GUIDE DRAWING NUMBER	DESCRIPTION
RPE1-00	CABLE CONDUIT SCHEDULE AND NOTES FOR TOLL EQUIPMENT WIRING DIAGRAMS
RPE2-00	LEGEND, SYMBOL LIST, ABBREVIATIONS AND EQUIPMENT SCHEDULES
RPE3-00	ELECTRICAL SITE PLAN
RPE4-00	TOLL EQUIPMENT WIRING DIAGRAM
RPE5-00	SINGLE LINE DIAGRAM AND UTILITY POWER CABLE/CONDUIT SCHEDULE
RPE6-00	CONTROL BUILDING EQUIPMENT LAYOUT
RPE7-00	CONTROL BUILDING LIGHTING PLAN AND MISCELLANEOUS DETAILS
RPE8-00	CONTROL BUILDING GROUNDING DETAILS
RPE9-00	GROUNDING SCHEMATIC
RPE10-00	CONTROL BUILDING MISCELLANEOUS DETAILS
RPE11-00	3000VA/2100W UPS SINGLE LINE AND WIRING DIAGRAM
RPE12-00	PANEL BOARD SCHEDULES FOR MDP, UPS-1, AND UPS-2
RPE13-00	PANEL BOARD SCHEDULES FOR TP-1 AND TP-2
RPE14-00	ELECTRICAL UNDERGROUND PLAN-RAMP WITH CONTROL BUILDING
RPE15-00	ELECTRICAL UNDERGROUND PLAN-REMOTE PLAN
RPE16-00	AUTOMATIC LANE ISLAND AND DETAILS 12 FOOT WIDE LANE
RPE17-00	IPO ONLY (IPO) LANE ISLAND PLAN AND DETAILS 12 FOOT LANE
RPE18-00	REMOTE RAMP CABINETS
RPE19-00	TERMINAL STRIP LAYOUT REMOTE DATA TERMINAL CABINET
RPE20-00	LOOP AND TREADLE INSTALLATION DETAILS
RPE21-00	PLAZA LANE CONTROL SIGNAL
RPE22-00	PLAZA WATCHDOG VIDEO AND I-PASS PLANS
RPE23-00	MISCELLANEOUS SCHEMATIC DIAGRAMS
RPE24-00	TRAFFIC LIGHT DETAILS
RPE25-00	TRAFFIC LIGHT DETAILS IPO LANE
RPE26-00	VIDEO WATCHDOG CAMERA DETAILS
RPE27-00	MISCELLANEOUS DETAILS
RPE28-00	RAMP PLAZA MONOTUBE DETAILSTSIC TERMINAL BLOCK LAYOUT
RPE29-00	TSIC TERMINAL BLOCK LAYOUT
RPE30-00	TSIC IN CONTROL BUILDING
RPE31-00	FIBER INTERCONNECTIONS BETWEEN RAMP A AND RAMP B
RPE32-00	REMOTE RAMP "B" R3 RACK
RPE33-00	RAMP "A" R3 RACK IN CONTROL BUILDING

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INDEX OF
RPE GUIDE DRAWINGS

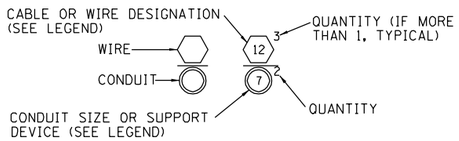
TOLL EQUIPMENT WIRING CABLE/CONDUIT SCHEDULE

SYMBOL	CABLE DESCRIPTION	REMARKS
1	1-6PR #22 SHLD	
2	1-3/C #12 SHLD	NOTE 3
3	1-3PR #22 SHLD	
4	1-4/C #12 SHLD	NOTE 1 & 3
5	2-1/C #12, 1-1/C #12(GRD)	NOTE 1
6	1-1PR #16 SHLD (LOOP LEAD-IN)	NOTE 2
7	1-1/C #14 (STANDARD OR IDRIS LOOP)	NOTE 2
8	1-1/C #6 (GRD)	NOTE 5
9	1-7/C #12 SHLD	NOTE 1 & 3
10	1-3/C #16 SHLD	NOTE 4
11	2-1PR #22 SHLD	NOTE 1
12	2-3/C #12 SHLD 1-COAXIAL VIDEO CABLE	NOTES 1, 3 & 6
13	1-4 PR #24 (RS 422)	NOTE 7
14	1-COAXIAL VIDEO CABLE	NOTE 6
15	1-COAXIAL ANTENNA CABLE	NOTE 6
16	1- 9/C #22 IND SHLD	
17	1-1/C #4/0 (GRD BUS)	
18	1-1/C #8 (GRD)	
19	1-1/C #2 (GRD)	
20	1-4PR #24 (CATEGORY 5E)	NOTE 7
21	1-6 STRAND, MULTIMODE FIBER OPTIC CABLE	
22	1-24 STRAND, MULTIMODE FIBER OPTIC CABLE	
23	1-36 STRAND, MULTIMODE FIBER OPTIC CABLE	
24	1-48 STRAND, MULTIMODE FIBER OPTIC CABLE	
25 THRU 49	RESERVED FOR STANDARD DRAWINGS	

CONDUIT SIZES

1. RIGID METALLIC CONDUIT 3/4"
2. RIGID METALLIC CONDUIT 1"
3. RIGID METALLIC CONDUIT 1 1/4"
4. RIGID METALLIC CONDUIT 1 1/2"
5. RIGID METALLIC CONDUIT 2"
7. RIGID METALLIC CONDUIT 3"
9. RIGID METALLIC CONDUIT 4"
12. RIGID NON-METALLIC CONDUIT 1" SCHEDULE 40
15. RIGID NON-METALLIC CONDUIT 2" SCHEDULE 40
17. RIGID NON-METALLIC CONDUIT 3" SCHEDULE 40
19. RIGID NON-METALLIC CONDUIT 4" SCHEDULE 40
22. RIGID NON-METALLIC CONDUIT 1" SCHEDULE 80
24. RIGID NON-METALLIC CONDUIT 1 1/2" SCHEDULE 80
25. RIGID NON-METALLIC CONDUIT 2" SCHEDULE 80
27. RIGID NON-METALLIC CONDUIT 3" SCHEDULE 80
29. RIGID NON-METALLIC CONDUIT 4" SCHEDULE 80
32. RIGID METALLIC CONDUIT PVC COATED 1"
33. RIGID METALLIC CONDUIT PVC COATED 1 1/4"
34. RIGID METALLIC CONDUIT PVC COATED 1 1/2"
35. RIGID METALLIC CONDUIT PVC COATED 2"
37. RIGID METALLIC CONDUIT PVC COATED 3"
39. RIGID METALLIC CONDUIT PVC COATED 4"
40. SEAL TIGHT FLEXIBLE CONDUIT 1"

DESIGNATION KEY



NOTES:

1. MINIMUM SIZE OF EXPOSED CONDUIT IS 3/4". MINIMUM SIZE OF EMBEDDED CONDUIT IS 1". EMBEDDED CONDUIT SHALL BE PVC COATED RIGID STEEL.
2. STANDARD AND IDRIS LOOPS SHALL BE FURNISHED AND INSTALLED BY THE TOLLWAY. LOOP LEAD CABLING IS FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. MULTI-CONDUCTOR SHIELDED CABLE #12 AWG FOR NORMAL POWER, UPS POWER, TRAFFIC VIOLATION LIGHTS, AND LANE CONTROL SIGNALS, SHALL BE COLOR CODED AS SPECIFIED IN THE SPECIAL PROVISIONS OF THE CONTRACT.
4. MULTI-CONDUCTOR SHIELDED CABLE #14 AWG THROUGH #18 AWG FOR CONTROL USE SHALL BE COLOR CODED PER ICEA-NEC (K-2) STANDARD.
5. A GROUND ROD IS INSTALLED AT EACH AUTOMATIC MACHINE AS SHOWN ON DWG. RPE19. CADWELD A #6 AWG GROUND WIRE TO THE GROUND ROD AND COIL 6' OF GROUND WIRE IN THE LANE CONTROL CABINET TO BE TERMINATED AT THE ACM BY THE TOLLWAY.
6. PROVIDE TVSS PROTECTION ADAPTER FOR ALL COAXIAL VIDEO AND ANTENNA. CABLES ENTERING BUILDINGS, DATA CABINET OR IPASS READER CABINET. AN IN-LINE ADAPTER MUST BE INSTALLED AT THE CONNECTION TO THE R3 RACK, OPTELECOM RACK, ELPAC, OR IPASS EQUIPMENT. THE TVSS PROTECTION ADAPTER SHALL BE PHOENIX CONTACT (OR EQUIVALENT) "COAXTRAX SERIES" CATALOG NUMBER C-UFB-5DC/E.
7. PROVIDE TVSS PROTECTION ADAPTER FOR ALL RS-422 AND CATEGORY 5E CABLES ENTERING THE BUILDING DATA CABINET OR IPASS READER CABINET. AN IN-LINE ADAPTER MUST BE INSTALLED AT THE CONNECTION TO THE CISCO SWITCH, ELPAC OR IPASS EQUIPMENT, THE TVSS ADAPTER FOR RS-422 CABLE SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-UFB-V11/BS-B. THE TVSS ADAPTER FOR CATEGORY 5E CABLE SHALL BE PHOENIX CONTACT (OR EQUIVALENT) DATATRAB D-LAN-CAT-5E.

NOTE TO DSE

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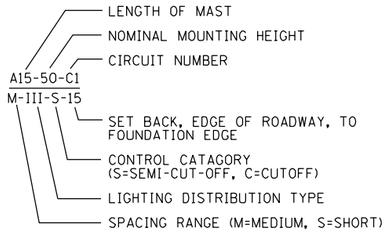
CABLE CONDUIT SCHEDULE AND NOTES FOR TOLL EQUIPMENT WIRING DIAGRAMS

RPE1-00 (GUIDE DRAWING)

LEGEND

- EXPOSED CONDUIT
- CONDUIT IN SLAB
- UNDERGROUND CONDUIT OR CABLE DUCT
- CONDUIT OR CABLE DUCT IN CASING
- HOME RUN TO PANEL AS NOTED
- INDICATES CIRCUIT TURNING DOWN
- INDICATES CIRCUIT TURNING UP
- GROUND ROD
- GROUNDING TRIAD
- G — EXPOSED GROUND CONDUCTOR
- G — UNDERGROUND GROUND CONDUCTOR



SYMBOL LIST

SYMBOL	DESCRIPTION
30 KVA 480-208Y/120V 3•, 4W	TRANSFORMER. 30 KVA DENOTES TRANSFORMER RATING. 480-208Y/120V DENOTES VOLTAGE. 3• DENOTES 3 PHASE. 4W DENOTES 4 WIRE.
(1)	LEGEND NUMBER FOR CABLE & CONDUIT. (SEE CABLE AND CONDUIT SCHEDULES).
(1)	MOTOR. NUMBER 1 DENOTES HORSEPOWER.
N E L ATS 260A 3P,4W	AUTOMATIC TRANSFER SWITCH (ATS). N DENOTES NORMAL SOURCE. E DENOTES EMERGENCY SOURCE. L DENOTES LOAD. 260A DENOTES 260 AMPERE ATS RATING. 3P DENOTES 3 POLE. 4W DENOTES 4 WIRE.
JB OR (J)	JUNCTION BOX.
60A	DISCONNECT SWITCH. 60A DENOTES 60 AMPERES.
50A	CIRCUIT BREAKER. 50A DENOTES 50 AMPERES.
200A 3PDT. SW.	MANUAL TRANSFER SWITCH. 200A DENOTES 200 AMPERES. 3PDT DENOTES 3 POLE DOUBLE-THROW.
(WH)	SELF CONTAINED UTILITY METERING.
(G)	STANDBY GENERATOR.
30A 2P	PANEL CIRCUIT BREAKER. 30A DENOTES 30 AMPERES. 2P DENOTES 2 POLES.
(C)	MECHANICALLY HELD LIGHTING COIL.
(CR)	CONTROL RELAY COIL.
LA	LIGHTNING ARRESTER

ABBREVIATIONS

ACM	AUTOMATIC COIN MACHINE
AFF	ABOVE FINISH FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
BF	BARRIER WARNING LIGHT
DHH	DOUBLE HANDHOLE
GCS	GENERATOR CONTROL SWITCH
GFI	GROUND FAULT INTERRUPTER
HH	HANDHOLE
JB	JUNCTION BOX
LA	LIGHTNING ARRESTER
LC	LINE CONDITIONER
LCC	LANE CONTROLLER CABINET
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
MMF	MULTI-MODE FIBER
MSD	MAIN SERVICE DISCONNECT
MTS	MANUAL TRANSFER SWITCH
OCR	OPTICAL CHARACTER RECOGNITION
SMF	SINGLE MODE FIBER
TSIC	TERMINAL STRIP INTERCONNECT CENTER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
UPS	UNINTERRUPTIBLE POWER SUPPLY
VES	VIOLATION ENFORCEMENT SYSTEM
WP	WEATHERPROOF

NOTE:

1. ALL TYPE 'B' FIXTURES SHALL BE MOUNTED AT THE SAME ELEVATION WITH A MINIMUM MOUNTING HEIGHT AS INDICATED.

WIRING DEVICE SCHEDULE

SYMBOL	DESCRIPTION	RATING	MFR. AND CAT. NO.	MOUNTING HEIGHT
$	SINGLE-POLE SWITCH	20A, 120V	HUBBELL #HBL1221	4'-0"
	DUPLEX RECEPTACLE	20A, 120V	HUBBELL #HBL5362	18" AS NOTED
C	4P, 4W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR, BACK BOX, & ANGLE ADAPTER	200A, 600V	CROUSE-HINDS "ARKTITE" SERIES #AREA20417	3'-0" ABOVE GRADE
B	4P, 4W, WEATHERPROOF RECEPTACLE WITH SPRING DOOR & BACK BOX	30A, 600V	CROUSE-HINDS "ARKTITE" SERIES #ARE3413	3'-0" ABOVE GRADE
GFI	DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION	20A, 120V	HUBBELL #GFR5362	3'-0" ABOVE GRADE

LIGHTING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	VOLTAGE	LAMPS	MFR. AND CAT. NO.	REMARKS
A	CONTROL BUILDING LIGHTING 1' X 4' INDUSTRIAL FLUORESCENT FIXTURE, PORCELAIN REFLECTOR, ELECTRONIC BALLAST.	120 V	2-F32T8	DAY-BRITE 1FD232PP-120-1/2-EB	MOUNT 8' ABOVE FINISHED FLOOR
B	COMPACT WALL-MOUNTED LOW WATTAGE HPS FIXTURE WITH WIRE GUARD & SINGLE FACTORY INSTALLED FUSE	120 V	1-70W HPS	HOLOPHANE W4-070HP-12-C-Z-F1-G	MOUNT 9'-0" ABOVE FINISHED GRADE NOTE 1
C	EMERGENCY LIGHT UNIT WITH 2-6 VOLT, 12 WATT SEALED BEAM HALOGEN LAMPS WITH WALL MOUNTING BRACKET	120 V	2-12 WATT SEALED BEAM	DUAL-LITE CAT. NO. AS-801 WB-6	MOUNT 8' ABOVE FINISHED FLOOR

NOTE TO DSE

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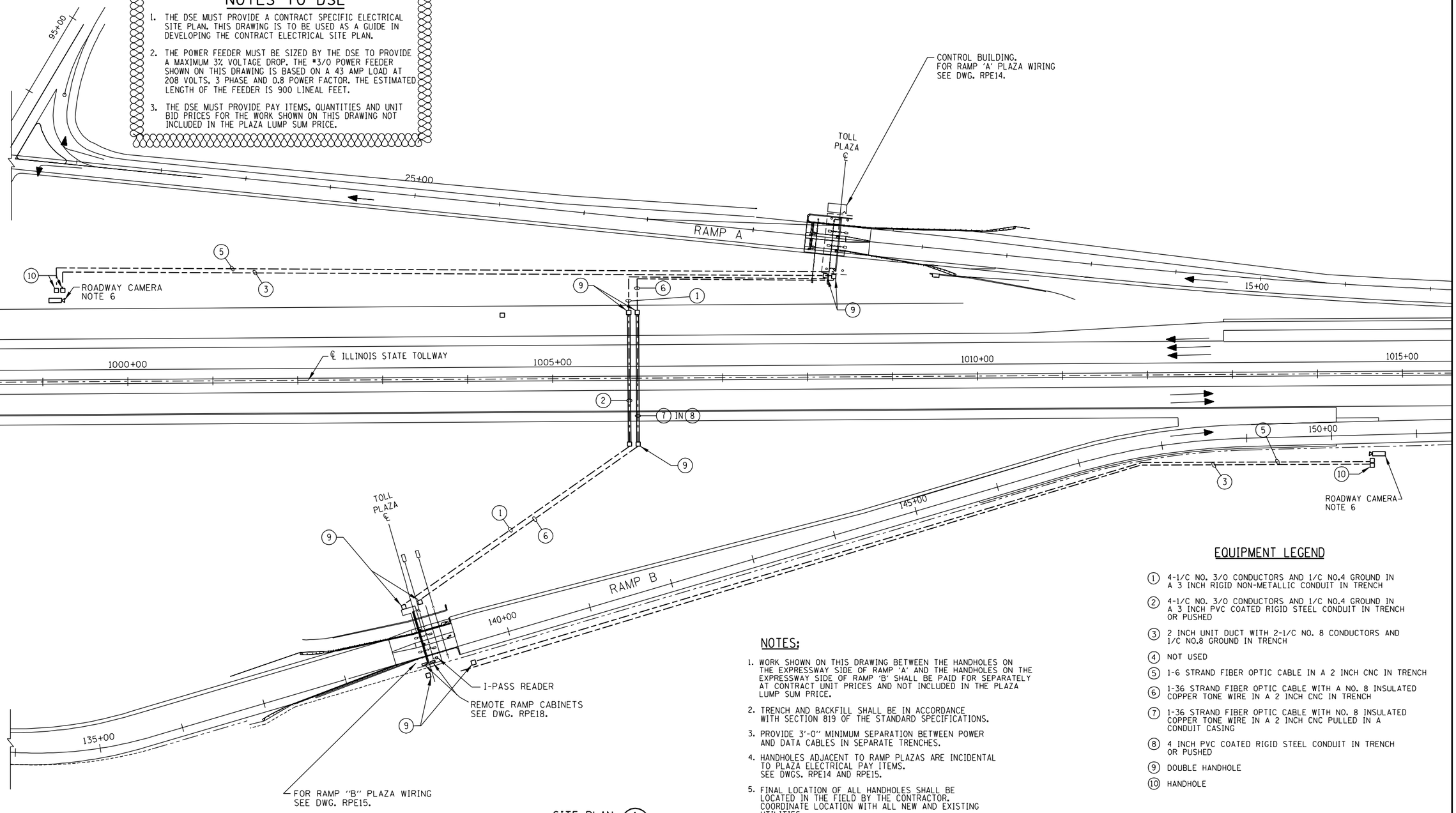
LEGEND, SYMBOL LIST, ABBREVIATIONS AND EQUIPMENT SCHEDULES

RPE2-00 (GUIDE DRAWING)

NOTES TO DSE

1. THE DSE MUST PROVIDE A CONTRACT SPECIFIC ELECTRICAL SITE PLAN. THIS DRAWING IS TO BE USED AS A GUIDE IN DEVELOPING THE CONTRACT ELECTRICAL SITE PLAN.
2. THE POWER FEEDER MUST BE SIZED BY THE DSE TO PROVIDE A MAXIMUM 3% VOLTAGE DROP. THE #3/0 POWER FEEDER SHOWN ON THIS DRAWING IS BASED ON A 43 AMP LOAD AT 208 VOLTS, 3 PHASE AND 0.8 POWER FACTOR. THE ESTIMATED LENGTH OF THE FEEDER IS 900 LINEAL FEET.
3. THE DSE MUST PROVIDE PAY ITEMS, QUANTITIES AND UNIT BID PRICES FOR THE WORK SHOWN ON THIS DRAWING NOT INCLUDED IN THE PLAZA LUMP SUM PRICE.



SITE PLAN (1 / RPE-03)

NOTES:

1. WORK SHOWN ON THIS DRAWING BETWEEN THE HANDHOLES ON THE EXPRESSWAY SIDE OF RAMP 'A' AND THE HANDHOLES ON THE EXPRESSWAY SIDE OF RAMP 'B' SHALL BE PAID FOR SEPARATELY AT CONTRACT UNIT PRICES AND NOT INCLUDED IN THE PLAZA LUMP SUM PRICE.
2. TRENCH AND BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 819 OF THE STANDARD SPECIFICATIONS.
3. PROVIDE 3'-0" MINIMUM SEPARATION BETWEEN POWER AND DATA CABLES IN SEPARATE TRENCHES.
4. HANDHOLES ADJACENT TO RAMP PLAZAS ARE INCIDENTAL TO PLAZA ELECTRICAL PAY ITEMS. SEE DWGS. RPE14 AND RPE15.
5. FINAL LOCATION OF ALL HANDHOLES SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. COORDINATE LOCATION WITH ALL NEW AND EXISTING UTILITIES.
6. ROADWAY CAMERAS SHOULD BE LOCATED ON EITHER SIDE OF THE CROSS ROAD BRIDGE OVERPASS IF APPLICABLE. COORDINATE EXACT LOCATION WITH THE TOLLWAY.

EQUIPMENT LEGEND

1. 4-1/C NO. 3/0 CONDUCTORS AND 1/C NO.4 GROUND IN A 3 INCH RIGID NON-METALLIC CONDUIT IN TRENCH
2. 4-1/C NO. 3/0 CONDUCTORS AND 1/C NO.4 GROUND IN A 3 INCH PVC COATED RIGID STEEL CONDUIT IN TRENCH OR PUSHED
3. 2 INCH UNIT DUCT WITH 2-1/C NO. 8 CONDUCTORS AND 1/C NO.8 GROUND IN TRENCH
4. NOT USED
5. 1-6 STRAND FIBER OPTIC CABLE IN A 2 INCH CNC IN TRENCH
6. 1-36 STRAND FIBER OPTIC CABLE WITH A NO. 8 INSULATED COPPER TONE WIRE IN A 2 INCH CNC IN TRENCH
7. 1-36 STRAND FIBER OPTIC CABLE WITH NO. 8 INSULATED COPPER TONE WIRE IN A 2 INCH CNC PULLED IN A CONDUIT CASING
8. 4 INCH PVC COATED RIGID STEEL CONDUIT IN TRENCH OR PUSHED
9. DOUBLE HANDHOLE
10. HANDHOLE

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ELECTRICAL SITE PLAN

RPE3-00 (GUIDE DRAWING))

NOTE TO DSE

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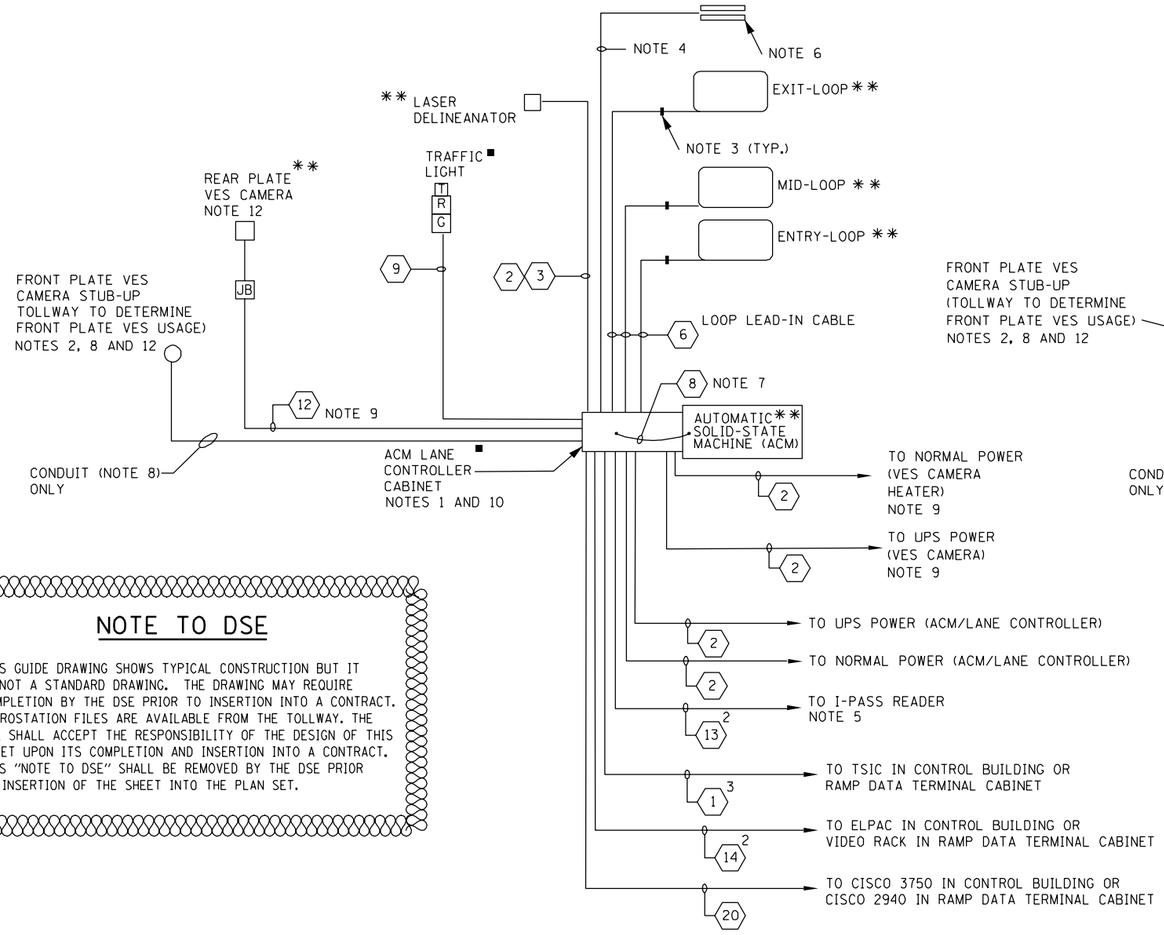
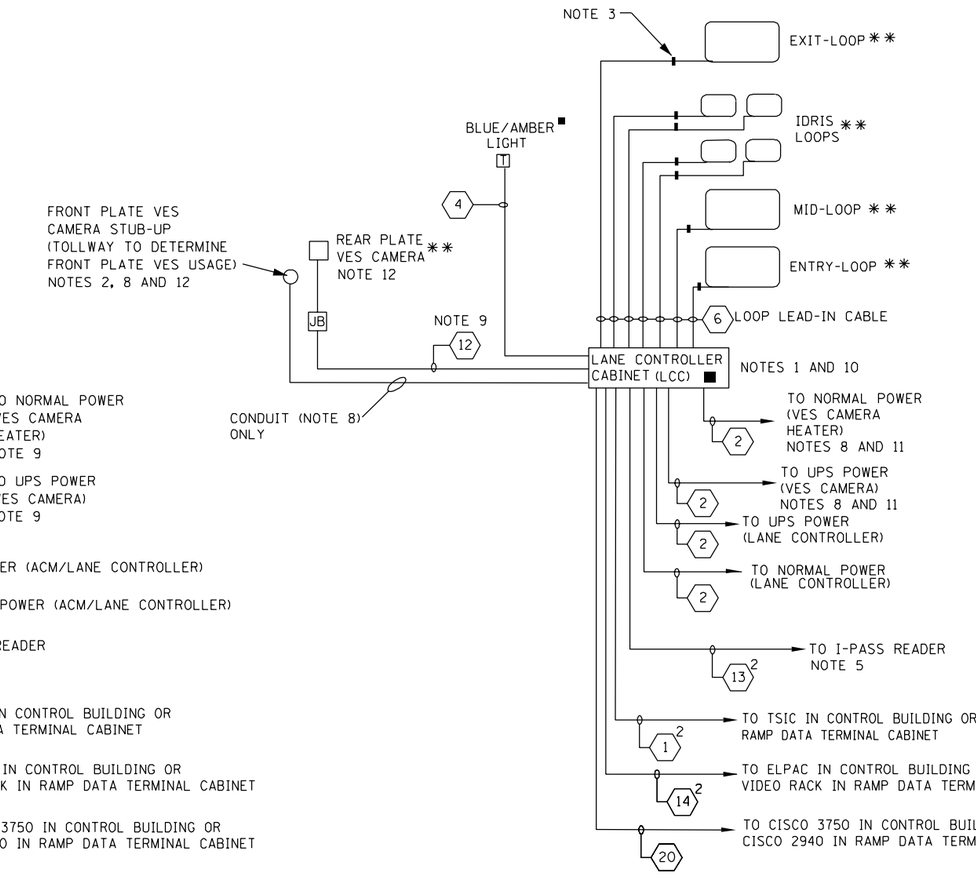


AUTOMATIC LANE AT RAMP PLAZA 1 RPE 4



I-PASS ONLY (IPO) LANE AT RAMP PLAZA 2 RPE 4

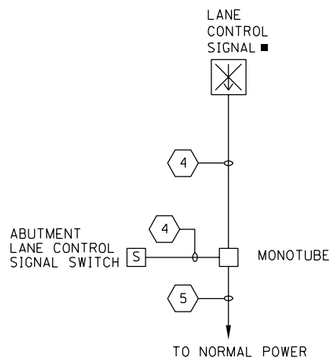
NOTES

1. IPASS READER CABINET AND LANE CONTROLLER CABINETS ARE FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. VES CAMERAS TO BE INSTALLED BY THE TOLLWAY.
3. WATERPROOF SPLICE (SEE RPE20). CONTRACTOR TO RUN LOOP LEAD-IN CABLE.
4. FIBER OPTIC TREADLE LEADS WITH SMA CONNECTORS TO TRANSCEIVER IN ACM. CABLES AND TREADLE FURNISHED AND INSTALLED BY THE TOLLWAY.
5. RS422 CABLES BETWEEN CONTROLLER CABINET AND I-PASS READER CABINET FOR COMMUNICATIONS.
6. FIBER OPTIC TREADLE FRAME IS FURNISHED BY THE TOLLWAY AND INSTALLED BY THE CONTRACTOR.
7. A GROUND ROD IS INSTALLED AT EACH AUTOMATIC MACHINE AS SHOWN ON THE AUTOMATIC LANE ISLAND PLAN AND DETAILS DRAWING. CADWELD A #6 AWG GROUND WIRE TO THE GROUND ROD AND COIL 6' OF GROUND WIRE IN THE LANE CONTROL CABINET, TO BE TERMINATED AT THE ACM BY THE TOLLWAY.
8. CONDUIT STUBS ONLY FOR FRONT VES. IF FRONT VES IS USED, THEN CABLE TAGS 2 AND 14 ARE REQUIRED.
9. UPS/NORMAL POWER AND COAX CABLING FOR THE REAR PLATE VES CAMERA COMES DIRECTLY FROM THE POWER AND DATA ENCLOSURES OR FROM THE CONTROL BUILDING. THESE CABLES ARE ROUTED THROUGH THE LANE CONTROLLER CABINET.
10. CONTRACTOR TO PROVIDE RECEPTACLES FOR UPS AND NORMAL POWER IN THE READER AND LANE CONTROLLER CABINETS.
11. DRAWING ILLUSTRATES TWO UPS CABLE TAG #2'S LANDING IN THE READER ENCLOSURE. THIS WOULD BE FOR TWO UNIQUE UPS CIRCUITS. THE SECOND CIRCUIT IS REQUIRED FOR PLAZAS THAT HAVE THREE OR MORE LANES.
12. FRONT AND REAR PLATE VES CAMERA STANCHIONS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR. REAR PLATE VES CAMERA STANCHION IS TO BE PROVIDED WITH A JUNCTION BOX FOR CABLE SPLICING.

