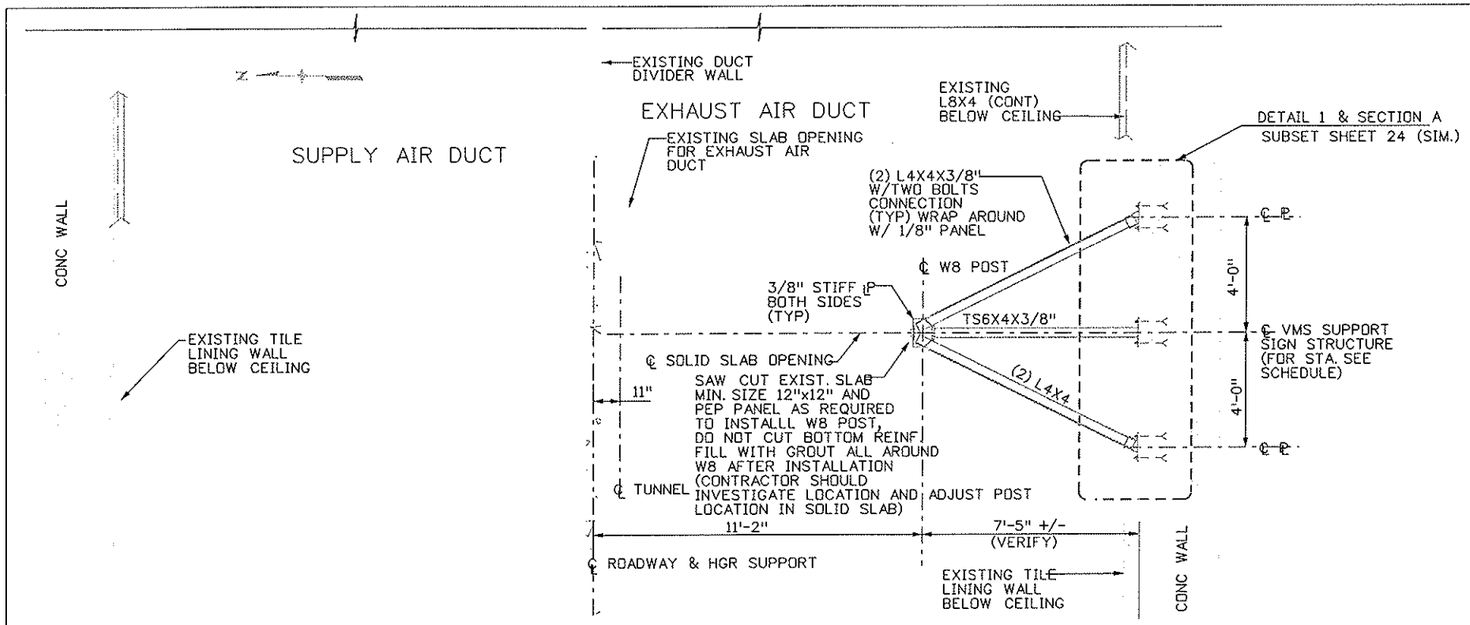
Void:

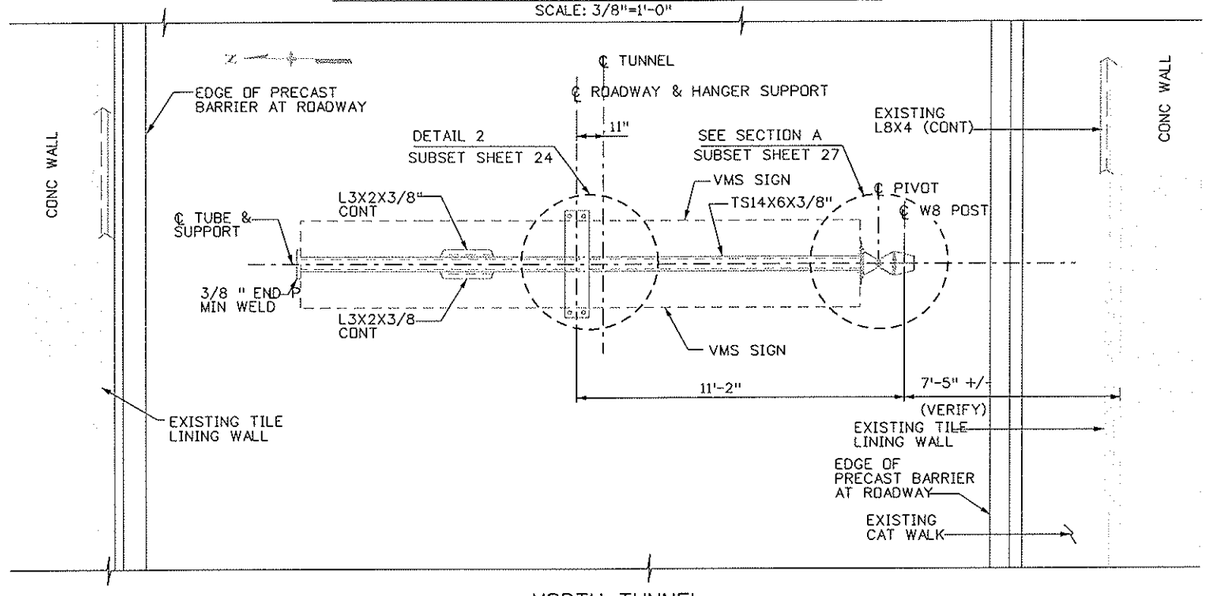
NORTH TUNNEL LUS SUPPORT MOUNTING BRACKET DETAILS

Designer: NHP
Detailer: HCM
Sheet Subset: VMS
Structure Numbers
Subset Sheets: 25 OF 46

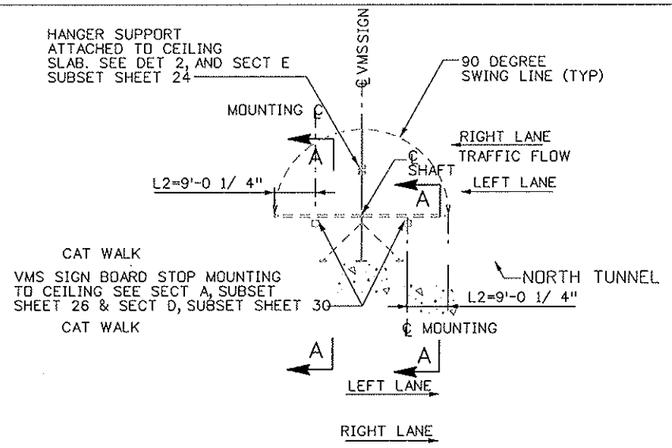
Project No./Code
IM 0703-269
13166
Sheet Number 156



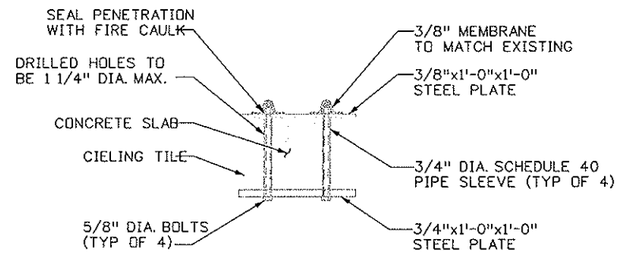
NORTH TUNNEL
ABOVE CEILING PLAN
TUNNEL DOUBLE FACE VMS SIGN SUPPORT #11
SCALE: 3/8"=1'-0"



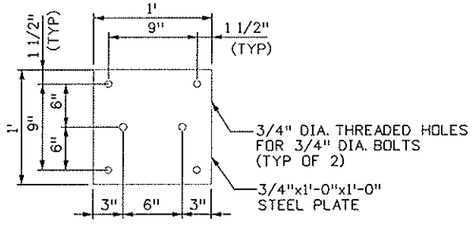
NORTH TUNNEL
BELOW CEILING PLAN
TUNNEL DOUBLE FACE VMS SIGN SUPPORT #11
SCALE: 3/8"=1'-0"



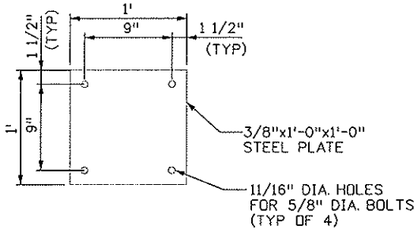
VMS SIGN SUPPORT ORIENTATION PLAN (SUPPORT #11)
SCALE: NTS



INTERIOR VMS SIDE STOP
SCALE: 1 1/2" = 1'-0"



VMS BOTTOM PLATE
SCALE: 1 1/2" = 1'-0"



VMS TOP PLATE
SCALE: 1 1/2" = 1'-0"

NOTES:
A. FOR STRUCTURAL NOTES, SEE VMS SUBSET SHEET 22, 23 & 24.
B FOR TUNNEL DOUBLE FACE VMS SIGN SUPPORT ELEVATION AND MOUNTING DETAILS SEE SUBSET SHEET 27.

Design File Name: DGN$SPEC$
Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

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Sheet Revisions		
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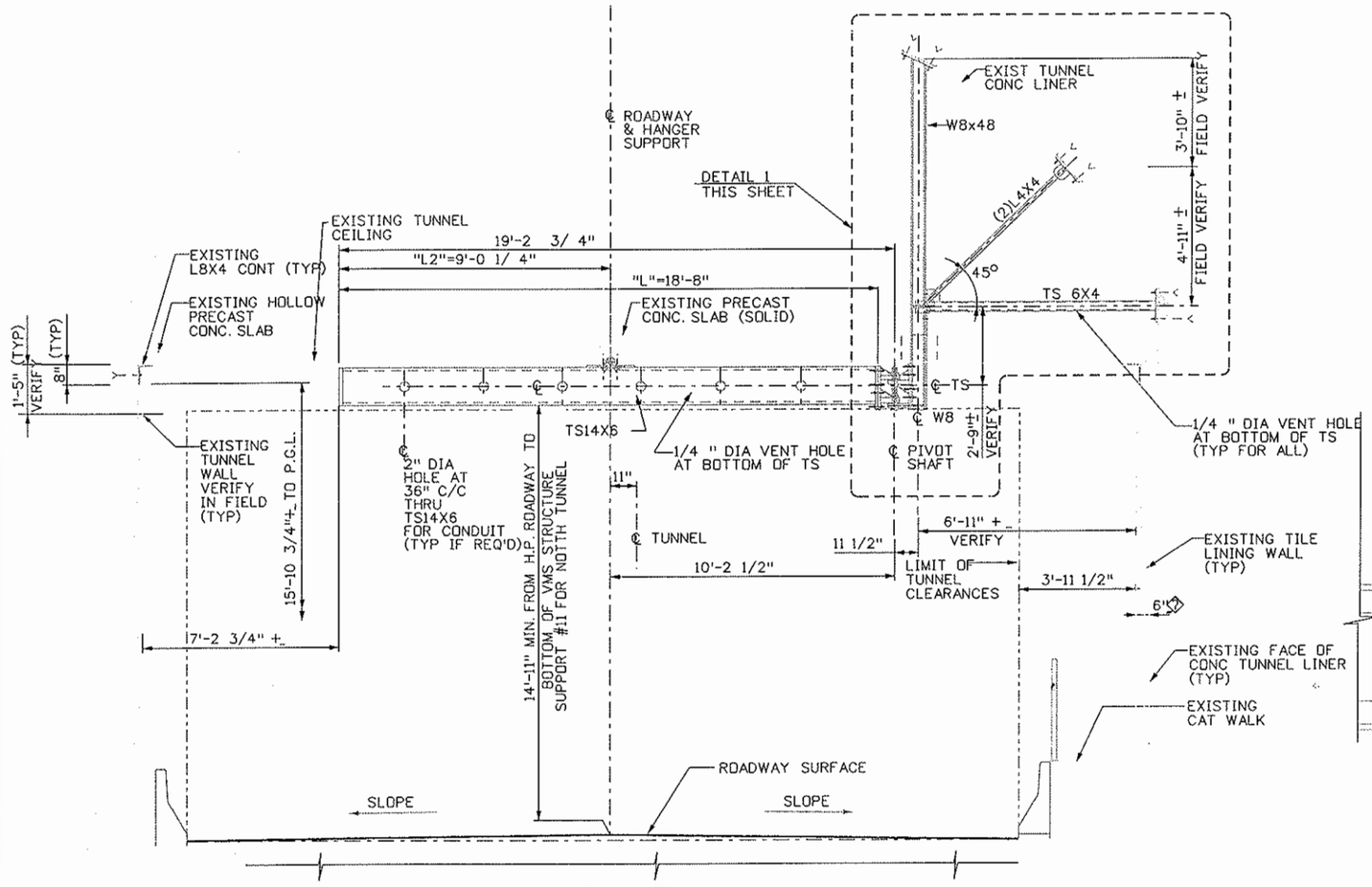
No Revisions:
Revised:
Void:

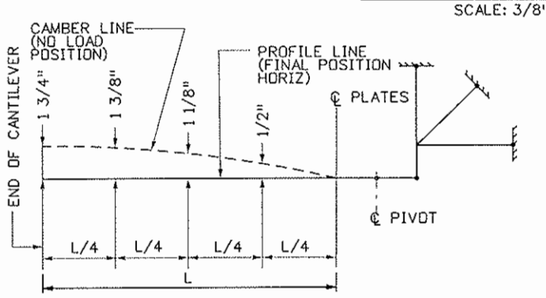
NORTH TUNNEL VMS SUPPORT PLANS AND SECTIONS

Designer: NHP		Structure Numbers	
Detailer: HCM			
Sheet Subset: VMS	Subset Sheets: 26 OF 46		

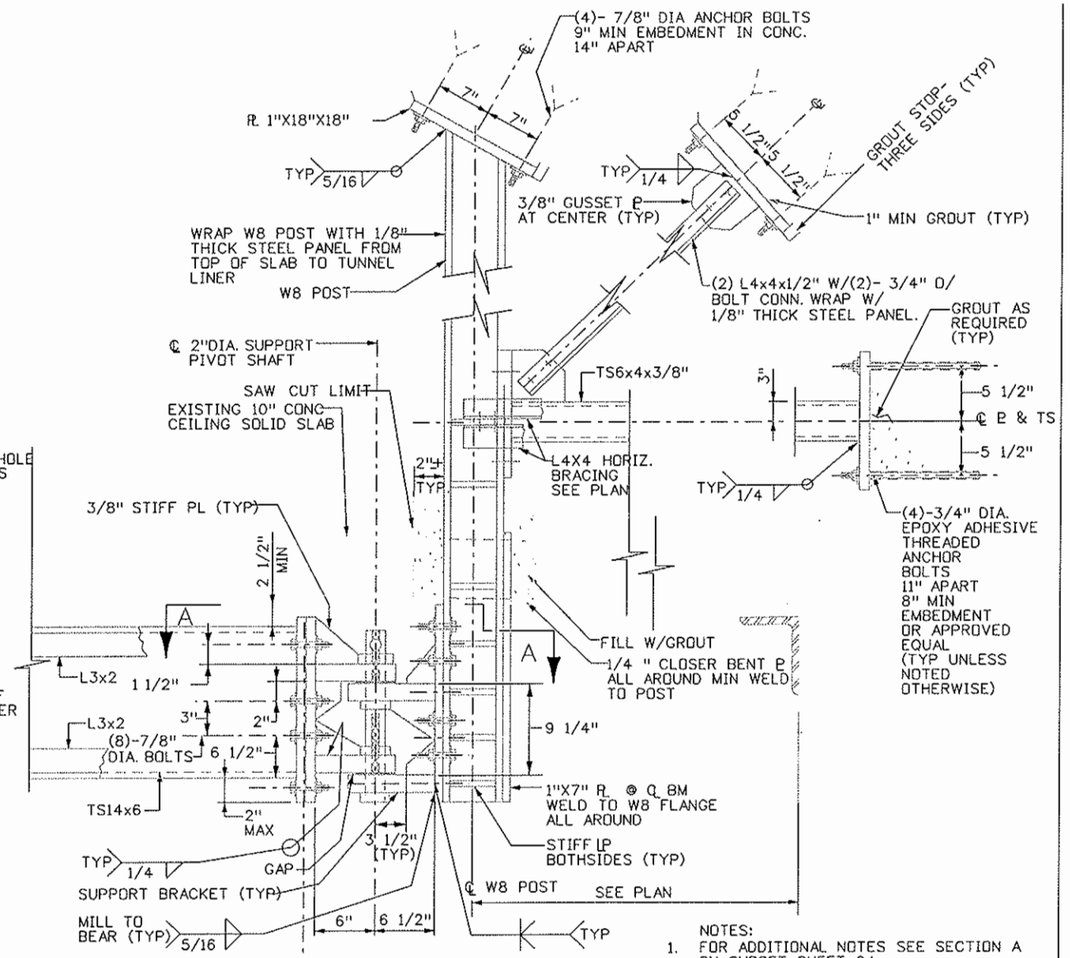
Project No./Code
IM 0703-269
13166
Sheet Number 157



ELEVATION
TUNNEL DOUBLE FACE VMS SIGN SUPPORT #11
NORTH TUNNEL - LOOKING EAST
SCALE: 3/8"=1'-0"

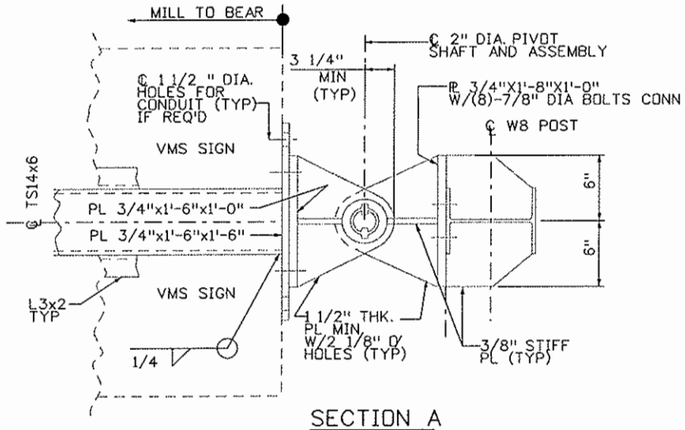


CAMBER DIAGRAM
TUBE SECTION
SCALE: NTS



DETAIL 1
SCALE: NTS

NOTES:
1. FOR ADDITIONAL NOTES SEE SECTION A ON SUBSET SHEET 24.
2. THICKNESS OF TOP BEARING PAD SHALL BE 1/16" THICKER THAN BOTTOM PAD FOR OPERATIONAL GAP.
3. SEE NOTE # "H" ON SUBSET SHEET 24.
4. REMOVE AND RELOCATE ALL OBSTRUCTION WITH APPROVAL OF ENGINEER AT NO ADDITIONAL COST.



