

Oversight / NHS

FHWA PROJECT OF DIVISION INTEREST (PoDI)? NO YES

NATIONAL HIGHWAY SYSTEM? NO YES

DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

Related Projects:

P. E. UNDER PROJECT:
Project Number
Project Code:

R.O.W. Projects:

R.O.W. Project Description

HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED COLORADO PROJECT NO. NHPP 0703-420 EISENHOWER/JOHNSON MEMORIAL TUNNEL 2400V SWITCHGEAR REPLACEMENT CLEAR CREEK AND SUMMIT COUNTIES CONSTRUCTION PROJECT CODE NO. 20323

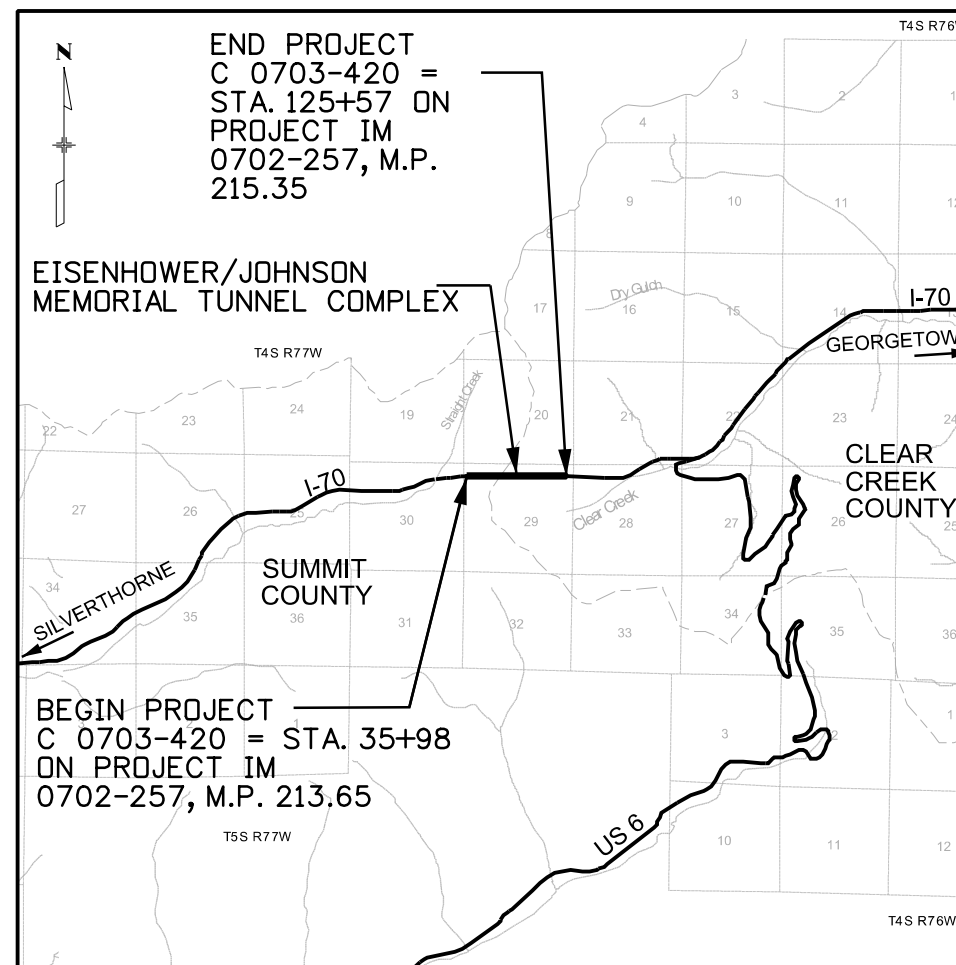
SHEET NO. INDEX OF SHEETS

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2. STANDARD PLANS LIST
3. GENERAL NOTES
4. SUMMARY OF APPROXIMATE QUANTITIES
5. TABULATION OF CONDUIT AND WIRING AND ELECTRICAL EQUIPMENT
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7. EXISTING 2400V SWITCHGEAR DIAGRAM
8. NEW 2400V SWITCHGEAR DIAGRAM
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11. WEST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM PLAN - EXISTING
12. EAST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM PLAN - NEW
13. WEST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM PLAN - NEW
14. WEST VENTILATION BUILDING GROUND FLOOR PLAN AND NEW WORK-PT2
15. EAST VENTILATION BUILDING GROUND FLOOR PLAN - NORTH
16. EAST VENTILATION BUILDING GROUND FLOOR PLAN - SOUTH
17. EAST VENTILATION BUILDING CONTROL ROOM PLAN
18. SWITCHGEAR SCHEMATIC DIAGRAMS
19. SEQUENCE OF CONSTRUCTION
20. STAGING PLAN
21. TEMPORARY EQUIPMENT DETAILS
22. POWER CONTROL BOARD LAYOUT AND DETAILS
23. SWITCHGEAR PAD DETAILS
24. - 30. STORMWATER MANAGEMENT PLANS

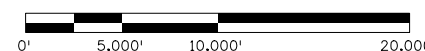
TABULATION OF LENGTH & DESIGN DATA

STATION	FEET		MAJOR STR.
	ROADWAY		
	I-70		
BEGIN PROJECT C 0703-420 = STA. 35+98 ON PROJECT IM 0702-257, M.P. 213.65 STA. 35+98 BEGIN STRUCTURE NO. F-13-X AND F-13-Y STA. 125+57 END STRUCTURE NO. F-13-X AND F-13-Y END PROJECT C 0703-420 = STA. 125+57 ON PROJECT IM 0702-257, M.P. 215.35	0		8,959
TOTAL	0		8,959
SUMMARY OF PROJECT LENGTH			
ROADWAY (NET LENGTH)	0		0
MAJOR STRUCTURE	8,959		1.70
PROJECT GROSS LENGTH	8,959		1.70
DESIGN DATA			
	I-70		
MAXIMUM RADIUS OF CURVE	NA		
MAXIMUM GRADE	NA		
MINIMUM S.S.D. HORIZONTAL	NA		
MINIMUM S.S.D. VERTICAL	NA		
MAXIMUM DESIGN SPEED	NA		
2012 DESIGN TRAFFIC	NA		
DHV TRUCKS %	NA		
CLEAR ZONE DISTANCE (TANGENT)	NA		
CLEAR ZONE DISTANCE (370 M RADIUS)	NA		
CONSTRUCTION CLEAR ZONE (MIN 18')	NA		

* FOR INFORMATION ONLY



PROJECT LOCATION MAP



Print Date: 6/24/2016

File Name: 24.9-TitleSheet.dgn

Horiz. Scale: 1:10000 Vert. Scale: NA

Unit Information Unit Leader Initials

PARSONS BRINCKERHOFF 555 17th Street, Suite 500
Denver, CO 80202
Phone: (303) 832-9091 Fax: (303) 728-1936



Sheet Revisions

Date:	Comments	Init.
3-16-17	As Built	NZ

Colorado Department of Transportation



425A Corporate Circle
Golden, CO 80401
Phone: 720-497-6959 FAX: 720-497-6951

Region 1

JDS

As Constructed

No Revisions:

Revised:

Void:

Contract Information

Contractor:	
Resident Engineer:	
Project Engineer:	
PROJECT STARTED: / /	ACCEPTED: / /
Comments:	

Project No./Code

NHPP 0703-420

20323

Sheet Number **1**

Heidenreich 2:05:46 PM J:\184045L - EUMT 2400V Switchgear\5.0 Project Data\5.1 Electrical\FinalDesign\Plan Sheet files\24.9-StdPlanList.dgn

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
<input checked="" type="checkbox"/>		M-100-1 STANDARD SYMBOLS (3 SHEETS).....	1-3	<input type="checkbox"/>		M-607-1 WIRE FENCES AND GATES (3 SHEETS).....	100-102	<input type="checkbox"/>		S-612-1 DELINEATOR INSTALLATIONS (7 SHEETS).....	151-157
<input checked="" type="checkbox"/>		M-100-2 ACRONYMS AND ABBREVIATIONS (4 SHEETS).....	4-7	<input type="checkbox"/>		M-607-2 CHAIN LINK FENCE (3 SHEETS).....	103-105	<input type="checkbox"/>		S-614-1 GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON DECEMBER 12, 2014).....	158-159
<input type="checkbox"/>	<input type="checkbox"/>	M-203-1 APPROACH ROADS (REVISED ON JULY 08, 2013).....	8	<input type="checkbox"/>		M-607-3 BARRIER FENCE.....	106	<input type="checkbox"/>		S-614-2 CLASS I SIGNS.....	160
<input type="checkbox"/>		M-203-2 DITCH TYPES.....	9	<input type="checkbox"/>		M-607-4 DEER FENCE, GATES, AND GAME RAMPS (5 SHEETS).....	107-109	<input type="checkbox"/>		S-614-3 CLASS II SIGNS.....	161
<input type="checkbox"/>		M-203-11 SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS).....	10-12	<input type="checkbox"/>		M-607-10 PICKET SNOW FENCE.....	110	<input type="checkbox"/>		S-614-4 CLASS III SIGNS (3 SHEETS) (REVISED ON DECEMBER 17, 2014).....	162-164
<input type="checkbox"/>		M-203-12 SUPERELEVATION STREETS (2 SHEETS).....	13-14	<input type="checkbox"/>		M-607-15 ROAD CLOSURE GATE (9 SHEETS).....	111-119	<input type="checkbox"/>		S-614-5 BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS).....	165-166
<input type="checkbox"/>		M-206-1 EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS).....	15-16	<input type="checkbox"/>		M-608-1 CURB RAMPS (7 SHEETS) (REVISED ON JUNE 16, 2014).....	120-125	<input type="checkbox"/>		S-614-6 CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) (REVISED ON SEPTEMBER 16, 2013).....	167-168
<input type="checkbox"/>		M-206-2 EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS).....	17-18	<input type="checkbox"/>		M-609-1 CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012).....	126-129	<input type="checkbox"/>		S-614-8 TUBULAR STEEL SIGN SUPPORT DETAILS (6 SHEETS).....	169-173
<input type="checkbox"/>	<input checked="" type="checkbox"/>	M-208-1 TEMPORARY EROSION CONTROL (11 SHEETS) (REVISED ON MARCH 29, 2016).....	19-30	<input type="checkbox"/>		M-611-1 CATTLE GUARD (2 SHEETS).....	130-131	<input type="checkbox"/>		S-614-9 PEDESTRIAN PUSH BUTTON POST ASSEMBLY (REVISED ON MAY 24, 2016).....	174
<input type="checkbox"/>		M-210-1 MAILBOX SUPPORTS (2 SHEETS).....	31-32	<input type="checkbox"/>		M-611-2 DEER GUARD (2 SHEETS) (NEW ON APRIL 30, 2015).....		<input type="checkbox"/>		S-614-10 MARKER ASSEMBLY INSTALLATIONS.....	175
<input type="checkbox"/>		M-214-1 PLANTING DETAILS.....	33	<input type="checkbox"/>		M-613-1 ROADWAY LIGHTING (4 SHEETS).....	132-135	<input type="checkbox"/>		S-614-11 MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS.....	176
<input type="checkbox"/>		M-216-1 SOIL RETENTION COVERING (2 SHEETS) (NEW ON JULY 16, 2015).....		<input type="checkbox"/>		M-614-1 RUMBLE STRIPS (3 SHEETS).....	136-138	<input type="checkbox"/>		S-614-12 STRUCTURE NUMBER INSTALLATION.....	177
<input type="checkbox"/>		M-412-1 CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012).....	34-38	<input type="checkbox"/>		M-614-2 SAND BARREL ARRAYS (2 SHEETS).....	139-140	<input type="checkbox"/>		S-614-14 FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS).....	178-180
<input type="checkbox"/>		M-510-1 STRUCTURAL PLATE PIPE H-20 LOADING.....	39	<input type="checkbox"/>		M-615-1 EMBANKMENT PROTECTOR TYPE 3.....	141	<input type="checkbox"/>		S-614-14 TYPICAL POLE MOUNT SIGN INSTALLATIONS.....	181
<input type="checkbox"/>		M-601-1 SINGLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015).....	40-41	<input type="checkbox"/>		M-615-2 EMBANKMENT PROTECTOR TYPE 5.....	142	<input type="checkbox"/>		S-614-20 CONCRETE BARRIER SIGN POST INSTALLATIONS.....	182
<input type="checkbox"/>		M-601-2 DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015).....	42-43	<input type="checkbox"/>		M-616-1 INVERTED SIPHON.....	143	<input type="checkbox"/>		S-614-22 TYPICAL MULTI-SIGN INSTALLATIONS.....	183
<input type="checkbox"/>		M-601-3 TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015).....	44-45	<input type="checkbox"/>		M-620-1 FIELD LABORATORY CLASS 1.....	144	<input type="checkbox"/>		S-614-40 TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS) (REVISED ON APRIL 2, 2015).....	184-188
<input type="checkbox"/>		M-601-10 HEADWALL FOR PIPES.....	46	<input type="checkbox"/>		M-620-2 FIELD LABORATORY CLASS 2 (2 SHEETS).....	145-146	<input type="checkbox"/>		S-614-40A ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON APRIL 2, 2015).....	189-192
<input type="checkbox"/>		M-601-11 TYPE "S" SADDLE HEADWALLS FOR PIPE.....	47	<input type="checkbox"/>		M-620-11 FIELD OFFICE CLASS 1.....	147	<input type="checkbox"/>		S-614-41 TEMPORARY SPAN WIRE SIGNALS (REVISED ON APRIL 2, 2015).....	193
<input type="checkbox"/>		M-601-12 HEADWALLS AND PIPE OUTLET PAVING.....	48	<input type="checkbox"/>		M-620-12 FIELD OFFICE CLASS 2.....	148	<input type="checkbox"/>		S-614-42 CABINET FOUNDATION DETAIL (4 SHEETS).....	194-197
<input type="checkbox"/>		M-601-20 WINGWALLS FOR PIPE OR BOX CULVERTS.....	49	<input type="checkbox"/>		M-629-1 SURVEY MONUMENTS (2 SHEETS).....	149-150	<input type="checkbox"/>		S-614-43 TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS).....	198-207
<input type="checkbox"/>		M-603-1 METAL PIPE (4 SHEETS) (REVISED ON OCTOBER 02, 2014).....	50-53					<input type="checkbox"/>		S-614-44 PEDESTAL POLE SIGNALS (2 SHEETS) (REVISED ON NOVEMBER 03, 2014).....	
<input type="checkbox"/>		M-603-2 REINFORCED CONCRETE PIPE (REVISED ON OCTOBER 02, 2014).....	54					<input type="checkbox"/>		S-614-50 STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS).....	208-210
<input type="checkbox"/>		M-603-3 PRECAST CONCRETE BOX CULVERT.....	55					<input type="checkbox"/>		S-614-60 DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS).....	220-233
<input type="checkbox"/>		M-603-4 CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REVISED ON OCT. 02, 2014).....	56					<input type="checkbox"/>		S-627-1 PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JUNE 10, 2014).....	234-238
<input type="checkbox"/>		M-603-5 POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) (REVISED ON OCT. 02, 2014).....	57					<input type="checkbox"/>		S-630-1 TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (24 SHEETS) (REVISED ON DECEMBER 08, 2014).....	239-258
<input type="checkbox"/>		M-603-6 STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20) (NEW ON APRIL 30, 2015).....						<input type="checkbox"/>		S-630-2 BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS.....	259
<input type="checkbox"/>		M-603-10 CONCRETE AND METAL END SECTIONS (2 SHEETS).....	58-59					<input type="checkbox"/>		S-630-3 FLASHING BEACON (PORTABLE) DETAILS.....	260
<input type="checkbox"/>		M-604-10 INLET, TYPE C.....	60					<input type="checkbox"/>		S-630-4 STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS).....	261-262
<input type="checkbox"/>		M-604-11 INLET, TYPE D.....	61					<input type="checkbox"/>		S-630-5 PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS).....	263-264
<input type="checkbox"/>		M-604-12 CURB INLET TYPE R (2 SHEETS).....	62-63					<input type="checkbox"/>		S-630-6 EMERGENCY PULL-OFF AREA (TEMPORARY).....	265
<input type="checkbox"/>		M-604-13 CONCRETE INLET TYPE 13.....	64					<input type="checkbox"/>		S-630-7 ROLLING ROADBLOCKS FOR TRAFFIC CONTROL.....	266-268
<input type="checkbox"/>		M-604-20 MANHOLES (3 SHEETS).....	65-67								
<input type="checkbox"/>		M-604-25 VANE GRATE INLET (5 SHEETS).....	68-72								
<input type="checkbox"/>		M-605-1 SUBSURFACE DRAINS.....	73								
<input type="checkbox"/>		M-606-1 GUARDRAIL TYPE 3 W-BEAM (20 SHEETS) (REVISED ON OCTOBER 27, 2014).....	74-92								
<input type="checkbox"/>		M-606-1 MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES (20 SHEETS) (REVISED ON DECEMBER 29, 2015).....									
<input type="checkbox"/>		M-606-13 GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS).....	93-96								
<input type="checkbox"/>		M-606-14 PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS).....	97-99								

COLORADO
DEPARTMENT OF TRANSPORTATION
M&S STANDARDS PLANS LIST
 July 04, 2012
 Revised on May 24, 2016

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

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX , WILL BE ATTACHED TO THE PLANS.

Print Date: 6/24/2016		Sheet Revisions			Colorado Department of Transportation		As Constructed		STANDARD PLAN LIST		Project No./Code			
File Name: 24.9-StdPlanList.dgn		Date:	Comments	Init.	 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 Region 1		No Revisions:		Designer: J. SHELDON Detailer: J. GONZALES Sheet Subset:		NHPP 0703-420			
Horiz. Scale: 1:1 Vert. Scale: NA		3-16-17	As Built	NZ			Revised:				Structure Numbers		20323	
Unit Information Unit Leader Initials							Void:				Subset Sheets: 2 of 26		Sheet Number 2	
PARSONS BRINCKERHOFF 555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					JDS									

GENERAL NOTES

1. ELECTRICAL CONDUIT THAT IS INDICATED "TO BE REMOVED" SHALL BE REMOVED FROM THE SWITCHGEAR BACK AS NECESSARY TO CLEAR THE EXISTING SWITCHGEAR AND TO FACILITATE EXTENSION TO THE TEMPORARY SWITCHGEAR WIRE AND SHALL BE REPLACED BACK TO THE POINT OF CONNECTION.
2. THE TUNNEL IS LOCATED AT APPROXIMATELY 11,000 FEET ABOVE SEA LEVEL. ALL EQUIPMENT RATINGS SPECIFIED IN THE DRAWINGS AND SPECIFICATIONS SHALL APPLY TO THE INSTALLATION LOCATION AT THAT ELEVATION.
3. ALL PROPOSED LOCATIONS FOR TEMPORARY FEEDERS, ETC. SHALL BE REVIEWED WITH THE ENGINEER PRIOR TO ACTUAL INSTALLATION.
4. ALL CONDUITS, JUNCTION BOXES, AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE NATIONAL ELECTRIC CODE, CDOT STANDARDS, AND APPLICABLE LOCAL CODES.
5. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS WHENEVER POSSIBLE. SPARE CONDUITS SHALL HAVE NYLON PULL LINES RATED 200 LBS INSTALLED AND SHALL BE CAPPED.
6. ALL SURFACE MOUNTED BOXES, AND CONDUITS SHALL BE MOUNTED SO AS TO MAINTAIN A 3/4" AIR SPACE BETWEEN THE DEVICE AND THE WALL UNLESS OTHERWISE NOTED.
7. ALL CONDUIT RUNS CROSSING STRUCTURAL EXPANSION JOINTS SHALL HAVE EXPANSION AND DEFLECTION TYPE FITTINGS AT THAT LOCATION.
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LAYOUTS FOR THE ELECTRICAL ROOMS BASED ON ACTUAL EQUIPMENT SIZE OF THE MANUFACTURER SELECTED. SUBMIT TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
9. PROVIDE PHENOLIC TAGS WITH WHITE LETTERS ON BLACK BACKGROUND FOR ALL SWITCHGEAR CUBICLES, TRANSFORMERS, PANELBOARDS, AND COMMUNICATION EQUIPMENT. APPLY WITH SCREWS. REFER TO SPECIAL PROVISIONS. NAMEPLATES ON POWER CONTROL BOARD SHALL BE APPLIED WITH ADHESIVE.
10. PRIOR TO INSTALLATION OF ALL CONDUITS, THE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATIONS WITH THE ENGINEER.
11. ALL CONDUITS SHALL BE TAGGED WITH BRASS TAGS AT ALL TERMINATIONS AND BOXES AS PER SPECIAL PROVISIONS.
12. ASBESTOS WILL BE ENCOUNTERED WHEN DRILLING INTO ELECTRIC ROOM CEILING AND MAY BE PRESENT IN THE EXISTING SWITCHGEAR. FOLLOW ABATEMENT PROCEDURES AS DESCRIBED IN SPECIFICATIONS. THE COST OF WORK SHALL BE INCLUDED IN PAY ITEMS NO. 250-00010, 250-00050, AND 250-00110.
13. IT IS ESTIMATED THAT 1 LUMP SUM ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT WILL BE REQUIRED FOR THIS PROJECT.
14. IT IS ESTIMATED THAT 40 HRS MONITORING TECHNICIAN WILL BE REQUIRED FOR THIS PROJECT.
15. IT IS ESTIMATED THAT 40 HRS HEALTH AND SAFETY OFFICER WILL BE REQUIRED FOR THIS PROJECT.
16. IT IS ESTIMATED THAT REMOVAL OF 224 LF OF CONCRETE CURB WILL BE REQUIRED FOR THIS PROJECT.
17. IT IS ESTIMATED THAT 1 LUMP SUM REMOVAL AND DISPOSAL OF PAINT WILL BE REQUIRED FOR THIS PROJECT.
18. HEAVY METAL BASED PAINT MAY BE ENCOUNTERED WHEN REMOVING PAINT OFF THE FLOOR AT LOCATIONS IDENTIFIED ON THE PLANS. FOLLOW PROCEDURES AS DESCRIBED IN SPECIFICATIONS. THE COST OF THE WORK SHALL BE INCLUDED IN PAY ITEMS NO. 250-00010, 250-00050 AND 250-00110.
19. CONTRACTOR SHALL PROVIDE PROTECTION FOR THE FACILITY AND ITS EQUIPMENT AND FURNISHINGS. ANY DAMAGE TO CDOT PROPERTY SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE PROJECT ENGINEER AT NO COST TO CDOT.
20. CONTRACTOR SHALL PROVIDE SPARE CIRCUIT BREAKERS AND GROUND AND TEST DEVICES FOR THE NEW 2400V SWITCHGEAR, ONE SPARE AND ONE GROUND AND TEST DEVICE FOR EACH VENTILATION BUILDING. WILL NOT BE PAID FOR SEPARATELY, BUT INCLUDED IN THE WORK.
21. PRIOR TO DISCONNECTING ANY WIRING, THE CONTRACTOR SHALL ESTABLISH THE FUNCTION OF EACH EXISTING CONDUCTOR.
22. CONTAINMENT SYSTEM FOR THE TEMPORARY TRANSFORMERS SHALL HAVE A MIN CAPACITY OF 750 GAL AND WILL BE THE BE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR TO SUBMIT PLANS TO THE ENGINEER FOR REVIEW TWO (2) WEEKS PRIOR TO INSTALLATION, THIS WILL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE WORK.
23. ~~CONCRETE PAD FOR NEW SWITCHGEAR AND TRANSFORMERS WILL BE INSTALLED PRIOR TO INSTALLATION OF NEW SWITCHGEAR AND TRANSFORMERS.~~
24. ALL REMOVED EQUIPMENT IS THE PROPERTY OF THE CONTRACTOR AND HAS TO BE REMOVED OFF OF CDOT PROPERTY IN AN APPROPRIATE MANNER AT NO ADDITIONAL COST TO CDOT.
25. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND COORDINATE WITH OTHER PROJECTS THAT MAY BE IN PROGRESS AT THE TUNNEL.

Heidenreich 2:05:47 PM J:\184045L - EJM 2400V Switchgear\5.0 Project Data\5.1 Electrical\FinalDesign\Plan Sheet files\24.9-GeneralNotes.dgn


Print Date: 6/24/2016		Sheet Revisions			Colorado Department of Transportation		As Constructed		GENERAL NOTES		Project No./Code			
File Name: 24.9-GeneralNotes.dgn			Date:	Comments	Init.	 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS	No Revisions:		Designer: J. SHELDON Detailer: J. GONZALES Sheet Subset:		NHPP 0703-420			
Horiz. Scale: 1:1 Vert. Scale: NA			3-16-17	As BUILTS	NZ		Revised:				Structure Numbers		20323	
Unit Information Unit Leader Initials							Void:				Subset Sheets: 3 of 26		Sheet Number 3	
PARSONS BRINCKERHOFF 555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					Region 1									

SUMMARY OF APPROXIMATE QUANTITIES

INDEX BOOK PAGE SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	EAST AND WEST VENTILATION BUILDINGS																PROJECT TOTALS		
				PLAN	AS CONST.	PLAN	AS CONST.															
	202-00047	REMOVAL OF ELECTRICAL EQUIPMENT	L S	1																	1	1
	202-00201	REMOVAL OF CURB	LF	224																	224	224
	202-05300	REMOVAL AND DISPOSAL OF PAINT	L S	1																	1	1
	203-02330	LABORER	HOUR	10																	10	10
	208-00045	CONCRETE WASHOUT STRUCTURE	EACH	2																	2	1
	208-00055	RIGID INLET PROTECTION DEVICE	EACH	37																	37	11
	208-00207	EROSION CONTROL MANAGEMENT	DAY	8																	8	0
	208-00302	TEMPORARY SPILL BERM (SPECIAL)	LF	385																	385	115
	210-00478	MODIFY POWER CONTROL BOARD	L S	1																	1	1
	250-00010	ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT	L S	1																	1	1
	250-00050	MONITORING TECHNICIAN	HOUR	40																	40	24
	250-00110	HEALTH AND SAFETY OFFICER	HOUR	40																	40	24
	515-00400	CONCRETE SEALER	SY	171																	171	54
	601-03000	CONCRETE CLASS D	CY	9																	9	2
	613-00100	1 INCH ELECTRICAL CONDUIT	LF	600																	600	478
	613-00150	1-½ INCH ELECTRICAL CONDUIT	LF	240																	240	392
	613-00400	4 INCH ELECTRICAL CONDUIT	LF	730																	730	960
	613-10000	WIRING	L S	1																	1	1
	613-81598	2400V SWITCHGEAR	EACH	2																	2	2
	613-81602	TEMPORARY SWITCHGEAR	EACH	1																	1	0
	613-81210	DC PANELBOARDS	EACH	2																	2	2
	626-00000	MOBILIZATION	L S	1																	1	1
	700-70010	FORCE ACCOUNT F/A MINOR CONTRACT REVISIONS	F A	1																	1	
	700-70011	F/A PARTNERING	F A	1																	1	
	700-70130	F/A REPAIR	F A	1																	1	
	700-70380	F/A EROSION CONTROL	F A	1																	1	

Print Date: 27-JUN-2016
 File Name: 24.9_SAQ-01.dgn
 Horiz. Scale: 1:1 Vert. Scale: NA
 Unit Information Unit Leader Initials
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 Denver, CO 80202
 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.
3-16-17	As Built	NZ

Colorado Department of Transportation

 425A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6959 FAX: 720-497-6951
Region 1 **JDS**

As Constructed
 No Revisions:
 Revised:
 Void:

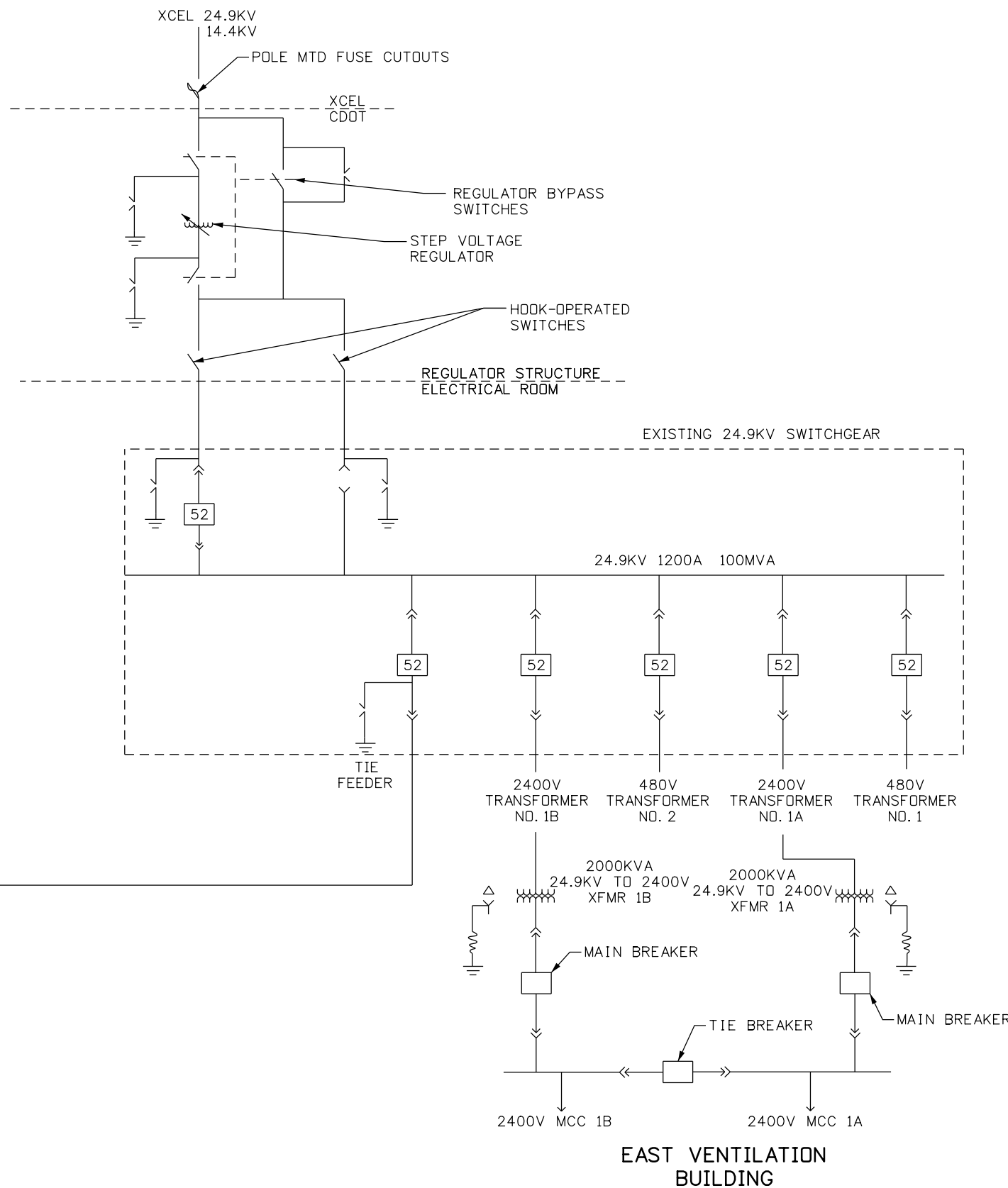
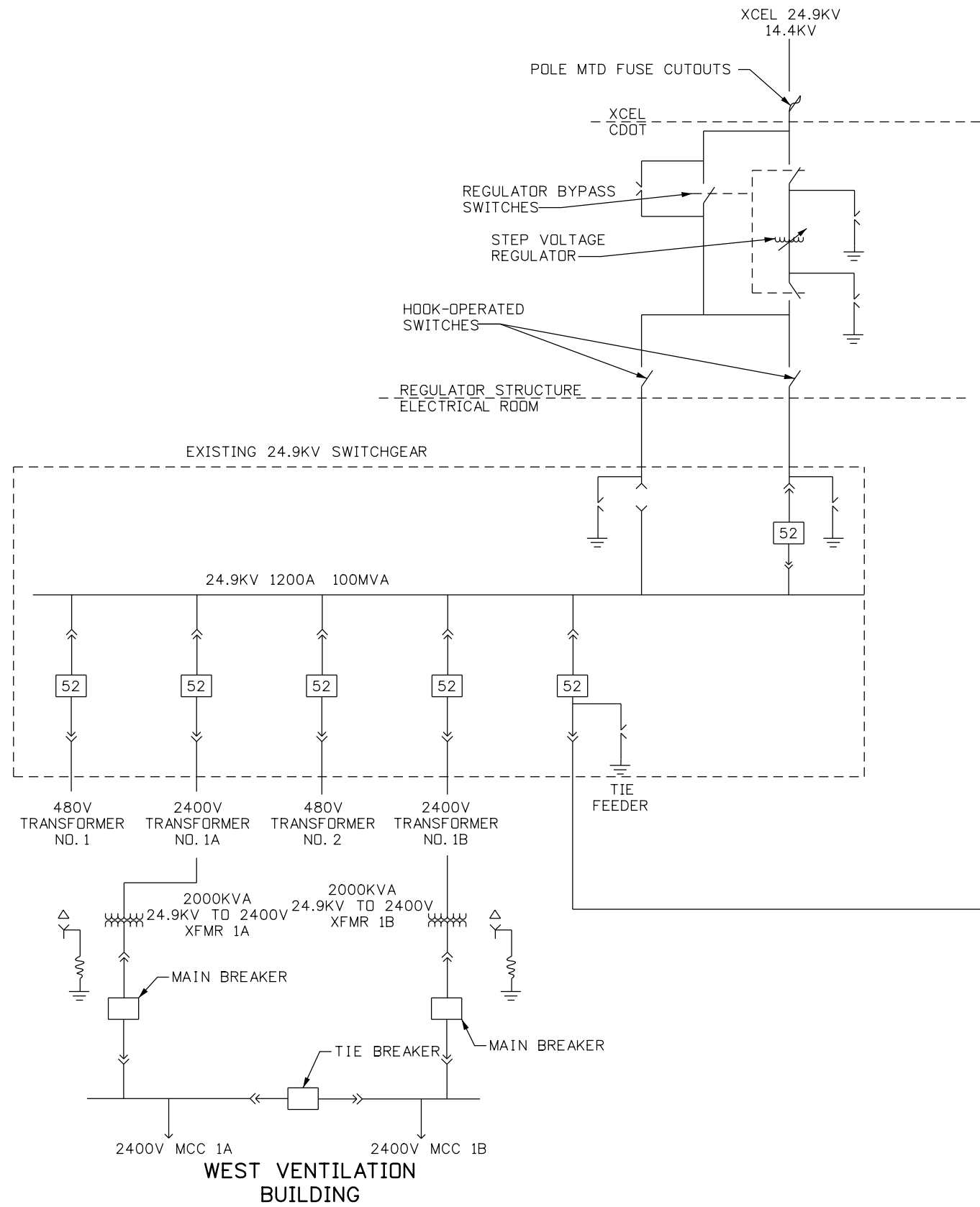
SUMMARY OF APPROXIMATE QUANTITIES