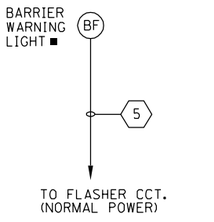
* - INDICATES EQUIPMENT FURNISHED BY THE TOLLWAY AND INSTALLED BY THE CONTRACTOR.

** - INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE TOLLWAY

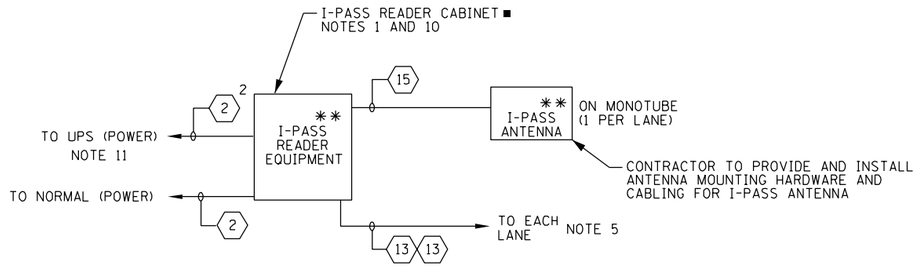
■ - INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR



LANE CONTROL SIGNAL 3 RPE 4



AUXILIARY EQUIPMENT 4 RPE 4



I-PASS BLOCK WIRING DIAGRAM 5 RPE 4

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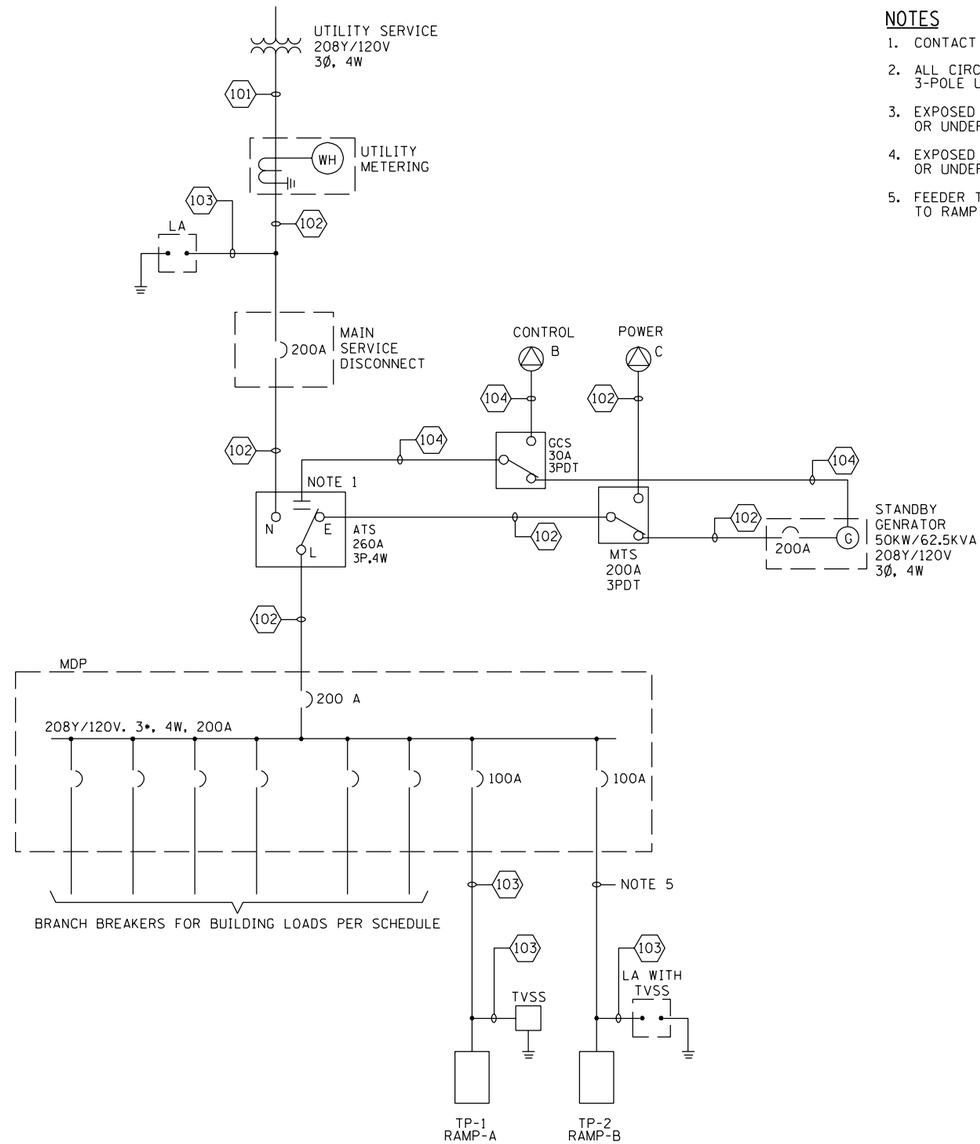
TOLL EQUIPMENT WIRING DIAGRAM

RPE4-00 (GUIDE DRAWING)



SINGLE LINE DIAGRAM (1 / RPE-5)

NOTES

1. CONTACT TO INITIATE ENGINE STARTING CONTROLS.
2. ALL CIRCUIT BREAKERS AND DISCONNECT SWITCHES ARE 3-POLE UNLESS NOTED OTHERWISE.
3. EXPOSED CONDUIT SHALL BE 3/4", EMBEDDED OR UNDERGROUND CONDUIT SHALL BE 1".
4. EXPOSED CONDUIT SHALL BE 1", EMBEDDED OR UNDERGROUND CONDUIT SHALL BE 2".
5. FEEDER TO REMOTE RAMP POWER CABINET. CABLING TO RAMP B TO BE SIZED BY THE DSE.

UTILITY POWER CABLE/CONDUIT SCHEDULE

SYMBOL	CABLE DESCRIPTION	CONDUIT SIZE (INCHES)	REMARKS
101	4-1/C #3/0 1-1/C #4/0(GRD)	4	
102	4-1/C #3/0 1-1/C #4(GRD)	3	
103	4-1/C #2 1-1/C #8(GRD)	2	
104	3-1/C #10 1-1/C #10(GRD)	3/4	
105	4-1/C #10 1-1/C #10(GRD)	3/4	
106	2-1/C #12 1-1/C #12(GRD)	NOTE 3	
107	3-1/C #12 1-1/C #12(GRD)	NOTE 3	
108	4-1/C #12 1-1/C #12(GRD)	NOTE 3	
109	5-1/C #12 1-1/C #12(GRD)	NOTE 3	
110	5-1/C #12 1-1/C #12(GRD)	NOTE 4	
111	6-1/C #12 1-1/C #12(GRD)	1	
112	7-1/C #12 1-1/C #12(GRD)	1	
113	1-6/C #16 FPLR 6-1 PR. #22 SHLD.	1	SECURITY-CARD ACCESS
114	2-1/C #8 1-1/C #8(GRD)	AS SHOWN	

NOTE TO DSE

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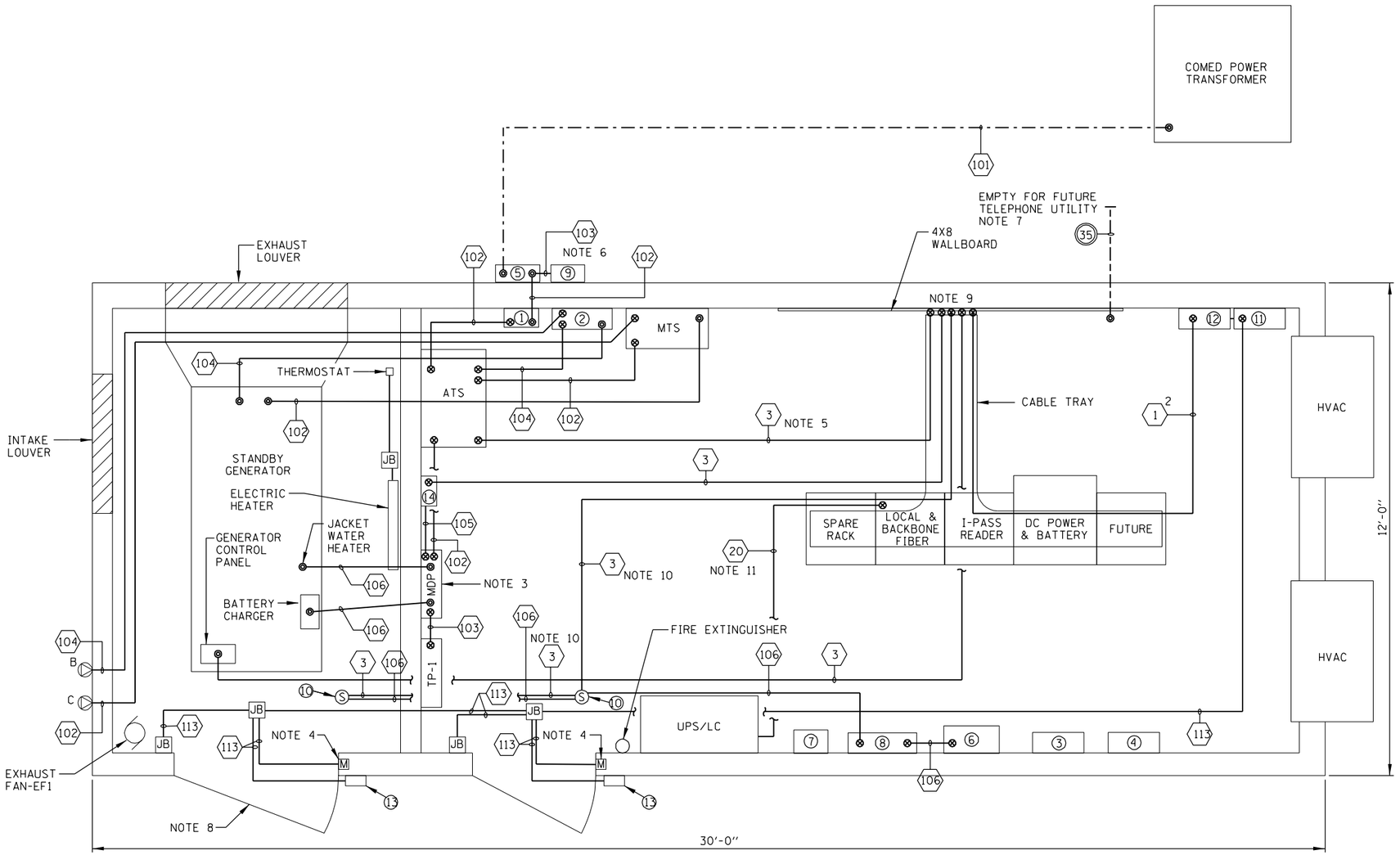
SINGLE LINE DIAGRAM AND UTILITY POWER CABLE/CONDUIT SCHEDULE

RPE5-00 (GUIDE DRAWING))



CONTROL BUILDING POWER PLAN (1 / RPE 6)
NOT TO SCALE

NOTES:

1. SEE DWGS. RPE1 AND RPE5 FOR CABLE/CONDUIT SCHEDULES.
2. SEE DWG. RPE5 FOR SYSTEM POWER SINGLE LINE DIAGRAM.
3. SEE DWG. RPE10 FOR WALL ELEVATION.
4. DOOR ALARM SWITCH, SEE DETAIL 2 ON DWG. RPE10.
5. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR ATS ALARMS AND ROUTE TO WALLBOARD.
6. THE LIGHTNING PROTECTION SYSTEM DEVICE SHALL BE CONNECTED TO THE LOAD SIDE OF THE UTILITY METER.
7. THE CONDUIT SHALL BE STUBBED OUT 5 FEET FROM THE BUILDING FOUNDATION.
8. THE DOORWAY FOR THE GENERATOR ROOM SHALL BE WIDE ENOUGH TO ALLOW FOR THE INSTALLATION AND REMOVAL OF THE GENSET.
9. TERMINATE ALARM CABLES ON TERMINAL BLOCK ON TSIC BOARD. SEE DWG. RPE29 FOR DETAILS.
10. PROVIDE A 3 PAIR #22 SHIELDED CABLE FOR SMOKE DETECTOR ALARM CONTACT AND ROUTE TO WALL BOARD.
11. PROVIDE AN ETHERNET CONNECTION FROM UPS TO CISCO SWITCH.

LEGEND

(1) MAIN SERVICE DISCONNECT
(2) GENERATOR CONTROL SWITCH
(3) LIGHTING CONTACTOR & TRANSFORMER
(4) FLASHING BEACON CONTROLLER
(5) UTILITY METER
(6) VIDEO POWER JUNCTION BOX
(7) BYPASS SWITCH
(8) UPS-1
(9) LIGHTNING PROTECTION SYSTEM
(10) SMOKE DETECTOR PANEL
(11) CARD READER PANEL
(12) HIRSCH PANEL
(13) CARD READER
(14) HVAC CONTROL PANEL

NOTE TO DSE

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Illinois Tollway
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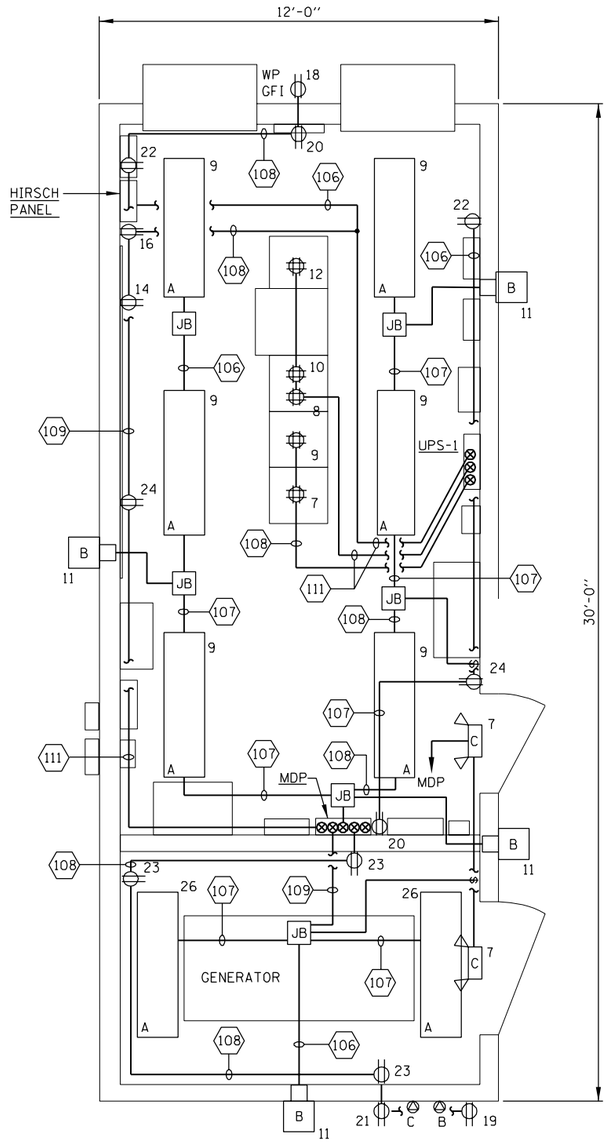
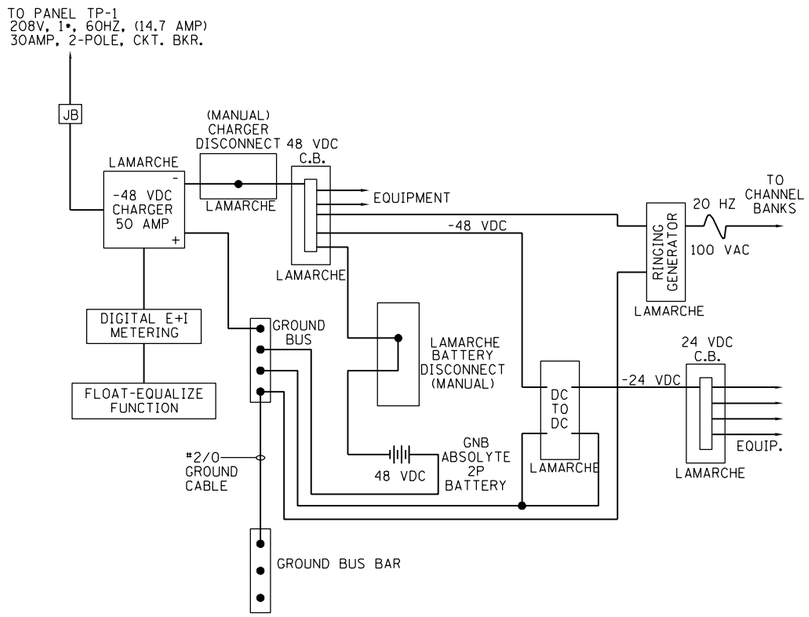
CONTROL BUILDING EQUIPMENT LAYOUT

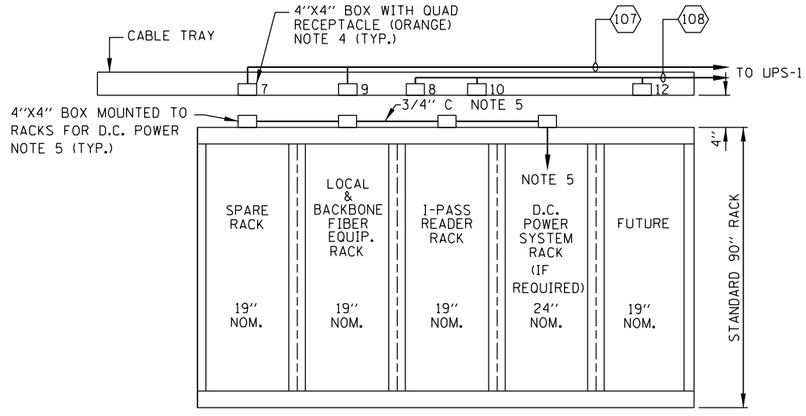
RPE6-00 (GUIDE DRAWING))



BUILDING LIGHTING AND RECEPTACLE PLAN (1 RPE-7)
NOT TO SCALE



BATTERY CHARGER INTERCONNECTION DIAGRAM (2 RPE-7)
NOT TO SCALE



COMMUNICATIONS AND EQUIPMENT RACK ELEVATION C (3 RPE-7)
NOT TO SCALE

NOTES:

1. SEE DWGS. RPE RPE1 AND RPE5 FOR CABLE/CONDUIT SCHEDULES.
2. RECEPTACLE AND LIGHTING CONDUIT SHALL BE 3/4" WITH 2-1/C #12 AND 1/C #12 GRD. UNLESS OTHERWISE NOTED.
3. FOR PANEL SCHEDULES, SEE DWGS. RPE12 AND RPE13.
4. PROVIDE QUAD RECEPTACLES (5 TOTAL) FOR THE EQUIPMENT RACKS AS SHOWN. THE RECEPTACLES SHALL BE MOUNTED TO THE SIDE OF THE CABLE TRAY AS DIRECTED BY THE TOLLWAY.

   IF REQUIRED:

5. PROVIDE 3/4" CONDUIT FROM THE D.C. POWER EQUIPMENT TO PULLBOXES TO BE LOCATED AT THE TOP OF EACH EQUIPMENT RACK. THE CONDUIT SHALL BE INSTALLED EMPTY FOR FUTURE USE BY THE TOLLWAY.

NOTE TO DSE

THE DSE SHALL ASK THE TOLLWAY IF A DC POWER IS REQUIRED AT THE RAMP PLAZA BUILDING. A DC POWER SYSTEM IS ONLY REQUIRED IF A COMMUNICATIONS TOWER WILL BE INSTALLED ADJACENT TO THE PLAZA BUILDING.

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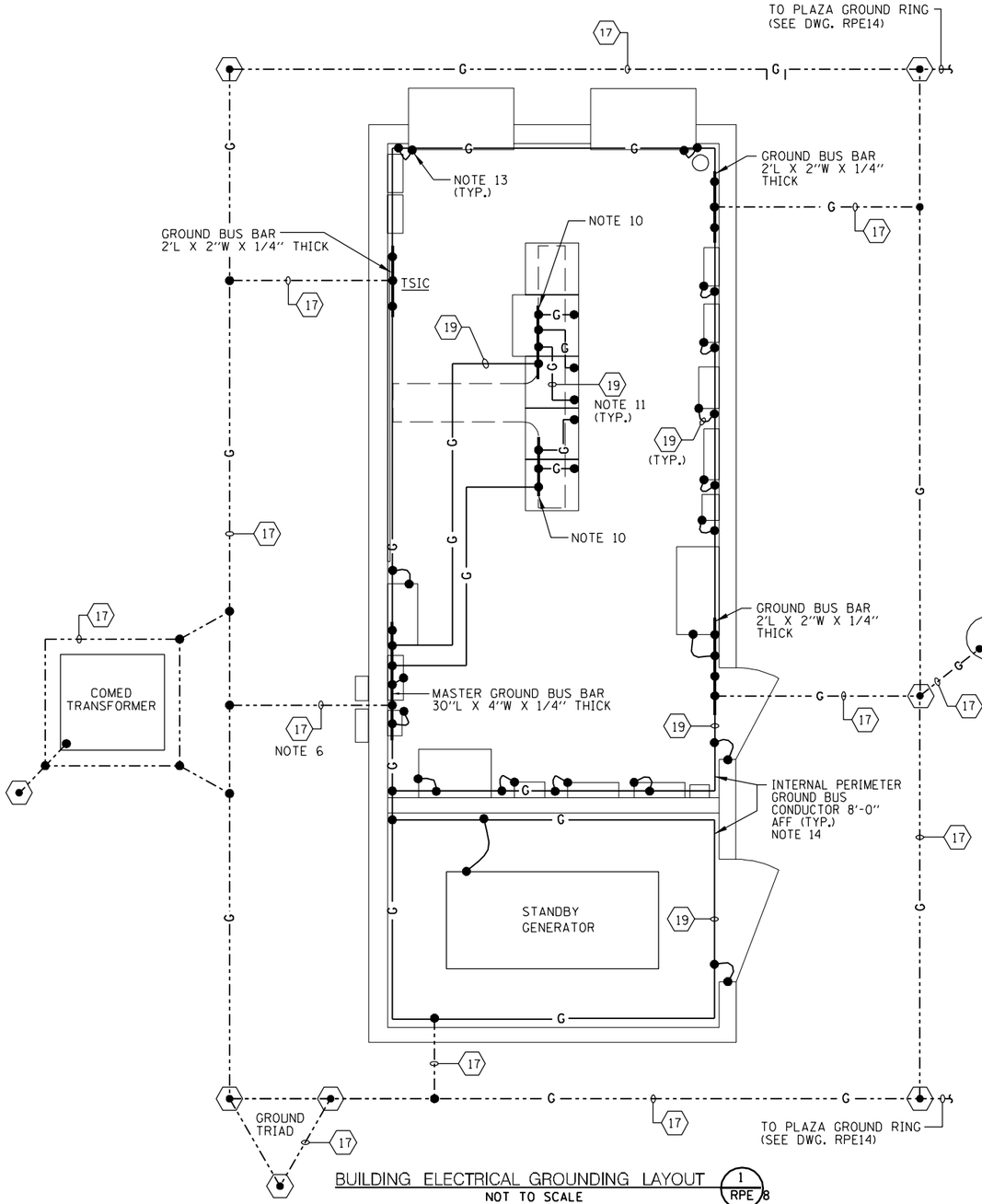
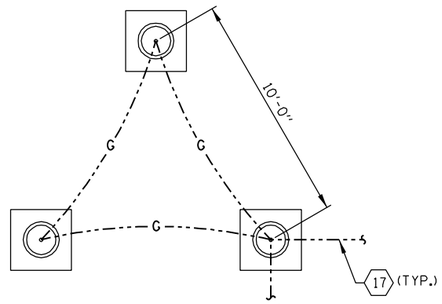
CONTROL BUILDING LIGHTING PLAN AND MISCELLANEOUS DETAILS

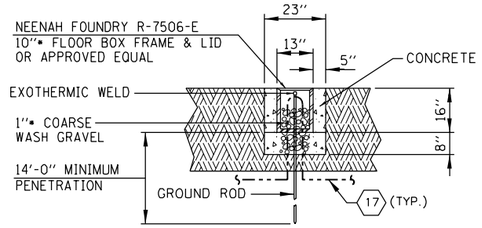
RPE7-00 (GUIDE DRAWING)



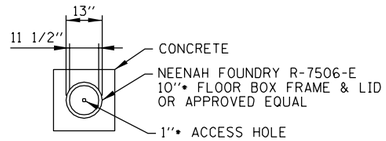
BUILDING ELECTRICAL GROUNDING LAYOUT (1 / RPE 8)
NOT TO SCALE



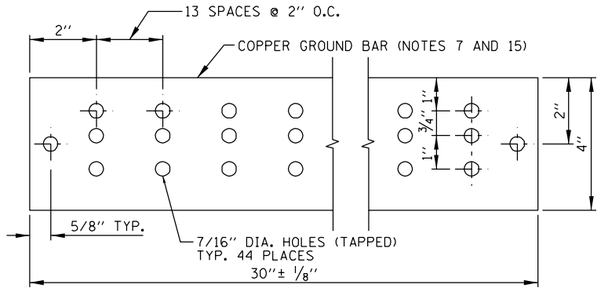
GROUND TRIAD DETAIL (2 / RPE 8)
NOT TO SCALE



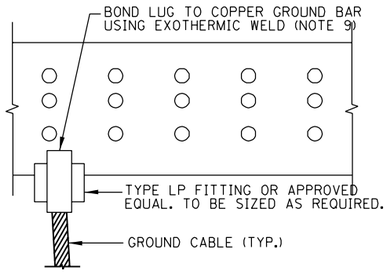
GROUND WELL ELEVATION DETAIL (3 / RPE 8)
NOT TO SCALE (NOTE 3)



GROUND WELL PLAN DETAIL (4 / RPE 8)
NOT TO SCALE (NOTE 3)



MASTER GROUND BUS BAR SUPPORT SPACING DETAIL (5 / RPE 8)
NOT TO SCALE



MASTER GROUND BUS BAR CONNECTION DETAIL (6 / RPE 8)
NOT TO SCALE

NOTES:

1. SEE DWG. RPE1 FOR CABLE/CONDUIT SCHEDULE.
2. SEE DWG. RPE5 FOR POWER CABLE INFORMATION.
3. DETAIL SHOWS INSTALLATION IN UNPAVED AREA. WHEN INSTALLING IN A PAVED AREA, INCORPORATE GROUND WELL IN THE POUR.
4. GROUND WELLS ARE REQUIRED AT EVERY GROUND ROD.
5. SEE DWG. RPE9 FOR GROUNDING SCHEMATIC.
6. PROVIDE 1" SCHEDULE 40 PVC CONDUIT FOR GROUND CABLES UNDER BUILDING.
7. ALL COPPER GROUND BARS SHALL BE OF HARD DRAWN, COMMERCIALLY PURE, ELECTROLYTIC COPPER, FOR USE AS AN ELECTRICAL CONDUCTOR AND SHALL COMPLY WITH ASTM SPEC. B-187 OF LATEST DATE.
8. BOLTS, NUTS, & WASHERS USED FOR CONNECTION TO GROUND BUS BARS SHALL BE SOLID COPPER.
9. WELD PER MANUFACTURER SPECIFICATION (ERICO PRODUCTS OR BURNDY CORP.).
10. THE COPPER GROUND BUS BAR SHALL BE MOUNTED TO THE CABLE TRAY ABOVE EQUIPMENT RACKS.
11. PROVIDE A #2 AWG GROUND CABLE FROM THE FRAME OF EACH EQUIPMENT RACK TO THE GROUND BUS AS SHOWN. THE CABLE SHALL BE BOLTED TO THE RACK USING A SEAMLESS HEAVY DUTY COMPRESSION TERMINAL.
12. A FOUR INCH GAP SHALL BE PROVIDED BETWEEN THE THE ENDS OF THE TWO CONDUCTORS THAT MAKE UP THE INTERNAL PERIMETER GROUND BUS CONDUCTOR.
13. ALL EQUIPMENT LOCATED INSIDE THE BUILDING SHALL BE BONDED TO THE MAIN GROUND BUS OR THE INTERNAL PERIMETER GROUND CONDUCTOR WITH A #2 AWG GROUND CABLE. ALL CONNECTIONS MUST BE EXOTHERMICALLY WELDED.
14. THE INTERNAL PERIMETER GROUND BUS CONDUCTOR MUST BE INSTALLED HORIZONTALLY ALONG THE WALL APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR. THE CONDUCTOR SHALL BE SUPPORTED 2 INCHES FROM THE WALL SURFACE ON INSULATED STANDOFFS. THE STANDOFFS SHALL BE INSTALLED AT INTERVALS AS NECESSARY TO KEEP THE CONDUCTOR SECURELY IN PLACE WITHOUT NOTICEABLE SAGS AND BENDS.
15. THE GROUND BUS BARS MUST BE MOUNTED APPROXIMATELY 8 FEET ABOVE FINISHED FLOOR AND MOUNTED TO WALL USING A MOUNTING BRACKET WITH INSULATOR.