SECTION A
SCALE: NTS

NOTES:

A. FOR STRUCTURAL NOTES, SEE VMS SUBSET SHEET 22, 23 & 24.
B. WORK THIS SHEET WITH SUBSET SHEET 26.

Computer File Information			
Creation Date:	11/15/00	Initials:	HCM
Last Modification Date:	2/04/02	Initials:	DJR
Full Path:	14102\700CADD\713TRA\		
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Acad Ver.	R14	Scale: AS NOTED	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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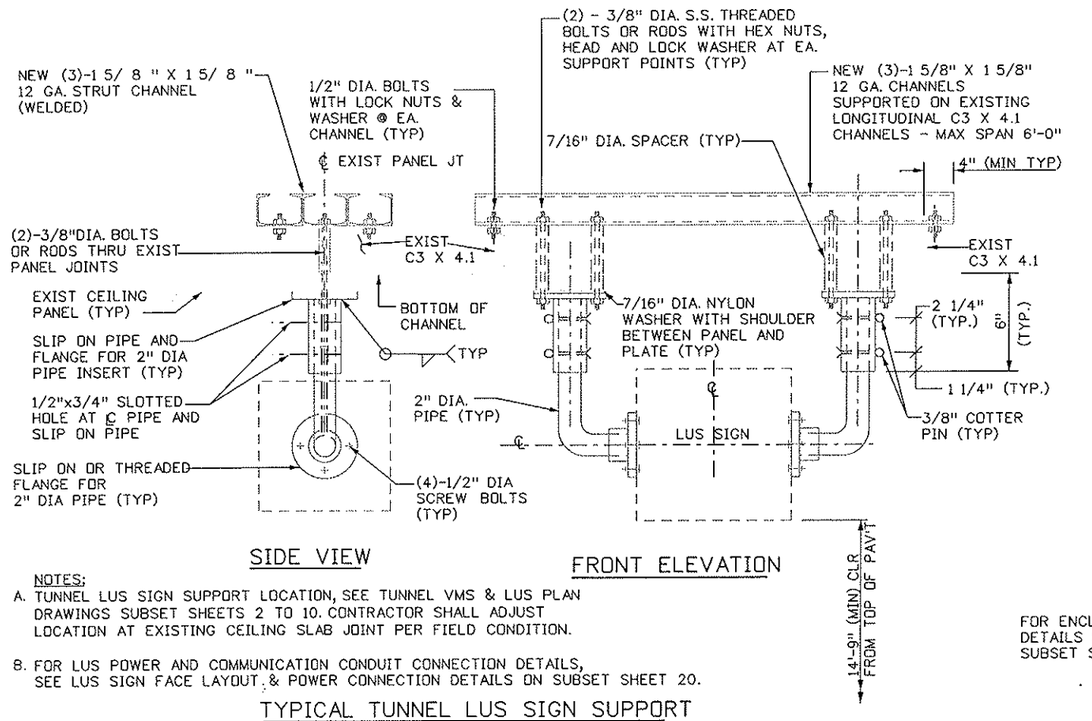
No Revisions:
Revised:
Void:

NORTH TUNNEL VMS SUPPORT ELEVATION AND DETAILS

Designer: NHP
Detailer: HCM
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 27 of 46

Project No./Code: IM 0703-269
13166
Sheet Number 158

Design File Name: DGN$SPEC#
Plot File Name: $PLOTFILE#
Date of Plot: $$$$DATE$$$$



NOTES:

A. TUNNEL LUS SIGN SUPPORT LOCATION, SEE TUNNEL VMS & LUS PLAN DRAWINGS SUBSET SHEETS 2 TO 10. CONTRACTOR SHALL ADJUST LOCATION AT EXISTING CEILING SLAB JOINT PER FIELD CONDITION.

B. FOR LUS POWER AND COMMUNICATION CONDUIT CONNECTION DETAILS, SEE LUS SIGN FACE LAYOUT & POWER CONNECTION DETAILS ON SUBSET SHEET 20.

TYPICAL TUNNEL LUS SIGN SUPPORT

(AT STA. 137 +72 ◇)

SCALE: NTS

NOTES:

A. REMOVAL OF CONCRETE AND CUTOUT PANELS FOR BLOCKOUT TO BE IN ACCORDANCE WITH CDOT SPEC. SECTION 202. THE PERIMETER OF THE BLOCKOUT SHALL BE SAWED TO A MINIMUM OF 3 INCHES BEFORE REMOVING CONCRETE. DO NOT CUT OR REMOVE EXISTING CONDUIT PIPES OR REINFORCEMENT. WATERPROOFING SEALANT SHALL BE APPLIED TO ALL CURED CONCRETE TUNNEL SURFACES AND TILE PANEL SURFACES/EDGES.

B. NOT USED.

C. WORK ASSOCIATED FOR THE CONTROLLER CABINET SHALL BE COORDINATED WITH SHEET # 29.

D. CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN AND PROVIDE PROPER ANCHORING OF GLAZED TILE PANEL TO EXISTING CONCRETE TUNNEL LINER AFTER CUTOUT OF THE TILE PANEL. PROVIDE TEMPORARY SUPPORT TO GLAZED TILE PANEL AT THE TIME OF CUTOUT. FOR DESIGN PARAMETERS AND CONNECTION DETAILS (SIM.) SEE EXISTING PANEL REPLACEMENT PROJECT DRAWINGS FOR NORTH TUNNEL, PREPARED BY PARSONS DE LEUW, INC. 1993. ALL PANEL CUTOUT AND SUPPORT SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

E. FOR CONTROLLER CABINET LOCATION, SEE SHEET 2 THRU 10.

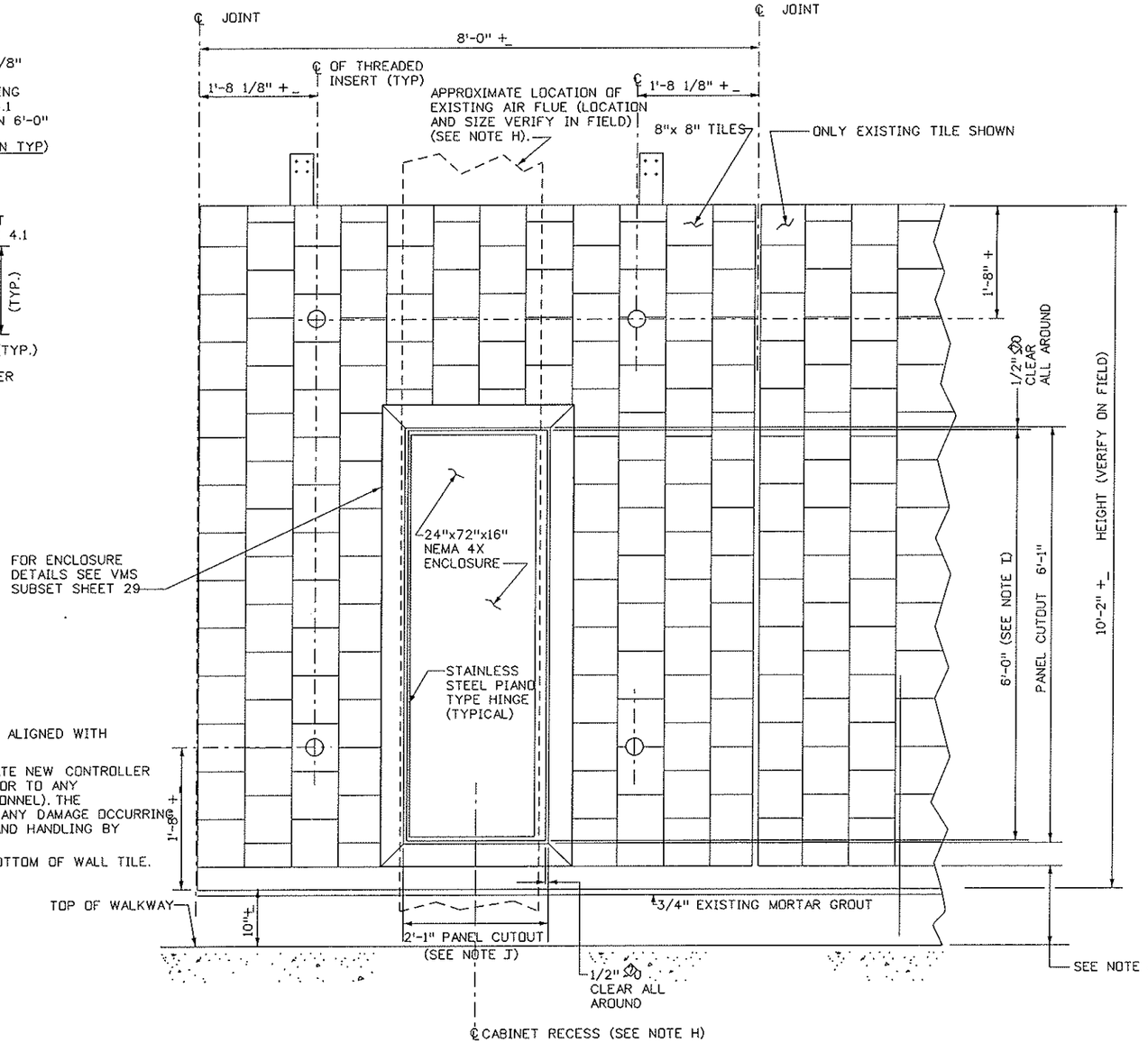
F. NOT USED.

G. COST OF REMOVAL OF CONCRETE, CUT OUT OF EXISTING GLAZED TILE PANELS, SECURING TILE PANELS WITH NEW ADDITIONAL ANCHORING. PLUGGING FLUES, SHELF, INSTALLATION OF COMPLETE CONTROL CABINET, WATER PROOFING, SEALING, MISC. STEEL, SHIMS, REINFORCEMENT, MORTAR JOINTS AND RELATED MISC. ITEMS ARE INCLUDED IN THE COST OF CONTROL CABINET PAY ITEMS.

H. CENTERLINE OF CONTROL CABINET TO BE ALIGNED WITH CENTERLINE OF AIR FLUE.

I. WALL PANELS TO BE CUT TO ACCOMMODATE NEW CONTROLLER CABINET. PANELS SHALL BE REMOVED PRIOR TO ANY MODIFICATIONS, (REMOVAL BY CDOT PERSONNEL). THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE OCCURRING TO TILE PANELS DURING MODIFICATION AND HANDLING BY CONTRACTOR.

J. ALIGN BOTTOM EDGE OF FLANGE WITH BOTTOM OF WALL TILE.



ELEVATION NORTH TUNNEL-SOUTH WALL

CUTOUT GLAZED TILE PANELS FOR RECESS OF CONTROLLER CABINET

SCALE: NTS

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Plot File Name: $PLOTFILE$
Date of Plot: $$$$DATE$$$$

Computer File Information			
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Last Modification Date:	2/04/02	Initials:	DJR
FullPath:	14102\700CADD\713TRA\		
Drawing File Name:	SGP26.N.PLT		
Acad Ver.	R14	Scale: AS NOTED	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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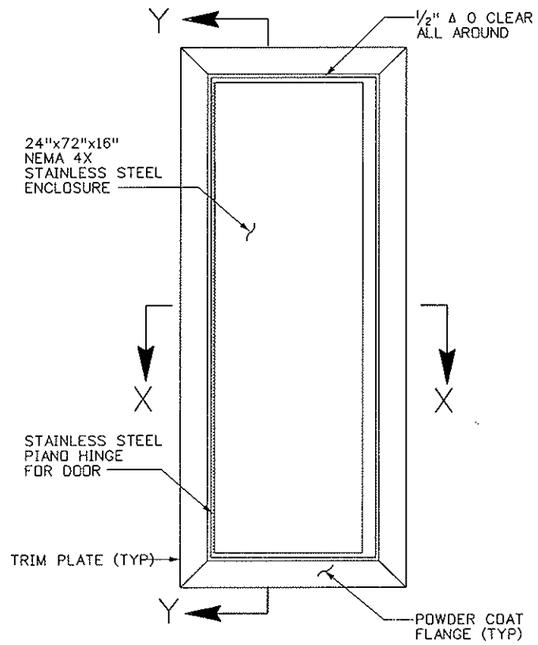
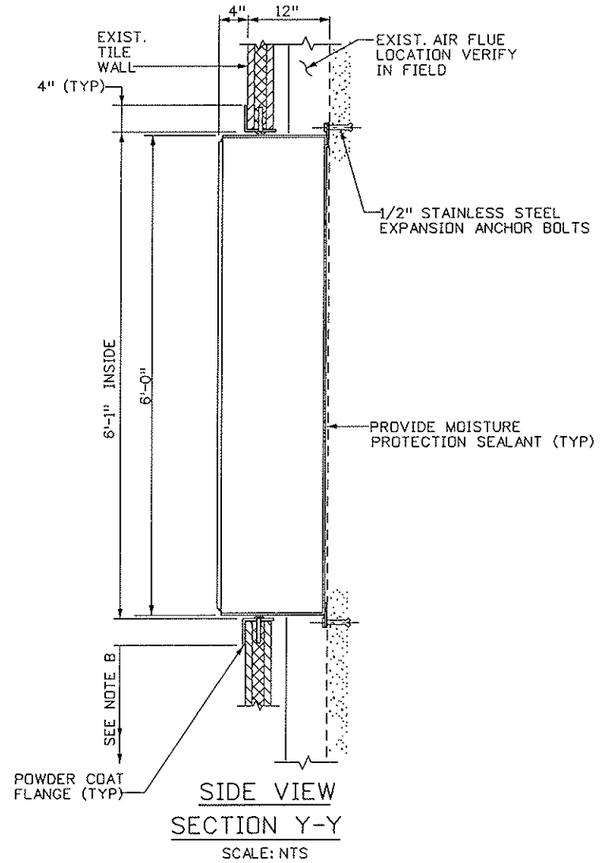
Revised:	
Void:	

NORTH TUNNEL CONTROLLER CABINET- ELEVATION			
Designer: NHP	Structure Numbers		
Detailer: HCM			
Sheet Subset: VMS	Subset Sheets:	28 OF	46

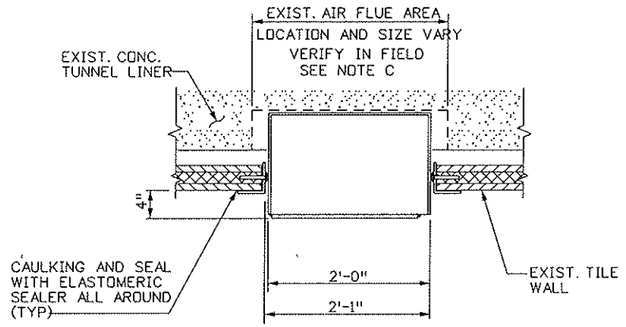
Project No./Code	
IM 0703-269	
13166	
Sheet Number	159



FRONT VIEW
CONTROLLER CABINET
SCALE: NTS



SIDE VIEW
SECTION Y-Y
SCALE: NTS



SECTION X-X
SCALE: NTS

NOTES:

A. ALL AFFECTED AIR VENTILATION FLUES WILL BE PLUGGED WITH 4" THICK ELASTOMERIC COMPRESSION SEAL OR APPROVED EQUAL WATERTIGHT PLUG SEAL IN THE AIR FLUE AREA. ALL PLUGGED MATERIAL WILL BE SUPPORTED BY STEEL BENT PLATE OR ANGLE ATTACHED TO EXISTING CONCRETE SURFACE. PROVIDE PLUGGING DETAILS WITH LAYOUT PLAN TO THE ENGINEER FOR APPROVAL. PLUGGING FLUES WILL NOT BE PAID FOR SEPARATELY BUT IT WILL BE INCLUDED IN THE COST OF THE CONTROLLER CABINET WORK.