Designer: J. SHELDON Structure Numbers
 Detailer: J. GONZALES
 Sheet Subset: Subset Sheets: 4 of 26

Project No./Code
 NHPP 0703-420
 20323
 Sheet Number **4**

\$PLOT_INFD\$


Heidenreich 2:05:58 PM J:\184045L - EJM 2400V Switchgear\5.0 Project Data\5.1 Electrical\FinalDesign\Plan Sheet files\24.9-Exist_DA_One-Line.dgn



Print Date: 6/24/2016	
File Name: 24.9-Exist_DA_One-Line.dgn	
Horiz. Scale: 1:1	Vert. Scale: NA
Unit Information	Unit Leader Initials
PARSONS BRINCKERHOFF	555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.
3-16-17	As Bults	NZ

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Golden, CO 80401
Phone: 720-497-6959 FAX: 720-497-6951

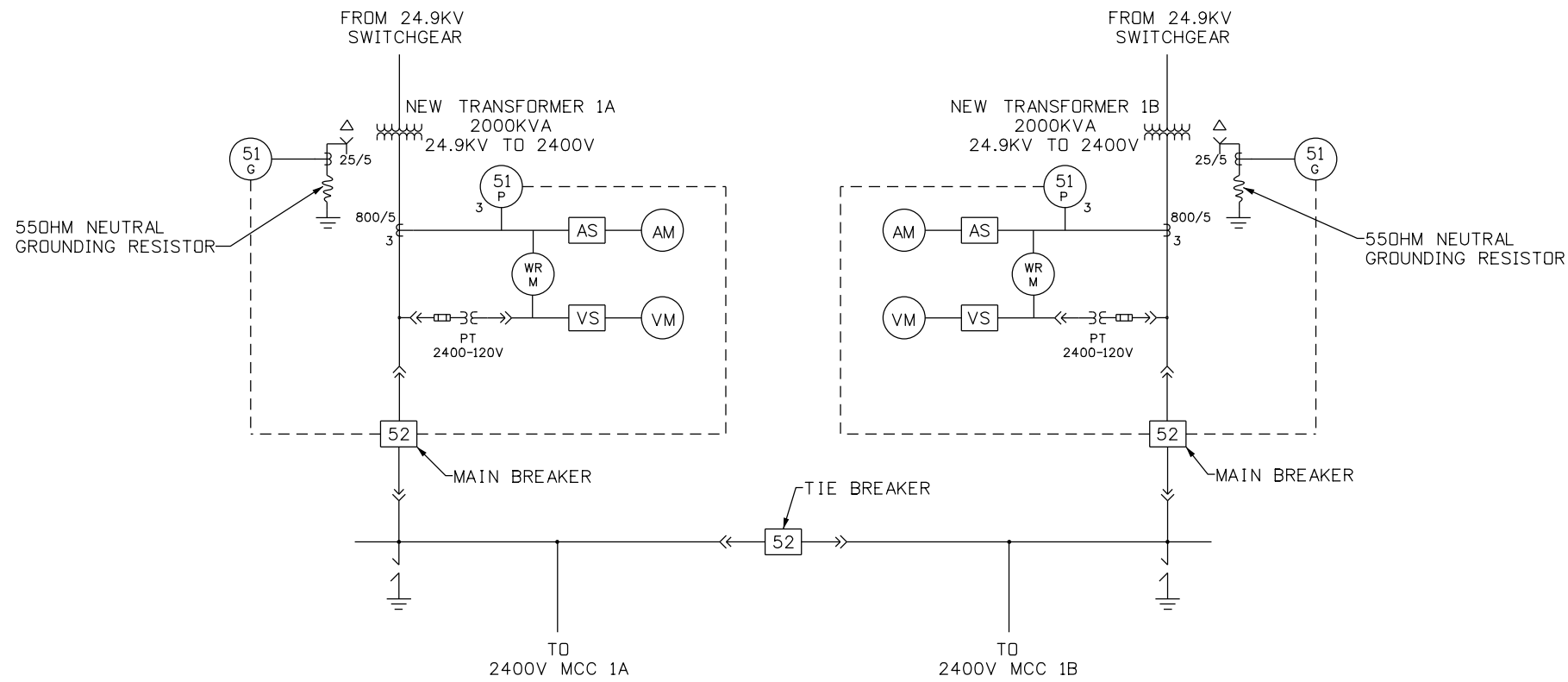
Region 1 JDS

As Constructed
No Revisions:
Revised:
Void:

OVERALL ONE-LINE DIAGRAM	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 6 of 26

Project No./Code
NHPP 0703-420
20323
Sheet Number 6

Heidenreich 2:06:00 PM J:\184045L - EUMT 2400V Switchgear\5.0 Project Data\5.1 Electrical\FinalDesign\Plan Sheet files\24.9-Exist_Switchgear-Diagram.dgn



EXISTING 2400V POWER CENTER

N.T.S.

NOTES

- EXISTING CONTROL IS 120V AC

Print Date: 6/24/2016	
File Name: 24.9-Exist_Switchgear-Diagram.dgn	
Horiz. Scale: 1:1	Vert. Scale: NA
Unit Information	Unit Leader Initials
PARSONS BRINCKERHOFF	555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.
3-16-17	As BUILTS	NZ

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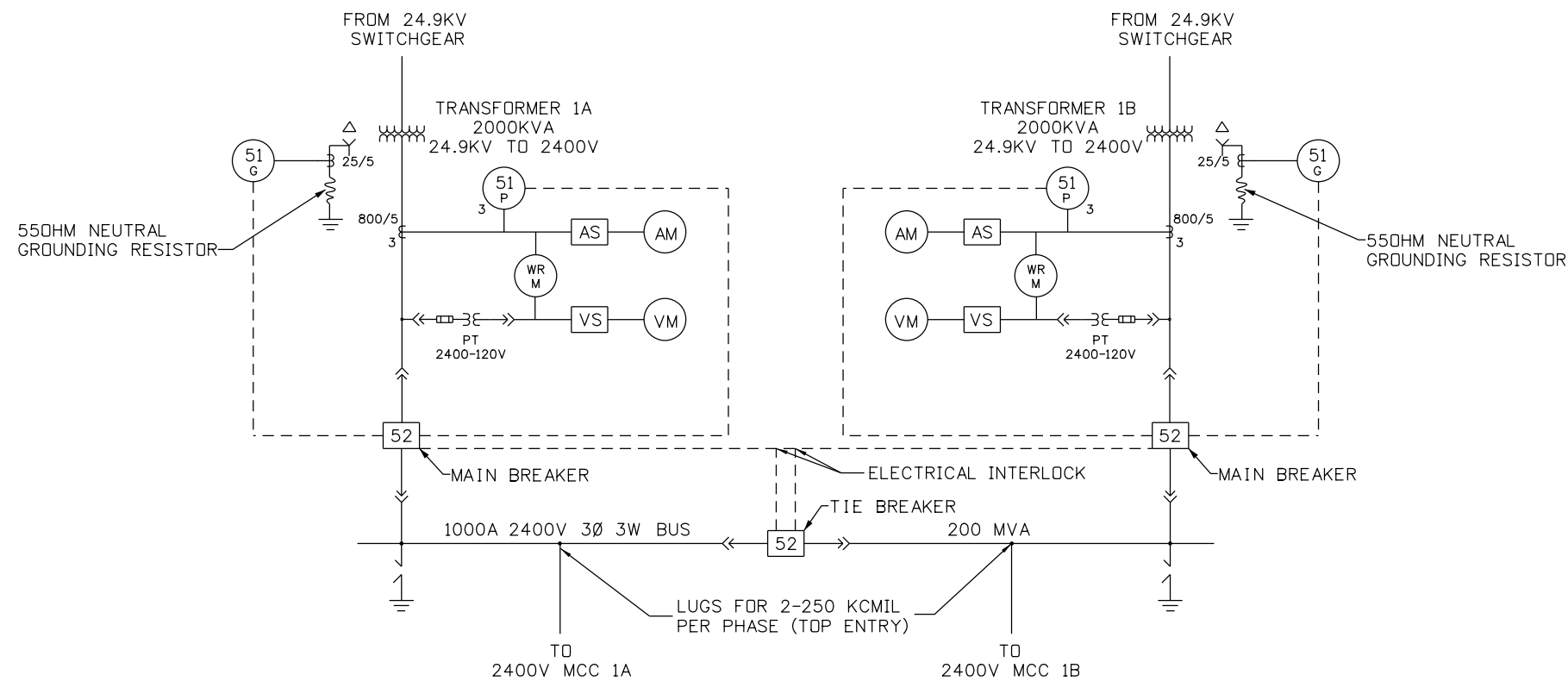
Region 1 JDS

As Constructed	
No Revisions:	
Revised:	
Void:	

EXISTING 2400V SWITCHGEAR DIAGRAM			
Designer:	J. SHELDON	Structure Numbers	
Detailer:	J. GONZALES		
Sheet Subset:		Subset Sheets:	7 of 26

Project No./Code	
NHPP 0703-420	
20323	
Sheet Number	7

Heidenreich 2:06:01 PM J:\184045L - EJM 2400V Switchgear\5.0 Project Data\5.1 Electrical\Final Design\Plan Sheet files\24.9-Switchgear-Diagram.dgn




2400V POWER CENTER

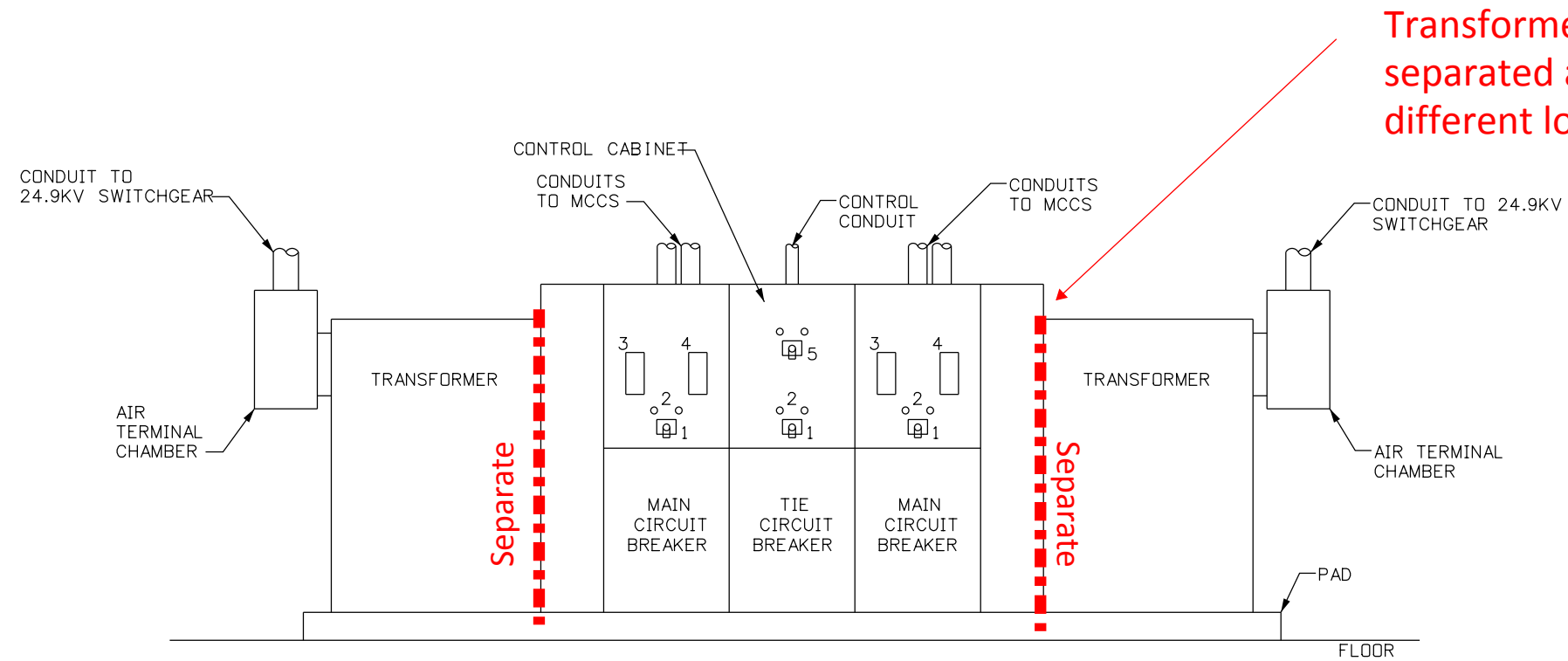
N.T.S.

NOTES

- CONTROL SHALL BE 125V FROM EXISTING BATTERY SYSTEM

Print Date: 6/24/2016	Sheet Revisions			 Colorado Department of Transportation 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS	As Constructed		NEW 2400V SWITCHGEAR DIAGRAM		Project No./Code	
File Name: 24.9-Switchgear-Diagram.dgn	Date:	Comments	Init.		No Revisions:	Designer: J. SHELDON Detailer: J. GONZALES Sheet Subset:			NHPP 0703-420 20323	
Horiz. Scale: 1:1 Vert. Scale: NA	3-16-17	As BUILTS	NZ	Revised:	Structure Numbers Subset Sheets: 8 of 26		Sheet Number			
Unit Information Unit Leader Initials				Void:			8			
 555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936				Region 1						

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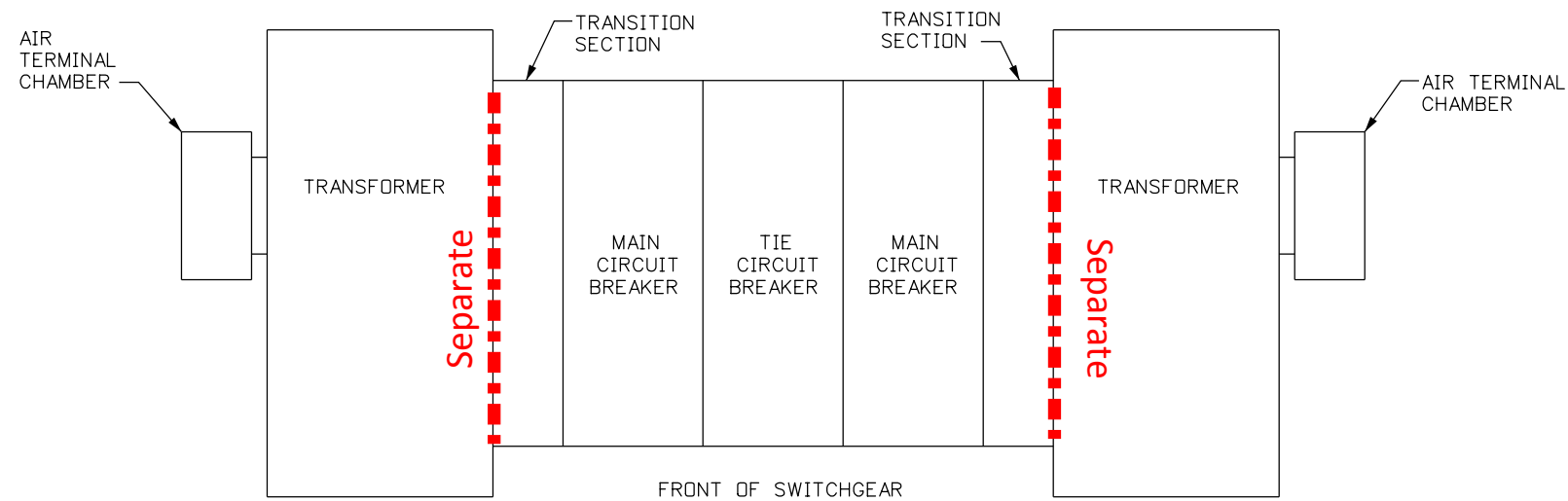


Transformers have been separated and installed in a different location.

FRONT ELEVATION

NOTES

- 1 - BREAKER CONTROL SWITCH
- 2 - BREAKER INDICATING LIGHTS
- 3 - OVERCURRENT RELAY
- 4 - GROUND OVERCURRENT RELAY
- 5 - BACK UP BATTERY BANK SELECTOR SWITCH (ELECTROSWITCH 153 SERIES OR APPROVED EQUAL). PROVIDE FUSES IN CENTRAL CABINET FOR BATTERY BACK-UP CIRCUITS TO CONTROLS/RELAYS.



SWITCHGEAR PLAN

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File Name: 24.9-W_Vent-Front-Elev.dgn	
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Unit Information	Unit Leader Initials
PARSONS BRINCKERHOFF	555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.
3-16-17	As Built	NZ

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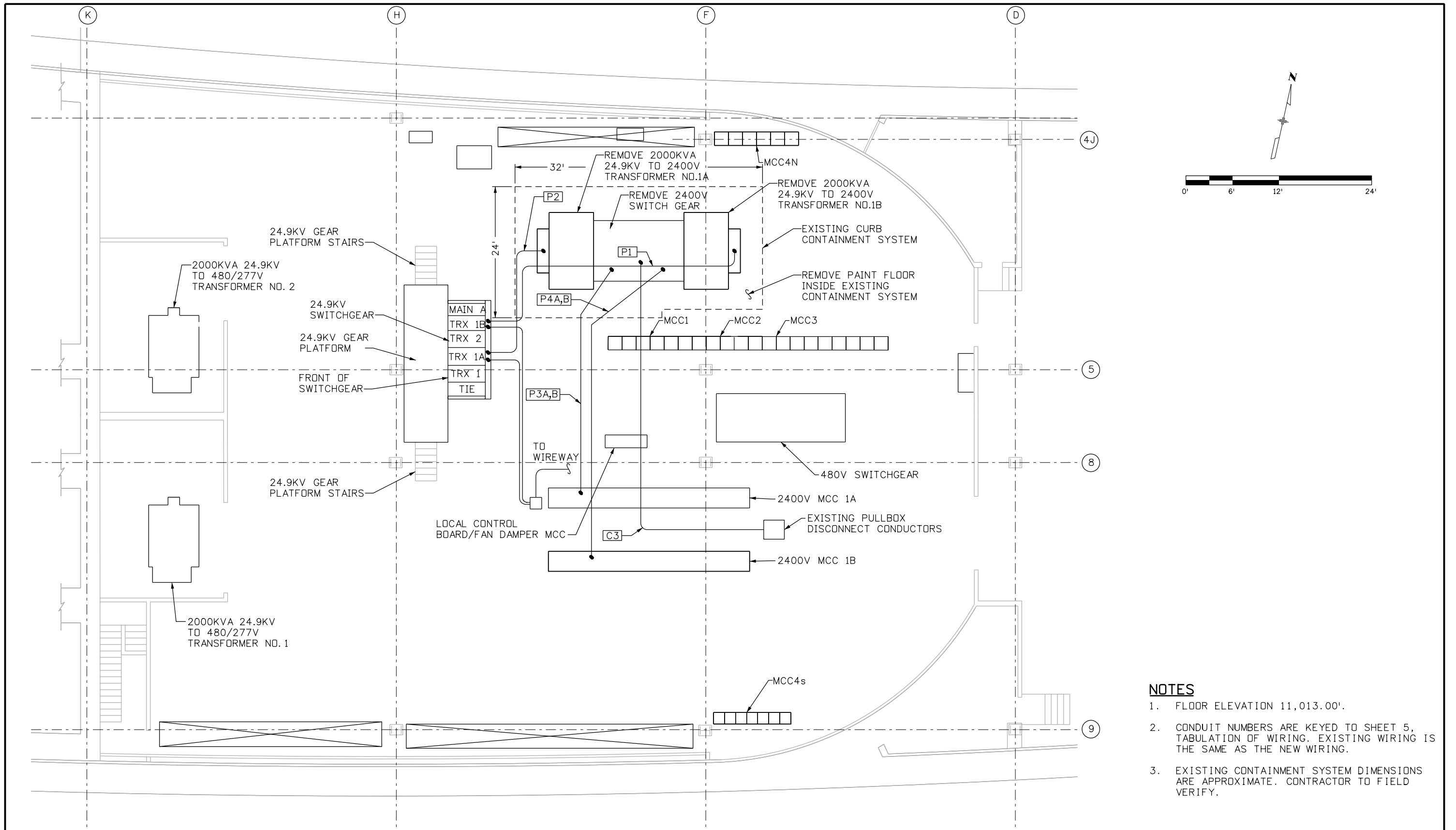
Region 1 JDS

As Constructed
No Revisions:
Revised:
Void:

NEW SWITCHGEAR PLAN AND ELEVATION	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 9 of 26

Project No./Code
NHPP 0703-420
20323
Sheet Number 9

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- NOTES**
- FLOOR ELEVATION 11,013.00'.
 - CONDUIT NUMBERS ARE KEYED TO SHEET 5, TABULATION OF WIRING. EXISTING WIRING IS THE SAME AS THE NEW WIRING.
 - EXISTING CONTAINMENT SYSTEM DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY.

Print Date: 6/24/2016	
File Name: 24.9-E_Exist-Elec-Room.dgn	
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PARSONS BRINCKERHOFF	555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.
3-16-17	As Built	NZ

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Golden, CO 80401
Phone: 720-497-6959 FAX: 720-497-6951

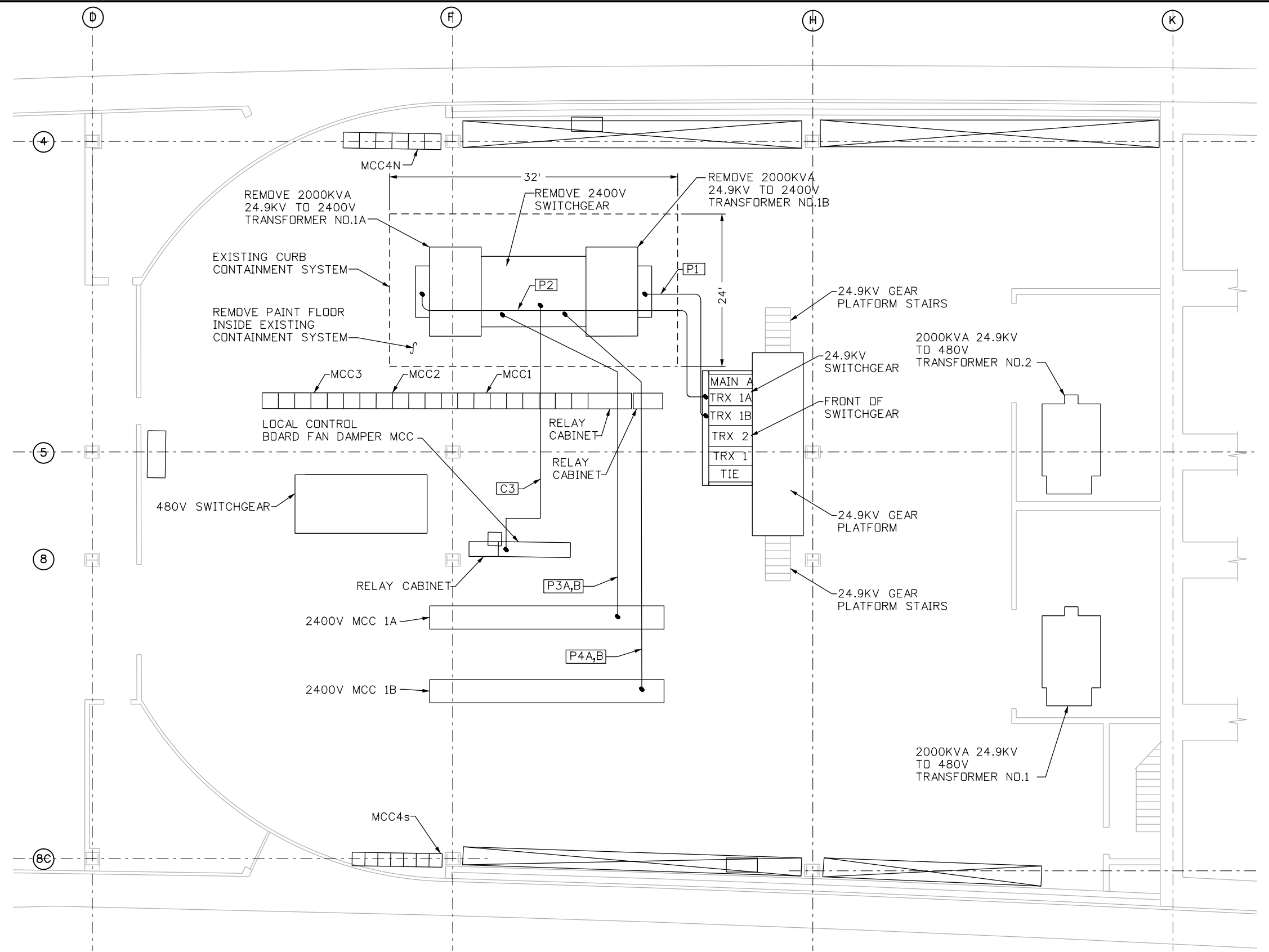
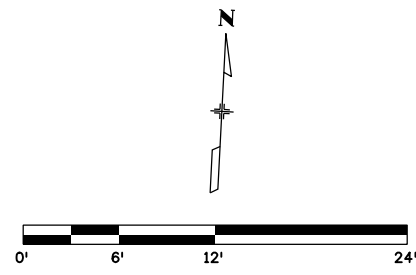
Region 1 **JDS**

As Constructed
No Revisions:
Revised:
Void:

EAST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM	
PLAN - EXISTING	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 10 of 26

Project No./Code
NHPP 0703-420
20323
Sheet Number 10

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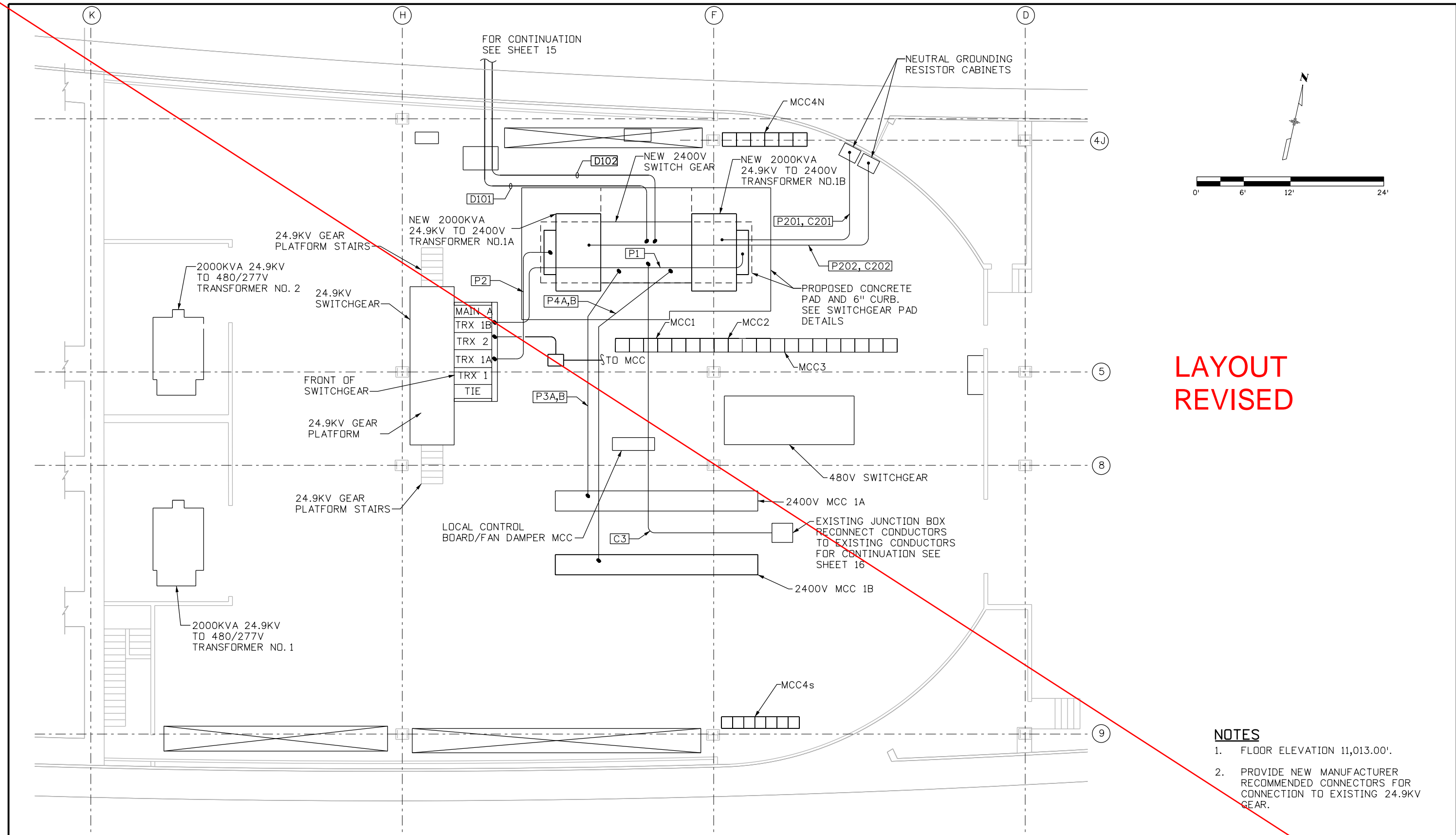


NOTES

1. FLOOR ELEVATION 11,156.50'.
2. CONDUIT NUMBERS ARE KEYED TO SHEET 5, TABULATION OF WIRING. EXISTING WIRING IS THE SAME AS THE NEW WIRING.
3. EXISTING CONTAINMENT SYSTEM DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY.

Print Date: 6/24/2016		Sheet Revisions			Colorado Department of Transportation			As Constructed		WEST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM PLAN - EXISTING			Project No./Code			
File Name: 24.9-W_Exist-Elec-Room.dgn		Date:	Comments	Init.	425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS			No Revisions:		Designer: J. SHELDON Detailer: J. GONZALES Sheet Subset:			NHPP 0703-420			
Horiz. Scale: 1:12 Vert. Scale: NA		3-16-17	As Built	NZ				Revised:					Structure Numbers		20323	
Unit Information Unit Leader Initials								Void:					Subset Sheets: 11 of 26		Sheet Number 11	
555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					Region 1											

Heidenreich 2:06:08 PM J:\184045L - EUMT 2400V Switchgear\5.0 Project Data\5.1 Electrical\FinalDesign\Plan Sheet files\24.9-E_New-Elec-Room.dgn



LAYOUT
REVISED

- NOTES**
1. FLOOR ELEVATION 11,013.00'.
 2. PROVIDE NEW MANUFACTURER RECOMMENDED CONNECTORS FOR CONNECTION TO EXISTING 24.9KV GEAR.