NOTE TO DSE

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Illinois Tollway
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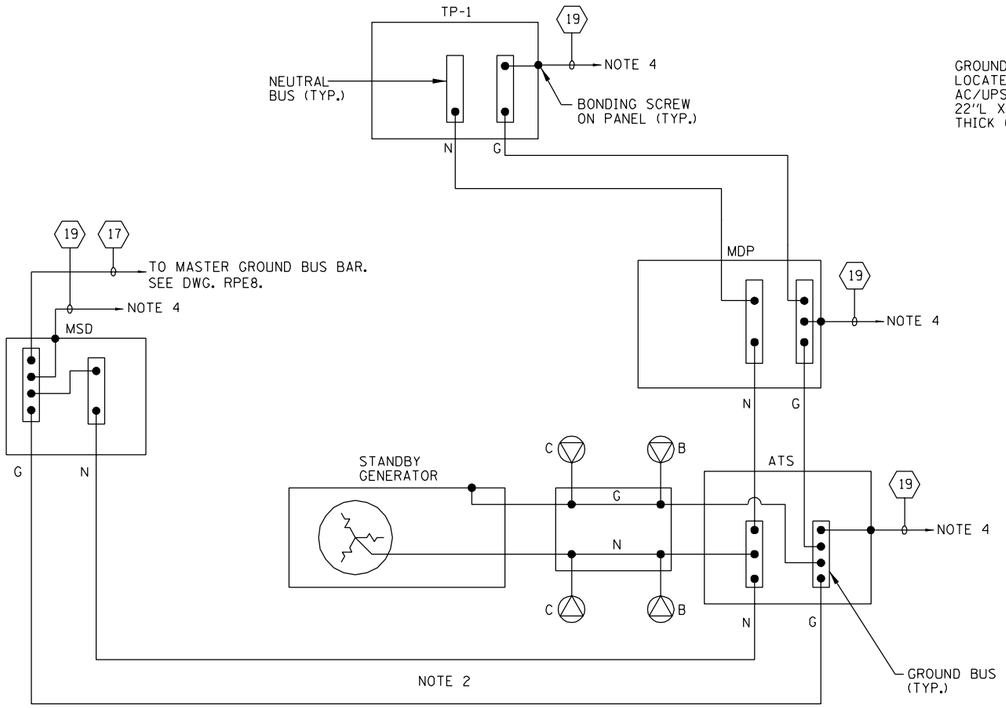
CONTROL BUILDING
GROUNDING DETAILS

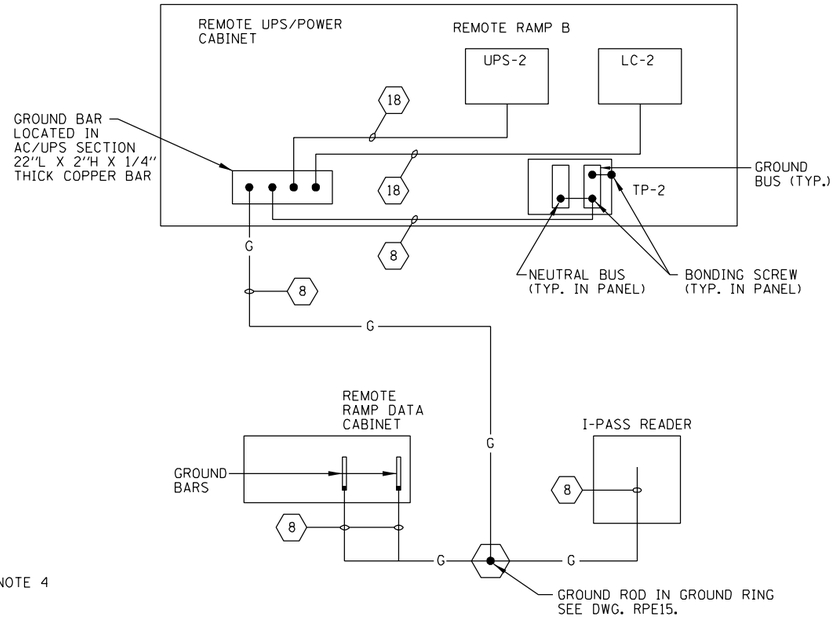
RPE8-00 (GUIDE DRAWING)

NOTES:

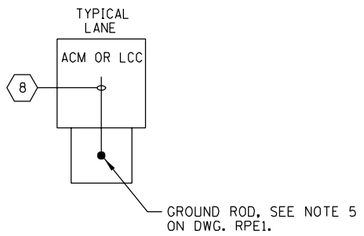
1. SEE DWG. RPE1 FOR CABLE/CONDUIT SCHEDULE.
2. SEE DWG. RPE5 FOR POWER CABLE INFORMATION.
3. PROVIDE 3/4" SCHEDULE 40 PVC CONDUITS FOR GROUND CABLES CONNECTING UPS-1 AND LC-1 TO MASTER GROUND BUS BAR.
4. PROVIDE EXOTHERMIC CONNECTION TO INTERNAL PERIMETER BUS CONDUCTOR. SEE DWG. RPE8.
5. GROUNDING SHALL BE PER MOTOROLA R56 STANDARD.



CONTROL BUILDING EQUIPMENT 1 / RPE 9



REMOTE RAMP EQUIPMENT 2 / RPE 9



EQUIPMENT GROUNDING 3 / RPE 9

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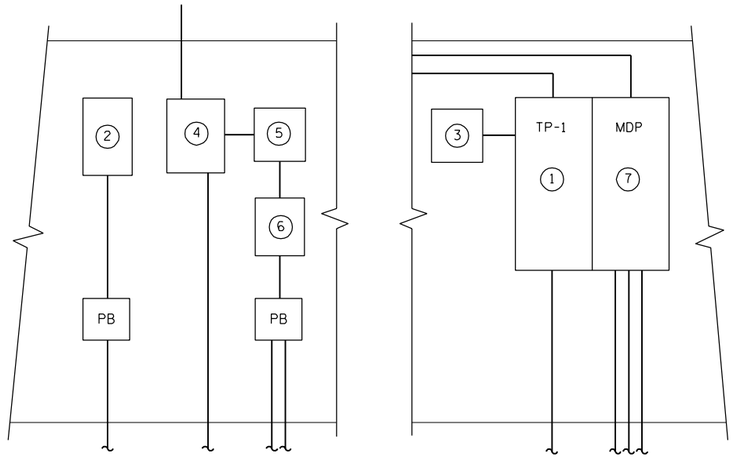
GROUNDING SCHEMATIC

RPE9-00 (GUIDE DRAWING)



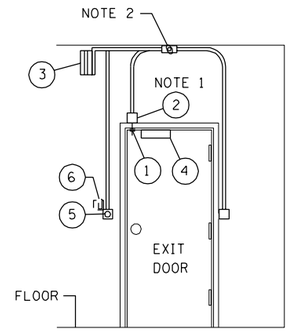
WALL ELEVATIONS (1 RPE 10)
NOT TO SCALE

EQUIPMENT LEGEND

ITEM	DESCRIPTION
1	PANELBOARD NEMA 1 ENCLOSURE, PANEL TP-1, 100A. MAIN CIRCUIT BREAKER, 208/120VOLT, 3 PHASE, 4W, 30 CKT.
2	FLASHING BEACON CONTROLLER ASSEMBLIES - PELCO WITH PART NO.'S SE-1003, SE-0139, SM-0179, SM-0196, SM-0215, SM-0164, FS-3906, FS-0216, SM-0217, SM-0218, AND FS-6402.
3	TVSS SYSTEM - PHOENIX CONTACT "FLASHTRAB SERIES" CATALOG NUMBER 5603414.
4	LIGHTING CONTACTOR 120V, 30A, 1 PHASE, 4-POLE IN A NEMA 1 ENCLOSURE WITH A THREE POSITION SELECTOR SWITCH HAND-OFF-AUTO MOUNTED ON THE COVER.
5	TRANSFORMER DRY TYPE, 2KVA, 120V PRIMARY, 480V SECONDARY - ROADWAY LIGHTING.
6	CIRCUIT BREAKER, 30A, 2-POLE, 480 VOLT IN A NEMA 1 ENCLOSURE.
7	MAIN DISTRIBUTION PANEL (MDP), 208Y/120V, 3 PHASE, 4W 200 AMP, MAIN CIRCUIT BREAKER.

NOTE:

1. CONTRACTOR SHALL ROUTE ALL CONDUIT AS REQUIRED TO ALL PANELS, EQUIPMENT, AND CONTROL DEVICES.



DOOR ALARM JUNCTION BOX DETAIL- SINGLE DOOR (2 RPE 10)
NOT TO SCALE

EQUIPMENT LEGEND - DOOR ALARM

ITEM	DESCRIPTION
1	NORMALLY CLOSED (N.C. WHEN THE DOOR IS CLOSED) MAG REED CONTACT BUILT INTO DOOR FRAME. SENTROL 1078C OR 1078 SERIES. COIL CONTACT LEADS AND COMMUNICATION CABLE IN JUNCTION BOX.
2	JUNCTION BOX, 4" X 4" WITH BLANK COVER PLATE, AND ¾" CONDUIT TO CABLE TRAY.
3	MOTION DETECTOR
4	MAGNETIC DOOR LOCK
5	DOOR RELEASE BUTTON
6	CARD READER (EXTERIOR)

NOTES:

1. COIL 2 FEET CABLE IN BOX FOR TERMINATION BY THE TOLLWAY UNLESS OTHERWISE NOTED.
2. ROUTE TO CARD READER PANEL, TERMINATION BY THE TOLLWAY. 4-1PR #22 SHLD. CABLE IN ¾" CONDUIT.

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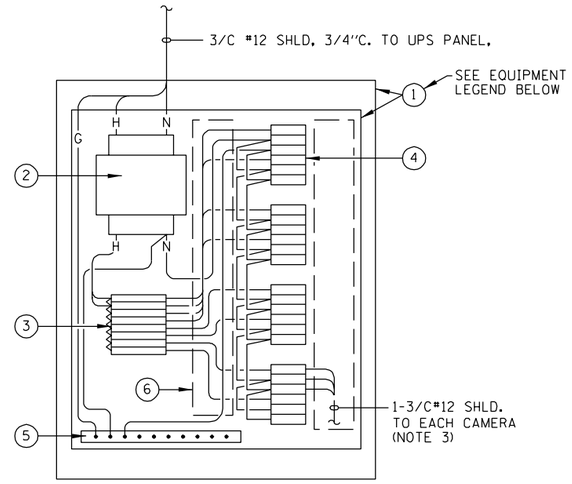

VIDEO POWER JUNCTION BOX (3 RPE 10)
NOT TO SCALE

EQUIPMENT LEGEND - VIDEO POWER JUNCTION BOX

ITEM	QUANTITY	DESCRIPTION
1	1	20"H X 16"W X 8"D NEMA 1 ENCLOSURE WITH 17"H X 14.5"W BACK PANEL, HOFFMAN CATALOG NO. A-20N16BLP, WITH A-20N16MP PANEL.
2	1	CONTROL POWER TRANSFORMER 120VAC-24VAC 500 VA SQUARE-D, CLASS 9070, PART 9070T500D13.
3	8	TERMINAL BLOCKS, FUSE SWITCH TYPE WITH BLOWN FUSE INDICATOR COMPLETE WITH 5 AMP FUSE, MOUNTING RAIL, ANCHORS, BARRIERS, MARKING STRIPS AND JUMPERS, ALLEN BRADLEY CATALOG NO. 1492-WFB1024.
4	4	TERMINAL BLOCKS, 6 POLE PANEL MOUNT BLOCK SCREW TERMINAL WITH WIRE CLAMP, ALLEN BRADLEY CATALOG NO. 1492-HJ86.
5	1	GROUND BAR SYSTEM WITH INSULATED MOUNTING BRACKET, HOFFMAN CATALOG NO. X-GS2K.
6	LOT	PANDUIT PLASTIC WIRING DUCT SNAP-IN SLOT DESIGN AND NON-SLIP COVER, 1"W X 1"H, CATALOG NO. F1X1LG6 WITH COVER C1LG6.

NOTES:

1. VIDEO JUNCTION BOX SHALL BE WIRED TO ACCOMODATE 1 WATCHDOG CAMERA.
2. LABEL JUNCTION BOX, TERMINAL STRIPS, AND ALL WIRE AND CABLES.
3. ROUTE 1-3/C #12 POWER CABLE FOR EACH VIDEO CAMERA TO POWER CABINET OR HANDHOLE AS SHOWN ON RPE14 AND RPE15.

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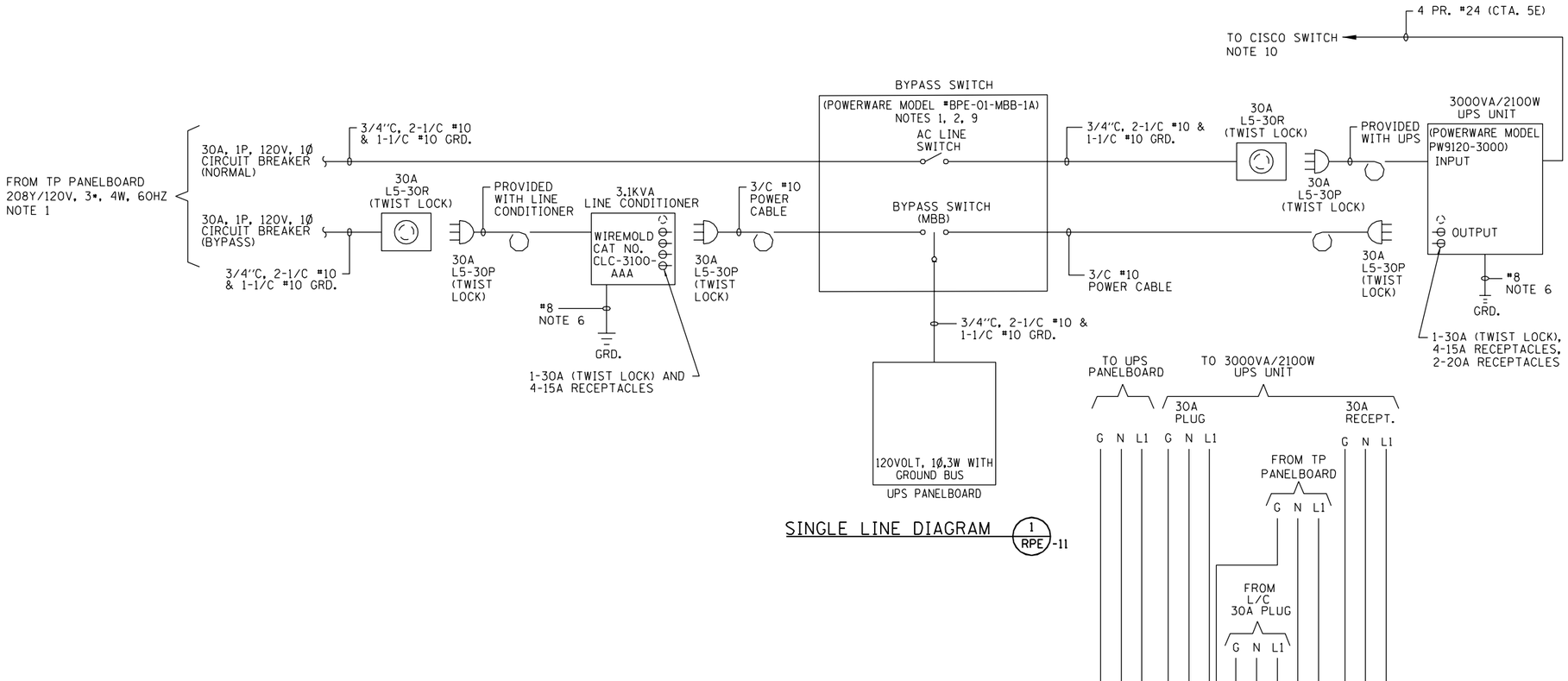
CONTROL BUILDING MISCELLANEOUS DETAILS

RPE10-00 (GUIDE DRAWING)



SINGLE LINE DIAGRAM (1 RPE-11)

BYPASS SWITCH WIRING DIAGRAM (2 RPE-11)

NOTES:

1. PHASING MUST BE THE SAME ALL THROUGH SYSTEM.
2. REMOVE FLAT PLATE JUMPER BETWEEN DUAL PINS 8 - 8 AND 9 - 9 AS DIRECTED BY THE MANUFACTURER TO PROVIDE FOR TWO POWER SOURCES.
3. BOTH SWITCHES SHOWN IN "OFF" POSITION.
4. INPUT AND OUTPUT VOLTAGE IS 120 VOLT, 1 PHASE, 60 HERTZ, 3 WIRE.
5. CONDUIT SIZE SHOWN IS BASED ON TYPE THHN/THWN WIRE.
6. CONNECT GROUND ELECTRODE CONDUCTOR TO EQUIPMENT ENCLOSURE ROUTE CONDUCTOR FROM EQUIPMENT ENCLOSURE TO GROUND BUS BAR IN THE POWER SECTION OF THE REMOTE RAMP CABINET.
7. THE BYPASS SWITCH AND UPS UNIT SHALL BE AS MANUFACTURED BY POWERWARE, INC. THE LINE CONDITIONER SHALL BE AS MANUFACTURED BY WIREMOLD ELECTRONICS. THE UPS SYSTEM IS AVAILABLE FROM SEPS, INC. AT 1-800-369-7377.
8. DASHED LINES INDICATE INTERNAL WIRING. SOLID LINES INDICATE EXTERNAL WIRING.
9. ELECTRICAL CONTRACTOR MODIFIES BYPASS SWITCH IN FIELD BY ADDING 30A L5-30R (TWIST LOCK) RECEPTACLE.
10. PROVIDE AN ETHERNET CONNECTION FROM UPS TO CISCO SWITCH.

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3000VA/2100W UPS SINGLE LINE AND WIRING DIAGRAM

RPE11-00 (GUIDE DRAWING))

PANELBOARD MDP
VOLTAGE 208Y/120V.
PHASE/WIRE 3/4

MAINS 200A. MCB
BUS RATING 200A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS) A	B	C	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS) A	B	C	CKT NO.	DESCRIPTION
PANEL TP-1	1	5482			100/3			100/3	2502			2	PANEL TP-2
	3		7160							4090		4	
	5			2960							6500	6	
BATTERY LIGHT •	7	300			20/1			30/2	2000			8	HVAC UNIT 1
SWITCHED INTERIOR LIGHTS	9		480		20/1					2000		10	
OUTDOOR LIGHTS	11			300	20/1			30/2			2000	12	HVAC UNIT 2
SPARE	13				20/1				2000			14	
GEN. BATTERY CHARGER	15		160		20/1			20/1				16	SPARE
GEN. JACKET WATER HTR.	17			1500	20/1			20/1			200	18	OUTDOOR RECEPTACLES
OUTDOOR RECEPTACLE	19	200			20/1			20/1	400			20	INTERIOR RECEPTACLES
OUTDOOR RECEPTACLE	21		200		20/1			20/1		400		22	INTERIOR RECEPTACLES
GEN. RM. RECEPTACLES	23			600	20/1			20/1			400	24	INTERIOR RECEPTACLES
SPARE	25				20/1			20/1	160			26	INTERIOR LIGHTS GEN. RM.
SPARE	27				20/1			20/1				28	SPARE
SPARE	29				20/1			20/1				30	SPARE
SUBTOTAL "A"		5982							7062				
SUBTOTAL "B"			8000							6490			
SUBTOTAL "C"				5360							9100		
TOTAL WATTS "A,B,C"	= 41994W = 42.0KW = 52.5KVA												

• PROVIDE WITH HANDLE LOCKING DEVICE.

NOTE:

1. PANELBOARD CIRCUITING SHOWN IS FOR A TWO LANE RAMP PLAZA.

PANELBOARD UPS-1
VOLTAGE 120V.
PHASE/WIRE 1/2

NOTE 1

MAINS 30A. 1P. MCB
BUS RATING 30A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS)	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION
LANE 1 TOLL EQUIPMENT (LCC)	1	200	15/1			15/1	100	2	LANE 1 REAR VES CAMERA
LANE 2 TOLL EQUIPMENT (ACM)	3	200	15/1			15/1	100	4	LANE 2 REAR VES CAMERA
FUTURE LANE TOLL EQUIPT./LCC	5	200	15/1			15/1	100	6	FUTURE LANE REAR VES CAMERA
RACK RECEPTACLE	7	200	15/1			15/1	200	8	I-PASS RACK RECEPTACLE
RACK RECEPTACLE	9	200	15/1			15/1	200	10	I-PASS RACK RECEPTACLE
VIDEO POWER JUNCTION BOX	11	200	15/1			15/1	200	12	RACK RECEPTACLE
SMOKE DETECTORS	13	50	15/1			15/1	200	14	TSIC EQPT. BOARD
SPARE	15	-	15/1			15/1	200	16	TSIC EQPT. BOARD
SPARE	17	-	15/1			15/1	100	18	HIRSCH PANEL
SUBTOTAL		1250					1400		
TOTAL WATTS	= 2650W = 2.6KW = 3.3KVA								

PANELBOARD UPS-2
VOLTAGE 120V.
PHASE/WIRE 1/2

NOTE 1

MAINS 30A. 1P. MCB
BUS RATING 30A.
MOUNTING SURFACE MOUNTED IN REMOTE RAMP B CABINET

DESCRIPTION	CKT NO.	LOAD (WATTS)	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS)	CKT NO.	DESCRIPTION
LANE 4 TOLL EQUIPMENT (LCC)	1	200	15/1			15/1	100	2	LANE 4 REAR VES CAMERA
LANE 3 TOLL EQUIPMENT (ACM/LCC)	3	200	15/1			15/1	100	4	LANE 3 REAR VES CAMERA
FUTURE LANE TOLL EQUIPT.	5	200	15/1			15/1	100	6	FUTURE LANE REAR VES CAMERA
I-PASS READER CABINET	7	200	15/1			15/1	200	8	DUPLEX RECEPTACLE
I-PASS READER CABINET	9	200	15/1			15/1	200	10	VIDEO POWER JUNCTION BOX
SPARE	11	-	15/1			15/1	100	12	DUPLEX RECEPT. (F.O.D. RACK)
SUBTOTAL		1000					800		
TOTAL WATTS	= 1800W = 1.8KW = 2.3KVA								

NOTE TO DSE

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Illinois Tollway
Open Roads for a Faster Future

DATE	REVISIONS

PANELBOARD SCHEDULES FOR MDP, UPS-1, AND UPS-2

RPE12-00 (GUIDE DRAWING)

PANELBOARD TP-1
VOLTAGE 208Y/120V.
PHASE/WIRE 3/4

MAINS 100A. MCB
BUS RATING 100A.
MOUNTING SURFACE

DESCRIPTION	CKT NO.	LOAD (WATTS) A	B	C	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS) A	B	C	CKT NO.	DESCRIPTION
TVSS PANEL	1	—			30/3			20/1				2	SPARE
	3		—					20/1		270		4	LANE CONTROL SIGNALS
	5			—				20/1			1140	6	LANE 2 TOLL EQUIPMENT (ACM/LCC)
LANE 1 REAR VES CAM/HEATER	7	580			20/1			20/1				8	SPARE
UPS-1 (3000VA)	9		2100		30/1			30/1		2480		10	LINE CONDITIONER (3.1 KVA) LC-1
ROADWAY CAMERA	11			100	20/1			20/1			580	12	LANE 2 REAR VES CAM HEATER
ROADWAY LIGHTING TRANSFORMER	13	2000			20/1			20/1	1140			14	FUTURE LANE TOLL EQUIPT.
LIGHTING CONTACTOR (CONTROL)	15		200		20/1			20/1		580		16	FUTURE LANE VES CAM HEATER
SPARE	17				20/1			30/1				18	SPARE
RACK MOUNTED DC POWER SYSTEM	19	1530			30/2			20/1				20	SPARE
	21		1530					20/1				22	SPARE
LANE 1 TOLL EQUIPMENT (LCC)	23			1140	20/1			20/1				24	SPARE
BARRIER WARNING LIGHTS	25	232			20/1			20/1				26	SPARE
SPACE	27											28	SPACE
SPACE	29											30	SPACE
SUBTOTAL "A"		4342							1140				
SUBTOTAL "B"			3830							3330			
SUBTOTAL "C"				1240							1720		
TOTAL WATTS "A,B,C"		= 15602W			= 15.6KW			= 19.5KVA					

PANELBOARD TP-2
VOLTAGE 208Y/120V.
PHASE/WIRE 3/4

MAINS 100A. MCB
BUS RATING 100A.
MOUNTING SURFACE MOUNTED IN REMOTE RAMP B CABINET

DESCRIPTION	CKT NO.	LOAD (WATTS) A	B	C	AMPS/ POLES	CKT BKR	CKT BKR	AMPS/ POLES	LOAD (WATTS) A	B	C	CKT NO.	DESCRIPTION
BARRIER WARNING LIGHTS	1	232			20/1			20/1	200			2	IPASS READER CABINET
SPARE	3				20/1			20/1		270		4	LANE CONTROL SIGNALS
LIGHTING CONTACTOR (CONTROL)	5			200	20/1			20/1				6	SPARE
LANE 4 TOLL EQUIPMENT (LCC)	7	1140			20/1			20/1	580			8	LANE 3 REAR VES CAM HEATER
SPARE	9				20/1			20/1		1140		10	LANE 3 TOLL EQUIPMENT (ACM/LCC)
UPS-2 (3000VA)	11			2100	30/1			30/1			2480	12	LINE CONDITIONER (3.1 KVA) LC-2
POWER CABINET NOREN UNIT	13	75			20/1			20/1	200			14	CABINET RECEPTACLES
ROADWAY LIGHTING TRANSFORMER	15		2000		20/1			20/1		100		16	ROADWAY CAMERA
FUTURE LANE TOLL EQUIPT.	17			1140	20/1			20/1				18	SPARE
DATA CABINET NOREN UNIT	19	75			20/1			20/1				20	SPARE
LANE 4 REAR VES CAM HEATER	21		580		20/1			20/1				22	SPARE
FUTURE LANE VES CAM HEATER	23			580	20/1			20/1				24	SPARE
SPACE	25											26	SPACE
SPACE	27											28	SPACE
SPACE	29											30	SPACE
SUBTOTAL "A"		1522							980				
SUBTOTAL "B"			2580							1510			
SUBTOTAL "C"				4020							2480		
TOTAL WATTS "A,B,C"		= 13092W			= 13.1KW			= 16.4KVA					

NOTES

1. PANELBOARD CIRCUITING SHOWN IS FOR A TWO LANE RAMP PLAZA.

NOTE TO DSE

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DATE	REVISIONS

PANELBOARD SCHEDULES FOR TP-1 AND TP-2

RPE13-00 (GUIDE DRAWING)

NOTE TO DSE

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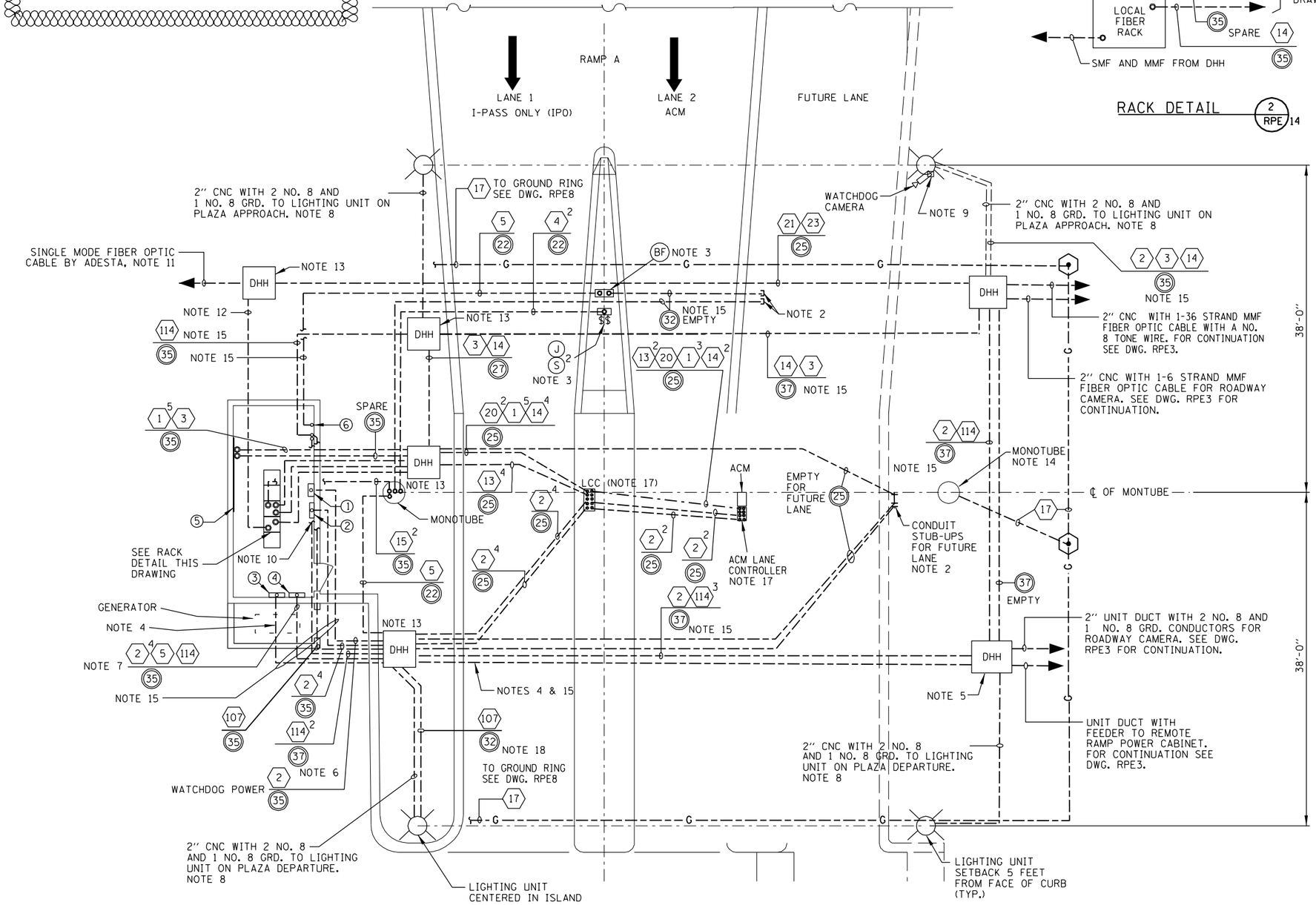
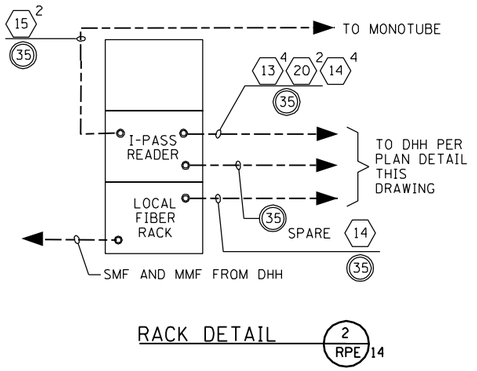


PLAN (1 / RPE 14)
NOT TO SCALE



RACK DETAIL (2 / RPE 14)

NOTES:

1. SEE DWGS. RPE1 AND RPE5 FOR CABLE/CONDUIT SCHEDULES.
2. CAP CONDUITS FOR EXTENSION TO FUTURE LANES.
3. SEE DWGS. RPE16 AND RPE17 FOR ISLAND PLAN UNDERGROUND CONDUIT RUNS AND EQUIPMENT LEGEND.
4. 3" PVC COATED CONDUIT WITH FEEDER TO REMOTE RAMP POWER CABINET. SEE DWG. RPE3 FOR FEEDER SIZE.
5. FINAL LOCATION OF ALL HANDHOLES SHALL BE APPROVED BY THE ENGINEER.
6. ROUTE 3" CONDUIT WITH ROADWAY LIGHTING TO 30 AMP CIRCUIT BREAKER.
7. THE ROADWAY CAMERA SHALL BE FED FROM TP-1.
8. CNC DUCT CASING SHALL EXTEND 5'-0" PAST PAVED AREA.
9. CONDUIT IS RUN UP THE LIGHT STANDARD TO THE VIDEO WATCHDOG CAMERA. SEE DWG. RPE26 FOR DETAILS.
10. ROUTE TO LIGHTING CONTACTOR.
11. PROVIDE 4" CONDUIT SLEEVE IN HANDHOLE FOR SINGLE MODE FIBER OPTIC CABLE.
12. 4" CONDUIT WITH FOUR 1" INNER DUCTS. INSTALL 36 STRAND MMF CABLE IN ONE INNER DUCT, INSTALL 6 STRAND MMF CABLE IN A SECOND INNER DUCT AND ADESTA WILL INSTALL THE 48 STRAND SMF CABLE IN A THIRD INNER DUCT. THE REMAINING INNER DUCT IS SPARE. CABLES WILL BE ROUTED TO THEIR RESPECTIVE DISTRIBUTION PANELS.
13. ALL EXCESS (SLACK) POWER AND DATA CABLE(S) MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE BUILDING.
14. EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BEARING PLATE AT EACH END.
15. PVC CONDUIT SHALL BE USED WHEN THE CONDUIT IS COVERED OR ENCASED IN CONCRETE. TRANSITIONS WILL BE ALLOWED. ALL EXPOSED CONDUITS SHALL BE PVC COATED RGS. CONTACT THE ENGINEER AND TOLLWAY FOR MORE DETAILS. SLEEVES SHALL BE USED WHEN DEEMED NECESSARY.
16. ALL COAX CABLES FROM VES AND WATCHDOG CAMERAS MUST LAND ON SURGE PROTECTION DEVICES.
17. LOCATION OF LANE AND ISLAND STUB-UPS SHALL BE APPROVED BY THE TOLLWAY PRIOR TO THE CONCRETE POUR. THE FINAL LOCATIONS OF EQUIPMENT SHALL BE APPROVED BY THE TOLLWAY.
18. ROUTE 3 - 1/C NO. 12 CONDUCTORS FROM THE LIGHTING CONTACTOR LOCATED IN THE BUILDING TO THE LIGHT POLE FOR PLAZA LIGHTING CONTROL CIRCUIT. PROVIDE A PHOTOCELL ON THE SAME POLE.