B. FOR MOUNTING HEIGHT ABOVE WALKWAY SEE SUBSET VMS SHEET NO. 28

C. CHIPPING OUT OF CONCRETE AT FLUE LOCATION IS REQUIRED AT LOCATIONS TO BE DETERMINED IN THE FIELD. SEE SPECIAL PROVISION 614.1530

Computer File Information			
Creation Date:	11/15/00	Initials:	HCM
Last Modification Date:	03/06/07	Initials:	DJR
Full Path:	14102\800Deliv\AsBuilt\		
Drawing File Name:	SGP27N		
Acad Ver.	R14	Scale: AS NOTED	Units: ENGLISH

Sheet Revisions		
07/03/07	ASBUILT	DJB

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Phone: 303-512-5750 FAX: 303-512-5775
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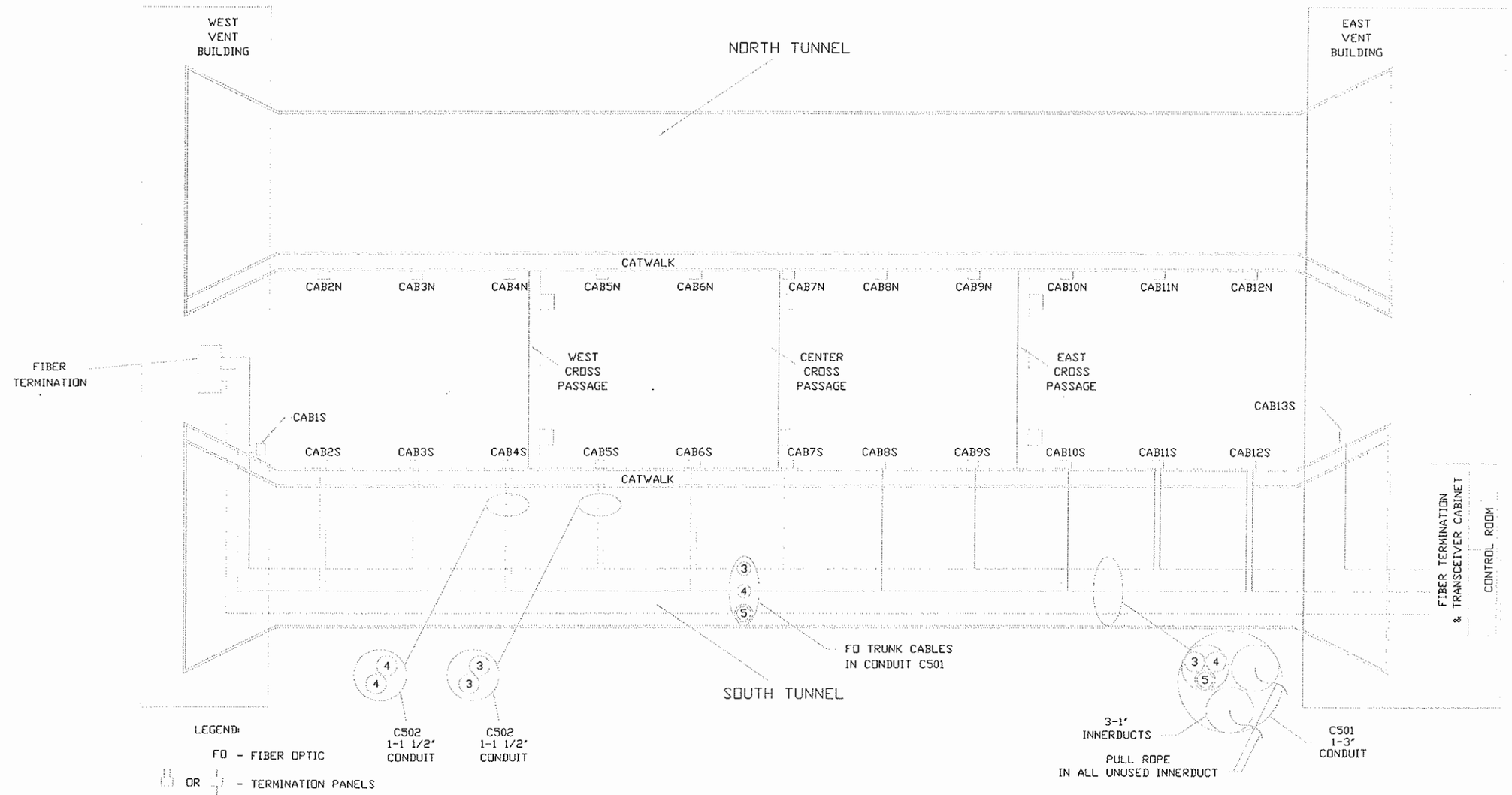
No Revisions:
Revised:
Void:

NORTH TUNNEL
CONTROLLER CABINET DETAILS

Designer: NHP
Detailer: HCM
Sheet Subset: VMS
Structure Numbers:
Subset Sheets: 29 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 160



FOR REFERENCE ONLY

Design File Name: VMS-31.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	2/6/02	Initials:	PWM
Full Path:	VMS-31.DWG		
Drawing File Name:	VMS-31.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

Sheet Revisions

1	07/03/07 ASBUILT	DJB
2		
3		
4		
5		

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Region 1 Mountain Residency I.N.Z.

As Constructed

No Revisions:

Revised:

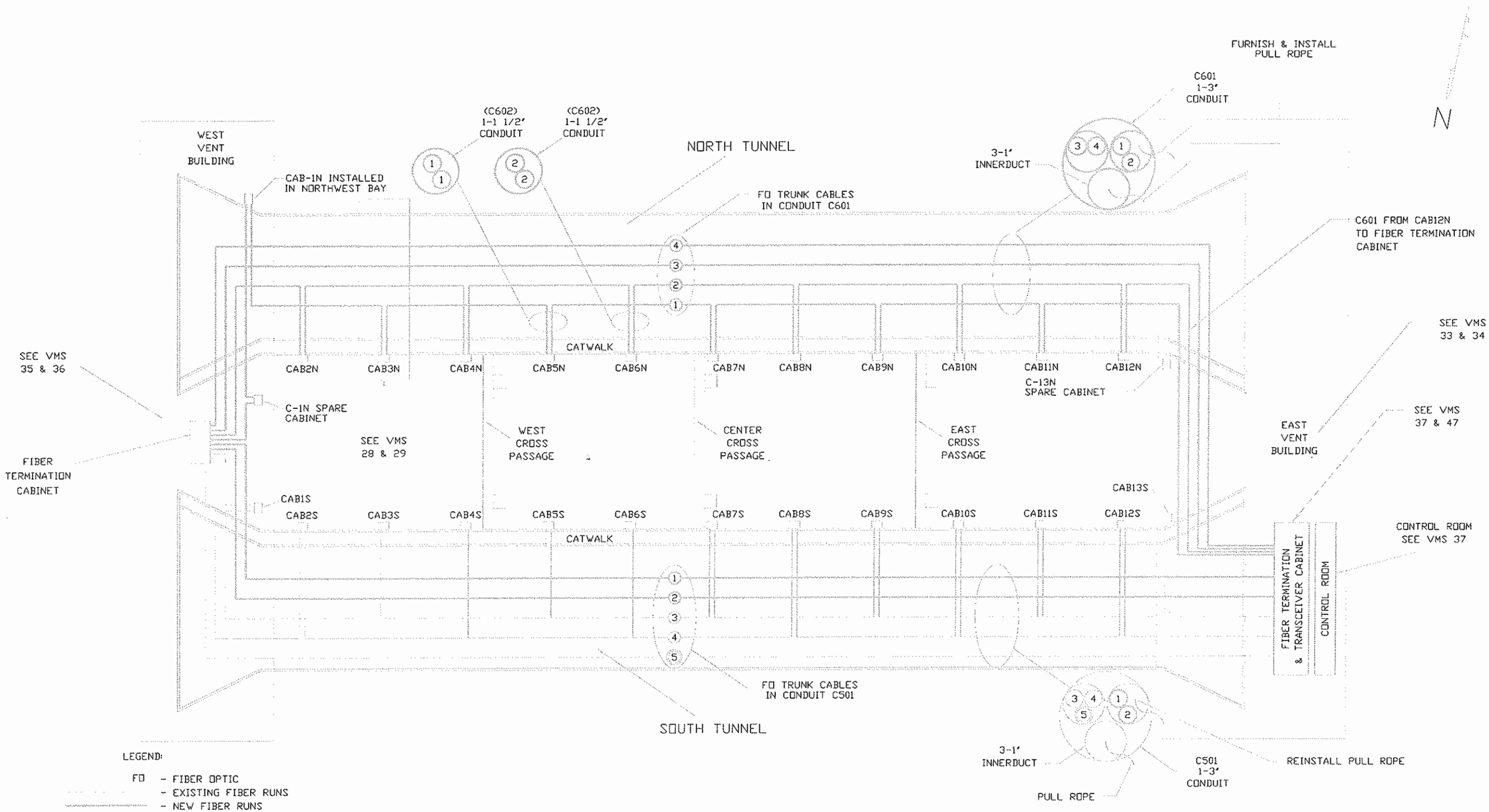
Void:

EXISTING VMS/LUS FIBER TRUNK

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Sheet Subset: VMS
Structure Numbers
Subset Sheets: 30 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 161



LEGEND:

FO - FIBER OPTIC
- EXISTING FIBER RUNS
- NEW FIBER RUNS

OR - TERMINATION PANELS

③ ④ - EXISTING 6-FIBER FO TRUNK CABLES

⑤ - EXISTING 12-FIBER FO TRUNK CABLE

① ② ③ ④ - NEW 6-FIBER FO TRUNK CABLES

CAB1N TO CAB13N, CAB1S TO CAB13S - CONTROLLER CABINETS

Design File Name: VMS-32.DWG
Plot File Name: ,
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	02/27/07	Initials:	PWM
Full Path:	VMS-32.DWG		
Drawing File Name:	VMS-32.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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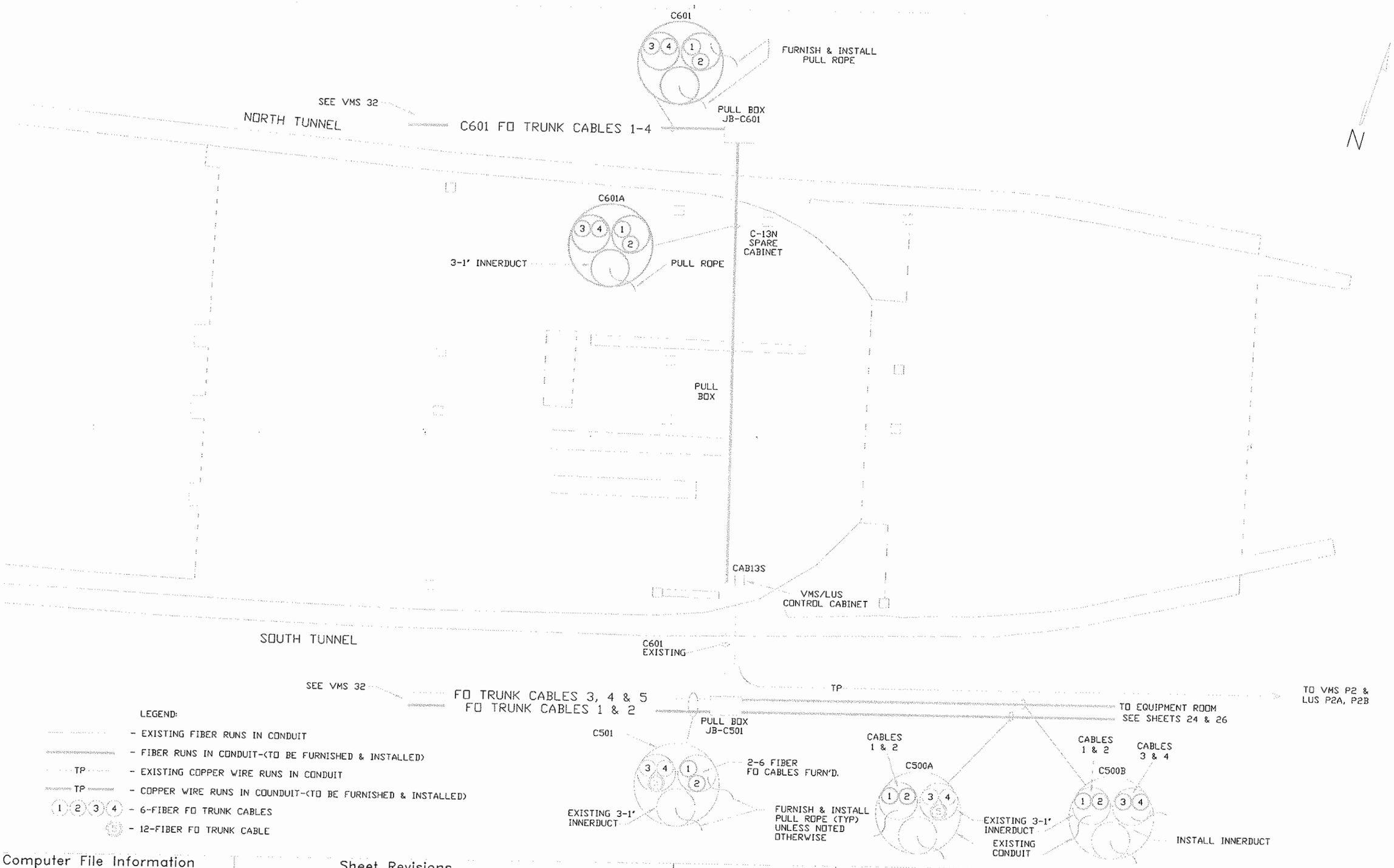
As Constructed
No Revisions:
Revised:
Void:

VMS/LUS FIBER TRUNK PLAN

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Sheet Subset: VMS
Structure Numbers
Subset Sheets: 31 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 162



Design File Name: VMS-33.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

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Last Modification Date:	02/27/07	Initials:	PWM
Full Path:	VMS-33.DWG		
Drawing File Name:	VMS-33.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