Print Date: 6/24/2016	
File Name: 24.9-E_New-Elec-Room.dgn	
Horiz. Scale: 1:12	Vert. Scale: NA
Unit Information	Unit Leader Initials
555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936	

Sheet Revisions			
Date:	Comments	Init.	
3-16-17	As BUILTs	NZ	

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JDS

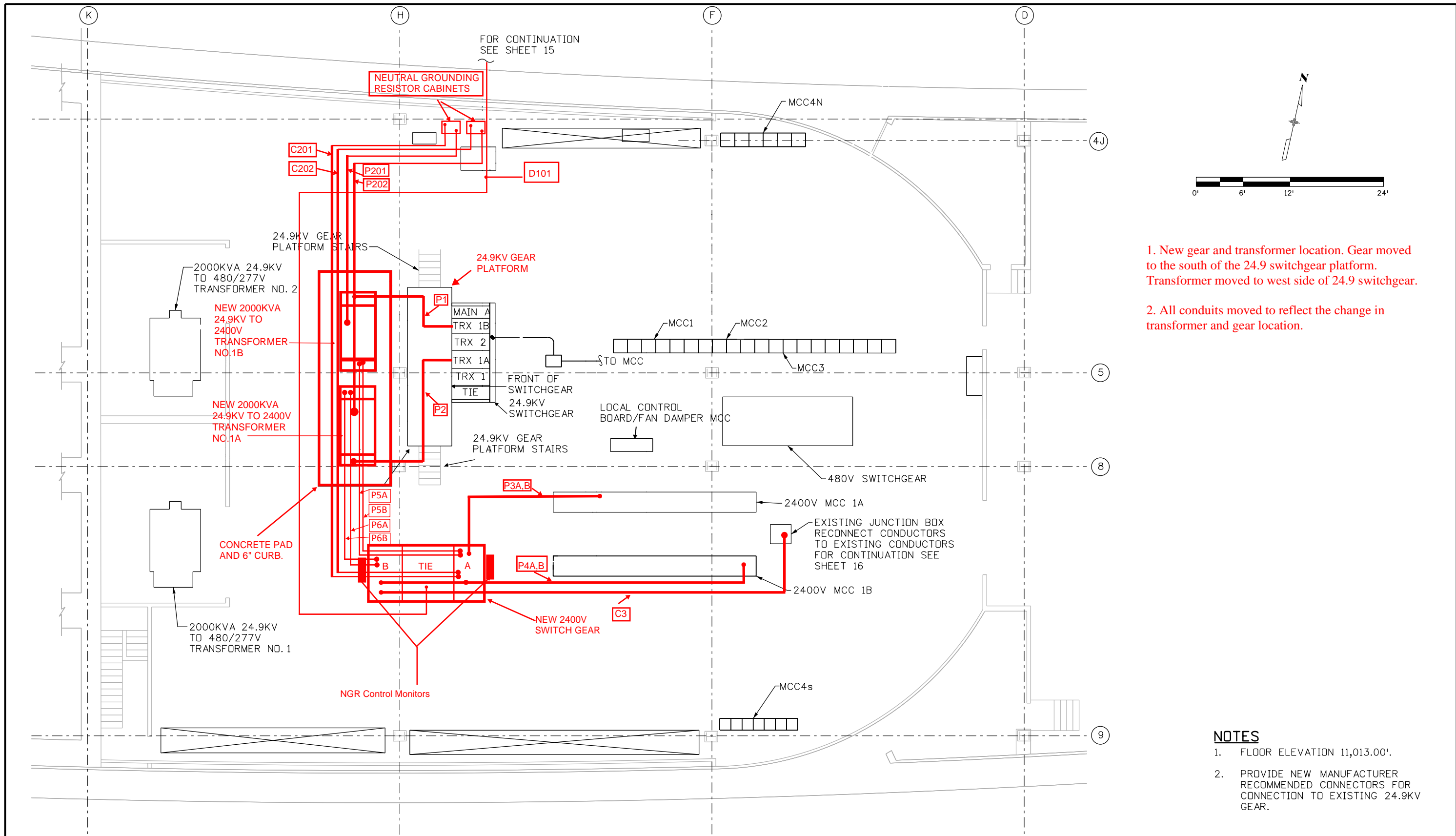
Region 1

As Constructed
No Revisions:
Revised:
Void:

EAST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM PLAN - NEW	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	Subset Sheets: 12 of 26
Sheet Subset:	

Project No./Code
NHPP 0703-420
20323
Sheet Number 12

Heidenreich 2:06:08 PM J:\184045L - EUMT 2400V Switchgear\5.0 Project Data\5.1 Electrical\FinalDesign\Plan Sheet files\24.9-E-New-Elec-Room.dgn



1. New gear and transformer location. Gear moved to the south of the 24.9 switchgear platform. Transformer moved to west side of 24.9 switchgear.
2. All conduits moved to reflect the change in transformer and gear location.

- NOTES**
1. FLOOR ELEVATION 11,013.00'.
 2. PROVIDE NEW MANUFACTURER RECOMMENDED CONNECTORS FOR CONNECTION TO EXISTING 24.9KV GEAR.

Print Date: 6/24/2016	
File Name: 24.9-E-New-Elec-Room.dgn	
Horiz. Scale: 1:12	Vert. Scale: NA
Unit Information	Unit Leader Initials
PARSONS BRINCKERHOFF	555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.
3-16-17	As Built	NZ

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Region 1

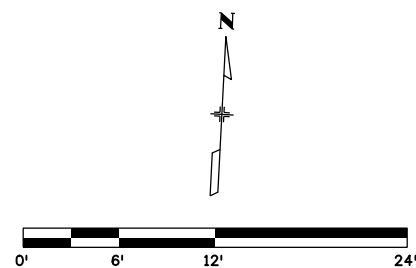
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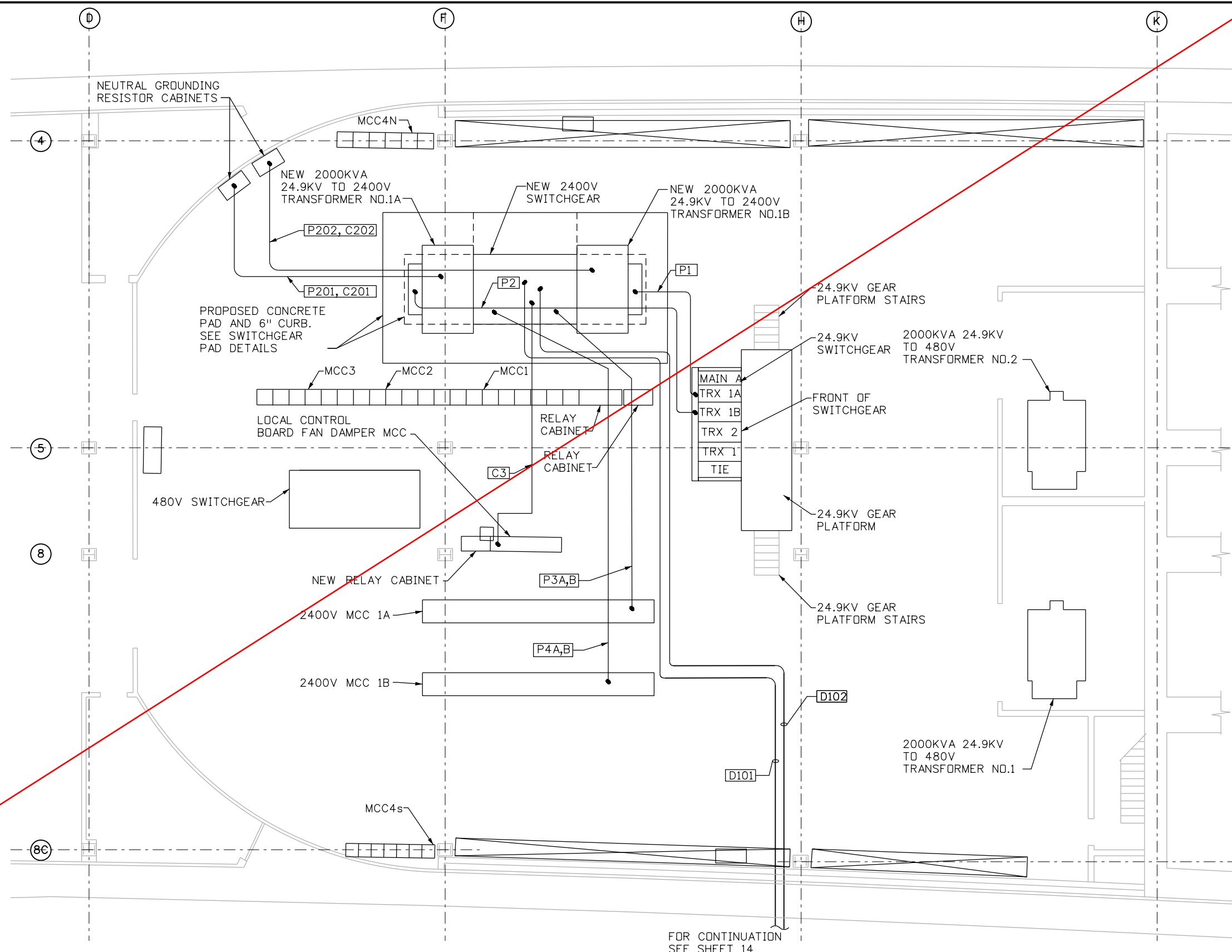
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PLAN - NEW	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
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Project No./Code
NHPP 0703-420
20323
Sheet Number 12

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LAYOUT
REVISED



NOTES

1. FLOOR ELEVATION 11,156.50'.
2. PROVIDE NEW MANUFACTURER RECOMMENDED CONNECTORS FOR CONNECTION TO EXISTING 24.9KV GEAR.

FOR CONTINUATION
SEE SHEET 14

Print Date: 6/24/2018	
File Name: 24.9-W_New-Elec-Room.dgn	
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555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936	

Sheet Revisions		
Date:	Comments	Init.
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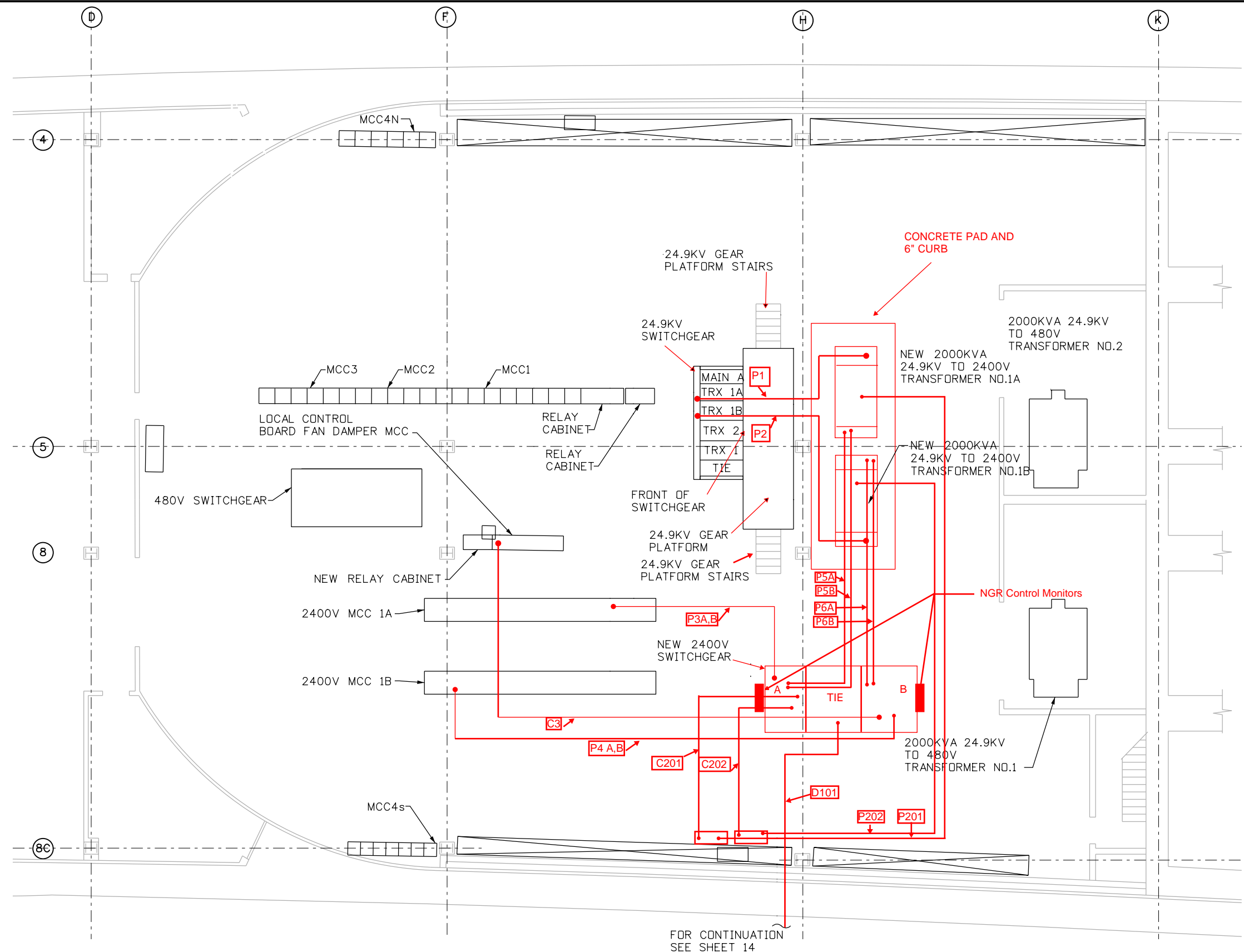
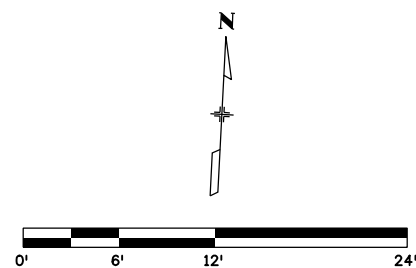
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Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 13 of 26

Project No./Code
NHPP 0703-420
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Sheet Number 13

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NOTES

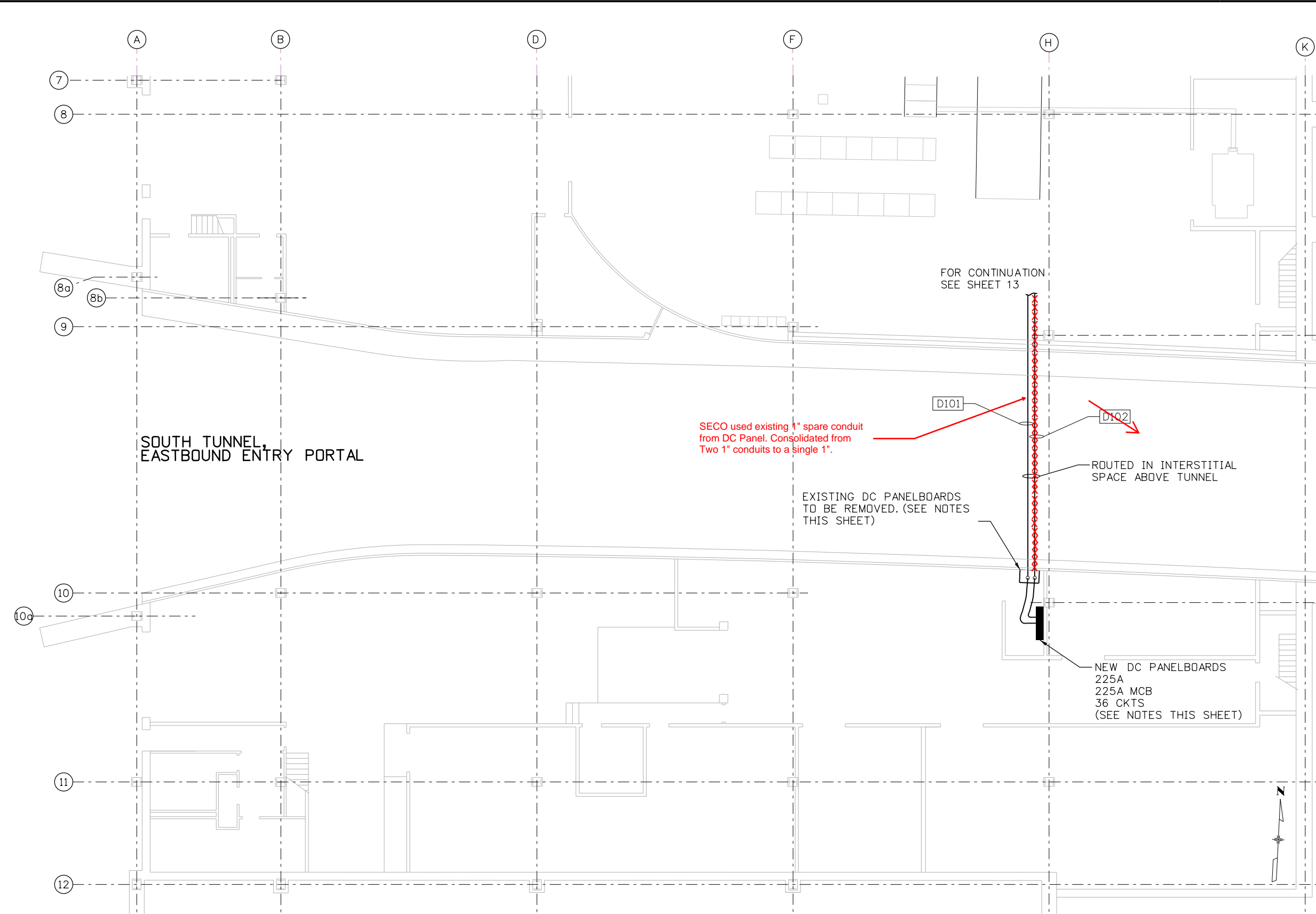
1. FLOOR ELEVATION 11,156.50'.
2. PROVIDE NEW MANUFACTURER RECOMMENDED CONNECTORS FOR CONNECTION TO EXISTING 24.9KV GEAR.

FOR CONTINUATION
SEE SHEET 14

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	20323																																	
Sheet Number	13																																	
555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Designer:</td> <td>J. SHELDON</td> <td>Structure Numbers</td> <td> </td> </tr> <tr> <td>Detailer:</td> <td>J. GONZALES</td> <td> </td> <td> </td> </tr> <tr> <td>Sheet Subset:</td> <td> </td> <td>Subset Sheets:</td> <td>13 of 26</td> </tr> </table>	Designer:	J. SHELDON	Structure Numbers		Detailer:	J. GONZALES			Sheet Subset:		Subset Sheets:	13 of 26																					
Designer:	J. SHELDON	Structure Numbers																																
Detailer:	J. GONZALES																																	
Sheet Subset:		Subset Sheets:	13 of 26																															

NOTES

- SEQUENCE OF CONSTRUCTION
1. INSTALL NEW DC PANELBOARDS ADJACENT TO EXISTING DC PANELBOARDS AS INDICATED ON THE DRAWINGS.
 2. ROUTE NEW FEEDER AND BRANCH CIRCUIT WIRING TO NEW JUNCTION BOX AS INDICATED ON THE DRAWINGS. PROVIDE TERMINAL BLOCKS SIZED APPROPRIATELY FOR THE CONDUCTORS FOR EACH FEEDER/BRANCH CIRCUIT CONDUCTOR WITHIN THE JUNCTION BOX. INSTALL (8) SPARE TERMINAL BLOCKS OF EACH SIZE PROVIDED.
 3. DISCONNECT POWER FROM EXISTING DC PANELBOARDS (LOCK/TAG OUT IN ACCORDANCE WITH CDOT EJMT STANDARD PROCEDURES).
 4. DISCONNECT EXISTING DC PANELBOARDS FEEDER FROM EXISTING PANEL AND ROUTE TO NEW JUNCTION BOX.
 5. CONNECT NEW AND EXISTING FEEDER SEGMENTS AT NEW JUNCTION BOX TERMINAL BLOCKS.
 6. DISCONNECT EXISTING DC PANELBOARDS BRANCH CIRCUITS FROM EXISTING PANEL AND ROUTE TO NEW JUNCTION BOX.
 7. CONNECT NEW AND EXISTING BRANCH CIRCUIT CONDUCTOR SEGMENTS AT THE NEW JUNCTION BOX TERMINAL BLOCKS.
 8. TEST EACH CONDUCTOR AND TERMINAL BLOCK FOR CONTINUITY AND INSULATION INTEGRITY.
 9. MAKE CONNECTIONS TO NEW DC PANELBOARDS FOR NEW CIRCUITS TO NEW 2400V GEAR.
 10. ENERGIZE NEW DC PANELBOARDS.
- NOTE: COORDINATE ALL SHUT DOWNS WITH CDOT EJMT STAFF MINIMUM 2 WEEKS IN ADVANCE. ELECTRICAL CONTRACTOR SHALL PROVIDE STAFF AS NECESSARY TO ASSIST CDOT EJMT STAFF WITH MANUAL SWITCHING OF SWITCHGEAR WHILE CONTROL POWER IS OFF AS DIRECTED BY CDOT EJMT STAFF. MAXIMUM DOWNTIME FOR DC PANELBOARDS SHALL BE NO MORE THAN 4 HOURS FOR EACH PANEL. BOTH DC PANELBOARDS (EAST/WEST) SHALL NOT BE SHUT DOWN SIMULTANEOUSLY. ELECTRICAL CONTRACTOR SHALL SUBMIT A WORK PLAN FOR EACH SCHEDULED OUTAGE.



FOR CONTINUATION
SEE SHEET 13

SECO used existing 1" spare conduit
from DC Panel. Consolidated from
Two 1" conduits to a single 1".

EXISTING DC PANELBOARDS
TO BE REMOVED. (SEE NOTES
THIS SHEET)

ROUTED IN INTERSTITIAL
SPACE ABOVE TUNNEL

NEW DC PANELBOARDS
225A
225A MCB
36 CKTS
(SEE NOTES THIS SHEET)

SOUTH TUNNEL
EASTBOUND ENTRY PORTAL

Print Date: 6/24/2016	
File Name: 16096ELEPLAN022w.dgn	
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Unit Information	Unit Leader Initials
PARSONS BRINCKERHOFF	555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936

Sheet Revisions		
Date:	Comments	Init.

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Golden, CO 80401
Phone: 720-497-6959 FAX: 720-497-6951

Region 1 JDS

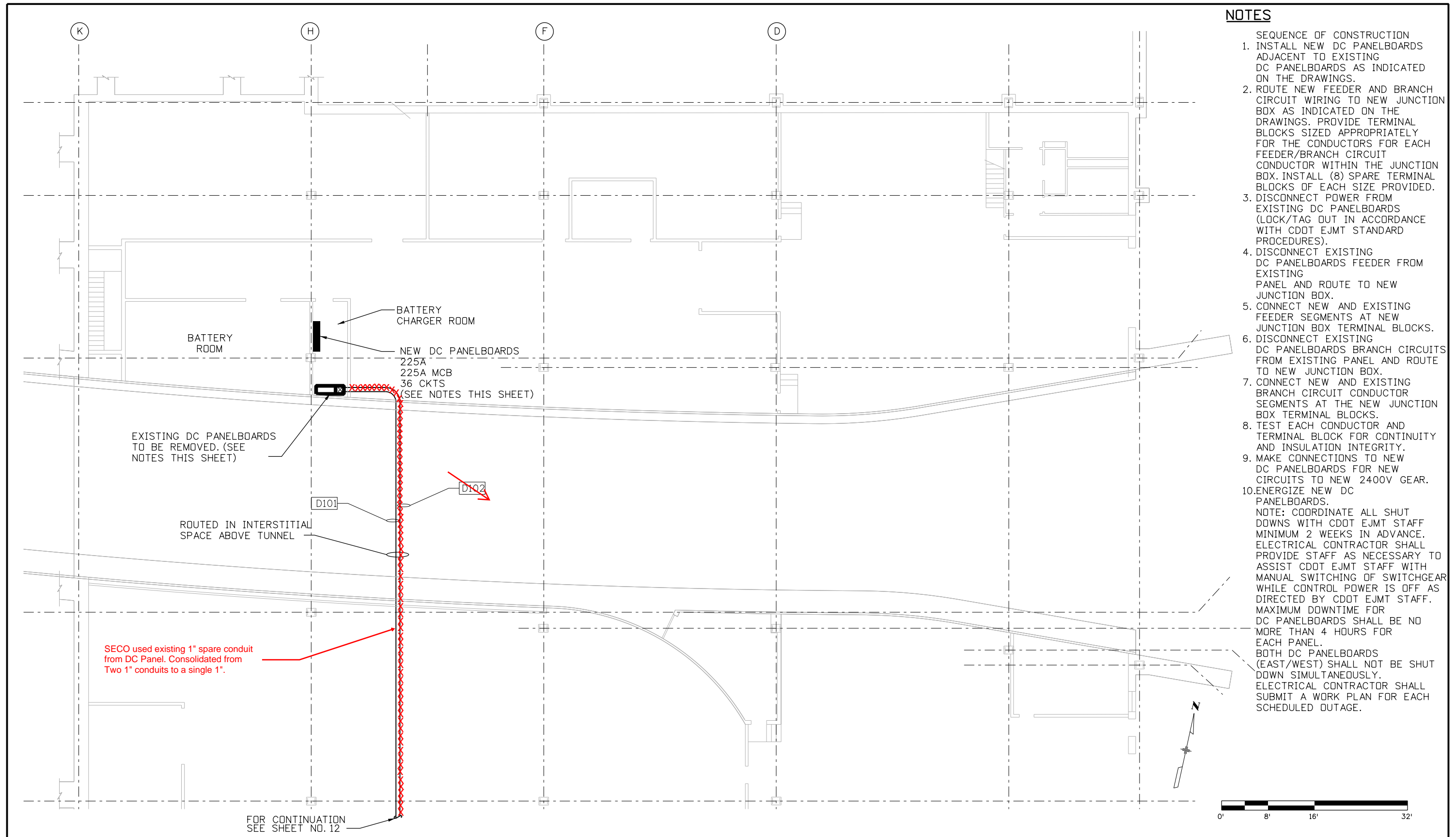
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WEST VENTILATION BUILDING GROUND FLOOR PLAN AND NEW WORK-PT2	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 14 of 26

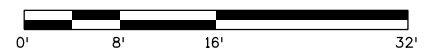
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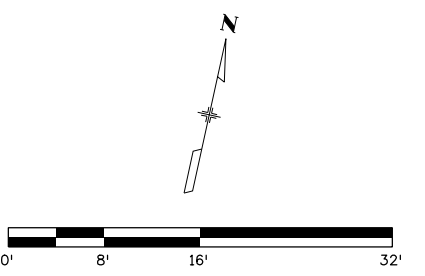
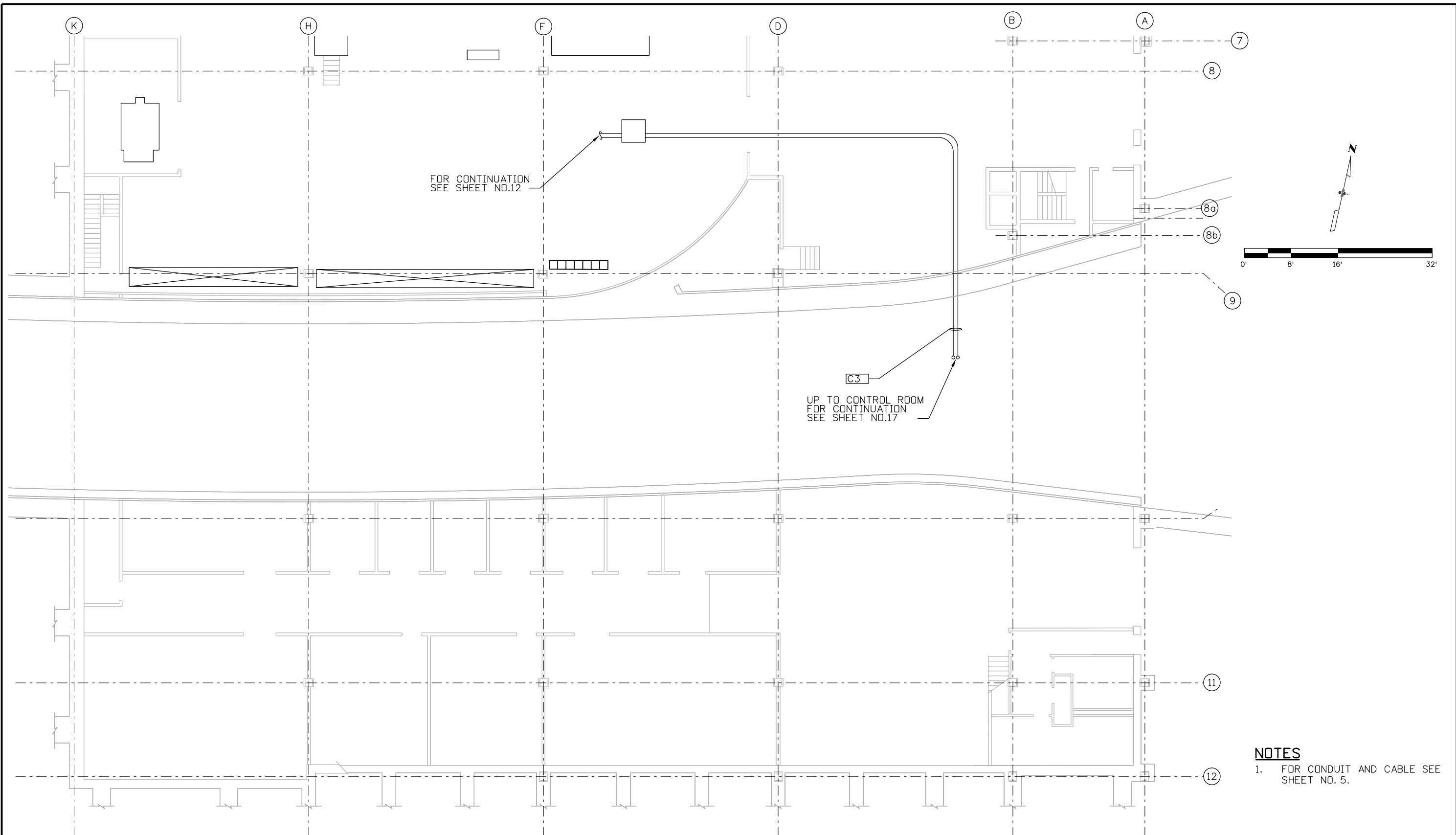


- ### NOTES
1. INSTALL NEW DC PANELBOARDS ADJACENT TO EXISTING DC PANELBOARDS AS INDICATED ON THE DRAWINGS.
 2. ROUTE NEW FEEDER AND BRANCH CIRCUIT WIRING TO NEW JUNCTION BOX AS INDICATED ON THE DRAWINGS. PROVIDE TERMINAL BLOCKS SIZED APPROPRIATELY FOR THE CONDUCTORS FOR EACH FEEDER/BRANCH CIRCUIT CONDUCTOR WITHIN THE JUNCTION BOX. INSTALL (8) SPARE TERMINAL BLOCKS OF EACH SIZE PROVIDED.
 3. DISCONNECT POWER FROM EXISTING DC PANELBOARDS (LOCK/TAG OUT IN ACCORDANCE WITH CDOT EJMT STANDARD PROCEDURES).
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 9. MAKE CONNECTIONS TO NEW DC PANELBOARDS FOR NEW CIRCUITS TO NEW 2400V GEAR.
 10. ENERGIZE NEW DC PANELBOARDS.
- NOTE: COORDINATE ALL SHUT DOWNS WITH CDOT EJMT STAFF MINIMUM 2 WEEKS IN ADVANCE. ELECTRICAL CONTRACTOR SHALL PROVIDE STAFF AS NECESSARY TO ASSIST CDOT EJMT STAFF WITH MANUAL SWITCHING OF SWITCHGEAR WHILE CONTROL POWER IS OFF AS DIRECTED BY CDOT EJMT STAFF. MAXIMUM DOWNTIME FOR DC PANELBOARDS SHALL BE NO MORE THAN 4 HOURS FOR EACH PANEL. BOTH DC PANELBOARDS (EAST/WEST) SHALL NOT BE SHUT DOWN SIMULTANEOUSLY. ELECTRICAL CONTRACTOR SHALL SUBMIT A WORK PLAN FOR EACH SCHEDULED OUTAGE.



Print Date: 6/24/2016		Sheet Revisions		Colorado Department of Transportation		As Constructed		EAST VENTILATION BUILDING		Project No./Code				
File Name: 24.9-E_Vent-Room04.dgn		Date:	Comments	Init.	425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS		No Revisions:		GROUND FLOOR PLAN - NORTH		NHPP 0703-420			
Horiz. Scale: 1:16 Vert. Scale: NA							Revised:		Designer: J. SHELDON		Structure Numbers		20323	
Unit Information Unit Leader Initials							Void:		Detailer: J. GONZALES		Sheet Subset:		Subset Sheets: 15 of 26	
555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936						Region 1				Sheet Number		15		

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NOTES
 1. FOR CONDUIT AND CABLE SEE SHEET NO. 5.