LEGEND

1. VIDEO POWER JUNCTION BOX
2. UPS-1
3. MAIN DISTRIBUTION PANEL
4. TP-1
5. TSIC
6. FLASHING BEACON CONTROLLER

Illinois Tollway
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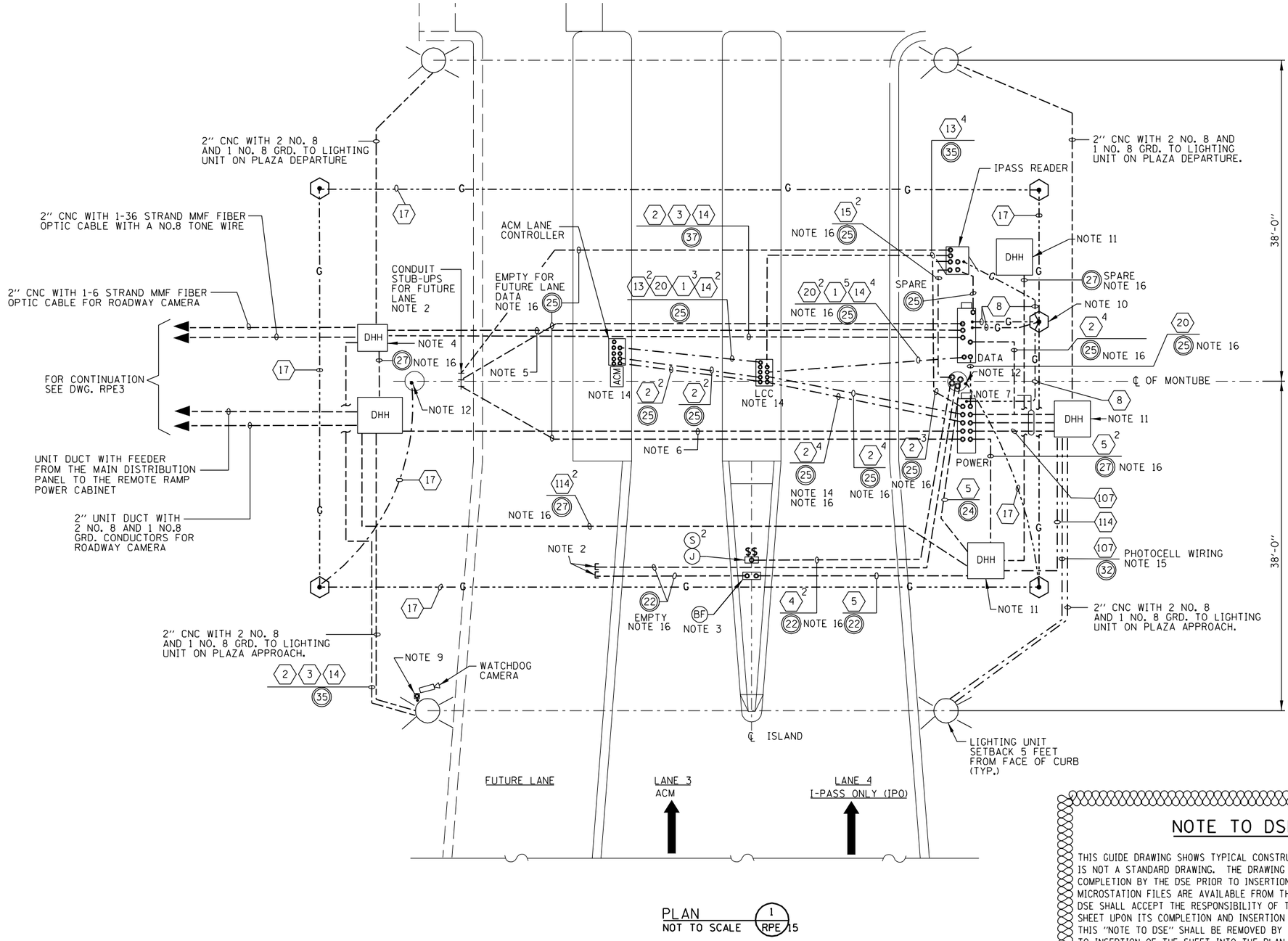
DATE	REVISIONS

ELECTRICAL UNDERGROUND PLAN-RAMP WITH CONTROL BUILDING

RPE14-00 (GUIDE DRAWING))



PLAN (1 / RPE 15)
NOT TO SCALE

NOTES:

1. SEE DWGS. RPE1 AND RPE5 FOR CABLE/CONDUIT SCHEDULES.
2. CAP CONDUITS FOR EXTENSION TO FUTURE LANES.
3. SEE DWGS. RPE16 AND RPE17 FOR ISLAND PLAN UNDERGROUND CONDUIT RUNS AND EQUIPMENT LEGEND.
4. FINAL LOCATION OF ALL HANDHOLES SHALL BE APPROVED BY THE ENGINEER.
5. ONE 36 STRAND MMF AND ONE 6 STRAND MMF FIBER OPTIC CABLE INSTALLED IN A 2" PVC COATED CONDUIT.
6. 3" PVC COATED CONDUIT WITH FEEDER FOR THE REMOTE RAMP POWER CABINET. SEE DWG. RPE3 FOR FEEDER SIZE.
7. PROVIDE TWO 2" PVC COATED CONDUITS FROM THE HANDHOLE TO POWER CABINET. ONE CONDUIT CONTAINS POWER FOR ROADWAY LIGHTING AND THE SECOND CONDUIT IS SPARE.
8. SEE DWG. RPE18 FOR DETAILS OF REMOTE RAMP CABINETS.
9. CONDUIT IS RUN UP THE LIGHT STANDARD TO THE VIDEO WATCHDOG CAMERA. SEE DRAWING RPE26 FOR DETAILS.
10. SEE DWG. RPE9 FOR EQUIPMENT GROUNDING DETAILS.
11. ALL EXCESS (SLACK) POWER AND DATA CABLE(S) MUST BE COILED IN THE HANDHOLE. NO EXCESS CABLE WILL BE COILED INSIDE THE CABINET(S).
12. EXOTHERMICALLY WELD THE GROUND WIRE TO THE MONOTUBE'S BEARING PLATE AT EACH END.
13. ALL COAX CABLES IN FROM VES AND WATCHDOG CAMERAS MUST LAND ON SURGE PROTECTION DEVICES.
14. LOCATION OF LANE AND ISLAND STUB-UPS SHALL BE APPROVED BY THE TOLLWAY PRIOR TO THE CONCRETE POUR. THE FINAL LOCATIONS OF EQUIPMENT SHALL BE APPROVED BY THE TOLLWAY.
15. ROUTE 3 - 1/C NO. 12 CONDUCTORS FROM THE LIGHTING CONTACTOR LOCATED IN THE POWER CABINET TO THE LIGHT POLE FOR PLAZA LIGHTING CONTROL CIRCUIT. PROVIDE A PHOTOCELL ON THE SAME POLE.
16. PVC CONDUIT SHALL BE USED WHEN THE CONDUIT IS COVERED OR ENCASED IN CONCRETE. TRANSITIONS WILL BE ALLOWED. ALL EXPOSED CONDUITS SHALL BE PVC COATED RGS. CONTACT THE ENGINEER AND TOLLWAY FOR MORE DETAILS. SLEEVES SHALL BE USED WHEN DEEMED NECESSARY.

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Illinois Tollway
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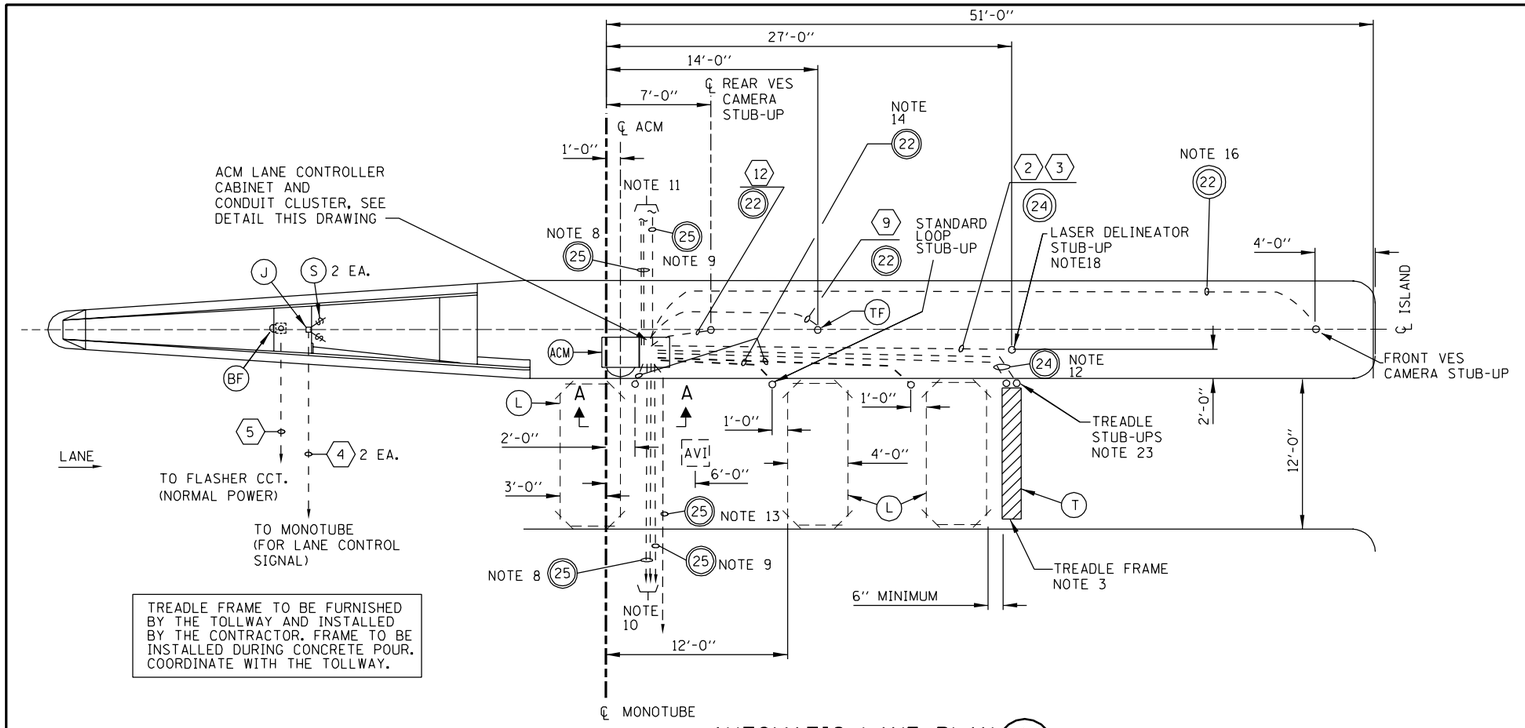
DATE	REVISIONS

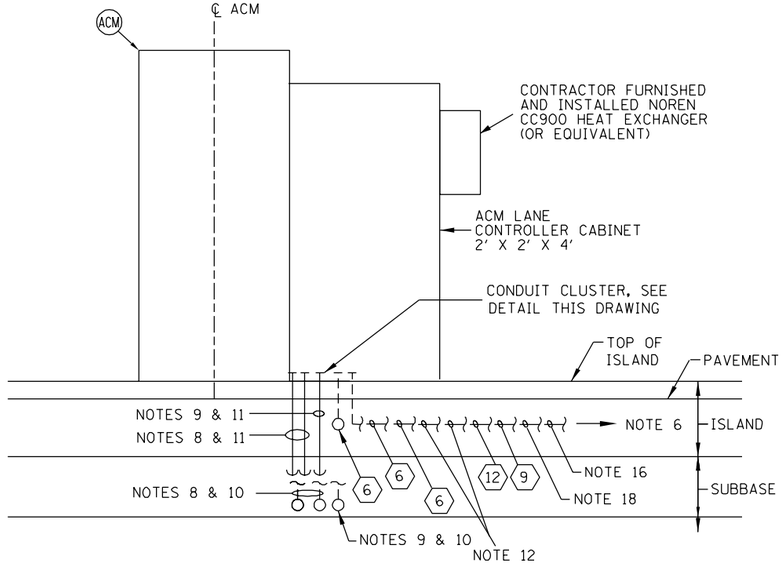
ELECTRICAL UNDERGROUND PLAN - REMOTE RAMP

RPE15-00 (GUIDE DRAWING)

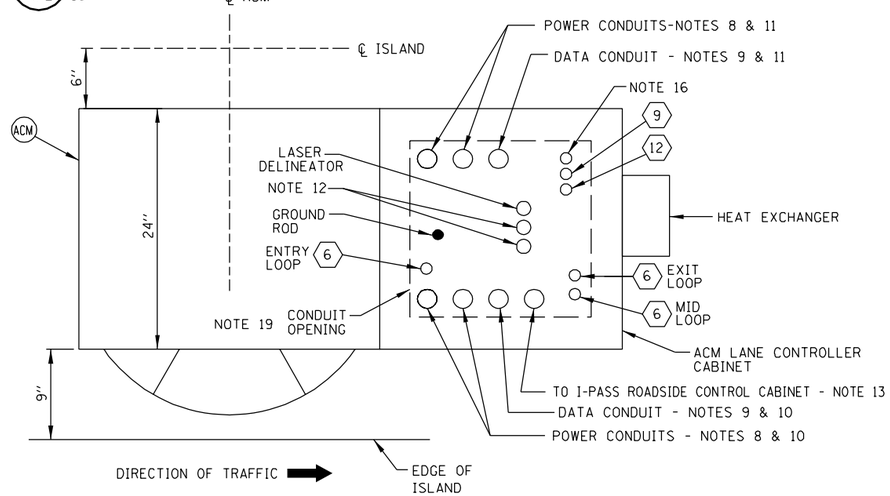


TREADLE FRAME TO BE FURNISHED BY THE TOLLWAY AND INSTALLED BY THE CONTRACTOR. FRAME TO BE INSTALLED DURING CONCRETE POUR. COORDINATE WITH THE TOLLWAY.

AUTOMATIC LANE PLAN (1 / RPE 16)
NOT TO SCALE



SECTION A-A (2 / RPE 16)



CONDUIT CLUSTER DETAIL AT AUTOMATIC SOLID-STATE MACHINE (ACM) (3 / RPE 16)

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EQUIPMENT LEGEND

ITEM	DESCRIPTION
ACM	AUTOMATIC SOLID-STATE MACHINE.
BF	BARRIER WARNING LIGHT.
J	JUNCTION BOX EMBEDDED IN CONCRETE.
L	LOOP DETECTOR.
S	3-WAY ABUTMENT SWITCH.
T	TREADLE FRAME
TF	TRAFFIC LIGHT (WITH TRANSACTION LIGHTS MOUNTED ON TOP)
AVI	I-PASS ANTENNA

NOTES:

1. SEE DWG. RPE4 FOR WIRING DIAGRAM.
2. NOT USED
3. SEE SPECIFICATION SHEET ON MSI SENSORS DOUBLE SENSOR FRAME FOR TREADLE FRAME INSTALLATION DETAILS.
4. SEE RPE9 FOR GROUNDING SCHEMATIC.
5. SEE DWG. RPE1 FOR CABLE/CONDUIT SCHEDULE AND ADDITIONAL NOTES.
6. FOR CONTINUATION OF CONDUIT RUNS SEE LANE PLAN THIS DRAWING. CONDUITS SHALL BE RUN AT THE SAME HORIZONTAL ELEVATION, IN THE CENTER OF ISLAND BETWEEN REBARS, WITH A TOTAL OF 7" MINIMUM COVER OVER ALL CONDUITS.
7. NOT USED
8. TWO 2" CONDUITS ARE UTILIZED FOR POWER. ONE IS FOR UPS WHILE THE OTHER IS FOR NORMAL POWER.
9. DATA CONDUIT CONTAINING DATA, I-PASS INTERFACE AND VIDEO SIGNAL CABLES.
10. POWER AND DATA CONDUITS TO CONTROL BUILDING OR REMOTE RAMP CABINET. SEE DWGS. RPE14 AND RPE15.
11. POWER AND DATA CONDUITS TO ADJACENT LANE. SEE DWGS. RPE14 AND RPE15.
12. CABLE SUPPLIED WITH TREADLES. TWO 1.5" CONDUITS. TREADLE FRAME AND CONDUIT ARE FURNISHED AND INSTALLED BY THE CONTRACTOR. ONLY TWO 90 DEGREE BENDS ARE ALLOWED FOR THE TREADLE CONDUIT.
13. PROVIDE A 2" CONDUIT FROM I-PASS READER TO CLOSEST ACM OR IPASS LANE CONTROLLER. WHEN I-PASS READER IS LOCATED IN THE CONTROL BLDG, THEN THIS 2" C IS FROM THE CONTROL BLDG.
14. TOLLWAY INSTALLED LOOP WIRES SHALL ENTER INTO A 1" CONDUIT WITH AN EPOXY PLUG 6" FROM THE EDGE OF THE ISLAND, SEE RPE20.
15. LOCATIONS OF VIOLATION CAMERAS, CABINETS, TRAFFIC LIGHT AND LOOP STUB-UPS SHALL BE VERIFIED WITH THE TOLLWAY AFTER CONDUITS ARE INSTALLED BUT PRIOR TO BACKFILL.
16. FRONT VES CONDUIT SHALL BE INSTALLED. VERIFY WITH THE TOLLWAY IF FRONT VEWS CAMERA WILL BE INSTALLED.
17. FRONT AND REAR VES CAMERAS FURNISHED AND INSTALLED BY THE TOLLWAY. CONDUIT AND CABLING FURNISHED AND INSTALLED BY THE CONTRACTOR.
18. CONDUIT, CABLING, 4" MOUNTING POLE AND BASE FURNISHED AND INSTALLED BY THE CONTRACTOR. LASER DELINEATOR FURNISHED AND INSTALLED BY THE TOLLWAY. CABLE TO BE TERMINATED BY THE CONTRACTOR.
19. CONTRACTOR TO VERIFY CABINET HAS A MINIMUM 18"x18" CONDUIT OPENING PRIOR TO PLACING CONDUITS.
20. NOT USED
21. VERIFY LOCATIONS OF STUB-UPS IN THE FIELD AS DIRECTED BY THE TOLLWAY PRIOR TO BACKFILL.
22. WHEN SCHEDULE 80 PVC CONDUIT IS CALLED OUT, VERIFY THAT THE CONDUIT WILL BE EITHER BURIED UNDER CONCRETE OR ENCASED IN CONCRETE. ELECTRICAL CONTRACTOR TO COORDINATE EFFORTS WITH OTHER CONTRACTORS TO VERIFY INSTALLATION RUNS SMOOTHLY.
23. CONDUIT STUBS FOR TREADLE FRAMES ARE INSTALLED 6" TO 10" FROM CURB, SEE RPE20.

Illinois Tollway
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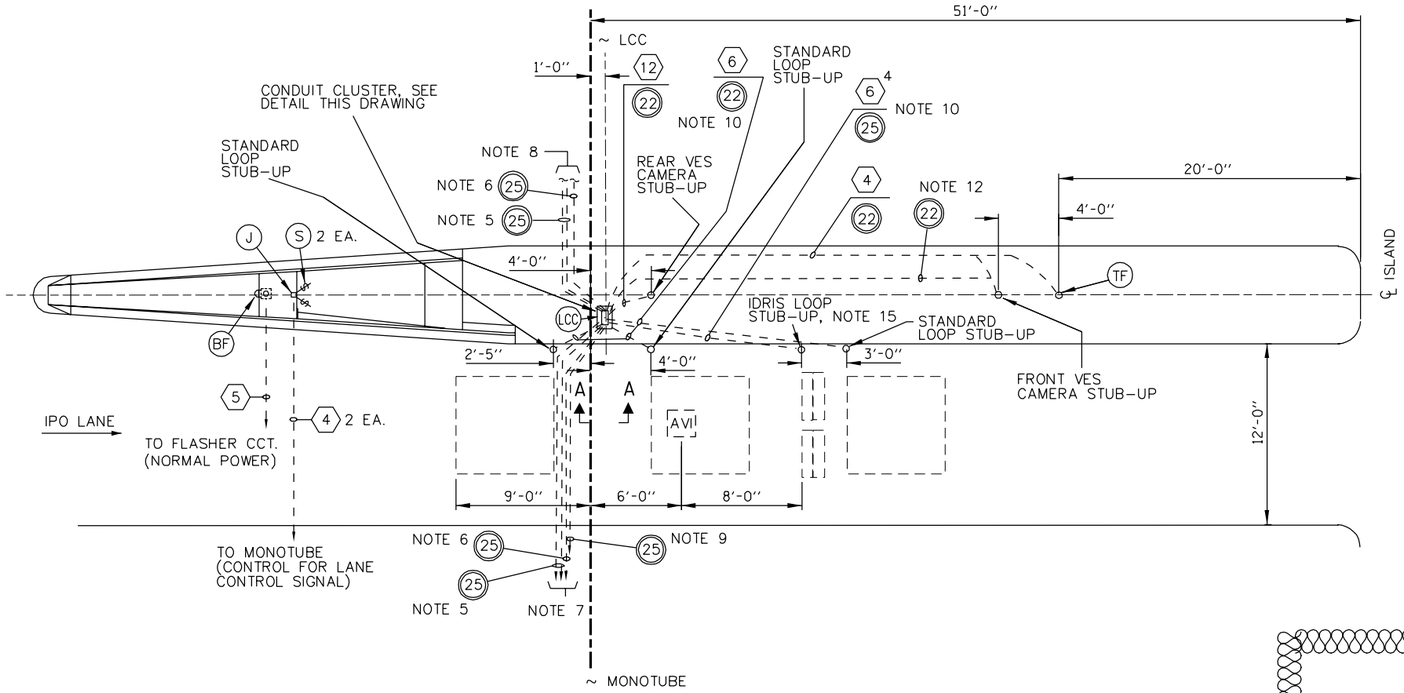
DATE	REVISIONS

AUTOMATIC LANE ISLAND PLAN AND DETAILS 12 FOOT WIDE LANE

RPE16-00 (GUIDE DRAWING)



I-PASS ONLY (IPO) LANE PLAN (1 RPE 17)

NOT TO SCALE

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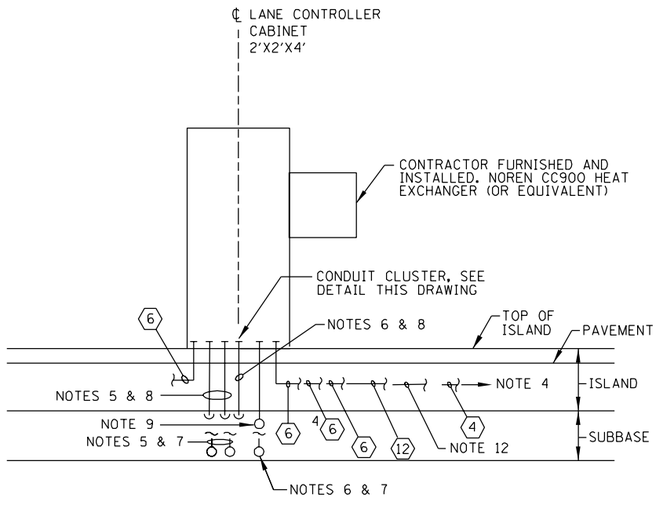
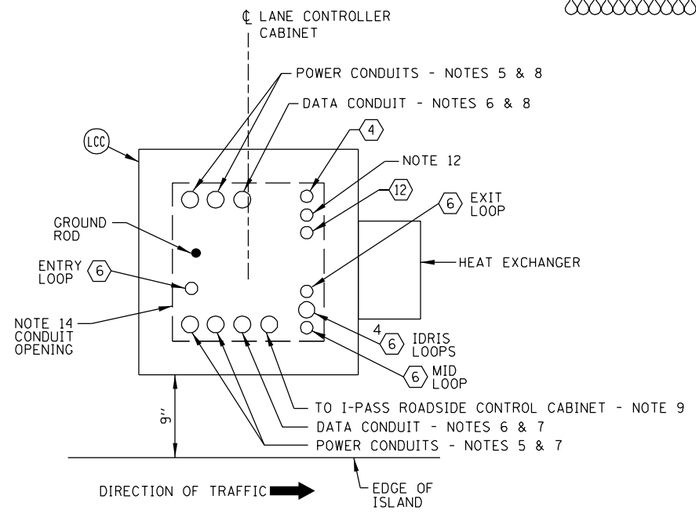
NOTES:

1. SEE DWG. RPE1 FOR CABLE/CONDUIT SCHEDULE AND ADDITIONAL NOTES.
2. SEE DWG. RPE4 FOR WIRING DIAGRAM.
3. WHEN SCHEDULE 80 PVC CONDUIT IS CALLED OUT, VERIFY THAT THE CONDUIT WILL BE EITHER BURIED UNDER CONCRETE OR ENCASED IN CONCRETE. ELECTRICAL CONTRACTOR TO COORDINATE EFFORTS WITH OTHER CONTRACTORS TO VERIFY INSTALLATION RUNS SMOOTHLY.
4. FOR CONTINUATION OF CONDUIT RUNS SEE LANE PLAN THIS DRAWING. CONDUITS SHALL BE RUN AT THE SAME HORIZONTAL ELEVATION, IN THE CENTER OF ISLAND BETWEEN REBARS, WITH A TOTAL OF 7" MINIMUM COVER OVER ALL CONDUITS.
5. TWO 2" CONDUITS ARE UTILIZED FOR POWER. ONE IS FOR UPS WHILE THE OTHER IS FOR NORMAL POWER.
6. DATA CONDUIT CONTAINING DATA, I-PASS INTERFACE AND VIDEO SIGNAL CABLES.
7. POWER AND DATA CONDUITS TO CONTROL BUILDING OR REMOTE RAMP CABINET. SEE DWGS. RPE14 AND RPE15.
8. POWER AND DATA CONDUITS TO ADJACENT LANE. SEE DWGS. RPE14 AND RPE15.
9. PROVIDE A 2" CONDUIT FROM I-PASS READER TO CLOSEST ACM OR IPASS LANE CONTROLLER. WHEN I-PASS READER IS LOCATED IN THE CONTROL BLDG, THEN THIS 2" C IS FROM THE CONTROL BLDG.
10. TOLLWAY INSTALLED LOOP WIRES SHALL ENTER INTO A 1" CONDUIT WITH AN EPOXY PLUG 6" FROM THE EDGE OF THE ISLAND. SEE DWG. REP20.
11. LOCATIONS OF VIOLATION CAMERAS, CABINETS, TRAFFIC LIGHT AND LOOP STUB-UPS SHALL BE VERIFIED WITH THE TOLLWAY AFTER CONDUITS ARE INSTALLED BUT PRIOR TO BACKFILL.
12. FRONT VES CONDUIT SHALL BE INSTALLED. VERIFY WITH THE TOLLWAY IF FRONT VES CAMERA WILL BE INSTALLED.
13. FRONT AND REAR VES CAMERAS FURNISHED AND INSTALLED BY THE TOLLWAY. CONDUIT AND CABLING FURNISHED AND INSTALLED BY THE CONTRACTOR.
14. CONTRACTOR TO VERIFY CABINET HAS A MINIMUM 18"X18" CONDUIT OPENING PRIOR TO PLACING CONDUITS.
15. TOLLWAY INSTALLED IDRIS LOOP WIRES SHALL ENTER INTO A SINGLE 2" CONDUIT WITH AN EPOXY PLUG 6" FROM THE EDGE OF THE ISLAND. INSTALLATION SHALL BE SIMILIAR TO THAT SHOWN FOR A 1" CONDUIT IN DETAILS 3 AND 4 ON DWG. RPE20.
16. VERIFY LOCATIONS OF STUB-UPS IN THE FIELD AS DIRECTED BY THE AUTHORITY PRIOR TO BACKFILL.