Sheet Revisions

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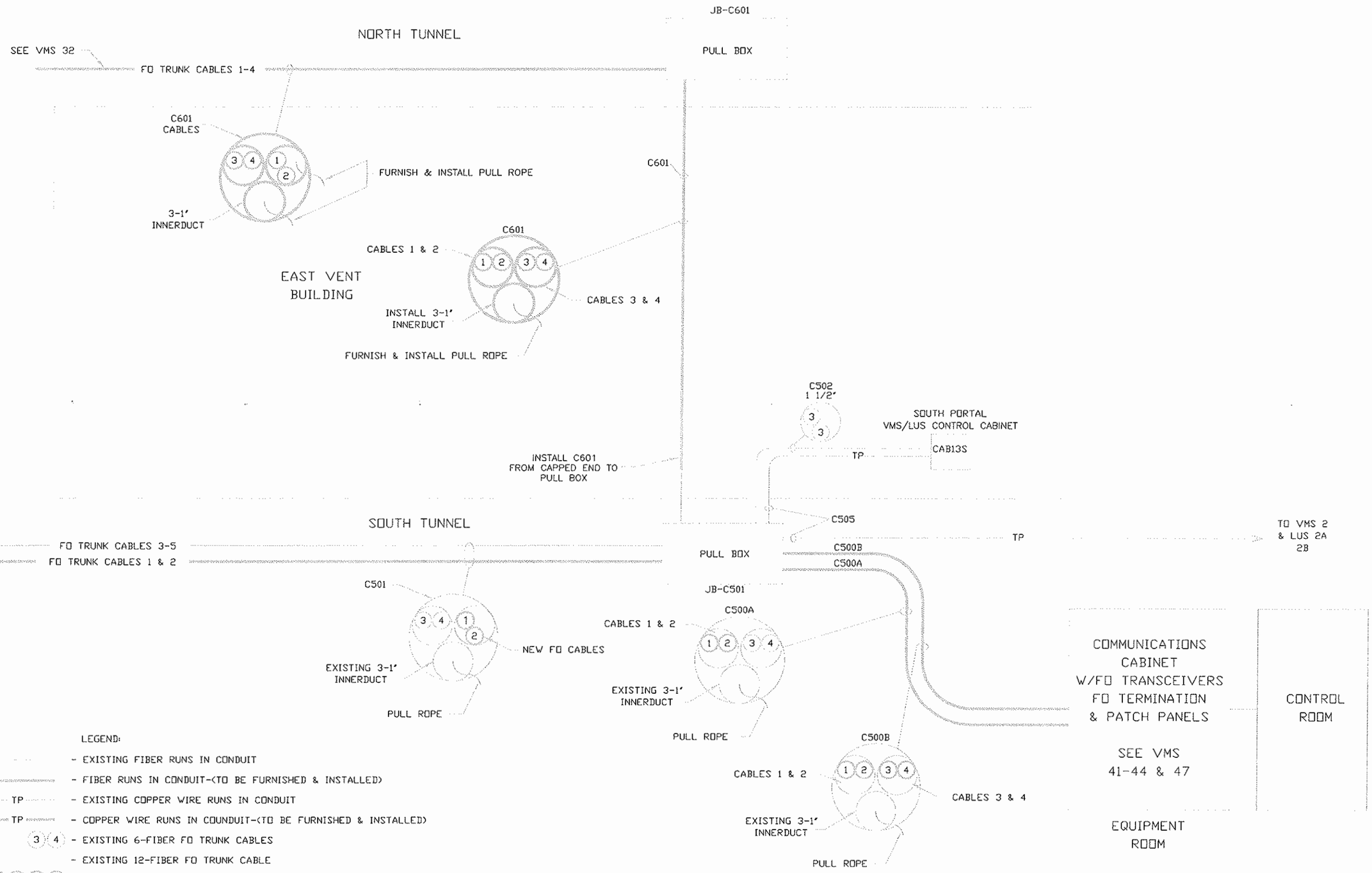
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

EAST VENT BUILDING VMS/LUS CABLE PLAN

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 32 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 163



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Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	02/27/07	Initials:	PWM
Full Path:	VMS-34.DWG		
Drawing File Name:	VMS-34.DWG		

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As Constructed

No Revisions:

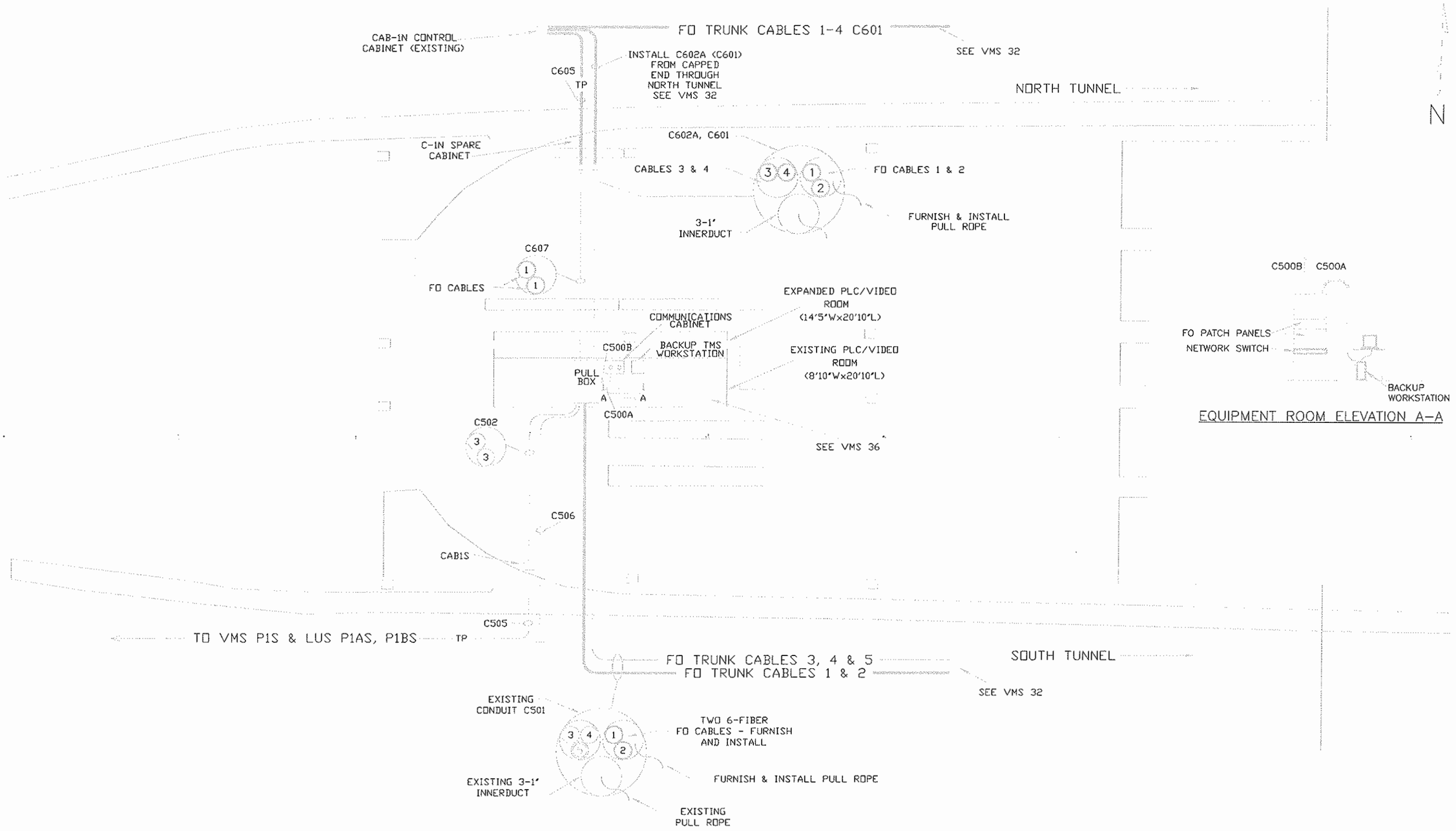
Revised:

EAST VENT BUILDING VMS/LUS CABLING DETAIL

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Structure Numbers

Project No. IM 0703-13166

Sheet 164



Design File Name: VMS-35.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	2/6/02	Initials:	PWM
Full Path:	VMS-35.DWG		
Drawing File Name:	VMS-35.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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No Revisions:

Revised:

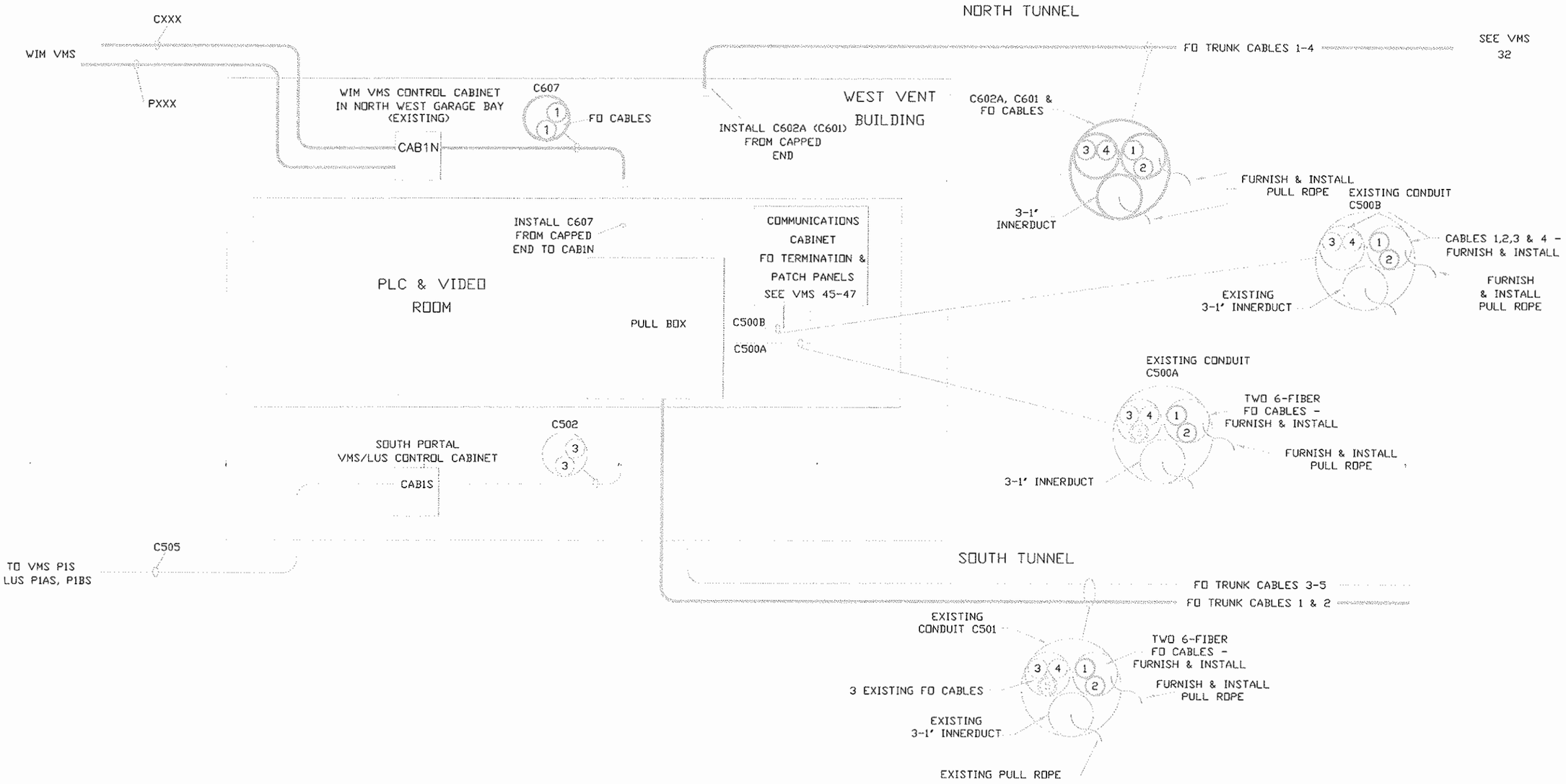
Void:

WEST VENT BUILDING VMS/LUS CABLE RUNS

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 34 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 165



LEGEND

- EXISTING FIBER RUNS IN CONDUIT
- FIBER RUNS IN CONDUIT (TO BE FURNISHED & INSTALLED)
- EXISTING COPPER WIRE RUNS IN CONDUIT
- COPPER WIRE RUNS IN CONDUIT (TO BE FURNISHED & INSTALLED)
- (3)(4) EXISTING 6-FIBER FO TRUNK CABLES
- EXISTING 12-FIBER FO TRUNK CABLE
- (1)(2)(3)(4) NEW 6-FIBER FO TRUNK CABLES

Design File Name: VMS-36.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	02/27/07	Initials:	PWM
Full Path:	VMS-36.DWG		
Drawing File Name:	VMS-36.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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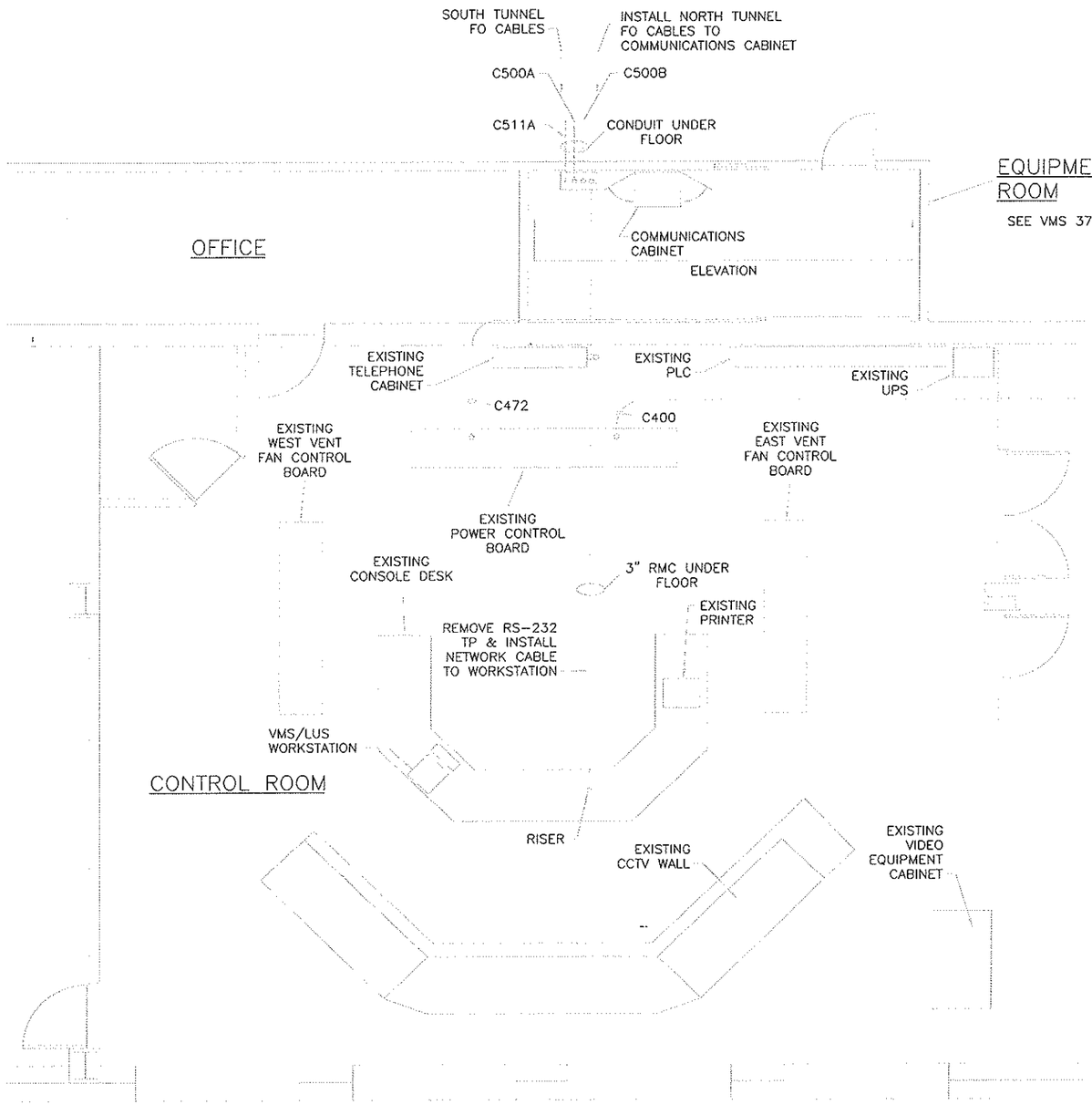
Revised:

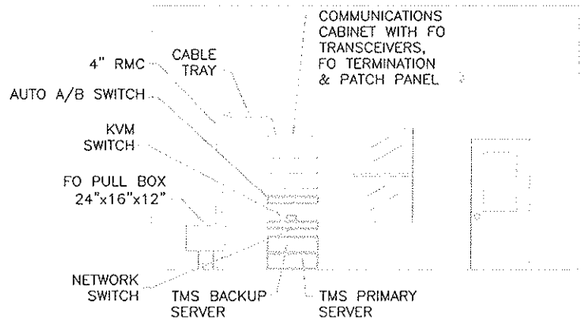
Void:

WEST VENT BUILDING VMS/LUS CABLING DETAILS

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 35 OF 46

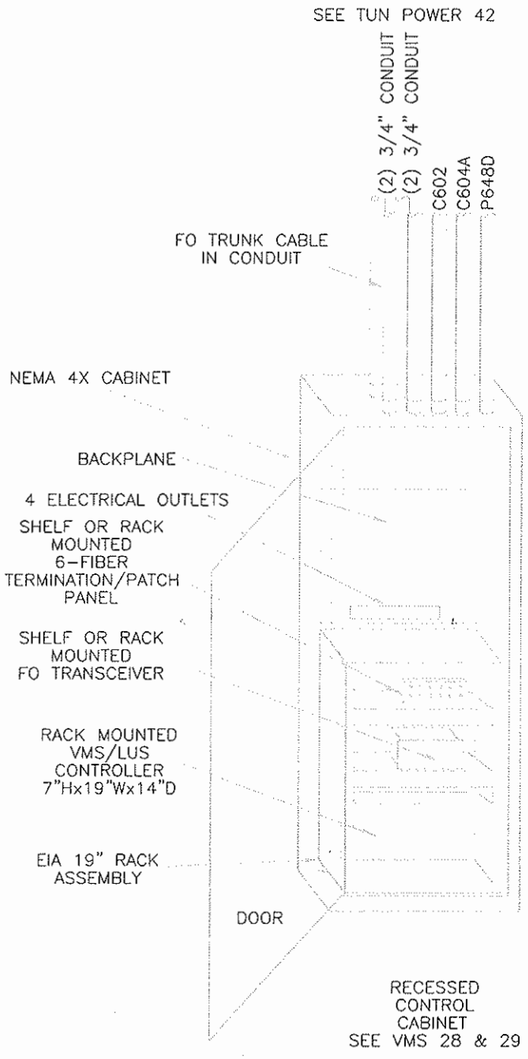
Project No./Code
IM 0703-269
13166
Sheet Number 166



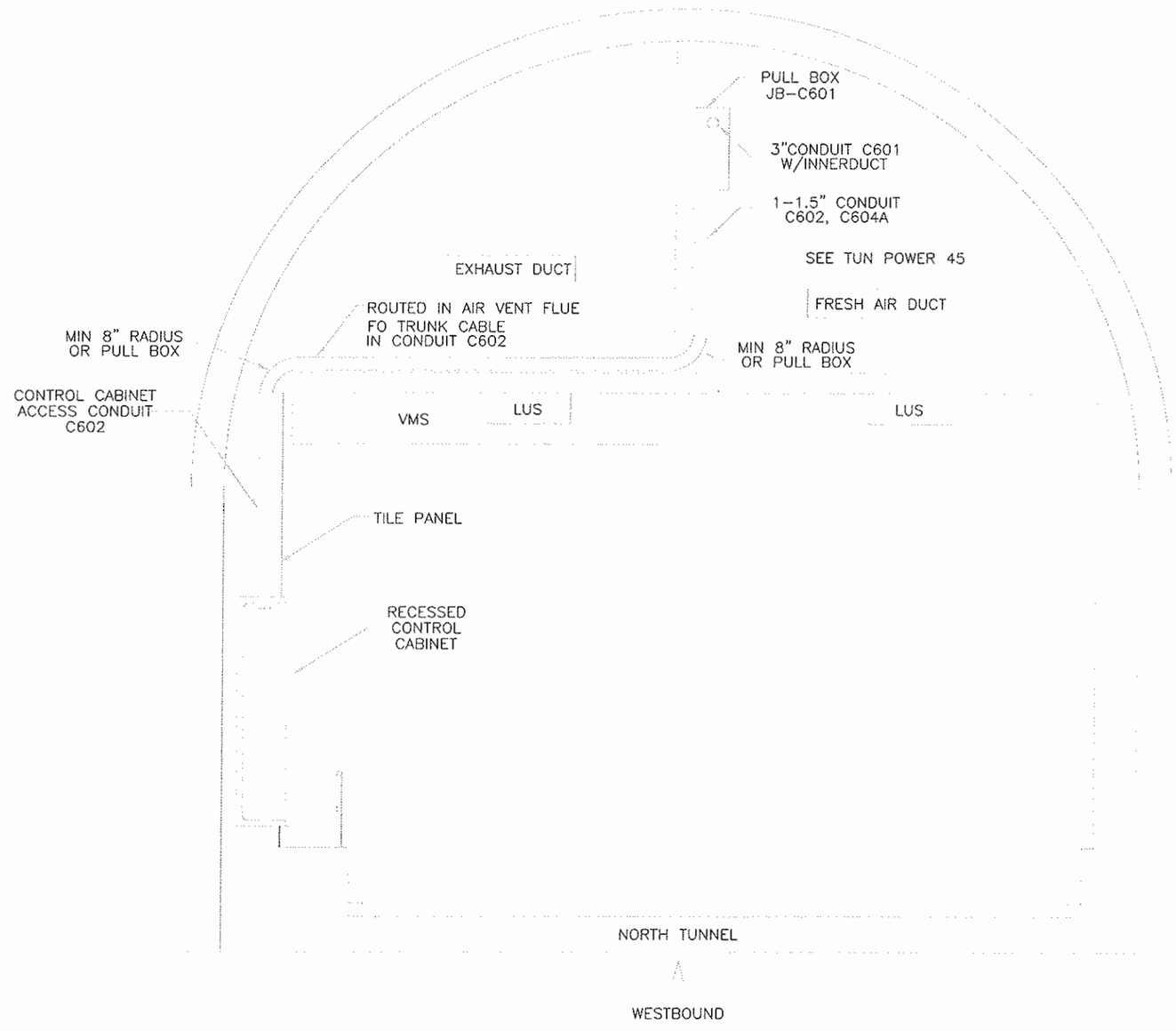


EQUIPMENT ROOM ELEVATION

NOTE:
1. SEE VB ELECT SUBSET SHEET 17 FOR RELATED ELECTRICAL MODIFICATIONS IN EAST VENT BUILDING CONTROL ROOM.
2. ALL EQUIPMENT SHAL BE RACK MOUNTED.



LEGEND:
FO - FIBER OPTIC



Design File Name: VMS-38.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	03/06/07	Initials:	PWM
Full Path:	VMS-38.DWG		
Drawing File Name:	VMS-38		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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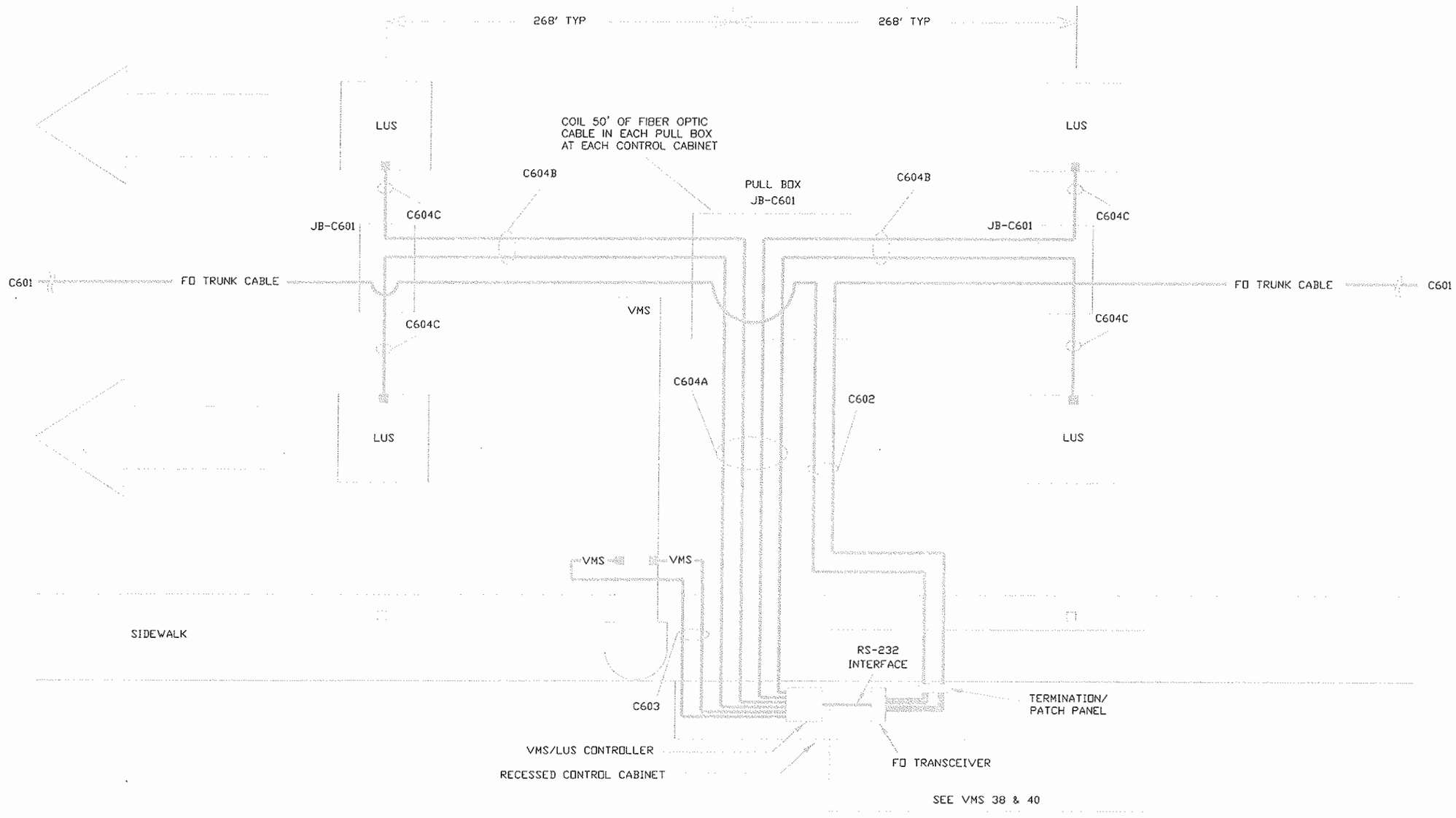
As Constructed
No Revisions:
Revised:
Void:

VMS/LUS CONTROL CABINET LAYOUT

Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 37 OF 46

Project No./Code
IM 0703-269
13166
Sheet Number 168



TYPICAL TUNNEL POWER AND CONTROL DIAGRAMS

SEE TUN POWER 42

LEGEND:

FO - FIBER OPTIC

▨ - DEVICE INTERFACE

Design File Name: VMS-39.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	2/6/02	Initials:	PWM
Full Path:	VMS-39.DWG		
Drawing File Name:	VMS-39.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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NORTH TUNNEL VMS/LUS CONTROL CIRCUIT

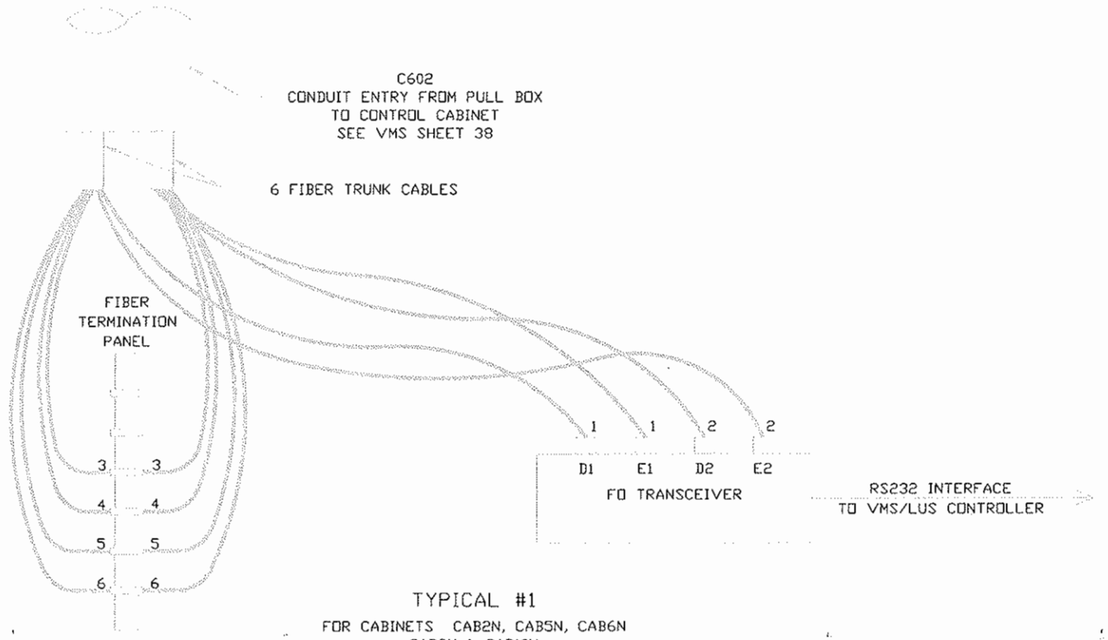
Designer: J. MANCINELLI
Detailer: P. MEYDRECH
Sheet Subset: VMS

Structure Numbers

Subset Sheets: 38 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 169



TYPICAL #1

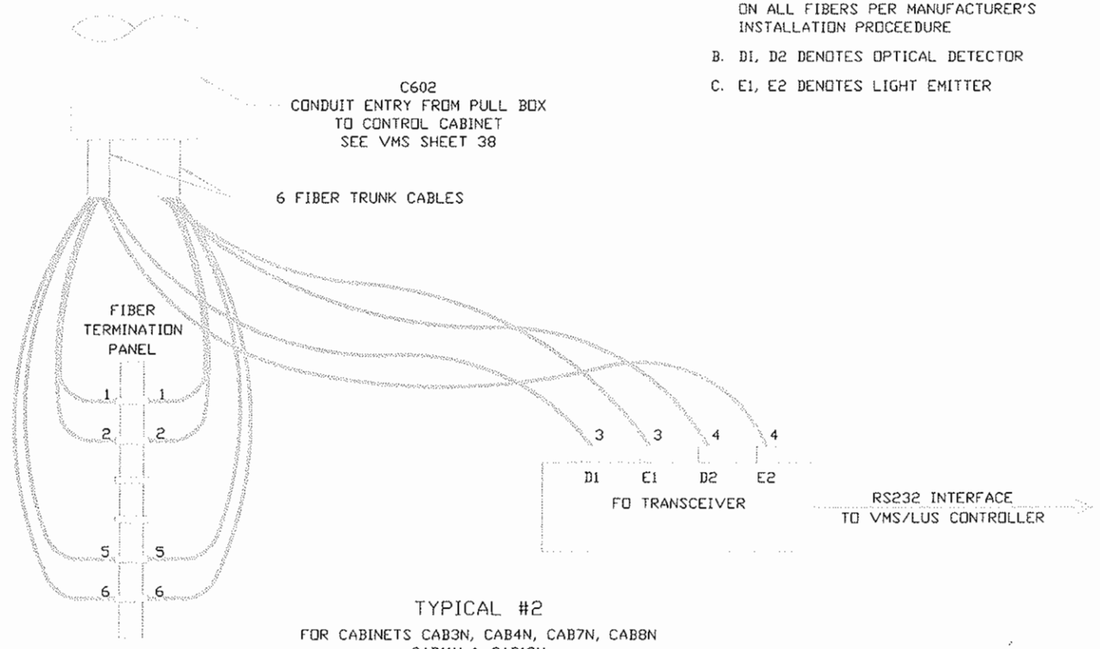
FOR CABINETS CAB2N, CAB5N, CAB6N
CAB9N & CAB10N

NOTES:

A. INSTALL BUFFERS AND ST CONNECTORS ON ALL FIBERS PER MANUFACTURER'S INSTALLATION PROCEEDURE

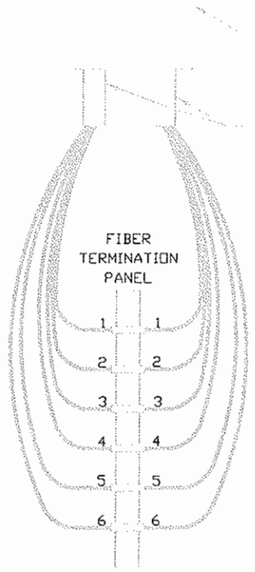
B. D1, D2 DENOTES OPTICAL DETECTOR

C. E1, E2 DENOTES LIGHT EMITTER



TYPICAL #2

FOR CABINETS CAB3N, CAB4N, CAB7N, CAB8N
CAB11N & CAB12N



TYPICAL #3

FOR CABINETS CAB1N

LEGEND:

FO - FIBER OPTIC

SEE VMS 39

Design File Name: VMS-40.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	07/14/99	Initials:	PWM
Last Modification Date:	02/27/07	Initials:	PWM
Full Path:	VMS-40.DWG		
Drawing File Name:	VMS-40.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

Sheet Revisions

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As Constructed

No Revisions:

Revised:

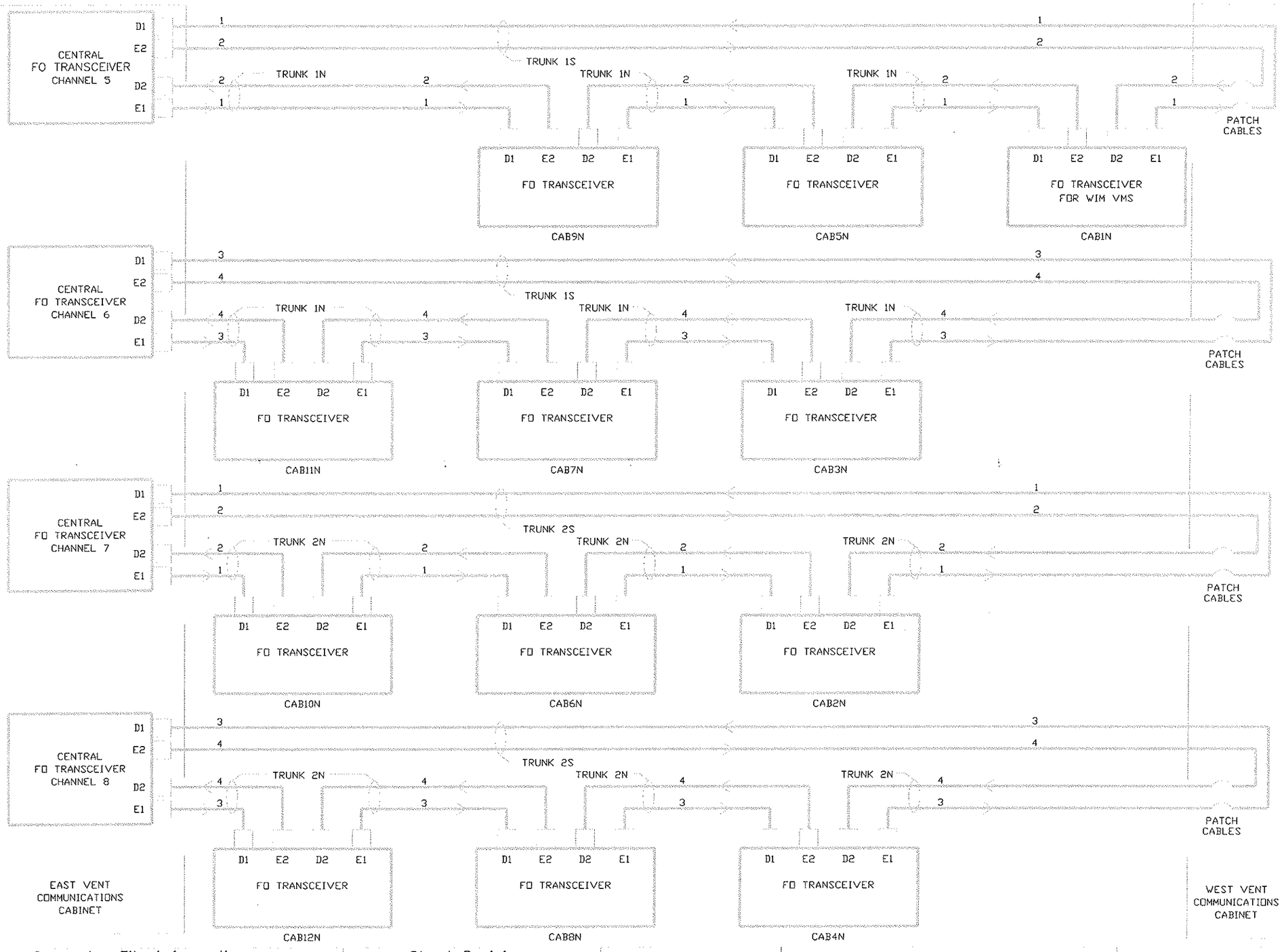
Void:

NORTH TUNNEL VMS/LUS FIBER TERMINATION DETAILS

Designer: D. EWAN
Detailer: P. MEYDRECH
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 39 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 170



NOTES:

1. DIRECTIONAL ARROWS DENOTE SIGNAL FLOW.
2. EACH TRUNK IS LABELED TO INDICATE THE SPECIFIC FIBERS FOR THE DESIGNATED CHANNEL.
3. SEE SHEETS 43 & 45 FOR COMMUNICATIONS CABINET WIRING.
4. ON ALL FO TRANSCEIVERS, D1 & E1 DENOTE-RING 1 AND D2 & E2 DENOTE-RING 2.

LEGEND:

FO - FIBER OPTIC

Design File Name: VMS-41.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	09/24/99	Initials:	PWM
Last Modification Date:	02/27/07	Initials:	PWM
Full Path:	VMS-41.DWG		
Drawing File Name:	VMS-41.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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Region 1 Mountain Residency I.N.Z.

As Constructed

No Revisions:

Revised:

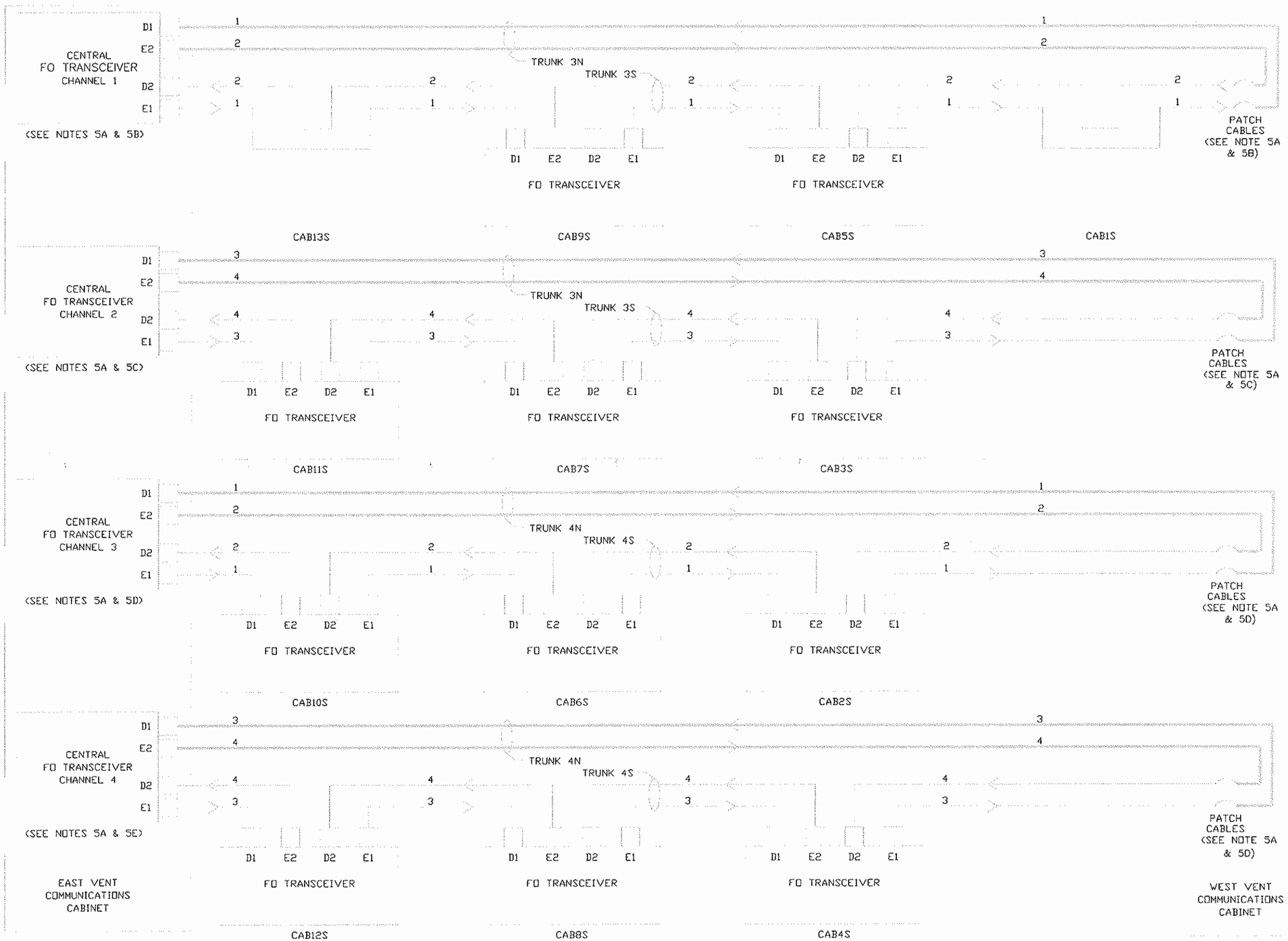
Void:

NORTH TUNNEL FO INTERCONNECT DETAIL

Designer: D.EWAN
Detailer: P. MEYDRECH
Structure Numbers
Sheet Subset: VMS
Subset Sheets: 40 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 171



NOTES:

1. DIRECTIONAL ARROWS DENOTE SIGNAL FLOW.
2. EACH TRUNK IS LABELED TO INDICATE THE SPECIFIC FIBERS TO BE USED FOR THE DESIGNATED CHANNEL.
3. SEE SHEETS 44 & 46 FOR COMMUNICATIONS CABINET WIRING.
4. ON ALL FO TRANSCEIVERS, D1 & E1 DENOTE-RING 1 AND D2 & E2 DENOTE-RING 2.
5. IN THE EAST & WEST VENT COMMUNICATIONS CABINETS.
   - A. DISCONNECT TRUNK 5 FROM CHANNELS 1-4
   - B. CONNECT TRUNK 3 FIBERS 1 & 2 FROM THE NORTH TUNNEL TO TRUNK 3 FIBERS 1 & 2 OF THE SOUTH TUNNEL.
   - C. CONNECT TRUNK 3 FIBERS 3 & 4 FROM THE NORTH TUNNEL TO TRUNK 3 FIBERS 3 & 4 OF THE SOUTH TUNNEL.
   - D. CONNECT TRUNK 4 FIBER 1 & 2 FROM THE NORTH TUNNEL TO TRUNK 4 FIBERS 1 & 2 OF THE SOUTH TUNNEL.
   - E. CONNECT TRUNK 4 FIBERS 3 & 4 FROM THE NORTH TUNNEL TO TRUNK 4 FIBERS 3 & 4 OF THE SOUTH TUNNEL.

LEGEND:

FO - FIBER OPTIC

Design File Name: VMS-42.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	09/24/99	Initials:	PWM
Last Modification Date:	2/6/02	Initials:	PWM
Full Path:	VMS-42.DWG		
Drawing File Name:	VMS-42.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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As Constructed

No Revisions:

Revised:

Void:

SOUTH TUNNEL FO INTERCONNECT DETAIL

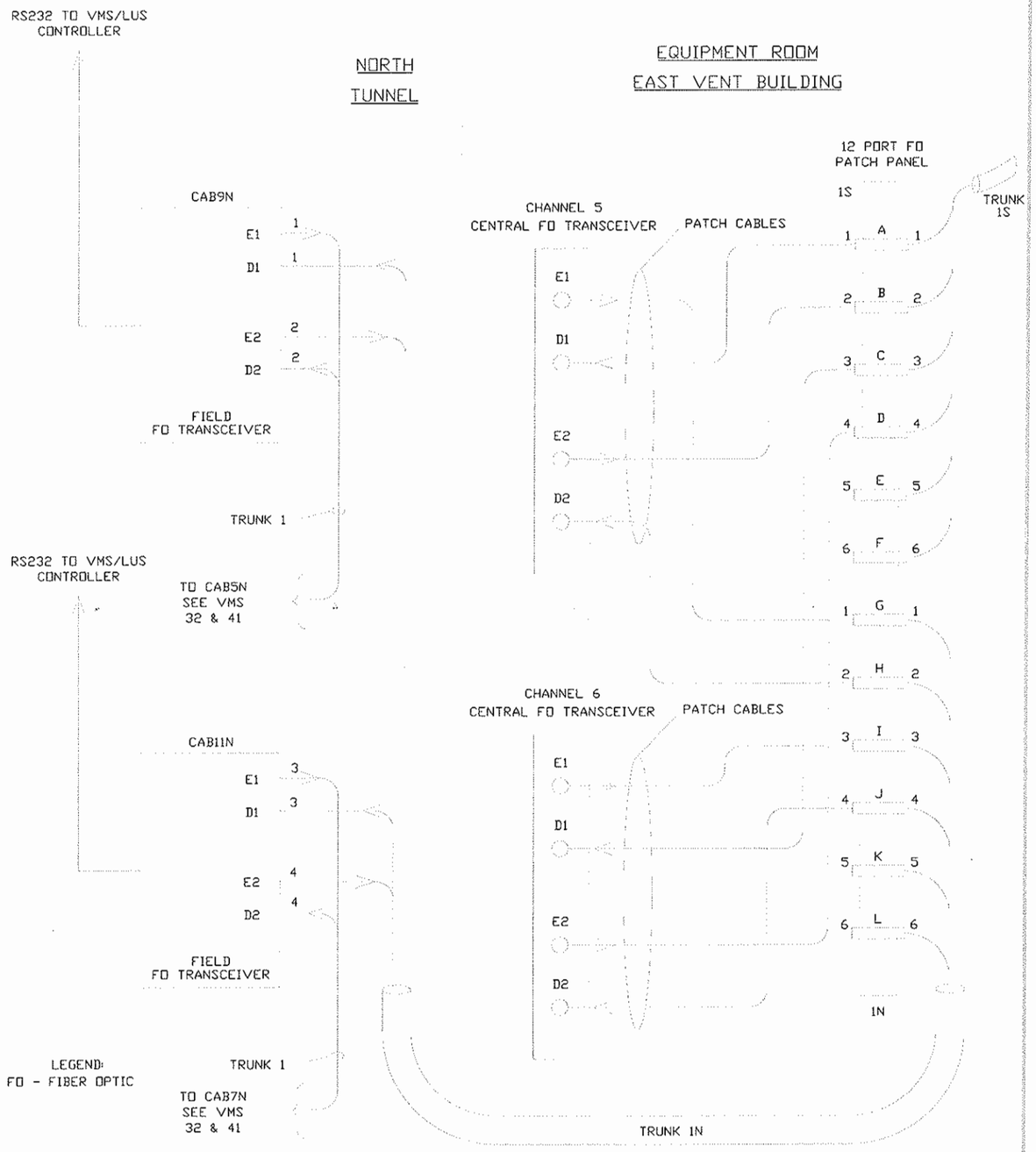
Designer: D.EWAN
Detailer: P. MEYDRECH
Sheet Subset: VMS