Print Date: 6/24/2016	
File Name: 24.9-E_Vent-Room02.dgn	
Horiz. Scale: 1:16 Vert. Scale: NA	
Unit Information Unit Leader Initials	
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Date:	Comments	Init.
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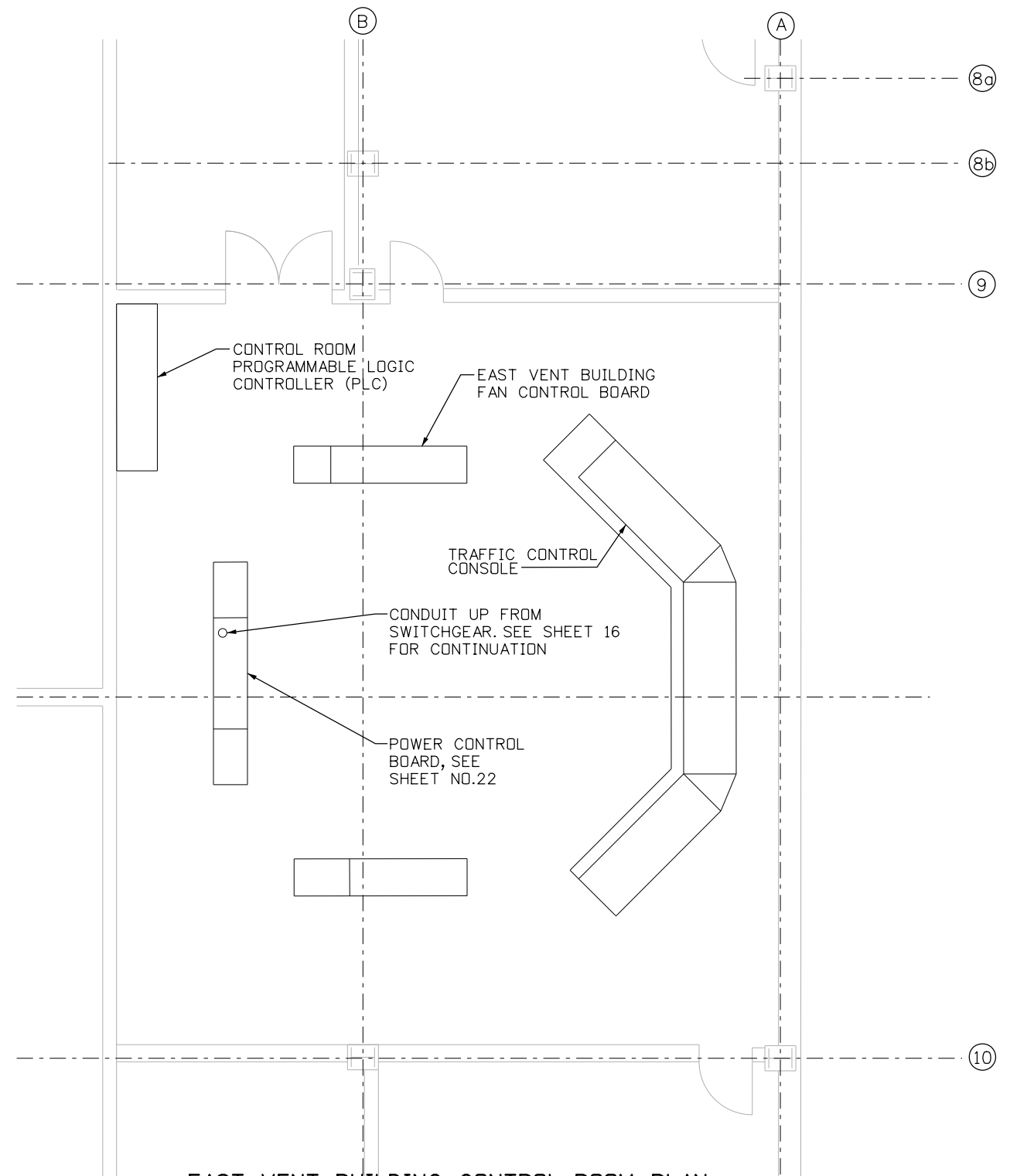
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As Constructed
No Revisions:
Revised:
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EAST VENTILATION BUILDING GROUND FLOOR PLAN - SOUTH	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 16 of 26

Project No./Code
NHPP 0703-420
20323
Sheet Number 16

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EAST VENT BUILDING CONTROL ROOM PLAN
FOR INFORMATION ONLY

NOTES

1. THE CONTROL ROOM IS BEING RENOVATED AT THE TIME OF DESIGN AND MAY NOT REFLECT CURRENT CONDITIONS WHEN THIS PROJECT GOES TO AD. FIELD VERIFY EQUIPMENT LOCATIONS PRIOR TO CONSTRUCTION.

Print Date: 6/24/2016	
File Name: 24.9-E_Vent-Room03.dgn	
Horiz. Scale: 1:8 Vert. Scale: NA	
Unit Information Unit Leader Initials: NA	
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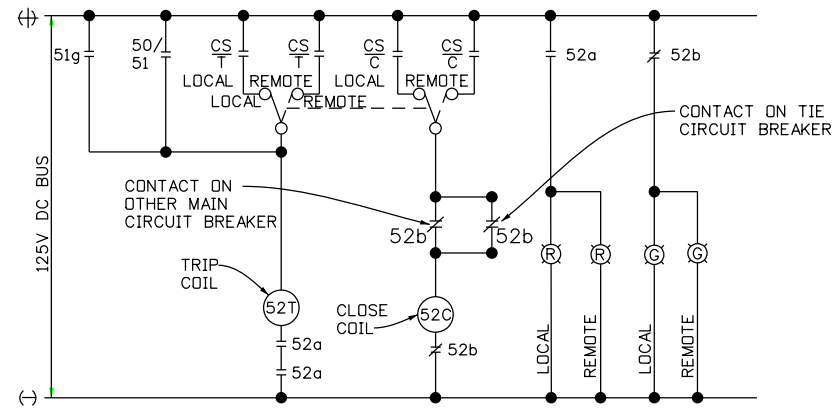
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Void:

EAST VENTILATION BUILDING CONTROL ROOM PLAN		
Designer: J. SHELDON	Structure Numbers	
Detailer: J. GONZALES		
Sheet Subset:	Subset Sheets: 17 of 26	

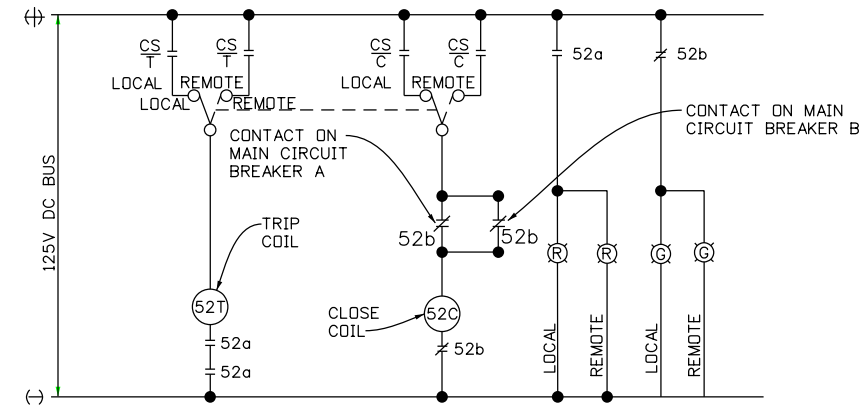
Project No./Code
NHPP 0703-420
20323
Sheet Number 17

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MAIN CIRCUIT BREAKERS

N.T.S.



TIE CIRCUIT BREAKERS

N.T.S.

Print Date: 6/24/2016	
File Name: 24.9-Control-Diagram.dgn	
Horiz. Scale: 1:2	Vert. Scale: NA
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Void:

SWITCHGEAR SCHEMATIC DIAGRAMS	
Designer: J. SHELDON	Structure Numbers
Detailer: J. GONZALES	
Sheet Subset:	Subset Sheets: 18 of 26

Project No./Code
NHPP 0703-420
20323
Sheet Number 18

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WEST BUILDING

1. DOCUMENT AND ARCHIVE EXISTING PROTECTION AND CONTROL RELAY TYPES AND SETTINGS TO REPLICATE PROTECTION AND CONTROL SCHEME ON NEW GEAR.
2. TEMPORARILY INSTALL ONE NEW EAST BUILDING 24.9KV TO 2400 VOLT TRANSFORMER IN THE SPACE INDICATED IN THE WEST BUILDING.
3. INSTALL TEMPORARY SWITCHES AND CONNECT TO TRANSFORMER SECONDARY.
4. CONNECT TO CONTROL POWER SOURCE.
5. TEST TEMPORARY SWITCHES FOR INTEGRITY AND PROPER OPERATION.
6. OPEN 2400 VOLT MAIN CIRCUIT BREAKER 1A AND CLOSE 2400 VOLT TIE CIRCUIT BREAKER.
7. OPEN AND RACK OUT THE 24.9KV LOAD BREAK SWITCH FOR TRANSFORMER NO.1A AND TRANSFER THE 24.9KV FEEDER P2 FROM EXISTING 24.9KV TO 2400 VOLT TRANSFORMER NO.1A TO TEMPORARY TRANSFORMER PRIMARY.
8. TEST TEMPORARY TRANSFORMER AND SWITCHES FOR INTEGRITY AND PROPER OPERATION.
9. SECURE MCC NO. 1A, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS AND OPEN 2400 VOLT TIE CIRCUIT BREAKER, DE-ENERGIZING MCC NO. 1A.
10. CONNECT TEMPORARY 2400 VOLT FEEDER FROM TEMPORARY SWITCH 1A TO MCC NO. 1A.
11. TEST FEEDER FOR INTEGRITY.
12. ENERGIZE TEMPORARY FEEDER TO MCC NO. 1A.
13. RETURN MCC NO. 1A TO NORMAL OPERATION AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.

SEQUENCE OF CONSTRUCTION:

14. SECURE MCC NO. 1B, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS.
15. OPEN AND RACK OUT THE 24.9KV LOAD BREAK SWITCH FOR TRANSFORMER NO. 1B. OPEN 2400 VOLT MAIN CIRCUIT BREAKER 1B, DE-ENERGIZING MCC NO. 1B.
16. CONNECT TEMPORARY 2400 VOLT FEEDER FROM TEMPORARY SWITCH 1B TO MCC NO. 1B.
17. TEST FEEDER FOR INTEGRITY.
18. ENERGIZE TEMPORARY FEEDER TO MCC NO. 1B.
19. RETURN MCC NO. 1B TO NORMAL OPERATION AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.
20. DISCONNECT EXISTING 24.9KV FEEDER TO TRANSFORMER NO. 1B.
21. REMOVE EXISTING 2400 VOLT SWITCHGEAR AND TRANSFORMERS, ONE TRANSFORMER SHALL BE RETAINED FOR USE AS A TEMPORARY TRANSFORMER FOR THE EAST BUILDING.
22. CONSTRUCT NEW SWITCHGEAR CONCRETE PAD AND FLUID CONTAINMENT.
23. INSTALL NEW 2400 VOLT SWITCHGEAR AND NEW 24.9KV TO 2400 VOLT TRANSFORMERS.
24. DISCONNECT 24.9KV FEEDER TO TRANSFORMER NO. 1B
25. TEST SWITCHGEAR AND TRANSFORMERS.
26. CONNECT CONTROL POWER
27. TEST FOR PROPER CONTROL OPERATION.
28. SECURE MCC NO. 1B, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS.

29. OPEN 2400 VOLT TEMPORARY SWITCH 1B, DE-ENERGIZING MCC NO. 1B.
30. CONNECT NEW 2400 VOLT FEEDER FROM NEW SWITCHGEAR TO MCC NO. 1B.
31. TEST FEEDER FOR INTEGRITY.
32. RETURN MCC NO. 1B TO NORMAL OPERATION AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.
33. SECURE MCC NO. 1A, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS.
34. OPEN 2400 VOLT TEMPORARY SWITCH 1A, DE-ENERGIZING MCC NO. 1A.
35. CONNECT NEW 2400 VOLT FEEDER FROM NEW SWITCHGEAR TO MCC NO. 1A.
36. TEST FEEDER FOR INTEGRITY.
37. RETURN MCC NO. 1A TO NORMAL OPERATION BY CLOSING NEW 2400 VOLT TIE CIRCUIT BREAKER AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.
38. OPEN AND RACK OUT THE 24.9KV CIRCUIT BREAKER FOR TRANSFORMER NO. 1A AND TRANSFER THE 24.9KV FEEDER P2 FROM TEMPORARY 24.9KV TO 2400 VOLT TRANSFORMER NO. 1A TO NEW TRANSFORMER PRIMARY.
39. TEST FEEDER FOR INTEGRITY.
40. IN NEW 2400 VOLT SWITCHGEAR, OPEN TIE CIRCUIT BREAKER AND CLOSE MAIN CIRCUIT BREAKER NO. 1A.
41. TEST INSTALLATION FOR PROPER OPERATION.
42. REMOVE TEMPORARY SWITCHGEAR AND TEMPORARY TRANSFORMER, RETAIN SWITCHGEAR FOR USE IN EAST BUILDING. TEMPORARY TRANSFORMER WILL BE INSTALLED AS NEW PERMANENT TRANSFORMER IN EAST BUILDING.

EAST BUILDING

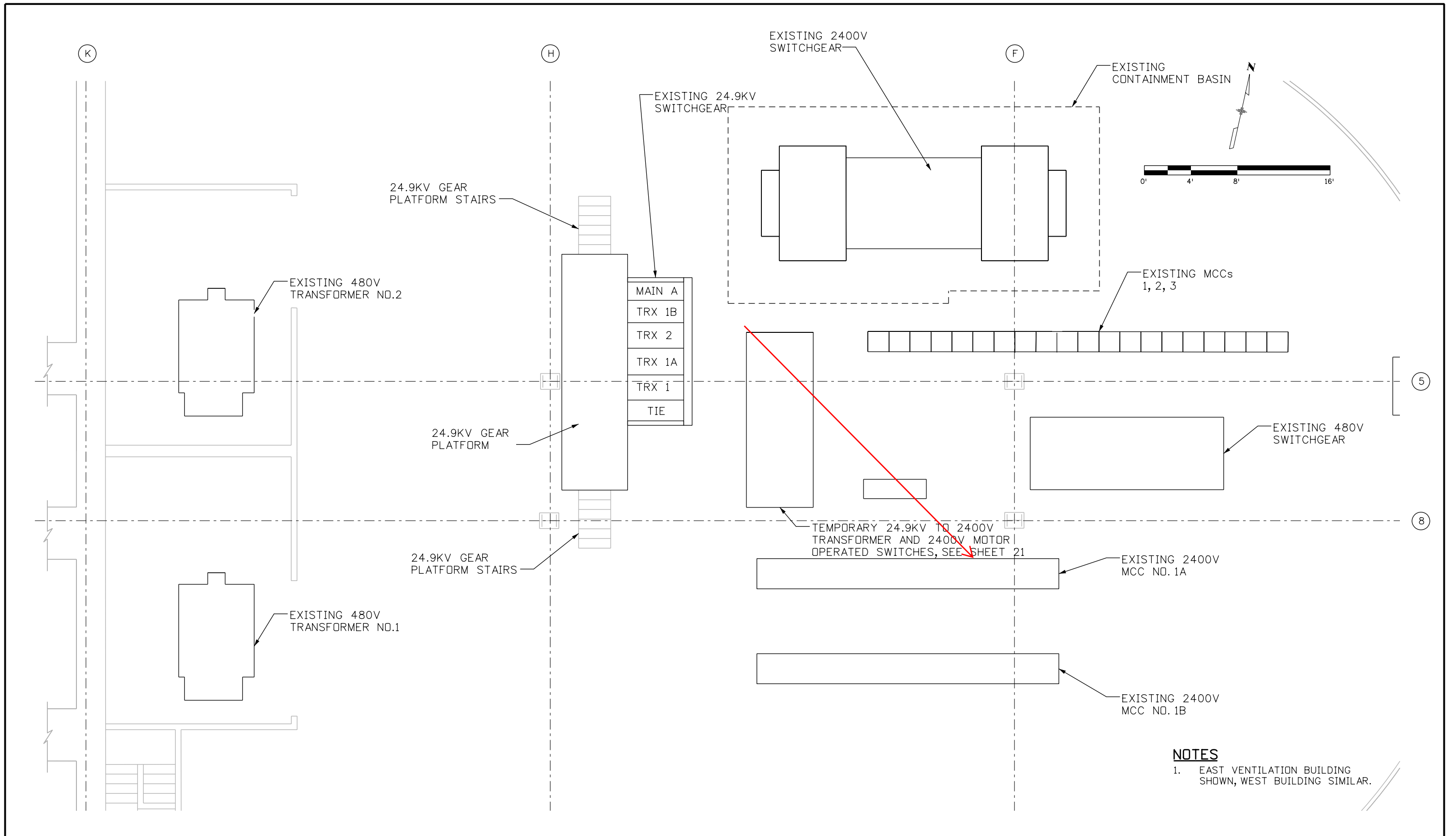
1. DOCUMENT AND ARCHIVE EXISTING PROTECTION AND CONTROL RELAY TYPES AND SETTINGS TO REPLICATE PROTECTION AND CONTROL SCHEME ON NEW GEAR.
2. TEMPORARILY INSTALL ONE OF THE REMOVED WEST BUILDING 24.9kv to 2400 VOLT TRANSFORMERS IN THE SPACE INDICATED IN THE EAST BUILDING.
3. INSTALL TEMPORARY SWITCHES AND CONNECT TO TRANSFORMER SECONDARY.
4. CONNECT TO CONTROL POWER SOURCE.
5. TEST TEMPORARY SWITCHES FOR INTEGRITY AND PROPER OPERATION.
6. OPEN 2400 VOLT MAIN CIRCUIT BREAKER 1A AND CLOSE 2400 VOLT TIE CIRCUIT BREAKER.
7. OPEN AND RACK OUT THE 24.9kv LOAD BREAK SWITCH FOR TRANSFORMER NO. 1B AND TRANSFER THE 24.9kv FEEDER P1 FROM EXISTING 24.9kv TO 2400 VOLT TRANSFORMER NO. 1B TO TEMPORARY TRANSFORMER PRIMARY.
8. TEST TEMPORARY TRANSFORMER AND SWITCHES FOR INTEGRITY AND PROPER OPERATION.
9. SECURE MCC NO. 1B, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS AND OPEN 2400 VOLT TIE CIRCUIT BREAKER, DE-ENERGIZING MCC NO. 1B.
10. CONNECT TEMPORARY 2400 VOLT FEEDER FROM TEMPORARY SWITCH 1B TO MCC NO. 1B.
11. TEST FEEDER FOR INTEGRITY.
12. ENERGIZE TEMPORARY FEEDER TO MCC NO. 1B.
13. RETURN MCC NO. 1B TO NORMAL OPERATION AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.

14. SECURE MCC NO. 1A, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS.
15. OPEN AND RACK OUT THE 24.9kv LOAD BREAK SWITCH FOR TRANSFORMER NO. 1A. OPEN 2400 VOLT MAIN CIRCUIT BREAKER 1B, DE-ENERGIZING MCC NO. 1A.
16. CONNECT TEMPORARY 2400 VOLT FEEDER FROM TEMPORARY SWITCH 1A TO MCC NO. 1A.
17. TEST FEEDER FOR INTEGRITY.
18. ENERGIZE TEMPORARY FEEDER TO MCC NO. 1A.
19. RETURN MCC NO. 1A TO NORMAL OPERATION AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.
20. DISCONNECT EXISTING 24.9kv FEEDER TO TRANSFORMER NO. 1A.
21. REMOVE EXISTING 2400 VOLT SWITCHGEAR AND TRANSFORMERS.
22. CONSTRUCT NEW SWITCHGEAR CONCRETE PAD AND FLUID CONTAINMENT.
23. INSTALL NEW 2400 VOLT SWITCHGEAR AND NEW 24.9kv TO 2400 VOLT TRANSFORMERS.
24. DISCONNECT 24.9kv FEEDER TO TRANSFORMER NO. 1A.
25. TEST SWITCHGEAR AND TRANSFORMERS.
26. CONNECT CONTROL POWER.
27. TEST FOR PROPER CONTROL OPERATION.
28. SECURE MCC NO. 1A, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS.

29. OPEN 2400 VOLT TEMPORARY CIRCUIT BREAKER 1B, DE-ENERGIZING MCC NO. 1A.
30. CONNECT NEW 2400 VOLT FEEDER FROM NEW SWITCHGEAR TO MCC NO. 1A.
31. TEST FEEDER FOR INTEGRITY.
32. RETURN MCC NO. 1A TO NORMAL OPERATION AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.
33. SECURE MCC NO. 1B, TRANSFER APPLICABLE TUNNEL LIGHTING LOADS.
34. OPEN 2400 VOLT TEMPORARY CIRCUIT BREAKER 1A, DE-ENERGIZING MCC NO. 1B.
35. CONNECT NEW 2400 VOLT FEEDER FROM NEW SWITCHGEAR TO MCC NO. 1B.
36. TEST FEEDER FOR INTEGRITY.
37. RETURN MCC NO. 1B TO NORMAL OPERATION BY CLOSING NEW 2400 VOLT TIE CIRCUIT BREAKER AND TEST FOR SATISFACTORY OPERATION OF ALL LOADS.
38. OPEN AND RACK OUT THE 24.9kv LOAD BREAK SWITCH FOR TRANSFORMER NO. 1B AND TRANSFER THE 24.9kv FEEDER P1 FROM TEMPORARY 24.9kv TO 2400 VOLT TRANSFORMER NO. 1B TO NEW TRANSFORMER PRIMARY.
39. TEST FEEDER FOR INTEGRITY.
40. IN NEW 2400 VOLT SWITCHGEAR, OPEN TIE CIRCUIT BREAKER AND CLOSE MAIN CIRCUIT BREAKER NO. 1B.
41. TEST INSTALLATION FOR PROPER OPERATION.
42. REMOVE TEMPORARY SWITCHGEAR AND TEMPORARY TRANSFORMER.
43. INSTALL TEMPORARY TRANSFORMER FROM WEST BUILDING.

Print Date: 6/24/2016		Sheet Revisions			 Colorado Department of Transportation 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS Region 1	As Constructed		SEQUENCE OF CONSTRUCTION		Project No./Code
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Horiz. Scale: 1:12 Vert. Scale: NA		3-16-17	As Built	NZ		Revised:		Designer: J. SHELDON	Structure Numbers	20323
Unit Information Unit Leader Initials						Void:		Detailer: J. GONZALES	Sheet Subset:	Subset Sheets: 19 of 26
555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936										

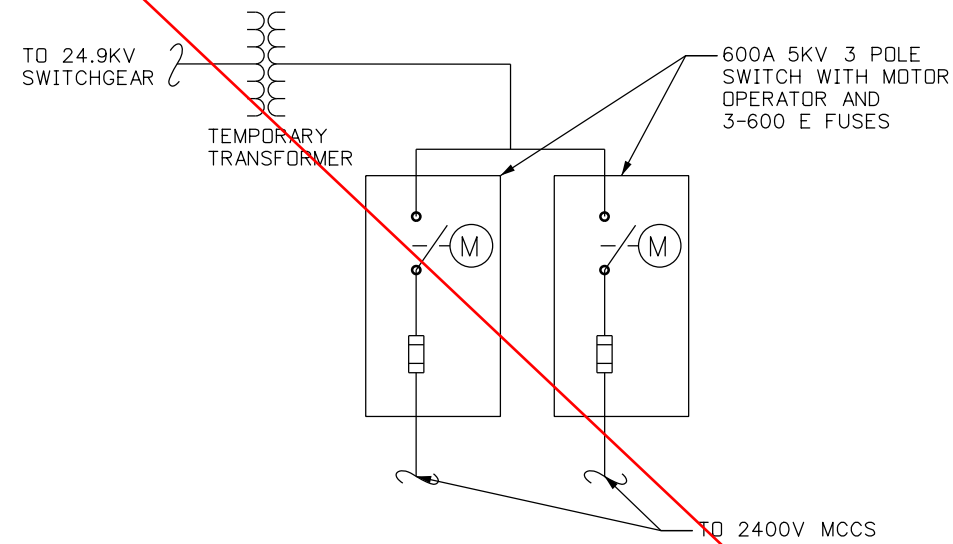
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NOTES
 1. EAST VENTILATION BUILDING SHOWN, WEST BUILDING SIMILAR.

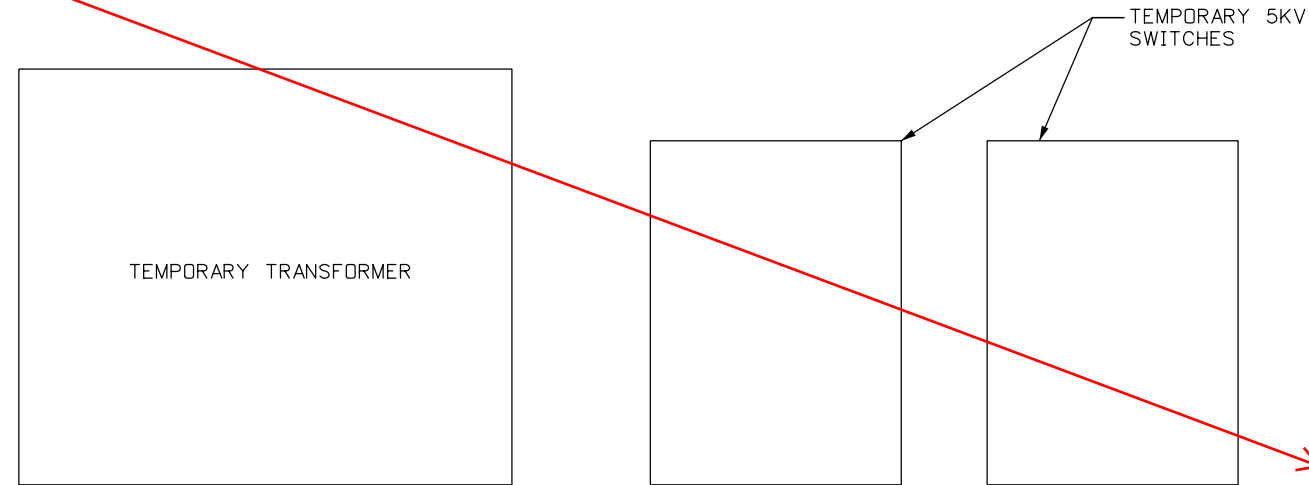
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 555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					Region 1							

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TEMPORARY EQUIPMENT ONE-LINE DIAGRAM

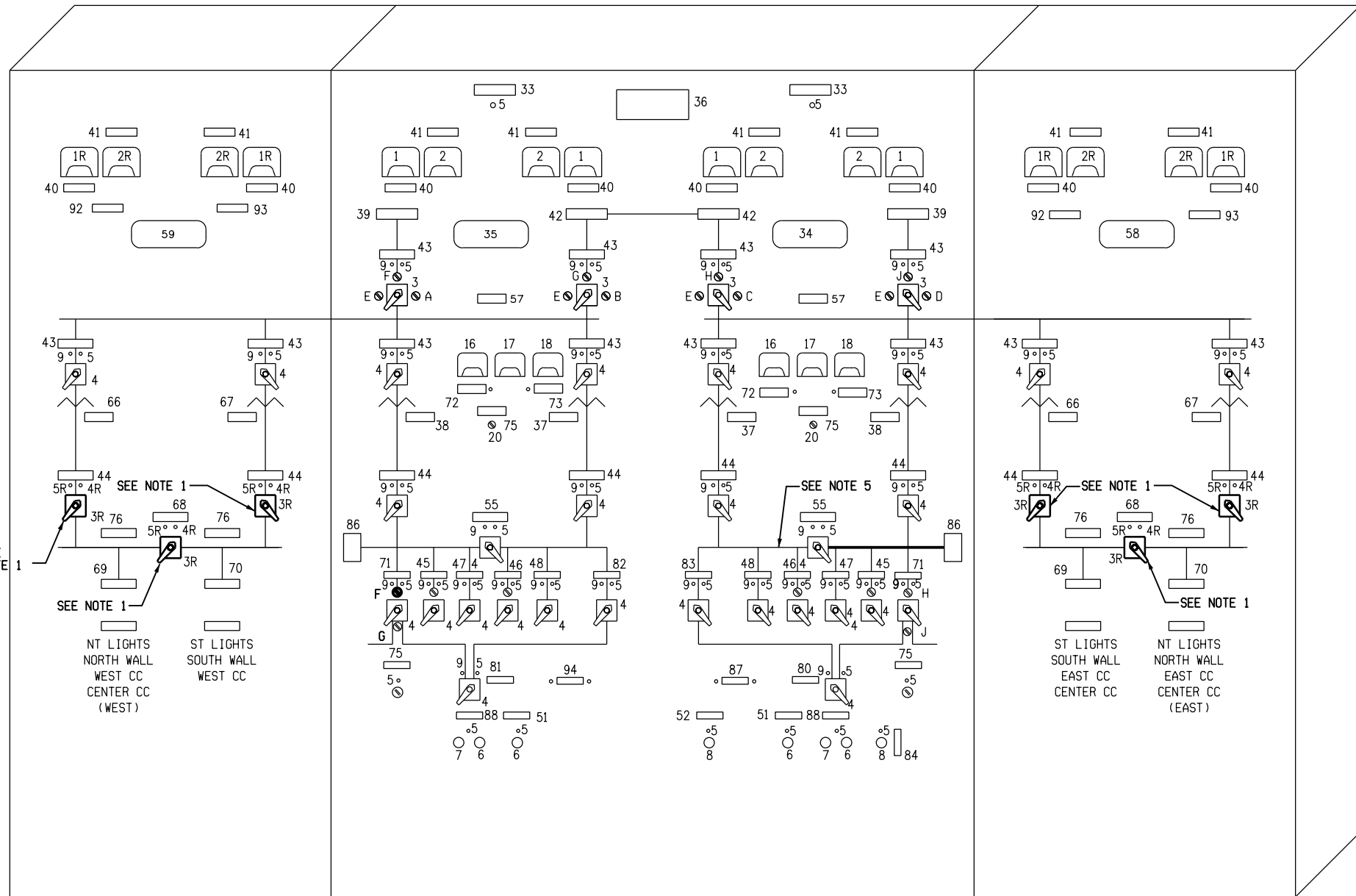
Temporary Gear and Transformers Not Used



PLAN
SEE SHEET 20 FOR LOCATION

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File Name: 24.9-TempDetail.dgn		Date: 3-16-17	Comments: As BUILTS	Init.: NZ		No Revisions:	Designer: J. SHELDON	Structure Numbers:	NHPP 0703-420		
Horiz. Scale: 1:12	Vert. Scale: NA	Unit Information		Unit Leader Initials: NA	Revised:	Detailer: J. GONZALES	20323				
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NOTES

1. **REPLACE** EXISTING CONTROL SWITCHES. Provide spare switches.
2. INDICATING LIGHTS SHALL BE MB120 BULB TYPE, NOT LED TYPE.
3. **REPLACE** EXISTING VOLTMETER. Provide spares.
4. **REPLACE** EXISTING AMMETER. Provide spares.
5. REPLACE MISSING/LOOSE LINEWORK FOR CONTROL BOARD DIAGRAM.

EXISTING POWER CONTROL BOARD

N.T.S.

REPLACEMENT EQUIPMENT LIST:

- 1R. AMMETER, AC 0-800 AMP.
- 2R. VOLTMETER, AC 0-300 VOLT.
- 3R. SWITCH TYPE S81, 2 STAGE 55-185285FG, ON-OFF (NOTE 1).
- 4R. INDICATING LIGHTS, TYPE ET 16, RED, 125 V.D.C. (NOTE 2).
- 5R. INDICATING LIGHT, TYPE ET 16, GREEN, 125 V.D.C. (NOTE 2).