SECTION A-A (2 RPE 17)



CONDUIT CLUSTER DETAIL AT LANE CONTROLLER CABINET (LCC) (3 RPE 17)

EQUIPMENT LEGEND

ITEM	DESCRIPTION
LCC	LANE CONTROLLER CABINET
BF	BARRIER WARNING LIGHT.
J	JUNCTION BOX EMBEDDED IN CONCRETE.
S	3-WAY ABUTMENT SWITCH.
TF	TRANSACTION LIGHT
AVI	I-PASS ANTENNA

Illinois Tollway — Open Roads for a Faster Future

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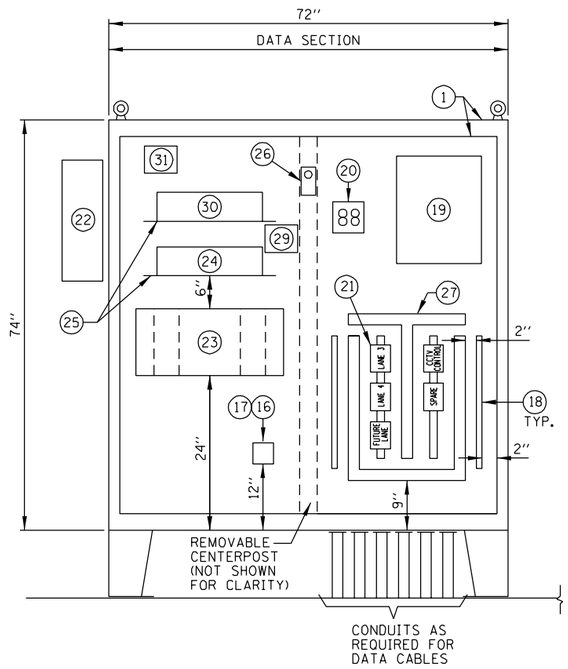
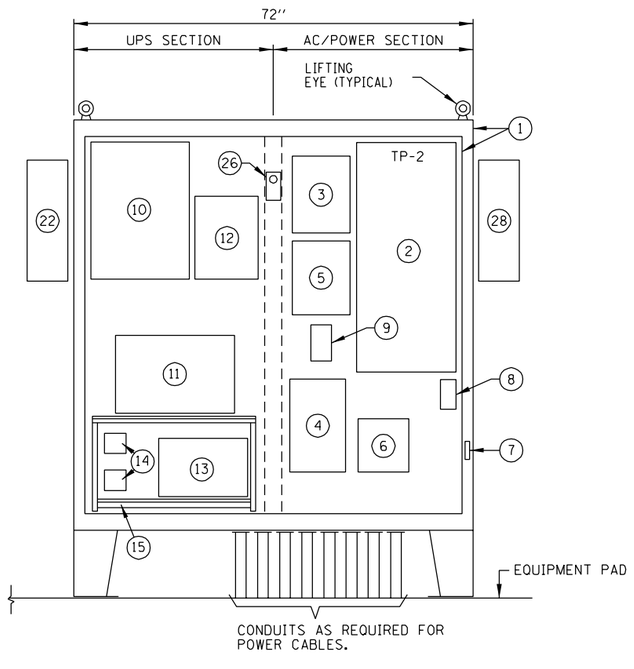
IPASS ONLY (IPO) LANE ISLAND PLAN AND DETAILS 12 FOOT WIDE LANE

RPE17-00 (GUIDE DRAWING)



RAMP DATA TERMINAL CABINET

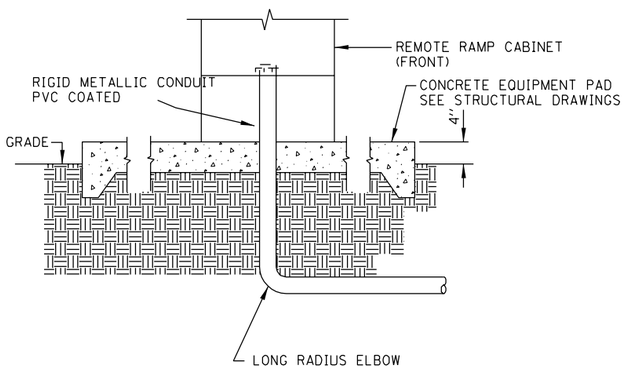


POWER CABINET

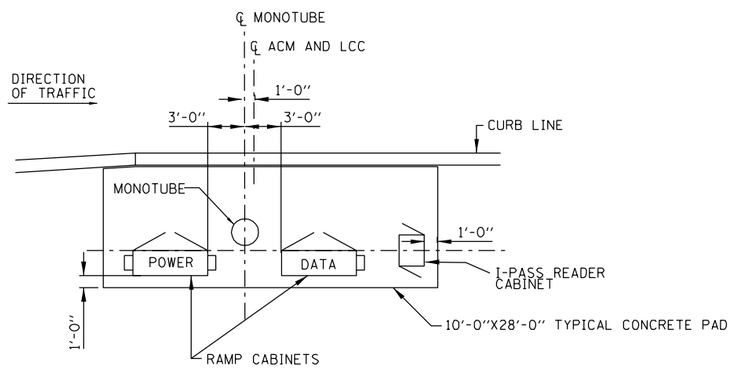
REMOTE RAMP CABINETS (1/RPE18)
NOT TO SCALE

NOTES:

1. FOR PANEL SCHEDULES, SEE DWGS. RPE12 AND RPE13.
2. FIELD PUNCH KNOCKOUTS AS REQUIRED.
3. FOR CONDUIT AND WIRE RUNS, SEE DWGS. RPE15, RPE16 AND RPE17.



TYPICAL CABLE ENTRANCE (2/RPE18)
NOT TO SCALE



REMOTE RAMP PLAZA CABINET LOCATIONS (3/RPE18)
NOT TO SCALE

EQUIPMENT LEGEND

ITEM	DESCRIPTION
1	74''H X 72''W X 24''D NEMA 4 TWO-DOOR ENCLOSURE WITH FLOOR STAND AND 68''H X 68''W BACK PANEL, HOFFMAN CATALOG NUMBER A-74H72JULP, A-72P72 PANEL.
2	PANELBOARD NEMA 1 ENCLOSURE, PANEL TP-2, 100A. MAIN CIRCUIT BREAKER, 208/120VOLT, 3 PHASE, 4W, 30 CKT.
3	FLASHING BEACON CONTROLLER ASSEMBLIES - PELCO WITH PART NO.'S SE-1003, SE-0139, SM-0179, SM-0196, SM-0215, SM-0164, FS-3906, FS-0216, SM-0217, SM-0218, AND FS-6402.
4	CIRCUIT BREAKER 30A. 2-POLE, 480 VOLT IN NEMA 1 ENCLOSURES.
5	LIGHTING CONTACTOR 120V, 30A, 1 PHASE, 4-POLE NEMA 1 ENCLOSURE.
6	TRANSFORMER DRY TYPE, 2KVA, 120V PRIMARY, 480V SECONDARY - ROADWAY LIGHTING.
7	COPPER GROUND BAR 22''L X 2''W X 1/4'' THICK.
8	DUPLEX RECEPTACLE - 120V, 20A.
9	CONTROL STATION, NEMA 1 ENCLOSURE, HEAVY DUTY, THREE POSITION SELECTOR SWITCH, LEGEND: HAND-OFF-AUTO.
10	PANELBOARD, NEMA 1 ENCLOSURE, PANEL UPS-2, 30A., 1 POLE MAIN CIRCUIT BREAKER, 120V, 1 PHASE, 2 WIRE, 100A. BUS WITH 12-15A., 1 POLE CIRCUIT BREAKERS.
11	UPS-3000VA-UNINTERRUPTIBLE POWER SYSTEM COMPLETE WITH MAINTENANCE FREE BATTERY, LED INDICATORS, ALARMS, ETC. POWERWARE MODEL PW9130-3000.
12	BYPASS SWITCH.
13	LINE CONDITIONER - 3.1KVA, WIREMOLD MODEL NO. CLC-3100-AAA.
14	30A. RECEPTACLES.
15	UNISTRUT P-1000 SUPPORT RACK WITH 2-PLYWOOD SHELVES.
16	CORNING CABLE SYSTEMS UTS-IO INFORMATION OUTLET PANEL WITH FOUR IO-P-2ST ST CONNECTOR PANELS. REQUIRED WHEN ROADWAY CAMERAS ARE INCLUDED IN CONTRACT.
17	TWO (2) FIBER PATCH CABLES CORNING CABLE SYSTEMS NO. 5050-01K311411-006F. REQUIRED WHEN ROADWAY CAMERAS ARE INCLUDED IN CONTRACT.
18	EQUIPMENT GROUND BUS BAR, HOFFMAN CATALOG NUMBER X-GS6K.
19	VIDEO POWER JUNCTION BOX 20''H X 16''W X 8''D NEMA 1 ENCLOSURE. SEE DWG. RPE10.
20	TWO DUPLEX RECEPTACLES - UPS, ON 1 UPS CIRCUIT. VIDEO R3/R10 RACK POWER SUPPLY IS PLUGGED INTO ONE OF THE RECEPTACLES. CISCO SWITCH IS PLUGGED INTO OTHER RECEPTACLE.
21	TERMINAL BLOCK STRIPS, SEE DWG. RPE19.
22	CABINET HEAT EXCHANGER, NOREN MODEL CC1300F WITH NEMA 4X ENCLOSURE.
23	WALL MOUNTABLE CONNECTOR CENTER (WCC), CORNING CABLE SYSTEMS PART NO. WCC-048.
24	FIBER RACK WITH POWER SUPPLY.
25	SHELF 5''H X 24''W X 8''D, ZERO/STANTRON CATALOG NUMBER MS122418.
26	THERMOSTAT, HOFFMAN CATALOG NUMBER A-TEMNO. CONTROLS THE HEAT EXCHANGER.
27	WIRING DUCT, PANDUIT PART NUMBER E2X3LG6 WITH COVER PART NUMBER C2LG6, AND CORNER STRIP PART NUMBER CSP3LG-Q.
28	LIGHTNING AND TVSS PROTECTION SYSTEM. PHOENIX CONTACT ''COMBOTRAB SERIES'' CATALOG NUMBER 5602744 WITH NEMA 4 ENCLOSURE.
29	PHOENIX CONTACT SURGE PROTECTOR (OR EQUIVALENT), C-UFB-5DC/E W/FEMALE BNC. BASEBAND SURGE PROTECTOR. ONE C-UFB-5DC/E FOR EACH CAMERA (VES OR WATCHDOG) IS REQUIRED.
30	CISCO 2940 SWITCH.
31	PHOENIX CONTACT SURGE PROTECTOR (OR EQUIVALNET), DATATRAB D-LAN-CAT-5E. ONE D-LAN-CAT-5E FOR EACH 4PR #24 ETHERNET CABLE CONNECTED TO THE CISCO 2940 SWITCH.

NOTE TO DSE

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Illinois Tollway
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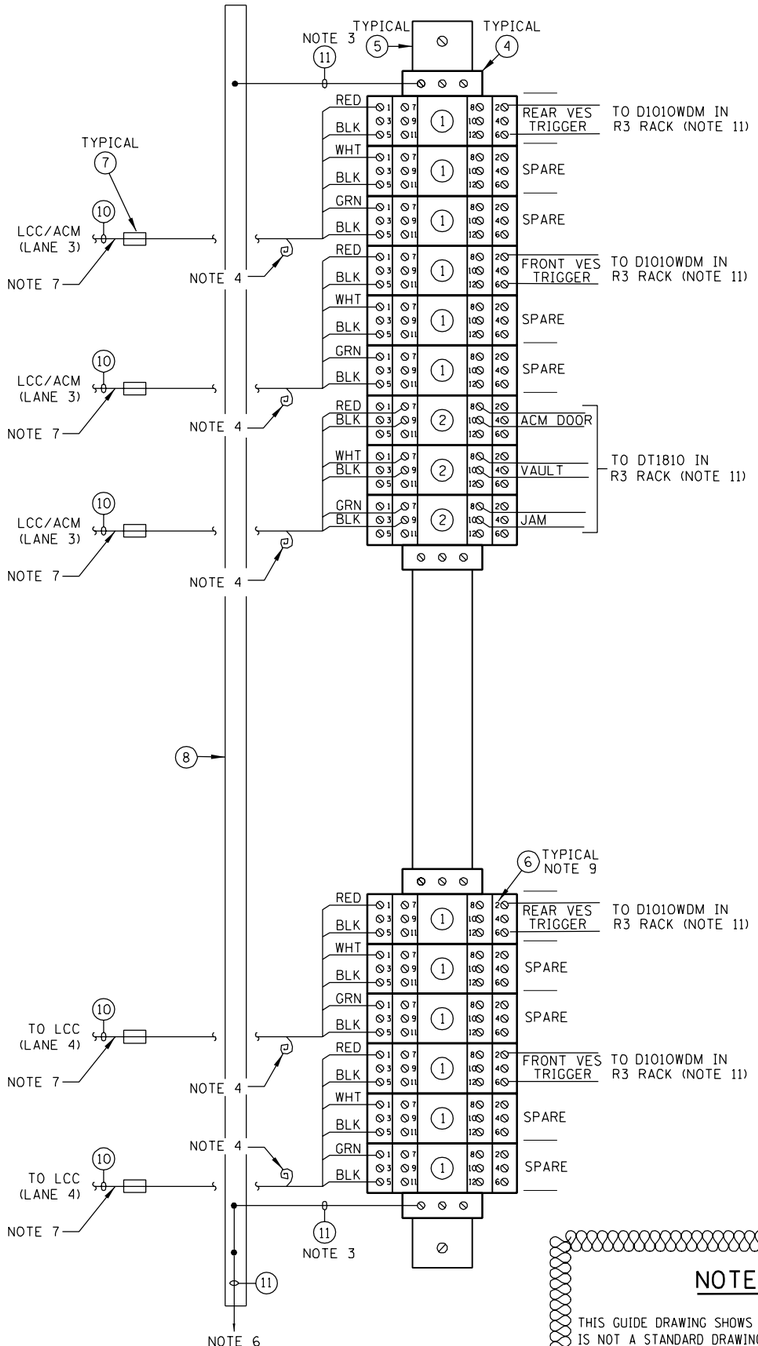
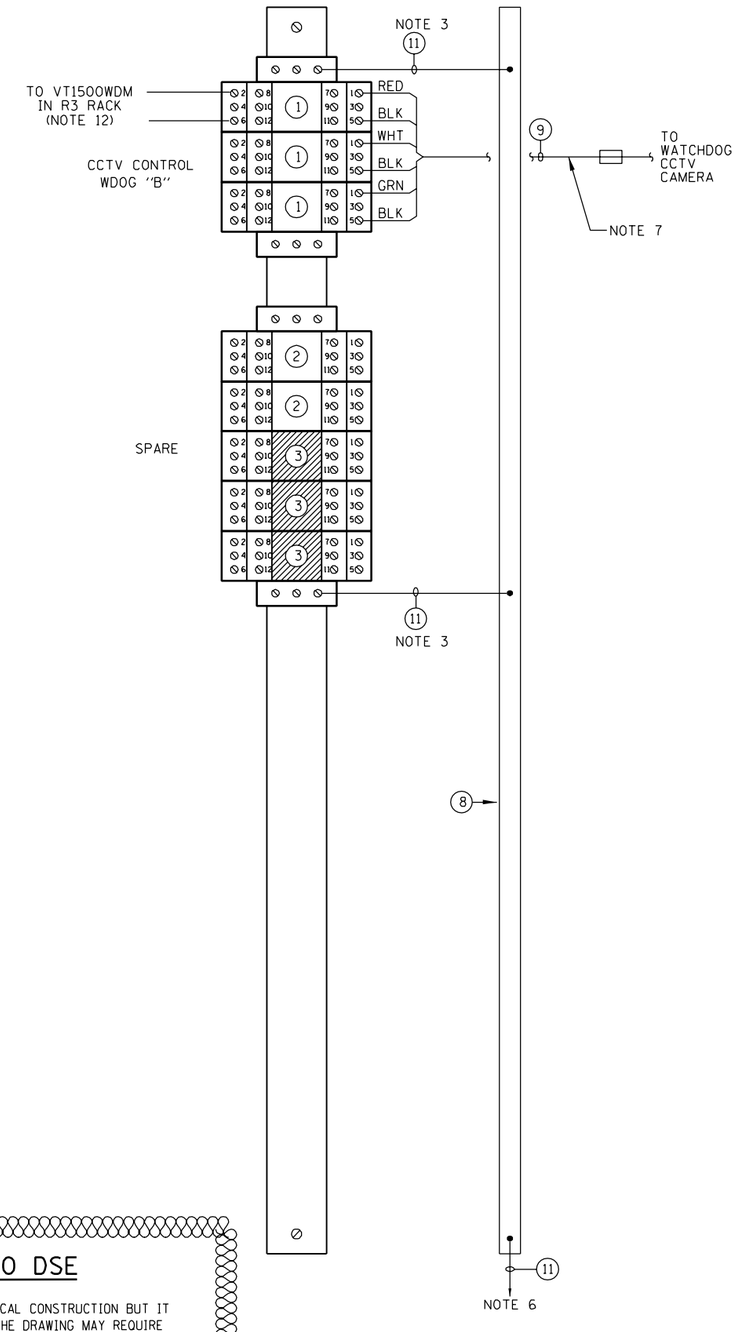
DATE	REVISIONS

REMOTE RAMP CABINETS

RPE18-00 (GUIDE DRAWING)





NOTES

1. TERMINAL BLOCKS ARE LOCATED IN THE RAMP DATA TERMINAL CABINET. SEE DWG. RPE18 FOR LOCATION.
2. TERMINAL BLOCKS, TERMINAL BLOCK MARKER STRIPS, AND GROUND BUS BARS ARE SHOWN DIAGRAMMATICALLY. WIRING DUCT IS NOT SHOWN ON THIS DRAWING.
3. ROUTE #6 COPPER GROUND CABLE FROM GROUND TERMINAL BLOCK TO GROUND BUS BAR.
4. COIL THREE SPARE PAIRS FOR FUTURE USE.
5. THE CONTRACTOR SHALL IDENTIFY EACH LANE CABLE ON AS-BUILT DRAWINGS.
6. ROUTE #6 COPPER GROUND CABLE FROM GROUND BUS BAR TO GROUND ROD.
7. SHIELD GROUND WIRE TIED BACK IN 3" PIGTAIL AND TERMINATED TO GROUND BUS BAR WITH A BURNDY TYPE YAEV LUG. THE COMPONENT END OF THE SHIELD GROUND WIRE IS NOT TO BE TERMINATED.
8. EACH CABLE SHALL BE IDENTIFIED WITH A CABLE MARKER.
9. EACH TERMINAL BLOCK WIRING TERMINAL SHALL BE IDENTIFIED WITH A TERMINAL MARKER. THE MARKERS SHALL BE NUMBERED AS DIRECTED BY THE TOLLWAY.
10. FOR DATA/COMMUNICATIONS CABLE COLOR CODE CHART, SEE DWG. RPE29.
11. SEE DWG. RPE32 FOR INFORMATION ON R3 RACK CONNECTIVITY.

EQUIPMENT LEGEND

ITEM	QUANTITY	DESCRIPTION
(1)	15 EA.	TERMINAL BLOCK WITH DATA SIGNAL PROTECTION. PHOENIX CONTACT "PLUGTRAB PT" SERIES CATALOG NUMBER FOR PLUG PT5-HF-12DC-ST WITH BASE ELEMENT PT2x2-BE.
(2)	5 EA.	TERMINAL BLOCK WITH DISCRETE SIGNAL PROTECTION. PHOENIX CONTACT "PLUGTRAB PT" SERIES CATALOG NUMBER FOR PLUG PT2x1-5DC-ST WITH BASE ELEMENT PT2x1-BE.
(3)	3 EA.	TERMINAL BLOCK BASE. PHOENIX CONTACT "PLUGTRAB PT" SERIES CATALOG NUMBER BASE ELEMENT PT2x1-BE.
(4)	8 EA.	GROUND TERMINAL BLOCK. PHOENIX CONTACT CATALOG NUMBER UDK-4-MTK-P/P.
(5)	2 EA.	MOUNTING RAIL; COPPER UNPERFORATED, 35mm x 7.5mm x 560mm, PHOENIX CONTACT CATALOG NUMBER 0801762.
(6)	1 LOT	TERMINAL BLOCK MARKERS. PHOENIX CONTACT CATALOG NUMBER ZB 5.
(7)	1 LOT	CABLE MARKERS. BRADY TYPE PWC-PK-3.
(8)	2 EA.	EQUIPMENT GROUND BUS BAR. HOFFMAN CATALOG NUMBER X-GS6K.
(9)	1 LOT	3 PAIR #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS.
(10)	1 LOT	6 PAIR #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS.
(11)	1 LOT	1-1/C #6 GROUND CABLE. (NOTES 3 AND 6)

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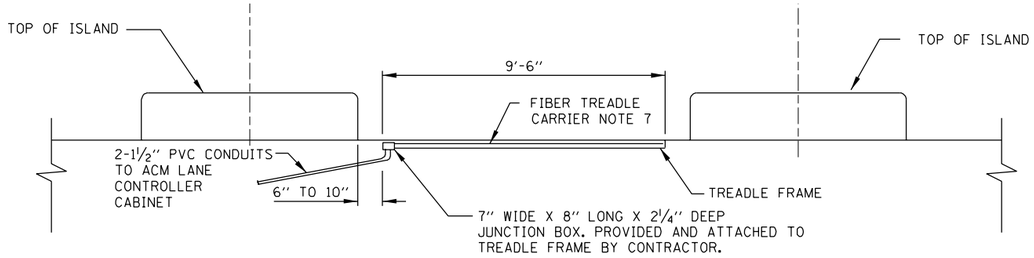
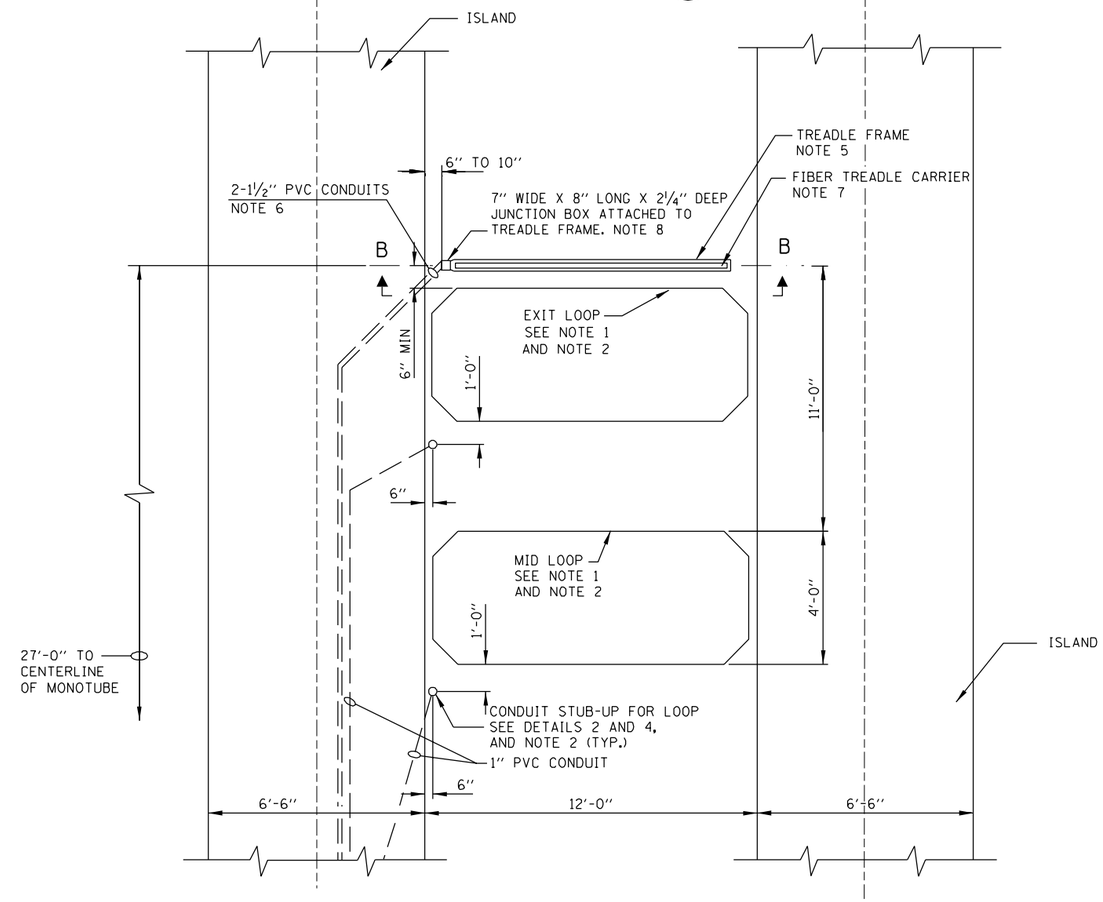
TERMINAL STRIP LAYOUT
REMOTE DATA
TERMINAL CABINET

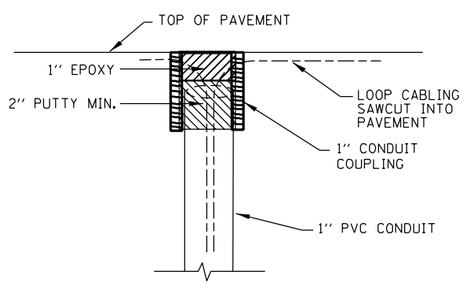
RPE19-00 (GUIDE DRAWING)



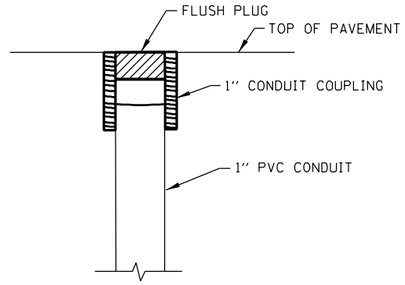
SECTION B-B (2 RPE 20)



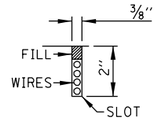
FIBER OPTIC TREADLE DETAIL (1 RPE 20)



LOOP INSTALLATION DETAIL (3 RPE 20)



LOOP RACEWAY STUB-UP DETAIL (4 RPE 20)



DETECTOR LOOP SLOT DETAIL (5 RPE 20)

NOTES:

1. TOLLWAY TO INSTALL LOOPS. A SLOT ⅜" WIDE BY 2" DEEP SHALL BE SAW CUT INTO PAVEMENT AS SHOWN TO GET LOOP WIRE BACK TO STUB-UP AFTER IT IS INSTALLED.
2. TOLLWAY TO INSTALL LOOPS. VEHICLE DETECTOR WIRE SHALL BE ONE CONTINUOUS NO. 14 THHN/THWN STRANDED WIRE IN PVC TUBE OF SUFFICIENT LENGTH FOR 4 CONTINUOUS LOOPS IN THE ⅜" SLOT. FILL SLOT WITH EPOXY RESIN SYSTEM IN ACCORDANCE WITH SPECIAL PROVISIONS. LOOP IS SPLICED AT THE EPOXY PLUG BY THE TOLLWAY TO THE 1/PR SHIELDED LOOP LEAD IN CABLE FURNISHED AND INSTALLED BY THE CONTRACTOR. TOLLWAY SHALL FURNISH AND INSTALL LOOP WIRE, SEALER AND EPOXY PLUG.
3. FIBER OPTIC TREADLE TO BE FURNISHED AND INSTALLED BY THE TOLLWAY.
4. THE TREADLE CABLES WILL BE TERMINATED AND CONNECTED TO THE TRANSCEIVERS BY THE TOLLWAY.
5. INSTALLATION CAVITY FOR THE TREADLE FRAME MUST BE 18" WIDE X 118" LONG X 10" DEEP MINIMUM.
6. CONDUIT IS FURNISHED AND INSTALLED BY THE CONTRACTOR. ONLY TWO 90 DEGREE BENDS ARE ALLOWED FOR THE TREADLE CONDUIT.
7. INSTALL FIBER TREADLE CARRIER PER THE MANUFACTURER'S INSTRUCTIONS.
8. TWO 1½" CONDUIT OPENINGS ARE REQUIRED. CONDUIT OPENINGS MUST BE COORDINATED WITH THE PROPER POSITIONING OF THE FIBER TREADLE FRAME.
9. TREADLE CONDUITS MUST BE FASTENED TO THE TREADLE FRAME PRIOR TO CONCRETE POUR.