Structure Numbers

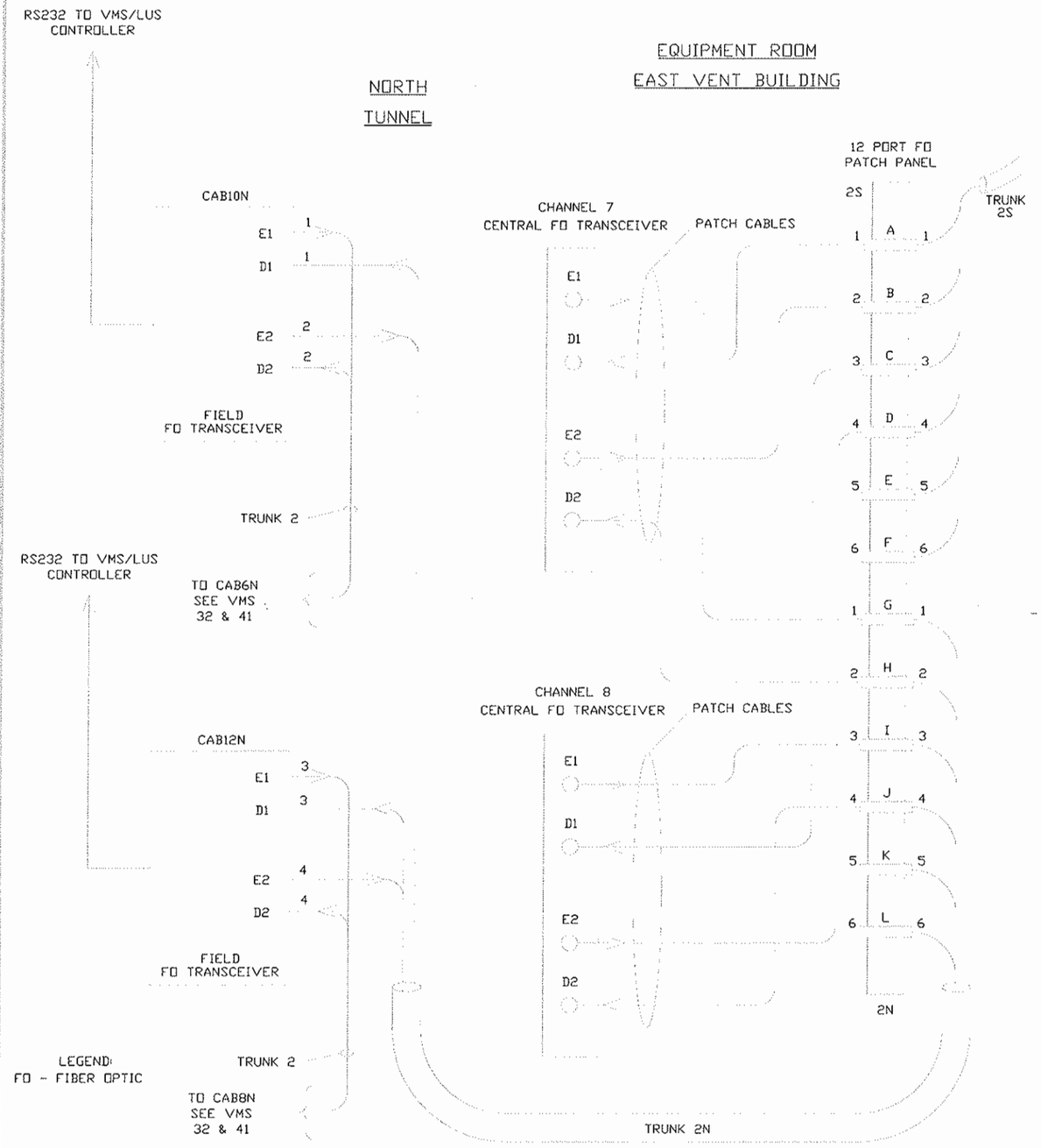
Subset Sheets: 41 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 172



PATCH PANEL & TRANSCEIVER INTERCONNECT
FOR TRUNK 1



PATCH PANEL & TRANSCEIVER INTERCONNECT
FOR TRUNK 2

Design File Name: VMS-43.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	08/21/99	Initials:	DE
Last Modification Date:	2/6/02	Initials:	JLM
Full Path:	VMS-43.DWG		
Drawing File Name:	VMS-43.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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No Revisions:
Revised:
Void:

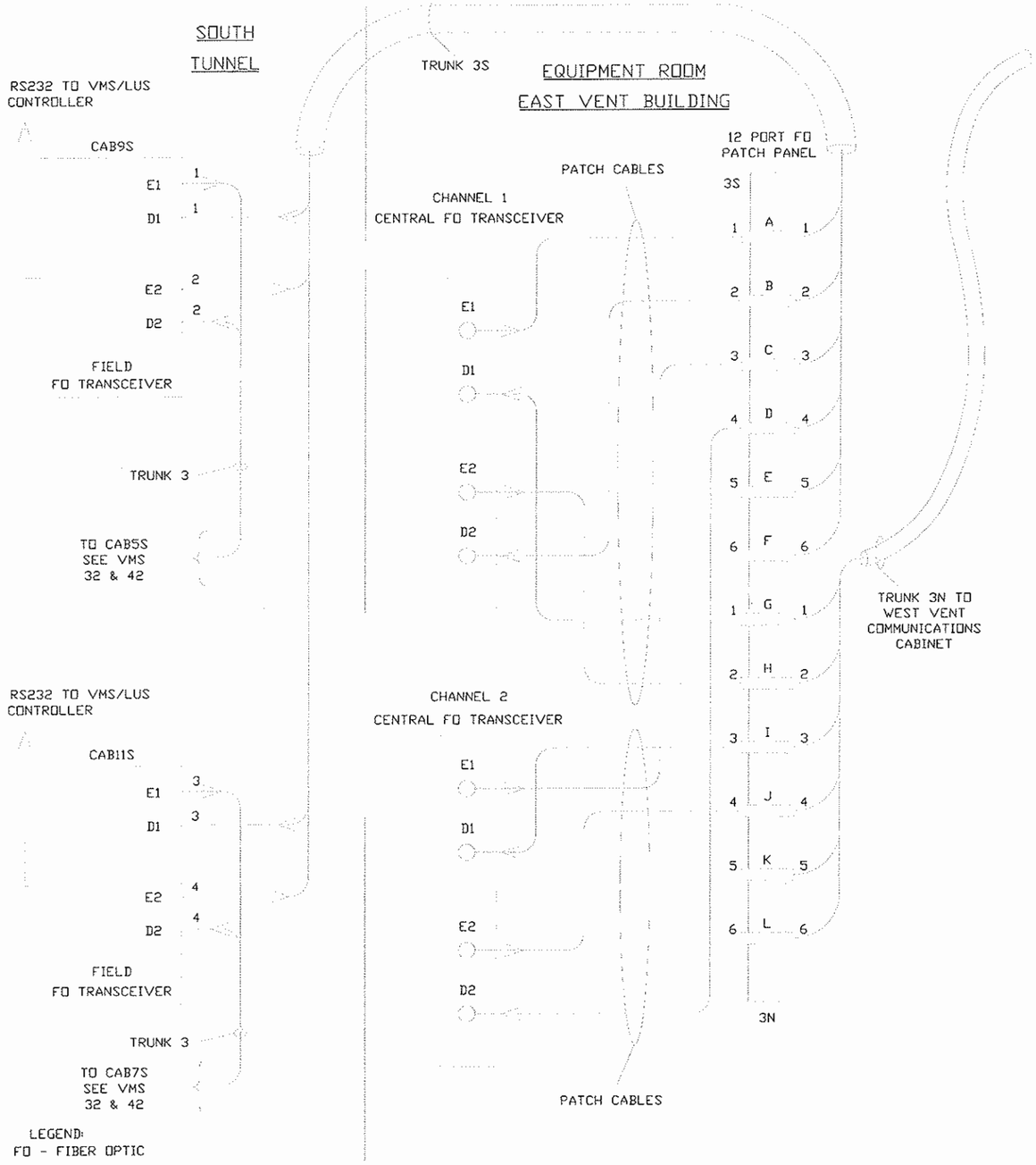
PATCH PANEL TO FO TRANSCEIVER INTERCONNECT

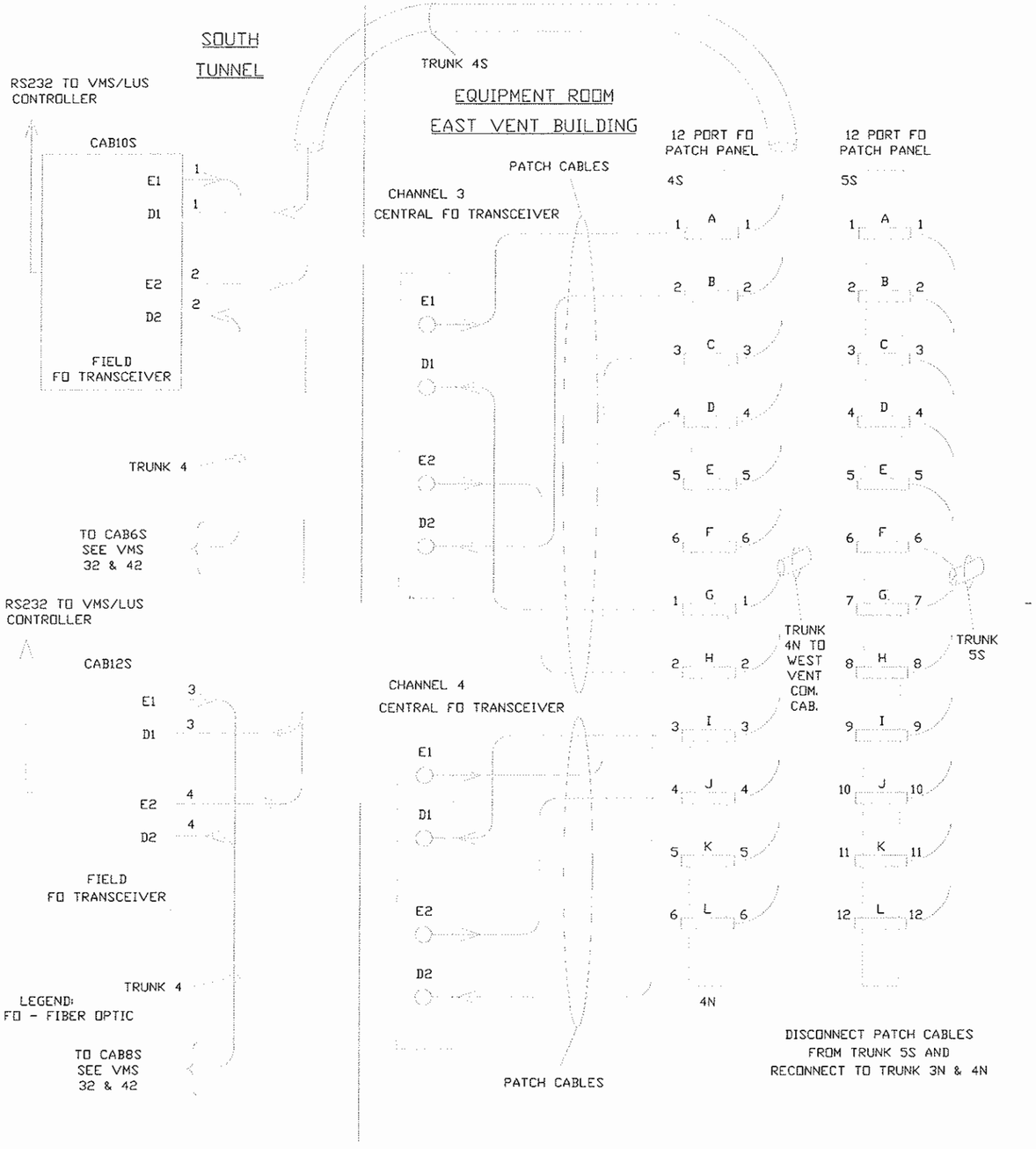
Designer: D. EWAN
Detailer: P. MEYDRECH
Sheet Subset: VMS

Structure Numbers
Subset Sheets: 42 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 173





PATCH PANEL & TRANSCEIVER INTERCONNECT MODIFICATION FOR TRUNK 3

PATCH PANEL & TRANSCEIVER INTERCONNECT MODIFICATION FOR TRUNK 4

Design File Name: VMS-44.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	08/21/99	Initials:	DE
Last Modification Date:	2/6/02	Initials:	JLM
Full Path:	VMS-44.DWG		
Drawing File Name:	VMS-44.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

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As Constructed
No Revisions:
Revised:
Void:

PATCH PANEL TO FO TRANSCEIVER INTERCONNECT

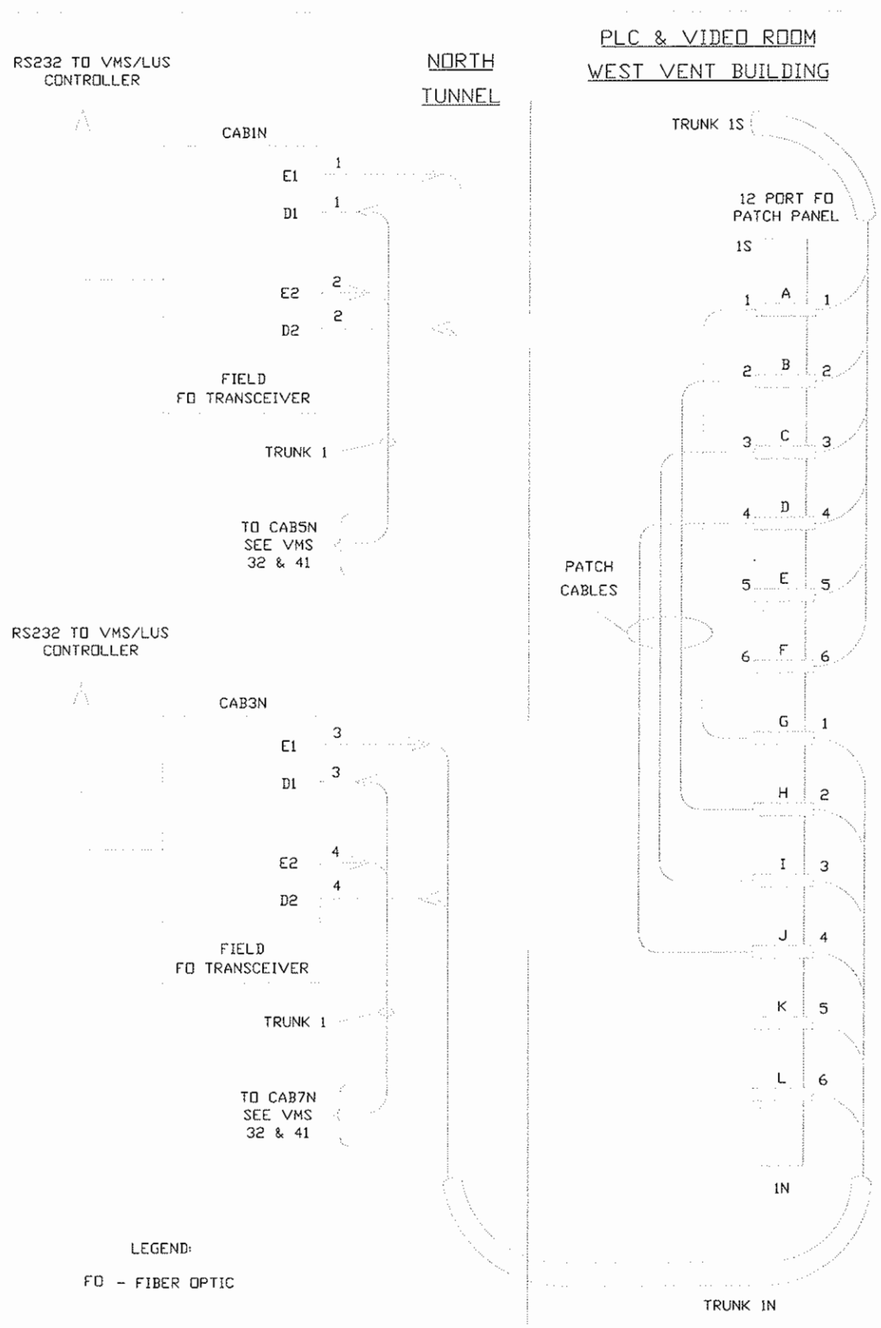
Designer: D. EWAN
Detailer: P. MEYDRECH
Sheet Subset: VMS