TABULATION OF MODIFY CONTROL BOARD			
ITEM NO.	ITEM	QUANTITY	UNIT
210-00478	MODIFY POWER CONTROL BOARD	1	L S

EQUIPMENT LIST

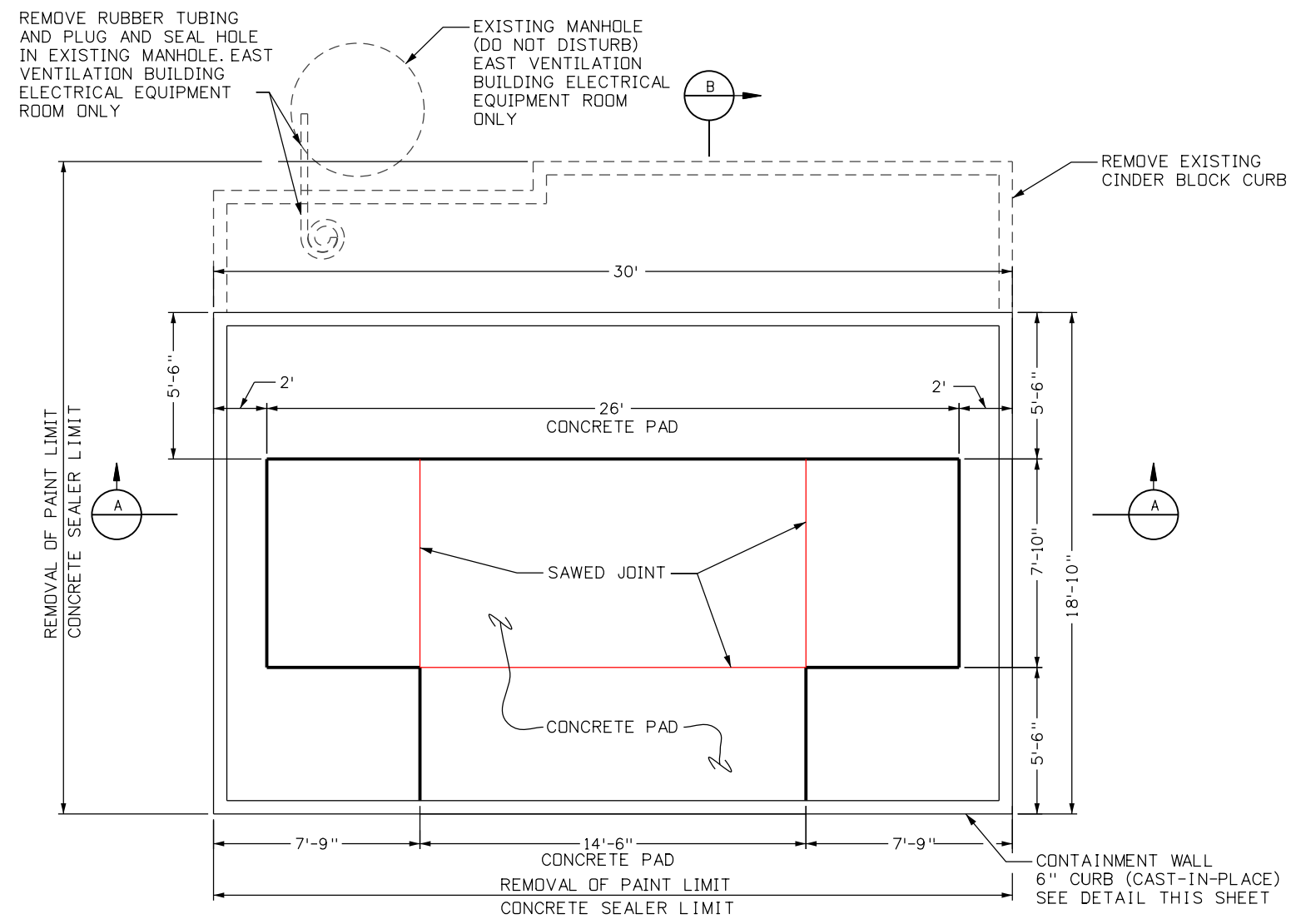
1. AMMETER TYPE 171-141-LSV3 0-3000 AMP. SEE NOTE 3.
2. VOLTMETER TYPE 171-031-SJSJ AC 0-600 VOLTS. SEE NOTE 3.
3. SWITCH TYPE S81, 2 STAGE WITH KIRK KEYLOCK, 55-185285P3, ON-OFF.
4. SWITCH TYPE S81, 2 STAGE 55-185285F6, ON-OFF.
5. INDICATING LIGHTS, TYPE ET 16, RED, 125 V.D.C.
6. CR2940UA202B PUSH BUTTON.
7. CR2940UA202C PUSH BUTTON.
8. CR2940UB202A SELECTOR SWITCH.
9. INDICATING LIGHT, TYPE ET-16 GREEN 125 V.D.C.
10. 0-5 MILLIAMMETER, TYPE 171-FXFX WITH 0-3000 AMP SCALE.
11. 0-5 MILLIAMMETER, TYPE 171-FXFX WITH 0-600 VOLT SCALE.
12. TERMINAL BOARD, (NOT SHOWN) CR151B26.
13. TRANSFORMER #1.
14. TRANSFORMER #2.
15. SWITCH, TYPE SB1, WITH KIRK KEYLOCK, 55-188285P4.
16. AMP METER.
17. HERTZ METER.
18. VOLT METER.
19. APPROACH LOW OIL PRESSURE LIGHT.
20. GOVERNOR CONTROL.
21. APPROACH HIGH WATER TEMPERATURE.
22. AMMETER, AC 0-800AMP.
23. VOLTMETER, AC 0-3000 VOLT.
24. 0-5 MILLIAMMETER WITH 0-800 AMP SCALE.
25. 0-5 MILLIAMMETER WITH 0-3000 VOLT SCALE.
26. 0-5 MILLIAMMETER WITH 0-1000 AMP SCALE.
27. 0-5 MILLIAMMETER WITH 55-65 HERTZ SCALE.
28. 0-5 MILLIAMMETER WITH 0-600 VAC SCALE.
29. INDICATING LIGHT, RED 125 V.D.C.
30. PUSHBUTTON RESET.
31. SELECTOR SWITCH, SPRING RETURN TO CENTER FROM LEFT & RIGHT POSITIONS, FAST-OFF-SLOW.
32. SELECTOR SWITCH, START-STOP.

NAMEPLATE SCHEDULE

FIRST LINE	SECOND LINE	THIRD LINE	DETAIL
33. POWER	ON		2
34. EAST	BUILDING		1
35. WEST	BUILDING		1
36. POWER	CONTROL	BOARD	1
37. TRANSFORMER	NO. 2	SECONDARY	2
38. TRANSFORMER	NO. 1	SECONDARY	2
39. PUBLIC SERVICE	INCOMING	LINE	2
40. AMMETER			2
41. VOLTMETER			2
42. 24.9 K.V.			2
43. LOAD	EMERGENCY	TIE	2
44. AIR	BREAK	SWITCH	2
45. MCC #1	CIRCUIT	BREAKER	2
46. MCC #2	FEEDER	BREAKER	2
47. MCC #3	FEEDER	BREAKER	2
48. MCC #3	FEEDER	BREAKER A	2
49. MCC #3	FEEDER	BREAKER B	2
50. MCC #3	FEEDER	RESET	2
51. BUILDING	POWER PANELS	VENT. FAN	2
52. SEDIMENTATION	TANKS		2
53. 480 VOLT	TIE BREAKER		2
54. 480 VOLT	BUSS		2
55. 24.9 K.V.	BUSS		2
56. 24.9 K.V.	BUILDING	SOUTH TUNNEL	1
57. 24.9 K.V.	BUILDING	NORTH TUNNEL	1
58. TRANSFORMER	NO. 1A		2
59. TRANSFORMER	NO. 1B		2
60. 2400 VOLT	TIE	BREAKER	2
61. MCC1A	EXHAUST		2
62. MCC1B	SUPPLY		2
63. EMERGENCY	GENERATOR	BREAKER	2
64. APPROACHING	LOW OIL	PRESS	2
65. APPROACHING	HIGH WATER	TEMP	2
66. EMERGENCY	GENERATOR	CONTROL	2
67. 2400 VOLT	BUSS		2
68. EAST	PEAK SHAVING		2
69. WEST	PEAK SHAVING		3
70. TRANSFER	SWITCH	ATS-WV	4
71. TRANSFER	SWITCH	ATS-EV	2
72. EAST D.C.	UNDER VOLTAGE		2
73. TUNNEL & BLDG.	D.C. LIGHTS	CONTROL ON	2
74. EXHAUST			2
75. SUPPLY	UNDervOLTAGE		2
76. WEST DC			2

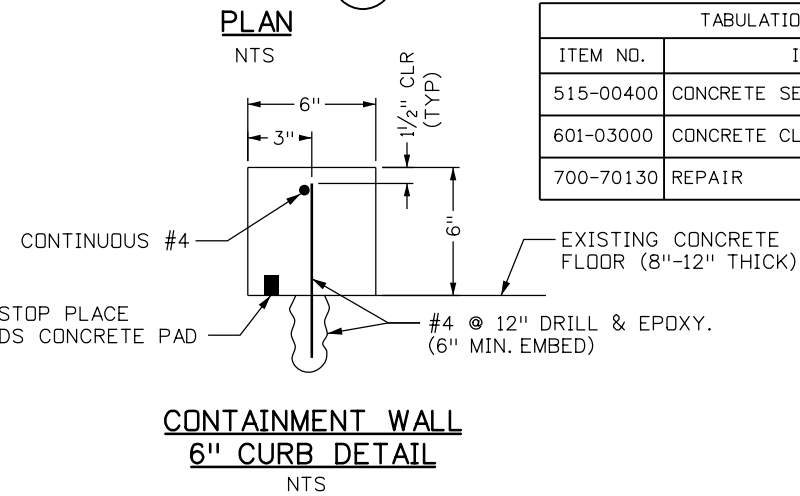
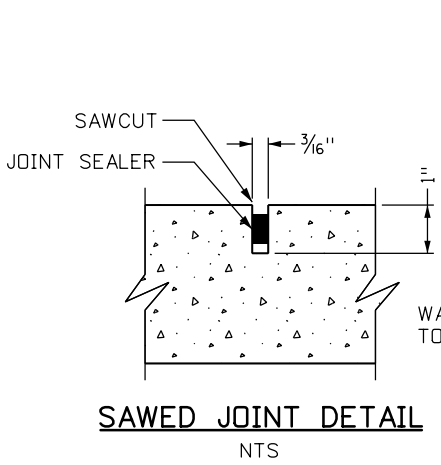
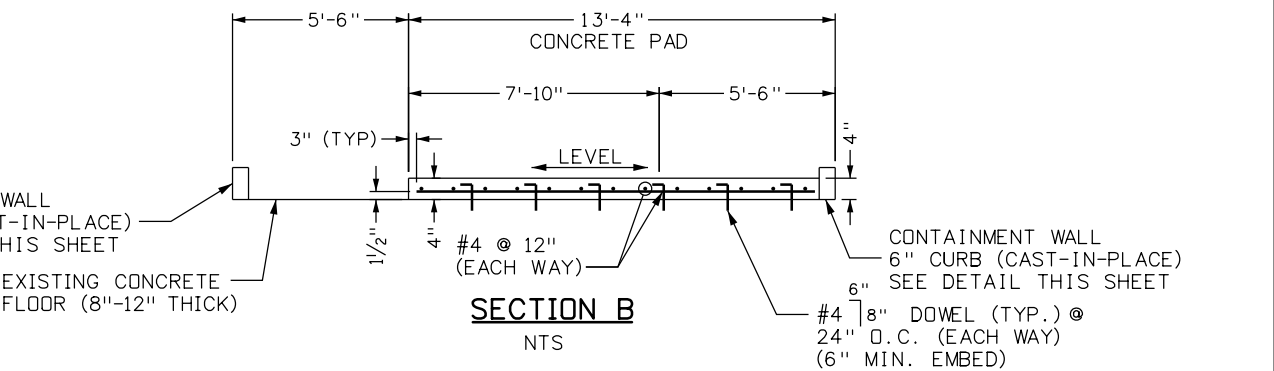
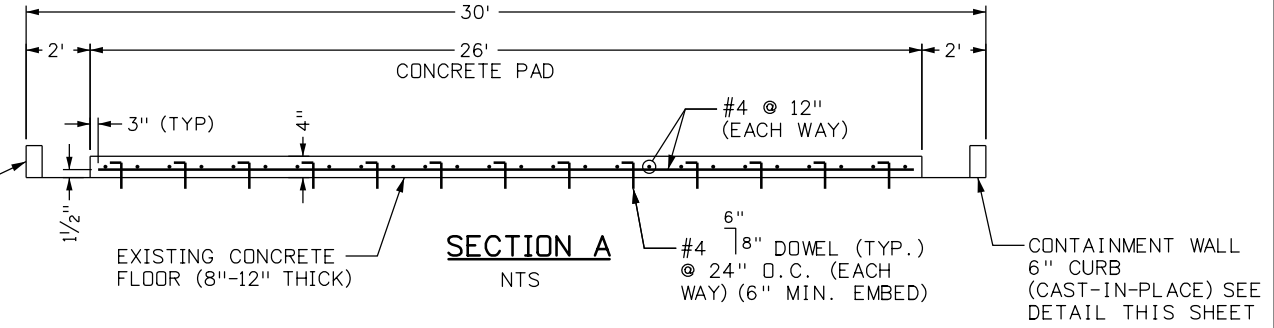
Print Date: 6/24/2016		Sheet Revisions		Colorado Department of Transportation		As Constructed		POWER CONTROL BOARD LAYOUT AND DETAILS		Project No./Code				
File Name: 24.9-Detail01.dgn		Date:	Comments	Init.	 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS		No Revisions:		Designer: J. SHELDON Detailer: J. GONZALES Sheet Subset:		NHPP 0703-420			
Horiz. Scale: 1:2 Vert. Scale: NA		3-16-17	As Built	NZ			Revised:				Structure Numbers		20323	
Unit Information Unit Leader Initials							Void:				Subset Sheets: 22 of 26		Sheet Number 22	
 555 17th Street, Suite 500 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936														

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NOTES

1. REMOVAL AND DISPOSAL OF EXISTING PAINT WILL BE COMPLETED PRIOR TO ANY CONSTRUCTION ACTIVITIES AND FOLLOW SUBSECTION 250.04.
2. AREAS OF EXISTING PAINT REMOVAL IS PAID FOR UNDER REMOVAL AND DISPOSAL OF PAINT (ITEM: 202-05300).
3. REMOVAL OF EXISTING CINDER BLOCK CURB INCLUDES THE WOOD TOP, METAL PUNCHED FLAT BARS, ALL FASTENERS, AND OTHER MISCELLANEOUS ITEMS ASSOCIATED WITH THE CINDER BLOCK CURB.
4. CONTRACTOR SHALL PREVENT ANY DUST RESULTING FROM PAINT OR CONCRETE BLOCK REMOVAL ACTIVITIES TO ENTER VENTILATION SYSTEM. CONTRACTOR SHALL PRESENT DUST CONTAINMENT PLAN TO THE ENGINEER FOR ACCEPTANCE 7 DAYS PRIOR TO COMMENCING THE WORK. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE WORK.
5. CONCRETE PAD AND CONTAINMENT WALL DIMENSIONS ARE APPROXIMATE. FIELD COORDINATE CONCRETE PAD AND CONTAINMENT WALL LAYOUT AND ADJUST PER MANUFACTURERS LAYOUT AND DIRECTIONS. FINAL DIMENSIONS PROVIDED TO THE ENGINEER FOR REVIEW 4 WEEKS PRIOR TO CONCRETE PAD AND CONTAINMENT WALL INSTALLATION.
6. THE REBAR AND WATER TIGHT SEALANT IS NOT PAID FOR SEPARATELY, BUT INCLUDED IN THE COST OF THE CONCRETE CLASS D (ITEM: 601-03000).
7. CONTRACTOR TO USE WATERSTOP BETWEEN NEW CURB AND EXISTING CONCRETE FLOOR.
8. SWITCHGEAR PLAN AND DETAILS APPLY TO BOTH THE EAST AND WEST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOMS.
9. FLOOR SHALL BE CLEAN OF ALL PAINT AND DELETERIOUS COATINGS PRIOR TO CONCRETE PLACEMENT.
10. CONTRACTOR TO VERIFY THE CONDITION OF THE EXISTING FLOOR PRIOR TO CONSTRUCTION. ANY REPAIRS ARE TO BE APPROVED BY THE ENGINEER AND PAID FOR UNDER FORCE ACCOUNT REPAIR (ITEM: 700-70130).
11. CONTRACTOR TO PLACE CONCRETE SEALER TO THE LIMITS SHOWN ON THIS SHEET, INCLUDING AREAS WHERE THE EXISTING CINDER BLOCK WAS REMOVED.
12. ALL REINFORCING SHALL BE EXPOXY COATED.



TABULATION OF CONCRETE ITEMS				
ITEM NO.	ITEM	QUANTITY	UNIT	
515-00400	CONCRETE SEALER	171	SY	
601-03000	CONCRETE CLASS D	8.6	CY	
700-70130	REPAIR	1	EACH	

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 File Name: 24.9-Pad-Details.dgn
 Horiz. Scale: NTS Vert. Scale: NA
 Unit Information Unit Leader Initials
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Sheet Revisions			
Date:	Comments	Init.	
3-16-17	As Built	NZ	

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Region 1 JDS

As Constructed
 No Revisions:
 Revised:
 Void:

SWITCHGEAR PAD DETAILS
 Designer: P. GRECO
 Detailer: J. GONZALES
 Sheet Subset:
 Structure Numbers
 Subset Sheets: 23 of 26

Project No./Code
 NHPP 0703-420
 20323
 Sheet Number **23**

SWMP TEMPLATE TEXT FOR PROJECTS WITH LESS THAN 1 ACRE OF DISTURBANCE

1. SITE DESCRIPTION

- A. **PROJECT SITE LOCATION:** The proposed project is located in Clear Creek and Summit Counties along I-70 at the Eisenhower / Johnson Memorial Tunnel Complex. The limits of the project is confined within the Tunnel Complex to the east and west ventilation building electrical equipment room. The address of the construction office will be identified at the time of construction.
- B. **PROJECT SITE DESCRIPTION:** The nature of the construction activities at the site are installation of temporary and permanent switchgears and transformers. The activities also include installation of new concrete pads within building's equipment room for new switchgear and transformer. There are no grading, paving, landscaping activities as part of this project. All removed equipment is the property of the contractor and has to be removed off of CDOT property.
- C. **ACRES OF DISTURBANCE:** Not applicable to project.
 - 1. Total area of construction site (LOC): 1.0 acres
 - 2. Total area of disturbance (LDA): 0.0 acres
 - 3. Acreage of seeding: 0.0 acres
- D. **RECEIVING WATER:**
 - 1. Outfall locations: The tunnel's east and west portal plans show potential outfall locations beyond the tunnel complex facility.
 - 2. Names of receiving water(s) on site: A containment system is proposed for immediate construction activities within building's electrical equipment room.
 - 3. Ultimate receiving water: East Portal – Clear Creek, West Portal – Straight Creek.
 - 4. Horizontal distance nearest water of the state is from project: Approximately 1,000 feet
- E. **EXISTING SOIL DATA:** Not applicable to project.
- F. **EXISTING VEGETATION, INCLUDING PERCENT COVER:**
 Vegetative transects are *not required*, by permit, on projects with under an acre of disturbance. However, it is advised that transects be completed prior to construction, as a quality control for post construction revegetation assessment. If transects are not completed on a project, at a minimum describe the quality of the existing vegetation.

 Not applicable to project. No existing vegetation is impacted or disturbed as part of this project. The project photo documentation is included for reference as part of this SWMP.

2. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

- A. **POTENTIAL POLLUTANT SOURCES**
 - 1. Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place any BMPs/Control Measures required to contain potential pollutants.
 - 2. Sources include potential spills from transformers during transfer. Contractor shall notify April Thomas (April.Thomas@state.co.us, or 303-512-5744) at least 2 days prior to installation of BMPs related to spill containment (rigid inlet protection and temporary spill berms (special)) BMPs. BMP locations must be accepted by April Thomas prior to moving any switchgear equipment.
- B. **OFFSITE DRAINAGE (RUN ON WATER)**
 - 1. Place BMPs/Control Measures to address run-on water in accordance with subsection 208.03.
- C. **CONSTRUCTION DEWATERING:**
 - 1. Obtain a dewatering permit from CDPHE if conditions of their low risk guidance for Discharges of Uncontaminated Groundwater to Land are not met; see subsection 107.25(b) 8.

D. **VEHICLE TRACKING PAD**

- 1. BMPs/Control Measures shall be implemented in accordance with subsection 208.04.

E. **PERIMETER CONTROL**

- 1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
- 2. Perimeter control must be watertight, and seal properly to the road or floor (depending on location) in order to prevent leakage of any spills.
- 3. Perimeter control shall be in accordance with subsection 208.04.

3. SWMP ADMINISTRATOR:

A. **SWMP ADMINISTRATOR FOR DESIGN:**

Name/Title	Contact Information
Erika Vega-Bazan, EI	303-694-4755 / vegabazanee@pbworld.com
Mike Tilko, PE	303-694-4755 / tilkogm@pbworld.com

B. **SWMP ADMINISTRATOR FOR CONSTRUCTION:** (See Subsection 208 Under an Acre Specification) The Contractor shall designate a SWMP Administrator for Construction upon ownership of the SWMP. The SWMP Administrator shall become the owner/operator and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance to 208.03. The SWMP Administrator shall be responsible for implementing, maintaining and revising SWMP, including the title and contact information. The activities and responsibilities of the SWMP administrator shall address all aspects of the projects SWMP. (Update the information below for each new SWMP Administrator) (Copy of TECS Certification must also be included in the SWMP Notebook.) **The SWMP Administration for construction is not a separate pay item but is included in the cost of the work.**

Name/Title	Contact Information	Certification #	Start Date	Engineer Approval

4. DURING CONSTRUCTION

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the Contractor in accordance with Section 208

- A. **MATERIALS HANDLING AND SPILL PREVENTION:** prior to construction commencing the Contractor shall submit a Spill Prevention, Control and Countermeasure Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.06.
- B. **STOCKPILE MANAGEMENT:** shall be done in accordance with subsection 107.25 and 208.07
- C. **CONCRETE WASHOUT:** Concrete wash out water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.
- D. **SAW CUTTING:** shall be done in accordance with subsection 107.25, 208.04, 208.05
- E. **STREET SWEEPING:** shall be done in accordance with subsection 208.04

5. BMP/CONTROL MEASURE MAINTENANCE

- A. Maintenance shall be in accordance with subsection 208.04 (f).

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File Name: SWMP_Tunnels.dgn		Date:	Comments	Init.						184045L		
Horiz. Scale: N/A Vert. Scale: N/A												
Unit Information Unit Leader Initials												
1600 Broadway, Suite 1100 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936							Designer: CRH Structure Numbers: - Detailer: EVB Subset Sheets: 24 of 31	IM	Sheet Number	24		

6. INTERIM AND FINAL STABILIZATION

A. SEEDING PLAN: Not applicable to project. If any seeded area is disturbed by the project, the Contractor shall immediately contact Basil Ryer (CDOT Landscape Architect; Basil.Ryer@state.co.us or 303-757-9481) for seeding and soil preparation requirements, and Francesca Tordonato (CDOT Biologist; Francesca.Tordonato@state.co.us or 720-497-6942) for seed mix options.

7. PRIOR TO FINAL ACCEPTANCE

A. Partial Acceptance shall be in accordance with subsection 107.25 (d) and 208.10 At the Partial Acceptance of the project, it shall be determined by the SWMP Administrator and the Engineer which temporary BMPs/Control Measures shall remain until 70% reestablishment or which shall be removed.
 B. At the end of the project, all ditch checks shall either consist of temporary erosion logs (or equivalent) or permanent rip-rap.

8. NARRATIVES:

During design: "BMP/Control Measure to be Located by SWMP Administrator" boxes are marked when used in the SWMP. During construction: The ECS shall update the narratives, include new narratives and update the "In Use on Site" boxes to match which BMPs are currently in use on site. Clearly describe the relationship between the phases on construction and the implementation of BMP controls. Construction control are BMPs related to construction access and staging. BMP locations are indicated on the SWMP site map.

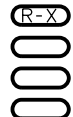

A. ADDITIONAL BMPS/CONTROL MEASURES AND NARRATIVES:

BMP/Control Measure details and narratives not covered by the SWMP or Standard Plan M-208, M-216 shall be added to the SWMP notebook by the SWMP Administrator.

B. PERIMETER CONTROL:

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage systems, or discharging to state waters.
2. Perimeter control shall consist of rigid inlet protection devices and drain covers as specified.
3. Perimeter control shall be in accordance with subsection 208.04.
4. Contractor to provide perimeter control that will maintain seals with pavement even when driven over at entrances at both the east and west sides of the building.
5. Contractor to provide protection on all drains and manhole lids inside portals prior to moving transformers. All locations to be confirmed prior to construction.
6. Contractor shall obtain acceptance of BMP locations and options from April Thomas prior to moving transformers.

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Print Date: 6/16/2016		Sheet Revisions			Colorado Department of Transportation		As Constructed		EISENHOWER TUNNEL STORMWATER MANAGEMENT PLANS			Project No./Code	
File Name: SWMP_Tunnels.dgn			Date:	Comments	Init.	 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 Region 1	No Revisions:		Designer: CRH Structure Numbers - Detailer: EVB Structure Numbers - Sheet Subset: DRAINAGE Subset Sheets: 25 of 31			184045L	
Horiz. Scale: N/A Vert. Scale: N/A							Revised:					IM	
Unit Information Unit Leader Initials							Void:					Sheet Number 25	
 1600 Broadway, Suite 1100 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					JDS								

BMP Matrix:

1. M-Standards have been included along with standard BMP narratives. If a Non-Standard BMP will be used or the standard narrative does not apply, the SWMP Administrator shall write a Non-Standard BMP narrative, place an "X" in the column and complete a Non-Standard BMP Specification and Narrative for the SWMP notebook.
2. The SWMP Administrator shall place an "X" in the column In Use on Site when the BMP/Control Measure has been installed.
3. Place an "X" in the column BMP/Control Measure to be located by SWMP Administrator if the SWMP Administrator shall locate the BMP/Control Measure during construction. These BMP/Control Measures are not currently located on SWMP Plans but are anticipated to be used during construction (i.e. Vehicle Tracking Pad, Batch Plants, etc.). The SWMP Administrator shall locate these prior to or during construction and reflect on SWMP Map.
4. Place an "X" in the column Installation BMP/Control Measure Pre-Construction if the BMP/Control Measure is to be installed prior to construction activity.

STRUCTURAL BMPs/Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

APPLICATION, BMP/CONTROL MEASURE	NARRATIVE	M-STANDARD/NON-STANDARD	IN USE ON SITE	BMP/CONTROL MEASURE TO BE LOCATED BY SWMP ADMINISTRATOR	INSTALLATION BMP/CONTROL MEASURE PRE-CONSTRUCTION	BMP/CONTROL MEASURE PHASING		
						FIRST/INITIAL CONSTRUCTION ACTIVITIES	INTERIM CONSTRUCTION ACTIVITIES	PERMANENT STABILIZATION
TYPE C, TYPE D AND TYPE 13 PROTECTION Erosion logs, aggregate bags, erosion bales	Temporary Spill Berms (Special) shall be placed around inlets to prevent spills during construction from entering inlet. Place prior to start of construction disturbances or moving switchgear equipment/transformers.			X	X	X	X	
TYPE R AND TYPE 16 INLET PROTECTION Storm drain inlet protection (Type 1,2 and 3)	Rigid Inlet Protection Device shall be placed to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction. Place prior to start of construction disturbances or moving switchgear equipment/transformers.			X	X	X	X	
CONCRETE WASHOUT In-ground or fabricated	Construction control, used for waste management of concrete and concrete equipment cleaning. Place prior to start of concrete activities.	M 208		X		X		
8" Oil Absorbent Boom	8" Oil Absorbent boom will be used to create a corridor for the installation of the new and demolition of the old transformers. The transformers will remain within this corridor at all times to contain any potential spill.			X	X	X	X	

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Print Date: 6/16/2016		Colorado Department of Transportation		As Constructed	EISENHOWER TUNNEL STORMWATER MANAGEMENT PLANS		Project No./Code
File Name: SWMP_Tunnels.dgn				No Revisions:			184045L
Horiz. Scale: N/A Vert. Scale: N/A		425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951		Revised:	Designer: CRH	Structure Numbers: -	IM
Unit Information Unit Leader Initials		Region 1 JDS		Void:	Detailer: EVB	Subset Sheets: 26 of 31	Sheet Number 26

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9. TABULATION OF STORMWATER QUANTITIES

- A. BMP/Control Measure sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other BMP/Control Measure maintenance shall be included in the cost of the BMP/Control Measure.
- B. It is estimated that 10 hours of labor may be required for miscellaneous erosion control work as directed by the Engineer. Work shall be paid for as: 203-02330.
- C. Establishment of seeded areas shall be paid for as: Not applicable to project.

11. Notes

Spec.	Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilization	*Total Quantity
PSP	203-02330	Laborer	Hour				10
SSP	208-00045	Concrete Washout Structure	Each				2
PSP	208-00055	Rigid Inlet Protection Device	Each				18
SSP	208-00207	Erosion Control Management	Day				**8
PSP	208-00302	Temporary Spill Berm (Special)	LF				385
PSP	700-70380	Erosion Control	FA				1

*It is anticipated that additional BMPs/Control Measures and BMP/Control Measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04. **Quantities for all BMPs/Control Measures shown above are estimated, and have been increased for unforeseen conditions and normal BMP/Control Measure life expectancy.** Quantities shall be adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.

**Erosion Control Management shall be completed daily. It is anticipated 1 hour each day shall be needed, with setup and removal days to be at least 4 hours each day.

10. BIOLOGIC IMPACTS




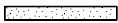
A. ENVIRONMENTAL IMPACTS:

- 1. Wetland Impacts: YES **NO**
- 2. Stream Impacts: YES **NO**
- 3. Threatened and Endangered Species: Not applicable to project.

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File Name: SWMP_Tunnels.dgn		Date:	Comments	Init.						184045L	
Horiz. Scale: N/A Vert. Scale: N/A								Designer: CRH Structure Numbers -			
Unit Information Unit Leader Initials								Detailer: EVB Structure Numbers -			
 1600 Broadway, Suite 1100 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					Sheet Subset: DRAINAGE Subset Sheets: 27 of 31	Sheet Number 27					

Drawing Replaced

LEGEND:

-  CONCRETE WASHOUT STRUCTURE
-  RIGID INLET PROTECTION DEVICE
-  FLOW ARROW
-  TEMPORARY SPILL BERM (SPECIAL)

EROSION CONTROL PHASING

PLEASE SEE SWMP GENERAL NOTES FOR DETAILS ON PHASING AND TIMING OF BOTH INSTALLATION AND REMOVALS FOR ALL BMPs SHOWN ON THESE PLANS.

***RIGID INLET PROTECTION DEVICE**

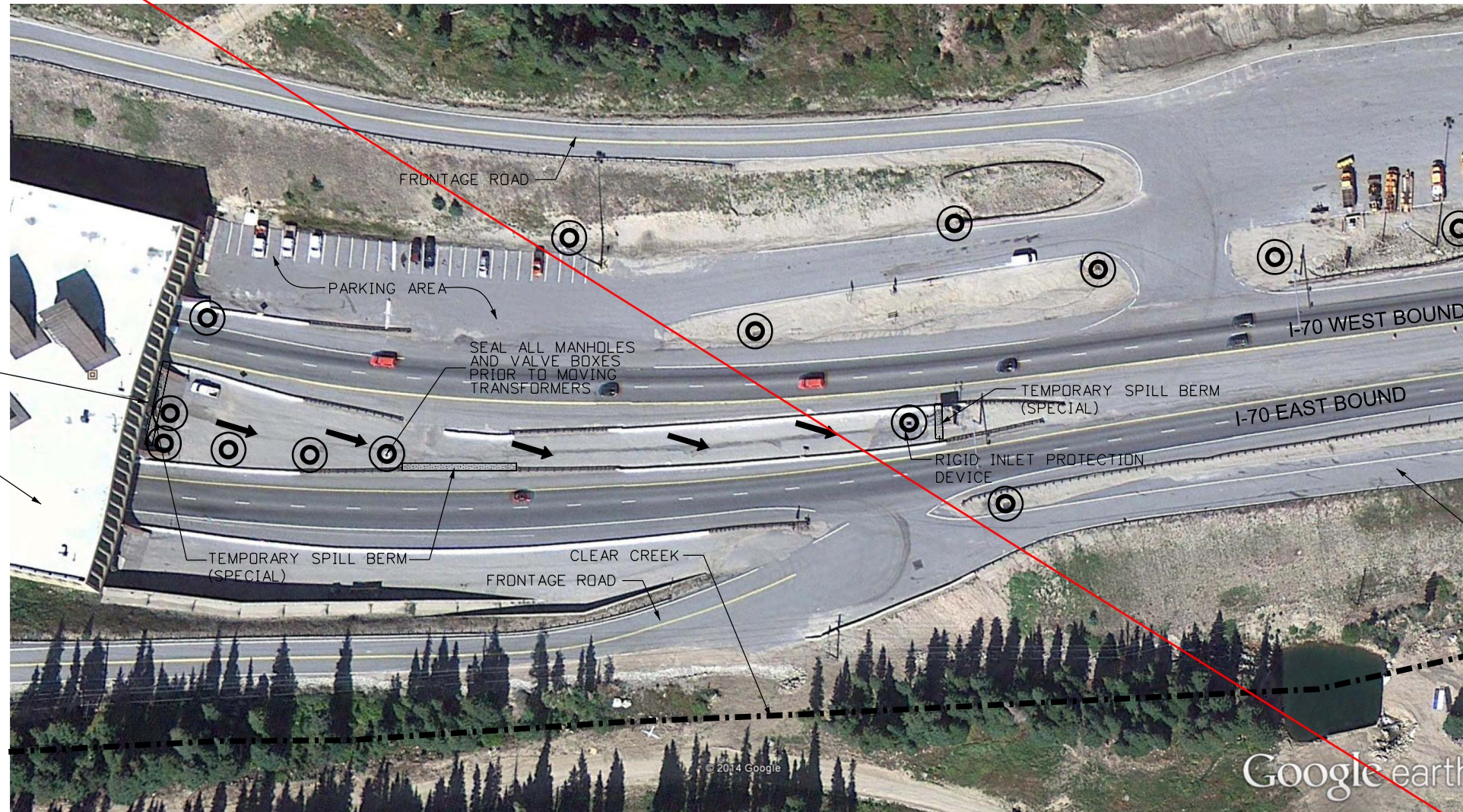
- INSIDE:**
 6 MANHOLES
 2 TANK ACCESS POINTS
 1 DRAIN
- OUTSIDE:**
 3 MANHOLES
 2 VALVE BOXES
 (DRAINS INSIDE PORTAL DRAIN INTO WASTEWATER TREATMENT PLANT)
- *FOR INFORMATION ONLY***

SEAL ALL MANHOLES, DRAINS, AND TANK ACCESS POINTS IN BUILDING PRIOR TO MOVING TRANSFORMERS. NUMBER AND LOCATIONS TO BE VERIFIED AND COORDINATED WITH THE ENGINEER AND TECS.