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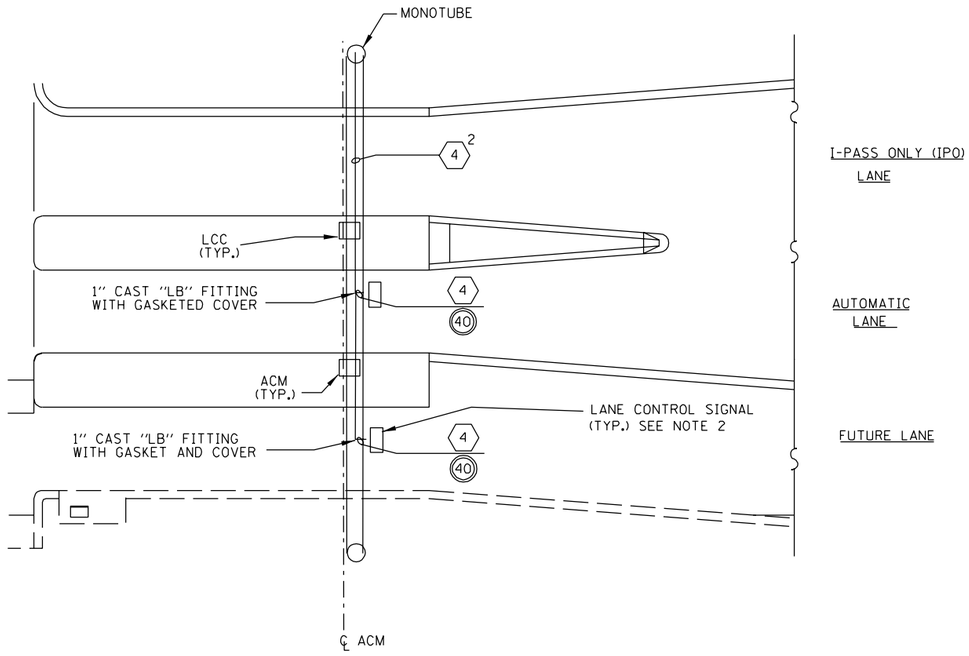
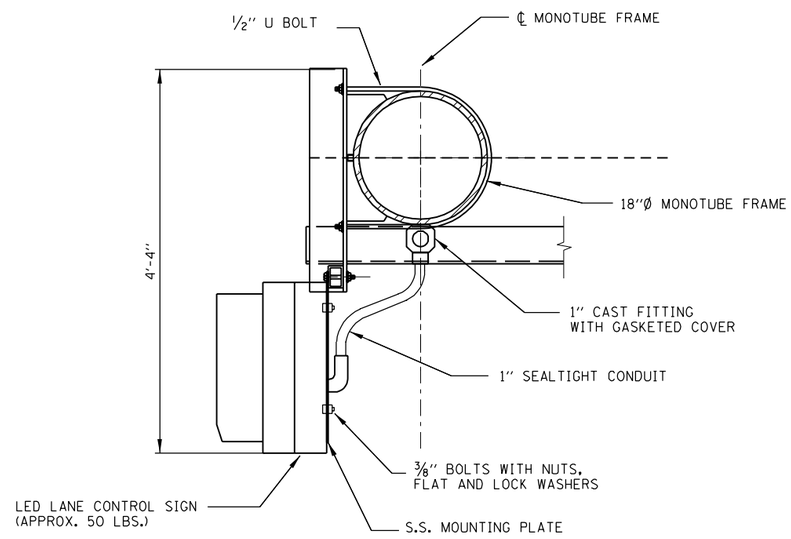
LOOP AND TREADLE INSTALLATION DETAILS

RPE20-00 (GUIDE DRAWING)



CONDUIT AND WIRE DIAGRAM
FOR LANE CONTROL SIGNALS (1 RPE) 21



LANE CONTROL SIGNAL MOUNTING DETAIL (2 RPE) 21
(LED LANE CONTROL)

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NOTES:

1. SEE DWG. RPE1 FOR CABLE CONDUIT SCHEDULES.
2. SEE DETAIL 2 FOR LANE CONTROL SIGNAL INSTALLATION.
3. THE LANE CONTROL SIGNAL WIRES SHALL BE ROUTED VERTICALLY INSIDE THE SIGNING FRAME TO THE HORIZONTAL MEMBER. DRILL AND TAP A HOLE IN THE SIGNING FRAME AND INSTALL A 1" THREADED WATERTIGHT FITTING. CONDUIT AND FITTINGS SHALL BE INSTALLED AS SHOWN ON PLANS.
4. LED CONTROL SIGNAL WITH RED "X" AND GREEN DOWN ARROW BY NATION SIGN AND SIGNAL COMPANY, MODEL #213-1260.
5. ALL CONDUITS AND FITTINGS MUST BE PAINTED TO MATCH THE SIGNING FRAME AS DIRECTED BY THE TOLLWAY.

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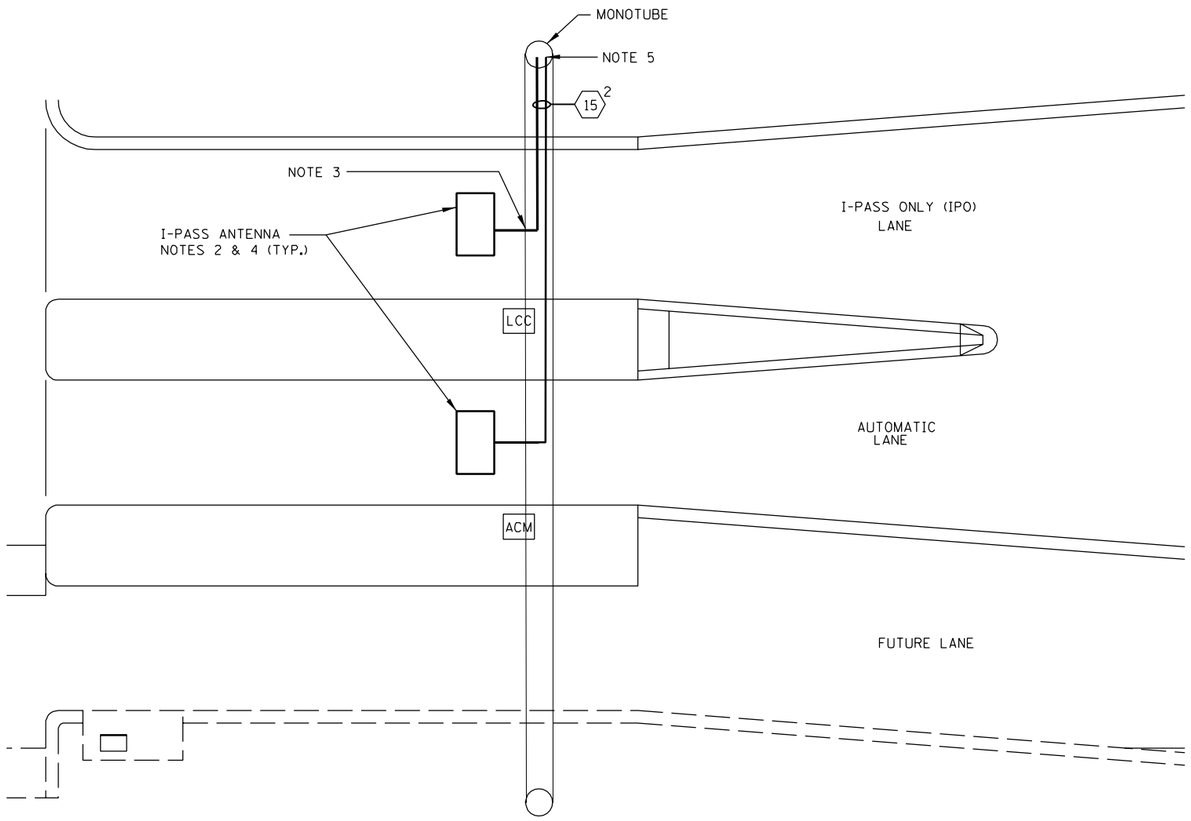
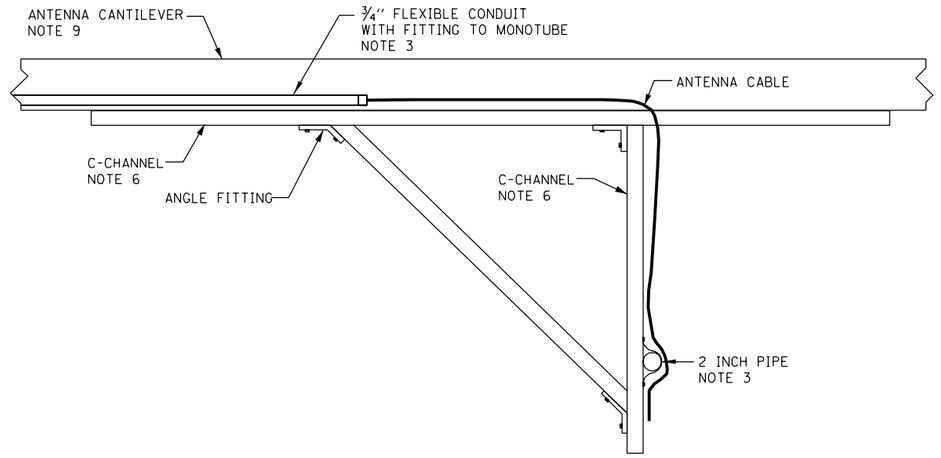
PLAZA LANE
CONTROL SIGNAL

RPE21-00 (GUIDE DRAWING)



CONDUIT AND WIRE DIAGRAM FOR I-PASS ANTENNA (1 / RPE 22)



AVI MOUNTING DETAIL A-A (2 / RPE 22)
NOT TO SCALE

NOTE TO DSE

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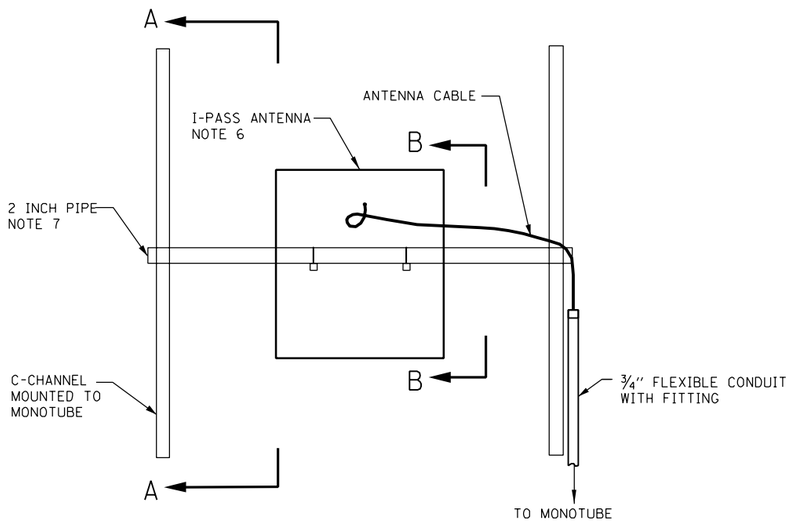
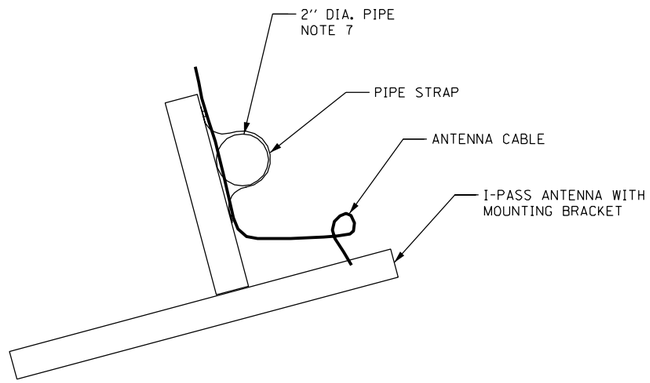


AVI MOUNTING DETAIL (3 / RPE 22)
NOT TO SCALE



AVI MOUNTING DETAIL B-B (4 / RPE 22)

NOTES:

1. SEE DWGS. RPE1 AND DWG. RPE5 FOR CABLE/CONDUIT SCHEDULES.
2. SEE DWG. RPE28 FOR I-PASS ANTENNA INSTALLATION DETAIL.
3. THE I-PASS ANTENNA COAXIAL CABLES SHALL BE INSTALLED INSIDE THE MONOTUBE FRAME TO THE ANTENNA LOCATIONS. DRILL AND TAP A HOLE IN THE MONOTUBE FRAME AND INSTALL A 1 INCH THREADED FITTING AT EACH ANTENNA LOCATION. SEE DETAIL THIS SHEET.
4. THE TOLLWAY SHALL VERIFY THE I-PASS ANTENNA LOCATIONS PRIOR TO INSTALLATION.
5. SEE DWG. RPE14 AND RPE15 FOR ADDITIONAL DETAILS.
6. MOUNTING BRACKETS SHALL ALLOW EASY ADJUSTMENT TO THE I-PASS ANTENNA. ANTENNA SHALL BE ABLE TO BE ADJUSTED UP TO 6 FEET (MINIMUM) FROM THE CENTERLINE OF THE MONOTUBE
7. GALVANIZED STEEL OR ALUMINUM PIPE, 2 INCH DIA., SCHEDULE 40.
8. MOUNTING HEIGHT FOR THE I-PASS ANTENNA SHALL BE 16'0'' ABOVE THE FINISHED PAVEMENT FROM THE BOTTOM MOST PART OF THE ANTENNA.
9. DETAIL PROVIDED FOR ANTENNA MOUNTING TO TO A MONOTUBE. CONTRACTOR TO MAKE NECESSARY ADJUSTMENTS.
10. THE I-PASS ANTENNA WILL BE FURNISHED AND INSTALLED BY THE TOLLWAY.
11. ANTENNA CABLE SHALL BE SECURED TO MOUNTING BARCKET WITH STAINLESS STEEL STRAPS.

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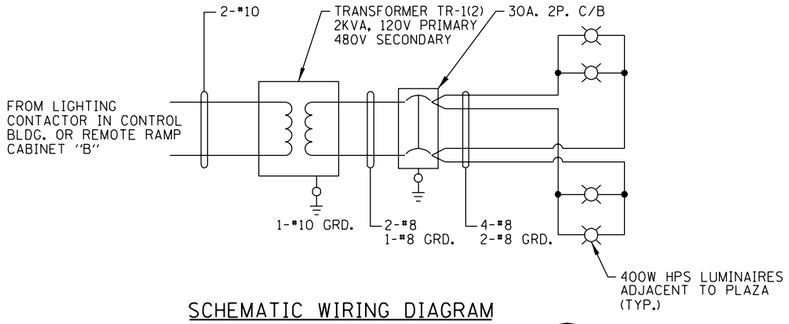
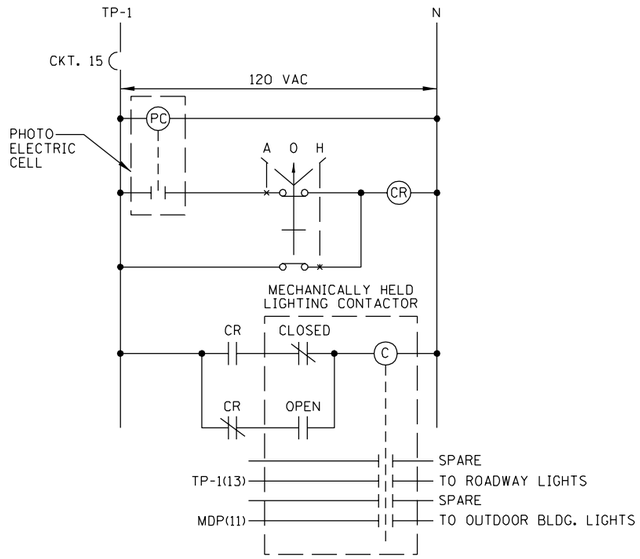
PLAZA WATCHDOG VIDEO AND I-PASS PLANS

RPE22-00 (GUIDE DRAWING)



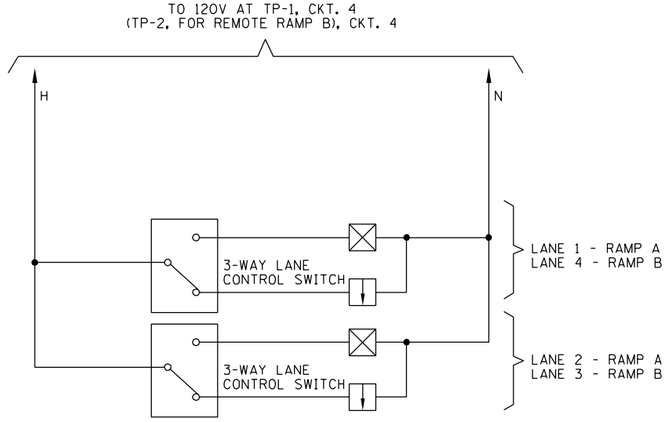
SCHEMATIC WIRING DIAGRAM
EMERGENCY ROADWAY PLAZA LIGHTING (1 RPE-23)
(TYPICAL FOR RAMPS "A" AND "B")



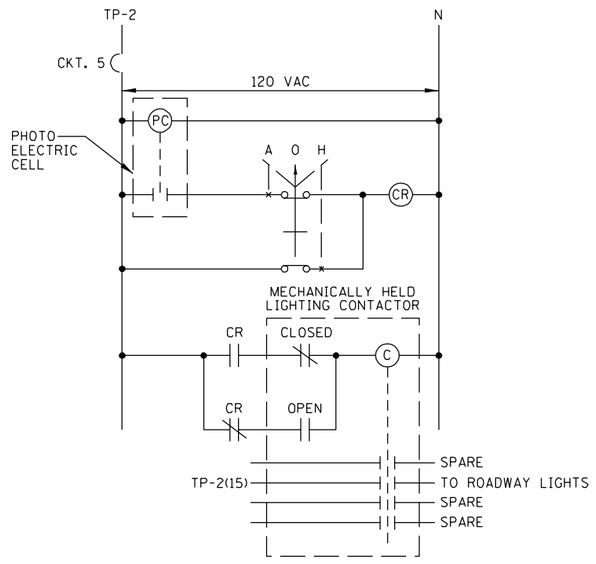
LIGHTING CONTACTOR RAMP A (2 RPE-23)

NOTES:

1. SEE DWG. RPE2 FOR SYMBOLS AND ABBREVIATIONS.
2. SEE DWGS. RPE7, RPE14 AND RPE21 FOR CABLE AND CONDUIT ROUTING.



LANE CONTROL SIGNAL RAMP A
(TYPICAL FOR REMOTE RAMP B) (3 RPE-23)



LIGHTING CONTACTOR RAMP B (4 RPE-23)

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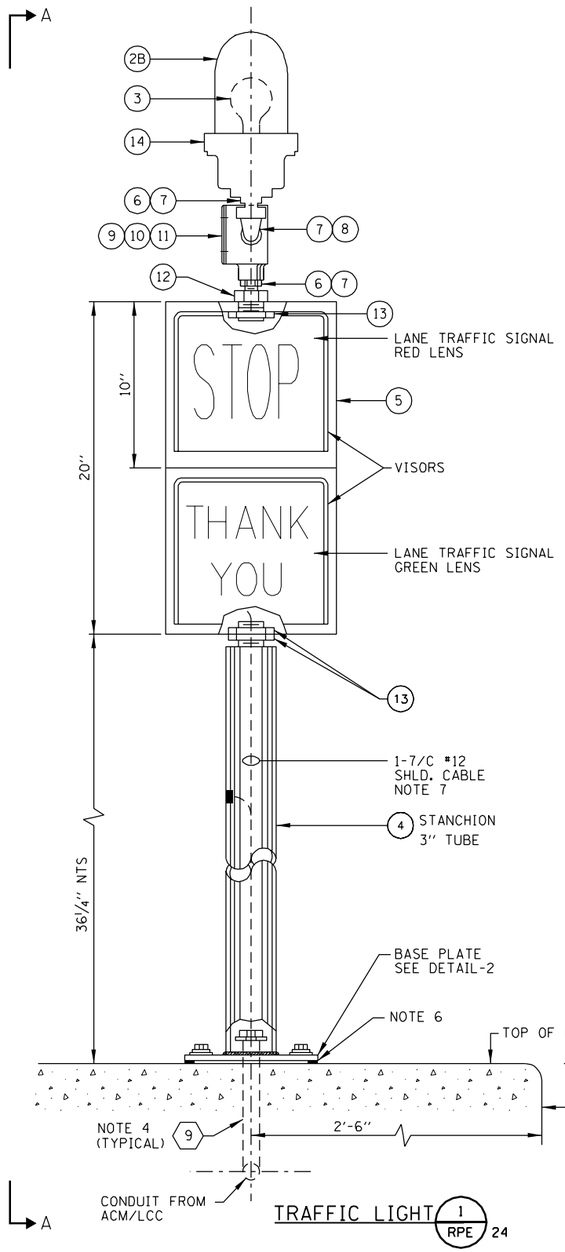
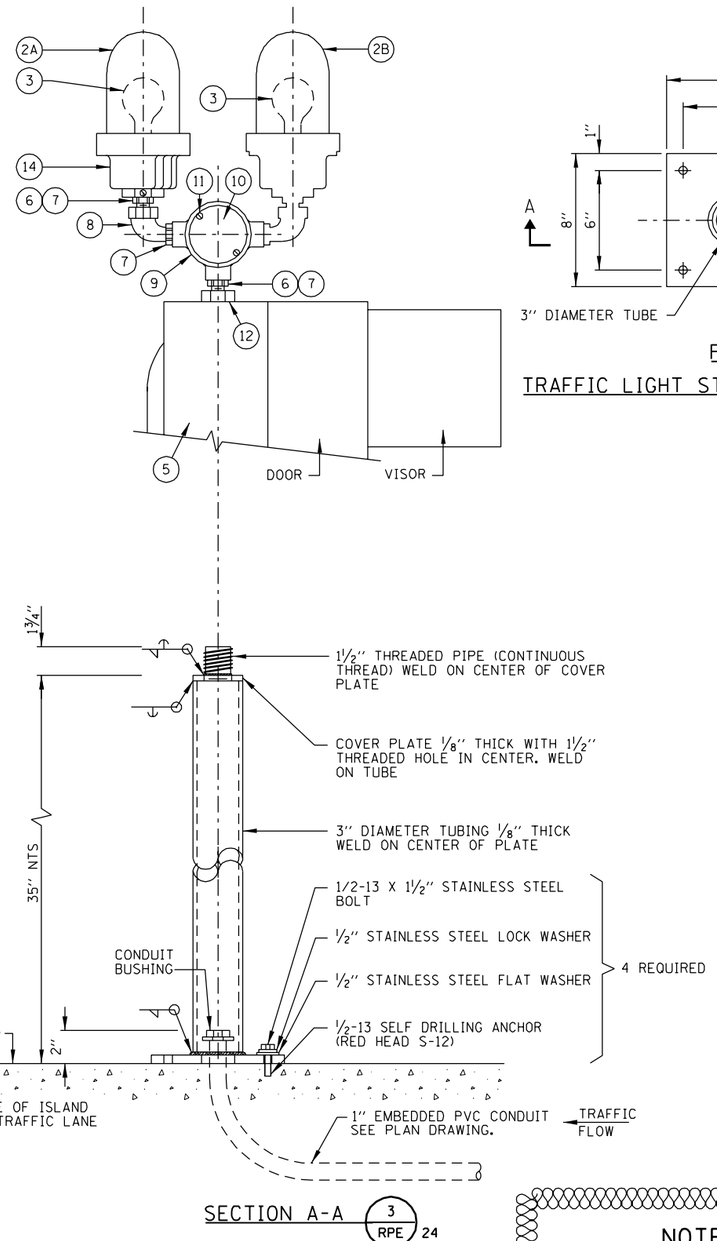
MISCELLANEOUS SCHEMATIC DIAGRAMS

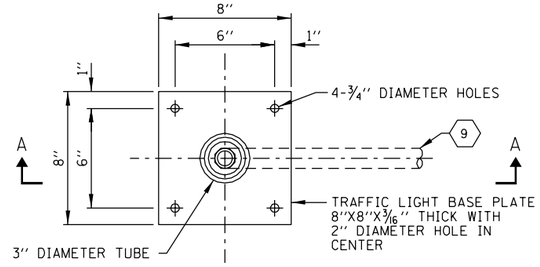
RPE23-00 (GUIDE DRAWING)



TRAFFIC LIGHT (1 / RPE 24)



SECTION A-A (3 / RPE 24)



PLAN

TRAFFIC LIGHT STANCHION DETAIL (2 / RPE -26)

NOTES:

1. TRAFFIC LIGHT ASSEMBLY PROVIDED AND INSTALLED BY THE CONTRACTOR.
2. GLOBE TO BE AMBER FOR LOW I-PASS ACCOUNT AND BLUE FOR VALID I-PASS TRANSACTION.
3. MATERIAL FOR STANCHION AND BASE PLATE TO BE STEEL. FINISH SHALL BE HIGH GLOSS BLACK ENAMEL OVER RUST INHIBITIVE PRIMER.
4. SEE RPE1 FOR CABLE/CONDUIT SCHEDULE AND ADDITIONAL NOTES.
5. SEE RPE4 FOR TOLL EQUIPMENT WIRING DIAGRAMS.
6. USE GALVANIZED STEEL SHIMS UNDER THE BASE PLATE TO PLUMB THE TRAFFIC LIGHT.
7. THE GROUND WIRE MUST BE EXOTHERMICALLY WELDED TO THE STANCHION TUBE AS DIRECTED BY THE TOLLWAY.

EQUIPMENT LEGEND

ITEM	DESCRIPTION
(1)	NOT USED
(2A)	AMBER GLOBE, BY THE TOLLWAY (NOTE 2).
(2B)	BLUE GLOBE, BY THE TOLLWAY (NOTE 2).
(3)	69 WATT CLEAR LAMP, BY THE TOLLWAY.
(4)	STANCHION, 3'' TUBE.
(5)	LANE TRAFFIC LIGHT, EAGLE SIGNAL CATALOG NO. SA320X2211YBB, NO SUBSTITUTE. AVAILABLE FROM BROWN TRAFFIC PRODUCTS, INC.
(6)	CLOSE UP NIPPLE, ¾''X1½''.
(7)	LOCKNUT ¾''. CATALOG NO. BL75.
(8)	90° MALE TO FEMALE SHORT BUSHED ELBOW (MALLEABLE IRON) ¾''. CATALOG NO. LMF90-75.
(9)	'T' OUTLET BOX, ¾'' HUBS. CATALOG NO. SEHT-75.
(10)	COVER (CAST MALLEABLE IRON) FURNISHED WITH SCREWS. CATALOG NO. SEHK-BC.
(11)	GASKET (FIBER COMPOSITION). CATALOG NO. SEH-GK.
(12)	HEX REDUCING BUSHING, 1½''-¾''. O-Z/GEDNEY CATALOG NO. 329R.
(13)	LOCKNUT 1½''. CATALOG NO. BL150.
(14)	PENDANT HOOD FIXTURE WITH PORCELAIN SOCKET, BRASS SCREW SHELL. CATALOG NO. REA-1075.

NOTE - ALL THE ABOVE CATALOG NUMBERS ARE APPLETON ELECTRIC COMPANY UNLESS OTHERWISE NOTED.

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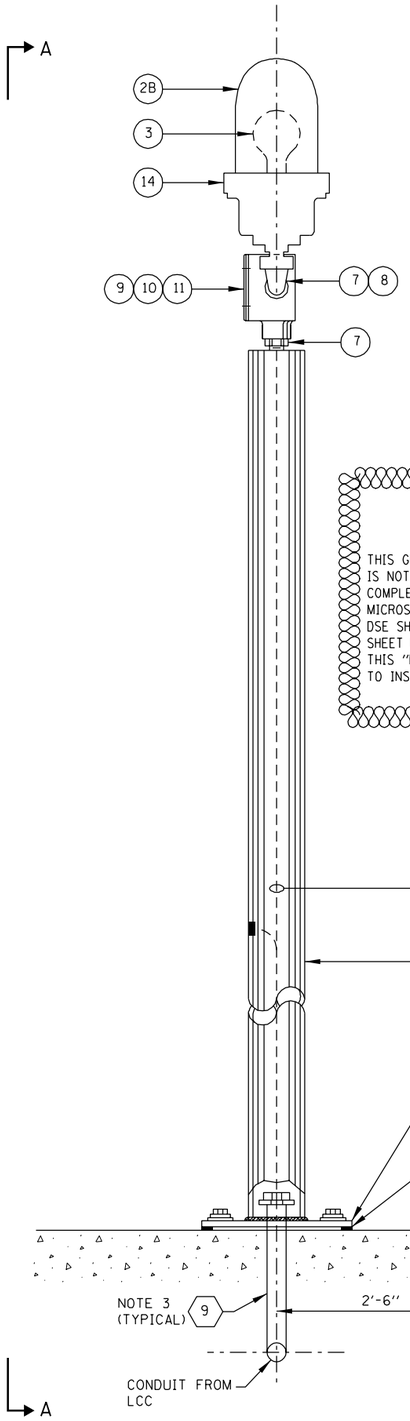
Open Roads for a Faster Future

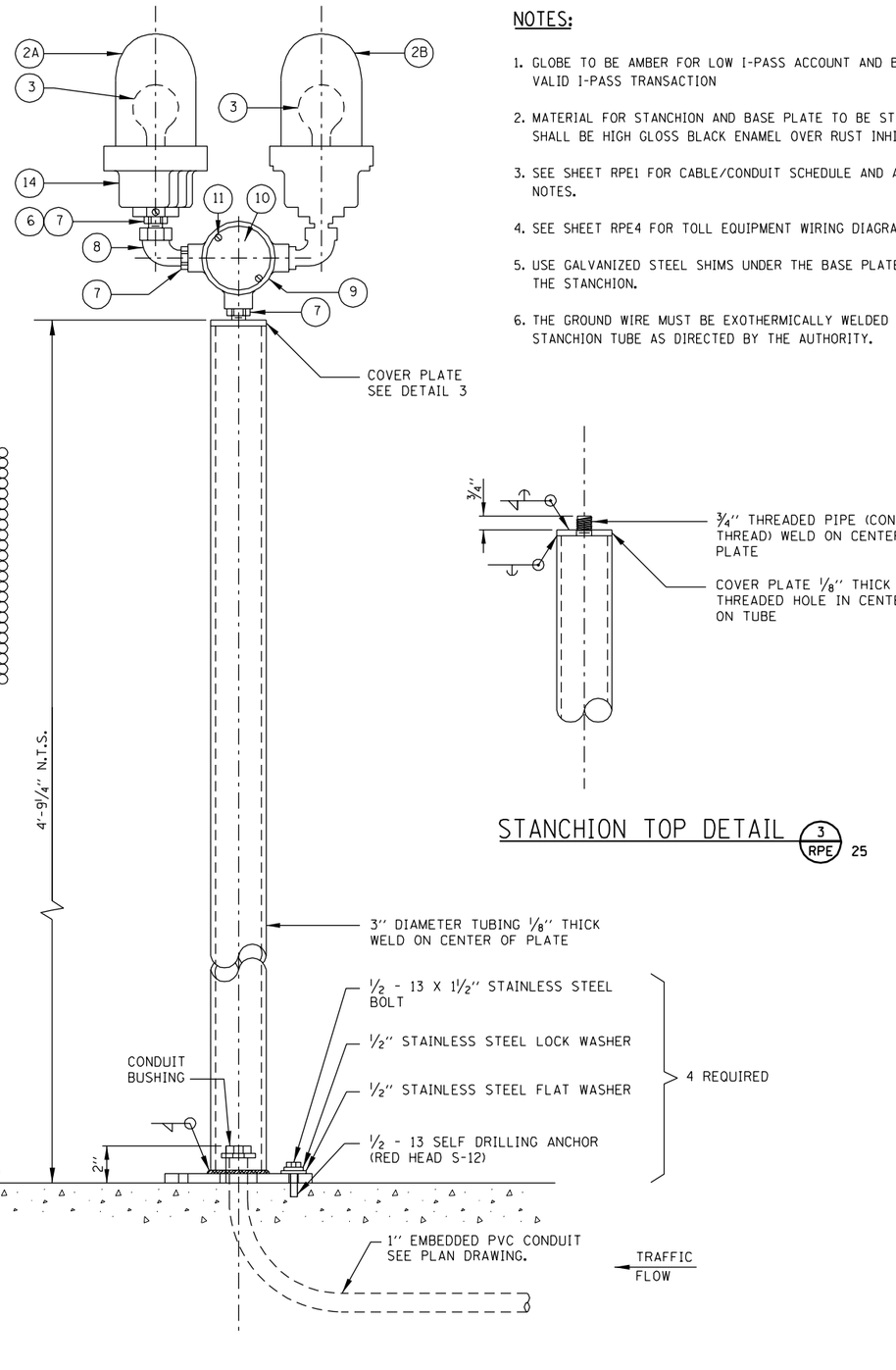
DATE	REVISIONS

TRAFFIC LIGHT DETAILS

RPE24-00 (GUIDE DRAWING)



TRAFFIC LIGHT (1 RPE 25)



SECTION A-A (2 RPE 25)

NOTES:

1. GLOBE TO BE AMBER FOR LOW I-PASS ACCOUNT AND BLUE FOR VALID I-PASS TRANSACTION
2. MATERIAL FOR STANCHION AND BASE PLATE TO BE STEEL. FINISH SHALL BE HIGH GLOSS BLACK ENAMEL OVER RUST INHIBITIVE PRIMER.
3. SEE SHEET RPE1 FOR CABLE/CONDUIT SCHEDULE AND ADDITIONAL NOTES.
4. SEE SHEET RPE4 FOR TOLL EQUIPMENT WIRING DIAGRAMS.
5. USE GALVANIZED STEEL SHIMS UNDER THE BASE PLATE TO PLUMB THE STANCHION.
6. THE GROUND WIRE MUST BE EXOTHERMICALLY WELDED TO THE STANCHION TUBE AS DIRECTED BY THE AUTHORITY.