Structure Numbers

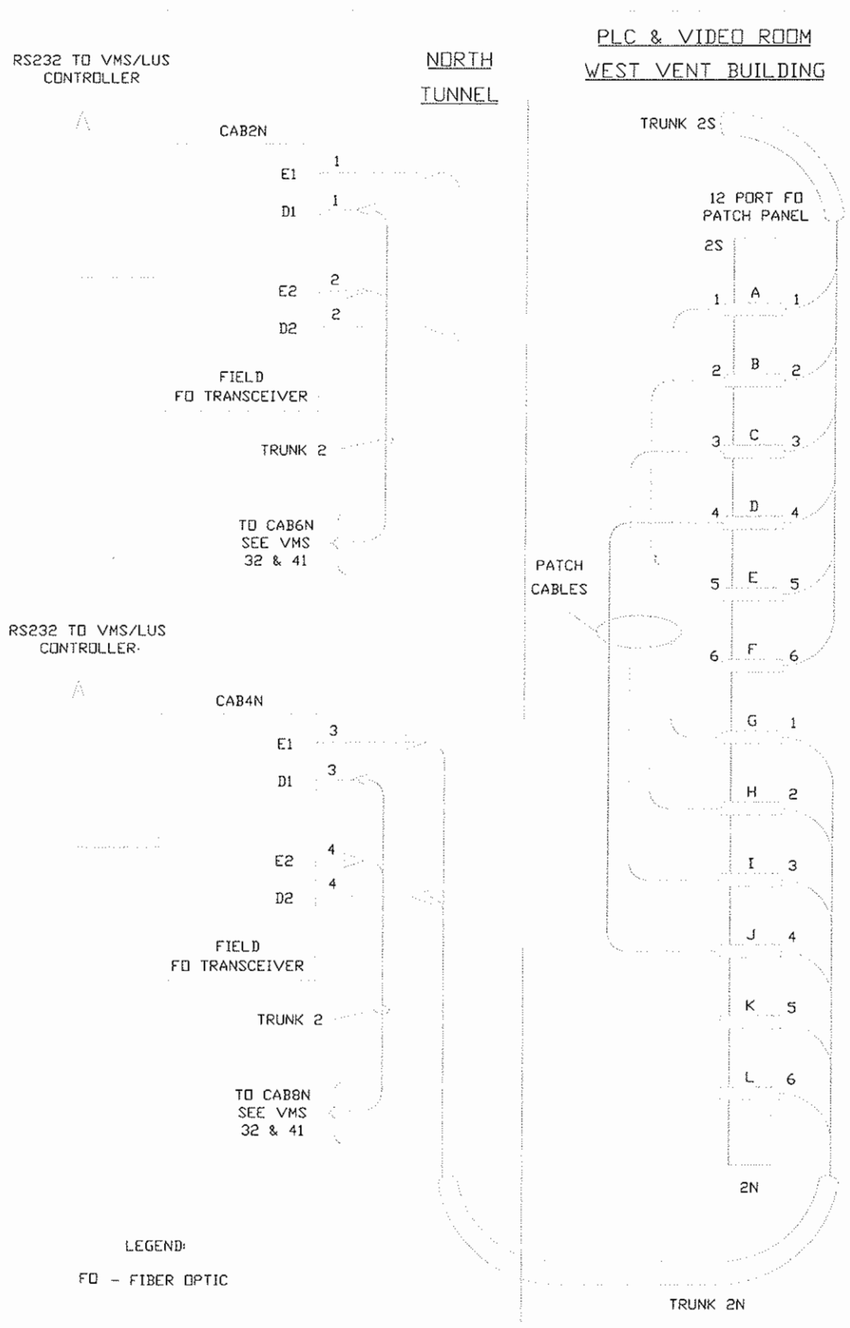
Subset Sheets: 43 OF 46

Project No./Code
IM 0703-269
13166

Sheet Number 174



PATCH PANEL & TRANSCEIVER INTERCONNECT
FOR TRUNK 1



PATCH PANEL & TRANSCEIVER INTERCONNECT
FOR TRUNK 2

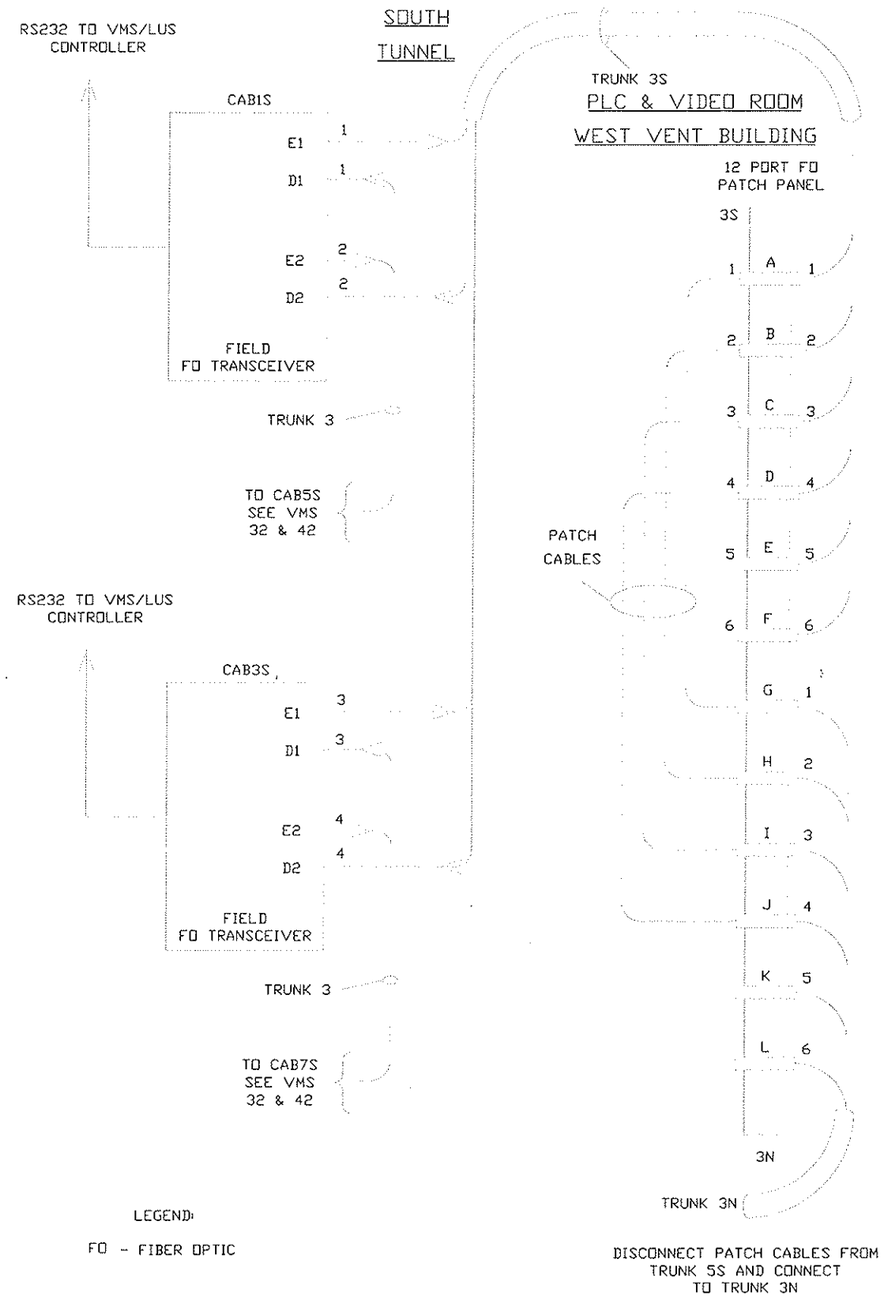
Sheet 175

VWS-44.DWG 2/6/02

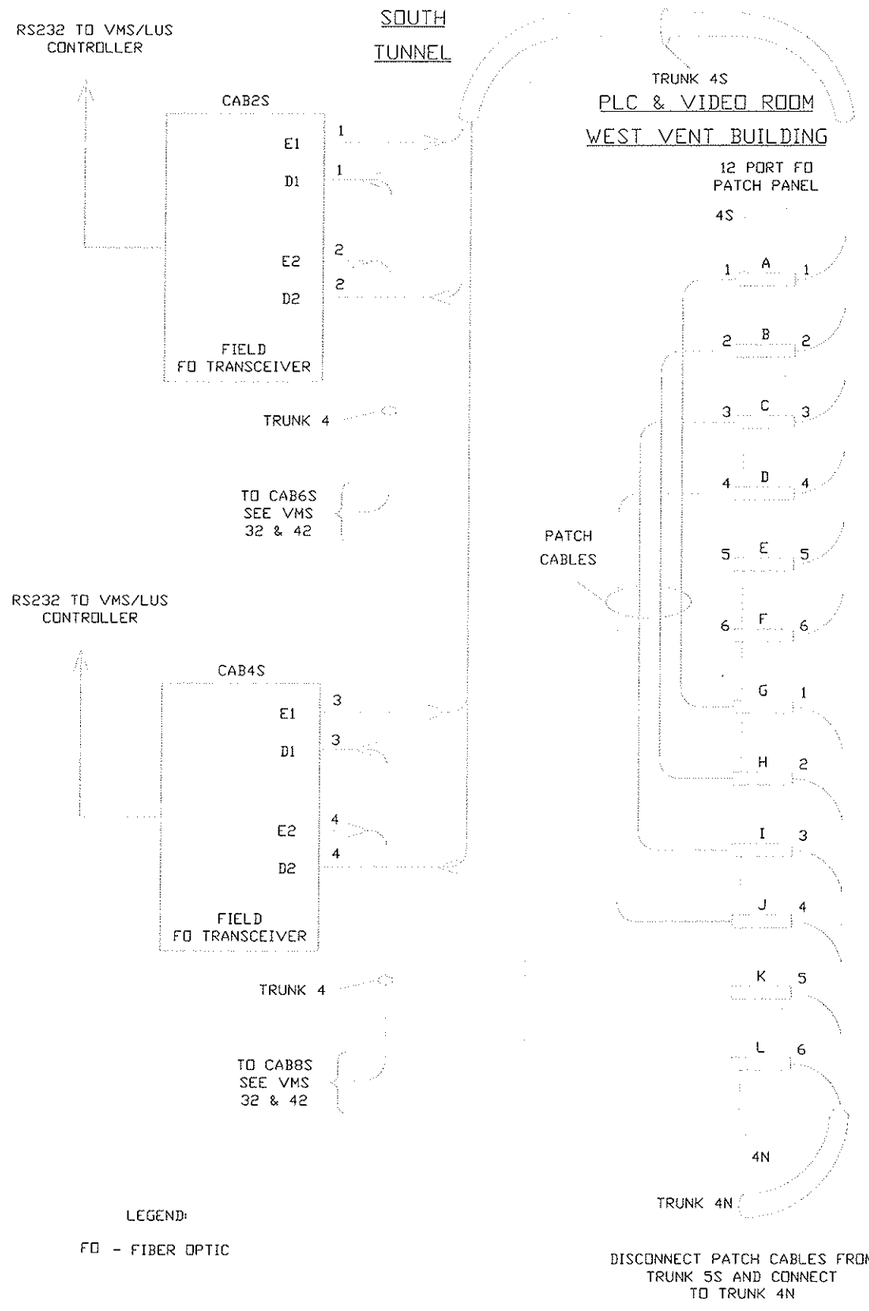
Computer File Information
Creation Date: 08/21/99 Initials: DE

Sheet Revisions
07/03/07 AS-BUILT DJB

Colorado Department of Transportation | As Constructed | WEST VENT TERMINATION | Project No.,



PATCH PANEL & TRANSCEIVER INTERCONNECT MODIFICATION FOR TRUNK 3



PATCH PANEL & TRANSCEIVER INTERCONNECT MODIFICATION FOR TRUNK 4

Design File Name: VMS-46.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	08/21/99	Initials:	DE
Last Modification Date:	2/6/02	Initials:	JLM
Full Path:	VMS-46.DWG		
Drawing File Name:	VMS-46.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

Sheet Revisions

07/03/07	ASBUILT	DJB

Colorado Department of Transportation
DOT
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5751 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

WEST VENT TERMINATION AND INTERCONNECT DETAIL

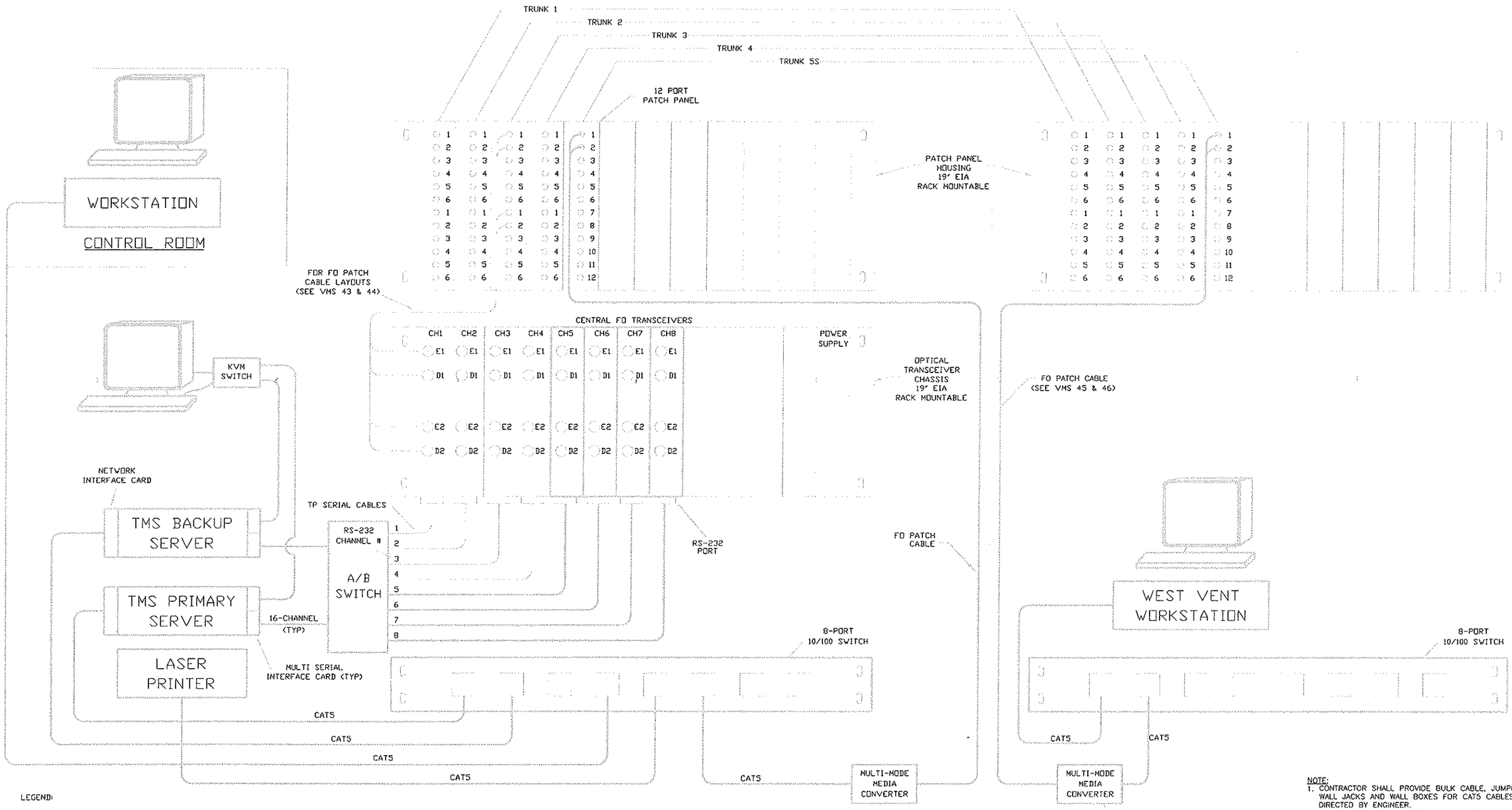
Designer: D. EWAN
Detailer: P. MEYDRECH
Sheet Subset: VMS

Structure Numbers
Subset Sheets: 45 of 46

Project No./Code
IM 0703-269
13166
Sheet Number 176

EQUIPMENT ROOM
EAST VENT BUILDING

PLC & VIDEO ROOM
WEST VENT BUILDING



LEGEND:

FO - FIBER OPTIC CABLE
TP - TWISTED PAIR, COPPER
CAT5 - TWISTED PAIR, CATEGORY 5

FOR ROOM LAYOUT SEE SHEET 37

NOTE:
1. CONTRACTOR SHALL PROVIDE BULK CABLE, JUMPERS, WALL JACKS AND WALL BOXES FOR CAT5 CABLES, AS DIRECTED BY ENGINEER.
2. ALL EQUIPMENT SHALL BE RACK MOUNTED.

Design File Name: VMS-47.DWG
Plot File Name:
Date of Plot: 2/6/02

Computer File Information

Creation Date:	08/21/99	Initials:	DE
Last Modification Date:	2/6/02	Initials:	JLM
Full Path:	VMS-47.DWG		
Drawing File Name:	VMS-47.DWG		
Acad Ver. R14	Scale: NTS	Units:	ENGLISH

Sheet Revisions

07/03/07 ASBUILT	DJB

Colorado Department of Transportation
DOT
P.O. BOX 399
DUMONT, CO. 80436
Phone: 303-512-5750 FAX: 303-512-5775
Region 1 Mountain Residency I.N.Z.

As Constructed
No Revisions:
Revised:
Void:

CENTRAL FIBER TERMINATION AND TRANSCEIVER LAYOUT

Designer: D. EWAN
Detailer: P. MEYDRECH
Sheet Subset: VMS

Project No./Code: IM 0703-269
Structure Numbers: 13166
Subset Sheets: 46 OF 46
Sheet Number: 177