EISENHOWER TUNNEL BUILDING (EAST PORTAL)

NOTE:

CONCRETE WASHOUT AREAS TO BE PLACED ON A PAVED SURFACE. FINAL LOCATION TO BE DETERMINED BY THE ENGINEER AND TECS.




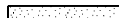
EAST PORTAL

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Print Date: 22-JUN-2016		Sheet Revisions			 <p>Colorado Department of Transportation 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 Region 1</p>	<p>As Constructed</p> No Revisions: Revised: Void:	<p>EISENHOWER TUNNEL-EAST PORTAL STORMWATER MANAGEMENT PLANS</p> Designer: CRH Detailer: EVB Sheet Subset: DRAINAGE Structure Numbers: - Subset Sheets: 28 of 31			Project No./Code	
File Name: SWMP_Tunnels.dgn		Date:	Comments	Init.						184045L	
Horiz. Scale: N/A Vert. Scale: N/A										IM	
Unit Information Unit Leader Initials										Sheet Number	
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\$PLOT_INFO\$

LEGEND:

-  RIGID INLET PROTECTION DEVICE
-  8" OIL ABSORBENT BOOM

EROSION CONTROL PHASING

PLEASE SEE SWMP GENERAL NOTES FOR DETAILS ON PHASING AND TIMING OF BOTH INSTALLATION AND REMOVALS FOR ALL BMPS SHOWN ON THESE PLANS.

***RIGID INLET PROTECTION DEVICE**

- INSIDE:**
 6 MANHOLES
 2 TANK ACCESS POINTS
 1 DRAIN
- OUTSIDE:**
 3 MANHOLES
 2 VALVE BOXES
 (DRAINS INSIDE PORTAL DRAIN INTO WASTEWATER TREATMENT PLANT)

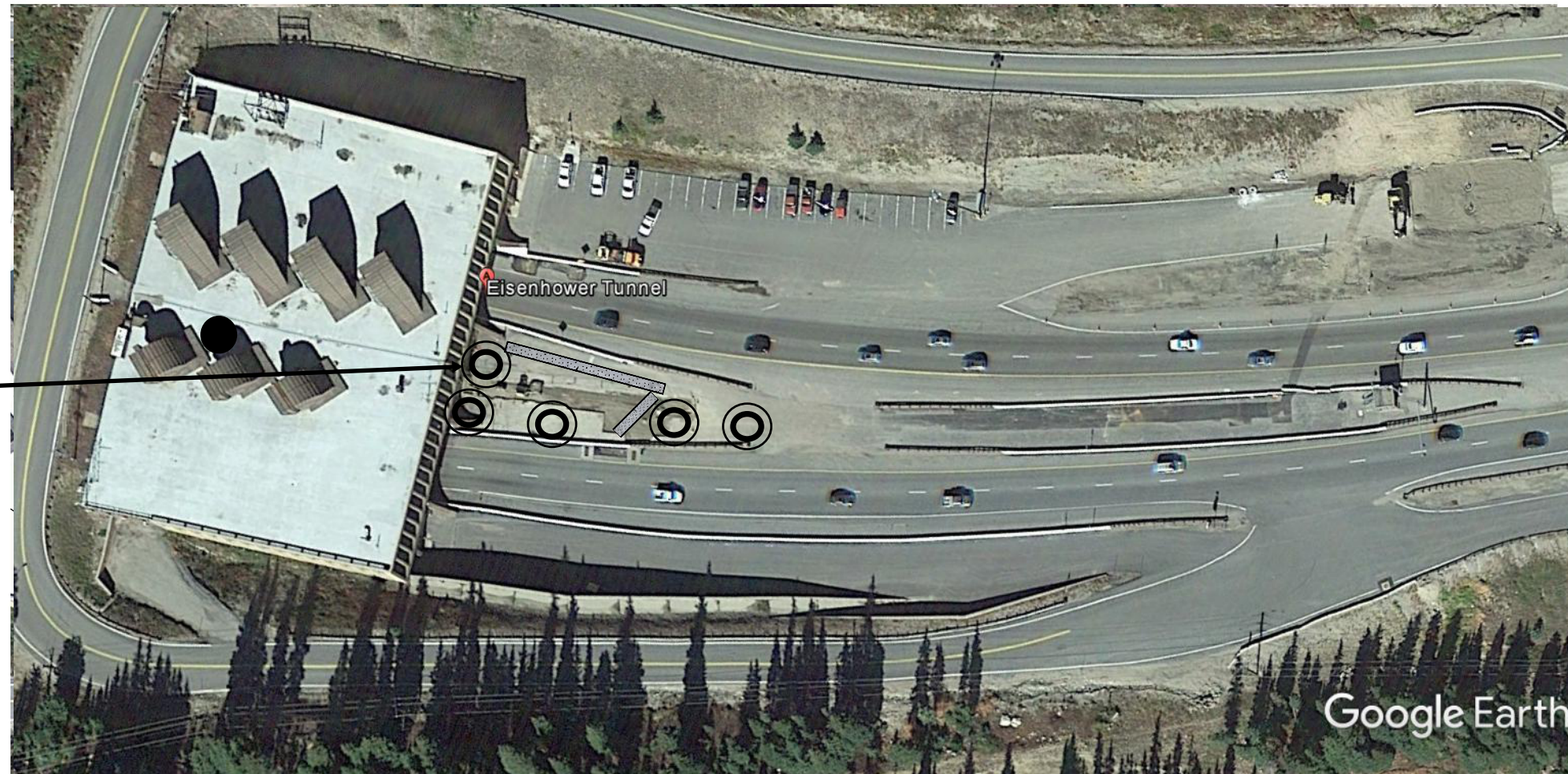
FOR INFORMATION ONLY

SEAL ALL MANHOLES, DRAINS, AND TANK ACCESS POINTS IN BUILDING PRIOR TO MOVING TRANSFORMERS. NUMBER AND LOCATIONS TO BE VERIFIED AND COORDINATED WITH THE ENGINEER AND TECS.

EISENHOWER TUNNEL BUILDING (EAST PORTAL)


NOTE:

CONCRETE WASHOUT AREAS TO BE PLACED ON A PAVED SURFACE. FINAL LOCATION TO BE DETERMINED BY THE ENGINEER AND TECS.



EAST PORTAL

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File Name: SWMP_Tunnels.dgn		Date: 7/25/2017	Comments: Revision 1	Init.		No Revisions:			184045L		
Horiz. Scale: N/A Vert. Scale: N/A						Revised:	Designer: CRH	Structure Numbers: -	IM		
Unit Information Unit Leader Initials						Void:	Detailer: EVB	Subset Sheets: 28 of 31	Sheet Number 28		
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LEGEND:

- CONCRETE WASHOUT STRUCTURE
- ⊙ RIGID INLET PROTECTION DEVICE
- ➔ FLOW ARROW
- ▬ TEMPORARY SPILL BERM (SPECIAL)

EROSION CONTROL PHASING

PLEASE SEE SWMP GENERAL NOTES FOR DETAILS ON PHASING AND TIMING OF BOTH INSTALLATION AND REMOVALS FOR ALL BMPs SHOWN ON THESE PLANS.

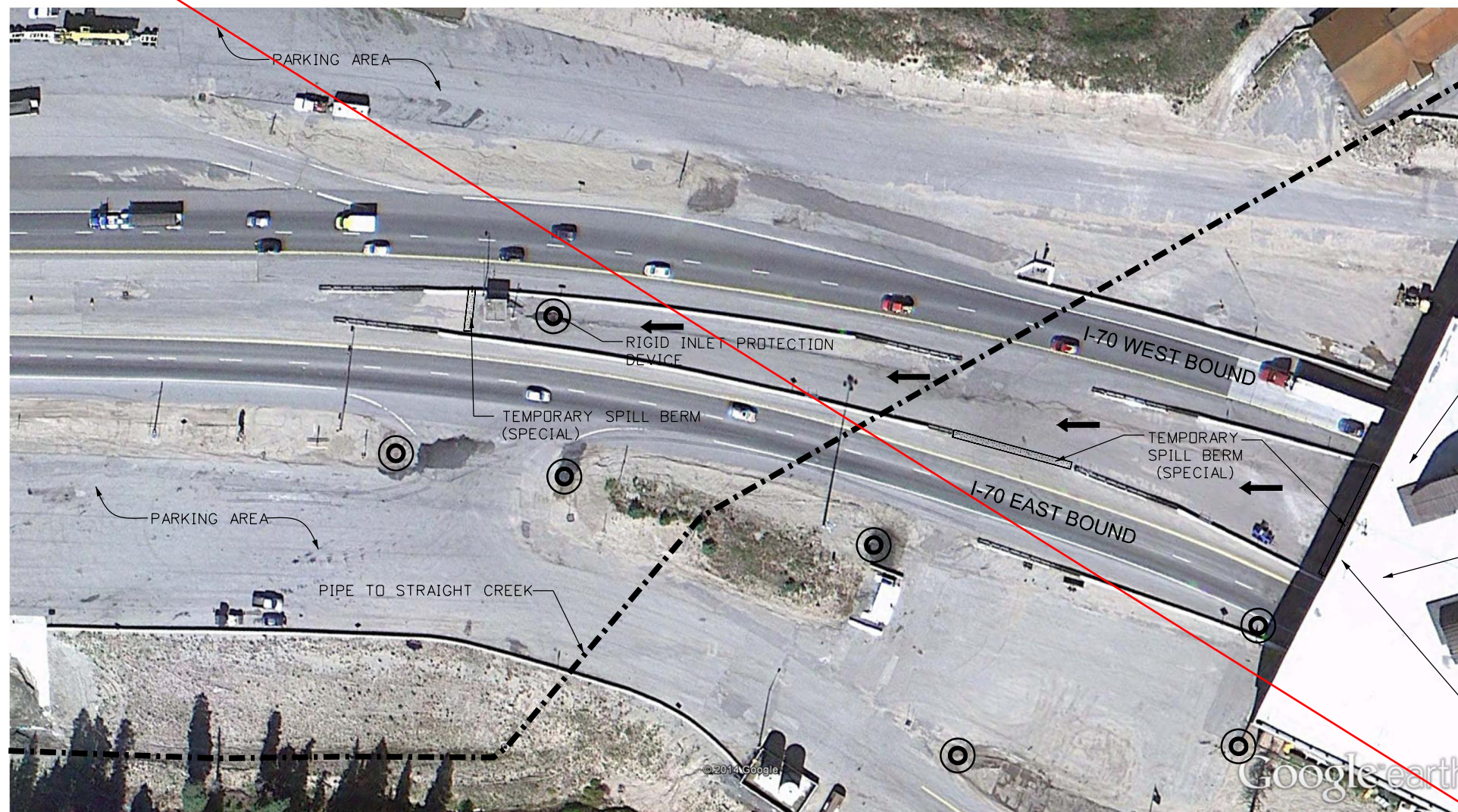
***RIGID INLET PROTECTION DEVICE**

INSIDE:
 1 DRAIN
 1 SUMP PIT
 (DRAINS INSIDE PORTAL DRAIN INTO WASTEWATER TREATMENT PLANT)

FOR INFORMATION ONLY

NOTE:

CONCRETE WASHOUT AREAS TO BE PLACED ON A PAVED SURFACE. FINAL LOCATION TO BE DETERMINED BY THE ENGINEER AND TECS.



- SEAL SUMP PIT IN BUILDING PRIOR TO MOVING TRANSFORMERS
- EISENHOWER TUNNEL BUILDING (WEST PORTAL)
- SEAL ALL DRAINS AND SUMP PIT IN BUILDING PRIOR TO MOVING TRANSFORMERS. NUMBER AND LOCATIONS TO BE VERIFIED AND COORDINATED WITH THE ENGINEER AND TECS.

WEST PORTAL

*FOR INFORMATION ONLY

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Unit Information	Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

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 Phone: 720-497-6959 FAX: 720-497-6951

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Region 1


As Constructed
No Revisions:
Revised:
Void:

EISENHOWER TUNNEL-WEST PORTAL STORMWATER MANAGEMENT PLANS			
Designer:	CRH	Structure	-
Detailer:	EVB	Numbers	-
Sheet Subset:	DRAINAGE	Subset Sheets:	29 of 31

Project No./Code
184045L
IM
Sheet Number
29

\$PLOT_INFORM\$

LEGEND:

 8" OIL ABSORBENT BOOM

EROSION CONTROL PHASING

PLEASE SEE SWMP GENERAL NOTES FOR DETAILS ON PHASING AND TIMING OF BOTH INSTALLATION AND REMOVALS FOR ALL BMPS SHOWN ON THESE PLANS.

***RIGID INLET PROTECTION DEVICE**

INSIDE:
 1 DRAIN
 1 SUMP PIT
 (DRAINS INSIDE PORTAL DRAIN INTO WASTEWATER TREATMENT PLANT)

FOR INFORMATION ONLY

NOTE:

CONCRETE WASHOUT AREAS TO BE PLACED ON A PAVED SURFACE. FINAL LOCATION TO BE DETERMINED BY THE ENGINEER AND TECS.



SEAL SUMP PIT IN BUILDING PRIOR TO MOVING TRANSFORMERS

EISENHOWER TUNNEL BUILDING (WEST PORTAL)

SEAL ALL DRAINS AND SUMP PIT IN BUILDING PRIOR TO MOVING TRANSFORMERS. NUMBER AND LOCATIONS TO BE VERIFIED AND COORDINATED WITH THE ENGINEER AND TECS.

WEST PORTAL

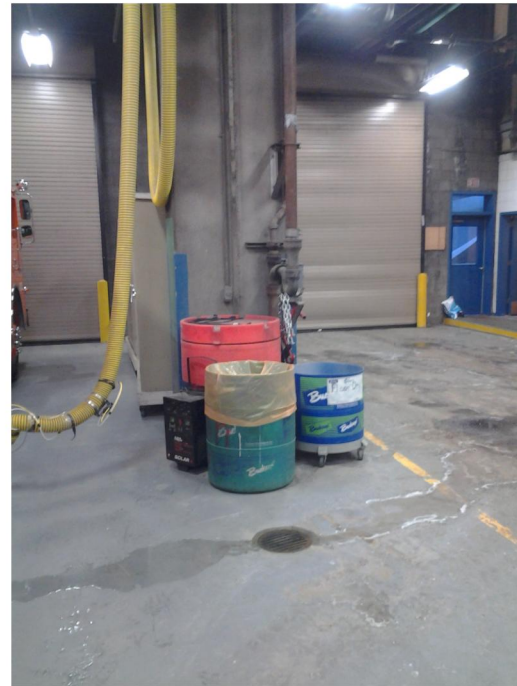
*FOR INFORMATION ONLY

Print Date: 22-JUN-2016		Sheet Revisions			Colorado Department of Transportation		As Constructed		EISENHOWER TUNNEL-WEST PORTAL STORMWATER MANAGEMENT PLANS		Project No./Code	
File Name: SWMP_Tunnels.dgn		Date:	Comments	Init.	 425A Corporate Circle Golden, CO 80401 Phone: 720-497-6959 FAX: 720-497-6951 JDS		No Revisions:		Designer: CRH		184045L	
Horiz. Scale: N/A Vert. Scale: N/A		7/25/2017	Revision 1				Revised:		Detailer: EVB		IM	
Unit Information Unit Leader Initials							Void:		Sheet Subset: DRAINAGE		Subset Sheets: 29 of 31	
PARSONS BRINCKERHOFF 1600 Broadway, Suite 1100 Denver, CO 80202 Phone: (303) 832-9091 Fax: (303) 728-1936					Region 1							

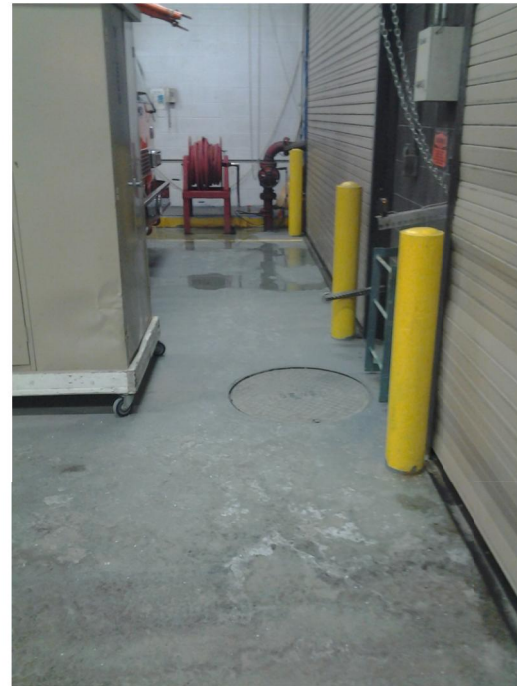
\$PLOT_INFO\$



TRANSFORMER & SWITCHGEAR
INSIDE EXISTING CONTAINMENT SYSTEM



OUTER GARAGE BAY DRAIN



OUTER GARAGE BAY WASTEWATER
CHLORINE CONTACT TANK MANHOLE LID



OUTER GARAGE BAY MANHOLE LID
ABOVE WASTEWATER SAND FILTER BEDS



TRANSFORMER & SWITCHGEAR
INSIDE EXISTING CONTAINMENT SYSTEM



TRANSFORMER & SWITCHGEAR
INSIDE EXISTING CONTAINMENT SYSTEM

FOR INFORMATION ONLY

Print Date: 22-JUN-2016	
File Name: SWMP_Tunnels.dgn	
Horiz. Scale: N/A	Vert. Scale: N/A
Unit Information	Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation



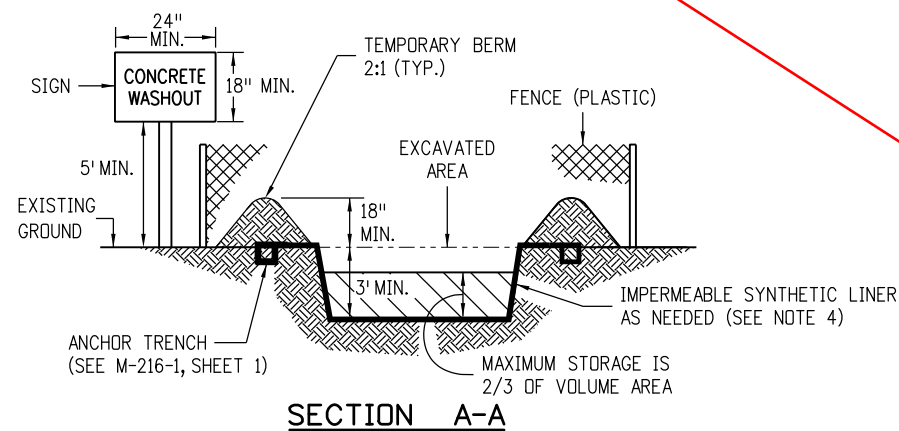
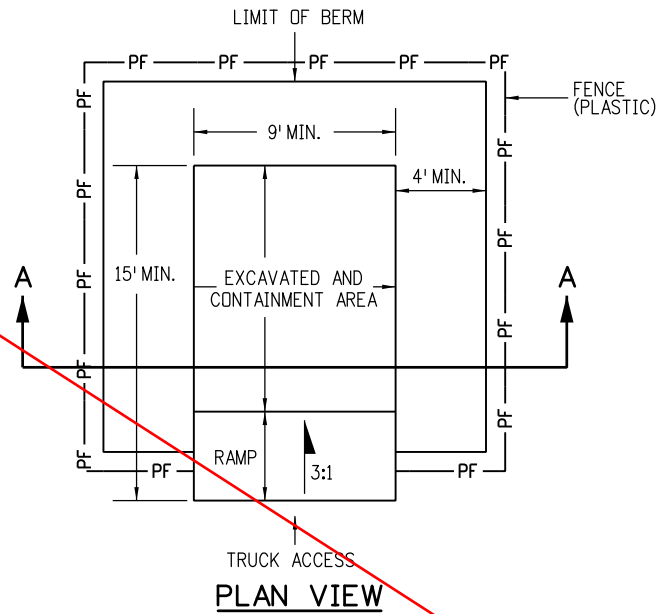
425A Corporate Circle
Golden, CO 80401
Phone: 720-497-6959 FAX: 720-497-6951

Region 1 **JDS**

As Constructed
No Revisions:
Revised:
Void:

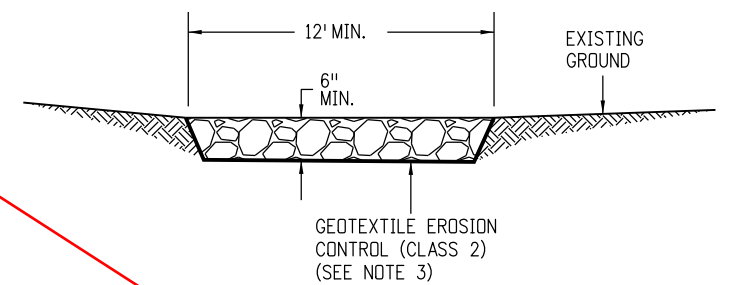
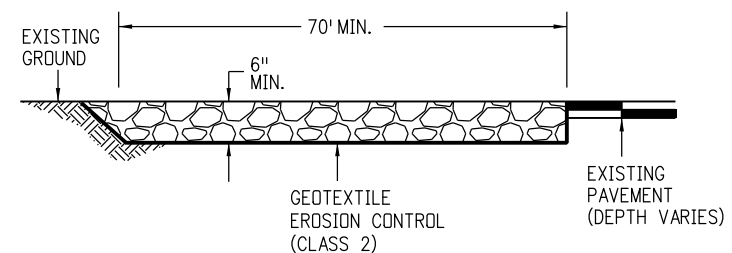
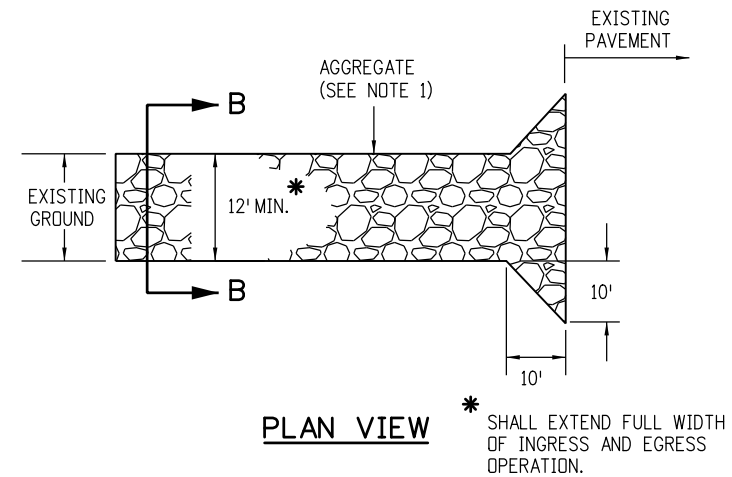
EISENHOWER TUNNEL STORMWATER MANAGEMENT PLANS			
Designer:	CRH	Structure Numbers	-
Detailer:	EVB	Structure Numbers	-
Sheet Subset:	DRAINAGE	Subset Sheets:	30 of 31

Project No./Code
184045L
IM
Sheet Number 30



- NOTES:
1. A FENCE (PLASTIC) CONFORMING TO SECTION 607 SHALL BE INSTALLED AROUND THE CONCRETE WASHOUT AREA, EXCEPT AT THE OPENING.
 2. THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH AND CONFORM TO SUBSECTION 630.02.
 3. ALL MATERIALS AND LABOR TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
 4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF FIVE FEET ABOVE GROUND WATER. IF NOT, IT SHALL BE LINED WITH AN IMPERMEABLE SYNTHETIC LINER THAT IS DESIGNED TO CONTROL SEEPAGE AT A MAXIMUM RATE OF 6 TO 10 CENTIMETERS PER SECOND.
 5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (EACH) IS 208-00045.

CONCRETE WASHOUT STRUCTURE



- NOTES:
1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.02 (K).
 2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ENTRANCE FROM DAMAGE. PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
 3. GEOTEXTILE SHALL CONFORM TO SUBSECTION 712.08.
 4. ALL MATERIALS AND LABOR TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
 5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (EACH) IS 208-00070.

VEHICLE TRACKING PAD

Computer File Information	
Creation Date: 07/04/12	Initials: JBK
Last Modification Date: 03/29/16	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 2080101011.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

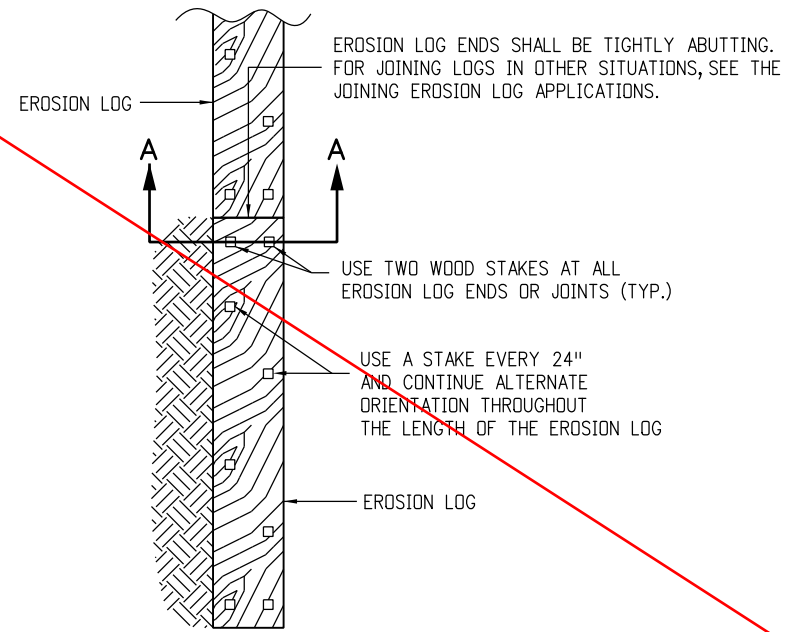
Sheet Revisions	
Date:	Comments
(R-X) 07/16/15	Deleted the two Soil Retention Blanket detail sheets. They are now standard M-216-1 Soil Retention Covering.
(R-X) 03/29/16	Minor revisions to some dimensions and General Notes.
(R-X)	
(R-X)	

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 Denver, CO 80222
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 Division of Project Support JBK/LTA

**TEMPORARY
 EROSION CONTROL**
 Issued By: Project Development Branch on July 4, 2012

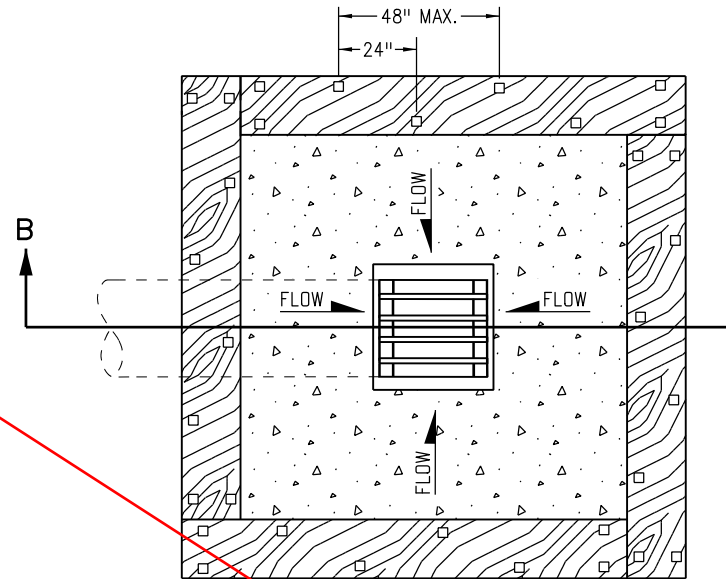
STANDARD PLAN NO.
M-208-1
Sheet No. 1 of 11

NOT USED

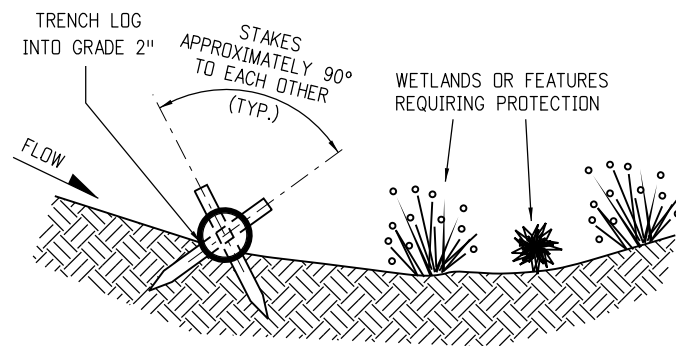


PLAN VIEW

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9")
208-00002	TYPE 1 (12")
208-00013	TYPE 1 (20")
208-00007	TYPE 2 (8")
208-00008	TYPE 2 (12")
208-00009	TYPE 2 (18")

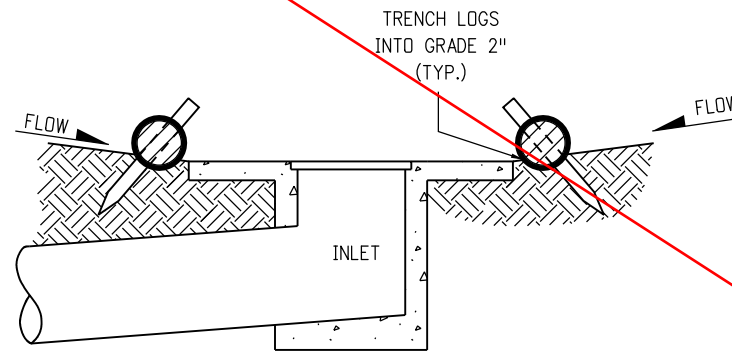


PLAN VIEW



SECTION A-A

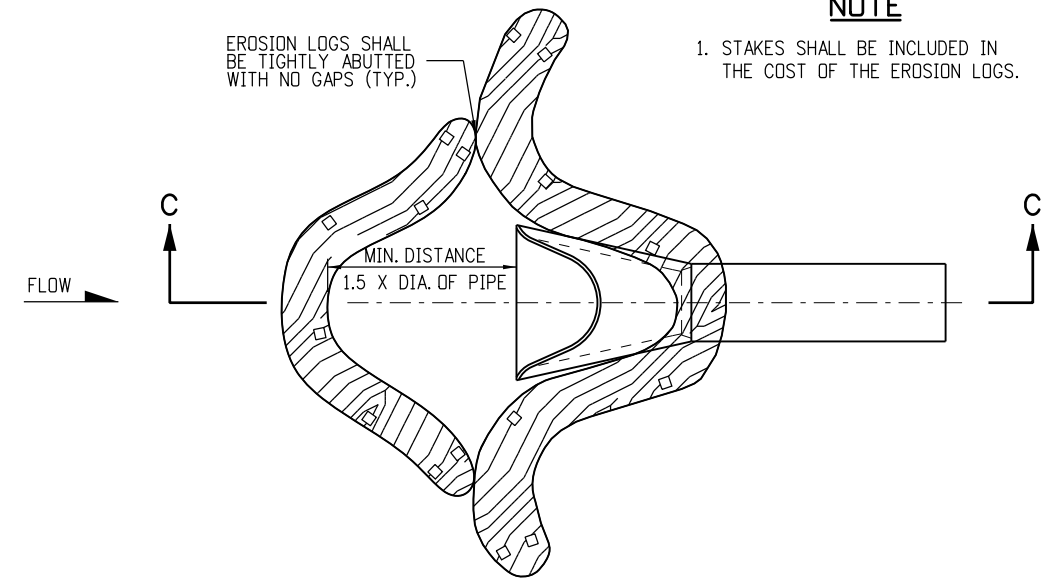
TYPICAL STAKE INSTALLATION



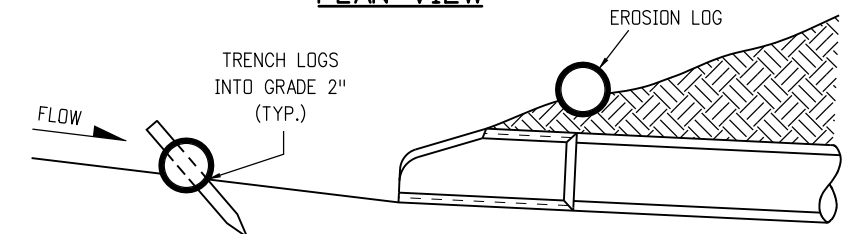
SECTION B-B

EROSION LOG FILTER AT DROP INLET

NOTE: LOCATE EROSION LOGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

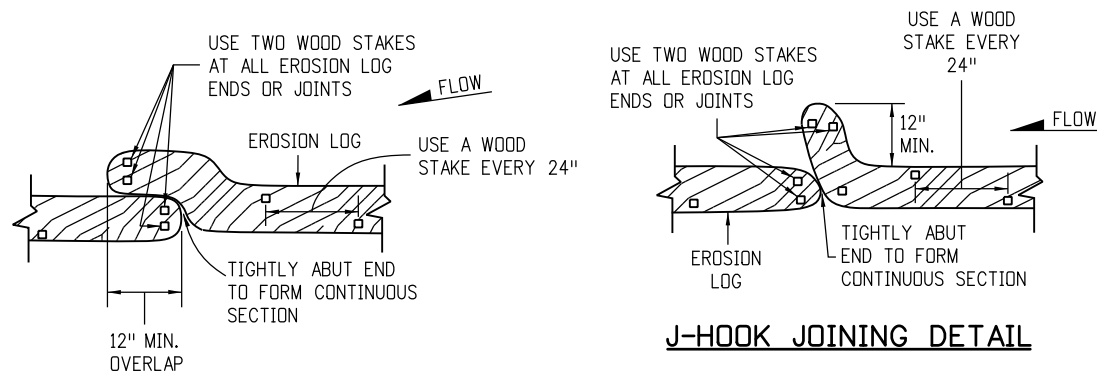


PLAN VIEW

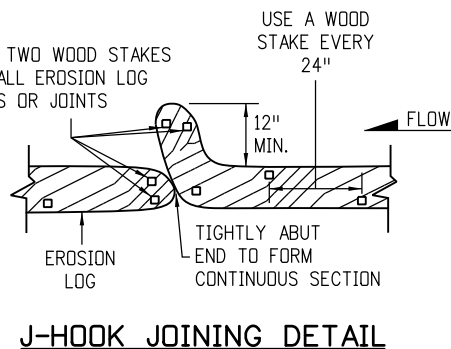


SECTION C-C
(NOT ALL LOGS SHOWN)

EROSION LOG CULVERT INLET PROTECTION

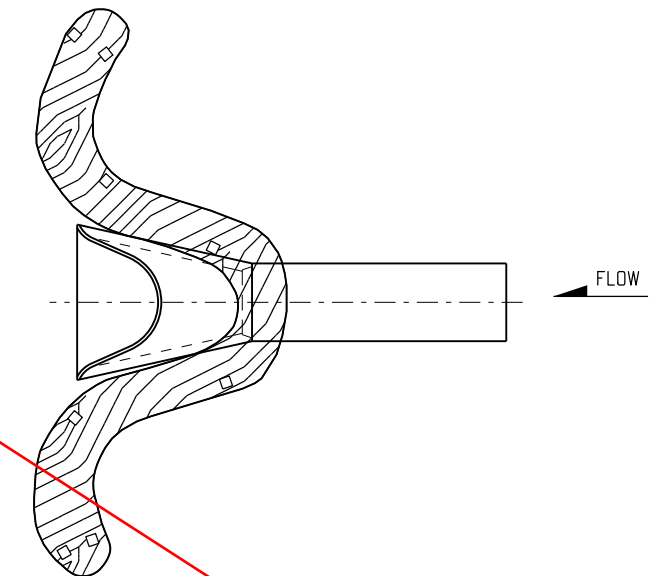


OVERLAP JOINING DETAIL



J-HOOK JOINING DETAIL

JOINING EROSION LOG APPLICATIONS



EROSION LOG CULVERT OUTLET PROTECTION

EROSION LOG APPLICATIONS

NOTE

1. STAKES SHALL BE INCLUDED IN THE COST OF THE EROSION LOGS.

Computer File Information	
Creation Date: 07/04/12	Initials: JBK
Last Modification Date: 03/29/16	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 2080102011.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments
03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item table.