NOTE TO DSE

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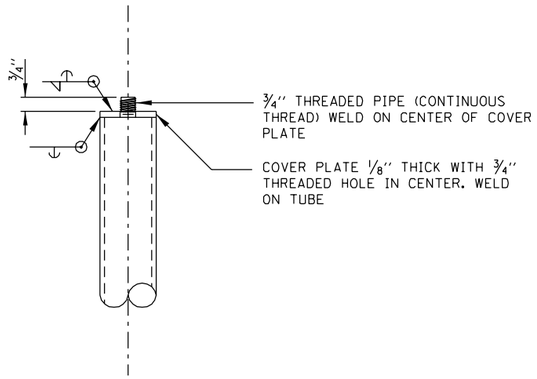
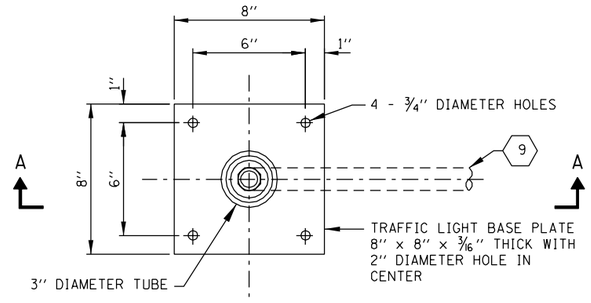


STANCHION TOP DETAIL (3 RPE 25)

EQUIPMENT LEGEND

ITEM	DESCRIPTION
1	NOT USED
2A	AMBER GLOBE, BY THE AUTHORITY (NOTE 1).
2B	BLUE GLOBE, BY THE AUTHORITY (NOTE 1).
3	69 WATT CLEAR LAMP, BY THE AUTHORITY.
4	STANCHION, 3" TUBE.
5	NOT USED
6	CLOSE UP NIPPLE, ¾" x 1½"
7	LOCKNUT, ¾", CATALOG NO. BL75
8	90 DEGREE MALE TO FEMALE SHORT BUSHED ELBOW (MALLEABLE IRON) ¾". CATALOG NO. LMF90-75.
9	'T' OUTLET BOX, ¾" HUBS. CATALOG NO. SEHT-75.
10	COVER (CAST MALLEABLE IRON) FURNISHED WITH SCREWS. CATALOG NO. SEHK-BC.
11	GASKET (FIBER COMPOSITION). CATALOG NO. SEH-GK.
12	NOT USED
13	NOT USED
14	PENDANT HOOD FIXTURE WITH PORCELAIN SOCKET, BRASS SCREW SHELL. CATALOG NO. REA-1075.

NOTE - UNLESS OTHERWISE NOTED, ALL ABOVE CATALOG NUMBERS ARE APPLETON ELECTRIC COMPANY.



PLAN

TRAFFIC LIGHT STANCHION DETAIL (4 RPE 25)

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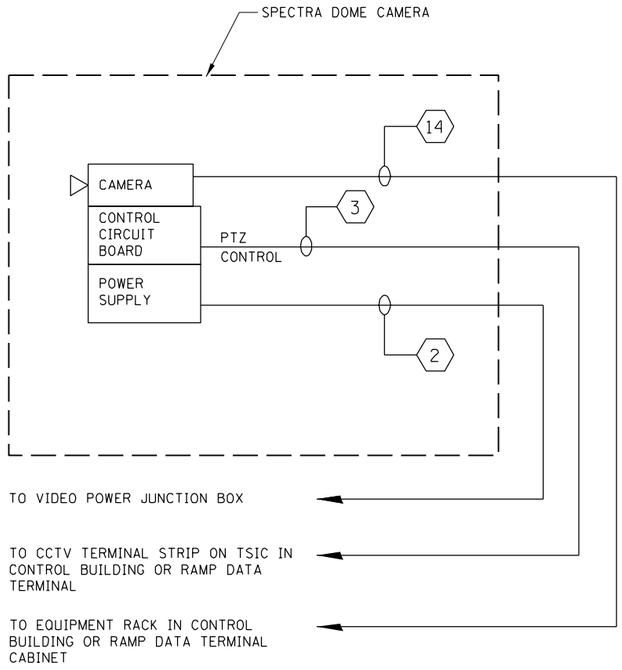
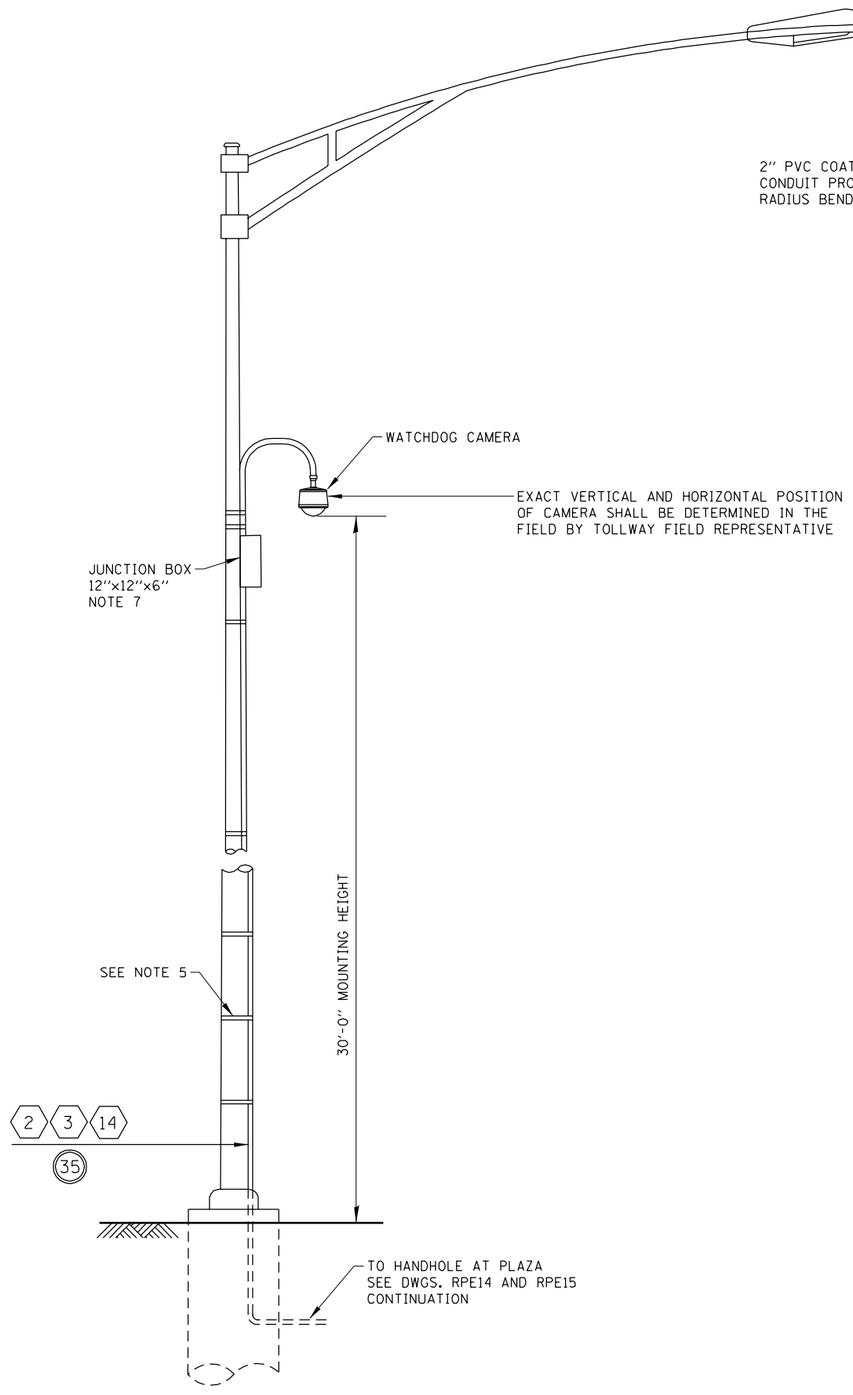
TRAFFIC LIGHT DETAILS
IPO LANE

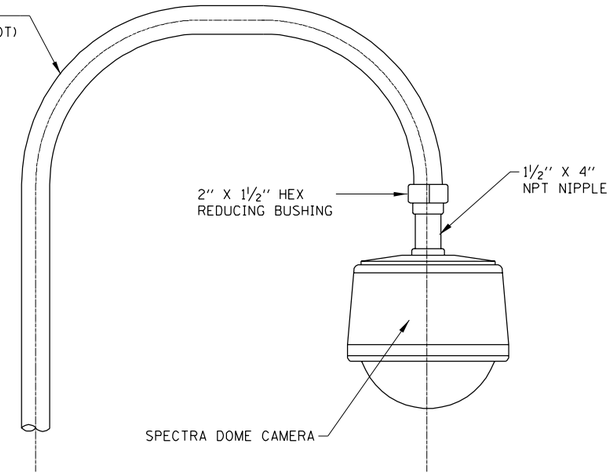
RPE25-00 (GUIDE DRAWING)



WIRING DIAGRAM — 1 / RPE 26
N.T.S.



EQUIPMENT MOUNTED TO LIGHT POLE DETAIL — 2 / RPE 26
N.T.S.



VIDEO WATCHDOG CAMERA — 3 / RPE 26
N.T.S.

1. SEE DWG. RPE1 FOR CABLE/CONDUIT SCHEDULES.
2. INSTALL CABLES BETWEEN THE JUNCTION BOX AND CAMERA PER MANUFACTURER'S RECOMMENDATIONS.
3. THE CAMERA'S FINAL MOUNTING LOCATION SHALL BE APPROVED BY THE TOLLWAY PRIOR TO INSTALLATION.
4. CAMERA CONDUIT INSTALLATION SHALL BE COORDINATED WITH THE ROADWAY LIGHTING WORK.
5. PROVIDE STAINLESS STEEL STRAPS FOR ATTACHING CAMERA CONDUIT TO THE OUTSIDE OF LIGHT POLE. STRAPS SHALL BE SPACED A MAXIMUM OF 5 FEET APART.
6. THE COST FOR THE WORK TO FINISH AND INSTALL THE CAMERA, CABLES, CONDUIT, AND ASSOCIATED MOUNTING HARDWARE ON THE LIGHT POLE SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR ELECTRICAL WORK FOR THE PLAZA.
7. PROVIDE STRAIN RELIEF FOR VERTICAL CABLES IN JUNCTION BOX TRANSITION POWER CABLE FROM 3#12 TO 3#18. LOOP 12" OF 3#18 WIRE FOR CABLE IN JUNCTION BOX TO FACILITATE CAMERA MAINTENANCE.

NOTE TO DSE

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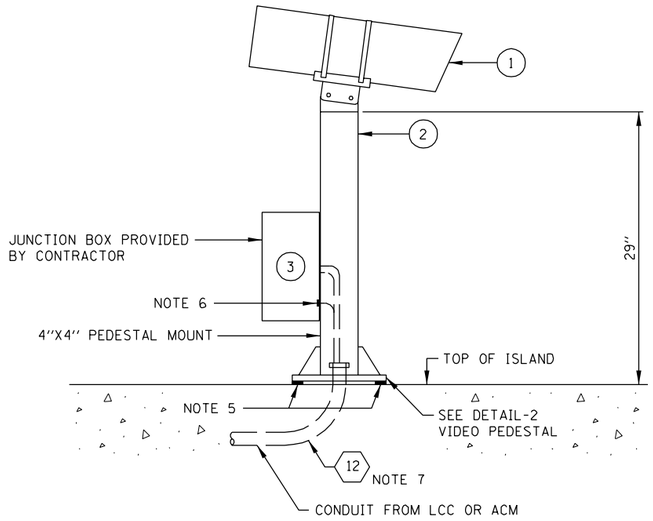
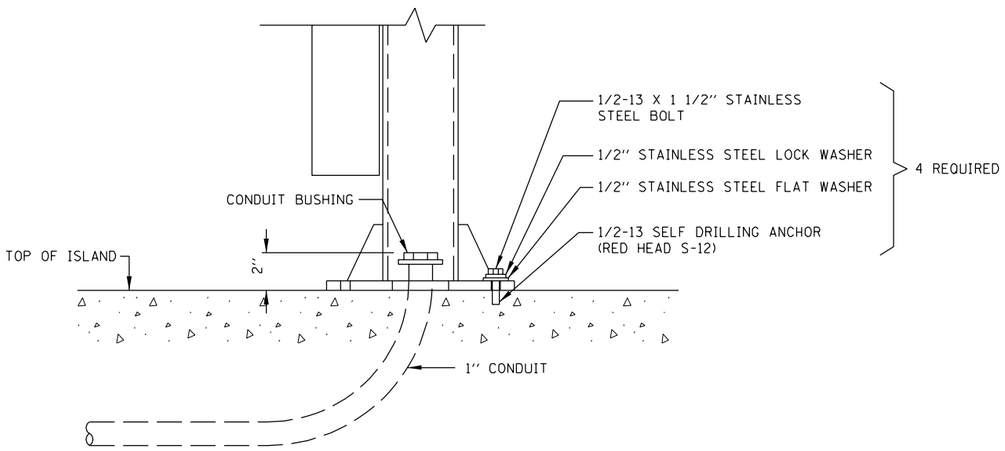
DATE	REVISIONS

VIDEO WATCHDOG CAMERA DETAILS

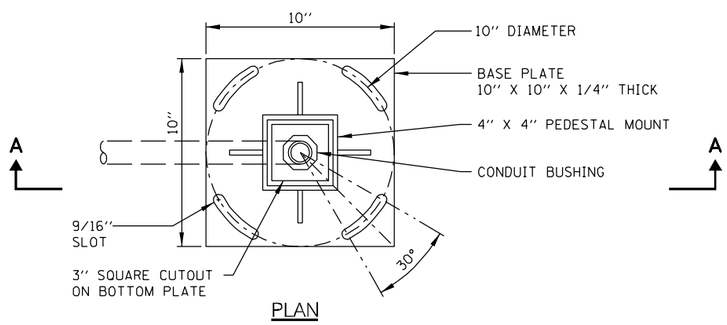
RPE26-00 (GUIDE DRAWING)



REAR VIOLATION CAMERA PEDESTAL DETAIL (1 / RPE 27)



SECTION A–A (2 / RPE 27)



PLAN

VIDEO PEDESTAL BASE DETAIL (3 / RPE 27)

NOTES:

1. SEE DWG. RPE1 FOR CABLE/CONDUIT SCHEDULE AND ADDITIONAL NOTES.
2. SEE DWG. RPE4 FOR TOLL EQUIPMENT WIRING DIAGRAM.
3. VIOLATION PEDESTAL, AND JUNCTION BOX SHALL BE FURNISHED BY THE CONTRACTOR.
4. VIOLATION CAMERAS SHALL BE FURNISHED AND INSTALLED BY THE TOLLWAY.
5. USE GALVANIZED STEEL SHIMS UNDER THE BASE PLATE TO PLUMB THE CAMERA PEDESTAL.
6. THE GROUND WIRE MUST BE EXOTHERMICALLY WELDED TO THE CAMERA PEDESTAL AS DIRECTED BY THE AUTHORITY.
7. COIL 3' OF EACH CABLE IN JUNCTION BOX FOR TERMINATION BY THE TOLLWAY.

EQUIPMENT LEGEND

ITEM	DESCRIPTION
1	CAMERA FURNISHED AND INSTALLED BY THE TOLLWAY.
2	PEDESTAL SHALL BE BY EMI. MODEL BRHM-29CP+.
3	JUNCTION BOX WITH MOUNTING PANEL, 12''X10''X6''.

NOTE TO DSE

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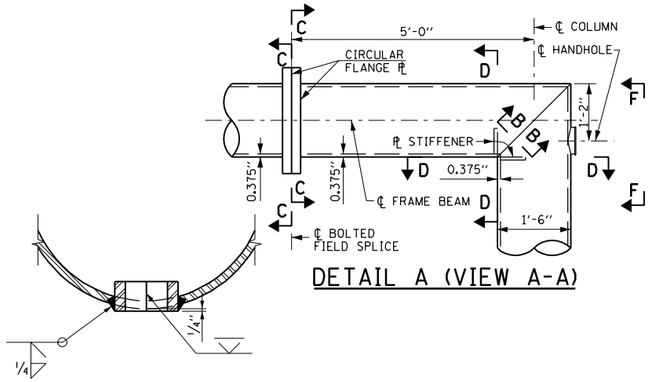
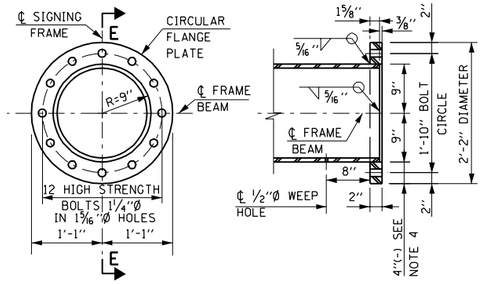
DATE	REVISIONS

MISCELLANEOUS DETAILS

RPE27-00 (GUIDE DRAWING)

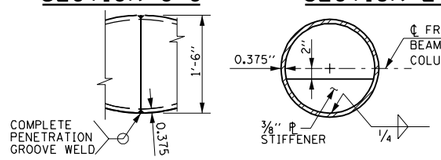


DETAIL A (VIEW A-A)

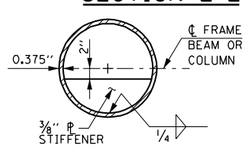


SECTION C-C

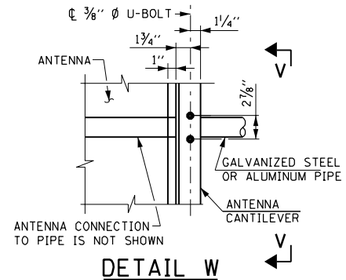
SECTION E-E



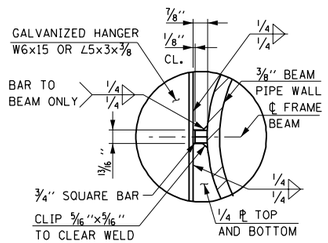
SECTION B-B



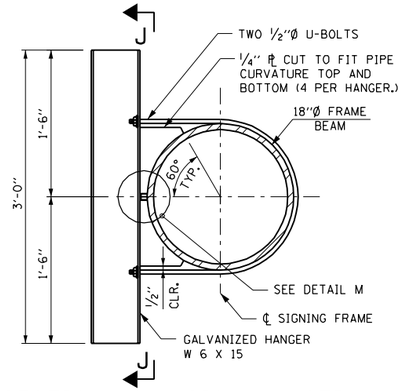
SECTION D-D



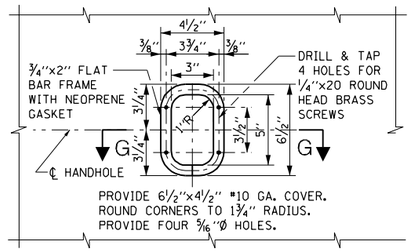
DETAIL W



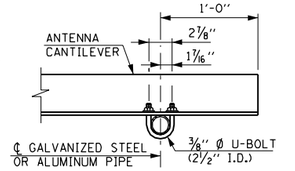
DETAIL M



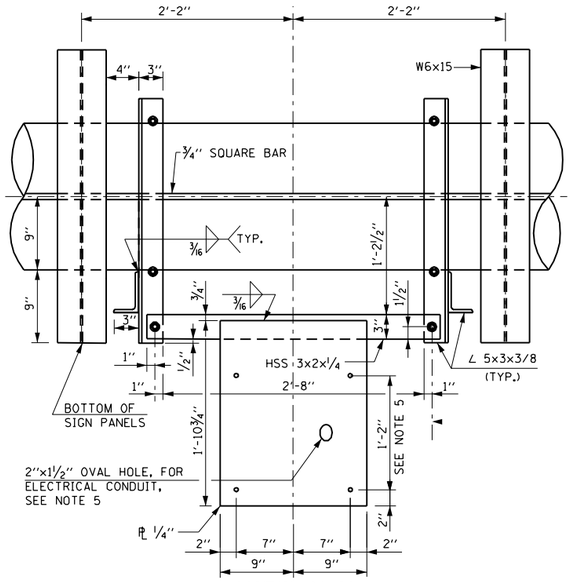
SECTION H-H (SIGN HANGER)



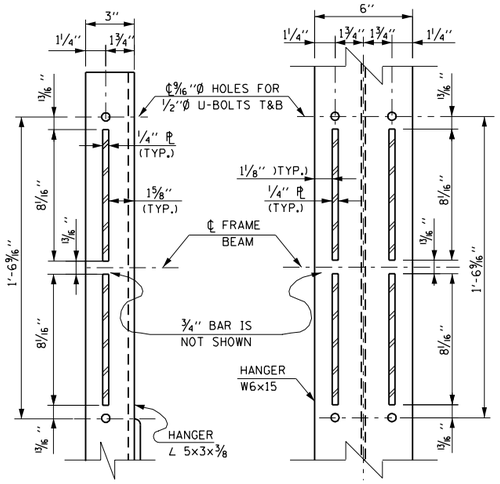
VIEW F-F



VIEW V-V

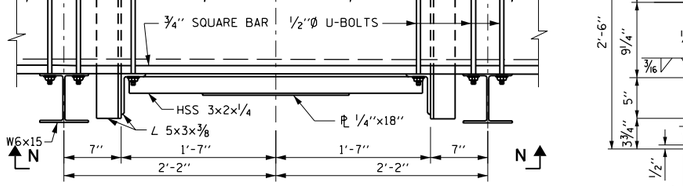


VIEW N-N

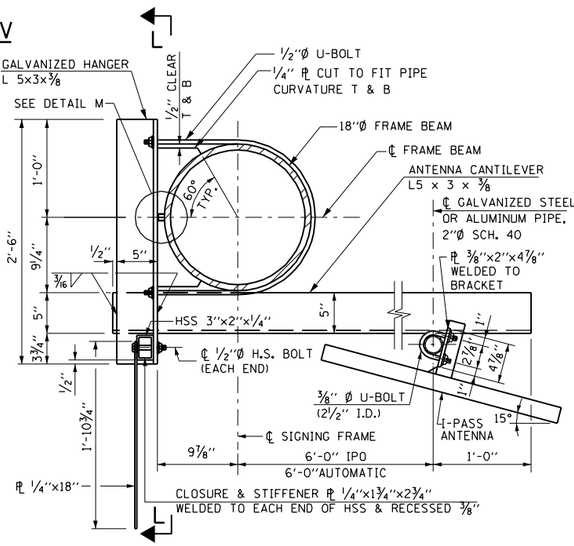


SECTION L-L

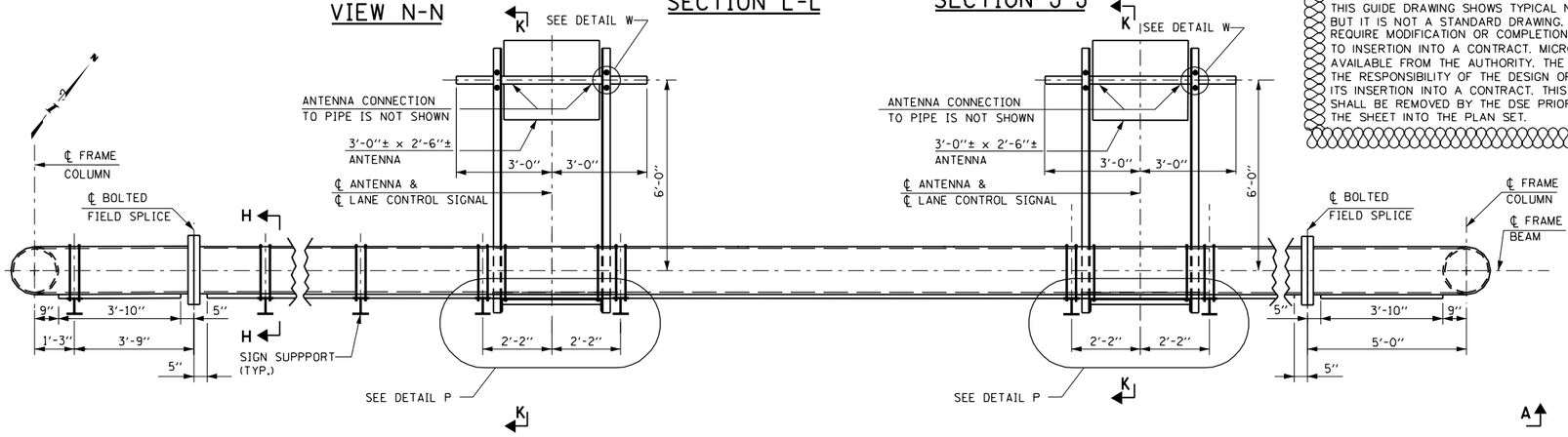
SECTION J-J



DETAIL P
(PLAN, LANE CONTROL SIGNAL CONNECTION)



SECTION K-K (ANTENNA HANGER)



TYPICAL MONOTUBE PLAN

NOTE TO DSE

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NOTES:

1. WORK THIS SHEET WITH PROJECT SPECIFIC STRUCTURAL DRAWINGS FOR MONOTUBE.
2. SIGNING AND SIGN HANGER ARE OMITTED FROM "DETAIL A" (VIEW A-A) FOR CLARITY.
3. FOR DETAILS OF ATTACHMENT BETWEEN HANGER AND SIGN PANELS, SEE STANDARD F10.
4. INSIDE DIAMETER OF CIRCULAR FLANGE PLATE SHALL BE 1/16" GREATER THAN OUTSIDE DIAMETER OF FRAME BEAM.
5. CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF HOLES WITH LANE CONTROL SIGNAL PRIOR TO FABRICATION OF 1/4" PLATE.
6. T&B DENOTE TOP AND BOTTOM.
7. FINAL LOCATION OF I-PASS ANTENNAS SHALL BE AS DIRECTED BY THE TOLLWAY.
8. PROVIDE FOUR 1/4 Ø WEEP HOLES IN BOTTOM OF HSS 3x2x1/4 @ 10" SPACING AND 3" FROM EACH END.