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**TEMPORARY
EROSION CONTROL**

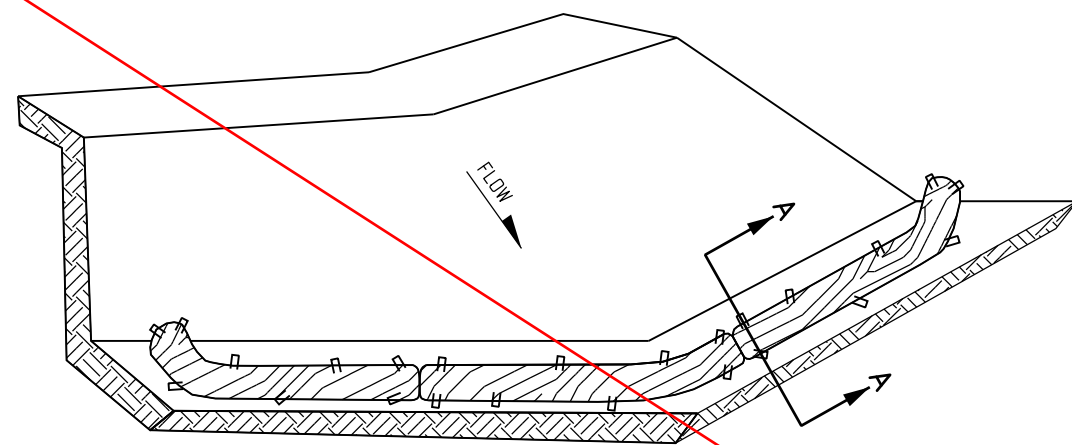
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 2 of 11

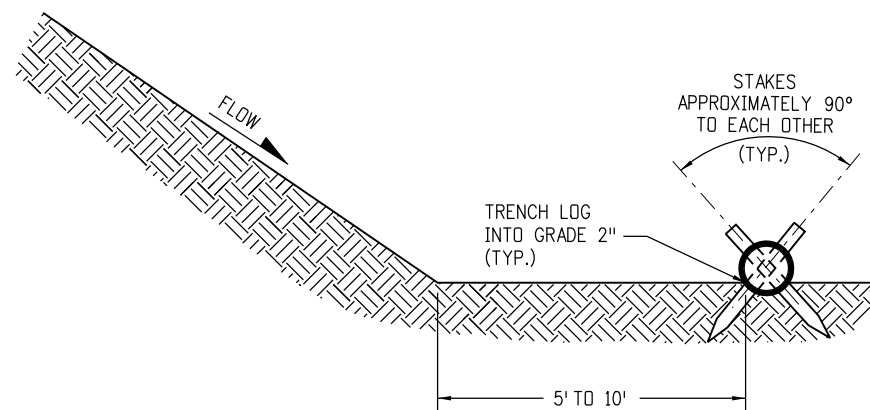
NOT USED

NOTES

1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET; MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1.
2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
3. SILT FENCE SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
4. THE MAXIMUM LENGTH OF EROSION LOGS OR SILT FENCES WITHOUT A FLARED END TURNING UPSLOPE IS 150 FEET.



ISOMETRIC VIEW



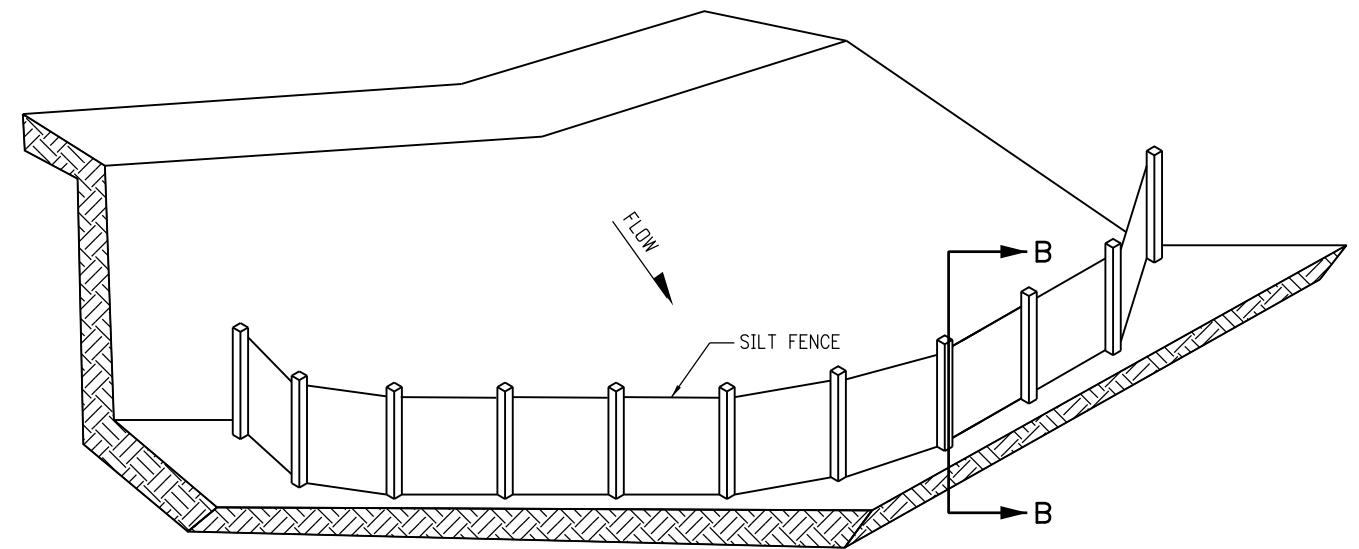
SECTION A-A

NOTES:

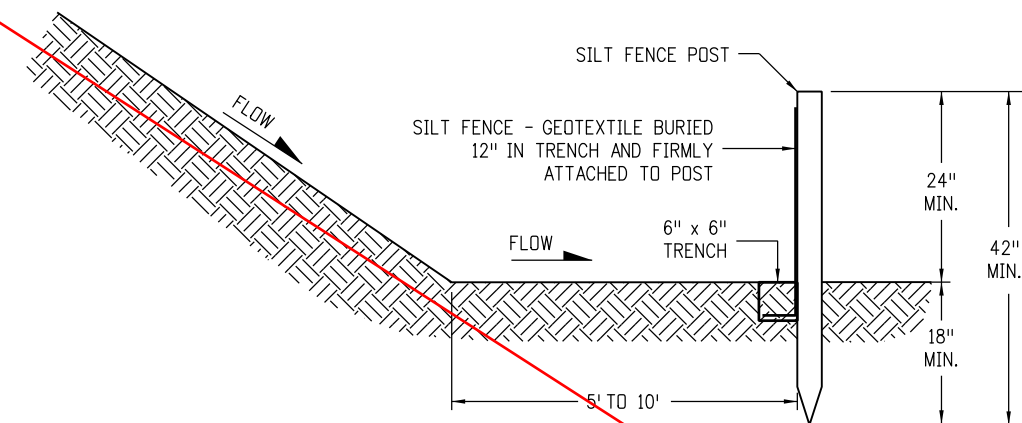
1. EROSION LOGS USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
2. EROSION LOGS SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
3. SEE SHEET 2 OF 11 FOR JOINING LOGS DETAIL.

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9")
208-00002	TYPE 1 (12")
208-00013	TYPE 1 (20")
208-00007	TYPE 2 (8")
208-00008	TYPE 2 (12")
208-00009	TYPE 2 (18")

EROSION LOG TOE OF SLOPE PROTECTION



ISOMETRIC VIEW



SECTION B-B

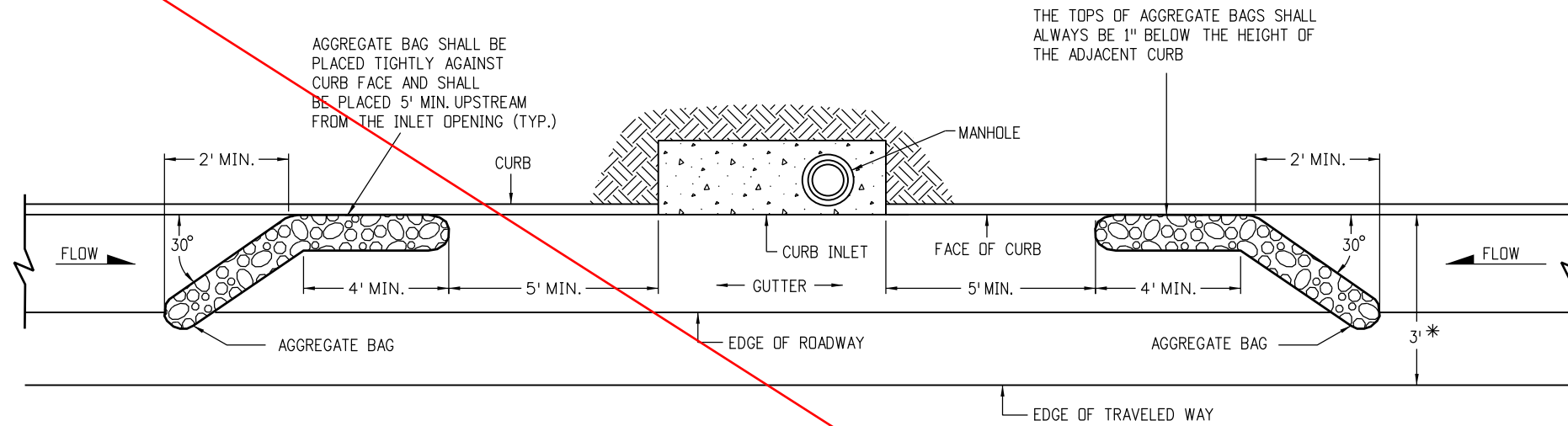
SILT FENCE TOE OF SLOPE PROTECTION

NOTE: THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.

TOE OF SLOPE PROTECTION APPLICATIONS

Computer File Information Creation Date: 07/04/12 Initials: JBK Last Modification Date: 03/29/16 Initials: LTA Full Path: www.coloradodot.info/business/designsupport Drawing File Name: 2080103011.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		Sheet Revisions <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>03/29/16</td> <td>Minor revisions to some dimensions. Added Erosion Logs Pay Item table.</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Date:	Comments	03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item table.							Colorado Department of Transportation  4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support JBK/LTA		TEMPORARY EROSION CONTROL Issued By: Project Development Branch on July 4, 2012		STANDARD PLAN NO. M-208-1 Sheet No. 3 of 11	
Date:	Comments																		
03/29/16	Minor revisions to some dimensions. Added Erosion Logs Pay Item table.																		

NOT USED

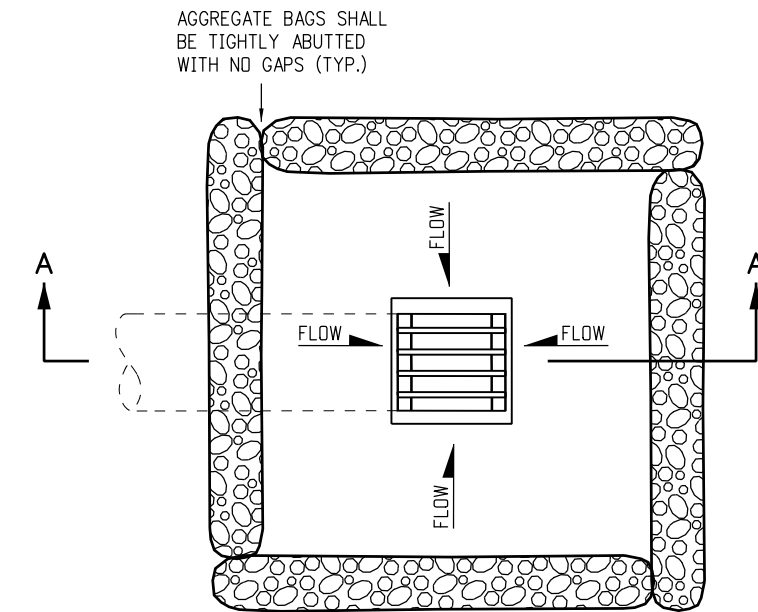


PLAN VIEW

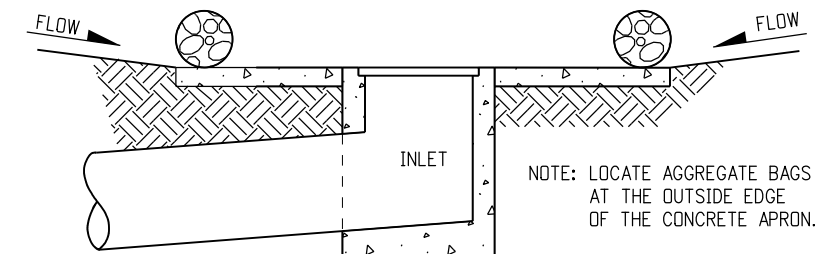
* NOTE: USE AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB.

LENGTH OF INLET (L)	NUMBER OF AGGREGATE BAGS UPSTREAM OF INLET
0' - 5'	1
6' - 10'	2
L > 10'	3

AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)



PLAN VIEW



SECTION A-A

AGGREGATE BAGS AT DROP INLET

AGGREGATE BAG APPLICATIONS

NOTE: THE PAY ITEM NUMBER FOR AGGREGATE BAG (LF) IS 208-00035

Computer File Information	
Creation Date: 07/04/12	Initials: JBK
Last Modification Date: 03/29/16	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 2080104011.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments
03/29/16	Added some dimensions and Note.

Colorado Department of Transportation



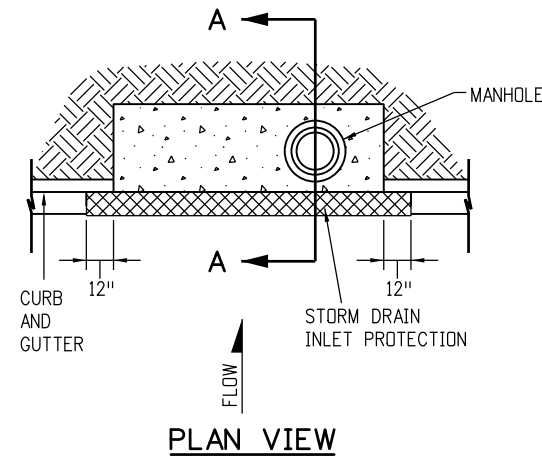
4201 East Arkansas Avenue
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 Denver, CO 80222
 Phone: 303-757-9021 FAX: 303-757-9868

Division of Project Support JBK/LTA

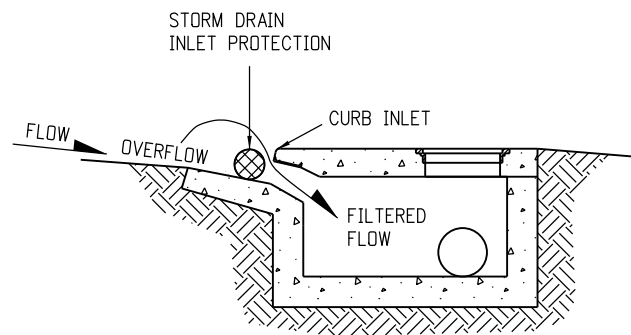
**TEMPORARY
 EROSION CONTROL**

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 4 of 11



PLAN VIEW

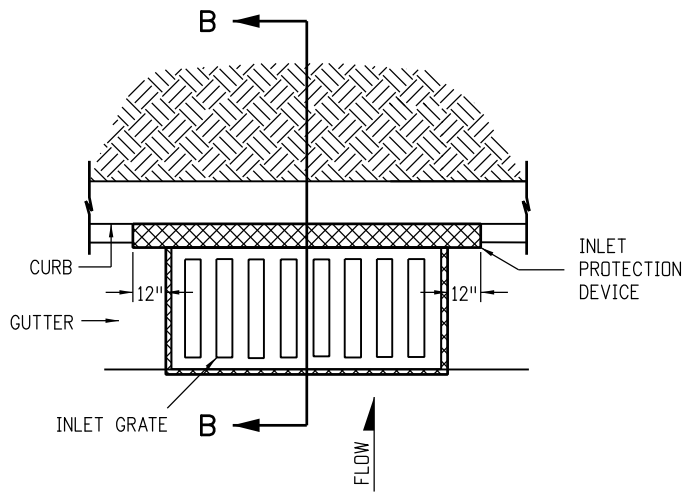


SECTION A-A

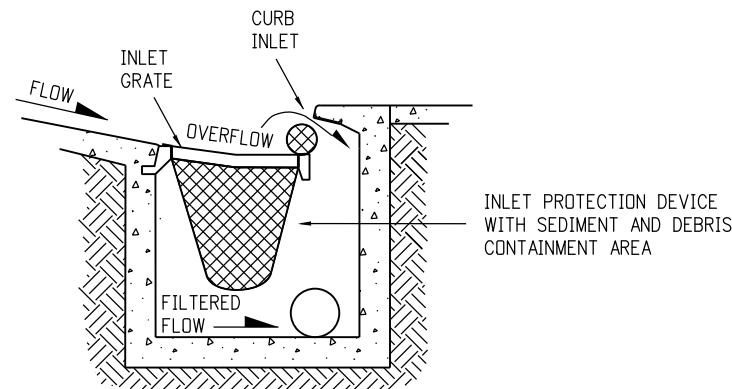
STORM DRAIN INLET PROTECTION (TYPE I)

NOTES

1. INLET PROTECTION DEVICE SHALL EXTEND 12 INCHES PAST EACH END OF THE INLET.
2. THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE I) (EACH) IS 208-00051.
3. FOR STORM DRAIN INLET TYPES I AND II, IF THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB, USE THE AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I) DETAIL ON SHEET 4 INSTEAD.



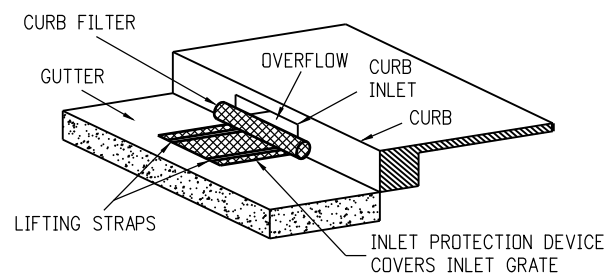
PLAN VIEW



SECTION B-B

OPTION A

STORM DRAIN INLET PROTECTION (TYPE II)

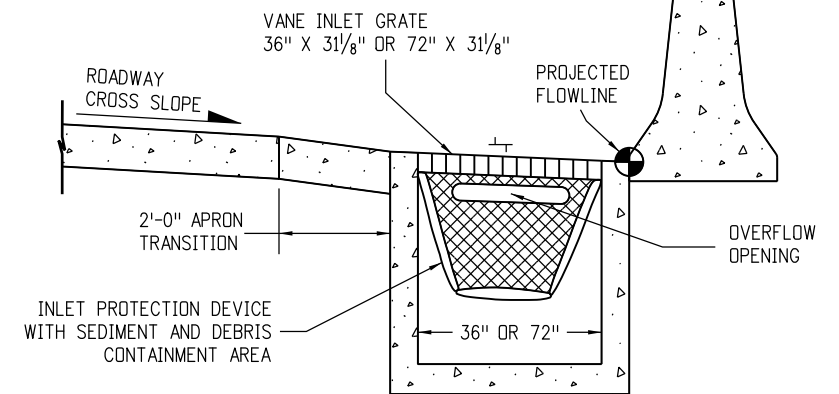


ISOMETRIC VIEW

OPTION B

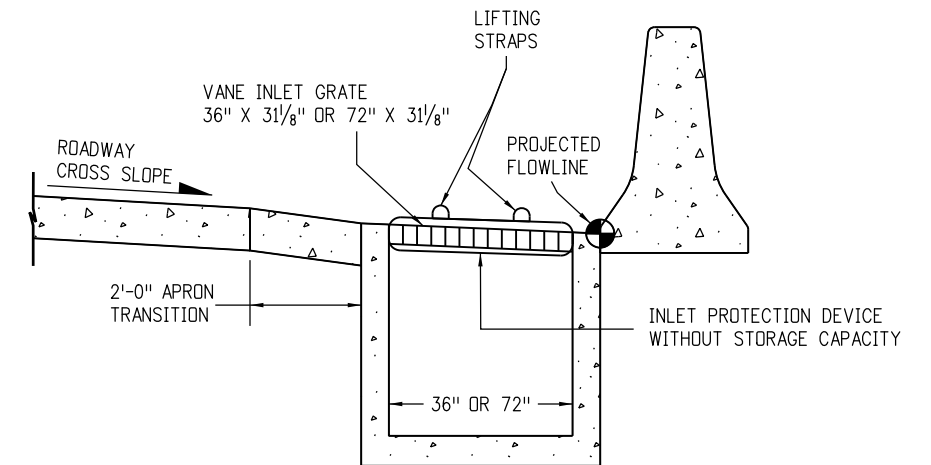
STORM DRAIN INLET PROTECTION (TYPE II)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE II) (EACH) IS 208-00052.



OPTION A

STORM DRAIN INLET PROTECTION (TYPE III)



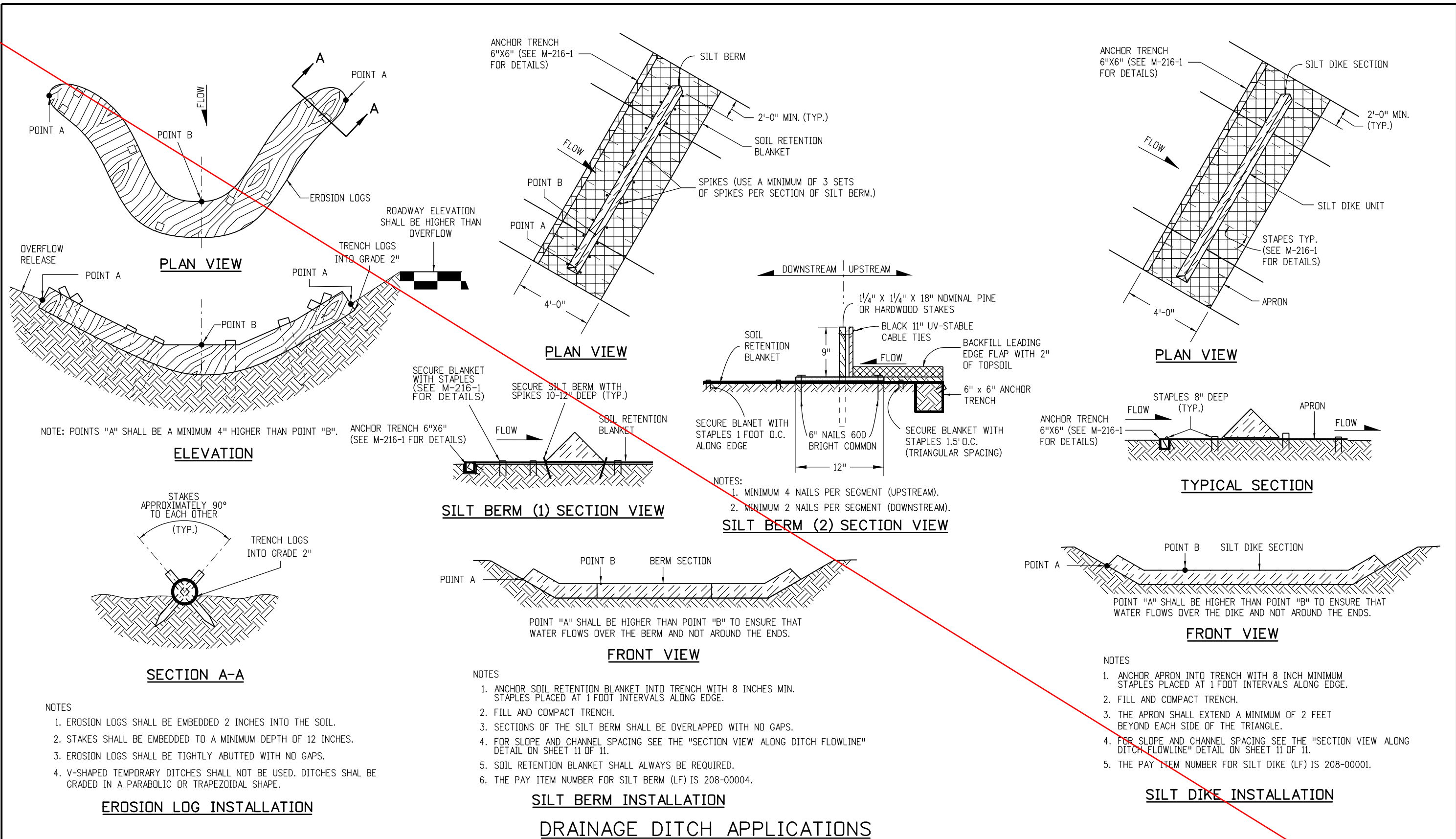
OPTION B

STORM DRAIN INLET PROTECTION (TYPE III)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE III) (EACH) IS 208-00056.

STORM DRAIN INLET PROTECTION TYPES

Computer File Information		Sheet Revisions		Colorado Department of Transportation  4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support JBK/LTA	TEMPORARY EROSION CONTROL	STANDARD PLAN NO.
Creation Date: 07/04/12	Initials: JBK	Date:	Comments			M-208-1
Last Modification Date: 03/29/16	Initials: LTA	03/29/16	Added Note 3.			Sheet No. 5 of 11
Full Path: www.coloradodot.info/business/designsupport	(R-X)					
Drawing File Name: 2080105011.dgn	(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)				Issued By: Project Development Branch on July 4, 2012	



Computer File Information	
Creation Date: 07/04/12	Initials: JBK
Last Modification Date: 03/29/16	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 2080106011.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments
(R-X)	
(R-X)	
(R-X)	
(R-X)	

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 Denver, CO 80222
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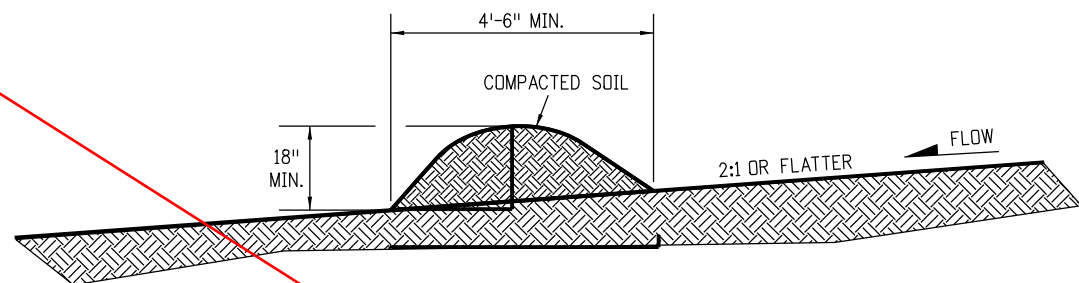
Division of Project Support **JBK/LTA**

TEMPORARY
EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 6 of 11

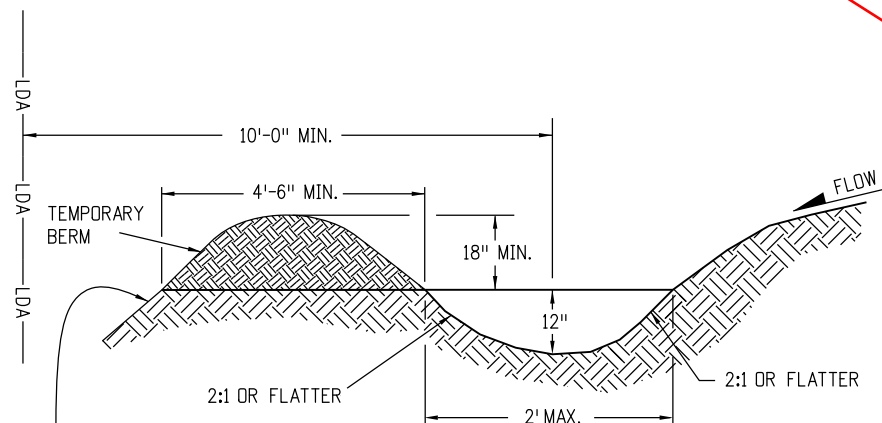
NOT USED



NOTES:

1. BERMS SHALL HAVE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4'-6" FEET.
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE AREA EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF MATERIAL COMPACTED WITH AT LEAST A MINIMUM OF ONE WHEEL ROLLED COMPACTION.
5. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.
6. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.