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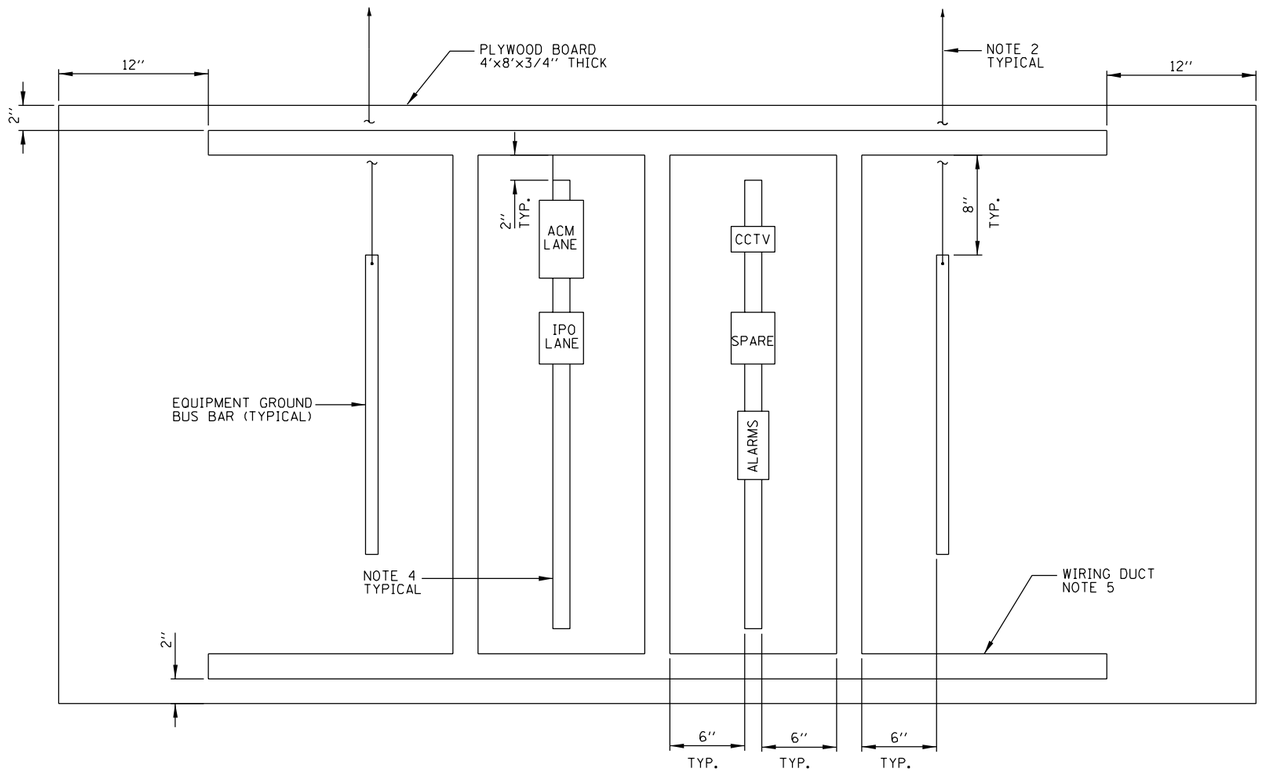
RAMP PLAZA MONOTUBE DETAILS

RPE28-00 (GUIDE DRAWING)



TERMINAL STRIP INTERCONNECT CENTER (TSIC) (1 / RPE 29)

NOT TO SCALE (SEE NOTES 1 AND 3)

NOTES:

1. TERMINAL STRIP INTERCONNECT CENTER (TSIC) IS LOCATED IN THE CONTROL BUILDING. SEE BUILDING EQUIPMENT LAYOUT DWG. RPE6 FOR LOCATION.
2. ROUTE #6 COPPER GROUND CABLE FROM GROUND BUS BAR TO INTERNAL PERIMETER GROUND BUS CONDUCTOR.
3. ALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
4. DIN RAIL MOUNTED TERMINAL BLOCKS. SEE RPE30 FOR TERMINAL BLOCK DETAILS.
5. PROVIDE WIRE DUCT AS SHOWN ON THE DRAWING. WIRE DUCT SHALL BE PANDUIT PART NUMBER E2X3LG6 WITH COVER PART NUMBER C2LG6 AND CORNER STRIP PART NUMBER CSP3LG-Q.

3 PAIR DATA/COMMUNICATIONS CABLE COLOR CODE CHART	
PAIR NO.	MFGR'S COLOR CODE CHART COLOR COMBINATION
CABLE-1	
1	BLACK PAIRED WITH RED
2	BLACK PAIRED WITH WHITE
3	BLACK PAIRED WITH GREEN
3 PR. #22 CABLE WITH INDIVIDUALLY SHIELDEDPAIRS SHALL BE BELDEN #88777 OR MANHATTAN #M43103.	

6 PAIR DATA/COMMUNICATIONS CABLE COLOR CODE CHART	
PAIR NO.	MFGR'S COLOR CODE CHART COLOR COMBINATION
CABLE-2	
1	BLACK PAIRED WITH RED
2	BLACK PAIRED WITH WHITE
3	BLACK PAIRED WITH GREEN
4	BLACK PAIRED WITH BLUE
5	BLACK PAIRED WITH YELLOW
6	BLACK PAIRED WITH BROWN
6 PR. #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS SHALL BE BELDEN #88778 OR MANHATTAN #M43106	

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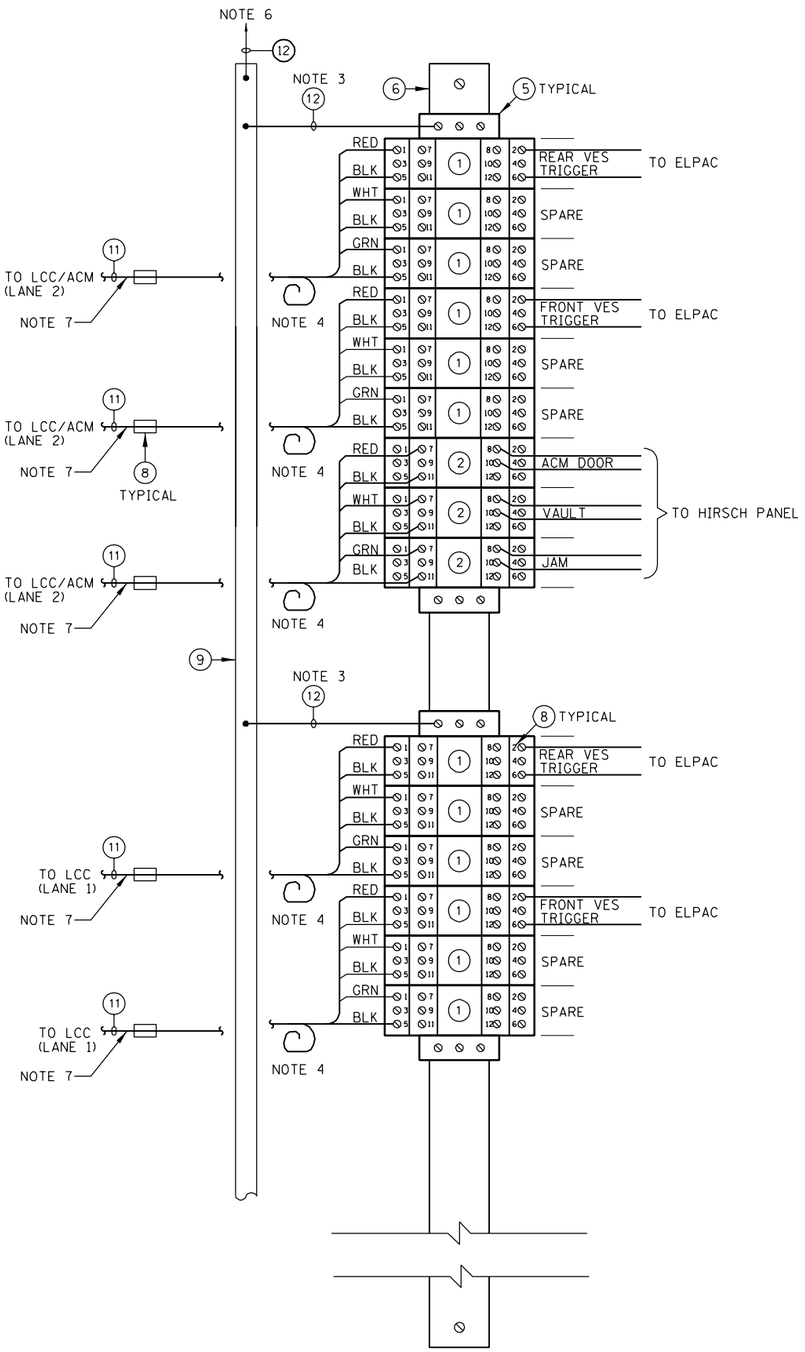
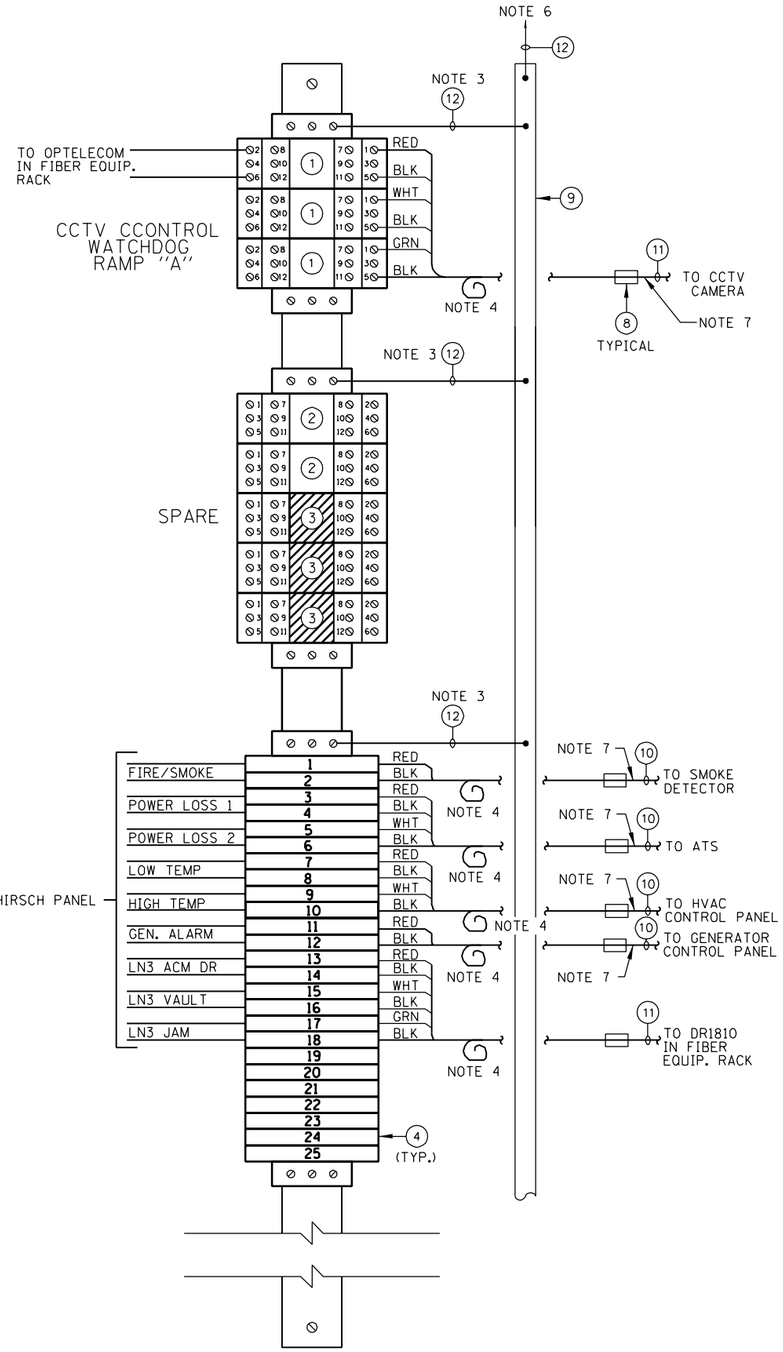
TSIC TERMINAL BLOCK LAYOUT

RPE29-00 (GUIDE DRAWING)





TERMINAL STRIP LAYOUT (1 / RPE30)
NOT TO SCALE (SEE NOTES 1 & 2)

NOTES:

1. TERMINAL BLOCKS ARE LOCATED ON THE TERMINAL STRIP INTERCONNECT CENTER (TSIC) LOCATED IN CONTROL BUILDING SEE DWG. RPE29. FOR A COMPLETE LAYOUT OF THE TSIC.
2. TERMINAL BLOCKS, TERMINAL BLOCK MARKER STRIPS, AND GROUND BUS BARS ARE SHOWN DIAGRAMMATICALLY. WIRING DUCT IS NOT SHOWN ON THIS DRAWING.
3. ROUTE #6 COPPER GROUND CABLE FROM GROUND TERMINAL BLOCK TO GROUND BUS BAR.
4. COIL SPARE PAIRS FOR FUTURE USE.
5. THE CONTRACTOR SHALL IDENTIFY EACH LANE CABLE ON AS-BUILT DRAWINGS.
6. ROUTE #6 COPPER GROUND CABLE FROM GROUND BUS BAR TO THE BUILDING'S MASTER GROUND BAR. SEE DWG. RPE8 FOR LOCATION OF MASTER GROUND BAR.
7. SHIELD GROUND WIRE TIED BACK IN 3" PIGTAIL AND TERMINATED TO TSIC GROUND BUS BAR WITH A BURNDY TYPE YAEV LUG. THE COMPONENT END OF THE SHIELD GROUND WIRE IS NOT TO BE TERMINATED.
8. EACH CABLE SHALL BE IDENTIFIED WITH A CABLE MARKER.
9. FOR DATA/COMMUNICATIONS CABLE COLOR CODE CHART, SEE DWG. RPE29.
10. EACH TERMINAL BLOCK WIRING TERMINAL SHALL BE IDENTIFIED WITH A TERMINAL MARKER. THE MARKERS SHALL BE NUMBERED AS DIRECTED BY THE AUTHORITY.

EQUIPMENT LEGEND

ITEM	QUANTITY	DESCRIPTION
(1)	15 EA.	TERMINAL BLOCK WITH DATA SIGNAL PROTECTION. PHOENIX CONTACT "PLUGTRAB PT" SERIES CATALOG NUMBER FOR PLUG PT5-HF-12DC-ST WITH BASE ELEMENT PT2x2-BE.
(2)	5 EA.	TERMINAL BLOCK WITH DISCRETE SIGNAL PROTECTION. PHOENIX CONTACT "PLUGTRAB PT" SERIES CATALOG NUMBER FOR PLUG PT2x1-5DC-ST WITH BASE ELEMENT PT2x1-BE.
(3)	3 EA.	TERMINAL BLOCK BASE. PHOENIX CONTACT "PLUGTRAB PT" SERIES CATALOG NUMBER FOR BASE ELEMENT PT2x1-BE.
(4)	25 EA.	UNIVERSAL TERMINAL BLOCK. PHOENIX CONTACT CATALOG NUMBER UK5N.
(5)	10 EA.	GROUND TERMINAL BLOCK. PHOENIX CONTACT CATALOG NUMBER UDK-4-MTK-P/P.
(6)	2 EA.	MOUNTING RAIL; COPPER UNPERFORATED, 35mm x 7.5mm x 900mm, PHOENIX CONTACT CATALOG NUMBER 0801762.
(7)	1 LOT	TERMINAL BLOCK MARKERS. PHOENIX CONTACT CATALOG NUMBER ZB 5.
(8)	1 LOT	CABLE MARKERS. BRADY TYPE PWC-PK-3.
(9)	2 EA.	EQUIPMENT GROUND BUS BAR. HOFFMAN CATALOG NUMBER X-GS6K.
(10)	1 LOT	3 PAIR #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS.
(11)	1 LOT	6 PAIR #22 CABLE WITH INDIVIDUALLY SHIELDED PAIRS.
(12)	1 LOT	1-1/C #6 GROUND CABLE. (NOTES 3 AND 6)

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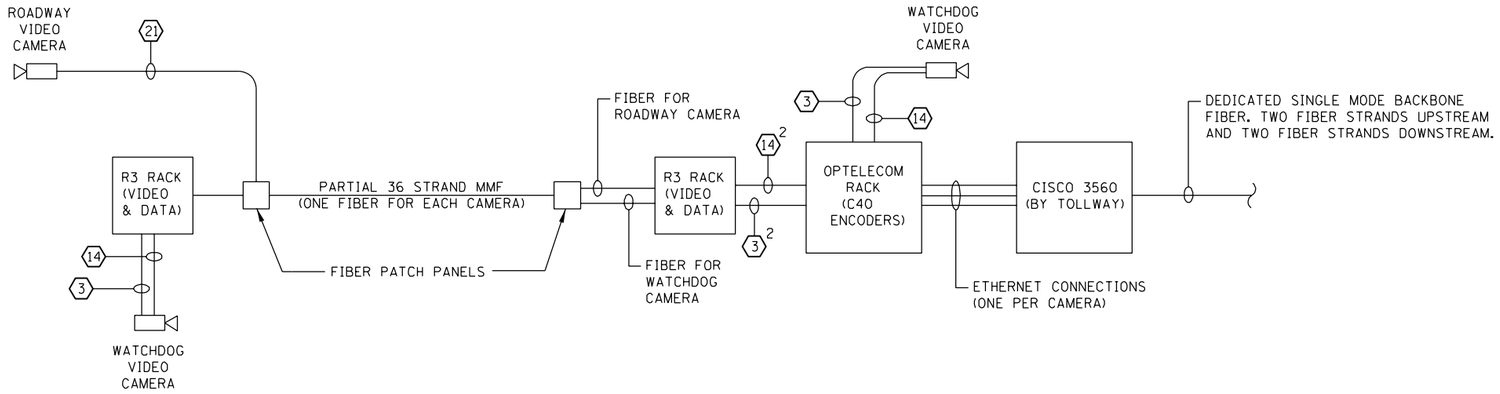
TSIC IN CONTROL BUILDING

RPE30-00 (GUIDE DRAWING)



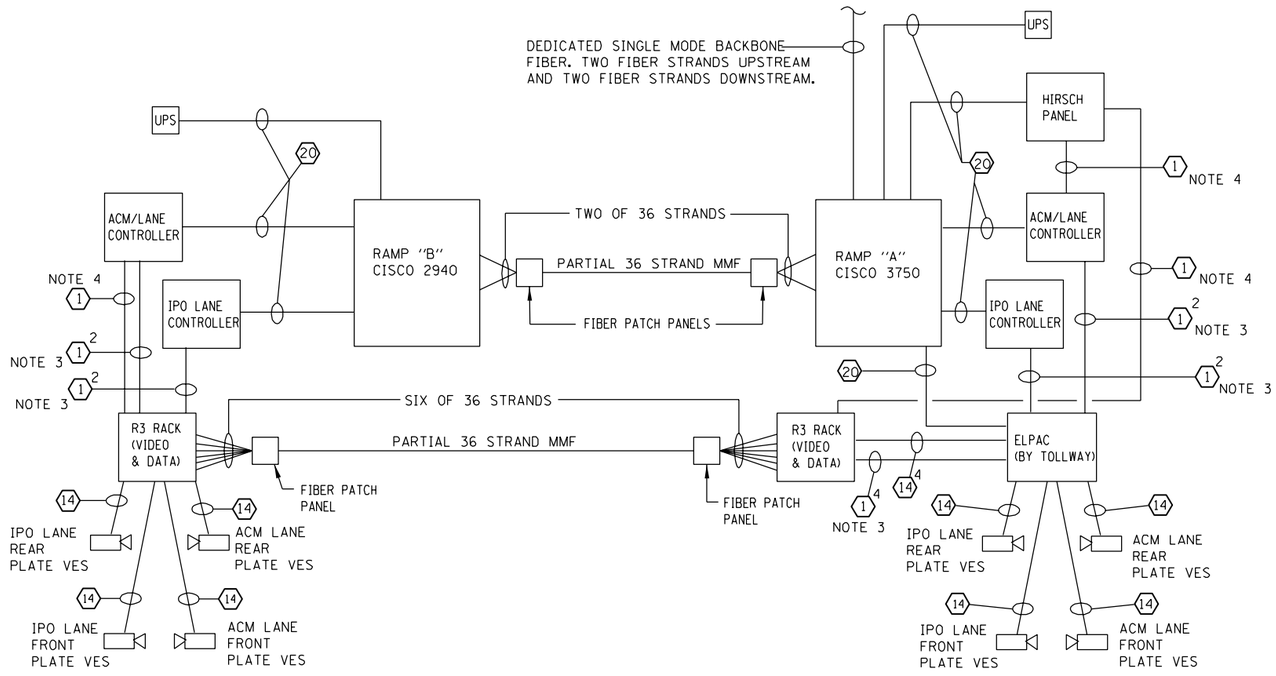
RAMP B

RAMP A

RAMP PLAZA CCTV (1 / RPE 31)

NOTES:

1. EQUIPMENT SHOWN ON THIS DRAWING MUST BE COORDINATED WITH THE TOLLWAY IT DEPARTMENT.
2. ALL CABLING AND CONNECTORS REQUIRED SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. EACH VES CAMERA HAS AN ASSOCIATED TRIGGER INTERFACE THAT (INITIATES FROM THE LANE CONTROLLER) TO THE ELPAC.
4. EACH ACM LANE CONTROLLER HAS ALARM CONTACTS THAT ARE WIRED TO THE HIRSCH PANEL.
5. ALL FIBER OPTIC PATCH CORDS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
6. ALL FIBER OPTIC SFP'S REQUIRED FOR TERMINATING FIBER OPTIC CABLES AT CISCO SWITCHES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
7. ALL CABLES FROM LANE ARE LANDED ON SURGE PROTECTING TERMINAL BLOCKS ON THE TSIC OR TERMINATED USING SURGE PROTECTOR'S IDENTIFIED ON RPE18.



MMF CONNECTIVITY BETWEEN RAMP "A" AND "B" (2 / RPE 31)

NOTE TO DSE

THIS GUIDE DRAWING SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. THE DRAWING MAY REQUIRE COMPLETION BY THE DSE PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES ARE AVAILABLE FROM THE TOLLWAY. THE DSE SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. THIS "NOTE TO DSE" SHALL BE REMOVED BY THE DSE PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

Illinois Tollway
Open Roads for a Faster Future

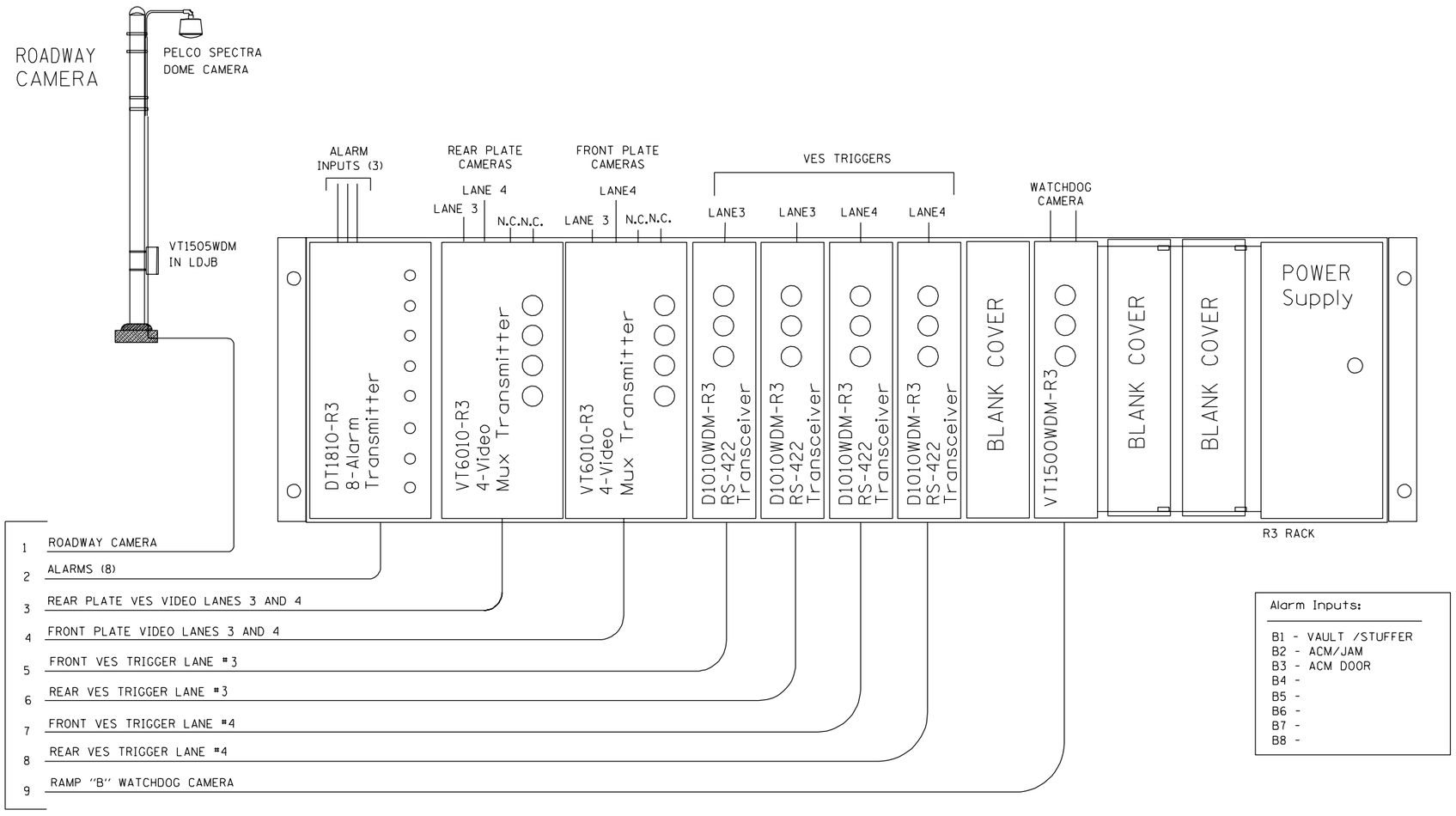
DATE	REVISIONS

FIBER INTERCONNECTIONS BETWEEN RAMP A AND RAMP B

RPE31-00 (GUIDE DRAWING)

NOTES:

1. 36 STRAND MULTI-MODE FIBEROPTIC CABLE BETWEEN RAMP A AND RAMP B.
2. ALL CABLES FROM LANE ARE LANDED ON SURGE PROTECTING TERMINAL BLOCKS ON THE TSIC OR TERMINATED USING SURGE PROTECTORS IDENTIFIED ON RPE18.



Alarm Inputs:

B1 - VAULT /STUFFER
B2 - ACM/JAM
B3 - ACM DOOR
B4 -
B5 -
B6 -
B7 -
B8 -

NOTE TO DSE

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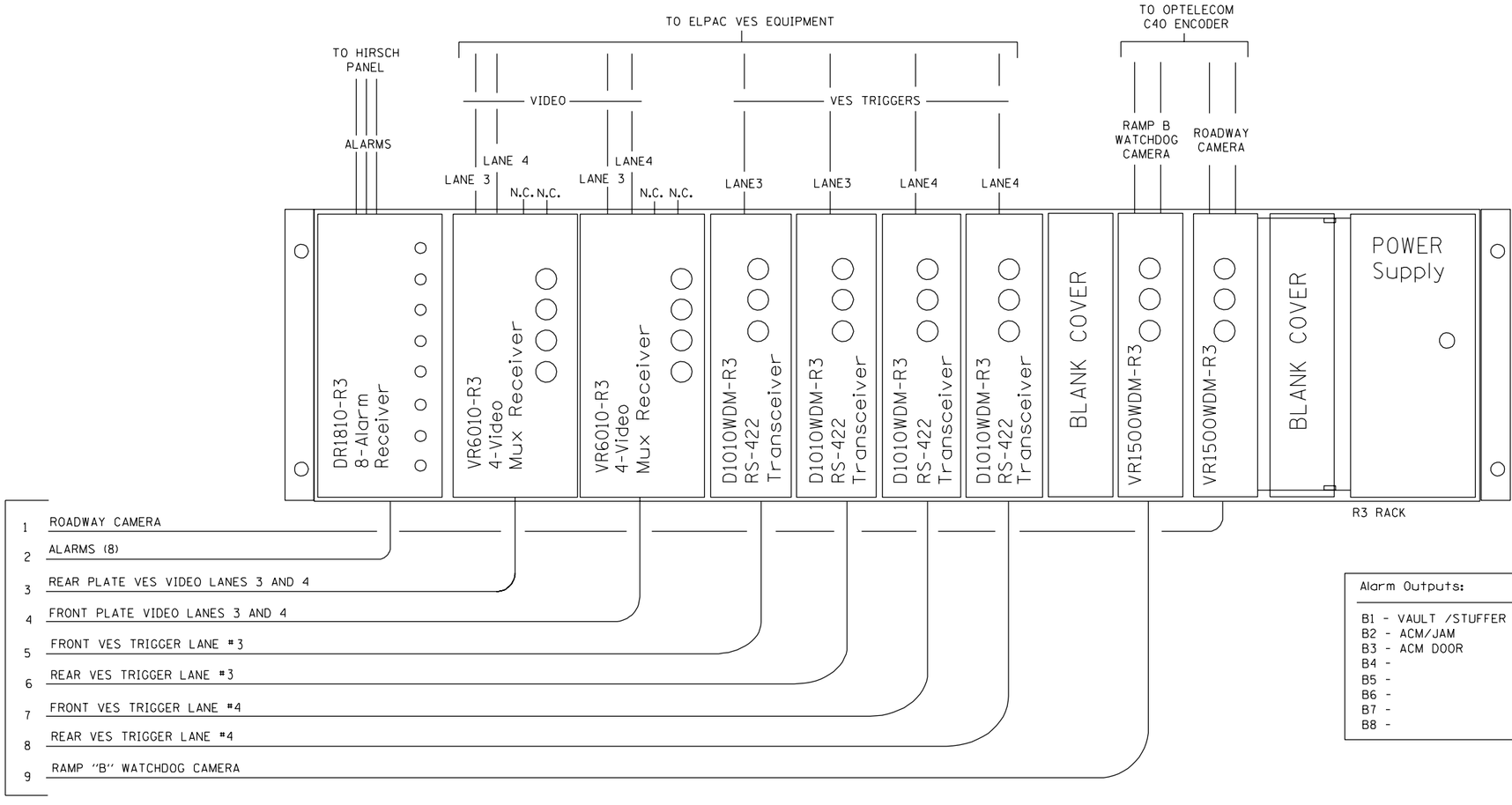
DATE	REVISIONS

REMOTE RAMP "B"
R3 RACK

RPE32-00 (GUIDE DRAWING)

NOTES:

1. 36 STRAND MULTI-MODE FIBER OPTIC CABLE BETWEEEN RAMP A AND RAMP B.
2. ALL CABLES FROM LANE ARE LANDED ON SURGE PROTECTING TERMINAL BLOCKS ON THE TSIC OR TERMINATED USING SURGE PROTECTORS IDENTIFIED ON RPE18.



Alarm Outputs:

B1 - VAULT /STUFFER
B2 - ACM/JAM
B3 - ACM DOOR
B4 -
B5 -
B6 -
B7 -
B8 -

NOTE TO DSE

THIS GUIDE DRAWING SHOWS TYPICAL CONSTRUCTION BUT IT IS NOT A STANDARD DRAWING. THE DRAWING MAY REQUIRE COMPLETION BY THE DSE PRIOR TO INSERTION INTO A CONTRACT. MICROSTATION FILES ARE AVAILABLE FROM THE TOLLWAY. THE DSE SHALL ACCEPT THE RESPONSIBILITY OF THE DESIGN OF THIS SHEET UPON ITS COMPLETION AND INSERTION INTO A CONTRACT. THIS "NOTE TO DSE" SHALL BE REMOVED BY THE DSE PRIOR TO INSERTION OF THE SHEET INTO THE PLAN SET.

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DATE	REVISIONS

RAMP "A"
R3 RACK
IN CONTROL BUILDING

RPE33-00 (GUIDE DRAWING)