TEMPORARY BERM

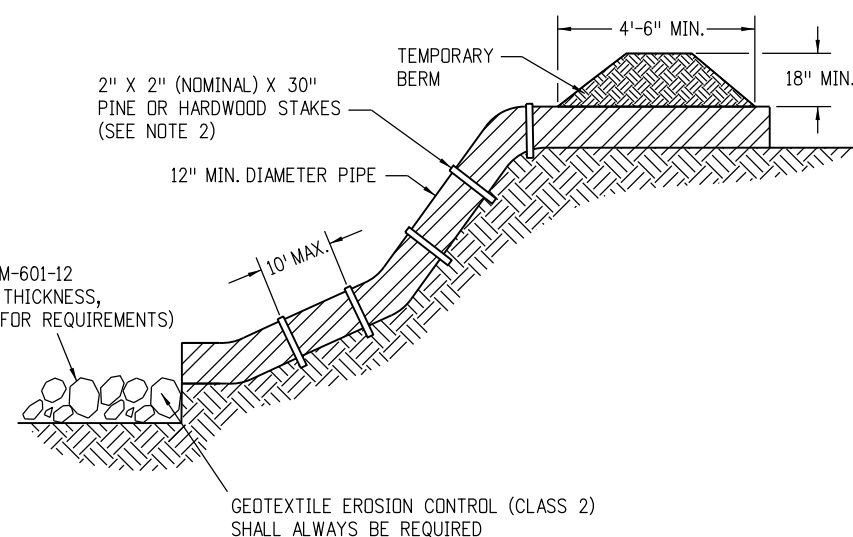


FOR BERMS TALLER THAN 2',
INSTALL TOE OF SLOPE BMP.
SEE SHEET 3 OF 11 FOR DETAILS.

NOTES:

1. TEMPORARY DIVERSION DITCHES SHALL BE CONSTRUCTED ACROSS THE SLOPE TO INTERCEPT RUNOFF AND DIRECT IT TO A STABLE OUTLET OR SEDIMENT TRAP.
2. USE THE TEMPORARY DIVERSION DITCH IMMEDIATELY ABOVE A NEW CUT, FILL SLOPE, OR AROUND THE PERIMETER OF A DISTURBED AREA.
3. THE GRADIENT ALONG THE FLOW PATH SHALL HAVE A POSITIVE GRADE TO ASSURE DRAINAGE, BUT SHALL NOT BE SO STEEP AS TO RESULT IN EROSION DUE TO HIGH VELOCITY.
4. THE DIVERSION FLOWLINE SHALL ALWAYS BE LOCATED A MINIMUM 10 FEET FROM THE OUTSIDE LIMITS OF DISTURBED AREA BOUNDARY.
5. THE PAY ITEM NUMBER FOR TEMPORARY DIVERSION (LF) IS 208-00301.

TEMPORARY DIVERSION



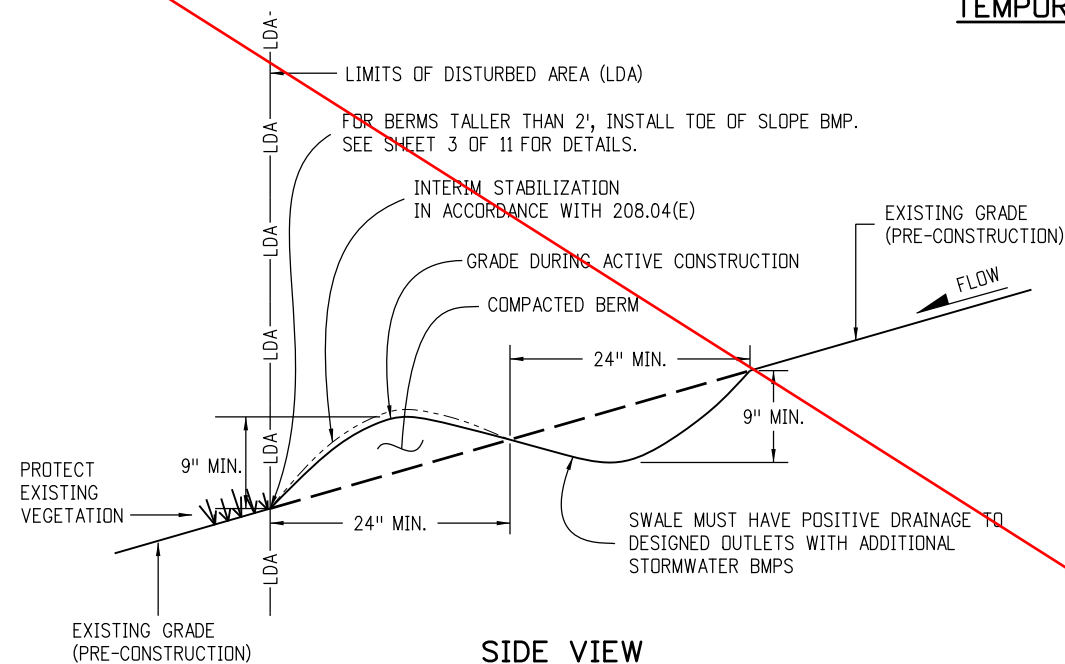
* RIPRAP OUTLET PROTECTION (SEE M-601-12 FOR MIN. HORIZONTAL LAYOUT AND THICKNESS, AND SPECIFICATION 506 "RIPRAP" FOR REQUIREMENTS)

* RIPRAP SIZE $D_{50} = 6$ IN. OR AS SHOWN ON THE PLANS.

NOTES:

1. ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE
2. TO SECURE THE PIPE, DRIVE STAKES INTO GROUND, THEN TIE A 12 GAUGE WIRE BETWEEN THEM ABOVE AND ACROSS THE PIPE'S WIDTH.
3. THE OUTLET SHALL BE ALIGNED WITH THE FLOW DIRECTION OF THE EXISTING GRADE. PERPENDICULAR DISCHARGE TO A CHANNEL SHALL NOT BE ACCEPTABLE.
4. THE GRADE AROUND THE INLET TO THE PIPE SHALL BE COMPACTED.
5. THE PAY ITEM NUMBER FOR TEMPORARY SLOPE DRAINS (LF) IS 208-00060.

TEMPORARY SLOPE DRAINS




SIDE VIEW

TEMPORARY BERM (AT EDGE OF DISTURBANCE)

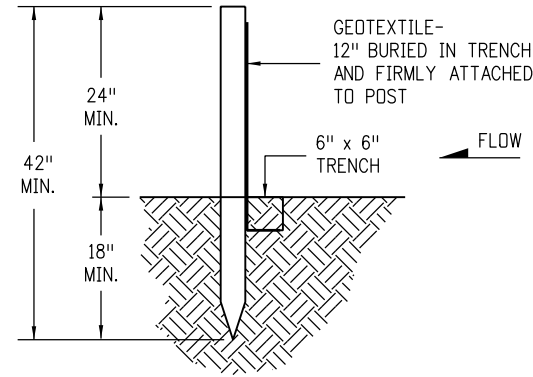
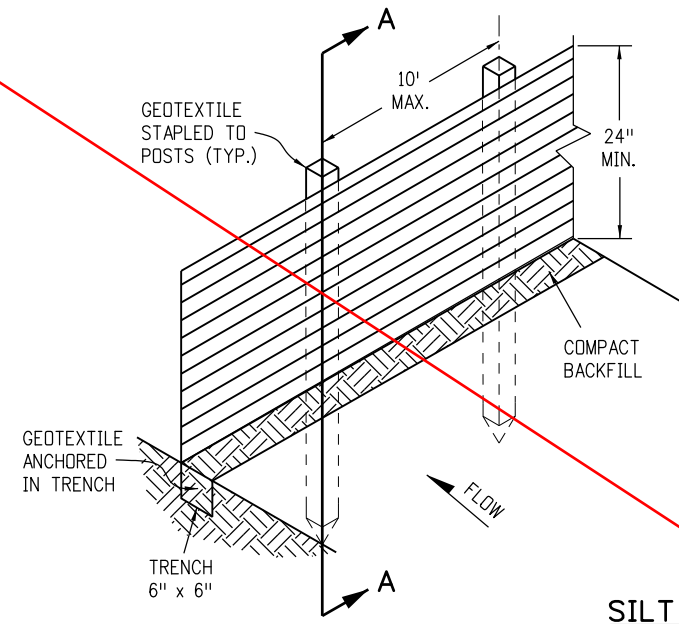
NOTES:

1. BERMS CAN ONLY BE USED IF CONDITIONS ALLOW UNINTERRUPTED POSITIVE GRADE (MAXIMUM GRADIENT 3%) TO AN OUTLET PROTECTED WITH ADDITIONAL BMPs.
2. MAXIMUM DRAINAGE AREA FOR EACH OUTLET FROM THE SWALE SHALL BE LIMITED TO 2 ACRES.
3. CONTRACTOR SHALL SALVAGE TOPSOIL AND PLACE AFTER BERM IS REMOVED FOR FINAL SEEDING OF ALL DISTURBED AREAS.
4. ALL ACTIVITIES REQUIRED TO ACCOMPLISH TEMPORARY BERM (EXCLUDING SURFACE MULCHING) SHALL BE INCLUDED IN THE COST OF WORK AND WILL NOT BE PAID FOR SEPARATELY.
5. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.
6. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.

GRADING APPLICATIONS

Computer File Information		Sheet Revisions		Colorado Department of Transportation  4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support JBK/LTA	TEMPORARY EROSION CONTROL	STANDARD PLAN NO.
Creation Date: 07/04/12	Initials: JBK	Date:	Comments			M-208-1
Last Modification Date: 03/29/16	Initials: LTA	03/29/16	Revisions to some dimensions and Notes.			Sheet No. 7 of 11
Full Path: www.coloradodot.info/business/designsupport	(R-X)					
Drawing File Name: 2080107011.dgn	(R-X)					
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English			Issued By: Project Development Branch on July 4, 2012	

NOT USED

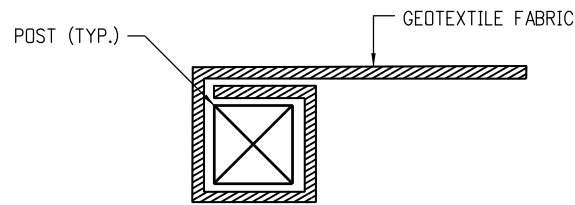


SECTION A-A

SILT FENCE

NOTES

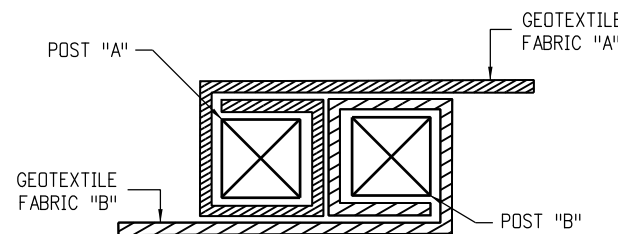
1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1" INCH LONG
2. WOOD POST SHALL BE 1/2" X 1/2" NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE SAME ELEVATION ±6"). THE ENDS SHALL BE FLARED UP SLOPE (MINIMUM ELEVATION GAIN OF 18").



END SECTION DETAIL (PLAN VIEW)

NOTE

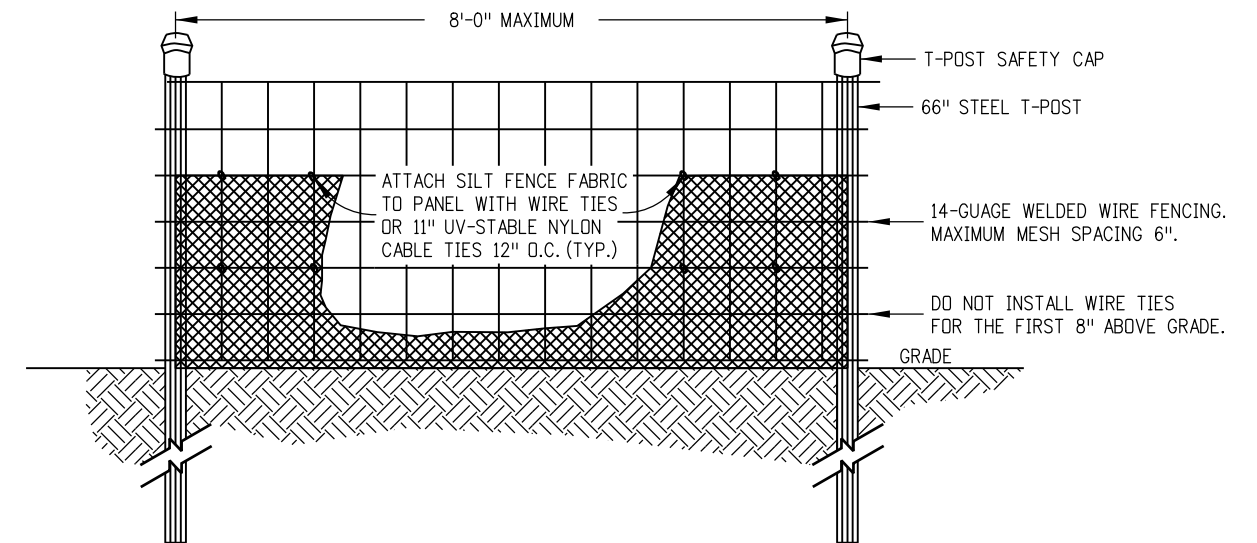
1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



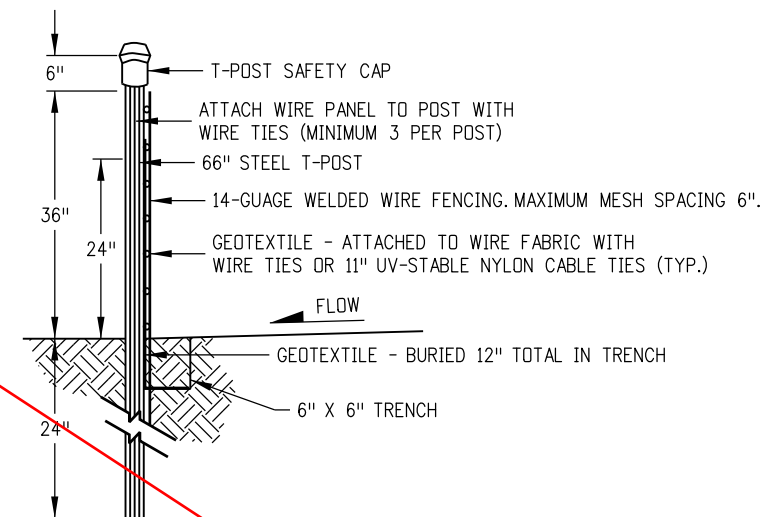
JOINING SECTION DETAIL (PLAN VIEW)

NOTES

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.



ELEVATION VIEW



SIDE VIEW

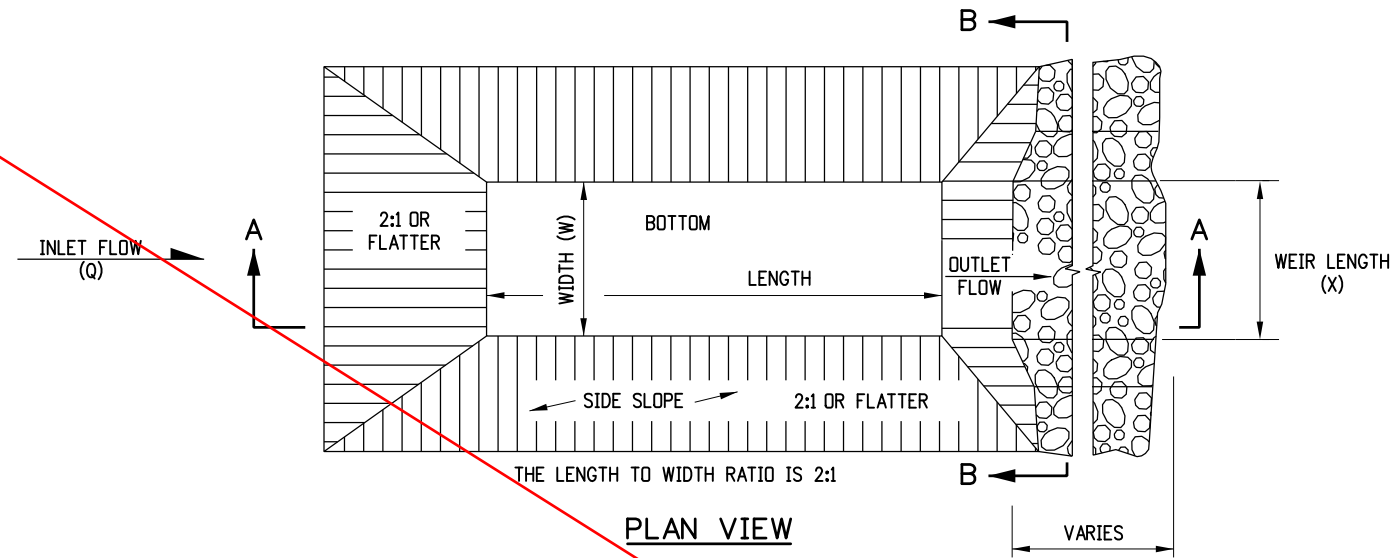
NOTES

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. SILT FENCES SHALL NOT BE USED FOR CHECK DAMS.
3. THE PAY ITEM NUMBER FOR SILT FENCE (REINFORCED) (LF) IS 208-00021.

SILT FENCE (REINFORCED)

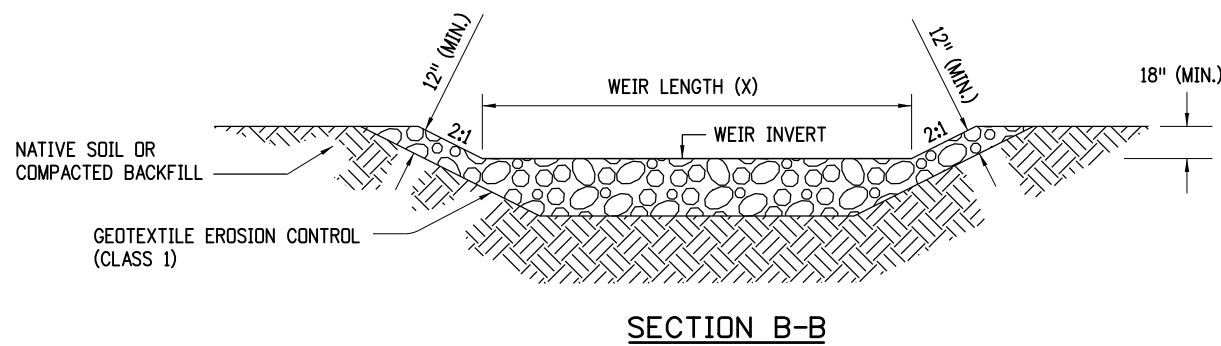
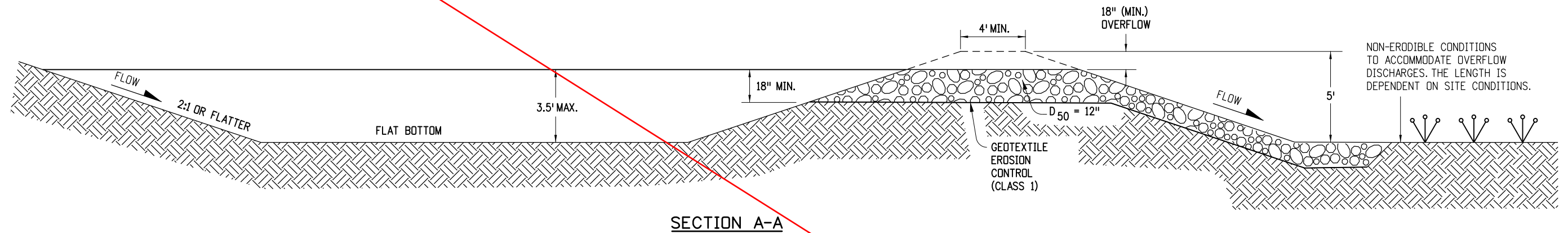
SILT FENCE APPLICATIONS

Computer File Information Creation Date: 07/04/12 Initials: JBK Last Modification Date: 03/29/16 Initials: LTA Full Path: www.coloradodot.info/business/designsupport Drawing File Name: 2080108011.dgn CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		Sheet Revisions <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>03/29/16</td> <td>Minor revisions to some dimensions and Notes.</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Date:	Comments	03/29/16	Minor revisions to some dimensions and Notes.					Colorado Department of Transportation  4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support JBK/LTA		TEMPORARY EROSION CONTROL Issued By: Project Development Branch on July 4, 2012		STANDARD PLAN NO. M-208-1 Sheet No. 8 of 11	
Date:	Comments																
03/29/16	Minor revisions to some dimensions and Notes.																



NOTES

1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIBLE.
9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.



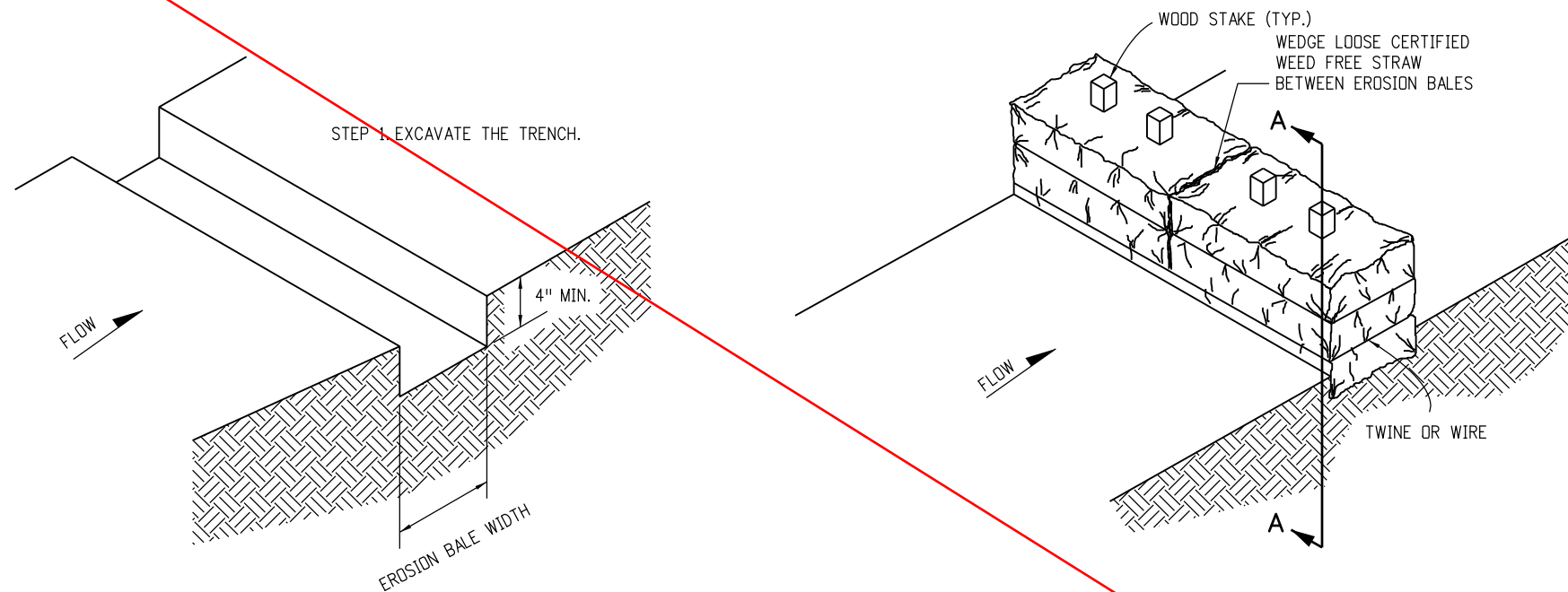
DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

WEIR LENGTH TABLE

SEDIMENT TRAP

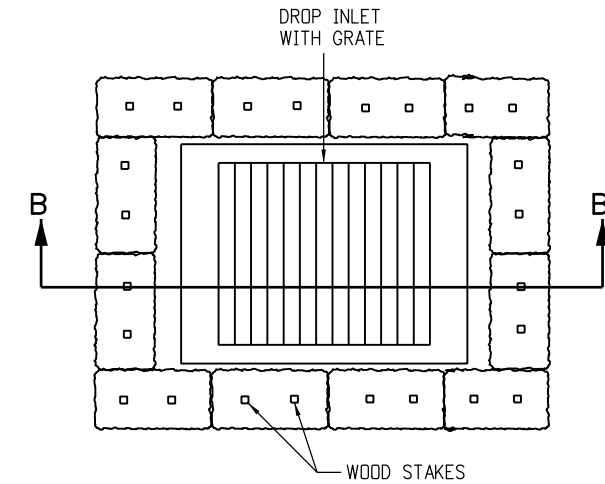
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Date:	Comments													
03/29/16	Minor revisions to some dimensions.													

NOT USED

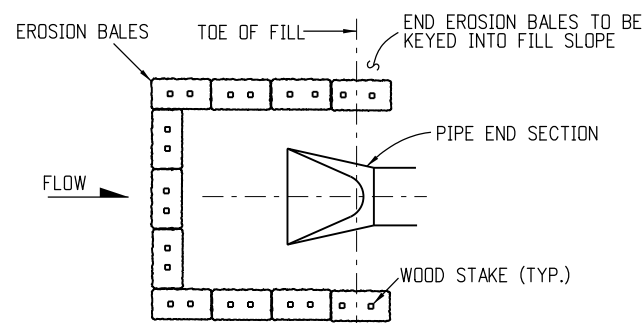


NOTES

1. STAKES SHALL BE WOOD AND SHALL BE 2" X 2" X 30" NOMINAL.
2. EROSION BALES SHALL BE 18" X 18" X 36".
3. EROSION BALES SHALL BE ENTRENCHED 4 IN. MINIMUM INTO THE SOIL, TIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.
4. EROSION BALES CANNOT BE USED FOR CHECK DAMS.
5. THE PAY ITEM NUMBER FOR EROSION BALES (WEED FREE) (EA) IS 208-00011.

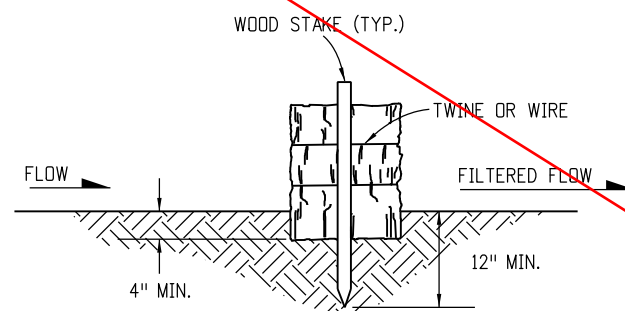


PLAN VIEW



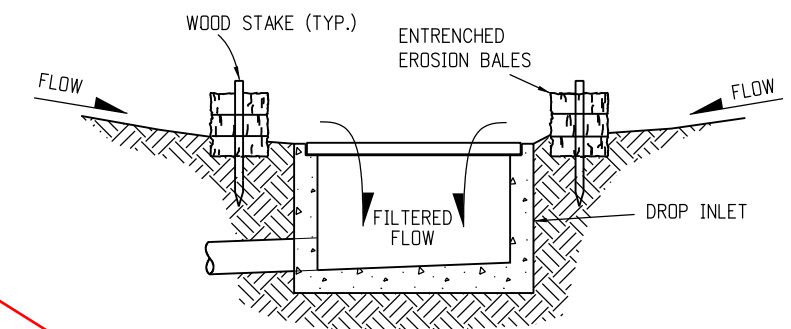
PLAN VIEW

EROSION BALE CULVERT INLET PROTECTION



SECTION A-A

EROSION BALE TRENCHING AND STAKING



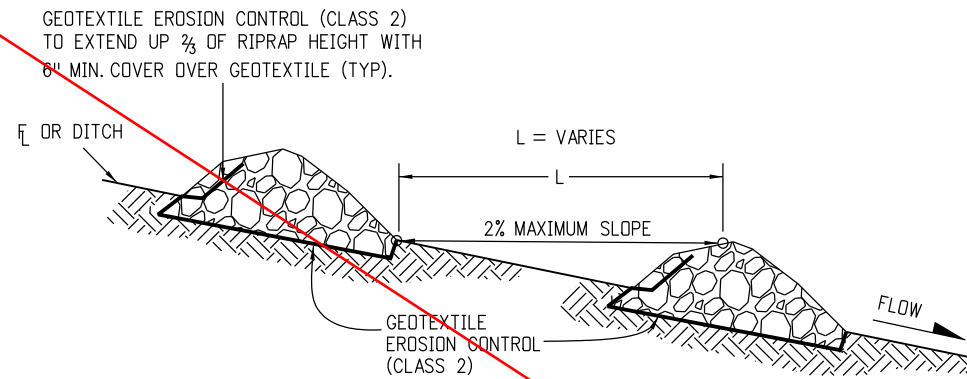
SECTION B-B

EROSION BALE FILTER AT DROP INLET

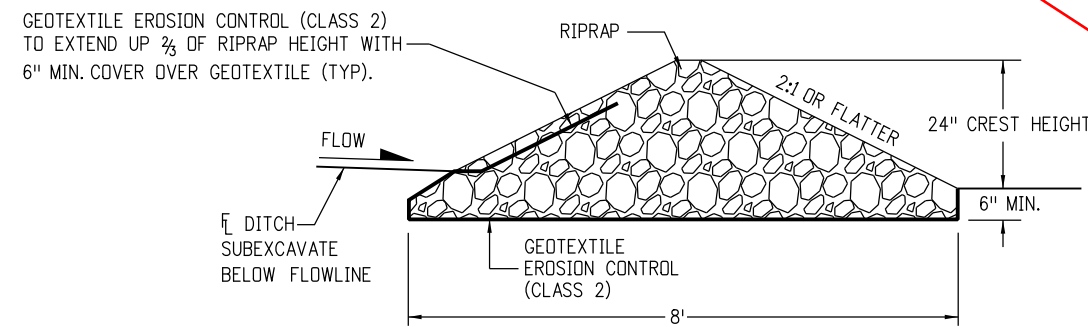
EROSION BALE APPLICATIONS

Computer File Information		Sheet Revisions		<p>Colorado Department of Transportation 4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support JBK/LTA</p>	<p>TEMPORARY EROSION CONTROL</p> <p>Issued By: Project Development Branch on July 4, 2012</p>	STANDARD PLAN NO.	
Creation Date: 07/04/12	Initials: JBK	Date:	Comments			<p>M-208-1</p> <p>Sheet No. 10 of 11</p>	
Last Modification Date: 03/29/16	Initials: LTA	03/29/16	Minor revisions to some dimensions.				
Full Path: www.coloradodot.info/business/designsupport	(R-X)						
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CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English	(R-X)				

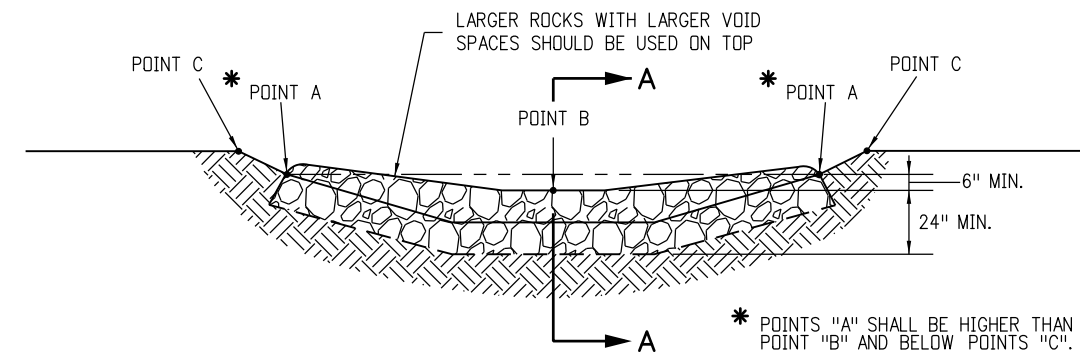
NOT USED



SECTION VIEW ALONG DITCH FLOWLINE



SECTION A-A




TYPICAL SECTION VIEW

NOTES:

1. RIPRAP SIZE $D_{50} = 6"$ OR AS SHOWN ON THE PLANS.
2. THE GEOTEXTILE EROSION CONTROL SHALL BE CLASS 2 AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 712.08.
3. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
4. FOR USE AS TEMPORARY CHECK DAMS ONLY AND NOT FOR PERMANENT INSTALLATIONS.
5. THE PAY ITEM NUMBER FOR ROCK CHECK DAM (EA) IS 208-00041.

ROCK CHECK DAM

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CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English	(R-X)		Issued By: Project Development Branch on July 4, 2012	Sheet No. 11 of 11